COUNTY PURCHASING AGENT

Fort Bend County, Texas

Jaime Kovar
County Purchasing Agent

(281) 341-8640
Fax (281) 341-8645

September 13, 2021

TO: All Prospective Bidders

RE: Addendum No. 1 – Fort Bend County Bid 21-101 – Construction of Turn Lanes on Cinco Ranch at SH 99 for Fort Bend County Mobility Bond Project No. 17314x

Addendum 1:

Attached is addendum 1. Vendors are to use Addendum 1 document while preparing their solicitation response. Changes are to Section 3.0 – Pre-Bid Conference.

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Immediately upon your receipt of this addendum, please fill out the following information and email this page to Megan Griffin at MeganL.Griffin@fortbendcountytx.gov

_____

Company Name

_____

Signature of person receiving addendum Date

If you have any questions, please contact this office.

Sincerely,

Paige McInnis
Assistant County Purchasing Agent

AMENDED 09/13/2021
Fort Bend County, Texas
Invitation for Bid

Construction of Turn Lanes on Cinco Ranch at SH 99 for Fort Bend County
Mobility Bond Project No. 17314x
BID 21-101

SUBMIT BIDS TO:

Fort Bend County
Purchasing Department
Travis Annex
301 Jackson, Suite 201
Richmond, TX 77469

Note: All correspondence must include the term "Purchasing Department" in address to assist in proper delivery

SUBMIT NO LATER THAN:

Tuesday, September 28, 2021
2:00 PM (Central)

LABEL ENVELOPE:

BID 21-101
Construction of Turn Lanes

ALL BIDS MUST BE RECEIVED IN AND TIME/DATE STAMPED BY THE PURCHASING OFFICE OF FORT BEND COUNTY ON OR BEFORE THE SPECIFIED TIME/DATE STATED ABOVE.

BIDS RECEIVED AS REQUIRED WILL THEN BE OPENED AND PUBLICLY READ.

BIDS RECEIVED AFTER THE SPECIFIED TIME, WILL BE RETURNED UNOPENED.

Results will not be given by phone.
Results will be provided to bidder in writing after Commissioners Court award.

Requests for information must be in writing and directed to:
Jaime Kovar
Purchasing Agent
Jaime.Kovar@fortbendcountytx.gov

Vendor Responsibilities:

- Download and complete any addendums. (Addendums will be posted on the Fort Bend County website no Later than 48 hours prior to bid opening)
- Submit response in accordance with requirements stated on the cover of this document.
- DO NOT submit responses via email or fax.

Prepared: 08/30/2021
Issued: 09/05/2021

COUNTY PURCHASING AGENT
Fort Bend County, Texas

Vendor Information

Jaime Kovar
Purchasing Agent

Office (281) 341-8640

Legal Company Name (top line of W9)			
Business Name (if different from legal name)			
Federal ID # or S.S. #		DUNS #	
Type of Business	___ Corporation/LLC ___ Partnership ___ Sole Proprietor/Individual ___ Tax Exempt Organization		Age in Business?
Publicly Traded Business	___ No ___ Yes Ticker Symbol _____		
Remittance Address			
City/State/Zip			
Physical Address			
City/State/Zip			
Phone/Fax Number	Phone: _____ Fax: _____		
Contact Person			
E-mail			
Check all that apply to the company listed above and provide certification number.	DBE-Disadvantaged Business Enterprise ☐ SBE-Small Business Enterprise ☐ HUB-Texas Historically Underutilized Business ☐ WBE-Women's Business Enterprise ☐	**Certification #** _____ **Certification #** _____ **Certification #** _____ **Certification #** _____	Cert Date _____ _____ _____ _____
Company's gross annual receipts	<$500,000 _____	$500,000-$4,999,999 _____	
	$5,000,000-$16,999,999 ___	$17,000,000-$22,399,999 _____	
	>$22,400,000 _____		
NAICs codes (Please enter all that apply)			
Signature of Authorized Representative			
Printed Name			
Title			
Date			

THIS FORM MUST BE SUBMITTED WITH THE SOLICITATION RESPONSE

1.0 GENERAL REQUIREMENTS:

1.1 Read this entire document carefully. Follow all instructions. You are responsible for fulfilling all requirements and specifications. Be sure you understand them.

1.2 General Requirements apply to all advertised bids; however, these may be superseded, whole or in part, by the scope, special requirements, specifications, special specifications or other data contained herein.

1.3 Governing Law: Bidder is advised that these requirements shall be fully governed by the laws of the State of Texas and that Fort Bend County may request and rely on advice, decisions and opinions of the Attorney General of Texas and the County Attorney concerning any portion of these requirements.

1.4 Bid Form Completion: Fill out, sign, and return to the Fort Bend County Purchasing Department one (1) complete bid form. An authorized representative of the bidder must sign the Contract Sheet. The Contract will be binding only when signed by the County Judge, Fort Bend County and a purchase order authorizing the item(s) desired has been issued. The use of corrective fluid is not acceptable and may result in the disqualification of bid. If an error is made, the bidder must draw a line through error and initial each change.

1.5 Bid Returns: Bidders must return all completed bids to the Fort Bend County Purchasing Department at 301 Jackson, Suite 201 Richmond Texas no later than 2:00 P.M. on the date specified. Late bids will not be accepted. Bids must be submitted in a sealed envelope, addressed as follows: Fort Bend County Purchasing Agent, Travis Annex, 301 Jackson, Suite 201 Richmond, Texas 77469.

1.6 Addenda: No interpretation of the meaning of the drawings, specifications or other bid documents will be made to any bidder orally. All requests for such interpretations must be made in writing addressed to Jaime Kovar, Purchasing Agent, 301, Jackson, Suite 201, Richmond, Texas, 77469, E-mail: Jaime.Kovar@fortbendcountytx.gov. Any and all interpretations and any supplemental instructions will be in the form of written addenda to the contract documents which will be posted on Fort Bend County's website. Addenda will **ONLY** be issued by the Fort Bend County Purchasing Agent. It is the sole responsibility of each bidder to insure receipt of any and all addenda. All addenda issued will become part of the contract documents. Bidders must sign and include it in the returned bid package. Deadline for submission of questions and/or clarification is no later than **Tuesday, September 21, 2021 at 10:00AM (central)** Requests received after the deadline will not be responded to due to the time constraints of this bid process.

1.7 References: All bidders must submit, **WITH BID**, at least three (3) references from clients for whom a project similar to that specified herein has been

successfully accomplished. References must include clients name, contact person and telephone number.

1.8 Bid Bond: All bidders must submit, **WITH BID**, a cashier's check or certified check for at least five percent (5%) of the total bid price, payable to the order of Fort Bend County, or a Bid Bond in the same amount issued by a surety, acceptable to Fort Bend County, authorized to do business in the State of Texas, as a guarantee that the Bidder will do the work described herein at the rates stated herein. Unsuccessful bidder's Cashier's Check or Certified Check will be returned only after a written request to do so have been received in the Office of the Fort Bend County Purchasing Agent.

1.9 Material Safety Data Sheets: Under the "Hazardous Communication Act", commonly known as the "Texas Right to Know Act", a bidder must provide to Fort Bend County and using departments, with each delivery, material safety data sheets, which are, applicable to hazardous substances defined in the Act. Bidders are obligated to maintain a current, updated file in the Fort Bend County Purchasing Department. Failure of the bidder to maintain such a file will be cause to reject any bid applying thereto.

1.10 Pricing: Prices for all goods and/or services shall be firm for the duration of this Contract and shall be stated on the bid sheet. Prices shall be all inclusive. No price changes, additions, or subsequent qualifications will be honored during the course of the Contract. All prices must be written in ink or typewritten. If there are any additional charges of any kind, other than those mentioned above, specified or unspecified, bidder MUST indicate the items required and attendant costs or forfeit the right to payment for such items.

1.11 Term Contracts: If the Contract is intended to cover a specific time period, said time will be given in the specifications under scope.

1.12 Recycled Materials: Fort Bend County encourages the use of products made of recycled materials and shall give preference in purchasing to products made of recycled materials if the products meet applicable specifications as to quantity and quality. Fort Bend County will be the sole judge in determining product preference application.

1.13 Evaluation: Evaluation shall be used as a determinant as to which bid items or services are the most efficient and/or most economical for Fort Bend County. It shall be based on all factors which have a bearing on price and performance of the items in the user environment. All bids are subject to tabulation by the Fort Bend County Purchasing Department and recommendation to Fort Bend County Commissioners Court. Compliance with all bid requirements, delivery and needs of the using department are considerations in evaluating bids. Pricing is NOT the only criteria for making a recommendation. The Fort Bend County Purchasing Department reserves the right to contact any bidder, at any time, to clarify, verify or request information with regard to any bid.

1.14 Disqualification of Bidder: Upon signing this bid document, a bidder offering to sell supplies, materials, services, or equipment to Fort Bend County certifies that the bidder has not violated the antitrust laws of this state codified in section 15.01, et seq., Business & Commerce Code, or the federal antitrust laws, and has not communicated directly or indirectly the bid made to any competitor or any other person engaged in such line of business. Any or all bids may be rejected if Fort Bend County believes that collusion exists among the bidders. Bids in which the prices are obviously unbalanced may be rejected. If multiple bids are submitted by a bidder and after the bids are opened, one of the bids is withdrawn, the result will be that all of the bids submitted by that bidder will be withdrawn; however, nothing herein prohibits a vendor from submitting multiple bids for different products or services.

1.15 Awards: Fort Bend County reserves the right to award this Contract on the basis of lowest and best bid in accordance with the laws of the State of Texas, to waive any formality or irregularity, to make awards to more than one bidder, to reject any or all bids. In the event the lowest dollar bidder meeting specifications is not awarded a contract, the bidder may appear before the Commissioners Court and present evidence concerning its responsibility.

1.16 Contract Obligation: Fort Bend County Commissioners Court must award the Contract and the County Judge or other person authorized by the Fort Bend County Commissioners Court must sign the Contract before it becomes binding on Fort Bend County or the bidders. Department heads are not authorized to sign agreements for Fort Bend County. Binding agreements shall remain in effect until all products and/or services covered by this purchase have been satisfactorily delivered and accepted.

2.0 SCOPE:

It is the intent of Fort Bend County to contract with one (1) vendor for all materials, supplies, equipment, tools, services, labor and supervision necessary to complete the construction of turn lanes on Cinco Ranch at SH 99, hereinafter referred to as the "Project," as specified herein.

* 3.0 PRE-BID CONFERENCE:

A pre-bid conference will be conducted on ~~**Tuesday, September 14, 2021 at 10:30 AM**~~ (CST). The pre-bid conference will be held at the Fort Bend County Purchasing Department located in the Travis Annex at 301 Jackson, Suite 201, Richmond, Texas 77469. All bidders are encouraged to attend.

4.0 LIQUIDATED DAMAGES:

The County and the Contractor recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by the County if the work is not complete on time. Accordingly, instead of requiring any such proof, the County and the Contractor agree that as liquidated damages for delay (but not as a penalty) the Contractor shall

pay the County $1,500.00 for each day that expires after the time specified herein for completion until the Work is complete, unless contract time has been adjusted by extension of time approved by Commissioner's Court.

The Contractor will be placed on one (1) year probation if liquidated damages are accrued. During the probation period, if the Contractor accrues liquidated damages on another project, they will be disqualified from being awarded any County work for two (2) years.

5.0 COMPLETION TIME & PAYMENT:

5.1 Fort Bend County shall pay the Contractor in current funds for the Contractor's performance of the Contract the contract sum, as stated herein, after receipt of notice to proceed and a purchase order issued by the Fort Bend County Purchasing Agent.

5.2 Based upon Applications for payment submitted to the County Auditor, Fort Bend County shall make progress payments on account of the contract sum to the Contractor as provided below and elsewhere in the contract documents.

5.2.1 The period covered by each application for payment shall be one calendar month ending on the last day of the month.

5.2.2 Provided an application for payment is received by the County Auditor not later than the 15th day of a month, Fort Bend County shall make payment to the Contractor not later than the 15th day of the next month. If an application for payment is received by the County Auditor after the application deadline fixed above, payment shall be made by Fort Bend County not later than 30 days after the County Auditor receives the application for payment.

5.2.3 Application for payment shall indicate the percentage of completion of each portion of the Project as of the end of the period covered by the application for payment.

5.2.4 Subject to the provisions of the contract documents, the amount of each progress payment shall be computed as follows:

5.2.4.1 Take that portion of the contract sum properly allocable to completed Project less retainage of ten percent (10%).

5.2.4.2 Add that portion of the contract sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved by Fort Bend County, suitably stored off the site at a location agreed upon in writing), less retainage of ten percent (10%).

5.2.4.3 Subtract the aggregate of previous payments made by Fort Bend County.

5.2.4.4 The progress payment amount as determined in above shall be further modified under the following circumstances:

Add, upon substantial completion of the Project, a sum sufficient to increase the total payments to one hundred percent (100%) of the contract sum, less such amounts as Fort Bend County shall determine for incomplete work and unsettled claims.

5.2.4.5 Final payment, constituting the entire unpaid balance of the contract sum, shall be made by Fort Bend County to the Contractor when the Contract has been fully performed by the Contractor.

5.3 Before the first application for payment, the Contractor shall submit to the Facilities Management and Planning Department a schedule of values allocated to various portions of the work, prepared in such form and supported by such data to substantiate its accuracy as the Facilities Management and Planning Department may require. This schedule, unless objected to by the Facilities Management and Planning Department shall be used as a basis for reviewing the Contractor's application for payment.

5.4 Contractor must provide with each application for payment a contractor's affidavit certifying bills against the Contractor for labor, material and expendable equipment employed in the performance of Contractor have been paid in full prior to acceptance of final payment from Fort Bend County.

5.5 The Contractor will permit Fort Bend County, or any duly authorized agent of Fort Bend County, to inspect and examine the books and records of the Contractor for the purpose of verifying the amount of work performed under the Contract. Fort Bend County's right to inspect survives the termination of the Contract for a period of five years.

6.0 LIMIT OF APPROPRIATION:

Prior to the execution of this Contract, Contractor has been advised by County, and Contractor clearly understands and agrees, such understanding and agreement being of the absolute essence to this Contract, that County shall have available only those funds specifically allocated in this Contract to fully discharge any and all liabilities which may be incurred by County in bringing this Project to an absolute conclusion, resulting in a complete, fully furnished, fully equipped and fully usable facility, and that the total of any and all basic construction costs, costs of providing the required services and materials, all fees and compensation of any sort to the Contractor, and

any and all costs for any and all things or purposes coming inuring under or out of this Contract, irrespective of the nature thereof, shall not exceed said specifically allocated sum, notwithstanding any word, statement or thing contained in or inferred from the preceding provision of this Contract which might in any light by any person be interpreted to the contrary.

7.0 RIGHT TO ASSURANCE:

Whenever Fort Bend County in good faith has reason to question the Contractor's intent to perform, Fort Bend County may demand that the Contractor give written assurance of its intent to perform. In the event that a demand is made and no assurance is given within five (5) days, Fort Bend County may treat this failure as an anticipatory repudiation of the Contract.

8.0 PERFORMANCE & PAYMENT BONDS:

Performance and Payment Bonds: In the event the total accepted bid price exceeds $25,000 the Contractor must provide to the Office of the County Purchasing Agent, a performance bond and a payment bond, each in the amount of 100% of the total contract sum within ten (10) calendar days after receipt of notification of bid award. Such bonds shall be executed by a corporate surety duly authorized and admitted to do business in the State of Texas and licensed in the State of Texas to issue surety bonds with a Best Rating of "A" or better. Fort Bend County reserves the right to accept or reject any surety company proposed by the Contractor. In the event Fort Bend County rejects, the proposed surety company, the Contractor will be afforded five (5) additional days to submit the required bonds issued by a surety company acceptable to Fort Bend County.

9.0 POWER OF ATTORNEY:

An attorney-in-fact who signs a bid bond, performance bond or payment bond must file with each bond a certified and effectively dated copy of his or her power of attorney.

10.0 INSURANCE:

10.1 All respondents shall submit, with response, a current certificate of insurance indicating coverage in the amounts stated below. In lieu of submitting a certificate of insurance, respondents may submit, with response, a notarized statement from an Insurance company, authorized to conduct business in the State of Texas, and acceptable to Fort Bend County, guaranteeing the issuance of an insurance policy, with the coverage stated below, to the firm named therein, if successful, upon award of this Contract.

10.2 At contract execution, contractor shall furnish County with properly executed certificates of insurance which shall evidence all insurance required and provide that such insurance shall not be canceled, except on 30 days prior written notice to County. Contractor shall provide certified copies of insurance endorsements and/or policies if requested by County. Contractor shall maintain such insurance coverage from the time Services commence until Services are completed and

provide replacement certificates, policies and/or endorsements for any such insurance expiring prior to completion of Services. Contractor shall obtain such insurance written on an Occurrence form (or a Claims Made form for Professional Liability insurance) from such companies having Best's rating of A/VII or better, licensed or approved to transact business in the State of Texas, and shall obtain such insurance of the following types and minimum limits:

10.2.1 Workers' Compensation insurance. Substitutes to genuine Workers' Compensation Insurance will not be allowed.

10.2.2 Employers' Liability insurance with limits of not less than $1,000,000 per injury by accident, $1,000,000 per injury by disease, and $1,000,000 per bodily injury by disease.

10.2.3 Commercial general liability insurance with a limit of not less than $1,000,000 each occurrence and $2,000,000 in the annual aggregate. Policy shall cover liability for bodily injury, personal injury, and property damage and products/completed operations arising out of the business operations of the policyholder.

10.2.4 Business Automobile Liability coverage with a combined Bodily Injury/Property Damage limit of not less than $1,000,000 each accident. The policy shall cover liability arising from the operation of licensed vehicles by policyholder.

10.3 County and the members of Commissioners Court shall be named as additional insured to all required coverage except for Workers' Compensation and Professional Liability (if required). All Liability policies including Workers' Compensation written on behalf of contractor, excluding Professional Liability, shall contain a waiver of subrogation in favor of County and members of Commissioners Court.

10.4 If required coverage is written on a claims-made basis, contractor warrants that any retroactive date applicable to coverage under the policy precedes the effective date of the contract; and that continuous coverage will be maintained or an extended discovery period will be exercised for a period of two (2) years beginning from the time that work under the agreement is completed.

10.5 Contractor shall not commence any portion of the work under this Contract until it has obtained the insurance required herein and certificates of such insurance have been filed with and approved by Fort Bend County.

10.6 No cancellation of or changes to the certificates, or the policies, may be made without sixty (60) days prior, written notification to Fort Bend County.

10.7 Approval of the insurance by Fort Bend County shall not relieve or decrease the

liability of the Contractor.

11.0 INDEMNIFICATION:

Respondent shall save harmless County from and against all claims, liability, and expenses, including reasonable attorney's fees, arising from activities of respondent, its agents, servants or employees, performed under this agreement that result from the negligent act, error, or omission of respondent or any of respondent's agents, servants or employees.

11.1 Respondent shall timely report all such matters to Fort Bend County and shall, upon the receipt of any such claim, demand, suit, action, proceeding, lien or judgment, not later than the fifteenth day of each month; provide Fort Bend County with a written report on each such matter, setting forth the status of each matter, the schedule or planned proceedings with respect to each matter and the cooperation or assistance, if any, of Fort Bend County required by Respondent in the defense of each matter.

11.2 Respondent's duty to defend, indemnify and hold Fort Bend County harmless shall be absolute. It shall not abate or end by reason of the expiration or termination of any contract unless otherwise agreed by Fort Bend County in writing. The provisions of this section shall survive the termination of the contract and shall remain in full force and effect with respect to all such matters no matter when they arise.

11.3 In the event of any dispute between the parties as to whether a claim, demand, suit, action, proceeding, lien or judgment appears to have been caused by or appears to have arisen out of or in connection with acts or omissions of Respondent, Respondent shall never-the-less fully defend such claim, demand, suit, action, proceeding, lien or judgment until and unless there is a determination by a court of competent jurisdiction that the acts and omissions of Respondent are not at issue in the matter.

11.4 Respondent's indemnification shall cover, and Respondent agrees to indemnify Fort Bend County, in the event Fort Bend County is found to have been negligent for having selected Respondent to perform the work described in this request.

11.5 The provision by Respondent of insurance shall not limit the liability of Respondent under an agreement.

11.6 Respondent shall cause all trade contractors and any other contractor who may have a contract to perform construction or installation work in the area where work will be performed under this request, to agree to indemnify Fort Bend County and to hold it harmless from all claims for bodily injury and property damage that may arise from said Respondent's operations. Such provisions shall be in form satisfactory to Fort Bend County.

11.7 Loss Deduction Clause - Fort Bend County shall be exempt from, and in no way liable for, any sums of money which may represent a deductible in any insurance policy. The payment of deductibles shall be the sole responsibility of Respondent and/or trade contractor providing such insurance.

12.0 PREVAILING WAGES:

This project is subject to the prevailing wage rate requirements of Chapter 2258 of the Government Code. The Contractor shall pay Fort Bend County sixty dollars ($60.00) for each worker employed by the Contractor for the provision of services described herein for each calendar day or part of the day that the worker is paid less than the below stated rates. Contractors may also visit www.wdol.gov/dba.aspx.

General Decision Number: TX20210038 01/01/2021
Superseded General Decision Number: TX20200038

State: Texas
Construction Type: Highway

Counties: Austin, Brazoria, Chambers, Fort Bend, Galveston, Hardin, Harris, Jefferson, Liberty, Montgomery, Orange, San Jacinto and Waller Counties in Texas.

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects & railroad construction; bascule, suspension & spandrel arch bridges designed for commercial navigation, bridges involving marine construction; and other major bridges).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.95 for calendar year 2021 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.80 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2021. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/01/2021

* SUTX2011-013 08/10/2011

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER (Paving and Structures)	$ 12.98	
ELECTRICIAN	$ 27.11	

FORM BUILDER/FORM SETTER	
Paving & Curb	$ 12.34
Structures	$ 12.23
LABORER	
Asphalt Raker	$ 12.36
Flagger	$ 10.33
Laborer, Common	$ 11.02
Laborer, Utility	$ 11.73
Pipelayer	$ 12.12
Work Zone Barricade Servicer	$ 11.67
PAINTER (Structures)	$ 18.62
POWER EQUIPMENT OPERATOR:	
Asphalt Distributor	$ 14.06
Asphalt Paving Machine	$ 14.32
Broom or Sweeper	$ 12.68
Concrete Pavement Finishing Machine	$ 13.07
Concrete Paving, Curing, Float, Texturing Machine	$ 11.71
Concrete Saw	$ 13.99
Crane, Hydraulic 80 Tons or less	$ 13.86
Crane, Lattice boom 80 tons or less	$ 14.97
Crane, Lattice boom over 80 Tons	$ 15.80
Crawler Tractor	$ 13.68
Excavator, 50,000 pounds or less	$ 12.71
Excavator, Over 50,000 pounds	$ 14.53
Foundation Drill, Crawler Mounted	$ 17.43
Foundation Drill, Truck Mounted	$ 15.89
Front End Loader 3 CY or Less	$ 13.32
Front End Loader, Over 3 CY	$ 13.17
Loader/Backhoe	$ 14.29
Mechanic	$ 16.96
Milling Machine	$ 13.53
Motor Grader, Fine Grade	$ 15.69
Motor Grader, Rough	$ 14.23
Off Road Hauler	$ 14.60
Pavement Marking Machine	$ 11.18
Piledriver	$ 14.95
Roller, Asphalt	$ 11.95
Roller, Other	$ 11.57
Scraper	$ 13.47
Spreader Box	$ 13.58

Servicer	$ 13.97
Steel Worker	
Reinforcing Steel	$ 15.15
Structural Steel Welder	$ 12.85
Structural Steel	$ 14.39
TRUCK DRIVER	
Low Boy Float	$ 16.03
Single Axle	$ 11.46
Single or Tandem Axle Dump	$ 11.48
Tandem Axle Tractor w/Semi Trailer	$ 12.27

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

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an

internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

13.0 PERMITS:

It shall be the sole responsibility of the successful bidder to obtain all required permits in the name of Fort Bend County.

14.0 CONTRACTOR'S RESPONSIBILITY FOR WORK:

14.1 Preconstruction Work. Contractor shall do (or cause to be done) the following as preconstruction work:

14.1.1 On an as needed basis as determined by Fort Bend County, cause the Contractor’s personnel to meet with Fort Bend County and the Engineer to discuss the status of the Project.

14.1.2 Review drawings and specifications with the Engineer to permit the Contractor and the Engineer to determine the compliance of the proposed facility with applicable building codes.

14.2 Construction Work. Contractor shall do (or cause to be done) the following as construction work:

14.2.1 Perform (or cause to be performed) all preparatory work at the construction site required herein, including (without limitation) soil and concrete testing and demolition of improvements existing at the construction site and all actions necessary for compliance with all laws and regulations as to actions to be taken by owners or contractors before construction begins, including without limitation those in regard to archaeological and environmental requirements.

14.2.2 Construct and install (or cause to be constructed and installed) the Project on the construction site in accordance with this Contract and the drawings and specifications approved by Fort Bend County.

14.2.3 Furnish (or cause to be furnished) all materials, supplies, equipment, tools, labor, supervision, utilities, transportation, and other materials and services necessary to complete the Project described herein.

14.2.4 Materials testing necessary for the Project and required by laws and regulations, construction industry standards as approved by Fort Bend County and this Contract; the frequency of testing shall be approved by Fort Bend County. **It is the contractor's responsibility to engage a material testing laboratory to perform testing on the structural concrete to be used for foundation work in this project. The cost of testing shall be incidental to bid item for drill shaft foundation. Testing of concrete shall comply with current TXDOT criteria. Contractor has to submit the name of the testing laboratory, intended to be used by the contractor for this project, for County's approval.**

14.3 Standards for Review and Approval. Fort Bend County acknowledges that in order to meet the deadlines for the completion of the Project, and in order to accomplish the efficient completion of the Project, the Contractor may submit matters to Fort Bend County in stages for approval or consent. Upon receipt of any matter submitted by the Contractor for review and approval, Fort Bend County shall review the same and shall diligently and promptly (but in any event within 14 calendar days for any such matter, other than a proposed change order,

and within 28 calendar days for a proposed change order) give the Contractor notice of Fort Bend County's approval or disapproval, setting forth in detail all reasons for any disapproval. Fort Bend County's right to disapprove any such matter submitted (other than a proposed change order) shall be limited to the elements thereof (a) which do not conform substantially to matters previously approved, (b) which are new elements not previously presented and approved and the Contractor is unable to demonstrate that such new element is reasonably necessary for completion of the Project, or (c) which depict matters that are violations of this Contract or applicable laws and regulations.

14.3.1 If Fort Bend County disapproves of a particular matter or Proposed Change Order, the Contractor shall have the right to resubmit such matter or Proposed Change Order to Fort Bend County, altered to satisfy Fort Bend County's basis for disapproval. Any resubmission shall be subject to review and approval by Fort Bend County.

14.3.2 Fort Bend County and the Contractor shall attempt in good faith to resolve any disputes concerning the approval of any aspect of the Project expeditiously, so as not to delay the completion of the Project in accordance with this Contract.

14.3.3 Expedited Approvals. Fort Bend County recognizes the importance of expeditious action upon all matters submitted to Fort Bend County for review and approval and of expeditious response to those aspects of the Project requiring approval by governmental authorities having jurisdiction there over. Fort Bend County agrees to exercise its rights of review and approval hereunder with due diligence, reasonableness, and good faith. Fort Bend County shall use its reasonable efforts to expedite any required review of the Project or other matters by any governmental authority.

14.4 Changes.

14.4.1 General. Fort Bend County may make changes to the Project by altering, adding to, or deducting from the Project. All changes in the Project which (a) require an adjustment in the contract sum or an adjustment in the final completion date or (b) involve a material change in the overall scope or function of the Project shall be requested and authorized before commencing such changes by use of written change order notices, Proposed Change Orders and Change Orders, which change order procedure shall be the exclusive means to effect such changes in the Project.

14.4.2 Change Order Procedure. If at any time Fort Bend County desires to make any change in the Project requiring the issuance of a Change Order, Fort Bend County shall so advise the Contractor in writing by delivery to the Contractor of a written notice describing the change. Upon receipt of such notice initiated by Fort Bend County, the Contractor shall within a

reasonable period of time advise Fort Bend County of the Contractor's proposal for the adjustments, if any, in the contract sum, the schedule of values, and the final completion date attributable to such change by delivering a written notice thereof (the "Proposed Change Order") to Fort Bend County. Such Proposed Change Order shall contain a description of the proposed change and shall set forth the Contractor's estimate of the increase or decrease, if any, in the contract sum and the change, if any, in the schedule of values and the final completion date attributable to such change. If the Contractor desires to make a change in the Project requiring the issuance of a change order, the Contractor shall deliver to Fort Bend County a Proposed Change Order. Upon execution by Fort Bend County, a Proposed Change Order shall constitute (and be defined herein as) a "Change Order" for purposes of this Contract. The Contractor shall forthwith perform the work as changed in accordance with such Change Order. All work performed pursuant to a Change Order shall be performed in accordance with the terms of this Contract. All Proposed Change Orders shall be submitted for approval by Fort Bend County. No action, acquiescence or inaction by Fort Bend County or any representative of Fort Bend County shall be construed to be a waiver of requirements set forth in this Contract in regard to Change Orders or ratification of a violation of such requirements, and all acts in violation of this provision shall be considered void.

14.4.3 Change Order Authorization. Each Change Order shall be signed by Fort Bend County and an authorized representative of the Contractor.

14.4.4 Contract Sum Adjustments. The contract sum and the schedule of values shall be adjusted only as a result of a Change Order requiring such adjustment. Any extra work performed without a proper Change Order shall be considered voluntary and not subject to additional compensation. The Contractor shall not be entitled to an adjustment in the contract sum (or a Change Order permitting such adjustment) or to damages as a result of any delays in the Project caused by the acts or omissions of Fort Bend County, provided that this sentence is not applicable to delays that constitute more than 90 days in any 365-day period or cause the Project to be interrupted for a continuous period of 45 days through no fault of the Contractor.

14.4.5 When Fort Bend County and the Contractor agree upon the adjustments in the contract sum, the schedule of values, and the final completion date attributable to such adjustment, such agreement will be documented by preparation and if approved by the Fort Bend County Commissioners Court, execution of an appropriate Change Order.

14.5 Site Access. Prior to the transfer date, Fort Bend County and the Contractor shall have uninterrupted access to the construction site. Subsequent to the transfer date, Fort Bend County will permit the Contractor, the Engineer, and their

representatives and subcontractors to enter upon the Project at times reasonably necessary to complete the punch list items.

14.6 Applicable Laws and Regulations. Contractor shall in its performance of the Project comply with all applicable laws and regulations. Any delays in the prosecution of the Project caused by any changes in the laws and regulations or the application or enforcement of the laws and regulations may entitle the Contractor to an extension of time.

14.7 Familiarity with Project. The Contractor represents and accepts that it has: (a) visited the property(ies), (b) taken such other steps as may be necessary to ascertain the nature and location of the Project and the general and local conditions which affect the Project or the cost thereof, (c) investigated the labor situation as regards to the Project, (d) examined the property(ies), the obstacles which may be encountered and all other observable conditions having a bearing upon the performance of the Project, the superintendence of the Project, the time of completion and all other relevant matters, and (e) reported to Fort Bend County the results of all of the foregoing. The Contractor represents that it is familiar with all phases of the Project and the matters that may affect the Project or its prosecution under this Contract.

14.8 Standard of Performance. The Contractor shall prosecute (or cause to be prosecuted) the Project in accordance with the best efforts for the construction and development of projects similar to the Project in the State of Texas, using qualified, careful, and efficient contractors and workers and in conformity with the provisions of this Contract. The Contractor shall perform the work in a good and workmanlike manner.

14.9 Warranty of Contractor. The Contractor warrants to Fort Bend County that: (i) the Contractor possesses the skill and knowledge ordinarily possessed by well-informed members of its trade or profession and the Contractor will use its best efforts to ensure that the services provided under this Contract will be performed, delivered, and conducted in accordance with the best professional standards and in accordance with industry standards, and (ii) the Contractor is fully experienced and properly qualified to perform the class of work provided for herein, and that it is properly equipped, organized and financed to perform such work, and (iii) following the date of acceptance of this Contract, the services provided by the Contractor to Fort Bend County will conform to the representations contained in this Contract, including all attachments, schedules and exhibits. All warranties provided by the Contractor in this Contract shall be cumulative, shall be deemed consistent and not in conflict, are intended to be given full force and effect and to be interpreted expansively to give the broadest warranty protection to Fort Bend County.

14.10 Contractor's Personnel. Contractor shall employ only competent, skilled personnel for the Project. Prior to the final completion date, the Contractor shall maintain a superintendent who shall be authorized to act on behalf of the Contractor and with

whom Fort Bend County may consult at all reasonable times. The superintendent shall not be transferred from the Project without Fort Bend County's consent (which shall not be unreasonably withheld or delayed); provided, however, the superintendent shall not be assigned solely to the Project and shall be entitled to spend reasonable time working on matters unrelated to the Project so long as such work on other matters does not render the superintendent unavailable to the Project or unavailable to Fort Bend County. However, such obligation to furnish the superintendent and such staff personnel shall not be construed (a) to preclude the promotion within the Contractor's organization of any person assigned to the Project or (b) to give rise to any liability of the Contractor if any person assigned to the Project (including, without limitation, the superintendent) leaves the Contractor's employment. If the superintendent is transferred from the Project, Fort Bend County shall have the right to approve the replacement superintendent (which approval will not be unreasonably withheld or delayed). The Contractor, the Architect, and the other subcontractors shall comply with all applicable health, safety, and loss prevention rules of applicable governmental authorities. The Contractor shall, at its own expense, remove from the Project any person who fails to comply with such rules and instructions. The Contractor shall at all times enforce strict discipline and good order among its employees and shall not employ on the Project any unfit person or anyone not skilled in the work assigned to him. Fort Bend County may, upon written notice to the Contractor, require the Contractor to remove an individual immediately from providing services for the following reasons: violation of the terms and conditions of this Contract; violation of Fort Bend County's or the Contractor's work rules and regulations; criminal activity; or violation of state, federal, or municipal statutes. Fort Bend County may, upon thirty (30) days written notice to the Contractor, require the removal of any individual from providing services without cause.

14.11 Inspection. The Project and all parts thereof shall be subject to inspection from time to time by inspectors designated by Fort Bend County. No such inspections shall relieve The Contractor of any of its obligations hereunder. Neither failure to inspect nor failure to discover or reject any of the work as not in accordance with the drawings and specifications or any provision of this Contract shall be construed to imply an acceptance of such work or to relieve the Contractor of any of its obligations hereunder. Fort Bend County agrees that its right of inspection shall be used reasonably and in a timely manner so as not to delay orderly completion of the Project.

14.12 Protection Against Risks. The Contractor shall take all precautions which are necessary and adequate, against conditions created during the progress of the Project which involve a risk of bodily harm to persons or a risk of damage or loss to any property. The Contractor shall regularly inspect all work, materials and equipment to discover and determine any such conditions and shall be responsible for discovery, determination, and correction of any such conditions. The Contractor shall comply with all federal, state, and local occupational hazard and safety standards, codes and regulations applicable in the jurisdiction where the

Project is being performed. The Contractor shall include the substance of this clause in its entirety in all subcontracts for any work to be performed at the construction site.

14.13 Equipment. Except as expressly provided herein to the contrary, the Contractor shall furnish (or cause to be furnished) all construction, transportation, installation, tools, and other equipment and facilities required for the performance of the Project within the times specified herein. Such equipment and facilities shall be serviceable and kept fit for the uses intended. Defective items shall be removed from the construction site promptly and at the Contractor's cost. The Contractor shall schedule (or cause to be scheduled) its other operations so as to not interfere with its duty to timely furnish the necessary equipment and facilities and personnel to operate the same at the times necessary for the orderly completion of the Project.

14.14 Materials. Except as may be specifically provided otherwise in the Contract or approved in advance by Fort Bend County, the Contractor shall provide Fort Bend County with copies of material testing reports and to cause all materials, equipment, and fabricated items incorporated in the Project to be new and of a suitable grade of their respective kinds for their intended use.

15.0 TERMINATION:

15.1 Fort Bend County may terminate the Contract if the Contractor:

15.1.1 Persistently or repeatedly refuses or fails to supply enough properly skilled workers or proper materials.

15.1.2 Fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractor.

15.1.3 Persistently disregards laws, ordinances, or rules, regulations or orders of a public authority having jurisdiction.

15.1.4 Otherwise is guilty of substantial breach of a provision of the Contract Documents.

15.2 When any of the above reasons exists, Fort Bend County may, without prejudice to any other rights or remedies of Fort Bend County and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

15.2.1 Take possession of the site and of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor.

15.2.2 Finish the Project by whatever reasonable method Fort Bend County may deem expedient.

15.3 Either party may terminate this Contract at any time by providing thirty (30) days written notice.

15.4 When Fort Bend County terminates the Contract for one of the reasons stated in this section, the Contractor shall not be entitled to receive further payment until the Project is finished. Therefore, the Contractor shall be promptly paid for all work actually and satisfactorily completed.

16.0 COMPLETION, TRANSFER, & ACCEPTANCE:

16.1 Final Completion. Upon the occurrence of the final completion date, the punch list items shall be promptly commenced and thereafter completed within thirty (30) days after final completion.

16.2 Transfer and Acceptance. Upon the occurrence of final completion, care, custody and control of the Project shall pass to Fort Bend County. As referenced herein, the "Transfer Date" shall mean the date on which the care, custody and control of the Project passes to Fort Bend County. Subsequent to the Transfer Date all risk of loss with respect to the Project shall be by Fort Bend County and the Contractor shall be thereafter obligated to cover the Project with their Insurance.

17.0 SUSPENSION BY FORT BEND COUNTY FOR CONVENIENCE:

17.1 Fort Bend County may, without cause, order the Contractor in writing to suspend, delay or interrupt the Project in whole or in part for such period of time as Fort Bend County may determine.

17.2 An adjustment shall be made for increase in the cost of performance, caused by suspension, delay or interruption. No adjustment shall be made to the extent:

17.2.1 That performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible.

17.2.2 That an equitable adjustment is made or denied under another provision of this Contract.

17.3 Adjustments made in the cost of performance may have a mutually agreed fixed or percentage fee.

18.0 INDEPENDENT CONTRACTOR:

The Contractor shall be an independent contractor and any provisions of this Contract that may

appear to give Fort Bend County the right to direct the Contractor as to the details of the manner of doing the Project shall be deemed to mean that the Contractor shall follow the desires of Fort Bend County in the results of the Project only and not in the means whereby the Project is to be accomplished. The Contractor shall be responsible as to the details of completing the Project. Neither the agents, representatives, nor employees of the Contractor, shall be deemed to be the agents, representatives, or employees of Fort Bend County. The Contractor further represents that it accepts a fiduciary role and responsibility with respect to Fort Bend County and will, to its best abilities, act in the best interests of Fort Bend County and the timely completion of the Project. The Contractor agrees and understands that neither it nor any of its agents or employees may act in the name of Fort Bend County except and unless specifically authorized in writing by Fort Bend County to do so. The Contractor shall furnish construction administration and management services and use the Contractor's best efforts to complete the Project in an expeditious and economical manner consistent with the interests of Fort Bend County.

19.0 NOTICE

19.1 All written notices, demands, and other papers or documents to be delivered to Fort Bend County under this Contract shall be delivered to the Sheriff's Office, 301 Jackson, Richmond, Texas 77469, or at such other place or places as Fort Bend County may from time to time designate by written notice delivered to the Contractor. For purposes of notice under this Contract, a copy of any notice or communication hereunder shall also be forwarded to the following address: Fort Bend County, 301 Jackson Street, Richmond, Texas 77469, Attention: County Judge.

19.2 All written notices, demands, and other papers or documents to be delivered to the Contractor under this Contract shall be delivered to the Authorized Representative identified in the Contract documents or such other place or places as the Contractor may designate by written notice delivered to Fort Bend County.

20.0 RECORDS:

20.1 Fort Bend County shall be the absolute and unqualified owner of all drawings, preliminary layouts, record drawings, sketches and other documents prepared pursuant to the Contract by Contractor.

20.2 The Contractor agrees to maintain and preserve for a period of at least five years after the earlier of the expiration of the defects period or termination of this Contract, accurate and complete records relating to the performance of the Project. The Contractor agrees to, upon request, provide Fort Bend County with such records.

21.0 SUCCESSORS & ASSIGNS:

21.1 Fort Bend County and the Contractor bind themselves and their successors, executors, administrators and assigns to the other party of this Contract and to the

successors, executors, administrators and assigns of such other party, in respect to all covenants of this Contract.

21.2 Neither Fort Bend County nor the Contractor shall assign, sublet or transfer its interest in this Contract without the prior written consent of the other.

21.3 Nothing herein shall be construed as creating any personal liability on the part of any officer or agent of any public and/or governmental body that may be a party hereto.

22.0 PUBLIC CONTACT:

Contact with the news media, citizens of Fort Bend County or governmental agencies shall be the sole responsibility of Fort Bend County. Under no circumstances, whatsoever, shall Contractor release any material or information developed in the performance of its services hereunder without the express written permission of Fort Bend County, except where required to do so by law.

23.0 MODIFICATIONS:

This instrument contains the entire Contract between the parties relating to the rights herein granted and obligations herein assumed. Any oral or written representations or modifications concerning this instrument shall be of no force and effect excepting a subsequent written modification signed by both parties hereto.

24.0 SILENCE OF SPECIFICATIONS:

The apparent silence of specifications as to any detail, or the apparent omission from it of a detailed description concerning any point, shall be regarded as meaning that only the best commercial practice is to prevail and that only material and workmanship of the finest quality are to be used. All interpretations of specifications shall be made on the basis of this statement. The items furnished under this contract shall be new, unused of the latest product in production to commercial trade and shall be of the highest quality as to materials used and workmanship. Manufacturer furnishing these items shall be experienced in design and construction of such items and shall be an established supplier of the item bid.

25.0 SEVERABILITY:

In the event one or more of the provisions contained in these requirements or the specifications shall for any reason be held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality, or unenforceability shall not affect any other provision hereof and these requirements or the specifications shall be construed as if such invalid, illegal, or unenforceable provision had never been contained herein.

26.0 GOVERNING FORMS:

In the event of any conflict between the terms and provisions of these requirements and the specifications, the specifications shall govern. In the event of any conflict of interpretation of any part of this overall document, Fort Bend County's interpretation shall govern.

27.0 TAX EXEMPT:

Fort Bend County is exempt from state and local sales and use taxes under Section 151.309 of the Texas Tax Code. This Contract is deemed to be a separate contract for Texas tax purposes, and as such, Fort Bend County hereby issues its Texas Exemption for the purchase of any items qualifying for exemption under this Contract. Contractor is to issue its Texas Resale Certificate to vendors and subcontractors for such items qualifying for this exemption, and further, contractor should state these items at cost.

28.0 ENTIRE AGREEMENT:

The Parties agree that this Contract contains all of the terms and conditions of the understanding of the parties relating to the subject matter hereof. All prior negotiations, discussions, correspondence and preliminary understandings between the parties and others relating hereto are superseded by this Contract. By entering into this Contract, the parties do not intend to create any obligations, express or implied, other than those specifically set out in this Contract.

29.0 APPLICABLE LAW & VENUE

This Contract shall be construed under and in accord with the laws of the State of Texas, and all obligations of the parties created hereunder are performable in Fort Bend County, Texas, and that venue for any litigation arising out of or related to this Contract shall lie solely in the court of appropriate jurisdiction located in Fort Bend County, Texas.

30.0 ENCLOSURE:

The following being incorporated herein by reference for all purposes as though fully set forth herein word for word.

Enclosure #1 – Specifications and Plans

31.0 PRICING: Complete unit pricing form.

32.0 PROJECT DURATION:

Bidder agrees, if awarded the contract, to complete all work required by the contract documents **within _____ calendar days (maximum 120 days)** after issuance of a purchase order by the County Purchasing Agent and notice to proceed by the Engineering Department.

33.0 AWARD:

This contract will be awarded to the overall lowest and best bid.

34.0 TEXAS ETHICS COMMISSION FORM 1295:

34.1 Effective January 1, 2016 all contracts executed by Commissioners Court, regardless of the dollar amount, will require completion of Form 1295 "Certificate of Interested Parties", per the new Government Code Statute §2252.908. All vendors submitting a response to a formal Bid, RFP, SOQ or any contracts, contract amendments, renewals or change orders are required to complete the Form 1295 online through the State of Texas Ethics Commission website. Please visit: https://www.ethics.state.tx.us/filinginfo/1295/

34.2 On-line instructions:

34.2.1 Name of governmental entity is to read: Fort Bend County.

34.2.2 Identification number used by the governmental entity is: B21-101.

34.2.3 Description is the title of the solicitation: Construction of Turn Lanes on Cinco Ranch at SH 99 for Fort Bend County Mobility Bond Project No. 17314x.

34.3 Apparent low bidder(s) will be required to provide the Form 1295 within three (3) calendar days from notification; however, if your company is publicly traded you are not required to complete this form.

35.0 STATE LAW REQUIREMENTS FOR CONTRACTS:

The contents of this section are required by Texas Law and are included by County regardless of content.

35.1 Agreement to Not Boycott Israel Chapter 2271 Texas Government Code: Contractor verifies that if Contractor employs ten (10) or more full-time employees and this Agreement has a value of $100,000 or more, Contractor does not boycott Israel and will not boycott Israel during the term of this Agreement.

35.2 Texas Government Code Section 2251.152 Acknowledgment: By signature on vendor form, Contractor represents pursuant to Section 2252.152 of the Texas Government Code, that Contractor is not listed on the website of the Comptroller of the State of Texas concerning the listing of companies that are identified under Section 806.051, Section 807.051 or Section 2253.153.

36.0 HUMAN TRAFFICKING:

By acceptance of this contract, Contractor acknowledges that Fort Bend County is opposed to human trafficking and that no County funds will be used in support of services or activities that violate human trafficking laws

37.0 ADDITIONAL REQUIRED FORMS:

All vendors submitting are required to complete and return with submission:

37.1 Vendor Form

37.2 W9 Form

37.3 Tax Form/Debt/Residence Certification

37.4 Contractor Acknowledgement of Stormwater Management Program

Contract Sheet
Bid 21-101

THE STATE OF TEXAS
COUNTY OF FORT BEND

This memorandum of agreement made and entered into on the _____ day of _____, 20_____, by and between Fort Bend County in the State of Texas (hereinafter designated County), acting herein by County Judge KP George, by virtue of an order of Fort Bend County Commissioners Court, and _____ (hereinafter designated Contractor).

(company name)

WITNESSETH:

The Contractor and the County agree that the bid and specifications for the **Construction of Turn Lanes on Cinco Ranch at SH 99 for Fort Bend County, Mobility Bond Project No. 17314x** which are hereto attached and made a part hereof, together with this instrument and the bond (when required) shall constitute the full agreement and contract between parties and for furnishing the items set out and described; the County agrees to pay the prices stipulated in the accepted bid.

It is further agreed that this contract shall not become binding or effective until signed by the parties hereto and a purchase order authorizing the items desired has been issued.

Executed at Richmond, Texas this _____day of _____20_____.

Fort Bend County, Texas

By:_____
County Judge, KP George

By:_____
Signature of Contractor

By:_____
Printed Name and Title

Cinco Ranch Blvd. at SH 99 Turn Lanes
for Fort Bend County
Bid 21-101

INDEX OF TECHNICAL SPECIFICATIONS

Reference Harris County Standard Engineering Design Specifications (2017 revision) where applicable.

Harris County Specifications

Item No.	Specification Title
102	Clearing and Grubbing
104	Removing Old Concrete
110	Roadway Excavation
130	Borrow
162	Sodding for Erosion Control (Block Sodding)
165	Hydro-Mulch Seeding
220	Lime Stabilized Subgrade
221	Hydrated Lime and Lime Slurry
360	Concrete Pavement
429	Trench Safety System
430	Construction of Underground Utilities (with drawings)
433	Cement Stabilized Sand Bedding and Backfill Material
460	Reinforced Concrete Pipe
465	Remove and Dispose of Existing Concrete or Metal Pipe
472	Inlets (with drawings)

Item No.	Specification Title
473	Adjusting Manholes and Inlets
530	Concrete Curb, Gutter , Curb and Gutter, Sidewalks and Driveways (with drawings)
562	Preparing the Right-of-Way
624	Aluminum Signs
646	Roadside Traffic Sign Support (with drawing)
649	Wide Angle Prismatic Retroreflective Sheeting for Traffic Control Signs (Diamond Grade)
660	Reflectorized Pavement Markings
662	Glass Reflective Spheres for Traffic Paint
663	Traffic Buttons and Pavement Markers
665	Work Zone Pavement Markings
671	Traffic Control
674	Removing Pavement Striping and Markings
719	Inlet Protection Barriers
751	SWPPP Inspection and Maintenance

Texas Department of Transportation Standard Specifications

Reference Texas Department of Transportation Standard Specifications for Construction of Highways, Streets and Bridges (2014 revision) where applicable when identified in the Bid Form specification reference as "TxDOT"

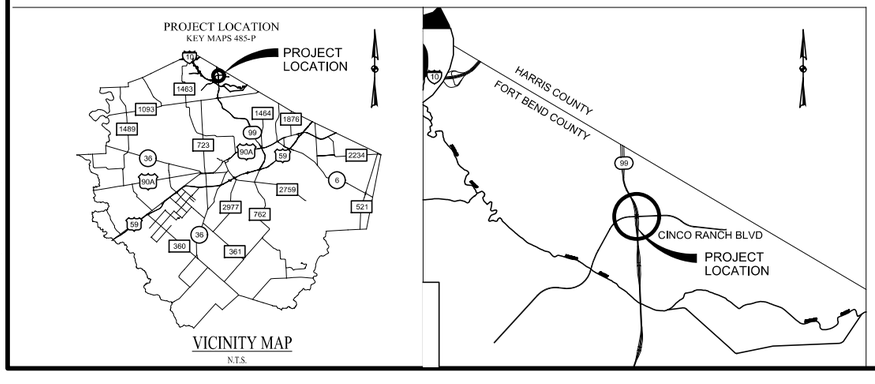
Item No.	Specification Title
360	Concrete Pavement
512	Concrete Barrier
618	Conduit
620	Electrical Conductors
621	Tray Cable
624	Ground Boxes
682	Vehicle and Pedestrian Signal Heads
684	Traffic Signal Cables
687	Pedestal Pole Assemblies
688	Pedestrian Detectors and Vehicle loop detectors
690	Maintenance of Traffic Signals

7/7/2021

FORT BEND COUNTY ENGINEERING DEPARTMENT

CINCO RANCH AT SH 99 TURN LANES

PROJECT NO. 17314X



VICINITY MAP
N.T.S.

THE STATE OF TEXAS
FORT BEND COUNTY

JULY 2021
PRECINCT 3
Fort Bend County, Texas

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TBPE F-1640

STATE OF TEXAS
PAUL E. BRIGHT
61108
REGISTERED PROFESSIONAL ENGINEER
7/7/2021

APPROVED: 08/17/2021
COUNTY ENGINEER DATE
J. STACY SLAWINSKI, P.E.

FBCED, STANDARD 01

SHEET NO.	DESCRIPTION
	GENERAL
1	COVER SHEET
2	INDEX OF SHEETS
3	CONSTRUCTION GENERAL NOTES
4	PUBLIC WORKS GENERAL NOTES
5	PRIVATE UTILITY GENERAL NOTES
6	EASTBOUND TYPICAL SECTIONS
7	WESTBOUND TYPICAL SECTIONS
8	PROJECT LAYOUTS
9-10	HORIZONTAL AND VERTICAL CONTROL LAYOUT SHEETS
11-13	PROPOSED ROW LAYOUTS
14-16	PROPOSED ROADWAY LAYOUTS
17	DRIVEWAY SUMMARY
18-19	DEMOLITION PLAN
20	OVERALL CONSTRUCTION PHASING LAYOUT
21-22	TRAFFIC CONTROL PLAN & SW3P - PHASE I
23-24	TRAFFIC CONTROL PLAN & SW3P - PHASE II
25	EXISTING TRAFFIC SIGNAL LAYOUT
26-28	TRAFFIC SIGNAL MODIFICATION LAYOUT
29	QUANTITY SUMMARY FOR TRAFFIC SIGNAL AND LIGHTING
30-32	SIGNING & PAVEMENT MARKING LAYOUTS
33	LIGHTING MODIFICATION LAYOUT
	TXDOT TRAFFIC CONTROL PLAN STANDARDS
34-45	BC(1)-14 THRU BC(12)-14 ~ BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS
46	TCP(2-4)-18 ~ TRAFFIC CONTROL PLAN - LANE CLOSURE ON MULTILANE CONVENTIONAL ROADS
47	TCP(3-3)-14 ~ TRAFFIC CONTROL PLAN - RAISED PAVEMENT MARKER
48	WZ(TD)-17 ~ TRAFFIC CONTROL PLAN - TYPICAL DETAILS
49	WZ(STPM)-13 ~ WORK ZONE SHORT TERM PAVEMENT MARKINGS
50	WZ(BTS-1)-13 ~ TRAFFIC SIGNAL WORK TYPICAL DETAILS
51	WZ(BTS-2)-13 ~ TRAFFIC SIGNAL BARRICADES AND SIGNS
	FORT BEND COUNTY DETAILS
52-53	CONCRETE PAVEMENT DETAILS
54	DRIVEWAY DETAILS FOR MAJOR ROADWAY CONSTRUCTION
55	TYPICAL PAVEMENT SECTIONS FOR DEVELOPMENT PROJECTS
56	EXPANSION JOINTS AND SAWCUTS
57-60	PED-18 RAMP DETAILS
61	STORM SEWER CONSTRUCTION DETAILS
62	TYPE "C", "C-1", "C-2", AND "C-2A" INLET DETAILS
63	PROJECT SIGN DETAILS
64	PRECINCT FUNDED PROJECT SIGN DETAILS
65-66	PAVEMENT MARKING DETAILS
67	TYPE III BARRICADE DETAILS
68	STORM WATER POLLUTION PREVENTION PLAN DETAILS
	TXDOT HOUSTON DISTRICT ROADWAY STANDARDS
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FORT BEND COUNTY ENGINEERING DEPARTMENT

THE STATE OF TEXAS · FORT BEND COUNTY

STATE OF TEXAS · PAUL E. BRIGHT · 61108 · REGISTERED PROFESSIONAL ENGINEER · 7/7/2021

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TEDSI TBPE F-1640

PROJECT TITLE:	CINCO RANCH BOULEVARD
DRAWN BY:	TURN LANE IMPROVEMENTS
CK'D BY:	SHEET DESCRIPTION: INDEX OF SHEETS
SCALE:	
DATE: 7/7/2021	APPROVED BY:
	SHEET NO: 2

CONSTRUCTION

1. FORT BEND COUNTY MUST BE INVITED TO THE PRE-CONSTRUCTION MEETING.

2. CONTRACTOR SHALL NOTIFY FORT BEND COUNTY ENGINEERING DEPARTMENT 48 HOURS PRIOR TO COMMENCING CONSTRUCTION AND 48 HOUR NOTICE TO ANY CONSTRUCTION ACTIVITY WITHIN THE LIMITS OF THE PAVING AT CONSTRUCTION@FORTBENDCOUNTYTX.GOV.

3. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED FROM FORT BEND COUNTY PRIOR TO COMMENCING CONSTRUCTION OF ANY IMPROVEMENTS WITHIN COUNTY ROAD RIGHT OF WAYS.

4. ALL PAVING IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH FORT BEND COUNTY "RULES, REGULATIONS AND REQUIREMENTS" RELATING TO THE APPROVAL AND ACCEPTANCE OF IMPROVEMENTS IN SUBDIVISIONS AS CURRENTLY AMENDED.

5. ALL ROAD WIDTHS, CURB RADII AND CURB ALIGNMENT SHOWN INDICATES BACK OF CURB.

6. A CONTINUOUS LONGITUDINAL REINFORCING BAR SHALL BE USED IN THE CURBS.

7. ALL CONCRETE PAVEMENT SHALL BE 5½ SACK CEMENT WITH A MINIMUM COMPRESSIVE STRENGTH OF 3500 PSI AT 28 DAYS. TRANSVERSE EXPANSION JOINTS SHALL BE INSTALLED AT EACH CURB RETURN AND AT A MAXIMUM SPACING OF 60 FEET.

8. ALL WEATHER ACCESS TO ALL EXISTING STREETS AND DRIVEWAYS SHALL BE MAINTAINED AT ALL TIMES.

9. 4"X 12" REINFORCED CONCRETE CURB SHALL BE PLACED IN FRONT OF SINGLE FAMILY LOTS ONLY. ALL OTHER AREAS SHALL BE 6" REINFORCED CONCRETE CURB.

10. AT ALL INTERSECTION LOCATIONS, TYPE 7 RAMPS SHALL BE PLACE IN ACCORDANCE WITH TXDOT PED-18 STANDARD DETAIL SHEET. A.D.A.-HANDICAP RAMPS SHALL BE INSTALLED WITH STREET PAVING AT ALL INTERSECTIONS AND COMPLY WITH CURRENT A.D.A. REGULATIONS.

11. CURB HEADERS ARE REQUIRED AT CURB CONNECTIONS TO HANDICAP RAMPS, WITH NO CONSTRUCTION JOINT WITHIN 5' OF RAMPS.

12. ALL INTERSECTIONS UTILIZING TRAFFIC CONTROL MEASURES SHALL HAVE A.D.A. WHEEL CHAIR RAMPS INSTALLED.

13. GUIDELINES ARE SET FORTH IN THE TEXAS "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", AS CURRENTLY AMENDED, SHALL BE OBSERVED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE FLAGMEN, SIGNING, STRIPING AND WARNING DEVICES, ETC., DURING CONSTRUCTION - BOTH DAY AND NIGHT.

14. ALL R1-1 STOP SIGNS SHALL BE A MINIMUM OF 30"X30" WITH DIAMOND GRADE SHEETING PER TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

15. STREET NAME SIGNAGE SHALL BE ON A 9" HIGH SIGN FLAT BLADE W/REFLECTIVE GREEN BACKGROUND. STREET NAMES SHALL BE UPPER AND LOWERCASE LETTERING WITH UPPERCASE LETTERS OF 6" MINIMUM AND LOWERCASE LETTERS OF 4.5" MINIMUM. THE LETTERS SHALL BE REFLECTIVE WHITE. STREET NAME SIGNS SHALL BE MOUNTED ON STOP SIGN POST.

16. A BLUE DOUBLE REFLECTORIZED BUTTON SHALL BE PLACED AT ALL FIRE HYDRANT LOCATIONS. THE BUTTON SHALL BE PLACED 12 INCHES OFF OF THE CENTERLINE OF THE STREET ON THE SAME SIDE AS THE HYDRANT.

17. THE PROJECT AND ALL PARTS THEREOF SHALL BE SUBJECT TO INSPECTION FROM TIME TO TIME BY INSPECTORS DESIGNATED BY FORT BEND COUNTY. NO SUCH INSPECTIONS SHALL RELIEVE THE CONTRACTOR OF ANY OF ITS OBLIGATIONS HEREUNDER. NEITHER FAILURE TO INSPECT NOR FAILURE TO DISCOVER OR REJECT ANY OF THE WORK AS NOT IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS, REQUIREMENTS AND SPECIFICATIONS OF FORT BEND COUNTY OR ANY PROVISION OF THIS PROJECT SHALL BE CONSTRUED TO IMPLY AN ACCEPTANCE OF SUCH WORK OR TO RELIEVE THE CONTRACTOR OF ANY OF ITS OBLIGATIONS HEREUNDER.

18. STABILIZED SUBGRADE: DETERMINE THE THICKNESS OF THE STABILIZED SUBGRADE AFTER CURING AND COMPACTION. IF THE SUBGRADE DEPTH IS GREATER THAN THE PROPOSED THICKNESS BY 20% OR MORE, THE CMT LAB MUST PROVIDE VERIFICATION THE PERCENTAGE OF MATERIAL BEING USED TO STABILIZE THE SUBGRADE MEETS OR EXCEEDS PROJECT REQUIREMENTS. TEST RESULTS REQUIRED.

NOTE: FORT BEND COUNTY NOTES SUPERSEDE ANY CONFLICTING NOTES.

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FORT BEND COUNTY
ENGINEERING DEPARTMENT

THE STATE OF TEXAS — FORT BEND COUNTY

STATE OF TEXAS — PAUL E. BRIGHT — 61108 — REGISTERED PROFESSIONAL ENGINEER — 7/7/2021

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1600
TEDSI TBPE F-1640

PROJECT TITLE:	CINCO RANCH BOULEVARD
DRAWN BY:	TURN LANE IMPROVEMENTS
CK'D BY:	SHEET DESCRIPTION: CONSTRUCTION GENERAL NOTES
SCALE:	
DATE: 7/7/2021	APPROVED BY:
	SHEET NO: 3

GENERAL

1. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS BEFORE BEGINNING CONSTRUCTION.
2. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING SECURITY TO PROTECT THE PROJECT SITE, CONTRACTOR PROPERTY, EQUIPMENT, AND WORK.
3. THE CONTRACTOR IS RESPONSIBLE FOR CLEANING STREETS OF CONSTRUCTION DIRT AND DEBRIS AT CLOSE OF EACH WORK DAY.
4. THE CONDITION OF THE ROAD AND/OR RIGHT-OF -WAY, UPON COMPLETION OF THE JOB SHALL BE AS GOOD AS OR BETTER THAN PRIOR TO STARTING WORK.
5. PRIOR TO CONSTRUCTION, THE CONTRACTOR, ALONG WITH CONCURRENCE FROM THE FIELD ENGINEER, SHALL DETERMINE HIS/HER LAY-DOWN AND/OR STAGING AREA LOCATIONS.
6. THE CONTRACTOR SHALL NOTIFY ALL PROPERTY OWNERS A MINIMUM OF 24 HOURS PRIOR TO BLOCKING DRIVEWAYS OR ENTERING UTILITY EASEMENTS.
7. TRAFFIC INGRESS AND EGRESS FOR DRIVEWAYS AND PEDESTRIAN ACCESS FACILITIES SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
8. THE CONTRACTOR SHALL REMOVE ANY FENCES, POSTS, MAILBOXES, PLANTERS, PERMANENT TRASH CONTAINERS, CULVERTS, ETC. OR SECTIONS THEREOF, THAT ENCROACH WITHIN THE COUNTY'S RIGHT -OF - WAY . NOTE: PRIOR TO CONSTRUCTION, THE PROPERTY OWNER WAS PAID TO RELOCATE OR REPLACE THESE ITEMS OUTSIDE OF THE COUNTY'S RIGHT-OF-WAY. IF THE OWNER HAS FAILED TO DO SO, THE CONTRACTOR WILL REPLACE THEM WITH THE MINIMUM LEVEL OF QUALITY NEEDED TO SECURE THE PROPERTY AND/OR MAINTAIN MAIL DELIVERY. IN THAT CASE, PAYMENT FOR THESE INSTALLATIONS WILL BE INCLUDED AS EXTRA WORK ITEMS OR AS OVERRUNS TO EXISTING PAY ITEMS.

   ANY DAMAGE CAUSED BY THE CONTRACTOR TO SUCH ITEMS LOCATED OUTSIDE OF THE COUNTY'S RIGHT-OF -WAY, SHALL BE REPLACED WITH LIKE-KIND OR BETTER AT THE CONTRACTOR'S EXPENSE.

   ALSO, IF THESE ITEMS ARE LOCATED WITHIN THE PROJECT RIGHT -OF -WAY AND ARE DESIGNATED TO REMAIN, ANY DAMAGE CAUSED BY THE CONTRACTOR TO SUCH ITEMS, SHALL BE REPLACED WITH LIKE-KIND OR BETTER AT THE CONTRACTOR'S EXPENSE.

   TREES, BUSHES, SHRUBBERY AND OTHER DAMAGED PLANTINGS DESIGNATED TO REMAIN SHALL BE REPLACED WITHIN 72 HOURS OF REMOVAL AND ARE TO BE THOROUGHLY WATERED-IN. NO SEPARATE PAY.
9. PAVED SURFACES, PAVEMENT MARKERS AND MARKINGS SHALL BE PROTECTED FROM DAMAGE BY TRACKED EQUIPMENT.
10. IRON RODS DISTURBED DURING CONSTRUCTION ARE TO BE REPLACED BY A REGISTERED PROFESSIONAL LAND SURVEYOR FOR THE ORIGINAL PROPERTY OWNER AT NO SEPARATE PAY.
11. CONSTRUCTION STAKING WILL BE PROVIDED BY THE CONTRACTOR. TWO COPIES OF STAKING NOTES TO BE PROVIDED TO THE ENGINEER PRIOR TO CONSTRUCTION.
12. THE COUNTY OR THE COUNTY'S SURVEYOR SHALL PROVIDE A BENCHMARK OR TEMPORARY BENCHMARK AND SURVEY CONTROLS.
13. THE CONTRACTOR SHALL MAINTAIN UPDATED RED-LINED RECORD DRAWINGS ON SITE FOR INSPECTION BY THE ENGINEER .
14. MOWING, MAINTENANCE, AND CLEAN-UP OF THE PROJECT SHALL MEET THE REQUIREMENT OF SPECIFICATION ITEM 560 (NO SEPARATE PAY). MOWING, MAINTENANCE, AND CLEAN-UP IS REQUIRED FOR THE PROJECT LIMITS AND DURATION, REGARDLESS OF THE CONTRACTOR'S SCOPE OF ACTIVITIES WITHIN THE PROJECT LIMITS.
15. THE REMOVAL OF ANY ABANDONED UTILITIES REQUIRED TO COMPLETE THE WORK SHALL BE INCIDENTAL AND NO SEPARATE PAYMENT SHALL BE MADE.
16. IT IS THE CONTRACTOR'S RESPONSIBILITY TO STOCKPILE NECESSARY MATERIAL ON-SITE OR AT A SECURED OFF-SITE LOCATION AT NO ADDITIONAL EXPENSE TO FORT BEND COUNTY. ANY SUITABLE EXCAVATED MATERIAL ON THE PROJECT WHICH IS AVAILABLE AT THE TIME OF NEED; WHETHER FROM STORM SEWER, ROADWAY, AND/OR CHANNEL EXCAVATION, SHALL BE USED BEFORE BORROW IS BROUGHT ON-SITE.
17. MANHOLES, JUNCTION BOXES, INLETS, AND RISERS ARE TO BE PRE-CAST OR CAST IN PLACE.

TRAFFIC SIGNAL

1. ALL ITEMS RELATING TO THE CONSTRUCTION OF TRAFFIC SIGNAL INSTALLATIONS, EXCEPT FOR PUNCHLIST ITEMS, SHALL BE COMPLETED PRIOR TO THE ACTIVATION OF THE SIGNAL SYSTEM(S), UNLESS OTHERWISE REQUIRED BY THE CONTRACT.
2. THE CONTRACTOR SHALL MEET WITH THE TXDOT TRAFFIC SIGNAL MAINTENANCE GROUPS FIELD INSPECTOR, HEREAFTER REFERRED TO AS THE TRAFFIC INSPECTOR, ONE-WEEK PRIOR TO THE DESIRED ACTIVATION OF ANY NEW TRAFFIC SIGNALS. THE CONTRACTOR SHALL OBTAIN VERBAL CONCURRENCE FROM THE TRAFFIC INSPECTOR THAT ADEQUATE PROGRESS HAS BEEN ACHIEVED AND THAT ADEQUATE PREPARATIONS ARE IN PLACE TO SCHEDULE A PRE- "TURN ON' WALK-THROUGH INSPECTION MEETING. IF IN THE OPINION OF THE TRAFFIC INSPECTOR, REQUIRED PROGRESS AND ADEQUATE PREPARATIONS ARE NOT COMPLETE, THE PRE-"TURN ON" WALK-THROUGH INSPECTION MEETING WILL BE POSTPONED TO ALLOW ADEQUATE TIME FOR INCOMPLETE CONSTRUCTION ITEMS AND PREPARATIONS TO BE COMPLETED. AFTER THE CONTRACTOR HAS COMPLETED ALL INCOMPLETE ITEMS AND PREPARATIONS, THE CONTRACTOR SHALL REQUEST THE TRAFFIC INSPECTOR REVIEW AND APPROVE ITEMS PREVIOUSLY IDENTIFIED.
   IF, IN THE OPINION OF THE TRAFFIC INSPECTOR, ALL ITEMS HAVE BEEN ADDRESSED SATISFACTORILY, THE DATE OF THE PRE-"TURN ON" WALK-THROUGH INSPECTION SHALL BE ESTABLISHED. TIME EXTENSIONS TO THE CONTRACT TIME WILL NOT BE GRANTED FOR DELAYS CAUSED BY INCOMPLETE CONSTRUCTION OR INADEQUATE CONTRACTOR PREPARATIONS REQUIRED TO COMPLETE TRAFFIC SIGNAL SYSTEM WITHIN THE TIMEFRAME SET FORTH IN THE CONTRACT.
3. PRIOR TO ACTIVATING A NEW TRAFFIC SIGNAL, THE CONTRACTOR SHALL REQUEST A PRE-TURN ON WALK-THROUGH INSPECTION MEETING, IN ACCORDANCE WITH ITEM 2. THE PURPOSE OF THE MEETING WILL BE TO ESTABLISH THAT THE TRAFFIC SIGNAL SYSTEM HAS BEEN CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT, AND IN A MANNER THAT DOES NOT ADVERSELY IMPACT PUBLIC SAFETY. THIS MEETING SHALL BE ATTENDED BY THE TRAFFIC INSPECTOR, THE ENGINEER OF RECORD, AND THE CONTRACTOR. AS A MINIMUM, ANY DEFICIENCIES THAT ADVERSELY IMPACT PUBLIC SAFETY WILL BE IDENTIFIED FOR CORRECTION PRIOR TO ESTABLISHING THE "TURN ON" DATE FOR THE TRAFFIC SIGNAL SYSTEM. ITEMS THAT HAVE AN IMPACT ON PUBLIC SAFETY INCLUDE, BUT ARE NOT LIMITED TO: PAVEMENT MARKINGS AND SIGNAGE, PROPER AND ACCEPTABLE BONDING OF EARTH GROUNDS, PROPERLY ALIGNED TRAFFIC SIGNALS, FULLY OPERATIONAL VEHICULAR AND PEDESTRIAN DETECTION, COMPLETED CABINET - TO-FIELD WIRING, AND PROPERLY TERMINATED ELECTRICAL SERVICE CONDUCTORS. FAILURE TO ADDRESS THE PUNCHLIST ITEMS IDENTIFIED AS BEING CRITICAL TO PUBLIC SAFETY PRIOR TO THE PRE-TURN ON WALK-THROUGH MEETING WILL RESULT IN THE "TURN ON" BEING POSTPONED TO ALLOW ADEQUATE TIME FOR THE INCOMPLETE ITEMS TO BE COMPLETED. AT SUCH TIME AS MEETING ATTENDEES AGREE THAT THE TRAFFIC SIGNAL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT, AND THAT THE TRAFFIC SIGNAL, AS IT EXISTS, IS NOT A THREAT TO PUBLIC SAFETY, A "TURN ON" DATE WILL BE ESTABLISHED.
4. THE CONTRACTOR SHALL HAVE 10 DAYS FROM THE DATE THE TRAFFIC SIGNAL SYSTEM IS TURNED ON TO COMPLETE ANY PUNCHLIST ITEMS IDENTIFIED AT THE PRE-"TURN ON" WALK-THROUGH MEETING OR AT THE TIME THE SIGNAL SYSTEM IS ACTIVATED THAT ARE NOT OTHERWISE ADDRESSED PRIOR TO ACTIVATION OF THE TRAFFIC SIGNAL SYSTEM.
5. THE CONTRACTOR'S ATTENTION IS DIRECTED TO STANDARD SPECIFICATION ITEM 1000, TRAFFIC SIGNAL INSTALLATION AND MODIFICATION, WHICH INCLUDES PROCEDURES AND REQUIREMENTS REGARDING ACTIVATION OF TRAFFIC SIGNAL CONTROL SYSTEMS. THE PROJECT MANUAL MAY INCLUDE SPECIAL SPECIFICATIONS AND/OR SPECIAL PROVISIONS RELATED TO PROPOSED TRAFFIC CONTROL SIGNAL SYSTEM INSTALLATION(S) AND MODIFICATION(S) REQUIRING THE CONTRACTOR'S ADHERENCE TO DEFINED CHECKLISTS, PROCEDURES AND/OR REPORTS AT NO ADDITIONAL COST TO THE COUNTY BEYOND THE ESTABLISHED BID ITEMS OF THE CONTRACT.

TRAFFIC CONTROL

1. THE CONTRACTOR SHALL PROVIDE AND INSTALL TRAFFIC CONTROL DEVICES IN CONFORMANCE WITH PART VI OF THE MOST RECENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND THE APPROVED TRAFFIC CONTROL PLAN.
2. THE CONTRACTOR SHALL MAINTAIN AT LEAST ONE LANE OF TRAFFIC IN EACH DIRECTION DURING WORKING HOURS EXCEPT DURING FLAGGING OPERATION OR PROVIDE DETOURS AROUND THE CONSTRUCTION SITE AND PROVIDE PUBLIC NOTIFICATION.
3. LANE CLOSURES SHALL BE DURING OFF -PEAK HOURS ONLY (MONDAY THROUGH FRIDAY 9 A.M. TO 4 P.M.) UNIFORMED PEACE OFFICERS OR FLAGGERS IN RADIO CONTACT ARE REQUIRED TO DIRECT TRAFFIC DURING LANE CLOSURES.
4. DETOURS REQUIRE PRIOR APPROVAL OF THE FIELD ENGINEER AND PRECINCT. DETOUR PLANS, IF ALLOWED, MUST INCLUDE APPROPRIATE DETOUR SIGNAGE, PUBLIC NOTICE VIA SIGNAGE TWO WEEKS IN ADVANCE STATING THE DATES OF THE AGREED UPON DATE OF CLOSURE AND DATE THE ROAD WILL RE-OPEN TO TRAFFIC. CONTRACTOR TO USE (WITH PRIOR APPROVAL OF THE FIELD ENGINEER) HIGH EARLY STRENGTH CONCRETE AND OTHER RELATED CONSTRUCTION METHODS TO MINIMIZE THE DURATION OF THE DETOUR AND TO ENSURE THAT THE ROADWAY IS OPEN ON, OR PRIOR TO, THE AGREED UPON DATE.
5. ONE DAY PRIOR TO THE IMPLEMENTATION OF A TRAFFIC CONTROL PLAN PHASE OR STEP, OR THE IMPLEMENTATION OF AN ADDITIONAL, REVISED, OR NEW TRAFFIC CONTROL ELEMENT, THE CONTRACTOR SHALL MEET WITH THE ENGINEER TO GIVE A DETAILED DESCRIPTION OF THE CONTRACTOR'S PLAN AND PREPARATIONS. THE CONTRACTOR SHALL OBTAIN WRITTEN CONCURRENCE FROM THE ENGINEER THAT ADEQUATE PROJECT PROGRESS HAS BEEN ACHIEVED AND THAT ADEQUATE PREPARATIONS ARE IN PLACE PRIOR TO SWITCHING TRAFFIC. IF, IN THE OPINION OF THE ENGINEER, REQUIRED PROGRESS AND ADEQUATE PREPARATIONS ARE NOT COMPLETE, THE CONTRACTOR SHALL NOT IMPLEMENT THE NEXT PHASE, STEP, OR ELEMENT OF TRAFFIC CONTROL UNTIL INCOMPLETE CONSTRUCTION ITEMS OR PREPARATIONS ARE COMPLETED. TIME EXTENSIONS WILL NOT BE GRANTED FOR DELAYS CAUSED BY THE INCOMPLETE CONSTRUCTION ITEMS OR INADEQUATE CONTRACTOR PREPARATIONS REQUIRED TO IMPLEMENT TRAFFIC CONTROL.
6. TRAFFIC CONTROL PER THE CONTRACT IS REQUIRED FOR THE ENTIRE DURATION OF THE PROJECT, INCLUDING THE PUNCHLIST PERIOD. PAYMENT FOR TRAFFIC CONTROL THAT IS PROPERLY INSTALLED FOR LESS THAN A FULL MONTH SHALL BE BASED ON A PERCENTAGE BASIS OF THE TIME INSTALLED. TRAFFIC CONTROL PAYMENTS TO THE CONTRACTOR SHALL END 10 DAYS AFTER SUBSTANTIAL COMPLETION, ALTHOUGH PROPER TRAFFIC CONTROL MUST BE MAINTAINED UNTIL PUNCHLIST COMPLETION.
7. THE PURPOSE OF THE CONSTRUCTION SEQUENCE AND TRAFFIC HANDLING OUTLINED HEREIN IS TO DOCUMENT A VIABLE TCP THAT CAN BE UTILIZED TO CONSTRUCT THE PROJECT. IT IS THE BASIS OF ESTIMATION FOR THE TRAFFIC CONTROL BID ITEMS, AND IS TO BE UTILIZED AND IMPLEMENTED, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
   IF THE CONTRACTOR CHOOSES TO USE A DIFFERENT TCP, HE/SHE SHALL PREPARE AND SUBMIT THE ALTERNATIVE TCP TO THE COUNTY FOR APPROVAL NO LESS THAN 10 WORKING DAYS PRIOR TO THE PROPOSED IMPLEMENTATION DATE. THE TCP SHALL BE DRAWN TO SCALE AND SIGNED & SEALED BY A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF TEXAS. UPON APPROVAL BY FORT BEND COUNTY, THE ALTERNATIVE PLAN SHALL BECOME THE BASIS FOR A "CHANGE IN CONTRACT" TO REVISE THE TRAFFIC CONTROL BID ITEMS ACCORDINGLY AND BECOME PART OF THE CONTRACT DOCUMENTS.

