SEE SHEET 2 FOR
INDEX OF SHEETS

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

FEDERAL AID PROJECT NO. F2025(268)
CSJ: 0913-00-138

LIMITS: VARIOUS
COUNTIES: DEWITT, ETC.
VARIOUS LOCATIONS: YOAKUM DISTRICT

FOR THE INSTALLATION OF SIGNAGE
FOR PORT WAYFINDING

FEDERAL AID PROJECT NO.			
F2025(268)			
CONT	SECT	JOB	HIGHWAY
0913	00	138	VARIOUS
DIST	COUNTY		SHEET NO.
YKM	DEWITT, ETC.		1

VOLUME 2
CCSJ: 0144-01-075

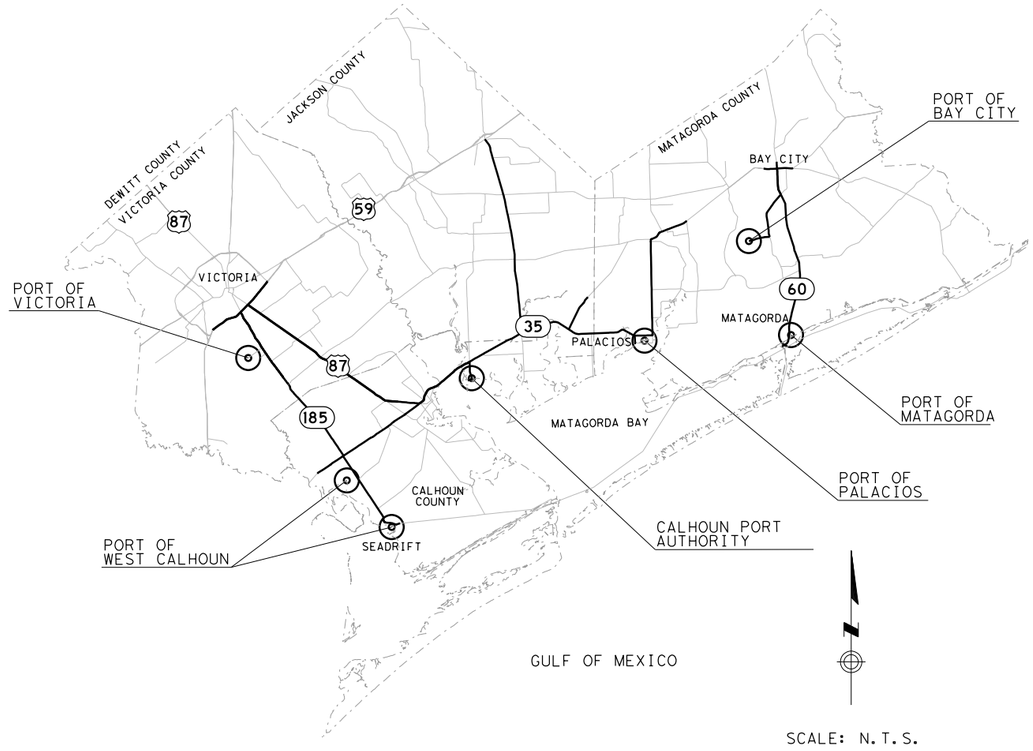
DESIGN SPEED = N/A
A.D.T.(2024)= N/A
A.D.T.(2025)= N/A

FINAL PLANS

LETTING DATE: _____
DATE CONTRACTOR BEGAN WORK: _____
DATE WORK WAS COMPLETED: _____
DATE WORK WAS ACCEPTED: _____
FINAL CONTRACT COST: $ _____
CONTRACTOR: _____

_____ 20 _____

_____
AREA ENGINEER



SCALE: N.T.S.

EXCEPTIONS: NONE
EQUATIONS: NONE
RAILROAD CROSSINGS: NONE

STATE OF TEXAS
PUNARVASU R. BHAKTA
96603
LICENSED
PROFESSIONAL ENGINEER

SUBMITTED FOR LETTING: 8/26/2024

PROJECT MANAGER

AECOM
AECOM Technical Services Inc. F-3580
13640 BRIARWICK DRIVE SUITE 200
AUSTIN, TEXAS 78729
512-454-4797

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION, SEPTEMBER 1, 2024 AND SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS, SHALL GOVERN ON THIS PROJECT: REQUIRED CONTRACT PROVISIONS FOR ALL FEDERAL-AID CONSTRUCTION CONTRACTS (FORM FHWA 1273, OCTOBER 2023)

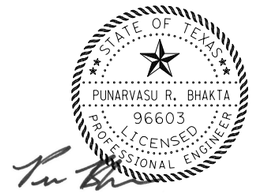
RECOMMENDED FOR LETTING: 8/26/2024
Signed by: Jeffery Vinklarek
C5D972D8B2414F0...
DIRECTOR OF TRANSPORTATION
PLANNING & DEVELOPMENT

APPROVED FOR LETTING: 8/26/2024
DocuSigned by: Martin C. Horsts PE
894AD332139E48D...
DISTRICT ENGINEER

DATE: 8/26/2024 11:50:29 AM
FILE: c:\pwworking\ustx\dms39313\MARITIME_YKM_TITLE.dgn

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
	I. GENERAL
1	TITLE SHEET
2	INDEX OF SHEETS
3, 3A	GENERAL NOTES
4, 4A	ESTIMATE & QUANTITY
5	SUMMARY OF QUANTITIES
6-10	SUMMARY OF SMALL SIGNS
11	SUMMARY OF LARGE SIGNS
12	SUMMARY OF LARGE SIGNS - REMOVAL
13	KEY MAP
14-32	PROPOSED LAYOUT
33-34	SIGN DETAILS
	II. TRAFFIC CONTROL PLAN STANDARDS
* 35-46	BC (1) - 21 - BC (12) - 21
* 47	WZ (RS) - 22
* 48-49	TCP (2-1) - 18 - TCP (2-2) - 18
* 50	TCP (2-4) - 18
* 51	TCP (2-6) - 18
* 52	TCP (5-1) - 18
	III. TRAFFIC STANDARDS
* 53-54	TSR (2) - 13 - TSR (3) - 13
* 55	WV & IZ - 14
* 56	SMD (GEN) - 08
* 57	SMD (SLIP-1) - 08
* 58	SMD (SLIP-2) - 08
* 59	SMD (SLIP-3) - 08
* 60-61	SMD (2-2) - 24 - SMD (2-3) - 24
	IV. ENVIRONMENTAL STANDARDS
* 62	EC (1) - 16
* 63	ENVIRONMENTAL PERMITS, ISSUES, AND COMMITMENTS EPIC



THE STANDARD SHEETS SPECIFICALLY IDENTIFIED WITH A "*" HAVE BEEN ISSUED BY ME OR UNDER MY SUPERVISION AS BEING APPLICABLE TO THIS PROJECT.

PUNARVASU R. BHAKTA, P.E. — NAME
8/22/2024 — DATE

INDEX OF SHEETS

AECOM
AECOM Technical Services Inc. F- 3580
13640 BRIARWICK DRIVE, SUITE 200, AUSTIN, TX 78729
512-454-4797

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0913	00	138	VARIOUS
DIST	COUNTY		SHEET NO.
YKM	DEWITT, ETC.		2

DATE: 8/22/2024 1:40:38 PM
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GENERAL NOTES:

GENERAL:

Contractor questions on this project are to be addressed to the following individual(s):

Clayton Harris Clayton.Harris@txdot.gov
James Janak James.Janak@txdot.gov

Contractor questions will be accepted through email, phone, and in person by the above individuals.

Questions may be submitted via the Letting Pre-Bid Q&A web page. This webpage can be accessed from the Notice to Contractors dashboard located at the following Address: https://tableau.txdot.gov/views/ProjectInformationDashboard/NoticetoContractors

All contractor questions will be reviewed by the Engineer. All questions and any corresponding responses that are generated will be posted through the same Letting Pre-Bid Q&A web page.

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

Do not work on the roadway before sunrise or after sunset unless otherwise approved.

Leave all traffic lanes open to traffic at night, weekends and holidays unless otherwise approved.

Do not cross the median except at existing crossovers.

Do not store equipment or stockpile material in the median overnight unless otherwise approved.

The Department will provide the cylinder testing machine for this project. Deliver the test specimens to the engineer's curing facilities as directed.

Do not work after 12:00 Noon on Fridays except for pavement marking operations unless otherwise directed.

Do not clean out concrete trucks within the right of way.

Project Number: **Sheet: 3**

County: DEWITT,ETC **Control:0913-00-138, Etc.**

Highway:VARIOUS

The contractor's attention is directed to the overhead powerline near the project location. Prior to the pre-construction meeting, the contractor is required to initiate and conduct a coordination meeting with the Engineer and the power company representative(s). Construction clearance limitations, de-energization options, and advanced notice requirements will need to be determined and agreed upon prior to starting any work on the project.

ITEM 6: CONTROL OF MATERIALS

The Buy America Material Classification Sheet is located at the below link. https://www.txdot.gov/business/resources/materials/buy-america-material-classification-sheet.html for clarification on material categorization.

ITEM 7: LEGAL RELATIONS AND RESPONSIBILITIES

The Department has determined that a USACE Nationwide or Individual Permit is not necessary for the project since all work shall be conducted outside the USACE jurisdictional areas. Any impacts to these jurisdictional areas by the Contractor without a USACE permit will be the responsibility of the Contractor. If the Contractor deems it necessary to impact the USACE jurisdictional areas, then it becomes the Contractor's entire responsibility to consult with the USACE pertaining to the need for a Nationwide or Individual Permit. TXDOT will then hold the Contractor responsible for following all conditions of the approved permit.

If the contractor proposes work beyond the TxDOT obtained permit limitations, the contractor is responsible for additional costs, delays, and obtaining new or revised permits prior to construction.

No significant traffic generator events identified.

ITEM 8: PROSECUTION AND PROGRESS

The 90 day convenience delayed start special provision is for allowing the contractor additional time for mobilizing crews and equipment to start this project.

Provide progress schedule as a Bar Chart.

ITEM 502: BARRICADES, SIGNS, AND TRAFFIC HANDLING

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.

Use WZ(RS)-22 in conjunction with TCP(2-2), TCP(2-4), or TCP(2-6) .

Use TCP(2-2b) for one-lane, two-way traffic control.

When using TCP(2-2b), a pilot car is required to lead traffic through the work space with or without channelizing devices on the center line unless otherwise approved.

When using TCP(2-2b), channelizing devices may be omitted during base, subgrade and seal coat operations unless otherwise directed. Flaggers will be required at public intersections when channelizing devices are omitted.

When using TCP(2-2b), arrow boards, displaying the caution mode, may be used to enhance the flagger stations. If used, place the arrow board in advance of the flagger station a distance of ½X, the sign spacing distance shown on BC(2). Use arrow boards as shown on BC(7).

When using TCP(2-2b), the temporary 24" stop line and the CW16-2P plaques may be omitted.

When using TCP(2-2b), an additional “Road Work Ahead” and “Be Prepared To Stop” signs will be required on each end of the lane closure unless otherwise approved.

Project limit traffic control devices will not be required for this project.

Provide suitable warning lights mounted high enough to be visible from all directions on all construction equipment, including pilot vehicles, and operate warning lights when the equipment is within the right of way. Equip other equipment such as trucks, trailers, autos, etc., with emergency flashers and use emergency flashers while within the work area.

Project Number: **Sheet: 3A**

County: DEWITT,ETC **Control:0913-00-138, Etc.**

Highway:VARIOUS

ITEM 505: TRUCK MOUNTED ATTENUATOR (TMA) AND TRAILER ATTENUATOR (TA)

The TMA/TA used for installation/removal of traffic control for a work area will be subsidiary to the TMA/TA used to perform the work.

ITEM 506: TEMPORARY EROSION, SEDIMENTATION, AND ENVIRONMENTAL CONTROLS

The storm water pollution prevention plan (SW3P) for this project will consist of utilizing existing vegetation. The disturbed area is less than one acre and use of erosion control measures is not anticipated. If physical conditions encountered at the job site require necessary controls, BMP installation, maintenance, and removal will be paid as extra work on a force account basis per Articles 4.4 and 9.7.

ITEM 644: SMALL ROADSIDE SIGN SUPPORTS AND ASSEMBLIES

Use Class B concrete for all small roadside sign assembly concrete footings.

The exact location of the foundations to be placed will be determined in the field by the Engineer.

Drill the holes in the signs carefully as to not damage the reflective sheeting of the signs.

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0144-01-075 **DISTRICT** Yoakum **COUNTY** De Witt, Victoria
HIGHWAY BU 77S, US 87, Various

			CONTROL SECTION JOB	**0144-01-075**		**0370-05-055**		**0913-00-138**		TOTAL EST.	TOTAL FINAL
			PROJECT ID	**A00198097**		**A00198098**		**A00210412**			
			COUNTY	**Victoria**		**Victoria**		**De Witt**			
			HIGHWAY	**US 87**		**BU 77S**		**Various**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL	EST.	FINAL	EST.	FINAL		
	104-7013	REMOV CONC (SIDEWALK, RAMP OR SUP)	SY	73.000						73.000	
	432-7019	RIPRAP (STONE TY F)(GROUT)(6 IN)	CY	31.000						31.000	
	500-7001	MOBILIZATION	LS	1.000						1.000	
	502-7001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	14.000				1.000		15.000	
	503-7002	PORTABLE CHANGEABLE MESSAGE SIGN	EA	2.000						2.000	
	505-7001	TMA (STATIONARY)	DAY	360.000				10.000		370.000	
	529-7009	CONC CURB & GUTTER (TY II)	LF	139.000						139.000	
	531-7002	CONC SIDEWALKS (5")	SY	112.000						112.000	
	531-7015	CURB RAMPS (TY 1)	SY	95.000						95.000	
	531-7016	CURB RAMPS (TY 2)	SY	49.000						49.000	
	531-7020	CURB RAMPS (TY 7)	SY	12.000						12.000	
	618-7030	CONDT (PVC) (SCH 40) (2")	LF	265.000		285.000				550.000	
	618-7031	CONDT (PVC) (SCH 40) (2") (BORE)	LF	780.000		430.000				1,210.000	
	618-7040	CONDT (PVC) (SCH 40) (4")	LF	430.000		355.000				785.000	
	618-7041	CONDT (PVC) (SCH 40) (4") (BORE)	LF	780.000		430.000				1,210.000	
	620-7007	ELEC CONDR (NO.8) BARE	LF	2,195.000		1,225.000				3,420.000	
	620-7008	ELEC CONDR (NO.8) INSULATED	LF	2,160.000		1,230.000				3,390.000	
	620-7009	ELEC CONDR (NO.6) BARE	LF	45.000		10.000				55.000	
	620-7010	ELEC CONDR (NO.6) INSULATED	LF	80.000		15.000				95.000	
	621-7002	TRAY CABLE (3 CONDR) (12 AWG)	LF			615.000				615.000	
	624-7008	GROUND BOX TY D (162922)W/APRON	EA	8.000		4.000				12.000	
	628-7147	ELC SRV TY D 120/240 060(NS)SS(E)PS(U)	EA	2.000		1.000				3.000	
	636-7001	ALUMINUM SIGNS (TY A)	SF					45.000		45.000	
	644-7025	IN SM RD SN SUP&AM TYS80(1)SA(P)	EA					49.000		49.000	
	644-7065	RELOCATE SM RD SN SUP&AM TY 10BWG	EA			1.000				1.000	
	644-7073	REMOVE SM RD SN SUP&AM	EA					3.000		3.000	
	647-7003	REMOVE LRSA	EA					2.000		2.000	
	666-7024	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	205.000						205.000	
	666-7172	RE PM TY II (W) 6" (BRK)	LF	20.000						20.000	
	666-7179	RE PM TY II (W) 8" (SLD)	LF	205.000						205.000	
	666-7213	RE PM TY II (Y) 6" (SLD)	LF	64.000						64.000	
	666-7408	REFL PAV MRK TY I (W)6"(BRK)(100MIL)	LF	20.000						20.000	
	666-7423	REFL PAV MRK TY I (Y)6"(SLD)(100MIL)	LF	64.000						64.000	
	668-7089	PREFAB PM TY C (W)(24")(SLD)	LF	753.000						753.000	
	672-7002	REFL PAV MRKR TY I-C	EA	12.000						12.000	
	672-7004	REFL PAV MRKR TY II-A-A	EA	6.000						6.000	
	677-7001	ELIM EXT PM & MRKS (4")	LF	4.000						4.000	

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0144-01-075 **DISTRICT** Yoakum **COUNTY** De Witt, Victoria
HIGHWAY BU 77S, US 87, Various

			CONTROL SECTION JOB	**0144-01-075**		**0370-05-055**		**0913-00-138**		TOTAL EST.	TOTAL FINAL
			PROJECT ID	**A00198097**		**A00198098**		**A00210412**			
			COUNTY	**Victoria**		**Victoria**		**De Witt**			
			HIGHWAY	**US 87**		**BU 77S**		**Various**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL	EST.	FINAL	EST.	FINAL		
	677-7006	ELIM EXT PM & MRKS (12")	LF	779.000						779.000	
	677-7008	ELIM EXT PM & MRKS (24")	LF	211.000						211.000	
	680-7002	INSTALL HWY TRF SIG (ISOLATED)	EA	2.000		1.000				3.000	
	680-7004	REMOVING TRAFFIC SIGNALS	EA	2.000		1.000				3.000	
	682-7001	VEH SIG SEC (12")LED(GRN)	EA	16.000		8.000				24.000	
	682-7002	VEH SIG SEC (12")LED(GRN ARW)	EA	8.000		4.000				12.000	
	682-7003	VEH SIG SEC (12")LED(YEL)	EA	16.000		8.000				24.000	
	682-7004	VEH SIG SEC (12")LED(YEL ARW)	EA	16.000		8.000				24.000	
	682-7005	VEH SIG SEC (12")LED(RED)	EA	16.000		8.000				24.000	
	682-7006	VEH SIG SEC (12")LED(RED ARW)	EA	8.000		4.000				12.000	
	682-7018	PED SIG SEC (LED)(COUNTDOWN)	EA	16.000						16.000	
	682-7042	BACKPLATE W/REF BRDR(3 SEC)(VENT)ALUM	EA	16.000		8.000				24.000	
	682-7043	BACKPLATE W/REF BRDR(4 SEC)(VENT)ALUM	EA	8.000		4.000				12.000	
	684-7031	TRF SIG CBL (TY A)(14 AWG)(5 CONDR)	LF	3,065.000		1,635.000				4,700.000	
	684-7033	TRF SIG CBL (TY A)(14 AWG)(7 CONDR)	LF	480.000		265.000				745.000	
	684-7046	TRF SIG CBL (TY A)(14 AWG)(20 CONDR)	LF	1,090.000		595.000				1,685.000	
	684-7079	TRF SIG CBL (TY C)(12 AWG)(2 CONDR)	LF	2,295.000		1,205.000				3,500.000	
	687-7001	PED POLE ASSEMBLY	EA	13.000						13.000	
	688-7001	PED DETECT PUSH BUTTON (APS)	EA	16.000						16.000	
	688-7003	PED DETECTOR CONTROLLER UNIT	EA	2.000						2.000	
	6007-7001	BBU SYSTEM (EXTERNAL BATTERY CABINET)	EA	2.000		1.000				3.000	
	6017-7014	VDS (HVDS) (VIVDS AND RVDS)	EA	2.000		1.000				3.000	
	18	SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000						1.000	
		EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000						1.000	
		LAW ENFORCEMENT: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000						1.000	

CK:
DW:
CK:
DN:

SUMMARY OF QUANTITIES					
ITEM	505 7001	636 7001*	644 7025	644 7073	647 7003
DESCRIPTION	TMA (STATIONARY)	ALUMINUM SIGNS (TY A)	IN SM RD SN SUP&AM TYS80(1)SA(P)	REMOVE SM RD SN SUP&AM	REMOVE LRSA
UNIT	DAY	SF	EA	EA	EA
MAP 1 OF 19		18	5		1
MAP 2 OF 19		27	1		1
MAP 3 OF 19			3		
MAP 4 OF 19			4		
MAP 5 OF 19			1		
MAP 6 OF 19			8		
MAP 7 OF 19			2		
MAP 8 OF 19			4		
MAP 9 OF 19			2		
MAP 10 OF 19			2	1	
MAP 11 OF 19			2		
MAP 12 OF 19			1		
MAP 13 OF 19			1		
MAP 14 OF 19			3	2	
MAP 15 OF 19			3		
MAP 16 OF 19			4		
MAP 17 OF 19			1		
MAP 18 OF 19			1		
MAP 19 OF 19			1		
PROJECT TOTALS	**10**	**45**	**49**	**3**	**2**

*ATTACHMENTS FOR THE INSTALLATION NEW SIGNS ON EXISTING PARENT SIGNS OR TRAFFIC SIGNAL POLES IS SUBSIDIARY TO ITEM 636.

SUMMARY OF QUANTITIES

AECOM
AECOM Technical Services Inc, F- 3580
13640 BRIARWICK DRIVE, SUITE 200, AUSTIN, TX 78729
512-454-4797

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0913	00	138	VARIOUS
DIST	COUNTY		SHEET NO.
YKM	DEWITT, ETC.		5

DATE: 8/22/2024 12:04:58 PM
FILE: c:\pwworking\ustx\dms39313\MARITIME_YKM_SUM_QTY.dgn

SUMMARY OF SMALL SIGNS

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

MAP SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
1	1-S-1	I-PORT TP		36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M6-3G		30x24	X							
	1-S-2	I-PORT TP		36x9	X		S80	1	SA	P		
		I-PORT TP		36x9	X							
		I-PORT		36x36	X							
		M6-1G		30x24	X							
	1-S-3	I-PORT TP		36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M5-3TG		30x24	X							
	1-S-4	I-PORT TP		36x9	X		S80	1	SA	P		
		I-PORT TP		36x9	X							
		I-PORT		36x36	X							
		M5-1GL		30x24	X							
	1-S-5	I-PORT TP		36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M6-2GR		30x24	X							
2	2-S-1	I-PORT TP		36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M6-1G		30x24	X							
3	3-S-1	I-PORT TP		36x9	X		S80	1	SA	P		
		I-PORT TP		36x9	X							
		I-PORT		36x36	X							
		M6-3G		30x24	X							
	3-S-2	I-PORT TP		36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M6-1G		30x24	X							
	3-S-3	I-PORT TP		36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M6-1G		30x24	X							
4	4-S-1	I-PORT TP		36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M6-3G		30x24	X							
	4-S-2	I-PORT TP		36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M6-1G		30x24	X							

8/22/2024

SUMMARY OF SMALL SIGNS
SHEET 1 OF 5

AECOM
AECOM Technical Services Inc. F- 3580
13640 BRIARWICK DRIVE, SUITE 200, AUSTIN, TX 78729
512-454-4797

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0913	00	138	VARIOUS
DIST	COUNTY		SHEET NO.
YKM	DEWITT, ETC.		6

DATE: 8/22/2024 1:31:39 PM
FILE: c:\pwworking\ustx\dms39313\MARITIME_YKM_SOSS.dgn

SUMMARY OF SMALL SIGNS

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

MAP SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
4	4-S-3	I-PORT TP	S VICTORIA / PORT	36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M6-1G		30x24	X							
	4-S-4	I-PORT TP	MAIN / PORT	36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M6-3G		30x24	X							
5	5-S-1	I-PORT TP	CALHOUN PA / W CALHOUN / PORT	36x9	X		S80	1	SA	P		
		I-PORT TP		36x9	X							
		I-PORT		36x36	X							
		M6-3G		30x24	X							
6	6-S-1	I-PORT TP	CALHOUN PA / PORT	36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M6-1G		30x24	X							
	6-S-2	I-PORT TP	W CALHOUN / PORT	36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M6-1G		30x24	X							
	6-S-3	I-PORT TP	W CALHOUN / PORT	36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M5-1GL		30x24	X							
	6-S-4	I-PORT TP	VICTORIA / PORT	36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M6-1G		30x24	X							
	6-S-5	I-PORT TP	VICTORIA / PORT	36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M6-1G		30x24	X							
	6-S-6	I-PORT TP	W CALHOUN / PORT	36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M6-1G		30x24	X							
	6-S-7	I-PORT TP	VICTORIA / PORT	36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M5-1GL		30x24	X							
	6-S-8	I-PORT TP	W CALHOUN / PORT	36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M6-1G		30x24	X							

PUNARVASU R. BHAKTA
96603
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS

8/22/2024

SUMMARY OF SMALL SIGNS
SHEET 2 OF 5

AECOM
AECOM Technical Services Inc. F- 3580
13640 BRIARWICK DRIVE, SUITE 200, AUSTIN, TX 78729
512-454-4797

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0913	00	138	VARIOUS
DIST	COUNTY		SHEET NO.
YKM	DEWITT, ETC.		7

DATE: 8/22/2024 1:31:40 PM
FILE: c:\pwworking\ustx\dms39313\MARITIME_YKM_SOSS.dgn

SUMMARY OF SMALL SIGNS

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

MAP SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	MOUNTING DESIGNATION 1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
7	7-S-1	I-PORT TP	SEADRIFT / PORT ⇧	36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M6-3G		30x24	X							
	7-S-2	I-PORT TP	W CALHOUN / PORT ⇨	36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M6-1G		30x24	X							
8	8-S-1	I-PORT TP	SEADRIFT / PORT ⇧	36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M6-3G		30x24	X							
	8-S-2	I-PORT TP	CITY HARBOR / PORT ⇨	36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M6-1G		30x24	X							
	8-S-3	I-PORT TP	SEADRIFT / PORT ⇨	36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M6-1G		30x24	X							
	8-S-4	I-PORT TP	SEADRIFT / PORT ⇦	36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M6-1G		30x24	X							
9	9-S-1	I-PORT TP	CALHOUN PA / PORT ⇦	36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M6-1G		30x24	X							
	9-S-2	I-PORT TP	W CALHOUN / PORT ⇨	36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M6-1G		30x24	X							
10	10-S-1	I-PORT TP	CALHOUN PA / PORT ⇦	36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M6-1G		30x24	X							
	10-S-2	I-PORT TP	CALHOUN PA / PORT ⇨	36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M6-1G		30x24	X							
11	11-S-1	I-PORT TP	PALACIOS / PORT ⇦	36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M5-1GL		30x24	X							
	11-S-2	I-PORT TP	CALHOUN PA / PORT ⇨	36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M6-1G		30x24	X							

CKD: CKD: DWG: CKD:

DATE: 8/22/2024 1:31:40 PM
FILE: c:\pw\working\ustx\dms39313\MARITIME_YKM_SOSS.dgn

STATE OF TEXAS
PUNARVASU R. BHAKTA
96603
LICENSED
PROFESSIONAL ENGINEER

8/22/2024

SUMMARY OF SMALL SIGNS
SHEET 3 OF 5

AECOM
AECOM Technical Services Inc. F-3580
13640 BRIARWICK DRIVE, SUITE 200, AUSTIN, TX 78729
512-454-4797

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0913	00	138	VARIOUS
DIST	COUNTY		SHEET NO.
YKM	DEWITT, ETC.		8

SUMMARY OF SMALL SIGNS

MAP SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
12	12-S-1	I-PORT TP		36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M5-1GL		30x24	X							
13	13-S-1	I-PORT TP		36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M6-2GL		30x24	X							
14	14-S-1	I-PORT TP		36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M6-1G		30x24	X							
	14-S-2	I-PORT TP		36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M6-1G		30x24	X							
	14-S-3	I-PORT TP		36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M6-2GR		30x24	X							
15	15-S-1	I-PORT TP		36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M5-1GR		30x24	X							
	15-S-2	I-PORT TP		36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M6-3G		30x24	X							
	15-S-3	I-PORT TP		36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M5-1GL		30x24	X							
16	16-S-1	I-PORT TP		36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M6-3G		30x24	X							
	16-S-2	I-PORT TP		36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M6-1G		30x24	X							
	16-S-3	I-PORT TP		36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M5-3(MOD)		30x24	X							
	16-S-4	I-PORT TP		36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M6-3G		30x24	X							

PUNARVASU R. BHAKTA
96603
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PROFESSIONAL ENGINEER
STATE OF TEXAS

8/22/2024

SUMMARY OF SMALL SIGNS

SHEET 4 OF 5

AECOM
AECOM Technical Services Inc. F-3580
13640 BRIARWICK DRIVE, SUITE 200, AUSTIN, TX 78729
512-454-4797

Texas Department of Transportation

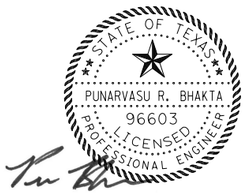
CONT	SECT	JOB	HIGHWAY
0913	00	138	VARIOUS
DIST	COUNTY		SHEET NO.
YKM	DEWITT, ETC.		9

DATE: 8/22/2024 1:31:40 PM
FILE: c:\pw\working\ustx\dms39313\MARITIME_YKM_SOSS.dgn

SUMMARY OF SMALL SIGNS

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

MAP SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
17	17-S-1	I-PORT TP		36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M6-1G		30x24	X							
18	18-S-1	I-PORT TP		36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M6-3G		30x24	X							
19	19-S-1	I-PORT TP		36x9	X		S80	1	SA	P		
		I-PORT		36x36	X							
		M6-1G		30x24	X							



8/22/2024

SUMMARY OF SMALL SIGNS
SHEET 5 OF 5

AECOM
AECOM Technical Services Inc. F- 3580
13640 BRIARWICK DRIVE, SUITE 200, AUSTIN, TX 78729
512-454-4797

Texas Department of Transportation

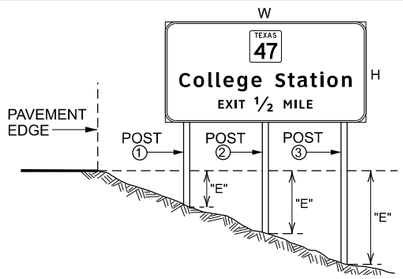
CONT	SECT	JOB	HIGHWAY
0913	00	138	VARIOUS
DIST	COUNTY		SHEET NO.
YKM	DEWITT, ETC.		10

DATE: 8/22/2024 1:31:40 PM
FILE: c:\pwworking\ustx\dms39313\MARITIME_YKM_SOSS.dgn

SUMMARY OF LARGE SIGNS - GROUND MOUNT (TY G)

PLAN SHEET NO.	STATION OR LOCATION (ie. LAT, LONG COUNTY Lat. Clearance)	SIGN NO.	SIGN BACK-GROUND COLOR	SIGN IMAGE OR TEXT	SIGN DIMENSIONS (WxH) (FT)	PLAQUES, & OTHER ATTACHMENTS (SQ FT)		BACKGROUND SUBSTRATE (SQ FT)		TYPE OF MOUNT	"E" DIMENSION ⚹			GALVANIZED STRUCTURAL STEEL					DRILLED SHAFT		RIPRAP APRON
								INSTALL	REPLACE						LINEAR FEET				LINEAR FEET		
						DIRECT APPLY	ALUMINUM (TYPE A) ⚹⚹	GROUND MOUNT (TYPE G)	GROUND MOUNT (TYPE G)		Post (1)	Post (2)	Post (3)	SIZE	Post (1)	Post (2)	Post (3)	TOTAL WEIGHT LBS.	NON-REINF 12"Ø	REINF 24"Ø	(CY)
12	28.75615626 -96.99563652 VICTORIA	1-L-1	GREEN	PORT	3.0 x 3.0		9.00			ATTACH TO EXISTING LRSS											
12	28.76146203 -96.98271939 VICTORIA	1-L-2	GREEN	PORT	3.0 x 3.0		9.00			ATTACH TO EXISTING LRSS ***											
13	28.78644675 -96.95475442 VICTORIA	2-L-1	GREEN	PORT	3.0 x 3.0		9.00			ATTACH TO EXISTING LRSS ***											
13	28.78150221 -96.96040381 VICTORIA	2-L-2	GREEN	PORT	3.0 x 3.0		9.00			ATTACH TO EXISTING LRSS ***											
13	28.77591317 -96.96681578 VICTORIA	2-L-3	GREEN	PORT	3.0 x 3.0		9.00			ATTACH TO EXISTING LRSS ***											
					PAGE TOTALS		45.0	0.0	0.0					PAGE TOTALS				0.0	0.0	0.0	0.0

*** SEE NOTE ON MAPS 1 & 2 RESPECTIVELY



NOTES:

1. ⚹The "E" dimension is the elevation difference at the post between the ground and the edge of pavement or top of curb.
2. Sign supports shall be located as shown on the plans, except that the Engineer may shift the sign supports, within design guidelines, where necessary to secure a more desirable location or to avoid conflict with utilities. Unless otherwise shown on the plans, the Contractor shall stake and the Engineer will verify all sign support locations.
3. The post lengths listed here are approximations, the corrected post lengths will be furnished by the Contractor, after the stud posts are placed. Tower heights shall be verified with the Engineer before fabrication.

ATTACHMENT NOTE:

1. ⚹⚹This column is for aluminum Type A and not direct apply. Direct apply is subsidiary to the sign. See TSR(2) and TSR(5).

LARGE ROADSIDE SIGN DESIGN PROCESS

1. Determine sign design, sign dimensions, sign location, and sign mounting height above ground, using slope or elevation measurements.
2. Determine each post length, including the "E" dimensions of each post.
3. Determine the wind zone using the Wind Velocity Worksheet.
4. Determine post size using SMD(LRSS). Use LRSS(1) for Zone 1 (90 mph), LRSS(2) for Zone 2 (80 mph), and LRSS(3) for Zone 3 (70 mph).
5. Determine initial leg post weights using the 'Post Weight Data' table value shown on LRSS(1), LRSS(2), or LRSS(3). Then add any extra post length weight to determine total weight beyond 10' post length.

   Example: For a sign with two posts, size W8x21, with each post 15' long, the total steel weight would be:

   509.4+(15-10)*21*2 = 719.4 lbs

   Note: the '21' in W8x21 refers to the weight of beam in pounds/foot.
6. Determine foundation diameter, base connection data, perforated fuse plate data, and bolt keeper data on SMD(2-2). (Only foundation diameter is needed for this sheet).
7. Determine foundation depth using the TxDOT Cone Penetration Test data on SMD(LRSS-4). Alternatively, Cohfric Design may be used.

TYPE OF MOUNT 3 3 1
- 1st 3: Wind Design Zone
- 2nd 3: Series No.
- 1: 1 Aluminum
- No. of Posts: 2 or 3

STATE OF TEXAS
PUNARVASU R. BHAKTA
96603
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PROFESSIONAL ENGINEER

8/22/2024

Texas Department of Transportation — Traffic Safety Division Standard

SUMMARY OF LARGE SIGNS GROUND MOUNT

SOLS(TY G)

FILE: SOLS(TY G)-24.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT May 2024	CONT	SECT	JOB	HIGHWAY
REVISIONS	0913	00	138	VARIOUS
5-87 5-01 5-24 11-93 1-04 8-95 9-08	DIST	COUNTY		SHEET NO.
	YKM	DEWITT, ETC.		11

19

DATE: 8/22/2024 12:05:54 PM
FILE: c:\pwworking\us#x\dms39313\MARITIME_YKM_SOLS.dgn

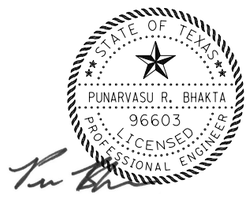
SUMMARY OF LARGE SIGNS TO BE REMOVED

SIGN LABEL OR NUMBER	APPROXIMATE LOCATION OR STATION	SIGN IMAGE OR TEXT	REMOVE SIGN *	TY G: REMOVE LRSA (EA) SIGN	TY G: REMOVE LRSA (EA) STEEL	TY G: REMOVE LRSA (EA) FOUNDATION	TY G: REMOVE LRSA (EA) GRADE	TY G: REMOVE LRSA FOUNDATION ONLY (EA) 12 IN.	TY G: REMOVE LRSA FOUNDATION ONLY (EA) 24 IN.	REMOVE RIPRAP APRON	TY O: REMOVE SIGN SUPPORT (SIGN ONLY) (EA)	TY O: REMOVE SIGN SUPPORT (EA)	TY O: REMOVE WALKWAY (EA)
1-L-3	28.75799549 -96.98820175 EB VICTORIA	Port of Victoria NEXT RIGHT		X									
2-L-4	28.77953471 -96.96268246 WB VICTORIA	Port of Victoria NEXT RIGHT		X									
COLUMN TOTAL				2	-	-	-	-	-		-	-	-

SIGN LABEL OR NUMBER	APPROXIMATE LOCATION OR STATION	SIGN IMAGE OR TEXT	REMOVE SIGN *	TY G: REMOVE LRSA (EA) SIGN	TY G: REMOVE LRSA (EA) STEEL	TY G: REMOVE LRSA (EA) FOUNDATION	TY G: REMOVE LRSA (EA) GRADE	TY G: REMOVE LRSA FOUNDATION ONLY (EA) 12 IN.	TY G: REMOVE LRSA FOUNDATION ONLY (EA) 24 IN.	REMOVE RIPRAP APRON	TY O: REMOVE SIGN SUPPORT (SIGN ONLY) (EA)	TY O: REMOVE SIGN SUPPORT (EA)	TY O: REMOVE WALKWAY (EA)
COLUMN TOTAL				-	-	-	-	-	-		-	-	-
PAGE TOTALS				-	-	-	-	-	-		-	-	-

NOTE:

1. * For information only. Typically used in conjuction with replacement of signs TY G or TY O.



