

DATE: 7/22/2022 8:27:20 AM
 FILE: I:\CHSDESIGN\PROJECTS\CHILDRESS\0032-01-034 (US 62 & 83)\xx 0031-05-046 (US 62 & 83)\Plan Set\Roadway\ACP Overlay (FM 164, S - Cottle C-L) Title Sheet.dgn

STATE OF TEXAS
 DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
 STATE HIGHWAY IMPROVEMENT

FEDERAL AID PROJECT NO. F 2023(052)

US 62/83
 CHILDRESS COUNTY

FOR THE CONSTRUCTION OF ASPHALTIC CONCRETE PAVEMENT OVERLAY
 CONSISTING OF: ACP OVERLAY

FEDERAL AID PROJECT NO.			
F 2023(052)			
CONT	SECT	JOB	HIGHWAY
0032	01	034	US 62/83
DIST	COUNTY		SHEET NO.
CHS	CHILDRESS		1

DESIGN SPEED - 55 MPH
 A.D.T. (2022) - 2,200
 A.D.T. (2042) - 3,100

THE TCP HAS BEEN REVIEWED BY
 TRAFFIC SAFETY COMMITTEE

Matthew J. Hebert, P.E.
 TRAFFIC SAFETY CHAIRMAN

REQUIRED SIGNS SHALL BE IN ACCORDANCE WITH
 BC (1)-21 THRU BC (12)-21 AND THE "TEXAS
 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

CSJ: 0031-05-046
 LIMITS: 1968' SOUTH OF US 62, NORTH
 TO 1945' NORTH OF SH 256

NET LENGTH OF ROADWAY - 11,581.00 FT. - 2.193 MI.
 NET LENGTH OF BRIDGE - 00.00 FT. - 0.000 MI.
 NET LENGTH OF PROJECT - 11,581.00 FT. - 2.093 MI.

CSJ: 0032-01-034
 LIMITS: FROM COTTLE C/L, NORTH
 TO FM 164

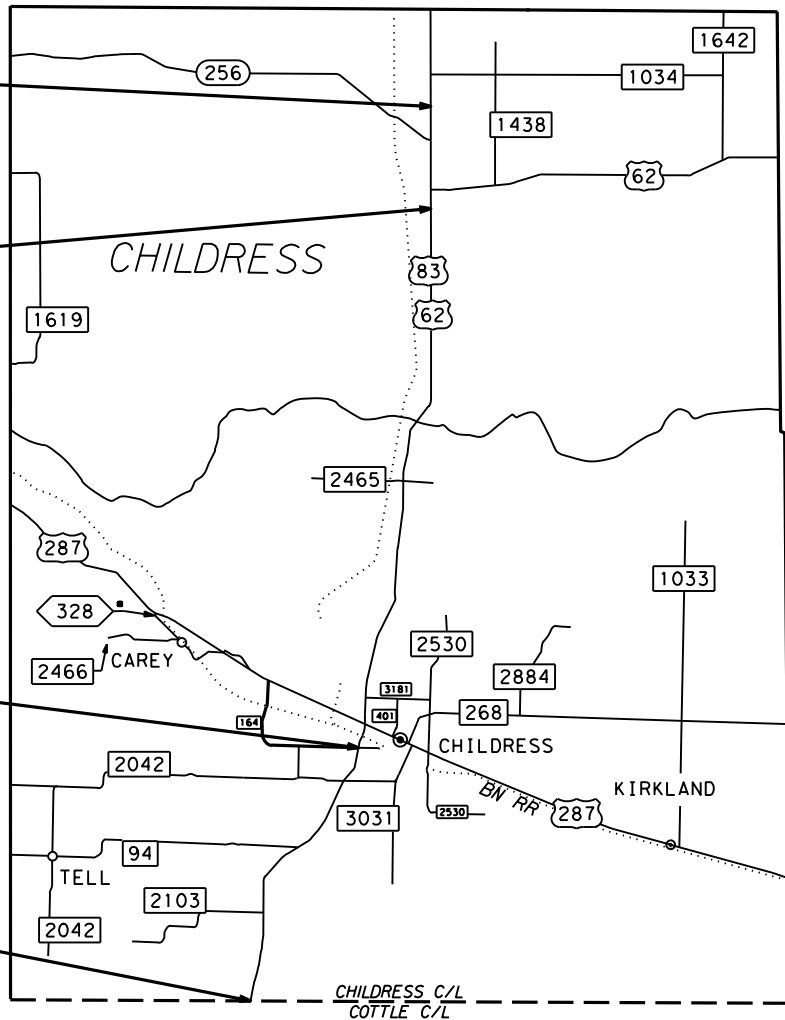
NET LENGTH OF ROADWAY - 45,537.00 FT. - 8.624 MI.
 NET LENGTH OF BRIDGE - 450.00 FT. - 0.085 MI.
 NET LENGTH OF PROJECT - 45,987.00 FT. - 8.709 MI.

BEGIN PROJECT
 CSJ: 0031-05-046
 STA: 973+18.00
 REF MKR: 152+1.617

END PROJECT
 CSJ: 0031-05-046
 STA: 857+37.00
 REF MKR: 154+1.409

END PROJECT
 CSJ: 0032-01-034
 STA: 1726+87.00
 REF MKR: 478+0.566

BEGIN PROJECT
 CSJ: 0032-01-034
 STA: 1267+00.00
 REF MKR: 468+0.24



EXCEPTIONS: BRIDGE: STA. 1518+58.00 TO STA. 1520+18.00 - 160.00 FT.
 BRIDGE: STA. 1573+04.00 TO STA. 1574+34.00 - 130.00 FT.
 EQUATIONS: NONE
 RAILROAD CROSSINGS: NONE

FINAL PLANS

CONTRACTOR NAME: _____
 CONTRACTOR ADDRESS: _____
 LETTING DATE: _____
 DATE TIME CHARGES BEGAN: _____
 DATE WORK BEGAN: _____
 DATE WORK COMPLETED: _____
 DATE OF WORK ACCEPTANCE: _____

I, _____, P.E. DO HEREBY CERTIFY
 THAT THE CONSTRUCTION WORK WAS PERFORMED IN ACCORDANCE WITH
 THE PLANS, CONTRACT, AND CHANGES THERETO.

AREA ENGINEER

DATE



RECOMMENDED FOR LETTING: 07/22/2022

Matthew J. Hebert, P.E.

AREA ENGINEER

SUBMITTED FOR LETTING: 07/22/2022

Chad B. Steel, P.E.

TP&D DIRECTOR

RECOMMENDED FOR LETTING: 07/22/2022

[Signature]

DISTRICT ENGINEER

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION,
 NOVEMBER 1, 2014 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, July 5, 2022)

DATE: 7/22/2022 2:48:50 PM
 FILE: I:\CHSD\PROJECTS\CHILDRESS\0032-01-034 (US 62 & 83)\xx 0031-05-046 (US 62 & 83) Hollis Y.Plan Set\Roadway\Intersection_summary.dgn

<u>SHEET NO.</u>	<u>DESCRIPTION</u>	<u>SHEET NO.</u>	<u>DESCRIPTION</u>
	GENERAL		PAVEMENT MARKINGS & DELINEATION
1	TITLE SHEET	59-76	STRIPING LAYOUT
2	INDEX OF SHEETS		PAVEMENT MARKINGS & DELINEATION STANDARDS
3-17, 17A-17D	TYPICAL SECTIONS		PM (1)-20
18	CORE DATA SHEET	* 77	PM (2)-20
19-21, 21A	GENERAL NOTES	* 78	PM (3)-20
22-23	ESTIMATE & QUANTITY SHEET	* 79	D&OM (1-20)
24-26	QUANTITY SUMMARY	* 80	D&OM (2-20)
	TRAFFIC CONTROL PLAN STANDARDS	* 81	D&OM (5-20)
* 27-38	BC (1)-21 THRU BC (12)-21	* 82	TS2 (PL-1) - 18
* 39	TCP (1-1) - 18	* 83	TS2 (PL-2) - 18
* 40	TCP (1-2) - 18	* 84	RS (2)-13
* 41	TCP (1-4) - 18	* 85	RS (3)-13
* 42	TCP (3-1) - 13	* 86	RS (4)-13
* 43	TCP (3-3) - 14	* 87	
* 44	WZ (RS) - 16		ENVIRONMENTAL ISSUES
* 45	WZ (STPM) - 13	88	STORMWATER POLLUTION PREVENTION PLAN (SW3P)
* 46	WZ (UL) - 13	89	ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS (EPIC)
	ROADWAY DETAILS		
47-49	INTERSECTION DETAILS		
50	DRIVEWAY DETAILS		
51	PLANING DETAILS		
52	CURVE DATA SHEET		
	ROADWAY DETAILS STANDARDS		
* 53	GF (31)-19		
* 54	GF (31) MS-19		
* 55	SGT (10S) 31-16		
* 56	SGT (11S) 31-18		
* 57	SGT (12S) 31-18		
* 58	SGT (15) 31-20		



Ryan J. Reid P.E.

THE STANDARD SHEETS SPECIFICALLY IDENTIFIED ON THIS SHEET HAVE BEEN ISSUED BY ME AND ARE APPLICABLE TO THIS PROJECT.

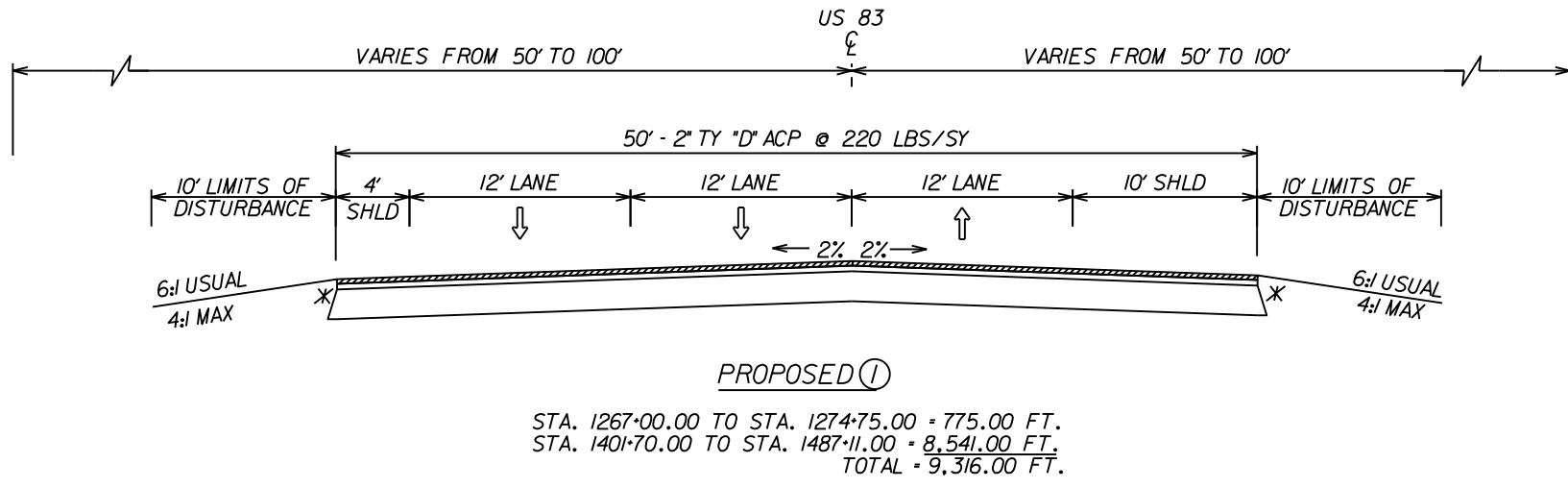
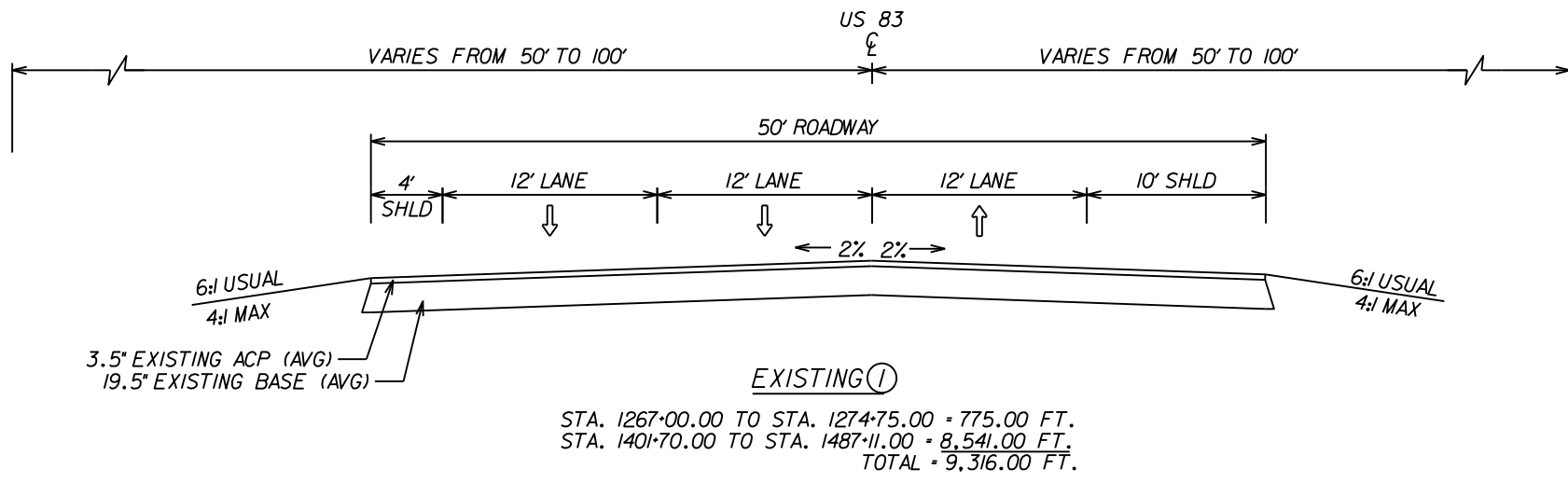
Ryan J. Reid P.E. _____ 07/22/2022 _____
 NAME DATE

INDEX OF SHEETS



CONT	SECT	JOB	HIGHWAY
0032	01	034	US 62/83
DIST	COUNTY		SHEET NO.
CHS	CHILDRESS		2

DATE: 7/22/2022 7:54:21 AM
 FILE: I:\CHSD\PROJECTS\CHILDRESS\0032-01-034 (US 62 & 83)\xx\0031-05-046 (US 62 & 83) Hollis Y.Plan_Set\Roadway\Typical section (32-01-34).dgn



TRANSITION FROM PROPOSED ① TO PROPOSED ②

STA. 1274+75.00 TO STA. 1276+65.00 = 190.00 FT.
 STA. 1487+11.00 TO STA. 1489+03.00 = 192.00 FT.
 TOTAL = 382.00 FT.

* BACKFILL PAVEMENT EDGES WITH TYPE A OR B



Ryan J. Reid P.E.
 08/08/2022

TYPICAL SECTIONS
 CSJ: 0031-01-034



CONT	SECT	JOB	HIGHWAY
0032	01	034	US 62/83
DIST		COUNTY	SHEET NO.
CHS		CHILDRESS	3

DATE: 7/22/2022 7:56:34 AM
 FILE: I:\CHSD\PROJECTS\CHILDRESS\0032-01-034 (US 62 & 83)\xx 0031-05-046 (US 62 & 83) Hollis Y.Plan Set\Roadway\Typical section (32-01-34).dgn

BRIDGE LOCATIONS

STA. 1287+85.00 TO STA. 1289+45.00 = 160.00 FT.
 STA. 1518+58.00 TO STA. 1520+18.00 = 160.00 FT.
 STA. 1573+04.00 TO STA. 1574+34.00 = 130.00 FT.
 TOTAL = 450.00 FT.

TRANSITION FROM PROPOSED ② TO PROPOSED ①

STA. 1399+75.00 TO STA. 1401+70.00 = 195.00 FT.

TRANSITION FROM PROPOSED ② TO PROPOSED ③

STA. 1296+72.00 TO STA. 1299+47.00 = 275.00 FT.
 STA. 1582+94.00 TO STA. 1587+14.00 = 420.00 FT.
 TOTAL = 695.00 FT.

TRANSITION FROM PROPOSED ② TO PROPOSED ④

STA. 1527+66.00 TO STA. 1530+98.00 = 332.00 FT.

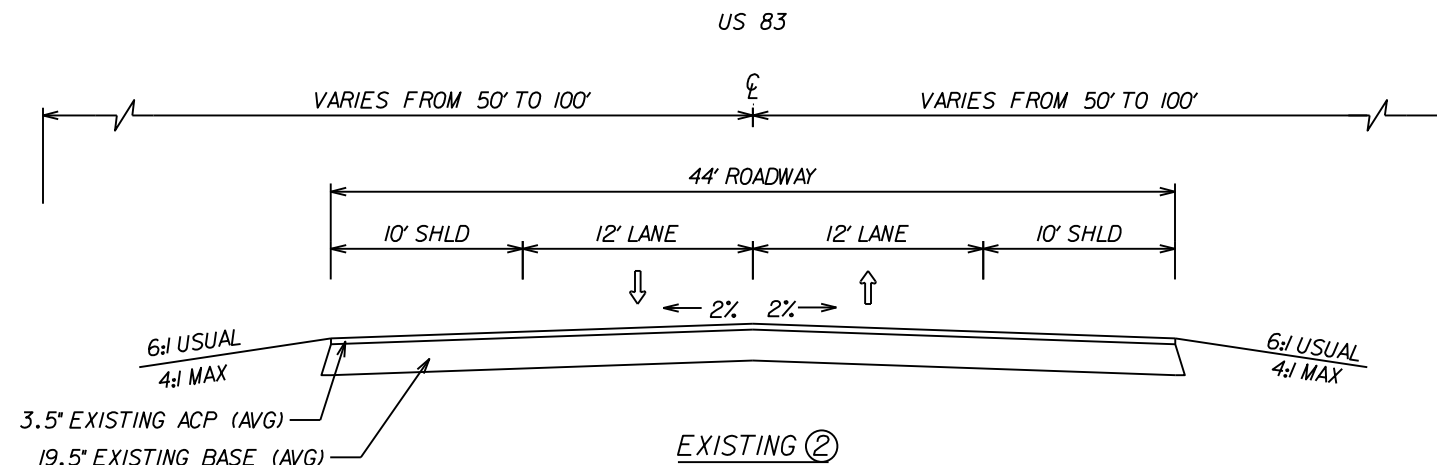
TRANSITION FROM PROPOSED ② TO PROPOSED ⑥

STA. 1659+25.00 TO STA. 1662+59.00 = 334.00 FT.
 STA. 1721+00.00 TO STA. 1725+16.00 = 416.00 FT.
 TOTAL = 750.00 FT.

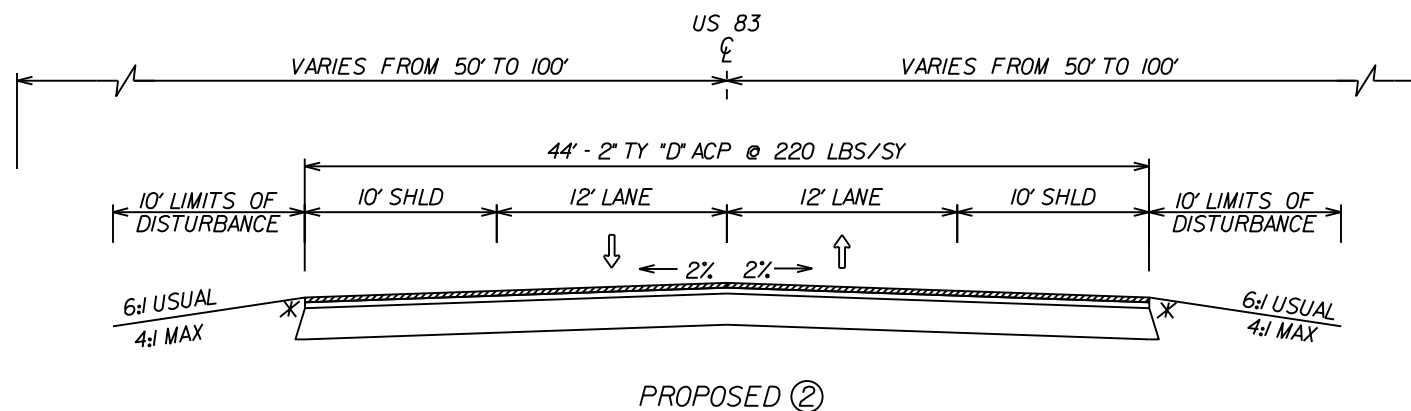
TRANSITION FROM PROPOSED ② TO PROPOSED ⑧

STA. 1692+64.00 TO STA. 1695+90.00 = 326.00 FT.
 TOTAL = 326.00 FT.

* BACKFILL PAVEMENT EDGES WITH TYPE A OR B



STA. 1276+65.00 TO STA. 1287+85.00 = 1,120.00 FT.
 STA. 1289+45.00 TO STA. 1296+72.00 = 727.00 FT.
 STA. 1391+32.00 TO STA. 1399+75.00 = 843.00 FT.
 STA. 1489+03.00 TO STA. 1518+58.00 = 2,955.00 FT.
 STA. 1520+18.00 TO STA. 1527+66.00 = 748.00 FT.
 STA. 1541+53.00 TO STA. 1573+04.00 = 3,151.00 FT.
 STA. 1574+34.00 TO STA. 1582+94.00 = 860.00 FT.
 STA. 1653+47.00 TO STA. 1659+25.00 = 578.00 FT.
 STA. 1677+28.00 TO STA. 1692+64.00 = 1,536.00 FT.
 STA. 1705+55.00 TO STA. 1721+00.00 = 1,545.00 FT.
 TOTAL = 14,063.00 FT.



STA. 1276+65.00 TO STA. 1287+85.00 = 1,120.00 FT.
 STA. 1289+45.00 TO STA. 1296+72.00 = 727.00 FT.
 STA. 1391+32.00 TO STA. 1399+75.00 = 843.00 FT.
 STA. 1489+03.00 TO STA. 1518+58.00 = 2,955.00 FT.
 STA. 1520+18.00 TO STA. 1527+66.00 = 748.00 FT.
 STA. 1541+53.00 TO STA. 1573+04.00 = 3,151.00 FT.
 STA. 1574+34.00 TO STA. 1582+94.00 = 860.00 FT.
 STA. 1653+47.00 TO STA. 1659+25.00 = 578.00 FT.
 STA. 1677+28.00 TO STA. 1692+64.00 = 1,536.00 FT.
 STA. 1705+55.00 TO STA. 1721+00.00 = 1,545.00 FT.
 TOTAL = 14,063.00 FT.

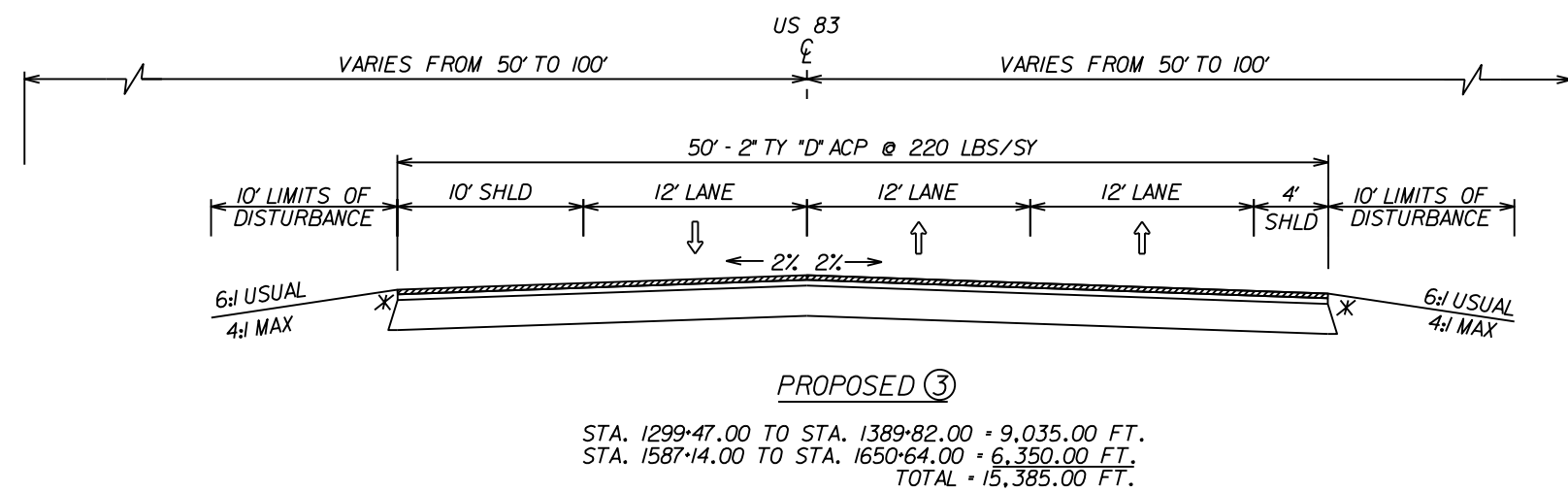
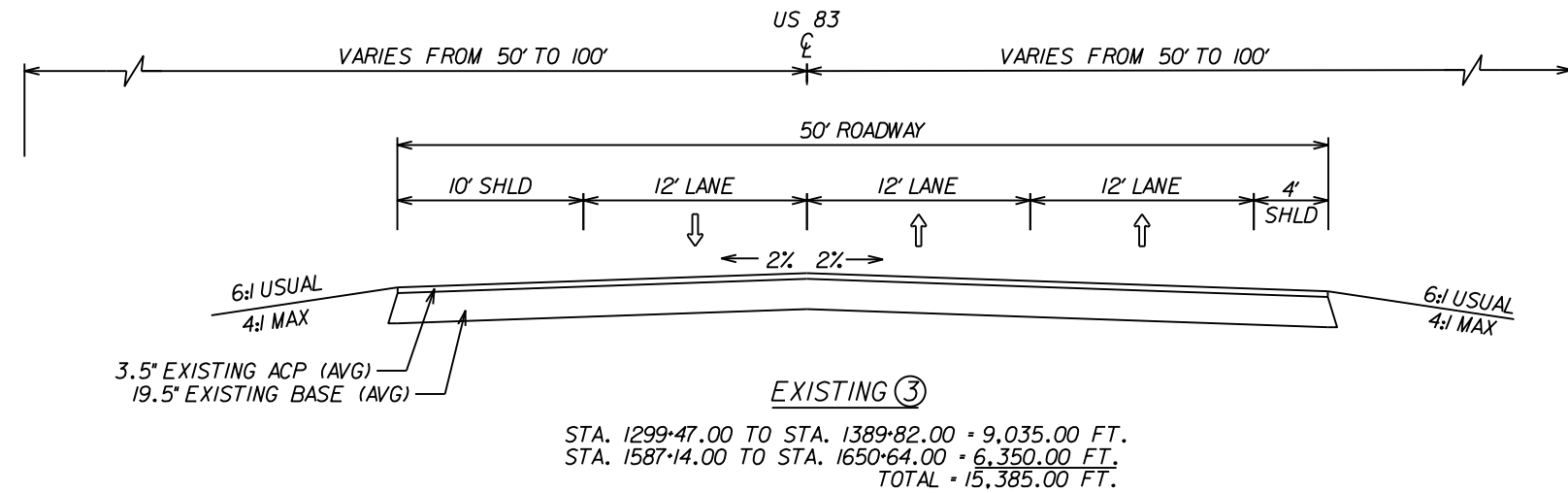


Ryan J. Reid P.E.
 08/08/2022

TYPICAL
 SECTIONS
 CSJ: 0031-01-034

Texas Department of Transportation		SHEET 2 OF 19	
CONT	SECT	JOB	HIGHWAY
0032	01	034	US 62/83
DIST	COUNTY	SHEET NO.	
CHS	CHILDRESS	4	

DATE: 7/22/2022 7:56:55 AM
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TRANSITION FROM PROPOSED ③ TO PROPOSED ②

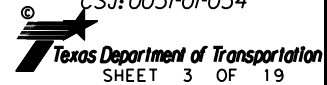
STA. 1389+82.00 TO STA. 1391+32.00 = 150.00 FT.
 STA. 1650+64.00 TO STA. 1653+47.00 = 283.00 FT.
 TOTAL = 433.00 FT.

XBACKFILL PAVEMENT EDGES WITH TYPE A OR B



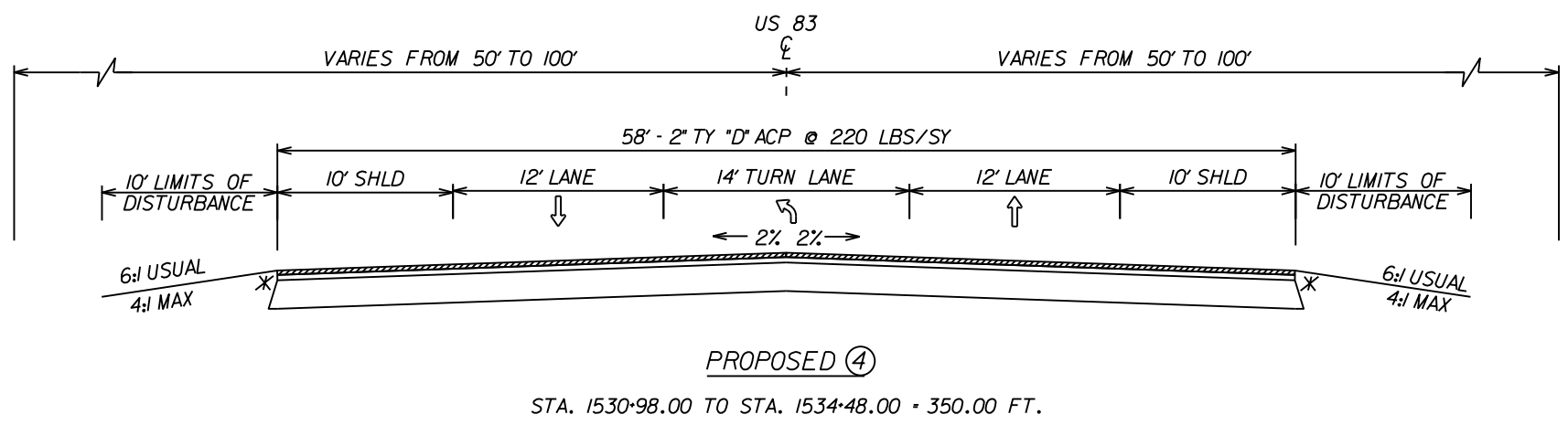
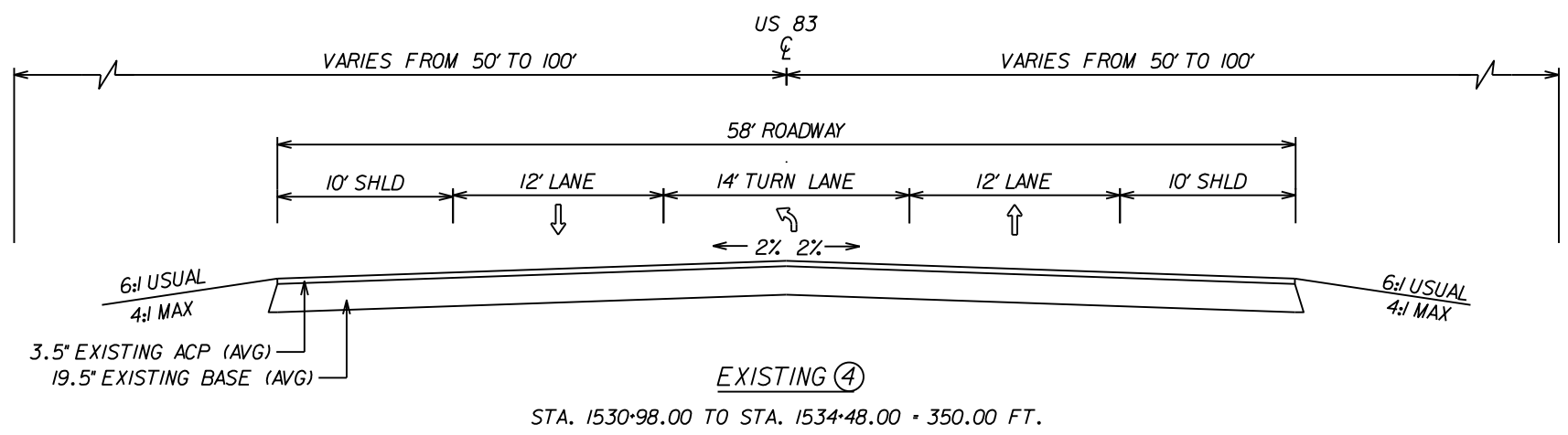
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 08/08/2022

TYPICAL
 SECTIONS
 CSJ: 0031-01-034



CONT	SECT	JOB	HIGHWAY
0032	01	034	US 62/83
DIST	COUNTY	SHEET NO.	
CHS	CHILDRESS	5	

DATE: 7/22/2022 7:57:10 AM
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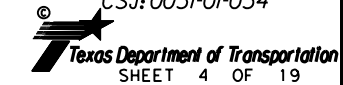
TRANSITION FROM PROPOSED ④ TO PROPOSED ⑤
 STA. 1534+48.00 TO STA. 1534+78.00 = 30.00 FT.

*BACKFILL PAVEMENT EDGES WITH TYPE A OR B



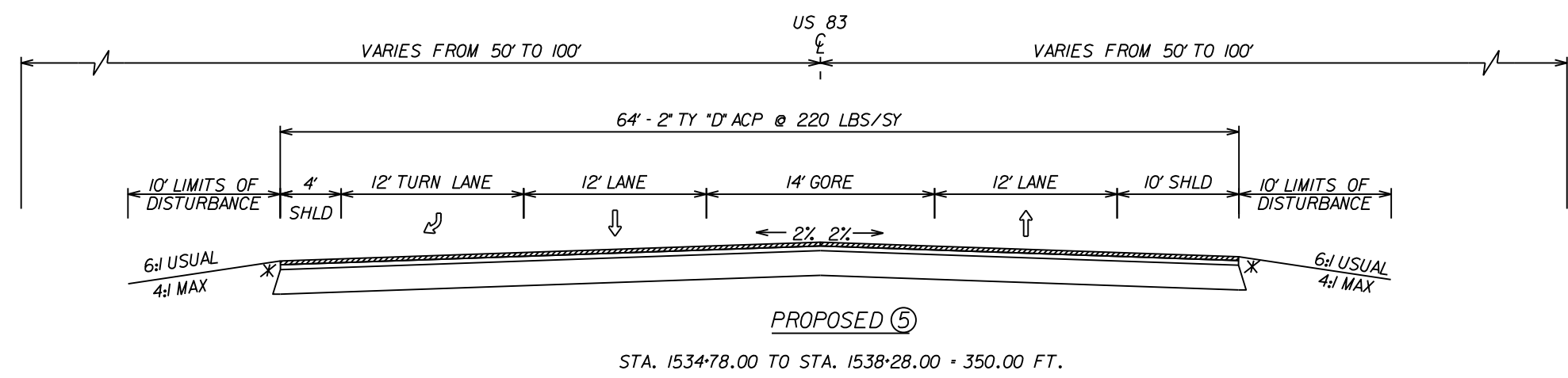
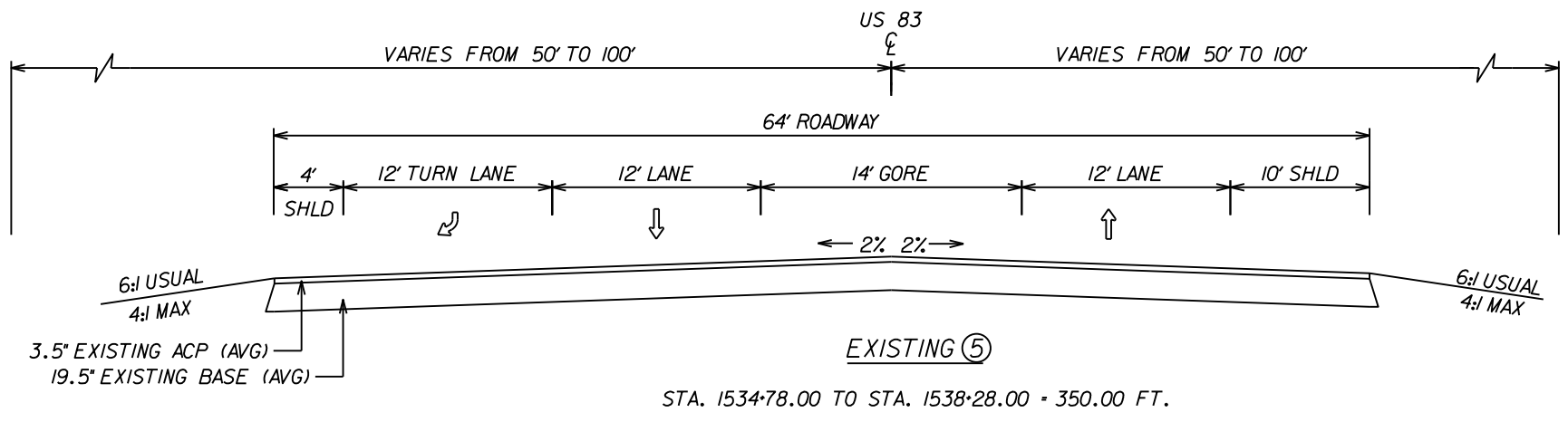
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 08/08/2022

TYPICAL
 SECTIONS
 CSJ: 0031-01-034



CONT	SECT	JOB	HIGHWAY
0032	01	034	US 62/83
DIST	COUNTY		SHEET NO.
CHS	CHILDRESS		6

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TRANSITION FROM PROPOSED ⑤ TO PROPOSED ②

STA. 1538+28.00 TO STA. 1541+53.00 = 325.00 FT.

*BACKFILL PAVEMENT EDGES WITH TYPE A OR B



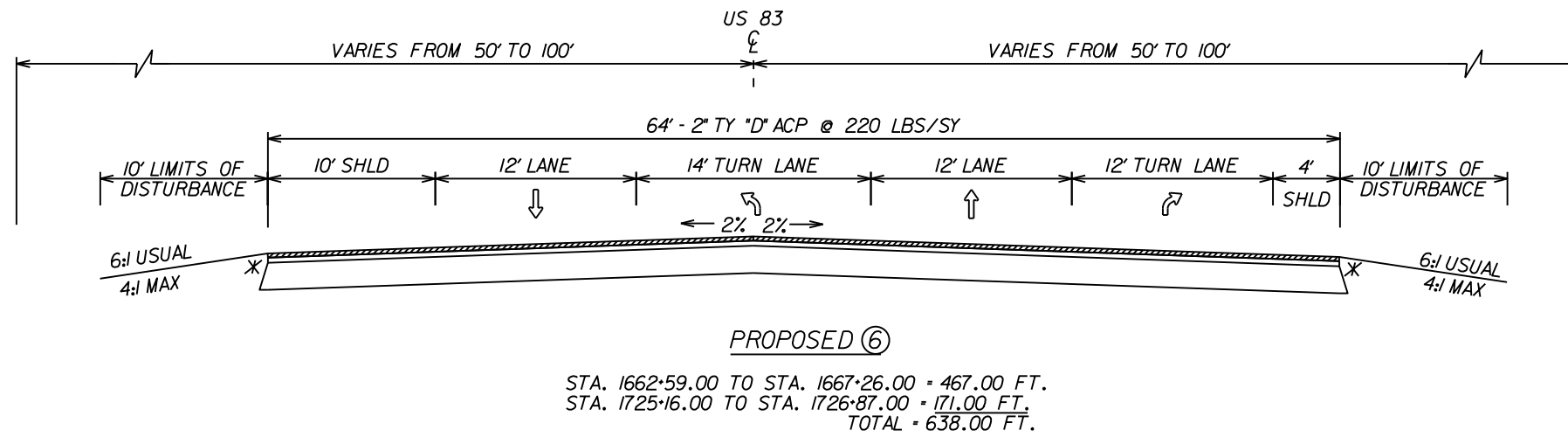
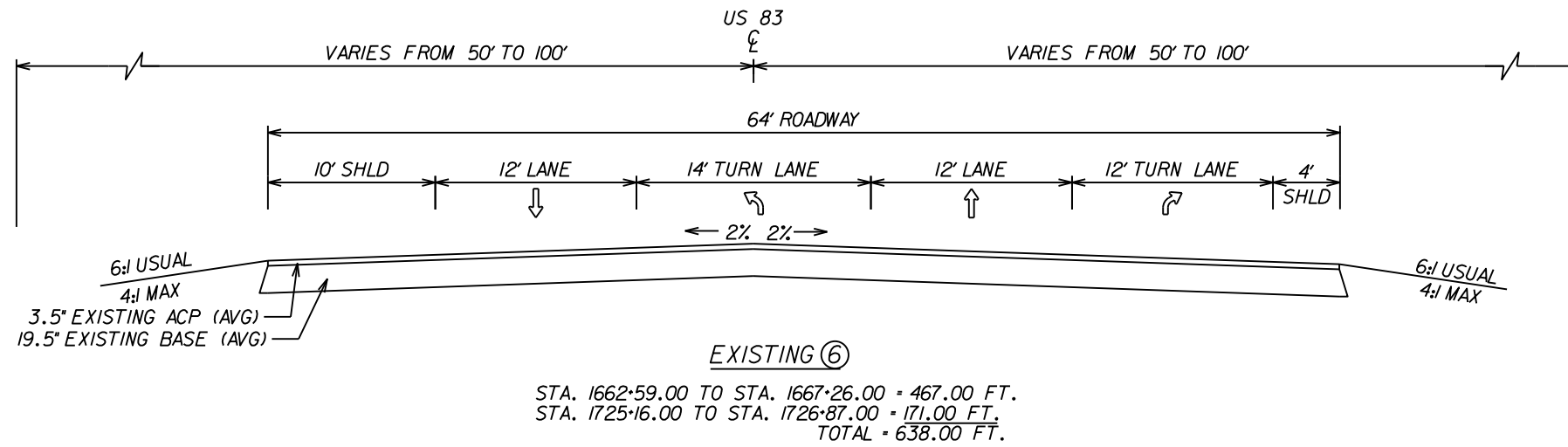
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08/08/2022

TYPICAL SECTIONS
CSJ: 0031-01-034



CONT	SECT	JOB	HIGHWAY
0032	01	034	US 62/83
DIST	COUNTY		SHEET NO.
CHS	CHILDRESS		7

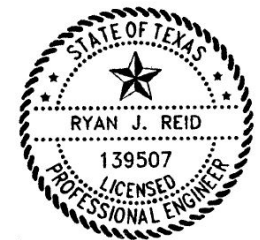
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TRANSITION FROM PROPOSED ⑥ TO PROPOSED ⑦

STA. 1667+26.00 TO STA. 1667+81.00 = 55.00 FT.

*BACKFILL PAVEMENT EDGES WITH TYPE A OR B

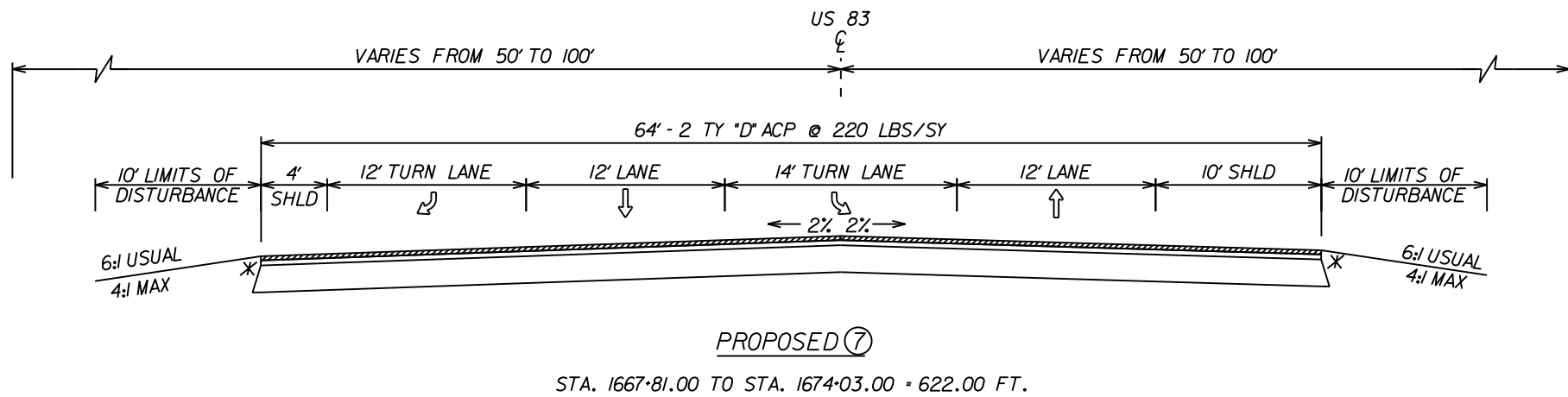
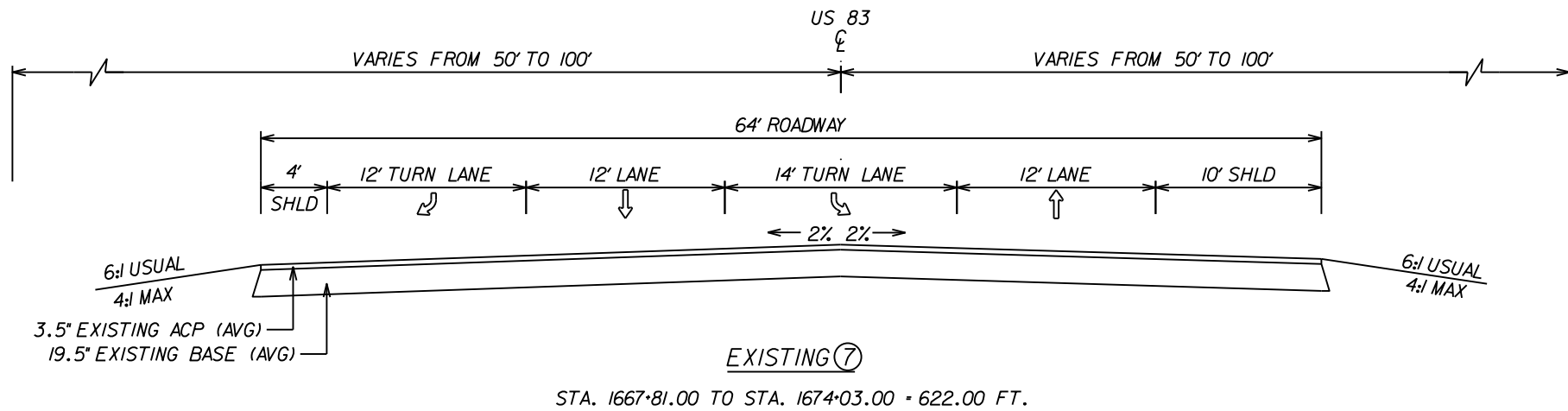


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08/08/2022

TYPICAL SECTIONS
CSJ: 0031-01-034

Texas Department of Transportation		SHEET 6 OF 19	
CONT	SECT	JOB	HIGHWAY
0032	01	034	US 62/83
DIST	COUNTY		SHEET NO.
CHS	CHILDRESS		8

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TRANSITION FROM PROPOSED ⑦ TO PROPOSED ②

STA. 1674+03.00 TO STA. 1677+28.00 = 325.00 FT.

X BACKFILL PAVEMENT EDGES WITH TYPE A OR B

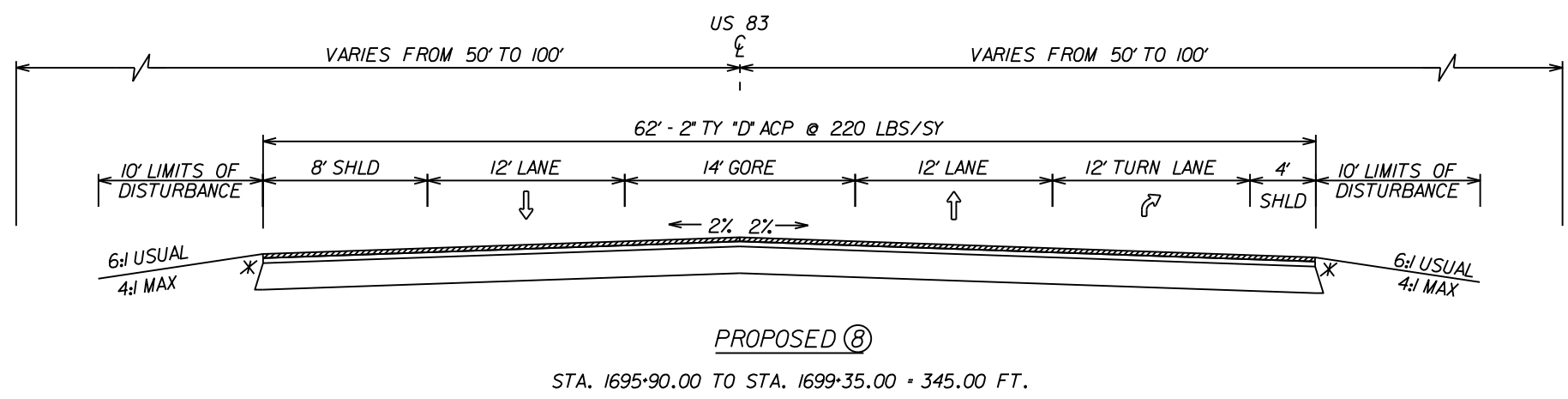
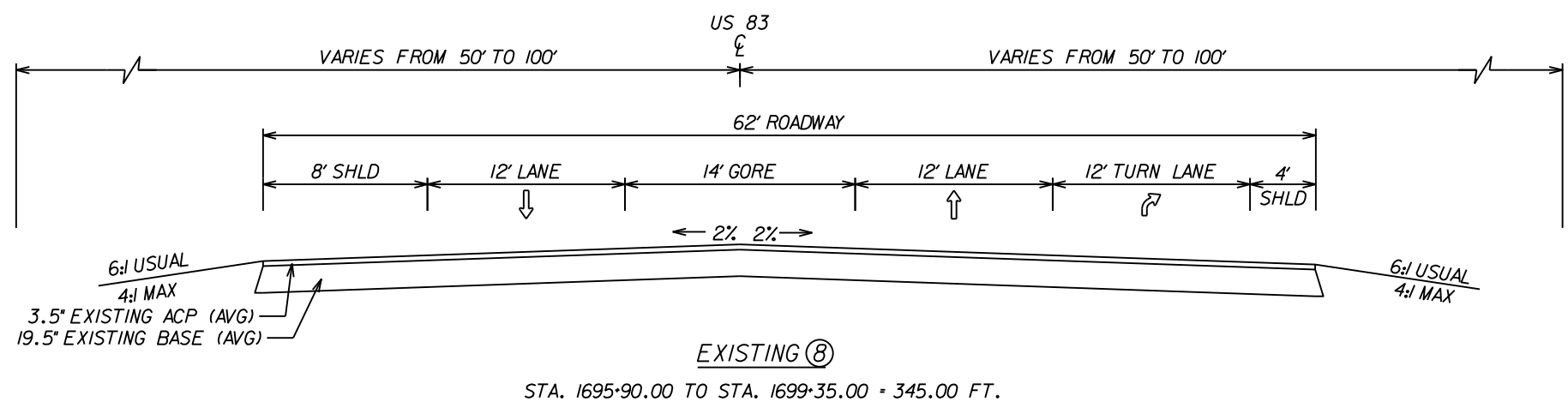


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08/08/2022

TYPICAL SECTIONS
CSJ: 0031-01-034

Texas Department of Transportation		SHEET 7 OF 19	
CONT	SECT	JOB	HIGHWAY
0032	01	034	US 62/83
DIST	COUNTY		SHEET NO.
CHS	CHILDRESS		9

DATE: 7/22/2022 7:58:13 AM
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TRANSITION FROM PROPOSED (8) TO PROPOSED (9)

STA. 1699+35.00 TO STA. 1699+95.00 • 60.00 FT.

