PURCHASING DEPARTMENT
County of Hidalgo

2802 S. Bus. Hwy 281
Edinburg, Texas 78539
Phone: (956) 318-2626
Fax: (956) 318-2629
www.co.hidalgo.tx.us/purchasing

March 15, 2021

Bidder's name

Address

City

State, Zip Code

Re: **HIDALGO COUNTY**
Request for Bid – **RFB: 2021-331-03-31-HGO - "Avila-Harwell Campuses Safe Walk Community Project - Precinct No. 4"**

Dear Respondent:

Enclosed, please find the Request for Bid (RFB) packet. Carefully read and review all instructions, requirements, and specifications as modifications and new requirements have been added and implemented.

Hidalgo County Purchasing Department welcomes and appreciates your participation in the Request for Bid process.

If any further assistance is required, please do not hesitate to call the Purchasing Department at (956) 318-2626 Ext. 4877.

Sincerely,

Martha L. Salazar, CPPB
Hidalgo County Purchasing Agent

MLS/*hgo*
Enclosures

PURCHASING DEPARTMENT
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HIDALGO COUNTY
Request for Bid
"Avila–Harwell Campuses Safe Walk Community Project – Precinct No. 4"
RFB No: 2021-331-03-31-HGO

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This Table of Contents is intended as an aid to respondents, not as a comprehensive listing of the RFB packet. Respondents are responsible for reading the entire packet and complying with all specifications. The above-mentioned items shall be found in this Request for Bid (RFB) packet that is attached herewith. Should you find that any of the listed items are not attached in their entirety, please contact the Purchasing Dept. by calling (956) 318-2626, to advise us of the missing documentation, and Purchasing will forward information either through e-mail or by U.S. Mail.

Hidalgo County Purchasing Office
2812 S. Business Highway 281
New Administration Building
Edinburg, Texas 78539
(956) 318-2626/ Fax: (956) 292-7612

March 10, 2021

The Monitor
1400 East Nolana
McAllen, Texas 78504

Re: Hidalgo County – **"Avila–Harwell Campuses Safe Walk Community Project for Precinct 4"**
RFB Opening Date: March 31, 2021
RFB: 2021-331-03-31-HGO

Gentlemen:

Please publish twice the enclosed advertisement under the legal ad section of your newspaper. The first publication should run on **SATURDAY, March 13, 2021,** and the second on **SATURDAY, March 20, 2021**.

After these publications, please submit to this office a publisher's affidavit for our records. The billing statement should be mailed to:

Hidalgo County Precinct No. 4
1015 N. Doolittle
Edinburg, Texas 78542
PO# 827369

Thank you for your assistance in this matter.

Sincerely,

Martha L. Salazar, CPPB
Hidalgo County Purchasing Agent

MLS/*hgo*

REQUEST FOR BID

TO SUPPLY HIDALGO COUNTY with a BID for **"Avila–Harwell Campuses Safe Walk Community Project for Precinct 4".**

Bid Packet may be obtained by calling the Hidalgo County Purchasing Department at **(956) 318-2626** or by email to heidi.ortiz@co.hidalgo.tx.us.

Please be advised that due to the current COVID-19 pandemic, physical attendance at the Pre-Bid Conference and Bid Opening meeting is subject to parameters specified in any governmental Orders applicable at the time. For your convenience, the County has made virtual attendance available via online portal, and information regarding the same will be provided to all contractors having received a bid packet from Hidalgo County Purchasing Department prior to the respective event.

A BIDDER'S BOND from a reliable surety company licensed to operate in the State of Texas or Certified Cashier's Check, payable without recourse to the County of Hidalgo, for the amount of not less than **5%** of the total bid shall accompany the submittal as a guaranty that, if awarded the contract, the Vendor will enter into a contract with the County of Hidalgo. Payment and Performance Bonds shall be executed except in the event of a single payment contract with the County of Hidalgo in lieu of Performance Bond. In the event the total amount proposed is $25,000 or less, the successful vendor has the option to enter into a single payment contract with the County of Hidalgo in lieu of a Payment and Performance Bond.

PRE-BID CONFERENCE is scheduled for **Monday, March 22, 2021,** at **2:00 P.M.** at **HIDALGO COUNTY ADMINISTRATION BUILDING PURCHASING DEPARTMENT CONFERENCE ROOM, 2812 S Business Hwy 281, EDINBURG, TEXAS 78539.**

UPON SUBMITTING SEALED BID, bidders are required to properly identify (handwritten, typed, or printed) sealed envelope and/or packet as follows: Bidder's name and address on the upper left-hand corner of the sealed envelope and/or package and RFB No.: **2021-331-03-31-HGO "Avila–Harwell Campuses Safe Walk Community Project for Hidalgo County Precinct 4"** on the lower left-hand corner of sealed envelope and/or packet. **OVERNIGHT MAIL MUST ALSO BE PROPERLY LABELED ON THE OUTSIDE OF EXPRESS ENVELOPE OR PACKAGE.**

The sealed bid must contain one (1) original (pages **one-sided** marked original), and two (2) CD/USB's in PDF format and addressed for delivery to:

Martha L. Salazar, CPPB, Hidalgo County Purchasing Agent
Hidalgo County Purchasing Department

US Postal Mail/Courier Address
Hidalgo County Administration Building
2812 S. Business Hwy281
Edinburg, Texas78539

Physical Location:
Hidalgo County Administration Building
2802 S. Business Hwy. 281
(Southeast of Canton Rd& Business 281)
Edinburg, Texas78539

Sealed bids will be accepted until **9:30 a.m. on Wednesday, March 31, 2021,** at which time they will be opened in the Hidalgo County Purchasing Department Conference Room at **Physical Location: 2802 S. Business Hwy 281, Hidalgo County Administration Building, Edinburg, Texas 78539.** NO FACSIMILES OR LATE ARRIVALS WILL BE ACCEPTED. ANY BID RECEIVED AFTER THAT TIME WILL NOT BE OPENED AND WILL BE RETURNED.

Not less than, the federally determined prevailing **(Davis-Bacon and Related Acts)** wage rate, as issued 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, age, disability, or national origin (if applicable).

BIDS MAY BE HELD by the County of Hidalgo for a period not to exceed ninety (*90*) days from the date of the opening for the purpose of reviewing and investigating the qualifications of bidders, prior to award of the contract.

THE COUNTY reserves the right to refuse and reject any/all bids and to waive any/all formalities or technicalities, or to accept the bid considered the best and most advantageous to the County.

Typewritten RFI's shall be e-mailed to heidi.ortiz@co.hidalgo.tx.us. RFI's **will not be answered by phone.** NO HANDWRITTEN RFI will be processed/answered. All inquiries shall be forwarded by **5:00 p.m. Tuesday, March 23, 2021.** Responses to said inquiries will be sent to all applicants via email by no later than **Thursday, March 25, 2021.** Inquiries beyond this date will not be responded to.

BY ORDER OF THE COMMISSIONERS COURT OF HIDALGO COUNTY, TEXAS on this the 9th day of **March 2021.**

MARTHA L. SALAZAR, CPPB
HIDALGO COUNTY PURCHASING AGENT

REPORT ROAD HAZARDS @ 1-866-HCR-SAFE OR 1-866-427-7233

REQUEST FOR BID (RFB)

HIDALGO COUNTY

(Including all funding sources, programs, and entities)

"Avila–Harwell Campuses Safe Walk Community Project for Precinct No. 4"

RFB No: 2021-331-03-31-HGO

Acceptance Due Date: **March 31, 2021**

Martha L. Salazar, CPPB, Purchasing Agent
Hidalgo County Purchasing Department

Contract Specialist Contact Information:

Heidi Garcia Ortiz, Contract Specialist, III
956-318-2626 Ext. 4877
Heidi.ortiz@co.hidalgo.tx.us

Please be advised that due to the current COVID-19 pandemic, physical attendance at the Pre-Bid Conference and the bid-opening meeting is subject to parameters specified in any governmental Orders applicable at the time. For your convenience, the County has made virtual attendance available via an online portal, and information regarding the same will be provided to all contractors having received a bid packet from Hidalgo County prior to the respective event.

1. Hidalgo County ("County") is seeking bids from qualified companies for the Avila–Harwell Campuses Safe Walk Community Project for Precinct 4. Respondent (may also be referred to as contractor or vendor) may suggest substitutions of features which they feel would be in the best interest of Hidalgo County ("County"), however, a strong rationale must be presented for any deviation from the requirements. Hidalgo County reserves the right to reject the deviation and its effect on the overall bid.

2. **One (*1*) original** (pages ***one-sided*** –marked ***ORIGINAL*), and two (*2*) CD/USB in PDF format** are required with the respondent's name and address clearly typed/printed in the upper left-hand corner of the envelope/package and the proper notation clearly typed/printed in the lower left-hand corner of the envelope and/or package, RFB No.: 2021-331-03-31-HGO **Avila–Harwell Campuses Safe Walk Community Project for Precinct No. 4** (Including all funding sources, programs, and entities*)* and in County's Purchasing Department, Physical Location: 2802 S. Business Hwy. 281 Postal/ Mailing: 2812 S. Business Hwy. 281 Administration Building, Edinburg, Texas, **ON OR BEFORE 9:30 A.M., Wednesday, March 31, 2021.**

NO FACSIMILES OR LATE ARRIVALS WILL BE ACCEPTED. ANY BID RECEIVED AFTER THAT TIME WILL NOT BE OPENED AND WILL BE RETURNED. OVERNIGHT MAIL MUST ALSO BE PROPERLY LABELED ON THE OUTSIDE OF EXPRESS ENVELOPE AND/OR PACKAGE IN REFERENCE TO RFB.

Hidalgo County reserves the right to refuse and reject any/all bids and to waive any/all formalities or technicalities, or to accept the bid considered the best and most advantageous to Hidalgo County.

Additionally, all forms listed below must be properly executed and included with your RFB:

1. Legal Notice Acknowledgement (See **page *12***);
2. Bid Page (Exhibit "**B**");
3. Insurance pages with Acknowledgment Forms (See **Exhibit "*C*"**);
4. Form CIQ-Conflict of Interest Questionnaire (See **Exhibit "*D*"**);
5. Vendor Bidder Application, W-9, & HUB/DBE (See **Exhibit "*E*"**);
6. Certification Regarding Debarment (See **Exhibit "*F*"**);
7. (*If applicable*) - Required Contract Clauses for Contracts Under Federal Award – 2 CFR 200, Appendix II & FEMA (See **Exhibit "*H*"**);
8. Proposer's Affidavit (See **Exhibit "*J*"**);
9. SAM.gov Registration Acknowledgement (See **Number *16*** below);
10. Deviation Form (See **Exhibit "K"**);
11. Wage Rate (See **Exhibit "L"**);
12. Bid Bond (See **Exhibit "M"**); and
13. Construction Sign (See **Exhibit "N"**)

3. Hidalgo County reserves the right to separate and accept or eliminate any item(s) listed under this RFB that it deems necessary to accommodate budgetary and/or operational requirements. Hidalgo County also reserves the right to reject any or all bids submitted. Receipt of a bid shall under no

circumstances obligate County to accept the Respondent's submission.

4. Respondent's failure to qualify or maintain qualifications throughout the term of this agreement shall release Hidalgo County from all obligations to the Respondent with regard to the services. In such an event, County may elect to engage another qualified vendor or reject all vendors and re-advertise.

5. Respondent is responsible for obtaining any information needed in order to respond to the RFB.

6. Respondent should provide any/all relevant information necessary to establish bid qualifications.

7. Bid submittal is to remain firm for a minimum of ninety (*90*) days after the RFB opening.

8. County reserves the right to accept or reject any/all bids.

9. Any interpretations, amendments, corrections, or changes to this RFB document must be in a written addendum and signed by the County Judge or his designee. Addenda will be emailed to all who are known to have requested and received a copy of the Request for Bid from the Hidalgo County Purchasing Department. Respondents shall acknowledge receipt of all addenda as a part of their submittal.

10. Respondent is responsible for all costs of submitting its response to the RFB.

11. The county is exempt from Federal Excise Tax, State-Tax, and Local Tax. Please note vendors are not to include tax in any cost figures of any supplemental project-specific contracts. If it is determined that tax was included in the cost figure it will not be included in the tabulation of any awards. Tax exemption certificates will be furnished upon request.

12. Funds for this procurement have been provided through the County budget for this fiscal year only. County, on an annual basis, has the right to reconsider a contract during the budget process for ensuing years if the financial resources of the County are insufficient to meet the liabilities of said contract. The award of a bid or contract hereunder will not be construed to create a debt of the County which is payable out of funds beyond the current fiscal year.

13. **POST-AWARD DELIVERY INSTRUCTIONS (if applicable):**

- No deliveries accepted after 3:00 P.M., Monday-Friday (if applicable).
- Costs are to be net F.O.B., County Prepaid.
- At least seventy-two (*72*) hours prior notice of delivery must (if applicable) be given to Martha L. Salazar, CPPB, Hidalgo County Purchasing Agent before delivery will be accepted.
- If you need additional information call the office listed below:

Hidalgo County Purchasing Department
Martha L. Salazar, CPPB, Purchasing Agent
(956) 318-2626

14. **POST-AWARD PROJECT-SPECIFIC BILLING AND PAYMENT INSTRUCTIONS:**

- Invoices for project award must include:
  a) Name and address of successful respondent;
  b) Name and address of receiving department or official;
  c) Purchase Order Number and Contract number (if any) for the project award;
  d) Notation –

- **"Hidalgo County** (Including all funding sources, programs, and entities) **RFB No: 2021-331-03-31-HGO "Avila–Harwell Campuses Safe Walk Community Project for Precinct 4"**, *and*

e) Descriptive information as to the items or services delivered, including product code, item number, quantity, etc.

- Discount payments will be considered when offered (if applicable).
- Contact person for Billing and Payment questions:

HIDALGO COUNTY PRECINCT No. 4
Postal/Mailing 1051 N. Doolittle Rd
Edinburg, Texas 78542
956-383-3112

15. HIDALGO COUNTY HOLIDAYS:

2021 YEAR	
New Year's Day	**01/01/2021**
Martin Luther King Day	**01/18/2021**
President's Day	**02/15/2021**
Good Friday	**04/02/2021**
Memorial Day	**05/31/2021**
Independence Day	**07/05/2021**
Labor Day	**09/06/2021**
Columbus Day	**10/11/2021**
Veteran's Day	**11/11/2021**
Thanksgiving Day	**11/25/2021 & 11/26/2021**
Christmas Day	**12/23/2021 & 12/24/2021**
New Year's Eve	**12/31/2021**

16. BID, PAYMENT, OR PERFORMANCE BOND AND DEBARMENT CERTIFICATION; PAYMENT UNDER CONTRACT:

The County may, and if mandated by statute, shall require a bid bond, a performance bond, and/or a payment bond. Any such bond must be executed with a surety company authorized to do business in Texas and shall meet any other requirements established by law or by County pursuant to applicable law.

- If the contract proposed is for the construction of public works or is for a contract for goods & services exceeding $100,000, all respondents shall furnish a good and sufficient bid bond in the amount of five (5%) percent of the total contract price.
- In the event the contract exceeds Fifty Thousand Dollars ($50,000.00), the respondent shall furnish a payment bond and a performance bond to the County for the full amount of the contract within thirty (30) days after the date of signing of the contract or issuance of a Purchase Order following the acceptance of a bid, but in any event prior to the commencement of actual work.

- If the contract is for $50,000 or less, no money will be paid to the contractor until completion and acceptance of the work or the fulfillment of the purchase obligation to the County, and, if applicable, the receipt by County of satisfactory evidence that all subcontractors and material men have been paid.

- If a contract is for the construction, alteration, or repair of public buildings or public works, the contractor *shall* provide a performance bond for a contract in excess of One Hundred Thousand Dollars ($100,000.00) and *shall* provide a payment bond for a contract in excess of Twenty-Five Thousand Dollars ($25,000.00) as required by Tex. Govt. Code Ch. 2253.

- For requirements contracts, bond requirements are determined by applying the proposed unit price to the estimated quantities included in the specifications.

- All participants are also required to furnish a certification or acknowledgment stating that the contractor or vendor is free from suspension or debarment pursuant to federal regulation 45 CFR Part 76. Register at SAM.gov - System for Award Management

17. TITLE VI NOTICE/ NONDISCRIMINATION:

a) By submitting a bid, the respondent certifies that it will comply with the following nondiscrimination statutes and their implementing regulations. Title VI of the Civil Rights Act of 1964, as amended (78 Stat.252, 42 U.S.C. §§2000d to 2000d-4) provides that no person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which the Recipient receives Federal financial assistance. Title VI has been broadened by related statutes, regulations, and executive orders as found in Appendices "A" through "E" as delineated in the USDOT Standard Title VI/Non-Discrimination Assurances-Specific Assurances to prohibit discrimination on other grounds including, but not limited to, religion, sex, age, and disability. (Title VI-Appendices "A" through "E" are hereby attached as **Exhibit "G"**. The County's entire Title VI policy may be found at https://www.hidalgocounty.us/2071/Title-VINondiscrimination-Plan and is hereby incorporated by reference.

b) The following required statement and the applicable provisions of the Title VI Appendices "A" through "E" expanding these protections to the categories described herein are hereby incorporated by reference as applicable.

- "The County of Hidalgo, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat.252, 42 U.S.C. §§2000d to 2000d-4) and the Regulations, hereby notifies all respondents that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award".

c) The respondent will attach all applicable notices, including those referenced in Title VI – Appendices "A" through "E", to which it is obligated to provide or submit as part of the RFB.

- If applicable, Form FHWA 1273 – "*Required Contract Provisions Federal-Aid Construction Contracts*", must be physically attached to certain Federal-aid construction contracts. A contractor (or subcontractor) is required to insert Form FHWA 1273 in each subcontract and all lower-tier subcontracts. Form FHWA 1273 is attached as **Exhibit "I"**, and, if applicable, its provisions are incorporated in and made part of the contract entered into between the County and the successful respondent related to the present procurement.

18. ETHICAL STANDARDS:

- It shall be a breach of ethics to offer, give or agree to give any elected official, department head or employee, or former elected official, department head or employee, of the County, or for any elected official, department head or employee or former elected official, department head or employee of the County, to solicit, demand, accept or agree to accept from another person, entity or organization, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, preparation or any part of a program requirement or purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing, or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or controversy, or other particular matter pertaining to any program requirement or a contract or subcontract, or to any solicitation or bid, therefore, pending before any department or agency of the County.

- It shall be a breach of ethics for any payment, gratuity, or offer of employment to be made by or on behalf of a subcontractor under a contract to the prime contractor or higher tier subcontractor for any contract for the County, or any person associated therewith, as an inducement for the award of a subcontract or order.

- Contracts awarded hereunder shall be in compliance with Tex. Loc. Govt. Code Chapter 171: Regulation of Conflicts of Interest of Officers of Municipalities, Counties, and Certain Other Local Governments.

- **NOTICE:**

  All communications by a vendor to the county, its officials, and department heads regarding this procurement shall be done through the Hidalgo County Purchasing Department.

  No vendor, its' representative, agent, or employee shall engage in private communication with a member of the Hidalgo County Commissioners Court or county department heads regarding any procurement of goods or services by the County from the date that the RFB, RFP, RFCSP, or RFQ is released. No private communication regarding the purchase shall be permitted until the procurement process is complete and a purchase order is granted or a contract is entered into. "Private Communication" means communication with any vendor outside of a posted meeting of the governing body, a regular meeting of a standing or appointed committee, or negotiation with a vendor which has been specifically authorized by the governing body.

19. DISCLOSURE OF CONFLICT OF INTEREST:

Effective January 1, 2016, Chapter 176 of the Texas Local Government Code requires that any vendor, person, consultant, or contractor considering doing business with Hidalgo County ("the County") to disclose in the Conflict of Interest Questionnaire (the "CIQ") attached as **Exhibit "*D*",** the vendor, person, consultant or contractor's affiliation or business relationship that might cause a conflict of interest with the County. By law, the CIQ must be filed with the Hidalgo County Clerk's Office no later than the seventh business day after the date the person becomes aware of facts that require the statement to be filed. The disclosure requirement applies to a person or business that contracts or seeks to contract with Hidalgo County for the sale or purchase of property, goods, or service. Any purchase order or contract resulting from this process shall be considered null and void if the successful respondent fails to comply with the Texas Local Government Code Chapter 176. Vendors, consultants, contractors, and others who desire to conduct business with Hidalgo County are encouraged to refer to Texas Local Government Code Chapter 176 for details of this law. An offense under Texas Local Government Code Chapter 176 is a Class C Misdemeanor.

If applicable, completed Form CIQ must be submitted to the Hidalgo County Clerk's Office located at 100 N. Closner, Edinburg, Texas 78539 - Hidalgo County Courthouse.

COMPLETION AND SUBMISSION OF FORM CIQ IS THE SOLE RESPONSIBILITY OF THE PROSPECTIVE RESPONDENT. QUESTIONS REGARDING COMPLIANCE SHOULD BE DIRECTED TO YOUR LEGAL COUNSEL.

20. CERTIFICATE OF INTERESTED PARTIES (FORM HB1295):

As of January 1, 2016, to comply with Texas Government Code Section §2252.908, and the rules issued by the Texas Ethics Commission found in Title 1, Section 46.1, 46.3, and 46.5 of the Texas Administrative Code, we have updated and revised our RFB packet. In accordance with these requirements, a business must submit a completed Certificate of Interested Parties Form 1295 to the County before the County may enter into a contract with the business entity. In box 3 of Form 1295, you will provide the **RFB No. 2021-331-HGO,** as shown on the packet. Once completed and filed with the Texas Ethics Commission, Form 1295 must be printed, signed, and submitted to our office either by facsimile transmission to (956) 292-7612 or via email to **heidi.ortiz@co.hidalgo.tx.us.** Hidalgo County cannot enter into a contract until Form 1295 is submitted. Therefore, failure to timely submit the signed Form 1295 may result in a delay of the award. Full instructions for completion and submittal of Form 1295 may be found on the Texas Ethics Commission website:

https://www.ethics.state.tx.us/tec/1295-Info.htm

THE AWARDED VENDOR WILL HAVE THIRTY (*30*) DAYS **FROM THE DATE THE HIDALGO COUNTY COMMISSIONERS' COURT APPROVES THIS AGREEMENT** TO SUBMIT THE SIGNED FORM 1295. *HIDALGO COUNTY CANNOT ENTER INTO A CONTRACT UNTIL FORM 1295 IS SUBMITTED.*

21. If during the life of any contract, or bid awarded, the successful respondents' net prices generally available to other customers for items awarded herein are reduced below the contracted price, it is understood and agreed that the benefits of such reduction shall be extended to County.

22. Bids submitted for professional service shall comply with any/all requirements in accordance with applicable federal, state, and local laws concerning the same. Bid to any supplemental project-specific agreement and all goods and services provided thereunder shall comply with all federal, state, and local laws concerning this type(s) of goods and/or services.

23. Minimum Standards for Responsible Prospective Respondents: A prospective respondent must affirmatively demonstrate the respondent's responsibility. A prospective respondent, by submitting an RFB, represents to County that it meets the following requirements:

- Possess or is able to obtain adequate financial resources as required to perform the comprehensive professional services contemplated by this RFB;
- Be able to comply with the required or proposed delivery schedule;
- Have a satisfactory record of performance;
- Have a satisfactory record of integrity and ethics; and
- Be otherwise qualified and eligible to receive an award.

24. Successful respondent will pay or cause to be paid, without cost or expenses to County, all FICA, FUTA/SUTA and Federal Income Withholding Taxes of all employees, and all wages and benefits as required by Federal or State law. Successful respondents, officers, agents, and/or employees will not be entitled to any benefits of an employee or elected official of County, including, but not limited to, benefits associated with County's civil service system.

25. The contract will be in effect until (*a*) the term expires, or (*b*) participation is terminated by County with thirty (*30*) days written notice prior to cancellation with or without cause.

26. Any supplemental project-specific contract award to a successful respondent will be in effect until (*a*) the contract expires, (*b*) delivery and acceptance of products, and/or performance of services ordered, or (*c*) terminated by County with thirty (*30*) days written notice prior to cancellation with or without cause.

27. County reserves the right to enforce the performance of the contract in any manner prescribed by law or deemed to be in the best interest of the County. County reserves the right to terminate the contract immediately in the event of breach or default by a successful respondent, including, but not limited to failure to maintain bid qualifications or otherwise failing to perform in accordance with the requirements of this RFB.

28. County reserves the right to enforce the performance of any supplemental contract awarded hereunder in any manner prescribed by law or deemed to be in the best interest of the County. County reserves the right to terminate the contract immediately in the event of breach or default by a successful respondent, or in the event, a successful respondent fails to:

A. Meet schedules;
B. Pay any required fees or taxes; or
C. Otherwise, perform in accordance with the requirements.

29. **INDEMNIFICATION: Successful respondent shall defend, indemnify and save harmless County and all its elected officials, officers, agents, and employees from all suits, actions, or other claims of any character, name, and description brought for or on account of any injuries or damages received or sustained by any person, persons, or property on account of any negligent act or fault of the successful respondent, or of any agent, employee, subcontractor or supplier in the execution of, or performance under, any contract which may result from bid award or which arises from any event or casualty happening on or within County premises themselves or happening upon or in any halls, elevators, entrances, stairways or approaches of or to such County facilities. Successful respondent shall pay any judgment with costs which may be obtained against county growing out of such injury or damages, and shall, upon request, provide a defense to County by counsel reasonably acceptable to County. Successful respondent's indemnity hereunder shall include but is not limited to, claims relating to patent, copyright, or trademark infringement and the like, arising out of the goods and services provided by successful respondent.**

30. The successful respondent shall warrant that all items/services shall conform to the specifications and/or all warranties provided under the Uniform Commercial Code and be free from all defects in material, workmanship, and the like. Items supplied under a contract pursuant to this Request for Bid shall be subject to County approval. Items found to be defective or not meeting specifications shall be replaced by the successful respondent within two (*2*) business days at no expense to County. Items that are not picked up within one (*1*) week after notification shall be

deemed a donation to County and may be used or disposed of at County's discretion and without waiver of any other rights of County as to the items' nonconformity.

31. This document and any disputes arising hereunder shall be governed and construed according to the laws of the State of Texas and will be performable exclusively in Hidalgo County, Texas.

32. The successful respondent shall not assign, sell, transfer or convey its rights under any awarded contract, in whole or in part, without the prior written consent of the County.

33. Respondents shall provide with the bid response, a list of at least three (*3*) references where like services have been supplied by their firm. Include the name of the business or government, address, telephone number, and the name of the representative or contact person.

34. **CONTRACTS SUBJECT TO FEDERAL AWARD**:

- The procurement standards of 2 CFR, Part 200, including, but not limited to 2 CFR 200.317-200.326, and applicable Hidalgo County Purchasing Policy (found at https://www.hidalgocounty.us/805/County-Administrative-Policies) address the County's requirements, as a non-Federal entity, in regards to contracts it enters into that are subject to federal award. Pursuant to 2 CFR 200.236, the County, as a non-Federal entity, is required to include into contracts subject to federal award, the applicable provisions and contract clauses described in Appendix II to 2 CFR 200, (Contract Provisions for non-Federal Entity Contracts Under Federal Awards). As such, **if applicable**, the provisions of the Hidalgo County Purchasing Policy, the procurement standards found in 2 CFR, Part 200, and the provisions of Appendix II to 2 CFR 200, and the required contract clauses found in **Exhibit "*H*"** are incorporated by reference, whether specified explicitly or not, as part of this procurement packet and any resulting agreement.

- In addition, should the County's contracts under Federal award be subject to assistance from the Federal Emergency Management Agency (FEMA), FEMA requires the inclusion of contract terms in addition to those under Appendix II to 2 CFR 200. **If applicable**, the additional contract clauses required by FEMA are found in **Exhibit "*H*"** and incorporated by reference, whether specified explicitly or not, as part of this procurement packet and any resulting agreement. Should the contract be subject to assistance from FEMA, it is the County's intention to comply with FEMA requirements; therefore, any conflict in terms should be resolved as such.

- **If applicable**, in accordance with 2 CFR 200.319, Contractors that develop or draft specifications, requirements, statements of work, or invitations for bids or requests for bids must be excluded from competing for such procurements. (*See* 2 CFR 200.219). Additionally, Hidalgo County policy provides that for federal road projects, engineers, engineering firms, and/or a subsidiary, affiliate, or a consultant of the engineer or engineering firm who has received compensation from the County, that assist in the development of, or draft specifications, requirements, statements of work, or invitations for bids or requests for proposals, will be excluded from competing for such procurements (i.e....subsequent construction engineering/management and/or inspection/testing) for all other phases of the project. (*See* Hidalgo County Policy) "*Procedures for Selection and Contracting of Professional Service Providers for Federal Road Projects*" found at https://www.hidalgocounty.us/805/County-Administrative-Policies, which, if applicable, is incorporated by reference, whether specified explicitly or not, as part of this procurement packet and any resulting agreement for all purposes.

35. HISTORICALLY UNDERUTILIZED BUSINESS/DISADVANTAGED BUSINESS ENTERPRISES:

The County is committed to ensuring that Historically Underutilized Businesses (HUB) and Disadvantaged Business Enterprises (DBE) such as small business enterprises (SBE), minority and women-owned business enterprises (MWBE) receive a fair and equal opportunity for participation in the County's procurement process. The County encourages the use of these enterprises both as prime and subcontractors. (*See* **Exhibit "*E*"** for requirements).

When federal funds are expended by the County, the County will take affirmative steps set forth in 2 CFR 200.321 to assure that small, minority, women-owned businesses and labor surplus area-owned firms are used when possible. Pursuant to 2 CFR 321, the County requires that a prime contractor who uses sub-contractors take affirmative steps set forth in 2 CFR 200.321, including:

a) Placing qualified small and minority businesses and women's business enterprises on solicitation lists;
b) Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;
c) Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises;
d) Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's business enterprises; and
e) Using the services and assistance, as appropriate, of such organizations as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce.

Nothing in this section is to be construed to require the County to award a contract other than as required by law and Hidalgo County policies and procedures.

36. BOYCOTT ISRAEL VERIFICATION: In accordance with the Texas Government Code Chapter 2270, the County may not enter into a contract for goods or services with a vendor unless the contract contains a written verification from the vendor that it does not boycott Israel and will not boycott Israel during the term of the contract. *Pursuant to Sections 2270.001, 2270.002, 808.001, Texas Government Code:*

1. *"Boycott Israel" means refusing to deal with, terminating business activities with, or otherwise taking any action that is intended to penalize, inflict economic harm on, or limit commercial relations specifically with Israel, or with a person or entity doing business in Israel or an Israeli-controlled territory, but does not include an action made for ordinary business purposes; and*
2. *"Company" has the meaning assigned by Section 808.001, except that the term does not include a sole proprietorship.*
3. *Section only applies to a contract that is between a governmental entity and a company with 10 or more full-time employees; and has a value of $100,000 or more that is to be paid wholly or partly from public funds of the governmental entity.*

By signing the acknowledgment form to this legal notice, the Vendor understands that it is providing written verification and certification as indicated above. Any Vendor claiming an exception or otherwise unable to make this certification shall submit an explanation on separate sheet(s). Failure to comply, or providing false information may result in rejection of the Vendor's submission. **Vendor shall indemnify and hold harmless the County, its elected officials, employees, and agents for relying on this verification.**

37. **TEX. GOVT. CODE CH. 2252 - ATTESTATION-TERRORIST ORGANIZATIONS**: By submitting a response to this procurement request and/or accepting this Contract, Company attests that it is not identified on a list of companies known to have contracts with or provide supplies or services to a foreign terrorist organization as designated by the U.S. Secretary of State. County will search a database maintained by the Texas State Comptroller. A contract may not be entered into with an entity that is identified therein. Search results shall be incorporated for all purposes as part of any resulting agreement entered into by the parties.

38. Respondents must provide all applicable documentation requested with this RFB in their response. Failure to provide this information may result in the rejection of the bid as non-conforming.

REQUEST FOR BID LEGAL NOTICE
For
"Avila–Harwell Campuses Safe Walk Community Project for Precinct No. 4"
RFB No.: 2021-331-03-31-HGO

To: Martha L. Salazar, CPPB, Purchasing Agent
Hidalgo County Purchasing Department
Physical Address: 2802 S. Business Hwy. 281 Administration Building
Mailing/Postal Address: 2812 S. Business Hwy. 281
Edinburg, Texas 78539

Respondent acknowledges that it has examined this Request for Bid and specifications and is familiar with the conditions to be met. In accordance with the Specifications, and subject to all laws and regulations of the United States and state and local laws, the undersigned respondent proposes and commits to furnish all labor, equipment, material, software, and services as set forth in the documents hereinbefore mentioned. The undersigned respondent further agrees, upon acceptance of its bid to execute supplemental contracts/documents with the County as needed.

Respondent acknowledges receipt of all of the pages of the documents referenced in the Request for Bid Checklist presented in connection with this procurement. Respondent understands that Hidalgo County reserves the right to reject any/all RFB's and further reserves the right to design the evaluation criteria to be used in selecting the lowest and best bid.

Respondent acknowledges that by signature below, it is providing the required certifications, attestations, verifications, and/or acknowledgments as referenced within this Request for Bid. Respondent acknowledges that any/all specifications, provisions, and attachments of this Request for Bid are incorporated into and made a part of any resulting agreement.

Respondent agrees that this RFB shall be good and may not be withdrawn for a period of ninety (90) calendar days after the scheduled closing time for receiving bids, as contained in the specifications. An individual authorized to bind the company must sign the following section. Failure to execute this section may result in bid rejection.

Respectfully submitted,
Firm: _____

Address: _____

By: _____

Printed Name: _____

Title: _____

BIDDER INFORMATION
Attachment A-1

1. **Receipt and Opening of Bids**
   Hidalgo County Precinct No. 4 (herein called the "Owner"), invites bids on the form attached hereto as Exhibit "B", all blanks of which must be appropriately filled in. Bids will be received by the Owner at the Hidalgo County Purchasing Department until Wednesday, **March 31, 2021, at 9.30 a.m.** and then at said office publicly opened and read aloud. The envelope containing the bid must be sealed, addressed to Martha L. Salazar, Hidalgo County Purchasing Agent at 2812 S Business 281, Edinburg, Texas 78539, and designated as Bid for Avila-Harwell Campuses Safe Walk Community Project for Hidalgo County Precinct No. 4.

   The owner may consider informal any bid not prepared and submitted in accordance with provisions hereof and may waive any informalities or reject any/all bids. Bid may be withdrawn prior to the above-scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified shall not be considered. No bidder may withdraw a bid within *90* days after the actual date of the opening thereof.

2. **Preparation of Bid**
   Each bid must be submitted on the prescribed forms and Certification by Bidder (contractor), concerning Labor Standards and Prevailing Wage Requirements. All blank spaces for bid prices must be filled in, in ink or typewritten, in both words and figures, and the foregoing Certificates must be fully completed and executed when submitted.

   Each bid must be submitted in a sealed envelope bearing on the outside the name of the bidder, his address, and the name of the project for which the bid is submitted. If forwarded by mail, the sealed envelope containing the bid must be enclosed in another envelope addressed as specified in the bid form.

3. **Subcontracts**
   The bidder is specifically advised that any person, firm, or other parties to whom it is proposed to award a subcontract under this contract:

   a Must be acceptable to the Owner after verification of the current eligibility status, and,
   b Approval of the proposed subcontract award cannot be given by the Owner unless and until the proposed subcontractor has submitted the Certification and/or other evidence showing that it has fully complied with any reporting requirements to which it is or was subject. Although the offeror is not required to attach such Certification by proposed subcontractors to his bid, the bidder is here advised of this requirement so that appropriate action can be taken to prevent subsequent delay in subcontract awards.

4. **Telegraphic Modification**
   Any bidder may modify his bid by telegraphic communication at any time prior to the scheduled closing time for receipt of bids, provided such telegraphic communication is received by the Owner prior to the closing time and provided further, the Owner is satisfied that written confirmation of the telegraphic modification over the signature of the bidder was mailed prior to the closing time. The telegraphic communication should not reveal the bid price but should provide the additional or subtraction or other modification so that the final prices or terms will not be known by the Owner until the sealed bid is opened. If written confirmation is not received within two days from the closing time, no consideration will be given to the telegraphic modification.

5. **Method of Proposal**
   The Owner invites the following proposal(s):

   Request for Bid Avila-Harwell Campuses Safe Walk Community Project

6. **Bid Security**
   Each bid must be accompanied by a certified check of the bidder, or a bid bond prepared on the form of bid bond attached hereto, duly executed by the bidder as principal and having as surety thereon a surety company approved by the Owner, in the amount of 5% of the bid. Such checks or bid bonds will be returned to all except the three lowest bidders within three days after the opening of bids, and the remaining checks or bid bonds will be returned promptly after the Owner and the accepted bidder have executed the contract, or if no award has been made within 60 days after the date of the opening of bids, upon demand of the bidder at any time thereafter, so long as he has not been notified of the acceptance of his bid.

7. **Liquidated Damages for Failure to enter into Contract**
   The successful bidder, upon his failure or refusal to execute and deliver the contract and bonds required within 10 days after he has received notice of the acceptance of his bid, shall forfeit to the Owner, as liquidated damages for such failure or refusal, the security deposited with his bid.

8. **Time of Completion and Liquidated Damages**
   Bidder must agree to commence on or before a date to be specified in a written "Notice to Proceed" of the Owner and to fully complete the project within **120 Consecutive Days "Standard Workweek"** thereafter. Bidder must agree also to pay as liquidated damages, the sum of ***$500.00*** for each consecutive calendar day thereafter as hereinafter provided in the General Conditions.

9. **Condition of Work**
Each bidder must inform himself fully of the conditions relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve a successful bidder of his obligation to furnish all material and labor necessary to carry out the provisions of his contract. Insofar as possible the contractor, in carrying out his work, must employ such methods or means as will not cause any interruption of or interference with the work of any other contractor.

10. **Addenda and Interpretations**
No interpretation of the meaning of the plans, specifications, or other pre-bid documents will be made to any bidder orally.

Every request for such interpretation should be in writing addressed to Heidi Garcia Ortiz **email address: heidi.ortiz@co.hidalgo.tx.us.** To be given consideration, requests for interpretation must be received by 5:00 p.m., Tuesday, March 23, 2021. All interpretation responses will be emailed to all prospective bidders (at the respective email address furnished for such purposes), by Thursday, March 25, 2021. Failure of any bidder to receive any such interpretation shall not relieve such bidder from any obligation under his bid as submitted. Any supplemental instructions and/or changes to the bid documents will be issued in the form of an addendum with a request to sign and return an acknowledgment of receipt of the addendum. All addenda so issued shall become part of the packet submittal.

11. **Security for Faithful Performance**
Simultaneously with his delivery of the executed contract, the contractor shall furnish a surety bond or bonds as security for faithful performance of this contract and for the payment of all persons performing labor on the project under this contract and furnishing materials in connection with this contract, as specified in the General Conditions included herein. The surety on such bonds shall be a duly authorized surety company satisfactory to the Owner.

12. **Power of Attorney**
Attorney-in-fact who sign bonds or contract bonds must file with each bond a certified and effectively dated copy of their power of attorney.

13. **Notice of Special Conditions**
Attention is particularly called to those parts of the contract documents and specification which deal with the following:

a Inspection and testing of materials
b Insurance requirements
c Wage rates
d State allowances

14. Laws and Regulations

The bidder's attention is directed to the fact that all applicable State laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction of the project shall apply to the contract throughout, and they will be deemed to be included in the contract the same as though herein written out in full.

15. Obligation of Bidder

At the time of the opening of bids, each bidder will be presumed to have inspected the site and to have read and to be thoroughly familiar with the plans and contract documents (including all addenda). The failure or omission of any bidder to examine any form, instrument or document shall in no way relieve any bidder from any obligation with respect to his bid.

16. Qualifications of Bidder

The Owner may make such investigations as he deems necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request, the Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such Bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligations of the contract to complete the work contemplated therein. Conditional bids will not be accepted.

Supplement to Form HUD-4238-B®
INFORMATION FOR BIDDERS

17. SAFETY STANDARDS AND ACCIDENT PREVENTION

With respect to all work performed under this contract, the contractor shall:

1 Comply with the safety standards provision of applicable laws, building and construction codes, and the "Manual of Accident Prevention in Construction" published by the Associates General Contractors of America, the requirements of the Occupational Safety and Health Act of 1970 (Public Laws 91-596), and the requirements of Title 29 of the Code of Federal Regulations, Section 1518 as published in the "Federal Register", Volume 36, No 75, Saturday, April 17, 1971.

2 Exercise every precaution at all times for the prevention of accidents and the protection of persons (including employees) and property.

3 Maintain at his office or other well-known places at the job site, all articles necessary for giving first aid to the injured, and shall make standing arrangements for the immediate removal to a hospital or a doctor's care of persons (including employee), who may be injured on the job site. In no case shall employee be permitted to work at a job site before the employer has made a standing arrangement for the removal of injured persons to a hospital or a doctor's care.

SPECIAL PROVISIONS

1. The County of Hidalgo reserves the right to partially award the contract in order to meet the budget.

2. Water, sewer, or other utility services shall not be interrupted. Any damages to existing utilities will be the Contractor's responsibility.

3. In the event of damage to underground facilities, whether shown or not shown in the drawings, the Contractor shall make the necessary repairs to place the facilities back in service at no increase in the Contractors price. All such repairs shall conform to the requirements of the company or agency servicing the facility.

4. The Contractor shall exercise extra care to prevent damage to all other structures in the area including, fence, roads, pipelines, utilities, etc., whether publicly or privately owned.

5. Until acceptance by the Engineer of any part or all of the construction, as provided for in the plans and these specifications, it shall be under the charge and care of the contractor, and he shall take every necessary precaution against injury or damage to any part of the work. The Contractor shall rebuild, repair, restore and make good, at his own expense, all injuries or damage to any portion of the work before its completion and acceptance.

6. In case the Contractor deems extra compensation is due to him for proposed work not covered in the contract, the Contractor shall notify the Engineer in writing of his claim for such extra compensation before he begins the work. Failure on the part of the Contractor to give such notification shall constitute a waiver of claim for such extra compensation. The Contractor shall not proceed until a written Change Order is approved by the Owner, Engineer, and Contractor.

7. Prospective bidders should make a careful examination of the project site.

8. The contractor shall review his overall method and schedule of construction with the County prior to construction for proper coordination of inspection.

9. No open trenches or excavation shall be left open overnight.

STATEMENT OF CREDENTIALS
for
Facility Construction and Related Projects
(Non-Road Improvements)

1. **GENERAL:** In order to assist the Owner in determining the ability of each Bidder to properly fulfill the requirements of this proposed contract, the Bidder will complete the following items. **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 he/she desires.

Name of Bidder: _____

Address: _____

_____

Date Organized: _____ Date Incorporated: _____

Office Number: _____ Fax Number: _____

Number of years in business under present name: _____

Type of work performed by your company: _____

_____

Have you ever failed to complete any work awarded to you? _____

Have you ever defaulted on a contract? _____

2. **EXPERIENCE:** The Bidder will give below a list of similar projects which he/she has completed within the last five (5) years.

1. Owner: _____

Address: _____

Ph. / Fax Number: _____ Email: _____

Scope of Work Description: _____

Date Completed: _____Total Cost: _____

****

2. Owner: _____

Address: _____

Ph. / fax Number: _____ Email: _____

Scope of Work Description: _____

Date Completed: _____Total Cost: _____

****

3. Owner: _____

Address: _____

Ph. / fax Number: _____ Email: _____

Scope of Work Description: _____

Date Completed: _____Total Cost: _____

****

4. Owner: _____

Address: _____

Ph. / fax Number: _____ Email: _____

Scope of Work Description: _____

Date Completed: _____Total Cost: _____

****

5. Owner: _____

Address: _____

Ph. / fax Number: _____ Email: _____

Scope of Work Description: _____

Date Completed: _____Total Cost: _____

****

3. **CONTRACTS ON HAND:** The Bidder shall provide below a list of any contracts/projects he/she currently has on hand:

4. **SUBCONTRACTORS:** List any subcontractors you propose to use on Hidalgo County's project. Use an additional page if necessary. This information is considered preliminary and may be revised before award and re-submitted during the pre-construction phase. However, it is expressly understood that the use of any subcontractor other than those listed with the bid shall require written approval from Hidalgo County.

   Failure to submit the information as required may result in a disqualification of your bid.

5. **PERFORMANCE OF WORK BY BIDDER:** Except as otherwise provided, the ***general contractor/bidder*** shall perform no ***less*** than eighty percent **(80%)** of the work with his organization. ***Not more than*** twenty percent **(20%)** of the work may be subcontracted.

   The organization of the specifications into divisions, sections, articles, etc., and the arrangement and titles of project drawings shall not control the Bidder in dividing the work among subcontractors or in establishing the extent of work to be performed by any trade.

   Awarded Bidder shall assign a project superintendent who is directly employed by the Bidder. That superintendent will be required to be on the job on a daily basis. No subcontractors will be allowed to act as project superintendents at any point during the construction of said project.

   Bidder shall have a significant business presence in the Rio Grande Valley Area. The business must be headquartered in either Hidalgo, Cameron, or Starr County, or a local office must be located in either of the three counties (Hidalgo, Cameron, Starr) with at least thirty percent (30%) of the total company workforce employed at the local office. The county reserves the right to request payrolls and any necessary documentation to confirm that the local office meets these requirements.

   Bidder shall carefully examine the plans, specifications and other documents, visit the site of the work and fully inform themselves as to all conditions and matters which can affect the work or cost thereof. Should the bidder find discrepancies in, or omissions from the plans, specifications, or other documents, or should he/she be in doubt as to their meaning, he/she should at once notify the Engineer and obtain clarification by addendum prior to submitting any bid.

   Bidder hereby certifies that said company carries liability coverage and workers compensation insurance coverage that meets the requirements outlined in this Request for Bid when performing work on this project for Hidalgo County.

   Furthermore, bidder certifies that any subcontractor on the project shall provide the said company with a certificate relating that all employees of the subcontractor also are provided with workers' compensation insurance coverage. Bidder will provide copies of all of these certificates to Hidalgo County during the course of the project for all subcontractors working on the project.

   All subcontractors must comply with federally determined prevailing Davis-Bacon and Related Acts wage rates.

   Hidalgo County encourages the hiring of minority women subcontractors and/or suppliers whenever and wherever feasible.

The undersigned hereby authorizes and requests any person, firm, or corporation to furnish any information requested by the owner in verification of the recitals comprising this Statement of Credentials.

Executed this _____ day of _____, 2021.

_____

By_____

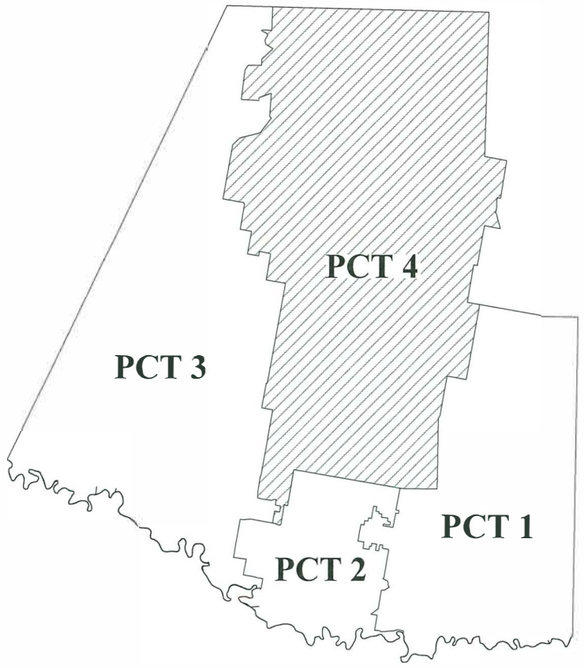
Title_____

Subscribed and sworn to me this _____day of _____, 2021.

By:_____

Notary Public in and for _____County, Texas

My commission expires _____



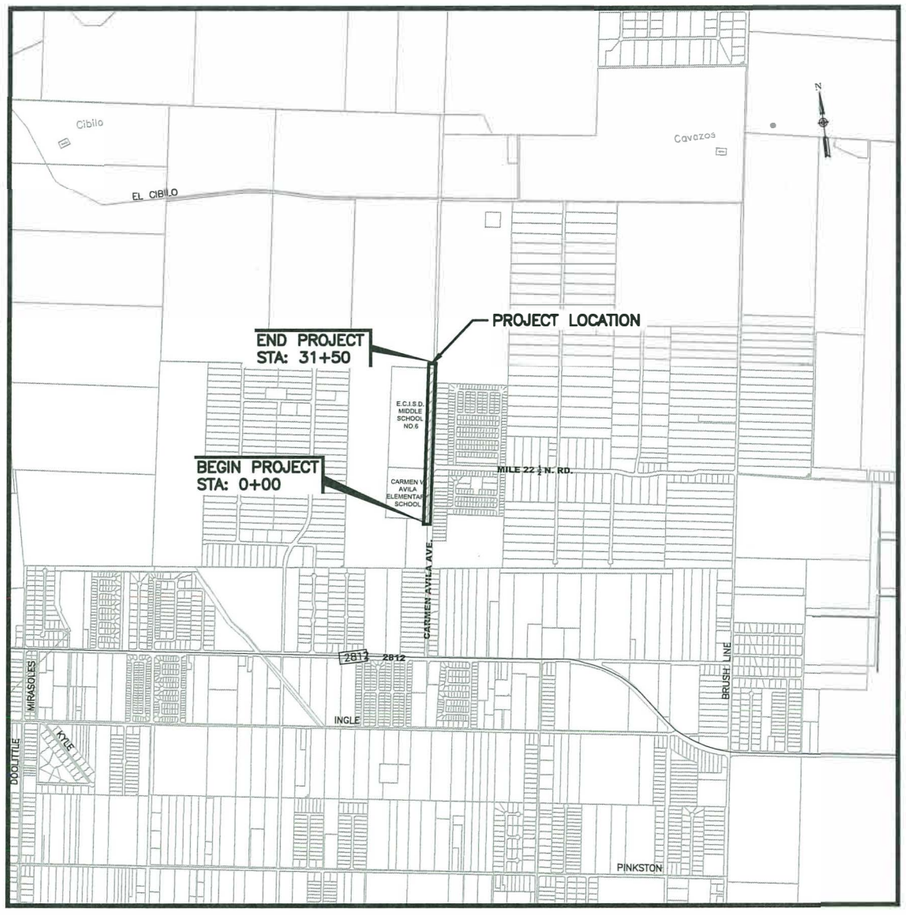
JUDGE RICHARD F. CORTEZ
CHAIRMAN OF THE BOARD

COMMISSIONER DAVID L. FUENTES
BOARD MEMBER

COMMISSIONER EDUARDO "EDDIE" CANTU
BOARD MEMBER

COMMISSIONER "EVER" VILLARREAL
BOARD MEMBER

COMMISSIONER ELLIE TORRES
BOARD MEMBER



LOCATION MAP - SCALE: 1"=3000'

HIDALGO COUNTY PRECINCT No. 4
AVILA-HARWELL CAMPUSES SAFE WALK COMMUNITY PROJECT

REVISIONS

DATE:	COMMENTS:

RAUL E. SESIN, P.E., C.F.M.
HIDALGO COUNTY DRAINAGE DISTRICT No. 1
GENERAL MANAGER
HIDALGO COUNTY FLOODPLAIN
ADMINISTRATOR

STATE OF TEXAS
JOSE N. SALDIVAR
94076
LICENSED
PROFESSIONAL ENGINEER

This seal appearing on this document was authorized by Jose N. Saldivar P.E. No. 94076 on the above designated date.

JOSE N. SALDIVAR-P.E. No. 94076
TX 02/22/21

Drawing: S:\HCDD1 - PROJECTS\E-20-030 Carmen Avila Sidewalk\Design\CAD\dwg\P&P Sheets\01-Cover- Sheet.dwg) Plotted by: felicia.arredondo
Layout Tab: Cover Sheet Date: 02/22/2021 Time: 01:07:25 PM

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HIDALGO COUNTY DRAINAGE DISTRICT No. 1
902 N. DOOLITTLE RD
EDINBURG TX. 78542
TEL:(956) 292–7080
www.hcdd1.org

Raul E. Sesin P.E., C.F.M.
General Manager
Floodplain Administrator

HIDALGO COUNTY PRECINCT No. 4
AVILA-HARWELL CAMPUSES SAFE WALK
COMMUNITY PROJECT

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STATE OF TEXAS
JOSE N. SALDIVAR
94076
LICENSED
PROFESSIONAL ENGINEER

This seal appearing on this document was authorized by Jose N. Saldivar P.E. No. 94076 on the above designated date.

JOSE N. SALDIVAR–P.E. No. 94076

PROJECT NO.	E-20-030
SCALE:	N/A
DRAWN BY:	F.A.
CHECKED BY:	R.S./N.S.
TOPO BY:	S.S./E.I.
SHEET:	G01–02

Drawing: S:\HCDD1 – PROJECTS\E–20–030 Carmen Avila Sidewalk\Design\CAD\dwg\P&P Sheets\G02–Index of Sheets.dwg
Layout Tab: Sheet Index Date: 02/22/2021 Time: 01:06:01 PM

ABBREVIATIONS

A	ASPHALT
ADR	ASPHALT DRIVE
APV	ASPHALT PAVEMENT
AVE	AVENUE
BM	BENCHMARK
BOC	BACK OF CURB
CONC.	CONCRETE
CONST.	CONSTRUCT
CL	CENTER LINE
CDR	CONCRETE DRIVE
CPV	CONCRETE PAVEMENT
CA	CALICHE
CADR	CALICHE DRIVE
CARD	CALICHE ROAD
CFN	CHAIN LINK FENCE
CI	CURB INLET
CLV	CULVERT
CP	CONTROL POINT
CPV	CONCRETE PAVEMENT
CR	CENTER OF ROAD
CRB	CURB
CSM	CABLE SPOT MARKING
D	DIRT
DR	DRIVE
DDR	DIRT DRIVE
DT	DITCH
DTB	DITCH BOTTOM
DTBB	DITCH BOTTOM OF BERM
DTE	DITCH EDGE
DTFL	DITCH FLOW LINE
DTT	DITCH TOP
DTTB	DITCH TOP OF BERM
DTTOE	DITCH TOE
EXIST.	EXISTING
ESMT.	EASEMENT
EBX	ELECTRIC BOX
EOCA	EDGE OF CALICHE
EOP	EDGE OF PAVEMENT
EW	EDGE OF WATER
EWL	END WALL
FG	FINISHED GRADE
FH	FIRE HYDRANT
FL	FLOW LINE
FM	FARM-TO-MARKET
FN	FENCE
FOC	FIBER OPTIC CABLE
FOCM	FIBER OPTIC CABLE MARKING
G	GRAVEL
GDR	GRAVEL DRIVE
GL	GAS LINE
GLMKR	GAS LINE MARKER
GLSM	GAS LINE SPOT MARKING
GM	GAS METER
GV	GAS VALVE
GW	GUY WIRE
HCDR	HIDALGO COUNTY DEED RECORDS
HCOR	HIDALGO COUNTY OFFICIAL RECORDS
HCMR	HIDALGO COUNTY MAP RECORDS
HCR	HANDICAP RAMP
HDW	HEADWALL
HWM	HIGH WATER MARK
IR	IRON ROD
IRS	IRON ROD SET
IGV	IRRIGATION GATE VALVE
IGW	IRRIGATION GATEWELL
ISP	IRRIGATION STAND PIPE
INV	INVERT
IV	IRRIGATION VENT
LT	LEFT
LOT	LOT CORNER
MB	MAIL BOX
MH	MANHOLE
MON	MONUMENT
N.T.S	NOT TO SCALE
NAIL	NAIL
NAWSC	NORTH ALAMO WATER SUPPLY CORPORATION
NG	NATURAL GROUND
OHE	OVERHEAD ELECTRIC LINE
PFL	PIPE FLOW LINE
PGL	PROPOSED GRADE LINE
PL	PROPERTY LINE
PP	POWER POLE
PROP	PROPOSED
PV	PAVEMENT
PVC	PVC PIPE
RT	RIGHT
RCP	REINFORCED CONCRETE PIPE
RIP	RIP-RAP
RD	ROAD
RM	REFERENCE MARKER
ROW	RIGHT-OF-WAY
RR	RAIL ROAD
RSD	ROAD SIDE DITCH
RW	RETAINING WALL
SBOT	SWALE BOTTOM
SDL	STORM DRAIN LINE
SEP	SEPTIC TANK COVER
SET	SAFETY-END TREATMENT
SP	SERVICE POLE
SPOL	SIGNAL POLE TRAFFIC
STOP	SWALE TOP
STA	STATION
SW	SIDEWALK
TELBX	TELEPHONE BOX
TBX	TRAFFIC CONTROL BOX
TMKR	TELEPHONE MARKER
TOA	TOP OF ASPHALT
TOC	TOP OF CURB
TOW	TOP OF WATER
TR	TREE
TRNS	TRANSFORMER
TSL	TRAFFIC SIGNAL LIGHT
TSM	TELEPHONE LINE SPOT MARKING
VA	VALVE
WB	WATER BIBB
WDFN	WOODEN FENCE
WFN	WIRE FENCE
WL	WATER LINE
WLSM	WATER LINE SPOT MARKING
WM	WATER METER
WP	WOODEN POST
WV	WATER VALVE
WWSM	WASTE WATER LINE SPOT MARKING
YD	YARD DRAIN

SYMBOLS

- Iron Pipe
- Iron Rod
- Tree
- Sign
- HL&P Tower
- Mhel (Manhole electric)
- Power pole
- Pptrn (Power Pole w/transformer)
- Guy (Down guy)
- Gas meter (Gm)
- Gv (Gas valve)
- Mhsn (Sanitary sewer manhole)
- Snco (Clean out)
- Culv (Culvert pipe)
- Grinl (Grate inlet)
- Mhst (Storm sewer manhole)
- Sgnstp (Stop sign)
- Trjb (Traffic junction box)
- Trlpl (Traffic light pole)
- Fh (Fire hydrant)
- Wm (Water meter)
- Wv (Water valve)
- Shrub
- Acap (Aluminum cap)
- Bdisk (Brass disk)
- Fnd IP (Iron Pipe found)
- Fnd IR (Iron Rod found)
- Nail
- Bm (Benchmark)
- Rowmkr (R.O.W. marker)
- Irr Box
- Irr standpipe
- Irr gate valve
- Grdpst (Guardrail post)
- Mailbox
- Stsgn (Street sign)
- Palm
- Catvbox (Cable Tv box)
- Ebox (Electrical box)
- Eltrn (Electrical transformer)
- Emkr (Electrical marker)
- Lp (Light Pole)
- Pplt (Power pole w/light)
- Pipe
- Gasreg (Gas regulator)
- Mhgs (Mahole Gas)
- Pipvnt (Pipe vent/stand pipe)
- Wvmkr (Water valve marker)
- Crbinl (Curb Inlet)
- Trlt (Traffic light)
- Trsgn (Traffic sign)
- Tsbox (Traffic signal box)
- Tsigpl (Traffic signal pole)
- Mhtel (Manhole telephone)
- Pbox (Telephone pedestal)
- Phmkr (Telephone marker)
- Tlbox (Telephone box)
- Tljnc (Telephone junction box)
- Tlpol (Telephone pole)
- Spkhd (Sprinkler head)
- Wtrwell (Water well)
- Water Bibb
- Cps (Cotton Picker Spindle)

LEGEND

- WATER PIPE
- SANITARY SEWER PIPE
- STORM DRAIN PIPE
- IRRIGATION PIPE
- TELEPHONE LINE
- FIBER OPTIC CABLE
- GAS LINE
- OVERHEAD ELECTRICAL LINE
- WOOD FENCE
- HOG-WIRE FENCE
- CHAINLINK FENCE
- RIGHT-OF-WAY LINE

NOTE:
THE (HORIZONTAL AND/OR VERTICAL LOCATION OF EXISTING UNDERGROUND UTILITIES AS ILLUSTRATED ON THESE PLANS IS APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF ALL UTILITIES PRIOR TO BEGINNING CONSTRUCTION IN THE AREA OF SAID UTILITIES. CONTRACTOR SHALL CONTACT THE FOLLOWING AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION/EXCAVATING IN THE AREA OF EXISTING UTILITIES

UTILITY COMPANY:	CONTACT PERSON:	PHONE:
DIG-TESS		800-DIG-TESS
A.E.P.	Juan Ramirez, P.E.	956-283-2437
MAGIC VALLEY	Jose Barco	956-289-4049
SPECTRUM (CHARTER)	Ruben Flores	956-354-3248
AT&T	Chistopher B. Luna	956-630-8651
HIDALGO COUNTY DRAINAGE DISTRICT #1	Noe Saldivar, P.E.	956-292-7080
NORTH ALAMO WATER SUPPLY CORPORATION	Richard Garcia	956-383-1618
N/A		
TEXAS GAS SERVICE	Mike Martinez	956-444-3926
TXDOT	Pedro Alvarez, P.E.	956-702-6101
CITY OF EDINBURG	N/A	956-388-8202

QUANTITY ABBREVIATIONS

AC	ACRE
CF	CUBIC FEET
CY	CUBIC YARD(S)
EA	EACH
LF	LINEAR FEET
LS	LUMP SUM
SF	SQUARE FEET
SY	SQUARE YARD(S)

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HIDALGO COUNTY PRECINCT No. 4
AVILA-HARWELL CAMPUSES SAFE WALK
COMMUNITY PROJECT

SYMBOLS, LEGENDS & ABBREVIATIONS

STATE OF TEXAS
JOSE N. SALDIVAR
94076
LICENSED PROFESSIONAL ENGINEER

This seal appearing on this document was authorized by Jose N. Saldivar P.E. No. 94076 on the above designated date.

JOSE N. SALDIVAR-P.E. No. 94076

PROJECT NO.	E-20-030
SCALE:	N/A
DRAWN BY:	F.A.
CHECKED BY:	R.S./N.S.
TOPO BY:	S.S./E.I.
SHEET:	G01-03

Drawing: S:\HCDD1 - PROJECTS\E-20-030 Carmen Avila Sidewalk Design\CAD\dwg\P&P Sheets\03-Symbols_Legends & Abbreviations.dwg
Layout Tab: General_Notes Date: 02/22/2021 Time: 11:12:49 AM

GENERAL NOTES:

1. ALL WORK SHALL BE COMPLETED TO THE SATISFACTION OF THE HIDALGO COUNTY DRAINAGE DISTRICT No. 1, HIDALGO COUNTY IRRIGATION DISTRICT No. 1.
2. THE DRAINAGE DISTRICT SHALL BE RESPONSIBLE TO CONTACT MR. RICHARD GARCIA WITH NORTH ALAMO WATER SUPPLY CORP. (N.A.W.S.C.) 48 HOURS PRIOR TO COMMENCEMENT OF WORK @ (956) 383–1618 TO COORDINATE AND MEET ANY ADDITIONAL REQUIREMENTS AND/OR SPECIFICATIONS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE TO CALL DIG TESS 48 HOURS PRIOR TO COMMENCEMENT OF WORK FOR UTILITY SPOTTING @ (1–800–DIG–TESS).
4. THE CONTRACTOR TO NOTIFY ALL UTILITY COMPANIES FOR VERIFICATION OF LOCATION OF EXISTING FACILITIES PRIOR TO BEGINNING ANY EXCAVATION.
5. LOCATIONS OF UNDERGROUND FACILITIES ARE FROM BEST INFORMATION AVAILABLE. NEITHER THE OWNER OR ENGINEER, WARRANT THE ACCURACY OF THE INFORMATION PROVIDED. ANY DEVIATIONS SHALL BE CALLED TO THE ENGINEER'S ATTENTION IMMEDIATELY.
6. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE CORRESPONDING UTILITY CORPORATION IN REGARDS TO THE RELOCATION/ADJUSTION OF ANY CONFLICTING UTILITIES. THE RELOCATION/ADJUSTMENT SHALL BE CONSIDERED SUBSIDIARY TO THE PROJECT COST AND REFLECTED IN THE UNIT BID PRICES FOR VARIOUS ITEMS LISTED IN THE PROPOSAL.
7. THE CONTRACTOR SHALL PROVIDE ACCESS TO EXISTING RESIDENCES AT ALL TIMES.
8. ANY DAMAGES TO FENCES, WALKS, OR PRIVATE PROPERTY SHALL BE REPAIRED BY THE CONTRACTOR AT HIS EXPENSE.
9. THE CONTRACTOR SHALL REMOVE ALL FENCES LOCATED WITHIN THE EASEMENTS, INTERFERING WITH CONSTRUCTION OPERATION AND PROVIDE TEMPORARY FENCING DURING CONSTRUCTION. REMOVED FENCES SHALL BE REPLACED WITH A NEW FENCE OR UNDAMAGED ORIGINAL FENCING. REMOVAL AND REPLACEMENT OF EXISTING AND TEMPORARY FENCES SHALL BE CONSIDERED SUBSIDIARY TO THE PROJECT COST AND REFLECTED IN THE UNIT BID PRICES FOR VARIOUS ITEMS LISTED IN THE PROPOSAL.
10. NO OPEN EXCAVATION SHALL BE LEFT OPEN OVERNIGHT. ALL EXCAVATIONS WHICH CANNOT BE BACKFILLED OVERNIGHT SHALL BE COVERED. AS A MINIMUM, WITH STEEL PLATING WHEN IN PAVED AND UNPAVED AREAS SUBJECT TO VEHICULAR LOADING; •• PLYWOOD, WOOD PLANKING WITH O.S.H.A. ORANGE PLASTIC EXPANDED MESH BARRIER AROUND PERIMETER IN UNPAVED AREAS NOT SUBJECT TO VEHICULAR LOADING, OR AS APPROVED BY THE ENGINEER.
11. THE PREPARATION OF THESE PLANS REFLECTS INFORMATION, PROVIDED BY OTHERS, ON THE APPROXIMATE LOCATION AND EXISTENCE OF EXISTING UTILITY AND ADJACENT PHYSICAL FEATURES. HOWEVER, THEY DO NOT IMPLY OR AFFIRM THAT ALL UTILITIES OR PHYSICAL FEATURES ARE SHOWN. GENERALLY, UTILITY SERVICE CONNECTIONS ARE NOT INDICATED ON THESE PLANS. CONTRACTOR IS RESPONSIBLE FOR NOTIFICATIONS OF THE OWNER IMMEDIATELY UPON ENCOUNTERING UNFORESEEN CONFLICTS.
12. THE APPROXIMATE LOCATIONS OF KNOWN EXISTING UTILITIES ARE SHOWN, CONTRACTOR SHALL DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATIONS IN THE FIELD PRIOR TO COMMENCING WORK. CONTRACTOR TO BE FULLY RESPONSIBLE FOR DAMAGES WHICH MIGHT OCCUR BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE EXISTING UTILITIES.
13. PUBLIC AND PRIVATE UTILITY LINES AND CUSTOMER SERVICE LINES MAY EXIST THAT ARE NOT SHOWN ON THE CONSTRUCTION DRAWINGS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE, MAINTAIN AND PROTECT THE INTEGRITY OF THESE LINES. HAND EXCAVATION MAY BE REQUIRED. THE CONTRACTOR SHALL RESTORE RELOCATED OR DIVERTED UTILITY TO ITS ORIGINAL CONDITION AND LOCATION WHEN APPLICABLE UPON COMPLETION OF CONSTRUCTION. SAID RESTORATION SHALL BE CONSIDERED SUBSIDIARY TO THE PROJECT COST AND REFLECTED IN THE UNIT BID PRICES FOR VARIOUS ITEMS LISTED IN THE PROPOSAL.
14. THE CONTRACTOR SHALL ADJUST EXISTING N.A.W.S.C. WATER LINES AS REQUIRED TO INSTALL DRAINAGE IMPROVEMENTS SAID ADJUSTMENTS SHALL BE COORDINATED WITH N.A.W.S.C. PRIOR TO COMMENCEMENT OF WORK. SAID WATER LINE ADJUSTMENT SHALL BE CONSIDERED SUBSIDIARY TO THE PROJECT COST AND REFLECTED IN THE UNIT BID PRICES FOR VARIOUS ITEMS LISTED IN THE PROPOSAL.
17. THE CONTRACTOR TO MAINTAIN ALL EQUIPMENT AND TRANSPORTATION OF SAID EQUIPMENT WITHIN THE EXISTING RIGHTS–OF–WAY OF THE CITY, COUNTY, OR STATE.
18. DURING EXCAVATION OPERATIONS FOR DRAINAGE AND/OR UTILITIES, THE CONTRACTOR SHALL NOT PILE EXCAVATED MATERIAL OR EXCAVATE WITHIN THE DRIP LINE OF TREES THAT ARE TO BE PRESERVED.
19. WHERE NEW WATER LINES AND SEWER LINES ARE INSTALLED WITH A SEPARATION DISTANCE CLOSER THAN NINE FEET (I.E., WATER LINES CROSSING WASTEWATER LINES, WATER LINES PARALLELING WASTEWATER LINES, OR WATER LINES NEXT TO MANHOLES) THE INSTALLATION MUST MEET THE REQUIREMENTS OF 30 TAC 317 (DESIGN OF SEWAGE SYSTEMS) OR 30 TAC 290 (WATER HYGIENE).
20. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING WATER AND SEWER CONNECTIONS TO ALL HOMES AND BUSINESSES IN WORKING ORDER AT ALL TIMES, EXCEPT FOR BRIEF INTERRUPTIONS IN SERVICE FOR CONNECTIONS TO BE REINSTALLED. IN NO CASE SHALL SERVICES BE ALLOWED TO REMAIN OUT OF SERVICE OVERNIGHT. CONTRACTOR IS RESPONSIBLE FOR DAMAGES TO SAID SERVICES.
21. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ADEQUATE DRAINAGE OF PROPOSED FACILITIES AT ALL TIMES DURING CONSTRUCTION.
22. THE CONTRACTOR SHALL BE RESPONSIBLE FOR GRADING AREA BETWEEN THE BACK OF CURB/EDGE OF PAVEMENT, ROAD SIDE DITCH AND RIGHT–OF–WAY TO HAVE POSITIVE FLOW TO THE PROPOSED DRAINAGE SYSTEM.
23. THE CONTRACTOR SHALL PROVIDE/MAINTAIN ADEQUATE POSITIVE DRAINAGE AT ALL TIMES DURING THE INSTALLATION OF THE STRUCTURES, DRAINAGE, UTILITY, IRRIGATION AND ROAD IMPROVEMENTS. DEWATERING OF THE TRENCH MAY BE REQUIRED DURING THE INSTALLATION OF THE DRAINAGE, UTILITY AND IRRIGATION FACILITIES/STRUCTURES. SAID DEWATERING SHALL BE CONSIDERED SUBSIDIARY TO THE PROJECT COST AND REFLECTED IN THE UNIT BID PRICES FOR VARIOUS ITEMS LISTED IN THE PROPOSAL.
24. THE CONTRACTOR SHALL CLEANUP AND RESTORE THE AREA OF OPERATIONS TO A CONDITION AS GOOD AS OR BETTER THAN THAT WHICH EXISTED PRIOR TO INSTALLATION OF ALL ITEMS TO BE CONSTRUCTED.
25. ALL DEBRIS, VEGETATION AND SURPLUS MATERIAL, RESULTING FROM DEMOLITION AND/OR CLEARING OF THE RIGHT–OF–WAY IN PREPARATION OF PROPOSED IMPROVEMENTS SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE PROPERLY DISPOSED OF AT A SITE ACCEPTABLE TO HIDALGO COUNTY PRECINCT DRAINAGE DISTRICT No 1. THE CONTRACTOR SHALL PROVIDE A LETTER STATING SO. THIS SHALL BE INCIDENTAL AND NOT A SEPARATE PAY ITEM UNLESS STATED SO. NO EXCESS EXCAVATED MATERIAL SHALL BE DEPOSITED IN LOW AREAS OR ALONG NATURAL DRAINAGE WAYS WITHOUT WRITTEN PERMISSION FROM THE AFFECTED PROPERTY OWNER AND THE HIDALGO COUNTY DRAINAGE DISTRICT No 1. IF THE CONTRACTOR PLACES EXCESS MATERIAL IN THE AREAS WITHOUT WRITTEN PERMISSION, HE WILL BE RESPONSIBLE FOR ALL DAMAGE RESULTING FROM SUCH FILL AND CONTRACTOR SHALL REMOVE THE MATERIAL AT OWN COST.
26. THE CONTRACTOR IS RESPONSIBLE FOR THE PREPARATION AND SUBMITTAL OF THE TRENCH EXCAVATION PROTECTION PLAN. CONTRACTOR SHALL SUBMIT CONSTRUCTION DETAILS AND DESIGN CALCULATIONS BEARING THE SEAL OF A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF TEXAS BEFORE CONSTRUCTING THE SHORING AND/OR UTILIZING A TRENCH PROTECTION SYSTEM (BOX). THE ENGINEER RESERVES THE RIGHT TO REJECT DESIGNS NOT MEETING THE REQUIREMENTS OF SECTION ITEM 402 AND 403.
27. THE CONTRACTOR SHALL BE RESPONSIBLE TO FOLLOW ALL T.C.E.Q. STORM WATER POLLUTION PREVENTION PLAN (SWP3) REQUIREMENTS AS PER SWP3 SHEETS AND AS STATED IN TEXAS POLLUTANT DISCHARGE ELIMINATION SYSTEM CONSTRUCTION GENERAL PERMIT (TPDES TXR150000, EFFECTIVE DATE MARCH 5, 2008), INCLUDING N.O.I. SUBMITTAL AND MS4 NOTIFICATION.
28. FLEXIBLE BASE AGGREGATE SHALL MEET THE REQUIREMENTS IN THE TABLE BELOW. NEW CALICHE MATERIAL SHALL BE TREATED WITH 0.5% LIME BY DRY WEIGHT OF MATERIAL IF THE PLASTICITY INDEX OF SAID MATERIAL IS GREATER THAN 12.

TYPE E (CALICHE)(GRADE 3)		
PROPERTY	TEST METHOD	REQUIREMENT
2–1/2" SIEVE (CUMULATIVE, % RET)	Tex–110–E	0
1–3/4" SIEVE (CUMULATIVE, % RET)	Tex–110–E	0–10
#4 SIEVE (CUMULATIVE, % RET)	Tex–110–E	45–75
#40 SIEVE (CUMULATIVE, % RET)	Tex–110–E	50–85
LIQUID LIMIT, % MAX	Tex–104–E	40
PLASTICITY INDEX, % MAX	Tex–106–E	12
WET BALL MILL, % MAX	Tex–116–E	50
WET BALL MILL, % MAX INCREASE PASSING #40 SIEVE	Tex–116–E	20

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General Manager
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AVILA-HARWELL CAMPUSES SAFE WALK
COMMUNITY PROJECT

GENERAL NOTES

STATE OF TEXAS
JOSE N. SALDIVAR
94076
LICENSED
PROFESSIONAL ENGINEER

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JOSE N. SALDIVAR–P.E. No. 94076

PROJECT NO.	E-20-030
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DRAWN BY:	F.A.
CHECKED BY:	R.S./N.S.
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SHEET:	G01–04

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GENERAL NOTES (CONT):

29. ALL ROAD CROSSINGS SHALL BE REPLACED WITH A MINIMUM OF 8" COMPACTED CALICHE AND 2" HMAC OR LIKE SECTION, WHICHEVER IS GREATER.

30. THE DRAINAGE DISTRICT WILL PROVIDE CONTROL POINTS (BENCHMARK AND PROPERTY CORNERS) FOR THE WORK TO BE PERFORMED BY THE CONTRACTOR. CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION STAKING, INCLUDING BUT NOT LIMITED TO HORIZONTAL & VERTICAL GRADE CUTS FOR CURB & GUTTER, ROADWAY, STORM DRAIN PIPE, ROADSIDE DITCHES, DRIVEWAY CULVERTS AND DITCH WORK.

31. THE CONTRACTOR SHALL CONNECT PROP. IRRIGATION LINE WITH EXISTING IRRIGATION PIPE IN ACCORDANCE WITH H.C.I.D. No 2 SPECIFICATIONS. SUPPORT COLLARS MAY BE USED. THE CONTRACTOR SHALL BE RESPONSIBLE TO REPAIR ANY DAMAGE TO THE EXIST. LINE CAUSED BY THIS WORK. ELBOWS AND MISC. FITTINGS SHALL ALSO BE USE TO ACHIEVE A 1.0 FT SEPARATION BETWEEN TOP OF PROP. DRAIN LINE AND BOTTOM OF THE IRRIGATION LINE.

32. ELBOW FOR RCP OR HPP BEING PROPOSED AT THE END OF LINES SHALL BE PRE-FABRICATED AND SECURED TO THE PIPE WITH A CONCRETE COLLAR (TYPICAL ON ALL PIPE ELBOW INSTALLATIONS.) ELBOW SHALL BE REQUIRED AT ALL LOCATIONS SHOWN ON THE PLANS. THIS SHALL BE CONSIDERED SUBSIDIARY TO THE PROJECT COST AND REFLECTED IN THE UNIT BID PRICES FOR VARIOUS ITEMS LISTED IN THE PROPOSAL. PRE-FABRICATED ELBOWS SHALL BE FIELD CONFIRMED BY THE CONTRACTOR.

33. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPROVING ALL EXISTING DRIVEWAYS. CALICHE, DIRT OR ASPHALT DRIVEWAYS SHALL BE REPLACED WITH 3" COMPACTED CALICHE AND 1" ACP. CONCRETE DRIVEWAYS SHALL BE REPLACED WITH 4" CONCRETE WITH REINFORCEMENT AS PER DETAILS. THIS SHALL BE CONSIDERED SUBSIDIARY TO THE PROJECT COST REFLECTED IN THE UNIT BID PRICES FOR VARIOUS ITEMS LISTED ON THE PROPOSAL.

34. FOR ALL PITS OR QUARRIES, COMPLY WITH THE "TEXAS AGGREGATE QUARRY AND PIT SAFETY ACT."

35. THE CONTRACTOR SHALL RELOCATE OR RECONSTRUCT ALL MAIL BOXES TO BE 1' BEHIND BACK OF CURB OR 3' BEHIND EDGE OF PAVEMENT. MAIL BOXES SHALL BE REPLACED TO THE SAME EXISTING CONDITIONS OR BETTER. SAID RELOCATION AND/OR RECONSTRUCTION OF MAIL BOXES SHALL BE CONSIDERED SUBSIDIARY TO THE PROJECT COST AND REFLECTED IN THE UNIT BID PRICES FOR VARIOUS ITEMS LISTED IN THE PROPOSAL.

36. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING ALL EXISTING WATER VALVES AND MANHOLES TO MATCH PROPOSED FINISH GRADE OF ROADWAY. CONCRETE COLLARS SHALL BE INSTALLED TO MATCH TOPS WITH PAVEMENT GRADE. THIS WORK SHALL BE INCIDENTAL AND NOT A SEPARATE PAY ITEM UNLESS STATED OTHERWISE.

37. THE CONTRACTOR SHALL INSURE A 6" MINIMUM COVER FOR DRIVEWAY CULVERTS. THE RELAYING OR REMOVAL OF DRIVEWAY PIPE CULVERTS SHALL BE CONSIDERED SUBSIDIARY TO THE PROJECT COST REFLECTED IN THE UNIT BID PRICES FOR VARIOUS ITEMS LISTED ON THE PROPOSAL.

38. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPLACEMENT/RELOCATION OF ALL REGULATORY SIGNS REMOVED DUE TO CONSTRUCTION OPERATIONS WITH THE SAME SIGN ON FIXED SUPPORT(S) IMMEDIATELY UPON ITS REMOVAL. APPROVAL BY THE ENGINEER IS NECESSARY BEFORE REMOVING ANY REGULATORY ROADWAY SIGN(S). FLAGGERS ARE REQUIRED TO BE AVAILABLE TO DIRECT TRAFFIC DURING SIGN INTERMEDIATE DOWN TIME. RELOCATION OF ANY DIRECTIONAL SIGN ASSEMBLIES REMOVED DURING CONSTRUCTION OPERATIONS IMMEDIATELY UPON THEIR REMOVAL IS REQUIRED. THESE SIGNS SHALL BE RELOCATED TO A LOCATION IN ACCORDANCE WITH THE LATEST VERSION OF THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES". IN NO CASE WILL A SIGN BE REMOVED WITHOUT A REPLACEMENT SIGN AND SUPPORT(S) BEING READILY AVAILABLE AND A LOCATION ESTABLISHED. REMOVAL AND RELOCATION OF THESE SIGNS WILL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED SUBSIDIARY TO THE PROJECT COST REFLECTED IN THE UNIT BID PRICES FOR VARIOUS ITEMS LISTED ON THE PROPOSAL.

39. ALL CONSTRUCTION OPERATIONS SHALL BE CONDUCTED TO PROVIDE THE LEAST POSSIBLE INTERFERENCE TO TRAFFIC AS PROVIDED FOR IN THE SPECIFICATIONS, TxDOT STANDARDS, TEXAS M.U.T.C.D. AND/OR AS DIRECTED. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE CURRENT EDITION OF THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

40. THE CONTRACTOR SHALL ABANDON AND CAP ANY PORTION OF PIPE LINE (STORM, IRRIGATION, ETC.) FOUND WITHIN THE PROPOSED PIPE TRENCH, AT THE ENGINEERS REQUEST. ONCE APPROVED BY THE ENGINEER, THE PIPE TO BE ABANDONED SHALL BE CAPPED AND SEALED WITH CEMENT AT BOTH ENDS OF THE TRENCH. THIS SHALL BE CONSIDERED SUBSIDIARY UNLESS OTHERWISE STATED.