8/22/2024

Texas Department of Transportation

Traffic Safety Division Standard

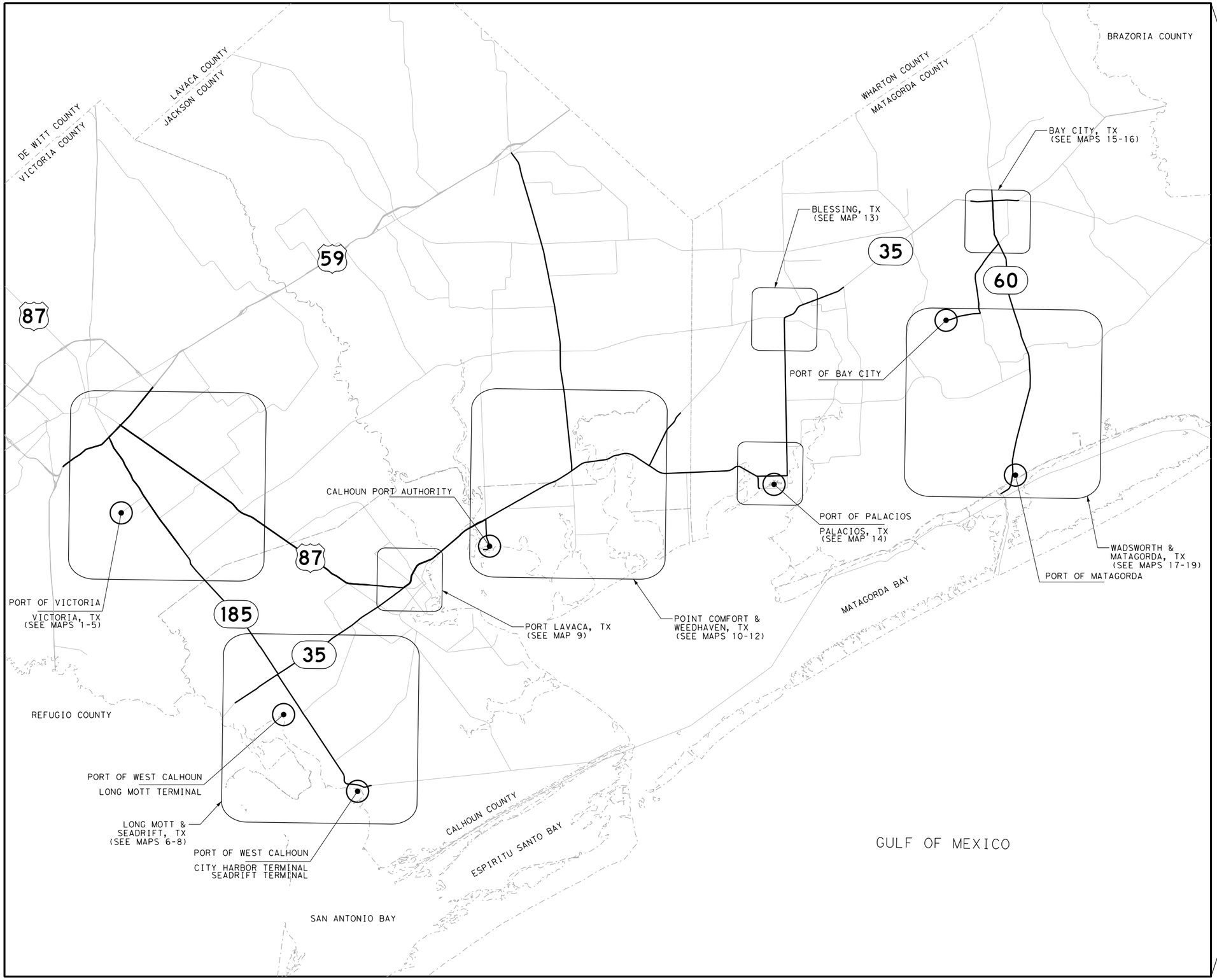
SUMMARY OF LARGE SIGNS REMOVAL

SOLSR

FILE: SOLSR-24.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT May 2024	CONT	SECT	JOB	HIGHWAY
REVISIONS	0913	00	138	VARIOUS
	DIST	COUNTY		SHEET NO.
	YKM	DEWITT, ETC.		12

19B

DATE: 8/22/2024 12:05:55 PM
FILE: c:\pwworking\ustx\dms39313\MARITIME_YKM_SOLS.dgn



0 8750 17500 35000

SCALE: 1"=35000

STATE OF TEXAS
PUNARVASU R. BHAKTA
96603
LICENSED
PROFESSIONAL ENGINEER

8/22/2024

TRAFFIC

KEY MAP

AECOM
AECOM Technical Services Inc. F- 3580
13640 BRIARWICK DRIVE,
SUITE 200, AUSTIN,
TX 78729
512-454-4797

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0913	00	138	VARIOUS
DIST	COUNTY		SHEET NO.
YKM	DEWITT, ETC.		13

DATE: 8/22/2024 1:40:47 PM
FILE: c:\pwworking\ustx\dms39313\MARITIME_YKM_PROJ_KEY.dgn

* COORDINATE THE INSTALLATION OF SIGN WITH CURRENT US-59 FREEWAY OPERATIONAL IMPROVEMENTS PROJECT, CSJ: 0088-05-098.

PORT

TEXAS 185
Victoria
Bloomington
EXIT 1 MILE

1-L-1

Lat: 28.75615626
Long: -96.99563652

REMOVE LRSA

Port Of Victoria
NEXT RIGHT

1-L-3

Lat: 28.75799549
Long: -96.98820175

PORT

TEXAS 185
Victoria
Bloomington

1-L-2 *

Lat: 28.76146203
Long: -96.98271939

I-PORT TP 36"x9"
CALHOUN PA
I-PORT 36"x36"
PORT
M5-3TG 30"x24"
1-S-3 *

VICTORIA
W CALHOUN
I-PORT TP x2 36"x9"
I-PORT 36"x36"
PORT
M5-1GL 30"x24"
1-S-4 *

Lat: 28.76797356
Long: -96.97649529

I-PORT TP 36"x9"
CALHOUN PA
I-PORT 36"x36"
PORT
M6-3G 30"x24"
1-S-1

VICTORIA
W CALHOUN
I-PORT TP x2 36"x9"
I-PORT 36"x36"
PORT
M6-1G 30"x24"
1-S-2

Lat: 28.76431896
Long: -96.97861955

59
185

to CALHOUN PORT AUTHORITY

to PORT OF VICTORIA & PORT OF WEST CALHOUN

CALHOUN PA
I-PORT TP 36"x9"
I-PORT 36"x36"
PORT
M6-2GR 30"x24"
1-S-5 *

Lat: 28.77160765
Long: -96.97064058

REFER TO MAP 2

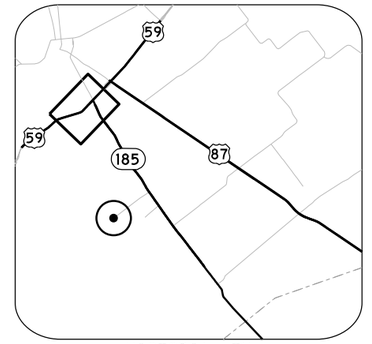
REFER TO MAP 3

SIGN ID

X-X-X
- SIGN ID
- LARGE (L)/SMALL (S)
- MAP NUMBER

LEGEND

- SMALL SIGN
- LARGE ROADSIDE SIGN
- LARGE OVERHEAD SIGN
- SIGNAL MAST ARM SIGN
- EXIST TRAFFIC SIGNAL
- NEW SIGN
- EXISTING SIGN
- ROUTE DIRECTION



VICTORIA, TX

1. EXISTING SIGNS TO REMAIN UNLESS OTHERWISE NOTED.
2. SEE SOLS SHEETS FOR PANEL DIMENSIONS ATTACHED TO LARGE SIGNS.
3. PROPOSED SIGN LOCATIONS MAY BE ADJUSTED BASED ON FIELD CONSTRAINTS. ENSURE NEW SIGNS DO NOT BLOCK OTHER SIGNS IN THE VICINITY.

0 250 500 1000
SCALE: 1"=1000'

STATE OF TEXAS
PUNARVASU R. BHAKTA
96603
LICENSED
PROFESSIONAL ENGINEER

8/22/2024

TRAFFIC
GUIDE SIGN
PROPOSED LAYOUT
MAP 1

AECOM
AECOM Technical Services Inc. F- 3580
13640 BRIARWICK DRIVE, SUITE 200, AUSTIN, TX 78729
512-454-4797

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0913	00	138	VARIOUS
DIST	COUNTY		SHEET NO.
YKM	DEWITT, ETC.		14

DATE: 8/22/2024 2:07:36 PM
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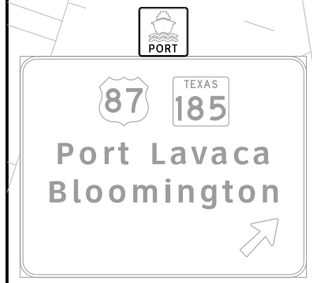
* COORDINATE THE INSTALLATION OF SIGN WITH CURRENT US-59 FREEWAY OPERATIONAL IMPROVEMENTS PROJECT, CSJ: 0088-05-098.



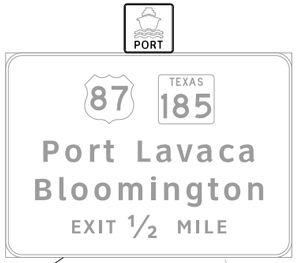
2-L-3 *

Lat: 28.77591317
Long: -96.96681578

REMOVE LRSA

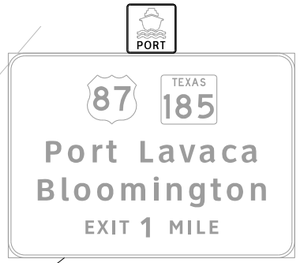
2-L-4

Lat: 28.77953471
Long: -96.96268246



2-L-2 *

Lat: 28.78150221
Long: -96.96040381



2-L-1 *

Lat: 28.78644675
Long: -96.95475442

59

REFER TO MAP 1

I-PORT TP 36"x9"
CALHOUN PA
I-PORT 36"x36"
PORT
M6-1G 30"x24"

2-S-1

Lat: 28.77642137
Long: -96.96413238

87

to CALHOUN PORT AUTHORITY

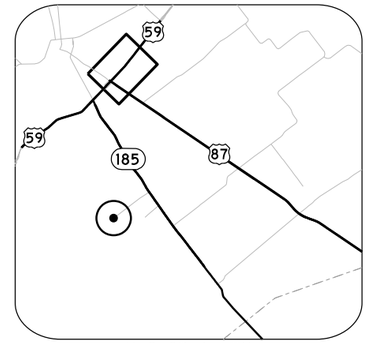
REFER TO MAP 9

SIGN ID

X-X-X
- SIGN ID
- LARGE (L)/SMALL (S)
- MAP NUMBER

LEGEND

- SMALL SIGN
- LARGE ROADSIDE SIGN
- LARGE OVERHEAD SIGN
- SIGNAL MAST ARM SIGN
- EXIST TRAFFIC SIGNAL
- NEW SIGN
- EXISTING SIGN
- ROUTE DIRECTION



VICTORIA, TX

1. EXISTING SIGNS TO REMAIN UNLESS OTHERWISE NOTED.
2. SEE SOLS SHEETS FOR PANEL DIMENSIONS ATTACHED TO LARGE SIGNS.
3. PROPOSED SIGN LOCATIONS MAY BE ADJUSTED BASED ON FIELD CONSTRAINTS. ENSURE NEW SIGNS DO NOT BLOCK OTHER SIGNS IN THE VICINITY.

0 250 500 1000
SCALE: 1"=1000'

STATE OF TEXAS
PUNARVASU R. BHAKTA
96603
LICENSED
PROFESSIONAL ENGINEER

8/22/2024

TRAFFIC GUIDE SIGN PROPOSED LAYOUT MAP 2

AECOM
AECOM Technical Services Inc. F-3580
13640 BRIARWICK DRIVE, SUITE 200, AUSTIN, TX 78729
512-454-4797

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0913	00	138	VARIOUS
DIST	COUNTY		SHEET NO.
YKM	DEWITT, ETC.		15

DATE: 8/22/2024 2:07:38 PM
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REFER TO MAP 1

185

I-PORT TP x2
36"x9"

S VICTORIA
W CALHOUN

I-PORT
36"x36"

PORT

M6-3G
30"x24"

3-S-1

MAIN

I-PORT TP
36"x9"

I-PORT
36"x36"

PORT

M6-1G
30"x24"

3-S-2

Lat: 28.70720131
Long: -96.93994483

MAIN

I-PORT TP
36"x9"

I-PORT
36"x36"

PORT

M6-1G
30"x24"

3-S-3

Lat: 28.70524423
Long: -96.93796632

1432

185

to PORT OF VICTORIA: MAIN TERMINAL

to PORT OF VICTORIA: SOUTH TERMINAL & PORT OF WEST CALHOUN

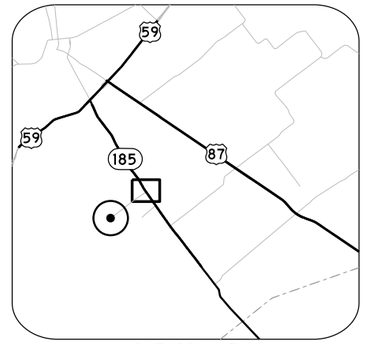
REFER TO MAP 4

SIGN ID

X-X-X
- SIGN ID
- LARGE (L)/SMALL (S)
- MAP NUMBER

LEGEND

- SMALL SIGN
- LARGE ROADSIDE SIGN
- LARGE OVERHEAD SIGN
- SIGNAL MAST ARM SIGN
- EXIST TRAFFIC SIGNAL
- NEW SIGN
- EXISTING SIGN
- ROUTE DIRECTION



VICTORIA, TX

1. EXISTING SIGNS TO REMAIN UNLESS OTHERWISE NOTED.
2. SEE SOLS SHEETS FOR PANEL DIMENSIONS ATTACHED TO LARGE SIGNS.
3. PROPOSED SIGN LOCATIONS MAY BE ADJUSTED BASED ON FIELD CONSTRAINTS. ENSURE NEW SIGNS DO NOT BLOCK OTHER SIGNS IN THE VICINITY.

0 125 250 500

SCALE: 1"=500'

STATE OF TEXAS
PUNARVASU R. BHAKTA
96603
LICENSED
PROFESSIONAL ENGINEER

8/22/2024

TRAFFIC
GUIDE SIGN
PROPOSED LAYOUT
MAP 3

AECOM
AECOM Technical Services Inc. F- 3580
13640 BRIARWICK DRIVE, SUITE 200, AUSTIN, TX 78729
512-454-4797

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0913	00	138	VARIOUS
DIST	COUNTY		SHEET NO.
YKM	DEWITT, ETC.		16

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REFER TO MAP 3

to PORT OF VICTORIA: MAIN TERMINAL

185

I-PORT TP 36"x9" | W CALHOUN | S VICTORIA | I-PORT TP 36"x9"

I-PORT 36"x36" | PORT | PORT | I-PORT 36"x36"

M6-3G 30"x24" | M6-1G 30"x24"

4-S-1 | 4-S-2

Lat: 28.67085924
Long: -96.91180889

I-PORT TP 36"x9" | S VICTORIA | MAIN | I-PORT TP 36"x9"

I-PORT 36"x36" | PORT | PORT | I-PORT 36"x36"

M6-1G 30"x24" | M6-3G 30"x24"

4-S-3 | 4-S-4

Lat: 28.66646998
Long: -96.90775234

McCOY RD

185

to PORT OF VICTORIA: SOUTH TERMINAL

to PORT OF WEST CALHOUN

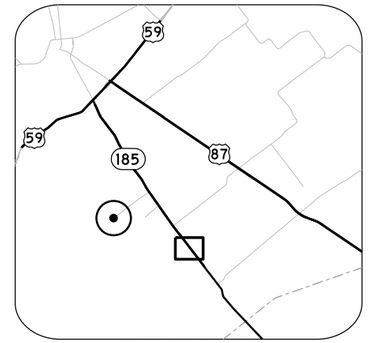
REFER TO MAP 5

SIGN ID

X-X-X
- SIGN ID
- LARGE (L)/SMALL (S)
- MAP NUMBER

LEGEND

- SMALL SIGN
- LARGE ROADSIDE SIGN
- LARGE OVERHEAD SIGN
- SIGNAL MAST ARM SIGN
- EXIST TRAFFIC SIGNAL
- NEW SIGN
- EXISTING SIGN
- ROUTE DIRECTION



VICTORIA, TX

1. EXISTING SIGNS TO REMAIN UNLESS OTHERWISE NOTED.
2. SEE SOLS SHEETS FOR PANEL DIMENSIONS ATTACHED TO LARGE SIGNS.
3. PROPOSED SIGN LOCATIONS MAY BE ADJUSTED BASED ON FIELD CONSTRAINTS. ENSURE NEW SIGNS DO NOT BLOCK OTHER SIGNS IN THE VICINITY.

0 125 250 500

SCALE: 1"=500'

STATE OF TEXAS
PUNARVASU R. BHAKTA
96603
LICENSED
PROFESSIONAL ENGINEER

8/22/2024

TRAFFIC GUIDE SIGN PROPOSED LAYOUT MAP 4

AECOM
AECOM Technical Services Inc. F- 3580
13640 BRIARWICK DRIVE, SUITE 200, AUSTIN, TX 78729
512-454-4797

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0913	00	138	VARIOUS
DIST	COUNTY		SHEET NO.
YKM	DEWITT, ETC.		17

DATE: 8/22/2024 2:07:39 PM
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REFER TO MAP 4

BLOOMINGTON

185

TO PORT OF VICTORIA

CALHOUN PA
W CALHOUN
I-PORT TP x2
36"x9"

PORT
I-PORT
36"x36"

M6-3G
30"x24"

5-S-1

Lat: 28.64159109
Long: -96.88849931

185

TO PORT OF WEST CALHOUN PORT AUTHORITY & CALHOUN PORT AUTHORITY

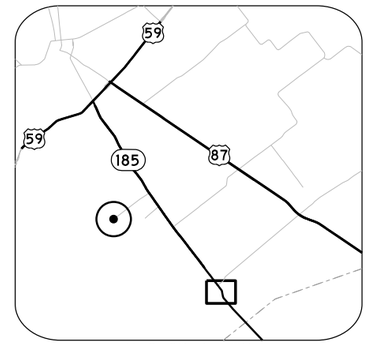
REFER TO MAP 6

SIGN ID

X-X-X
- SIGN ID
- LARGE (L)/SMALL (S)
- MAP NUMBER

LEGEND

- SMALL SIGN
- LARGE ROADSIDE SIGN
- LARGE OVERHEAD SIGN
- SIGNAL MAST ARM SIGN
- EXIST TRAFFIC SIGNAL
- NEW SIGN
- EXISTING SIGN
- ROUTE DIRECTION



VICTORIA, TX

1. EXISTING SIGNS TO REMAIN UNLESS OTHERWISE NOTED.
2. SEE SOLS SHEETS FOR PANEL DIMENSIONS ATTACHED TO LARGE SIGNS.
3. PROPOSED SIGN LOCATIONS MAY BE ADJUSTED BASED ON FIELD CONSTRAINTS. ENSURE NEW SIGNS DO NOT BLOCK OTHER SIGNS IN THE VICINITY.

0 125 250 500

SCALE: 1"=500'

STATE OF TEXAS
PUNARVASU R. BHAKTA
96603
LICENSED
PROFESSIONAL ENGINEER

8/22/2024

TRAFFIC GUIDE SIGN PROPOSED LAYOUT MAP 5

AECOM
AECOM Technical Services Inc. F- 3580
13640 BRIARWICK DRIVE, SUITE 200, AUSTIN, TX 78729
512-454-4797

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0913	00	138	VARIOUS
DIST	COUNTY		SHEET NO.
YKM	DEWITT, ETC.		18

DATE: 8/22/2024 2:07:40 PM
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REFER TO MAP 5

to PORT OF VICTORIA

185

35

to CALHOUN PORT AUTHORITY

REFER TO MAP 9

I-PORT TP 36"x9" | CALHOUN PA | W CALHOUN | I-PORT TP 36"x9"
I-PORT 36"x36" | PORT | PORT | I-PORT 36"x36"
M6-1G 30"x24" | ⇦ | ⇨ | M6-1G 30"x24"
6-S-1 | 6-S-2

Lat: 28.52740000
Long: -96.79163888

I-PORT TP 36"x9" | W CALHOUN | VICTORIA | I-PORT TP 36"x9"
I-PORT 36"x36" | PORT | PORT | I-PORT 36"x36"
M5-1GL 30"x24" | ⇦ | ⇨ | M6-1G 30"x24"
6-S-3 | 6-S-4

Lat: 28.52719166
Long: -96.79031666

I-PORT TP 36"x9" | W CALHOUN
I-PORT 36"x36" | PORT
M6-1G 30"x24" | ⇦
6-S-6

Lat: 28.52626433
Long: -96.79206053

VICTORIA | I-PORT TP 36"x9"
PORT | I-PORT 36"x36"
⇦ | M6-1G 30"x24"
6-S-5

Lat: 28.52654119
Long: -96.79100540

I-PORT TP 36"x9" | VICTORIA | W CALHOUN | I-PORT TP 36"x12"
I-PORT 36"x36" | PORT | PORT | I-PORT 36"x36"
M5-1GL 30"x24" | ⇦ | ⇨ | M6-1G 30"x24"
6-S-7 | 6-S-8

Lat: 28.52557777
Long: -96.79274722

35

185

to PORT OF WEST CALHOUN

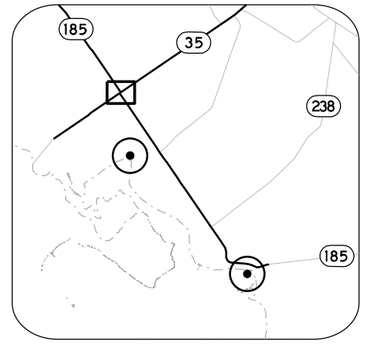
REFER TO MAP 7

SIGN ID

X-X-X
- SIGN ID
- LARGE (L)/SMALL (S)
- MAP NUMBER

LEGEND

- SMALL SIGN
- LARGE ROADSIDE SIGN
- LARGE OVERHEAD SIGN
- SIGNAL MAST ARM SIGN
- EXIST TRAFFIC SIGNAL
- NEW SIGN
- EXISTING SIGN
- ROUTE DIRECTION



LONG MOTT & SEADRIFT, TX

1. EXISTING SIGNS TO REMAIN UNLESS OTHERWISE NOTED.
2. SEE SOLS SHEETS FOR PANEL DIMENSIONS ATTACHED TO LARGE SIGNS.
3. PROPOSED SIGN LOCATIONS MAY BE ADJUSTED BASED ON FIELD CONSTRAINTS. ENSURE NEW SIGNS DO NOT BLOCK OTHER SIGNS IN THE VICINITY.

0 125 250 500
SCALE: 1"=500'

STATE OF TEXAS
PUNARVASU R. BHAKTA
96603
LICENSED
PROFESSIONAL ENGINEER

8/22/2024

TRAFFIC GUIDE SIGN PROPOSED LAYOUT MAP 6

AECOM
AECOM Technical Services Inc. F- 3580
13640 BRIARWICK DRIVE, SUITE 200, AUSTIN, TX 78729
512-454-4797

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0913	00	138	VARIOUS
DIST	COUNTY		SHEET NO.
YKM	DEWITT, ETC.		19

DATE: 8/22/2024 2:07:40 PM
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REFER TO MAP 6

185

I-PORT TP 36"x9" | SEADRIFT | W CALHOUN | I-PORT TP 36"x9"

I-PORT 36"x36" | PORT | PORT | I-PORT 36"x36"

M6-3G 30"x24" | M6-1G 30"x24"

7-S-1* | 7-S-2*

Lat: 28.49637283
Long: -96.77059777

BARGE DOCK RD

to PORT OF WEST CALHOUN: LONG MOTT TERMINAL

185

to PORT OF WEST CALHOUN: SEADRIFT TERMINALS

REFER TO MAP 8

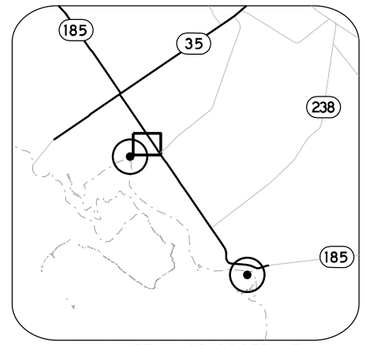
* COORDINATE INSTALLATION OF SIGN WITH CURRENT LONG MOTT HARBOR ROAD IMPROVEMENTS PROJECT.

SIGN ID

X-X-X
- SIGN ID
- LARGE (L)/SMALL (S)
- MAP NUMBER

LEGEND

- SMALL SIGN
- LARGE ROADSIDE SIGN
- LARGE OVERHEAD SIGN
- SIGNAL MAST ARM SIGN
- EXIST TRAFFIC SIGNAL
- NEW SIGN
- EXISTING SIGN
- ROUTE DIRECTION



LONG MOTT & SEADRIFT, TX

1. EXISTING SIGNS TO REMAIN UNLESS OTHERWISE NOTED.
2. SEE SOLS SHEETS FOR PANEL DIMENSIONS ATTACHED TO LARGE SIGNS.
3. PROPOSED SIGN LOCATIONS MAY BE ADJUSTED BASED ON FIELD CONSTRAINTS. ENSURE NEW SIGNS DO NOT BLOCK OTHER SIGNS IN THE VICINITY.

0 125 250 500

SCALE: 1"=500'

STATE OF TEXAS
PUNARVASU R. BHAKTA
96603
LICENSED
PROFESSIONAL ENGINEER

8/22/2024

TRAFFIC GUIDE SIGN PROPOSED LAYOUT MAP 7

AECOM
AECOM Technical Services Inc. F-3580
13640 BRIARWICK DRIVE, SUITE 200, AUSTIN, TX 78729
512-454-4797

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0913	00	138	VARIOUS
DIST	COUNTY		SHEET NO.
YKM	DEWITT, ETC.		20

DATE: 8/22/2024 2:07:40 PM
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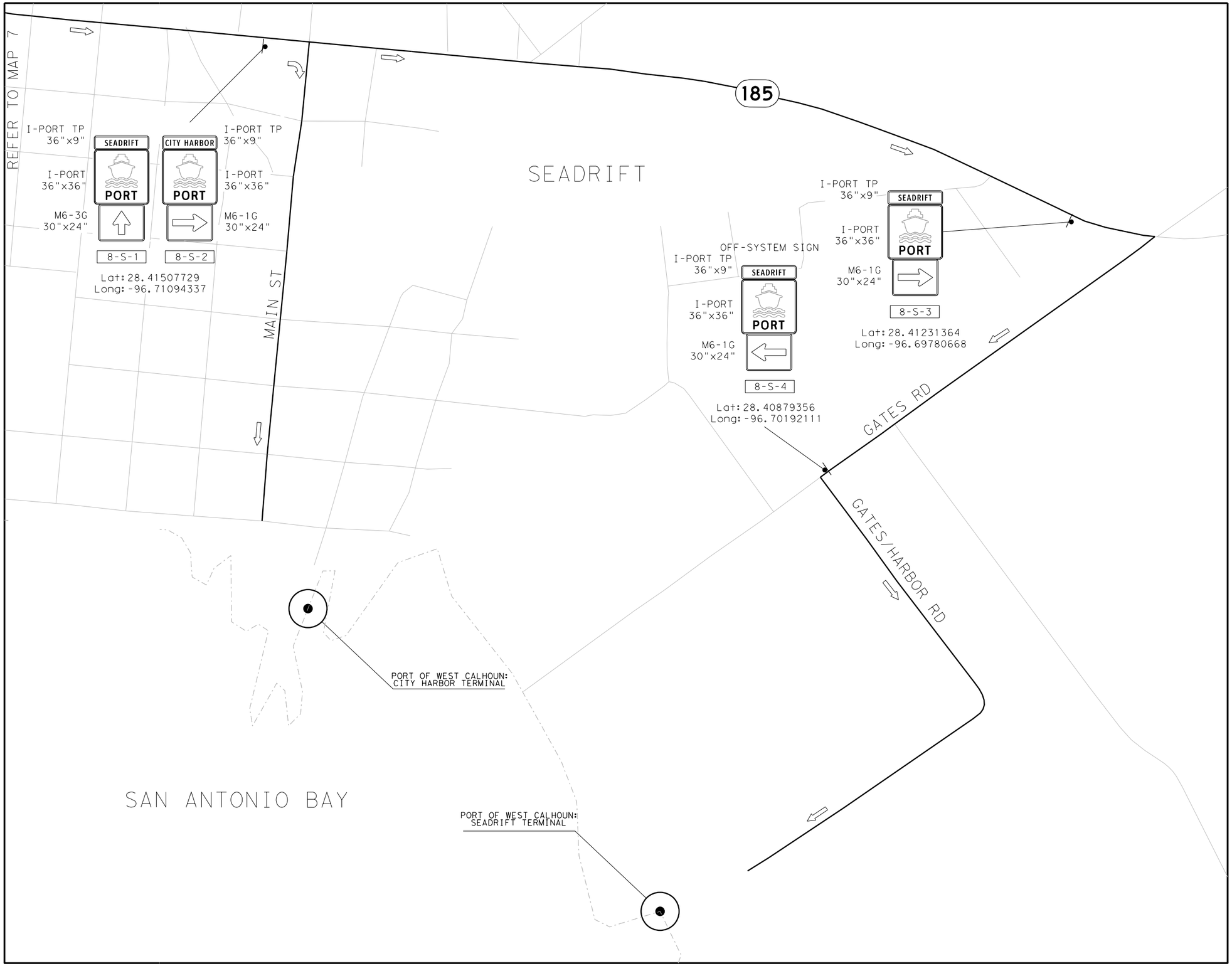
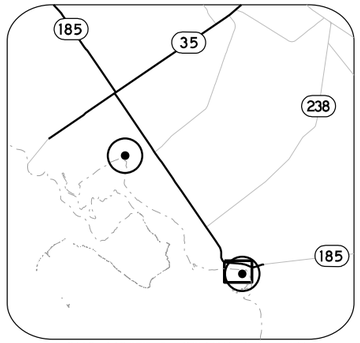


SIGN ID

X-X-X
- SIGN ID
- LARGE (L)/SMALL (S)
- MAP NUMBER

LEGEND

- SMALL SIGN
- LARGE ROADSIDE SIGN
- LARGE OVERHEAD SIGN
- SIGNAL MAST ARM SIGN
- EXIST TRAFFIC SIGNAL
- NEW SIGN
- EXISTING SIGN
- ROUTE DIRECTION



LONG MOTT & SEADRIFT, TX

1. EXISTING SIGNS TO REMAIN UNLESS OTHERWISE NOTED.
2. SEE SOLS SHEETS FOR PANEL DIMENSIONS ATTACHED TO LARGE SIGNS.
3. PROPOSED SIGN LOCATIONS MAY BE ADJUSTED BASED ON FIELD CONSTRAINTS. ENSURE NEW SIGNS DO NOT BLOCK OTHER SIGNS IN THE VICINITY.

0 125 250 500

SCALE: 1"=500'

STATE OF TEXAS
PUNARVASU R. BHAKTA
96603
LICENSED
PROFESSIONAL ENGINEER

8/22/2024

TRAFFIC GUIDE SIGN PROPOSED LAYOUT MAP 8

AECOM
AECOM Technical Services Inc. F- 3580
13640 BRIARWICK DRIVE, SUITE 200, AUSTIN, TX 78729
512-454-4797

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0913	00	138	VARIOUS
DIST	COUNTY		SHEET NO.
YKM	DEWITT, ETC.		21

DATE: 8/22/2024 2:07:41 PM
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REFER TO MAP 10

REFER TO MAP 2

35

to CALHOUN PORT AUTHORITY

87

PORT LAVACA

87

I-PORT TP 36"x9" | CALHOUN PA | W CALHOUN | I-PORT TP 36"x9"

I-PORT 36"x36" | PORT | PORT | I-PORT 36"x36"

M6-1G 30"x24" | M6-1G 30"x24"

9-S-1 | 9-S-2

Lat: 28.61040918
Long: -96.64951658

35

to PORT OF WEST CALHOUN

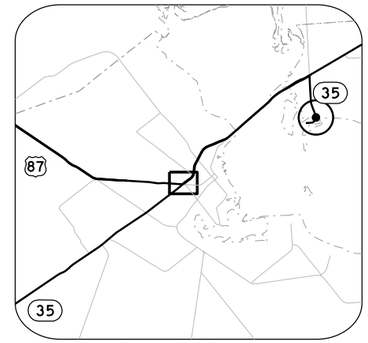
REFER TO MAP 6

SIGN ID

X-X-X
- SIGN ID
- LARGE (L)/SMALL (S)
- MAP NUMBER

LEGEND

- SMALL SIGN
- LARGE ROADSIDE SIGN
- LARGE OVERHEAD SIGN
- SIGNAL MAST ARM SIGN
- EXIST TRAFFIC SIGNAL
- NEW SIGN
- EXISTING SIGN
- ROUTE DIRECTION



PORT LAVACA, TX

1. EXISTING SIGNS TO REMAIN UNLESS OTHERWISE NOTED.
2. SEE SOLS SHEETS FOR PANEL DIMENSIONS ATTACHED TO LARGE SIGNS.
3. PROPOSED SIGN LOCATIONS MAY BE ADJUSTED BASED ON FIELD CONSTRAINTS. ENSURE NEW SIGNS DO NOT BLOCK OTHER SIGNS IN THE VICINITY.