*BACKFILL PAVEMENT EDGES WITH TYPE A OR B



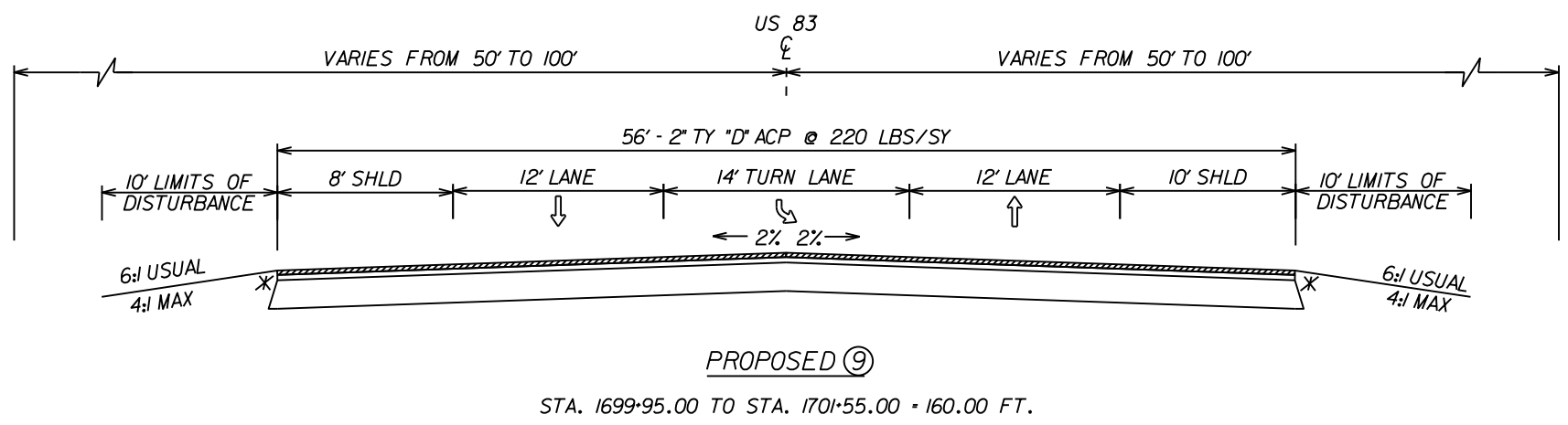
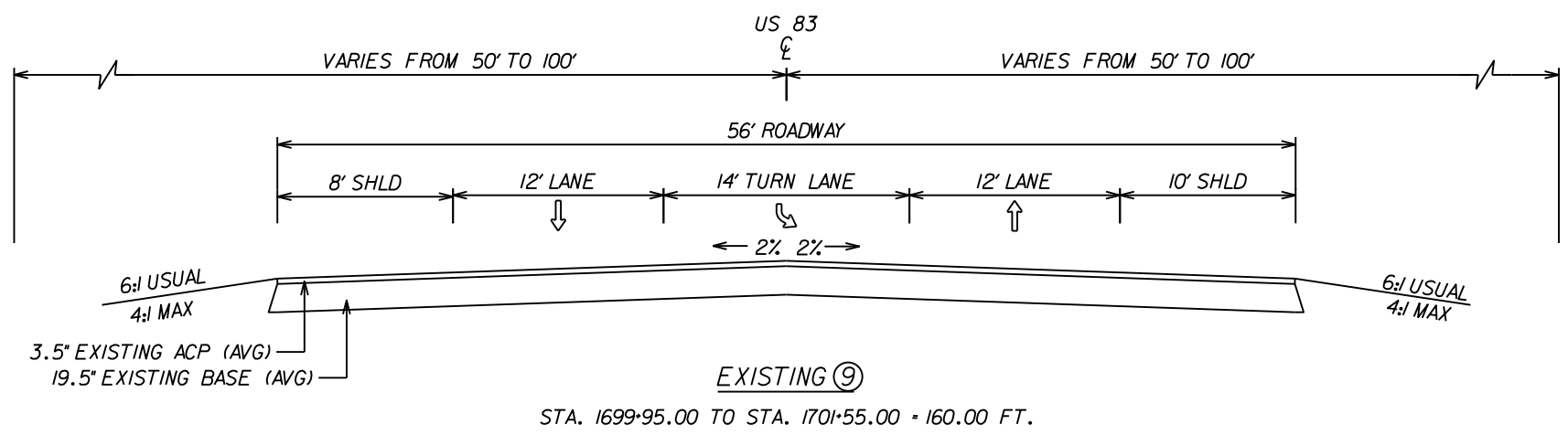
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TYPICAL SECTIONS
CSJ: 0031-01-034



CONT	SECT	JOB	HIGHWAY
0032	01	034	US 62/83
DIST	COUNTY		SHEET NO.
CHS	CHILDRESS		10

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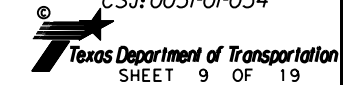
TRANSITION FROM PROPOSED ⑨ TO PROPOSED ②
 STA. 1701+55.00 TO STA. 1705+55.00 = 400.00 FT.

* BACKFILL PAVEMENT EDGES WITH TYPE A OR B



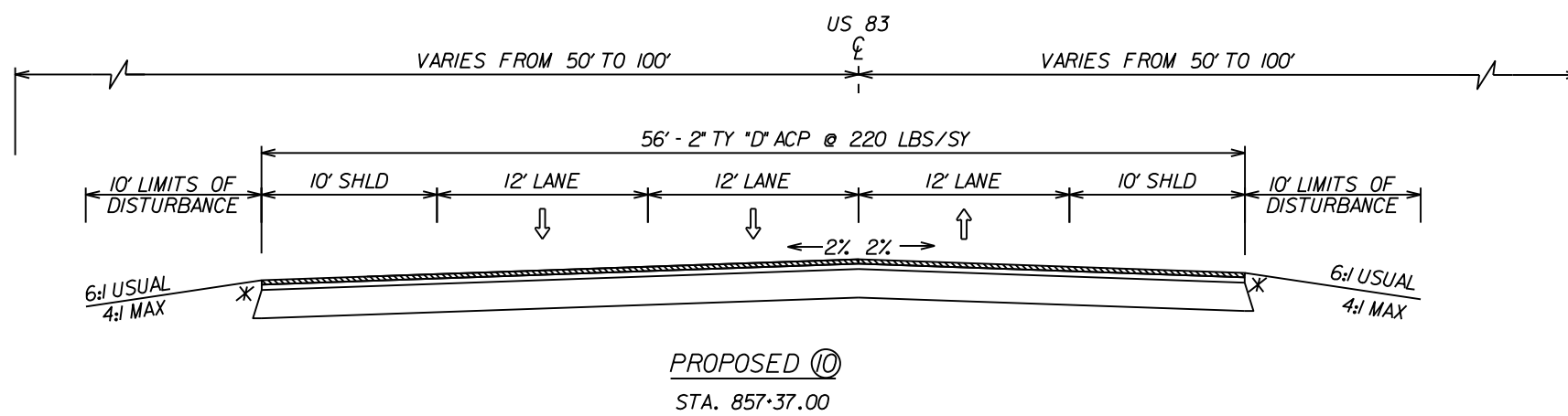
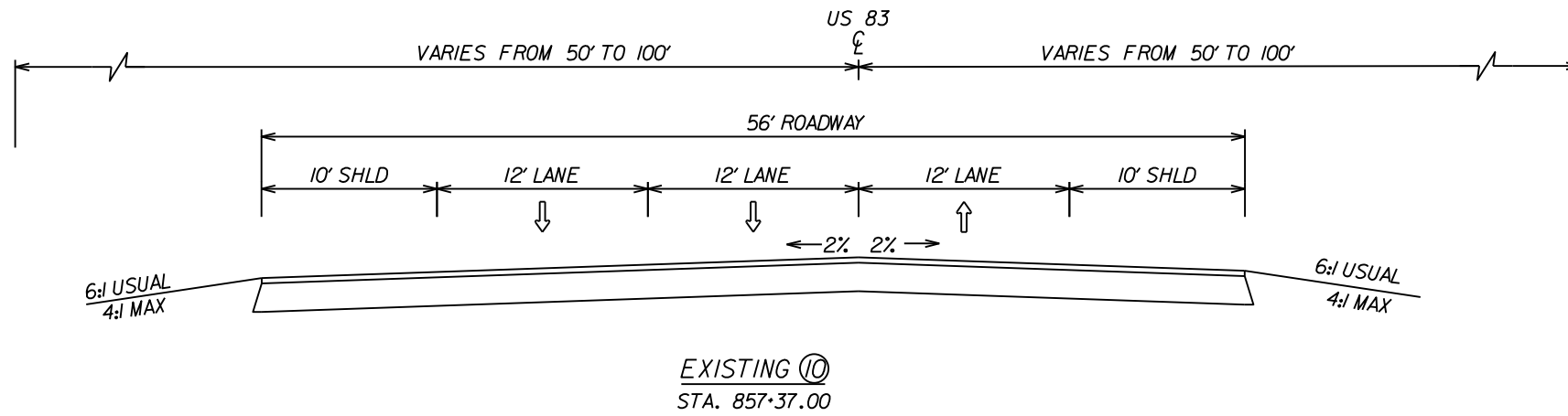
Ryan J. Reid P.E.
 08/08/2022

TYPICAL
 SECTIONS
 CSJ: 0031-01-034



SHEET 9 OF 19	
CONT	SECT
0032	01
JOB	
US 62/83	
COUNTY	
CHILDRESS	
SHEET NO.	
11	

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TRANSITION FROM PROPOSED ⑩ TO PROPOSED ⑪

STA. 857+37.00 TO STA. 862+87.00 = 900.00 FT.

NOTE:
 DECEL LANE TRANSITIONS FROM 0' TO 7' DURING THIS TRANSITION
 PAVED GORE TRANSITIONS FROM 0' TO 26'
 (STA. 859+47.00 TO STA. 862+87.00)

*BACKFILL PAVEMENT EDGES WITH TYPE A OR B

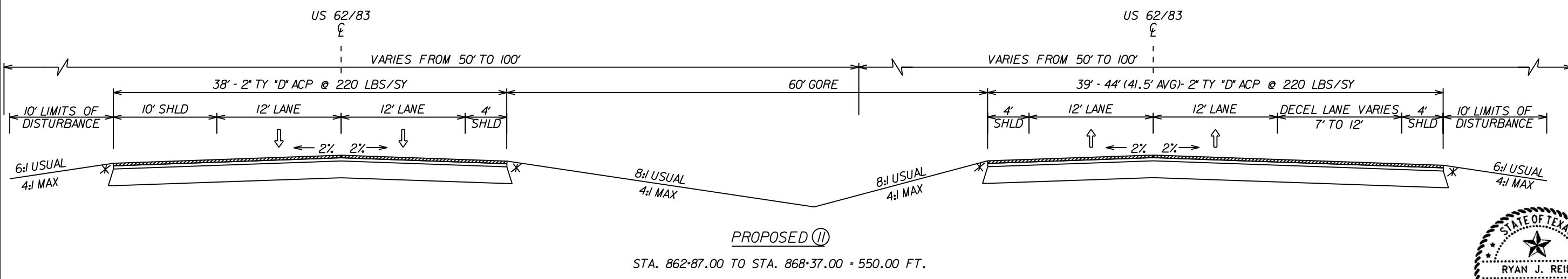
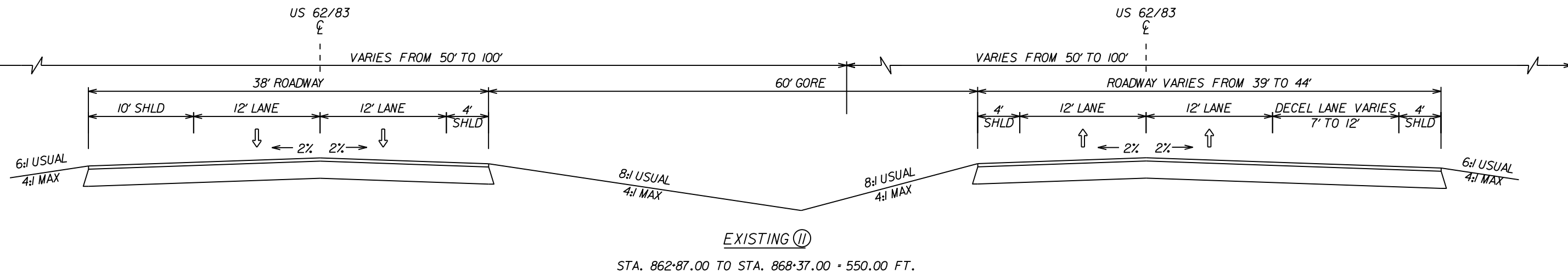


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 07/22/2022

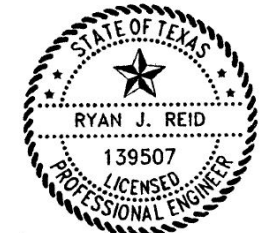
TYPICAL SECTIONS

CSJ: 0031-05-046		Texas Department of Transportation	
SHEET 10 OF 19			
CONT	SECT	JOB	HIGHWAY
0032	01	034	US 62/83
DIST	COUNTY		SHEET NO.
CHS	CHILDRESS		12

DATE: 7/22/2022 7:59:03 AM
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* BACKFILL PAVEMENT EDGES WITH TYPE A OR B



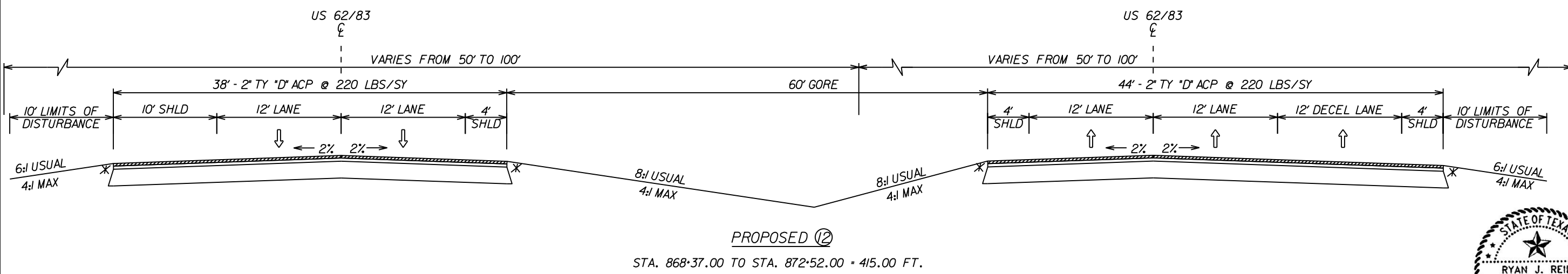
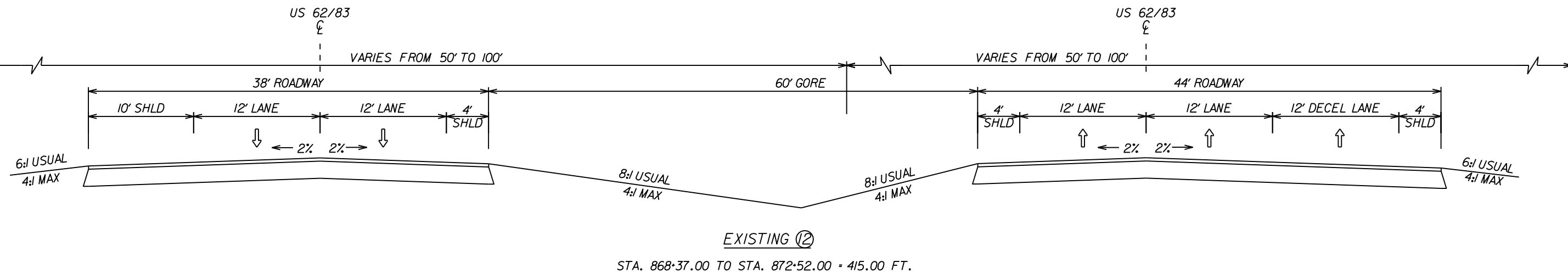
Ryan J. Reid P.E.
07/22/2022

TYPICAL SECTIONS

CSJ: 0031-05-046
Texas Department of Transportation
SHEET 11 OF 19

CONT	SECT	JOB	HIGHWAY
0032	01	034	US 62/83
DIST	COUNTY	SHEET NO.	
CHS	CHILDRESS	13	

DATE: 7/22/2022 7:59:16 AM
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* BACKFILL PAVEMENT EDGES WITH TYPE A OR B



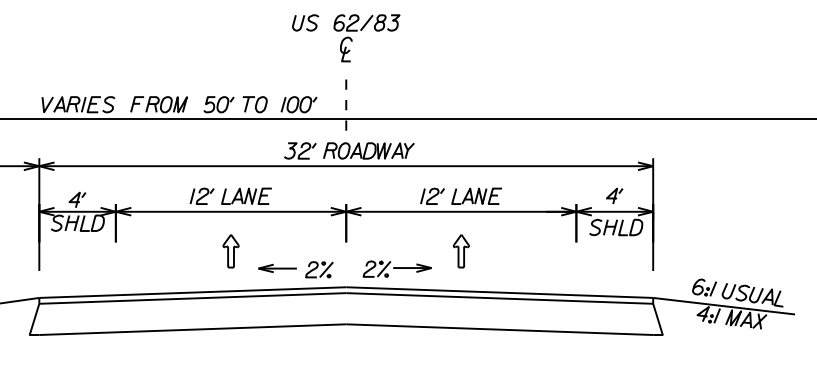
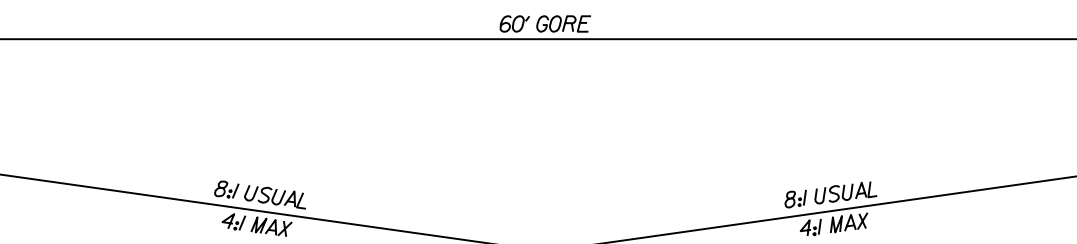
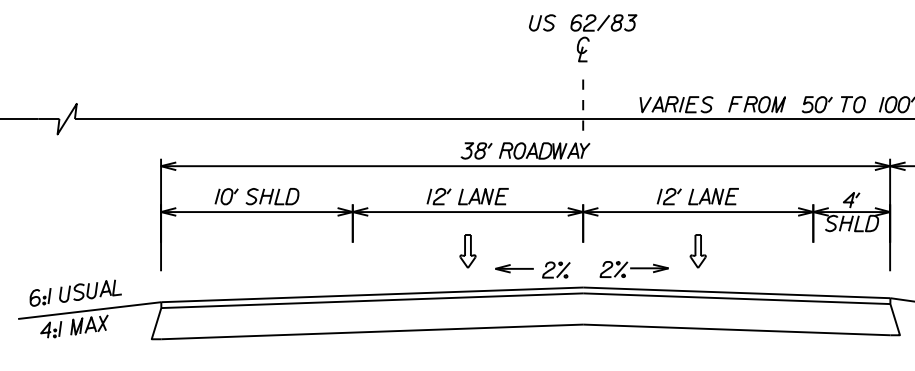
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TYPICAL SECTIONS

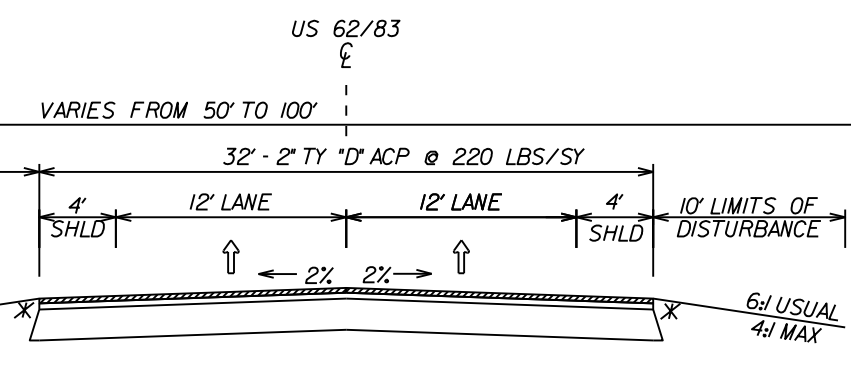
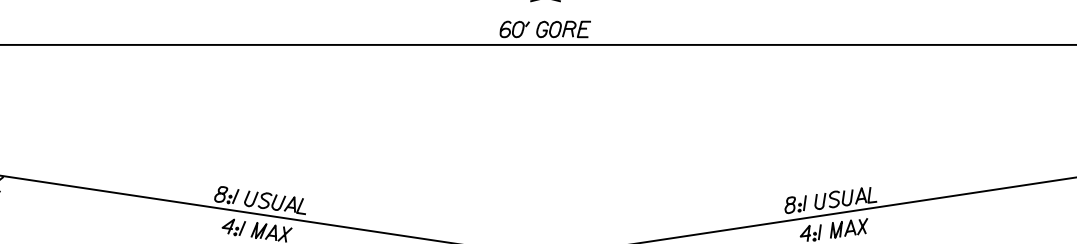
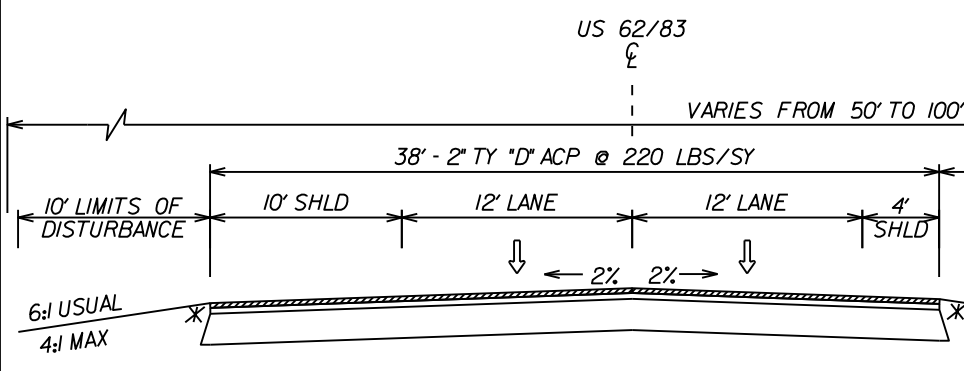
CSJ: 0031-05-046
 Texas Department of Transportation
 SHEET 12 OF 19

CONT	SECT	JOB	HIGHWAY
0032	01	034	US 62/83
DIST	COUNTY	SHEET NO.	
CHS	CHILDRESS	14	

DATE: 7/22/2022 7:59:30 AM
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EXISTING (13)
 STA. 872+52.00 TO STA. 874+25.00 = 173.00 FT.



PROPOSED (13)
 STA. 872+52.00 TO STA. 874+25.00 = 173.00 FT.

TRANSITION FROM PROPOSED (13) TO PROPOSED (14)
 STA. 874+25.00 TO STA. 875+50.00 = 125.00 FT.

* BACKFILL PAVEMENT EDGES WITH TYPE A OR B

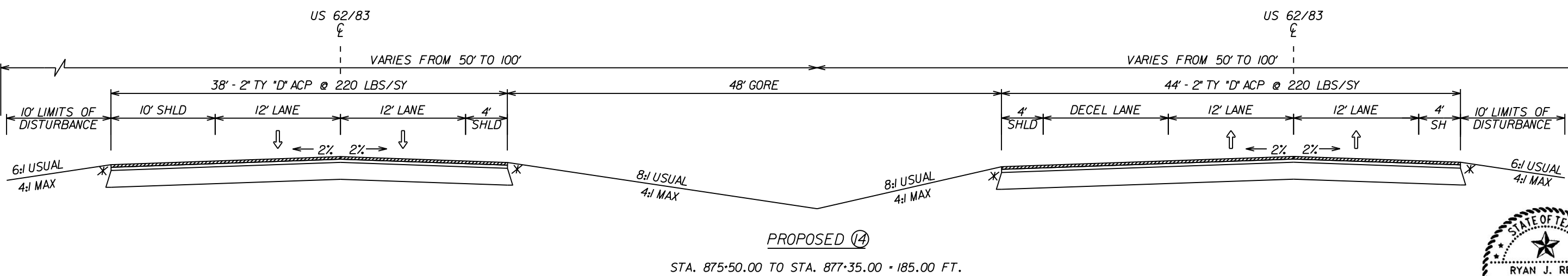
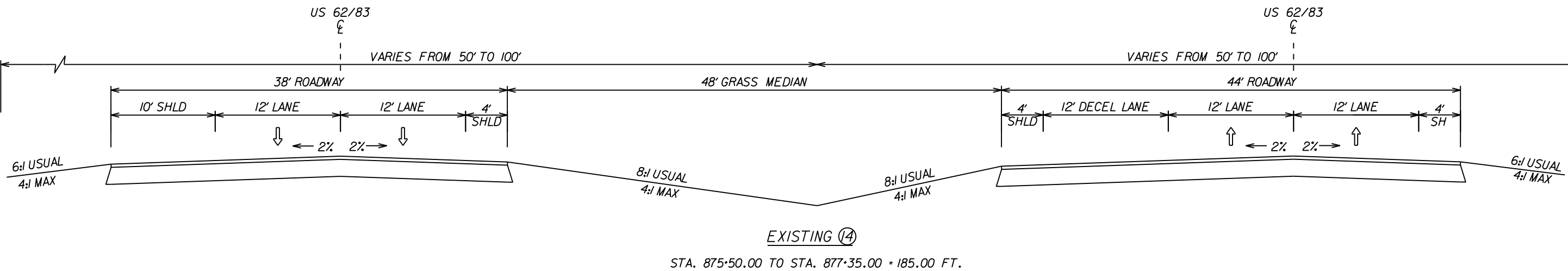


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 TYPICAL
 SECTIONS

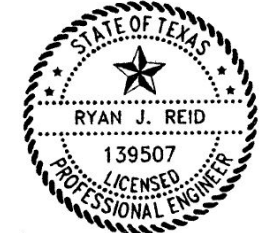
CSJ: 0031-05-046
 Texas Department of Transportation
 SHEET 13 OF 19

CONT	SECT	JOB	HIGHWAY
0032	01	034	US 62/83
DIST	COUNTY	SHEET NO.	
CHS	CHILDRESS	15	

DATE: 7/22/2022 7:59:43 AM
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* BACKFILL PAVEMENT EDGES WITH TYPE A OR B



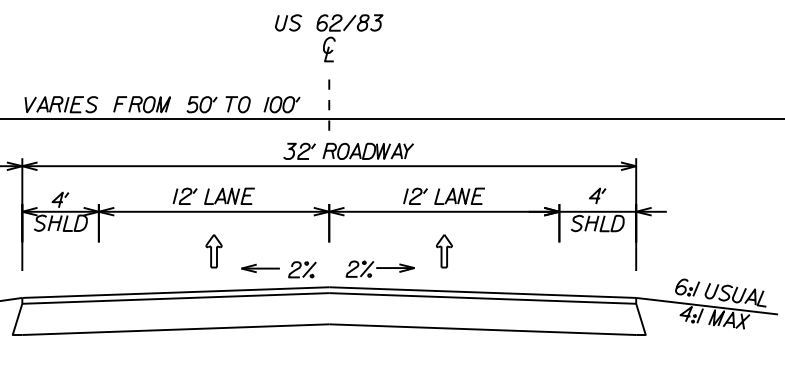
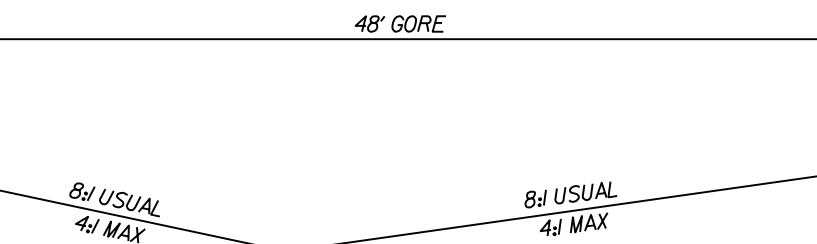
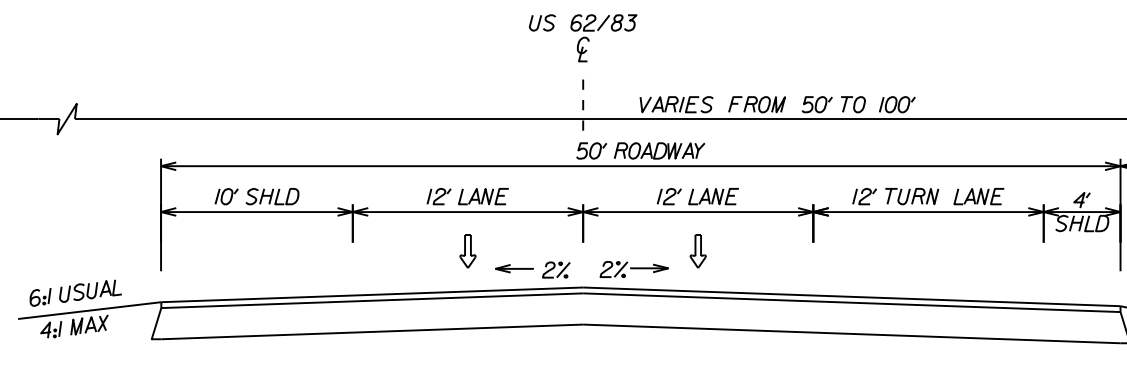
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TYPICAL SECTIONS

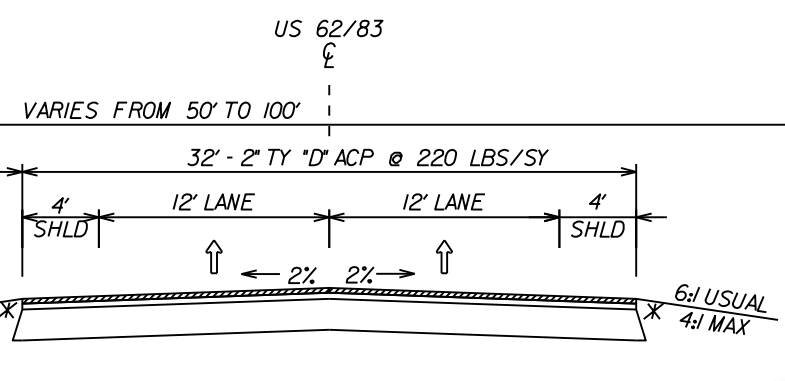
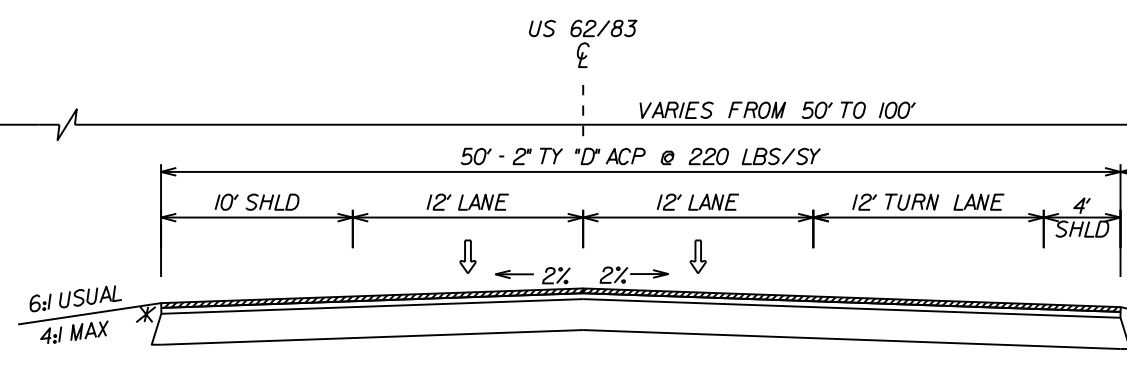
CSJ: 0031-05-046
 Texas Department of Transportation
 SHEET 14 OF 19

CONT	SECT	JOB	HIGHWAY
0032	01	034	US 62/83
DIST	COUNTY		SHEET NO.
CHS	CHILDRESS		16

DATE: 7/22/2022 7:59:56 AM
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EXISTING ⑮
 STA. 877+35.00 TO STA. 879+35.00 = 200.00 FT.



TRANSITION FROM PROPOSED ⑮ TO PROPOSED ⑯
 STA. 879+35.00 TO STA. 882+65.00 = 330.00 FT.

EXISTING ⑮
 STA. 877+35.00 TO STA. 879+35.00 = 200.00 FT.

* BACKFILL PAVEMENT EDGES WITH TYPE A OR B



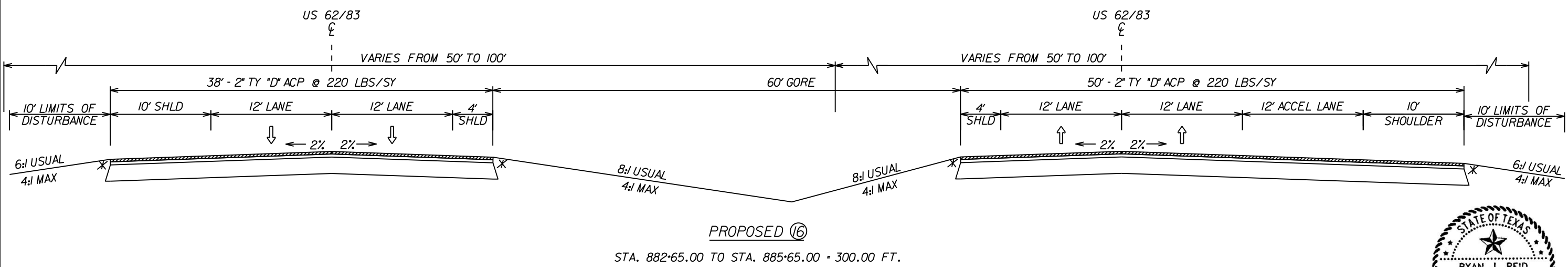
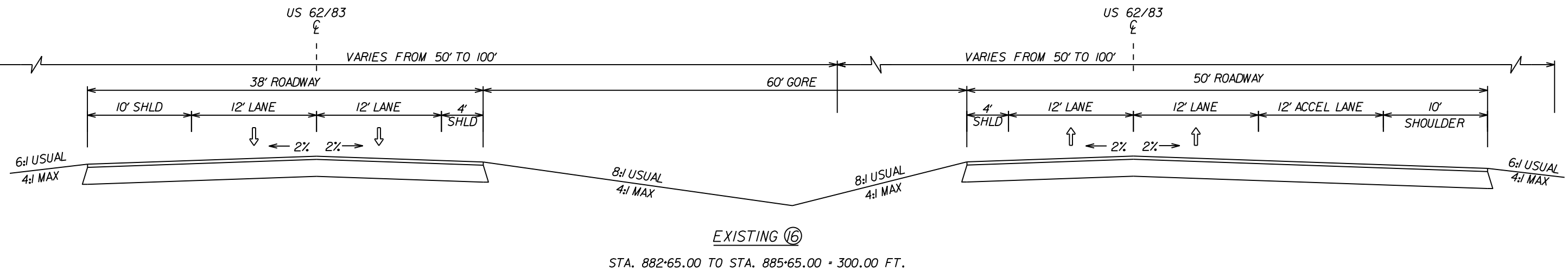
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TYPICAL SECTIONS

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 Texas Department of Transportation
 SHEET 15 OF 19

CONT	SECT	JOB	HIGHWAY
0032	01	034	US 62/83
DIST	COUNTY		SHEET NO.
CHS	CHILDRESS		17

DATE: 7/22/2022 8:00:12 AM
 FILE: I:\CHSDES\PROJECTS\CHILDRESS\0032-01-034 (US 62 & 83)\xx 0031-05-046 (US 62 & 83)\Hollis Y.Plan_Set\Roadway\Typical section (32-01-34).dgn



TRANSITION FROM PROPOSED (16) TO PROPOSED (17)
STA. 885+65.00 TO STA. 892+85 = 720.00 FT.

* BACKFILL PAVEMENT EDGES WITH TYPE A OR B

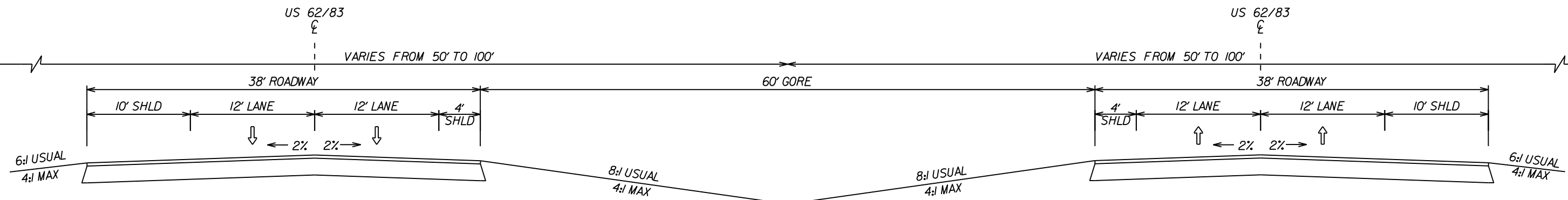


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TYPICAL SECTIONS

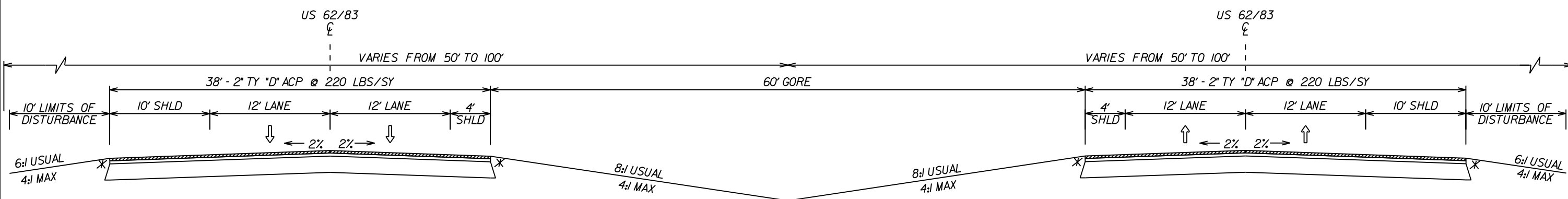
CSJ: 0031-05-046
Texas Department of Transportation
SHEET 16 OF 19

CONT	SECT	JOB	HIGHWAY
0032	01	034	US 62/83
DIST	COUNTY		SHEET NO.
CHS	CHILDRESS		17A

DATE: 7/22/2022 8:00:26 AM
 FILE: I:\CHSD\PROJECTS\CHILDRESS\0032-01-034 (US 62 & 83)\xx 0031-05-046 (US 62 & 83)\Hollis Y.Plan_Set\Roadway\Typical section (32-01-34).dgn



EXISTING (17)
 STA. 892+85.00 TO STA. 948+18.00 = 5,533.00 FT.
 STA. 956+18.00 TO STA. 965+88.00 = 970.00 FT.
 TOTAL: 6,503.00 FT.



PROPOSED (17)
 STA. 892+85.00 TO STA. 948+18.00 = 5,533.00 FT.
 STA. 956+18.00 TO STA. 965+88.00 = 970.00 FT.
 TOTAL: 6,503.00 FT.

TRANSITION FROM PROPOSED (17) TO PROPOSED (18)
 STA. 948+18.00 TO STA. 951+33.00 = 315.00 FT.

TRANSITION FROM PROPOSED (17) TO PROPOSED (20)
 STA. 965+88.00 TO STA. 973+18.00 = 730.00 FT.

- NOTES:**
- 35' GORE @ STA. 965+88 (OVERALL PAVEMENT WIDTH = 105')

* BACKFILL PAVEMENT EDGES WITH TYPE A OR B



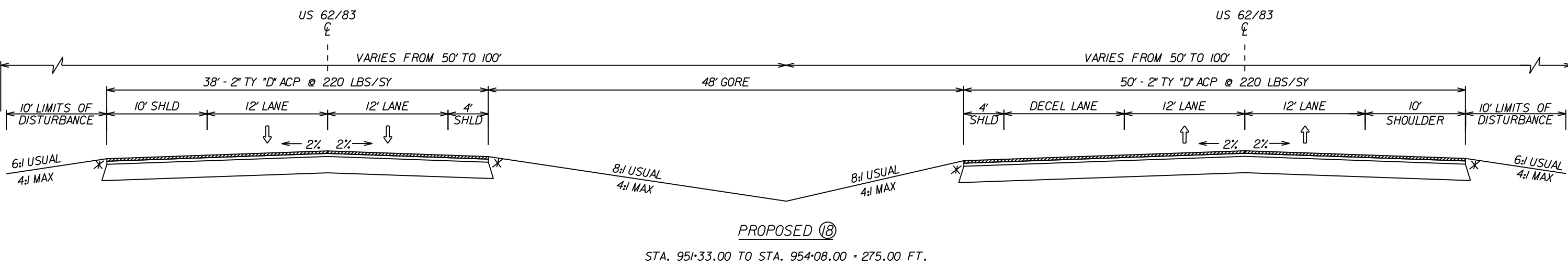
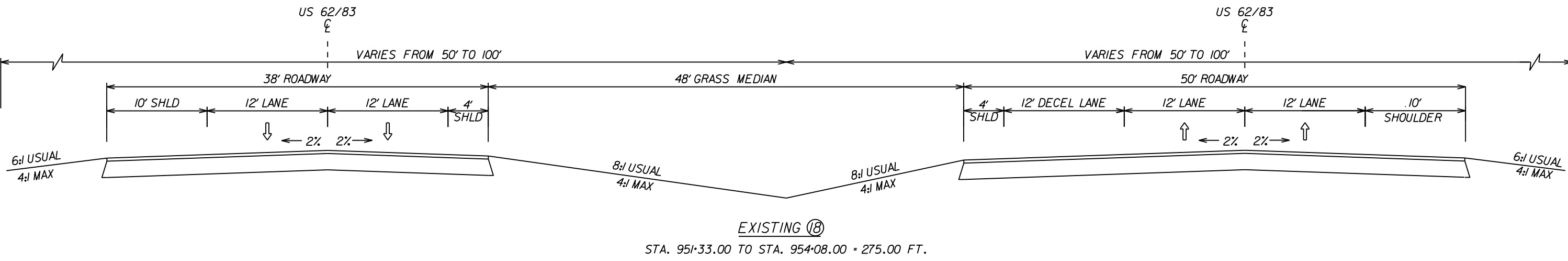
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TYPICAL SECTIONS

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 Texas Department of Transportation
 SHEET 17 OF 19

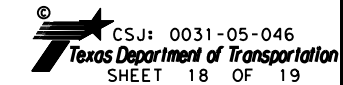
CONT	SECT	JOB	HIGHWAY
0032	01	034	US 62/83
DIST	COUNTY		SHEET NO.
CHS	CHILDRESS		17B

DATE: 7/22/2022 8:00:38 AM
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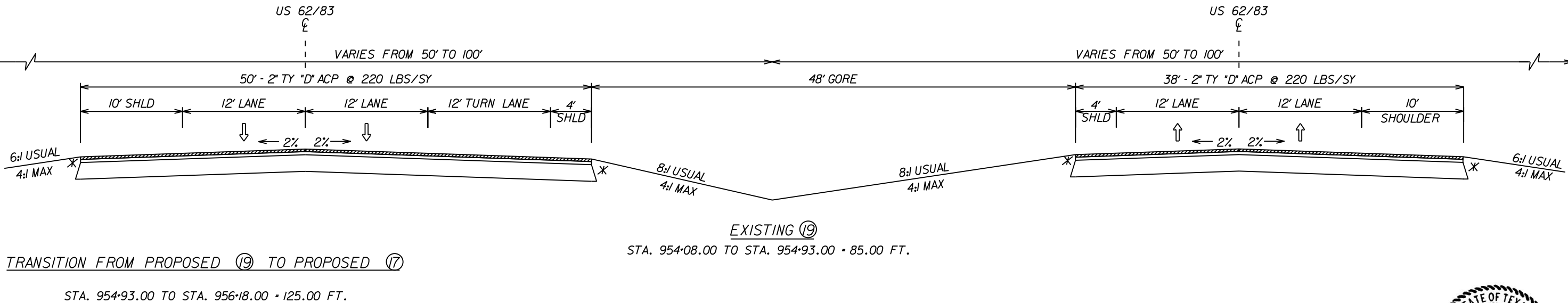
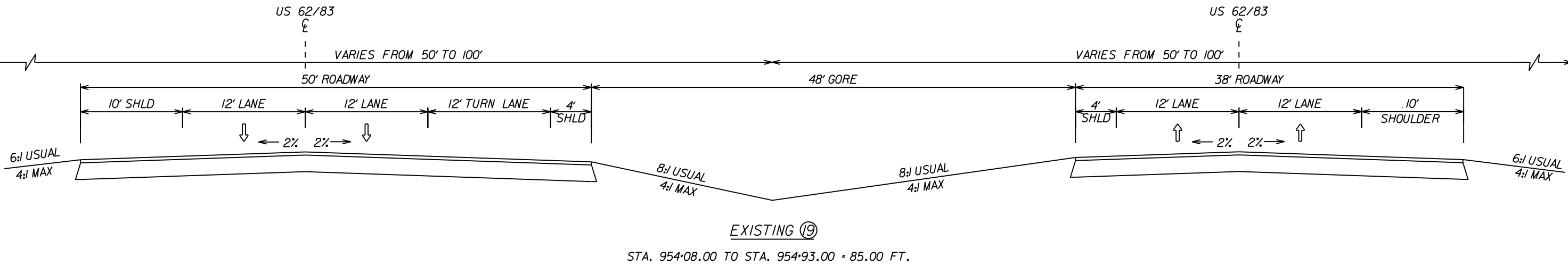
* BACKFILL PAVEMENT EDGES WITH TYPE A OR B

TYPICAL SECTIONS

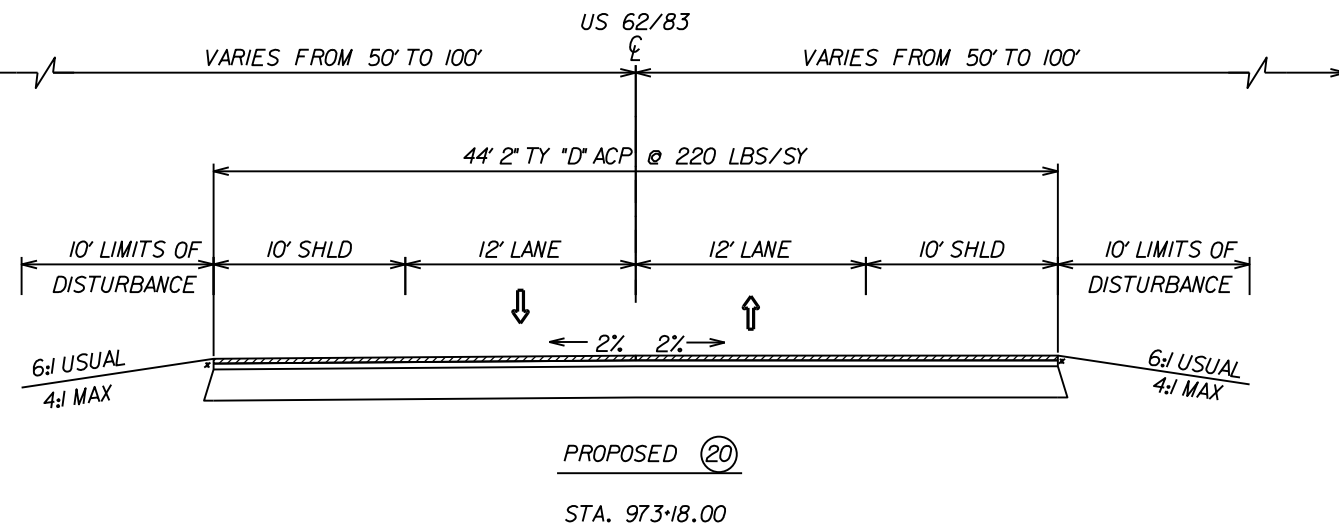


CONT	SECT	JOB	HIGHWAY
0032	01	034	US 62/83
DIST	COUNTY		SHEET NO.
CHS	CHILDRESS		17C

DATE: 7/22/2022 8:00:51 AM
 FILE: I:\CHSDESIGN\PROJECTS\CHILDRESS\0032-01-034 (US 62 & 83)\xx\0031-05-046 (US 62 & 83)\xx\0031-05-046 (US 62 & 83) Hollis Y.Plan_Set\Roadway\Typical section (32-01-34).dgn



TRANSITION FROM PROPOSED (19) TO PROPOSED (17)
 STA. 954+93.00 TO STA. 956+18.00 = 125.00 FT.



* BACKFILL PAVEMENT EDGES WITH TYPE A OR B



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TYPICAL SECTIONS

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 Texas Department of Transportation
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CONT	SECT	JOB	HIGHWAY
0032	01	034	US 62/83
DIST	COUNTY	SHEET NO.	
CHS	CHILDRESS	170	

CORE	LANE	Approximate STA.	Asphalt Thickness (Inch)	Base Layer Thickness (Inch)
B-1	SB	1664+21.71	3	25.5
B-2	NB	1650+68.98	3.5	20.5
B-3	SB	1637+02.98	3	25
B-4	NB (TRAVEL)	1623+55.33	3.75	12.25
B-5	SB	1610+03.04	3	21
B-6	NB (TRAVEL)	1596+58.32	4	23.5
B-7	SB	1583+08.03	3	21
B-8	NB	1568+83.40	3.75	10.75
B-9	SB	1555+13.90	4	16
B-10	NB	1541+95.41	4.5	19.5
B-11	SB	1528+44.68	3.25	15.75
B-12	NB	1514+71.43	2.75	22.25
B-13	SB	1501+45.51	3.5	21
B-14	NB	1487+96.79	4.75	16.25
B-15	SB (TRAVEL)	1474+49.87	3.75	16.25
B-16	NB	1460+86.96	4	18
B-17	SB (TRAVEL)	1440+18.63	3.5	22.5
B-18	NB	1433+61.44	4	7.75
B-19	SB (TRAVEL)	1420+09.41	3.75	26
B-20	NB	1406+75.71	2.75	7
B-21	SB	1393+31.58	3.25	24.75
B-22	NB (TRAVEL)	1379+67.06	5.25	20.75
B-23	SB	1366+37.57	3.5	17.5
B-24	NB (TRAVEL)	1352+75.08	4.75	12.5
B-25	SB	1339+25.29	3.75	24.25
B-26	NB (TRAVEL)	1325+79.53	4	32
B-27	SB	1311+38.32	3.5	20
B-28	NB (TRAVEL)	1298+14.39	5	19.5
B-29	SB	1284+61.93	3.5	16.5
B-30	NB	1271+65.73	4.25	21.75
B-31	SB (TRAVEL)	1259+17.33	3.5	24
B-32	NB (SHOULDER)	1623+55.33	~	~
B-33	SB (SHOULDER)	1555+13.90	3	18
B-34	NB (SHOULDER)	1487+96.79	4	24.5
B-35	SB (SHOULDER)	1420+09.41	2.5	17.5
B-36	NB (SHOULDER)	1352+75.08	~	~
AVERAGE THICKNESS			3.50	19.50

CORE DATA SHEET



CONT	SECT	JOB	HIGHWAY
0032	01	034	US 62/83
DIST	COUNTY		SHEET NO.
CHS	CHILDRESS		18

GENERAL NOTES AND SUPPLEMENTAL INFORMATION

*BASIS FOR ESTIMATE		
ITEM	DESCRIPTION	RATE
168	VEGETATIVE WATERING	39,000 GAL/ACRE
314	EMULSIFIED ASPH (CSS-1H) (EROSION CONTROL)	0.20 GAL/SY
3076	D-GR HMA (PER BID ITEM DESCRIPTION)	110 LB/SY/IN
3076	TACK COAT (TRAIL)	0.10 GAL/SY

*RATES SHOWN IN THIS TABLE HAVE BEEN USED FOR PLAN QUANTITY CALCULATIONS AND MAY BE ADJUSTED BY THE ENGINEER DURING CONSTRUCTION FOR APPLICATION PURPOSES.

CONTRACTOR QUESTIONS ON THIS PROJECT ARE TO BE ADDRESSED TO THE FOLLOWING INDIVIDUAL(S):

MATTHEW.HERBSTTRITT@TXDOT.GOV

CONTRACTOR QUESTIONS WILL BE ACCEPTED THROUGH EMAIL, PHONE, AND IN PERSON TO THE ABOVE INDIVIDUAL(S). ALL CONTRACTOR QUESTIONS WILL BE REVIEWED BY THE RESPONSIBLE AREA ENGINEER OR DISTRICT DIRECTOR. ONCE A RESPONSE IS DEVELOPED, IT WILL BE POSTED TO TXDOT'S PUBLIC FTP AT THE FOLLOWING ADDRESS:

[HTTPS://FTP.DOT.STATE.TX.US/PUB/TXDOT-INFO/PRE-LETTING RESPONSES/](https://ftp.dot.state.tx.us/pub/txdot-info/pre-letting-responses/)

ALL QUESTIONS SUBMITTED THAT GENERATE A RESPONSE WILL BE POSTED THROUGH THIS SITE. THE SITE IS ORGANIZED BY DISTRICT, PROJECT TYPE (CONSTRUCTION OR MAINTENANCE), LETTING DATE, CCSJ/PROJECT NAME.