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FORT BEND COUNTY
ENGINEERING DEPARTMENT

THE STATE OF TEXAS · FORT BEND COUNTY

STATE OF TEXAS · PAUL E. BRIGHT · 61108 · REGISTERED PROFESSIONAL ENGINEER
7/7/2021

TEDSI INFRASTRUCTURE GROUP
TEDSI TBPE F-1640
Consulting Engineers
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Houston, Texas 77079
(832) 619-6100

PROJECT TITLE:	CINCO RANCH BOULEVARD
DRAWN BY:	TURN LANE IMPROVEMENTS
CK'D BY:	SHEET DESCRIPTION: PUBLIC WORKS GENERAL NOTES
SCALE:	
DATE: 7/7/2021	APPROVED BY:

SHEET NO: 4

STORM WATER POLLUTION PREVENTION PLAN NOTES:

1. CONTRACTOR SHALL ERECT ALL SW3P DEVICES PRIOR TO COMMENCEMENT OF WORK IN THAT AREA.
2. CONTRACTOR SHALL MAINTAIN ALL SW3P DEVICES THROUGHOUT THE DURATION OF THE PROJECT.
3. CONTRACTOR SHALL REMOVE ALL SW3P DEVICES UPON FINAL ACCEPTANCE OF THE PROJECT OR AS DIRECTED BY THE ENGINEER.
4. THIS PROJECT DISTURBS 4.0 ACRES, THEREFORE COVERAGE IS REQUIRED UNDER THE TPDES GENERAL PERMIT TXR150000 FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTATION, INSPECTION, AND MAINTENANCE OF THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS. THE COSTS TO IMPLEMENT, INSPECT, AND MAINTAIN THE SWPPP SHALL BE CONSIDERED INCIDENTAL TO THE SWPP BID ITEMS.
5. SINCE THIS PROJECT DISTURBS BETWEEN 1 AND 5 ACRES, A CONSTRUCTION SITE NOTICE (CSN) IS REQUIRED TO BE POSTED AT LEAST 48 HOURS PRIOR TO THE START OF ANY EARTH DISTURBING ACTIVITIES. THIS PROJECT SHALL HAVE TWO CSNS, ONE WITH THE CONTRACTOR'S SIGNATURE AND ONE WITH FORT BEND COUNTY'S SIGNATURE.
6. THE CONTRACTOR SHALL DELIVER TO FORT BEND COUNTY AT THE PRE-CONSTRUCTION MEETING COPY OF THE CONTRACTOR'S SIGNED CSN. FORT BEND COUNTY SHALL SUBMIT COPIES OF BOTH SIGNED CSNS TO THE LOCAL MUNICIPAL SEPARATE STORM SEWER OPERATOR (MS4) AT LEAST 48 HOURS PRIOR TO THE START OF ANY EARTH DISTURBING ACTIVITIES. COPIES OF THE CONTRACTOR'S CSN AND FORT BEND COUNTY CSN SHALL BE POSTED AT THE SITE BY THE CONTRACTOR. THE CONTRACTOR SHALL LAMINATE AND POST THE TWO CSNS ON THE PROJECT SITE AT A LOCATION WITHIN EASY ACCESS TO THE PUBLIC FOR CLEAR VIEWING AND AS APPROVED BY THE ENGINEER. THE COSTS TO LAMINATE AND POST THE NOI SHALL BE CONSIDERED INCIDENTAL TO THE SWPPP BID ITEMS.
7. A RAIN GAUGE SHALL BE KEPT ON THE PROJECT SITE OR WITHIN THE IMMEDIATE PROJECT VICINITY. RECORDS OF RAINFALL EVENTS SHALL BE KEPT BY THE CONTRACTOR TO ASSIST WITH DETERMINING IF AN SWPPP SITE INSPECTION IS REQUIRED. THE COSTS FOR THE RAIN GAUGE SHALL BE CONSIDERED INCIDENTAL TO THE SWPP BID ITEMS.
8. THE SWPPP, INSPECTION & MAINTENANCE REPORTS, CERTIFICATIONS, AND RAINFALL RECORDS SHALL BE KEPT CURRENT BY THE CONTRACTOR AND IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS. COPIES OF THE SWPPP RECORDS SHALL BE KEPT ON-SITE, IF FEASIBLE, UNTIL THE SITE IS DEEMED TO BE FINAL STABILIZED AND AS APPROVED BY THE ENGINEER. THE SWPPP RECORDS SHALL BE MADE READILY AVAILABLE TO REGULATORY AUTHORITIES UPON AN ON-SITE INSPECTION. THE CONTRACTOR SHALL DELIVER COPIES OF ALL SWPPP RECORDS TO FORT BEND COUNTY AS DIRECTED BY THE ENGINEER.

PRIVATE UTILITY NOTES

CENTERPOINT ENERGY GAS

1. CAUTION: UNDERGROUND GAS FACILITIES

   LOCATIONS OF CENTERPOINT ENERGY MAIN LINES (TO INCLUDE CENTERPOINT ENERGY, INTRASTATE PIPELINE, LLC. WHERE APPLICABLE) ARE SHOWN IN AN APPROXIMATE LOCATION ONLY. SERVICE LINES ARE USUALLY NOT SHOWN. THE CONTRACTOR SHALL CONTACT THE UTILITY COORDINATING COMMITTEE AT 1-800-545-6005 OR 811 A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION TO HAVE MAIN AND SERVICE LINES FIELD LOCATED.

2. WHEN CENTERPOINT PIPELINE MARKINGS ARE NOT VISIBLE, CALL (713) 207-5463 OR (713) 945-8037 (7:00 AM TO 4:30 PM) FOR STATUS OF LINE LOCATION REQUEST BEFORE EXCAVATION BEGINS.

3. WHEN EXCAVATION WITHIN EIGHTEEN INCHES (18") OF THE INDICATED LOCATION OF CENTERPOINT ENERGY FACILITIES, ALL EXCAVATION MUST BE ACCOMPLISHED USING NON-MECHANIZED EXCAVATION PROCEDURES.

4. WHEN CENTERPOINT ENERGY FACILITIES ARE EXPOSED, SUFFICIENT SUPPORT MUST BE PROVIDED TO THE FACILITIES TO PREVENT EXCESSIVE STRESS ON THE PIPING.

5. FOR EMERGENCIES REGARDING GAS LINES CALL (713) 659-3552 OR (713) 207-4200.

6. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGES CAUSED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND FACILITIES.

CENTERPOINT ENERGY ELECTRIC

WARNING : OVERHEAD ELECTRICAL LINES
OVERHEAD LINES MAY EXIST ON THE PROPERTY.
THE LOCATION OF OVERHEAD LINES HAS NOT BEEN SHOWN ON THESE DRAWINGS AS THE LINES ARE CLEARLY VISIBLE, BUT YOU SHOULD LOCATE THEM PRIOR TO BEGINNING ANY CONSTRUCTION. TEXAS LAW, SECTION 752, HEALTH AND SAFTEY CODE FORBIDS ACTIVITIES THAT OCCUR IN CLOSE PROXIMITY TO HIGH VOLTAGE LINES, SPECIFICALLY :

1. ANY ACTIVITY WHERE PERSON OR THINGS MAY COME WITHIN SIX(6) FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES; AND
2. OPERATING A CRANE DERRICK, POWER SHOVEL, DRILLING RIG, PILE DRIVER, HOISTING EQUIPMENT, OR SIMILAR APPARATUS WITHIN 10 FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES.

PARTIES RESPONSIBLE FOR THE WORK, INCLUDING CONTRACTORS ARE LEGALLY RESPONSIBLE FOR THE SAFTEY OF THE CONSTRUCTION WORKERS UNDER THIS LAW. THIS LAW CARRIES BOTH CRIMINAL AND CIVIL LIABILITY. TO ARRANGE FOR LINES TO BE TURNED OFF OR REMOVED CALL CENTERPOINT ENERGY AT (713) 207-2222.

ACTIVITIES ON OR ACROSS CENTERPOINT ENERGY FEE OR EASMENT PROPERTY - NO APPROVAL TO USE, CROSS OR OCCUPY CENTERPOINT FEE OR EASEMENT PROPERTY IS GIVEN. IF YOU NEED TO USE CENTERPOINT PROPERTY, PLEASE CONTACT OUR SURVEYING & RIGHT OF WAY DIVISION AT (713) 207-6248 OR (713) 207-5769.

AT&T TEXAS/SWBT FACILITIES

1. THE LOCATIONS OF AT&T TEXAS/SWBT FACILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND UTILITIES.

2. THE CONTRACTOR SHALL CALL 1-800-344-8377 A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION TO HAVE UNDERGROUND LINES FIELD LOCATED.

3. WHEN EXCAVATING WITHIN EIGHTEEN INCHES (18") OF THE INDICATED LOCATION OF AT&T TEXAS/SWBT FACILITIES, ALL EXCAVATIONS MUST BE ACCOMPLISHED USING NON-MECHANIZED EXCAVATION PROCEDURES. WHEN BORING, THE CONTRACTOR SHALL EXPOSE THE AT&T TEXAS/SWBT FACILITIES.

4. WHEN AT&T TEXAS/SWBT FACILITIES ARE EXPOSED, THE CONTRACTOR WILL PROVIDE SUPPORT TO PREVENT DAMAGE TO THE CONDUIT DUCTS OR CABLES. WHEN EXCAVATING NEAR TELEPHONE POLES THE CONTRACTOR SHALL BRACE THE POLE FOR SUPPORT.

5. THE PRESENCE OR ABSENCE OF AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES OR BURIED CABLE FACILITIES SHOWN ON THESE PLANS DOES NOT MEAN THAT THERE ARE NO DIRECT BURIED CABLES OR OTHER CABLES IN CONDUIT IN THE AREA.

6. PLEASE CONTACT THE AT&T TEXAS DAMAGE PREVENTION MANAGER MR. ROOSEVELT LEE JR. AT (713)567-4552 OR E-MAIL HIM AT rl7259@att.com, IF CABLE LOCATE REQUESTS ARE NOT COMPLETED FOR OUR AT&T TEXAS/SWBT FACILITIES.

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ENGINEERING DEPARTMENT

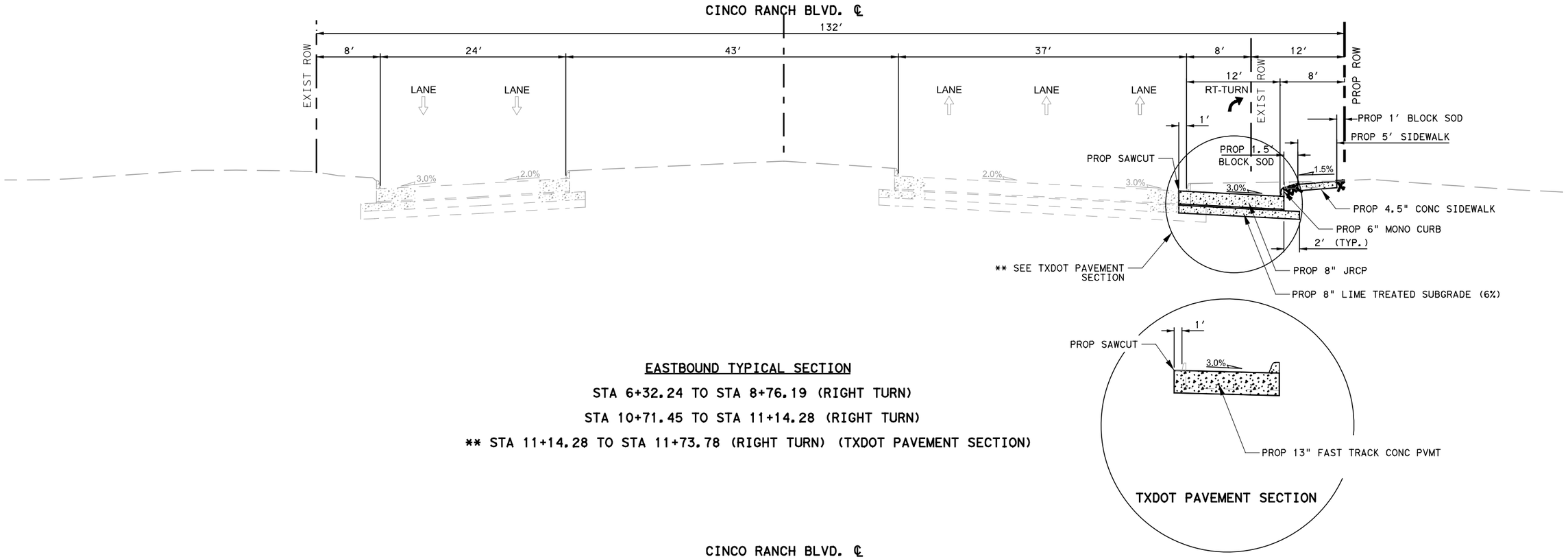
THE STATE OF TEXAS · FORT BEND COUNTY

STATE OF TEXAS · PAUL E. BRIGHT · 61108 · REGISTERED PROFESSIONAL ENGINEER
7/7/2021

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TEDSI TBPE F-1640

PROJECT TITLE:	CINCO RANCH BOULEVARD
DRAWN BY:	TURN LANE IMPROVEMENTS
CK'D BY:	SHEET DESCRIPTION: PRIVATE UTILITY NOTES
SCALE:	
DATE: 7/7/2021	APPROVED BY:
	SHEET NO: 5

pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2019\2019-2073-01- Cinco Ranch Blvd Turn Lanes\6.0 TEDSI Design\6.08 CADD\6.08.01 Sheet Files\SHT 03A - CRB GENERAL NOTES_01.dgn

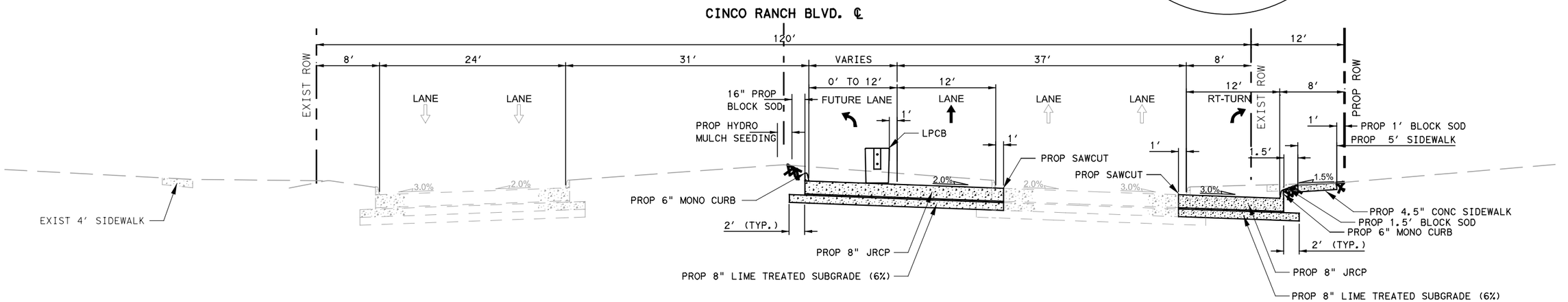


EASTBOUND TYPICAL SECTION

STA 6+32.24 TO STA 8+76.19 (RIGHT TURN)

STA 10+71.45 TO STA 11+14.28 (RIGHT TURN)

**** STA 11+14.28 TO STA 11+73.78 (RIGHT TURN) (TXDOT PAVEMENT SECTION)**



EASTBOUND TYPICAL SECTION

STA 8+76.19 TO STA 10+71.45 (LEFT TURN)

NOTE:

1. PLACE 16" WIDE BLOCK SOD AT THE BACK OF ALL PROP CONC CURB.
2. NATURAL GROUND AREA TO BE HYDRO MULCH SEEDED.

NO.	REVISIONS	DATE	NAME
1			
2			
3			
4			
5			

FORT BEND COUNTY ENGINEERING DEPARTMENT

THE STATE OF TEXAS — FORT BEND COUNTY

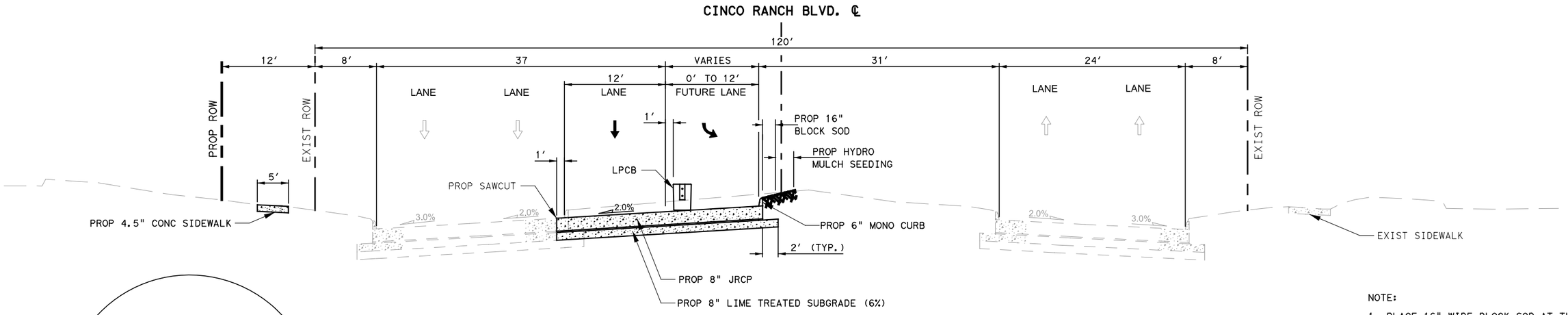
STATE OF TEXAS — PAUL E. BRIGHT — 61108 — REGISTERED PROFESSIONAL ENGINEER

7/7/2021

TEDSI INFRASTRUCTURE GROUP
TEDSI TBPE F-1640
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000

PROJECT TITLE:	CINCO RANCH BOULEVARD
DRAWN BY:	TURN LANE IMPROVEMENTS
CK'D BY:	SHEET DESCRIPTION: EASTBOUND TYPICAL SECTIONS
SCALE: 1"=120′	SHEET NO: 6
DATE: 7/7/2021	APPROVED BY:

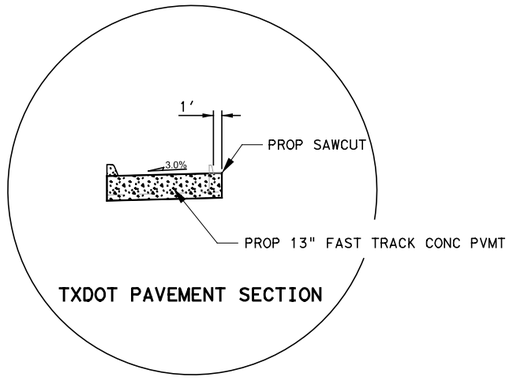
pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2019\2019-2073-01- Cinco Ranch Blvd Turn Lanes\6.0 TEDSI Design\6.08 CADD\6.08.01 Sheet Files\SHT 04-05 - CRB TYP SEC.dgn



NOTE:

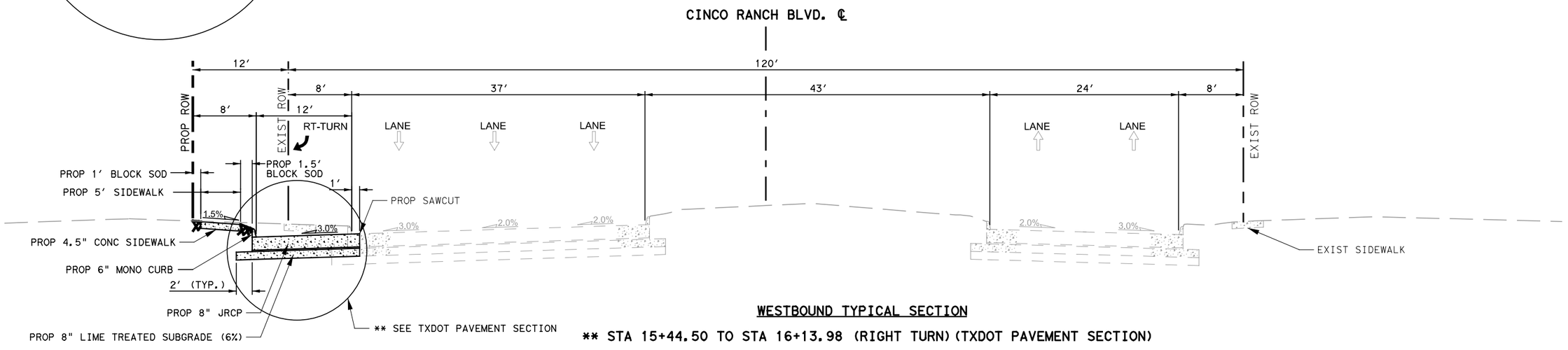
1. PLACE 16" WIDE BLOCK SOD AT THE BACK OF ALL PROP CONC CURB.

2. NATURAL GROUND AREA TO BE HYDRO MULCH SEEDED.



WESTBOUND TYPICAL SECTION

STA 16+84.53 TO STA 18+43.23 (LEFT TURN)



WESTBOUND TYPICAL SECTION

** STA 15+44.50 TO STA 16+13.98 (RIGHT TURN)(TXDOT PAVEMENT SECTION)

STA 16+13.98 TO STA 17+84.03 (RIGHT TURN)

NO.	REVISIONS	DATE	NAME

FORT BEND COUNTY ENGINEERING DEPARTMENT

THE STATE OF TEXAS · FORT BEND COUNTY

STATE OF TEXAS · PAUL E. BRIGHT · 61108 · REGISTERED PROFESSIONAL ENGINEER

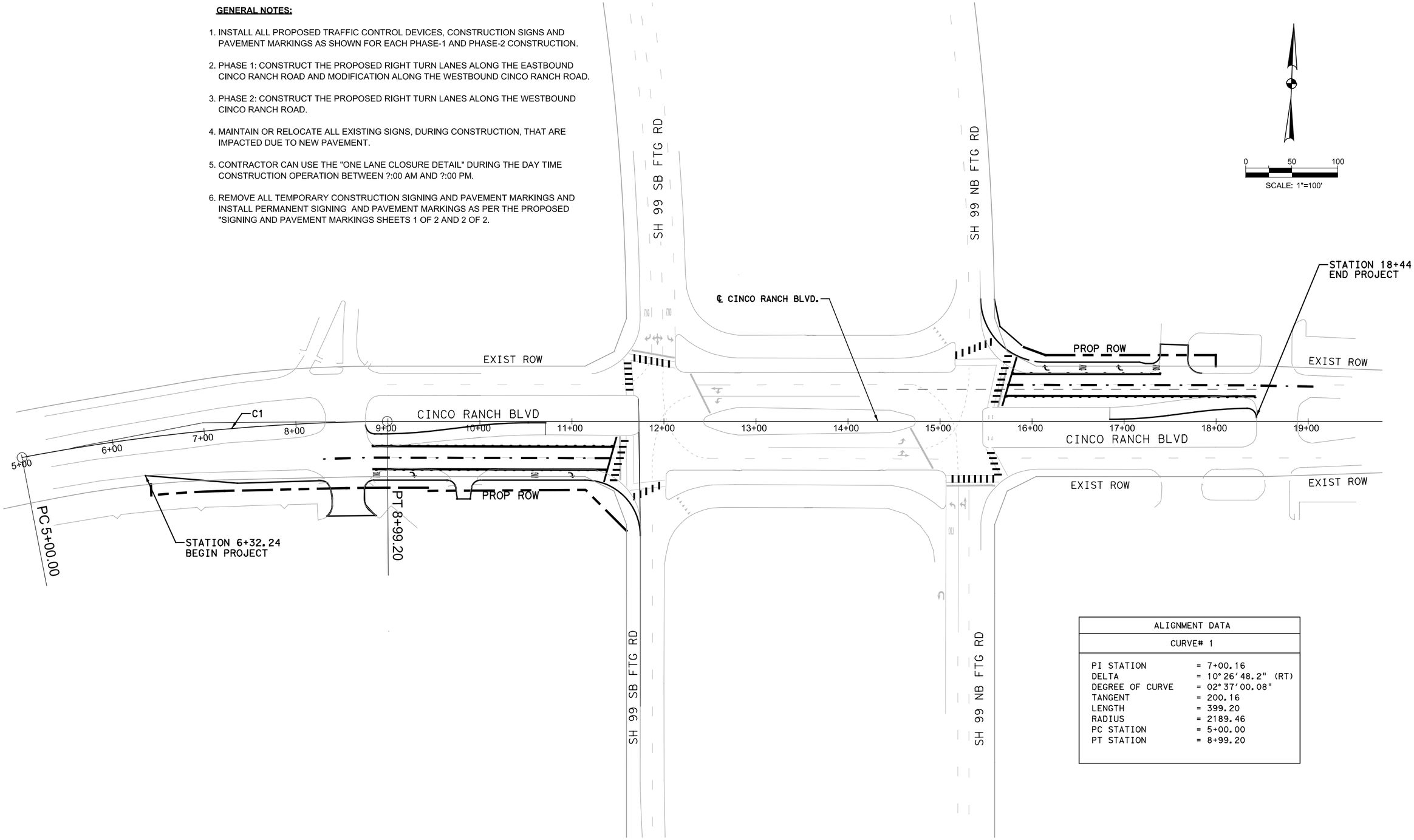
7/7/2021

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 420
Houston, Texas 77079
(832) 619-1000
TBPE F-1640

PROJECT TITLE:	CINCO RANCH BOULEVARD
DRAWN BY:	TURN LANE IMPROVEMENTS
CK'D BY:	SHEET DESCRIPTION: WESTBOUND TYPICAL SECTIONS
SCALE: 1"=120′	SHEET NO: 7
DATE: 7/7/2021	APPROVED BY:

GENERAL NOTES:

1. INSTALL ALL PROPOSED TRAFFIC CONTROL DEVICES, CONSTRUCTION SIGNS AND PAVEMENT MARKINGS AS SHOWN FOR EACH PHASE-1 AND PHASE-2 CONSTRUCTION.
2. PHASE 1: CONSTRUCT THE PROPOSED RIGHT TURN LANES ALONG THE EASTBOUND CINCO RANCH ROAD AND MODIFICATION ALONG THE WESTBOUND CINCO RANCH ROAD.
3. PHASE 2: CONSTRUCT THE PROPOSED RIGHT TURN LANES ALONG THE WESTBOUND CINCO RANCH ROAD.
4. MAINTAIN OR RELOCATE ALL EXISTING SIGNS, DURING CONSTRUCTION, THAT ARE IMPACTED DUE TO NEW PAVEMENT.
5. CONTRACTOR CAN USE THE "ONE LANE CLOSURE DETAIL" DURING THE DAY TIME CONSTRUCTION OPERATION BETWEEN ?:00 AM AND ?:00 PM.
6. REMOVE ALL TEMPORARY CONSTRUCTION SIGNING AND PAVEMENT MARKINGS AND INSTALL PERMANENT SIGNING AND PAVEMENT MARKINGS AS PER THE PROPOSED "SIGNING AND PAVEMENT MARKINGS SHEETS 1 OF 2 AND 2 OF 2.



ALIGNMENT DATA	
CURVE# 1	
PI STATION	= 7+00.16
DELTA	= 10°26'48.2" (RT)
DEGREE OF CURVE	= 02°37'00.08"
TANGENT	= 200.16
LENGTH	= 399.20
RADIUS	= 2189.46
PC STATION	= 5+00.00
PT STATION	= 8+99.20

NO.	REVISIONS	DATE	NAME
1			
2			
3			
4			
5			

FORT BEND COUNTY ENGINEERING DEPARTMENT

7/7/2021
7/7/2021

THE STATE OF TEXAS · FORT BEND COUNTY

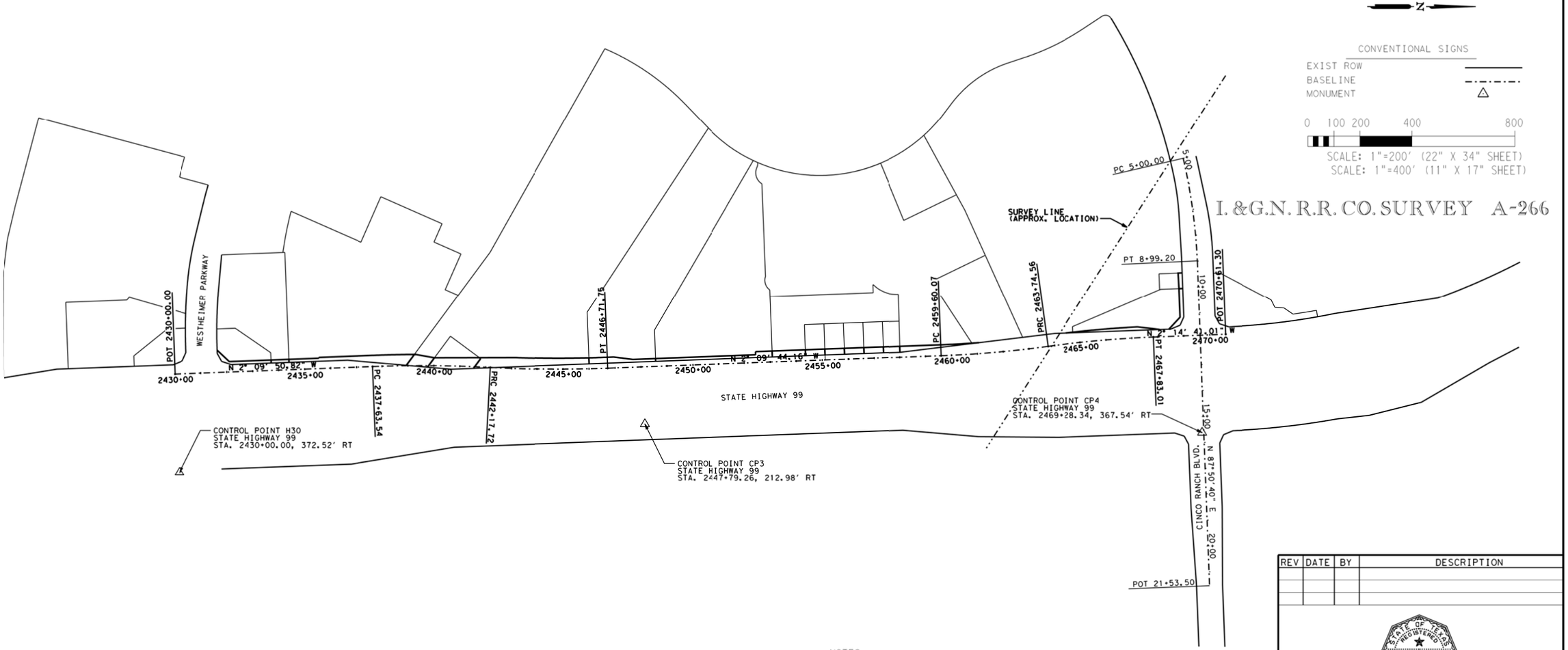
STATE OF TEXAS · PAUL E. BRIGHT · 61108 · REGISTERED PROFESSIONAL ENGINEER
7/7/2021

TEDSI INFRASTRUCTURE GROUP
TEDSI TBPE F-1640
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000

PROJECT TITLE:	CINCO RANCH BOULEVARD
DRAWN BY:	TURN LANE IMPROVEMENTS
CK'D BY:	SHEET DESCRIPTION: PROJECT LAYOUTS
SCALE: 1"=100'	
DATE: 7/7/2021	APPROVED BY:
	SHEET NO: 8

pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2019\2019-2073-01- Cinco Ranch Blvd Turn Lanes\6.0 TEDSI Design\6.08 CADD\6.08.01 Sheet Files\SHT 06 - CRB PROJECT LAYOUT.dgn

THOMAS HOBERMAKER SURVEY A-190



ROADWAY CROSSING TABLE			
ROAD	STATION	N COORDINATE	E COORDINATE
WESTHEIMER PARKWAY	2430+98.38	13,830,147.04	2,992,907.44
CINCO RANCH BLVD.	2469+62.61	13,834,006.60	2,992,772.80

CONTROL TABLE (SURFACE)				
NO.	TYPE	N COORDINATE	E COORDINATE	ELEVATION
H30	FND. 5/8 " I.R. W/ TXDOT ALUMINUM CAP	13,830,060.06	2,993,129.33	108.93
CP3	FND. 5/8 " I.R. W/ TXDOT ALUMINUM CAP	13,831,856.65	2,992,943.05	112.72
CP4	FND. 5/8 " I.R. W/ TXDOT ALUMINUM CAP	13,834,007.65	2,992,975.40	117.82

NOTES:

1. ALL BEARINGS AND COORDINATES ARE BASED ON THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE, NAD 83 (1993 ADJ.). ALL DISTANCES AND COORDINATES SHOWN ARE SURFACE AND MAY BE CONVERTED TO GRID BY DIVIDING BY A COMBINED ADJUSTMENT FACTOR OF 1.00013.
2. ALL ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM (NAVD88) GEOID12A.

THIS SURVEY CONTROL INFORMATION HAS BEEN ACCEPTED AND INCORPORATED INTO THIS PS&E

MONUMENT INVERSE			
FROM POINT	BEARING	DISTANCE	TO POINT
H30	N 05°55'10" W	1,806.22'	CP3
CP3	N 00°51'42" E	2,151.24'	CP4

REV	DATE	BY	DESCRIPTION

STATE OF TEXAS REGISTERED WALTER P. SASS 4418 PROFESSIONAL LAND SURVEYOR

THE STATE OF TEXAS FORT BEND COUNTY

WEISSER Engineering & Surveying
19107 FM 529 Rd. Suite 100 | Houston, Texas 77084
T.B.P.E. Reg. No. F-68 | T.B.P.L.S. Reg. No. 10194324
www.weisserengr.com | 281.579.7300

CINCO RANCH BLVD @ SH 99

HORIZONTAL AND VERTICAL CONTROL INDEX SHEET

SHEET 1 OF 2

DESIGNED BY:			DRAWN BY: WEC	
CHECKED BY:			CHECKED BY: JH	
CONT	SEC	JOB	HWY NO.	
			CINCO RANCH BLVD @ SH 99	
FED. RD. DIV.	NO.	PROJECT NO.		SHEET NO.
6				9
STATE	STATE DIST.	COUNTY		
TEXAS	12	FORT BEND		

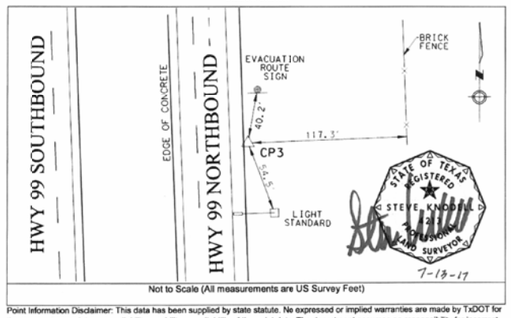
FILE: $FILES$
DATE: $DATE$

Texas Department of Transportation

Highway / Location	SH-99			Station Name	CP3
TxDOT CSJ No.	3510-04-019			Condition	Good
County	Fort Bend	State	Texas	Established By Re-established By	Civil Concepts, Inc. Surveying and Mapping, LLC
TxDOT Survey Level	3			Date Established Date Re-established	January, 2008 May, 2017
Intervisible Stations	H28, H30			Survey Method Hz.	GPS OBS (RTN)
Unit of Measure	US Survey Feet			Survey Method Vt.	3-Wire Digital
Hz. Datum	NAD 83 (2011)			Vt. Datum	NAVD 88
Hz. Adjustment	Epoch 2010.00			Vt. Adjustment	N/A
Projection Zone	4204-SC			Geoid Model	N/A
Monument(s) Held Hz	Established with GPS OBS (VRS)				
Monument(s) Held Vt	Established with GPS OBS (VRS), Geoid12A				

Geodetic Position		Grid Coordinates		Surface Coordinates	
Lat	N29°44'17.2672"	North	13,830,058.74	North	13,831,856.65
Long	W95°46'21.6297"	East	2,992,554.02	East	2,992,943.05
Elevation in US Survey Feet		Top of Cap = 112.72'		Natural Ground = 113.0'	
TxDOT Surface Adjustment Factor		1.00013			
Mapping Angle	1°34'52"	Scale Factor	0.999887920	Combined Factor	0.999886843
Mark Logo	None		Stamping CP3		
Type of Marker	5/8" Iron Rod with TxDOT Aluminum Cap				

Station Sketch



Not to Scale (All measurements are US Survey Feet)

Texas Department of Transportation

Highway/Location	SH-99	Station Name	CP3
TxDOT Project No.	3510-04-019		

To Reach Description

East side of the north bound lane of SH99 and 1,710' ± North of Westheimer Parkway (As shown).

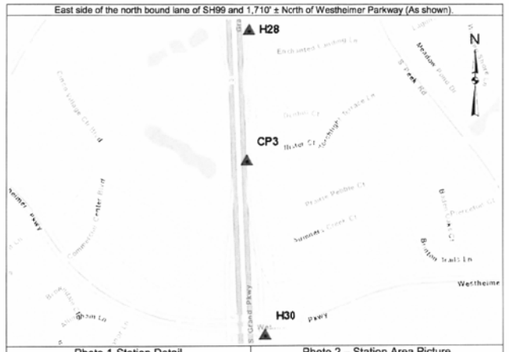


Photo 1-Station Detail

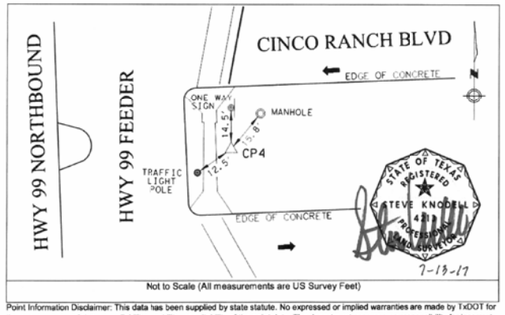
Photo 2 – Station Area Picture

Texas Department of Transportation

Highway / Location	SH-99			Station Name	CP4
TxDOT CSJ No.	3510-04-019			Condition	Good
County	Fort Bend	State	Texas	Established By Re-established By	Civil Concepts, Inc. Surveying and Mapping, LLC (SAM)
TxDOT Survey Level	3			Date Established Date Re-established	January, 2008 May, 2017
Intervisible Stations	H27, H28, N0800126			Survey Method Hz.	GPS OBS (RTN)
Unit of Measure	US Survey Feet			Survey Method Vt.	3-Wire Digital
Hz. Datum	NAD 83 (2011)			Vt. Datum	NAVD 88
Hz. Adjustment	Epoch 2010.00			Vt. Adjustment	N/A
Projection Zone	4204-SC			Geoid Model	N/A
Monument(s) Held Hz	Established with GPS OBS (VRS)				
Monument(s) Held Vt	Established with GPS OBS (VRS), Geoid12A				

Geodetic Position		Grid Coordinates		Surface Coordinates	
Lat	N29°44'38.5426"	North	13,832,209.46	North	13,834,907.65
Long	W95°46'20.5897"	East	2,992,586.36	East	2,992,975.40
Elevation in US Survey Feet		Top of Cap = 117.82'		Natural Ground = 118.1'	
TxDOT Surface Adjustment Factor		1.00013			
Mapping Angle	1°34'52"	Scale Factor	0.999888649	Combined Factor	0.999887325
Mark Logo	None		Stamping CP4		
Type of Marker	5/8" Iron Rod with TxDOT Aluminum Cap				

Station Sketch



Not to Scale (All measurements are US Survey Feet)

Texas Department of Transportation

Highway/Location	SH-99	Station Name	CP4
TxDOT Project No.	3510-04-019		

To Reach Description

In the median of Cinco Ranch Boulevard and SH99 north bound feeder road (As Shown).

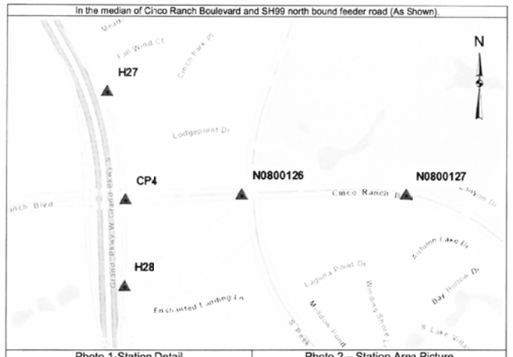


Photo 1-Station Detail

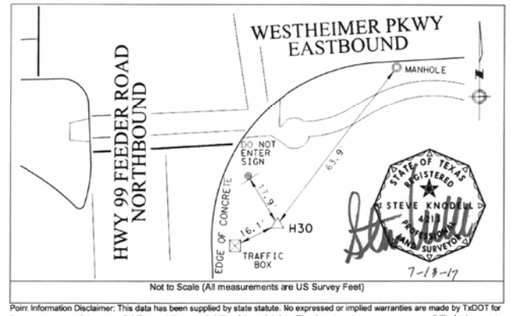
Photo 2 – Station Area Picture

Texas Department of Transportation

Highway / Location	SH-99			Station Name	H30
TxDOT CSJ No.	3510-04-019			Condition	Set
County	Fort Bend	State	Texas	Established By	Surveying and Mapping, LLC
TxDOT Survey Level	3			Date Established	May, 2017
Intervisible Stations	CP3, CP1			Survey Method Hz.	GPS OBS (RTN)
Unit of Measure	US Survey Feet			Survey Method Vt.	3-Wire Digital
Hz. Datum	NAD 83 (2011)			Vt. Datum	NAVD 88
Hz. Adjustment	Epoch 2010.00			Vt. Adjustment	N/A
Projection Zone	4204-SC			Geoid Model	N/A
Monument(s) Held Hz	Established with GPS OBS (VRS)				
Monument(s) Held Vt	Established with GPS OBS (VRS), Geoid12A				

Geodetic Position		Grid Coordinates		Surface Coordinates	
La:	N29°43'59.4390"	North	13,828,262.39	North	13,830,060.06
Long	W95°46'20.0800"	East	2,992,740.27	East	2,993,129.33
Elevation in US Survey Feet		Top of Cap = 108.93'		Natural Ground = 109.2'	
TxDOT Surface Adjustment Factor		1.00013			
Mapping Angle	1°34'53"	Scale Factor	0.999887317	Combined Factor	0.999886411
Mark Logo	None		Stamping H30		
Type of Marker	5/8" Iron Rod with TxDOT Aluminum Cap				

Station Sketch



Not to Scale (All measurements are US Survey Feet)

Texas Department of Transportation

Highway/Location	SH-99	Station Name	H30
TxDOT Project No.	3510-04-019		

To Reach Description

At the southeast intersection of SH99 and Westheimer Parkway (As shown).

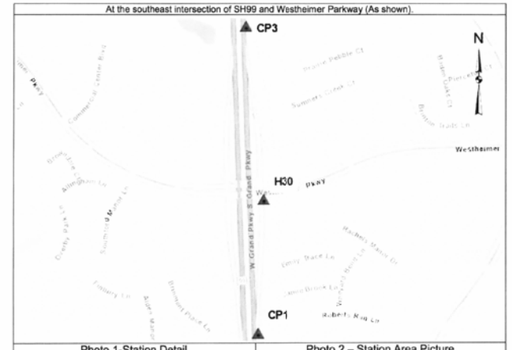


Photo 1-Station Detail

Photo 2 – Station Area Picture

NOTES:

1. ALL BEARINGS AND COORDINATES ARE BASED ON THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE, NAD 83 (1993 ADJ.). ALL DISTANCES AND COORDINATES SHOWN ARE SURFACE AND MAY BE CONVERTED TO GRID BY DIVIDING BY A COMBINED ADJUSTMENT FACTOR OF 1.00013.

2. ALL ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM (NAVD88) GEOID12A.

REV	DATE	BY	DESCRIPTION

THE STATE OF TEXAS REGISTERED STEVE KNOBEL 4281 PROFESSIONAL LAND SURVEYOR FORT BEND COUNTY

WEISSER Engineering & Surveying
11922 Fuqua, Suite 100 | Houston, Texas 77034
T.B.P.E. Reg. No. F-438 | T.B.P.L.S. Reg. No. 10194024
www.weisserengr.com | 281.579.7900

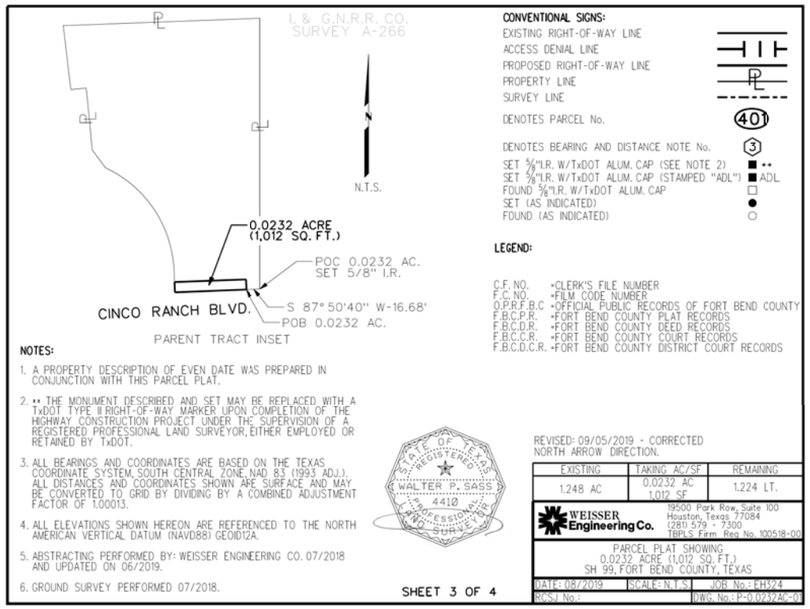
CINCO RANCH BLVD @ SH 99

HORIZONTAL AND VERTICAL CONTROL

SHEET 2 OF 2

DESIGNED BY:			DRAWN BY: WEC		CAB
CHECKED BY:			CHECKED BY:		JH
CONT	SEC	JOB	HWY NO.		
			CINCO RANCH BLVD @ SH 99		
FED. RD. DIV. NO.		PROJECT NO.			SHEET NO.
6					10
STATE		STATE DIST.	COUNTY		
TEXAS		12	FORT BEND		

FILE: $FILES$
DATE: $DATE$



CONVENTIONAL SIGNS:

EXISTING RIGHT-OF-WAY LINE
ACCESS DENIAL LINE
PROPOSED RIGHT-OF-WAY LINE
PROPERTY LINE
SURVEY LINE

DENOTES PARCEL No. (401)

DENOTES BEARING AND DISTANCE NOTE No. (3)

SET 5/8"I.R. W/TxDOT ALUM. CAP (SEE NOTE 2) ■ **
SET 5/8"I.R. W/TxDOT ALUM. CAP (STAMPED "ADL") ■ ADL
FOUND 5/8"I.R. W/TxDOT ALUM. CAP □
SET (AS INDICATED) ●
FOUND (AS INDICATED) ○

LEGEND:

C.F. NO. - CLERK'S FILE NUMBER
F.C. NO. - FILM CODE NUMBER
O.P.R.F.B.C - OFFICIAL PUBLIC RECORDS OF FORT BEND COUNTY
F.B.C.P.R. - FORT BEND COUNTY PLAT RECORDS
F.B.C.D.R. - FORT BEND COUNTY DEED RECORDS
F.B.C.C.R. - FORT BEND COUNTY COURT RECORDS
F.B.C.D.C.R. - FORT BEND COUNTY DISTRICT COURT RECORDS

NOTES:

1. A PROPERTY DESCRIPTION OF EVEN DATE WAS PREPARED IN CONJUNCTION WITH THIS PARCEL PLAT.
2. ** THE MONUMENT DESCRIBED AND SET MAY BE REPLACED WITH A TxDOT TYPE II RIGHT-OF-WAY MARKER UPON COMPLETION OF THE HIGHWAY CONSTRUCTION PROJECT UNDER THE SUPERVISION OF A REGISTERED PROFESSIONAL LAND SURVEYOR, EITHER EMPLOYED OR RETAINED BY TxDOT.
3. ALL BEARINGS AND COORDINATES ARE BASED ON THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE, NAD 83 (1993 ADJ.). ALL DISTANCES AND COORDINATES SHOWN ARE SURFACE AND MAY BE CONVERTED TO GRID BY DIVIDING BY A COMBINED ADJUSTMENT FACTOR OF 1.00013.
4. ALL ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM (NAVD88) GEOID12A.
5. ABSTRACTING PERFORMED BY: WEISSER ENGINEERING CO. 07/2018 AND UPDATED ON 06/2019.
6. GROUND SURVEY PERFORMED 07/2018.

STATE OF TEXAS · REGISTERED · WALTER P. SASS · 4410 · PROFESSIONAL LAND SURVEYOR

REVISED: 09/05/2019 - CORRECTED NORTH ARROW DIRECTION.

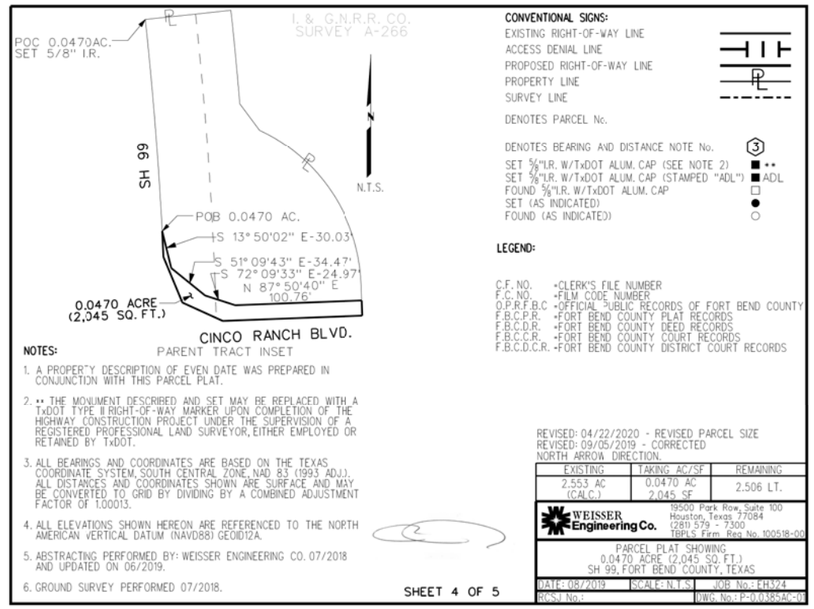
EXISTING	TAKING AC/SF	REMAINING
1.248 AC	0.0232 AC / 1,012 SF	1.224 LT.

WEISSER Engineering Co. — 19500 Park Row, Suite 100, Houston, Texas 77084, (281) 579 - 7300, TBPLS Firm Reg No. 100518-00

PARCEL PLAT SHOWING
0.0232 ACRE (1,012 SQ. FT.)
SH 99, FORT BEND COUNTY, TEXAS

DATE: 08/2019 | SCALE: N.T.S. | JOB No.: EH324
RCSJ No.: | DWG. No.: P-0.0232AC-00

SHEET 3 OF 4



CONVENTIONAL SIGNS:

EXISTING RIGHT-OF-WAY LINE
ACCESS DENIAL LINE
PROPOSED RIGHT-OF-WAY LINE
PROPERTY LINE
SURVEY LINE

DENOTES PARCEL No.

DENOTES BEARING AND DISTANCE NOTE No. (3)

SET 5/8"I.R. W/TxDOT ALUM. CAP (SEE NOTE 2) ■ **
SET 5/8"I.R. W/TxDOT ALUM. CAP (STAMPED "ADL") ■ ADL
FOUND 5/8"I.R. W/TxDOT ALUM. CAP □
SET (AS INDICATED) ●
FOUND (AS INDICATED)) ○

LEGEND:

C.F. NO. - CLERK'S FILE NUMBER
F.C. NO. - FILM CODE NUMBER
O.P.R.F.B.C - OFFICIAL PUBLIC RECORDS OF FORT BEND COUNTY
F.B.C.P.R. - FORT BEND COUNTY PLAT RECORDS
F.B.C.D.R. - FORT BEND COUNTY DEED RECORDS
F.B.C.C.R. - FORT BEND COUNTY COURT RECORDS
F.B.C.D.C.R. - FORT BEND COUNTY DISTRICT COURT RECORDS

NOTES:

1. A PROPERTY DESCRIPTION OF EVEN DATE WAS PREPARED IN CONJUNCTION WITH THIS PARCEL PLAT.
2. ** THE MONUMENT DESCRIBED AND SET MAY BE REPLACED WITH A TxDOT TYPE II RIGHT-OF-WAY MARKER UPON COMPLETION OF THE HIGHWAY CONSTRUCTION PROJECT UNDER THE SUPERVISION OF A REGISTERED PROFESSIONAL LAND SURVEYOR, EITHER EMPLOYED OR RETAINED BY TxDOT.
3. ALL BEARINGS AND COORDINATES ARE BASED ON THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE, NAD 83 (1993 ADJ.). ALL DISTANCES AND COORDINATES SHOWN ARE SURFACE AND MAY BE CONVERTED TO GRID BY DIVIDING BY A COMBINED ADJUSTMENT FACTOR OF 1.00013.
4. ALL ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM (NAVD88) GEOID12A.
5. ABSTRACTING PERFORMED BY: WEISSER ENGINEERING CO. 07/2018 AND UPDATED ON 06/2019.
6. GROUND SURVEY PERFORMED 07/2018.

REVISED: 04/22/2020 - REVISED PARCEL SIZE
REVISED: 09/05/2019 - CORRECTED NORTH ARROW DIRECTION.

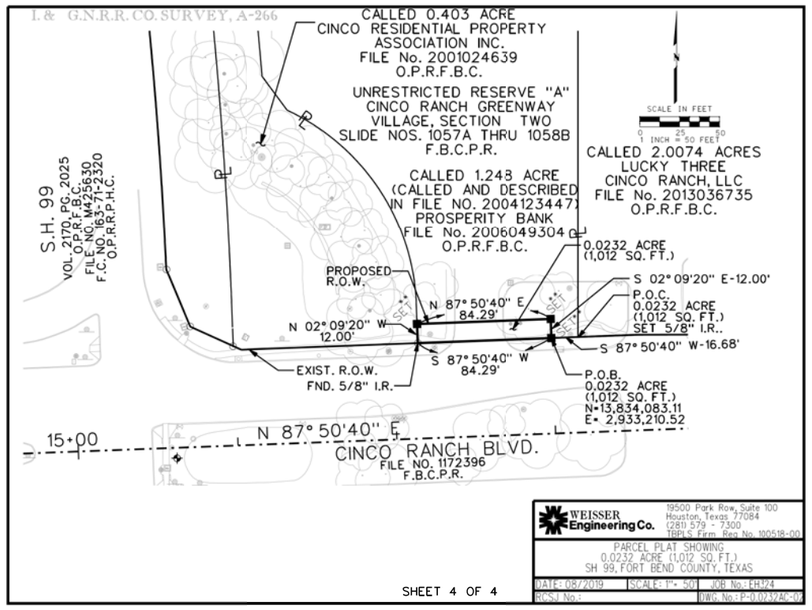
EXISTING	TAKING AC/SF	REMAINING
2.553 AC (CALC.)	0.0470 AC / 2,045 SF	2.506 LT.

WEISSER Engineering Co. — 19500 Park Row, Suite 100, Houston, Texas 77084, (281) 579 - 7300, TBPLS Firm Reg No. 100518-00

PARCEL PLAT SHOWING
0.0470 ACRE (2,045 SQ. FT.)
SH 99, FORT BEND COUNTY, TEXAS

DATE: 08/2019 | SCALE: N.T.S. | JOB No.: EH324
RCSJ No.: | DWG. No.: P-0.0385AC-00

SHEET 4 OF 5

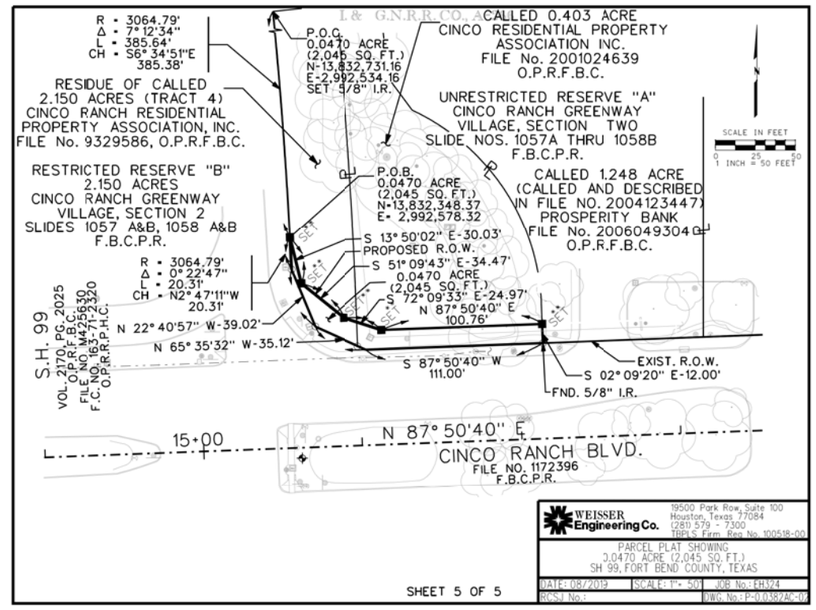


WEISSER Engineering Co. — 19500 Park Row, Suite 100, Houston, Texas 77084, (281) 579 - 7300, TBPLS Firm Reg No. 100518-00

PARCEL PLAT SHOWING
0.0232 ACRE (1,012 SQ. FT.)
SH 99, FORT BEND COUNTY, TEXAS

DATE: 08/2019 | SCALE: 1"= 50' | JOB No.: EH324
RCSJ No.: | DWG. No.: P-0.0232AC-00

SHEET 4 OF 4



WEISSER Engineering Co. — 19500 Park Row, Suite 100, Houston, Texas 77084, (281) 579 - 7300, TBPLS Firm Reg No. 10051R-00

PARCEL PLAT SHOWING
2.0470 ACRE (2,045 SQ. FT.)
SH 99, FORT BEND COUNTY, TEXAS

DATE: 08/2019 | SCALE: 1"= 50' | JOB No.: EH324
RCSJ No.: | DWG. No.: P-0.0387AC-00

SHEET 5 OF 5

NO.	REVISIONS	DATE	NAME
1			
2			
3			
4			
5			

FORT BEND COUNTY
ENGINEERING DEPARTMENT

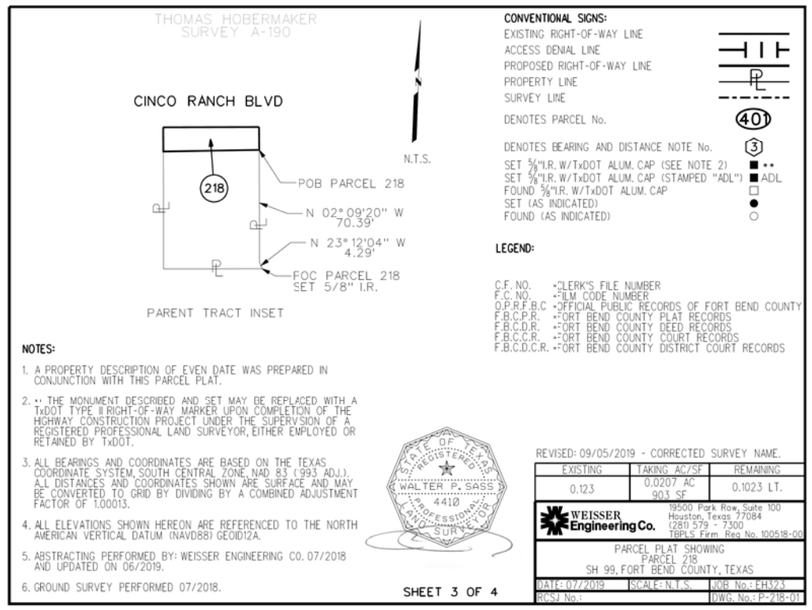
THE STATE OF TEXAS · FORT BEND COUNTY

TEDSI INFRASTRUCTURE GROUP
TEDSI TBPE F-1640
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000

PROJECT TITLE:	CINCO RANCH BOULEVARD
DRAWN BY:	TURN LANE IMPROVEMENTS
CK'D BY:	SHEET DESCRIPTION: PROPOSED ROW LAYOUTS
SCALE:	SHEET 1 OF 3
DATE: 7/7/2021	APPROVED BY:

SHEET NO: 11

pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\20192019-2073-01- Cinco Ranch Blvd Turn Lanes\6.0 TEDSI Design\6.08 CADD\6.08.01 Sheet Files\SHT 11-12 - CRB PROP ROW



CONVENTIONAL SIGNS:

EXISTING RIGHT-OF-WAY LINE
ACCESS DENIAL LINE
PROPOSED RIGHT-OF-WAY LINE
PROPERTY LINE
SURVEY LINE
DENOTES PARCEL No. (401)
DENOTES BEARING AND DISTANCE NOTE No. (3)
SET 5/8"I.R. W/TxDOT ALUM. CAP (SEE NOTE 2) ■ **
SET 5/8"I.R. W/TxDOT ALUM. CAP (STAMPED "ADL") ■ ADL
FOUND 5/8"I.R. W/TxDOT ALUM. CAP □
SET (AS INDICATED) ●
FOUND (AS INDICATED) ○

LEGEND:

C.F. NO. =CLERK'S FILE NUMBER
F.C. NO. =FILM CODE NUMBER
O.P.R.F.B.C =OFFICIAL PUBLIC RECORDS OF FORT BEND COUNTY
F.B.C.P.R. =FORT BEND COUNTY PLAT RECORDS
F.B.C.D.R. =FORT BEND COUNTY DEED RECORDS
F.B.C.C.R. =FORT BEND COUNTY COURT RECORDS
F.B.C.D.C.R. =FORT BEND COUNTY DISTRICT COURT RECORDS

NOTES:

1. A PROPERTY DESCRIPTION OF EVEN DATE WAS PREPARED IN CONJUNCTION WITH THIS PARCEL PLAT.
2. •• THE MONUMENT DESCRIBED AND SET MAY BE REPLACED WITH A TxDOT TYPE II RIGHT-OF-WAY MARKER UPON COMPLETION OF THE HIGHWAY CONSTRUCTION PROJECT UNDER THE SUPERVISION OF A REGISTERED PROFESSIONAL LAND SURVEYOR, EITHER EMPLOYED OR RETAINED BY TxDOT.
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4. ALL ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM (NAVD88) GEOID12A.
5. ABSTRACTING PERFORMED BY: WEISSER ENGINEERING CO. 07/2018 AND UPDATED ON 06/2019.
6. GROUND SURVEY PERFORMED 07/2018.

STATE OF TEXAS · REGISTERED · WALTER P. SASS · 4410 · PROFESSIONAL · LAND SURVEYOR

REVISED: 09/05/2019 - CORRECTED SURVEY NAME.

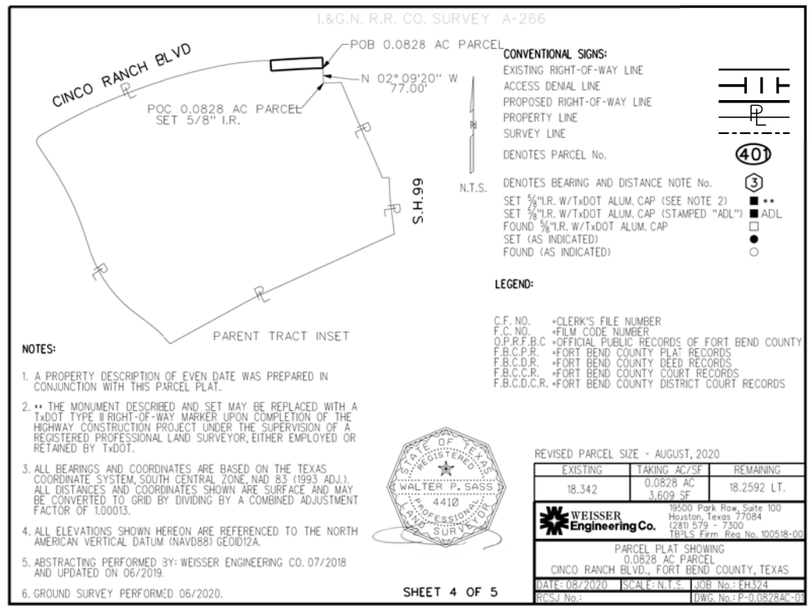
EXISTING	TAKING AC/SF	REMAINING
0.123	0.0207 AC 903 SF	0.1023 LT.

WEISSER Engineering Co. 19500 Park Row, Suite 100 Houston, Texas 77084 (281) 579 - 7300 TBPLS Firm Reg No. 100518-00

PARCEL PLAT SHOWING
PARCEL 218
SH 99, FORT BEND COUNTY, TEXAS

DATE: 07/2019 | SCALE: N.T.S. | JOB No.: EH323
RCSJ No.: | DWG. No.: P-218-01

SHEET 3 OF 4



CONVENTIONAL SIGNS:

EXISTING RIGHT-OF-WAY LINE
ACCESS DENIAL LINE
PROPOSED RIGHT-OF-WAY LINE
PROPERTY LINE
SURVEY LINE
DENOTES PARCEL No. (401)
DENOTES BEARING AND DISTANCE NOTE No. (3)
SET 5/8"I.R. W/TxDOT ALUM. CAP (SEE NOTE 2) ■ **
SET 5/8"I.R. W/TxDOT ALUM. CAP (STAMPED "ADL") ■ ADL
FOUND 5/8"I.R. W/TxDOT ALUM. CAP □
SET (AS INDICATED) ●
FOUND (AS INDICATED) ○

LEGEND:

C.F. NO. =CLERK'S FILE NUMBER
F.C. NO. =FILM CODE NUMBER
O.P.R.F.B.C =OFFICIAL PUBLIC RECORDS OF FORT BEND COUNTY
F.B.C.P.R. =FORT BEND COUNTY PLAT RECORDS
F.B.C.D.R. =FORT BEND COUNTY DEED RECORDS
F.B.C.C.R. =FORT BEND COUNTY COURT RECORDS
F.B.C.D.C.R. =FORT BEND COUNTY DISTRICT COURT RECORDS

NOTES:

1. A PROPERTY DESCRIPTION OF EVEN DATE WAS PREPARED IN CONJUNCTION WITH THIS PARCEL PLAT.
2. •• THE MONUMENT DESCRIBED AND SET MAY BE REPLACED WITH A TxDOT TYPE II RIGHT-OF-WAY MARKER UPON COMPLETION OF THE HIGHWAY CONSTRUCTION PROJECT UNDER THE SUPERVISION OF A REGISTERED PROFESSIONAL LAND SURVEYOR, EITHER EMPLOYED OR RETAINED BY TxDOT.
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4. ALL ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM (NAVD88) GEOID12A.
5. ABSTRACTING PERFORMED BY: WEISSER ENGINEERING CO. 07/2018 AND UPDATED ON 06/2019.
6. GROUND SURVEY PERFORMED 06/2020.

STATE OF TEXAS · REGISTERED · WALTER P. SASS · 4410 · PROFESSIONAL · LAND SURVEYOR

REVISED PARCEL SIZE - AUGUST, 2020

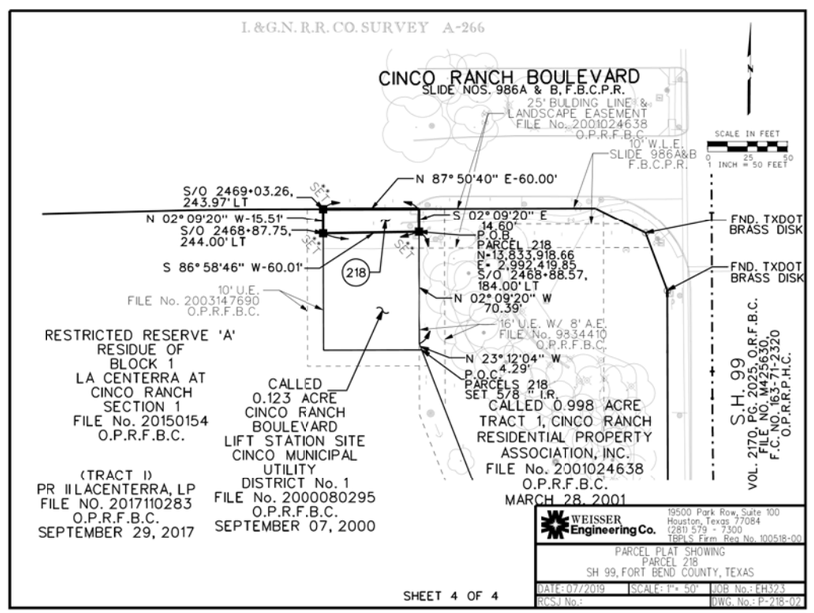
EXISTING	TAKING AC/SF	REMAINING
18.342	0.0828 AC 3,609 SF	18.2592 LT.