0 125 250 500

SCALE: 1"=500'

STATE OF TEXAS
PUNARVASU R. BHAKTA
96603
LICENSED
PROFESSIONAL ENGINEER

8/22/2024

TRAFFIC GUIDE SIGN PROPOSED LAYOUT MAP 9

AECOM
AECOM Technical Services Inc. F- 3580
13640 BRIARWICK DRIVE, SUITE 200, AUSTIN, TX 78729
512-454-4797

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0913	00	138	VARIOUS
DIST	COUNTY		SHEET NO.
YKM	DEWITT, ETC.		22

DATE: 8/22/2024 2:07:41 PM
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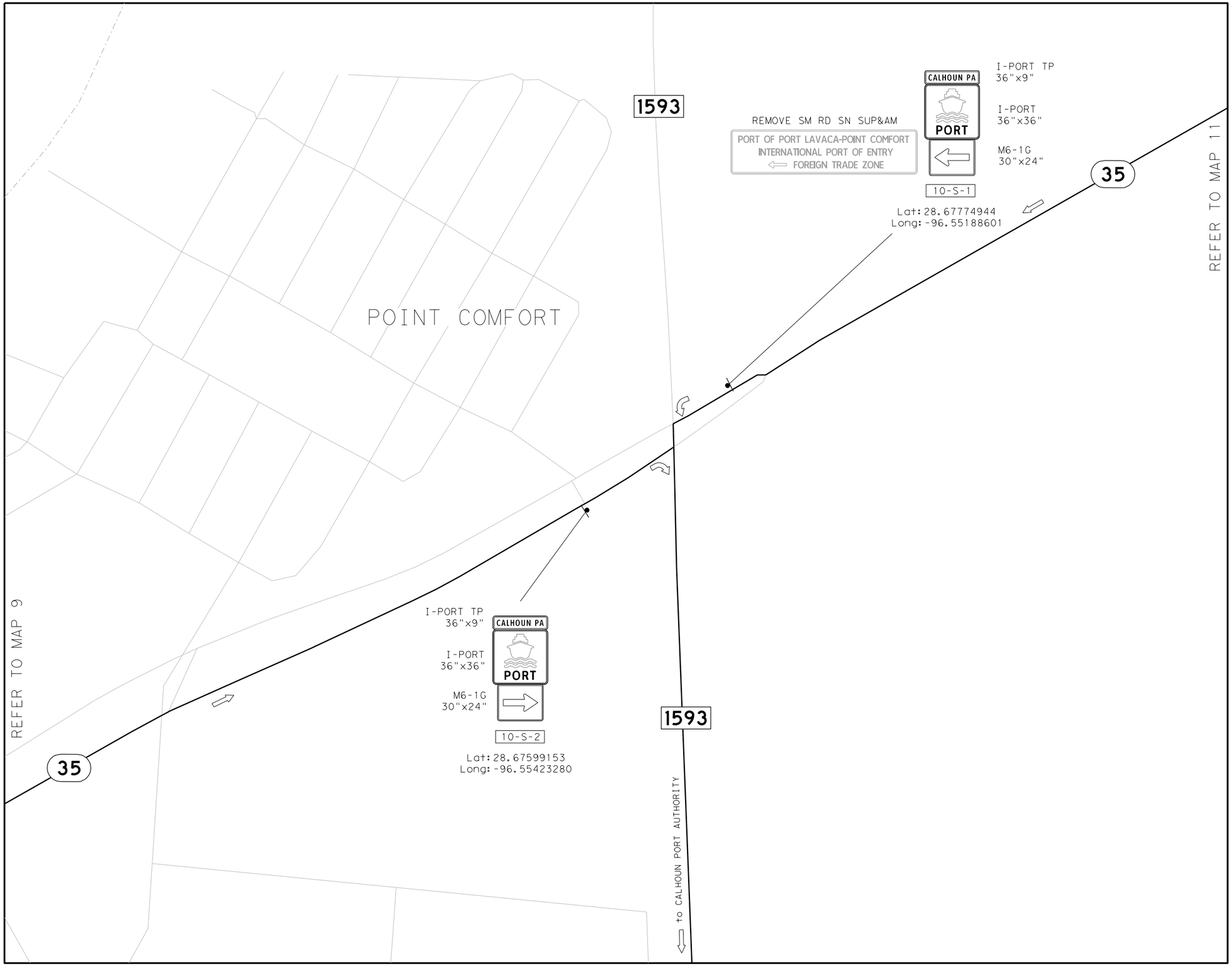
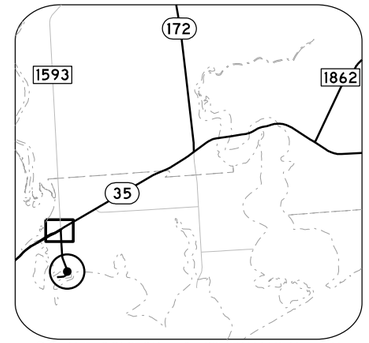


SIGN ID

X-X-X
- SIGN ID
- LARGE (L)/SMALL (S)
- MAP NUMBER

LEGEND

- SMALL SIGN
- LARGE ROADSIDE SIGN
- LARGE OVERHEAD SIGN
- SIGNAL MAST ARM SIGN
- EXIST TRAFFIC SIGNAL
- NEW SIGN
- EXISTING SIGN
- ROUTE DIRECTION



POINT COMFORT & WEEDHAVEN, TX

1. EXISTING SIGNS TO REMAIN UNLESS OTHERWISE NOTED.
2. SEE SOLS SHEETS FOR PANEL DIMENSIONS ATTACHED TO LARGE SIGNS.
3. PROPOSED SIGN LOCATIONS MAY BE ADJUSTED BASED ON FIELD CONSTRAINTS. ENSURE NEW SIGNS DO NOT BLOCK OTHER SIGNS IN THE VICINITY.

0 125 250 500

SCALE: 1"=500'

STATE OF TEXAS
PUNARVASU R. BHAKTA
96603
LICENSED
PROFESSIONAL ENGINEER

8/22/2024

TRAFFIC
GUIDE SIGN
PROPOSED LAYOUT
MAP 10

AECOM
AECOM Technical Services Inc. F- 3580
13640 BRIARWICK DRIVE, SUITE 200, AUSTIN, TX 78729
512-454-4797

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0913	00	138	VARIOUS
DIST	COUNTY		SHEET NO.
YKM	DEWITT, ETC.		23

DATE: 8/22/2024 3:04:22 PM
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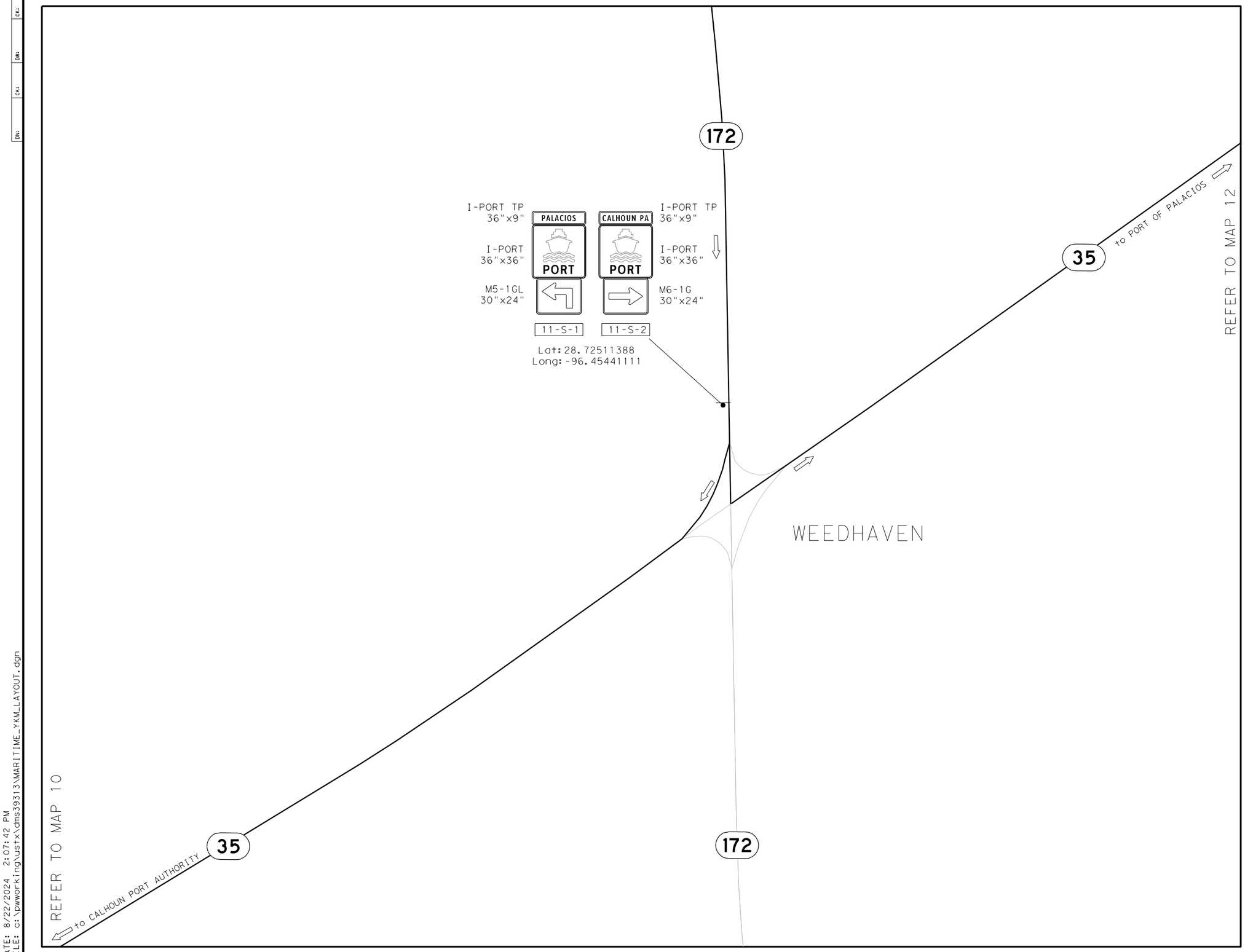
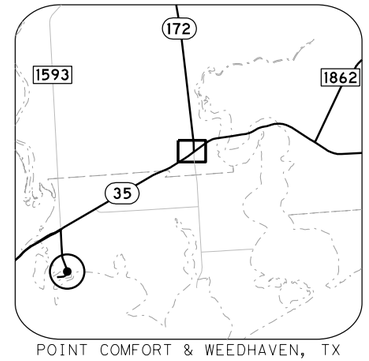


SIGN ID

X-X-X
- SIGN ID
- LARGE (L)/SMALL (S)
- MAP NUMBER

LEGEND

- SMALL SIGN
- LARGE ROADSIDE SIGN
- LARGE OVERHEAD SIGN
- SIGNAL MAST ARM SIGN
- EXIST TRAFFIC SIGNAL
- NEW SIGN
- EXISTING SIGN
- ROUTE DIRECTION



POINT COMFORT & WEEDHAVEN, TX

1. EXISTING SIGNS TO REMAIN UNLESS OTHERWISE NOTED.
2. SEE SOLS SHEETS FOR PANEL DIMENSIONS ATTACHED TO LARGE SIGNS.
3. PROPOSED SIGN LOCATIONS MAY BE ADJUSTED BASED ON FIELD CONSTRAINTS. ENSURE NEW SIGNS DO NOT BLOCK OTHER SIGNS IN THE VICINITY.

0 125 250 500

SCALE: 1"=500'

STATE OF TEXAS
PUNARVASU R. BHAKTA
96603
LICENSED
PROFESSIONAL ENGINEER

8/22/2024

TRAFFIC GUIDE SIGN PROPOSED LAYOUT MAP 11

AECOM
AECOM Technical Services Inc. F- 3580
13640 BRIARWICK DRIVE, SUITE 200, AUSTIN, TX 78729
512-454-4797

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0913	00	138	VARIOUS
DIST	COUNTY		SHEET NO.
YKM	DEWITT, ETC.		24

DATE: 8/22/2024 2:07:42 PM
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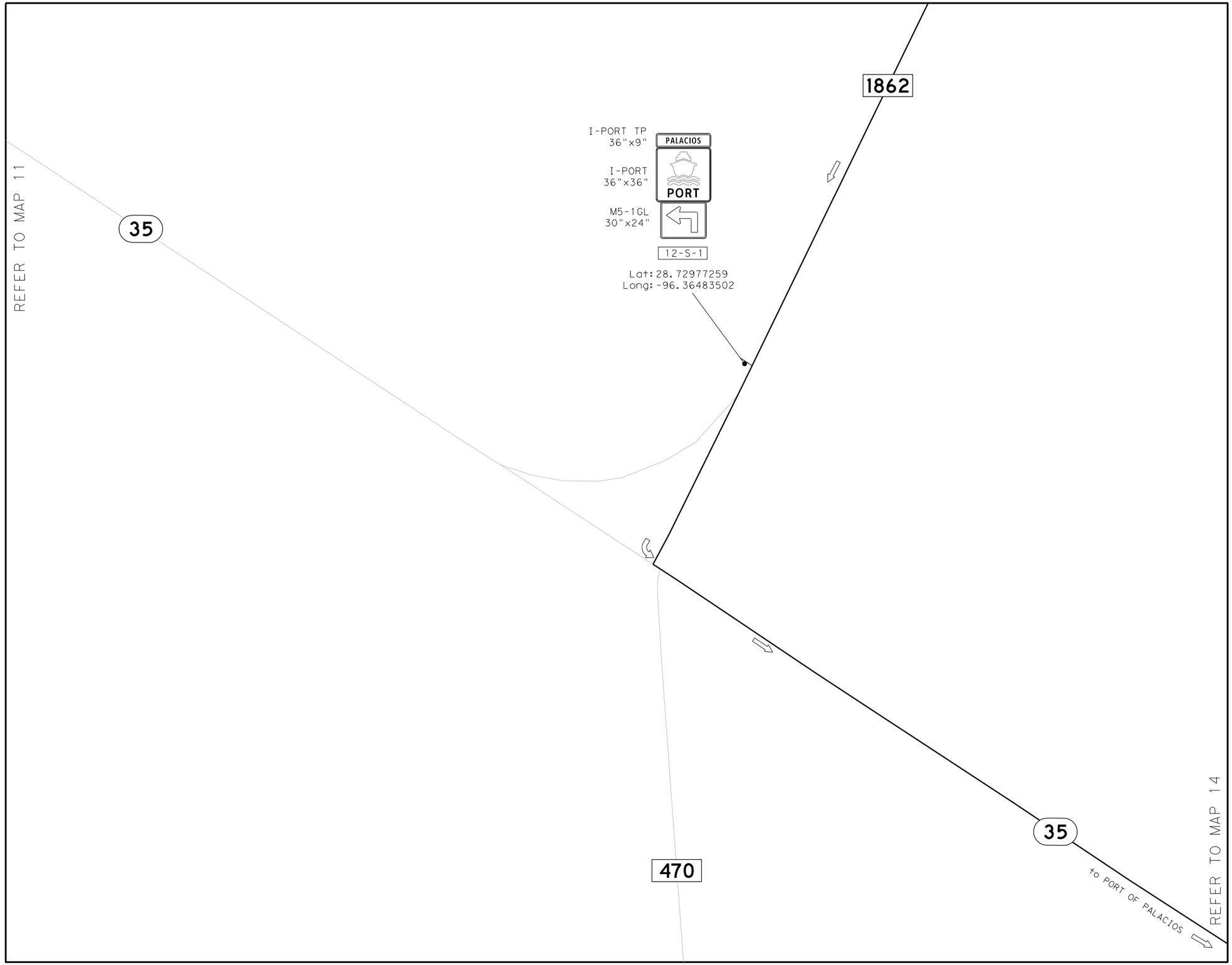
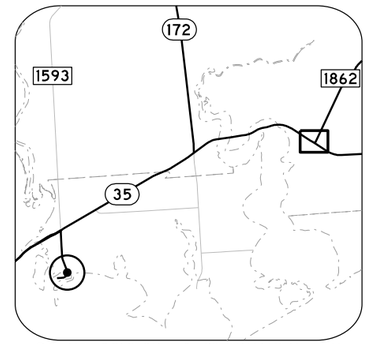


SIGN ID

X-X-X
- SIGN ID
- LARGE (L)/SMALL (S)
- MAP NUMBER

LEGEND

- SMALL SIGN
- LARGE ROADSIDE SIGN
- LARGE OVERHEAD SIGN
- SIGNAL MAST ARM SIGN
- EXIST TRAFFIC SIGNAL
- NEW SIGN
- EXISTING SIGN
- ROUTE DIRECTION



POINT COMFORT & WEEDHAVEN, TX

1. EXISTING SIGNS TO REMAIN UNLESS OTHERWISE NOTED.
2. SEE SOLS SHEETS FOR PANEL DIMENSIONS ATTACHED TO LARGE SIGNS.
3. PROPOSED SIGN LOCATIONS MAY BE ADJUSTED BASED ON FIELD CONSTRAINTS. ENSURE NEW SIGNS DO NOT BLOCK OTHER SIGNS IN THE VICINITY.

0 125 250 500

SCALE: 1"=500'

STATE OF TEXAS
PUNARVASU R. BHAKTA
96603
LICENSED
PROFESSIONAL ENGINEER

8/22/2024

TRAFFIC
GUIDE SIGN
PROPOSED LAYOUT
MAP 12

AECOM
AECOM Technical Services Inc. F- 3580
13640 BRIARWICK DRIVE, SUITE 200, AUSTIN, TX 78729
512-454-4797

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0913	00	138	VARIOUS
DIST	COUNTY		SHEET NO.
YKM	DEWITT, ETC.		25

DATE: 8/22/2024 2:07:42 PM
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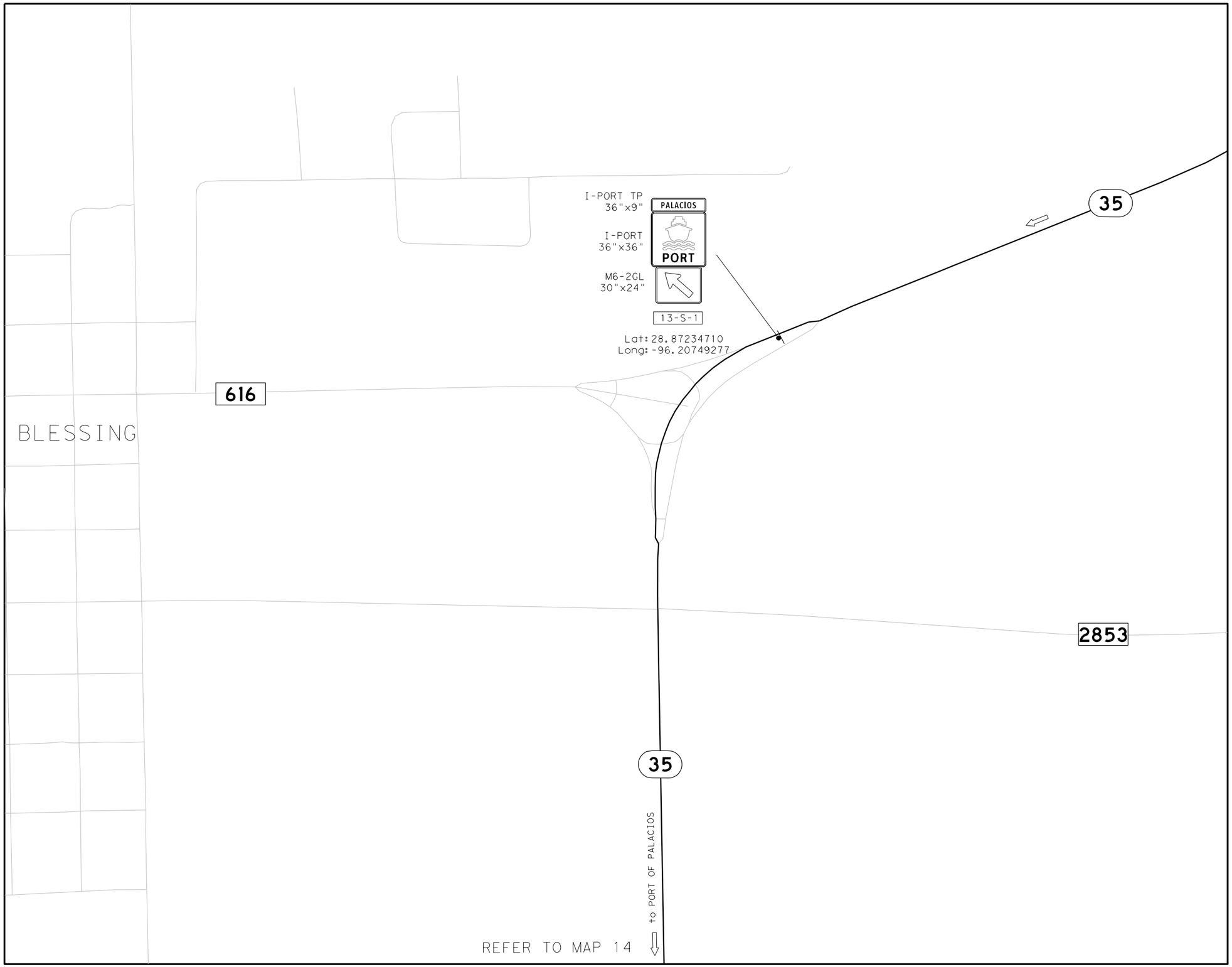
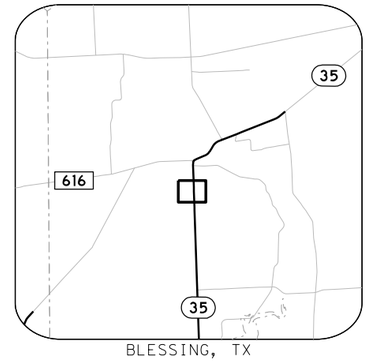


SIGN ID

X-X-X
- SIGN ID
- LARGE (L)/SMALL (S)
- MAP NUMBER

LEGEND

- SMALL SIGN
- LARGE ROADSIDE SIGN
- LARGE OVERHEAD SIGN
- SIGNAL MAST ARM SIGN
- EXIST TRAFFIC SIGNAL
- NEW SIGN
- EXISTING SIGN
- ROUTE DIRECTION



BLESSING, TX

1. EXISTING SIGNS TO REMAIN UNLESS OTHERWISE NOTED.
2. SEE SOLS SHEETS FOR PANEL DIMENSIONS ATTACHED TO LARGE SIGNS.
3. PROPOSED SIGN LOCATIONS MAY BE ADJUSTED BASED ON FIELD CONSTRAINTS. ENSURE NEW SIGNS DO NOT BLOCK OTHER SIGNS IN THE VICINITY.

0 125 250 500

SCALE: 1"=500'

STATE OF TEXAS
PUNARVASU R. BHAKTA
96603
LICENSED
PROFESSIONAL ENGINEER

8/22/2024

TRAFFIC
GUIDE SIGN
PROPOSED LAYOUT
MAP 13

AECOM
AECOM Technical Services Inc. F- 3580
13640 BRIARWICK DRIVE, SUITE 200, AUSTIN, TX 78729
512-454-4797

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0913	00	138	VARIOUS
DIST	COUNTY		SHEET NO.
YKM	DEWITT, ETC.		26

DATE: 8/22/2024 2:07:43 PM
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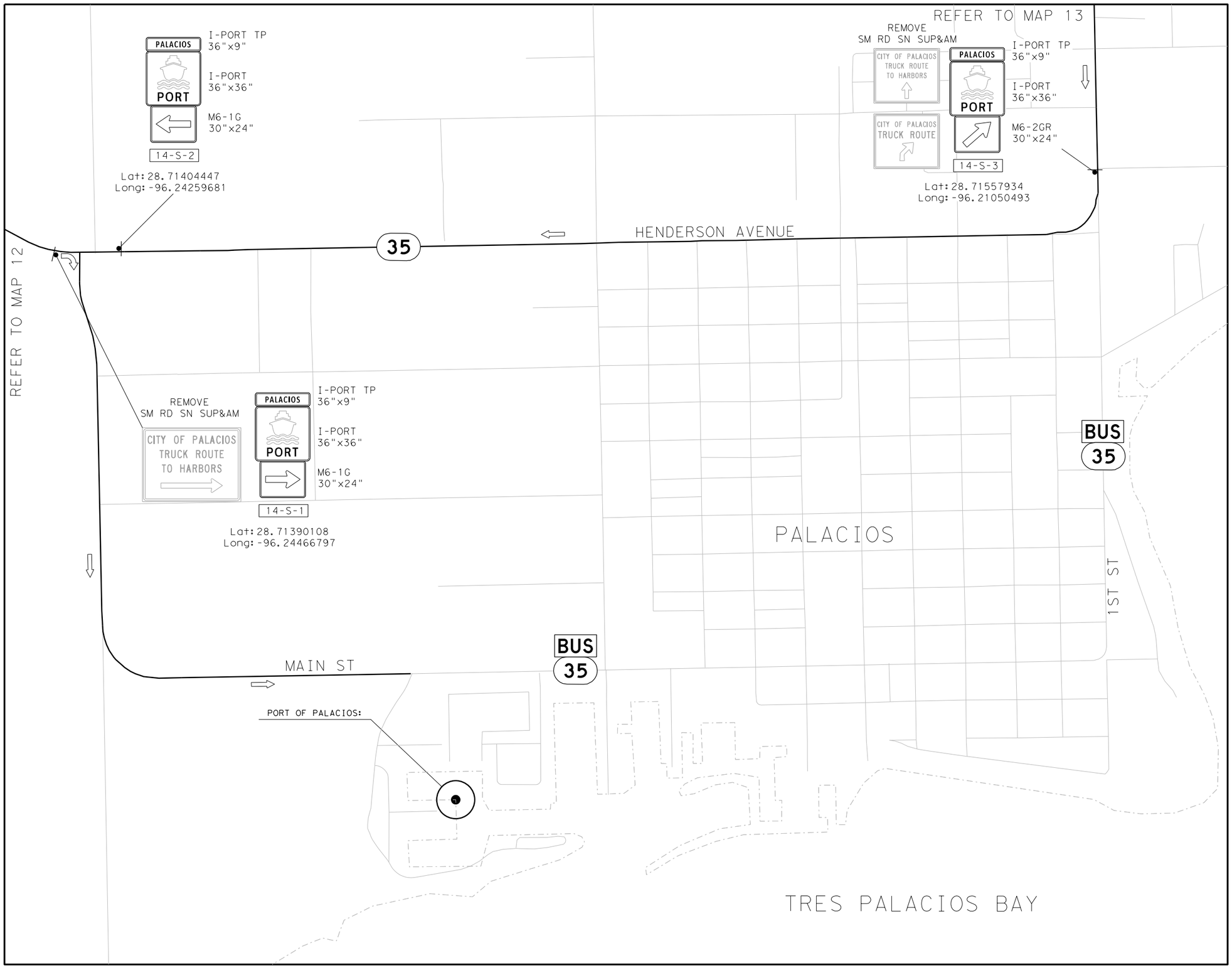
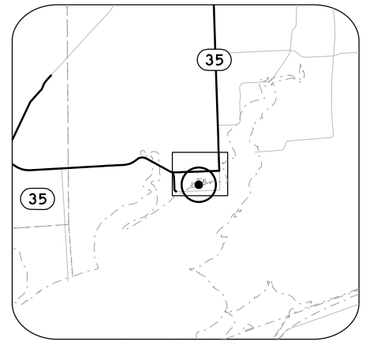


SIGN ID

X-X-X
- SIGN ID
- LARGE (L)/SMALL (S)
- MAP NUMBER

LEGEND

- SMALL SIGN
- LARGE ROADSIDE SIGN
- LARGE OVERHEAD SIGN
- SIGNAL MAST ARM SIGN
- EXIST TRAFFIC SIGNAL
- NEW SIGN
- EXISTING SIGN
- ROUTE DIRECTION



PALACIOS, TX

1. EXISTING SIGNS TO REMAIN UNLESS OTHERWISE NOTED.
2. SEE SOLS SHEETS FOR PANEL DIMENSIONS ATTACHED TO LARGE SIGNS.
3. PROPOSED SIGN LOCATIONS MAY BE ADJUSTED BASED ON FIELD CONSTRAINTS. ENSURE NEW SIGNS DO NOT BLOCK OTHER SIGNS IN THE VICINITY.

0 250 500 1000

SCALE: 1"=1000'

STATE OF TEXAS
PUNARVASU R. BHAKTA
96603
LICENSED
PROFESSIONAL ENGINEER

8/22/2024

TRAFFIC
GUIDE SIGN
PROPOSED LAYOUT
MAP 14

AECOM
AECOM Technical Services Inc. F- 3580
13640 BRIARWICK DRIVE, SUITE 200, AUSTIN, TX 78729
512-454-4797

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0913	00	138	VARIOUS
DIST	COUNTY		SHEET NO.
YKM	DEWITT, ETC.		27

DATE: 8/22/2024 3:04:22 PM
FILE: c:\pwworking\ustx\dms39313\MARITIME_YKM_LAYOUT.dgn

60

35

BAY CITY

2668

BAY CITY
PORT
I-PORT TP
36"x9"
I-PORT
36"x36"
M6-3G
30"x24"
15-S-2
Lat: 28.98422470
Long: -95.97022017

BAY CITY
PORT
I-PORT TP
36"x9"
I-PORT
36"x36"
M5-1GL
30"x24"
15-S-3
Lat: 28.98352401
Long: -95.95263223

BAY CITY
PORT
I-PORT TP
36"x9"
I-PORT
36"x36"
M5-1GR
30"x24"
15-S-1
Lat: 28.98282940
Long: -95.97120915

to PORT OF BAY CITY

to PORT OF BAY CITY

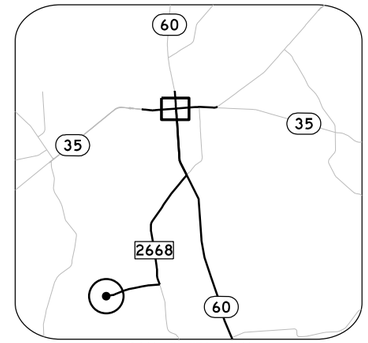
REFER TO MAP 16

SIGN ID

X-X-X
- SIGN ID
- LARGE (L)/SMALL (S)
- MAP NUMBER

LEGEND

- SMALL SIGN
- LARGE ROADSIDE SIGN
- LARGE OVERHEAD SIGN
- SIGNAL MAST ARM SIGN
- EXIST TRAFFIC SIGNAL
- NEW SIGN
- EXISTING SIGN
- ROUTE DIRECTION



BAY CITY, TX

1. EXISTING SIGNS TO REMAIN UNLESS OTHERWISE NOTED.
2. SEE SOLS SHEETS FOR PANEL DIMENSIONS ATTACHED TO LARGE SIGNS.
3. PROPOSED SIGN LOCATIONS MAY BE ADJUSTED BASED ON FIELD CONSTRAINTS. ENSURE NEW SIGNS DO NOT BLOCK OTHER SIGNS IN THE VICINITY.

0 125 250 500

SCALE: 1"=500'

STATE OF TEXAS
PUNARVASU R. BHAKTA
96603
LICENSED
PROFESSIONAL ENGINEER

8/22/2024

TRAFFIC
GUIDE SIGN
PROPOSED LAYOUT
MAP 15

AECOM
AECOM Technical Services Inc. F-3580
13640 BRIARWICK DRIVE, SUITE 200, AUSTIN, TX 78729
512-454-4797

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0913	00	138	VARIOUS
DIST	COUNTY		SHEET NO.
YKM	DEWITT, ETC.		28

DATE: 8/22/2024 3:04:23 PM
FILE: c:\pwworking\ustx\dms39313\MARITIME_YKM_LAYOUT.dgn

REFER TO MAP 15

60

I-PORT TP 36"x9"
MATAGORDA
BAY CITY
I-PORT TP 36"x9"
I-PORT 36"x36"
PORT
PORT
I-PORT 36"x36"
M5-3(MOD) 30"x24"
M6-3G 30"x24"
16-S-3*
16-S-4*
Lat: 28.94072004
Long: -95.96358059

I-PORT TP 36"x9"
MATAGORDA
BAY CITY
I-PORT TP 36"x9"
I-PORT 36"x36"
PORT
PORT
I-PORT 36"x36"
M6-3G 30"x24"
M6-1G 30"x24"
16-S-1*
16-S-2*
Lat: 28.94081616
Long: -95.96468423

2668

2668

to PORT OF BAY CITY

60

to PORT OF BAY CITY: MATAGORDA TERMINAL

* COORDINATE INSTALLATION OF SIGN WITH CURRENT ROUNDABOUT CONSTRUCTION PROJECT, CSJ: 0241-03-029

REFER TO MAP 17

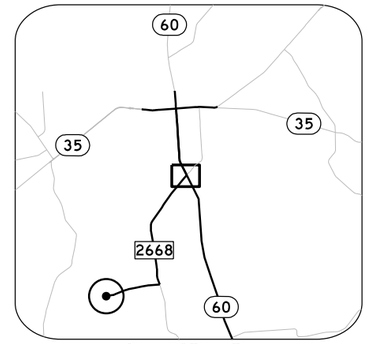
REFER TO MAP 18

SIGN ID

X-X-X
- SIGN ID
- LARGE (L)/SMALL (S)
- MAP NUMBER

LEGEND

- SMALL SIGN
- LARGE ROADSIDE SIGN
- LARGE OVERHEAD SIGN
- SIGNAL MAST ARM SIGN
- EXIST TRAFFIC SIGNAL
- NEW SIGN
- EXISTING SIGN
- ROUTE DIRECTION



BAY CITY, TX

1. EXISTING SIGNS TO REMAIN UNLESS OTHERWISE NOTED.
2. SEE SOLS SHEETS FOR PANEL DIMENSIONS ATTACHED TO LARGE SIGNS.
3. PROPOSED SIGN LOCATIONS MAY BE ADJUSTED BASED ON FIELD CONSTRAINTS. ENSURE NEW SIGNS DO NOT BLOCK OTHER SIGNS IN THE VICINITY.

0 125 250 500
SCALE: 1"=500'

STATE OF TEXAS
PUNARVASU R. BHAKTA
96603
LICENSED PROFESSIONAL ENGINEER

8/22/2024

TRAFFIC GUIDE SIGN PROPOSED LAYOUT MAP 16

AECOM
AECOM Technical Services Inc. F- 3580
13640 BRIARWICK DRIVE, SUITE 200, AUSTIN, TX 78729
512-454-4797

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0913	00	138	VARIOUS
DIST	COUNTY		SHEET NO.
YKM	DEWITT, ETC.		29

DATE: 8/22/2024 2:07:44 PM
FILE: c:\pw\working\ustx\dms39313\MARITIME_YKM_LAYOUT.dgn

REFER TO MAP 16

2668

I-PORT TP
36"x9"

BAY CITY

I-PORT
36"x36"

PORT

M6-1G
30"x24"

17-S-1

Lat: 28.87218145
Long: -95.98761663

3057

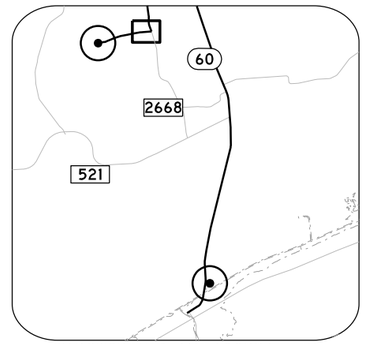
to PORT OF BAY CITY

SIGN ID

X-X-X
- SIGN ID
- LARGE (L)/SMALL (S)
- MAP NUMBER

LEGEND

- SMALL SIGN
- LARGE ROADSIDE SIGN
- LARGE OVERHEAD SIGN
- SIGNAL MAST ARM SIGN
- EXIST TRAFFIC SIGNAL
- NEW SIGN
- EXISTING SIGN
- ROUTE DIRECTION



WADSWORTH & MATAGORDA, TX

1. EXISTING SIGNS TO REMAIN UNLESS OTHERWISE NOTED.
2. SEE SOLS SHEETS FOR PANEL DIMENSIONS ATTACHED TO LARGE SIGNS.
3. PROPOSED SIGN LOCATIONS MAY BE ADJUSTED BASED ON FIELD CONSTRAINTS. ENSURE NEW SIGNS DO NOT BLOCK OTHER SIGNS IN THE VICINITY.

0 125 250 500

SCALE: 1"=500'

STATE OF TEXAS
PUNARVASU R. BHAKTA
96603
LICENSED
PROFESSIONAL ENGINEER

8/22/2024

TRAFFIC
GUIDE SIGN
PROPOSED LAYOUT
MAP 17

AECOM
AECOM Technical Services Inc. F- 3580
13640 BRIARWICK DRIVE, SUITE 200, AUSTIN, TX 78729
512-454-4797

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0913	00	138	VARIOUS
DIST	COUNTY		SHEET NO.
YKM	DEWITT, ETC.		30

DATE: 8/22/2024 2:07:44 PM
FILE: c:\pwworking\ustx\dms39313\MARITIME_YKM_LAYOUT.dgn

REFER TO MAP 16

60

MATAGORDA
PORT
I-PORT TP
36"x9"
I-PORT
36"x36"
M6-3G
30"x24"
18-S-1

Lat: 28.81503514
Long: -95.93291049

SUTHERLAND RD

60

521

to PORT OF BAY CITY: MATAGORDA TERMINAL

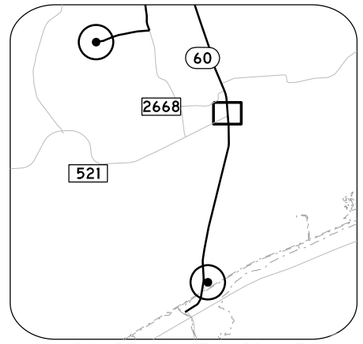
REFER TO MAP 19

SIGN ID

X-X-X
- SIGN ID
- LARGE (L)/SMALL (S)
- MAP NUMBER

LEGEND

- SMALL SIGN
- LARGE ROADSIDE SIGN
- LARGE OVERHEAD SIGN
- SIGNAL MAST ARM SIGN
- EXIST TRAFFIC SIGNAL
- NEW SIGN
- EXISTING SIGN
- ROUTE DIRECTION



WADSWORTH & MATAGORDA, TX

1. EXISTING SIGNS TO REMAIN UNLESS OTHERWISE NOTED.
2. SEE SOLS SHEETS FOR PANEL DIMENSIONS ATTACHED TO LARGE SIGNS.
3. PROPOSED SIGN LOCATIONS MAY BE ADJUSTED BASED ON FIELD CONSTRAINTS. ENSURE NEW SIGNS DO NOT BLOCK OTHER SIGNS IN THE VICINITY.