ITEM 5 - CONTROL OF THE WORK

CONSTRUCTION SURVEYING ON THIS CONTRACT WILL BE IN ACCORDANCE WITH ARTICLE 5.9.3, "METHOD C". THE CONTRACTOR SHALL PLACE CONSTRUCTION STAKES NEAR THE RIGHT-OF-WAY LINE AT INTERVALS OF NO MORE THAN 200', OR AS DIRECTED, WITH STATIONING.

CORRECT ANY DEFICIENCIES IDENTIFIED DURING FINAL INSPECTION, INCLUDING REQUIRED PAPERWORK. SUBMIT ALL REQUIRED DOCUMENTATION WITHIN 14 DAYS OF FINAL ACCEPTANCE AS DIRECTED BY THE ENGINEER.

ITEM 6 – CONTROL OF MATERIALS

WHEN A PRECAST OR CAST-IN-PLACE CONCRETE ELEMENT IS INCLUDED IN THE PLANS, A PRECAST CONCRETE ALTERNATE MAY BE SUBMITTED IN ACCORDANCE WITH "STANDARD OPERATING PROCEDURE FOR ALTERNATE PRECAST PROPOSAL SUBMISSION" FOUND ONLINE AT THE FOLLOWING ADDRESS:

[HTTPS://FTP.TXDOT.GOV/PUB/TXDOT-INFO/BRG/DESIGN/ALTERNATE-PRECAST-PROPOSAL-SUBMISSION.PDF](https://ftp.txdot.gov/pub/txdot-info/brg/design/alternate-precast-proposal-submission.pdf)

AN ACCEPTANCE OR DENIAL OF AN ALTERNATE IS AT THE SOLE DISCRETION OF THE ENGINEER. IMPACTS TO THE PROJECT SCHEDULE AND ANY ADDITIONAL COSTS RESULTING FROM THE USE OF ALTERNATES ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

ITEM 7 - LEGAL RELATIONS AND RESPONSIBILITIES

PROVIDE INGRESS & EGRESS TO THE ADJACENT PROPERTIES IN AREAS UNDER CONSTRUCTION. PHASED CONSTRUCTION OF DRIVEWAYS AND STREETS SHALL BE REQUIRED TO PROVIDE UNINTERRUPTED ACCESS TO ADJACENT PROPERTIES. COORDINATE WORK WITH THE PROPERTY OWNERS BEFORE BEGINNING ANY CONSTRUCTION IN THE VICINITY OF THE DRIVE.

DO NOT INITIATE ACTIVITIES IN A PROJECT SPECIFIC LOCATION (PSL) ASSOCIATED WITH A U.S. ARMY CORPS OF ENGINEERS (USACE) PERMIT AREA THAT HAS NOT BEEN PREVIOUSLY EVALUATED BY THE USACE AS PART OF THE PERMIT REVIEW FOR THIS PROJECT. SUCH ACTIVITIES INCLUDE BUT ARE NOT LIMITED TO, HAUL ROADS, EQUIPMENT STAGING AREAS, BORROW AND DISPOSAL SITES. "ASSOCIATED", AS DEFINED HEREIN, INCLUDES MATERIALS DELIVERED TO OR FROM THE PSL. THE PERMIT AREA INCLUDES ALL WATERS OF THE U.S. OR ASSOCIATED WETLANDS AFFECTED BY PROJECT ACTIVITIES. SPECIAL RESTRICTIONS MAY BE REQUIRED FOR SUCH WORK. CONSULT WITH THE USACE REGARDING ACTIVITIES, INCLUDING PROJECT SPECIFIC LOCATIONS (PSLS) THAT HAVE NOT BEEN PREVIOUSLY EVALUATED BY THE USACE. PROVIDE THE DEPARTMENT WITH A COPY OF ALL CONSULTATION(S) OR APPROVAL(S) FROM THE USACE PRIOR TO INITIATING ACTIVITIES.

PROCEED WITH ACTIVITIES IN PSLS THAT DO NOT AFFECT A USACE PERMIT AREA IF A SELF DETERMINATION HAS BEEN MADE THAT THE PSL IS NON-JURISDICTIONAL OR PROPER USACE CLEARANCES HAVE BEEN OBTAINED IN JURISDICTIONAL AREAS OR HAVE BEEN PREVIOUSLY EVALUATED BY THE USACE AS PART OF THE PERMIT REVIEW FOR THIS PROJECT. DOCUMENT ANY DETERMINATION(S) THAT PROJECT ACTIVITIES DO NOT AFFECT A USACE PERMIT AREA. MAINTAIN COPIES OF DETERMINATION(S) FOR REVIEW BY THE DEPARTMENT OR ANY REGULATORY AGENCY.

DOCUMENT AND COORDINATE WITH THE USACE, IF REQUIRED, PRIOR TO ANY EXCAVATION HAULED FROM OR EMBANKMENT HAULED INTO A USACE PERMIT AREA BY EITHER (1) OR (2) BELOW.

1. RESTRICTED USE OF MATERIALS FOR THE PREVIOUSLY EVALUATED PERMIT AREAS.

DOCUMENT BOTH THE PROJECT SPECIFIC LOCATION (PSL) AND AUTHORIZATION. MAINTAIN COPIES FOR REVIEW BY THE DEPARTMENT OR ANY REGULATORY AGENCY. WHEN AN AREA WITHIN THE PROJECT LIMITS HAS BEEN EVALUATED BY THE USACE AS PART OF THE PERMIT PROCESS FOR THIS PROJECT:

- SUITABLE EXCAVATION OF REQUIRED MATERIAL IN THE AREAS SHOWN ON THE PLANS AND CROSS SECTIONS AS SPECIFIED IN ITEM 110 IS USED FOR PERMANENT OR TEMPORARY FILL (ITEM 132, EMBANKMENT) WITHIN A USACE PERMIT AREA;

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- SUITABLE EMBANKMENT (ITEM 132) FROM WITHIN THE USACE PERMIT AREA IS USED AS FILL WITHIN A USACE EVALUATED AREA; AND,
- UNSUITABLE EXCAVATION OR EXCESS EXCAVATION [“WASTE”] (ITEM 110) THAT IS DISPOSED OF AT A LOCATION APPROVED BY THE ENGINEER WITHIN A USACE EVALUATED AREA.

2. CONTRACTOR MATERIALS FROM AREAS OTHER THAN PREVIOUSLY EVALUATED AREAS.

PROVIDE THE DEPARTMENT WITH A COPY OF ALL USACE COORDINATION OR APPROVAL(S) PRIOR TO INITIATING ANY ACTIVITIES FOR AN AREA WITHIN THE PROJECT LIMITS THAT HAS NOT BEEN EVALUATED BY THE USACE OR FOR ANY OFF RIGHT OF WAY LOCATIONS USED FOR THE FOLLOWING, BUT NOT LIMITED TO, HAUL ROADS, EQUIPMENT STAGING AREAS, BORROW AND DISPOSAL SITES:

- ITEM 132, EMBANKMENT, USED FOR TEMPORARY OR PERMANENT FILL WITHIN A USACE PERMIT AREA; AND,
- UNSUITABLE EXCAVATION OR EXCESS EXCAVATION [“WASTE”] (ITEM 110, EXCAVATION) THAT IS DISPOSED OF OUTSIDE A USACE EVALUATED AREA.

THE DISTURBED AREA IN THIS PROJECT, ALL PROJECT LOCATIONS IN THE CONTRACT, AND THE CONTRACTOR’S PROJECT SPECIFIC LOCATIONS (PSLS), WITHIN ONE (1) MILE OF THE PROJECT LIMITS, FOR THE CONTRACT WILL FURTHER ESTABLISH THE AUTHORIZATION REQUIREMENTS FOR STORM WATER DISCHARGES. THE DEPARTMENT WILL OBTAIN AN AUTHORIZATION TO DISCHARGE STORM WATER FROM THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) FOR THE CONSTRUCTION ACTIVITIES SHOWN ON THE PLANS. THE CONTRACTOR IS TO OBTAIN REQUIRED AUTHORIZATION FROM THE TCEQ FOR CONTRACTOR PSLs FOR CONSTRUCTION SUPPORT ACTIVITIES ON OR OFF THE ROW. WHEN THE TOTAL AREA DISTURBED IN THE CONTRACT AND PSLs WITHIN ONE (1) MILE OF THE PROJECT LIMITS EXCEEDS FIVE (5) ACRES, PROVIDE A COPY OF THE CONTRACTOR’S NOI FOR PSLs ON THE ROW TO THE ENGINEER AND TO THE LOCAL GOVERNMENT THAT OPERATES A SEPARATE STORM SEWER SYSTEM.

NO SIGNIFICANT TRAFFIC GENERATOR EVENTS IDENTIFIED

ITEM 8 – PROSECUTION AND PROGRESS

WORKING DAYS WILL BE CHARGED IN ACCORDANCE WITH ARTICLE 8.3.1.4, STANDARD WORKWEEK.

PROVIDE A MINIMUM OF 2 WORKING DAYS ADVANCED NOTICE TO THE ENGINEER FOR REQUESTS TO PERFORM WORK ON SATURDAYS. NO WORK ON SUNDAYS OR NATIONAL HOLIDAYS WILL BE ALLOWED.

SUBMIT WRITTEN REQUESTS TO THE ENGINEER FOR CONSIDERATION OF TEMPORARY SUSPENSION OF WORK AND/OR WORKING DAY CHARGES DUE TO CONDITIONS NOT UNDER THE CONTROL OF THE CONTRACTOR. SUCH REQUESTS WILL BE EVALUATED BY THE ENGINEER ON A CASE-BY-CASE BASIS AND A WRITTEN RESPONSE WILL BE PROVIDED TO THE CONTRACTOR.

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COORDINATE WITH THE ENGINEER TO DETERMINE THE APPROPRIATE PROJECT SCHEDULE TYPE IN ACCORDANCE WITH ARTICLE 5.5 PRIOR TO SUBMISSION OF THE BASELINE SCHEDULE.

ITEM 134 - BACKFILL PAVEMENT EDGES

WINDROW APPROXIMATELY 4” OF EXISTING TOPSOIL PRIOR TO BEGINNING OPERATIONS. UPON COMPLETION OF OPERATIONS, RETURN THE WINDROWED MATERIAL TO THE SLOPES AND DITCHES AS A PERMANENT EROSION CONTROL MEASURE. THIS WORK WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED SUBSIDIARY TO PERTINENT BID ITEMS.

SHOULDER UP PAVEMENT EDGES AT THE END OF EACH WORKING DAY TO ENSURE SLOPES OF 4:1 OR FLATTER OFF OF THE EDGE OF PAVEMENT. PAYMENT FOR BACKFILL OF PAVEMENT EDGES WILL ONLY BE MADE ONCE FOR THE FINAL ROADWAY SECTION.

APPLY EMULSIFIED ASPHALT TO THE BACKFILLED MATERIAL AFTER IT HAS BEEN ROLLED AND SEEDED.

ITEM 164 – SEEDING FOR EROSION CONTROL

ALL SEEDED AREAS OF THE PROJECT SHALL BE FERTILIZED WITH 60 POUNDS OF NITROGEN PER ACRE. FERTILIZER WILL NOT BE PAID FOR DIRECTLY BUT WILL BE SUBSIDIARY TO PERTINENT BID ITEMS.

ITEM 300 – ASPHALTS, OILS AND EMULSIONS

PROVIDE DOCUMENTATION THAT INCLUDES THE CURRENT LAB NUMBER SHOWING THAT THE OIL SAMPLE HAS BEEN PRE-TESTED AND APPROVED FOR THE MONTH OF APPLICATION. THIS DOCUMENTATION MUST BE PROVIDED AND VERIFIED BY THE ENGINEER PRIOR TO APPLICATION OF THE MATERIAL.

DO NOT DILUTE EMULSIFIED ASPHALT WITH ADDITIONAL WATER UNDER ANY CIRCUMSTANCES. PROVIDE EMULSIONS MEETING THE REQUIREMENTS UNDER ITEM 300.

ITEM 502 - BARRICADES, SIGNS, AND TRAFFIC HANDLING

THE CONTRACTOR’S RESPONSIBLE PERSON FOR TCP COMPLIANCE SHALL BE AVAILABLE BY PHONE AND SHALL HAVE A RESPONSE TIME WITHIN 45 MINUTES.

WORK WILL NOT BE ALLOWED ON BOTH SIDES OF THE ROAD AT THE SAME TIME UNLESS OTHERWISE APPROVED BY THE ENGINEER.

ALL EQUIPMENT AND MATERIALS SHALL BE STORED OUTSIDE THE ROADWAY CLEAR ZONE.

EQUIP ALL WORK VEHICLES WITHIN 30 FEET OF THE TRAVELED WAY WITH A FUNCTIONING AMBER STROBE LIGHT OR ROTATING BEACON VISIBLE FROM ALL DIRECTIONS.

CSJ: 0032-01-034, ETC

SHEET:

COUNTY: CHILDRESS

HIGHWAY: US 62/83

THE CONTRACTOR SHALL TAKE ACTION AT THE TIME OF RECEIPT OF THE BARRICADE INSPECTION IN ACORDANCE WITH THE DEFICIENCY PRIORITY. MAKE CORRECTIONS WITHIN 1 CALENDAR DAY FOR A PRIORITY 1 DEFICIENCY, OR WITHIN 7 CALENDAR DAYS FOR A PRIORITY 2 DEFICIENCY. THE ENGINEER MAY REQUIRE THE TEMPORARY SUSPENSION OF WORK WITHOUT SUSPENSION OF TIME CHARGES FOR FAILURE TO MAKE CORRECTIONS WITHIN THE APPROPRIATE TIME FRAMES.

THE CONTRACTOR FORCE ACCOUNT "SAFETY CONTINGENCY" THAT HAS BEEN ESTABLISHED FOR THIS PROJECT IS INTENDED TO BE UTILIZED FOR WORK ZONE ENHANCEMENTS AND TO IMPROVE THE EFFECTIVENESS OF THE TRAFFIC CONTROL PLAN. THESE ENHANCEMENTS WILL BE MUTUALLY AGREED UPON BY THE ENGINEER AND THE CONTRACTOR'S RESPONSIBLE PERSON IN WRITING. THE ENGINEER MAY CHOOSE TO USE EXISTING BID ITEMS IF IT DOES NOT SLOW THE IMPLEMENTATION OR ENHANCEMENT.

THE USE OF A PILOT CAR WILL BE REQUIRED FOR ONE-LANE, TWO-WAY TRAFFIC CONTROL. ONE-LANE, TWO-WAY TRAFFIC CONTROL WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED SUBSIDIARY TO ITEM 502.

ITEM 506 – TEMPORARY EROSION, SEDIMENTATION, AND ENVIRONMENTAL CONTROLS

THE ENGINEER MAY REQUIRE THE TEMPORARY SUSPENSION OF WORK WITHOUT SUSPENSION OF TIME CHARGES FOR FAILURE TO MAKE CORRECTIONS TO DEFICIENCIES NOTED ON FORM 2118 WITHIN THE APPROPRIATE TIME FRAMES.

ITEMS 542 & 544 – REMOVING METAL BEAM GUARD FENCE & GUARDRAIL END TREATMENTS

SALVAGED MBGF AND GUARDRAIL END TREATMENTS WILL BECOME THE PROPERTY OF THE CONTRACTOR UPON REMOVAL FROM SERVICE.

ITEM 585 – RIDE QUALITY FOR PAVEMENT SURFACES

USE SURFACE TEST TYPE "B" FOR FINISHED RIDING SURFACES OF NEWLY CONSTRUCTED TRAVEL LANES.

USE PAY ADJUSTMENT SCHEDULE 2.

ITEM 666 - REFLECTORIZED PAVEMENT MARKINGS

THE CONTRACTOR SHALL PLACE GUIDE MARKS TO ESTABLISH THE LOCATION OF THE PROPOSED PAVEMENT MARKINGS. THE CONTRACTOR MAY USE YELLOW TABS SPACED AT 40' ON CENTER OR OTHER METHODS NOT NOTED IN THE PLANS. ALTERNATE METHODS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO STRIPING. ANY ALTERNATE GUIDE MARKINGS PLACED WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED SUBSIDIARY TO PERTINENT BID ITEMS.

CSJ: 0032-01-034, ETC

SHEET:

COUNTY: CHILDRESS

HIGHWAY: US 62/83

ITEM 672 – RAISED PAVEMENT MARKERS

REMOVE EXISTING RAISED PAVEMENT MARKINGS AS THE WORK PROGRESSES, OR AS DIRECTED BY THE ENGINEER. REMOVAL SHALL TAKE PLACE IN CONCURRENCE WITH THE PROPOSED TCP PHASING UNLESS OTHERWISE DIRECTED. REMOVAL OF EXISTING RPMS WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED SUBSIDIARY TO PERTINENT BID ITEMS.

ITEM 3076 – DENSE GRADED HOT-MIX ASPHALT

ANY REPAIRS MADE TO NEW HOTMIX WILL BE PERFORMED FULL LANE WIDTH OR FULL SHOULDER WIDTH AT THE CONTRACTOR'S EXPENSE.

MINIMUM CRUSHED FACE COUNT FOR COURSE GRAVEL AGGREGATE IS 95%.

MINERAL FILLER OTHER THAN DRIED STONE DUST MUST BE APPROVED.

LIME OR LIQUID ANTISTRIPPING AGENT WILL BE REQUIRED.

DESIGN THE MIXTURE USING A SUPERPAVE GYRATORY COMPACTOR (SGC) AT 50 GYRATIONS.

TARGET LAB MOLDED DENSITY IS 97.0%.

MINIMUM ASPHALT CONTENT WILL BE 5%.

TEX-530-C BOIL TEST WILL BE WAIVED.

TWO (2) VERIFICATION TESTS PER DESIGN WILL BE PERFORMED BY THE CHILDRESS DISTRICT LABORATORY. ANY ADDITIONAL DESIGN VERIFICATION TESTING WILL BE PAID FOR BY THE CONTRACTOR AT \$5,000 EACH.

A PG 64-28 BINDER SUBSTITUION WILL BE ALLOWED FOR INTERMEDIATE AND BASE MIXES.

BINDER SUBSTITUION WILL NOT BE ALLOWED FOR SURFACE MIXES.

THE MAXIMUM CONTENT OF RECYCLED MATERIALS FOR ALL HOT MIX ASPHALT CONCRETE SHALL BE 10%.

RAS WILL NOT BE ALLOWED.

PRODUCTION SAMPLING: THE SAMPLER WILL SPLIT EACH SAMPLE INTO THREE (3) EQUAL PORTIONS IN ACCORDANCE WITH TEX-200-F AND LABEL THESE PORTIONS AS "CONTRACTOR", "ENGINEER", AND "REFEREE". DELIVER ENGINEER AND REFEREE SAMPLES TO THE CHILDRESS DISTRICT LABORATORY FOR TESTING.

A MATERIAL TRANSFER VEHICLE (MTV) WITH REMIXING CAPABILITIES WILL BE REQUIRED.

A TAPERED LONGITUDINAL JOINT WILL BE REQUIRED UNLESS OTHERWISE APPROVED BY THE ENGINEER.

CSJ: 0032-01-034, ETC

SHEET:

COUNTY: CHILDRESS

HIGHWAY: US 62/83

ITEM 3076 – TACK COAT

TRACKING RESISTANT ASPHALT INTERLAYER (TRAIL) APPROVED MATERIALS SHALL BE USED FOR TACK COAT.

ITEM 6185 – TRUCK MOUNTED ATTENUATOR (TMA) AND TRAILER ATTENUATOR (TA)

THERE WILL BE NO ADDITIONAL SHADOW VEHICLES OR TMA REQUIRED IN ADDITION TO THE SHADOW VEHICLES WITH TRUCK MOUNTED ATTENUATOR (TMA) THAT ARE SPECIFIED AS BEING REQUIRED ON THE TRAFFIC CONTROL PLAN STANDARDS FOR THIS PROJECT.

REFERENCE THE TABLE BELOW FOR TMA REQUIRED PER TCP STANDARD OPERATION. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING IF ONE OR MORE OF THESE OPERATIONS WILL BE ONGOING AT THE SAME TIME TO DETERMINE THE TOTAL NUMBER OF TMA'S NEEDED FOR THE PROJECT.

BASIS OF ESTIMATE FOR STATIONARY TMAs				
		TMA(STATIONARY)		
PHASE	STANDARD	REQUIRED	ADDITIONAL	TOTAL
OVERLAY	TCP(1-1)-18	1	0	1
OVERLAY	TCP(1-2)-18	1	0	1
OVERLAY	TCP(1-4)-18	1	0	1

BASIS OF ESTIMATE FOR MOBILE TMAs				
		TMA(MOBILE)		
PHASE	STANDARD	REQUIRED	ADDITIONAL	TOTAL
STRIPING	TCP (3-1)-13	2	0	2
RUMBLE STRIPS	TCP (3-3)-14	2	0	2



Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0032-01-034

DISTRICT Childress
HIGHWAY US 62, US 83

COUNTY Childress

CONTROL SECTION JOB				0031-05-046		0032-01-034		TOTAL EST.	TOTAL FINAL
PROJECT ID				A00187497		A00071530			
COUNTY				Childress		Childress			
HIGHWAY				US 83		US 62			
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL		
	134-6004	BACKFILL (TY A OR B)	STA	237.000		457.000		694.000	
	164-6034	DRILL SEEDING (PERM) (RURAL) (SANDY)	AC	5.000		21.000		26.000	
	168-6001	VEGETATIVE WATERING	MG	410.000		1,703.000		2,113.000	
	314-6013	EMULS ASPH (EROSN CONT)(CSS-1H)	GAL	4,866.000		20,238.000		25,104.000	
	354-6021	PLANE ASPH CONC PAV(0" TO 2")	SY	2,933.000		9,316.000		12,249.000	
	354-6045	PLANE ASPH CONC PAV (2")	SY			782.000		782.000	
	432-6045	RIPRAP (MOW STRIP)(4 IN)	CY	13.000		229.000		242.000	
	500-6001	MOBILIZATION	LS			1.000		1.000	
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO			6.000		6.000	
	533-6003	RUMBLE STRIPS (SHOULDER) ASPHALT	LF	43,764.000		90,000.000		133,764.000	
	533-6004	RUMBLE STRIPS (CENTERLINE) ASPHALT	LF	300.000		45,537.000		45,837.000	
	540-6002	MTL W-BEAM GD FEN (STEEL POST)	LF	300.000		5,300.000		5,600.000	
	540-6006	MTL BEAM GD FEN TRANS (THRIE-BEAM)	EA			8.000		8.000	
	542-6001	REMOVE METAL BEAM GUARD FENCE	LF	300.000		5,300.000		5,600.000	
	542-6004	RM MTL BM GD FENCE TRANS (THRIE-BEAM)	EA			8.000		8.000	
	544-6001	GUARDRAIL END TREATMENT (INSTALL)	EA	2.000		30.000		32.000	
	544-6003	GUARDRAIL END TREATMENT (REMOVE)	EA	2.000		30.000		32.000	
	658-6016	INSTL DEL ASSM (D-SW)SZ (BRF)GF1 (BI)	EA	3.000		57.000		60.000	
	658-6071	INSTL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	EA			24.000		24.000	
	662-6109	WK ZN PAV MRK SHT TERM (TAB)TY W	EA	2,188.000		1,598.000		3,786.000	
	662-6111	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	EA	284.000		4,474.000		4,758.000	
	666-6006	REFL PAV MRK TY I (W)4"(DOT)(100MIL)	LF	354.000		272.000		626.000	
	666-6030	REFL PAV MRK TY I (W)8"(DOT)(100MIL)	LF			597.000		597.000	
	666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	1,899.000		2,491.000		4,390.000	
	666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	48.000		24.000		72.000	
	666-6072	REFL PAV MRK TY I(W)(LNDP ARW)(100MIL)	EA			8.000		8.000	
	666-6102	REF PAV MRK TY I(W)36"(YLD TRI)(100MIL)	EA	8.000		4.000		12.000	
	666-6141	REFL PAV MRK TY I (Y)12"(SLD)(100MIL)	LF			1,585.000		1,585.000	
	666-6300	RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)	LF	5,331.000		8,190.000		13,521.000	
	666-6303	RE PM W/RET REQ TY I (W)4"(SLD)(100MIL)	LF	27,197.000		95,548.000		122,745.000	
	666-6312	RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)	LF			4,896.000		4,896.000	
	666-6315	RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)	LF	27,587.000		84,705.000		112,292.000	
	672-6007	REFL PAV MRKR TY I-C	EA	267.000		447.000		714.000	
	672-6009	REFL PAV MRKR TY II-A-A	EA	67.000		1,837.000		1,904.000	
	672-6010	REFL PAV MRKR TY II-C-R	EA	135.000				135.000	
	3076-6045	D-GR HMA TY-D SAC-A PG70-28	TON	13,343.000		28,186.000		41,529.000	
	3076-6066	TACK COAT	GAL	13,996.000		25,623.000		39,619.000	



Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0032-01-034

DISTRICT Childress
HIGHWAY US 62, US 83

COUNTY Childress


CONTROL SECTION JOB				0031-05-046		0032-01-034		TOTAL EST.	TOTAL FINAL
PROJECT ID				A00187497		A00071530			
COUNTY				Childress		Childress			
HIGHWAY				US 83		US 62			
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL		
	6001-6002	PORTABLE CHANGEABLE MESSAGE SIGN	EA	2.000		2.000		4.000	
	6185-6002	TMA (STATIONARY)	DAY	1.000		20.000		21.000	
	6185-6005	TMA (MOBILE OPERATION)	DAY	1.000		6.000		7.000	
	18	EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS			1.000		1.000	
		SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS			1.000		1.000	

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ROADWAY SUMMARY (0032-01-034)

STATIONS	TYPICALS	LENGTH (FT)	134	354	354	533	533	3076	3076
			6004	6021	6045	6003	6004	6045	6066
			BACKFILL (TY A OR B)	PLANE ASPH CONC PAV (0'-2")	PLANE ASPH CONC PAV (2")	RUMBLE STRIPS (SHOULDER)	RUMBLE STRIPS (CENTER LINE)	D-GR HMA TY-D SAC-A PG 70-28 (220 LBS/SY) (2")	TACK COAT (0.10 GAL/SY)
			STA	SY	SY	LF	LF	TON	GAL
STA. 1267+00.00 TO STA. 1274+75.00	1	775	8	~	~	1,510	775	474	431
STA. 1274+75.00 TO STA. 1276+65.00	1 TO 2	190	2	~	~	380	190	109	99
STA. 1276+65.00 TO STA. 1287+85.00	2	1,120	11	~	~	2,240	1,120	602	548
STA. 1287+85.00 TO STA. 1289+45.00	BRIDGE	160	2	~	782	~	~	86	78
STA. 1289+45.00 TO STA. 1296+72.00	2	727	7	~	~	1,454	727	391	355
STA. 1296+72.00 TO STA. 1299+47.00	2 TO 3	275	3	~	~	550	275	158	144
STA. 1299+47.00 TO STA. 1389+82.00	3	9,035	90	~	~	17,930	9,035	5,521	5,019
STA. 1389+82.00 TO STA. 1391+32.00	3 TO 2	150	2	~	~	300	150	86	78
STA. 1391+32.00 TO STA. 1399+75.00	2	843	8	~	~	1,666	843	453	412
STA. 1399+75.00 TO STA. 1401+70.00	2 TO 1	195	2	~	~	390	195	112	102
STA. 1401+70.00 TO STA. 1487+11.00	1	8,541	85	~	~	16,886	8,541	5,220	4,745
STA. 1487+11.00 TO STA. 1489+03.00	1 TO 2	192	2	~	~	384	192	110	100
STA. 1489+03.00 TO STA. 1518+58.00	2	2,955	30	~	~	5,850	2,955	1,589	1,445
STA. 1518+58.00 TO STA. 1520+18.00	BRIDGE	160	~	~	~	~	~	~	~
STA. 1520+18.00 TO STA. 1527+66.00	2	748	7	~	~	1,496	748	402	366
STA. 1527+66.00 TO STA. 1530+98.00	2 TO 4	332	3	~	~	664	332	207	188
STA. 1530+98.00 TO STA. 1534+48.00	4	350	4	~	~	700	350	248	226
STA. 1534+48.00 TO STA. 1534+78.00	4 TO 5	30	1	~	~	60	30	22	20
STA. 1534+78.00 TO STA. 1538+28.00	5	350	4	~	~	652	350	274	249
STA. 1538+28.00 TO STA. 1541+53.00	5 TO 2	325	3	~	~	626	325	215	195
STA. 1541+53.00 TO STA. 1573+04.00	2	3,151	32	~	~	6,262	3,151	1,695	1,540
STA. 1573+04.00 TO STA. 1574+34.00	BRIDGE	130	~	~	~	~	~	~	~
STA. 1574+34.00 TO STA. 1582+94.00	2	860	9	~	~	1,700	860	462	420
STA. 1582+94.00 TO STA. 1587+14.00	2 TO 3	420	4	~	~	840	420	241	219
STA. 1587+14.00 TO STA. 1650+64.00	3	6,350	64	~	~	12,532	6,350	3,881	3,528
STA. 1650+64.00 TO STA. 1653+47.00	3 TO 2	283	3	~	~	566	283	163	148
STA. 1653+47.00 TO STA. 1659+25.00	2	578	6	~	~	1,136	578	311	283
STA. 1659+25.00 TO STA. 1662+59.00	2 TO 6	334	3	~	~	668	334	220	200
STA. 1662+59.00 TO STA. 1667+26.00	6	467	5	~	~	894	467	365	332
STA. 1667+26.00 TO STA. 1667+81.00	6 TO 7	55	1	~	~	110	55	43	39
STA. 1667+81.00 TO STA. 1674+03.00	7	622	6	~	~	1,244	622	487	442
STA. 1674+03.00 TO STA. 1677+28.00	7 TO 2	325	3	~	~	602	325	215	195
STA. 1677+28.00 TO STA. 1692+64.00	2	1,536	15	~	~	3,032	1,536	826	751
STA. 1692+64.00 TO STA. 1695+90.00	2 TO 8	326	3	~	~	632	326	211	192
STA. 1695+90.00 TO STA. 1699+35.00	8	345	3	~	~	690	345	261	238
STA. 1699+35.00 TO STA. 1699+95.00	8 TO 9	60	1	~	~	100	60	43	39
STA. 1699+95.00 TO STA. 1701+55.00	9	160	2	~	~	250	160	110	100
STA. 1701+55.00 TO STA. 1705+55.00	9 TO 2	400	4	~	~	800	400	244	222
STA. 1705+55.00 TO STA. 1721+00.00	2	1,545	15	~	~	3,070	1,545	831	755
STA. 1721+00.00 TO STA. 1725+16.00	2 TO 6	416	4	~	~	812	416	275	250
STA. 1725+16.00 TO STA. 1726+87.00	6	171	2	~	~	322	171	134	122
PLANING DETAIL		~	~	9,316	~	~	~	~	~
INTERSECTION & DRIVEWAY DETAILS		~	~	~	~	~	~	889	808
TOTAL		45,987	457	9,316	782	90,000	45,537	28,186	25,623

QUANTITY SUMMARY


 Texas Department of Transportation
 SHEET 1 OF 3

CONT	SECT	JOB	HIGHWAY
0032	01	034	US 62/83
DIST	COUNTY		SHEET NO.
CHS	CHILDRESS		24

ROADWAY SUMMARY (0031-05-046)

STATIONS	TYPICALS	LENGTH (FT)	134	354	533	533	3076	3076
			6004	6021	6003	6004	6045	6066
			BACKFILL (TY A OR B)	PLANE ASPH CONC PAV (0'-2")	RUMBLE STRIPS (SHOULDER)	RUMBLE STRIPS (CENTER LINE)	D-GR HMA TY-D SAC-A PG 70-28 (220 LBS/SY) (2.00')	TACK COAT (0.10 GAL/SY)
			STA	SY	LF	LF	TON	GAL
STA. 857+37.00 TO STA. 862+87.00	10 TO 11	550.00	5	~	1,100	200	830	755
STA. 862+87.00 TO STA. 868+37.00	11	550.00	10	~	2,200		534	485
STA. 868+37.00 TO STA. 872+52.00	12	415.00	8	~	1,660		416	378
STA. 872+52.00 TO STA. 874+25.00	13	173.00	4	~	692		148	135
STA. 874+25.00 TO STA. 875+50.00	13 TO 14	125.00	2	~	500		116	105
STA. 875+50.00 TO STA. 877+35.00	14	185.00	4	~	740		125	114
STA. 877+35.00 TO STA. 879+35.00	15	200.00	4	~	800		200	182
STA. 879+35.00 TO STA. 882+65.00	15 TO 16	330.00	6	~	1,320		343	312
STA. 882+65.00 TO STA. 885+65.00	16	300.00	6	~	1,200		323	294
STA. 885+65.00 TO STA. 892+85.00	16 TO 17	720.00	14	~	2,880		722	656
STA. 892+85.00 TO STA. 948+18.00	17	5,533.00	106	~	22,132		5,140	4,673
STA. 948+18.00 TO STA. 951+33.00	17 TO 18	315.00	6	~	1,260		316	287
STA. 951+33.00 TO STA. 954+08.00	18	275.00	6	~	1,100		296	269
STA. 954+08.00 TO STA. 954+93.00	19	85.00	2	~	340		91	83
STA. 954+93.00 TO STA. 956+18.00	19 TO 17	125.00	2	~	500		125	114
STA. 956+18.00 TO STA. 965+88.00	17	970.00	20	~	3,880		901	819
STA. 965+88.00 TO STA. 973+18.00	17 TO 20	730.00	7	~	1,460	100	665	605
				~				
PLANING DETAIL		~	~	2,933	~	~	~	~
INTERSECTION DETAIL		~	~	~	~	~	2,052	1,866
TOTAL		11,581.00	237	2,933	43,764	300	13,343	13,996

QUANTITY SUMMARY

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 CSJ: 0031-05-046
 SHEET 2 OF 3

CONT	SECT	JOB	HIGHWAY
0032	01	034	US 62/83
DIST	COUNTY		SHEET NO.
CHS	CHILDRESS		25

DATE: 7/22/2022 8:30:57 AM
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PAVEMENT MARKING SUMMARY

STATION	666	666	666	666	666	666	666	666	666	666	666	672	672	672
	6006	6030	6036	6048	6072	6102	6141	6300	6303	6312	6315	6007	6009	6010
	REFL PAV MRK TY 1(W) 4" (DOT) (100 MIL)	REFL PAV MRK TY 1(W) 8" (DOT) (100 MIL)	REFL PAV MRK TY 1(W) 8" (SLD) (100 MIL)	REFL PAV MRK TY 1(W) 24" (SLD) (100 MIL)	REFL PAV MRK TY 1(W) (LNDP ARROW) (100 MIL)	REFL PAV MRK TY 1(W) 36" (YLD TRI) (100 MIL)	REFL PAV MRK TY 1(Y) 12" (SLD) (100 MIL)	RE PM W/RET REQ TY 1(W) 4" (BRK) (100 MIL)	RE PM W/RET REQ TY 1(W) 4" (SLD) (100 MIL)	RE PM W/RET REQ TY 1(Y) 4" (BRK) (100 MIL)	RE PM W/RET REQ TY 1(Y) 4" (SLD) (100 MIL)	REFL PAV MRKR TY I-C	REFL PAV MRKR TY II-A-A	REFL PAV MRKR TY II-C-R
	LF	LF	LF	LF	EA	EA	LF	LF	LF	LF	LF	EA	EA	EA
STA. 937+18.00 TO STA. 857+37.00	354	~	1,899	48	~	8	~	5,331	27,197	~	27,587	267	67	135
STA. 1267+00.00 TO STA. 1726+87.00	272	597	2,491	24	8	4	1,585	8,190	95,548	4,896	84,705	447	1,837	~
PROJECT TOTALS	626	597	4,390	72	8	12	1,585	13,521	122,745	4,896	112,292	714	1,904	135

MBGF SUMMARY

STATION	L/R	432*	540	540	542	542	544	544	658	658
		6045	6002	6006	6001	6004	6001	6003	6016	6071
		RIPRAP (MOW STRIP) (4 IN)	MTL W-BEAM GD FEN (STEEL POST)	MTL BEAM GD FEN TRANS (THRIE-BEAM)	REMOVE METAL BEAM GUARD FENCE	RM MTL BM GD FENCE TRANS (THRIE-BEAM)	GUARDRAIL END TREATMENT (INSTALL)	GUARDRAIL END TREATMENT (REMOVE)	INSTL DEL ASSM (D-SW) SZ (BRF) GF (BI)	INSTL DEL ASSM (D-SW) SZ (BRF) CTB (BI)
		CY	LF	EA	LF	EA	EA	EA	EA	EA
STA. 926+61.00 TO STA. 930+61.00	R	13	300	~	300	~	2	2	3	~
STA. 1278+17.00 TO STA. 1283+17.00	L	17	400	~	400	~	2	2	3	~
STA. 1278+79.00 TO STA. 1283+79.00	R	17	400	~	400	~	2	2	3	~
STA. 1395+79.00 TO STA. 1399+54.00	L	12	275	~	275	~	2	2	3	~
STA. 1413+37.00 TO STA. 1416+62.00	R	10	225	~	225	~	2	2	3	~
STA. 1496+67.00 TO STA. 1500+42.00	R	12	275	~	275	~	2	2	3	~
STA. 1496+82.00 TO STA. 1500+82.00	L	12	275	~	275	~	2	2	3	~
STA. 1515+16.00 TO STA. 1518+09.75	R	10	225	1	225	1	1	1	3	3
STA. 1515+91.00 TO STA. 1518+09.75	L	6	150	1	150	1	1	1	3	3
STA. 1519+38.25 TO STA. 1521+27.00	R	5	125	1	125	1	1	1	3	3
STA. 1519+38.25 TO STA. 1522+32.00	L	10	225	1	225	1	1	1	3	3
STA. 1569+60.00 TO STA. 1572+53.75	R	10	225	1	225	1	1	1	3	3
STA. 1570+35.00 TO STA. 1572+53.75	L	6	150	1	150	1	1	1	3	3
STA. 1573+50.25 TO STA. 1576+19.00	R	9	200	1	200	1	1	1	3	3
STA. 1573+50.25 TO STA. 1576+69.00	L	11	250	1	250	1	1	1	3	3
STA. 1620+64.00 TO STA. 1623+64.00	R	9	200	~	200	~	2	2	3	~
STA. 1643+45.00 TO STA. 1648+45.00	R	17	400	~	400	~	2	2	3	~
STA. 1642+50.00 TO STA. 1648+00.00	R	19	450	~	450	~	2	2	3	~
STA. 1676+93.00 TO STA. 1682+18.00	L	18	425	~	425	~	2	2	3	~
STA. 1678+01.00 TO STA. 1683+51.00	R	18	425	~	425	~	2	2	3	~
PROJECT TOTALS		242	5,600	8	5,600	8	32	32	60	24

NOTE:

* NECESSARY REMOVAL OF EXISTING ACP MOW STRIP FOR PREP OF NEW MOWSTRIP WILL BE CONSIDERED SUBSIDIARY TO ITEM 432


EROSION CONTROL SUMMARY

STATION	164	168	314
	6034	6001	6013
	DRILL SEEDING (PERM) (RURAL) (SANDY)	VEGETATIVE WATERING	EMULSION ASPH EROSION CONTROL (CSS-IH) (0.2 GAL/SY)
	AC	MG	GAL
STA. 973+18.00 TO STA. 857+37.00	5	410	4,866
STA. 1267+00.00 TO STA. 1726+87.00	21	1,703	20,238
PROJECT TOTALS	26	2,113	25,105

WORKZONE SUMMARY

STATION	662	662	6001	6185	6185
	6109	6111	6002	6002	6005
	WK ZN PAV MRK SHT TERM (TAB) TY W	WK ZN PAV MRK SHT TERM (TAB) TY Y-2	PORTABLE CHANGEABLE MESSAGE SIGN	TMA (STATIONARY)	TMA (MOBILE OPERATION)
	EA	EA	EA	DAY	DAY
STA. 973+18.00 TO STA. 857+37.00	2,188	284	2	0	0
STA. 1267+00.00 TO STA. 1726+87.00	1,598	4,474	2	20	6
PROJECT TOTALS	3,786	4,758	2	20	6

QUANTITY SUMMARY

 SHEET 3 OF 3			
CONT	SECT	JOB	HIGHWAY
0032	01	034	US 62/83
DIST	COUNTY		SHEET NO.
CHS	CHILDRESS		26

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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).

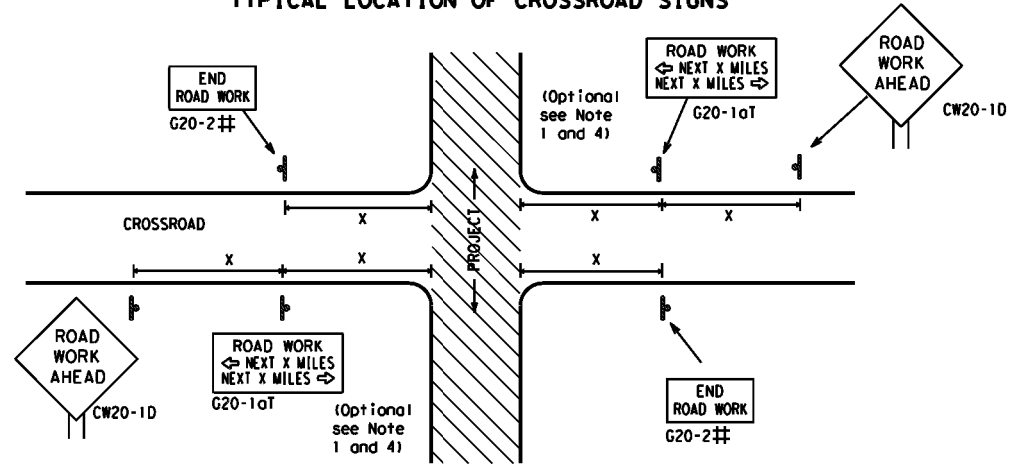
<p>THE DOCUMENTS BELOW CAN BE FOUND ON-LINE AT http://www.txdot.gov</p>
COMPLIANT WORK ZONE TRAFFIC CONTROL DEVICES LIST (CWZTCD)
DEPARTMENTAL MATERIAL SPECIFICATIONS (DMS)
MATERIAL PRODUCER LIST (MPL)
ROADWAY DESIGN MANUAL - SEE "MANUALS (ONLINE MANUALS)"
STANDARD HIGHWAY SIGN DESIGNS FOR TEXAS (SHSD)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

SHEET 1 OF 12

 Texas Department of Transportation		Traffic Safety Division Standard	
<p>BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS</p> <p>BC (1) - 21</p>			
FILE: bc-21.dgn	DN: TxDOT	CR: TxDOT	OW: TxDOT
© TxDOT November 2002	CONT: 0032	SECT: 01	JOB: 034
REVISIONS 4-03 7-13 9-07 8-14 5-10 5-21		DIST: CHS	COUNTY: CHILDRRESS
			SHEET NO.: 27

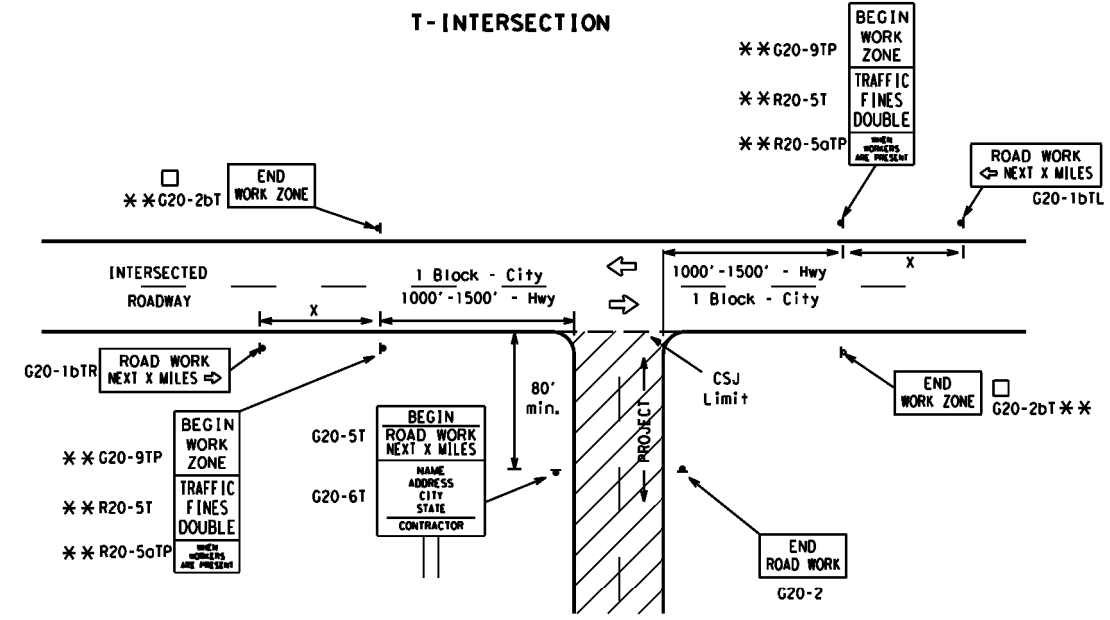
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TYPICAL LOCATION OF CROSSROAD SIGNS



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

T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

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

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

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

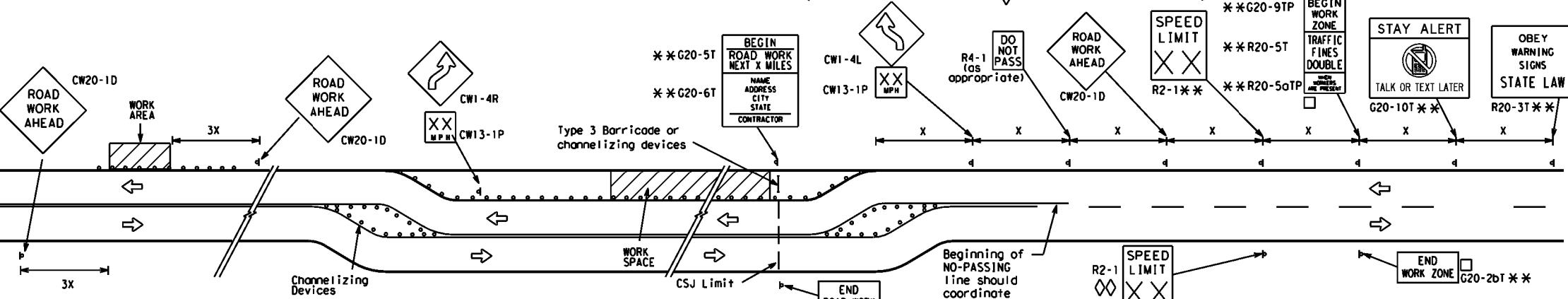
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

GENERAL NOTES

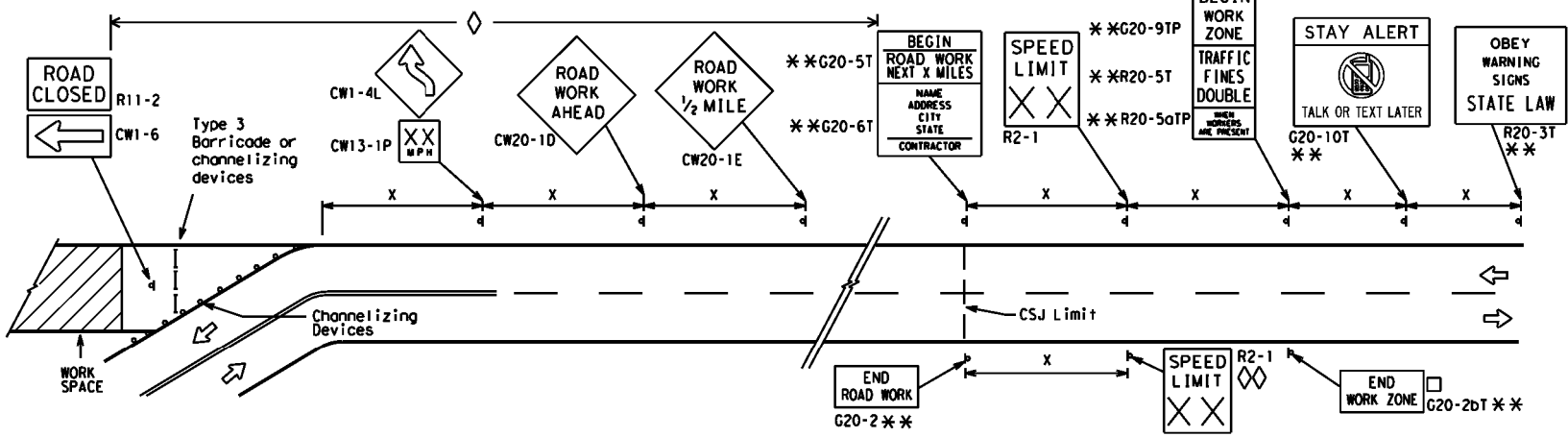
- Special or larger size signs may be used as necessary.
- Distance between signs should be increased as required to have 1500 feet advance warning.
- Distance between signs should be increased as required to have 1/2 mile or more advance warning.
- 36" x 36" "ROAD WORK AHEAD" (CW20-1D) signs may be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

WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS

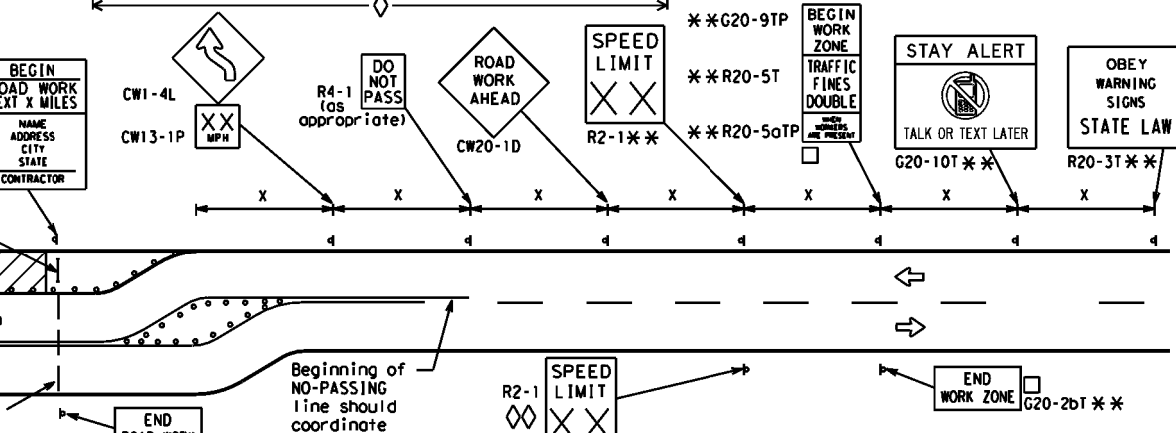


When extended distances occur between minimal work spaces, the Engineer/Inspector should ensure additional "ROAD WORK AHEAD" (CW20-1D) signs are placed in advance of these work areas to remind drivers they are still within the project limits. See the applicable TCP sheets for exact location and spacing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

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



SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS



NOTES

- The Contractor shall determine the appropriate distance to be placed on the G20-1 series signs and "BEGIN ROAD WORK NEXT X MILES" (G20-5T) sign for each specific project. This distance shall replace the "x" and shall be rounded to the nearest whole mile with the approval of the Engineer. No decimals shall be used.
- The "BEGIN WORK ZONE" (G20-9TP) and "END WORK ZONE" (G20-2bT) shall be used as shown on the sample layout when advance signs are required outside the CSJ Limits. They inform the motorist of entering or leaving a part of the work zone lying outside the CSJ Limits where traffic fines may double if workers are present.
 - CSJ limit signing is required for highway construction and maintenance work, with the exception of mobile operations.
 - Area for placement of "ROAD WORK AHEAD" (CW20-1D) sign and other signs or devices as called for on the Traffic Control Plan.
 - Contractor will install a regulatory speed limit sign at the end of the work zone.