WEISSER Engineering Co. 19500 Park Row, Suite 100 Houston, Texas 77084 (281) 579 - 7300 TBPLS Firm Reg No. 100518-00

PARCEL PLAT SHOWING
0.0828 AC PARCEL
CINCO RANCH BLVD., FORT BEND COUNTY, TEXAS

DATE: 08/2020 | SCALE: N.T.S. | JOB No.: EH324
RCSJ No.: | DWG. No.: P-0.0828AC-01

SHEET 4 OF 5

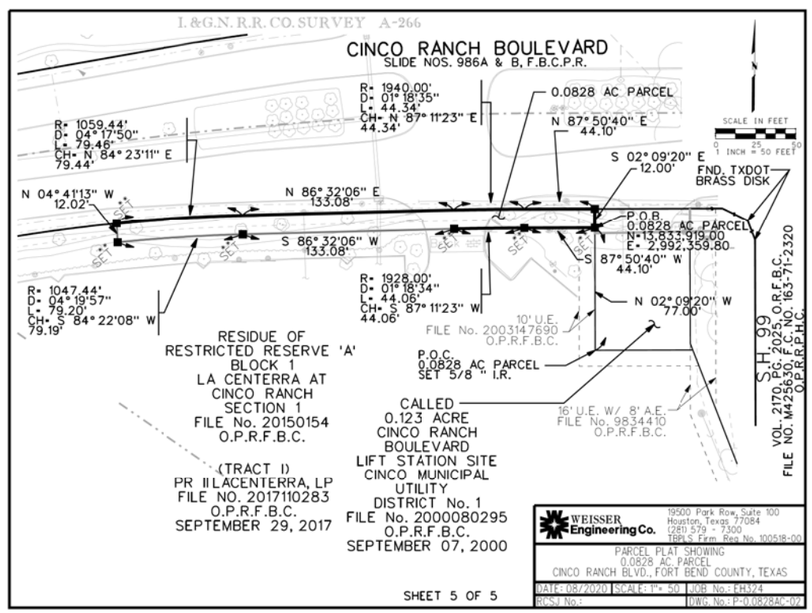


WEISSER Engineering Co. 19500 Park Row, Suite 100 Houston, Texas 77084 (281) 579 - 7300 TBPLS Firm Reg No. 100518-00

PARCEL PLAT SHOWING
PARCEL 218
SH 99, FORT BEND COUNTY, TEXAS

DATE: 07/2019 | SCALE: 1"= 50' | JOB No.: EH323
RCSJ No.: | DWG. No.: P-218-02

SHEET 4 OF 4



WEISSER Engineering Co. 19500 Park Row, Suite 100 Houston, Texas 77084 (281) 579 - 7300 TBPLS Firm Reg No. 100518-00

PARCEL PLAT SHOWING
0.0828 AC PARCEL
CINCO RANCH BLVD., FORT BEND COUNTY, TEXAS

DATE: 08/2020 | SCALE: 1"= 50' | JOB No.: EH324
RCSJ No.: | DWG. No.: P-0.0828AC-02

SHEET 5 OF 5

NO.	REVISIONS	DATE	NAME
1			
2			
3			
4			
5			

FORT BEND COUNTY ENGINEERING DEPARTMENT

THE STATE OF TEXAS · FORT BEND COUNTY

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TBPE F-1640

PROJECT TITLE:	CINCO RANCH BOULEVARD
DRAWN BY:	TURN LANE IMPROVEMENTS
CK'D BY:	SHEET DESCRIPTION: PROPOSED ROW LAYOUTS
SCALE:	SHEET 2 OF 3
DATE: 7/7/2021	APPROVED BY:
	SHEET NO: 12

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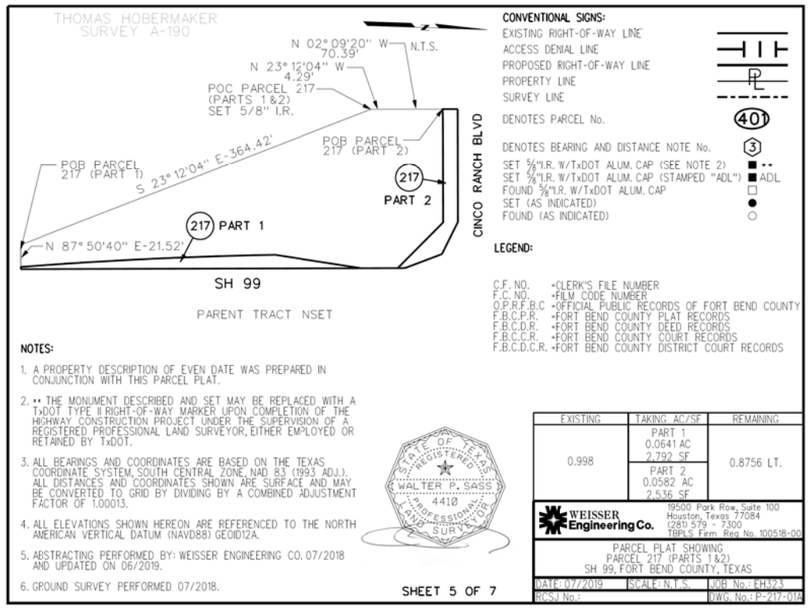

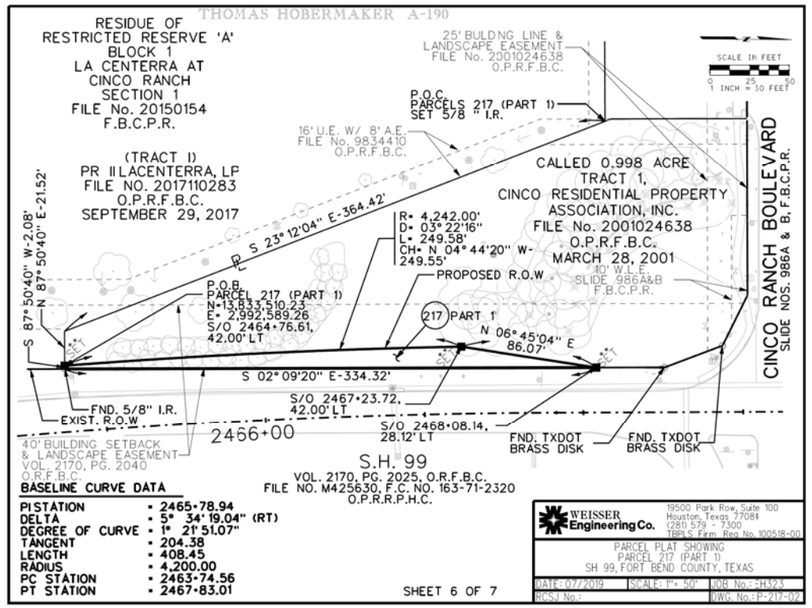

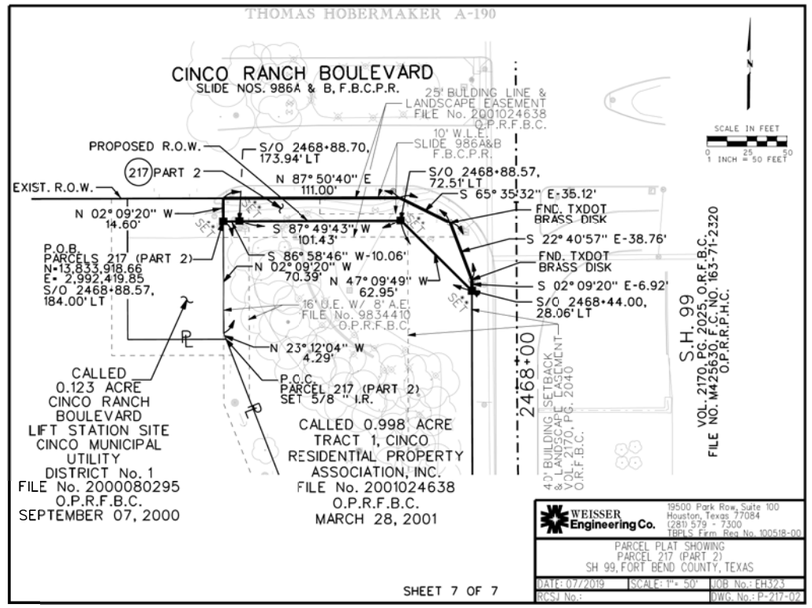

NO.	REVISIONS	DATE	NAME
1			
2			
3			
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FORT BEND COUNTY ENGINEERING DEPARTMENT

THE STATE OF TEXAS FORT BEND COUNTY

TEDSI INFRASTRUCTURE GROUP
TEDSI TBPE F-1640
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000

PROJECT TITLE:	CINCO RANCH BOULEVARD
DRAWN BY:	TURN LANE IMPROVEMENTS
CK'D BY:	SHEET DESCRIPTION: PROPOSED ROW LAYOUTS
SCALE:	SHEET 3 OF 3
DATE: 7/7/2021	APPROVED BY:
	SHEET NO: 13

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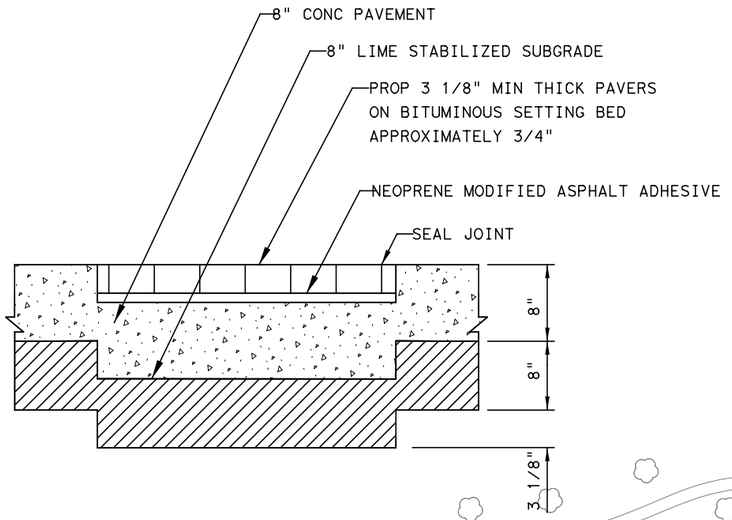
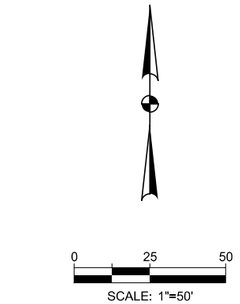


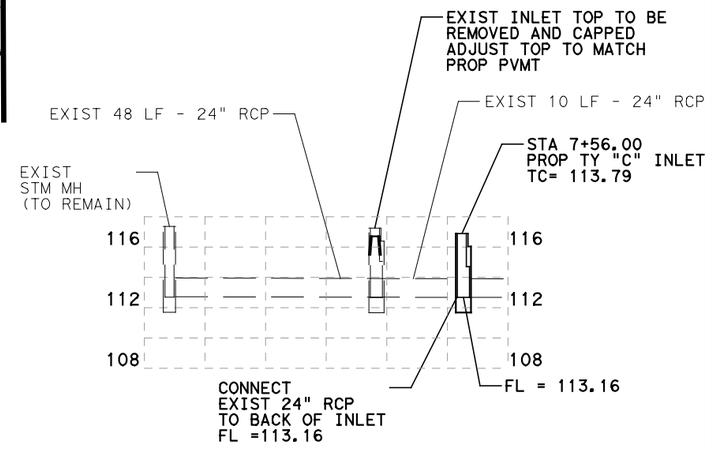
BRICK PAVERS IN DRIVEWAY DETAIL

ALIGNMENT DATA	
CURVE# 1	
PI STATION	= 7+00.16
DELTA	= 10° 26′ 48.2" (RT)
DEGREE OF CURVE	= 02° 37′ 00.08"
TANGENT	= 200.16
LENGTH	= 399.20
RADIUS	= 2189.46
PC STATION	= 5+00.00
PT STATION	= 8+99.20



LEGEND

- LANDSCAPE SPRINKLER
- FIRE HYDRANT
- WATER VALVE
- GROUND BOX
- SMALL TRAFFIC SIGN
- STM SWR MANHOLE
- LUMINAIRE POLE
- TRAFFIC SIGNAL POLE
- SANITARY SEWER MANHOLE
- PROPOSED 8" CONC PAVEMENT
- PROPOSED 13" FAST TRACK PAVEMENT
- PROPOSED 4.5" SIDEWALK
- LOW PROFILE CONC BARRIER



CINCO RANCH BLVD. PROP 18" RCP & TYP C INLET DETAIL

NO.	REVISIONS	DATE	NAME
1			
2			
3			
4			
5			

FORT BEND COUNTY ENGINEERING DEPARTMENT

THE STATE OF TEXAS — FORT BEND COUNTY

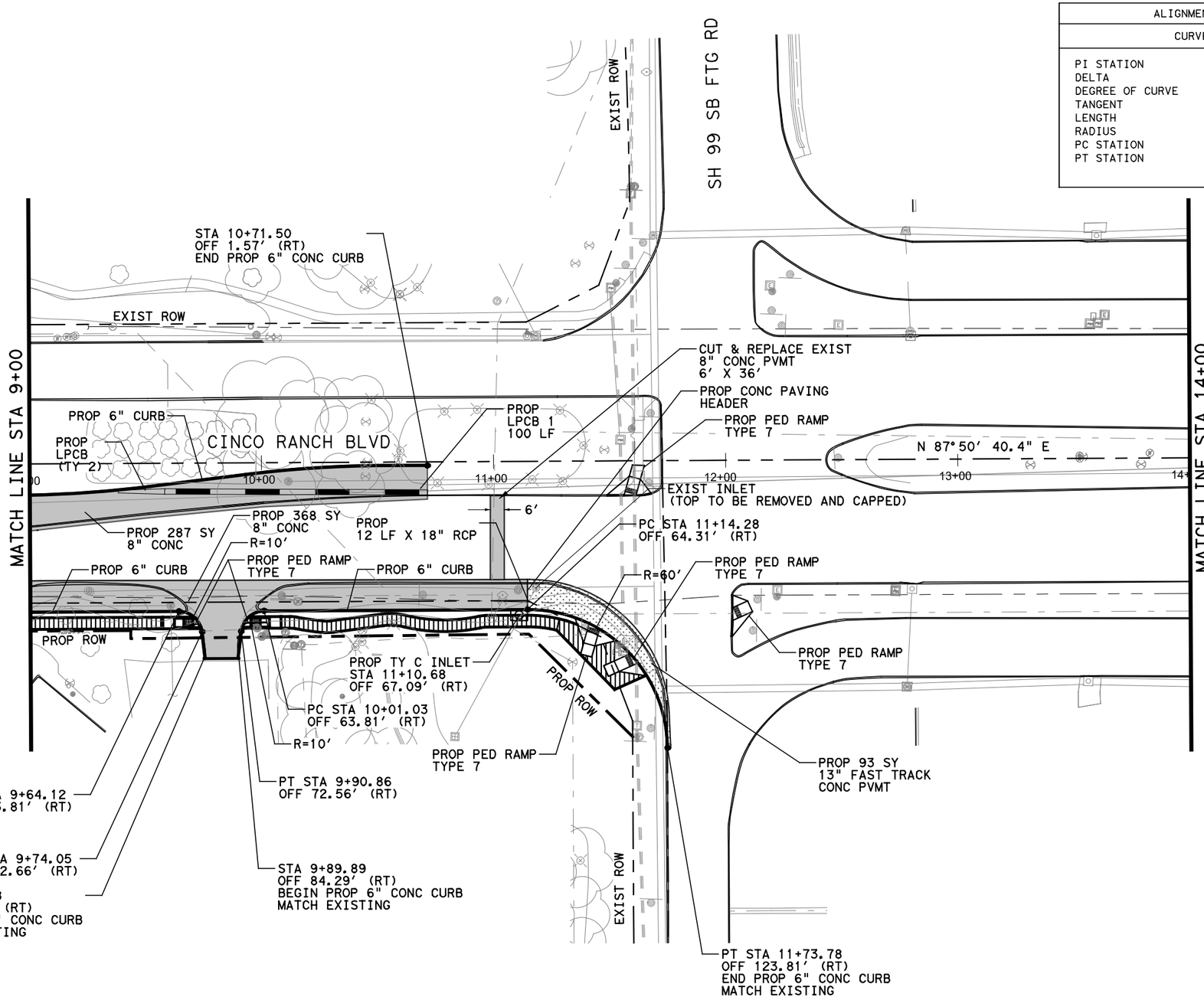
STATE OF TEXAS — PAUL E. BRIGHT — 61108 — REGISTERED PROFESSIONAL ENGINEER — 7/7/2021

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TBPE F-1640

PROJECT TITLE:	CINCO RANCH BOULEVARD
DRAWN BY:	TURN LANE IMPROVEMENTS
CK'D BY:	SHEET DESCRIPTION: PROPOSED ROADWAY LAYOUTS
SCALE:	1"=50′ — SHEET 1 OF 3 — SHEET NO: 14
DATE:	7/7/2021
APPROVED BY:	

pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2019\2019-2073-01- Cinco Ranch Blvd Turn Lanes\6.0 TEDSI Design\6.08 CADD\6.08.01 Sheet Files\SHT 13-14 - CRB PLAN LAYOUTS

ALIGNMENT DATA	
CURVE# 1	
PI STATION	= 7+00.16
DELTA	= 10°26′48.2" (RT)
DEGREE OF CURVE	= 02°37′00.08"
TANGENT	= 200.16
LENGTH	= 399.20
RADIUS	= 2189.46
PC STATION	= 5+00.00
PT STATION	= 8+99.20

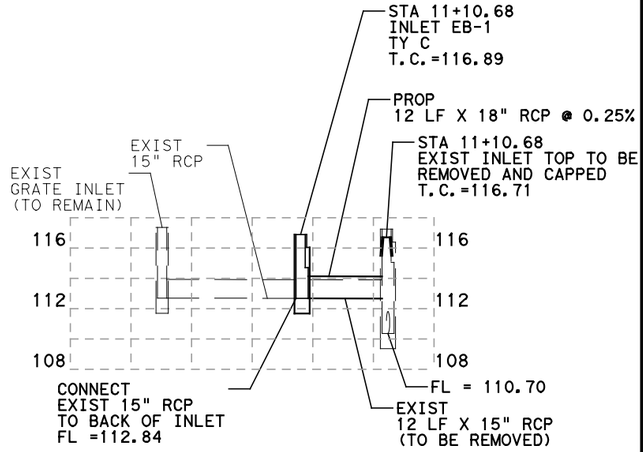


0 25 50

SCALE: 1"=50'

LEGEND

- LANDSCAPE SPRINKLER
- FIRE HYDRANT
- WATER VALVE
- GROUND BOX
- SMALL TRAFFIC SIGN
- STM SWR MANHOLE
- LUMINAIRE POLE
- TRAFFIC SIGNAL POLE
- SANITARY SEWER MANHOLE
- PROPOSED 8" CONC PAVEMENT
- PROPOSED 13" FAST TRACK PAVEMENT
- PROPOSED 4.5" SIDEWALK
- LOW PROFILE CONC BARRIER



CINCO RANCH BLVD.
PROP 18" RCP & TYP C INLET DETAIL

NO.	REVISIONS	DATE	NAME
1			
2			
3			
4			
5			

FORT BEND COUNTY
ENGINEERING DEPARTMENT

THE STATE OF TEXAS · FORT BEND COUNTY

STATE OF TEXAS · PAUL E. BRIGHT · 61108 · REGISTERED PROFESSIONAL ENGINEER
7/7/2021

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TBPE F-1640

PROJECT TITLE:	CINCO RANCH BOULEVARD
DRAWN BY:	TURN LANE IMPROVEMENTS
CK'D BY:	SHEET DESCRIPTION: PROPOSED ROADWAY LAYOUTS
SCALE:	1"=50′ — SHEET 2 OF 3 — SHEET NO: 15
DATE:	7/7/2021
APPROVED BY:	

pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2019\2019-2073-01- Cinco Ranch Blvd Turn Lanes\6.0 TEDSI Design\6.08 CADD\6.08.01 Sheet Files\SHT 13-14 - CRB PLAN LAYOUTS

ALIGNMENT DATA	
CURVE# 1	
PI STATION	= 7+00.16
DELTA	= 10°26'48.2" (RT)
DEGREE OF CURVE	= 02°37'00.08"
TANGENT	= 200.16
LENGTH	= 399.20
RADIUS	= 2189.46
PC STATION	= 5+00.00
PT STATION	= 8+99.20

0 25 50
SCALE: 1"=50'

LEGEND
- LANDSCAPE SPRINKLER
- FIRE HYDRANT
- WATER VALVE
- GROUND BOX
- SMALL TRAFFIC SIGN
- STM SWR MANHOLE
- LUMINAIRE POLE
- TRAFFIC SIGNAL POLE
- SANITARY SEWER MANHOLE
- PROPOSED 8" CONC PAVEMENT
- PROPOSED 13" FAST TRACK PAVEMENT
- PROPOSED 4.5" SIDEWALK
- LOW PROFILE CONC BARRIER

EXIST STM MH
Rim = 117.62
36" RCP (NE) = 112.28
36" RCP (W) = 111.96
18" RCP (SE) = 113.66

STA 15+44.50
OFF 132.88' (LT)
BEGIN PROP PVMT
BEGIN PROP 6" CONC CURB
MATCH EXISTING

STA 15+53.55, 91.15' LT
PROP 18" RCP STM SWR
CONNECT TO EXIST MH
ADJUST TOP OF EXIST MH
FRAME AND COVER
TO MATCH PROP GRADE
=116.99'

PROP 183 SY
13" FAST
TRACK PVMT

PROP PED RAMP
TYPE 7

REMOVE EXISTING
18" RCP

REMOVE EXIST INLET
RIM = 117.33
15" RCP (NE) = 115.06
18" RCP (NW) = 114.61

PROP PED RAMP
TYPE 7

CUT & REPLACE EXIST
8" CONC PVMT
6' X 12'

MATCH LINE STA 14+00

SH 99 NB FTG RD

EXIST ROW

PROP PED
RAMP TYPE 7

R=70'

END PROP 6" CONC CURB
STA 17+39.11
OFF 83.86' (LT)
MATCH EXISTING

PROP SIDEWALK RAMP AT 8.3% MAX
TIE TO EXIST SIDEWALK

PT STA 17+39.24
OFF 72.52' (LT)

PC STA 17+29.26
OFF 63.34' (LT)

PT STA 17+29.25
OFF 63.80' (LT)

PC STA 17+16.57
OFF 64.84' (LT)

PROP 52 LF - 18" RCP STM SWR

PROP TY C INLET
STA 16+00.00
OFF 68.25' (LT)

PROP 11 LF - 15" RCP STM SWR
CONNECT TO EXIST STM

PROP ROW

PT STA 16+13.98
OFF 64.84' (LT)

PROP CONC PAVING
HEADER

PROP 321 SY
8" CONC

R=10'

BEGIN PROP 6" CONC CURB
STA 17+69.82
OFF 82.86' (LT)
MATCH EXISTING

PT STA 17+68.98
OFF 67.60' (LT)

RELOCATE CONC SIGN
AND GROUND LIGHTS (BY OTHERS)

STA 17+84.03 (PC)
OFF 52.27' (LT)
END PROP PVMT
END PROP 6" CONC CURB
MATCH EXISTING

END PROP SIDEWALK
STA 18+09.82
OFF 65.63' (LT)
MATCH EXISTING

EXIST ROW

R=15'

PROP PED RAMP
TYPE 7

PROP 285 SY
8" CONC

R=10'

PROP 6" CURB

END PROP 6" CONC CURB
STA 18+43.23
OFF 5.29' (LT)
MATCH EXISTING

N 87°50' 40.4" E

15+00 16+00 17+00 18+00 19+00

CINCO RANCH BLVD

PROP LPCB (TY 1)
80 LF

PROP LPCB (TY 2)

BEGIN PROP 6" CONC CURB
STA 16+84.53
OFF 2.25' (LT)

PROP MANHOLE RIM

EXIST ROW

PC STA 18+33.73
OFF 14.73' (LT)

STA 16+00.00
INLET WB-1
TY C
T.C.=117.05

CONNECT PROP 15" RCP
TO EXIST 15" RCP

EXIST INLET
(TO BE REMOVED)
FL = 117.33

EXIST
GRATE INLET
(TO REMAIN)

117
115
113

EXIST 15" RCP

EXIST
12 LF X 15" RCP
(TO BE REMOVED)

CONNECT PROP 15" RCP
TO PROP INLET
FL = 115.07

CONNECT PROP 18" RCP
TO BACK OF INLET
FL = 114.61

CINCO RANCH BLVD.
EXIST 15" RCP & TYP C INLET DETAIL

EXIST STM MH (TO REMAIN)
ADJUST RIM TO PROP PVMT

PROP 52 LF X 18" RCP
@ 1.83%

STA 16+00.00
INLET WB-1
TY C
T.C.=117.05

117
115
113

FL = 113.66

FL = 114.61

CONNECT PROP 15" RCP
TO BACK OF INLET
FL = 115.07

CINCO RANCH BLVD.
PROP 18" RCP & TYP C INLET DETAIL

NO.	REVISIONS	DATE	NAME
1			
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FORT BEND COUNTY
ENGINEERING DEPARTMENT

THE STATE OF TEXAS · FORT BEND COUNTY

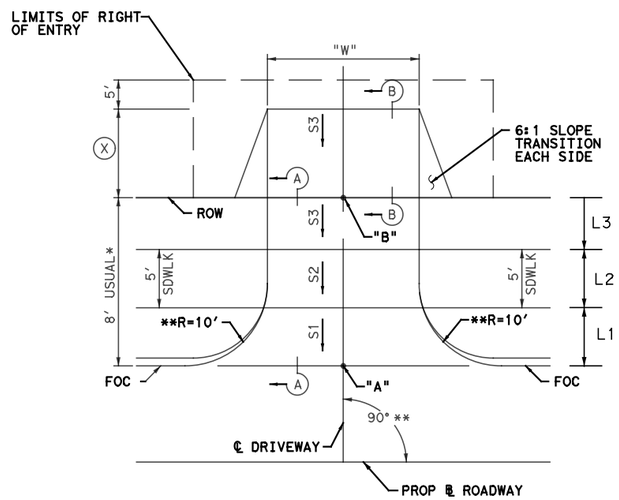
STATE OF TEXAS · PAUL E. BRIGHT · 61108 · REGISTERED PROFESSIONAL ENGINEER
7/7/2021

TEDSI INFRASTRUCTURE GROUP
TEDSI TBPE F-1640
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000

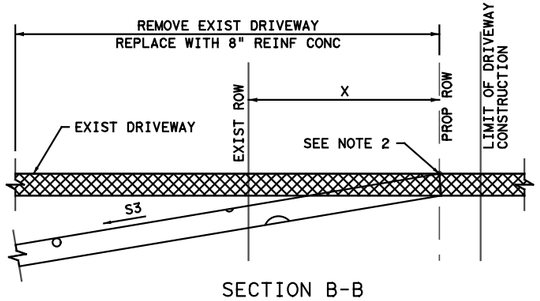
PROJECT TITLE:	CINCO RANCH BOULEVARD
DRAWN BY:	TURN LANE IMPROVEMENTS
CK'D BY:	SHEET DESCRIPTION: PROPOSED ROADWAY LAYOUTS
SCALE:	1"=50' — SHEET 3 OF 3 — SHEET NO: 16
DATE:	7/7/2021
APPROVED BY:	

CINCO RANCH BLVD DRIVEWAY SUMMARY

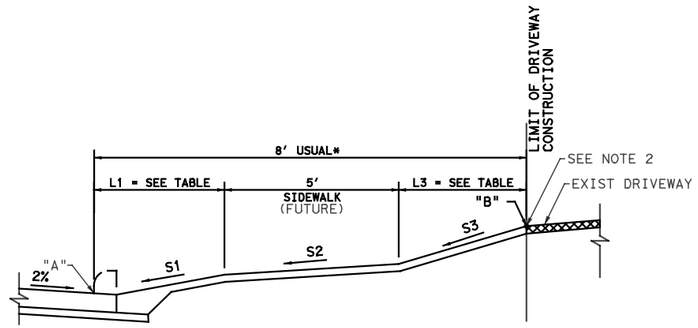
Drwy No	Driveway Station		Curb Radius (FT) LT	Curb Radius (FT) RT	Driveway Width (FT)	Prop EL @ TC (FT)	Prop Gutter Elev (FT)	End of Driveway Exist Elev (FT)	Street Side Sidewalk Elev (FT)	ROW Side Sidewalk Elev (FT)	Gutter to Edge of Sidewalk Length (L1) (FT)	Driveway Apron Slope (S1) (%)	Future Sidewalk Width (L2) (FT)	Sidewalk Slope (S2) (%)	Edge of Sidewalk to ROW Length (L3) (FT)	Driveway Slope (S3) (%)	Distance Required, X (FT)	ROE	Existing Driveway Material	Prop CONC. Driveway Area (SF)
1	8+51.28	RT	10	10	35	116.29	115.79	117.86	115.94	116.02	2.50	6.00	5.00	1.50	1.00	5.95	30.00	Y	CONCRETE	1505
2	9+82.22	RT	10	10	15	116.21	116.21	117.02	116.36	116.44	2.50	6.00	5.00	1.50	4.00	4.50	9.00	Y	CONCRETE	370
3	17+54.15	LT	10	15	30	116.14	115.64	116.80	115.88	115.96	4.00	6.00	5.00	1.50	0.50	7.35	11.00	Y	CONCRETE	642



TYPICAL DRIVEWAY LAYOUT
NOT TO SCALE



SECTION B-B
TYPICAL AT ALL DRIVEWAYS REQUIRING RIGHT OF ENTRY
NOT TO SCALE



SECTION A-A
TYPICAL AT ALL DRIVEWAYS NOT REQUIRING TCE
NOT TO SCALE

NOTES:

1. FOR REINFORCING AND EXPANSION JOINT DETAILS, SEE STANDARD DRAWINGS.
2. SAW CUT EXISTING CONCRETE OR ASPHALT PAVEMENT AT TIE-IN NEATLY TO PROVIDE A SMOOTH EDGE (MIN DEPTH 1.5").
3. POINT "B" OCCURS AT TIE IN WITH EXISTING DRIVEWAY.

* THE CONSTRUCTABILITY CONDITION OF AREA AT DISTANCE (X) BEYOND THE RIGHT OF WAY SHOULD BE VERIFIED BY CONTRACTOR AND SHOULD MATCH THE EXISTING DRIVEWAY MATERIAL. RIGHT OF ENTRY(ROE) SHALL BE OBTAINED BY CONTRACTOR.

** USUAL: SEE DRIVEWAY TABLE FOR VARIATION.

NO.	REVISIONS	DATE	NAME
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FORT BEND COUNTY ENGINEERING DEPARTMENT

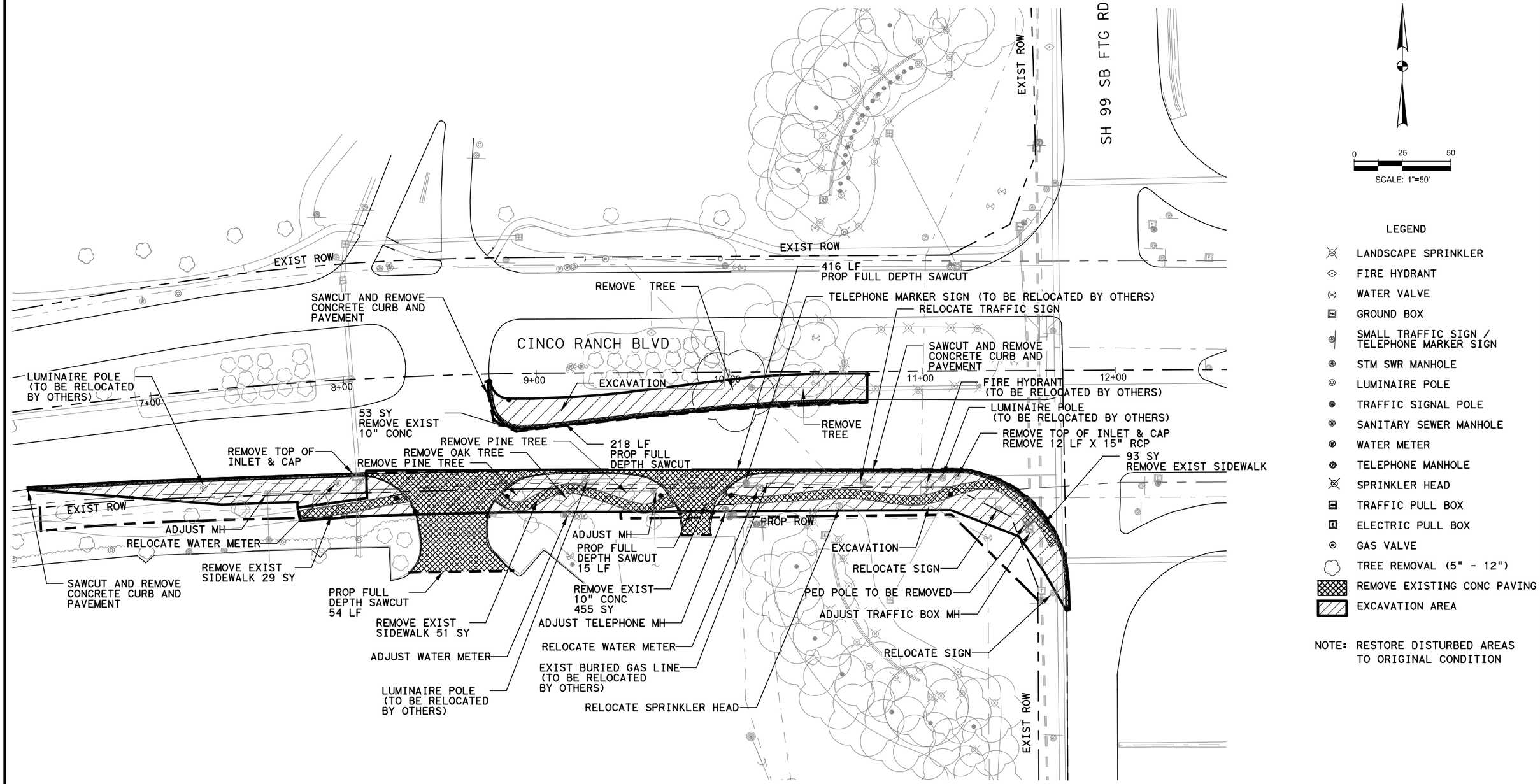
THE STATE OF TEXAS — FORT BEND COUNTY

STATE OF TEXAS — PAUL E. BRIGHT — 61108 — REGISTERED PROFESSIONAL ENGINEER — 7/7/2021

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TBPE F-1640

PROJECT TITLE:	CINCO RANCH BOULEVARD
DRAWN BY:	TURN LANE IMPROVEMENTS
CK'D BY:	SHEET DESCRIPTION: DRIVEWAY SUMMARY
SCALE:	
DATE: 7/7/2021	APPROVED BY:
	SHEET NO: 17

pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2019\2019-2073-01- Cinco Ranch Blvd Turn Lanes\6.0 TEDSI Design\6.08 CADD\6.08.01 Sheet Files\SHT 00-DRIVEWAY SUMMARY.dgn



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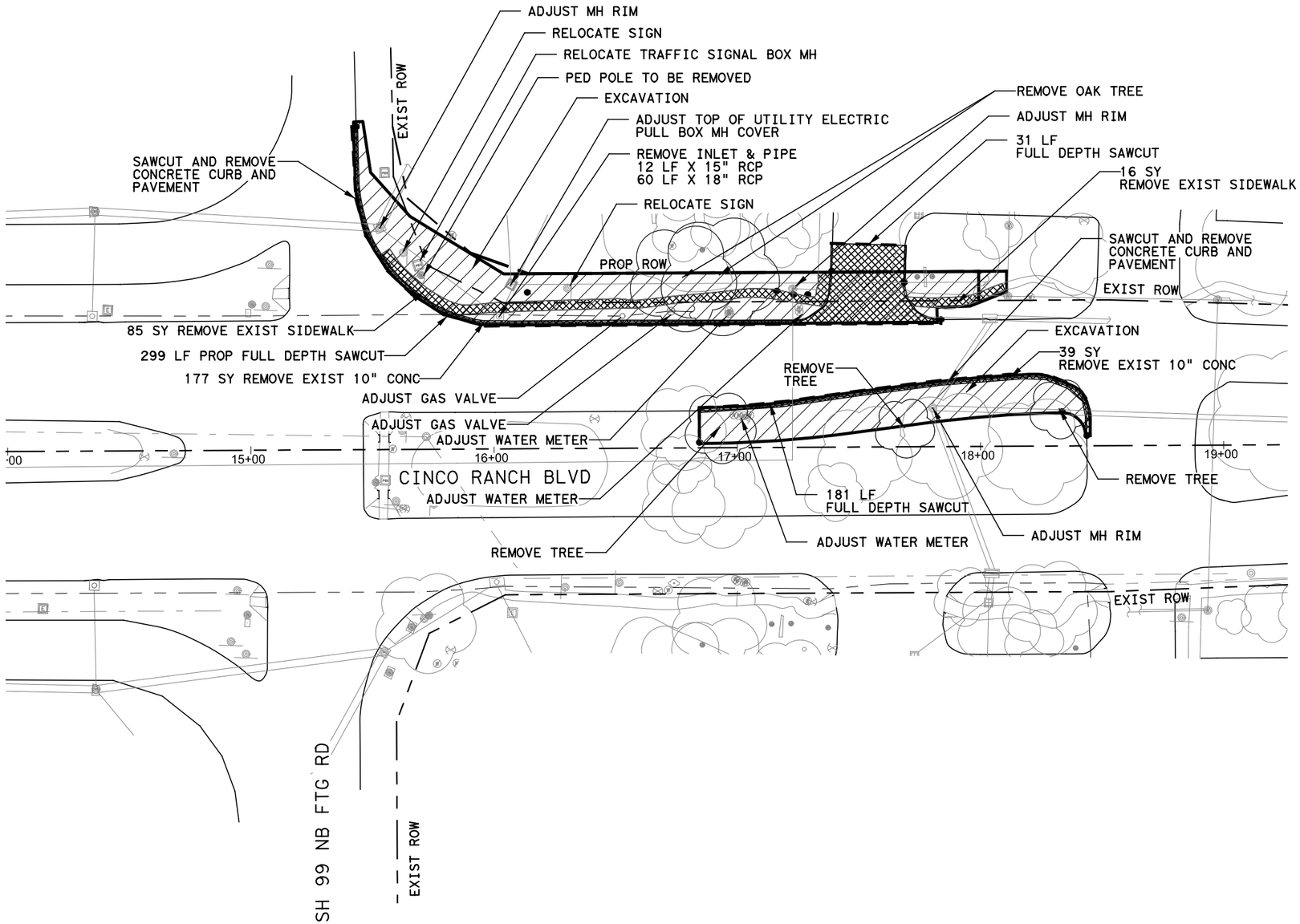
FORT BEND COUNTY ENGINEERING DEPARTMENT

THE STATE OF TEXAS · FORT BEND COUNTY

STATE OF TEXAS · PAUL E. BRIGHT · 61108 · REGISTERED PROFESSIONAL ENGINEER
7/7/2021

TEDSI INFRASTRUCTURE GROUP
TEDSI TBPE F-1640
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000

PROJECT TITLE:	CINCO RANCH BOULEVARD
DRAWN BY:	TURN LANE IMPROVEMENTS
CK'D BY:	SHEET DESCRIPTION: PROP EASTBOUND TURN LANES
SCALE:	1"=50' — DEMOLITION PLAN
DATE:	7/7/2021
APPROVED BY:	
SHEET NO:	18



0 25 50

SCALE: 1"=50'

LEGEND

- LANDSCAPE SPRINKLER
- FIRE HYDRANT
- WATER VALVE
- GROUND BOX
- SMALL TRAFFIC SIGN / TELEPHONE MARKER SIGN
- STM SWR MANHOLE
- LUMINAIRE POLE
- TRAFFIC SIGNAL POLE
- SANITARY SEWER MANHOLE
- WATER METER
- TELEPHONE MANHOLE
- SPRINKLER HEAD
- TRAFFIC PULL BOX
- ELECTRIC PULL BOX
- GAS VALVE
- TREE REMOVAL (5" - 12")
- REMOVE EXISTING CONC PAVING
- EXCAVATION AREA

NOTE: RESTORE DISTURBED AREAS TO ORIGINAL CONDITION

NO.	REVISIONS	DATE	NAME
1			
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7/7/2021

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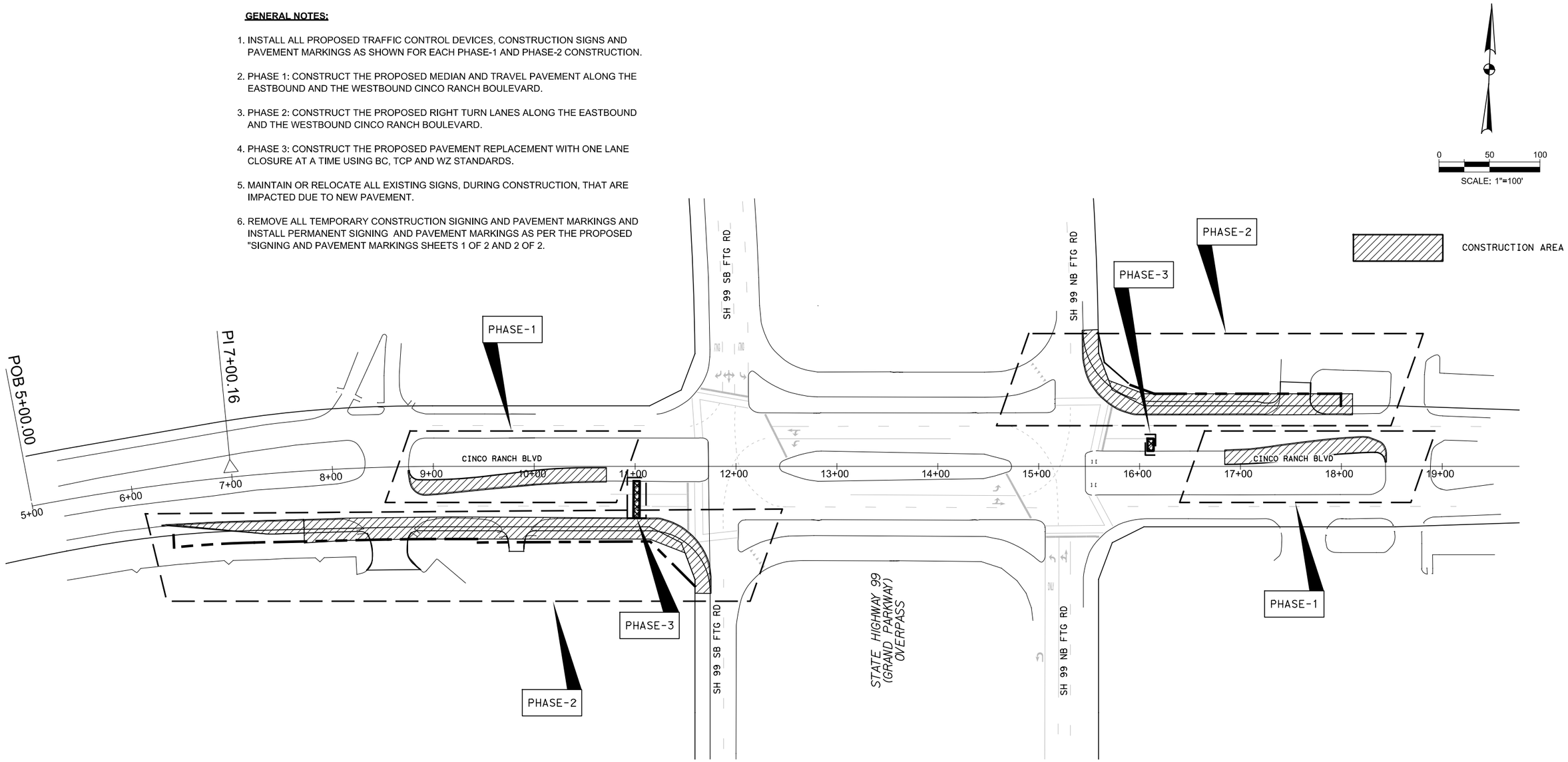
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000

PROJECT TITLE:	CINCO RANCH BOULEVARD
DRAWN BY:	TURN LANE IMPROVEMENTS
CK'D BY:	SHEET DESCRIPTION: PROP WESTBOUND TURN LANES
SCALE: 1"=50'	DEMOLITION PLAN
DATE: 7/7/2021	APPROVED BY:
	SHEET NO: 19

GENERAL NOTES:

1. INSTALL ALL PROPOSED TRAFFIC CONTROL DEVICES, CONSTRUCTION SIGNS AND PAVEMENT MARKINGS AS SHOWN FOR EACH PHASE-1 AND PHASE-2 CONSTRUCTION.
2. PHASE 1: CONSTRUCT THE PROPOSED MEDIAN AND TRAVEL PAVEMENT ALONG THE EASTBOUND AND THE WESTBOUND CINCO RANCH BOULEVARD.
3. PHASE 2: CONSTRUCT THE PROPOSED RIGHT TURN LANES ALONG THE EASTBOUND AND THE WESTBOUND CINCO RANCH BOULEVARD.
4. PHASE 3: CONSTRUCT THE PROPOSED PAVEMENT REPLACEMENT WITH ONE LANE CLOSURE AT A TIME USING BC, TCP AND WZ STANDARDS.
5. MAINTAIN OR RELOCATE ALL EXISTING SIGNS, DURING CONSTRUCTION, THAT ARE IMPACTED DUE TO NEW PAVEMENT.
6. REMOVE ALL TEMPORARY CONSTRUCTION SIGNING AND PAVEMENT MARKINGS AND INSTALL PERMANENT SIGNING AND PAVEMENT MARKINGS AS PER THE PROPOSED "SIGNING AND PAVEMENT MARKINGS SHEETS 1 OF 2 AND 2 OF 2.



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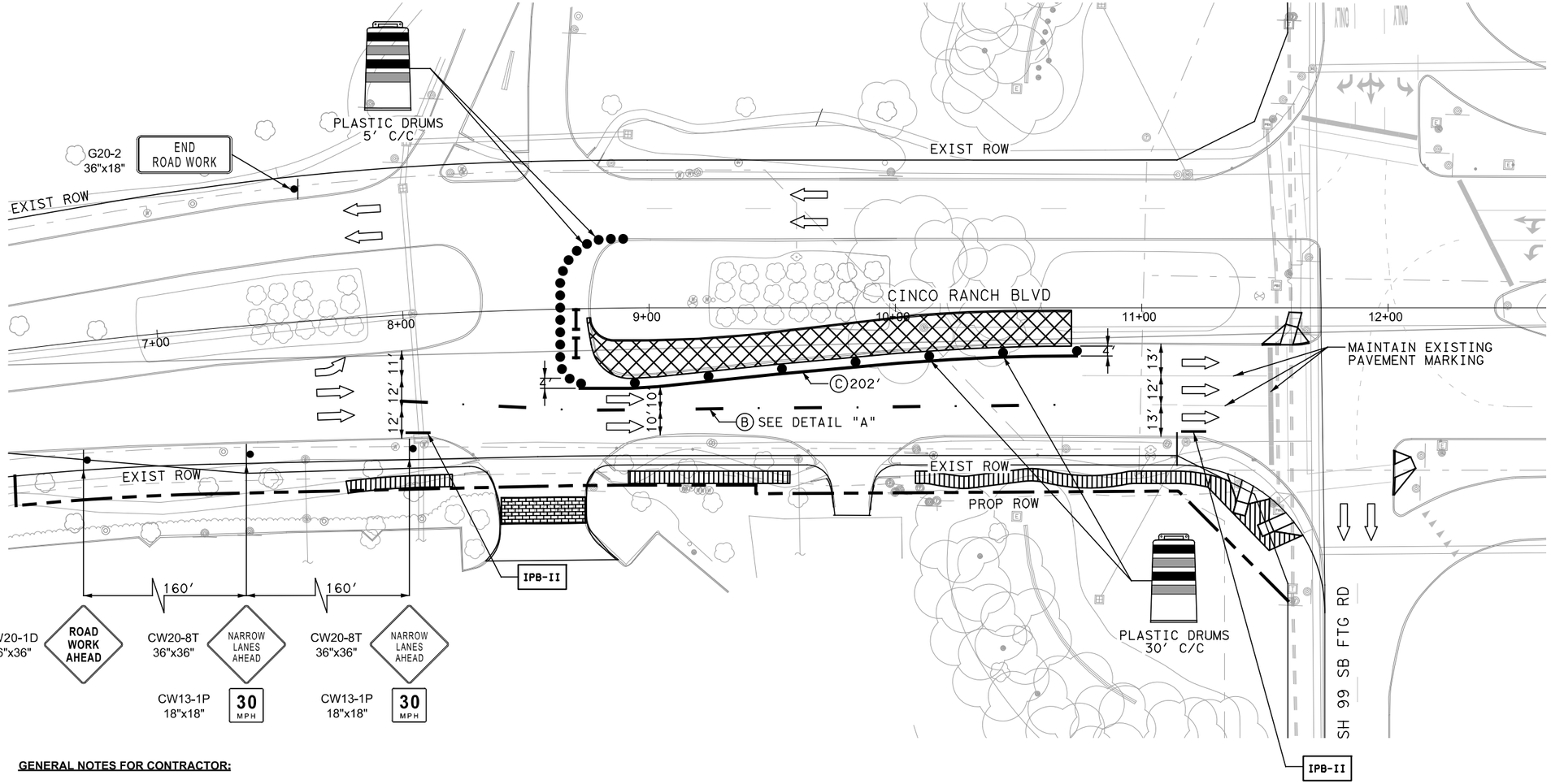
7/7/2021

TEDSI INFRASTRUCTURE GROUP
TEDSI TBPE F-1640
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000

PROJECT TITLE:	CINCO RANCH BOULEVARD TURN LANE IMPROVEMENTS
DRAWN BY:	
CK'D BY:	
SHEET DESCRIPTION:	OVERALL CONSTRUCTION PHASING LAYOUT
SCALE:	1"=100'
DATE:	7/7/2021
APPROVED BY:	
SHEET NO:	20



0 25 50

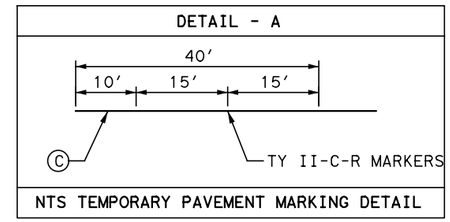
SCALE: 1"=50'

LEGEND

- PROPOSED CONSTRUCTION AREA
- TEMPORARYYGROUND MOUNTED SIGN
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- TYPE III BARRICADE
- Ⓐ WK ZN PAV MRK 4" (W) (SLD)
- Ⓑ WK ZN PAV MRK 4" (W) (BKR) W/TY II-C-R MRKR @ 40' SPACING
- Ⓒ WK ZN PAV MRK 4" (Y) (SLD)
- Ⓓ WK ZN PAV MRK 4" (W) (DOT)
- IPB-I INLET PROTECTION BARRIER SILT FENCE (STAGE I)
- IPB-II INLET PROTECTION BARRIER GRAVEL BAGS (STAGE II & EXISTING)

GENERAL NOTES FOR CONTRACTOR:

1. THE CONTRACTOR SHALL MAINTAIN THE SIGNAL OPERATION AT ALL TIMES AND MAKE SURE THAT ALL SIGNAL CONDUIT AND CABLE UNDER THE PAVEMENT ARE MAINTAINED DURING EXCAVATION. IN CASE OF DAMAGE, THE CONTRACTOR WILL BE RESPONSIBLE TO REPAIR THEM AT HIS/HER EXPENSE WITHIN A COUPLE OF HOURS. DURING THE REPAIR, THE CONTRACTOR WILL BE RESPONSIBLE TO HAVE POLICE OFFICERS TO MAINTAIN TRAFFIC UNTIL SIGNAL OPERATION IS RESTORED.
2. WHERE PROJECT REQUIREMENTS ARE NOT FULLY SATISFIED BY THE DETAILS SHOWN HEREIN, THE CONTRACTOR SHALL PROVIDE AND INSTALL TRAFFIC CONTROL DEVICES IN CONFORMANCE WITH PART VI OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (T.M.U.T.C.D.), THE MOST RECENT EDITION WITH REVISIONS, DURING CONSTRUCTION.
3. THE CONTRACTOR MAY CLOSE A LANE BETWEEN 9:00 AM AND 2:00 PM FOR CONSTRUCTION STAGING PURPOSE ONLY. HOWEVER, THE CONTRACTOR SHALL OPEN ALL THE LANES AT 2:00 PM AND MAINTAIN IT TILL 9:00 AM FOR REGULAR TRAFFIC.
4. THE CONTRACTOR SHALL MAINTAIN ALL BUSINESS DRIVEWAYS, TRAFFIC CONTROL DEVICES, STREET NAME SIGNS, WARNING SIGNS, TEMPORARY AND EXISTING SIGNS DURING THE ENTIRE PERIOD OF THE CONSTRUCTION. EXISTING SIGN OR STRIPING IN CONFLICT WITH TEMPORARY TRAFFIC CONTROL SIGNS SHALL BE COVERED OR REMOVED. REMOVED SIGNS WILL BE TURNED INTO THE FORT BEND COUNTY SHOP AND/OR STORED FOR RELOCATION.
5. THE CONTRACTOR SHALL PROVIDE CERTIFIED FLAGGERS OR AN OFF DUTY OFFICER TO DIRECT TRAFFIC. THIS DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY OR TAKING OTHER SAFETY MEASURES.
6. ALL SIGNS, WARNING DEVICES, AND BARRICADES ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR, INCLUDING ACTS OF VANDALISM OR ACCIDENTS.
7. THE CONTRACTOR SHALL MAINTAIN IN GOOD CONDITION ALL TEMPORARY AND EXISTING PAVEMENT MARKINGS THROUGHOUT THE DURATION OF THE CONTRACT. CONTRACTOR WILL REMOVE ANY CONFLICTING PAVEMENT MARKING THAT CAN CREATE SAFETY CONCERN FOR THE MOTORISTS.



POSTED SPEED LIMIT: 35 M.P.H.

NOTE: THE CONTRACTOR IS RESPONSIBLE TO REMOVE ALL CONFLICTING SIGNING AND PAVEMENT MARKINGS THROUGHOUT THE CONSTRUCTION DURATION.

NO.	REVISIONS	DATE	NAME
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FORT BEND COUNTY ENGINEERING DEPARTMENT

THE STATE OF TEXAS · FORT BEND COUNTY

STATE OF TEXAS · PAUL E. BRIGHT · 61108 · REGISTERED PROFESSIONAL ENGINEER · 7/7/2021

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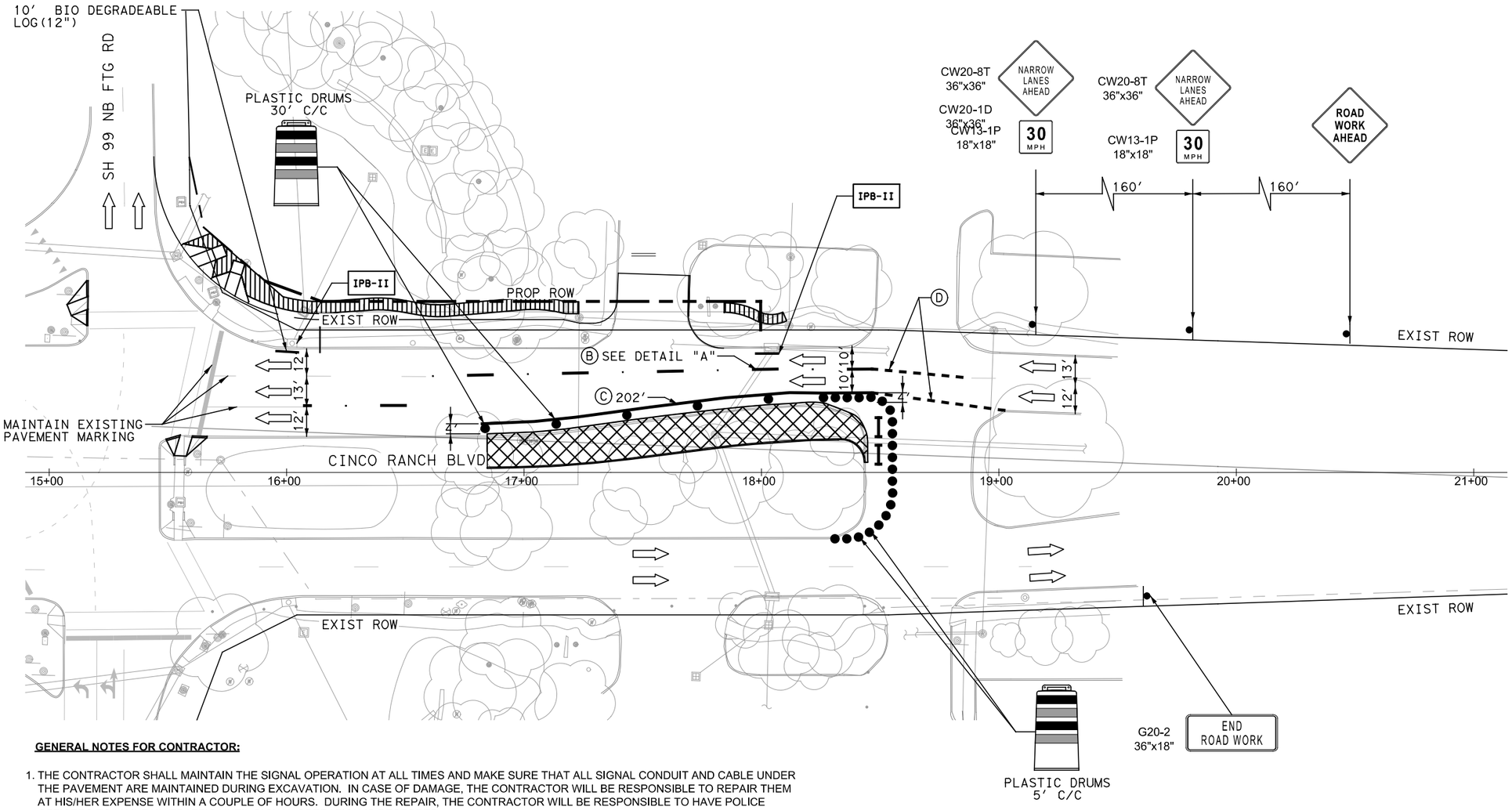
(832) 619-1000
TBPE F-1640

PROJECT TITLE:	CINCO RANCH BOULEVARD
DRAWN BY:	TURN LANE IMPROVEMENTS
CK'D BY:	SHEET DESCRIPTION: TRAFFIC CONTROL PLAN & SW3P
SCALE: 1"=50'	PHASE - 1 (SHEET 1 OF 2)
DATE: 7/7/2021	APPROVED BY:
	SHEET NO: 21

pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2019\2019-2073-01- Cinco Ranch Blvd Turn Lanes\6.0 TEDSI Design\6.08 CADD\6.08.01 Sheet Files\SHT 21-24 - CRB TCP-SW3P.dgn



LEGEND

- PROPOSED CONSTRUCTION AREA
- TEMPORARYYGROUND MOUNTED SIGN
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- TYPE III BARRICADE
- Ⓐ WK ZN PAV MRK 4" (W) (SLD)
- Ⓑ WK ZN PAV MRK 4" (W) (BKR) W/TY II-C-R MRKR @ 40′ SPACING
- Ⓒ WK ZN PAV MRK 4" (Y) (SLD)
- Ⓓ WK ZN PAV MRK 4" (W) (DOT)
- IPB-I INLET PROTECTION BARRIER SILT FENCE (STAGE I)
- IPB-II INLET PROTECTION BARRIER GRAVEL BAGS (STAGE II & EXISTING)

GENERAL NOTES FOR CONTRACTOR:

1. THE CONTRACTOR SHALL MAINTAIN THE SIGNAL OPERATION AT ALL TIMES AND MAKE SURE THAT ALL SIGNAL CONDUIT AND CABLE UNDER THE PAVEMENT ARE MAINTAINED DURING EXCAVATION. IN CASE OF DAMAGE, THE CONTRACTOR WILL BE RESPONSIBLE TO REPAIR THEM AT HIS/HER EXPENSE WITHIN A COUPLE OF HOURS. DURING THE REPAIR, THE CONTRACTOR WILL BE RESPONSIBLE TO HAVE POLICE OFFICERS TO MAINTAIN TRAFFIC UNTIL SIGNAL OPERATION IS RESTORED.
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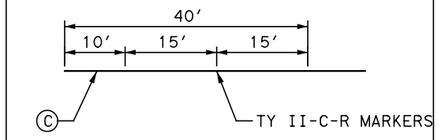
DETAIL - A



NTS TEMPORARY PAVEMENT MARKING DETAIL

NOTE: THE CONTRACTOR IS RESPONSIBLE TO REMOVE ALL CONFLICTING SIGNING AND PAVEMENT MARKINGS THROUGHOUT THE CONSTRUCTION DURATION.

NO.	REVISIONS	DATE	NAME
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THE STATE OF TEXAS · FORT BEND COUNTY

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7/7/2021

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Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000

PROJECT TITLE:	CINCO RANCH BOULEVARD
DRAWN BY:	TURN LANE IMPROVEMENTS
CK'D BY:	SHEET DESCRIPTION: TRAFFIC CONTROL PLAN & SW3P
SCALE:	1"=50′ PHASE - I (SHEET 2 OF 2)
DATE:	7/7/2021 APPROVED BY:
SHEET NO:	22

pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\20192019-2073-01- Cinco Ranch Blvd Turn Lanes\6.0 TEDSI Design\6.08 CADD\6.08.01 Sheet Files\SHT 21-24 - CRB TCP-SW3P.dgn

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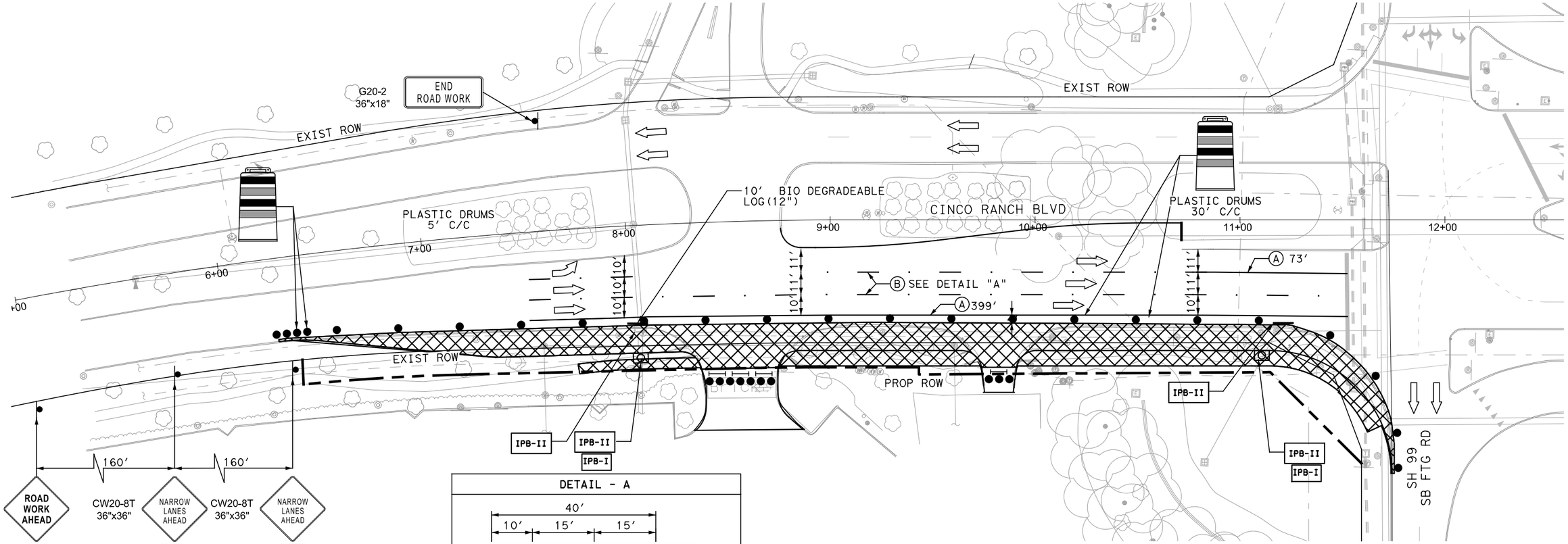
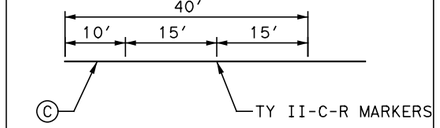
LEGEND

- PROPOSED CONSTRUCTION AREA
- TEMPORARYYGROUND MOUNTED SIGN
- DIRECTION OF TRAFFIC
- PLASTIC DRUM
- TYPE III BARRICADE
- (A) WK ZN PAV MRK 4" (W) (SLD)
- (B) WK ZN PAV MRK 4" (W) (BKR) W/TY II-C-R MRKR @ 40' SPACING
- (C) WK ZN PAV MRK 4" (Y) (SLD)
- IPB-I INLET PROTECTION BARRIER SILT FENCE (STAGE I)
- IPB-II INLET PROTECTION BARRIER GRAVEL BAGS (STAGE II & EXISTING)

0 25 50
SCALE: 1"=50'



DETAIL - A



NTS TEMPORARY PAVEMENT MARKING DETAIL

POSTED SPEED LIMIT: 35 M.P.H.

NOTE: THE CONTRACTOR IS RESPONSIBLE TO REMOVE ALL CONFLICTING SIGNING AND PAVEMENT MARKINGS THROUGHOUT THE CONSTRUCTION DURATION.

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7/7/2021

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TEDSI TBPE: F-1640
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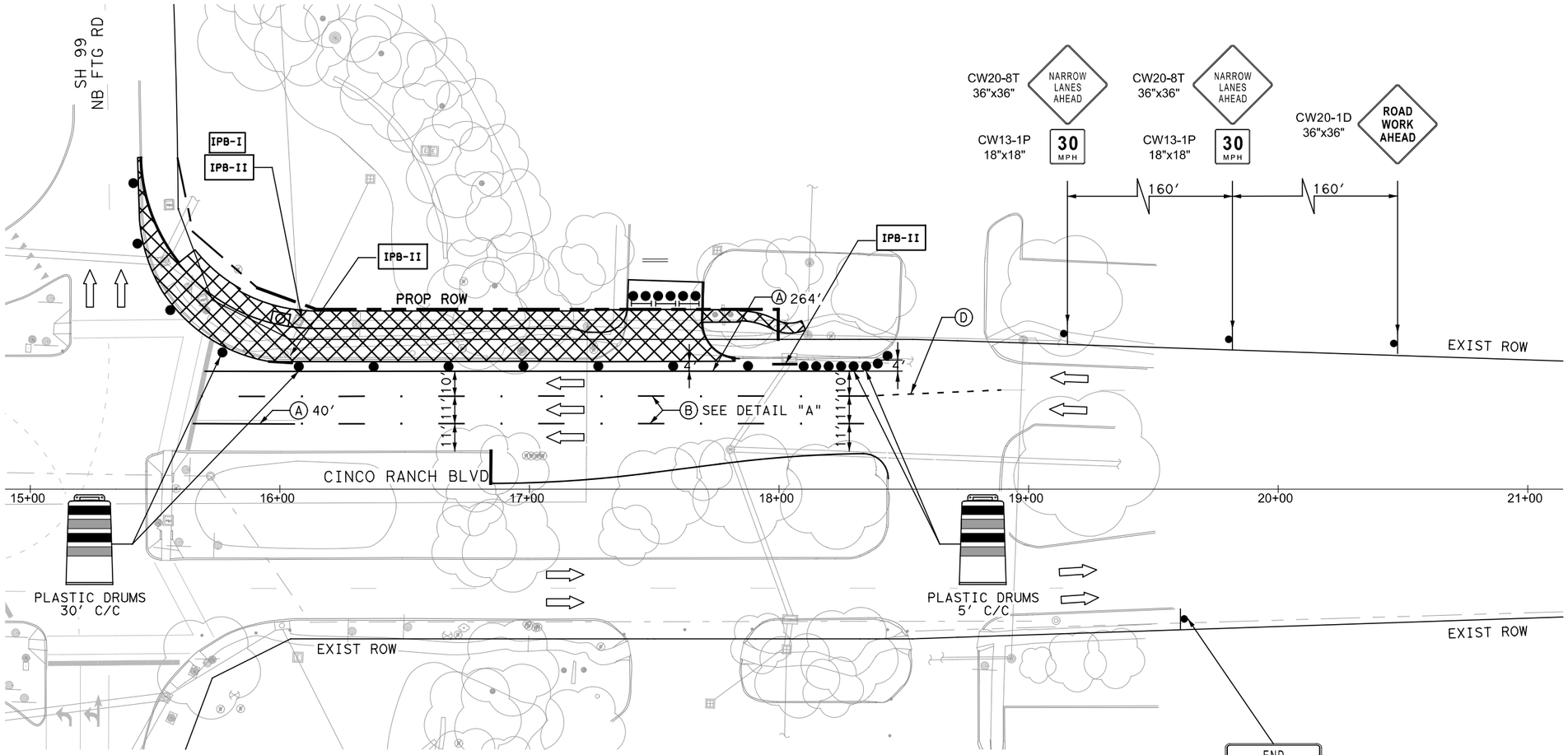
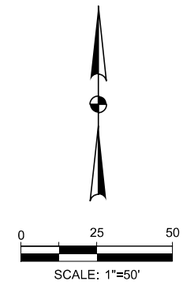
DRAWN BY:	TURN LANE IMPROVEMENTS
CK'D BY:	SHEET DESCRIPTION: TRAFFIC CONTROL PLAN & SW3P
SCALE: 1"=50'	PHASE-II (SHEET 1 OF 2)
DATE: 7/7/2021	APPROVED BY:

SHEET NO: 23

pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2019\2019-2073-01- Cinco Ranch Blvd Turn Lanes\6.0 TEDSI Design\6.08 CADD\6.08.01 Sheet Files\SHT 21-24 - CRB TCP-SW3P.dgn





LEGEND

- PROPOSED CONSTRUCTION AREA
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- Ⓐ WK ZN PAV MRK 4" (W) (SLD)
- Ⓑ WK ZN PAV MRK 4" (W) (BKR) W/TY II-C-R MRKR @ 40′ SPACING
- Ⓒ WK ZN PAV MRK 4" (Y) (SLD)
- Ⓓ WK ZN PAV MRK 4" (W) (DOT)
- IPB-I INLET PROTECTION BARRIER SILT FENCE (STAGE I)
- IPB-II INLET PROTECTION BARRIER GRAVEL BAGS (STAGE II & EXISTING)

GENERAL NOTES FOR CONTRACTOR:

1. THE CONTRACTOR SHALL MAINTAIN THE SIGNAL OPERATION AT ALL TIMES AND MAKE SURE THAT ALL SIGNAL CONDUIT AND CABLE UNDER THE PAVEMENT ARE MAINTAINED DURING EXCAVATION. IN CASE OF DAMAGE, THE CONTRACTOR WILL BE RESPONSIBLE TO REPAIR THEM AT HIS/HER EXPENSE WITHIN A COUPLE OF HOURS. DURING THE REPAIR, THE CONTRACTOR WILL BE RESPONSIBLE TO HAVE POLICE OFFICERS TO MAINTAIN TRAFFIC UNTIL SIGNAL OPERATION IS RESTORED.

2. WHERE PROJECT REQUIREMENTS ARE NOT FULLY SATISFIED BY THE DETAILS SHOWN HEREIN, THE CONTRACTOR SHALL PROVIDE AND INSTALL TRAFFIC CONTROL DEVICES IN CONFORMANCE WITH PART VI OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (T.M.U.T.C.D.), THE MOST RECENT EDITION WITH REVISIONS, DURING CONSTRUCTION.

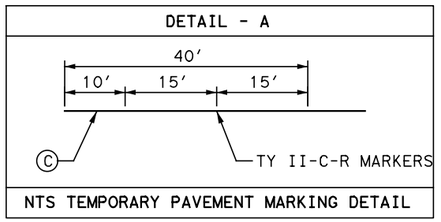
3. THE CONTRACTOR MAY CLOSE A LANE BETWEEN 9:00 AM AND 2:00 PM FOR CONSTRUCTION STAGING PURPOSE ONLY. HOWEVER, THE CONTRACTOR SHALL OPEN ALL THE LANES AT 2:00 PM AND MAINTAIN IT TILL 9:00 AM FOR REGULAR TRAFFIC.

4. THE CONTRACTOR SHALL MAINTAIN ALL BUSINESS DRIVEWAYS, TRAFFIC CONTROL DEVICES, STREET NAME SIGNS, WARNING SIGNS, TEMPORARY AND EXISTING SIGNS DURING THE ENTIRE PERIOD OF THE CONSTRUCTION. EXISTING SIGN OR STRIPING IN CONFLICT WITH TEMPORARY TRAFFIC CONTROL SIGNS SHALL BE COVERED OR REMOVED. REMOVED SIGNS WILL BE TURNED INTO THE FORT BEND COUNTY SHOP AND/OR STORED FOR RELOCATION.

5. THE CONTRACTOR SHALL PROVIDE CERTIFIED FLAGGERS OR AN OFF DUTY OFFICER TO DIRECT TRAFFIC. THIS DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY OR TAKING OTHER SAFETY MEASURES.

6. ALL SIGNS, WARNING DEVICES, AND BARRICADES ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR, INCLUDING ACTS OF VANDALISM OR ACCIDENTS.

7. THE CONTRACTOR SHALL MAINTAIN IN GOOD CONDITION ALL TEMPORARY AND EXISTING PAVEMENT MARKINGS THROUGHOUT THE DURATION OF THE CONTRACT. CONTRACTOR WILL REMOVE ANY CONFLICTING PAVEMENT MARKING THAT CAN CREATE SAFETY CONCERN FOR THE MOTORISTS.



POSTED SPEED LIMIT: 35 M.P.H.

NOTE: THE CONTRACTOR IS RESPONSIBLE TO REMOVE ALL CONFLICTING SIGNING AND PAVEMENT MARKINGS THROUGHOUT THE CONSTRUCTION DURATION.

NO.	REVISIONS	DATE	NAME
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FORT BEND COUNTY ENGINEERING DEPARTMENT

THE STATE OF TEXAS · FORT BEND COUNTY

STATE OF TEXAS · PAUL E. BRIGHT · 61108 · REGISTERED PROFESSIONAL ENGINEER
7/7/2021

TEDSI INFRASTRUCTURE GROUP
TEDSI TBPE F-1640
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000

PROJECT TITLE:	CINCO RANCH BOULEVARD
DRAWN BY:	TURN LANE IMPROVEMENTS
CK'D BY:	SHEET DESCRIPTION: TRAFFIC CONTROL PLAN & SW3P
SCALE: 1"=50′	PHASE II- (SHEET 2 OF 2)
DATE: 7/7/2021	APPROVED BY:
	SHEET NO: 24

LEGEND:

- EXIST SIGNAL POLE W. MAST ARM
- EXIST PEDESTAL POLE
- EXIST ELECTRICAL SERVICE
- EXIST HORIZONTAL SIGNAL HEAD
- EXIST VERTICAL SIGNAL HEAD
- EXIST PEDESTRAIN SIGNAL HEAD
- EXIST PEDESTRIAN PUSH BUTTON
- EXIST CONTROLLER CABINET
- EXIST GROUND BOX
- EXIST LUMINAIRE
- EXIST CONDUIT
- EXIST SAW-CUT LOOP DETECTOR
- EXIST EMERGENCY DISCONNECT
- DIRECTION OF TRAFFIC FLOW

EXISTING ELECTRICAL SERVICE

0 20 40
SCALE: 1"=40'

NB SH 99 FRTG RD

POLE 6 — W16 PB16 — W1 PB1

POLE 7 — W2 PB2

EXISTING CONTROLLER CABINET

EXISTING EMERGENCY DISCONNECT

POLE 2 — W3 PB3

POLE 8 — W5 PB5 — W4 PB4

POLE 1 — W15 PB14/15 — W14

CINCO RANCH BLVD

11+00 12+00 13+00 14+00 15+00 16+00

POLE 3 — W6 PB6/7 — W7

POLE 4 — W11 PB11

POLE 5 — W12 PB12 — W13 PB13

POLE 10 — W10 PB10

W9 PB9

POLE 9 — W8 PB8

SB SH 99 FRTG RD

EXISTING SIGNAL HEAD SCHEDULE

12" (R R Y G) LEFT TURN SIGNAL	12" (R R Y G)	12" (R Y G)	12" (R Y G) ONE WAY	12" (R Y G) ONE WAY
K	C	A, B, D, G, H, J, L, P	E, M	F, N

08 — W1 THRU W16

EXISTING SIGN SCHEDULE

PB2, PB3, PB4, PB8, PB10, PB11, PB12, PB16	PB1, PB5, PB9, PB13	PB6/7, PB14/15

NO.	REVISIONS	DATE	NAME

FORT BEND COUNTY ENGINEERING DEPARTMENT

THE STATE OF TEXAS — FORT BEND COUNTY

STATE OF TEXAS — M. R. NEELAPU — 107595 — LICENSED PROFESSIONAL ENGINEER — 3/22/2021

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
TBPE F-1640
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000

PROJECT TITLE:	CINCO RANCH BOULEVARD
DRAWN BY:	TURN LANE IMPROVEMENTS
CK'D BY:	SHEET DESCRIPTION: EXISTING TRAFFIC SIGNAL LAYOUT
SCALE:	1" = 40'
DATE:	7/7/2021
APPROVED BY:	
SHEET NO:	25

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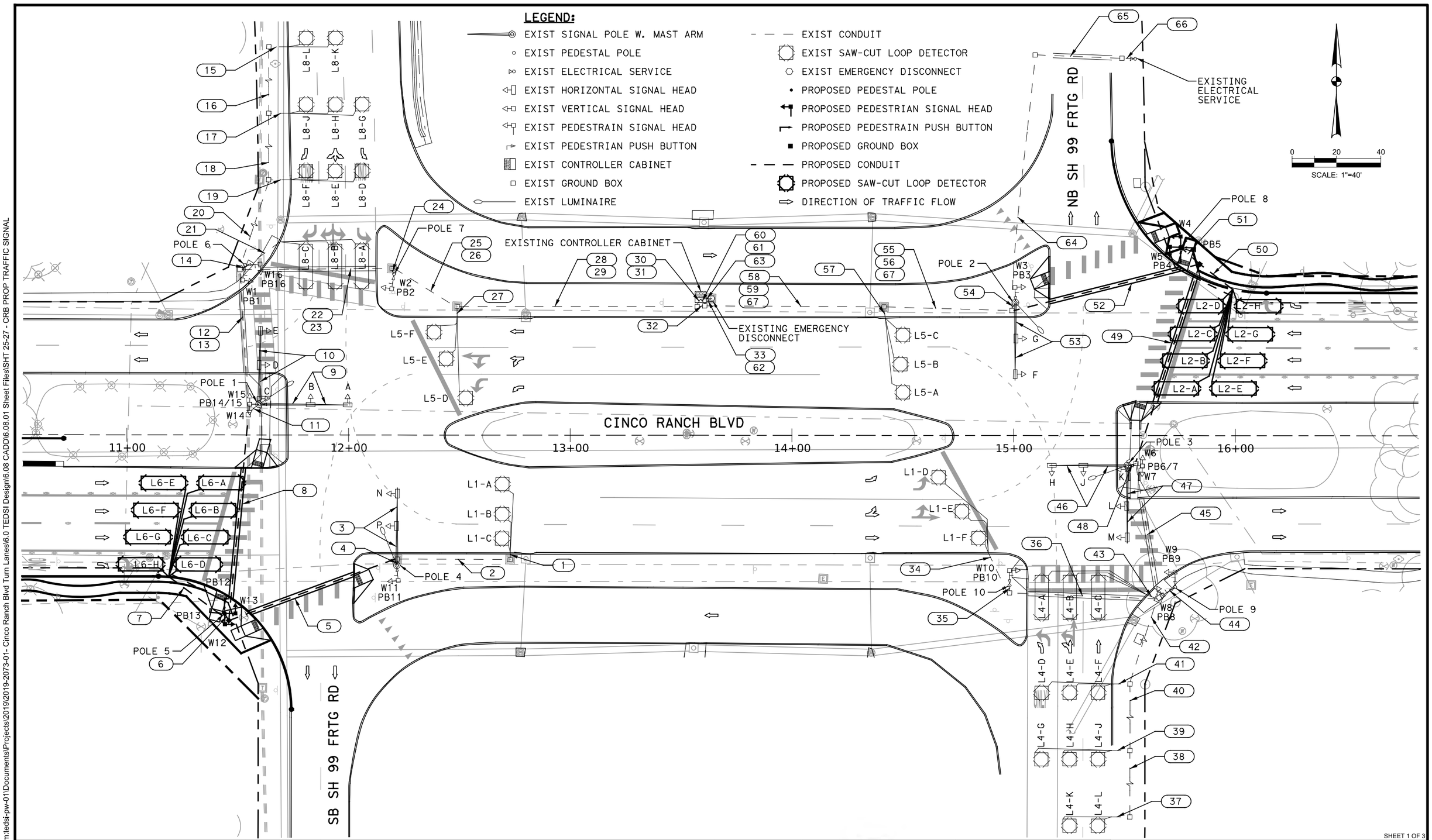

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NO.	REVISIONS	DATE	NAME

FORT BEND COUNTY ENGINEERING DEPARTMENT

STATE OF TEXAS
M. R. NEELAPU
107595
LICENSED
PROFESSIONAL ENGINEER
3/22/2021

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 616-1600
TBPE F-1640

PROJECT TITLE:	CINCO RANCH BOULEVARD
DRAWN BY:	TURN LANE IMPROVEMENTS
CK'D BY:	SHEET DESCRIPTION: TRAFFIC SIGNAL MODIFICATION LAYOUT
SCALE:	1" = 40'
DATE:	7/1/2021
APPROVED BY:	
SHEET NO:	26

EXISTING LOOP DETECTOR DESIGNATION			
LOOP DETECTOR	DIRECTION	SETTING	SIZE
L1-A	EBL	PULSE	6'X 6'
L1-B	EBL&T	PULSE	6'X 6'
L1-C	EBT	PULSE	6'X 6'
L1-D	EBL	PULSE	6'X 6'
L1-E	EBL&T	PULSE	6'X 6'
L1-F	EBT	PULSE	6'X 6'
L4-A	NBL	PRESENCE	6'X 20'
L4-B	NBL&T	PRESENCE	6'X 20'
L4-C	NBT	PRESENCE	6'X 20'
L4-D	NBL	PULSE	6'X 6'
L4-E	NBL&T	PULSE	6'X 6'
L4-F	NBT	PULSE	6'X 6'
L4-G	NBL	PULSE	6'X 6'
L4-H	NBL&T	PULSE	6'X 6'
L4-J	NBT	PULSE	6'X 6'
L4-K	NBL&T	PULSE	6'X 6'
L4-L	NBT	PULSE	6'X 6'
L5-A	WBL	PULSE	6'X 6'
L5-B	WBL&T	PULSE	6'X 6'
L5-C	WBT	PULSE	6'X 6'
L5-D	WBL	PULSE	6'X 6'
L5-E	WBL&T	PULSE	6'X 6'
L5-F	WBT	PULSE	6'X 6'
L8-A	SBL	PRESENCE	6'X 20'
L8-B	SBL&T	PRESENCE	6'X 20'
L8-C	SBT	PRESENCE	6'X 20'
L8-D	SBL	PULSE	6'X 6'
L8-E	SBL&T	PULSE	6'X 6'
L8-F	SBT	PULSE	6'X 6'
L8-G	SBL	PULSE	6'X 6'
L8-H	SBL&T	PULSE	6'X 6'
L8-J	SBT	PULSE	6'X 6'
L8-K	SBL&T	PULSE	6'X 6'
L8-L	SBT	PULSE	6'X 6'

PROPOSED LOOP DETECTOR DESIGNATION				
LOOP DETECTOR	DIRECTION	SETTING	SIZE	TURNS
L2-A	WBT	PRESENCE	6'X 20'	2
L2-B	WBT	PRESENCE	6'X 20'	2
L2-C	WBT	PRESENCE	6'X 20'	2
L2-D	WBT	PRESENCE	6'X 20'	2
L2-E	WBT	PRESENCE	6'X 20'	2
L2-F	WBT	PRESENCE	6'X 20'	2
L2-G	WBT	PRESENCE	6'X 20'	2
L2-H	WBT	PRESENCE	6'X 20'	2
L6-A	EBT	PRESENCE	6'X 20'	2
L6-B	EBT	PRESENCE	6'X 20'	2
L6-C	EBT	PRESENCE	6'X 20'	2
L6-D	EBT	PRESENCE	6'X 20'	2
L6-E	EBT	PRESENCE	6'X 20'	2
L6-F	EBT	PRESENCE	6'X 20'	2
L6-G	EBT	PRESENCE	6'X 20'	2
L6-H	EBT	PRESENCE	6'X 20'	2

EXISTING TRAFFIC SIGNAL POLES (TO REMAIN)				
POLE NO.	SIGNAL POLE DESIGNATION	FOUNDATION TYPE/DEPTH	BASELINE STATION	OFFSET
1	DMA 3232L-100	N/A	EXISTING	EXISTING
2	SMA 32L-100	N/A	EXISTING	EXISTING
3	DMA 3232L-100	N/A	EXISTING	EXISTING
4	SMA 32L-100	N/A	EXISTING	EXISTING
6	PEDESTAL POLE	N/A	EXISTING	EXISTING
7	PEDESTAL POLE	N/A	EXISTING	EXISTING
9	PEDESTAL POLE	N/A	EXISTING	EXISTING
10	PEDESTAL POLE	N/A	EXISTING	EXISTING
N/A	ELECTRICAL SERVICE	N/A	EXISTING	EXISTING
N/A	CONTROLLER CABINET	N/A	EXISTING	EXISTING

PROPOSED TRAFFIC SIGNAL POLES				
POLE NO.	SIGNAL POLE DESIGNATION	FOUNDATION TYPE/DEPTH	BASELINE STATION	OFFSET
5	PEDESTAL POLE	SCREW-IN	11+44.2	80.6' R
8	PEDESTAL POLE	SCREW-IN	15+75.2	85.0' L

EXISTING SIGNS TO REMAIN

PB2, PB3, PB8, PB10, PB11, PB16

PB1, PB9

PB6/7, PB14/15

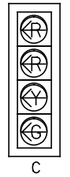
PROPOSED SIGNS

R10-3eL 9"X15" W/ACCESSIBLE PUSH BUTTON

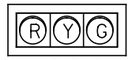
PB4, PB5, PB12, PB13

EXISTING SIGNAL HEADS TO REMAIN

K



C



A, B, D, G, H, J, L, P

E, M

W1, W2, W3, W6, W7, W8, W9, W10, W11, W14, W15, W16

F, N

PROPOSED SIGNAL HEADS

W4, W5, W12, W13

NOTES:

1. SIGNAL CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE PROPOSED LOOP DETECTORS AND CONDUIT WITH ROADWAY CONTRACTOR. CONDUIT SHALL BE INSTALLED AT ADEQUATE DEPTH SO THAT IT WILL NOT BE DAMAGED DURING ROADWAY CONSTRUCTION.
2. SIGNAL CONTRACTOR SHALL KEEP THE TRAFFIC SIGNAL DOWNTIME TO A MINIMUM. DO NOT PASS LUMINARE CONDUCTORS THROUGH THE SIGNAL CONTROLLER CABINET.
3. ROUTE CABLE FOR LUMINAIRES (#12/4C - TRAY CABLE) TO THE SERVICE ENCLOSURE. SEE ELECTRICAL DETAIL SHEETS.
4. REPAIR OR REPLACE PAVEMENT AND SIDEWALKS DAMAGED BY THE CONTRACTOR'S FORCES DURING CONSTRUCTION AT NO COST TO THE DEPARTMENT.
5. PLACE PAVEMENT MARKINGS AS SHOWN ON THE PLANS OR AS DIRECTED.
6. PROVIDE POLYVINYL CHLORIDE (PVC) CONDUIT AND FITTINGS.
7. REFER TO TXDOT'S WEBSITE FOR PREQUALIFIED PRODUCTS LIST REGARDING SYMBOLIC PEDESTRIAN SIGNAL HEAD, SYMBOLIC PEDESTRIAN SIGNAL LAMP, CONDUIT, CONDUCTORS, GROUND BOXES, AND ELECTRIC SERVICE. CHECK WEBSITE PERIODICALLY FOR CURRENT UPDATES.
8. LIMITS OF PAY FOR BORED CONDUITS SHALL NOT EXTEND MORE THAN THREE FEET IN FRONT OF AND BEYOND THE ROADWAY OR DRIVEWAY THAT IS BEING BORED UNDER. WHEN MULTIPLE DRIVEWAYS EXIST, THE CONTRACTOR MAY BE ALLOWED TO BORE UNDER THE ENTIRE GROUP OF DRIVEWAYS PROVIDED THE DRIVEWAYS DO NOT EXCEED FORTY FOOT SPACING AS APPROVED BY THE ENGINEER IN THE FIELD. NO INCREASE FOR BORED CONDUITS WILL BE INCURRED FOR THIS WORK. CONDUIT BORED BETWEEN MULTIPLE DRIVEWAYS TO BE PAID FOR AS TRENCHED CONDUIT.
9. CONTACT MR. MICHAEL AWA, P.E., AT TEXAS DEPARTMENT OF TRANSPORTATION, P. O. BOX 1386, HOUSTON, TEXAS 77251-1386, TEL. NO. (713) 802-5661. WHEN REMOVING EXISTING PED POLES; HIS EMPLOYEES WILL DETERMINE WHICH ITEMS WILL BE SALVAGED. ITEMS DEEMED SALVAGEABLE WILL BE DELIVERED TO THE DEPARTMENT'S SIGNAL SHOP AT 6810 KATY ROAD, HOUSTON, TEXAS, BETWEEN 9:00 AM AND 3:00 PM, MONDAY THROUGH FRIDAY. CAREFULLY REMOVE THE MATERIALS SO THAT THEY WILL NOT BE MARRED OR DAMAGED. REPLACE MATERIALS THAT ARE SCARRED, BATTERED OR BROKEN BY THE CONTRACTOR AT NO EXPENSE TO THE DEPARTMENT. DISPOSE OF OTHER ITEMS REMOVED BY THE CONTRACTOR AT NO EXPENSE TO THE DEPARTMENT.
10. FURNISH AND INSTALL URETHANE FOAM TO ENCLOSE THE ENDS OF ALL CONDUITS CONTAINING SIGNAL CABLES AND ELECTRICAL CONDUCTORS.
11. CAP SPARE CONDUITS INSTALLED IN POLE FOUNDATIONS AND GROUND BOXES USING APPROVED CAPPING DEVICES.
12. PROVIDE CONTINUED OPERATION OF THE EXISTING SIGNALS DURING CONSTRUCTION AND UNTIL THE PROPOSED OPERATION IS COMPLETED.
13. MAINTAIN THE INTEGRITY AND FUNCTION OF EACH EXISTING SIGNALIZED INTERSECTION. ONCE THE INTEGRETY OR FUNCTION OF THE SIGNAL HAS BEEN ALTERED, PURSUE THE WORK AT THAT LOCATION WITHOUT DELAY OR INTERRUPTION TO RESTORE OPERATION TO ITS ORIGINAL OR FINAL OPERATION DESIGN.
14. WRAP SIGNAL HEADS WITH DARK PLASTIC OR SUITABLE MATERIAL TO CONCEAL THE SIGNAL FACES FROM THE TIME OF INSTALLATION UNTIL PLACING INTO OPERATION.

