

FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.	
6	C 912-00-710	1	
STATE	DIST.	COUNTY	
TEXAS	HOU	HARRIS	
CONT.	SECT.	JOB	HIGHWAY NO.
0912	00	710	VARIOUS

STATE OF TEXAS DEPARTMENT OF TRANSPORTATION

INDEX OF SHEETS

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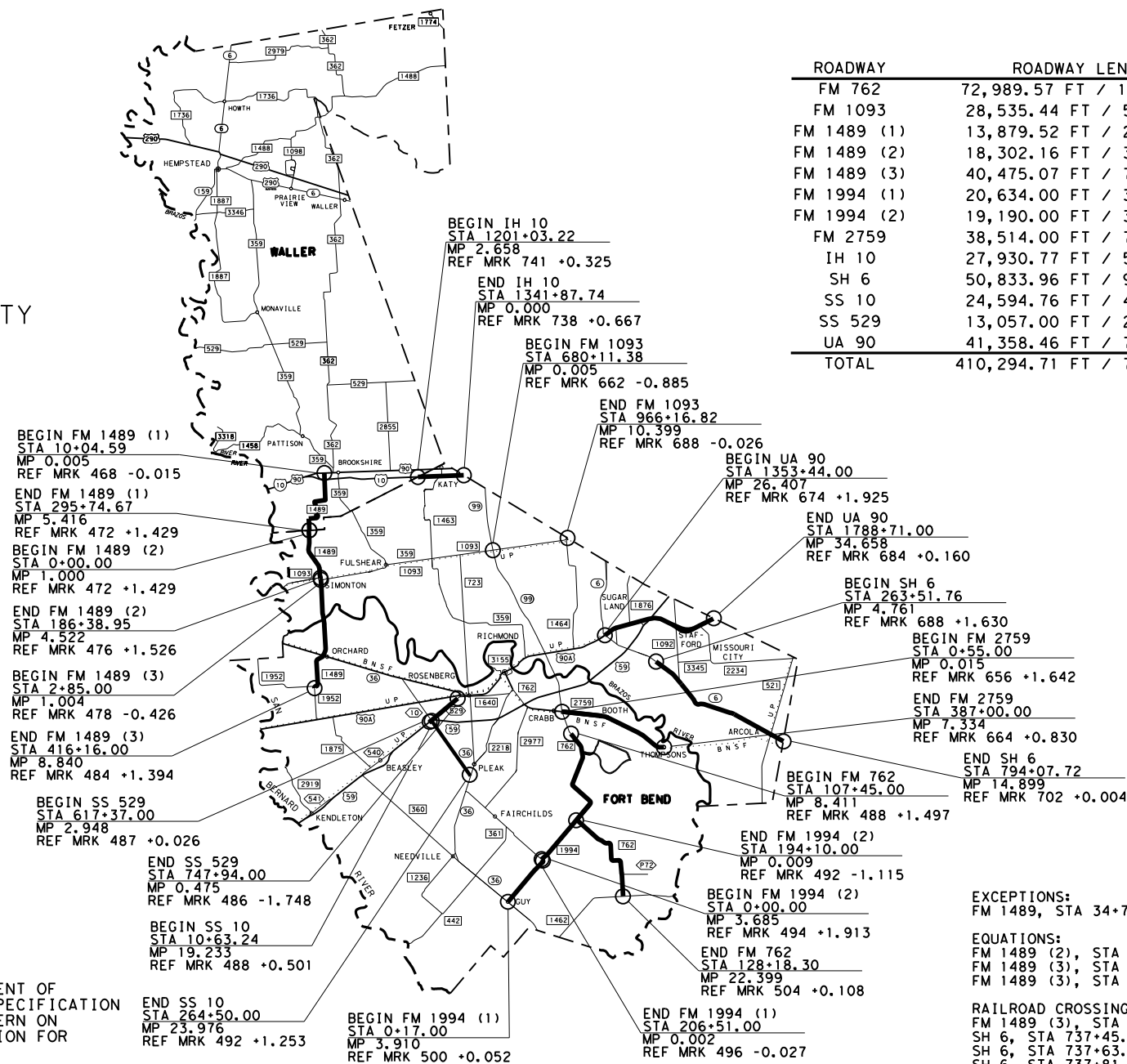
PLANS OF PROPOSED STATE HIGHWAY IMPROVEMENT

FORT BEND AND WALLER COUNTIES
VARIOUS ROADWAYS
LIMITS: VARIOUS LOCATIONS IN FORT BEND AND WALLER COUNTIES
PROJECT: C 912-00-710
CONTROL 0912-00-710

FOR THE CONSTRUCTION OF PAVEMENT MARKINGS.



LOCATION MAP
FORT BEND & WALLER COUNTY



ROADWAY	ROADWAY LENGTH	BRIDGE LENGTH	TOTAL LENGTH
FM 762	72,989.57 FT / 13.823 MI	515.00 FT / 0.097 MI	73,504.57 FT / 13.921 MI
FM 1093	28,535.44 FT / 5.404 MI	70.00 FT / 0.013 MI	28,605.44 FT / 5.417 MI
FM 1489 (1)	13,879.52 FT / 2.628 MI	205.00 FT / 0.038 MI	14,084.52 FT / 2.667 MI
FM 1489 (2)	18,302.16 FT / 3.466 MI	295.00 FT / 0.055 MI	18,596.16 FT / 3.522 MI
FM 1489 (3)	40,475.07 FT / 7.665 MI	810.00 FT / 0.153 MI	41,285.07 FT / 7.819 MI
FM 1994 (1)	20,634.00 FT / 3.907 MI	0.00 FT / 0.000 MI	20,634.00 FT / 3.907 MI
FM 1994 (2)	19,190.00 FT / 3.634 MI	220.00 FT / 0.041 MI	19,410.00 FT / 3.676 MI
FM 2759	38,514.00 FT / 7.294 MI	131.00 FT / 0.024 MI	38,645.00 FT / 7.319 MI
IH 10	27,930.77 FT / 5.289 MI	180.00 FT / 0.034 MI	28,110.77 FT / 5.324 MI
SH 6	50,833.96 FT / 9.627 MI	2,222.00 FT / 0.420 MI	53,055.96 FT / 10.048 MI
SS 10	24,594.76 FT / 4.658 MI	492.00 FT / 0.093 MI	25,086.76 FT / 4.751 MI
SS 529	13,057.00 FT / 2.472 MI	0.00 FT / 0.000 MI	13,057.00 FT / 2.472 MI
UA 90	41,358.46 FT / 7.833 MI	2,168.54 FT / 0.410 MI	43,527.00 FT / 8.243 MI
TOTAL	410,294.71 FT / 77.700 MI	7,307.54 FT / 1.378 MI	417,602.25 FT / 79.086 MI



COUNTY: HARRIS
 PROJ. NO.: C 912-00-710
 HWY. NO.: VARIOUS
 DATE ACCEPTED: _____
 LETTING DATE: _____

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION, NOVEMBER 1, 2014, AND THE SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS SHALL GOVERN ON THIS PROJECT: REQUIRED SPECIAL LABOR PROVISION FOR STATE PROJECTS: SP000---008.

EXCEPTIONS:
 FM 1489, STA 34+77.69 TO STA 39+37.00

EQUATIONS:
 FM 1489 (2), STA 161+98.01 BK = STA 162+40.80 AH
 FM 1489 (3), STA 13+65.10 BK = STA 13+79.00 AH
 FM 1489 (3), STA 164+22.47 BK = STA 164+54.50 AH

RAILROAD CROSSING:
 FM 1489 (3), STA 278+76.03 TO STA 279+76.03 (BNSF RR)
 SH 6, STA 737+45.74 TO STA 737+55.74
 SH 6, STA 737+63.61 TO STA 737+73.61
 SH 6, STA 737+81.48 TO STA 737+91.48

SUBMITTED FOR LETTING: 2/14/2024

DocuSigned by:
Carlos M. Zepeda, Jr., P.E.
 AREA ENGINEER
 999EB2AF5ACE472...

APPROVED FOR LETTING: 2/15/2024

DocuSigned by:
Brett McLeod, P.E.
 FOR DISTRICT ENGINEER

SHEET NO. DESCRIPTION

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- 51-52 PAVEMENT MARKING LAYOUT - FM 1489 - WALLER COUNTY LINE TO FM 1093
- 53-57 PAVEMENT MARKING LAYOUT - FM 1489 - FM 1093 TO FM 1952
- 58-60 PAVEMENT MARKING LAYOUT - FM 1994 - SH 36 TO FM 361
- 61-63 PAVEMENT MARKING LAYOUT - FM 1994 - FM 361 TO FM 762
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- 76-78 PAVEMENT MARKING LAYOUT - SS 10 - US 59 TO SH 36
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SHEET NO. DESCRIPTION

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- * 103 PAVEMENT MARKINGS (CONTRAST LANE LINES) PM(CLL)-14 (HOU DIST)

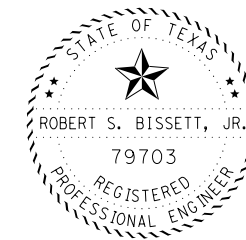
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* THE STANDARD SHEETS SPECIFICALLY IDENTIFIED ABOVE HAVE BEEN SELECTED BY ME OR UNDER MY RESPONSIBLE SUPERVISION AS BEING APPLICABLE TO THIS PROJECT.

Robert S. Bissett, Jr. P.E. 02/12/24
DATE

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	CONT	SECT	JOB	HIGHWAY
	0912	00	710	VARIOUS
	DIST	COUNTY		SHEET NO.
	HOU	HARRIS		2

General Notes:

General:

Area Engineer contact information for this project follows:

Carlos M. Zepeda, Jr., P.E.,
Email: Carlos.Zepeda@txdot.gov

Daniel J. Dvorak, P.E.
Email: Daniel.Dvorak@txdot.gov

Submit any questions about this project via the Letting Pre-Bid Q&A web page, located at:

<https://tableau.txdot.gov/views/ProjectInformationDashboard/NoticetoContractors>

The Letting Pre-Bid Q&A web page for each project can be accessed by scrolling or filtering the dashboard using the controls on the left side to navigate to the project. Hover over the blue hyperlink of the project to view the Q&A and click on the link in the window that pops up.

Large files with relevant project documentation, such as Geotech reports, As-Built plans, and cross-sections will continue to be provided on the following FTP site:

[Index of /pub/txdot-info/Pre-Letting Responses/Houston District \(state.tx.us\)](#) or

<https://ftp.dot.state.tx.us/pub/txdot-info/Pre-Letting%20Responses/Houston%20District/>

References to manufacturer’s trade name or catalog numbers are for the purpose of identification only. Similar materials from other manufacturers are permitted if they are of equal quality, comply with the specifications for this project, and are approved, except for roadway illumination, electrical, and traffic signal items.

The cost for materials, labor, and incidentals to provide for traffic across the roadway and for ingress and egress to private property in accordance with Section 7.2.4 of the standard specifications is subsidiary to the various bid items. Restore access roadways to their original condition upon completing construction.

Tolls incurred by the Contractor are subsidiary to the various bid items.

Procure permits and licenses, which are to be issued by the City, County, or Municipal Utility District.

General: Site Management

Do not mix or store materials, or store or repair equipment, on top of concrete pavement or bridge decks unless authorized by the Engineer. Permission will be granted to store materials on surfaces if no damage or discoloration will result.

Personal vehicles of employees are not permitted to park within the right of way, including sections closed to public traffic. Employees may park on the right of way at the Contractor’s office, equipment, and materials storage yard sites.

Assume ownership of debris and dispose of at an approved location. Do not dispose of debris on private property unless approved in writing by the District Engineer.

Control the dust caused by construction operations. For sweeping the base material in preparation for laying asphalt and for sweeping the finished concrete pavement, use one of the following types of sweepers or approved equal:

Tricycle Type

Wayne Series 900
Elgin White Wing
Elgin Pelican

Truck Type - 4 Wheel

M-B Cruiser II
Wayne Model 945
Mobile TE-3
Mobile TE-4
Murphy 4042

General: Utilities

If the Contractor damages or causes damage (breaks, leaks, nicks, dents, gouges, etc.) to the utility, contact the utility facility owner or operator immediately.

Be aware that an operational Computerized Transportation Management System (CTMS) exists within the limits of this project and that the system must remain operational throughout construction. If the Contractor damages or causes damage to this system, repair such damage within 8 hours of occurrence at no cost to the Department. In the event of system damage, notify the Director of Traffic Management Systems at 713-881-3283 within one hour of occurrence. Failure of the Contractor to repair damage to the main fiber optic cable and CCTV cable trunk lines, which convey all corridor information to TranStar, will result in the Contractor being billed for the full cost of emergency repairs.

At least 72 hours before starting work, make arrangements for locating existing Department-owned above ground and underground fiber optic, communications, power, illumination, and traffic signal cabling and conduit. Do this by calling the Department’s Houston District Traffic Signal Operations Office at 713-802-5662, or by e-mailing the Department’s Houston District Traffic Signal Operations Office at: HOU-LocateRequest@txdot.gov, to schedule marking of underground lines on the ground. Use caution if working in these areas to avoid damaging or interfering with existing facilities.

If overhead or underground power lines need to be de-energized, contact the electrical service provider to perform this work. Costs associated with de-energizing the power lines or other protective measures required are at no expense to the Department.

If working near power lines, comply with the appropriate sections of Texas State Law and Federal Regulations relating to the type of work involved.

Item 7: Legal Relations and Responsibilities

This project does not require a U.S. Army Corps of Engineers (USACE) Section 404 Permit before letting, but if a permit is needed during construction, assume responsibility for preparing the permit application. Submit the permit application to the Department’s District Environmental Section for approval. Once the permit application is approved, the Department will submit it to the USACE. Assume responsibility for the requested revisions, in coordination with the Department’s District Environmental Section.

If the work is on or in the vicinity of an at-grade railroad crossing, involves incidental work on railroad right of way, or involves construction of a railroad grade separation structure, notify the railroad company’s Division Engineer and the Department’s Project Engineer at least 30 days before performing any work on the railroad right of way and make arrangements for railroad flaggers unless otherwise shown in the contract. Obtain the required Railroad Right of Entry Permit from the railroad company. Payment of applicable permit fees is the responsibility of the Contractor. Acquiring the Railroad Right of Entry Permit is a lengthy process, allow sufficient time for this.

This project is on a hurricane evacuation route. Provide at the pre-construction meeting a written plan outlining procedures to suspend work, secure the job site, and safely handle traffic through and across the project in the event of a hurricane evacuation.

During the hurricane season (June 1 through November 30), do not close any travel lanes except when the Contractor can demonstrate that he/she can provide labor, equipment, material, a work plan, and quality of work to satisfactorily return all lanes to an open, all-weather travel surface within 3 days of receiving written or verbal notice but no later than 3 days before the predicted hurricane landfall. Construction of temporary lanes to an all-weather surface will be paid for in accordance with Article 9.7, “Payment for Extra Work and Force Account Method.”

In addition to lane closures, cease work 3 days before the predicted hurricane landfall on or near the roadway that adversely impacts the flow of traffic and reduces the capacity of the highway during an evacuation. Vehicles of the Contractor, subcontractors, or material suppliers will not be allowed to enter or exit the traffic stream, including those for the purpose of material hauling and delivery, and mobilization or demobilization of equipment. When directed, this prohibition will include a reasonable time period for the evacuees to return to their point of origin.

No significant traffic generator events have been identified.

Item 8: Prosecution and Progress

The Department will not adjust the number of days for the project and milestones, if any, due to differences in opinion regarding any assumptions made in the preparation of the schedule or for errors, omissions, or discrepancies found in the time determination schedule.

Working days will be computed and charged based on a *standard* workweek in accordance with Section 8.3.1.4.

Item 502: Barricades, Signs, and Traffic Handling

Use a traffic control plan for handling traffic through the various phases of construction. Follow the phasing sequence unless otherwise agreed upon by the Area Engineer and the Project Manager. Ensure this plan conforms to the latest “Texas Manual on Uniform Traffic Control Devices” and the latest Barricade and Construction (BC) Standard Sheets.

Submit changes to the traffic control plan to the Area Engineer. Provide a layout showing the construction phasing, signs, striping, and signalizations for changes to the original traffic control plan.

Furnish and maintain the barricades and warning signs, including the necessary temporary and portable traffic control devices, during the various phases of construction. Place and construct these barricades and warning signs in accordance with the latest “Texas Manual on Uniform Traffic Control Devices” for typical construction layouts.

Cover work zone signs when work related to the signs is not in progress, or when any hazard related to the signs no longer exists.

Keep the delineation devices, signs, and pavement markings clean. This work is subsidiary to the Item, “Barricades, Signs, and Traffic Handling.”

Erect temporary signs when exit ramps are closed or moved to new locations during construction.

Before detouring traffic onto the mainlane shoulders, remove dirt, debris, vegetation, and other deleterious material from the surface of the shoulders. Appropriately sign the detour in an approved manner. This work is subsidiary to the various bid items.

Do not mount signs on drums or barricades, except those listed in the latest Barricades and Construction standard sheets.

Use traffic cones for daytime work only. Replace the cones with plastic drums during nighttime hours.

Do not reduce the existing number of lanes open to traffic except as shown on the following time schedule:

**One Lane Closure/Two Lane Roadway Facility
FM 762 (A. Myers Rd. to FM 1462), FM 1489, FM 1994 & SS 529**

Day	Daytime Work Hours	Nighttime Work Hours	Restricted Hours Subject to Lane Assessment Fee
Monday Through Friday	No Restrictions	No Restrictions	No Restrictions

**One Lane Closure/Two Lane Roadway Facility
FM 2759 (FM 762 to Thompsons)**

Day	Daytime Work Hours	Nighttime Work Hours	Restricted Hours
Monday Through Friday	9:00 AM - 3:00 PM	7:00 PM -12:00 AM 12:00 AM - 5:00 AM	5:00 AM - 9:00 AM 3:00 PM - 7:00 PM

**One Lane Closure/Four Lane Highway Facility
SS 10 (US 59 to SH 36S)**

Day	Daytime Work Hours	Nighttime Work Hours	Restricted Hours Subject to Lane Assessment Fee
Monday Through Friday	No Restrictions	No Restrictions	No Restrictions

**One Lane Closure/Four Lane Highway Facility
FM 762 (FM 2759 to A. Myers Rd.) & FM 1093 (Main St. in Fulshear to Harris C/L)**

Day	Daytime Work Hours	Nighttime Work Hours	Restricted Hours Subject to Lane Assessment
Monday through Friday	9:00 AM – 3:00 PM	7:00 PM-12:00 AM 12:00 AM- 5:00 AM	5:00 AM -9:00 AM 3:00 PM- 7:00 PM

**One, Two or More Lane Closure/Multiple Lane Highway
IH 10 ML, SH 6, & UA 90A (SH 6 to Harris C/L)**

Day	Daytime Work Hours	Nighttime Work Hours	Restricted Hours Subject to Lane Assessment Fee
Monday Through Friday	None	9:00 PM – 12:00 AM 12:00 AM - 5:00 AM	5:00 AM - 9:00 PM

**Weekend One/Two Lane Closure
FM 762, FM 1093, FM 1489, FM 1994, FM 2759, IH 10, SH 6, SS 10, SS 529, & UA 90A**

Day	Daytime Work Hours	Nighttime Work Hours	Restricted Hours Subject to Lane Assessment Fee
Saturday Through Sunday	None	8:00 PM - 12:00 AM 12:00 AM - 11:00 AM	11:00 AM - 8:00 PM

The above times are approved for the traffic control conditions listed. The Area Engineer may approve other closure times if traffic counts warrant. The Area Engineer may reduce the above times for special events.

Law enforcement assistance will be required for this project and is expected to be required for major traffic control changes and lane closures. Coordinate with local law enforcement and

arrange for law enforcement as directed or agreed by the Engineer. Before payment will be made, complete the “Daily Report on Law Enforcement Force Account Work” (Form 318), provided by the Department and submit daily invoices that agree with this form for any day during the month in which approved services were provided.

Provide full-time, off-duty, uniformed, certified peace officers, as part of traffic control operations. The peace officers must be able to show proof of certification by the Texas Commission on Law Enforcement Officers Standards. The cost of the officers is paid for on a force account basis.

The Contractor Force Account “Safety Contingency” that has been established for this project is intended to be utilized for work zone enhancements, to improve the effectiveness of the Traffic Control Plan, that could not be foreseen in the project planning and design stage. These enhancements will be mutually agreed upon by the Engineer and the Contractor’s Responsible Person based on weekly or more frequent traffic management reviews on the project. The Engineer may choose to use existing bid items if it does not slow the implementation of enhancement.

Item 506: Temporary Erosion, Sedimentation and Environmental Controls

Due to the nature of the work involved, a Storm Water Pollution Prevention Plan (SWP3) is not required. However, if a SWP3 becomes necessary, it will be paid as extra work.

Item 666: Reflectorized Pavement Markings

Item 668: Prefabricated Pavement Markings

Item 6020: Multipolymer Pavement Markings (MPM) with Warranty

Use Type III glass beads for thermoplastic and multipolymer pavement markings.

Use a 0.100 in. (100 mil) thickness for thermoplastic pavement markings, measured to the top of the thermoplastic, not including the exposed glass beads.

Use a 0.022 in. (22 mil) thickness for multipolymer pavement markings, measured to the top of the multipolymer, not including the exposed glass beads.

For roadways with asphalt surfaces to be striped with work zone or permanent thermoplastic markings, the Contractor has the option to apply paint and beads markings for a maximum 30-day period until placing the thermoplastic markings, or until starting the succeeding phase of work on the striped area. Maintain the paint and beads markings, at no expense to the Department, until placing the thermoplastic markings or starting the succeeding phase of work on the striped area. The work zone markings, whether paint and beads or thermoplastic, are paid under the Item, “Work Zone Pavement Markings” and the markings are paid for only once for the given phase of construction.

If using paint and bead markings as described above, purchase the traffic paint from the open market.

County: Harris

Highway: Various

Control: 0912-00-710

If the Type II markings become dirty and require cleaning by washing, brushing, compressed air, or other approved methods before applying the Type I thermoplastic markings, this additional cleaning is subsidiary to the Item, "Reflectorized Pavement Markings."

Establish the alignment and layout for work zone striping and permanent striping.

Stripe all roadways before opening them to traffic.

Place pavement markings under these items in accordance with details shown on the plans, the latest "Texas Manual on Uniform Traffic Control Devices," or as directed.

When design details are not shown on the plans, provide pavement markings for arrows, words, and symbols conforming to the latest "Standard Highway Sign Designs for Texas" manual.

Item 672: Raised Pavement Markers

If other operations are complete on the project and if the curing time period is not yet elapsed, the contract time will be suspended until the curing is done.

Before placing the raised pavement markers on concrete pavement, blast clean the surface using an abrasive-blasting medium. This work is subsidiary to the Item, "Raised Pavement Markers."

Provide epoxy adhesive that is machine-mixed or nozzle-mixed and dispensed. Equip the machine or nozzle with a mechanism to ensure positive mix measurement control.

Item 677: Eliminating Existing Pavement Markings and Markers

Remove existing pavement markings on concrete or asphalt surfaces by flail milling or as directed.

Item 678: Pavement Surface Preparation for Markings

Do not blast clean asphalt concrete pavement. Clean asphalt concrete pavement as required under the applicable specifications or as directed.

On new concrete pavement or on existing concrete pavement when placing a new stripe on a new location, remove the curing compounds and contamination from the pavement surface by flail milling or as directed. In addition, air-blast the surface with compressed air just before placing the new stripe.

On existing concrete pavement when placing a new stripe on an existing location, after removing the existing stripe under the Item, "Eliminating Existing Pavement Markings and Markers," air-blast the surface with compressed air just before placing the new stripe.

Do not clean concrete pavement by grinding.

County: Harris

Highway: Harris

Control: 0912-00-710

Sheet 3C

Item 6185: Truck Mounted Attenuator (TMA) and Trailer Attenuator (TA)

A shadow vehicle with Truck Mounted Attenuators (TMAs) or Trailer Attenuators (TAs) is required as shown on the appropriate Traffic Control Plan (TCP) sheets. TMAs/TAs must meet the requirements of the Compliant Work Zone Traffic Control Device List.

Level 3 Compliant TMAs/TAs are required for this project.

A total of one (1) shadow vehicle with a TMA/TA is required for the work with the exception of Pavement Marking Operations. The Contractor is responsible for determining if one or more of these operations will be ongoing at the same time to determine the total number of TMAs/TAs needed on the project.

A total of three (3) shadow vehicles with a TMA/TA are required for Pavement Marking Operations. The Contractor is responsible for determining if one or more of these operations will be ongoing at the same time to determine the total number of TMAs/TAs needed on the project.



CONTROLLING PROJECT ID 0912-00-710

DISTRICT Houston
HIGHWAY Various

COUNTY Harris

Estimate Quantity Sheet

CONTROL SECTION JOB				0912-00-710		TOTAL EST.	TOTAL FINAL
PROJECT ID				A00197984			
COUNTY				Harris			
HIGHWAY				Various			
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL		
	500-6001	MOBILIZATION	LS	1.000		1.000	
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	8.000		8.000	
	666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	16,317.000		16,317.000	
	666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	9,159.000		9,159.000	
	666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	102.000		102.000	
	666-6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA	96.000		96.000	
	666-6093	REFL PAV MRK TY I (W)(RR XING)(100MIL)	EA	3.000		3.000	
	666-6102	REF PAV MRK TY I(W)36"(YLD TRI)(100MIL)	EA	6.000		6.000	
	666-6147	REFL PAV MRK TY I (Y)24"(SLD)(100MIL)	LF	11,109.000		11,109.000	
	666-6162	RE PV MRK TY I(BLACK)6"(SHADOW)(100MIL)	LF	11,900.000		11,900.000	
	666-6212	REFL PAV MRK TY II (Y) 12" (SLD)	LF	74,140.000		74,140.000	
	666-6225	PAVEMENT SEALER 6"	LF	303,175.000		303,175.000	
	666-6226	PAVEMENT SEALER 8"	LF	1,332.000		1,332.000	
	666-6230	PAVEMENT SEALER 24"	LF	499.000		499.000	
	666-6231	PAVEMENT SEALER (ARROW)	EA	10.000		10.000	
	666-6232	PAVEMENT SEALER (WORD)	EA	12.000		12.000	
	666-6243	PAVEMENT SEALER (YLD TRI)	EA	6.000		6.000	
	666-6306	RE PM W/RET REQ TY I (W)6"(BRK)(100MIL)	LF	115,188.000		115,188.000	
	666-6309	RE PM W/RET REQ TY I (W)6"(SLD)(100MIL)	LF	154,917.000		154,917.000	
	666-6318	RE PM W/RET REQ TY I (Y)6"(BRK)(100MIL)	LF	20,617.000		20,617.000	
	666-6321	RE PM W/RET REQ TY I (Y)6"(SLD)(100MIL)	LF	113,603.000		113,603.000	
	666-6343	REF PROF PAV MRK TY I(W)6"(SLD)(100MIL)	LF	307,426.000		307,426.000	
	666-6346	REF PROF PAV MRK TY I(Y)6"(BRK)(100MIL)	LF	21,370.000		21,370.000	
	666-6347	REF PROF PAV MRK TY I(Y)6"(SLD)(100MIL)	LF	110,687.000		110,687.000	
	668-6010	PREFAB PAV MRK TY B (W)(6")(BRK)CNTST	LF	14,040.000		14,040.000	
	668-6077	PREFAB PAV MRK TY C (W) (ARROW)	EA	474.000		474.000	
	668-6078	PREFAB PAV MRK TY C (W) (DBL ARROW)	EA	45.000		45.000	
	668-6080	PREFAB PAV MRK TY C (W) (UTURN ARROW)	EA	9.000		9.000	
	668-6084	PREFAB PAV MRK TY C (W) (NUMBER)	EA	3.000		3.000	
	668-6085	PREFAB PAV MRK TY C (W) (WORD)	EA	435.000		435.000	
	668-6089	PREFAB PAV MRK TY C (W) (RR XING)	EA	8.000		8.000	
	668-6091	PREFAB PAV MRK TY C (W) (18")(YLD TRI)	EA	73.000		73.000	
	668-6092	PREFAB PAV MRK TY C (W) (36")(YLD TRI)	EA	156.000		156.000	
	672-6006	REFL PAV MRKR TY I-A	EA	115.000		115.000	
	672-6007	REFL PAV MRKR TY I-C	EA	528.000		528.000	
	672-6009	REFL PAV MRKR TY II-A-A	EA	7,363.000		7,363.000	
	672-6010	REFL PAV MRKR TY II-C-R	EA	13,992.000		13,992.000	



DISTRICT	COUNTY	CCSJ	SHEET
Houston	Harris	0912-00-710	4



CONTROLLING PROJECT ID 0912-00-710

DISTRICT Houston
HIGHWAY Various

COUNTY Harris

Estimate Quantity Sheet

CONTROL SECTION JOB				0912-00-710		TOTAL EST.	TOTAL FINAL
PROJECT ID				A00197984			
COUNTY				Harris			
HIGHWAY				Various			
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL		
	677-6001	ELIM EXT PAV MRK & MRKS (4")	LF	259,879.000		259,879.000	
	677-6002	ELIM EXT PAV MRK & MRKS (6")	LF	146,967.000		146,967.000	
	677-6003	ELIM EXT PAV MRK & MRKS (8")	LF	39,313.000		39,313.000	
	677-6005	ELIM EXT PAV MRK & MRKS (12")	LF	30,583.000		30,583.000	
	677-6007	ELIM EXT PAV MRK & MRKS (24")	LF	13,016.000		13,016.000	
	677-6008	ELIM EXT PAV MRK & MRKS (ARROW)	EA	207.000		207.000	
	677-6009	ELIM EXT PAV MRK & MRKS (DBL ARROW)	EA	35.000		35.000	
	677-6012	ELIM EXT PAV MRK & MRKS (WORD)	EA	189.000		189.000	
	677-6016	ELIM EXT PAV MRK & MRKS (RR XING)	EA	4.000		4.000	
	677-6018	ELIM EXT PAV MRK & MRKS (18")(YLD TRI)	EA	61.000		61.000	
	677-6019	ELIM EXT PAV MRK & MRKS (36")(YLD TRI)	EA	144.000		144.000	
	677-6036	ELIM EXT PAV MRK & MRKS (UTURN ARROW)	EA	7.000		7.000	
	678-6002	PAV SURF PREP FOR MRK (6")	LF	423,096.000		423,096.000	
	678-6004	PAV SURF PREP FOR MRK (8")	LF	39,313.000		39,313.000	
	678-6006	PAV SURF PREP FOR MRK (12")	LF	10,493.000		10,493.000	
	678-6008	PAV SURF PREP FOR MRK (24")	LF	16,228.000		16,228.000	
	678-6009	PAV SURF PREP FOR MRK (ARROW)	EA	207.000		207.000	
	678-6010	PAV SURF PREP FOR MRK (DBL ARROW)	EA	35.000		35.000	
	678-6012	PAV SURF PREP FOR MRK (UTURN ARR)	EA	7.000		7.000	
	678-6016	PAV SURF PREP FOR MRK (WORD)	EA	189.000		189.000	
	678-6020	PAV SURF PREP FOR MRK (RR XING)	EA	4.000		4.000	
	678-6022	PAV SURF PREP FOR MRK (18")(YLD TRI)	EA	61.000		61.000	
	678-6023	PAV SURF PREP FOR MRK (36")(YLD TRI)	EA	144.000		144.000	
	6020-6004	MLTPLY PV MK W/WTY (W) (6") (SLD)	LF	156,253.000		156,253.000	
	6020-6005	MLTPLY PV MK W/WTY (W) (6") (BRK)	LF	138,340.000		138,340.000	
	6020-6006	MLTPLY PV MK W/WTY (W) (6") (DOT)	LF	2,749.000		2,749.000	
	6020-6007	MLTPLY PV MK W/WTY (W) (8") (SLD)	LF	93,168.000		93,168.000	
	6020-6008	MLTPLY PV MK W/WTY (W) (12") (SLD)	LF	11,793.000		11,793.000	
	6020-6010	MLTPLY PV MK W/WTY (W) (24") (SLD)	LF	27,970.000		27,970.000	
	6020-6014	MLTPLY PV MK W/WTY (Y) (6") (SLD)	LF	41,454.000		41,454.000	
	6020-6017	MLTPLY PV MK W/WTY (Y) (8") (SLD)	LF	2,669.000		2,669.000	
	6020-6019	MLTPLY PV MK W/WTY (Y) (12") (SLD)	LF	934.000		934.000	
	6020-6020	MLTPLY PV MK W/WTY (Y) (24") (SLD)	LF	1,809.000		1,809.000	
	6020-6022	MLTPLY PV MK W/WTY (BLK) (6") (BRK)	LF	119,870.000		119,870.000	
	6020-6029	MLTPLY PV MK W/WTY (W)(8")(DOT)	LF	204.000		204.000	
	6185-6005	TMA (MOBILE OPERATION)	DAY	281.000		281.000	
	08	CONTRACTOR FORCE ACCOUNT EROSION CONTROL MAINTENANCE (NON-PARTICIPATING)	LS	1.000		1.000	



DISTRICT	COUNTY	CCSJ	SHEET
Houston	Harris	0912-00-710	4A



CONTROLLING PROJECT ID 0912-00-710

DISTRICT Houston
HIGHWAY Various

COUNTY Harris

Estimate Quantity Sheet

CONTROL SECTION JOB				0912-00-710		TOTAL EST.	TOTAL FINAL
PROJECT ID				A00197984			
COUNTY				Harris			
HIGHWAY				Various			
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL		
	08	CONTRACTOR FORCE ACCOUNT RAILROAD FLAGGING (NON-PARTICIPATING)	LS	1.000		1.000	
		CONTRACTOR FORCE ACCOUNT SAFETY CONTINGENCY (NON-PARTICIPATING)	LS	1.000		1.000	
		CONTRACTOR FORCE ACCOUNT LAW ENFORCEMENT (NON-PARTICIPATING)	LS	1.000		1.000	

SUMMARY OF QUANTITIES

ROADWAY	LIMITS	0500-6001	0502-6001	0666 REFL PAV MRK TY I				
		MOBILIZATION	BARRICADES, SIGNS AND TRAFFIC HANDLING	-6036 (W) 8"(SLD) (100MIL)	-6048 (W) 24"(SLD) (100MIL)	-6054 (W) (ARROW) (100MIL)	-6078 (W) (WORD) (100MIL)	-6093 (W) (RR XING) (100MIL)
		LS	MO	LF	LF	EA	EA	EA
FM 762	1.542 MI. S. OF BRIDLEWOOD DR. TO FM 1462			522	332	4	4	
FM 1093	SH 99 TO HARRIS COUNTY LINE - FRTG RDS							
FM 1489	US 90 TO FORT BEND COUNTY LINE				92			
FM 1489	WALLER COUNTY LINE TO FM 1093				70		2	
FM 1489	FM 1093 TO FM 1952			250	168	3	3	3
FM 1994	SH 36 TO FM 361				93			
FM 1994	FM 361 TO FM 762			400	36	3	3	
FM 2759	FM 762 TO THOMPSONS			3,820	275	14	16	
IH 10	WALLER C/L TO HARRIS C/L - MAINLANES							
SH 6	MISSOURI CITY TO BRAZORIA COUNTY LINE							
SS 10	US 59 TO SH 36 SOUTH			10,515	7,996	72	62	
SS 529	US 59 TO W. OF US 90A (ASPHALT)			810	97	6	6	
UA 90	SH 6 TO HARRIS COUNTY LINE							
	QUANTITY	1	8	16,317	9,159	102	96	3

SUMMARY OF QUANTITIES

SHEET 1 OF 10



CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST	COUNTY		SHEET NO.
HOU	HARRIS		5

SUMMARY OF QUANTITIES

ROADWAY	LIMITS	0666 RE PV MRK TY I			0666-6212	0666 PAVEMENT SEALER			
		-6102 (W) 36"(YLD TRI) (100MIL) EA	-6147 (Y) 24"(SLD) (100MIL) LF	-6162 (BLACK) 6"(SHADOW) (100MIL) LF	REF PAV MRK TY II (Y)12" (SLD) LF	-6225 6" LF	-6226 8" LF	-6230 24" LF	-6231 (ARROW) EA
FM 762	1.542 MI. S. OF BRIDLEWOOD DR. TO FM 1462	6				215,069	522	332	4
FM 1093	SH 99 TO HARRIS COUNTY LINE - FRTG RDS								
FM 1489	US 90 TO FORT BEND COUNTY LINE								
FM 1489	WALLER COUNTY LINE TO FM 1093					44,810		70	
FM 1489	FM 1093 TO FM 1952								
FM 1994	SH 36 TO FM 361								
FM 1994	FM 361 TO FM 762								
FM 2759	FM 762 TO THOMPSONS								
IH 10	WALLER C/L TO HARRIS C/L - MAINLANES								
SH 6	MISSOURI CITY TO BRAZORIA COUNTY LINE				56,924				
SS 10	US 59 TO SH 36 SOUTH		11,109	11,900					
SS 529	US 59 TO W. OF US 90A (ASPHALT)					43,296	810	97	6
UA 90	SH 6 TO HARRIS COUNTY LINE				17,126				
	QUANTITY	6	11,109	11,900	74,140	303,175	1,332	499	10

SUMMARY OF QUANTITIES

SHEET 2 OF 10



CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST	COUNTY		SHEET NO.
HOU	HARRIS		6

SUMMARY OF QUANTITIES

ROADWAY	LIMITS	0666 PAVEMENT SEALER		0666 RE PM W/RET REQ TY I				0666-6343
		-6232 (WORD) EA	-6243 (YLD TRI) EA	-6306 (W) 6"(BRK) (100MIL) LF	-6309 (W) 6"(SLD) (100MIL) LF	-6318 (Y) 6"(BRK) (100MIL) LF	-6321 (Y) 6"(SLD) (100MIL) LF	REF PROF PAV MRK TY I (W)6"(SLD) (100MIL) LF
FM 762	1.542 MI. S. OF BRIDLEWOOD DR. TO FM 1462	4	6		55,017	12,315	55,966	91,771
FM 1093	SH 99 TO HARRIS COUNTY LINE - FRTG RDS							
FM 1489	US 90 TO FORT BEND COUNTY LINE				55,580	3,982	28,888	
FM 1489	WALLER COUNTY LINE TO FM 1093	2			37,270	4,320	3,220	
FM 1489	FM 1093 TO FM 1952							82,710
FM 1994	SH 36 TO FM 361							41,276
FM 1994	FM 361 TO FM 762							39,710
FM 2759	FM 762 TO THOMPSONS			76,716	7,050		25,529	
IH 10	WALLER C/L TO HARRIS C/L - MAINLANES							
SH 6	MISSOURI CITY TO BRAZORIA COUNTY LINE							
SS 10	US 59 TO SH 36 SOUTH			11,900				51,959
SS 529	US 59 TO W. OF US 90A (ASPHALT)	6		26,572				
UA 90	SH 6 TO HARRIS COUNTY LINE							
	QUANTITY	12	6	115,188	154,917	20,617	113,603	307,426

SUMMARY OF QUANTITIES

SHEET 3 OF 10



CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST	COUNTY		SHEET NO.
HOU	HARRIS		7

SUMMARY OF QUANTITIES

ROADWAY	LIMITS	0666-6346	0666-6347	0668-6010	0668 PREFAB PAV MRK TY C				
		REF PROF PAV MRK TY I (Y)6"(BRK) (100MIL) LF	REF PROF PAV MRK TY I (Y)6"(SLD) (100MIL) LF	PREFAB PAV MRK TY B (W)6"(BRK) CNTST LF	-6077 (W) (ARROW) EA	-6078 (W) (DBL ARROW) EA	-6080 (W) (UTURN ARROW) EA	-6084 (W) (NUMBER) EA	-6085 (W) (WORD) EA
FM 762	1.542 MI. S. OF BRIDLEWOOD DR. TO FM 1462								
FM 1093	SH 99 TO HARRIS COUNTY LINE - FRTG RDS				38	13	2		40
FM 1489	US 90 TO FORT BEND COUNTY LINE								
FM 1489	WALLER COUNTY LINE TO FM 1093								
FM 1489	FM 1093 TO FM 1952	8,810	24,724						
FM 1994	SH 36 TO FM 361	5,110	3,053						
FM 1994	FM 361 TO FM 762	4,320	8,145						
FM 2759	FM 762 TO THOMPSONS		5,429						
IH 10	WALLER C/L TO HARRIS C/L - MAINLANES			14,040				3	
SH 6	MISSOURI CITY TO BRAZORIA COUNTY LINE				277	10	2		258
SS 10	US 59 TO SH 36 SOUTH	820	54,922						
SS 529	US 59 TO W. OF US 90A (ASPHALT)	2,310	14,414						
UA 90	SH 6 TO HARRIS COUNTY LINE				159	22	5		137
	QUANTITY	21,370	110,687	14,040	474	45	9	3	435

SUMMARY OF QUANTITIES

SHEET 4 OF 10



CONT	SECT	JOB	HIGHWAY
0912	00	001	VARIOUS
DIST	COUNTY		SHEET NO.
HOU	HARRIS		8

SUMMARY OF QUANTITIES

ROADWAY	LIMITS	0668 PREFAB PAV MRK TY C			0672 REFL PAV MRKR			
		-6089 (W) (RR XING)	-6091 (W) (18") (YLD TRI)	-6092 (W) (36") (YLD TRI)	-6006 TY I-A	-6007 TY I-C	-6009 TY II-A-A	-6010 TY II-C-R
		EA	EA	EA	EA	EA	EA	EA
FM 762	1.542 MI. S. OF BRIDLEWOOD DR. TO FM 1462					30	1,634	
FM 1093	SH 99 TO HARRIS COUNTY LINE - FRTG RDS			53				1,405
FM 1489	US 90 TO FORT BEND COUNTY LINE						562	
FM 1489	WALLER COUNTY LINE TO FM 1093						257	
FM 1489	FM 1093 TO FM 1952					13	1,505	
FM 1994	SH 36 TO FM 361						295	
FM 1994	FM 361 TO FM 762					22	519	
FM 2759	FM 762 TO THOMPSONS					195	1,424	
IH 10	WALLER C/L TO HARRIS C/L - MAINLANES				48			958
SH 6	MISSOURI CITY TO BRAZORIA COUNTY LINE	4	12	18		37	41	5,524
SS 10	US 59 TO SH 36 SOUTH					125	489	1,007
SS 529	US 59 TO W. OF US 90A (ASPHALT)					40	591	
UA 90	SH 6 TO HARRIS COUNTY LINE	4	61	85	67	66	36	5,098
	QUANTITY	8	73	156	115	528	7,363	13,992

SUMMARY OF QUANTITIES

SHEET 5 OF 10



CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST	COUNTY		SHEET NO.
HOU	HARRIS		9

SUMMARY OF QUANTITIES

ROADWAY	LIMITS	0677 ELIM EXT PAV MRK & MRKS						
		-6001 (4") LF	-6002 (6") LF	-6003 (8") LF	-6005 (12") LF	-6007 (24") LF	-6008 (ARROW) EA	-6009 (DBL ARROW) EA
FM 762	1.542 MI. S. OF BRIDLEWOOD DR. TO FM 1462	215,069		522		332	4	
FM 1093	SH 99 TO HARRIS COUNTY LINE - FRTG RDS		20,340	10,200	3,151	1,874	38	13
FM 1489	US 90 TO FORT BEND COUNTY LINE							
FM 1489	WALLER COUNTY LINE TO FM 1093	44,810				70		
FM 1489	FM 1093 TO FM 1952							
FM 1994	SH 36 TO FM 361							
FM 1994	FM 361 TO FM 762							
FM 2759	FM 762 TO THOMPSONS							
IH 10	WALLER C/L TO HARRIS C/L - MAINLANES							
SH 6	MISSOURI CITY TO BRAZORIA COUNTY LINE				6,228	3,306		
SS 10	US 59 TO SH 36 SOUTH							
SS 529	US 59 TO W. OF US 90A (ASPHALT)		43,296	810		97	6	
UA 90	SH 6 TO HARRIS COUNTY LINE		83,331	27,781	21,204	7,337	159	22
	QUANTITY	259,879	146,967	39,313	30,583	13,016	207	35

SUMMARY OF QUANTITIES

SHEET 6 OF 10



CONT	SECT	JOB	HIGHWAY
06912	00	710	VARIOUS
DIST	COUNTY		SHEET NO.
HOU	HARRIS		10

SUMMARY OF QUANTITIES

ROADWAY	LIMITS	0677 ELIM EXT PAV MRK & MRKS					0678 PAV SURF PREP FOR MRK	
		-6012 (WORD) EA	-6016 (RR XING) EA	-6018 (18") (YLD TRI) EA	-6019 (36") (YLD TRI) EA	-6036 (UTURN ARROW) EA	-6002 (6") LF	-6004 (8") LF
FM 762	1.542 MI. S. OF BRIDLEWOOD DR. TO FM 1462	4			6		215,069	522
FM 1093	SH 99 TO HARRIS COUNTY LINE - FRTG RDS	40			53	2	36,590	10,200
FM 1489	US 90 TO FORT BEND COUNTY LINE							
FM 1489	WALLER COUNTY LINE TO FM 1093	2					44,810	
FM 1489	FM 1093 TO FM 1952							
FM 1994	SH 36 TO FM 361							
FM 1994	FM 361 TO FM 762							
FM 2759	FM 762 TO THOMPSONS							
IH 10	WALLER C/L TO HARRIS C/L - MAINLANES							
SH 6	MISSOURI CITY TO BRAZORIA COUNTY LINE							
SS 10	US 59 TO SH 36 SOUTH							
SS 529	US 59 TO W. OF US 90A (ASPHALT)	6					43,296	810
UA 90	SH 6 TO HARRIS COUNTY LINE	137	4	61	85	5	83,331	27,781
	QUANTITY	189	4	61	144	7	423,096	39,313

SUMMARY OF QUANTITIES

SHEET 7 OF 10



CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST	COUNTY		SHEET NO.
HOU	HARRIS		11

SUMMARY OF QUANTITIES

ROADWAY	LIMITS	0678 PAV SURF PREP FOR MRK						
		-6006 (12") LF	-6008 (24") LF	-6009 (ARROW) EA	-6010 (DBL ARROW) EA	-6012 (UTURN ARR) EA	-6016 (WORD) EA	-6020 (RR XING) EA
FM 762	1.542 MI. S. OF BRIDLEWOOD DR. TO FM 1462		332	4			4	
FM 1093	SH 99 TO HARRIS COUNTY LINE - FRTG RDS		3,230	38	13	2	40	
FM 1489	US 90 TO FORT BEND COUNTY LINE							
FM 1489	WALLER COUNTY LINE TO FM 1093		70				2	
FM 1489	FM 1093 TO FM 1952							
FM 1994	SH 36 TO FM 361							
FM 1994	FM 361 TO FM 762							
FM 2759	FM 762 TO THOMPSONS							
IH 10	WALLER C/L TO HARRIS C/L - MAINLANES							
SH 6	MISSOURI CITY TO BRAZORIA COUNTY LINE							
SS 10	US 59 TO SH 36 SOUTH							
SS 529	US 59 TO W. OF US 90A (ASPHALT)		97	6			6	
UA 90	SH 6 TO HARRIS COUNTY LINE	10,493	12,499	159	22	5	137	4
	QUANTITY	10,493	16,228	207	35	7	189	4

SUMMARY OF QUANTITIES

SHEET 8 OF 10



CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST	COUNTY		SHEET NO.
HOU	HARRIS		12

SUMMARY OF QUANTITIES

ROADWAY	LIMITS	0678 PAV SURF PREP FOR MRK		6020 MLTPLY PV MK W/WTY				
		-6022 (18") (YLD TRI) EA	-6023 (36") (YLD TRI) EA	-6004 (W)(6") (SLD) LF	-6005 (W)(6") (BRK) LF	-6006 (W)(6") (DOT) LF	-6007 (W)(8") (SLD) LF	-6008 (W)(12") (SLD) LF
FM 762	1.542 MI. S. OF BRIDLEWOOD DR. TO FM 1462		6					
FM 1093	SH 99 TO HARRIS COUNTY LINE - FRTG RDS		53	1,756	16,250	308	10,002	
FM 1489	US 90 TO FORT BEND COUNTY LINE							
FM 1489	WALLER COUNTY LINE TO FM 1093							
FM 1489	FM 1093 TO FM 1952							
FM 1994	SH 36 TO FM 361							
FM 1994	FM 361 TO FM 762							
FM 2759	FM 762 TO THOMPSONS							
IH 10	WALLER C/L TO HARRIS C/L - MAINLANES			29,381	14,040	213	5,116	1,300
SH 6	MISSOURI CITY TO BRAZORIA COUNTY LINE			103,721	52,300	1,170	51,756	
SS 10	US 59 TO SH 36 SOUTH							
SS 529	US 59 TO W. OF US 90A (ASPHALT)							
UA 90	SH 6 TO HARRIS COUNTY LINE	61	85	21,395	55,750	1,058	26,294	10,493
	QUANTITY	61	144	156,253	138,340	2,749	93,168	11,793

SUMMARY OF QUANTITIES

SHEET 9 OF 10



CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST	COUNTY		SHEET NO.
HOU	HARRIS		13

SUMMARY OF QUANTITIES

ROADWAY	LIMITS	6020 MLTPLY PV MK W/WTY							6185-6005
		-6010 (W)(24") (SLD) LF	-6014 (Y)(6") (SLD) LF	-6017 (Y)(8") (SLD) LF	-6019 (Y)(12") (SLD) LF	-6020 (Y)(24") (SLD) LF	6022 (BLK)(6") (BRK) LF	6029 (W)(8") (DOT) LF	TMA (MOBILE OPERATION) DAY
FM 762	1.542 MI. S. OF BRIDLEWOOD DR. TO FM 1462								34
FM 1093	SH 99 TO HARRIS COUNTY LINE - FRTG RDS	3,175	2,026	198		55	16,250		10
FM 1489	US 90 TO FORT BEND COUNTY LINE								6
FM 1489	WALLER COUNTY LINE TO FM 1093								8
FM 1489	FM 1093 TO FM 1952								8
FM 1994	SH 36 TO FM 361								4
FM 1994	FM 361 TO FM 762								6
FM 2759	FM 762 TO THOMPSONS								8
IH 10	WALLER C/L TO HARRIS C/L - MAINLANES		30,580	984					27
SH 6	MISSOURI CITY TO BRAZORIA COUNTY LINE	12,599	2,662		934	689	47,920	204	87
SS 10	US 59 TO SH 36 SOUTH					493			15
SS 529	US 59 TO W. OF US 90A (ASPHALT)								8
UA 90	SH 6 TO HARRIS COUNTY LINE	12,196	6,186	1,487		651	55,700		60
	QUANTITY	27,970	41,454	2,669	934	1,809	119,870	204	281

SUMMARY OF QUANTITIES

SHEET 10 OF 10



CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST	COUNTY		SHEET NO.
HOU	HARRIS		14

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BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

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

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WORKER SAFETY NOTES:


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

COMPLIANT WORKZONE TRAFFIC CONTROL DEVICES

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

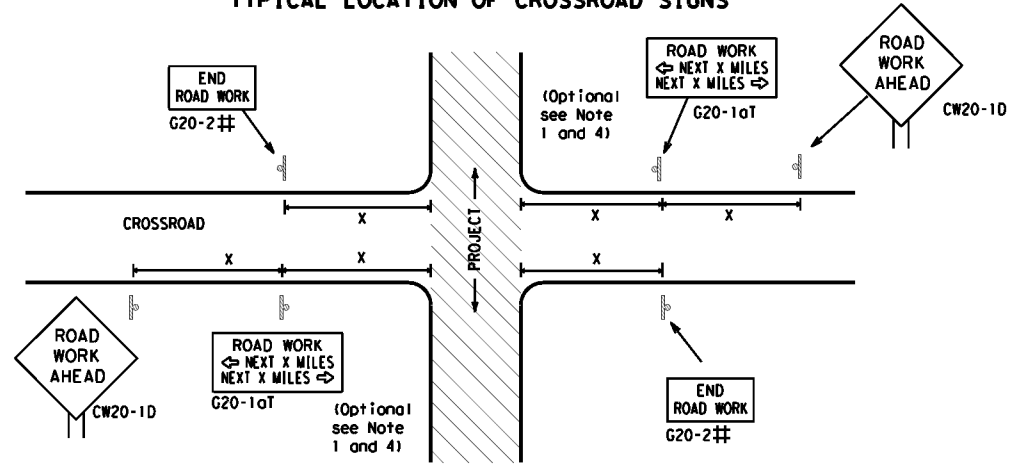
<p>THE DOCUMENTS BELOW CAN BE FOUND ON-LINE AT http://www.txdot.gov</p>
COMPLIANT WORK ZONE TRAFFIC CONTROL DEVICES LIST (CWZTCD)
DEPARTMENTAL MATERIAL SPECIFICATIONS (DMS)
MATERIAL PRODUCER LIST (MPL)
ROADWAY DESIGN MANUAL - SEE "MANUALS (ONLINE MANUALS)"
STANDARD HIGHWAY SIGN DESIGNS FOR TEXAS (SHSD)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

SHEET 1 OF 12

 Texas Department of Transportation		Traffic Safety Division Standard
<p>BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS</p> <p>BC (1) -21</p>		
FILE: bc-21.dgn	DNR: TxDOT	CR: TxDOT
© TxDOT November 2002	CONT: 0912	SECT: 00
4-03 7-13	9-07 8-14	5-10 5-21
REVISIONS	JOB: 710	HIGHWAY: VARIOUS
DIST: HOU	COUNTY: HARRIS	SHEET NO.: 15

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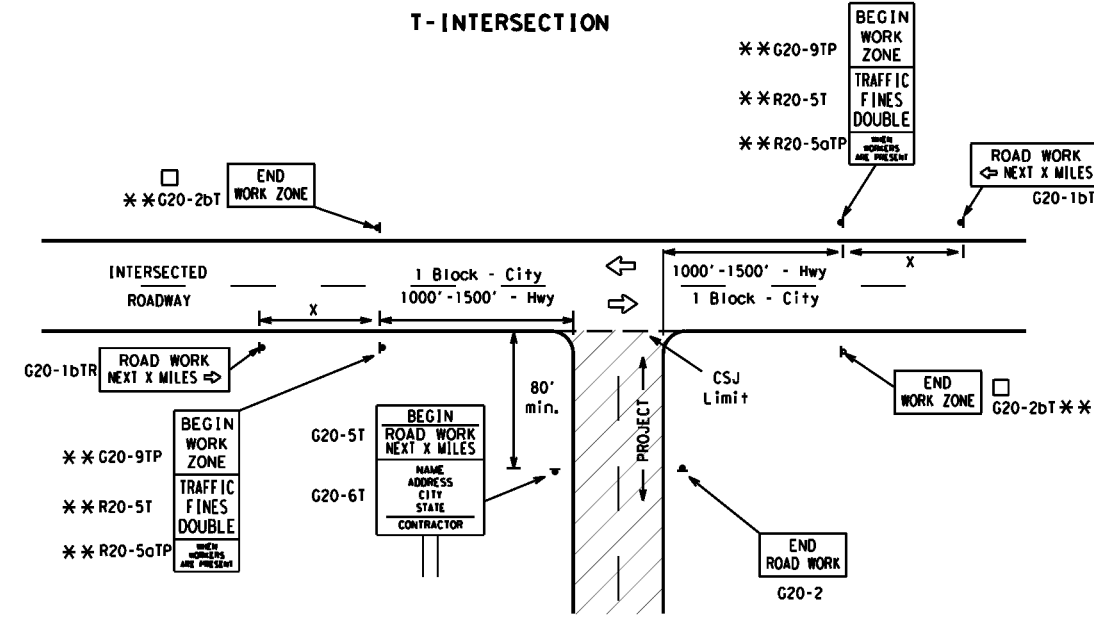
TYPICAL LOCATION OF CROSSROAD SIGNS



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

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

T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

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

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

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

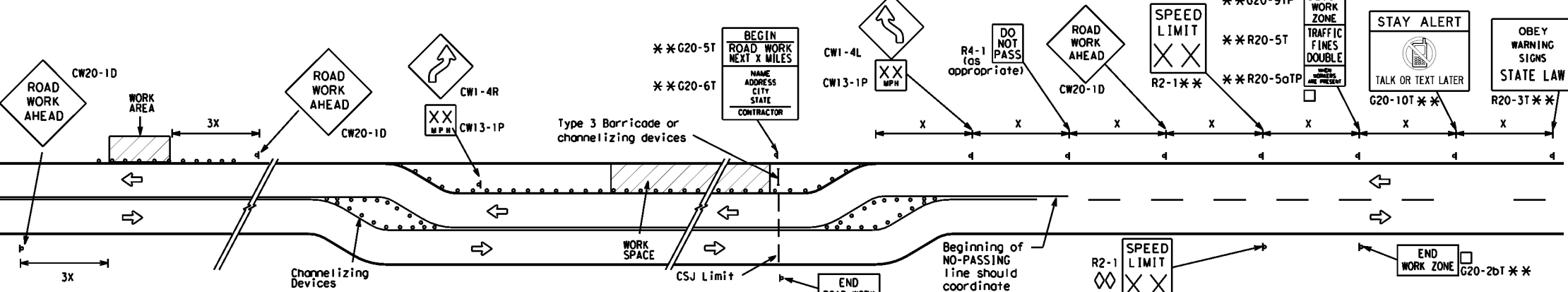
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

GENERAL NOTES

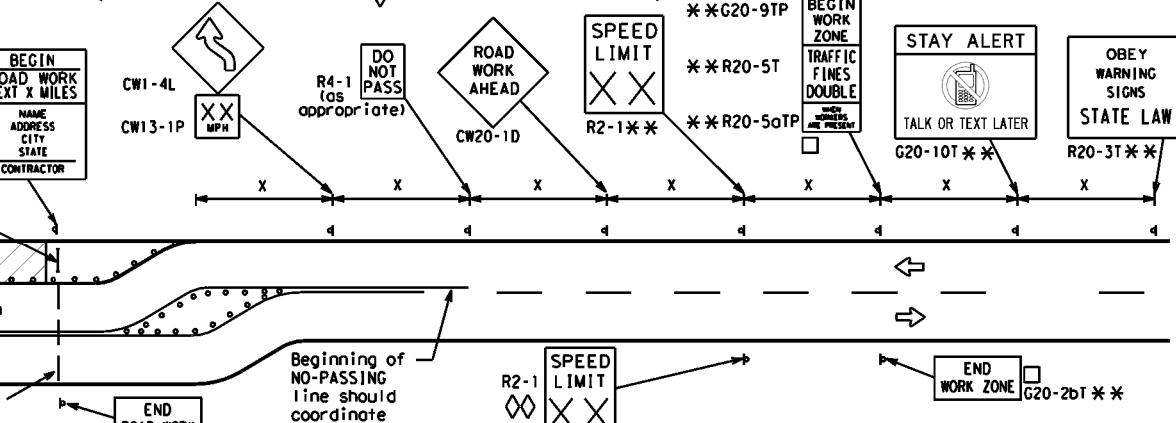
- Special or larger size signs may be used as necessary.
- Distance between signs should be increased as required to have 1500 feet advance warning.
- Distance between signs should be increased as required to have 1/2 mile or more advance warning.
- 36" x 36" "ROAD WORK AHEAD" (CW20-1D) signs may be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

WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS

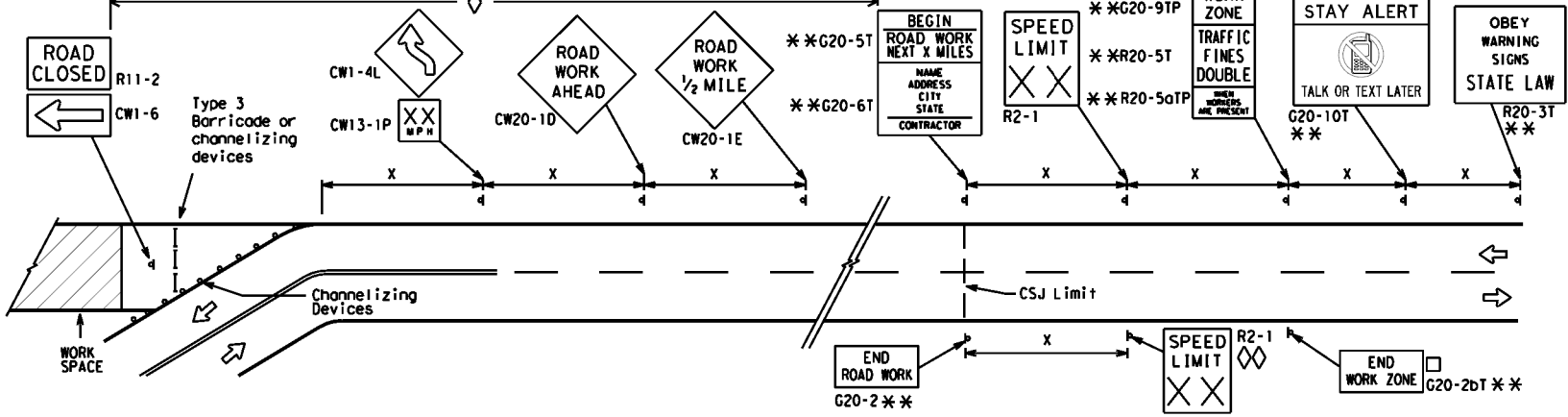


When extended distances occur between minimal work spaces, the Engineer/Inspector should ensure additional "ROAD WORK AHEAD" (CW20-1D) signs are placed in advance of these work areas to remind drivers they are still within the project limits. See the applicable TCP sheets for exact location and spacing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

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING 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.
- CSJ limit signing is required for highway construction and maintenance work, with the exception of mobile operations.
- Area for placement of "ROAD WORK AHEAD" (CW20-1D) sign and other signs or devices as called for on the Traffic Control Plan.
- Contractor will install a regulatory speed limit sign at the end of the work zone.

LEGEND

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

SHEET 2 OF 12

Texas Department of Transportation
Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC (2) - 21

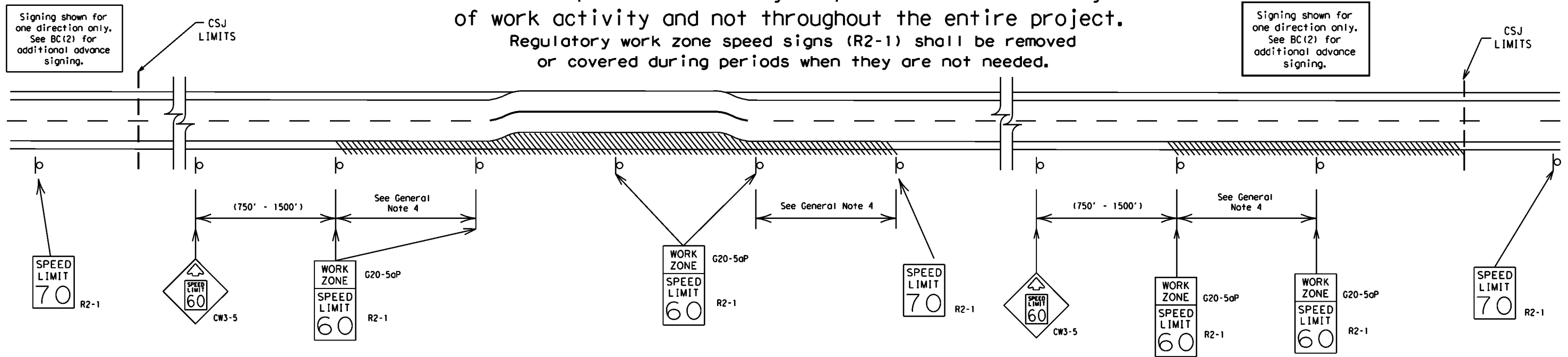
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TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

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

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



GUIDANCE FOR USE:

LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

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

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

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

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

SHORT TERM WORK ZONE SPEED LIMITS

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

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

GENERAL NOTES

- Regulatory work zone speed limits should be used only for sections of construction projects where speed control is of major importance.
- Regulatory work zone speed limit signs shall be placed on supports at a 7 foot minimum mounting height.
- Speed zone signs are illustrated for one direction of travel and are normally posted for each direction of travel.
- Frequency of work zone speed limit signs should be:

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

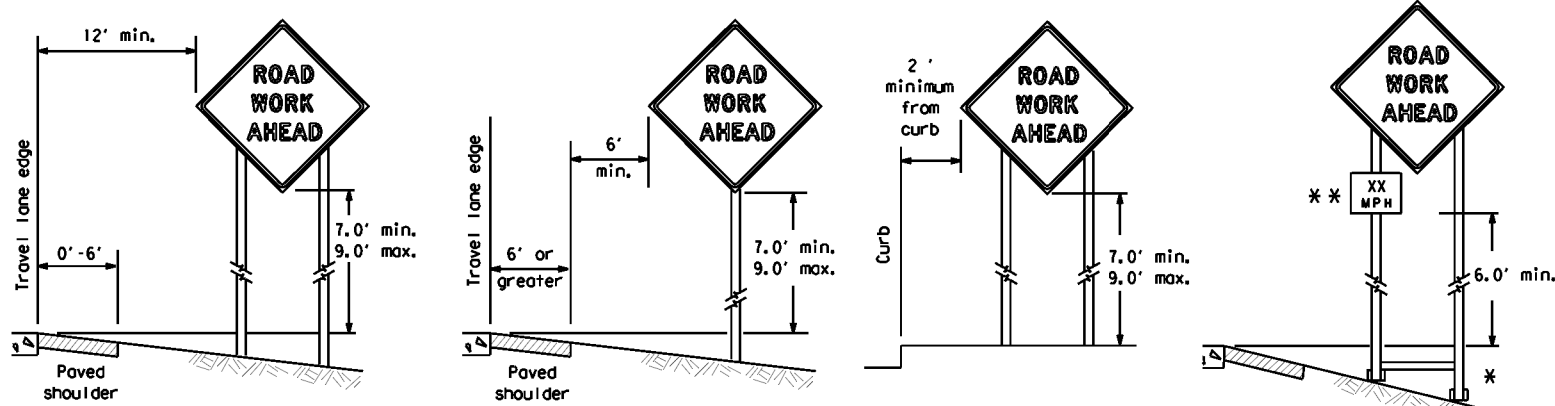
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SHEET 3 OF 12

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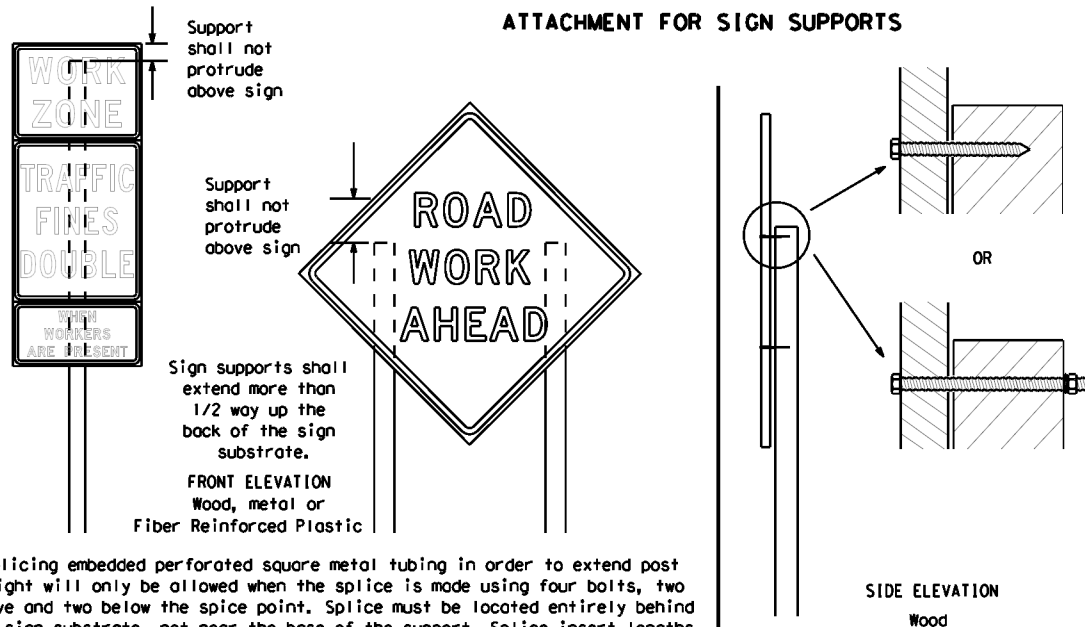
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



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

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

ATTACHMENT FOR SIGN SUPPORTS



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

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

GENERAL NOTES FOR WORK ZONE SIGNS

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

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

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

SIGN MOUNTING HEIGHT

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

SIZE OF SIGNS

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

SIGN SUBSTRATES

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

REFLECTIVE SHEETING

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

SIGN LETTERS

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

REMOVING OR COVERING

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

SIGN SUPPORT WEIGHTS

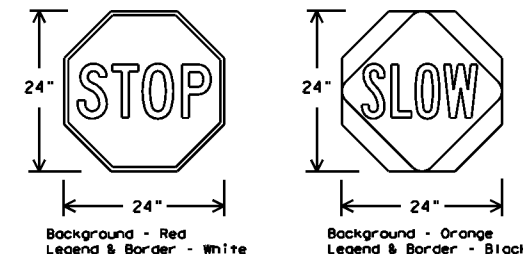
- Where sign supports require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand should be used.
- The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
- Rock, concrete, iron, steel or other solid objects shall not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

FLAGS ON SIGNS

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

STOP/SLOW PADDLES

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



SHEETING REQUIREMENTS (WHEN USED AT NIGHT)		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	RED	TYPE B OR C SHEETING
BACKGROUND	ORANGE	TYPE B _{FL} OR C _{FL} SHEETING
LEGEND & BORDER	WHITE	TYPE B OR C SHEETING
LEGEND & BORDER	BLACK	ACRYLIC NON-REFLECTIVE FILM

CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

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

Texas Department of Transportation
Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

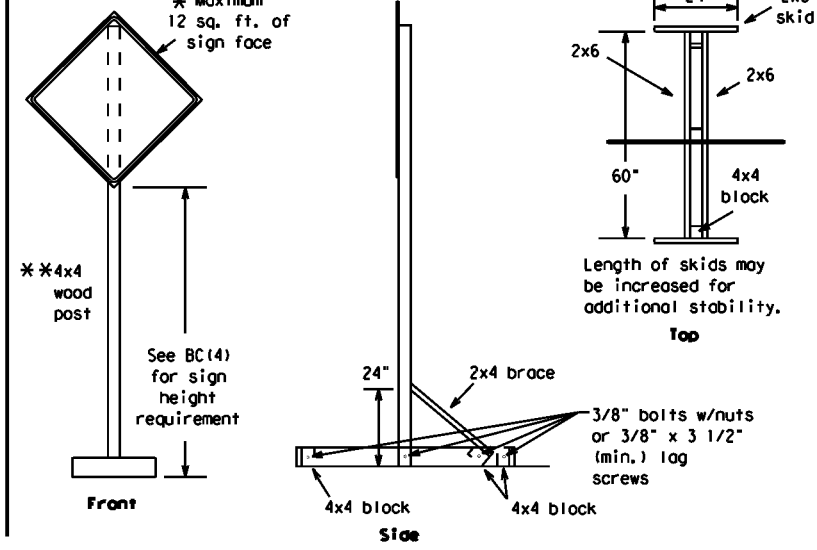
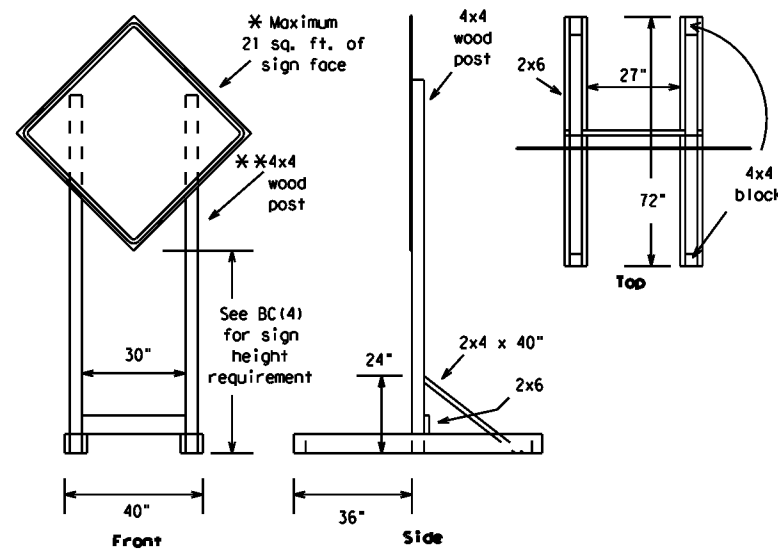
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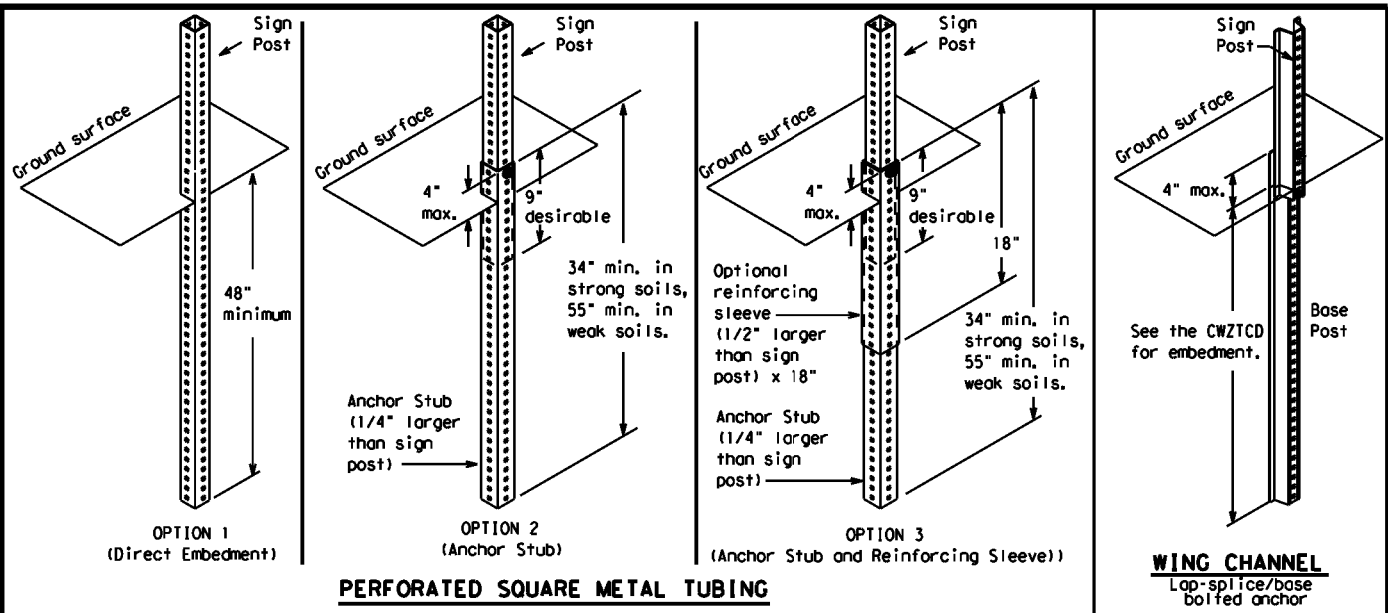
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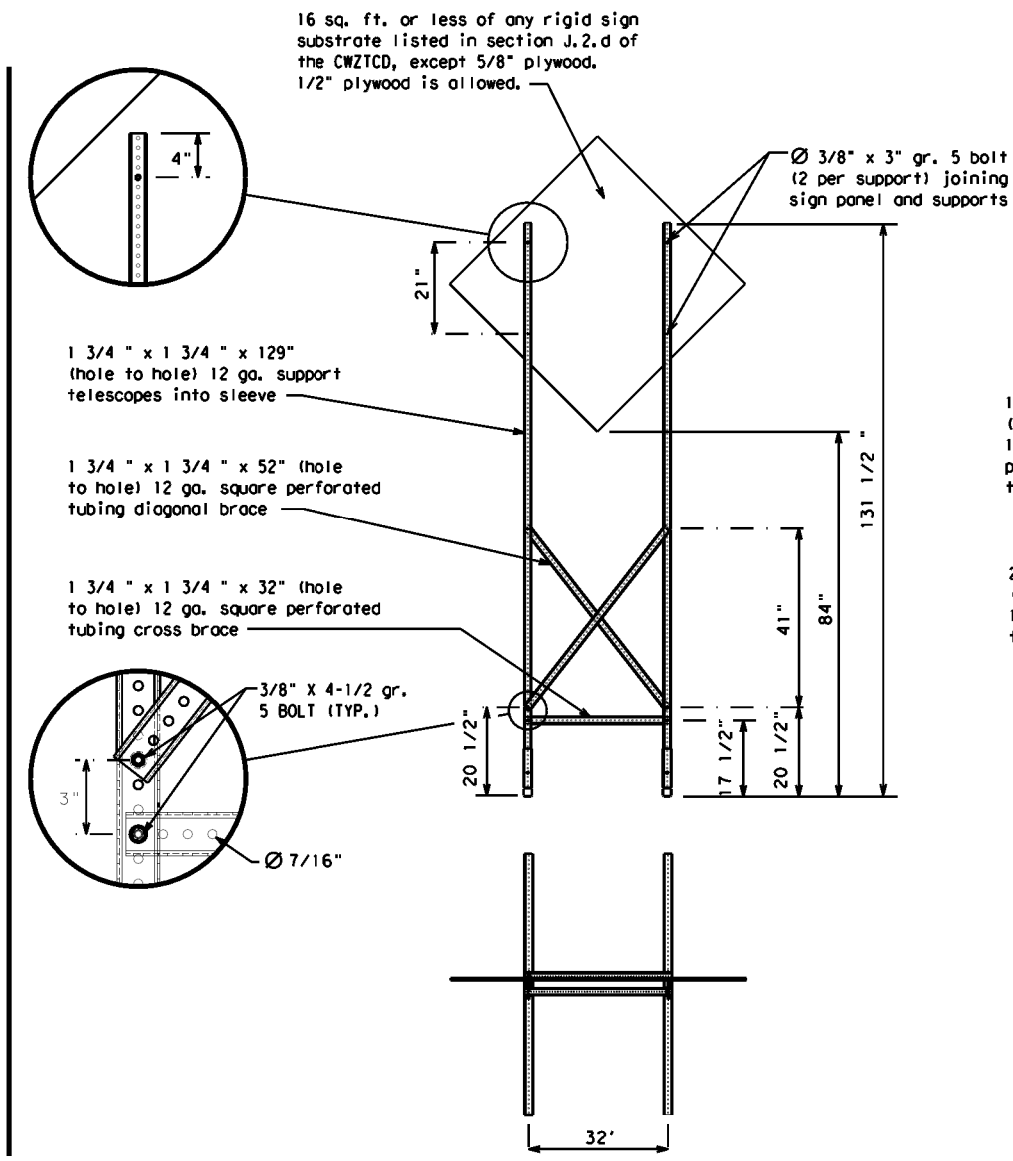
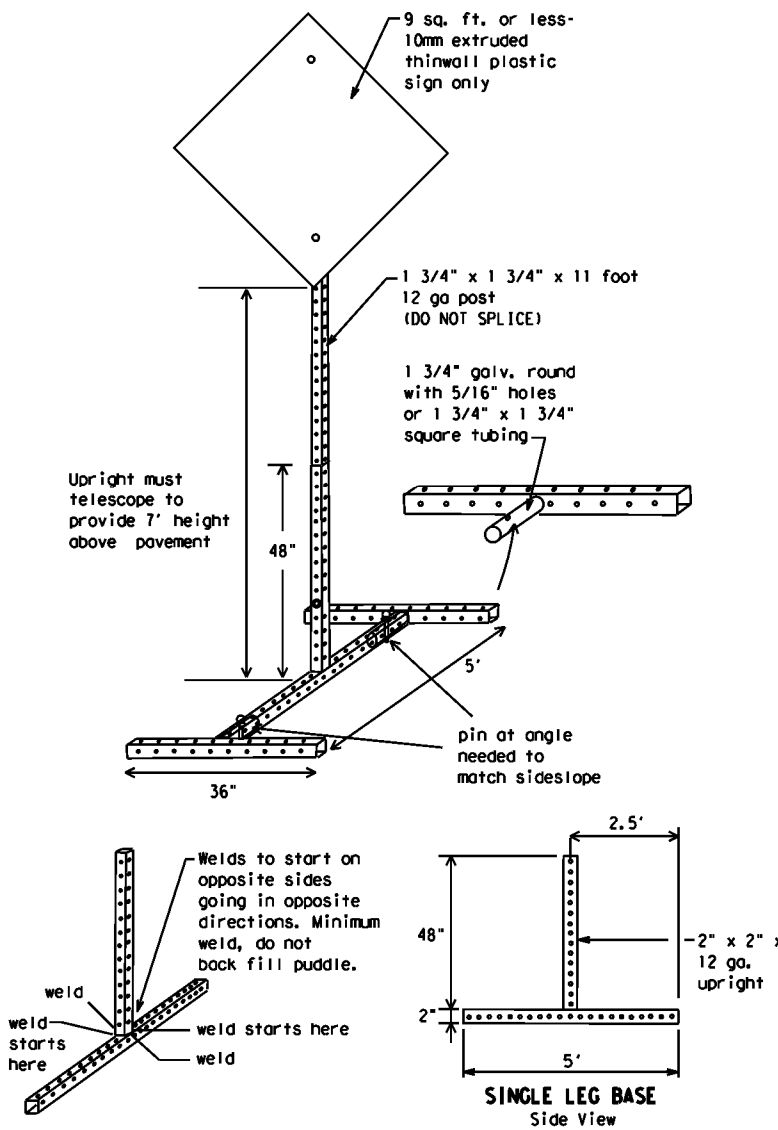
SKID MOUNTED WOOD SIGN SUPPORTS

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



GROUND MOUNTED SIGN SUPPORTS

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



SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

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

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

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

- GENERAL NOTES**
- 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.
 - No more than 2 sign posts shall be placed within a 7 ft. circle, except for specific materials noted on the CWZTCD List.
 - 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.