0 125 250 500
SCALE: 1"=500'

STATE OF TEXAS
PUNARVASU R. BHAKTA
96603
LICENSED
PROFESSIONAL ENGINEER

8/22/2024

TRAFFIC
GUIDE SIGN
PROPOSED LAYOUT
MAP 18

AECOM
AECOM Technical Services Inc. F- 3580
13640 BRIARWICK DRIVE, SUITE 200, AUSTIN, TX 78729
512-454-4797

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0913	00	138	VARIOUS
DIST	COUNTY		SHEET NO.
YKM	DEWITT, ETC.		31

DATE: 8/22/2024 2:07:45 PM
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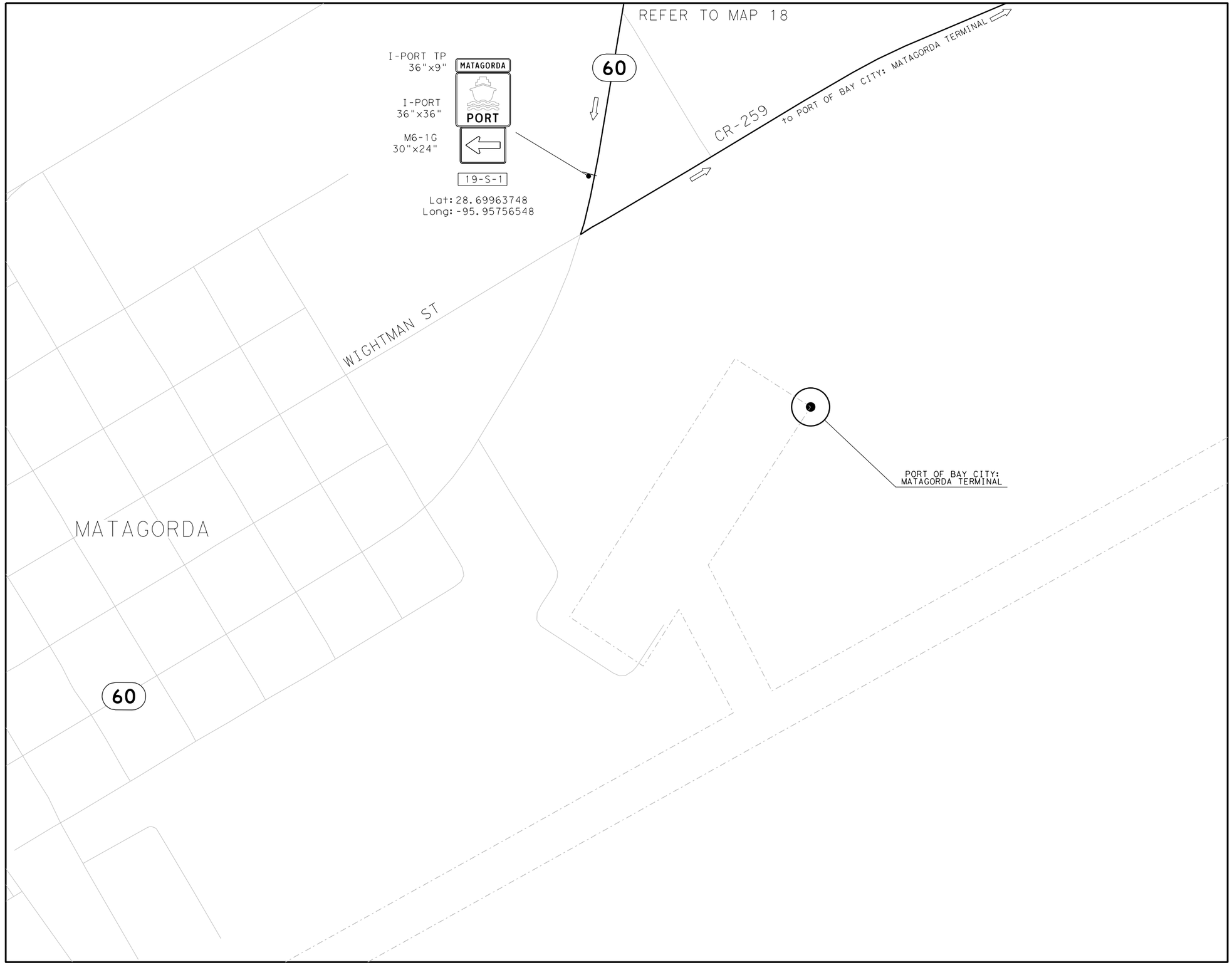
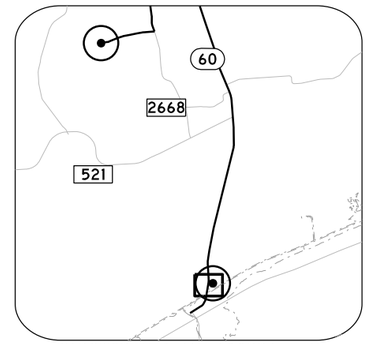


SIGN ID

X-X-X
- SIGN ID
- LARGE (L)/SMALL (S)
- MAP NUMBER

LEGEND

- SMALL SIGN
- LARGE ROADSIDE SIGN
- LARGE OVERHEAD SIGN
- SIGNAL MAST ARM SIGN
- EXIST TRAFFIC SIGNAL
- NEW SIGN
- EXISTING SIGN
- ROUTE DIRECTION



WADSWORTH & MATAGORDA, TX

1. EXISTING SIGNS TO REMAIN UNLESS OTHERWISE NOTED.
2. SEE SOLS SHEETS FOR PANEL DIMENSIONS ATTACHED TO LARGE SIGNS.
3. PROPOSED SIGN LOCATIONS MAY BE ADJUSTED BASED ON FIELD CONSTRAINTS. ENSURE NEW SIGNS DO NOT BLOCK OTHER SIGNS IN THE VICINITY.

0 125 250 500

SCALE: 1"=500'

STATE OF TEXAS
PUNARVASU R. BHAKTA
96603
LICENSED
PROFESSIONAL ENGINEER

8/22/2024

TRAFFIC
GUIDE SIGN
PROPOSED LAYOUT
MAP 19

AECOM
AECOM Technical Services Inc. F- 3580
13640 BRIARWICK DRIVE, SUITE 200, AUSTIN, TX 78729
512-454-4797

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0913	00	138	VARIOUS
DIST	COUNTY		SHEET NO.
YKM	DEWITT, ETC.		32

DATE: 8/22/2024 2:07:45 PM
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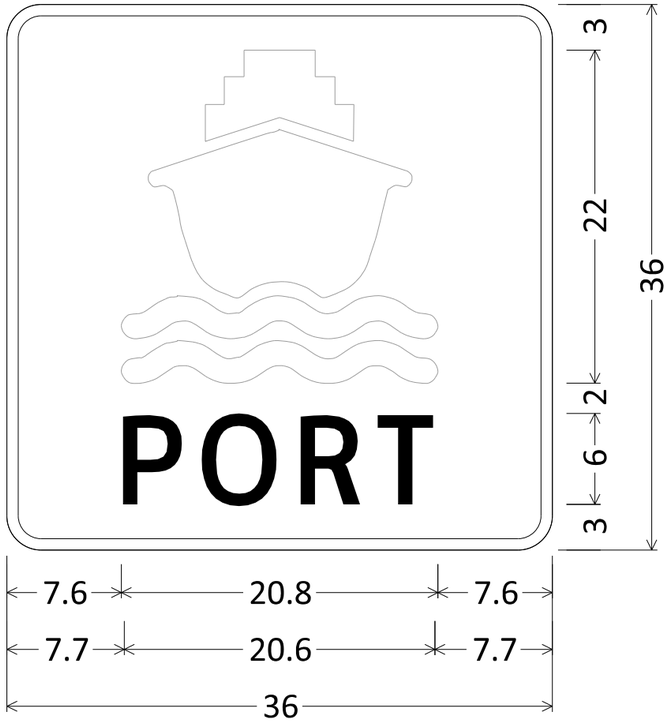


54 OCCURENCES
WITHIN DISTRICT

2.3" Radius, 0.8" Border, White on Green;
"PORT", ClearviewHwy-3-W;
Table of letter and object lefts

P 7.7	O 12.9	R 19.5	T 24.4

8/22/2024

TRAFFIC

SIGN DETAILS

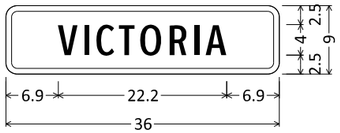
SHEET 1 OF 2

AECOM
AECOM Technical Services Inc. F-3580
13640 BRIARWICK DRIVE,
SUITE 200, AUSTIN,
TX 78729
512-454-4797

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0913	00	138	VARIOUS
DIST	COUNTY		SHEET NO.
YKM	DEWITT, ETC.		33

DATE: 8/22/2024 12:06:34 PM
FILE: c:\pwworking\ustx\dms39313\MARITIME_YKM_DETAIL.dgn

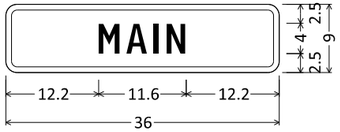


I-8TP_24x6;
1.5" Radius, 0.8" Border, White on Green;
"VICTORIA", ClearviewHwy-2-W;
Table of letter and object lefts

V	I	C	T	O	R	I	A
6.9	10.3	12.0	14.9	17.8	21.6	24.8	26.3

SIGN ID:

1-S-2
1-S-4
6-S-4
6-S-5
6-S-7

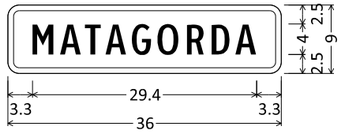


I-8TP_24x6;
1.5" Radius, 0.8" Border, White on Green;
"MAIN", ClearviewHwy-2-W;
Table of letter and object lefts

M	A	I	N
12.2	15.9	19.5	21.2

SIGN ID:

3-S-2
3-S-3
4-S-4

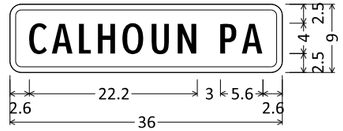


I-8TP_24x6;
1.5" Radius, 0.8" Border, White on Green;
"MATAGORDA", ClearviewHwy-2-W;
Table of letter and object lefts

M	A	T	A	G	O	R	D	A	
3.3	6.9	10.2	12.9	16.3	19.8	23.6	26.8	30.0	

SIGN ID:

16-S-1
16-S-3
18-S-1
19-S-1



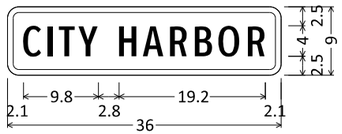
I-8TP_24x6;
1.5" Radius, 0.8" Border, White on Green;
"CALHOUN PA", ClearviewHwy-2-W;
Table of letter and object lefts

C	A	L	H	O	U	N
2.6	5.5	9.1	11.6	14.9	18.7	22.2

P	A
27.8	30.7

SIGN ID:

1-S-1
1-S-3
1-S-5
2-S-1
5-S-1
6-S-1
9-S-1
10-S-1
10-S-2
11-S-2



I-8TP_24x6;
1.5" Radius, 0.8" Border, White on Green;
"CITY HARBOR", ClearviewHwy-2-W;
Table of letter and object lefts

C	I	T	Y
2.1	5.3	6.8	9.4

H	A	R	B	O	R
14.7	17.8	21.4	24.6	27.8	31.6

SIGN ID:

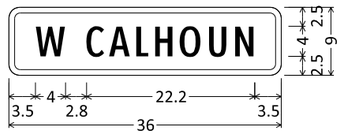
8-S-2

I-8TP_24x6;
1.5" Radius, 0.8" Border, White on Green;
"PALACIOS", ClearviewHwy-2-W;
Table of letter and object lefts

P	A	L	A	C	I	O	S	
6.6	9.5	13.1	15.3	18.7	22.0	23.6	27.2	

SIGN ID:

11-S-1
12-S-1
13-S-1
14-S-1
14-S-2
14-S-3



I-8TP_24x6;
1.5" Radius, 0.8" Border, White on Green;
"W CALHOUN", ClearviewHwy-2-W;
Table of letter and object lefts

W
3.5

C	A	L	H	O	U	N
10.3	13.3	16.9	19.3	22.6	26.5	29.9

SIGN ID:

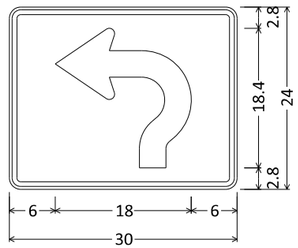
1-S-2
1-S-4
3-S-1
4-S-1
5-S-1
6-S-2
6-S-3
6-S-6
6-S-8
7-S-2
9-S-2

I-8TP_24x6;
1.5" Radius, 0.8" Border, White on Green;
"SEADRIFT", ClearviewHwy-2-W;
Table of letter and object lefts

S	E	A	D	R	I	F	T
7.0	10.0	12.6	16.1	19.5	22.8	24.5	26.9

SIGN ID:

7-S-1
8-S-1
8-S-3
8-S-4

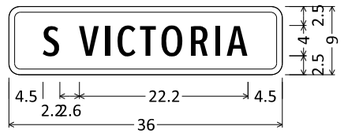


M5-3 (MOD)_30x24;
1.5" Radius, 0.6" Border, 0.4" Indent, White on Green;
Arrow M5-3;
Table of letter and object lefts

6.0

SIGN ID:

16-S-3



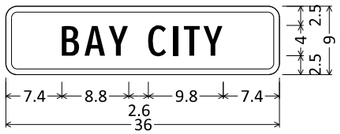
I-8TP_24x6;
1.5" Radius, 0.8" Border, White on Green;
"S VICTORIA", ClearviewHwy-2-W;
Table of letter and object lefts

S
4.5

V	I	C	T	O	R	I	A
9.3	12.7	14.4	17.3	20.1	24.0	27.2	28.7

SIGN ID:

3-S-1
4-S-2
4-S-3



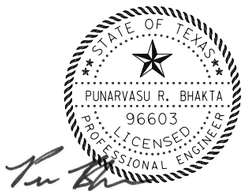
I-8TP_24x6;
1.5" Radius, 0.8" Border, White on Green;
"BAY CITY", ClearviewHwy-2-W;
Table of letter and object lefts

B	A	Y
7.4	10.4	13.6

C	I	T	Y
18.8	22.0	23.5	26.0

SIGN ID:

15-S-1
15-S-2
15-S-3
16-S-2
16-S-4
17-S-1



8/22/2024

TRAFFIC

SIGN DETAILS

SHEET 2 OF 2

AECOM
AECOM Technical Services Inc. F- 3580
13640 BRIARWICK DRIVE, SUITE 200, AUSTIN, TX 78729
512-454-4797

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0913	00	138	VARIOUS
DIST	COUNTY		SHEET NO.
YKM	DEWITT, ETC.		34

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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.

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).

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

BC(1)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-03 7-13 9-07 8-14 5-10 5-21	0913	00	138	VARIOUS
	DIST	COUNTY		SHEET NO.
	YKM	DEWITT, ETC.		35

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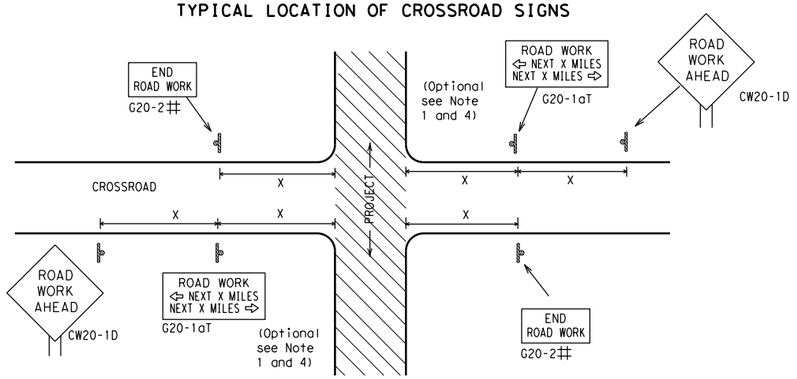
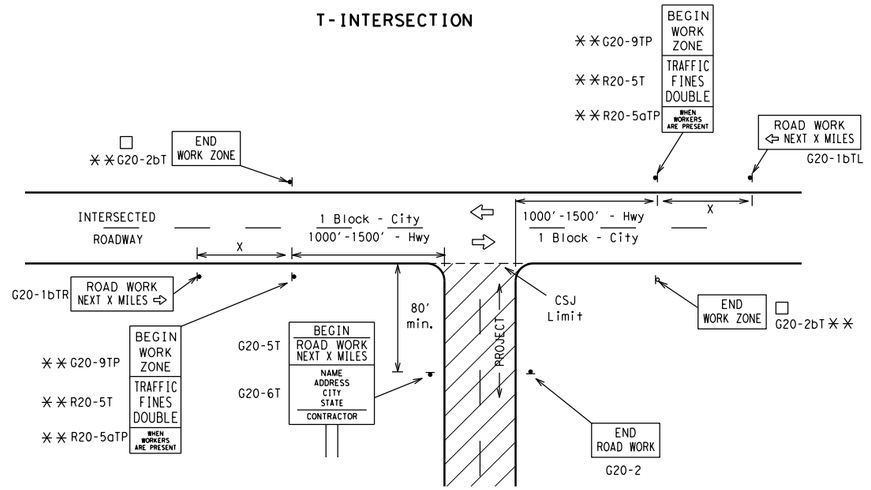
TYPICAL LOCATION OF CROSSROAD SIGNS



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

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

T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

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

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

SIZE

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

SPACING

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

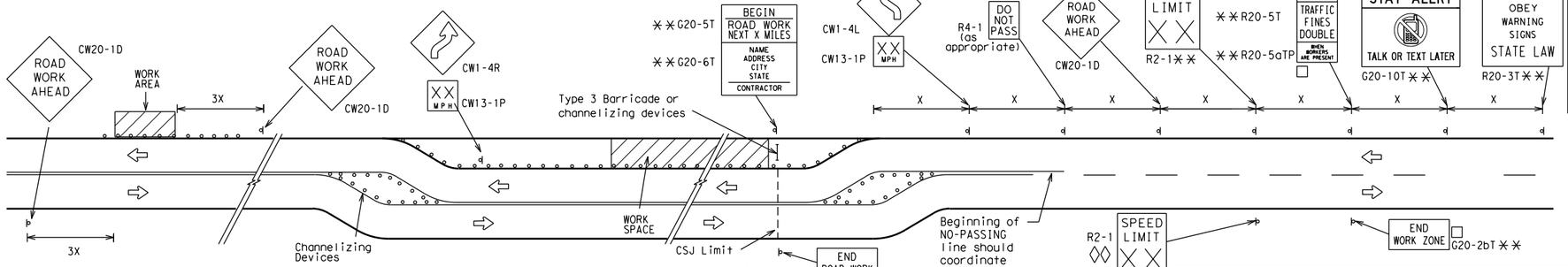
✳ For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

GENERAL NOTES

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

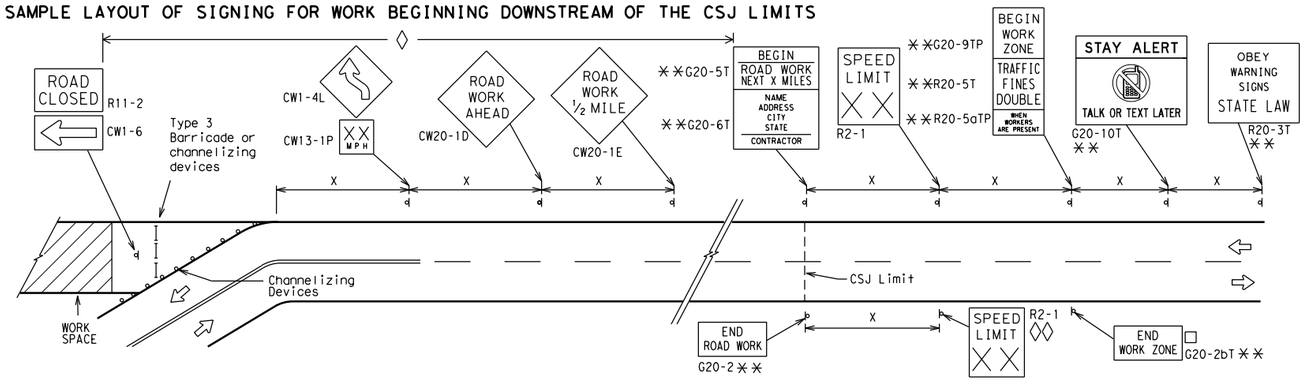
WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS



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

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS

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



NOTES

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

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

✳✳ 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.

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-21

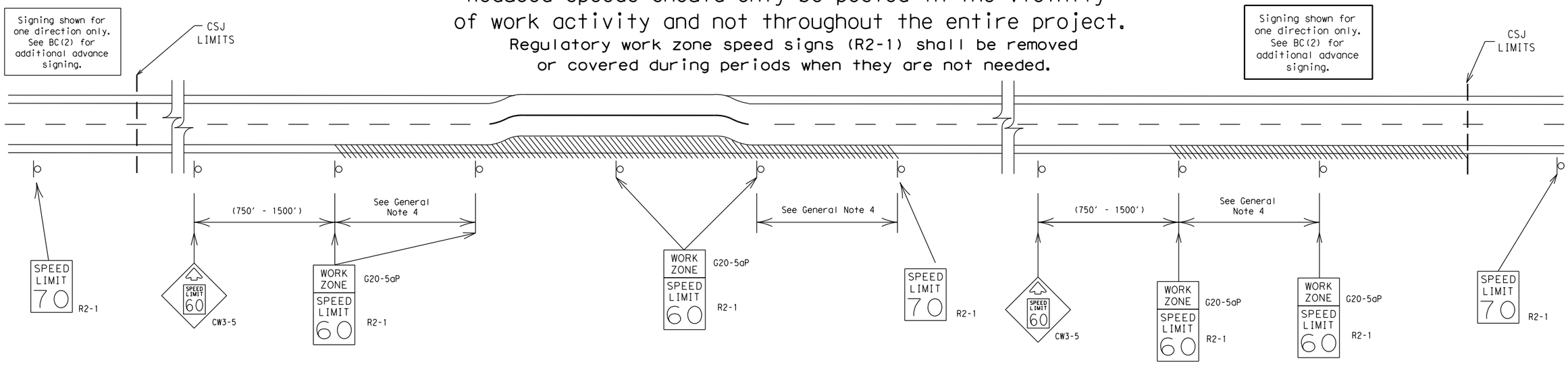
FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0913	00	138	VARIOUS
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	YKM	DEWITT, ETC.		36

TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

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

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

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



GUIDANCE FOR USE:

LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

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

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

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

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

SHORT TERM WORK ZONE SPEED LIMITS

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

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

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SHEET 3 OF 12

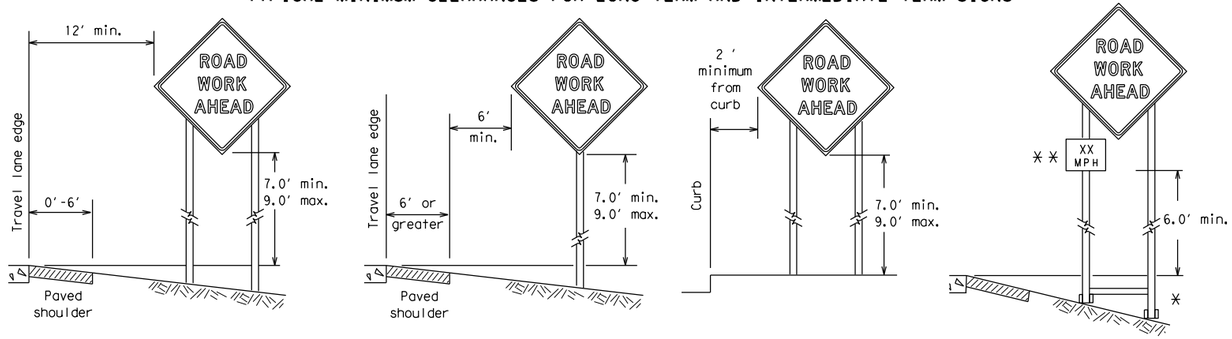
Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

BC(3)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS 9-07 8-14 7-13 5-21	0913	00	138	VARIOUS
	DIST	COUNTY		SHEET NO.
	YKM	DEWITT, ETC.		37

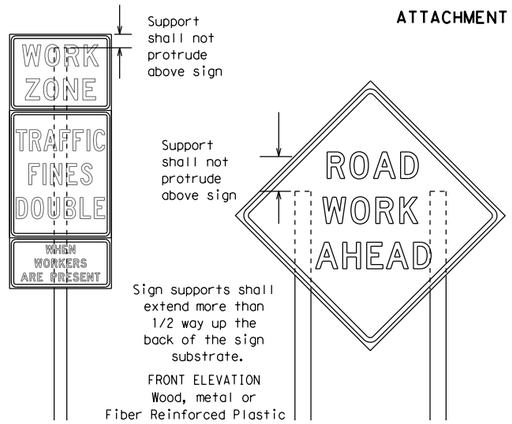
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



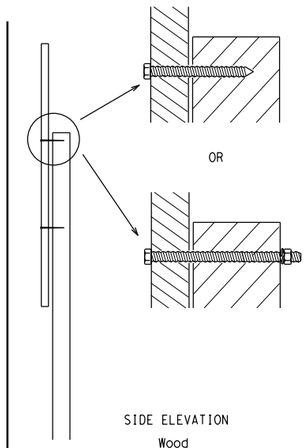
⁎ When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

⁎⁎ 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



FRONT ELEVATION
Wood, metal or
Fiber Reinforced Plastic



SIDE ELEVATION
Wood

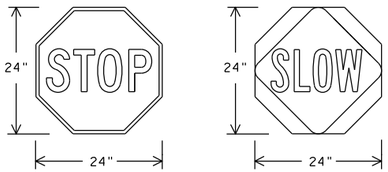
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

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

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

STOP/SLOW PADDLES

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



Background - Red
Legend & Border - White

Background - Orange
Legend & Border - Black

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

1. Permanent signs are used to give notice of traffic laws or regulations, call attention to conditions that are potentially hazardous to traffic operations, show route designations, destinations, directions, distances, services, points of interest, and other geographical, recreational, 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.
2. When permanent regulatory or warning signs conflict with work zone conditions, remove or cover the permanent signs until the permanent sign message matches the roadway condition. For details for covering large guide signs see the TS-CD standard.
3. When existing permanent signs are moved and relocated due to construction purposes, they shall be visible to motorists at all times.
4. If existing signs are to be relocated on their original supports, they shall be installed on crashworthy bases as shown on the SMD Standard sheets. The signs shall meet the required mounting heights shown on the BC Sheets or the SMD Standards. This work should be paid for under the appropriate pay item for relocating existing signs.
5. If permanent signs are to be removed and relocated using temporary supports, the Contractor shall use crashworthy supports as shown on the BC 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.
6. Any sign or traffic control device that is struck or damaged by the Contractor or his/her construction equipment shall be replaced as soon as possible by the Contractor to ensure proper guidance for the motorists. This will be subsidiary to Item 502.

GENERAL NOTES FOR WORK ZONE SIGNS

1. Contractor shall install and maintain signs in a straight and plumb condition and/or as directed by the Engineer.
2. Wooden sign posts shall be painted white.
3. Barricades shall NOT be used as sign supports.
4. All signs shall be installed in accordance with the plans or as directed by the Engineer. Signs shall be used to regulate, warn, and guide the traveling public safely through the work zone.
5. The Contractor may furnish either the sign design shown in the plans or in the "Standard Highway Sign Designs for Texas" (SHSD). The Engineer/Inspector may require the Contractor to furnish other work zone signs that are shown in the TMUTCD but may have been omitted from the plans. Any variation in the plans shall be documented by written agreement between the Engineer and the Contractor's Responsible Person. All changes must be documented in writing before being implemented. This can include documenting the changes in the Inspector's TxDOT diary and having both the Inspector and Contractor initial and date the agreed upon changes.
6. The Contractor shall furnish sign supports listed in the "Compliant Work Zone Traffic Control Device List" (CWZTCD) 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.
7. The Contractor is responsible for installing signs on approved supports and replacing signs with damaged or cracked substrates and/or damaged or marred reflective sheeting as directed by the Engineer/Inspector.
8. Identification markings may be shown only on the back of the sign substrate. The maximum height of letters and/or company logos used for identification shall be 1 inch.
9. The Contractor shall replace damaged wood posts. New or damaged wood sign posts shall not be spliced.

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

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

SIGN MOUNTING HEIGHT

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

SIZE OF SIGNS

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

SIGN SUBSTRATES

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

REFLECTIVE SHEETING

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

SIGN LETTERS

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

REMOVING OR COVERING

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

SIGN SUPPORT WEIGHTS

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

FLAGS ON SIGNS

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC(4)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0913	00	138	VARIOUS
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	YKM	DEWITT, ETC.		38

DATE: 8/22/2024 12:06:44 PM
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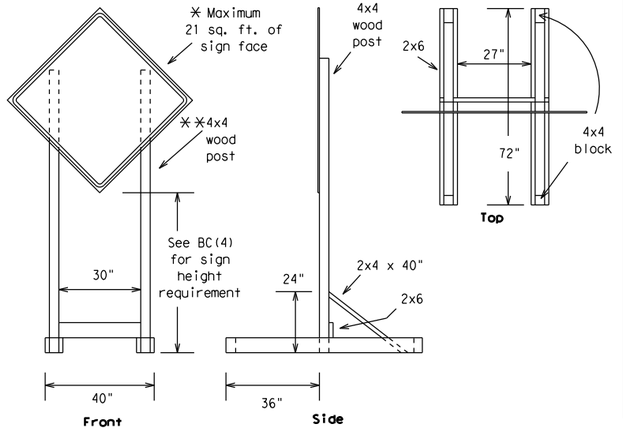
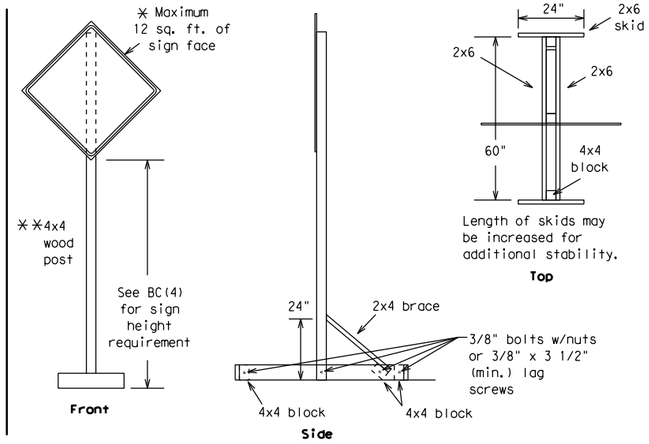
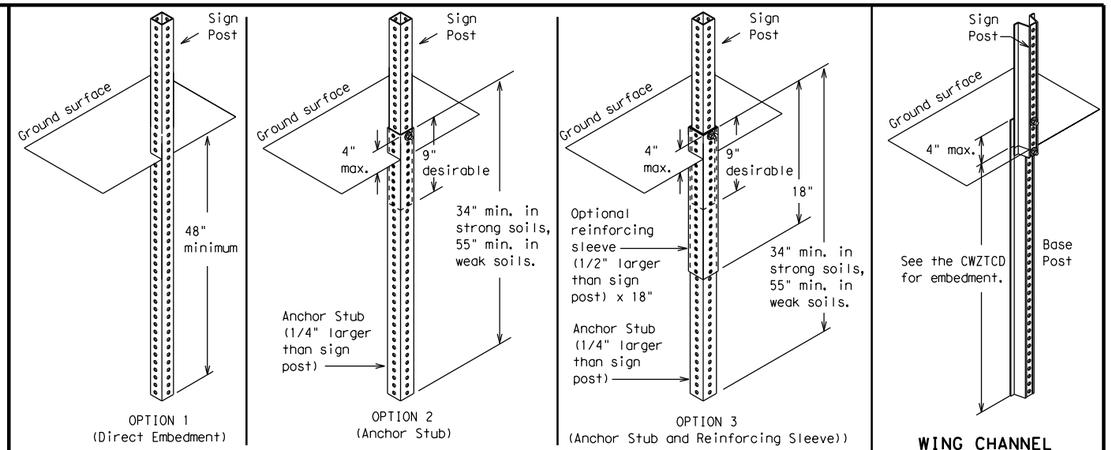




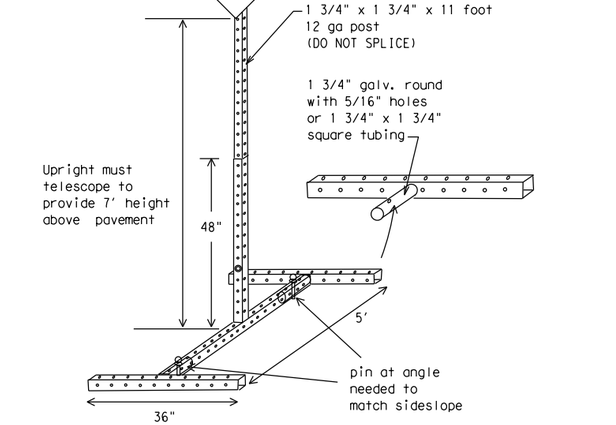
SKID MOUNTED WOOD SIGN SUPPORTS

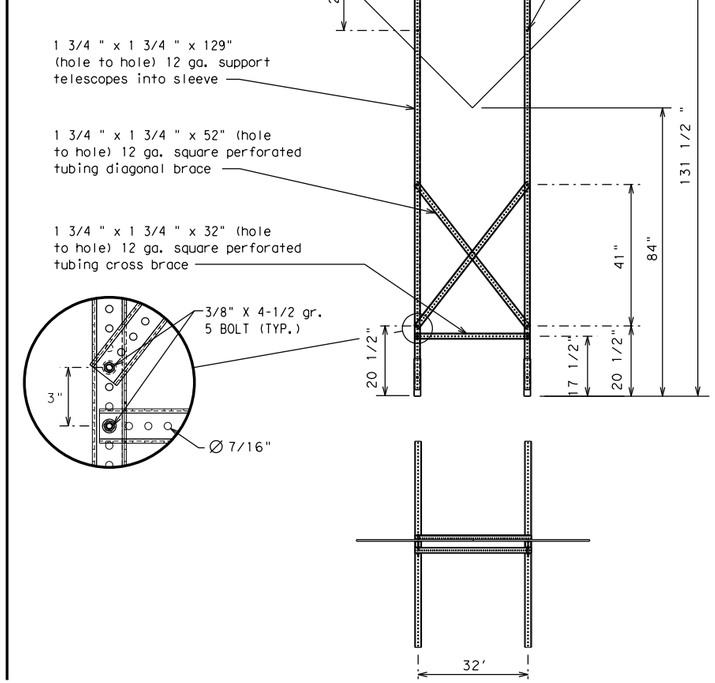
* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS

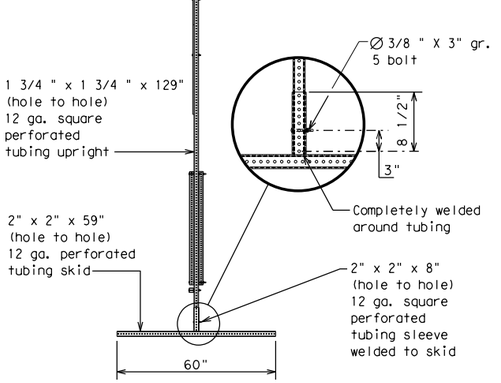


GROUND MOUNTED SIGN SUPPORTS

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







SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

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

WEDGE ANCHORS

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

OTHER DESIGNS

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

GENERAL NOTES

1. Nails may be used in the assembly of wooden sign supports, but 3/8" bolts with nuts or 3/8" x 3 1/2" lag screws must be used on every joint for final connection.
2. No more than 2 sign posts shall be placed within a 7 ft. circle, except for specific materials noted on the CWZTCD List.
3. When project is completed, all sign supports and foundations shall be removed from the project site. This will be considered subsidiary to Item 502.