NO.	REVISIONS	DATE	NAME
1			
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FORT BEND COUNTY
ENGINEERING DEPARTMENT

THE STATE OF TEXAS · FORT BEND COUNTY

STATE OF TEXAS · M. R. NEELAPU · 107595 · LICENSED PROFESSIONAL ENGINEER · 3/22/2021

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 420
Houston, Texas 77079
(832) 619-6000
TBPE F-1640

PROJECT TITLE:	CINCO RANCH BOULEVARD
DRAWN BY:	TURN LANE IMPROVEMENTS
CK'D BY:	SHEET DESCRIPTION: TRAFFIC SIGNAL
SCALE:	MODIFICATION LAYOUT
DATE: 7/7/2021	APPROVED BY:
	SHEET NO: 27

CONDUIT AND CONDUCTOR RUNS

RUN NO.	CONDUIT (618) PVC 1 1/4" (SCHD 80) (6042)		2" (SCHD 80) (6046)		3" (SCHD 80) (6053)		4" (SCHD 80) (6058)		(6059)		CONDUCTORS (620) GROUND #6 BARE (6009)		#4 BARE (6011)		POWER #1/0 INSULATED (6020)		TRAY CABLE (621) LUMINAIRE #12/4C TRAY CABLE (6005)		CABLES (684) PEDESTRIAN #12/2C (6007)		#12/4C (6009)		SIGNAL #12/7C (6012)		LOOP DETECTOR (684) LOOPS 2-#14 XHHW STRAND (SUBSIDIARY)		LOOPS 2/C#14L.L. (SHIELDED) (6080)	
	NO. EA	TRENCH LF	NO. EA	TRENCH LF	NO. EA	TRENCH LF	NO. EA	TRENCH LF	NO. EA	BORE LF	NO. EA	LENGTH LF	NO. EA	LENGTH LF	NO. EA	LENGTH LF	NO. EA	LENGTH LF	NO. EA	LENGTH LF	NO. EA	LENGTH LF	NO. EA	LENGTH LF	NO. EA	LENGTH LF	NO. EA	LENGTH LF
1	3	EXIST									3	EXIST													3	EXIST		
2			1	EXIST							1	55															1	55
3																							1	35				
4					1	EXIST					1	5					1	5	1	5	1	5	1	5				
5							1	40	1	45	1	85					1	85	1	85	1	85	1	85			1	85
6			1	5							1	5							2	5	2	5						
7	8	35									8	35													8	35		
8							1	35	1	60	1	95					1	95	3	95	3	95	1	95			2	95
9																							1	EXIST				
10																							1	EXIST				
11					1	EXIST					1	EXIST					1	10	1	EXIST	2	EXIST	3	EXIST				
12							1	EXIST	1	EXIST	1	EXIST							1	EXIST	2	EXIST	3	EXIST				
13																	2	70	3	70	3	70	1	70			2	70
14			1	EXIST							1	EXIST							2	EXIST	2	EXIST						
15	2	EXIST									2	EXIST													2	EXIST		
16			1	EXIST							1	EXIST															1	EXIST
17	3	EXIST									3	EXIST													3	EXIST		
18			1	EXIST							1	EXIST															2	EXIST
19	3	EXIST									3	EXIST													3	EXIST		
20			1	EXIST							1	EXIST															3	EXIST
21	3	EXIST									3	EXIST													3	EXIST		
22							1	EXIST	1	EXIST	1	EXIST							3	EXIST	4	EXIST	3	EXIST			4	EXIST
23																	2	70	3	70	3	70	1	70			2	70
24			1	EXIST							1	EXIST							1	EXIST	1	EXIST						
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26																	2	35	3	35	3	35	1	35			2	35
27	3	EXIST									3	EXIST													3	EXIST		
28							1	EXIST			1	EXIST							4	EXIST	5	EXIST	3	EXIST			5	EXIST
29																	2	110	3	110	3	110	1	110			2	110
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31																			3	5	3	5	1	5			2	5
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35			1	EXIST							1	5							1	5	1	5						
36							1	EXIST	1	EXIST	1	70							1	70	1	70					1	70
37	2	EXIST									2	EXIST													2	EXIST		
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53																							1	35				
54					1	EXIST					1	5					1	5	1	5	1	5	1	5				
55							1	EXIST			1	60					2	60	6	60	7	60	3	60			6	60
56																			1	EXIST	1	EXIST	1	EXIST				
57	3	EXIST									3	EXIST													3	EXIST		
58							1	EXIST			1	85					2	85	6	85	7	85	3	85			6	85
59																			1	EXIST	1	EXIST	1	EXIST			1	EXIST
60							1	EXIST			1	5							6	5	7	5	3	5			6	5
61																			1	EXIST	1	EXIST	1	EXIST			1	EXIST
62			1	EXIST									1	EXIST	2	EXIST												
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64			1	EXIST									1	EXIST	2	EXIST												
65									1	EXIST			1	EXIST	2	EXIST												
66			1	EXIST									1	EXIST	2	EXIST												
67			1	EXIST									1	EXIST	2	EXIST												
POLE 1																	1	30	1	EXIST	2	EXIST	3	EXIST				
POLE 2																	1	30	1	EXIST	1	EXIST	1	EXIST				
POLE 3																	1	30	1	5	2	10	3	20				
POLE 4																	1	30	1	5	1	10	1	20				
POLE 5																			2	5	2	10						
POLE 6																			2	EXIST	2	EXIST						
POLE 7																			1	EXIST	1	EXIST						
POLE 8																			2	5	2	10						
POLE 9																			2	5	2	10						
POLE 10																			1	5	1	10						
TOTAL (LF)	440		20		0		130		235		1715		0		0		1400		3450		3845		1720		440		4450	

NO.	REVISIONS	DATE	NAME

FORT BEND COUNTY
ENGINEERING DEPARTMENT

STATE OF TEXAS
M. R. NEELAPU
107595
LICENSED
PROFESSIONAL ENGINEER
3/22/2021

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TBPE F-1640

SHEET 3 OF 3

PROJECT TITLE:	CINCO RANCH BOULEVARD
DRAWN BY:	TURN LANE IMPROVEMENTS
CK'D BY:	SHEET DESCRIPTION: TRAFFIC SIGNAL
SCALE:	MODIFICATION LAYOUT
DATE: 7/7/2021	APPROVED BY:
	SHEET NO: 28

pw:\\tedsi-pw.bentley.com:tedsi-pw-011\Documents\Projects\20192019-2073-01- Cinco Ranch Blvd Turn Lanes\6.0 TEDSI Design\6.08 CADD\6.08.01 Sheet Files\SHT 25-27 - CRB PROP TRAFFIC SIGNAL

SUMMARY OF MATERIALS FOR TRAFFIC SIGNAL AND LIGHTING

SUMMARY OF TRAFFIC SIGNAL ITEMS

LOCATION	618 6042	618 6046	618 6047	618 6058	618 6059	620 6007	620 6008	620 6009	621 6005	624 6010	624 6028	682 6018	684 6007	684 6009	684 6012	684 6080	687 6001	687 6005
	CONDT (PVC) (SCH 80) (1 1/4")	CONDT (PVC) (SCH 80) (2")	CONDT (PVC) (SCH 80) (2") (BORE)	CONDT (PVC) (SCH 80) (4")	CONDT (PVC) (SCH 80) (4") (BORE)	ELEC CONDR (NO.8) BARE	ELEC CONDR (NO.8) INSULATED	ELEC CONDR (NO.6) BARE	TRAY CABLE (4 CONDR) (12 AWG)	GROUND BOX TY D (162922)W/APRON	REMOVE GROUND BOX	PED SIG SEC (LED)(COUNTDOWN)	TRF SIG CBL (TY A)(12 AWG)(2 CONDR)	TRF SIG CBL (TY A)(12 AWG)(4 CONDR)	TRF SIG CBL (TY A)(12 AWG)(7 CONDR)	TRF SIG CBL (TY C)(14 AWG)(2 CONDR)	PED POLE ASSEMBLY	REMOVE PED POLE ASSEMBLY
	LF	LF	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	LF	LF	LF	LF	EA	EA
CINCO RANCH BLVD	440	300	190	130	235	390	780	1715	1400	2	2	4	3450	3845	1720	4450	2	2
PROJECT TOTALS	**440**	**300**	**190**	**130**	**235**	**390**	**780**	**1715**	**1400**	**2**	**2**	**4**	**3450**	**3845**	**1720**	**4450**	**2**	**2**

SUMMARY OF TRAFFIC SIGNAL ITEMS

LOCATION	688 6001	688 6004	690 6030	690 6033	690 6094
	PED DETECT PUSH BUTTON (APS)	VEH LP DETECT (SAWCUT)	REMOVAL OF PEDESTRIAN PUSH BUTTONS	REMOVAL OF TRAFFIC SIGNAL POLE FND	REMOV PED SIG LED TRAF SIG LAMP UNIT
	EA	LF	EA	LF	EA
CINCO RANCH BLVD	4	1435	4	4	4
PROJECT TOTALS	**4**	**1435**	**4**	**4**	**4**

NO.	REVISIONS	DATE	NAME
1			
2			
3			
4			
5			

FORT BEND COUNTY
ENGINEERING DEPARTMENT

THE STATE OF TEXAS · FORT BEND COUNTY

STATE OF TEXAS · M. R. NEELAPU · 107595 · LICENSED PROFESSIONAL ENGINEER · 3/22/2021

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1600
TBPE F-1640

PROJECT TITLE:	CINCO RANCH BOULEVARD
DRAWN BY:	TURN LANE IMPROVEMENTS
CK'D BY:	SHEET DESCRIPTION: SUMMARY OF MATERIALS FOR
SCALE: NONE	TRAFFIC SIGNAL & LIGHTING
DATE: 7/7/2021	APPROVED BY:

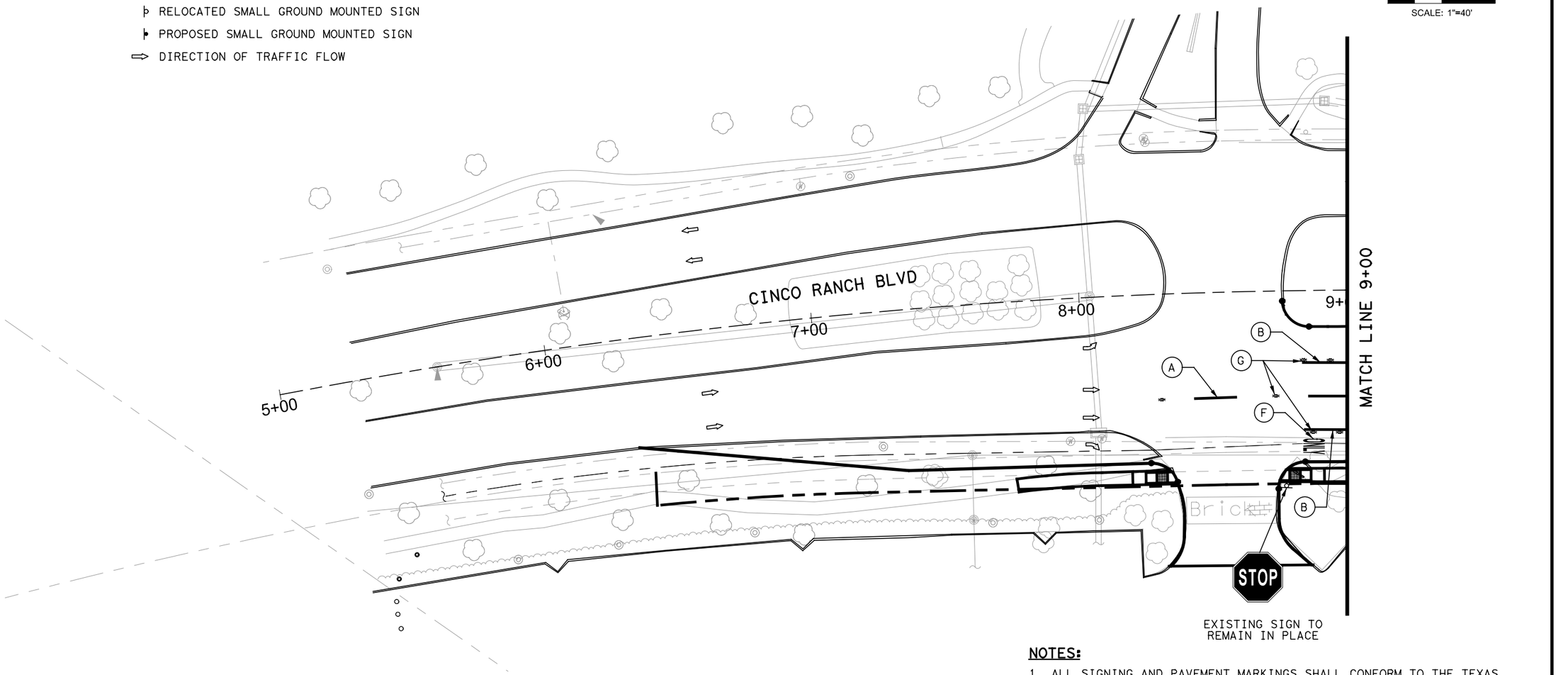
SHEET NO: 29

LEGEND:

- (A) RE PM W/RET REQ TY I (W) 4" (BRK) (100MIL)
- (B) REFL PAV MRK TY I (W) 8" (SLD) (100MIL)
- (C) REFL PAV MRK TY I (W) 12" (SLD) (100MIL)
- (D) REFL PAV MRK TY I (W) 24" (SLD) (100MIL)
- (E) REFL PAV MRK TY I (W) (ARROW) (100MIL)
- (F) REFL PAV MRK TY I (W) (WORD) (100MIL)
- (G) 4" SQUARE 2-WAY REFLECTORIZED RAISED PAV MARKR (TYPE II-C-R)
- RELOCATED SMALL GROUND MOUNTED SIGN
- PROPOSED SMALL GROUND MOUNTED SIGN
- DIRECTION OF TRAFFIC FLOW

0 20 40

SCALE: 1"=40'



EXISTING SIGN TO REMAIN IN PLACE

NOTES:

1. ALL SIGNING AND PAVEMENT MARKINGS SHALL CONFORM TO THE TEXAS M.U.T.C.D AND FORT BEND COUNTY STANDARD DETAILS.
2. ALL EXISTING PAVEMENT MARKINGS AND SIGNING IN CONFLICT WITH PROPOSED WORK SHALL BE REMOVED.
3. PROPOSED PAVEMENT MARKING SHALL MATCH EXISTING PAVEMENT MARKING AT THE POINT THE PROPOSED MARKINGS MEET THE EXISTING.
4. LOCATION OF THE SIGNS SHOWN ON THE PLAN IS APPROXIMATE AND CAN BE ADJUSTED TO MEET THE FIELD CONDITIONS. EXACT LOCATION OF THE SIGNS TO BE DETERMINED BY THE COUNTY ENGINEER IN THE FIELD.

NO.	REVISIONS	DATE	NAME
1			
2			
3			
4			
5			

FORT BEND COUNTY ENGINEERING DEPARTMENT

THE STATE OF TEXAS · FORT BEND COUNTY

STATE OF TEXAS · PAUL E. BRIGHT · 61108 · REGISTERED PROFESSIONAL ENGINEER

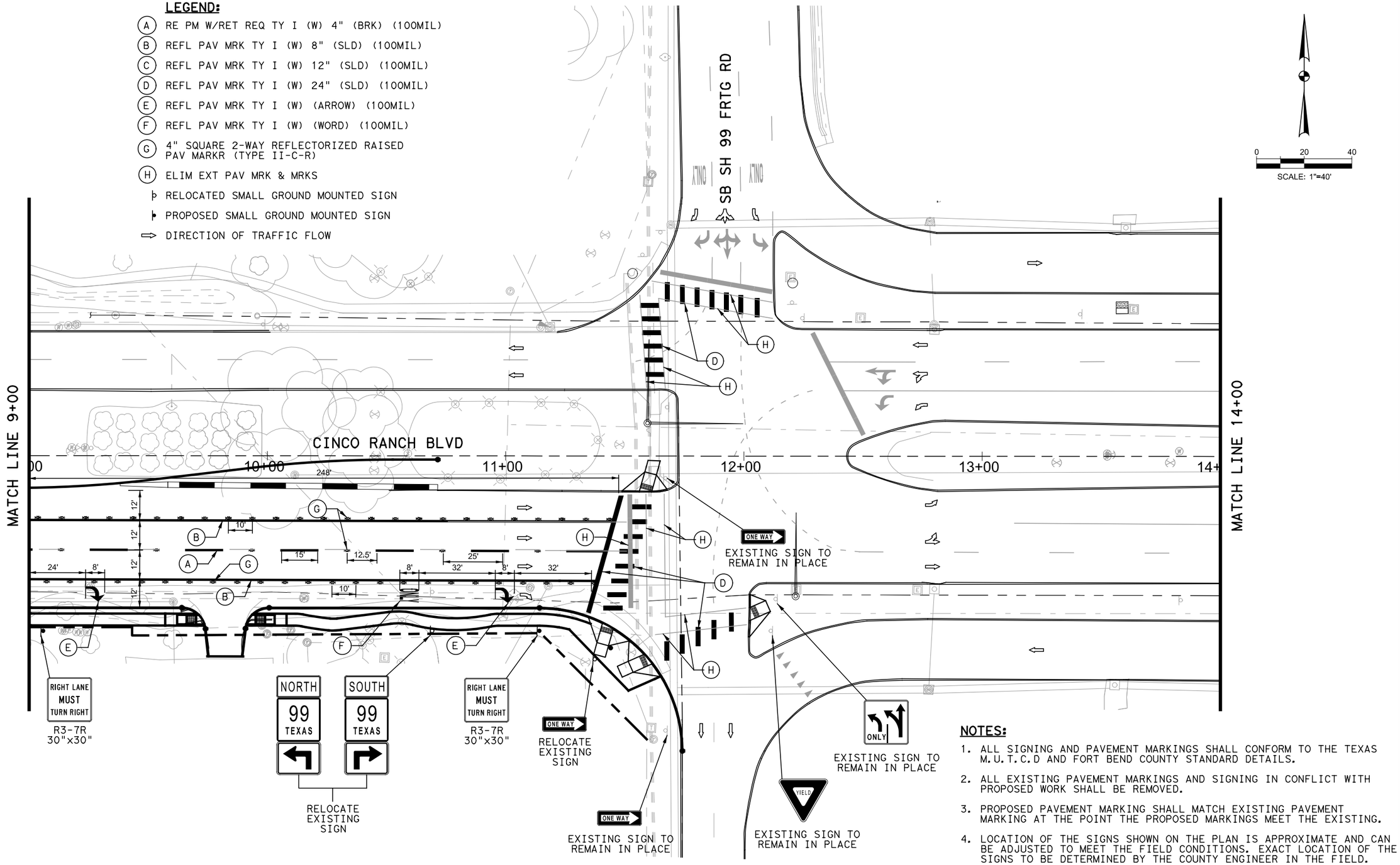
7/7/2021

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 420
Houston, Texas 77079
(832) 619-1000
TEDSI TBPE F-1640

PROJECT TITLE:	CINCO RANCH BOULEVARD
DRAWN BY:	TURN LANE IMPROVEMENTS
CK'D BY:	SHEET DESCRIPTION: SIGNING & PAVEMENT MARKING LAYOUTS
SCALE: 1"=40'	SHEET NO: 30
DATE: 7/7/2021	APPROVED BY:

LEGEND:

- (A) RE PM W/RET REQ TY I (W) 4" (BRK) (100MIL)
- (B) REFL PAV MRK TY I (W) 8" (SLD) (100MIL)
- (C) REFL PAV MRK TY I (W) 12" (SLD) (100MIL)
- (D) REFL PAV MRK TY I (W) 24" (SLD) (100MIL)
- (E) REFL PAV MRK TY I (W) (ARROW) (100MIL)
- (F) REFL PAV MRK TY I (W) (WORD) (100MIL)
- (G) 4" SQUARE 2-WAY REFLECTORIZED RAISED PAV MARKR (TYPE II-C-R)
- (H) ELIM EXT PAV MRK & MRKS
- RELOCATED SMALL GROUND MOUNTED SIGN
- PROPOSED SMALL GROUND MOUNTED SIGN
- DIRECTION OF TRAFFIC FLOW



NOTES:

1. ALL SIGNING AND PAVEMENT MARKINGS SHALL CONFORM TO THE TEXAS M.U.T.C.D AND FORT BEND COUNTY STANDARD DETAILS.
2. ALL EXISTING PAVEMENT MARKINGS AND SIGNING IN CONFLICT WITH PROPOSED WORK SHALL BE REMOVED.
3. PROPOSED PAVEMENT MARKING SHALL MATCH EXISTING PAVEMENT MARKING AT THE POINT THE PROPOSED MARKINGS MEET THE EXISTING.
4. LOCATION OF THE SIGNS SHOWN ON THE PLAN IS APPROXIMATE AND CAN BE ADJUSTED TO MEET THE FIELD CONDITIONS. EXACT LOCATION OF THE SIGNS TO BE DETERMINED BY THE COUNTY ENGINEER IN THE FIELD.

NO.	REVISIONS	DATE	NAME

FORT BEND COUNTY ENGINEERING DEPARTMENT

THE STATE OF TEXAS · FORT BEND COUNTY

STATE OF TEXAS · PAUL E. BRIGHT · 61108 · REGISTERED PROFESSIONAL ENGINEER · 7/7/2021

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
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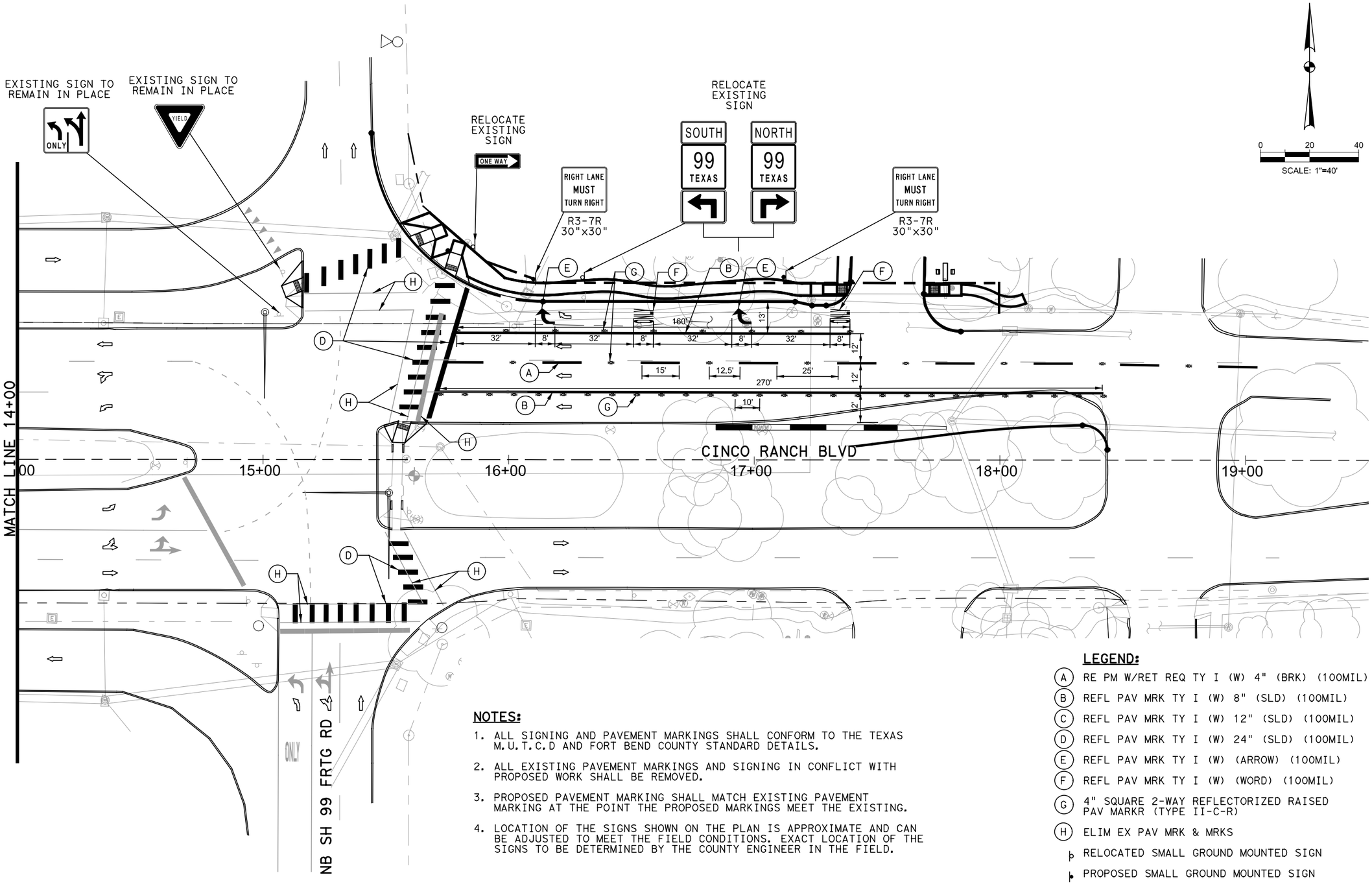
(832) 619-6100
TEDSI TBPE F-1640

PROJECT TITLE:	CINCO RANCH BOULEVARD
DRAWN BY:	TURN LANE IMPROVEMENTS
CK'D BY:	SHEET DESCRIPTION: SIGNING & PAVEMENT MARKING LAYOUTS
SCALE:	1"=40'
DATE:	7/7/2021
APPROVED BY:	
SHEET NO:	31



NOTES:

1. ALL SIGNING AND PAVEMENT MARKINGS SHALL CONFORM TO THE TEXAS M.U.T.C.D AND FORT BEND COUNTY STANDARD DETAILS.
2. ALL EXISTING PAVEMENT MARKINGS AND SIGNING IN CONFLICT WITH PROPOSED WORK SHALL BE REMOVED.
3. PROPOSED PAVEMENT MARKING SHALL MATCH EXISTING PAVEMENT MARKING AT THE POINT THE PROPOSED MARKINGS MEET THE EXISTING.
4. LOCATION OF THE SIGNS SHOWN ON THE PLAN IS APPROXIMATE AND CAN BE ADJUSTED TO MEET THE FIELD CONDITIONS. EXACT LOCATION OF THE SIGNS TO BE DETERMINED BY THE COUNTY ENGINEER IN THE FIELD.

LEGEND:

- (A) RE PM W/RET REQ TY I (W) 4" (BRK) (100MIL)
- (B) REFL PAV MRK TY I (W) 8" (SLD) (100MIL)
- (C) REFL PAV MRK TY I (W) 12" (SLD) (100MIL)
- (D) REFL PAV MRK TY I (W) 24" (SLD) (100MIL)
- (E) REFL PAV MRK TY I (W) (ARROW) (100MIL)
- (F) REFL PAV MRK TY I (W) (WORD) (100MIL)
- (G) 4" SQUARE 2-WAY REFLECTORIZED RAISED PAV MARKR (TYPE II-C-R)
- (H) ELIM EX PAV MRK & MRKS
- RELOCATED SMALL GROUND MOUNTED SIGN
- PROPOSED SMALL GROUND MOUNTED SIGN
- DIRECTION OF TRAFFIC FLOW

NO.	REVISIONS	DATE	NAME
1			
2			
3			
4			
5			

FORT BEND COUNTY ENGINEERING DEPARTMENT

THE STATE OF TEXAS · FORT BEND COUNTY

STATE OF TEXAS · PAUL E. BRIGHT · 61108 · REGISTERED PROFESSIONAL ENGINEER
7/7/2021

TEDSI INFRASTRUCTURE GROUP
TEDSI TBPE F-1640
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 616-1000

PROJECT TITLE:	CINCO RANCH BOULEVARD
DRAWN BY:	TURN LANE IMPROVEMENTS
CK'D BY:	SHEET DESCRIPTION: SIGNING & PAVEMENT MARKING LAYOUTS
SCALE:	1"=40'
DATE:	7/7/2021
APPROVED BY:	
SHEET NO:	32

LEGEND:

- EXIST CONDUIT
- PROPOSED CONDUIT
- EXIST GROUND BOX
- EXIST ELECTRICAL SERVICE
- DIRECTION ARROW

0 20 40

SCALE: 1"=40'

SB SH 99 FRTG RD

XING ONLY

CINCO RANCH BLVD

11+00 12+00 13+00 14+00 15+00 16+00

PROPOSED 2" PVC SCD 80 CONDUIT WITH 2-#8 XHHW AND 1-#8 BARE

EXISTING 2" PVC SCD 80 CONDUIT WITH PROPOSED 2-#8 XHHW AND 1-#8 BARE

EXISTING ELECTRICAL SERVICE (LOCATED APPROXIMATELY 200' FROM INTERSECTION)

NB SH 99 FRTG RD ONLY

NO.	REVISIONS	DATE	NAME

FORT BEND COUNTY ENGINEERING DEPARTMENT

THE STATE OF TEXAS · FORT BEND COUNTY

STATE OF TEXAS · M. R. NEELAPU · 107595 · LICENSED PROFESSIONAL ENGINEER · 3/22/2021

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TBPE F-1640

PROJECT TITLE:	CINCO RANCH BOULEVARD
DRAWN BY:	TURN LANE IMPROVEMENTS
CK'D BY:	SHEET DESCRIPTION: LIGHTING MODIFICATION LAYOUT
SCALE: 1"=40'	
DATE: 7/7/2021	APPROVED BY:
SHEET NO:	33

DATE: 7/7/2021 2:40:49 PM
FILE: pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2019\2019-2073-01- Cinco Ranch Blvd Turn Lanes\6.0 TEDSI Design\6.08 CADD\6.08.01 Sheet Files\Standard Details\TxDOT\

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.

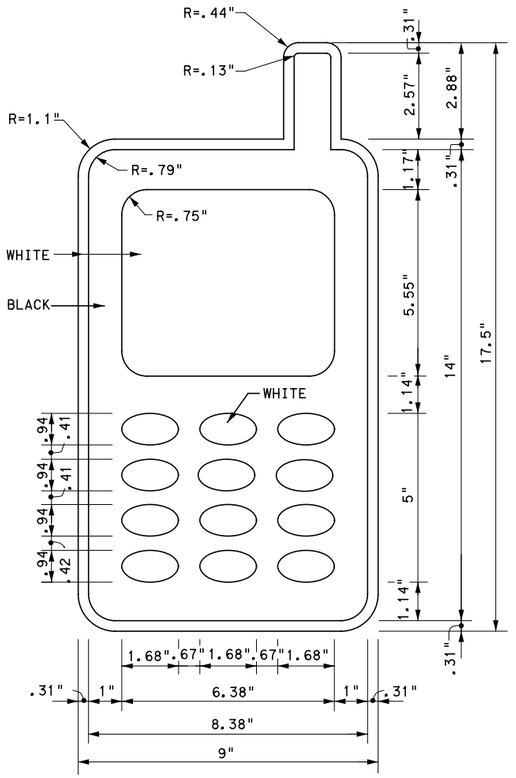
11. Except for devices required by Note 10, traffic control devices should be in place only while work is actually in progress or a definite need exists.

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

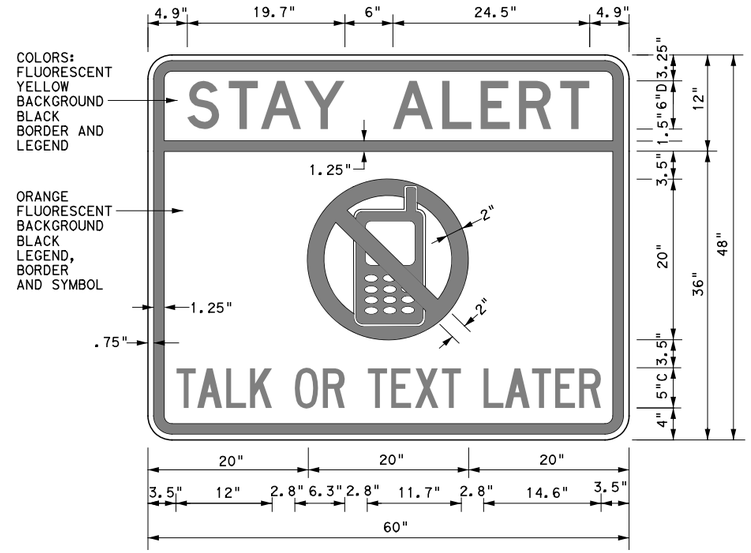
13. Inactive equipment and work vehicles, including workers' private vehicles must be parked away from travel lanes. They should be as close to the right-of-way line as possible, or located behind a barrier or guardrail, or as approved by the Engineer.

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.



SIGN DETAIL (G20-10T)



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;

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

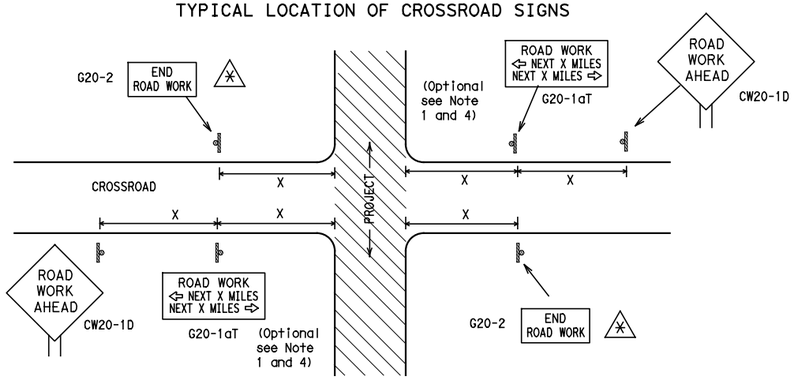
BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

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	DIST	COUNTY		SHEET NO.
9-07 7-13	HOU	FORT BEND		34

DATE: 7/7/2021 2:40:50 PM
FILE: pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2019\2019-2073-01- Chaco Ranch Blvd Turn Lanes\6.0 TEDSI Design\6.08 CADD\6.08.01 Sheet Files\Standard Details\TxDOT\

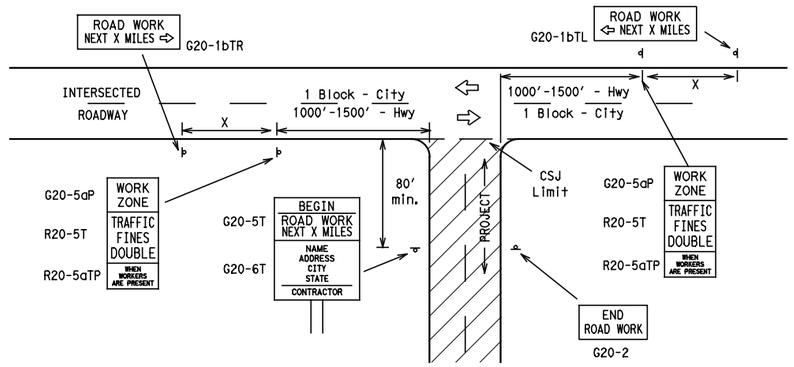
TYPICAL LOCATION OF CROSSROAD SIGNS



✳ 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 Spacing "X" Δ
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]

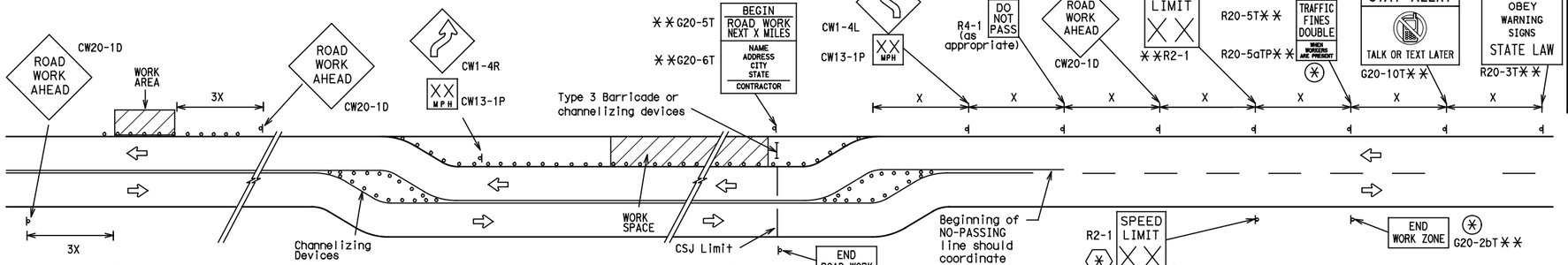
✳ For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

GENERAL NOTES

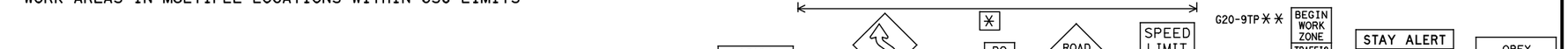
1. Special or larger size signs may be used as necessary.
2. Distance between signs should be increased as required to have 1500 feet advance warning.
3. Distance between signs should be increased as required to have 1/2 mile or more advance warning.
4. 36" x 36" "ROAD WORK AHEAD" (CW20-1D)signs may 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

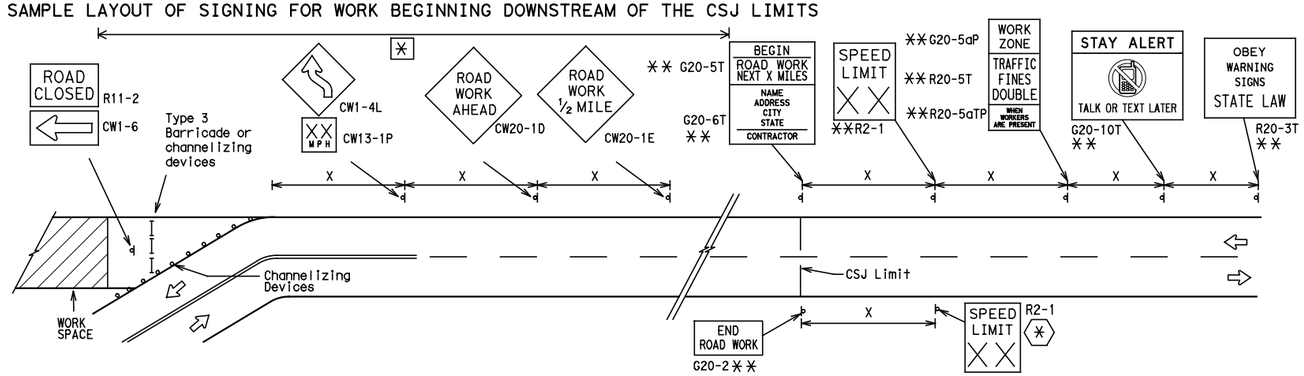


When extended distances occur between minimal work spaces, the Engineer/Inspector should ensure additional "ROAD WORK AHEAD"(CW20-1D)signs are placed in advance of these work areas to remind drivers they are still within the project limits. See the applicable TCP sheets for exact location and spacing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

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS



SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING DOWNSTREAM OF 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

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	-	-	-	-
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13	HOU	FORT BEND		35

DATE: 7/7/2021 2:40:50 PM
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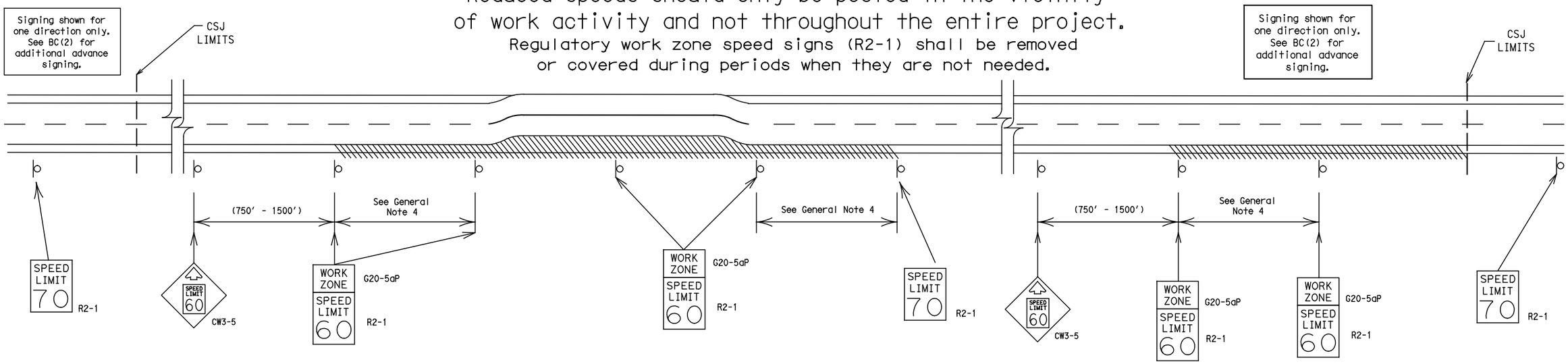
TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

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

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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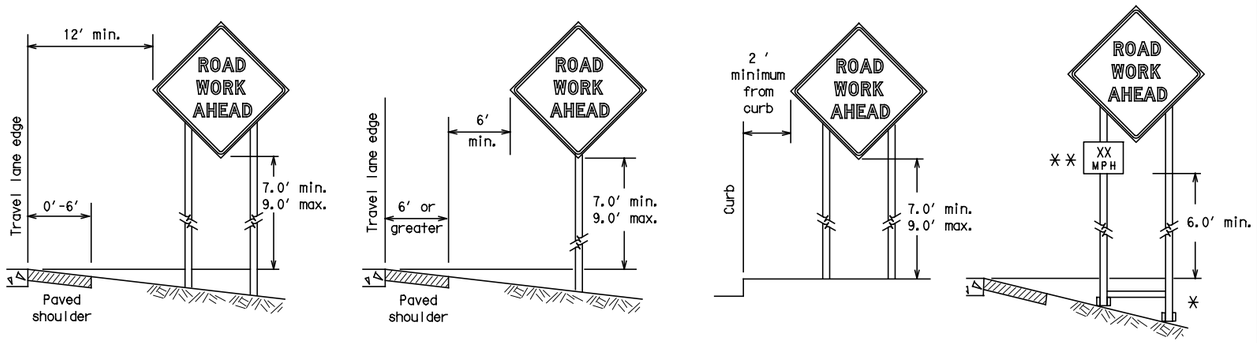
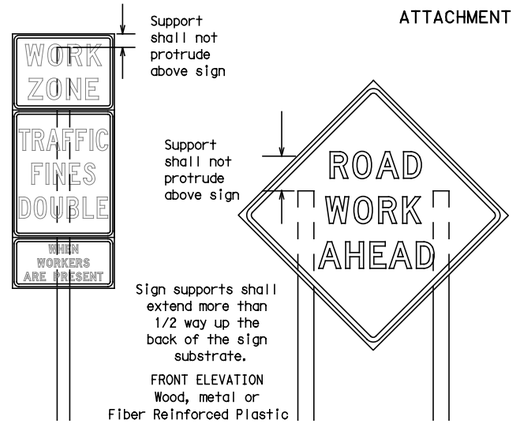
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



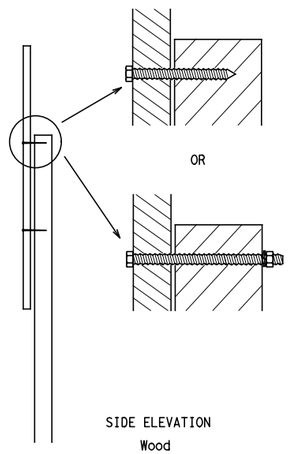
⁎ When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

⁎⁎ 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.

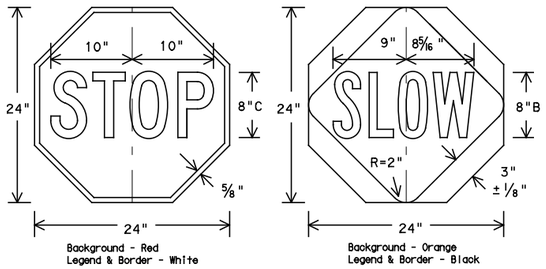


Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

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.

Texas Department of Transportation — Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC(4)-14

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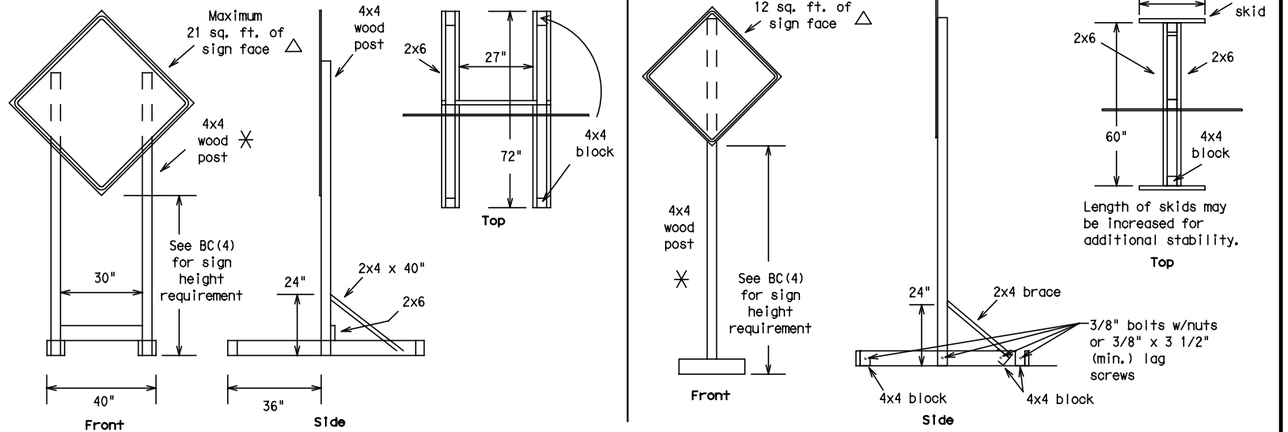
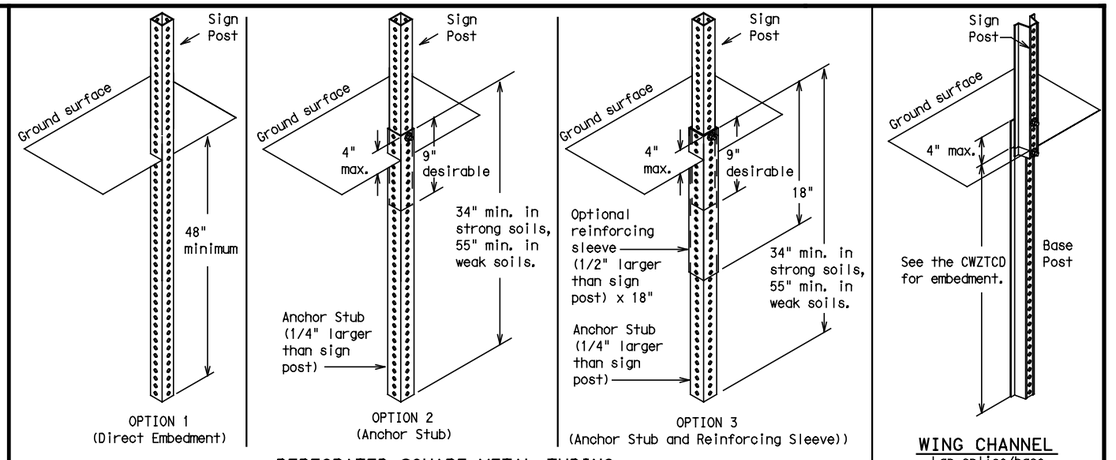


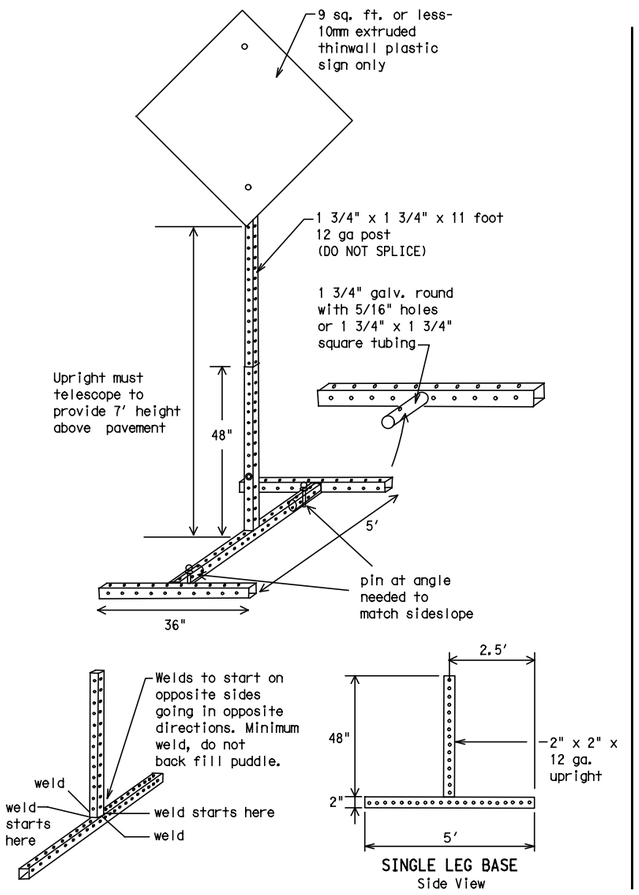
SKID MOUNTED WOOD SIGN SUPPORTS

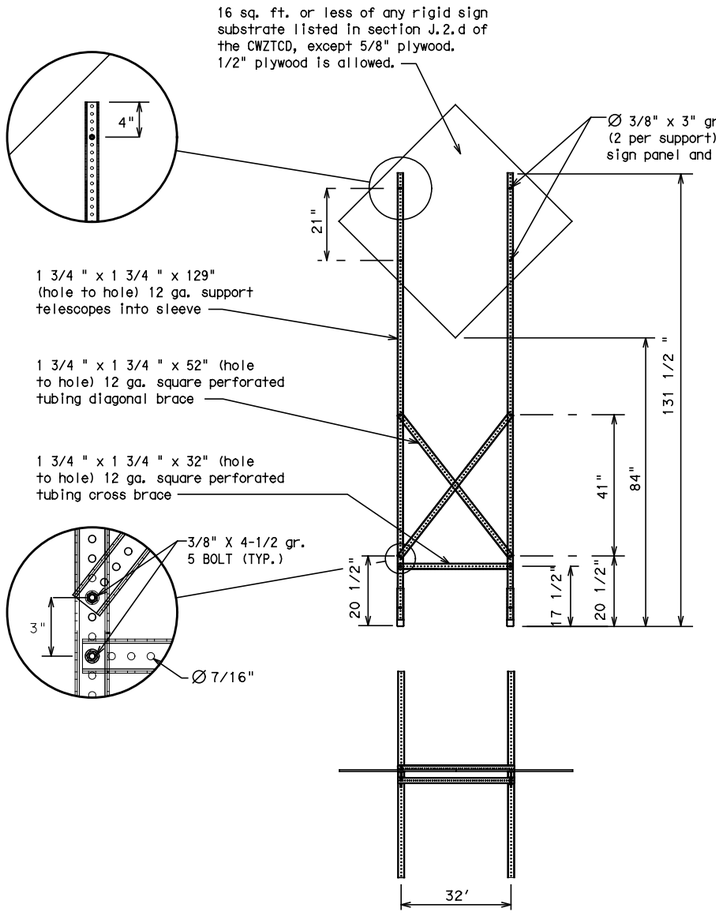
LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS □

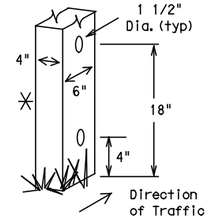


GROUND MOUNTED SIGN SUPPORTS

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.

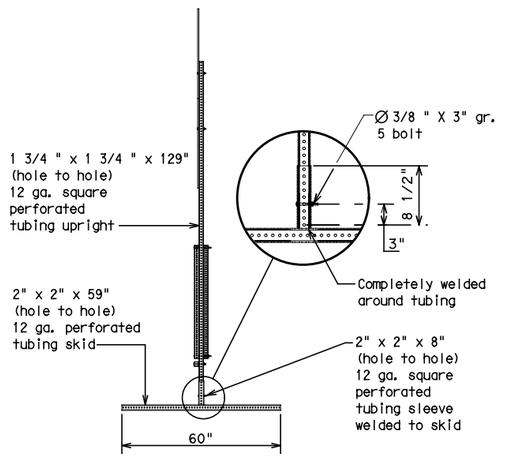






Nominal Post Size	Number of Posts	Maximum Sq. feet of Sign Face	Minimum Soil Embedment	Drilled Hole(s) Required
4 x 4	1	12	36"	NO
4 x 4	2	21	36"	NO
4 x 6	1	21	36"	YES
4 x 6	2	36	36"	YES

WOOD POST SYSTEM FOR GROUND MOUNTED SIGN SUPPORTS



SKID MOUNTED PERFORATED SQUARE STEEL TUBING 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.

Texas Department of Transportation

Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)-14

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

Other Condition List

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

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

Phase 2: Possible Component Lists

Action to Take/Effect on Travel List

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

Location List

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

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

** 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

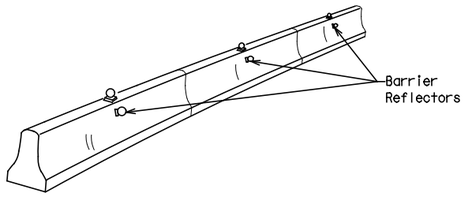
BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC(6)-14

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	-	-	-	-
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13	HOU	FORT BEND		39

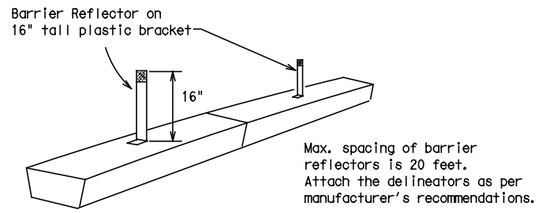
DATE: 7/7/2021 2:40:53 PM
FILE: pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2019\2019-2073-01- Cinco Ranch Blvd Turn Lanes\6.0 TEDSI Design\6.08 CADD\6.08.01 Sheet Files\Standard Details\TxDOT\

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.

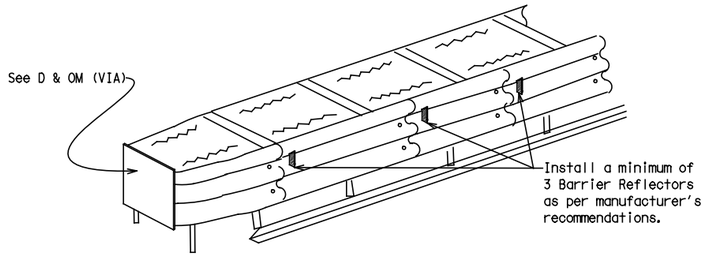


CONCRETE TRAFFIC BARRIER (CTB)

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)

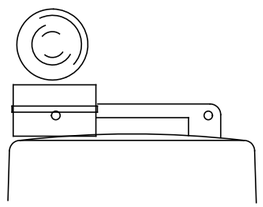


DELINEATION OF END TREATMENTS

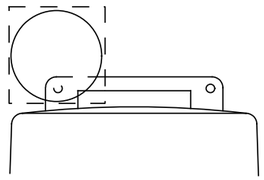
END TREATMENTS FOR
CTB'S USED
IN WORK ZONES

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

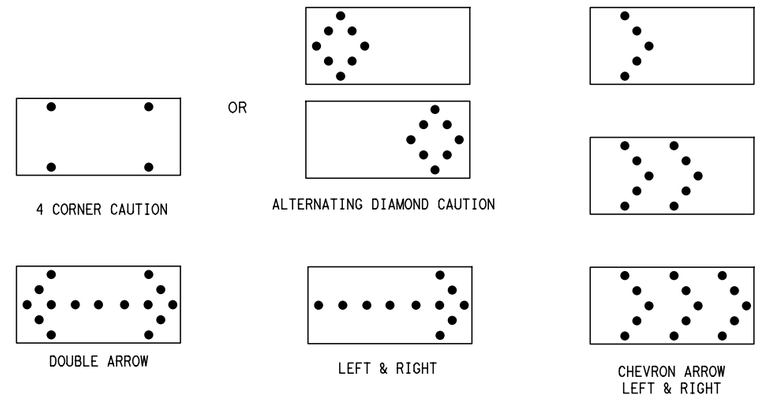
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing 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

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	-	-	-	-
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13	HOU	FORT BEND		40

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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:

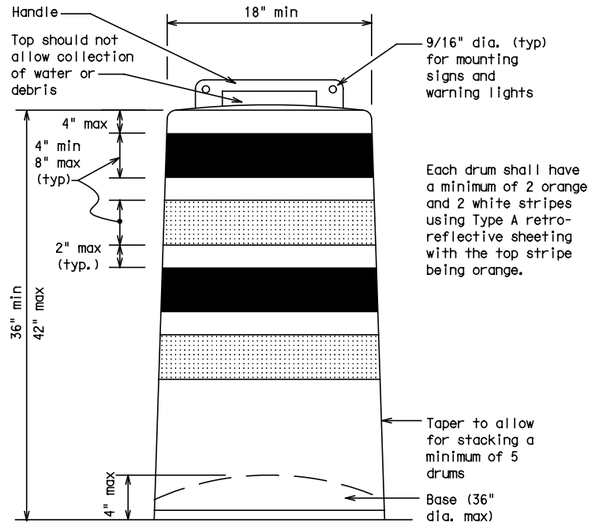
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents 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.

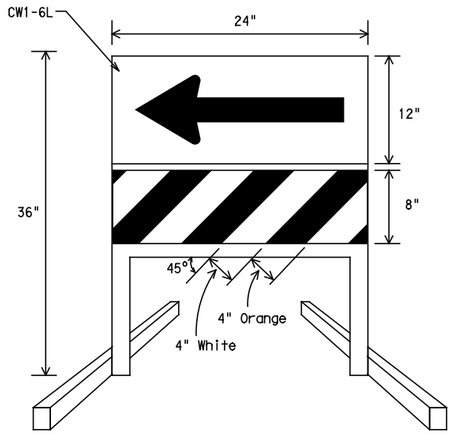
RETROREFLECTIVE SHEETING

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.

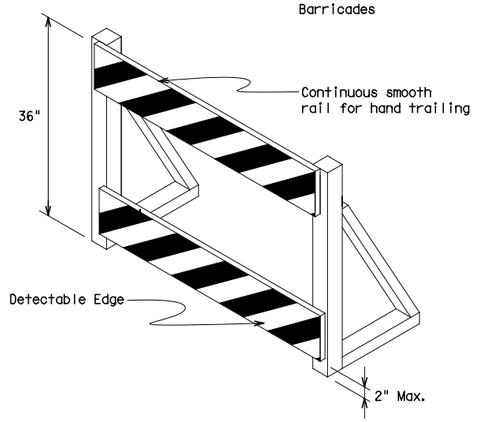




DIRECTION INDICATOR BARRICADE

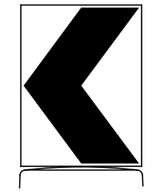
1. The Direction Indicator Barricade may be used in tapers, transitions, and other areas where specific directional guidance to drivers is necessary.
2. If used, the Direction Indicator Barricade should be used in series to direct the driver through the transition and into the intended travel lane.
3. 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

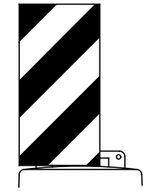


DETECTABLE PEDESTRIAN BARRICADES

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.

Texas Department of Transportation

Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(8)-14

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	–	–	–	–
4-03 7-13	DIST	COUNTY		SHEET NO.
9-07 8-14	HOU	FORT BEND		41

DATE: 7/7/2021 2:40:54 PM
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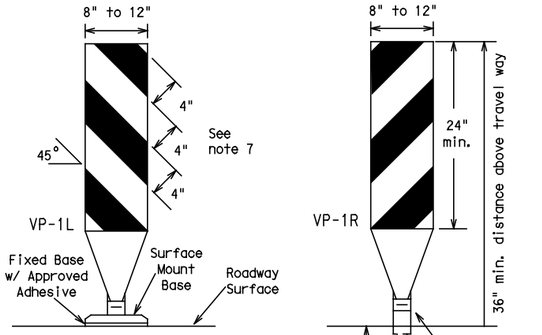
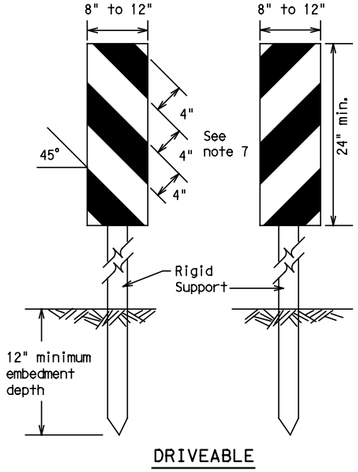
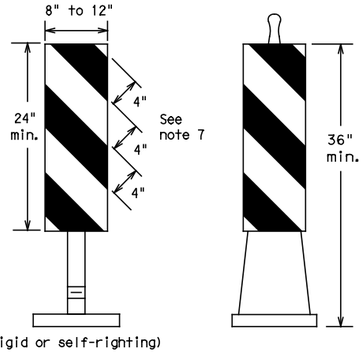


FIXED

(Rigid or self-righting)



DRIVEABLE

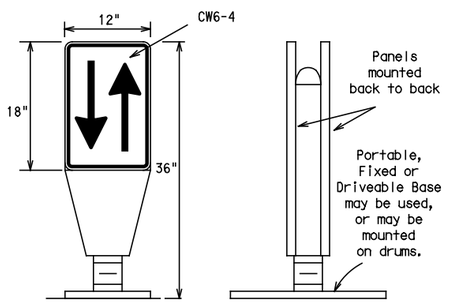


(Rigid or self-righting)

PORTABLE

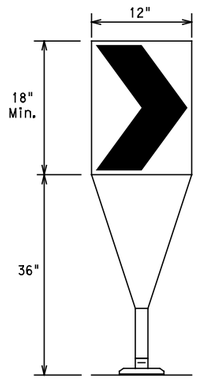
1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is 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.

VERTICAL PANELS (VPs)



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)



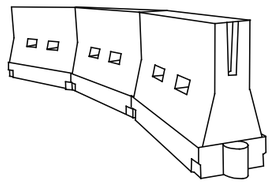
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

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

SHEET 9 OF 12

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BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-14

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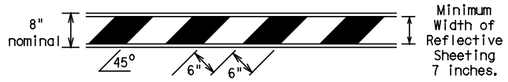
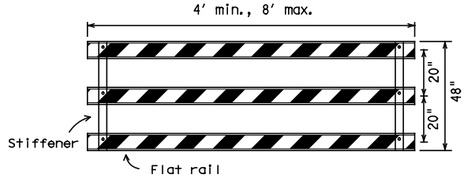
TYPE 3 BARRICADES

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.



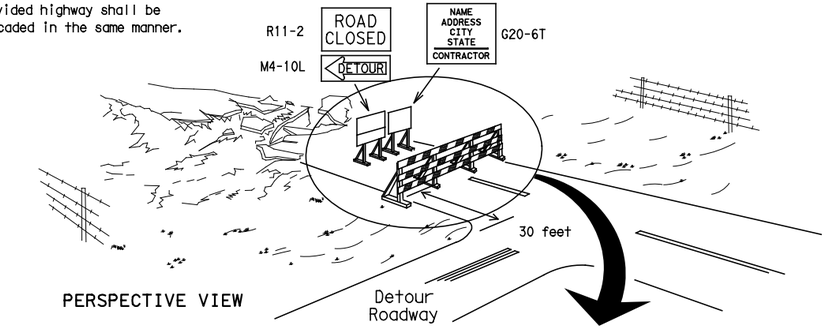
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

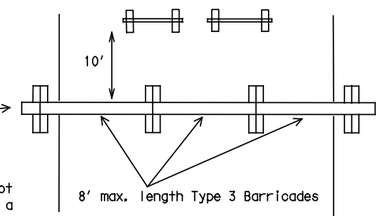
TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

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



PERSPECTIVE VIEW

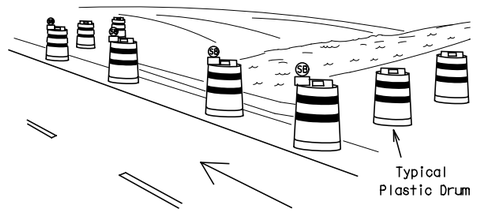
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

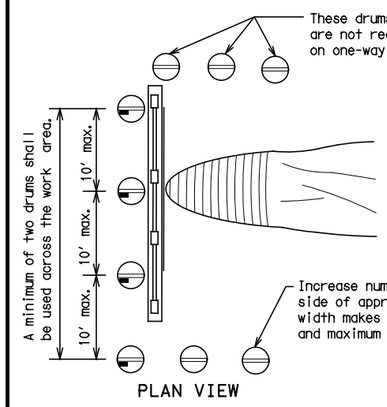
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

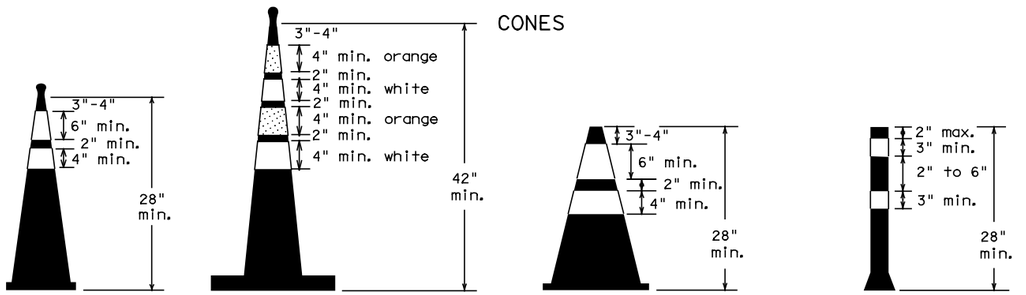
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder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

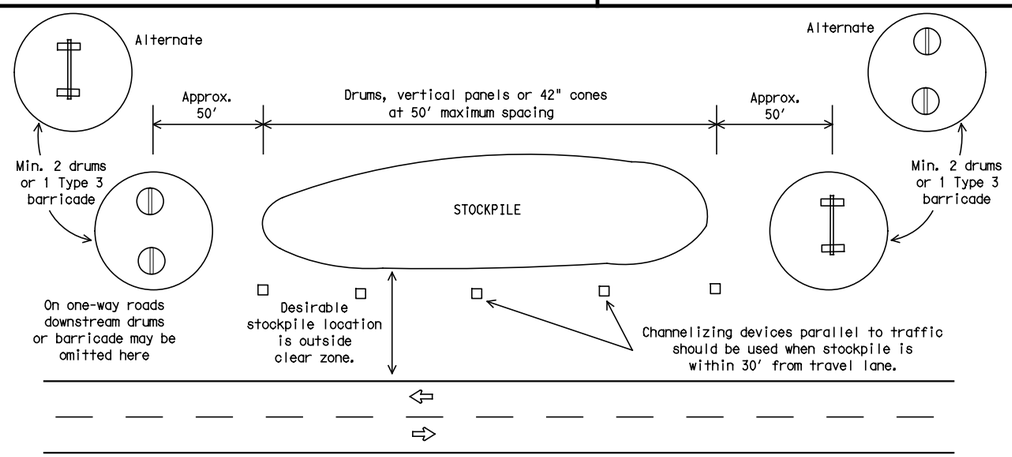


Two-Piece cones | One-Piece cones | Tubular Marker

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

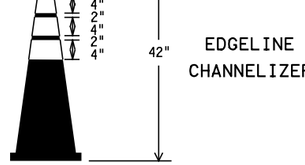
42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

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.



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.

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REVISIONS 9-07 8-14 7-13	-	-	-	-
	DIST	COUNTY		SHEET NO.
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WORK ZONE PAVEMENT MARKINGSSIMS RDSIMS RD

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.

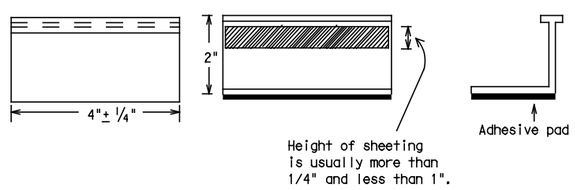
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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-ReflectiveSIMS RDSIMS RD Roadway Marker TabsSIMS RDSIMS RD



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).

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BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

BC(11)-14

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REVISIONS	-	-	-	-
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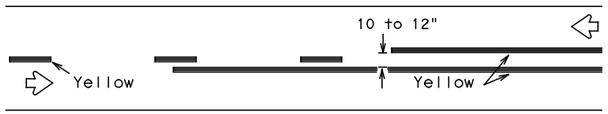
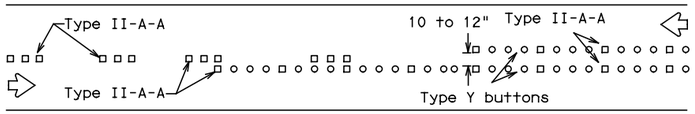
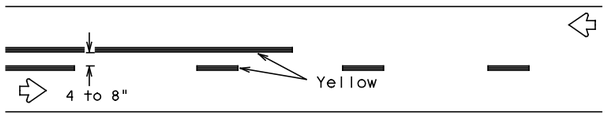
PAVEMENT MARKING PATTERNSSIMS RDSIMS RD



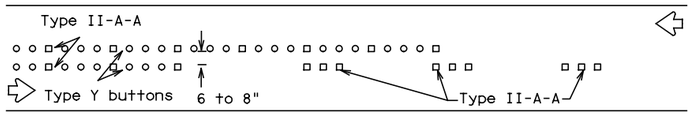
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



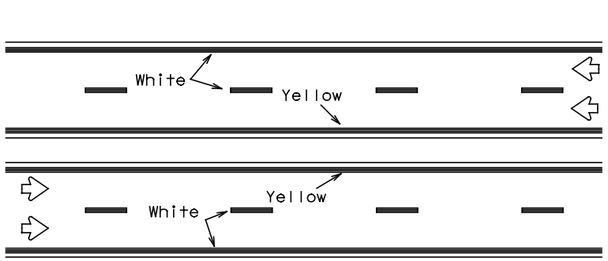
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



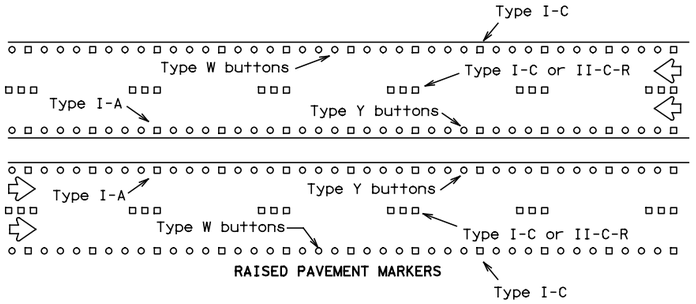
RAISED PAVEMENT MARKERS - PATTERN B

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



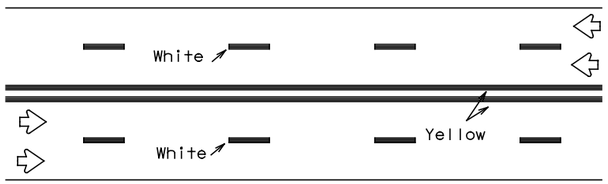
REFLECTORIZED PAVEMENT MARKINGS



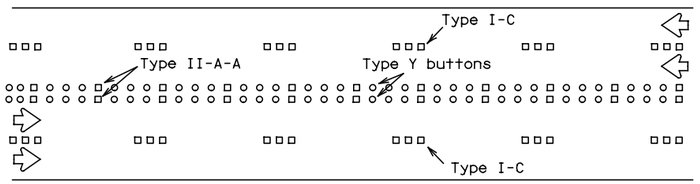
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



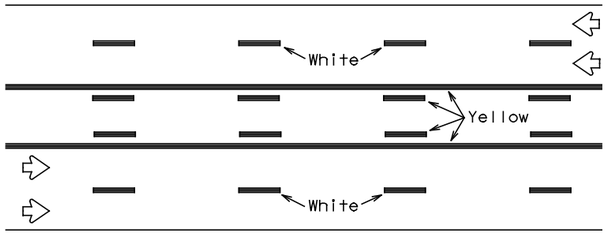
REFLECTORIZED PAVEMENT MARKINGS



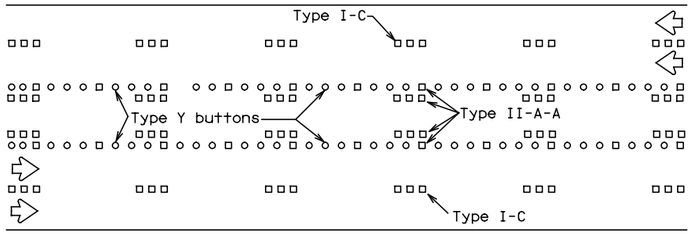
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

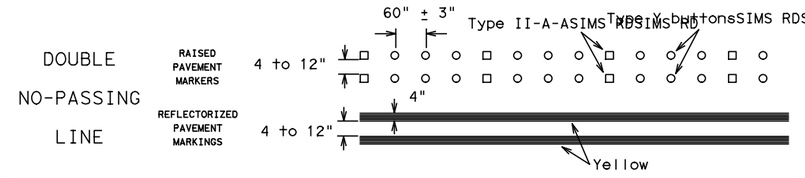
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

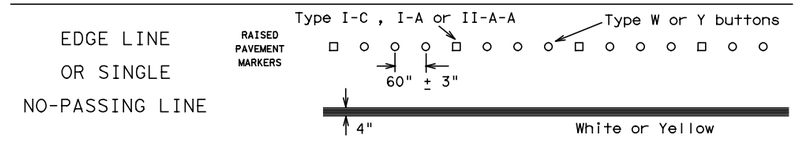
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

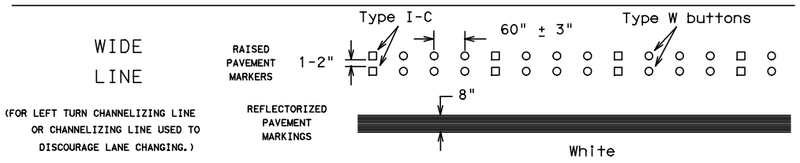


EDGE LINE OR SINGLE NO-PASSING LINE



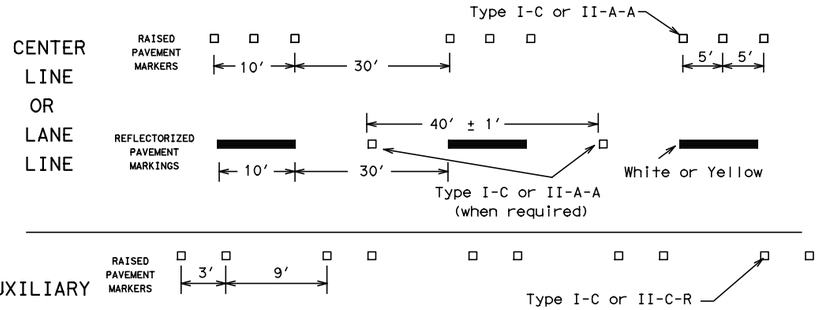
WIDE LINE

(FOR LEFT TURN CHANNELIZING LINE OR CHANNELIZING LINE USED TO DISCOURAGE LANE CHANGING.)