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BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5) - 21

FILE: bc-21.dgn	DWG: TxDOT	CHK: TxDOT	REV: TxDOT	CR: TxDOT
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DIST: HOU	COUNTY: HARRIS	SHEET NO. 19		

DATE: \$DATES
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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

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

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

PORTABLE CHANGEABLE MESSAGE SIGNS

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

Phase 1: Condition Lists

Road/Lane/Ramp Closure List

FREEWAY CLOSED X MILE
ROAD CLOSED AT SH XXX
ROAD CLSD AT FM XXXX
RIGHT X LANES CLOSED
CENTER LANE CLOSED
NIGHT LANE CLOSURES
VARIOUS LANES CLOSED
EXIT CLOSED
MALL DRIVEWAY CLOSED
XXXXXXXX BLVD CLOSED

Other Condition List

FRONTAGE ROAD CLOSED
SHOULDER CLOSED XXX FT
RIGHT LN CLOSED XXX FT
RIGHT X LANES OPEN
DAYTIME LANE CLOSURES
I-XX SOUTH EXIT CLOSED
EXIT XXX CLOSED X MILE
RIGHT LN TO BE CLOSED
X LANES CLOSED TUE - FRI
ROADWORK XXX FT
FLAGGER XXXX FT
RIGHT LN NARROWS XXXX FT
MERGING TRAFFIC XXXX FT
LOOSE GRAVEL XXXX FT
DETOUR X MILE
ROADWORK PAST SH XXXX
BUMP XXXX FT
TRAFFIC SIGNAL XXXX FT
ROAD REPAIRS XXXX FT
LANE NARROWS XXXX FT
TWO-WAY TRAFFIC XX MILE
CONST TRAFFIC XXX FT
UNEVEN LANES XXXX FT
ROUGH ROAD XXXX FT
ROADWORK NEXT FRI-SUN
US XXX EXIT X MILES
LANES SHIFT *

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

Phase 2: Possible Component Lists

Action to Take/Effect on Travel List

MERGE RIGHT
DETOUR NEXT X EXITS
USE EXIT XXX
STAY ON US XXX SOUTH
TRUCKS USE US XXX N
WATCH FOR TRUCKS
EXPECT DELAYS
REDUCE SPEED XXX FT
USE OTHER ROUTES
STAY IN LANE *

Location List

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

Warning List

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

** Advance Notice List

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

** See Application Guidelines Note 6.

APPLICATION GUIDELINES

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

WORDING ALTERNATIVES

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

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

FULL MATRIX PCMS SIGNS

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

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

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

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BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

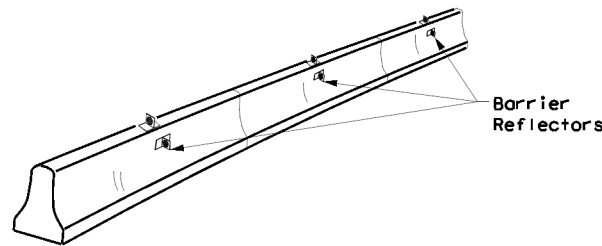
BC (6) - 21

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© TxDOT November 2002	CONT: 0912	SECT: 00	JOB: 710	HIGHWAY: VARIOUS
REVISIONS: 9-07 8-14	DIST: 7-13	COUNTY: 5-21	SHEET NO.: HARRIS	20

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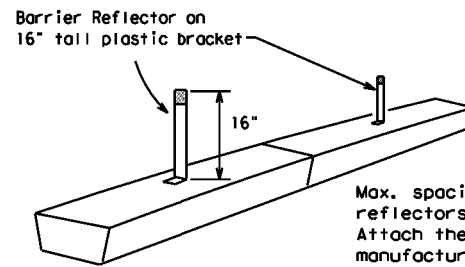
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- Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
- Color of Barrier Reflectors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



CONCRETE TRAFFIC BARRIER (CTB)

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

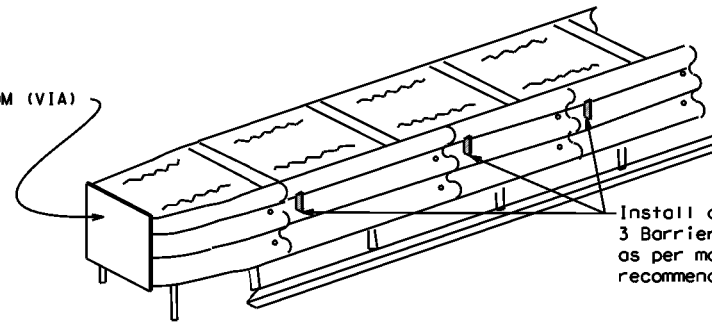


LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES

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

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

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 the appropriate crashworthy standards as defined in the Manual for Assessing Safety Hardware (MASH). Refer to the CWZTCD List for approved end treatments and manufacturers.

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS

WARNING LIGHTS

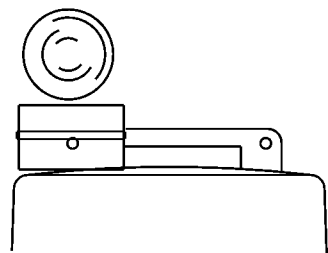
- Warning lights shall meet the requirements of the TMUTCD.
- Warning lights shall NOT be installed on barricades.
- Type A-Low Intensity Flashing Warning Lights are commonly used with drums. They are intended to warn of or mark a potentially hazardous area. Their use shall be as indicated on this sheet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

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

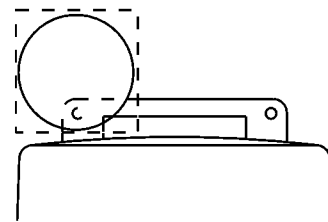
- Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
- Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
- A series of sequential flashing warning lights placed on channelizing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

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

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



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

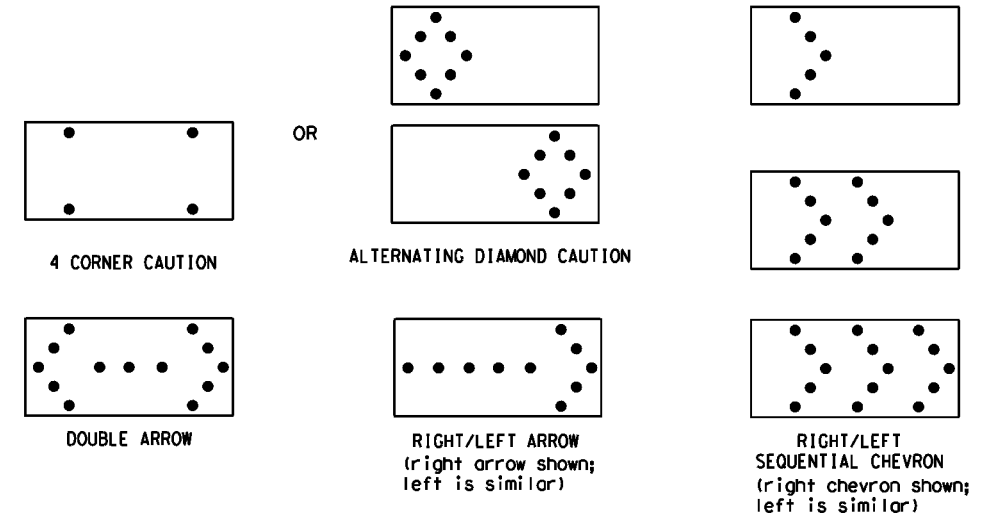


Warning reflector may be round or square. Must have a yellow reflective surface area of at least 30 square inches

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

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



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

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

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

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

FLASHING ARROW BOARDS

SHEET 7 OF 12

TRUCK-MOUNTED ATTENUATORS

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



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

BC (7) - 21

FILE: bc-21.dgn	DWG: TxDOT	CR: TxDOT	DWG: TxDOT	CR: TxDOT
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7-13	5-21			

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GENERAL NOTES

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

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

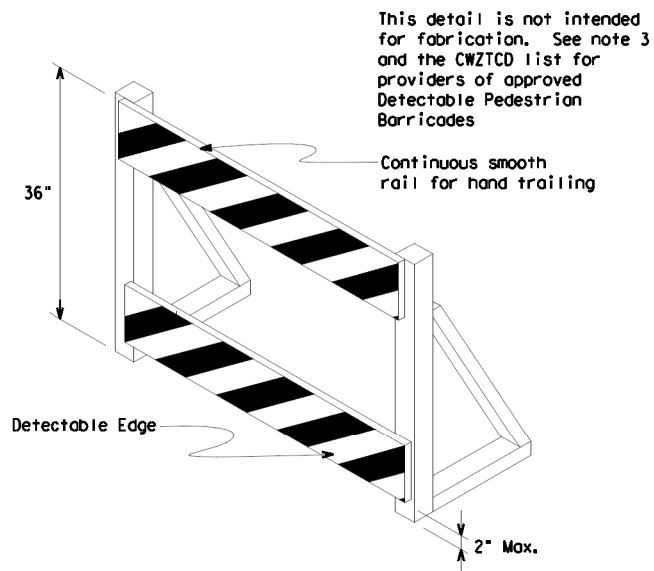
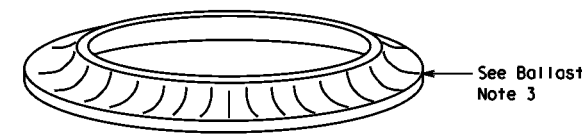
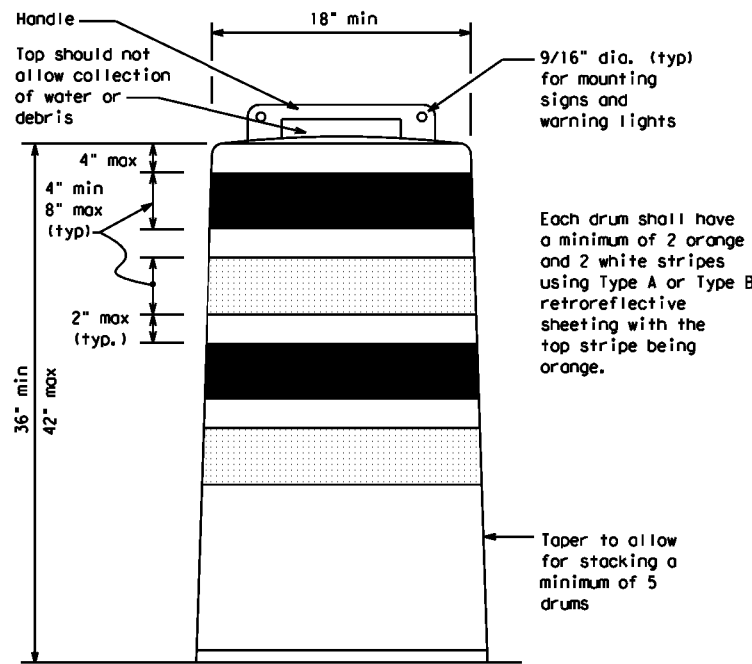
- Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
- The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents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

RETROREFLECTIVE SHEETING

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

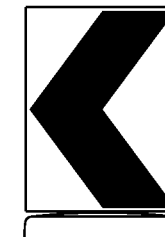
BALLAST

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

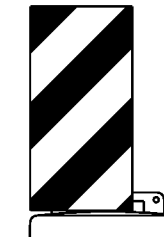


DETECTABLE PEDESTRIAN BARRICADES

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



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



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

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

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

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

SHEET 8 OF 12



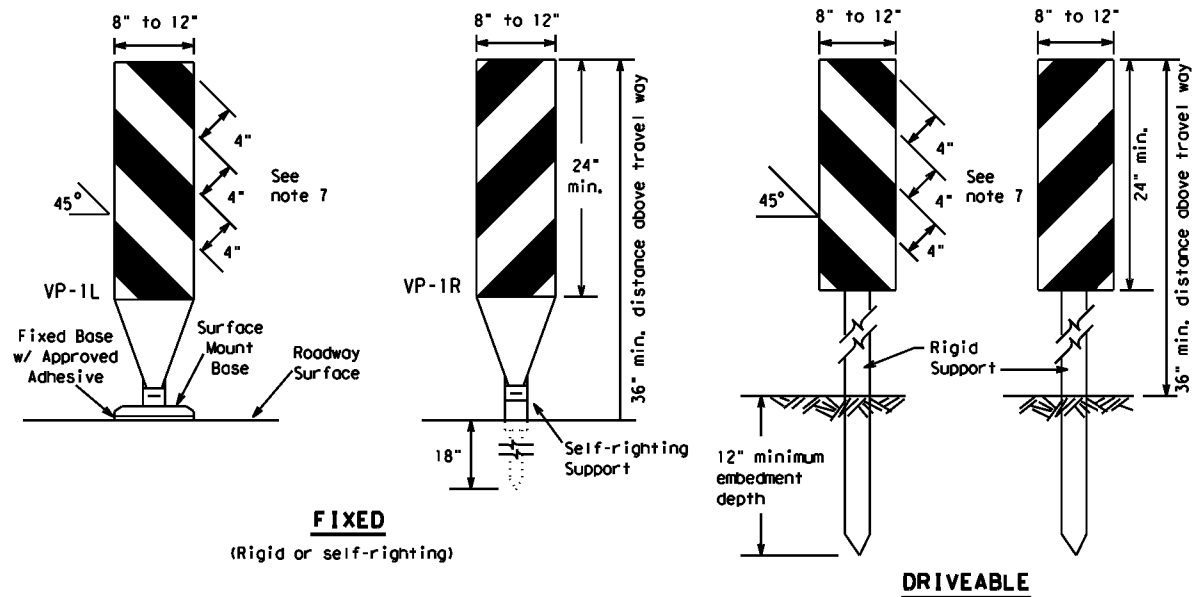
BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC (8) - 21

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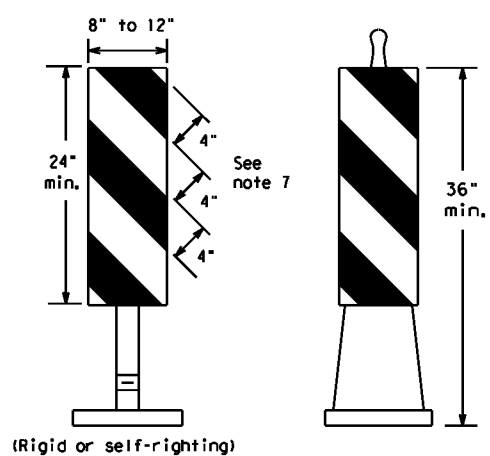
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FIXED
(Rigid or self-righting)

DRIVEABLE

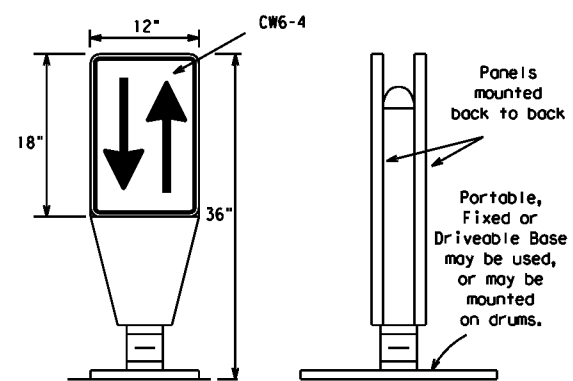


PORTABLE

VERTICAL PANELS (VPs)

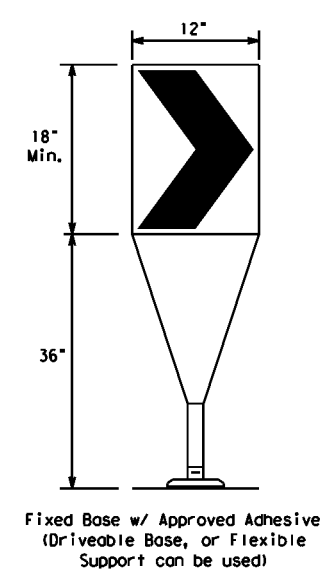
- Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
- VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is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

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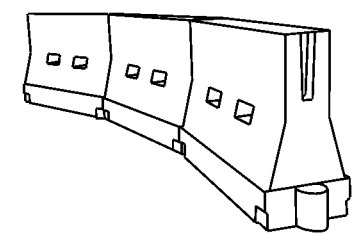
OPPOSING TRAFFIC LANE DIVIDERS (OTLD)

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



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

CHEVRONS



LONGITUDINAL CHANNELIZING DEVICES (LCD)

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

WATER BALLASTED SYSTEMS USED AS BARRIERS

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

If used to channelize pedestrians, longitudinal channelizing devices or water ballasted systems must have a continuous detectable bottom for users of long 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

GENERAL NOTES

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

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

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

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

SHEET 9 OF 12



BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC (9) - 21

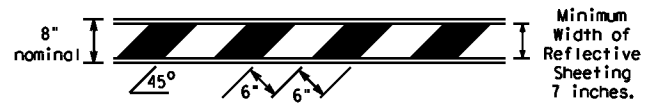
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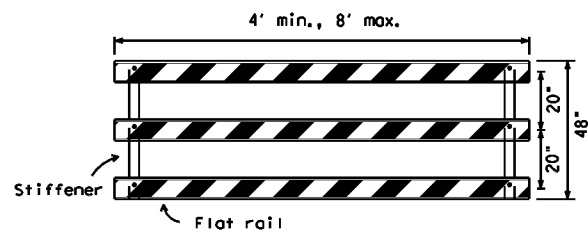
TYPE 3 BARRICADES

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

Barricades shall NOT be used as a sign support.



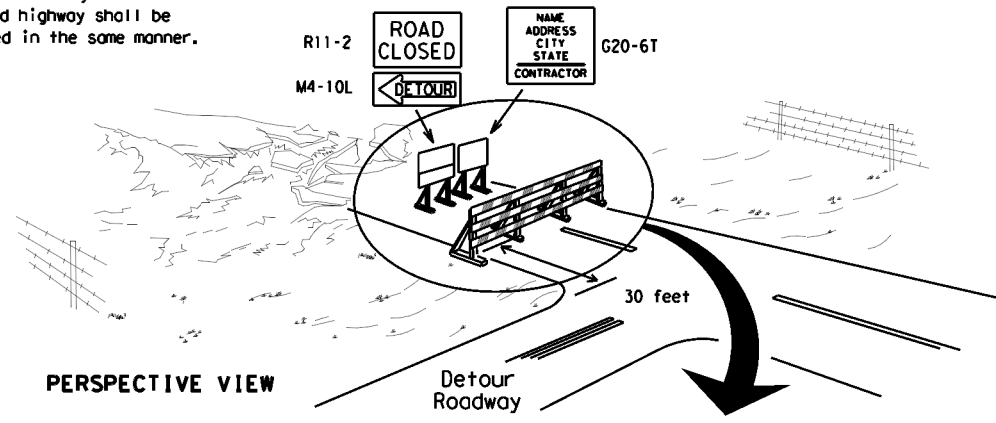
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

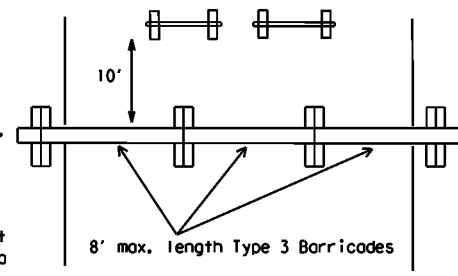
TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

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



PERSPECTIVE VIEW

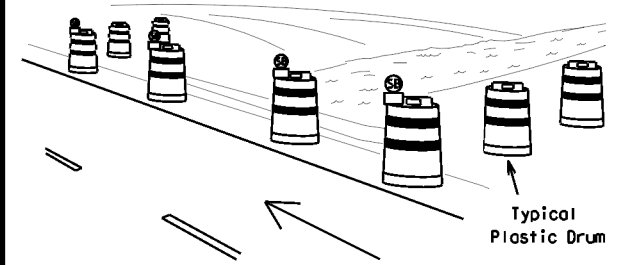
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic. Barricade striping should slant downward in the direction of detour.



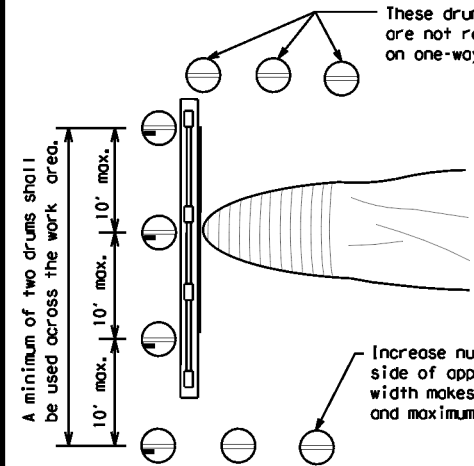
PLAN VIEW

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

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

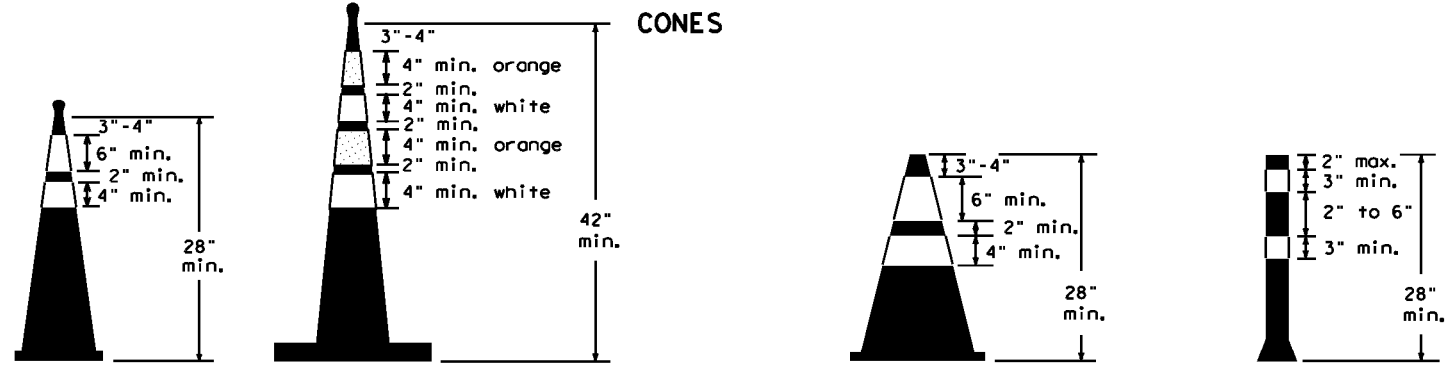


PLAN VIEW

1. Where positive redirection capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder width is greater than 12 feet, steady-burn lights may be omitted if drums are used.
5. Drums must extend the length of the culvert widening.

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

CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



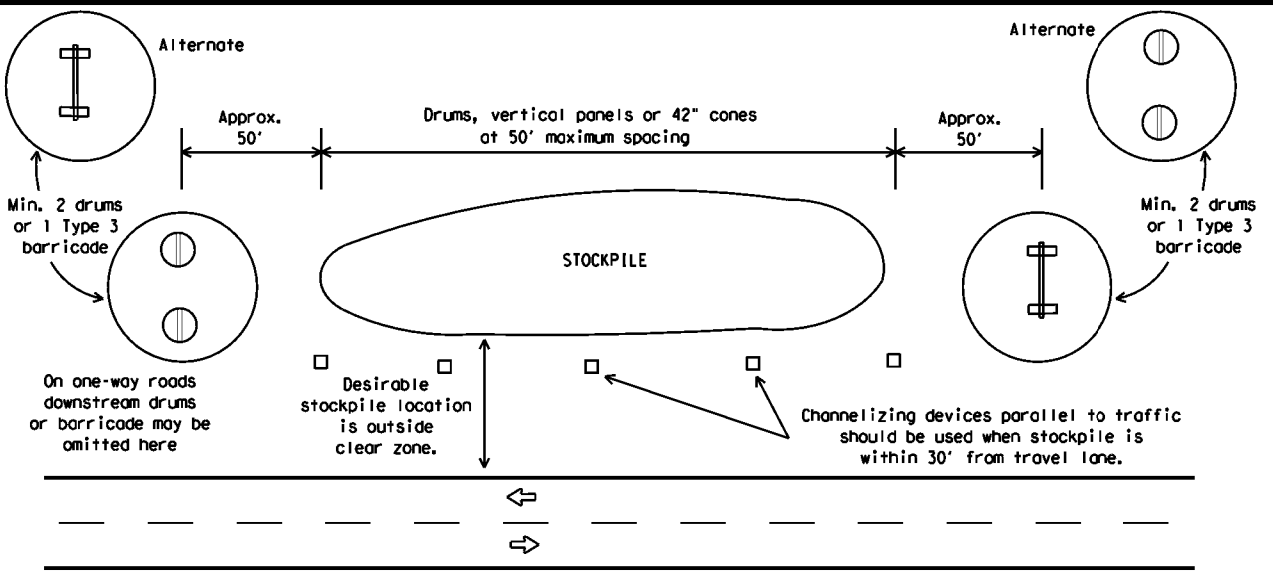
Two-Piece cones

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 shall have white or white and orange reflective bands as shown above. The reflective bands shall have a smooth, sealed outer surface and meet the requirements of Departmental Material Specification DMS-8300 Type A or Type B.
5. 28" cones and tubular markers are generally suitable for short duration and short-term stationary work as defined 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



BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC (10) - 21

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WORK ZONE PAVEMENT MARKINGS

GENERAL

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

RAISED PAVEMENT MARKERS

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

PREFABRICATED PAVEMENT MARKINGS

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

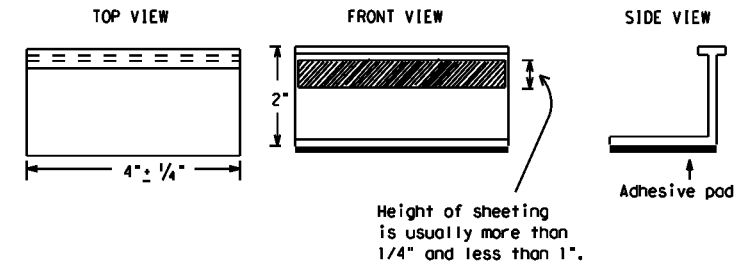
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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

REMOVAL OF PAVEMENT MARKINGS

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

Temporary Flexible-Reflective Roadway Marker Tabs



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

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

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

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

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

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

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

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SHEET 11 OF 12

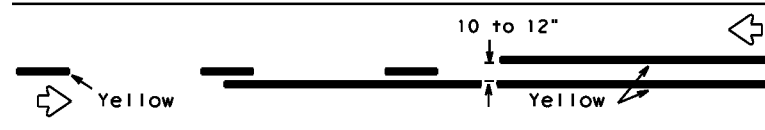


BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

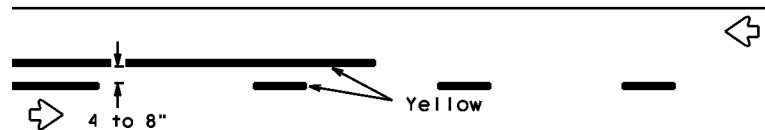
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11-02	8-14			
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	HOU	HARRIS	25	

PAVEMENT MARKING PATTERNS

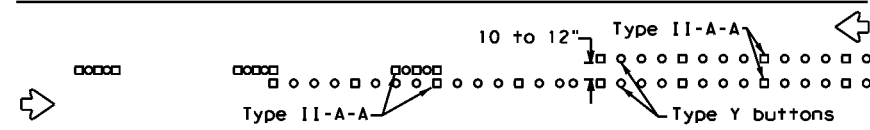


REFLECTORIZED PAVEMENT MARKINGS - PATTERN A

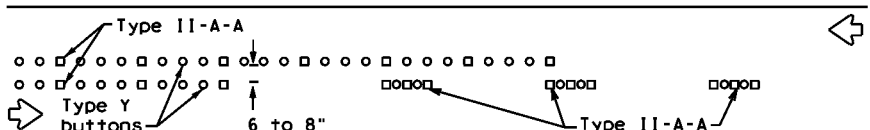


REFLECTORIZED PAVEMENT MARKINGS - PATTERN B

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.

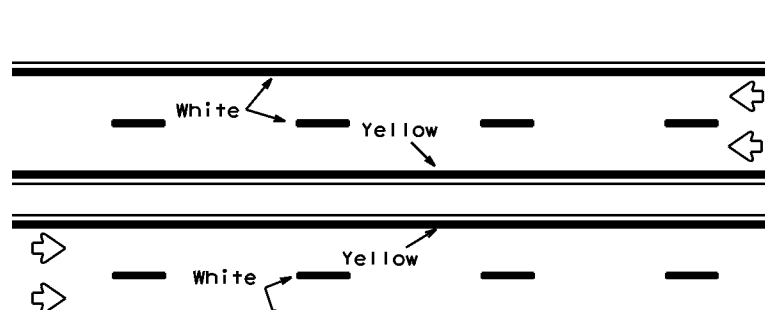


RAISED PAVEMENT MARKERS - PATTERN A



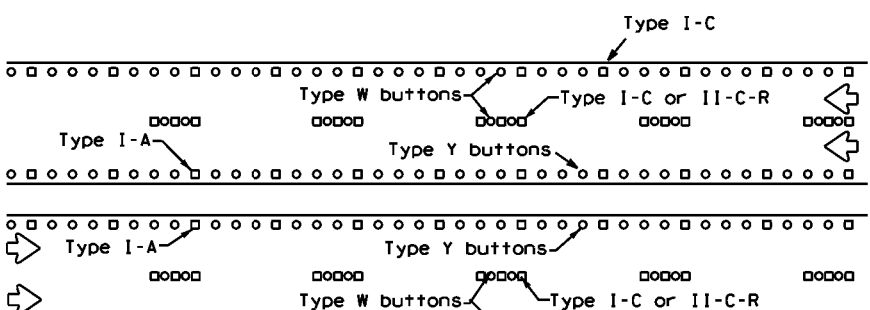
RAISED PAVEMENT MARKERS - PATTERN B

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



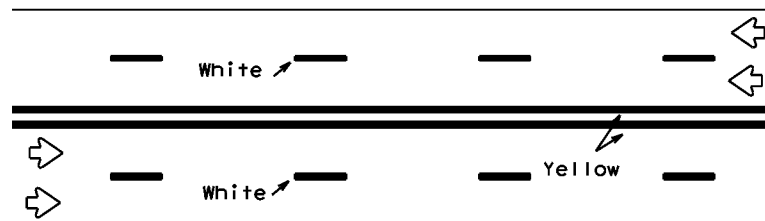
REFLECTORIZED PAVEMENT MARKINGS

Prefabricated markings may be substituted for reflectORIZED pavement markings.



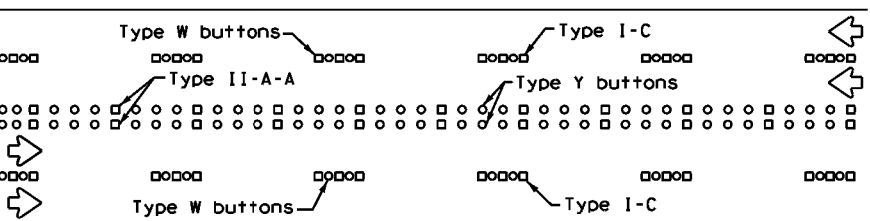
RAISED PAVEMENT MARKERS

EDGE & LANE LINES FOR DIVIDED HIGHWAY



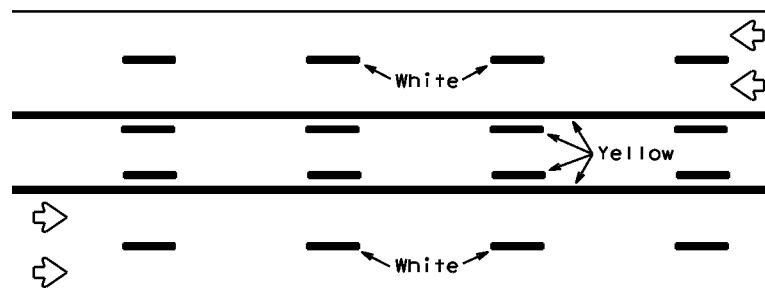
REFLECTORIZED PAVEMENT MARKINGS

Prefabricated markings may be substituted for reflectORIZED pavement markings.



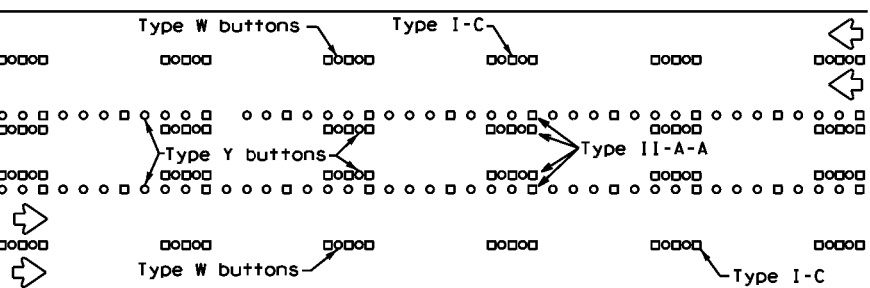
RAISED PAVEMENT MARKERS

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS

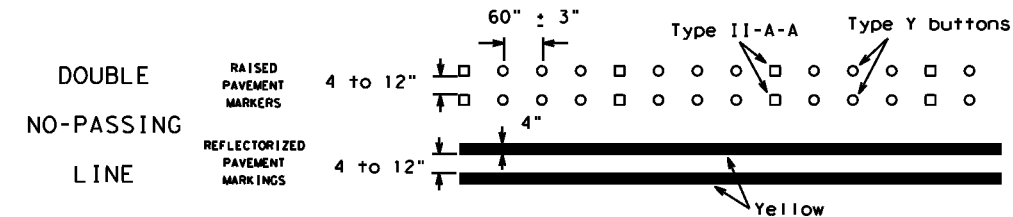
Prefabricated markings may be substituted for reflectORIZED pavement markings.



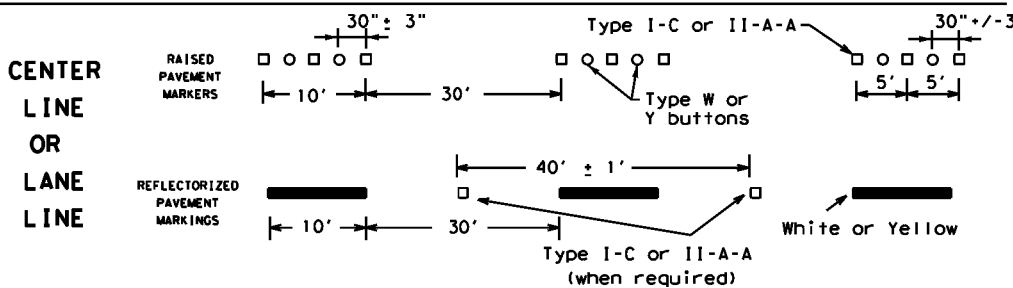
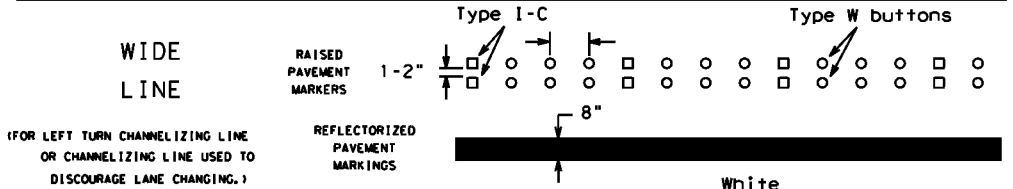
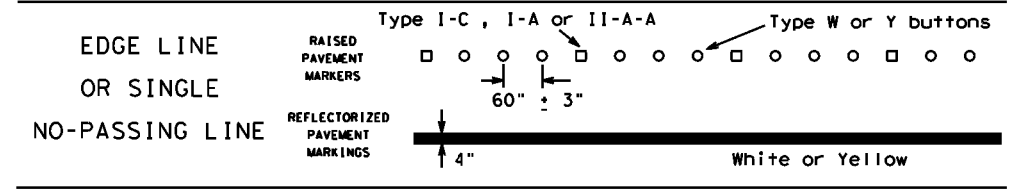
RAISED PAVEMENT MARKERS

TWO-WAY LEFT TURN LANE

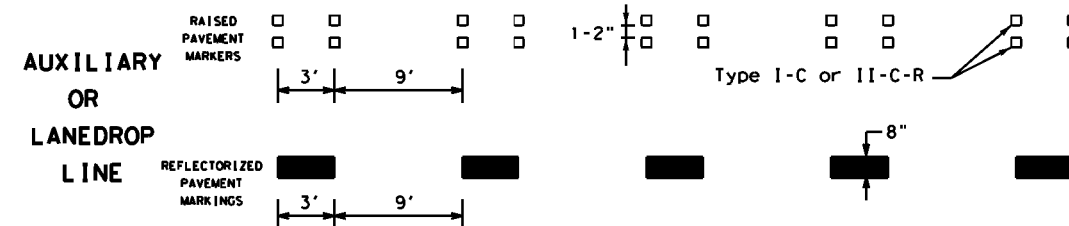
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS



SOLID LINES

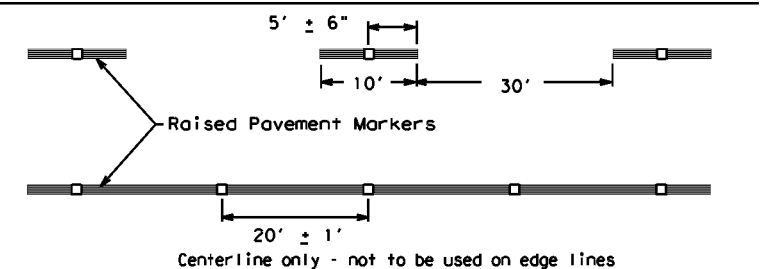


BROKEN LINES



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

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



SHEET 12 OF 12



BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC(12)-21

FILE: bc-21.dgn	DWG: TxDOT	CHK: TxDOT	DRW: TxDOT	CR: TxDOT
©TxDOT February 1998		CONT: 0912 00	SECT: 710	JOB: VARIOUS
REVISIONS		SHEET NO.		
1-97 9-07 5-21	2-98 7-13	HOU	HARRIS	26
11-02 8-14				

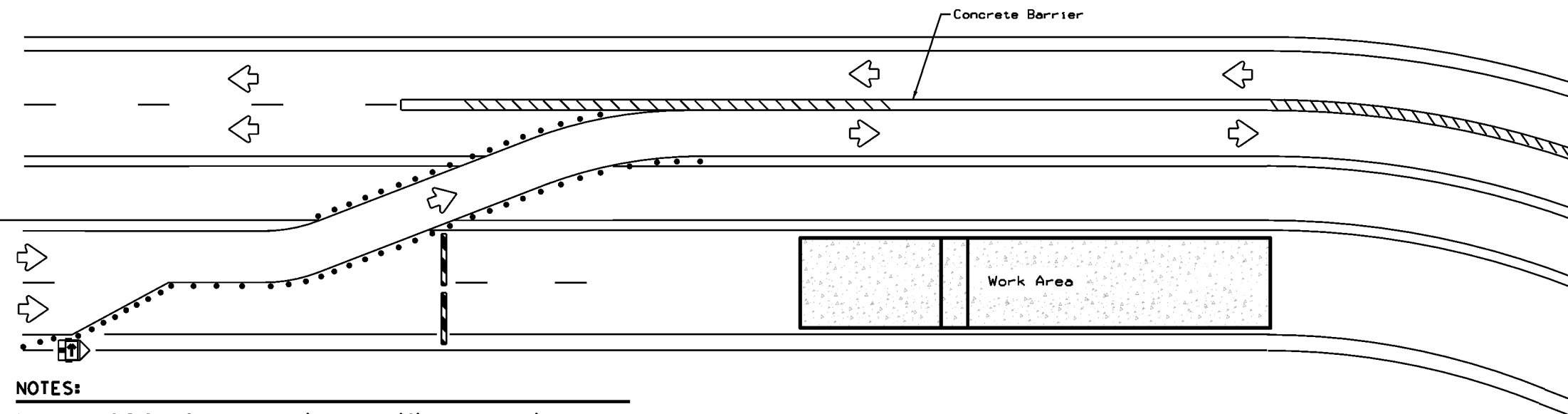
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DATE: \$DATE\$
FILE: \$FILES\$

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."

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DATE: \$DATES
FILE: \$FILES
\$TIMES



NOTES:

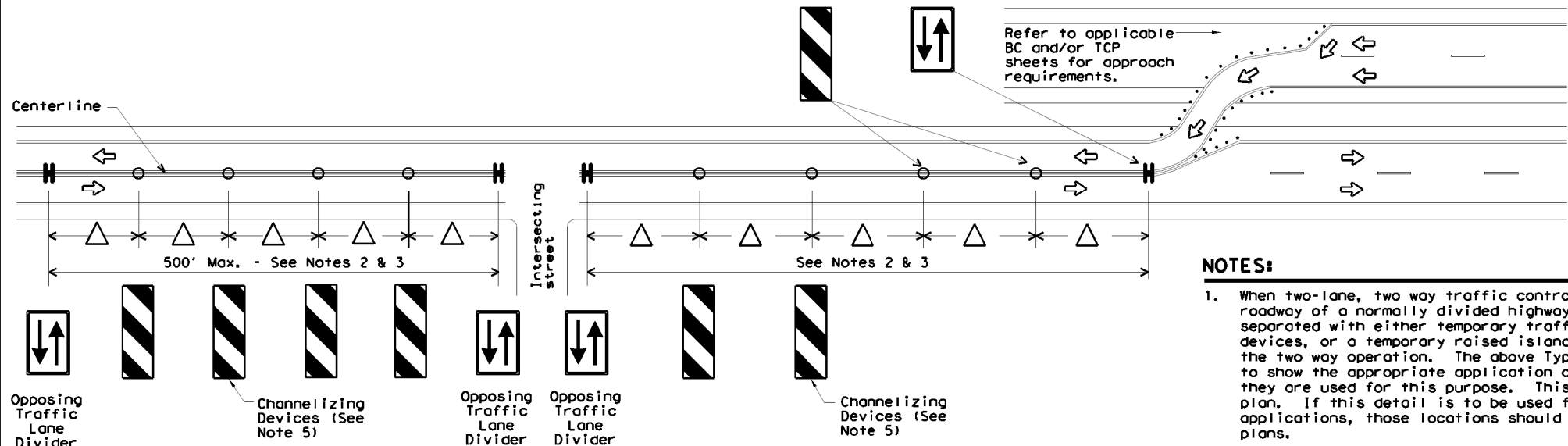
1. Length of Safety Glare screen will be specified elsewhere in the plans.
2. The cumulative nominal length of the modular safety glare screen units shall equal the length of the individual sections of temporary concrete traffic barrier on which they are installed so the joint between barrier sections 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	
	Type 3 Barricade
	Channelizing Devices
	Trailer Mounted Flashing Arrow Board
	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>



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.

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

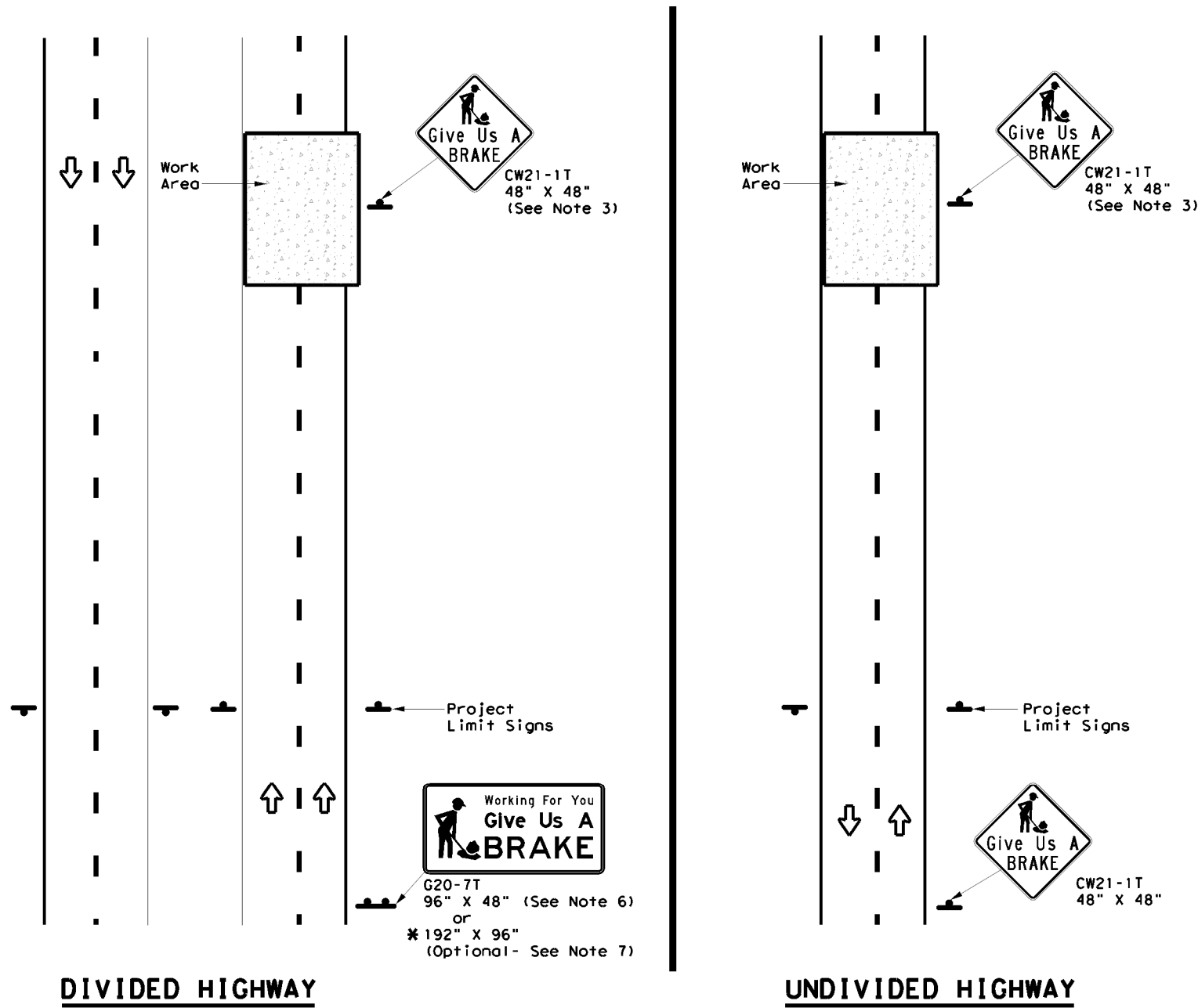
TRAFFIC CONTROL PLAN TYPICAL DETAILS

WZ(TD) - 17

FILE: wzt1d-17.dgn	DNR: TxDOT	CR: TxDOT	DW: TxDOT	CR: TxDOT
© TxDOT February 1998	CONT: 0912 00	SECT: 710	JOB: HARRIS	HIGHWAY: VARIOUS
REVISIONS	4-98 2-17	3-03 7-13	DIST: HOU	COUNTY: HARRIS
				SHEET NO. 27

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DATE: \$DATES
FILE: \$FILES



SIGNS ARE SHOWN FOR ONE DIRECTION OF TRAVEL

* When the optional larger WORKING FOR YOU GIVE US A BRAKE (G20-7T) 192" x 96" sign is required, the locations shall be noted elsewhere in the plans.

SUMMARY OF LARGE SIGNS

BACKGROUND COLOR	SIGN DESIGNATION	SIGN	SIGN DIMENSIONS	REFLECTIVE SHEETING	SQ FT	GALVANIZED STRUCTURAL STEEL		DRILLED SHAFT
						Size	(LF)	
							① ②	24" DIA. (LF)
Orange	G20-7T		96" X 48"	Type B _{FL} or C _{FL}	32	▲	▲ ▲	▲
Orange	G20-7T		192" X 96"	Type B _{FL} or C _{FL}	128	W8x18	16 17	12

▲ See Note 6 Below

LEGEND

	Sign
	Large Sign
	Traffic Flow

DEPARTMENTAL MATERIAL SPECIFICATIONS

PLYWOOD SIGN BLANKS	DMS-7100
ALUMINUM SIGN BLANKS	DMS-7110
SIGN FACE MATERIALS	DMS-8300

COLOR	USAGE	SHEETING MATERIAL
ORANGE	BACKGROUND	TYPE B _{FL} OR TYPE C _{FL}
BLACK	LEGEND & BORDERS	NON-REFLECTIVE ACRYLIC FILM

GENERAL NOTES

- See BC and SMD sheets for additional sign support details.
- Sign locations shall be approved by the Engineer.
- For projects more than two miles in length, Give Us a BRAKE signs should be repeated halfway through the project. The Give Us a Brake (CW21-1T) may be used for this purpose.
- Work zone speed limits are sometimes used in conjunction with GIVE US A BRAKE signing. See BC(3) for location and spacing of construction speed zone signing when required.
- Give Us a Brake (CW21-1T) signs and supports shall be considered subsidiary to Item 502, "Barricades, Signs and Traffic Handling."
- The 96" X 48" Working For You Give Us A BRAKE (G20-7T) may use a 1/2" or 5/8" plywood substrate or 0.125" aluminum sheeting substrate and may be supported by two 4" x 6" wood posts with drilled holes for breakaway as per BC(5) and will be subsidiary to Item 502.
- The Working For You Give Us A BRAKE (G20-7T) 192" X 96" sign shall be paid for under the following specification items:
 Item 636 - Aluminum Signs
 Item 647 - Large Roadside Sign Supports and Assemblies.
 Item 416 - Drilled Shaft Foundations
- 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.

Texas Department of Transportation
Traffic Operations Division Standard

**WORK ZONE
"GIVE US A BRAKE"
SIGNS**

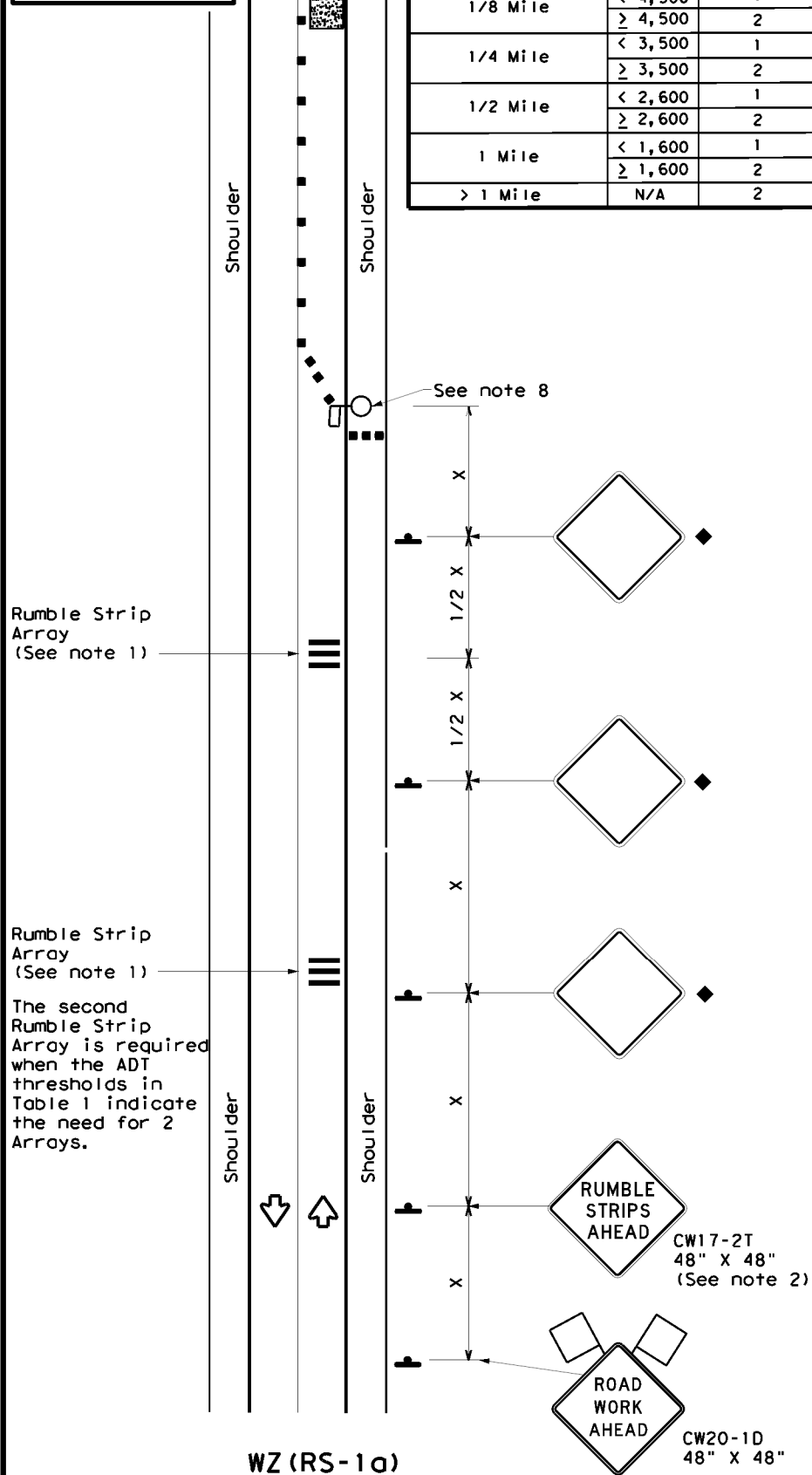
WZ (BRK) - 13

FILE: wzbrk-13.dgn	DWG: TxDOT	CHK: TxDOT	APP: TxDOT	CR: TxDOT
©TxDOT August 1995	CONT	SECT	JOB	HIGHWAY
REVISIONS	0912 00	710	VARIOUS	
6-96 5-98 7-13	DIST	COUNTY	SHEET NO.	
8-96 3-03	HOU	HARRIS	28	

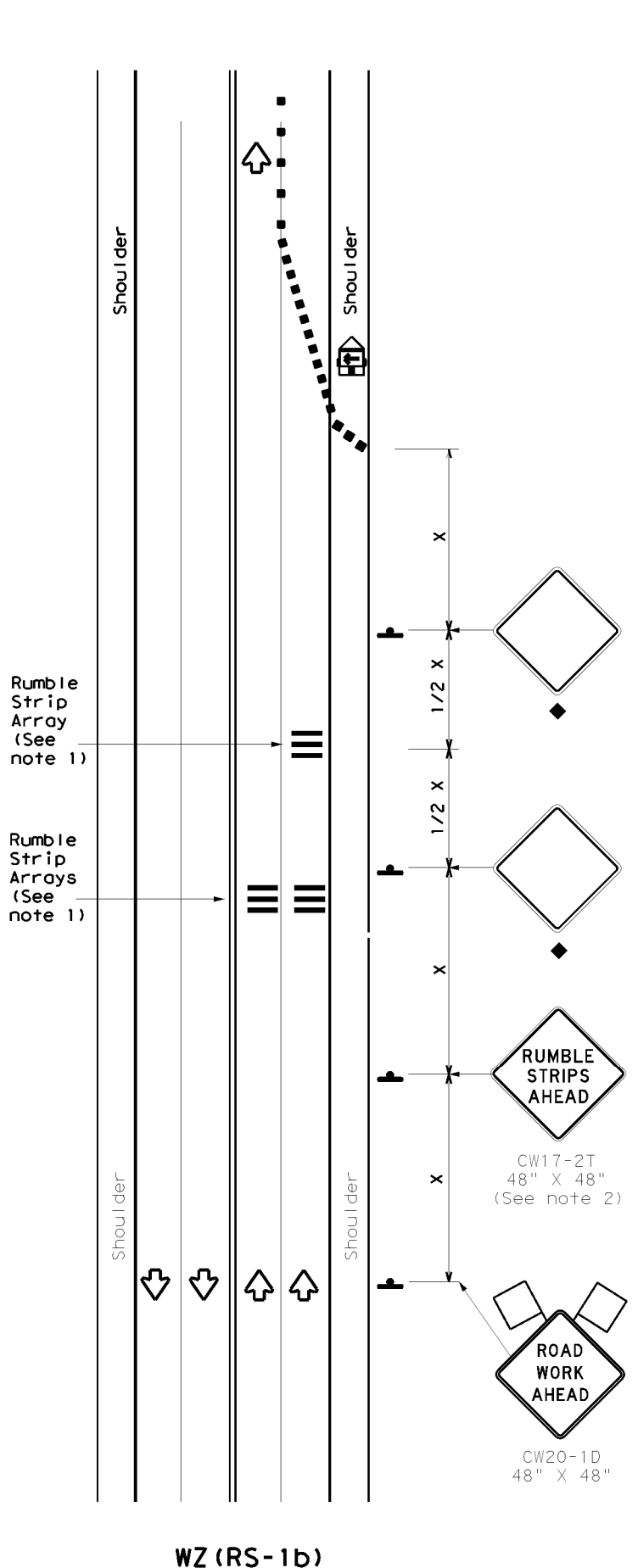
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Warning sign and rumble strip sequence in opposite direction is same as below.

Flagger to Flagger (Length of Work Area)	ADT	# of Rumble Strip Arrays
1/8 Mile	< 4,500	1
	≥ 4,500	2
1/4 Mile	< 3,500	1
	≥ 3,500	2
1/2 Mile	< 2,600	1
	≥ 2,600	2
1 Mile	< 1,600	1
	≥ 1,600	2
> 1 Mile	N/A	2



RUMBLE STRIPS ON ONE-LANE TWO-WAY APPLICATION



RUMBLE STRIPS FOR LANE CLOSURE ON CONVENTIONAL ROADWAY

GENERAL NOTES

- Each Rumble Strip Array should consist of three rumble strips spaced center to center at the spacing shown in Table 2, placed transverse across the lane at locations shown.
- The CW17-2T "RUMBLE STRIPS AHEAD" sign should be located after the CW20-1D "ROAD WORK AHEAD" sign and spaced as shown. If traffic is observed to be queuing, or is expected to queue beyond the Rumble Strips, the CW17-2T sign and the first Rumble Strip Array may be located upstream of the CW20-1D sign as necessary to provide needed warning.
- Temporary Rumble Strips will be considered subsidiary to Item 502, and shall be a product listed on the Compliant Work Zone Traffic Control Devices.
- Remove Temporary Rumble Strips before removing the advanced warning signs.
- Temporary Rumble Strips should not be used on horizontal curves, loose gravel, soft or bleeding asphalt, heavily rutted pavements or unpaved surfaces.
- Temporary Rumble Strips shall be installed and maintained as per manufacturer's recommendations.
- This standard sheet shall be used in conjunction with other appropriate TCP standard, TMUTCD typical application or project specific detail for the project.
- The one-lane two-way application may utilize a flagger, an Automated Flagger Assistance Device (AFAD) or a Portable Traffic Signal (PTS).
- Replace defective Temporary Rumble Strips as directed by the Engineer.
- Temporary Rumble Strips may be used on freeways or expressways based on engineering judgment and written direction from the Engineer.

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

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	L = WS ² / 60	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40	L = WS	265'	295'	320'	40'	80'	240'	155'
45		450'	495'	540'	45'	90'	320'	195'
50	L = WS	500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60	L = WS	600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70	L = WS	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)

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

◆ Signs are for illustrative purposes only. Signs required may vary depending on the TCP, TMUTCD Typical Application, or project specific details for the project.
 * For posted speeds in excess of 65 MPH, it is recommended that spacing is increased as speed limits increase. Increasing space between rumble strips will improve effectiveness.

Speed	Approximate distance between strips in an array
≤ 40 MPH	10'
> 40 MPH & ≤ 55 MPH	15'
= 60 MPH	20'
≥ 65 MPH	* 35' +

Texas Department of Transportation Traffic Safety Division Standard

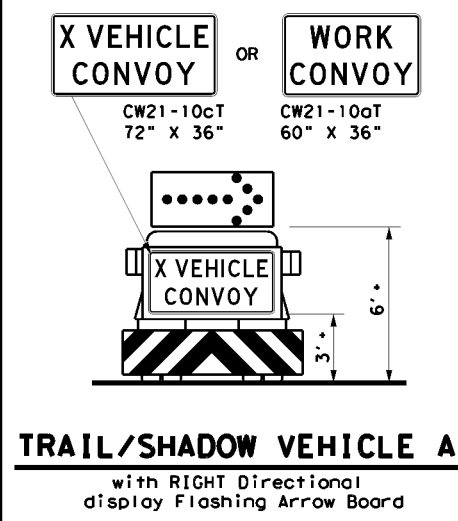
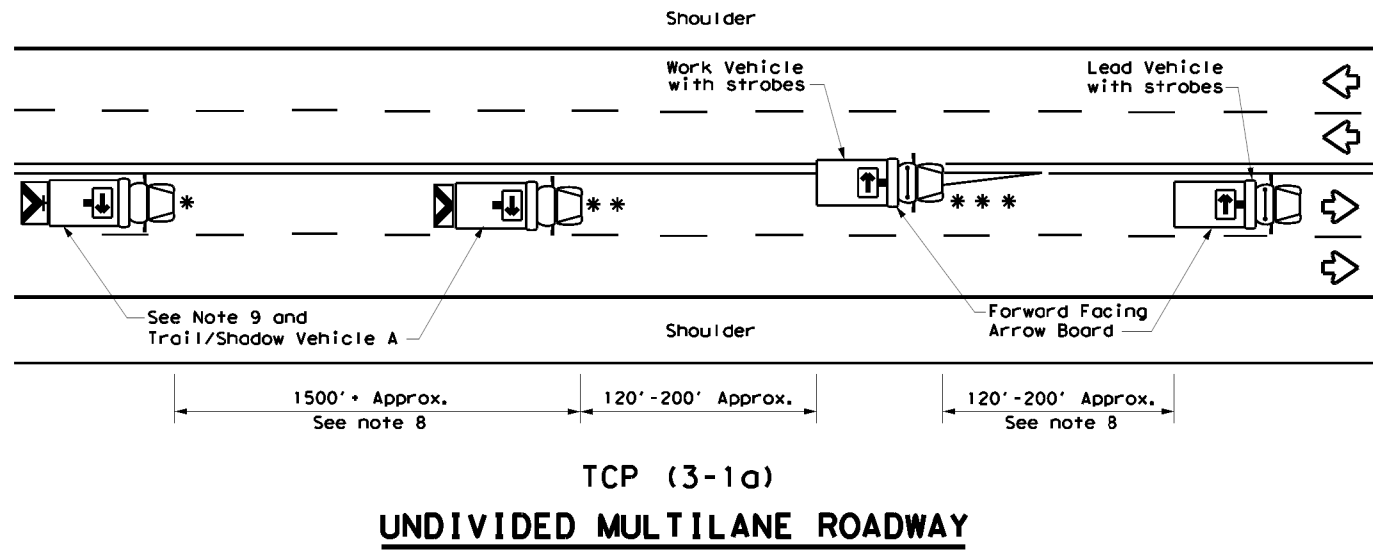
TEMPORARY RUMBLE STRIPS

WZ (RS) - 22

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© TxDOT November 2012	CONT	SECT	JOB	HIGHWAY
REVISIONS	0912 00		710	VARIOUS
2-14 1-22	DIST	COUNTY		SHEET NO.
4-16	HOU	HARRIS		29

DATE: \$DATES
 FILE: \$FILES

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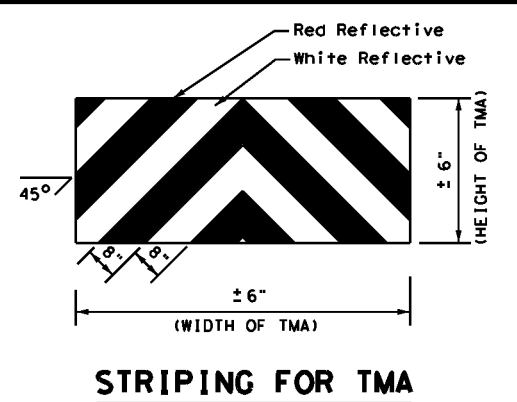
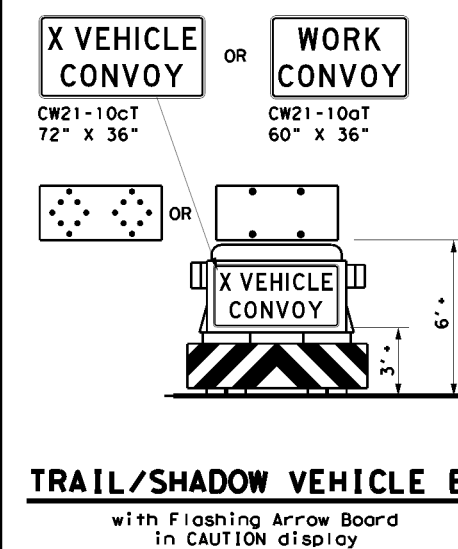
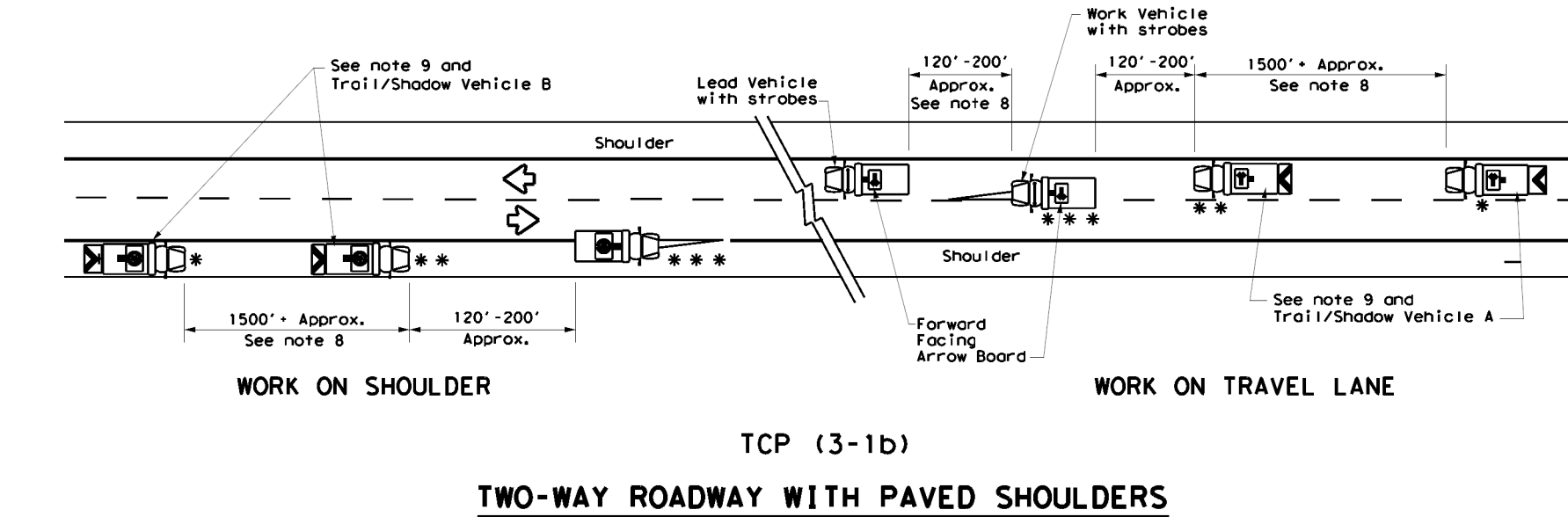


LEGEND			
*	Trail Vehicle	ARROW BOARD DISPLAY	
**	Shadow Vehicle		
***	Work Vehicle		RIGHT Directional
	Heavy Work Vehicle		LEFT Directional
	Truck Mounted Attenuator (TMA)		Double Arrow
	Traffic Flow		CAUTION (Alternating Diamond or 4 Corner Flash)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

GENERAL NOTES

1. TRAIL, SHADOW, and LEAD vehicles shall be equipped with arrow boards as illustrated. When a LEAD vehicle is not used the WORK vehicle must be equipped with an arrow board. 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 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 work 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. 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.

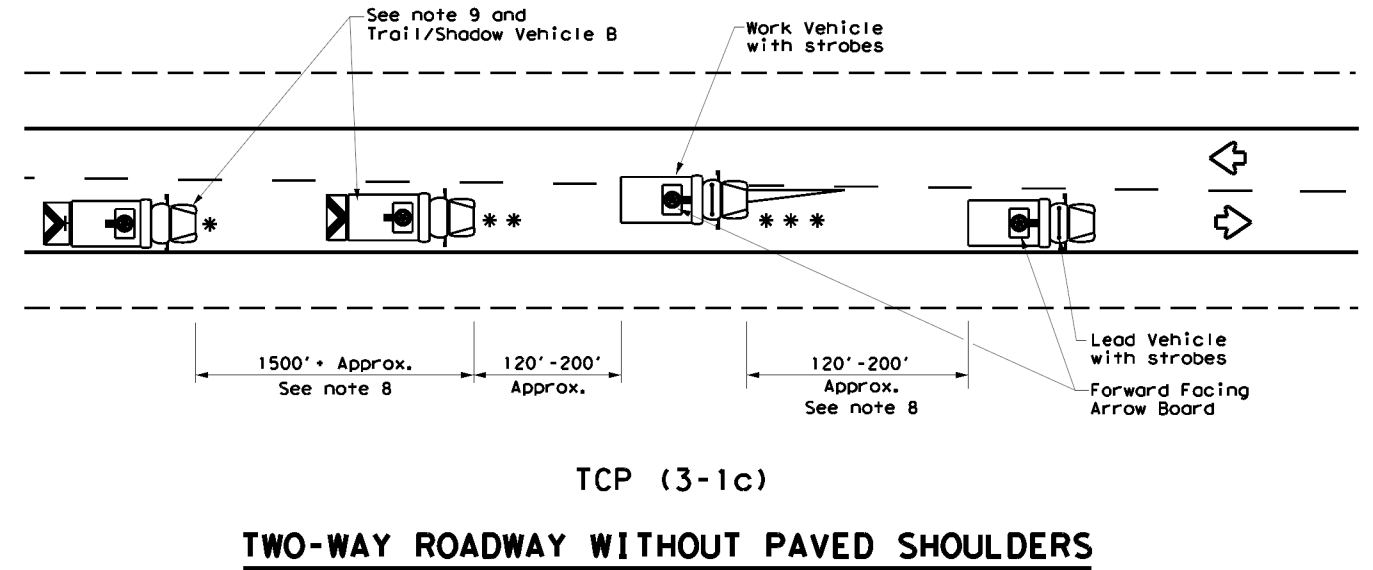


Traffic Operations Division Standard

**TRAFFIC CONTROL PLAN
MOBILE OPERATIONS
UNDIVIDED HIGHWAYS**

TCP (3-1) - 13

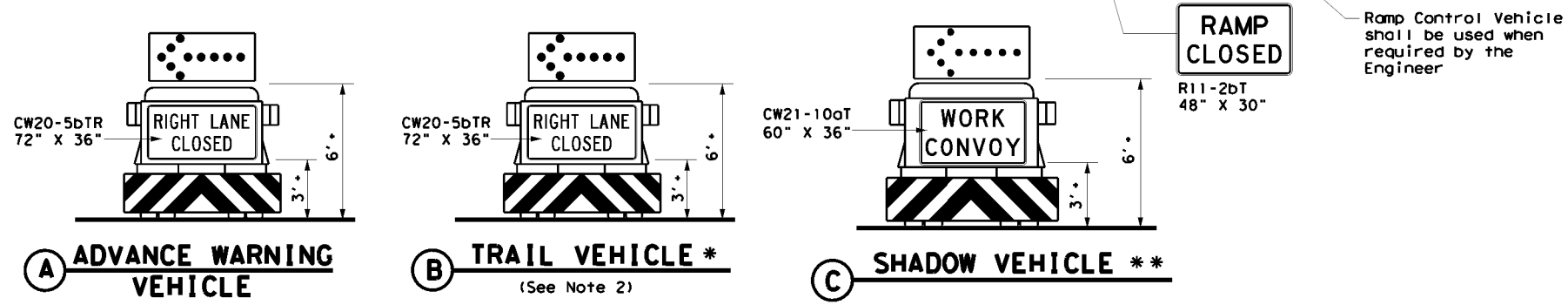
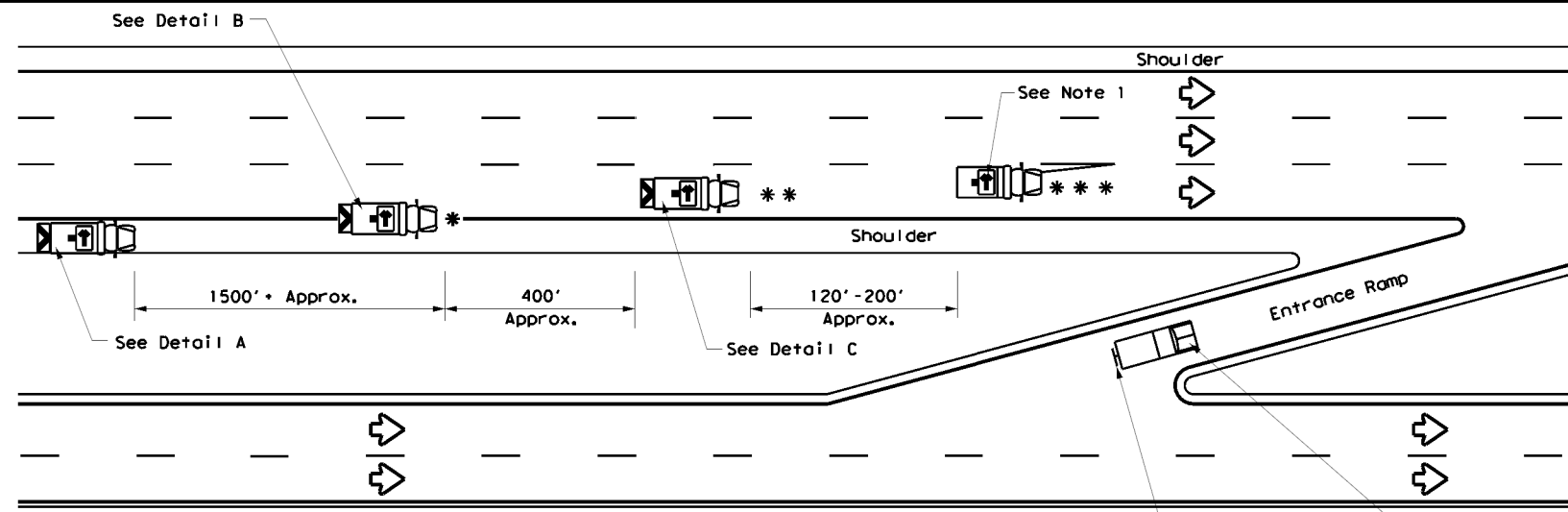
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© TxDOT December 1985	CONT: 0912 00	SECT: 710	JOB: HARRIS	HIGHWAY: VARIOUS
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2-94 4-98	8-95 7-13	1-97		
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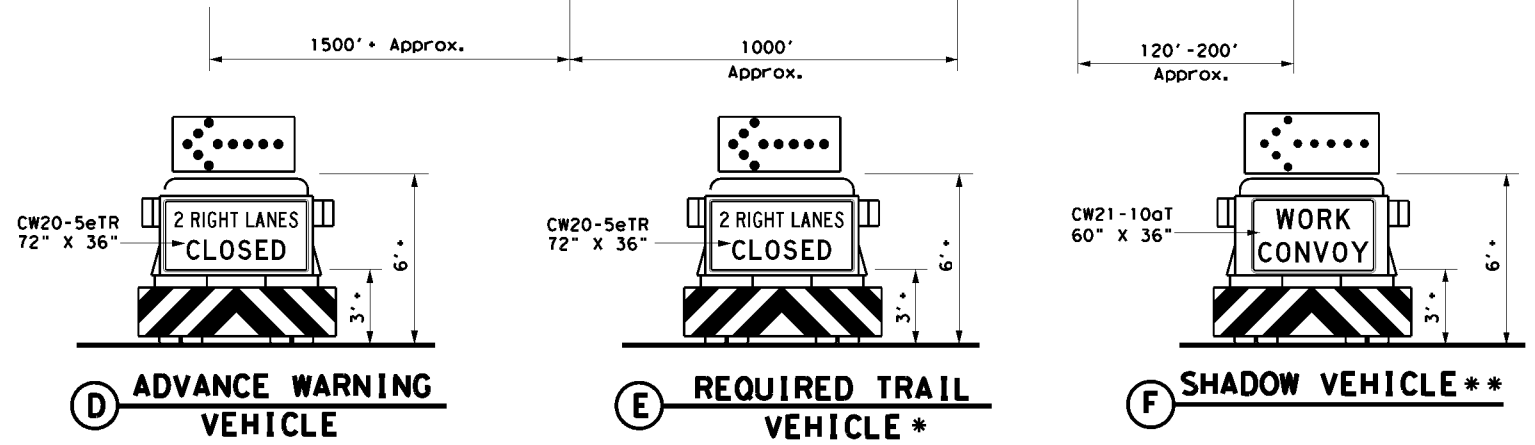
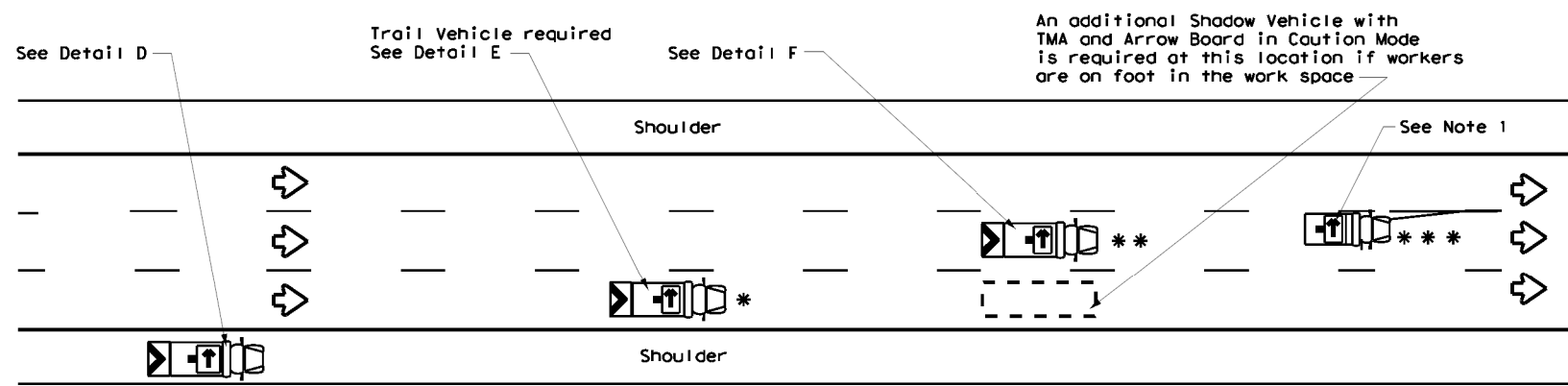
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 \$TIMES



RIGHT LANE CLOSURE ON DIVIDED HIGHWAY - TCP(3-2a)



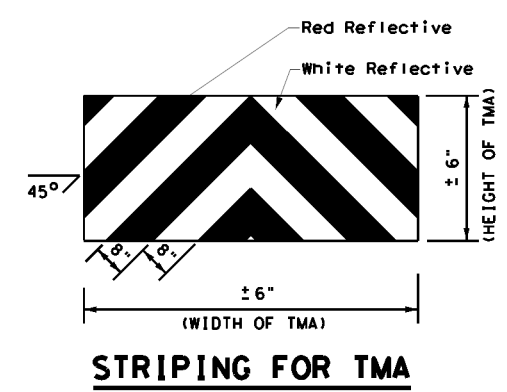
INTERIOR LANE CLOSURE ON MULTI-LANE DIVIDED HIGHWAY - TCP(3-2b)

LEGEND			
* Trail Vehicle		ARROW BOARD DISPLAY	
** Shadow Vehicle			
*** Work Vehicle		RIGHT Directional	
		LEFT Directional	
		Double Arrow	
		CAUTION (Alternating Diamond or 4 Corner Flash)	

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

GENERAL NOTES

- ADVANCE WARNING, TRAIL and SHADOW vehicles shall be equipped with Type B or Type C flashing arrow boards as per the Barricade and Construction (BC) standards. Arrow boards on WORK vehicles will be optional based on the type of work being performed. The arrow boards shall be operated from inside the vehicle.
- For TCP(3-2a) the Engineer will determine if the TRAIL VEHICLE is required based on prevailing roadway conditions, traffic volume, and sight distance restrictions. All other vehicles shown for both TCP(3-2a) and TCP(3-2b) are required.
- 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.
- The use of truck mounted attenuators (TMA) on the ADVANCE WARNING, SHADOW, and TRAIL vehicles are required.
- Reflective sheeting on the rear of the TMA shall meet or exceed the reflectivity and color requirements of DMS 8300, Type A.
- Each vehicle shall have two-way radio communication capability.
- When work convoys must change lanes, the TRAIL VEHICLE should change lanes first to shadow the other convoy vehicles.
- Vehicle spacing between the TRAIL VEHICLE and the SHADOW VEHICLE will vary depending on sight distance restrictions. Motorists approaching the work 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 may vary according to terrain, work activity and other factors.
- Standard 48" X 48" diamond shaped warning signs with the same message as those shown may be used where adequate mounting space exists.
- The signs shown should be used on the Advance Warning Vehicle. As an option, a portable changeable message sign (PCMS) or a 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, must 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.
- Standard diamond shape versions of the CW20-5 series signs may be used as an option if the rectangular signs shown are not available.
- The principles on this sheet may be used to close lanes from the left side of the roadway considering the number of lanes, shoulder width, sight distance, and ramp frequency.
- Signs and flashing arrow board modes shall be appropriately altered when implementing left lane closures or interior closures which close the left lanes.
- The Advance Warning Vehicle may straddle the edgeline when shoulder width makes it necessary.