LEGEND

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

SHEET 2 OF 12



BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC (2) - 21

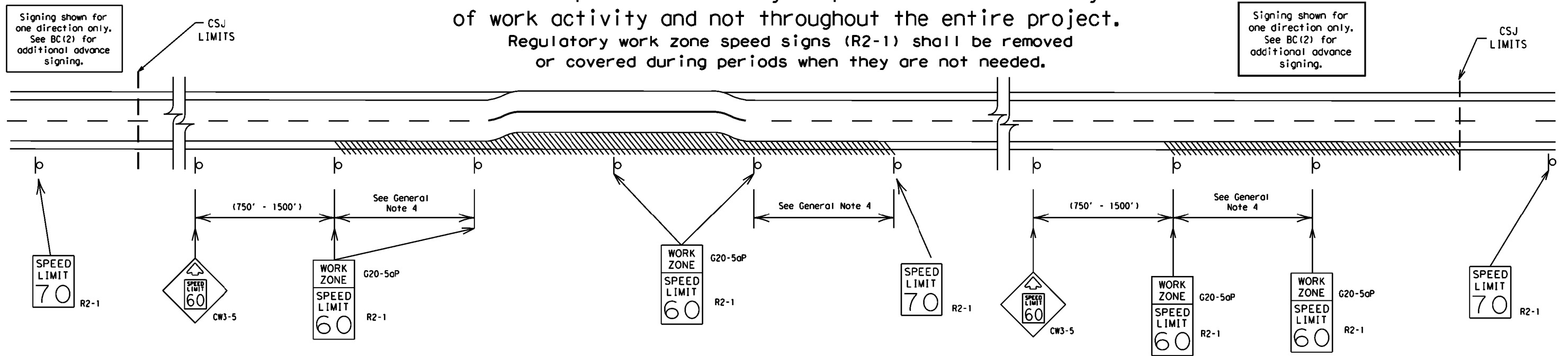
FILE: bc-21.dgn	DN: TxDOT	CR: TxDOT	OW: TxDOT	CR: TxDOT
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REVISIONS	0032 01	034	US 62/83	
9-07 8-14	DIST	COUNTY	SHEET NO.	
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DATE: FILE:

TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

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

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



GUIDANCE FOR USE:

LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

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

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

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

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

SHORT TERM WORK ZONE SPEED LIMITS

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

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

GENERAL NOTES

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

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

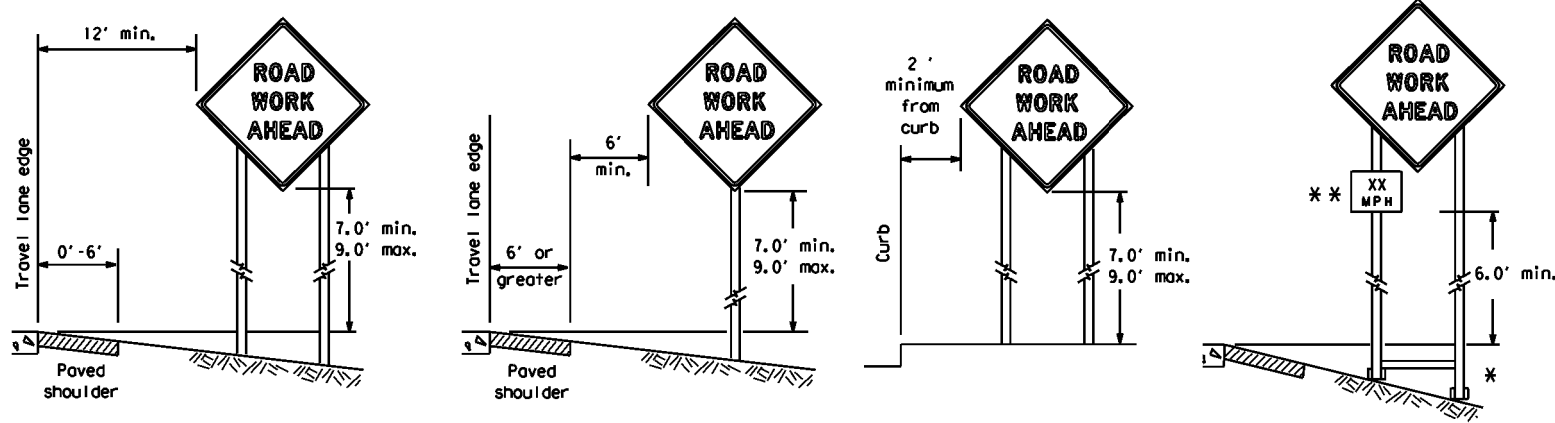
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SHEET 3 OF 12

		Traffic Safety Division Standard	
<h2>BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT</h2>			
<h3>BC (3) - 21</h3>			
FILE: bc-21.dgn	DN: TxDOT	CR: TxDOT	OW: TxDOT
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7-13 5-21	CHS	CHILDRESS	29

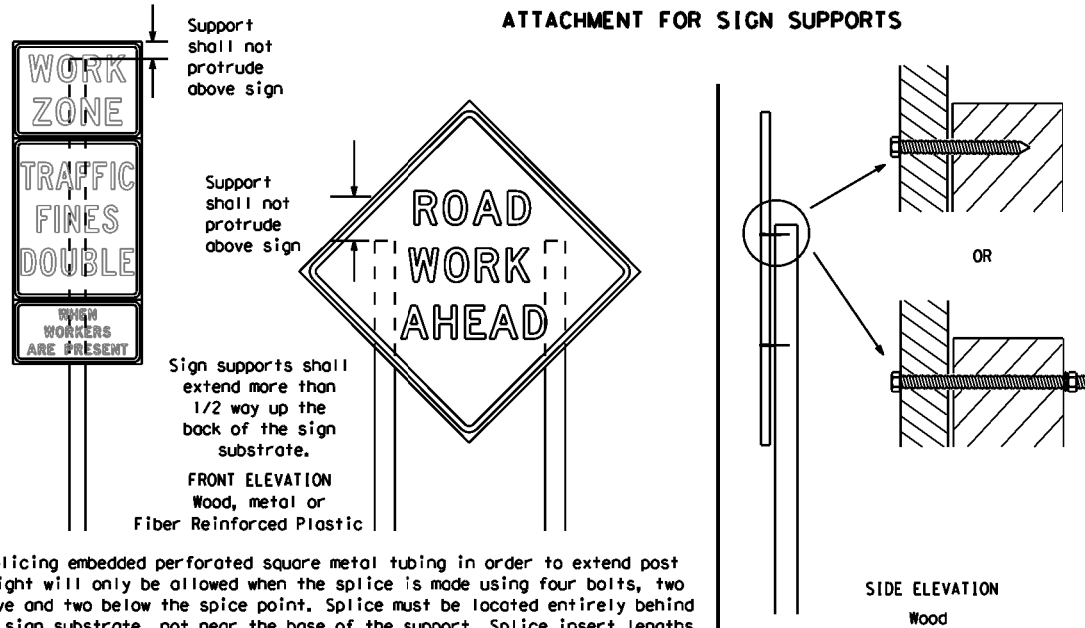
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



* 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



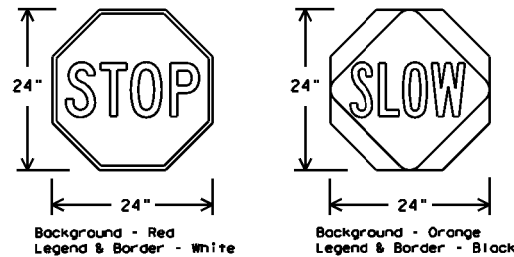
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

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 splice point. Splice must be located entirely behind the sign substrate, not near the base of the support. Splice insert lengths should be at least 5 times nominal post size, centered on the splice and of at least the same gauge material.

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 retroreflective 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.



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 CWZTC 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" (CWZTC) 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 CWZTC 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 CWZTC list.
7. Sandbags shall only be placed along or laid over the base supports of the traffic control device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners. Sandbags shall be placed along the length of the skids to weigh down the sign support.
8. Sandbags shall NOT be placed under the skid and shall not be used to level sign supports placed on slopes.

FLAGS ON SIGNS

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

SHEET 4 OF 12



BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

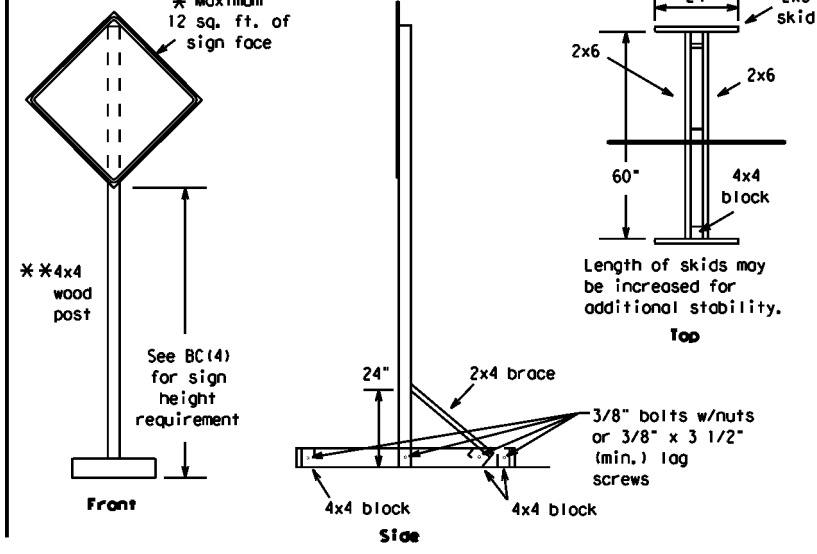
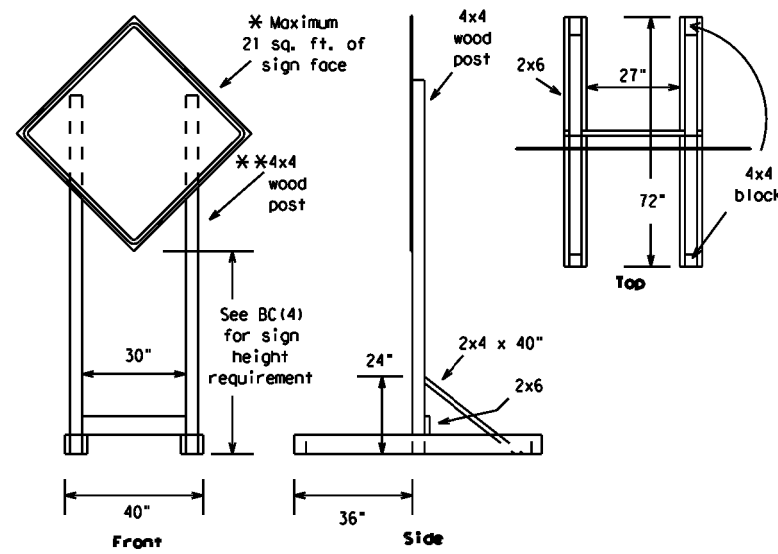
BC (4) - 21

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© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0032	01	034	US 62/83
9-07 8-14	DIST	COUNTY	SHEET NO.	
7-13 5-21	CHS	CHILDRESS	30	

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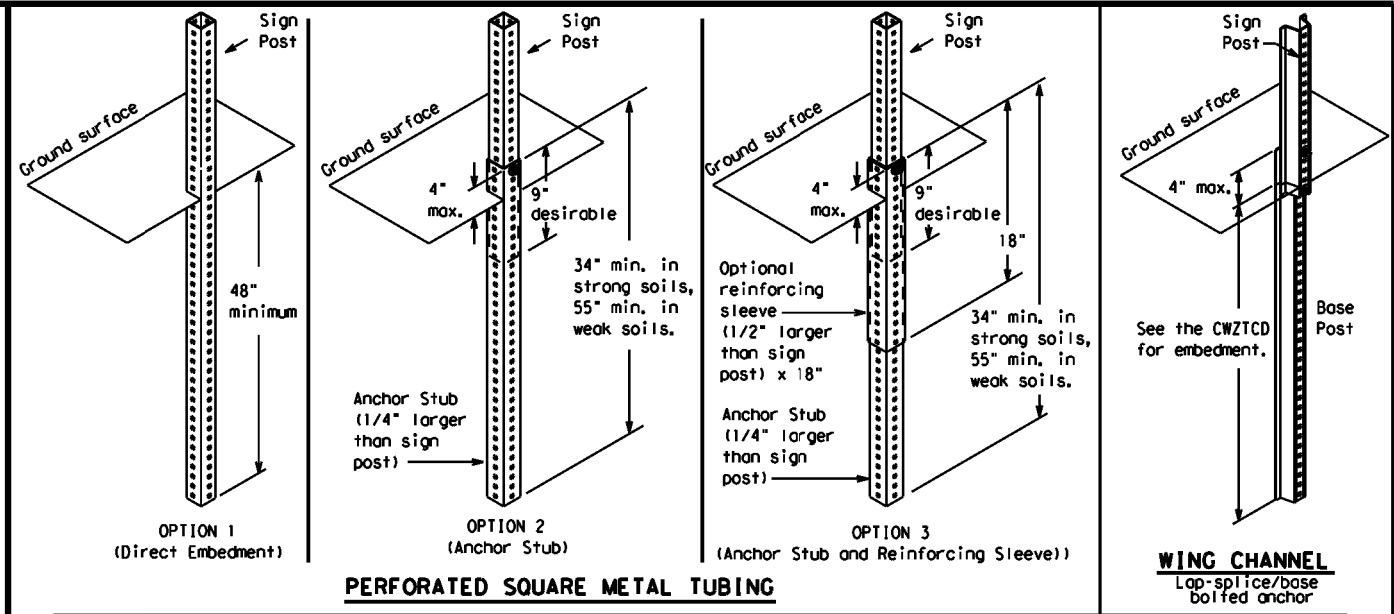
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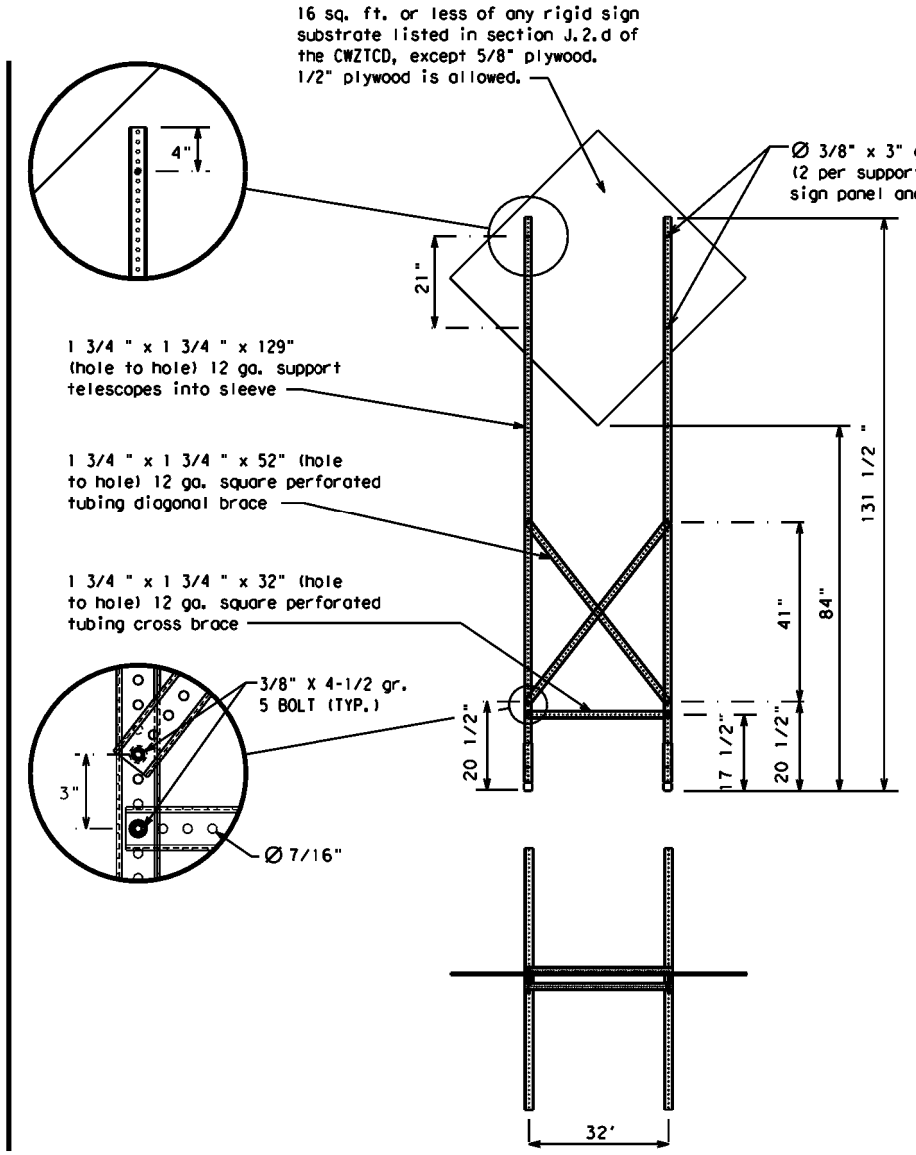
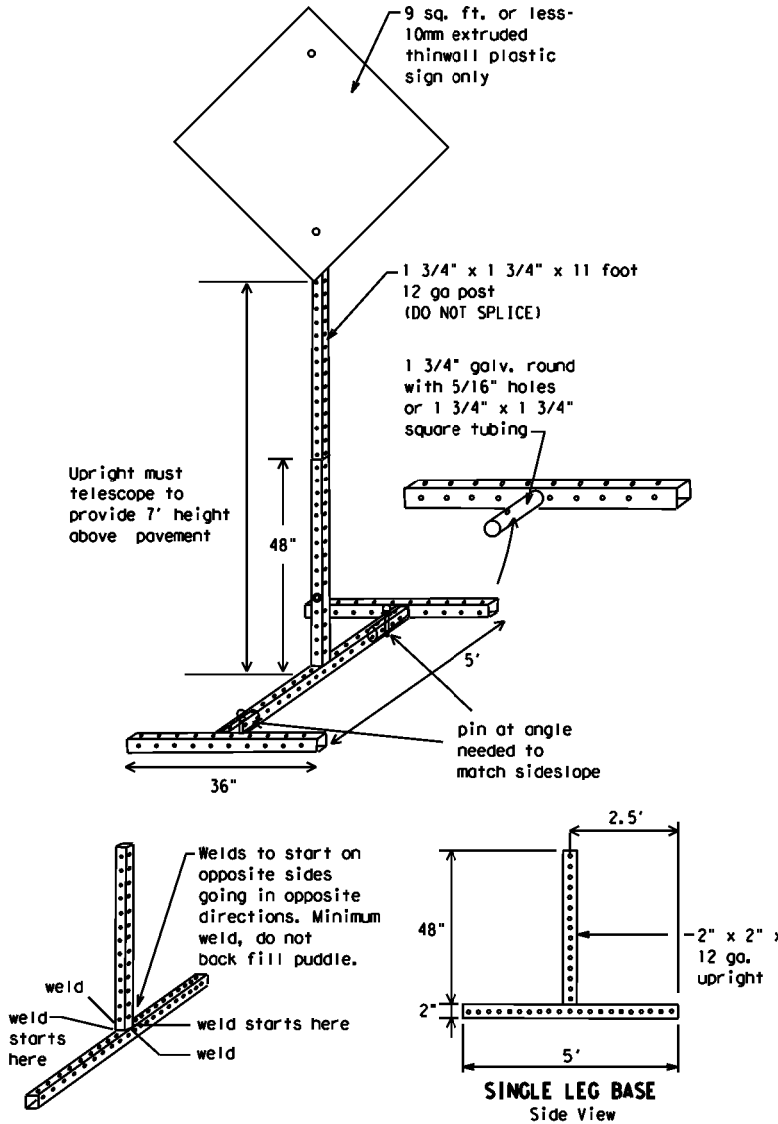
SKID MOUNTED WOOD SIGN SUPPORTS

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



GROUND MOUNTED SIGN SUPPORTS

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



SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

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

WEDGE ANCHORS

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

OTHER DESIGNS

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

GENERAL NOTES

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

- * See BC(4) for definition of "Work Duration."
- ** Wood sign posts MUST be one piece. Splicing will NOT be allowed. Posts shall be painted white.
- See the CWZTCD for the type of sign substrate that can be used for each approved sign support.

SHEET 5 OF 12



BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5) - 21

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7-13 5-21	CHS	CHILDRESS	31	

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

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

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

PORTABLE CHANGEABLE MESSAGE SIGNS

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

Phase 1: Condition Lists

Road/Lane/Ramp Closure List

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

Other Condition List

ROADWORK XXX FT
FLAGGER XXXX FT
RIGHT LN NARROWS XXXX FT
MERGING TRAFFIC XXXX FT
LOOSE GRAVEL XXXX FT
DETOUR X MILE
ROADWORK PAST SH XXXX
BUMP XXXX FT
TRAFFIC SIGNAL XXXX FT

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

Phase 2: Possible Component Lists

Action to Take/Effect on Travel List

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

Location List

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

Warning List

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

** Advance Notice List

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

** See Application Guidelines Note 6.

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

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

APPLICATION GUIDELINES

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

WORDING ALTERNATIVES

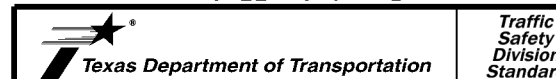
- The words RIGHT, LEFT and ALL can be interchanged as appropriate.
- Roadway designations IH, US, SH, FM and LP can be interchanged as appropriate.
- EAST, WEST, NORTH and SOUTH (or abbreviations E, W, N and S) can be interchanged as appropriate.
- Highway names and numbers replaced as appropriate.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

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

FULL MATRIX PCMS SIGNS

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

SHEET 6 OF 12



BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

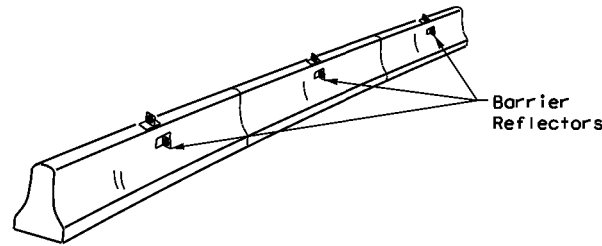
BC (6) - 21

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© TxDOT November 2002	CONT: 0032	SECT: 01	JOB: 034	HIGHWAY: US 62/83
REVISIONS				
9-07 8-14				
7-13 5-21	DIST: CHS	COUNTY: CHILDRESS	SHEET NO.: 32	

DATE: FILE:

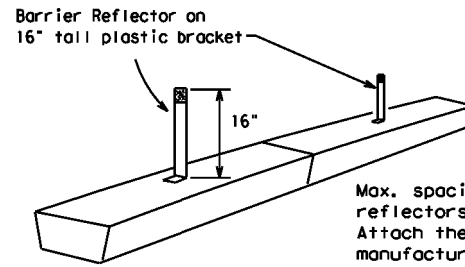
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- Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
- Color of Barrier Reflectors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



CONCRETE TRAFFIC BARRIER (CTB)

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

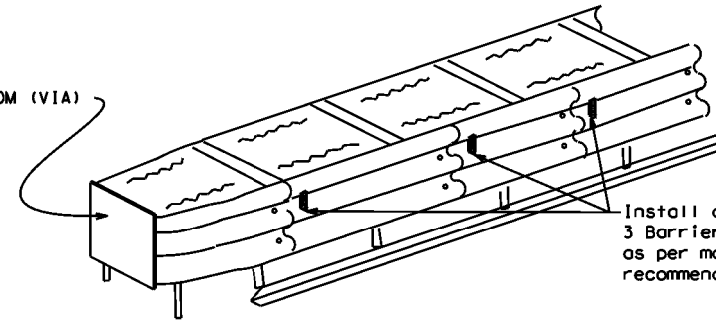


LOW PROFILE CONCRETE BARRIER (LPCB)

LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES

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

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



DELINEATION OF END TREATMENTS

END TREATMENTS FOR CTB'S USED IN WORK ZONES

End treatments used on CTB's in work zones shall meet the appropriate crashworthy standards as defined in the Manual for Assessing Safety Hardware (MASH). Refer to the CWZTCD List for approved end treatments and manufacturers.

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS

WARNING LIGHTS

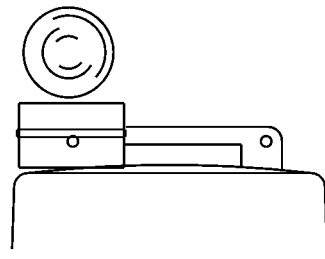
- Warning lights shall meet the requirements of the TMUTCD.
- Warning lights shall NOT be installed on barricades.
- Type A-Low Intensity Flashing Warning Lights are commonly used with drums. They are intended to warn of or mark a potentially hazardous area. Their use shall be as indicated on this sheet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

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

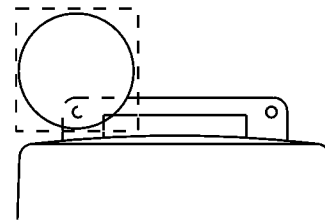
- Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
- Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
- A series of sequential flashing warning lights placed on channelizing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

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

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



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

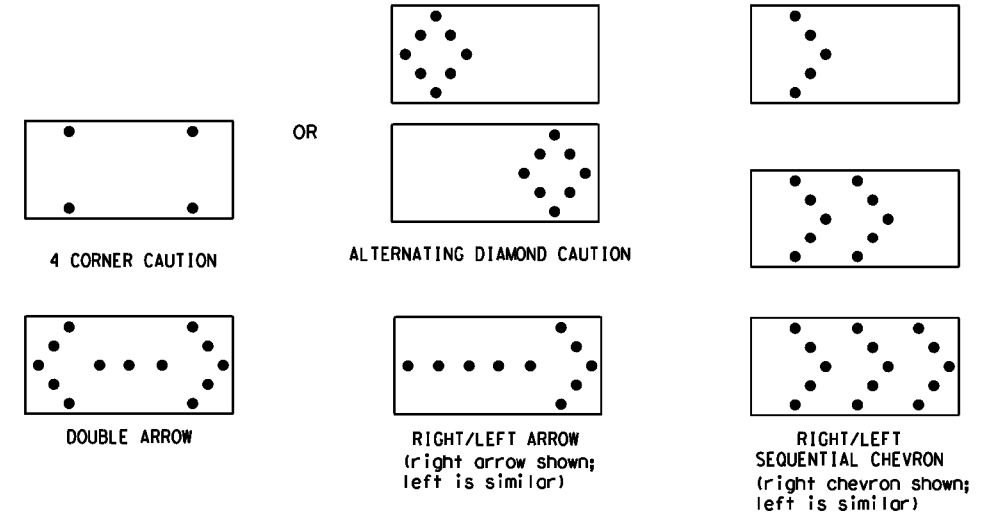


Warning reflector may be round or square. Must have a yellow reflective surface area of at least 30 square inches

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

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



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

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

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

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

FLASHING ARROW BOARDS

SHEET 7 OF 12

TRUCK-MOUNTED ATTENUATORS

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



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

BC (7) - 21

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GENERAL NOTES

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

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

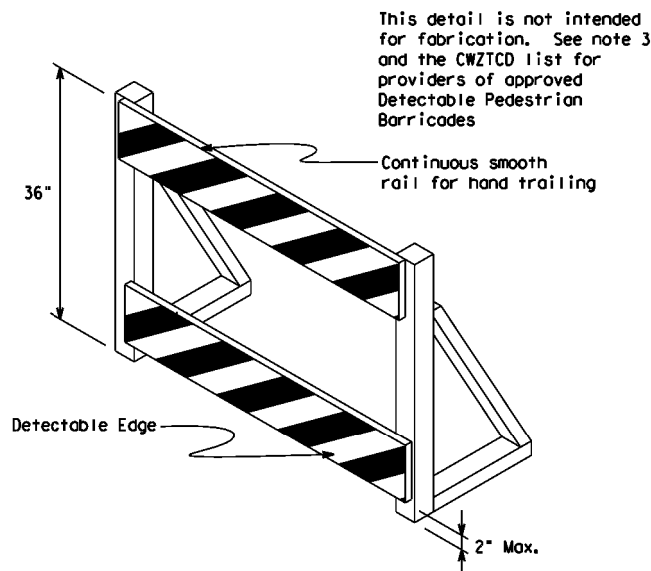
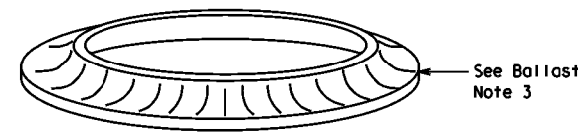
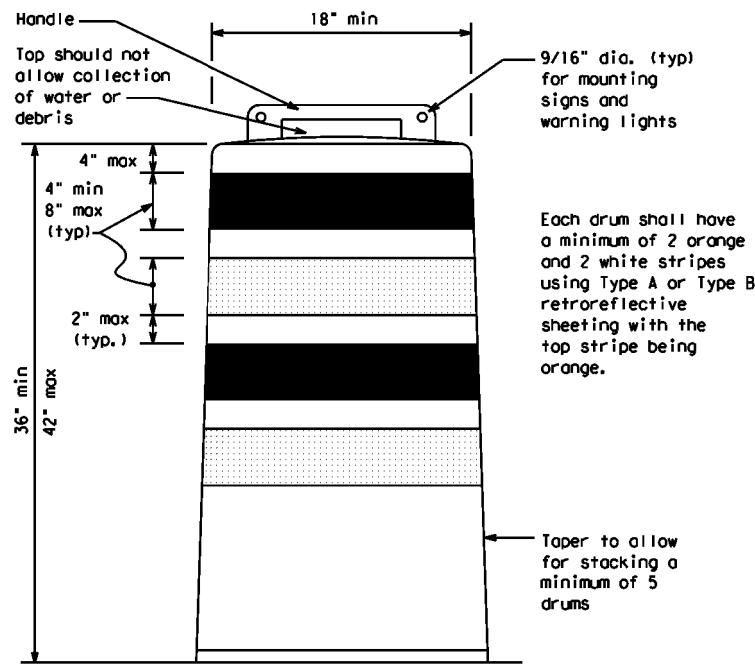
- Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
- The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents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

RETROREFLECTIVE SHEETING

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

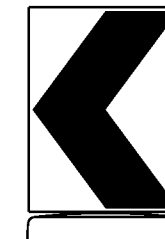
BALLAST

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

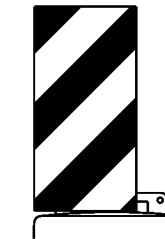


DETECTABLE PEDESTRIAN BARRICADES

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



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



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

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

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

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

SHEET 8 OF 12



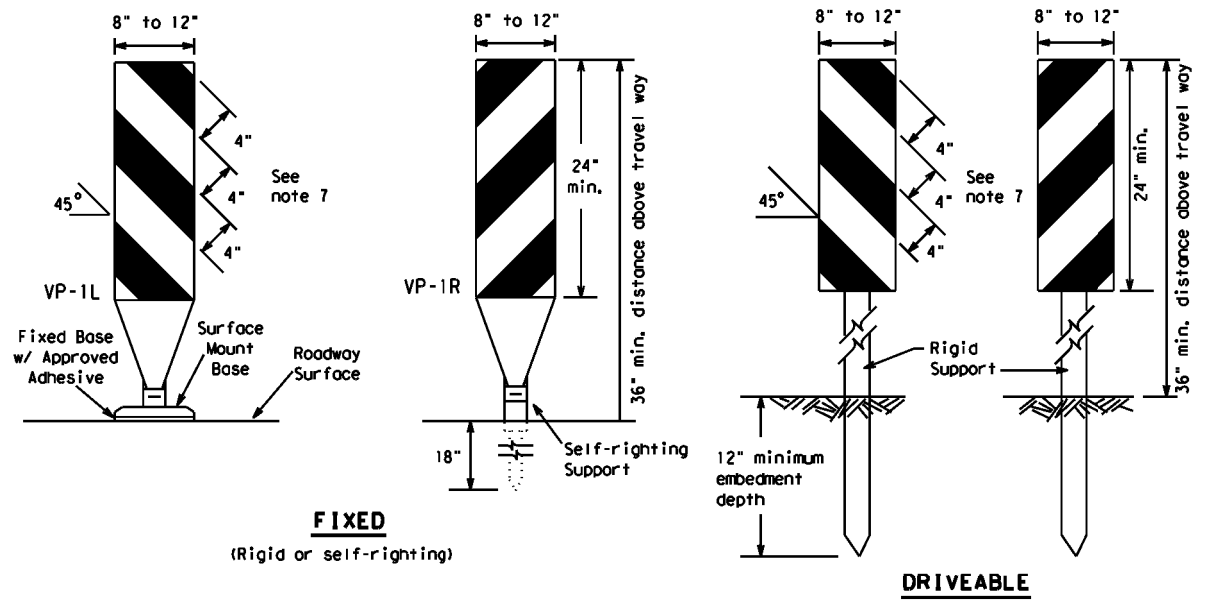
BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC (8) - 21

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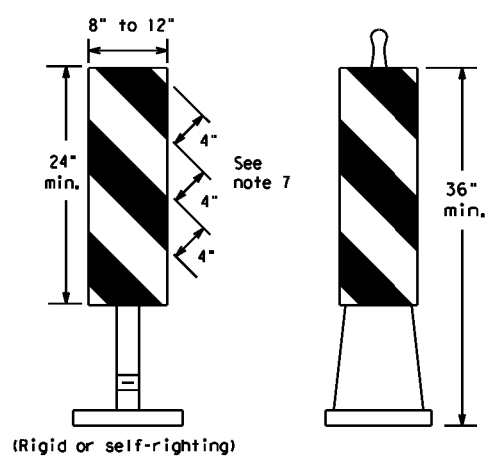
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FIXED
(Rigid or self-righting)

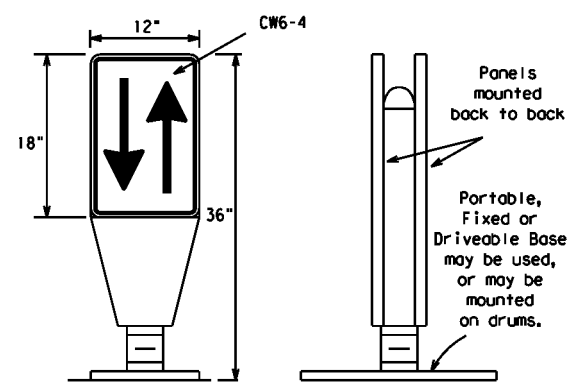
DRIVEABLE



PORTABLE

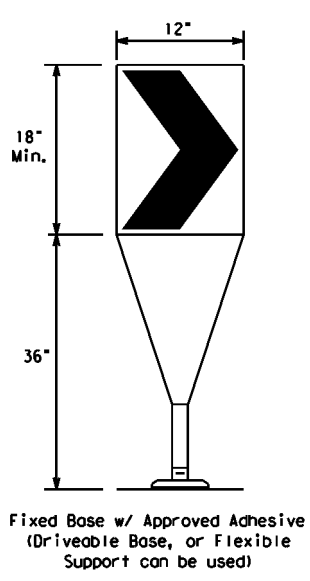
VERTICAL PANELS (VPs)

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



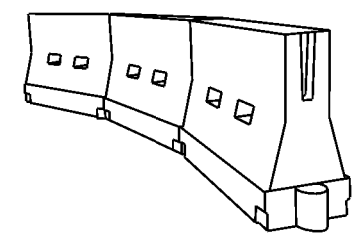
OPPOSING TRAFFIC LANE DIVIDERS (OTLD)

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



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

CHEVRONS



LONGITUDINAL CHANNELIZING DEVICES (LCD)

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

WATER BALLASTED SYSTEMS USED AS BARRIERS

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

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

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

GENERAL NOTES

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

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

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

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

SHEET 9 OF 12



BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC (9) - 21

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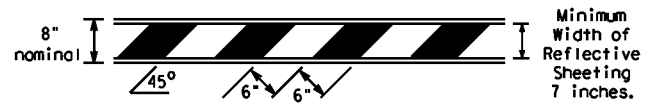
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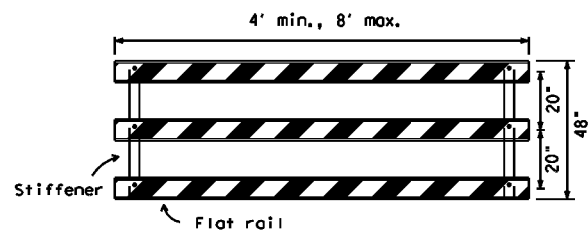
TYPE 3 BARRICADES

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

Barricades shall NOT be used as a sign support.



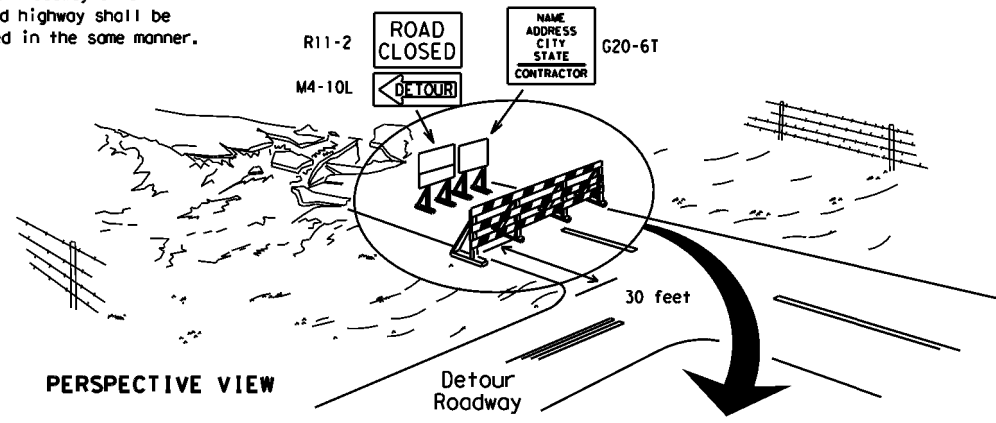
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

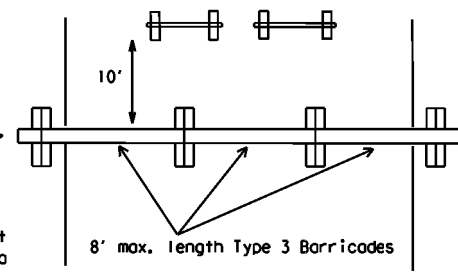
TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

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



PERSPECTIVE VIEW

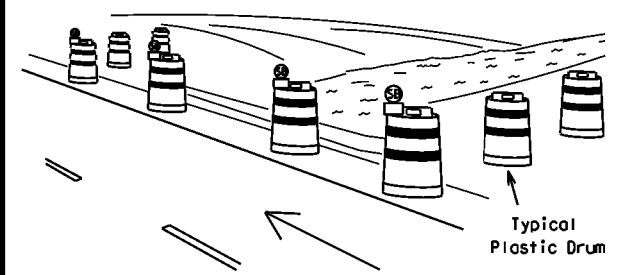
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic. Barricade striping should slant downward in the direction of detour.



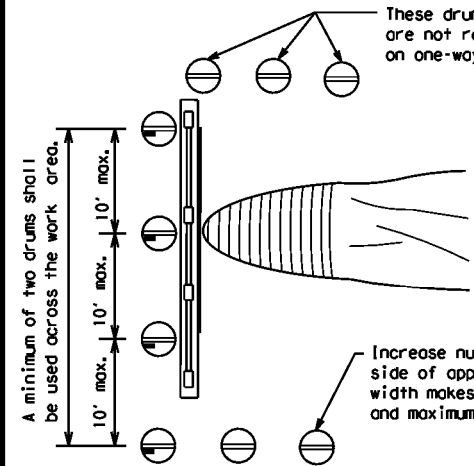
PLAN VIEW

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

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

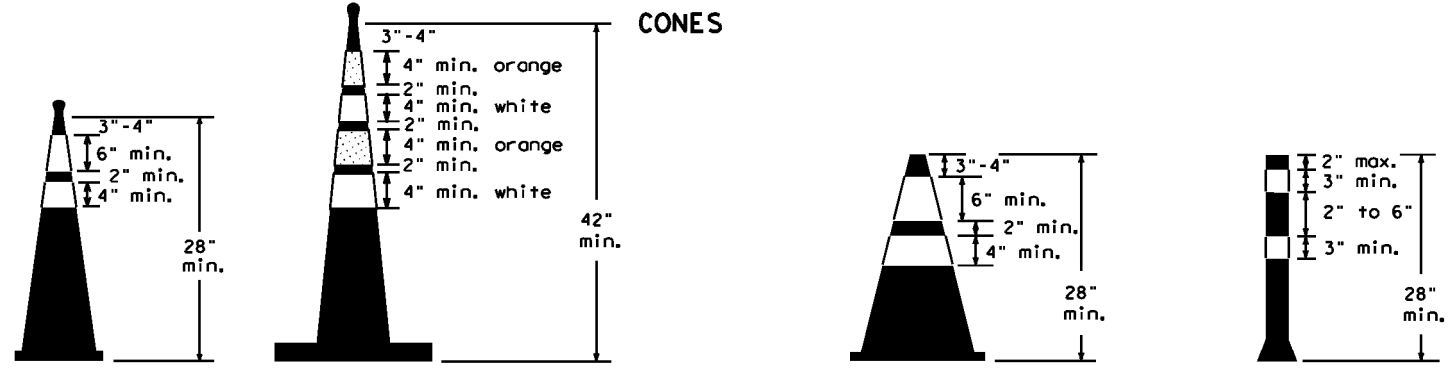


PLAN VIEW

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

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

CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



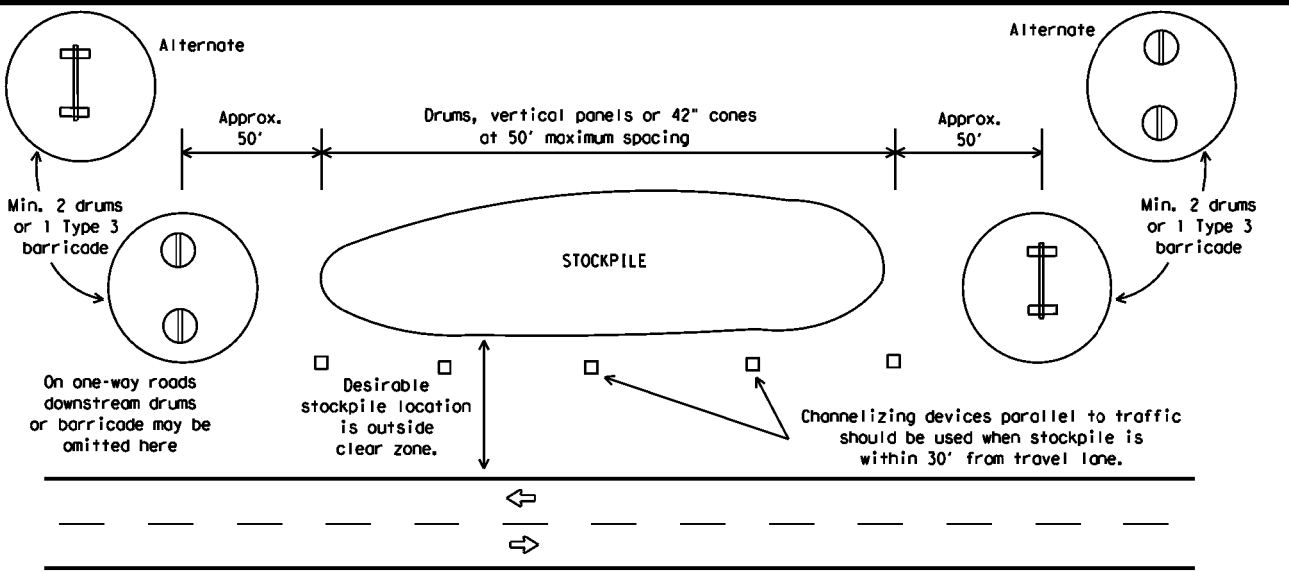
Two-Piece cones

One-Piece cones

Tubular Marker

28" Cones shall have a minimum weight of 9 1/2 lbs.
 42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

1. Traffic cones and tubular markers shall be predominantly orange, and meet the height and weight requirements shown above.
2. One-piece cones have the body and base of the cone molded in one consolidated unit. Two-piece cones have a cone shaped body and a separate rubber base, or ballast, that is added to keep the device upright and in place.
3. Two-piece cones may have a handle or loop extending up to 8" above the minimum height shown, in order to aid in retrieving the device.
4. Cones or tubular markers shall have white or white and orange reflective bands as shown above. The reflective bands shall have a smooth, sealed outer surface and meet the requirements of Departmental Material Specification DMS-8300 Type A or Type B.
5. 28" cones and tubular markers are generally suitable for short duration and short-term stationary work as defined on BC(4). These should not be used for intermediate-term or long-term stationary work unless personnel is on-site to maintain them in their proper upright position.
6. 42" two-piece cones, vertical panels or drums are suitable for all work zone durations.
7. Cones or tubular markers used on each project should be of the same size and shape.



TRAFFIC CONTROL FOR MATERIAL STOCKPILES



BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC (10) - 21

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WORK ZONE PAVEMENT MARKINGS

GENERAL

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

RAISED PAVEMENT MARKERS

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

PREFABRICATED PAVEMENT MARKINGS

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

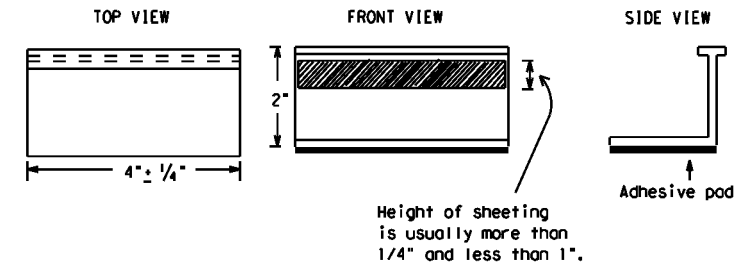
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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

REMOVAL OF PAVEMENT MARKINGS

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

Temporary Flexible-Reflective Roadway Marker Tabs



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

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

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

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

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

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

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

SHEET 11 OF 12



BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

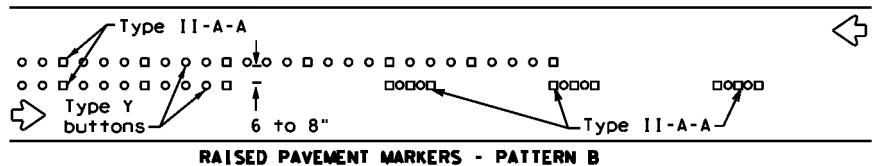
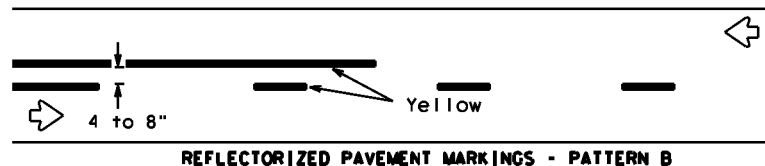
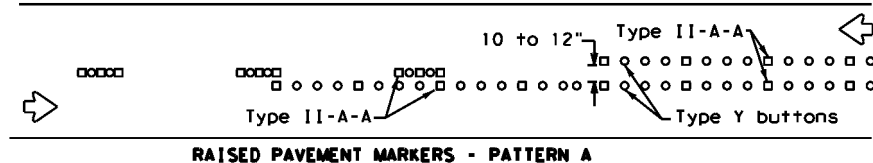
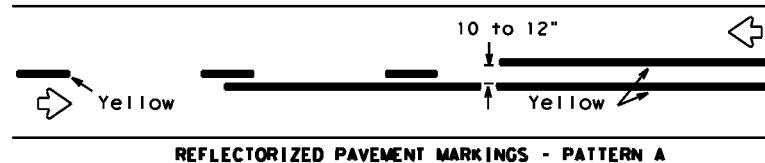
BC(11)-21

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©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	CHS	CHILDRESS	37	
11-02 8-14				

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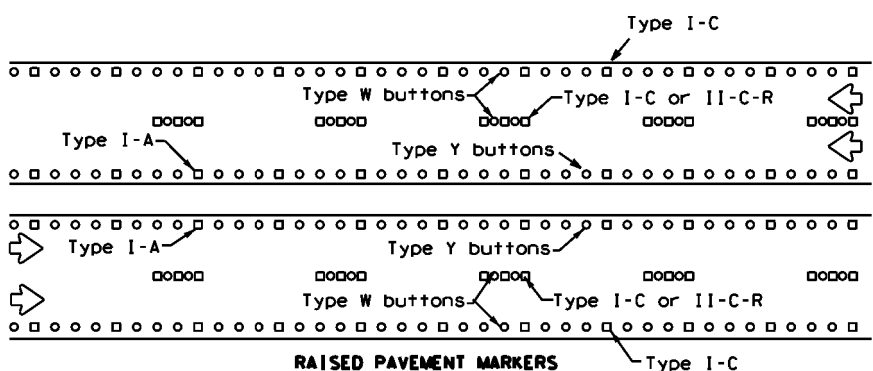
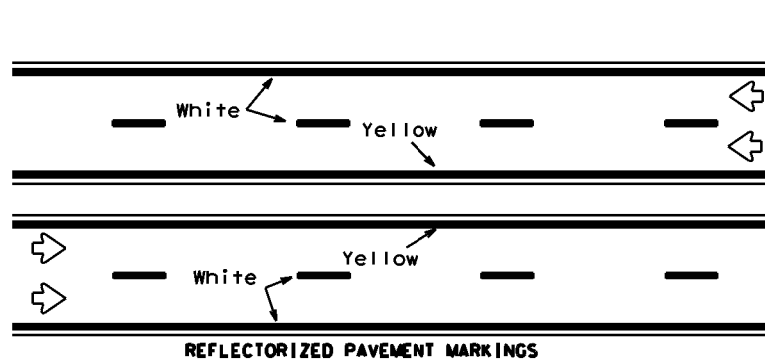
DATE:
FILE:

PAVEMENT MARKING PATTERNS



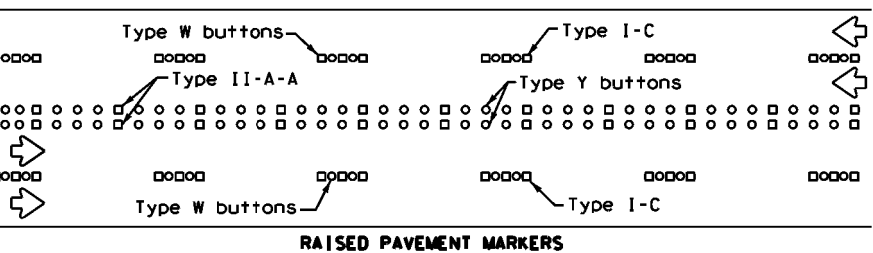
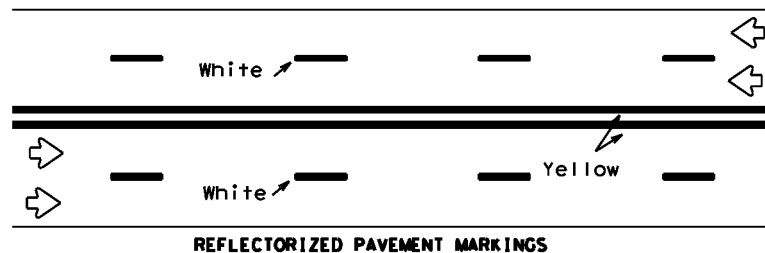
Pattern A is the TxDOT Standard, however Pattern B may be used if approved by the Engineer. Prefabricated markings may be substituted for reflectorized pavement markings.

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



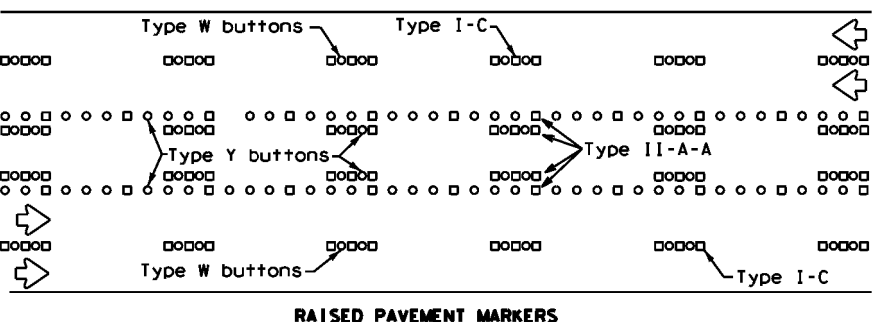
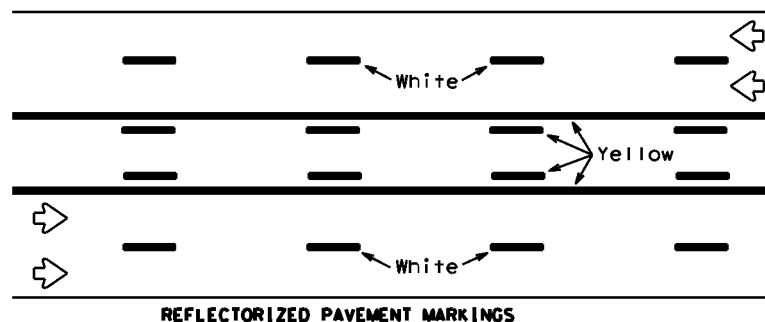
Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



Prefabricated markings may be substituted for reflectorized pavement markings.