BROKEN LINES

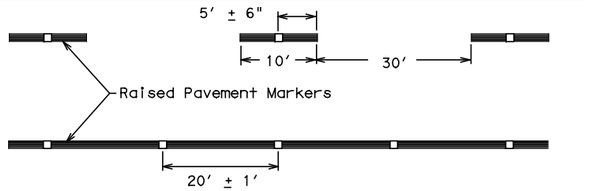
CENTER LINE OR LANE LINE



AUXILIARY OR LANEDROP LINE

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

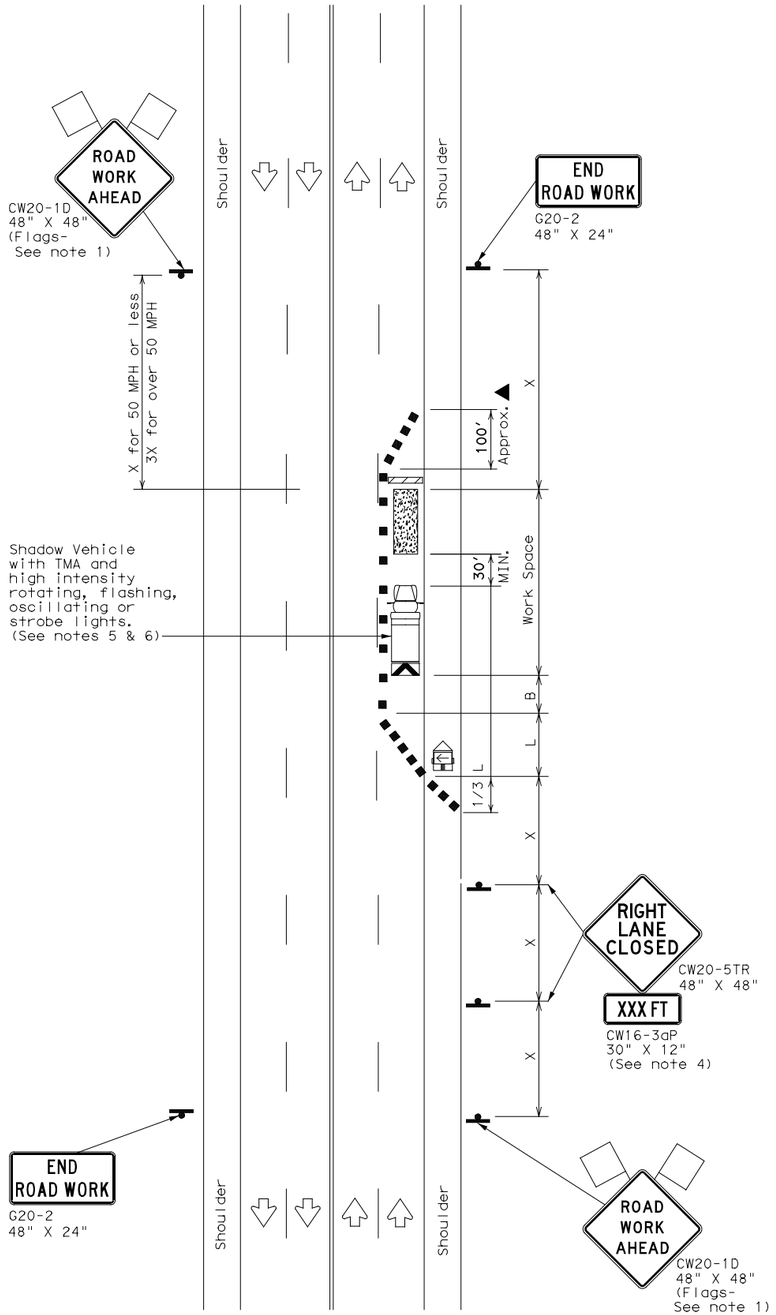
BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

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	HOU	FORT BEND		45
11-02 8-14				

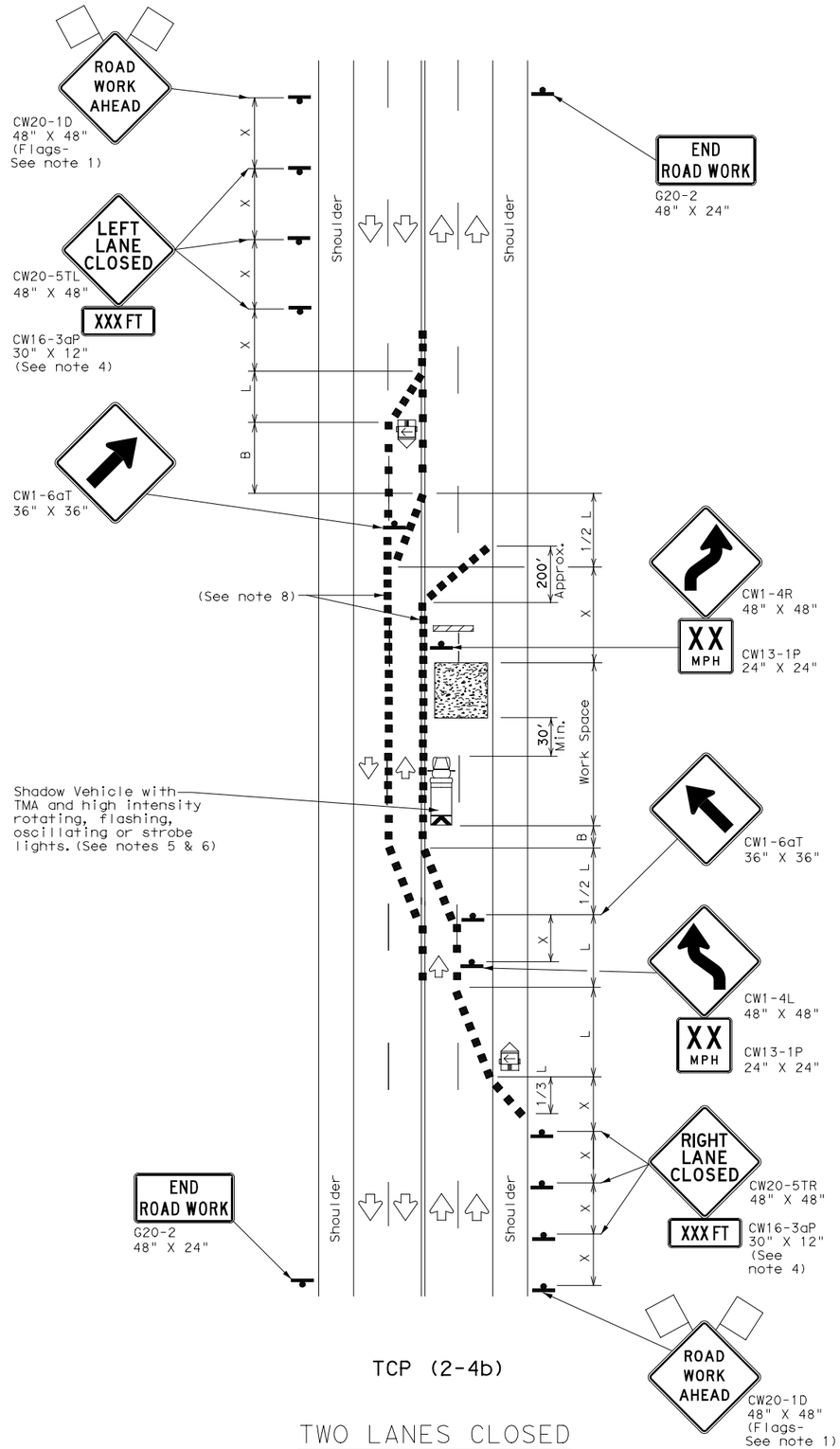
106

DATE: 7/7/2021
FILE: pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2019\2019-2073-01- Cinco Ranch Blvd Turn Lanes at FM 1093\Design\Sheet Files\Standard Details\tcp2-4-18.dgn



TCP (2-4a)

ONE LANE CLOSED



TCP (2-4b)

TWO LANES CLOSED

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

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10′ Offset	11′ Offset	12′ Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150′	165′	180′	30′	60′	120′	90′
35		205′	225′	245′	35′	70′	160′	120′
40		265′	295′	320′	40′	80′	240′	155′
45	L=WS	450′	495′	540′	45′	90′	320′	195′
50		500′	550′	600′	50′	100′	400′	240′
55		550′	605′	660′	55′	110′	500′	295′
60		600′	660′	720′	60′	120′	600′	350′
65		650′	715′	780′	65′	130′	700′	410′
70		700′	770′	840′	70′	140′	800′	475′
75		750′	825′	900′	75′	150′	900′	540′

* Conventional Roads Only

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

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

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. The downstream taper is optional. When used, it should be 100 feet minimum length per lane.
4. For short term applications, when post mounted signs are not used, the distance legend may be shown on the sign face rather than on a CW16-3aP supplemental plaque.
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 in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.

TCP (2-4a)

7. If this TCP is used for a left lane closure, CW20-5TL "LEFT LANE CLOSED"signs shall be used and channelizing devices shall be placed on the centerline to protect the work space from opposing traffic with the arrow board placed in the closed lane near the end of the merging taper.

TCP (2-4b)

8. For shorter durations where traffic is directed over a yellow centerline, channelizing devices which separate two-way traffic should be spaced on tapers at 20′ or 15′ if posted speeds are 35 mph or slower, and for tangent sections, at 1/2(S) where S is the speed in mph. This tighter devices spacing is intended for the area of conflicting markings, not the entire work zone.

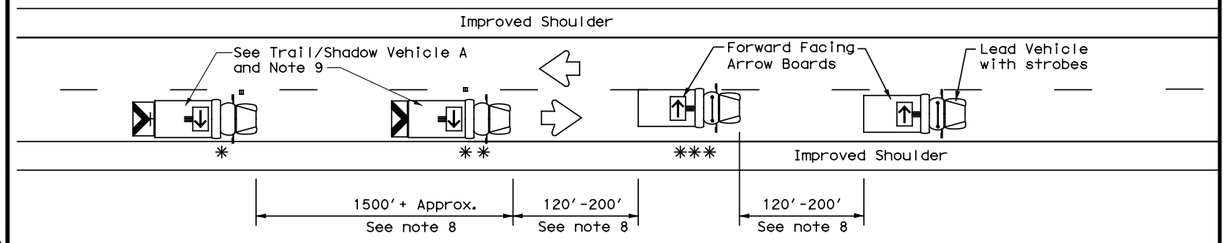
Texas Department of Transportation — Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS

TCP (2-4)-18

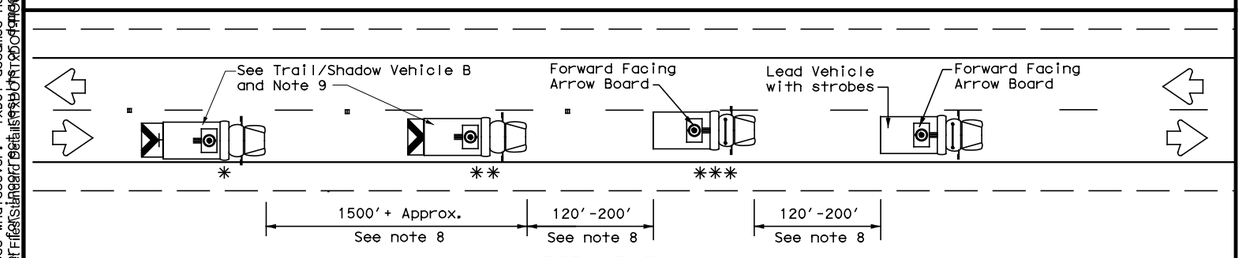
FILE: tcp2-4-18.dgn	DN:	CK:	DW:	CK:
©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	-	-	-	-
8-95 3-03	DIST	COUNTY		SHEET NO.
1-97 2-12	HOU	FORT BEND		46
4-98 2-18				

DATE:7/7/2021
FILE:pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2019\2019-2073-01- Cinco Ranch Blvd Turn Lanes\Design\Plans\Standard Details\TxDOT\tcp3-3.dgn



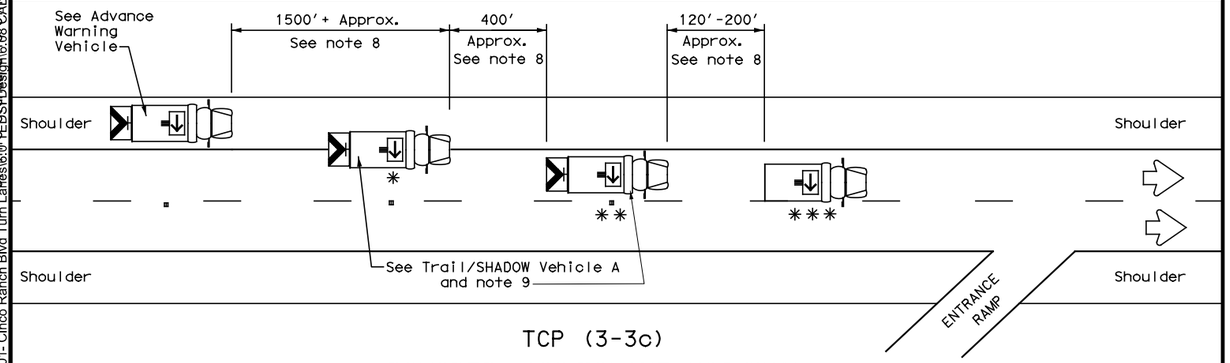
TCP (3-3a)

TWO LANE HIGHWAY WITH PAVED SHOULDERS (WORK ON TRAVEL LANE)



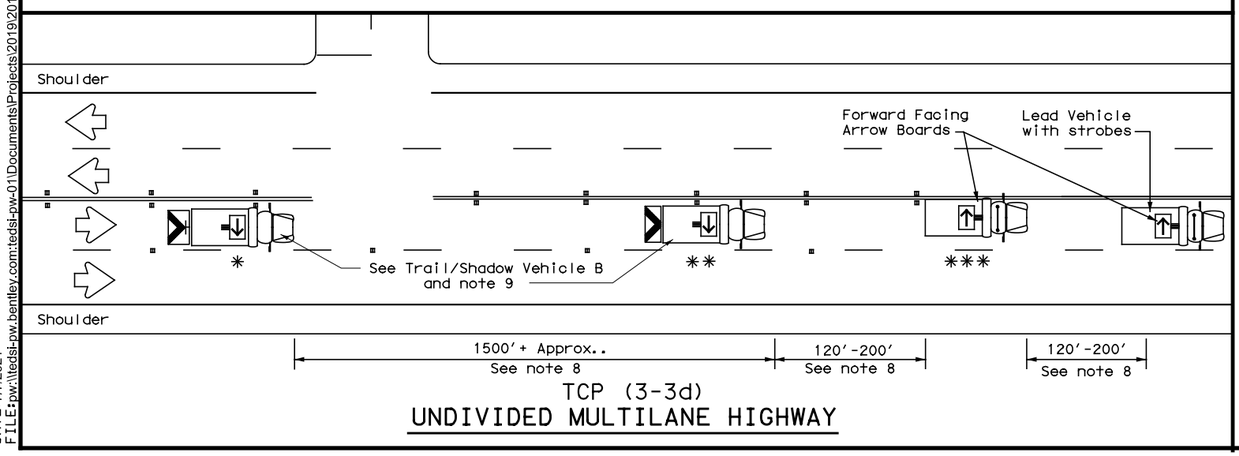
TCP (3-3b)

TWO LANE HIGHWAY WITHOUT PAVED SHOULDERS (WORK ON TRAVEL LANE)



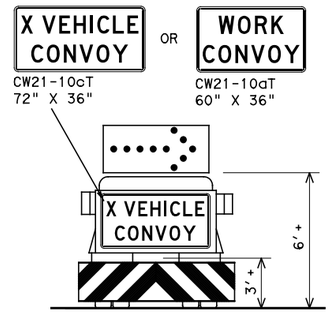
TCP (3-3c)

DIVIDED MULTILANE HIGHWAY



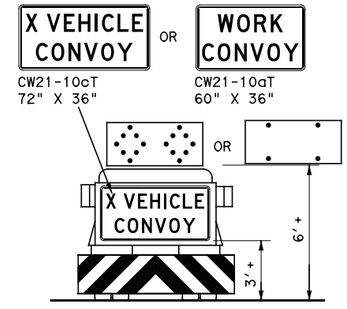
TCP (3-3d)

UNDIVIDED MULTILANE HIGHWAY



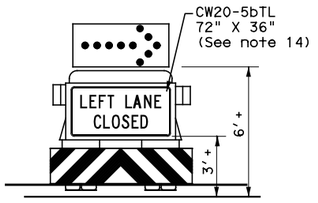
TRAIL/SHADOW VEHICLE A

with RIGHT Directional display
Flashing Arrow Board

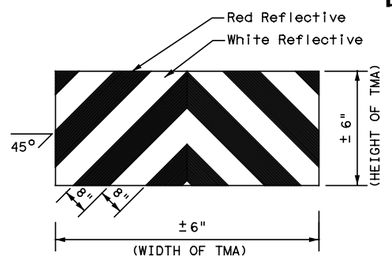


TRAIL/SHADOW VEHICLE B

with Flashing Arrow Board
in Caution Mode



ADVANCE WARNING VEHICLE



STRIPING FOR TMA

LEGEND			
*	Trail Vehicle	ARROW BOARD DISPLAY	
**	Shadow Vehicle		
***	Work Vehicle		RIGHT Directional
	Heavy Work Vehicle		LEFT Directional
	Truck Mounted Attenuator (TMA)		Double Arrow
	Traffic Flow		CAUTION (Alternating Diamond or 4 Corner Flash)

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

GENERAL NOTES

1. TRAIL, SHADOW, and LEAD vehicles shall be equipped with arrow boards as illustrated. When a LEAD vehicle is not used on two way roads the WORK vehicle must have an arrow board. For divided roadways, the arrow board on the WORK vehicle is optional based on the type of work being performed. The Engineer will determine if the LEAD vehicle and/or TRAIL vehicle are required based on prevailing roadway conditions, traffic volume, and sight distance restrictions.
2. The use of amber high intensity rotating, flashing, oscillating, or strobe lights on vehicles are required. Blue high intensity rotating, flashing, oscillating, or strobe lights when mounted on the driver's side of the vehicle may be operated simultaneously with the amber beacons or strobe lights.
3. The use of truck mounted attenuators (TMA) on the SHADOW VEHICLE, ADVANCE WARNING and TRAIL VEHICLE are required.
4. Reflective sheeting on the rear of the TMA shall meet or exceed the reflectivity and color requirements of DEPARTMENTAL MATERIAL SPECIFICATION DMS 8300, Type A.
5. Flashing arrow boards shall be Type B or Type C as per the Barricade and Construction (BC) standards. The board shall be controlled from inside the vehicle.
6. Each vehicle shall have two-way radio communication capability.
7. When work convoys must change lanes, the TRAIL VEHICLE should change lanes first to shadow the other convoy vehicles.
8. Vehicle spacing between the TRAIL VEHICLE and the SHADOW VEHICLE will vary depending on sight distance restrictions. Motorists approaching the convoy should be able to see the TRAIL VEHICLE in time to slow down and/or change lanes as they approach the TRAIL VEHICLE. Vehicle spacing between the WORK VEHICLE and SHADOW VEHICLE and vehicle spacing between WORK VEHICLE and LEAD VEHICLE may vary according to terrain, work activity and other factors.
9. X VEHICLE CONVOY (CW21-10cT) or WORK CONVOY (CW21-10aT) signs shall be used on TRAIL VEHICLES and SHADOW VEHICLES as shown. As an option 48" x 48" diamond shaped WORK CONVOY (CW21-10T) or X VEHICLE CONVOY (CW21-10bT) signs may be used where adequate mounting space exists. When used, the X VEHICLE CONVOY sign shall have the number of the convoy vehicles displayed on the sign in the number designation "X" location. The X VEHICLE CONVOY sign shall not be used on the SHADOW VEHICLE if a TRAIL VEHICLE is used.
10. For divided highways with two or three lanes in one direction, the appropriate LEFT LANE CLOSED (CW20-5bTL), RIGHT LANE CLOSED (CW20-5bTR), or CENTER LANE CLOSED (CW20-5dT) sign should be used on the Advance Warning Vehicle. As an option, a portable changeable message sign (PCMS) or truck mounted changeable message sign (TMCMS) with a minimum character height of 12", and displaying the same legend may be substituted for these signs. An appropriate directional arrow display, simulating the size and legibility of the flashing arrow board may be used in the second phase of the PCMS/TMCMS message. When this is done, the arrow board will not be required on the Advance Warning Vehicle.
11. A double arrow shall not be displayed on the arrow board on the Advance Warning Vehicle.
12. For divided highways with three or four lanes in each direction, use TCP(3-2).
13. Standard diamond shape versions of the CW20-5 series signs may be used as an option if the rectangular signs shown are not available.
14. The Advance Warning Vehicle may straddle the edgeline when Shoulder width makes it necessary.
15. On two-lane two-way roadways, the work and protection vehicles should pull over periodically to allow motor vehicle traffic to pass. If motorists are not allowed to pass the work convoy, a DO NOT PASS (R4-1) sign should be placed on the back of the rearmost protection vehicle.

Texas Department of Transportation

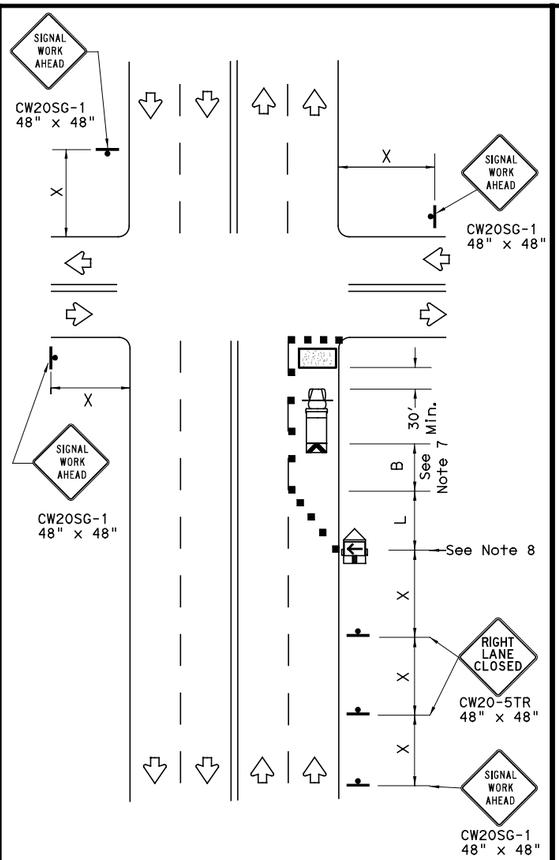
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN MOBILE OPERATIONS RAISED PAVEMENT MARKER INSTALLATION/ REMOVAL

TCP(3-3)-14

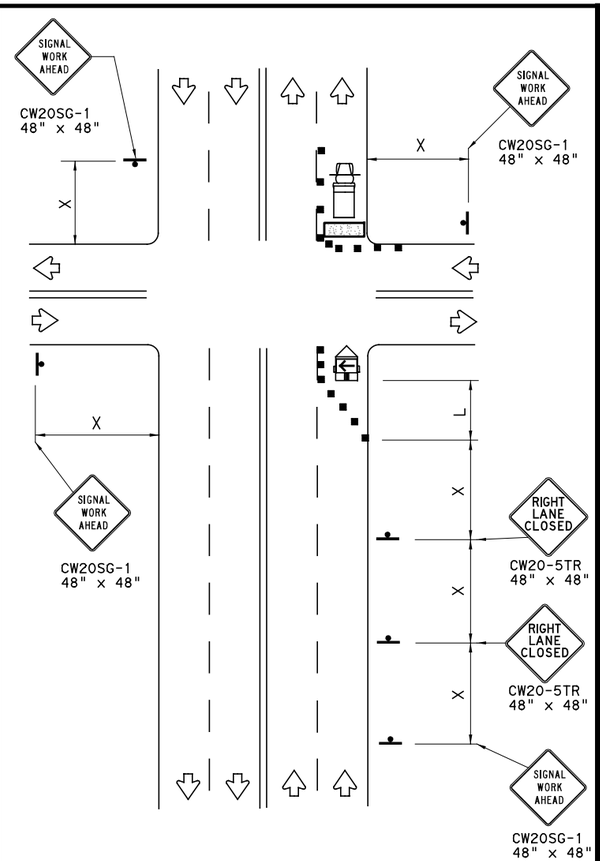
FILE: tcp3-3.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT September 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	-	-	-	-
2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 7-13				
1-97 7-14	HOU	FORT BEND		47

DATE: 7/7/2021
FILE: pw:\\tedsl-pw.bentley.com:tedsl-pw-01\Documents\Projects\2019\2019-2073-01-Cinco Ranch Blvd Turn Lanes\800 PE\SHEET FILES\Standard Details\TRAFFIC CONTROL\WZBTS-1-13.dgn



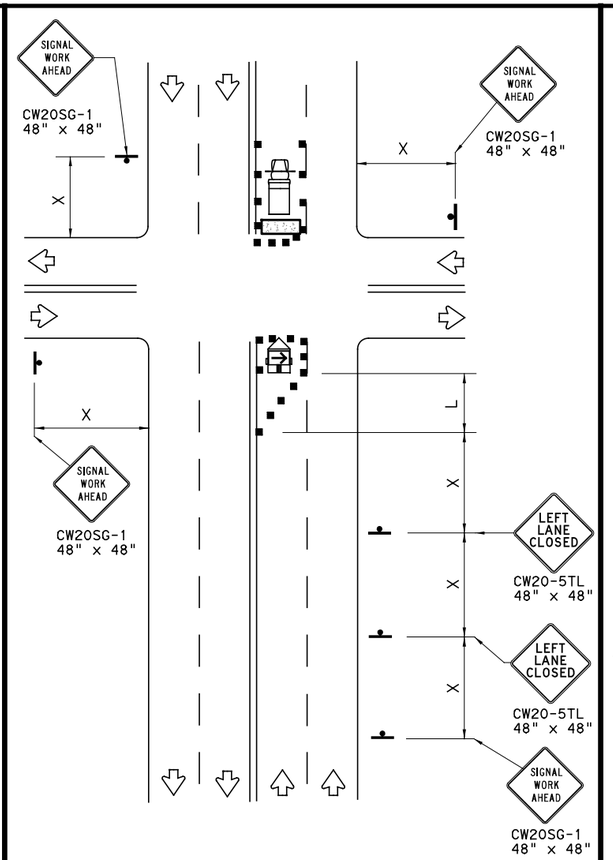
NEAR SIDE LANE CLOSURE

SHORT DURATION OR SHORT TERM STATIONARY



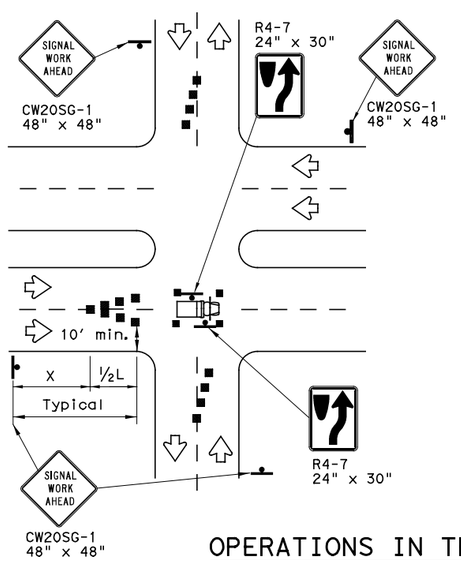
FAR SIDE RIGHT LANE CLOSURE

SHORT DURATION OR SHORT TERM STATIONARY



FAR SIDE LEFT LANE CLOSURE

SHORT DURATION OR SHORT TERM STATIONARY



OPERATIONS IN THE INTERSECTION

SHORT DURATION

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

Posted Speed ✳	Formula	Minimum Desirable Taper Lengths ✳✳ 10′ Offset	11′ Offset	12′ Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150′	165′	180′	30′	60′	120′	90′
35		205′	225′	245′	35′	70′	160′	120′
40		265′	295′	320′	40′	80′	240′	155′
45	L=WS	450′	495′	540′	45′	90′	320′	195′
50		500′	550′	600′	50′	100′	400′	240′
55		550′	605′	660′	55′	110′	500′	295′
60		600′	660′	720′	60′	120′	600′	350′
65		650′	715′	780′	65′	130′	700′	410′
70		700′	770′	840′	70′	140′	800′	475′
75		750′	825′	900′	75′	150′	900′	540′

✳ Conventional Roads Only

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

WORKERS IN BUCKET TRUCKS SHALL NOT WORK ABOVE OPEN LANES OF TRAFFIC.

GENERAL NOTES

1. The minimum size channelizing device is the 28" cone. 42" Two-piece cones, drums, vertical panels or barricades will be required when the device must be left unattended at night.
2. Obstructions or hazards at the work area shall be clearly marked and delineated at all times.
3. Flaggers and Flagger Symbol (CW20-7) signs may be required according to field conditions.
4. Vehicles parked in roadway shall be equipped with at least two high intensity rotating, flashing, oscillating or strobe type lights.
5. High level warning devices (flag trees) may be used at corners of the vehicle.
6. When work operations are performed on existing signals, the signals may be placed in flashing red mode when approved by the engineer. If existing signals do not have power, All-Way Stop (R1-1 and R1-3P) signs may be implemented when approved by the engineer.
7. For Short-Term Stationary work the buffer space "B" from the above table should be used if field conditions permit. For Short Duration (less than 1 hour) any buffer space provided will enhance the safety of the setup.
8. The arrow board at this location may be omitted for Short Duration work if the work vehicle has an arrow board in operation. As an option, the arrow board may be placed at the end of the taper in the closed lane if space is not available at the beginning of the taper.
9. Signs and devices for the NEAR SIDE LANE CLOSURE may be altered for a left lane closure by using a LEFT LANE CLOSED (CW20-5TL) and adding channelizing devices on the centerline to protect the work space from opposing traffic.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC SIGNAL WORK TYPICAL DETAILS

WZ(BTS-1)-13

FILE: wzbts-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 1992	CONT	SECT	JOB	HIGHWAY
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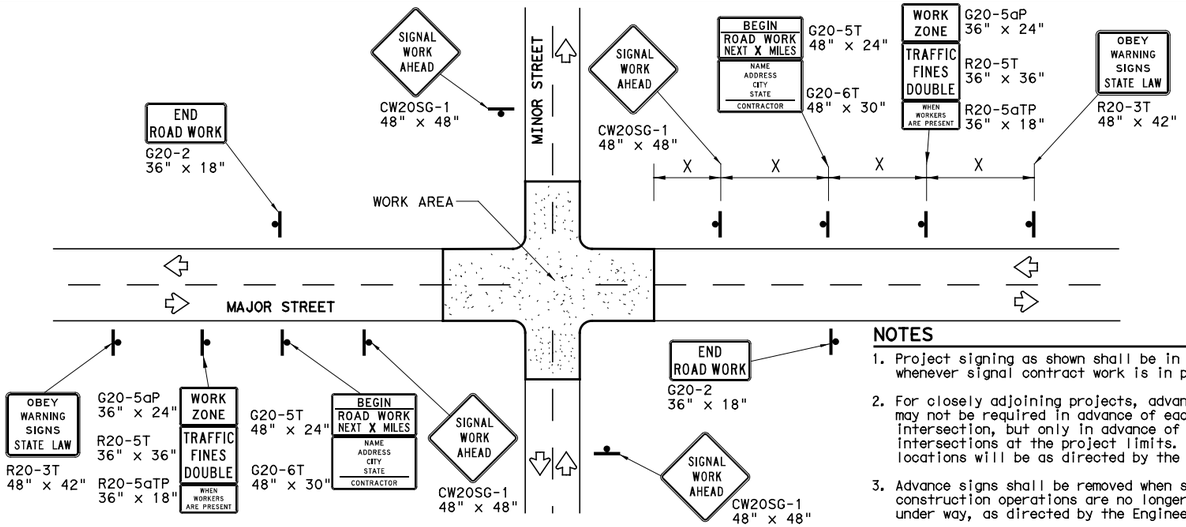
2-98 10-99 7-13	DIST	COUNTY		SHEET NO.
4-98 3-03	HOU	FORT BEND		48

DATE: 7/7/2021
FILE: pw:\\tedsl-pw.bentley.com:tedsl-pw-01\Documents\Projects\2019\2019-2073-01-Cinco Ranch Blvd Turn Lanes\Roadway Details\wzbts-13.dgn



TYPICAL ADVANCE SIGNAL PROJECT SIGNING

FOR LONG TERM and INTERMEDIATE-TERM STATIONARY WORK OPERATIONS

NOTES

1. Project signing as shown shall be in place whenever signal contract work is in progress.
2. For closely adjoining projects, advance signing may not be required in advance of each intersection, but only in advance of the intersections at the project limits. Actual locations will be as directed by the Engineer.
3. Advance signs shall be removed when signal construction operations are no longer under way, as directed by the Engineer.
4. Warning sign spacing shown is typical for both directions.
5. See the Table on sheet 1 of 2 for Typical warning sign spacing.

GENERAL NOTES FOR WORK ZONE SIGNS

1. Signs shall be installed and maintained in a straight and plumb condition.
2. Wooden sign posts shall be painted white.
3. Barricades shall NOT be used as sign supports.
4. Nails shall NOT be used to attach signs to any support.
5. All signs shall be installed in accordance with the plans or as directed by the Engineer.
6. The Contractor shall furnish the sign design shown in the plans or in the "Standard Highway Sign Designs for Texas" (SHSD).
7. The Contractor shall furnish sign supports and substrates listed in the "Compliant Work Zone Traffic Control Device List" (CWZTCD), installed as per the manufacturer's recommendations.
8. Temporary signs that have damaged or cracked substrates and/or damaged or marred reflective sheeting shall be replaced as directed by the Engineer.
9. 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".
10. Damaged wood posts shall be replaced. Splicing wood posts will not be allowed.

DURATION OF WORK

1. Work zone durations are defined in Part 6, Section 6G.02 of the Texas Manual on Uniform Traffic Control Devices (TMUTCD).

SIGN MOUNTING HEIGHT

1. Sign height of Long-term/Intermediate-term warning signs shall be as shown on Figure 6F-1 of the TMUTCD.
2. Sign height of Short-term/Short Duration warning signs shall be as shown on Figure 6F-2 of the TMUTCD.
3. Regulatory signs shall be mounted at least 7 feet, but not more than 9 feet, above the paved surface regardless of work duration.

REMOVING OR COVERING

1. When sign messages may be confusing or do not apply, the signs shall be removed or completely covered, unless otherwise approved by the Engineer.
2. When signs are covered, the material used shall be opaque, such as heavy mil black plastic, or other materials which will cover the entire sign face and maintain their opaque properties under automobile headlights at night without damaging the sign sheeting. Burlap, or heavy materials such as plywood or aluminum shall not be used to cover signs.
3. Duct tape or other adhesive material shall NOT be affixed to a sign face.
4. Signs and anchor stubs shall be removed and holes back filled upon completion of the work.

REFLECTIVE SHEETING

1. All signs shall be retroreflective and constructed of sheeting meeting the requirements of the DMS and color usage table shown on this sheet.

SIGN SUPPORT WEIGHTS

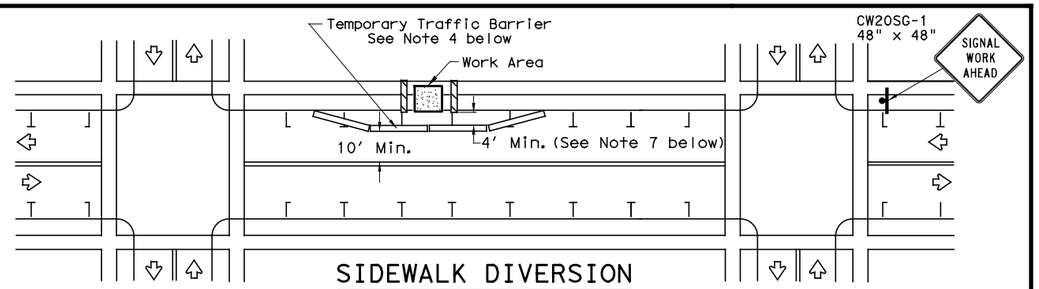
1. Weights used to keep signs from turning over should be sandbags filled with dry, cohesionless material.
2. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
3. Rock, concrete, iron, steel or other solid objects will not be permitted for use as sign support 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 fastners. 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.

LEGEND	
	Sign
	Channelizing Devices
	Type 3 Barricade

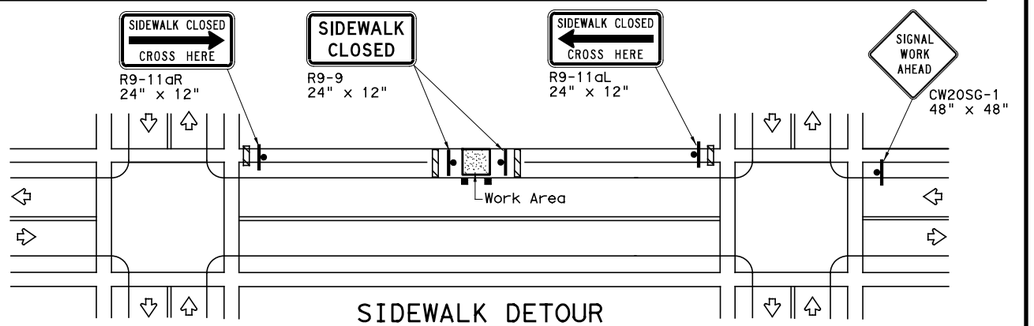
DEPARTMENTAL MATERIAL SPECIFICATIONS	
SIGN FACE MATERIALS	DMS-8300
FLEXIBLE ROLL-UP REFLECTIVE SIGNS	DMS-8310

COLOR	USAGE	SHEETING MATERIAL
ORANGE	BACKGROUND	TYPE B_{FL} OR TYPE C_{FL} SHEETING
WHITE	BACKGROUND	TYPE A SHEETING
BLACK	LEGEND & BORDERS	ACRYLIC NON-REFLECTIVE SHEETING

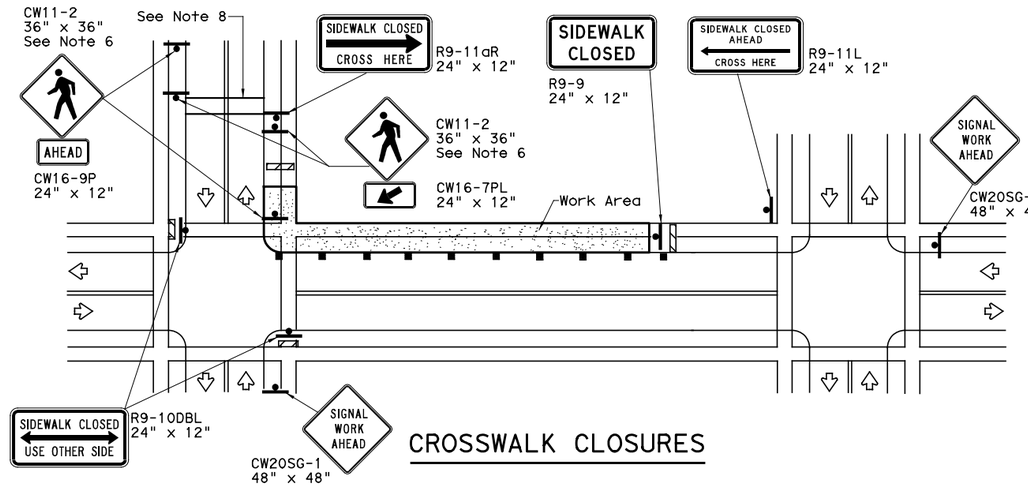
Only pre-qualified products shall be used. A copy of the "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be found at the following web address:
http://www.txdot.gov/txdot_library/publications/construction.htm



SIDEWALK DIVERSION



SIDEWALK DETOUR



CROSSWALK CLOSURES

PEDESTRIAN CONTROL

1. Holes, trenches or other hazards shall be adequately protected by covering, delineating or surrounding the hazard with orange plastic pedestrian fencing or longitudinal channelizing devices, or as directed by the Engineer.
2. "CROSSWALK CLOSURES" as detailed above will require the Engineer's approval prior to installation.
3. R9 series signs shown may be placed on supports detailed on the BC standards or CWZTCD list, or when fabricated from approved lightweight plastic substrates, they may be mounted on top of a plastic drum at or near the location shown.
4. For speeds less than 45 mph longitudinal channelizing devices may be used instead of traffic barriers when approved by the Engineer. Attenuation of blunt ends and installation of water filled devices shall be as per BC(9) and manufacturer's recommendations.
5. Location of devices are for general guidance. Actual device spacing and location must be field adjusted to meet actual conditions.
6. Where pedestrians with visual disabilities normally use the closed sidewalk Detectable Pedestrian Barricades should be used instead of the Type 3 Barricades shown.
7. The width of existing sidewalk should be maintained if practical.
8. Pavement markings for mid-block crosswalks shall be paid for under the appropriate bid items.
9. When crosswalks or other pedestrian facilities are closed or relocated, temporary facilities shall be detectable and shall include accessibility features consistent with the features present in the existing pedestrian facility.

Texas Department of Transportation | Traffic Operations Division Standard

TRAFFIC SIGNAL WORK BARRICADES AND SIGNS

WZ(BTS-2)-13

FILE: wzbts-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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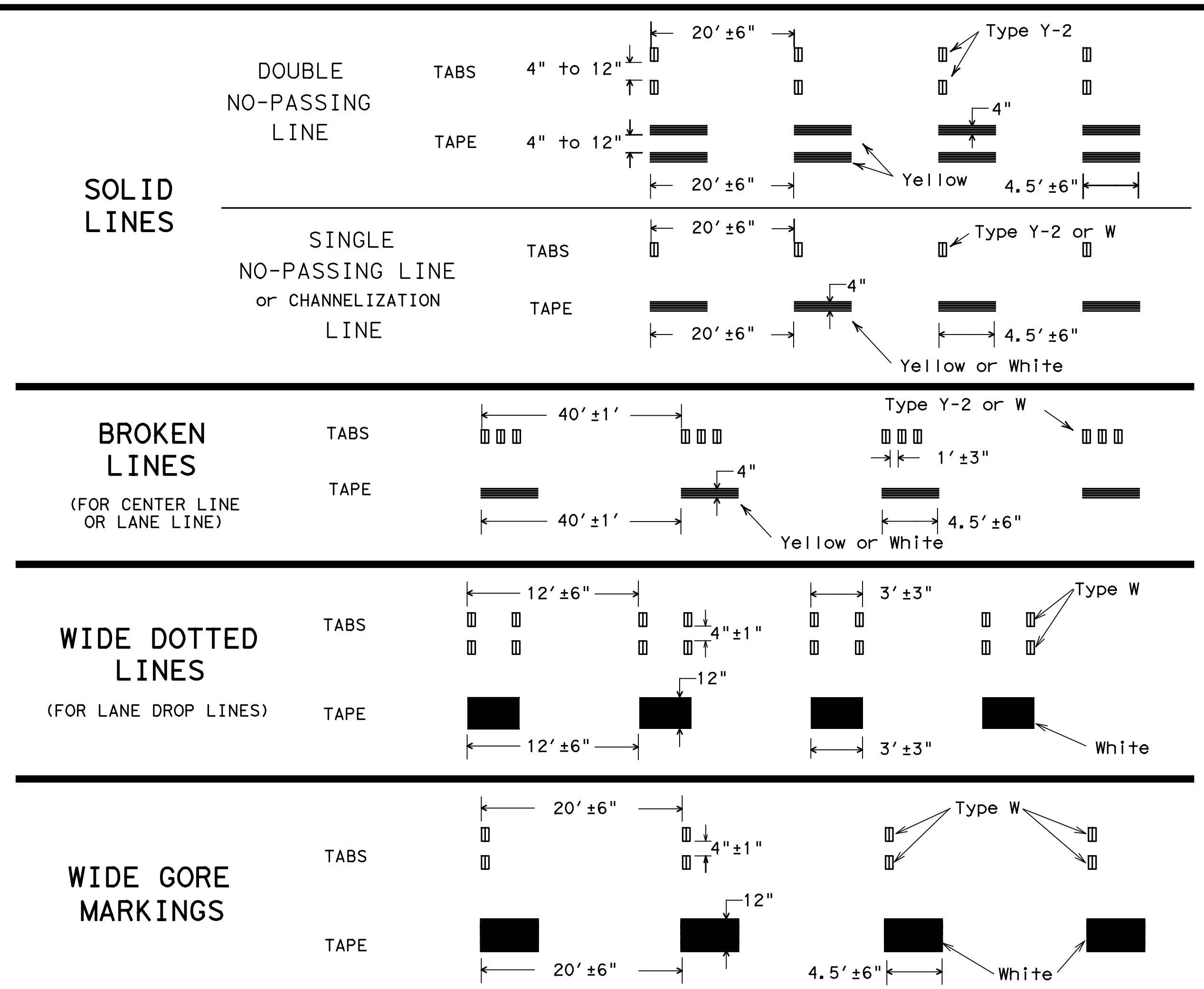
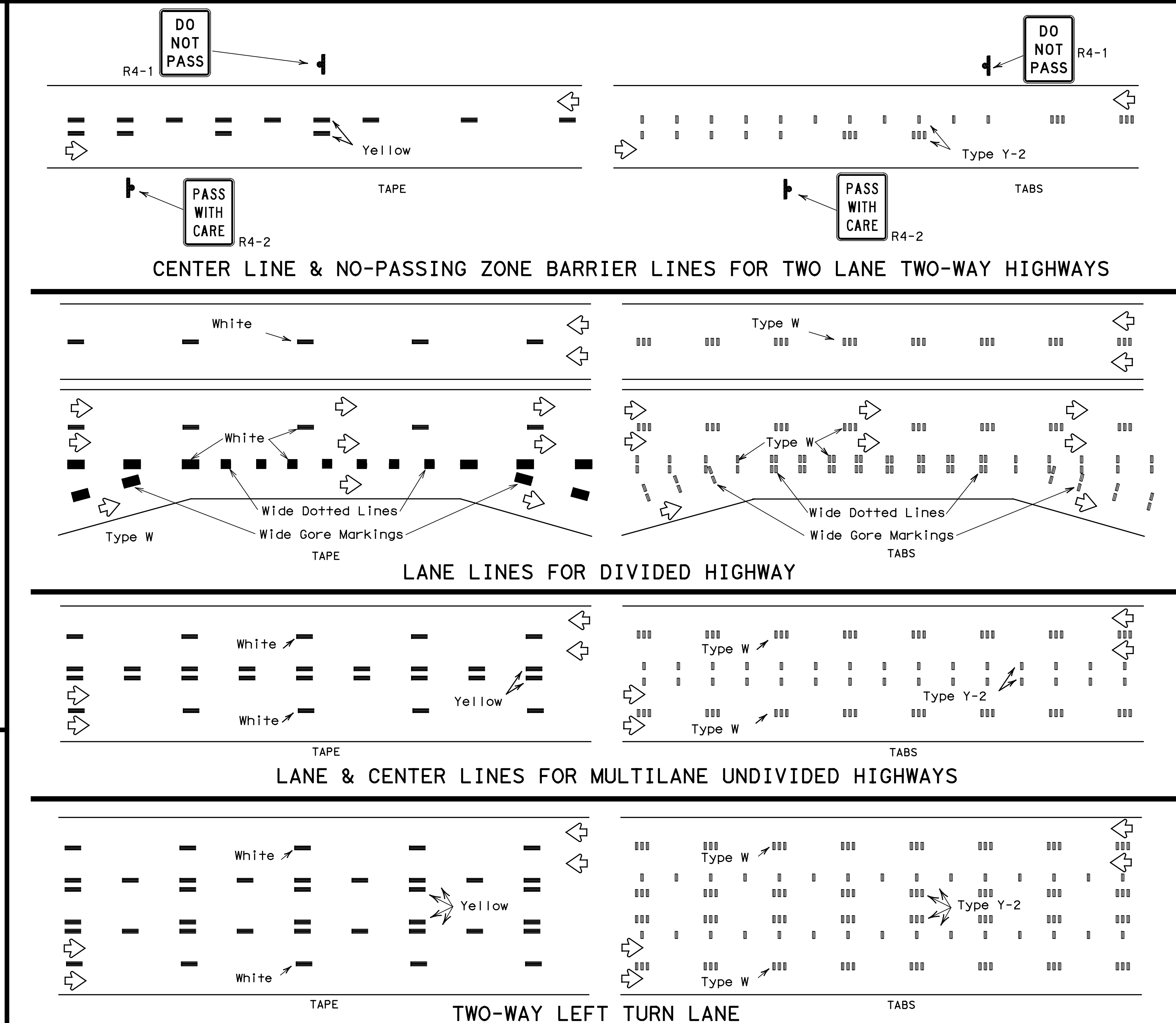
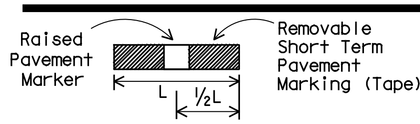
REVISIONS	-	-	-	-
2-98 10-99 7-13	DIST	COUNTY		SHEET NO.
4-98 3-03	HOU	FORT BEND		49

WORK ZONE SHORT TERM PAVEMENT MARKINGS DETAILS



WORK ZONE SHORT TERM PAVEMENT MARKINGS PATTERNS





If raised pavement markers are used to supplement REMOVABLE short term markings, the markers shall be applied to the top of the tape at the approximate mid length of the tape. This allows an easier removal of raised markers and tape.

NOTES:

1. Short term pavement markings may be prefabricated markings (stick down tape) or temporary flexible-reflective roadway marker tabs unless otherwise specified elsewhere in plans.
2. Short term pavement markings shall NOT be used to simulate edge lines.
3. Dimensions indicated on this sheet are typical and approximate. Variations in size and height may occur between markers or devices made by manufacturers, by as much as 1/4 inch, unless otherwise noted.
4. Temporary flexible-reflective roadway marker tabs will require normal maintenance replacement when used on roadways with an ADT per lane of up to 7500 vehicles with no more than 10% truck mix. When roadways exceed these values, additional maintenance replacement of devices should be planned.
5. No segment of roadway open to traffic shall remain without permanent pavement markings for a period greater than 14 calendar days. The Contractor will be responsible for maintaining short term pavement markings until permanent pavement markings are in place. When the Contractor is responsible for placement of permanent pavement markings, no segment of roadway shall remain without permanent pavement markings for a period greater than 14 calendar days unless weather conditions prohibit placement. Permanent pavement markings shall be placed as soon as weather permits.
6. For two lane, two-way roadways, DO NOT PASS signs shall be erected to mark the beginning of sections where passing is prohibited and PASS WITH CARE signs shall be erected to mark the beginning of sections where passing is permitted. Signs shall be in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) and may be used to indicate the limits of no-passing zones for up to 14 calendar days. Permanent pavement markings should then be placed.
7. For low volume two lane, two-way roadways of 4000 ADT or less, no-passing lines may be omitted when approved by the Engineer. DO NOT PASS and PASS WITH CARE signs shall be erected (see note 6).
8. For exit gores where a lane is being dropped place wide gore markings or retroreflective channelizing devices to guide motorist through the exit. If channelizing devices are to be used it should be noted elsewhere in the plans. One piece cones are not allowed for this purpose.

TEMPORARY FLEXIBLE, REFLECTIVE ROADWAY MARKER TABS (TABS)

1. Temporary flexible-reflective roadway marker tabs detailed on this sheet will be designated Type Y-2 (two amber reflective surfaces with yellow body); Type Y (one amber reflective surface with yellow body); and Type W (one white or silver reflective surface with white body). Additional details may be found on BC(11).
2. Tabs shall meet requirements of Departmental Material Specification DMS-8242.
3. When dry, tabs shall be visible for a minimum distance of 200 feet during normal daylight hours and when illuminated by automobile low-beam head light at night, unless sight distance is restricted by roadway geometrics.
4. No two consecutive tabs nor four tabs per 1000 feet of line shall be missing or fail to meet the visual performance requirements of Note 3.

PREFABRICATED PAVEMENT MARKINGS

1. Temporary Removable Prefabricated Pavement Markings shall meet the requirements of DMS-8241.
2. Non-removable Prefabricated Pavement Markings shall meet the requirements of either DMS-8240 "Permanent Prefabricated Pavement Markings" or DMS-8243 "Temporary Costruction-Grade Prefabricated Pavement Markings."

RAISED PAVEMENT MARKERS

1. All raised pavement markers used for work zone markings shall meet the requirements of Item 672, "RAISED PAVEMENT MARKERS" and DMS-4200.

DEPARTMENTAL MATERIAL SPECIFICATIONS (DMS) & MATERIAL PRODUCER LISTS (MPL)

1. DMSs referenced above can be found along with embedded links to their respective MPLs at the following website:
http://www.txdot.gov/business/contractors_consultants/material_specifications/default.htm

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Texas Department of Transportation | Traffic Operations Division Standard

WORK ZONE SHORT TERM PAVEMENT MARKINGS

WZ(STPM)-13

FILE: wzstpm-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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1-97 3-03 7-13	DIST	COUNTY		SHEET NO.
	HOU	FORT BEND		50

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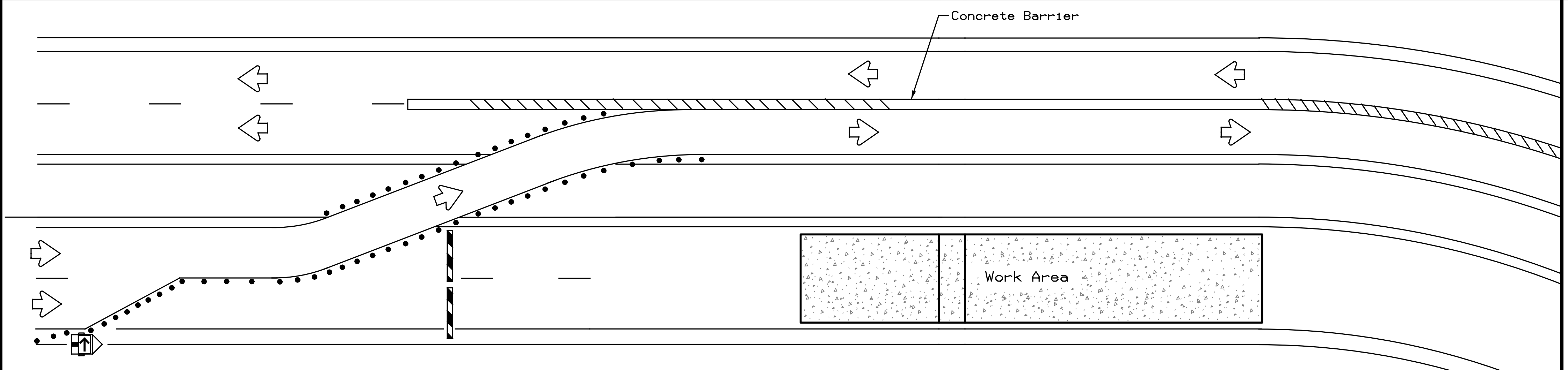


NOTES:

1. Length of Safety Glare screen will be specified elsewhere in the plans.
2. The cumulative nominal length of the modular safety glare screen units shall equal the length of the individual sections of temporary concrete traffic barrier on which they are installed so the joint between barrier sections will not be spanned by any one safety glare screen unit.
3. Screen Panel/blades will be designed such that reflective sheeting conforming with Departmental Material Specification DMS-8300, Sign Face Materials, Type B or C Yellow, minimum size of 2 inches by 12 inches can be attached to the edge of the panel/blade. The sheeting shall be attached to one glare screen panel/blade per section of concrete barrier not to exceed a spacing of 30 feet. Barrier reflectors are not necessary when panel/blades are installed with reflective sheeting as described.
4. Payment for these devices will be under statewide Special Specification "Modular Glare Screens for Headlight Barrier."
5. This detail is only intended to show types of locations where Glare Screens would be appropriate. Required signing and other devices shall be as shown elsewhere in the plans.

BARRIER DELINEATION WITH MODULAR GLARE SCREENS

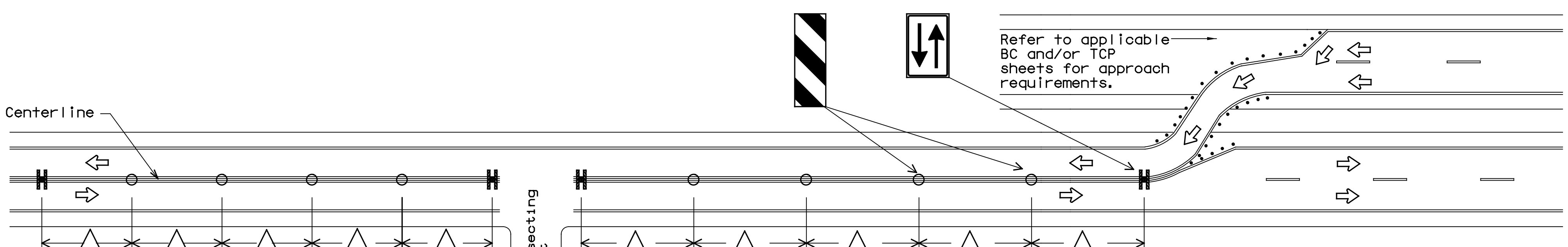
LEGEND

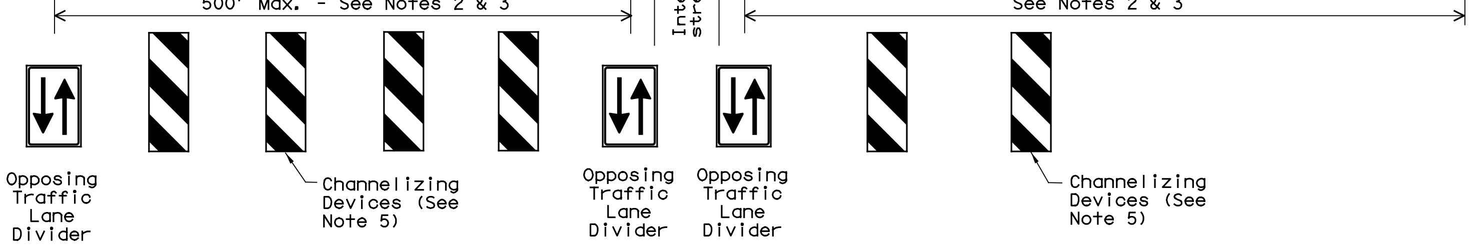
Symbol	Description
(barricade symbol)	Type 3 Barricade
• • •	Channelizing Devices
(arrow board symbol)	Trailer Mounted Flashing Arrow Board
(sign symbol)	Sign
\\\\	Safety glare screen

DEPARTMENTAL MATERIAL SPECIFICATIONS	
SIGN FACE MATERIALS	DMS-8300
DELINEATORS AND OBJECT MARKERS	DMS-8600
MODULAR GLARE SCREENS FOR HEADLIGHT BARRIER	DMS-8610

Only pre-qualified products shall be used. A copy of the Compliant Work Zone Traffic Control Devices List" CWZTCD) describes pre-qualified products and their sources and may be found at the following web address:

http://www.txdot.gov/business/resources/producer-list.html





VERTICAL PANELS & OPPOSING TRAFFIC LANE DIVIDERS (OTLD)
SEPARATING TWO-WAY TRAFFIC ON NORMALLY DIVIDED HIGHWAYS

NOTES:

1. When two-lane, two way traffic control must be maintained on one roadway of a normally divided highway, opposing traffic shall be separated with either temporary traffic barriers, channelizing devices, or a temporary raised island throughout the length of the two way operation. The above Typical Application is intended to show the appropriate application of channelizing devices when they are used for this purpose. This is not a traffic control plan. If this detail is to be used for other types of roads or applications, those locations should be stated elsewhere in the plans.
2. △ Space devices according to the Tangent Spacing shown on the Device Spacing table on BC(9) but not exceeding 100'.
3. Every fifth device should be an OTLD except when spaced closer to accommodate an intersection. An OTLD should be the first device on each side of intersecting streets or roads.
4. Locations where surface mount bases with adhesives or self-righting devices will be required in order to maintain them in their proper position should be noted elsewhere in the plans.
5. Channelizing devices are to be vertical panels, 42" cones or tubular markers that are at least 36" tall. Tubular markers used to separate traffic should have a rubber base weighing at least 30 pounds. Tubular markers that are 42" tall or more shall have four bands of reflective material as detailed for 42" cones on BC(10). Tubular markers less than 42" but at least 36" tall shall have three bands of 3" wide white reflective material spaced 2" apart. Reflective material shall meet DMS-8300, Type A.

Texas Department of Transportation — Traffic Operations Division Standard

TRAFFIC CONTROL PLAN TYPICAL DETAILS

WZ(TD)-17

FILE: wztd-17.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
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4-98 2-17 / 3-03 / 7-13	DIST	COUNTY		SHEET NO.
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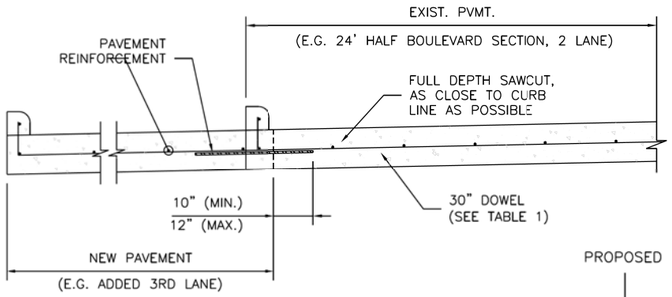
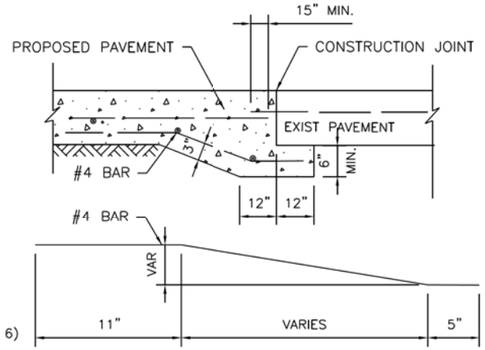


TYPICAL CONCRETE ROADWAY WIDENING DETAIL

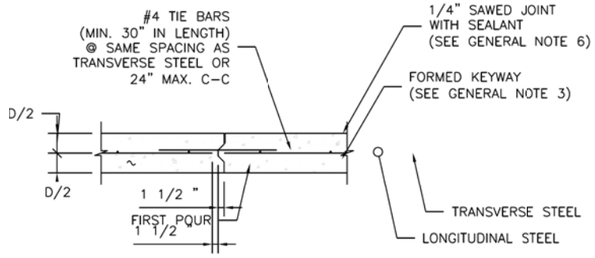
SCALE: 1" = 1'-6"

TABLE 1
(CONSTRUCTION JOINT DOWELS)

DOWEL SIZE	PAVEMENT DEPTH
#5 BAR	7"
#6 BAR	≥9"
DOWEL SHALL BE DRILLED INTO EXISTING PAVEMENT (MIN. 10", MAX. 12") AND EPOXIED. (SEE ITEM 361.3)	

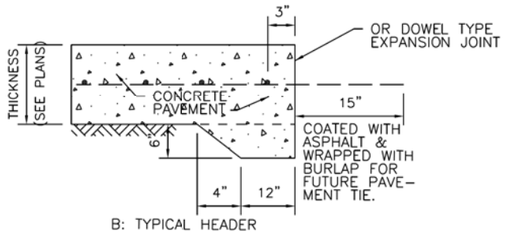


A: UNDERCUT BAR LAYOUT



LONGITUDINAL CONSTRUCTION JOINT

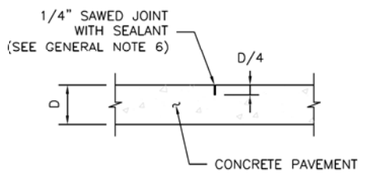
SCALE: 1" = 1'-6"



B: TYPICAL HEADER

PAVEMENT HEADER/ UNDERCUT

N.T.S

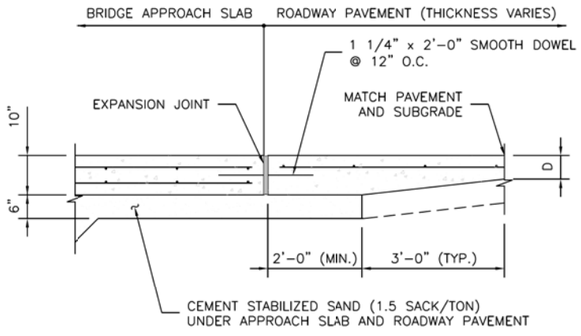


CONTRACTION JOINT (SAWED)

SCALE: 1" = 1'-6"

NOTE FOR CONTRACTION JOINT:

1. 20'-0" MAXIMUM SPACING BETWEEN JOINTS.

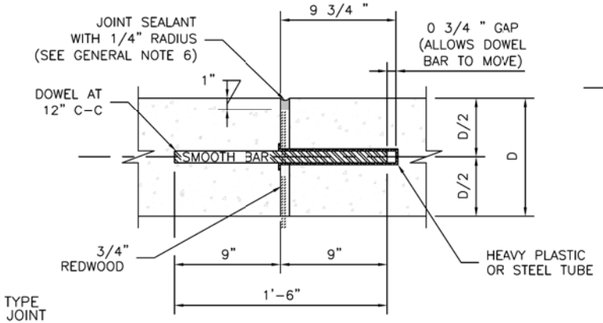


TYPICAL SECTION PAVING TIE-IN TO BRIDGE APPROACH SLAB

SCALE: 1" = 1'-6"

EXPANSION JOINT DOWELS

PAVEMENT THICKNESS (D)	DOWEL DIA.
6"	3/4"
7"	1"
8'	1"
9" & 10"	1 1/4"

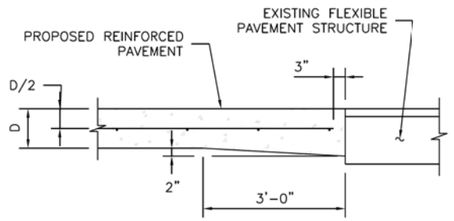


DOWEL TYPE EXPANSION JOINT

SCALE: 1" = 6"

NOTES FOR DOWEL EXPANSION JOINT:

1. EXPANSION JOINT SHALL BE PLACED AT THE END OF EACH CURB RADIUS AND SPACED AT A MAXIMUM DISTANCE OF 60 FEET.
2. CENTER DOWEL HORIZONTALLY ON JOINT.
3. EXPANSION JOINT BARS SHALL BE HELD PARALLEL TO THE FINISHED CONCRETE SURFACE.

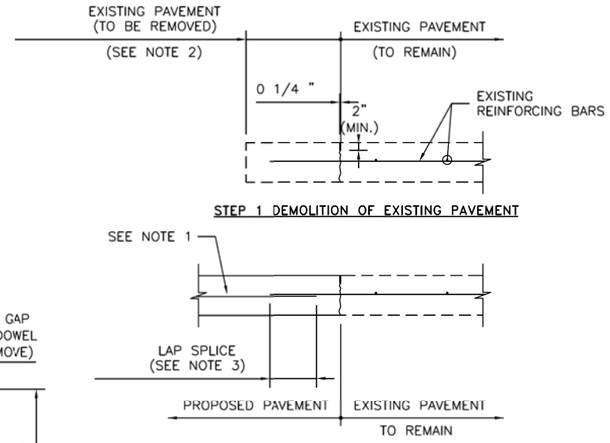


TYPICAL PAVING HEADER

SCALE: 1" = 1'-6"

NOTES FOR PAVING HEADER:

1. ADDITIONAL CONCRETE FOR PAVING HEADER SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAVING BID ITEMS.
2. DISTURBED MATERIAL IN THE FLEXIBLE PAVEMENT WILL BE BACKFILLED WITH ASPHALT CONCRETE PAVEMENT (ACP). THE ACP WILL BE CONSIDERED INCIDENTAL TO VARIOUS PAVING BID ITEMS.



STEP 1 DEMOLITION OF EXISTING PAVEMENT

STEP 2 CONSTRUCTION OF NEW PAVEMENT

CONCRETE TO CONCRETE STANDARD PAVEMENT TIE-IN

SCALE: 1" = 1'-6"

NOTES FOR STANDARD PAVEMENT TIE-IN:

1. REINFORCING CENTERED IN PROPOSED PAVEMENT, 3" CLEAR AT EDGES.
2. ONLY FULL DEPTH SAWCUTS WILL BE ALLOWED
3. 30 BAR DIAMETER LAP SPLICE OR WELD, IF DIRECTED.
4. IF NO EXPOSED REINFORCING STEEL EXISTS, HORIZONTAL DOWELS SHALL BE GRADE 60, 30" LONG DRILLED AND EMBEDDED 15" INTO THE CENTER OF THE EXISTING CONCRETE SLAB WITH EPOXY OR APPROVED EQUAL.
   SIZE OF DOWEL BARS SHALL CONFORM TO TABLE 1. DOWELS SHALL BE PLACED 24" CENTER TO CENTER.
5. ALTERNATIVELY, THE CONTRACTOR MAY CHOOSE TO USE FULL DEPTH SAWCUT WITH DRILLED IN DOWELS (AS SHOWN IN THE "TYPICAL CONCRETE ROADWAY WIDENING DETAIL" ON THIS SHEET. IF THE CONTRACTOR SO CHOOSES, THE SAWCUTTING AND DOWELS WILL BE AT HIS OWN EXPENSE (THESE ITEMS WILL ONLY BE PAID FOR IF THE COUNTY REQUIRES THE FULL DEPTH SAWCUT AND DOWELS).
6. ALL PAVEMENT CONCRETE SHALL BE 5½ SACK PER CY, 3500, PSI AT 28 DAYS

GENERAL NOTES:

1. FOR FURTHER INFORMATION REGARDING THE PLACEMENT OF CONCRETE AND REINFORCING, REFER TO THE GOVERNING SPECIFICATION ITEM 360 "CONCRETE PAVEMENT".
2. THE CHAIRS USED TO SUPPORT THE BAR MATS SHALL BE OF SUFFICIENT STRUCTURAL QUALITY AND NUMBER TO HOLD THE MAT WITHIN THE PLACEMENT HEIGHT, AND SHALL BE OF A TYPE APPROVED BY THE ENGINEER. SPACING OF BAR SUPPORT CHAIRS SHALL BE 3'-0" MAXIMUM.
3. SAWED CONTRACTION JOINTS SHALL BE USED FOR LONGITUDINAL JOINTS WHEREVER MORE THAN ONE LANE WIDTH IS PLACED IN A SINGLE POUR. KEYED CONSTRUCTION JOINTS SHALL BE USED AT ALL OTHER JOINTS.
4. ALL SAW CUTTING SHOWN ON THIS DETAIL SHALL BE INCIDENTAL TO ITEM 360 "CONCRETE PAVEMENT".
5. D = THICKNESS OF CONCRETE PAVEMENT.
   - FOR DEVELOPMENT PROJECTS SEE REGULATIONS OF FORT BEND COUNTY, TEXAS FOR THE APPROVAL AND ACCEPTANCE OF INFRASTRUCTURE.
6. JOINT SEALANT SHALL CONFORM TO THE REQUIREMENTS OF ITEM 360 "CONCRETE PAVEMENT".
7. NO TRAFFIC ON CONCRETE PAVEMENT UNTIL 7 DAYS CURE TIME AND 3,500 PSI HAS BEEN REACHED.

NO.	REVISIONS	DATE	NAME
1			
2			
3			
4			
5			

FORT BEND COUNTY ENGINEERING DEPARTMENT

THE STATE OF TEXAS · FORT BEND COUNTY

STATE OF TEXAS · PAUL E. BRIGHT · 61108 · REGISTERED PROFESSIONAL ENGINEER · 7/7/2021

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TEDSI TBPE: F-6940

PROJECT TITLE:	CINCO RANCH BOULEVARD	
DRAWN BY: INIT	TURN LANE IMPROVEMENTS	FBCED STANDARD
CK'D BY: INIT	SHEET DESCRIPTION: CONCRETE PAVEMENT DETAILS	
SCALE: AS NOTED	SHEET 1 OF 2	SHEET NO: 52
DATE: 6/15/20	APPROVED BY:	

7/7/2021
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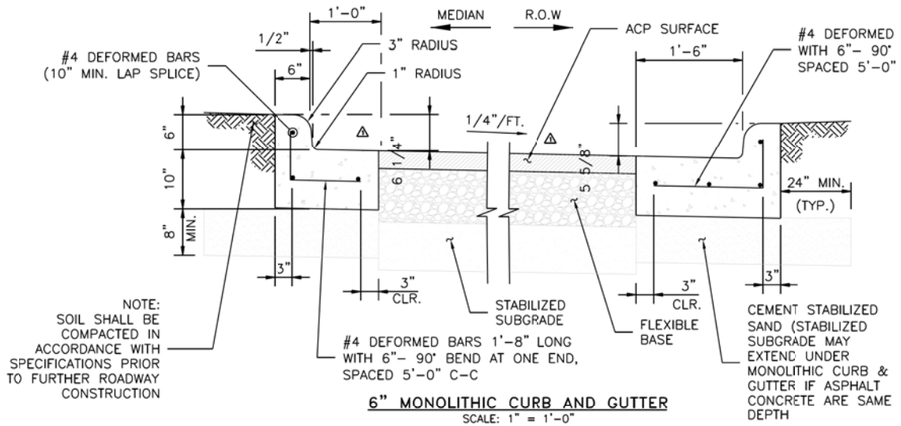
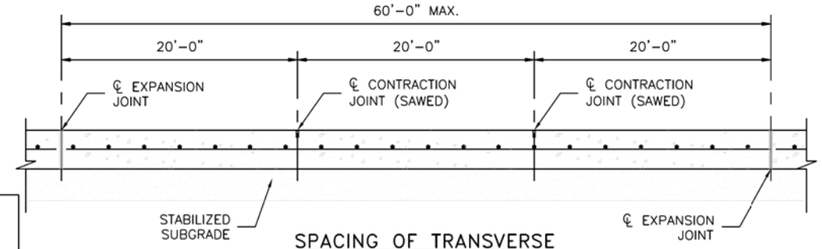


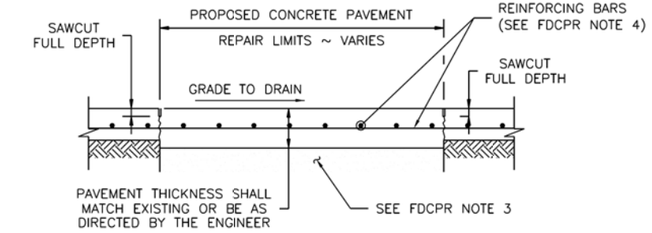
6" MONOLITHIC CURB AND GUTTER
SCALE: 1" = 1'-0"

SLAB AND REBAR NOTES:

1. TYPICAL SLAB THICKNESS D=8"
2. TYPICAL REBAR SIZE AND SPACING ARE:
   a. #4 BAR @ 18" C-C LONGITUDINAL
   b. #4 BAR @ 18" C-C TRANSVERSE
3. REBAR SIZE FOR PAVEMENT LESS THAN 8" THICK
   a. #4 BAR @ 24" C-C LONGITUDINAL
   b. #4 BAR @ 24" C-C TRANSVERSE
4. REBAR SHALL NOT BE PLACED WITHIN 3" FROM THE EDGE OF PAVEMENT.
5. TYPICAL STABILIZED SUBGRADE THICKNESS IS 8 INCHES.
6. FOR HEAVY INDUSTRIAL TRAFFIC, SLAB THICKNESS AND REBAR SIZE AND SPACING WILL BE AS PER GEOTECHNICAL RECOMMENDATION.
7. ALL BENT BARS SHALL BE GRADE 40 STEEL, ALL OTHER SHALL BE GRADE 60.
8. MINIMUM LAP SPLICE 16".
9. LAP SPLICES SHOULD BE ON ALTERNATING BARS, ADJACENT LAP SPLICES ARE NOT ACCEPTABLE.



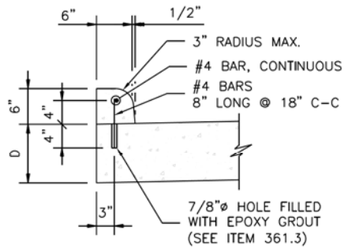
SPACING OF TRANSVERSE EXPANSION AND CONTRACTION JOINTS
HORIZONTAL SCALE: 1" = 6'-0"
VERTICAL SCALE: 1" = 1'-6"



FULL DEPTH CONCRETE PAVEMENT REPAIR
HORIZONTAL SCALE: 1" = 3'-0"
VERTICAL SCALE: 1" = 1'-6"

FULL DEPTH CONCRETE PAVEMENT REPAIR (FDCPR) NOTES:

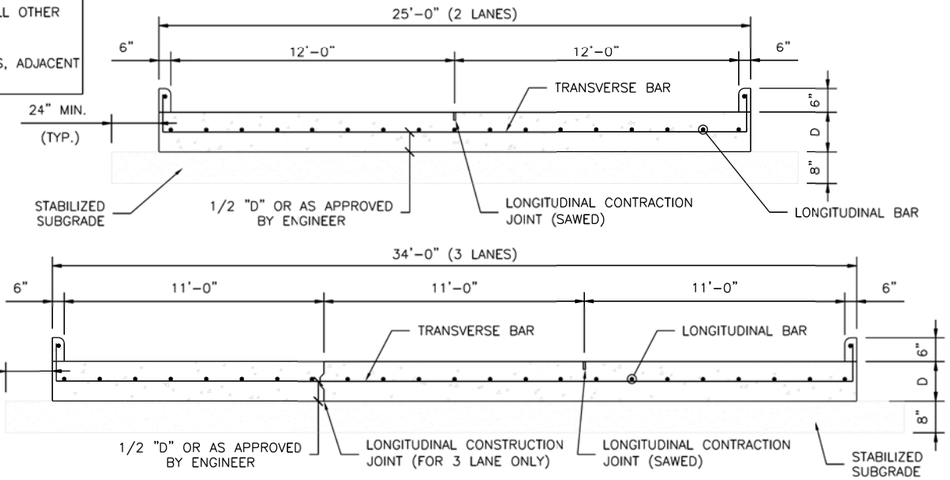
1. ONLY FULL DEPTH SAWCUTS WILL BE ALLOWED
2. EXISTING CONCRETE VERTICAL FACES SHALL BE CLEANED OF ALL DELETERIOUS LOOSE MATERIAL PRIOR TO CONCRETE PLACEMENT.
3. FOR REPAIR/REPLACE AREAS, A 8" DEPTH BASE SHALL BE REMOVED AND REPLACED WITH CEMENT STABILIZED SAND PER ITEM 433.
4. REINFORCEMENT OF 9"-10" THICK CONCRETE PAVEMENT SHALL BE NO. 5 BARS AT 18" SPACING IN EACH DIRECTION. REINFORCEMENT FOR PAVEMENT 8" THICK SHALL BE NO. 4 BARS AT 24" IN EACH DIRECTION.



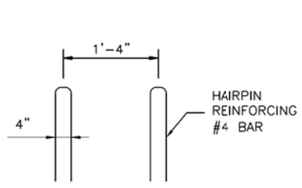
CONCRETE DOWELED ON CURB FOR CONCRETE OR ASPHALT PAVEMENT
SCALE: 1" = 1'-0"

NOTES FOR CURB:

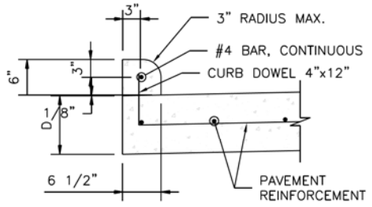
1. AT EACH PAVEMENT CONTRACTION JOINT, PROVIDE A 1/4" THICK PRE-MOLDED EXPANSION JOINT AT THE FULL WIDTH AND HEIGHT OF THE CURB.
2. FOR EACH PAVEMENT EXPANSION JOINT, THE PRE-MOLDED EXPANSION JOINT FILLER MATERIAL SHALL BE THE FULL WIDTH AND HEIGHT OF THE CURB.