HIDALGO COUNTY DRAINAGE DISTRICT No. 1

Raul E. Sesin P.E., C.F.M.
General Manager
Floodplain Administrator

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COMMUNITY PROJECT

GENERAL NOTES

STATE OF TEXAS
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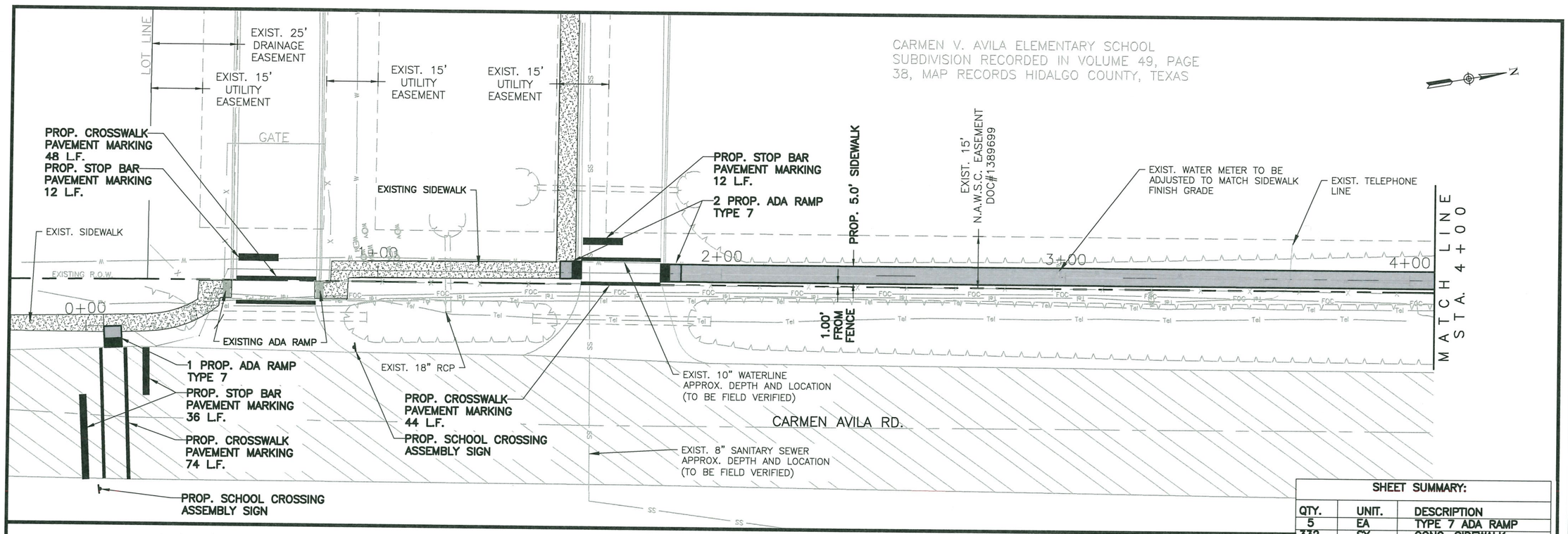
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02/24/21

JOSE N. SALDIVAR-P.E. No. 94076

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SCALE:	N/A
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TOPO BY:	S.S./E.I.
SHEET:	G01-05

Drawings: S:\HCDD1 - PROJECTS\E-20-030 Carmen Avila Sidewalk\Design\CAD\dwg\P&P Sheets\04-05-General Notes.dwg)
Layout Tab: GENERAL NOTES (2) Date: 02/24/2021 Time: 11:12:57 AM



SHEET SUMMARY:

QTY.	UNIT.	DESCRIPTION
5	EA	TYPE 7 ADA RAMP
332	SY	CONC. SIDEWALK
210	LF	12" PAVEMENT MARKING
72	LF	24" PAVEMENT MARKING
2	EA	SCHOOL CROSSING SIGN
16	LF	18" RCP PIPE

NOTE:
REMOVAL OF CURB & GUTTER IS SUBSIDIARY TO CONCRETE SIDEWALK

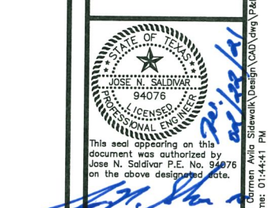
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COMMUNITY PROJECT

PLAN

STA. 0+00 - STA. 8+00

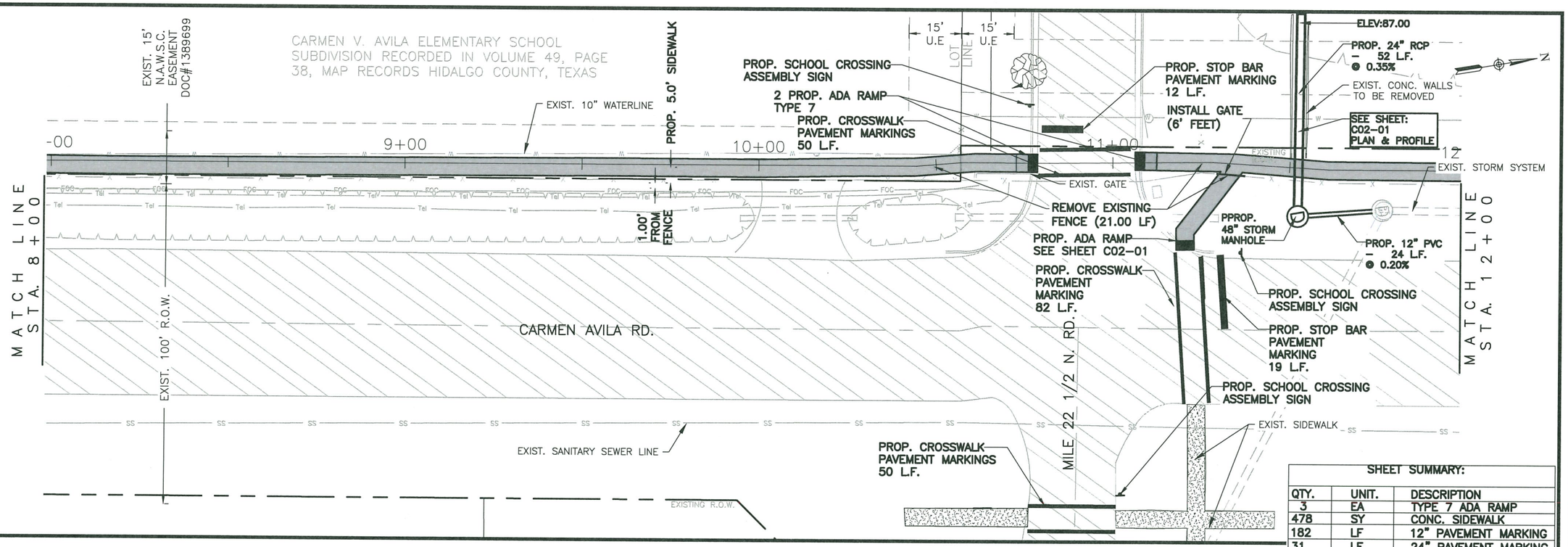


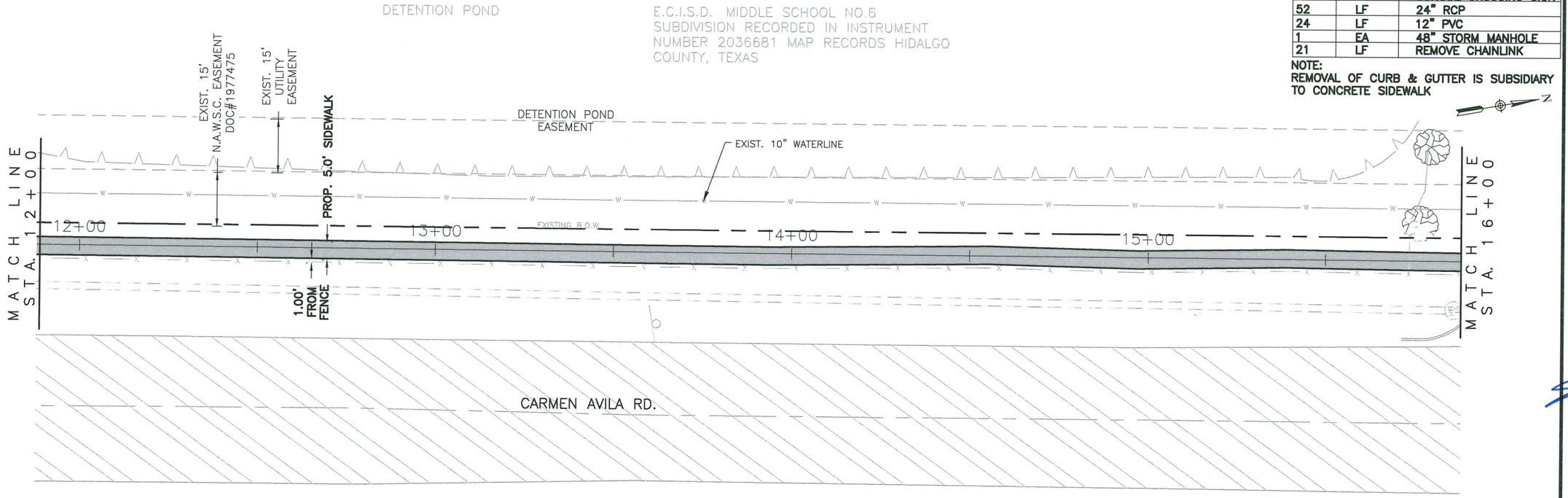
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SHEET SUMMARY:

QTY.	UNIT.	DESCRIPTION
3	EA	TYPE 7 ADA RAMP
478	SY	CONC. SIDEWALK
182	LF	12" PAVEMENT MARKING
31	LF	24" PAVEMENT MARKING
1	EA	CHAIN LINK GATE (6FT)
3	EA	SCHOOL CROSSING SIGN
52	LF	24" RCP
24	LF	12" PVC
1	EA	48" STORM MANHOLE
21	LF	REMOVE CHAINLINK

NOTE:
REMOVAL OF CURB & GUTTER IS SUBSIDIARY TO CONCRETE SIDEWALK

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902 N. DOOLITTLE RD
EDINBURG TX. 78542
TEL:(956) 292-7080
www.hcdd1.org

Raul E. Sesin P.E., C.F.M.
General Manager
Floodplain Administrator

HIDALGO COUNTY PRECINCT No. 4
AVILA-HARWELL CAMPUSES SAFE WALK
COMMUNITY PROJECT

PLAN

STA. 8+00 - STA. 16+00

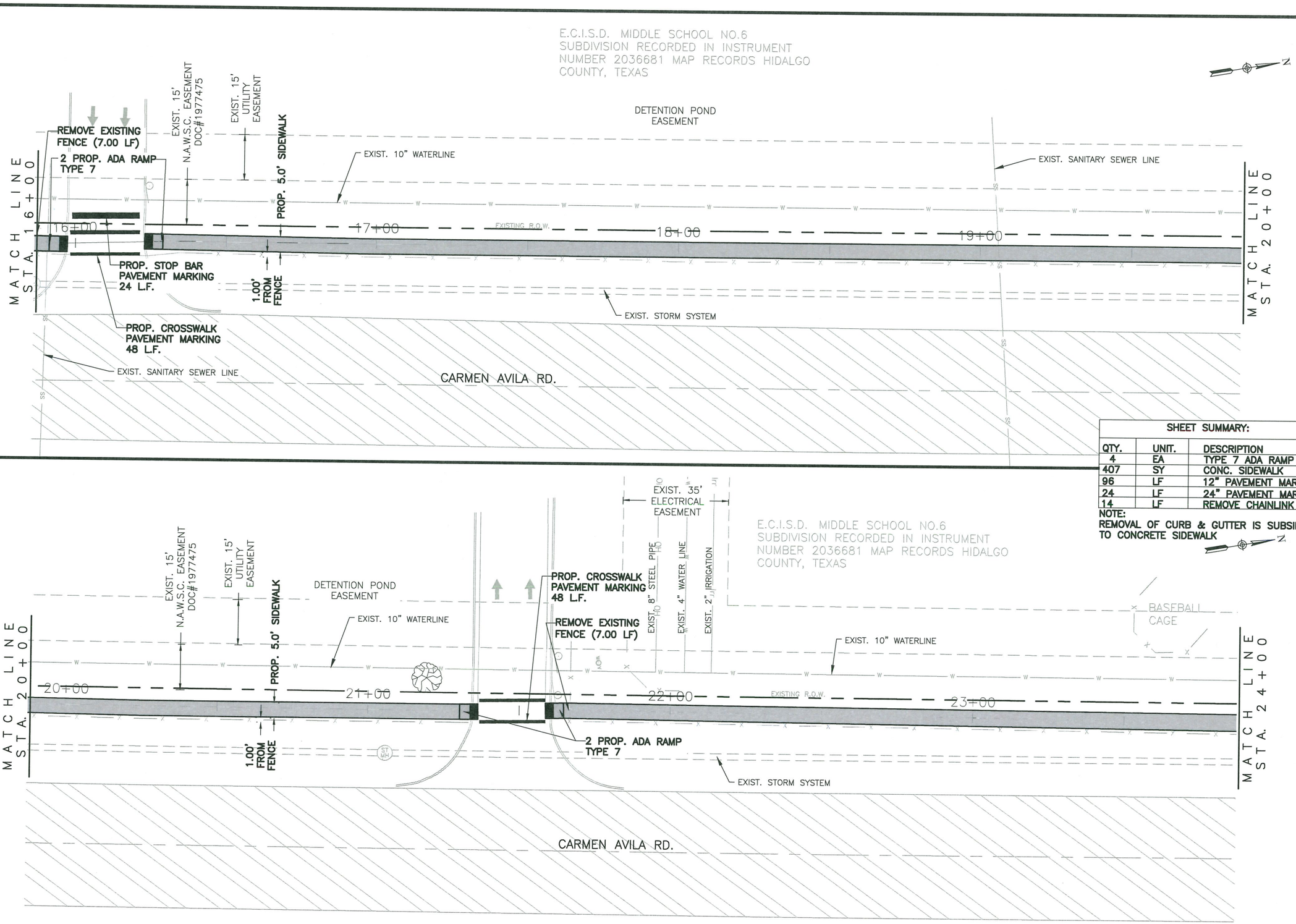
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AVILA-HARWELL CAMPUSES SAFE WALK COMMUNITY PROJECT
PLAN
STA. 16+00 - STA. 24+00

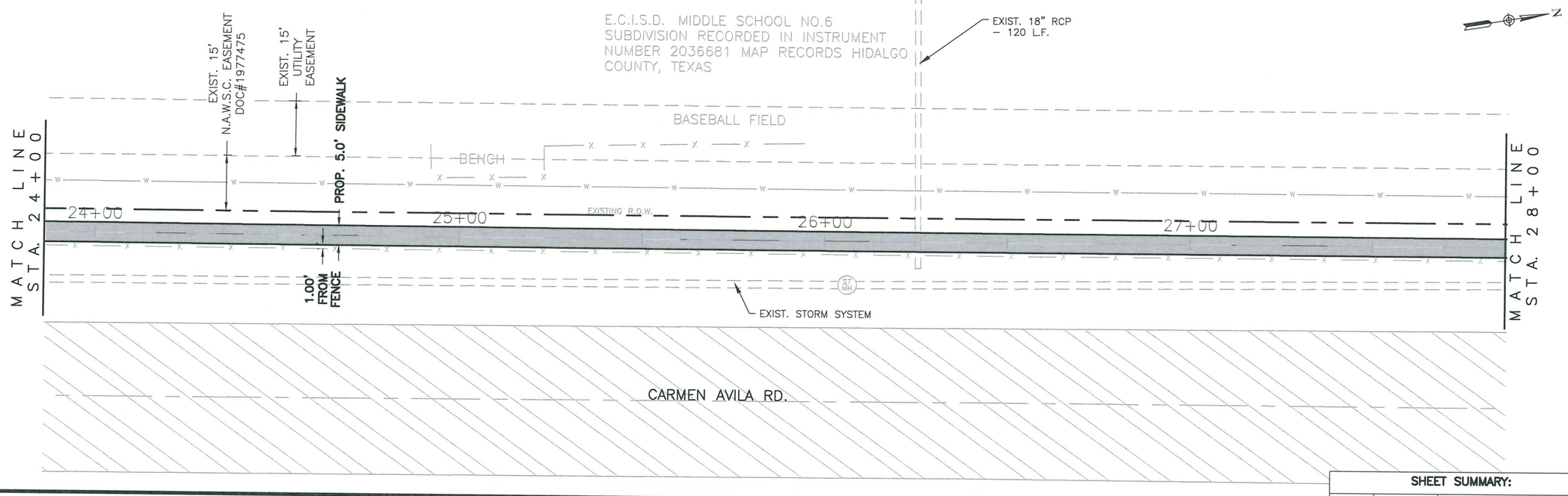
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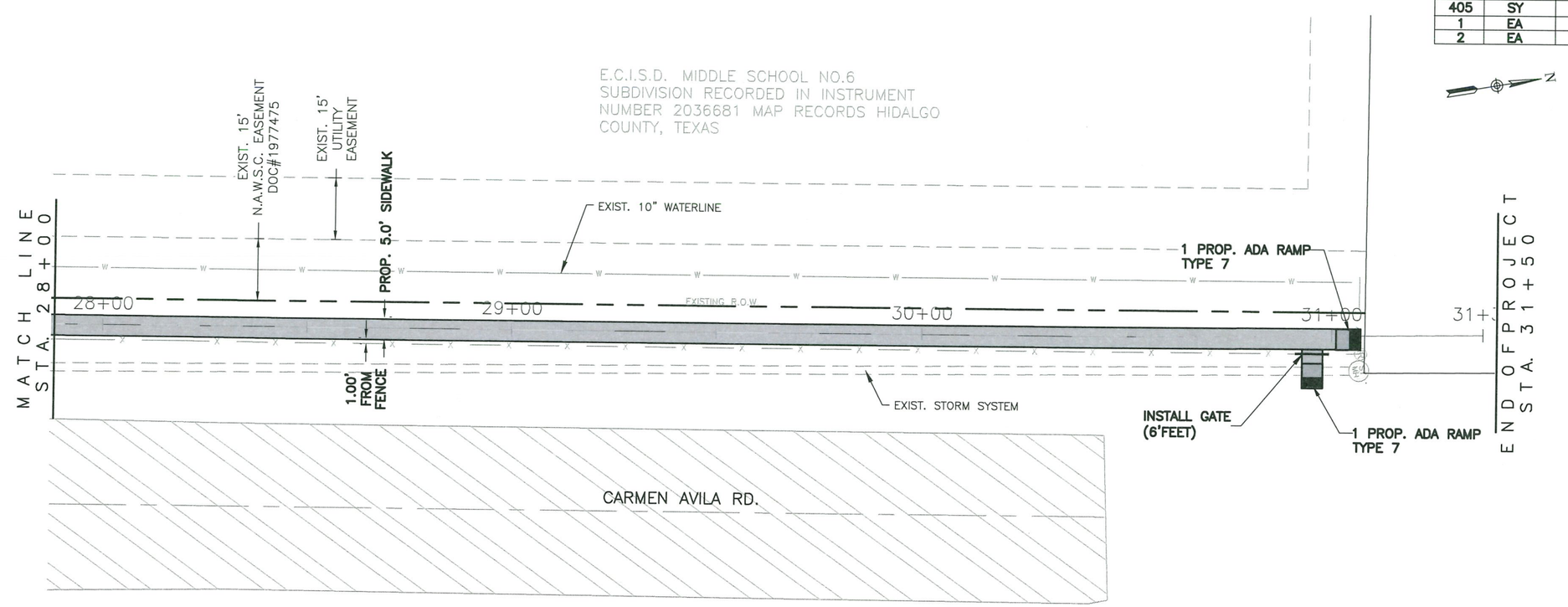
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SHEET SUMMARY:		
QTY.	UNIT.	DESCRIPTION
405	SY	CONC. SIDEWALK
1	EA	CHAIN LINK GATE (6'FT)
2	EA	TYPE 7 ADA RAMP



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COMMUNITY PROJECT

PLAN
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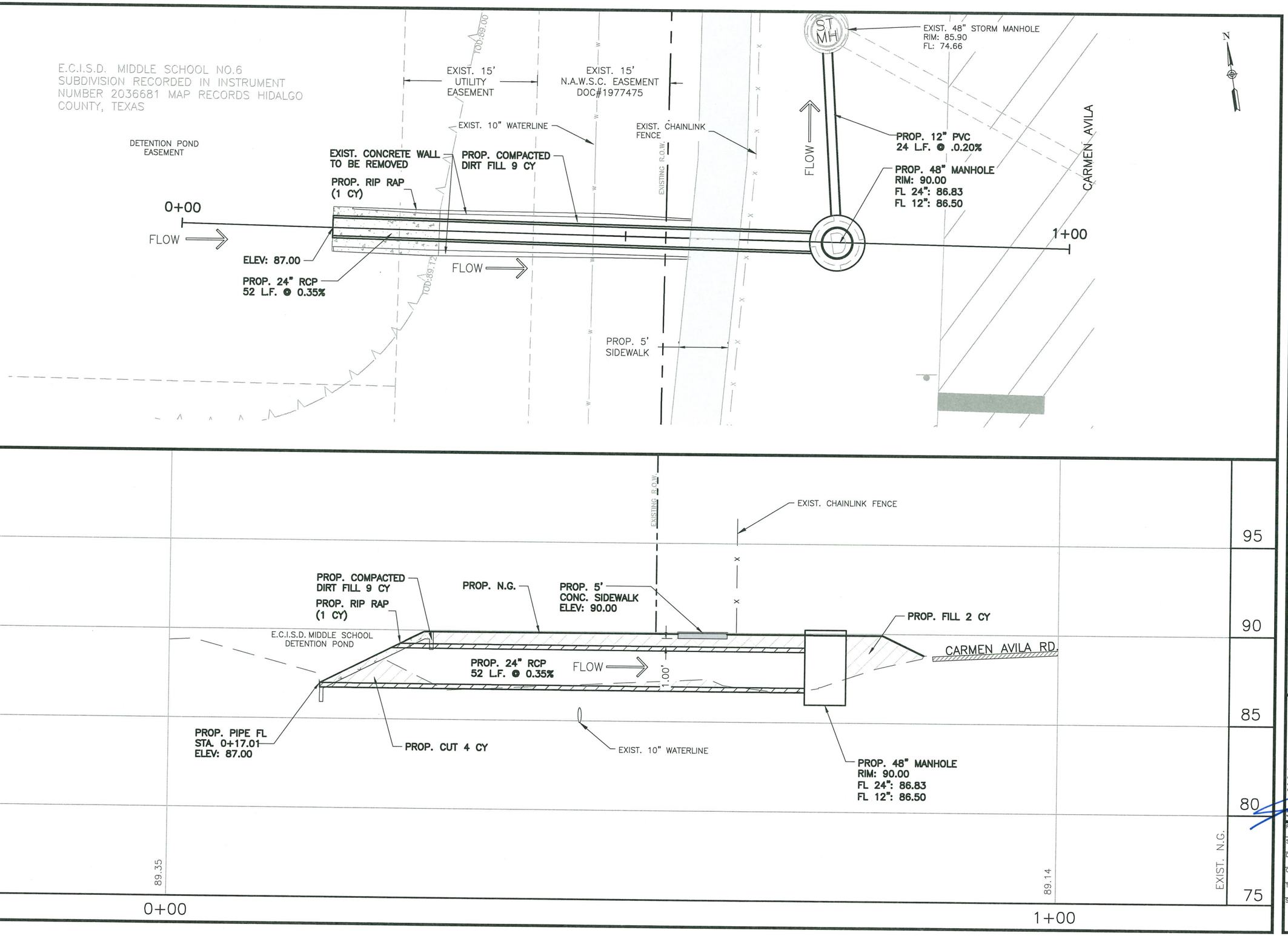
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COMMUNITY PROJECT
PLAN & PROFILE
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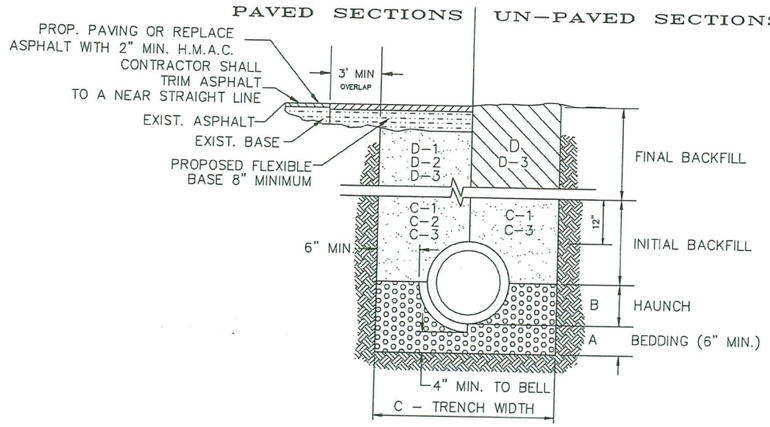
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STORM TRENCH BEDDING AND BACKFILL DETAILS

N.T.S

A. BEDDING FOR RCP CLASS III, HIGH PERFORMANCE POLYPROPYLENE OR CORRUGATED PVC STORM DRAIN PIPE – SAND AND/OR GRAVEL MIX BEDDING PLACED BEFORE PIPE IS LAID UP TO FLOW OF PIPE (MIN. COMPACTED THICKNESS = 6") – PIT RUN GRAVEL ¾" MAX SIZE.

B. HAUNCH FOR RCP CLASS III, HIGH PERFORMANCE POLYPROPYLENE OR CORRUGATED PVC STORM DRAIN PIPE – SHALL BE CLASS I OR CLASS II (ASTM D2321) BACKFILL MATERIAL COMPACTED TO 92% S.P.D., 8" LOOSE LIFTS, MECHANICAL COMPACTION.

C. TRENCH WIDTH – SHALL BE BELL O.D. X 1.5 + 12". MINIMUM TRENCH WIDTH SHALL EQUAL STRUCTURE WIDTH + 4 FT. THROUGHOUT THE HEIGHT OF THE STRUCTURE.

C-1 INITIAL BACKFILL FOR RCP CLASS III STORM DRAIN PIPE ON CITY STREETS, PARKING AREAS, DRIVEWAYS, COUNTY ROADS & UNPAVED AREAS – SHALL BE SOIL TYPE A1, A2, A3 WITH A MAXIMUM P.I. OF 19 (AASHTO M145) COMPACTED TO 92% S.P.D., 8" LOOSE LIFTS, MECHANICAL COMPACTION.

C-2 INITIAL BACKFILL FOR RCP CLASS III STORM DRAIN PIPE ON STATE MAINTAINED ROADWAYS – COMPACTED SAND/CEMENT STABILIZED BACKFILL WITH 7% PORTLAND CEMENT, COMPACTED TO 92% S.P.D. AS PER ASTM D4253 AND ASTM D698, 8" LOOSE LIFTS, MECHANICAL COMPACTION.

C-3 INITIAL BACKFILL FOR HIGH PERFORMANCE POLYPROPYLENE OR CORRUGATED PVC STORM DRAIN PIPE – SHALL BE CLASS I OR CLASS II WITH A MAXIMUM P.I. OF 19 (ASTM D2321) BACKFILL MATERIAL COMPACTED TO 92% S.P.D., 8" LOOSE LIFTS, MECHANICAL COMPACTION.

D. FINAL BACKFILL FOR RCP CLASS III, HIGH PERFORMANCE POLYPROPYLENE OR CORRUGATED PVC STORM DRAIN PIPE UNDER UNPAVED SECTIONS – SHALL BE CLASS I, II, III OR IV, COMPACTED TO 92% S.P.D. (12" LOOSE LIFT, MECHANICAL COMPACTION).

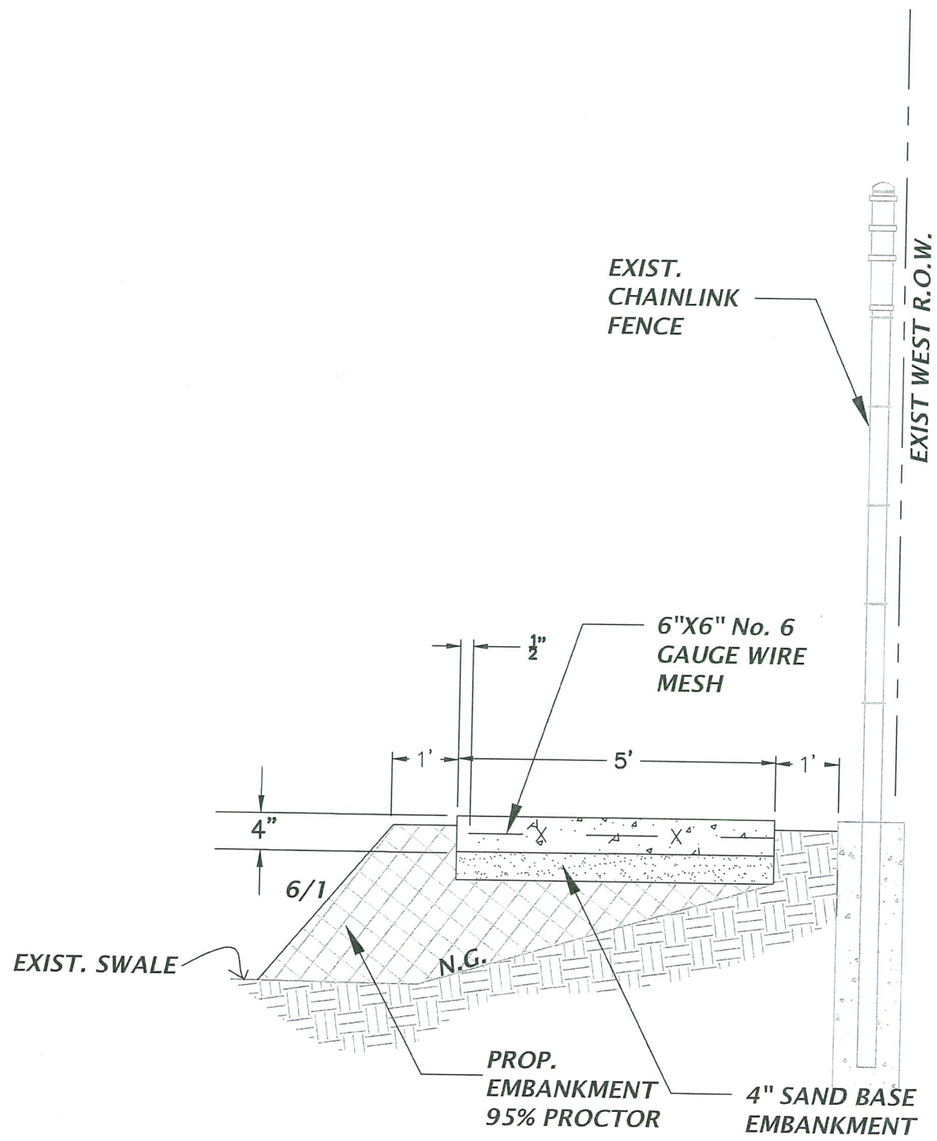
D-1 FINAL BACKFILL FOR RCP CLASS III, HIGH PERFORMANCE POLYPROPYLENE OR CORRUGATED PVC STORM DRAIN PIPE ON CITY STREETS, PARKING AREAS, DRIVEWAYS AND COUNTY ROADS– SHALL BE SOIL TYPE A1, A2, A3 WITH A MAXIMUM P.I. OF 19 (AASHTO M145) COMPACTED TO 92% S.P.D., 8" LOOSE LIFTS, MECHANICAL COMPACTION.

D-2 FINAL BACKFILL FOR RCP CLASS III, HIGH PERFORMANCE POLYPROPYLENE OR CORRUGATED PVC STORM DRAIN PIPE ON STATE MAINTAINED ROADWAYS – COMPACTED SAND/CEMENT STABILIZED BACKFILL WITH 7% PORTLAND CEMENT, COMPACTED TO 92% S.P.D. AS PER ASTM D4253 AND ASTM D698, 8" LOOSE LIFTS, MECHANICAL COMPACTION.

D-3 FINAL BACKFILL FOR STRUCTURES (INLETS, MANHOLES, ETC.) – STRUCTURES UNDER THE ROADWAY AND UP TO 5 FT BEYOND THE EDGE OF PAVEMENT/BACK OF CURB SHALL HAVE CLASS I OR CLASS II (ASTM D2321) OR SOIL TYPE A1, A2, OR A3 (AASHTO M145) WITH A MAXIMUM P.I. OF 19 BACKFILL MATERIAL. STRUCTURES BEYOND 5 FT FROM THE E.O.P/B.O.C. SHALL HAVE CLASS I, II, III OR IV (ASTM D2321) BACKFILL MATERIAL. FOUNDATION PREPARATION (WELLPOINTS, MINIMUM 4" GRAVEL OR CEMENTS STABILIZATION, OR APPROVED SUBSTITUTE) SHALL BE REQUIRED WHEN TRENCH BOTTOM IS UNSTABLE. BACKFILLING AT STRUCTURES SHALL BE PLACED IN UNIFORM LAYERS, MOISTENED AS REQUIRED TO APPROXIMATE OPTIMUM MOISTURE CONTENT AND COMPACTED TO 95% S.P.D. (USE RELATIVE DENSITY TEST PER ASTM D4253 & ASTM D698). THE THICKNESS OF EACH LOOSE LAYER SHALL NOT EXCEED 8".

NOTES:
1. MAXIMUM COVER SHALL BE IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
2. FOR D-1 AND D-2 THE COMPACTION REQUIREMENT SHALL BE 95% S.P.D. WITHIN 12 IN. BELOW THE FLEXIBLE BASE.
3. FOR PAVED SECTIONS THE ABOVE REQUIREMENTS SHALL APPLY WHEN ANY PART OF THE TRENCH WIDTH IS WITHIN 5 FT. FROM THE E.O.P./B.O.C.
4. THE ABOVE REQUIREMENTS SHALL APPLY TO UTILITY PIPELINES AND UTILITY STRUCTURES OF OTHER UTILITY ENTITIES.

STORM TRENCH BEDDING AND BACKFILL DETAIL



SIDEWALK DETAIL

N.T.S.

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HIDALGO COUNTY PRECINCT No. 4
AVILA-HARWELL CAMPUSES SAFE WALK
COMMUNITY PROJECT

TYPICAL DETAILS

STATE OF TEXAS
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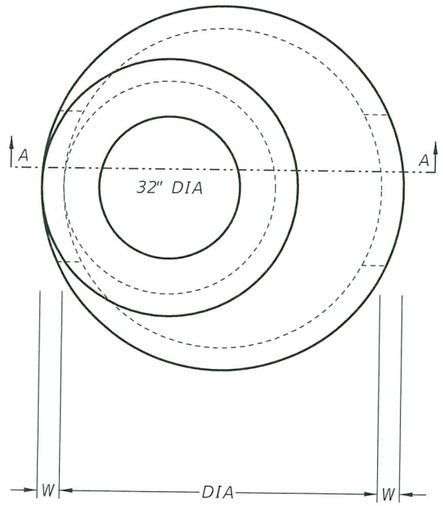
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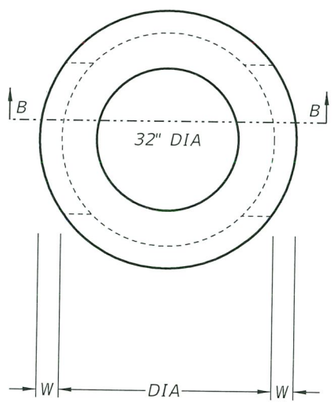
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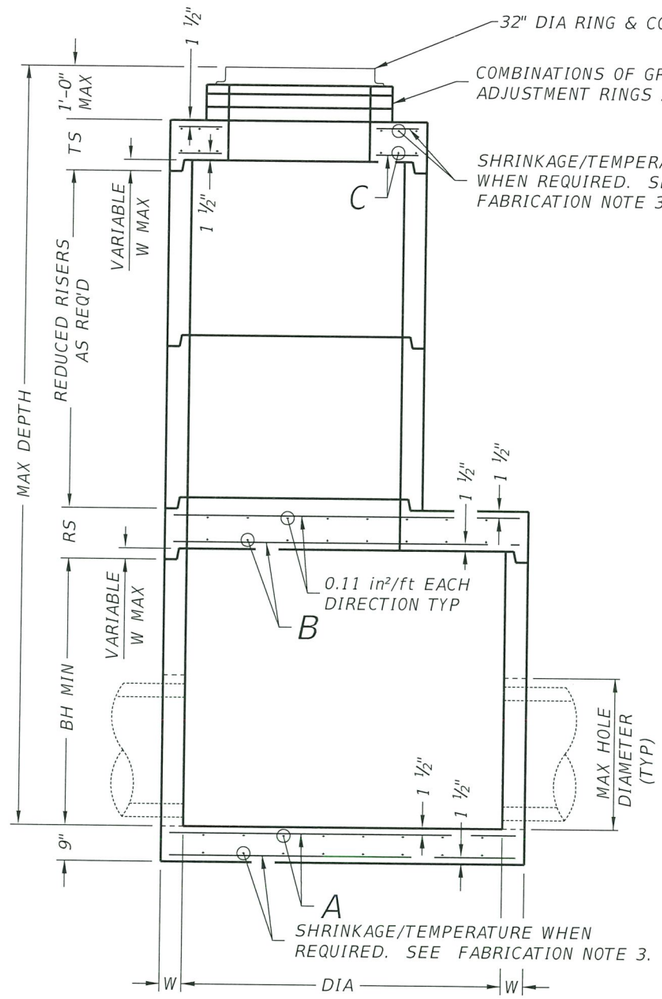
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PLAN VIEW "A"

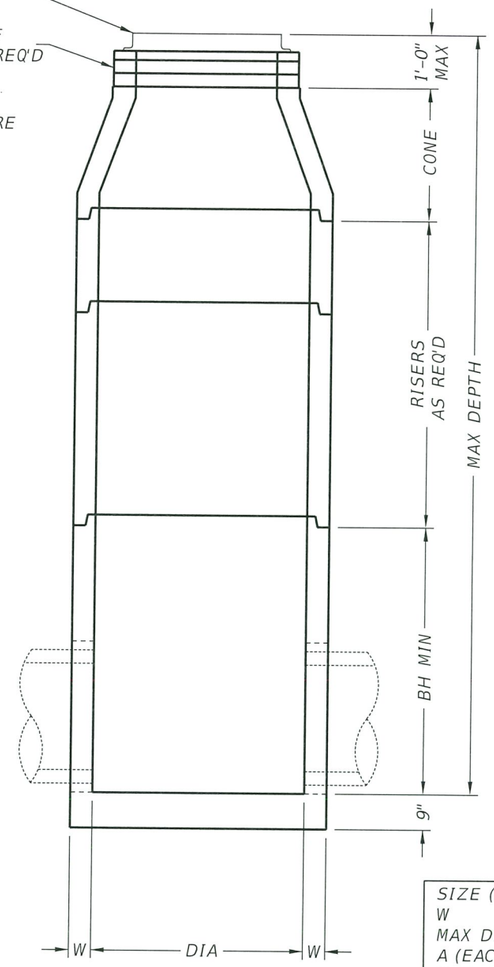


PLAN VIEW "B"



SECTION A-A

ROUND REDUCED RISER OPTION
SHOWING FLAT SLAB TOP



SECTION B-B

ROUND RISER OPTION
SHOWING CONE

FABRICATION NOTES:

1. Provide Class "H" concrete in accordance with Item 421 and having a minimum compressive strength of 5,000 psi.
2. Provide Grade 60 reinforcing steel or equivalent area of WWR. Provide circumferential reinforcing steel in vertical walls of base, riser and cone in accordance with ASTM C478.
3. Slabs with a thickness of 8" or greater require shrinkage and temperature reinforcing steel. Provide steel area = 0.11 in²/ft each way.
4. Manufacture base and risers to nearest 3" increment.
5. Design tongue and groove joints for full closure on both shoulders. Minimum spigot depth is ¾".
6. Provide lifting devices in conformance with Manufacturer's recommendations.
7. Provide cast iron solid cover, unless noted otherwise elsewhere in the plans.

INSTALLATION NOTES:

1. Cones may be concentric or eccentric. Reduction cones are acceptable. See Manufacturer for cone dimensions.
2. Inverts (benching) to be provided by Contractor. Concrete or mortar used for invert is subsidiary to this item.
3. Seal tongue and groove joints with preformed or bulk mastic in conformance with Manufacturer's recommendations. Tongue and groove joints may be grouted no more than 1" between each section, or ½ the joint depth, whichever is greater.
4. Do not grout rubber gasket joints without Manufacturer's recommendation.
5. Initial installation of grade adjustment rings is limited to 1'-0" Max as shown.
6. Grade adjustment rings may be increased to 2'-0" Max when future construction affects final grade of structure. Make adjustments greater than 2'-0" with additional risers. Adjustments may be made up to the Max depth shown. Structure must be evaluated if Max depth will be exceeded.

GENERAL NOTES:

1. Designed according to ASTM C478.
2. Payment for manhole is per Item 465, "Junction Boxes, Manholes, and Inlets" by type and size.
3. Pipe OD + placement tolerance must be equal or less than Max hole diameter. For rigid pipe, placement tolerance is 4" Max, 2" Min. For flexible pipe, consult boot/seal manufacturer's specification for placement tolerance.

Cover dimensions are clear dimensions, unless noted otherwise.

SIZE (DIA)	48 in	60 in	72 in
W	5 in	6 in	7 in
MAX DEPTH	25 ft	25 ft	25 ft
A (EACH WAY)	0.22 in²/ft	0.30 in²/ft	0.45 in²/ft
B (EACH WAY)	N/A	0.37 in²/ft	0.62 in²/ft
C (EACH WAY)	0.24 in²/ft	0.46 in²/ft	0.46 in²/ft
BH MIN	12 in	36 in	36 in
TS	9 in	9 in	9 in
RS	N/A	9 in	12 in
REDUCED RISER DIA	N/A	48 in	48/60 in
MAX HOLE DIA	32 in	40 in	54 in

HL93 LOADING

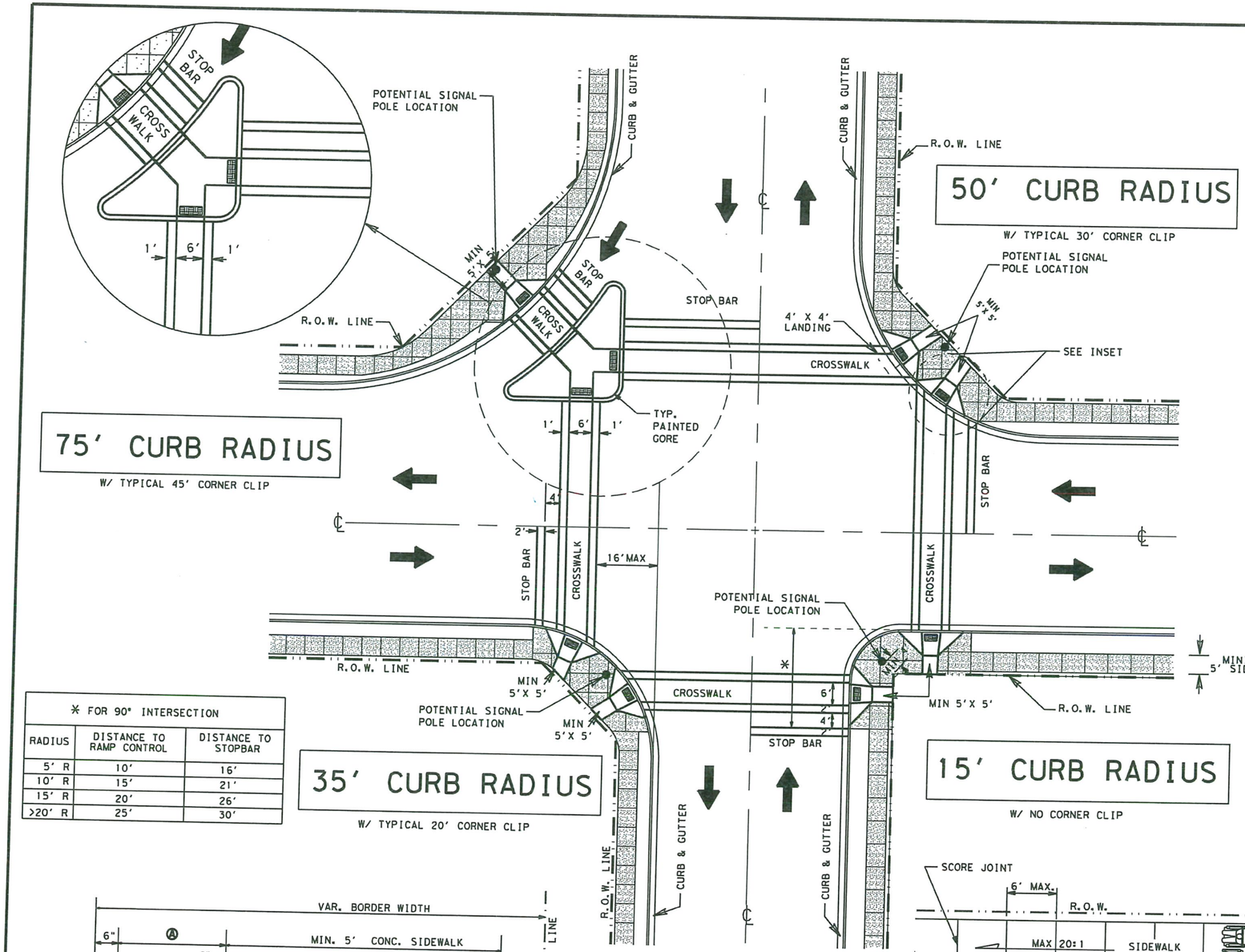
Texas Department of Transportation

Bridge Division Standard

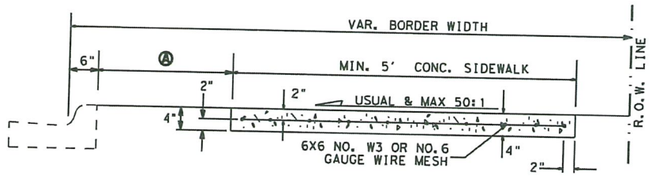
PRECAST ROUND MANHOLE

PRM

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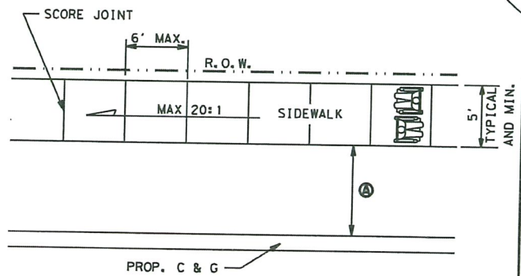


* FOR 90° INTERSECTION		
RADIUS	DISTANCE TO RAMP CONTROL	DISTANCE TO STOPBAR
5' R	10'	16'
10' R	15'	21'
15' R	20'	26'
>20' R	25'	30'



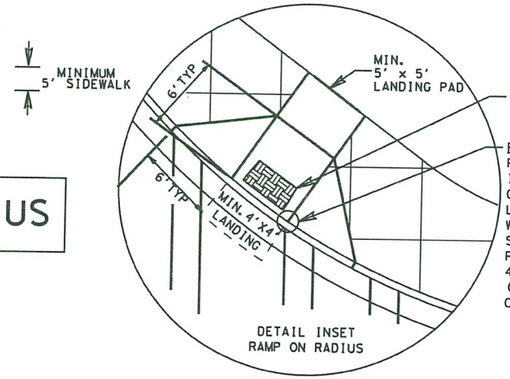
TYPICAL CONC. SIDEWALK

TYPICAL WHEEL CHAIR RAMP LOCATION



SCORE JOINTS 1/4" THICKNESS
EXPANSION JOINT EVERY 30'
JOINT IN CENTER OF SIDEWALK IF OVER 15' WIDE.

PLAN VIEW



RAMP CONTROL:
PLACE RAMP CORNER IN ALIGNMENT W/ CROSS WALK INSIDE LINE TO MAXIMIZE WHEELCHAIR TURNING SPACE.
RAMPS SHALL HAVE MIN 4' MANEUVERING SPACE (AT CENTER) WITHIN CROSSWALK.

GENERAL NOTES

- ALL RAMPS SHALL HAVE A 5' x 5' LANDING PAD.
- RAMP CENTER TO BE PERPENDICULAR TO FACE OF CURB. A PERPENDICULAR RAMP MAY BE LOCATED WITHIN THE RADIUS OF A CURBLINE.
- SIDEWALK GRADE TO BE PARALLEL TO TOP OF CURB AND GUTTER UNLESS OTHERWISE SHOWN ON PLANS OR DIRECTED BY THE ENGINEER.
- SIDEWALK WIDTH AS SHOWN ELSEWHERE IN PLANS. MIN WIDTH 5'. PROVIDE DROPPED CURBS AT INTERSECTIONS. ALL CONCRETE SHALL BE CLASS "A" PROPOSED SIDEWALKS TO MATCH EXIST. SIDEWALK.
- NO VERTICAL CHANGES SHALL EXCEED 1/4" IN ELEVATION AT ADJOINING SURFACES.
- TO PROVIDE ACCESS TO PEDESTRIAN BUTTON, SIDEWALK / LANDING PAD SHALL EXTEND AND/ OR ABUT TO SIGNAL POLE CONC. FOUNDATION.
- COLOR TEXTURIZED CONCRETE SHALL BE USED TO COLOR AREAS AT RAMPS. COLOR SHALL BE " BRICK RED " AS PER L.M. SCOFIELD COMPANY STANDARDS COLOR A-26 OR EQUAL. COLOR TEXTURIZED CONCRETE SHALL BE SUBSIDIARY TO CURB RAMP ITEM
- IF THE DETAIL IS TO BE USED IN A PLAN SET, IT MUST BE SIGNED AND SEALED.

Ⓐ DESIRABLE 3' OR GREATER FOR HIGH SPEED TRAFFIC. FOR BORDER WIDTHS OF 8' OR LESS, PLACE SIDEWALK ADJACENT TO CURB.

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SIDEWALK & WHEELCHAIR RAMP DESIGN GUIDE

REV. 5/18 SIDEWALK.DGN

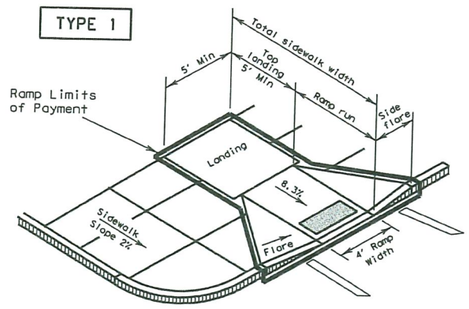
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6			

STATE	STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB	HIGHWAY NO.
TEXAS	21					

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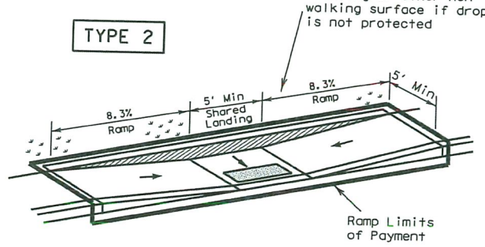
LEVELS DISPLAYED

TYPE 1



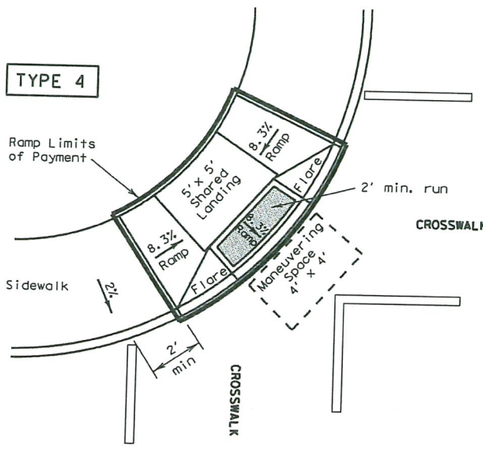
PERPENDICULAR CURB RAMP

TYPE 2



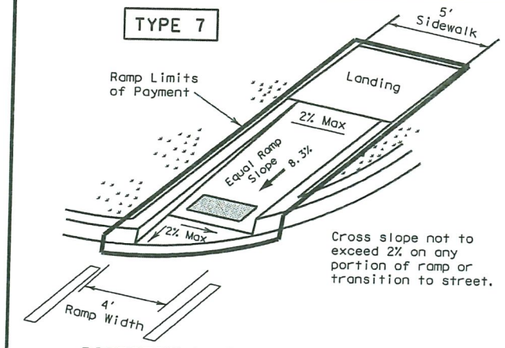
PARALLEL CURB RAMP
(Use only where water will not pond in the landing.)

TYPE 4



DIAGONAL COMBINATION CURB RAMP
Perpendicular to the Tangent of the Curb Radius and Contained in Crosswalk

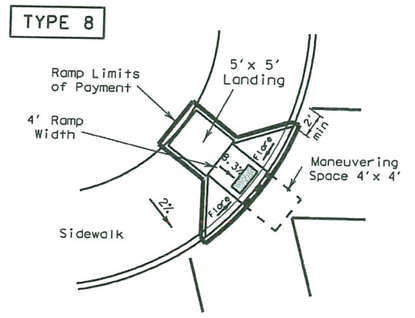
TYPE 7



Cross slope not to exceed 2% on any portion of ramp or transition to street.

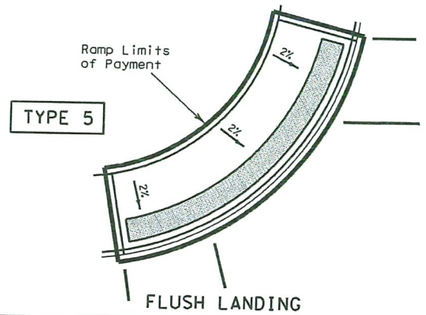
DIRECTIONAL RAMP WITHIN RADIUS
(Sidewalk set back from curb)

TYPE 8



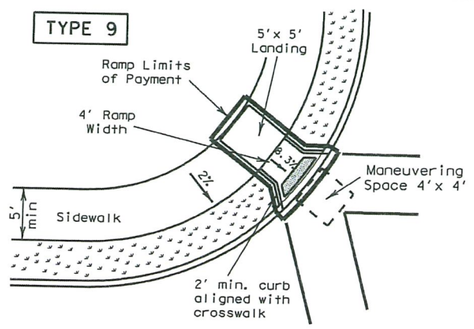
DIAGONAL CURB RAMP (FLARED SIDES)

TYPE 5



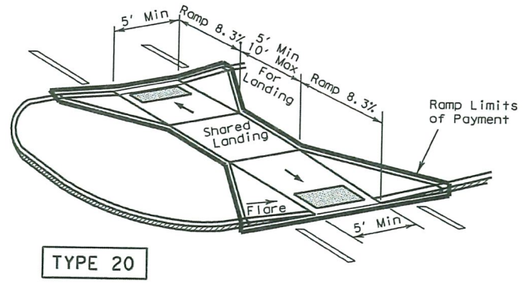
FLUSH LANDING

TYPE 9

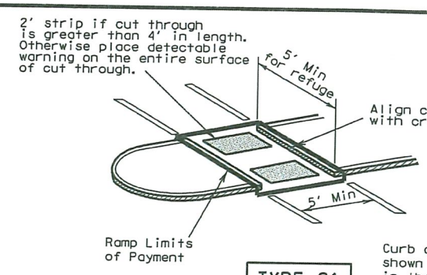


DIAGONAL CURB RAMP (RETURNED CURB)

TYPE 20



TYPE 21

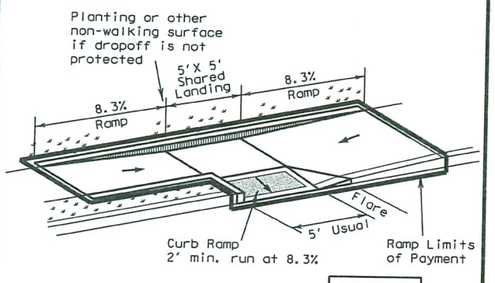


Curb details are shown elsewhere in the plans.

CURB RAMPS AT MEDIAN ISLANDS

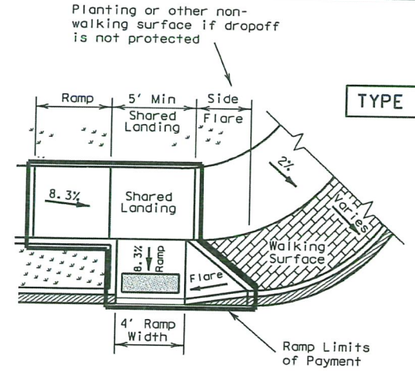
Planting or other non-walking surface if dropoff is not protected

TYPE 3



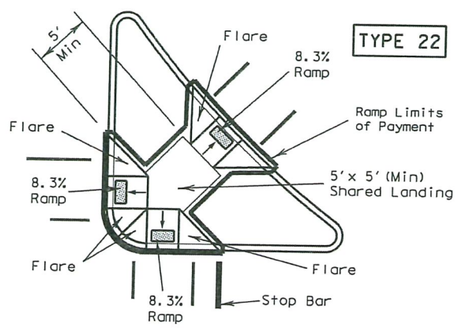
Planting or other non-walking surface if dropoff is not protected

TYPE 6



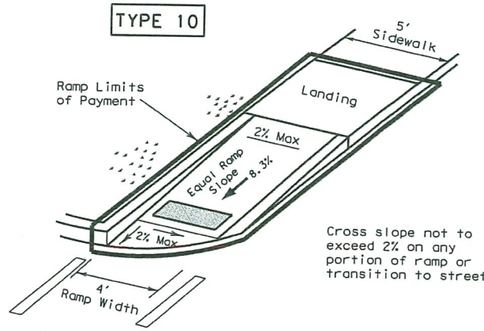
COMBINATION CURB RAMPS

TYPE 22



COMBINATION ISLAND RAMPS

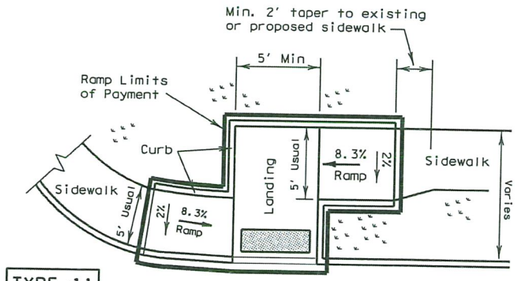
TYPE 10



Cross slope not to exceed 2% on any portion of ramp or transition to street.

DIRECTIONAL RAMP WITHIN RADIUS
(Sidewalk adjacent to curb)

TYPE 11



OFFSET PARALLEL CURB RAMP

NOTES:
See General Notes on sheet 2 of 4 for more information.

" " Denotes planting or non-walking surface.

Texas Department of Transportation
Design Division (Roadway)

PEDESTRIAN FACILITIES
CURB RAMPS

PED-05

SHEET 1 OF 4

FILE: ped05.dgn	DN: EH	CK:	DW: BGD	CK:
©TxDOT March 2002	DIST	FEDERAL AID PROJECT		SHEET
REVISIONS	COUNTY		CONTROL SECT JOB	HIGHWAY

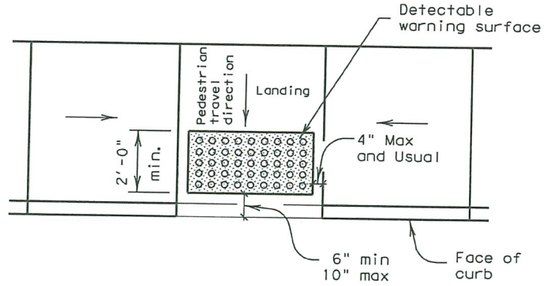
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LEVELS DISPLAYED

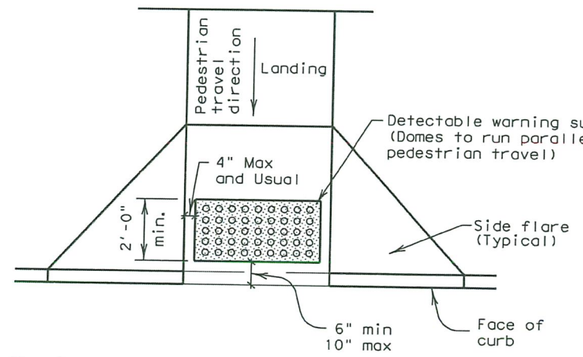
DETECTABLE WARNINGS

General Notes for Detectable Warnings

1. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with Section 4.29 of the Texas Accessibility Standards (TAS). The surface must contrast visually with adjoining surfaces, including side flares. Furnish dark brown or dark red detectable warning surface adjacent to uncolored concrete, unless specified elsewhere in the plans.
2. Detectable warning surfaces must be slip resistant and not allow water to accumulate.
3. Align truncated domes in the direction of pedestrian travel when entering the street.
4. Shaded areas on Sheet 1 of 4 indicate the approximate location for the detectable warning surface for each curb ramp type.
5. Detectable warning surfaces shall be a minimum of 24" 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.
6. Detectable warning surfaces shall be located so that the edge nearest the curb line is a minimum of 6" and a maximum of 10" from the extension of the face of curb. Detectable warning surfaces may be curved along the corner radius.
7. TxDOT maintains a list of Qualified Detectable Warning Materials. Details are provided herein for the placement of landscape pavers. For other materials, refer to the manufacturer's product manual for proper installation.



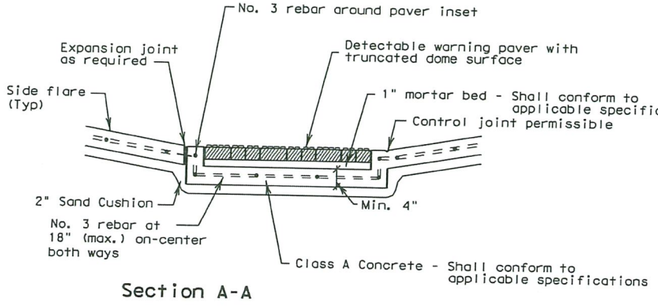
Typical placement of detectable warning surface on landing at street edge.



Typical placement of detectable warning surface on sloping ramp run.

Pedestrian Facilities General Notes

1. All slopes are maximum allowable. The least possible slope that will still drain properly should be used. Adjust curb ramp length or grade of approach sidewalks as directed.
2. The minimum sidewalk width is 5'. Where the sidewalk is adjacent to the back of curb, a 6' sidewalk width is encouraged. Where a 5' sidewalk can not be provided due to site constraints, a minimum 3' sidewalk with 5'x 5' passing areas at intervals not to exceed 200' is required.
3. Landings shall be 5'x 5' minimum with a maximum 2% slope in any direction.
4. Maneuvering 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.
5. Maximum allowable cross slope on sidewalk and curb ramp surfaces is 2%.
6. Curb ramps with returned curbs may be used only where pedestrians would not normally walk across the ramp, either because the adjacent surface is planting or other non-walking surface or because the side approach is substantially obstructed. Otherwise, provide flared sides.
7. Additional information on curb ramp location, design, light reflective value and texture may be found in the current edition of the Texas Accessibility Standards (TAS) and 16 TAC §68.102.
8. To serve as a pedestrian refuge area, the median should be a minimum of 5' wide. Medians should be designed to provide accessible passage over or through them.
9. 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.
10. 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 be aligned with theoretical crosswalks, or as directed by the Engineer.
11. Existing features that comply with TAS may remain in place unless otherwise shown on the plans.
12. Handrails are not required on curb ramps. Provide curb ramps wherever on accessible route crosses (penetrates) a curb.
13. Curb ramps and landings shall be constructed and paid for in accordance with Item 531 "Sidewalks".
14. Separate curb ramp and landings from adjacent sidewalk and any other elements with premold or board joint of ¾" unless otherwise directed by the Engineer.
15. Provide a smooth transition where the curb ramps connect to the street.
16. 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.
17. Flare slope shall not exceed 10% measured along curb line.

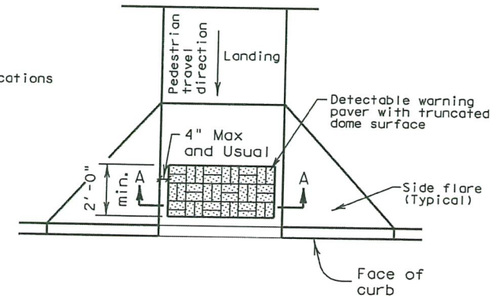


Section A-A

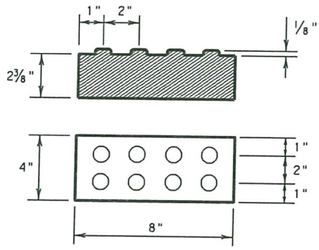
General Notes (Pavers)

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.

Lay full-size units first followed by closure units consisting of at least 25 percent of a full unit. Cut detectable warning paver units using a power saw.



Truncated Dome Pattern Curb Ramp



Detectable Warning Paver

DETECTABLE WARNING PAVER (OPTION)

Texas Department of Transportation
Design Division (Roadway)

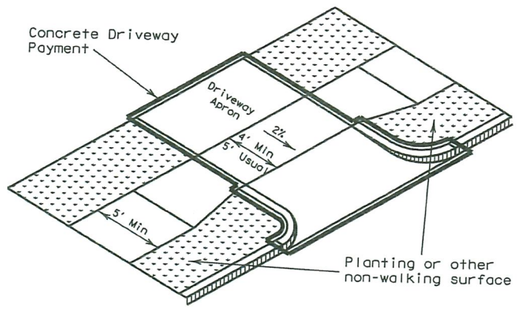
PEDESTRIAN FACILITIES
GENERAL NOTES AND DETECTABLE WARNINGS

PED-05

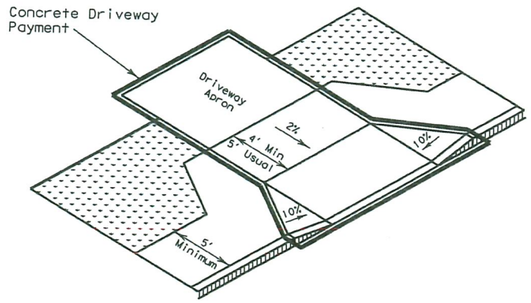
SHEET 2 OF 4

FILE: ped05.dgn	DN: EH	CK:	DW: BGD	CK:
© TxDOT March 2002	DIST	FEDERAL AID PROJECT		SHEET
REVISIONS				
	COUNTY	CONTROL	SECT	JOB	HIGHWAY

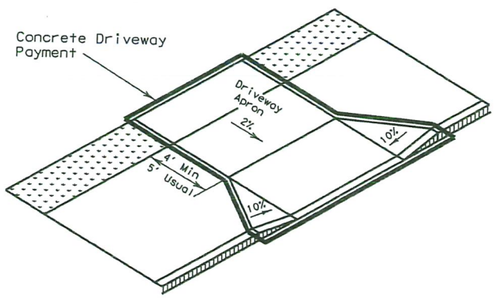
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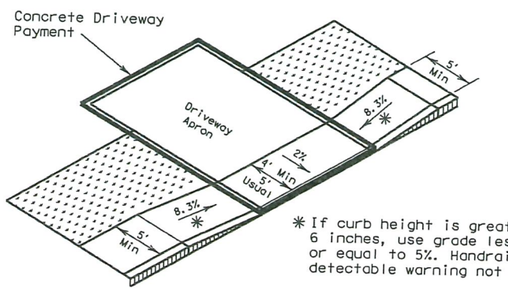
Setback sidewalk



Apron offset sidewalk



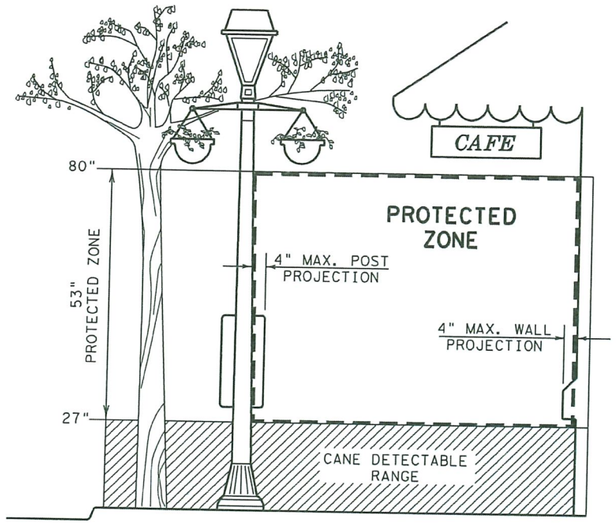
Wide sidewalk



* If curb height is greater than 6 inches, use grade less than or equal to 5%. Handrail and detectable warning not required.

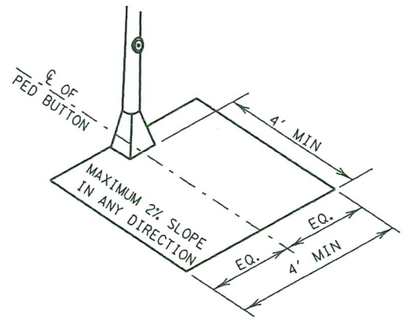
Ramp sidewalk

SIDEWALK TREATMENT AT DRIVEWAYS

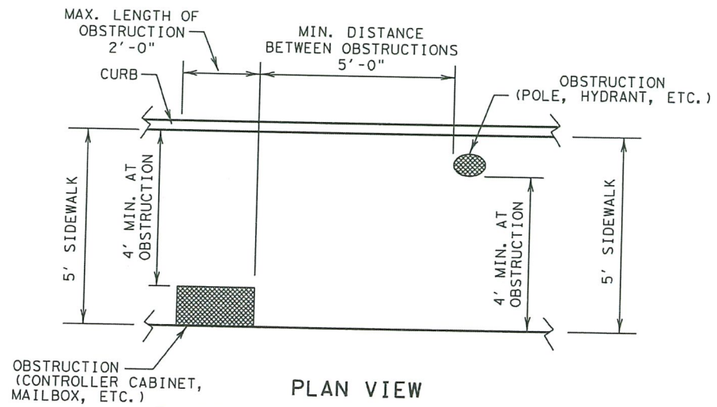


PROTECTED ZONE

In pedestrian circulation area, maximum 4" projection for post or wall mounted objects between 27"and 80" above the surface.



CLEAR GROUND SPACE CENTERED AT PEDESTRIAN PUSH BUTTON



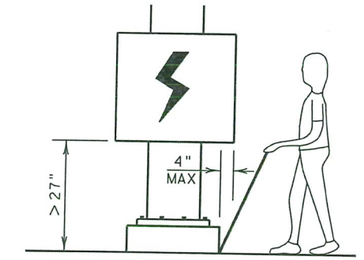
PLAN VIEW

PLACEMENT OF STREET FIXTURES

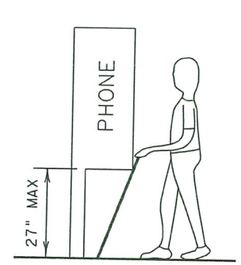
(ITEMS NOT INTENDED FOR PUBLIC USE. MINIMUM 4' x 4' CLEAR GROUND SPACE REQUIRED AT PUBLIC USE FIXTURES.)

General Notes

1. All slopes are maximum allowable. The least possible slope that will still drain properly should be used.
2. Place traffic signal or illumination poles, ground boxes, controller boxes, signs, drainage facilities and other items so as not to obstruct the accessible route or clear ground space.
3. Usual sidewalk cross slope equals 1.5%. The maximum allowable sidewalk cross slope equals 2%.
4. Street grades and cross slopes shall be as shown elsewhere in the plans.
5. Existing features that comply with TAS may remain in place unless otherwise shown on the plans.
6. Changes in level greater than ¼inch are not permitted.
7. 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 5% must be provided, handrails may be desirable on one or both sides of the sidewalk to improve accessibility. Handrails may also be needed to protect pedestrians from potentially hazardous conditions. If provided, handrails must comply with TAS 4.8.5.
8. Handrail extensions shall not protrude into the usable landing area or into intersecting pedestrian routes.
9. Driveways and turnouts shall be constructed and paid for in accordance with Item, "Driveways and Turnouts". Sidewalks shall be constructed and paid for in accordance with Item, "Sidewalks".
10. Sidewalk details are shown elsewhere in the plans.



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"

LEVELS DISPLAYED

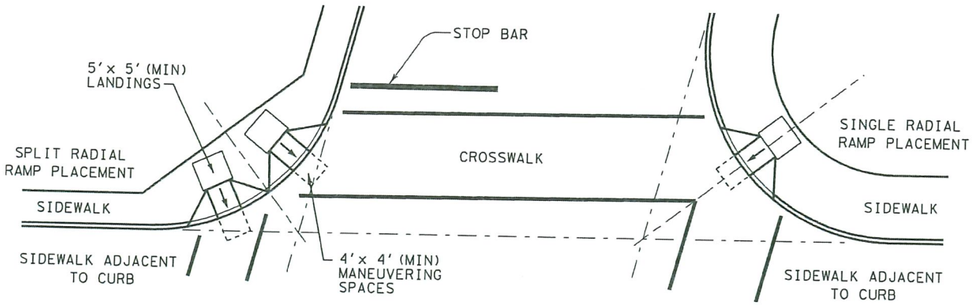
Texas Department of Transportation
Design Division (Roadway)

PEDESTRIAN FACILITIES
SIDEWALKS

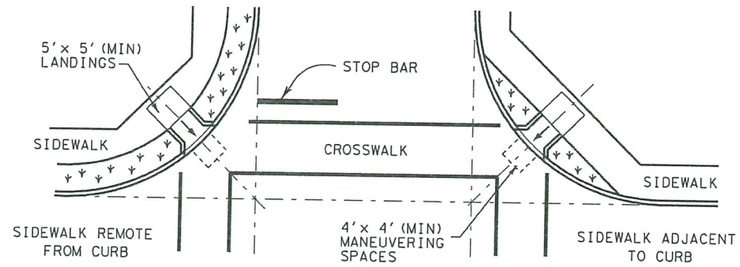
PED-05

SHEET 3 OF 4

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REVISIONS					
	COUNTY		CONTROL	SECT	JOB	HIGHWAY



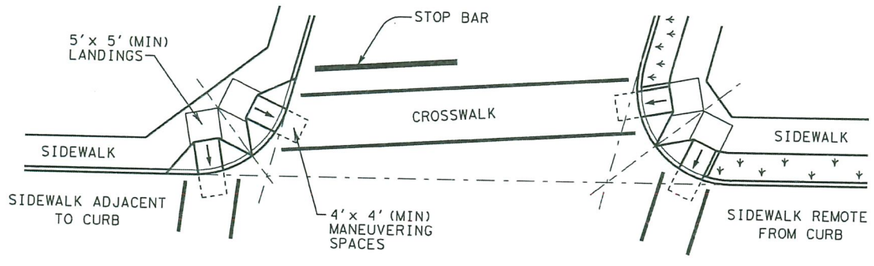
SKEWED INTERSECTION WITH "LARGE" RADIUS



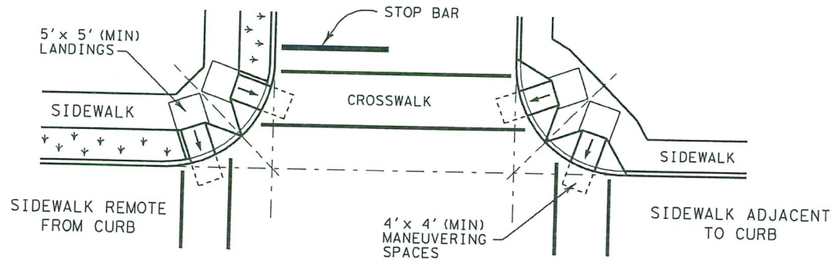
NORMAL INTERSECTION WITH "LARGE" RADIUS

General Notes

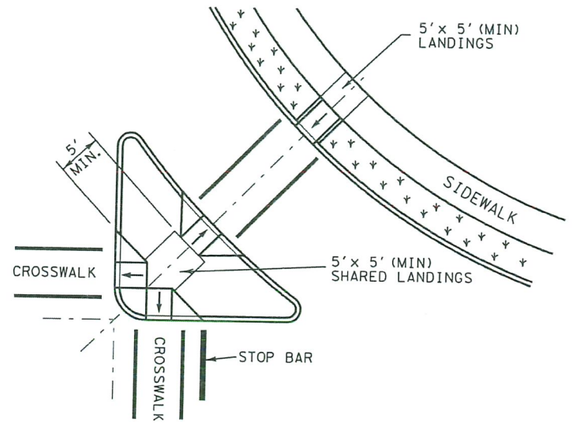
1. Street grades and cross slopes shall be as shown elsewhere in the plans.
2. Ramps are shown here without detectable warnings for simplicity. Detectable warnings are required at the locations shown on the PED Standard (Sheets 1 and 2 of 4) and in accordance with the details shown below.
3. Small channelization islands, which can not provide a minimum 5' x 5' landing at the top of ramps, shall be cut through level with the surface of the street.



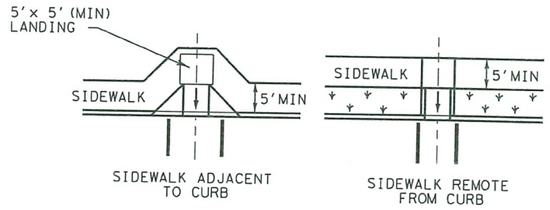
SKEWED INTERSECTION WITH "SMALL" RADIUS



NORMAL INTERSECTION WITH "SMALL" RADIUS



AT INTERSECTION
W/FREE RIGHT TURN & ISLAND



MID-BLOCK PLACEMENT
PERPENDICULAR RAMPS

TYPICAL CROSSING LAYOUTS

SEE SHEET 1 OF 4 FOR DETAILS AND DIMENSIONS

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LEVELS DISPLAYED

Texas Department of Transportation
Design Division (Roadway)

PEDESTRIAN FACILITIES

INTERSECTION LAYOUTS

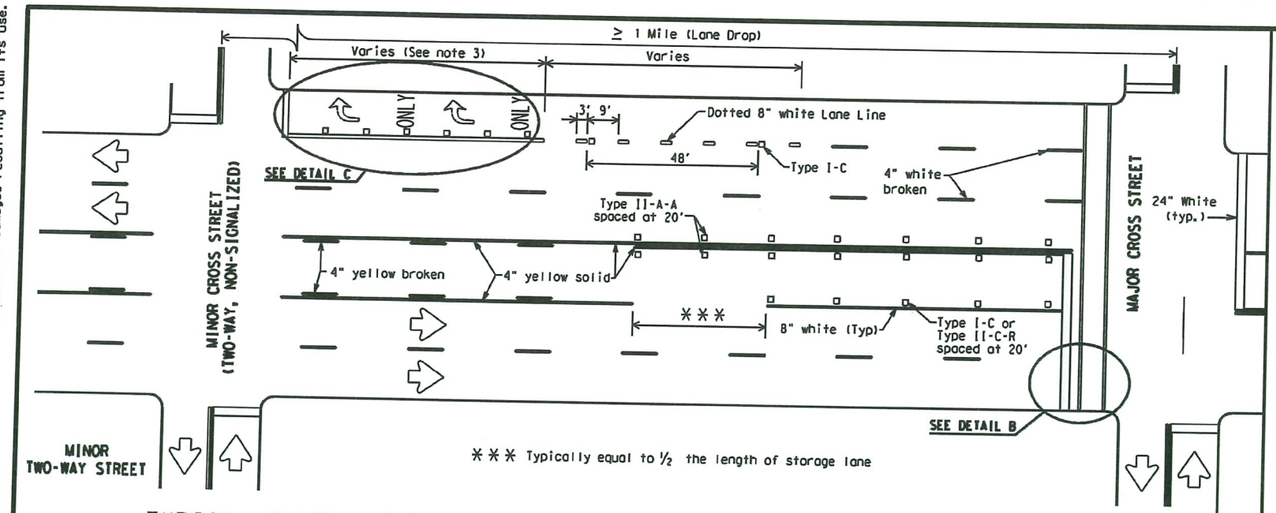
PED-05

SHEET 4 OF 4

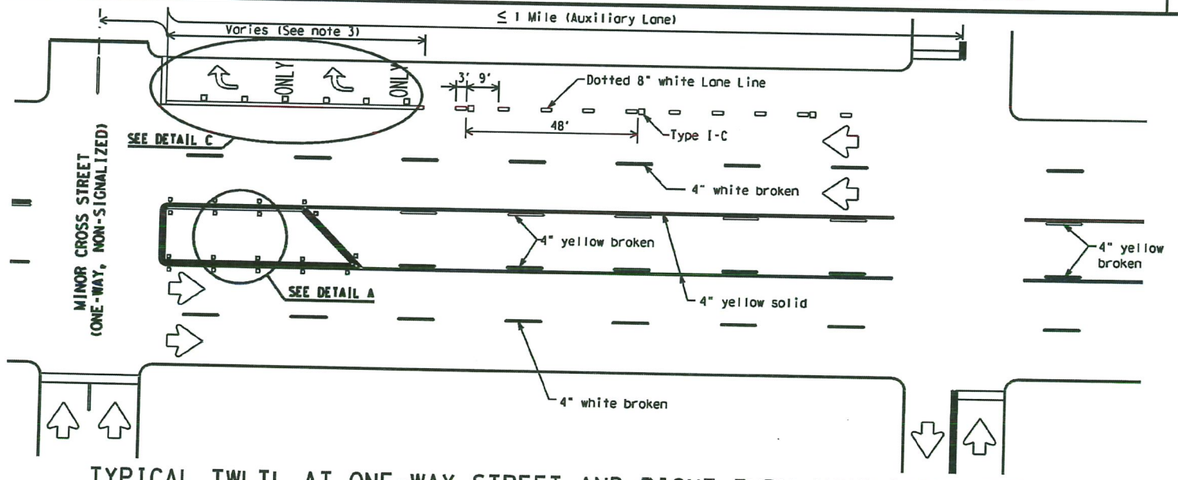
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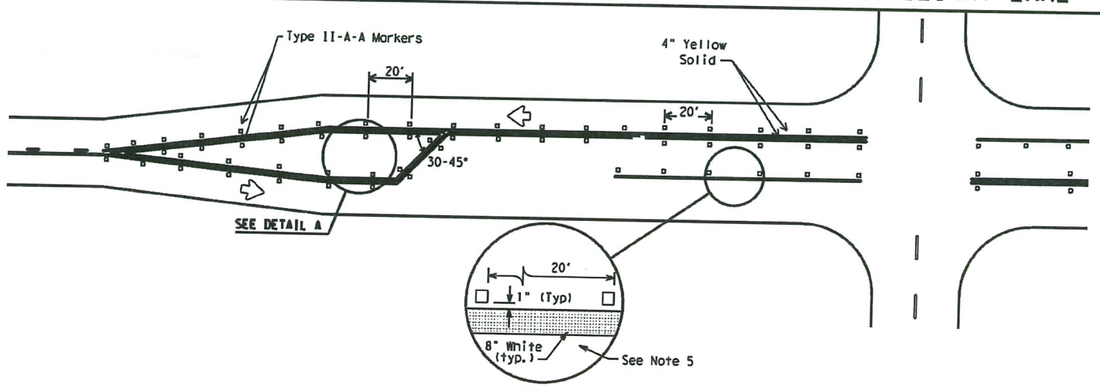
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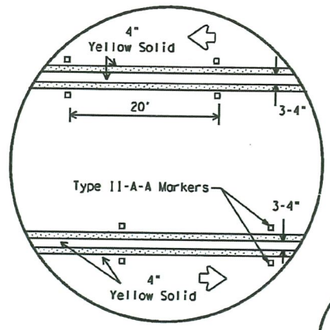
TYPICAL TWLTL AT TWO-WAY CROSS STREET AND RIGHT TURN LANE DROP



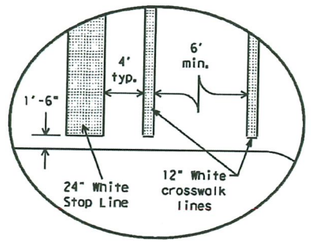
TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE



TYPICAL TWO-LANE HIGHWAY INTERSECTION WITH LEFT TURN BAYS

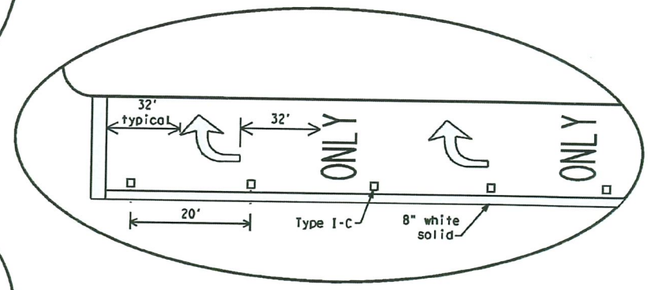


DETAIL A



Final placement of Stop Bar and Crosswalk shall be approved by the Engineer in the field.