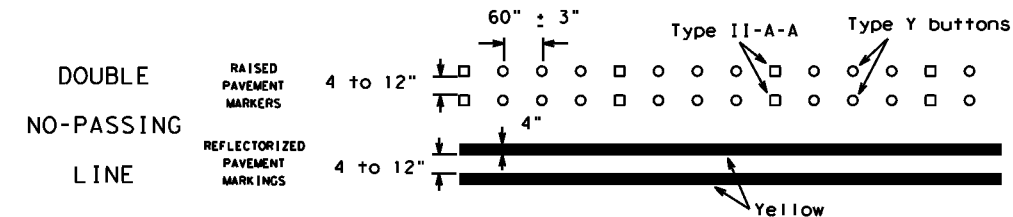
LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



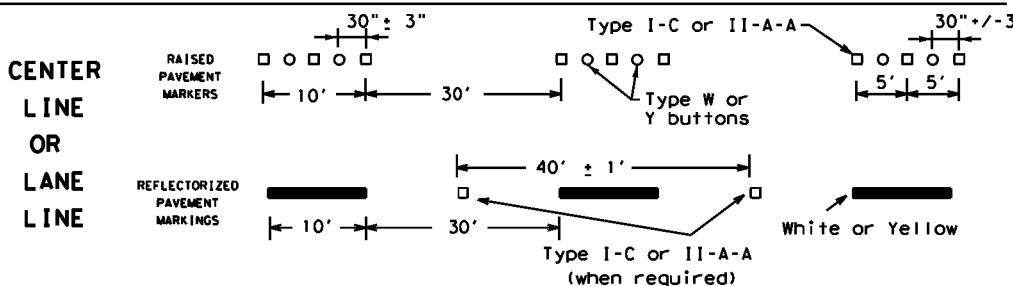
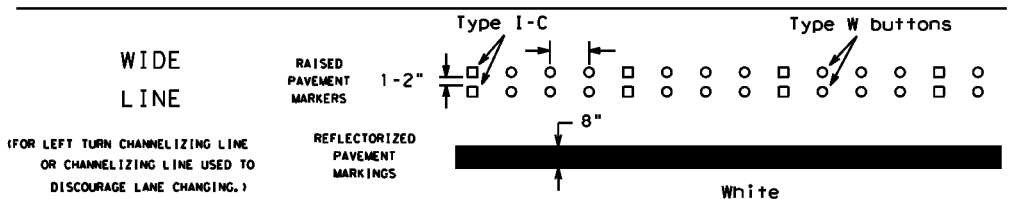
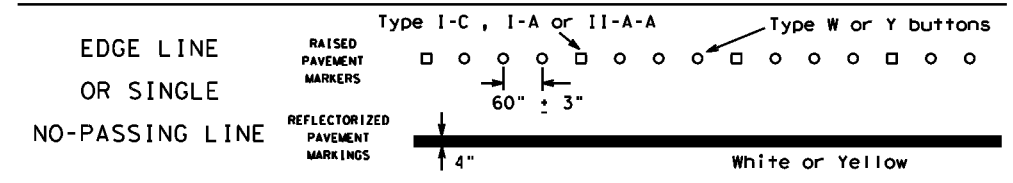
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

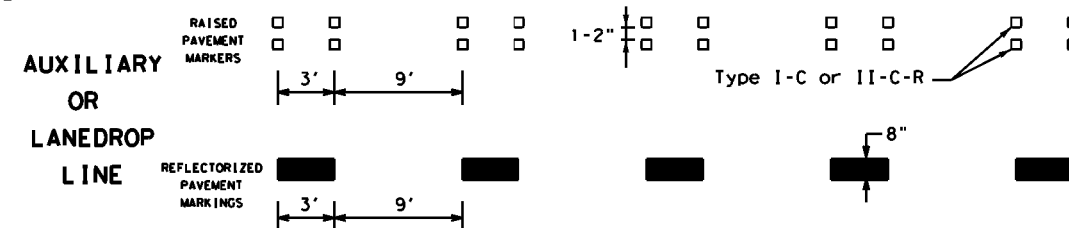
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS



SOLID LINES

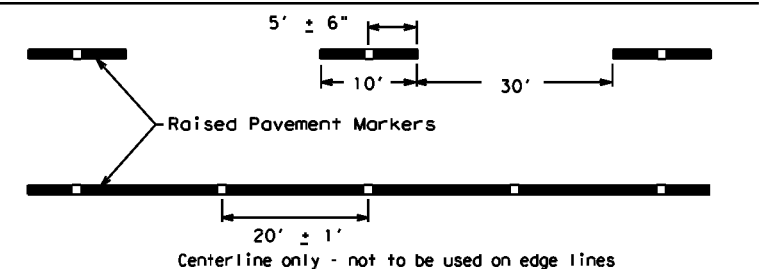


BROKEN LINES



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

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



SHEET 12 OF 12



BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC (12) - 21

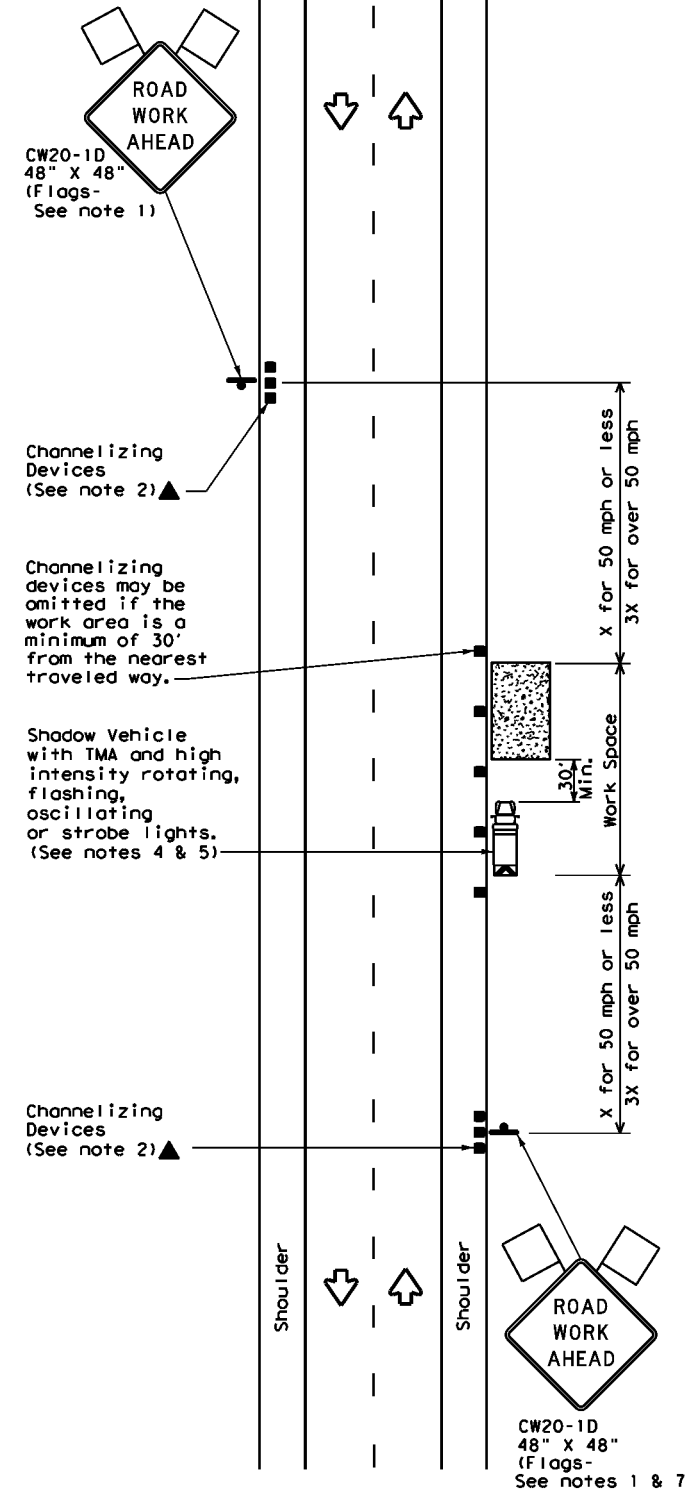
Raised pavement markers used as standard pavement markings shall be from the approved products list and meet the requirements of Item 672 "RAISED PAVEMENT MARKERS."

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©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS	0032	01	034	US 62/83
1-97 9-07 5-21	DIST	COUNTY	SHEET NO.	
2-98 7-13	CHS	CHILDRESS	38	
11-02 8-14				

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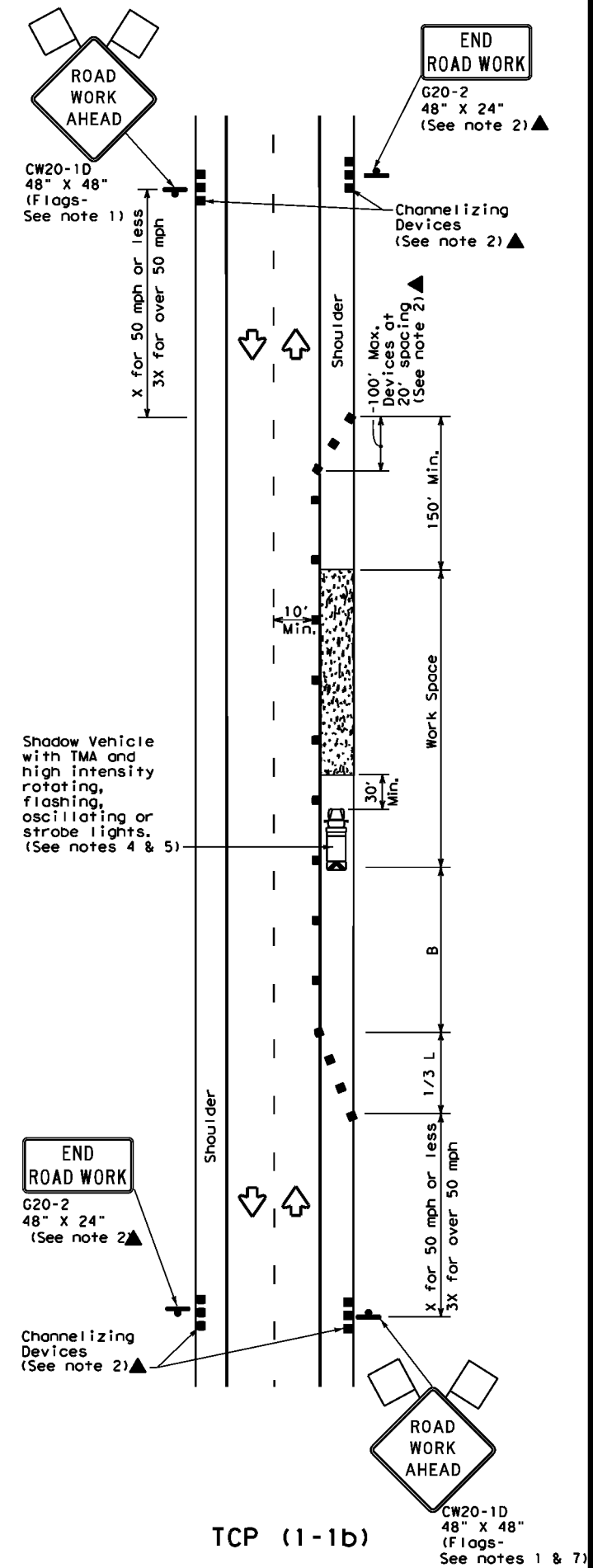
DATE:
FILE:

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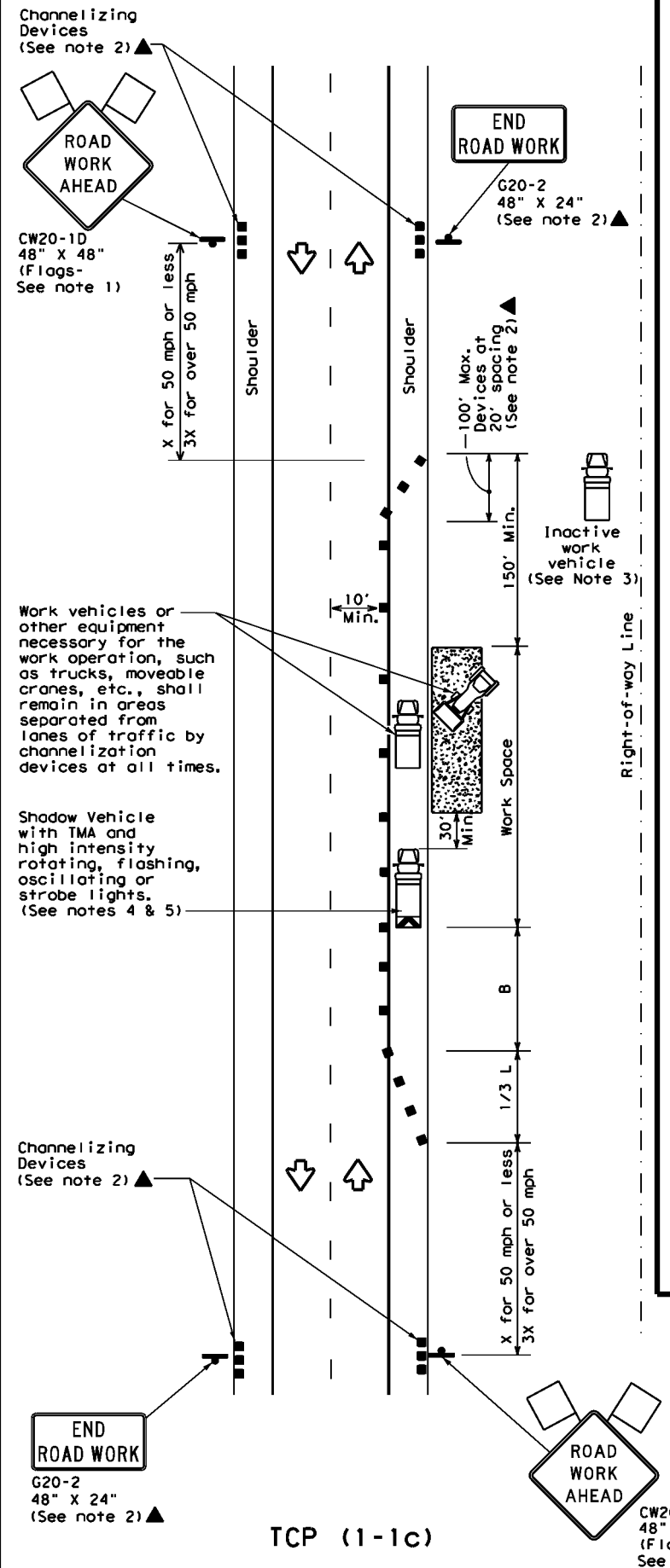
TCP (1-1a)

WORK SPACE NEAR SHOULDER
 Conventional Roads



TCP (1-1b)

WORK SPACE ON SHOULDER
 Conventional Roads



TCP (1-1c)

WORK VEHICLES ON SHOULDER
 Conventional Roads

LEGEND

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

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	$L = \frac{WS^2}{60}$	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**
- Flags attached to signs where shown are REQUIRED.
 - 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.
 - Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
 - 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.
 - Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.
 - See TCP(5-1) for shoulder work on divided highways, expressways and freeways.
 - CW21-5 "SHOULDER WORK" signs may be used in place of CW20-1D "ROAD WORK AHEAD" signs for shoulder work on conventional roadways.

TRAFFIC CONTROL PLAN
CONVENTIONAL ROAD
SHOULDER WORK

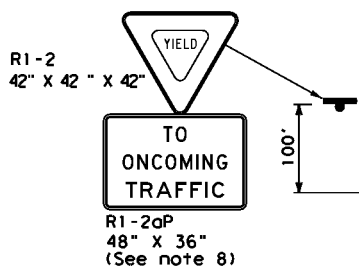
TCP (1-1) - 18

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© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
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8-95 2-12	CHS	CHILDRESS	39	
1-97 2-18				

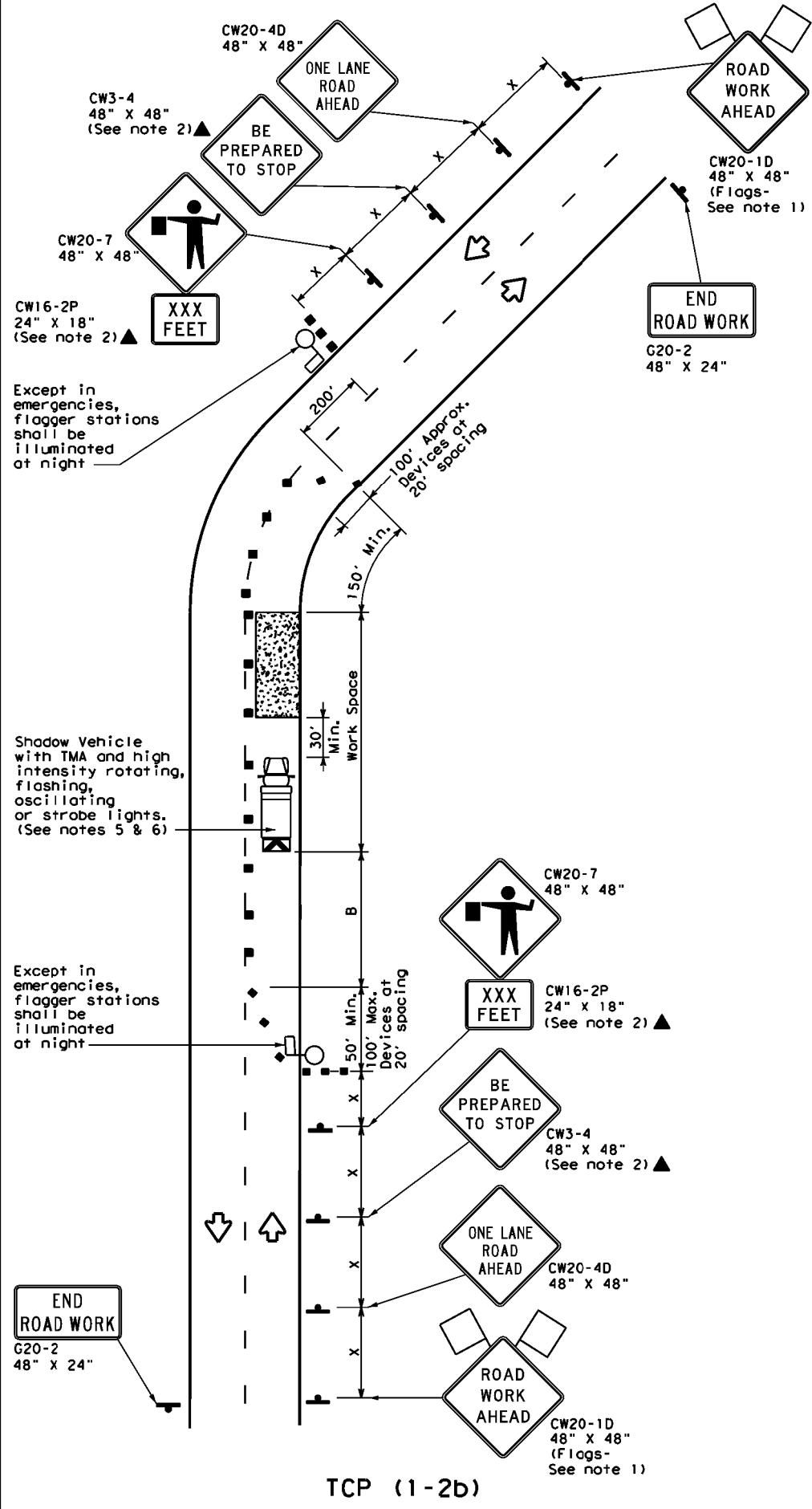
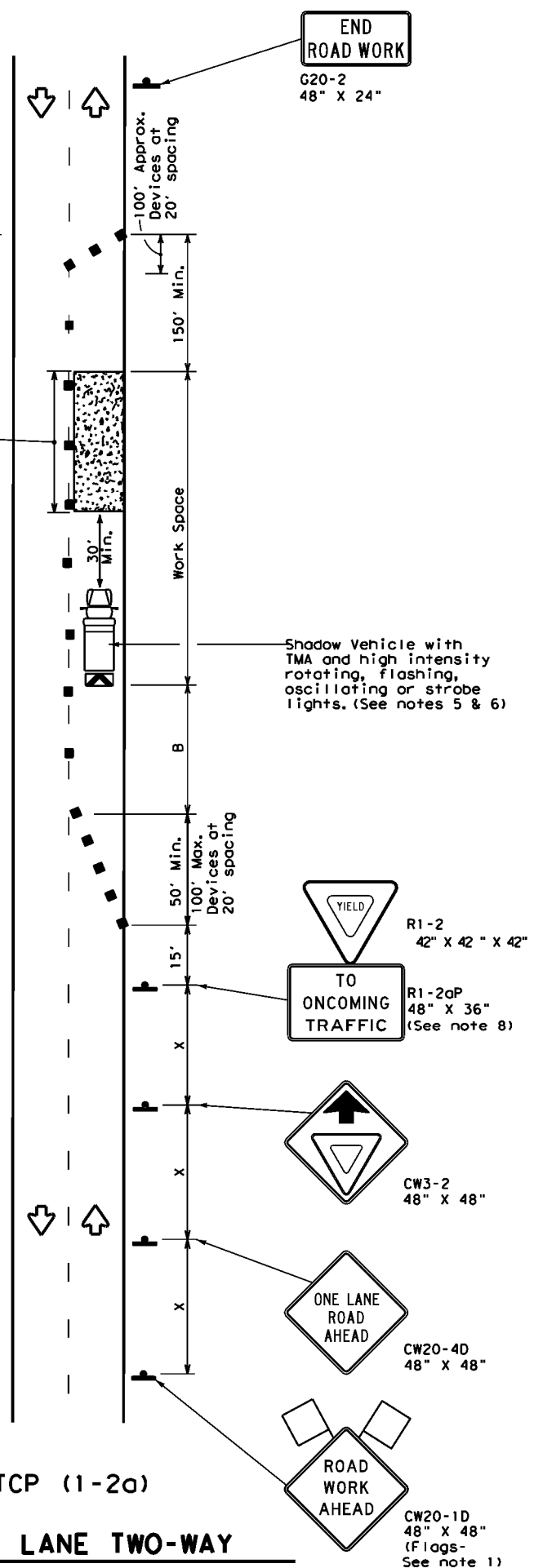
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Warning Sign Sequence in Opposite Direction Same as Below



Channelizing devices separate work space from traveled way



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

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "x" Distance	Suggested Longitudinal Buffer Space "B"	Stopping Sight Distance
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent			
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

- Flags attached to signs where shown are REQUIRED.
- 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.
- The CW3-4 "BE PREPARED TO STOP" sign may be installed after the CW20-4D "ONE LANE ROAD AHEAD" sign, but proper sign spacing shall be maintained.
- Sign spacing may be increased or an additional CW20-1D "ROAD WORK AHEAD" sign may be used if advance warning ahead of the flagger or R1-2 "YIELD" sign is less than 100 feet.
- A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 150 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.
- Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.

TCP (1-2a)

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

TCP (1-2b)

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

Texas Department of Transportation
 Traffic Operations Division Standard

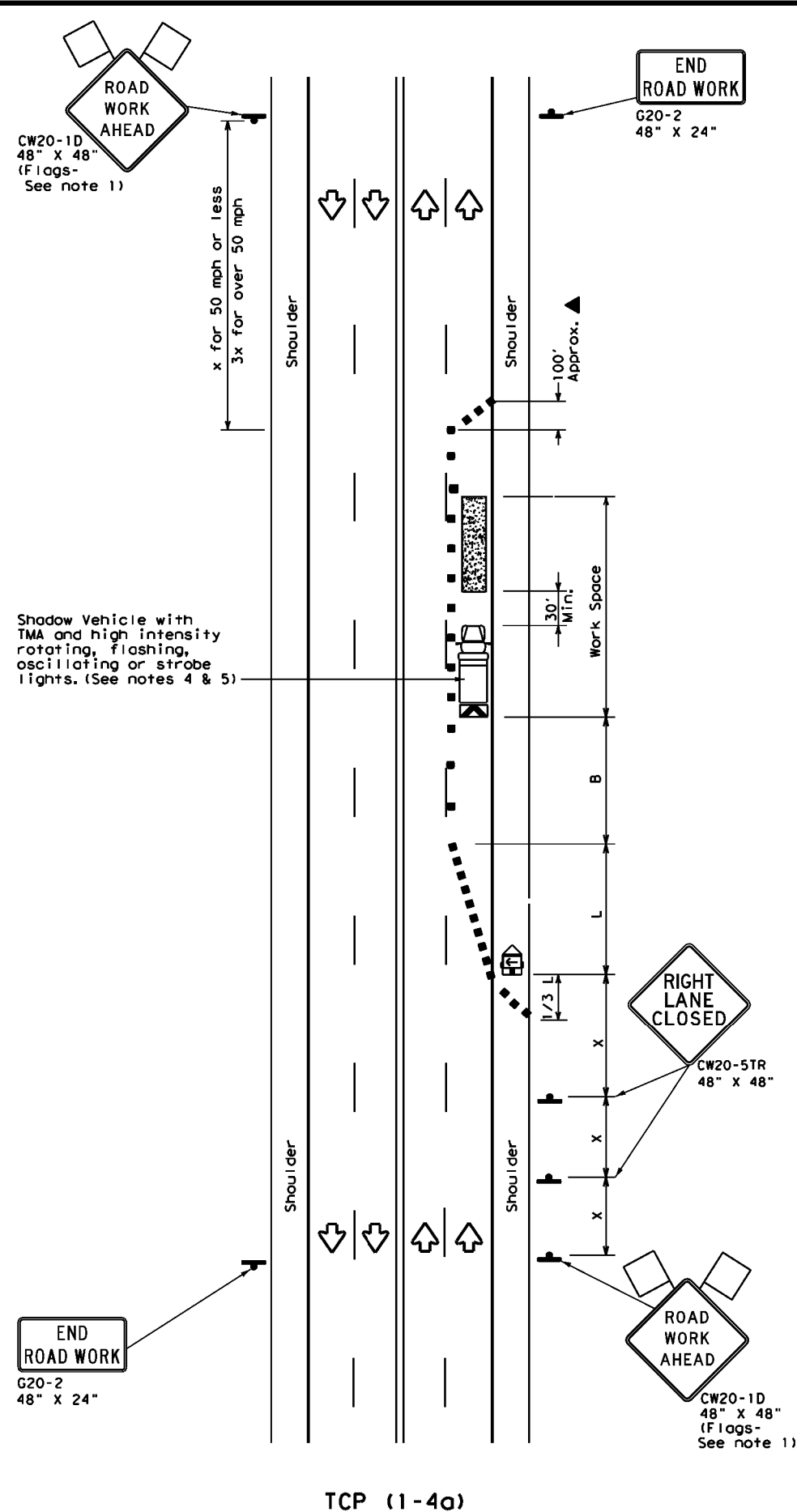
TRAFFIC CONTROL PLAN
ONE-LANE TWO-WAY
TRAFFIC CONTROL

TCP (1-2) - 18

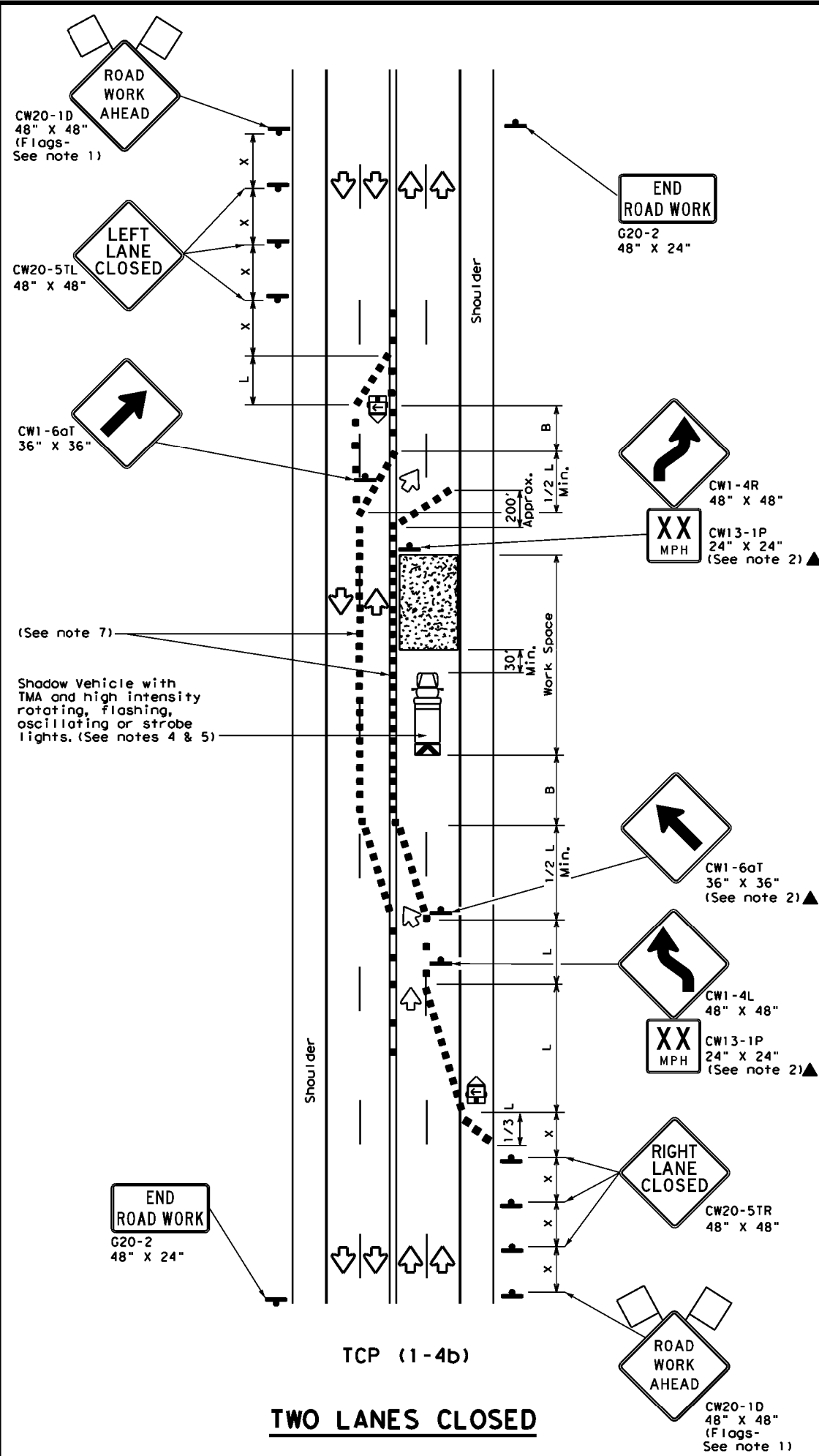
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© TxDOT December 1985	CON: 0032	SECT: 01	JOB: 034	HIGHWAY: US 62/83
REVISIONS:	4-90 4-98	2-94 2-12	1-97 2-18	DIST: CHS
	COUNTY: CHILDRESS	SHEET NO.: 40		

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TCP (1-4a)
ONE LANE CLOSED



TCP (1-4b)
TWO LANES CLOSED

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

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	L = WS ² / 60	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		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

- Flags attached to signs where shown are REQUIRED.
- 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.
- The CW20-1D "ROAD WORK AHEAD" sign may be repeated if the visibility of the work zone is less than 1500 feet.
- 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.
- Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.

TCP (1-4a)

- 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 where needed to protect the work space from opposing traffic with the arrow panel placed in the closed lane near the end of the merging taper.

TCP (1-4b)

- 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 1/2S where S is the speed in mph. This tighter device spacing is intended for the areas of conflicting markings, not the entire work zone.

Texas Department of Transportation

Traffic Operations Division Standard

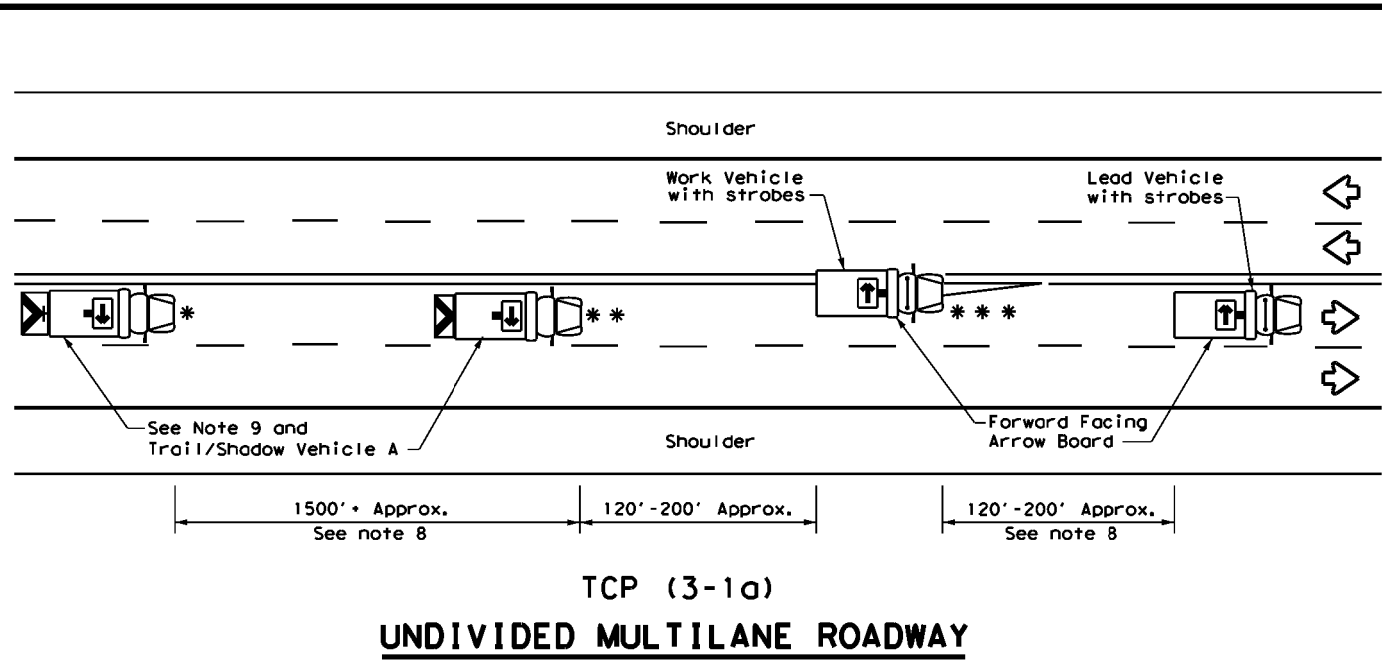
TRAFFIC CONTROL PLAN LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS

TCP (1-4) - 18

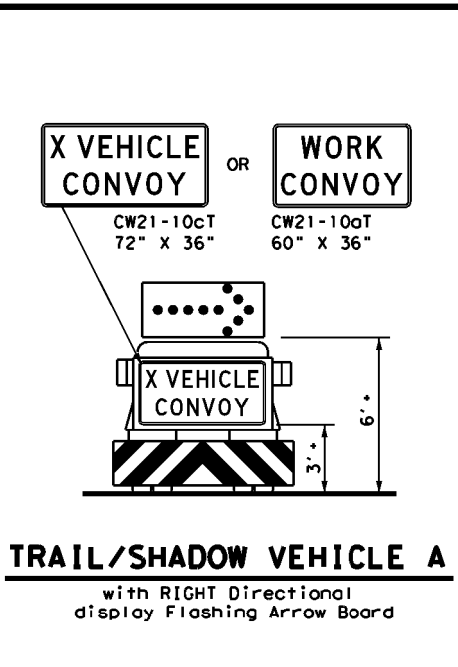
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© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
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2-94 4-98	DIST		COUNTY	SHEET NO.
8-95 2-12	CHS		CHILDRESS	41
1-97 2-18				

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TCP (3-1a)
UNDIVIDED MULTILANE ROADWAY



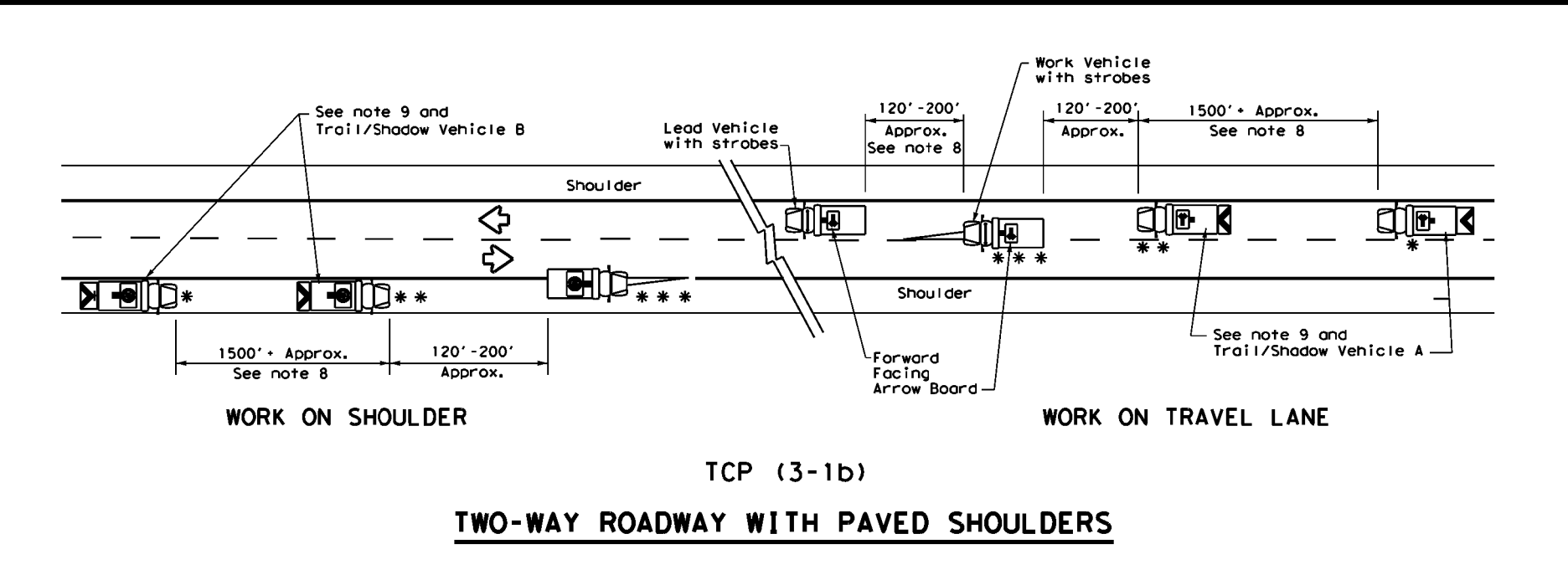
TRAIL/SHADOW VEHICLE A
with RIGHT Directional display Flashing Arrow Board

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

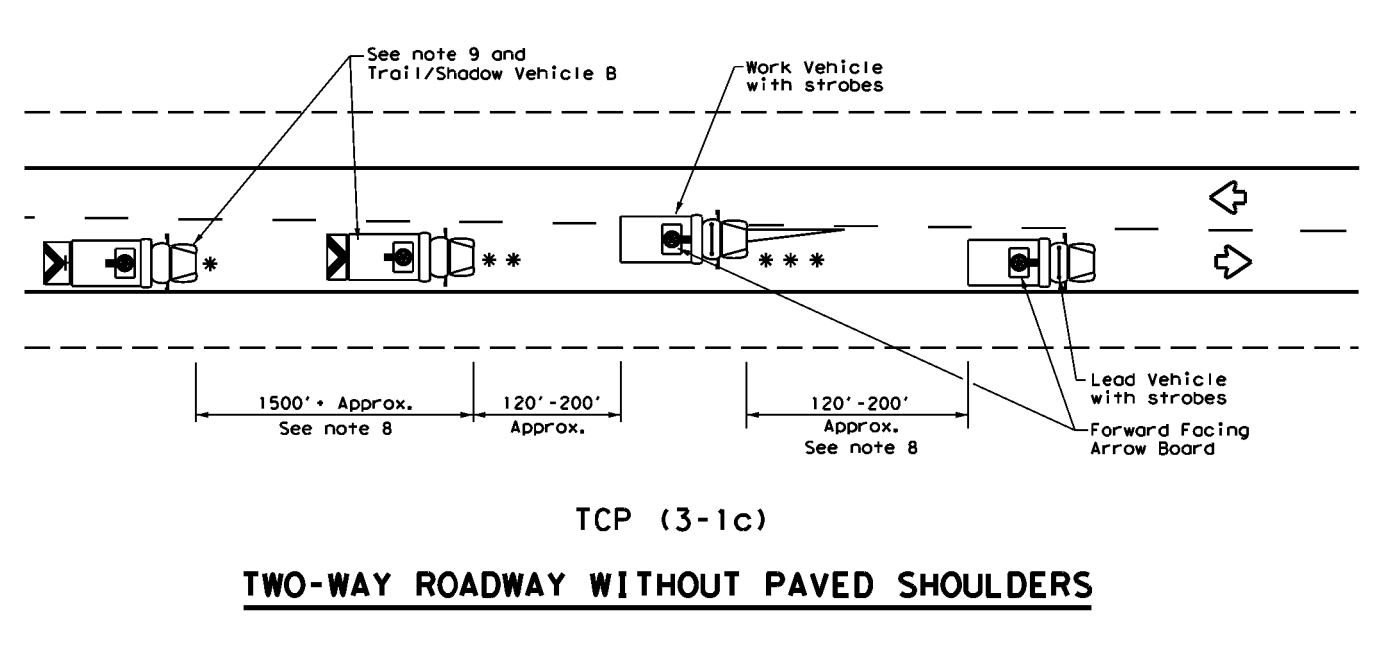
TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
✓				

GENERAL NOTES

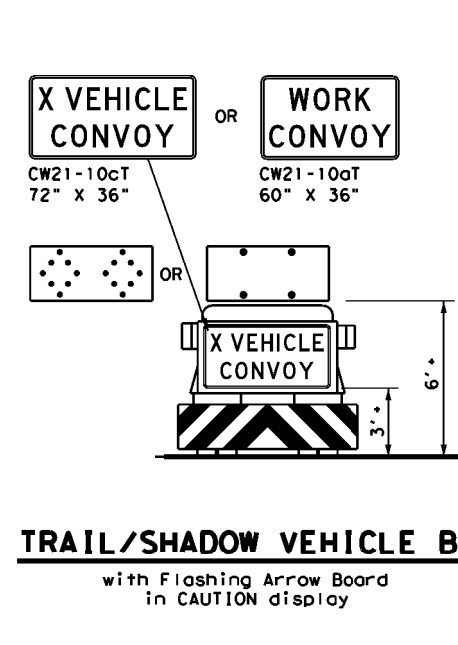
1. TRAIL, SHADOW, and LEAD vehicles shall be equipped with arrow boards as illustrated. When a LEAD vehicle is not used the WORK vehicle must be equipped with an arrow board. The Engineer will determine if the LEAD VEHICLE and/or TRAIL VEHICLE are required based on prevailing roadway conditions, traffic volume, and sight distance restrictions.
2. The use of amber high intensity rotating, flashing, oscillating, or strobe lights on vehicles are required. Blue high intensity rotating, flashing, oscillating or strobe lights when mounted on the driver's side of the vehicle may be operated simultaneously with the amber beacons or strobe lights.
3. The use of truck mounted attenuators (TMA) on the SHADOW VEHICLE and TRAIL VEHICLE are required.
4. Reflective sheeting on the rear of the TMA shall meet or exceed the reflectivity and color requirements of DEPARTMENTAL MATERIAL SPECIFICATION DMS 8300, Type A.
5. Flashing arrow boards shall be Type B or Type C as per the Barricade and Construction (BC) standards. The board shall be controlled from inside the vehicle.
6. Each vehicle shall have two-way radio communication capability.
7. When work convoys must change lanes, the TRAIL VEHICLE should change lanes first to shadow the other convoy vehicles.
8. Vehicle spacing between the TRAIL VEHICLE and the SHADOW VEHICLE will vary depending on sight distance restrictions. Motorists approaching the work convoy should be able to see the TRAIL VEHICLE in time to slow down and/or change lanes as they approach the TRAIL VEHICLE. Vehicle spacing between the WORK VEHICLE and SHADOW VEHICLE and vehicle spacing between WORK VEHICLE and LEAD VEHICLE may vary according to terrain, work activity and other factors.
9. "X VEHICLE CONVOY" (CW21-10cT) or "WORK CONVOY" (CW21-10aT) signs shall be used on TRAIL VEHICLES and SHADOW VEHICLES as shown. As an option 48" X 48" diamond shaped "WORK CONVOY" (CW21-10T) or "X VEHICLE CONVOY" (CW21-10bT) signs may be used where adequate mounting space exists. When used, the X VEHICLE CONVOY sign shall have the number of the convoy vehicles displayed on the sign in the number designation "X" location. The "X VEHICLE CONVOY" sign shall not be used on the SHADOW VEHICLE if a TRAIL VEHICLE is used.
10. On two-lane two-way roadways, the work and protection vehicles should pull over periodically to allow motor vehicle traffic to pass. If motorists are not allowed to pass the work convoy, a "DO NOT PASS" (R4-1) sign should be placed on the back of the rearmost protection vehicle.