Texas Department of Transportation
 Traffic Operations Division Standard

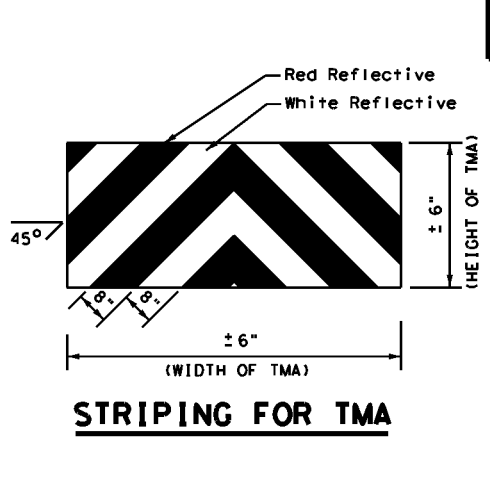
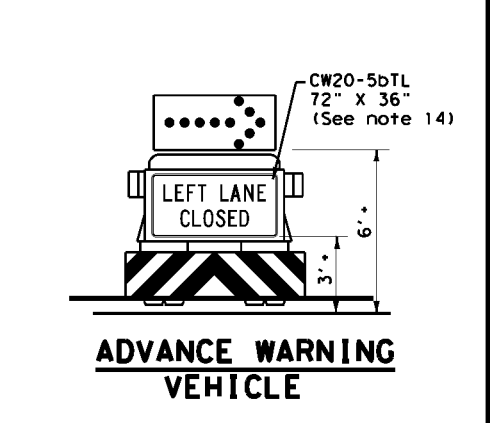
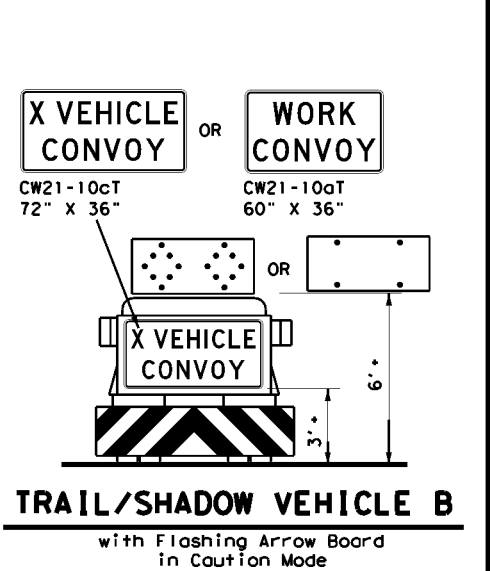
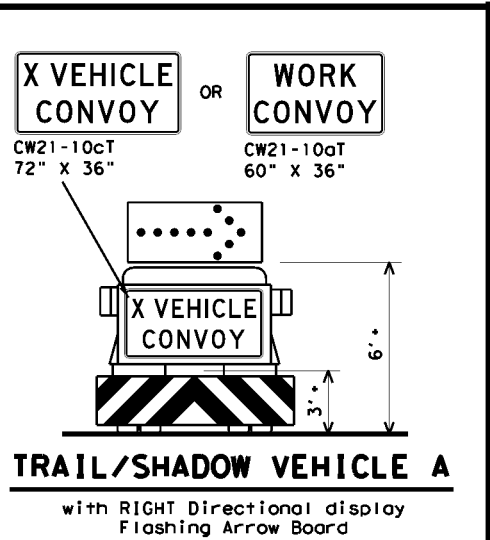
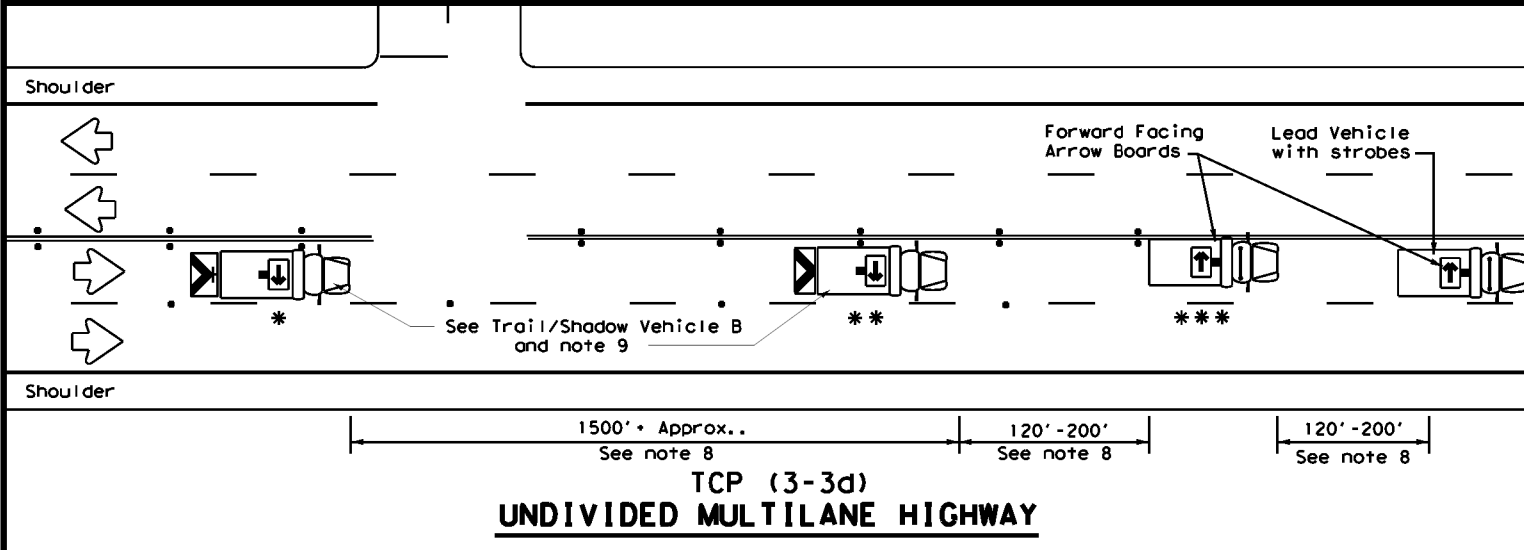
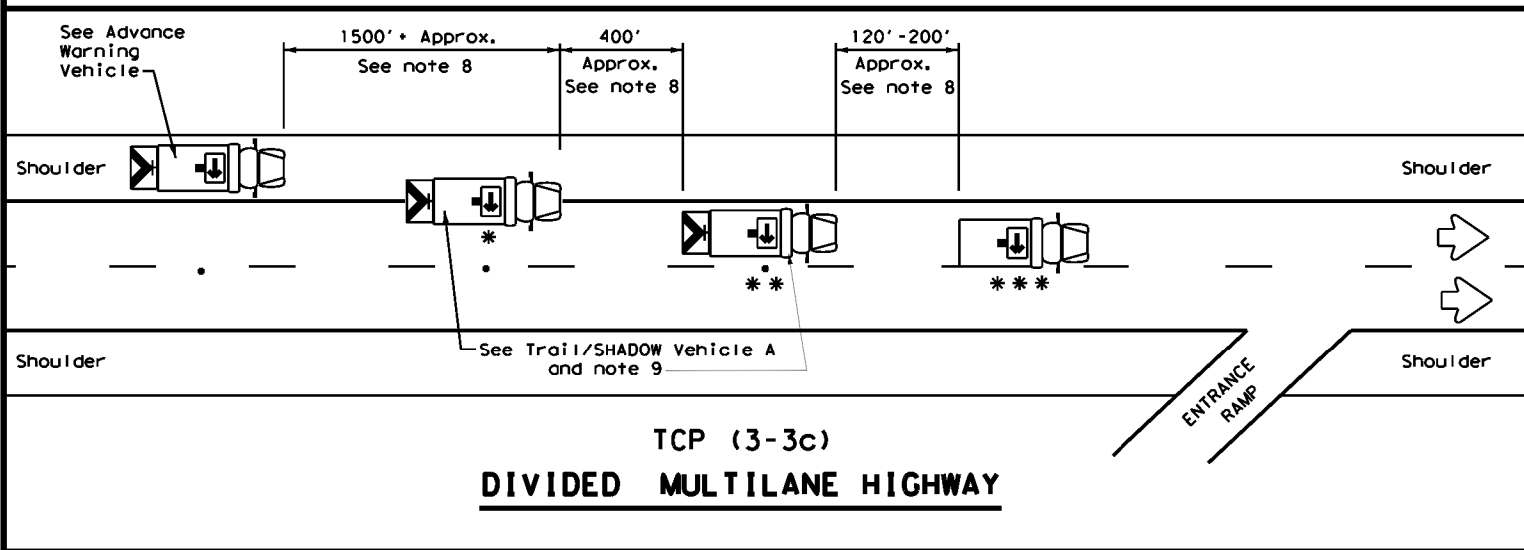
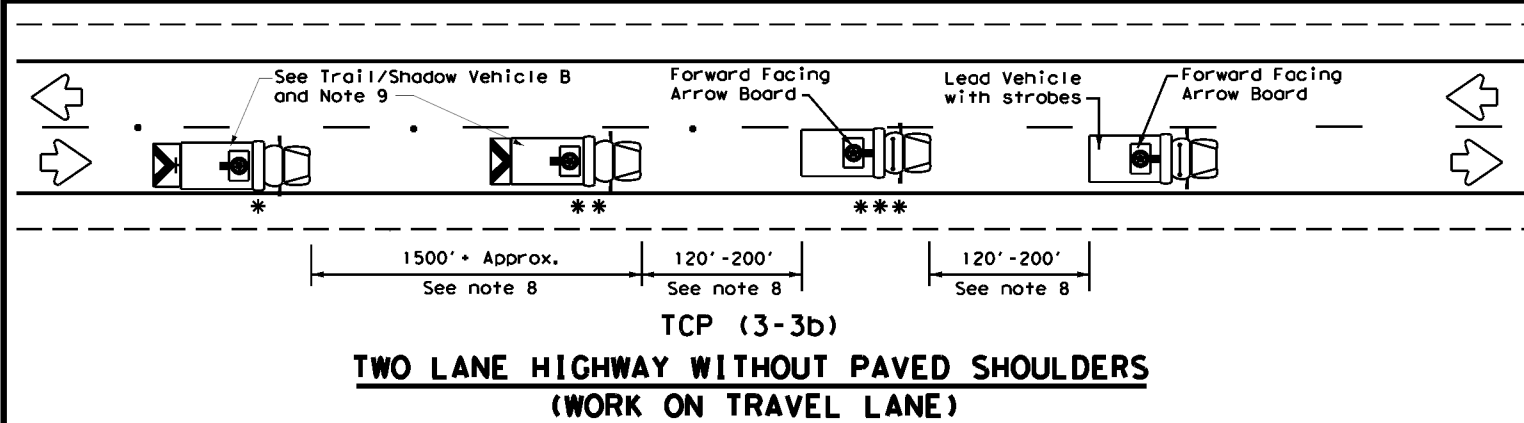
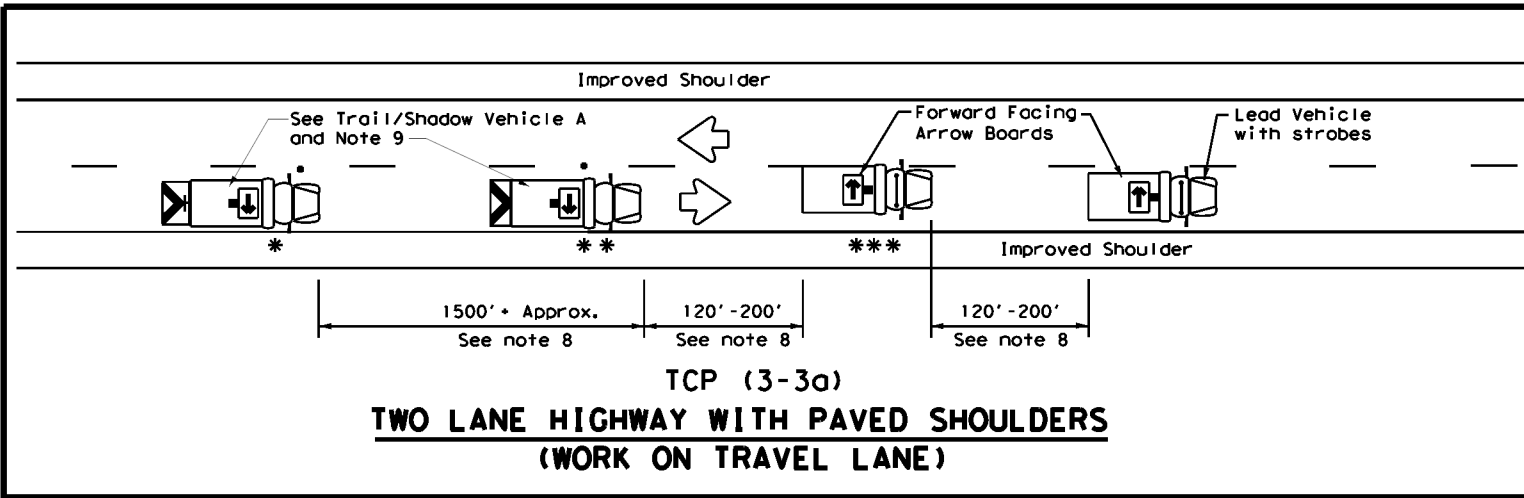
TRAFFIC CONTROL PLAN
 MOBILE OPERATIONS
 DIVIDED HIGHWAYS

TCP(3-2)-13

FILE: tcp3-2.dgn	DWG: TxDOT	CHK: TxDOT	DWG: TxDOT	CHK: TxDOT
© TxDOT December 1985	CONT: 0912 00	SECT: 710	JOB: HARRIS	HIGHWAY: VARIOUS
REVISIONS	2-94 4-98	8-95 7-13	DIST: HOU	COUNTY: HARRIS
	1-97			SHEET NO.: 31

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

DATE: \$DATES
 FILE: \$FILES
 \$TIMES



LEGEND		
* Trail Vehicle	ARROW BOARD DISPLAY	
** Shadow Vehicle		
*** Work Vehicle		RIGHT Directional
		LEFT Directional
		Double Arrow
		CAUTION (Alternating Diamond or 4 Corner Flash)

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

GENERAL NOTES

- 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.
- 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.
- The use of truck mounted attenuators (TMA) on the SHADOW VEHICLE, ADVANCE WARNING and TRAIL VEHICLE are required.
- 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.
- 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.
- Each vehicle shall have two-way radio communication capability.
- When work convoys must change lanes, the TRAIL VEHICLE should change lanes first to shadow the other convoy vehicles.
- 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.
- 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.
- 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.
- A double arrow shall not be displayed on the arrow board on the Advance Warning Vehicle.
- For divided highways with three or four lanes in each direction, use TCP(3-2).
- Standard diamond shape versions of the CW20-5 series signs may be used as an option if the rectangular signs shown are not available.
- The Advance Warning Vehicle may straddle the edgeline when Shoulder width makes it necessary.
- 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.

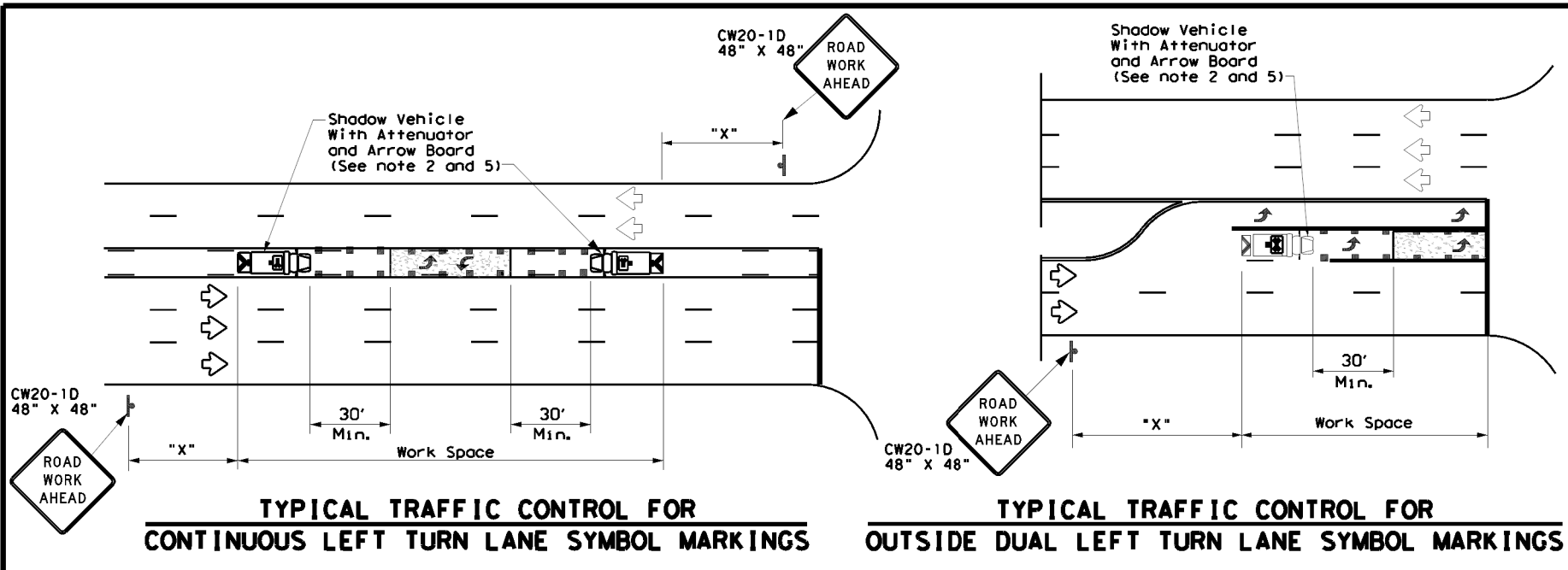
Texas Department of Transportation
 Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
MOBILE OPERATIONS
RAISED PAVEMENT
MARKER INSTALLATION/
REMOVAL
TCP (3-3) - 14

FILE: tcp3-3.dgn	DWG: TxDOT	CHK: TxDOT	REV: TxDOT	CR: TxDOT
© TxDOT September 1987		CONT: 0912 00	SECT: 710	JOB: HARRIS
REVISIONS:				
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8-95 7-13				
1-97 7-14				
	DIST: HOU	COUNTY: HARRIS	SHEET NO.: 32	

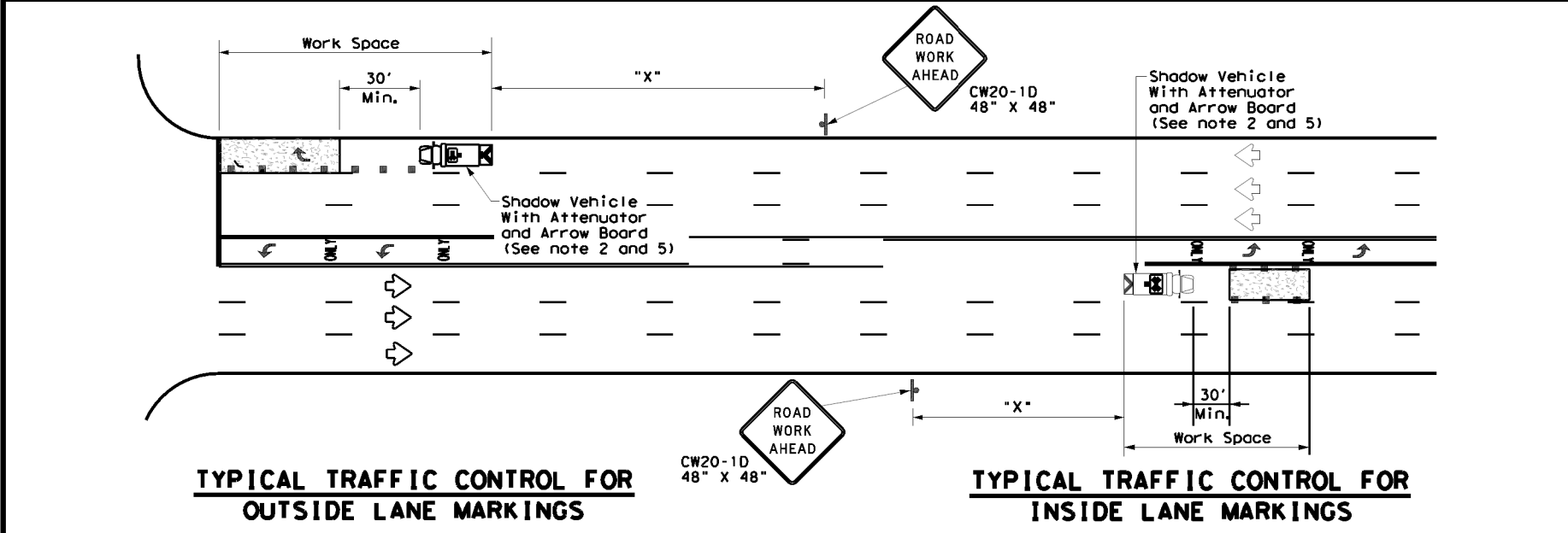
DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE: \$DATES\$
 FILE: \$FILES\$
 \$TIMES\$



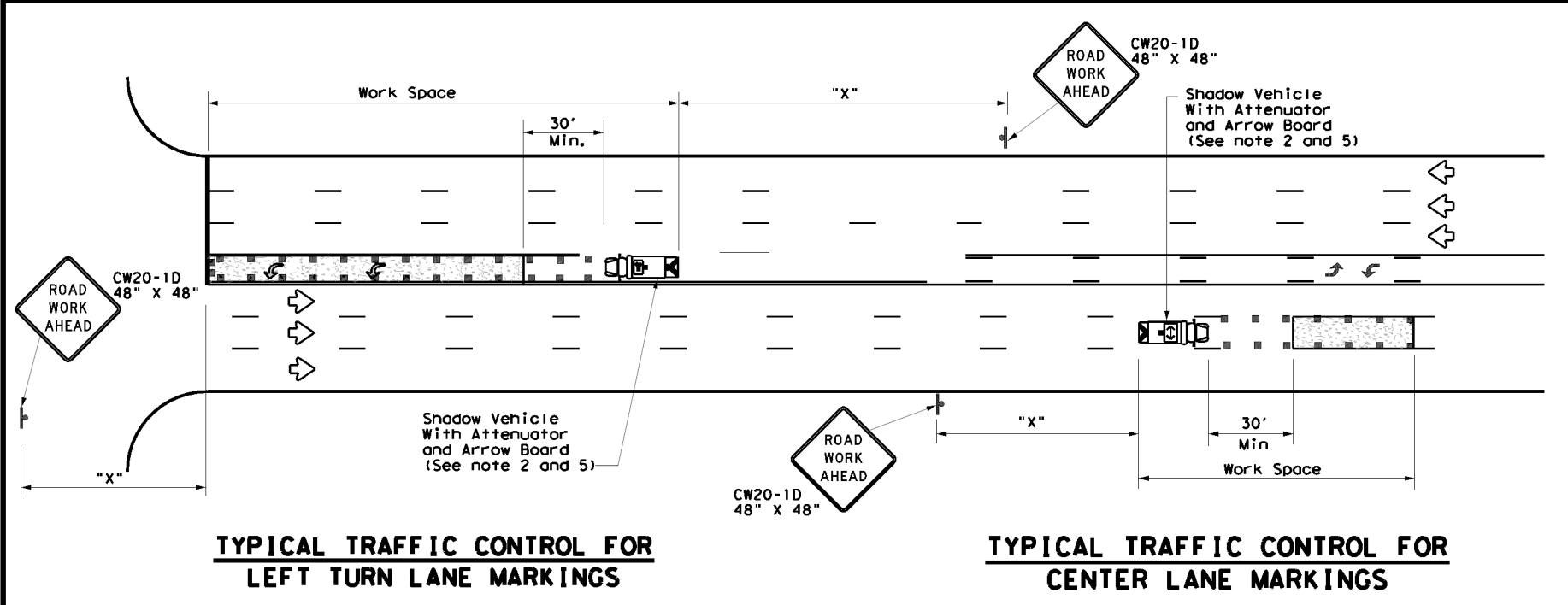
TYPICAL TRAFFIC CONTROL FOR CONTINUOUS LEFT TURN LANE SYMBOL MARKINGS

TYPICAL TRAFFIC CONTROL FOR OUTSIDE DUAL LEFT TURN LANE SYMBOL MARKINGS



TYPICAL TRAFFIC CONTROL FOR OUTSIDE LANE MARKINGS

TYPICAL TRAFFIC CONTROL FOR INSIDE LANE MARKINGS



TYPICAL TRAFFIC CONTROL FOR LEFT TURN LANE MARKINGS

TYPICAL TRAFFIC CONTROL FOR CENTER LANE MARKINGS

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		Channelizing Devices

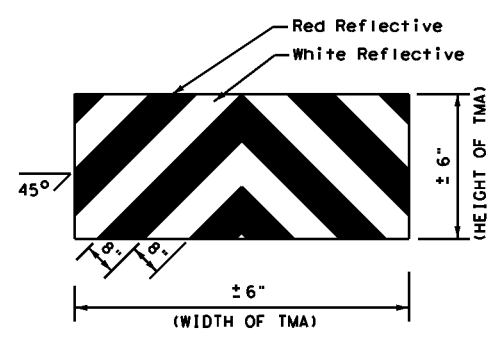
Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "x" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	L = WS ² / 60	150'	165'	180'	30'	60'	120'	90'
35		205'	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. This traffic control plan is for use on conventional roads posted at 45 mph or less and is intended for mobile operations that move continuously or intermittently (stopping up to approximately 15 minutes) such as short-line striping and in-lane rumble strips. When activities are anticipated to take longer amounts of time or traffic conditions warrant, a short duration or short-term stationary traffic control plan should be used.
2. A Truck Mounted Attenuator shall be used on Shadow Vehicle. Striping on the back panel of all truck mounted attenuators shall be 8" red and white reflective sheeting placed in an inverted "V" design. Reflective sheeting shall meet or exceed the reflectivity and color requirements of departmental material specification DMS-8300, Type A.
3. All traffic control devices shall be in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD), latest edition.
4. The use of yellow rotating beacons or strobe lights on vehicles are required. Blue high intensity rotating, flashing, oscillating or strobe lights when mounted on the drivers side of the vehicle may be operated simultaneously with the amber beacons or strobe lights.
5. Flashing arrow board shall be used on Shadow Vehicle. Flashing arrow board shall be Type B or Type C as per BC Standards. The arrow board operation shall be controlled from inside the truck.



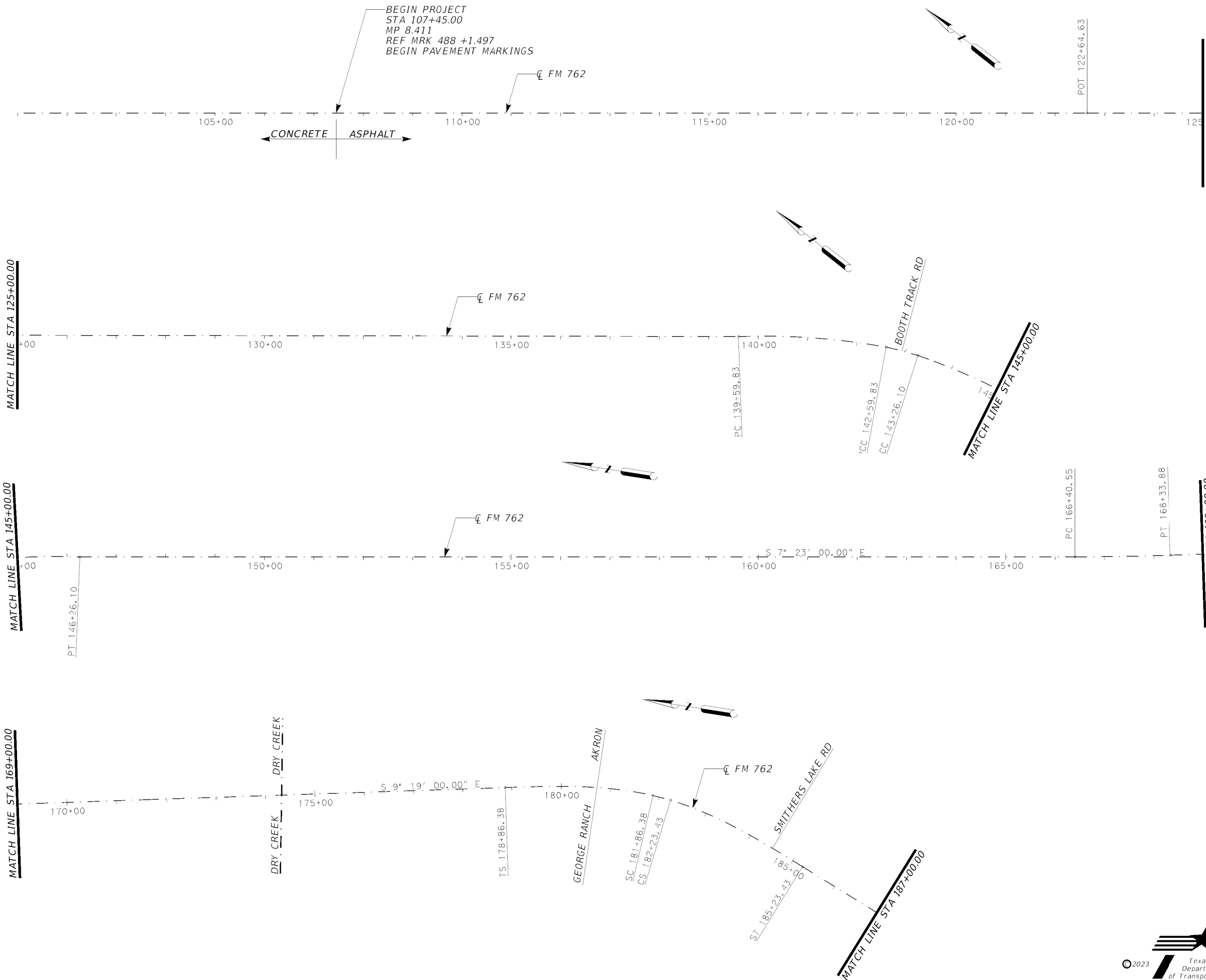
STRIPING FOR TMA

Texas Department of Transportation
 Traffic Operations Division Standard

**TRAFFIC CONTROL PLAN
 MOBILE OPERATIONS FOR
 ISOLATED WORK AREAS
 UNDIVIDED HIGHWAYS**

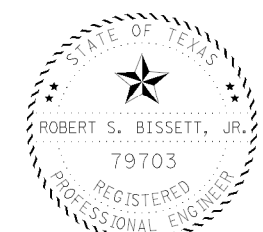
TCP(3-4)-13

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© TxDOT July, 2013	CONT: 0912	SECT: 00	JOB: 710	HIGHWAY: VARIOUS
REVISIONS	DIST: HOU	COUNTY: HARRIS	SHEET NO.: 33	



NOTES:

1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.
2. ANY 4" EDGELINE AND CENTERLINE PAVEMENT MARKINGS WILL BE REPLACED WITH 6" PAVEMENT MARKINGS PER CURRENT TXDOT PAVEMENT MARKING STANDARDS.



Robert S. Bissett, Jr.
12/13/23

PAVEMENT MARKING LAYOUT

FM 762
1.542 MI. S. OF BRIDLEWOOD DR.
TO FM 1462
STA 107+45.00
TO
STA 187+00.00

SHEET 1 OF 9

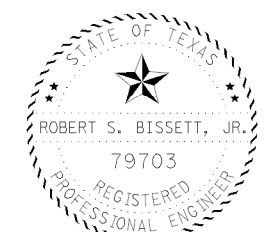
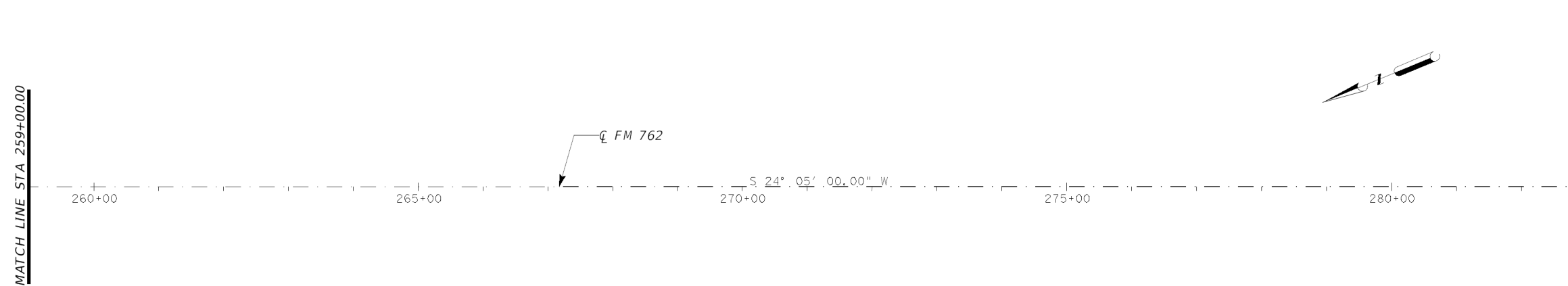
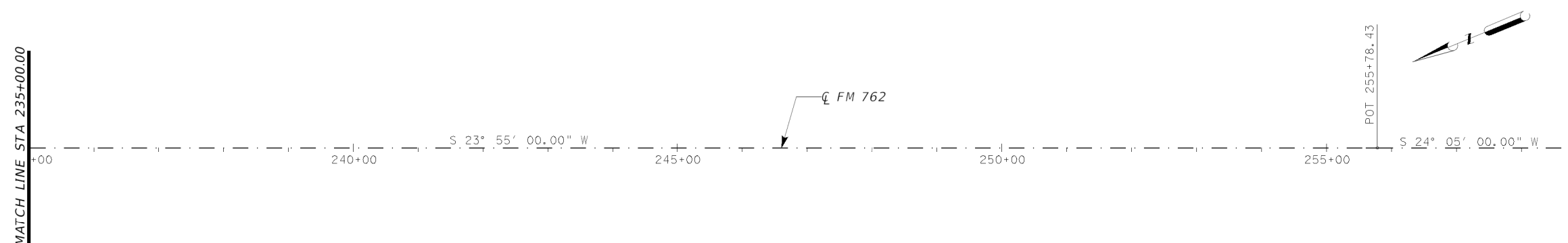
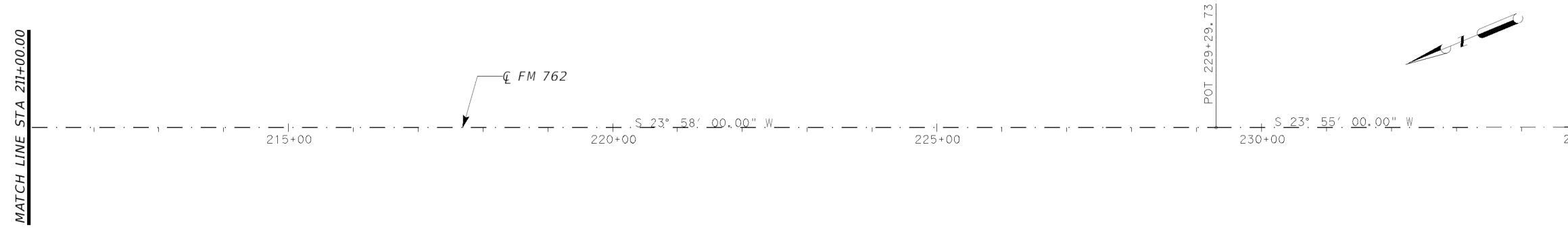
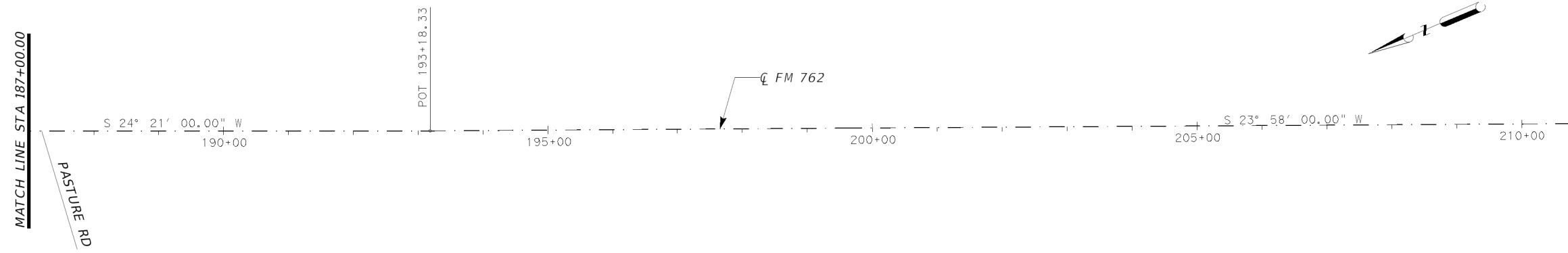


SCALE: 1"=200'

CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST	COUNTY		SHEET NO.
HOU	HARRIS		34

NOTES:

1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.
2. ANY 4" EDGELINE AND CENTERLINE PAVEMENT MARKINGS WILL BE REPLACED WITH 6" PAVEMENT MARKINGS PER CURRENT TXDOT PAVEMENT MARKING STANDARDS.

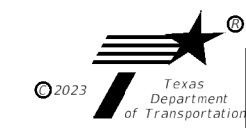


Robert S. Bissett, Jr.
12/13/23

PAVEMENT MARKING LAYOUT

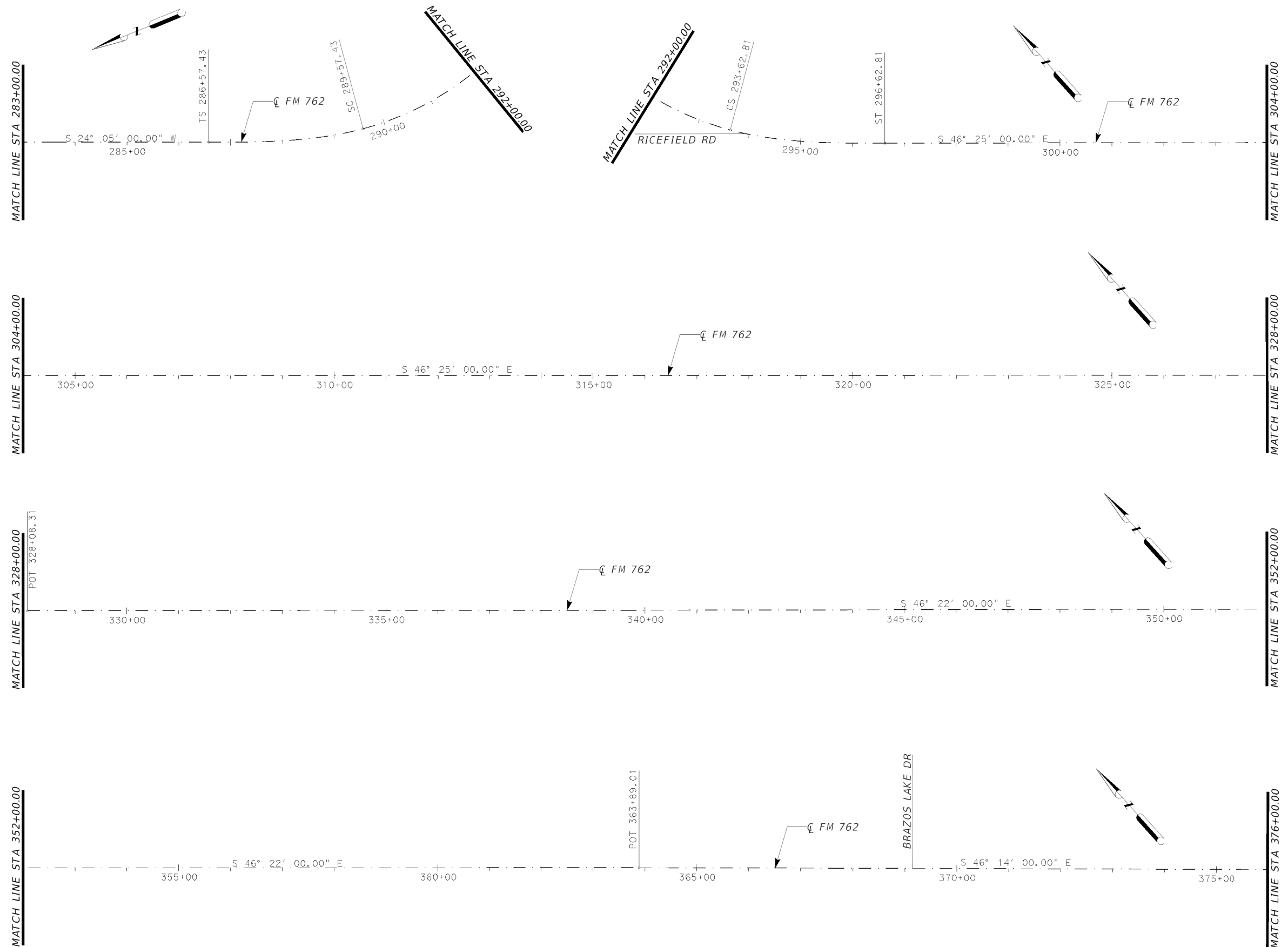
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1.542 MI. S. OF BRIDLEWOOD DR.
TO FM 1462
STA 187+00.00
TO
STA 283+00.00

SHEET 2 OF 9

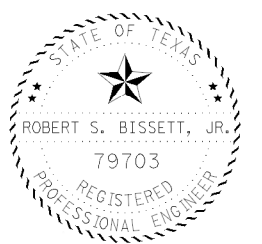


SCALE: 1"=200'

CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST		COUNTY	SHEET NO.
HOU		HARRIS	35



- NOTES:**
1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.
 2. ANY 4" EDGELINE AND CENTERLINE PAVEMENT MARKINGS WILL BE REPLACED WITH 6" PAVEMENT MARKINGS PER CURRENT TXDOT PAVEMENT MARKING STANDARDS.



Robert S. Bissett, Jr.
12/13/23

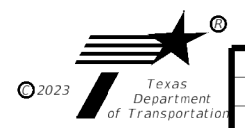
PAVEMENT MARKING LAYOUT

FM 762

1.542 MI. S. OF BRIDLEWOOD DR.
TO FM 1462

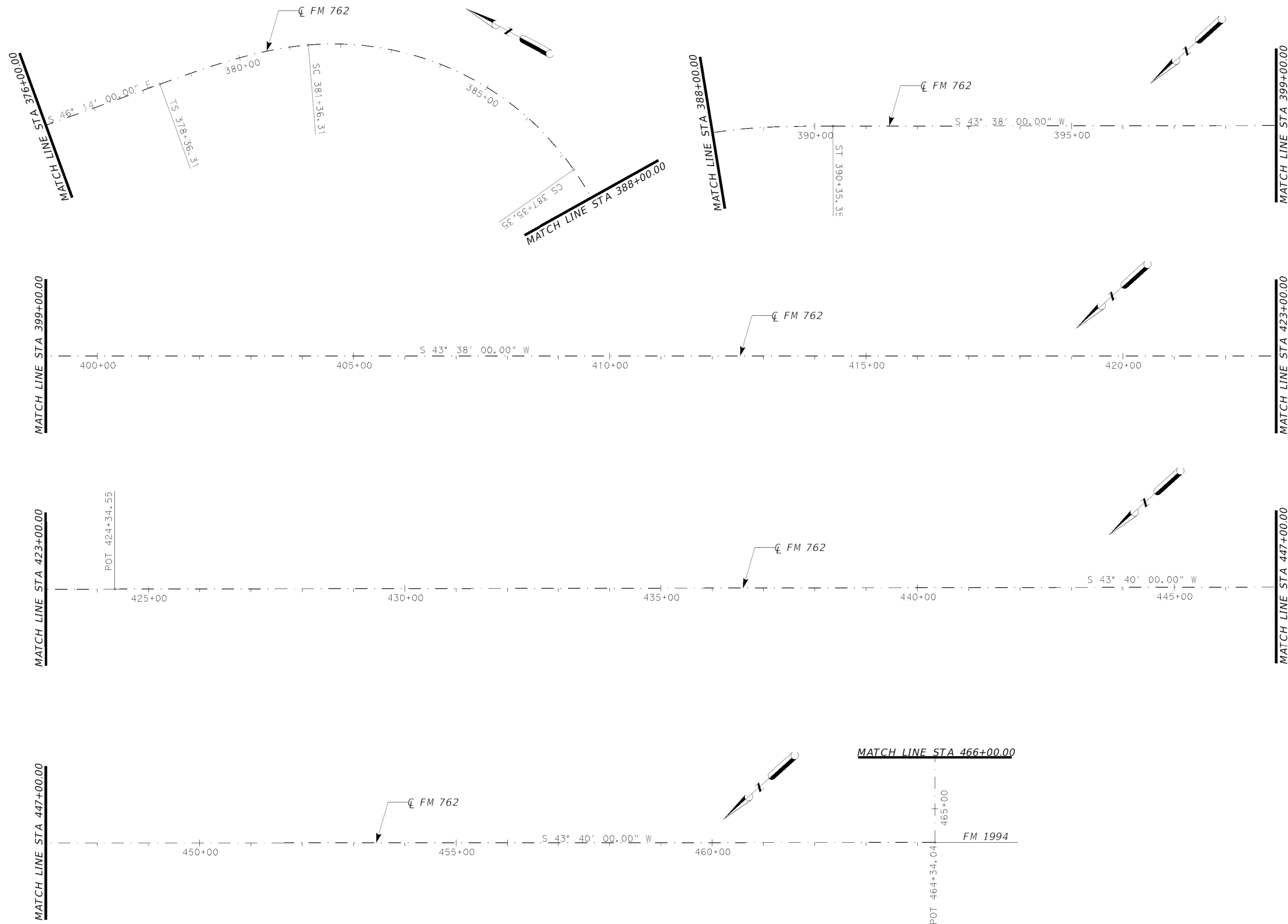
STA 283+00.00
TO
STA 376+00.00

SHEET 3 OF 9



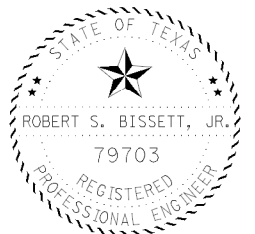
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CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST	COUNTY		SHEET NO.
HOU	HARRIS		36



NOTES:

1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.
2. ANY 4" EDGELINE AND CENTERLINE PAVEMENT MARKINGS WILL BE REPLACED WITH 6" PAVEMENT MARKINGS PER CURRENT TXDOT PAVEMENT MARKING STANDARDS.



Robert S. Bissett, Jr.
12/13/23

PAVEMENT MARKING LAYOUT

FM 762

1.542 MI. S. OF BRIDLEWOOD DR.
TO FM 1462

STA 376+00.00
TO
STA 466+00.00

SHEET 4 OF 9



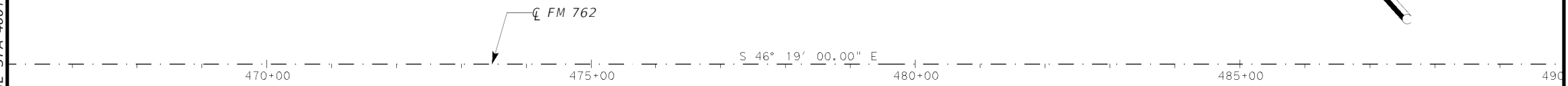
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DIST	COUNTY		SHEET NO.
HOU	HARRIS		37

NOTES:

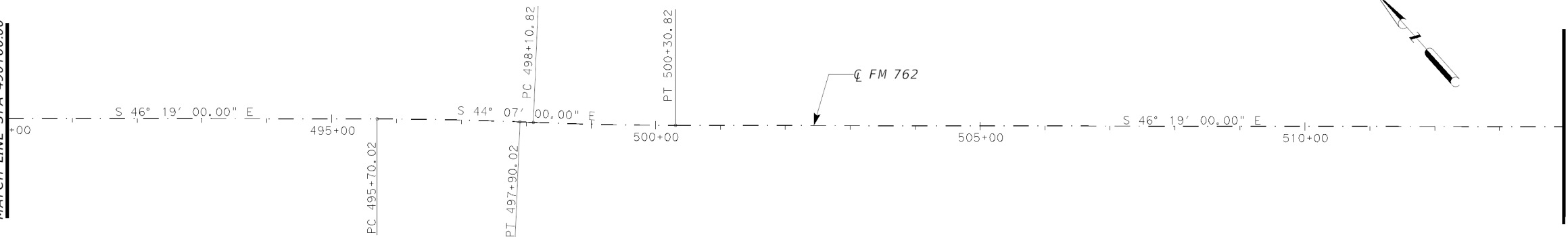
1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.
2. ANY 4" EDGELINE AND CENTERLINE PAVEMENT MARKINGS WILL BE REPLACED WITH 6" PAVEMENT MARKINGS PER CURRENT TXDOT PAVEMENT MARKING STANDARDS.

MATCH LINE STA 466+00.00



MATCH LINE STA 490+00.00

MATCH LINE STA 490+00.00



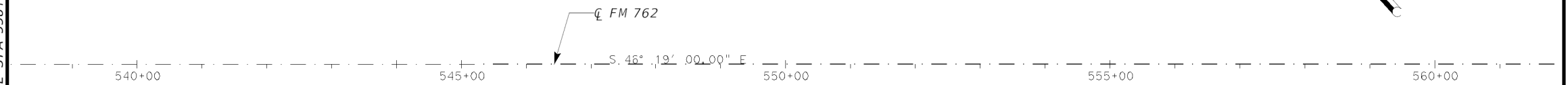
MATCH LINE STA 514+00.00

MATCH LINE STA 514+00.00

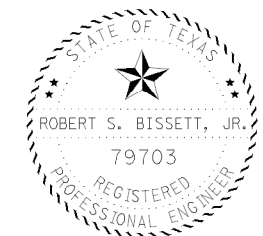


MATCH LINE STA 538+00.00

MATCH LINE STA 538+00.00



MATCH LINE STA 562+00.00



Robert S. Bissett, Jr.
12/13/23

PAVEMENT MARKING LAYOUT

FM 762

1.542 MI. S. OF BRIDLEWOOD DR.
TO FM 1462

STA 466+00.00
TO
STA 562+00.00

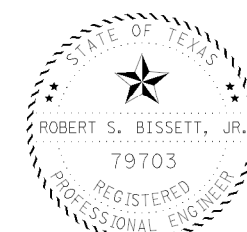
SHEET 5 OF 9



SCALE: 1"=200'

CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST	COUNTY		SHEET NO.
HOU	HARRIS		38

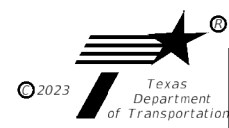
- NOTES:**
1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.
 2. ANY 4" EDGELINE AND CENTERLINE PAVEMENT MARKINGS WILL BE REPLACED WITH 6" PAVEMENT MARKINGS PER CURRENT TXDOT PAVEMENT MARKING STANDARDS.



Robert S. Bissett, Jr.
12/13/23

PAVEMENT MARKING LAYOUT
FM 762
1.542 MI. S. OF BRIDLEWOOD DR.
TO FM 1462
STA 562+00.00
TO
STA 655+00.00

SHEET 6 OF 9

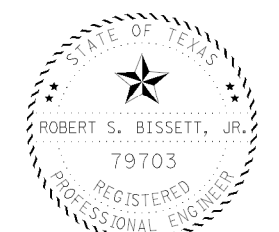
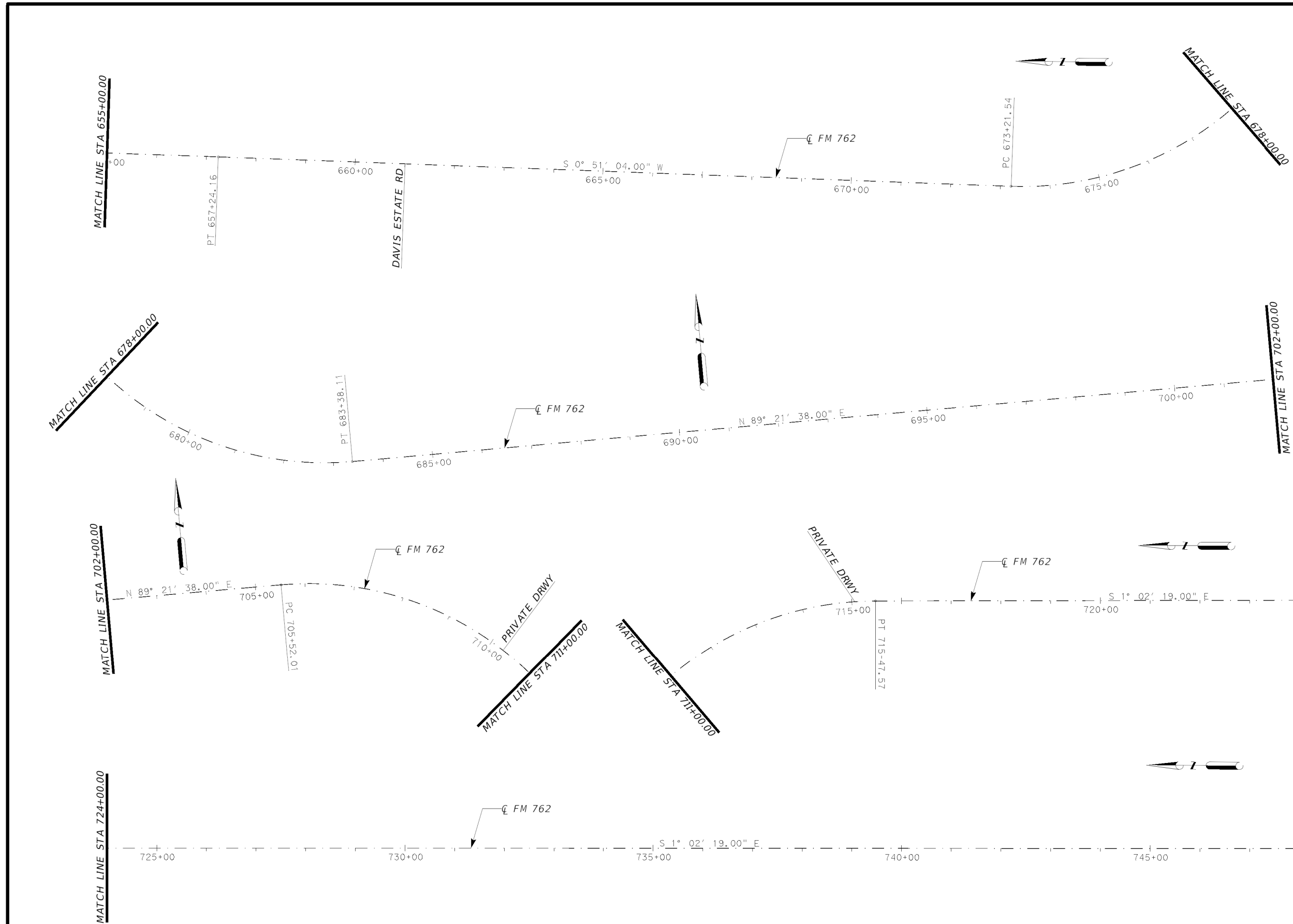


SCALE: 1"=200'

CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST		COUNTY	SHEET NO.
HOU		HARRIS	39

NOTES:

1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.
2. ANY 4" EDGELINE AND CENTERLINE PAVEMENT MARKINGS WILL BE REPLACED WITH 6" PAVEMENT MARKINGS PER CURRENT TXDOT PAVEMENT MARKING STANDARDS.



Robert S. Bissett, Jr.
12/13/23

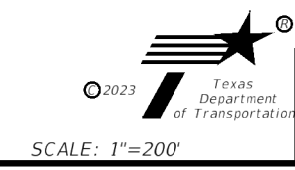
PAVEMENT MARKING LAYOUT

FM 762

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TO FM 1462

STA 655+00.00
TO
STA 748+00.00

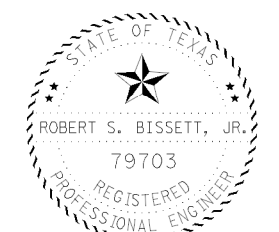
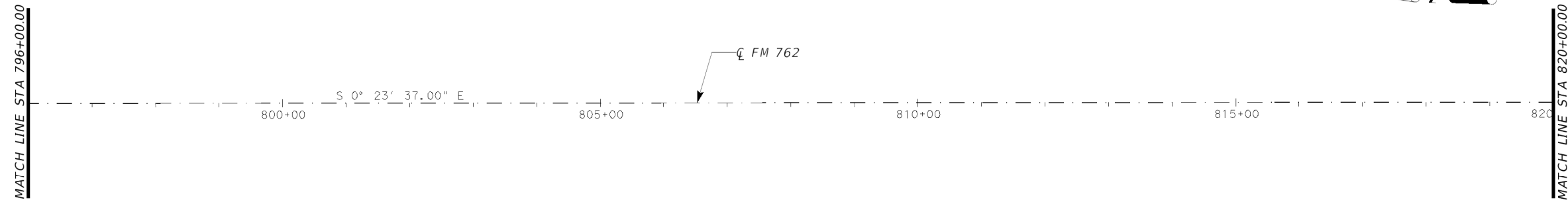
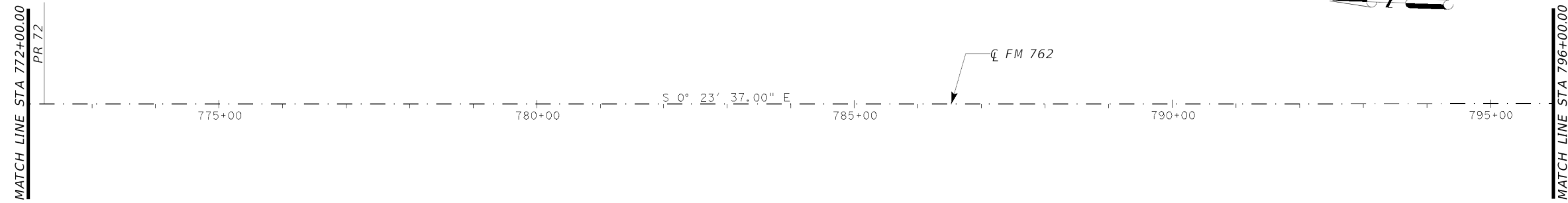
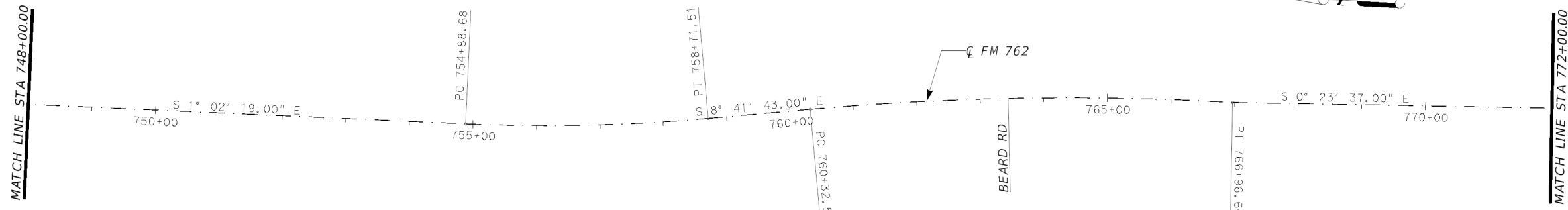
SHEET 7 OF 9



CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST	COUNTY		SHEET NO.
HOU	HARRIS		40

NOTES:

1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.
2. ANY 4" EDGELINE AND CENTERLINE PAVEMENT MARKINGS WILL BE REPLACED WITH 6" PAVEMENT MARKINGS PER CURRENT TXDOT PAVEMENT MARKING STANDARDS.



Robert S. Bissett, Jr.
12/13/23

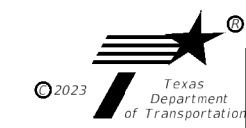
PAVEMENT MARKING LAYOUT

FM 762

1.542 MI. S. OF BRIDLEWOOD DR. TO FM 1462

STA 748+00.00
TO
STA 820+00.00

SHEET 8 OF 9

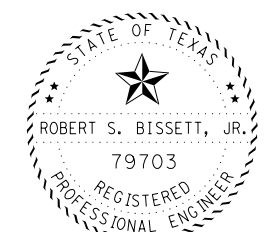
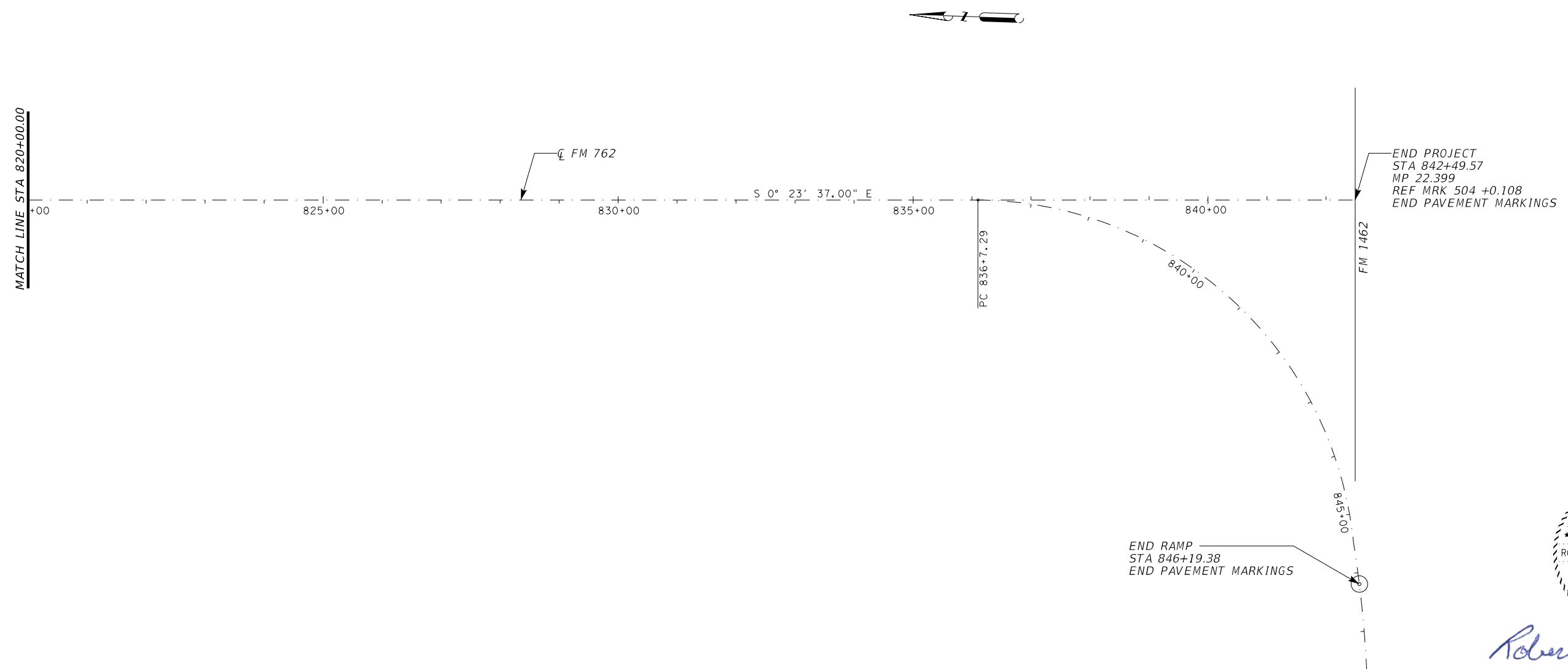


SCALE: 1"=200'

CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST	COUNTY		SHEET NO.
HOU	HARRIS		41

NOTES:

1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.
2. ANY 4" EDGELINE AND CENTERLINE PAVEMENT MARKINGS WILL BE REPLACED WITH 6" PAVEMENT MARKINGS PER CURRENT TXDOT PAVEMENT MARKING STANDARDS.

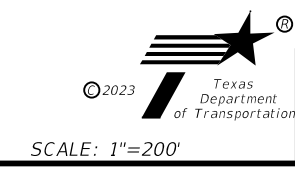


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02/13/24

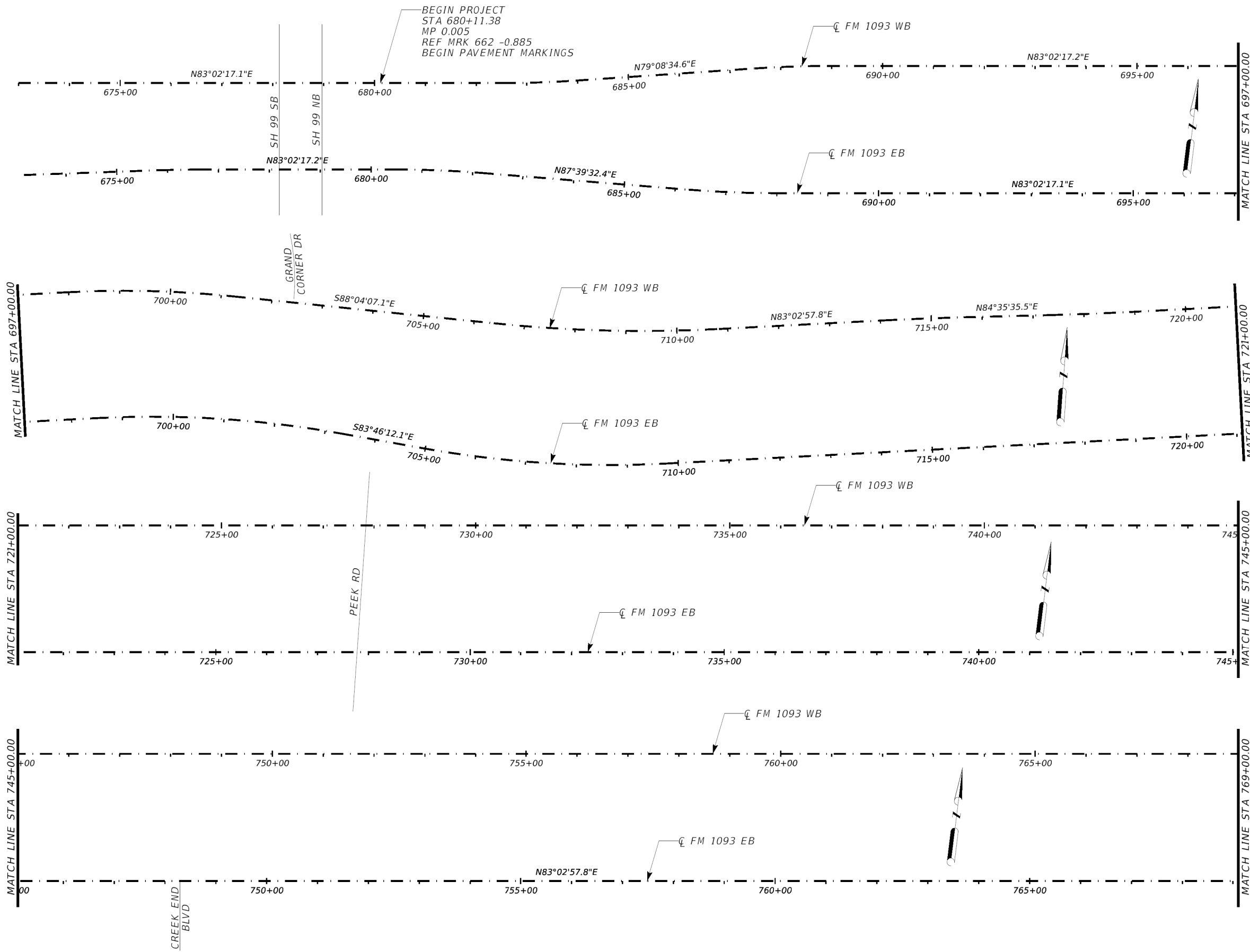
PAVEMENT MARKING LAYOUT

FM 762
1.542 MI. S. OF BRIDLEWOOD DR.
TO FM 1462
STA 820+00.00
TO
STA 842+49.57

SHEET 9 OF 9



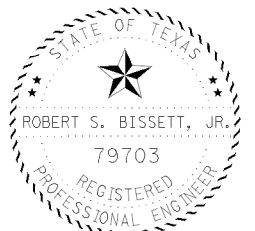
CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST	COUNTY		SHEET NO.
HOU	HARRIS		42



BEGIN PROJECT
 STA 680+11.38
 MP 0.005
 REF MRK 662 -0.885
 BEGIN PAVEMENT MARKINGS

NOTES:

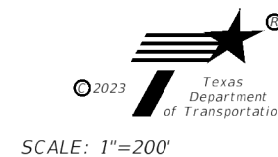
1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TxDOT PAVEMENT MARKING STANDARDS.
2. INSTALL PAVEMENT MARKINGS ON BOTH EASTBOUND AND WESTBOUND FM 1093 (FRONTAGE ROADS), INTERSECTIONS AND RAMPS.



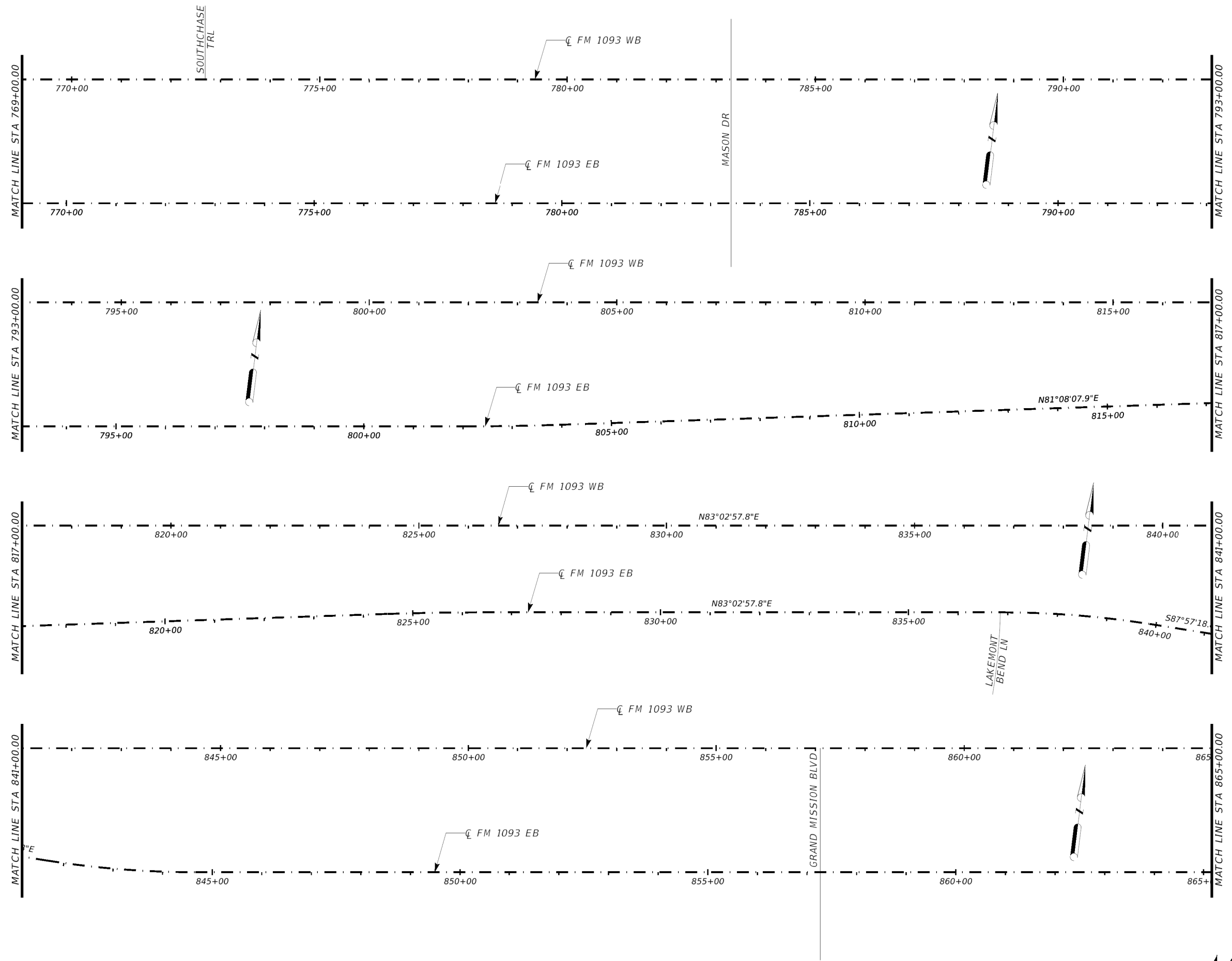
Robert S. Bissett, Jr.
 12/13/23

PROJECT LAYOUT
FM 1093
 SH 99
 TO HARRIS COUNTY LINE
 STA 680+11.38
 TO
 STA 769+00.00

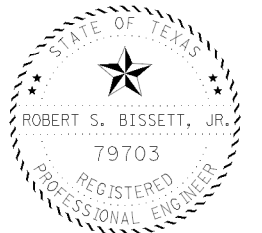
SHEET 1 OF 4



CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST	COUNTY		SHEET NO.
HOU	HARRIS		43



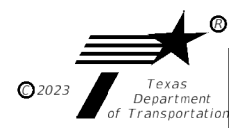
- NOTES:**
1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TxDOT PAVEMENT MARKING STANDARDS.
 2. INSTALL PAVEMENT MARKINGS ON BOTH EASTBOUND AND WESTBOUND FM 1093 (FRONTAGE ROADS), INTERSECTIONS AND RAMPS.



Robert S. Bissett, Jr.
 12/13/23

PROJECT LAYOUT
FM 1093
 SH 99
 TO HARRIS COUNTY LINE
 STA 769+00.00
 TO
 STA 865+00.00

SHEET 2 OF 4

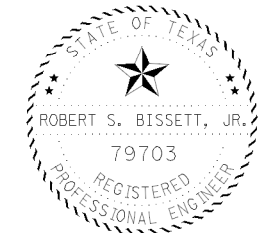
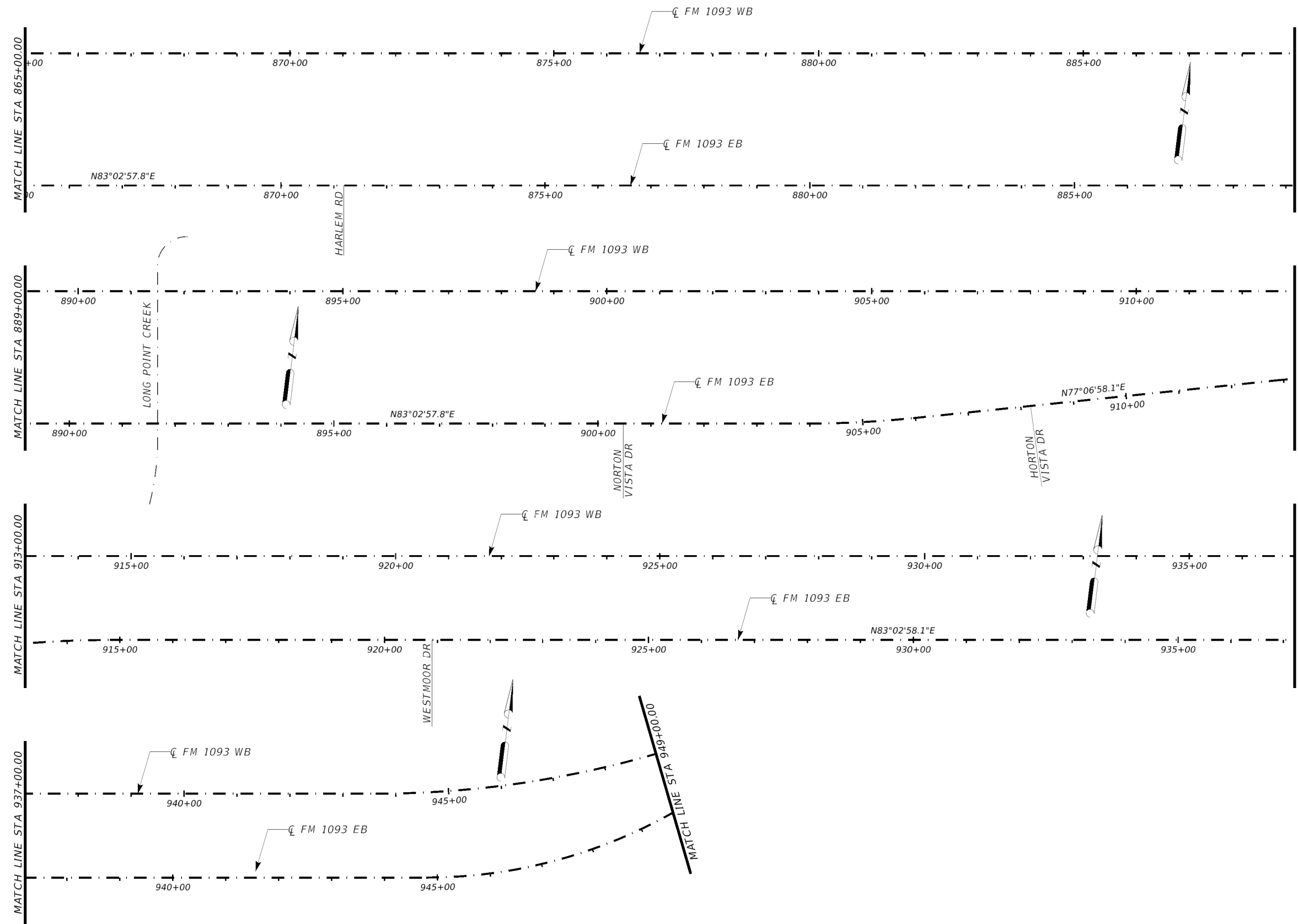


SCALE: 1"=200'

CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST		COUNTY	SHEET NO.
HOU		HARRIS	44

NOTES:

1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.
2. INSTALL PAVEMENT MARKINGS ON BOTH EASTBOUND AND WESTBOUND FM 1093 (FRONTAGE ROADS), INTERSECTIONS AND RAMPS.