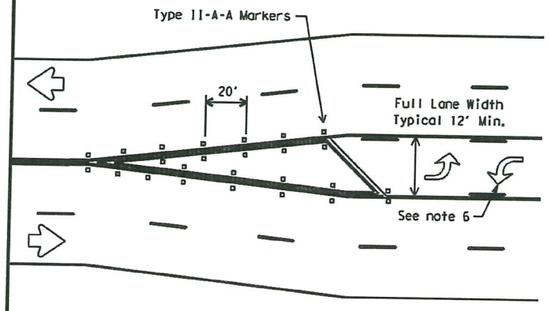
DETAIL B



DETAIL C

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

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



TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY

GENERAL NOTES

1. Refer elsewhere in plans for additional RPM placement and details.
2. Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn bays for emphasis. Details for words and arrows as shown in the Standard Highway Sign Designs for Texas.
3. When lane used word and arrow markings are used, two sets of arrows should be used if the length of the bay is greater than 180 feet. When a single lane use arrow or word and arrow marking is used for a short turn lane, it should be located at or near the upstream end of the full-width turn lane.
4. Other crosswalk patterns as shown in the "Texas Manual on Uniform Traffic Control Devices" may be used.
5. Raised pavement marker Type I-C with undivided highways, flush medians and two way left turn lanes. Raised pavement marker Type II-C-R with divided highways and raised medians.
6. A two-way left-turn (TWLT) lane-use arrow pavement marking should be used at or just downstream from the beginning of a two-way left-turn lane within a corridor. Repeating the marking after each intersection or dedicated turn bay is not required unless stated elsewhere in the plans.

Texas Department of Transportation
Traffic Operations Division

PAVEMENT MARKINGS FOR TWO-WAY LEFT TURN LANES DIVIDED HIGHWAYS AND RURAL LEFT TURN BAYS

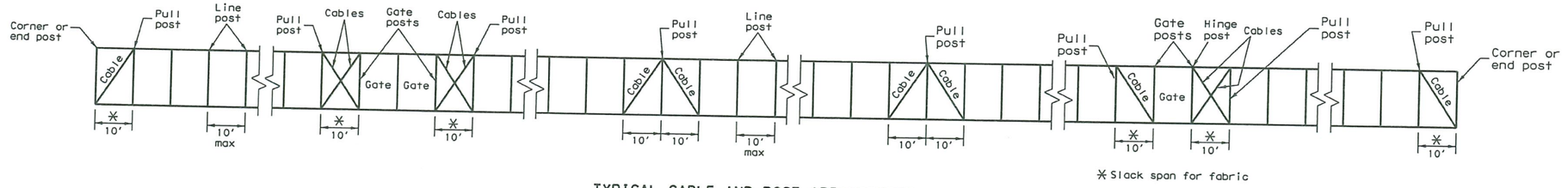
PM(3)-12

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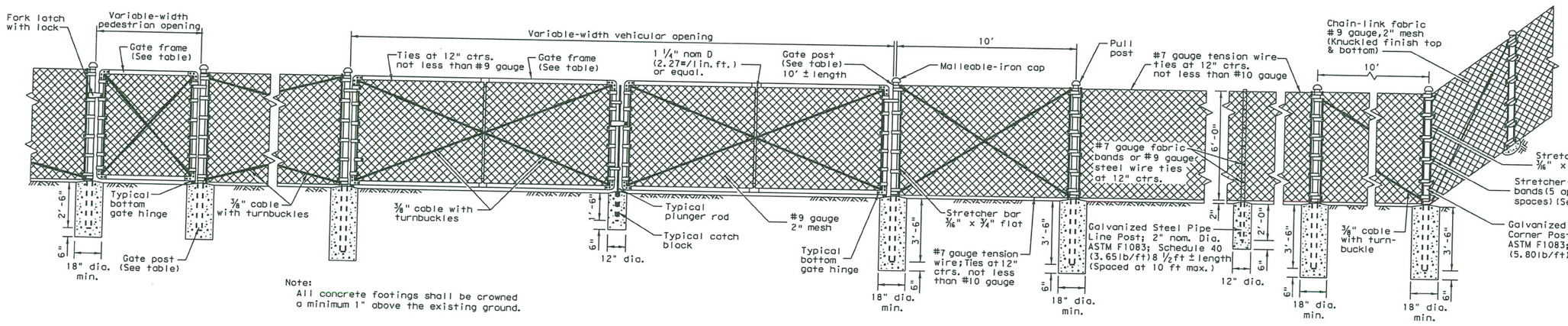
REVISIONS		DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
5-00	2-12	CONT	SECT	JOB	HIGHWAY
8-00					
3-03		DIST	COUNTY		SHEET NO.
2-10					

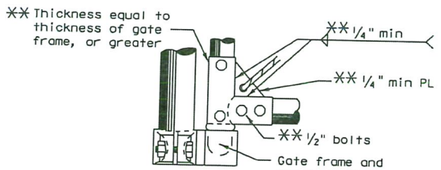
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DATE:
FILE:



TYPICAL CABLE AND POST ARRANGEMENT





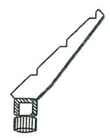
TYPICAL BOTTOM GATE HINGE

CHAIN-LINK BARRIER FENCE (6 FT.)

Foundation designs shown are "minimums" for a 6 ft. fence. Taller fences may require larger foundation designs.

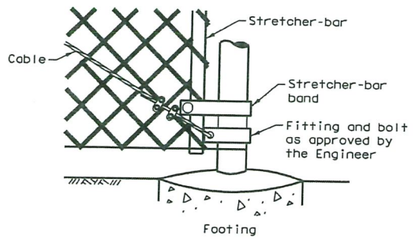


TYPICAL STRETCHER-BAR BAND

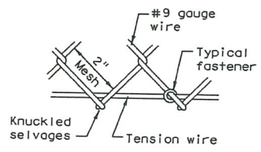


"OPTIONAL" 3 WIRE 45° BARBED WIRE ARM

Barbed wire arm related items shall conform to Item 550, "Chain Link Fence."



TERMINAL POST DETAIL



FABRIC & TENSION WIRE DETAIL, TOP & BOTTOM

GATE (TYPES AND SIZES)	
Single Inclusive	Double Inclusive
Up to 6' Over 6' to 12' Over 12' to 18' Over 18'	Up to 12' Over 12' to 26' Over 26' to 36' Over 36'

GATE FRAME (WEIGHT)		GATE POST (WEIGHT)	
SIZE	WT./LIN. FT.	SIZE	WT./LIN. FT.
1 1/2" nom dia. or equal	2.72 Lbs.	2 1/2" nom dia. or equal	5.79 Lbs.
		3 1/2" nom dia. or equal	9.11 Lbs.
		6" nom dia.	18.97 Lbs.
		8" nom dia.	24.70 Lbs.

GENERAL NOTES

1. Items hereon shall conform to Item 550, "Chain Link Fence."
2. Typical installation plan may vary as shown elsewhere on the plans or as directed by the Engineer. Location of gates shown elsewhere on plans.
3. Gate-frame members shall be bolted, at frame corners, to joint fittings with four 1/2" bolts per joint.
4. All cable connections are to be made with two 3/8" cable clamps.
5. All pull posts and end posts and their foundations shall have the same respective dimensions as those shown for corner post.
6. All pull post shall be furnished with two stretcher bars.
7. One end of each turnbuckle may be attached directly to fittings with a clevis.
8. Concrete footings are to be crowned at the top to shed water.

Texas Department of Transportation
Design Division Standard

CHAIN LINK FENCE

CLF-10

FILE: clf10.dgn	DN: TxDOT	CK: AM	DW: BD	CK: VP	
©TxDOT 1996	CONT	SECT	JOB	HIGHWAY	
REVISIONS					
	DIST	COUNTY		SHEET NO.	

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SIGN SUPPORT DESCRIPTIVE CODES

(Descriptive Codes correspond to project estimate and quantities sheets)

SM RD SGN ASSM TY XXXXX(X)XX(X-XXXX)

Post Type

FRP = Fiberglass Reinforced Plastic Pipe (see SMD(FRP))
TWT = Thin-Walled Tubing (see SMD(TWT))
10BWG = 10 BWG Tubing (see SMD(SLIP-1) to (SLIP-3))
S80 = Schedule 80 Pipe (see SMD(SLIP-1) to (SLIP-3))

Number of Posts (1 or 2)

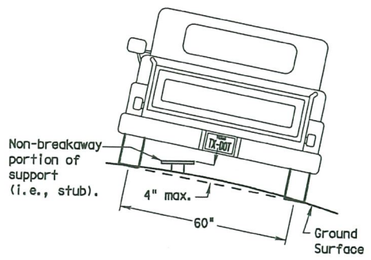
Anchor Type

UA = Universal Anchor - Concreted (see SMD(FRP) and (TWT))
UB = Universal Anchor - Bolted down (see SMD(FRP) and (TWT))
WS = Wedge Anchor Steel - (see SMD(TWT))
WP = Wedge Anchor Plastic (see SMD(TWT))
SA = Slipbase - Concreted (see SMD(SLIP-1) to (SLIP-3))
SB = Slipbase - Bolted Down (see SMD(SLIP-1) to (SLIP-3))

Sign Mounting Designation

P = Prefab. "Plain" (see SMD(SLIP-1) to (SLIP-3), (TWT), (FRP))
T = Prefab. "T" (see SMD(SLIP-1) to (SLIP-3), (TWT))
U = Prefab. "U" (see SMD(SLIP-1) to (SLIP-3))
IF REQUIRED
1EXT or 2EXT = Number of Extensions (see SMD(SLIP-1) to (SLIP-3), (TWT))
BM = Extruded Wind Beam (see SMD(SLIP-1) to (SLIP-3))
WC = 1.12 #/ft Wing Channel (see SMD(SLIP-1) to (SLIP-3))
EXAL = Extruded Aluminum Sign Panels (see SMD(SLIP-3))

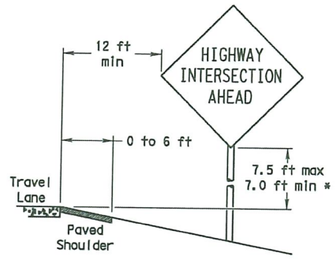
REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



To avoid vehicle undercarriage snagging, any substantial remains of a breakaway support, when it is broken away, should not project more than 4 inches above a 60-inch chord (i.e., typical space between wheel paths).

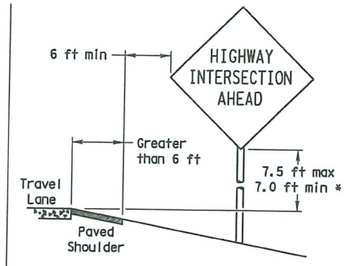
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

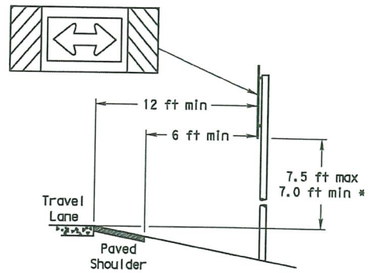
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.



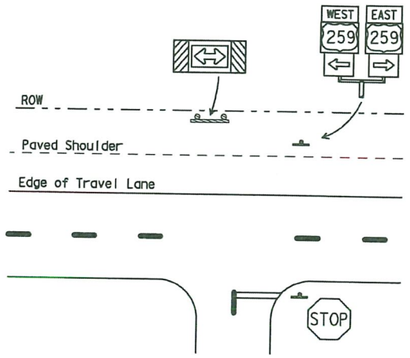
GREATER THAN 6 FT. WIDE

When the shoulder is greater than 6 ft in width, the sign must be placed at least 6 ft. from the edge of the shoulder.

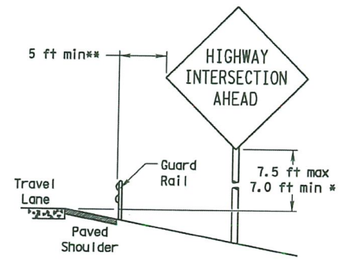
T-INTERSECTION



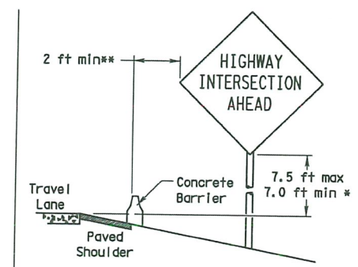
When this sign is needed at the end of a two-lane, two way roadway, the right edge of the sign should be in line with the centerline of the roadway. Place as close to ROW as practical.



BEHIND BARRIER



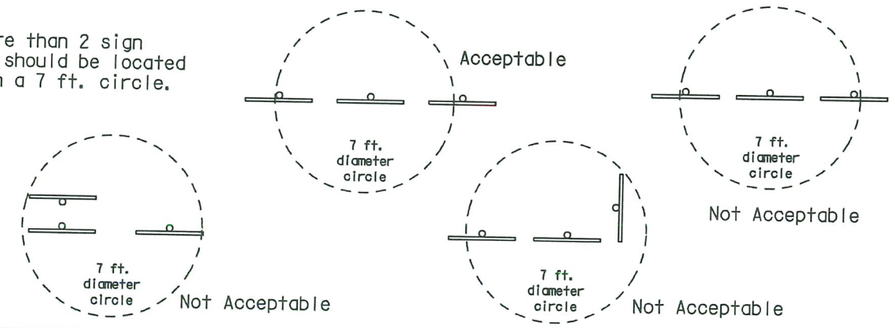
BEHIND GUARDRAIL



BEHIND CONCRETE BARRIER

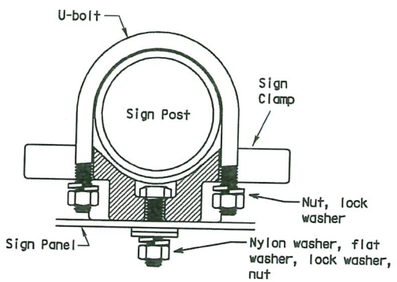
**Sign clearance based on distance required for proper guard rail or concrete barrier performance.

No more than 2 sign posts should be located within a 7 ft. circle.



TYPICAL SIGN ATTACHMENT DETAIL

Single Signs

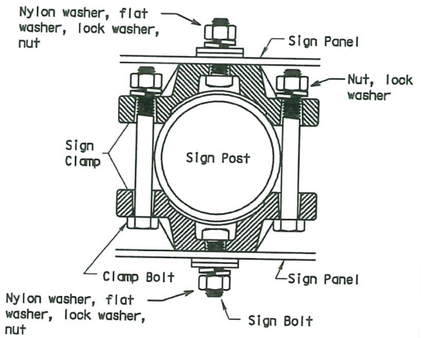


Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

When two sign clamps are used to mount signs back-to-back, use a 5/16-18 UNC galvanized hex head per ASTM A307 with nut and helical-spring lock washer. The approximate bolt lengths for various post sizes and sign clamp types are given in the table at right. The bolt length may need to be adjusted depending upon field conditions.

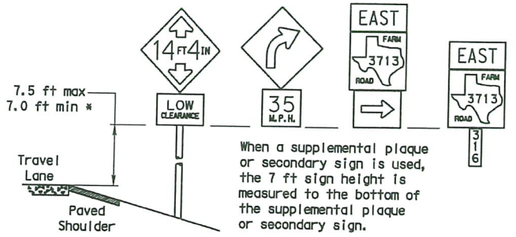
Sign clamps may be either the specific size clamp or the universal clamp.

Back-to-Back Signs



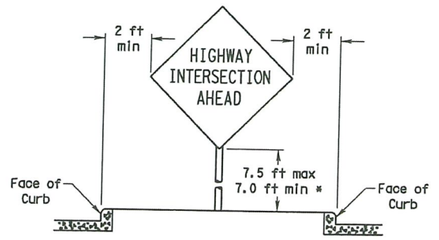
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES



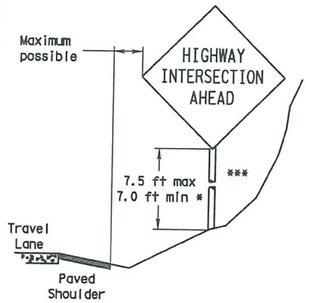
When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

CURB & GUTTER OR RAISED ISLAND



RESTRICTED RIGHT-OF-WAY

(When 6 ft min. is not possible.)



Right-of-way restrictions may be created by rocks, water, vegetation, forest, buildings, a narrow island, or other factors.

In situations where a lateral restriction prevents the minimum horizontal clearance from the edge of the travel lane, signs should be placed as far from the travel lane as practical.

*** Post may be shorter if protected by guardrail or if Engineer determines the post could not be hit due to extreme slope.

* Signs shall be mounted using the following condition that results in the greatest sign elevation:

(1) a minimum of 7 to a maximum of 7.5 feet above the edge of the travel lane or

(2) a minimum of 7 to a maximum of 7.5 feet above the grade at the base of the support when sign is installed on the backslope.

The maximum values may be increased when directed by the Engineer.

See the Traffic Operations Division website for detailed drawings of sign clamps, Triangular Slipbase System components and Wedge Anchor System components.

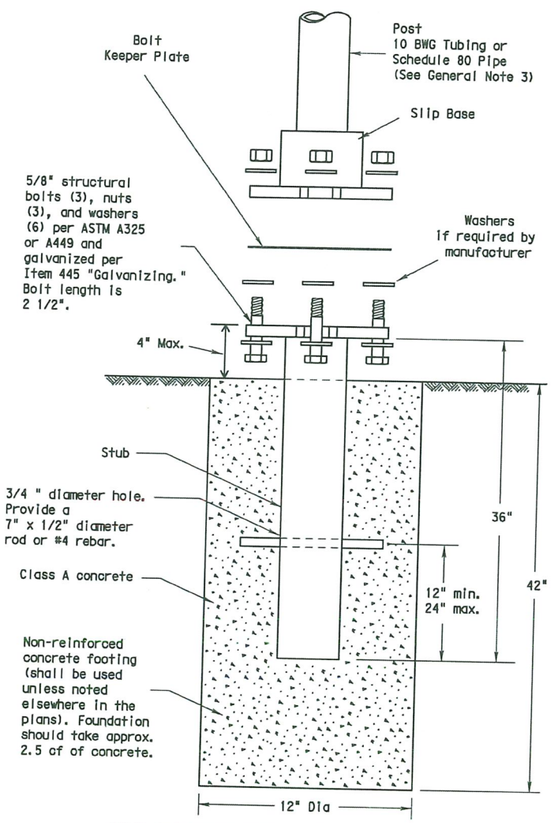
The website address is:
http://www.txdot.gov/publications/traffic.htm

LEVELS DISPLAYED ACC:

| | | |

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TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS



SM RD SGN ASSM TY XXXXX(X)SA(X-XXXX)

NOTE

There are various devices approved for the Triangular Slipbase System. Please reference the Material Producer List for approved slip base systems. http://www.txdot.gov/business/producer_list.htm The devices shall be installed per manufacturers' recommendations. Installation procedures shall be provided to the Engineer by Contractor.

GENERAL NOTES:

1. Slip base shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to approval of the TxDOT Traffic Standards Engineer.
2. Material used as post with this system shall conform to the following specifications:
   10 BWG Tubing (2.875" outside diameter)
   - 0.134" nominal wall thickness
   - Seamless or electric-resistance welded steel tubing or pipe
   - Steel shall be HSLAS Gr 55 per ASTM A1011 or ASTM A1008
   - Other steels may be used if they meet the following:
     - 55,000 PSI minimum yield strength
     - 70,000 PSI minimum tensile strength
     - 20% minimum elongation in 2"
   - Wall thickness (uncoated) shall be within the range of 0.122" to 0.138"
   - Outside diameter (uncoated) shall be within the range of 2.867" to 2.883"
   - Galvanization per ASTM A123 or ASTM A653 G210. For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.

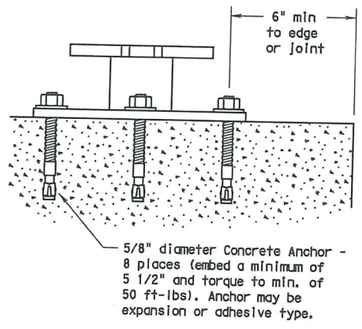
   Schedule 80 Pipe (2.875" outside diameter)
   - 0.276" nominal wall thickness
   - Steel tubing per ASTM A500 Gr C
   - Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the following:
     - 46,000 PSI minimum yield strength
     - 62,000 PSI minimum tensile strength
     - 21% minimum elongation in 2"
   - Wall thickness (uncoated) shall be within the range of 0.248" to 0.304"
   - Outside diameter (uncoated) shall be within the range of 2.855" to 2.895"
   - Galvanization per ASTM A123
3. See the Traffic Operations Division website for detailed drawings of sign clamps and Texas Universal Triangular Slipbase System components. The website address is: http://www.txdot.gov/publications/traffic.htm
4. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.

ASSEMBLY PROCEDURE

Foundation
1. Prepare 12-inch diameter by 42-inch deep hole. If solid rock is encountered, the depth of the foundation may be reduced such that it is embedded a minimum of 18 inches into the solid rock.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor-driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Concrete shall be Class A.
3. Push the pipe end of the slip base stub into the center of the concrete. Rotate the stub back and forth while pushing it down into the concrete to assure good contact between the concrete and stub. Continue to work the stub into the concrete until it is between 2 to 4 inches above the ground.
4. Plumb the stub. Allow a minimum of 4 days to set, unless otherwise directed by the Engineer.
5. The triangular slipbase system is multidirectional and is designed to release when struck from any direction.

Support
1. Cut support so that the bottom of the sign will be 7 to 7.5 feet above the edge of the travelway (i.e., edge of the closest lane) when slip plate is below the edge of pavement or 7 to 7.5 feet above slip plate when the slip plate is above the edge of the travelway. The cut shall be plumb and straight.
2. Attach sign to support using connections shown. When multiple signs are installed on the same support, ensure the minimum clearance between each sign is maintained. See SMD(SLIP-2) for clearances based on sign types.

CONCRETE ANCHOR



SM RD SGN ASSM TY XXXXX(X)SB(X-XXXX)

Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. Heavy hex nut per ASTM A563, and hardened washer per ASTM F436. The stud bolt shall have a minimum yield and ultimate tensile strength of 50 and 75 KSI, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations. Top of bolt shall extend at least flush with top of the nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 5 1/2" minimum embedment, shall have a minimum allowable tension and shear of 3900 and 3100 psi, respectively.

LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

ACC:

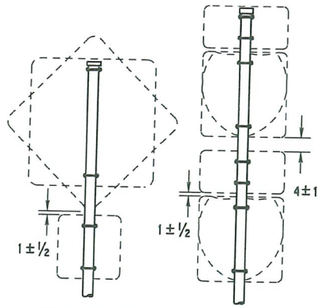
STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

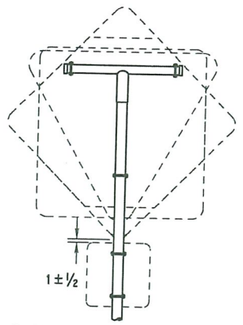
SMD(SLIP-1)-08

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REVISIONS 9-08	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT		SHEET
		6			
	COUNTY		CONTROL	SECTION	JOB	HIGHWAY

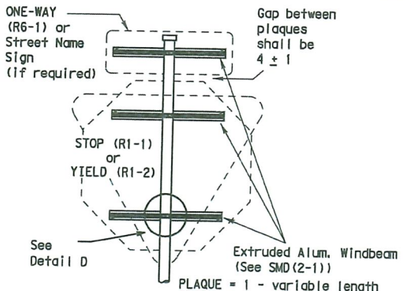
DISCLAIMER
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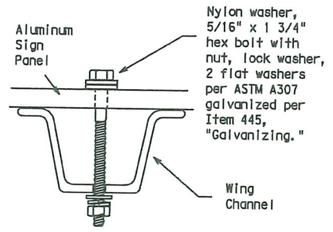
SM RD SGN ASSM TY XXXXX(1)XX(P)



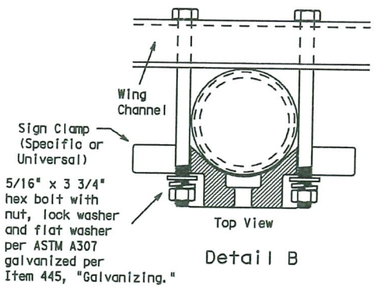
SM RD SGN ASSM TY XXXXX(1)XX(T)



SM RD SGN ASSM TY XXXXX(1)XX(P-BM)



Detail A



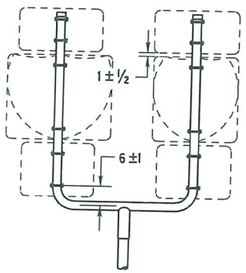
Detail B

GENERAL NOTES:

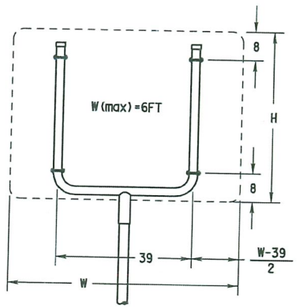
1.

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

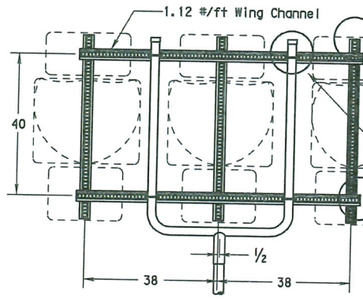
2. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
3. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
4. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
5. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
6. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
7. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
8. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
9. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
10. Additional route markers may be added vertically, provided the total sign area does not exceed the maximum allowable amount per Note 1.
11. Additional sign clamp required on the "T-bracket" post for 24 inch height signs. Place the clamp 3 inches above bottom of sign when possible.
12. Post open ends shall be fitted with Friction Caps.
13. Sign blanks shall be the sizes and shapes shown on the plans.



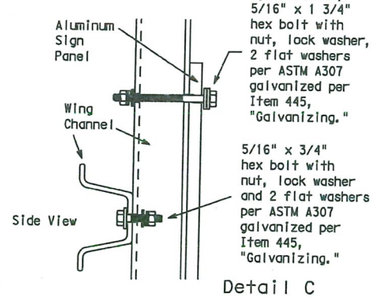
SM RD SGN ASSM TY XXXXX(1)XX(U)



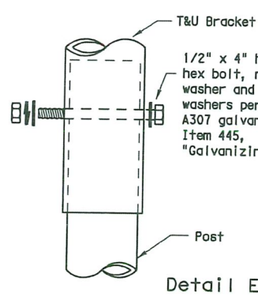
SM RD SGN ASSM TY XXXXX(1)XX(U)



SM RD SGN ASSM TY XXXXX(1)XX(U-WC)
(See Note 11)



Detail C



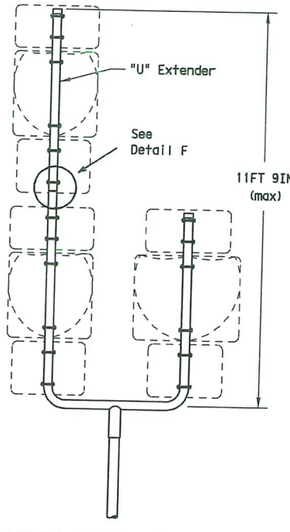
Detail E

Detail F

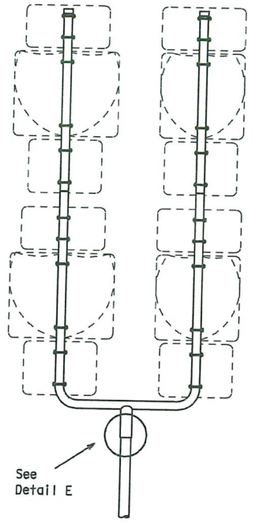
Splices shall only be allowed behind the sign substrate.

REQUIRED SUPPORT

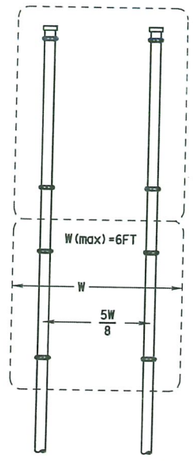
	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)



SM RD SGN ASSM TY S80(1)XX(U-1EXT)

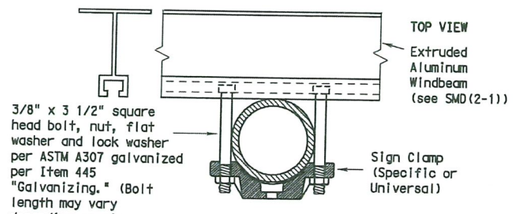


SM RD SGN ASSM TY S80(1)XX(U-2EXT)

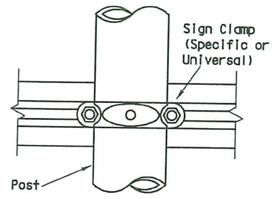


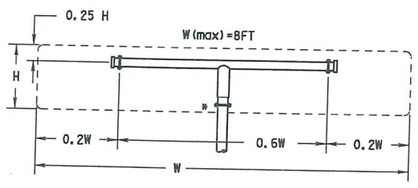
SM RD SGN ASSYM TY XXXXX(2)XX(P)

SIDE VIEW



Detail D

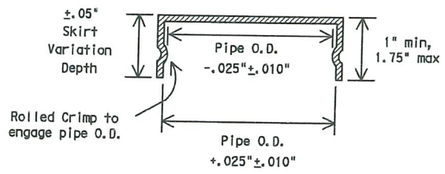




SM RD SGN ASSM TY XXXXX(1)XX(T)
(* - See Note 12)

All dimensions are in english unless detailed otherwise.

FRICTION CAP DETAIL



Friction caps may be manufactured from hot rolled or cold rolled steel sheets. The minimum sheet metal thickness shall be 24 gauge for all cap sizes.

The rim edges shall be reasonably straight and smooth. Caps shall be sized and formed in such a manner as to produce a drive-on friction fit and have no tendency to rock when seated on the pipe. The depth shall be sufficient to give positive protection against entrance of rainwater. They shall be free of sharp creases or indentations and show no evidence of metal fracture.

Caps shall have an electrodeposited coating of zinc in accordance with the requirements of ASTM B633 Class FE/ZN 8.

LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64
ACC:

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-2)-08

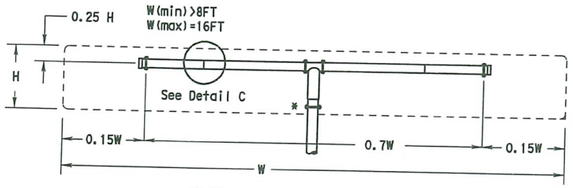
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DIV- TxDOT	CK- TxDOT	DW- TxDOT	CK- TxDOT

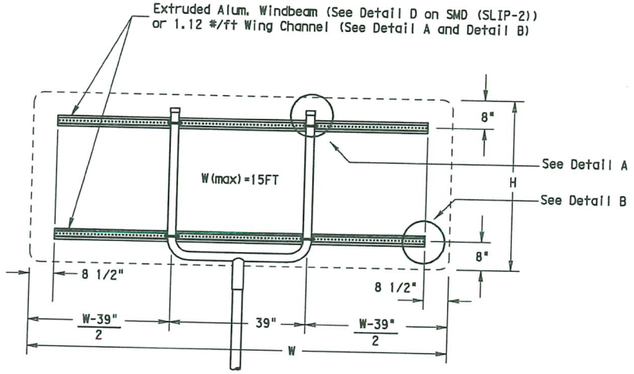
REVISIONS	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
9-08		6		

COUNTY	CONTROL	SECTION	JOB	HIGHWAY

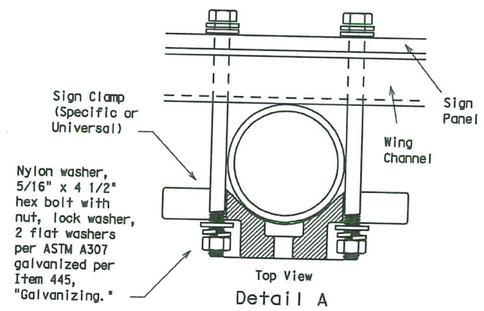
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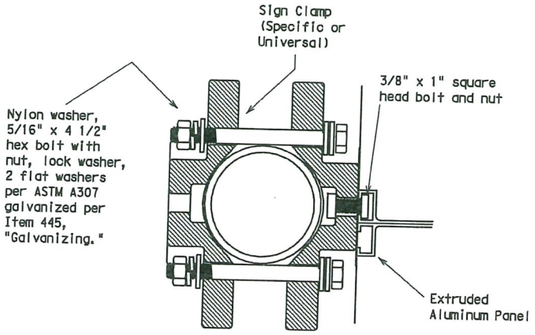
SM RD SGN ASSM TY XXXXX(1)XX(T-2EXT)
(* - See Note 12)



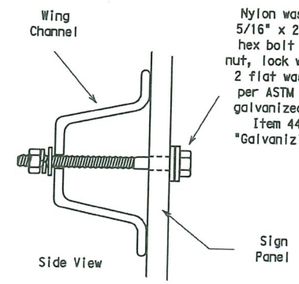
SM RD SGN ASSM TY XXXXX(1)XX(U-XX)



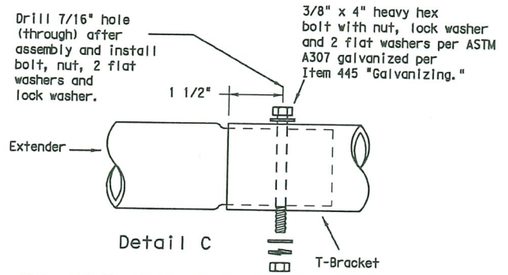
Detail A



Detail D
EXTRUDED ALUMINUM SIGN WITH T BRACKET

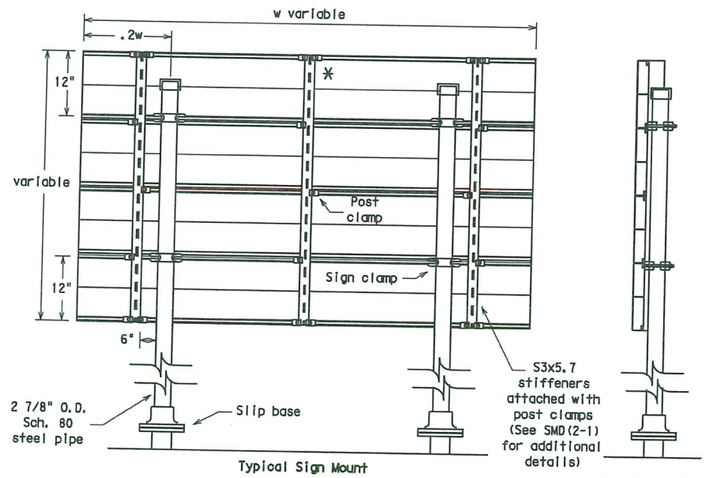


Detail B



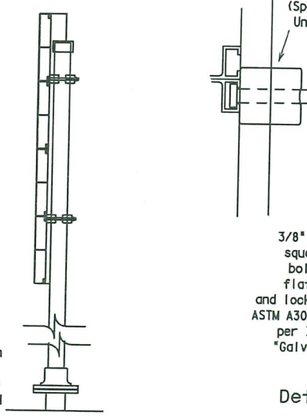
Detail C

Splices shall only be allowed behind the sign substrate.

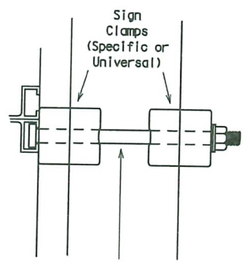


Typical Sign Mount
SM RD SGN ASSM TY S80(2)XX(P-EXAL)

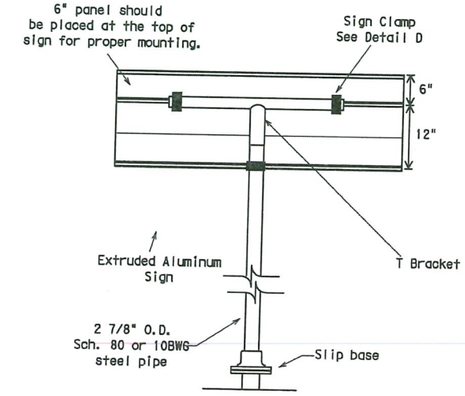
* Additional stiffener placed at approximate center of signs when sign width is greater than 10'.



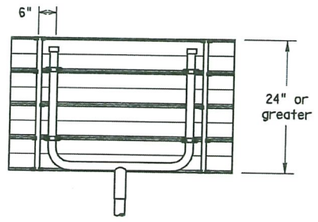
See Detail E
for clamp installation



Detail E



Extruded Aluminum Sign
With T Bracket



Use Extruded Alum. Windbeam as stiffeners
See SMD (2-1) for additional details

See Detail E
for clamp installation

GENERAL NOTES:

1.

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

2. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
3. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
4. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
5. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
6. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
7. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
8. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
9. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
10. Sign blanks shall be the sizes and shapes shown on the plans.
11. Additional sign clamp required on the "T-bracket" post for 24 inch high signs. Place the clamp 3 inches above bottom of sign when possible.
12. Post open ends shall be fitted with Friction Caps.

REQUIRED SUPPORT		
	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)

LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

ACC:

STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-3)-08

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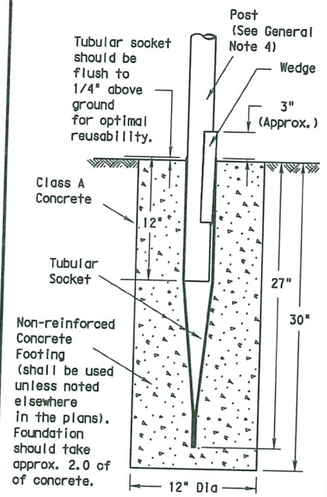
DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT

REVISIONS	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
9-08		6		

COUNTY	CONTROL	SECTION	JOB	HIGHWAY

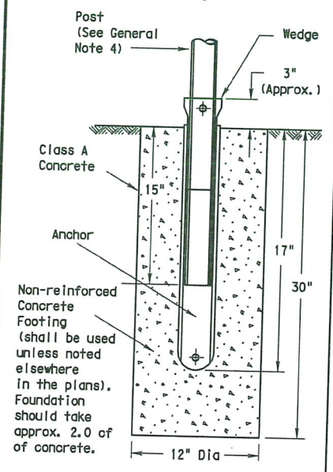
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Wedge Anchor Steel System



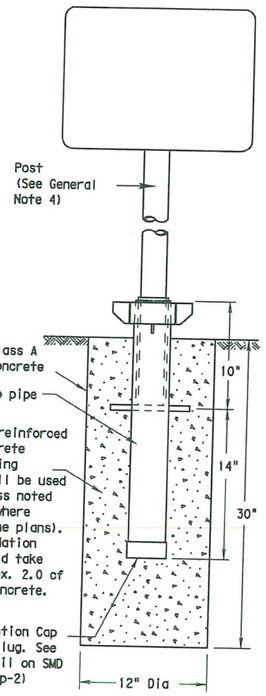
SM RD SGN ASSM TY TWT(X)WS(X)

Wedge Anchor High Density Polyethylene (HDPE) System

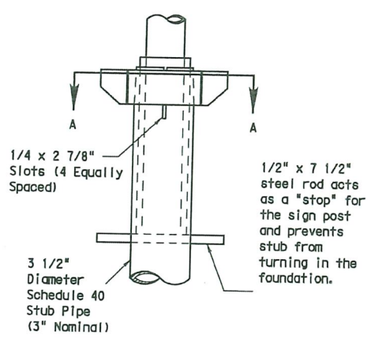


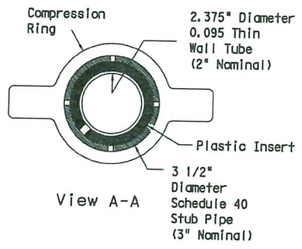
SMD RD SGN ASSM TY TWT(X)WP(X)

Universal Anchor System with Thin-Walled Tubing Post



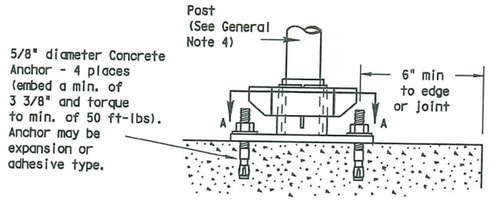
SM RD SGN ASSM TY TWT(X)UA(P)



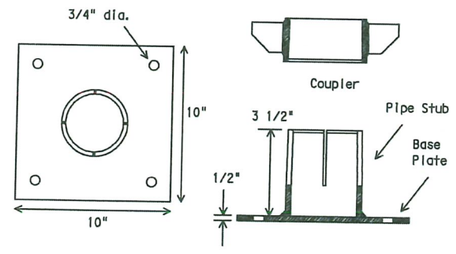


View A-A

Plastic insert must be used when using the TWT with either the Universal Anchor System or the Bolt Down Universal Anchor System. The insert should be approx. 10" long and cover the tubing from just above the top of the stub pipe to the bottom of the sign post when using the Universal Anchor System. The insert should be cut to approx. 4 1/2" when used with the Bolt Down Universal Anchor System.

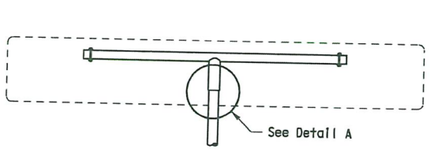


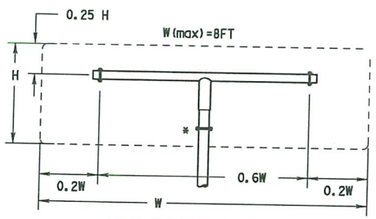
Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. A heavy hex nut per ASTM A563 and hardened washer per ASTM F436. The stud bolt shall have minimum yield and ultimate tensile strengths of 50 and 75 ksi, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Top of bolt shall extend at least flush with top of nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 3 3/8" minimum embedment, shall have a minimum allowable tension and shear of 2450 and 1525 psi, respectively. Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations.



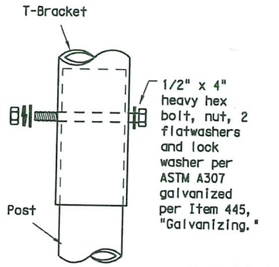
SM RD SGN ASSM TY TWT(X)UB(P)

Sign Installation Using a Prefabricated T-Bracket for Thin-Wall Tubing Post





SM RD SGN ASSM TY TWT(X)XX(T)
(* - See General Note 6)



Detail A

9/16" hole may need to be drilled through post to accommodate bolt.

NOTE

The devices shall be installed per manufacturer's recommendations. Installation procedures shall be provided to the Engineer by Contractor.

GENERAL NOTES:

1. The Wedge Anchor System and the Universal Anchor System with thin wall tubing post may be used to support up to 10 square feet of sign area.
2. The tubular socket, wedge and prefabricated T-bracket shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to the approval of the TxDOT Traffic Standards Engineer.
3. Except for posts (13 BWG Tubing), clamps, nuts and bolts, all components shall be prequalified. A list of prequalified vendors may be obtained from the Material Producer List web page. The website address is:
   http://www.txdot.gov/business/producer_list.htm
4. Material used as post with this system shall conform to the following specifications:
   13 BWG Tubing (2.375" outside diameter) (TWT)
   0.095" nominal wall thickness
   Seamless or electric-resistance welded steel tubing
   Steel shall be HSLAS Gr 55 per ASTM A1011 or ASTM A1008
   Other steels may be used if they meet the following:
   55,000 PSI minimum yield strength
   70,000 PSI minimum tensile strength
   18% minimum elongation in 2"
   Wall thickness (uncoated) shall be within the range of .083" to .099"
   Outside diameter (uncoated) shall be within the range of 2.369" to 2.381"
   Galvanization per ASTM 123 or ASTM A653 G210. For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.
5. Sign blanks shall be the sizes and shapes shown on the plans.
6. Additional sign clamp required on the "T-bracket" post for 24" high signs. Place clamp at least 3" above bottom of sign when possible.
7. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
8. See the Traffic Operations Division website for detailed drawings of sign clamps and Wedge Anchor System components. The website address is:
   http://www.txdot.gov/publications/traffic.htm

WEDGE ANCHOR SYSTEM INSTALLATION PROCEDURE

1. Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(GEN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Place concrete into hole until it is approximately flush with the ground. Concrete shall be Class A.
3. Insert tubular socket into concrete until top of socket is approximaely 1/4 " above the concrete footing.
4. Plumb the socket. Allow a minimum 4 days for concrete to set, unless otherwise directed by Engineer..
5. Attach the sign to the sign post.
6. Insert the sign post into socket and align sign face with roadway.
7. Drive the wedge into the socket to secure post. This will leave approximately 3 inches of the wedge exposed.

UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURE

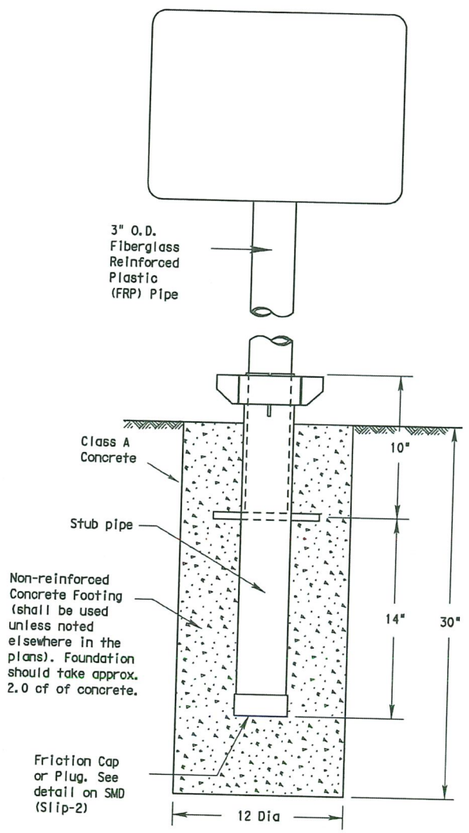
1. Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(GEN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
2. Insert base post in hole to depths shown and backfill hole with concrete.
3. Level and plumb the base post using a torpedo level and allow concrete adequate time to set. The bottom of the slots provided in the stub pipe shall remain above the top of the concrete foundation.
4. Attach the sign to the sign post.
5. Install plastic insert around bottom of post.
6. Insert sign post into base post. Lower until the post comes to rest on steel rod.
7. Seat compression ring using a hammer. Typically, the top of compression ring will be approximately level with top of stub post when optimally installed.
8. Check sign post by hand to ensure it is unable to turn. If loose, increase the tightening of the compression ring.

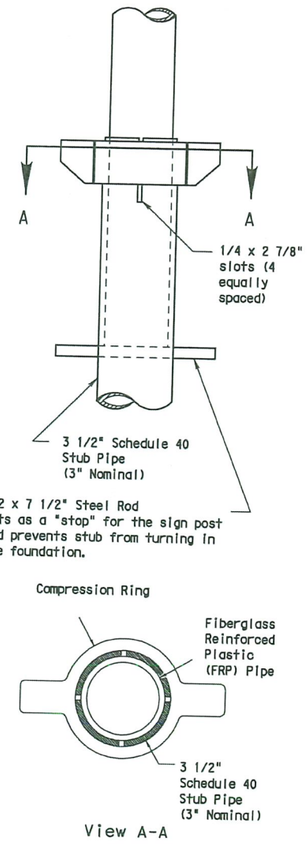
LEVELS DISPLAYED

| | | |

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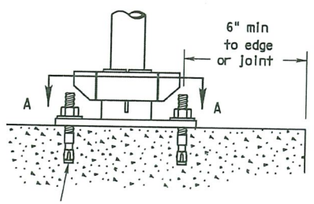
Universal Anchor System with Fiberglass Reinforced Plastic (FRP) Post





1/2 x 7 1/2" Steel Rod
Acts as a "stop" for the sign post and prevents stub from turning in the foundation.

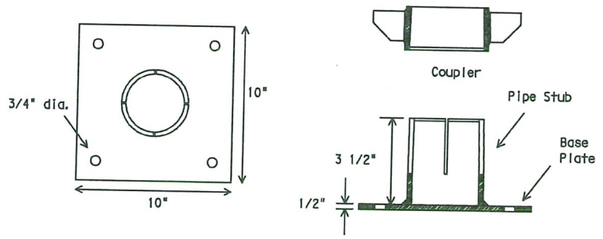
SM RD SGN ASSM TY FRP(X)UA(P)



5/8" diameter Concrete Anchor - 4 places (embed a min. of 3 3/8" and torque to min. of 50 ft-lbs). Anchor may be expansion or adhesive type.

Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. A heavy hex nut per ASTM A563 and hardened washer per ASTM F436. The stud bolt shall have minimum yield and ultimate tensile strengths of 50 and 75 ksi, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Top of bolt shall extend at least flush with top of nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 3 3/8" minimum embedment, shall have a minimum allowable tension and shear of 2450 and 1525 psi, respectively. Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations.

BOLT-DOWN DETAILS



SM RD SGN ASSM TY FRP(X)UB(P)

GENERAL NOTES:

1. FRP sign supports for a single type sign support may be used for signs up to and including 16 square feet. Dual post installation may be used for signs up to and including 32 square feet.
2. All nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing."
3. See the Traffic Operations Division website for detailed drawings of sign clamps. The website address is:
   http://www.txdot.gov/publications/traffic.htm

FRP POST REQUIREMENTS

1. Materials shall conform to the requirements of Departmental Material Specification DMS-4410 and will be furnished in a yellow or gray color as specified elsewhere in the plans.
2. Thickness of FRP sign support is 0.125" + 0.031", - 0.0".
3. FRP sign supports are prequalified by the Traffic Operations Division. Prequalification procedures are obtained by writing:
   Texas Department of Transportation
   Traffic Operations Division
   125 East 11th Street
   Austin, Texas 78701-2483

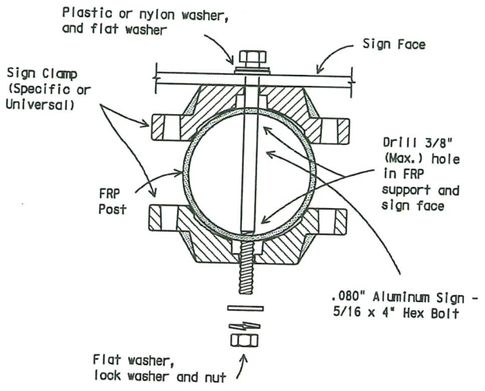
UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURES

1. Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(GEN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Concrete shall be Class A.
3. Insert base post in foundation hole to depths shown and fill hole with concrete. Cut base post from bottom and ensure a minimum of 18" embedment if installed in solid rock.
4. Level and plumb the base post with coupler using a torpedo level and let concrete set a minimum of 4 days, unless otherwise directed by Engineer. Bottom of base post slots shall be above the concrete footing.
5. Attach sign to FRP post.
6. Insert sign post into base post. Lower until the post comes to rest on the steel rod.
7. Use hammer to ensure the coupler is firmly seated. Top of coupler should be level with top of base post in most instances.
8. Check sign to ensure there is no twist. If loose, increase the tightening of coupler.

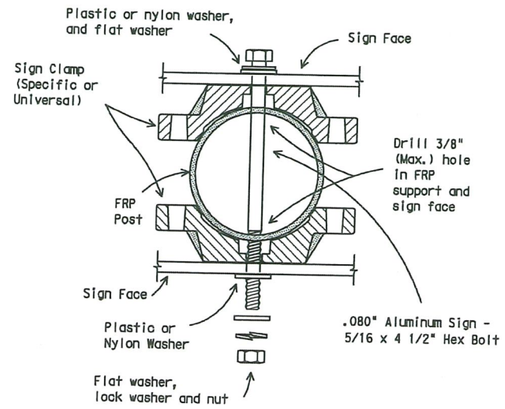
BOLT DOWN SIGN SUPPORT

1. Position base plate with coupler on existing concrete.
2. Drill holes into concrete and insert the 5/8" diameter bolts with wedge anchors, and tighten nuts.
3. Attach sign to FRP post.
4. Insert bottom of sign post into pipe stub.
5. Use hammer to ensure the coupler is firmly seated. Top of coupler should be level with top of base post in most instances.
6. Check sign to ensure there is no twist. If loose, increase the tightening of coupler.

Typical Sign Mounting Detail for FRP Support with Single Sign



Typical Sign Mounting Detail for FRP Support with Back-to-Back Signs



LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

ACC:

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS UNIVERSAL ANCHOR SYSTEM WITH FRP POST

SMD(FRP)-08

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REVISIONS 9-08	STATE DISTRICT / FEDERAL REGION 6	FEDERAL AID PROJECT			SHEET
	COUNTY	CONTROL	SECTION	JOB	HIGHWAY

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FILE:

BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

1. The Barricade and Construction Standard Sheets (BC sheets) are intended to show typical examples for placement of temporary traffic control devices, construction pavement markings, and typical work zone signs. The information contained in these sheets meet or exceed the requirements shown in the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).

2. The development and design of the Traffic Control Plan (TCP) is the responsibility of the Engineer.

3. The Contractor may propose changes to the TCP that are signed and sealed by a licensed professional engineer for approval. The Engineer may develop, sign and seal Contractor proposed changes.

4. The Contractor is responsible for installing and maintaining the traffic control devices as shown in the plans. The Contractor may not move or change the approximate location of any device without the approval of the Engineer.

5. Geometric design of lane shifts and detours should, when possible, meet the applicable design criteria contained in manuals such as the American Association of State Highway and Transportation Officials (AASHTO), "A Policy on Geometric Design of Highways and Streets," the TxDOT "Roadway Design Manual" or engineering judgment.

6. When projects abut, the Engineer(s) may omit the END ROAD WORK, TRAFFIC FINES DOUBLE, and other advance warning signs if the signing would be redundant and the work areas appear continuous to the motorists. If the adjacent project is completed first, the Contractor shall erect the necessary warning signs as shown on these sheets, the TCP sheets or as directed by the Engineer. The BEGIN ROAD WORK NEXT X MILES sign shall be revised to show appropriate work zone distance.

7. The Engineer may require duplicate warning signs on the median side of divided highways where median width will permit and traffic volumes justify the signing.

8. All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition. Sign details not shown in this manual shall be shown in the plans or the Engineer shall provide a detail to the Contractor before the sign is manufactured.

9. The temporary traffic control devices shown in the illustrations of the BC sheets are examples. As necessary, the Engineer will determine the most appropriate traffic control devices to be used.

10. As shown on BC(2), the OBEY WARNING SIGNS STATE LAW sign, STAY ALERT TALK OR TEXT LATER (see Sign Detail G20-10T) and the WORK ZONE TRAFFIC FINES DOUBLE sign with plaque shall be erected in advance of the CSJ limits. However, the TRAFFIC FINES DOUBLE sign will not be required on projects consisting solely of mobile operation work, such as striping or milling edgeline rumble strips. The BEGIN ROAD WORK NEXT X MILES, CONTRACTOR and END ROAD WORK signs shall be erected at or near the CSJ limits.

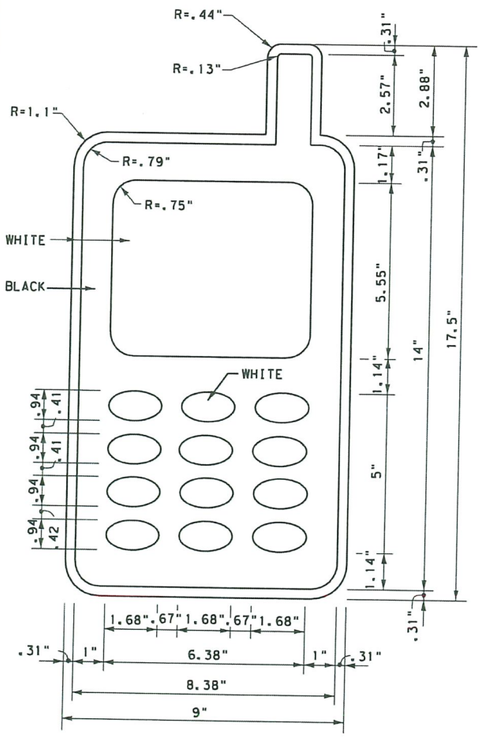
11. Except for devices required by Note 10, traffic control devices should be in place only while work is actually in progress or a definite need exists.

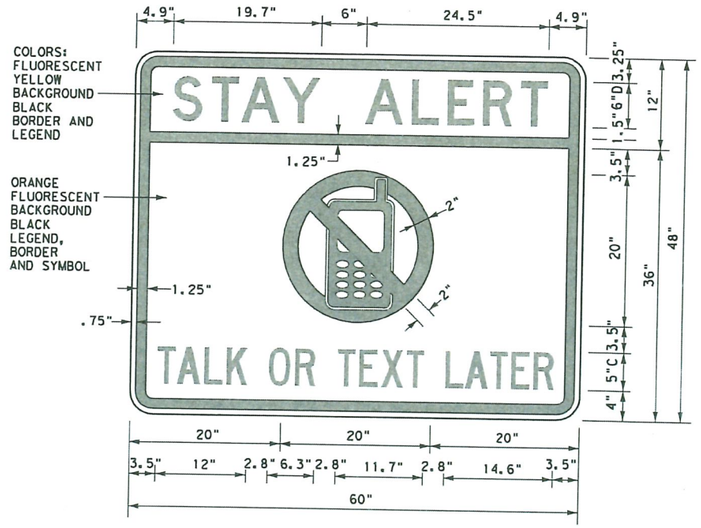
12. The Engineer has the final decision on the location of all traffic control devices.

13. Inactive equipment and work vehicles, including workers' private vehicles must be parked away from travel lanes. They should be as close to the right-of-way line as possible, or located behind a barrier or guardrail, or as approved by the Engineer.

WORKER SAFETY APPAREL NOTES:

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





3.0" Radius, 1.25" Border, 0.75" Indent, Black on Yellow; [STAY ALERT] Font: D
3.0" Radius, 1.25" Border, 0.75" Indent, Black on Orange; [TALK OR TEXT LATER] Font: C specified length;

SIGN DETAIL (G20-10T)

Only pre-qualified products shall be used. The "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be found on-line at the web address given below or by contacting:

Texas Department of Transportation
Traffic Operations Division - TE
Phone (512) 416-3118

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

Texas Department of Transportation | Traffic Operations Division Standard

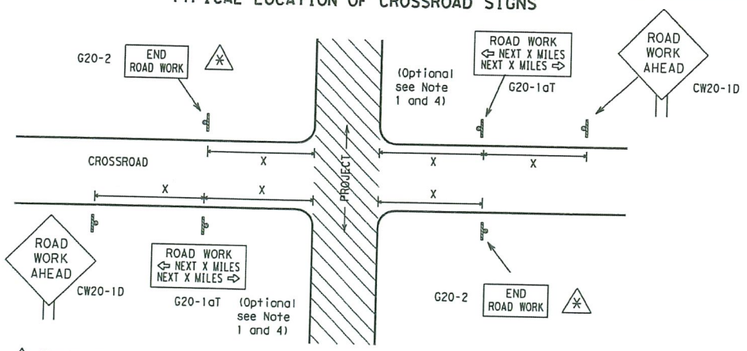
BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

BC(1)-14

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-03 5-10 8-14 9-07 7-13	DIST	COUNTY		SHEET NO.

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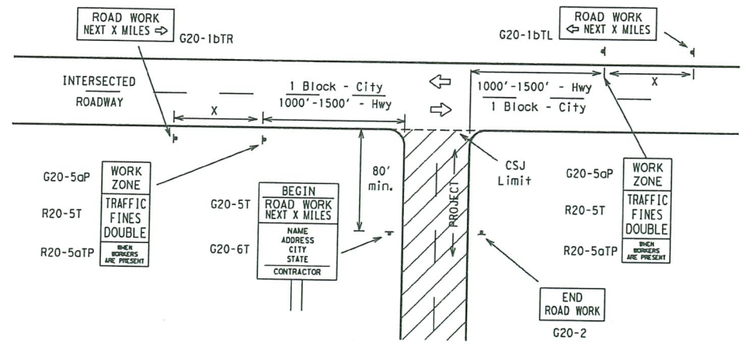
TYPICAL LOCATION OF CROSSROAD SIGNS



✳ May be mounted on back of "ROAD WORK AHEAD" (CW20-1D) sign with approval of Engineer. (See note 2 below)

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

T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

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

TYPICAL CONSTRUCTION WARNING SIGN SIZE AND SPACING[1,5,6]

SIZE

Sign Number or Series	Conventional Road	Expressway/ Freeway
CW20[4] CW21 CW22 CW23 CW25	48" x 48"	48" x 48"
CW1, CW2, CW7, CW8, CW9, CW11, CW14	36" x 36"	48" x 48"
CW3, CW4, CW5, CW6, CW8-3, CW10, CW12	48" x 48"	48" x 48"

SPACING

Posted Speed	Sign Δ Spacing "X"
MPH	Feet (Apprx.)
30	120
35	160
40	240
45	320
50	400
55	500[2]
60	600[2]
65	700[2]
70	800[2]
75	900[2]
80	1000[2]
✳	✳[3]

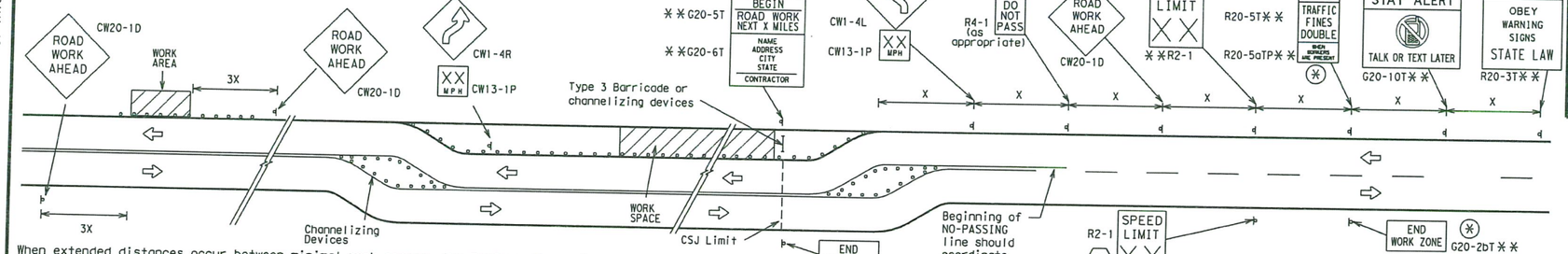
✳ For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

GENERAL NOTES

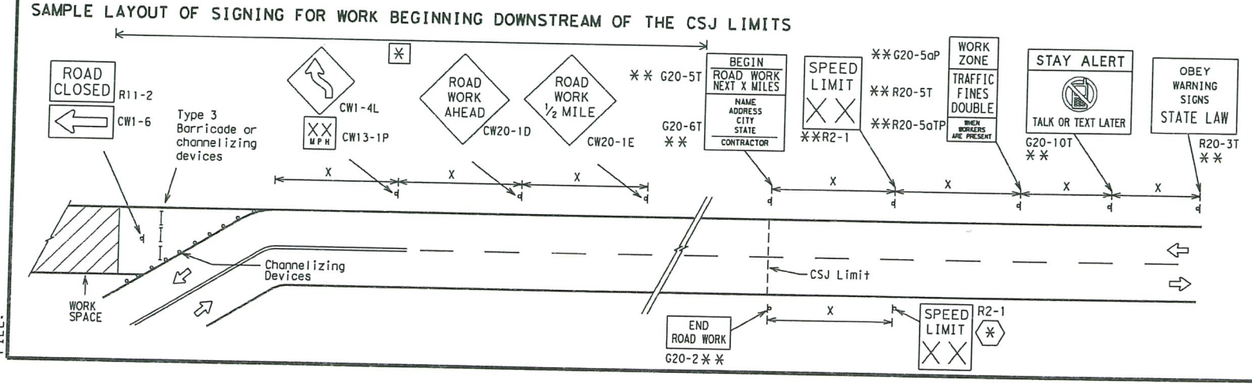
1. Special or larger size signs may be used as necessary.
2. Distance between signs should be increased as required to have 1500 feet advance warning.
3. Distance between signs should be increased as required to have 1/2 mile or more advance warning.
4. 36" x 36" "ROAD WORK AHEAD" (CW20-1D) signs may be used on low volume crossroads at the discretion of the Engineer. See Note 2 under "Typical Location of Crossroad Signs".
5. Only diamond shaped warning sign sizes are indicated.
6. See sign size listing in "TMUTCD", Sign Appendix or the "Standard Highway Sign Designs for Texas" manual for complete list of available sign design sizes.

WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS

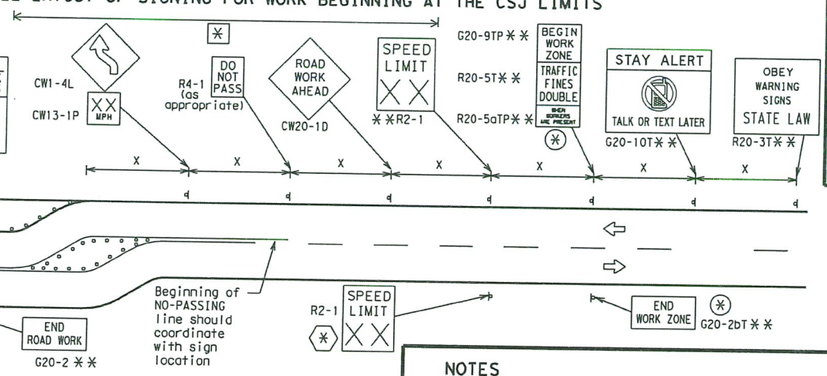


When extended distances occur between minimal work spaces, the Engineer/Inspector should ensure additional "ROAD WORK AHEAD" (CW20-1D) signs are placed in advance of these work areas to remind drivers they are still within the project limits. See the applicable TCP sheets for exact location and spacing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

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



SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS



NOTES

The Contractor shall determine the appropriate distance to be placed on the G20-1 series signs and "BEGIN ROAD WORK NEXT X MILES" (G20-5T) sign for each specific project. This distance shall replace the "X" and shall be rounded to the nearest whole mile with the approval of the Engineer. No decimals shall be used.

Ⓧ The "BEGIN WORK ZONE" (G20-9TP) and "END WORK ZONE" (G20-2bT) shall be used as shown on the sample layout when advance signs are required outside the CSJ Limits. They inform the motorist of entering or leaving a part of the work zone lying outside the CSJ Limits where traffic fines may double if workers are present.

✳✳ Required CSJ Limit signing. See Note 10 on BC(1). TRAFFIC FINES DOUBLE signs will not be required on projects consisting solely of mobile operations work.

✳ Area for placement of "ROAD WORK AHEAD" (CW20-1D) sign and other signs or devices as called for on the Traffic Control Plan.

(✳) Contractor will install a regulatory speed limit sign at the end of the work zone.

LEGEND

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

Texas Department of Transportation | Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-14

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REVISIONS 9-07 8-14 7-13	DIST	COUNTY		SHEET NO.

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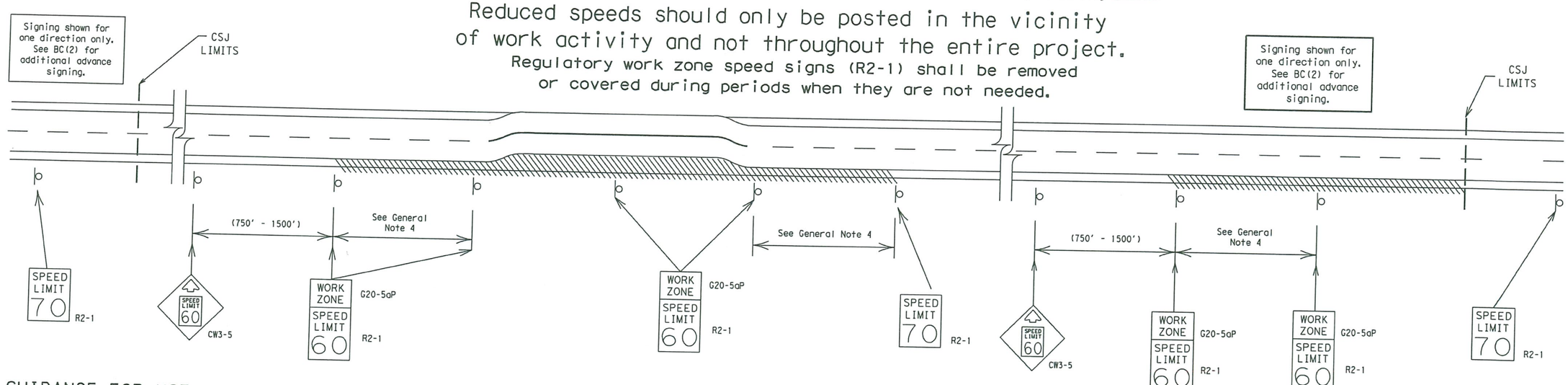
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TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

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

Reduced speeds should only be posted in the vicinity of work activity and not throughout the entire project.

Regulatory work zone speed signs (R2-1) shall be removed or covered during periods when they are not needed.



GUIDANCE FOR USE:

LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

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

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

a) rough road or damaged pavement surface
b) substantial alteration of roadway geometrics (diversions)
c) construction detours
d) grade
e) width
f) other conditions readily apparent to the driver

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

SHORT TERM WORK ZONE SPEED LIMITS

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

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

GENERAL NOTES

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

Texas Department of Transportation | Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

BC(3)-14

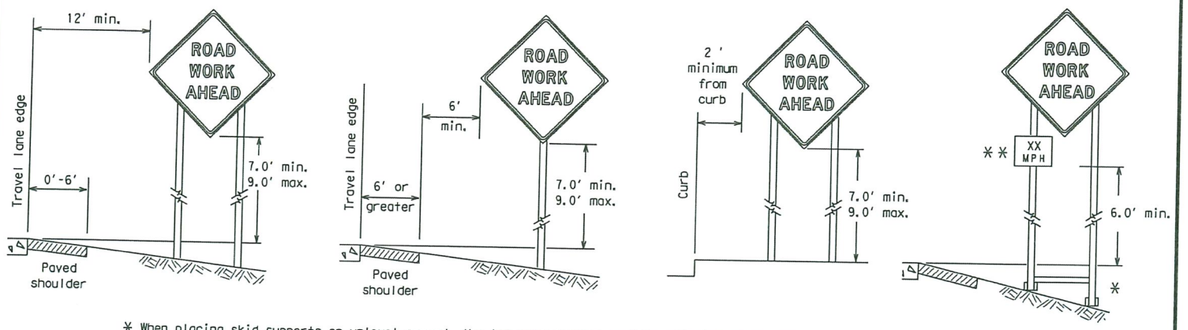
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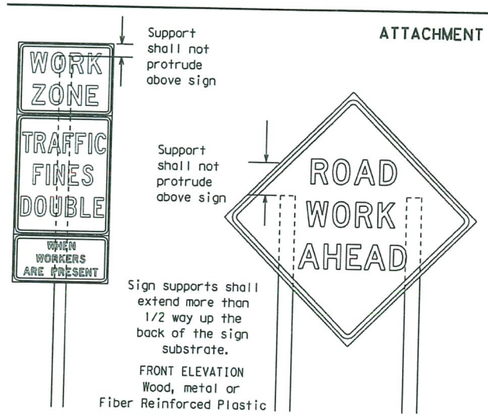
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



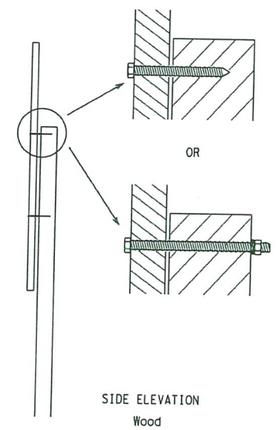
* When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

** 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.

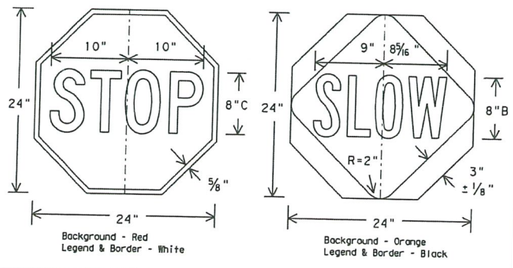


Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

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.

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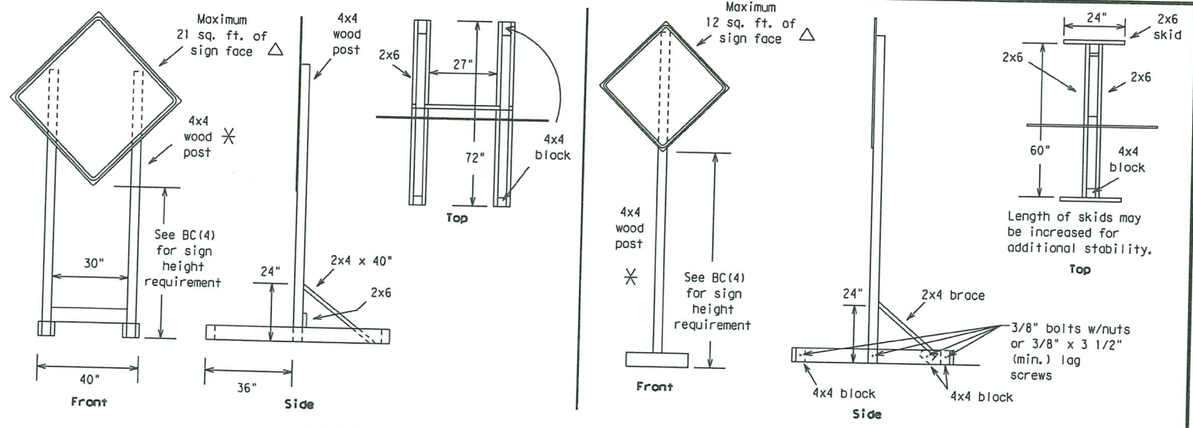
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BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC(4)-14

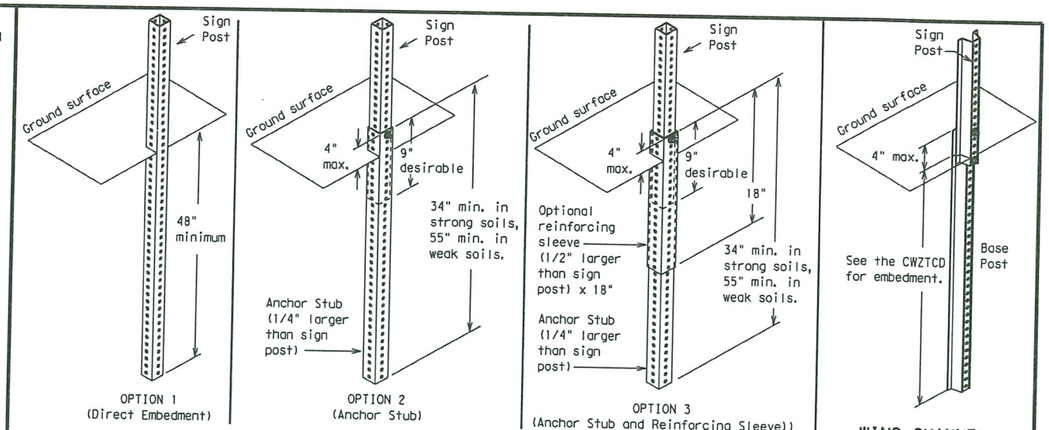
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SKID MOUNTED WOOD SIGN SUPPORTS

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

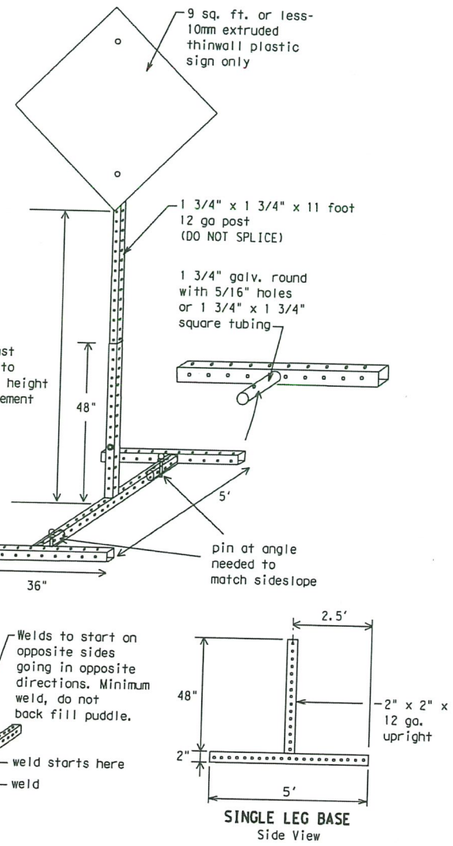


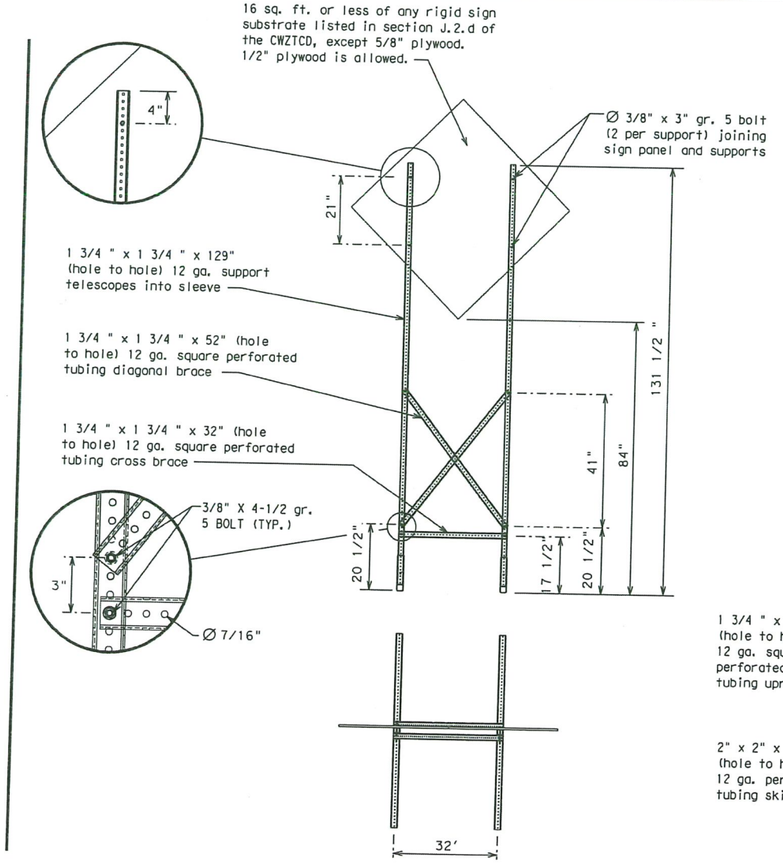
PERFORATED SQUARE METAL TUBING

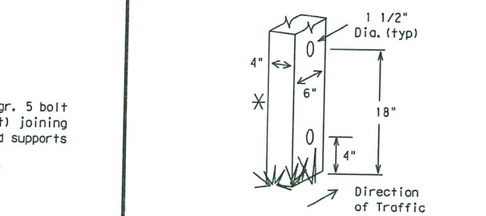
WING CHANNEL
Lap-splice/base bolted anchor

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.

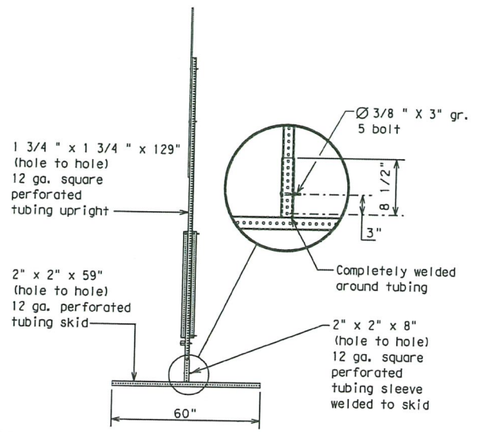






Nominal Post Size	Number of Posts	Maximum Sq. feet of Sign Face	Minimum Soil Embedment	Drilled Hole(s) Required
4 x 4	1	12	36"	NO
4 x 4	2	21	36"	NO
4 x 6	1	21	36"	YES
4 x 6	2	36	36"	YES

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.

SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

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Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

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

PORTABLE CHANGEABLE MESSAGE SIGNS

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

WORD OR PHRASE	ABBREVIATION
Access Road	ACCS RD
Alternate	ALT
Avenue	AVE
Best Route	BEST RTE
Boulevard	BLVD
Bridge	BRDG
Cannot	CANT
Center	CTR
Construction Ahead	CONST AHD
CROSSING	XING
Detour Route	DETOUR RTE
Do Not	DONT
East	E
Eastbound	(route) E
Emergency	EMER
Emergency Vehicle	EMER VEH
Entrance, Enter	ENT
Express Lane	EXP LN
Expressway	EXPWY
XXXX Feet	XXXX FT
Fog Ahead	FOG AHD
Freeway	FRWY, FWY
Freeway Blocked	FWY BLKD
Friday	FRI
Hazardous Driving	HAZ DRIVING
Hazardous Material	HAZMAT
High-Occupancy	HOV
Vehicle Highway	HWY
Hour(s)	HR, HRS
Information	INFO
It Is	ITS
Junction	JCT
Left	LFT
Left Lane	LFT LN
Lane Closed	LN CLOSED
Lower Level	LWR LEVEL
Maintenance	MAINT

WORD OR PHRASE	ABBREVIATION
Major	MAJ
Miles	MI
Miles Per Hour	MPH
Minor	MNR
Monday	MON
Normal	NORM
North	N
Northbound	(route) N
Parking	PKING
Road	RD
Right Lane	RT LN
Saturday	SAT
Service Road	SERV RD
Shoulder	SHLDR
Slippery	SLIP
South	S
Southbound	(route) S
Speed	SPD
Street	ST
Sunday	SUN
Telephone	PHONE
Temporary	TEMP
Thursday	THURS
To Downtown	TO DWNTN
Traffic	TRAF
Travelers	TRVLRS
Tuesday	TUES
Time Minutes	TIME MIN
Upper Level	UPR LEVEL
Vehicles (s)	VEH, VEHS
Warning	WARN
Wednesday	WED
Weight Limit	WT LIMIT
West	W
Westbound	(route) W
Wet Pavement	WET PVMT
Will Not	WONT

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

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

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

Phase 1: Condition Lists

Road/Lane/Ramp Closure List

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

Other Condition List

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

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

Phase 2: Possible Component Lists

Action to Take/Effect on Travel List

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

Location List

- AT FM XXXX
- BEFORE RAILROAD CROSSING
- NEXT X MILES
- PAST US XXX EXIT
- XXXXXXX TO XXXXXXX
- US XXX TO FM XXXX

Warning List

- SPEED LIMIT XX MPH
- MAXIMUM SPEED XX MPH
- MINIMUM SPEED XX MPH
- ADVISORY SPEED XX MPH
- RIGHT LANE EXIT
- USE CAUTION
- DRIVE SAFELY
- DRIVE WITH CARE

** Advance Notice List

- TUE-FRI XX AM- X PM
- APR XX-XX X PM-X AM
- BEGINS MONDAY
- BEGINS MAY XX
- MAY X-X XX PM - XX AM
- NEXT FRI-SUN
- XX AM TO XX PM
- NEXT TUE AUG XX
- TONIGHT XX PM- XX AM

** See Application Guidelines Note 6.

APPLICATION GUIDELINES

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

WORDING ALTERNATIVES

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

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

FULL MATRIX PCMS SIGNS

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

Texas Department of Transportation

Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

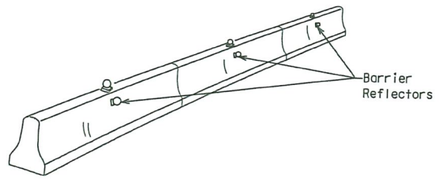
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© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
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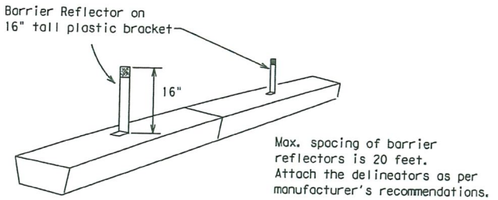
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1. Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
2. Color of Barrier Reflectors shall be as specified in the TMUTCD. The cost of the reflectors shall be considered subsidiary to Item 512.