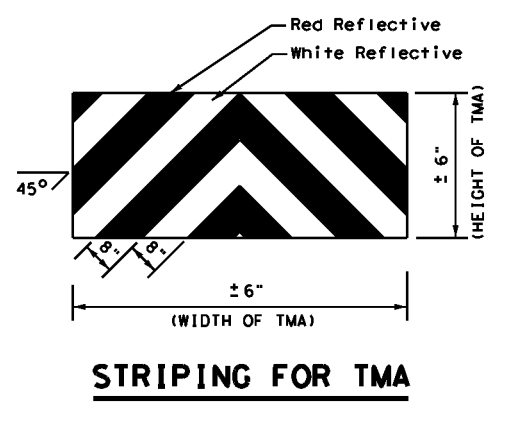
TCP (3-1b)
TWO-WAY ROADWAY WITH PAVED SHOULDERS



TCP (3-1c)
TWO-WAY ROADWAY WITHOUT PAVED SHOULDERS



TRAIL/SHADOW VEHICLE B
with Flashing Arrow Board in CAUTION display



STRIPING FOR TMA

Traffic Operations Division Standard

Texas Department of Transportation

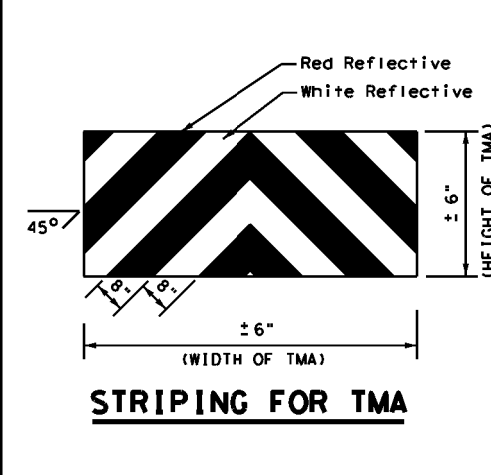
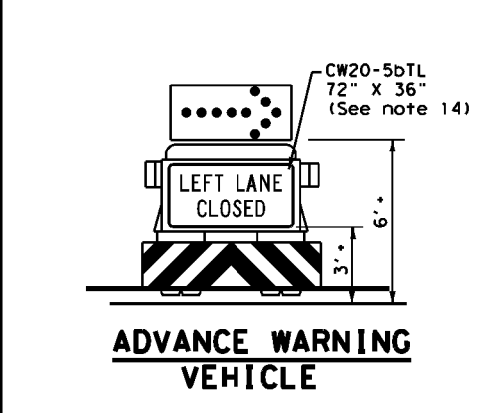
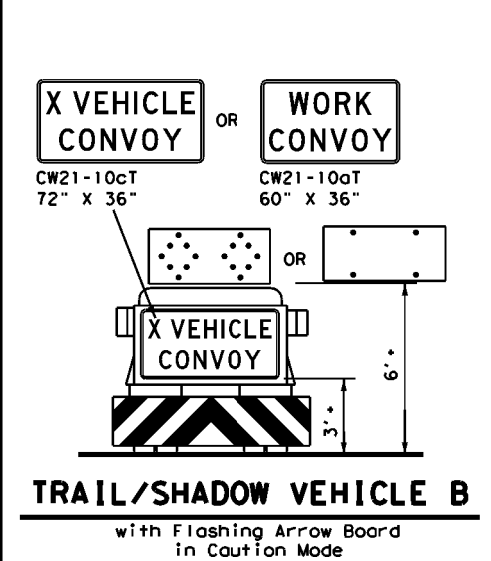
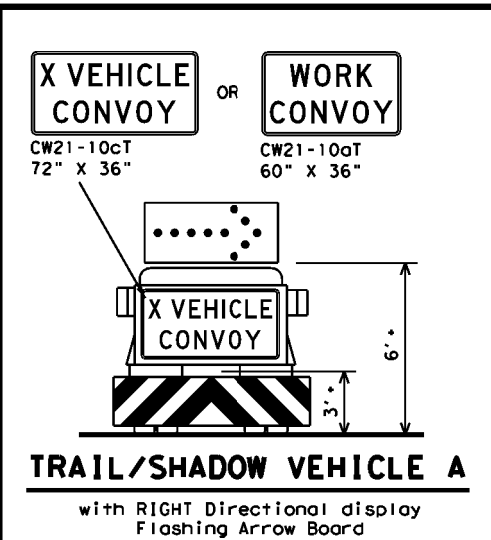
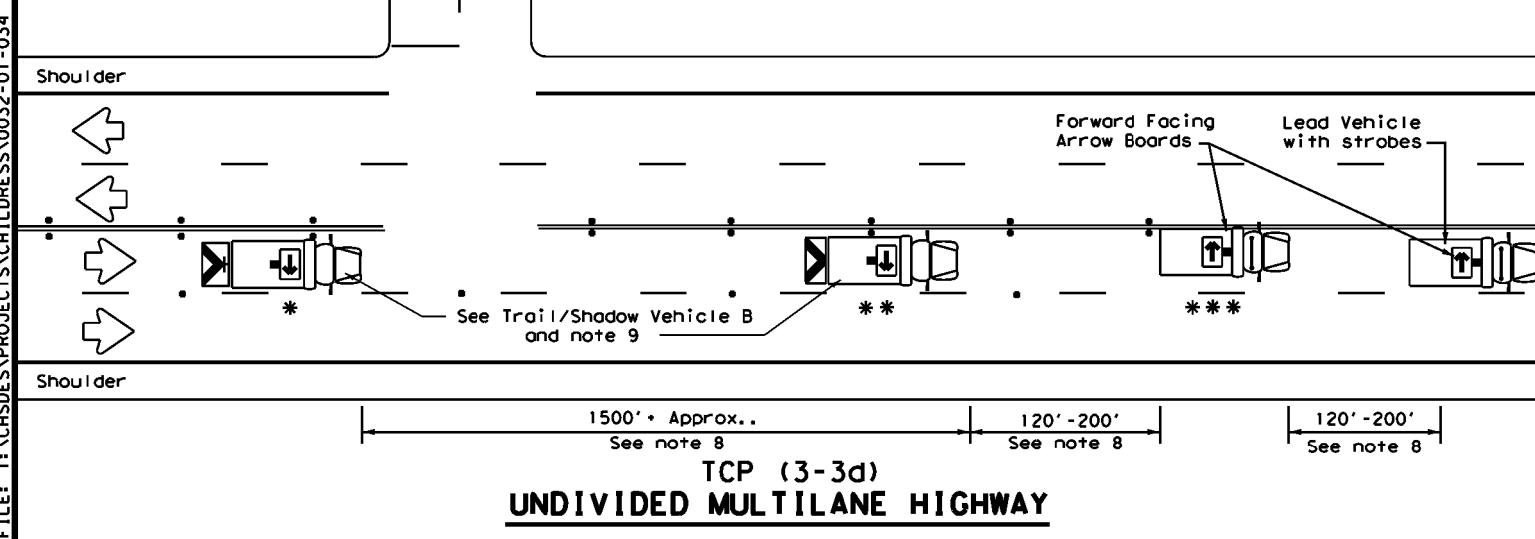
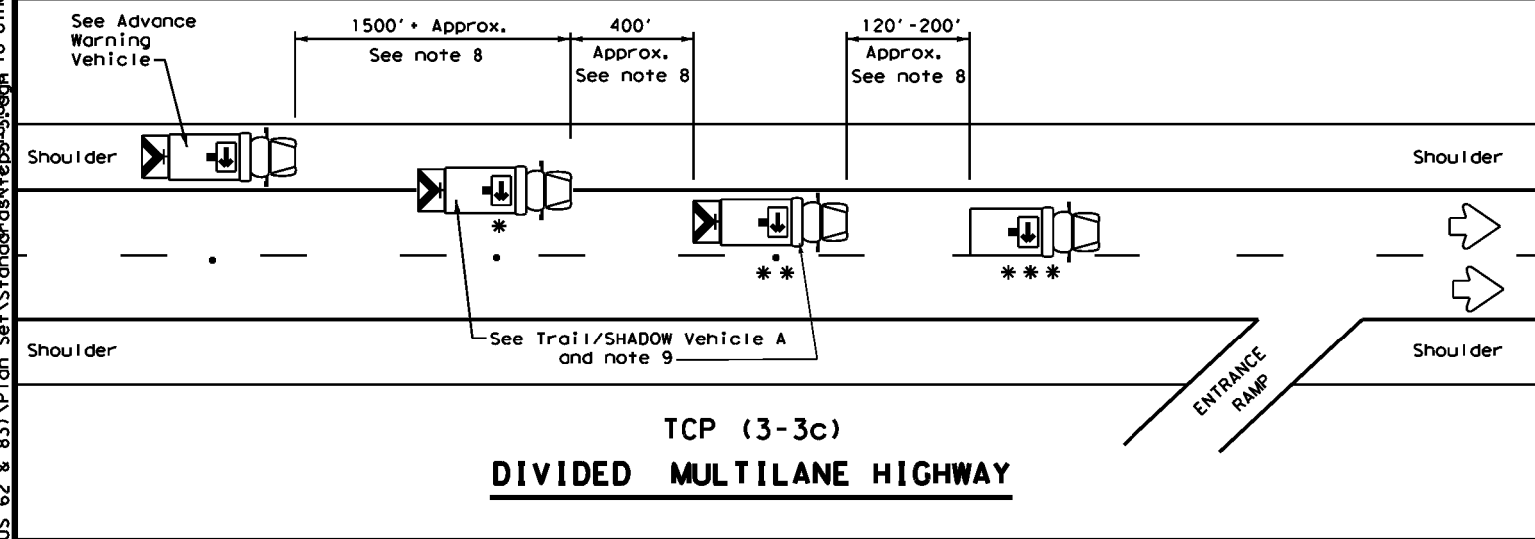
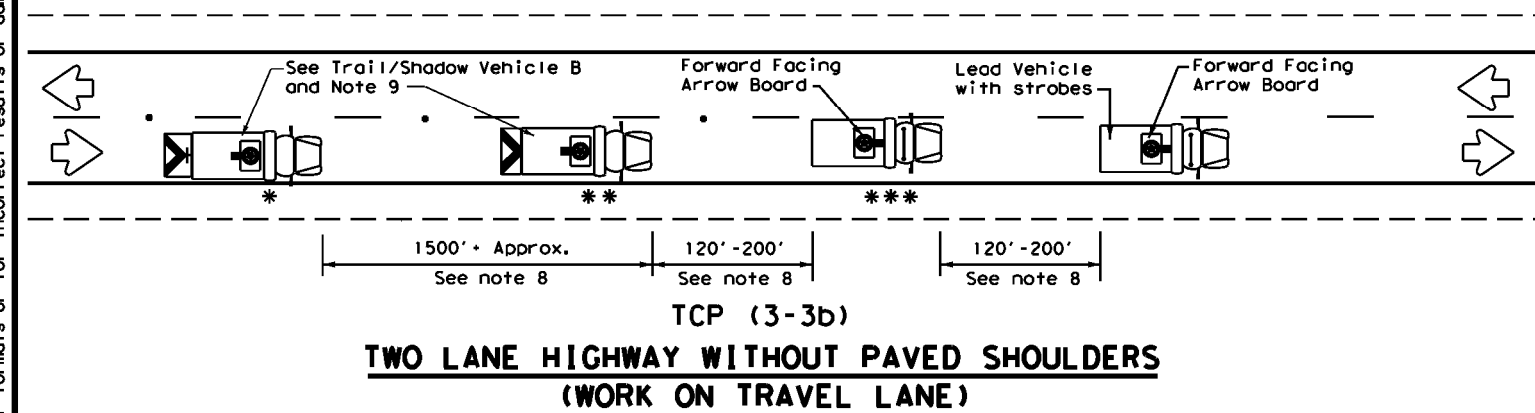
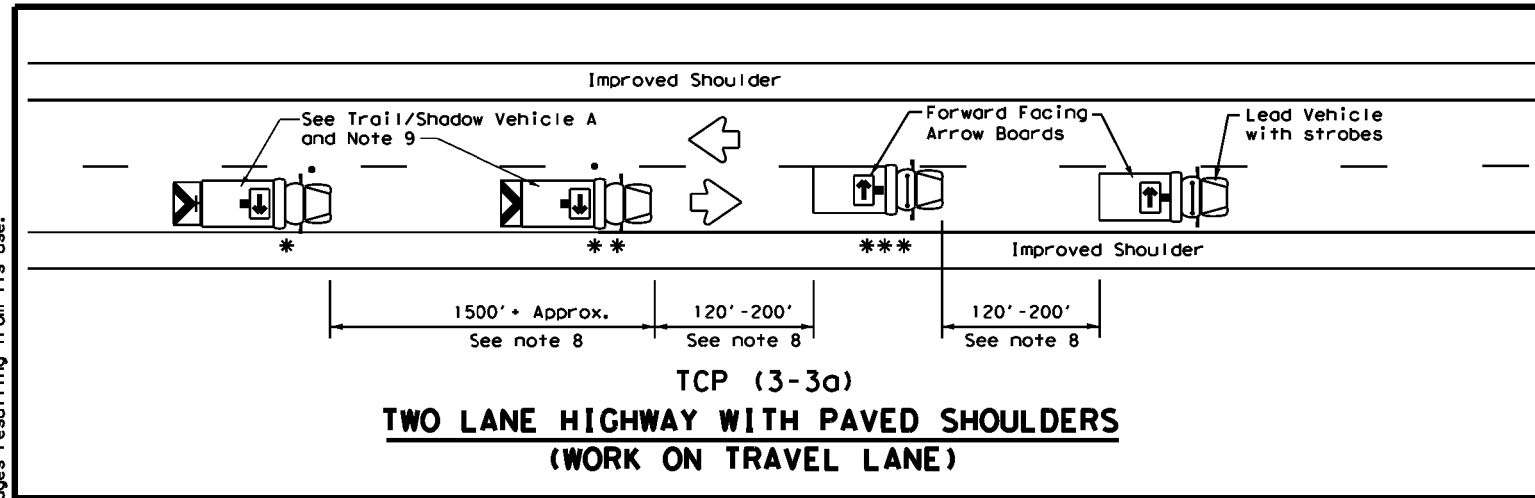
**TRAFFIC CONTROL PLAN
MOBILE OPERATIONS
UNDIVIDED HIGHWAYS**

TCP (3-1) - 13

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© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
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2-94 4-98	DIST	COUNTY	SHEET NO.	
8-95 7-13	CHS	CHILDRESS	42	
1-97				

DATE: 7/7/2022 11:17:06 AM
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LEGEND		
* Trail Vehicle		ARROW BOARD DISPLAY
** Shadow Vehicle		
*** Work Vehicle		RIGHT Directional
		LEFT Directional
		Double Arrow
		CAUTION (Alternating Diamond or 4 Corner Flash)

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

GENERAL NOTES

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

Texas Department of Transportation

Traffic Operations Division Standard

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

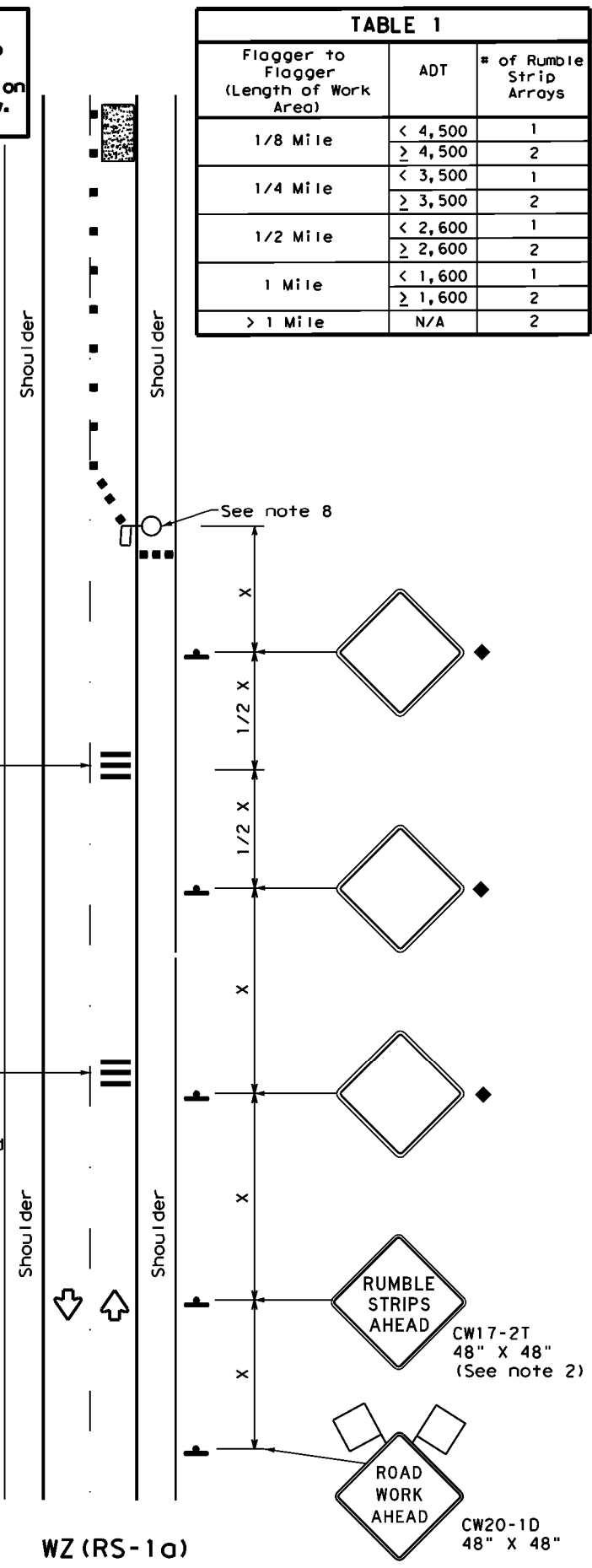
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© TxDOT September 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	0032	01	034	US 62/83
2-94 4-98	DIST	COUNTY	SHEET NO.	
8-95 7-13	CHS	CHILDRESS	43	
1-97 7-14				

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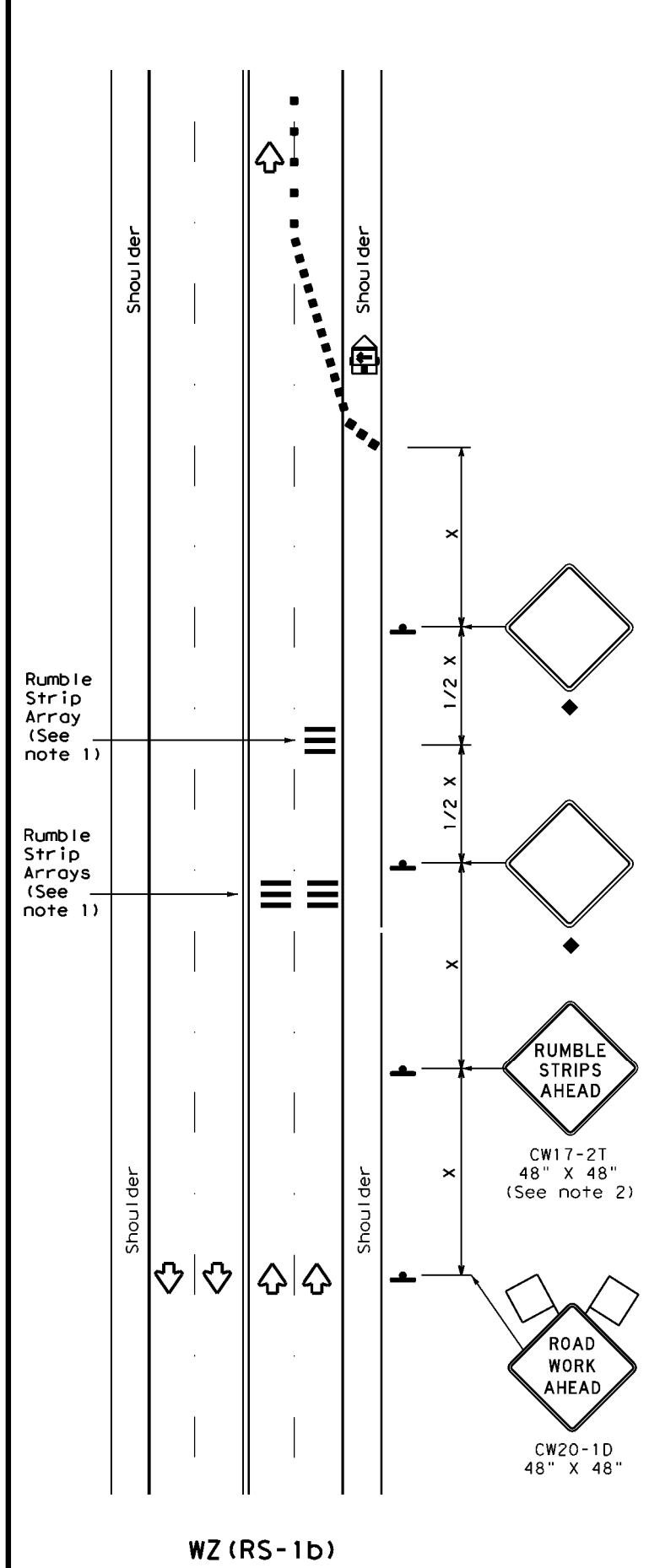
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 FILE: I:\CHSD\PROJECTS\CHILDRESS\0032-01-034 (US 62 & 83)\Plan_Sets\Standard\WZ\WZ_RS-22.dgn

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

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



RUMBLE STRIPS ON ONE-LANE TWO-WAY APPLICATION



RUMBLE STRIPS FOR LANE CLOSURE ON CONVENTIONAL ROADWAY

GENERAL NOTES

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

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

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

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "x" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	L = WS ² / 60	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		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)

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.

Texas Department of Transportation
 Traffic Safety Division Standard

TEMPORARY RUMBLE STRIPS

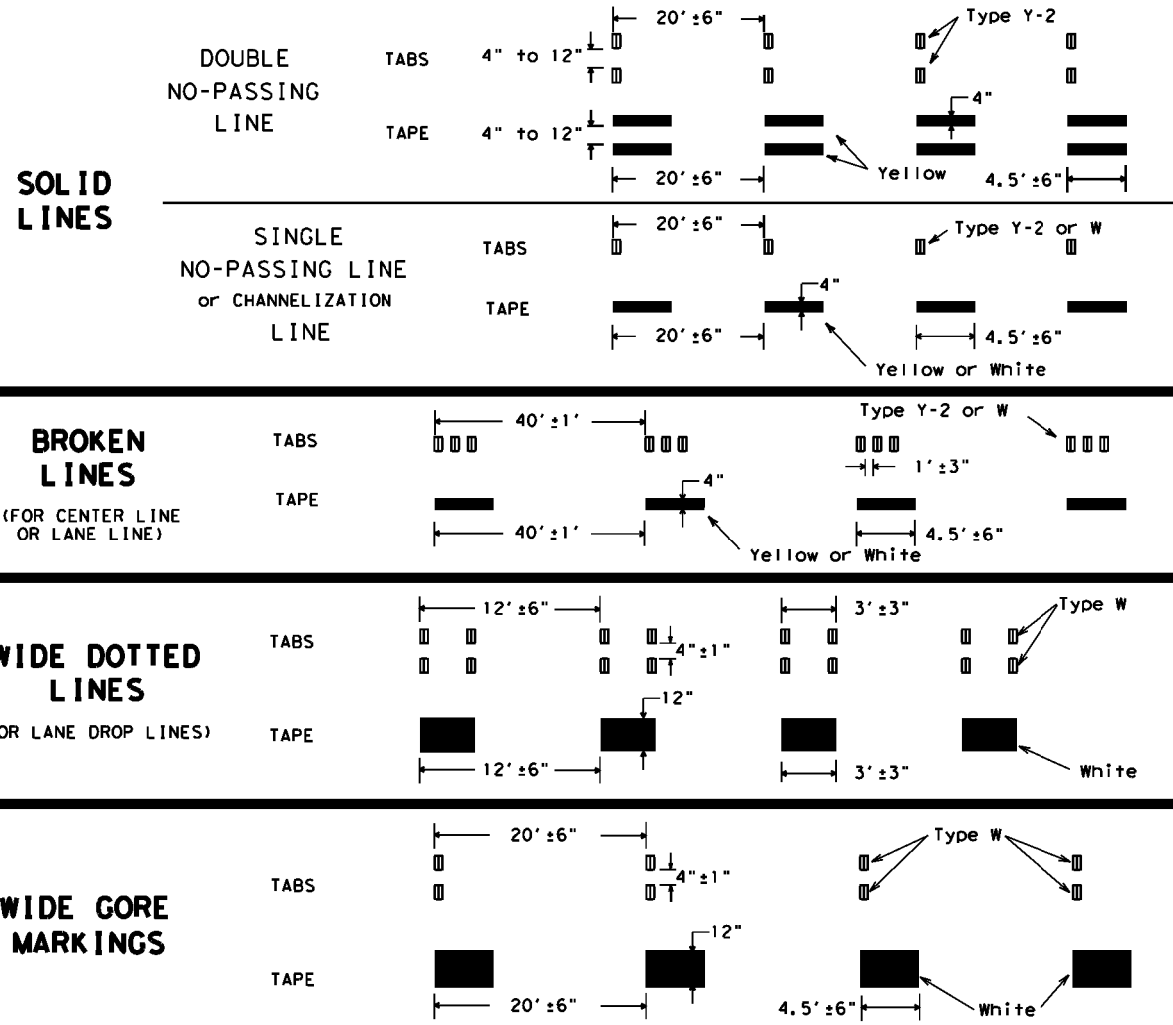
WZ (RS) - 22

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© TxDOT November 2012	CONT	SECT	JOB	HIGHWAY
REVISIONS	0032	01	034	US 62/83
2-14 1-22	DIST	COUNTY	SHEET NO.	
4-16	CHS	CHILDRESS	44	

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WORK ZONE SHORT TERM PAVEMENT MARKINGS DETAILS



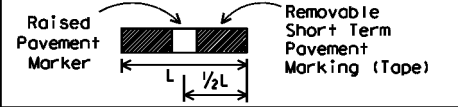
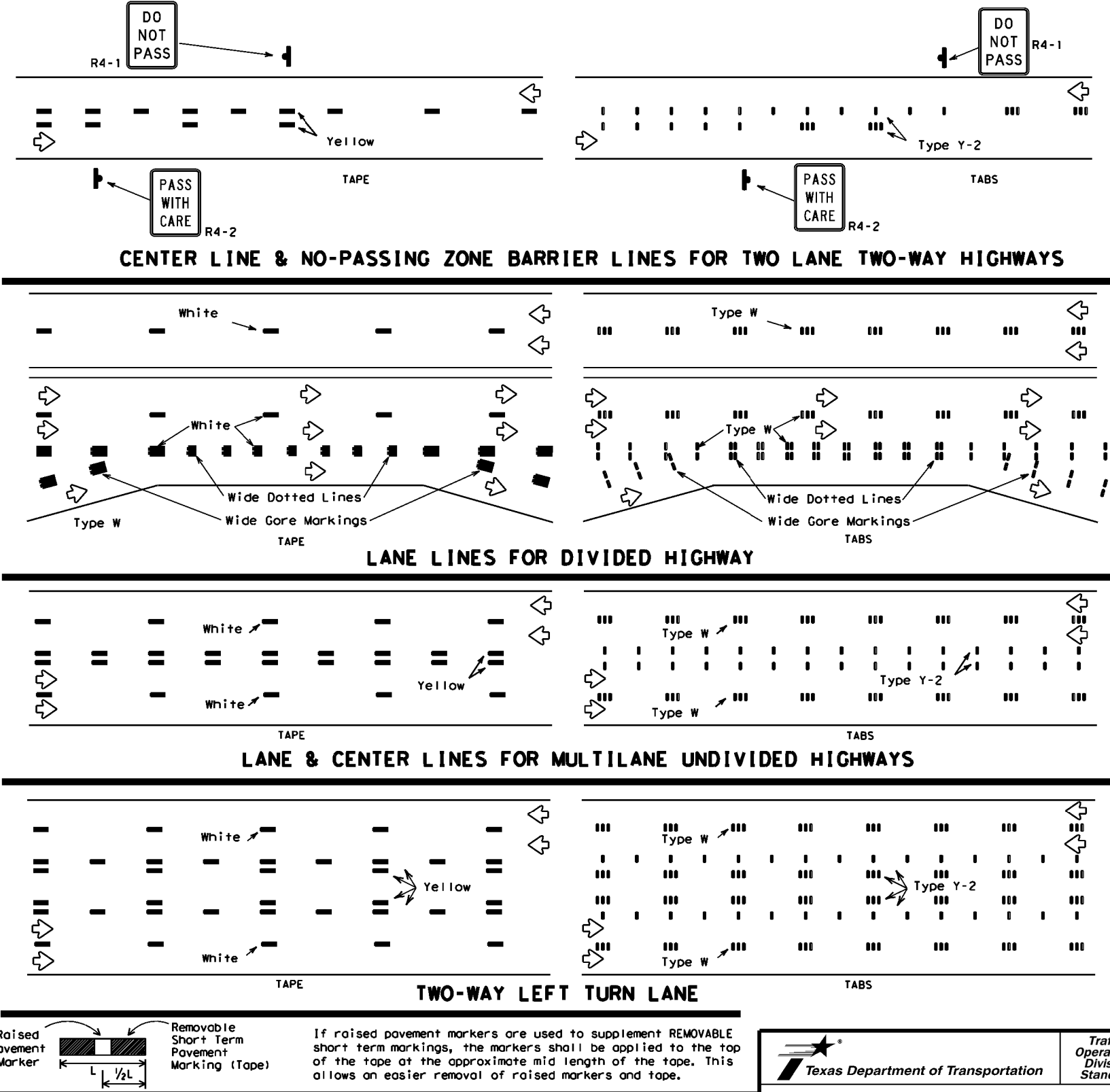
NOTES:

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

TEMPORARY FLEXIBLE, REFLECTIVE ROADWAY MARKER TABS (TABS)

- Temporary flexible-reflective roadway marker tabs detailed on this sheet will be designated Type Y-2 (two amber reflective surfaces with yellow body); Type Y (one amber reflective surface with yellow body); and Type W (one white or silver reflective surface with white body). Additional details may be found on BC(111).
- Tabs shall meet requirements of Departmental Material Specification DMS-8242.
- When dry, tabs shall be visible for a minimum distance of 200 feet during normal daylight hours and when illuminated by automobile low-beam head light at night, unless sight distance is restricted by roadway geometrics.
- No two consecutive tabs nor four tabs per 1000 feet of line shall be missing or fail to meet the visual performance requirements of Note 3.

WORK ZONE SHORT TERM PAVEMENT MARKINGS PATTERNS



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

PREFABRICATED PAVEMENT MARKINGS

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

RAISED PAVEMENT MARKERS

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

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

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

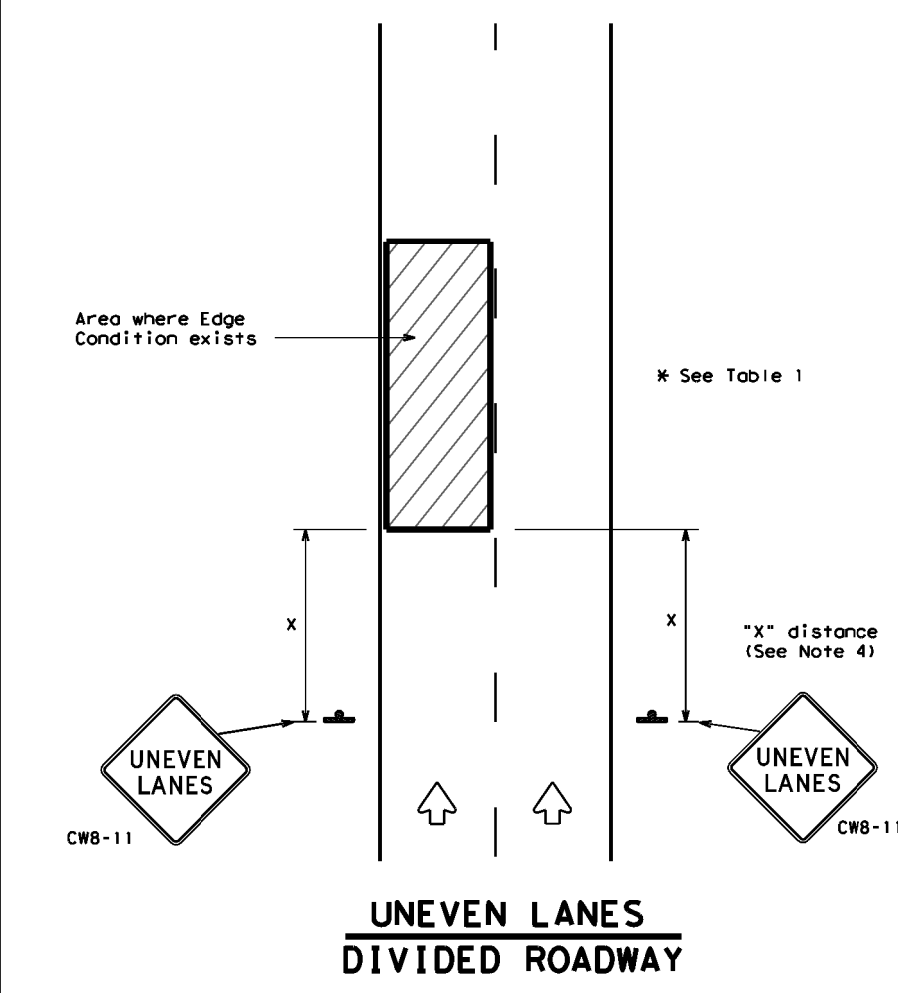
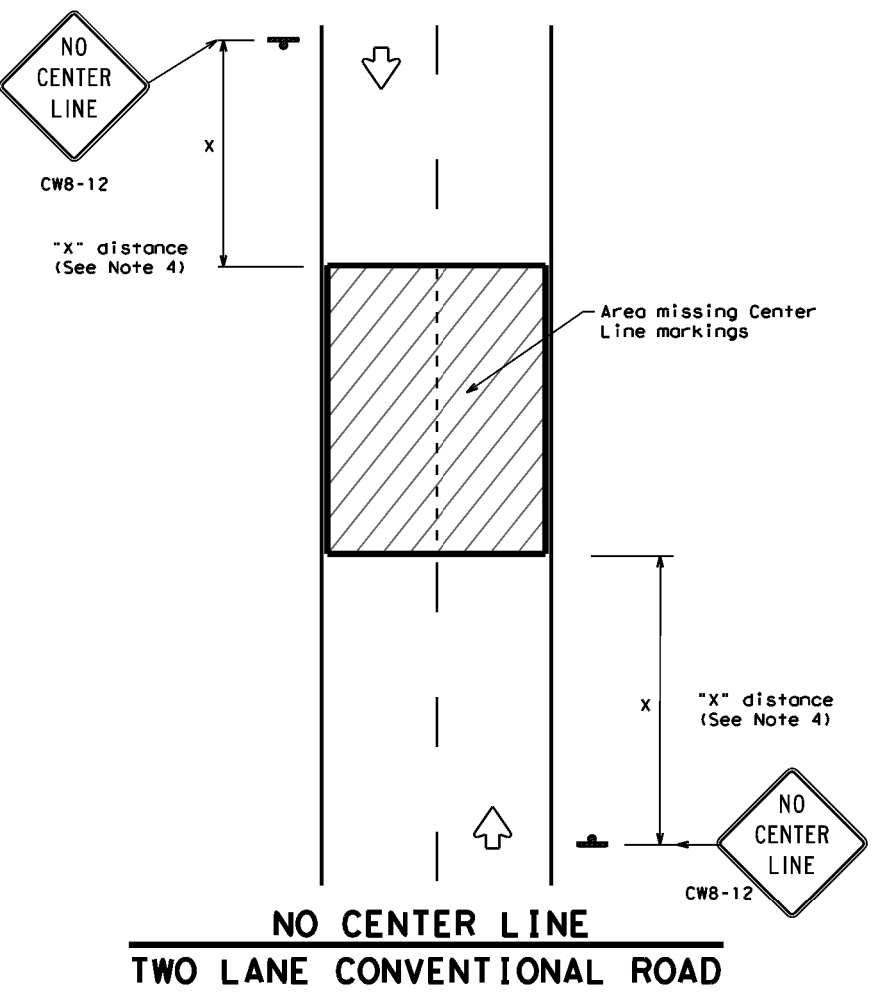
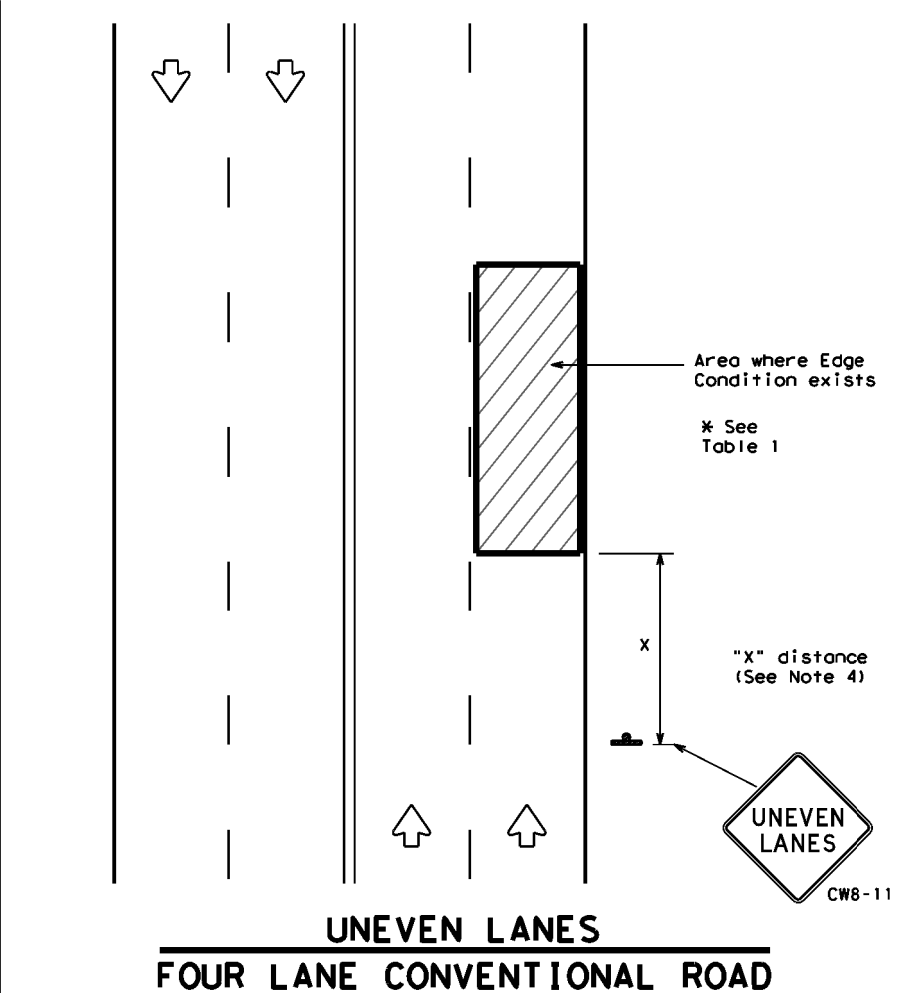
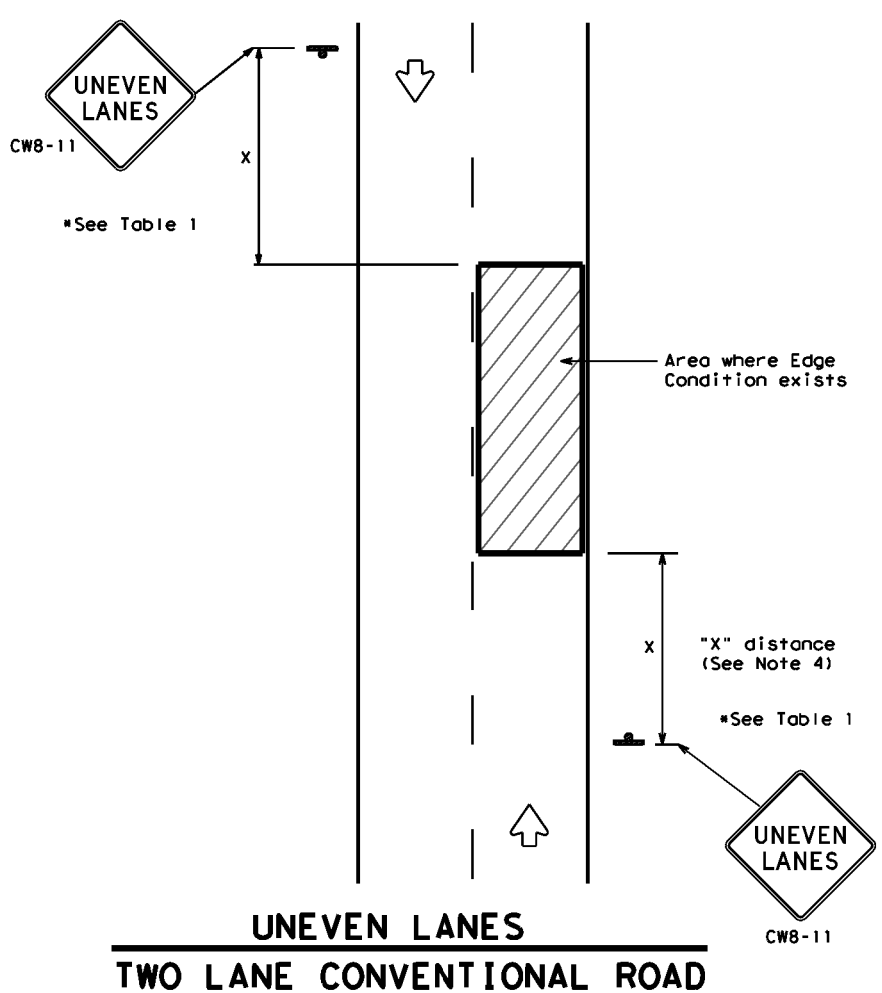


WORK ZONE SHORT TERM PAVEMENT MARKINGS

WZ (STPM) - 13

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© TxDOT April 1992	CONT: 0032	SECT: 01	JOB: 034	HIGHWAY: US 62/83
1-97	REVISIONS			
3-03		DIST: CHS	COUNTY: CHILDRESS	SHEET NO.: 45
7-13				

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DEPARTMENTAL MATERIAL SPECIFICATIONS	
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240
TEMPORARY (REMOVABLE) PREFABRICATED PAVEMENT MARKINGS	DMS-8241
SIGN FACE MATERIALS	DMS-8300

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

GENERAL NOTES

- If spalling or holes occur, ROUGH ROAD (CW8-8) signs should be placed in advance of the condition and be repeated every two miles where the condition persists.
- UNEVEN LANES (CW8-11) signs shall be installed in advance of the condition and repeated every mile. Signs installed along the uneven lane condition may be supplemented with the NEXT XX MILES (CW7-3aP) plaque or Advisory Speed (CW13-1P) plaque.
- NO CENTER LINE (CW8-12) signs and temporary pavement markings as per the WZ(STPM) standard shall be installed if yellow centerlines separating two way traffic are obscured or obliterated. Repeat NO CENTER LINE signs every two miles where the center line markings are not in place. The signs and markings shall remain in place until permanent pavement markings are installed.
- Signs shall be spaced at the distances recommended as per BC standards.
- Additional signs may be required as directed by the Engineer. Signs shall remain in place until final surface is applied. Signs shall be considered subsidiary to Item 502 "BARRICADES, SIGNS AND TRAFFIC HANDLING."
- Signs shall be fabricated and mounted on supports as shown on the BC standards and/or listed on the "Compliant Work Zone Traffic Control Devices" list.
- Short term markings shall not be used to simulate edge lines.
- All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition.

TABLE 1		
Edge Condition	Edge Height (D)	* Warning Devices
①	Less than or equal to: 1/4" (maximum-planing) 1/2" (typical-overlay)	Sign: CW8-11
②	Less than or equal to 3"	Sign: CW8-11
③	Distance "D" may be a maximum of 3" if uneven lanes with edge condition 2 or 3 are open to traffic after work operations cease. Uneven lanes should not be open to traffic when "D" is greater than 3".	

TRAFFIC CONTROL DURING PLANING, OVERLAY AND LEVELING OPERATIONS ARE SHOWN ELSEWHERE IN THE PLANS.

MINIMUM WARNING SIGN SIZE	
Conventional roads	36" x 36"
Freeways/expressways, divided roadways	48" x 48"



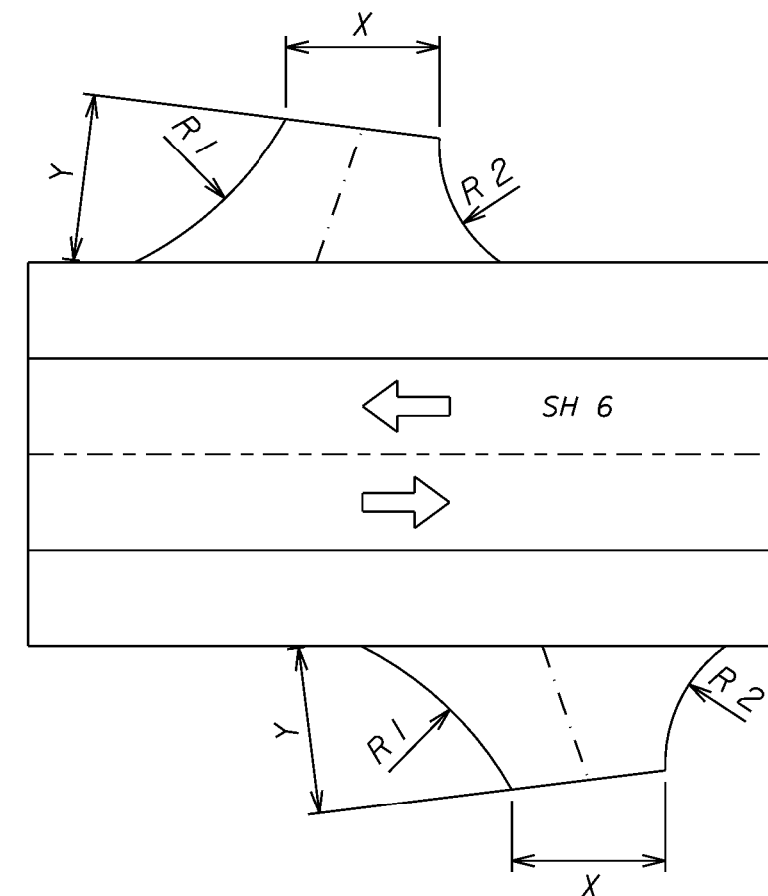
SIGNING FOR UNEVEN LANES

WZ (UL) - 13

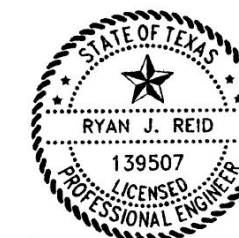
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Station	LT/RT	X FT	Y FT	R ₁ FT	R ₂ FT	AREA SY	ITEM * 3076		DESCRIPTION	NAME
							TYPE "D" ACP (220 LBS/SY) TON	TACK COAT (0.10 GAL/SY) GAL		
1412+29.00	RT	24	50	30	45	203	22	20	INTERSECTION	FM 2103/CO RD CC
1412+50.00	LT	24	50	20	15	148	16	15	INTERSECTION	FM 2103/CO RD CC
1465+94.00	LT	24	50	20	30	164	18	16	INTERSECTION	CO RD BB
1466+19.00	RT	24	50	30	20	164	18	16	INTERSECTION	CO RD BB
1539+46.00	RT	24	40	10	25	124	14	12	INTERSECTION	CO RD IO
1541+63.00	LT	24	250	65	80	920	101	92	INTERSECTION	FM 94
1544+98.00	RT	24	125	105	23	609	67	61	INTERSECTION	CO RD AA
1616+64.00	RT	24	50	23	35	175	19	18	INTERSECTION	CO RD Z
1616+64.00	LT	24	50	35	15	168	18	17	INTERSECTION	CO RD Z
1674+60.00	LT	24	170	85	45	674	74	67	INTERSECTION	FM 2042
1675+09.00	RT	24	215	45	85	794	87	79	INTERSECTION	FM 2042
PROJECT TOTALS						4,143	456	414		



TYPICAL RURAL INTERSECTION DETAIL



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INTERSECTION DETAIL

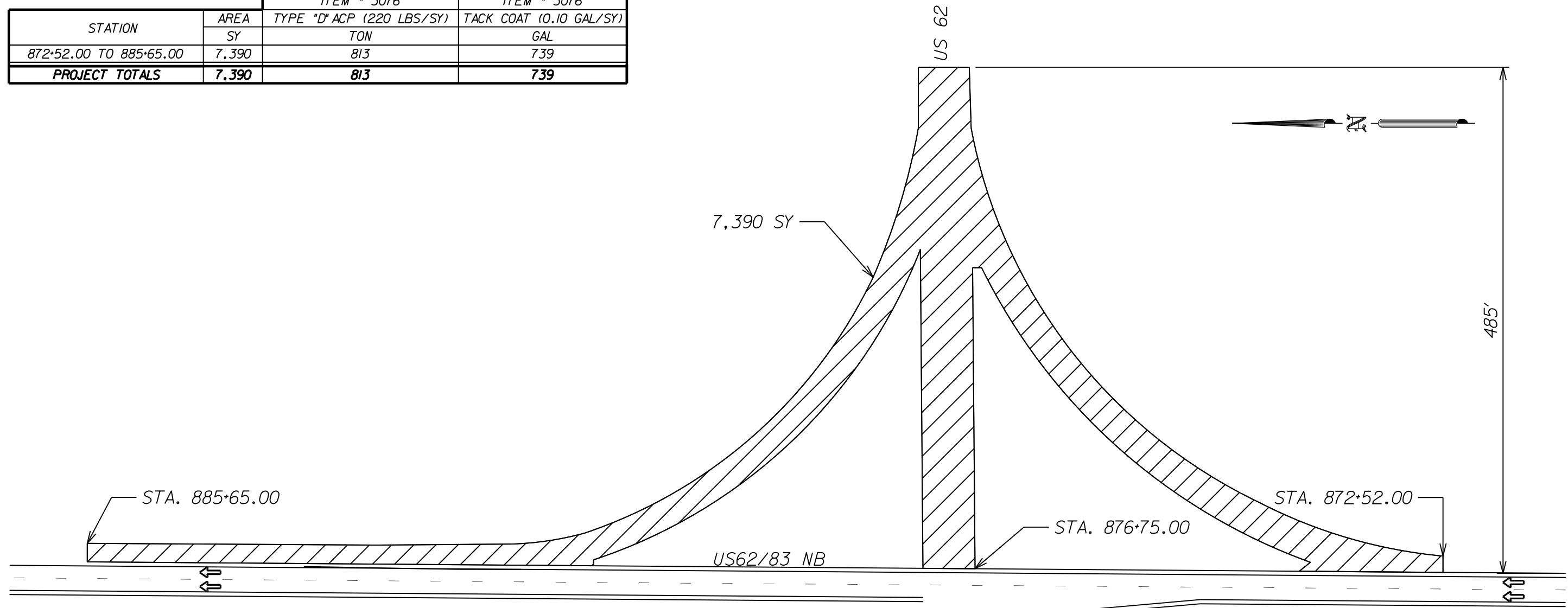


CONT	SECT	JOB	HIGHWAY
0032	01	034	US 62/83
DIST	COUNTY		SHEET NO.
CHS	CHILDRESS		47

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 CKE: _____
 DNE: _____

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 FILE: I:\CHSDES\PROJECTS\CHILDRESS\0032-01-034 (US 62 & 83)\xx 0031-05-046 (US 62 & 83) Hollis Y.Plan Set\Roadway\Intersection_summary.dgn

STATION	AREA SY	ITEM * 3076	
		TYPE "D" ACP (220 LBS/SY) TON	TACK COAT (0.10 GAL/SY) GAL
872+52.00 TO 885+65.00	7,390	813	739
PROJECT TOTALS	7,390	813	739



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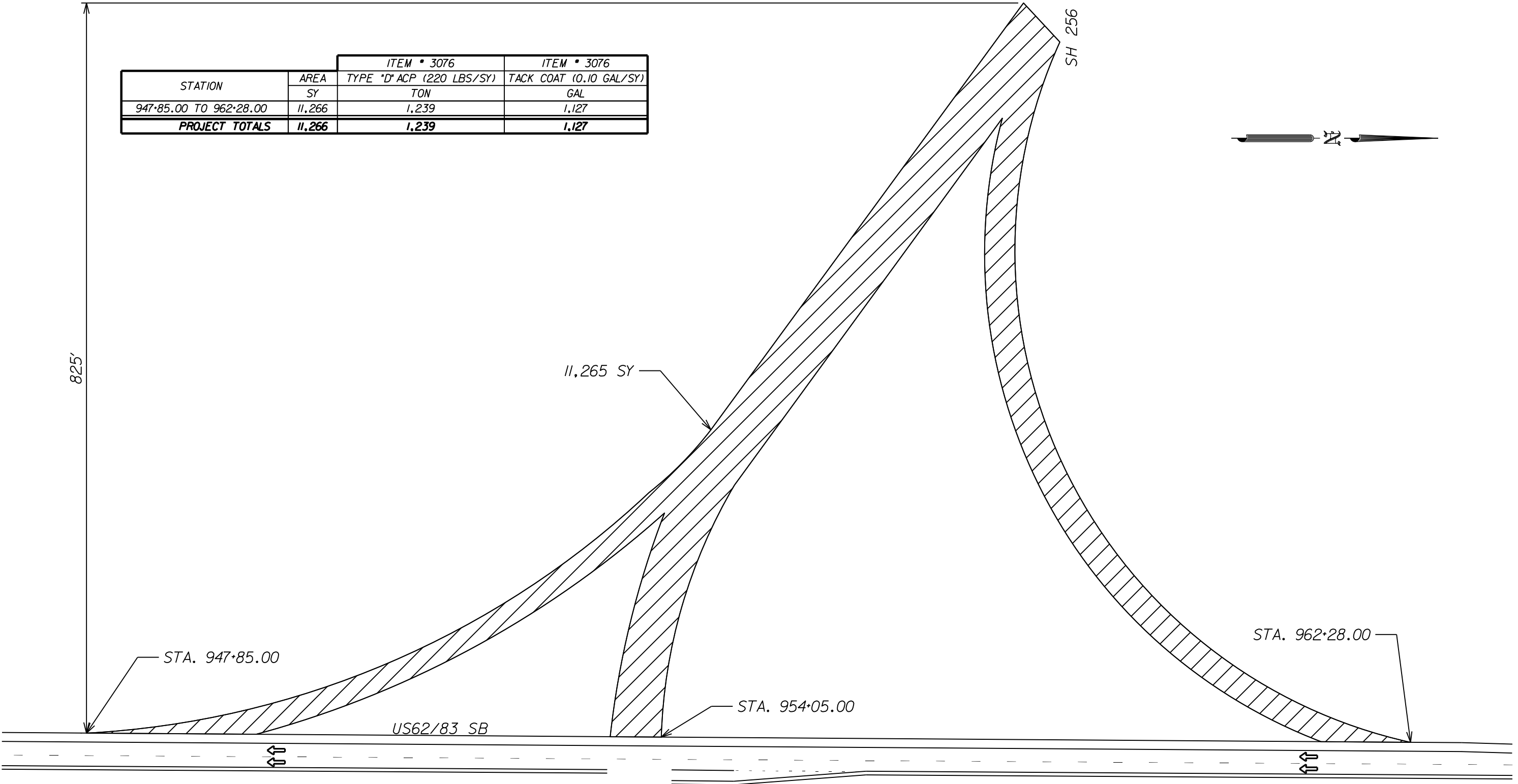
INTERSECTION DETAIL



CONT	SECT	JOB	HIGHWAY
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DIST	COUNTY		SHEET NO.
CHS	CHILDRESS		48

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STATION	AREA SY	ITEM * 3076	ITEM * 3076
		TYPE "D" ACP (220 LBS/SY) TON	TACK COAT (0.10 GAL/SY) GAL
947+85.00 TO 962+28.00	11,266	1,239	1,127
PROJECT TOTALS	11,266	1,239	1,127



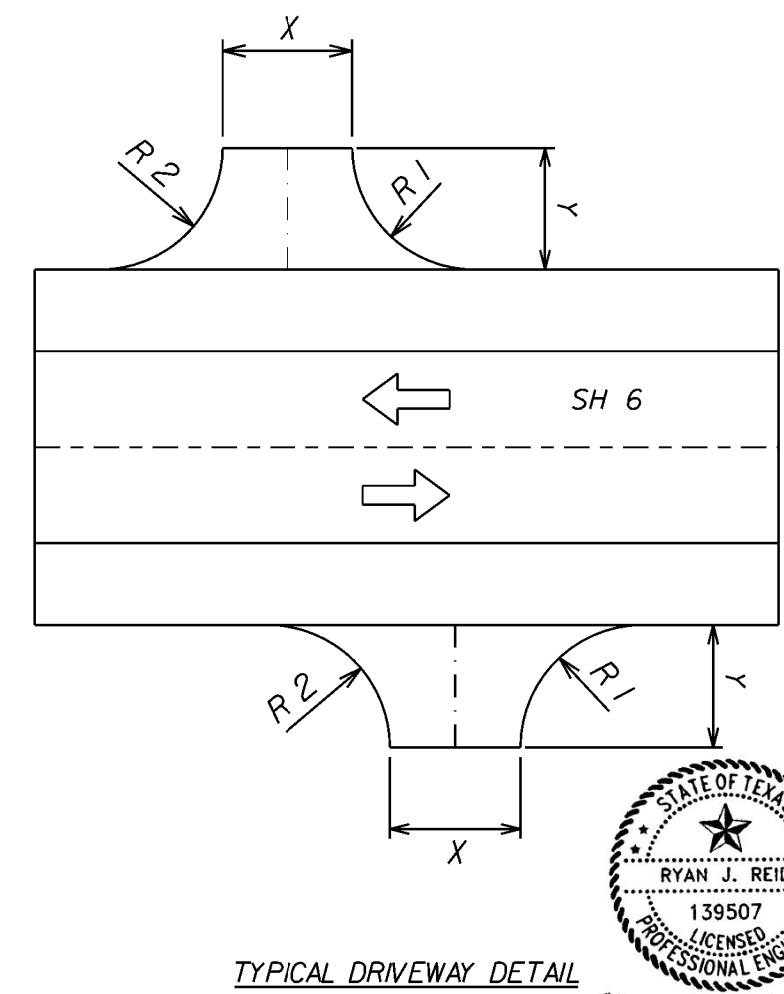
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INTERSECTION DETAIL
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CONT	SECT	JOB	HIGHWAY
0032	01	034	US 62/83
DIST	COUNTY		SHEET NO.
CHS	CHILDRESS		49