Robert S. Bissett, Jr.
02/13/24

PROJECT LAYOUT
FM 1093
SH 99
TO HARRIS COUNTY LINE
STA 865+00.00
TO
STA 949+00.00

SHEET 3 OF 4

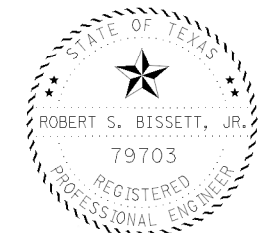
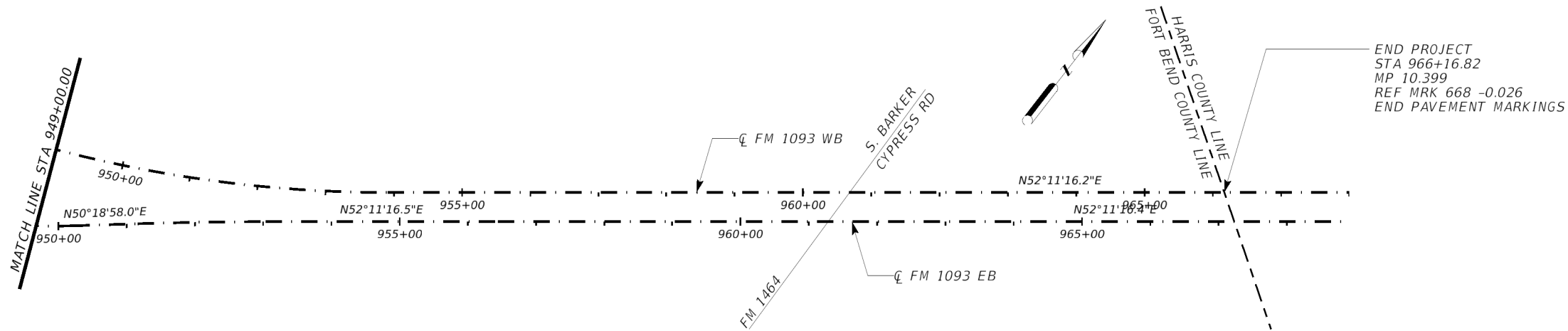


SCALE: 1"=200'

CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST		COUNTY	SHEET NO.
HOU		HARRIS	45

NOTES:

1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.
2. INSTALL PAVEMENT MARKINGS ON BOTH EASTBOUND AND WESTBOUND FM 1093 (FRONTAGE ROADS), INTERSECTIONS AND RAMPS.



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PROJECT LAYOUT
FM 1093
SH 99
TO HARRIS COUNTY LINE
SSTA 949+00.00
TO
STA 966+16.82

SHEET 4 OF 4

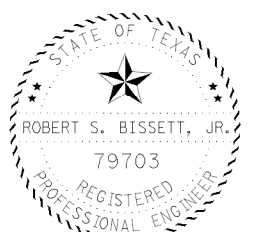


SCALE: 1"=200'

CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST		COUNTY	SHEET NO.
HOU		HARRIS	46



NOTES:
 1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.



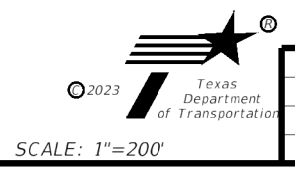
Robert S. Bissett, Jr.
 12/13/23

PAVEMENT MARKING LAYOUT

FM 1489
 US 90 TO
 WALLER COUNTY LINE

STA 10+04.59
 TO
 STA 104+00.00

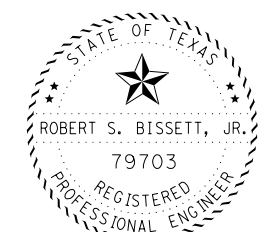
SHEET 1 OF 4



CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST		COUNTY	SHEET NO.
HOU		HARRIS	47

NOTES:

1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.



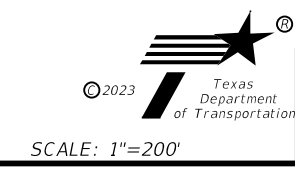
Robert S. Bissett, Jr.
02/13/24

PAVEMENT MARKING LAYOUT

FM 1489
US 90 TO
WALLER COUNTY LINE

STA 104+00.00
TO
STA 187+00.00

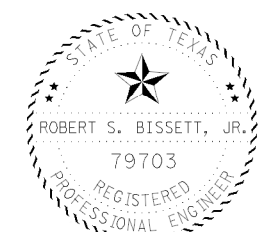
SHEET 2 OF 4



CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST		COUNTY	SHEET NO.
HOU		HARRIS	48

NOTES:

1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.

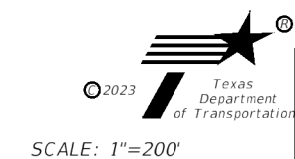


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12/13/23

PAVEMENT MARKING LAYOUT

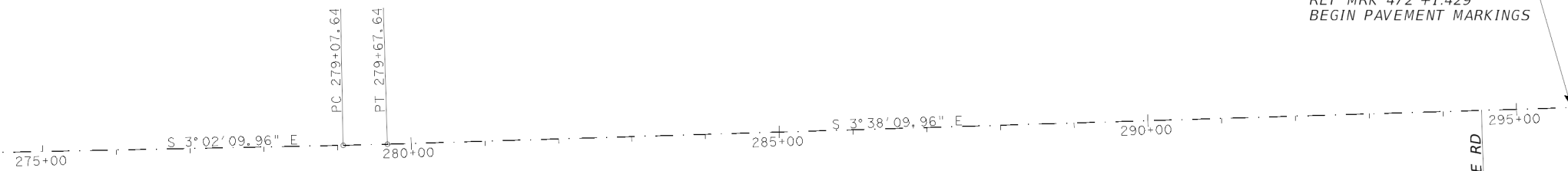
FM 1489
US 90 TO WALLER COUNTY LINE
STA 187+00.00 TO STA 273+00.00

SHEET 3 OF 4



CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST	COUNTY		SHEET NO.
HOU	HARRIS		49

MATCH LINE STA 273+00.00

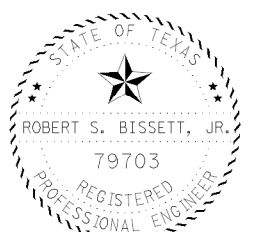


END PROJECT
STA 295+74.67
MP 5.416
REF MRK 472 +1.429
BEGIN PAVEMENT MARKINGS

COUNTY LINE RD

NOTES:

- 1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.



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12/13/23

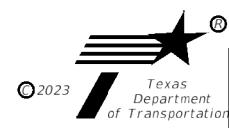
PAVEMENT MARKING LAYOUT

FM 1489

US 90 TO WALLER COUNTY LINE

STA 273+00.00
TO
STA 295+74.67

SHEET 4 OF 4

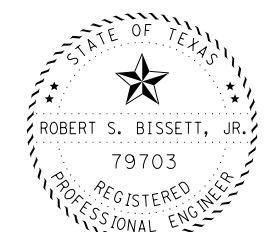


SCALE: 1"=200'

CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST		COUNTY	SHEET NO.
HOU		HARRIS	50

BEGIN PROJECT
 STA 0+00.00
 MP 1.000
 REF MRK 472 +1.429
 BEGIN PAVEMENT MARKINGS

- NOTES:**
1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.
 2. ANY 4" EDGELINE AND CENTERLINE PAVEMENT MARKINGS WILL BE REPLACED WITH 6" PAVEMENT MARKINGS PER CURRENT TXDOT PAVEMENT MARKING STANDARDS.

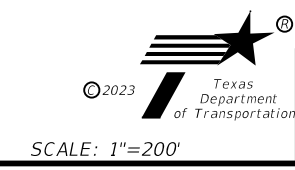


Robert S. Bissett, Jr.
 02/13/24

PAVEMENT MARKING LAYOUT

FM 1489
 WALLER COUNTY LINE
 TO FM 1093
 0+00.00
 TO
 STA 94+00.00

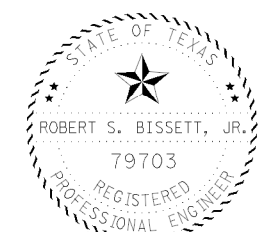
SHEET 1 OF 2



CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST		COUNTY	SHEET NO.
HOU		HARRIS	51

NOTES:

1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.
2. ANY 4" EDGELINE AND CENTERLINE PAVEMENT MARKINGS WILL BE REPLACED WITH 6" PAVEMENT MARKINGS PER CURRENT TXDOT PAVEMENT MARKING STANDARDS.

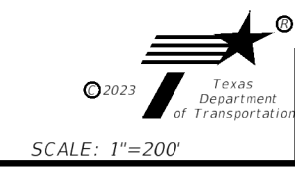


Robert S. Bissett, Jr.
12/13/23

PAVEMENT MARKING LAYOUT

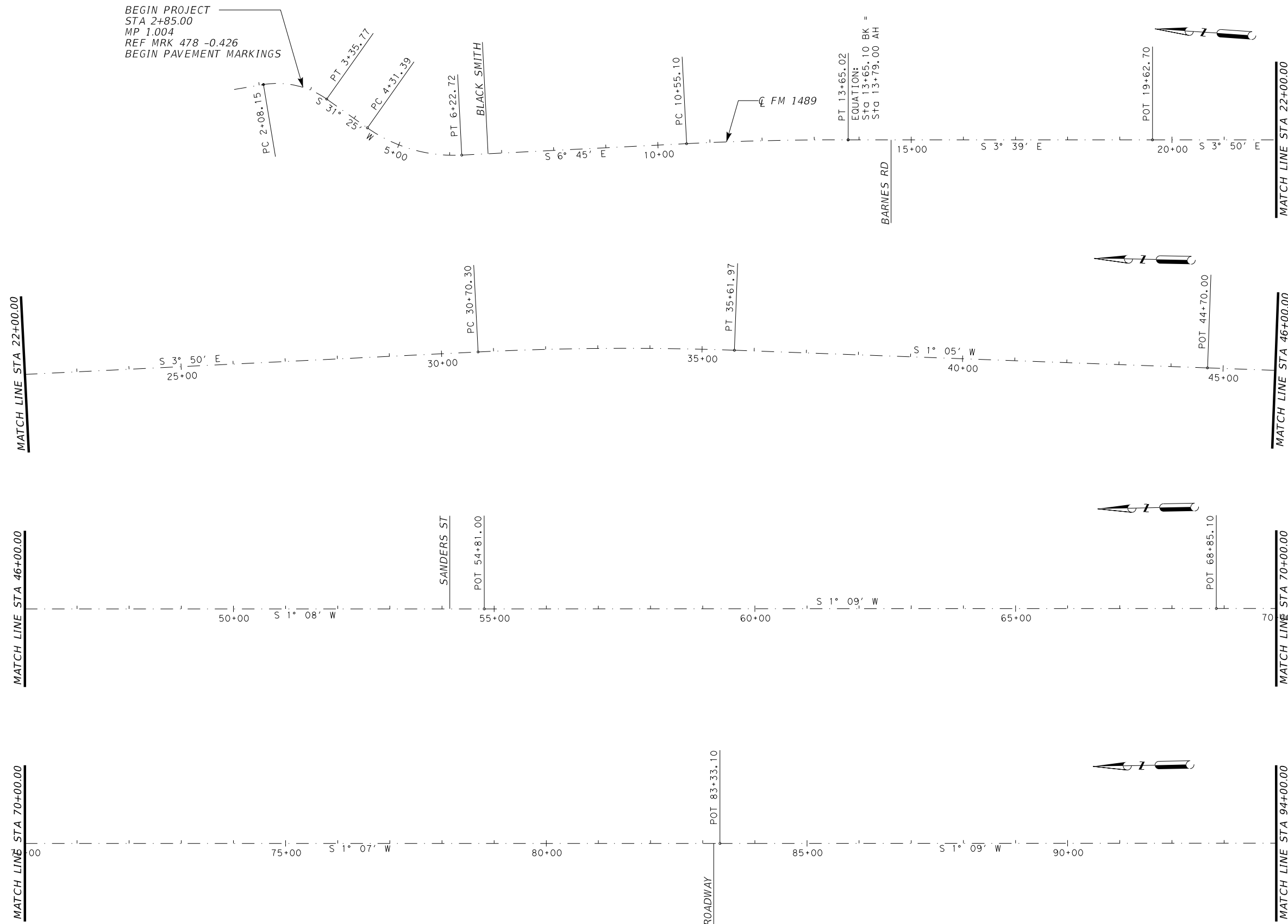
FM 1489
WALLER COUNTY LINE TO FM 1093
STA 94+00.00 TO STA 186+38.95

SHEET 2 OF 2



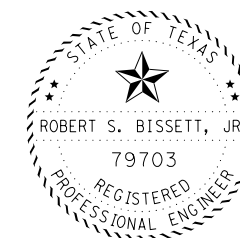
CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST	COUNTY		SHEET NO.
HOU	HARRIS		52

BEGIN PROJECT
 STA 2+85.00
 MP 1.004
 REF MRK 478 -0.426
 BEGIN PAVEMENT MARKINGS



NOTES:

1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.



Robert S. Bissett, Jr.
 02/13/24

PAVEMENT MARKING LAYOUT

FM 1489

FM 1093
 TO FM 1952

STA 2+85.00
 TO
 STA 94+00.00

SHEET 1 OF 5

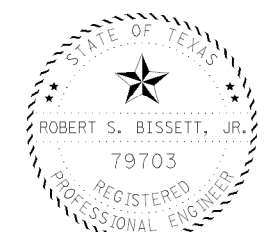
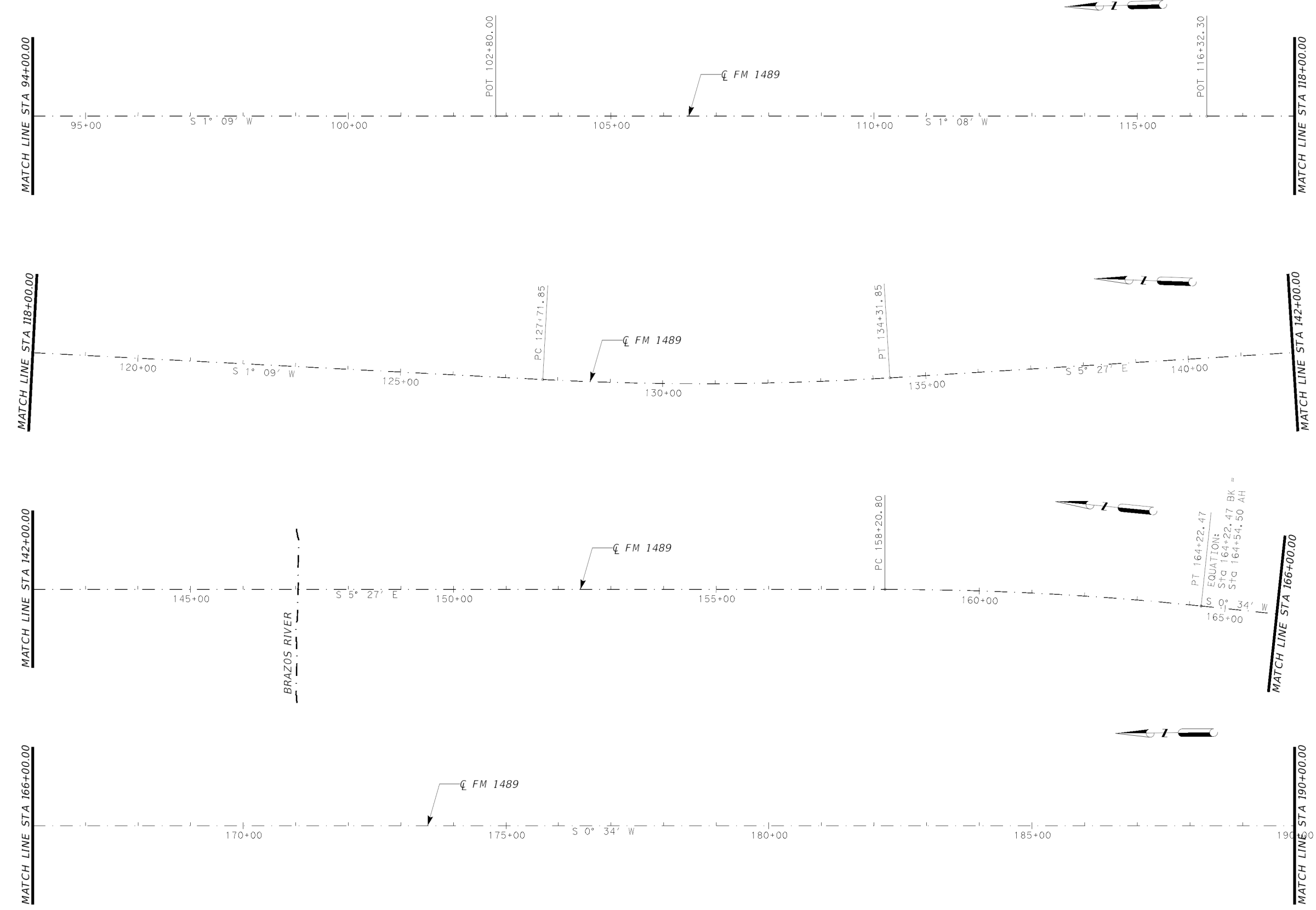


SCALE: 1"=200'

CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST	COUNTY		SHEET NO.
HOU	HARRIS		53

NOTES:

1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.



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12/13/23

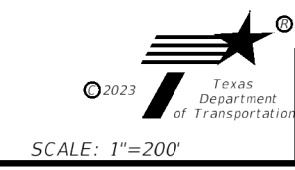
PAVEMENT MARKING LAYOUT

FM 1489

FM 1093
TO FM 1952

STA 94+00.00
TO
STA 190+00.00

SHEET 2 OF 5



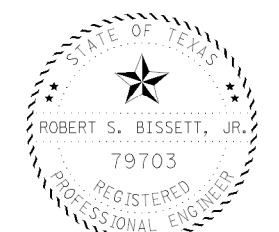
CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST	COUNTY		SHEET NO.
HOU	HARRIS		54

NOTES:

1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.



AT-GRADE RAILROAD CROSSING
 BNSF RAILWAY COMPANY
 DOT NO. 022708X
 MP: 76.557
 GALVESTON SUBDIVISION



Robert S. Bissett, Jr.
 12/13/23

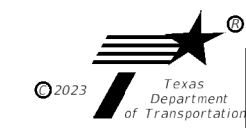
PAVEMENT MARKING LAYOUT

FM 1489

FM 1093
 TO FM 1952

STA 190+00.00
 TO
 STA 286+00.00

SHEET 3 OF 5

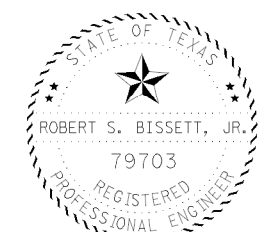
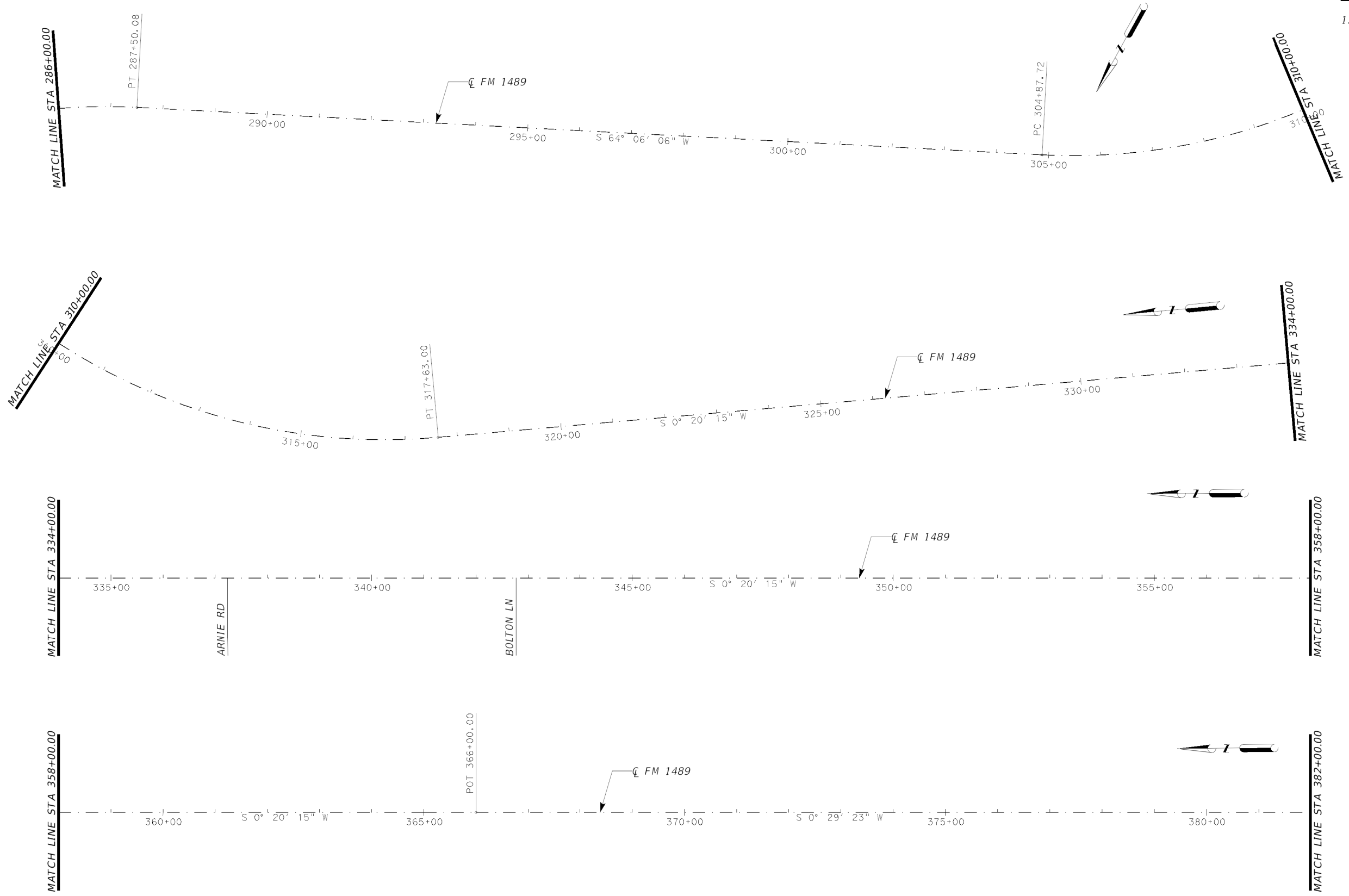


SCALE: 1"=200'

CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST		COUNTY	SHEET NO.
HOU		HARRIS	55

NOTES:

1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.



Robert S. Bissett, Jr.
12/13/23

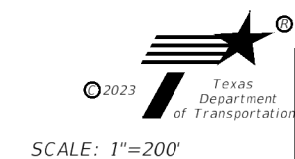
PAVEMENT MARKING LAYOUT

FM 1489

FM 1093
TO FM 1952

STA 286+00.00
TO
STA 382+00.00

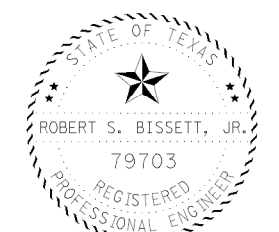
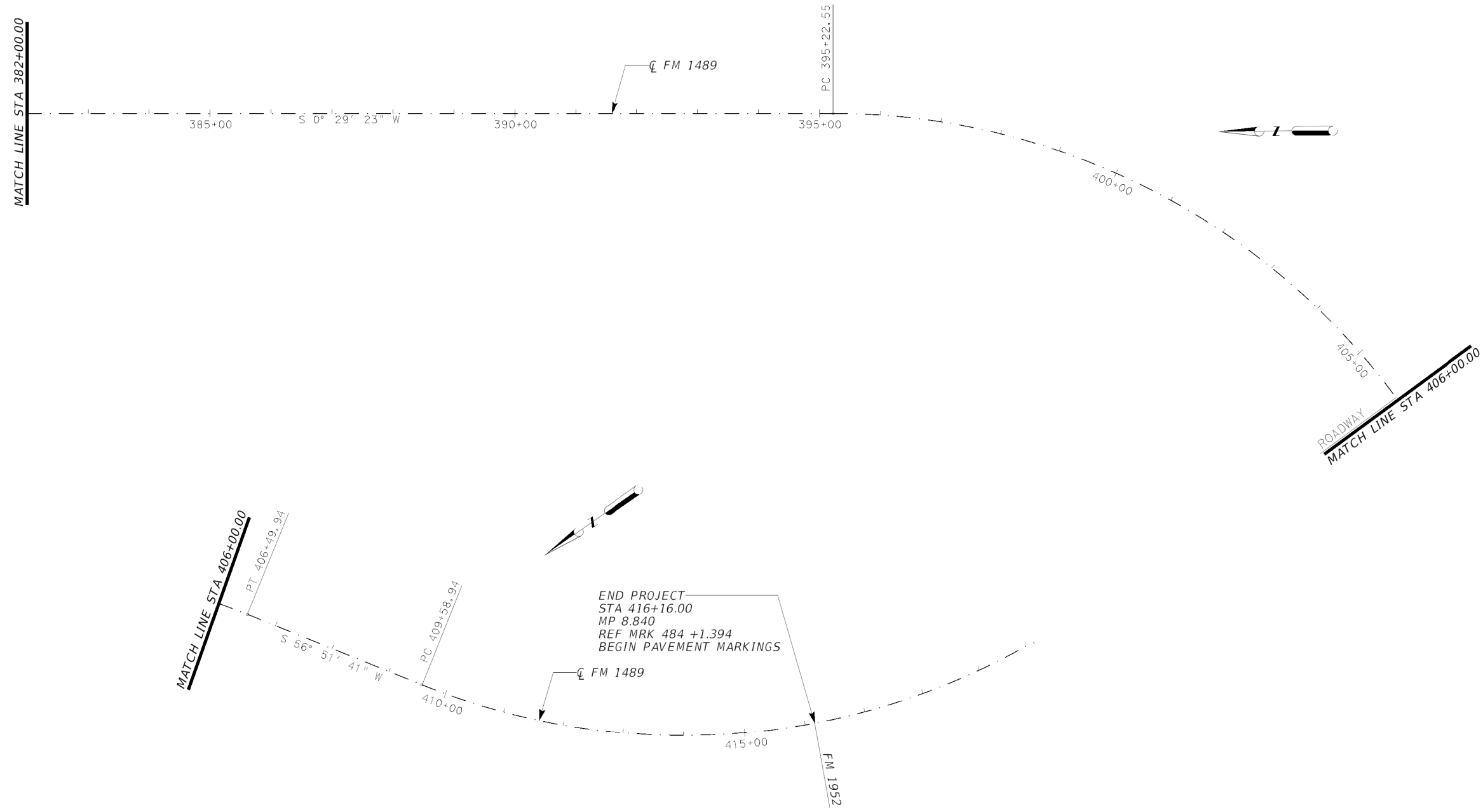
SHEET 4 OF 5



CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST	COUNTY		SHEET NO.
HOU	HARRIS		56

NOTES:

1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.



Robert S. Bissett, Jr.
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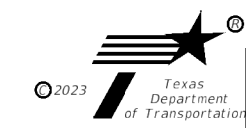
PAVEMENT MARKING LAYOUT

FM 1489

FM 1093
TO FM 1952

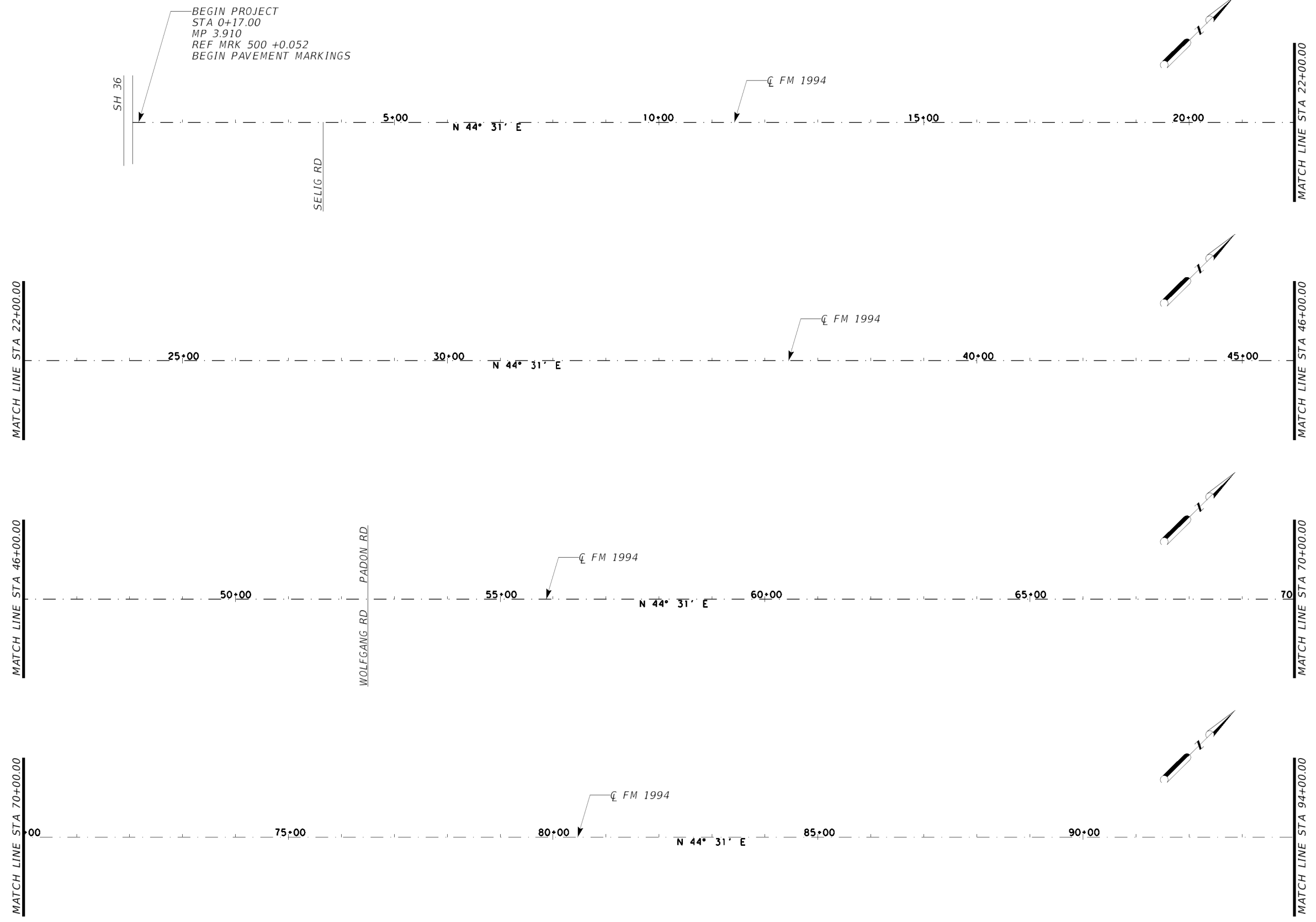
STA 382+00.00
TO
STA 416+16.00

SHEET 5 OF 5



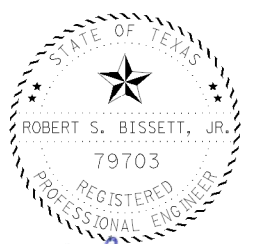
SCALE: 1"=200'

CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST	COUNTY		SHEET NO.
HOU	HARRIS		57



BEGIN PROJECT
 STA 0+17.00
 MP 3.910
 REF MRK 500 +0.052
 BEGIN PAVEMENT MARKINGS

NOTES:
 1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.



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 12/13/23

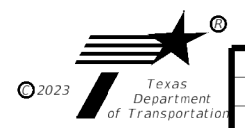
PAVEMENT MARKING LAYOUT

FM 1994

SH 36
 TO FM 361

STA 0+17.00
 TO
 STA 94+00.00

SHEET 1 OF 3

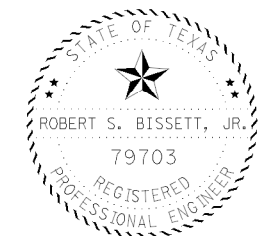
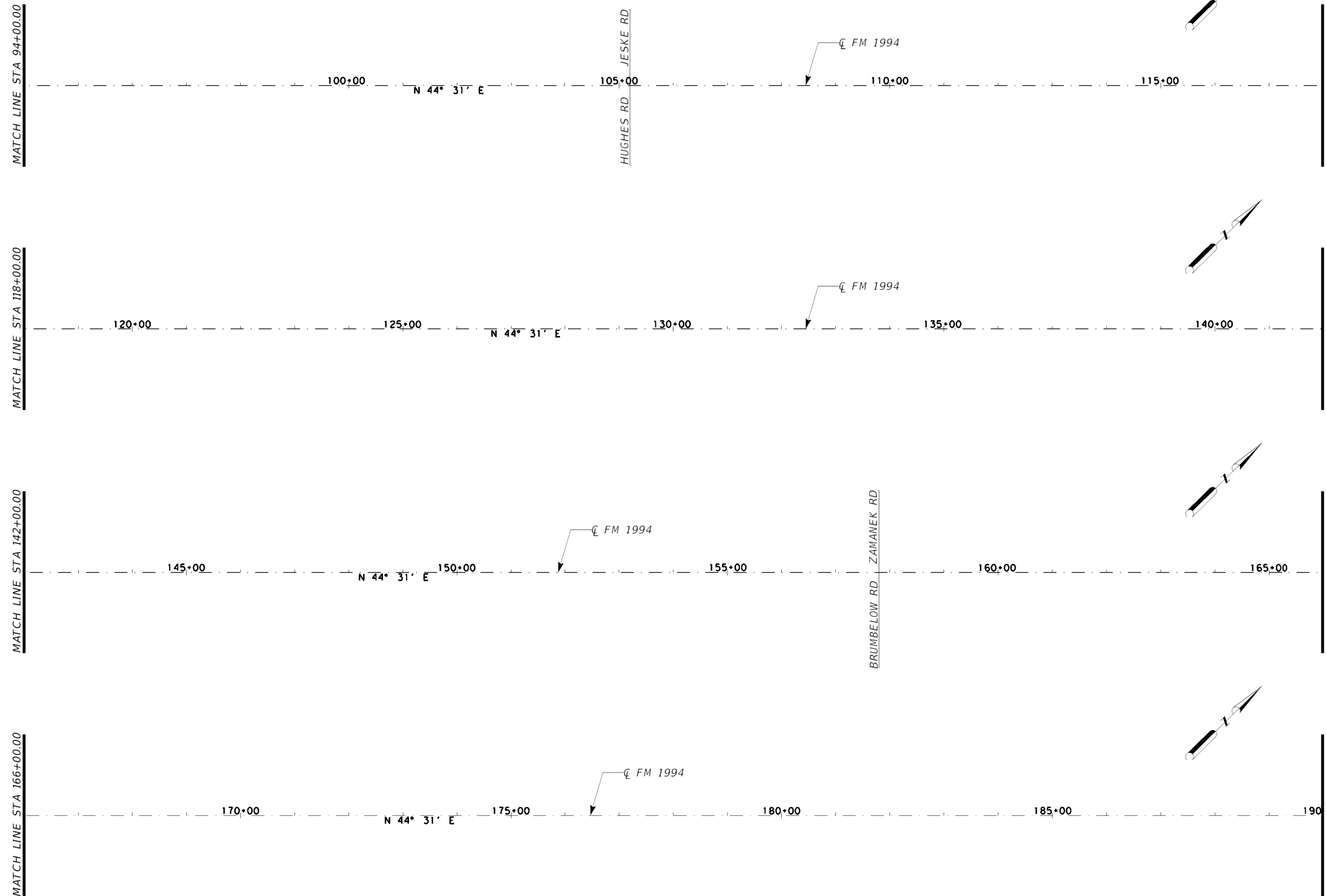


SCALE: 1"=200'

CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST	COUNTY		SHEET NO.
HOU	HARRIS		58

NOTES:

1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.



Robert S. Bissett, Jr.
12/13/23

PAVEMENT MARKING LAYOUT

FM 1994

SH 36
TO FM 361

STA 94+00.00
TO
STA 190+00.00

SHEET 1 OF 3

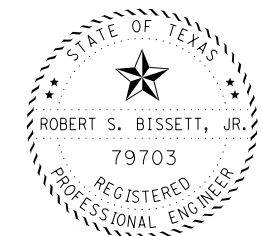
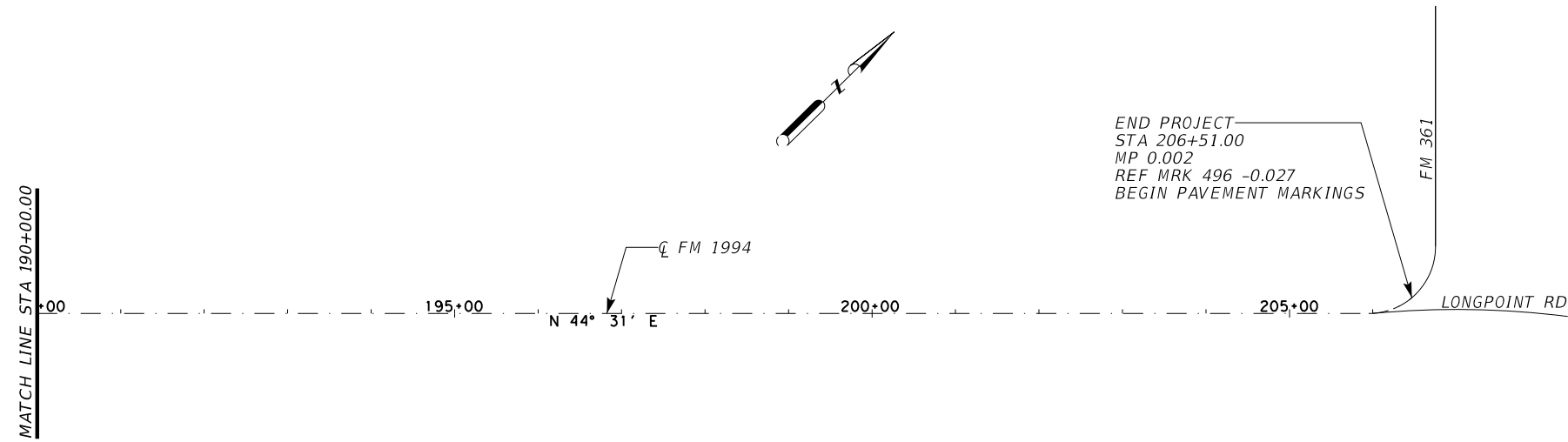


SCALE: 1"=200'

CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST	COUNTY		SHEET NO.
HOU	HARRIS		59

NOTES:

1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.



Robert S. Bissett, Jr.
02/13/24

PAVEMENT MARKING LAYOUT

FM 1994

SH 36
TO FM 361

STA 190+00.00
TO
STA 206+51.00

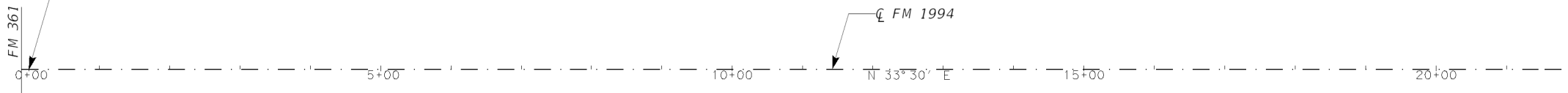
SHEET 3 OF 3



SCALE: 1"=200'

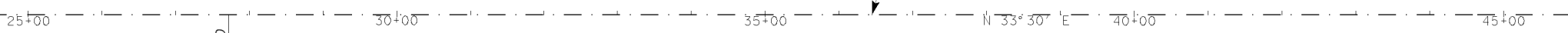
CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST	COUNTY		SHEET NO.
HOU	HARRIS		60

BEGIN PROJECT
 STA 0+00.00
 MP 3.685
 REF MRK 494 +1.913
 BEGIN PAVEMENT MARKINGS



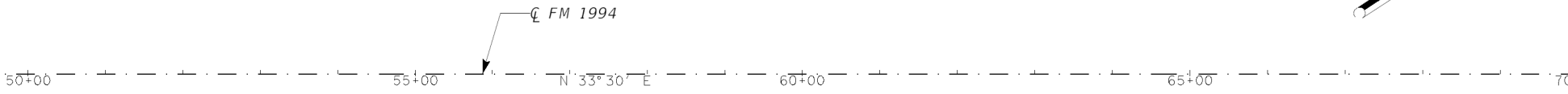
MATCH LINE STA 22+00.00

MATCH LINE STA 22+00.00



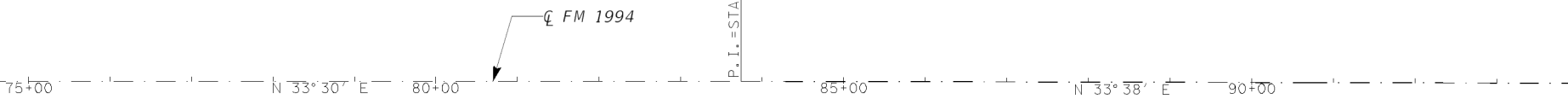
MATCH LINE STA 46+00.00

MATCH LINE STA 46+00.00



MATCH LINE STA 70+00.00

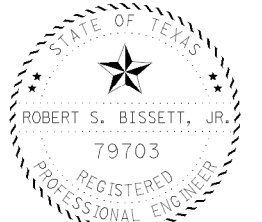
MATCH LINE STA 70+00.00



MATCH LINE STA 94+00.00

NOTES:

1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.



Robert S. Bissett, Jr.
 12/13/23

PAVEMENT MARKING LAYOUT

FM 1994

FM 361
 TO FM 762

STA 0+00.00
 TO
 STA 94+00.00

SHEET 1 OF 3



SCALE: 1"=200'

CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST	COUNTY		SHEET NO.
HOU	HARRIS		61

NOTES:

1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.

MATCH LINE STA 94+00.00

95+00

100+00 N 33° 38' E

105+00

110+00

115+00

MATCH LINE STA 118+00.00

BIG CREEK

MATCH LINE STA 118+00.00

120+00

125+00

130+00 N 33° 38' E

P.I. = STA 130+51.2

135+00 N 33° 46' E

140+00

MATCH LINE STA 142+00.00

GLESS BIG CREEK RD

MATCH LINE STA 142+00.00

145+00

150+00

155+00 N 33° 46' E

160+00

165+00

MATCH LINE STA 166+00.00

MATCH LINE STA 166+00.00

170+00

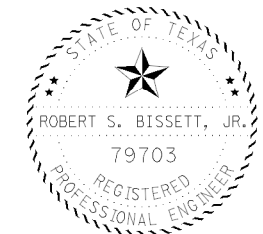
175+00

180+00 N 33° 46' E

185+00

190+00

MATCH LINE STA 190+00.00



Robert S. Bissett, Jr.
12/13/23

PAVEMENT MARKING LAYOUT

FM 1994

FM 361
TO FM 762

STA 94+00.00
TO
STA 190+00.00

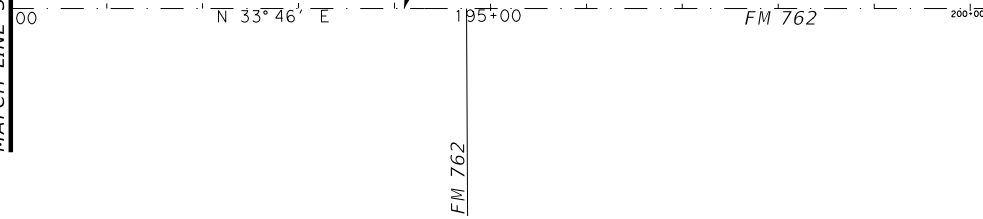
SHEET 2 OF 3



SCALE: 1"=200'

CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST	COUNTY		SHEET NO.
HOU	HARRIS		62

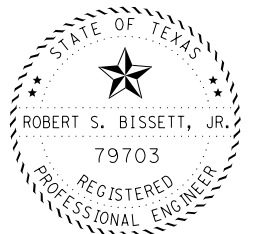
MATCH LINE STA 190+00.00



END PROJECT
 STA 194+10.00
 MP 0.009
 REF MRK 492 -1.115
 BEGIN PAVEMENT MARKINGS

NOTES:

1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.



Robert S. Bissett, Jr.
 02/13/24

**PAVEMENT MARKING
 LAYOUT**

FM 1994

FM 361
TO FM 762

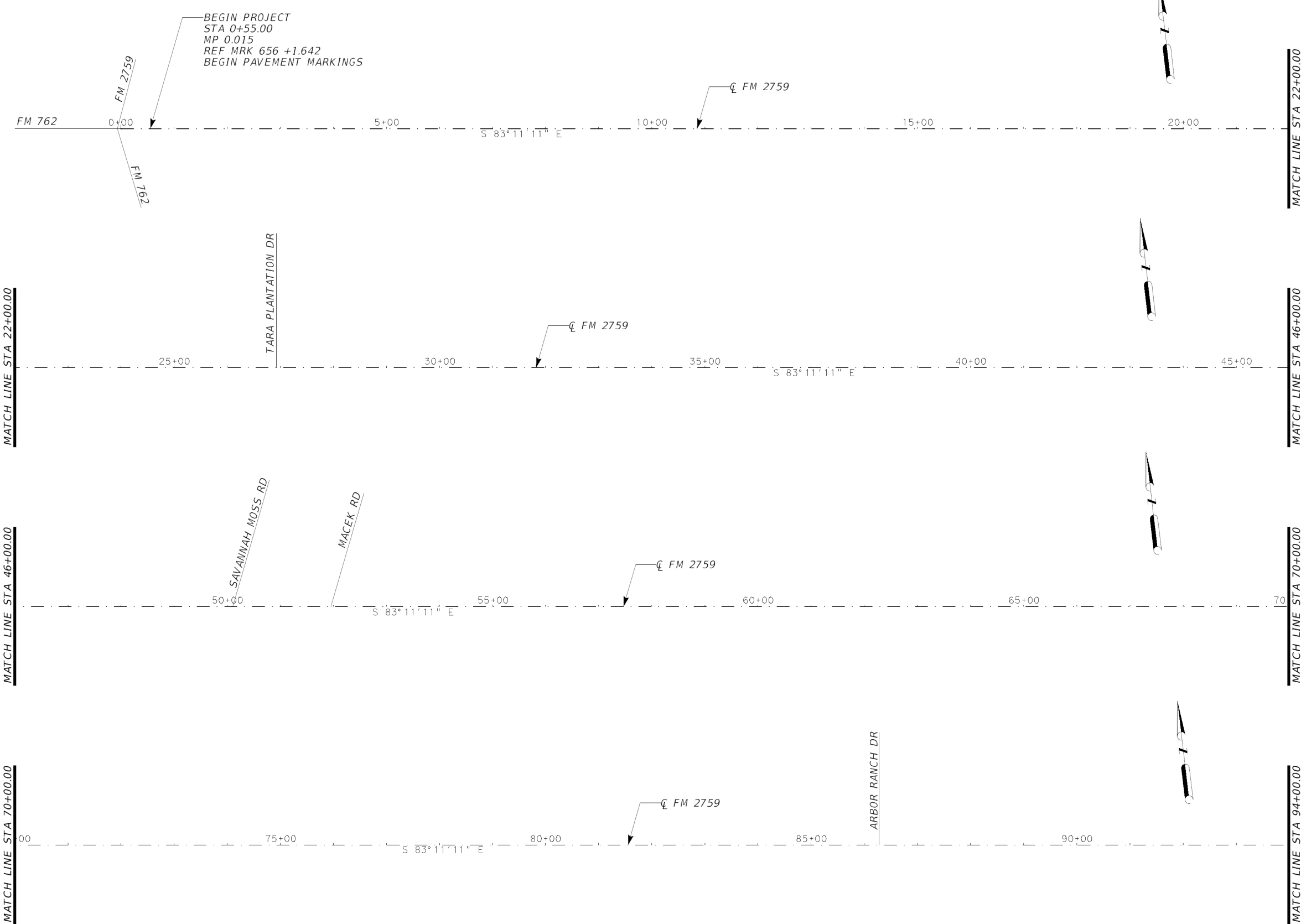
STA 190+00.00
TO
STA 194+10.00

SHEET 3 OF 3

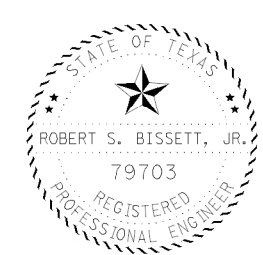


SCALE: 1"=200'

CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST	COUNTY		SHEET NO.
HOU	HARRIS		63



NOTES:
 1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.

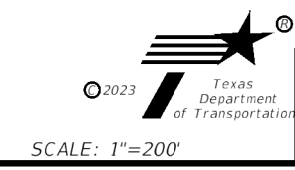


Robert S. Bissett, Jr.
 12/13/23

PAVEMENT MARKING LAYOUT

FM 2759
 FM 762
 TO THOMPSONS
 STA 0+55.00
 TO
 STA 94+00.00

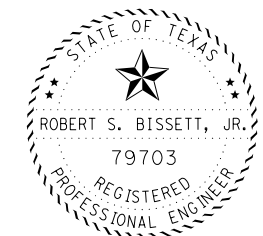
SHEET 1 OF 4



CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST		COUNTY	SHEET NO.
HOU		HARRIS	64

NOTES:

1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.



Robert S. Bissett, Jr.
02/14/24

PAVEMENT MARKING LAYOUT

FM 2759

FM 762
TO THOMPSONS

STA 94+00.00
TO
STA 190+00.00

SHEET 2 OF 4



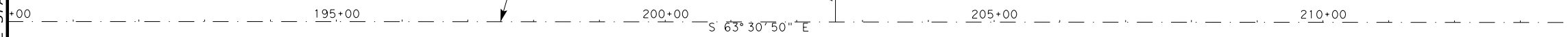
SCALE: 1"=200'

CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST		COUNTY	SHEET NO.
HOU		HARRIS	65

NOTES:

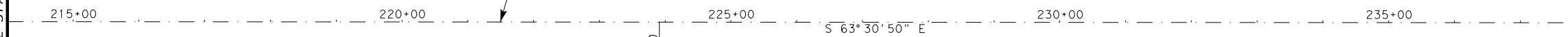
1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.

MATCH LINE STA 190+00.00



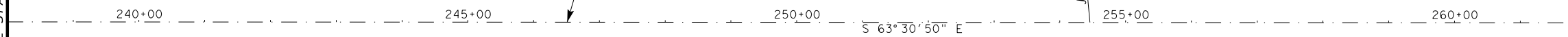
MATCH LINE STA 214+00.00

MATCH LINE STA 214+00.00



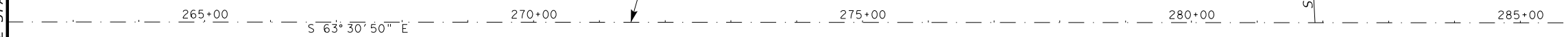
MATCH LINE STA 238+00.00

MATCH LINE STA 238+00.00

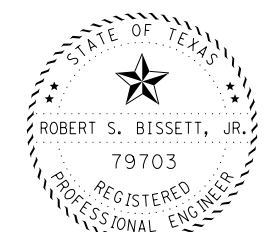


MATCH LINE STA 262+00.00

MATCH LINE STA 262+00.00



MATCH LINE STA 286+00.00



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02/14/24

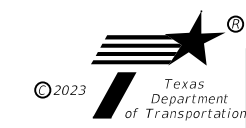
PAVEMENT MARKING LAYOUT

FM 2759

FM 762
TO THOMPSONS

STA 190+00.00
TO
STA 286+00.00

SHEET 3 OF 4



SCALE: 1"=200'

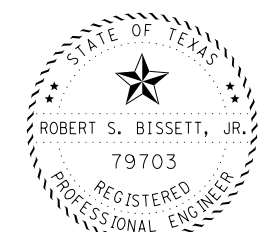
CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST		COUNTY	SHEET NO.
HOU		HARRIS	66

NOTES:

1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.



END PROJECT
 STA 387+00.00
 MP 7.334
 REF MRK 664 +0.830
 BEGIN PAVEMENT MARKINGS

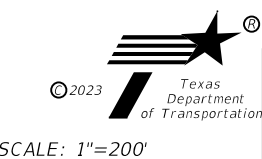


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 02/13/24

PAVEMENT MARKING LAYOUT

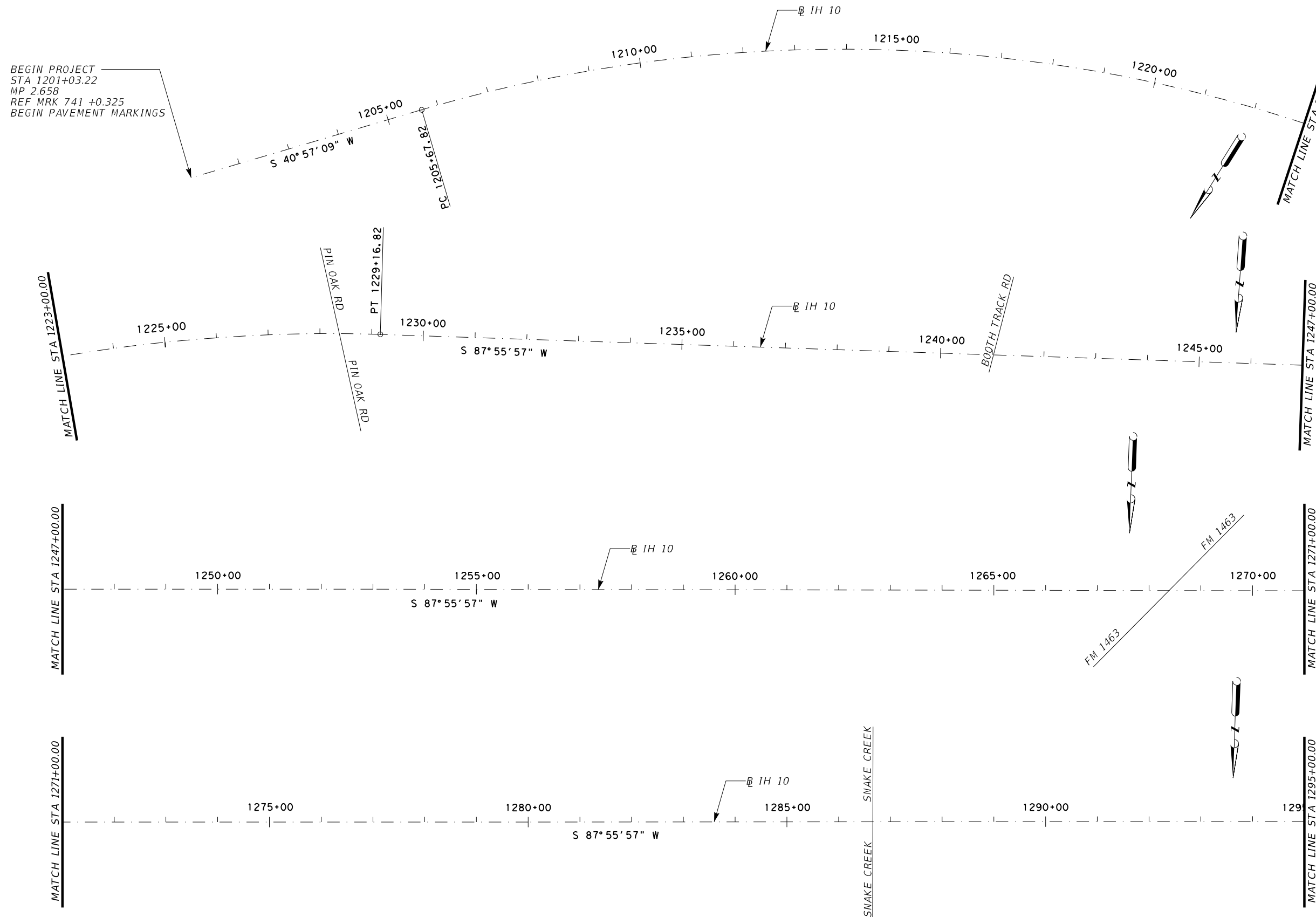
FM 2759
 FM 762
 TO THOMPSONS
 STA 286+00.00
 TO
 STA 387+00.00

SHEET 4 OF 4

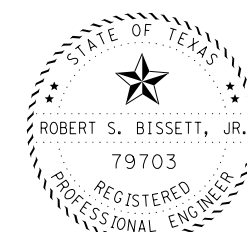


CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST		COUNTY	SHEET NO.
HOU		HARRIS	67

BEGIN PROJECT
 STA 1201+03.22
 MP 2.658
 REF MRK 741 +0.325
 BEGIN PAVEMENT MARKINGS



- NOTES:**
1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.
 2. INSTALL PAVEMENT MARKINGS ON THE IH 10 MAINLANES AND RAMPS.

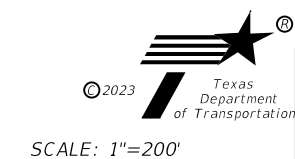


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 02/13/24

PAVEMENT MARKING LAYOUT

IH 10 MAINLANES
 HARRIS COUNTY LINE
 TO WALLER COUNTY LINE
 STA 1201+03.22
 TO
 STA 1295+00.00

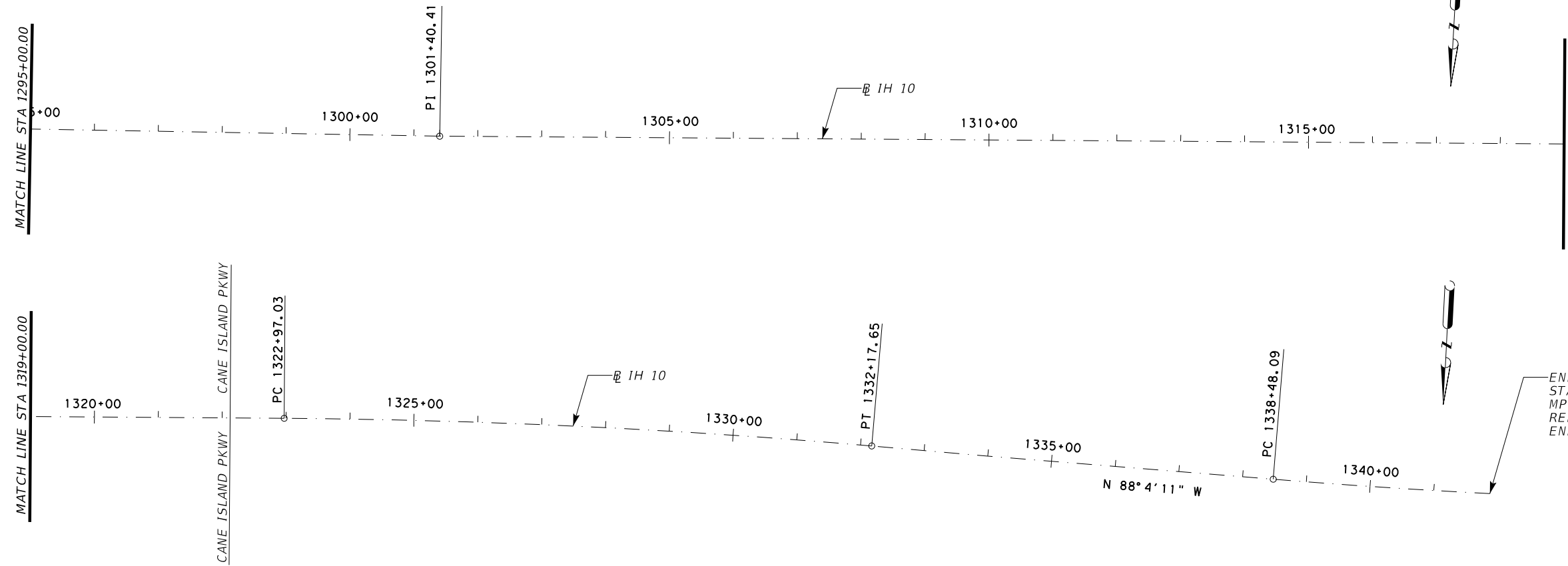
SHEET 1 OF 2



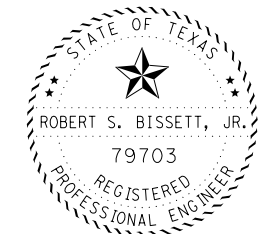
CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST		COUNTY	SHEET NO.
HOU		HARRIS	68

NOTES:

1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.
2. INSTALL PAVEMENT MARKINGS ON THE IH 10 MAINLANES AND RAMPS.



END PROJECT
 STA 1341+87.74
 MP 0.000
 REF MRK 738 +0.667
 END PAVEMENT MARKINGS

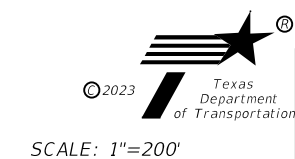


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 02/13/24

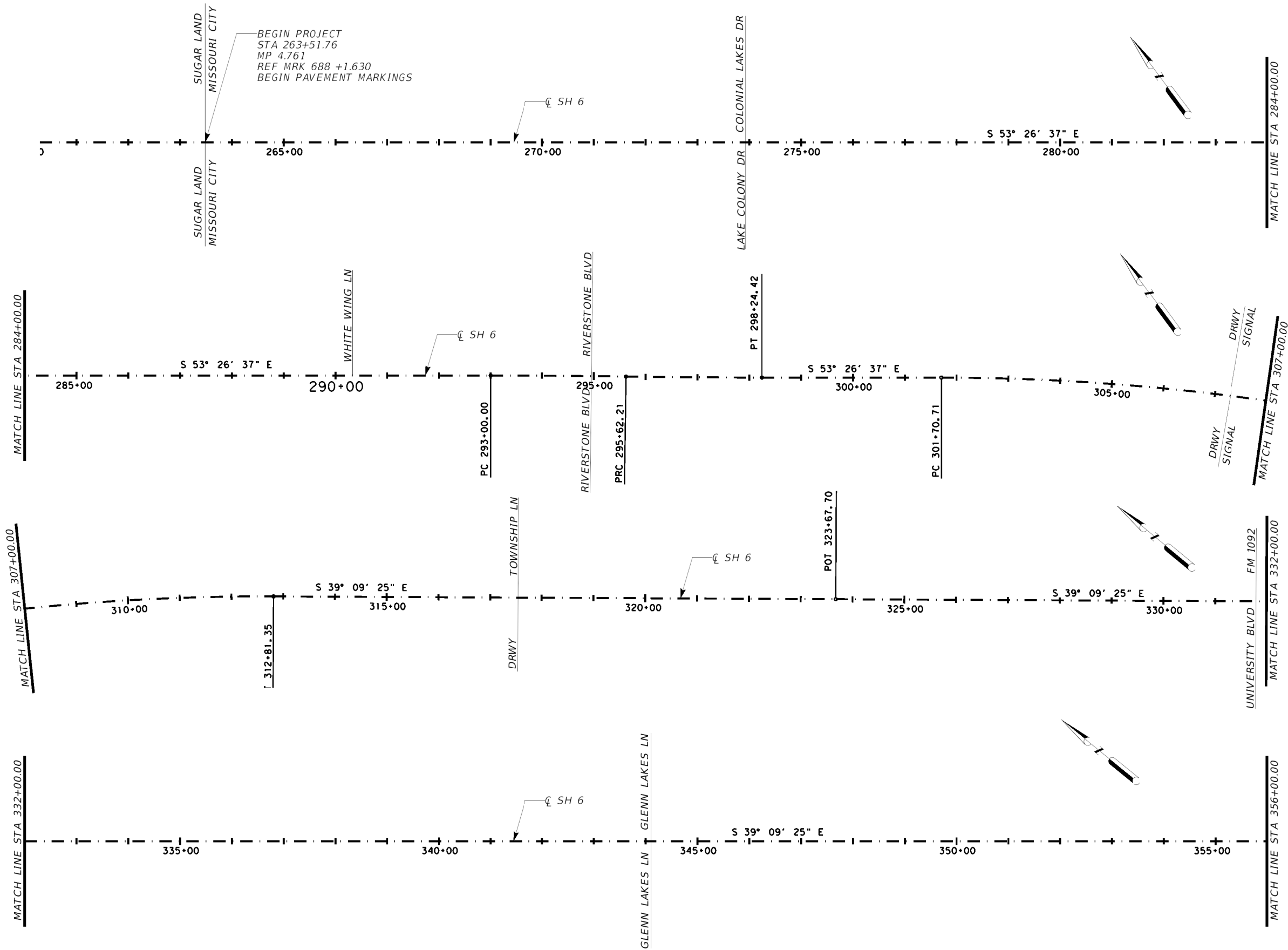
PAVEMENT MARKING LAYOUT

IH 10 MAINLANES
 SH 6
 TO HARRIS COUNTY LINE
 STA 1295+00.00
 TO
 STA 1341+87.74

SHEET 2 OF 2



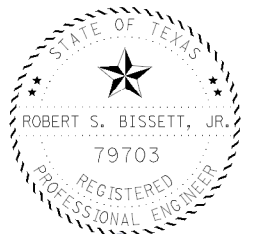
CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST COUNTY			SHEET NO.
HOU HARRIS			69



BEGIN PROJECT
 STA 263+51.76
 MP 4.761
 REF MRK 688 +1.630
 BEGIN PAVEMENT MARKINGS

NOTES:

1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.



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 12/13/23

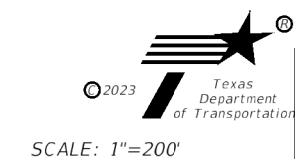
PAVEMENT MARKING LAYOUT

SH 6

MISSOURI CITY LIMITS
 TO BRAZORIA COUNTY LINE

STA 263+51.76
 TO
 STA 356+00.00

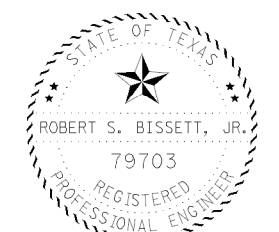
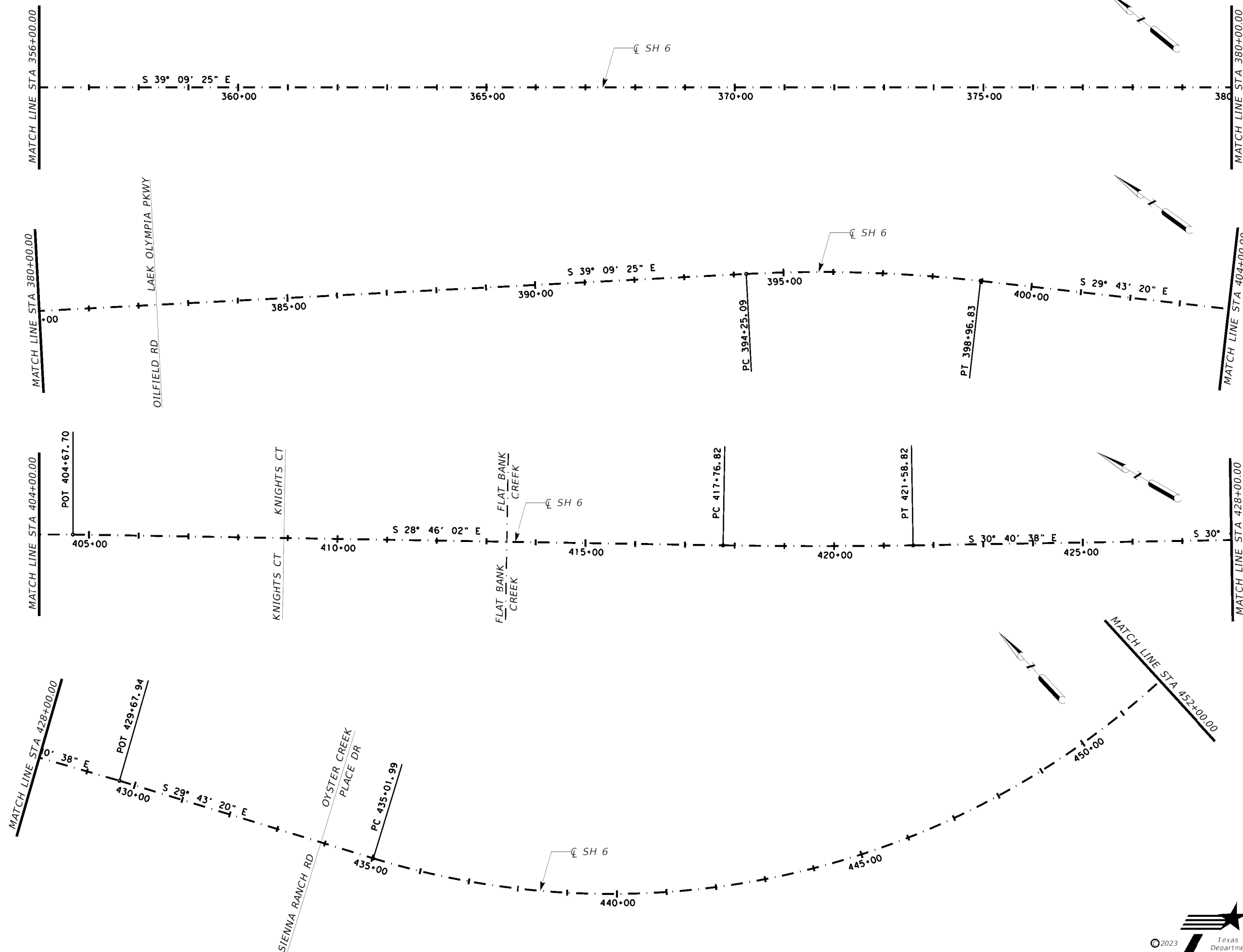
SHEET 1 OF 6



CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST		COUNTY	SHEET NO.
HOU		HARRIS	70

NOTES:

1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.



Robert S. Bissett, Jr.
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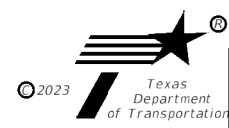
PAVEMENT MARKING LAYOUT

SH 6

MISSOURI CITY LIMITS TO BRAZORIA COUNTY LINE

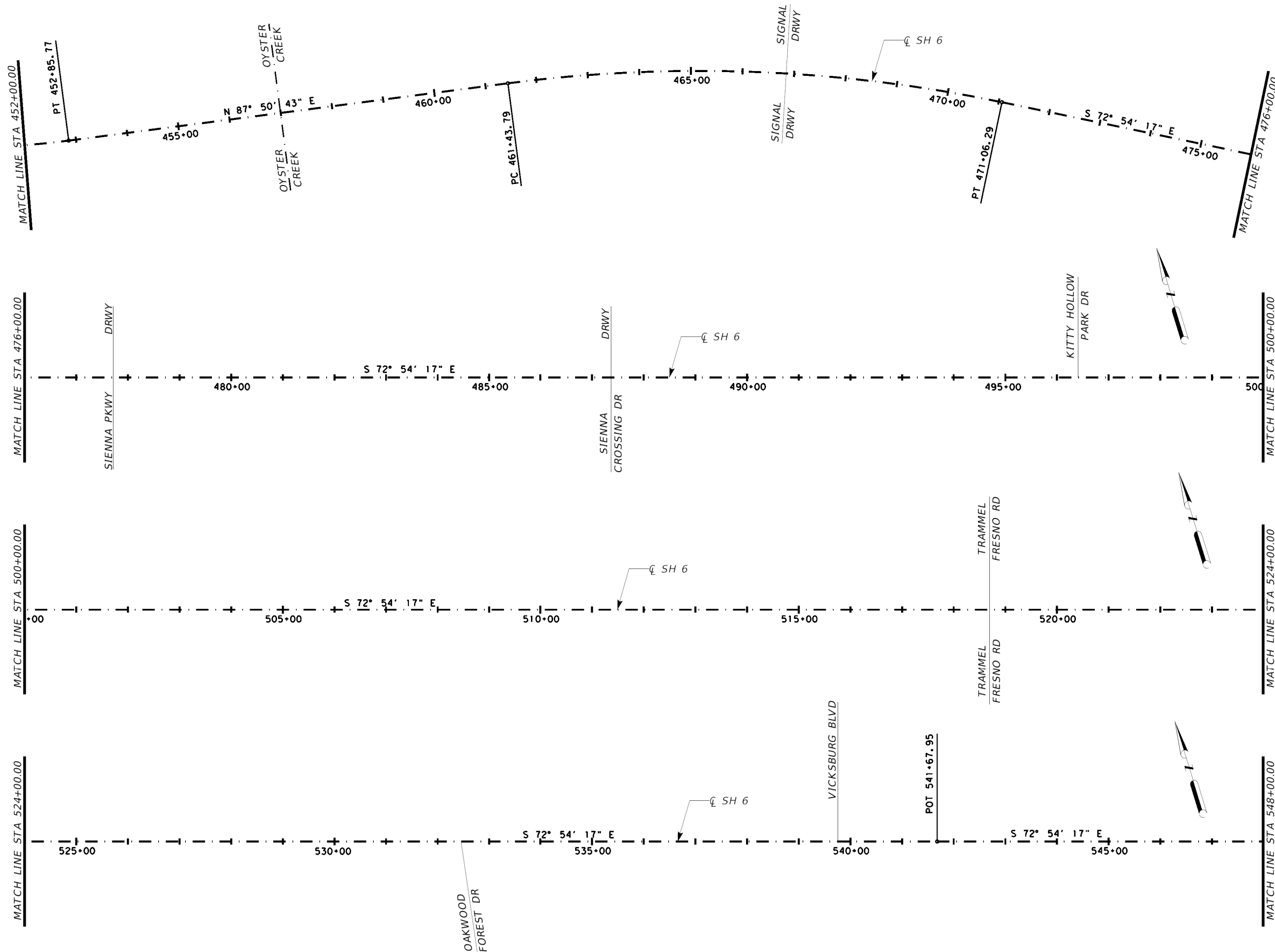
STA 356+00.00
TO
STA 452+00.00

SHEET 2 OF 6

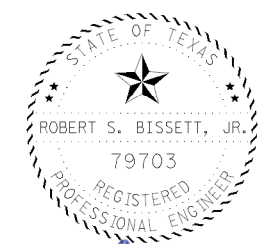


SCALE: 1"=200'

CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST	COUNTY		SHEET NO.
HOU	HARRIS		71



NOTES:
 1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.



Robert S. Bissett, Jr.
 12/13/23

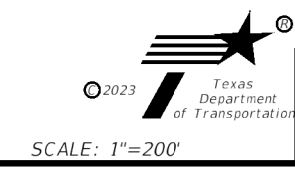
PAVEMENT MARKING LAYOUT

SH 6

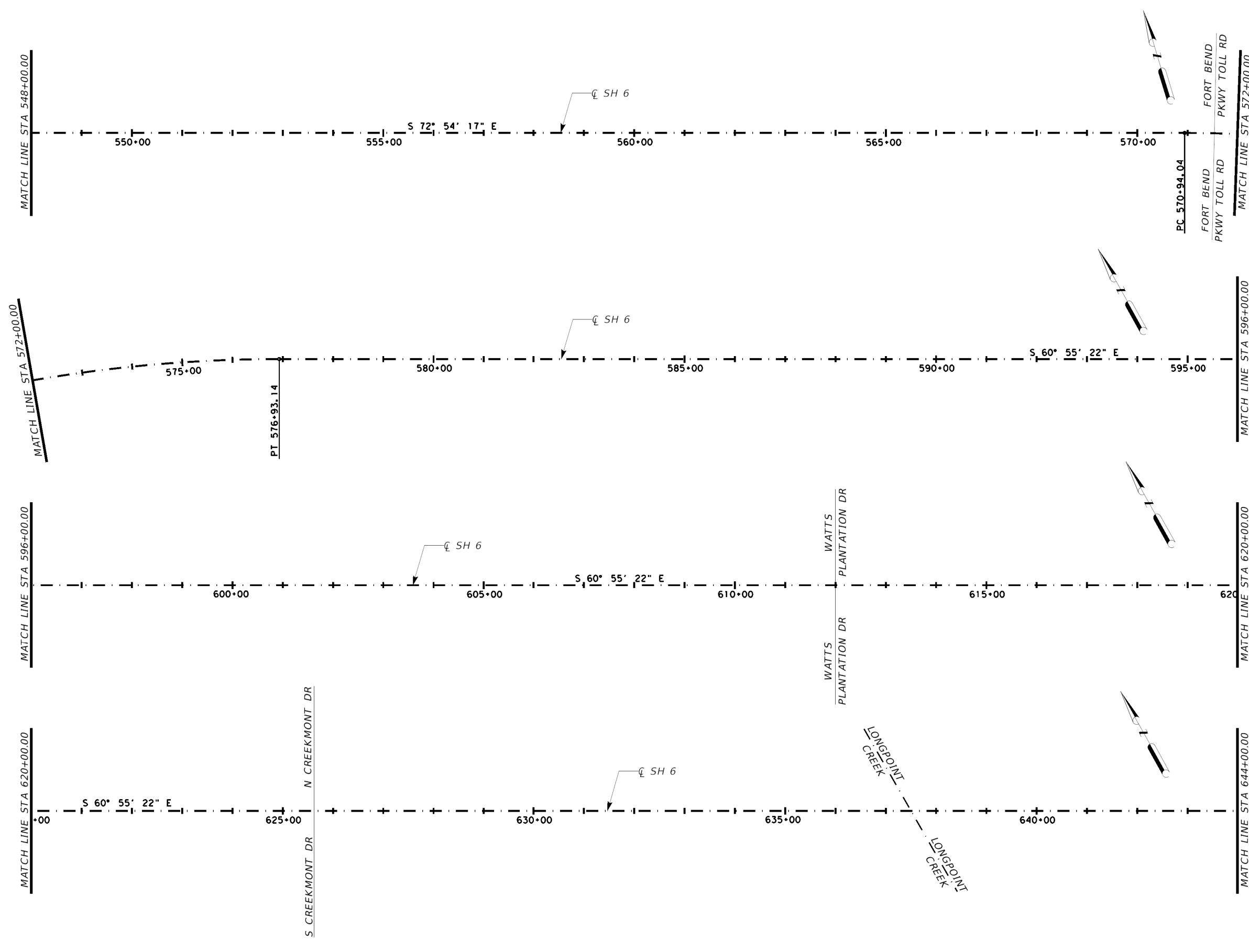
MISSOURI CITY LIMITS TO BRAZORIA COUNTY LINE

STA 452+00.00
 TO
 STA 548+00.00

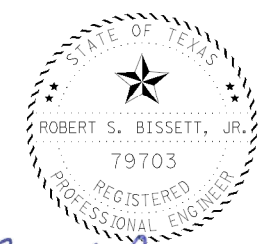
SHEET 3 OF 6



CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST		COUNTY	SHEET NO.
HOU		HARRIS	72



NOTES:
 1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.