* See BC(4) for definition of "Work Duration."

** Wood sign posts MUST be one piece. Splicing will NOT be allowed. Posts shall be painted white.

□ See the CWZTCD for the type of sign substrate that can be used for each approved sign support.

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0913	00	138	VARIOUS
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	YKM	DEWITT, ETC.		39

DATE: 8/22/2024 12:06:45 PM
FILE: c:\pwworking\usftx\dms25316\bc-21.dgn

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

PORTABLE CHANGEABLE MESSAGE SIGNS

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

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

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

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

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

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

Phase 1: Condition Lists

Road/Lane/Ramp Closure List

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

Other Condition List

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

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

Phase 2: Possible Component Lists

Action to Take/Effect on Travel List

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

Location List

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

Warning List

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

** Advance Notice List

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

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

** See Application Guidelines Note 6.

APPLICATION GUIDELINES

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

WORDING ALTERNATIVES

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

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

FULL MATRIX PCMS SIGNS

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC(6)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
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7-13 5-21	YKM	DEWITT, ETC.		40

DATE: 8/22/2024 12:06:45 PM
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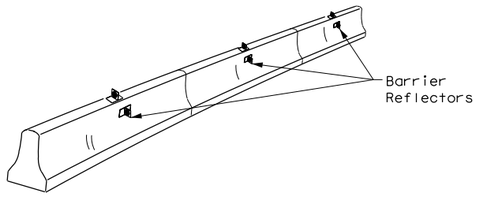
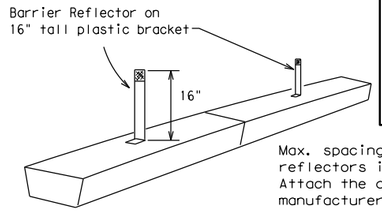
1. Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
2. Color of Barrier Reflectors shall be as specified in the TMUTCD. The cost of the reflectors shall be considered subsidiary to Item 512.



CONCRETE TRAFFIC BARRIER (CTB)

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

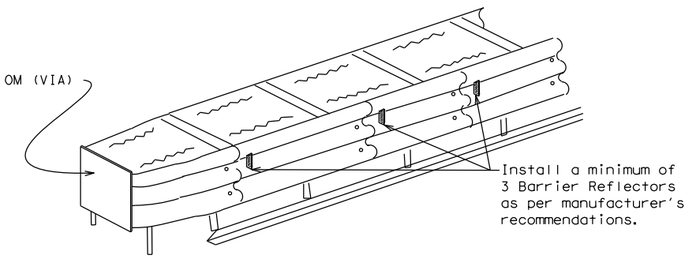


Max. spacing of barrier reflectors is 20 feet. Attach the delineators as per manufacturer's recommendations.

LOW PROFILE CONCRETE BARRIER (LPCB)

LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES

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

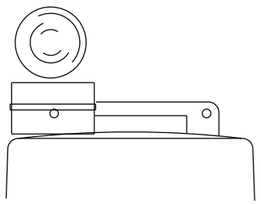


DELINEATION OF END TREATMENTS

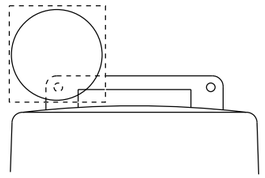
END TREATMENTS FOR CTB'S USED IN WORK ZONES

End treatments used on CTB's in work zones shall meet the apppropriate 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



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



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

WARNING LIGHTS

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

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

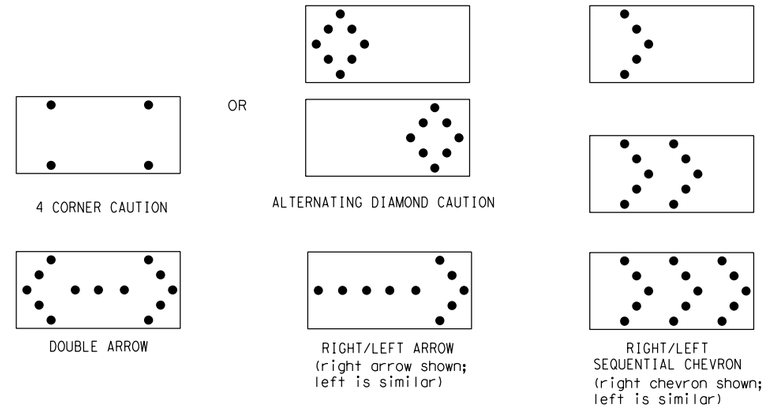
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing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

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

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

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

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



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

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

ATTENTION

Flashing Arrow Boards shall be equipped with automatic dimming devices.

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

FLASHING ARROW BOARDS

TRUCK-MOUNTED ATTENUATORS

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

Texas Department of Transportation

Traffic Safety Division Standard

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

BC(7)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0913	00	138	VARIOUS
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	YKM	DEWITT, ETC.		41

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GENERAL NOTES

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

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

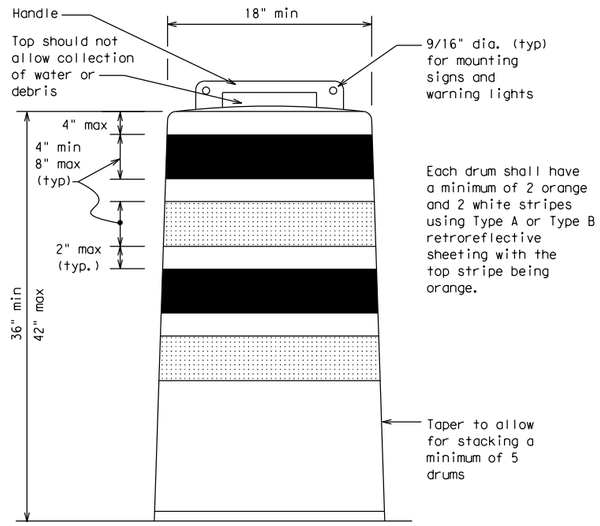
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents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

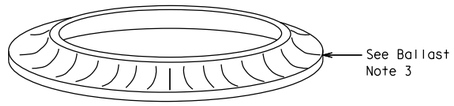
RETROREFLECTIVE SHEETING

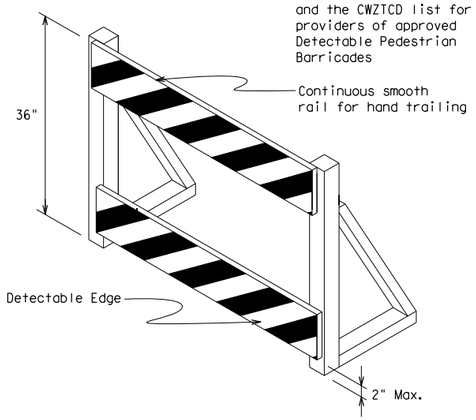
1. The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials," Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
2. The sheeting shall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

BALLAST

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

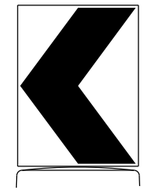




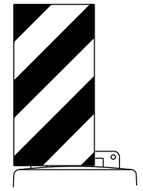


DETECTABLE PEDESTRIAN BARRICADES

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



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



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

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

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(8)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
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9-07 5-21	YKM	DEWITT, ETC.		42
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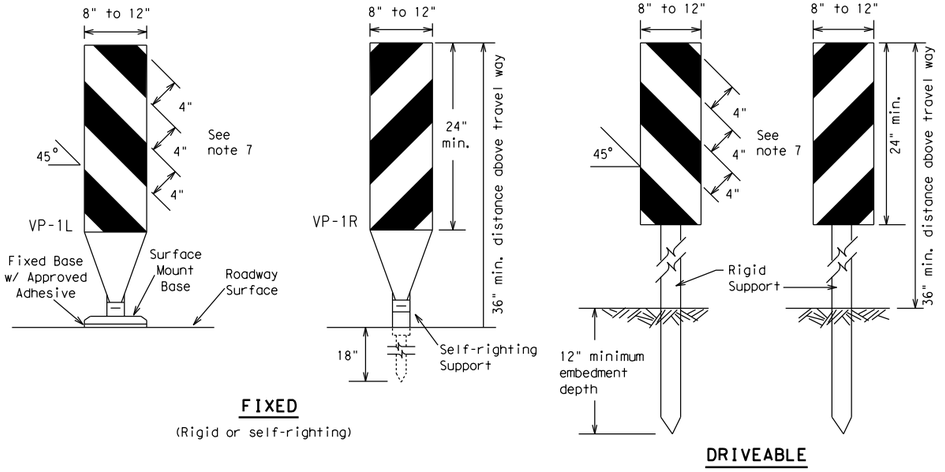
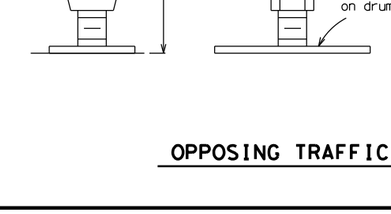


FIXED
(Rigid or self-righting)

DRIVEABLE

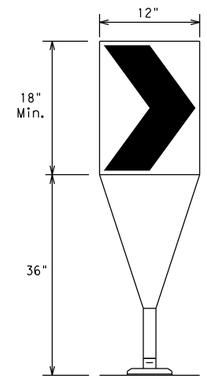


(Rigid or self-righting)

PORTABLE

VERTICAL PANELS (VPs)

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



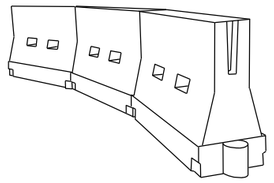
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

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

CHEVRONS

GENERAL NOTES

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



LONGITUDINAL CHANNELIZING DEVICES (LCD)

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

WATER BALLASTED SYSTEMS USED AS BARRIERS

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

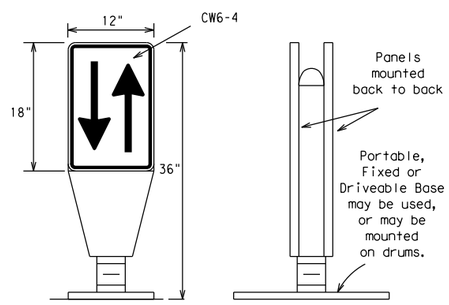
If used to channelize pedestrians, longitudinal channelizing devices or water ballasted systems must have a continuous detectable bottom for users of long canes and the top of the unit shall not be less than 32 inches in height.

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

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

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

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS



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

OPPOSING TRAFFIC LANE DIVIDERS (OTLD)

SHEET 9 OF 12

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
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103

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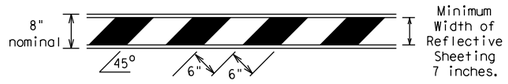
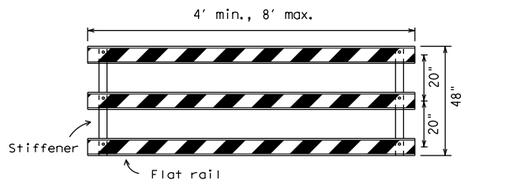
TYPE 3 BARRICADES

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.



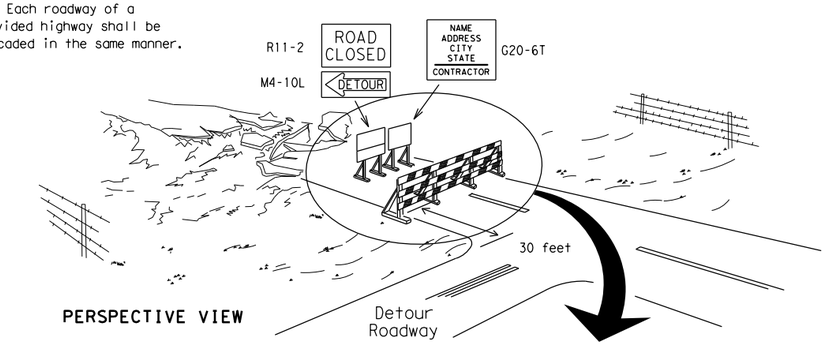
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

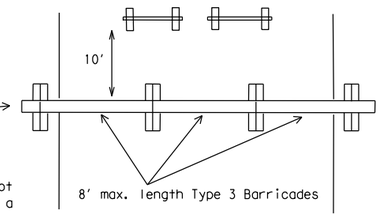
Each roadway of a divided highway shall be barricaded in the same manner.



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.

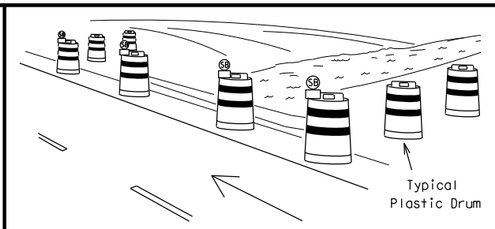
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

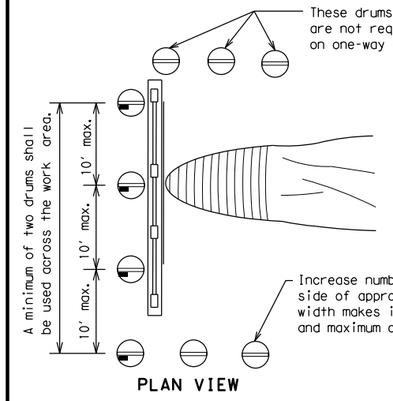
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

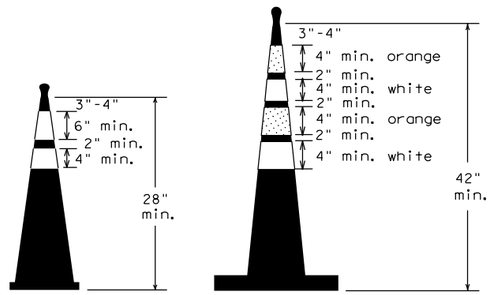
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder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



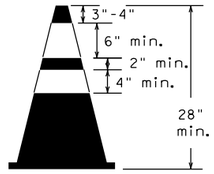
PLAN VIEW

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

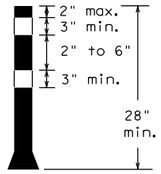
CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



Two-Piece cones



One-Piece cones

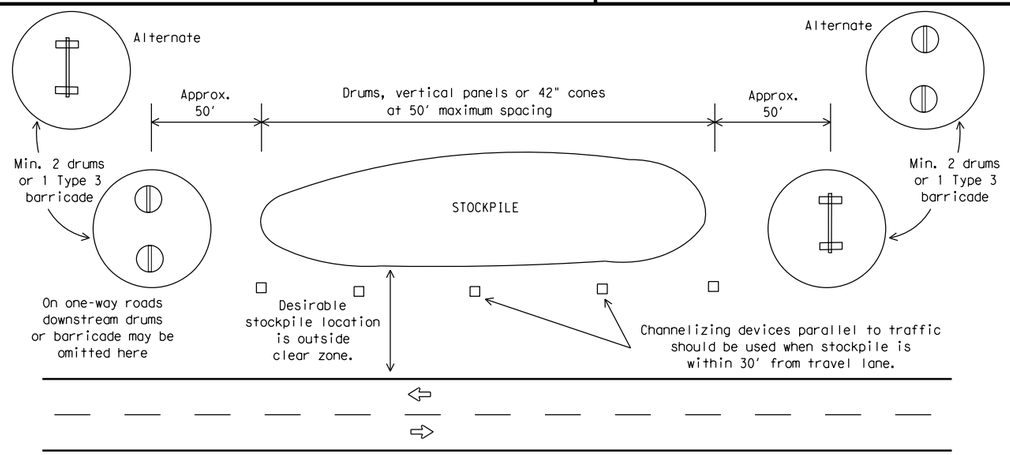


Tubular Marker

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

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

1. Traffic cones and tubular markers shall be predominantly orange, and meet the height and weight requirements shown above.
2. One-piece cones have the body and base of the cone molded in one consolidated unit. Two-piece cones have a cone shaped body and a separate rubber base, or ballast, that is added to keep the device upright and in place.
3. Two-piece cones may have a handle or loop extending up to 8" above the minimum height shown, in order to aid in retrieving the device.
4. Cones or tubular markers 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

SHEET 10 OF 12

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(10)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0913	00	138	VARIOUS
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	YKM	DEWITT, ETC.		44

104

DATE: 8/22/2024 12:06:46 PM
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WORK ZONE PAVEMENT MARKINGS

GENERAL

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

RAISED PAVEMENT MARKERS

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

PREFABRICATED PAVEMENT MARKINGS

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

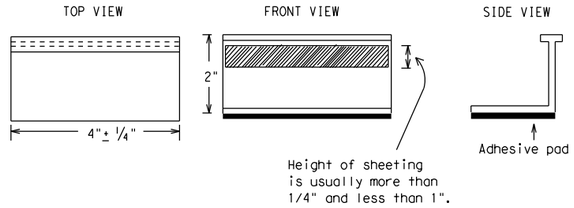
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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

REMOVAL OF PAVEMENT MARKINGS

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

Temporary Flexible-Reflective Roadway Marker Tabs



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

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

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

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

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

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

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

BC(11)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
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2-98 9-07 5-21	DIST	COUNTY		SHEET NO.
1-02 7-13	YKM	DEWITT, ETC.		45
11-02 8-14				

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DATE: 8/22/2024 12:06:46 PM
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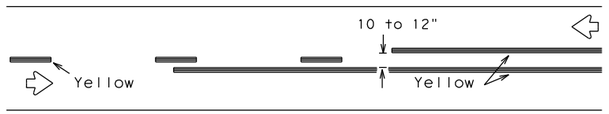
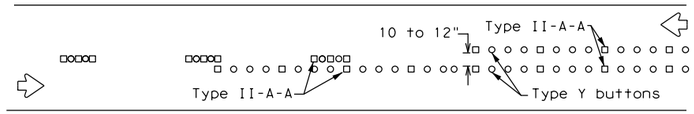
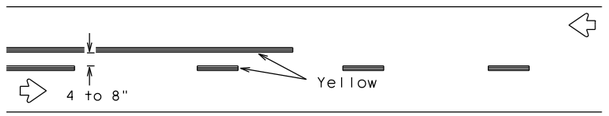
PAVEMENT MARKING PATTERNS



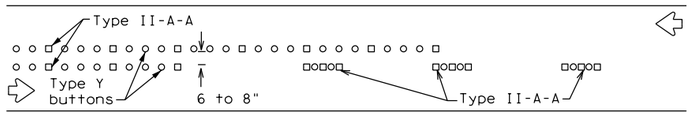
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



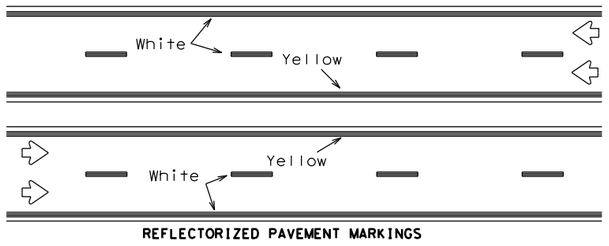
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



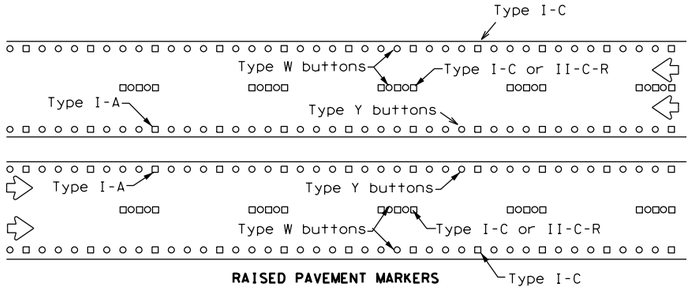
RAISED PAVEMENT MARKERS - PATTERN B

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

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



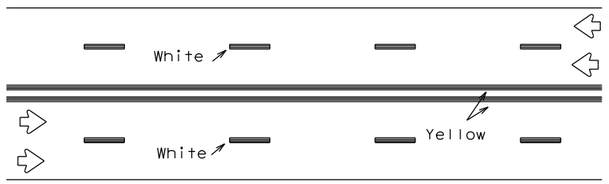
REFLECTORIZED PAVEMENT MARKINGS



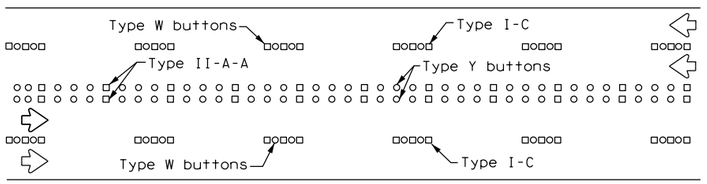
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



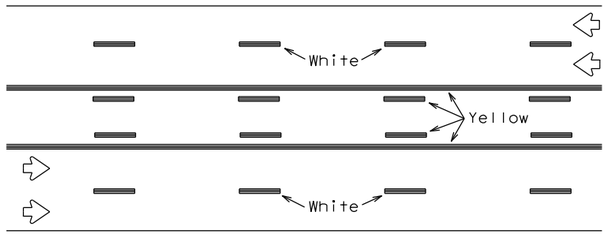
REFLECTORIZED PAVEMENT MARKINGS



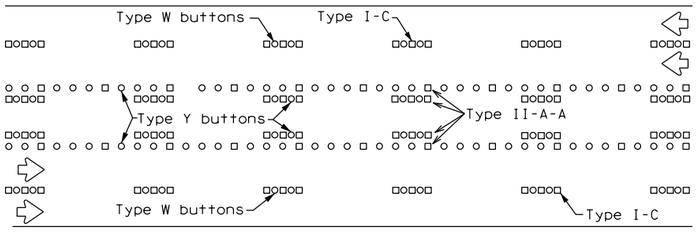
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

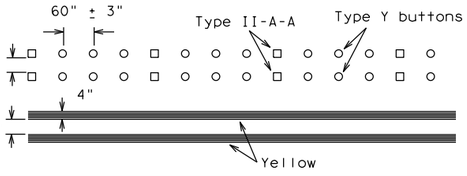
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

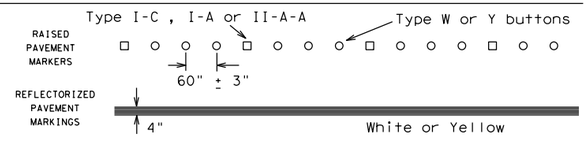
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

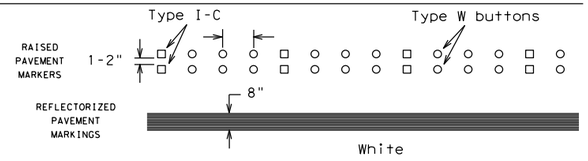


EDGE LINE OR SINGLE NO-PASSING LINE



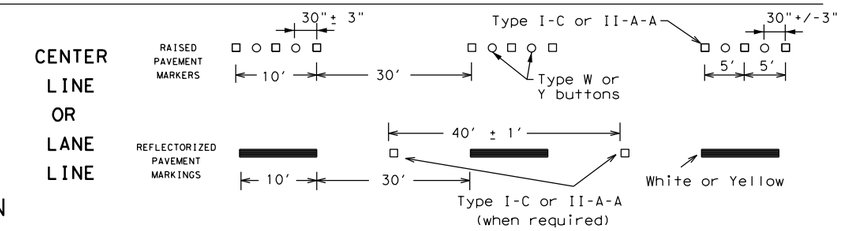
WIDE LINE

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

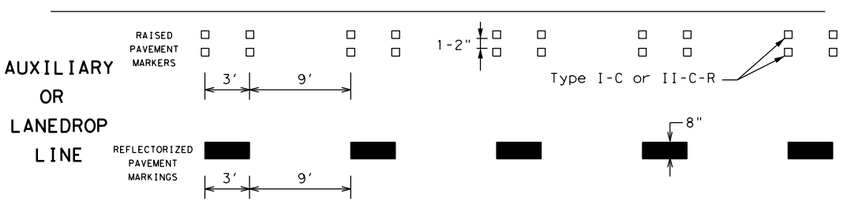


BROKEN LINES

CENTER LINE OR LANE LINE

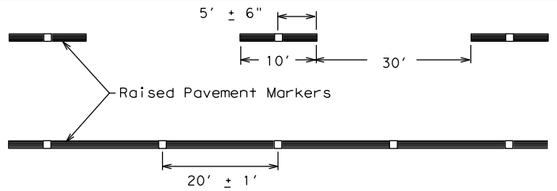


AUXILIARY OR LANEDROP LINE



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

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



Centerline only - not to be used on edge lines

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC(12)-21

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©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
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	DIST	COUNTY		SHEET NO.
	YKM	DEWITT, ETC.		46

106

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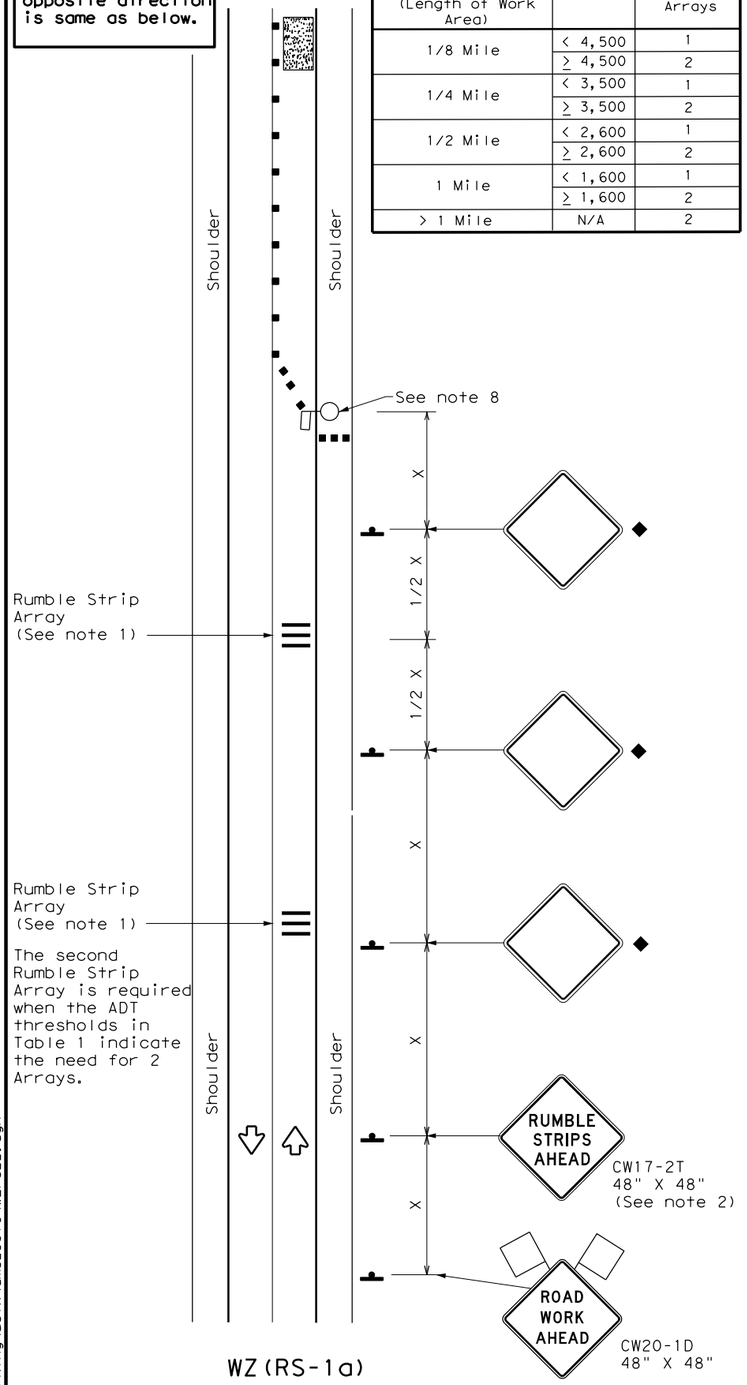
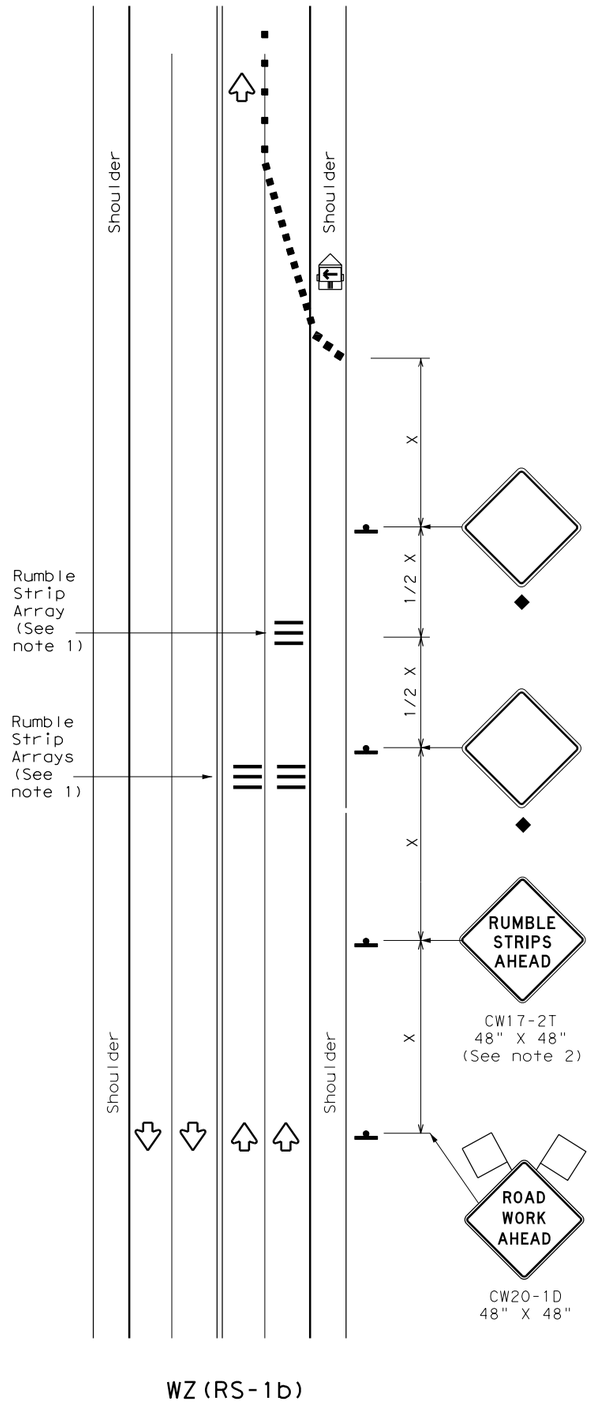
Warning sign and rumble strip sequence in opposite direction is same as below.

TABLE 1		
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



WZ(RS-1a)

RUMBLE STRIPS ON ONE-LANE TWO-WAY APPLICATION



WZ(RS-1b)

RUMBLE STRIPS FOR LANE CLOSURE ON CONVENTIONAL ROADWAY

GENERAL NOTES

1. 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.
2. 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.
3. Temporary Rumble Strips will be considered subsidiary to Item 502, and shall be a product listed on the Compliant Work Zone Traffic Control Devices.
4. Remove Temporary Rumble Strips before removing the advanced warning signs.
5. Temporary Rumble Strips should not be used on horizontal curves, loose gravel, soft or bleeding asphalt, heavily rutted pavements or unpaved surfaces.
6. Temporary Rumble Strips shall be installed and maintained as per manufacturer's recommendations.
7. This standard sheet shall be used in conjunction with other appropriate TCP standard, TMUTCD typical application or project specific detail for the project.
8. The one-lane two-way application may utilize a flagger, an Automated Flagger Assistance Device (AFAD) or a Portable Traffic Signal (PTS).
9. Replace defective Temporary Rumble Strips as directed by the Engineer.
10. Temporary Rumble Strips may be used on freeways or expressways based on engineering judgment and written direction from the Engineer.

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

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

* Conventional Roads Only

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

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

◆ 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.