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Station	LT/RT	X FT	Y FT	R ₁ FT	R ₂ FT	AREA SY	ITEM * 3076	ITEM * 3076	DESCRIPTION	NAME
							TYPE "D" ACP (220 LBS/SY) TON	TACK COAT (0.10 GAL/SY) GAL		
1271+35.00	LT	20	30	10	15	74	8	7	DRIVEWAY	PERSONAL
1273+25.00	LT	20	55	20	20	141	16	14	DRIVEWAY	PERSONAL
1334+60.00	LT	20	50	10	15	119	13	12	DRIVEWAY	PERSONAL
1336+02.00	RT	20	30	10	15	74	8	7	DRIVEWAY	PERSONAL
1337+62.00	RT	20	30	10	15	74	8	7	DRIVEWAY	PERSONAL
1339+91.00	RT	20	20	10	15	52	6	5	DRIVEWAY	PERSONAL
1358+39.00	RT	20	25	15	15	66	7	7	DRIVEWAY	PERSONAL
1358+66.00	LT	20	25	20	15	70	8	7	DRIVEWAY	PERSONAL
1388+25.00	RT	20	35	15	20	93	10	9	DRIVEWAY	PERSONAL
1398+83.00	RT	20	25	20	20	75	8	7	DRIVEWAY	PERSONAL
1409+24.00	LT	20	20	10	15	52	6	5	DRIVEWAY	PERSONAL
1411+19.00	RT	20	30	10	15	74	8	7	DRIVEWAY	PERSONAL
1424+91.00	RT	20	30	15	15	77	9	8	DRIVEWAY	PERSONAL
1426+49.00	RT	20	20	10	15	52	6	5	DRIVEWAY	PERSONAL
1436+45.00	LT	20	50	15	15	122	13	12	DRIVEWAY	PERSONAL
1493+02.00	LT	20	30	10	10	71	8	7	DRIVEWAY	PERSONAL
1500+66.00	LT	20	35	15	20	93	10	9	DRIVEWAY	PERSONAL
1501+17.00	RT	20	45	15	15	111	12	11	DRIVEWAY	PERSONAL
1545+84.00	LT	20	50	20	22	132	15	13	DRIVEWAY	PERSONAL
1572+06.00	LT	20	40	25	25	119	13	12	DRIVEWAY	PERSONAL
1574+94.00	RT	20	40	20	20	108	12	11	DRIVEWAY	PERSONAL
1589+67.00	RT	20	30	20	20	86	9	9	DRIVEWAY	PERSONAL
1593+13.00	RT	20	30	20	20	86	9	9	DRIVEWAY	PERSONAL
1600+16.00	LT	20	40	30	13	114	13	11	DRIVEWAY	PERSONAL
1607+37.00	RT	20	50	25	25	141	15	14	DRIVEWAY	PERSONAL
1645+57.00	RT	20	25	20	20	75	8	7	DRIVEWAY	PERSONAL
1645+83.00	LT	20	50	20	20	130	14	13	DRIVEWAY	PERSONAL
1659+97.00	RT	20	50	25	25	141	15	14	DRIVEWAY	PERSONAL
1666+46.00	RT	20	30	20	20	86	9	9	DRIVEWAY	PERSONAL
1666+55.00	LT	20	30	20	25	91	10	9	DRIVEWAY	PERSONAL
1694+76.00	RT	20	40	20	20	108	12	11	DRIVEWAY	PERSONAL
1699+56.00	RT	20	30	20	25	91	10	9	DRIVEWAY	PERSONAL
1701+43.00	RT	20	30	20	20	86	9	9	DRIVEWAY	PERSONAL
1703+64.00	RT	20	40	20	20	108	12	11	DRIVEWAY	PERSONAL
1706+50.00	RT	50	60	30	30	376	41	38	DRIVEWAY	PERSONAL
1706+58.00	LT	20	25	15	15	66	7	7	DRIVEWAY	PERSONAL
1717+80.00	LT	20	30	20	20	86	9	9	DRIVEWAY	PERSONAL
1723+82.00	LT	20	40	20	20	108	12	11	DRIVEWAY	PERSONAL
1725+38.00	LT	20	40	20	20	108	12	11	DRIVEWAY	PERSONAL
PROJECT TOTALS						3.937	433	394		



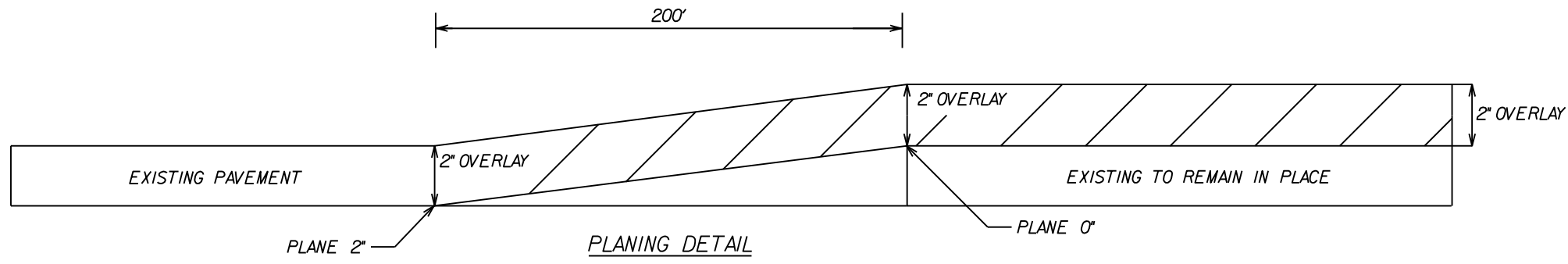
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DRIVEWAY DETAIL

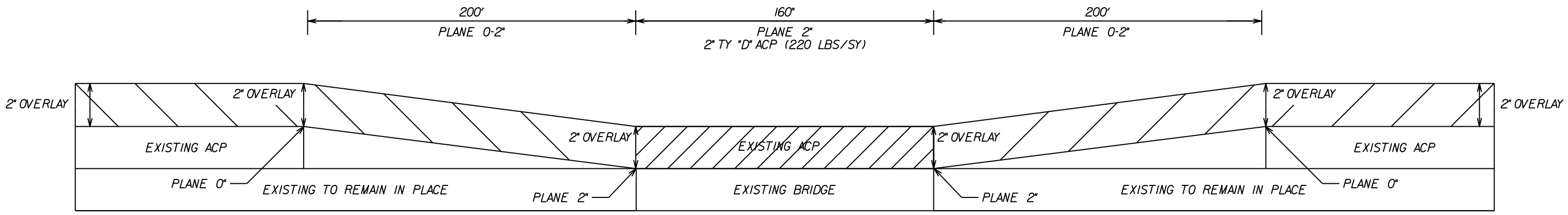


CONT	SECT	JOB	HIGHWAY
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DIST	COUNTY		SHEET NO.
CHS	CHILDRESS		50

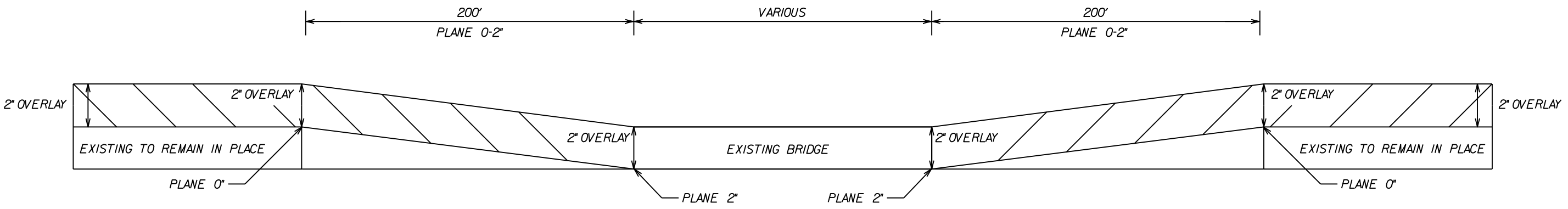
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(WIDTH = 56') STA. 857+37.00 TO STA. 859+37.00 = 200.00 LF.
 (WIDTH = 76') STA. 971+18.00 TO STA. 973+18.00 = 200.00 LF.
 (WIDTH = 56') STA. 1267+00.00 TO STA. 1269+00.00 = 200.00 LF.
 (WIDTH = 64') STA. 1724+87.00 TO STA. 1726+87.00 = 200.00 LF.
 TOTAL = 800.00 LF.



(WIDTH = 44') STA. 1285+85.00 TO STA. 1291+45.00 = 560.00 LF.



(WIDTH = 44') STA. 1516+58.00 TO STA. 1518+58.00 = 200.00 LF.
 (WIDTH = 44') STA. 1520+10.00 TO STA. 1522+10.00 = 200.00 LF.
 (WIDTH = 44') STA. 1571+04.00 TO STA. 1573+04.00 = 200.00 LF.
 (WIDTH = 44') STA. 1574+34.00 TO STA. 1576+34.00 = 200.00 LF.
 TOTAL = 800.00 LF.



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PLANING DETAILS



CONT	SECT	JOB	HIGHWAY
0032	01	034	US 62/83
DIST	COUNTY		SHEET NO.
CHS	CHILDRESS		51

DATE: 7/7/2022 10:38:51 AM
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DWG: CDS: DWF: CDS:

HORIZONTAL CURVE DATA							
PC	PI	PT	DELTA	D	L	T	DESIGN SPEED (MPH)
1323+52.89	1326+94.71	1330+35.73	6° 49' 42.39" (LT)	1° 00' 00.00"	682.844	341.827	80
1361+08.95	1364+02.63	1366+95.81	5° 52' 06.86" (LT)	1° 00' 00.00"	586.858	293.686	80
1452+05.32	1459+41.95	1466+11.43	42° 11' 00.00" (RT)	3° 00' 00.00"	1,406.112	736.635	55
1596+26.82	1601+97.87	1607+65.15	11° 23' 00.00" (LT)	1° 00' 00.00"	1,138.334	571.046	80
1663+77.50	1668+17.58	1672+50.83	17° 28' 00.00" (RT)	2° 00' 00.00"	873.334	440.080	65
1684+24.03	1692+16.72	1699+70.70	30° 56' 00.00" (LT)	2° 00' 00.00"	1,546.667	792.682	65

VERTICAL CURVE DATA							
PI	ELEV	LENGTH	E	G1 %	G2 %	K	DESIGN SPEED (MPH)
1645+25.11	1839.793	394.000	1.55	-2.671	0.604	120	55



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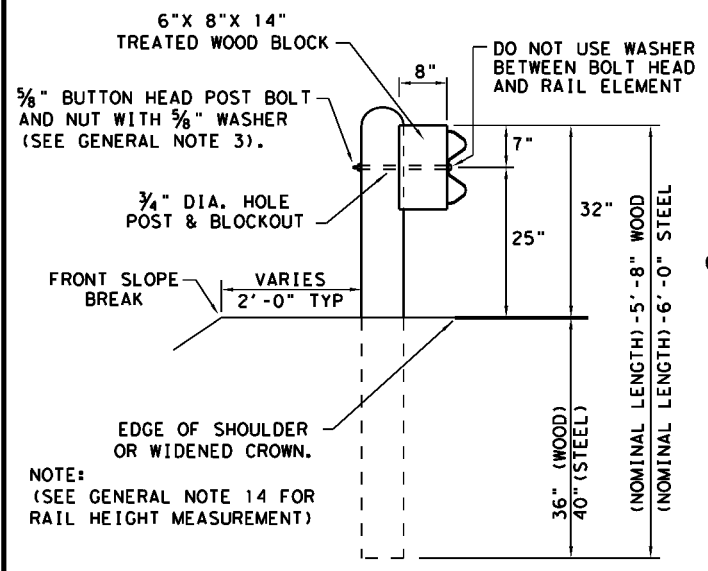
CURVE DATA SHEET



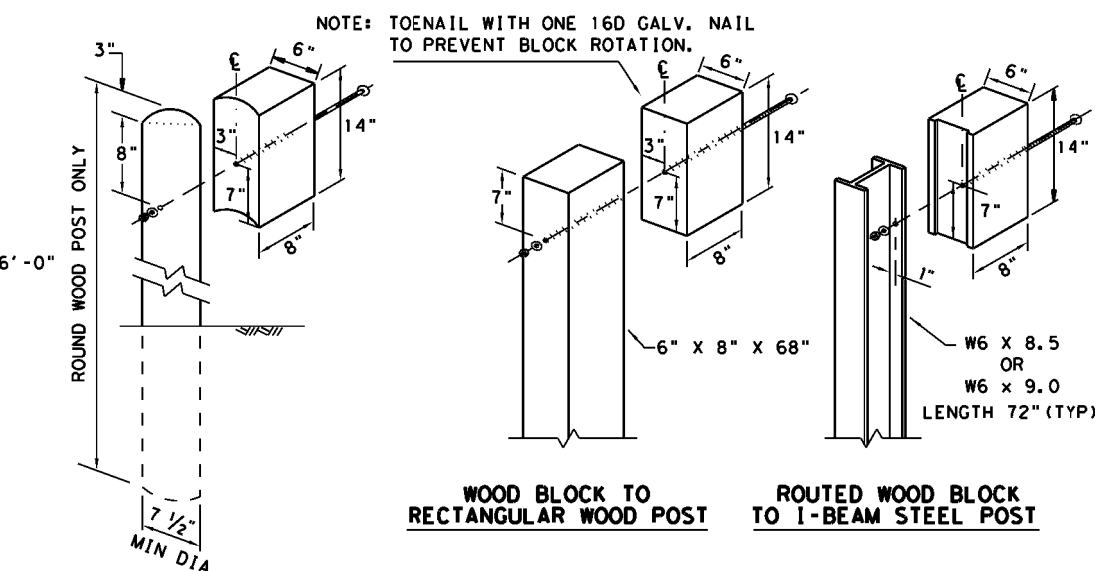
CONT	SECT	JOB	HIGHWAY
0032	01	034	US 62/83
DIST	COUNTY		SHEET NO.
CHS	CHILDRESS		52

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DATE: FILE:



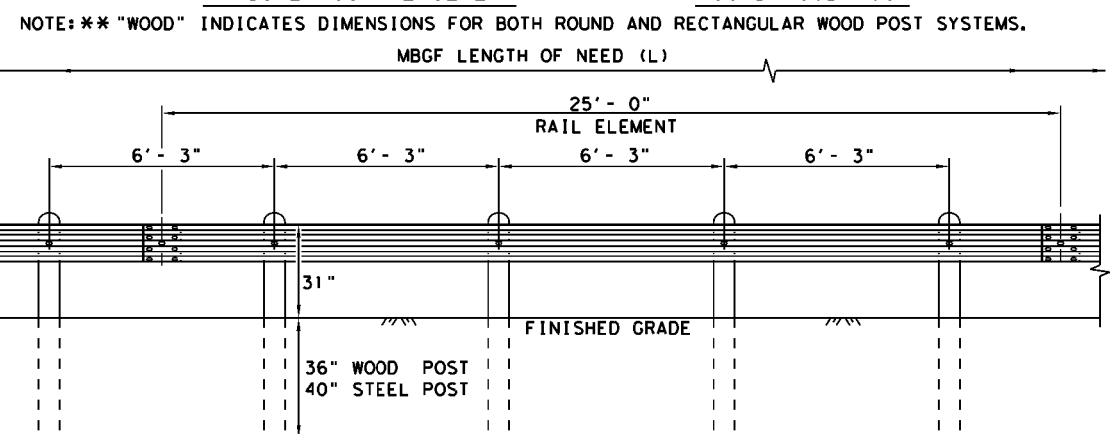
TYPICAL POST PLACEMENT



WOOD BLOCK TO ROUND WOOD POST **ROUTED WOOD BLOCK TO I-BEAM STEEL POST**

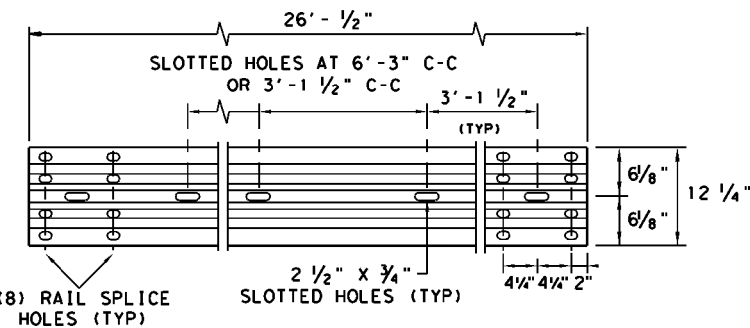
GENERAL NOTES

1. THE TYPE OF POST (ROUND WOOD POST, RECTANGULAR WOOD POST, OR STEEL POST) WILL BE AS SHOWN IN THE PLANS. THE EXACT POSITION OF MBGF SHALL BE SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER. STEEL POSTS TO BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING."
2. RAIL ELEMENTS SHALL MEET THE REQUIREMENTS OF ITEM 540, "METAL BEAM GUARD FENCE" EXCEPT AS MODIFIED IN THE PLANS. THE CONTRACTOR MAY FURNISH RAIL ELEMENTS OF 25'-0", OR 12'-6" (NOM.) LENGTHS. RAIL ELEMENTS MAY HAVE SLOTTED HOLES AT 3'-1 1/2" C-C OR 6'-3" C-C. A SPECIAL LENGTH OF RAIL MAY BE MANUFACTURED TO ACCOMMODATE THE DOWNSTREAM ANCHOR TERMINAL (DAT) AND THE TRANSITION SECTIONS OF GUARDRAIL.
3. BUTTON HEAD "POST BOLTS & NUTS" SHALL MEET THE REQUIREMENTS OF (ASTM A307), AND SHALL BE OF SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND 3/8" WASHER (FWC160) AND NOT MORE THAN 1" BEYOND IT. TRIM REMAINING BOLT LENGTH TO MEET REQUIRED LENGTH.
4. FITTINGS (BOLTS, NUTS, AND WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING." FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
5. CROWN SHALL BE WIDENED TO ACCOMMODATE THE METAL BEAM GUARD FENCE.
6. THE LATERAL APPROACH TO THE GUARD FENCE, SHALL HAVE A MAXIMUM SLOPE OF 1V:10H.
7. IF SHOWN ELSEWHERE IN THE PLANS OR AS DIRECTED BY THE ENGINEER, THE GUARD FENCE MAY BE FLARED AT A RATE OF 25:1 OR FLATTER.
8. UNLESS OTHERWISE SHOWN IN THE PLANS, GUARD FENCE PLACED IN THE VICINITY OF CURBS SHALL BE POSITIONED SO THAT THE FACE OF CURB IS LOCATED DIRECTLY BELOW OR BEHIND THE FACE OF THE RAIL. RAIL PLACED OVER CURBS SHALL BE INSTALLED SO THAT THE POST BOLT IS LOCATED APPROXIMATELY 25 INCHES ABOVE THE GUTTER PAN OR EDGE OF SHOULDER.
9. APPLICATIONS IN SOLID ROCK ARE ONLY ALLOWED WITH STEEL POSTS. IF SOLID ROCK IS ENCOUNTERED WITHIN 0 TO 18" OF THE FINISHED GRADE, DRILL A 24" DIA. HOLE, 24" INTO THE ROCK. IF SOLID ROCK IS ENCOUNTERED BELOW 18", DRILL A 12" DIA. HOLE, 12" INTO THE ROCK OR TO THE STANDARD EMBEDMENT DEPTH, WHICHEVER MAYBE LESS. ANY EXCESS POST LENGTH, AFTER MEETING THESE DEPTHS, MAY BE FIELD CUT TO ENSURE PROPER GUARDRAIL MOUNTING HEIGHT. BACKFILL WITH COARSE AGGREGATE MATERIAL.
10. POSTS SHALL NOT BE SET IN CONCRETE, OF ANY DEPTH.
11. SPECIAL FABRICATION WILL BE REQUIRED AT INSTALLATION LOCATIONS HAVING A CURVATURE OF LESS THAN 150 FT. RADIUS.
12. UNLESS OTHERWISE SHOWN IN THE PLANS, A COMPOSITE MATERIAL BLOCK THAT MEETS THE REQUIREMENTS OF DMS-7210, "COMPOSITE MATERIAL POSTS AND BLOCKS FOR METAL BEAM GUARD FENCE" MAY BE SUBSTITUTED FOR BLOCKS OF SIMILAR DIMENSIONS. THE CONSTRUCTION DIVISION, TXDOT MAINTAINS A MATERIAL PRODUCER LIST (MPL) FOR PRODUCERS OF MATERIALS CONFORMING TO DMS-7210 ONLY PRODUCERS ON THE MPL MAY FURNISH COMPOSITE MATERIAL BLOCKS.
13. FOR THE LOW FILL CULVERT OPTION, POSTS LOCATED PARTIALLY OR WHOLLY BETWEEN PRECAST BOX CULVERT UNITS, THE USE OF A CAST-IN-PLACE CONCRETE CLOSURE BETWEEN BOXES IS REQUIRED. THE LENGTH OF THE CAST-IN-PLACE CONCRETE CLOSURE SHALL ACCOMMODATE THE PLACEMENT OF THE LOW FILL CULVERT OPTION. SEE CONCRETE CLOSURE DETAILS ON BRIDGE STANDARD SCP-MD.
14. GUARDRAIL HEIGHT MEASUREMENT: WHEN THE GUARDRAIL IS LOCATED ABOVE PAVEMENT, MEASURE THE HEIGHT FROM THE PAVEMENT TO THE TOP OF THE W-BEAM RAIL. WHEN THE GUARDRAIL IS LOCATED UP TO 2 FT. OFF OF THE EDGE OF PAVEMENT OR FOR A PAVEMENT OVERLAY, USE A 10-FOOT STRAIGHTEDGE TO EXTEND THE PAVEMENT/SHOULDER SLOPE TO THE BACK OF RAIL, MEASURE FROM THE BOTTOM OF STRAIGHTEDGE TO THE TOP OF RAIL. FOR GUARDRAIL LOCATED DOWN A 10:1 SLOPE, MEASURE FROM THE NOMINAL TERRAIN.



ELEVATION MID-SPAN RAIL SPLICE

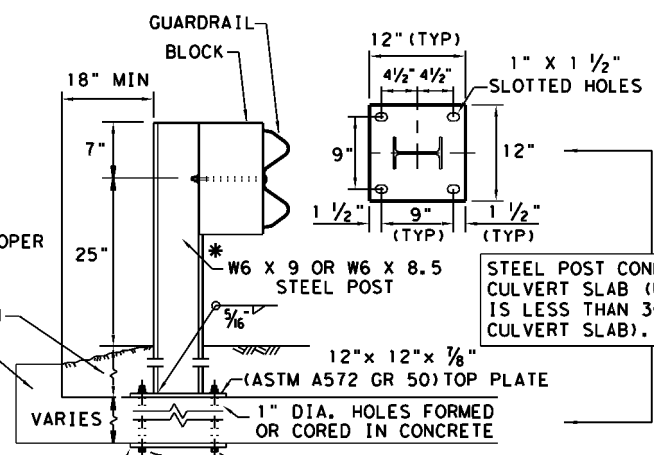
NOTE: ** "WOOD" INDICATES DIMENSIONS FOR BOTH ROUND AND RECTANGULAR WOOD POST SYSTEMS.



ELEVATION 25'-0" (NOM.) W-BEAM SECTION

NOTES: SEE GENERAL NOTE 2 FOR ALLOWABLE RAIL TYPES. SEE RAIL SPLICE DETAIL FOR REQUIRED HARDWARE.

* POST(S) MAY REQUIRE FIELD MODIFICATION TO ENSURE PROPER GUARDRAIL HEIGHT.



LOW FILL CULVERT POST

NOTE: TWO INSTALLATION OPTIONS.

1. **BOLT-THROUGH OPTION:** REQUIRES A 6" MIN. SLAB THICKNESS. 5/8" DIA (ASTM A449) HEAVY HEX BOLTS WITH TWO HARDENED WASHER EACH AND HEAVY HEX NUTS. NOTE: BOLT LENGTH = SLAB PLUS 2 1/4" MIN.
2. **EPOXY ANCHOR OPTION:** THIS OPTION MAY ONLY BE USED IF THE CULVERT SLAB IS 9" MIN. THICK. THREADED ANCHOR RODS MUST BE 3/8" DIA. ASTM A449 OR A193 GRADE B7 WITH HEAVY HEX NUT, AND ONE HARDENED WASHER EACH. EMBED ANCHOR RODS 6" WITH HILTI HIT RE 500 EPOXY ADHESIVE. OTHER TYPE III CLASS C EPOXY ADHESIVES MEETING THE REQUIREMENTS OF DMS-6100, "EPOXIES AND ADHESIVES", MAY BE USED IF IT CAN BE DEMONSTRATED THAT THEY MEET OR EXCEED THE STRENGTH OF HILTI HIT RE 500 WITH THE SAME EMBEDMENT DEPTH AND THREADED ROD DIA. FOLLOW THE MANUFACTURER'S REQUIREMENTS FOR INSTALLING EPOXIED THREADED RODS. EXTEND RODS 1/4" MIN. BEYOND NUT.

NOTE: CULVERTS OF 25 FT. OR LESS, SEE GF(31)LS STANDARD FOR "LONG SPAN" OPTION.

NOTE: FOUR TYPES OF BUTTON-HEAD GUARD RAIL BOLTS COME WITH A RECESSED NUT.

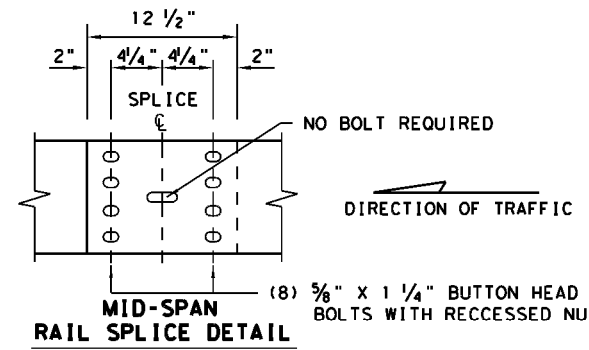
SPLICE BOLT LENGTH VARIES

FBB01 = 1 1/4"
FBB02 = 2"

POST & BLOCK LENGTH

FBB03 = 10"
FBB04 = 18"

BUTTON HEAD BOLT



MID-SPAN RAIL SPLICE DETAIL

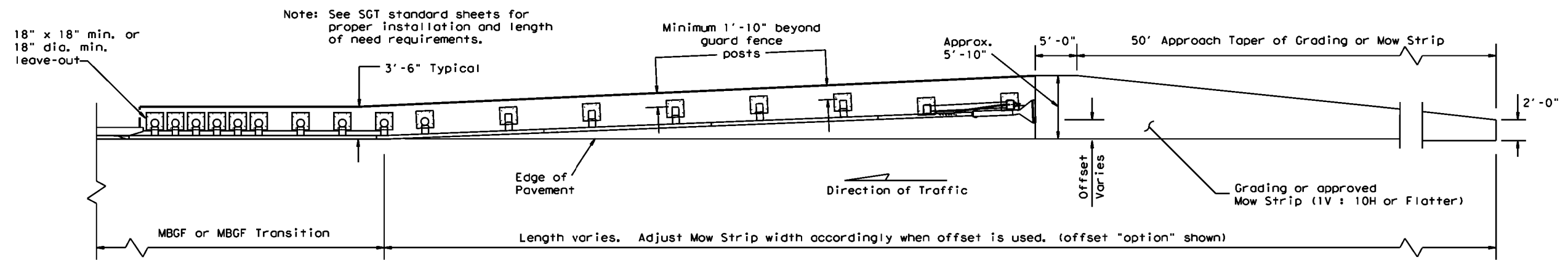
NOTE: GF(31), MID-SPAN RAIL SPLICES ARE REQUIRED WITH 6'-3" POST SPACINGS.

Texas Department of Transportation Design Division Standard

METAL BEAM GUARD FENCE
TL-3 MASH COMPLIANT
GF(31)-19

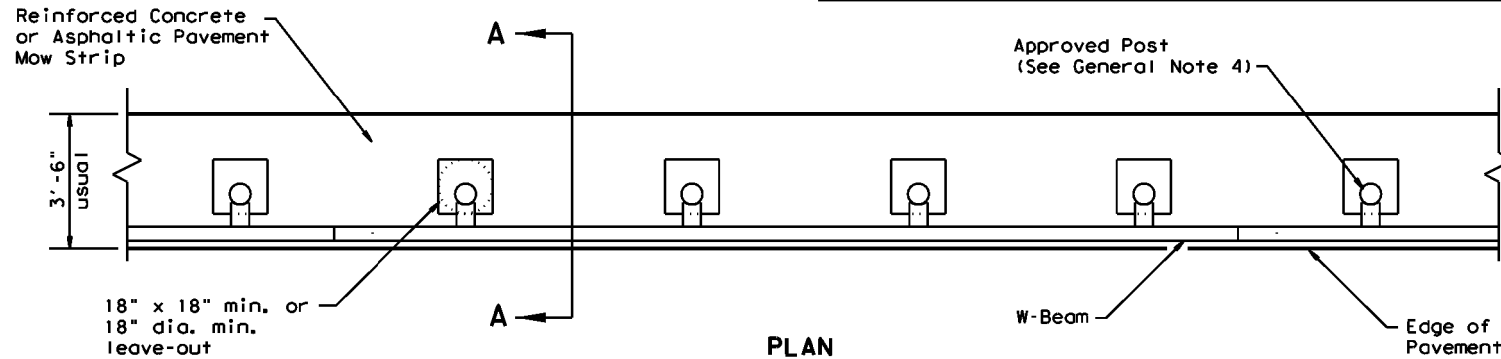
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© TXDOT: NOVEMBER 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	0032	01	034	US 62/83
	DIST	COUNTY	SHEET NO.	
	CHS	CHILDRESS	53	

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 DATE: 7/7/2022
 FILE: I:\CHSD\PROJECTS\CHILDRESS\0032-01-034 (US 62 & 83)\Plan_Set\Standards\gf31ms19.dgn



GRADING AND MOW STRIP AT GUARDRAIL END TREATMENTS

Note: Site Condition(s)
 Site conditions may exist where grading is required for the proper installation of metal guard fence and end treatments.
 Approach grading or mow strip may be decreased or eliminated, as directed by the Engineer.

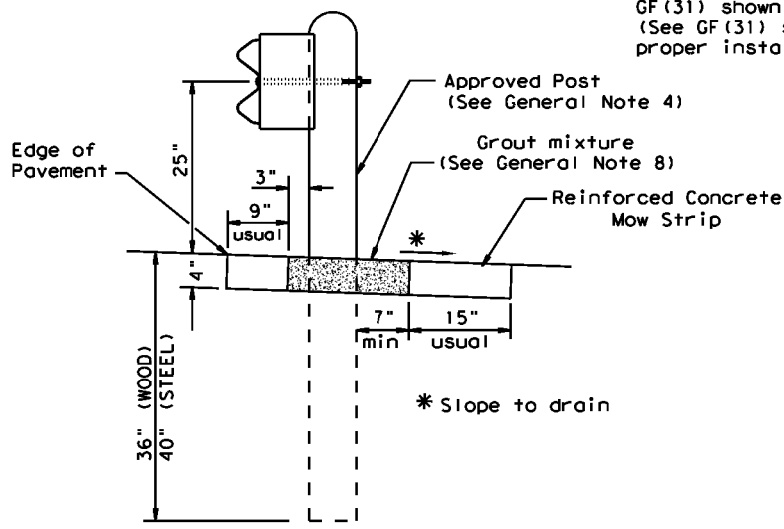


PLAN

GF(31) shown with Mow Strip
 (See GF(31) standard sheet for proper installation)

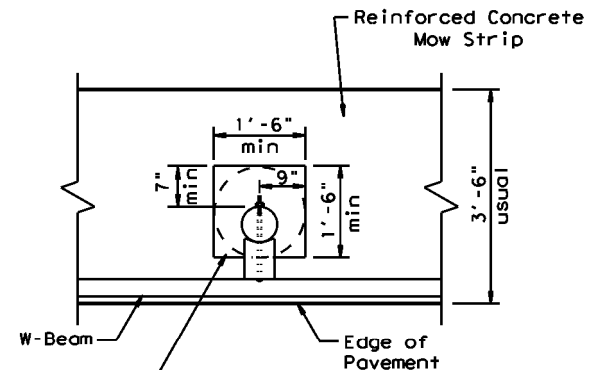
GENERAL NOTES

1. This mow strip design is for use with metal beam guard fence, guard fence transitions, and guard fence end treatments. See applicable GF(31) MBGF or GF(31) Transition Standard sheet for additional information.
2. Mow strips shall be reinforced concrete with (wire mesh or synthetic fiber), as shown on the plans and will be paid for under the pertinent bid item. Reinforced concrete shall be placed in accordance with Item 432, "Riprap." The use of the synthetic fiber in lieu of steel reinforcing is acceptable, provided the fiber producer is on the Department Material Producer List (MPL), maintained by TxDOT, Construction Division.
3. The leave-out behind the post shall be a minimum of 7".
4. Only steel (W6 x 8.5 or W6 x 9.0), or 7 1/2" Dia. round wood posts are acceptable for use in the mow strip. See GF(31) Standard for additional details.
5. Other curb placement options may be used. Curbs are not considered part of the mow strip and will be paid for under other pertinent bid item.
6. Thickness of the mow strip will be 4".
7. The limits of payment for reinforced concrete will include leave-outs for the posts.
8. The leave-outs shall be filled with a Grout mixture consisting of: 2719 pounds sand, 188 pounds Type I or II cement, and 550 pounds of water per cubic yard, with a 28-day compressive strength of approximately 230 psi or less. Provide grout with a consistency that will flow into and completely fill all voids. Due to auger size, larger leave-out dimensions are acceptable from both an impact performance and maintenance repair standpoint (Suggested Maximum leave-out of 20"). Payment for furnishing and placing the grout mixture will be subsidiary to the pay item of riprap mow strip.



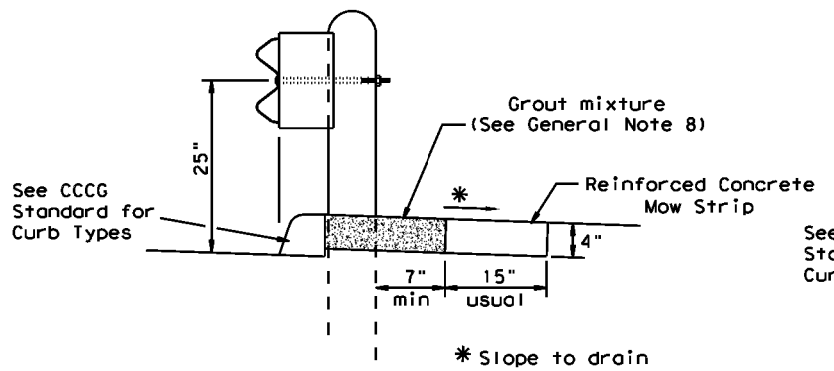
SECTION A-A

Typical



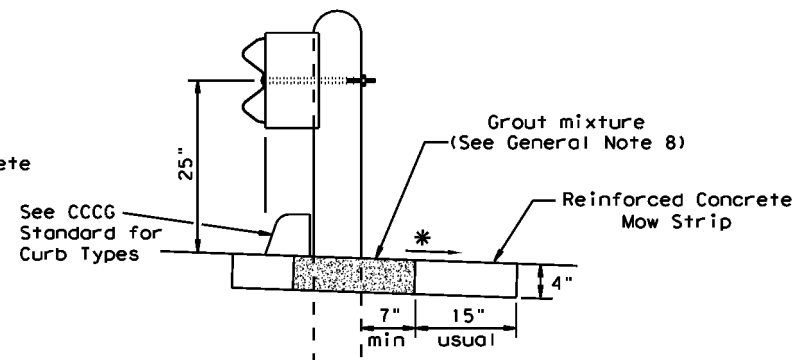
MOW STRIP DETAIL

Reinforced Concrete Mow Strip with 18" x 18" Square or 18" Dia. minimum leave-out.



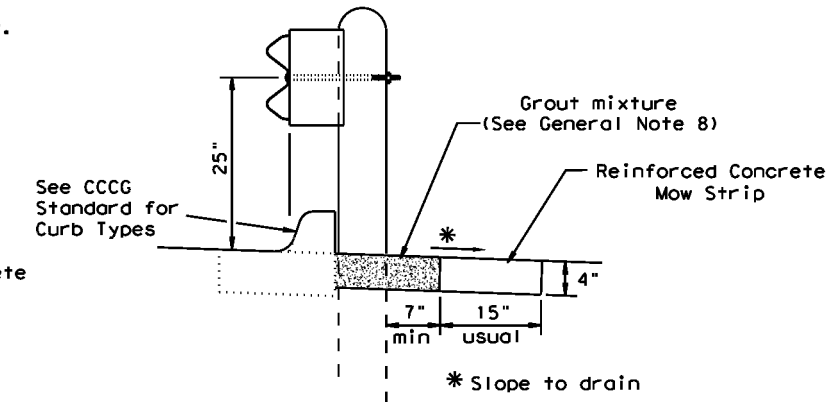
CURB OPTION (1)

This option will increase the post embedment throughout the system.



CURB OPTION (2)

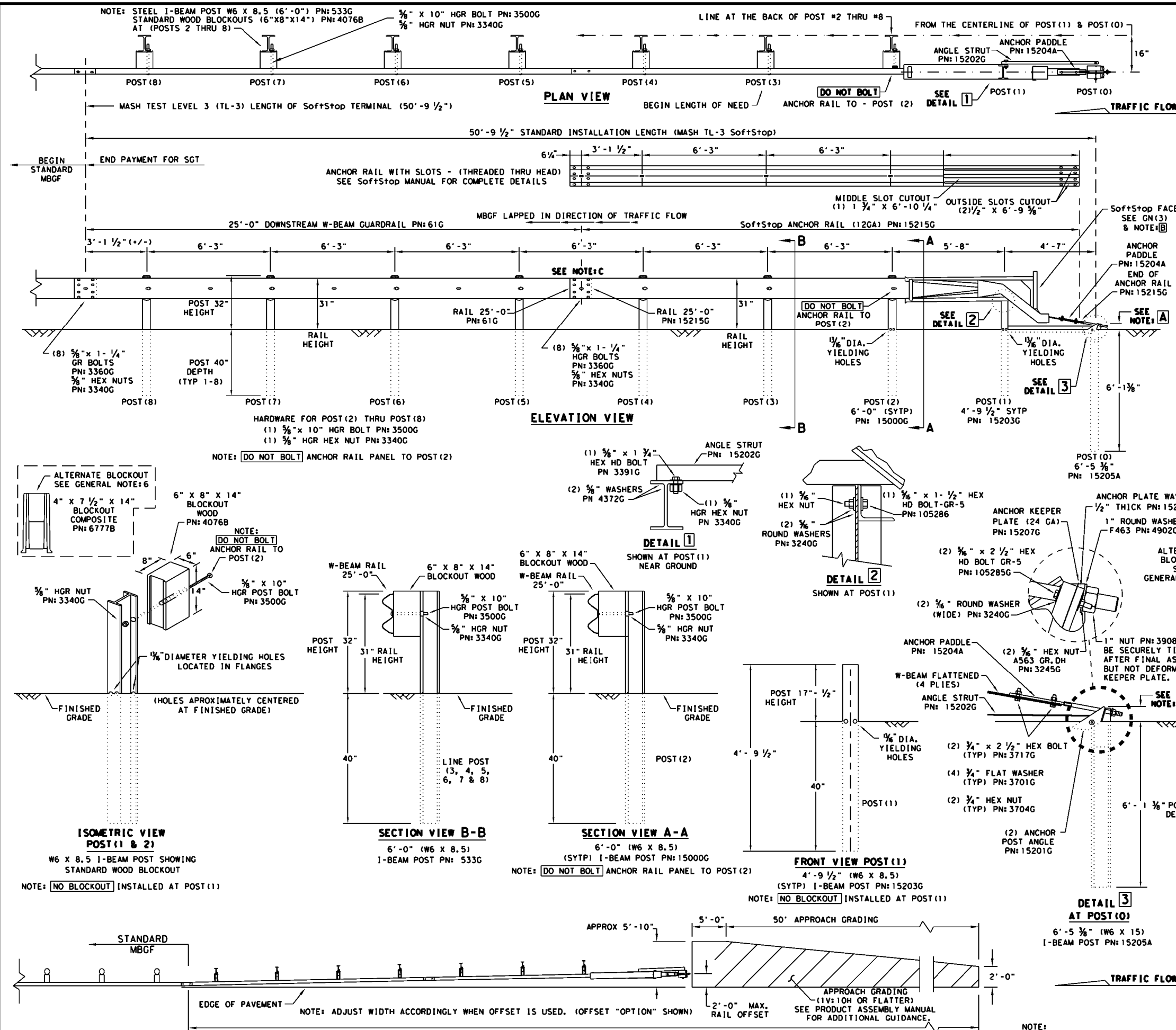
Curb shown on top of mow strip



CURB OPTION (3)

		Design Division Standard	
METAL BEAM GUARD FENCE (MOW STRIP) TL-3 MASH COMPLIANT GF(31)MS-19			
FILE: gf31ms19.dgn	DN: TxDOT	CK: KM	DW: VP
© TxDOT: NOVEMBER 2019	CONT	SECT	JOB
REVISIONS	0032	01	034
	DIST	COUNTY	SHEET NO.
	CHS	CHILDRESS	54

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GENERAL NOTES

- FOR SPECIFIC INFORMATION REGARDING INSTALLATION AND TECHNICAL GUIDANCE OF THE SYSTEM, CONTACT: TRINITY HIGHWAY AT 1(888)323-6374, 2525 N. STEMMONS FREEWAY, DALLAS, TX 75207
- FOR INSTALLATION, REPAIR AND MAINTENANCE REFER TO THE SoftStop END TERMINAL, PRODUCT DESCRIPTION ASSEMBLY MANUAL. PN: 620237B
- APPLY HIGH INTENSITY REFLECTIVE SHEETING, "OBJECT MARKER" ON THE FRONT FACE OF THE DEVICE PER MANUFACTURER'S RECOMMENDATIONS. OBJECT MARKER SHALL CONFORM TO THE STANDARDS REQUIRED IN TEXAS MUTCD.
- FOR POST (LEAVE-OUT) INSTALLATION AND GUIDANCE SEE TxDOT'S LATEST ROADWAY MOW STRIP STANDARD.
- HARDWARE (BOLTS, NUTS, & WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING". FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
- A COMPOSITE MATERIAL BLOCKOUT THAT MEETS THE REQUIREMENTS OF DMS-7210, MAY BE SUBSTITUTED FOR BLOCKOUTS OF SIMILAR DIMENSIONS. SEE CONSTRUCTION DIVISION MATERIAL PRODUCER LIST (MPL) FOR CERTIFIED PRODUCERS.
- IF SOLID ROCK IS ENCOUNTERED SEE THE MANUFACTURER'S INSTALLATION MANUAL AND REFER TO THE LATEST ROADWAY MBBF STANDARD FOR INSTALLATION GUIDANCE.
- POSTS SHALL NOT BE SET IN CONCRETE.
- IT IS ACCEPTABLE TO INSTALL THE SoftStop IMPACT HEAD PARALLEL TO THE GRADE LINE OR WITH AN UPWARD TILT.
- DO NOT ATTACH THE SoftStop SYSTEM DIRECTLY TO A RIGID BARRIER.
- UNDER NO CIRCUMSTANCES SHALL THE GUARDRAIL WITHIN THE SoftStop SYSTEM BE CURVED.
- A FLARE RATE OF UP TO 25:1 MAY BE USED TO PREVENT THE TERMINAL HEAD FROM ENCRoaching ON THE SHOULDER. THE FLARE MAY BE DECREASED OR ELIMINATED FOR SPECIFIC INSTALLATIONS, IF DIRECTED BY THE ENGINEER.

NOTE: A	THE INSTALLATION HEIGHT OF FULLY ASSEMBLED ANCHOR POST WILL VARY FROM 3-3/4" MIN. TO 4" MAX. ABOVE FINISHED GRADE.
NOTE: B	PART PN: 5852B RIGHT-SIDE (HIGH INTENSITY REFLECTIVE SHEETING) PART PN: 5851B LEFT-SIDE (HIGH INTENSITY REFLECTIVE SHEETING)
NOTE: C	W-BEAM SPLICE LOCATED BETWEEN LINE POST (4) AND LINE POST (5) GUARDRAIL PANEL 25'-0" PN: 61G ANCHOR RAIL 25'-0" PN: 15215G LAP GUARDRAIL IN DIRECTION OF TRAFFIC FLOW.

PART	QTY	MAIN SYSTEM COMPONENTS
620237B	1	PRODUCT DESCRIPTION ASSEMBLY MANUAL (LATEST REV.)
15208A	1	SoftStop HEAD (SEE MANUAL FOR RIGHT-LEFT APPROACH)
15215G	1	SoftStop ANCHOR RAIL (12GA) WITH CUTOUT SLOTS
61G	1	SoftStop DOWNSTREAM W-BEAM RAIL (12GA) (25'-0")
15205A	1	POST #0 - ANCHOR POST (6'-5 3/8")
15203G	1	POST #1 - (SYTP) (4'-9 1/2")
15000G	1	POST #2 - (SYTP) (6'-0")
533G	6	POST #3 THRU #8 - I-BEAM (W6 X 8.5) (6'-0")
4076B	7	BLOCKOUT - WOOD (ROUTED) (6" X 8" X 14")
6777B	7	BLOCKOUT - COMPOSITE (4" X 7 1/2" X 14")
15204A	1	ANCHOR PADDLE
15207G	1	ANCHOR KEEPER PLATE (24 GA)
15206G	1	ANCHOR PLATE WASHER (1/2" THICK)
15201G	2	ANCHOR POST ANGLE (10" LONG)
15202G	1	ANGLE STRUT
HARDWARE		
4902G	1	1" ROUND WASHER F436
3908G	1	1" HEAVY HEX NUT A563 GR. DH
3717G	2	3/4" x 2 1/2" HEX BOLT A325
3701G	4	3/4" ROUND WASHER F436
3704G	2	3/4" HEAVY HEX NUT A563 GR. DH
3360G	16	5/8" x 1 1/4" W-BEAM RAIL SPLICE BOLTS HGR
3340G	25	5/8" W-BEAM RAIL SPLICE NUTS HGR
3500G	7	5/8" x 10" HGR POST BOLT A307
3391G	1	5/8" x 1 3/4" HEX HD BOLT A325
4489G	1	5/8" x 9" HEX HD BOLT A325
4372G	4	5/8" WASHER F436
105285G	2	5/8" x 2 1/2" HEX HD BOLT GR-5
105286G	1	5/8" x 1 1/2" HEX HD BOLT GR-5
3240G	6	5/8" ROUND WASHER (WIDE)
3245G	3	5/8" HEX NUT A563 GR. DH
5852B	1	HIGH INTENSITY REFLECTIVE SHEETING - SEE NOTE: B


Design Division Standard

TRINITY HIGHWAY
 SOFTSTOP END TERMINAL
 MASH - TL-3
 SGT (10S) 31-16

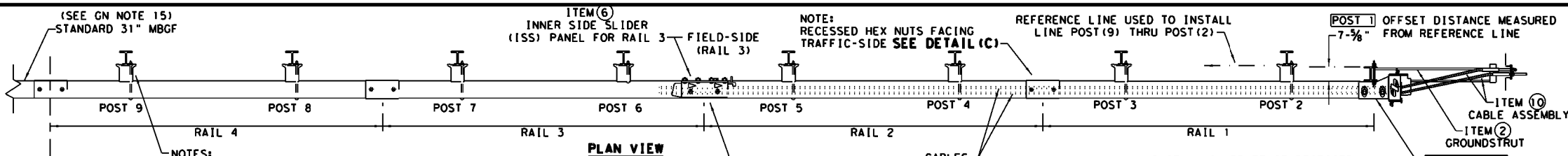
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© TxDOT: JULY 2016	CONT: 0032	SECT: 01	JOB: 034	HIGHWAY: US 62/83
REVISIONS		DIST: CHS	COUNTY: CHILDRESS	SHEET NO.: 55

NOTE: THIS STANDARD IS A BASIC REPRESENTATION OF THE SoftStop END TERMINAL, IT IS NOT INTENDED TO REPLACE THE PRODUCT DESCRIPTION ASSEMBLY MANUAL.

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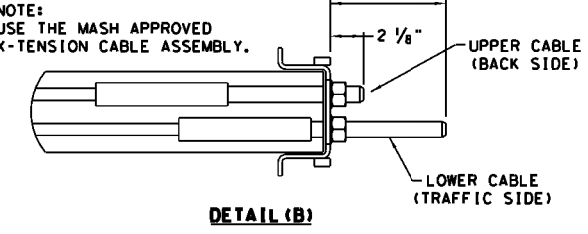
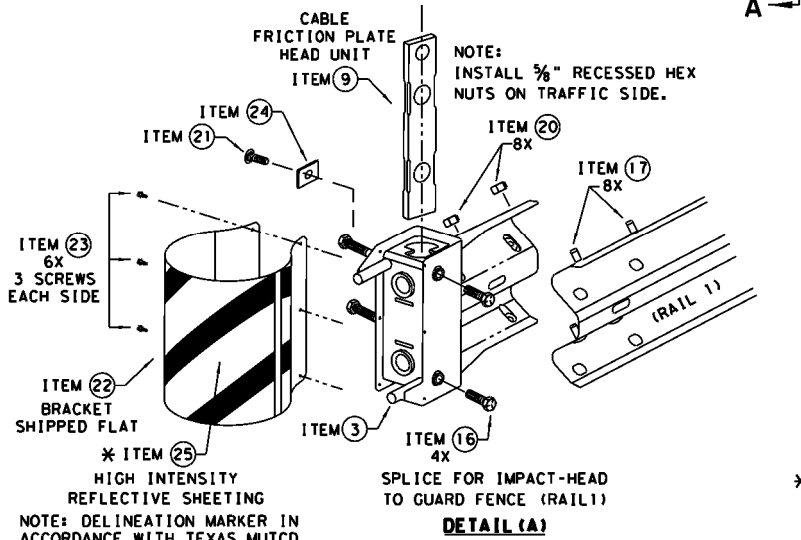
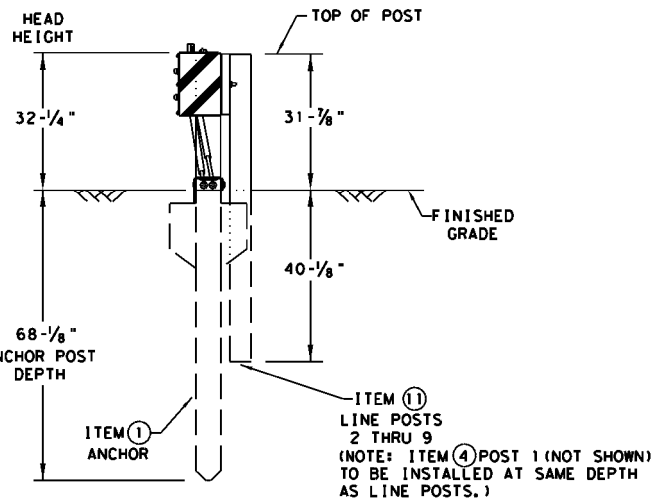
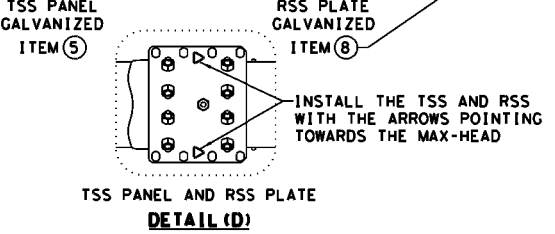
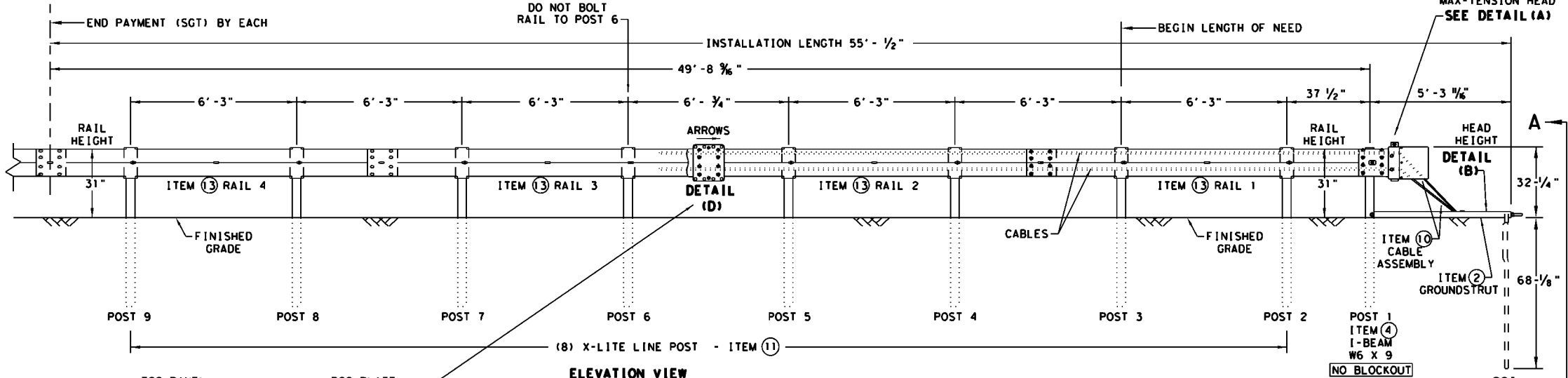
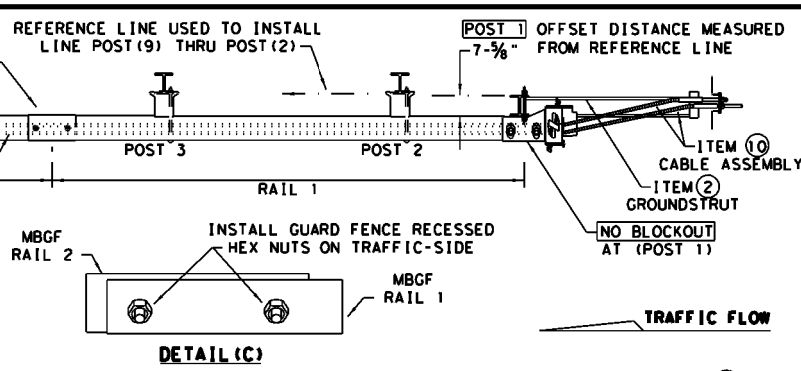
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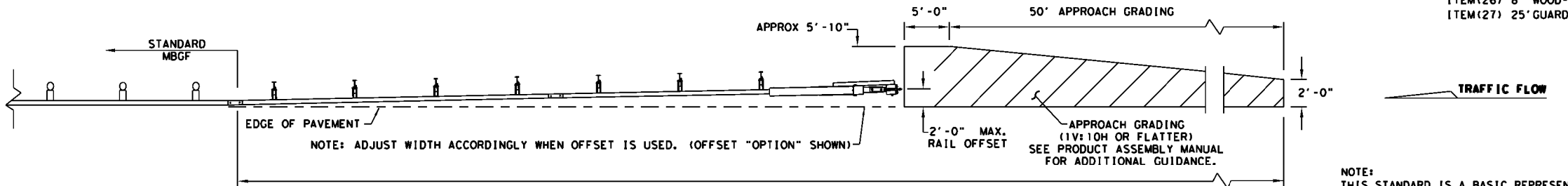
NOTES:
1. ITEM ② COMPOSITE BLOCKOUTS INSTALLED AT LINE POST (9) THRU LINE POST (2).
2. DO NOT INSTALL A BLOCKOUT AT LINE POST (1).