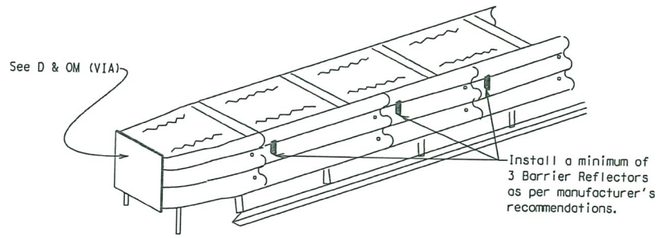


CONCRETE TRAFFIC BARRIER (CTB)

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



LOW PROFILE CONCRETE BARRIER (LPCB)

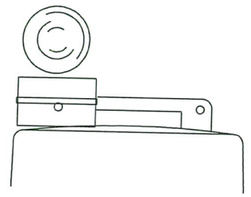


DELINEATION OF END TREATMENTS

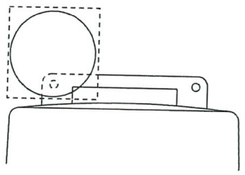
END TREATMENTS FOR CTB'S USED IN WORK ZONES

End treatments used on CTB's in work zones shall meet crashworthy standards as defined in the National Cooperative Highway Research Report 350. Refer to the CWZTCD List for approved end treatments and manufacturers.

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS



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



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

WARNING LIGHTS

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

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

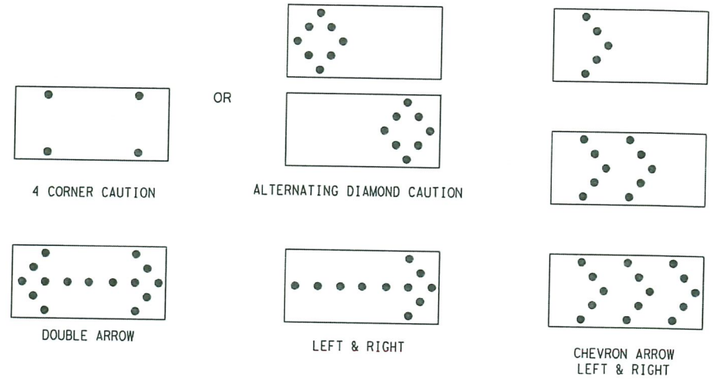
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing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

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

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

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

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



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

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

ATTENTION

Flashing Arrow Boards shall be equipped with automatic dimming devices.

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

FLASHING ARROW BOARDS

TRUCK-MOUNTED ATTENUATORS

1. Truck-mounted attenuators (TMA) used on TxDOT facilities must meet the requirements outlined in the National Cooperative Highway Research Report No. 350 (NCHRP 350) or the Manual for Assessing Safety Hardware (MASH).
2. Refer to the CWZTCD for the requirements of Level 2 or Level 3 TMAs.
3. Refer to the CWZTCD for a list of approved TMAs.
4. TMAs are required on freeways unless otherwise noted in the plans.
5. A TMA should be used anytime that it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the work performance.
6. The only reason a TMA should not be required is when a work area is spread down the roadway and the work crew is an extended distance from the TMA.

Texas Department of Transportation

Traffic Operations Division Standard

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

BC(7)-14

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GENERAL NOTES

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

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

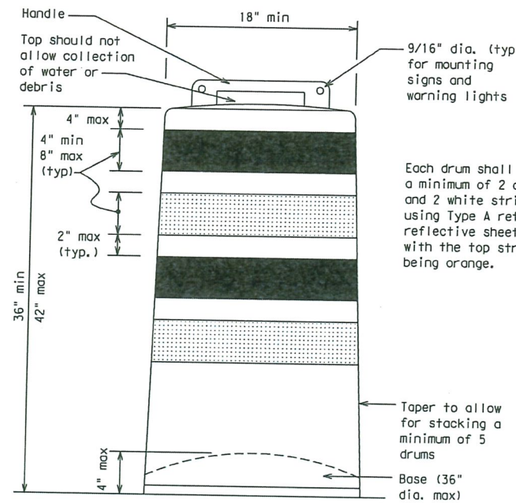
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents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

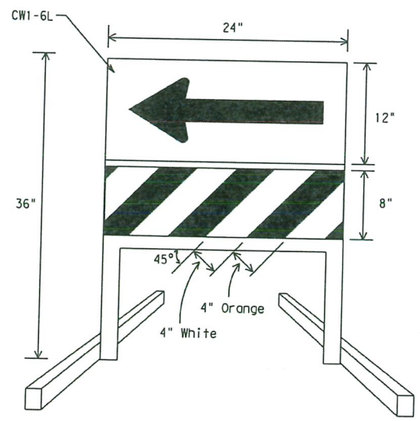
RETROREFLECTIVE SHEETING

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

BALLAST

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

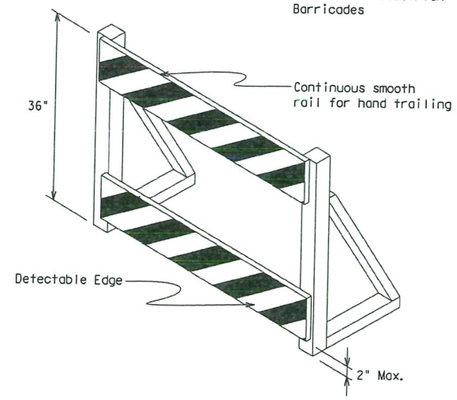




DIRECTION INDICATOR BARRICADE

1. The Direction Indicator Barricade may be used in tapers, transitions, and other areas where specific directional guidance to drivers is necessary.
2. If used, the Direction Indicator Barricade should be used in series to direct the driver through the transition and into the intended travel lane.
3. The Direction Indicator Barricade shall consist of One-Direction Large Arrow (CW1-6) sign in the size shown with a black arrow on a background of Type B_{FL} or Type C_{FL} Orange retroreflective sheeting above a rail with Type A retroreflective sheeting in alternating 4" white and orange stripes sloping downward at an angle of 45 degrees in the direction road users are to pass. Sheeting types shall be as per DMS 8300.
4. Double arrows on the Direction Indicator Barricade will not be allowed.
5. Approved manufacturers are shown on the CWZTCD List. Ballast shall be as approved by the manufacturers instructions.

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



DETECTABLE PEDESTRIAN BARRICADES

1. When existing pedestrian facilities are disrupted, closed, or relocated in a TTC zone, the temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility.
2. Where pedestrians with visual disabilities normally use the closed sidewalk, a device that is detectable by a person with a visual disability traveling with the aid of a long cane shall be placed across the full width of the closed sidewalk.
3. Detectable pedestrian barricades similar to the one pictured above, longitudinal channelizing devices, some concrete barriers, and wood or chain link fencing with a continuous detectable edging can satisfactorily delineate a pedestrian path.
4. Tape, rope, or plastic chain strung between devices are not detectable, do not comply with the design standards in the "Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG)" and should not be used as a control for pedestrian movements.
5. Warning lights shall not be attached to detectable pedestrian barricades.
6. Detectable pedestrian barricades may use 8" nominal barricade rails as shown on BC(10) provided that the top rail provides a smooth continuous rail suitable for hand trailing with no splinters, burrs, or sharp edges.



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



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

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

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

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

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Traffic Operations Division Standard

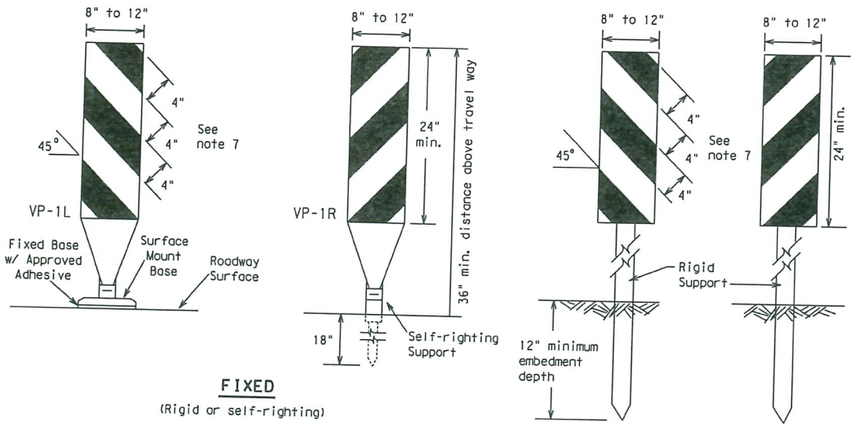
BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(8)-14

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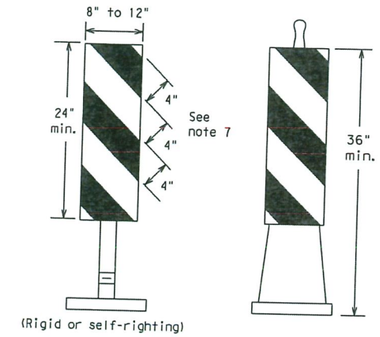
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(Rigid or self-righting)

DRIVEABLE

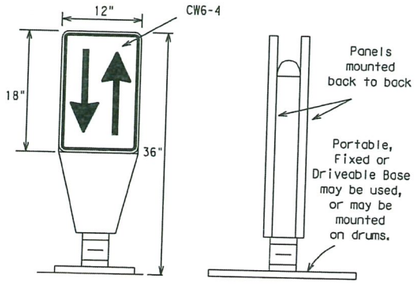


(Rigid or self-righting)

PORTABLE

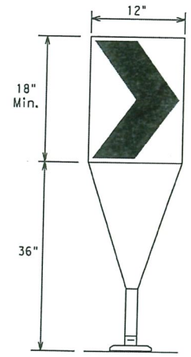
VERTICAL PANELS (VPs)

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



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

OPPOSING TRAFFIC LANE DIVIDERS (OTLD)



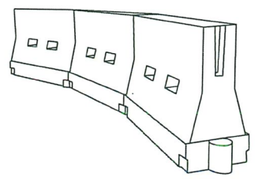
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

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

CHEVRONS

GENERAL NOTES

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



LONGITUDINAL CHANNELIZING DEVICES (LCD)

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

WATER BALLASTED SYSTEMS USED AS BARRIERS

1. Water ballasted systems used as barriers shall not be used solely to channelize road users, but also to protect the work space per the appropriate NCHRP 350 crashworthiness requirements based on roadway speed and barrier application.
2. Water ballasted systems used to channelize vehicular traffic shall be supplemented with retroreflective delineation or channelizing devices to improve daytime/nighttime visibility. They may also be supplemented with pavement markings.
3. Water ballasted systems used as barriers shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
4. Water ballasted systems used as barriers should not be used for a merging taper except in low speed (less than 45 MPH) urban areas. When used on a taper in a low speed urban area, the taper shall be delineated and the taper length should be designed to optimize road user operations considering the available geometric conditions.
5. When water ballasted systems used as barriers have blunt ends exposed to traffic, they should be attenuated as per manufacturer recommendations or flared to a point outside the clear zone.

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

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

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
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'
35		205'	225'	245'	35'	70'
40		265'	295'	320'	40'	80'
45	$L = WS$	450'	495'	540'	45'	90'
50		500'	550'	600'	50'	100'
55		550'	605'	660'	55'	110'
60		600'	660'	720'	60'	120'
65		650'	715'	780'	65'	130'
70		700'	770'	840'	70'	140'
75		750'	825'	900'	75'	150'
80		800'	880'	960'	80'	160'

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

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

Texas Department of Transportation

Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-14

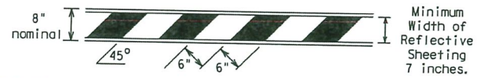
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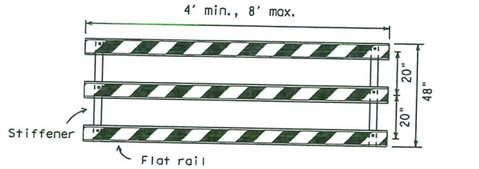
TYPE 3 BARRICADES

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.



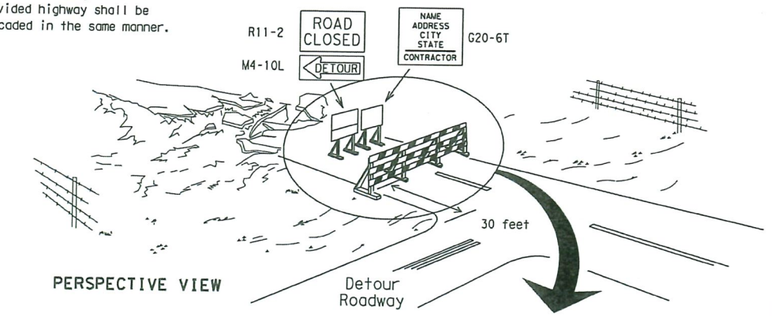
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

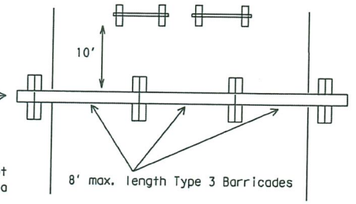
Each roadway of a divided highway shall be barricaded in the same manner.



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.

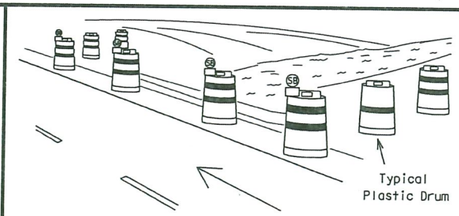
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

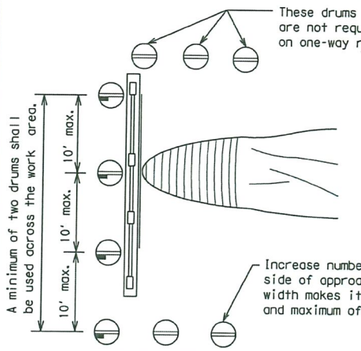
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

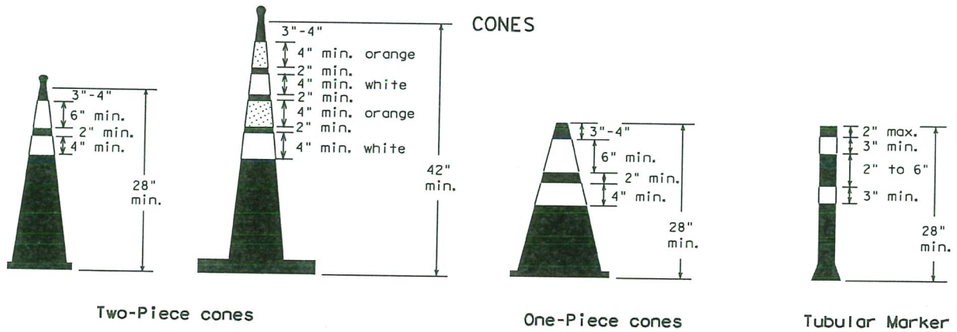
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder 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.



PLAN VIEW

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

CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS

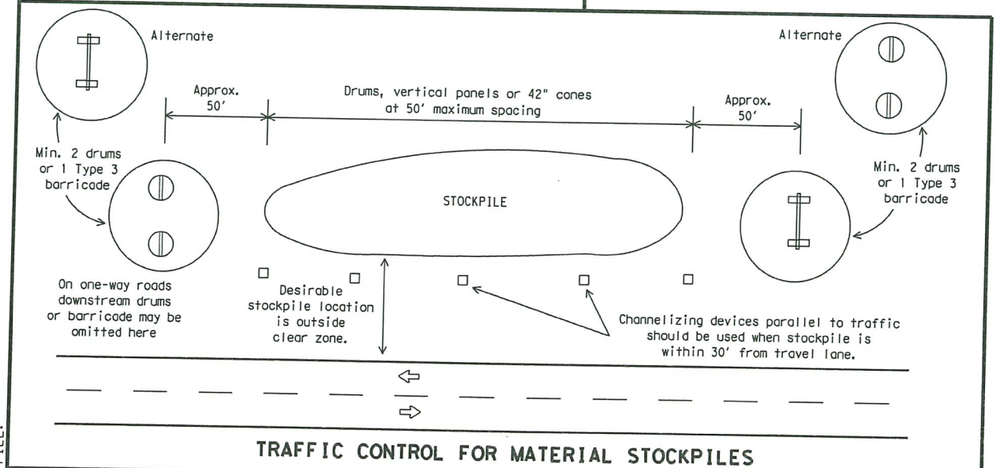


Two-Piece cones | One-Piece cones | Tubular Marker

28" Cones shall have a minimum weight of 9 1/2 lbs.

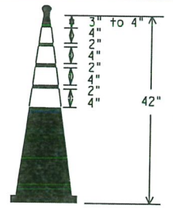
42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

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.



TRAFFIC CONTROL FOR MATERIAL STOCKPILES

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.

Texas Department of Transportation | Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(10)-14

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WORK ZONE PAVEMENT MARKINGS

GENERAL

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

RAISED PAVEMENT MARKERS

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

PREFABRICATED PAVEMENT MARKINGS

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

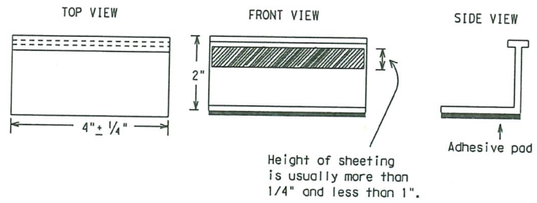
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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

REMOVAL OF PAVEMENT MARKINGS

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

Temporary Flexible-Reflective Roadway Marker Tabs



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

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

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

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

Guidemarks shall be designated as:
YELLOW - (two amber reflective surfaces with yellow body).
WHITE - (one silver reflective surface with white body).

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

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

Texas Department of Transportation

Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

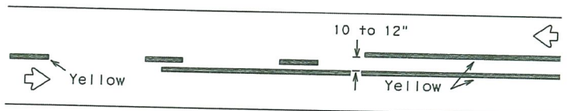
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11-02 8-14				

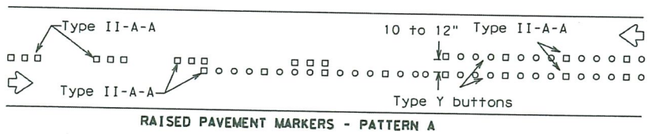
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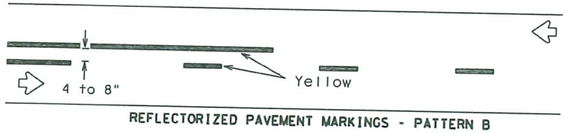
PAVEMENT MARKING PATTERNS



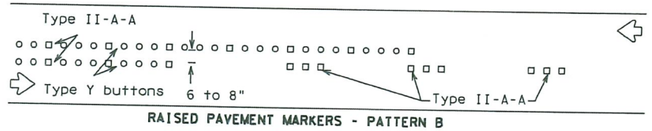
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



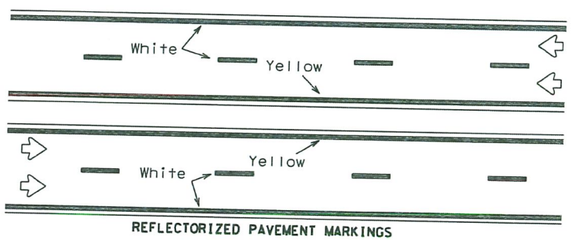
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



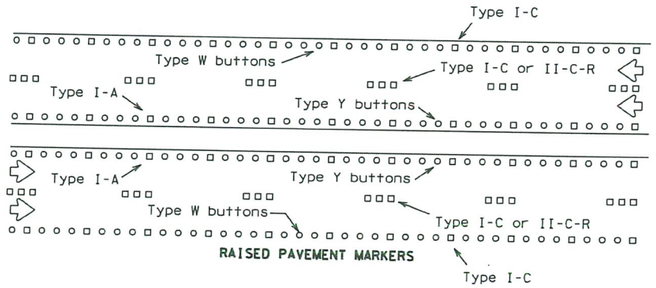
RAISED PAVEMENT MARKERS - PATTERN B

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

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



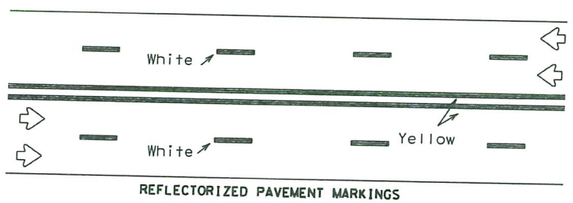
REFLECTORIZED PAVEMENT MARKINGS



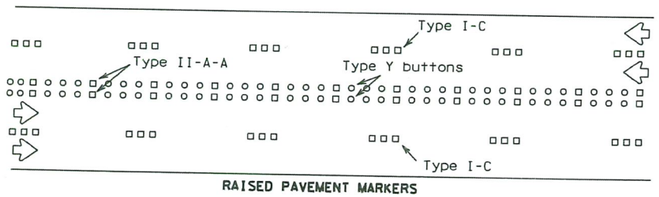
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



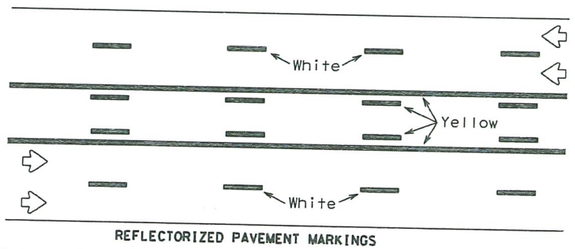
REFLECTORIZED PAVEMENT MARKINGS



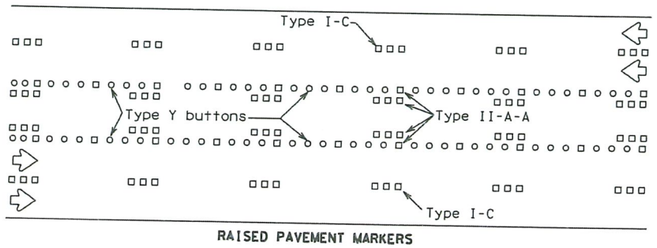
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS

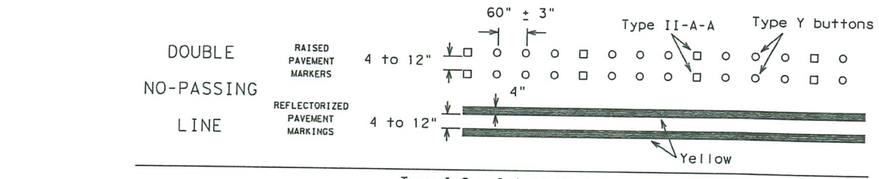


RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

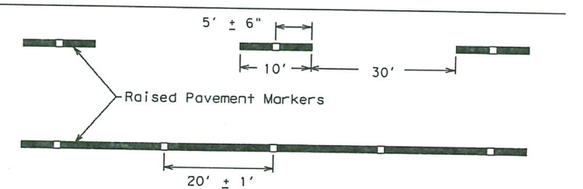
TWO-WAY LEFT TURN LANE

STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

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



Centerline only - not to be used on edge lines

Raised pavement markers used as standard pavement markings shall be from the approved products list and meet the requirements of Item 672 "RAISED PAVEMENT MARKERS."

Texas Department of Transportation

Traffic Operations Division Standard

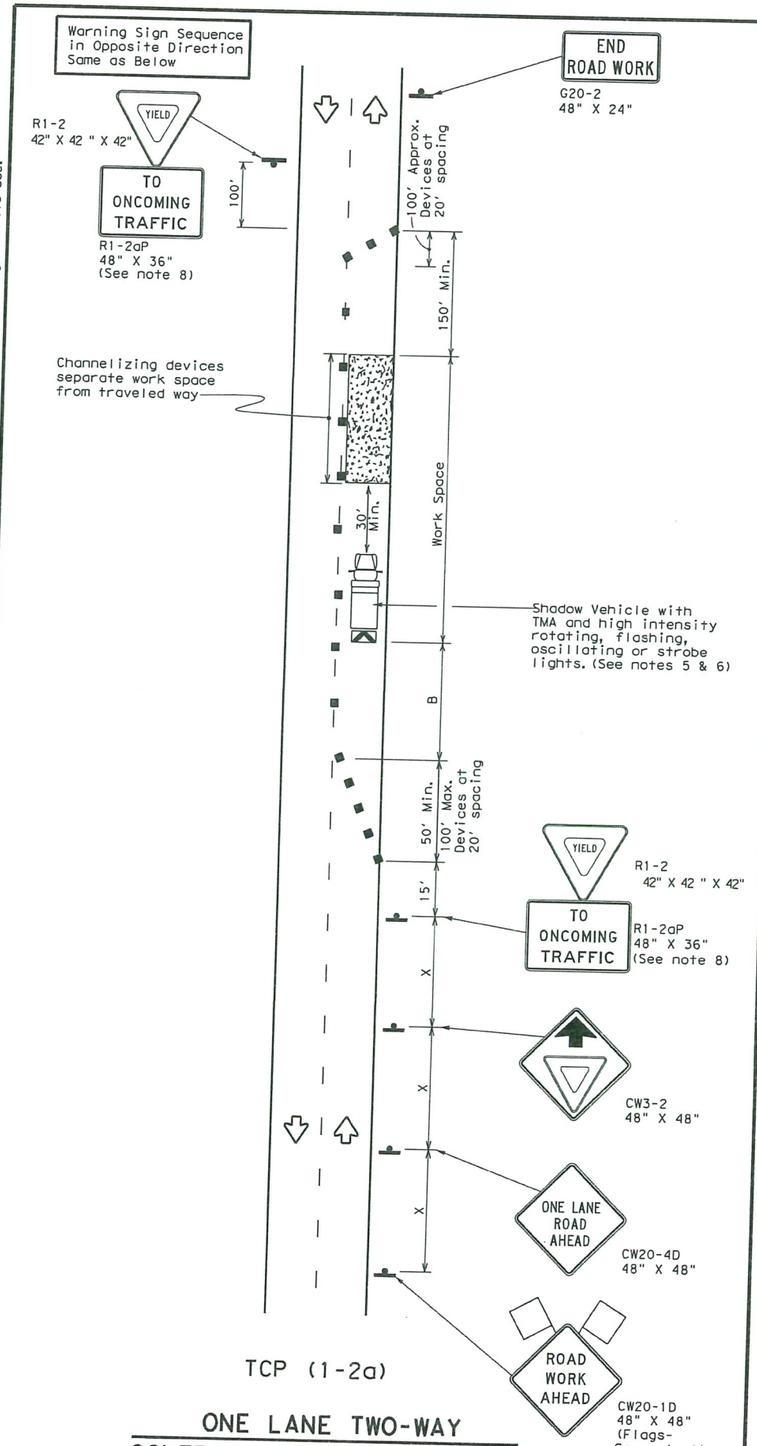
BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC(12)-14

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS				
1-97 9-07	DIST	COUNTY		SHEET NO.
2-98 7-13				
11-02 8-14				

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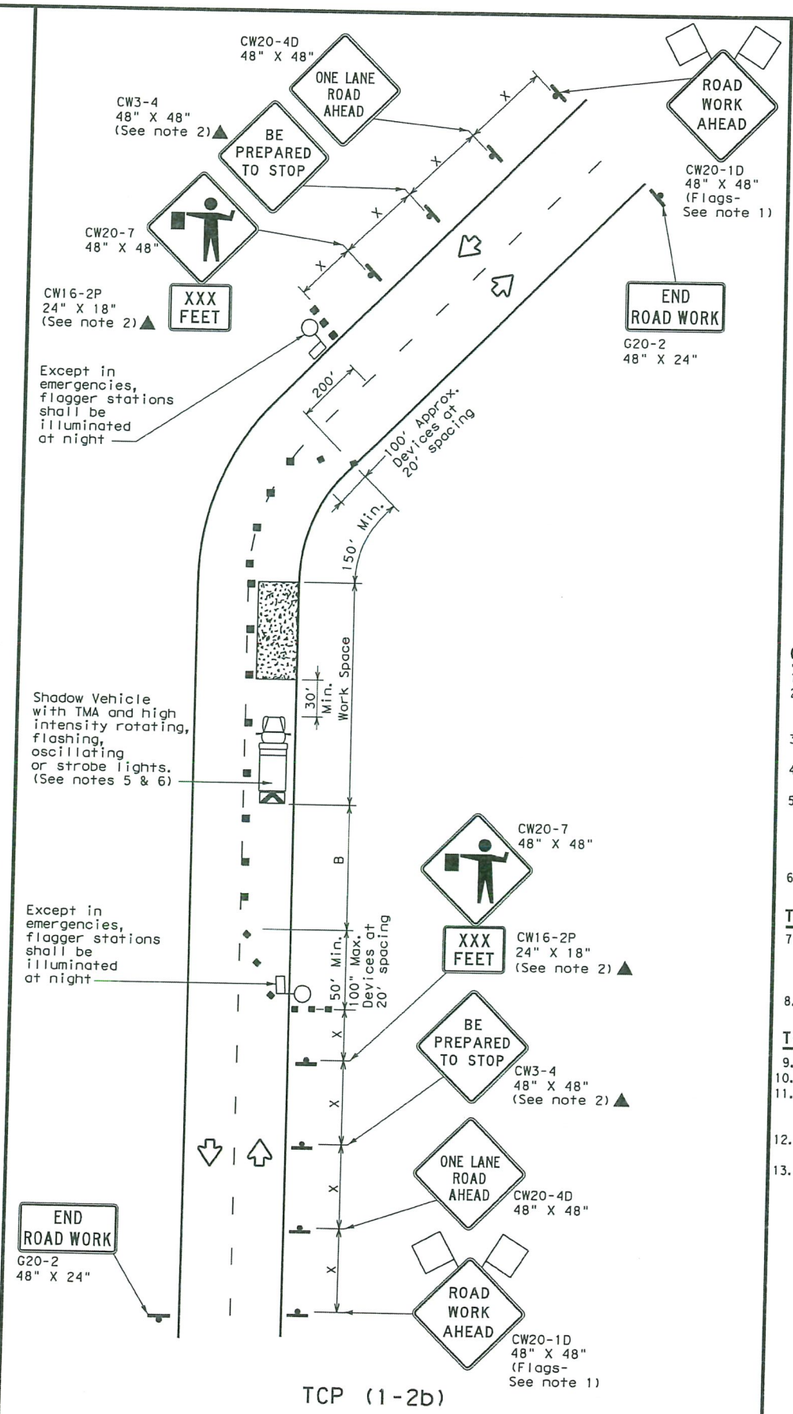
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TCP (1-2a)

ONE LANE TWO-WAY CONTROL WITH YIELD SIGNS

(Less than 2000 ADT - See note 7)



TCP (1-2b)

ONE LANE TWO-WAY CONTROL WITH FLAGGERS

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"	Stopping Sight Distance
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'	200'
35		205'	225'	245'	35'	70'	160'	120'	250'
40		265'	295'	320'	40'	80'	240'	155'	305'
45	L=WS	450'	495'	540'	45'	90'	320'	195'	360'
50		500'	550'	600'	50'	100'	400'	240'	425'
55		550'	605'	660'	55'	110'	500'	295'	495'
60		600'	660'	720'	60'	120'	600'	350'	570'
65		650'	715'	780'	65'	130'	700'	410'	645'
70		700'	770'	840'	70'	140'	800'	475'	730'
75		750'	825'	900'	75'	150'	900'	540'	820'

* 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. The CW3-4 "BE PREPARED TO STOP" sign may be installed after the CW20-4D "ONE LANE ROAD AHEAD" sign, but proper sign spacing shall be maintained.
4. Sign spacing may be increased or an additional CW20-1D "ROAD WORK AHEAD" sign may be used if advance warning ahead of the flagger or R1-2 "YIELD" sign is less than 1500 feet.
5. 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.
6. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.

TCP (1-2a)

7. R1-2 "YIELD" sign traffic control may be used on projects with approaches that have adequate sight distance. For projects in urban areas, work spaces should be no longer than one half city block. In rural areas on roadways with less than 2000 ADT, work spaces should be no longer than 400 feet.
8. R1-2 "YIELD" sign with R1-2aP "TO ONCOMING TRAFFIC" plaque shall be placed on a support at a 7 foot minimum mounting height.

TCP (1-2b)

9. Flaggers should use two-way radios or other methods of communication to control traffic.
10. Length of work space should be based on the ability of flaggers to communicate.
11. If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain adequate stopping sight distance to the flagger and a queue of stopped vehicles (see table above).
12. Channelizing devices on the center-line may be omitted when a pilot car is leading traffic and approved by the Engineer.
13. Flaggers should use 24" STOP/SLOW paddles to control traffic. Flags should be limited to emergency situations.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN ONE-LANE TWO-WAY TRAFFIC CONTROL

TCP(1-2)-18

FILE: tcp1-2-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-90 4-98 2-94 2-12 1-97 2-18	DIST	COUNTY		SHEET NO.

HIDALGO COUNTY DRAINAGE DISTRICT No. 1
STANDARD SPECIFICATIONS BOOK

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SECTION 01181
PRIVATE UTILITIES

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes requirements for areas of work involving private utility companies including, but not limited to the following:
   1. Telephone Companies.
   2. Gas Companies.
   3. Power (Electric) Companies.
   4. Cable Television Companies.
   5. Pipeline Companies.

1.2 NOTIFICATIONS

A. Notify private utilities of proposed work at least 48 hours prior to starting work at site.
B. The following organizations provide construction notification services for member companies:
   1. DIG-TESS
      1-800-DIG-TESS
      1-800-344-8377

1.3 UTILITY RELOCATIONS

A. Where relocation of utility work is necessary for construction purposes, coordinate the relocations with the Engineer prior to start of work.

PART 2 – PRODUCTS – Not used

PART 3 – EXECUTION – Not used

END OF SECTION

SECTION 01270
MEASUREMENT AND PAYMENT

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes requirements for measurement and payment procedures, conditions for nonconformance assessment and nonpayment for rejected products.

1.2 MEASUREMENT

A. Measurement methods delineated in individual Sections are intended to complement the criteria of this Section. In the event of conflict, the requirements of the individual Section governs.
B. Take measurements and compute quantities accordingly.
C. Provide equipment, workers and survey personnel as necessary to perform the measurement.

1.3 UNIT QUANTITIES

A. Quantity and measurement estimates stated on the Unit Price Schedule are for contract purposes only.
B. If greater or lesser quantities are required than those quantities indicated in the Unit Price Schedule, provide the required quantities at the unit prices contracted.
C. Measurement by Volume: Measure by cubic dimension.
D. Measurement by Area: Measure by square dimension.
E. Linear Measurement: Measure by linear dimension, at the item centerline or mean chord.
F. Unit Price Measurement: Measure by unit designated on the Unit Price Schedule.

1.4 PAYMENT

A. Payment includes: Full compensation for required supervision, labor, products, tools, equipment, plant, transportation, services and appurtenances; erection, application or installation of an item of the work; and Contractor's overhead and profit.
B. Total compensation for required work shall be included in the unit price bid on the Unit Price Schedule. Claims for payment of work not specifically covered in the list of unit prices contained in the Unit Price Schedule will not be accepted.
C. Progress payments will be based on the Engineer's observations and evaluations of quantities incorporated in the work multiplied by the unit price.

D. Final payment for pay items governed by unit prices will be made on the basis of actual measurements and quantities determined by the Engineer, multiplied by the unit price for the pay item which is incorporated in or made necessary by the work.
E. Prepare and submit an Application for Payment for work completed and not previously paid. The application at a minimum shall include the following:
    1. Application for Payment: The application will be in a form acceptable to the Engineer. A sample form will be provided to the Contractor.
    2. Construction Schedule: See Section 01325 – Construction Schedules, General Form and Contents of Schedules.
    3. Contractor Payroll Certificate: See Prevailing Wage Rates. (If applicable).
    4. Pollution Prevention Plan (PPP) Reports: See Storm Water Pollution Prevention Plan. (if applicable)
    5. Quantity supporting documents include: plotted and tabulated cross-sections, quantity calculations or suppliers' invoices, etc.
    6. Application supporting documents and submittal items are provided to verify products, regulations and contract requirements are being met. Application supporting documents include: field obtained data, truck volume tickets, truck weight tickets, seed and fertilizer tags, pesticide use records, etc. and other supporting documents as they may be necessary or required by Contract Documents.
F. Incomplete Applications for Payment will not be processed and will be returned to the Contractor.

1.5 NONCONFORMANCE OF WORK

A. Remove and replace the work, or portions of the work, not conforming to the Contract Documents.
B. If, in the opinion of the Engineer, it is not practical to remove and replace the work, the Engineer will direct one of the following remedies:
    1. The nonconforming work will remain as is, but the unit price will be adjusted to a lower price at the discretion of the Engineer.
    2. The nonconforming work will be modified as authorized by the Engineer, and the unit price will be adjusted to a lower price at the discretion of the Engineer, if the modified work is deemed to be less suitable than originally specified.
C. Individual Sections may modify these options or may identify a specific formula or percentage price reduction.
D. The authority of the Engineer to assess the nonconforming work and identify payment adjustment is final.

1.6 NONPAYMENT

A. Payment will not be made for any of the following:
    1. Products wasted or disposed of in a manner that is not acceptable to

Engineer.

2. Products determined as nonconforming before or after placement.
3. Products placed beyond the lines and levels of the required work.
4. Products remaining on hand after completion of the work, unless specified to remain.
5. Loading, hauling and disposing of rejected products.

PART 2 – PRODUCTS – Not used

PART 3 – EXECUTION – Not used

END OF SECTION

SECTION 01292
SCHEDULE OF VALUES

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes the requirements for the submittal of a Schedule of Values.
B. Prepare and submit a Schedule of Values for major pay items when partial payments are requested. Use the Schedule of Values only as a basis for Application for Payment.
C. Refer to Section 01270 – Measurement and Payment.

1.2 SUBMITTALS

A. Refer to Section 01330 – Submittal Procedures.
B. Submit the Schedule of Values to the Engineer for review and approval.
C. After review by the Engineer, revise and resubmit the Schedule of Values, if required. The initial Application for Payment will not be processed until the Schedule of Values is approved.
D. During review, the Engineer may request additional documentation to support the data on the Schedule of Values.

PART 2 – PRODUCTS – Not used

PART 3 – EXECUTION – Not used

END OF SECTION

SECTION 01325
CONSTRUCTION SCHEDULES

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes requirements for preparation, submittal and associated revisions of a construction schedule and the monthly submittal of an updated progress schedule.

1.2 MEASUREMENT AND PAYMENT

A. Where there is not a separate item listed on the Unit Price Schedule for work in this Section, no separate measurement and payment are made. Include cost for work under this Section in the related item listed on the Unit Price Schedule.
B. Where an item is listed on the Unit Price Schedule, Measurement and Payment is as noted on the Unit Price Schedule.
C. Refer to Section 01270 – Measurement and Payment for unit price procedures.
D. Payments for progress meetings are incidental to site preparation and restoration.

1.3 GENERAL FORM AND CONTENTS OF SCHEDULES

A. Provide progress schedule in the form of a horizontal bar chart (Gantt Chart). Provide a Critical Path Method (CPM) schedule where required for complex projects or where scheduling is critical.

1.4 SUBMITTALS

A. Submit the initial construction schedule prior to beginning work.
B. Submit a revised construction schedule showing current and estimated future progress with each Application for Payment request. Applications for Payment will not be processed without the revised construction schedule.

PART 2 – PRODUCTS – Not used

PART 3 – EXECUTION

3.1 PROGRESS MEETINGS

A. Meet with the Engineer 1 week prior to each scheduled Application for Payment to discuss progress and corrective action. Meetings are required for contracts with 120 or more calendar days and are also required for contracts behind schedule as determined by the Engineer.

END OF SECTION

SECTION 01328
CONSTRUCTION SURVEYING

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes requirements for construction surveying, construction staking and the coordination of the control with the Engineer.

1.2 MEASUREMENT AND PAYMENT

A. Where there is not a separate item listed on the Unit Price Schedule for work in this Section, no separate measurement and payment are made. Include cost for work under this Section in the related item listed on the Unit Price Schedule.
B. Where an item is listed on the Unit Price Schedule, Measurement and Payment is as noted on the Unit Price Schedule.
C. Refer to Section 01270 – Measurement and Payment for unit price procedures.

1.3 STANDARDS

A. Utilize recognized survey practices as published by the Texas Board of Professional Land Surveying.

1.4 CONTROL

A. Horizontal and vertical control and right-of-way monuments, as shown on the Plans, will be marked in the field at the direction of the Engineer.
B. Preserve control and right-of-way points. Where control points are in areas of construction, offsets or set supplemental control points will be established by the Contractor at no cost to the District. Notify the Engineer prior to performing work that will disturb project control.
C. Provide construction surveying and construction staking necessary to establish the line and grade of the proposed work from the control points.

1.5 ACCEPTANCE OF CONTROL

A. Notify the Engineer of any discrepancies discovered in the locations of survey control points prior to starting work.

1.6 DAMAGED MONUMENTATION

A. Re-establish property corners and right-of-way monumentation damaged or destroyed by the Contractor at no cost to the District. Perform the survey work to the tolerances of a “Category 1A – Land Title Survey” as set forth in the TSPS Manual of Practice for Land Surveying in Texas. All survey work shall adhere to the current Act and Rules of the Texas Board of Professional Land Surveying.
B. Report promptly to the Engineer the loss or destruction of any reference points or boundary monumentation.
C. Reimburse the District for the cost to reestablish permanent reference points disturbed by Contractor’s operations.

PART 2 – PRODUCTS – Not used

PART 3 – EXECUTION – Not used

END OF SECTION

SECTION 01330
SUBMITTAL PROCEDURES

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes procedures for the submittals identified by the Contract Documents.

1.2 SUBMITTAL PROCEDURES

A. Deliver available submittals to the Engineer at the Pre-Construction meeting. Allow no less than 14 calendar days for initial review of submittals by the Engineer. The Engineer will review and return submittals as expeditiously as possible, but the amount of time required for review will vary depending on the complexity and quantity of data submitted. This time for review shall in no way be justification for delays or additional compensation to the Contractor. Allow time to make delivery of material or equipment after the submittal is approved.

B. Submit 2 copies of documents unless otherwise specified.

C. The Engineer's review of submittals covers only general conformity to the Contract Documents. Quantities will not be reviewed or verified by the Engineer. Contractor is responsible for errors, omissions or deviations from Contract Documents. Review of submittals in no way relieves the Contractor from obligation to furnish required items according to the Contract Documents.

D. Revise and resubmit submittals as required. Identify all changes made since previous submittal.

E. The Contractor shall assume the risk for material or equipment that is fabricated or delivered prior to approval. No material or equipment shall be incorporated into the work or included in periodic progress payments until approval has been obtained in the specified manner.

F. Submittal Numbering:
   1. Transmit each submittal to the Engineer.
   2. Identify each submittal by project I.D., submittal number, section number and pay item number.
   3. Sequentially number each submittal beginning with the number 1. Resubmittals shall use the original number followed with an alphabetic suffix (i.e., 2A for the first resubmittal of Submittal 2 or 15C for the third resubmittal of Submittal 15). Each submittal shall only contain one type of work, material or equipment. Mixed submittals will not be accepted.
   4. Identify variations from requirements of Contract Documents and identify product or system limitations.

G. Contractor's Stamp: Apply Contractor's stamp, certifying that the items have been reviewed in detail and are correct and in accordance with Contract Documents, except as noted by any requested variance.

PART 2 – PRODUCTS – Not used

PART 3 – EXECUTION – Not used

END OF SECTION

SECTION 01422
REFERENCE TECHNICAL STANDARDS

PART 1 – GENERAL

1.1 SUMMARY

A. Reference to various technical standards as published by technical societies, national and state associations or other authorities is made in the Contract Documents. The abbreviations along with the titles are listed below.

1.2 ABBREVIATIONS

AALA	–	American Association of Laboratory Accreditation.
AASHTO	–	American Association of State Highway and Transportation Officials.
ACI	–	American Concrete Institute.
AISC	–	American Institute of Steel Construction.
ANSI	–	American National Standards Institute.
ASTM	–	American Society for Testing Materials International.
AWS	–	American Welding Society.
AWPA	–	American Wood-Preservers' Association.
CPMB	–	Concrete Plant Manufactures Bureau.
CRSI	–	Concrete Reinforcing Steel Institute.
OSHA	–	Occupational Safety and Health Administration.
TSPS	–	Texas Society of Professional Surveyors.
TxDOT	–	Texas Department of Transportation

1.3 GOVERNING VERSION – Not used

1.4 CONTRACTUAL OBLIGATIONS

A. The technical standards are referenced for technical specifications only. Certain technical standards contain or imply contractual obligations. These obligations are void if they conflict with the Contract Documents.

PART 2 – PRODUCTS – Not used

PART 3 – EXECUTION – Not used

END OF SECTION

SECTION 01457
CONSTRUCTION TESTS AND INSPECTION

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes requirements for tests and inspection.

1.2 MEASUREMENT AND PAYMENT

A. Where there is not a separate item listed on the Unit Price Schedule for work in this Section, no separate measurement and payment are made. Include cost for work under this Section in the related item listed on the Unit Price Schedule.
B. Where an item is listed on the Unit Price Schedule, Measurement and Payment is as noted on the Unit Price Schedule.
C. Refer to Section 01270 – Measurement and Payment for unit price procedures.

1.3 ACCESS TO WORK

A. The District, the Engineer, engineer's consultants, other representatives and personnel of the District, independent testing laboratories and governmental agencies with jurisdictional interests shall have access to the work at reasonable times for their observation, inspection and testing. Provide proper and safe conditions for such access and advise of site safety procedures and programs.

1.4 TESTS AND INSPECTIONS

A. Testing and Inspection includes, but is not limited to, services of a construction materials engineering laboratory or other agent employed by the District, to perform laboratory testing, field testing or examinations required in the Contract Documents.
B. The District will employ and pay for testing as noted above. Exceptions include, but are not limited to, the following:
    1. Arrange, obtain and pay for inspections, tests and approvals required by laws and regulations of other public bodies having jurisdiction. Transmit to the Engineer the required certificates of inspection or approval.
    2. Arrange, obtain and pay for inspections, tests or approvals required for acceptance of materials or equipment. This includes expenses surrounding materials, mix designs or equipment submitted for approval for incorporation in the work.

3. Perform retest or inspection of the corrected defective work at no cost to the District.

C. Retests that are required to verify the adequacy of reworked areas or work performed for the Contractor's convenience will be deducted from the Contractor's final payment.
D. Provide Engineer 24 hour notice of readiness of the work for inspections, tests or approvals and cooperate with inspectors and testing personnel to facilitate required inspections or testing.
E. Inspections and tests performed for either Engineer or Contractor shall be performed by an independent testing laboratory listed and qualified to provide the service to Hidalgo County Drainage District No. 1.
F. Acceptance of tests or inspections in no way relieves the Contractor of obligation to furnish required work in accordance with the Plans and Specifications.

1.5 SUBMITTALS

A. Submit testing laboratory or examination reports, as specified or required, dated, signed and sealed by a Licensed Professional Engineer in the State of Texas accepting technical responsibility for the report. The work performed by the laboratory shall be covered by a report that accurately, clearly and unambiguously presents the test or examination results and other relevant information in accordance with the criteria for accreditation used by the American Association for Laboratory Accreditation (AALA).

1.6 LIMITS OF AUTHORITY

A. The testing laboratory is not authorized to:
   1. Release, revoke, alter or enlarge on requirements of the Contract Documents.
   2. Approve or reject any portion of the work.
   3. Perform any duties of the Contractor.
   4. Stop the work.

PART 2 – PRODUCTS – Not used

PART 3 – EXECUTION – Not used

END OF SECTION

SECTION 01554
EMERGENCY ACTION PLAN & STOP LOGS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Section includes requirements of an Emergency Action Plan (EAP) to address contingency plans in the event of damage to the floodway.
B. Section includes furnishing and installation of stop logs, guide frames and stop log lifters as shown on the plans and as specified herein.

1.2 MEASUREMENT AND PAYMENT

A. Measurement and payment is as noted on the Unit Price Schedule.
B. Refer to Section 01270 – Measurement and Payment for unit price procedures.

1.3 SUBMITTALS

A. Conform to requirements of Section 01330 – Submittal Procedures.
B. Additionally, provide the following information to confirm compliance with the specification of stop logs:
   1. Complete description of all materials including the material thickness of all structural components of the stop logs, guide frames, and stop log lifter.
   2. Installation drawings showing all details of construction, details required for installation, dimensions and anchor bolt locations.
   3. Maximum bending stress/deflection of the stop logs under the maximum design head.
   4. Name of the principle manufacturing facility.

1.4 EMERGENCY ACTION PLAN

A. The EAP document should include the following:
   1. Discussion of procedures for timely and reliable detection.
   2. Classification (level of emergency).
   3. Response procedure to a potential emergency condition.
   4. Contact personnel and agencies including primary and secondary telephone numbers.
   5. Contractor's hierarchy of responsible personnel.
   6. Traffic control measures.
   7. Identification of resources to be available on or near project site in event of damage to the floodway.
B. The EAP document should be:
   1. Approved by the IBWC and/or other agencies listed on the plans.

2. Dated, signed and sealed by a Licensed Professional Engineer.

1.5 QUALITY ASSURANCE OF STOP LOGS

A. All of the equipment specified under this Section shall be furnished by a single manufacturer with a minimum of 20 years' experience designing and manufacturing stop logs.
B. The specification is based on Aluminum Stop Logs as manufactured by Waterman Valve of Exeter, CA.

PART 2 - PRODUCTS

2.1 STOP LOGS GENERAL

A. Stop log assemblies shall be as specified herein and have the characteristics and dimensions shown on the Contract Drawings.
B. Leakage shall not exceed 0.05 gpm/ft of wetted seal perimeter.
C. The stop logs shall be provided with a continuous resilient seal along the bottom edge of each stop log. Vertical seals shall be mechanically fastened to the guide frame rails.
D. Stop logs shall be of the height as shown in the Contract Drawings and they shall be designed to function properly when stacked in any order.
E. Stop logs shall be designed to be self-draining, non-buoyant and to drop into place under their own weight without any downward pressure necessary.
F. All structural components of the stop logs shall be fabricated of aluminum and shall have adequate strength to prevent distortion during normal handling, during installation and while in service.
G. All structural components of the guide frames shall be fabricated of aluminum and/or stainless steel and shall have adequate strength to prevent distortion during normal handling, during installation and while in service.
H. All welds shall be performed by welders with AWS certification.
I. Finish: Mill finish on aluminum and stainless steel. All aluminum in contact with concrete shall be field coated by the contractor with a heavy coat of bitumastic paint. Welds on aluminum shall be cleaned to provide a uniform finish. Welds on stainless steel shall be passivated to remove weld burn and scale.
J. Materials:

Components	Materials
Frame Guides and Invert	Stainless Steel, Type 304L, Type 316L, ASTM A240, A276 Aluminum, Alloy 6061-T6, ASTM B 209, B308
Stop Logs	Aluminum, Alloy 6061-T6, ASTM B 209, B308
Lip Seal	Neoprene ASTM D-2000, EPDM
Anchor Studs, Fasteners and Nuts	Stainless Steel, Type 316, ASTM A276, F 593, F594

2.2 FRAME GUIDES

A. The frame guides or grooves and invert member shall be constructed of stainless steel or extruded aluminum with a minimum thickness of 1/4-inch.
   1. Frame design shall allow for embedded mounting or mounting directly to a wall with stainless steel anchor bolts and grout. Mounting style shall be as shown on the Contract Drawings.
   2. An invert member shall be provided across the bottom of the guides. The invert member shall be of the flush bottom type.

2.3 STOP LOGS

A. The stop logs shall be constructed of extruded aluminum shapes with a minimum thickness of 1/4-inch.
   1. Each stop log height shall be as indicated on the Contract Drawings.
   2. Maximum bending stress shall not exceed 7600 psi at the maximum operating head.
   3. Maximum deflection shall not exceed 1/360 of stop log span at the maximum operating head.
   4. Each stop log shall be provided with 2 alignment pins to ensure log stack alignment in service.
   5. Adequate drainage shall be provided for each stop log.
   6. Two slots shall be provided in the top of each stop log for removal and installation via the stop log lifter.
   7. Each stop log shall be outfitted with an identification tag indicating the manufacturer.

2.4 SEALS

A. Each stop log shall be outfitted with a continuous resilient lip seal along the bottom edge of each log.
   1. The continuous lip seal shall be constructed of rubber or EPDM and shall be mechanically retained to the stop log.
   2. The lip seal shall be activated by a combination of the weight of the stop log and the differential water pressure, which pushes the seal against the inside of the groove assembly.
   3. Stop logs that utilize rubber “J” seals or “P” seals are not acceptable.

2.5 LIFTER

A. One stop log lifter shall be provided for each different guide frame width.
   1. The lifter shall be constructed of (aluminum) (painted mild steel) (stainless steel) and shall be outfitted with UHMW guide bars and stainless-steel fasteners.

2. The lifter shall be provided with lifting hooks designed to automatically engage lifting pins through the slots in the top of the stop logs. A lanyard release will be incorporated into the design.
3. The lifter shall be capable of installing and removing all stop logs of the same width whether they are installed or at the operating floor level.

2.6 STORAGE RACKS

A. Storage racks, if shown on the Contract Drawings, shall be provided to house stop logs while they are not in use.
   1. Storage racks shall be constructed of aluminum, painted mild steel or stainless steel and shall be mounted, as shown on the Contract Drawings.

2.7 ANCHOR BOLTS

A. Anchor bolts shall be provided by the stop log manufacturer for mounting the guide frames and storage racks (if applicable).
   1. Quantity and location shall be determined by the stop log manufacturer.
   2. If epoxy type anchor bolts are provided, the stop log manufacturer shall provide the studs and nuts.
   3. For surface mount installations, anchor bolts shall have a minimum diameter of ½ inch. For embedded mount installations, anchor bolts shall have a minimum diameter of 3/8 inch.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Installation of the stop logs, guide frames and appurtenances shall be done in a workmanlike manner. It shall be the responsibility of the contractor to handle, store and install the equipment specified in this Section in strict accordance with the manufacturer's recommendations.
B. The contractor shall review the installation drawings and installation instruction prior to installing the guide frames.
C. The guide frames shall be installed in a true vertical plane, square and plumb.
D. The contractor shall fill the void in between the guide frames and the wall with non-shrink grout as shown on the installation drawing and in accordance with the manufacturer’s recommendations.

3.2 FIELD TESTING

A. After installation, all stop logs shall be field tested in the presence of the engineer and owner to ensure that all items of equipment are in full compliance with this Section. The stop logs shall be inserted into the guide

frames to confirm that they operate in accordance with the specification. Each stop log assembly shall be water tested by the contractor, at the discretion of the engineer and owner, to confirm that leakage does not exceed the specified allowable leakage.

END OF SECTION

SECTION 01555
TRAFFIC CONTROL AND REGULATION

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Requirements for signs, signals, control devices, traffic barriers, flares, lights and traffic signals; construction parking control, designated haul routes, and bridging of trenches and excavations.
B. Qualifications and requirements for use of flagmen.

1.2 MEASUREMENT AND PAYMENT

A. Where there is not a separate item listed on the Unit Price Schedule for work in this Section, no separate measurement and payment are made. Include cost for work under this Section in the related item listed on the Unit Price Schedule.
B. Where an item is listed on the Unit Price Schedule, Measurement and Payment is as noted on the Unit Price Schedule, and the following schedule
   1. Traffic control and regulation. Payment for traffic control and regulation is on a lump sum basis. Include preparation and submittal of traffic control plan if different than shown on Drawings, and provision of traffic control devices, equipment, and personnel necessary to protect the Work and public. Payment will be based on Contractor's Schedule of Values for traffic control and regulation.
   2. Payment for traffic control for wastewater or water line projects will be authorized by the Engineer in three (3) parts. Partial payment will be made according to following schedule:
      a. Payment of 25 percent of traffic control amount will be authorized when permanent control devices and necessary temporary markings, sufficiently deployed along job site as required to maintain progress of work, are installed at job site and approved. This limiting percentage will be prorated based upon extent of Contractor's setup.
      b. A payment of 50 percent of traffic control amount will be authorized when pavement replacement commences. This limiting percentage will be prorated based upon linear footage, as measured along centerline axis of wastewater or water line, of pavement replaced.
      c. A payment of 25 percent of traffic control amount will be authorized when permanent pavement markings are restored

and all unnecessary permanent and temporary control devices removed. This limiting percentage will be prorated based upon the extent of restoration.

3. Flagmen: Measurement is on a lump sum basis for flagmen as required for the project. The amount invoiced shall be determined based on the schedule of value submitted for flagmen.
4. New Portable Concrete Low-Profile Traffic Barrier Provided. Payment is on a unit price basis for each linear foot of low-profile traffic barrier provided, installed with hardware assemblies and connected together in accordance with the approved traffic control plan.
5. Portable Concrete Low-Profile Traffic Barrier Installed. Payment is on a unit price basis for each linear foot of low-profile traffic barrier delivered to the project location, installed with hardware assemblies and connected together in accordance with the approved traffic control plan.
6. Portable Concrete Low-Profile Traffic Barrier Moved and Reset. Payment is on a unit price basis for each linear foot of low-profile traffic barrier disassembled, moved on the project, reset at the new locations and connected together. Include cost to repair roadway in the unit price.
7. Portable Concrete Low-Profile Traffic Barrier Removed. Payment is on a unit price basis for each linear foot of low-profile traffic barrier removed from the project, including hardware assemblies, and stockpiling at location. In general, the Contractor shall provide, install, move, replace, clean, and remove upon completion of work all barricades, signs, cones, lights, and/or traffic control devices as directed.

C. Refer to Section 01270 – Measurement and Payment for unit price procedures.

1.3 REFERENCES

A. Texas Manual on Uniform Traffic Control Devices (TMUTCD)
B. Article 4413 (29bb), commonly referred to as Private Investigators and Private Security Agencies Act, and Article 2.12, Texas Code of Criminal Procedure.

1.4 SUBMITTALS

A. Conform to requirements of Section 01330 - Submittal Procedures.
B. Traffic control plan:
   1. If using traffic control plan contained in the Contract without modification, submit a letter confirming use of the plan.
   2. If using a different traffic control plan, submit the plan for approval. The plan must conform to TMUTCD requirements and be sealed by a Registered Texas Professional Engineer.
C. Submit copies of approved lane closure permits issued by Hidalgo County Planning Department.

D. Submit Schedules of Values for traffic control plan and flagmen within 30 days following Notice to Proceed.

PART 2 - PRODUCTS

2.1 SIGNS, SIGNALS, AND DEVICES

A. Comply with TMUTCD requirements.
B. Traffic cones and drums, flares and lights: Conform to local jurisdictions' requirements.

PART 3 - EXECUTION

3.1 PUBLIC ROADS

A. Submit requests forms for lane closure and sidewalk closure to the Hidalgo County Planning Department at least three working days prior to need for blocking vehicular lanes or sidewalks. Do not block lanes or sidewalks without approved permits. Obtain application from the Hidalgo County Planning Department at 1304 S. 25th St.
Edinburg, TX 78539 or at the following internet address:
https://www.hidalgocounty.us/261/Planning
B. Follow laws and regulations of governing jurisdictions when using public roads. Pay for and obtain permits from jurisdiction before impeding traffic or closing lanes. Coordinate activities with the Engineer.
C. Give the Engineer one-week notice before implementing approved traffic control phases. Inform local businesses of impending traffic control activities.
D. Notify police department, fire department, and local schools, churches, and businesses in writing a minimum of five business days prior to beginning work.
E. Maintain 10-foot wide all-weather lanes adjacent to the Work for emergency vehicle use. Keep all-weather lanes free of construction equipment and debris.
F. Do not to obstruct normal flow of traffic from 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m. on designated major arterials or as directed by the Engineer.
G. Maintain local driveway access to residential and commercial properties adjacent to work areas at all times. Use all-weather materials approved by the Engineer to maintain temporary driveway access to commercial and residential driveways.
H. Keep streets entering and leaving job site free of excavated material, debris, and foreign material resulting from construction operations in compliance with applicable ordinances.
I. Remove existing signage and striping that conflict with construction

activities or that may cause driver confusion.

J. Provide safe access for pedestrians along major cross streets.
K. Alternate closures of cross streets so that two adjacent cross streets are not closed simultaneously.
L. Do not close more than two consecutive esplanade openings at a time without prior approval from the Engineer.

3.2 CONSTRUCTION PARKING CONTROL

A. Control vehicular parking to prevent interference with public traffic and parking, access by emergency vehicles, and the local City's, County's, or HCDD No.1's operations.
B. Monitor parking of construction personnel's vehicles in existing facilities. Maintain vehicular access to and through parking areas.
C. Prevent parking on or adjacent to access roads or in non-designated areas.

3.3 FLARES AND LIGHTS

A. Provide flares and lights during hours of low visibility to delineate traffic lanes and to guide traffic.

3.4 HAUL ROUTS

A. Utilize haul routes designated by authorities or shown on drawings for construction traffic.
B. Confine construction traffic to designated haul routes.
C. Provide traffic control at critical areas of haul routes to regulate traffic and minimize interference with public traffic.

3.5 TRAFFIC SIGNS AND SIGNALS

A. Construct necessary traffic control devices for temporary signals required to complete the Work including loop detectors, traffic signal conduits, traffic signal wiring and crosswalk signals. Notify the Hidalgo County Planning Department and appropriate Precinct office a minimum of 60 days in advance of need for control boxes and switchgear. The appropriate Hidalgo County Precinct Office will perform necessary service, programming or adjustments, to signal boxes and switchgear if required during construction.
B. Install and operate traffic control signals to direct and maintain orderly traffic flow in areas under Contractor's control affected by Contractor's operations. Post notices, signs and traffic controls before moving into next phase of traffic control.
C. Relocate traffic signs and signals as the Work progresses to maintain effective traffic control.

D. Unless otherwise approved by the Engineer, provide driveway signs with name of business that can be accessed from each crossover. Use two signs for each crossover.
E. Replace existing traffic control devices in Project area.
F. The Engineer may direct Contractor to make minor adjustments to traffic control
G. signage to eliminate driver confusion and maintain orderly traffic flow during construction at no additional cost to the District.

3.6 BRIDGING TRENCHES AND EXCAVATIONS

A. When necessary, construct bridges over trenches and excavation to permit an unobstructed flow of traffic across construction areas and major drives. Use steel plates of sufficient thickness to support H-20 loading and install to operate with minimum noise.
B. Shore trench or excavation to support bridge and traffic.
C. Secure bridging against displacement with adjustable cleats, angles, bolts or other devices when:
    1. bridging is placed over existing bus routes,
    2. more than five percent of daily traffic is comprised of commercial or truck traffic,
    3. more than two separate plates are used for bridging, and
    4. when bridge is to be used for more than five consecutive days.
D. Extend steel plates used for bridging a minimum of 1 foot beyond edges of trench or excavation. Use temporary paving materials such as premix to feather edges of plates to minimize wheel impact on secured bridging.

3.7 REMOVAL

A. Remove equipment and devices when no longer required.
B. Repair damage caused by installation.
C. Remove post settings to a depth of 2 feet.

3.8 TRAFFIC CONTROL, REGULATION AND DIRECTION

A. Use Flagmen to control, regulate and direct an even flow and movement of vehicular and pedestrian traffic, for periods of time as may be required to provide for public safety and convenience, where:
    1. multi-lane vehicular traffic must be diverted into single lane vehicular traffic,
    2. vehicular traffic must change lanes abruptly,
    3. construction equipment must enter or cross vehicular traffic lanes and walks,
    4. construction equipment may intermittently encroach on vehicular traffic lanes and unprotected walks and crosswalk,
    5. traffic regulation is needed due to rerouting of vehicular traffic around

the Work site, and
6. where construction activities might affect public safety and convenience.

B. Use of Flagmen to assist in the regulation of traffic flow and movement does not relieve Contractor of responsibility to take other means necessary to protect the Work and public.

3.9 INSTALLATION STANDARDS

A. Place temporary pavement for single lane closures, in accordance with TMUTCD.
B. Reinstall temporary and permanent pavement markings as approved by the Engineer. When weather conditions do not allow application according to manufacturer's requirements, alternate markings may be considered. Submit proposed alternate to the Engineer for approval prior to installation. No additional payment will be made for use of alternate markings.

3.10 MAINTENANCE OF EQUIPMENT AND MATERIAL

A. Submit name, address and telephone number of individual designated to be responsible for maintenance of traffic handling at construction site to the Engineer. Individual must be accessible at all times to immediately correct deficiencies in equipment and materials used to handle traffic including missing, damaged, or obscured signs, drums, barricades, or pavement markings.
B. Inspect signs, barricades, drums, lamps and temporary pavement markings daily to verify that they are visible, in good working order, and conform with traffic handling plans as approved by the Engineer. Immediately repair, clean, relocate, realign, or replace equipment or materials that are not in compliance.
C. Keep equipment and materials, signs and pavement markings, clean and free of dust, dirt, grime, oil, mud, or debris.
D. Obtain approval of the Engineer to reuse damaged or vandalized signs, drums, and barricades.

END OF SECTION

SECTION 01562
CONSTRUCTION FENCE

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes requirements for furnishing, installing, maintaining and removing construction fence.

1.2 MEASUREMENT AND PAYMENT

A. Where there is not a separate item listed on the Unit Price Schedule for work in this Section, no separate measurement and payment are made. Include cost for work under this Section in the related item listed on the Unit Price Schedule.
B. Where an item is listed on the Unit Price Schedule, Measurement and Payment is as noted on the Unit Price Schedule.
C. Refer to Section 01270 – Measurement and Payment for unit price procedures.

PART 2 – PRODUCTS

2.1 FENCE PROPERTIES

A. Provide construction fence comprised of extruded, high-density polypropylene, 4 foot tall minimum and orange in color unless shown otherwise on the Plans. The mesh openings shall be no larger than 3.25 inches by 1.75 inches.

PART 3 – EXECUTION

3.1 INSTALLATION

A. Install the construction fence with posts of sufficient size and spacing to insure that the construction fence remains upright throughout its installed length and functions as an effective barrier for the areas designated for protection.
B. Maintain and repair the construction fence throughout the duration of the project, at no cost to the District, to insure that the barrier continuously performs its intended function.

3.2 REMOVAL AND DISPOSAL

A. Remove and dispose of the construction fence upon completion of the project. Refer to Section 02120 – Material Disposal.

END OF SECTION

SECTION 01565
GENERAL SOURCE CONTROLS

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes requirements for best management practices and care of the work area.

1.2 MEASUREMENT AND PAYMENT

A. Where there is not a separate item listed on the Unit Price Schedule for work in this Section, no separate measurement and payment are made. Include cost for work under this Section in the related item listed on the Unit Price Schedule.
B. Where an item is listed on the Unit Price Schedule, Measurement and Payment is as noted on the Unit Price Schedule.
C. Refer to Section 01270 – Measurement and Payment for unit price procedures.

1.3 DEFINITION

A. State Waters: The water of the ordinary flow, underflow, and tides of every flowing river, natural stream, and lake, and of every bay or arm of the Gulf of Mexico, and the stormwater, floodwater, and rainwater of every river, natural stream, and watercourse in the state. State Waters do not include percolating groundwater, diffuse surface rainfall runoff, groundwater seepage, or springwater before it reaches the watercourse.

1.4 PROTECTION OF TREES

A. Heavy equipment, vehicular traffic and stockpiles of construction materials are not permitted within the dripline of any tree designated to remain. Contractor shall avoid all contact with trees to remain unless otherwise directed by the Engineer.
B. Trees to remain, as shown on the Plans or marked onsite, shall be boxed or fenced at the perimeter of the tree's dripline.
C. Tree trunks, exposed roots and limbs of the trees designated to remain which are damaged during construction operations will be cared for as prescribed by an urban forester or licensed tree expert at the expense of the Contractor.
D. Replace trees that were designated to remain which are damaged beyond repair or removed without authorization by the Contractor. Determination of trees damaged beyond repair and the tree's suitable replacement will be made by an urban forester or a licensed

tree expert and approved by the Engineer. Determination and replacement expenses shall be paid for by the Contractor at no additional cost to the District.

E. Provide warranty for survivability of replacement tree(s) for 1 year after planting.

1.5 DUST CONTROL

A. Control dust blowing and movement on construction sites and roads to prevent exposure of soil surfaces, to reduce on and offsite damage, to prevent health hazards and to improve traffic safety.

B. Control dust blowing by utilizing one or more of the following:
   1. Paper or wood mulches bound with natural or chemical binders.
   2. Temporary vegetative cover.
   3. Apply dust suppressants at manufacturer's recommended rate for duration required.
   4. Irrigation by water sprinkling.
   5. Spreading hay.

C. Implement dust controls immediately whenever dust can be observed blowing on the site or as directed by the Engineer.

D. Provide copy of Water Rights Permit from the Texas Commission on Environmental Quality (TCEQ) prior to using State Water.

1.6 EQUIPMENT MAINTENANCE AND REPAIR

A. Confine maintenance and repair of construction machinery and equipment to areas specifically designated for that purpose. Locate and design designated areas so that oils, gasoline, grease, solvents and other potential pollutants cannot be allowed into soils, receiving streams or stormwater conveyance systems. Provide adequate waste disposal receptacles for liquid, as well as, solid waste. Inspect and clean maintenance areas daily.

B. On a site where designated equipment maintenance areas are not feasible, care must be taken during each individual repair or maintenance operation to prevent potential pollutants from becoming available to be washed into streams or stormwater conveyance systems. Provide and use temporary waste disposal receptacles.

1.7 WASTE COLLECTION AND DISPOSAL

A. Refer to Section 02120 – Material Disposal.

B. Provide a plan for the collection and disposal of waste materials on the site. Designate locations for trash and waste receptacles and establish a collection schedule. Specify and carry out methods for ultimate disposal of waste in accordance with applicable local, State and Federal health and safety regulations. Make special provisions for the collection and disposal of liquid wastes and toxic or hazardous materials.

C. Keep receptacles and other waste collection areas neat and orderly. Do not allow waste to overflow its container or accumulate for excessively long periods of time. Locate trash collection points where they will least likely be affected by stormwater runoff.

1.8 PUBLIC ROAD MAINTENANCE

A. Remove soil spilled, dropped, washed or tracked on to public rights-of-way immediately.

1.9 WASHING AREAS

A. Wash vehicles such as concrete or dump trucks and other construction equipment in accordance with current local, State and Federal rules and regulations and, as a minimum, vehicles such as concrete or dump trucks and other construction equipment shall not be washed at locations where runoff will flow directly into a watercourse or stormwater conveyance system. Special areas shall be designated for washing vehicles. These areas should be located where the wash water will spread out and evaporate or infiltrate directly into the ground, or where runoff can be collected in a temporary holding or seepage basin. Construct wash areas with gravel or rock bases to minimize mud generation.

1.10 STORAGE OF CONSTRUCTION MATERIALS, CHEMICALS, ETC.

A. Isolate sites where chemicals, cements, solvents, paints or other potential water pollutants are to be stored, so that they will not cause runoff pollution.
B. Store toxic chemicals and materials, such as pesticides, paints and acids in accordance with manufacturer's guidelines. Protect groundwater resources from leaching by placing a plastic liner or other impervious materials, as approved by the Engineer, on any areas where toxic liquids are to be opened and stored.

1.11 SANITARY FACILITIES

A. Provide construction site with adequate sanitary facilities for workers in accordance with applicable local, State and Federal health regulations.

1.12 INSPECTION REPORTS

A. Best Management Practices (BMP's) must be implemented for sediment Control. Submit Inspection and Maintenance Reports as required.

1.13 PART 2 – PRODUCTS – Not used

1.14 PART 3 – EXECUTION – Not used

END OF SECTION

SECTION 01580
PROJECT SIGNS

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes requirements for project identification sign installation and maintenance and for SWPPP/BMP (Storm Water Pollution Prevention Plan/Best Management Practices) sign and CSN (Construction Site Notice) holder construction, installation, maintenance and removal.

1.2 MEASUREMENT AND PAYMENT

A. Where there is not a separate item listed on the Unit Price Schedule for work in this Section, no separate measurement and payment are made. Include cost for work under this Section in the related item listed on the Unit Price Schedule.
B. Where an item is listed on the Unit Price Schedule, Measurement and Payment is as noted on the Unit Price Schedule.
C. Refer to Section 01270 – Measurement and Payment for unit price procedures.

PART 2 – PRODUCTS

2.2 PROJECT SIGNS

A. Project identification sign(s) to be installed by the Contractor.
B. SWPPP/BMP Sign:
    1. Place laminated copies of Notice of Intents (NOIs) for Contractor and Owner on front of sign as required.
    2. Post both laminated Storm Water Permits upon receipt.
C. Construction Site Notice Holder(s):
    1. Place laminated Construction Site Notice on front of notice holder.

2.3 SUPPORTS

A. Project Identification Sign:
    1. When required, provide (0.4) pressure treated 12 feet long, 4 inch by 4 inch posts with appropriate hardware. Paint posts white.
B. SWPPP/BMP Sign:
    1. When required, provide (0.4) pressure treated 12 feet long, 4 inch by 4 inch posts. Paint posts white.
C. Construction Site Notice Holder(s):

1. When required, provide (0.4) pressure treated 4 feet long 2 inch by 4 inch lumber to secure notice holder. Paint posts white.

PART 3 – EXECUTION

3.1 CONSTRUCTION

A. SWPPP/BMP Sign:
   1. Construct sign roof from 3 pieces of 1 foot by 5 foot by ¾ inch thick exterior grade (EXT BC) plywood. Stack, fasten together and miter plywood for roof at 45 degree angle. Paint roof white.
   2. Construct sign from 4 foot by 4 foot by ¾ inch thick exterior grade (EXT BC) plywood. Paint sign white.
   3. Staple laminated NOIs to front of sign.
   4. Place 4 foot by 4 foot by ¼ inch clear plexiglass over notices on front of sign. Use ½ inch hot-dipped galvanized bolts, washers and nuts to secure plexiglass and sign to posts per drawing on Stormwater Pollution Prevention Detail Sheet. Use 3 bolts per post.
   5. Seal joint at top between plywood and plexiglass with white exterior grade waterproof caulk.

B. Construction Site Notice Holder(s):
   1. Construct notice holder from 1.5 foot by 1.5 foot by ¾ inch thick exterior grade (EXT BC) plywood. Paint white.
   2. Bolt notice holder to 2 by 4 inch posts with 2 hot-dipped galvanized screws per post. Paint posts white.
   3. Staple laminated Construction Site Notice to front of notice holder.
   4. Place Construction Site Notice holder at each entrance to the construction site.

3.2 INSTALLATION (WHEN REQUIRED)

A. Project Sign(s):
   1. Install Project Identification sign(s), SWPPP/BMP sign and Construction Site Notice holder(s) prior to construction start.
   2. Install, relocate, when required, and maintain all project signs for duration of Project.

B. Install sign(s) at location(s) designated by the Engineer or where shown on the Plans. Position the sign(s) in such a manner as to be fully visible and readable by the general public.

C. Install sign(s) level and plumb.

D. Project Identification Sign(s):
   1. Mount each Project Identification sign on two 12 feet long 4 inch by 4 inch posts; Install in the ground a minimum of 30 inches.

E. SWPPP/BMP Sign:
   1. Drive supports a minimum of 3 feet into ground**.**

F. Construction Site Notice Holder(s):
   1. Drive supports a minimum of 1 foot into ground.

3.3 MAINTENANCE

A. Maintain signs and supports.
B. Report deterioration or damage to the Project Identification sign(s) immediately. At the Engineer's discretion, the Engineer will provide new Project Identification sign(s). If required, install new sign(s) at no cost to the District.
C. Maintenance and replacement of the SWPP/BMP sign and Construction Site Notice holder(s) are the Contractor's responsibility at no additional cost to the District.

3.4 REMOVAL

A. Upon completion of project, remove Project Identification sign(s) and supports. Transport sign and supports to designated location, as directed by the Engineer. Restore the area prior to final payment.
B. Remove and dispose of non-reuseable foundation material. Refer to Section 02120 – Material Disposal.
C. SWPPP/BMP sign and Construction Site Notice holder(s) are to remain in place after final payment, unless directed otherwise by the Engineer.

3.5 SAMPLE SIGN

HIDALGO COUNTY
DRAINAGE DISTRICT NO.1
Raul E. Sesin, P.E., CFM – District General Manager

PROJECT NAME

Hidalgo County Drainage District No.1 Board of Directors

Judge Richard F. Cortez	-	Chairman of the Board
Commissioner David L. Fuentes	-	Board Member
Commissioner Eduardo "Eddie" Cantu	-	Board Member
Commissioner Joe M. Flores	-	Board Member
Commissioner Ellie Torres	-	Board Member

Contractor _____ Engineer: _____ Project Manager: _____

SAMPLE

END OF SECTION

SECTION 01785
PROJECT RECORD DOCUMENTS

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes requirements for preparing and maintaining record documents for the project to reflect the construction as built.

1.2 MEASUREMENT AND PAYMENT

A. Where there is not a separate item listed on the Unit Price Schedule for work in this Section, no separate measurement and payment are made. Include cost for work under this Section in the related item listed on the Unit Price Schedule.
B. Where an item is listed on the Unit Price Schedule, Measurement and Payment is as noted on the Unit Price Schedule.
C. Refer to Section 01270 – Measurement and Payment for unit price procedures.

1.3 MAINTENANCE OF RECORD DOCUMENTS

A. Maintain at the job site, one copy of:
   1. Contract Documents.
   2. Reviewed Shop Drawings.
   3. Change orders and field orders.
   4. Field test records.
   5. Correspondence.
   6. Notice of Intent (NOI).
   7. Construction Site Notice.
   8. TPDES Storm Water Permit.
   9. Storm Water Pollution Prevention Plan (SWPPP).
   10. Notice of Termination (NOT) as they are filed.
   11. Other Environmental Permits, as required.

B. Store record documents apart from documents used for construction. Do not use record documents for construction purposes. Provide files and racks for orderly storage. Maintain documents in clean, dry, legible and orderly condition. Make documents and samples available at all times for inspection by the Engineer.

1.4 RECORDING

A. Label each document “PROJECT RECORD” in neat, large, printed letters.
B. Mark changes legibly in red pencil or red ink.

C. Keep record documents current.
D. Do not conceal work until required information is recorded.
E. Legibly mark and date Plans to record:
    1. Alignment and profile of the project, location and elevation of appurtenances.
    2. Horizontal and vertical location of underground utilities and appurtenances.
    3. Location of internal utilities and appurtenances referenced to permanent surface improvements.
    4. Field changes of dimension and detail.
    5. Changes made by change order or field order.
    6. Details not on original Plans.
F. Legibly mark specifications and addenda to record:
    1. Manufacturer, trade name, catalog number and supplier of each product and item of equipment actually installed.
    2. Changes made by change order or field order.
G. Legibly annotate, mark and date Shop Drawings to record changes made after approval.

1.5 SUBMITTALS

A. At project completion, deliver record documents to the Engineer. Place letter-sized material in a 3-ring binder, neatly indexed. Bind Plans and Shop Drawings in rolls of convenient size for ease of handling.
B. Accompany submittals with a transmittal letter containing:
    1. Date.
    2. Project title and number.
    3. Contractor's name and address.
    4. Title and number of each record document.
    5. Certification that each document as submitted is complete and accurate.
    6. Signature of Contractor.

PART 2 – PRODUCTS – Not used

PART 3 – EXECUTION – Not used

END OF SECTION

SECTION 02081
CAST-IN-PLACE CONCRETE MANHOLES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Cast-in-place concrete manholes for sanitary sewers, water lines and storm sewers, including box sewers.
B. Pile-supported concrete foundation used for unstable subgrade treatment for manhole base.

1.2 MEASUREMENT AND PAYMENT

A. Measurement and payment is as noted on the Unit Price Schedule.
B. Refer to Section 01270 – Measurement and Payment for unit price procedures.

1.3 REFERENCES

A. ASME B 16.1 - Cast Iron Pipe Flanges and Flanged Fittings.
B. ASTM A 307 - Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile.
C. ASTM C 270 - Standard Specification for Mortar for Unit Masonry.
D. ASTM C 923 - Standard Specifications for Resilient Connectors Between Reinforced Concrete Manhole Structures and Pipes.
E. ASTM C 1107 - Standard Specification for Packaged Dry, Hydraulic - Cement Grout (Non- shrink).
F. ASTM D 698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lb/ft3).
G. ASTM D 2665 - Standard Specification for Poly Vinyl Chloride (PVC) Plastic Drain, Waste and Vent Pipe, and Fittings.
H. ASTM D 2996 - Standard Specification for Filament-wound Fiberglass (Glass-Fiber- Reinforced Thermosetting-Resin) Pipe.
I. ASTM D 2997 - Standard Specification for Centrifugally Cast Fiberglass (Glass-Fiber- Reinforced Thermosetting-Resin) Pipe.
J. ASTM F 2306 – Standard Specification for 12 to 60 in. [300 to 1500 mm] Corrugated profile – Wall Polyethylene (PE) Pipe Fittings for Gravity-Flow Storm Sewer and Subsurface Drainage Applications.
K. ASTM F 2510 – Standard Specification for Resilient Connectors Between Concrete Manhole Structures and Corrugated High-Density Polyethylene Drainage Pipes.
L. AWWA C 213 - Standard for Fusion Bonded Epoxy Coating for Interior and Exterior of Steel Water Pipelines.

1.4 SUBMITTALS

A. Conform to requirements of Section 01330 - Submittal Procedures.
B. Submit proposed design mix and test data for each type and strength of concrete.
C. Submit manufacturer's data and details of following items for approval:
    1. Frames, grates, rings, and covers.
    2. Materials to be used in fabricating drop connections.
    3. Materials to be used for pipe connections at manhole walls.
    4. Materials to be used for stubs and stub plugs.
    5. Plugs to be used for sanitary sewer hydrostatic testing.
    6. Installation instructions for forms.

PART 2 - PRODUCTS

2.1 CONCRETE

A. Conform to requirements for Concrete for Utility Construction.
B. Provide Class A concrete with minimum compressive strength of 4000 psi unless otherwise indicated on Drawings.

2.2 REINFORCING STEEL

A. Conform to requirements for Concrete for Utility Construction.

2.3 MORTAR

A. Conform to requirements for Mortar

2.4 MISCELLANEOUS METALS

A. Provide cast-iron frames, grates, rings, and covers conforming to requirements of Section 02090 - Frames, Grates, Rings, and Covers.

2.5 DROP CONNECTIONS AND STUBS

A. Provide drop connections and stubs conforming to same pipe material requirements used in main pipe, unless otherwise indicated on Drawings.

2.6 PIPE CONNECTIONS

A. Sanitary Sewers.
    1. Provide resilient connectors conforming to requirements of ASTM C 923. Use the following materials for metallic mechanical devices as defined in ASTM C 923:
        a. External clamps: Type 304 stainless steel
        b. Internal, expandable clamps on Standard manholes: Type 304

stainless steel, 11 gauge minimum

c. Internal, expandable clamps on corrosion-resistant manholes:
   (1) Type 316 stainless steel, 11 gauge minimum
   (2) Type 304 stainless steel, 11 gauge minimum, coated with minimum 16 mil fusion-bonded epoxy conforming to AWWA C213

2. Where rigid joints between pipe and cast-in-place manhole base are specified or shown on Drawings, provide polyethylene-isoprene water stop meeting physical property requirements of ASTM C 923, such as Pres-Seal WS Series, or approved equal.

B. Storm Sewers: Use non-shrink grout for storm sewer pipe connections to concrete manholes, unless otherwise shown on Drawings. Grout pipe penetration in place on both inside and outside of manhole.