TABLE 2	
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

FILE: wzrs22.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2012	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-14 1-22 4-16	0913	00	138	VARIOUS
	DIST	COUNTY		SHEET NO.
	YKM	DEWITT, ETC.		47

117

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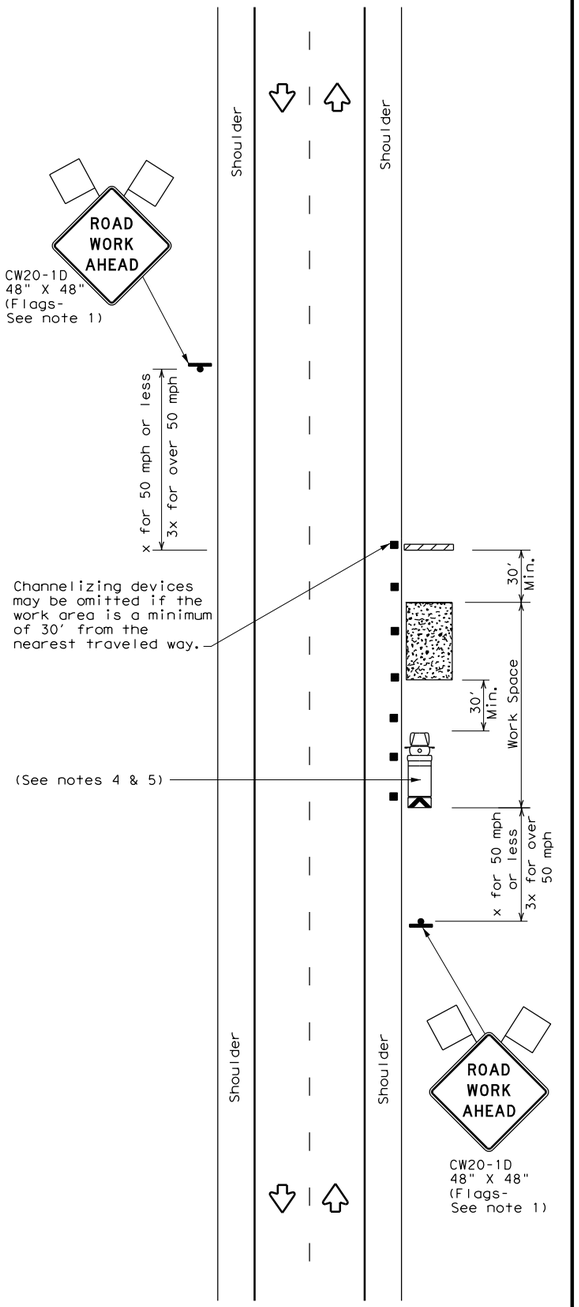
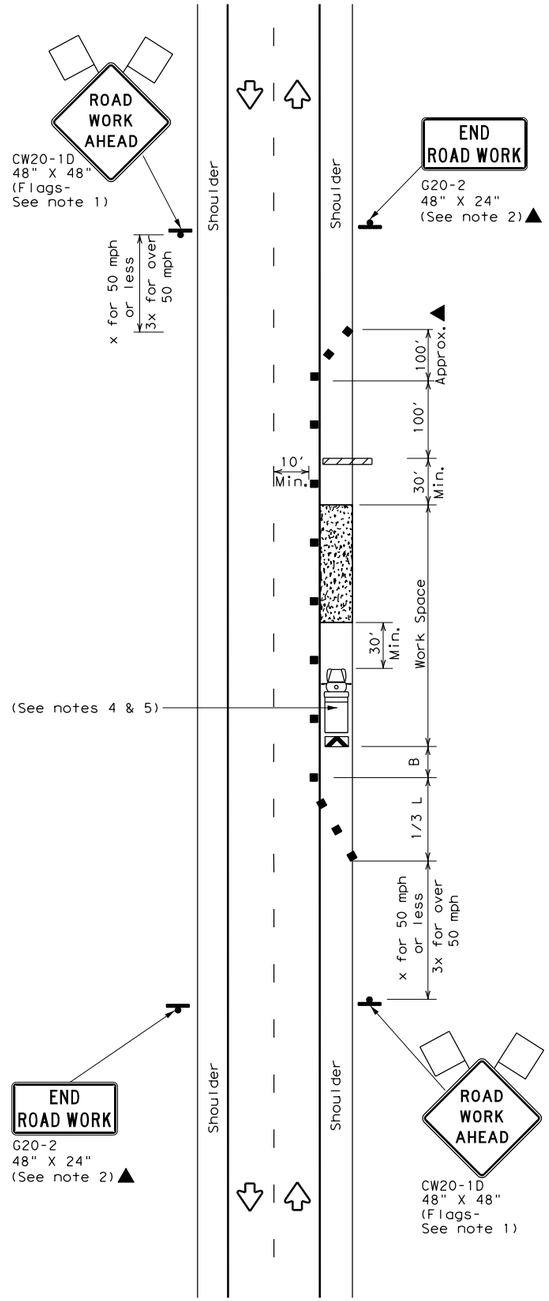


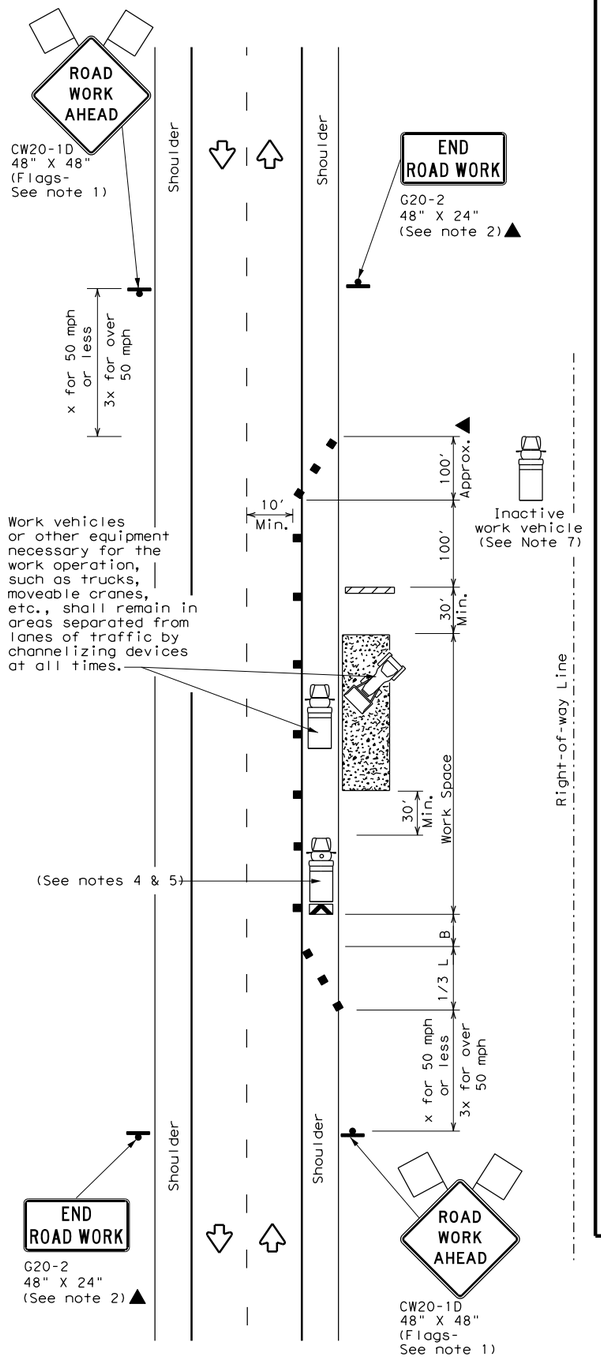
TCP (2-1a)

WORK SPACE NEAR SHOULDER
Conventional Roads



TCP (2-1b)

WORK SPACE ON SHOULDER
Conventional Roads



TCP (2-1c)

WORK VEHICLES ON SHOULDER
Conventional Roads

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

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

* Conventional Roads Only

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

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

GENERAL NOTES

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

Texas Department of Transportation — Traffic Operations Division Standard

TRAFFIC CONTROL PLAN CONVENTIONAL ROAD SHOULDER WORK

TCP(2-1)-18

FILE: tcp2-1-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-94 4-98 8-95 2-12 1-97 2-18	0913	00	138	VARIOUS
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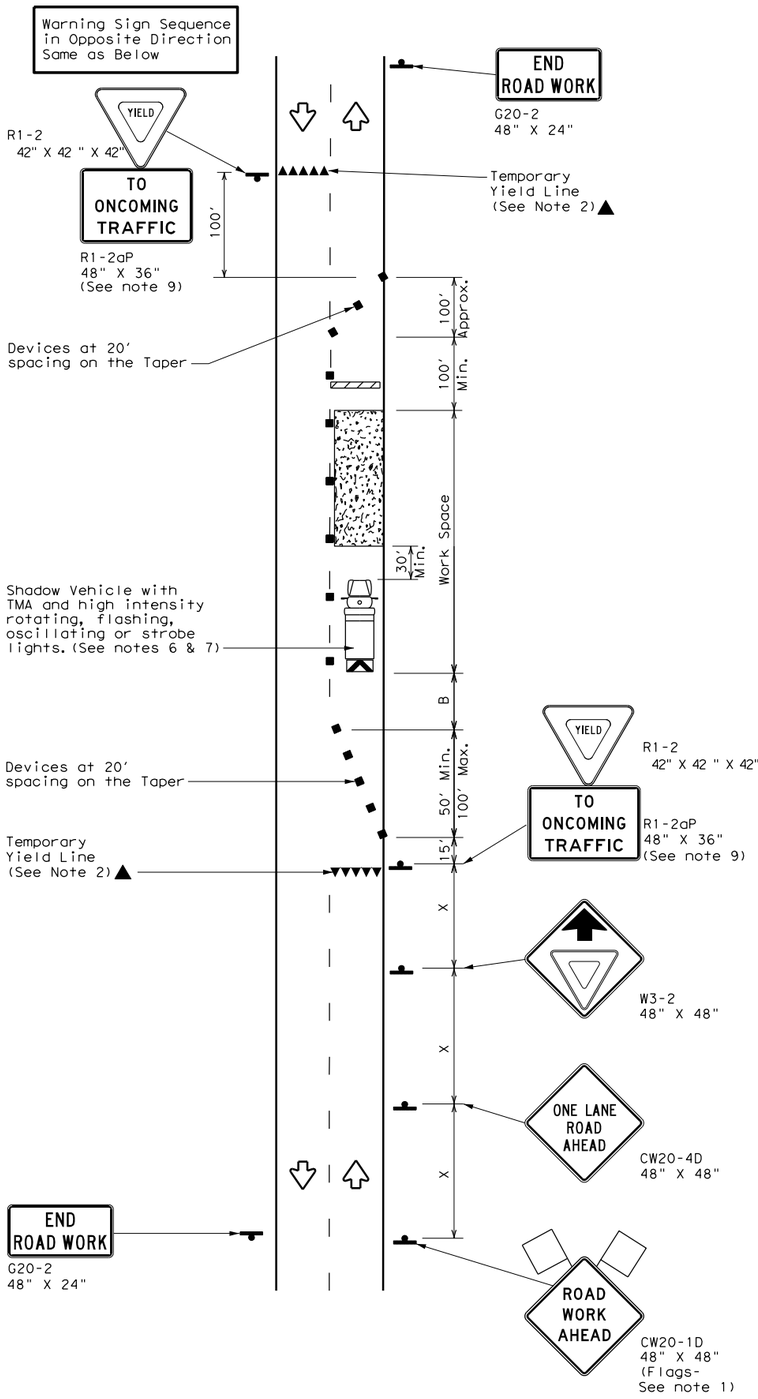
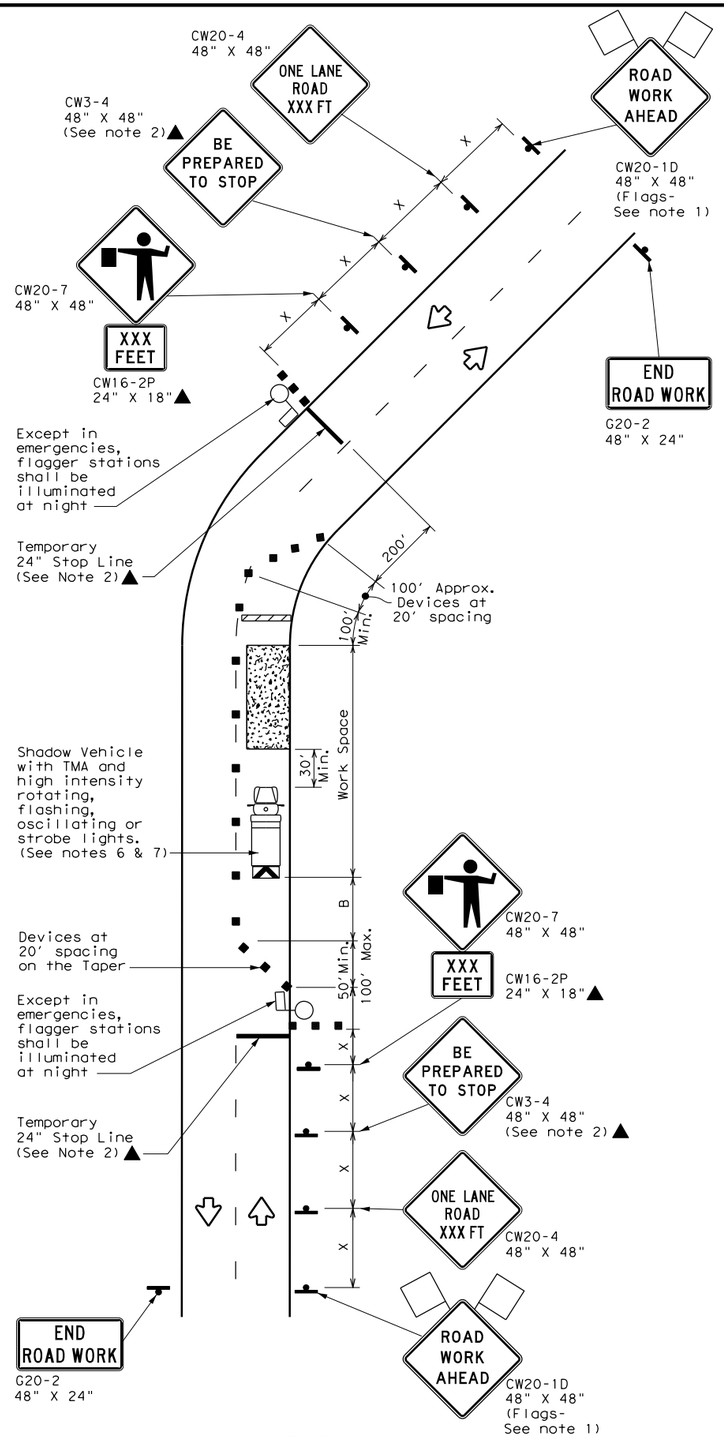
	YKM	DEWITT, ETC.		48



TCP (2-2a)
2-LANE ROADWAY WITHOUT PAVED SHOULDERS
ONE LANE TWO-WAY
CONTROL WITH YIELD SIGNS
(Less than 2000 ADT - See Note 9)



TCP (2-2b)
2-LANE ROADWAY WITHOUT PAVED SHOULDERS
ONE LANE TWO-WAY
CONTROL WITH FLAGGERS

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

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"	Stopping Sight Distance
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'	200'
35		205'	225'	245'	35'	70'	160'	120'	250'
40		265'	295'	320'	40'	80'	240'	155'	305'
45	L=WS	450'	495'	540'	45'	90'	320'	195'	360'
50		500'	550'	600'	50'	100'	400'	240'	425'
55		550'	605'	660'	55'	110'	500'	295'	495'
60		600'	660'	720'	60'	120'	600'	350'	570'
65		650'	715'	780'	65'	130'	700'	410'	645'
70		700'	770'	840'	70'	140'	800'	475'	730'
75		750'	825'	900'	75'	150'	900'	540'	820'

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

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

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. The CW3-4 "BE PREPARED TO STOP" sign may be installed after the CW20-4 "ONE LANE ROAD XXX FT" sign, but proper sign spacing shall be maintained.
4. Flaggers should use two-way radios or other methods of communication to control traffic.
5. Length of work space should be based on the ability of flaggers to communicate.
6. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
7. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.

TCP (2-2a)

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

TCP (2-2b)

10. Channelizing devices on the center line may be omitted when a pilot car is leading traffic and approved by the Engineer.
11. If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain stopping sight distance to the flagger and a queue of stopped vehicles. (See table above).
12. Flaggers should use 24" STOP/SLOW paddles to control traffic. Flags should be limited to emergency situtations.

Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
ONE-LANE TWO-WAY
TRAFFIC CONTROL

TCP(2-2)-18

FILE: tcp2-2-18.dgn	DN:	CK:	DW:	CK:
©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 3-03 1-97 2-12 4-98 2-18	0913	00	138	VARIOUS
	DIST	COUNTY		SHEET NO.
	YKM	DEWITT, ETC.		49

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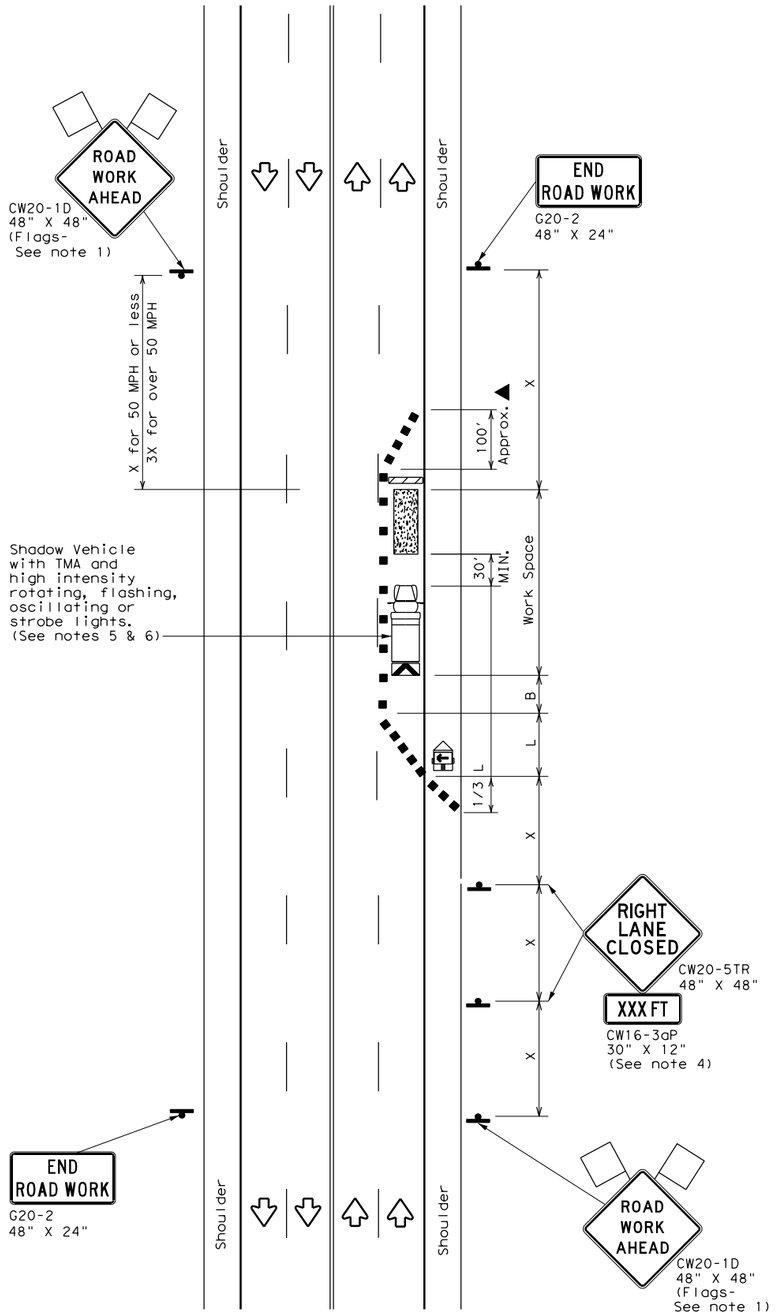
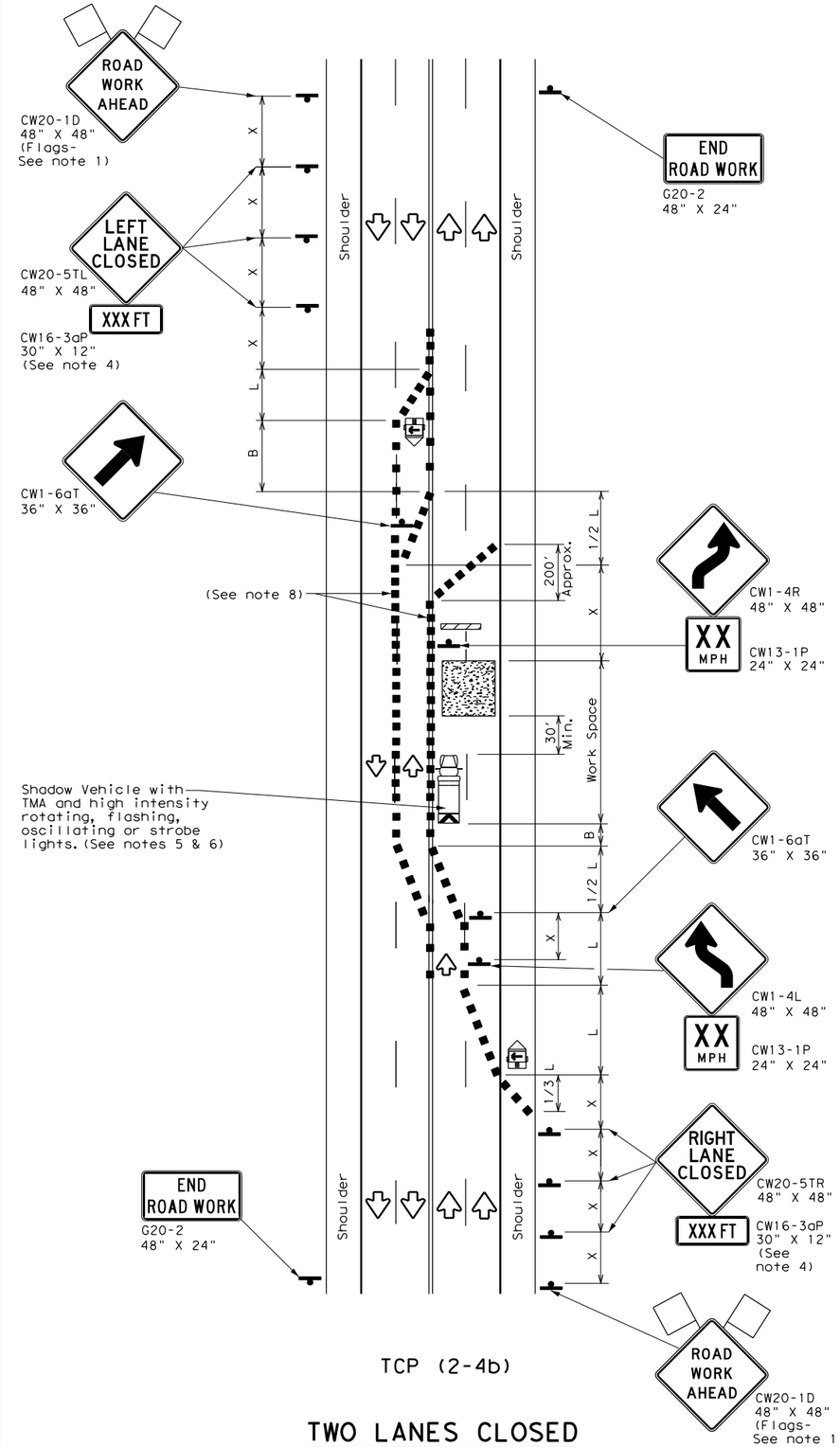


TCP (2-4a)

ONE LANE CLOSED



TCP (2-4b)

TWO LANES CLOSED

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

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

* Conventional Roads Only

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

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

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. The downstream taper is optional. When used, it should be 100 feet minimum length per lane.
4. For short term applications, when post mounted signs are not used, the distance legend may be shown on the sign face rather than on a CW16-3aP supplemental plaque.
5. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
6. Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.

TCP (2-4a)

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

TCP (2-4b)

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

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS

TCP(2-4)-18

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©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 3-03	0913	00	138	VARIOUS
1-97 2-12	DIST	COUNTY		SHEET NO.
4-98 2-18	YKM	DEWITT, ETC.		50

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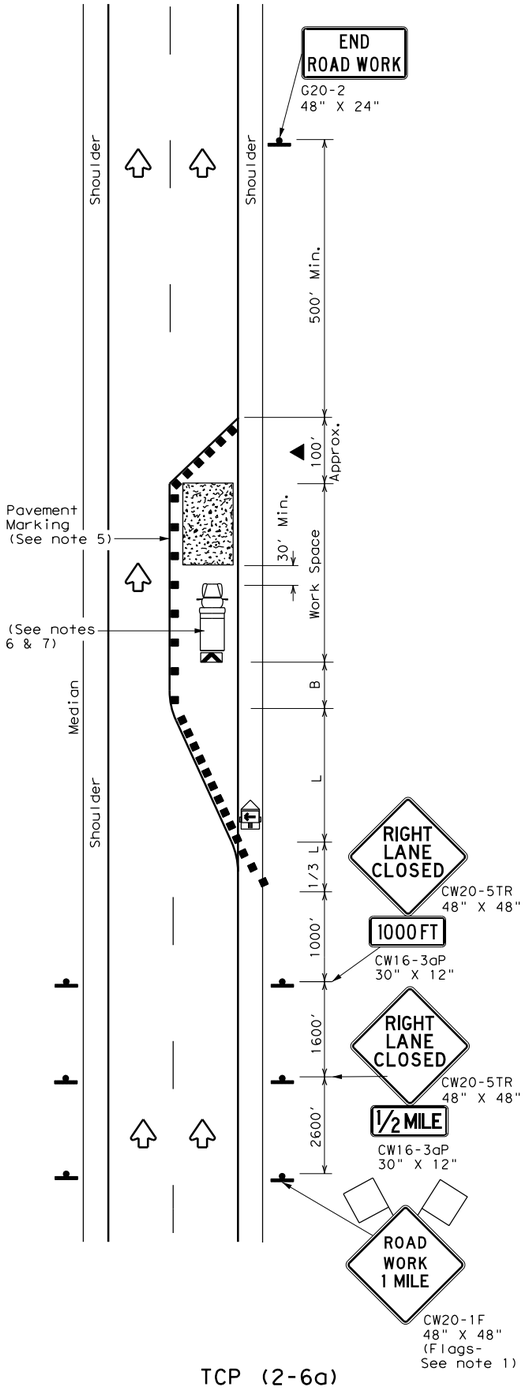
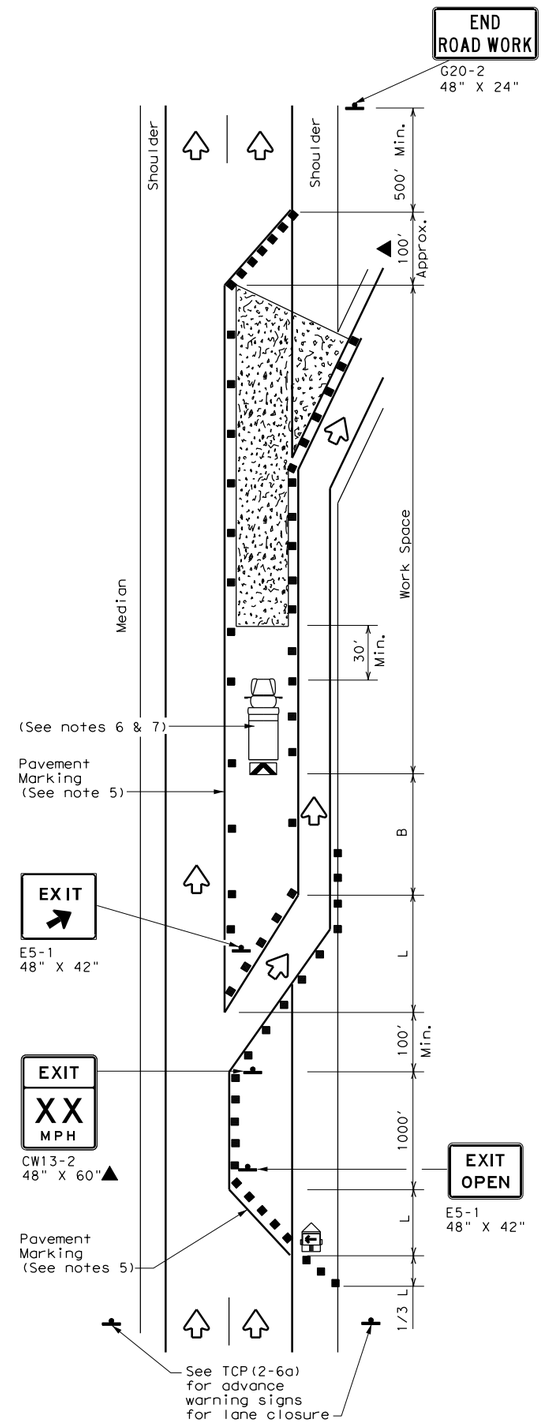


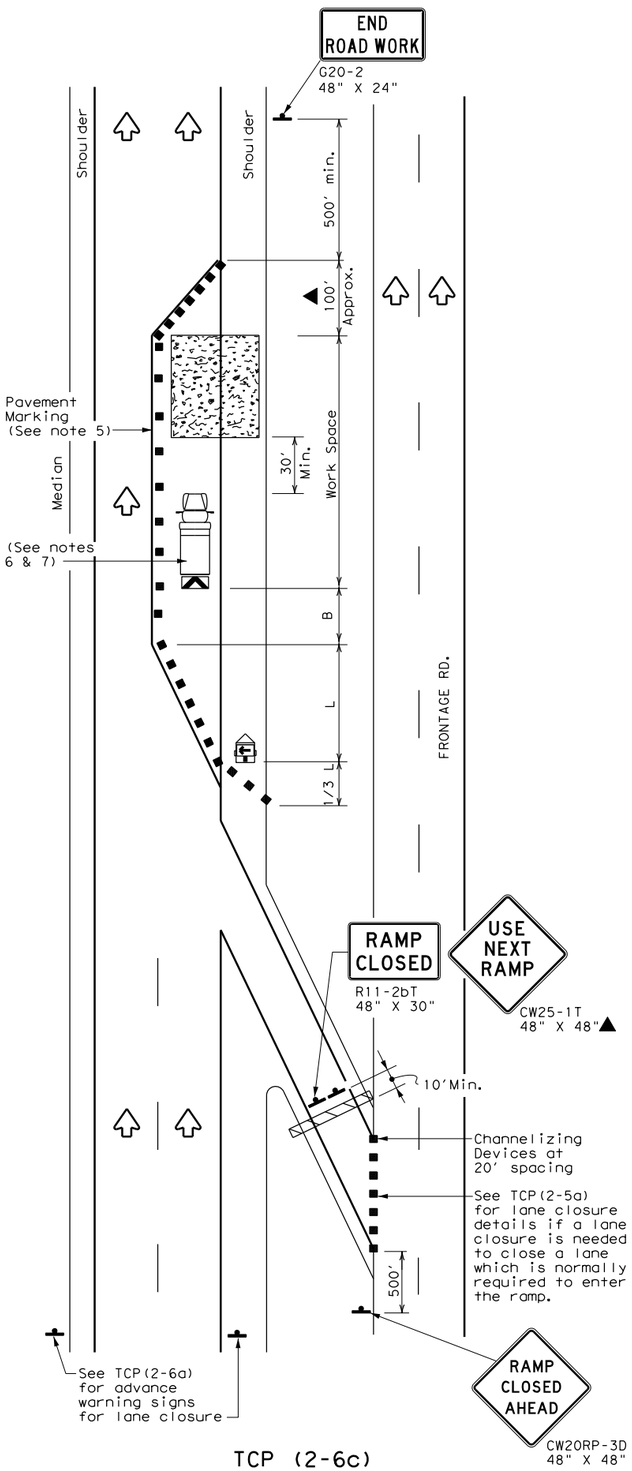
TCP (2-6a)

ONE LANE CLOSURE



TCP (2-6b)

LANE CLOSURE NEAR EXIT RAMPS



TCP (2-6c)

LANE CLOSURE NEAR ENTRANCE RAMPS

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

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

* Conventional Roads Only

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

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

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. Channelizing devices used to close lanes may be supplemented with the Chevron Alignment Sign placed on every other channelizing device. Chevrons may be attached to plastic drums as per BC Standards.
4. Channelizing devices used along the work space or along tangent sections may be supplemented with vertical panels (VP) placed on everyother channelizing device. If night time conditions make it difficult to see at least two VPs, the VPs may be placed on each channelizing device.
5. The placement of pavement markings may be omitted on Intermediate-term stationary work zones with the approval of the Engineer.
6. Shadow Vehicle with TMA and high intensity rotating, flashing,oscillating or strobe lights. Shadow Vehicle with TMA and high intensity rotating, flashing, oscillating or strobe lights. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
7. Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES ON DIVIDED HIGHWAYS

TCP(2-6)-18

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© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
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	DIST	COUNTY		SHEET NO.
	YKM	DEWITT, ETC.		51

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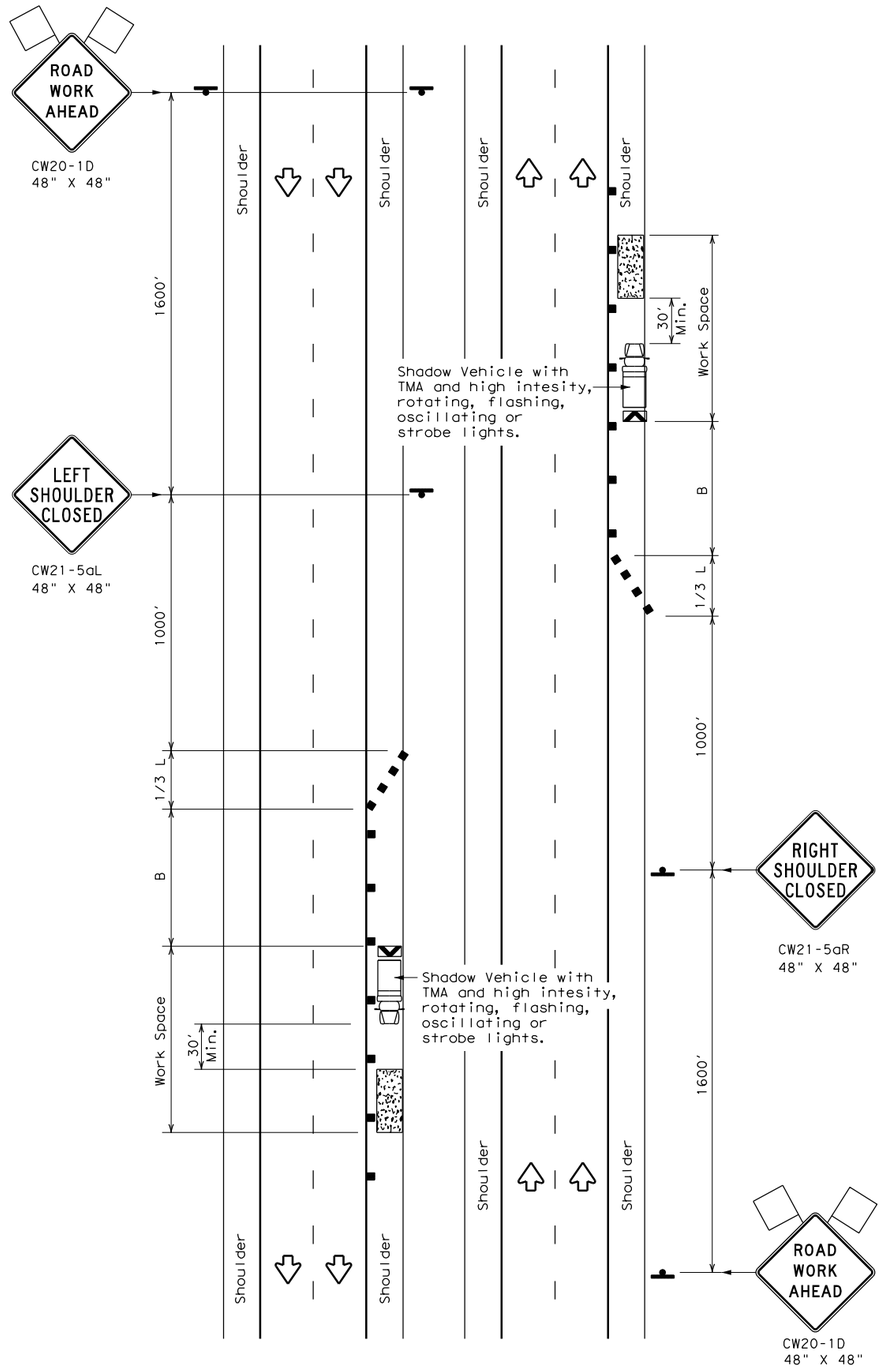
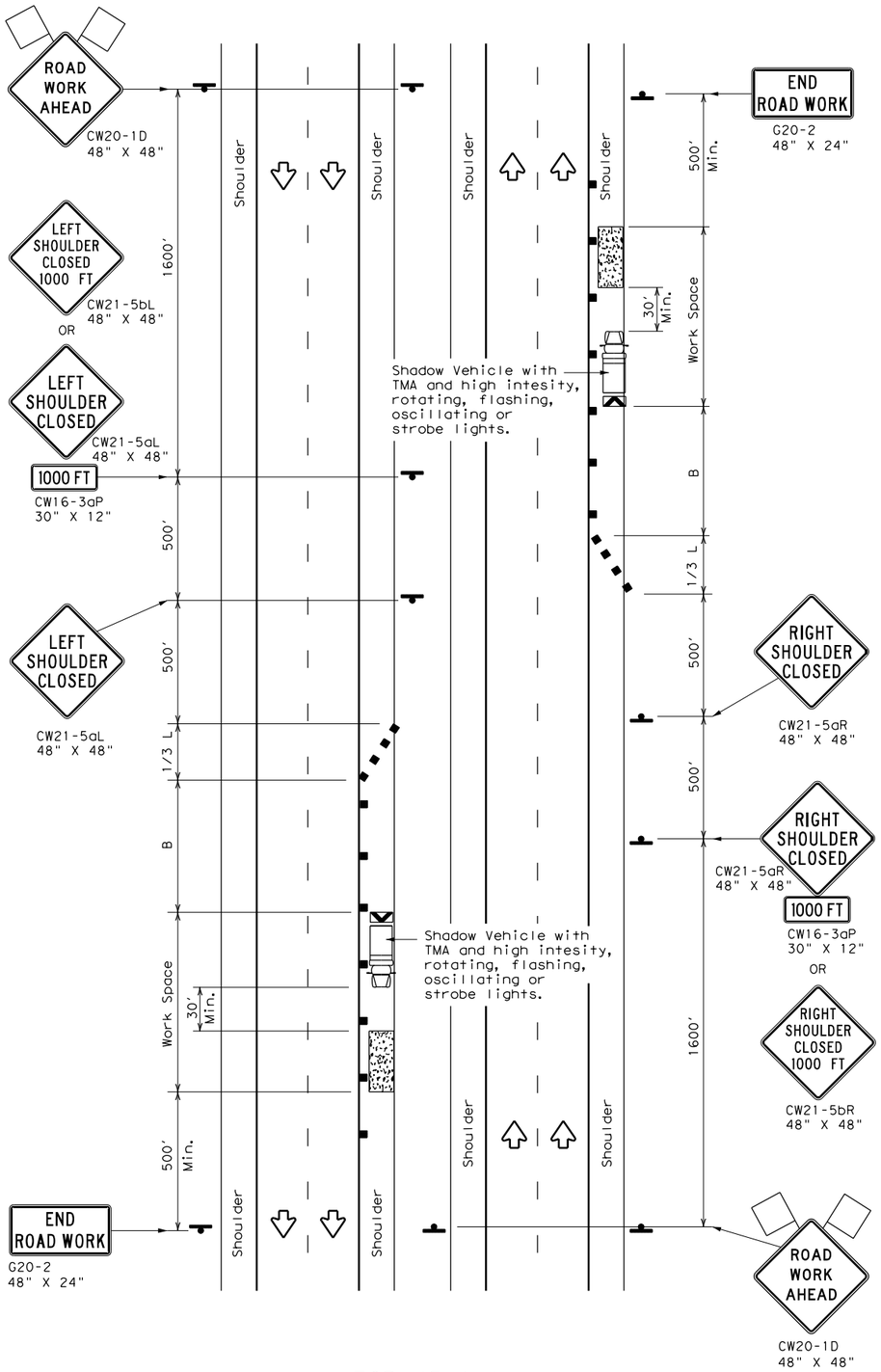