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 12/13/23

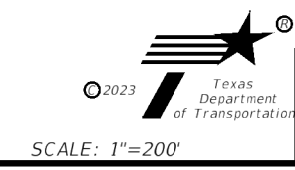
PAVEMENT MARKING LAYOUT

SH 6

MISSOURI CITY LIMITS TO BRAZORIA COUNTY LINE

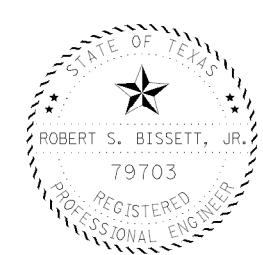
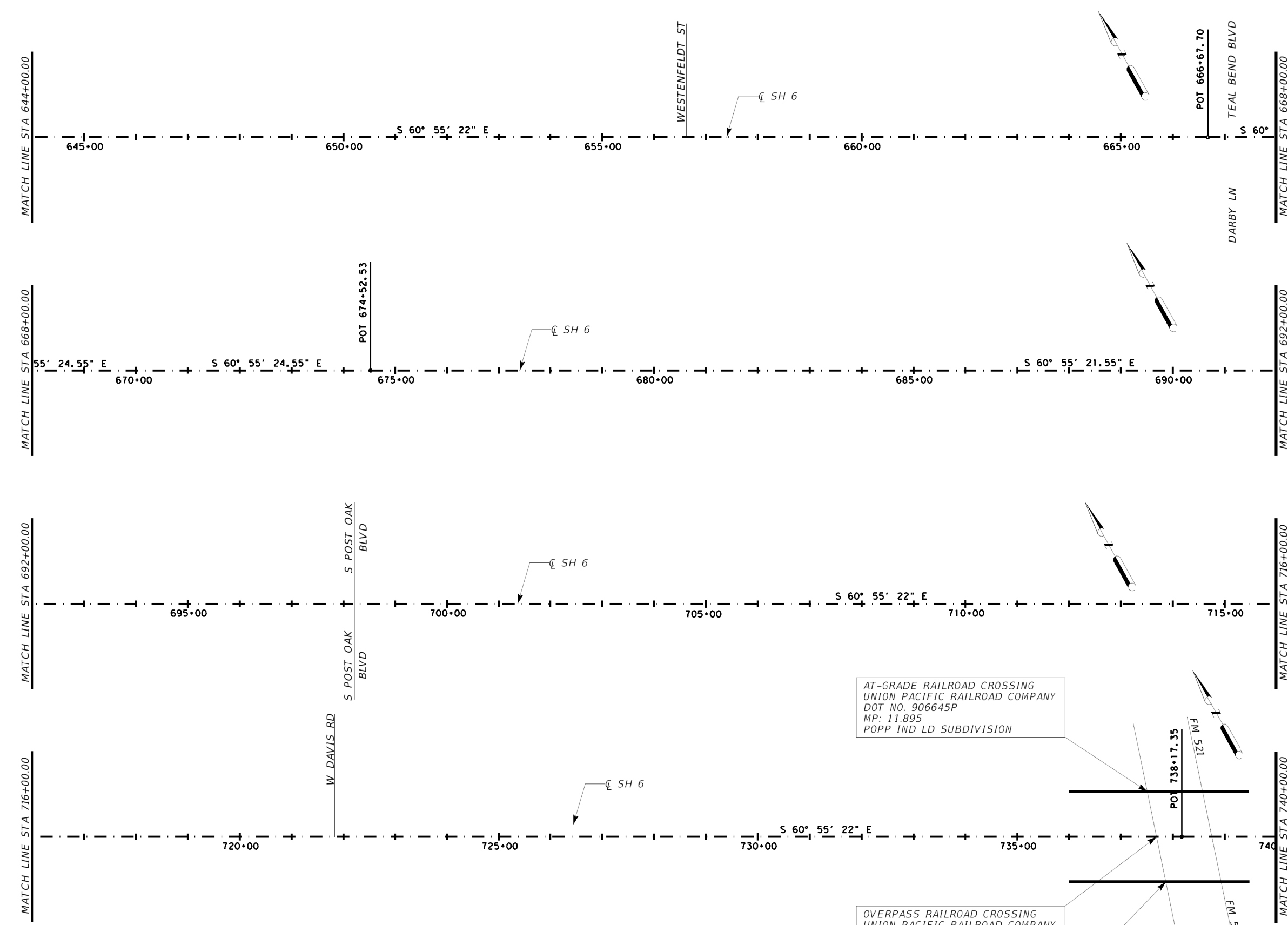
STA 548+00.00
 TO
 STA 644+00.00

SHEET 4 OF 6



CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST		COUNTY	SHEET NO.
HOU		HARRIS	73

NOTES:
 1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.



Robert S. Bissett, Jr.
 12/13/23

PAVEMENT MARKING LAYOUT

SH 6

MISSOURI CITY LIMITS TO BRAZORIA COUNTY LINE

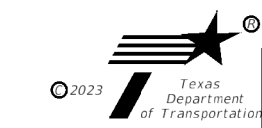
STA 644+00.00
 TO
 STA 740+00.00

SHEET 5 OF 6

AT-GRADE RAILROAD CROSSING
 UNION PACIFIC RAILROAD COMPANY
 DOT NO. 906645P
 MP: 11.895
 POPP IND LD SUBDIVISION

OVERPASS RAILROAD CROSSING
 UNION PACIFIC RAILROAD COMPANY
 DOT NO. 921035U
 MP: 11.911
 POPP IND LD SUBDIVISION

AT-GRADE RAILROAD CROSSING
 UNION PACIFIC RAILROAD COMPANY
 DOT NO. 921033F
 MP: 11.930
 POPP IND LD SUBDIVISION

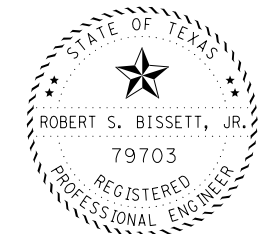
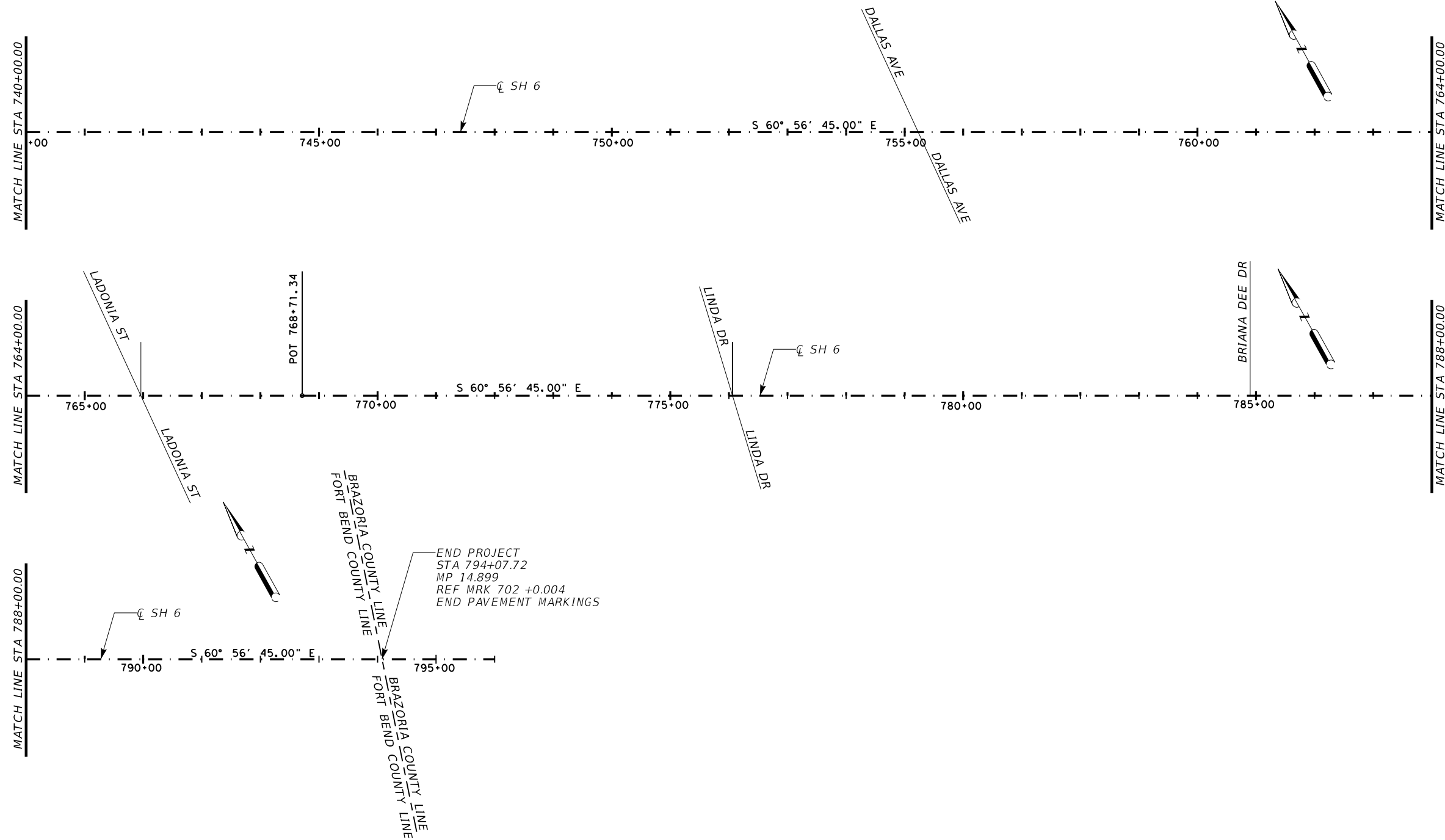


SCALE: 1"=200'

CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST		COUNTY	SHEET NO.
HOU		HARRIS	74

NOTES:

1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.



Robert S. Bissett, Jr.
02/14/24

PAVEMENT MARKING LAYOUT

SH 6
MISSOURI CITY LIMITS TO BRAZORIA COUNTY LINE

STA 740+00.00
TO
STA 794+07.72
(BRAZORIA COUNTY LINE)

SHEET 6 OF 6



SCALE: 1"=200'

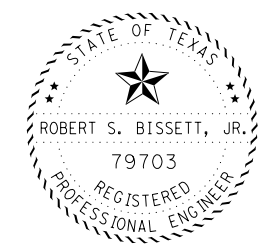
CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST		COUNTY	SHEET NO.
HOU		HARRIS	75

NOTES:

1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.



BEGIN PROJECT
 STA 10+63.24
 MP 19.233
 REF MRK 488 +0.501
 BEGIN PAVEMENT MARKINGS

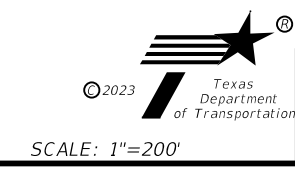


Robert S. Bissett, Jr.
 02/13/24

PAVEMENT MARKING LAYOUT

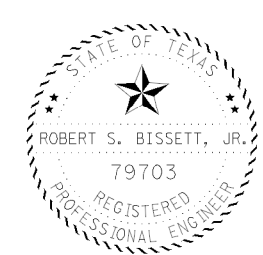
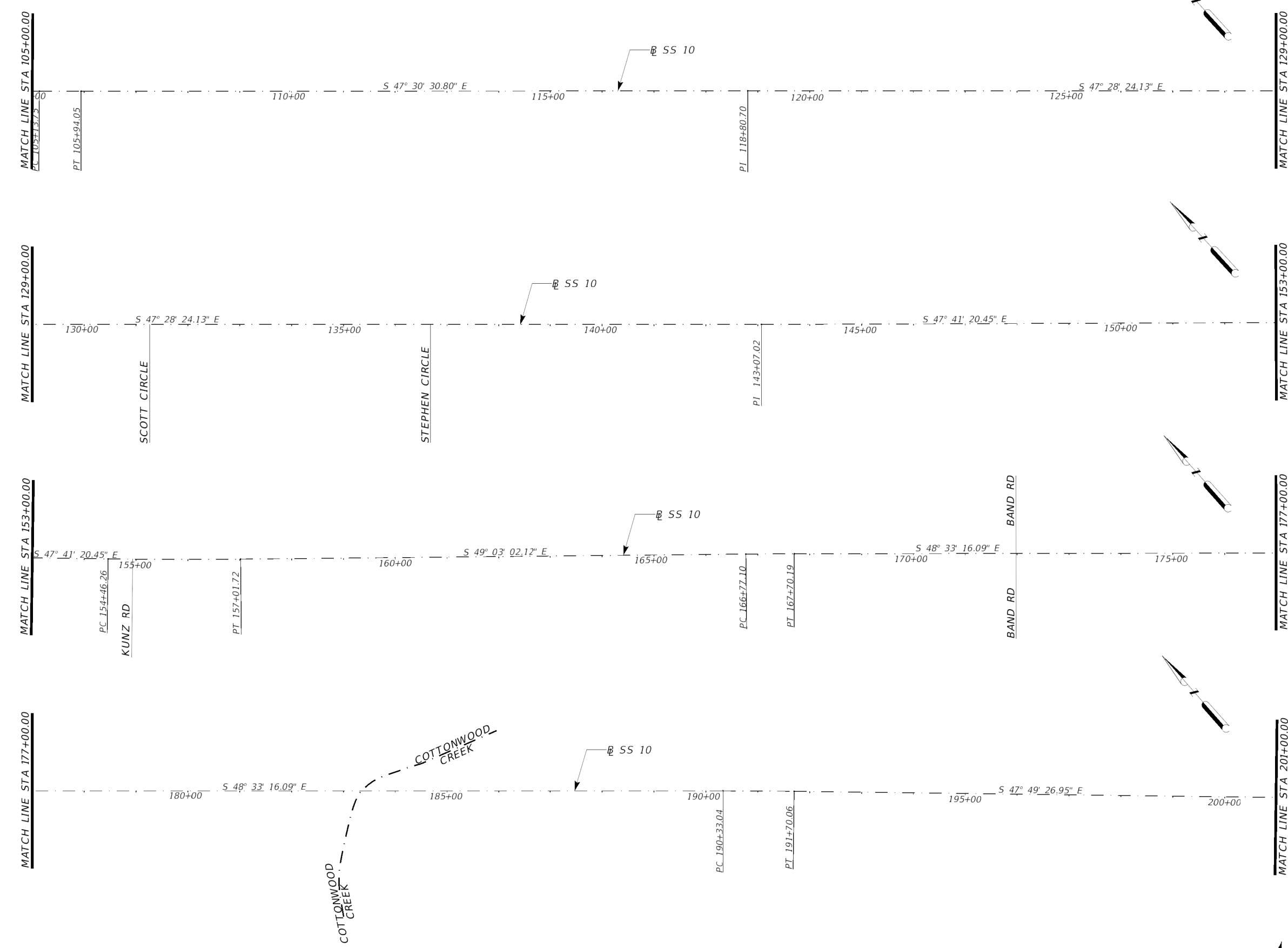
SS 10
 US 59
 TO SH 36
 STA 10+63.24
 TO
 STA 105+00.00

SHEET 1 OF 3



CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST		COUNTY	SHEET NO.
HOU		HARRIS	76

NOTES:
 1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.

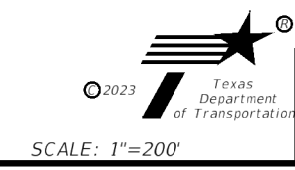


Robert S. Bissett, Jr.
 12/13/23

PAVEMENT MARKING LAYOUT

SS 10
 US 59
 TO SH 36
 STA 105+00.00
 TO
 STA 201+00.00

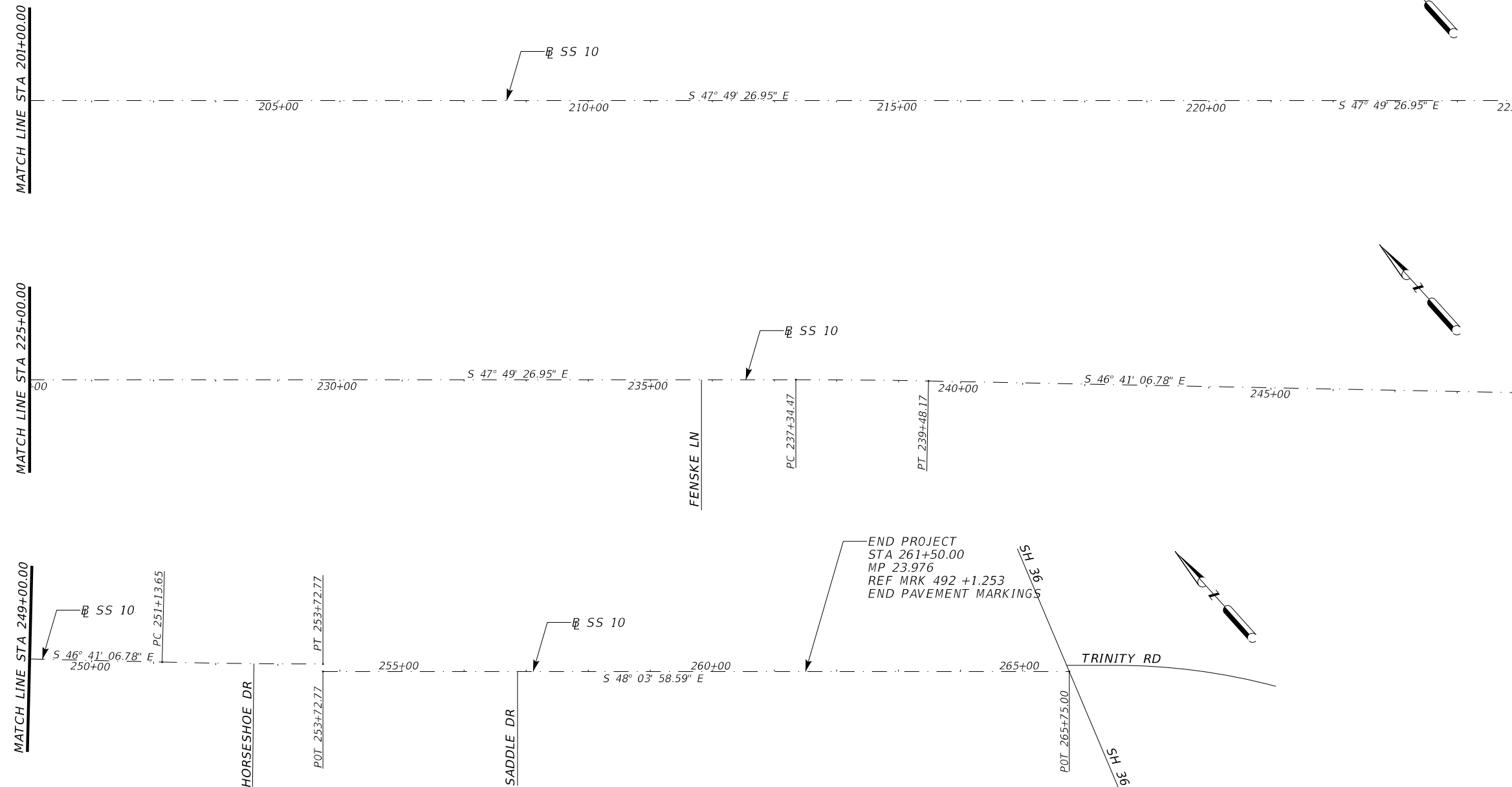
SHEET 2 OF 3



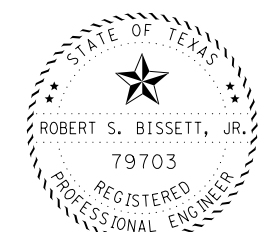
CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST		COUNTY	SHEET NO.
HOU		HARRIS	77

NOTES:

1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.



END PROJECT
 STA 261+50.00
 MP 23.976
 REF MRK 492 +1.253
 END PAVEMENT MARKINGS

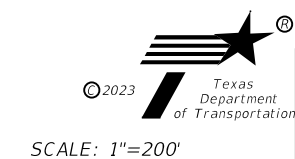


Robert S. Bissett, Jr.
 02/13/24

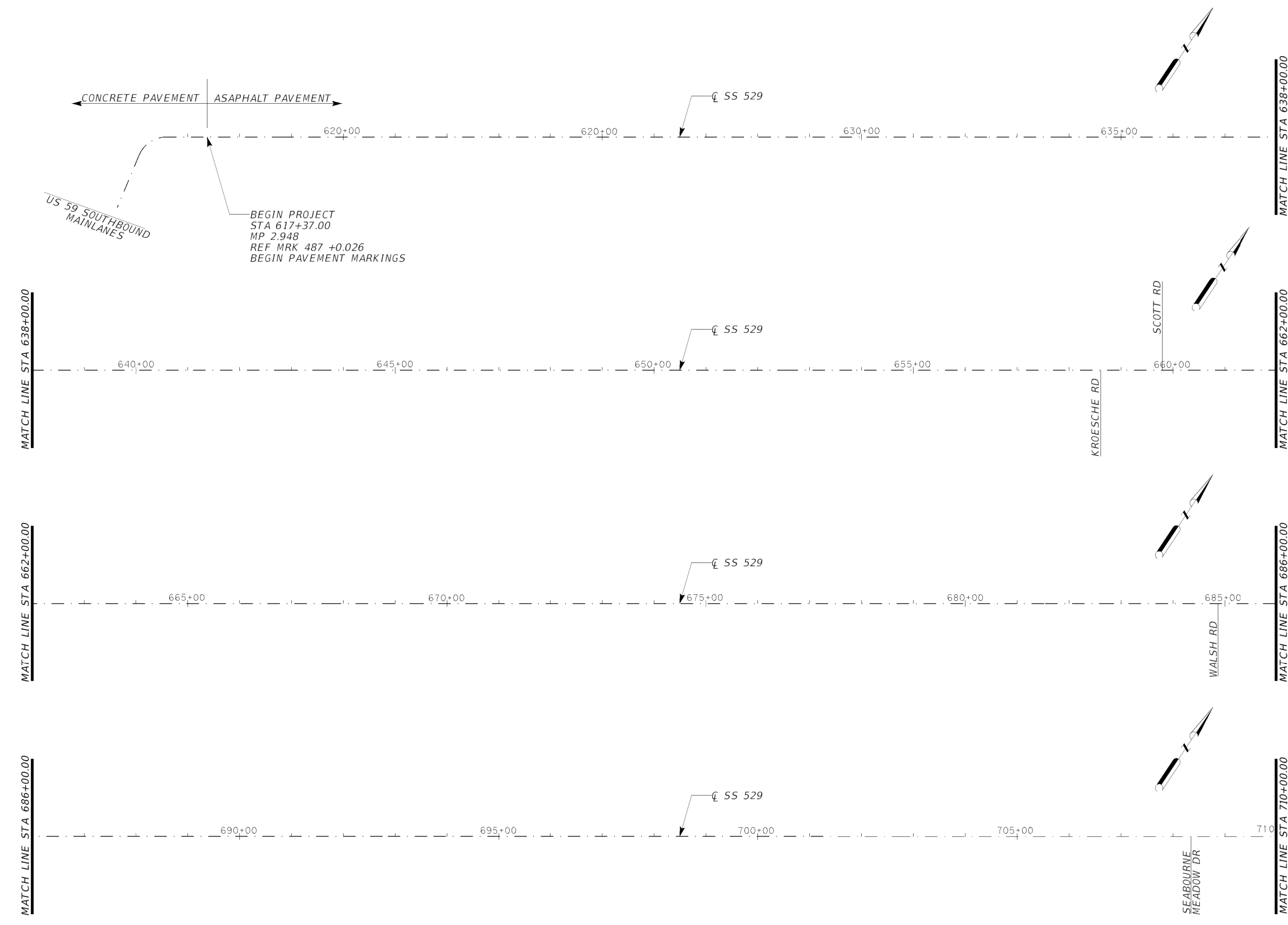
PAVEMENT MARKING LAYOUT

SS 10
 US 59
 TO SH 36
 STA 201+00.00
 TO
 STA 261+50.00

SHEET 3 OF 3



CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST		COUNTY	SHEET NO.
HOU		HARRIS	78



NOTES:
 1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.

MATCH LINE STA 638+00.00

MATCH LINE STA 638+00.00

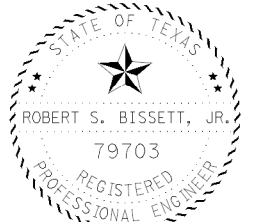
MATCH LINE STA 662+00.00

MATCH LINE STA 662+00.00

MATCH LINE STA 686+00.00

MATCH LINE STA 686+00.00

MATCH LINE STA 710+00.00

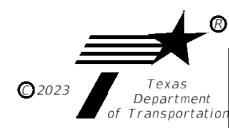


Robert S. Bissett, Jr.
 12/13/23

PAVEMENT MARKING LAYOUT

SS 529
 US 59 TO
 WEST OF FM 1640
 STA 617+37.00
 TO
 STA 710+00.00

SHEET 1 OF 2

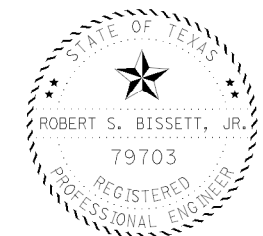
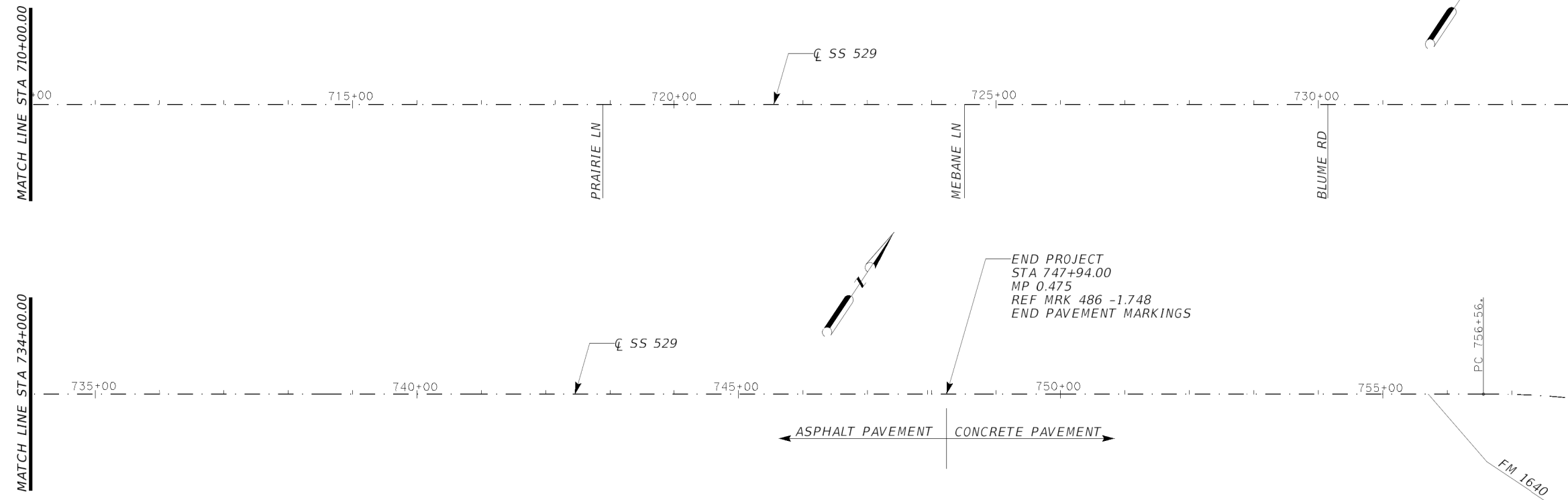


SCALE: 1"=200'

CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST		COUNTY	SHEET NO.
HOU		HARRIS	79

NOTES:

1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.



Robert S. Bissett, Jr.
12/13/23

PAVEMENT MARKING LAYOUT

SS 529
US 59 TO
WEST OF FM 1640
STA 710+00.00
TO
STA 747+94.00

SHEET 2 OF 2

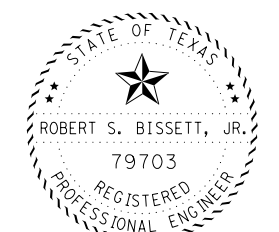
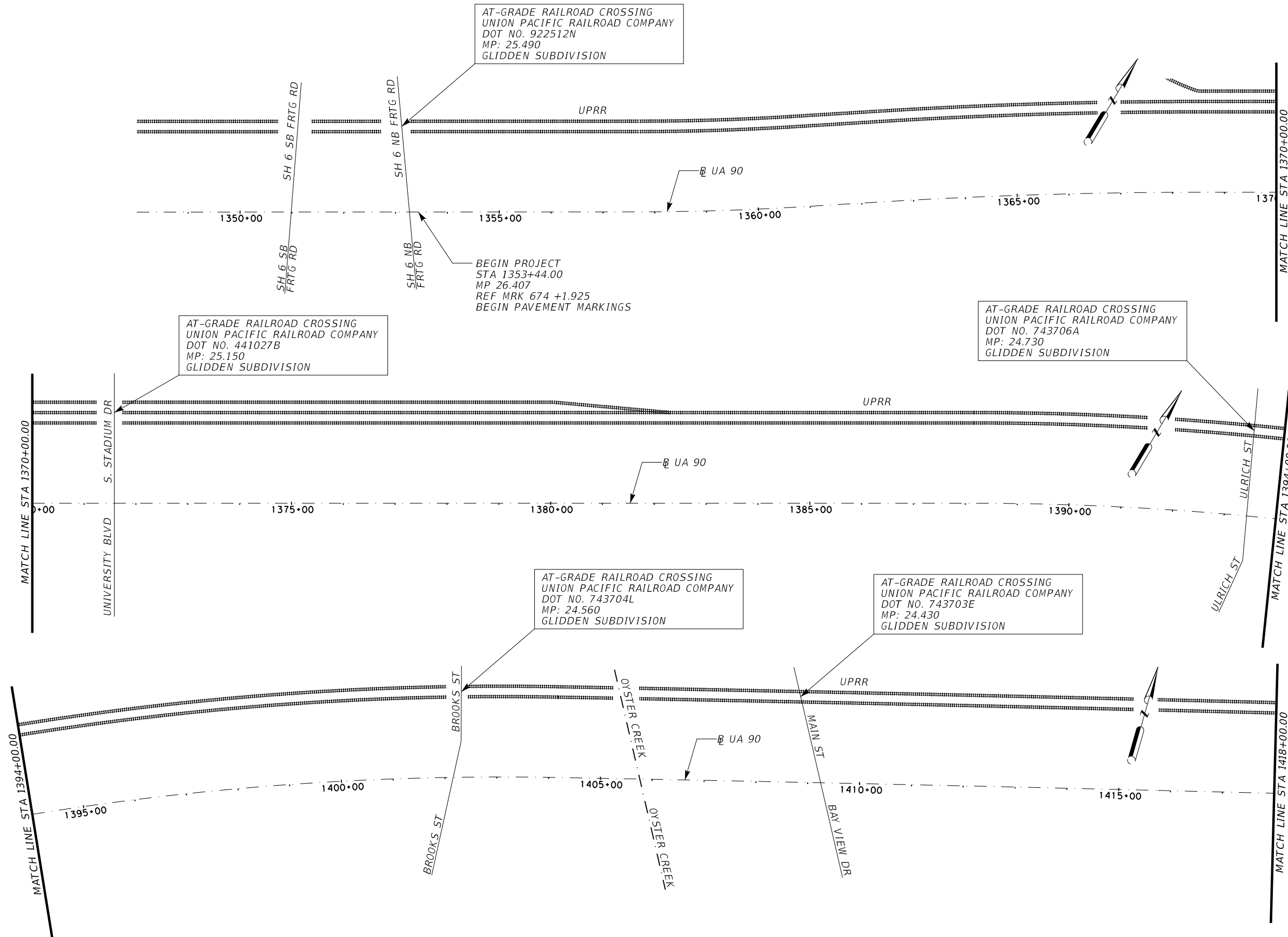


SCALE: 1"=200'

CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST	COUNTY		SHEET NO.
HOU	HARRIS		80

NOTES:

1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.

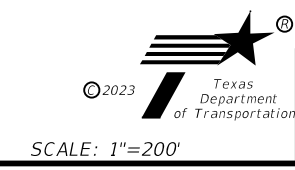


Robert S. Bissett, Jr.
02/13/24

PAVEMENT MARKING LAYOUT

UA 90
SH 6
TO HARRIS COUNTY LINE
STA 1353+44.00 (SH 6)
TO
STA 1418+00.00

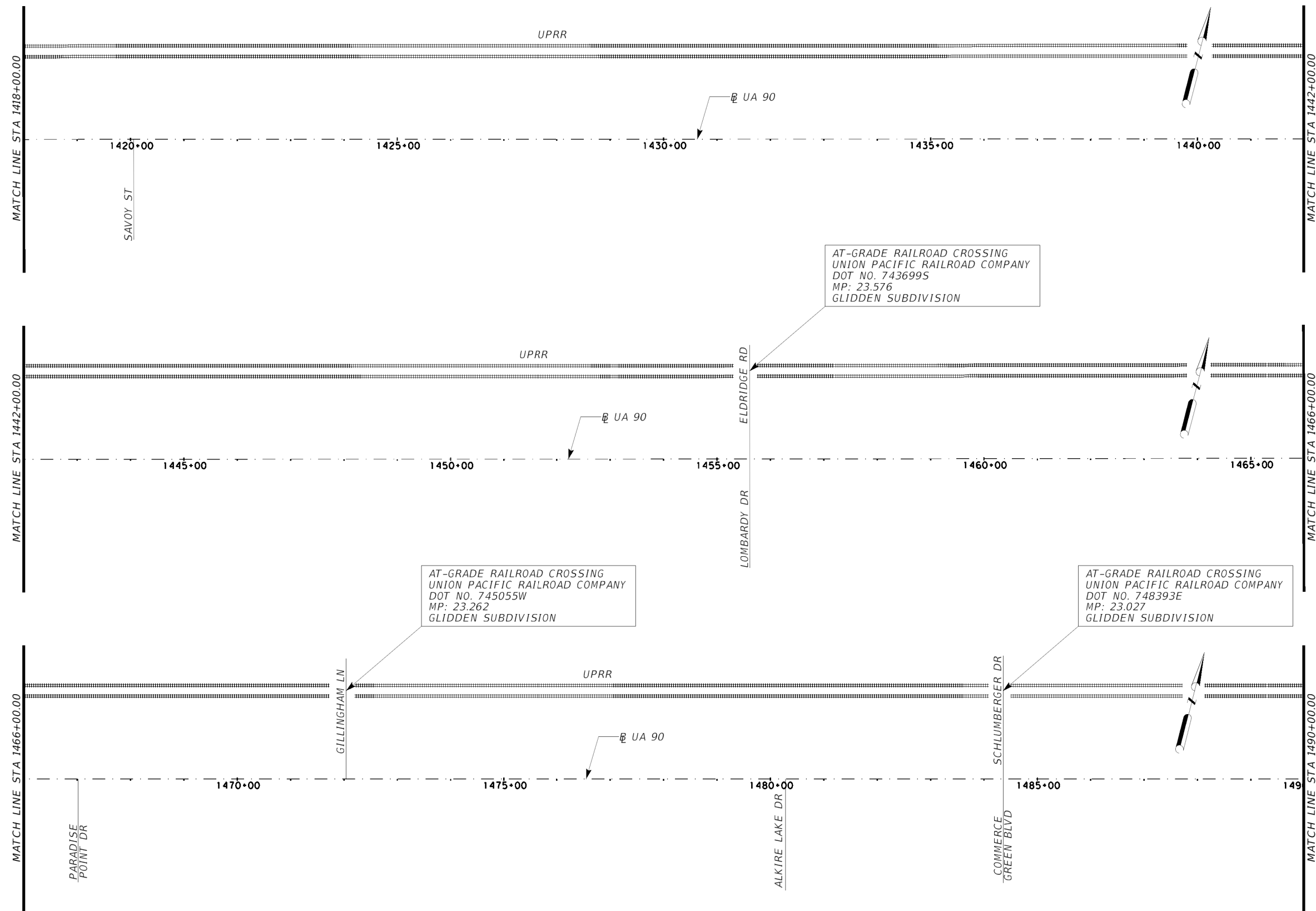
SHEET 1 OF 7



CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST		COUNTY	SHEET NO.
HOU		HARRIS	81

NOTES:

1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.

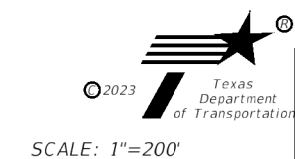


STATE OF TEXAS
 ★
 ROBERT S. BISSETT, JR.
 79703
 REGISTERED
 PROFESSIONAL ENGINEER
Robert S. Bissett, Jr.
 12/13/23

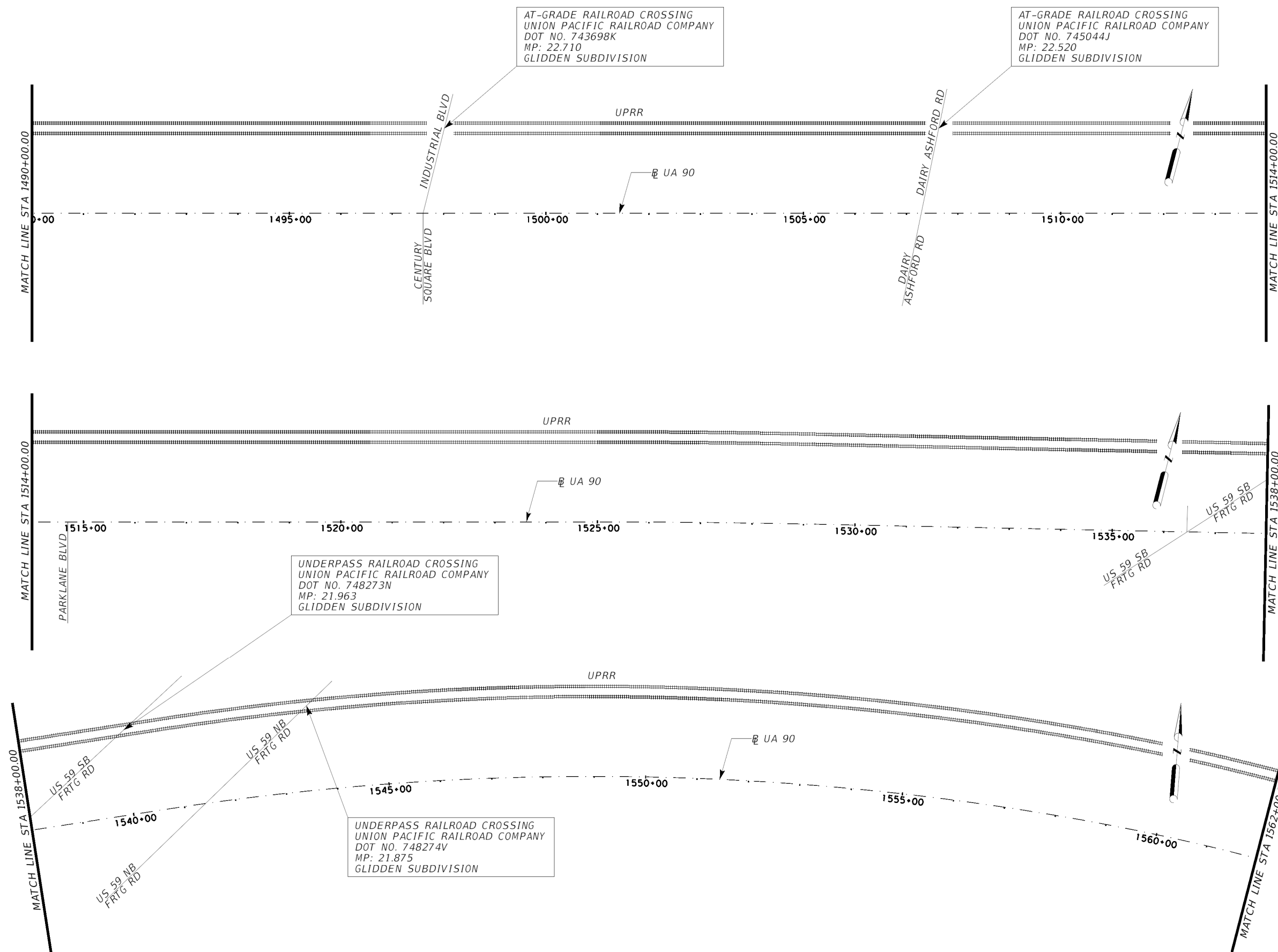
PAVEMENT MARKING LAYOUT

UA 90
 SH 6
 TO HARRIS COUNTY LINE
 STA 1418+00.00
 TO
 STA 1490+00.00

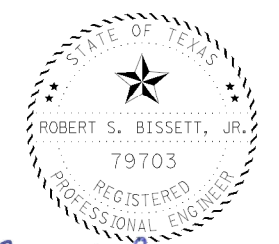
SHEET 2 OF 7



CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST		COUNTY	SHEET NO.
HOU		HARRIS	82



NOTES:
 1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TxDOT PAVEMENT MARKING STANDARDS.

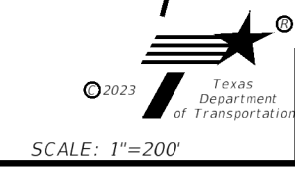


Robert S. Bissett, Jr.
 12/13/23

PAVEMENT MARKING LAYOUT

UA 90
 SH 6
 TO HARRIS COUNTY LINE
 STA 1490+00.00
 TO
 STA 1562+00.00

SHEET 3 OF 7

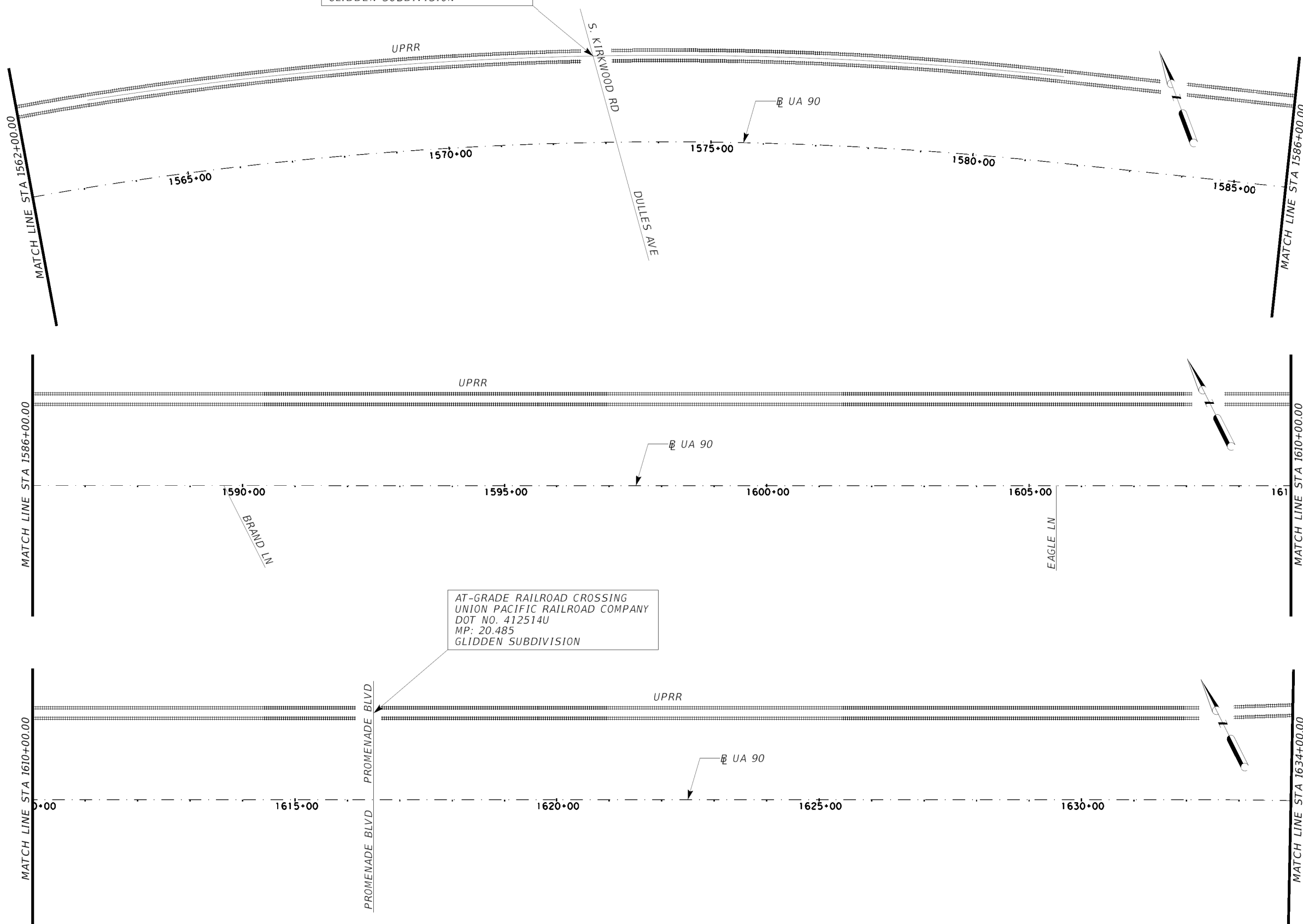


CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST	COUNTY		SHEET NO.
HOU	HARRIS		83

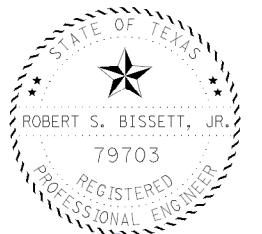
AT-GRADE RAILROAD CROSSING
 UNION PACIFIC RAILROAD COMPANY
 DOT NO. 743695P
 MP: 21.321
 GLIDDEN SUBDIVISION

NOTES:

1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TxDOT PAVEMENT MARKING STANDARDS.



AT-GRADE RAILROAD CROSSING
 UNION PACIFIC RAILROAD COMPANY
 DOT NO. 412514U
 MP: 20.485
 GLIDDEN SUBDIVISION

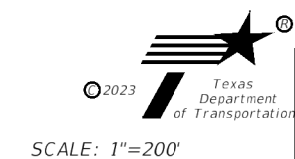


Robert S. Bissett, Jr.
 12/13/23

PAVEMENT MARKING LAYOUT

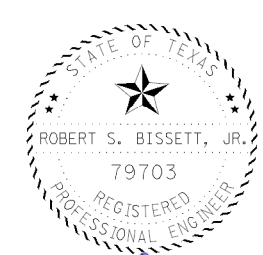
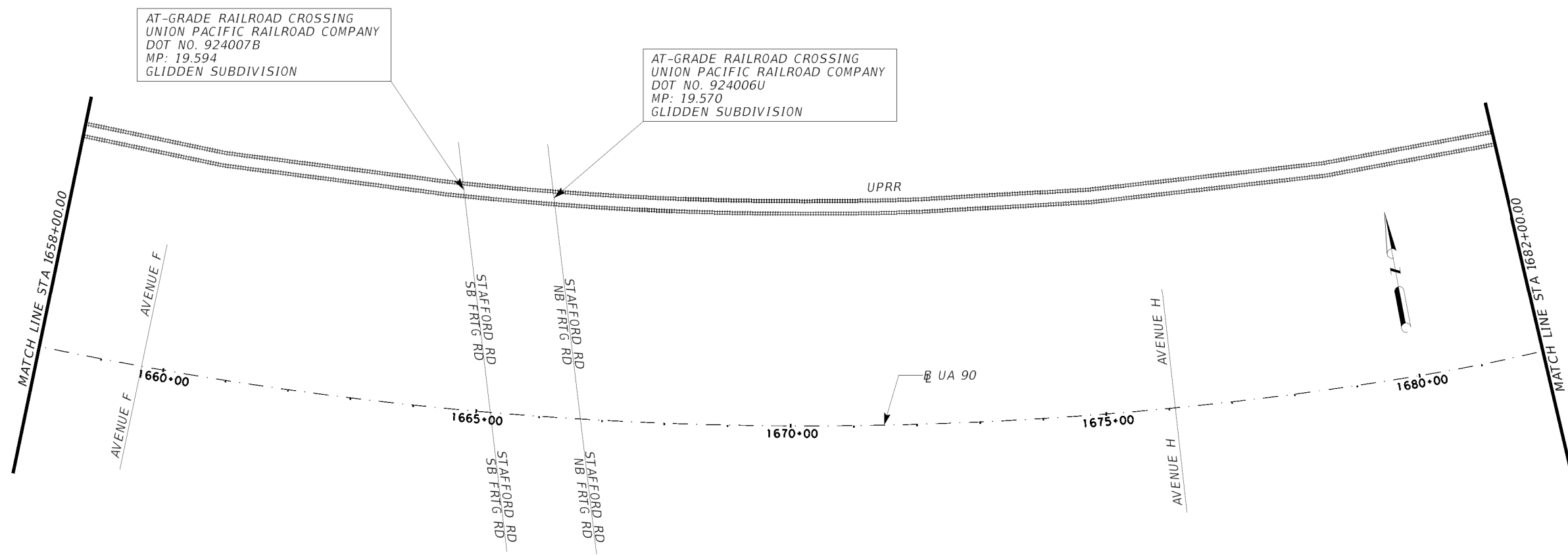
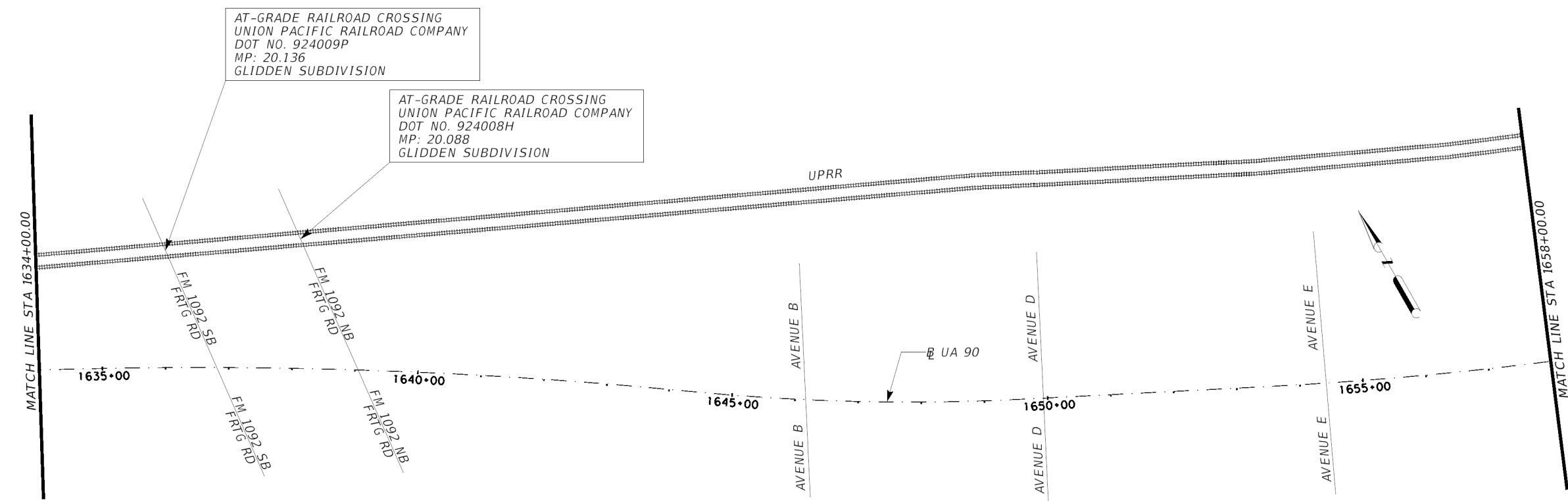
UA 90
 SH 6
 TO HARRIS COUNTY LINE
 STA 1562+00.00
 TO
 STA 1634+00.00

SHEET 4 OF 7



CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST		COUNTY	SHEET NO.
HOU		HARRIS	84

NOTES:
 1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.

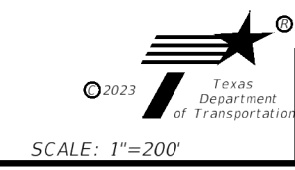


Robert S. Bissett, Jr.
 12/13/23

PAVEMENT MARKING LAYOUT

UA 90
 SH 6
 TO HARRIS COUNTY LINE
 STA 1634+00.00
 TO
 STA 1682+00.00

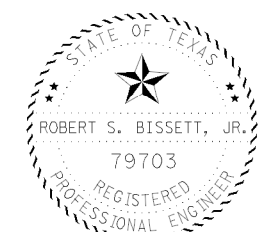
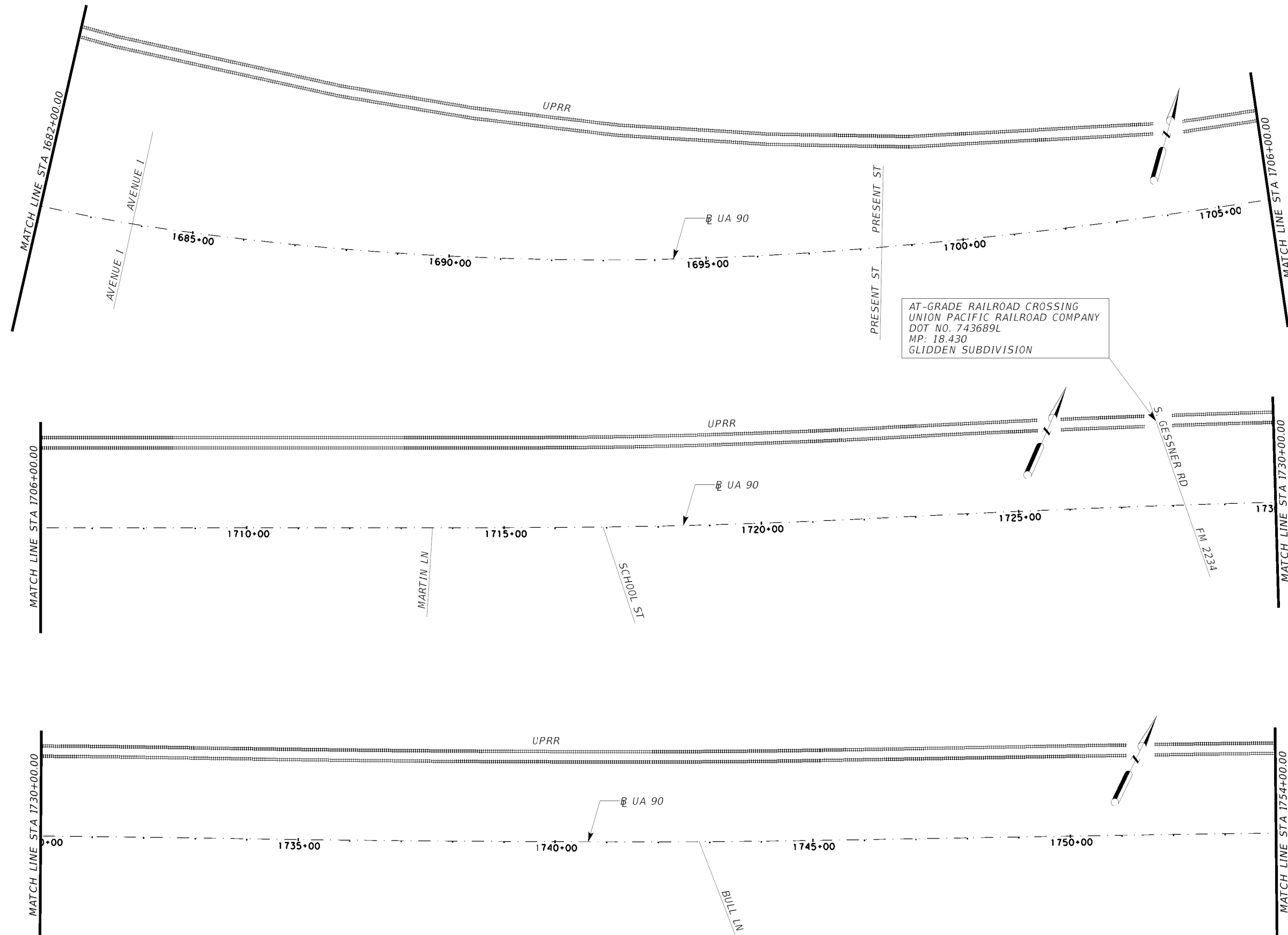
SHEET 5 OF 7



CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST		COUNTY	SHEET NO.
HOU		FORT BEND	85

NOTES:

1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.

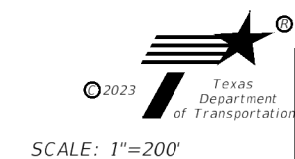


Robert S. Bissett, Jr.
12/13/23

PAVEMENT MARKING LAYOUT

UA 90
SH 6
TO HARRIS COUNTY LINE
STA 1682+00.00
TO
STA 1754+00.00

SHEET 6 OF 7

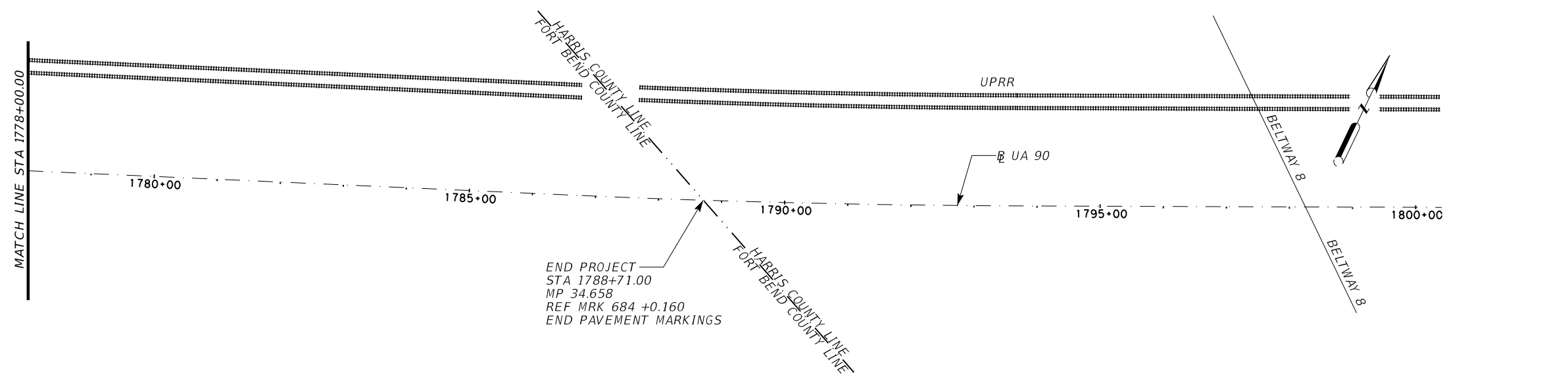
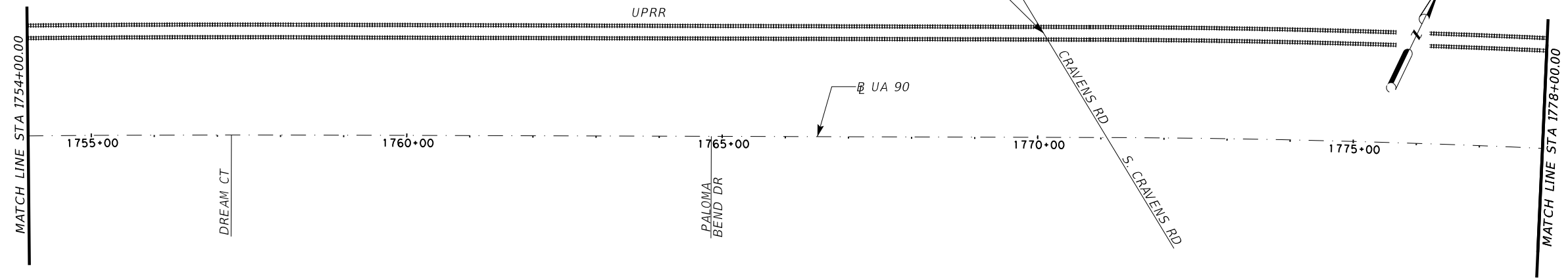


CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST	COUNTY		SHEET NO.
HOU	HARRIS		86

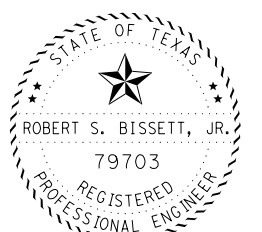
AT-GRADE RAILROAD CROSSING
 UNION PACIFIC RAILROAD COMPANY
 DOT NO. 743688E
 MP: 17.620
 GLIDDEN SUBDIVISION

NOTES:

1. CONTRACTOR SHALL MATCH ALL EXISTING PAVEMENT MARKINGS IN ACCORDANCE WITH CURRENT TXDOT PAVEMENT MARKING STANDARDS.



END PROJECT
 STA 1788+71.00
 MP 34.658
 REF MRK 684 +0.160
 END PAVEMENT MARKINGS



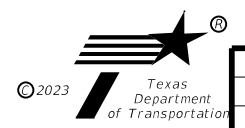
Robert S. Bissett, Jr.

02/14/24

PAVEMENT MARKING LAYOUT

UA 90
 SH 6
 TO HARRIS COUNTY LINE
 STA 1754+00.00
 TO
 STA 1788+71.00
 (HARRIS COUNTY LINE)

SHEET 7 OF 7

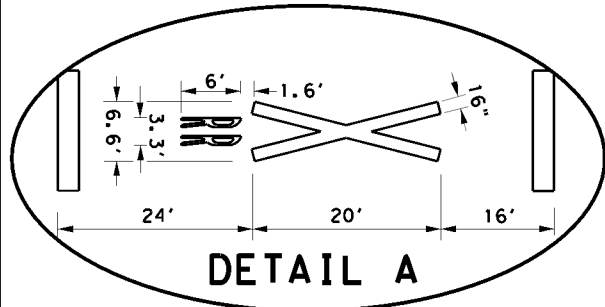
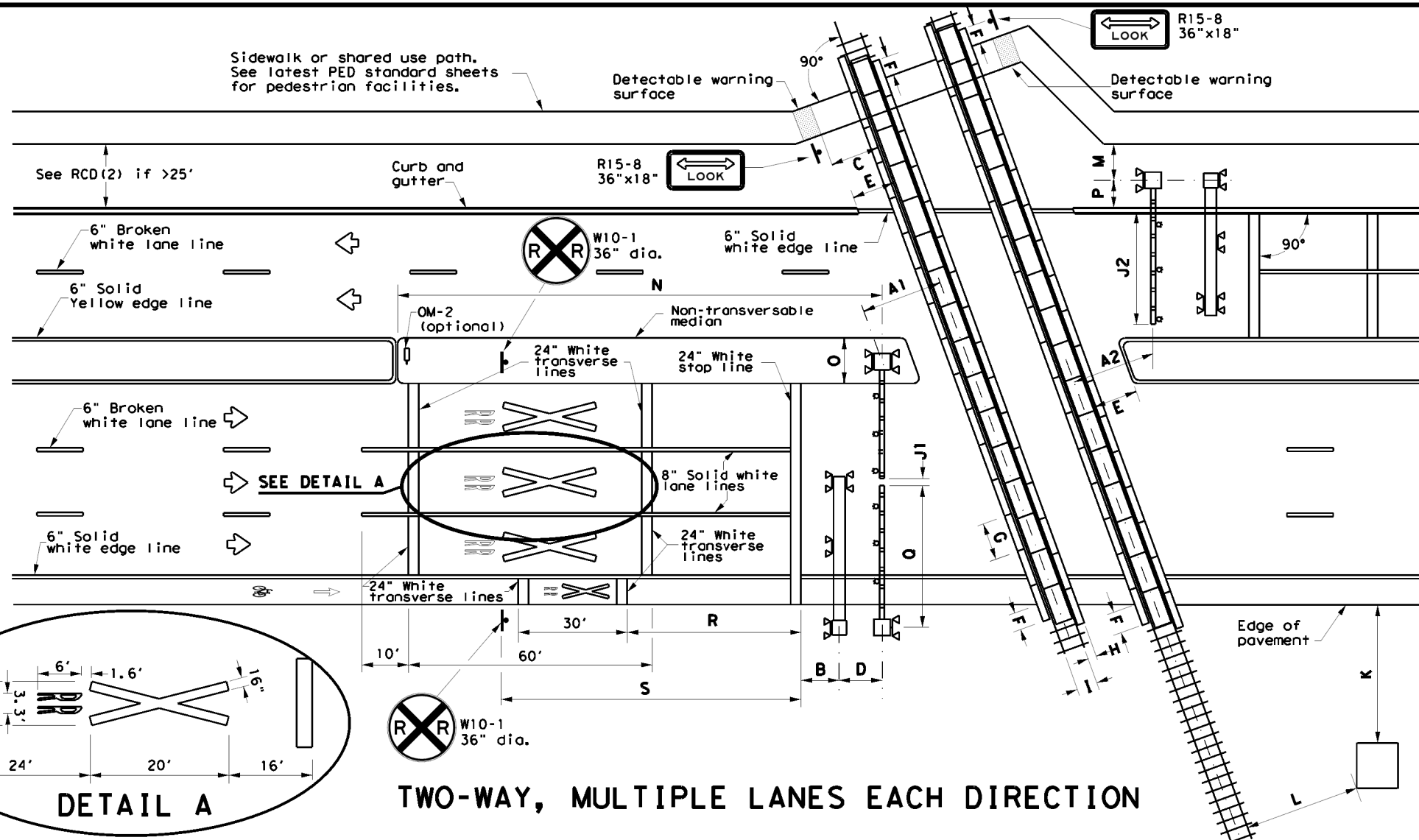


SCALE: 1"=200'

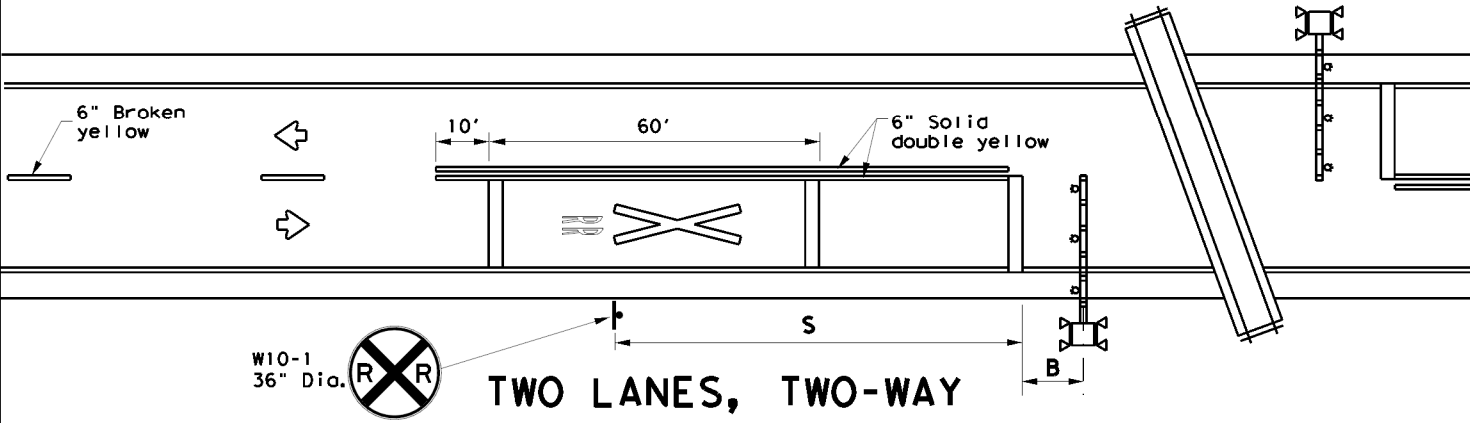
CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
DIST		COUNTY	SHEET NO.
HOU		HARRIS	87

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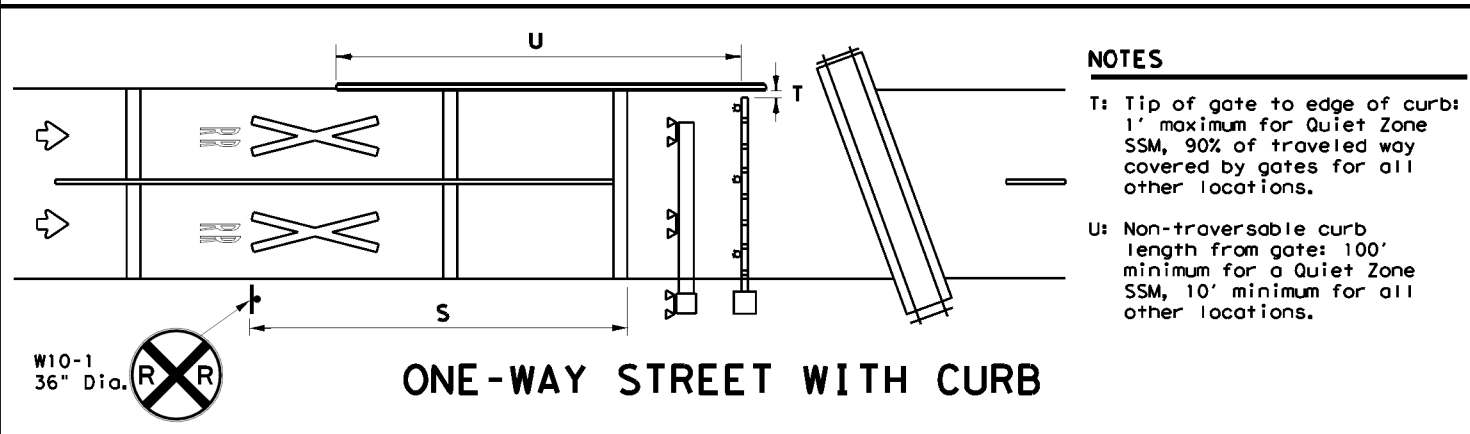
DATE: \$DATES
FILE: \$FILES
\$TIMES



TWO-WAY, MULTIPLE LANES EACH DIRECTION



TWO LANES, TWO-WAY



ONE-WAY STREET WITH CURB

- NOTES**
- T: Tip of gate to edge of curb: 1' maximum for Quiet Zone SSM, 90% of traveled way covered by gates for all other locations.
 - U: Non-traversable curb length from gate: 100' minimum for a Quiet Zone SSM, 10' minimum for all other locations.

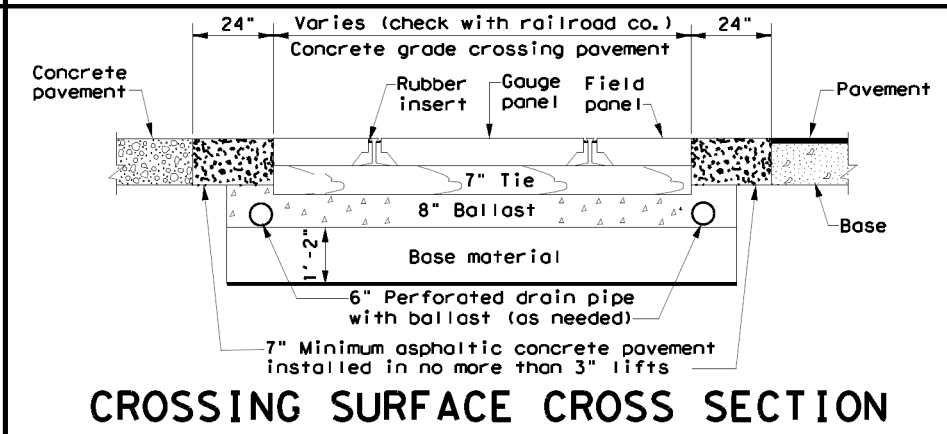
TABLE 1

Approach Speed (mph)	Desirable Placement (feet)
20	100
25	100
30	100
35	100
40	125
45	175
50	250
55	325
60	400
65	475
70	550
75	650

LEGEND

	Sign
	Object Marker
	Traffic Flow
	Cantilever
	Gate Assembly
	Mast Flasher Pair

- GENERAL NOTES**
- Medians and curbs must be non-traversable to qualify as a Quiet Zone Supplementary Safety Measure (SSM). Non-traversable curbs in Quiet Zones are 6" tall minimum and used on roadways where speed does not exceed 40 mph.
 - Raised pavement markers may be used to supplement striping. See PM(2) and PM(3) standard sheets.
 - Medians preferred whenever possible to prevent vehicles from driving around gates.
 - Longitudinal edge striping may be continued thru crossing as needed. Illumination may also be considered for nighttime visibility.
 - See SMD standard sheets for sign mounting details.
 - See the Standard Highway Sign Design for Texas (SHSD) manual for sign and pavement marking details.



CROSSING SURFACE CROSS SECTION

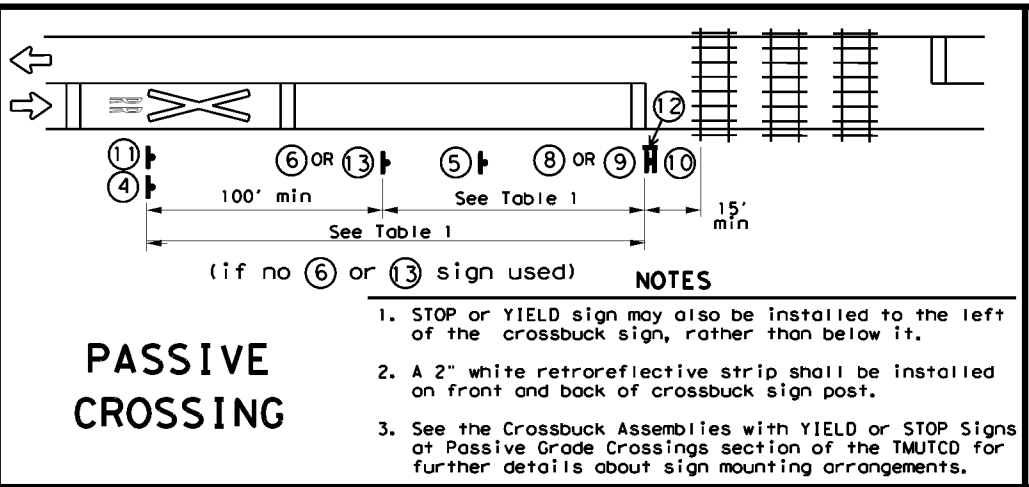
- NOTES**
- A1: Center of RR mast to center of rail: 12' minimum, 15' typical.
 - A2: Tip of gate to center of rail: 12' minimum, 15' typical.
 - B: Center of mast (cantilever, gate, or mast flasher) of nearest active traffic control device to stop line: 8' (NOTE: Stop line may be moved as needed, but should be at least 8' back from gates, if present).
 - C: Near edge of detectable warning surface to nearest rail: 12' minimum.
 - D: Center of gate mast to center of cantilever mast: 6' typical. NOTE: Cantilever may be located in front or behind gates.
 - E: Edge of median or curb to nearest rail: 10' typical. NOTE: Design median edge to be parallel with rail.
 - F: Edge of planking panel from edge of pavement or sidewalk: 3' minimum. NOTE: Field panels need not be in line with gauge panels.
 - G: Length of panels along rail: 8' typical.
 - H: Width of field panel: 2' typical (check with railroad company).
 - I: Distance between rails: 4'- 8' 1/2".
 - J1: Tip of gate to tip of gate: 2' maximum.
 - J2: 90% of traveled roadway to be covered by gate.
 - K: Nearest edge of RR cabinet from edge of pavement: 30' typical. NOTE: Cabinet not required to be parallel to edge of pavement.
 - L: Nearest edge of RR cabinet from nearest rail: 25' typical.
 - M: Center of RR mast to edge of sidewalk: 6' minimum.
 - N: Center of gate mast to leading edge of non-traversable median: 100' minimum to qualify as a Quiet Zone SSM. NOTE: 60' will suffice if there is a street intersection within the 100' and all street intersections within 60' are closed.
 - O: Width of median for RR gate assembly: 8'-6" minimum, 10' typical when using median gates. NOTE: Center of gate mast minimum 4'-3" from face of curb.
 - P: Center of RR mast to face of curb: 5'-3" minimum. Center of RR mast to edge of pavement (with shoulder): 7' minimum. Center of RR mast to edge of pavement (no shoulder): 9'-3" minimum. NOTE: Final location determined by the railroad company.
 - Q: Gate length: 28' or less typical, but railroad company may allow up to 32' under special circumstances.
 - R: Stop line to first RR Crossing transverse line (bike lane): 50' typical.
 - S: Stop line to GRADE CROSSING ADVANCE WARNING (W10-1) sign and adjacent RR Crossing pavement markings. See Table 1. See RCD(2) for other signs.

Texas Department of Transportation
Traffic Safety Division Standard

**RAILROAD CROSSING DETAILS
SIGNING, STRIPING, AND
DEVICE PLACEMENT
RCD(1)-22**

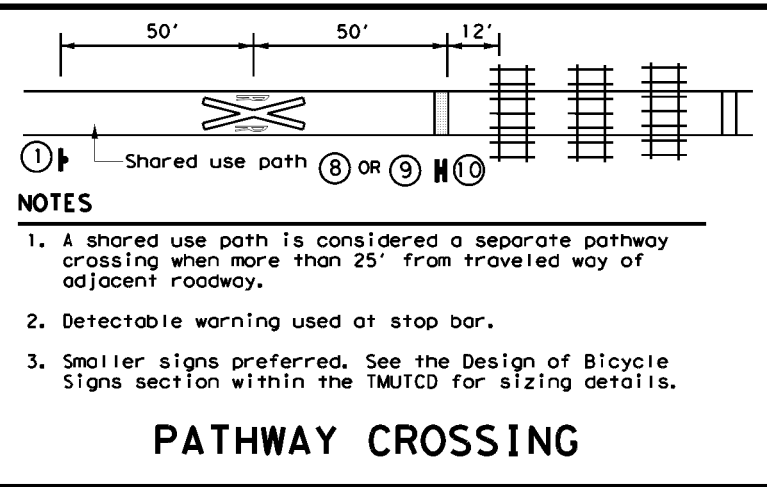
FILE: rcd1-22.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CR: TxDOT
© TxDOT November 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0912 00		710	VARIOUS
2-16	DIST	COUNTY		SHEET NO.
11-22	HOU	HARRIS		88

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PASSIVE CROSSING

- NOTES**
1. STOP or YIELD sign may also be installed to the left of the crossbuck sign, rather than below it.
 2. A 2" white retroreflective strip shall be installed on front and back of crossbuck sign post.
 3. See the Crossbuck Assemblies with YIELD or STOP Signs at Passive Grade Crossings section of the TMUTCD for further details about sign mounting arrangements.