C. Water Lines
1. Where smooth exterior pipes, i.e., steel, ductile iron, or PVC pipes are connected to manhole base or barrel, seal space between pipe and manhole wall with assembly consisting of rubber gasket or links mechanically compressed to form a watertight barrier. Assemblies: Press-Wedge, Pres-Seal, Thunder line, Link-Seals, or approved equal. See Drawings for placement of assembly in manhole sections.
2. When connecting concrete or cement mortar coated steel pipes, or as option for connecting exterior pipes to manhole base or barrel, space between pipe and manhole wall may be sealed with an assembly consisting of a stainless-steel power sleeve, stainless steel take-up clamp and a rubber gasket. Take-up clamp: Minimum of 9/16 inch wide. Provide PSX positive seal gasket system by Press-Seal Gasket Corporation or approved equal.

2.7 SEALANT MATERIALS

A. Provide sealing materials between precast concrete adjustment ring and manhole cover frame, such as Adeka Ultraseal P 201, or approved equal.
B. Provide external sealing material from Canusa Wrapid Seal manhole encapsulation system, or approved equal.
C. Butyl Sealant: Provide Press-Seal EZ Stick, or equal, for HDPE rings.

2.8 BACKFILL MATERIALS

A. Conform to the requirements of Section 02317 - Excavation and Backfill for Utilities.

2.9 NON-SHRINK GROUT

A. Provide prepackaged, inorganic, flowable, non-gas-liberating, non-metallic, cement-based non-shrink grout requiring only addition of water.
B. Provide grout meeting requirements of ASTM C 1107 and having

minimum 28-day compressive strength of 7000 psi.

2.10 VENT PIPES

A. Provide external vent pipes for manholes where indicated on Drawings.
B. Buried Vent Pipes: Provide 3-inch or 4-inch PVC DWV pipe conforming to ASTM D 2665. Alternatively, provide FRP pipe as specified for vent outlet assembly.
C. Vent Outlet Assembly: Provide vent outlet assembly as shown on Drawings, constructed of following specified materials:
    1. FRP Pipe: Provide filament-wound FRP conforming to ASTM D 2996 or centrifugally cast FRP conforming to ASTM D 2997. Seal cut ends in accordance with manufacturer's recommendations.
    2. Joints and Fittings: Provide epoxy- bodied fittings and join pipe to fittings with epoxy adhesive, according to pipe manufacturer's instructions.
    3. Flanges: Provide socket-flange fittings for epoxy adhesive bonding to pipe ends where shown on Drawings. Meet bolt pattern and dimensions for ASME B 16.1, 125- pound flanges. Use Type 304 stainless steel or hot-dip zinc coated, conforming to ASTM A 307, Class A or B flange bolts.
    4. Coating: Provide 2-component, aliphatic polyurethane coating, using primer or tie coat recommended by manufacturer. Provide two or more coats to yield dry film thickness of at least 3 mils. Provide Amershield, Tnemec 74, or approved equal. The Engineer selects color from manufacturer's standard colors.

2.11 MANHOLE LADDER FOR WATERLINE MANHOLES

A. Manhole Ladder: Fiberglass with 300-lb rating at appropriate length; conform to requirements of Occupational Safety and Health Standards (OSHA), U.S. Department of Labor except where shown on Drawings.
    1. Use components, including rungs, made of fiberglass, fabricated with nylon or aluminum rivets and/or epoxy. Apply non-skid coating to ladder rungs. Mount ladder using manufacturer's recommended hardware.
    2. Provide ladder as manufactured by Saf-Rail or approved equal. Locate ladder as shown on Drawings.
    3. Fiberglass: Premium type polyester resin, reinforced with fiberglass; constructed to provide complete wetting of glass by resin; resistant to rot, fungi, bacterial growth and adverse effects of acids, alkalis and residential and industrial waste; yellow in color.
    4. Provide approved petroleum-based tape encapsulating bolts in access manhole.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify lines and grades are correct.
B. Determine if subgrade, when scarified and recompacted, can be compacted to 95 percent of maximum Standard Proctor Density at ±3% optimum moisture content according to ASTM D 698 prior to placement of material and base section. If it does not meet the moisture- density requirement, condition the subgrade until the required moisture-density requirement is met or treat as an unstable subgrade.
C. Do not build manholes in ditches, swales, or drainage paths unless approved by the Engineer.

3.2 MANHOLES

A. Construct manholes to dimensions shown on Drawings. Commence construction as soon as possible after pipes are laid. On monolithic sewers, construct manholes at same time sewer is being constructed.
B. Unstable Subgrade Treatment: When unstable subgrade is encountered, notify the Engineer for examination of subgrade to determine if subgrade has heaved upwards after being excavated. When heaving has not occurred, over-excavate subgrade to allow for 24- inch-thick layer of crushed stone wrapped in filter fabric as foundation material under manhole base. When there is evidence of heaving, provide pile-supported concrete foundation, as detailed on Drawings, under manhole base.
C. Cast manhole foundations and walls monolithically. Use cold joint with approved water stop when manhole flow line depth exceeds 12 feet. No other joints will be allowed unless shown on Drawings. Wrap cold joints with external sealing material, minimum 6-inch with.
D. For concrete containing micro silica admixtures, place, finish, and cure concrete for manholes following procedures for Concrete for Utility Construction
E. Top of manhole elevations shown on Drawings are approximate, based on current pavement and natural ground conditions as determined from elevations measured on 50-foot spacing. No additional payment will be made if final elevation of manhole ring and cover is higher or lower due to requirements of finished grade or replaced pavement surface.
F. For water lines place concrete for manhole base on 12” thick (minimum) foundation of cement stabilized sand. Compact cement stabilized sand in accordance with requirements of 02321 – Cement Stabilized Sand.
G. For manholes located over large diameter water lines, place base on a foundation of cement stabilized sand extending from bottom of manhole to bottom of trench. Manhole base is to be a minimum of 12-inches above water line.

3.3 PIPE CONNECTIONS

A. Install approved resilient connectors at each pipe entering and exiting water line and sanitary sewer manholes in accordance with manufacturer's instructions.
B. Grout storm sewer connections to manhole unless otherwise shown on Drawings. Grout pipe penetrations both inside and outside of manhole.
C. Ensure no concrete, cement stabilized sand, fill, or other solid material is allowed to enter space between pipe and edge of wall opening at and around resilient connector on interior or exterior of manhole. When necessary, fill space with compressible material to ensure resilient connector will maintain full flexibility where evidence of reduced flexibility is encountered.
D. Where new manhole is to be constructed on existing sewer, a rigid joint pipe may be used. Install water stop gasket around existing pipe at center of cast-in-place wall. Join ends of split water stop material at pipe spring line using adhesive recommended and supplied by water stop manufacturer.
E. Do not construct joints on sanitary sewer pipe within wall sections of manholes. Use approved connection material.
F. Construct pipe stubs with resilient connectors for future connections at locations and with material indicated on Drawings. Install approved stub plugs at interior of manhole.
G. Test connection for watertight seal before backfilling.

3.4 INVERTS FOR SANITARY SEWERS

A. Construct invert channels to provide smooth flow transition waterway with no disruption of flow at pipe-manhole connections. Conform to following criteria:
    1. Slope of invert bench: 1 inch per foot minimum; 1 1/2 inch per foot maximum.
    2. Depth of bench to invert:
        a. Pipes smaller than 15 inches: one-half of largest pipe diameter
        b. Pipes 15 to 24 inches: three-fourths of largest pipe diameter
        c. Pipes larger than 24 inches: equal to largest pipe diameter
    3. Invert slope through manhole: 0.10-foot drop across manhole with smooth transition of flow at pipe-manhole connections. Conform to following criteria.
B. Form invert channels with Class A concrete if not integral with manhole base. For direction changes of mains, construct channels tangent to mains with maximum possible radius of curvature. Provide curves for side inlets and smooth invert fillets for flow transition between pipe inverts.

3.5 DROP CONNECTIONS FOR SANITARY SEWERS

A. Backfill drop assembly with crushed stone wrapped in filter fabric, cement-stabilized sand, or Class A concrete to form solid mass. Extend

cement stabilized sand or concrete encasement minimum of 4 inches outside bells.

B. Install connection when sewer line enters manhole higher than 24 inches above invert of manhole.

3.6 STUBS FOR FUTURE CONNECTIONS

A. In manholes where future connections are indicated on Drawings, install resilient connectors and pipe stubs with approved watertight plugs.

3.7 ADJUSTMENT RINGS AND FRAME

A. Combine precast concrete or HDPE adjustment rings so elevation of installed casting cover matches pavement surface. Seal between concrete adjustment ring and precast top section with non-shrink grout; do not use mortar between adjustment rings. Apply latex-based bonding agent to precast concrete surfaces to be joined with non-shrink grout. Set cast iron frame on adjustment ring in a bed of approved sealant material. Install a sealant bed consisting of two beads of sealant, each bead having minimum dimensions of 1/2-inch and 1/2-inch wide.

B. Wrap manhole frame and adjustment rings with external sealing material, minimum 3 inches beyond joint between ring and frame, and ring and precast section.

C. For manholes in unpaved areas, set top of frame minimum of 6 inches above existing ground line unless otherwise indicated on Drawings. Encase manhole frame in mortar or non-shrink grout placed flush with face of manhole ring and top edge of frame. Provide rounded corner around perimeter.

3.8 BACKFILL

A. After concrete obtains adequate strength, place and compact backfill materials in area of excavation surrounding manholes in accordance with requirements of Section 02317 - Excavation and Backfill for Utilities. Use embedment zone backfill material for adjacent utilities, as shown in the HCDD No. 1 Standard Details over each pipe connected to manhole. Provide trench zone backfill, as specified for adjacent utilities, above embedment zone backfill.

B. Where rigid joints are used for connecting existing sewers to manhole, backfill under existing sewer up to spring line of pipe with Class B concrete or flowable fill.

C. In unpaved areas, provide positive drainage away from manhole frame to natural grade. Provide minimum of 4 inches of topsoil conforming to requirements of Section 02911 - Topsoil. Seed in accordance with Section 02921 - Hydro-mulch Seeding, or sod disturbed areas in accordance with Section 02922 - Sodding.

3.9 FIELD QUALITY CONTROL

A. Conduct leakage testing of Sanitary Sewer manholes in accordance with requirements for Acceptance Testing for Sanitary Sewers.

3.10 PROTECTION

A. Protect manholes from damage until subsequent work has been accepted. Repair or replace damaged elements of manholes at no additional cost to the District.

END OF SECTION

SECTION 02082
PRECAST CONCRETE MANHOLES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Precast concrete manholes for sanitary sewers, storm sewers, and water lines. Manhole bases maybe round or square.
B. Precast concrete sanitary sewer manholes with PVC liner where corrosion resistant manholes are specifically indicated in Drawings.
C. Pile-supported concrete foundation used for unstable subgrade treatment for manhole base.

1.2 MEASUREMENT AND PAYMENT

A. Measurement and payment is as noted on the Unit Price Schedule.
B. Refer to Section 01270 – Measurement and Payment for unit price procedures.

1.3 REFERENCES

A. ASME B 16.1 - Cast Iron Pipe Flanges and Flanged Fittings
B. ASTM A 307 - Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile
C. ASTM A 615 - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
D. ASTM C 270 - Standard Specification for Mortar for Unit Masonry
E. ASTM C 443 - Standard Specification for Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets.
F. ASTM C 478 - Standard Specification for Precast Reinforced Concrete Manhole Sections
G. ASTM C 890 - Standard Practice for Minimum Structural Design Loading for Monolithic or Sectional Precast Concrete Water and Wastewater Structures.
H. ASTM C 913 – Standard Specifications for Precast Concrete Water and Wastewater Structures.
I. ASTM C 923 - Standard Specifications for Resilient Connectors Between Reinforced Concrete Manhole Structures and Pipes
J. ASTM C 990 – Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants
K. ASTM D 698 - Standard Test Method for Laboratory Compaction Characteristics of Soil. Using Standard Effort (12,400 ft-lb/ft)
L. ASTM D 2665 - Standard Specification for Poly (Vinyl Chloride) (PVC)

Plastic Drain, Waste and Vent Pipe and Fittings

M. ASTM D 2996 - Standard Specification for Filament-Wound “Fiberglass” (Glass-Fiber- Reinforced Thermosetting-Resin) Pipe
N. ASTM D 2997 - Standard Specification for Centrifugally Cast “Fiberglass” (Glass-Fiber- Reinforced Thermosetting Resin) Pipe
O. ASTM F 2306 – Standard Specification for 12 to 60 in. [300 to 1500 mm] Annular Corrugated Profile-Wall Polyethylene (PE) Pipe and Fittings for Gravity-Flow Storm Sewer and Subsurface Drainage Applications.
P. ASTM F 2510 – Standard Specification for Resilient Connectors between Concrete Manhole Structures and Corrugated High-Density Polyethylene Drainage Pipes.
Q. AWWA C 213 - Standard for Fusion Bonded Epoxy Coating for Interior and Exterior of Steel Water Pipelines
R. American Association of State Highway and Transportation Officials (AASHTO)

1.4 SUBMITTALS

A. Conform to requirements of Section 01330 - Submittal Procedures.
B. Submit manufacturer's data and details of following items for approval:
    1. Shop drawings of manhole sections, base units and construction details, including reinforcement, jointing methods, materials and dimensions.
    2. Summary of criteria used in manhole design including, as minimum, material properties, loadings, load combinations, and dimensions assumed. Include certification from manufacturer that precast manhole design is in full accordance with ASTM C 478 and/or ASTM C 890 and design criteria as established in this Specification.
    3. Frames, grates, rings, and covers
    4. Materials to be used in fabricating drop connections
    5. Materials to be used for pipe connections at manhole walls
    6. Materials to be used for stubs and stub plugs, if required
    7. Materials and procedures for corrosion-resistant liner and coatings, if required.
    8. Plugs to be used for sanitary sewer hydrostatic testing
    9. Manufacturer's data for pre-mix (bag) concrete, if used for channel inverts and benches
C. Seal submittal drawings by Professional Engineer registered in State of Texas.

PART 2 - PRODUCTS

2.1 PRECAST CONCRETE MANHOLES

A. Provide manhole sections, base sections, and related components conforming to ASTM C 478. Provide base riser section with integral floors, unless shown otherwise. Provide adjustment rings which are

standard components of manufacturer of manhole sections. Mark date of manufacture and name or trademark of manufacturer on inside of barrel.

B. Construct barrels for precast manholes from standard reinforced concrete manhole sections of diameter indicated on Drawings. Use various lengths of manhole sections in combination to provide correct height with fewest joints. Design wall sections for depth and loading conditions, with minimum thickness of 5 inches. Base section shall have minimum thickness of 12 inches under invert.

C. Provide tops to support cast iron casting meeting AASHTO M-306 Section 5 loading, and receive manhole frame & covers, as indicated on Drawings.

D. Where manholes larger than 48-inch diameter are indicated on Drawings, provide precast base sections with flat slab top precast sections used to transition to 48-inch diameter manhole access riser sections. Transition can be concentric or eccentric unless otherwise shown on Drawings. Locate transition to provide minimum of 7-foot head clearance from base to underside of transition unless otherwise approved by the Engineer.

E. Design Loading Criteria: Manhole walls, transition slabs, cone tops, and manhole base slab shall be designed, by manufacturer, to requirements of ASTM C 478, ASTM C 890 and/or ASTM C 913 for depth as shown on Drawings and to resist following loads.
   1. AASHTO M-306 H-20 / HS-20 design live loading loads as referred to in AASHTO M-306 applied to manhole cover and transmitted down to transition and base slabs
   2. Unit soil weight of 120 pcf located above portions of manhole, including base slab projections
   3. Lateral soil pressure based on saturated soil conditions producing an at-rest equivalent fluid pressure of 100 pcf
   4. Internal liquid pressure based on unit weight of 63 pcf
   5. Dead load of manhole sections fully supported by transition and base slabs

F. Design: Manhole walls, transition slabs, cone tops, and manhole base slab shall be designed according to requirements of ASTM C 478, ASTM C 890 and/or ASTM C 913 and following:
   1. Design additional reinforcing steel to transfer stresses at openings. Area of steel to be no less than shown on Drawings.
   2. Wall loading conditions:
      a. Saturated soil pressure acting on empty manhole
      b. Manhole filled with liquid to a halfway depth as measured from invert to cover, with no balancing external soil pressure
   3. Minimum clear distance between two wall penetrations shall be 12 inches or half diameter of smaller penetration, whichever is greater

G. Provide joints between sections with askets conforming to ASTM C 443 and/or ASTM C- 990.

H. When base is cast monolithic with portion of vertical section, extend reinforcing in vertical section into base.

I. Precast Concrete Base: Suitable cutouts or holes to receive pipe and

connections. Lowest edge of holes or cutouts: For water line manhole, no less than 6 inches above inside surface of floor of base.

2.2 CONCRETE

A. Conform to requirements of Section 03315 - Concrete for Utility Construction.
B. Channel Inverts: Use 5 sack premix (bag) concrete or Class A concrete for inverts not integrally formed with manhole base, with minimum compressive strength of 4000 psi.
C. Cement Stabilized Sand Foundation: Provide cement stabilized sand foundation under base section in lieu of foundation slab, as shown on Drawings, conforming to requirements of Section 02321 - Cement Stabilized Sand.
D. Concrete Foundation: Provide Class A concrete with minimum compressive strength of 4000 psi for concrete foundation slab under manhole base section where indicated on Drawings.

2.3 REINFORCING STEEL

A. Conform to requirements for Concrete for Utility Construction.

2.4 MORTAR

A. Conform to requirements for Mortar.

2.5 MISCELLANEOUS METALS

A. Provide cast-iron frames, rings, and covers conforming to requirements of Section 02090 - Frames, Grates, Rings and Covers.

2.6 DROP CONNECTIONS AND STUBS

A. Provide drop connections and stubs conforming to same pipe material requirements used in main pipe, unless otherwise indicated on Drawings.

2.7 PIPE CONNECTIONS TO MANHOLE

A. Sanitary Sewers
    1. Provide resilient connectors conforming to requirements of ASTM C 923. Use the following materials for metallic mechanical devices as defined in ASTM C 923:
        a. External clamps: Type 304 stainless steel
        b. Internal, expandable clamps on standard manholes: Type 304 stainless steel, 11 gauge minimum.
        c. Internal, expandable clamps on corrosion-resistant manholes:
            (1) Type 316 stainless steel, 11 gauge minimum

(2) Type 304 stainless steel, 11 gauge minimum, coated with minimum 16 mil fusion-bonded epoxy conforming to AWWA C 213

2. Where rigid joints between pipe and cast-in-place manhole base are specified or shown on Drawings, provide polyethylene-isoprene water-stop meeting physical property requirements of ASTM C 923, such as Press-Seal WS Series, or approved equal.

B. Storm Sewer Connections:
   1. Provide watertight connections in accordance with ASTM C 923 and ASTM F 2510 as applicable for flexible (hdpe and cmp) pipe. Rigid (concrete) pipe to manhole connections do not have to comply with ASTM C 923 and may grouted instead.

C. Water Lines
   1. Where smooth exterior pipes, i.e., steel, ductile iron, or PVC pipes are connected to manhole base or barrel, seal space between pipe and manhole wall with assembly consisting of rubber gasket or links mechanically compressed to form a watertight barrier. Assemblies: Press-Wedge, Res-Seal, Thunderline Link-Seal, or approved equal. See Drawings for placement of assembly in manhole sections.
   2. When connecting concrete or cement mortar coated steel pipes, or as option for connecting smooth exterior pipes to manhole base or barrel, space between pipe and manhole wall may be sealed with an assembly consisting of a stainless-steel power sleeve, stainless steel -up clamp and a rubber gasket. Take-up clamp: Minimum of 9/16 inch wide. Provide PSX positive seal gasket system by Press-Seal Gasket Corporation or approved equal.

2.8 SEALANT MATERIALS

A. Approved products in accordance with for Product Substitution Procedures.
B. Sealing material between precast concrete adjustment ring and manhole, between each adjustment ring, and between adjustment ring and manhole cover frame shall be a hydrophilic elastic sealant, which adheres to both concrete and metal, or approved equal.
C. Provide approved external sealing material from Canusa Wrapid Seal manhole encapsulation system, or approved equal.
D. Provide Butyl Sealant: Provide Press-Seal EZ Stick, or equal, for HDPE rings.

2.9 BACKFILL MATERIALS

A. Conform to requirements of Section 02317 - Excavation and Backfill for Utilities.

2.10 NON-SHRINK GROUT

A. Provide prepackaged, inorganic, flowable, non-gas-liberating, non-metallic, cement-based grout requiring only addition of water.
B. Meet requirements of ASTM C 1107 and have minimum 28-day compressive strength of 7000 psi.

2.11 VENT PIPES

A. Provide external vent pipes for manholes where indicated on Drawings.
B. Buried Vent Pipes: Provide 3 inch or 4 inch PVC DWV pipe conforming to ASTM D2665. Alternatively, provide FRP pipe as specified for vent outlet assembly.
C. Vent Outlet Assembly: Provide vent outlet assembly as shown on Drawings, constructed of following specified materials:
    1. FRP Pipe: Provide filament wound FRP conforming to ASTM D 2996 or centrifugally cast FRP conforming to ASTM D 2997. Seal cut ends in accordance with manufacturer's recommendations.
    2. Joints and Fittings: Provide epoxy bodied fittings and join pipe to fittings with epoxy adhesive
    3. Flanges: Provide socket-flange fittings for epoxy adhesive bonding to pipe ends where shown on Drawings. Meet bolt pattern and dimensions for ASME B 16.l, 125- pound flanges. Flange bolts shall be Type 304 stainless steel or hot-dip zinc coated, conforming to ASTM A 307, Class A or B.
    4. Coating: Provide approved 2-component, aliphatic polyurethane coating using primer or tie coat recommended by manufacturer. Provide two or more coats to yield dry film thickness of at least 3 mils. Color shall be selected by the Engineer from manufacturer's standard colors.

2.12 PROHIBITED MATERIALS

A. Do not use brick masonry for construction of sanitary storm sewer manholes, including adjustment of manholes to grade. Use only specified materials listed above.

2.13 MANHOLE LADDER FOR WATERLINE MANHOLES

A. Manhole Ladder: Fiberglass with 300-lb rating at appropriate length; conform to requirements of Occupational Safety and Health Standards (OSHA), U.S. Department of Labor except where shown on Drawings:
    1. Use components, including rungs, made of fiberglass, fabricated with nylon or aluminum rivets and/or epoxy. Apply non-skid coating to ladder rungs. Mount ladder using manufacturer's recommended hardware.
    2. Provide ladder as manufactured by Saf-Rail or approved equal. Locate ladder as shown on Drawings.
    3. Fiberglass: Premium type polyester resin, reinforced with fiberglass;

constructed to provide complete wetting of glass by resin; resistant to rot, fungi, bacterial growth and adverse effects of acids, alkalis and residential and industrial waste; yellow in color.

B. Provide approved petroleum-based tape encapsulating bolts in access manhole.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that lines and grades are correct.
B. Determine if subgrade, when scarified and recompacted, can be compacted to 95 percent of maximum Standard Proctor Density, at ±3% optimum moisture content according to ASTM D 698 prior to placement of foundation material and base section. If it does not meet the moisture-density requirement, condition the subgrade until the required moisture-density requirement is met or treat as an unstable subgrade.
C. Do not build manholes in ditches, swales, or drainage paths unless approved by the Engineer.

3.2 PLACEMENT

A. Install precast manholes to conform to locations and dimensions shown on Drawings.
B. Place sanitary and storm manholes at points of change in alignment, grade, size, pipe intersections, and end of sewer unless otherwise shown on Drawings.

3.3 MANHOLE BASE SECTIONS AND FOUNDATIONS

A. Place precast base on 12-inch-thick (minimum) foundation of crushed stone wrapped in filter fabric, cement stabilized sand, or concrete foundation slab. Compact cement-sand in accordance with requirements of Section 02321 - Cement Stabilized Sand.
B. Unstable Subgrade Treatment: When unstable subgrade is encountered, notify the Engineer for examination of subgrade to determine if subgrade has heaved upwards after being excavated. When heaving has not occurred, over-excavate subgrade to allow for 24- inch-thick layer of crushed stone wrapped in filter fabric as foundation material under manhole base. When there is evidence of heaving, provide pile-supported concrete foundation, as detailed on Drawings, under manhole base.
C. For manholes located over large diameter water lines, place precast base on a foundation of cement stabilized sand extending from bottom of manhole to bottom of trench. Manhole base is to be a minimum of 12-inches above water line.

3.4 PRECAST MANHOLE SECTIONS

A. Install sections, joints, and gaskets in accordance with manufacturer's printed recommendations.
B. Install precast adjustment rings above tops of cones or flat-top sections as required to adjust finished elevation and to support manhole frame.
C. Seal any lifting holes with non-shrink grout.
D. Where PVC liners are required, seal joints between sections in accordance with manufacturer’s recommendations.
E. Place at least two precast concrete grade rings with thickness of 12 inches or less, under casting.

3.5 PIPE CONNECTIONS AT MANHOLES

A. Install approved resilient connectors at each pipe entering and exiting manholes in accordance with manufacturer's instructions.
    1. Where smooth exterior pipes, i.e. steel, ductile iron or PVC pipes are connected to manhole base or barrel, space between pipe and manhole wall shall be sealed with an assembly consisting of rubber gaskets or links mechanically compressed to form watertight. Assemblies: “Press-Wedge,” “Res-Seal,” “Thunderline Link-Seals,” or approved equal. See Drawings for placement of assembly in manhole sections.
    2. When connecting concrete or cement mortar coated steel pipes, or as an option for connecting smooth exterior pipes to manhole base or barrel, space between pipe and manhole wall may be sealed with an assembly consisting of stainless-steel power sleeve, stainless steel take-up clamp and rubber gasket. Take-up clamp: Minimum of 9/16 inch wide. Provide PSX positive seal gasket system by Press-Seal Gasket Corporation or approved equal.
B. Grout storm sewer connections to manhole when connecting a rigid (concrete) pipe to a concrete manhole unless otherwise shown on Drawings. Grout pipe penetration in place on both inside and outside of manhole.
C. Install approved resilient connectors at each flexible (hdpe or cmp) pipe connection as per ASTM C- 923 and/or ASTM F 2510 to a concrete manhole.
D. Ensure no concrete, cement stabilized sand, fill, or other rigid material is allowed to enter space between pipe and edge of wall opening at and around resilient connector on either interior or exterior of manhole. If necessary, fill space with compressible material to ensure full flexibility provided by resilient connector.
E. Where new manhole is constructed on existing sewer, rigid joint pipe may be used. Install water stop gasket around existing pipe at center of cast-in-place wall. Join ends of split water stop material at pipe spring line using an adhesive recommended and supplied by water stop manufacturer.
F. Test connection for watertight seal before backfilling.

3.6 INVERTS FOR SANITARY SEWERS

A. Construct invert channels to provide smooth flow transition waterway with no disruption of flow at pipe-manhole connections. Conform to following criteria:
   1. Slope of invert bench: 1 inch per foot minimum; 1-1/2 inches per foot maximum
   2. Depth of bench to invert shall be at least equal to the largest pipe diameter.
   3. Invert slope through manhole: 0.10-foot drop across manhole with smooth transition of invert through manhole, unless otherwise indicated on Drawings.
B. Form invert channels with concrete if not integral with manhole base section. For direction changes of mains, construct channels tangent to mains with maximum possible radius of curvature. Provide curves for side inlets and smooth invert fillets for flow transition between pipe inverts.

3.7 DROP CONNECTIONS FOR SANITARY SEWERS

A. Backfill drop assembly with crushed stone wrapped in filter fabric, cement stabilized sand, or Class A concrete to form solid mass. Extend cement stabilized sand or concrete encasement minimum of 4 inches outside bells.
B. Install drop connection when sewer line enters manhole higher than 24 inches above invert of manhole.

3.8 INVERTS FOR STORM SEWERS

A. When precast, square or rectangular structures are used for sewer manholes, construct invert channels to provide smooth flow transition waterway with no disruption of flow at pipe- manhole connections. Conform to following criteria:
   1. Slope of invert bench: 1 inch per foot minimum; 1½ inches per foot maximum
   2. Depth of bench to invert: one half of largest pipe diameter
   3. Invert slope through manhole: 0.10-foot drop across manhole with smooth transition of invert through manhole, unless otherwise indicated on drawings.
B. Form invert channels with concrete, after all connections have been made
C. Use 5 sack premix (bag) concrete or Class A concrete for inverts, with minimum compressive strength of 4000 psi.

3.9 STUBS FOR FUTURE CONNECTIONS

A. In manholes, where future connections are indicated on Drawings, install resilient connectors and pipe stubs with approved watertight plugs.

3.10 MANHOLE FRAME AND ADJUSTMENT RINGS

A. Combine precast concrete or HDPE adjustment rings so elevation of installed casting cover matches pavement surface. Seal between concrete adjustment ring and precast top section with non-shrink grout; do not use mortar between adjustment rings. Apply latex-based bonding agent to precast concrete surfaces joined with non-shrink grout. Set cast iron frame on adjustment ring in bed of approved sealant material. Install sealant bed consisting of two beads of sealant, each bead having minimum dimensions of 1/2-inch and 1/2-inch wide.
B. Wrap manhole frame and adjustment rings with external sealing material, minimum 3 inches beyond joint between ring and frame and adjustment rings and precast section.
C. For manholes in unpaved areas, set top of frame minimum of 6 inches above existing ground line unless otherwise indicated on Drawings. In unpaved areas, encase manhole frame in mortar or non-shrink grout placed flush with face of manhole ring and top edge of frame. Provide rounded corner around perimeter.

3.11 BACKFILL

A. Place and compact backfill materials in area of excavation surrounding manholes in accordance with requirements of Section 02317 - Excavation and Backfill for Utilities. Provide embedment zone backfill material, as specified for adjacent utilities, from manhole foundation up to an elevation 12 inches over each pipe connected to manhole. Provide trench zone backfill, as specified for adjacent utilities, above embedment zone backfill.
B. Where rigid joints are used for connecting existing sewers to manhole, backfill under existing sewer up to springline of pipe with Class B concrete or flowable fill.
C. In unpaved areas, provide positive drainage away from manhole frame to natural grade. Provide minimum of 4 inches of topsoil conforming to requirements of Section 02911 - Topsoil. Seed in accordance with Section 02921 - Hydromulch Seeding. When shown on Drawings, sod disturbed areas in accordance with Section 02922 - Sodding.

3.12 FIELD QUALITY CONTROL

A. Conduct leakage testing of sanitary sewer manholes in accordance with requirements for Acceptance Testing for Sanitary Sewers.

3.13 PROTECTION

A. Protect manholes from damage until work has been accepted. Repair damage to manholes at no additional cost to the District.

END OF SECTION

SECTION 02083
FIBERGLASS MANHOLES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Fiberglass manholes for unpaved areas placed on top of a precast base to form a manhole.
B. Fiberglass for construction in back lot easements placed on cast-in-place base.
C. Fiberglass manholes are not permitted underneath existing or proposed pavement.

1.2 MEASUREMENT AND PAYMENT

A. Measurement and payment is as noted on the Unit Price Schedule.
B. Refer to Section 01270 – Measurement and Payment for unit price procedures.

1.3 REFERENCES

A. ANSI B 16.1 - Cast Iron Pipe Flanges and Flanged Fittings.
B. ASTM A 307 - Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.
C. ASTM C 270 - Standard Specification for Mortar for Unit Masonry.
D. ASTM C 1107 - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Non- shrink).
E. ASTM D 698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lb/ft3 (600kN-m/m3).
F. ASTM D 2665 - Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Drain, Waste and Vent Pipe and Fittings.
G. ASTM D 2996 - Standard Specification for Filament-Wound “Fiberglass” (Glass-Fiber- Reinforced Thermosetting-Resin) Pipe.
H. ASTM D 2997 - Standard Specification for Centrifugally Cast “Fiberglass” (Glass-Fiber- Reinforced Thermosetting Resin) Pipe.
I. ASTM D 3753 - Standard Specification for Glass-Fiber-Reinforced Polyester Manholes and Wetwells.
J. American Association of State Highway and Transportation Officials (AASHTO).

1.4 SUBMITTALS

A. Conform to requirements of Section 01330 - Submittal Procedures.
B. Submit manufacturer's data and details of following items for approval:
   1. Design and fabrication details of fiberglass manhole components

2. Installation instruction for fiberglass manholes
3. Frames, grates, rings, and covers
4. Materials to be used in fabricating drop connections
5. Materials to be used for pipe connections at manhole walls
6. Materials to be used for stubs and stub plugs, if required
7. Plugs to be used for sanitary sewer hydrostatic testing
8. Manufacturer's data for pre-mix (bag) concrete if used for channel inverts and benches
9. Manufacturer's color chart for fiberglass vent pipe coatings.

C. Submittals listed in Section 02082, paragraph 1.04.

PART 2 - PRODUCTS

2.1 FIBERGLASS MANHOLES AND BASE SECTIONS

A. Provide prefabricated fiberglass manholes which conform in shape, size, dimensions, and details shown on Drawings. Unless modified by Drawings, use manhole sections conforming to ASTM D 3753.
B. Mark date of manufacture and name or trademark of manufacturer in 1-inch high stenciled letters on inside of barrel.
C. Unless larger size is required, provide 48-inch-diameter barrel for fiberglass manholes. Provide wall section thickness for depth of manhole according to ASTM D 3753, but not less than 0.48 inches in thickness.
D. Provide fabricated reducer bonded at factory to form one continuous unit at top of manhole barrel to accept concrete grade rings and cast-iron frame and cover. Reducer design shall be of sufficient strength to safely support HS-20 loading in accordance with AASHTO.
E. Provide manhole base of precast concrete conforming to Section 02082 - Precast Concrete Manholes, unless cast-in-place base is indicated on Drawings. For precast manhole bases, use an approved steel-reinforced design of sufficient strength to withstand imposed loads. Form base so that joint with fiberglass manhole barrel is sealed against leakage, as shown on Drawings.

2.2 CONCRETE

A. Conform to requirements for Concrete for Utility Construction.
B. Channel Inverts: Use 5 sack premix (bag) concrete or Class A concrete for inverts not integrally formed with manhole base, with minimum compressive strength of 4000 psi.
C. Concrete Foundation: Use Class A concrete with minimum compressive strength of 4000 psi for cast-in-place base and for foundation slab under manhole base section where indicated on Drawings.
D. Cement Stabilized Sand Foundation: In lieu of foundation slab, provide cement stabilized sand foundation under base section, when shown on manhole Drawings, conforming to requirements of Section 02321 - Cement Stabilized Sand.

2.3 REINFORCING STEEL

A. Provide reinforcing steel conforming to requirements of Section 03315 - Concrete for Utility Construction.

2.4 MORTAR

A. Conform to requirements of Section 04061 - Mortar.

2.5 MISCELLANEOUS METALS

A. Provide cast-iron frames, rings, and covers conforming to requirements for Frames, Grates, Rings, and Covers.

2.6 DROP CONNECTIONS AND STUBS

A. Provide drop connections and stubs conforming to same pipe material requirements used in main pipe, unless otherwise indicated on Drawings.

2.7 PIPE CONNECTIONS FOR SANITARY SEWERS

A. Provide pipe connections conforming to requirements of Section 02082 - Precast Concrete Manholes.
B. For drop, provide manufactured connector, such as Insert-a-Tee or equal, which provides positive seal between pipe and wall.

2.8 SEALANT MATERIALS

A. Sealing material between adjustment ring and manhole, between each adjustment ring, and between adjustment ring and manhole cover frame shall be a hydrophilic elastic sealant, which adheres to concrete, fiberglass and metal, or approved substitute.
B. Butyl Sealant: Provide Press-Seal EZ Stick, or equal, for HDPE rings.

2.9 BACKFILL MATERIALS

A. Backfill materials shall conform to requirements of Section 02317 - Excavation and Backfill for Utilities.

2.10 NON-SHRINK GROUT

A. Provide prepackaged, inorganic, flowable, non-gas-liberating, nonmetallic, cement-based grout requiring only addition of water.
B. Grout shall meet requirements of ASTM C 1107 and shall have minimum 28-day compressive strength of 7000 psi.

2.11 VENT PIPES

A. Provide external vent pipes for manholes, where indicated on Drawings.
B. Buried Vent Pipes: Provide 3-inch or 4-inch PVC DWV pipe conforming to ASTM D 2655. Alternately, provide FRP pipe as specified for vent outlet assembly.
C. Vent Outlet Assembly: Provide vent outlet assembly as shown on Drawings, constructed of following specified materials:
    1. Provide fiberglasss reinforced pipe conforming to ASTM D 2997. Seal cut ends in accordance with manufacturer's recommendations
    2. Joints and Fittings: Provide epoxy bodied fittings and join pipe to fittings with epoxy adhesive, according to pipe manufacturer's instructions
    3. Flanges: Provide socket-flange fittings for epoxy adhesive bonding to pipe ends where shown on Drawings. Flanges shall meet bolt pattern and dimensions for ANSI B16.l, 125-pound flanges. Flange bolts shall be hot-dip zinc coated, conforming to ASTM A 307, Class A or B.
    4. Coating: Provide 2-component, aliphatic polyurethane coating using primer or tie coat recommended by manufacturer. Provide two or more coats to yield dry film thickness of at least 3 mils. Provide Amershield, Tnemec 74, or equal. Color shall be selected by the Engineer from manufacturer's standard colors.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that lines and grades are correct.
B. Determine if subgrade, when scarified and recompacted, can be compacted to 95 percent of maximum Standard Proctor Density at +- 3% moisture content, according to ASTM D 698 prior to placement of foundation material and base section. If it does not meet the moisture-density requirement, condition the subgrade or treat as an unstable subgrade.
C. Do not build manholes in ditches, swales, or drainage paths unless approved by the Engineer.

3.2 PLACEMENT

A. Install fiberglass manholes to conform to locations and dimensions shown on Drawings. Do not install underneath existing or proposed pavement.
B. Place sanitary sewer manholes at points of change of alignment, grade, size, pipe intersections, and end of sewer.

3.3 MANHOLE BASE SECTIONS AND FOUNDATIONS

A. Place base section and foundation as required in Section 02082 - Precast Concrete Manholes.

3.4 CAST-IN-PLACE FOUNDATION

A. Where Drawings indicate cast-in-place manhole base, place concrete as shown on Drawings on 4-inch (minimum) layer of either crushed stone, cement stabilized sand, or seal slab. When unstable subgrade is identified, over-excavate subgrade to allow for placement of 12- inch thick layer of crushed stone wrapped in filter fabric.

3.5 MANHOLE BARREL

A. Lower manhole barrel onto base section. Seal with manufacturer's gasket or approved sealant. Wrap joint with external sealing material, minimum 12-inch width.
B. Where cast-in-place base is used, support manhole barrel in place and brace it from sides of excavation to prevent any movement of barrel during concrete placement and while concrete is setting. Provide minimum clearance between reinforcing steel and manhole barrel bottom as shown on Drawings. Do not support manhole barrel on reinforcing steel. Place bead of water swelling sealant around inside of barrel near bottom, as shown on Drawings, to form seal.

3.6 PIPE CONNECTIONS AT PRECAST MANHOLE BASE

A. Install approved resilient connectors at each pipe entering and exiting sanitary sewer manholes in accordance with manufacturer's instructions.
B. Ensure that no concrete, cement stabilized sand, fill, or other solid material is allowed to enter space between pipe and edge of wall opening at and around resilient connector on either interior or exterior of manhole. When necessary, fill space with compressible material to ensure full flexibility provided by resilient connector.
C. Test connection for watertight seal before backfilling.

3.7 PIPE CONNECTIONS AT CAST-IN PLACE BASE

A. Cut manhole barrel for pipe penetrations following curvature of pipe and with maximum of 1-inch clearance. Seal cut edges with resin. Hole may be circular or cutout with semi- circular top which extends to bottom of barrel.
B. Place continuous bead of water swelling sealant, as shown on Drawings, around pipe penetrations on interior of manhole barrel. Roughen surface of fiberglass prior to placement to improve bond with sealant. Allow sealant to completely cure before placing concrete against it.
C. Extend pipe entering manhole at least 8 inches into manhole. Fit pipes with neoprene water- stop gasket seal placed tightly around pipe using stainless steel clamp. Alternately, pipes may have continuous bead of water swelling sealant, as detailed on Drawings, placed around pipe circumference.
D. When forming invert surface in bottom of manhole, mound concrete around

pipe penetrations so that water swelling sealant beads and neoprene water-stop gasket have minimum 2 inches of concrete cover.

E. Test connection for watertight seal before backfilling.

3.8 INVERTS FOR SANITARY SEWERS

A. Construct invert channels as required in Section 02082 - Precast Concrete Manholes.

3.9 DROP CONNECTIONS FOR SANITARY SEWERS

A. Backfill drop assembly with crushed stone wrapped in filter fabric, cement stabilized sand, or Class A concrete to form solid mass. Extend cement stabilized sand or concrete outside of bells minimum 4 inches.
B. Install drop connection when sewer line enters manhole higher than 24 inches above invert of manhole.
C. At drop pipe connections through fiberglass barrel, cut circular hole sized to requirements of manufactured connector. Seal cut edge with resin. Install watertight connector according to manufacturer's recommendations.

3.10 STUBS FOR FUTURE CONNECTIONS

A. Where future connections are indicated on Drawings, install resilient connectors and pipe stubs with approved watertight plugs in manholes.
B. At cast-in-place base, where future connections are indicated on Drawings, install section of pipe extending no further than 12 inches from edge of foundation, ending in bell and provided with rubber-gasket watertight plug.

3.11 ADJUSTMENT RINGS AND FRAME

A. Combine precast concrete or HDPE adjustment rings so that elevation of installed casting cover matches pavement surface. Do not load manhole except on load bearing shoulder of manhole. Seal between adjustment ring and fiberglass manhole with approved sealant material. Apply a latex bonding agent to precast concrete surface and join with non-shrink grout. Set cast iron frame on adjustment ring in bed of approved sealant material. Install sealant bed consisting of two beads on sealant, each bead having minimum dimensions of 1/2-inch and 1/2-inch wide.
B. Wrap manhole frame and adjustment rings with external sealing material, minimum 3 inches beyond joint between ring and frame and ring and precast section.
C. Set cast iron frame on top of cone or adjustment rings using water swelling sealant materials and adjust elevation of casting cover to match pavement surface. For manholes in unpaved areas, set top frame minimum of 6 inches above existing ground line unless otherwise indicated on Drawings.

3.12 BACKFILL

A. After leakage testing, place and compact backfill material in area of excavation surrounding manholes in accordance with requirements of Section 02317- Excavation and Backfill for Utilities. Use embedment zone backfill material, as specified for adjacent utilities, from manhole foundation up to elevation 12-inches over each pipe connected to manhole. Provide trench zone backfill, as specified for adjacent utilities, above embedment zone backfill.
B. In unpaved areas, provide positive drainage away from manhole frame to natural grade. Provide minimum of 4-inches of topsoil conforming to requirements of Section 02911 - Topsoil and seed in accordance with Section 02921 - Hydro-mulch Seeding. When shown on Drawings, sod disturbed areas in accordance with Section 02922- Sodding.

3.13 FIELD QUALITY CONTROL

A. Conduct leakage testing of sanitary sewer manholes.

3.14 PROTECTION

A. Protect manholes from damage until work has been finally accepted. Repair damage to manholes at no additional cost to the District.

END OF SECTION

SECTION 02200
SITE PREPARATION AND RESTORATION

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes requirements for construction preparation and final site restoration.

1.2 MEASUREMENT AND PAYMENT

A. Where there is not a separate item listed on the Unit Price Schedule for work in this Section, no separate measurement and payment are made. Include cost for work under this Section in the related item listed on the Unit Price Schedule.
B. Where an item is listed on the Unit Price Schedule, Measurement and Payment is as noted on the Unit Price Schedule and the following schedule
   1. Payment of 70 percent of bid amount: When mobilization is complete, including move-in of major equipment, installation of project signs, and sanitary facilities.
   2. Payment of 30 percent of bid amount: When clean up of project site is complete, including removal of construction debris, temporary facilities, signs and related project appurtenances.
C. Refer to Section 01270 – Measurement and Payment for unit price procedures.

PART 2 – PRODUCTS – Not used

PART 3 – EXECUTION

3.1 DESCRIPTION

D. The work covered by this Section consists of furnishing all labor, materials, equipment, supplies, supervision, tools, and performing all work necessary for clearing and protection of facilities during construction and top soiling, finish grading, seeding, fertilizing, watering, maintenance, and clean-up of disturbed areas within the individual water plant areas at the completion of work, in accordance with these specifications and as shown on drawings.
E. Fences shall be relocated or installed as shown on drawings. All damage to existing fencing occurring during construction activities shall be repaired or replaced at the Contractor's expense to a condition equal to or better than existing prior to such damage. Fencing relocated for the convenience of accommodating construction activities shall be returned to its original location at the completion of the work.

F. Silt fencing and four (4) foot safety fencing is to be installed as indicated on the plans.
G. All sites shall be restored to a condition equal to or better than that existing prior to construction activities. All holes and open excavations shall be filled and compacted to the density of the surrounding area. Level all washes, ruts, depressions, and mounds to provide a smooth finish with no large debris, dirt clods, or lumps of size that would interfere with the operation of a standard rotary lawnmower.

3.2 GENERAL

A. Protect items designated for preservation from abuse, marring or damage during construction operations.
B. Maintain access and drainage continuously for duration of the project.
C. Remove structures, abandoned utility lines and related obstructions to a depth of 2 feet below the finished grade.
D. Collect tires, batteries, paint cans, oil cans and related debris items on the right-of-way in a location approved by the Engineer, for disposal by others.
E. When Work is finished, remove existing construction signs and reinstall in an approved location when directed by the Engineer.
F. Remove structures, outfall pipes, drainage facilities and other items that may interfere with the construction work or as designated on the Plans.
G. Maintain all-weather access to adjacent facilities that have driveways.
H. Establish and maintain access to the site.
I. Clean up the site.
J. Install, remove, relocate, replace and reinstall fences, barricades or barriers required to secure the site.
K. Secure the site as necessary to perform the Work.

3.3 ABANDONED UTILITY LINES

A. Remove abandoned utility lines that may interfere with the construction work or as designated on the Plans.
B. Notify the utility owner prior to work on such abandoned lines.
C. Plug and abandon utility lines left in place as approved by the Engineer.

3.4 ENCROACHMENTS

A. Remove encroachments into the District's right-of-way that interfere with the construction work or as designated on the Plans.
B. Coordinate with property owners at least 24 hours prior to any work on such encroachments.
C. Place the removed encroachment neatly on the adjacent property.

3.5 PROJECT SIGNS

A. Refer to Section 01580 – Project Signs.

3.6 BACKFILLING

A. Refer to Section 02315 – Excavating and Backfilling.

3.7 DISPOSAL

A. Refer to Section 02120 – Material Disposal.

END OF SECTION

SECTION 02221
REMOVING EXISTING PAVEMENTS, STRUCTURES, WOOD, AND DEMOLITION DEBRIS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Removing concrete paving, asphaltic concrete pavement, brick pavement and base courses.
B. Removing concrete curbs, concrete curbs and gutters, sidewalks and driveways.
C. Removing pipe culverts, sewers, and sewer leads.
D. Removing waterlines and water services lines including asbestos cement pipe per OSHA guidelines.
E. Removing existing inlets and manholes.
F. Removing and disposing of pre-stressed concrete beams and drill shafts.
G. Removing miscellaneous structures of concrete or masonry.
H. Removing existing bridge.
I. Removing existing wood and demolition debris.

1.2 MEASUREMENT AND PAYMENT

A. Where there is not a separate item listed on the Unit Price Schedule for work in this Section, no separate measurement and payment are made. Include cost for work under this Section in the related item listed on the Unit Price Schedule.
B. Where an item is listed on the Unit Price Schedule, Measurement and Payment is as noted on the Unit Price Schedule.
C. Refer to Section 01270 – Measurement and Payment for unit price procedures.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION

3.1 PREPARATION

A. Obtain advance approval from Project Manager for dimensions and limits of removal work.
B. Identify known utilities below grade. Stake and flag locations.
C. For removal of asbestos-containing materials, or materials that could potentially contain asbestos, comply with the following:
   1. Crew members must be trained in accordance with OSHA 29 CFR 1926.1101 – Asbestos.

2. Conduct negative exposure assessment to demonstrate asbestos exposure below permissible exposure limit (PEL) in accordance with OSHA 29 CFR 1926.1101 – Asbestos and EPA 40 CFR 763 – Asbestos.
3. If negative exposure assessment not conducted, or if results are above PEL, provide respiratory protection in accordance with Paragraph 3.02 of this Section.

3.2 PROTECTION

A. Protect following from damage or displacement:
   1. Adjacent public and/or private property.
   2. Trees, plants, and other landscape features designated to remain.
   3. Utilities designated to remain.
   4. Pavement and utility structures designated to remain.
   5. Bench marks, monuments, and existing structures designated to remain.
B. When required, provide respiratory protection in accordance with OSHA 29 CFR 1910.134 – Respiratory Protection, and National Institute of Occupational Safety and Health (NIOSH).

3.3 REMOVALS

A. Remove pavements and structures by methods that will not damage underground utilities. Do not use drop hammer near existing underground utilities.
B. Minimize amount of earth loaded during removal operations.
C. Where existing pavement is to remain, make straight saw cuts in existing pavement to provide clean breaks prior to removal. Do not break concrete pavement or base with drop hammer unless concrete or base has been saw cut to minimum depth of 2 inches.
D. When street and driveway saw cut location is greater than one-half of pavement lane width, remove pavement for full lane width or to nearest longitudinal joint as directed by Project Manager.
E. Remove sidewalks and curbs to nearest existing dummy, expansion, or construction joint.
F. Where existing end of pipe culvert or end of sewer is to remain, install 8-inch-thick masonry plug in pipe end prior to backfill in accordance with requirements of Section 02316 – Structural Excavating and Backfilling.
G. Labeling of Asbestos Cement (AC) Pipe:
   1. Label leak-tight container with warning statement of hazardous asbestos content in accordance with OSHA 29 CFR 1926.1101 and as noted below.
   2. Label waste material with following warning:

DANGER
CONTAINS ABESTOS FIBERS
MAY CAUSE CANCER
CAUSES DAMAGES TO LUNGS
DO NOT BREATHE DUST
AVOID CREATING DUST

3. Neatly print labels in letters of sufficient size and contrast so label is easily visible and legible

3.4 BACKFILL

A. Backfill of removal areas shall be in accordance with requirements of Section 02316 – Structural Excavating and Backfilling.

3.5 DISPOSAL

A. Inlet frames, grates, and plates; and manhole frames and covers, may remain City property. Disposal shall be in accordance with requirements of Section 02120 - Material Disposal.
B. Remove from site, debris resulting from work under this section in accordance with requirements of Section 02120 - Material Disposal.
C. For asbestos-containing materials:
   1. Comply with 40 CFR Part 61 and 30 TAC Sections 330.137(b) for Industrial Class 1 waste.
   2. Inspect load to ensure correct packaging and labeling.
   3. Line vehicles with two layers of 6-mil polyethylene sheeting.
   4. Remove asbestos-containing waste from site daily.

END OF SECTION

SECTION 02314
FILL MATERIAL

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes requirements for the acceptance and use of fill.

1.2 MEASUREMENT AND PAYMENT

A. Where there is not a separate item listed on the Unit Price Schedule for work in this Section, no separate measurement and payment are made. Include cost for work under this Section in the related item listed on the Unit Price Schedule.
B. Where an item is listed on the Unit Price Schedule, Measurement and Payment is as noted on the Unit Price Schedule.
C. Refer to Section 01270 – Measurement and Payment for unit price procedures.

1.3 REFERENCES

A. ASTM D 1140 – Amount of Material in Soil Finer than the No. 200 (75 µm) Sieve.
B. ASTM D 2487 – Classification of Soils for Engineering Purposes Unified Soil Classification System.
C. ASTM D 4647 – Identification and Classification of Dispersive Clay Soils by the Pinhole Test.
D. ASTM D 4318 – Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

1.4 SUBMITTALS

A. Refer to Section 01330 – Submittal Procedures.
   1. Submit sample source identifying information including sample identification, one copy of map (including map's scale) identifying the location and boundaries of the designated site, source sketch, supplier and grab sample. Show the borrow site or pit and the proposed excavation location, sample location and approximate material depth(s) on the source sketch.
B. Submit test report based on:
   1. Laboratory determination of amount of material finer than the No. 200 (0.075 mm) sieve (ASTM D 1140).
   2. Liquid limit, plastic limit and plasticity index (ASTM D 4318).
   3. Pinhole test (ASTM D 4647, Method A).
   4. Classification shall be reported in accordance with ASTM D 2487 and include (as a minimum):

a. Group name.
b. Group symbol.
c. Soil color(s).
d. Results of the laboratory tests.

1.5 CONSTRUCTION TESTS AND INSPECTION

A. Refer to Section 01457 – Construction Tests and Inspection.

PART 2 – PRODUCTS

2.1 IMPORTED SELECT FILL MATERIAL

A. Use an approved material, free from roots, trash, organic matter and other objectionable material where imported select fill material is shown on the Plans or specified.
B. Where the imported select fill material is not specified elsewhere, the material shall be a fine-grained lean clay with sand (CL) or sandy lean clay (CL) soil material when classified in accordance with ASTM D 2487 and conforming to the following criteria:

TEST DESCRIPTION	ASTM TEST	UNIT	VALUE
Maximum Liquid Limit	D 4318	%	49
Plasticity Index Range	D 4318	%	15 – 30
Passing No. 200 Sieve	D 1140	%	60 – 85
Pinhole Test - Method A	D 4647	-	ND1 – ND2

2.2 FILL MATERIAL EXCAVATION FROM ON-SITE

A. Where no other fill material is specified or shown, use inorganic soils from the on-site excavation that are free from roots, trash, organic matter and other objectionable material and classified by their group name and symbol in accordance with ASTM D 2487 as follows:

GROUP NAME	GROUP SYMBOL
Lean Clay	CL
Lean Clay with Sand	CL
Sandy Lean Clay	CL

B. Do not use peat or other organic matter, muck, debris or similar materials. The inorganic soils listed below may be used only with the approval of the Engineer:

GROUP NAME	GROUP SYMBOL
Fat Clay	CH
Sand	SW, SP, SC or SM

PART 3 – EXECUTION

A. Refer to Section 02315 – Excavating and Backfilling.
B. Refer to Section 02316 – Structural Excavating and Backfilling.

END OF SECTION

SECTION 02315
EXCAVATING AND BACKFILLING

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes requirements for removing, stockpiling and replacing on-site vegetation and topsoil, excavating, repairing slopes, backfilling, grading the berms, backslope swales and related work. This Section does not include excavating and backfilling for structures.

1.2 MEASUREMENT AND PAYMENT

A. Where there is not a separate item listed on the Unit Price Schedule for work in this Section, no separate measurement and payment are made. Include cost for work under this Section in the related item listed on the Unit Price Schedule.
B. Where an item is listed on the Unit Price Schedule, Measurement and Payment is as noted on the Unit Price Schedule.
C. Refer to Section 01270 – Measurement and Payment for unit price procedures.
D. Measurement shall be based upon cross-sections, as required..
E. Cross-sections obtained by Contractor shall be tied to the base line and, as a minimum, at the same locations and limits as the design cross-sections.
F. Cross-sections obtained by Contractor shall be plotted at the same scale as design cross-sections where available or to the same horizontal and vertical scale where design cross-sections are not available.
G. Plots of cross-section shall include pre-construction, intermediate, final and design cross-sections.
H. Cross-sections in areas of buried riprap or protective linings, such as riprap and concrete channel lining, shall be to the top of these materials. Excavation required for placement of such protective lining is considered structural excavation and incidental to the cost of related protective lining. See Section 02316 – Structural Excavating and Backfilling.
I. For small areas or other areas where limits can readily be determined visually, measurement may be by conventional taping and/or measuring techniques, as approved by the Engineer. Measurement shall be witnessed by the Engineer.
J. Where paid for separately, backslope swales shall be measured as noted on the Unit Price Schedule.
K. Contractor shall perform all quantity calculations for approval by

Engineer.

L. No payment will be made for over-excavation or over-filling beyond the design cross-sections, except as directed by the Engineer.
M. Support partial pay request quantities with pre-construction and intermediate cross-sections, Plan quantity calculations to-date or quantity calculations determined from field measurement techniques previously approved by the Engineer.
N. Support final pay request quantities by using pre-construction, intermediate and final cross-sections or final field measured quantity calculations, as approved by the Engineer.

1.3 REFERENCES

A. ASTM D 698 – Laboratory Compaction Characteristics of Soils Using Standard Effort (12,400 ft-lbf/ft^3 (600kN-m/m^3)).

1.4 DEFINITIONS

A. Existing Cross-Sections: Obtained by design engineer to prepare Plans and bid documents.
B. Pre-Construction Cross-Sections: Obtained by Contractor prior to construction to establish pre-construction conditions. Contractor may accept existing cross-sections as pre-construction cross-sections.
C. Intermediate Cross-Sections: Obtained by Contractor to establish extent of work, such as to remove disturbed soil and to repair slope failures.
D. Final Cross-Sections: Obtained by Contractor at completion of excavation and/or fill.
E. Design Cross-Section: Proposed channel section shown on Plans showing final grades.

1.5 SUBMITTALS

A. Refer to Section 01330 – Submittal Procedures.
B. Submit plotted cross-sections and earthwork quantity calculations in tabular form.

1.6 CONSTRUCTION TESTS AND INSPECTION

A. Refer to Section 01457 – Construction Tests and Inspection.

PART 2 – PRODUCTS

2.1 FILL MATERIAL

A. Refer to Section 02314 – Fill Material.

PART 3 – EXECUTION

3.1 SITE PREPARATION

A. Prepare the site for construction in accordance with Section 02200 – Site Preparation and Restoration and Section 02233 – Clearing and Grubbing.
B. Remove grass and other vegetative cover from areas to be excavated or filled.
C. Remove material that may interfere with the proposed work, including unusable materials, disturbed soils and/or objectionable material as directed by Engineer.
D. Engineer will inspect and approve foundation soil prior to placement of fill.

3.2 TOPSOIL

A. Refer to Section 02911 – Topsoil.

3.3 CARE AND CONTROL OF WATER

A. Refer to Section 02241 – Care and Control of Water.

3.4 CONSTRUCTION

A. Construct to lines, grades and dimensions shown on the Plans.
B. Return over-excavation beyond the specified limits to grade at no cost to the District.
C. Do not cast or place material, either temporarily or permanently, on top of bank without approval of Engineer.
D. Do not cut temporary shelves into side slopes without approval of Engineer.
E. Correct grading that results in standing water at no cost to the District.
F. Grade side slopes as required by the Engineer to smoothly transition the lateral into the main channel at locations where lateral ditches enter the channel.

3.5 FILL

A. Level soil surface prior to placing first layer of fill.
B. Compaction of foundation soil surface shall be considered satisfactory when the Contractor is capable of achieving specified compaction for the first layer of fill.
C. Protect foundation soils and/or fill soils from detrimental drying.
D. Scarify surfaces to receive fill to ensure proper bonding. When the surface can be penetrated by tamping roller feet, additional scarification is usually not necessary.
E. Cut into existing (undisturbed) material in a “benching” or “stair step” fashion. Each bench shall form a horizontal surface and corresponding nearly vertical surface. The height difference between

adjacent horizontal surfaces shall be a minimum of 3 feet.

F. Mechanically compact backfill provided under Section 02314 – Fill Material in 8-inch maximum layers, loose measure, to not less than 95 percent of maximum standard dry density (ASTM D 698) within plus or minus 3 percent of optimum moisture content. Where approved for use by the Engineer, fat clay (CH) soil shall be mechanically compacted to not less than 95 percent or more than 98 percent of maximum standard dry density (ASTM D 698) at or within plus 3 percent of optimum moisture content.

G. Refer to Section 02316 – Structural Excavating and Backfilling for backfilling behind retaining structures, unless shown otherwise on the Plans.

3.6 BACKSLOPE DRAINAGE SYSTEMS

A. Backslope swale and interceptor structure elevations and locations shown on the Plans are approximate. Final elevations and locations shall be field verified by the Engineer prior to installation. Minor changes in location and grade shall be considered incidental and no extra payment will be made for such adjustments.

3.7 MAINTENANCE OF DRAINAGE

A. Maintain constant flow and drainage in the main and lateral channels, backslope swales and off-site swales.

3.8 EROSION AND SEDIMENT CONTROL

A. Use means, methods, sequences and scheduling to minimize erosion and sedimentation and other damage to the project site and facilities, including the following:
   1. Limit work in this Section to no more than 1500 feet of channel at any time.
   2. Construct backslope drainage system, silt fences and vegetate each reach of the channel as soon as practical. Refer to Section 02361 – Silt Fences and Section 02921 – Turf Establishment.
   3. Failure to construct erosion control facilities in a timely manner, may result in a directive to do so. Engineer may stop construction on the project if, in the opinion of the Engineer, conditions warrant such action.
   4. Remove sediment and debris prior to final acceptance of the Work by the Engineer at no additional cost to the District. The removal of sediment includes reaches of channel downstream of the project where sedimentation occurred due to construction of this Project.
   5. Comply with terms and conditions of the Texas Pollutant Discharge Elimination System (TPDES) permit, the Stormwater Pollution Prevention Plan (SWPPP) and Best Management Practices (BMPs) for this Project, if applicable.

3.9 MATERIAL DISPOSAL

A. Refer to Section 02120 – Material Disposal.

END OF SECTION

SECTION 02360
TEMPORARY EROSION, SEDIMENTATION, AND ENVIRONMENTAL CONTROLS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Install, maintain, and remove erosion, sedimentation, and environmental control measures to prevent or reduce the discharge of pollutants in accordance with the Storm Water Pollution Prevention Plan (SWP3) on the plans and the Texas Pollutant Discharge Elimination System (TPDES) General Permit TXR150000. Control measures are defined as Best Management Practices used to prevent or reduce the discharge of pollutants. Control measures include, but are not limited to, rock filter dams, temporary pipe slope drains, temporary paved flumes, construction exits, earthwork for erosion control, pipe, construction perimeter fence, sandbags, temporary sediment control fence, biodegradable erosion control logs, vertical tracking, temporary or permanent seeding, and other measures. Erosion and sediment control devices must be selected from the Erosion Control Approved Products or Sediment Control Approved Products lists. Perform work in a manner to prevent degradation of receiving waters, facilitate project construction, and comply with applicable federal, state, and local regulations. Ensure the installation and maintenance of control measures is performed in accordance with the manufacturer's or designer's specifications

B. Provide the Contractor Certification of Compliance before performing SWP3 or soil disturbing activities. By signing the Contractor Certification of Compliance, the Contractor certifies they have read and understand the requirements applicable to this project pertaining to the SWP3, the plans, and the TPDES General Permit TXR150000. The Contractor is responsible for any penalties associated with non-performance of installation or maintenance activities required for compliance. Ensure the most current version of the certificate is executed for this project.

1.2 MEASUREMENT AND PAYMENT

A. Measurement and payment is as noted on the Unit Price Schedule.
B. Refer to Section 01270 – Measurement and Payment for unit price procedures.

1.3 SUBMITTALS

A. Conform to requirements of Section 01330 - Submittal Procedures.

PART 2 - PRODUCTS

2.1 MATERIAL

A. Furnish materials in accordance with following sections:
   A. Section 02361 – Silt Fences
   B. Section 02364 – Filter Dams
   C. Section 02365 – Stabilized Construction Access
   D. Section 02374 – Articulating Concrete Block
   E. Section 02376 – Concrete Channel Lining and Concrete Interceptor Structures
   F. Section 02377 – Rectangular Concrete Channel
   G. Section 02378 – Rip Rap and Granular Fill
   H. Section 02379 – Geotextiles for Erosion Control Systems

2.2 ROCK FILTER DAMS

A. Aggregate: Furnish aggregate with approved hardness, durability, cleanliness, and resistance to crumbling, flaking, and eroding. Provide the following:
   A. Types 1,2, and 4 Rock Filter Dams. Use 3 to 6 inches aggregate.
   B. Type 3 Rock Filter Dams. Use 4 to 8 inches aggregate.
B. Wire: Provide minimum 20 gauge galvanized wire for the steel wire mesh and tie wires for Types 2 and 3 rock filter dams. Type 4 dams require:
   A. a double-twisted, hexagonal weave with a nominal mesh opening of 2-1/2 × 3-1/4 in.;
   B. minimum 0.0866 in. steel wire for netting;
   C. < minimum 0.1063 in. steel wire for selvages and corners;
   D. and < minimum 0.0866 in. for binding or tie wire.
C. Sandbag Material: any gradation of aggregate may be used to fill the sandbags.

2.3 CONSTRUCTION PERIMETER FENCE

A. Posts: Provide essentially straight wood or steel posts that are at least 60 in. long. Furnish soft wood posts with a minimum diameter of 3 in., or use nominal 2 × 4 in. boards. Furnish hardwood posts with a minimum cross-section of 1-1/2 × 1-1/5 in. Furnish T- or L-shaped steel posts with a minimum weight of 1.25 lb. per foot.
B. Fence: Provide orange construction fencing as approved.
C. Fence Wire. Provide 14 gauge or larger galvanized smooth or twisted wire. Provide 16 gauge or larger tie wire.

D. Provide brightly-colored flagging that is fade-resistant and at least 3/4 in. wide to provide maximum visibility both day and night.
E. Provide staples with a crown at least 1/2 in. wide and legs at least 1/2 in. long.

2.4 SANDBAGS

A. Provide sandbag material of polypropylene, polyethylene, or polyamide woven fabric with a minimum unit weight of 4 oz. per square yard, a Mullen burst-strength exceeding 300 psi, and an ultraviolet stability exceeding 70%.
B. Use natural coarse sand or manufactured sand meeting the gradation given in table below to fill sandbags. Filled sandbags must be 24 to 30 in. long, 16 to 18 in. wide, and 6 to 8 in. thick.
C. Aggregate may be used instead of sand for situations where sandbags are not adjacent to traffic. The aggregate size must not exceed 3/8 in.

Sieve Size	Retained (% by Weight)
No. 4	Maximum 3%
No. 100	Minimum 80%
No. 200	Minimum 95%

2.5 TEMPORARY SEDIMENT CONTROL FENCE

A. Provide a net-reinforced fence using woven geo-textile fabric. Logos visible to the traveling public will not be allowed.
B. Fabric: Provide fabric materials in accordance with DMS-6230, “Temporary Sediment Control Fence Fabric.”
C. Posts. Provide essentially straight wood or steel posts with a minimum length of 48 in., unless otherwise shown on the plans. Furnish soft wood posts at least 3 in. in diameter, or use nominal 2 × 4 in. boards. Furnish hardwood posts with a minimum cross-section of 1-1/2 × 1-1/2 in. Furnish T- or L-shaped steel posts with a minimum weight of 1.25 lb. per foot.
D. Net Reinforcement. Provide net reinforcement of at least 12.5 gauge (SWG) galvanized welded wire mesh, with a maximum opening size of 2 × 4 in., at least 24 in. wide, unless otherwise shown on the plans.
E. Staples. Provide staples with a crown at least 3/4 in. wide and legs 1/2 in. long.
F. Used Materials. Use recycled material meeting the applicable requirements if approved.

2.6 BIODEGRADABLE EROSION CONTROL LOGS

A. Core Material. Furnish core material that is biodegradable or recyclable. Use compost, mulch, aspen excelsior wood fibers, chipped site vegetation, agricultural rice or wheat straw, coconut fiber, 100% recyclable fibers, or any other acceptable material unless specifically called out on the plans. Permit no more than 5% of the material to escape from the containment mesh.
B. Containment Mesh. Furnish containment mesh that is 100% biodegradable, photodegradable, or recyclable such as burlap, twine, UV photodegradable plastic, polyester, or any other acceptable material.
C. Furnish biodegradable or photodegradable containment mesh when log will remain in place as part of a vegetative system.
D. Furnish recyclable containment mesh for temporary installations.
E. Size. Furnish biodegradable erosion control logs with diameters shown on the plans or as directed. Stuff containment mesh densely so logs do not deform.

PART 3 - EXECUTION

3.1 QUALIFICATIONS, TRAINING AND EMPLOYEE REQUIREMENTS

A. Contractor Responsible Person Environmental (CRPE) Qualifications and Responsibilities. Provide and designate in writing at the preconstruction conference a CRPE and alternate CRPE who have overall responsibility for the storm water management program. The CRPE will implement storm water and erosion control practices; will oversee and observe storm water control measure monitoring and management; will monitor the project site daily and produce daily monitoring reports as long as there are BMPs in place or soil disturbing activities are evident to ensure compliance with the SWP3 and TPDES General Permit TXR150000. During time suspensions when work is not occurring or on contract non-work days, daily inspections are not required unless a rain event has occurred.
B. Contractor Superintendent Qualifications and Responsibilities. Provide a superintendent that is competent, has experience with and knowledge of storm water management, and is knowledgeable of the requirements and the conditions of the TPDES General Permit TXR150000. The superintendent will manage and oversee the day to day operations and activities at the project site; work with the CRPE to provide effective storm water management at the project site; represent and act on behalf of the Contractor; and attend the Department’s preconstruction conference for the project.
C. Training. All Contractor and subcontractor employees involved in soil disturbing activities, small or large structures, storm water control measures, and seeding activities must complete training as prescribed.

3.2 INSTALLATION

A. Perform work in accordance with the SWP3, according to manufacturers' guidelines, and in accordance with the TPDES General Permit TXR150000. Install and maintain the integrity of temporary erosion and sedimentation control devices to accumulate silt and debris until soil disturbing activities are completed and permanent erosion control features are in place or the disturbed area has been adequately stabilized as approved.
B. The Department will inspect and document the condition of the control measures at the frequency shown on the plans and will provide the Construction SWP3 Field Inspection and Maintenance Reports to the Contractor. Make corrections as soon as possible before the next anticipated rain event or within 7 calendar days after being able to enter the worksite for each control measure. The only acceptable reason for not accomplishing the corrections with the time frame specified is when site conditions are "Too Wet to Work." Take immediate action if a correction is deemed critical as directed. When corrections are not made within the established time frame, all work will cease on the project and time charges will continue while the control measures are brought into compliance. Commence work once the Engineer reviews and documents the project is in compliance. Commencing work does not release the Contractor of the liability for noncompliance of the SWP3, plans, or TPDES General Permit TXR150000.
C. The Engineer may limit the disturbed area if the Contractor cannot control soil erosion and sedimentation resulting from the Contractor's operations. Implement additional controls as directed.
D. Remove devices upon approval or as directed. Finish-grade and dress the area upon removal. Stabilize disturbed areas in accordance with the permit, and as shown on the plans or directed. Materials removed are considered consumed by the project. Retain ownership of stockpiled material and remove it from the project when new installations or replacements are no longer required.

3.3 ROCK FILTER DAMS FOR EROSION CONTROL

A. Remove trees, brush, stumps, and other objectionable material that may interfere with the construction of rock filter dams. Place sandbags as a foundation when required or at the Contractor's option.
B. Place the aggregate to the lines, height, and slopes specified, without undue voids for Types 1, 2, 3, and 5. Place the aggregate on the mesh and then fold the mesh at the upstream side over the aggregate and secure it to itself on the downstream side with wire ties, or hog rings for Types 2 and 3, or as directed. Place rock filter dams perpendicular to the flow of the stream or channel unless otherwise directed. Construct filter dams according to the following criteria unless otherwise shown on the plans:
    A. Type 1 (Non-Reinforced).
        a. Height: At least 18 in. measured vertically from existing ground to

top of filter dam.
b. Top Width. At least 2 ft.
c. Slopes. No steeper than 2:1.

B. Type 2 (reinforced).
a. Height. At least 18 in. measured vertically from existing ground to top of filter dam.
b. Top Width. At least 2 ft.
c. Slopes. No steeper than 2:1.

C. Type 3 (Reinforced).
a. Height: At least 36 in. measured vertically from existing ground to top of filter dam.
b. Top Width. At least 2 ft.
c. Slopes. No steeper than 2:1.

D. Type 4 (Sack Gabions):
a. Unfold sack gabions and smooth out kinks and bends. Connect the sides by lacing in a single loop–double loop pattern on 4- to 5-in. spacing for vertical filling. Pull the end lacing rod at one end until tight, wrap around the end, and twist 4 times. Fill with stone at the filling end, pull the rod tight, cut the wire with approximately 6 in. remaining, and twist wires 4 times.
b. Place the sack flat in a filling trough, fill with stone, connect sides, and secure ends as described above for horizontal filling.
c. Lift and place without damaging the gabion. Shape sack gabions to existing contours.

E. Type 5: Provide rock filter dams as shown on the plans.

3.4 CONSTRUCTION PREIMETER FENCE

A. Construct, align, and locate fencing as shown on the plans or as directed.
B. Installation of Posts. Embed posts 18 in. deep or adequately anchor in rock, with a spacing of 8 to 10 ft.
C. Wire Attachment. Attach the top wire to the posts at least 3 ft. from the ground. Attach the lower wire midway between the ground and the top wire.
D. Flag Attachment. Attach flagging to both wire strands midway between each post. Use flagging at least 18 in. long. Tie flagging to the wire using a square knot.

3.5 SANDBAGS FOR EROSION CONTROL

A. Construct a berm or dam of sandbags that will intercept sediment-laden storm water runoff from disturbed areas, create a retention pond, detain sediment, and release water in sheet flow. Fill each bag with sand so that at least the top 6 in. of the bag is unfilled to allow for proper tying of the open end. Place the sandbags with their tied ends in the same direction. Offset subsequent rows of sandbags 1/2 the length of the preceding row. Place a single layer of sandbags downstream as a secondary debris trap. Place

additional sandbags as necessary or as directed for supplementary support to berms or dams of sandbags or earth.

3.6 TEMPORARY SEDIMENT CONTROL FENCE

A. Temporary Sediment-Control Fence. Provide temporary sediment-control fence near the downstream perimeter of a disturbed area to intercept sediment from sheet flow. Incorporate the fence into erosion-control measures used to control sediment in areas of higher flow. Install the fence as shown on the plans, as specified in this Section, or as directed.
B. Installation of Posts. Embed posts at least 18 in. deep, or adequately anchor, if in rock, with a spacing of 6 to 8 ft. and install on a slight angle toward the runoff source.
C. Fabric Anchoring. Dig trenches along the uphill side of the fence to anchor 6 to 8 in. of fabric. Provide a minimum trench cross-section of 6 × 6 in. Place the fabric against the side of the trench and align approximately 2 in. of fabric along the bottom in the upstream direction. Backfill the trench, then hand-tamp.
D. Fabric and Net Reinforcement Attachment. Attach the reinforcement to wooden posts with staples, or to steel posts with T-clips, in at least 4 places equally spaced unless otherwise shown on the plans. Sewn vertical pockets may be used to attach reinforcement to end posts. Fasten the fabric to the top strand of reinforcement by hog rings or cord every 15 in. or less.
E. Fabric and Net Splices. Locate splices at a fence post with a minimum lap of 6 in. attached in at least 6 places equally spaced unless otherwise shown on the plans. Do not locate splices in concentrated flow areas.
    A. Requirements for installation of used temporary sediment – control fence include the following:
        a. fabric with minimal or no visible signs of biodegradation (weak fibers),
        b. fabric without excessive patching (more than 1 patch every 15 to 20 ft.)
        c. posts without bends, and
        d. backing without holes.

3.7 BIODEGRADABLE EROSION CONTROL LOGS

A. Install biodegradable erosion control logs near the downstream perimeter of a disturbed area to intercept sediment from sheet flow. Incorporate the biodegradable erosion control logs into the erosion measures used to control sediment in areas of higher flow. Install, align, and locate the biodegradable erosion control logs as specified below, as shown on the plans, or as directed.
B. Secure biodegradable erosion control logs in a method adequate to prevent displacement as a result of normal rain events, prevent damage to the logs, and as approved, such that flow is not allowed under the logs. Temporarily

removing and replacing biodegradable erosion logs as to facilitate daily work is allowed at the Contractor's expense.

END OF SECTION

SECTION 02490
TRENCH SAFETY SYSTEM

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes requirements for the installation and maintenance of a trench safety system.

1.2 MEASUREMENT AND PAYMENT

A. Where there is not a separate item listed on the Unit Price Schedule for work in this Section, no separate measurement and payment are made. Include cost for work under this Section in the related item listed on the Unit Price Schedule.
B. Where an item is listed on the Unit Price Schedule, Measurement and Payment is as noted on the Unit Price Schedule.
C. Refer to Section 01270 – Measurement and Payment for unit price procedures.

1.3 REFERENCES

A. Implement the Trench Safety System requirements of the Federal, State and local Safety and Health Regulations and the Occupational Safety and Health Administration (OSHA), 29 CFR, Part 1926 Subpart P – Excavation.
B. Texas Health and Safety Code Ann., Chapter 756. Miscellaneous Hazardous Conditions. Subchapter C. Trench Safety § 756.023. Trench Excavation for Political Subdivision.

1.4 SUBMITTALS

A. Refer to Section 01330 – Submittal Procedures.
B. Submit a safety plan specifically for the construction of trench excavation. Design the trench safety plan to be in accordance with OSHA regulations referenced above that govern the presence and activities of individuals working in and around trench excavations.
C. Construction and Shop Drawings containing deviations from OSHA regulations or special designs shall be sealed by a licensed Texas Professional Engineer retained and paid by the Contractor.
D. Review of the safety plan by the Engineer will only be in regard to compliance with this Section and will not constitute approval by the Engineer or relieve the Contractor of obligations under State and Federal trench safety laws.

PART 2 – PRODUCTS – Not used

PART 3 – EXECUTION – Not used

END OF SECTION

SECTION 02506
POLYVINYL CHLORIDE PIPE

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Polyvinyl chloride pressure pipe for water distribution, in nominal diameters 4 inches through 20 inches.
B. Polyvinyl chloride sewer pipe for gravity sewers in nominal diameters 4 inches through 60 inches.
C. Polyvinyl chloride pressure pipe for gravity sewers and force mains in nominal diameters 4 inches through 20 inches.

1.2 MEASUREMENT AND PAYMENT

A. Measurement and payment is as noted on the Unit Price Schedule.
B. Refer to Section 01270 – Measurement and Payment for unit price procedures.

1.3 REFERENCES

A. ANSI A 21.16 (AWWA C 116) - Protective Fusion Bonded Epoxy Coating for the Interior and Exterior Surfaces of Ductile Iron and Grey Iron Fittings for Water Supply Service.
B. ASTM D 1248 - Standard Specification for Polyethylene Plastics Molding and Extrusion Materials.
C. ASTM D 1784 - Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.
D. ASTM D 2122 – Standard Test Method for Determining Dimensions of Thermoplastic Pipe and Fittings.
E. ASTM D 2241 - Standard Specification for Poly (Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series).
F. ASTM D 2321 - Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.
G. ASTM 2412 – Standard Test Method for Determination of External Loading Characteristics of Plastic Pipe by Parallel Plate Loading
H. ASTM D 2444 - Standard Test Method for Determination of the Impact Resistance of Thermoplastic Pipe and Fittings by Means of a Tup (Falling Weight).
I. ASTM D 2680 - Specification for Acrylonitrile-Butadiene-Styrene (ABS) and

Poly (Vinyl Chloride) (PVC) Composite Sewer Piping.

J. ASTM D 3034 - Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
K. ASTM D 3139 - Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals.
L. ASTM D 3212 - Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
M. ASTM F 477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
N. ASTM F 679 - Standard Specification for Poly (Vinyl Chloride) (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings.
O. ASTM F 794 - Standard Specification for Poly (Vinyl Chloride) (PVC) Profile Gravity Sewer Pipe and Fittings Based on Controlled Inside Diameter.
P. ASTM F 949 - Standard Specification for Poly (Vinyl Chloride) (PVC) Corrugated Sewer Pipe with Smooth Interior and Fittings.
Q. AWWA C 110 - American National Standard for Ductile-Iron and Gray-Iron Fittings, 3 Inches Through 48 Inches for Water.
R. AWWA C 111 - American National Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
S. AWWA C 900 - Standard for Polyvinyl Chloride (PVC) Pressure Pipe, 4 Inches Through 12 Inches for Water Distribution.
T. AWWA C 905 - Standard for Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 14 In. Through 48 In., for Water Transmission and Distribution.
U. AWWA C 909 - Standard for Molecularly-Oriented Polyvinyl Chloride (PVCO) Pressure Pipe, 4 Inches through 12 Inches (100mm through 300 mm), for Water Distribution.
V. AWWA M23 – PVC Pipe – Design and Installation
W. PPI TR3 - Policies and Procedures for Developing Recommended Hydrostatic Design Stresses for Thermoplastic Pipe Materials.
X. UNI-B-13 - Recommended Standard Performance Specification for Joint Restraint Devices for Use with Polyvinyl Chloride Pipe.

1.4 SUBMITTALS

A. Conform to requirements of Section 01330 - Submittal Procedures.
B. Submit shop drawings showing design of new pipe and fittings indicating alignment and grade, laying dimensions, fabrication, fittings, flanges, and special details.
C. Contractor to review and submit PVC pipe manufacturers recommended installation procedures.
D. Calculations and limits of thrust restraint shall be based on AWWA M23, latest edition.

1.5 QUALITY CONTROL

A. Submit manufacturer's certifications that PVC pipe and fittings meet requirements of this Section and AWWA C 900, AWWA C 909 and AWWA C 905 for pressure pipe applications, or appropriate ASTM standard specified for gravity sewer pipe.
B. Submit manufacturer's certification that PVC pressure pipe for water lines and force mains has been hydrostatically tested at factory in accordance with AWWA C 900, AWWA C 909 and AWWA C 905, and this Section.
C. When foreign manufactured material is proposed for use, have material tested for conformance to applicable ASTM requirements by certified independent testing laboratory located in United States. Certification from another source is not acceptable. Furnish copies of test reports to the Engineer for review. Cost of testing paid by Contractor.

PART 2 - PRODUCTS

2.1 MATERIAL

A. Use PVC compounds in manufacture of pipe that contain no ingredient in amount that has been demonstrated to migrate into water in quantities considered to be toxic.
B. Furnish PVC pressure pipe manufactured from Class 12454 virgin PVC compounds as defined in ASTM D 1784. Use compounds qualifying for rating of 4000 psi for water at 73.4 F per requirements of PPI TR3. Provide pipe which is homogeneous throughout, free of voids, cracks, inclusions, and other defects, uniform as commercially practical in color, density, and other physical properties. Deliver pipe with surfaces free from nicks and scratches with joining surfaces of spigots and joints free from gouges and imperfections which could cause leakage.
C. PVC Restrained Pipe:
    1. Pipe Material:
        a. DR 18: For restrained joints where shown on Drawings.
        b. DR 14: For alternate to offset pipe sections shown on Drawings. Do not use PVC for offset sections with depth of cover greater than 20 feet or less than 4 feet. Do not use PVC in potentially petroleum contaminated areas.
D. Water Service.
    1. Provide self-extinguishing PVC pipe that bears Underwriters' Laboratories mark of approval and is acceptable without penalty to Texas State Fire Insurance Committee for use in fire protection lines.
    2. Bear National Sanitation Foundation Seal of Approval (NSF-PW).
E. Gaskets:
    1. Gasket materials shall meet requirements of ASTM F 477. Use elastomeric factory- installed gaskets to make joints flexible and watertight.
    2. Flat Face Mating Flange: Full faces 1/8-inch-thick ethylene propylene

(EPR) rubber.

3. Raised Face Mating Flange: Flat ring 1/8-inch ethylene propylene (EDR) rubber, with filler gasket between OD of raised face and flange OD to protect flange from bolting moment.

F. Lubricant for rubber-gasketed joints: Water soluble, non-toxic, non-objectionable in taste and odor imparted to fluid, non-supporting of bacteria growth, having no deteriorating effect on PVC or rubber gaskets.
G. Do not use PVC in potentially or known contaminated areas.
H. Do not use PVC in areas exposed to direct sunlight.