TCP (5-1a)

WORK AREA ON SHOULDER



TCP (5-1b)

WORK AREA ON SHOULDER

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

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent	Suggested Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'	90'
35		205'	225'	245'	35'	70'	120'
40		265'	295'	320'	40'	80'	155'
45	L=WS	450'	495'	540'	45'	90'	195'
50		500'	550'	600'	50'	100'	240'
55		550'	605'	660'	55'	110'	295'
60		600'	660'	720'	60'	120'	350'
65		650'	715'	780'	65'	130'	410'
70		700'	770'	840'	70'	140'	475'
75		750'	825'	900'	75'	150'	540'
80		800'	880'	960'	80'	160'	615'

* 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
	TCP(5-1a)	TCP(5-1b)	TCP(5-1b)	

GENERAL NOTES

1. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30' to 100' in advance of the area of crew exposure without adversely effecting the performance or quality of the work. Type 3 barricades or drums may be substituted when workers on foot are no longer present when approved by the Engineer.
2. 28" tall or taller one-piece cones will be allowed only for Short Duration or Short Term stationary operations when workers are present to maintain the devices upright and in proper location. Intermediate Term stationary work areas should use Drums, Vertical Panels or 42" tall two-piece cones.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN SHOULDER WORK FOR FREEWAYS / EXPRESSWAYS

TCP(5-1)-18

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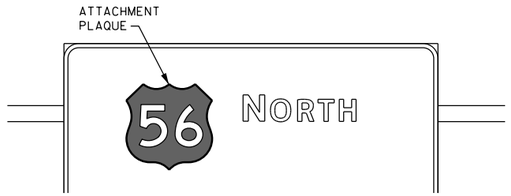
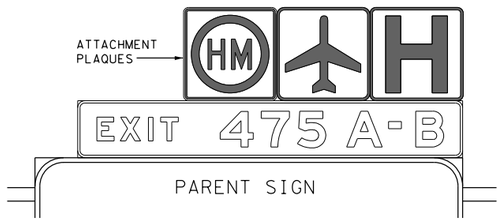
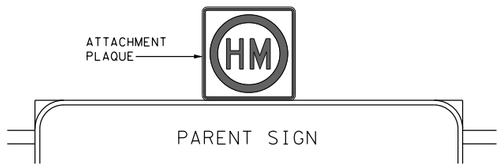
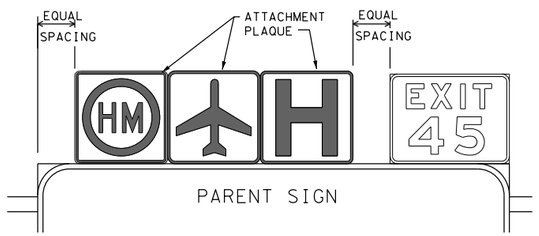
©TxDOT February 2012	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-18	0913	00	138	VARIOUS
	DIST	COUNTY		SHEET NO.
	YKM	DEWITT, ETC.		52

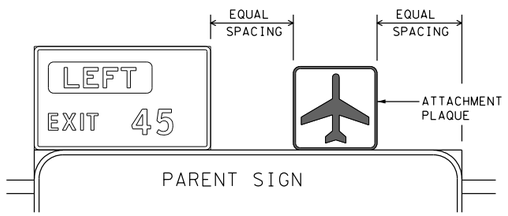
REQUIREMENTS FOR ATTACHMENTS TO OVERHEAD AND LARGE GROUND MOUNTED SIGNS











TYPICAL EXAMPLES

DEPARTMENTAL MATERIAL SPECIFICATIONS	
ALUMINUM SIGN BLANKS	DMS-7110
SIGN FACE MATERIALS	DMS-8300

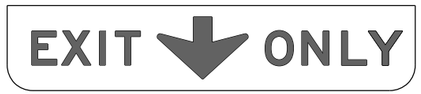
SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	ALL	TYPE B OR C SHEETING
LEGEND & BORDERS	BLACK	ACRYLIC NON-REFLECTIVE FILM
LEGEND & BORDERS	ALL OTHERS	TYPE B OR C SHEETING

GENERAL NOTES

1. Signs to be furnished shall be as detailed elsewhere in the plans and/or as shown on sign tabulation sheet. Standard sign designs and arrow dimensions can be found in the "Standard Highway Sign Designs for Texas" (SHSD).
2. Route Marker legends (ie. IH, US, SH and FM shields) shall use the Federal Highway Administration (FHWA) Standard Highway Alphabets (B, C, D, E, Emod, or F).
3. Lateral spacing between letters and numerals shall conform with the SHSD, and any approved changes thereto. Lateral spacing of legend shall provide a balanced appearance when spacing is not shown.
4. Black legend and borders shall be applied by screening process or cut-out acrylic non-reflective black film to background sheeting, or combination thereof.
5. White legend and borders shall be applied by screening process with transparent colored ink, transparent colored overlay film to white background sheeting or cut-out white sheeting to colored background sheeting, or combination thereof.
6. Colored legend and borders shall be applied by screening process with transparent colored ink, transparent colored overlay film or colored sheeting to white background sheeting, or combination thereof.
7. Route markers and other attachments within the parent sign face shall be direct applied unless otherwise specified in the plans. Attachments not direct applied shall use 0.063 inch thick one piece sheet aluminum signs (Type A).
8. General Service Plaques shall be 0.080 inch thick and Routing Plaques shall be 0.100 inch thick.
9. The priority for Routing Plaques shall be (left to right) Hazardous Material, Airport then Hospital. See examples for mounting location.
10. Mounting details of attachments to parent signs face are shown on Standard Plan Sheet TSR(5). Mounting details of sign plaque attachments above and below parent sign are shown in the "SMD series" Standard Plan Sheets.
11. Plaques shall be horizontally centered at the top of the parent sign. If an exit number panel exists, the plaque shall be centered between the edge of the parent sign and the edge of the exit number panel. The plaque may be placed above the exit number panel when there is insufficient space.

TYPICAL EXAMPLES

REQUIREMENTS FOR EXIT ONLY AND LEFT EXIT PANELS



TYPICAL EXAMPLES

DEPARTMENTAL MATERIAL SPECIFICATIONS	
ALUMINUM SIGN BLANKS	DMS-7110
SIGN FACE MATERIALS	DMS-8300

SHEETING REQUIREMENTS FOR OVERHEAD EXIT PANELS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	FLUORESCENT YELLOW	TYPE B_{FL} OR C_{FL} SHEETING
LEGEND	BLACK	ACRYLIC NON-REFLECTIVE FILM

GENERAL NOTES

1. Signs to be furnished shall be as detailed elsewhere in the plans and/or as shown on sign tabulation sheet. Standard sign designs and arrow dimensions can be found in the "Standard Highway Sign Designs for Texas" (SHSD). Individual panel sizes shown in the plans may be adjusted to fit actual parent sign sizes if necessary.
2. Exit Panel legend shall use the Federal Highway Administration (FHWA)Standard Highway Alphabets E Series.
3. Lateral spacing between letters and numerals shall conform with the SHSD, and any approved changes thereto. Lateral spacing of legend shall provide a balanced appearance when spacing is not shown.
4. Black legend shall be applied by screening process or cut-out acrylic non-reflective black film to yellow background sheeting, or combination thereof.
5. Exit Only and Left Exit panels within the parent sign face shall be direct applied unless otherwise specified in the plans. Panels not direct applied shall use 0.063 inch thick one piece sheet aluminum signs (Type A).
6. Mounting details of Exit Only and Left Exit panel attachments to parent signs face are shown on Standard Plan Sheet TSR(5).

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.

http://www.txdot.gov/

Texas Department of Transportation

Traffic Operations Division Standard

TYPICAL SIGN REQUIREMENTS

TSR(2)-13

FILE: tsr2-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2003	CONT	SECT	JOB	HIGHWAY
REVISIONS	0913	00	138	VARIOUS
12-03 7-13	DIST	COUNTY		SHEET NO.
9-08	YKM	DEWITT, ETC.		53

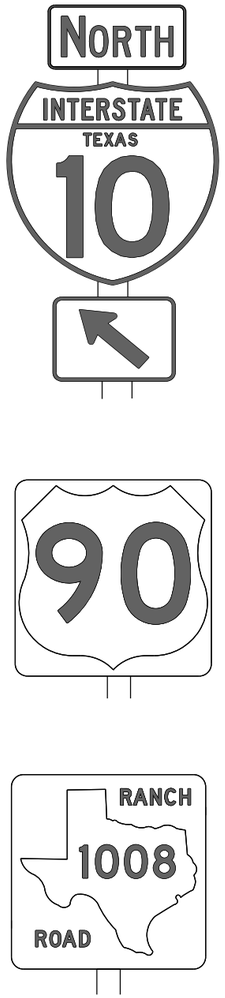
2

DATE: 8/22/2024 12:07:55 PM
FILE: c:\pwworking\ustx\dms25294\tsr2-13.dgn

DATE: 8/22/2024 12:08:06 PM
FILE: c:\pwworking\us1fx\dms25294\tsr3-13.dgn

REQUIREMENTS FOR INDEPENDENT MOUNTED ROUTE SIGNS

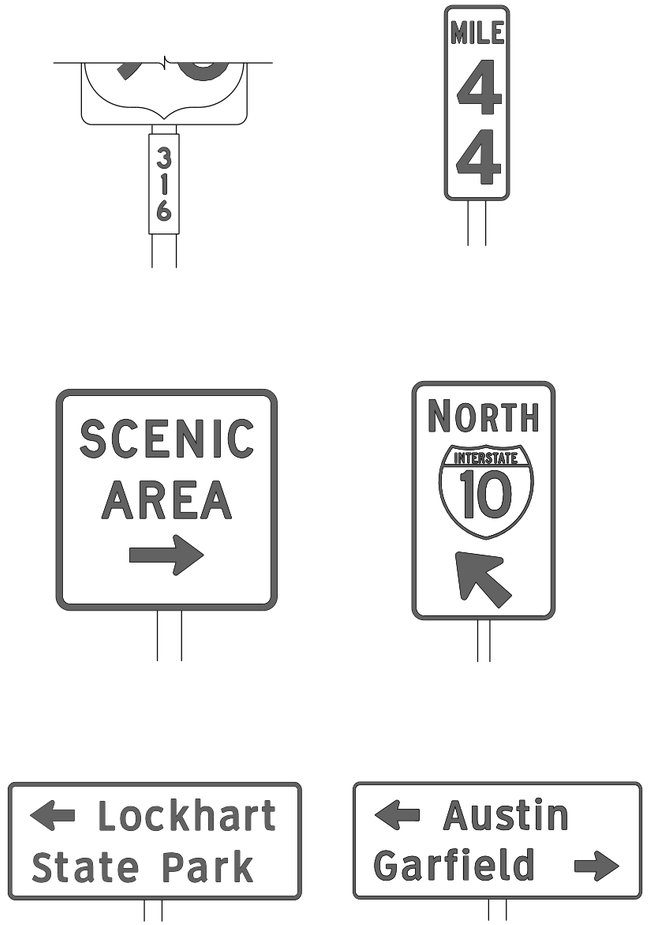
SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	WHITE	TYPE A SHEETING
BACKGROUND	ALL OTHERS	TYPE B OR C SHEETING
LEGEND & BORDERS	WHITE	TYPE A SHEETING
LEGEND & BORDERS	BLACK	ACRYLIC NON-REFLECTIVE FILM
LEGEND & BORDERS	ALL OTHERS	TYPE B or C SHEETING



TYPICAL EXAMPLES

REQUIREMENTS FOR BLUE, BROWN & GREEN D AND I SERIES GUIDE SIGNS

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	ALL	TYPE B OR C SHEETING
LEGEND & BORDERS	WHITE	TYPE D SHEETING
LEGEND, SYMBOLS & BORDERS	ALL OTHERS	TYPE B OR C SHEETING



TYPICAL EXAMPLES

GENERAL NOTES

1. Signs to be furnished shall be as detailed elsewhere in the plans and/or as shown on sign tabulation sheet. Standard sign designs and arrow dimensions can be found in the "Standard Highway Sign Designs for Texas" (SHSD).

2. White legend shall use the Clearview Alphabet. The following Clearview fonts shall be used to replace the existing white Federal Highway Administration (FHWA) Standard Highway Alphabets, when not specified in the SHSD, or in the plans.

B	CV-1W
C	CV-2W
D	CV-3W
E	CV-4W
Emod	CV-5WR
F	CV-6W

3. Route sign legend (ie. IH, US, SH and FM shields) shall use the Federal Highway Administration (FHWA) Standard Highway Alphabets B, C, D, E, Emod or F).

4. Lateral spacing between letters and numerals shall conform with the SHSD, and any approved changes thereto. Lateral spacing of legend shall provide a balanced appearance when spacing is not shown.

5. Independent mounted route sign with white or colored legend and borders shall be applied by screening process with transparent color ink, transparent colored overlay film to white background sheeting or cut-out white sheeting to colored background sheeting, or combination thereof. White legend, symbols and borders on all other signs shall be cut-out white sheeting applied to colored background sheeting.

6. Information regarding borders and radii for signs is found in the "Standard Highway Sign Designs for Texas". Dimensions shown and described for borders and corner radii on parent sign are nominal. Borders may vary in width as much as 1/2 inch. Corner radii above 3 inches may vary in width as much as 1 inch. Borders and corner radii within a parent sign must be of matching widths. The sign area outside the corner radius should be trimmed or rounded.

7. Sign substrate shall be any material that meets the Departmental Material Specification requirements of DMS-7110 or approved alternative.

8. Mounting details of roadside signs are shown in the "SMD series" Standard Plan Sheets.

DEPARTMENTAL MATERIAL SPECIFICATIONS	
ALUMINUM SIGN BLANKS	DMS-7110
SIGN FACE MATERIALS	DMS-8300

ALUMINUM SIGN BLANKS THICKNESS	
Square Feet	Minimum Thickness
Less than 7.5	0.080
7.5 to 15	0.100
Greater than 15	0.125

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.

http://www.txdot.gov/

Texas Department of Transportation

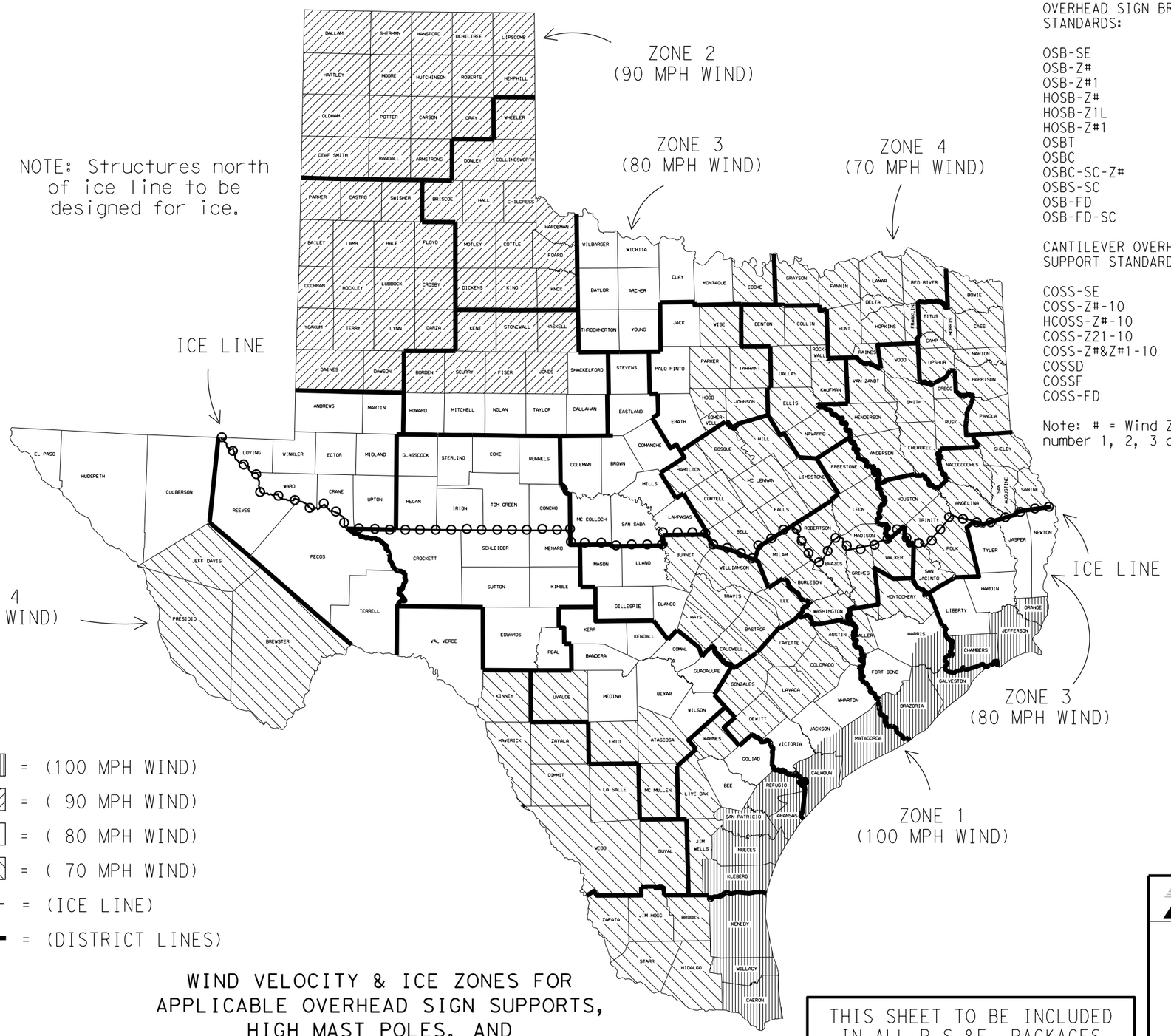
Traffic Operations Division Standard

TYPICAL SIGN REQUIREMENTS

TSR(3)-13

FILE: tsr3-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2003	CONT	SECT	JOB	HIGHWAY
REVISIONS	0913	00	138	VARIOUS
12-03 7-13	DIST	COUNTY		SHEET NO.
9-08	YKM	DEWITT, ETC.		54

3



APPLICABLE STANDARDS SHEETS

OVERHEAD SIGN BRIDGE STANDARDS:

OSB-SE
OSB-Z#
OSB-Z#1
HOSB-Z#
HOSB-Z1L
HOSB-Z#1
OSBT
OSBC
OSBC-SC-Z#
OSBS-SC
OSB-FD
OSB-FD-SC

CANTILEVER OVERHEAD SIGN SUPPORT STANDARDS:

COSS-SE
COSS-Z#-10
HCOSS-Z#-10
COSS-Z21-10
COSS-Z#&Z#1-10
COSSD
COSSF
COSS-FD

Note: # = Wind Zone number 1, 2, 3 or 4

HIGH MAST ILLUMINATION POLE STANDARDS:

HMIP-98
HMIF-98

WALKWAYS AND BRACKETS STANDARDS:

SWW
SB(SWL-1)

TRAFFIC SIGNAL POLE STANDARDS:

SP-80
SP-100
SMA-80
SMA-100
DMA-80
DMA-100
MA-C
MAC(ILSN)
MAD-D
TS-FD
LUM-A
CFA
LMA
TS-C
MA-DPD

FOR HARRIS CO. ONLY
Zone line is just North of US 90, around on the North, West and South sides of IH 610 and down the West side of SH 288.

FOR JACKSON CO. ONLY
Zone line is just North of SH 616.

LEGEND

ZONE 1 - = (100 MPH WIND)
ZONE 2 - = (90 MPH WIND)
ZONE 3 - = (80 MPH WIND)
ZONE 4 - = (70 MPH WIND)
= (ICE LINE)
= (DISTRICT LINES)

WIND VELOCITY & ICE ZONES FOR APPLICABLE OVERHEAD SIGN SUPPORTS, HIGH MAST POLES, AND TRAFFIC SIGNAL POLES

Based on 50 Year Mean Recurrence Interval of Fastest Mile Wind Velocity at 33 feet height.

THIS SHEET TO BE INCLUDED IN ALL P.S.&E. PACKAGES CONTAINING ONE OR MORE OF THE APPLICABLE STANDARD SHEETS LISTED HEREON

Texas Department of Transportation

Traffic Operations Division Standard

WIND VELOCITY AND ICE ZONES

WV & IZ-14

FILE: windice.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 1996	CONT	SECT	JOB	HIGHWAY
REVISIONS	0913	00	138	VARIOUS
8-14-Added list of applicable standards, restricting use to structures designed for Fastest Mile wind speeds.	DIST	COUNTY		SHEET NO.
	YKM	DEWITT, ETC.		55

DATE: 8/22/2024 12:08:13 PM
FILE: c:\pwworking\ustx\dms25294\windice.dgn

SIGN SUPPORT DESCRIPTIVE CODES

(Descriptive Codes correspond to project estimate and quantities sheets)

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

Post Type

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

Number of Posts (1 or 2)

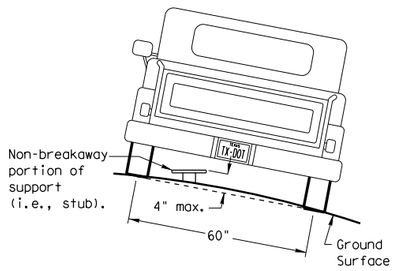
Anchor Type

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

Sign Mounting Designation

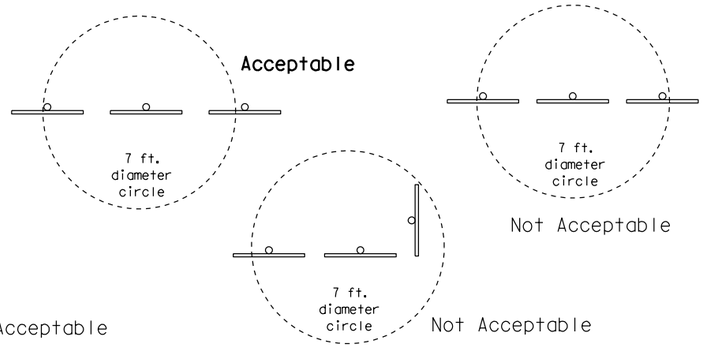
P = Prefab. "Plain" (see SMD(SLIP-1) to (SLIP-3), (TWT), (FRP))
T = Prefab. "T" (see SMD(SLIP-1) to (SLIP-3), (TWT))
U = Prefab. "U" (see SMD(SLIP-1) to (SLIP-3))
IF REQUIRED
1EXT or 2EXT = Number of Extensions (see SMD(SLIP-1) to (SLIP-3), (TWT))
BM = Extruded Wind Beam (see SMD(SLIP-1) to (SLIP-3))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

REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



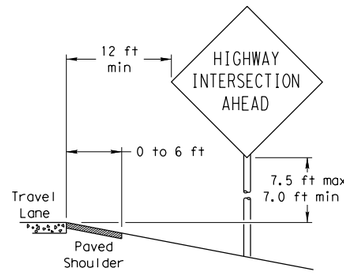
To avoid vehicle undercarriage snagging, any substantial remains of a breakaway support, when it is broken away, should not project more than 4 inches above a 60-inch chord (i.e., typical space between wheel paths).

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



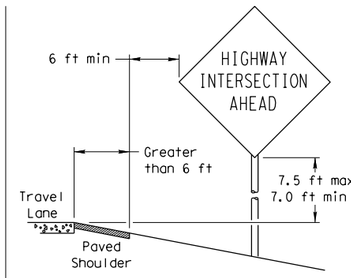
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

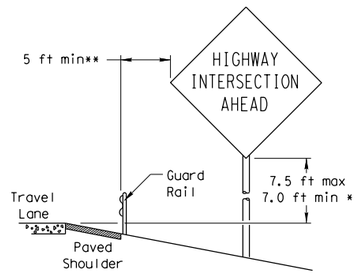
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.



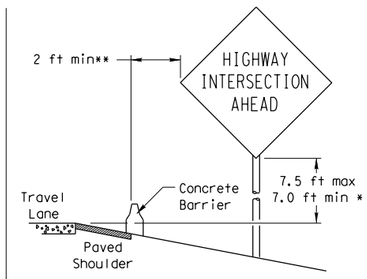
GREATER THAN 6 FT. WIDE

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

BEHIND BARRIER



BEHIND GUARDRAIL

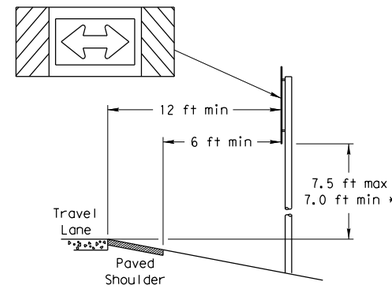


BEHIND CONCRETE BARRIER

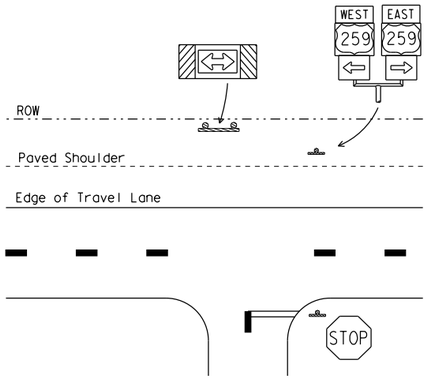
**BEHIND GUARDRAIL

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

T-INTERSECTION



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



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

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

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

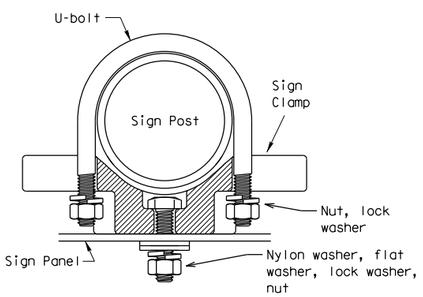
The maximum values may be increased when directed by the Engineer.

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

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

TYPICAL SIGN ATTACHMENT DETAIL

Single Signs

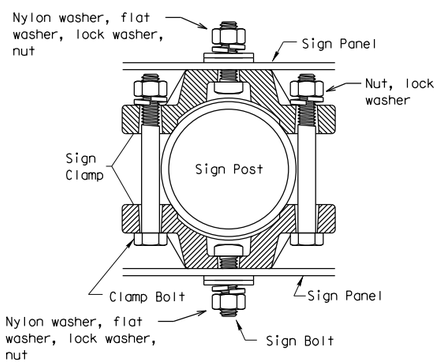


Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

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

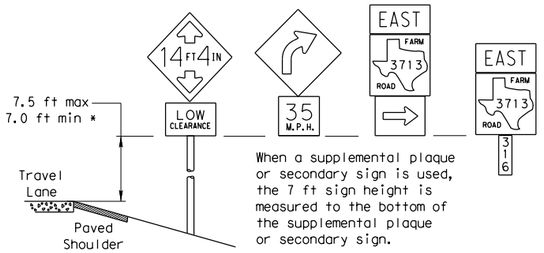
Sign clamps may be either the specific size clamp or the universal clamp.

Back-to-Back Signs



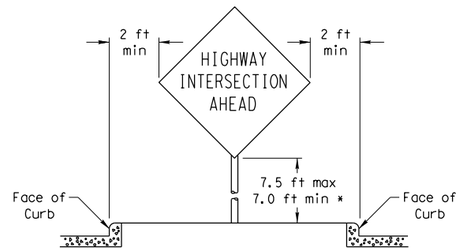
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES



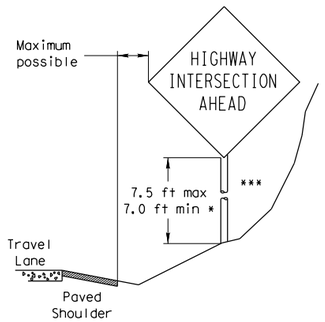
When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

CURB & GUTTER OR RAISED ISLAND



RESTRICTED RIGHT-OF-WAY

(When 6 ft min. is not possible.)



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

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

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

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

SMD(GEN)-08

REVISIONS	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
9-08	CONT	SECT	JOB	HIGHWAY
	0913	00	138	VARIOUS
	DIST	COUNTY		SHEET NO.
	YKM	DEWITT, ETC.		56

26A

DATE: 8/22/2024 12:08:24 PM
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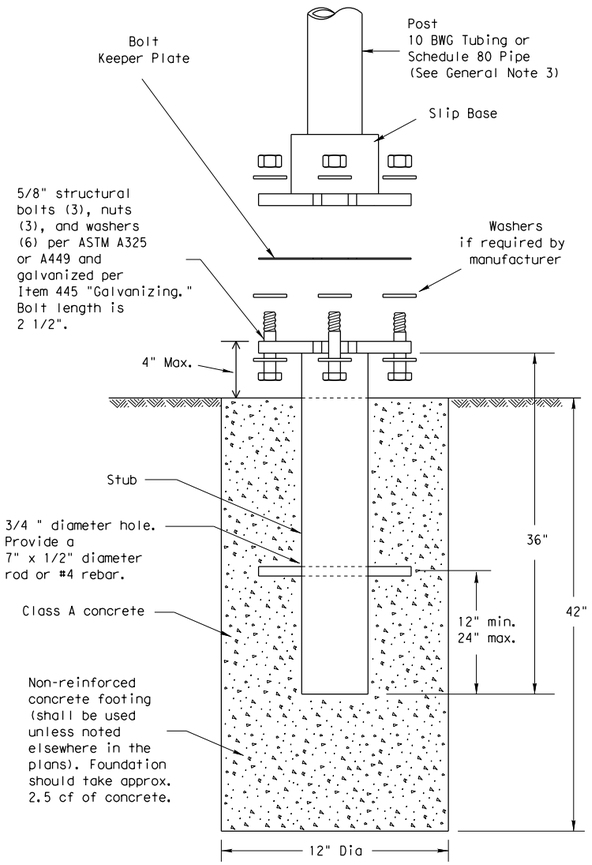
TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS



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

NOTE

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

GENERAL NOTES:

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

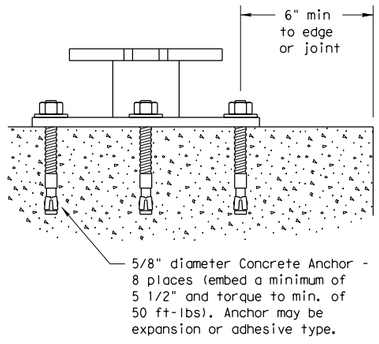
   Schedule 80 Pipe (2.875" outside diameter)
   - 0.276" nominal wall thickness
   - Steel tubing per ASTM A500 Gr C
   - Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the following:
     - 46,000 PSI minimum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

ASSEMBLY PROCEDURE

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

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

CONCRETE ANCHOR



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

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

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-1)-08

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

REVISIONS
9-08

CONT	SECT	JOB	HIGHWAY
0913	00	138	VARIOUS

DIST	COUNTY	SHEET NO.
YKM	DEWITT, ETC.	57

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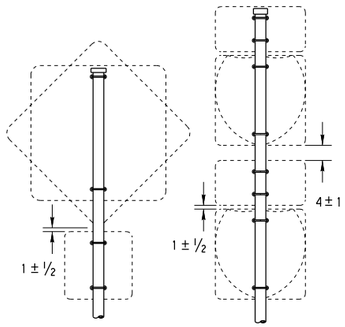
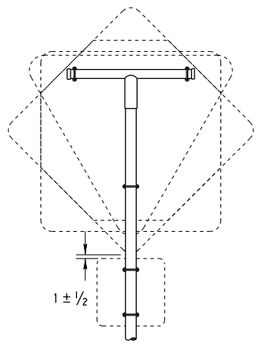
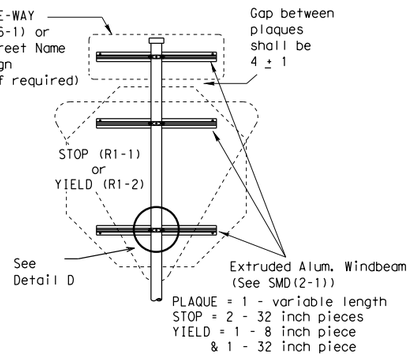


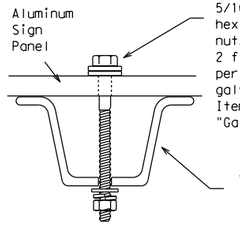
SM RD SGN ASSM TY XXXXX(1)XX(P)



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

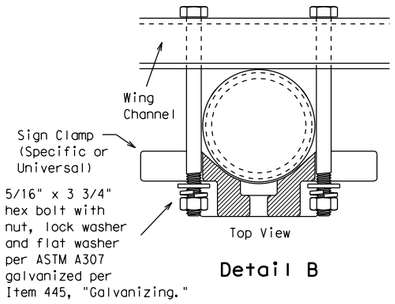


SM RD SGN ASSM TY XXXXX(1)XX(P-BM)



Top View

Detail A



Top View

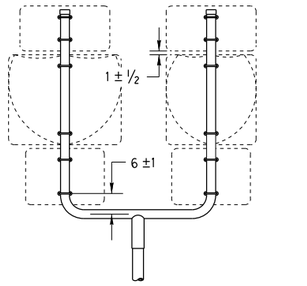
Detail B

GENERAL NOTES:

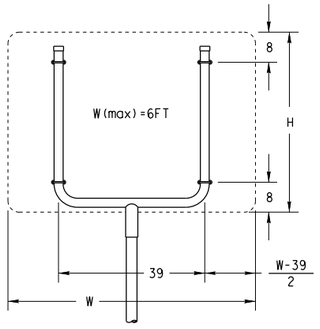
1.

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

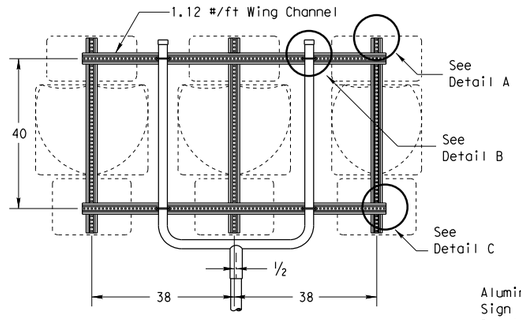
2. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
3. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
4. Aluminum sign blanks shall conform to Departmental Material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



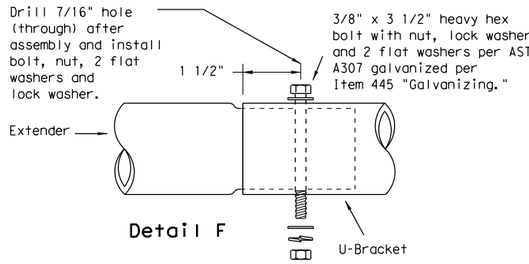
SM RD SGN ASSM TY XXXXX(1)XX(U)



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

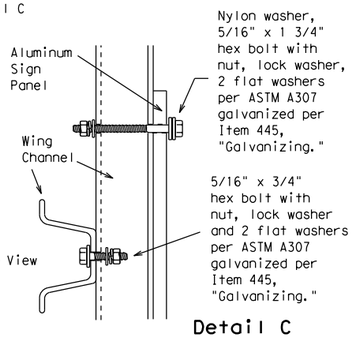


SM RD SGN ASSM TY XXXXX(1)XX(U-WC)
(See Note 11)

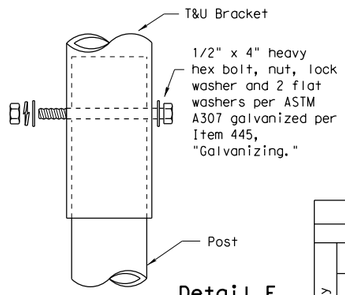


Detail F

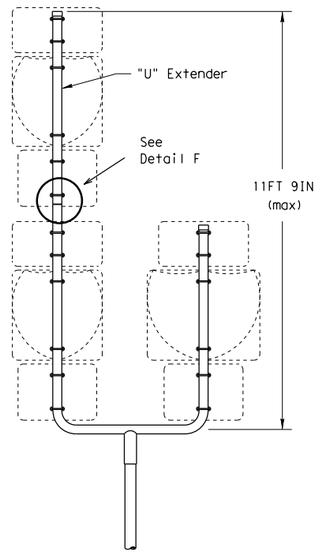
Splices shall only be allowed behind the sign substrate.