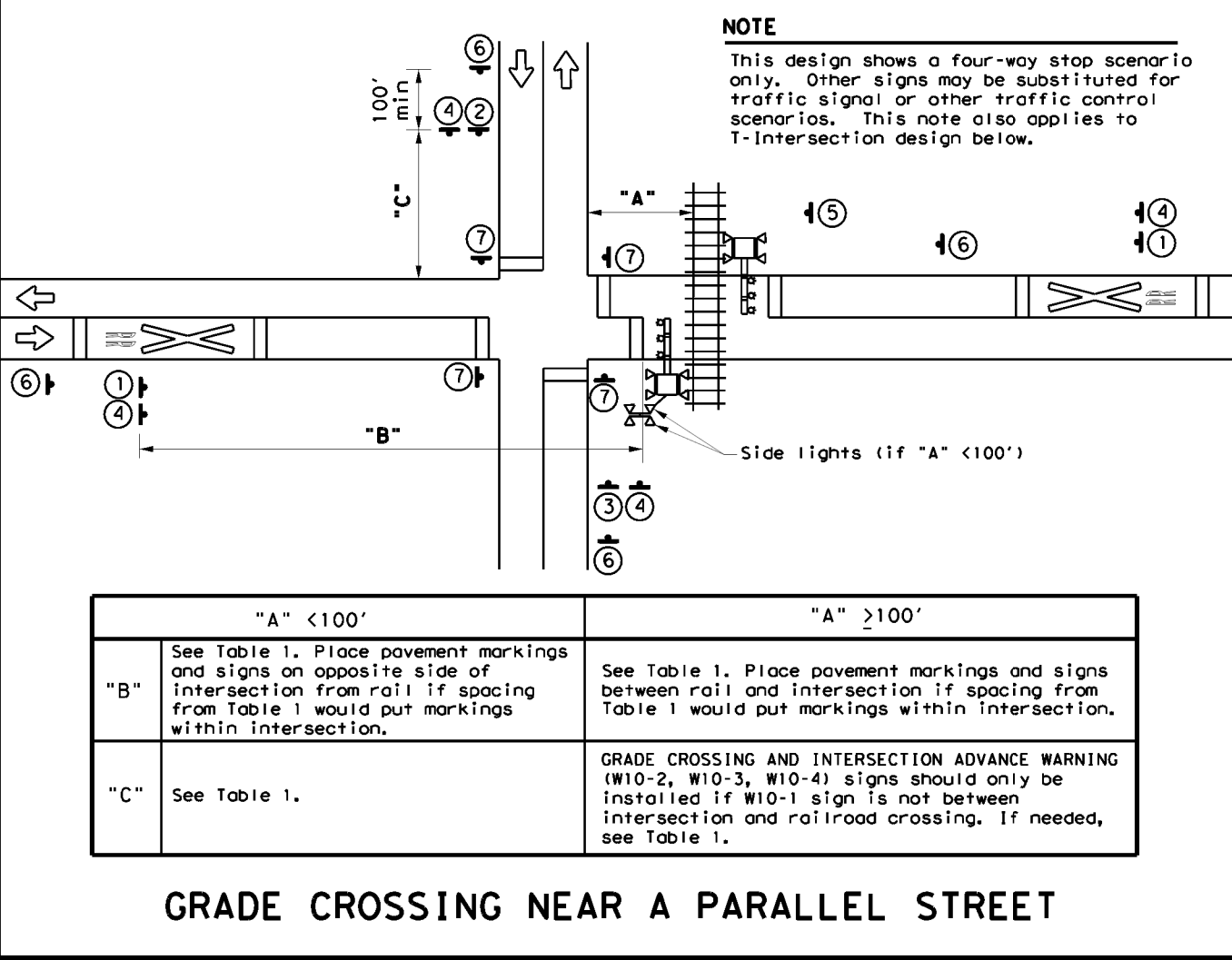


PATHWAY CROSSING

- NOTES**
1. A shared use path is considered a separate pathway crossing when more than 25' from traveled way of adjacent roadway.
 2. Detectable warning used at stop bar.
 3. Smaller signs preferred. See the Design of Bicycle Signs section within the TMUTCD for sizing details.

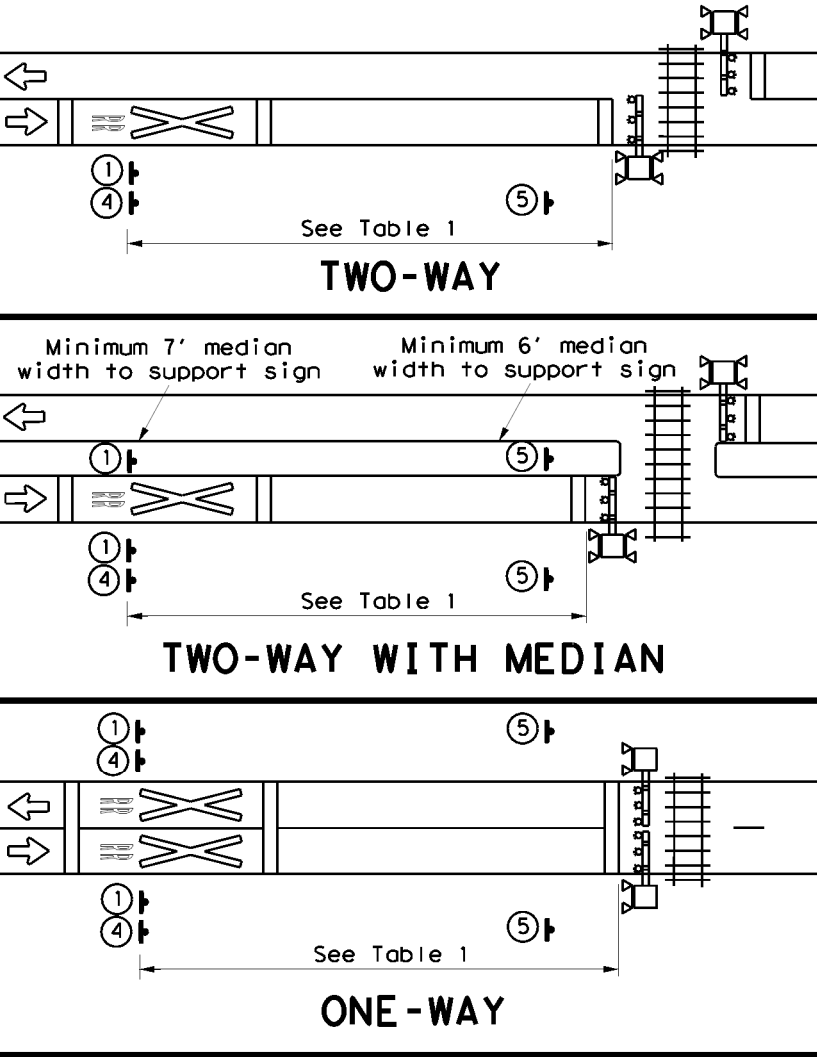
Approach Speed (mph)	Desirable Placement (feet)
20	100
25	100
30	100
35	100
40	125
45	175
50	250
55	325
60	400
65	475
70	550
75	650

- GENERAL NOTES**
1. Railroad company to provide active traffic control devices, CROSSBUCK (R15-1), NUMBER OF TRACKS (R15-2P) plaque (if more than 1 track), and EMERGENCY NOTIFICATION (I-13) signs.
 2. LOW GROUND CLEARANCE (W10-5) signs may be relocated further upstream of crossing to provide advance warning of alternate route.
 3. GRADE CROSSING AND INTERSECTION ADVANCE WARNING (W10-2) signs may be modified as needed to fit roadway geometry.
 4. Table 1 placement distances may vary per the Placement of Warning Signs section of the TMUTCD.
 5. See Table 1 to determine placement of STOP AHEAD (W3-1) and YIELD AHEAD (W3-2) signs unless shown otherwise.
 6. DO NOT STOP ON TRACKS (R8-8) signs installed when potential for vehicles stopping on tracks is significant as determined by sealing engineer. Install so sign does not block view of RR mast.
 7. See the Standard Highway Sign Design for Texas (SHSD) manual for sign and pavement marking details.



	"A" < 100'	"A" ≥ 100'
"B"	See Table 1. Place pavement markings and signs on opposite side of intersection from rail if spacing from Table 1 would put markings within intersection.	See Table 1. Place pavement markings and signs between rail and intersection if spacing from Table 1 would put markings within intersection.
"C"	See Table 1.	GRADE CROSSING AND INTERSECTION ADVANCE WARNING (W10-2, W10-3, W10-4) signs should only be installed if W10-1 sign is not between intersection and railroad crossing. If needed, see Table 1.

GRADE CROSSING NEAR A PARALLEL STREET



	"A" < 100'	"A" ≥ 100'
"B"	See Table 1. Place pavement markings and signs on opposite side of intersection from rail if spacing from Table 1 would put markings within intersection.	See Table 1. Place pavement markings and signs between rail and intersection if spacing from Table 1 would put markings within intersection.
"C"	See Table 1.	GRADE CROSSING AND INTERSECTION ADVANCE WARNING (W10-2, W10-3, W10-4) signs should only be installed if W10-1 sign is not between intersection and railroad crossing. If needed, see Table 1.

TWO-WAY WITH MEDIAN

ONE-WAY

SIGNS

1 W10-1 36" Dia.	2 W10-2L 36" X 36"	3 W10-2R 36" X 36"	4 IF NEEDED LOW GROUND CLEARANCE W10-5P 30" X 24"
5 R8-8 24" X 30"	6 W3-1 30" X 30"	7 STOP R1-1 36" X 36" ALL WAY R1-3P 18" X 6"	8 STOP R1-1 36" X 36"
9 R1-2 48" X 48" X 48"	10 R15-1 48" X 9"	11 **	12 I-13 15" X 9"

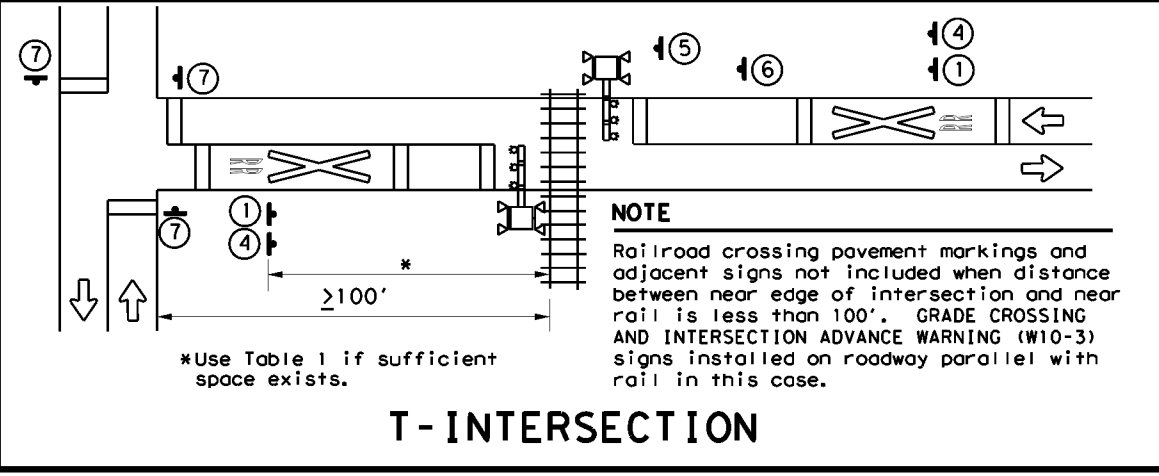
IF NEEDED

REPORT EMERGENCY OR PROBLEM
1-800-555-5555
CROSSING 836 597 H

Sign may be placed perpend. to travel lanes.

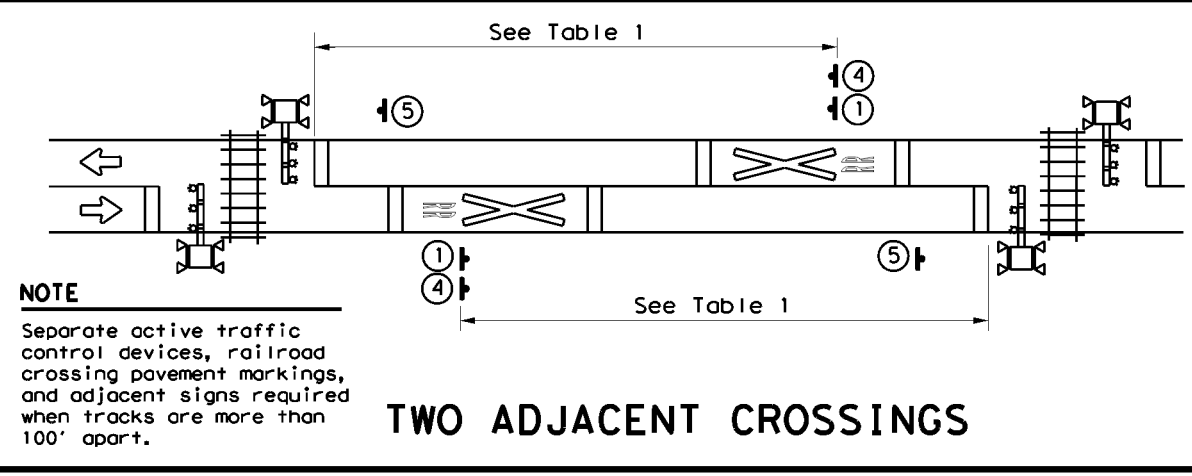
** Includes a NO TRAIN HORN (W10-9P) plaque if crossing is in a Quiet Zone. If needed, is mounted below W10-2/W10-3/W10-4 signs.

NO TRAIN HORN W10-9P
30" X 24"



T-INTERSECTION

*Use Table 1 if sufficient space exists.



TWO ADJACENT CROSSINGS

- NOTE**
- Separate active traffic control devices, railroad crossing pavement markings, and adjacent signs required when tracks are more than 100' apart.

Texas Department of Transportation Traffic Safety Division Standard

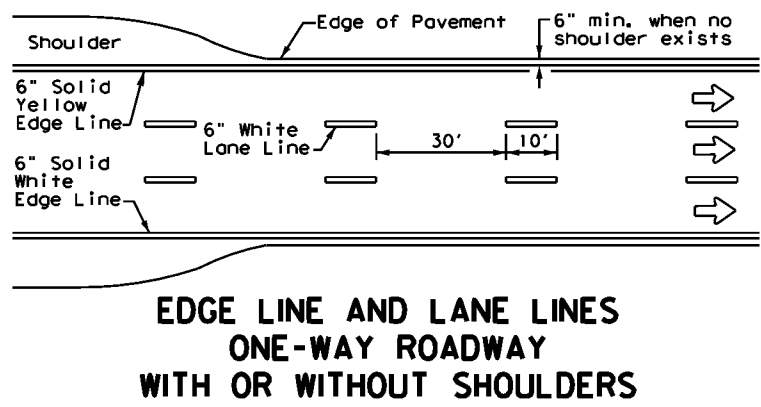
RAILROAD CROSSING DETAILS SIGNING & STRIPING

RCD(2) - 22

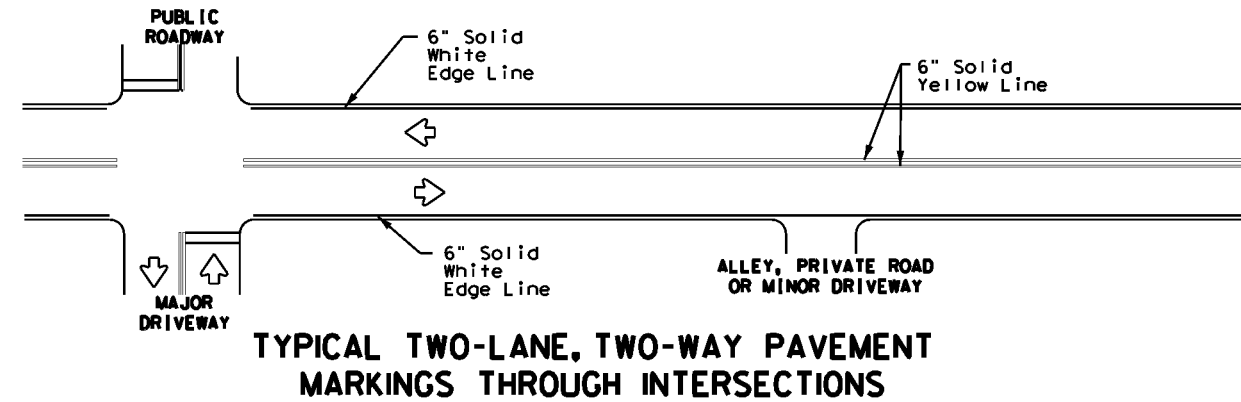
FILE: rcd2-22.dgn	DN: TxDOT	CK: TxDOT	DR: TxDOT	CR: TxDOT
© TxDOT November 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0912 00		710	VARIOUS
2-16	DIST	COUNTY		SHEET NO.
11-22	HOU	HARRIS		89

DATE: \$DATES
 FILE: \$FILES
 \$TIMES

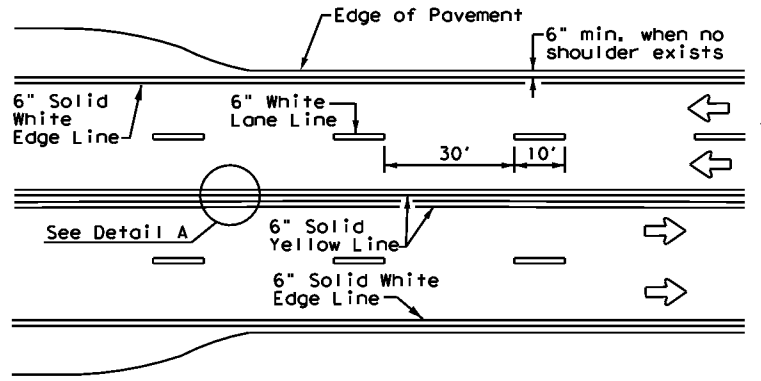
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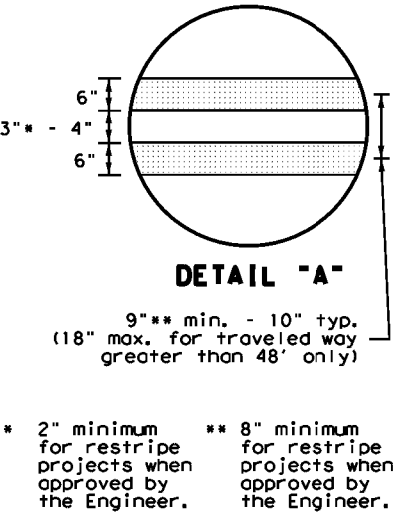
**EDGE LINE AND LANE LINES
ONE-WAY ROADWAY
WITH OR WITHOUT SHOULDERS**



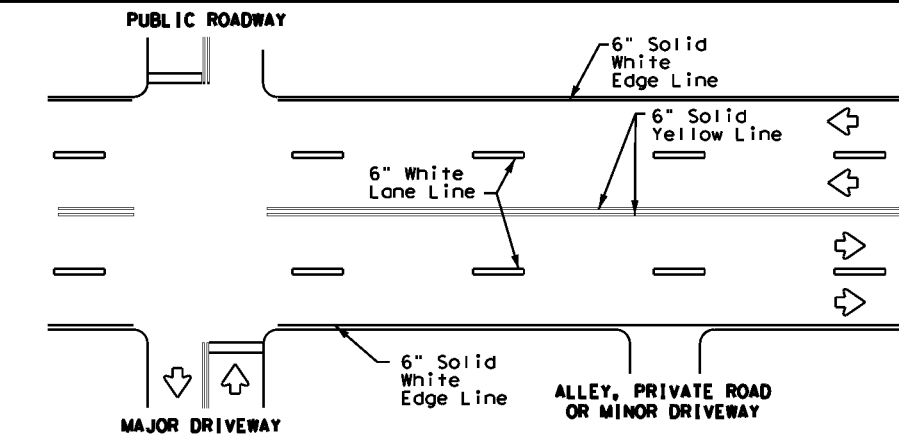
**TYPICAL TWO-LANE, TWO-WAY PAVEMENT
MARKINGS THROUGH INTERSECTIONS**



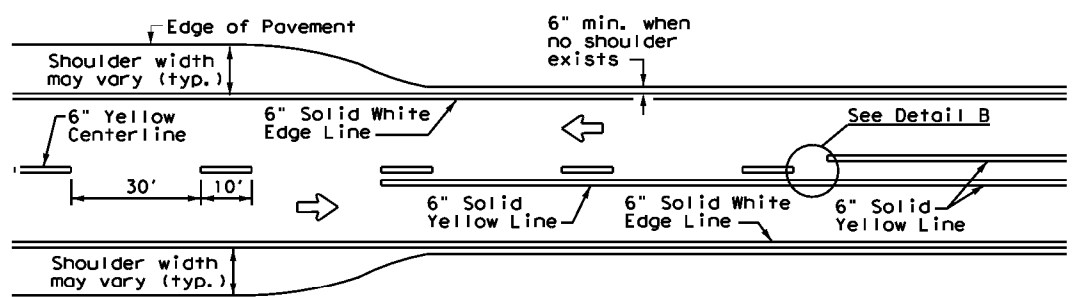
**CENTERLINE AND LANE LINES
FOUR LANE TWO-WAY ROADWAY
WITH OR WITHOUT SHOULDERS**



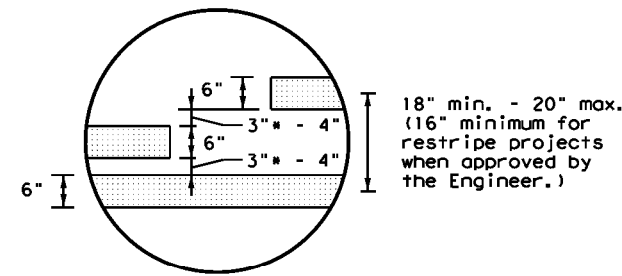
DETAIL "A"



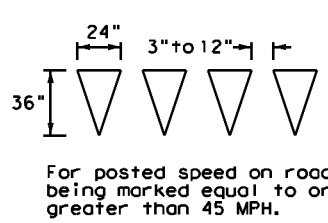
**TYPICAL MULTI-LANE, TWO-WAY PAVEMENT
MARKINGS THROUGH INTERSECTIONS**



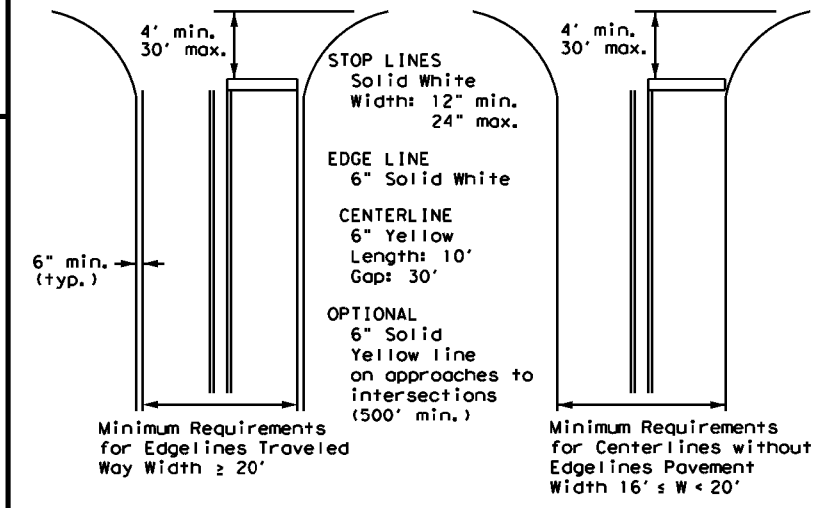
**TWO LANE TWO-WAY ROADWAY
WITH OR WITHOUT SHOULDERS**



DETAIL "B"

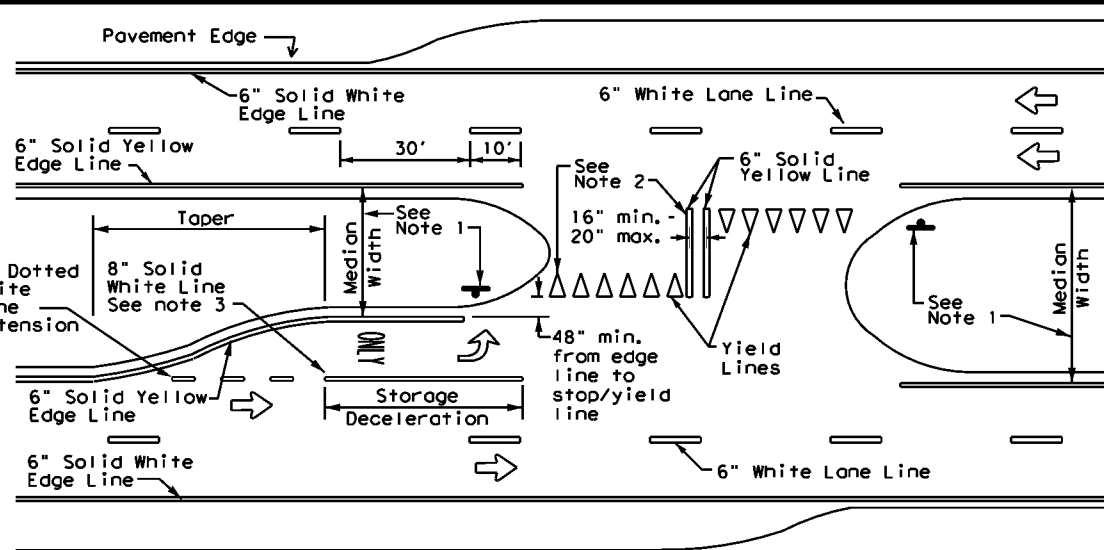


YIELD LINES



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

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



FOUR LANE DIVIDED ROADWAY CROSSOVERS

NOTES

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

GENERAL NOTES

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

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

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

**TYPICAL STANDARD
PAVEMENT MARKINGS**

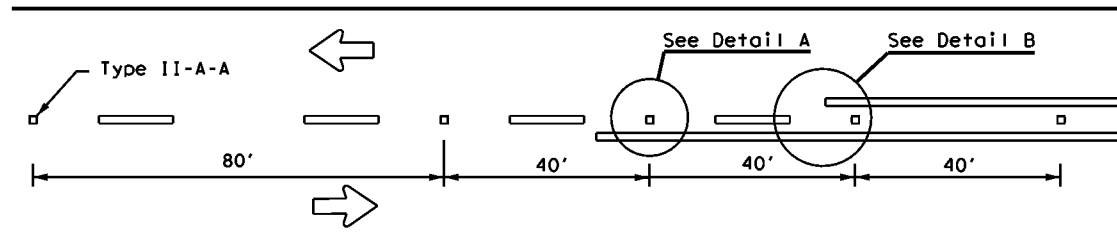
PM(1)-22

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© TxDOT December 2022				
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REVISIONS				
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HOU	HARRIS			90

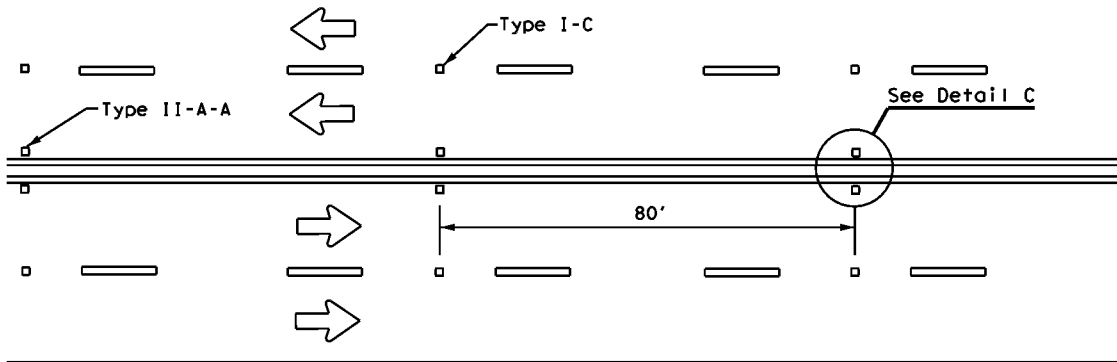
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 \$TIMES

REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE

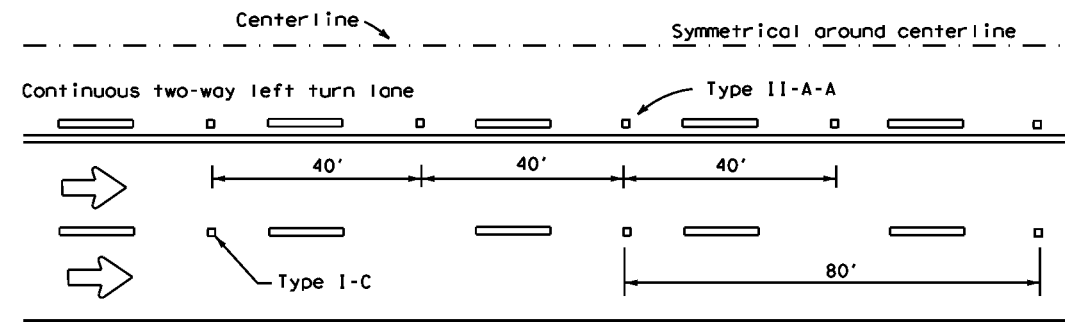
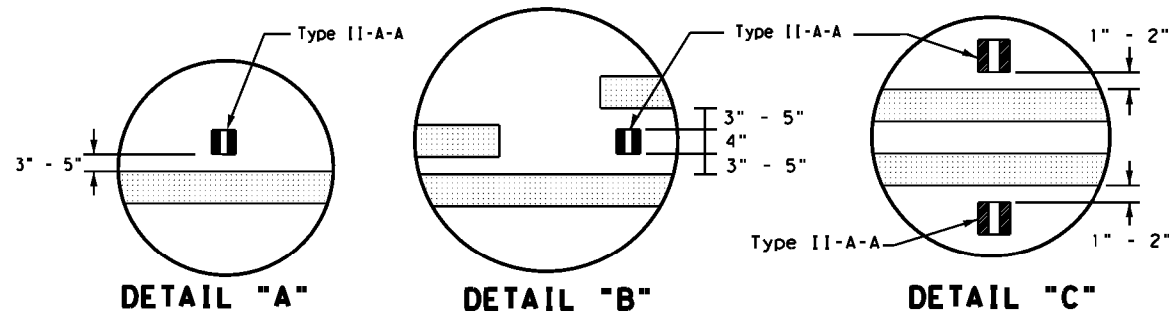
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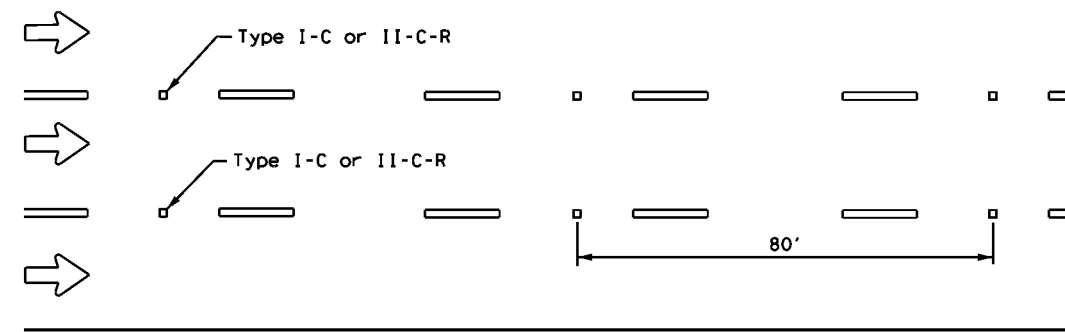
CENTERLINE FOR ALL TWO LANE TWO-WAY ROADWAYS



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

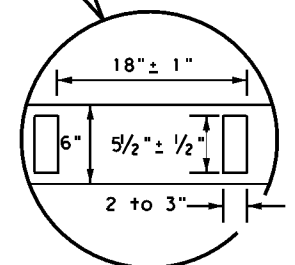
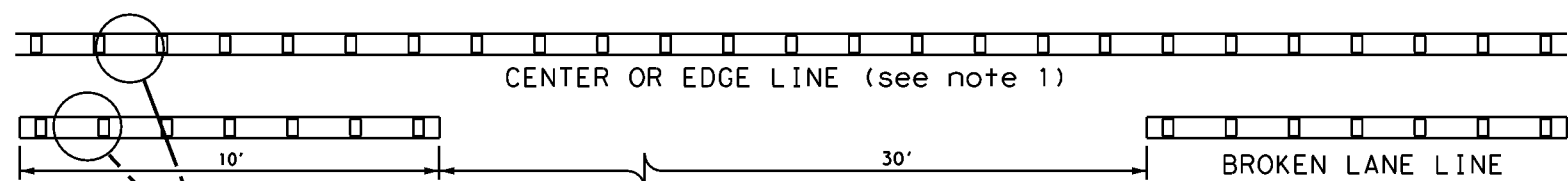


CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE

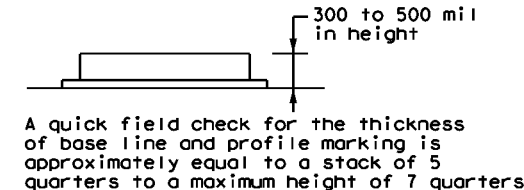


LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

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



**REFLECTORIZED PROFILE
PATTERN DETAIL**
USING REFLECTIVE PROFILE PAVEMENT MARKINGS



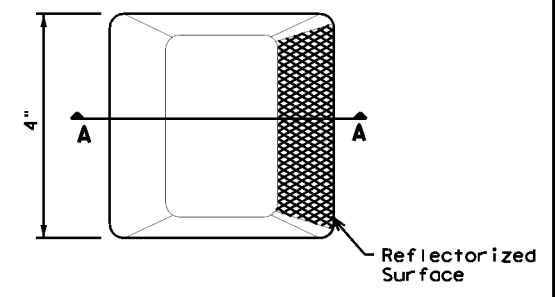
- NOTES**
1. Edge lines should typically be 6" wide and the materials shall be specified in the plans.
 2. Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

GENERAL NOTES

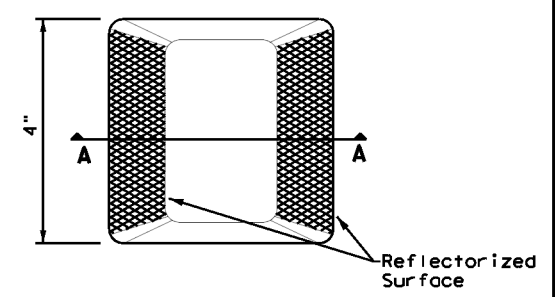
1. All raised pavement markers placed along broken lines shall be placed in line with and midway between the stripes.
2. On concrete pavements the raised pavement markers should be placed to one side of the longitudinal joints.
3. Use raised pavement marker Type I-C with undivided roadways, flush medians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

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

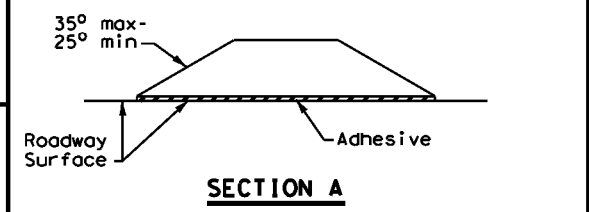
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)



Type II (Top View)



RAISED PAVEMENT MARKERS



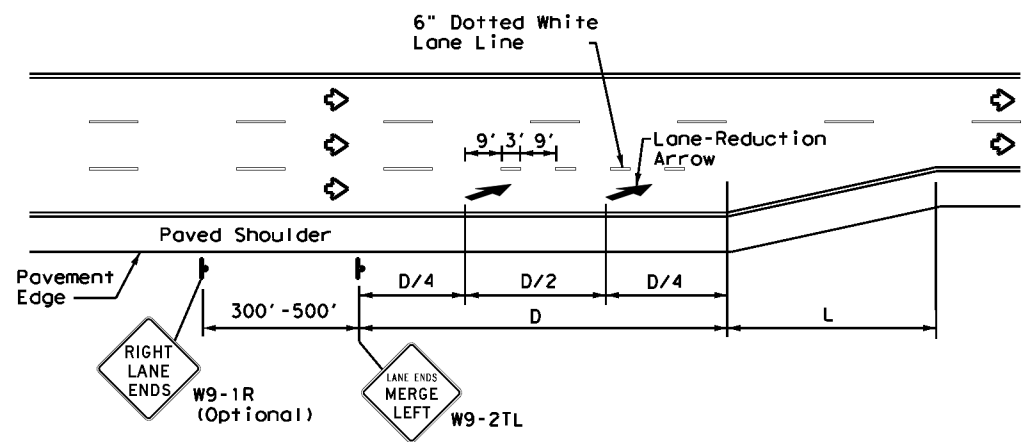
POSITION GUIDANCE USING RAISED MARKERS REFLECTORIZED PROFILE MARKINGS PM(2) - 22

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© TxDOT December 2022		CONT	SECT	JOB	HIGHWAY
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5-00	2-12				
HOU		HARRIS		91	

DATE: \$DATES
FILE: \$FILES

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DATE: \$DATES
FILE: \$FILES



LANE REDUCTION

NOTES

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

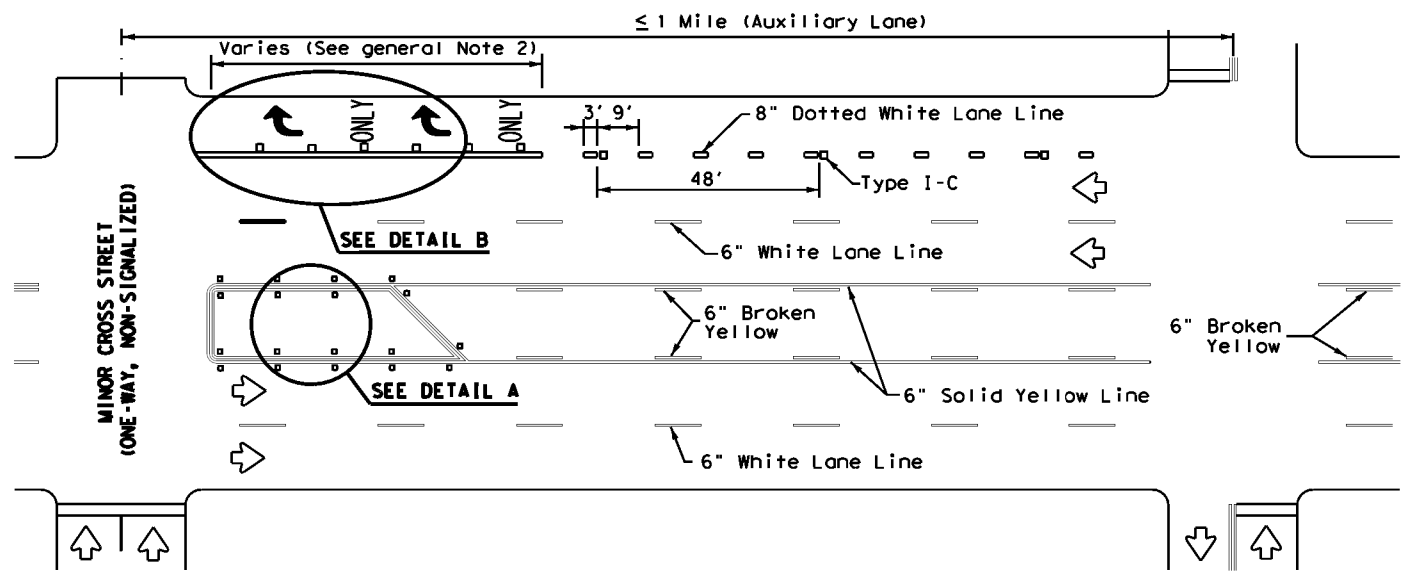
ADVANCED WARNING SIGN DISTANCE (D)		
Posted Speed	D (ft)	L (ft)
30 MPH	460	$L = \frac{WS^2}{60}$
35 MPH	565	
40 MPH	670	L=WS
45 MPH	775	
50 MPH	885	
55 MPH	990	
60 MPH	1,100	
65 MPH	1,200	
70 MPH	1,250	
75 MPH	1,350	

GENERAL NOTES

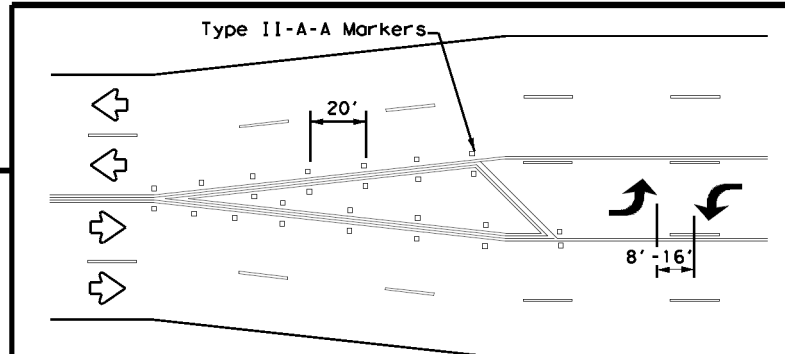
- Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn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

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

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

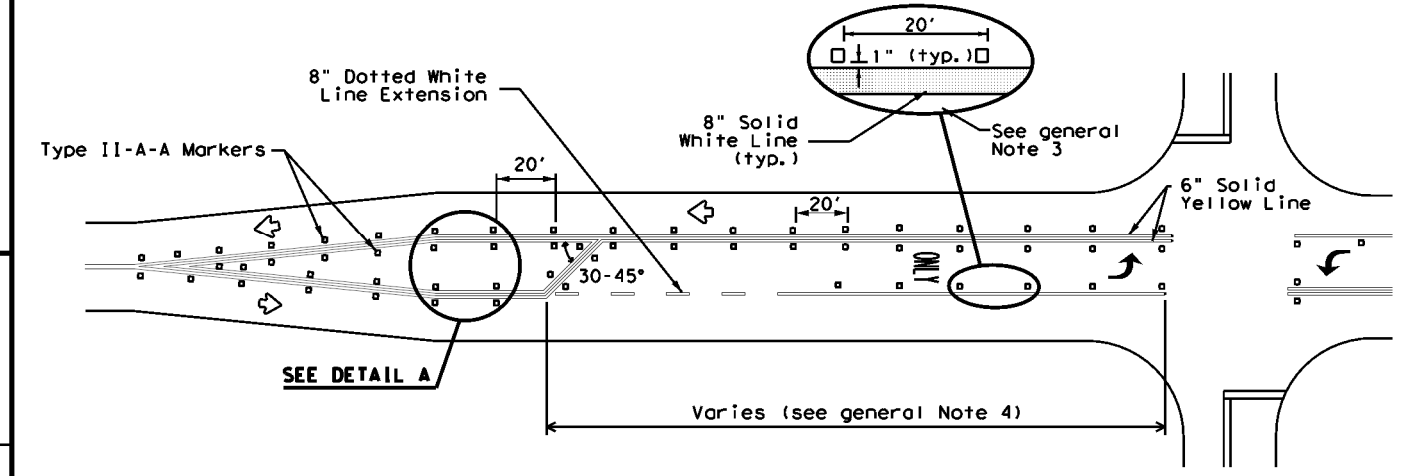


TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE

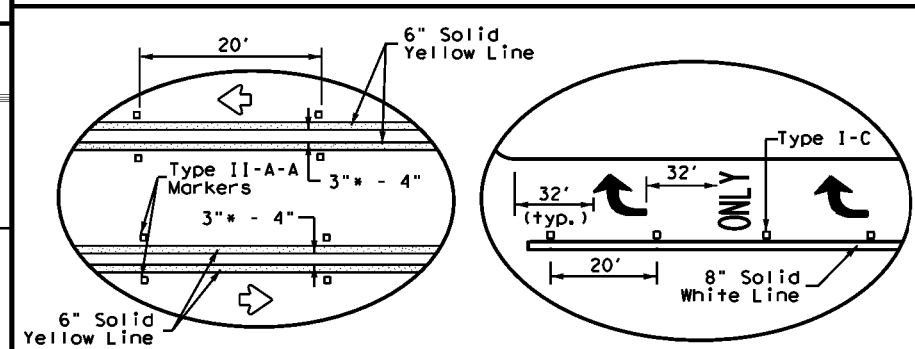


A two-way left-turn (TWLTL) lane-use arrow pavement marking should be used at or just downstream from the beginning of a two-way left-turn lane within a corridor. Repeating the marking after each intersection or dedicated turn bay is not required unless stated elsewhere in the plans.

TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY



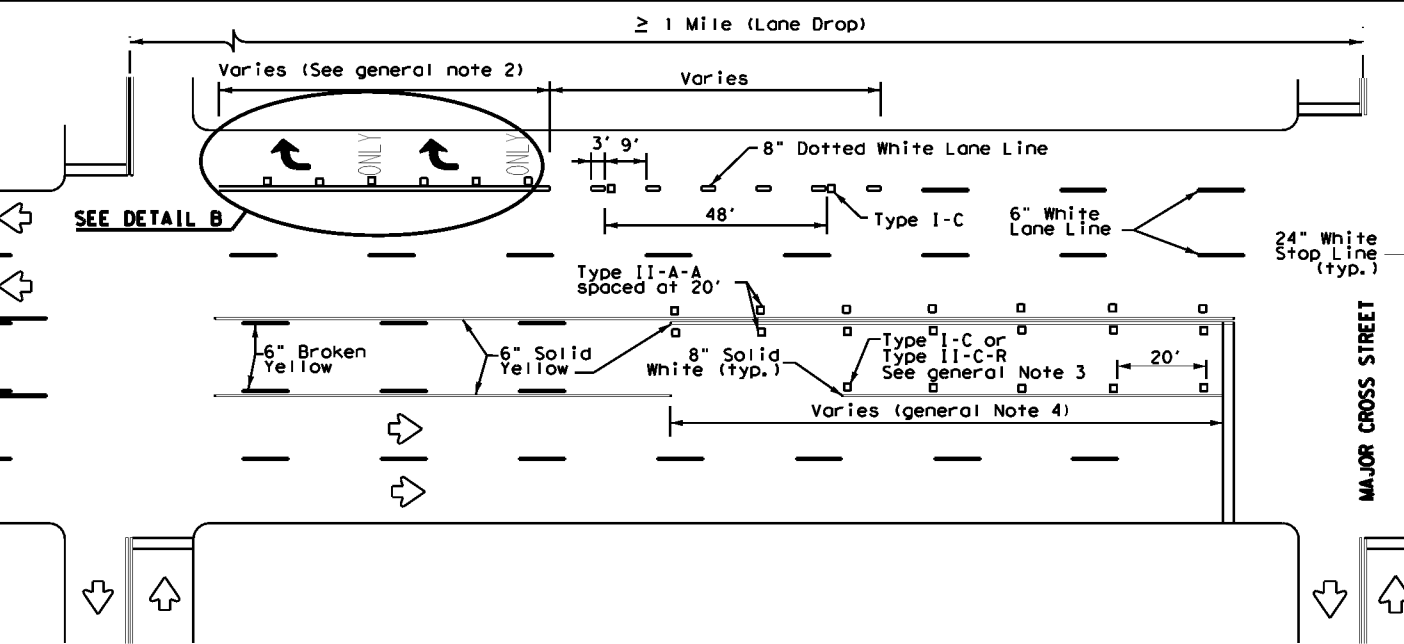
TYPICAL TWO-LANE ROADWAY INTERSECTION WITH LEFT TURN BAYS



DETAIL A

DETAIL B

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



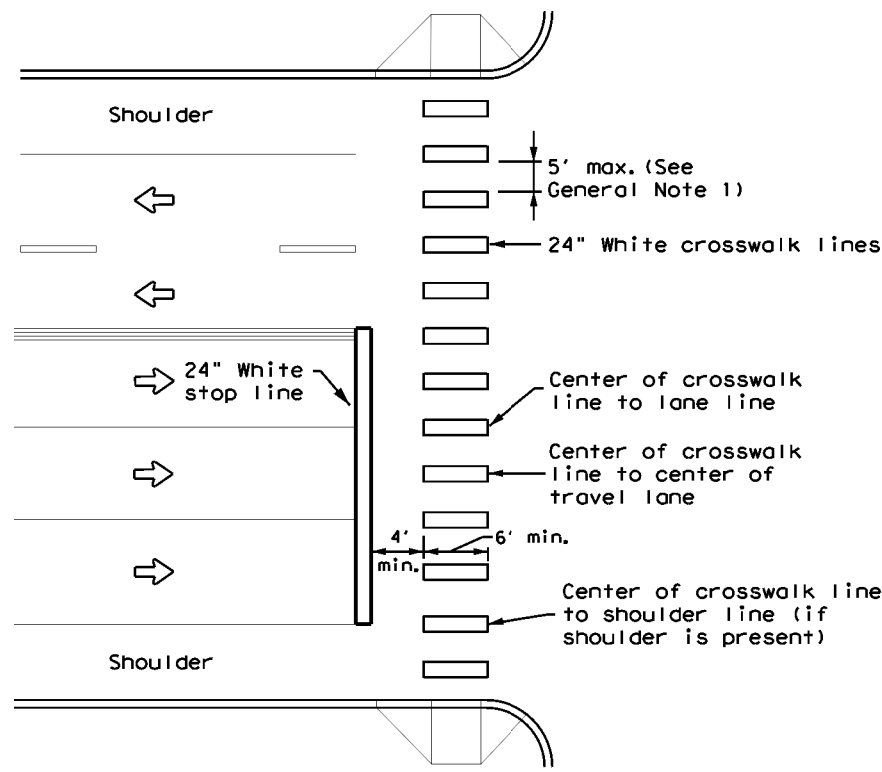
TYPICAL TWLTL AT TWO-WAY CROSS STREET AND RIGHT TURN LANE DROP

Texas Department of Transportation
Traffic Safety Division Standard

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

FILE: pm3-22.dgn	DN: 0912 00	CK: 710	DW: VARIOUS	CK: HIGHWAY
© TxDOT December 2022	REVISIONS			
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	5-00 2-10 12-22			
	8-00 2-12			
	DIST: HOU	COUNTY: HARRIS	SHEET NO.: 92	

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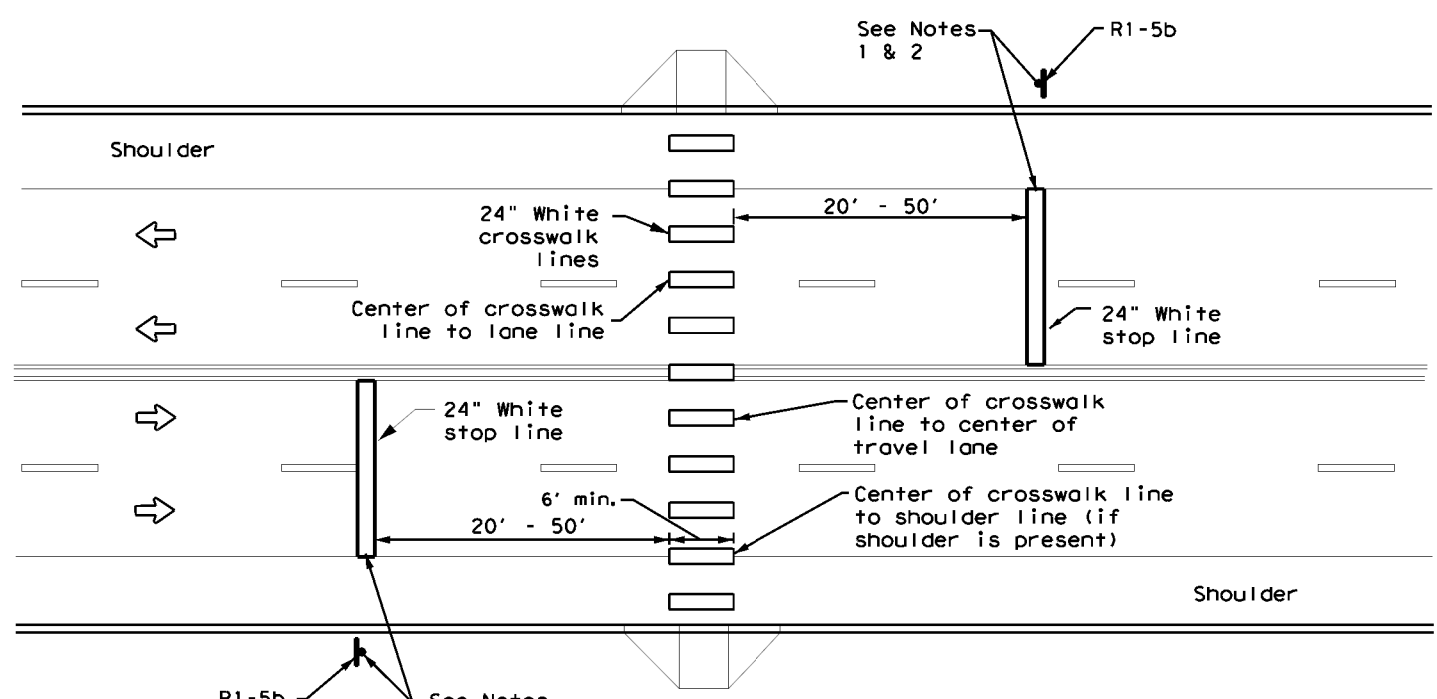
HIGH-VISIBILITY LONGITUDINAL CROSSWALK AT CONTROLLED APPROACH

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 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 MIDBLOCK HIGH-VISIBILITY LONGITUDINAL CROSSWALK

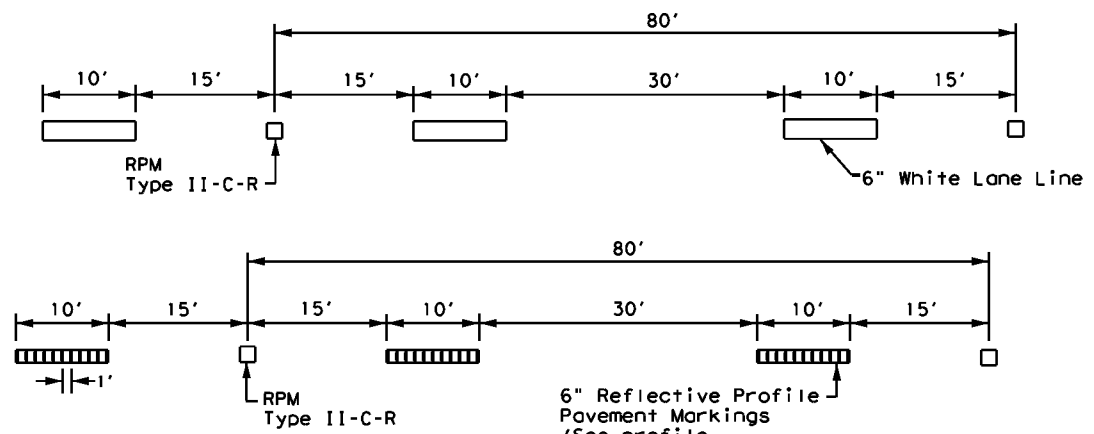
NOTES:

1. Use stop bars with Stop Here For Pedestrians (R1-5b) signs at unsignalized midblock crosswalks.
2. Use stop bars with STOP HERE ON RED (R10-6 or R10-6a) signs at mid block crosswalks controlled by traffic signals or pedestrian hybrid beacons.

DATE: \$DATES\$
FILE: \$FILES\$

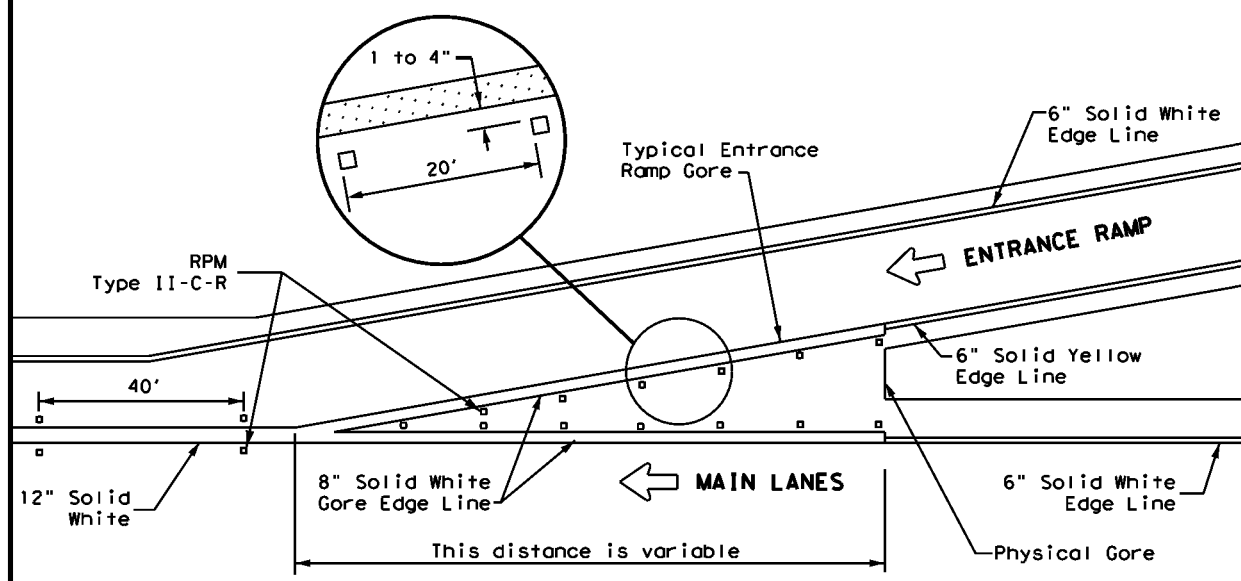
				Traffic Safety Division Standard	
<h2>CROSSWALK PAVEMENT MARKINGS</h2> <h3>PM(4) - 22A</h3>					
FILE: pm4-22a.dgn	DN:	CK:	DW:	CK:	
© TxDOT December 2022		CONT	SECT	JOB	HIGHWAY
REVISIONS		0912 00	710	VARIOUS	
6-20		DIST	COUNTY	SHEET NO.	
6-22		HOU	HARRIS	93	
12-22					

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NOTE
 ReflectORIZED raised pavement markers Type II-C-R shall be spaced on 80' centers with the clear face toward normal traffic and the red face toward wrong way traffic. All raised pavement markers placed along broken lines shall be placed in line with and midway between the stripes.

TRAFFIC LANE LINES PAVEMENT MARKING



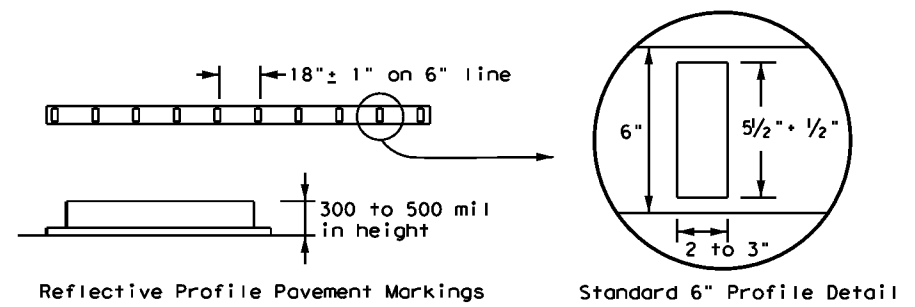
TYPICAL ENTRANCE RAMP GORE MARKING

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.

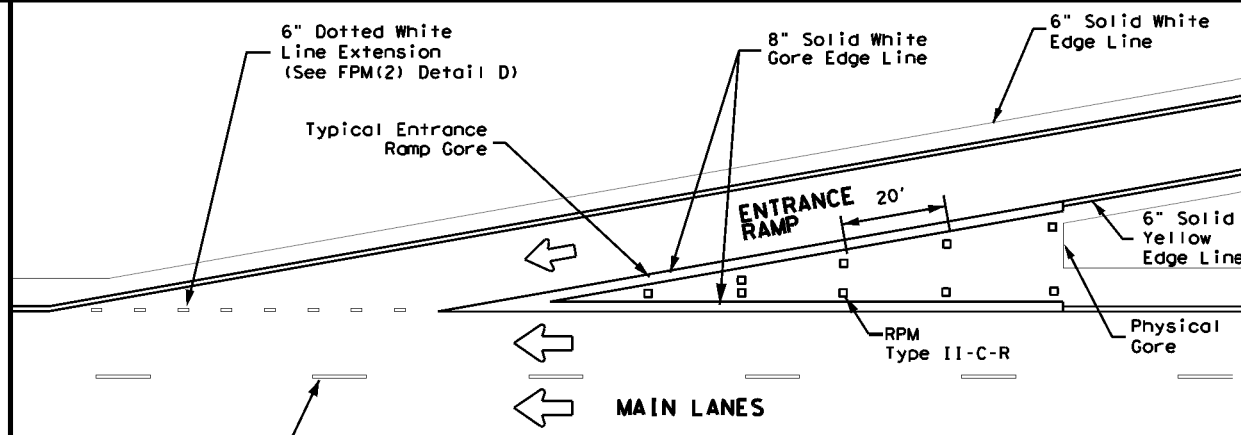
LEGEND	
	Traffic flow
	Pavement marking arrows (white)
	ReflectORIZED Raised Markers (RPM) Type II-C-R

GENERAL NOTE
 On concrete pavements the raised pavement markers shall be placed to one side of the longitudinal joints.



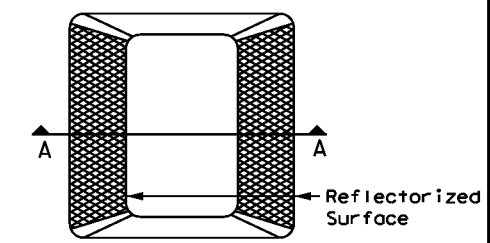
NOTE
 Edge lines should typically be 6" wide and the materials shall be as specified in the plans. See details above if reflective profile pavement markings are to be used.

EDGE LINE PAVEMENT MARKINGS

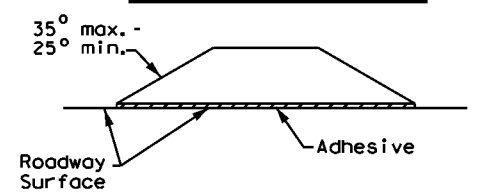


NOTE
 See the Roadway Design Manual Chapter 3 to determine if a tapered acceleration lane may be used.

TAPERED ACCELERATION LANE

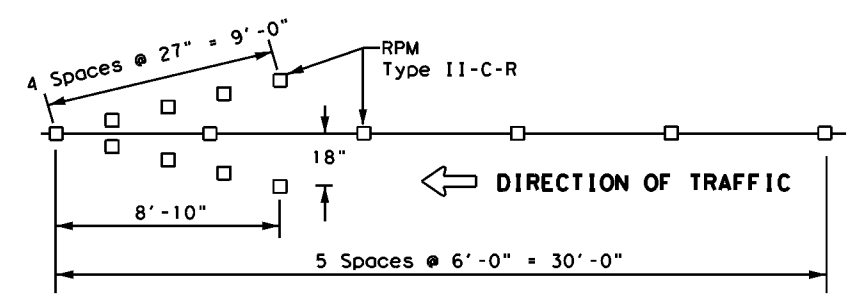


Type II (Top View)



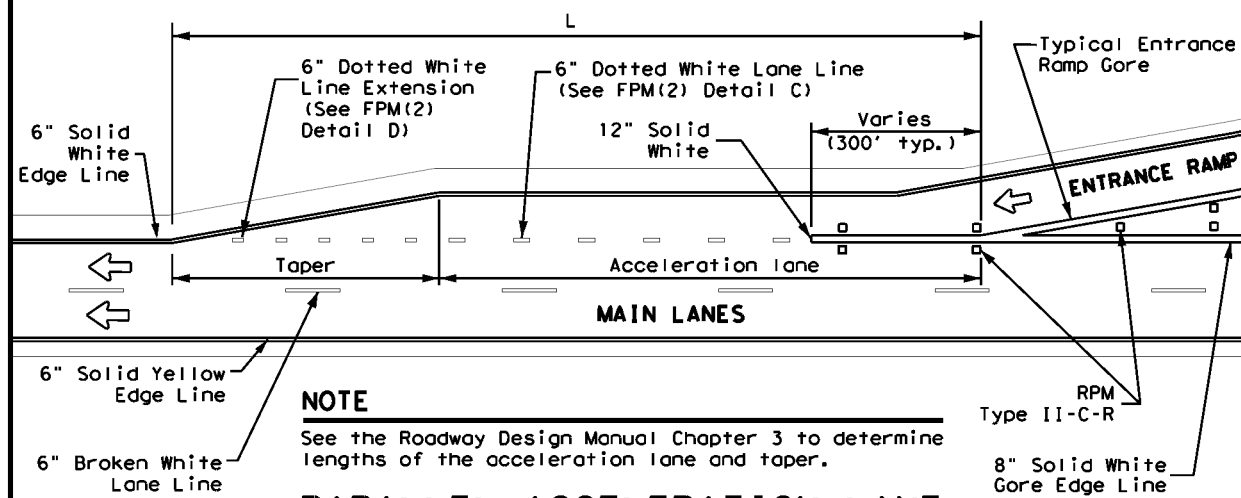
SECTION A

REFLECTORIZED RAISED PAVEMENT MARKER (RPM)



NOTES
 1. ReflectORIZED raised pavement markers Type-II-C-R in the wrong way arrow shall have the clear face toward normal traffic and the red face toward the wrong way traffic.
 2. Red reflectORIZED wrong way arrows, not to exceed two, may be placed on exit ramps. Locations of the arrows shall be as shown in the plans or as directed by the engineer.

WRONG WAY ARROW



NOTE
 See the Roadway Design Manual Chapter 3 to determine lengths of the acceleration lane and taper.

PARALLEL ACCELERATION LANE

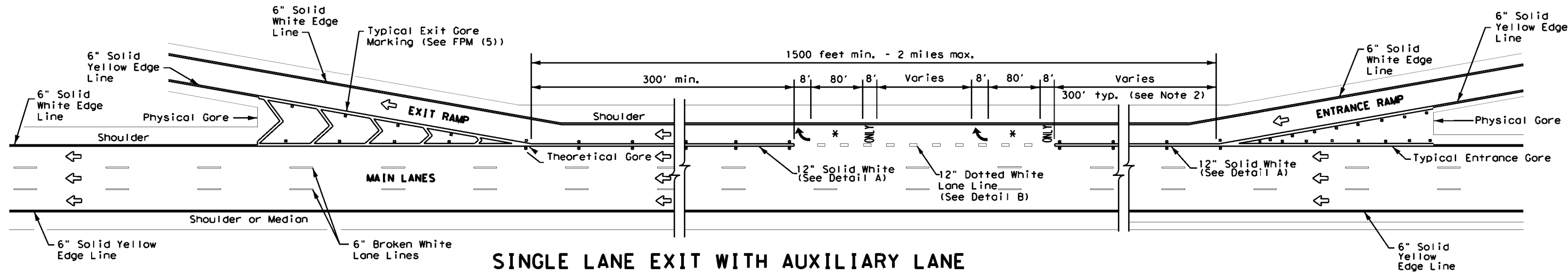
Texas Department of Transportation
 Traffic Safety Division Standard

TYPICAL STANDARD FREEWAY PAVEMENT MARKINGS WITH RAISED PAVEMENT MARKERS FPM(1)-22

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© TxDOT October 2022		CONT	SECT	JOB	HIGHWAY
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DIST		COUNTY		SHEET NO.	
HOU		HARRIS		94	

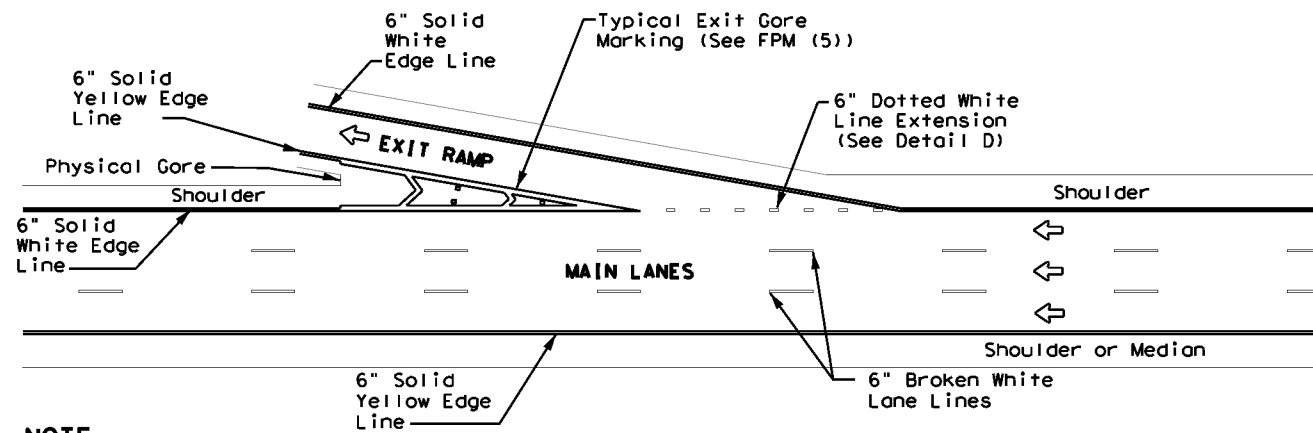
DATE: \$DATES \$TIMES
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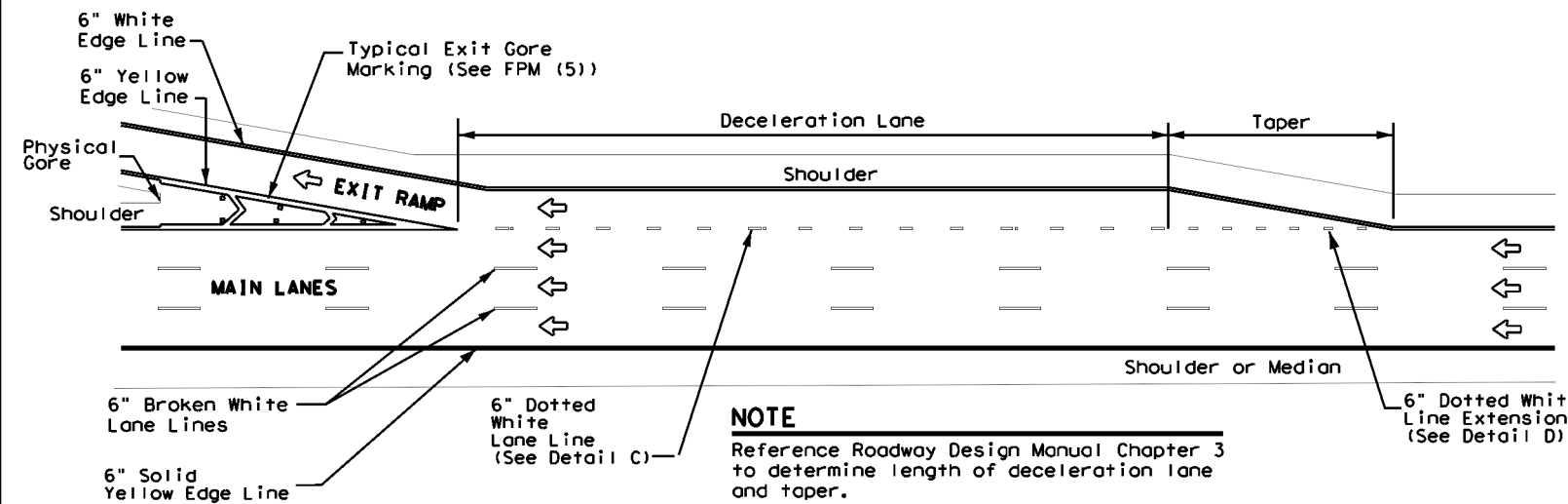
SINGLE LANE EXIT WITH AUXILIARY LANE

(See Note 2)



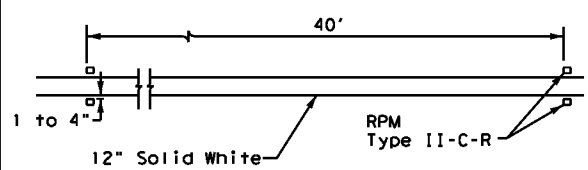
TAPERED DECELERATION LANE

NOTE
Reference Roadway Design Manual Chapter 3 to determine if tapered deceleration lane may be used.

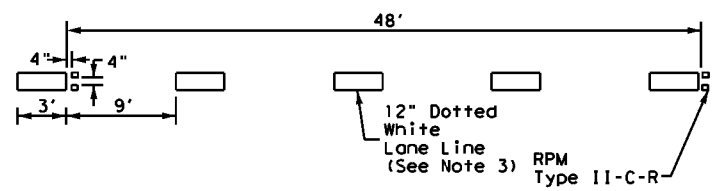


PARALLEL DECELERATION LANE

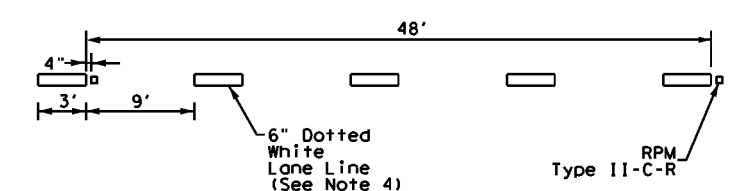
NOTE
Reference Roadway Design Manual Chapter 3 to determine length of deceleration lane and taper.



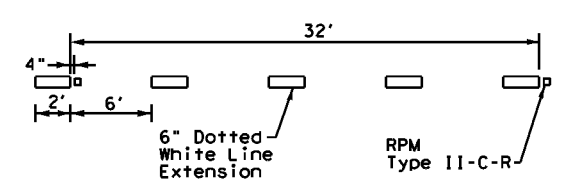
DETAIL A



DETAIL B



DETAIL C



DETAIL D

GENERAL NOTES

1. Pavement markings shall be white except as otherwise noted.
2. Length of 12" white line may vary depending on location.
3. Wide (12") dotted lane line (see Detail B) is used to separate a through lane that continues beyond the interchange from an adjacent mandatory exit lane.
4. Normal (6") dotted lane line (see Detail C) is used at parallel acceleration and deceleration lanes.
5. See FPM(1) for traffic lane line pavement marking details.

LEGEND	
←	Traffic flow
↶	Pavement marking arrows (white)
□	Reflectorized Raised Markers (RPM) Type II-C-R
✱	Arrow markings are optional, however "ONLY" is required if arrow is used

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

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

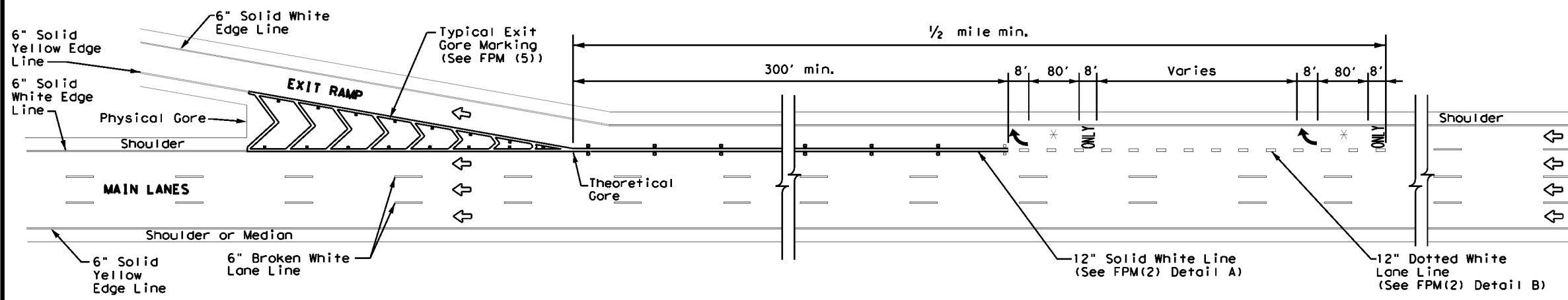


TYPICAL STANDARD FREEWAY PAVEMENT MARKINGS ENTRANCE AND EXIT RAMP

FPM(2) - 22

FILE: fpm(2)-22.dgn	DWG: CKS	DWG: CKS	CKS
© TxDOT October 2022			
CONT	SECT	JOB	HIGHWAY
0912	00	710	VARIOUS
REVISIONS		SHEET NO.	
2-77	5-00	2-12	
4-92	8-00	10-22	
8-95	2-10		
DIST	COUNTY		
HOU	HARRIS	95	

DATE: \$DATES \$TIMES
FILE: \$FILES

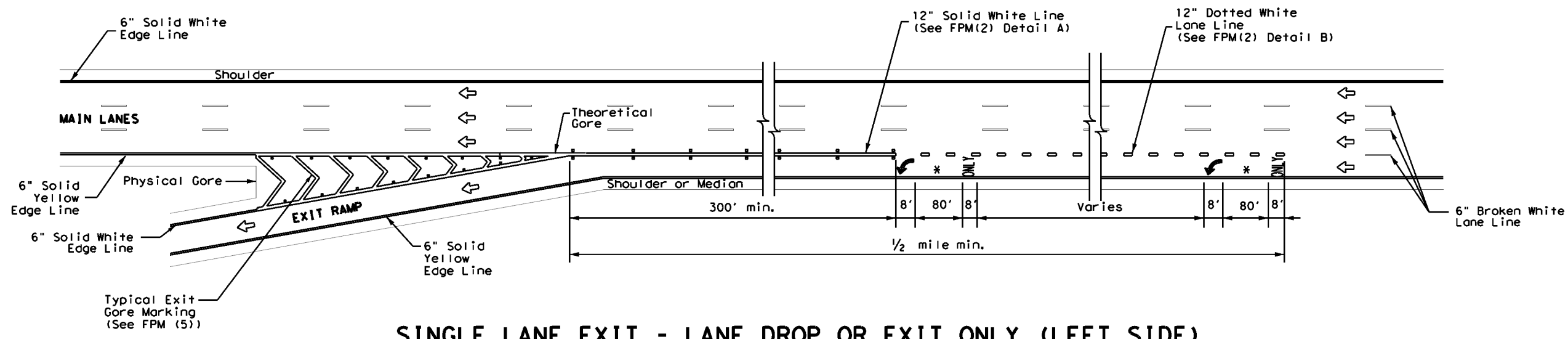


SINGLE LANE EXIT - LANE DROP OR EXIT ONLY

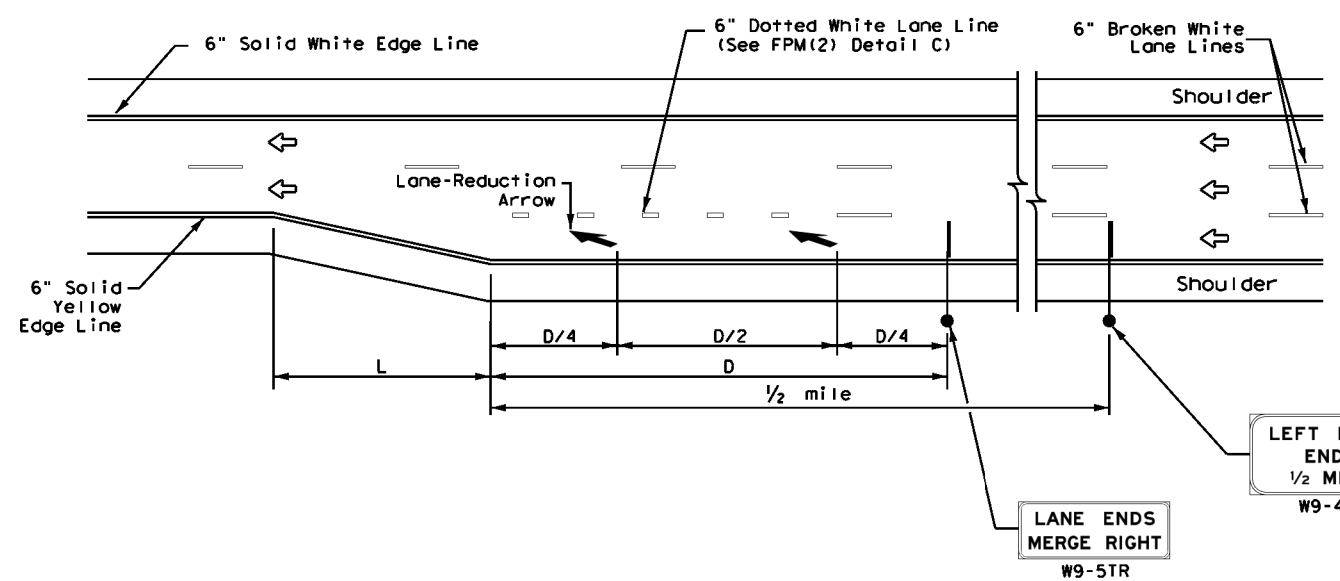
MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

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

LEGEND	
←	Traffic flow
↶	Pavement marking arrows (white)
□	ReflectORIZED Raised Markers (RPM) Type II-C-R
*	Arrow markings are optional, however "ONLY" is required if arrow is used



SINGLE LANE EXIT - LANE DROP OR EXIT ONLY (LEFT SIDE)



FREEWAY LANE REDUCTION

NOTES

1. Large Guide signs shall conform to the TxDOT Freeway Signing Handbook.
2. An optional third lane reduction arrow may be added based on engineering judgement. If used, the optional third lane reduction arrow should be centered between the first and last lane reduction arrows.
3. Arrows and sign details can be found in the Standard Highway Sign Designs for Texas (SHSD) at <http://www.txdot.gov>.
4. These guidelines may also be applied to the design of a right side lane reduction. Use LANE ENDS MERGE LEFT (W9-5TL) and RIGHT LANE ENDS 1/2 MILE (W9-4TR) signs in lieu of what is shown on drawing.

ADVANCED WARNING SIGN DISTANCE (D)		
Posted Speed	D (ft)	L (ft)
45 MPH	775	L=WS
50 MPH	885	
55 MPH	990	
60 MPH	1,100	
65 MPH	1,200	
70 MPH	1,250	
75 MPH	1,350	
80 MPH	1,500	
85 MPH	1,625	

GENERAL NOTES

1. Pavement markings shall be white except as otherwise noted.
2. Length of 12" white line may vary depending on location.
3. Wide (12") dotted lane line (see FPM(2) Detail B) is used to separate a through lane that continues beyond the interchange from an adjacent mandatory exit lane.
4. Edge lines are not required in curb and gutter sections of frontage roads.
5. See FPM(1) for traffic lane line pavement marking details.