2.2 WATER SERVICE PIPE

A. Pipe 4 inch through 12 inches: AWWA C 900, AWWA C 909, Class 150, DR 18; AWWA C 900, Class 200, DR 14 as alternate to offset pipe sections; nominal 20-foot lengths; cast-iron equivalent outside diameters.
B. Pipe 14 inch through 20 inches: AWWA C 905; DR 18; nominal 20-foot lengths; cast-iron equivalent outside diameter.
C. Provide Polyvinyl Chloride Pipe from approved manufacturers.
D. Make curves and bends by offsetting (i.e., deflecting joints). Do not exceed maximum offset recommended by pipe manufacturer.
E. Hydrostatic Test: AWWA C 900, AWWA C 905, AWWA C 909, ANSI A 21.10 (AWWA C 110); at point of manufacture; submit manufacturer's written certification.

2.3 GRAVITY SEWER PIPE

A. PVC gravity sanitary sewer pipe shall be in accordance with provisions in following table:

WALL CONSTRUCTION	ASTM DESIGNATION	SDR (MAX.)/ STIFFNESS (MIN.)	DIAMETER SIZE RANGE
Solid	D3034	SDR 26 / PS 115	6" to 10"
	D3034	SDR 35 / PS 46	12" & 15"
	F679	SDR 35 / PS 46	18" to 60"
	AWWA C900	DR 18 / N/A	4" to 12"
	AWWA C909	DR 18 / N/A	4" to 12"
	AWWA C905	DR 18 / N/A	14" to 20"

Note: Refer to Approved Products List for list of manufacturers.

B. PVC storm sewer pipe shall be in accordance with provisions in following table:

WALL CONSTRUCTION	MANUFACTURER	ASTM DESIGNATION	SDR (MAX.)/ STIFFNESS (MIN.)	DIAMETER SIZE RANGE

Solid	J-M Pipe CertainTeed Diamond Uponor ETI North American	D3034	SDR 26 / PS 115	6" to 10"
		D3034	SDR 35 / PS 46	12" & 15"
		F679	SDR 35 / PS 46	18" to 27"
		AWWA C900	DR 18 / N/A	4" to 12"
		AWWA C909	DR 18 / N/A	4" to 12"
		AWWA C905	DR 18 / N/A	14" to 16"
Truss (Gasketed)	Contech	D2680	N/A /200 psi	8" to 15"
Profile	Contech A-2000 Contech A-2026 ETI, Ultra-Rib ETI, Ultra-Corr	F949 F949 F794 F794	N/A / 46 psi N/A / 115 psi N/A / 46 psi N/A / 46 psi	12" to 36" 8" to 10" 8" to 30" 24" to 36"

C. When solid wall PVC pipe 18 inches to 27 inches in diameter is required in SDR 26, provide pipe conforming to ASTM F 679, except provide wall thickness as required for SDR 26 and pipe stiffness of 115 psi.
D. For sewers up to 12-inch diameter crossing over water lines, or crossing under water lines with less than 2-feet separation, provide minimum 150 psi pressure-rated pipe conforming to ASTM D 2241 with suitable PVC adapter couplings.
E. Joints: Spigot and integral wall section bell with solid cross section elastomeric or rubber ring gasket conforming to requirements of ASTM D 3212 and ASTM F 477, or ASTM D 3139 and ASTM F 477. Gaskets shall be factory-assembled and securely bonded or otherwise held in place to prevent displacement. Manufacturer shall test sample from each batch conforming to requirements ASTM D 2444.
F. Fittings: Provide PVC gravity sewer sanitary bends, tee, or wye fittings for new sanitary sewer construction. PVC pipe fittings shall be full-bodied, either injection molded or factory fabricated. Saddle-type tee or wye fittings are not acceptable.
G. Conditioning. Conditioning of samples prior to and during tests is subject to approval by the Engineer. When referee tests are required, condition specimens in accordance with Procedure A in ASTM D 618 at 73.4 degrees F plus or minus 3.6 degrees F and 50 percent relative humidity plus or minus 5 percent relative humidity for not less than 40 hours prior to test. Conduct tests under same conditions of temperature and humidity unless otherwise specified. This is a brief summary of the test method, and the full current edition of the standard must be followed.
H. Pipe Stiffness. Determine pipe stiffness at 5 percent deflection in accordance with Test Method D 2412. Minimum pipe stiffness shall be 46 psi. For diameters 4 inches through 18 inches, test three specimens, each

a minimum of 6 inches (152 mm) in length. For diameters 21 inch through 36 inch, test three specimens, each a minimum of 12 inch (305 mm) in length. This is a brief summary of the test method, and the full current edition of the standard must be followed.

I. Flattening. Flatten three specimens of pipe, in suitable press until internal diameter has been reduced to 60 percent of original inside diameter of pipe. Rate of loading shall be uniform. Test specimens, when examined under normal light and with unaided eye, shall show no evidence of splitting, cracking, breaking, or separation of pipe walls or bracing profiles. Perform the flattening test in conjunction with pipe stiffness test. This is a brief summary of the test method, and the full current edition of the standard must be followed.

J. Joint Tightness. Test for joint tightness in accordance with ASTM D 3212, except that joint shall remain watertight at minimum deflection of 5 percent. Manufacturer will be required to provide independent third-party certification for joint testing each diameter of storm sewer pipe. This is a brief summary of the test method, and the full current edition of the standard must be followed

K. Purpose of Tests. Flattening and pipe stiffness tests are intended to be routine quality control tests. Joint tightness test is intended to qualify pipe to specified level of performance.

L. Saddle for pipe with 0.5-inch width and greater: Connect side sewer by drilling proper size round hole in wall of the main sewer pipe, inserting an approved pipe compression saddle. The Saddle shall meet requirements of ASTM C-923. Saddles will accept 4”, 6”, and 8” pipe. The lateral pipe shall be held in place by one stainless steel compression band with stainless steel nut and bolt (any AISI Series 300) type tightening device and meeting requirements of ASTM A240. A stainless-steel shear band shall wrap around the pipe a minimum of 380 degrees. Saddle may not protrude into mainline pipe.

2.4 SANITARY SEWER FORCE MAIN PIPE

A. Provide approved PVC pressure pipe conforming to requirements for water service pipe.

B. Acceptable pipe joints are integral bell-and-spigot, containing a bonded-in elastomeric sealing ring meeting requirements of ASTM F 477. In designated areas requiring restrained joint pipe and fittings, use approved joint restraint device conforming to UNI-B-13, for PVC pipe 12-inch diameter and less.

C. Fittings: Provide approved ductile iron fittings.
   1. Nominal 40 mils (35 mils minimum) virgin polyethylene complying with ASTM D 1248, heat fused to interior surface of fitting
   2. Nominal 40 mils (35 mils minimum) polyurethane
   3. Nominal 40 mils (35 mils minimum) ceramic epoxy
   4. Nominal 40 mils (35 mils minimum) fusion bonded epoxy

D. Exterior Protection: Provide polyethylene wrapping of ductile-iron fittings.
E. Hydrostatic Tests: Hydrostatically test pressure rated pipe.

2.5 BENDS AND FITTINGS FOR PVC PRESSURE PIPE

A. Bends and Fittings: ANSI A 21.10 or ANSI A 21.53, ductile iron; ANSI A 21.11 single rubber gasket push-on type joint; minimum 150 psi pressure rating. Approved restrained joints, 250 200 psi, may be provided for up to 12 inches in diameter (water or sanitary).
B. Provide approved restrained joint fittings: Integral restrained joint fittings and pipe do not require secondary restraint.

PART 3 - EXECUTION

3.1 PROTECTION

A. Store pipe under cover out of direct sunlight and protect from excessive heat or harmful chemicals in accordance with manufacturer’s recommendations.

3.2 INSTALLATION

A. Conform to requirements for Water Lines, Gravity Sanitary Sewers, and Sanitary Sewer Force Mains, as applicable.
B. Install PVC pipe in accordance with Section 02317 - Excavation and Backfill for Utilities, ASTM D 2321 for Sewer Pipe, and manufacturer's recommendations.
C. Install PVC water service pipe to clear utility lines with minimum 6-inch separation, unless otherwise shown on Drawings:
D. Avoid imposing strains that will overstress or buckle pipe when lowering pipe into trench.
E. Hand shovel pipe bedding under pipe haunches and along sides of pipe barrel and compact to eliminate voids and ensure side support. Ensure barrel is fully supported along entire length of pipe, prior to backfilling.
F. For PVC pipe installed by trenchless methods, provide integral restrained joints and pull pipe through hole or casing. For PVC pipe pushed through hole or casing, provide approved bell insertion protection system.
G. Store PVC pipe under cover out of direct sunlight. Protect pipe from excessive heat or harmful chemicals. Prevent damage by crushing or piercing.
H. Allow PVC pipe to cool to ground temperature before backfilling when assembled out of trench to prevent pullout due to thermal contraction.
I. Pipe Assembly Procedures
    1. Do not remove gasket from pipe.
    2. Lay pipe by inserting spigot end into bell flush with the insertion line or as recommended by pipe manufacturer.

3. Do not assemble joint by swinging or stabbing.
4. Do not assemble joint using machinery or equipment such as backhoe bucket.
5. At no time shall spigot go past insertion line or homing mark. Continuously observe and check each homing mark for proper length, and install pipe with home mark visible.

3.3 PVC RESTRAINED MECHANISM

A. For low-profile coupling with spline-type joints:
   1. Do not apply lubricant to spline or pipe or coupling spline grooves.
   2. Do not use excessive force while inserting the spline through coupling.
   3. Insert spline until it is fully seated around circumference of pipe.

B. Field Cutting of Pipe Ends:
   1. Perform by workers certified by manufacturer.
   2. Use a PVC pipe cutter and provide square ends.
   3. Follow manufacturer's recommendation to disassemble restrained joint after it has been locked in place.
   4. For low-profile coupling with spline-type joints, use manufacturer approved power routing and grooving tool to field fabricate required pipe groove.

END OF SECTION

SECTION 02510
POLYPROPYLENE (HPP) CORRUGATED WALL PIPE

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes requirements for Polypropylene (HPP) pipe for gravity sewers and drains, including fittings and appurtenances.

1.2 MEASUREMENT AND PAYMENT

A. Measurement and payment is as noted on the Unit Price Schedule.
B. Refer to Section 01270 – Measurement and Payment for unit price procedures.

1.3 REFERENCES

A. AASHTO M330 Polypropylene Pipe, 300- to 1500-mm (12- to 60-in.) Diameter.
B. ASTM F 2881-Standard Specification for 12 to 60 in. [300 to 1500 mm] Polypropylene (HPP) Dual Wall Pipe a.11d Fittings for Non-Pressure Storm Sewer Applications.
C. ASTM F 2736- Standard Specification for 6 to 30 in. (152 to 762 mm) Polypropylene (HPP) Corrugated Single Wall Pipe and Double Wall Pipe.
D. ASTM F 2764 Standard Specification for 30 to 60 in. [750 to 1500 mm] Polypropylene (HPP) Triple Wall Pipe and Fittings for Non-Pressure Sanitary Sewer Applications.
E. ASTM D 2321 - Standard Recommended Practice for Underground Installation of Flexible Thermoplastic Pipe.
F. ASTM D 3212- Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals
G. ASTM F 477- Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.

1.4 SUBMITTALS

A. Refer to Section 01330 - Submittal Procedures.
B. Provide manufacturer's product specification and certification that pipe was manufactured in compliance with standards referenced in this Section.

PART 2 PRODUCTS

A. Install pipe in accordance with the manufacturers recommended

installation procedure and ASTM D 2321

2.1 GENERAL

A. Furnish corrugated-wall gravity sanitary sewer pipe with bell-and-spigot end construction conforming to ASTM D 3212. Joining will be accomplished with dual elastomeric gaskets in accordance with manufacturer's recommendations. Use integral bell-and-spigot gasketed joint designed so that when assembled, elastomeric gasket, contained in machined groove on pipe spigot, is compressed radially in pipe bell to form a positive seal. Design joint to avoid displacement of gasket when installed in accordance with manufacturer's recommendations.

B. Furnish corrugated-wall polypropylene (CPP) pipe for gravity storm sewer and storm sewer culvert pipe. Joints shall be installed such that connection of pipe sections will form continuous line free from irregularities in flow line. Suitable joints are:
   1. Integral Bell and Spigot with dual elastomeric gaskets. Bell shall overlap minimum of two corrugations of spigot end when fully engaged.

C. Jointing:
   1. Gaskets:
      a. Meet requirements of ASTM F 477. Use gasket molded into circular form or extruded to proper section and then spliced into circular form. When no contaminant is identified, use gaskets of properly cured, high-grade elastomeric compound. Basic polymer shall be natural rubber, synthetic elastomer, or blend of both.
      b. **PP** Pipes are Not allowed to be installed in potentially contaminated areas, unless approved by the Engineer.

CONTAMINANT	**GASKET MATERIAL REQUIRED**
Petroleum (diesel, gasoline)	Nitrile Rubber
Other Contaminants	As recommended by pipe manufacturer

   2. Lubricant. Use lubricant for assembly of gasketed joints which has no detrimental effect on gasket or on pipe, in accordance with manufacturer's recommendations.
   3. Diameters 12- through 60-inch shall have a reinforced bell with a polymer composite band installed by the manufacturer.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install pipe in accordance with the manufacturer’s recommended

installation procedures and Section 02631 – Storm Sewers and Outfalls.

B. Install pipe in accordance with the manufacturers recommended installation procedure and ASTM D 2321
C. PP pipe is not approved in applications requiring augering of pipe.
D. Bedding and backfill: Conform to requirements of Section 02317 - Excavation and Backfill for Utilities.
E. Use only workmen trained in the installation of PP Pipe.
F. Cutting pipe: Comply with pipe manufacturer's recommendations. After cutting, leave end pipe in accordance with manufacturer's recommendations.

END OF SECTION

SECTION 02611
REINFORCED CONCRETE PIPE

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes requirements for reinforced concrete pipe.

1.2 MEASUREMENT AND PAYMENT

A. Measurement and payment is as noted on the Unit Price Schedule.
B. Refer to Section 01270 – Measurement and Payment for unit price procedures.

1.3 REFERENCES

A. ASTM A 506 – Reinforced Concrete Arch Culvert, Storm Drain, and Sewer Pipe.
B. ASTM A 507 – Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe.
C. ASTM C 76 – Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.
D. ASTM C 443 – Joints for Concrete Pipe and Manholes, Using Rubber Gaskets.
E. ASTM C 655 – Reinforced Concrete D-Load Culvert, Storm Drain, and Sewer Pipe.
F. ASTM C 877 – External Sealing Bands for Non-circular Concrete Sewer, Storm Drain, and Culvert Pipe.

1.4 SUBMITTALS

A. Refer to Section 01330 – Submittal Procedures.
B. Submit for approval, Shop Drawings and data on piping, fittings, gaskets and appurtenances. Indicate conformance to appropriate reference standards using Certificate of Compliance.
C. Submit manufacturer's literature for product specified including materials, sizes, flow carrying capacity and installation procedures.

PART 2 – PRODUCTS

2.1 REINFORCED CONCRETE PIPE

A. Provide circular reinforced concrete pipe in accordance with the requirements of ASTM C 76 for Class III wall thickness. Provide joints comprised of rubber gaskets conforming to ASTM C 443.

B. Provide reinforced concrete arch pipe in accordance with the requirements of ASTM C 506 for Class A-III. Provide joints comprised of rubber gaskets conforming to ASTM C 877.
C. Provide reinforced concrete elliptical pipe, either vertical or horizontal, in accordance with the requirements of ASTM C 507 for Class VE-III for vertical or Class HE-III for horizontal. Provide joints comprised of rubber gaskets conforming to ASTM C 877.
D. Provide reinforced concrete D-load pipe in accordance with the requirements of ASTM C 655.

PART 3 – EXECUTION

3.1 EXCAVATION AND INSTALLATION

A. Excavate in accordance with the requirements of Section 02316 – Structural Excavating and Backfilling.
B. Install as shown on the Plans or in accordance with the requirements of Section 02631 – Storm Sewers and Outfalls.

END OF SECTION

SECTION 02630
CONCRETE MANHOLES

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes requirements for storm sewer cast-in-place and precast concrete manholes.

1.2 **MEASUREMENT** AND PAYMENT

A. Measurement and payment is as noted on the Unit Price Schedule.
B. Refer to Section 01270 – Measurement and Payment for unit price procedures.
C. Frames, grates, rings, covers, pipe connections, stubs and stub plugs and sealant materials are incidental to the structure and shall not be measured separately.

1.3 REFERENCES

A. AASHTO - Standard Specifications for Highway Bridges.
B. ASTM C 270 – Mortar for Unit Masonry.
C. ASTM C 443 – Joints for Concrete Pipe and Manholes, Using Rubber Gaskets.
D. ASTM C 478 – Precast Reinforced Concrete Manhole Sections.
E. ASTM C 1107 – Packaged Dry, Hydraulic - Cement Grout (Nonshrink).

1.4 SUBMITTALS

A. Refer to Section 01330 – Submittal Procedures.
B. Submit for approval, Shop Drawings and data on manhole sections, base units and construction details, including reinforcement, jointing methods, frames, grates, rings, and covers, materials and dimensions. Indicate conformance to appropriate reference standards using Certificate of Compliance.
C. Submit manufacturer's literature for product specifications including materials, dimensions and installation procedures.

PART 2 – PRODUCTS

1.5 PRECAST CONCRETE MANHOLES

A. Precast concrete manhole sections shall conform to ASTM C 478 in which design is based on AASHTO HS 20 vehicle loading unless otherwise indicated on the Plans.

B. Provide joints between sections with “o”-ring gaskets conforming to ASTM C 443.
C. When base is cast monolithic with portion of vertical section, extend reinforcing in vertical section into base.
D. Precast Concrete Base: Provide suitable cutouts or holes to receive pipe and connections.

2.1 CONCRETE

A. Refer to Section 03310 – Concrete.
B. Precast Manholes.
   1. Channel Inverts: Use structural concrete for inverts not integrally formed with manhole base.
   2. Cement Stabilized Sand Foundation: Provide cement stabilized sand foundation under base section. Refer to Section 02321 – Cement Stabilized Sand.
   3. Concrete Foundation: Provide structural concrete for concrete foundation slab under manhole base section where indicated on Plans.
C. Cast-in-Place and Concrete Brick Manholes.
   1. Use concrete conforming to the requirements of Section 03310 – Concrete unless otherwise shown on the Plans or approved by the Engineer.

2.2 REINFORCING STEEL

A. Refer to Section 03310 – Concrete.

2.3 MORTAR

A. Conform to requirements of ASTM C 270, Type S using Portland cement.

2.4 MISCELLANEOUS METALS

A. Provide cast-iron frames, grates, rings and covers as shown on the Plans.

2.5 PIPE CONNECTIONS TO MANHOLES

A. Storm sewer pipe connection is line pipe grouted in place with mortar.

2.6 SEALANT MATERIALS

A. Provide sealing materials between precast concrete adjustment ring and manhole cover frame, such as Adeka Ultraseal P201 or approved equal.
B. Provide butyl sealant, such as Press-Seal EZ Stick or approved equal, for HDPE rings.

C. Provide nonshrink cement based grout requiring only addition of water conforming to ASTM C 1107.

2.7 BACKFILL MATERIALS

A. Refer to Section 02316 – Structural Excavating and Backfilling.

PART 3 – EXECUTION

3.1 EXCAVATION AND INSTALLATION

A. Excavate in accordance with the requirements of Section 02316 – Structural Excavating and Backfilling.
B. Install as shown on the Plans or in accordance with the requirements of Section 02631 – Storm Sewers and Outfalls.

END OF SECTION

SECTION 02632
CAST-IN-PLACE MANHOLES, INLETS, HEADWALLS AND WINGWALLS

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes requirements for cast-in-place inlets for storm sewers or outfalls, including all appurtenances, and cast-in-place headwalls and wingwalls.

1.2 MEASUREMENT AND PAYMENT

A. Measurement and payment is as noted on the Unit Price Schedule.
B. Refer to Section 01270 – Measurement and Payment for unit price procedures.
C. Handrails are incidental to the structure and shall not be measured separately.

1.3 REFERENCE

A. ASTM C 270 – Mortar for Unit Masonry.
B. ASME B 16.1 - Cast Iron Pipe Flanges and Flanged Fittings.
C. ASTM A 307 - Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile.
D. ASTM C 923 - Standard Specifications for Resilient Connectors Between Reinforced Concrete Manhole Structures and Pipes.
E. ASTM C 1107 - Standard Specification for Packaged Dry, Hydraulic - Cement Grout (Non- shrink).
F. ASTM D 698 - Standard Test Method for Laboratory Compaction Characteristics of Soil
G. Using Standard Effort (12,400 ft-lb/ft3).
H. ASTM D 2665 - Standard Specification for Poly Vinyl Chloride (PVC) Plastic Drain, Waste and Vent Pipe, and Fittings.
I. ASTM D 2996 - Standard Specification for Filament-wound Fiberglass (Glass-Fiber- Reinforced Thermosetting-Resin) Pipe.
J. ASTM D 2997 - Standard Specification for Centrifugally Cast Fiberglass (Glass-Fiber- Reinforced Thermosetting-Resin) Pipe.
K. ASTM F 2306 – Standard Specification for 12 to 60 in. [300 to 1500 mm] Corrugated profile
L. – Wall Polyethylene (PE) Pipe Fittings for Gravity-Flow Storm Sewer and Subsurface Drainage Applications.
M. ASTM F 2510 – Standard Specification for Resilient Connectors Between Concrete Manhole Structures and Corrugated High-Density Polyethylene Drainage Pipes.
N. AWWA C 213 - Standard for Fusion Bonded Epoxy Coating for Interior

and Exterior of Steel Water Pipelines.

1.4 SUBMITTALS

A. Refer to Section 01330 – Submittal Procedures.
B. Submit proposed design mix and test data for each type and strength of concrete.
C. Submit Shop Drawing for approval of design and construction details for cast-in-place units which differ from units shown on the Plans.
D. Submit manufacturer's data and details of following items for approval:
    1. Frames, grates, rings, and covers.
    2. Materials to be used in fabricating drop connections.
    3. Materials to be used for pipe connections at manhole walls.
    4. Materials to be used for stubs and stub plugs.
    5. Plugs to be used for sanitary sewer hydrostatic testing.
    6. Installation instructions for forms

PART 2 – PRODUCTS

2.1 CONCRETE

A. Cast-in-Place Concrete or Concrete Brick: structural concrete conforming to requirements of Section 03310 – Concrete, unless otherwise indicated on the Plans or approved by the Engineer.
B. Provide Class A concrete with minimum compressive strength of 4000 psi unless otherwise indicated on Drawings.

2.2 REINFORCING STEEL

A. Refer to Section 03310 – Concrete.

2.3 MORTAR

A. Provide mortar conforming to requirements of ASTM C 270, TYPE S using Portland Cement or as shown on the Plans.

2.4 MISCELLANEOUS METALS

A. Provide cast iron frames, grates, rings, covers and handrails conforming to the Plans.

PART 3 – EXECUTION

3.1 MANHOLES

A. Construct manholes to dimensions shown on Drawings. Commence construction as soon as possible after pipes are laid. On monolithic sewers, construct manholes at same time sewer is being constructed.
B. Unstable Subgrade Treatment: When unstable subgrade is encountered, notify the Engineer for examination of subgrade to determine if subgrade has heaved upwards after being excavated. When heaving has not occurred, over-excavate subgrade to allow for 24- inch-thick layer of crushed stone wrapped in filter fabric as foundation material under manhole base. When there is evidence of heaving, provide pile-supported concrete foundation, as detailed on Drawings, under manhole base.
C. Cast manhole foundations and walls monolithically. Use cold joint with approved water stop when manhole flow line depth exceeds 12 feet. No other joints will be allowed unless shown on Drawings. Wrap cold joints with external sealing material, minimum 6-inch with.
D. For concrete containing micro silica admixtures, place, finish, and cure concrete for manholes following procedures in Section 03315 - Concrete for Utility Construction
E. Top of manhole elevations shown on Drawings are approximate, based on current pavement and natural ground conditions as determined from elevations measured on 50-foot spacing. No additional payment will be made if final elevation of manhole ring and cover is higher or lower due to requirements of finished grade or replaced pavement surface.
F. For water lines place concrete for manhole base on 12” thick (minimum) foundation of cement stabilized sand. Compact cement stabilized sand in accordance with requirements of 02321 – Cement Stabilized Sand.
G. For manholes located over large diameter water lines, place base on a foundation of cement stabilized sand extending from bottom of manhole to bottom of trench. Manhole base is to be a minimum of 12-inches above water line.

3.2 EXCAVATION AND INSTALLATION

A. Excavate in accordance with the requirements of Section 02316 – Structural Excavating and Backfilling.
B. Install as shown on the Plans or in accordance with the requirements of Section 02631 – Storm Sewers and Outfalls.

END OF SECTION

SECTION 02758
RETROREFLECTORIZED PAVEMENT MARKINGS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Furnish and place retroreflectorized, non-retroreflectorized (shadow) and profile pavement markings

1.2 MEASUREMENT AND PAYMENT

A. Measurement and payment is as noted on the Unit Price Schedule.
B. Refer to Section 01270 – Measurement and Payment for unit price procedures.

1.3 REFERENCES

A. TxDOT Departmental Materials Specification – 8200, “Traffic Paint”.
B. TxDOT Departmental Materials Specification – 8220, “Hot Applied Thermoplastic”.
C. TxDOT Departmental Materials Specification – 8290, “Glass Traffic Beads”.

1.4 SUBMITTALS

A. Conform to requirements of Section 01330 - Submittal Procedures.

PART 2 - PRODUCTS

2.1 TYPE I MARKING MATERIALS

A. Furnish pavement markings material used for Type I profile markings and shadow markings that have been approved and in accordance with TxDOT DMS – 8220.

2.2 TYPE II MARKING MATERIALS

A. Furnish in accordance with TxDOT DMS – 8200.

2.3 GLASS TRAFFIC BEADS

A. Furnish drop-on glass beads in accordance with TxDOT DMS – 8290 or as approved. Furnish a double-drop of Type II and Type III drop-on glass beads where each type bead is applied separately in equal portions (by weight), unless otherwise approved. Apply the Type III beads before applying the Type II beads.

2.4 LABELING

A. Use clearly marked containers that indicate color, mass, material type, manufacturer, and batch number.

PART 3 - EXECUTION

3.1 EQUIPMENT

A. Use equipment that:
   1. Is maintained in satisfactory condition.
   2. Meets or exceeds the requirements of the National Board of Fire Underwriters and the Texas Railroad Commission for this application.
   3. Applies beads by an automatic bead dispenser attached to the pavement marking equipment in such a manner that the beads are dispensed uniformly and almost instantly upon the marking as the marking is being applied to the road surface. The bead dispenser must have an automatic cut-off control, synchronized with the cut-off of the pavement marking equipment.
   4. Has an automatic cut off device with manual operating capabilities to provide clean, square marking ends.
   5. Is capable of producing the types and shapes of profiles specified.
   6. Can provide continuous mixing and agitation of the pavement marking material. The use of pans, aprons, or similar appliances which the die overruns will not be permitted for longitudinal striping applications.

B. Provide a hand-held thermometer capable of measuring the temperature of the marking material when applying Type I material.

3.2 MATERIAL PLACEMENT REQUIREMENTS

A. Use equipment that can place:
   1. At least 40,000 ft. of 4 in. solid or broken non profile markings per working day at the specified thickness;
   2. at least 15,000 ft. of solid or broken profile pavement markings per working day at the specified thickness;
   3. linear non-profile markings up to 8 in. wide in a single pass;
   4. non-profile pavement markings other than solid or broken lines at an approved production rate;
   5. a centerline and no-passing barrier-line configuration consisting of 1 broken line and 2 solid lines at the same time to the alignment, spacing, and thickness for non-profile pavement markings shown on the plans;
   6. solid and broken lines simultaneously;
   7. white line from both sides;
   8. lines with clean edges, uniform cross section with a tolerance of ±1/8 in. per 4 in. width, uniform thickness, and reasonably square ends;
   9. skip lines between 10 and 10 1/2 ft., a stripe-to-gap ratio of 10 to 30, and a stripe-gap cycle between 39 1/2 ft. and 40 1/2 ft., automatically;

10. beads uniformly and almost instantly on the marking as the marking is being applied;
11. beads uniformly during the application of all lines (each line must have an equivalent bead yield rate and embedment); and
12. double-drop bead applications using both Type II and Type III beads from separate independent bead applicators, unless otherwise approved by the Engineer.

3.3 CONSTRUCTION

A. Place markings before opening to traffic unless short-term or work zone markings are allowed.
B. Obtain approval for the sequence of work and estimated daily production. Minimize interference to roadway operations when placing markings on roadways open to traffic. Use traffic control as shown on the plans or as approved. Protect all markings placed under open-traffic conditions from traffic damage and disfigurement.
C. Establish guides to mark the lateral location of pavement markings as shown on the plans or as directed, and have guide locations verified. Use material for guides that will not leave a permanent mark on the roadway.
D. Apply markings on pavement that is completely dry and passes the following tests:
    1. Type I Marking Application: Place a sample of Type I marking material on a piece of tarpaper placed on the pavement. Allow the material to cool to ambient temperature, and then inspect the underside of the tarpaper in contact with the pavement. Pavement will be considered dry if there is no condensation on the tarpaper.
    2. Type II Marking Application: Place a 1-sq. ft. piece of clear plastic on the pavement, and weight down the edges. The pavement is considered dry if, when inspected after 15 min., no condensation has occurred on the underside of the plastic.
E. Apply markings:
    1. That meet requirement of TEX-828-B,
    2. that meet minimum retroreflectivity requirements when specified on the plans (applies to Type I markings only),
    3. using widths and colors shown on the plans,
    4. at locations shown on the plans,
    5. in proper alignment with the guides without deviating from the alignment more than 1 in. per 200 ft. of roadway or more than 2 in. maximum,
    6. without abrupt deviations,
    7. free of blisters and with no more than 5% by area of holes or voids,
    8. with uniform cross section, density and thickness,
    9. with clean and reasonably square ends,
    10. that are retroreflectorized with drop-on glass beads, and
    11. using personnel skilled and experienced with installation of pavement markings.
F. Remove all applied markings that are not in alignment or sequence as

stated on the plans.

3.4 SURFACE PREPARATION

A. Prepare surfaces in accordance with this Section unless otherwise shown on the plans.
B. Cleaning for New Asphalt Surfaces and Retracing of All Surfaces. Air blast or broom the pavement surface for new asphalt surfaces (less than 3 years old) and for retracing of all surfaces to remove loose material, unless otherwise shown on the plans. A sealer for Type I markings is not required unless otherwise shown on the plans.
C. Cleaning for Old Asphalt and Concrete Surfaces (Excludes Retracing). Clean old asphalt surfaces (more than 3 years old) and all concrete surfaces in accordance with Item 678, “Pavement Surface Preparation for Markings,” to remove curing membrane, dirt, grease, loose and flaking existing construction markings, and other forms of contamination.
D. Sealer for Type I Markings. Apply a pavement sealer to old asphalt surfaces (more than 3 years old) and to all concrete surfaces before placing Type I markings on locations that do not have existing markings, unless otherwise approved. The pavement sealer may be either a Type II marking or an acrylic or epoxy sealer as recommended by the Type I marking manufacturer unless otherwise shown on the plans. Follow the manufacturer’s directions for application of acrylic or epoxy sealers. Clean sealer that becomes dirty after placement by washing. Place the sealer in the same configuration and color (unless clear) as the Type I markings unless otherwise shown on the plans.

3.5 APPLICATION

A. Apply markings during good weather unless otherwise directed. If markings are placed at Contractor option when inclement weather is impending and the markings are damaged by subsequent precipitation, the Contractor is responsible for all required replacement costs.
B. Place the Type I marking after the sealer cures. Apply within the temperature limits recommended by the material manufacturer. Flush the spray head if spray application operations cease for 5 min or longer by spraying marking material into a pan or similar container until the material being applied is at the recommended temperature.
C. Apply on clean, dry pavements passing the moisture test described and with a surface temperature above 50°F when measured in accordance with Tex-829-B.
D. Non Profile Pavement Markings. Apply Type I non-profile markings with a minimum thickness of:
    1. 0.100 inch for new markings and retracing water-based markings on surface treatments involving seal coats,
    2. 0.060 inch for retracing on thermoplastic pavement markings, or
    3. 0.090 inch for all other Type I markings.

E. Maximum thickness for Type I non profile markings is 0.180 inch. Measure thickness for markings in accordance with Tex-854-B using the tape method.
F. Profile pavement markings, apply Type I with a minimum thickness of:
   1. 0.060 inch for edgeline markings, or
   2. 0.090 inch for gore and centerline/no-passing barrier line markings.
G. In addition, at a longitudinal spacing indicated on the plans, the markings must be profiled in a vertical manner such that the profile is transverse to the longitudinal marking direction. The profile must not be less than 0.30 in. (300 mil) nor greater than 0.50 in. (500 mil) in height when measured above the normal top surface plane of the roadway. The transverse width of the profile must not be less than 3.25 in., and the longitudinal width not less than 1 in., when measured at the top surface plane of the profile bar. The profile may be either a 1 or 2 transverse bar profile. When the 2 transverse bar profile is used, the spacing between the bases of the profile bars must not exceed 0.50 in. The above transverse bar width is for each 4 in. of line width.
H. Type II Markings: Apply on surfaces with a minimum surface temperature of 50°F. Apply at least 20 gal. per mile on concrete and asphalt surfaces and at least 22 gal. per mile on surface treatments for a solid 4-in. line. Adjust application rates proportionally for other widths. When Type II markings are used as a sealer for Type I markings, apply at least 15 gal. per mile using Type II drop-on beads.
I. Bead Coverage, provide a uniform distribution of beads across the surface of the stripe for Type I and Type II markings, with 40% to 60% bead embedment.

3.6 RETROREFLECTIVITY REQUIREMENTS

A. When specified on the plans, Type I markings must meet the following minimum retroreflectivity values for edgeline markings, centerline or no passing barrier-line, and lane lines when measured any time after 3 days, but not later than 10 days after application:
   1. White markings: 250 millicandelas per square meter per lux (mcd/m2/lx)
   2. Yellow markings: 175 mcd/m2/lx

3.7 RETROREFLECTIVITY MEASUREMENTS

A. Use a mobile retroreflectometer for projects requiring minimum retroreflectivity requirements to measure retroreflectivity for Contracts totaling more than 200,000 ft. of pavement markings, unless otherwise shown on the plans. For Contracts with less than 200,000 ft. of pavement markings or Contracts with callout work, mobile or portable retroreflectometers may be used at the Contractor’s discretion.

3.8 MOBILE RETROREFLECTIVITY MEASUREMENTS

A. Provide mobile measurements averages for every 0.1 miles unless otherwise specified or approved. Take measurements on each section of roadway for each series of markings (i.e., edgeline, center skip line, each line of a double line, etc.) and for each direction of traffic flow. Measure each line in both directions for centerlines on two-way roadways (i.e., measure both double solid lines in both directions and measure all center skip lines in both directions). Furnish measurements in compliance with Special Specification, “Mobile Retroreflectivity Data Collection for Pavement Markings,” unless otherwise approved. The Engineer may require an occasional field comparison check with a portable retroreflectometer meeting the requirements listed above to ensure accuracy. Use all equipment in accordance with the manufacturer’s recommendations and directions. Inform the Engineer at least 24 hr. before taking any measurements.

B. A marking meets the retro reflectivity requirements if:
   1. the combined average retroreflectivity measurement for a one mile segment meets the minimum retroreflectivity values specified, and
   2. no more than 30% of the retroreflectivity measurement values are below the minimum retroreflectivity requirements value within the one mile segment.

C. The Engineer may accept failing one mile segments if no more than 20% of the retroreflectivity measurements within that mile segment are below the minimum retroreflectivity requirement value.

D. The one-mile segment will start from the beginning of the data collection and end after a mile worth of measurements have been taken; each subsequent mile of measurements will be a new segment. Centerlines with 2 stripes (either solid or broken) will result in 2 miles of data for each mile segment. Each centerline stripe must be tested for compliance as a stand-alone stripe.

E. Restripe at the Contractor's expense with a minimum of 0.060 in. (60 mils) of Type I marking if the marking fails retroreflectivity requirements. Take measurements every 0.1 miles a minimum of 10 days after this second application within that mile segment for that series of markings.

F. If the markings do not meet minimum retroreflectivity after 10 days of this second application, the Engineer may require removal of all existing markings, a new application as initially specified, and a repeat of the application process until minimum retroreflectivity requirements are met.

3.9 PORTABLE RETROREFLECTOMETER MEASUREMENTS

A. Take a minimum of 20 measurements for each 1-mi. section of roadway for each series of markings (i.e., edgeline, center skip line, each line of a double line, etc.) and direction of traffic flow when using a portable reflectometer. Measure each line in both directions for centerlines on two-way roadways (i.e., measure both double solid lines in both directions and

measure all center skip lines in both directions). The spacing between each measurement must be at least 100 ft. The Engineer may decrease the mileage frequency for measurements if the previous measurements provide satisfactory results. The Engineer may require the original number of measurements if concerns arise.

B. Restripe once at the Contractor's expense with a minimum of 0.060 in. (60 mils) of Type I marking material if the average of these measurements fails. Take a minimum of 10 more measurements after 10 days of this second application within that mile segment for that series of markings. Restripe again at the Contractor's expense with a minimum of 0.060 in. (60 mils) of Type I marking material if the average of these measurements fall below the minimum retroreflectivity requirements. If the markings do not meet minimum retroreflectivity after this third application, the Engineer may require removal of all existing markings, a new application as initially specified, and a repeat of the application process until minimum retroreflectivity requirements are met.

3.10 TRAFFIC CONTROL

A. Provide traffic control, as required, when taking retroreflectivity measurements after marking application. On low volume roadways (as defined on the plans), refer to the figure, “Temporary Road Closure” in Part 6 of the *Texas Manual on Uniform Traffic Control Devices* for the minimum traffic control requirements. For all other roadways, the minimum traffic control requirements will be as shown on the Traffic Control Plan (TCP) standard sheets TCP (3-1) and TCP (3-2). The lead vehicle will not be required on divided highways. The TCP and traffic control devices must meet the requirements for barricades, signs and traffic handling. Time restrictions that apply during striping application will also apply during the retroreflectivity inspections except when using the mobile retroreflectometer unless otherwise shown on the plans or approved.

3.11 PERFORMANCE PERIOD

A. All markings must meet the requirements of this specification for at least 30 calendar days after installation. Unless otherwise directed, remove pavement markings that fail to meet requirements, and replace at the Contractor’s expense. Replace failing markings within 30 days of notification. All replacement markings must also meet all requirements of this Item for a minimum of 30 calendar days after installation.

END OF SECTION

SECTION 02775
CONCRETE SIDEWALKS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Reinforced concrete sidewalks.
B. Wheelchair ramps.
C. Reinforced slope paving.

1.2 MEASUREMENT AND PAYMENT

A. Where there is not a separate item listed on the Unit Price Schedule for work in this Section, no separate measurement and payment are made. Include cost for work under this Section in the related item listed on the Unit Price Schedule.
B. Where an item is listed on the Unit Price Schedule, Measurement and Payment is as noted on the Unit Price Schedule.
C. Refer to Section 01270 – Measurement and Payment for unit price procedures.

1.3 REFERENCES

A. ASTM C 31 - Standard Practice for Making and Curing Concrete Test Specimens in Field.
B. ASTM C 39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
C. ASTM C 42 - Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
D. ASTM C 138 - Standard Test Method for Unit Weight, Yield, and Air Content (Gravimetric) of Concrete.
E. ASTM C 143 - Standard Test Method for Slump of Hydraulic Cement Concrete.
F. ASTM C 172 - Standard Practice for Sampling Freshly Mixed Concrete.
G. ASTM D 698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3).
H. Texas Accessibility Standards of Architectural Barriers Act, Article 9102, Texas Civil Statues.

1.4 SUBMITTALS

A. Conform to requirements of Section 01330 - Submittal Procedures.
B. Submit certified testing results and certificates of compliance.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Forms: Use straight, unwarped wood or metal forms with nominal depth equal to or greater than proposed sidewalk thickness. The use of 2 inch by 4-inch lumber as forms will not be allowed.
B. Sand Bed: Conform to material requirements for bank run sand of Section 02320 - Utility Backfill Materials.
C. Sodding: Conform to material requirements for sodding of Section 02922 - Sodding.

PART 3 - EXECUTION

3.1 REPLACEMENT

A. Replace sidewalks and slope paving which are removed or damaged during construction with thickness and width equivalent to one removed or damaged, unless otherwise shown on Drawings. Finish surface (exposed aggregate, brick pavers, etc.) to match existing sidewalk.
B. Provide replaced and new sidewalks with wheelchair ramps when sidewalk intersects curb at street or driveway.

3.2 PREPARATION

A. Identify and protect utilities which are to remain.
B. Protect living trees, other plant growth, and features designated to remain.
C. Conduct clearing and grubbing operations in accordance with Section 02233 - Clearing and Grubbing.
D. Excavate subgrade 6 inches beyond outside lines of sidewalk. Shape to line, grade and cross section. For soils with plasticity index above 40 percent, stabilize soil with lime in accordance with Section 02336 – Lime-Stabilized Subgrade. Compact subgrade to minimum of 90 percent maximum dry density at optimum to 3 percent above optimum moisture content, as determined by ASTM D 698.
E. Immediately after subgrade is prepared, cover with compacted sand bed to depth as shown on Drawings. Lay concrete when sand is moist but not saturated.

3.3 PLACEMENT

A. Setting Forms: Straight, unwarped wood or metal forms with nominal depth equal to or greater than proposed sidewalk thickness. Use of 2 by 4's as forms will not be allowed. Securely stake forms to line and grade. Maintain position during concrete placement.
B. Reinforcement:

1. Install reinforcing bars.
2. Install reinforcing steel as shown on the drawings. Lay longitudinal bars in walk continuously, except through expansion joints.
3. Use sufficient number of chairs to support reinforcement in manner to maintain reinforcement in center of slab vertically during placement.
4. Drill dowels into existing paving, sidewalk and driveways, secure with epoxy, and provide headers as required.
5. Use sufficient number of chairs for steel reinforcement bars to maintain position of bars within allowable tolerances. Place reinforcement as shown on Drawings. In plane of steel parallel to nearest surface of concrete, bars shall not vary from plan placement by more than 1/12 of spacing between bars. In plane of steel perpendicular to nearest surface of concrete, bars shall not vary from plan placement by more than 1/4 inch.

C. Expansion Joints: Install expansion joints with load transfer.
D. Place concrete in forms to specified depth and tamp thoroughly with "jitterbug" tamp, or other acceptable method. Bring mortar to surface.
E. Strike off to smooth finish with wood strike board. Finish smoothly with wood hand float. Brush across sidewalk lightly with fine-haired brush.
F. Unless otherwise indicated on Drawings, mark off sidewalk joints 1/8-inch-deep, at spacing equal to width of walk. Use joint tool equal in width to edging tool.
G. Finish edges with tool having 1/4-inch radius.
H. After concrete has set sufficiently, refill space along sides of sidewalk to one-inch from top of walk with suitable material. Tamp until firm and solid, place sod as applicable. Dispose of excess material in accordance with Section 02120 - Waste Material Disposal. Repair driveways and parking lots damaged by sidewalk excavation.

3.4 CURING

A. Conform to requirements of Section 02753 - Concrete Pavement Curing.

3.5 FIELD QUALITY CONTROL

A. Testing will be performed
B. Compressive Strength Test Specimens: Four test specimens for compressive strength test will be made in accordance with ASTM C 31 for each 30 cubic yards or less of sidewalk that is placed in one day. Two specimens will be tested at 7 days. Remaining two specimens will be tested at 28 days. Specimens will be tested in accordance with ASTM C 39. Minimum compressive strength: 3000 psi at 7 days and 3500 psi at 28 days.
C. Yield test for cement content per cubic yard of concrete will be made in accordance with ASTM C 138. When cement content is found to be less than that specified per cubic yard, reduce batch weights until amount of cement per cubic yard of concrete conforms to requirements.

D. If the Contractor places concrete without notifying the laboratory, the Engineer will have the concrete tested by means of core test as specified in ASTM C 42. When concrete does not meet specification, cost of test will be deducted from payment.
E. Sampling of fresh concrete shall be in accordance with ASTM C 172.
F. Take slump tests when cylinders are made and when concrete slump appears excessive.
G. Concrete shall be acceptable when average of two 28-day compression tests is equal to or greater than minimum 28-day strength specified.
H. If either of two tests on field samples is less than average of two tests by more than 10 percent, that entire test shall be considered erratic and not indicative of concrete strength. Core samples will be required of in-place concrete in question.
I. If 28 day laboratory test indicates that concrete of low strength has been placed, test concrete in question by taking cores as directed by the Engineer. Take and test at least three representative cores as specified in ASTM C 42 and deduct cost from payment due.

3.6 NONCONFORMING CONCRETE

A. Remove and replace areas that fail compressive strength tests, with concrete of thickness shown on Drawings.
B. Replace nonconforming sections at no additional cost to the District.

3.7 PROTECTION

A. Maintain newly place concrete in good condition until completion of Work.
B. Replace damaged areas.

END OF SECTION

SECTION 02970
CHAIN LINK FENCE

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Furnishing and erecting a chain link fence, in conformity with details, lines and grades as shown on the drawings.

1.2 MEASUREMENT AND PAYMENT

A. Measurement and payment is as noted on the Unit Price Schedule.
B. Refer to Section 01270 – Measurement and Payment for unit price procedures.

1.3 REFERENCES

A. ASTM A120 – Pipe, steel, black and hot-dipped zinc-coated (galvanized) welded and seamless, for ordinary uses.
B. ASTM A121 – Zinc coated (galvanized) steel barbed wire.
C. ASTM A123 – Zinc (hot galvanized) coating on products fabricated from rolled, pressed and forged steel shapes, plates, bars and strip.
D. ASTM A153 – Zinc coated steel chain link fence fabric.
E. ASTM A392 – Zinc coated steel chain link fence fabric.
F. ASTM A491 – Aluminum coated steel chain link fence fabric.
G. ASTM A570 – Hot-rolled carbon steel sheet and strip structural quality.
H. ASTM A572 - High-strength low-alloy columbium-vanadium steels of structural quality.
I. ASTM A585 – Aluminum-coated steel barbed wire.
J. ASTM B211 – Aluminum-alloy bar, rod, and wire.
K. ASTM B221 – Aluminum-alloy extruded bars, rods, wire shapes and tubes.
L. RR-F-191/1 – Federal Specification Fencing, Wire, Post, and Metal.
M. RR-F-191/3 – Federal Specification Fencing, Wire, Post, and Metal.
N. RR-F-191/4 – Federal Specification Fencing, Wire, Post, and Metal.

1.4 SUBMITTALS

A. Conform to requirements of Section 01330 - Submittal Procedures.

PART 2 - PRODUCTS

2.1 MATERIAL

A. The fabric shall be woven with a 9-gauge galvanized steel wire in a 2-inch mesh and shall meet the requirements of ASTM A392, Class II.
B. Barbed wire shall be 3-strand 12 1/2-gauge zinc-coated wire with 4-point barbs and shall conform to the requirements of ASTM A121, Class 3.
C. Posts, rails, and braces furnished for use in conjunction with zinc-coated steel fabric. Line posts, rails, and braces shall be galvanized steel pipe.
    1. Galvanized steel pipe shall conform to the requirements of ASTM A120, Schedule 40, except the hydrostatic testing requirement is waived. Galvanizing shall be in accordance with ASTM A123.
    2. The steel used in all structural shapes shall conform to the requirements of ASTM A 572, Grade 45, and shall be galvanized in accordance with the requirements of ASTM A123.
    3. Roll-formed sections shall be fabricated from material meeting the requirements of ASTM A570, grade 45, and shall be galvanized in accordance with the requirements of ASTM A123.
    4. The dimensions of the posts, rails, and braces shall be in accordance with the Standard Detail in the plans.
D. Gate frames shall consist of galvanized steel pipe and conform to the specifications for the same material under Section 2.03. The fabric shall be of the same type material as used in the fence.
E. Wire fabric ties, and tension wire for use in conjunction with a given type of fabric shall be of the same material identified with the fabric type. The tension wire shall be 7-gauge coiled spring wire coated similarly to the respective wire fabric being used.
F. Wire fabric ties shall be hog rings of galvanized steel wire not less than 9 gauge.
G. All material shall conform to Federal Specifications RR-F-191/4.
H. Miscellaneous steel fittings and hardware for use with zinc-coated or aluminum-coated steel fabric shall be of commercial grade steel or better quality, wrought of cast as appropriate to the article, and sufficient in strength to provide a balanced design when used in conjunction with fabric, posts, and wires of the quality specified herein. All steel fittings and hardware shall be protected with a zinc coating applied in conformance with ASTM A153. Miscellaneous aluminum fittings for use with aluminum alloy fabric shall be wrought or cast aluminum alloy. Barbed wire support arms shall withstand a load of 250 pounds (113 kg) applied vertically to the outermost end of the arm.
I. Concrete shall be of a commercial grade with a minimum 28-day compressive strength of 2,500 psi.
J. Each roll of fabric shall carry a tag showing the kind of base metal (steel, aluminum, or aluminum alloy number), kind of coating, the gauge of the wire, the length of fencing in the roll, and the name of the manufacturer. Posts,

wire, and other fittings shall be identified as to manufacturer, kind of base metal (steel, aluminum, or aluminum alloy number), and kind of coating.

PART 3 - EXECUTION

3.1 CLEARING FENCE LINE

A. All trees, brush, stumps, logs, and other debris which would interfere with the proper construction of the fence in the required location shall be removed a minimum width of 2 feet (0.6m) on each side of the fence centerline before starting fencing operations. The material removed and disposed of shall not constitute a pay item and shall be considered incidental to fence operations.

3.2 INSTALLING POSTS

A. All posts shall be set in concrete at the required dimension and depth and at the spacing shown on the plans.
B. The concrete shall be thoroughly compacted around the posts by tamping or vibrating and shall have a smooth finish slightly higher than the ground and sloped to drain away from the posts.
C. All posts shall be set plumb and to the required grade and alignment. No materials shall be installed on the posts, nor shall the posts be disturbed in any manner within 7 days after the individual post footing is completed.
D. Should rock be encountered at a depth less than the planned footing depth, a hole 2 inches (50mm) larger than the greatest dimension of the posts shall be drilled to a depth of 12 inches (300mm). After the posts are set, the remainder of the drilled hole shall be filled with grout, composed of one part Portland cement and two parts mortar sand. Any remaining space above the rock shall be filled with concrete in the manner described above.
E. In lieu of drilling, the rock may be excavated to the required footing depth. No extra compensation shall be made for rock excavation.

3.3 INSTALLING TOP RAILS

A. The top rail shall be continuous and shall pass through the post tops. The coupling used to join the top rail lengths shall allow for expansion.

3.4 INSTALLING BRACES

A. Horizontal brace rails, with diagonal truss roads and turnbuckles, shall be installed at all terminal posts.

3.5 INSTALLING FABRIC

A. The wire fabric shall be firmly attached to the posts and braced in the manner shown on the plans. All wire shall be stretched taut and shall be installed to the required elevations. The fence shall generally follow the contour of the ground, with the bottom of the fence fabric no less than 1 inch (25mm) or more than 4 inches (100mm) from the ground surface. Grading shall be performed where necessary to provide a neat appearance.
B. At locations of small natural swales or drainage ditches and where it is not practical to have the fence conform to the general contour of the ground surface, longer posts may be used and multiple strands of barbed wire stretched thereon to span the opening below the fence. The vertical clearance between strands of barbed wire shall be 6 inches (150mm) or less.

3.6 ELECTRICAL GROUNDS:

A. Electrical grounds shall be constructed where a power line passes over the fence or at 500-foot (150mm) intervals. The ground shall be accomplished with a copper clad rod 8 feet (2.4m) long and a minimum of 5/8 inch (15mm) in diameter driven vertically until the top is 6 inches (150mm) below the ground surface. A No. 6 solid copper conductor shall be clamped to the rod and to the fence in such a manner that each element of the fence is grounded. Installation of ground rods shall not constitute a pay item and shall be considered incidental to fence construction.

END OF SECTION

SECTION 02976
SMALL ROADSIDE SIGN ASSEMBLIES

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes requirements for furnishing, fabricating and erecting small roadside signs assemblies.

1.2 MEASUREMENT AND PAYMENT

A. Measurement and payment is as noted on the Unit Price Schedule.
B. Refer to Section 01270 – Measurement and Payment for unit price procedures.

1.3 REFERENCES

A. TxDOT Item 656, “Foundations for Traffic Control Devices.”

1.4 SUBMITTALS

A. Refer to Section 01330 – Submittal Procedures.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Furnish all materials unless otherwise shown on the plans. Furnish only new materials. Furnish and fabricate materials that comply with the following details shown on the plans, TxDOT Standards.
B. Use galvanized steel, stainless steel, dichromate sealed aluminum, or other materials shown on the plans for pipe, bolts, nuts, washers, lock washers, screws, and other sign assembly hardware. When dissimilar metals are used, select or insulate metals to prevent corrosion.

PART 3 – EXECUTION

3.1 INSTALLATION

A. Construct foundations in accordance with TxDOT Item 656, “Foundations for Traffic Control Devices.” Plumb sign supports, and drawings on plans. Do not spring or rake posts to secure proper alignment. Use established safety practices when working near underground or overhead utilities. Consult the appropriate utility company before beginning work.

B. Verify the length of each post for each sign before fabrication to meet field conditions and sign-mounting heights shown on the plans.
C. Installation. Locate and install sign supports as shown on the plans, unless directed to shift the sign supports within design guidelines to secure a more desirable location or avoid conflict with utilities and underground appurtenances. Stake sign support locations for verification by the Engineer.
D. Install stub posts of the type, spacing, orientation, and projection shown on the plans. Remove and replace posts damaged during installation at the Contractor's expense.
E. Connect the upper post sections to the stub post sections as shown on the plans. Torque connection bolts as shown on the plans.
F. Attach signs to supports in accordance with the plans and pertinent Items.

3.2 RELOCATION

A. Reuse the existing signs as required unless otherwise shown on the plans. Furnish and install new stub posts in new foundations for relocated sign assemblies. Erect the new supports on the new stub posts and attach the existing signs to the supports in accordance with the plans and pertinent Items. Remove existing foundations to be abandoned in accordance with Item 02221.

3.3 REMOVAL

A. Remove abandoned concrete foundations to 2 ft. below finish grade unless otherwise shown on the plans. Cut off and remove steel protruding from the remaining concrete. Backfill the remaining hole with material equal in composition and density to the surrounding area. Replace any surfacing with like material to equivalent condition.

3.4 HANDLING AND STORAGE

A. Handle and store existing signs or portions of signs removed so they are not damaged. Prevent any damage to the various sign assembly components. Replace any portion of the sign damaged by the Contractor designated for reuse or salvage, including messages removed.
B. Stockpile all removed sign components that will be reused or become the property of the Department at designated locations. Accept ownership of unsalvageable materials, and dispose of them in accordance with federal, state, and local regulations.

3.5 CLEANING

A. Wash the entire sign after installation with a biodegradable cleaning solution acceptable to the sign face materials manufacturer to remove dirt, grease, oil smears, streaks, finger marks, and other foreign materials.

END OF SECTION

SECTION 03310
STRUCTURAL CONCRETE

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes requirements for cast-in-place concrete.

1.2 MEASUREMENT AND PAYMENT

A. Where there is not a separate item listed on the Unit Price Schedule for work in this Section, no separate measurement and payment are made. Include cost for work under this Section in the related item listed on the Unit Price Schedule.
B. Where an item is listed on the Unit Price Schedule, Measurement and Payment is as noted on the Unit Price Schedule.
C. Refer to Section 01270 – Measurement and Payment for unit price procedures.

1.3 REFERENCE

A. ACI 117 – Tolerances for Concrete Construction and Materials.
B. ACI 211.1 – Selecting Proportions for Normal, Heavyweight and Mass Concrete.
C. ACI 214.3R – Simplified Version of the Recommended Practice for Evaluation of Strength Test Results of Concrete.
D. ACI 302.1R – Concrete Floor and Slab Construction.
E. ACI 304R – Measuring, Mixing, Transporting, and Placing Concrete.
F. ACI 305R – Hot Weather Concreting.
G. ACI 308 – Curing Concrete.
H. ACI 309R – Consolidation of Concrete.
I. ACI 315 – Detailing Reinforced Concrete Structures.
J. ACI 318 – Building Code Requirements for Reinforced Concrete.
K. ASTM A 82 – Steel Wire, Plain, for Concrete Reinforcement.
L. ASTM A 185 – Steel Welded Wire Reinforcement, Plain, for Concrete.
M. ASTM A 615 – Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
N. ASTM A 767 – Zinc-coated (Galvanized) Bars for Concrete Reinforcement.
O. ASTM A 775 – Epoxy-Coated Steel Reinforcing Bars.
P. ASTM A 884 – Epoxy-Coated Steel Wire and Welded Wire Reinforcement.
Q. ASTM C 33 – Concrete Aggregates.
R. ASTM C 94 – Ready-Mixed Concrete.
S. ASTM C 138 – Unit Weight, Yield, and Air Content (Gravimetric) of Concrete.
T. ASTM C 143 – Slump of Hydraulic-Cement Concrete.

U. ASTM C 150 – Portland Cement.
V. ASTM C 172 – Sampling Freshly Mixed Concrete.
W. ASTM C 173 – Air Content of Freshly Mixed Concrete by Volumetric Method.
X. ASTM C 231 – Air Content of Freshly Mixed Concrete by Pressure Method.
Y. ASTM C 260 – Air-Entraining Admixtures for Concrete.
Z. ASTM C 309 – Liquid Membrane-Forming Compounds for Curing Concrete.
AA. ASTM C 494 – Chemical Admixtures for Concrete.
BB. ASTM C 595 – Blended Hydraulic Cements.
CC. ASTM C 685 – Concrete Made by Volumetric Batching and Continuous Mixing.
DD. ASTM C 1077 – Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation.
EE. CPMB-100 – Concrete Plant Standards, Part 2 – Plant Control Systems.
FF. CRSI – Placing Reinforcing Bars.
GG. CRSI MSP-1 – Manual of Standard Practice.

1.4 SUBMITTALS

A. Refer to Section 01330 – Submittal Procedures.
B. Submit proposed mix design and strength test data for each type and strength of concrete used.
C. Submit laboratory reports prepared by an independent testing laboratory verifying that materials used comply with the requirements of this Section.
D. Provide manufacturer's mill certificates for reinforcing steel for inspection in the field. Steel not accompanied by manufacturer's mill certificates will not be approved. Provide specimens for testing when required by the Engineer.
E. Provide batch tickets showing mix design number and the information required by ASTM C 94 for ready-mixed concrete delivered to the site. Provide batch tickets showing the information required by ASTM C 685 for concrete produced by continuous mixing.
F. Submit certification from concrete supplier that materials and equipment used to produce and deliver concrete comply with this Section.
G. Submit Shop Drawings in accordance with ACI 315 and ACI 318, when required, showing reinforcement type, quantity, size, length, location, spacing, bending, splicing, support, fabrication details and other pertinent information.
H. For waterstops, submit product information, including manufacturer's description literature, installation instructions and specifications.
I. Submit curing procedures including materials and equipment to be used.

1.5 HANDLING AND STORAGE

A. Reinforcing Steel: Store reinforcing steel to protect it from damage and

formation of excessive rust. Protect epoxy-coated steel from damage to the coating.

PART 2 – PRODUCTS

2.1 CONCRETE MATERIALS

A. Cementitious Material:
   1. Portland Cement: ASTM C 150, TypeI/II or II, unless the use of Type III is authorized by the Engineer; or ASTM C 595, Type IP. For concrete in contact with sewage, use Type II cement.
   2. When aggregates are potentially reactive with alkalis in cement, use cement not exceeding 0.6 percent alkali content in the form of Na_2O + 0.658 K_2O.

B. Water: Clean, free from harmful amounts of oils, acids, alkalis or other deleterious substances and meeting requirements of ASTM C 94.

C. Aggregate:
   1. Coarse Aggregate: ASTM C 33. Unless otherwise indicated, use the following ASTM standard sizes: No. 357 or No. 467; No. 57 or No. 67, No. 7. Maximum size: Not larger than 1/5 of the minimum dimension between sides of forms, nor larger than 3/4 of minimum clear spacing between reinforcing bars.
   2. Fine Aggregate: ASTM C 33.
   3. Determine the potential reactivity of fine and coarse aggregate in accordance with the Appendix to ASTM C 33.

D. Air Entraining Admixtures: ASTM C 260.

E. Chemical Admixtures:
   1. Water Reducers: ASTM C 494, Type A.
   2. Water Reducer and Retarder: ASTM C 494, Type D.
   3. High Range Water Reducer (Superplasticizer): ASTM C 494, Types F and G.

F. Prohibited Admixtures: Admixtures containing calcium chloride, thiocyanate, or materials that contribute free chlorine ions in excess of 0.1 percent by weight of cement.

G. Reinforcing Steel:
   1. Use new billet steel bars conforming to ASTM A 615, ASTM A 767, or ASTM A 775, grade 40 unless otherwise shown on Plans. Use deformed bars except where smooth bars are specified. When placed in work, keep steel free of dirt, scale, loose or flaky rust, paint, oil or other harmful materials.
   2. Where shown, use welded wire fabric with wire conforming to ASTM A 185 or ASTM A 884. Supply the gauge and spacing shown, with longitudinal and transverse wires electrically welded together at points of intersection with welds strong enough not to be broken during handling or placing.
   3. Wire: ASTM A 82. Use 16-1/2 gauge minimum for tie wire unless otherwise shown on the Plans.

H. Curing Compounds: Liquid membrane-forming compounds conforming to ASTM C 309, with white or other heat reflecting pigment.

2.2 FORMWORK MATERIALS

A. Lumber and Plywood: Seasoned and of good quality, free from loose or unsound knots, knot holes, twists, shakes, decay and other imperfections which would affect strength or impair the finished surface of concrete. Use S4S lumber for facing and sheathing.
B. Formwork: For exposed concrete indicated to receive rubbed finish, provide form or form-lining surfaces free of irregularities.
C. Form Ties: Metal or fiberglass of approved type with tie holes not larger than 7/8 inch in diameter.
D. Metal Forms: Clean and in good condition, free from dents and rust, grease or other foreign material that tend to mar or discolor concrete, in a gauge and condition capable of supporting concrete and construction loads without significant distortion. Countersink bolt and rivet heads on facing sides. Use only metal forms which present a smooth surface and which line up properly.

2.3 PRODUCTION METHODS

A. Use either ready-mixed concrete conforming to requirements of ASTM C 94 or concrete produced by volumetric batching and continuous mixing in accordance with ASTM C 685.

2.4 MEASUREMENT OF MATERIALS

A. Measure dry materials by weight, except volumetric proportioning may be used when concrete is batched and mixed in accordance with ASTM C 685.
B. Measure water and liquid admixtures by volume.

2.5 DESIGN MIX

A. Use design mixes prepared by a certified testing laboratory in accordance with ASTM C 1077 and conforming to requirements of this Section.
B. Proportion concrete materials based on ACI 211.1 to comply with durability and strength requirements of ACI 318, Chapters 4 and 5, and this Section.
C. Proportioning on the basis of field experience or trial mixtures in accordance with the requirements of Section 5.3 of ACI 318 may be used, if approved by the Engineer.
D. Classification:

Type	Minimum 28-Day Compressive Strength (Lbs./sq.in.)	Maximum W/C Ratio	Air Content (Percent)	Consistency Range in Slump (Inches)	Cementitious Content (Lbs./cy)
Structural	3000	0.55	3-5	2 to 4	470
Non-Structural	1500	n/a	3-5	5 to 7	329

E. Determine air content in accordance with ASTM C 138, ASTM C 173 or ASTM C 231.

F. Use of Concrete Types: Use types of concrete as indicated on the Plans Unless indicated otherwise on the Plans or Specifications, use non-structural, unreinforced concrete for pipe plugs, seal slabs, thrust blocks, trench dams and concrete fill; use structural, reinforced concrete for all other applications.

PART 3 – EXECUTION

3.1 FORMS AND SHORING

A. Install forms in accordance with ACI 304R.

B. Provide mortar-tight forms sufficient in strength to prevent bulging between supports. Set and maintain forms to lines designated such that finished dimensions of structures are within the tolerances specified in ACI 117. Construct forms to permit removal without damage to concrete. Provide adequate cleanout openings. Before placing concrete, remove extraneous matter from within forms.

C. Unless otherwise indicated, form outside corners and edges with triangular 3/4-inch chamfer strips (measured on sides).

D. Remove metal form ties to depth of at least 3/4 inch from surface of concrete. Do not use pipe spreaders. Remove spreaders which are separate from forms as concrete is being placed.

E. Immediately before the concrete is placed, wet surface of forms which will come in contact with concrete.

3.2 PLACING REINFORCEMENT

A. Place reinforcing steel as shown on the Plans. Secure steel in position in forms to prevent misalignment. Welding of reinforcing steel is not permitted unless noted on the Plans. Maintain reinforcing steel in place using approved concrete, hot-dip galvanized metal or plastic chairs and spacers. Place reinforcing steel in accordance with CRSI Publication “Placing Reinforcing Bars.” Request inspection of reinforcing steel by the Engineer before concrete is placed.

B. Minimum spacing center-to-center of parallel bars: 2-1/2 times nominal bar diameter. Minimum cover measured from surface of concrete to face of reinforcing bar unless shown otherwise on the Plans: 2 inches.

C. Detail bars in accordance with ACI 315. Provide reinforcing steel fabricated in accordance with CRSI Publication MSP-1, “Manual of Standard Practice.” Bend reinforcing steel to required shape while steel is cold. Do not overbend steel.
D. Provide splice and development length of bars as shown on Plans. Stagger splices or locate at points of low tensile stress.

3.3 EMBEDDED ITEMS

A. Install conduit and piping as shown on the Plans. Locate and fasten conduit, piping and other embedded items in forms.

3.4 BATCHING, MIXING AND DELIVERY OF CONCRETE

A. Measure, batch, mix and deliver ready-mixed concrete in accordance with ASTM C 94 and ACI 304R. Produce ready-mixed concrete using an automatic batching system as described in CPMB-100 Concrete Plant Standards, Part 2 – Plant Control Systems.
B. Measure, mix and deliver concrete produced by volumetric batching and continuous mixing in accordance with ASTM C 685.
C. Maintain concrete workability without segregation of material and excessive bleeding. Obtain approval of the Engineer before adjustment and change of mix proportions.
D. Do not exceed the maximum water-cement ratio of the approved mix design. If all water allowed by the water-cement ratio has not been added at the start of mixing, the remaining water may be added no later than the time of delivery. Addition of water should be in accordance with ASTM C 94.
E. Do not mix concrete when the air temperature is at or below 40 degrees F and falling. Concrete may be mixed when temperature is 35 degrees F and rising. Take temperature readings in the shade, away from artificial heat. Protect concrete from temperatures below 32 degrees F until the concrete has cured for a minimum of 3 days at 70 degrees F or 5 days at 50 degrees F.
F. Conform to ACI 305R for batching concrete when air temperature is above 90 degrees F.
G. Clean, maintain and operate equipment so that it thoroughly mixes material.
H. Mixing methods other than as described above shall be used only when approved by the Engineer.

3.5 PLACING CONCRETE

A. Place and consolidate in accordance with ACI 304R and ACI 309R.
B. Give at least 24 hours advance notice to the Engineer to permit inspection of forms, reinforcing steel, embedded items and other preparations for placing concrete. Place no concrete prior to the Engineer’s inspection.

C. Schedule concrete placing to permit completion of finishing operations in daylight hours. However, if necessary to continue after daylight hours, light the site as required. If rainfall occurs after placing operations are started, provide covering to protect the work.
D. Use troughs, pipes and chutes lined with approved metal or synthetic material. Place concrete without allowing segregation. Keep chutes, troughs and pipes clean and free from coatings of hardened concrete. Do not allow aluminum material to be in contact with concrete.
E. Limit free fall of concrete to prevent segregation. Do not deposit large quantities of concrete at one location so that running or working concrete along forms is required. Do not jar forms after concrete has taken on initial set; do not place any strain on projecting reinforcement or anchor bolts.
F. Use tremies for placing concrete in walls and similar narrow or restricted locations. Use tremies made in sections, provide in several lengths, so that outlet may be adjusted to proper height during placement operations.
G. When the weather is hot enough to cause the concrete temperature to exceed 90 degrees F, employ means, such as pre-cooling aggregates and mixing water, using ice or placing at night, to maintain concrete temperature below 90 degrees F.
H. Consolidate each layer of concrete with concrete spading implements and mechanical vibrators of type and adequate number for the size of placement. Apply vibrators to concrete immediately after depositing. Do not use vibrators to aid lateral flow of concrete. Do not over-consolidate concrete.
I. Handling and Placing Concrete: Conform to ACI 302.1R, ACI 304R and ACI 309R.

3.6 CURING AND REMOVAL OF FORMS AND SHORING

A. Comply with ACI 308. Cure by preventing loss of moisture and rapid temperature change for a period of 7 days when Type I/II, II or IP cement has been used and for 3 curing days when Type III cement has been used.
B. Start curing as soon as free water has disappeared from the concrete surface after placing and finishing.
C. A curing day is any calendar day in which the temperature is above 50 degrees F for at least 19 hours. Colder days may be counted if air temperature adjacent to concrete is maintained above 50 degrees F. In continued cold weather, when artificial heat is not provided, removal of forms and shoring may be permitted at the end of calendar days equal to twice the required number of curing days.
D. Formed surfaces not requiring rubbed-finished surface:
    1. Cure by leaving forms in place for the full cure period or forms may be removed after 2 days and curing compound applied. Keep wood forms wet during the curing period. Add water as needed for other types of forms.

2. Soffit Forms: Leave soffit forms and shores in place until concrete has reached the specified design strength unless otherwise directed by the Engineer.

E. Rubbed Finish:
   1. At formed surfaces requiring rubbed finish, remove forms as soon as practicable without damaging the surface. Remove forms from surfaces requiring rubbing only as rapidly as rubbing operation progresses. Remove forms from vertical surfaces not requiring rubbed finish when concrete has aged for the required number of curing days.
   2. After rubbed-finish operations are complete, continue curing formed surfaces by using either approved curing/sealing compounds or moist cotton mats until normal curing period is complete.

F. Unformed Surfaces: Cure with approved membrane curing compound method in accordance with ASTM C 309.
   1. After concrete has received a final finish and surplus water sheen has disappeared, immediately seal surface with a uniform coating of approved curing compound, applied at the rate of coverage recommended by manufacturer or as directed by the Engineer. Provide uniform coverage at a minimum rate of 1 gallon per 180 square feet of area.
   2. Thoroughly agitate the compound during use and apply by means of approved mechanical power pressure sprayers equipped with atomizing nozzles. For application on small miscellaneous items, hand- powered spray equipment may be used. Prevent loss of compound between nozzle and concrete surface during spraying operations.
   3. Do not apply compound to a dry surface. If concrete surface has become dry, thoroughly moisten surface immediately prior to application. At locations where coating shows discontinuities, pinholes or other defects, or if rain falls on a newly coated surface before film has dried sufficiently to resist damage, apply an additional coat of compound at the specified rate of coverage.

3.7 FINISHING

A. Patch honeycomb, minor defects and form tie holes in concrete surfaces with cement mortar mixed 1 part cement to 2 parts fine aggregate. Repair defects by removing unsatisfactory material and replacing with new concrete, keyed and bonded to existing concrete. Finish to provide a uniform surface between patches and existing concrete.

B. Apply a broomed finish to all exposed surfaces of interceptor structure inlets and channel lining. Apply broomed finish in a single, continuous stroke perpendicular to flow to produce a uniform surface.

C. Apply a rubbed finish to all exposed surfaces unless directed otherwise on the Plans or by the Engineer. After pointing has set sufficiently, wet the surface and perform first surface rubbing with No. 16 carborundum

stone or approved equal. Do not add cement to form surface paste. Rub sufficiently to bring surface to paste; to remove form marks and projections; and to produce a smooth, dense surface. Spread or brush material, which has been ground to paste, uniformly over surface and allow to reset. In preparation for final acceptance, clean surfaces and perform final finish rubbing with No. 30 carborundum stone or approved equal. After rubbing, allow paste on the surface to re-set; then wash surface with clean water. Leave structure with a clean, neat and uniform finish.

3.8 DEFECTIVE WORK

A. Remove and repair defective work at no cost to the District.
B. If concrete surface is bulged, uneven, or shows honeycombing or form marks which cannot be repaired satisfactorily through patching, remove and replace the defective work as directed by the Engineer.
C. Replace or repair pitted or washed concrete as directed by the Engineer.

3.9 TESTING AND INSPECTION

A. Refer to Section 01457 – Construction Tests and Inspection.

3.10 PROTECTION

A. Refer to Section 02316 – Structural Excavating and Backfilling.
B. Provide for protection of freshly placed concrete against damage from precipitation by having sufficient material on-site to protect finished surface.

3.11 MATERIAL DISPOSAL

A. Refer to Section 02120 – Material Disposal.

END OF SECTION

BID TAB

HIDALGO COUNTY DRAINAGE DISTRICT No. 1

AVILA-HARWELL CAMPUSES SAFE WALK COMMUNITY PROJECT

RFB No. 2021-331-03-31-HGO

DATE: 02/22/2021

SAMPLE

Item No.	Estimated Quantity	Unit	Item Description	UNIT BID PRICE IN WORDS	Unit Price In Figures	Total Extension In Figures
100	34	STA	PIPE	THREE HUNDRED DOLLARS FIFTY CENTS	$300.50	$10,217.00

Item No.	Estimated Quantity	Unit	Item Description		Unit Price In Figures	Total Extension In Figures
1555	1	LS	TRAFFIC CONTROL	DOLLARS CENTS		
2221	35	LF	REMOVE AND RELOCATE CHAINLINK FENCE	DOLLARS CENTS		
2314	1,271	CY	BEDDING MATERIAL (FILL EXISTING POND)	DOLLARS CENTS		
2314	184	CY	BEDDING MATERIAL (SAND)	DOLLARS CENTS		
2360	1	LS	EROSION CONTROL	DOLLARS CENTS		
2506	24	LF	12 IN PVC	DOLLARS CENTS		
2611	16	LF	18 IN RCP CL III	DOLLARS CENTS		
2611	52	LF	24 IN RCP CL III	DOLLARS CENTS		
2630	1	EA	48 IN MANHOLE	DOLLARS CENTS		

Item No.	Estimated Quantity	Unit	Item Description		Unit Price In Figures	Total Extension In Figures
2758	127	LF	24 IN SLD WHITE REFL PAV MRK STOP LINE	DOLLARS CENTS		
2758	488	LF	12 IN SLD WHITE REFL PAV MRK CROSSWALK LINE	DOLLARS CENTS		
2775	181	CY	5 FT CONC SIDEWALK AND RAMPS (3600 PSI)	DOLLARS CENTS		
2775	14	EA	TRUNCATED DOMES (FOR RAMPS)	DOLLARS CENTS		
2970	2	EA	6 FT CHAINLINK GATE	DOLLARS CENTS		
2976	5	EA	SIDEWALK SIGN W/ SIGN MOUNTING	DOLLARS CENTS		
3310	1	CY	CONCRETE RIP RAP	DOLLARS CENTS		

BASE BID PRICE IN WORDS		BID IN FIGURES
	DOLLARS	$ -
	CENTS	

MO - MONTHS

LF - LINEAR FEET

EA- EACH

SY- SQUARE YARD(S)

CY- CUBIC YARD(S)

LS- LUMP SUM

COMPANY: _____

PHONE NUMBER: _____

AUTHORIZED SIGNATURE: _____

PRINTED NAME: _____

TITLE: _____

EXHIBIT "C"

Insurance Requirements

Professional Services

(i.e...Engineers, Architects, Appraisers & Surveyors)

The proposer awarded the contract shall furnish proof of insurance, which will also include any subcontractor that is subcontracted by the proposer in at least the following limits, to be in place prior to providing any services under this Contract and to continue at all times in force in effect during the term of this Contract:

1. Professional liability insurance policy with limits of at least One Million Dollars ($1,000,000) per occurrence, or limited to claims made, include at least a five (5) year extended reporting period.

2. A Five Hundred Thousand Dollars ($500,000.00) Comprehensive General Liability insurance policy providing additional coverage to all underlying liabilities of County.

3. Automobile liability insurance policy with limits of at least Three Hundred Thousand Dollars ($300,000.00) per person and Five Hundred Thousand Dollars ($500,000.00) per occurrence. Coverage should include injury to or death of persons and property damage claims with limits up to Five Hundred Thousand Dollars ($500,000.00) arising out of the services provided to County hereunder.

4. Uninsured/Underinsured motorist coverage in an amount equal to the bodily injury limits set forth immediately above;

5. Workers compensation insurance in amounts established by Texas law, unless the Bidder is specifically exempted from the Texas Workers Compensation Act, Texas Labor Code Chapter 401, et. seq.

- *Bidder shall obtain and maintain any and all other insurances which may be necessary in providing the good/service applicable to this procurement or are otherwise required by law.*
- *Any and all insurance policies shall be in amounts prescribed by law or otherwise specified by the County, but in no event less than the minimum amounts prescribed by law.*

Additional Insurance Requirements:

a. Bidder shall furnish to County certificate(s) of insurance, and all renewals throughout the duration of the Project, issued by the insurer that such insurance is in full force and effect.
b. Certificates of insurance shall be submitted to County for approval prior to any services being performed by Bidder.
c. **Hidalgo County will only accept certificates of insurance on an Acord form (as attached hereto).**

Page 2 of 2: Continuation of Exhibit "C": Insurance Requirements Professional Services (i.e...Engineers, Architects, Appraisers & Surveyors)

d. For each policy, except Workers' Compensation, Bidder shall name the County as an additional insured.
e. Each policy of insurance required hereunder shall extend for a period equivalent to, or longer than the term of the Contract, and any insurer hereunder shall be required to give at least thirty (30) days written notice to the County prior to the cancellation of any such coverage on the termination date, or otherwise.
f. This Contract shall be automatically suspended upon the cancellation, or other termination, of any required policy of insurance hereunder, and such suspension shall continue until evidence of adequate replacement coverage is provided to County. If replacement coverage is not provided within thirty (30) days following suspension of the Contract, this Contract shall automatically terminate.
g. All insurance policies will be endorsed to provide a waiver of subrogation in favor of the County.
h. County reserves the right to review the insurance requirements of this section during the effective period of the contract and to require adjustment of insurance coverage and their limits when deemed necessary and prudent by County based upon changes in statutory law, court decisions, or the claims history of the industry as well as the Bidder.
i. Insurance policies shall be obtained at Bidder's sole expense. County does not maintain and will not obtain insurance of any type to protect Bidder against loss, damage or injury that may in any way result from Bidders performance of the services.
j. In no event shall the County be liable for any loss, damage to or destruction of any property belonging to the Bidder.
k. Bidder is responsible for ensuring all required insurance policies are valid for the duration of the contract.
l. All insurance policies are to be issued by an insurance company authorized to do business in the State of Texas and acceptable to County.
m. Bidder shall make any other insurance documentation available to County upon request.

DATE (MM/DD/YY)

ACORD CERTIFICATE OF INSURANCE

PRODUCER	THIS CERTIFICATE IS ISSUED **AS A MATTER** OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.
	INSURERS AFFORDING COVERAGE
INSURED	INSURER A:
	INSURER B:
	INSURER C:
	INSURER D:
	INSURER E:

COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS
A	**GENERAL LIABILITY** COMMERCIAL GENERAL LIABILITY CLAIMS MADE OCCUR OWNER'S & CONT. PROT OWNER'S PROTECTIVE LIABILITY GEN'L AGGREGATE LIMIT APPLIES PER POLICY PROJECT LOC				EACH OCCURRENCE FIRE DAMAGE (Any one fire) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS – COMP/OP AGG
B	**AUTOMOBILE LIABILITY** ANY AUTO ALL OWNED AUTOS SCHEDULED AUTOS HIRED AUTOS NON-OWNED AUTOS				COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)
C	**GARAGE LIABILITY** ANY AUTO				AUTO ONLY: EA ACCIDENT OTHER THAN AUTO ONLY: EA
C	**EXCESS LIABILITY** OCCUR CLAIMS MADE DEDUCTIBLE RETENTION $				EACH OCCURRENCE AGGREGATE
D	**WORKERS COMPENSATION AND EMPLOYER'S LIABILITY**				WC STATU TORY LIMITS OTHER E.L. EACH ACCIDENT E.L. DISEASE-EA EMPLOYEE E.L. DISEASE-POLICY LIMIT
	OTHER				

DESCRIPTION OF OPERATIONS / LOCATION / VEHICLES / EXCLUSIONS ADDED BY ENDORSEMENT / SPECIAL PROVISIONS

County of Hidalgo shall be named as additional insured on all Commercial General Liability policies.

CERTIFICATE HOLDER	ADDITIONAL INSURED; INSURER LETTER:	CANCELLATION
Hidalgo County **Attn: Purchasing Department** **2812 S Highway Bus. 281** **Edinburg, Texas 78539**		SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES. AUTHORIZED REPRESENTATIVE

SAMPLE

Insurance Requirement Acknowledgment

I,_____, authorized representative for_____,
Company/Vendor

hereby acknowledge receipt of the County's required insurance limits. Said requirements:

- ☐ will be acquired within 10 working days after notification from Purchasing Department of award of project by the Hidalgo County Commissioners= Court;
- ☐ will acquire additional amounts required to meet the County's requirements within 10 working days after notification from Purchasing Department of award of project by the Hidalgo County Commissioners= Court; currently carry the following

Professional Liability (Errors & Omissions): $_____

Automobile Liability: $_____General Liability: $_____

- ☐ have already been met, see attached copy of insurance certificate.

_____ _____
Authorized Representative Date

Notice to Proposer:

A certificate of insurance for the required insurance limits shall be provided to the Purchasing Department's Contract Managers in order to qualify for award and to execute a contract between your Company and the County

Failure to provide Certificates of Insurance to the Purchasing Department's Contract Managers will cause the award to be rescinded and re-awarded to next qualified vendor. Certificates of Insurance will be monitored and verified on a quarterly basis to ensure coverage policy is in place. It is the Company's obligation to maintain the appropriate insurance coverage throughout the term of the contract.

THIS FORM MUST ACCOMPANY YOUR PACKET

PROJECT REQUIREMENTS ACKNOWLEDGMENT

This is to certify that I,_____, possess all of the APPLICABLE:

1. Licenses: _____
2. Bonds: _____
3. Certificates: _____
4. Permits: _____
5. Other: _____

necessary to carry out the required project. Furthermore, I am providing copies of the required documentation so that, if my company is awarded this project, I may be eligible to enter into a contract with Hidalgo County and proceed to complete the project in a timely manner.

* Any licenses, bonds, certificates, permits, etc. which are required must be presented as part of the packet in order to expedite the evaluation process. Failure to provide said documentation will result in the disqualification of your proposal/qualification.

_____ _____

Authorized Signature Date

_____

Company

_____

Address

_____

City, State, Zip

CONFLICT OF INTEREST QUESTIONNAIRE

For vendor doing business with local governmental entity

FORM CIQ

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

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

OFFICE USE ONLY

Date Received

1 **Name of vendor who has a business relationship with local governmental entity.**

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.** (The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information is being disclosed.**

_____

Name of Officer

4 **Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ as necessary.**

A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☐ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer or a family member of the officer AND the taxable income is not received from the local governmental entity?