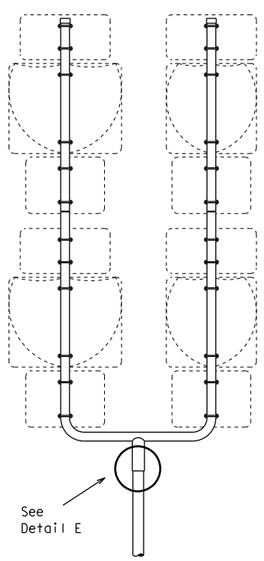
Detail C



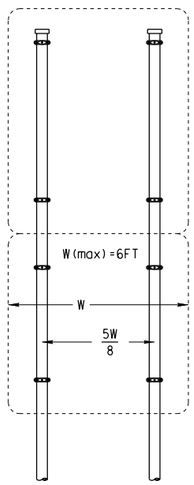
Detail E



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

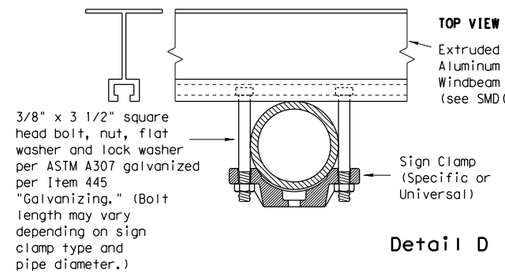


SM RD SGN ASSM TY S80(1)XX(U-2EXT)

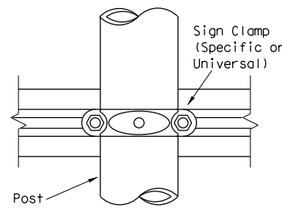


SM RD SGN ASSYM TY XXXXX(2)XX(P)

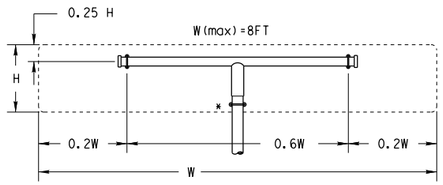
SIDE VIEW



Detail D



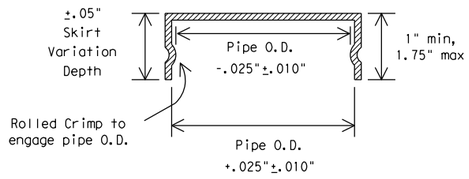
REQUIRED SUPPORT		
	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)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



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

All dimensions are in english unless detailed otherwise.

FRICTION CAP DETAIL



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

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

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

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-2)-08

REVISIONS	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
9-08	CONT	SECT	JOB	HIGHWAY
	0913	00	138	VARIOUS
	DIST	COUNTY		SHEET NO.
	YKM	DEWITT, ETC.		58

26C

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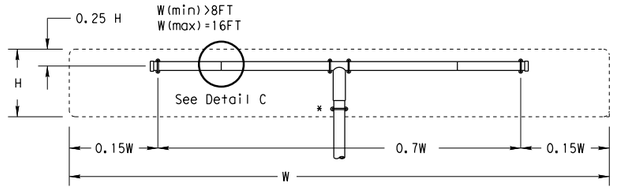
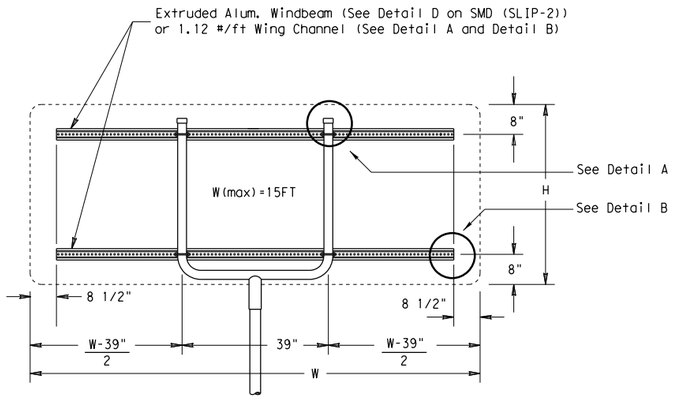
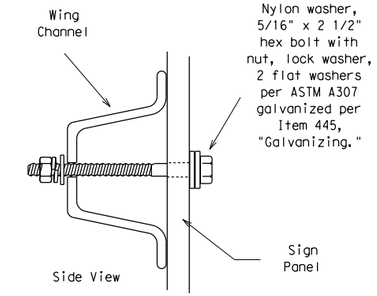


SM RD SGN ASSM TY XXXXX(1)XX(T-2EXT)

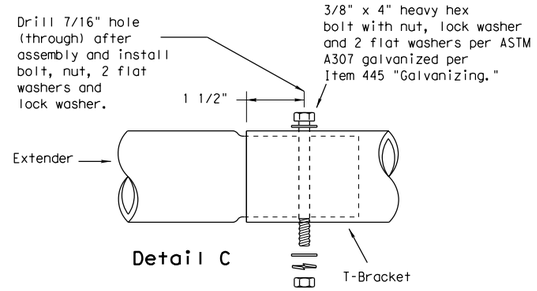
(* - See Note 12)



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

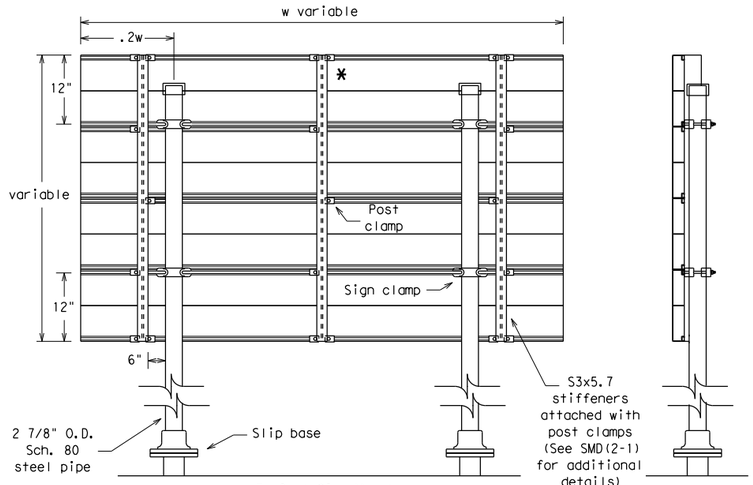


Detail B



Detail C

Splices shall only be allowed behind the sign substrate.

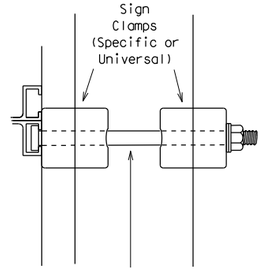


Typical Sign Mount

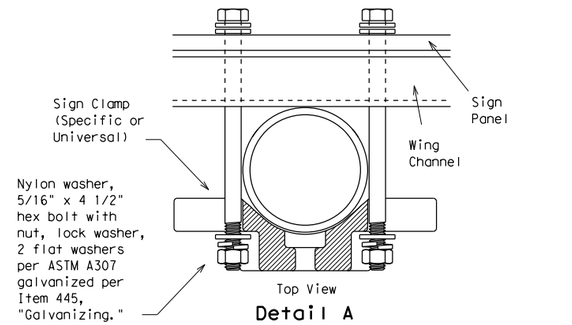
SM RD SGN ASSM TY S80(2)XX(P-EXAL)

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

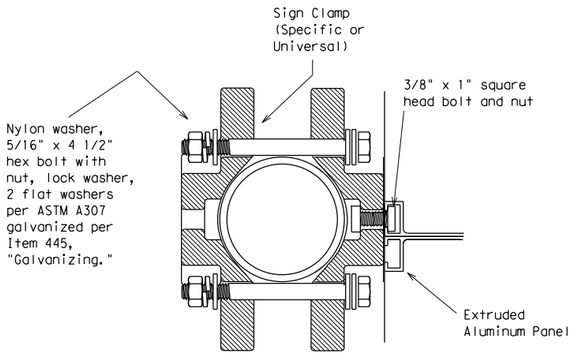
See Detail E
for clamp installation



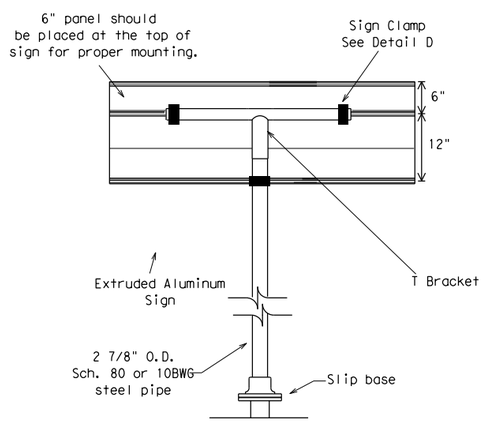
Detail E



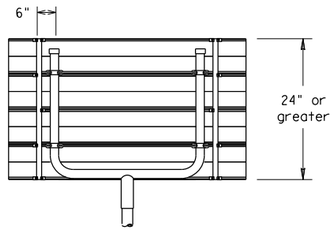
Detail A



Detail D
EXTRUDED ALUMINUM SIGN WITH T BRACKET



Extruded Aluminum Sign
With T Bracket



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

See Detail E
for clamp installation

GENERAL NOTES:

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

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

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

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-3)-08

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

REVISIONS
9-08

CONT	SECT	JOB	HIGHWAY
0913	00	138	VARIOUS
DIST	COUNTY		SHEET NO.
YKM	DEWITT, ETC.		59

DATE: 8/22/2024 12:08:59 PM
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DATE: 8/22/2024 12:09:32 PM
FILE: c:\pwworking\us\fx\dms25294\smd(2-2)-24.dgn

TYPICAL SIGN INSTALLATION AND LOCATION

LATERAL CLEARANCE NOTES:

1. Lateral clearances of signs mounted on the median side of the main lanes are the same as shown, where space will permit. Where a sign is to be located behind guardrail, an allowable minimum clearance of 5' may be used, measured from the face of the guardrail to the near edge of sign.
2. * 6' minimum and desirable may be used only in areas of limited lateral clearance and when approved by the Engineer.

POST SPACING NOTES:

1. Post spacing on a two post sign may be varied a maximum of ±10% of the total sign width to fit field conditions.
2. Post spacing on a three post sign may be varied a maximum of ±5% of the total sign width to fit field conditions.

SIGN HEIGHT NOTES:

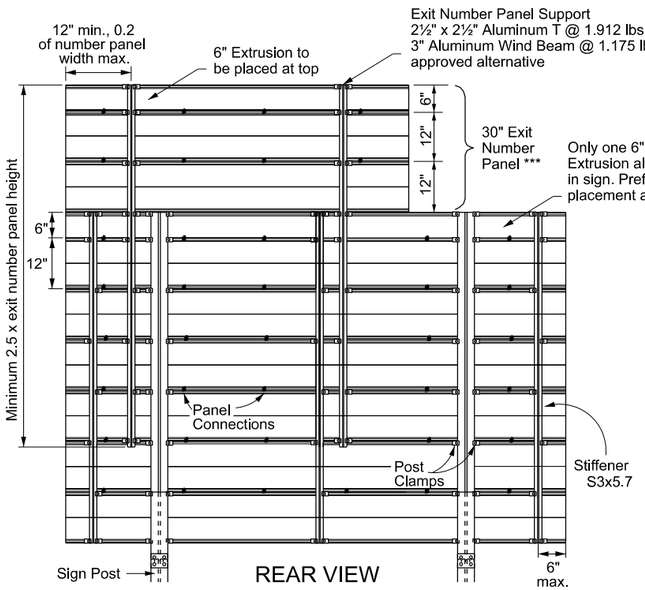
1. ** The 8'-6" maximum may be exceeded when placing signs on extreme slopes. In these conditions, a 7' minimum from natural ground to bottom of sign must be maintained.

GENERAL NOTES:

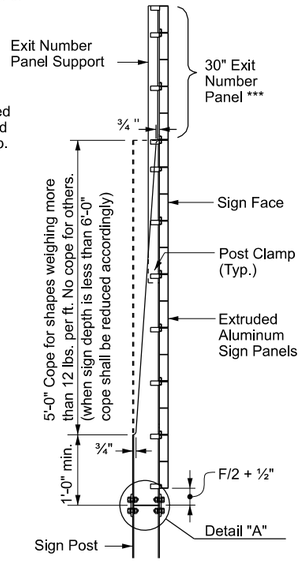
1. Exit number panel supports shall be ASTM A36 structural steel galvanized after fabrication, or ASTM B221 aluminum alloy 6061-T6 or approved alternative.
2. In accordance with DMS-7120, High-Strength (H.S.) Bolts, Nuts, and Washers shall be galvanized per ASTM Designation: B695 Class 50, or A153 Class C or D.
3. Posts, parent sign panels, and exit number panels shall comply with notes on sheets SMD(2-1) and SMD(2-3).
4. Signs (such as exit number panels) attached above a parent sign shall be made of the same type material as the parent sign. General Service and Routing sign plaques may be fabricated from flat sheet aluminum.
5. Exit number panel supports and other connection hardware required to fasten exit number panel to parent sign shall be subsidiary to "Aluminum Signs".
6. Signs to be furnished shall be detailed elsewhere in the plans. Refer to the "Typical Sign Requirements" standard for additional information.
7. *** Alternate exit number panel heights may be used, in accordance with the "Standard Highway Sign Designs for Texas (SHSD)."

DEPARTMENTAL MATERIAL SPECIFICATIONS	
ALUMINUM SIGN BLANKS	DMS-7110
SIGN HARDWARE	DMS-7120

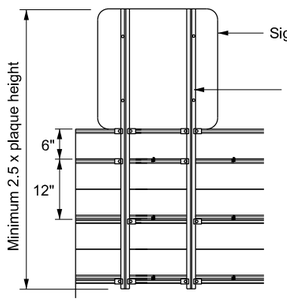
ALUMINUM PARENT SIGN & EXIT NUMBER PANEL MOUNTING DETAILS



REAR VIEW



SIDE VIEW

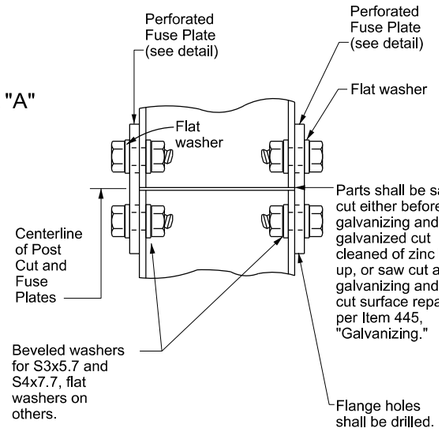


REAR VIEW

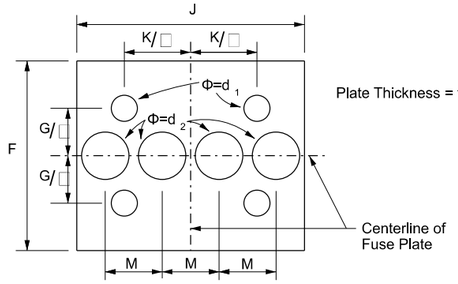
SIGN PLAQUE MOUNTING DETAIL

NOTE:
A sign plaque may be mounted to the parent sign or the exit number panel. See TSR(2) for typical plaque placement.

DETAIL "A"



PERFORATED FUSE PLATE DETAIL



STRUCTURAL DATA TABLE

DIMENSIONS	PERFORATED FUSE PLATE										
Post Size	F	G	J	K	M	d_1	d_2	t_3	Bolt Dia.	Wt. (ea.) (lbs.)	Bolt length
W12x26	6"	3"	6½"	3½"	1⅜"	13/16"	1 5/16"	½"	¾"	4.47	2¼"
W10x22	6"	3"	5¾"	2¾"	1⅜"	13/16"	1⅛"	½"	¾"	4.03	2¼"
W8x21	5½"	2½"	5¼"	2¾"	1¼"	13/16"	1"	½"	¾"	3.35	2¼"
W8x18	5"	2½"	5¼"	2¾"	1¼"	11/16"	1 1/16"	⅜"	⅝"	2.26	2¼"
W6x15	5"	2½"	6"	3½"	1½"	11/16"	1¼"	⅜"	⅝"	2.51	2¼"
W6x9	4¼"	2"	4"	2¼"	1"	9/16"	¾"	¼"	½"	1.01	1½"
S4x7.7	3¾"	1½"	2⅝"	1½"	⅝"	9/16"	⅜"	¼"	½"	0.60	1½"
S3x5.7											

NOTE:
Use H.S. hex head bolts, hex head nut, and bevel or flat washer (where req'd) under nut. All holes shall be drilled, sub-punched, and reamed. All plate cuts shall preferably be saw cuts. However, flame cutting will be permitted, provided all edges are ground. Metal projecting beyond the plane of the plate face will not be permitted. Steel fuse plates shall conform to the requirements of ASTM A36. ASTM A572 Grade 50 or ASTM A588 may be substituted for A36 at the option of the fabricator. Mill test reports shall be submitted for Fuse Plates. Steel used shall have an ultimate tensile strength not to exceed 80 KSI. For alternative Fuse Plates, contact the Traffic Safety Division.

Texas Department of Transportation

Traffic Safety Division Standard

SIGN MOUNTING DETAILS LARGE ROADSIDE SIGNS EXTRUDED ALUMINUM

SMD(2-2)-24

FILE: smd(2-2)-24.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT May 2024	CONT	SECT	JOB	HIGHWAY
REVISIONS	0913	00	138	VARIOUS
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	YKM	DEWITT, ETC.		60

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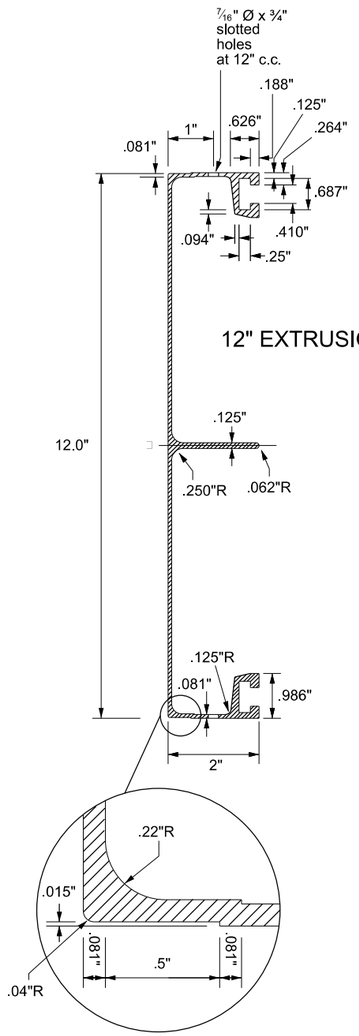
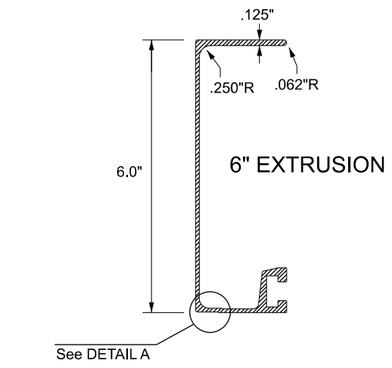
ALUMINUM SIGN PANEL EXTRUSION DETAILS

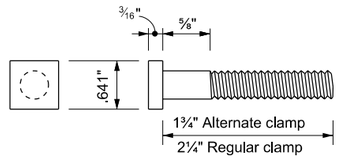


12" EXTRUSION

DETAIL A

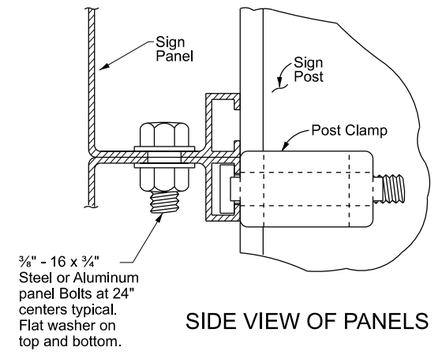


6" EXTRUSION



POST CLAMP BOLT DETAIL

PANEL CONNECTION DETAIL



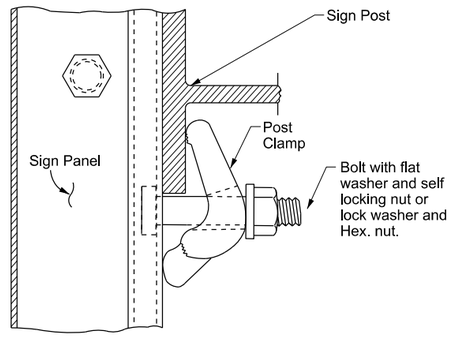
SIDE VIEW OF PANELS

GENERAL NOTES:

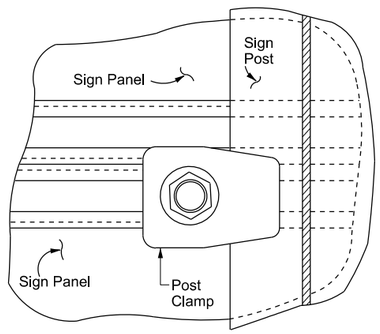
1. Design conforms with the 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals (Large Roadside Signs with a 25-year Mean Recurrence Interval, MRI, and Overhead Signs with a 50-year MRI).
2. Materials and fabrication shall conform to the requirements of the Department Material Specifications.
3. Structural steel shall be "low-alloy steel" for non-bridge structures per Item 442, "Metal For Structures."

DEPARTMENTAL MATERIAL SPECIFICATIONS	
ALUMINUM SIGN BLANKS	DMS-7110
SIGN HARDWARE	DMS-7120

POST CONNECTION DETAIL

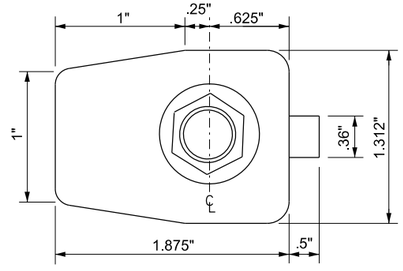


TOP VIEW OF POST

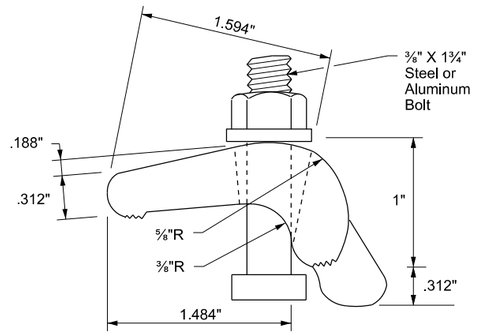


TOP VIEW OF CLAMP

REGULAR POST CLAMP DETAIL



PLAN

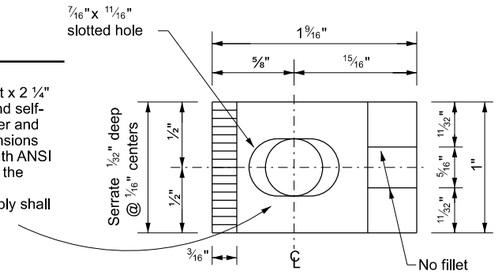


ELEVATION

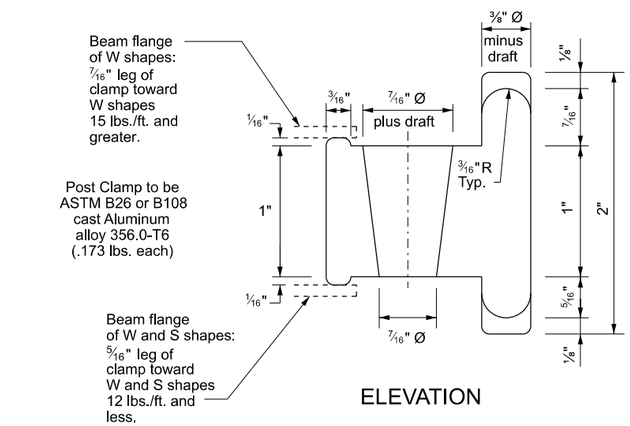
ALTERNATE POST CLAMP DETAIL

NOTE:

Centerline of hole for ⅜" diameter squarehead bolt x 2 ¼" long with a flat washer and self-locking nut, or lock washer and hex. nut. Bolt head dimensions shall be in accordance with ANSI B 18.2.1 as referred to in the AISC Manual of steel construction. Bolt assembly shall be galvanized.

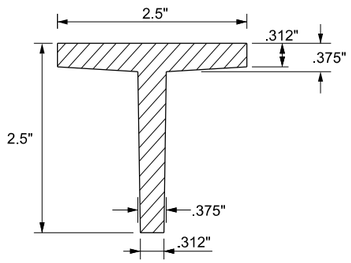


PLAN



ELEVATION

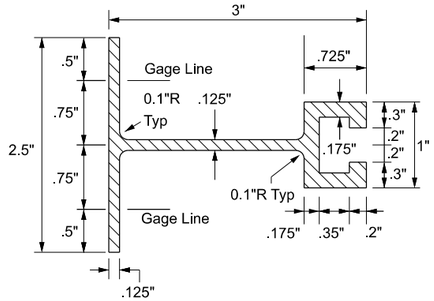
ALUMINUM T SECTION OR APPROVED ALTERNATIVE



1.912 lbs/ft

WINDBEAM CROSS SECTION

Windbeam to be extruded aluminum (1.175 lbs./ft.) or approved alternative



Texas Department of Transportation

Traffic Safety Division Standard

SIGN MOUNTING DETAILS SIGN PANELS & HARDWARE EXTRUDED ALUMINUM

SMD(2-3)-24

FILE: smd(2-3)-24.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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2001 9-08 5-24	DIST	COUNTY		SHEET NO.
	YKM	DEWITT, ETC.		61

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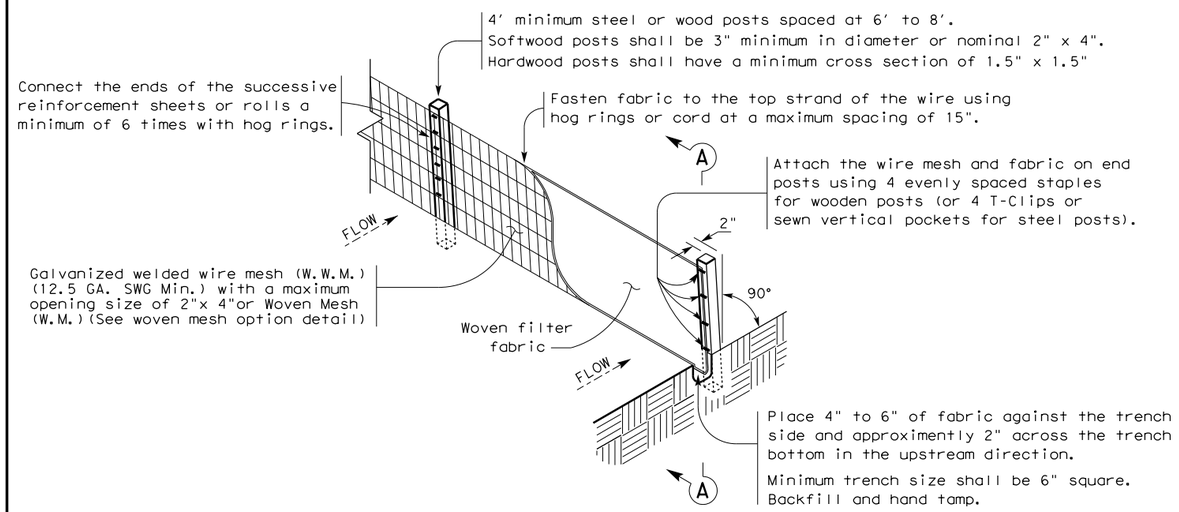
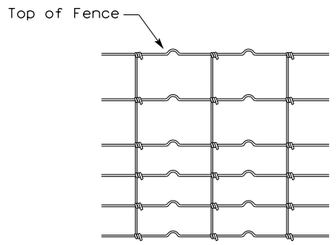
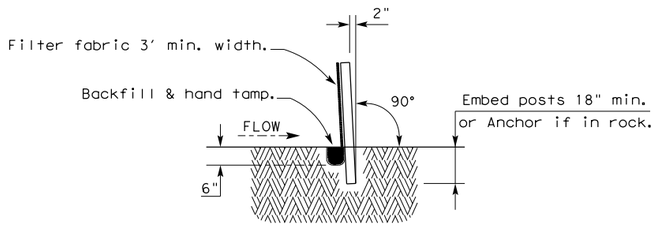


TEMPORARY SEDIMENT CONTROL FENCE

SCF





SECTION A-A

HINGE JOINT KNOT WOVEN MESH (OPTION) DETAIL

Galvanized hinge joint knot woven mesh (12.5 GA.SWG Min.) requires a minimum of five horizontal wires spaced at a maximum of 12 inches apart and all vertical wires spaced at a maximum of 12 inches apart.

SEDIMENT CONTROL FENCE USAGE GUIDELINES

A sediment control fence may be constructed near the downstream perimeter of a disturbed area along a contour to intercept sediment from overland runoff. A 2 year storm frequency may be used to calculate the flow rate to be filtered.

Sediment control fence should be sized to filter a maximum flow through rate of 100 GPM/FT^2. Sediment control fence is not recommended to control erosion from a drainage area larger than 2 acres.

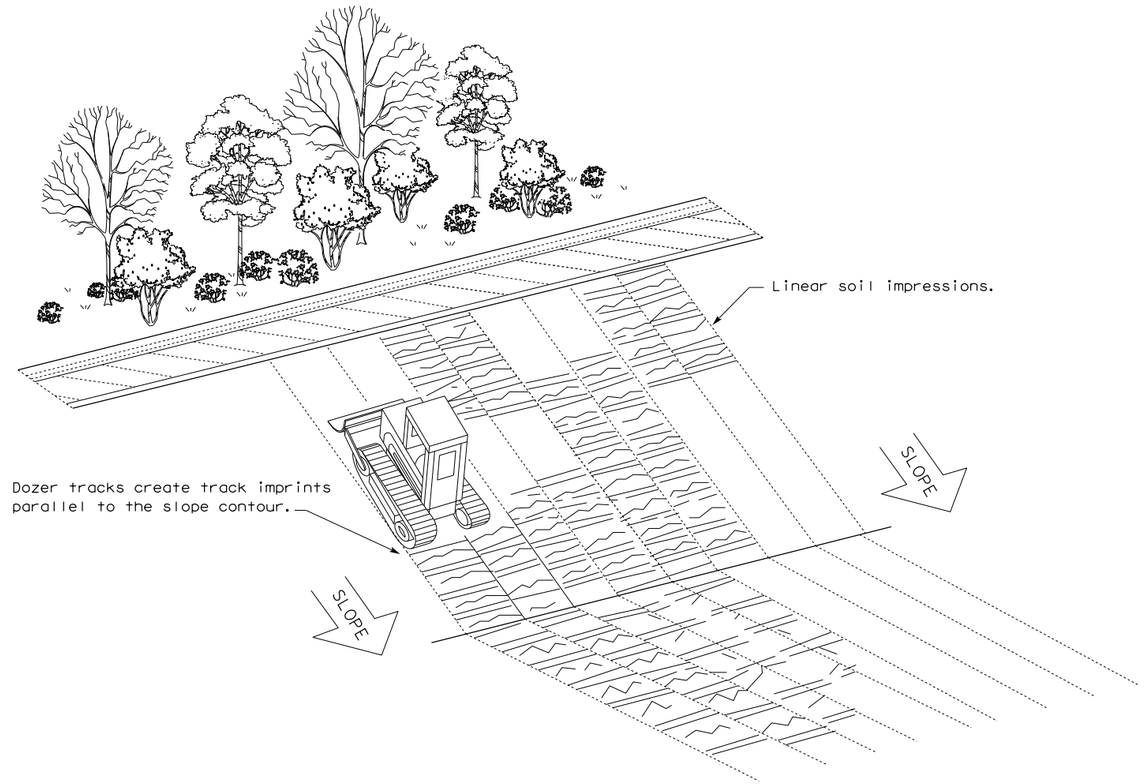
LEGEND

Sediment Control Fence

SCF

GENERAL NOTES

1. Vertical tracking is required on projects where soil distributing activities have occurred unless otherwise approved.
2. Perform vertical tracking on slopes to temporarily stabilize soil.
3. Provide equipment with a track undercarriage capable of producing linear soil impressions measuring a minimum of 12" in length by 2" to 4" in width by 1/2" to 2" in depth.
4. Do not exceed 12" between track impressions.
5. Install continous linear track impressions where the minimum 12" length impressions are perpendicular to the slope or direction of water flow.



VERTICAL TRACKING

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

FENCE & VERTICAL TRACKING

EC(1)-16

FILE: ec116	DN: TxDOT		CK: KM		DW: VP	DN/CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB		HIGHWAY	
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	DIST	COUNTY				SHEET NO.
	YKM	DEWITT, ETC.				62

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I. STORMWATER POLLUTION PREVENTION

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. If applicable list MS4 operator that may receive discharges from this project. MS4 operator should be notified prior to construction activities.

- ☒ Prevent stormwater pollution erosion and sedimentation in accordance with TPDES Permit TXR 150000.
- ☐ Comply with the SW3P and revise when necessary to control pollution or as required by the Engineer.
- ☐ Post Construction Site Notice (CSN) with SW3P information on or near the site, accessible to the public and TCEQ, EPA, or other inspectors.
- ☐ When Contractor project specific locations (PSL) increase disturbed soil area to 5 acres or more, sumbit Notice of Intent (NOI) to TCEQ and Engineer.
- ☐ MS4 Operator(s):

No Additional Comments

II. WORK IN OR NEAR STREAMS, WATERBODIES AND WETLANDS

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.

- ☒ No USACE Permit Required
- ☐ Work is authorized by the USACE under a Nationwide Permit _____ without a Pre-Construction Notification (PCN). Project specific permit was not issued by USACE, therefore is not in the plan set.
- ☐ Work is authorized by the USACE under a Nationwide Permit _____ with a Pre-Construction Notification (PCN). The project specific permit issued by the USACE is included in the plan set.
- ☐ Work is authorized by the USACE under a Individual Permit (IP). The project specific permit issued by the USACE is included in the plan set.
- ☐ Work would be authorized by the USACE. The project specific permit issued by the USACE or Nationwide Permit will be provided to the contractor.

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.

- ☒ No United States Coast Guard (USCG) Coordination Required
- ☐ United States Coast Guard (USCG) Permit
- ☐ United States Coast Guard (USCG) Exemption

Best Management Practices

Erosion	Sedimentation	Post Construction TSS
☒ Temporary Vegetation	☐ Silt Fence	☒ Vegetative Filter Strips
☐ Vegetation Lined Ditches	☐ Rock Filter Dam	☐ Vegetation Lined Ditches
☐ Sodding	☐ Sand Bag Berm	☐ Grassy Swales

No Additional Comments

III. CULTURAL RESOURCES

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.

No Additional Comments

IV. VEGETATION RESOURCES

Preserve native vegetation to the extent practical. Refer to TxDOT Standard Specifications 162, 164, 192, 193, 506, 730, 751, and 752 in order to comply with requirements for invasive species, beneficial landscaping and tree/brush removal.

No Additional Comments

V. FEDERAL LISTED, PROPOSED THREATENED, ENDANGERED SPECIES, CRITICAL HABITAT, STATE LISTED SPECIES, CANDIDATE SPECIES AND MIGRATORY BIRDS

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.

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)

No Additional Comments

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.

VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES

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.

Does the project involve any bridge class structure rehabilitation or replacements (bridge class structutres not including box culverts)? Yes ☐ No ☒

No further action required.

No Additional Comments

VII. GENERAL NOTES

TxDOT has determined that a USACE Nationwide or Individual Permit is not necessary for the project since all work shall be conducted outside the USACE jurisdictional areas. Any impacts to these jurisdictioanl areas by the contractor without a USACE permit will be the responsibility of the contrator. If the contractor deems it necessary to impact the USACE jurisdcitional areas, then it becomes the contractor's entire responsibility to consult with the USACE pertaining to the need for a Nationwide or Individual Permit. TxDOT will then hold the contractor responsible for following all conditions of the approved Permit.

DATE:
FILE:

Version 13.1

Texas Department of Transportation

TxDOT Yoakum District

ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS

EPIC

FILE: EPIC Sheet.dgn	DN:	CK:	DW:	CK:
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	YKM	DE WITT		63