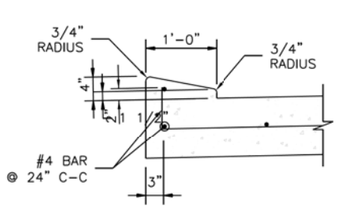
TYPICAL STEEL REBAR REPLACEMENT AND SPACING OF LONGITUDINAL JOINTS (NEW CONSTRUCTION)
HORIZONTAL SCALE: 1" = 3'-0"
VERTICAL SCALE: 1" = 1'-6"



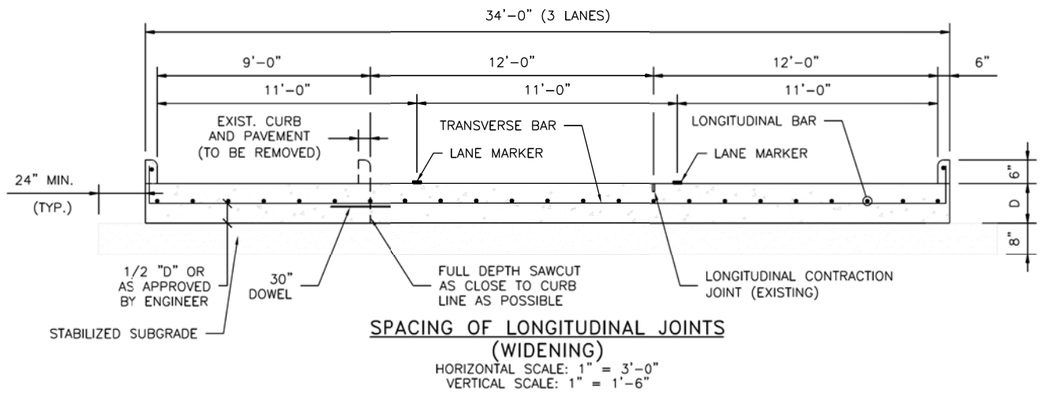
ALTERNATE VERTICAL REINFORCEMENT
SCALE: 1" = 1'-6"



TYPICAL CONCRETE CURB REINFORCING DETAILS
SCALE: 1" = 1'-0"



4" X 12" MONOLITHIC CURB
SCALE: 1" = 1'-0"



SPACING OF LONGITUDINAL JOINTS (WIDENING)
HORIZONTAL SCALE: 1" = 3'-0"
VERTICAL SCALE: 1" = 1'-6"

NO.	REVISIONS	DATE	NAME

FORT BEND COUNTY ENGINEERING DEPARTMENT

THE STATE OF TEXAS — FORT BEND COUNTY

STATE OF TEXAS — PAUL E. BRIGHT — 61108 — REGISTERED PROFESSIONAL ENGINEER
7/7/2021

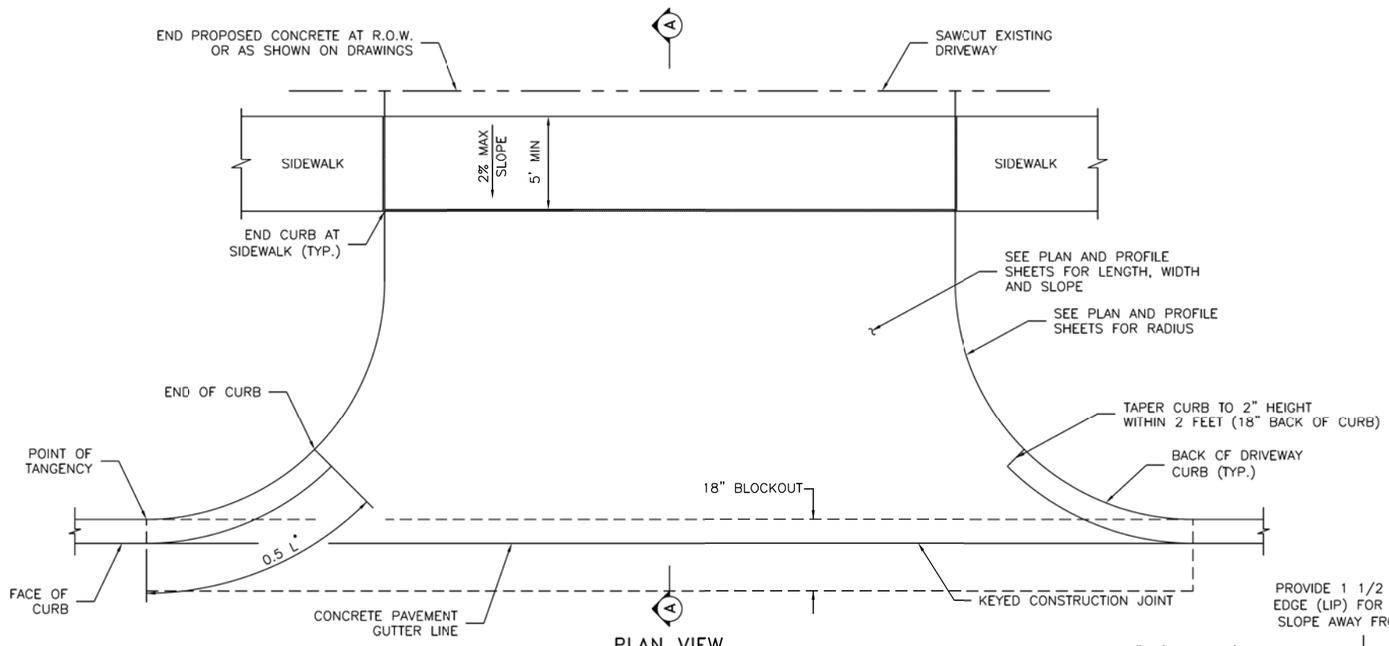
TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1900
TBPE F-1640

PROJECT TITLE:	CINCO RANCH BOULEVARD
DRAWN BY: INIT	TURN LANE IMPROVEMENTS
CK'D BY: INIT	SHEET DESCRIPTION: CONCRETE PAVEMENT DETAILS
SCALE: AS NOTED	SHEET 2 OF 2
DATE: 6/15/20	APPROVED BY:

FBCED STANDARD

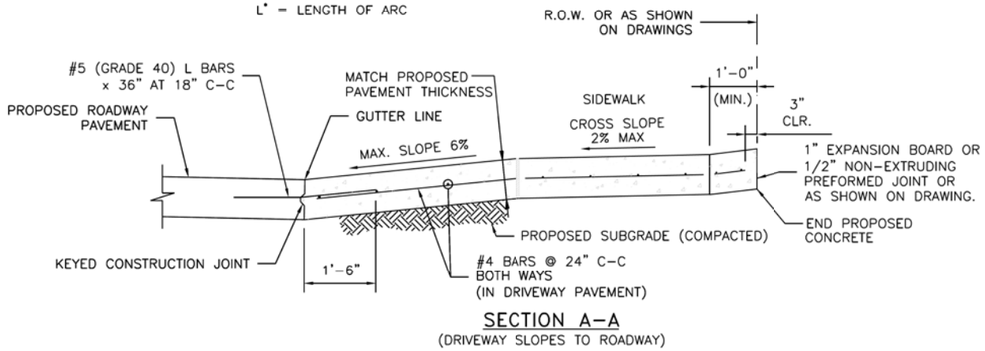
SHEET NO: 53

7/7/2021
pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2019\2019-2073-01- Cinco Ranch Blvd Turn Lanes\6.0 TEDSI Design\6.08 CADD\6.08.01 Sheet Files\Standard Details\Fort Bend\FBC - RDWY - PAVING DETAILS.dgn

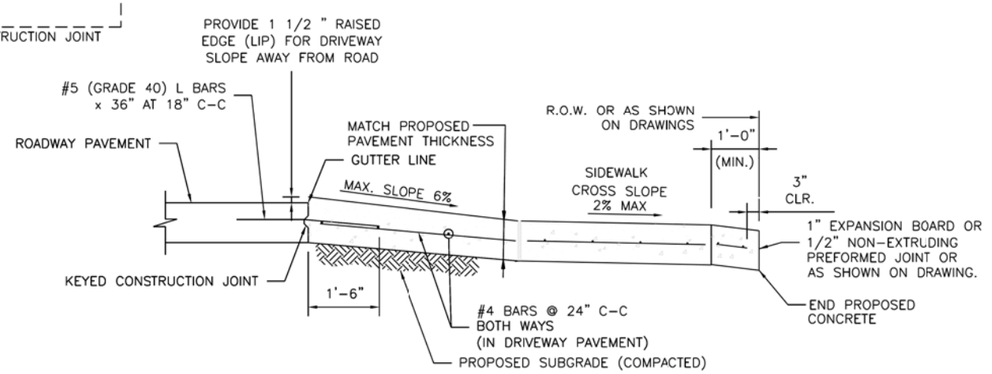


PLAN VIEW

L* = LENGTH OF ARC



SECTION A-A
(DRIVEWAY SLOPES TO ROADWAY)



SECTION A-A
(DRIVEWAY SLOPES AWAY FROM ROADWAY)

NOTES:

1. SAWCUT EXISTING DRIVEWAY AT R.O.W. LINE OR AS SHOWN ON DRAWING AND REMOVE EXISTING DRIVEWAY TO SAWCUT LINE.
2. IF THERE IS EXISTING CURB ON DRIVEWAY, CONNECT PROPOSED CURB TO EXISTING CURB; OTHERWISE TAPER CURB HEIGHT AS SHOWN.
3. SEE PAVEMENT DETAIL SHEET FOR CONCRETE CURB REINFORCEMENT.
4. THIS DRIVEWAY INSTALLATION IS GOVERNED BY ITEM 360.

NO.	REVISIONS	DATE	NAME
1			
2			
3			
4			
5			

FORT BEND COUNTY ENGINEERING DEPARTMENT

THE STATE OF TEXAS — FORT BEND COUNTY

STATE OF TEXAS — PAUL E. BRIGHT — 61108 — REGISTERED PROFESSIONAL ENGINEER
7/7/2021

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
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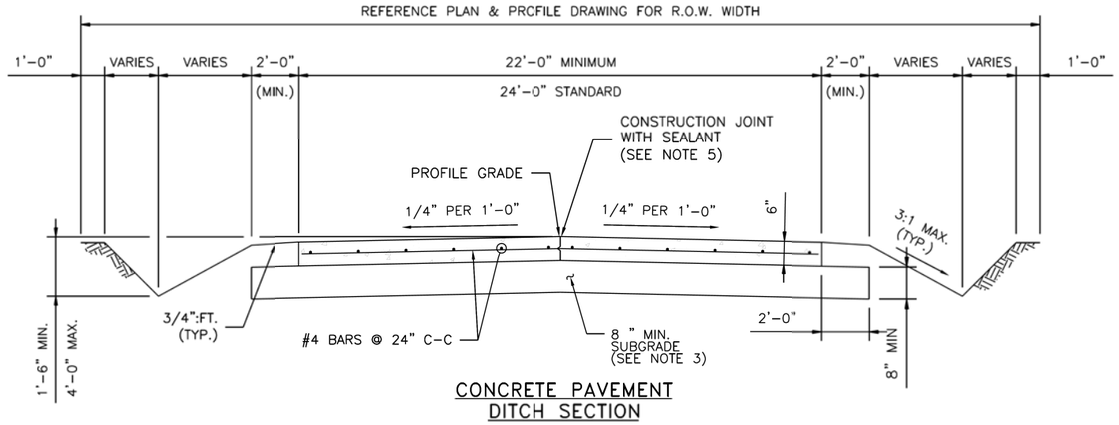
TBPE F-2640

PROJECT TITLE:	CINCO RANCH BOULEVARD
DRAWN BY: INIT	TURN LANE IMPROVEMENTS
CK'D BY: INIT	SHEET DESCRIPTION: DRIVEWAY DETAILS FOR MAJOR
SCALE: NONE	ROADWAY CONSTRUCTION
DATE: 6/15/20	APPROVED BY:

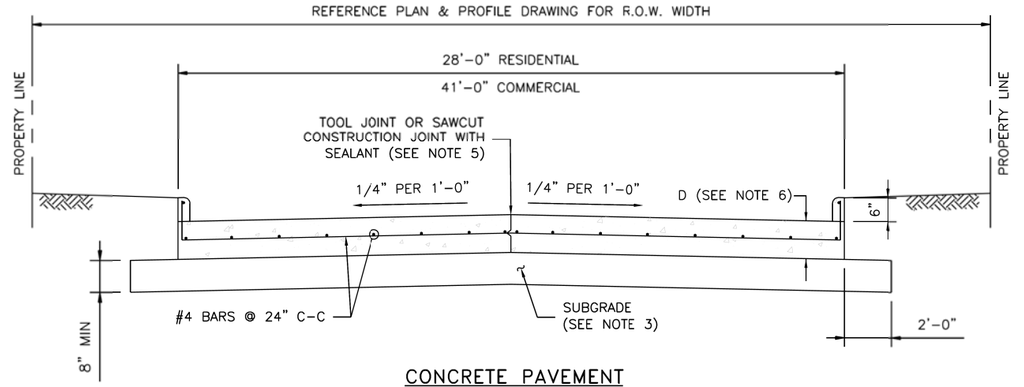
FBCED STANDARD

SHEET NO: 54

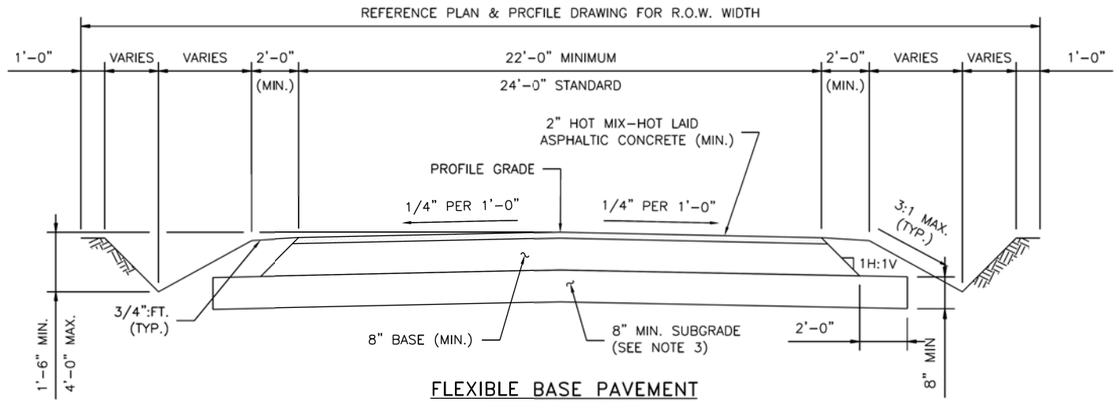
7/7/2021
pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2019\2019-2073-01- Cinco Ranch Blvd Turn Lanes\6.0 TEDSI Design\6.08 CADD\6.08.01 Sheet Files\Standard Details\Fort Bend\FBC - DRIVEWAY DETAILS.dgn



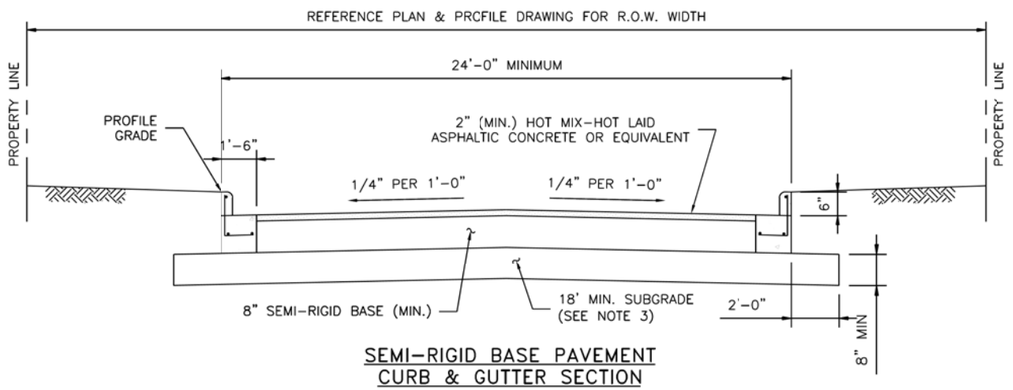
CONCRETE PAVEMENT
DITCH SECTION



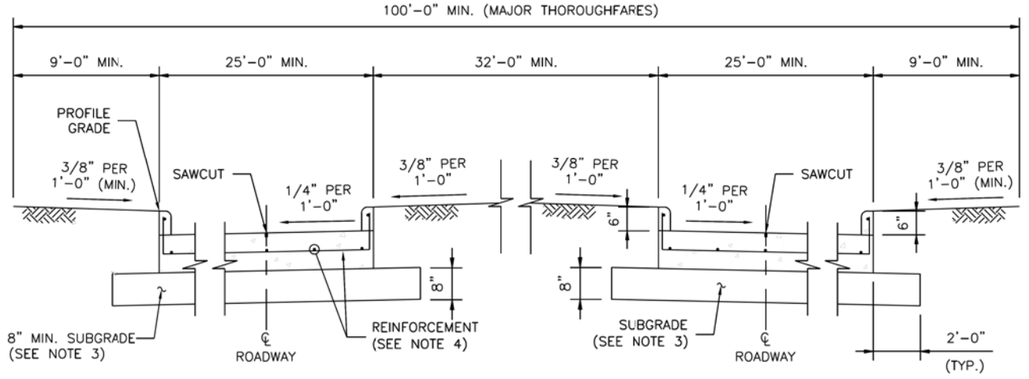
CONCRETE PAVEMENT
CURB & GUTTER SECTION
(PARABOLIC CROWN IS AN ACCEPTABLE OPTION)



FLEXIBLE BASE PAVEMENT
DITCH SECTION



SEMI-RIGID BASE PAVEMENT
CURB & GUTTER SECTION



TYPICAL SECTIONS FOR
MAJOR THOROUGHFARES

NOTES:

1. PAVEMENT SECTIONS SHOWN ARE INTENDED FOR DEVELOPMENT PROJECTS AND NOT FOR PUBLIC PROJECTS, WHERE WIDTH OF R.O.W. MAY VARY.
2. PAVEMENT SECTIONS SHALL BE LOCATED IN CENTER OF R.O.W.
3. SUBGRADE TREATMENT AND TYPE SHALL BE STABILIZED ACCORDING TO THE GEOTECHNICAL REPORT RECOMMENDATIONS. (SEE "REGULATIONS OF FORT BEND COUNTY, TEXAS FOR THE APPROVAL AND ACCEPTANCE OF INFRASTRUCTURE")
4. REINFORCING BAR SIZE AND SPACING SHALL BE ACCORDING TO CONCRETE PAVEMENT DETAILS SHEETS 1 AND 2 OF 2
5. REFERENCE CONSTRUCTION JOINT DETAIL ON THE STANDARD CIVIL DRAWING "CONCRETE PAVEMENT DETAILS – SHEET 1 OF 2" FOR JOINT AND SEALANT REQUIREMENTS.
6. FOR PAVEMENT DEPTHS, SEE "REGULATIONS OF FORT BEND COUNTY, TEXAS FOR THE APPROVAL AND ACCEPTANCE OF INFRASTRUCTURE" OR AS DESIGNATED ON THE PLANS.
7. NO TRAFFIC ON CONCRETE PAVEMENT FOR 7 DAYS AND COMPRESSIVE STRENGTH OF 3,500 psi HAS BEEN REACHED.

HORIZONTAL SCALE: 1"=3'-0"
VERTICAL SCALE: 1"=1'-6"

NO.	REVISIONS	DATE	NAME
1			
2			
3			
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FORT BEND COUNTY
ENGINEERING DEPARTMENT

THE STATE OF TEXAS · FORT BEND COUNTY

STATE OF TEXAS · PAUL E. BRIGHT · 61108 · REGISTERED PROFESSIONAL ENGINEER
7/7/2021

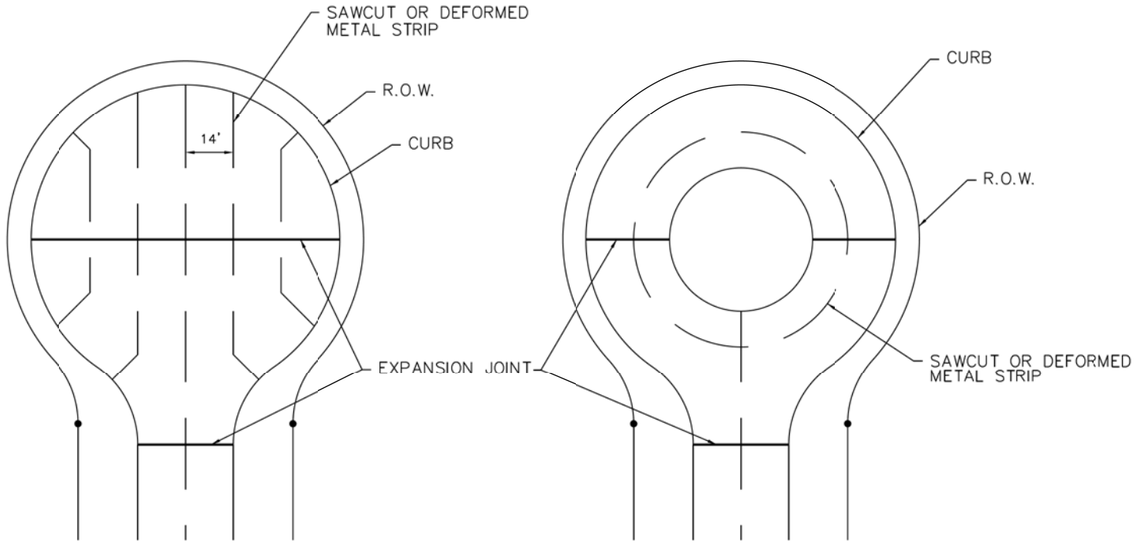
TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1060
TBPE: F-6640

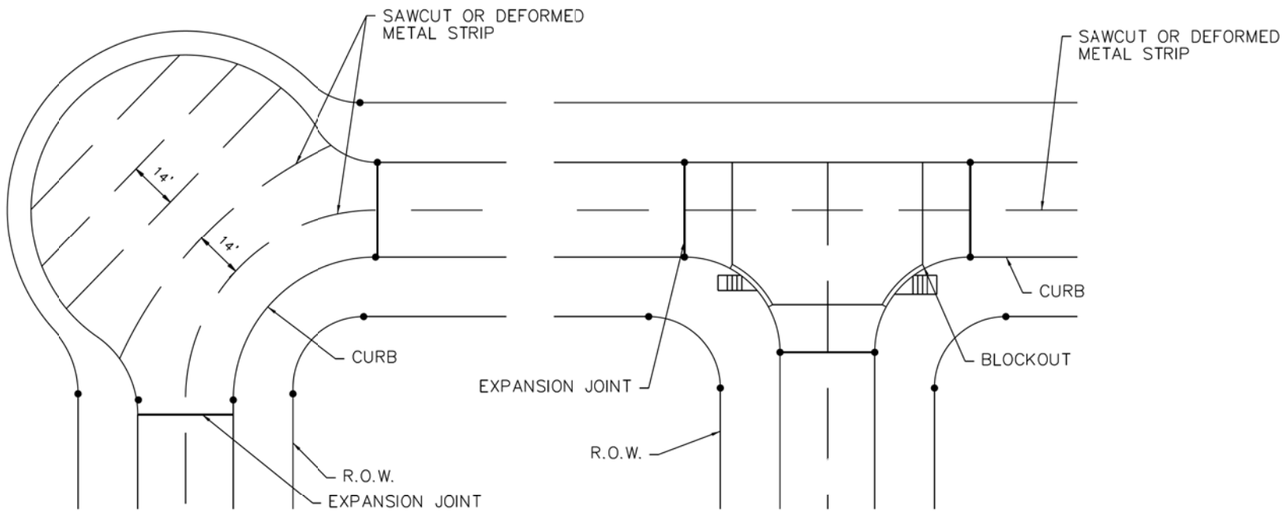
PROJECT TITLE:	CINCO RANCH BOULEVARD
DRAWN BY: INIT	TURN LANE IMPROVEMENTS
CK'D BY: INIT	SHEET DESCRIPTION: TYPICAL PAVEMENT SECTIONS
SCALE: NONE	FOR DEVELOPMENT PROJECTS
DATE: 6/15/20	APPROVED BY:

FBCED STANDARD

SHEET NO: 55

7/7/2021
pw:\\tedsi-pw.bentley.com:tedsi-pw-011\Documents\Projects\20192019-2073-01- Cinco Ranch Blvd Turn Lanes\6.0 TEDSI Design\6.08 CADD\6.08.01 Sheet Files\Standard Details\Fort Bend\FBC - TYP PVMT SECTIONS.dgn





TYPICAL LOCATION OF EXPANSION JOINTS AND SAWCUTS

N.T.S.

NO.	REVISIONS	DATE	NAME
1			
2			
3			
4			
5			

FORT BEND COUNTY ENGINEERING DEPARTMENT

THE STATE OF TEXAS · FORT BEND COUNTY

STATE OF TEXAS · PAUL E. BRIGHT · 61108 · REGISTERED PROFESSIONAL ENGINEER

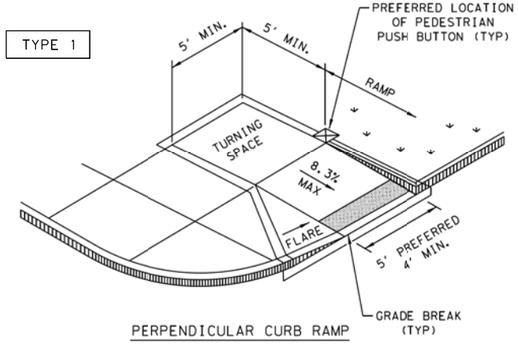
7/7/2021

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TEDSI TBPE: F-1640

PROJECT TITLE: CINCO RANCH BOULEVARD		
DRAWN BY: INIT	TURN LANE IMPROVEMENTS	FBCED STANDARD
CK'D BY: INIT	SHEET DESCRIPTION: EXPANSION JOINTS AND SAWCUTS	
SCALE: NONE		SHEET NO: 56
DATE: 6/15/20	APPROVED BY:	

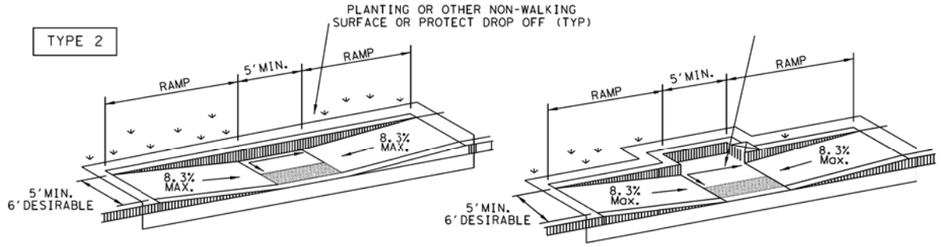
7/7/2021
pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2019\2019-2073-01- Cinco Ranch Blvd Turn Lanes\6.0 TEDSI Design\6.08 CADD\6.08.01 Sheet Files\Standard Details\Fort Bend\FBC - JOINTS & SAWCUTS.dgn

TYPE 1



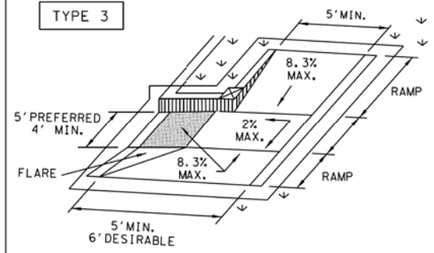
PERPENDICULAR CURB RAMP

TYPE 2

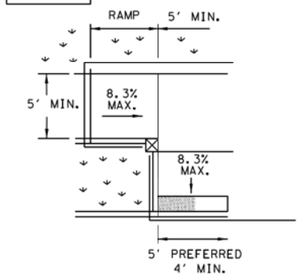


PARALLEL CURB RAMP

TYPE 3

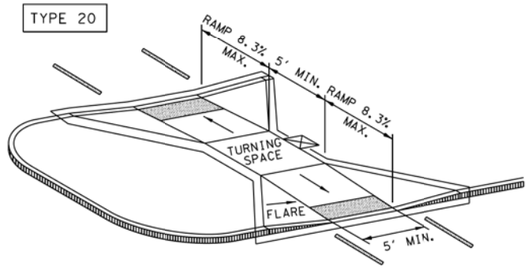


TYPE 6



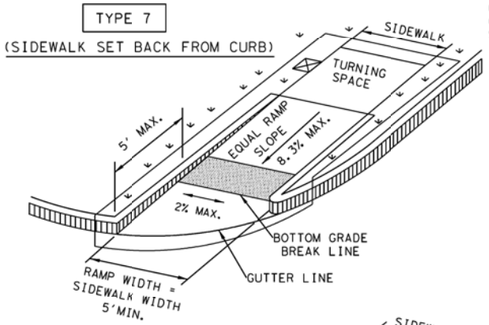
COMBINATION CURB RAMPS

TYPE 20

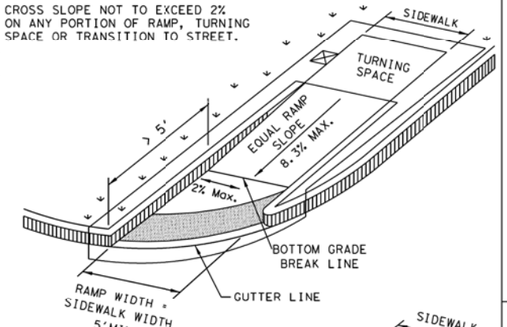


CURB RAMPS AT MEDIAN ISLANDS

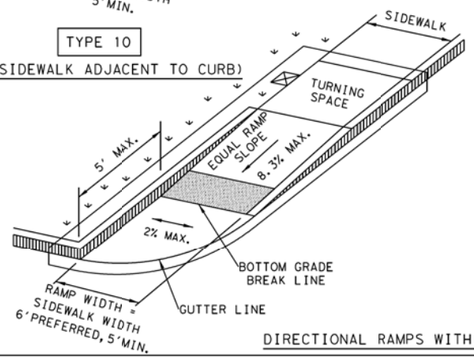
TYPE 7
(SIDEWALK SET BACK FROM CURB)



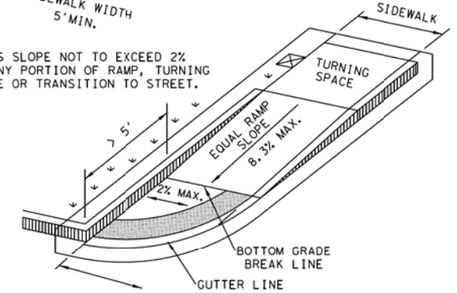
CROSS SLOPE NOT TO EXCEED 2% ON ANY PORTION OF RAMP, TURNING SPACE OR TRANSITION TO STREET.



TYPE 10
(SIDEWALK ADJACENT TO CURB)

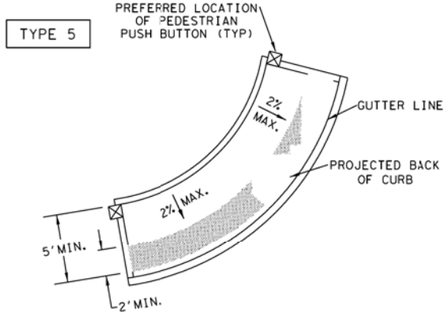


CROSS SLOPE NOT TO EXCEED 2% ON ANY PORTION OF RAMP, TURNING SPACE OR TRANSITION TO STREET.



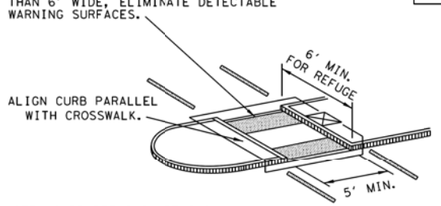
DIRECTIONAL RAMPS WITHIN RADIUS

TYPE 5



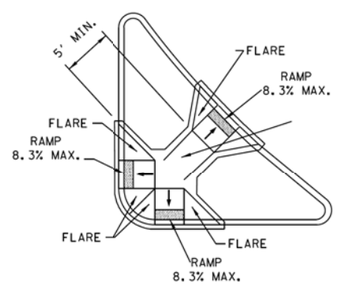
INSTALL DETECTABLE WARNING SURFACE AT EACH END OF THE CUT-THROUGH RAMP WITH A MINIMUM 2' USUAL SIDEWALK SURFACE BETWEEN. IF MEDIAN IS LESS THAN 6' WIDE, ELIMINATE DETECTABLE WARNING SURFACES.

TYPE 21



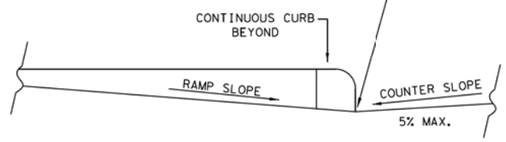
NOTE: CURB DETAILS ARE SHOWN ELSEWHERE IN THE PLANS.

TYPE 22



COMBINATION ISLAND RAMPS

BOTTOM GRADE BREAK OF CURB RAMP WILL NORMALLY BE AT GUTTER LINE. SURFACE SLOPES AT GRADE BREAKS SHALL BE FLUSH.



TYPICAL SECTION OF PERPENDICULAR CURB RAMP AT CONNECTION TO ROADWAY

NOTES / LEGEND:

SEE GENERAL NOTES ON SHEET 2 OF 4 FOR MORE INFORMATION.

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH.

GUTTER LINE

DETECTABLE WARNING SURFACE

GRADE BREAK

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON IF APPLICABLE.

RAMP LIMITS OF PAYMENT

NO.	REVISIONS	DATE	NAME
1			
2			
3			
4			
5			

FORT BEND COUNTY ENGINEERING DEPARTMENT

THE STATE OF TEXAS FORT BEND COUNTY

STATE OF TEXAS
PAUL E. BRIGHT
61108
REGISTERED PROFESSIONAL ENGINEER
7/7/2021

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
TEDSI TBPE: F-6640
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1060

PROJECT TITLE:	CINCO RANCH BOULEVARD
DRAWN BY: INIT	TURN LANE IMPROVEMENTS
CK'D BY: INIT	SHEET DESCRIPTION: PED-18 RAMP DETAILS
SCALE: NONE	SHEET 1 OF 4
DATE: 6/15/20	APPROVED BY:

FBCED STANDARD

SHEET NO: 57

GENERAL NOTES

CURB RAMPS

1. Install a curb ramp or blended transition at each pedestrian street crossing.
2. All slopes shown are maximum allowable. Cross slopes of 1.5% and lesser running should be used. Adjust curb ramp length or grade of approach sidewalks as directed.
3. Maximum allowable cross slope on sidewalk and curb ramp surfaces is 2%.
4. The minimum sidewalk width is 5'. Where the sidewalk is adjacent to the back of curb, a 6' sidewalk width is desirable. Where a 5' sidewalk cannot be provided due to site constraints, sidewalk width may be reduced to 4' for short distances. 5'x 5' passing areas at intervals not to exceed 200' are required.
5. Turning Spaces shall be 5'x 5' minimum. Cross slope shall be maximum 2%.
6. Clear space at the bottom of curb ramps shall be a minimum of 4'x 4' wholly contained within the crosswalk and wholly outside the parallel vehicular travel path.
7. Provide flared sides where the pedestrian circulation path crosses the curb ramp. Flared sides shall be sloped at 10% maximum, measured parallel to the curb. Returned curbs may be used only where pedestrians would not normally walk across the ramp, either because the adjacent surface is planted, substantially obstructed, or otherwise protected.
8. Additional information on curb ramp location, design, light reflective value and texture may be found in the latest draft of the Proposed Guidelines for Pedestrian Facilities in the Public Right of Way (PROWAG) as published by the U.S. Architectural and Transportation Barriers Compliance Board (Access Board).
9. To serve as a pedestrian refuge area, the median should be a minimum of 6' wide, measured from back of curbs. Medians should be designed to provide accessible passage over or through them.
10. Small channelization islands, which do not provide a minimum 5'x 5' landing at the top of curb ramps, shall be cut through level with the surface of the street.
11. Crosswalk dimensions, crosswalk markings and stop bar locations shall be as shown elsewhere in the plans. At intersections where crosswalk markings are not required, curb ramps shall align with theoretical crosswalks unless otherwise directed.
12. Provide curb ramps to connect the pedestrian access route at each pedestrian street crossing. Handrails are not required on curb ramps.
13. Curb ramps and landings shall be constructed and paid for in accordance with Item 531 "Sidewalks".
14. Place concrete at a minimum depth of 5" for ramps, flares and landings, unless otherwise directed.
15. Furnish and install No. 3 reinforcing steel bars at 18" o.c. both ways, unless otherwise directed.
16. Provide a smooth transition where the curb ramps connect to the street.
17. Curbs shown on sheet 1 within the limits of payment are considered part of the curb ramp for payment, whether it is concrete curb, gutter, or combined curb and gutter.
18. Existing features that comply with applicable standards may remain in place unless otherwise shown on the plans.

DETECTABLE WARNING MATERIAL

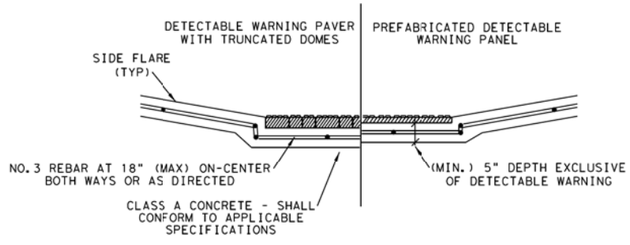
19. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with PROWAG. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install an approved cast-in-place dark brown or dark red detectable warning surface material adjacent to uncolored concrete, unless specified elsewhere in the plans.
20. Detectable Warning Materials must meet TxDOT Departmental Materials Specification DMS 4350 and be listed on the Material Producer List. Install products in accordance with manufacturer's specifications.
21. Detectable warning surfaces must be firm, stable and slip resistant.
22. Detectable warning surfaces shall be a minimum of 24 inches in depth in the direction of pedestrian travel, and extend the full width of the curb ramp or landing where the pedestrian access route enters the street.
23. Detectable warning surfaces shall be located so that the edge nearest the curb line is at the back of curb and neither end of that edge is greater than 5 feet from the back of curb. Detectable warning surfaces may be curved along the corner radius.
24. Shaded areas on Sheet 1 of 4 indicate the approximate location for the detectable warning surface for each curb ramp type.

DETECTABLE WARNING PAVERS (IF USED)

25. Furnish detectable warning paver units meeting all requirements of ASTM C-936, C-33. Lay in a two by two unit basket weave pattern or as directed.
26. Lay full-size units first followed by closure units consisting of at least 25 percent (25%) of a full unit. Cut detectable warning paver units using a power saw.

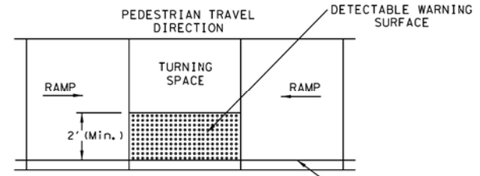
SIDEWALKS

27. Provide clear ground space at operable parts, including pedestrian push buttons. Operable parts shall be placed within unobstructed reach range specified in PROWAG section R406.
28. Place traffic signal or illumination poles, ground boxes, controller boxes, signs, drainage facilities and other items so as not to obstruct the pedestrian access route or clear ground space.
29. Street grades and cross slopes shall be as shown elsewhere in the plans.
30. Changes in level greater than 1/4 inch are not permitted.
31. The least possible grade should be used to maximize accessibility. The running slope of sidewalks and crosswalks within the public right of way may follow the grade of the parallel roadway. Where a continuous grade greater than five percent (5%) must be provided, handrails may be desirable to improve accessibility. Handrails may also be needed to protect pedestrians from potentially hazardous conditions. If provided, handrails shall comply with PROWAG R409.
32. Handrail extensions shall not protrude into the usable landing area or into intersecting pedestrian routes.
33. Driveways and turnouts shall be constructed and paid for in accordance with Item "Intersections, Driveways and Turnouts". Sidewalks shall be constructed and paid for in accordance with Item, "Sidewalks".
34. Sidewalk details are shown elsewhere in the plans.

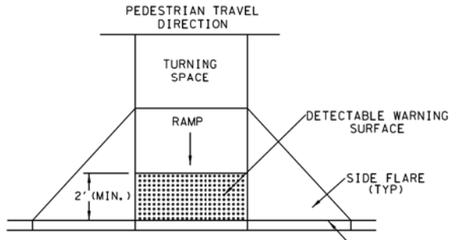


SECTION VIEW DETAIL
CURB RAMP AT DETECTIBLE WARNINGS

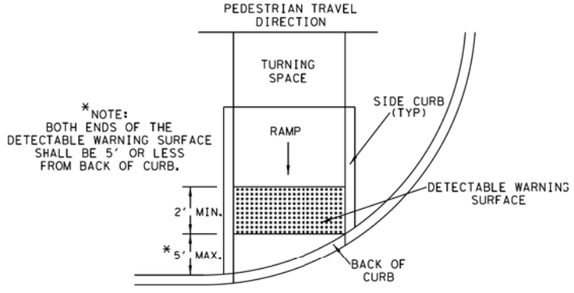
DETECTABLE WARNING SURFACE DETAILS



PARALLEL CURB RAMP
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON LANDING AT STREET EDGE.



PERPENDICULAR CURB RAMP
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.



DIRECTIONAL CURB RAMP
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.

NO.	REVISIONS	DATE	NAME

FORT BEND COUNTY ENGINEERING DEPARTMENT

THE STATE OF TEXAS · FORT BEND COUNTY

STATE OF TEXAS · PAUL E. BRIGHT · 61108 · REGISTERED PROFESSIONAL ENGINEER
7/7/2021

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
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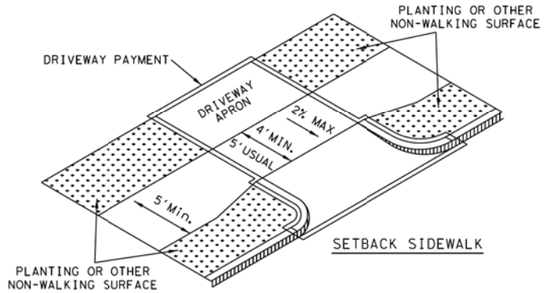
(832) 619-1000
TBPE F-2640

PROJECT TITLE:	CINCO RANCH BOULEVARD
DRAWN BY: INIT	TURN LANE IMPROVEMENTS
CK'D BY: INIT	SHEET DESCRIPTION: PED-18 RAMP DETAILS
SCALE: NONE	SHEET 2 OF 4
DATE: 6/15/20	APPROVED BY:

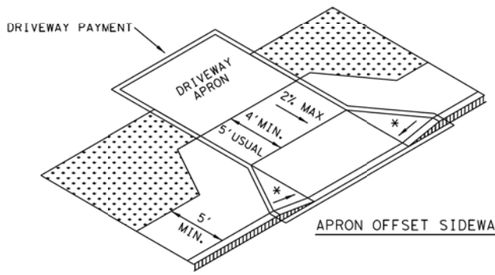
FBCED STANDARD

SHEET NO: 58

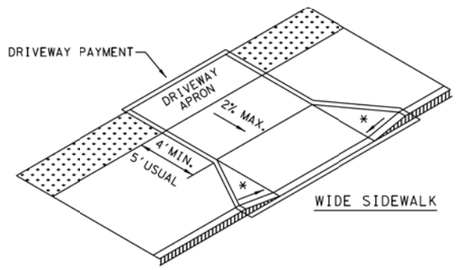
SIDEWALK TREATMENT AT DRIVEWAYS



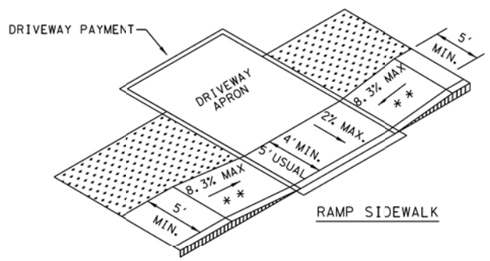
SETBACK SIDEWALK



APRON OFFSET SIDEWALK



WIDE SIDEWALK

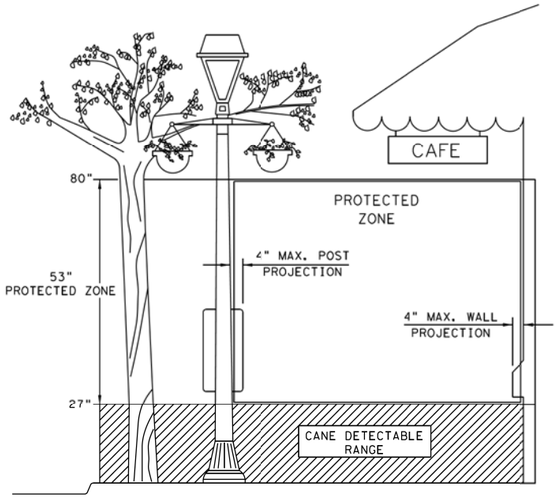


RAMP SIDEWALK

NOTES:

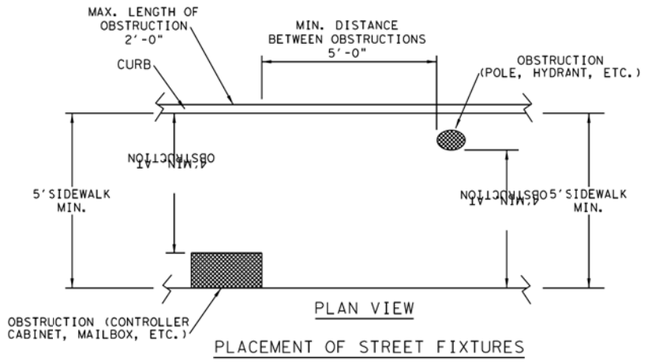
* WHERE DRIVEWAYS CROSS THE PEDESTRIAN ROUTE, SIDES SHALL BE FLARED AT 10% MAX SLOPE.

* * IF CURB HEIGHT IS GREATER THAN 6 INCHES, USE GRADE LESS THAN OR EQUAL TO 5%. HANDRAIL AND DETECTABLE WARNING ARE NOT REQUIRED.



PROTECTED ZONE

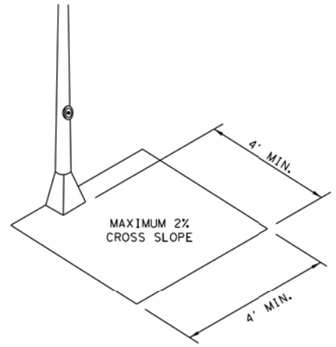
NOTE: IN PEDESTRIAN CIRCULATION AREA, MAXIMUM 4" PROJECTION FOR POST OR WALL MOUNTED OBJECTS BETWEEN 27" AND 80" ABOVE THE SURFACE.



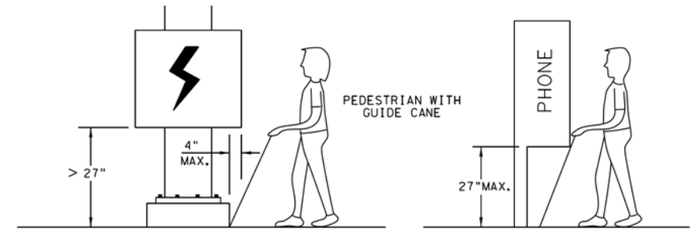
PLAN VIEW

PLACEMENT OF STREET FIXTURES

NOTE: ITEMS NOT INTENDED FOR PUBLIC USE. MINIMUM 4' X 4' CLEAR GROUND SPACE REQUIRED AT PUBLIC USE FIXTURES.



CLEAR SPACE ADJACENT TO PEDESTRIAN PUSH BUTTON



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"

NO.	REVISIONS	DATE	NAME
1			
2			
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FORT BEND COUNTY ENGINEERING DEPARTMENT

THE STATE OF TEXAS · FORT BEND COUNTY

STATE OF TEXAS · PAUL E. BRIGHT · 61108 · REGISTERED PROFESSIONAL ENGINEER
7/7/2021

TEDSI INFRASTRUCTURE GROUP
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738 Hwy 6 South, Suite 430
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TEDSI TBPE: F-6640

PROJECT TITLE:	CINCO RANCH BOULEVARD
DRAWN BY: INIT	TURN LANE IMPROVEMENTS
CK'D BY: INIT	SHEET DESCRIPTION: PED-18 RAMP DETAILS
SCALE: NONE	SHEET 3 OF 4
DATE: 6/15/20	APPROVED BY:

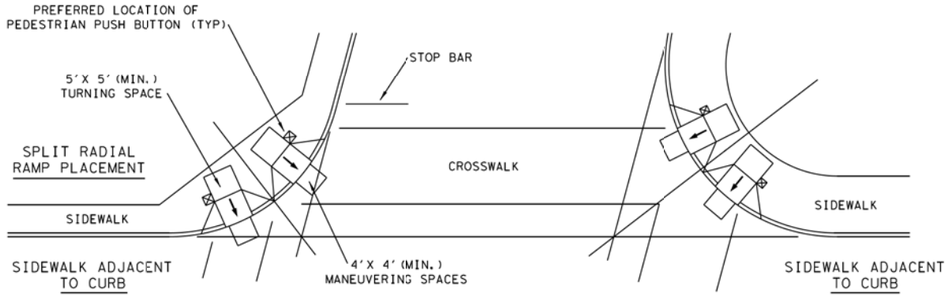
FBCED STANDARD

SHEET NO: 59

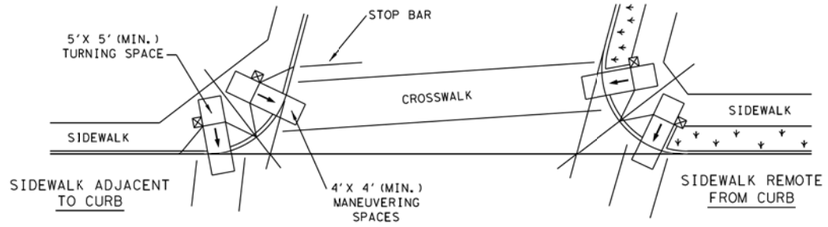
7/7/2021
pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\20192019-2073-01- Cinco Ranch Blvd Turn Lanes\6.0 TEDSI Design\6.08 CADD\6.08.01 Sheet Files\Standard Details\Fort Bend\FBC - PED-18_03.dgn

TYPICAL CROSSING LAYOUTS

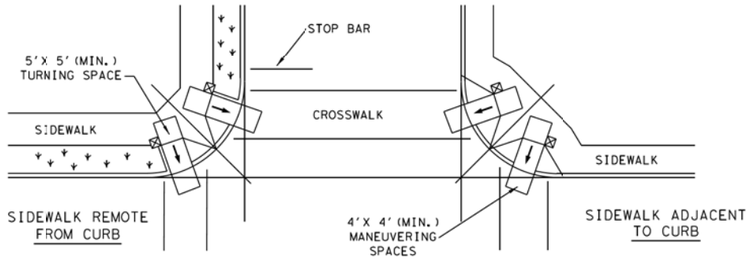
SEE SHEET 1 OF 4 FOR DETAILS AND DIMENSIONS



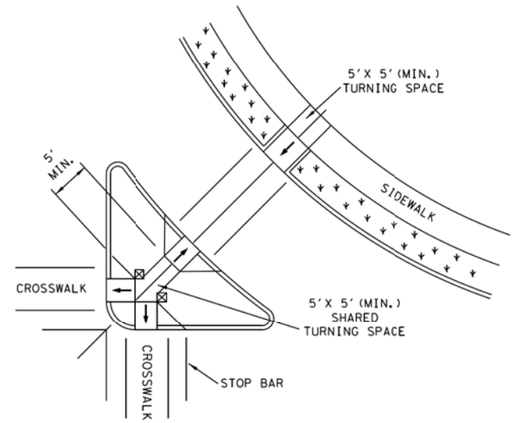
SKEWED INTERSECTION WITH "LARGE" RADIUS



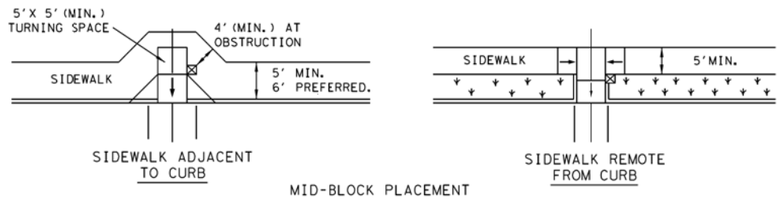
SKEWED INTERSECTION WITH "SMALL" RADIUS



NORMAL INTERSECTION WITH "SMALL" RADIUS



AT INTERSECTION
W/FREE RIGHT TURN & ISLAND



MID-BLOCK PLACEMENT
PERPENDICULAR RAMPS

LEGEND:

SHOWS DOWNWARD SLOPE. →

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON (IF APPLICABLE). ⊠

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH.

NO.	REVISIONS	DATE	NAME

FORT BEND COUNTY ENGINEERING DEPARTMENT

THE STATE OF TEXAS · FORT BEND COUNTY

STATE OF TEXAS · PAUL E. BRIGHT · 61108 · REGISTERED PROFESSIONAL ENGINEER

7/7/2021

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
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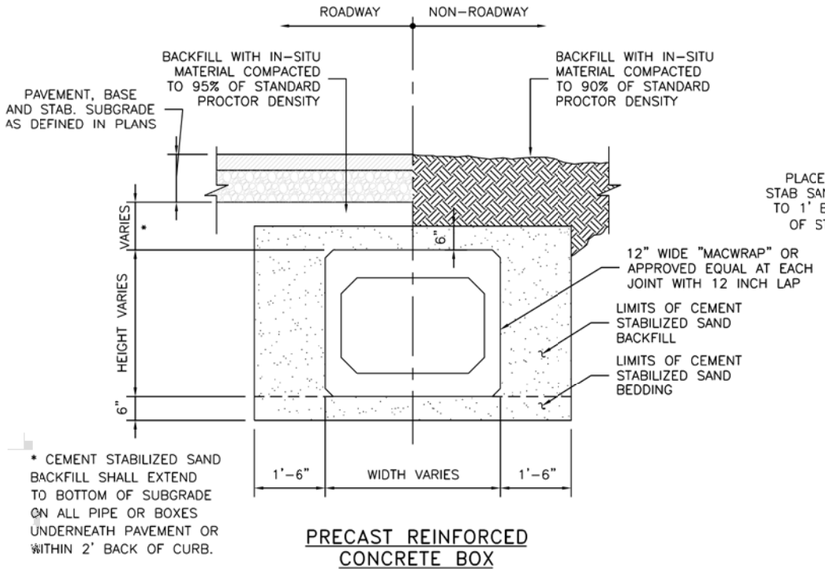
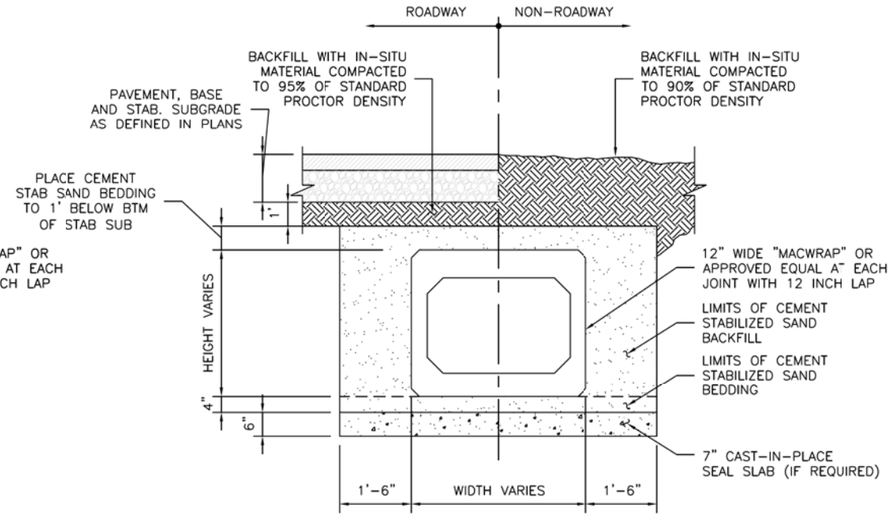
TBPE F-12640

PROJECT TITLE:	CINCO RANCH BOULEVARD	
DRAWN BY: INIT	TURN LANE IMPROVEMENTS	FBCED STANDARD
CK'D BY: INIT	SHEET DESCRIPTION: PED-18 RAMP DETAILS	
SCALE: NONE	SHEET 4 OF 4	SHEET NO: 60
DATE: 6/15/20	APPROVED BY:	

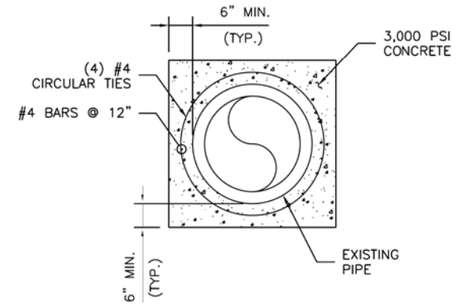
7/7/2021
pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2019\2019-2073-01- Cinco Ranch Blvd Turn Lanes\6.0 TEDSI Design\6.08 CADD\6.08.01 Sheet Files\Standard Details\Fort Bend\FBC - PED-18_04.dgn



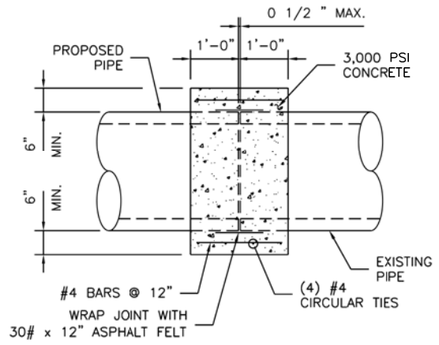
PRECAST REINFORCED CONCRETE BOX



PRECAST REINFORCED CONCRETE BOX WITH SEAL SLAB

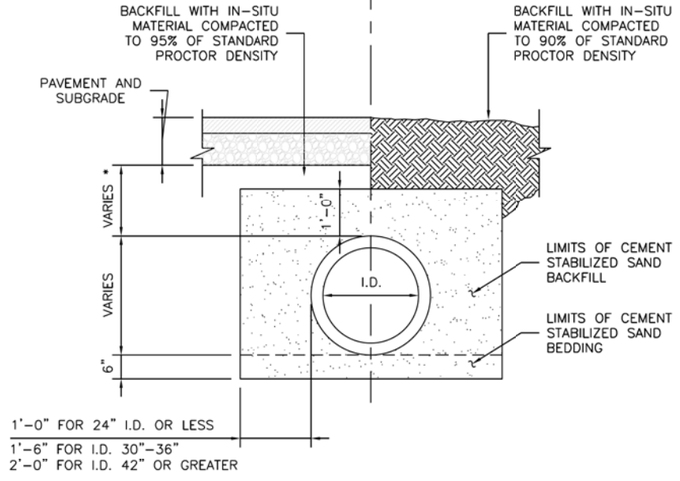


SECTION VIEW

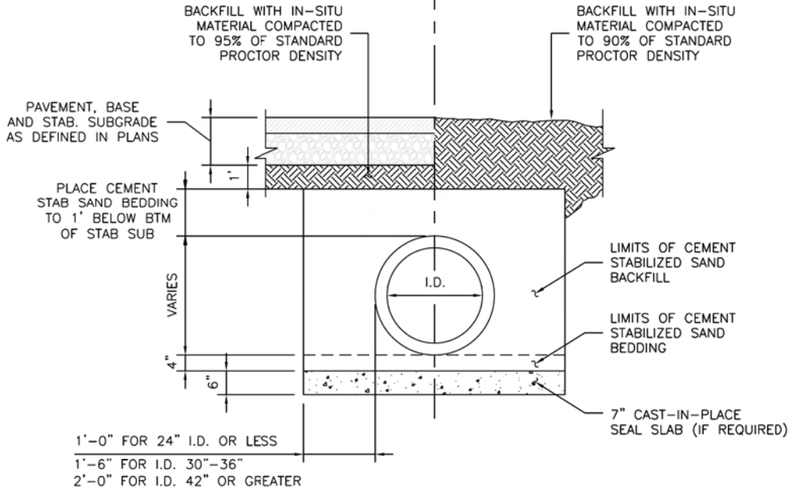


ELEVATION VIEW

TYPICAL CONCRETE COLLAR FOR 36" & SMALLER RCP



REINFORCED CONCRETE PIPE



REINFORCED CONCRETE PIPE WITH SEAL SLAB

GENERAL NOTES:

1. FOR RCP LARGER THAN 36" DIAMETER, CONCRETE COLLARS MUST BE DESIGNED BY THE ENGINEER OF RECORD.

NO.	REVISIONS	DATE	NAME
1			
2			
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FORT BEND COUNTY ENGINEERING DEPARTMENT

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STATE OF TEXAS · PAUL E. BRIGHT · 61108 · REGISTERED PROFESSIONAL ENGINEER
7/7/2021

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738 Hwy 6 South, Suite 430
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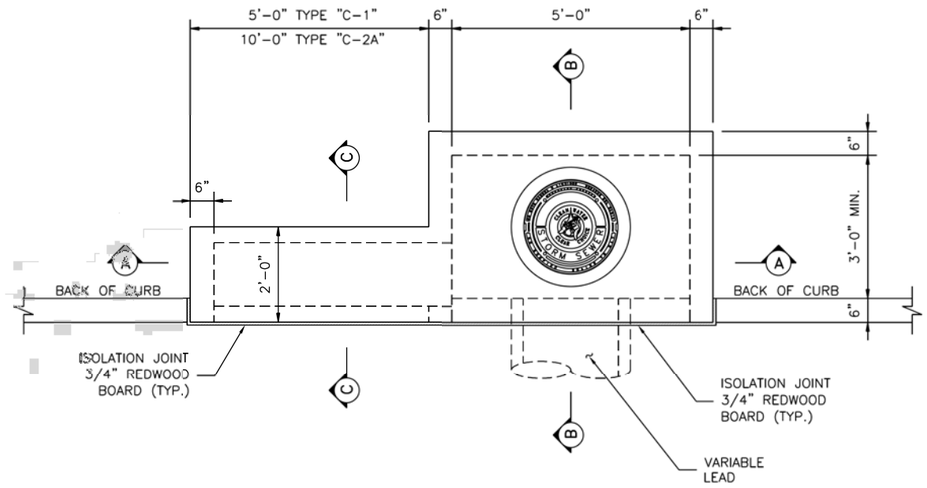
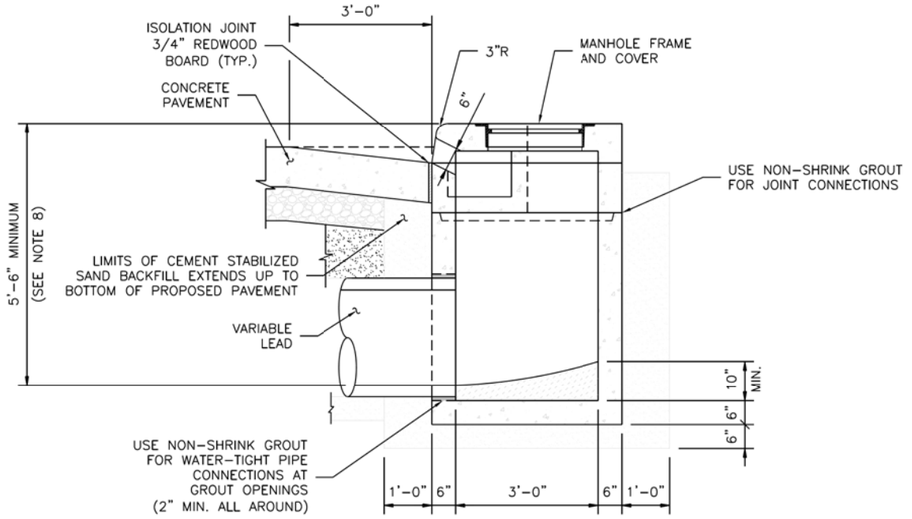
(832) 619-1000
TBPE F-6440

PROJECT TITLE:	CINCO RANCH BOULEVARD
DRAWN BY: INIT	TURN LANE IMPROVEMENTS
CK'D BY: INIT	SHEET DESCRIPTION: STORM SEWER CONSTRUCTION
SCALE: NONE	DETAILS
DATE: 6/15/20	APPROVED BY:
FBCED STANDARD	
SHEET NO:	61

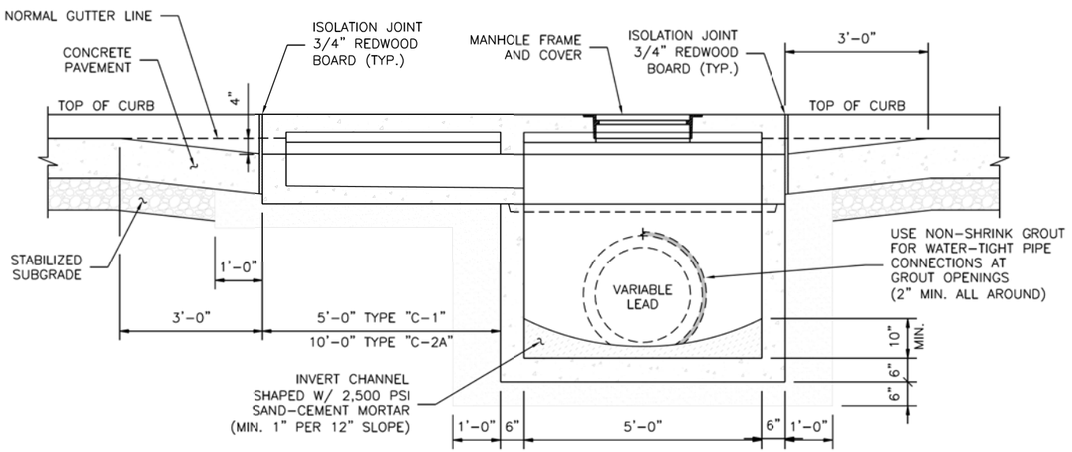
7/7/2021
pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\20192019-2073-01- Cinco Ranch Blvd Turn Lanes\6.0 TEDSI Design\6.08 CADD\6.08.01 Sheet Files\Standard Details\Fort Bend\FBC - STM SWR - CONST DETAILS.dgn



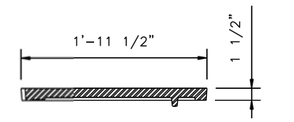
PLAN VIEW



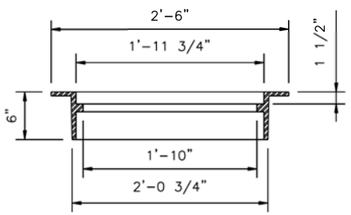
SECTION B-B



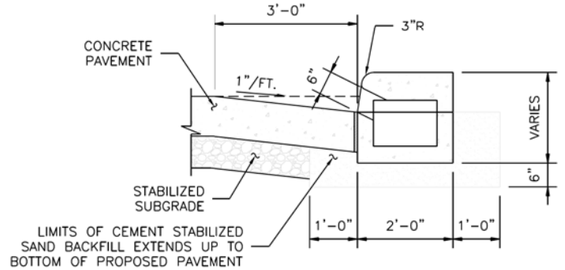
SECTION A-A INLET



COVER SECTION A-A



FRAME SECTION A-A



SECTION C-C

INLET NOTES:

TYPE "C": INLET ONLY - NO EXTENSION
TYPE "C-1": INLET WITH ONE EXTENSION (5'-0" LONG)
TYPE "C-2": INLET WITH ONE EXTENSION (5'-0" LONG) ON EACH SIDE
TYPE "C-2A": INLET WITH ONE DOUBLE EXTENSION (10'-0" LONG) ON ONE SIDE
* FOR TYPE "C-2A" INLETS, PROVIDE A CENTER 6"x6" COLUMN IN THE CURB LINE BETWEEN ALL EXTENSIONS.

GENERAL NOTES:

1. CONSTRUCTION AND MATERIALS SHALL MEET REQUIREMENTS OF ITEM 472 "INLETS".
2. CONCRETE FOR INLET: MINIMUM 4,000 PSI IN 28 DAYS
3. PRECAST STRUCTURE TO MEET ASTM C913.
4. FRAME AND COVER SHALL BE EAST JORDAN IRON WORKS MODEL V-1814 FRAME AND V-1418 COVER OR APPROVED EQUAL.
5. IF THE ENGINEER OF RECORD SPECIFIES A CAST-IN-PLACE INLET, HE/SHE SHALL INCORPORATE A DETAILED DRAWING INTO THE CONTRACT DOCUMENTS. HOWEVER, IF THE CONTRACTOR ELECTS TO CONSTRUCT A CAST-IN-PLACE INLET, THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING A DETAILED DRAWING, SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF TEXAS.
6. SHOP DRAWINGS WILL BE REQUIRED FOR THE PRECAST SECTION OF INLET.
7. KNOCK-OUTS ARE NOT PERMISSIBLE FOR THE PRECAST SECTION OF INLET.
8. 5'-6" MINIMUM OR AS SPECIFIED BY THE ENGINEER OF RECORD.

NO.	REVISIONS	DATE	NAME
1			
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FORT BEND COUNTY ENGINEERING DEPARTMENT

THE STATE OF TEXAS
FORT BEND COUNTY

STATE OF TEXAS
PAUL E. BRIGHT
61108
REGISTERED
PROFESSIONAL ENGINEER
7/7/2021

TEDSI INFRASTRUCTURE GROUP
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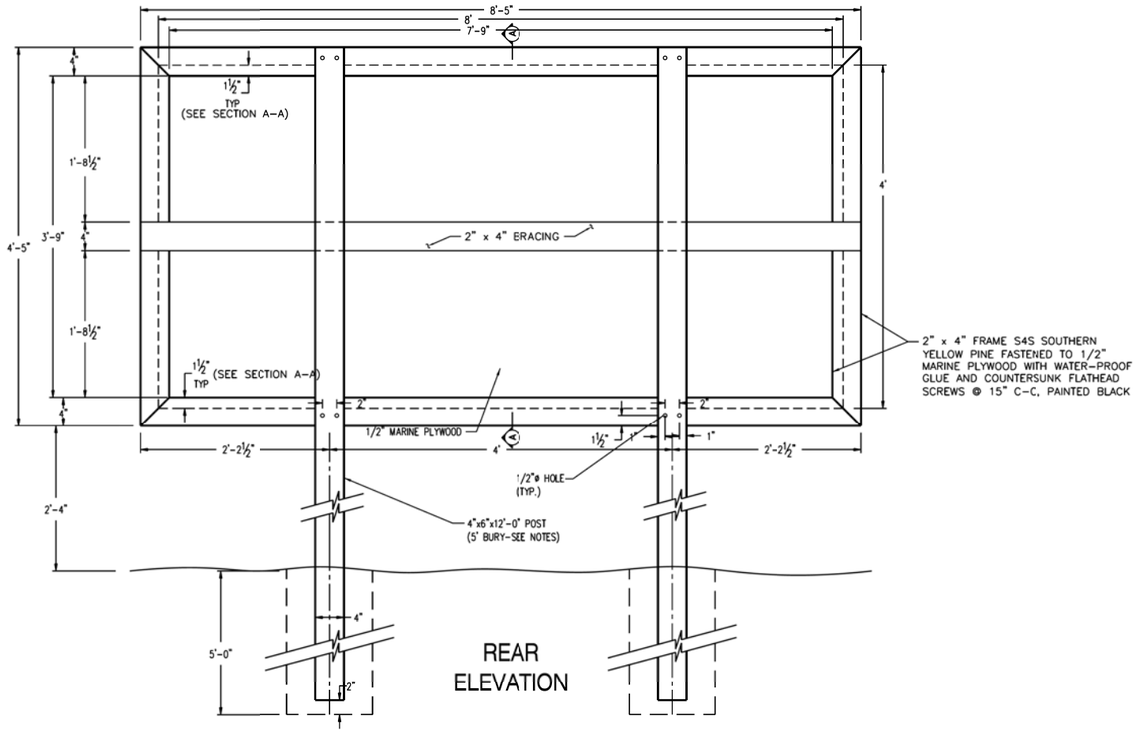
Houston, Texas 77079
(832) 619-1060

PROJECT TITLE:	CINCO RANCH BOULEVARD
DRAWN BY: INIT	TURN LANE IMPROVEMENTS
CK'D BY: INIT	SHEET DESCRIPTION: TYPE "C", "C-1", "C-2", AND "C-2A"
SCALE: NONE	INLET DETAILS
DATE: 6/15/20	APPROVED BY:

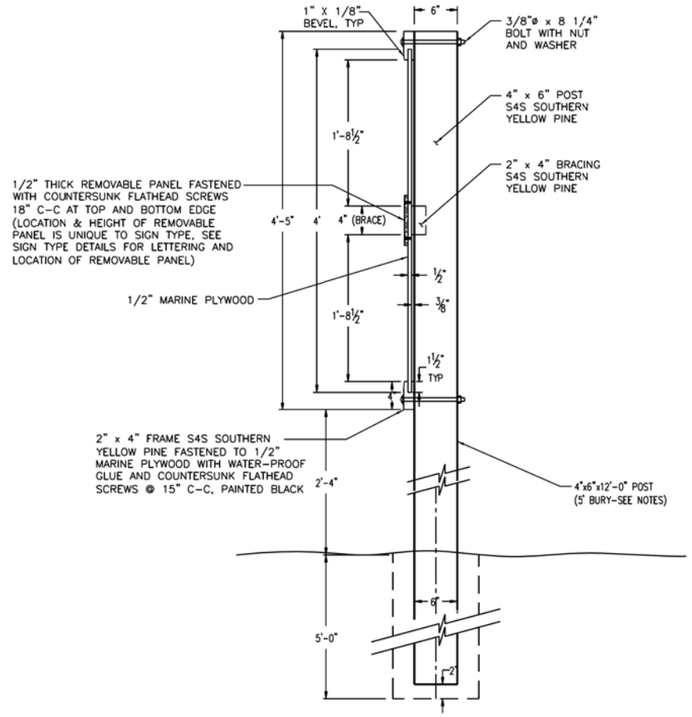
FBCED STANDARD

SHEET NO: 62

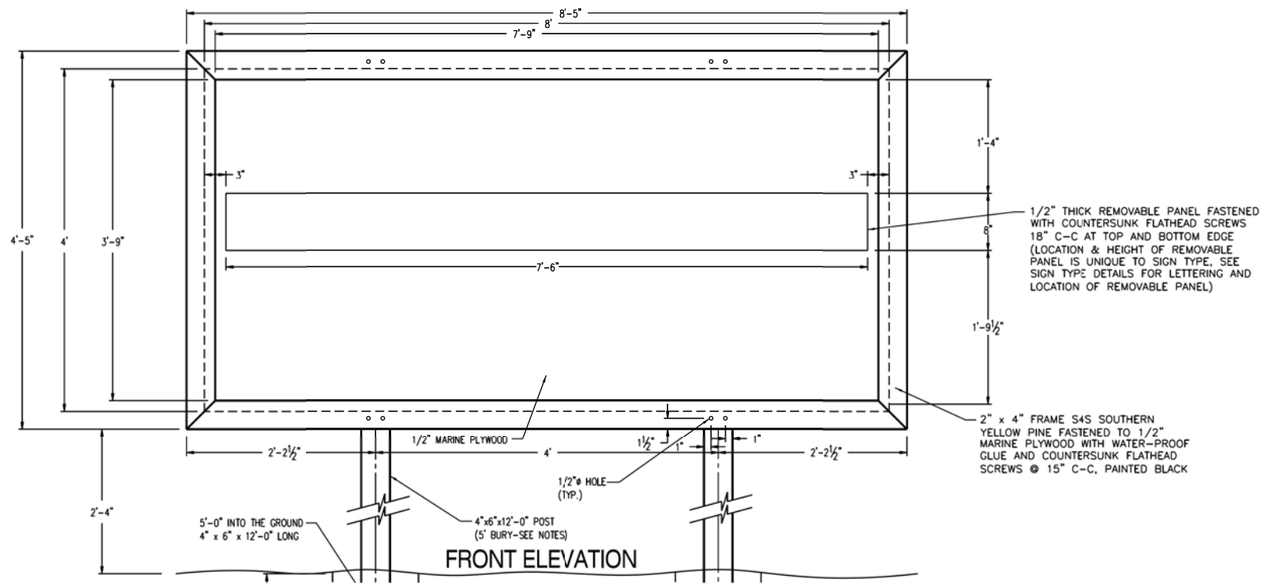
7/7/2021
pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\20192019-2073-01- Cinco Ranch Blvd Turn Lanes\6.0 TEDSI Design\6.08 CADD\6.08.01 Sheet Files\Standard Details\Fort Bend\FBC - TYPE C INLET.dgn



REAR ELEVATION



SECTION A-A



FRONT ELEVATION

GENERAL NOTES:

1. THE SIGN SHALL HAVE BLACK LETTERS WITH WHITE BACKGROUND.
2. ALL LETTERING SHALL BE EITHER AERIAL FONT OR HELVETICA FONT.
3. SIGN SHALL BE MOUNTED ON 4" x 6" POSTS AND LOCATED BY THE ENGINEER.
4. REMOVABLE PANEL SHALL BE 1/2" MARINE PLYWOOD.
5. ALL BOLTS, SCREWS, NAILS, NUTS AND WASHERS SHALL BE GALVANIZED OR CADMIUM PLATED.
6. 4" x 6" POST SHALL BE WOLMANIZED OR PENTACHLOROPHENOL TREATED.
7. ALL WOOD SURFACES SHALL HAVE PRIME COAT AND TWO (2) COATS OF SHERWIN-WILLIAMS KEM-LUSTRA ENAMEL OR EQUAL.