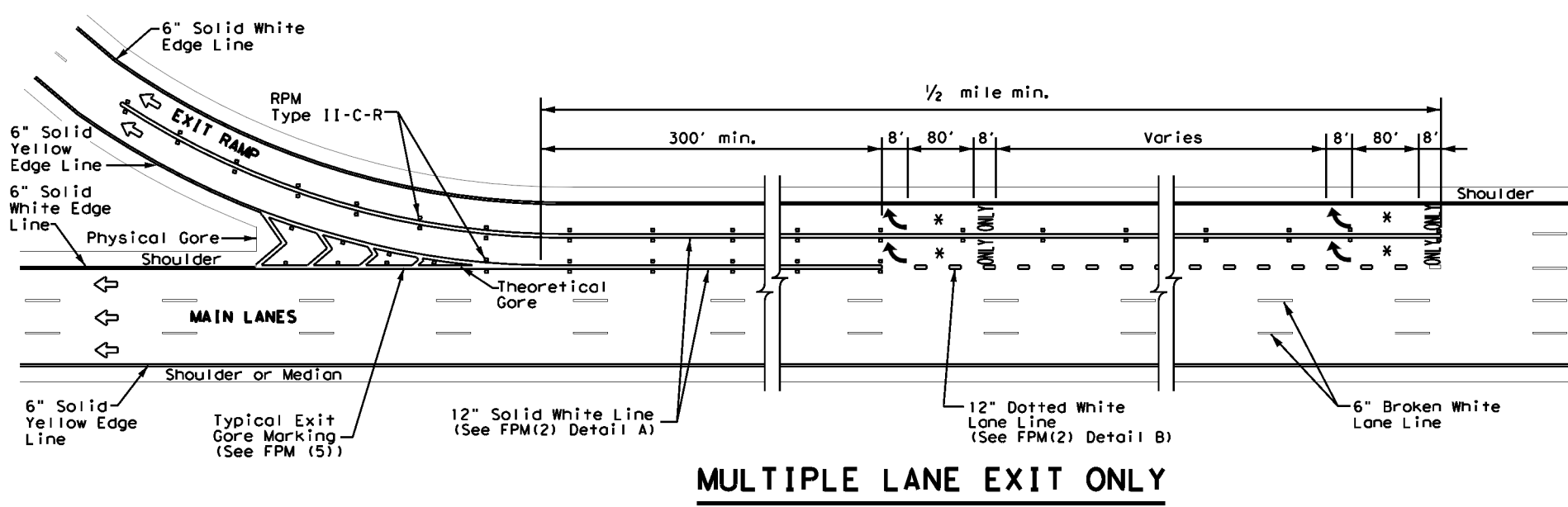
TYPICAL STANDARD FREEWAY PAVEMENT MARKINGS SINGLE LANE DROP (EXIT ONLY) AND LANE REDUCTION DETAILS

FPM(3) - 22

FILE: fpm(3)-22.dgn	DN: []	CK: []	DW: []	CK: []
© TxDOT October 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0912 00	710	VARIOUS	
4-92 2-10	DIST	COUNTY	SHEET NO.	
5-00 2-12	HOU	HARRIS	96	
8-00 10-22				

DATE: \$DATES
FILE: \$FILES

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MULTIPLE LANE EXIT ONLY

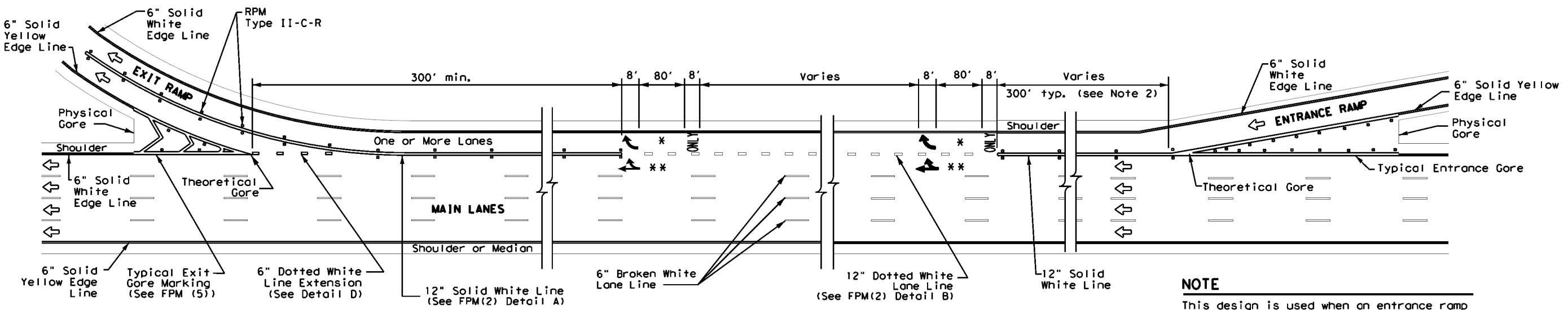
LEGEND	
↔	Traffic Flow
◻	Reflectorized Raised Markers (RPM) Type II-C-R
↶	Pavement marking arrow (white)
*	Arrow markings are optional, however "ONLY" is required if arrow is used
**	Arrow markings are optional

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.

GENERAL NOTES

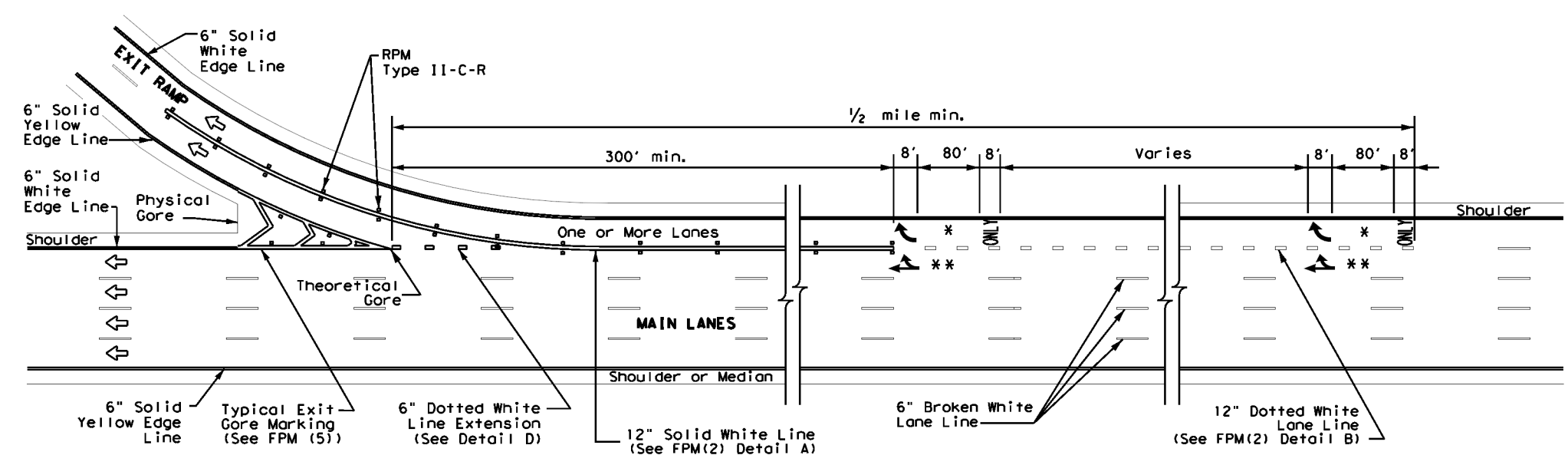
1. Pavement markings shall be white except as otherwise noted.
2. Length of 12" white line may vary depending on location.
3. Wide (12") dotted lane line (see FPM(2) Detail B) is used to separate a through lane that continues beyond the interchange from an adjacent mandatory exit lane.
4. Edge lines are not required in curb and gutter sections of frontage roads.
5. See FPM(1) for traffic lane line pavement marking details.



SINGLE LANE ENTRANCE WITH MULTIPLE LANE EXIT - EXIT ONLY WITH OPTION LANE

NOTE

This design is used when an entrance ramp is followed by a dual lane exit ramp within 2400' downstream (theoretical gore to theoretical gore).



MULTIPLE LANE EXIT - EXIT ONLY WITH OPTION LANE

DATE: \$DATE\$
FILE: \$FILE\$
\$TIMES\$



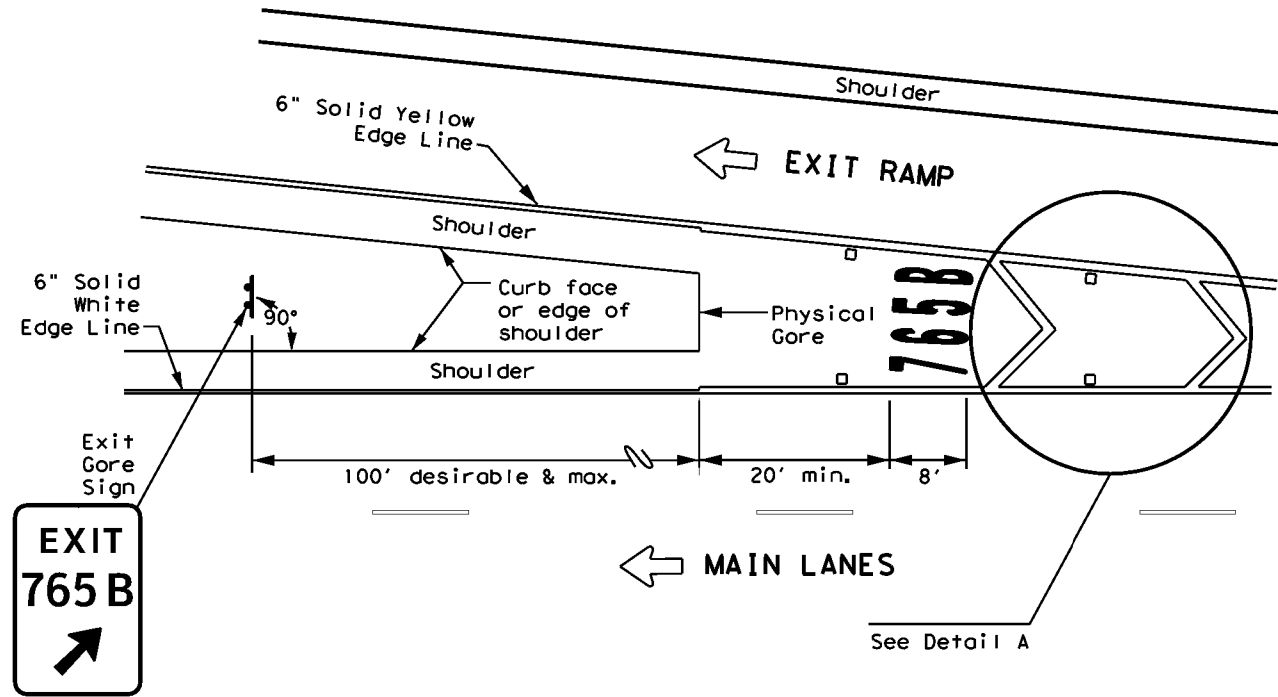
TYPICAL STANDARD FREEWAY PAVEMENT MARKINGS MULTIPLE LANE DROP (EXIT) DETAILS FPM(4)-22

FILE: fpm(4)-22.dgn	DW: []	CK: []	DW: []	CK: []	
© TxDOT October 2022		CONT	SECT	JOB	HIGHWAY
REVISIONS		0912	00	710	VARIOUS
2-77	2-10	DIST	COUNTY	SHEET NO.	
5-00	2-12	HOU	HARRIS	97	
8-00	10-22				

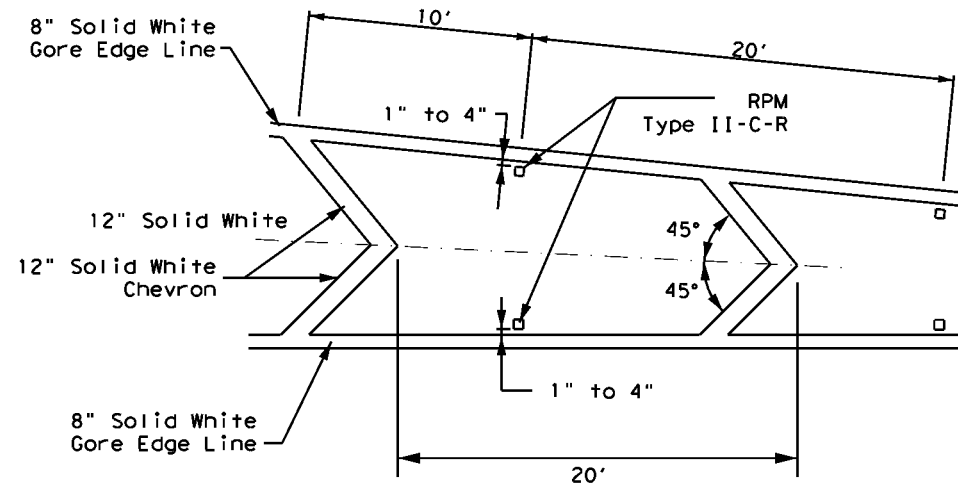
DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

EXIT NUMBER PAVEMENT MARKING NOTES

1. Minimum 8 foot white exit number pavement markings should be used, unless otherwise noted.
2. Spacing between letters and numbers should be approximately 4 inches.
3. Pavement markings are to be located as specified elsewhere in the plans.
4. Numbers and Letters details can be found in the Standard Highway Design for Texas (SHSD) Section 12 at <http://www.txdot.gov>



MARKINGS WITH EXIT NUMBER



NOTES

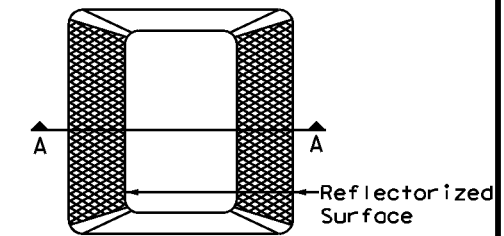
1. Raised pavement markers shall be centered between each chevron or neutral area line.
2. For more information, see ReflectORIZED Raised Pavement Marker Detail.

DETAIL A

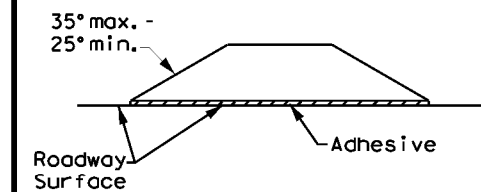
MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

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

LEGEND	
←	Traffic flow
□	ReflectORIZED Raised Markers (RPM) Type II-C-R

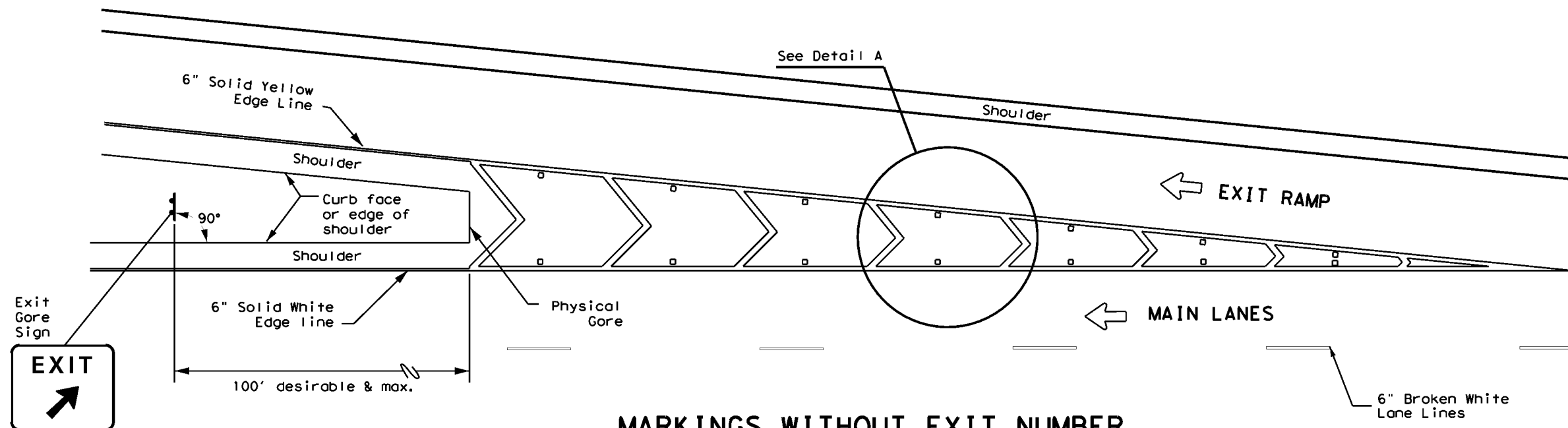


Type II (Top View)



SECTION A

REFLECTORIZED RAISED PAVEMENT MARKER (RPM)



MARKINGS WITHOUT EXIT NUMBER



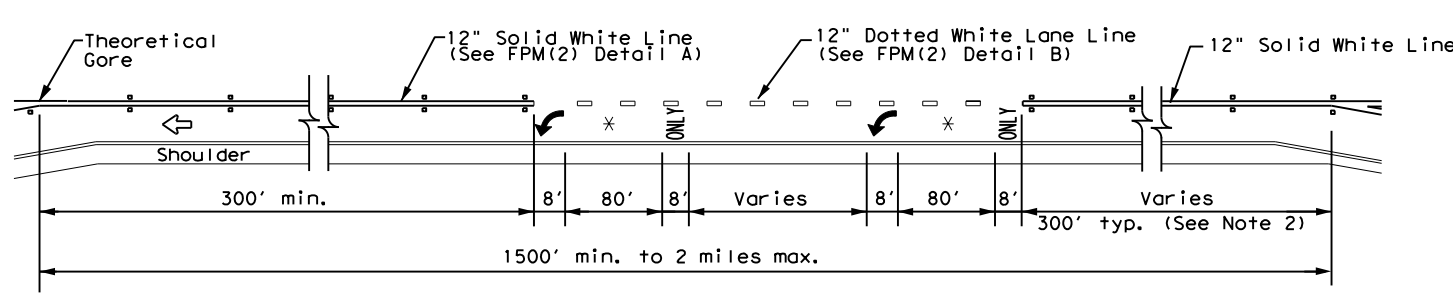
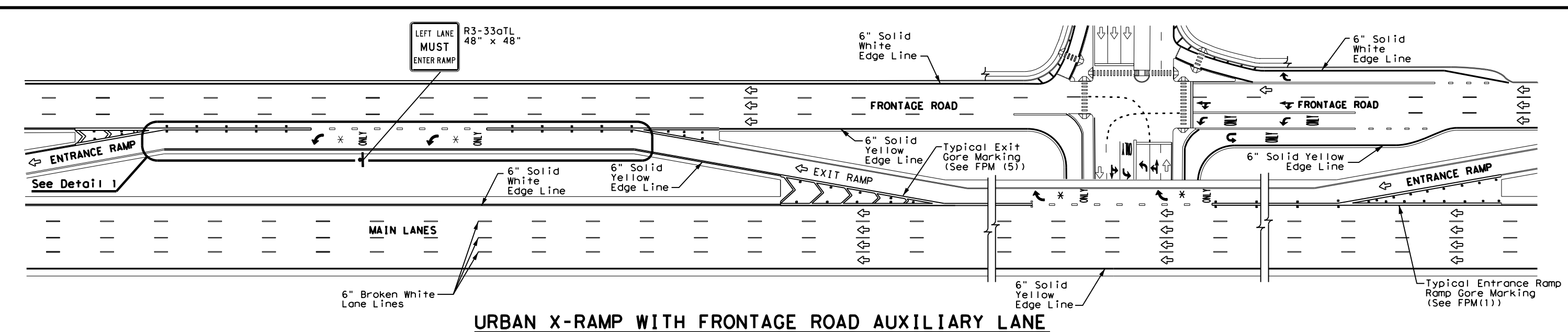
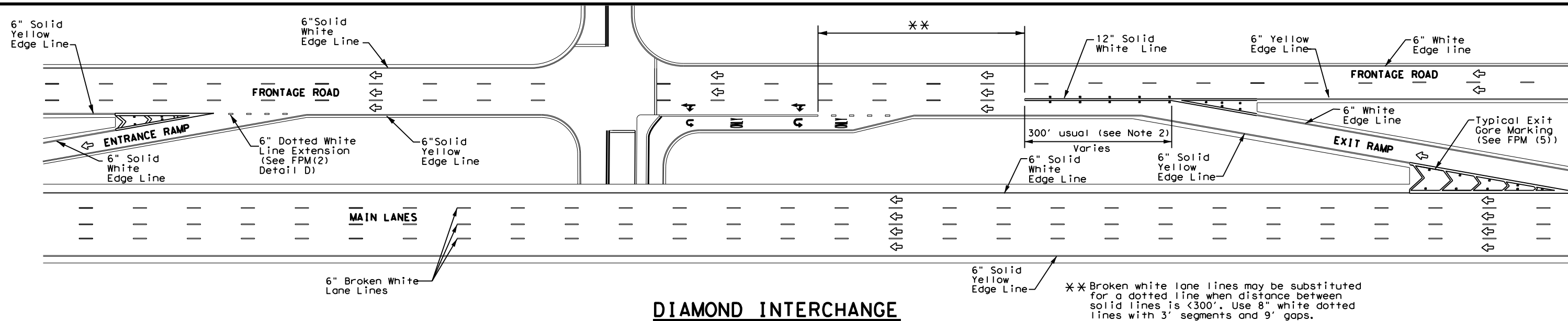
EXIT GORE PAVEMENT MARKINGS

FPM(5) - 22

FILE: fpm(5)-22.dgn	DN: 0912 00	CK: 710	DW: 10-22	CK: VARIOUS
© TxDOT October 2022	CONT: 0912 00	SECT: 710	JOB: HARRIS	HIGHWAY: 98
REVISIONS: 9-19, 10-22	DIST: HOU	COUNTY: HARRIS	SHEET NO. 98	

DATE: \$DATES
FILE: \$FILES

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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.

GENERAL NOTES

1. Pavement markings shall be white except as otherwise noted.
2. Length of 12" white line may vary depending on location.
3. Wide (12") dotted lane line (see FPM(2) Detail B) is used to separate a through lane that continues beyond the interchange from an adjacent mandatory exit lane.
4. Edge lines are not required in curb and gutter sections of frontage roads.
5. See FPM(1) for traffic lane line pavement marking details.

LEGEND	
↔	Traffic flow
↶	Pavement marking arrows (white)
□	ReflectORIZED Raised Markers (RPM) Type II-C-R
*	Arrow markings are optional, however "ONLY" is required if arrow is used

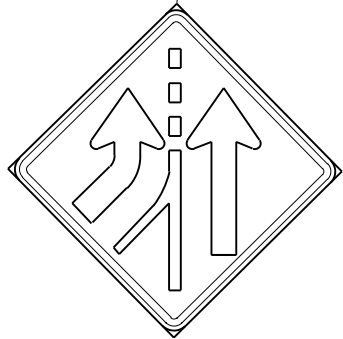
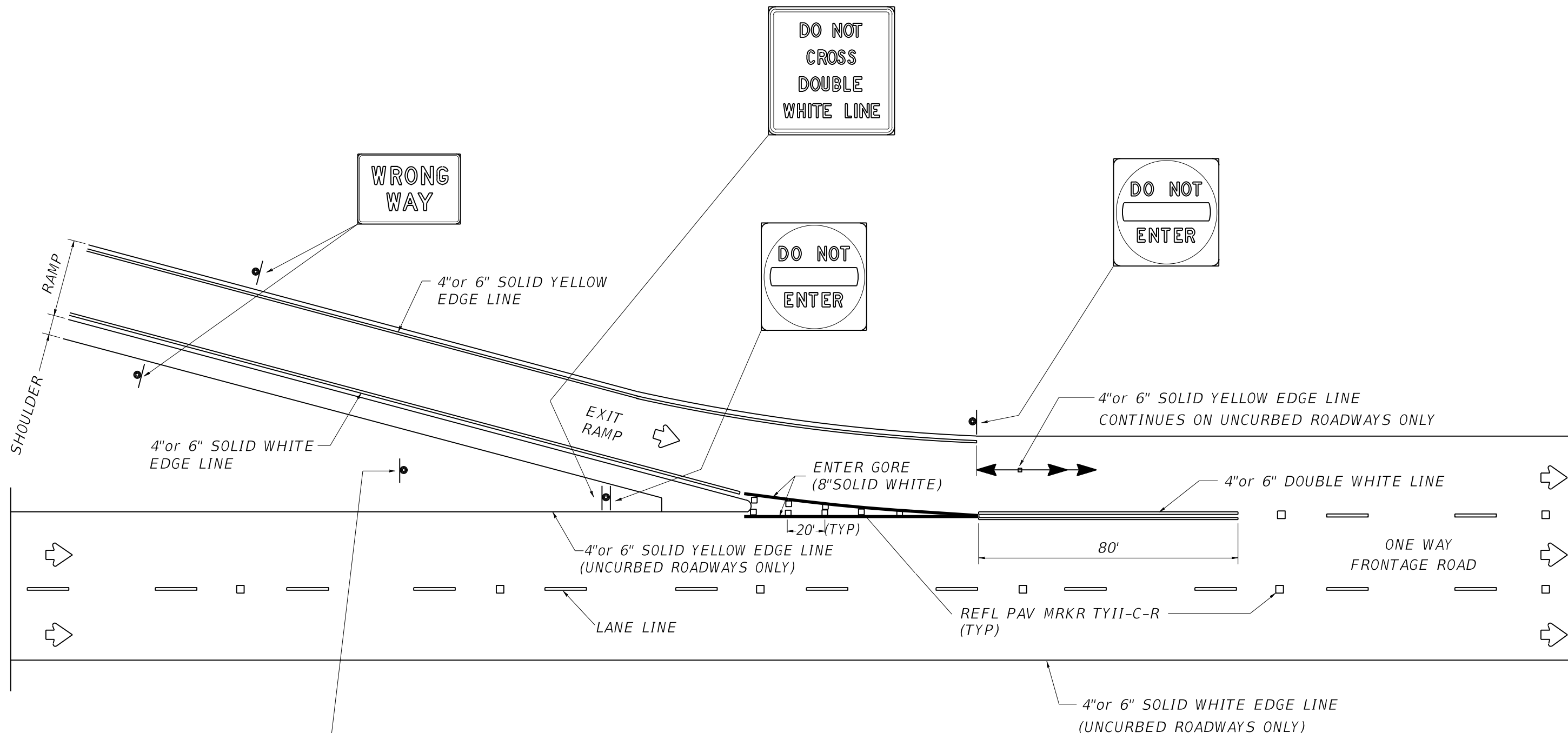


**TYPICAL STANDARD
FREEWAY AND FRONTAGE
ROAD PAVEMENT MARKINGS**

FPM(6) -22

FILE: fpm(6)-22.dgn	DN:	CK:	DW:	CK:
© TxDOT October 2022	CONT	SECT	JOB	HIGHWAY
10-22	REVISIONS	0912 00	710	VARIOUS
	DIST	COUNTY	SHEET NO.	
	HOU	HARRIS	99	

DATE: \$DATES\$
FILE: \$FILES\$



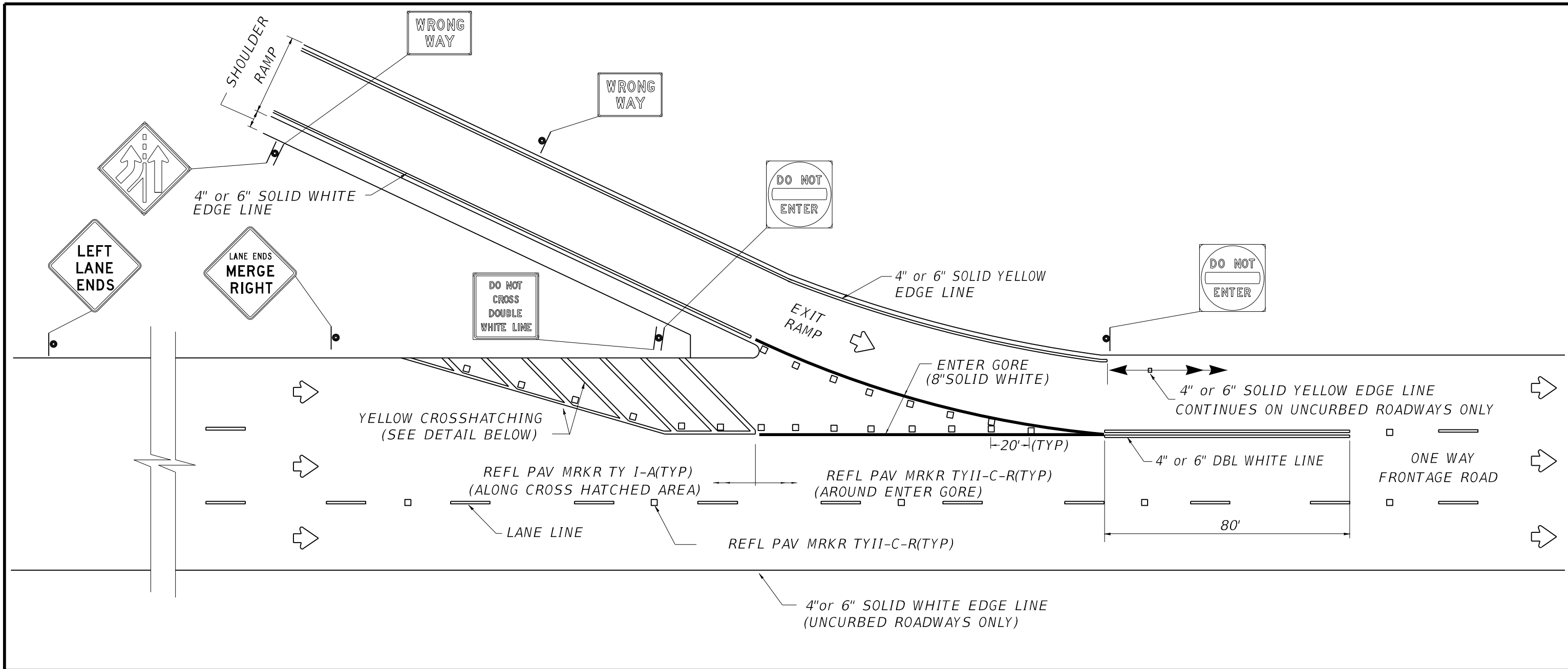
DRAWING SCALE: NONE

Texas Department of Transportation
Houston District

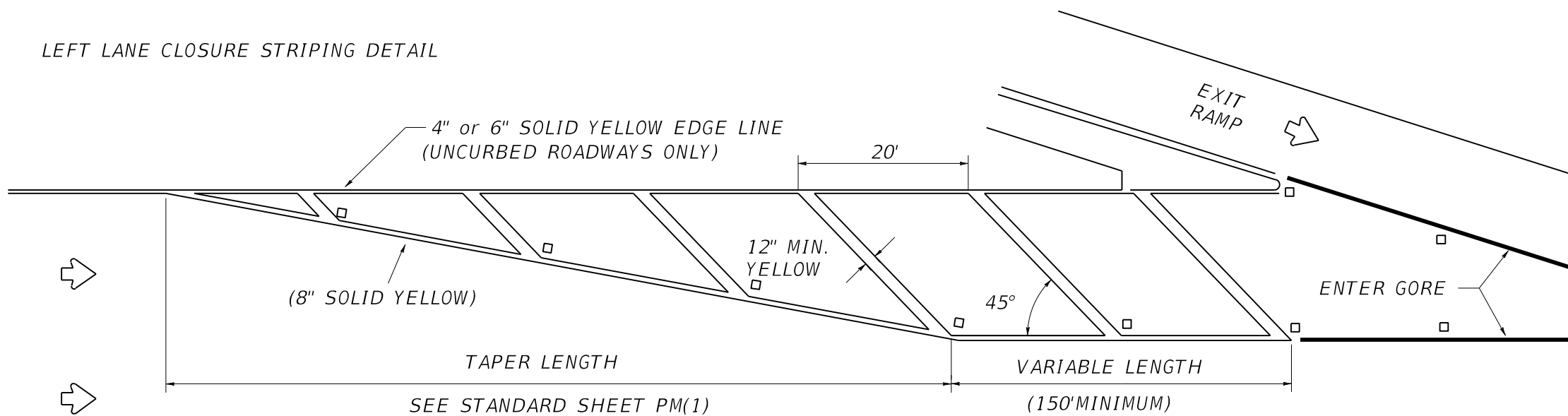
SIGNING AND PAVEMENT MARKING DETAILS
EXIT RAMP-FRONTAGE ROAD

ER-FR(1)-09

FILE: STDN25.dgn	DN:	CK:	DW:	CK:
©TxDOT 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS FEB., 2008 DEC., 2009	0912	00	710	VARIOUS
	DIST	COUNTY	SHEET NO.	
	HOU	HARRIS	100	



LEFT LANE CLOSURE STRIPING DETAIL



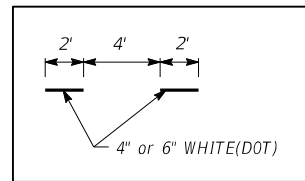
DRAWING SCALE: NONE

Texas Department of Transportation
Houston District

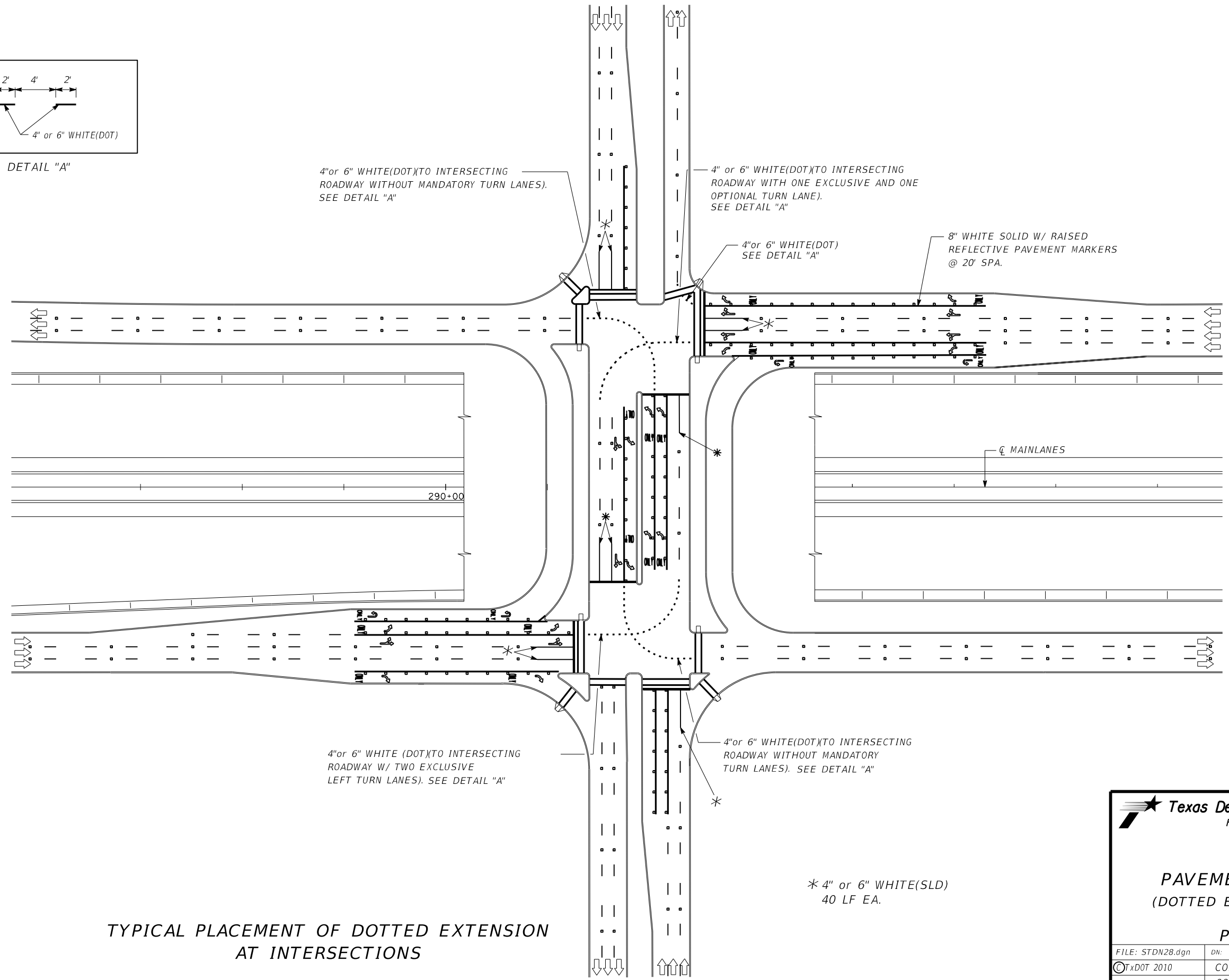
SIGNING AND PAVEMENT MARKING DETAILS
EXIT RAMPS-FRONTAGE ROAD

ER-FR(2)-09

FILE: STDN26.dgn	DN:	CK:	DW:	CK:
©TxDOT 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS FEB., 2008 DEC., 2009	0912	00	710	VARIOUS
	DIST	COUNTY	SHEET NO.	
	HOU	HARRIS	101	



DETAIL "A"

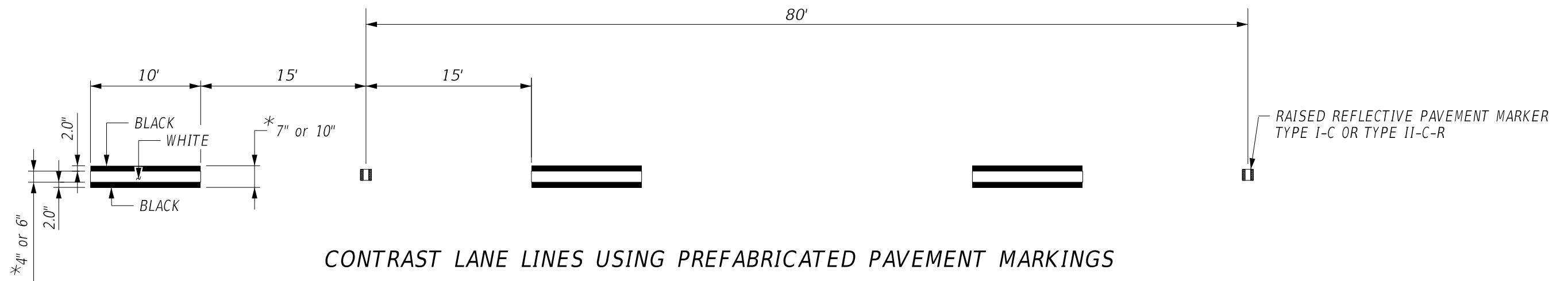


TYPICAL PLACEMENT OF DOTTED EXTENSION AT INTERSECTIONS

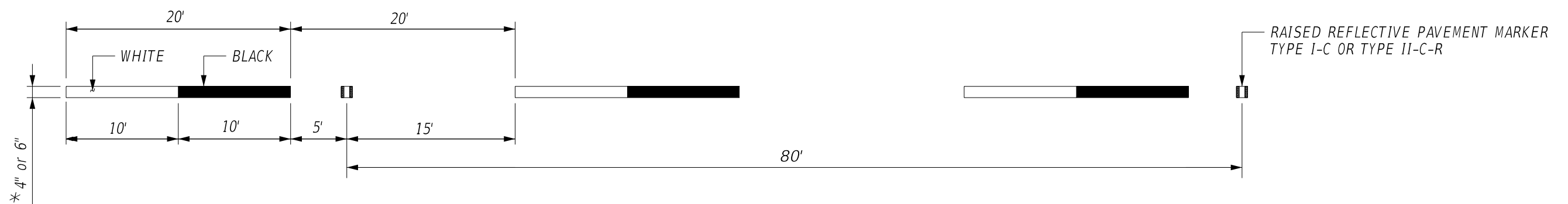
PAVEMENT MARKINGS
(DOTTED EXTENSION DETAILS)

PM(DOT)-11

FILE: STDN28.dgn	DN:	CK:	DW:	CK:
©TxDOT 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS	0912	00	710	VARIOUS
4/2010	DIST	COUNTY	SHEET NO.	
4/2011	HOU	HARRIS	102	



➔ DIRECTION OF TRAFFIC



* AS SHOWN ON THE PLANS.

**PAVEMENT MARKINGS
(CONTRAST LANE LINES)**

PM(CLL)-14

FILE: STDN30.dgn	DN:	CK:	DW:	CK:
©TxDOT 2003	CONT	SECT	JOB	HIGHWAY
REVISIONS 01-10-06 02-12-08 10-2019 9" to 10"	0912	00	710	VARIOUS
	DIST	COUNTY		SHEET NO.
	HOU	HARRIS		103

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I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)

This project is adjacent or parallel work, not within RR ROW:
 DOT No.: 022708X
 Crossing Type: At-Grade
 RR Company Operating Track at Crossing: BNSF Railway Company (BNSF)
 RR Company Owning Track at Crossing: BNSF
 RR MP: 76.557
 RR Subdivision: GALVESTON
 City: Rosenberg
 County: Fort Bend
 CSJ at this Crossing: 0912-00-710
 Latitude: 29°36'15.35"N
 Longitude: 95°58'39.80"W

Scope of Work, including any TCP, to be performed by State Contractor:

1) Pavement Markings
 2) TCP(3-1)-13
 3) Railroad and Contractor flaggers will coordinate with lane closures in vicinity of railroad.
 4) All lanes across railroad tracks are to be open to traffic at the end of the day.

Scope of Work to be performed by Railroad Company:

N/A

II. FLAGGING & INSPECTION

No. of Days of Railroad Flagging Expected: 1
 On this project, night or weekend flagging is:
 Expected
 Not Expected

Flagging services will be provided by:

Railroad Company: 1) Txdot will pay flagging invoices. Flagging Agreement with railroad will be needed or, 2) Permitted crossing. Railroad company to provide flagging.
 Outside Party: Contractor will pay flagging invoices to be reimbursed by TxDOT

Contractor must incorporate flaggers into anticipated construction schedule. The Railroad requires a 30-day notice if their flaggers are to be utilized. If Contractor falls behind schedule due to their own negligence and is not ready for scheduled flaggers, any flagging charges will be paid by Contractor.

Contact Information for Flagging:

UPRR UP.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 UP.request@nrssinc.net
 Call Center 877-984-6777

BNSF BNSFinfo@railprofs.com
 Call Center 877-315-0513, Select #1 for flagging

CPKCR KCS.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 Bottom Line On-Track Safety Services
 bottomline076@aol.com, 903-767-7630

OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

Not Required
 Required. Contact Information for Construction Inspection:

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

Required.
 Not Required
 Railroad Point of Contact: _____

Coordinate with TxDOT for any work to be performed by the Railroad Company. TxDOT must issue a work order for any work done by the Railroad Company prior to the work being performed.

IV. RAILROAD INSURANCE REQUIREMENTS

The Contractor shall confirm the insurance requirements with the Railroad as the insurance limits are subject to change without notice.

Insurance policies and corresponding certificates of insurance must be issued by the contractor on behalf of the Railroad. Separate insurance policies and certificates are required when more than one Railroad Company is operating on the same right of way, or when several Railroad Companies are involved and operate on their own separate right of ways.

No direct compensation will be made to the Contractor for providing the insurance coverages shown below or any deductibles. These costs are incidental to the various bid items.

Escalated Limits	
Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	\$500,000 / \$500,000 / \$500,000
Commercial General Liability	\$2,000,000 / \$4,000,000
Business Automobile	\$2,000,000

Railroad Protective Liability Limits	
<input type="checkbox"/> Not Required	
<input checked="" type="checkbox"/> Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	\$2,000,000 / \$6,000,000
<input type="checkbox"/> Bridge Structure Projects. Includes new construction or replacement of overpass/underpass structures	\$5,000,000 / \$10,000,000
<input type="checkbox"/> Other:	_____

V. CONTRACTOR'S RIGHT OF ENTRY (CROE)

Not Required
 Required: UPRR Maintenance Consent Letter. TxDOT to assist
 Required: TxDOT to assist in obtaining the UPRR CROE
 Required: Contractor to obtain

- BNSF: _____
https://bnsf.railpermitting.com
- CPKCR
https://jllrpg.360works.com/fmi/webd/rpo_web_kcs.fmp12
- Other Railroads: _____

To view previously approved CROE templates agreed upon between the State and Railroad, see: <https://www.txdot.gov/business/resources/railroad-highway-crossing/sample-right-of-entry-agreements.html>

Approved CROE templates are not to be modified by the Contractor.

Contractor shall not operate within Railroad Right of Way without an executed Construction & Maintenance Agreement between the State and the Railroad and an executed CROE between the Contractor and the Railroad if required on project.

VI. RAILROAD COORDINATION MEETING

A Railroad Coordination Meeting is required. See item 5, Article 8.1, of the Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges Manual for more details.

VII. RAILROAD SAFETY ORIENTATION

A. Complete the Railroad's course "Orientation for Contractor's Safety," and maintain registration prior to working on the Railroad's property. This course is required to be completed annually by Contractor and Subcontractor personnel working on site.

UPRR, BNSF, CPKCR will not accept on-track safety training certificates from other Railroads. Refer to each Railroad's specific contractor right of entry for training information.

Know and follow the Contractor's Right of Entry Agreement EXHIBIT D, MINIMUM SAFETY REQUIREMENTS regarding clothing, personal protective equipment, and general safety requirements.

VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are subject to the same insurance requirements as the Prime Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency

Call: BNSF

Railroad Emergency Line at: 800-832-5452

Location: DOT_DOT 022708X

RR Milepost: 76.557

Subdivision: GALVESTON

RRD Review Only

Initials: [Signature]

Date: 10/26/23

Rail Division

RAILROAD SCOPE OF WORK

PROJECT SPECIFIC DETAILS

FILE: rr-scope-of-work.pdf	DN: TxDOT	CK:	DW:	CK:
© TxDOT June 2014	CONT	SECT	JOB	HIGHWAY
6/2023	0912	00	710	VARIOUS
	DIST	COUNTY		SHEET NO.
	HOU	HARRIS		104

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I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)

This project is adjacent or parallel work, not within RR ROW:
 DOT No.: 906645P
 Crossing Type: At-Grade
 RR Company Operating Track at Crossing: Union Pacific Railroad Company (UP)
 RR Company Owning Track at Crossing: UPRR
 RR MP: 11.895
 RR Subdivision: Popp Ind Ld
 City: Arcola
 County: Fort Bend
 CSJ at this Crossing: 0912-00-710
 Latitude: 29° 30' 27.70"N
 Longitude: 95° 27' 41.30"W

Scope of Work, including any TCP, to be performed by State Contractor:

1) Pavement Markings
 2) TCP(3-4)-13
 3) Railroad and Contractor flaggers will coordinate with lane closures in vicinity of railroad.
 4) All lanes across railroad tracks are to be open to traffic at the end of the day.

Scope of Work to be performed by Railroad Company:

N/A

II. FLAGGING & INSPECTION

No. of Days of Railroad Flagging Expected: 1
 On this project, night or weekend flagging is:
 Expected
 Not Expected

Flagging services will be provided by:

Railroad Company: 1) Txdot will pay flagging invoices. Flagging Agreement with railroad will be needed or, 2) Permitted crossing. Railroad company to provide flagging.
 Outside Party: Contractor will pay flagging invoices to be reimbursed by TxDOT

Contractor must incorporate flaggers into anticipated construction schedule. The Railroad requires a 30-day notice if their flaggers are to be utilized. If Contractor falls behind schedule due to their own negligence and is not ready for scheduled flaggers, any flagging charges will be paid by Contractor.

Contact Information for Flagging:

UPRR UP.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 UP.request@nrssinc.net
 Call Center 877-984-6777

BNSF BNSFinfo@railprofs.com
 Call Center 877-315-0513, Select #1 for flagging

CPKCR KCS.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 Bottom Line On-Track Safety Services
 bottomline076@aol.com, 903-767-7630

OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

Not Required
 Required. Contact Information for Construction Inspection:

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

Required.
 Not Required
 Railroad Point of Contact: _____

Coordinate with TxDOT for any work to be performed by the Railroad Company. TxDOT must issue a work order for any work done by the Railroad Company prior to the work being performed.

IV. RAILROAD INSURANCE REQUIREMENTS

The Contractor shall confirm the insurance requirements with the Railroad as the insurance limits are subject to change without notice.

Insurance policies and corresponding certificates of insurance must be issued by the contractor on behalf of the Railroad. Separate insurance policies and certificates are required when more than one Railroad Company is operating on the same right of way, or when several Railroad Companies are involved and operate on their own separate right of ways.

No direct compensation will be made to the Contractor for providing the insurance coverages shown below or any deductibles. These costs are incidental to the various bid items.

Escalated Limits	
Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	\$500,000 / \$500,000 / \$500,000
Commercial General Liability	\$2,000,000 / \$4,000,000
Business Automobile	\$2,000,000

Railroad Protective Liability Limits	
<input type="checkbox"/> Not Required	
<input checked="" type="checkbox"/> Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	\$2,000,000 / \$6,000,000
<input type="checkbox"/> Bridge Structure Projects. Includes new construction or replacement of overpass/underpass structures	\$5,000,000 / \$10,000,000
<input type="checkbox"/> Other: _____	

V. CONTRACTOR'S RIGHT OF ENTRY (CROE)

Not Required
 Required: UPRR Maintenance Consent Letter. TxDOT to assist
 Required: TxDOT to assist in obtaining the UPRR CROE
 Required: Contractor to obtain

- BNSF: _____
https://bnsf.railpermitting.com
- CPKCR
https://jllrpg.360works.com/fmi/webd/rpo_web_kcs.fmp12
- Other Railroads: _____

To view previously approved CROE templates agreed upon between the State and Railroad, see: <https://www.txdot.gov/business/resources/railroad-highway-crossing/sample-right-of-entry-agreements.html>

Approved CROE templates are not to be modified by the Contractor.

Contractor shall not operate within Railroad Right of Way without an executed Construction & Maintenance Agreement between the State and the Railroad and an executed CROE between the Contractor and the Railroad if required on project.

VI. RAILROAD COORDINATION MEETING

A Railroad Coordination Meeting is required. See item 5, Article 8.1, of the Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges Manual for more details.

VII. RAILROAD SAFETY ORIENTATION

A. Complete the Railroad's course "Orientation for Contractor's Safety," and maintain registration prior to working on the Railroad's property. This course is required to be completed annually by Contractor and Subcontractor personnel working on site.

UPRR, BNSF, CPKCR will not accept on-track safety training certificates from other Railroads. Refer to each Railroad's specific contractor right of entry for training information.

Know and follow the Contractor's Right of Entry Agreement EXHIBIT D, MINIMUM SAFETY REQUIREMENTS regarding clothing, personal protective equipment, and general safety requirements.

VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are subject to the same insurance requirements as the Prime Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency

Call: UPRR _____

Railroad Emergency Line at: 800-848-8715

Location: DOT_DOT 906645P _____

RR Milepost: 11.895

Subdivision: Popp Ind Ld

RRD Review Only

Initials: [Signature]

Date: 11/29/23

Rail Division

RAILROAD SCOPE OF WORK

PROJECT SPECIFIC DETAILS

FILE: rr-scope-of-work.pdf	DN: TxDOT	CK:	DW:	CK:
© TxDOT June 2014	CONT	SECT	JOB	HIGHWAY
6/2023	0912	00	710	VARIOUS
DIST		COUNTY		SHEET NO.
HOU		HARRIS		105

DISCLAIMER:
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I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)

This project is adjacent or parallel work, not within RR ROW:
 DOT No.: 921033F
 Crossing Type: At-Grade
 RR Company Operating Track at Crossing: Union Pacific Railroad Company (UP)
 RR Company Owning Track at Crossing: UPRR
 RR MP: 11.930
 RR Subdivision: Popp Ind Ld
 City: Arcola
 County: Fort Bend
 CSJ at this Crossing: 0912-00-710
 Latitude: 29° 30' 26.20"N
 Longitude: 95° 27' 41.90"W

Scope of Work, including any TCP, to be performed by State Contractor:

1) Pavement Markings
 2) TCP(3-4)-13
 3) Railroad and Contractor flaggers will coordinate with lane closures in vicinity of railroad.
 4) All lanes across railroad tracks are to be open to traffic at the end of the day.

Scope of Work to be performed by Railroad Company:

N/A

II. FLAGGING & INSPECTION

No. of Days of Railroad Flagging Expected: 1
 On this project, night or weekend flagging is:
 Expected
 Not Expected

Flagging services will be provided by:

Railroad Company: 1) Txdot will pay flagging invoices. Flagging Agreement with railroad will be needed or, 2) Permitted crossing. Railroad company to provide flagging.
 Outside Party: Contractor will pay flagging invoices to be reimbursed by TxDOT

Contractor must incorporate flaggers into anticipated construction schedule. The Railroad requires a 30-day notice if their flaggers are to be utilized. If Contractor falls behind schedule due to their own negligence and is not ready for scheduled flaggers, any flagging charges will be paid by Contractor.

Contact Information for Flagging:

UPRR UP.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 UP.request@nrssinc.net
 Call Center 877-984-6777

BNSF BNSFinfo@railprofs.com
 Call Center 877-315-0513, Select #1 for flagging

CPKCR KCS.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 Bottom Line On-Track Safety Services
 bottomline076@aol.com, 903-767-7630

OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

Not Required
 Required. Contact Information for Construction Inspection:

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

Required.
 Not Required
 Railroad Point of Contact: _____

Coordinate with TxDOT for any work to be performed by the Railroad Company. TxDOT must issue a work order for any work done by the Railroad Company prior to the work being performed.

IV. RAILROAD INSURANCE REQUIREMENTS

The Contractor shall confirm the insurance requirements with the Railroad as the insurance limits are subject to change without notice.

Insurance policies and corresponding certificates of insurance must be issued by the contractor on behalf of the Railroad. Separate insurance policies and certificates are required when more than one Railroad Company is operating on the same right of way, or when several Railroad Companies are involved and operate on their own separate right of ways.

No direct compensation will be made to the Contractor for providing the insurance coverages shown below or any deductibles. These costs are incidental to the various bid items.

Escalated Limits	
Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	\$500,000 / \$500,000 / \$500,000
Commercial General Liability	\$2,000,000 / \$4,000,000
Business Automobile	\$2,000,000

Railroad Protective Liability Limits	
<input type="checkbox"/> Not Required	
<input checked="" type="checkbox"/> Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	\$2,000,000 / \$6,000,000
<input type="checkbox"/> Bridge Structure Projects. Includes new construction or replacement of overpass/underpass structures	\$5,000,000 / \$10,000,000
<input type="checkbox"/> Other:	_____

V. CONTRACTOR'S RIGHT OF ENTRY (CROE)

Not Required
 Required: UPRR Maintenance Consent Letter. TxDOT to assist
 Required: TxDOT to assist in obtaining the UPRR CROE
 Required: Contractor to obtain

- BNSF: _____
https://bnsf.railpermitting.com
- CPKCR
https://jllrpg.360works.com/fmi/webd/rpo_web_kcs.fmp12
- Other Railroads: _____

To view previously approved CROE templates agreed upon between the State and Railroad, see: <https://www.txdot.gov/business/resources/railroad-highway-crossing/sample-right-of-entry-agreements.html>

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VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are subject to the same insurance requirements as the Prime Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency

Call: UPRR _____

Railroad Emergency Line at: 800-848-8715

Location: DOT_DOT 921033F

RR Milepost: 11.930

Subdivision: Popp Ind Ld

RRD Review Only

Initials: [Signature]

Date: 11/29/23

Rail Division

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: rr-scope-of-work.pdf	DN: TxDOT	CK:	DW:	CK:
© TxDOT June 2014	CONT	SECT	JOB	HIGHWAY
6/2023	0912	00	710	VARIOUS
	DIST	COUNTY		SHEET NO.
	HOU	HARRIS		106

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I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)

This project is adjacent or parallel work, not within RR ROW:
 DOT No.: 921035U
 Crossing Type: Overpass
 RR Company Operating Track at Crossing: Union Pacific Railroad Company (UP)
 RR Company Owning Track at Crossing: UPRR
 RR MP: 11.911
 RR Subdivision: Popp Ind Ld
 City: Arcola
 County: Fort Bend
 CSJ at this Crossing: 0912-00-710
 Latitude: 29° 30' 27.20"N
 Longitude: 95° 27' 41.50"W

Scope of Work, including any TCP, to be performed by State Contractor:

1) Pavement Markings
 2) TCP(3-2)-13
 3) Railroad and Contractor flaggers will coordinate with lane closures in vicinity of railroad.
 4) All lanes across railroad tracks are to be open to traffic at the end of the day.

Scope of Work to be performed by Railroad Company:

N/A

II. FLAGGING & INSPECTION

No. of Days of Railroad Flagging Expected: 1
 On this project, night or weekend flagging is:
 Expected
 Not Expected

Flagging services will be provided by:

Railroad Company: 1) Txdot will pay flagging invoices. Flagging Agreement with railroad will be needed or, 2) Permitted crossing. Railroad company to provide flagging.
 Outside Party: Contractor will pay flagging invoices to be reimbursed by TxDOT

Contractor must incorporate flaggers into anticipated construction schedule. The Railroad requires a 30-day notice if their flaggers are to be utilized. If Contractor falls behind schedule due to their own negligence and is not ready for scheduled flaggers, any flagging charges will be paid by Contractor.

Contact Information for Flagging:

UPRR UP.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 UP.request@nrssinc.net
 Call Center 877-984-6777

BNSF BNSFinfo@railprosfs.com
 Call Center 877-315-0513, Select #1 for flagging

CPKCR KCS.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 Bottom Line On-Track Safety Services
 bottomline076@aol.com, 903-767-7630

OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

Not Required
 Required. Contact Information for Construction Inspection:

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

Required.
 Not Required
 Railroad Point of Contact: _____

Coordinate with TxDOT for any work to be performed by the Railroad Company. TxDOT must issue a work order for any work done by the Railroad Company prior to the work being performed.

IV. RAILROAD INSURANCE REQUIREMENTS

The Contractor shall confirm the insurance requirements with the Railroad as the insurance limits are subject to change without notice.

Insurance policies and corresponding certificates of insurance must be issued by the contractor on behalf of the Railroad. Separate insurance policies and certificates are required when more than one Railroad Company is operating on the same right of way, or when several Railroad Companies are involved and operate on their own separate right of ways.

No direct compensation will be made to the Contractor for providing the insurance coverages shown below or any deductibles. These costs are incidental to the various bid items.

Escalated Limits	
Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	\$500,000 / \$500,000 / \$500,000
Commercial General Liability	\$2,000,000 / \$4,000,000
Business Automobile	\$2,000,000

Railroad Protective Liability Limits	
<input type="checkbox"/> Not Required	
<input checked="" type="checkbox"/> Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	\$2,000,000 / \$6,000,000
<input type="checkbox"/> Bridge Structure Projects. Includes new construction or replacement of overpass/underpass structures	\$5,000,000 / \$10,000,000
<input type="checkbox"/> Other: _____	

V. CONTRACTOR'S RIGHT OF ENTRY (CROE)

Not Required
 Required: UPRR Maintenance Consent Letter. TxDOT to assist
 Required: TxDOT to assist in obtaining the UPRR CROE
 Required: Contractor to obtain

- BNSF: _____
https://bnsf.railpermitting.com
- CPKCR
https://jllrpg.360works.com/fmi/webd/rpo_web_kcs.fmp12
- Other Railroads: _____

To view previously approved CROE templates agreed upon between the State and Railroad, see: <https://www.txdot.gov/business/resources/railroad-highway-crossing/sample-right-of-entry-agreements.html>

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A Railroad Coordination Meeting is required. See item 5, Article 8.1, of the Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges Manual for more details.

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VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are subject to the same insurance requirements as the Prime Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency
 Call: UPRR _____
 Railroad Emergency Line at: 800-848-8715
 Location: DOT_DOT 921035U
 RR Milepost: 11.911
 Subdivision: Popp Ind Ld

RRD Review Only
 Initials: [Signature]
 Date: 11/29/23

Rail Division

RAILROAD SCOPE OF WORK

PROJECT SPECIFIC DETAILS

FILE: rr-scope-of-work.pdf	DN: TxDOT	CK:	DW:	CK:
© TxDOT June 2014	CONT	SECT	JOB	HIGHWAY
6/2023	0912	00	710	VARIOUS
	DIST	COUNTY		SHEET NO.
	HOU	HARRIS		107

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I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)

This project is adjacent or parallel work, not within RR ROW:
 DOT No.: 922512N
 Crossing Type: At-Grade
 RR Company Operating Track at Crossing: Union Pacific Railroad Company (UP)
 RR Company Owning Track at Crossing: UPRR
 RR MP: 25.490
 RR Subdivision: Glidden
 City: Sugar Land
 County: Fort Bend
 CSJ at this Crossing: 0912-00-710
 Latitude: 29° 36' 50.80"N
 Longitude: 95° 38' 56.70"W

Scope of Work, including any TCP, to be performed by State Contractor:

1) Pavement Markings
 2) TCP(3-4)-13
 3) Railroad and Contractor flaggers will coordinate with lane closures in vicinity of railroad.
 4) All lanes across railroad tracks are to be open to traffic at the end of the day.

Scope of Work to be performed by Railroad Company:

N/A

II. FLAGGING & INSPECTION

No. of Days of Railroad Flagging Expected: 1
 On this project, night or weekend flagging is:
 Expected
 Not Expected

Flagging services will be provided by:

Railroad Company: 1) Txdot will pay flagging invoices. Flagging Agreement with railroad will be needed or, 2) Permitted crossing. Railroad company to provide flagging.
 Outside Party: Contractor will pay flagging invoices to be reimbursed by TxDOT

Contractor must incorporate flaggers into anticipated construction schedule. The Railroad requires a 30-day notice if their flaggers are to be utilized. If Contractor falls behind schedule due to their own negligence and is not ready for scheduled flaggers, any flagging charges will be paid by Contractor.

Contact Information for Flagging:

UPRR UP.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 UP.request@nrssinc.net
 Call Center 877-984-6777

BNSF BNSFinfo@railprosfs.com
 Call Center 877-315-0513, Select #1 for flagging

CPKCR KCS.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 Bottom Line On-Track Safety Services
 bottomline076@aol.com, 903-767-7630

OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

Not Required
 Required. Contact Information for Construction Inspection:

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

Required.
 Not Required
 Railroad Point of Contact: _____

Coordinate with TxDOT for any work to be performed by the Railroad Company. TxDOT must issue a work order for any work done by the Railroad Company prior to the work being performed.

IV. RAILROAD INSURANCE REQUIREMENTS

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No direct compensation will be made to the Contractor for providing the insurance coverages shown below or any deductibles. These costs are incidental to the various bid items.

Escalated Limits	
Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	\$500,000 / \$500,000 / \$500,000
Commercial General Liability	\$2,000,000 / \$4,000,000
Business Automobile	\$2,000,000

Railroad Protective Liability Limits	
<input type="checkbox"/> Not Required	
<input checked="" type="checkbox"/> Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	\$2,000,000 / \$6,000,000
<input type="checkbox"/> Bridge Structure Projects. Includes new construction or replacement of overpass/underpass structures	\$5,000,000 / \$10,000,000
<input type="checkbox"/> Other:	_____

V. CONTRACTOR'S RIGHT OF ENTRY (CROE)

Not Required
 Required: UPRR Maintenance Consent Letter. TxDOT to assist
 Required: TxDOT to assist in obtaining the UPRR CROE
 Required: Contractor to obtain

- BNSF: _____
https://bnsf.railpermitting.com
- CPKCR
https://jllrpg.360works.com/fmi/webd/rpo_web_kcs.fmp12
- Other Railroads: _____

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IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency

Call: UPRR _____

Railroad Emergency Line at: 800-848-8715

Location: DOT DOT 922512N

RR Milepost: 25.490

Subdivision: Glidden

RRD Review Only

Initials: [Signature]

Date: 11/29/23

Rail Division

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: rr-scope-of-work.pdf	DN: TxDOT	CK:	DW:	CK:
© TxDOT June 2014	CONT	SECT	JOB	HIGHWAY
6/2023	0912	00	710	VARIOUS
REVISIONS				
	DIST	COUNTY		SHEET NO.
	HOU	HARRIS		108

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This project is adjacent or parallel work, not within RR ROW:
 DOT No.: 441027B
 Crossing Type: At-Grade
 RR Company Operating Track at Crossing: Union Pacific Railroad Company (UP)
 RR Company Owning Track at Crossing: UPRR
 RR MP: 25.150
 RR Subdivision: Glidden
 City: Sugar Land
 County: Fort Bend
 CSJ at this Crossing: 0912-00-710
 Latitude: 29°36'59.70"N
 Longitude: 95°38'38.80"W

Scope of Work, including any TCP, to be performed by State Contractor:

1) Pavement Markings
 2) TCP(3-4)-13
 3) Railroad and Contractor flaggers will coordinate with lane closures in vicinity of railroad.
 4) All lanes across railroad tracks are to be open to traffic at the end of the day.

Scope of Work to be performed by Railroad Company:

N/A

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 On this project, night or weekend flagging is:
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Flagging services will be provided by:

Railroad Company: 1) Txdot will pay flagging invoices. Flagging Agreement with railroad will be needed or, 2) Permitted crossing. Railroad company to provide flagging.
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 Call Center 877-315-0513, Select #1 for flagging
 UP.request@nrssinc.net
 Call Center 877-984-6777

BNSF BNSFinfo@railprosfs.com
 Call Center 877-315-0513, Select #1 for flagging

CPKCR KCS.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 Bottom Line On-Track Safety Services
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OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

Not Required
 Required. Contact Information for Construction Inspection:

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Required.
 Not Required
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Escalated Limits	
Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	\$500,000 / \$500,000 / \$500,000
Commercial General Liability	\$2,000,000 / \$4,000,000
Business Automobile	\$2,000,000

Railroad Protective Liability Limits	
<input type="checkbox"/> Not Required	
<input checked="" type="checkbox"/> Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	\$2,000,000 / \$6,000,000
<input type="checkbox"/> Bridge Structure Projects. Includes new construction or replacement of overpass/underpass structures	\$5,000,000 / \$10,000,000
<input type="checkbox"/> Other: _____	

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Not Required
 Required: UPRR Maintenance Consent Letter. TxDOT to assist
 Required: TxDOT to assist in obtaining the UPRR CROE
 Required: Contractor to obtain

- BNSF: _____
https://bnsf.railpermitting.com
- CPKCR
https://jllrpg.360works.com/fmi/webd/rpo_web_kcs.fmp12
- Other Railroads: _____

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Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are subject to the same insurance requirements as the Prime Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency
 Call: UPRR _____
 Railroad Emergency Line at: 800-848-8715
 Location: DOT_DOT 441027B
 RR Milepost: 25.150
 Subdivision: Glidden

RRD Review Only
 Initials: [Signature]
 Date: 11/29/23



**RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS**

FILE: rr-scope-of-work.pdf	DN: TxDOT	CK:	DW:	CK:
© TxDOT June 2014	CONT	SECT	JOB	HIGHWAY
6/2023	0912	00	710	VARIOUS
	DIST	COUNTY		SHEET NO.
	HOU	HARRIS		109

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This project is adjacent or parallel work, not within RR ROW:
 DOT No.: 743706A
 Crossing Type: At-Grade
 RR Company Operating Track at Crossing: Union Pacific Railroad Company (UP)
 RR Company Owning Track at Crossing: UPRR
 RR MP: 24.730
 RR Subdivision: Glidden
 City: Sugar Land
 County: Fort Bend
 CSJ at this Crossing: 0912-00-710
 Latitude: 29° 37' 09.90"N
 Longitude: 95° 38' 16.60"W

Scope of Work, including any TCP, to be performed by State Contractor:

1) Pavement Markings
 2) TCP(3-3)-14 & TCP(3-4)-13
 3) Railroad and Contractor flaggers will coordinate with lane closures in vicinity of railroad.
 4) All lanes across railroad tracks are to be open to traffic at the end of the day.

Scope of Work to be performed by Railroad Company:

N/A

II. FLAGGING & INSPECTION

No. of Days of Railroad Flagging Expected: 1
 On this project, night or weekend flagging is:
 Expected
 Not Expected

Flagging services will be provided by:

Railroad Company: 1) Txdot will pay flagging invoices. Flagging Agreement with railroad will be needed or, 2) Permitted crossing. Railroad company to provide flagging.
 Outside Party: Contractor will pay flagging invoices to be reimbursed by TxDOT

Contractor must incorporate flaggers into anticipated construction schedule. The Railroad requires a 30-day notice if their flaggers are to be utilized. If Contractor falls behind schedule due to their own negligence and is not ready for scheduled flaggers, any flagging charges will be paid by Contractor.

Contact Information for Flagging:

UPRR UP.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 UP.request@nrssinc.net
 Call Center 877-984-6777

BNSF BNSFinfo@railprofs.com
 Call Center 877-315-0513, Select #1 for flagging

CPKCR KCS.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 Bottom Line On-Track Safety Services
 bottomline076@aol.com, 903-767-7630

OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

Not Required
 Required. Contact Information for Construction Inspection:

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

Required.
 Not Required
 Railroad Point of Contact: _____

Coordinate with TxDOT for any work to be performed by the Railroad Company. TxDOT must issue a work order for any work done by the Railroad Company prior to the work being performed.

IV. RAILROAD INSURANCE REQUIREMENTS

The Contractor shall confirm the insurance requirements with the Railroad as the insurance limits are subject to change without notice.

Insurance policies and corresponding certificates of insurance must be issued by the contractor on behalf of the Railroad. Separate insurance policies and certificates are required when more than one Railroad Company is operating on the same right of way, or when several Railroad Companies are involved and operate on their own separate right of ways.

No direct compensation will be made to the Contractor for providing the insurance coverages shown below or any deductibles. These costs are incidental to the various bid items.

Escalated Limits	
Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	\$500,000 / \$500,000 / \$500,000
Commercial General Liability	\$2,000,000 / \$4,000,000
Business Automobile	\$2,000,000

Railroad Protective Liability Limits	
<input type="checkbox"/> Not Required	
<input checked="" type="checkbox"/> Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	\$2,000,000 / \$6,000,000
<input type="checkbox"/> Bridge Structure Projects. Includes new construction or replacement of overpass/underpass structures	\$5,000,000 / \$10,000,000
<input type="checkbox"/> Other: _____	

V. CONTRACTOR'S RIGHT OF ENTRY (CROE)

Not Required
 Required: UPRR Maintenance Consent Letter. TxDOT to assist
 Required: TxDOT to assist in obtaining the UPRR CROE
 Required: Contractor to obtain

- BNSF: _____
https://bnsf.railpermitting.com
- CPKCR
https://jllrpg.360works.com/fmi/webd/rpo_web_kcs.fmp12
- Other Railroads: _____

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A Railroad Coordination Meeting is required. See item 5, Article 8.1, of the Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges Manual for more details.

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A. Complete the Railroad's course "Orientation for Contractor's Safety," and maintain registration prior to working on the Railroad's property. This course is required to be completed annually by Contractor and Subcontractor personnel working on site.

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Know and follow the Contractor's Right of Entry Agreement EXHIBIT D, MINIMUM SAFETY REQUIREMENTS regarding clothing, personal protective equipment, and general safety requirements.

VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are subject to the same insurance requirements as the Prime Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency

Call: UPRR _____

Railroad Emergency Line at: 800-848-8715

Location: DOT_DOT 743706A

RR Milepost: 24.730

Subdivision: Glidden

RRD Review Only

Initials: [Signature]

Date: 11/29/23

Rail Division

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: rr-scope-of-work.pdf	DN: TxDOT	CK:	DW:	CK:
© TxDOT June 2014	CONT	SECT	JOB	HIGHWAY
6/2023	0912	00	710	VARIOUS
REVISIONS				
	DIST	COUNTY		SHEET NO.
	HOU	HARRIS		110

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I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)

This project is adjacent or parallel work, not within RR ROW:
 DOT No.: 743704L
 Crossing Type: At-Grade
 RR Company Operating Track at Crossing: Union Pacific Railroad Company (UP)
 RR Company Owning Track at Crossing: UPRR
 RR MP: 24.560
 RR Subdivision: Glidden
 City: Sugar Land
 County: Fort Bend
 CSJ at this Crossing: 0912-00-710
 Latitude: 29° 37' 13.00"N
 Longitude: 95° 38' 06.90"W

Scope of Work, including any TCP, to be performed by State Contractor:

1) Pavement Markings
 2) TCP(3-3)-14 & TCP(3-4)-13
 3) Railroad and Contractor flaggers will coordinate with lane closures in vicinity of railroad.
 4) All lanes across railroad tracks are to be open to traffic at the end of the day.

Scope of Work to be performed by Railroad Company:

N/A

II. FLAGGING & INSPECTION

No. of Days of Railroad Flagging Expected: 1
 On this project, night or weekend flagging is:
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 Not Expected

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Contact Information for Flagging:

UPRR UP.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 UP.request@nrssinc.net
 Call Center 877-984-6777

BNSF BNSFinfo@railprofs.com
 Call Center 877-315-0513, Select #1 for flagging

CPKCR KCS.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 Bottom Line On-Track Safety Services
 bottomline076@aol.com, 903-767-7630

OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

Not Required
 Required. Contact Information for Construction Inspection:

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

Required.
 Not Required
 Railroad Point of Contact: _____

Coordinate with TxDOT for any work to be performed by the Railroad Company. TxDOT must issue a work order for any work done by the Railroad Company prior to the work being performed.

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The Contractor shall confirm the insurance requirements with the Railroad as the insurance limits are subject to change without notice.

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Escalated Limits	
Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	\$500,000 / \$500,000 / \$500,000
Commercial General Liability	\$2,000,000 / \$4,000,000
Business Automobile	\$2,000,000

Railroad Protective Liability Limits	
<input type="checkbox"/> Not Required	
<input checked="" type="checkbox"/> Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	\$2,000,000 / \$6,000,000
<input type="checkbox"/> Bridge Structure Projects. Includes new construction or replacement of overpass/underpass structures	\$5,000,000 / \$10,000,000
<input type="checkbox"/> Other: _____	

V. CONTRACTOR'S RIGHT OF ENTRY (CROE)

Not Required
 Required: UPRR Maintenance Consent Letter. TxDOT to assist
 Required: TxDOT to assist in obtaining the UPRR CROE
 Required: Contractor to obtain

- BNSF: _____
https://bnsf.railpermitting.com
- CPKCR
https://jllrpg.360works.com/fmi/webd/rpo_web_kcs.fmp12
- Other Railroads: _____

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VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are subject to the same insurance requirements as the Prime Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency

Call: UPRR _____

Railroad Emergency Line at: 800-848-8715

Location: DOT_DOT 743704L

RR Milepost: 24.560

Subdivision: Glidden

RRD Review Only

Initials: [Signature]

Date: 11/29/23



**RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS**

FILE: rr-scope-of-work.pdf	DN: TxDOT	CK:	DW:	CK:
© TxDOT June 2014	CONT	SECT	JOB	HIGHWAY
6/2023	0912	00	710	VARIOUS
	DIST	COUNTY		SHEET NO.
	HOU	HARRIS		111

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I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)

This project is adjacent or parallel work, not within RR ROW:
 DOT No.: 743703E
 Crossing Type: At-Grade
 RR Company Operating Track at Crossing: Union Pacific Railroad Company (UP)
 RR Company Owning Track at Crossing: UPRR
 RR MP: 24.430
 RR Subdivision: Glidden
 City: Sugar Land
 County: Fort Bend
 CSJ at this Crossing: 0912-00-710
 Latitude: 29° 37' 14.50"N
 Longitude: 95° 37' 59.60"W

Scope of Work, including any TCP, to be performed by State Contractor:

1) Pavement Markings
 2) TCP(3-3)-14 & TCP(3-4)-13
 3) Railroad and Contractor flaggers will coordinate with lane closures in vicinity of railroad.
 4) All lanes across railroad tracks are to be open to traffic at the end of the day.

Scope of Work to be performed by Railroad Company:

N/A

II. FLAGGING & INSPECTION

No. of Days of Railroad Flagging Expected: 1
 On this project, night or weekend flagging is:
 Expected
 Not Expected

Flagging services will be provided by:

Railroad Company: 1) Txdot will pay flagging invoices. Flagging Agreement with railroad will be needed or, 2) Permitted crossing. Railroad company to provide flagging.
 Outside Party: Contractor will pay flagging invoices to be reimbursed by TxDOT

Contractor must incorporate flaggers into anticipated construction schedule. The Railroad requires a 30-day notice if their flaggers are to be utilized. If Contractor falls behind schedule due to their own negligence and is not ready for scheduled flaggers, any flagging charges will be paid by Contractor.

Contact Information for Flagging:

UPRR UP.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 UP.request@nrssinc.net
 Call Center 877-984-6777

BNSF BNSFinfo@railprosfs.com
 Call Center 877-315-0513, Select #1 for flagging

CPKCR KCS.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 Bottom Line On-Track Safety Services
 bottomline076@aol.com, 903-767-7630

OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

Not Required
 Required. Contact Information for Construction Inspection:

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

Required.
 Not Required
 Railroad Point of Contact: _____

Coordinate with TxDOT for any work to be performed by the Railroad Company. TxDOT must issue a work order for any work done by the Railroad Company prior to the work being performed.

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No direct compensation will be made to the Contractor for providing the insurance coverages shown below or any deductibles. These costs are incidental to the various bid items.

Escalated Limits	
Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	\$500,000 / \$500,000 / \$500,000
Commercial General Liability	\$2,000,000 / \$4,000,000
Business Automobile	\$2,000,000

Railroad Protective Liability Limits	
<input type="checkbox"/> Not Required	
<input checked="" type="checkbox"/> Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	\$2,000,000 / \$6,000,000
<input type="checkbox"/> Bridge Structure Projects. Includes new construction or replacement of overpass/underpass structures	\$5,000,000 / \$10,000,000
<input type="checkbox"/> Other: _____	

V. CONTRACTOR'S RIGHT OF ENTRY (CROE)

Not Required
 Required: UPRR Maintenance Consent Letter. TxDOT to assist
 Required: TxDOT to assist in obtaining the UPRR CROE
 Required: Contractor to obtain

- BNSF: _____
https://bnsf.railpermitting.com
- CPKCR
https://jllrpg.360works.com/fmi/webd/rpo_web_kcs.fmp12
- Other Railroads: _____

To view previously approved CROE templates agreed upon between the State and Railroad, see: <https://www.txdot.gov/business/resources/railroad-highway-crossing/sample-right-of-entry-agreements.html>

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IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency
 Call: UPRR _____
 Railroad Emergency Line at: 800-848-8715
 Location: DOT_DOT 743703E
 RR Milepost: 24.430
 Subdivision: Glidden

RRD Review Only
 Initials: [Signature]
 Date: 11/29/23

Rail Division

RAILROAD SCOPE OF WORK
 PROJECT SPECIFIC DETAILS

FILE: rr-scope-of-work.pdf	DN: TxDOT	CK:	DW:	CK:
© TxDOT June 2014	CONT	SECT	JOB	HIGHWAY
6/2023	0912	00	710	VARIOUS
	DIST	COUNTY		SHEET NO.
	HOU	HARRIS		112

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I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)

This project is adjacent or parallel work, not within RR ROW:
 DOT No.: 743699S
 Crossing Type: At-Grade
 RR Company Operating Track at Crossing: Union Pacific Railroad Company (UP)
 RR Company Owning Track at Crossing: UPRR
 RR MP: 23.576
 RR Subdivision: Glidden
 City: Sugar Land
 County: Fort Bend
 CSJ at this Crossing: 0912-00-710
 Latitude: 29° 37' 24.80"N
 Longitude: 95° 37' 07.90"W

Scope of Work, including any TCP, to be performed by State Contractor:

1) Pavement Markings
 2) TCP(3-4)-13
 3) Railroad and Contractor flaggers will coordinate with lane closures in vicinity of railroad.
 4) All lanes across railroad tracks are to be open to traffic at the end of the day.