☐ Yes ☐ No

5 **Describe each employment or business relationship that the vendor named in Section 1 maintains with a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more.**

6 ☐ Check this box if the vendor has given the local government officer or a family member of the officer one or more gifts as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.003(a-1).

7

_____ _____

Signature of vendor doing business with the governmental entity Date

CONFLICT OF INTEREST QUESTIONNAIRE
For vendor doing business with local governmental entity

A complete copy of Chapter 176 of the Local Government Code may be found at http://www.statutes.legis.state.tx.us/Docs/LG/htm/LG.176.htm. For easy reference, below are some of the sections cited on this form.

Local Government Code § 176.001(1-a): "Business relationship" means a connection between two or more parties based on commercial activity of one of the parties. The term does not include a connection based on:

(A) a transaction that is subject to rate or fee regulation by a federal, state, or local governmental entity or an agency of a federal, state, or local governmental entity;

(B) a transaction conducted at a price and subject to terms available to the public; or

(C) a purchase or lease of goods or services from a person that is chartered by a state or federal agency and that is subject to regular examination by, and reporting to, that agency.

Local Government Code § 176.003(a)(2)(A) and (B):

(a) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:

***

(2) the vendor:

(A) has an employment or other business relationship with the local government officer or a family member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds $2,500 during the 12-month period preceding the date that the officer becomes aware that

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor;

(B) has given to the local government officer or a family member of the officer one or more gifts that have an aggregate value of more than $100 in the 12-month period preceding the date the officer becomes aware that:

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor.

Local Government Code § 176.006(a) and (a-1)

(a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:

(1) has an employment or other business relationship with a local government officer of that local governmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);

(2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with the aggregate value specified by Section 176.003(a)(2)(B), excluding any gift described by Section 176.003(a-1); or

(3) has a family relationship with a local government officer of that local governmental entity.

(a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh business day after the later of:

(1) the date that the vendor:

(A) begins discussions or negotiations to enter into a contract with the local governmental entity; or

(B) submits to the local governmental entity an application, response to a request for proposals or bids, correspondence, or another writing related to a potential contract with the local governmental entity; or

(2) the date the vendor becomes aware:

(A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);

(B) that the vendor has given one or more gifts described by Subsection (a); or

(C) of a family relationship with a local government officer.

HIDALGO COUNTY
PURCHASING DEPARTMENT
Bidder/Vendor Application

Complete in print or type. Please return this application to the Hidalgo County Purchasing Department thru Facsimile: (956) 318-2629 or (956) 292-7612 in person or regular mail to: 2812 S. Business Hwy. 281 , Edinburg, Texas 78539 or email: purchasing@co.hidalgo.tx.us

Company Name: **Telephone No. ( )**
dba Name:
Legal Name:
Mailing Address : **Fax No. ( )**
Physical Address:
City, State, Zip **Tax I.D. No.**
Remit to Address : **City, State, Zip**
E-Mail Address:
Representative(s) Name(s) & Title(s)
Type of Organization (check one): _____ Individual _____ Partnership _____ Corporation _____Non-Profit _____ LLC _____ Sole Proprietor _____ Other, Specify **State Identification No._____ (Please attached completed W-9 form with this application)** **Federal Identification No. or (if individual) SS No.**
State of Incorporation: _____ Date:_____ Other:
Type of Business (check one): _____ Manufacturer _____ Wholesaler _____ Retailer _____ Broker _____ Distributor _____ Service Organization _____ Other, Specify
Name & Title of Person(s) Authorized to Sign Bids, Proposals, and/or Contracts:
Small and/or Disadvantaged Business Information (check application criteria) **Small Business:** **Disadvantaged Business (At Least 51% Ownership)** ☐ Less than 125,000 annual gross receipt ☐ Black American ☐ Native American ☐ Less than 250,000 annual gross receipt ☐ Hispanic American ☐ Women ☐ Less than 499,000 annual gross receipt ☐ Asian Pacific American ☐ Other ☐ More than 500,000 annual gross receipt **Have you been certified as a HUB or an MBE/WBE source?:** ☐ Yes ☐ No **Indicate Certification No.(s):_____ or are Certificate(s) attached?:** ☐ Yes ☐ No
What type of product(s) is/are solicited by your company?: **Would you like to be provided with specifications for procurements of such products?:** ☐ Yes ☐ No
To Be Completed by the County: Rec'd by (Purchasing):_____ Date Rec'd by (Purchasing): **Date Forwarded Information to Auditor's Office:_____Entry Date: _____ Vendor No.:**

Revised12/14/06

HISTORICALLY UNDERUTILIZED BUSINESS (HUB) DECLARATION

The primary objective of the Hidalgo County HUB Program is to ensure Historically Underutilized Businesses receive a fair and equal opportunity for participation in the County's procurement process. This fact holds true for Services (Professional & Non-Professional), Commodities, and Construction contracts and any subcontracts thereto. The program strongly encourages Prime Contractors to provide subcontracting opportunities to Certified Hub Contractors/Vendors. Our goal for HUB contractor/vendor participation, as well as HUB subcontractor participation is 30%. To be considered as a "Certified HUB Contractor/Vendor" the contractor/vendor must have been certified by, and hold a current and valid certification with any of the three agencies listed below.

Have you been Certified as a HUB or an MBE/WBE source?: ☐Yes ☐ No

If yes, by whom?: ☐ Texas Building & Procurement Commission ☐ Other_____

Indicate Certification No(s).:_____ or Are Certificate(s) Attached?: ☐ Yes ☐ No

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LIST OF CERTIFIED HUB SUBCONTRACTORS

(Attach additional pages if necessary)

What percentage of the Bid, RFP,or RFQ is to be subcontracted with Certified HUB sources?: _____%
(List HUB Subcontractor information below).

HUB Subcontractor Name: _____ HUB Status:
Certifying Agency (Check all applicable): ☐Texas Building & Procurement Commission ☐ Other
Address: _____ City: _____ State: _____ Zip:
Contact Person: _____ Title: _____ Phone No.: ( )
Subcontract Amount: $_____ Description of Work to be Performed:

HUB Subcontractor Name: _____ HUB Status:
Certifying Agency (Check all applicable): ☐Texas Building & Procurement Commission ☐ Other
Address: _____ City: _____ State: _____ Zip:
Contact Person: _____ Title: _____ Phone No.: ( )
Subcontract Amount: $_____ Description of Work to be Performed:

HUB Subcontractor Name: _____ HUB Status:
Certifying Agency (Check all applicable): ☐Texas Building & Procurement Commission ☐ Other
Address: _____ City: _____ State: _____ Zip:
Contact Person: _____ Title: _____ Phone No.: ( )
Subcontract Amount: $_____ Description of Work to be Performed:

Form **W-9**
(Rev. October 2018)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

▶ Go to *www.irs.gov/FormW9* for instructions and the latest information.

Give Form to the requester. Do not send to the IRS.

Print or type. See Specific Instructions on page 3.

1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.

2 Business name/disregarded entity name, if different from above

3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only one of the following seven boxes.

☐ Individual/sole proprietor or single-member LLC ☐ C Corporation ☐ S Corporation ☐ Partnership ☐ Trust/estate

☐ Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ▶ _____

Note: Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is not disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner.

☐ Other (see instructions) ▶

4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):

Exempt payee code (if any) _____

Exemption from FATCA reporting code (if any) _____

(Applies to accounts maintained outside the U.S.)

5 Address (number, street, and apt. or suite no.) See instructions.

Requester's name and address (optional)

6 City, state, and ZIP code

7 List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN*, later.

Note: If the account is in more than one name, see the instructions for line 1. Also see *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number

			–		–				

or

Employer identification number

		–							

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign Here Signature of U.S. person ▶ Date ▶

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to *www.irs.gov/FormW9*.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

- Form 1099-INT (interest earned or paid)
- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)
- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, *later.*

By signing the filled-out form, you:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),

2. Certify that you are not subject to backup withholding, or

3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income, and

4. Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct. See *What is FATCA reporting,* later, for further information.

Note: If you are a U.S. person and a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien;
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States;
- An estate (other than a foreign estate); or
- A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax under section 1446 on any foreign partners' share of effectively connected taxable income from such business. Further, in certain cases where a Form W-9 has not been received, the rules under section 1446 require a partnership to presume that a partner is a foreign person, and pay the section 1446 withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid section 1446 withholding on your share of partnership income.

In the cases below, the following person must give Form W-9 to the partnership for purposes of establishing its U.S. status and avoiding withholding on its allocable share of net income from the partnership conducting a trade or business in the United States.

- In the case of a disregarded entity with a U.S. owner, the U.S. owner of the disregarded entity and not the entity;
- In the case of a grantor trust with a U.S. grantor or other U.S. owner, generally, the U.S. grantor or other U.S. owner of the grantor trust and not the trust; and
- In the case of a U.S. trust (other than a grantor trust), the U.S. trust (other than a grantor trust) and not the beneficiaries of the trust.

Foreign person. If you are a foreign person or the U.S. branch of a foreign bank that has elected to be treated as a U.S. person, do not use Form W-9. Instead, use the appropriate Form W-8 or Form 8233 (see Pub. 515, Withholding of Tax on Nonresident Aliens and Foreign Entities).

Nonresident alien who becomes a resident alien. Generally, only a nonresident alien individual may use the terms of a tax treaty to reduce or eliminate U.S. tax on certain types of income. However, most tax treaties contain a provision known as a "saving clause." Exceptions specified in the saving clause may permit an exemption from tax to continue for certain types of income even after the payee has otherwise become a U.S. resident alien for tax purposes.

If you are a U.S. resident alien who is relying on an exception contained in the saving clause of a tax treaty to claim an exemption from U.S. tax on certain types of income, you must attach a statement to Form W-9 that specifies the following five items.

1. The treaty country. Generally, this must be the same treaty under which you claimed exemption from tax as a nonresident alien.

2. The treaty article addressing the income.

3. The article number (or location) in the tax treaty that contains the saving clause and its exceptions.

4. The type and amount of income that qualifies for the exemption from tax.

5. Sufficient facts to justify the exemption from tax under the terms of the treaty article.

Example. Article 20 of the U.S.-China income tax treaty allows an exemption from tax for scholarship income received by a Chinese student temporarily present in the United States. Under U.S. law, this student will become a resident alien for tax purposes if his or her stay in the United States exceeds 5 calendar years. However, paragraph 2 of the first Protocol to the U.S.-China treaty (dated April 30, 1984) allows the provisions of Article 20 to continue to apply even after the Chinese student becomes a resident alien of the United States. A Chinese student who qualifies for this exception (under paragraph 2 of the first protocol) and is relying on this exception to claim an exemption from tax on his or her scholarship or fellowship income would attach to Form W-9 a statement that includes the information described above to support that exemption.

If you are a nonresident alien or a foreign entity, give the requester the appropriate completed Form W-8 or Form 8233.

Backup Withholding

What is backup withholding? Persons making certain payments to you must under certain conditions withhold and pay to the IRS 24% of such payments. This is called "backup withholding." Payments that may be subject to backup withholding include interest, tax-exempt interest, dividends, broker and barter exchange transactions, rents, royalties, nonemployee pay, payments made in settlement of payment card and third party network transactions, and certain payments from fishing boat operators. Real estate transactions are not subject to backup withholding.

You will not be subject to backup withholding on payments you receive if you give the requester your correct TIN, make the proper certifications, and report all your taxable interest and dividends on your tax return.

Payments you receive will be subject to backup withholding if:

1. You do not furnish your TIN to the requester,

2. You do not certify your TIN when required (see the instructions for Part II for details),

3. The IRS tells the requester that you furnished an incorrect TIN,

4. The IRS tells you that you are subject to backup withholding because you did not report all your interest and dividends on your tax return (for reportable interest and dividends only), or

5. You do not certify to the requester that you are not subject to backup withholding under 4 above (for reportable interest and dividend accounts opened after 1983 only).

Certain payees and payments are exempt from backup withholding. See *Exempt payee code,* later, and the separate Instructions for the Requester of Form W-9 for more information.

Also see *Special rules for partnerships,* earlier.

What is FATCA Reporting?

The Foreign Account Tax Compliance Act (FATCA) requires a participating foreign financial institution to report all United States account holders that are specified United States persons. Certain payees are exempt from FATCA reporting. See *Exemption from FATCA reporting code,* later, and the Instructions for the Requester of Form W-9 for more information.

Updating Your Information

You must provide updated information to any person to whom you claimed to be an exempt payee if you are no longer an exempt payee and anticipate receiving reportable payments in the future from this person. For example, you may need to provide updated information if you are a C corporation that elects to be an S corporation, or if you no longer are tax exempt. In addition, you must furnish a new Form W-9 if the name or TIN changes for the account; for example, if the grantor of a grantor trust dies.

Penalties

Failure to furnish TIN. If you fail to furnish your correct TIN to a requester, you are subject to a penalty of $50 for each such failure unless your failure is due to reasonable cause and not to willful neglect.

Civil penalty for false information with respect to withholding. If you make a false statement with no reasonable basis that results in no backup withholding, you are subject to a $500 penalty.

Criminal penalty for falsifying information. Willfully falsifying certifications or affirmations may subject you to criminal penalties including fines and/or imprisonment.

Misuse of TINs. If the requester discloses or uses TINs in violation of federal law, the requester may be subject to civil and criminal penalties.

Specific Instructions

Line 1

You must enter one of the following on this line; **do not** leave this line blank. The name should match the name on your tax return.

If this Form W-9 is for a joint account (other than an account maintained by a foreign financial institution (FFI)), list first, and then circle, the name of the person or entity whose number you entered in Part I of Form W-9. If you are providing Form W-9 to an FFI to document a joint account, each holder of the account that is a U.S. person must provide a Form W-9.

a. **Individual.** Generally, enter the name shown on your tax return. If you have changed your last name without informing the Social Security Administration (SSA) of the name change, enter your first name, the last name as shown on your social security card, and your new last name.

Note: ITIN applicant: Enter your individual name as it was entered on your Form W-7 application, line 1a. This should also be the same as the name you entered on the Form 1040/1040A/1040EZ you filed with your application.

b. **Sole proprietor or single-member LLC.** Enter your individual name as shown on your 1040/1040A/1040EZ on line 1. You may enter your business, trade, or "doing business as" (DBA) name on line 2.

c. **Partnership, LLC that is not a single-member LLC, C corporation, or S corporation.** Enter the entity's name as shown on the entity's tax return on line 1 and any business, trade, or DBA name on line 2.

d. **Other entities.** Enter your name as shown on required U.S. federal tax documents on line 1. This name should match the name shown on the charter or other legal document creating the entity. You may enter any business, trade, or DBA name on line 2.

e. **Disregarded entity.** For U.S. federal tax purposes, an entity that is disregarded as an entity separate from its owner is treated as a "disregarded entity." See Regulations section 301.7701-2(c)(2)(iii). Enter the owner's name on line 1. The name of the entity entered on line 1 should never be a disregarded entity. The name on line 1 should be the name shown on the income tax return on which the income should be reported. For example, if a foreign LLC that is treated as a disregarded entity for U.S. federal tax purposes has a single owner that is a U.S. person, the U.S. owner's name is required to be provided on line 1. If the direct owner of the entity is also a disregarded entity, enter the first owner that is not disregarded for federal tax purposes. Enter the disregarded entity's name on line 2, "Business name/disregarded entity name." If the owner of the disregarded entity is a foreign person, the owner must complete an appropriate Form W-8 instead of a Form W-9. This is the case even if the foreign person has a U.S. TIN.

Line 2

If you have a business name, trade name, DBA name, or disregarded entity name, you may enter it on line 2.

Line 3

Check the appropriate box on line 3 for the U.S. federal tax classification of the person whose name is entered on line 1. Check only one box on line 3.

IF the entity/person on line 1 is a(n) . . .	THEN check the box for . . .
• Corporation	Corporation
• Individual • Sole proprietorship, or • Single-member limited liability company (LLC) owned by an individual and disregarded for U.S. federal tax purposes.	Individual/sole proprietor or single-member LLC
• LLC treated as a partnership for U.S. federal tax purposes, • LLC that has filed Form 8832 or 2553 to be taxed as a corporation, or • LLC that is disregarded as an entity separate from its owner but the owner is another LLC that is not disregarded for U.S. federal tax purposes.	Limited liability company and enter the appropriate tax classification. (P= Partnership; C= C corporation; or S= S corporation)
• Partnership	Partnership
• Trust/estate	Trust/estate

Line 4, Exemptions

If you are exempt from backup withholding and/or FATCA reporting, enter in the appropriate space on line 4 any code(s) that may apply to you.

Exempt payee code.

- Generally, individuals (including sole proprietors) are not exempt from backup withholding.
- Except as provided below, corporations are exempt from backup withholding for certain payments, including interest and dividends.
- Corporations are not exempt from backup withholding for payments made in settlement of payment card or third party network transactions.
- Corporations are not exempt from backup withholding with respect to attorneys' fees or gross proceeds paid to attorneys, and corporations that provide medical or health care services are not exempt with respect to payments reportable on Form 1099-MISC.

The following codes identify payees that are exempt from backup withholding. Enter the appropriate code in the space in line 4.

1—An organization exempt from tax under section 501(a), any IRA, or a custodial account under section 403(b)(7) if the account satisfies the requirements of section 401(f)(2)

2—The United States or any of its agencies or instrumentalities

3—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities

4—A foreign government or any of its political subdivisions, agencies, or instrumentalities

5—A corporation

6—A dealer in securities or commodities required to register in the United States, the District of Columbia, or a U.S. commonwealth or possession

7—A futures commission merchant registered with the Commodity Futures Trading Commission

8—A real estate investment trust

9—An entity registered at all times during the tax year under the Investment Company Act of 1940

10—A common trust fund operated by a bank under section 584(a)

11—A financial institution

12—A middleman known in the investment community as a nominee or custodian

13—A trust exempt from tax under section 664 or described in section 4947

The following chart shows types of payments that may be exempt from backup withholding. The chart applies to the exempt payees listed above, 1 through 13.

IF the payment is for . . .	THEN the payment is exempt for . . .
Interest and dividend payments	All exempt payees except for 7
Broker transactions	Exempt payees 1 through 4 and 6 through 11 and all C corporations. S corporations must not enter an exempt payee code because they are exempt only for sales of noncovered securities acquired prior to 2012.
Barter exchange transactions and patronage dividends	Exempt payees 1 through 4
Payments over $600 required to be reported and direct sales over $5,000[1]	Generally, exempt payees 1 through 5[2]
Payments made in settlement of payment card or third party network transactions	Exempt payees 1 through 4

[1] See Form 1099-MISC, Miscellaneous Income, and its instructions.

[2] However, the following payments made to a corporation and reportable on Form 1099-MISC are not exempt from backup withholding: medical and health care payments, attorneys' fees, gross proceeds paid to an attorney reportable under section 6045(f), and payments for services paid by a federal executive agency.

Exemption from FATCA reporting code. The following codes identify payees that are exempt from reporting under FATCA. These codes apply to persons submitting this form for accounts maintained outside of the United States by certain foreign financial institutions. Therefore, if you are only submitting this form for an account you hold in the United States, you may leave this field blank. Consult with the person requesting this form if you are uncertain if the financial institution is subject to these requirements. A requester may indicate that a code is not required by providing you with a Form W-9 with "Not Applicable" (or any similar indication) written or printed on the line for a FATCA exemption code.

A—An organization exempt from tax under section 501(a) or any individual retirement plan as defined in section 7701(a)(37)

B—The United States or any of its agencies or instrumentalities

C—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities

D—A corporation the stock of which is regularly traded on one or more established securities markets, as described in Regulations section 1.1472-1(c)(1)(i)

E—A corporation that is a member of the same expanded affiliated group as a corporation described in Regulations section 1.1472-1(c)(1)(i)

F—A dealer in securities, commodities, or derivative financial instruments (including notional principal contracts, futures, forwards, and options) that is registered as such under the laws of the United States or any state

G—A real estate investment trust

H—A regulated investment company as defined in section 851 or an entity registered at all times during the tax year under the Investment Company Act of 1940

I—A common trust fund as defined in section 584(a)

J—A bank as defined in section 581

K—A broker

L—A trust exempt from tax under section 664 or described in section 4947(a)(1)

M—A tax exempt trust under a section 403(b) plan or section 457(g) plan

Note: You may wish to consult with the financial institution requesting this form to determine whether the FATCA code and/or exempt payee code should be completed.

Line 5

Enter your address (number, street, and apartment or suite number). This is where the requester of this Form W-9 will mail your information returns. If this address differs from the one the requester already has on file, write NEW at the top. If a new address is provided, there is still a chance the old address will be used until the payor changes your address in their records.

Line 6

Enter your city, state, and ZIP code.

Part I. Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. If you are a resident alien and you do not have and are not eligible to get an SSN, your TIN is your IRS individual taxpayer identification number (ITIN). Enter it in the social security number box. If you do not have an ITIN, see *How to get a TIN* below.

If you are a sole proprietor and you have an EIN, you may enter either your SSN or EIN.

If you are a single-member LLC that is disregarded as an entity separate from its owner, enter the owner's SSN (or EIN, if the owner has one). Do not enter the disregarded entity's EIN. If the LLC is classified as a corporation or partnership, enter the entity's EIN.

Note: See *What Name and Number To Give the Requester,* later, for further clarification of name and TIN combinations.

How to get a TIN. If you do not have a TIN, apply for one immediately. To apply for an SSN, get Form SS-5, Application for a Social Security Card, from your local SSA office or get this form online at *www.SSA.gov*. You may also get this form by calling 1-800-772-1213. Use Form W-7, Application for IRS Individual Taxpayer Identification Number, to apply for an ITIN, or Form SS-4, Application for Employer Identification Number, to apply for an EIN. You can apply for an EIN online by accessing the IRS website at *www.irs.gov/Businesses* and clicking on Employer Identification Number (EIN) under Starting a Business. Go to *www.irs.gov/Forms* to view, download, or print Form W-7 and/or Form SS-4. Or, you can go to *www.irs.gov/OrderForms* to place an order and have Form W-7 and/or SS-4 mailed to you within 10 business days.

If you are asked to complete Form W-9 but do not have a TIN, apply for a TIN and write "Applied For" in the space for the TIN, sign and date the form, and give it to the requester. For interest and dividend payments, and certain payments made with respect to readily tradable instruments, generally you will have 60 days to get a TIN and give it to the requester before you are subject to backup withholding on payments. The 60-day rule does not apply to other types of payments. You will be subject to backup withholding on all such payments until you provide your TIN to the requester.

Note: Entering "Applied For" means that you have already applied for a TIN or that you intend to apply for one soon.

Caution: A disregarded U.S. entity that has a foreign owner must use the appropriate Form W-8.

Part II. Certification

To establish to the withholding agent that you are a U.S. person, or resident alien, sign Form W-9. You may be requested to sign by the withholding agent even if item 1, 4, or 5 below indicates otherwise.

For a joint account, only the person whose TIN is shown in Part I should sign (when required). In the case of a disregarded entity, the person identified on line 1 must sign. Exempt payees, see *Exempt payee code,* earlier.

Signature requirements. Complete the certification as indicated in items 1 through 5 below.

1. Interest, dividend, and barter exchange accounts opened before 1984 and broker accounts considered active during 1983. You must give your correct TIN, but you do not have to sign the certification.

2. Interest, dividend, broker, and barter exchange accounts opened after 1983 and broker accounts considered inactive during 1983. You must sign the certification or backup withholding will apply. If you are subject to backup withholding and you are merely providing your correct TIN to the requester, you must cross out item 2 in the certification before signing the form.

3. Real estate transactions. You must sign the certification. You may cross out item 2 of the certification.

4. Other payments. You must give your correct TIN, but you do not have to sign the certification unless you have been notified that you have previously given an incorrect TIN. "Other payments" include payments made in the course of the requester's trade or business for rents, royalties, goods (other than bills for merchandise), medical and health care services (including payments to corporations), payments to a nonemployee for services, payments made in settlement of payment card and third party network transactions, payments to certain fishing boat crew members and fishermen, and gross proceeds paid to attorneys (including payments to corporations).

5. Mortgage interest paid by you, acquisition or abandonment of secured property, cancellation of debt, qualified tuition program payments (under section 529), ABLE accounts (under section 529A), IRA, Coverdell ESA, Archer MSA or HSA contributions or distributions, and pension distributions. You must give your correct TIN, but you do not have to sign the certification.

What Name and Number To Give the Requester

For this type of account:	Give name and SSN of:
1. Individual	The individual
2. Two or more individuals (joint account) other than an account maintained by an FFI	The actual owner of the account or, if combined funds, the first individual on the account[1]
3. Two or more U.S. persons (joint account maintained by an FFI)	Each holder of the account
4. Custodial account of a minor (Uniform Gift to Minors Act)	The minor[2]
5. a. The usual revocable savings trust (grantor is also trustee) b. So-called trust account that is not a legal or valid trust under state law	The grantor-trustee[1] The actual owner[1]
6. Sole proprietorship or disregarded entity owned by an individual	The owner[3]
7. Grantor trust filing under Optional Form 1099 Filing Method 1 (see Regulations section 1.671-4(b)(2)(i)(A))	The grantor[4]
For this type of account:	**Give name and EIN of:**
8. Disregarded entity not owned by an individual	The owner
9. A valid trust, estate, or pension trust	Legal entity[4]
10. Corporation or LLC electing corporate status on Form 8832 or Form 2553	The corporation
11. Association, club, religious, charitable, educational, or other tax-exempt organization	The organization
12. Partnership or multi-member LLC	The partnership
13. A broker or registered nominee	The broker or nominee
14. Account with the Department of Agriculture in the name of a public entity (such as a state or local government, school district, or prison) that receives agricultural program payments	The public entity
15. Grantor trust filing under the Form 1041 Filing Method or the Optional Form 1099 Filing Method 2 (see Regulations section 1.671-4(b)(2)(i)(B))	The trust

[1] List first and circle the name of the person whose number you furnish. If only one person on a joint account has an SSN, that person's number must be furnished.

[2] Circle the minor's name and furnish the minor's SSN.

[3] You must show your individual name and you may also enter your business or DBA name on the "Business name/disregarded entity" name line. You may use either your SSN or EIN (if you have one), but the IRS encourages you to use your SSN.

[4] List first and circle the name of the trust, estate, or pension trust. (Do not furnish the TIN of the personal representative or trustee unless the legal entity itself is not designated in the account title.) Also see *Special rules for partnerships*, earlier.

[4] **Note:** The grantor also must provide a Form W-9 to trustee of trust.

Note: If no name is circled when more than one name is listed, the number will be considered to be that of the first name listed.

Secure Your Tax Records From Identity Theft

Identity theft occurs when someone uses your personal information such as your name, SSN, or other identifying information, without your permission, to commit fraud or other crimes. An identity thief may use your SSN to get a job or may file a tax return using your SSN to receive a refund.

To reduce your risk:

- Protect your SSN,
- Ensure your employer is protecting your SSN, and
- Be careful when choosing a tax preparer.

If your tax records are affected by identity theft and you receive a notice from the IRS, respond right away to the name and phone number printed on the IRS notice or letter.

If your tax records are not currently affected by identity theft but you think you are at risk due to a lost or stolen purse or wallet, questionable credit card activity or credit report, contact the IRS Identity Theft Hotline at 1-800-908-4490 or submit Form 14039.

For more information, see Pub. 5027, Identity Theft Information for Taxpayers.

Victims of identity theft who are experiencing economic harm or a systemic problem, or are seeking help in resolving tax problems that have not been resolved through normal channels, may be eligible for Taxpayer Advocate Service (TAS) assistance. You can reach TAS by calling the TAS toll-free case intake line at 1-877-777-4778 or TTY/TDD 1-800-829-4059.

Protect yourself from suspicious emails or phishing schemes. Phishing is the creation and use of email and websites designed to mimic legitimate business emails and websites. The most common act is sending an email to a user falsely claiming to be an established legitimate enterprise in an attempt to scam the user into surrendering private information that will be used for identity theft.

The IRS does not initiate contacts with taxpayers via emails. Also, the IRS does not request personal detailed information through email or ask taxpayers for the PIN numbers, passwords, or similar secret access information for their credit card, bank, or other financial accounts.

If you receive an unsolicited email claiming to be from the IRS, forward this message to *phishing@irs.gov*. You may also report misuse of the IRS name, logo, or other IRS property to the Treasury Inspector General for Tax Administration (TIGTA) at 1-800-366-4484. You can forward suspicious emails to the Federal Trade Commission at *spam@uce.gov* or report them at *www.ftc.gov/complaint*. You can contact the FTC at *www.ftc.gov/idtheft* or 877-IDTHEFT (877-438-4338). If you have been the victim of identity theft, see *www.IdentityTheft.gov* and Pub. 5027.

Visit *www.irs.gov/IdentityTheft* to learn more about identity theft and how to reduce your risk.

Privacy Act Notice

Section 6109 of the Internal Revenue Code requires you to provide your correct TIN to persons (including federal agencies) who are required to file information returns with the IRS to report interest, dividends, or certain other income paid to you; mortgage interest you paid; the acquisition or abandonment of secured property; the cancellation of debt; or contributions you made to an IRA, Archer MSA, or HSA. The person collecting this form uses the information on the form to file information returns with the IRS, reporting the above information. Routine uses of this information include giving it to the Department of Justice for civil and criminal litigation and to cities, states, the District of Columbia, and U.S. commonwealths and possessions for use in administering their laws. The information also may be disclosed to other countries under a treaty, to federal and state agencies to enforce civil and criminal laws, or to federal law enforcement and intelligence agencies to combat terrorism. You must provide your TIN whether or not you are required to file a tax return. Under section 3406, payers must generally withhold a percentage of taxable interest, dividend, and certain other payments to a payee who does not give a TIN to the payer. Certain penalties may also apply for providing false or fraudulent information.

Certification
Regarding Debarment, Suspension and Ineligibility

As is required by the Federal Regulations Implementing Executive Order 12549, Debarment and Suspension, 45 CFR Part 76, Government-wide Debarment and Suspension, the applicant certifies, to the best of his or her knowledge and belief, that both it and its principals:

a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any federal department or agency;

b. Have not within a three-year period preceding this bid proposal and/or application been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (federal, state, or local) transaction or contract under a public transaction, violation of federal or state antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

c. Are not presently indicted for or otherwise criminally or civilly charged by a government entity with commission of any of the offenses enumerated herein; and

d. Have not within a three-year period preceding this bid proposal and/or application had one or more public transactions terminated for cause or default.

Signature:_____
Print Name:_____
Title:_____
Telephone Number:_____
Date:_____

If the bidder is unable to certify to all of the statements in this Certification, such bidder should attach an explanation to this proposal.

EXHIBIT "G"

APPENDICES

APPENDIX A

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1. **Compliance with Regulations**: The contractor (hereinafter includes consultants)will comply with the Acts and the Regulations relative to Nondiscrimination in Federally-assisted programs of the U.S. Department of Transportation, the Federal Highway Administration, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.

2. **Nondiscrimination**: The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of49 CFR Part 21.

3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment**: In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and the Acts and the Regulations relative to Nondiscrimination on the grounds of race, color, or national origin.

4. **Information and Reports**: The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the Federal Highway Administration to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor will so certify to the Recipient or the Federal Highway Administration, as appropriate, and will set forth what efforts it has made to obtain the information.

5. **Sanctions for Noncompliance**: In the event of a contractor's noncompliance with the Nondiscrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the Federal Highway Administration may determine to be appropriate, including, but not limited to:

   a. withholding payments to the contractor under the contract until the contractor complies; and/or
   b. cancelling, terminating, or suspending contract, in whole or in part.

6. **Incorporation of Provisions**: The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the Recipient or the Federal Highway Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

APPENDIX B

CLAUSES FOR DEEDS TRANSFERRING UNITED STATES PROPERTY

The following clauses will be included in deeds effecting or recording the transfer of real property, structures, or improvements thereon, or granting interest therein from the United States pursuant to the provisions of Assurance 4:

NOW, THEREFORE, the U.S. Department of Transportation as authorized by law and upon the condition that the **COUNTY OF HIDALGO** will accept title to the lands and maintain the project constructed thereon in accordance with all applicable federal statutes, the Regulations for the Administration of all Department of Transportation programs, and the policies and procedures prescribed by the Federal Highway Administration of the U.S. Department of Transportation in accordance and in compliance with all requirements imposed by Title 49, Code of Federal Regulations, U.S. Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Nondiscrimination in Federally-assisted programs of the U.S. Department of Transportation pertaining to and effectuating the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252; 42 U.S.C. § 2000d to 2000d-4), does hereby remise, release, quitclaim and convey unto the **COUNTY OF HIDALGO** all the right, title and interest of the U.S. Department of Transportation in and to said lands described in Exhibit 1 attached hereto and made a part hereof.

(HABENDUM CLAUSE)

TO HAVE AND TO HOLD said lands and interests therein unto **COUNTY OF HIDALGO** and its successors forever, subject, however, to the covenants, conditions, restrictions and reservations herein contained as follows, which will remain in effect for the period during which the real property or structures are used for a purpose for which Federal financial assistance is extended or for another purpose involving the provision of similar services or benefits and will be binding on the **COUNTY OF HIDALGO**, its successors and assigns.

The **COUNTY OF HIDALGO**, in consideration of the conveyance of said lands and interests in lands, does hereby covenant and agree as a covenant running with the land for itself, its successors and assigns, that (1) no person will on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination with regard to any facility located wholly or in part on, over ,or under such lands hereby conveyed [,] [and]* (2) that the **COUNTY OF HIDALGO** will use the lands and interests in lands and interests in lands so conveyed, in compliance with all requirements imposed by or pursuant to Title 49, Code of Federal Regulations, U.S. Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Nondiscrimination in Federally-assisted programs of the U.S. Department of Transportation, Effectuation of Title VI of the Civil Rights Act of 1964, and as said Regulations and Acts may be amended[, and(3) that in the event of breach of any of the above-mentioned nondiscrimination conditions, the Department will have a right to enter or re-enter said lands and facilities on said land ,and that above described land and facilities will thereon revert to and vest in and become the absolute property of the U.S. Department of Transportation and its assigns as such interest existed prior to this instruction].*

(*Reverted clause and related language to be used only when it is determined that such a clause is necessary in order to make clear the purpose of Title VI.)

APPENDIX C

CLAUSES FOR TRANSFER OF REAL PROPERTY ACQUIRED OR IMPROVED UNDER THE ACTIVITY, FACILITY, OR PROGRAM

The following clauses will be included in deeds, licenses, leases, permits, or similar instruments entered into by the **COUNTY OF HIDALGO** pursuant to the provisions of Assurance 7(a):

A. The (grantee, lessee, permittee, etc. as appropriate) for himself/herself, his/her heirs, personal representatives, successors in interest, and assigns, as a part of the consideration hereof, does hereby covenant and agree [in the case of deeds and leases add "as a covenant running with the land"] that:

   1. In the event facilities are constructed, maintained, or otherwise operated on the property described in this (deed, license, lease, permit, etc.) for a purpose for which a U.S. Department of Transportation activity, facility, or program is extended or for another purpose involving the provision of similar services or benefits, the (grantee, licensee, lessee, permitted, etc.) will maintain and operate such facilities and services in compliance with all requirements imposed by the Acts and Regulations (as may be amended)such that no person on the grounds of race, color, or national origin, will be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities.

B. With respect to licenses, leases, permits, etc., in the event of breach of any of the above Nondiscrimination covenants, **COUNTY OF HIDALGO** will have the right to terminate the (lease, license, permit, etc.) and to enter, re-enter, and repossess said lands and facilities thereon, and hold the same as if the (lease, license, permit, etc.) had never been made or issued.*

C. With respect to a deed, in the event of breach of any of the above Nondiscrimination covenants, the **COUNTY OF HIDALGO** will have the right to enter or re-enter the lands and facilities thereon, and the above described lands and facilities will there upon revert to and vest in and become the absolute property of the **COUNTY OF HIDALGO** and its assigns.*

(*Reverted clause and related language to be used only when it is determined that such a clause is necessary in order to make clear the purpose of Title VI.)

APPENDIX D

CLAUSES FOR CONSTRUCTION/USE/ACCESS TO REAL PROPERTY ACQUIRED UNDER THE ACTIVITY, FACILITY OR PROGRAM

The following clauses will be included in deeds, licenses, permits, or similar instruments/agreements entered into by **COUNTY OF HIDALGO** pursuant to the provisions of Assurance 7(b):

A. The (grantee, licensee, permittee, etc., as appropriate) for himself/herself, his/her heirs, personal representatives, successors in interest, and assigns, as a part of the consideration hereof, does hereby covenant and agree (in the case of deeds and leases add, "as a covenant running with the land") that (1) no person on the ground of race, color ,or national origin, will be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities, (2) that in the construction of any improvements on, over, or under such land, and the furnishing of services thereon, no person on the ground of race, color, or national origin, will be excluded from participation in, denied the benefits of, or otherwise be subjected to discrimination, (3) that the (grantee, licensee, lessee, permittee, etc.) will use the premises in compliance with all other requirements imposed by or pursuant to the Acts and Regulations, as amended, set forth in this Assurance.

B. With respect to (licenses, leases, permits, etc.), in the event of breach of any of the above Nondiscrimination covenants, **COUNTY OF HIDALGO** will have the right to terminate the (license, permit, etc., as appropriate) and to enter or re-enter and repossess said land and the facilities thereon, and hold the same as if said(license, permit, etc., as appropriate) had never been made or issued.*

C. With respect to deeds, in the event of breach of any of the above Nondiscrimination covenants, **COUNTY OF HIDALGO** will there upon revert to and vest in and become the absolute property of **COUNTY OF HIDALGO** and its assigns.*

(*Reverted clause and related language to be used only when it is determined that such a clause is necessary in order to make clear the purpose of Title VI.)

APPENDIX E

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees to comply with the following nondiscrimination statutes and authorities; including but not limited to:

Pertinent Nondiscrimination Authorities:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d et seq., 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin); and 49CFR Part 21.
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of1970, (42U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Federal-Aid Highway Act of 1973, (23U.S.C. § 324et seq.), (prohibits discrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973, (29U.S.C. § 794 et seq.), as amended, (prohibits discrimination on the basis of disability); and 49CFRPart 27;
- The Age Discrimination Act of 1975, as amended,(42U.S.C. § 6101 et seq.), (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49U.S.C. § 4 71, Section 4 7123),as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987,(PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131-12189)as implemented by Department of Transportation regulations at 49C.F.R. parts 37 and 38;
- The Federal Aviation Administration's Nondiscrimination statute (49U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title IX of the Education Amendments of1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U .S.C. 1681 et seq).

Exhibit "H"

(If Applicable)

2 C.F.R. § 200.326 & 2 C.F.R. Part 200, Appendix II

Required Contract Clauses for Non-Federal Entity Contracts Under Federal Awards

&

Required Contract Clauses for Non-Federal Entity Contracts Under Federal Awards with the Federal Emergency Management Agency (FEMA)

2 C.F.R. § 200.326 & 2 C.F.R. Part 200, Appendix II, Required Contract Clauses for Non-Federal Entity Contracts Under Federal Awards

The United States Office of Management and Budget (OMB) issued in 2 C.F.R. 200: *Uniform Administrative Requirements, Cost Principals and Audit Requirements for Federal Awards* (Uniform Guidance). Subpart D: Post Federal Award Requirements: 2 CFR §§200.317-200.326 of the Uniform Guidance contain provisions applicable to procurements made with federal grant funding.

As a non-Federal entity, the County of Hidalgo's ("County") contracts must contain the applicable contract clauses described in Appendix II to the Uniform Guidance (Contract Provisions for non-Federal Entity Contracts Under Federal Awards), which are set forth below. 2 C.F.R. §200.326. If applicable, the following clauses shall supersede any existing, similar clauses stated within the bid document, contract, and/or Terms and Conditions. *The term "Contractor" used herein refers to the proposer, bidder or other entity/individual responding to the applicable procurement packet.*

If applicable, the regulations in 2 CFR, Part 200 and Appendix II to the Uniform Guidance, as it may be amended from time to time, and the contract clauses below, are incorporated by reference as part of this procurement packet and any resulting agreement.

To procure goods and services using funds under a federal grant or contract, specific federal laws, regulations, and requirements may apply in addition to those under state law. The following provisions are required and apply when federal funds are expended by the County of Hidalgo for any contract resulting from this procurement process.

1. **Remedies.**

   a. Applicability. This requirement applies to all Federal grant and cooperative agreement programs.

   b. Standard. Contracts for more than the simplified acquisition threshold currently set at $150,000, which is the inflation adjusted amount determined by the Civilian Agency Acquisition Council and the Defense Acquisition Regulations Council (Councils) as authorized by 41 U.S.C. 1908, must address administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms, and provide for such sanctions and penalties as appropriate. See 2 C.F.R. Part 200, Appendix II, ¶ A.

   c. Statement. Pursuant to Federal Rule (A) above, when federal funds are expended by the County, the County reserves all rights and privileges under the applicable laws and regulations with respect to this procurement in the event of breach of contract by either party. Contractor shall comply with all applicable Federal, State of Texas, and local laws, rules, and regulations and shall obtain all applicable licenses and permits for the conduct of its business and the performance of the services, and any provision of equipment and material ("Applicable Law"). All transactions related to any of the Contract Documents shall be governed by the laws of the State of Texas, and trial of any action brought in connection with the bid or the Contract Documents shall be held exclusively in a state court in the County of Hidalgo, Texas.

2. **Termination for Cause and Convenience.**

a. Applicability. This requirement applies to all Federal grant and cooperative agreement programs.

b. Standard. All contracts in excess of $10,000 shall address termination for cause and for convenience by the non-Federal entity including the manner by which it will be effected and the basis for settlement as follows. See 2 C.F.R. Part 200, Appendix II, ¶ B.

c. Statement. *Termination.* County may terminate this Agreement for any reason upon ten (10) days written notice to the other party. County may terminate this Agreement immediately upon written notice if Contractor breaches this Agreement. In the event of any termination, Contractor shall promptly deliver to the County any and all Work Materials prepared for the County prior to the effective date of such termination, all of which shall become County's sole property. After receipt of the Work Materials, County will pay Contractor for the services which the County determines were satisfactorily performed as of the effective date of the termination.

Excuses for Non-Performance. Either party shall be absolved from its obligations under this contract when and to the extent that performance is delayed or prevented (and in the County of Hidalgo's case when and to the extent that its need for the articles, materials or work to be supplied hereunder is reduced or eliminated) by reason of acts of God, fire explosion, war riots, strikes, labor disputes, or governmental laws, orders or regulations.

Default. If Contractor or Subcontractor shall breach any provision hereof or shall become insolvent, enter voluntary or involuntary bankruptcy or receivership proceedings or make an assignment to the benefit of creditors, County of Hidalgo shall have the right (without limiting any other rights or remedies which it may have hereunder or by operation of law) to terminate this contract by written notice to Contractor whereupon County shall be relieved of all further obligation hereunder except the obligation to pay the reasonable value of Contractor's prior performance (at not exceeding the contract rate), and Contractor shall be liable to County for all costs incurred by County in completing or procuring the completion of performance in excess of the contract price herein specified. The County's right to require strict performance of any obligation hereunder shall not be affected by any previous waiver, forbearance of course of dealing. Time is of the essence thereof.

3. **Equal Employment Opportunity.**

a. Applicability: This requirement applies to all Federal grant and cooperative agreement programs.

b. Standard. Except as otherwise provided under 41 C.F.R. Part 60, all contracts that meet the definition of "federally assisted construction contract" in 41 C.F.R. § 60-1.3 must include the equal opportunity clause provided under 41 C.F.R. § 60- 1.4(b), in accordance with Executive Order 11246, *Equal Employment Opportunity* (30 Fed. Reg. 12319, 12935, 3 C.F.R. Part, 1964-1965 Comp., p. 339), as amended by Executive Order 11375, *Amending Executive Order 11246 Relating to Equal Employment Opportunity,* and implementing regulations at 41 C.F.R. Part 60 (Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor). See 2 C.F.R. Part 200, Appendix II, ¶ C.

c. Key Definitions:

(1) *Federally Assisted Construction Contract.* The regulation at 41 C.F.R. § 60-1.3 defines a "federally assisted construction contract" as any agreement or modification thereof between any applicant and a person for construction work which is paid for in whole or in part with funds obtained from the Government or borrowed on the credit of the Government pursuant to any Federal program involving a grant, contract, loan, insurance, or guarantee, or undertaken pursuant to any Federal program involving such grant, contract, loan, insurance, or guarantee, or any application or modification thereof approved by the Government for a grant, contract, loan, insurance, or guarantee under which the applicant itself participates in the construction work.

(2) *Construction Work.* The regulation at 41 C.F.R. § 60-1.3 defines "construction work" as the construction, rehabilitation, alteration, conversion, extension, demolition or repair of buildings, highways, or other changes or improvements to real property, including facilities providing utility services. The term also includes the supervision, inspection, and other onsite functions incidental to the actual construction

d. Statement: Contractor will comply with the Nondiscrimination Civil Rights Act of 1964, as amended and all Federal regulations relative to nondiscrimination in Federally assisted programs. The regulation at 41 C.F.R. Part 60-1.4(b) requires the insertion of the following contract 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, 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, 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, or national origin.

(3) 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.

(4) 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.

(5) 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.

(6) 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 contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions as may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(7) The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: Provided, however, That in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency the contractor may request the United States to enter into such litigation to protect the interests of the United States."

4. **Davis Bacon Act and Copeland Anti-Kickback Act**.

   a. Applicability of Davis-Bacon Act. The Davis-Bacon Act only applies to the emergency Management Preparedness Grant Program, Homeland Security Grant Program, Nonprofit Security Grant Program, Tribal Homeland Security Grant Program, Port Security Grant Program, and Transit Security Grant Program. **It does not apply to other Federal grant and cooperative agreement programs, including the Public Assistance Program**.

   b. Standard. All prime construction contracts in excess of $2,000 awarded by non-Federal entities must include a provision for compliance with the Davis-Bacon Act (40 U.S.C. §§ 3141-3144 and 3146-3148) as supplemented by Department of Labor regulations at 29 C.F.R. Part 5 (Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction)). See 2 C.F.R. Part 200, Appendix II, ¶ D.

   In accordance with the statute, contractors must be required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor. In addition, contractors must be required to pay wages not less than once a week.

   The non-Federal entity must place a copy of the current prevailing wage determination issued by the Department of Labor in each solicitation. The decision to award a contract or subcontract must be conditioned upon the acceptance of the wage determination. The non-Federal entity must report all suspected or reported violations to the Federal awarding City.

   In contracts subject to the Davis-Bacon Act, the contracts must also include a provision for compliance with the Copeland "Anti-Kickback" Act (40 U.S.C. § 3145), as supplemented by

Department of Labor regulations at 29 C.F.R. 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). The Copeland Anti-Kickback Act provides that each contractor or subrecipient must be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled. The non-Federal entity must report all suspected or reported violations to FEMA or applicable Federal entity.

c. Statement. The regulation at 29 C.F.R. § 5.5(a) does provide the required contract clause that applies to compliance with both the Davis-Bacon and Copeland Acts. However, as discussed in the previous subsection, the Davis-Bacon Act does not apply to Public Assistance recipients and subrecipients. In situations where the Davis-Bacon Act does not apply, neither does the Copeland "Anti-Kickback Act." However, for purposes of grant programs where both clauses do apply, FEMA or applicable Federal entity requires the following contract clause:

"Compliance with the Copeland "Anti-Kickback" Act.

(1) *Contractor*. The contractor shall comply with 18 U.S.C. § 874, 40 U.S.C. § 3145, and the requirements of 29 C.F.R. pt. 3 as may be applicable, which are incorporated by reference into this contract.

(2) *Subcontracts*. The contractor or subcontractor shall insert in any subcontracts the clause above and such other clauses as Federal requirements may by appropriate instructions require, 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 of these contract clauses.

(3) *Breach*. A breach of the contract clauses above may be grounds for termination of the contract, and for debarment as a contractor and subcontractor as provided in 29 C.F.R. § 5.12."

5. **Contract Work Hours and Safety Standards Act.**

a. Applicability: This requirement applies to all Federal grant and cooperative agreement programs.

b. Standard. Where applicable (see 40 U.S.C. § 3701), all contracts awarded by the non-Federal entity in excess of $100,000 that involve the employment of mechanics or laborers must include a provision for compliance with 40 U.S.C. §§ 3702 and 3704, as supplemented by Department of Labor regulations at 29 C.F.R. Part 5. See 2 C.F.R. Part 200, Appendix II, ¶ E.

Under 40 U.S.C. § 3702, each contractor must be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week.

The requirements of 40 U.S.C. § 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of

supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.

The regulation at 29 C.F.R. § 5.5(b) provides the required contract clause concerning compliance with the Contract Work Hours and Safety Standards Act:

c. Statement.

"Compliance with the Contract Work Hours and Safety Standards Act.

(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 forty 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 forty hours in such workweek.

(2) *Violation; liability for unpaid wages; liquidated damages*. In the event of any violation of the clause set forth in paragraph (1) of this section 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 paragraph (1) of this section, 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 forty hours without payment of the overtime wages required by the clause set forth in paragraph (1) of this section.

(3) *Withholding for unpaid wages and liquidated damages*. The County of Hidalgo 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 contractor, 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 paragraph (2) of this section.

(4) *Subcontracts*. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1) through (4) of this section 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 paragraphs (1) through (4) of this section."

6. **Rights to Inventions Made Under a Contract or Agreement.**

a. Applicability: Stafford Act Disaster Grants. This requirement **does not apply to the Public Assistance**, Hazard Mitigation Grant Program, Fire Management Assistance Grant Program, Crisis Counseling Assistance and Training Grant Program, Disaster Case Management Grant

Program, and Federal Assistance to Individuals and Households – Other Needs Assistance Grant Program, as FEMA or Federal awards under these programs do not meet the definition of "funding agreement."

b. Standard. If the FEMA or Federal award meets the definition of "funding agreement" under 37 C.F.R. § 401.2(a) and the non-Federal entity wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under that "funding agreement," the non-Federal entity must comply with the requirements of 37 C.F.R. Part 401 (Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements), and any implementing regulations issued by FEMA or applicable awarding agency. See 2 C.F.R. Part 200, Appendix II, ¶ F.

c. Key Definition: The regulation at 37 C.F.R. § 401.2(a) currently defines "funding agreement" as any contract, grant, or cooperative agreement entered into between any Federal agency, other than the Tennessee Valley Authority, and any contractor for the performance of experimental, developmental, or research work funded in whole or in part by the Federal government. This term also includes any assignment, substitution of parties, or subcontract of any type entered into for the performance of experimental, developmental, or research work under a funding agreement as defined in the first sentence of this paragraph.

7. **Clean Air Act and the Federal Water Pollution Control Act.**

a. Applicability and Standard: Contracts of amounts in excess of $150,000 must contain a provision that requires the contractor to agree to 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. See 2 C.F.R. Part 200, Appendix II, ¶ G.

b. Statement: Included in contracts as provided in section "7a" above.

(1) The contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. § 7401 et seq. and the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq.

(2) The contractor agrees to report each violation to the Federal awarding agency (e.g. Federal Emergency Management Agency-FEMA) and the Regional Office of the Environmental Protection Agency. Contractor understands and agrees that each violation reported to the County of Hidalgo will, in turn, be reported as required to assure notification to the Federal awarding agency and the appropriate Environmental Protection Agency Regional Office.

(3) The contractor agrees to include these requirements in each subcontract exceeding $150,000 financed in whole or in part with Federal assistance provided by the applicable Federal awarding agency (e.g. FEMA).

8. **Debarment and Suspension.**

a. Applicability: This requirement applies to all Federal grant and cooperative agreement programs.

b. Standard. Non-Federal entities and contractors are subject to the debarment and suspension regulations implementing Executive Order 12549, *Debarment and Suspension* (1986) and Executive Order 12689, *Debarment and Suspension* (1989) at 2 C.F.R. Part 180 and the Department of Homeland Security's regulations at 2 C.F.R. Part 3000 (Nonprocurement Debarment and Suspension).

These regulations restrict awards, subawards, and contracts with certain parties that are debarred, suspended, or otherwise excluded from or ineligible for participation in Federal assistance programs and activities. See 2 C.F.R. Part 200, Appendix II, ¶ H; and Chapter IV, ¶ 6.d and Appendix C, ¶ 2. A contract award must not be made to parties listed in the SAM Exclusions. SAM Exclusions is the list maintained by the General Services Administration that contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549. SAM exclusions can be accessed at www.sam.gov. See 2 C.F.R. § 180.530; Chapter IV, ¶ 6.d and Appendix C, ¶ 2.

In general, an "excluded" party cannot receive a Federal grant award or a contract within the meaning of a "covered transaction," to include subawards and subcontracts. This includes parties that receive Federal funding indirectly, such as contractors to recipients and subrecipients. The key to the exclusion is whether there is a "covered transaction," which is any nonprocurement transaction (unless excepted) at either a "primary" or "secondary" tier. Although "covered transactions" do not include contracts awarded by the Federal Government for purposes of the nonprocurement common rule and DHS's implementing regulations, it does include some contracts awarded by recipients and subrecipient.

Specifically, a covered transaction includes the following contracts for goods or services:

(1) The contract is awarded by a recipient or subrecipient in the amount of at least $25,000.
(2) The contract requires the approval of FEMA or applicable Federal entity, regardless of amount.
(3) The contract is for Federally-required audit services.
(4) A subcontract is also a covered transaction if it is awarded by the contractor of a recipient or subrecipient and requires either the approval of FEMA or applicable Federal entity or is in excess of $25,000.

c. Statement. The following provides a debarment and suspension clause. It incorporates a method of verifying that contractors are not excluded or disqualified:

For maximum protection, provide a print or electronic document for every prime and subcontractor, from www.sam.gov in order to ensure that they are not debarred, suspended, or otherwise excluded from or ineligible for participation in Federal assistance programs and activities.

This contract is a covered transaction for purposes of 2 C.F.R. pt. 180 and 2 C.F.R. pt. 3000. As such the contractor is required to verify that none of the contractor, its principals (defined at 2 C.F.R. § 180.995), or its affiliates (defined at 2 C.F.R. § 180.905) are excluded (defined at 2 C.F.R. 180.940) or disqualified (defined at 2 C.F.R. § 180.935).

The contractor must comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C and must include a requirement to comply with these regulations in any lower tier covered transaction it enters into.

This certification is a material representation of fact relied upon by (insert name of subrecipient). If it is later determined that the contractor did not comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C, in addition to remedies available to (name of state agency serving as recipient and name of subrecipient), the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment.

The bidder or proposer agrees to comply with the requirements of 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions."

9. Byrd Anti-Lobbying Amendment.

a. Applicability: This requirement applies to all Federal grant and cooperative agreement programs.

b. Standard. Contractors that apply or bid for an award of $100,000 or more must file the required certification. See 2 C.F.R. Part 200, Appendix II, ¶ I; 44 C.F.R. Part 18; Chapter IV, 6.c; Appendix C, ¶ 4. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any City, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. § 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the non-Federal award. See Chapter IV, ¶ 6.c and Appendix C, ¶ 4.

c. Statement. The following statement in bold provides a Byrd Anti-Lobbying contract clause:

(IF APPLICABLE, PLEASE FILL IN BLANKS AND SIGN)

"Byrd Anti-Lobbying Amendment, 31 U.S.C. § 1352 (as amended)

Contractors who apply or bid for an award of $100,000 or more shall file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 U.S.C. § 1352. Each tier shall also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the recipient."

APPENDIX A, 44 C.F.R. PART 18 – CERTIFICATION REGARDING LOBBYING

Certification for Contracts, Grants, Loans, and Cooperative Agreements

(To be submitted with each bid or offer exceeding $100,000)

The undersigned Contractor, _____ certifies, to the best of his or her knowledge, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31, U.S.C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

The Contractor, _____ , certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. § 3801 *et seq.*, apply to this certification and disclosure, if any.

_____

Signature of Contractor's Authorized Official

_____

Name and Title of Contractor's Authorized Official

_____

Date"

10. **Procurement of Recovered Materials.**

a. Applicability: This requirement applies to all Federal grant and cooperative agreement programs.

b. Standard. A non-Federal entity that is a **state agency or agency of a political subdivision** of a state and its contractors must comply with Section 6002 of the Solid Waste Disposal Act, Pub. L. No. 89-272 (1965) (codified as amended by the Resource Conservation and Recovery Act at 42 U.S.C. § 6962). See 2 C.F.R. Part 200, Appendix II, ¶ J; 2 C.F.R. § 200.322; *PDAT Supplement*, Chapter V, ¶ 7.

The requirements of Section 6002 include procuring only items designated in guidelines of the EPA at 40 C.F.R. 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; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.

c. Statement. The following provides the clause that a state agency or agency of a political subdivision of a state and its contractors can include in contracts meeting the above contract thresholds:

"(1) In the performance of this contract, the Contractor shall make maximum use of products containing recovered materials that are EPA- designated items unless the product cannot be acquired—

(i) Competitively within a timeframe providing for compliance with the contract performance schedule;
(ii) Meeting contract performance requirements; or

(iii) At a reasonable price.

(3) Information about this requirement, along with the list of EPA-designate items, is available at EPA's Comprehensive Procurement Guidelines web site, https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program."

Additional Required Contract Clauses for Non-Federal Entity Contracts Under Federal Awards with the Federal Emergency Management Agency (FEMA)

Additional FEMA or applicable Federal Requirements. In addition to the requirements above, non-Federal entity contracts under Federal award subject to financial assistance from FEMA are required to contain the following additional contract clauses. The Uniform Guidance authorizes FEMA to require additional provisions for non-Federal entity contracts. FEMA, pursuant to this authority, requires or recommends the following:

These clauses are incorporated by reference as part of this procurement packet and any resulting agreement.

11. **Changes**.

a. Standard. To be eligible for FEMA assistance under the non-Federal entity's Federal grant or cooperative agreement, the cost of the change, modification, change order, or constructive change must be allowable, allocable, within the scope of its grant or cooperative agreement, and reasonable for the completion of project scope. FEMA or applicable Federal entity recommends, therefore, that a non-Federal entity include a changes clause in its contract that describes how, if at all, changes can be made by either party to alter the method, price, or schedule of the work without breaching the contract. The language of the clause may differ depending on the nature of the contract and the end-item procured.

b. Statement. The following provides a contract clause regarding access to records:

"The contractor shall secure written authorization before proceeding with any additional work, whether requested by the County or required to complete the contract. The cost for any changes to the contract price, whether requested by the County or the Contractor will be approved only after submitting the contractor's true costs for the work and related equipment costs and site expenses."

12. **Access to Records**.

a. Standard. All non-Federal entities must place into their contracts a provision that all contractors and their successors, transferees, assignees, and subcontractors acknowledge and agree to comply with applicable provisions governing Department and FEMA or applicable Federal entity access to records, accounts, documents, information, facilities, and staff. See DHS Standard Terms and Conditions, v 3.0, ¶ XXVI (2013).

b. Statement. The following provides a contract clause regarding access to records:

"Access to Records. The following access to records requirements apply to this contract:

(1) The contractor agrees to provide the County of Hidalgo, the FEMA or applicable Federal Administrator, the Comptroller General of the United States, or any of their authorized representatives access to any books, documents, papers, and records of the Contractor which are directly pertinent to this contract for the purposes of making audits, examinations, excerpts, and transcriptions.

(2) The Contractor agrees to permit any of the foregoing parties to reproduce by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.

(3) The contractor agrees to provide the FEMA or applicable Federal Administrator or his authorized representatives access to construction or other work sites pertaining to the work being completed under the contract."

13. **DHS Seal, Logo, and Flags**.

a. Standard. All non-Federal entities must place in their contracts a provision that a contractor shall not use the DHS seal(s), logos, crests, or reproductions of flags or likenesses of DHS City

officials without specific FEMA or applicable Federal entity pre-approval. See DHS Standard Terms and Conditions, v3.0, ¶ XXV (2013).

b. Statement. The following provides a contract clause regarding DHS Seal, Logo, and Flags:

> "The contractor shall not use the DHS seal(s), logos, crests, or reproductions of flags or likenesses of DHS City officials without specific FEMA or applicable Federal entity pre-approval."

14. **Compliance with Federal Law, Regulations, and Executive Orders**.

a. Standard. All non-Federal entities must place into their contracts an acknowledgement that FEMA or applicable Federal financial assistance will be used to fund the contract along with the requirement that the contractor will comply with all applicable Federal law, regulations, executive orders, and FEMA or applicable Federal policies, procedures, and directives.

b. Statement. The following provides a contract clause regarding Compliance with Federal Law, Regulations and Executive Orders:

> "This is an acknowledgement that Federal financial assistance will be used to fund the contract only. The contractor will comply will all applicable Federal law, regulations, executive orders, FEMA or applicable Federal policies, procedures, and directives."

15. **No Obligation by Federal Government**.

a. Standard. The non-Federal entity must include a provision in its contract that states that the Federal Government is not a party to the contract and is not subject to any obligations or liabilities to the non-Federal entity, contractor, or any other party pertaining to any matter resulting from the contract.

b. Statement. The following provides a contract clause regarding no obligation by the Federal Government:

> "The Federal Government is not a party to this contract and is not subject to any obligations or liabilities to the non-Federal entity, contractor, or any other party pertaining to any matter resulting from the contract."

16. **Program Fraud and False or Fraudulent Statements or Related Acts**.

a. Standard. The non-Federal entity must include a provision in its contract that the contractor acknowledges that 31 U.S.C. Chap. 38 (Administrative Remedies for False Claims and Statements) applies to its actions pertaining to the contract.

b. Statement. The following provides a contract clause regarding Fraud and False or Fraudulent Related Acts:

> "The contractor acknowledges that 31 U.S.C. Chap. 38 (Administrative Remedies for False Claims and Statements) applies to the contractor's actions pertaining to this contract."

Contractor agrees to comply with all federal, state and local laws, rules, regulations and ordinances, as applicable. It is further acknowledged that the Contractor read and understands all provisions, laws, acts, regulations, etc. as specifically noted above and certifies compliance with the same.

Vendor's Name/Company Name: _____

Printed Name and Title of Authorized Representative: _____

Signature of Authorized Representative: _____

Date: _____

Exhibit "I"

FHWA 1273

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

I. General
II. Nondiscrimination
III. Nonsegregated Facilities
IV. Davis-Bacon and Related Act Provisions
V. Contract Work Hours and Safety Standards Act Provisions
VI. Subletting or Assigning the Contract
VII. Safety: Accident Prevention
VIII. False Statements Concerning Highway Projects
IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
X. Compliance with Governmentwide Suspension and Debarment Requirements
XI. Certification Regarding Use of Contract Funds for Lobbying

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding $10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under

this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: 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, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are

applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurance Required by 49 CFR 26.13(b):

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor

will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages

a. 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 1(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 paragraph 1.d. of this section; 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 paragraph 1.b. of this section) 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.

b.(1) The contracting officer shall require that any class of laborers or mechanics, including helpers, 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. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

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

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

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

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer 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 the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or

will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, 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.

c. 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.

d. 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.

2. Withholding

The contracting agency 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, the contracting agency may, after written notice to the contractor, 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.

3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and 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 1(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 1(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.

b.(1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. 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), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) 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:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) 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 Regulations, 29 CFR part 3;

(iii) 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.

(3) 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 paragraph 3.b.(2) of this section.

(4) 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.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, 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, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, 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

a. Apprentices (programs of the USDOL).

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.

b. Trainees (programs of the USDOL).

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 classification of 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.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

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 shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 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 29 CFR 5.5.

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 the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

a. 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).

b. 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).

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

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. 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 forty 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 forty hours in such workweek.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1.) of this section, 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 paragraph (1.) of this section, 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 forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contacting agency 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 contractor, 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 paragraph (2.) of this section.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section 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 paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term "perform work with its own organization" refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
(2) the prime contractor remains responsible for the quality of the work of the leased employees;
(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

T h i s p r o v i s i o n i s applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

T h i s p r o v i s i o n i s applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.
2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost $25,000 or more – as defined in 2 CFR Parts 180 and 1200.

1. Instructions for Certification – First Tier Participants:

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. Instructions for Certification - Lower Tier Participants:

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost $25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the

department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

Exhibit "J"

PROPOSER'S AFFIDAVIT

PROPOSER'S AFFIDAVIT OF NON-COLLUSION
NON-CONFLICT OF INTEREST, AND ANTI-LOBBYING

STATE OF TEXAS
COUNTY OF HIDALGO

Affiant, _____, being first duly sworn, deposes that:

(1) Affiant does hereby state neither the proposer nor any of the proposer's officers, partners, owners, agents, representatives, employees, or parties in interest, has in any way colluded, conspired, agreed, directly or indirectly with any person, firm, corporation, or another proposer, or potential proposer, to provide any money or other valuable consideration for assistance in procuring or attempting to procure a contract or fix the prices in the attached proposed or the proposal of any other proposer, and further states that no such money or another reward will be hereinafter paid.

(2) Affiant further states they have neither recommended nor suggested to Hidalgo County or any of its officials or employees, any of the terms or provisions set forth in their Request for Proposal and subsequent agreement, except at a meeting open to all interested proposers, of which proper notice was given.

(3) Affiant, further states their officers, employees, or agents have not, and will not attempt to lobby, directly or indirectly, the Hidalgo County Commissioner's Court between proposal submission date and award by the Hidalgo County Commissioner's Court.

(4) Affiant further states no officer, or stockholder of the proposer is a member of the staff, or related to any employee of Hidalgo County except as noted herein below:

Signature/Title: _____

Subscribed and sworn to before me this _____day of _____, 2020.

_____

Notary Public

My commission expires: _____, 20____

EXHIBIT "K"
Deviation Form

(*This form must be signed*)

1. DEVIATION(S) – Any deviations to the attached specifications shall be listed below, or on a separate sheet of paper, and attached to the bid response form identifying the section number, item number, and a clearly defined explanation for the deviations.

2. It is the bidder's responsibility to submit a bid that meets all mandatory specifications stated within. Because of the variations in manufacturer's construction, the bidder must compare their product bid with the required listed minimum specifications and identify any deviations.

3. Failure to properly identify deviations may render the bidder's submittal non-responsive and not capable of consideration for award.

4. Bidder should note that a descriptive brochure of the model bid may not be sufficient or acceptable as proper identification of deviations from the written specifications.

NO - Deviations:_____ YES - Deviations:_____

List any deviations your company is submitting below: (Use a separate page, if necessary)

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____
Company Name

_____
Print Name of Authorized Company Official

_____
Signature of Authorized Company Official

EXHIBIT "L"
Prevailing Wage Rates
Certification Statement

Date _____

Project Name _____

Contractor _____

I, _____ **do hereby state:**
(Name of Project Director)

1. That a payroll (form WH-347 or similar form) was submitted for contract work Performed for the period covered by the attached application.
2. That a statement of compliance (Form WH-347 or similar form) was submitted with the payroll.
3. The certified payroll complies with the classifications and minimum wage rates Stipulated in the contract.
4. That a minimum of one interview was conducted with laborers using Form HUD-11 or similar.

_____
Signature

EXHIBIT "M"
HIDALGO COUNTY
BID BOND

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

_____ as Principal, and _____

_____ as Surety, are hereby held and firmly bound

unto _____ as OWNER in the penal sum of _____

_____

for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, successors and assigns.

Signed, this _____ day of _____, 2_____.

The condition of the above obligation is such that whereas the Principal has submitted to _____

_____ a certain BID attached hereto and

hereby made a part hereof to enter into a contract in writing for the

_____

_____

_____

_____

NOW, THEREFORE,

(a) If said Bid shall be rejected, or

(b) If said Bid shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attached hereto (properly completed in accordance with said BID) and Shall furnish a BOND for his faithful performance of said contract, and the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said BID, then, this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation is herein stated.

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

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

_____(L.S.)
Principal

_____
Surety

By:_____

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

Exhibit "N"
CONSTRUCTION IDENTIFICATION SIGN:

CONTRACTOR WILL CONTACT PRECINCT FOR INSTRUCTIONS ON SIGN LETTERING AND LOGO

Size, 4' – 0" X 8' – 0"
Letters to be brown with beige background

Construction Identification Signs To Be Erected Before Beginning of Actual Construction

Wood for Signs Shall Be ¾" Waterproofing Resin Bonded Exterior Grade Plywood (Douglas Fir Plywood Association or Equal)

Payment for Furnishing, Erecting, Maintenance, and Removing Construction Identification Signs Will Not Be made Directly. Such Costs Shall be Included in the Overall Bid Submitted.

To Be Erected as Indicated on title Sheet.

Precinct Logo

Your Tax Dollars at Work
Hidalgo County Pct. 4

Ellie Torres, Commissioner

In Partnership with

ECISD
Avila-Harwell Campuses Safe Walk Community Project

Hidalgo County Commissioner's Court

Richard Cortez	-	County Judge
David Fuentes	-	Commissioner Pct. #1
Eduardo "Eddie" Cantu	-	Commissioner Pct. #2
Everardo "Ever" Villarreal	-	Commissioner Pct. #3
Ellie Torres	-	Commissioner Pct. #4

Project Contractor: _____ Project Engineer:_____

GENERAL NOTES:

1. ALL WORK SHALL BE COMPLETED TO THE SATISFACTION OF THE HIDALGO COUNTY DRAINAGE DISTRICT No. 1, HIDALGO COUNTY IRRIGATION DISTRICT No. 1.

2. THE DRAINAGE DISTRICT SHALL BE RESPONSIBLE TO CONTACT MR. RICHARD GARCIA WITH NORTH ALAMO WATER SUPPLY CORP. (N.A.W.S.C.) 48 HOURS PRIOR TO COMMENCEMENT OF WORK @ (956) 383-1618 TO COORDINATE AND MEET ANY ADDITIONAL REQUIREMENTS AND/OR SPECIFICATIONS.

3. THE CONTRACTOR SHALL BE RESPONSIBLE TO CALL DIG TESS 48 HOURS PRIOR TO COMMENCEMENT OF WORK FOR UTILITY SPOTTING @ (1-800-DIG-TESS).

4. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTACT MR. BOBBY RUSSEL MCDANIEL WITH HIDALGO COUNTY IRRIGATION DISTRICT No. 1 (H.C.I.D. No. 1) 48 HOURS PRIOR TO COMMENCEMENT OF WORK @ (956) 383-3886 TO COORDINATE AND MEET ANY ADDITIONAL REQUIREMENTS AND/OR SPECIFICATIONS.

5. THE CONTRACTOR TO NOTIFY ALL UTILITY COMPANIES FOR VERIFICATION OF LOCATION OF EXISTING FACILITIES PRIOR TO BEGINNING ANY EXCAVATION.

6. LOCATIONS OF UNDERGROUND FACILITIES ARE FROM BEST INFORMATION AVAILABLE. NEITHER THE OWNER OR ENGINEER, WARRANT THE ACCURACY OF THE INFORMATION PROVIDED. ANY DEVIATIONS SHALL BE CALLED TO THE ENGINEER'S ATTENTION IMMEDIATELY.

7. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE CORRESPONDING UTILITY CORPORATION IN REGARDS TO THE RELOCATION/ADJUSTION OF ANY CONFLICTING UTILITIES. THE RELOCATION/ADJUSTMENT SHALL BE CONSIDERED SUBSIDIARY TO THE PROJECT COST AND REFLECTED IN THE UNIT BID PRICES FOR VARIOUS ITEMS LISTED IN THE PROPOSAL.

8. THE CONTRACTOR SHALL PROVIDE ACCESS TO EXISTING RESIDENCES AT ALL TIMES.

9. ANY DAMAGES TO FENCES, WALKS, OR PRIVATE PROPERTY SHALL BE REPAIRED BY THE CONTRACTOR AT HIS EXPENSE.

10. THE CONTRACTOR SHALL REMOVE ALL FENCES LOCATED WITHIN THE EASEMENTS, INTERFERING WITH CONSTRUCTION OPERATION AND PROVIDE TEMPORARY FENCING DURING CONSTRUCTION. REMOVED FENCES SHALL BE REPLACED WITH A NEW FENCE OR UNDAMAGED ORIGINAL FENCING. REMOVAL AND REPLACEMENT OF EXISTING AND TEMPORARY FENCES SHALL BE CONSIDERED SUBSIDIARY TO THE PROJECT COST AND REFLECTED IN THE UNIT BID PRICES FOR VARIOUS ITEMS LISTED IN THE PROPOSAL.

11. NO OPEN EXCAVATION SHALL BE LEFT OPEN OVERNIGHT. ALL EXCAVATIONS WHICH CANNOT BE BACKFILLED OVERNIGHT SHALL BE COVERED. AS A MINIMUM, WITH STEEL PLATING WHEN IN PAVED AND UNPAVED AREAS SUBJECT TO VEHICULAR LOADING; ¾ PLYWOOD, WOOD PLANKING WITH O.S.H.A. ORANGE PLASTIC EXPANDED MESH BARRIER AROUND PERIMETER IN UNPAVED AREAS NOT SUBJECT TO VEHICULAR LOADING, OR AS APPROVED BY THE ENGINEER.

12. THE PREPARATION OF THESE PLANS REFLECTS INFORMATION, PROVIDED BY OTHERS, ON THE APPROXIMATE LOCATION AND EXISTENCE OF EXISTING UTILITY AND ADJACENT PHYSICAL FEATURES. HOWEVER, THEY DO NOT IMPLY OR AFFIRM THAT ALL UTILITIES OR PHYSICAL FEATURES ARE SHOWN. GENERALLY, UTILITY

SERVICE CONNECTIONS ARE NOT INDICATED ON THESE PLANS. CONTRACTOR IS RESPONSIBLE FOR NOTIFICATIONS OF THE OWNER IMMEDIATELY UPON ENCOUNTERING UNFORESEEN CONFLICTS.

13. THE APPROXIMATE LOCATIONS OF KNOWN EXISTING UTILITIES ARE SHOWN, CONTRACTOR SHALL DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATIONS IN THE FIELD PRIOR TO COMMENCING WORK. CONTRACTOR TO BE FULLY RESPONSIBLE FOR DAMAGES WHICH MIGHT OCCUR BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE EXISTING UTILITIES.

14. PUBLIC AND PRIVATE UTILITY LINES AND CUSTOMER SERVICE LINES MAY EXIST THAT ARE NOT SHOWN ON THE CONSTRUCTION DRAWINGS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE, MAINTAIN AND PROTECT THE INTEGRITY OF THESE LINES. HAND EXCAVATION MAY BE REQUIRED. THE CONTRACTOR SHALL RESTORE RELOCATED OR DIVERTED UTILITY TO ITS ORIGINAL CONDITION AND LOCATION WHEN APPLICABLE UPON COMPLETION OF CONSTRUCTION. SAID RESTORATION SHALL BE CONSIDERED SUBSIDIARY TO THE PROJECT COST AND REFLECTED IN THE UNIT BID PRICES FOR VARIOUS ITEMS LISTED IN THE PROPOSAL.

15. THE CONTRACTOR SHALL ADJUST EXISTING N.A.W.S.C. WATER LINES AS REQUIRED TO INSTALL DRAINAGE IMPROVEMENTS SAID ADJUSTMENTS SHALL BE COORDINATED WITH N.A.W.S.C. PRIOR TO COMMENCEMENT OF WORK. SAID WATER LINE ADJUSTMENT SHALL BE CONSIDERED SUBSIDIARY TO THE PROJECT COST AND REFLECTED IN THE UNIT BID PRICES FOR VARIOUS ITEMS LISTED IN THE PROPOSAL.

16. THE CONTRACTOR SHALL ADJUST AND CONNECT TO NEW SYSTEM EXISTING FIELD DRAIN LINES AT PROPOSED LOCATIONS. SAID WORK SHALL BE COORDINATED WITH H.C.I.D. No. 2 PRIOR TO COMMENCEMENT OF WORK. SAID LINE ADJUSTMENTS AND CONNECTIONS SHALL BE CONSIDERED SUBSIDIARY TO THE PROJECT COST AND REFLECTED IN THE UNIT BID PRICES FOR VARIOUS ITEMS LISTED IN THE PROPOSAL.

17. THE CONTRACTOR TO MAINTAIN ALL EQUIPMENT AND TRANSPORTATION OF SAID EQUIPMENT WITHIN THE EXISTING RIGHTS-OF-WAY OF THE CITY, COUNTY, OR STATE.

18. DURING EXCAVATION OPERATIONS FOR DRAINAGE AND/OR UTILITIES, THE CONTRACTOR SHALL NOT PILE EXCAVATED MATERIAL OR EXCAVATE WITHIN THE DRIP LINE OF TREES THAT ARE TO BE PRESERVED.

19. WHERE NEW WATER LINES AND SEWER LINES ARE INSTALLED WITH A SEPARATION DISTANCE CLOSER THAN NINE FEET (I.E., WATER LINES CROSSING WASTEWATER LINES, WATER LINES PARALLELING WASTEWATER LINES, OR WATER LINES NEXT TO MANHOLES) THE INSTALLATION MUST MEET THE REQUIREMENTS OF 30 TAC 317 (DESIGN OF SEWAGE SYSTEMS) OR 30 TAC 290 (WATER HYGIENE).

20. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING WATER AND SEWER CONNECTIONS TO ALL HOMES AND BUSINESSES IN WORKING ORDER AT ALL TIMES, EXCEPT FOR BRIEF INTERRUPTIONS IN SERVICE FOR CONNECTIONS TO BE REINSTALLED. IN NO CASE SHALL SERVICES BE ALLOWED TO REMAIN OUT OF SERVICE OVERNIGHT. CONTRACTOR IS RESPONSIBLE FOR DAMAGES TO SAID SERVICES.

21. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ADEQUATE DRAINAGE OF PROPOSED FACILITIES AT ALL TIMES DURING CONSTRUCTION.

22. THE CONTRACTOR SHALL BE RESPONSIBLE FOR GRADING AREA BETWEEN THE BACK OF CURB/EDGE OF PAVEMENT, ROAD SIDE DITCH AND RIGHT-OF-WAY TO HAVE POSITIVE FLOW TO THE PROPOSED DRAINAGE SYSTEM.

23. THE CONTRACTOR SHALL PROVIDE/MAINTAIN ADEQUATE POSITIVE DRAINAGE AT ALL TIMES DURING THE INSTALLATION OF THE STRUCTURES, DRAINAGE, UTILITY, IRRIGATION AND ROAD IMPROVEMENTS. DEWATERING

OF THE TRENCH MAY BE REQUIRED DURING THE INSTALLATION OF THE DRAINAGE, UTILITY AND IRRIGATION FACILITIES/STRUCTURES. SAID DEWATERING SHALL BE CONSIDERED SUBSIDIARY TO THE PROJECT COST AND REFLECTED IN THE UNIT BID PRICES FOR VARIOUS ITEMS LISTED IN THE PROPOSAL.

24. THE CONTRACTOR SHALL CLEANUP AND RESTORE THE AREA OF OPERATIONS TO A CONDITION AS GOOD AS OR BETTER THAN THAT WHICH EXISTED PRIOR TO INSTALLATION OF ALL ITEMS TO BE CONSTRUCTED.

25. ALL DEBRIS, VEGETATION AND SURPLUS MATERIAL, RESULTING FROM DEMOLITION AND/OR CLEARING OF THE RIGHT-OF-WAY IN PREPARATION OF PROPOSED IMPROVEMENTS SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE PROPERLY DISPOSED OF AT A SITE ACCEPTABLE TO HIDALGO COUNTY PRECINCT DRAINAGE DISTRICT No 1. THE CONTRACTOR SHALL PROVIDE A LETTER STATING SO. THIS SHALL BE INCIDENTAL AND NOT A SEPARATE PAY ITEM UNLESS STATED SO. NO EXCESS EXCAVATED MATERIAL SHALL BE DEPOSITED IN LOW AREAS OR ALONG NATURAL DRAINAGE WAYS WITHOUT WRITTEN PERMISSION FROM THE AFFECTED PROPERTY OWNER AND THE HIDALGO COUNTY DRAINAGE DISTRICT No 1. IF THE CONTRACTOR PLACES EXCESS MATERIAL IN THE AREAS WITHOUT WRITTEN PERMISSION, HE WILL BE RESPONSIBLE FOR ALL DAMAGE RESULTING FROM SUCH FILL AND CONTRACTOR SHALL REMOVE THE MATERIAL AT OWN COST.

26. THE CONTRACTOR IS RESPONSIBLE FOR THE PREPARATION AND SUBMITTAL OF THE TRENCH EXCAVATION PROTECTION PLAN. CONTRACTOR SHALL SUBMIT CONSTRUCTION DETAILS AND DESIGN CALCULATIONS BEARING THE SEAL OF A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF TEXAS BEFORE CONSTRUCTING THE SHORING AND/OR UTILIZING A TRENCH PROTECTION SYSTEM (BOX). THE ENGINEER RESERVES THE RIGHT TO REJECT DESIGNS NOT MEETING THE REQUIREMENTS OF SECTION ITEM 402 AND 403.

27. THE CONTRACTOR SHALL BE RESPONSIBLE TO FOLLOW ALL T.C.E.Q. STORM WATER POLLUTION PREVENTION PLAN (SWP3) REQUIREMENTS AS PER SWP3 SHEETS AND AS STATED IN TEXAS POLLUTANT DISCHARGE ELIMINATION SYSTEM CONSTRUCTION GENERAL PERMIT (TPDES TXR150000, EFFECTIVE DATE MARCH 5, 2008), INCLUDING N.O.I. SUBMITTAL AND MS4 NOTIFICATION.

28. FLEXIBLE BASE AGGREGATE SHALL MEET THE REQUIREMENTS IN THE TABLE BELOW. NEW CALICHE MATERIAL SHALL BE TREATED WITH 0.5% LIME BY DRY WEIGHT OF MATERIAL IF THE PLASTICITY INDEX OF SAID MATERIAL IS GREATER THAN 12.

29. ALL ROAD CROSSINGS SHALL BE REPLACED WITH A MINIMUM OF 8" COMPACTED CALICHE AND 2" HMAC OR LIKE SECTION, WHICHEVER IS GREATER.

30. THE DRAINAGE DISTRICT WILL PROVIDE CONTROL POINTS (BENCHMARK AND PROPERTY CORNERS) FOR THE WORK TO BE PERFORMED BY THE CONTRACTOR. CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION STAKING, INCLUDING BUT NOT LIMITED TO HORIZONTAL & VERTICAL GRADE CUTS FOR CURB & GUTTER, ROADWAY, STORM DRAIN PIPE, ROADSIDE DITCHES, DRIVEWAY CULVERTS AND DITCH WORK.

31. THE CONTRACTOR SHALL CONNECT PROP. IRRIGATION LINE WITH EXISTING IRRIGATION PIPE IN ACCORDANCE WITH H.C.I.D. No 2 SPECIFICATIONS. SUPPORT COLLARS MAY BE USED. THE CONTRACTOR SHALL BE RESPONSIBLE TO REPAIR ANY DAMAGE TO THE EXIST. LINE CAUSED BY THIS WORK. ELBOWS AND MISC. FITTINGS SHALL ALSO BE USE TO ACHIEVE A 1.0 FT SEPARATION BETWEEN TOP OF PROP. DRAIN LINE AND BOTTOM OF THE IRRIGATION LINE.