NO.	REVISIONS	DATE	NAME
1			
2			
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4			
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FORT BEND COUNTY ENGINEERING DEPARTMENT

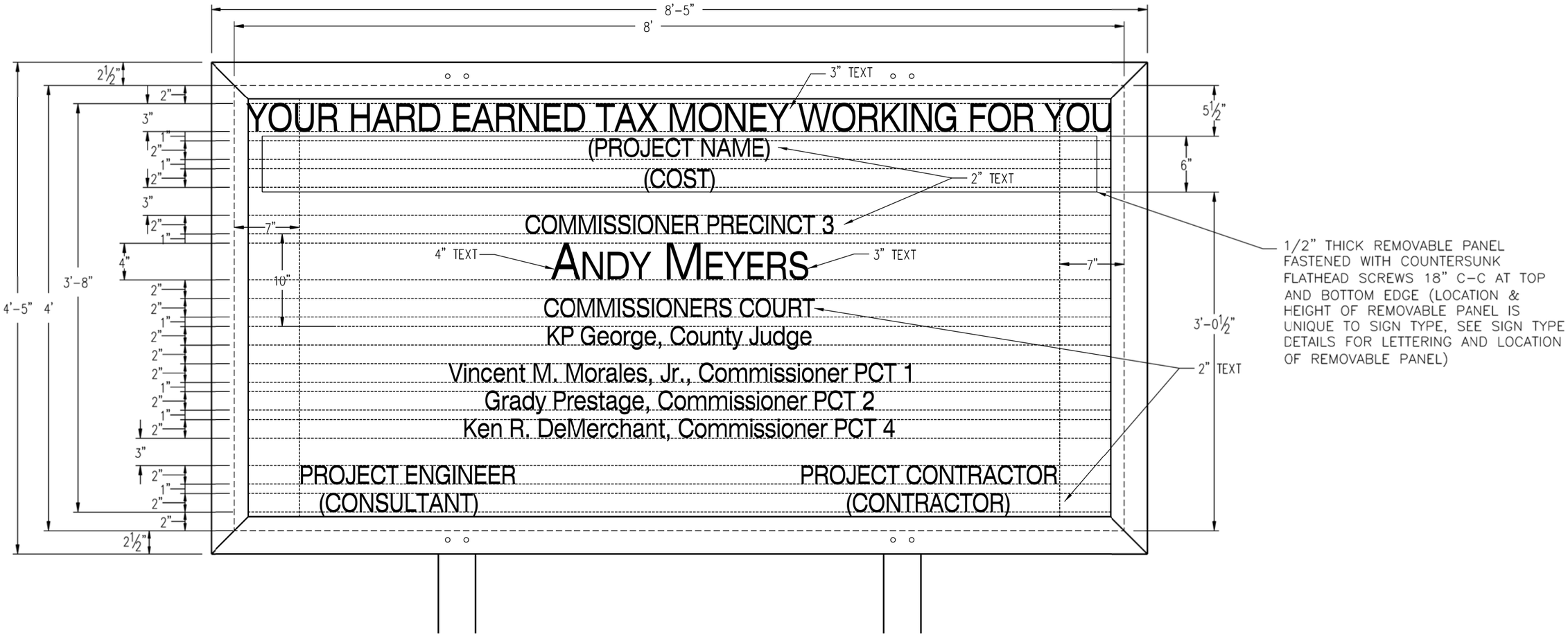
THE STATE OF TEXAS — FORT BEND COUNTY

STATE OF TEXAS — PAUL E. BRIGHT — 61108 — REGISTERED PROFESSIONAL ENGINEER — 7/7/2021

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TBPE F-2640

PROJECT TITLE: CINCO RANCH BOULEVARD		
DRAWN BY: INIT	TURN LANE IMPROVEMENTS	FBCED STANDARD
CK'D BY: INIT	SHEET DESCRIPTION: PROJECT SIGN DETAILS	
SCALE: NONE	SHEET 1 OF 2	SHEET NO: 63
DATE: 6/15/20	APPROVED BY:	

7/7/2021
pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2019\2019-2073-01- Cinco Ranch Blvd Turn Lanes\6.0 TEDSI Design\6.08 CADD\6.08.01 Sheet Files\Standard Details\Fort Bend\FBC - PROJECT SIGN_01.dgn



GENERAL NOTES:

1. THE SIGN SHALL HAVE BLACK LETTERS WITH WHITE BACKGROUND.
2. ALL LETTERING SHALL BE EITHER AERIAL FONT OR HELVETICA FONT.
3. SIGN SHALL BE MOUNTED ON 4" x 6" POSTS AND LOCATED BY THE ENGINEER.
4. REMOVABLE PANEL SHALL BE 1/2" MARINE PLYWOOD.
5. ALL BOLTS, SCREWS, NAILS, NUTS AND WASHERS SHALL BE GALVANIZED OR CADMIUM PLATED.
6. 4" x 6" POST SHALL BE WOLMANIZED OR PENTACHLOROPHENOL TREATED.
7. ALL WOOD SURFACES SHALL HAVE PRIME COAT AND TWO (2) COATS OF SHERWIN-WILLIAMS INT. LUSTRA ENAMEL OR EQUAL.

NO.	REVISIONS	DATE	NAME
1			
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3			
4			
5			

FORT BEND COUNTY
ENGINEERING DEPARTMENT

THE STATE OF TEXAS · FORT BEND COUNTY

STATE OF TEXAS · PAUL E. BRIGHT · 61108 · REGISTERED PROFESSIONAL ENGINEER
7/7/2021

TEDSI INFRASTRUCTURE GROUP
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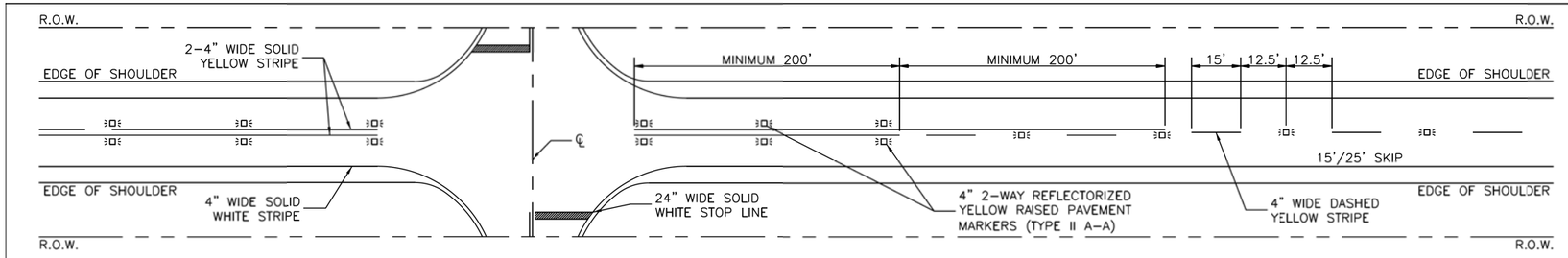
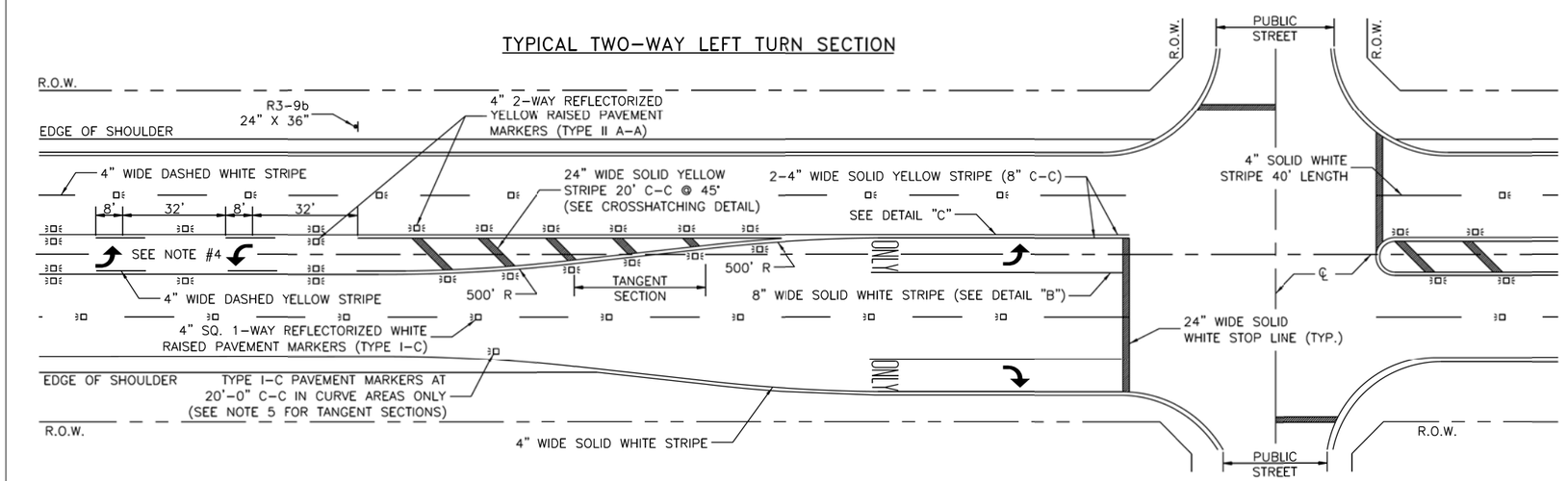
TBPE F-1640

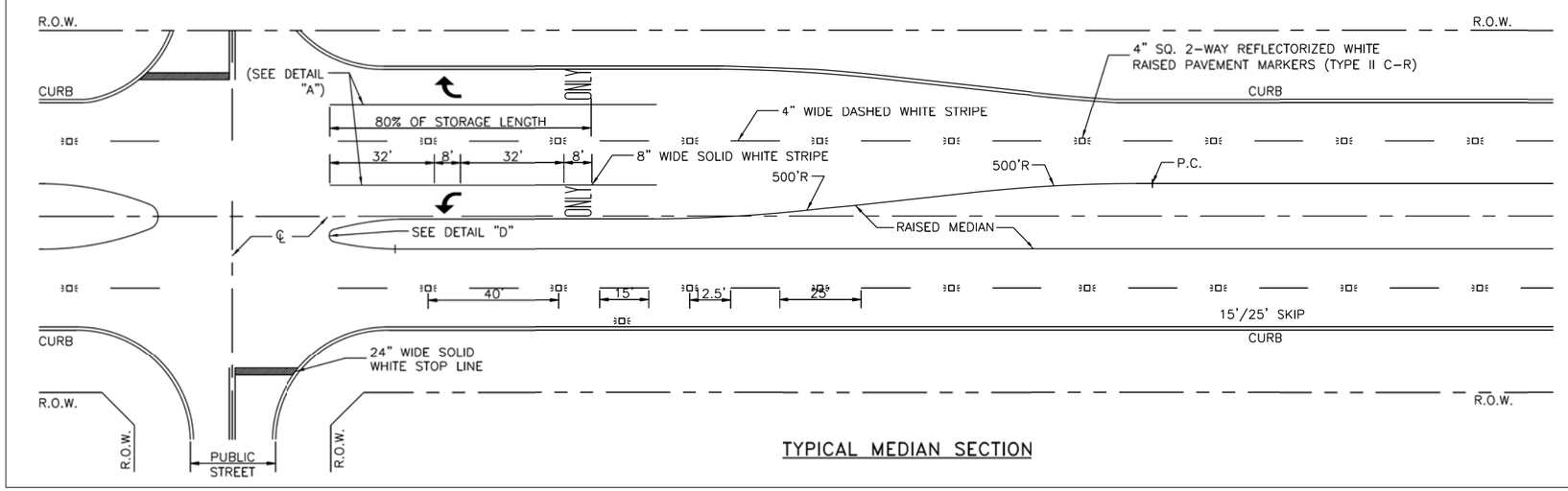
PROJECT TITLE:	CINCO RANCH BOULEVARD	
DRAWN BY: INIT	TURN LANE IMPROVEMENTS	FBCED STANDARD
CK'D BY: INIT	SHEET DESCRIPTION: PRECINCT FUNDED PROJECT SIGN	
SCALE: NONE	SHEET 2 OF 2	SHEET NO: 64
DATE: 6/15/20	APPROVED BY:	

7/7/2021
pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2019\2019-2073-01- Cinco Ranch Blvd Turn Lanes\6.0 TEDSI Design\6.08 CADD\6.08.01 Sheet Files\Standard Details\Fort Bend\FBC - PROJECT SIGN_02.dgn



TYPICAL TWO LANE TWO-WAY ROAD



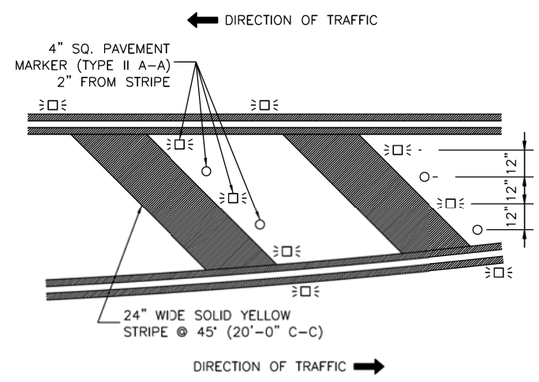


TYPICAL MEDIAN SECTION

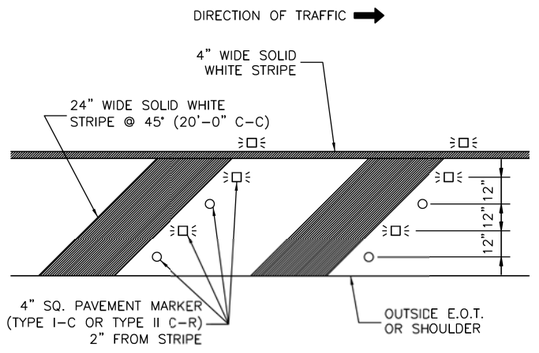
NOTES:

1. ALL PAVEMENT MARKINGS SHALL CONFORM TO THE LATEST EDITION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS (TMUTCD).
2. ALL TRAFFIC BUTTONS AND MARKERS SHALL BE INSTALLED ADJACENT TO STRIPES (APPROXIMATELY 2").
3. REPEAT ARROWS AT APPROXIMATELY 1000' INTERVALS WITHIN TWO-WAY LEFT TURN SECTION.
4. WITHIN A TANGENT SECTION THE TYPE I-C PAVEMENT MARKERS SHALL BE PLACED AT 40' C-C ON ROADWAYS WITHOUT CURB AND GUTTERS.
5. WHEN PAVEMENT MARKINGS EXTEND INTO OR CONTINUE THROUGH AN INTERSECTION AREA, THEY SHALL BE THE SAME COLOR AND AT LEAST THE SAME WIDTH AS THE LINE MARKINGS THEY EXTEND.
6. WHEN CROSSWALK MARKINGS ARE USED WITHIN AN ESTABLISHED SCHOOL ZONE AREA, CONTINENTAL TYPE MARKINGS SHALL BE USED.
7. ADDITIONAL SET OF "WORD" AND "ARROW" PAVEMENT MARKINGS SHALL BE USED WHEN TURN LANE STORAGE LENGTH IS 160 FEET OR GREATER.

CROSSHATCHING DETAIL



OUTSIDE EDGE CROSSHATCHING DETAIL



NO.	REVISIONS	DATE	NAME

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THE STATE OF TEXAS — FORT BEND COUNTY

STATE OF TEXAS — PAUL E. BRIGHT — 61108 — REGISTERED PROFESSIONAL ENGINEER — 7/7/2021

TEDSI INFRASTRUCTURE GROUP
TEDSI TBPE F-(-640)
Consulting Engineers
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Houston, Texas 77079
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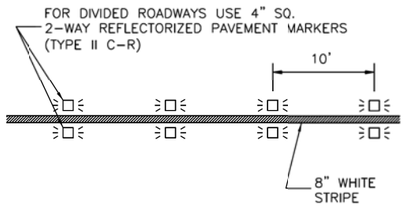
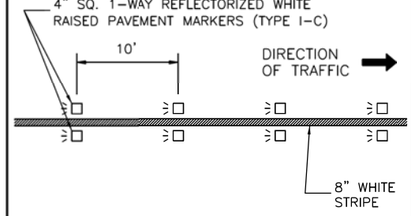
PROJECT TITLE:	CINCO RANCH BOULEVARD		
DRAWN BY: INIT	TURN LANE IMPROVEMENTS		FBCED STANDARD
CK'D BY: INIT	SHEET DESCRIPTION: PAVEMENT MARKING DETAILS		
SCALE: NONE	SHEET 1 OF 2		SHEET NO: 65
DATE: 6/15/20	APPROVED BY:		

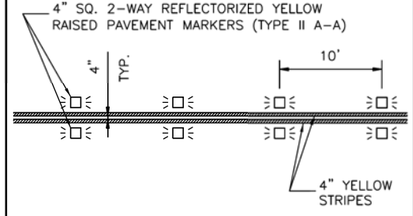
DETAIL "A"
(FOR DIVIDED ROADWAYS)



DETAIL "B"
(FOR UNDIVIDED ROADWAYS)



DETAIL "C"

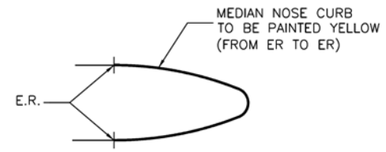


PAVEMENT MARKER LEGEND

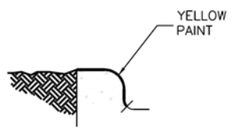
SYMBOL	DESCRIPTION
⋋□⋌	4" x 4" REFLECTORIZED RAISED PAVEMENT MARKER
□⋌	INDICATED DIRECTION OF TRAFFIC FLOW

DETAIL "D"

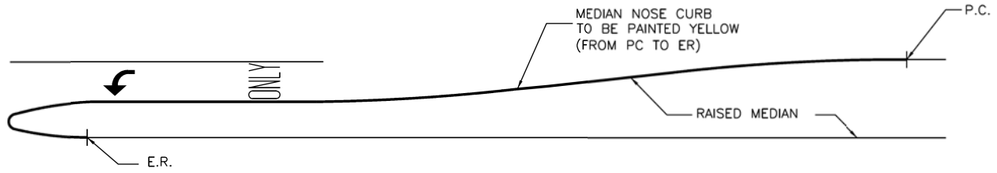
* PAINT FROM THE BACK OF CURB TO THE GUTTER LINE



TYPICAL MEDIAN NOSE



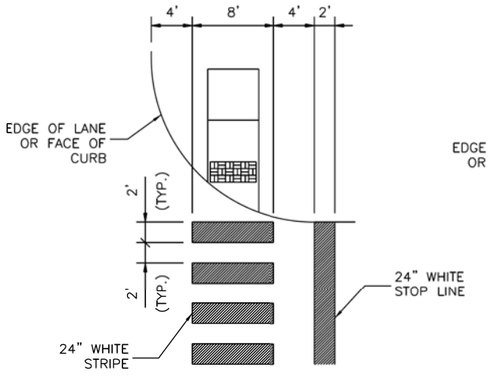
TYPICAL CURB SECTION



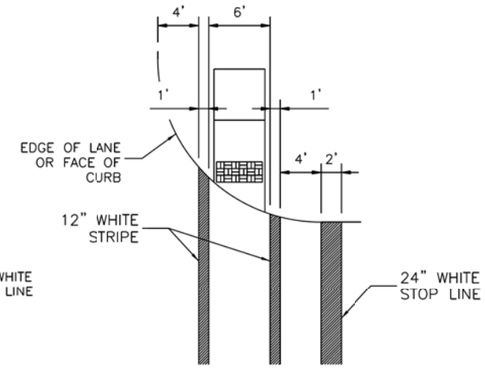
RAISED MEDIAN WITH TURN BAY

TYPICAL CROSSWALK PLACEMENT

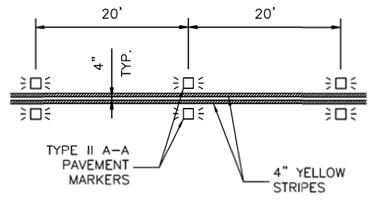
CONTINENTAL TYPE



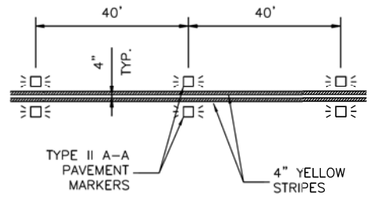
STANDARD TYPE



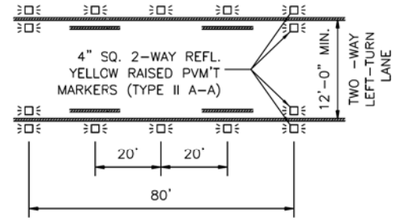
CENTER LINE DETAIL
CURVE SECTION



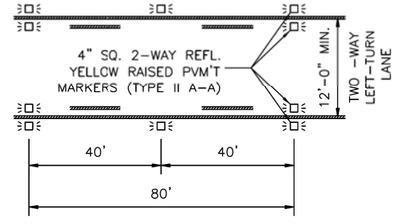
CENTER LINE DETAIL
TANGENT SECTION



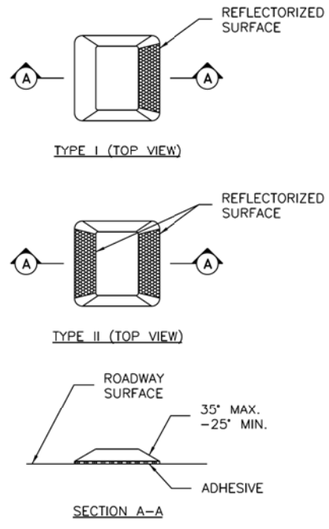
TWO-WAY LEFT TURN
CURVE SECTION



TWO-WAY LEFT TURN
TANGENT SECTION



RAISED PAVEMENT
MARKERS



NO.	REVISIONS	DATE	NAME
1			
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7/7/2021

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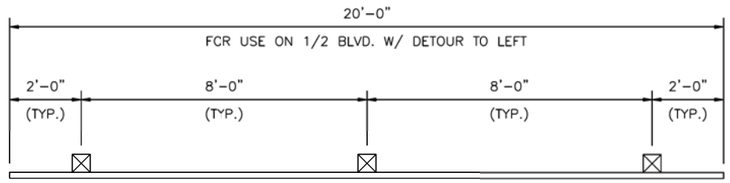
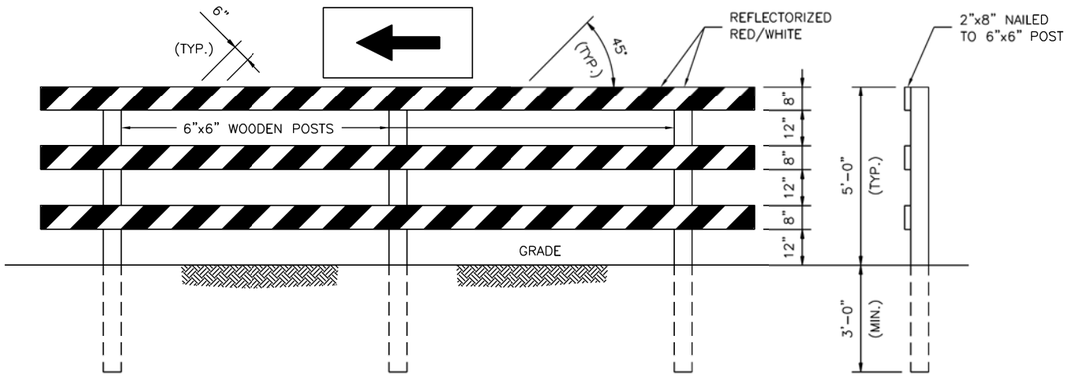
Houston, Texas 77079
(832) 619-1900
TBPE F-2640

PROJECT TITLE: CINCO RANCH BOULEVARD		
DRAWN BY: INIT	TURN LANE IMPROVEMENTS	FBCED STANDARD
CK'D BY: INIT	SHEET DESCRIPTION: PAVEMENT MARKING DETAILS	
SCALE: NONE	SHEET 2 OF 2	SHEET NO: 66
DATE: 6/15/20	APPROVED BY:	

7/7/2021
pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\20192019-2073-01- Cinco Ranch Blvd Turn Lanes\6.0 TEDSI Design\6.08 CADD\6.08.01 Sheet Files\Standard Details\Fort Bend\FBC - TRAFFIC - PVMT MRKS.dgn

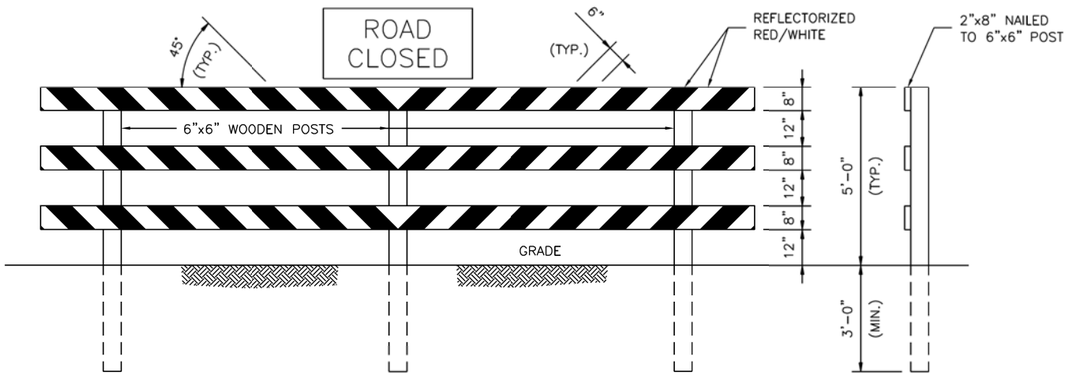


PLAN VIEW



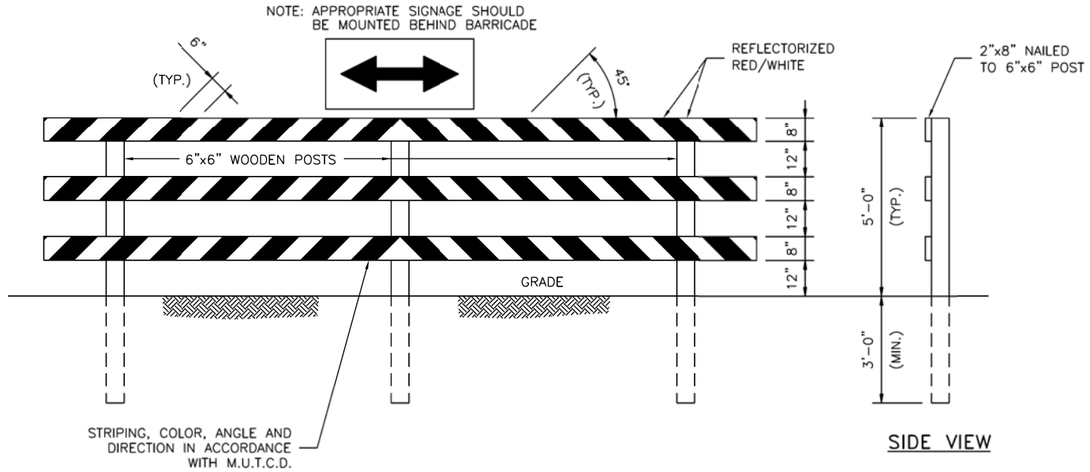
FRONT VIEW SIDE VIEW

DETOUR ROUTE



FRONT VIEW SIDE VIEW

ROAD CLOSED – NO OUTLET



FRONT VIEW SIDE VIEW

T–INTERSECTION

APPLICATION: PERMANENT AND SEMI–PERMANENT CLOSURE OF ROADWAY OR ROADWAY TERMINATION

NO.	REVISIONS	DATE	NAME
1			
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Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TBPE: F-6640

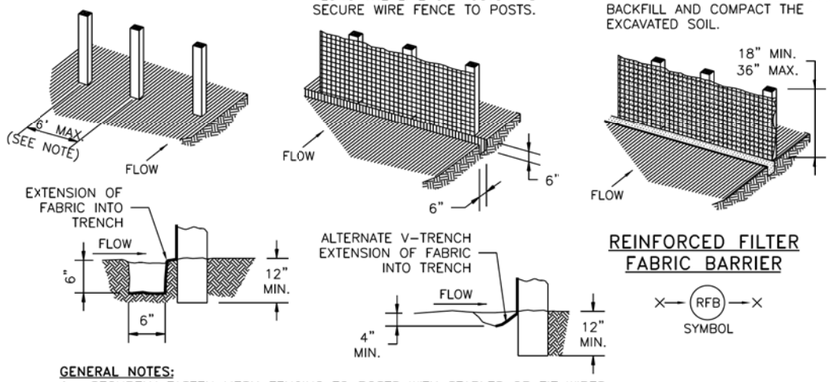
PROJECT TITLE:	CINCO RANCH BOULEVARD
DRAWN BY: INIT	TURN LANE IMPROVEMENTS
CK'D BY: INIT	SHEET DESCRIPTION: TYPE III BARRICADE DETAILS
SCALE: NONE	
DATE: 6/15/20	APPROVED BY:

FBCED STANDARD

SHEET NO: 67

7/7/2021
pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2019\2019-2073-01- Cinco Ranch Blvd Turn Lanes\6.0 TEDSI Design\6.08 CADD\6.08.01 Sheet Files\Standard Details\Fort Bend\FBC - TYPE III BARRICADE.dgn

1. SET POSTS AT REQUIRED SPACING
2. EXCAVATE A 6"x6" TRENCH UPSLOPE ALONG THE LINE OF POSTS AND SECURE WIRE FENCE TO POSTS.
3. ATTACH FILTER FABRIC TO POSTS AND EXTEND IT INTO THE TRENCH. BACKFILL AND COMPACT THE EXCAVATED SOIL.

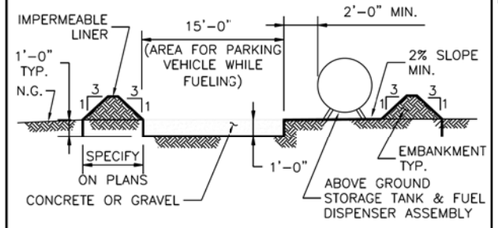


REINFORCED FILTER FABRIC BARRIER

RFB SYMBOL

GENERAL NOTES:

1. SECURELY FASTEN MESH FENCING TO POSTS WITH STAPLES OR TIE WIRES.
2. SECURELY FASTEN FILTER FABRIC TO MESH FENCING.
3. WHEN TWO SECTIONS OF FILTER FABRIC ADJOIN EACH OTHER, OVERLAP 6 INCHES AT A POST, FOLD TOGETHER, AND ATTACH TO A POST.
4. REMOVE SEDIMENT DEPOSITS WHEN SILT REACHES ONE-THIRD OF THE HEIGHT OF THE FENCE IN DEPTH.
5. SILT FENCE MINIMUM 2' BEHIND CURB.

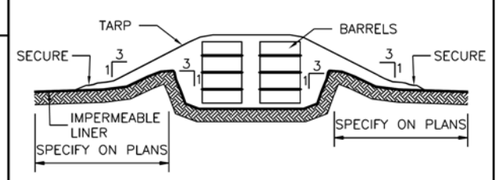


ABOVE GROUND TEMP. VEHICLE & EQUIPMENT FUELING AREA WITH TANK

TFA SYMBOL

GENERAL NOTES:

1. THE SIZE OF TANK FOUNDATION AREA DEPENDS ON THE SIZE OF ABOVE GROUND STORAGE TANK AND DISPENSER ASSEMBLY.
2. PROVIDE A MINIMUM SLOPE OF 2 % TOWARD THE SUMP PIT.
3. INSTALL IMPERMEABLE LINER AS PER MANUFACTURER'S RECOMMENDATIONS.

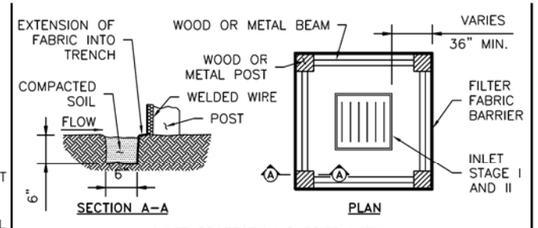


BARREL STORAGE AREA

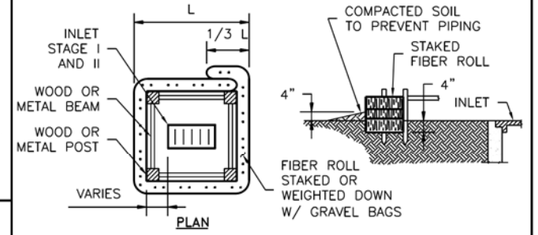
BSA SYMBOL

GENERAL NOTES:

1. ALTERNATIVELY, STORE BARRELS IN AN ENCLOSED BUILDING OR SHED.
2. INSTALL IMPERMEABLE LINER AS PER MANUFACTURER'S RECOMMENDATIONS. 60 mil MINIMUM.
3. CONSTRUCT BERMED AREA WITH VOLUME GREATER THAN OR EQUAL TO 110% VOLUME OF BARRELS.



INLET PROTECTION BARRIER WITH REINFORCED FILTER FABRIC



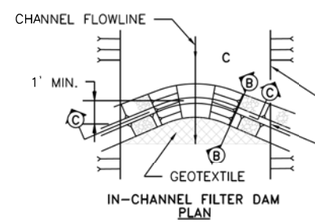
INLET PROTECTION BARRIER WITH FILTER ROLLS

GENERAL NOTES:

1. FIBER ROLLS WILL BE UTILIZED ONLY WHEN SITE CONDITIONS DO NOT PERMIT THE USE OF FILTER FABRIC BARRIER, AND AS APPROVED BY THE ENGINEER.

INLET PROTECTION BARRIERS FOR STAGE I INLETS

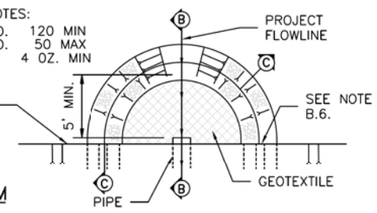
IPB SYMBOL



IN-CHANNEL FILTER DAM PLAN

GEOTEXTILE NOTES:

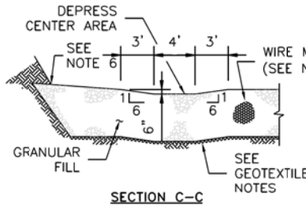
MIN. AOS	SIEVE NO.	120 MIN
MAX. AOS	SIEVE NO.	50 MAX
WEIGHT	OZ/SY	4 OZ. MIN



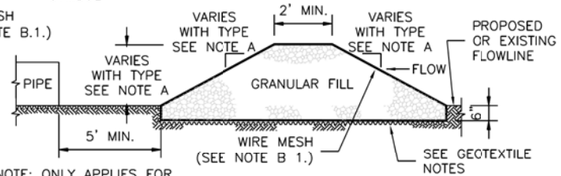
FILTER DAM AT DETENTION BASIN OUTFALL PIPE PLAN

FILTER DAM

RFD-TYPE SYMBOL



SECTION C-C



NOTE: ONLY APPLIES FOR DETENTION BASIN OUTFALL PIPE PROTECTION.

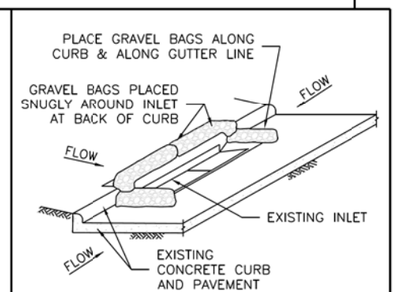
SECTION B-B

A. TYPES OF FILTER DAMS

1. TYPE 1 (NON-REINFORCED)
   a. HEIGHT - 18-24 INCHES. MEASURE VERTICALLY FROM EXISTING GROUND TO TOP OF FILTER DAM.
   b. TOP WIDTH - 2 FEET (MINIMUM)
   c. SLOPES - 2:1 (MAXIMUM).
2. TYPE 2 (REINFORCED).
   a. HEIGHT - 18-36 INCHES. MEASURE VERTICALLY FROM EXISTING GROUND TO TOP OF FILTER DAM.
   b. TOP WIDTH - 2 FEET (MINIMUM).
   c. SLOPES - 2:1 (MAXIMUM).
3. TYPE 3 (REINFORCED)
   a. HEIGHT - 36-48 INCHES. MEASURE VERTICALLY FROM EXISTING GROUND TO TOP OF FILTER DAM.
   b. TOP WIDTH - 2 FEET (MINIMUM).
   c. SLOPES - 3:1 (MAXIMUM).
4. TYPE 4 (GABION)
   a. HEIGHT - 30 INCHES (MINIMUM). MEASURE VERTICALLY FROM EXISTING GROUND TO TOP OF FILTER DAM.
   b. TOP WIDTH - 2 FEET (MINIMUM).
5. TYPE 5. AS SHOWN ON THE PLANS.

B. CONSTRUCT FILTER DAMS ACCORDING TO THE FOLLOWING CRITERIA UNLESS SHOWN OTHERWISE ON THE PLANS.

1. TYPE 2 AND 3 FILTER DAMS: SECURE WITH 20 GAUGE GALVANIZED WOVEN WIRE MESH WITH 1 INCH DIAMETER HEXAGONAL OPENINGS.
2. PLACE GRANULAR FILL ON THE WIRE MESH TO HEIGHT AND SLOPES SHOWN ON PLANS OR AS SPECIFIED BY THE ENGINEER.
   a. 3-5 INCHES FOR ROCK FILTER DAM TYPES 1, 2 AND 4.
   b. 4-8 INCHES FOR ROCK FILTER DAM TYPE REFER TO GRANULAR FILL IN SPECIFICATION SECTION No. 02378 RIPRAP AND GRANULAR FILL.
3. FOLD WIRE MESH AT UPSTREAM SIDE OVER GRANULAR FILL AND TIGHTLY SECURED TO ITSELF ON THE DOWNSTREAM SIDE USING WIRE TIES OR HOG RINGS.
4. IN STREAMS: SECURE OR STAKE MESH TO STREAM BED PRIOR TO AGGREGATE PLACEMENT.
5. SEE HCFCD SPECIFICATION SECTION NO. 02364-FILTER DAMS.
6. EMBED ONE FOOT MINIMUM INTO SLOPE AND RAISE ONE FOOT HIGHER THAN CENTER OF DEPRESSED AREA AT SLOPE.

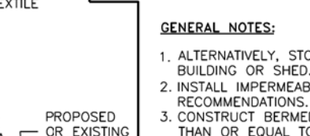


INLET PROTECTION BARRIERS FOR STAGE II INLETS

IPB-II SYMBOL

GENERAL NOTES:

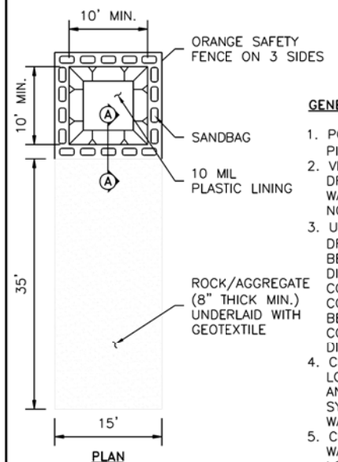
1. REMOVE SEDIMENT DEPOSIT WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-THIRD THE HEIGHT OF THE BARRIER.
2. GRAVEL BAGS SHALL NOT BLOCK THROAT OF INLET UNLESS DIRECTED BY ENGINEER.



SECTION A-A

CONCRETE TRUCK WASHOUT AREA

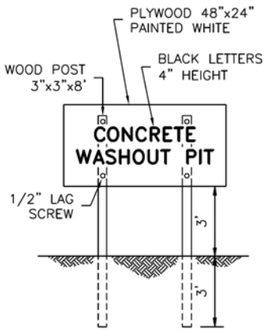
CTW SYMBOL



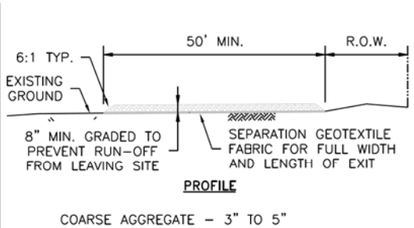
PLAN

GENERAL NOTES:

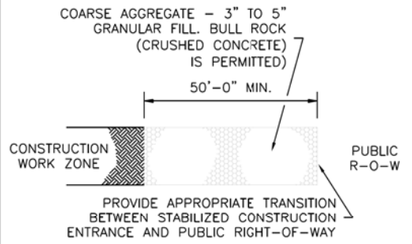
1. POST A SIGN READING "CONCRETE WASHOUT PIT" NEXT TO THE PIT.
2. VERBALLY INSTRUCT THE CONCRETE TRUCK DRIVERS WHERE THE PIT IS AND TO WASHOUT THEIR TRUCKS IN THE PIT AND NOWHERE ELSE.
3. UPON THE CONCRETE SETTING UP (CURING, DRYING OUT), THE CONCRETE WASTE SHALL BE REMOVED FROM THE PROJECT SITE AND DISPOSED OF PROPERLY BY THE CONTRACTOR. AFTER REMOVAL OF THE CONCRETE WASTE, THE WASHOUT PIT SHALL BE FILLED WITH CLEAN FILL MATERIAL AND COMPACTED TO IN-SITU CONDITIONS, OR AS DIRECTED BY THE PROJECT SPECIFICATIONS.
4. CONCRETE WASHOUT PITS SHALL NOT BE LOCATED DIRECTLY ADJACENT TO, NOR AT ANY TIME DRAIN INTO THE STORM SEWER SYSTEM OR ANY OTHER SWALE, DITCH, OR WATERWAY.
5. CONSTRUCT ENTRY ROAD AND BOTTOM OF WASHOUT AREA TO SUPPORT EXPECTED LOADINGS FROM TRUCKS EQUIPMENT.



SIGN DETAIL (OR EQUIVALENT)



PROFILE



PLAN

STABILIZED CONSTRUCTION ACCESS

SC-1 SYMBOL

GENERAL NOTES:

1. MINIMUM LENGTH IS AS SHOWN ON CONSTRUCTION DRAWINGS OR 50 FEET, WHICHEVER IS MORE.
2. CONSTRUCT AND MAINTAIN CONSTRUCTION EXIT WITH CONSTANT WIDTH ACROSS ITS LENGTH, INCLUDING ALL POINTS OF INGRESS OR EGRESS.
3. UNLESS SHOWN ON THE CONSTRUCTION DRAWINGS, STABILIZATION FOR OTHER AREAS WILL HAVE THE SAME AGGREGATE THICKNESS AND WIDTH REQUIREMENTS AS THE STABILIZED CONSTRUCTION EXIT.
4. WHEN SHOWN ON THE CONSTRUCTION DRAWINGS, WIDEN OR LENGTHEN STABILIZED AREA TO ACCOMMODATE A TRUCK WASHING AREA. PROVIDE OUTLET SEDIMENT TRAP FOR THE TRUCK WASHING AREA.
5. PROVIDE PERIODIC TOP DRESSING WITH ADDITIONAL COARSE AGGREGATE TO MAINTAIN THE REQUIRED DEPTH OR WHEN SURFACE BECOMES PACKED WITH MUD.
6. PERIODICALLY TURN AGGREGATE TO EXPOSE A CLEAN DRIVING SURFACE.
7. MINIMUM 14' WIDTH FOR ONE WAY TRAFFIC AND 20' WIDTH FOR TWO WAY TRAFFIC.

NO.	REVISIONS	DATE	NAME
1			
2			
3			
4			
5			

FORT BEND COUNTY ENGINEERING DEPARTMENT

THE STATE OF TEXAS — FORT BEND COUNTY

STATE OF TEXAS — PAUL E. BRIGHT — 61108 — REGISTERED PROFESSIONAL ENGINEER — 7/7/2021

TEDSI INFRASTRUCTURE GROUP
TEDSI Consulting Engineers
TBPE: F-6540
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000

PROJECT TITLE:	CINCO RANCH BOULEVARD		
DRAWN BY: INIT	TURN LANE IMPROVEMENTS		FBCED STANDARD
CK'D BY: INIT	SHEET DESCRIPTION: STORM WATER POLLUTION		
SCALE: NONE	PREVENTION PLAN DETAILS		SHEET NO: 68
DATE: 6/15/20	APPROVED BY:		

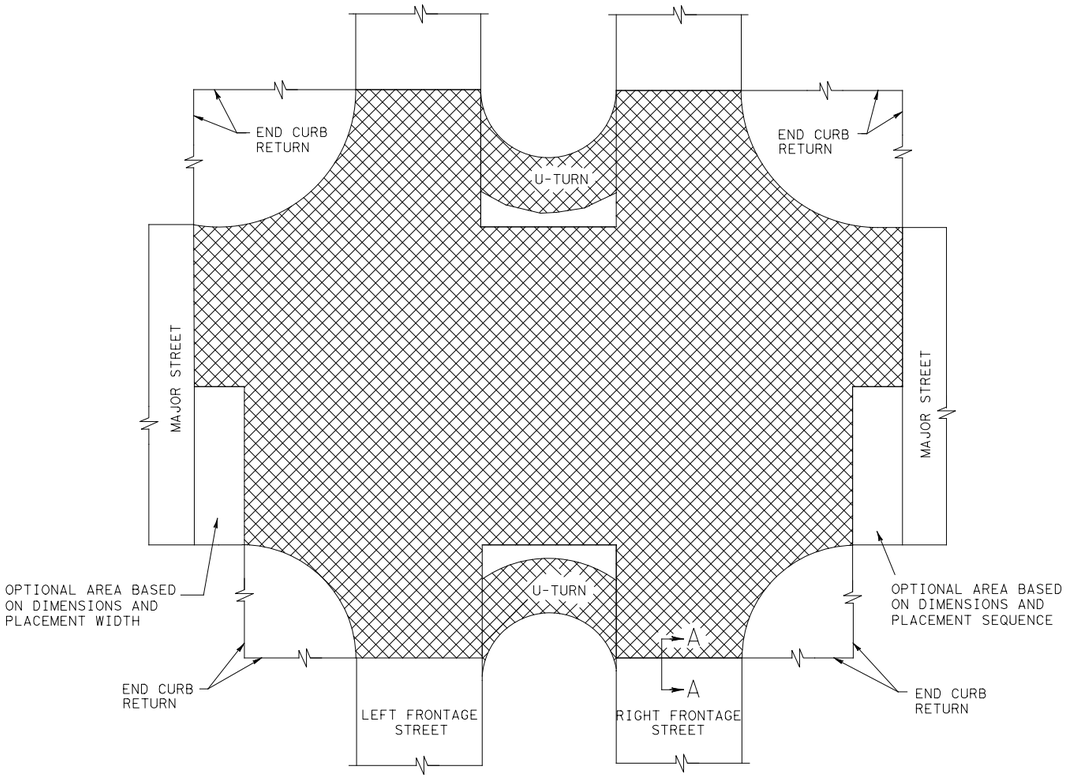


FIGURE 2

INTERSECTION OF MAJOR STREET
WITH FRONTAGE STREET

TABLE 1

EQUIVALENT PAVEMENT THICKNESS	
T * (IN.)	T_{FS} ** (IN.)
<=12"	T+3"
>12"	15"

*WITH BASE STRUCTURE OF:
1" ASPHALT STABILIZED BASE
6" PORTLAND CEMENT TREATED BASE
6" LIME TREATED SUBGRADE

**ON AS CUT SUBGRADE

***SEE JOINT SEALING DETAILS ON CRCP STANDARDS

GENERAL NOTES

1. DEFINITION OF TERMS

   T_{FS} - FAST TRACK CONCRETE PAVING DEPTH AT INTERSECTIONS AND LEAVE OUTS.
   T - NOMINAL CONCRETE PAVING DEPTH AS SHOWN IN THE PLANS.
   DETERMINE FAST TRACK CONCRETE PAVING DEPTH USING TABLE 1 AND THE NOMINAL CONCRETE PAVING DEPTH "T" SHOWN IN THE PLANS.

2. AT INTERSECTIONS AND LEAVE-OUT LOCATIONS USE THE SAME LONGITUDINAL AND TRANSVERSE BAR SPACING FOR THE FAST TRACK PAVING AREA AS THAT USED FOR THE ADJACENT CONCRETE PAVING DEPTH "T"(EXCEPT BAR SIZE SHALL BE #7 ON SINGLE MAT). FOR SINGLE MAT FAST TRACK PAVING, PLACE THE LONGITUDINAL AND TRANSVERSE BARS FOR THE FAST TRACK PAVING AREA AT THE HORIZONTAL PLANE ELEVATION THAT IS TWO TIE-BAR DIAMETERS LOWER THAN THAT USED FOR THE ADJACENT CONCRETE PAVEMENT DEPTH "T", AS SHOWN IN FIGURE 1. USE SINGLE MAT STEEL IN FAST TRACK PAVING AREAS ADJACENT TO PAVEMENT SLABS WITH SINGLE MAT REINFORCING. USE DOUBLE MAT STEEL IN FAST TRACK PAVING AREAS ADJACENT TO PAVEMENT SLABS WITH DOUBLE MAT REINFORCING.

3. THE REQUIRED FAST TRACK PAVING AREAS WILL BE SHOWN ON THE PLANS. THE CONTRACTOR HAS THE OPTION TO UTILIZE FAST TRACK CONCRETE PAVING AT U-TURNS, AT INTERSECTIONS, AT MINOR STREETS, AND AT DRIVEWAYS WITH FRONTAGE ROAD LEAVE-OUT AREAS THAT ARE NOT SHOWN ON THE PLANS, WITH PRIOR WRITTEN APPROVAL FROM THE ENGINEER. TYPICAL PAVING PLANS FOR THE INTERSECTION OF A MAJOR STREET WITH THE FRONTAGE ROAD ARE SHOWN AS FIGURE 2, AND FOR THE INTERSECTION OF A MINOR STREET OR DRIVEWAY WITH THE FRONTAGE ROAD AS FIGURE 3. FAST TRACK PAVE THE FRONTAGE ROAD FOR THE FULL FRONTAGE ROAD WIDTH AND PLACE IN STAGES AS REQUIRED.

4. USE ADDITIONAL #6 REINFORCING STEEL BARS (MINIMUM 42 INCHES LONG) AND SPACE THEM MIDWAY BETWEEN ALTERNATE LONGITUDINAL BARS ALONG THE THE TRANSVERSE CONSTRUCTION JOINT FORMED AT THE FAST TRACK PAVING INTERFACE (T_{FS}) WITH THE ADJACENT PAVEMENT SLAB (T).

5. SPLICE LENGTH IS A MINIMUM OF 33 TIMES THE NOMINAL STEEL DIAMETER.

6. PLACE THE CONCRETE PLACEMENT AT A UNIFORM DEPTH THROUGHOUT THE FAST TRACK CONCRETE PAVING AREA.

7. FOR CONTINUOUS SECTIONS OF ROADWAY WHERE FAST TRACK PAVING IS THE PRIMARY PAVEMENT TYPE, USE THE BAR SIZE AND SPACING FROM THE CRCP STANDARDS THAT CORRESPONDS TO THE FAST TRACK SLAB THICKNESS.

8. USE LONGITUDINAL TIE-BARS OF THE SAME SIZE DIAMETER AND SPACING AS THE LONGITUDINAL BAR. A SINGLE PIECE TIE-BAR MAY BE USED IF THE 33 TIMES DIAMETER TIE-BAR PROJECTION DOES NOT INTERFERE WITH THE SAFE HANDLING OF TRAFFIC.

9. BASE THE DEPTH OF SAW CUTS FOR SAWED JOINTS ON THE FAST TRACK CONCRETE PAVEMENT THICKNESS.

10. THIS STANDARD IS NOT INTENDED TO REPLACE OTHER STANDARDS EXCEPT WHERE SPECIFICALLY STATED HEREIN. FOR PAVING DETAILS NOT SHOWN ON THIS DRAWING, REFER TO THE STANDARD SHEETS FOR CONTINUOUSLY REINFORCED CONCRETE PAVEMENT SHOWN ELSEWHERE IN THE PLANS.

FAST TRACK PAVING AREA

TYPICAL PAVING PLANS

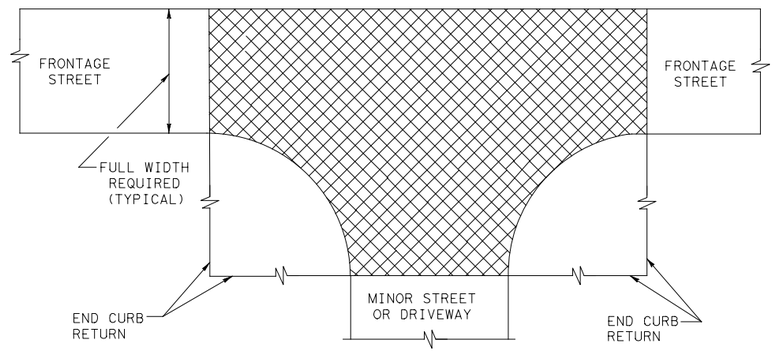
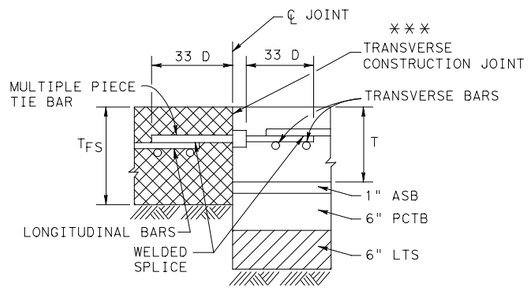


FIGURE 3

INTERSECTION OF MINOR STREET OR
DRIVEWAY WITH FRONTAGE STREET



SINGLE MAT

TRANSVERSE CONSTRUCTION JOINTS

SECTION A - A
FIGURE 1

LEGEND

ASB - ASPHALT STABILIZED BASE
CRCP - CONTINUOUSLY REINFORCED CONCRETE PAVEMENT
D - DIAMETER
LTS - LIME TREATED SUBGRADE
PCTB - PORTLAND CEMENT TREATED BASE

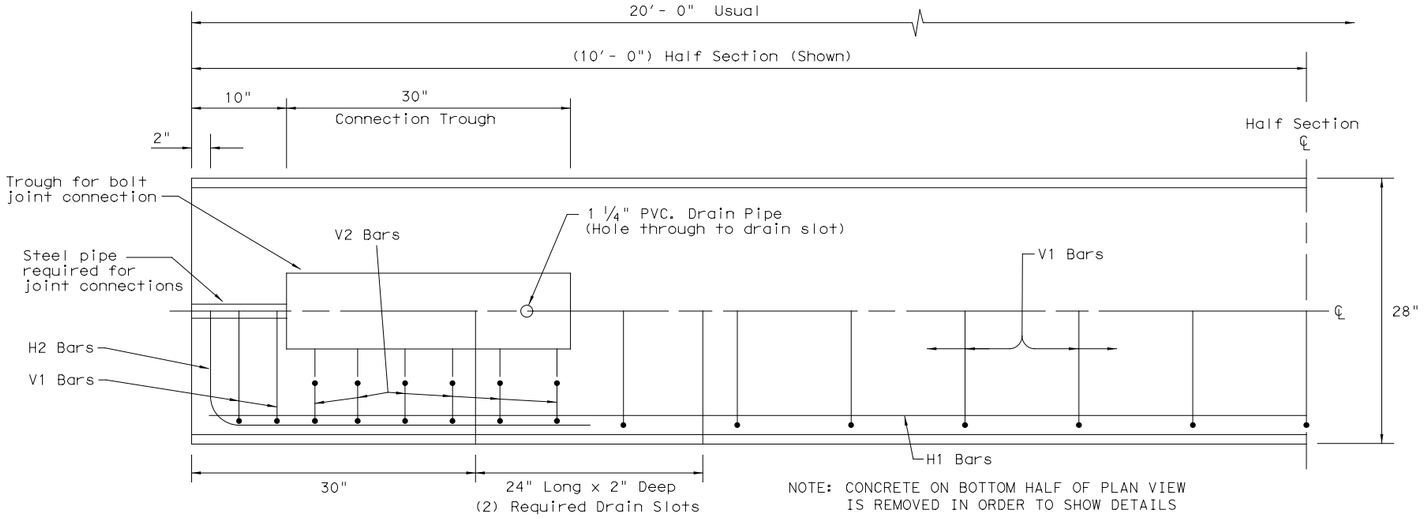
Texas Department of Transportation
Houston District

FAST TRACK CONTINUOUSLY REINFORCED CONCRETE PAVEMENT DETAILS

CRCP-FT

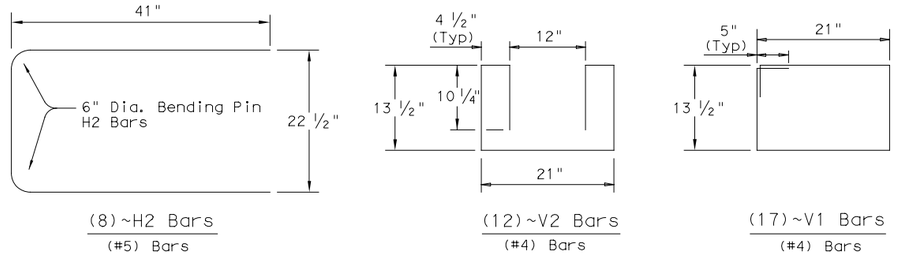
FILE: STDB-4.dgn	DN:	CK:	DW:	CK:	
©TxDOT DEC. 2009	DIST	FED REG	PROJECT NO.		SHEET
REVISIONS 5/05 2004 SPECS 2/15 2014 SPECS	HOU	6			69
	COUNTY		CONTROL	SECT	JOB	HIGHWAY

DATE:
FILE:



NOTE: CONCRETE ON BOTTOM HALF OF PLAN VIEW IS REMOVED IN ORDER TO SHOW DETAILS

PLAN
(TYPE 1) BARRIER SEGMENT
(SYMMETRICAL ABOUT CENTER LINES)



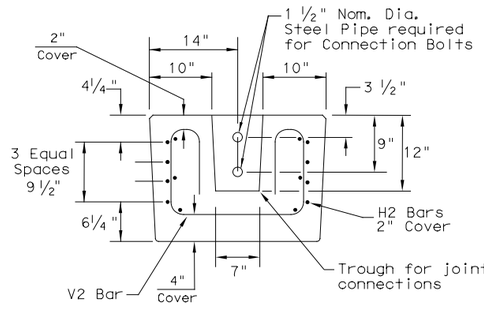
(8)~H2 Bars
(#5) Bars

(12)~V2 Bars
(#4) Bars

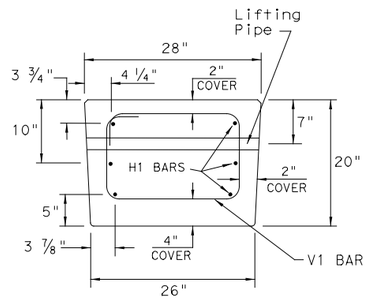
(17)~V1 Bars
(#4) Bars

REINFORCING STEEL DETAILS
TYPE 1 - BARRIER SEGMENT

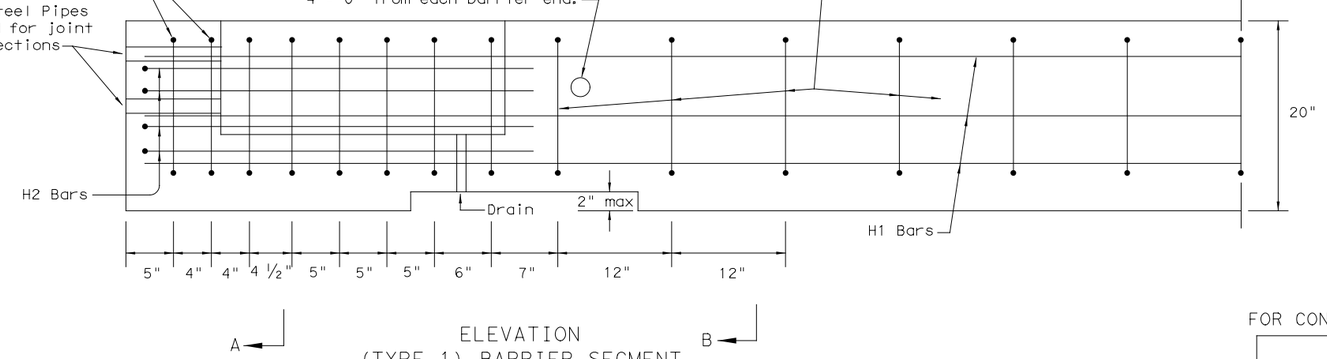
Note: Use 2" Dia. Bending Pin, unless otherwise shown



SECTION A-A



SECTION B-B



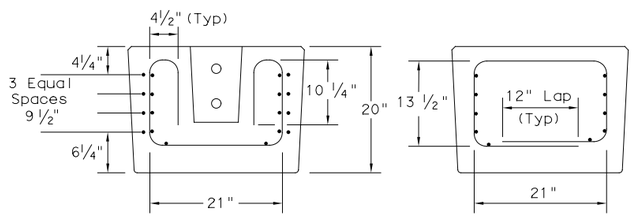
ELEVATION
(TYPE 1) BARRIER SEGMENT
(SYMMETRICAL ABOUT CENTER LINES)

GENERAL NOTES

1. Low Profile Concrete Barrier (LPCB), is approved for use in temporary work zone locations, where the posted speed is 45 mph, or less.
2. Concrete shall be Class H for precast barrier with a minimum compressive strength of 3,600 psi.
3. Where used, rebar reinforcement shall be Grade 60 and conform to ASTM A615.
4. Precast LPCB barrier length shall be 20 ft.
5. All barrier edges shall have ¾" chamfer or a tooled radius.
6. Joint connection hardware shall be in accordance with Item 449, "Anchor Bolts." and is considered subsidiary.
7. Steel pipe required for joint connection bolts shall be galvanized in accordance with Item 445,"Galvanizing."
8. Welded wire reinforcement (WWR) may be used in lieu of conventional reinforcement for Type 1 barrier, and shall meet the requirements shown.

FOR CONTRACTORS INFORMATION ONLY

(TYPE 1) APPROX. QUANTITIES 20 FT. SECTION		
CONCRETE	CY	2.6
REINFORCING STEEL	LBS	330
TOTAL BARRIER WT.	LBS	11000



SECTION A-A

SECTION B-B

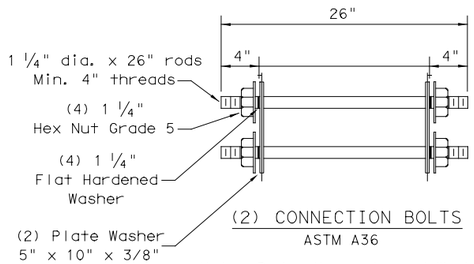
(WWR) GENERAL NOTES

1. Deformed Welded Wire Reinforcement shall conform to ASTM A497.
2. Welded wire cage may be cut or bent, if necessary, but must be approved by the Engineer.
3. Combinations of reinforcing steel and WWR are permitted, as directed by the Engineer. The dimensions from the end of the barrier section to the first wire shall not exceed 3".

REQUIRED (WWR) WIRE DESIGN

8 ~ (D31) Horizontal Wires (Equally spaced)
10 ~ (D20) Horizontal Wires (Equally spaced)
29 ~ (D20) Vertical Wires (Spaced as shown in Elevation View)

WELDED WIRE REINFORCEMENT (WWR)- OPTIONAL REINFORCING



(2) CONNECTION BOLTS
ASTM A36

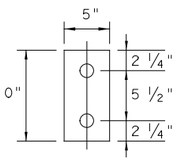


PLATE WASHER
5" x 10" x ⅜"

Note: Rods, Hex nuts and Washers shall be Galvanized.

SHEET 1 OF 2

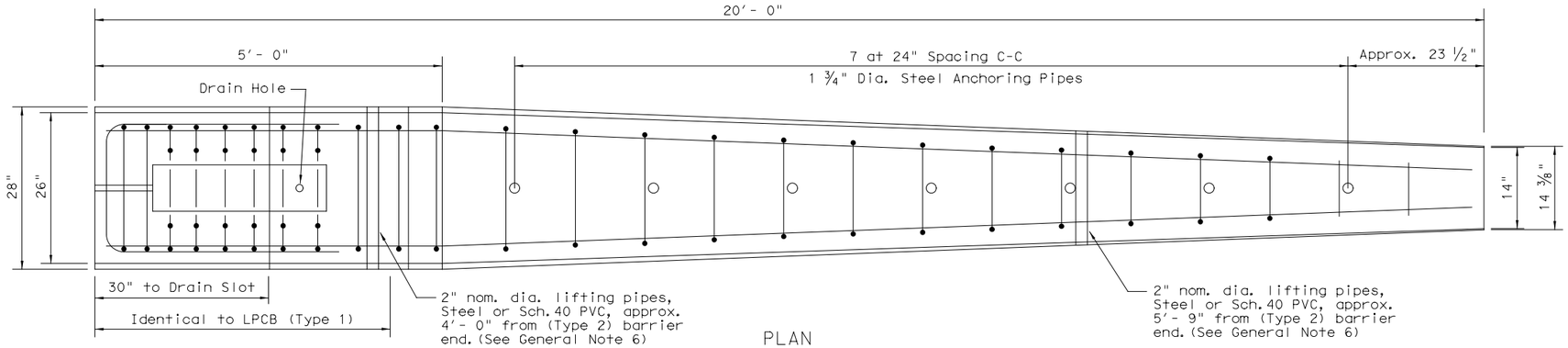
Texas Department of Transportation

Design Division Standard

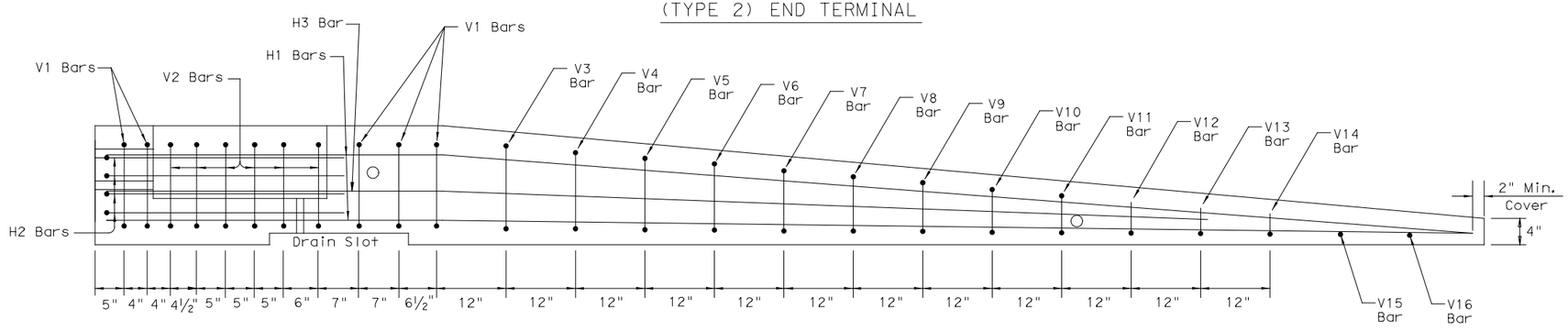
LOW PROFILE CONCRETE BARRIER
PRECAST BARRIER
(TYPE 1)
LPCB-13

FILE: lpcb13.dgn	DN: TxDOT	CK: AM	DW: VP	CK:
©TxDOT December 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.
				70

DATE:
FILE:

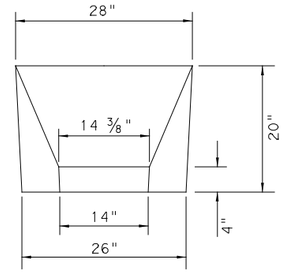


PLAN
(TYPE 2) END TERMINAL



ELEVATION
(TYPE 2) END TERMINAL

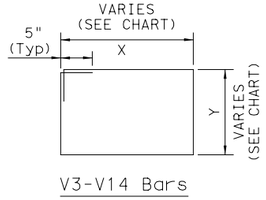
Note:
Anchoring pipes not shown in Elevation View



APPROACH VIEW

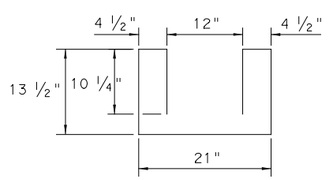
TYPE 2 - NOTES

1. Welded wire reinforcment (WWR) is "not" an option for Type 2 Barrier.
2. Type 2 Barrier shall be used as an end treatment for the Type 1 barrier segments, when applicable.
3. The end treatment can be used without the anchor pins in locations that can accommodate approximately 4 ft. of lateral displacement of the end treatment. The use of non-pinned end treatment does not affect the performance or the deflection of the Low-Profile barrier system.
4. The anchor pins are all the same length and are to be driven flush with the top of the (Type 2) barrier surface.
5. The bends in the H3 and H1 bars are slight, no formal bend is necessary.
6. The Type 2 barrier segment must be lifted from the rear first, to prevent cracking of sloped section.
7. See LPCB sheet 1 for additional information.

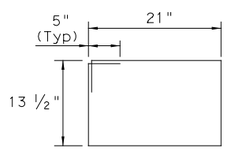


V3-V14 Bars

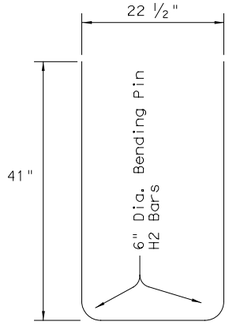
BAR (#4)	X (IN.)	Y (IN.)
V3 BAR	20 ¼	14 ½
V4 BAR	19 ½	13 ½
V5 BAR	18 ½	12 ¼
V6 BAR	17 ½	11 ¼
V7 BAR	17	10 ¼
V8 BAR	16 ¼	9
V9 BAR	15 ½	8
V10 BAR	14 ½	7
V11 BAR	13 ¾	6



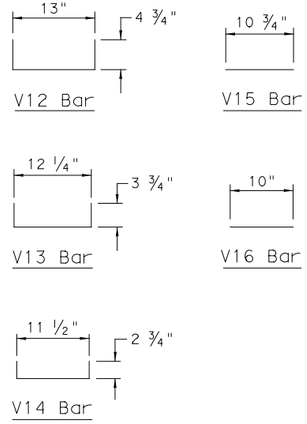
(6)~V2 Bars



(5)~V1 Bars

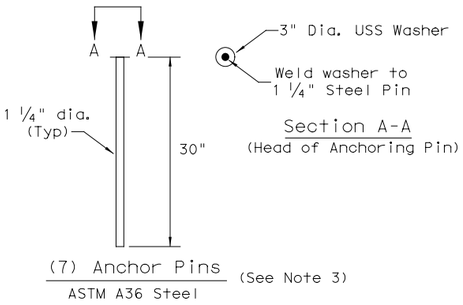


(4)~H2 Bars
(#5) Bars



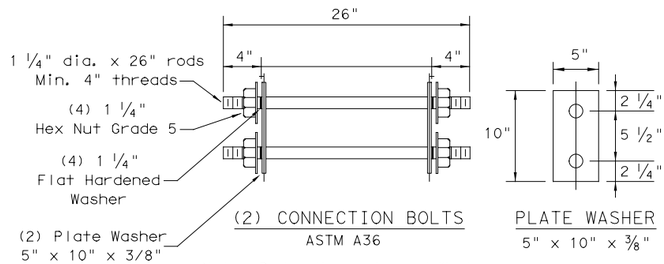
Note: All V Bars are (#4)

REINFORCING STEEL DETAILS
TYPE 2 - END TERMINAL



Section A-A
(Head of Anchoring Pin)

(7) Anchor Pins
ASTM A36 Steel (See Note 3)

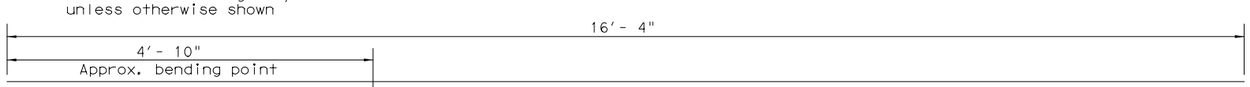


(2) CONNECTION BOLTS
ASTM A36

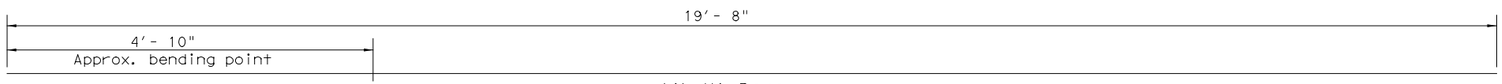
PLATE WASHER
5" x 10" x ⅜"

Note: Rods, Hex nuts and Washers shall be Galvanized.

Note: Use 2" Dia. Bending Pin, unless otherwise shown



(2)~H3 Bars
(#5) Bar



Note: Bends on H1 and H3 bars are slight and do not require formal bends.

(4)~H1 Bars
(#5) Bar

FOR CONTRACTORS INFORMATION ONLY

(TYPE 2) APPROX. QUANTITIES		20 FT. SECTION
CONCRETE	CY	1.65
REINFORCING STEEL	LBS	240
TOTAL BARRIER WT.	LBS	7000

Texas Department of Transportation

Design Division Standard

LOW PROFILE CONCRETE BARRIER
PRECAST BARRIER (TYPE 2)
LPCB-13

FILE: lpcb13.dgn	DN: TxDOT	CK: AM	DW: VP	CK:
©TxDOT December 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.
				71

DATE: 7/7/2021
FILE: pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2019\2019-2073-01-Cinco Ranch Blvd Turn Lanes\Traffic Signal\ED(1)-14.dgn

GENERAL NOTES FOR ALL ELECTRICAL WORK

1. The location of all conduits, junction boxes, ground boxes, and electrical services is diagrammatic and may be shifted to accommodate field conditions.

2. Provide new and unused materials. Ensure that all materials and installations comply with the applicable articles of the National Electrical Code (NEC), TxDOT standards and specifications, National Electrical Manufacturers Association (NEMA), and are listed by Underwriters Laboratories (UL) or a Nationally Recognized Testing Lab (NRTL). NRTLs such as Canadian Standard Association (CSA), Intertek Testing Services NA Inc., or FM Approvals LLC can be considered equivalent to UL. Where reference is made to NEMA listed devices, International Electrotechnical Commission (IEC) listed devices will not be considered an acceptable equal to a NEMA listed device. Acceptable devices may have both a NEMA and IEC listing. Faulty fabrication or poor workmanship in any material, equipment, or installation is justification for rejection. Replace or reinstall rejected material or equipment at no additional cost to the Department.

3. Miscellaneous nuts, bolts and hardware, except for high strength bolts, may be stainless steel when plans specify galvanized, provided the bolt size is ½ in. or less in diameter.

4. Provide the following test equipment as required by the Engineer to confirm compliance with the contract and the NEC: voltmeter, ammeter, megohm meter (1000 volt DC), ground resistance tester, torque wrenches, and torque screwdrivers. Ensure all equipment has been properly calibrated within the last year. Provide calibration certification to the Engineer upon request. Operate test equipment during inspection as requested by the Engineer.

5. Install grounding as shown on the plans and in accordance with the NEC. Ensure all metallic conduits; metal poles; luminaires; and metal enclosures are bonded to the equipment grounding conductor. Provide stranded bare copper or green insulated grounding conductors. Ground rods, connectors, and bonding jumpers are subsidiary to the various bid items.

6. When required by the Engineer, notify the Department in writing of materials from the Material Producers List (MPL) intended for use on each project. Prequalified materials are listed on the MPL on TxDOT's website under "Roadway Illumination and Electrical Supplies." No substitutions will be allowed for materials on this list.

CONDUIT

A. MATERIALS

1. Provide conduit, junction boxes, fittings, and hardware as per TxDOT Departmental Material Specification (DMS) 11030 "Conduit" and Item 618 "Conduit" of TxDOT's "Standard Specifications For Construction And Maintenance Of Highways, Streets, And Bridges," latest edition. Provide conduits listed under Item 618 on the MPL under "Roadway Illumination and Electrical Supplies." Provide conduit types according to the descriptive code or as shown on the plans. Do not substitute other types of conduits for those shown. Provide liquidtight flexible metal conduit (LFMC) when flexible conduit is called for on galvanized steel rigid metallic conduit (RMC) systems. Provide liquidtight flexible nonmetallic conduit (LFNC) when flexible conduit is called for on polyvinyl chloride (PVC) systems.

2. Provide galvanized steel RMC for all exposed conduits, unless otherwise shown on the plans. Properly bond all metal conduits.

3. Unless otherwise shown on the plans, provide junction boxes with a minimum size as shown in the following table, which applies to the greatest number of conductors entering the box through one conduit with no more than four conduits per box. When a mixture of conductor sizes is present, count the conductors as if all are of the larger size. For situations not applicable to the table, size junction boxes in accordance with NEC.

AWG	3 CONDUCTORS	5 CONDUCTORS	7 CONDUCTORS
#1	10" x 10" x 4"	12" x 12" x 4"	16" x 16" x 4"
#2	8" x 8" x 4"	10" x 10" x 4"	12" x 12" x 4"
#4	8" x 8" x 4"	10" x 10" x 4"	10" x 10" x 4"
#6	8" x 8" x 4"	8" x 8" x 4"	10" x 10" x 4"
#8	8" x 8" x 4"	8" x 8" x 4"	8" x 8" x 4"

4. Junction boxes with an internal volume of less than 100 cu. in. and supported by entering raceways must have threaded entries or hubs identified for the intended purpose and supported by connection of two or more rigid metal conduits. Secure conduit within 3 ft. of the enclosure or within 18 in. of the enclosure if all conduit entries are on the same side. Mechanically secure all junction boxes with an internal volume greater than 100 cu. inches.

5. Provide hot dipped galvanized cast iron or sand cast aluminum outlet boxes for junction boxes containing only 10 AWG or 12 AWG conductors. Do not use die cast aluminum boxes. Size outlet boxes according to the NEC.

6. Do not use intermediate metal conduit (IMC) or electrical metallic tubing (EMT) unless specifically required by the plan sheets. When EMT is called for, provide junction boxes made from galvanized steel sheeting, listed and approved for outdoor use, unless otherwise noted on the plans. Size all galvanized steel junction boxes in accordance with the NEC. Provide junction boxes for IMC conduit systems that meet the same requirements for junction boxes used with RMC systems.

7. Provide PVC junction boxes intended for outdoor use on PVC conduit systems, unless otherwise noted on the plans.

8. Provide PVC elbows in PVC conduit systems, unless otherwise shown on the plans. Use only a flat, high tensile strength polyester fiber pull tape for pulling conductors through the PVC conduit system. When galvanized steel RMC elbows are specifically called for in the plans and any portion of the RMC elbow is buried less than 18 in., ground the RMC elbow by means of a grounding bushing on a rigid metal extension. Grounding of the rigid metal elbow is not required if the entire RMC elbow is encased in a minimum of 2 in. of concrete. PVC extensions are allowed on these concrete encased rigid metal elbows. RMC or PVC elbows are subsidiary to various bid items.

9. When required, provide High-Density Polyethylene (HDPE) conduit with factory installed internal conductors according to Item 622 "Duct Cable." At the Contractor's request and with approval by the Engineer, substitute HDPE conduit with no conductors for bored schedule 40 or schedule 80 PVC conduit bid under Item 618. Ensure bored HDPE substituted for PVC is schedule 40 and of the same size PVC called for in the plans. Ensure the substituted HDPE meets the requirements of Item 622, except that the conduit is supplied without factory-installed conductors. Make the transition of the HDPE conduit to PVC (or RMC elbow when required) at the bore pit. Provide conduit of the size and schedule as shown on the plans. Do not extend substituted conduit into ground boxes or foundations. Provide PVC or galvanized steel RMC elbows as called for at all ground boxes and foundations.

10. Use two-hole straps when supporting 2 in. and larger conduits. On electrical service poles, properly sized stainless steel or hot dipped galvanized one-hole standoff straps are allowed on the service riser conduit.

B. CONSTRUCTION METHODS

1. Provide and install expansion joint conduit fittings on all structure-mounted conduits at the structure's expansion joints to allow for movement of the conduit. In addition, provide and install expansion joint fittings on all continuous runs of galvanized steel RMC conduit externally exposed on structures such as bridges at maximum intervals of 150 ft. When requested by the project Engineer, supply manufacturer's specification sheet for expansion joint conduit fittings. Repair or replace expansion joint fittings that do not allow for movement at no additional cost to the Department. Provide the method of determining the amount of expansion to the Engineer upon request. Do not use LFMC or LFNC as a substitute for the required expansion conduit fittings.

2. Space all conduit supports at maximum intervals of 5 ft. Install conduit spacers when attaching metal conduit to surface of concrete structures. See "Conduit Mounting Options" on ED(2). Install conduit support within 3 ft. of all enclosures and conduit terminations.

3. Do not attach conduit supports directly to pre-stressed concrete beams except as shown specifically in the plans or as approved by the Engineer.