Scope of Work to be performed by Railroad Company:

N/A

II. FLAGGING & INSPECTION

No. of Days of Railroad Flagging Expected: 1
 On this project, night or weekend flagging is:
 Expected
 Not Expected

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CPKCR KCS.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 Bottom Line On-Track Safety Services
 bottomline076@aol.com, 903-767-7630

OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

Not Required
 Required. Contact Information for Construction Inspection:

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

Required.
 Not Required
 Railroad Point of Contact: _____

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Escalated Limits	
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Workers Compensation	\$500,000 / \$500,000 / \$500,000
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Business Automobile	\$2,000,000

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<input type="checkbox"/> Not Required	
<input checked="" type="checkbox"/> Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	\$2,000,000 / \$6,000,000
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 Subdivision: Glidden _____

RRD Review Only
 Initials: AD
 Date: 11/29/23



**RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS**

FILE: rr-scope-of-work.pdf	DN: TxDOT	CK:	DW:	CK:
© TxDOT June 2014	CONT	SECT	JOB	HIGHWAY
6/2023	0912	00	710	VARIOUS
	DIST	COUNTY		SHEET NO.
	HOU	HARRIS		113

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 Crossing Type: At-Grade
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BNSF BNSFinfo@railprofs.com
 Call Center 877-315-0513, Select #1 for flagging

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 Call Center 877-315-0513, Select #1 for flagging
 Bottom Line On-Track Safety Services
 bottomline076@aol.com, 903-767-7630

OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

Not Required
 Required. Contact Information for Construction Inspection:

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

Required.
 Not Required
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<input checked="" type="checkbox"/> Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	\$2,000,000 / \$6,000,000
<input type="checkbox"/> Bridge Structure Projects. Includes new construction or replacement of overpass/underpass structures	\$5,000,000 / \$10,000,000
<input type="checkbox"/> Other: _____	

V. CONTRACTOR'S RIGHT OF ENTRY (CROE)

Not Required
 Required: UPRR Maintenance Consent Letter. TxDOT to assist
 Required: TxDOT to assist in obtaining the UPRR CROE
 Required: Contractor to obtain

- BNSF: _____
https://bnsf.railpermitting.com
- CPKCR
https://jllrpg.360works.com/fmi/webd/rpo_web_kcs.fmp12
- Other Railroads: _____

To view previously approved CROE templates agreed upon between the State and Railroad, see: <https://www.txdot.gov/business/resources/railroad-highway-crossing/sample-right-of-entry-agreements.html>

Approved CROE templates are not to be modified by the Contractor.

Contractor shall not operate within Railroad Right of Way without an executed Construction & Maintenance Agreement between the State and the Railroad and an executed CROE between the Contractor and the Railroad if required on project.

VI. RAILROAD COORDINATION MEETING

A Railroad Coordination Meeting is required. See item 5, Article 8.1, of the Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges Manual for more details.

VII. RAILROAD SAFETY ORIENTATION

A. Complete the Railroad's course "Orientation for Contractor's Safety," and maintain registration prior to working on the Railroad's property. This course is required to be completed annually by Contractor and Subcontractor personnel working on site.

UPRR, BNSF, CPKCR will not accept on-track safety training certificates from other Railroads. Refer to each Railroad's specific contractor right of entry for training information.

Know and follow the Contractor's Right of Entry Agreement EXHIBIT D, MINIMUM SAFETY REQUIREMENTS regarding clothing, personal protective equipment, and general safety requirements.

VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are subject to the same insurance requirements as the Prime Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency
 Call: UPRR _____
 Railroad Emergency Line at: 800-848-8715
 Location: DOT_DOT 745055W
 RR Milepost: 23.262
 Subdivision: Glidden

RRD Review Only
 Initials: [Signature]
 Date: 11/29/23

Rail Division

RAILROAD SCOPE OF WORK
 PROJECT SPECIFIC DETAILS

FILE: rr-scope-of-work.pdf	DN: TxDOT	CK:	DW:	CK:
© TxDOT June 2014	CONT	SECT	JOB	HIGHWAY
6/2023	0912	00	710	VARIOUS
	DIST	COUNTY		SHEET NO.
	HOU	HARRIS		114

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

I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)

This project is adjacent or parallel work, not within RR ROW:
 DOT No.: 748393E
 Crossing Type: At-Grade
 RR Company Operating Track at Crossing: Union Pacific Railroad Company (UP)
 RR Company Owning Track at Crossing: UPRR
 RR MP: 23.027
 RR Subdivision: Glidden
 City: Sugar Land
 County: Fort Bend
 CSJ at this Crossing: 0912-00-710
 Latitude: 29° 37' 31.10"N
 Longitude: 95° 36' 36.30"W

Scope of Work, including any TCP, to be performed by State Contractor:

1) Pavement Markings
 2) TCP(3-4)-13
 3) Railroad and Contractor flaggers will coordinate with lane closures in vicinity of railroad.
 4) All lanes across railroad tracks are to be open to traffic at the end of the day.

Scope of Work to be performed by Railroad Company:

N/A

II. FLAGGING & INSPECTION

No. of Days of Railroad Flagging Expected: 1
 On this project, night or weekend flagging is:
 Expected
 Not Expected

Flagging services will be provided by:

Railroad Company: 1) Txdot will pay flagging invoices. Flagging Agreement with railroad will be needed or, 2) Permitted crossing. Railroad company to provide flagging.
 Outside Party: Contractor will pay flagging invoices to be reimbursed by TxDOT

Contractor must incorporate flaggers into anticipated construction schedule. The Railroad requires a 30-day notice if their flaggers are to be utilized. If Contractor falls behind schedule due to their own negligence and is not ready for scheduled flaggers, any flagging charges will be paid by Contractor.

Contact Information for Flagging:

UPRR UP.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 UP.request@nrssinc.net
 Call Center 877-984-6777

BNSF BNSFinfo@railprosfs.com
 Call Center 877-315-0513, Select #1 for flagging

CPKCR KCS.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 Bottom Line On-Track Safety Services
 bottomline076@aol.com, 903-767-7630

OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

Not Required
 Required. Contact Information for Construction Inspection:

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

Required.
 Not Required
 Railroad Point of Contact: _____

Coordinate with TxDOT for any work to be performed by the Railroad Company. TxDOT must issue a work order for any work done by the Railroad Company prior to the work being performed.

IV. RAILROAD INSURANCE REQUIREMENTS

The Contractor shall confirm the insurance requirements with the Railroad as the insurance limits are subject to change without notice.

Insurance policies and corresponding certificates of insurance must be issued by the contractor on behalf of the Railroad. Separate insurance policies and certificates are required when more than one Railroad Company is operating on the same right of way, or when several Railroad Companies are involved and operate on their own separate right of ways.

No direct compensation will be made to the Contractor for providing the insurance coverages shown below or any deductibles. These costs are incidental to the various bid items.

Escalated Limits	
Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	\$500,000 / \$500,000 / \$500,000
Commercial General Liability	\$2,000,000 / \$4,000,000
Business Automobile	\$2,000,000

Railroad Protective Liability Limits	
<input type="checkbox"/> Not Required	
<input checked="" type="checkbox"/> Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	\$2,000,000 / \$6,000,000
<input type="checkbox"/> Bridge Structure Projects. Includes new construction or replacement of overpass/underpass structures	\$5,000,000 / \$10,000,000
<input type="checkbox"/> Other: _____	

V. CONTRACTOR'S RIGHT OF ENTRY (CROE)

Not Required
 Required: UPRR Maintenance Consent Letter. TxDOT to assist
 Required: TxDOT to assist in obtaining the UPRR CROE
 Required: Contractor to obtain

- BNSF: _____
https://bnsf.railpermitting.com
- CPKCR
https://jllrpg.360works.com/fmi/webd/rpo_web_kcs.fmp12
- Other Railroads: _____

To view previously approved CROE templates agreed upon between the State and Railroad, see: <https://www.txdot.gov/business/resources/railroad-highway-crossing/sample-right-of-entry-agreements.html>

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VIII. SUBCONTRACTORS

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IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency
 Call: UPRR _____
 Railroad Emergency Line at: 800-848-8715
 Location: DOT_DOT 748393E
 RR Milepost: 23.027
 Subdivision: Glidden

RRD Review Only
 Initials: [Signature]
 Date: 11/29/23



**RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS**

FILE: rr-scope-of-work.pdf	DN: TxDOT	CK:	DW:	CK:
© TxDOT June 2014	CONT	SECT	JOB	HIGHWAY
6/2023	0912	00	710	VARIOUS
	DIST	COUNTY		SHEET NO.
	HOU	HARRIS		115

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I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)

This project is adjacent or parallel work, not within RR ROW:
 DOT No.: 743698K
 Crossing Type: At-Grade
 RR Company Operating Track at Crossing: Union Pacific Railroad Company (UP)
 RR Company Owning Track at Crossing: UPRR
 RR MP: 22.710
 RR Subdivision: Glidden
 City: Sugar Land
 County: Fort Bend
 CSJ at this Crossing: 0912-00-710
 Latitude: 29° 37' 34.00"N
 Longitude: 95° 36' 21.20"W

Scope of Work, including any TCP, to be performed by State Contractor:

1) Pavement Markings
 2) TCP(3-4)-13
 3) Railroad and Contractor flaggers will coordinate with lane closures in vicinity of railroad.
 4) All lanes across railroad tracks are to be open to traffic at the end of the day.

Scope of Work to be performed by Railroad Company:

N/A

II. FLAGGING & INSPECTION

No. of Days of Railroad Flagging Expected: 1
 On this project, night or weekend flagging is:
 Expected
 Not Expected

Flagging services will be provided by:

Railroad Company: 1) Txdot will pay flagging invoices. Flagging Agreement with railroad will be needed or, 2) Permitted crossing. Railroad company to provide flagging.
 Outside Party: Contractor will pay flagging invoices to be reimbursed by TxDOT

Contractor must incorporate flaggers into anticipated construction schedule. The Railroad requires a 30-day notice if their flaggers are to be utilized. If Contractor falls behind schedule due to their own negligence and is not ready for scheduled flaggers, any flagging charges will be paid by Contractor.

Contact Information for Flagging:

UPRR UP.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 UP.request@nrssinc.net
 Call Center 877-984-6777

BNSF BNSFinfo@railprofs.com
 Call Center 877-315-0513, Select #1 for flagging

CPKCR KCS.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 Bottom Line On-Track Safety Services
 bottomline076@aol.com, 903-767-7630

OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

Not Required
 Required. Contact Information for Construction Inspection:

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

Required.
 Not Required
 Railroad Point of Contact: _____

Coordinate with TxDOT for any work to be performed by the Railroad Company. TxDOT must issue a work order for any work done by the Railroad Company prior to the work being performed.

IV. RAILROAD INSURANCE REQUIREMENTS

The Contractor shall confirm the insurance requirements with the Railroad as the insurance limits are subject to change without notice.

Insurance policies and corresponding certificates of insurance must be issued by the contractor on behalf of the Railroad. Separate insurance policies and certificates are required when more than one Railroad Company is operating on the same right of way, or when several Railroad Companies are involved and operate on their own separate right of ways.

No direct compensation will be made to the Contractor for providing the insurance coverages shown below or any deductibles. These costs are incidental to the various bid items.

Escalated Limits	
Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	\$500,000 / \$500,000 / \$500,000
Commercial General Liability	\$2,000,000 / \$4,000,000
Business Automobile	\$2,000,000

Railroad Protective Liability Limits	
<input type="checkbox"/> Not Required	
<input checked="" type="checkbox"/> Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	\$2,000,000 / \$6,000,000
<input type="checkbox"/> Bridge Structure Projects. Includes new construction or replacement of overpass/underpass structures	\$5,000,000 / \$10,000,000
<input type="checkbox"/> Other: _____	

V. CONTRACTOR'S RIGHT OF ENTRY (CROE)

Not Required
 Required: UPRR Maintenance Consent Letter. TxDOT to assist
 Required: TxDOT to assist in obtaining the UPRR CROE
 Required: Contractor to obtain

- BNSF: _____
https://bnsf.railpermitting.com
- CPKCR
https://jllrpg.360works.com/fmi/webd/rpo_web_kcs.fmp12
- Other Railroads: _____

To view previously approved CROE templates agreed upon between the State and Railroad, see: <https://www.txdot.gov/business/resources/railroad-highway-crossing/sample-right-of-entry-agreements.html>

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VI. RAILROAD COORDINATION MEETING

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Know and follow the Contractor's Right of Entry Agreement EXHIBIT D, MINIMUM SAFETY REQUIREMENTS regarding clothing, personal protective equipment, and general safety requirements.

VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are subject to the same insurance requirements as the Prime Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency

Call: UPRR _____

Railroad Emergency Line at: 800-848-8715

Location: DOT_DOT 743698K

RR Milepost: 22.710

Subdivision: Glidden

RRD Review Only

Initials: [Signature]

Date: 11/29/23

Rail Division

RAILROAD SCOPE OF WORK

PROJECT SPECIFIC DETAILS

FILE: rr-scope-of-work.pdf	DN: TxDOT	CK:	DW:	CK:
© TxDOT June 2014	CONT	SECT	JOB	HIGHWAY
6/2023	0912	00	710	VARIOUS
	DIST	COUNTY		SHEET NO.
	HOU	HARRIS		116

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I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)

This project is adjacent or parallel work, not within RR ROW:
 DOT No.: 745044J
 Crossing Type: At-Grade
 RR Company Operating Track at Crossing: Union Pacific Railroad Company (UP)
 RR Company Owning Track at Crossing: UPRR
 RR MP: 22.520
 RR Subdivision: Glidden
 City: Sugar Land
 County: Fort Bend
 CSJ at this Crossing: 0912-00-710
 Latitude: 29° 37' 36.10"N
 Longitude: 95° 36' 10.60"W

Scope of Work, including any TCP, to be performed by State Contractor:

1) Pavement Markings
 2) TCP(3-4)-13
 3) Railroad and Contractor flaggers will coordinate with lane closures in vicinity of railroad.
 4) All lanes across railroad tracks are to be open to traffic at the end of the day.

Scope of Work to be performed by Railroad Company:

N/A

II. FLAGGING & INSPECTION

No. of Days of Railroad Flagging Expected: 1
 On this project, night or weekend flagging is:
 Expected
 Not Expected

Flagging services will be provided by:

Railroad Company: 1) Txdot will pay flagging invoices. Flagging Agreement with railroad will be needed or, 2) Permitted crossing. Railroad company to provide flagging.
 Outside Party: Contractor will pay flagging invoices to be reimbursed by TxDOT

Contractor must incorporate flaggers into anticipated construction schedule. The Railroad requires a 30-day notice if their flaggers are to be utilized. If Contractor falls behind schedule due to their own negligence and is not ready for scheduled flaggers, any flagging charges will be paid by Contractor.

Contact Information for Flagging:

UPRR UP.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 UP.request@nrssinc.net
 Call Center 877-984-6777

BNSF BNSFinfo@railprosfs.com
 Call Center 877-315-0513, Select #1 for flagging

CPKCR KCS.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 Bottom Line On-Track Safety Services
 bottomline076@aol.com, 903-767-7630

OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

Not Required
 Required. Contact Information for Construction Inspection:

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

Required.
 Not Required
 Railroad Point of Contact: _____

Coordinate with TxDOT for any work to be performed by the Railroad Company. TxDOT must issue a work order for any work done by the Railroad Company prior to the work being performed.

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Escalated Limits	
Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	\$500,000 / \$500,000 / \$500,000
Commercial General Liability	\$2,000,000 / \$4,000,000
Business Automobile	\$2,000,000

Railroad Protective Liability Limits	
<input type="checkbox"/> Not Required	
<input checked="" type="checkbox"/> Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	\$2,000,000 / \$6,000,000
<input type="checkbox"/> Bridge Structure Projects. Includes new construction or replacement of overpass/underpass structures	\$5,000,000 / \$10,000,000
<input type="checkbox"/> Other: _____	

V. CONTRACTOR'S RIGHT OF ENTRY (CROE)

Not Required
 Required: UPRR Maintenance Consent Letter. TxDOT to assist
 Required: TxDOT to assist in obtaining the UPRR CROE
 Required: Contractor to obtain

- BNSF: _____
https://bnsf.railpermitting.com
- CPKCR
https://jllrpg.360works.com/fmi/webd/rpo_web_kcs.fmp12
- Other Railroads: _____

To view previously approved CROE templates agreed upon between the State and Railroad, see: <https://www.txdot.gov/business/resources/railroad-highway-crossing/sample-right-of-entry-agreements.html>

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VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are subject to the same insurance requirements as the Prime Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency
 Call: UPRR _____
 Railroad Emergency Line at: 800-848-8715
 Location: DOT_DOT 745044J
 RR Milepost: 22.520
 Subdivision: Glidden

RRD Review Only
 Initials: [Signature]
 Date: 11/29/23

Rail Division

RAILROAD SCOPE OF WORK

PROJECT SPECIFIC DETAILS

FILE: rr-scope-of-work.pdf	DN: TxDOT	CK:	DW:	CK:
© TxDOT June 2014	CONT	SECT	JOB	HIGHWAY
6/2023	0912	00	710	VARIOUS
	DIST	COUNTY		SHEET NO.
	HOU	HARRIS		117

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I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)

This project is adjacent or parallel work, not within RR ROW:
 DOT No.: 748273N
 Crossing Type: Overpass
 RR Company Operating Track at Crossing: Union Pacific Railroad Company (UP)
 RR Company Owning Track at Crossing: UPRR
 RR MP: 21.963
 RR Subdivision: Glidden
 City: Sugar Land
 County: Fort Bend
 CSJ at this Crossing: 0912-00-710
 Latitude: 29° 37' 43.30"N
 Longitude: 95° 35' 35.90"W

Scope of Work, including any TCP, to be performed by State Contractor:

1) Pavement Markings
 2) TCP(3-4)-13
 3) Railroad and Contractor flaggers will coordinate with lane closures in vicinity of railroad.
 4) All lanes across railroad tracks are to be open to traffic at the end of the day.

Scope of Work to be performed by Railroad Company:

N/A

II. FLAGGING & INSPECTION

No. of Days of Railroad Flagging Expected: 1
 On this project, night or weekend flagging is:
 Expected
 Not Expected

Flagging services will be provided by:

Railroad Company: 1) Txdot will pay flagging invoices. Flagging Agreement with railroad will be needed or, 2) Permitted crossing. Railroad company to provide flagging.
 Outside Party: Contractor will pay flagging invoices to be reimbursed by TxDOT

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 Call Center 877-315-0513, Select #1 for flagging
 UP.request@nrssinc.net
 Call Center 877-984-6777

BNSF BNSFinfo@railprosfs.com
 Call Center 877-315-0513, Select #1 for flagging

CPKCR KCS.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 Bottom Line On-Track Safety Services
 bottomline076@aol.com, 903-767-7630

OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

Not Required
 Required. Contact Information for Construction Inspection:

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

Required.
 Not Required
 Railroad Point of Contact: _____

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Escalated Limits	
Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	\$500,000 / \$500,000 / \$500,000
Commercial General Liability	\$2,000,000 / \$4,000,000
Business Automobile	\$2,000,000

Railroad Protective Liability Limits	
<input type="checkbox"/> Not Required	
<input checked="" type="checkbox"/> Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	\$2,000,000 / \$6,000,000
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Not Required
 Required: UPRR Maintenance Consent Letter. TxDOT to assist
 Required: TxDOT to assist in obtaining the UPRR CROE
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IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency
 Call: UPRR _____
 Railroad Emergency Line at: 800-848-8715
 Location: DOT_DOT 748273N
 RR Milepost: 21.963
 Subdivision: Glidden

RRD Review Only
 Initials: [Signature]
 Date: 11/29/23



**RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS**

FILE: rr-scope-of-work.pdf	DN: TxDOT	CK:	DW:	CK:
© TxDOT June 2014	CONT	SECT	JOB	HIGHWAY
6/2023	0912	00	710	VARIOUS
	DIST	COUNTY		SHEET NO.
	HOU	HARRIS		118

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I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)

This project is adjacent or parallel work, not within RR ROW:
 DOT No.: 748274V
 Crossing Type: Overpass
 RR Company Operating Track at Crossing: Union Pacific Railroad Company (UP)
 RR Company Owning Track at Crossing: UPRR
 RR MP: 21.875
 RR Subdivision: Glidden
 City: Sugar Land
 County: Fort Bend
 CSJ at this Crossing: 0912-00-710
 Latitude: 29° 37'44.10"N
 Longitude: 95° 35'30.60"W

Scope of Work, including any TCP, to be performed by State Contractor:

1) Pavement Markings
 2) TCP(3-4)-13
 3) Railroad and Contractor flaggers will coordinate with lane closures in vicinity of railroad.
 4) All lanes across railroad tracks are to be open to traffic at the end of the day.

Scope of Work to be performed by Railroad Company:

N/A

II. FLAGGING & INSPECTION

No. of Days of Railroad Flagging Expected: 1
 On this project, night or weekend flagging is:
 Expected
 Not Expected

Flagging services will be provided by:

Railroad Company: 1) Txdot will pay flagging invoices. Flagging Agreement with railroad will be needed or, 2) Permitted crossing. Railroad company to provide flagging.
 Outside Party: Contractor will pay flagging invoices to be reimbursed by TxDOT

Contractor must incorporate flaggers into anticipated construction schedule. The Railroad requires a 30-day notice if their flaggers are to be utilized. If Contractor falls behind schedule due to their own negligence and is not ready for scheduled flaggers, any flagging charges will be paid by Contractor.

Contact Information for Flagging:

UPRR UP.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 UP.request@nrssinc.net
 Call Center 877-984-6777

BNSF BNSFinfo@railprofs.com
 Call Center 877-315-0513, Select #1 for flagging

CPKCR KCS.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 Bottom Line On-Track Safety Services
 bottomline076@aol.com, 903-767-7630

OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

Not Required
 Required. Contact Information for Construction Inspection:

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

Required.
 Not Required
 Railroad Point of Contact: _____

Coordinate with TxDOT for any work to be performed by the Railroad Company. TxDOT must issue a work order for any work done by the Railroad Company prior to the work being performed.

IV. RAILROAD INSURANCE REQUIREMENTS

The Contractor shall confirm the insurance requirements with the Railroad as the insurance limits are subject to change without notice.

Insurance policies and corresponding certificates of insurance must be issued by the contractor on behalf of the Railroad. Separate insurance policies and certificates are required when more than one Railroad Company is operating on the same right of way, or when several Railroad Companies are involved and operate on their own separate right of ways.

No direct compensation will be made to the Contractor for providing the insurance coverages shown below or any deductibles. These costs are incidental to the various bid items.

Escalated Limits	
Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	\$500,000 / \$500,000 / \$500,000
Commercial General Liability	\$2,000,000 / \$4,000,000
Business Automobile	\$2,000,000

Railroad Protective Liability Limits	
<input type="checkbox"/> Not Required	
<input checked="" type="checkbox"/> Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	\$2,000,000 / \$6,000,000
<input type="checkbox"/> Bridge Structure Projects. Includes new construction or replacement of overpass/underpass structures	\$5,000,000 / \$10,000,000
<input type="checkbox"/> Other: _____	

V. CONTRACTOR'S RIGHT OF ENTRY (CROE)

Not Required
 Required: UPRR Maintenance Consent Letter. TxDOT to assist
 Required: TxDOT to assist in obtaining the UPRR CROE
 Required: Contractor to obtain

- BNSF: _____
https://bnsf.railpermitting.com
- CPKCR
https://jllrpg.360works.com/fmi/webd/rpo_web_kcs.fmp12
- Other Railroads: _____

To view previously approved CROE templates agreed upon between the State and Railroad, see: <https://www.txdot.gov/business/resources/railroad-highway-crossing/sample-right-of-entry-agreements.html>

Approved CROE templates are not to be modified by the Contractor.

Contractor shall not operate within Railroad Right of Way without an executed Construction & Maintenance Agreement between the State and the Railroad and an executed CROE between the Contractor and the Railroad if required on project.

VI. RAILROAD COORDINATION MEETING

A Railroad Coordination Meeting is required. See item 5, Article 8.1, of the Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges Manual for more details.

VII. RAILROAD SAFETY ORIENTATION

A. Complete the Railroad's course "Orientation for Contractor's Safety," and maintain registration prior to working on the Railroad's property. This course is required to be completed annually by Contractor and Subcontractor personnel working on site.

UPRR, BNSF, CPKCR will not accept on-track safety training certificates from other Railroads. Refer to each Railroad's specific contractor right of entry for training information.

Know and follow the Contractor's Right of Entry Agreement EXHIBIT D, MINIMUM SAFETY REQUIREMENTS regarding clothing, personal protective equipment, and general safety requirements.

VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are subject to the same insurance requirements as the Prime Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency
 Call: UPRR _____
 Railroad Emergency Line at: 800-848-8715
 Location: DOT_DOT 748274V
 RR Milepost: 21.875
 Subdivision: Glidden

RRD Review Only
 Initials: [Signature]
 Date: 11/29/23



**RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS**

FILE: rr-scope-of-work.pdf	DN: TxDOT	CK:	DW:	CK:
© TxDOT June 2014	CONT	SECT	JOB	HIGHWAY
6/2023	0912	00	710	VARIOUS
	DIST	COUNTY		SHEET NO.
	HOU	HARRIS		119

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I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)

This project is adjacent or parallel work, not within RR ROW:
 DOT No.: 743695P
 Crossing Type: At-Grade
 RR Company Operating Track at Crossing: Union Pacific Railroad Company (UP)
 RR Company Owning Track at Crossing: UPRR
 RR MP: 21.321
 RR Subdivision: Glidden
 City: Stafford
 County: Fort Bend
 CSJ at this Crossing: 0912-00-710
 Latitude: 29° 37' 40.20"N
 Longitude: 95° 34' 57.20"W

Scope of Work, including any TCP, to be performed by State Contractor:

1) Pavement Markings
 2) TCP(3-4)-13
 3) Railroad and Contractor flaggers will coordinate with lane closures in vicinity of railroad.
 4) All lanes across railroad tracks are to be open to traffic at the end of the day.

Scope of Work to be performed by Railroad Company:

N/A

II. FLAGGING & INSPECTION

No. of Days of Railroad Flagging Expected: 1
 On this project, night or weekend flagging is:
 Expected
 Not Expected

Flagging services will be provided by:

Railroad Company: 1) Txdot will pay flagging invoices. Flagging Agreement with railroad will be needed or, 2) Permitted crossing. Railroad company to provide flagging.
 Outside Party: Contractor will pay flagging invoices to be reimbursed by TxDOT

Contractor must incorporate flaggers into anticipated construction schedule. The Railroad requires a 30-day notice if their flaggers are to be utilized. If Contractor falls behind schedule due to their own negligence and is not ready for scheduled flaggers, any flagging charges will be paid by Contractor.

Contact Information for Flagging:

UPRR UP.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 UP.request@nrssinc.net
 Call Center 877-984-6777

BNSF BNSFinfo@railprofs.com
 Call Center 877-315-0513, Select #1 for flagging

CPKCR KCS.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 Bottom Line On-Track Safety Services
 bottomline076@aol.com, 903-767-7630

OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

Not Required
 Required. Contact Information for Construction Inspection:

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

Required.
 Not Required
 Railroad Point of Contact: _____

Coordinate with TxDOT for any work to be performed by the Railroad Company. TxDOT must issue a work order for any work done by the Railroad Company prior to the work being performed.

IV. RAILROAD INSURANCE REQUIREMENTS

The Contractor shall confirm the insurance requirements with the Railroad as the insurance limits are subject to change without notice.

Insurance policies and corresponding certificates of insurance must be issued by the contractor on behalf of the Railroad. Separate insurance policies and certificates are required when more than one Railroad Company is operating on the same right of way, or when several Railroad Companies are involved and operate on their own separate right of ways.

No direct compensation will be made to the Contractor for providing the insurance coverages shown below or any deductibles. These costs are incidental to the various bid items.

Escalated Limits	
Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	\$500,000 / \$500,000 / \$500,000
Commercial General Liability	\$2,000,000 / \$4,000,000
Business Automobile	\$2,000,000

Railroad Protective Liability Limits	
<input type="checkbox"/> Not Required	
<input checked="" type="checkbox"/> Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	\$2,000,000 / \$6,000,000
<input type="checkbox"/> Bridge Structure Projects. Includes new construction or replacement of overpass/underpass structures	\$5,000,000 / \$10,000,000
<input type="checkbox"/> Other: _____	

V. CONTRACTOR'S RIGHT OF ENTRY (CROE)

Not Required
 Required: UPRR Maintenance Consent Letter. TxDOT to assist
 Required: TxDOT to assist in obtaining the UPRR CROE
 Required: Contractor to obtain

- BNSF: _____
https://bnsf.railpermitting.com
- CPKCR
https://jllrpg.360works.com/fmi/webd/rpo_web_kcs.fmp12
- Other Railroads: _____

To view previously approved CROE templates agreed upon between the State and Railroad, see: <https://www.txdot.gov/business/resources/railroad-highway-crossing/sample-right-of-entry-agreements.html>

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VI. RAILROAD COORDINATION MEETING

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Know and follow the Contractor's Right of Entry Agreement EXHIBIT D, MINIMUM SAFETY REQUIREMENTS regarding clothing, personal protective equipment, and general safety requirements.

VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are subject to the same insurance requirements as the Prime Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency

Call: UPRR _____

Railroad Emergency Line at: 800-848-8715

Location: DOT DOT 743695P _____

RR Milepost: 21.321

Subdivision: Glidden

RRD Review Only

Initials: [Signature]

Date: 11/29/23



**RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS**

FILE: rr-scope-of-work.pdf	DN: TxDOT	CK:	DW:	CK:
© TxDOT June 2014	CONT	SECT	JOB	HIGHWAY
6/2023	0912	00	710	VARIOUS
	DIST	COUNTY		SHEET NO.
	HOU	HARRIS		120

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

I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)

This project is adjacent or parallel work, not within RR ROW:
 DOT No.: 412514U
 Crossing Type: At-Grade
 RR Company Operating Track at Crossing: Union Pacific Railroad Company (UP)
 RR Company Owning Track at Crossing: UPRR
 RR MP: 20.485
 RR Subdivision: Glidden
 City: Stafford
 County: Fort Bend
 CSJ at this Crossing: 0912-00-710
 Latitude: 29° 37' 19.90"N
 Longitude: 95° 34' 13.10"W

Scope of Work, including any TCP, to be performed by State Contractor:

1) Pavement Markings
 2) TCP(3-4)-13
 3) Railroad and Contractor flaggers will coordinate with lane closures in vicinity of railroad.
 4) All lanes across railroad tracks are to be open to traffic at the end of the day.

Scope of Work to be performed by Railroad Company:

N/A

II. FLAGGING & INSPECTION

No. of Days of Railroad Flagging Expected: 1
 On this project, night or weekend flagging is:
 Expected
 Not Expected

Flagging services will be provided by:

Railroad Company: 1) Txdot will pay flagging invoices. Flagging Agreement with railroad will be needed or, 2) Permitted crossing. Railroad company to provide flagging.
 Outside Party: Contractor will pay flagging invoices to be reimbursed by TxDOT

Contractor must incorporate flaggers into anticipated construction schedule. The Railroad requires a 30-day notice if their flaggers are to be utilized. If Contractor falls behind schedule due to their own negligence and is not ready for scheduled flaggers, any flagging charges will be paid by Contractor.

Contact Information for Flagging:

UPRR UP.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 UP.request@nrssinc.net
 Call Center 877-984-6777

BNSF BNSFinfo@railprofs.com
 Call Center 877-315-0513, Select #1 for flagging

CPKCR KCS.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 Bottom Line On-Track Safety Services
 bottomline076@aol.com, 903-767-7630

OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

Not Required
 Required. Contact Information for Construction Inspection:

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

Required.
 Not Required
 Railroad Point of Contact: _____

Coordinate with TxDOT for any work to be performed by the Railroad Company. TxDOT must issue a work order for any work done by the Railroad Company prior to the work being performed.

IV. RAILROAD INSURANCE REQUIREMENTS

The Contractor shall confirm the insurance requirements with the Railroad as the insurance limits are subject to change without notice.

Insurance policies and corresponding certificates of insurance must be issued by the contractor on behalf of the Railroad. Separate insurance policies and certificates are required when more than one Railroad Company is operating on the same right of way, or when several Railroad Companies are involved and operate on their own separate right of ways.

No direct compensation will be made to the Contractor for providing the insurance coverages shown below or any deductibles. These costs are incidental to the various bid items.

Escalated Limits	
Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	\$500,000 / \$500,000 / \$500,000
Commercial General Liability	\$2,000,000 / \$4,000,000
Business Automobile	\$2,000,000

Railroad Protective Liability Limits	
<input type="checkbox"/> Not Required	
<input checked="" type="checkbox"/> Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	\$2,000,000 / \$6,000,000
<input type="checkbox"/> Bridge Structure Projects. Includes new construction or replacement of overpass/underpass structures	\$5,000,000 / \$10,000,000
<input type="checkbox"/> Other: _____	

V. CONTRACTOR'S RIGHT OF ENTRY (CROE)

Not Required
 Required: UPRR Maintenance Consent Letter. TxDOT to assist
 Required: TxDOT to assist in obtaining the UPRR CROE
 Required: Contractor to obtain

- BNSF: _____
https://bnsf.railpermitting.com
- CPKCR
https://jllrpg.360works.com/fmi/webd/rpo_web_kcs.fmp12
- Other Railroads: _____

To view previously approved CROE templates agreed upon between the State and Railroad, see: <https://www.txdot.gov/business/resources/railroad-highway-crossing/sample-right-of-entry-agreements.html>

Approved CROE templates are not to be modified by the Contractor.

Contractor shall not operate within Railroad Right of Way without an executed Construction & Maintenance Agreement between the State and the Railroad and an executed CROE between the Contractor and the Railroad if required on project.

VI. RAILROAD COORDINATION MEETING

A Railroad Coordination Meeting is required. See item 5, Article 8.1, of the Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges Manual for more details.

VII. RAILROAD SAFETY ORIENTATION

A. Complete the Railroad's course "Orientation for Contractor's Safety," and maintain registration prior to working on the Railroad's property. This course is required to be completed annually by Contractor and Subcontractor personnel working on site.

UPRR, BNSF, CPKCR will not accept on-track safety training certificates from other Railroads. Refer to each Railroad's specific contractor right of entry for training information.

Know and follow the Contractor's Right of Entry Agreement EXHIBIT D, MINIMUM SAFETY REQUIREMENTS regarding clothing, personal protective equipment, and general safety requirements.

VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are subject to the same insurance requirements as the Prime Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency
 Call: UPRR _____
 Railroad Emergency Line at: 800-848-8715
 Location: DOT_DOT 412514U
 RR Milepost: 20.485
 Subdivision: Glidden

RRD Review Only
 Initials: HR
 Date: 11/29/23

Rail Division

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: rr-scope-of-work.pdf	DN: TxDOT	CK:	DW:	CK:
© TxDOT June 2014	CONT	SECT	JOB	HIGHWAY
6/2023	0912	00	710	VARIOUS
	DIST	COUNTY		SHEET NO.
	HOU	HARRIS		121

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I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)

This project is adjacent or parallel work, not within RR ROW:
 DOT No.: 924009P
 Crossing Type: At-Grade
 RR Company Operating Track at Crossing: Union Pacific Railroad Company (UP)
 RR Company Owning Track at Crossing: UPRR
 RR MP: 20.136
 RR Subdivision: Glidden
 City: Stafford
 County: Fort Bend
 CSJ at this Crossing: 0912-00-710
 Latitude: 29° 37' 11.90"N
 Longitude: 95° 33' 54.00"W

Scope of Work, including any TCP, to be performed by State Contractor:

1) Pavement Markings
 2) TCP(3-4)-13
 3) Railroad and Contractor flaggers will coordinate with lane closures in vicinity of railroad.
 4) All lanes across railroad tracks are to be open to traffic at the end of the day.

Scope of Work to be performed by Railroad Company:

N/A

II. FLAGGING & INSPECTION

No. of Days of Railroad Flagging Expected: 1
 On this project, night or weekend flagging is:
 Expected
 Not Expected

Flagging services will be provided by:

Railroad Company: 1) Txdot will pay flagging invoices. Flagging Agreement with railroad will be needed or, 2) Permitted crossing. Railroad company to provide flagging.
 Outside Party: Contractor will pay flagging invoices to be reimbursed by TxDOT

Contractor must incorporate flaggers into anticipated construction schedule. The Railroad requires a 30-day notice if their flaggers are to be utilized. If Contractor falls behind schedule due to their own negligence and is not ready for scheduled flaggers, any flagging charges will be paid by Contractor.

Contact Information for Flagging:

UPRR UP.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 UP.request@nrssinc.net
 Call Center 877-984-6777

BNSF BNSFinfo@railprofs.com
 Call Center 877-315-0513, Select #1 for flagging

CPKCR KCS.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 Bottom Line On-Track Safety Services
 bottomline076@aol.com, 903-767-7630

OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

Not Required
 Required. Contact Information for Construction Inspection:

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

Required.
 Not Required
 Railroad Point of Contact: _____

Coordinate with TxDOT for any work to be performed by the Railroad Company. TxDOT must issue a work order for any work done by the Railroad Company prior to the work being performed.

IV. RAILROAD INSURANCE REQUIREMENTS

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Escalated Limits	
Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	\$500,000 / \$500,000 / \$500,000
Commercial General Liability	\$2,000,000 / \$4,000,000
Business Automobile	\$2,000,000

Railroad Protective Liability Limits	
<input type="checkbox"/> Not Required	
<input checked="" type="checkbox"/> Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	\$2,000,000 / \$6,000,000
<input type="checkbox"/> Bridge Structure Projects. Includes new construction or replacement of overpass/underpass structures	\$5,000,000 / \$10,000,000
<input type="checkbox"/> Other:	_____

V. CONTRACTOR'S RIGHT OF ENTRY (CROE)

Not Required
 Required: UPRR Maintenance Consent Letter. TxDOT to assist
 Required: TxDOT to assist in obtaining the UPRR CROE
 Required: Contractor to obtain

- BNSF: _____
https://bnsf.railpermitting.com
- CPKCR
https://jllrpg.360works.com/fmi/webd/rpo_web_kcs.fmp12
- Other Railroads: _____

To view previously approved CROE templates agreed upon between the State and Railroad, see: <https://www.txdot.gov/business/resources/railroad-highway-crossing/sample-right-of-entry-agreements.html>

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 Call: UPRR _____
 Railroad Emergency Line at: 800-848-8715
 Location: DOT_DOT 924009P
 RR Milepost: 20.136
 Subdivision: Glidden

RRD Review Only
 Initials: [Signature]
 Date: 11/29/23

Rail Division

RAILROAD SCOPE OF WORK

PROJECT SPECIFIC DETAILS

FILE: rr-scope-of-work.pdf	DN: TxDOT	CK:	DW:	CK:
© TxDOT June 2014	CONT	SECT	JOB	HIGHWAY
6/2023	0912	00	710	VARIOUS
	DIST	COUNTY		SHEET NO.
	HOU	HARRIS		122

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This project is adjacent or parallel work, not within RR ROW:
 DOT No.: 924008H
 Crossing Type: At-Grade
 RR Company Operating Track at Crossing: Union Pacific Railroad Company (UP)
 RR Company Owning Track at Crossing: UPRR
 RR MP: 20.088
 RR Subdivision: Glidden
 City: Stafford
 County: Fort Bend
 CSJ at this Crossing: 0912-00-710
 Latitude: 29° 37' 10.70"N
 Longitude: 95° 33' 51.50"W

Scope of Work, including any TCP, to be performed by State Contractor:

1) Pavement Markings
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Scope of Work to be performed by Railroad Company:

N/A

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No. of Days of Railroad Flagging Expected: 1
 On this project, night or weekend flagging is:
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 Not Expected

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 Call Center 877-315-0513, Select #1 for flagging
 UP.request@nrssinc.net
 Call Center 877-984-6777

BNSF BNSFinfo@railprosfs.com
 Call Center 877-315-0513, Select #1 for flagging

CPKCR KCS.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 Bottom Line On-Track Safety Services
 bottomline076@aol.com, 903-767-7630

OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

Not Required
 Required. Contact Information for Construction Inspection:

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

Required.
 Not Required
 Railroad Point of Contact: _____

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Workers Compensation	\$500,000 / \$500,000 / \$500,000
Commercial General Liability	\$2,000,000 / \$4,000,000
Business Automobile	\$2,000,000

Railroad Protective Liability Limits	
<input type="checkbox"/> Not Required	
<input checked="" type="checkbox"/> Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	\$2,000,000 / \$6,000,000
<input type="checkbox"/> Bridge Structure Projects. Includes new construction or replacement of overpass/underpass structures	\$5,000,000 / \$10,000,000
<input type="checkbox"/> Other: _____	

V. CONTRACTOR'S RIGHT OF ENTRY (CROE)

Not Required
 Required: UPRR Maintenance Consent Letter. TxDOT to assist
 Required: TxDOT to assist in obtaining the UPRR CROE
 Required: Contractor to obtain

- BNSF: _____
https://bnsf.railpermitting.com
- CPKCR
https://jllrpg.360works.com/fmi/webd/rpo_web_kcs.fmp12
- Other Railroads: _____

To view previously approved CROE templates agreed upon between the State and Railroad, see: <https://www.txdot.gov/business/resources/railroad-highway-crossing/sample-right-of-entry-agreements.html>

Approved CROE templates are not to be modified by the Contractor.

Contractor shall not operate within Railroad Right of Way without an executed Construction & Maintenance Agreement between the State and the Railroad and an executed CROE between the Contractor and the Railroad if required on project.

VI. RAILROAD COORDINATION MEETING

A Railroad Coordination Meeting is required. See item 5, Article 8.1, of the Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges Manual for more details.

VII. RAILROAD SAFETY ORIENTATION

A. Complete the Railroad's course "Orientation for Contractor's Safety," and maintain registration prior to working on the Railroad's property. This course is required to be completed annually by Contractor and Subcontractor personnel working on site.

UPRR, BNSF, CPKCR will not accept on-track safety training certificates from other Railroads. Refer to each Railroad's specific contractor right of entry for training information.

Know and follow the Contractor's Right of Entry Agreement EXHIBIT D, MINIMUM SAFETY REQUIREMENTS regarding clothing, personal protective equipment, and general safety requirements.

VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are subject to the same insurance requirements as the Prime Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency

Call: UPRR _____

Railroad Emergency Line at: 800-848-8715

Location: DOT_DOT 924008H

RR Milepost: 20.088

Subdivision: Glidden

RRD Review Only

Initials: JD

Date: 11/29/23

Rail Division

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: rr-scope-of-work.pdf	DN: TxDOT	CK:	DW:	CK:
© TxDOT June 2014	CONT	SECT	JOB	HIGHWAY
6/2023	0912	00	710	VARIOUS
REVISIONS		DIST	COUNTY	SHEET NO.
		HOU	HARRIS	123

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I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)

This project is adjacent or parallel work, not within RR ROW:
 DOT No.: 924007B
 Crossing Type: At-Grade
 RR Company Operating Track at Crossing: Union Pacific Railroad Company (UP)
 RR Company Owning Track at Crossing: UPRR
 RR MP: 19.594
 RR Subdivision: Glidden
 City: Stafford
 County: Fort Bend
 CSJ at this Crossing: 0912-00-710
 Latitude: 29° 36' 59.40"N
 Longitude: 95° 33' 25.40"W

Scope of Work, including any TCP, to be performed by State Contractor:

1) Pavement Markings
 2) TCP(3-4)-13
 3) Railroad and Contractor flaggers will coordinate with lane closures in vicinity of railroad.
 4) All lanes across railroad tracks are to be open to traffic at the end of the day.

Scope of Work to be performed by Railroad Company:

N/A

II. FLAGGING & INSPECTION

No. of Days of Railroad Flagging Expected: 1
 On this project, night or weekend flagging is:
 Expected
 Not Expected

Flagging services will be provided by:

Railroad Company: 1) Txdot will pay flagging invoices. Flagging Agreement with railroad will be needed or, 2) Permitted crossing. Railroad company to provide flagging.
 Outside Party: Contractor will pay flagging invoices to be reimbursed by TxDOT

Contractor must incorporate flaggers into anticipated construction schedule. The Railroad requires a 30-day notice if their flaggers are to be utilized. If Contractor falls behind schedule due to their own negligence and is not ready for scheduled flaggers, any flagging charges will be paid by Contractor.

Contact Information for Flagging:

UPRR UP.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 UP.request@nrssinc.net
 Call Center 877-984-6777

BNSF BNSFinfo@railprofs.com
 Call Center 877-315-0513, Select #1 for flagging

CPKCR KCS.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 Bottom Line On-Track Safety Services
 bottomline076@aol.com, 903-767-7630

OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

Not Required
 Required. Contact Information for Construction Inspection:

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

Required.
 Not Required
 Railroad Point of Contact: _____

Coordinate with TxDOT for any work to be performed by the Railroad Company. TxDOT must issue a work order for any work done by the Railroad Company prior to the work being performed.

IV. RAILROAD INSURANCE REQUIREMENTS

The Contractor shall confirm the insurance requirements with the Railroad as the insurance limits are subject to change without notice.

Insurance policies and corresponding certificates of insurance must be issued by the contractor on behalf of the Railroad. Separate insurance policies and certificates are required when more than one Railroad Company is operating on the same right of way, or when several Railroad Companies are involved and operate on their own separate right of ways.

No direct compensation will be made to the Contractor for providing the insurance coverages shown below or any deductibles. These costs are incidental to the various bid items.

Escalated Limits	
Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	\$500,000 / \$500,000 / \$500,000
Commercial General Liability	\$2,000,000 / \$4,000,000
Business Automobile	\$2,000,000

Railroad Protective Liability Limits	
<input type="checkbox"/> Not Required	
<input checked="" type="checkbox"/> Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	\$2,000,000 / \$6,000,000
<input type="checkbox"/> Bridge Structure Projects. Includes new construction or replacement of overpass/underpass structures	\$5,000,000 / \$10,000,000
<input type="checkbox"/> Other: _____	

V. CONTRACTOR'S RIGHT OF ENTRY (CROE)

Not Required
 Required: UPRR Maintenance Consent Letter. TxDOT to assist
 Required: TxDOT to assist in obtaining the UPRR CROE
 Required: Contractor to obtain

- BNSF: _____
https://bnsf.railpermitting.com
- CPKCR
https://jllrpg.360works.com/fmi/webd/rpo_web_kcs.fmp12
- Other Railroads: _____

To view previously approved CROE templates agreed upon between the State and Railroad, see: <https://www.txdot.gov/business/resources/railroad-highway-crossing/sample-right-of-entry-agreements.html>

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VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are subject to the same insurance requirements as the Prime Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency

Call: UPRR _____

Railroad Emergency Line at: 800-848-8715

Location: DOT_DOT 924007B

RR Milepost: 19.594

Subdivision: Glidden

RRD Review Only

Initials: [Signature]

Date: 11/29/23

Rail Division

RAILROAD SCOPE OF WORK

PROJECT SPECIFIC DETAILS

FILE: rr-scope-of-work.pdf	DN: TxDOT	CK:	DW:	CK:
© TxDOT June 2014	CONT	SECT	JOB	HIGHWAY
6/2023	0912	00	710	VARIOUS
	DIST	COUNTY		SHEET NO.
	HOU	HARRIS		124

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I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)

This project is adjacent or parallel work, not within RR ROW:
 DOT No.: 924006U
 Crossing Type: At-Grade
 RR Company Operating Track at Crossing: Union Pacific Railroad Company (UP)
 RR Company Owning Track at Crossing: UPRR
 RR MP: 19.570
 RR Subdivision: Glidden
 City: Stafford
 County: Fort Bend
 CSJ at this Crossing: 0912-00-710
 Latitude: 29° 36' 59.00"N
 Longitude: 95° 33' 24.20"W

Scope of Work, including any TCP, to be performed by State Contractor:

1) Pavement Markings
 2) TCP(3-4)-13
 3) Railroad and Contractor flaggers will coordinate with lane closures in vicinity of railroad.
 4) All lanes across railroad tracks are to be open to traffic at the end of the day.

Scope of Work to be performed by Railroad Company:

N/A

II. FLAGGING & INSPECTION

No. of Days of Railroad Flagging Expected: 1
 On this project, night or weekend flagging is:
 Expected
 Not Expected

Flagging services will be provided by:

Railroad Company: 1) Txdot will pay flagging invoices. Flagging Agreement with railroad will be needed or, 2) Permitted crossing. Railroad company to provide flagging.
 Outside Party: Contractor will pay flagging invoices to be reimbursed by TxDOT

Contractor must incorporate flaggers into anticipated construction schedule. The Railroad requires a 30-day notice if their flaggers are to be utilized. If Contractor falls behind schedule due to their own negligence and is not ready for scheduled flaggers, any flagging charges will be paid by Contractor.

Contact Information for Flagging:

UPRR UP.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 UP.request@nrssinc.net
 Call Center 877-984-6777

BNSF BNSFinfo@railprofs.com
 Call Center 877-315-0513, Select #1 for flagging

CPKCR KCS.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 Bottom Line On-Track Safety Services
 bottomline076@aol.com, 903-767-7630

OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

Not Required
 Required. Contact Information for Construction Inspection:

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

Required.
 Not Required
 Railroad Point of Contact: _____

Coordinate with TxDOT for any work to be performed by the Railroad Company. TxDOT must issue a work order for any work done by the Railroad Company prior to the work being performed.

IV. RAILROAD INSURANCE REQUIREMENTS

The Contractor shall confirm the insurance requirements with the Railroad as the insurance limits are subject to change without notice.

Insurance policies and corresponding certificates of insurance must be issued by the contractor on behalf of the Railroad. Separate insurance policies and certificates are required when more than one Railroad Company is operating on the same right of way, or when several Railroad Companies are involved and operate on their own separate right of ways.

No direct compensation will be made to the Contractor for providing the insurance coverages shown below or any deductibles. These costs are incidental to the various bid items.

Escalated Limits	
Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	\$500,000 / \$500,000 / \$500,000
Commercial General Liability	\$2,000,000 / \$4,000,000
Business Automobile	\$2,000,000

Railroad Protective Liability Limits	
<input type="checkbox"/> Not Required	
<input checked="" type="checkbox"/> Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	\$2,000,000 / \$6,000,000
<input type="checkbox"/> Bridge Structure Projects. Includes new construction or replacement of overpass/underpass structures	\$5,000,000 / \$10,000,000
<input type="checkbox"/> Other: _____	

V. CONTRACTOR'S RIGHT OF ENTRY (CROE)

Not Required
 Required: UPRR Maintenance Consent Letter. TxDOT to assist
 Required: TxDOT to assist in obtaining the UPRR CROE
 Required: Contractor to obtain

- BNSF: _____
https://bnsf.railpermitting.com
- CPKCR
https://jllrpg.360works.com/fmi/webd/rpo_web_kcs.fmp12
- Other Railroads: _____

To view previously approved CROE templates agreed upon between the State and Railroad, see: <https://www.txdot.gov/business/resources/railroad-highway-crossing/sample-right-of-entry-agreements.html>

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VI. RAILROAD COORDINATION MEETING

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Know and follow the Contractor's Right of Entry Agreement EXHIBIT D, MINIMUM SAFETY REQUIREMENTS regarding clothing, personal protective equipment, and general safety requirements.

VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are subject to the same insurance requirements as the Prime Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency

Call: UPRR _____

Railroad Emergency Line at: 800-848-8715

Location: DOT_DOT 924006U

RR Milepost: 19.570

Subdivision: Glidden

RRD Review Only

Initials: [Signature]

Date: 11/29/23

Rail Division

RAILROAD SCOPE OF WORK

PROJECT SPECIFIC DETAILS

FILE: rr-scope-of-work.pdf	DN: TxDOT	CK:	DW:	CK:
© TxDOT June 2014	CONT	SECT	JOB	HIGHWAY
6/2023	0912	00	710	VARIOUS
REVISIONS				
	DIST	COUNTY		SHEET NO.
	HOU	HARRIS		125

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I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)

This project is adjacent or parallel work, not within RR ROW:
 DOT No.: 743689L
 Crossing Type: At-Grade
 RR Company Operating Track at Crossing: Union Pacific Railroad Company (UP)
 RR Company Owning Track at Crossing: UPRR
 RR MP: 18.430
 RR Subdivision: Glidden
 City: Missouri City
 County: Fort Bend
 CSJ at this Crossing: 0912-00-710
 Latitude: 29° 37' 08.60"N
 Longitude: 95° 32' 19.00"W

Scope of Work, including any TCP, to be performed by State Contractor:

1) Pavement Markings
 2) TCP(3-4)-13
 3) Railroad and Contractor flaggers will coordinate with lane closures in vicinity of railroad.
 4) All lanes across railroad tracks are to be open to traffic at the end of the day.

Scope of Work to be performed by Railroad Company:

N/A

II. FLAGGING & INSPECTION

No. of Days of Railroad Flagging Expected: 1
 On this project, night or weekend flagging is:
 Expected
 Not Expected

Flagging services will be provided by:

Railroad Company: 1) Txdot will pay flagging invoices. Flagging Agreement with railroad will be needed or, 2) Permitted crossing. Railroad company to provide flagging.
 Outside Party: Contractor will pay flagging invoices to be reimbursed by TxDOT

Contractor must incorporate flaggers into anticipated construction schedule. The Railroad requires a 30-day notice if their flaggers are to be utilized. If Contractor falls behind schedule due to their own negligence and is not ready for scheduled flaggers, any flagging charges will be paid by Contractor.

Contact Information for Flagging:

UPRR UP.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 UP.request@nrssinc.net
 Call Center 877-984-6777

BNSF BNSFinfo@railprosfs.com
 Call Center 877-315-0513, Select #1 for flagging

CPKCR KCS.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 Bottom Line On-Track Safety Services
 bottomline076@aol.com, 903-767-7630

OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

Not Required
 Required. Contact Information for Construction Inspection:

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

Required.
 Not Required
 Railroad Point of Contact: _____

Coordinate with TxDOT for any work to be performed by the Railroad Company. TxDOT must issue a work order for any work done by the Railroad Company prior to the work being performed.

IV. RAILROAD INSURANCE REQUIREMENTS

The Contractor shall confirm the insurance requirements with the Railroad as the insurance limits are subject to change without notice.

Insurance policies and corresponding certificates of insurance must be issued by the contractor on behalf of the Railroad. Separate insurance policies and certificates are required when more than one Railroad Company is operating on the same right of way, or when several Railroad Companies are involved and operate on their own separate right of ways.

No direct compensation will be made to the Contractor for providing the insurance coverages shown below or any deductibles. These costs are incidental to the various bid items.

Escalated Limits	
Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	\$500,000 / \$500,000 / \$500,000
Commercial General Liability	\$2,000,000 / \$4,000,000
Business Automobile	\$2,000,000

Railroad Protective Liability Limits	
<input type="checkbox"/> Not Required	
<input checked="" type="checkbox"/> Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	\$2,000,000 / \$6,000,000
<input type="checkbox"/> Bridge Structure Projects. Includes new construction or replacement of overpass/underpass structures	\$5,000,000 / \$10,000,000
<input type="checkbox"/> Other: _____	

V. CONTRACTOR'S RIGHT OF ENTRY (CROE)

Not Required
 Required: UPRR Maintenance Consent Letter. TxDOT to assist
 Required: TxDOT to assist in obtaining the UPRR CROE
 Required: Contractor to obtain

- BNSF: _____
https://bnsf.railpermitting.com
- CPKCR
https://jllrpg.360works.com/fmi/webd/rpo_web_kcs.fmp12
- Other Railroads: _____

To view previously approved CROE templates agreed upon between the State and Railroad, see: <https://www.txdot.gov/business/resources/railroad-highway-crossing/sample-right-of-entry-agreements.html>

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Know and follow the Contractor's Right of Entry Agreement EXHIBIT D, MINIMUM SAFETY REQUIREMENTS regarding clothing, personal protective equipment, and general safety requirements.

VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are subject to the same insurance requirements as the Prime Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency

Call: UPRR _____

Railroad Emergency Line at: 800-848-8715

Location: DOT_DOT 743689L

RR Milepost: 18.430

Subdivision: Glidden

RRD Review Only

Initials: [Signature]

Date: 11/29/23

Rail Division

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: rr-scope-of-work.pdf	DN: TxDOT	CK:	DW:	CK:
© TxDOT June 2014	CONT	SECT	JOB	HIGHWAY
6/2023	0912	00	710	VARIOUS
	DIST	COUNTY		SHEET NO.
	HOU	HARRIS		126

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I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)

This project is adjacent or parallel work, not within RR ROW:
 DOT No.: 743688E
 Crossing Type: At-Grade
 RR Company Operating Track at Crossing: Union Pacific Railroad Company (UP)
 RR Company Owning Track at Crossing: UPRR
 RR MP: 17.620
 RR Subdivision: Glidden
 City: Missouri City
 County: Fort Bend
 CSJ at this Crossing: 0912-00-710
 Latitude: 29° 37' 25.70"N
 Longitude: 95° 31' 34.50"W

Scope of Work, including any TCP, to be performed by State Contractor:

1) Pavement Markings
 2) TCP(3-3)-14 & TCP(3-4)-13
 3) Railroad and Contractor flaggers will coordinate with lane closures in vicinity of railroad.
 4) All lanes across railroad tracks are to be open to traffic at the end of the day.

Scope of Work to be performed by Railroad Company:

N/A

II. FLAGGING & INSPECTION

No. of Days of Railroad Flagging Expected: 1
 On this project, night or weekend flagging is:
 Expected
 Not Expected

Flagging services will be provided by:

Railroad Company: 1) Txdot will pay flagging invoices. Flagging Agreement with railroad will be needed or, 2) Permitted crossing. Railroad company to provide flagging.
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UPRR UP.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 UP.request@nrssinc.net
 Call Center 877-984-6777

BNSF BNSFinfo@railprosfs.com
 Call Center 877-315-0513, Select #1 for flagging

CPKCR KCS.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 Bottom Line On-Track Safety Services
 bottomline076@aol.com, 903-767-7630

OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

Not Required
 Required. Contact Information for Construction Inspection:

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

Required.
 Not Required
 Railroad Point of Contact: _____

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Escalated Limits	
Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	\$500,000 / \$500,000 / \$500,000
Commercial General Liability	\$2,000,000 / \$4,000,000
Business Automobile	\$2,000,000

Railroad Protective Liability Limits	
<input type="checkbox"/> Not Required	
<input checked="" type="checkbox"/> Non - Bridge/Typical Maintenance Projects. Includes repairs to overpass/underpass and culvert structures	\$2,000,000 / \$6,000,000
<input type="checkbox"/> Bridge Structure Projects. Includes new construction or replacement of overpass/underpass structures	\$5,000,000 / \$10,000,000
<input type="checkbox"/> Other: _____	

V. CONTRACTOR'S RIGHT OF ENTRY (CROE)

Not Required
 Required: UPRR Maintenance Consent Letter. TxDOT to assist
 Required: TxDOT to assist in obtaining the UPRR CROE
 Required: Contractor to obtain

- BNSF: _____
https://bnsf.railpermitting.com
- CPKCR
https://jllrpg.360works.com/fmi/webd/rpo_web_kcs.fmp12
- Other Railroads: _____

To view previously approved CROE templates agreed upon between the State and Railroad, see: <https://www.txdot.gov/business/resources/railroad-highway-crossing/sample-right-of-entry-agreements.html>

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Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are subject to the same insurance requirements as the Prime Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency

Call: UPRR _____

Railroad Emergency Line at: 800-848-8715

Location: DOT_DOT 743688E

RR Milepost: 17.620

Subdivision: Glidden

RRD Review Only

Initials: [Signature]

Date: 11/29/23

Rail Division

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: rr-scope-of-work.pdf	DN: TxDOT	CK:	DW:	CK:
© TxDOT June 2014	CONT	SECT	JOB	HIGHWAY
6/2023	0912	00	710	VARIOUS
	DIST	COUNTY		SHEET NO.
	HOU	HARRIS		127

PART 1 - GENERAL

1.01 DESCRIPTION

This project includes construction work within the right of way and/or properties of the Railroad and adjacent to its tracks, wire lines and other facilities. These sheets describe the minimum special requirements for coordination with the Railroad when working upon, over or under Railroad Right of Way or when impacting current or future Railroad operations. Coordinate with the Railroad while performing the work outlined herein, and afford the same cooperation with the Railroad as with TxDOT. Complete all submittals and work in accordance with TxDOT Standard Specifications, Railroad Guidelines and AREMA recommendations as modified by these minimum special requirements or as directed in writing by the Railroad Designated Representative.

For purposes of this project, the Railroad Designated Representative is the person or persons designated by the Railroad Manager of Industry and Public Projects to handle specific tasks related to the project.

1.02 REQUEST FOR INFORMATION / CLARIFICATION

Submit Requests for Information ("RFI") involving work within any Railroad Right of Way to the TxDOT Engineer. The TxDOT Engineer will submit the RFI to the Railroad Designated Representative for review and approval for RFI's corresponding to work within Railroad Right of Way. Allow six (6) weeks total time for review and approval, which includes four (4) weeks for review and approval by the Railroad.

1.03 PLANS / SPECIFICATIONS

TxDOT has received written Railroad approval of the plans and specifications for this project. Any revisions or changes in the plans after award of the Contract must have the approval of TxDOT and the Railroad.

PART 2 - UTILITIES AND FIBER OPTIC

Construct all utility installations in accordance with current AREMA recommendations, Railroad, TxDOT and owning utility specifications and requirements. Railroad general guidelines can be found on the Railroad website or by contacting the Railroad Designated Representative.

PART 3 - CONSTRUCTION

3.01 GENERAL

- A. Perform all work in compliance with all applicable Railroad, Federal Railroad Administration (FRA), and TxDOT rules and regulations. Arrange and conduct work in a manner that does not endanger or interfere with the safe operation of the tracks and property of the Railroad and the traffic moving on such tracks, or the wires, signals and other property of the Railroad, its tenants or licensees, at or in the vicinity of the Work. The safe operation of railroad train movements takes precedence over any work to be performed by the Contractor. The Contractor is responsible for train delay cost and lost revenue claims due to any delays or interruption of train operations resulting from Contractor's construction or other activities.
- B. Construction activities within 15 feet of the operational tracks will only be allowed if absolutely necessary and the Railroad's Designated Representative grants approval. Construction activities within 15 feet of the operational track(s) preferably allow the tracks to stay operational. In such cases, coordination and approval by the Railroad Track Manager is required with regard to schedule, flagging, and slow orders. See Sections 3.07 and 3.08 for additional information.
- C. Provide track protection for all work equipment (including rubber tired equipment) operating within 25 feet from nearest rail. When not in use, keep Contractor machinery and materials at least 50 feet from the Railroad's nearest track.
- D. Vehicular crossings of railroad track are allowed only at existing crossings, or haul road crossings developed with Railroad approval.
- E. The Contractor is also advised that new railroad facilities within the project may be built by the Railroad. If applicable, these facilities are delineated in the plans. Be aware of the limits of responsibilities and coordinate efforts with the Railroad and TxDOT.
- F. Railroad requirements do not allow work within 50 feet of track centers when a train passes the work site and all personnel must clear the area within 50 feet of the track centerline and secure all equipment. Additional allowances may be pursued as outlined in 3.02 and 3.03.
- G. All permanent clearances shall be verified before project closing.

3.02 RAILROAD OPERATIONS

- A. Trains and/or equipment are expected on any track, at any time, in either direction. Become familiar with the train schedules in this location and structure bid assuming intermittent track windows in this period, as defined in Paragraph B that follows.
- B. All railroad tracks within and adjacent to the contract site are active, and rail traffic over these facilities shall be maintained throughout the Project. Activities may include both through moves and switching moves to local customers. railroad traffic and operations will occur continuously throughout the day and night on these tracks and shall be maintained at all times as defined herein. Coordinate and schedule the work so that construction activities do not interfere with railroad operations.
- C. Coordinate work windows with TxDOT and the Railroad's Designated Representative. Types of work windows include Conditional Work Windows and Absolute Work Windows, as defined below:
 - 1. Conditional Work Window: A Conditional Work Window is a period of time that railroad operations have priority over construction activities. When construction activities may occur on and/or adjacent to the railroad tracks within 25 feet of the nearest track, a railroad flag person will be required. At the direction of the railroad flag person, upon approach of a train, and when trains are present on the tracks, the tracks must be cleared (i.e., no construction equipment, materials or personnel within 25 feet, or as directed by the Railroad Designated Representative, from the tracks). Conditional Work Windows are available for the Project.
 - 2. Absolute Work Window: An Absolute Work Window is a period of time that construction activities are given priority over railroad operations. During this time frame, the designated railroad track(s) will be inactive for train movements and may be fouled by the Contractor. At the end of an Absolute Work Window, the railroad tracks and/or signals must be completely operational for train operations and all Railroad, Public Utilities Commission (PUC) and FRA requirements, codes and regulations for operational tracks must be satisfied. In the situation where the operating tracks and/or signals have been affected, the Railroad will perform inspections of the work prior to placing that track back into service. Railroad flag persons will be required for construction activities requiring an Absolute Work Window. Absolute Work Windows will not generally be granted. Any request will require a detailed explanation for Railroad review.

3.03 RIGHT OF ENTRY, ADVANCE NOTICE AND WORK STOPPAGES

- A. Do not perform any work within Railroad Right of Way without a valid executed Right of Entry Agreement if required on this project.
- B. Give advance notice to the Railroad as required in the "Contractor's Right of Entry Agreement" before commencing work in connection with construction upon or over Railroad Right of Way and observe the Railroad's rules and regulations with respect thereto.
- C. Perform all work upon Railroad Right of Way in a manner to avoid interference with or endanger the operations of the Railroad. Whenever work may affect the operations or safety of trains, submit the work method to the Railroad Designated Representative for approval. Approval does not relieve the Contractor from liability. Do not commence any work which requires flagging service or inspection service until the flagging protection required by the Railroad is available at the job site. See Section 3.15 for railroad flagging requirements.
- D. Make requests in writing for both Absolute and Conditional Work Windows, at least 30 days in advance of any work. Include in the written request:
 - 1. Exactly what the work entails.
 - 2. The days and hours that work will be performed.
 - 3. The exact location of work, and proximity to the tracks.
 - 4. The type of window requested and the amount of time requested.
 - 5. The designated contact person.

Provide a written confirmation notice to the Railroad at least 48 hours before commencing work in connection with approved work windows when work is within 25 feet of nearest rail. Perform all work in accordance with previously approved work plans.
- E. Make provisions to protect operations and property of the Railroad should a condition arising from, or in connection with the work, require immediate and unusual action. If in the judgment of the Railroad Designated Representative such provisions are insufficient, the Railroad Designated Representative may require or provide such provisions as deemed necessary. In any event, such provisions shall be at the Contractor's expense and without cost to the Railroad or TxDOT. The Railroad or TxDOT shall have the right to order the Contractor to temporarily cease operations in the event of an emergency or, if in the opinion of the Railroad Designated Representative, the Contractor's operations could endanger railroad operations. In the event of such an order, immediately notify TxDOT of the order.

3.04 INSURANCE

Do not begin work upon or over Railroad Right of Way until furnishing the Railroad with the insurance policies, binders, certificates and endorsements required by the "Contractor's Right of Entry Agreement", and until the Railroad Designated Representative has advised TxDOT that such insurance is in accordance with the Agreement.

3.05 RAILROAD SAFETY ORIENTATION

- A. Complete the railroad course "Orientation for Contractor's Safety", and maintain current registration prior to working on railroad property. This course is required to be completed annually by Contractor and Subcontractor personnel working on site.

"UPRR, BNSF, KCS/TEXMEX will not accept on-track safety training certificates from other railroads. Refer to Railroad specific contractor right of entry for training information."
- B. Know and follow the "Contractor's Right of Entry Agreement" EXHIBIT D, MINIMUM SAFETY REQUIREMENTS regarding clothing, personal protective equipment, and general safety requirements.

3.06 COOPERATION

The Railroad will cooperate with Contractor so that work may be conducted in an efficient manner, and will cooperate with Contractor in enabling use of Railroad Right of Way in performing the work.



3.07 MINIMUM CONSTRUCTION CLEARANCES FOR FALSEWORK AND OTHER TEMPORARY STRUCTURES

Abide by the following minimum temporary clearances during the course of construction:
A. 15' - 0" (BNSF) (UPRR) and 14' - 0" (KCS) horizontal from centerline of track
B. 22' (KCS) and 21' - 6" (UPRR & BNSF) vertically above top of rail.

For construction clearance less than listed above, obtain local Railroad Operating Unit review and approval.

3.08 APPROVAL OF REDUCED CLEARANCES

- A. Maintain minimum track clearances during construction as specified in Section 3.07.
- B. Submit any proposed infringement on the specified minimum clearances to the Railroad Designated Representative through TxDOT at least 30 days in advance of the work. Do not proceed with such infringement without written approval by the Railroad Designated Representative.
- C. Do not commence work involving an approved infringement without receiving written assurance from the Railroad Designated Representative that arrangements have been made for any necessary flagging service.

					
RAILROAD REQUIREMENTS FOR NON-BRIDGE CONSTRUCTION PROJECTS					
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© TxDOT October 2018	CONT	SECT	JOB	HIGHWAY	
REVISIONS March 2020	0912	00	710	VARIOUS	
	DIST	COUNTY	SHEET NO.		
	HOU	HARRIS	128		

DATE: \$DATE\$
FILE: \$FILE\$

3.09 MAINTENANCE OF RAILROAD FACILITIES

- A. Maintain all ditches and drainage structures free of silt or other obstructions resulting from Contractor's operations. Repair eroded areas and any other damage within Railroad Right of Way and repair any other damage to the property of the Railroad, or its tenants.
- B. Perform all such maintenance and repair of damages due to the Contractor's operations at Contractor's expense.
- C. Submit a proposed method of erosion control for review by the Railroad prior to beginning any grading on the project site. Comply with all applicable local, state and federal regulations when developing and implementing such erosion control.

3.10 SITE INSPECTIONS BY RAILROAD'S DESIGNATED REPRESENTATIVE

- A. In addition to the office reviews of construction submittals, site inspections may be performed by the Railroad Designated Representative at significant points during construction, including the following if applicable:
 1. Pre-construction meetings.
 2. Pile driving/drilling of caissons or drilled shafts.
 3. Reinforcement and concrete placement for railroad bridge substructure and/or superstructure.
 4. Erection of precast concrete or steel bridge superstructure.
 5. Placement of waterproofing (prior to placing ballast on bridge deck).
 6. Completion of the bridge structure.
- B. Site inspection is not limited to the milestone events listed above. Site visits to check progress of the work may be performed at any time throughout the construction as deemed necessary by the Railroad.
- C. Provide a detailed construction schedule, including the proposed temporary horizontal and vertical clearances and construction sequence for all work to TxDOT for submittal to the Railroad Designated Representative for review prior to commencement of work. Include the anticipated dates when the above listed events will occur. Update this schedule for the above listed events as necessary and each month at a minimum to allow the Railroad to schedule site inspections.

3.11 RAILROAD REPRESENTATIVES

Railroad representatives, conductors, flag person or watch person will be provided by the Railroad at expense of TxDOT to protect Railroad facilities, property and movements of its trains or engines. In general, the Railroad will furnish such personnel or other protective services as follows:

- A. When any part of any equipment is standing or being operated within 25 feet, measured horizontally, from nearest rail of any track on which trains may operate, or when any object is off the ground and any dimension thereof could extend inside the 25 foot limit, or when any erection or construction activities are in progress within such limits, regardless of elevation above or below track.
- B. For any excavation below elevation of track subgrade if, in the opinion of the Railroad Designated Representative, track or other railroad facilities may be subject to settlement or movement.
- C. During any clearing, grubbing, excavation or grading in proximity to railroad facilities, which, in the opinion of the Railroad Designated Representative, may endanger railroad facilities or operations.
- D. During any Contractor's operations when, in the opinion of the Railroad Designated Representative, railroad facilities, including, but not limited to, tracks, buildings, signals, wire lines, or pipe lines, may be endangered.
- E. Arrange with the Railroad Designated Representative to provide the adequate number of flag persons to accomplish the work.

3.12 COMMUNICATIONS AND SIGNAL LINES

If required, the Railroad will rearrange its communications and signal lines, its grade crossing warning devices, train signals and tracks, and facilities that are in use and maintained by the Railroad's forces in connection with its operation at expense of TxDOT. This work by the Railroad will be done by its own forces and it is not a part of the Work under this Contract.

3.13 TRAFFIC CONTROL

Coordinate any operations that control traffic across or around railroad facilities with the Railroad Designated Representative.

3.14 CONSTRUCTION EXCAVATIONS AND BORING ACTIVITIES UNDER TRACK

- A. Take special precaution and care in connection with excavating and shoring. Excavations for construction of footings, piers, columns, walls or other facilities that require shoring shall comply with requirements of TxDOT, OSHA, AREMA and Railroad "Guidelines for Temporary Shoring".
- B. The project plans indicate whether there are fiber optic lines or other such telecommunications systems that require consideration. Regardless, contact the necessary call center to determine if such cable systems are present:

UPRR 1-800-336-9193
7:00 AM to 9:00 PM CST Monday-Friday except holidays,
staffed 24 hrs/day for emergencies
48 hrs notice required

BNSF 1-800-533-2891
24 hour number
5 working days notice required

KCS 1-800-344-8377
Texas One Call, a 24 hour number
48 hrs notice required, excluding weekends and holidays

If a telecommunications system is buried anywhere on or near railroad property, coordinate with TxDOT, the Railroad and the Telecommunication Company(ies) to arrange for relocation or protective measures prior to beginning work on or near railroad property. Refer to the project General Notes for additional information.


- C. Projects involving a boring or jack and bore operation under track such as drainage pipes or culverts and utilities require an installation plan reviewed and approved by the Railroad and TxDOT prior to proceeding with such construction. A railroad inspector and contractor assisted monitoring of ground and track movement is required to maintain safe passage of rail traffic. Stop installation and do not allow passage of trains if movements in excess of 1/4 inch vertical or horizontal is detected in the tracks. Immediately repair the damage to the satisfaction of TxDOT and the Railroad before proceeding.

3.15 RAILROAD FLAGGING

Per the Right of Entry Agreement for flagging, notify the Railroad Representative at least 10 working days in advance of Contractor's work and at least 30 working days in advance of any Contractor's work in which any person or equipment will be within 25 feet of nearest rail or as specified in the Contractor Right of Entry (CROE).


3.16 CLEANING OF RIGHT-OF-WAY

When work is complete, remove all tools, implements, and other materials brought into Railroad Right of Way and leave the right of Way in a clean and presentable condition to the satisfaction of TxDOT and the Railroad.

 Texas Department of Transportation				Rail Division	
RAILROAD REQUIREMENTS FOR NON-BRIDGE CONSTRUCTION PROJECTS					
FILE:	DN: TxDOT	CK: TxDOT	DW: TxDOT	CR: TxDOT	
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March 2020	DIST	COUNTY	SHEET NO.		
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<p>I. STORMWATER POLLUTION PREVENTION</p> <p>Texas Pollutant Discharge Elimination System (TPDES) TXR 150000: Stormwater Discharge Permit or Construction General Permit is required for projects with 1 or more acres disturbed soil. Projects with any disturbed soil must protect for erosion and sedimentation in accordance with Item 506. Refer to the TxDOT SWP3 Summary Sheets, SWP3 Binder Template, and Form 2118.</p> <p>No Additional Comments</p>	<p>III. CULTURAL RESOURCES</p> <p>Refer to TxDOT Standard Specifications in the event historical issues or archeological artifacts are found during construction. Upon discovery of archeological artifacts (bones, burnt rock, flint, pottery, etc.) cease work in the area and contact the Engineer immediately.</p> <p>No Additional Comments</p>	<p>VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES</p> <p>Refer to TxDOT Standard Specifications in the event potentially contaminated materials are observed, such as dead or distressed vegetation, trash disposal areas, drums, canisters, barrels, leaching or seepage of substances, unusual smells or odors, or stained soil, cease work in the area and contact the Engineer immediately.</p> <p>No Additional Comments</p>
<p>II. WORK IN OR NEAR STREAMS, WATERBODIES AND WETLANDS</p> <p>United States Army Corps of Engineers (USACE) Permit is required for filling, dredging, excavating or other work in water bodies, rivers, creeks, streams, wetlands or wet areas. The Contractor must adhere to all of the terms and general conditions associated with the following permit(s). If additional work not represented in the plans is required, contact the Engineer immediately.</p> <p><input checked="" type="checkbox"/> No United States Army Corps (USACE) Permit Required</p> <p><input type="checkbox"/> Work is authorized by the United States Army Corps of Engineers (USACE) under a Nationwide Permit (NWP) without a Pre-Construction Notification (PCN). Project specific permit was not issued by USACE, therefore is not in the plan set. The USACE general conditions are in the "General Notes."</p> <p><input type="checkbox"/> Work is authorized by the United States Army Corps of Engineers (USACE) under a Nationwide Permit (NWP) with a Pre-Construction Notification (PCN). The project specific permit issued by the United States Army Corps of Engineers (USACE) is included in the plan set. The USACE general conditions are in the "General Notes."</p> <p><input type="checkbox"/> Work is authorized by the United States Army Corps of Engineers (USACE) under a Individual Permit (IP). The project specific permit issued by the United States Army Corps of Engineers (USACE) is included in the plan set.</p> <p><input type="checkbox"/> Work would be authorized by the United States Army Corps of Engineers (USACE) permit. The project specific permit issued by the USACE will be provided to the contractor.</p> <p>United States Coast Guard (USCG) Permit is required for projects that involve the construction or modification (including changes to lighting) of a bridge or causeway across a water body determined to be navigable by the United States Coast Guard (USCG) under Section 9 of the Rivers and Harbors Act. If additional work not represented in the plans is required, contact the Engineer immediately.</p> <p><input checked="" type="checkbox"/> No United States Coast Guard (USCG) Coordination Required</p> <p><input type="checkbox"/> United States Coast Guard (USCG) Permit</p> <p><input type="checkbox"/> United States Coast Guard (USCG) Exemption</p> <p>No Additional Comments</p>	<p>IV. VEGETATION RESOURCES</p> <p>Preserve native vegetation to the extent practical. Refer to TxDOT Standard Specifications in order to comply with requirements for invasive species, beneficial landscaping and tree/brush removal.</p> <p>No Additional Comments</p> <p>V. FEDERAL LISTED, PROPOSED THREATENED, ENDANGERED SPECIES, CRITICAL HABITAT, STATE LISTED SPECIES, CANDIDATE SPECIES AND MIGRATORY BIRDS</p> <p>If any of the listed species below are observed, cease work in the area, do not disturb species or habitat and contact the Engineer immediately.</p> <p>The work may not remove active nests (from bridges, structures, or vegetation adjacent to the roadway, etc.) during nesting season (February 15 to October 1). If removal of structures or vegetation is necessary during the nesting season, the Contractor shall conduct a bird survey no more than 3 days in advance of the clearing/demolish start date. All bird surveys shall be conducted by a Field Biologist and adhere to the guidance document "Avoiding Migratory Birds and Handling Potential Violations" found in the TxDOT Environmental Compliance Toolkits at the time of the survey. (See below for Field Biologist and Ornithologist qualifications)</p> <p>No Additional Comments</p> <p>Field Biologist, Ornithologist – a field biologist is defined as an individual qualified to perform field investigations, presence/absence surveys and habitat surveys for protected avian species or species of concern. A mandatory bachelor's degree in biology or a related science is required. At a minimum, the Field Biologist, Ornithologist, shall have completed and reported a minimum of three presence/absence and habitat surveys for protected avian species in the past five years. A minimum of three projects must have been conducted in Texas. Surveys shall have been performed for documentation of species in accordance with a protocol approved by USFWS or TPWD, or following generally accepted methodologies.</p>	<p>VII. OTHER ENVIRONMENTAL ISSUES</p> <p>Comments:</p>

DATE: Aug 25, 2023
FILE:

		TxDOT Houston District		
<p>ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS</p> <p>EPIC</p>				
FILE: EPIC Sheet.dgn	DN:	CK:	DW:	CK:
© TxDOT: March 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS	0912	00	710	VARIOUS
UPDATED section V, text and added definition (10/17)	DIST	COUNTY		SHEET NO.
ADDED USCG and USACE notes in Section VII (04/18)	12	HARRIS		130