32. ELBOW FOR RCP OR HPP BEING PROPOSED AT THE END OF LINES SHALL BE PRE-FABRICATED AND SECURED TO THE PIPE WITH A CONCRETE COLLAR (TYPICAL ON ALL PIPE ELBOW INSTALLATIONS.) ELBOW SHALL BE REQUIRED AT ALL LOCATIONS SHOWN ON THE PLANS. THIS SHALL BE CONSIDERED SUBSIDIARY TO THE

PROJECT COST AND REFLECTED IN THE UNIT BID PRICES FOR VARIOUS ITEMS LISTED IN THE PROPOSAL. PRE-FABRICATED ELBOWS SHALL BE FIELD CONFIRMED BY THE CONTRACTOR.

33. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPROVING ALL EXISTING DRIVEWAYS. CALICHE, DIRT OR ASPHALT DRIVEWAYS SHALL BE REPLACED WITH 3" COMPACTED CALICHE AND 1" ACP. CONCRETE DRIVEWAYS SHALL BE REPLACED WITH 4" CONCRETE WITH REINFORCEMENT AS PER DETAILS. THIS SHALL BE CONSIDERED SUBSIDIARY TO THE PROJECT COST REFLECTED IN THE UNIT BID PRICES FOR VARIOUS ITEMS LISTED ON THE PROPOSAL.

34. FOR ALL PITS OR QUARRIES, COMPLY WITH THE "TEXAS AGGREGATE QUARRY AND PIT SAFETY ACT."

35. THE CONTRACTOR SHALL RELOCATE OR RECONSTRUCT ALL MAIL BOXES TO BE 1' BEHIND BACK OF CURB OR 3' BEHIND EDGE OF PAVEMENT. MAIL BOXES SHALL BE REPLACED TO THE SAME EXISTING CONDITIONS OR BETTER. SAID RELOCATION AND/OR RECONSTRUCTION OF MAIL BOXES SHALL BE CONSIDERED SUBSIDIARY TO THE PROJECT COST AND REFLECTED IN THE UNIT BID PRICES FOR VARIOUS ITEMS LISTED IN THE PROPOSAL.

36. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING ALL EXISTING WATER VALVES AND MANHOLES TO MATCH PROPOSED FINISH GRADE OF ROADWAY. CONCRETE COLLARS SHALL BE INSTALLED TO MATCH TOPS WITH PAVEMENT GRADE. THIS WORK SHALL BE INCIDENTAL AND NOT A SEPARATE PAY ITEM UNLESS STATED OTHERWISE.

37. THE CONTRACTOR SHALL INSURE A 6" MINIMUM COVER FOR DRIVEWAY CULVERTS. THE RELAYING OR REMOVAL OF DRIVEWAY PIPE CULVERTS SHALL BE CONSIDERED SUBSIDIARY TO THE PROJECT COST REFLECTED IN THE UNIT BID PRICES FOR VARIOUS ITEMS LISTED ON THE PROPOSAL.

38. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPLACEMENT/RELOCATION OF ALL REGULATORY SIGNS REMOVED DUE TO CONSTRUCTION OPERATIONS WITH THE SAME SIGN ON FIXED SUPPORT(S) IMMEDIATELY UPON ITS REMOVAL. APPROVAL BY THE ENGINEER IS NECESSARY BEFORE REMOVING ANY REGULATORY ROADWAY SIGN(S). FLAGGERS ARE REQUIRED TO BE AVAILABLE TO DIRECT TRAFFIC DURING SIGN INTERMEDIATE DOWN TIME. RELOCATION OF ANY DIRECTIONAL SIGN ASSEMBLIES REMOVED DURING CONSTRUCTION OPERATIONS IMMEDIATELY UPON THEIR REMOVAL IS REQUIRED. THESE SIGNS SHALL BE RELOCATED TO A LOCATION IN ACCORDANCE WITH THE LATEST VERSION OF THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES". IN NO CASE WILL A SIGN BE REMOVED WITHOUT A REPLACEMENT SIGN AND SUPPORT(S) BEING READILY AVAILABLE AND A LOCATION ESTABLISHED. REMOVAL AND RELOCATION OF THESE SIGNS WILL NOT BE PAID FOR DIRECTLY BUT SHALL BE CONSIDERED SUBSIDIARY TO THE PROJECT COST REFLECTED IN THE UNIT BID PRICES FOR VARIOUS ITEMS LISTED ON THE PROPOSAL.

39. ALL CONSTRUCTION OPERATIONS SHALL BE CONDUCTED TO PROVIDE THE LEAST POSSIBLE INTERFERENCE TO TRAFFIC AS PROVIDED FOR IN THE SPECIFICATIONS, TxDOT STANDARDS, TEXAS M.U.T.C.D. AND/OR AS DIRECTED. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE CURRENT EDITION OF THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

40. THE CONTRACTOR SHALL ABANDON AND CAP ANY PORTION OF PIPE LINE (STORM, IRRIGATION, ETC.) FOUND WITHIN THE PROPOSED PIPE TRENCH, AT THE ENGINEERS REQUEST. ONCE APPROVED BY THE ENGINEER, THE PIPE TO BE ABANDONED SHALL BE CAPPED AND SEALED WITH CEMENT AT BOTH ENDS OF THE TRENCH. THIS SHALL BE CONSIDERED SUBSIDIARY UNLESS OTHERWISE STATED.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

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GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Contract Documents and printed with initial or all capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof.

1. *Addenda*--Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the Contract Documents.

2. *Agreement*--The written instrument which is evidence of the agreement between OWNER and CONTRACTOR covering the Work.

3. *Application for Payment*--The form acceptable to ENGINEER which is to be used by CONTRACTOR during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Asbestos*--Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. *Bid*--The offer or proposal of a bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

6. *Bidding Documents*--The Bidding Requirements and the proposed Contract Documents (including all Addenda issued prior to receipt of Bids).

7. *Bidding Requirements*--The Advertisement or Invitation to Bid, Instructions to Bidders, Bid security form, if any, and the Bid form with any supplements.

8. *Bonds*--Performance and payment bonds and other instruments of security.

9. *Change Order*--A document recommended by ENGINEER which is signed by CONTRACTOR and OWNER and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.

10. *Claim*--A demand or assertion by OWNER or CONTRACTOR seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. *Contract*--The entire and integrated written agreement between the OWNER and CONTRACTOR concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*--The Contract Documents establish the rights and obligations of the parties and include the Agreement, Addenda (which pertain to the Contract Documents), CONTRACTOR's Bid (including documentation accompanying the Bid and any post Bid documentation submitted prior to the Notice of Award) when attached as an exhibit to the Agreement, the Notice to Proceed, the Bonds, these General Conditions, the Supplementary Conditions, the Specifications and the Drawings as the same are more specifically identified in the Agreement, together with all Written Amendments, Change Orders, Work Change Directives, Field Orders, and ENGINEER's written interpretations and clarifications issued on or after the Effective Date of the Agreement. Approved Shop Drawings and the reports and drawings of subsurface and physical conditions are not Contract Documents. Only printed or hard copies of the items listed in this paragraph are Contract Documents. Files in electronic media format of text, data, graphics, and the like that may be furnished by OWNER to CONTRACTOR are not Contract Documents.

13. *Contract Price*--The moneys payable by OWNER to CONTRACTOR for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of paragraph 11.03 in the case of Unit Price Work).

14. *Contract Times*--The number of days or the dates stated in the Agreement to: (i) achieve Substantial Completion; and (ii) complete the Work so that it is ready for final payment as evidenced by ENGINEER's written recommendation of final payment.

15. *CONTRACTOR*--The individual or entity with whom OWNER has entered into the Agreement.

16. *Cost of the Work*--See paragraph 11.01.A for definition.

17. *Drawings*--That part of the Contract Documents prepared or approved by ENGINEER which graphically shows the scope, extent, and character of the Work to be performed by CONTRACTOR. Shop Drawings and other CONTRACTOR submittals are not Drawings as so defined.

18. *Effective Date of the Agreement*--The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

19. *ENGINEER*--The individual or entity named as such in the Agreement.

20. *ENGINEER's Consultant*--An individual or entity having a contract with ENGINEER to furnish services as ENGINEER's independent professional associate or consultant with respect to the Project and who is identified as such in the Supplementary Conditions.

21. *Field Order*--A written order issued by ENGINEER which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.

22. *General Requirements*--Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.

23. *Hazardous Environmental Condition*--The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto in connection with the Work.

24. *Hazardous Waste*--The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

25. *Laws and Regulations; Laws or Regulations*--Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

26. *Liens*--Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

27. *Milestone*--A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

28. *Notice of Award*--The written notice by OWNER to the apparent successful bidder stating that upon timely compliance by the apparent successful bidder with the conditions precedent listed therein, OWNER will sign and deliver the Agreement.

29. *Notice to Proceed*--A written notice given by OWNER to CONTRACTOR fixing the date on which the Contract Times will commence to run and on which CONTRACTOR shall start to perform the Work under the Contract Documents.

30. *OWNER*--The individual, entity, public body, or authority with whom CONTRACTOR has entered into the Agreement and for whom the Work is to be performed.

31. *Partial Utilization*--Use by OWNER of a substantially completed part of the Work for the purpose for which it is intended (or a related purpose) prior to Substantial Completion of all the Work.

32. *PCBs*--Polychlorinated biphenyls.

33. *Petroleum*--Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

34. *Project*--The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part as may be indicated elsewhere in the Contract Documents.

35. *Project Manual*--The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

36. *Radioactive Material*--Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

37. *Resident Project Representative*--The authorized representative of ENGINEER who may be assigned to the Site or any part thereof.

38. *Samples*--Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

39. *Shop Drawings*--All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for CONTRACTOR and submitted by CONTRACTOR to illustrate some portion of the Work.

40. *Site*--Lands or areas indicated in the Contract Documents as being furnished by OWNER upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by OWNER which are designated for the use of CONTRACTOR.

41. *Specifications*--That part of the Contract Documents consisting of written technical descriptions of materials, equipment, systems, standards, and workmanship as applied to the Work and certain administrative details applicable thereto.

42. *Subcontractor*--An individual or entity having a direct contract with CONTRACTOR or with any other Subcontractor for the performance of a part of the Work at the Site.

43. *Substantial Completion*--The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of ENGINEER, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

44. *Supplementary Conditions*--That part of the Contract Documents which amends or supplements these General Conditions.

45. *Supplier*--A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with CONTRACTOR or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by CONTRACTOR or any Subcontractor.

46. *Underground Facilities*--All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

47. *Unit Price Work*--Work to be paid for on the basis of unit prices.

48. *Work*--The entire completed construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

49. *Work Change Directive*--A written statement to CONTRACTOR issued on or after the Effective Date of the Agreement and signed by OWNER and recommended by ENGINEER ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

50. *Written Amendment*--A written statement modifying the Contract Documents, signed by OWNER and CONTRACTOR on or after the Effective Date of the Agreement and normally dealing with the nonengineering or nontechnical rather than strictly construction-related aspects of the Contract Documents.

1.02 *Terminology*

A. *Intent of Certain Terms or Adjectives*

1. Whenever in the Contract Documents the terms "as allowed," "as approved," or terms of like effect or import are used, or the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of ENGINEER as to the Work, it is intended that such action or determination will be solely to evaluate, in general, the completed Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective shall not be effective to assign to ENGINEER any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 9.10 or any other provision of the Contract Documents.

B. *Day*

1. The word "day" shall constitute a calendar day of 24 hours measured from midnight to the next midnight.

C. *Defective*

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it does not conform to the Contract Documents or does not meet the requirements of any inspection, reference standard, test, or approval referred to in the Contract Documents, or has been damaged prior to ENGINEER's recommendation of final payment (unless responsibility for the protection thereof has been assumed by OWNER at Substantial Completion in accordance with paragraph 14.04 or 14.05).

D. *Furnish, Install, Perform, Provide*

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of CONTRACTOR, "provide" is implied.

E. Unless stated otherwise in the Contract Documents, words or phrases which have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 - PRELIMINARY MATTERS

2.01 *Delivery of Bonds*

A. When CONTRACTOR delivers the executed Agreements to OWNER, CONTRACTOR shall also deliver to OWNER such Bonds as CONTRACTOR may be required to furnish.

2.02 *Copies of Documents*

A. OWNER shall furnish to CONTRACTOR up to ten copies of the Contract Documents. Additional copies will be furnished upon request at the cost of reproduction.

2.03 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times com-

mence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 *Starting the Work*

A. CONTRACTOR shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 *Before Starting Construction*

A. *CONTRACTOR's Review of Contract Documents:* Before undertaking each part of the Work, CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. CONTRACTOR shall promptly report in writing to ENGINEER any conflict, error, ambiguity, or discrepancy which CONTRACTOR may discover and shall obtain a written interpretation or clarification from ENGINEER before proceeding with any Work affected thereby; however, CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless CONTRACTOR knew or reasonably should have known thereof.

B. *Preliminary Schedules:* Within ten days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), CONTRACTOR shall submit to ENGINEER for its timely review:

1. a preliminary progress schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;

2. a preliminary schedule of Shop Drawing and Sample submittals which will list each required submittal and the times for submitting, reviewing, and processing such submittal; and

3. a preliminary schedule of values for all of the Work which includes quantities and prices of
items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

C. *Evidence of Insurance:* Before any Work at the Site is started, CONTRACTOR and OWNER shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which CONTRACTOR and OWNER respectively are required to purchase and maintain in accordance with Article 5.

2.06 *Preconstruction Conference*

A. Within 20 days after the Contract Times start to run, but before any Work at the Site is started, a conference attended by CONTRACTOR, ENGINEER, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in paragraph 2.05.B, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

2.07 *Initial Acceptance of Schedules*

A. Unless otherwise provided in the Contract Documents, at least ten days before submission of the first Application for Payment a conference attended by CONTRACTOR, ENGINEER, and others as appropriate will be held to review for acceptability to ENGINEER as provided below the schedules submitted in accordance with paragraph 2.05.B. CONTRACTOR shall have an additional ten days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to CONTRACTOR until acceptable schedules are submitted to ENGINEER.

1. The progress schedule will be acceptable to ENGINEER if it provides an orderly progression of the Work to completion within any specified Milestones and the Contract Times. Such acceptance will not impose on ENGINEER responsibility for the progress schedule, for sequencing, scheduling, or progress of the Work nor interfere with or relieve CONTRACTOR from CONTRACTOR's full responsibility therefor.

2. CONTRACTOR's schedule of Shop Drawing and Sample submittals will be acceptable to ENGINEER if it provides a workable arrangement for reviewing and processing the required submittals.

3. CONTRACTOR's schedule of values will be acceptable to ENGINEER as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is called for by one is as binding as if called for by all.

B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be provided whether or not specifically called for at no additional cost to OWNER.

C. Clarifications and interpretations of the Contract Documents shall be issued by ENGINEER as provided in Article 9.

3.02 *Reference Standards*

A. *Standards, Specifications, Codes, Laws, and Regulations*

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard, specification, manual or code, or any instruction of a Supplier shall be effective to change the duties or responsibilities of OWNER, CONTRACTOR, or ENGINEER, or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents, nor shall any such provision or instruction be effective to assign to OWNER, ENGINEER, or any of ENGINEER's Consultants, agents, or employees any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

1. If, during the performance of the Work, CONTRACTOR discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, CONTRACTOR shall report it to ENGINEER in writing at once. CONTRACTOR shall not proceed with the Work affected thereby (except in an emergency as required by paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in paragraph 3.04; provided, however, that CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any such conflict, error, ambiguity, or discrepancy unless CONTRACTOR knew or reasonably should have known thereof.

B. *Resolving Discrepancies*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

a. the provisions of any standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or

b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof in one or

B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways: (i) a Field Order; (ii) ENGINEER's approval of a Shop Drawing or Sample; or (iii) ENGINEER's written interpretation or clarification.

3.05 *Reuse of Documents*

A. CONTRACTOR and any Subcontractor or Supplier or other individual or entity performing or furnishing any of the Work under a direct or indirect contract with OWNER: (i) shall not have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of ENGINEER or ENGINEER's Consultant, including electronic media editions; and (ii) shall not reuse any of such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of OWNER and ENGINEER and specific written verification or adaption by ENGINEER. This prohibition will survive final payment, completion, and acceptance of the Work, or termination or completion of the Contract. Nothing herein shall preclude CONTRACTOR from retaining copies of the Contract Documents for record purposes.

ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; REFERENCE POINTS

4.01 *Availability of Lands*

A. OWNER shall furnish the Site. OWNER shall notify CONTRACTOR of any encumbrances or restrictions not of general application but specifically related to use of the Site with which CONTRACTOR must comply in performing the Work. OWNER will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If CONTRACTOR and OWNER are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in OWNER's furnishing the Site, CONTRACTOR may make a Claim therefor as provided in paragraph 10.05.

B. Upon reasonable written request, OWNER shall furnish CONTRACTOR with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and OWNER's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 *Subsurface and Physical Conditions*

A. *Reports and Drawings:* The Supplementary Conditions identify:

1. those reports of explorations and tests of subsurface conditions at or contiguous to the Site that ENGINEER has used in preparing the Contract Documents; and

2. those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that ENGINEER has used in preparing the Contract Documents.

B. *Limited Reliance by CONTRACTOR on Technical Data Authorized:* CONTRACTOR may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," CONTRACTOR may not rely upon or make any Claim against OWNER, ENGINEER, or any of ENGINEER's Consultants with respect to:

1. the completeness of such reports and drawings for CONTRACTOR's purposes, includ-

ing, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by CONTRACTOR, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any CONTRACTOR interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If CONTRACTOR believes that any subsurface or physical condition at or contiguous to the Site that is uncovered or revealed either:

1. is of such a nature as to establish that any "technical data" on which CONTRACTOR is entitled to rely as provided in paragraph 4.02 is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then CONTRACTOR shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by paragraph 6.16.A), notify OWNER and ENGINEER in writing about such condition. CONTRACTOR shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *ENGINEER's Review:* After receipt of written notice as required by paragraph 4.03.A, ENGINEER will promptly review the pertinent condition, determine the necessity of OWNER's obtaining additional exploration or tests with respect thereto, and advise OWNER in writing (with a copy to CONTRACTOR) of ENGINEER's findings and conclusions.

C. *Possible Price and Times Adjustments*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in CONTRACTOR's cost of, or time required for, performance of the Work; subject, however, to the following:

a. such condition must meet any one or more of the categories described in paragraph 4.03.A; and

b. with respect to Work that is paid for on a Unit Price Basis, any adjustment in Contract Price will be subject to the provisions of paragraphs 9.08 and 11.03.

2. CONTRACTOR shall not be entitled to any adjustment in the Contract Price or Contract Times if:

a. CONTRACTOR knew of the existence of such conditions at the time CONTRACTOR made a final commitment to OWNER in respect of Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for CONTRACTOR prior to CONTRACTOR's making such final commitment; or

c. CONTRACTOR failed to give the written notice within the time and as required by paragraph 4.03.A.

3. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be

made therefor as provided in paragraph 10.05. However, OWNER, ENGINEER, and ENGINEER's Consultants shall not be liable to CONTRACTOR for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by CONTRACTOR on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to OWNER or ENGINEER by the owners of such Underground Facilities, including OWNER, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. OWNER and ENGINEER shall not be responsible for the accuracy or completeness of any such information or data; and

2. the cost of all of the following will be included in the Contract Price, and CONTRACTOR shall have full responsibility for:

a. reviewing and checking all such information and data,

b. locating all Underground Facilities shown or indicated in the Contract Documents,

c. coordination of the Work with the owners of such Underground Facilities, including OWNER, during construction, and

d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, CONTRACTOR shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to OWNER and ENGINEER. ENGINEER will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, CONTRACTOR shall be responsible for the safety and protection of such Underground Facility.

2. If ENGINEER concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price of Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that CONTRACTOR did not know of and could not reasonably have been expected to be aware of or to have anticipated. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, OWNER or CONTRACTOR may make a Claim therefor as provided in paragraph 10.05.

4.05 *Reference Points*

A. OWNER shall provide engineering surveys to establish reference points for construction which in ENGINEER's judgment are necessary to enable CONTRACTOR to proceed with the Work. CONTRACTOR shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of OWNER. CONTRACTOR shall report to ENGINEER whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 *Hazardous Environmental Condition at Site*

A. *Reports and Drawings:* Reference is made to the Supplementary Conditions for the identification of those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that have been utilized by the ENGINEER in the preparation of the Contract Documents.

B. *Limited Reliance by CONTRACTOR on Technical Data Authorized:* CONTRACTOR may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," CONTRACTOR may not rely upon or make any Claim against OWNER, ENGINEER or any of ENGINEER's Consultants with respect to:

1. the completeness of such reports and drawings for CONTRACTOR's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by CONTRACTOR and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any CONTRACTOR interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

C. CONTRACTOR shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. CONTRACTOR shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by CONTRACTOR, Subcontractors, Suppliers, or anyone else for whom CONTRACTOR is responsible.

D. If CONTRACTOR encounters a Hazardous Environmental Condition or if CONTRACTOR or anyone for whom CONTRACTOR is responsible creates a Hazardous Environmental Condition, CONTRACTOR shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by paragraph 6.16); and (iii) notify OWNER and ENGINEER (and promptly thereafter confirm such notice in writing). OWNER shall promptly consult with ENGINEER concerning the necessity for OWNER to retain a qualified expert to evaluate such condition or take corrective action, if any.

E. CONTRACTOR shall not be required to resume Work in connection with such condition or in any affected area until after OWNER has obtained any required permits related thereto and delivered to CONTRACTOR written notice: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If OWNER and CONTRACTOR cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by CONTRACTOR, either party may make a Claim therefor as provided in paragraph 10.05.

F. If after receipt of such written notice CONTRACTOR does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then OWNER may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If OWNER and CONTRACTOR cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in paragraph 10.05. OWNER may have such deleted portion of the Work performed by OWNER's own forces or others in accordance with Article 7.

G. To the fullest extent permitted by Laws and Regulations, OWNER shall indemnify and hold harmless CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants and the officers, directors, partners, employees, agents, other consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or

Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by CONTRACTOR or by anyone for whom CONTRACTOR is responsible. Nothing in this paragraph 4.06.E shall obligate OWNER to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

H. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, other consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by CONTRACTOR or by anyone for whom CONTRACTOR is responsible. Nothing in this paragraph 4.06.F shall obligate CONTRACTOR to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

I. The provisions of paragraphs 4.02, 4.03, and 4.04 are not intended to apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 - BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

A. CONTRACTOR shall furnish performance and payment Bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all CONTRACTOR's obligations under the Contract Documents. These Bonds shall remain in effect at least until one year after the date when final payment becomes due, except as provided otherwise by Laws or Regulations or by the Contract Documents. CONTRACTOR shall also furnish such other Bonds as are required by the Contract Documents.

B. All Bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All Bonds signed by an agent must be accompanied by a certified copy of such agent's authority to act.

C. If the surety on any Bond furnished by CONTRACTOR is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of paragraph 5.01.B, CONTRACTOR shall within 20 days thereafter substitute another Bond and surety, both of which shall comply with the requirements of paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

A. All Bonds and insurance required by the Contract Documents to be purchased and maintained by OWNER or CONTRACTOR shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue Bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 *Certificates of Insurance*

A. CONTRACTOR shall deliver to OWNER, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by OWNER or any other additional insured) which CONTRACTOR is required to purchase and maintain. OWNER shall deliver to CONTRACTOR, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by CONTRACTOR or any other additional insured) which OWNER is required to purchase and maintain.

5.04 *CONTRACTOR's Liability Insurance*

A. CONTRACTOR shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from CONTRACTOR's performance of the Work and CONTRACTOR's other obligations under the Contract Documents, whether it is to be performed by CONTRACTOR, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to

perform any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;

2. claims for damages because of bodily injury, occupational sickness or disease, or death of CONTRACTOR's employees;

3. claims for damages because of bodily injury, sickness or disease, or death of any person other than CONTRACTOR's employees;

4. claims for damages insured by reasonably available personal injury liability coverage which are sustained: (i) by any person as a result of an offense directly or indirectly related to the employment of such person by CONTRACTOR, or (ii) by any other person for any other reason;

5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and

6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The policies of insurance so required by this paragraph 5.04 to be purchased and maintained shall:

1. with respect to insurance required by paragraphs 5.04.A.3 through 5.04.A.6 inclusive, include as additional insureds (subject to any customary exclusion in respect of professional liability) OWNER, ENGINEER, ENGINEER's Consultants, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;

3. include completed operations insurance;

4. include contractual liability insurance covering CONTRACTOR's indemnity obligations under paragraphs 6.07, 6.11, and 6.20;

5. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least thirty days prior written notice has been given to OWNER and CONTRACTOR and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the CONTRACTOR pursuant to paragraph 5.03 will so provide);

6. remain in effect at least until final payment and at all times thereafter when CONTRACTOR may be correcting, removing, or replacing defective Work in accordance with paragraph 13.07; and

7. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two years after final payment (and CONTRACTOR shall furnish OWNER and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to OWNER and any such additional insured of continuation of such insurance at final payment and one year thereafter).

5.05 *OWNER's Liability Insurance*

A. In addition to the insurance required to be provided by CONTRACTOR under paragraph 5.04, OWNER, at OWNER's option, may purchase and maintain at OWNER's expense OWNER's own liability insurance as will protect OWNER against claims which may arise from operations under the Contract Documents.

5.06 *Property Insurance*

A. Unless otherwise provided in the Supplementary Conditions, OWNER shall purchase and maintain property

insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an additional insured;

2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, false work, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;

3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by OWNER prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by ENGINEER;

5. allow for partial utilization of the Work by OWNER;

6. include testing and startup; and

7. be maintained in effect until final payment is made unless otherwise agreed to in writing by OWNER, CONTRACTOR, and ENGINEER with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.

B. OWNER shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and any other individuals or entities identified in the Supplementary Conditions, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to OWNER and CONTRACTOR and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with paragraph 5.07.

D. OWNER shall not be responsible for purchasing and maintaining any property insurance specified in this paragraph 5.06 to protect the interests of CONTRACTOR, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by CONTRACTOR, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

E. If CONTRACTOR requests in writing that other special insurance be included in the property insurance policies provided under paragraph 5.06, OWNER shall, if possible, include such insurance, and the cost thereof will be charged to CONTRACTOR by appropriate Change Order or Written Amendment. Prior to commencement of the Work at the Site, OWNER shall in writing advise CONTRACTOR whether or not such other insurance has been procured by OWNER.

5.07 *Waiver of Rights*

A. OWNER and CONTRACTOR intend that all policies purchased in accordance with paragraph 5.06 will protect OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and all other

individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or additional insureds thereunder. OWNER and CONTRACTOR waive all rights against each other and their respective officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors, ENGINEER, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) under such policies for losses and damages so caused.

None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by OWNER as trustee or otherwise payable under any policy so issued.

B. OWNER waives all rights against CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to OWNER's property or the Work caused by, arising out of, or resulting from fire or other peril whether or not insured by OWNER; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by OWNER during partial utilization pursuant to paragraph 14.05, after Substantial Completion pursuant to paragraph 14.04, or after final payment pursuant to paragraph 14.07.

C. Any insurance policy maintained by OWNER covering any loss, damage or consequential loss referred to in paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against CONTRACTOR, Subcontractors, ENGINEER, or ENGINEER's Consultants and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

A.* Any insured loss under the policies of insurance required by paragraph 5.06 will be adjusted with OWNER and made payable to OWNER as fiduciary for the insureds, as their interests may appear, subject to the requirements of any applicable mortgage clause and of paragraph 5.08.B. OWNER shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order or Written Amendment.

B. OWNER as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to OWNER's exercise of this power. If such objection be made, OWNER as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, OWNER as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, OWNER as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

A.* If either OWNER or CONTRACTOR has any objection to the coverage afforded by or other provisions of the Bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the

certificates (or other evidence requested) required by paragraph 2.05.C. OWNER and CONTRACTOR shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the Bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent Bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

A. If OWNER finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

A. CONTRACTOR shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with

the Contract Documents. CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences,
and procedures of construction, but CONTRACTOR shall not be responsible for the negligence of OWNER or ENGINEER in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents. CONTRACTOR shall be responsible to see that the completed Work complies accurately with the Contract Documents.

B. At all times during the progress of the Work, CONTRACTOR shall assign a competent resident superintendent thereto who shall not be replaced without written notice to OWNER and ENGINEER except under extraordinary circumstances. The superintendent will be CONTRACTOR's representative at the Site and shall have authority to act on behalf of CONTRACTOR. All communications given to or received from the superintendent shall be binding on CONTRACTOR.

6.02 *Labor; Working Hours*

A. CONTRACTOR shall provide competent, suitably qualified personnel to survey, lay out, and construct the

Work as required by the Contract Documents. CONTRACTOR shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, and CONTRACTOR will not permit overtime work or the performance of Work on Saturday, Sunday, or any legal holiday without OWNER's written consent (which will not be unreasonably withheld) given after prior written notice to ENGINEER.

6.03 *Services, Materials, and Equipment*

A. Unless otherwise specified in the General Requirements, CONTRACTOR shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All warranties and guarantees specifically called for by the Specifications shall expressly

run to the benefit of OWNER. If required by ENGINEER, CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 *Progress Schedule*

A. CONTRACTOR shall adhere to the progress schedule established in accordance with paragraph 2.07 as it may be adjusted from time to time as provided below.

1. CONTRACTOR shall submit to ENGINEER for acceptance (to the extent indicated in paragraph 2.07) proposed adjustments in the progress schedule that will not result in changing the Contract Times (or Milestones). Such adjustments will conform generally to the progress schedule then in effect and additionally will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the progress schedule that will change the Contract Times (or Milestones) shall be submitted in accordance with the requirements of Article 12. Such adjustments may only be made by a Change Order or Written Amendment in accordance with Article 12.

6.05 *Substitutes and "Or-Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to ENGINEER for review under the circumstances described below.

1. *"Or-Equal" Items:* If in ENGINEER's sole discretion an item of material or equipment proposed by CONTRACTOR is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by ENGINEER as an "or-equal" item, in which case review and approval of the proposed item may, in ENGINEER's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment ENGINEER determines that: (i) it is at least equal in quality, durability, appearance, strength, and design characteristics; (ii) it will reliably perform at least equally well the function imposed by the design concept of the completed Project as a functioning whole, and;

b. CONTRACTOR certifies that: (i) there is no increase in cost to the OWNER; and (ii) it will conform substantially, even with deviations, to the detailed requirements of the item named in the Contract Documents.

2. Substitute Items

a. If in ENGINEER's sole discretion an item of material or equipment proposed by CONTRACTOR does not qualify as an "or-equal" item under paragraph 6.05.A.1, it will be considered a proposed substitute item.

b. CONTRACTOR shall submit sufficient information as provided below to allow ENGINEER to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by ENGINEER from anyone other than CONTRACTOR.

c. The procedure for review by ENGINEER will be as set forth in paragraph 6.05.A.2.d, as supplemented in the General Requirements and as ENGINEER may decide is appropriate under the circumstances.

d. CONTRACTOR shall first make written application to ENGINEER for review of a proposed substitute item of material or equipment that CONTRACTOR seeks to furnish or use. The application shall certify

that the proposed substitute item will perform adequately the functions and achieve the results called for by the general design, be similar in substance to that specified, and be suited to the same use as that specified. The application will state the extent, if any, to which the use of the proposed substitute item will prejudice CONTRACTOR's achievement of Substantial Completion on time, whether or not use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) to adapt the design to the proposed substitute item and whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute item from that specified will be identified in the application, and available engineering, sales, maintenance, repair, and replacement services will be indicated. The application will also contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change, all of which will be considered by ENGINEER in evaluating the proposed substitute item. ENGINEER may require CONTRACTOR to furnish additional data about the proposed substitute item.

B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is shown or indicated in and expressly required by the Contract Documents, CONTRACTOR may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by ENGINEER. CONTRACTOR shall submit sufficient information to allow ENGINEER, in ENGINEER's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The procedure for review by ENGINEER will be similar to that provided in subparagraph 6.05.A.2.

C. *Engineer's Evaluation:* ENGINEER will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to paragraphs 6.05.A and 6.05.B. ENGINEER will be the sole judge of acceptability. No "or-equal" or substitute will be ordered, installed or utilized until ENGINEER's review is complete, which will be evidenced by either a Change Order for a substitute or an approved Shop Drawing for an "or equal." ENGINEER will advise CONTRACTOR in writing of any negative determination.

D. *Special Guarantee:* OWNER may require CONTRACTOR to furnish at CONTRACTOR's expense a special performance guarantee or other surety with respect to any substitute.

E. *ENGINEER's Cost Reimbursement:* ENGINEER will record time required by ENGINEER and ENGINEER's Consultants in evaluating substitute proposed or submitted by CONTRACTOR pursuant to paragraphs 6.05.A.2 and 6.05.B and in making changes in the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) occasioned thereby. Whether or not ENGINEER approves a substitute item so proposed or submitted by CONTRACTOR, CONTRACTOR shall reimburse OWNER for the charges of ENGINEER and ENGINEER's Consultants for evaluating each such proposed substitute.

F. *CONTRACTOR's Expense:* CONTRACTOR shall provide all data in support of any proposed substitute or "or-equal" at CONTRACTOR's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

A. CONTRACTOR shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to OWNER as indicated in paragraph 6.06.B), whether initially or as a replacement, against whom OWNER may have reasonable objection. CONTRACTOR shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom CONTRACTOR has reasonable objection.

B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to OWNER in advance for acceptance by OWNER by a specified date prior to the Effective Date of the Agreement, and if CONTRACTOR has submitted a list thereof in accordance with the Supplementary Conditions, OWNER's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. CONTRACTOR shall submit an acceptable replacement

for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued or Written Amendment signed. No acceptance by OWNER of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of OWNER or ENGINEER to reject defective Work.

C. CONTRACTOR shall be fully responsible to OWNER and ENGINEER for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as CONTRACTOR is responsible for CONTRACTOR's own acts and omissions. Nothing in the Contract Documents shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between OWNER or ENGINEER and any such Subcontractor, Supplier or other individual or entity, nor shall it create any obligation on the part of OWNER or ENGINEER to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

D. CONTRACTOR shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with CONTRACTOR.

E. CONTRACTOR shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with ENGINEER through CONTRACTOR.

F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control CONTRACTOR in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

G. All Work performed for CONTRACTOR by a Subcontractor or Supplier will be pursuant to an appropriate agreement between CONTRACTOR and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of OWNER and ENGINEER. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in paragraph 5.06, the agreement between the CONTRACTOR and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against OWNER, CONTRACTOR, ENGINEER, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, CONTRACTOR will obtain the same.

6.07 *Patent Fees and Royalties*

A. CONTRACTOR shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of OWNER or ENGINEER its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by OWNER in the Contract Documents. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees or agents, and other consultants of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 *Permits*

A. Unless otherwise provided in the Supplementary Conditions, CONTRACTOR shall obtain and pay for all construction permits and licenses. OWNER shall assist CONTRACTOR, when necessary, in obtaining such permits and licenses. CONTRACTOR shall pay all governmental charges and inspection fees necessary for

the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. CONTRACTOR shall pay all charges of utility owners for connections to the Work, and OWNER shall pay all charges of such utility owners for capital costs related thereto, such as plant investment fees.

6.09 *Laws and Regulations*

A. CONTRACTOR shall give all notices and comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither OWNER nor ENGINEER shall be responsible for monitoring CONTRACTOR's compliance with any Laws or Regulations.

B. If CONTRACTOR performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, CONTRACTOR shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work; however, it shall not be CONTRACTOR's primary responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve CONTRACTOR of CONTRACTOR's obligations under paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work may be the subject of an adjustment in Contract Price or Contract Times. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in paragraph 10.05.

6.10 *Taxes*

A. CONTRACTOR shall pay all sales, consumer, use, and other similar taxes required to be paid by CONTRACTOR in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

6.11 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas*

1. CONTRACTOR shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations,

and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. CONTRACTOR shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, CONTRACTOR shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultant, and the officers, directors, partners, employees, agents, and other consultants of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against OWNER, ENGINEER, or any other party indemnified hereunder to the extent caused by or based upon CONTRACTOR's performance of the Work.

B. *Removal of Debris During Performance of the Work:* During the progress of the Work CONTRACTOR shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. *Cleaning:* Prior to Substantial Completion of the Work CONTRACTOR shall clean the Site and make it ready for utilization by OWNER. At the completion of the Work CONTRACTOR shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading Structures:* CONTRACTOR shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall CONTRACTOR subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 *Record Documents*

A. CONTRACTOR shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Written Amendments, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to ENGINEER for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to ENGINEER for OWNER.

6.13 *Safety and Protection*

A. CONTRACTOR shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. CONTRACTOR shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. CONTRACTOR shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. CONTRACTOR shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property. All damage, injury, or loss to any property referred to in paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by CONTRACTOR, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by CONTRACTOR (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of OWNER or ENGINEER or ENGINEER's Consultant, or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of CONTRACTOR or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them). CONTRACTOR's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and ENGINEER has issued a notice to OWNER and CONTRACTOR in accordance with paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

A. CONTRACTOR shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

6.15 *Hazard Communication Programs*

A. CONTRACTOR shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, CONTRACTOR is obligated to act to prevent threatened damage, injury, or loss. CONTRACTOR shall give ENGINEER prompt written notice if CONTRACTOR believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If ENGINEER determines that a change in the Contract Documents is required because of the action taken by CONTRACTOR in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

A. CONTRACTOR shall submit Shop Drawings to ENGINEER for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals. All submittals will be identified as ENGINEER may require and in the number of copies specified in the General Requirements. The data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show ENGINEER the services, materials, and equipment CONTRACTOR proposes to provide and to enable ENGINEER to review the information for the limited purposes required by paragraph 6.17.E.

B. CONTRACTOR shall also submit six (6) Samples to ENGINEER for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals. Each Sample will be identified clearly as to material, Supplier, pertinent data such as catalog numbers, and the use for which intended and otherwise as ENGINEER may require to enable ENGINEER to review the submittal for the limited purposes required by paragraph 6.17.E. The numbers of each Sample to be submitted will be as specified in the Specifications.

C. Where a Shop Drawing or Sample is required by the Contract Documents or the schedule of Shop Drawings and Sample submittals acceptable to ENGINEER as required by paragraph 2.07, any related Work performed prior to ENGINEER's review and approval of the pertinent submittal will be at the sole expense and responsibility of CONTRACTOR.

D. *Submittal Procedures*

1. Before submitting each Shop Drawing or Sample, CONTRACTOR shall have determined and verified:

a. all field measurements, quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

b. all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work;

c. all information relative to means, methods, techniques, sequences, and procedures of construction and safety precautions and programs incident thereto; and

d. CONTRACTOR shall also have reviewed and coordinated each Shop Drawing or

Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents.

2. Each submittal shall bear a stamp or specific written indication that CONTRACTOR has satisfied CONTRACTOR's obligations under the Contract Documents with respect to CONTRACTOR's review and approval of that submittal.

3. At the time of each submittal, CONTRACTOR shall give ENGINEER specific written notice of such variations, if any, that the Shop Drawing or Sample submitted may have from the requirements of the Contract Documents, such notice to be in a written communication separate from the submittal; and, in addition, shall cause a specific notation to be made on each Shop Drawing and Sample submitted to ENGINEER for review and approval of each such variation.

E. *ENGINEER's Review*

1. ENGINEER will timely review and approve Shop Drawings and Samples in accordance with the schedule of Shop Drawings and Sample submittals acceptable to ENGINEER. ENGINEER's review and approval will be only to determine if the items covered by the submittals

will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. ENGINEER's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. ENGINEER's review and approval of Shop Drawings or Samples shall not relieve CONTRACTOR from responsibility for any variation from the requirements of the Contract Documents unless CONTRACTOR has in writing called ENGINEER's attention to each such variation at the time of each submittal as required by paragraph 6.17.D.3 and ENGINEER has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample approval; nor will any approval by ENGINEER relieve CONTRACTOR from responsibility for complying with the requirements of paragraph 6.17.D.1.

F. *Resubmittal Procedures*

1. CONTRACTOR shall make corrections required by ENGINEER and shall return the required number of corrected copies of Shop Drawings and submit as required new Samples for review and approval. CONTRACTOR shall direct specific attention in writing to revisions other than the corrections called for by ENGINEER on previous submittals.

6.18 *Continuing the Work*

A. CONTRACTOR shall carry on the Work and adhere to the progress schedule during all disputes or disagreements with OWNER. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by paragraph 15.04 or as OWNER and CONTRACTOR may otherwise agree in writing.

6.19 *CONTRACTOR's General Warranty and Guarantee*

A. CONTRACTOR warrants and guarantees to OWNER, ENGINEER, and ENGINEER's Consultants that all Work will be in accordance with the Contract Documents and will not be defective. CONTRACTOR's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than CONTRACTOR, Subcontractors, Suppliers, or any other individual or entity for whom CONTRACTOR is responsible; or

2. normal wear and tear under normal usage.

B. CONTRACTOR's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of CONTRACTOR's obligation to perform the Work in accordance with the Contract Documents:

1. observations by ENGINEER;

2. recommendation by ENGINEER or payment by OWNER of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by ENGINEER or any payment related thereto by OWNER;

4. use or occupancy of the Work or any part thereof by OWNER;

5. any acceptance by OWNER or any failure to do so;

6. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by ENGINEER;

7. any inspection, test, or approval by others; or

8. any correction of defective Work by OWNER.

6.20 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage:

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

2. is caused in whole or in part by any negligent act or omission of CONTRACTOR, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable, regardless of whether or not caused in part by any negligence or omission of an individual or entity indemnified hereunder or whether liability is imposed upon such indemnified party by Laws and Regulations regardless of the negligence of any such individual or entity.

B. In any and all claims against OWNER or ENGINEER or any of their respective consultants, agents, officers, directors, partners, or employees by any employee (or the survivor or personal representative of such employee) of CONTRACTOR, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for CONTRACTOR or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of CONTRACTOR under paragraph 6.20.A shall not extend to the liability of ENGINEER and ENGINEER's Consultants or to the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them arising out of:

1. the preparation or approval of, or the failure to prepare or approve, maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or

2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

ARTICLE 7 - OTHER WORK

7.01 *Related Work at Site*

A. OWNER may perform other work related to the Project at the Site by OWNER's employees, or let other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to CONTRACTOR prior to starting any such other work; and

2. if OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in paragraph 10.05.

B. CONTRACTOR shall afford each other contractor who is a party to such a direct contract and each utility owner (and OWNER, if OWNER is performing the other work with OWNER's employees) proper and safe access to the Site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work and shall properly coordinate the Work with theirs. Unless otherwise provided in the Contract Documents, CONTRACTOR shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. CONTRACTOR shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of ENGINEER and the others whose work will be affected. The duties and responsibilities of CONTRACTOR under this paragraph are for the benefit of

such utility owners and other contractors to the extent that there are comparable provisions for the benefit of CONTRACTOR in said direct contracts between OWNER and such utility owners and other contractors.

C. If the proper execution or results of any part of CONTRACTOR's Work depends upon work performed by others under this Article 7, CONTRACTOR shall inspect such other work and promptly report to ENGINEER in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of CONTRACTOR's Work. CONTRACTOR's failure to so report will constitute an acceptance of such other work as fit and proper for integration with CONTRACTOR's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

A. If OWNER intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;

2. the specific matters to be covered by such authority and responsibility will be itemized; and

3. the extent of such authority and responsibilities will be provided.

B. Unless otherwise provided in the Supplementary Conditions, OWNER shall have sole authority and responsibility for such coordination.

ARTICLE 8 - OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, OWNER shall issue all communications to CONTRACTOR through ENGINEER.

8.02 *Replacement of ENGINEER*

A. In case of termination of the employment of ENGINEER, OWNER shall appoint an engineer to whom CONTRACTOR makes no reasonable objection, whose status under the Contract Documents shall be that of the former ENGINEER.

8.03 *Furnish Data*

A. OWNER shall promptly furnish the data required of OWNER under the Contract Documents.

8.04 *Pay Promptly When Due*

A. OWNER shall make payments to CONTRACTOR promptly when they are due as provided in paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

A. OWNER's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in paragraphs 4.01 and 4.05. Paragraph 4.02 refers to OWNER's identifying and making available to CONTRACTOR copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site that have been utilized by ENGINEER in preparing the Contract Documents.

8.06 *Insurance*

A. OWNER's responsibilities, if any, in respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

A. OWNER is obligated to execute Change Orders as indicated in paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

A. OWNER's responsibility in respect to certain inspections, tests, and approvals is set forth in paragraph 13.03.B.

8.09 *Limitations on OWNER's Responsibilities*

A. The OWNER shall not supervise, direct, or have control or authority over, nor be responsible for, CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the performance of the Work. OWNER will not be responsible for CONTRACTOR's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

A. OWNER's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

A. If and to the extent OWNER has agreed to furnish CONTRACTOR reasonable evidence that financial arrangements have been made to satisfy OWNER's obligations under the Contract Documents, OWNER's responsibility in respect thereof will be as set forth in the Supplementary Conditions.

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *OWNER'S Representative*

A. ENGINEER will be OWNER's representative during the construction period. The duties and responsibilities and the limitations of authority of ENGINEER as OWNER's representative during construction are set forth in the Contract Documents and will not be changed without written consent of OWNER and ENGINEER.

9.02 *Visits to Site*

A. ENGINEER will make visits to the Site at intervals appropriate to the various stages of construction as ENGINEER deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of CONTRACTOR's executed Work. Based on information obtained during such visits and observations, ENGINEER, for the benefit of OWNER, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. ENGINEER will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. ENGINEER's efforts will be directed toward providing for OWNER a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, ENGINEER will keep OWNER informed of the progress of the Work and will endeavor to guard OWNER against defective Work.

B. ENGINEER's visits and observations are subject to all the limitations on ENGINEER's authority and responsibility set forth in paragraph 9.10, and particularly, but without limitation, during or as a result of ENGINEER's visits or observations of CONTRACTOR's Work ENGINEER will not supervise, direct, control, or have authority over or be responsible for CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

A. If OWNER and ENGINEER agree, ENGINEER will furnish a Resident Project Representative to assist ENGINEER in providing more extensive observation of the Work. The responsibilities and authority and limitations thereon of any such Resident Project Representative and assistants will be as provided in paragraph 9.10 and in the Supplementary Conditions. If OWNER designates another representative or agent to represent OWNER at the Site who is not ENGINEER's Consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Clarifications and Interpretations*

A. ENGINEER will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents as ENGINEER may determine necessary, which shall be consistent with the intent of and reasonably inferable from the Contract Docu-

ments. Such written clarifications and interpretations will be binding on OWNER and CONTRACTOR. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a written clarification or interpretation, a Claim may be made therefor as provided in paragraph 10.05.

9.05 *Authorized Variations in Work*

A. ENGINEER may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on OWNER and also on CONTRACTOR, who shall perform the Work involved promptly. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of a Field Order, a Claim may be made therefor as provided in paragraph 10.05.

9.06 *Rejecting Defective Work*

A. ENGINEER will have authority to disapprove or reject Work which ENGINEER believes to be defective, or that ENGINEER believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. ENGINEER will also have authority to require special inspection or testing of the Work as provided in paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.07 *Shop Drawings, Change Orders and Payments*

A. In connection with ENGINEER's authority as to Shop Drawings and Samples, see paragraph 6.17.

B. In connection with ENGINEER's authority as to Change Orders, see Articles 10, 11, and 12.

C. In connection with ENGINEER's authority as to Applications for Payment, see Article 14.

9.08 *Determinations for Unit Price Work*

A. ENGINEER will determine the actual quantities and classifications of Unit Price Work performed by CONTRACTOR. ENGINEER will review with CONTRACTOR the ENGINEER's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). ENGINEER's written decision thereon will be final and binding (except as modified by ENGINEER to reflect changed factual conditions or more accurate data) upon OWNER and CONTRACTOR, subject to the provisions of paragraph 10.05.

9.09 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. ENGINEER will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. Claims, disputes and other matters relating to the acceptability of the Work, the quantities and classifications of Unit Price Work, the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, and Claims seeking changes in the Contract Price or Contract Times will be referred initially to ENGINEER in writing, in accordance with the provisions of paragraph 10.05, with a request for a formal decision.

B. When functioning as interpreter and judge under this paragraph 9.09, ENGINEER will not show partiality to OWNER or CONTRACTOR and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity. The rendering of a decision by ENGINEER pursuant to this paragraph 9.09 with respect to any such Claim, dispute, or other matter (except any which have been waived by the making or acceptance of final payment as provided in paragraph 14.07) will be a condition precedent to any exercise by OWNER or CONTRACTOR of such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any such Claim, dispute, or other matter.

9.10 *Limitations on ENGINEER's Authority and Responsibilities*

A. Neither ENGINEER's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by ENGINEER in good faith either to exercise or not exercise such

authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by ENGINEER shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by ENGINEER to CONTRACTOR, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. ENGINEER will not supervise, direct, control, or have authority over or be responsible for CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the performance of the Work. ENGINEER will not be responsible for CONTRACTOR's failure to perform the Work in accordance with the Contract Documents.

C. ENGINEER will not be responsible for the acts or omissions of CONTRACTOR or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. ENGINEER's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.

E. The limitations upon authority and responsibility set forth in this paragraph 9.10 shall also apply to ENGINEER's Consultants, Resident Project Representative, and assistants. See Article 18.

ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

A. Without invalidating the Agreement and without notice to any surety, OWNER may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Written Amendment, a Change Order, or a Work Change Directive. Upon receipt of any such document, CONTRACTOR shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If OWNER and CONTRACTOR are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

A. CONTRACTOR shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in paragraph 3.04, except in the case of an emergency as provided in paragraph 6.16 or in the case of uncovering Work as provided in paragraph 13.04.B.

10.03 *Execution of Change Orders*

A. OWNER and CONTRACTOR shall execute appropriate Change Orders recommended by ENGINEER (or Written Amendments) covering:

1. changes in the Work which are: (i) ordered by OWNER pursuant to paragraph 10.01.A, (ii) required because of acceptance of defective Work under paragraph 13.08.A or OWNER's correction of defective Work under paragraph 13.09, or (iii) agreed to by the parties;

2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and

3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by ENGINEER pursuant to paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, CONTRACTOR shall carry on the Work and adhere to the progress schedule as provided in paragraph 6.18.A.

10.04 *Notification to Surety*

A. If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times) is required by the provisions of any Bond to be given to a surety, the giving of any such notice will be CONTRACTOR's responsibility. The amount of each applicable Bond will be adjusted to reflect the effect of any such change.

10.05 *Claims and Disputes*

A. *Notice:* Written notice stating the general nature of each Claim, dispute, or other matter shall be delivered by the claimant to ENGINEER and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. Notice of the amount or extent of the Claim, dispute, or other matter with supporting data shall be delivered to the ENGINEER and the other party to the Contract within 60 days after the start of such event (unless ENGINEER allows additional time for claimant to submit additional or more accurate data in support of such Claim, dispute, or other matter). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of paragraph 12.01.B. A Claim for an adjustment in Contract Time shall be prepared in accordance with the provisions of paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to ENGINEER and the claimant within 30 days after receipt of the claimant's last submittal (unless ENGINEER allows additional time).

B. *ENGINEER's Decision:* ENGINEER will render a formal decision in writing within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any. ENGINEER's written decision on such Claim, dispute, or other matter will be final and binding upon OWNER and CONTRACTOR unless:

1. an appeal from ENGINEER's decision is taken within the time limits and in accordance with the dispute resolution procedures set forth in Article 16; or

2. if no such dispute resolution procedures have been set forth in Article 16, a written notice of intention to appeal from ENGINEER's written decision is delivered by OWNER or CONTRACTOR to the other and to ENGINEER within 30 days after the date of such decision, and a formal proceeding is instituted by the appealing party in a forum of competent jurisdiction within 60 days after the date of such decision or within 60 days after Substantial Completion, whichever is later (unless otherwise agreed in writing by OWNER and CONTRACTOR), to exercise such rights or remedies as the appealing party may have with respect to such Claim, dispute, or other matter in accordance with applicable Laws and Regulations.

C. If ENGINEER does not render a formal decision in writing within the time stated in paragraph 10.05.B, a decision denying the Claim in its entirety shall be deemed to have been issued 31 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any.

D. No Claim for an adjustment in Contract Price or Contract Times (or Milestones) will be valid if not submitted in accordance with this paragraph 10.05.

ARTICLE 11 - COST OF THE WORK; CASH ALLOWANCES; UNIT PRICE WORK

11.01 *Cost of the Work*

A. *Costs Included:* The term Cost of the Work means the sum of all costs necessarily incurred and paid by CONTRACTOR in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to CONTRACTOR will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by OWNER, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items, and shall not include any of the costs itemized in paragraph 11.01.B.

1. Payroll costs for employees in the direct employ of CONTRACTOR in the perfomance of the Work under schedules of job classifications agreed upon by OWNER and CONTRACTOR. Such employees shall include without limitation superintendents, foremen, and other personnel employed full time at the Site. Payroll costs for employees not employed full time on the Work

shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by OWNER.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to CONTRACTOR unless OWNER deposits funds with CONTRACTOR with which to make payments, in which case the cash discounts shall accrue to OWNER. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to OWNER, and CONTRACTOR shall make provisions so that they may be obtained.

3. Payments made by CONTRACTOR to Subcontractors for Work performed by Subcontractors. If required by OWNER, CONTRACTOR shall obtain competitive bids from subcontractors acceptable to OWNER and CONTRACTOR and shall deliver such bids to OWNER, who will then determine, with the advice of ENGINEER, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as CONTRACTOR's Cost of the Work and fee as provided in this paragraph 11.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

a. The proportion of necessary transportation, travel, and subsistence expenses of CONTRACTOR's employees incurred in discharge of duties connected with the Work.

b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of CONTRACTOR.

c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from CONTRACTOR or others in accordance with rental agreements approved by OWNER with the advice of ENGINEER, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which CONTRACTOR is liable, imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by CONTRACTOR in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of OWNER. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining CONTRACTOR's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, expressage, and similar petty cash items in connection with the Work.

i. When the Cost of the Work is used to determine the value of a Change Order or of a Claim, the cost of premiums for additional Bonds and insurance required because of the changes in the Work or caused by the event giving rise to the Claim.

j. When all the Work is performed on the basis of cost-plus, the costs of premiums for all Bonds and insurance CONTRACTOR is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of CONTRACTOR's officers, executives, principals (of partnerships and sole proprietorships), general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by CONTRACTOR, whether at the Site or in CONTRACTOR's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in paragraph 11.01.A.1 or specifically covered by paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the CONTRACTOR's fee.

2. Expenses of CONTRACTOR's principal and branch offices other than CONTRACTOR's office at the Site.

3. Any part of CONTRACTOR's capital expenses, including interest on CONTRACTOR's capital employed for the Work and charges against CONTRACTOR for delinquent payments.

4. Costs due to the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in paragraphs 11.01.A and 11.01.B.

C. *CONTRACTOR's Fee:* When all the Work is performed on the basis of cost-plus, CONTRACTOR's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, CONTRACTOR's fee shall be determined as set forth in paragraph 12.01.C.

D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to paragraphs 11.01.A and 11.01.B, CONTRACTOR will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to ENGINEER an itemized cost breakdown together with supporting data.

11.02 *Cash Allowances*

A. It is understood that CONTRACTOR has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums as may be acceptable to OWNER and ENGINEER. CONTRACTOR agrees that:

1. the allowances include the cost to CONTRACTOR (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

2. CONTRACTOR's costs for unloading and handling on the Site, labor, installation costs, overhead, profit, and other expenses contemplated for the allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

B. Prior to final payment, an appropriate Change Order will be issued as recommended by ENGINEER to reflect actual amounts due CONTRACTOR on account of

Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by CONTRACTOR will be made by ENGINEER subject to the provisions of paragraph 9.08.

B. Each unit price will be deemed to include an amount considered by CONTRACTOR to be adequate to cover CONTRACTOR's overhead and profit for each separately identified item.

C. OWNER or CONTRACTOR may make a Claim for an adjustment in the Contract Price in accordance with paragraph 10.05 if:

1. the quantity of any item of Unit Price Work performed by CONTRACTOR differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

2. there is no corresponding adjustment with respect any other item of Work; and

3. if CONTRACTOR believes that CONTRACTOR is entitled to an increase in Contract Price as a result of having incurred additional expense or OWNER believes that OWNER is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 - CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order or by a Written Amendment. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the ENGINEER and the other party to the Contract in accordance with the provisions of paragraph 10.05.

B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of paragraph 11.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with paragraph 12.01.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in paragraph 11.01) plus a CONTRACTOR's fee for overhead and profit (detemined as provided in paragraph 12.01.C).

C. *CONTRACTOR's Fee:* The CONTRACTOR's fee for overhead and profit shall be detemined as follows:

1. a mutually acceptable fixed fee; or

2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

a. for costs incurred under paragraphs 11.01.A.1 and 11.01.A.2, the CONTRACTOR's fee shall be 15 percent;

b. for costs incurred under paragraph 11.01.A.3, the CONTRACTOR's fee shall be five percent;

c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of paragraph 12.01.C.2.a is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and CONTRACTOR will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

d. no fee shall be payable on the basis of costs itemized under paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;

e. the amount of credit to be allowed by CONTRACTOR to OWNER for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in CONTRACTOR's fee by an amount equal to five percent of such net decrease; and

f. when both additions and credits are involved in any one change, the adjustment in CONTRACTOR's fee shall be computed on the basis of the net change in accordance with paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

A. The Contract Times (or Milestones) may only be changed by a Change Order or by a Written Amendment. Any Claim for an adjustment in the Contract Times (or Milestones) shall be based on written notice submitted by the party making the claim to the ENGINEER and the other party to the Contract in accordance with the provisions of paragraph 10.05.

B. Any adjustment of the Contract Times (or Milestones) covered by a Change Order or of any Claim for an adjustment in the Contract Times (or Milestones) will be determined in accordance with the provisions of this Article 12.

12.03 *Delays Beyond CONTRACTOR's Control*

A. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of CONTRACTOR, the Contract Times (or Milestones) will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in paragraph 12.02.A. Delays beyond the control of CONTRACTOR shall include, but not be limited to, acts or neglect by OWNER, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

12.04 *Delays Within CONTRACTOR's Control*

A. The Contract Times (or Milestones) will not be extended due to delays within the control of CONTRACTOR. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of CONTRACTOR.

12.05 *Delays Beyond OWNER's and CONTRACTOR's Control*

A. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of both OWNER and CONTRACTOR, an extension of the Contract Times (or Milestones) in an amount equal to the time lost due to such delay shall be CONTRACTOR's sole and exclusive remedy for such delay.

12.06 *Delay Damages*

A. In no event shall OWNER or ENGINEER be liable to CONTRACTOR, any Subcontractor, any Supplier, or any other person or organization, or to any surety for or employee or agent of any of them, for damages arising out of or resulting from:

1. delays caused by or within the control of CONTRACTOR; or

2. delays beyond the control of both OWNER and CONTRACTOR including but not limited to fires, floods, epidemics, abnormal weather conditions, acts of God, or acts or neglect by utility

owners or other contractors performing other work as contemplated by Article 7.

B. Nothing in this paragraph 12.06 bars a change in Contract Price pursuant to this Article 12 to compensate CONTRACTOR due to delay, interference, or disruption directly attributable to actions or inactions of OWNER or anyone for whom OWNER is responsible.

ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 *Notice of Defects*

A. Prompt notice of all defective Work of which OWNER or ENGINEER has actual knowledge will be given to CONTRACTOR. All defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 *Access to Work*

A. OWNER, ENGINEER, ENGINEER's Consultants, other representatives and personnel of OWNER, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspecting, and testing. CONTRACTOR shall provide them proper and safe conditions for such access and advise them of CONTRACTOR's Site safety procedures and programs so that they may comply therewith as applicable.

13.03 *Tests and Inspections*

A. CONTRACTOR shall give ENGINEER timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. OWNER shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

1. for inspections, tests, or approvals covered by paragraphs 13.03.C and 13.03.D below;

2. that costs incurred in connection with tests or inspections conducted pursuant to paragraph 13.04.B shall be paid as provided in said paragraph 13.04.B; and

3. as otherwise specifically provided in the Contract Documents.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, CONTRACTOR shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish ENGINEER the required certificates of inspection or approval.

D. CONTRACTOR shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for OWNER's and ENGINEER's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to CONTRACTOR's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to OWNER and ENGINEER.

E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by CONTRACTOR without written concurrence of ENGINEER, it must, if requested by ENGINEER, be uncovered for observation.

F. Uncovering Work as provided in paragraph 13.03.E shall be at CONTRACTOR's expense unless CONTRACTOR has given ENGINEER timely notice of CONTRACTOR's intention to cover the same and ENGINEER has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

A. If any Work is covered contrary to the written request of ENGINEER, it must, if requested by ENGINEER, be uncovered for ENGINEER's observation and replaced at CONTRACTOR's expense.

B. If ENGINEER considers it necessary or advisable that covered Work be observed by ENGINEER or inspected or tested by others, CONTRACTOR, at ENGINEER's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as ENGINEER may require, that portion of the Work in

question, furnishing all necessary labor, material, and equipment. If it is found that such Work is defective, CONTRACTOR shall pay all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and OWNER shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, OWNER may make a Claim therefor as provided in paragraph 10.05. If, however, such Work is not found to be defective, CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Times (or Milestones), or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, CONTRACTOR may make a Claim therefor as provided in paragraph 10.05.

13.05 *OWNER May Stop the Work*

A. If the Work is defective, or CONTRACTOR fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, OWNER may order CONTRACTOR to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of OWNER to stop the Work shall not give rise to any duty on the part of OWNER to exercise this right for the benefit of CONTRACTOR, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 *Correction or Removal of Defective Work*

A. CONTRACTOR shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by ENGINEER, remove it from the Project and replace it with Work that is not defective. CONTRACTOR shall pay all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

13.07 *Correction Period*

A. If within one year after the date of Substantial Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for CONTRACTOR's use by OWNER or permitted by Laws and Regulations as contemplated in paragraph 6.11.A is found to be defective, CONTRACTOR shall promptly, without cost to OWNER and in accordance with OWNER's written instructions: (i) repair such defective land or areas, or (ii) correct such defective Work or, if the defective Work has been rejected by OWNER, remove it from the Project and replace it with Work that is not defective, and (iii) satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom. If CONTRACTOR does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, OWNER may have the defective Work corrected or repaired or may have the rejected Work removed and replaced, and all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by CONTRACTOR.

B. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications or by Written Amendment.

C. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

D. CONTRACTOR's obligations under this paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this paragraph 13.07 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, OWNER (and, prior to ENGINEER's recommendation of final payment, ENGINEER) prefers to accept it, OWNER may do so. CONTRACTOR shall pay all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to OWNER's evaluation of and determination to accept such defective Work (such costs to be approved by ENGINEER as to reasonableness) and the diminished value of the Work to the extent not otherwise paid by CONTRACTOR pursuant to this sentence. If any such acceptance occurs prior to ENGINEER's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and OWNER shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, OWNER may make a Claim therefor as provided in paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by CONTRACTOR to OWNER.

13.09 *OWNER May Correct Defective Work*

A. If CONTRACTOR fails within a reasonable time after written notice from ENGINEER to correct defective Work or to remove and replace rejected Work as required by ENGINEER in accordance with paragraph 13.06.A, or if CONTRACTOR fails to perform the Work in accordance with the Contract Documents, or if CONTRACTOR fails to comply with any other provision of the Contract Documents, OWNER may, after seven days written notice to CONTRACTOR, correct and remedy any such deficiency.

B. In exercising the rights and remedies under this paragraph, OWNER shall proceed expeditiously. In connection with such corrective and remedial action, OWNER may exclude CONTRACTOR from all or part of the Site, take possession of all or part of the Work and suspend CONTRACTOR's services related thereto, take possession of CONTRACTOR's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which OWNER has paid CONTRACTOR but which are stored elsewhere. CONTRACTOR shall allow OWNER, OWNER's representatives, agents and employees, OWNER's other contractors, and ENGINEER and ENGINEER's Consultants access to the Site to enable OWNER to exercise the rights and remedies under this paragraph.

C. All Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by OWNER in exercising the rights and remedies under this paragraph 13.09 will be charged against CONTRACTOR, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and OWNER shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, OWNER may make a Claim therefor as provided in paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of CONTRACTOR's defective Work.

D. CONTRACTOR shall not be allowed an extension of the Contract Times (or Milestones) because of any delay in the performance of the Work attributable to the exercise by OWNER of OWNER's rights and remedies under this paragraph 13.09.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

A. The schedule of values established as provided in paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to ENGINEER. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 *Progress Payments*

A. *Applications for Payments*

1. At least 20 days before the date established for each progress payment (but not more often than once a month), CONTRACTOR shall submit to ENGINEER for review an Application for Payment filled out and signed by CONTRACTOR covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that OWNER has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect OWNER's interest therein, all of which must be satisfactory to OWNER.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of CONTRACTOR stating that all previous progress payments received on account of the Work have been applied on account to discharge CONTRACTOR's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to pro-gress payments will be as stipulated in the Agreement.

B. *Review of Applications*

1. ENGINEER will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to OWNER or return the Application to CONTRACTOR indicating in writing ENGINEER's reasons for refusing to recommend payment. In the latter case, CONTRACTOR may make the necessary corrections and resubmit the Application.

2. ENGINEER's recommendation of any payment requested in an Application for Payment will constitute a representation by ENGINEER to OWNER, based on ENGINEER's observations on the Site of the executed Work as an experienced and qualified design professional and on ENGINEER's review of the Application for Payment and the accompanying data and schedules, that to the best of ENGINEER's knowledge, information and belief:

a. the Work has progressed to the point indicated;

b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Comple tion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under paragraph 9.08, and to any other qualifications stated in the recommendation); and

c. the conditions precedent to CONTRACTOR's being entitled to such payment appear to have been fulfilled in so far as it is ENGINEER's responsibility to observe the Work.

3. By recommending any such payment ENGINEER will not thereby be deemed to have represented that: (i) inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to ENGINEER in the Contract Documents; or (ii) that there may not be other matters or issues between the parties

that might entitle CONTRACTOR to be paid additionally by OWNER or entitle OWNER to withhold payment to CONTRACTOR.

4. Neither ENGINEER's review of CONTRACTOR's Work for the purposes of recommending payments nor ENGINEER's recommendation of any payment, including final payment, will impose responsibility on ENGINEER to supervise, direct, or control the Work or for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for CONTRACTOR's failure to comply with Laws and Regulations applicable to CONTRACTOR's performance of the Work. Additionally, said review or recommendation will not impose responsibility on ENGINEER to make any examination to ascertain how or for what purposes CONTRACTOR has used the moneys paid on account of the Contract Price, or to determine that title to any of the Work, materials, or equipment has passed to OWNER free and clear of any Liens.

5. ENGINEER may refuse to recommend the whole or any part of any payment if, in ENGINEER's opinion, it would be incorrect to make the representations to OWNER referred to in paragraph 14.02.B.2. ENGINEER may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in ENGINEER's opinion to protect OWNER from loss because:

a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;

b. the Contract Price has been reduced by Written Amendment or Change Orders;

c. OWNER has been required to correct defective Work or complete Work in accordance with paragraph 13.09; or

d. ENGINEER has actual knowledge of the occurrence of any of the events enumerated in paragraph 15.02.A.

C. *Payment Becomes Due*

1. Ten days after presentation of the Application for Payment to OWNER with ENGINEER's recommendation, the amount recommended will (subject to the provisions of paragraph 14.02.D) become due, and when due will be paid by OWNER to CONTRACTOR.

D. *Reduction in Payment*

1. OWNER may refuse to make payment of the full amount recommended by ENGINEER because:

a. claims have been made against OWNER on account of CONTRACTOR's performance or furnishing of the Work;

b. Liens have been filed in connection with the Work, except where CONTRACTOR has delivered a specific Bond satisfactory to OWNER to secure the satisfaction and discharge of such Liens;

c. there are other items entitling OWNER to a set-off against the amount recommended; or

d. OWNER has actual knowledge of the occurrence of any of the events enumerated in paragraphs 14.02.B.5.a through 14.02.B.5.c or paragraph 15.02.A.

2. If OWNER refuses to make payment of the full amount recommended by ENGINEER, OWNER must give CONTRACTOR immediate written notice (with a copy to ENGINEER) stating the reasons for such action and promptly pay CONTRACTOR any amount remaining after deduction of the amount so withheld. OWNER shall promptly pay CONTRACTOR the amount so withheld, or any adjustment thereto agreed to by OWNER and CONTRACTOR, when CONTRACTOR corrects to OWNER's satisfaction the reasons for such action.

3. If it is subsequently determined that OWNER's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by paragraph 14.02.C.1.

14.03 *CONTRACTOR's Warranty of Title*

A. CONTRACTOR warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to OWNER no later than the time of payment free and clear of all Liens.

14.04 *Substantial Completion*

A. When CONTRACTOR considers the entire Work ready for its intended use CONTRACTOR shall notify OWNER and ENGINEER in writing that the entire Work is substantially complete (except for items specifically listed by CONTRACTOR as incomplete) and request that ENGINEER issue a certificate of Substantial Completion. Promptly thereafter, OWNER, CONTRACTOR, and ENGINEER shall make an inspection of the Work to determine the status of completion. If ENGINEER does not consider the Work substantially complete, ENGINEER will notify CONTRACTOR in writing giving the reasons therefor. If ENGINEER considers the Work substantially complete, ENGINEER will prepare and deliver to OWNER a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. OWNER shall have seven days after receipt of the tentative certificate during which to make written objection to ENGINEER as to any provisions of the certificate or attached list. If, after considering such objections, ENGINEER concludes that the Work is not substantially complete, ENGINEER will within 14 days after submission of the tentative certificate to OWNER notify CONTRACTOR in writing, stating the reasons therefor. If, after consideration of OWNER's objections, ENGINEER considers the Work substantially complete, ENGINEER will within said 14 days execute and deliver to OWNER and CONTRACTOR a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as ENGINEER believes justified after consideration of any objections from OWNER. At the time of delivery of the tentative certificate of Substantial Completion ENGINEER will deliver to OWNER and CONTRACTOR a written recommendation as to division of responsibilities pending final payment between OWNER and CONTRACTOR with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless OWNER and CONTRACTOR agree otherwise in writing and so inform ENGINEER in writing prior to ENGINEER's issuing the definitive certificate of Substantial Completion, ENGINEER's aforesaid recommendation will be binding on OWNER and CONTRACTOR until final payment.

B. OWNER shall have the right to exclude CONTRACTOR from the Site after the date of Substantial Completion, but OWNER shall allow CONTRACTOR reasonable access to complete or correct items on the tentative list.

14.05 *Partial Utilization*

A. Use by OWNER at OWNER's option of any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which OWNER, ENGINEER, and CONTRACTOR agree constitutes a separately functioning and usable part of the Work that can be used by OWNER for its intended purpose without significant interference with CONTRACTOR's performance of the remainder of the Work, may be accomplished prior to Substantial Completion of all the Work subject to the following conditions.

1. OWNER at any time may request CONTRACTOR in writing to permit OWNER to use any such part of the Work which OWNER believes to be ready for its intended use and substantially complete. If CONTRACTOR agrees that such part of the Work is substantially complete, CONTRACTOR will certify to OWNER and ENGINEER that such part of the Work is substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. CONTRACTOR at any time may notify OWNER and ENGINEER in writing that CONTRACTOR considers any such part of the Work ready for its intended use and substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. Within a reasonable time after either such request, OWNER, CONTRACTOR, and ENGINEER shall make an inspection of that part of the Work to determine its status of completion. If ENGINEER does not consider that part of the Work to be substantially complete, ENGINEER will notify OWNER and CONTRACTOR in writing giving the reasons therefor. If ENGINEER considers that part of the Work to be substantially complete, the provisions of paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

2. No occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

A. Upon written notice from CONTRACTOR that the entire Work or an agreed portion thereof is complete, ENGINEER will promptly make a final inspection with OWNER and CONTRACTOR and will notify CONTRACTOR in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. CONTRACTOR shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 *Final Payment*

A. *Application for Payment*

1. After CONTRACTOR has, in the opinion of ENGINEER, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, Bonds, certificates or other evidence of insurance certificates of inspection, marked-up record documents (as provided in paragraph 6.12), and other documents, CONTRACTOR may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by: (i) all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by subparagraph 5.04.B.7; (ii) consent of the surety, if any, to final payment; and (iii) complete and legally effective releases or waivers (satisfactory to OWNER) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in paragraph 14.07.A.2 and as approved by OWNER, CONTRACTOR may furnish receipts or releases in full and an affidavit of CONTRACTOR that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which OWNER or OWNER's property might in any way be responsible have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, CONTRACTOR may furnish a Bond or other collateral satisfactory to OWNER to indemnify OWNER against any Lien.

B. *Review of Application and Acceptance*

1. If, on the basis of ENGINEER's observation of the Work during construction and final inspection, and ENGINEER's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, ENGINEER is satisfied that the Work has been completed and CONTRACTOR's other obligations under the Contract Documents have been fulfilled, ENGINEER will, within ten days after receipt of the final Application for Payment, indicate in writing ENGINEER's recommendation of payment and present the Application for Payment to OWNER for payment. At the same time ENGINEER will also give written notice to OWNER and CONTRACTOR that the Work is acceptable subject to the provisions of paragraph 14.09. Otherwise, ENGINEER will return the Application for Payment to CONTRACTOR, indicating in writing the reasons for refusing to recommend final payment, in which case CONTRACTOR shall make the necessary corrections and resubmit the Application for Payment.

C. *Payment Becomes Due*

1. Thirty days after the presentation to OWNER of the Application for Payment and accompanying documentation, the amount recommended by ENGINEER will become due and, when due, will be paid by OWNER to CONTRACTOR.

14.08 *Final Completion Delayed*

A. If, through no fault of CONTRACTOR, final completion of the Work is significantly delayed, and if ENGINEER so confirms, OWNER shall, upon receipt of CONTRACTOR's final Application for Payment and recommendation of ENGINEER, and without terminating the Agreement, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by OWNER for Work not

fully completed or corrected is less than the retainage stipulated in the Agreement, and if Bonds have been furnished as required in paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by CONTRACTOR to ENGINEER with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by OWNER against CONTRACTOR, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from CONTRACTOR's continuing obligations under the Contract Documents; and

2. a waiver of all Claims by CONTRACTOR against OWNER other than those previously made in writing which are still unsettled.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

15.01 OWNER May Suspend Work

A. At any time and without cause, OWNER may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to CONTRACTOR and ENGINEER which will fix the date on which Work will be resumed. CONTRACTOR shall resume the Work on the date so fixed. CONTRACTOR shall be allowed an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if CONTRACTOR makes a Claim therefor as provided in paragraph 10.05.

15.02 *OWNER May Terminate for Cause*

A. The occurrence of any one or more of the following events will justify termination for cause:

1. CONTRACTOR's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the progress schedule established under paragraph 2.07 as adjusted from time to time pursuant to paragraph 6.04);

2. CONTRACTOR's disregard of Laws or Regulations of any public body having jurisdiction;

3. CONTRACTOR's disregard of the authority of ENGINEER; or

4. CONTRACTOR's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in paragraph 15.02.A occur, OWNER may, after giving CONTRACTOR (and the surety, if any) seven days written notice, terminate the services of CONTRACTOR, exclude CONTRACTOR from the Site, and take possession of the Work and of all CONTRACTOR's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by CONTRACTOR (without liability to CONTRACTOR for trespass or conversion), incorporate in the Work all materials and equipment stored at the Site or for which OWNER has paid CONTRACTOR but which are stored elsewhere, and finish the Work as OWNER may deem expedient. In such case, CONTRACTOR shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by OWNER arising out of or relating to completing the Work, such excess will be paid to CONTRACTOR. If such claims, costs, losses, and damages exceed such unpaid balance, CONTRACTOR shall pay the difference to OWNER. Such claims, costs, losses, and damages incurred by OWNER will be reviewed by ENGINEER as to their reasonableness and, when so approved by ENGINEER, incorporated in a Change Order. When exercising any rights or remedies under this paragraph OWNER shall not be required to obtain the lowest price for the Work performed.

C. Where CONTRACTOR's services have been so terminated by OWNER, the termination will not affect any rights or remedies of OWNER against CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of moneys due CONTRACTOR by OWNER will not release CONTRACTOR from liability.

15.03 *OWNER May Terminate For Convenience*

A. Upon seven days written notice to CONTRACTOR and ENGINEER, OWNER may, without cause and without prejudice to any other right or remedy of OWNER, elect to terminate the Contract. In such case, CONTRACTOR shall be paid (without duplication of any items):

1. for completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. for expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

3. for all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. for reasonable expenses directly attributable to termination.

B. CONTRACTOR shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *CONTRACTOR May Stop Work or Terminate*

A. If, through no act or fault of CONTRACTOR, the Work is suspended for more than 90 consecutive days by OWNER or under an order of court or other public authority, or ENGINEER fails to act on any Application for Payment within 30 days after it is submitted, or OWNER fails for 30 days to pay CONTRACTOR any sum finally determined to be due, then CONTRACTOR may, upon seven days written notice to OWNER and ENGINEER, and provided OWNER or ENGINEER do not remedy such suspension or failure within that time, terminate the Contract and recover from OWNER payment on the same terms as provided in paragraph 15.03. In lieu of terminating the Contract and without prejudice to any other right or remedy, if ENGINEER has failed to act on an Application for Payment within 30 days after it is submitted, or OWNER has failed for 30 days to pay CONTRACTOR any sum finally determined to be due, CONTRACTOR may, seven days after written notice to OWNER and ENGINEER, stop the Work until payment is made of all such amounts due CONTRACTOR, including interest thereon. The provisions of this paragraph 15.04 are not intended to preclude CONTRACTOR from making a Claim under paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to CONTRACTOR's stopping the Work as permitted by this paragraph.

ARTICLE 16 - DISPUTE RESOLUTION

16.01 *Methods and Procedures*

A. Dispute resolution methods and procedures, if any, shall be as set forth in the Supplementary Conditions. If no method and procedure has been set forth, and subject to the provisions of paragraphs 9.09 and 10.05, OWNER and CONTRACTOR may exercise such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any dispute.

ARTICLE 17 - MISCELLANEOUS

17.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

A. When any period of time is referred to in the Contract Documents by days, it will be computed to

exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents, and the provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Agreement.

17.05 *Controlling Law*

A. This Contract is to be governed by the law of the state in which the Project is located.

SUPPLEMENTAL GENERAL CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (No. 1910-8, 1996 Edition) and other provisions of the Contract Documents as indicated below. All provisions, which are not so amended or supplemental, remain in full force and effect.

The terms used in these Supplementary Conditions will have the meanings indicated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings indicated below, which are applicable to both the singular and plural thereof.

SC-6.10 Delete paragraph 6.10 in its entirely and insert the following in its place:

The owner qualifies for the state and local tax exemption in the purchase of certain materials and equipment. Other exemptions as per 34 TAC -3.287 and related law may apply.

SC-11.01 Delete paragraph 11.01 in its entirety.

SC-11.02 Delete paragraph 11.02 in its entirety.

SC-12.01B.25 & B.3. Delete paragraph 12.01B.2 & B.3 in its entirety.

SC-12.01.C.2 Delete paragraph 12.01.C.2 in its entirety.

SC Article 14.02 C.1 Replace **"Ten days"** with **"Thirty days"** to read as follows: Thirty days after presentation of the Application for Payment to OWNER with ENGINEER'S recommendation, the amount recommended will (subject to the provisions of paragraph 14.02.D) become due, and when due will be paid by OWNER TO CONTRACTOR.

SC Article 16 Add the following language at the end of the paragraph of Article 16:

There are no dispute resolution methods and procedures set forth in the Supplemental Conditions:

THE STATE OF TEXAS §
§
COUNTY OF HIDALGO §

CONSTRUCTION CONTRACT
C-21-331-XX-XX

This Agreement entered into this XX day of Month, 2021, by and between the County of Hidalgo (hereinafter called the "OWNER," and, _____ (a corporation), (a partnership), (an individual) of [redacted], State of Texas, hereinafter called "CONTRACTOR". The County's procurement packet and Contractor's response are incorporated herein for all purposes.

WITNESSETH

That for and in consideration of the payments and agreement hereinafter mentioned, to be made and performed by the OWNER, the CONTRACTOR hereby agrees with the OWNER to commence and complete the construction described as follows:

Avila-Harwell Campuses Safe Walk Community Project

Hereinafter called the project, for the sum of _____ Dollars and _____ Cents and all extra work in connection therewith, under the terms and stated in the General and Special Conditions of the Contract; and at his (its or their) own proper cost and expense to furnish all the materials, supplies, machinery, equipment, tools, superintendence, labor, insurance, and other accessories and services necessary to complete the said project in accordance with the conditions and prices stated in the Bid, the General Conditions and Special Conditions printed or written explanatory matter thereof, the specifications and contract documents therefore as prepared by Engineer, entitled the Engineer, and as enumerated in Paragraph 1.01.A.12 of the General Conditions, all of which are made a part hereof and collectively evidence and constitute the contract.

The CONTRACTOR hereby agrees to commence work under this contract on or after a date to be specified in written "Notice to Proceed" of the OWNER and to fully complete the project within 120 consecutive days thereafter. The CONTRACTOR further agrees to pay, as liquidated damages, the sum of $500.00 for each consecutive day thereafter.

The OWNER agrees to pay the CONTRACTOR in current funds for the performance of the contract, subject to additions and deductions, as provided in the General Conditions of the contract, and to make payments on account thereof as provided in Paragraphs 14.02.C and 14.07.C of the General Conditions.

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

APPROVED BY COMMISIONERS COURT ON _____, 2_____.

CONTRACTOR:_____
Print Name & Title: _____
Name of Firm: _____
_____
Address: _____
_____
Fed I.D. #/SS #: _____

STATE OF TEXAS

COUNTY OF HIDALGO

This instrument was acknowledged before me on this the _____day of _____,

2_____, by _____Of and on behalf of _____
(Title) (A corporation)

_____
Notary Public-Signature

ATTEST:

_____
Arturo Guajardo, Jr., County Clerk

COUNTY OF HIDALGO:

_____
Richard F. Cortez, County Judge

APPROVED AS TO FORM:
Office of the Criminal District Attorney,
Ricardo Rodriguez, Jr.
By: _____
ADA
Assistant District Attorney

HIDALGO COUNTY PRECINCT No. 4
REQUEST FOR BID
"AVILA-HARWELL CAMPUSES SAFE WALK COMMUNITY PROJECT"
RFB No.: 2021-331-03-24-HGO

RFB SUBMITTAL CHECKLIST

All forms listed below must be included in the RFB response.
Indicate with a checkmark (✓) the Forms completed and included in this response.

_____ Page 12 of Legal Notice

_____ Attachment "A-1" Offeror Information

_____ Attachment "A-2" Statement of Credentials

_____ Exhibit "B" – Bid Page

_____ Exhibit "C" -Acknowledgement forms (*pages 4 & 5*)

_____ Exhibit "D" CIQ Form -Copy of County Clerk File Recording fee receipt. (*if applicable*)

_____ Exhibit "E" Vendor Bidder Applications, W-9, & HUB/DBE

_____ Exhibit "F" Certification Regarding Debarment

_____ Exhibit "H" Required Contract Clauses for Contracts Under Federal award 2 – CFR 200, Appendix II & FEMA (*if applicable*)

_____ Exhibit "J" Proposer's Affidavit

_____ Exhibit "K" Deviation Form

_____ Exhibit "L" Wage Rate Certification Statement

_____ Exhibit "M" Bid Bond

_____ One (*1*) Original (*pages one-sided, marked ORIGINAL*), and Two (*2*) CD/USB in PDF Format (*see number 2 of Legal Notice*).