4. Unless otherwise shown on the plans, jack or bore conduit placed beneath existing roadways, driveways, sidewalks, or after the base or surfacing operation has begun. Backfill and compact the bore pits below the conduit per Item 476 "Jacking, Boring, or Tunneling Pipe or Box" prior to installing conduit or duct cable to prevent bending of the connections.

5. When placing conduit in the sub-grade of new roadways, backfill all trenches with excavated material unless otherwise noted on the plans. When placing conduit in the sub-base of new roadways, backfill all trenches with cement-stabilized base as per requirements of Items 110 "Excavation", 400 "Excavation and Backfill for Structures", 401 "Flowable Backfill", 402 "Trench Excavation Protection", and 403 "Temporary Special Shoring."

6. Provide and place warning tape approximately 10 in. above all trenched conduit as per Item 618.

7. During construction, temporarily cap or plug open ends of all conduit and raceways immediately after installation to prevent entry of dirt, debris and animals. Temporary caps constructed of durable duct tape are allowed. Tightly fix the tape to the conduit opening. Clean out the conduit and prove it clear in accordance with Item 618 prior to installing any conductors.

8. Ensure conduit entry into the top of any enclosure is waterproof by installing conduit sealing hubs or using boxes with threaded bosses. This includes surface mounted safety switches, meter cans, service enclosures, auxiliary enclosures and junction boxes. Grounding bushings on water tight sealing hubs are not required.

9. Fit the ends of all PVC conduit terminations with bushings or bell end fittings. Provide and install a grounding type bushing on all metal conduit terminations.

10. Install a bonding jumper from each grounding bushing to the nearest ground rod, grounding lug, or equipment grounding conductor. Ensure all bonding jumpers are the same size as the equipment grounding conductor. Bonding of conduit used as a casing under roadways for duct cable is not required, if the duct extends the full length through the casing.

11. At all electrical services, install a 6 AWG solid copper grounding electrode conductor.

12. Place conduits entering ground boxes so that the conduit openings are between 3 in. and 6 in. from the bottom of the box. See the ground box detail on sheet ED(4).

13. Seal ends of all conduits with duct seal, expandable foam, or by other methods approved by the Engineer. Seal conduit immediately after completion of conductor installation and pull tests. Do not use duct tape as a permanent conduit sealant. Do not use silicone caulk as a conduit sealant.

14. File smooth the cut ends of all mounting strut and conduit. Before installing, paint the field cut ends of all mounting strut and RMC (threaded or non-threaded) with zinc rich paint (94% or more zinc content) to alleviate overspray. Use zinc rich paint to touch up galvanized material as allowed under Item 445 "Galvanizing." Do not paint non-galvanized material with a zinc rich paint as an alternative for materials required to be galvanized.

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Traffic Operations Division Standard

ELECTRICAL DETAILS CONDUITS & NOTES

ED(1)-14

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		HOU	FORT BEND		72

DATE: 7/7/2021
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ELECTRICAL CONDUCTORS

A. MATERIAL INFORMATION

1. Provide Type XHHW insulated conductors in accordance with Departmental Material Specification (DMS)11040 "Conductors" and Item 620 "Electrical Conductors." Provide conductors as listed on the Material Producers List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies" Item 620. Color code insulated conductors in conformance with the NEC. Identify grounded (neutral) conductors with white insulation. Identify grounding conductors (ground wires) with green insulation or bare conductors. Identify ungrounded (hot) conductors with any color insulation except green, white, or gray. Keep color scheme consistent throughout the wiring system. Identify conductors 6 American Wire Gauge (AWG) and smaller by continuous color jacket. Identify electrical conductors 4 AWG and larger by continuous color jacket or by colored tape. When identifying conductors with colored tape, mark at least 6 in. of the conductor's insulation with half laps of tape.

2. Provide a solid copper 6 AWG grounding electrode conductor to bond the electrical service equipment to the concrete encased grounding electrode or the ground rod at the service location. Connect the grounding electrode conductor to the ground rod with a UL listed connector in accordance with DMS 11040. Connect the grounding electrode conductor to the concrete encased grounding electrode as shown in the plans.

3. Where two or more circuits are present in one conduit or enclosure, permanently identify the conductors of each branch circuit by attaching a non-metallic tag around both circuit conductors at each accessible location. Provide tags with two straps, large enough to indicate circuit number, letter, or other identification as shown in the plans. Print circuit identification on the tag with a permanent marker.

4. Use listed compression or screw type pressure connectors, terminal blocks, or split bolt connectors for splicing as specified in DMS 11040. Use hot melt adhesive tape to fill the gap and seal the ends of heat shrink tubing. Provide UL listed gel-filled insulating splice covers. Splicing materials, insulating materials, breakaway disconnects, splice covers, and fuse holders are subsidiary to various bid items.

B. CONSTRUCTION METHODS

1. Use only a flat, high tensile strength polyester fiber pull tape for pulling conductors through the conduit system. After installing conductors in conduit, perform conductor pull test. If a conductor cannot be freely pulled, make any needed alterations or repairs at no additional cost to the department. Perform insulation resistance tests in accordance with Item 620. Coordinate with the Engineer to witness the tests.

2. Leave 2 ft. minimum, 3 ft. maximum length for each conductor up to the splice in ground boxes. Leave 3 ft. minimum, 4 ft. maximum length of conductor in ground boxes when pulled through with no splice. Leave 1 ft. minimum, 1.5 ft. maximum length of conductor at enclosures, weatherheads and pole bases.

3. Make splices only in junction boxes, ground boxes, pole bases, or electrical enclosures and use only listed compression or screw type pressure connectors, terminal blocks, or split bolt connectors. Insulate splices with heavy wall heat shrink tubing or gel-filled insulating splice covers to provide a watertight splice. Overlap conductor insulation with heat shrink tubing a minimum of 2 in. past both sides of the splice. Where heat shrink tubing may not shrink sufficiently to provide a watertight seal around the individual conductors, prior to heating the tubing, increase the diameter of the conductor insulation using hot melt adhesive tape to provide a watertight seal between the individual conductors and the heat shrink tubing. Ensure the tape extends past the heat shrink tubing. Use hot melt adhesive tape to fill the gap and seal the ends of heat shrink tubing. Heat shrink tubing that appears to have been burned, or overheated, is considered defective and must be replaced.

4. Size and install gel-filled insulating splice covers according to manufacturer's specifications when used in place of heat shrink tubing.

5. Wire nuts with factory applied waterproof sealant may be used for 8 AWG or smaller conductors in above ground junction boxes, but not in pole bases or ground boxes. Install wire nuts in an upright position to prevent the accumulation of water.

6. Support conductors in illumination poles with a J-hook at the top of the pole.

7. When terminating conductors, remove the insulation and jacketing material without nicking the individual strands of the conductor. Conductors with nicked individual conductor strands or removed strands will be considered damaged.

8. Replace conductors and cables that are damaged beyond repair or that fail an insulation resistance test at no additional cost to the department.

9. Do not repair damaged conductors with duct tape, electrical tape, or wire nuts. Use only approved splicing methods.

10. Do not terminate more than one conductor under a single connector, unless the connector is rated for multiple conductors. Do not exceed the pressure connector's listing for maximum number and size of conductors allowed.

11. Install breakaway connectors on conductors bid under Item 620 whenever those conductors pass through a breakaway support device. Follow manufacturer's instructions when terminating conductors to breakaway connectors. Properly torque threaded connections. Proper terminations are critical to the safe operation of breakaway devices. Trim waterproofing boots on breakaway connectors to fit snugly around the conductor to ensure waterproof connection. Only one conductor may enter a single opening in a boot. Provide waterproof boots with the correct number of openings. Leave unused openings factory sealed. Use prequalified breakaway connectors as shown on the MPL.

12. Provide and install a separate stranded equipment grounding conductor (EGC) in all conduits that contain circuit wiring of 50 volts or more. Unless shown elsewhere, size the EGC to be the same size as the largest current carrying conductor contained in the conduit. Ensure all EGCs are bonded together at every accessible location. For traffic signal installations, provide a minimum size 8 AWG EGC. The EGC is paid for under Item 620.

C. TEMPORARY WIRING

1. Install temporary conductors and electrical equipment in accordance with the NEC article "Temporary Installations" and Department standard sheets.

2. Provide a ground fault circuit interrupter (GFCI) for power outlets for portable electrical equipment, power tools, ice machines, ice storage bins and refrigerators located outdoors at grade. GFCI may be any one of the following: molded cord and plug set, receptacle, or circuit breaker type.

3. Use listed wire nuts with factory applied sealant for temporary wiring where approved.

4. Enclose conductor splices within a listed enclosure or ground box, or ensure the splices are more than 10 ft. above grade vertically and more than 5 ft. horizontally from any metal structure. Where installing temporary conductors in areas subject to vehicle traffic or mobile construction equipment, ensure the vertical clearance to ground is at least 18 ft. when measured at the lowest point. Ground messenger wires that support power conductors in conformance with the NEC.

5. Protect and when necessary repair any existing electrical conduits uncovered during the construction process in a timely manner and in conformance with the NEC.

GROUND RODS & GROUNDING ELECTRODES

A. MATERIAL INFORMATION

1. Provide and install a grounding electrode at electrical services. Provide ground rods according to DMS 11040 and the plans. Larger diameter or longer length rods may be called for in some specific locations, see the individual plans sheets. Concrete encased grounding electrodes may be called for in specific locations including electrical service, see individual plan sheets.

B. CONSTRUCTION METHODS

1. Furnish auxiliary ground rods for lightning protection and install in soil, concrete, or both, as called for in the plans. For ground rods installed in concrete, ensure the connection of the conductor to the ground rod is readily accessible for inspection or repairs. For ground rods installed in soil, ensure that the upper end is between 2 to 4 in. below finished grade.

2. Do not place ground rods in the same drilled hole as a timber pole.

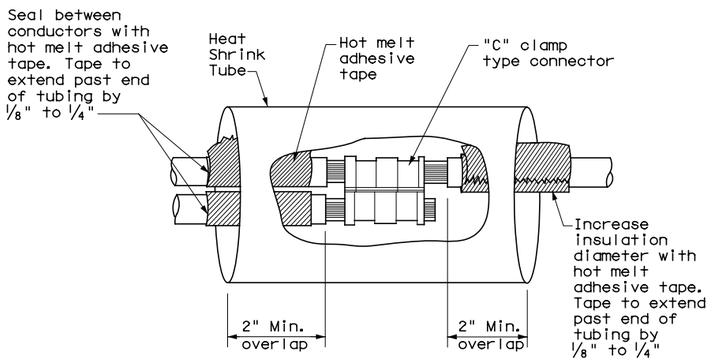
3. Install ground rods so the imprinted part number is at the upper end of the rod.

4. Remove all non-conductive coatings such as concrete splatter from the rod at the clamp location.

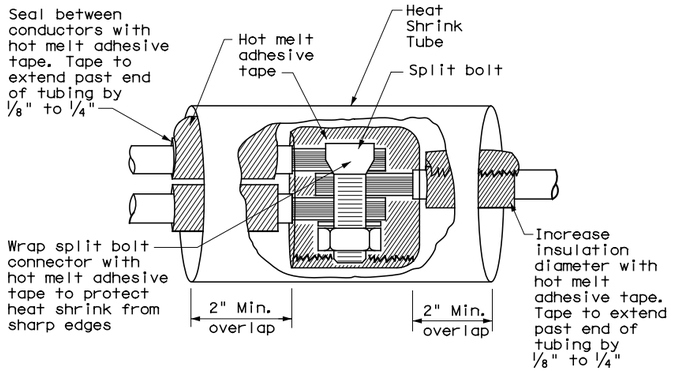
5. Route all conductors as short and straight as possible for connection to lightning protection ground rods. When a bend is required, ensure a minimum radius bend of four inches for these conductors.

6. Unless otherwise called for in the plans, protect grounding electrode conductors with non-metallic conduit. When protecting grounding electrode conductors with metal conduit, provide and install a grounding type bushing and properly sized bonding jumper on each end of the metal conduit.

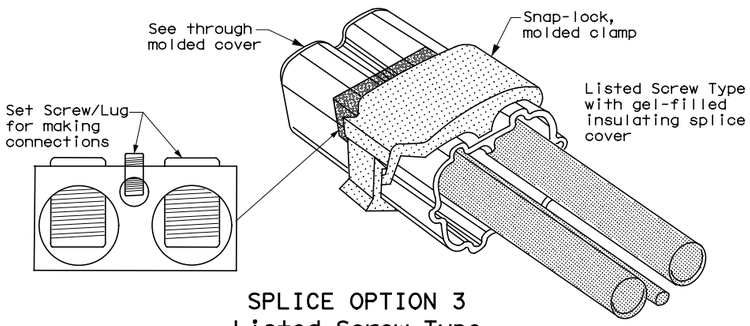
7. Written authorization is required before installing a ground rod in a horizontal trench for rocky soil or a solid rock bottom.



SPLICE OPTION 1
Compression Type



SPLICE OPTION 2
Split Bolt Type



SPLICE OPTION 3
Listed Screw Type

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ELECTRICAL DETAILS
CONDUCTORS

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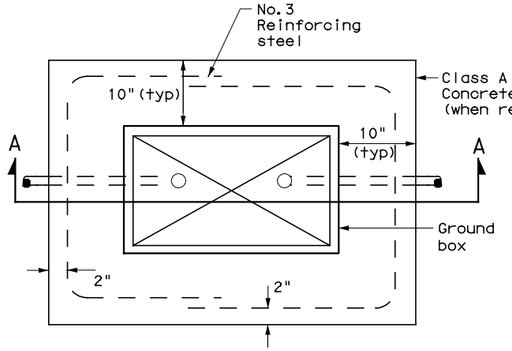
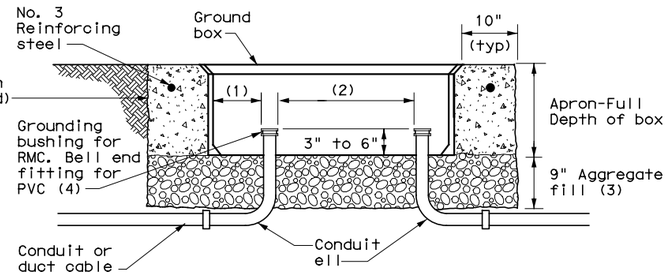


PLAN VIEW



SECTION A - A

APRON FOR GROUND BOX

(1) Uniformly space ends of conduits within the ground box. Position ends of conduits so that ground box walls do not interfere with the installation of grounding bushings or bell end fittings.

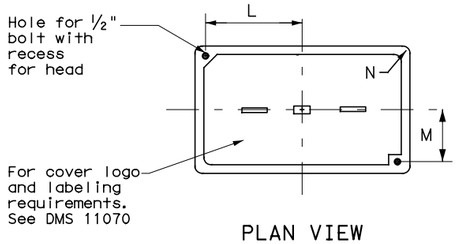
(2) Maintain sufficient space between conduits to allow for proper installation of bushing.

(3) Place aggregate under the box, not in the box. Aggregate should not encroach on the interior volume of the box.

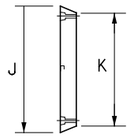
(4) Install a grounding bushing on the upper end of all RMC terminating in a ground box. Ground RMC elbows when any part of the elbow is less than 18 in. below the bottom of the ground box. Install a PVC bushing or bell end fitting on the upper end of all PVC conduits terminating in a ground box.

GROUND BOX DIMENSIONS	
TYPE	OUTSIDE DIMENSIONS (INCHES) (Width x Length X Depth)
A	12 X 23 X 11
B	12 X 23 X 22
C	16 X 29 X 11
D	16 X 29 X 22
E	12 X 23 X 17

GROUND BOX COVER DIMENSIONS								
TYPE	DIMENSIONS (INCHES)							
	H	I	J	K	L	M	N	P
A, B & E	23 1/4	23	13 3/4	13 1/2	9 7/8	5 1/8	1 3/8	2
C & D	30 1/2	30 1/4	17 1/2	17 1/4	13 1/4	6 3/4	1 3/8	2



PLAN VIEW



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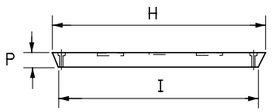

SIDE

GROUND BOX COVER

GROUND BOXES

A. MATERIALS

1. Provide polymer concrete ground boxes measuring 16x30x24 in. (WxLxD) or smaller in accordance with Departmental Material Specification (DMS) 11070 "Ground Boxes" and Item 624 "Ground Boxes."

2. Provide Type A, B, C, D, and E ground boxes as shown in the plans, and as listed on the Material Producers List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies," Item 624.

3. Ensure ground box cover is correctly labeled in accordance with DMS 11070.

4. Provide larger ground boxes in accordance with Item 624 and as shown in the plans.

B. CONSTRUCTION METHODS

1. Remove all gravel and dirt from conduit. Cap all conduits prior to placing aggregate and setting ground box. Provide Grade 3 or 4 coarse aggregate as shown on Table 2 of Item 302 "Aggregates for Surface Treatments." Ensure aggregate bed is in place and at least 9 inches deep, prior to setting the ground box. Install ground box on top of aggregate.

2. Cast ground box aprons in place. Reinforcing steel may be field bent. Ensure the depth of concrete for the apron extends from finished grade to the top of the aggregate bed under the box. Ground box aprons, including concrete and reinforcing steel, are subsidiary to ground boxes when called for by descriptive code.

3. Keep bolt holes in the box clear of dirt. Bolt covers down when not working in ground boxes.

4. Install all conduits and ells in a neat and workmanlike manner. Uniformly space conduits so grounding bushings and bell end fittings can easily be installed.

5. Temporarily seal all conduits in the ground box until conductors are installed.

6. Permanently seal conduits immediately after the completion of conductor installation and pull tests. Permanently seal the ends of all conduits with duct seal, expandable foam, or other method as approved. Do not use duct tape as a permanent conduit sealant. Do not use silicone caulk as a sealant.

7. When a ground rod is present in a ground box, bond all equipment grounding conductors together and to the ground rod with listed connectors.

8. When a type B or D ground box is stacked to meet volume requirements, it is allowable to cut an appropriately sized hole for conduit entry in the side wall at least 18 inches below grade.

9. If an existing ground box in the contract has a metal cover, bond the cover to the equipment grounding conductor with a 3 ft. long stranded bonding jumper the same size as the grounding conductor. The bonding jumper is subsidiary to various bid items. Verify existing ground boxes with metal covers are shown on the plans, with notes fully describing the work required.

10. If other ground boxes with metal covers are within the project limits but are not part of the contract, the Engineer may direct the Contractor to bond the metal covers, identifying the specific boxes in writing. This work will be paid for separately.

11. Bond metal ground box covers to the grounding conductor with a tank ground type lug.

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ELECTRICAL DETAILS
GROUND BOXES

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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)

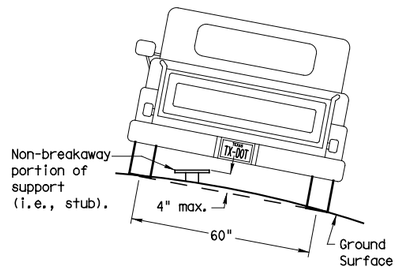
Anchor Type

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))

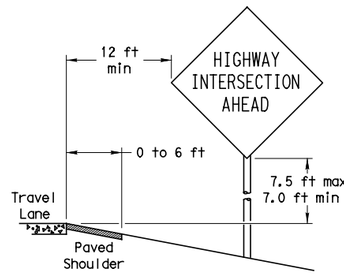
REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



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).

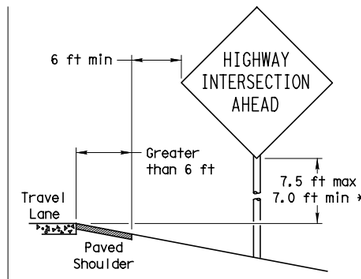
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

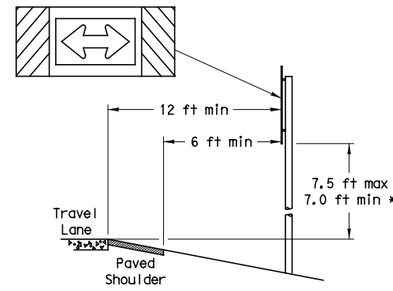
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.



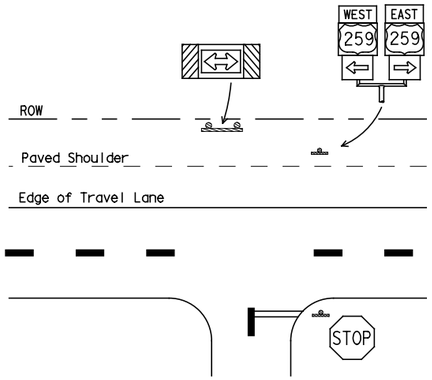
GREATER THAN 6 FT. WIDE

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.

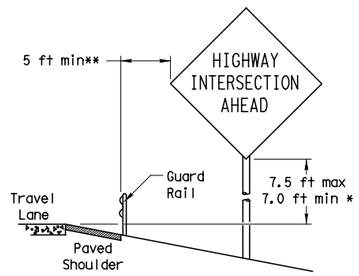
T-INTERSECTION



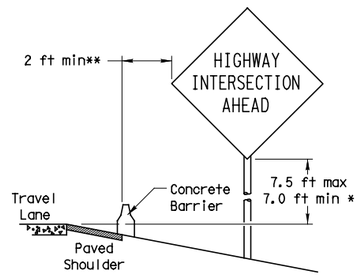
When this sign is needed at the end of a two-lane, two way roadway, the right edge of the sign should be in line with the centerline of the roadway. Place as close to ROW as practical.



BEHIND BARRIER



BEHIND GUARDRAIL



BEHIND CONCRETE BARRIER

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

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

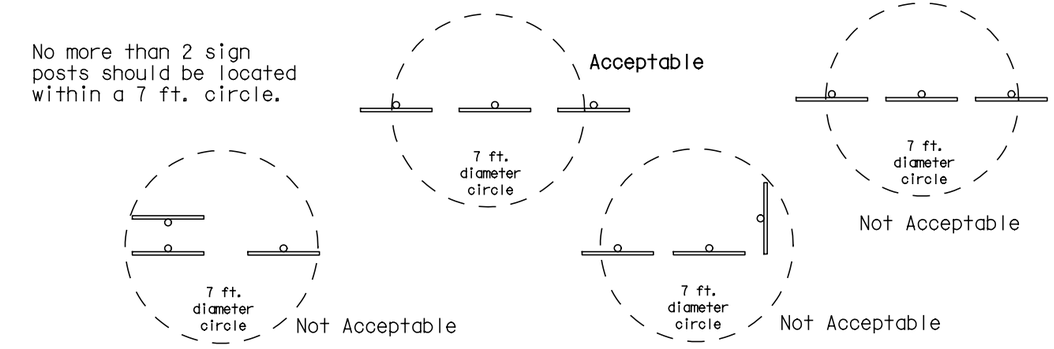
(1) a minimum of 7 to a maximum of 7.5 feet above the edge of the travel lane or

(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.

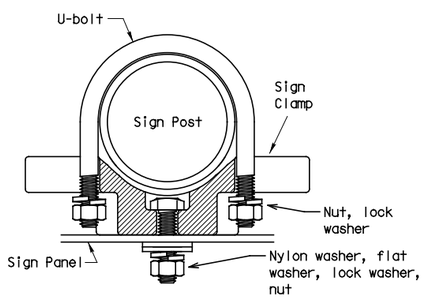
See the Traffic Operations Division website for detailed drawings of sign clamps, Triangular Slipbase System components and Wedge Anchor System components.

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



TYPICAL SIGN ATTACHMENT DETAIL

Single Signs

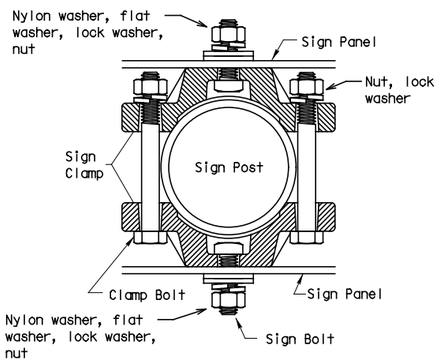


Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

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.

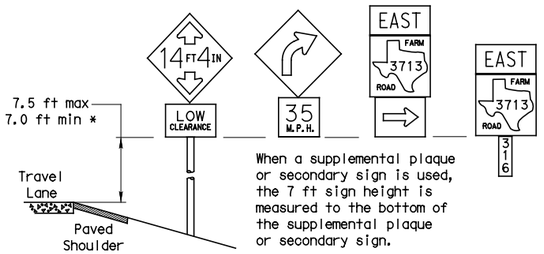
Sign clamps may be either the specific size clamp or the universal clamp.

Back-to-Back Signs



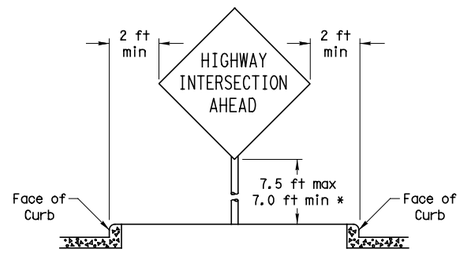
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES



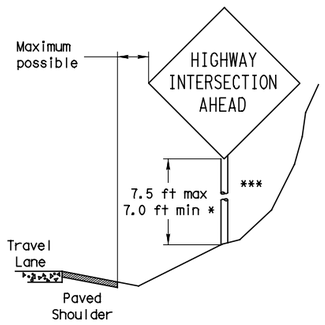
When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

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.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

SMD(GEN)-08

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
CONT	SECT	JOB	HIGHWAY
–	–	–	–
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		75

9-08 REVISIONS

DATE: 7/7/2021
FILE: pw:\\tedsi-pw.bentley.com:tedsi-pw-011\Documents\Projects\2019\2019-2073-01- Cinco Ranch Blvd Turn Lanes\6.0 TEDSI Design\6.08 CADD\6.08.01 Sheet Files\Standard Details\Traffic\Signal_STDALL_STDS

DATE: 7/7/2021
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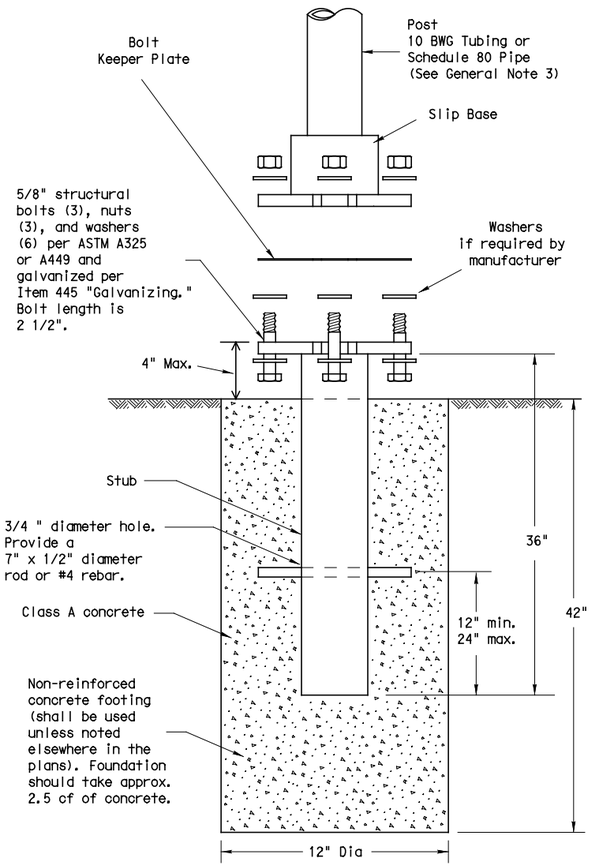
TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS



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.

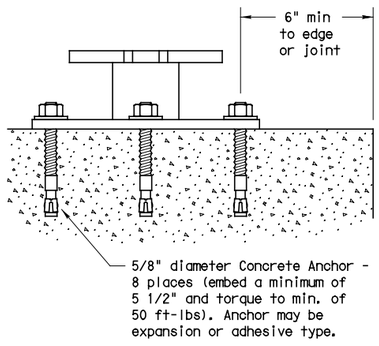
   Schedule 80 Pipe (2.875" outside diameter)
   - 0.276" nominal wall thickness
   - Steel tubing per ASTM A500 Gr C
   - Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the following:
     - 46,000 PSI minimum 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.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-1)-08

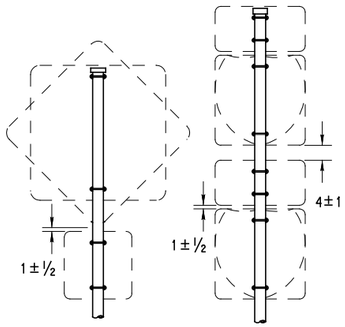
DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

REVISIONS 9-08

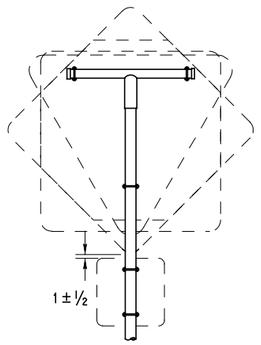
CONT	SECT	JOB	HIGHWAY
–	–	–	–

DIST	COUNTY	SHEET NO.
HOU	FORT BEND	76

DATE: 7/7/2021
FILE: pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2019\2019-2073-01-Cinco Ranch Blvd Turn Lanes\6.0 TEDSI Design\6.08 CADD\6.08.01 Sheet Files\Standard Details\Traffic\Signal_STDALL_STDS



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



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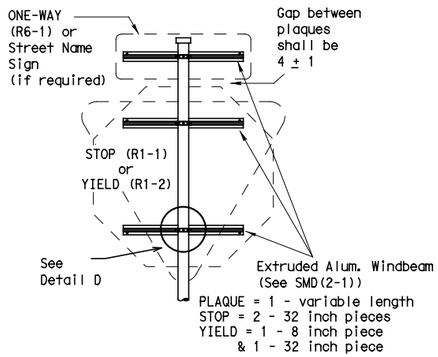
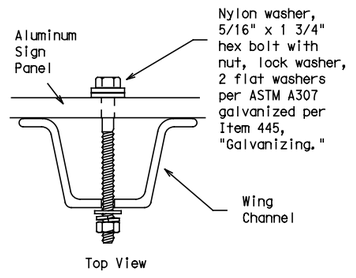
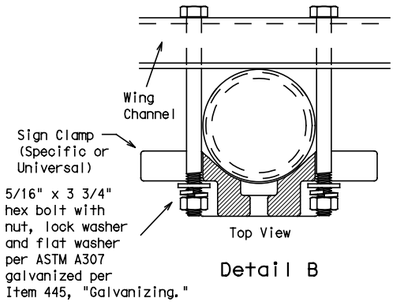


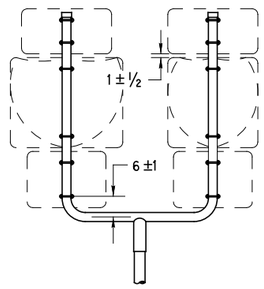
SM RD SGN ASSM TY XXXXX(1)XX(P-BM)



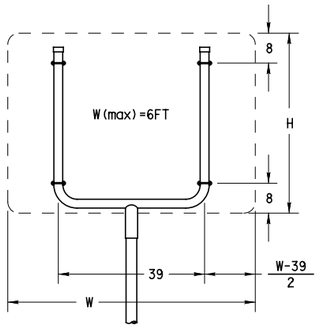
Detail A



Detail B



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



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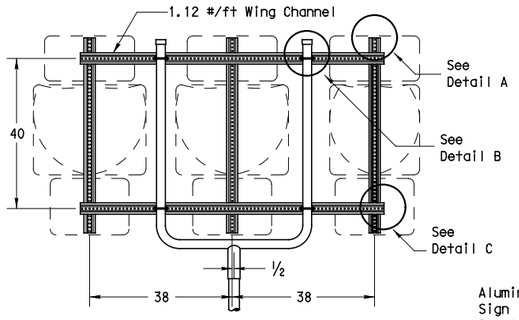
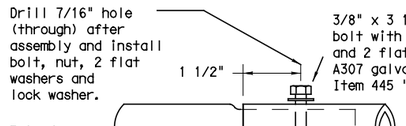
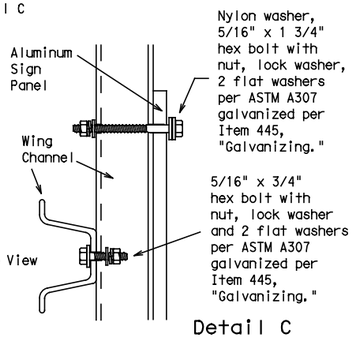


SM RD SGN ASSM TY XXXXX(1)XX(U-WC)
(See Note 11)

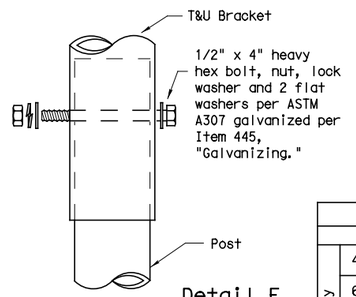


Detail F

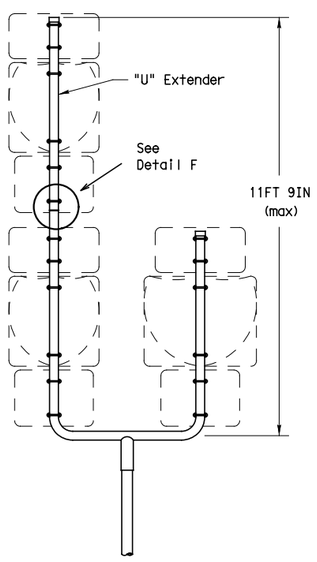
Splices shall only be allowed behind the sign substrate.



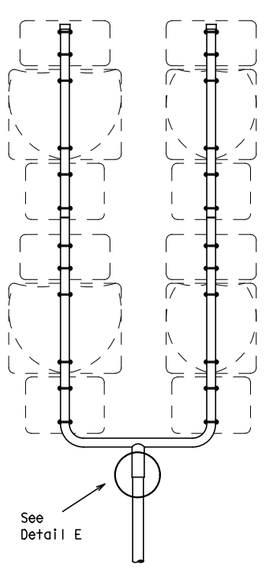
Detail C



Detail E



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



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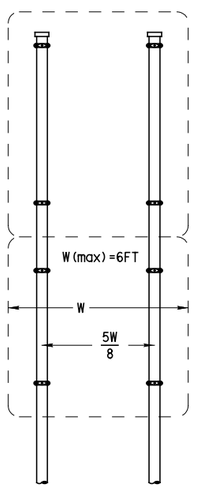
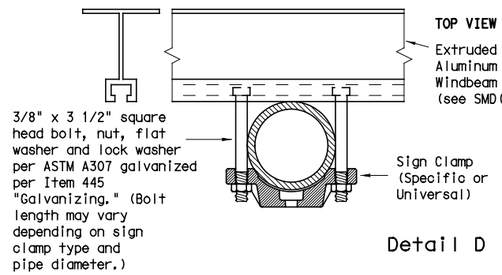
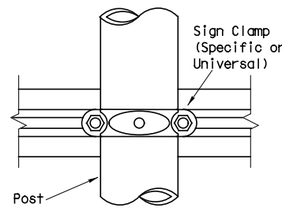


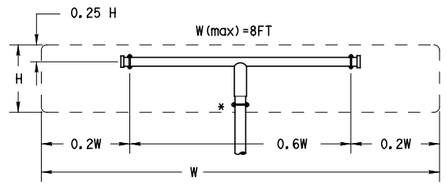
SM RD SGN ASSYM TY XXXXX(2)XX(P)

SIDE VIEW





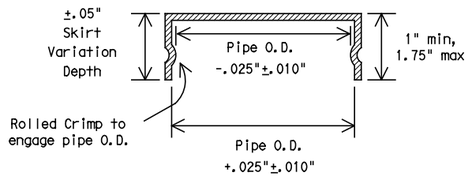
Detail D



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.

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.

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)

Texas Department of Transportation
Traffic Operations Division

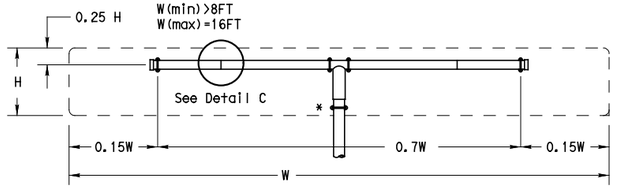
SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-2)-08

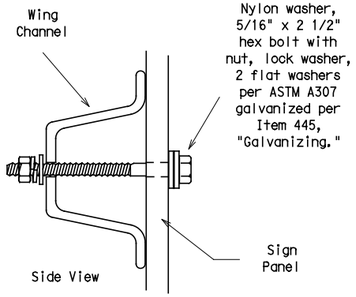
DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
CONT	SECT	JOB	HIGHWAY
-	-	-	-
DIST	COUNTY		SHEET NO.
HOU	FORT BEND		77

9-08 REVISIONS

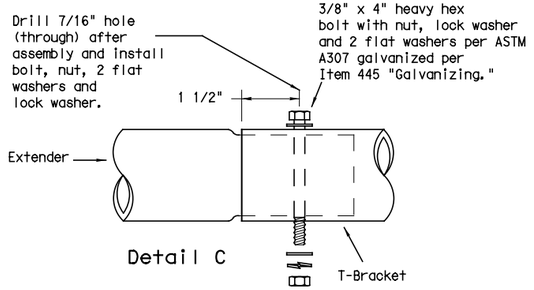
DATE: 7/7/2021
FILE: pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2019\2019-2073-01- Cinco Ranch Blvd Turn Lanes\6.0 TEDSI Design\6.08 CADD\6.08.01 Sheet Files\Standard Details\TrafficSignal_STDALL_STDS



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



Detail B



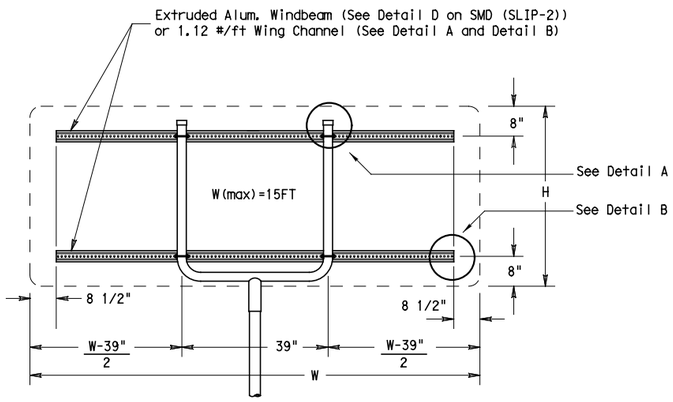
Detail C

Splices shall only be allowed behind the sign substrate.

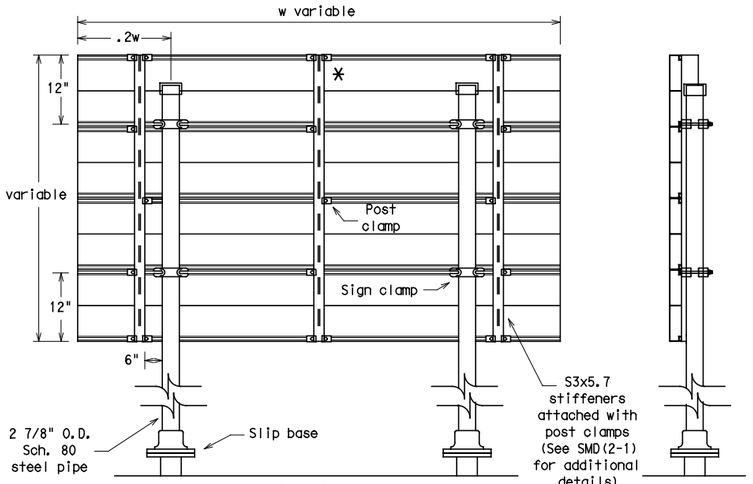
GENERAL NOTES:

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

1. 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.
2. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
3. 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.
4. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
5. 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.
6. 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.
7. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
8. 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."
9. Sign blanks shall be the sizes and shapes shown on the plans.
10. 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.
11. Post open ends shall be fitted with Friction Caps.



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

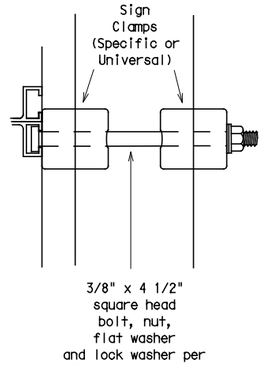


Typical Sign Mount

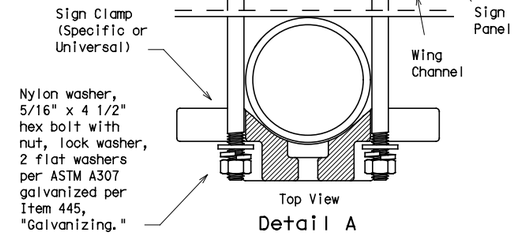
SM RD SGN ASSM TY S80(2)XX(P-EXAL)

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

See Detail E for clamp installation

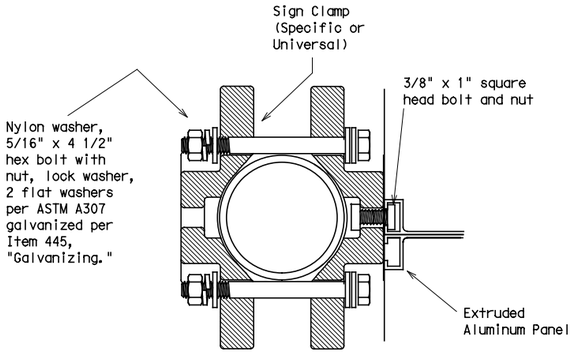


Detail E

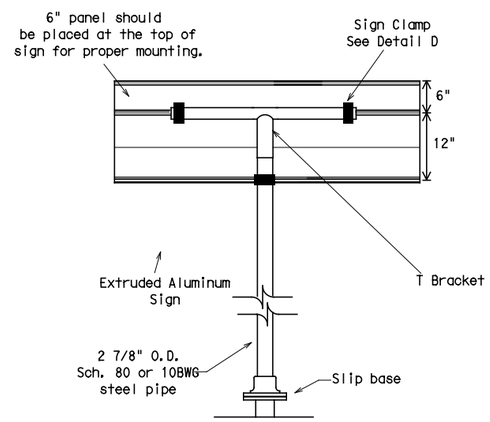


Top View

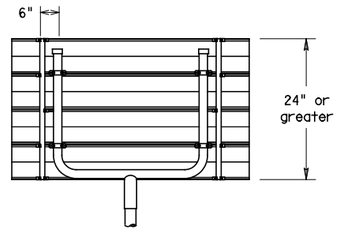
Detail A



Detail D
EXTRUDED ALUMINUM SIGN WITH T BRACKET



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

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)

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

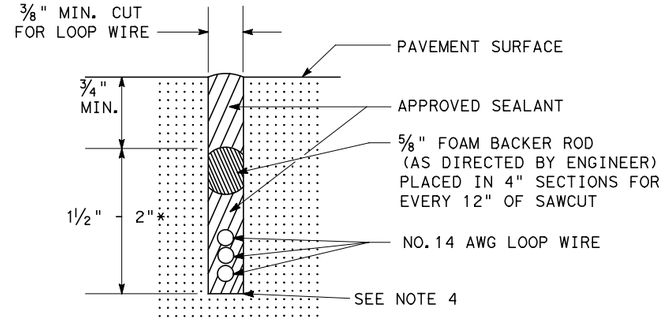
SMD(SLIP-3)-08

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

REVISIONS
9-08

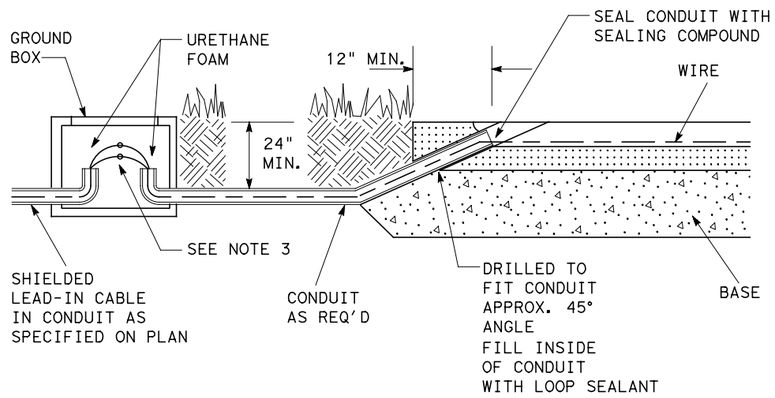
CONT	SECT	JOB	HIGHWAY
-	-	-	-

DIST	COUNTY	SHEET NO.
HOU	FORT BEND	78

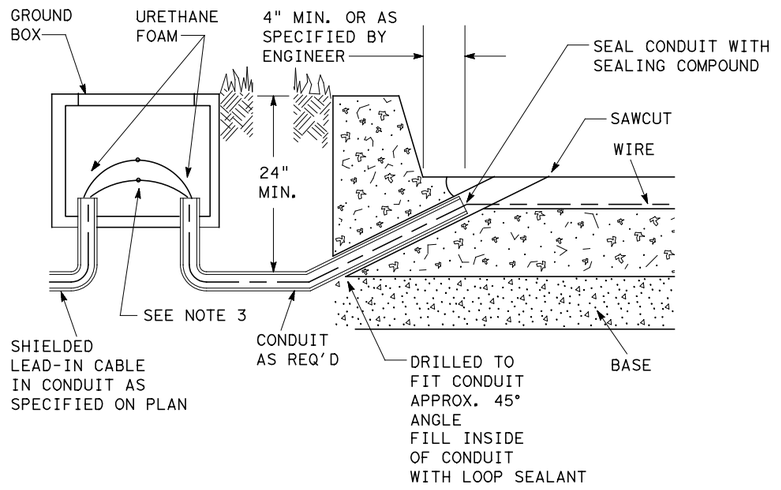


LOOP SAW CUT CROSS-SECTION

* SAWCUTS IN BRIDGE DECKS ARE TYPICALLY 1" DEPTH MAXIMUM SAWCUTS IN BRIDGE DECKS AND ACROSS EXPANSION JOINTS SHALL BE AS APPROVED BY ENGINEER

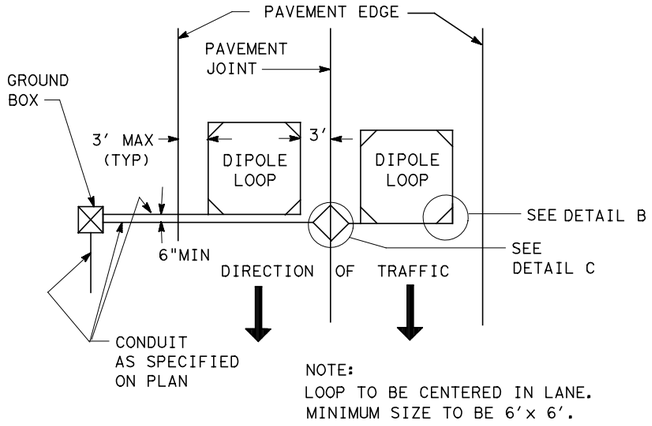


TYPICAL LEAD IN CONFIGURATION (WITHOUT CURBING)



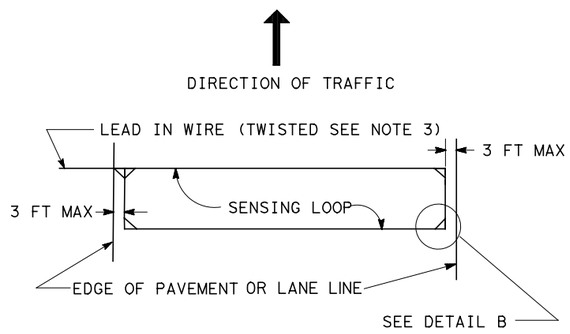
TYPICAL LEAD IN CONFIGURATION (WITH CURBING)

TYPE DET.	NUMBER OF LANES	LENGTH	WIDTH	TURNS OF WIRE
PULSE	1	6 FT.- 12 FT.	6 FT.	4
PULSE	2	13 FT.-26 FT.	6 FT.	3
PULSE	3	27 FT.-39 FT.	6 FT.	2
PULSE	4	40 FT.-46 FT.	6 FT.	1
PRES-ENCE	1	40 FT.	6 FT.	2

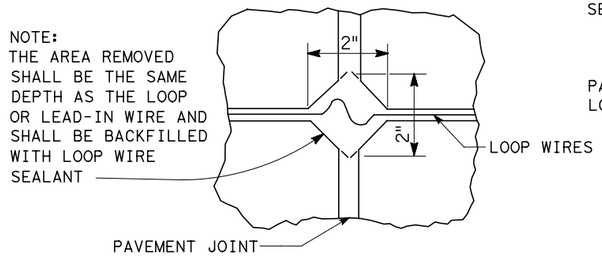


NOTE:
LOOP TO BE CENTERED IN LANE.
MINIMUM SIZE TO BE 6'x 6'.

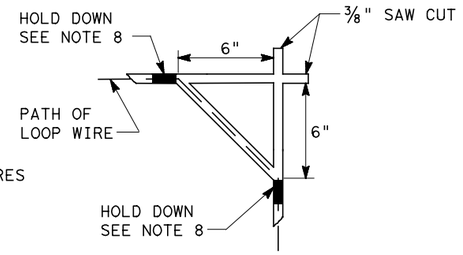
PAVEMENT JOINT DETAILS



TYPICAL LAYOUT OF DIPOLE LOOP



DETAIL C



DETAIL B

TYPICAL ALL FOUR CORNERS (DIPOLE LOOPS)

NOTES:

1. INSTALL THE LOOP WIRES IN THE SHORTEST TIME PRACTICAL, NOT TO EXCEED 4 HOURS MAXIMUM AND SCHEDULE THIS WORK DURING OFF- PEAK HOURS TO MINIMIZE DELAY TO VEHICLE TRAFFIC.
2. CUT PAVEMENT WITH A CONCRETE SAW TO NEAT LINES AND REMOVE LOOSE MATERIAL. ENSURE A CLEAN AND DRY CUT WHEN PLACING THE SEALING COMPOUND.
3. TWIST LEAD-IN WIRES A MINIMUM OF FIVE TURNS PER FOOT AND DO NOT DISTURB THEM AFTER THE LOOP HAS BEEN TUNED. DO NOT TWIST LOOP WIRES IN SAW CUT.
4. SEAL WIRE PLACED IN THE SAW CUT BY FULLY ENCAPSULATING IT IN A SEALANT ACCEPTABLE TO THE ENGINEER. SEALING COMPOUND SHALL BE IN ACCORDANCE WITH DMS 6340.
5. INSTALL TWO-CONDUCTOR #14 SHIELDED CABLE FROM THE BASE OF A STEEL POLE OR TOP OF A WOOD POLE TO THE CONTROLLER OR AS APPROVED BY THE ENGINEER.
6. ENSURE CONNECTIONS ARE SOLDERED. SEAL SOLDER JOINT WITH SCOTCH CAST OR OTHER METHOD ACCEPTABLE TO THE ENGINEER.
7. FURNISH #14 XHHW LOOP WIRE LOOSELY ENCASED IN A FLEXIBLE VINYL OR PLASTIC TUBE. APPLY A WATERPROOF SEAL TO THE ENDS OF THE VINYL OR PLASTIC TUBING ENCASING THE WIRE IMMEDIATELY AFTER PLACING THE WIRE TO PREVENT MOISTURE FROM ENTERING THE TUBE.
8. SECURE THE LOOP WIRE IN PLACE EVERY 2 FT. WITH SHORT STRIPS OF RUBBER OR NEOPRENE FLEXIBLE TUBING OR POLYETHYLENE FOAM SEALANT BACKER APPROXIMATELY 1 IN. IN LENGTH. LEAVE STRIPS IN PLACE AND FILL THE SLOT WITH LOOP SEALER.
9. INSTALL SAWCUT OF SUFFICIENT DEPTH TO PROVIDE FOR A MINIMUM OF 1 IN. DEPTH OF SEALER OVER THE WIRE.
10. INSTALL EACH LOOP DETECTOR LEAD-IN IN A SEPARATE SAWCUT FROM THE DETECTOR TO THE EDGE OF ROADWAY. SEPARATE THE SAW CUTS AT A MINIMUM OF 6 IN. INSTALL EACH LOOP DETECTOR RUN IN A SEPARATE CONDUIT (SIZE AS REQUIRED) FROM THE EDGE OF ROADWAY TO A GROUND BOX AS SHOWN ON THE PLAN LAYOUT.
11. PLACE LOOP WIRE IN A FLEXIBLE VINYL OR POLYETHYLENE TUBING OF 0.184 IN. MINIMUM I.D., 0.031 IN. MINIMUM WALL THICKNESS AND 0.26 IN. MAXIMUM O.D., HAVING A SMOOTH BORE. ENSURE THE TUBING DOES NOT ADHERE TO THE LOOP WIRE IN ANY WAY. ENSURE TUBING IS CAPABLE OF RESISTING DETERIORATION FROM OILS, SOLVENTS AND TEMPERATURES UP TO 212°F. ENSURE TUBING IS HIGHLY ABRASION RESISTANT AND REMAINS FLEXIBLE FROM -22°F TO 212°F.

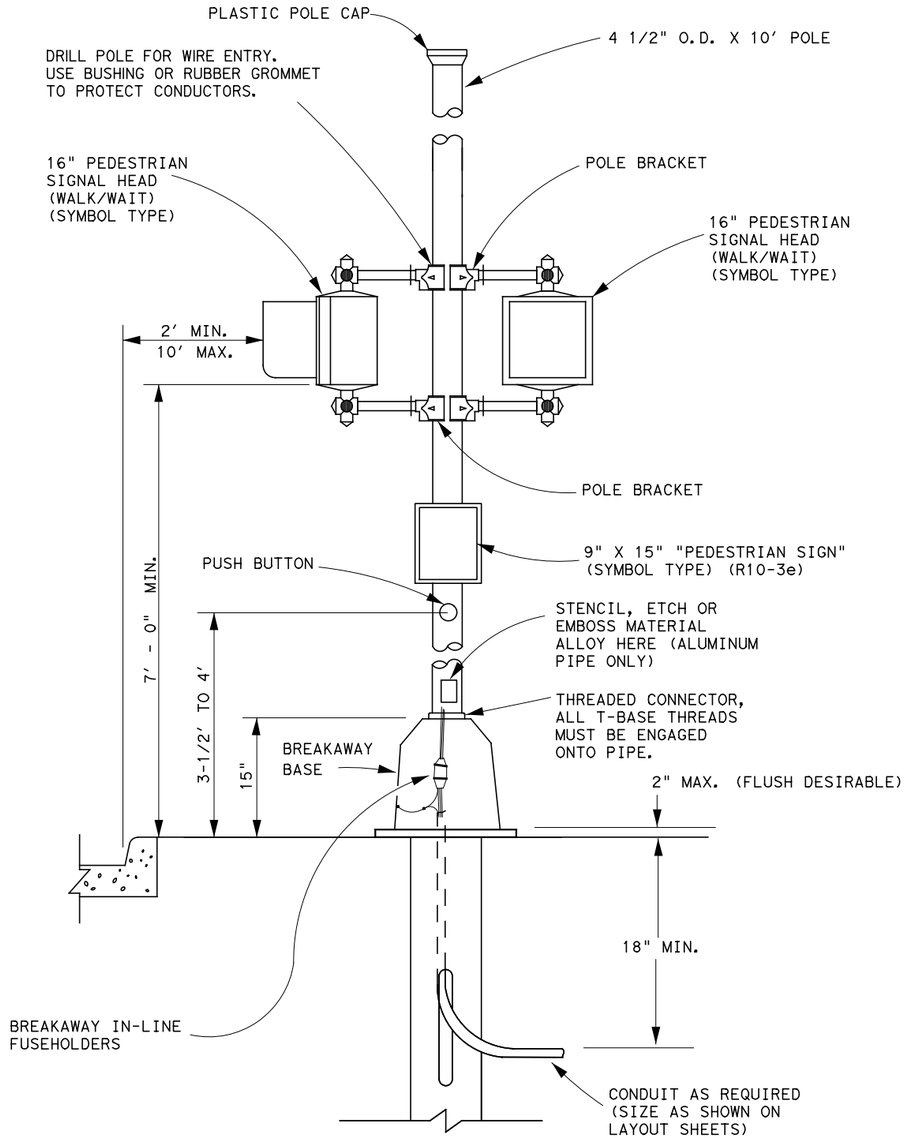
Texas Department of Transportation
Houston District

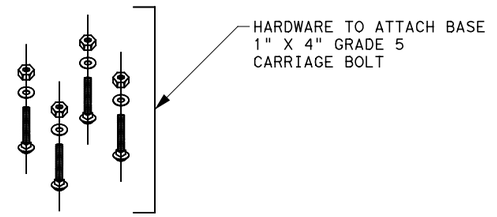
SIGNAL DETAILS/STANDARDS
LOOP DETECTOR DETAILS

LDD

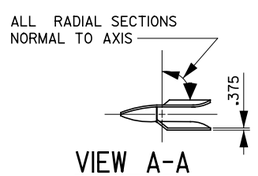
FILE:	DN:	CK:	DW:	CK:
© TxDOT 2015	DIST	FED REG	PROJECT NO.	SHEET
REVISIONS 8/2004 7/2012 SPELLING 7/2015 °C TO °F	HOU	6	-	79
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	FORT BEND	-	-	-	-

STD-M3





HARDWARE DETAIL



VIEW A-A

SCREW ANCHOR FOUNDATION DETAIL

NOTE:

SEE STANDARD (RFBA - 13) FOR NOTES AND
NON - FUSED BREAKAWAY ELECTRICAL CONNECTOR DETAILS

Texas Department of Transportation
Houston District

SIGNAL DETAILS/STANDARDS CONSTRUCTION DETAILS FOR POLE MOUNTED PEDESTRIAN SIGNALS

CD/PMPS

FILE:	DN:	CK:	DW:	CK:
© TxDOT 2007	DIST	FED REG	PROJECT NO.	SHEET
REVISIONS	HOU	6	-	80
04-05 11-08 02-15	COUNTY		CONTROL SECT JOB	HIGHWAY
05-05 01-14	FORT BEND		- - -	-
03-07 07-14				

STD-M4

TYPICAL LOOP DETECTOR

PLACEMENT LAYOUT FOR DIAMOND INTERCHANGE

(Ø2 IS ALWAYS TO THE CONTROLLER'S LEFT)

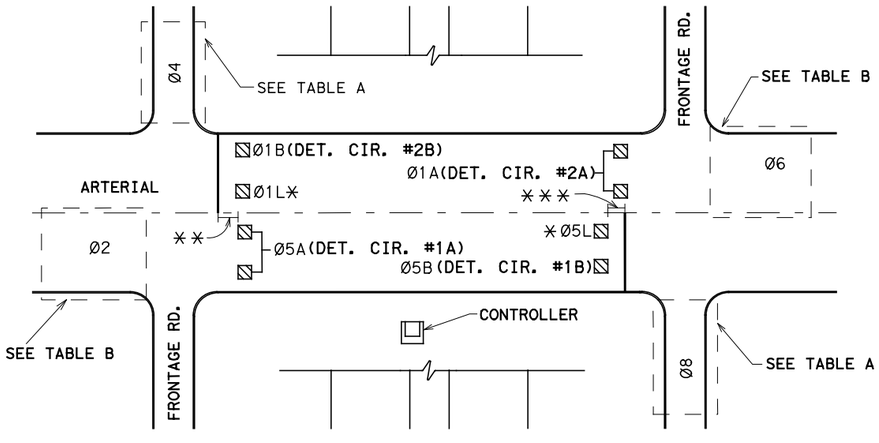
* USE FOR LEFT TURN ONLY

** MAKE SURE TRAFFIC TURNING FROM FRONTAGE ROAD DOES NOT MISS DETECTORS FOR Ø1A AND Ø5A.

*** LOOP PLACEMENT IS 5 FEET FROM STOP LINE

DETECTOR CONNECTIONS

Ø1A LOOP DETECTORS	DETECTOR CIRCUIT #2A
Ø1B LOOP DETECTORS	DETECTOR CIRCUIT #2B
Ø5A LOOP DETECTORS	DETECTOR CIRCUIT #1A
Ø5B LOOP DETECTORS	DETECTOR CIRCUIT #1B



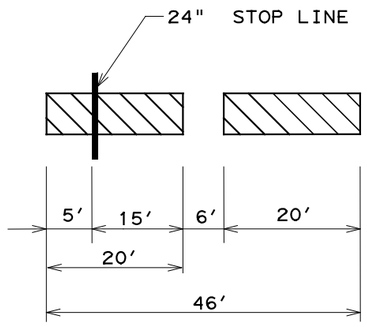
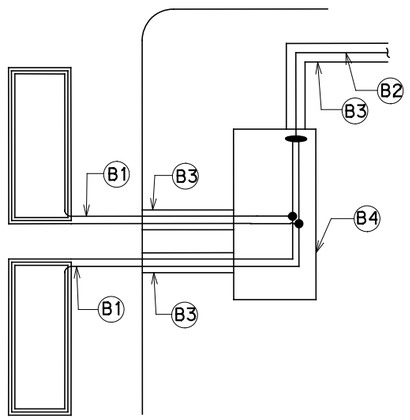


TABLE B

PRESENCE DETECTORS PLACEMENT
(LEFT TURN LANE AND
(MINOR STREET ONLY)



B1 LOOP WIRE

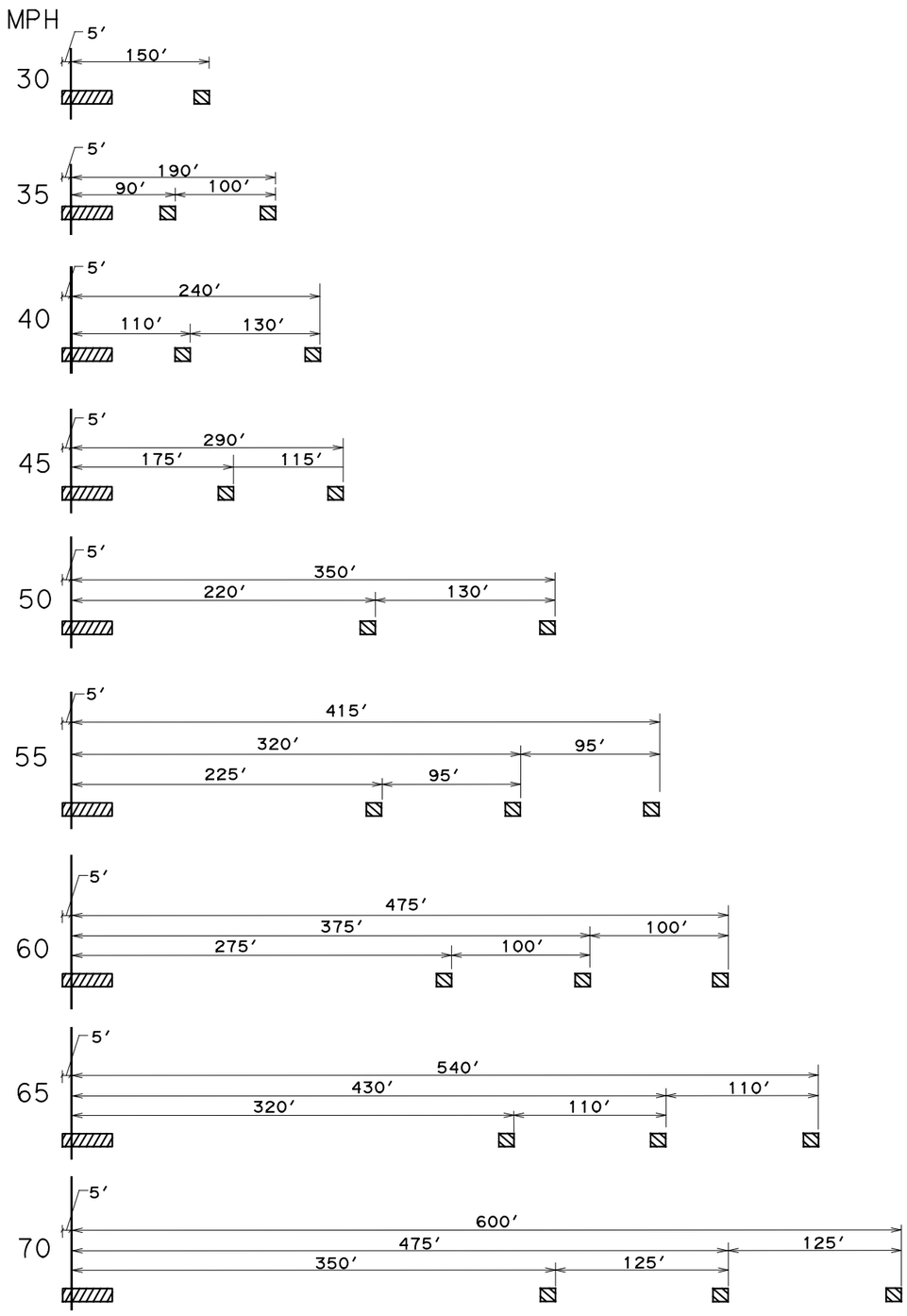
B2 LOOP LEAD-IN TO CONTROLLER

B3 CONDUIT AS REQUIRED

B4 GROUND BOX

CONNECTION

CONNECTION FOR DETECTORS



(6' × 20')

(6' X 6')

24" STOP LINE

TABLE A

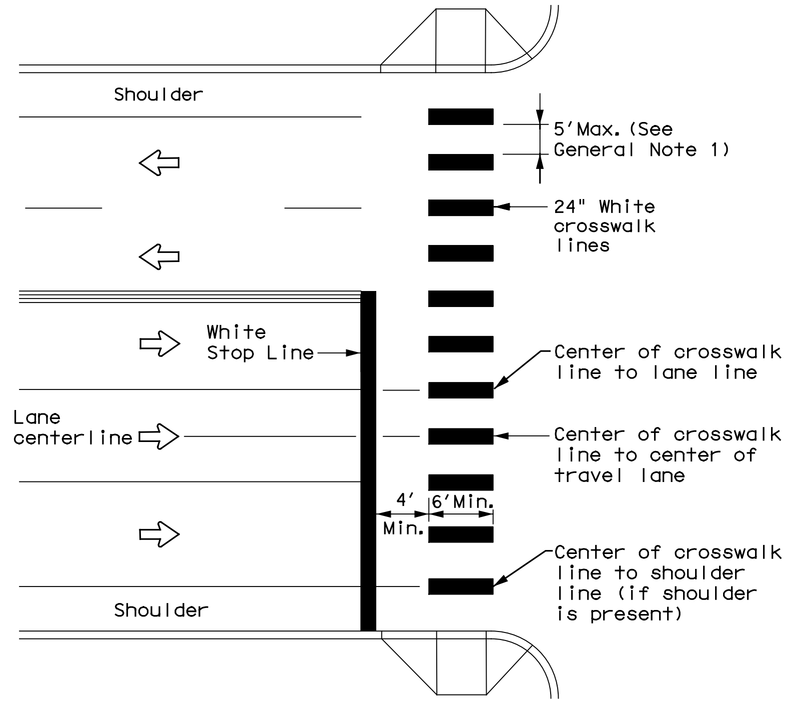
LOOP DETECTORS PLACEMENT ACCORDING TO APPROACH SPEED (NOT TO SCALE)

TEXAS DEPARTMENT OF TRANSPORTATION
HOUSTON DISTRICT

SIGNAL DETAILS/STANDARDS
LOOP DETECTOR DETAILS
PLACEMENT
LDDP

SCALE	FED. RD. DIV. NO.	STATE	PROJECT NO.				HIGHWAY
N.T.S.	6	TEXAS					81
REVISIONS	STATE DISTRICT	COUNTY	CONTROL	SECTION	JOB		SHEET NO.
	HOU	FORT BEND					

STD-M18



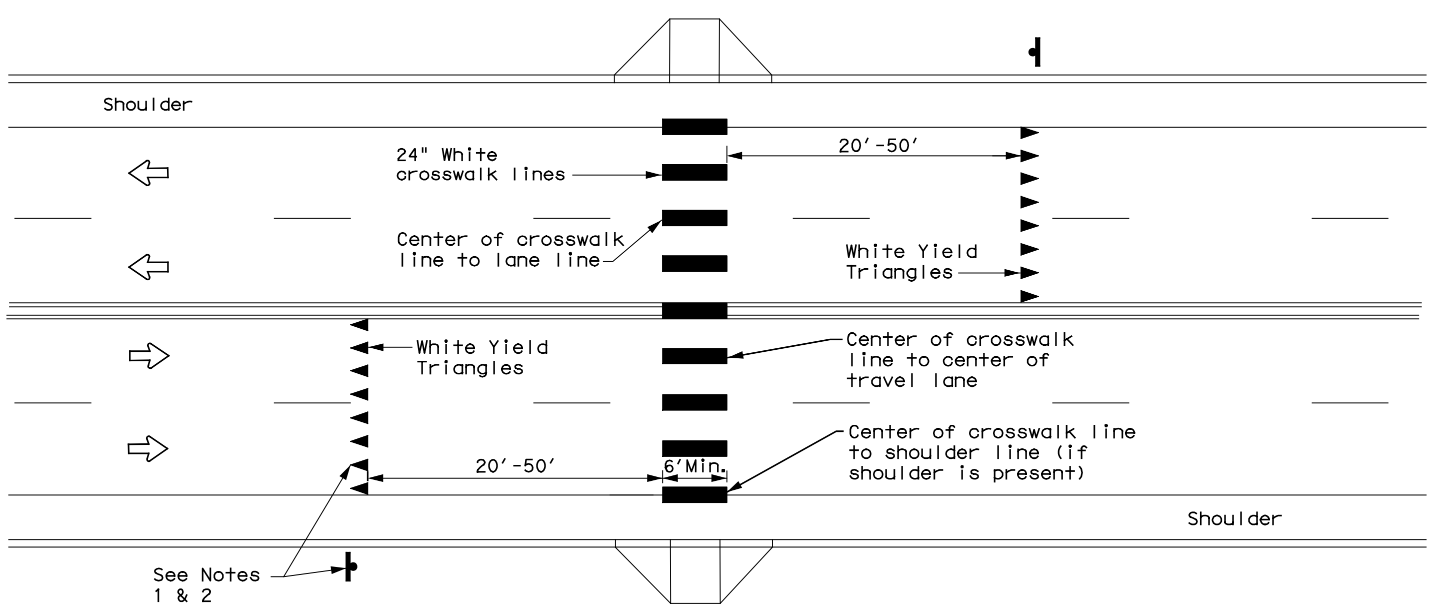
HIGH-VISIBILITY LONGITUDINAL CROSSWALK
AT CONTROLLED APPROACH

GENERAL NOTES

1. Longitudinal crosswalk lines should not be placed in the wheel path of vehicles. Center the crosswalk lines on travel lanes, lane lines, and shoulder lines (if present).
2. A minimum 6" clear distance shall be provided to the curb face. If the last crosswalk line falls into this distance it must be omitted.
3. For divided roadways, adjustments in spacing of the crosswalk lines should be made in the median so that the crosswalk lines are maintained in their proper location across the travel portion of the roadway.
4. At skewed crosswalks, the crosswalk lines are to remain parallel to the lane lines.
5. Each crosswalk shall be a minimum of 6' wide.
6. The High-Visibility Longitudinal Crosswalk is the preferred crosswalk pattern on State Highways. Other crosswalk patterns as shown in the "Texas Manual on Uniform Traffic Control Devices" may be used. All crosswalk designs and dimension shall comply with the "Texas Manual on Uniform Traffic Control Devices."
7. Final placement of Stop Bar/Yield Triangles and Crosswalk shall be approved by the Engineer in the field.

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.



UNSIGNALIZED MID BLOCK HIGH-VISIBILITY
LONGITUDINAL CROSSWALK

NOTES

1. Use yield triangles with "Yield Here to Pedestrians" signs at unsignalized mid block crosswalks.
2. Use stop bars with "Stop Here on Red" signs at mid block crosswalks controlled by traffic signals or pedestrian hybrid beacons.

Texas Department of Transportation

Traffic Safety Division Standard

CROSSWALK PAVEMENT MARKINGS

PM(4)-20

FILE: pm4-20.dgn	DN:	CK:	DW:	CK:
© TxDOT June 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	-	-	-	-
	DIST	COUNTY		SHEET NO.
	HOU	FORT BEND		82

22D

DATE: 7/7/2021
FILE: pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2019\2019-2073-01- Cinco Ranch Blvd Turn Lanes\...

Form **W-9**
(Rev. December 2014)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

Give Form to the requester. Do not send to the IRS.

Print or type
See **Specific Instructions** on page 2.

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; 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. For a single-member LLC that is disregarded, do not check LLC; check the appropriate box in the line above for the tax classification of the single-member 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.)

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 Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Note. If the account is in more than one name, see the instructions for line 1 and the chart on page 4 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 on page 3.

Sign Here	**Signature of U.S. person** ▶	**Date** ▶

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. Information about developments affecting Form W-9 (such as legislation enacted after we release it) is at *www.irs.gov/fw9*.

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?* on page 2.

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?* on page 2 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 Publication 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 28% 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 Part II instructions on page 3 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* on page 3 and the separate Instructions for the Requester of Form W-9 for more information.

Also see *Special rules for partnerships* above.

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* on page 3 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, list first, and then circle, the name of the person or entity whose number you entered in Part I of 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 in line 3 for the U.S. federal tax classification of the person whose name is entered on line 1. Check only one box in line 3.

Limited Liability Company (LLC). If the name on line 1 is an LLC treated as a partnership for U.S. federal tax purposes, check the "Limited Liability Company" box and enter "P" in the space provided. If the LLC has filed Form 8832 or 2553 to be taxed as a corporation, check the "Limited Liability Company" box and in the space provided enter "C" for C corporation or "S" for S corporation. If it is a single-member LLC that is a disregarded entity, do not check the "Limited Liability Company" box; instead check the first box in line 3 "Individual/sole proprietor or single-member LLC."

Line 4, Exemptions

If you are exempt from backup withholding and/or FATCA reporting, enter in the appropriate space in 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.

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. However, the IRS prefers that you use your SSN.

If you are a single-member LLC that is disregarded as an entity separate from its owner (see *Limited Liability Company (LLC)* on this page), 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 the chart on page 4 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. You can get Forms W-7 and SS-4 from the IRS by visiting IRS.gov or by calling 1-800-TAX-FORM (1-800-829-3676).

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 items 1, 4, or 5 below indicate 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), 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)	The actual owner of the account or, if combined funds, the first individual on the account[1]
3. Custodian account of a minor (Uniform Gift to Minors Act)	The minor[2]
4. 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]
5. Sole proprietorship or disregarded entity owned by an individual	The owner[3]
6. Grantor trust filing under Optional Form 1099 Filing Method 1 (see Regulations section 1.671-4(b)(2)(i)(A))	The grantor*
For this type of account:	**Give name and EIN of:**
7. Disregarded entity not owned by an individual	The owner
8. A valid trust, estate, or pension trust	Legal entity[4]
9. Corporation or LLC electing corporate status on Form 8832 or Form 2553	The corporation
10. Association, club, religious, charitable, educational, or other tax-exempt organization	The organization
11. Partnership or multi-member LLC	The partnership
12. A broker or registered nominee	The broker or nominee
13. 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
14. 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* on page 2.

***Note.** 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 Publication 4535, Identity Theft Prevention and Victim Assistance.

Victims of identity theft who are experiencing economic harm or a system 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 contact them at *www.ftc.gov/idtheft* or 1-877-IDTHEFT (1-877-438-4338).

Visit IRS.gov 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.

Job No.: _____

TAX FORM/DEBT/ RESIDENCE CERTIFICATION
(for Advertised Projects)

Taxpayer Identification Number (T.I.N.): _____

Company Name submitting Bid/Proposal: _____

Mailing Address: _____

Are you registered to do business in the State of Texas? Yes No

If you are an individual, list the names and addresses of any partnership of which you are a general partner or any assumed name(s) under which you operate your business

_____

_____

I. **Property:** List all taxable property in Fort Bend County owned by you or above partnerships as well as any d/b/a names. Include real and personal property as well as mineral interest accounts. (Use a second sheet of paper if necessary.)

Fort Bend County Tax Acct. No.*	Property address or location**
_____	_____
_____	_____
_____	_____
_____	_____

** This is the property account identification number assigned by the Fort Bend County Appraisal District.*

*** For real property, specify the property address or legal description. For business personal property, specify the address where the property is located. For example, office equipment will normally be at your office, but inventory may be stored at a warehouse or other location.*

II. **Fort Bend County Debt** - Do you owe any debts to Fort Bend County (taxes on properties listed in I above, tickets, fines, tolls, court judgments, etc.)?

Yes No If yes, attach a separate page explaining the debt.

III. **Residence Certification** - Pursuant to Texas Government Code §2252.001 *et seq.*, as amended, Fort Bend County requests Residence Certification. §2252.001 *et seq.* of the Government Code provides some restrictions on the awarding of governmental contracts; pertinent provisions of §2252.001 are stated below:

(3) "Nonresident bidder" refers to a person who is not a resident.

(4) "Resident bidder" refers to a person whose principal place of business is in this state, including a contractor whose ultimate parent company or majority owner has its principal place of business in this state.

I certify that _____ is a Resident Bidder of Texas as defined in Government Code
[Company Name]
§2252.001.

I certify that _____ is a Nonresident Bidder as defined in Government Code
[Company Name]
§2252.001 and our principal place of business is _____.
[City and State]

Mandatory Form

Contractor Acknowledgement of Storm Water Management Program

I hereby acknowledge that I am aware of the stormwater management program and standard operating procedures developed by Fort Bend County in compliance with the TPDES General Permit No. TXR040000. I agree to comply with all applicable best management practices and standard operating procedures while conducting my services for Fort Bend County. I agree to conduct all services in a manner that does not introduce illicit discharges of pollutants to streets, stormwater inlets, drainage ditches or any portion of the drainage system. The following materials and/or pollutant sources must not be discharged to the drainage system as a result of any services provided:

1. Grass clippings, leaves, mulch, rocks, sand, dirt or other waste materials resulting from landscaping activities, (except those materials resulting from ditch mowing or maintenance activities)
2. Herbicides, pesticides and/or fertilizers, (except those intended for aquatic use)
3. Detergents, fuels, solvents, oils and/or lubricants, other equipment and/or vehicle fluids,
4. Other hazardous materials including paints, thinners, chemicals or related waste materials,
5. Uncontrolled dewatering discharges, equipment and/or vehicle wash waters,
6. Sanitary waste, trash, debris, or other waste products
7. Wastewater from wet saw machinery,
8. Other pollutants that degrade water quality or pose a threat to human health or the environment.

Furthermore, I agree to notify Fort Bend County immediately of any issue caused by or identified by:

_____

(Company/Contractor)

that is believed to be an immediate threat to human health or the environment.

_____ _____

Contractor Signature Date

_____

Printed Name

_____

Title