NOTE: RECESSED HEX NUTS FACING TRAFFIC-SIDE SEE DETAIL (C)
NOTE: SECURE THE (TSS) PANEL TO OUTSIDE OF RAIL 2 WITH THE PANEL ARROWS POINTING TOWARDS THE HEAD.



- GENERAL NOTES**
- FOR SPECIFIC INFORMATION REGARDING INSTALLATION AND TECHNICAL GUIDANCE OF THE SYSTEM, CONTACT: LINDSAY TRANSPORTATION SOLUTIONS (LTS) - BARRIER SYSTEMS, INC. AT (707) 374-6800
 - FOR INSTALLATION, REPAIR, & MAINTENANCE REFER TO THE MAX-TENSION INSTALLATION INSTRUCTION MANUAL, P/N MANMAX REV D (ECN 3516).
 - APPLY HIGH INTENSITY REFLECTIVE SHEETING, "OBJECT MARKER" ON THE FRONT FACE OF THE DEVICE PER MANUFACTURER'S RECOMMENDATIONS. OBJECT MARKER SHALL CONFORM TO THE STANDARDS REQUIRED IN TEXAS MUTCD.
 - FOR POST (LEAVE-OUT) INSTALLATION AND GUIDANCE SEE TxDOT'S LATEST ROADWAY MOW STRIP STANDARD.
 - ALL STEEL COMPONENTS ARE GALVANIZED PER ASTM A123 OR EQUIVALENT UNLESS OTHERWISE STATED.
 - SYSTEM SHOWN USING STEEL WIDE FLANGE POST WITH COMPOSITE BLOCKOUTS.
 - COMPOSITE MATERIAL BLOCKOUT THAT MEETS THE REQUIREMENTS OF DMS-7210, MAY BE SUBSTITUTED FOR BLOCKOUTS SIMILAR DIMENSIONS. SEE CONSTRUCTION DIVISION MATERIAL PRODUCER LIST (MPL) FOR CERTIFIED PRODUCERS.
 - REFER TO INSTALLATION MANUAL FOR SPECIFIC PANEL LAPPING GUIDANCE.
 - IF SOLID ROCK IS ENCOUNTERED SEE THE MANUFACTURER'S INSTALLATION MANUAL FOR INSTALLATION GUIDANCE.
 - POSTS SHALL NOT BE SET IN CONCRETE.
 - A DRIVING CAP WITH A TIMBER OR PLASTIC INSERT SHALL BE USED WHEN DRIVING POST TO PREVENT DAMAGE TO THE GALVANIZING ON TOP OF THE POST.
 - MAX-TENSION SYSTEM SHALL NEVER BE INSTALLED WITHIN A CURVED SECTION OF GUARDRAIL.
 - IF A DELINEATION MARKER IS REQUIRED, MARKER SHALL BE IN ACCORDANCE WITH TEXAS MUTCD.
 - THE SYSTEM IS SHOWN WITH 12'-6" MBGF PANELS, 25'-0" MBGF PANELS ARE ALSO ALLOWED.
 - A MINIMUM OF 12'-6" OF 12GA. MBGF IS REQUIRED IMMEDIATELY DOWNSTREAM OF THE MAX-TENSION SYSTEM.

ITEM#	PART NUMBER	DESCRIPTION	QTY
1	BSI-1610060-00	SOIL ANCHOR - GALVANIZED	1
2	BSI-1610061-00	GROUND STRUT - GALVANIZED	1
3	BSI-1610062-00	MAX-TENSION IMPACT HEAD	1
4	BSI-1610063-00	W6x9 I-BEAM POST 6FT. - GALVANIZED	1
5	BSI-1610064-00	TSS PANEL - TRAFFIC SIDE SLIDER	1
6	BSI-1610065-00	ISS PANEL - INNER SIDE SLIDER	1
7	BSI-1610066-00	TOOTH - GEOMET	1
8	BSI-1610067-00	RSS PLATE - REAR SIDE SLIDER	1
9	B061058	CABLE FRICTION PLATE - HEAD UNIT	1
10	BSI-1610069-00	CABLE ASSEMBLY - MASH X-TENSION	2
11	BSI-1012078-00	X-LITE LINE POST - GALVANIZED	8
12	B090534	8" W-BEAM COMPOSITE-BLOCKOUT XT110	8
13	BSI-4004386	12'-6" W-BEAM GUARD FENCE PANELS 12GA.	4
14	BSI-1102027-00	X-LITE SQUARE WASHER	1
15	BSI-2001886	3/8" X 7" THREAD BOLT HH (GR.5) GEOMET	1
16	BSI-2001885	3/4" X 3" ALL-THREAD BOLT HH (GR.5) GEOMET	4
17	4001115	3/8" X 1 1/4" GUARD FENCE BOLTS (GR.2) MGAL	48
18	2001840	3/8" X 10" GUARD FENCE BOLTS MGAL	8
19	2001636	3/8" WASHER F436 STRUCTURAL MGAL	2
20	4001116	3/8" RECESSED GUARD FENCE NUT (GR.2) MGAL	59
21	BSI-2001888	3/8" X 2" ALL THREAD BOLT (GR.5) GEOMET	1
22	BSI-1701063-00	DELINEATION MOUNTING (BRACKET)	1
23	BSI-2001887	1/4" X 3/4" SCREW SD HH 410SS	7
24	4002051	GUARDRAIL WASHER RECT AASHTO FWRO3	1
25	SEE NOTE BELOW	HIGH INTENSITY REFLECTIVE SHEETING	1
26	4002337	8" W-BEAM TIMBER-BLOCKOUT, PDB01B	8
27	BSI-4004431	25' W-BEAM GUARDRAIL PANEL, 8-SPACE, 12GA.	2
28	MANMAX Rev-(D)	MAX-TENSION INSTALLATION INSTRUCTIONS	1



NOTE: TxDOT GENERIC APPROACH GRADING LAYOUT USED FOR ALL TANGENT TYPE END TREATMENTS.

APPROACH GRADING AT GUARDRAIL END TREATMENTS

NOTE: THIS STANDARD IS A BASIC REPRESENTATION OF THE MAX-TENSION END TERMINAL, IT IS NOT INTENDED TO REPLACE THE PRODUCT DESCRIPTION ASSEMBLY MANUAL.

* TO BE PROVIDED BY DISTRIBUTOR OR CONTRACTOR.
** ALTERNATIVE ITEMS NOT SHOWN. ITEM (26) 8" WOOD-BLOCKOUTS ITEM (27) 25' GUARD FENCE PANELS

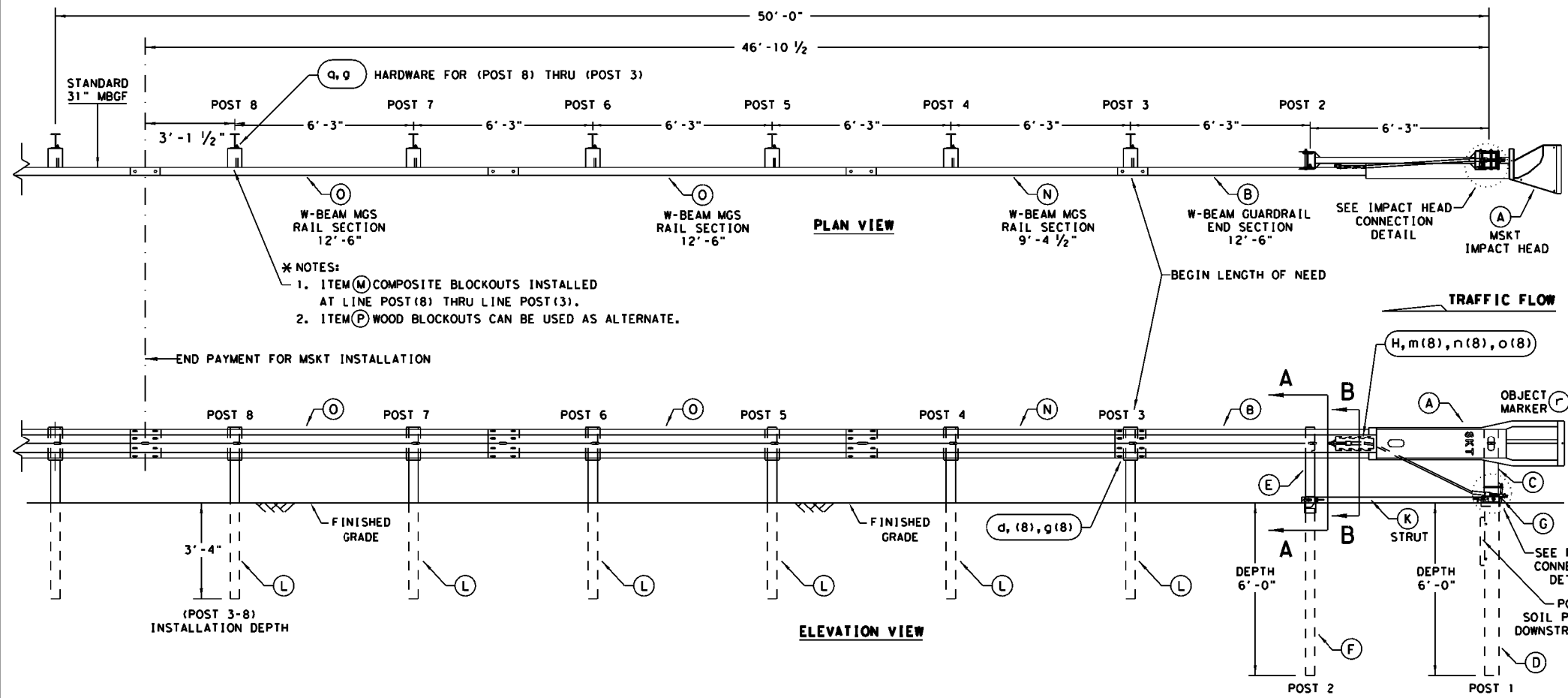
Texas Department of Transportation
Design Division Standard

MAX-TENSION END TERMINAL MASH - TL-3

SGT (11S) 31-18

FILE: sgt11s3118.dgn	DN: TxDOT	CK: KM	DW: TxDOT	CK: CL
© TxDOT: FEBRUARY 2018	CONT	SECT	JOB	HIGHWAY
REVISIONS	0032	01	034	US 62/83
	DIST	COUNTY	SHEET NO.	
	CHS	CHILDRESS	56	

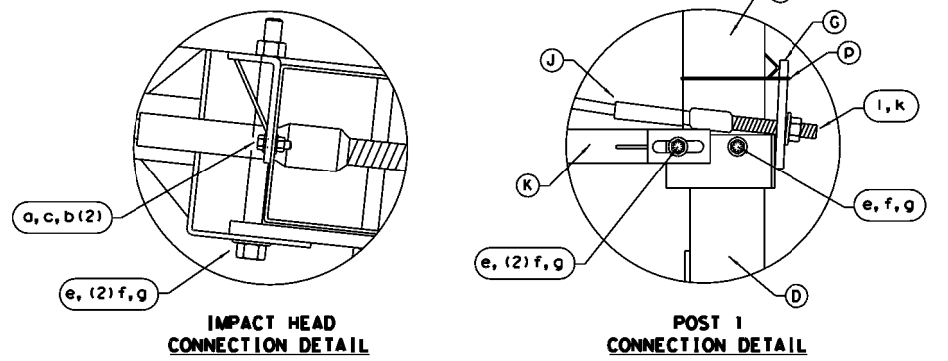
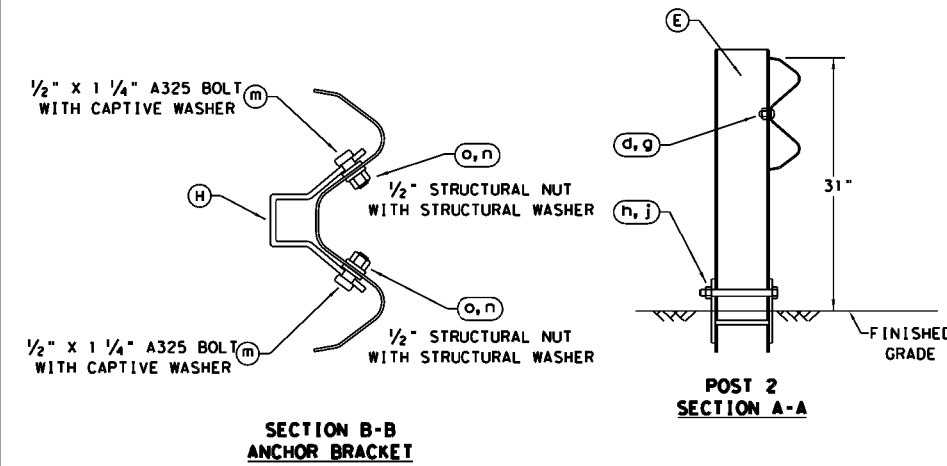
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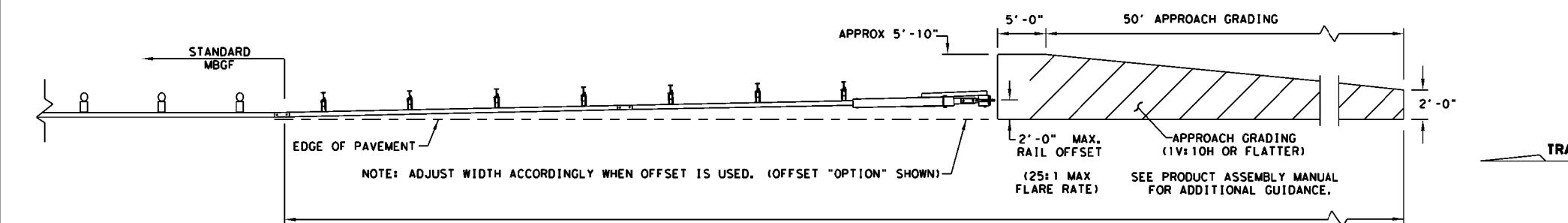
- * NOTES:**
- ITEM (M) COMPOSITE BLOCKOUTS INSTALLED AT LINE POST (8) THRU LINE POST (3).
 - ITEM (P) WOOD BLOCKOUTS CAN BE USED AS ALTERNATE.

- GENERAL NOTES**
- FOR SPECIFIC INFORMATION REGARDING INSTALLATION AND TECHNICAL GUIDANCE OF THE SYSTEM, CONTACT: ROAD SYSTEMS, INC. (432)263-2435. 3616 OLD HOWARD COUNTY AIRPORT, BIG SPRING, TX 79720
 - FOR INSTALLATION, REPAIR AND MAINTENANCE REFER TO THE: MSKT END TERMINAL, PRODUCT DESCRIPTION ASSEMBLY MANUAL (PUBLICATION-062717).
 - APPLY HIGH INTENSITY REFLECTIVE SHEETING, "OBJECT MARKER" ON THE FRONT FACE OF THE DEVICE PER MANUFACTURER'S RECOMMENDATIONS. OBJECT MARKER SHALL CONFORM TO THE STANDARDS REQUIRED IN TEXAS MUTCD.
 - FOR POST (LEAVE-OUT) INSTALLATION AND GUIDANCE SEE TxDOT'S LATEST ROADWAY MOW STRIP STANDARD.
 - HARDWARE (BOLTS, NUTS, & WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING". FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
 - SYSTEM SHOWN USING STEEL WIDE FLANGE POSTS WITH COMPOSITE BLOCKOUTS.
 - A COMPOSITE MATERIAL BLOCKOUTS THAT MEETS THE REQUIREMENTS OF DMS-7210, MAY BE SUBSTITUTED FOR BLOCKOUTS OF SIMILAR DIMENSIONS. SEE CONSTRUCTION DIVISION MATERIAL PRODUCER LIST (MPL) FOR CERTIFIED PRODUCERS.
 - IF SOLID ROCK IS ENCOUNTERED IN THE AREA OF (POST 1) AND / OR (POST 2) CONTACT THE MANUFACTURER, & REFER TO THE LATEST ROADWAY MBGF STANDARD FOR INSTALLATION GUIDANCE.
 - POSTS SHALL NOT BE SET IN CONCRETE.
 - SYSTEM MUST BE ATTACHED TO STANDARD 31" MBGF.
 - UNDER NO CIRCUMSTANCES SHALL THE GUARDRAIL WITHIN THE MSKT SYSTEM BE CURVED.
 - A FLARE RATE OF UP TO 25:1 MAY BE USED TO PREVENT THE TERMINAL HEAD FROM ENCRANCHING ON THE SHOULDER. THE FLARE MAY BE DECREASED OR ELIMINATED FOR SPECIFIC INSTALLATIONS, IF DIRECTED BY THE ENGINEER.
 - THE SYSTEM IS SHOWN WITH TWO 12'-6" MBGF PANELS, ONE 25'-0" MBGF PANEL IS ALSO ALLOWED IN THEIR PLACE.
 - A DRIVING CAP WITH A TIMBER OR PLASTIC INSERT SHALL BE USED WHEN DRIVING POSTS 3-8 TO PREVENT DAMAGE TO THE GALVANIZING ON TOP OF THE POST. SPECIAL DRIVING CAP TO BE USED ON LOWER POSTS 1 & 2 TO PREVENT DAMAGE TO THE WELDED PLATES.

ITEM	QTY	MAIN SYSTEM COMPONENTS	ITEM NUMBERS
A	1	MSKT IMPACT HEAD	MS3000
B	1	W-BEAM GUARDRAIL END SECTION, 12 Go.	SF1303
C	1	POST 1 - TOP (6" X 6" X 1/8" TUBE)	MTPHP1A
D	1	POST 1 - BOTTOM (6" W6X15)	MTPHP1B
E	1	POST 2 - ASSEMBLY TOP	UHP2A
F	1	POST 2 - ASSEMBLY BOTTOM (6" W6X9)	HP2B
G	1	BEARING PLATE	E750
H	1	CABLE ANCHOR BOX	S760
J	1	BCT CABLE ANCHOR ASSEMBLY	E770
K	1	GROUND STRUT	MS785
L	6	W6X9 OR W6X8.5 STEEL POST	P621
M	6	COMPOSITE BLOCKOUTS	CBSP-14
N	1	W-BEAM MGS RAIL SECTION (9'-4 1/2")	G12025
O	2	W-BEAM MGS RAIL SECTION (12'-6")	G1203A
P	6	WOOD BLOCKOUT 6" X 8" X 14"	P675
Q	1	W-BEAM MGS RAIL SECTION (25'-0")	G1209
SMALL HARDWARE			
a	2	3/8" x 1" HEX BOLT (GRD 5)	B5160104A
b	4	3/8" WASHER	W0516
c	2	3/8" HEX NUT	N0516
d	25	3/8" Dia. x 1 1/4" SPLICE BOLT (POST 2)	B580122
e	2	3/8" Dia. x 9" HEX BOLT (GRD A449)	B580904A
f	3	3/8" WASHER	W050
g	33	3/8" Dia. H.G.R NUT	N050
h	1	3/4" Dia. x 8 1/2" HEX BOLT (GRD A449)	B340854A
j	1	3/4" Dia. HEX NUT	N030
k	2	1 ANCHOR CABLE HEX NUT	N100
l	2	1 ANCHOR CABLE WASHER	W100
m	8	1/2" x 1 1/4" A325 BOLT WITH CAPTIVE WASHER	SB12A
n	8	1/2" STRUCTURAL NUTS	N012A
o	8	1 1/8" O.D. x 3/8" I.D. STRUCTURAL WASHERS	W012A
p	1	BEARING PLATE RETAINER TIE	CT-100ST
q	6	3/8" x 10" H.G.R. BOLT	B581002
r	1	OBJECT MARKER 18" X 18"	E3151



ALTERNATIVE ITEMS NOT SHOWN. *
 * ITEM (P) 8" WOOD-BLOCKOUT
 ** ITEM (Q) 25' GUARD FENCE PANEL



NOTE: TxDOT GENERIC APPROACH GRADING LAYOUT USED FOR ALL TANGENT TYPE END TREATMENTS.

NOTE: THIS STANDARD IS A BASIC REPRESENTATION OF THE MSKT END TERMINAL, IT IS NOT INTENDED TO REPLACE THE PRODUCT DESCRIPTION ASSEMBLY MANUAL.

Design Division Standard

SINGLE GUARDRAIL TERMINAL

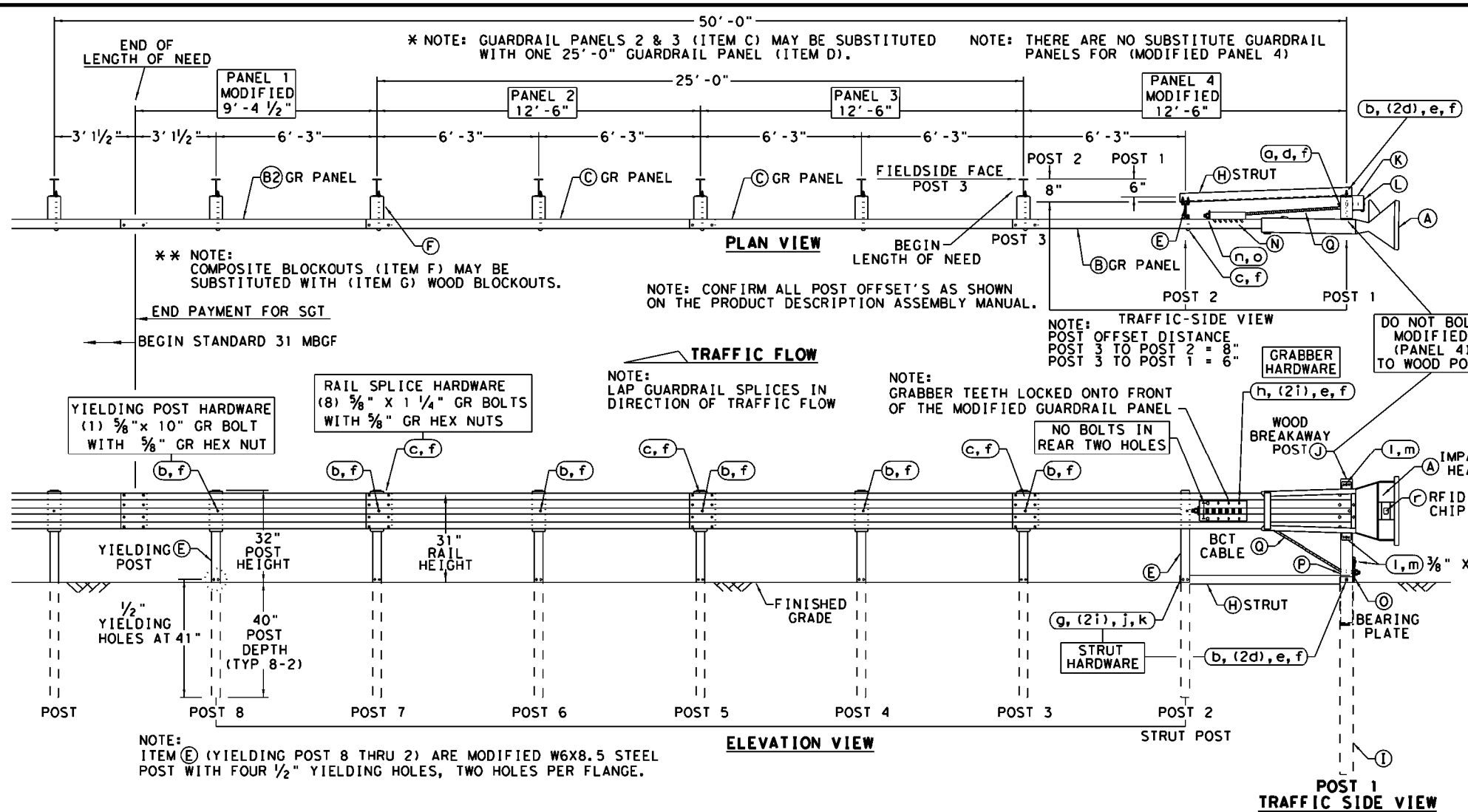
MSKT-MASH-TL-3

SGT (12S) 31-18

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	CHS	CHILDRESS		57

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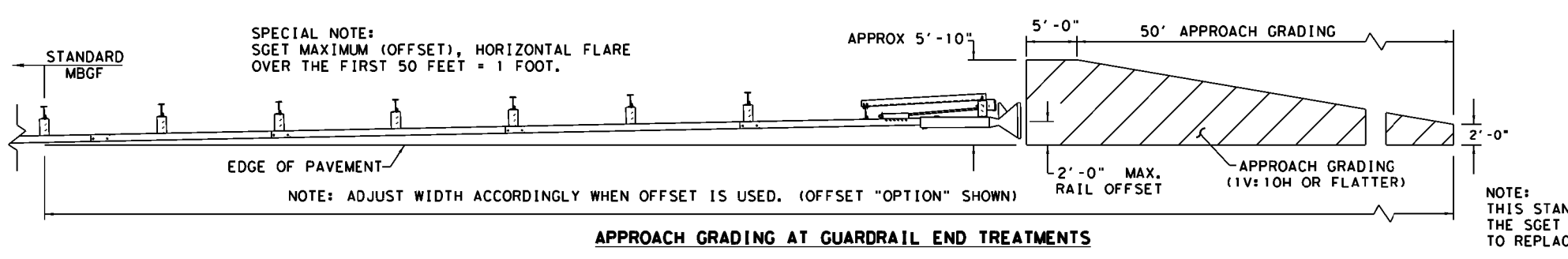
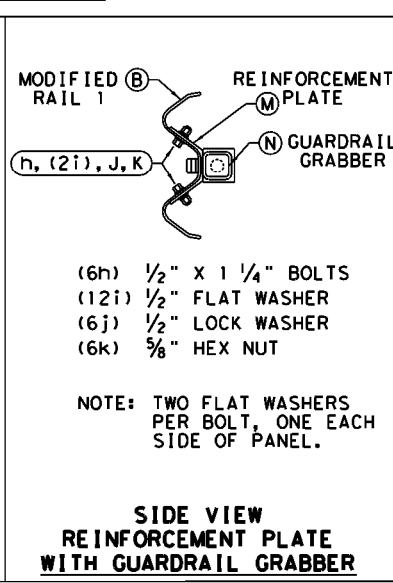
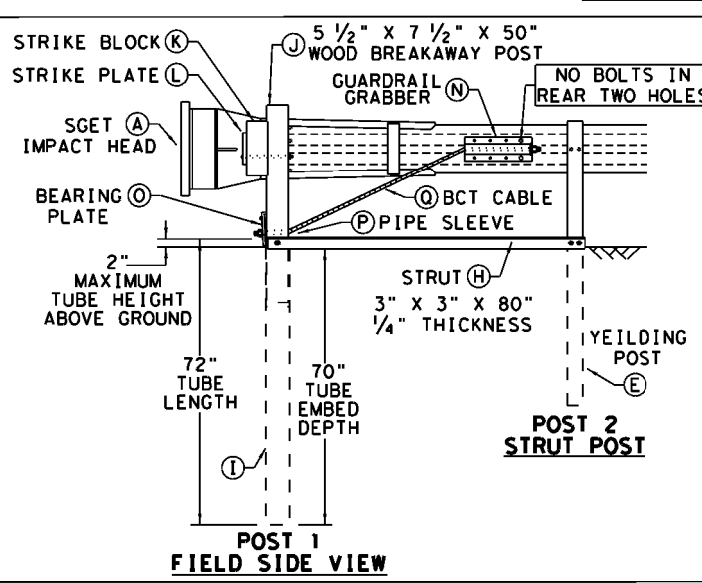
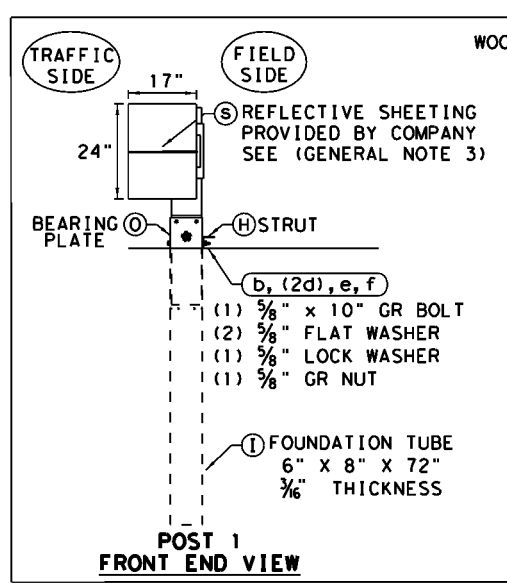
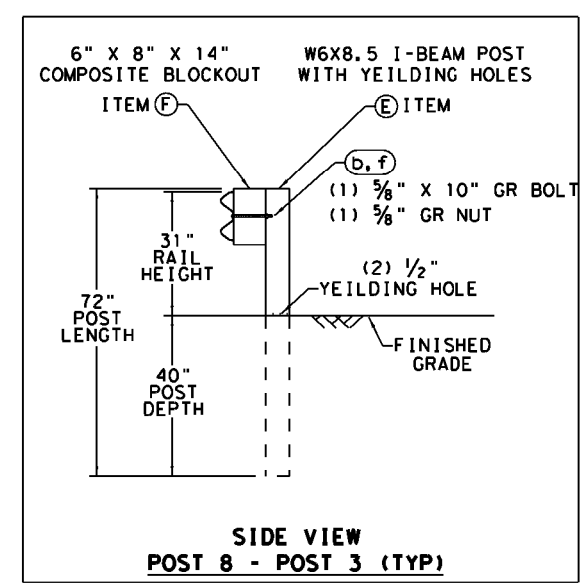
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- ### GENERAL NOTES
- FOR SPECIFIC INFORMATION REGARDING INSTALLATION AND TECHNICAL GUIDANCE OF THE SYSTEM, CONTACT: SPIG INDUSTRY, INC. AT 1(267) 644-9510. 14675 INDUSTRIAL PARK RD; BRISTOL, VA 24202
 - FOR INSTALLATION, REPAIR AND MAINTENANCE REFER TO THE MANUFACTURER'S; SGET END TERMINAL, PRODUCT DESCRIPTION ASSEMBLY MANUAL.
 - MANUFACTURER WILL APPLY HIGH INTENSITY REFLECTIVE SHEETING, "OBJECT MARKER" TO THE FACE PLATE OF THE DEVICE PER MANUFACTURER'S RECOMMENDATIONS. THE OBJECT MARKER SHALL CONFORM TO THE STANDARDS REQUIRED IN TEXAS MUTCD.
 - THE NOMINAL HEIGHT OF THE GUARDRAIL BEAM IS 31 INCHES WITH A TOLERANCE OF +/- ONE INCH.
 - FOR POST (LEAVE-OUT) INSTALLATION AND GUIDANCE SEE TxDOT'S LATEST ROADWAY MOW STRIP STANDARD.
 - (POST 2 THROUGH POST 8) ARE MODIFIED STEEL-YIELDING POSTS WITH YIELDING HOLES AT GROUND LEVEL. THERE ARE NO SUBSTITUTE POSTS.
 - POSTS SHALL NOT BE SET IN CONCRETE.
 - IF SOLID ROCK IS ENCOUNTERED FOR ANY OF THE POSTS IN THE SYSTEM, CONTACT THE MANUFACTURER FOR SPECIFIC INSTALLATION GUIDANCE.
 - HARDWARE (BOLTS, NUTS, & WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING". FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
 - A COMPOSITE MATERIAL BLOCKOUT THAT MEETS DMS-7210 REQUIREMENTS MAY BE SUBSTITUTED FOR AN APPROVED WOOD BLOCKOUT. SEE CONSTRUCTION DIVISION MATERIAL PRODUCER LIST (MPL) FOR CERTIFIED PRODUCERS.
 - THE ENTIRE SYSTEM MUST BE INSTALLED IN A STRAIGHT LINE WITHOUT ANY CURVE. HOWEVER, THE SYSTEM CAN BE OFFSET BY TWO FEET AS SHOWN ON THE APPROACH GRADING DETAIL TO HELP OFF-SET THE IMPACT HEAD FROM SHOULDER OF THE ROAD.

ITEM	QTY	MAIN SYSTEM COMPONENTS	ITEM #
A	1	SGET IMPACT HEAD	SIH1A
B	1	MODIFIED GUARDRAIL PANEL 12'-6" 12GA	126SPZGP
B2	1	MODIFIED GUARDRAIL PANEL 9'-4 1/2" 12GA	GP94
C	2	STANDARD GUARDRAIL PANEL 12'-6" 12GA	GP126
D	1	STANDARD GUARDRAIL PANEL 25'-0" 12GA	GP25
E	7	MODIFIED YIELDING I-BEAM POST W6x8.5	YP6MOD
F	6	COMPOSITE BLOCKOUT 6" X 8" X 14"	CB08
G	6	WOOD BLOCKOUT 6" X 8" X 14"	WB08
H	1	STRUT 3" X 3" X 80" X 1/4" A36 ANGLE	STR80
I	1	FOUNDATION TUBE 6" X 8" X 72" X 3/8"	FNDT6
J	1	WOOD BREAKAWAY POST 5 1/2" X 7 1/2" X 50"	WBRK50
K	1	WOOD STRIKE BLOCK	WSBLK14
L	1	STRIKE PLATE 1/4" A36 BENT PLATE	SPLT8
M	1	REINFORCEMENT PLATE 12 GA. GR55	REPLT17
N	1	GUARDRAIL GRABBER 2 1/2" X 2 1/2" X 16 1/2"	GGR17
O	1	BEARING PLATE 8" X 8 3/8" X 3/8" A36	BPLT8
P	1	PIPE SLEEVE 4 1/4" X 2 3/8" O.D. (2 1/8" I.D.)	PSLV4
Q	1	BCT CABLE 3/4" X 81" LENGTH	CBL81

ITEM	QTY	SMALL HARDWARE	ITEM #
o	1	3/8" X 12" GUARDRAIL BOLT 307A HDG	12GRBLT
b	7	3/8" X 10" GUARDRAIL BOLT 307A HDG	10GRBLT
c	33	3/8" X 1 1/4" GR SPLICE BOLTS 307A HDG	1GRBLT
d	3	3/8" FLAT WASHER F436 A325 HDG	58FW436
e	1	3/8" LOCK WASHER HDG	58LW
f	39	3/8" GUARDRAIL HEX NUT HDG	58HN563
g	2	1/2" X 2" STRUT BOLT A325 HDG	2BLT
h	6	1/2" X 1 1/4" PLATE BOLT A325 HDG	125BLT
i	16	1/2" FLAT WASHER F436 A325 HDG	12FWF436
j	8	1/2" LOCK WASHER HDG	12LW
k	8	1/2" HEX NUT A563 HDG	12HN563
l	4	3/8" X 3" HEX LAG SCREW GR5 HDG	38LS
m	4	3/8" FLAT WASHER F436 A325 HDG	38FW844
n	2	1" FLAT WASHER F436 A325 HDG	1FWF436
o	2	1" HEX NUT A563HDG	1HN563
p	1	18" TO 24" LONG ZIP TIE RATED 175-200LB	ZPT18
q	1	1 1/2" X 4" SCH-40 PVC PIPE	PSPCR4
r	1	RFID CHIP RATED MIL-STD-810F	RFID810F
s	1	IMPACT HEAD REFLECTIVE SHEETING	RS30M



NOTE: THIS STANDARD IS A BASIC REPRESENTATION OF THE SGET TERMINAL SYSTEM AND IS NOT INTENDED TO REPLACE THE MANUFACTURER'S ASSEMBLY MANUAL.

Design Division Standard

SPIG INDUSTRY, LLC
SINGLE GUARDRAIL TERMINAL
SGET - TL-3 - MASH
SGT (15) 31-20

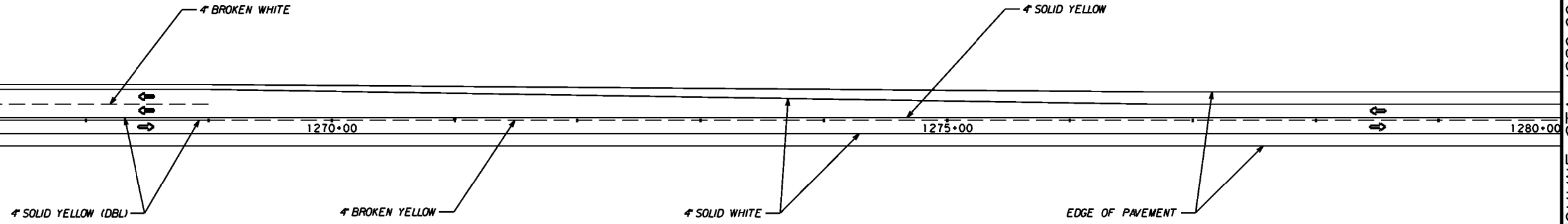
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© TxDOT: APRIL 2020	CONT: 0032	SECT: 01	JOB: 034	HIGHWAY: US 62/83
REVISIONS	0032	01	034	US 62/83
	DIST: CHS	COUNTY: CHILDRESS	SHEET NO. 58	

DATE: FILE:

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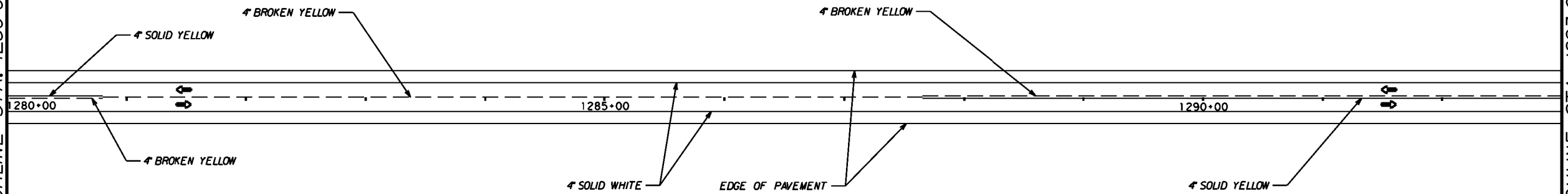
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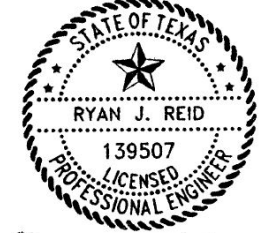


MATCHLINE STA. 1280+00.00

MATCHLINE STA. 1280+00.00



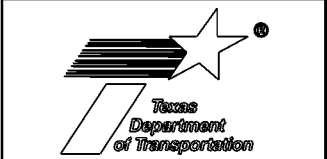
MATCHLINE STA. 1293+00.00



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STRIPING LAYOUT

SHEET 1 OF 18

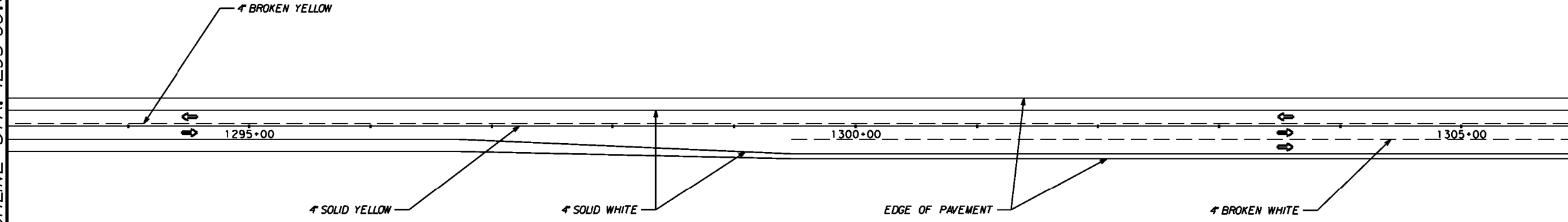


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DIST	COUNTY		SHEET NO.
CHS	CHILDRESS		59

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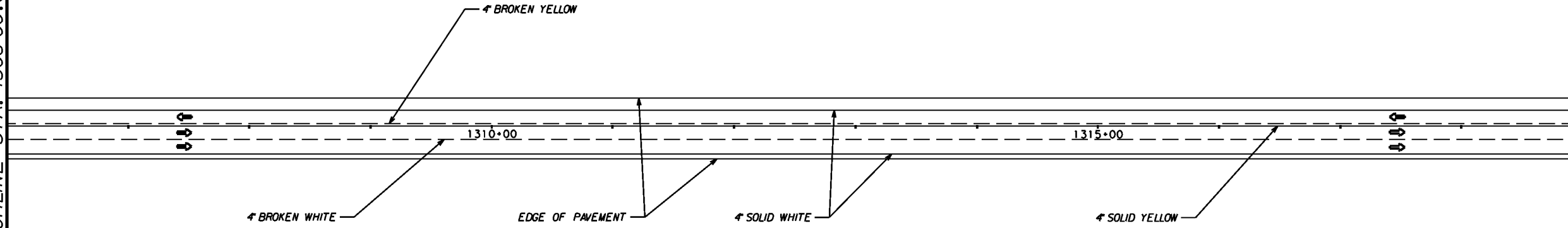
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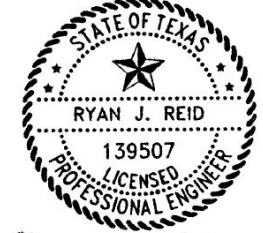


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MATCHLINE STA. 1306+00.00



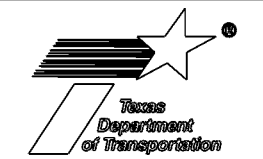
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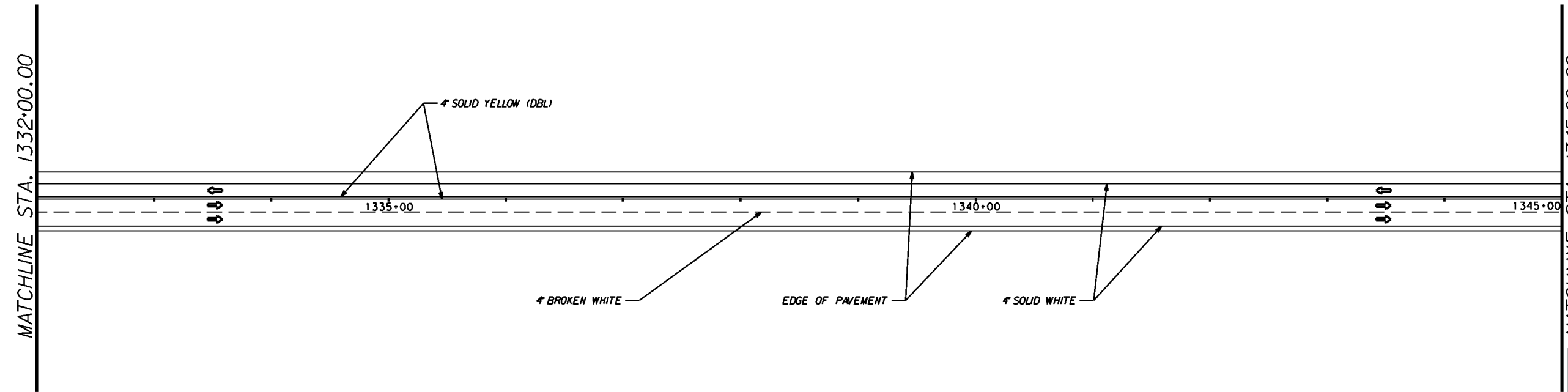
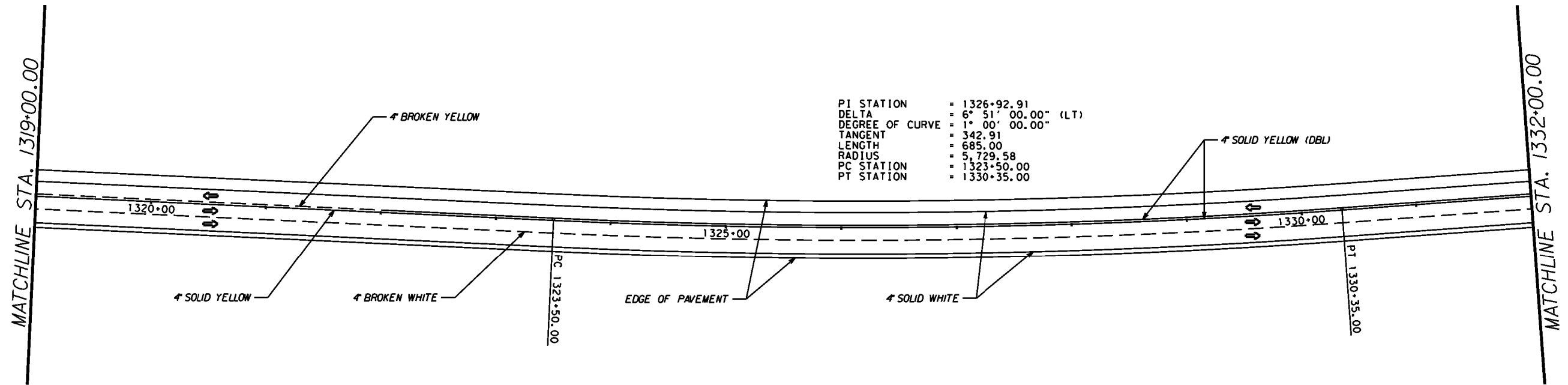
SHEET 2 OF 18



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0032	01	034	US 62/83
DIST	COUNTY		SHEET NO.
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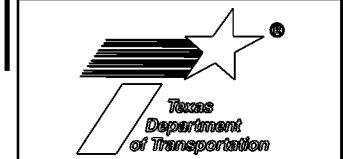


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MATCHLINE STA. 1345+00.00

STRIPING LAYOUT

SHEET 3 OF 18

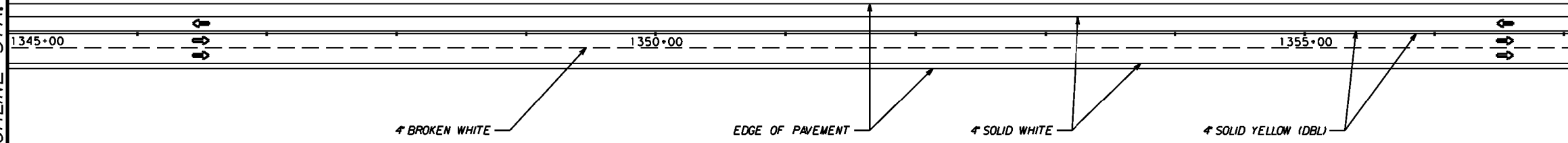


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DIST	COUNTY		SHEET NO.
CHS	CHILDRESS		61

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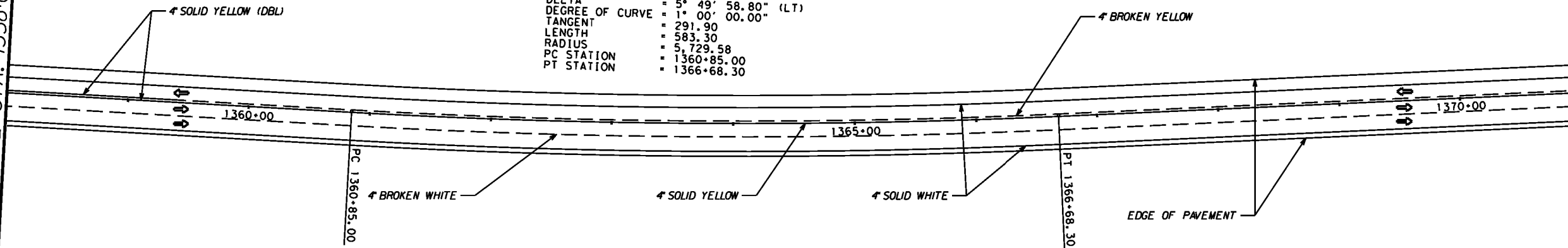
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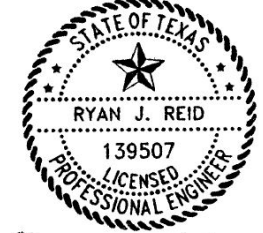


MATCHLINE STA. 1358+00.00

MATCHLINE STA. 1358+00.00



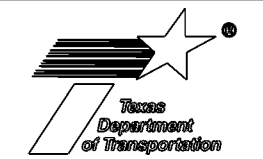
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STRIPING LAYOUT

SHEET 4 OF 18

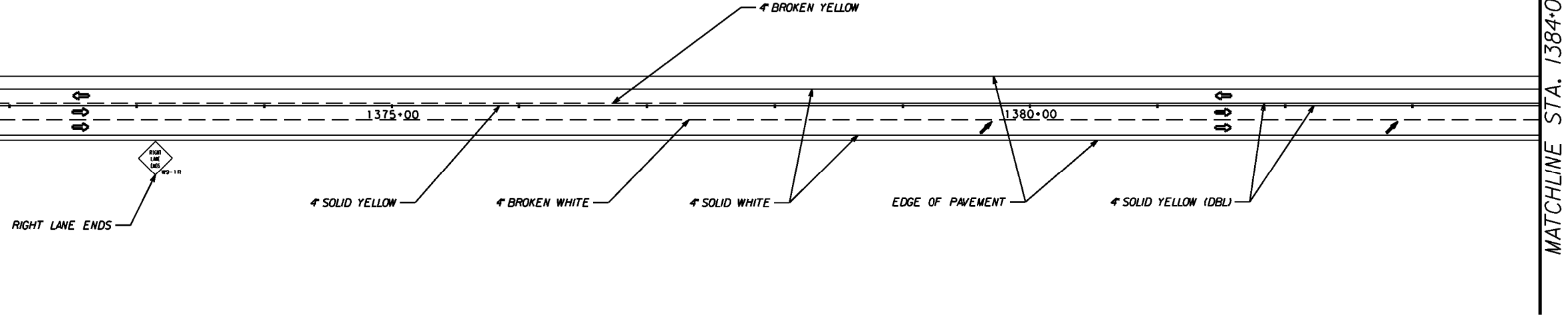


CONT	SECT	JOB	HIGHWAY
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DIST	COUNTY		SHEET NO.
CHS	CHILDRESS		62

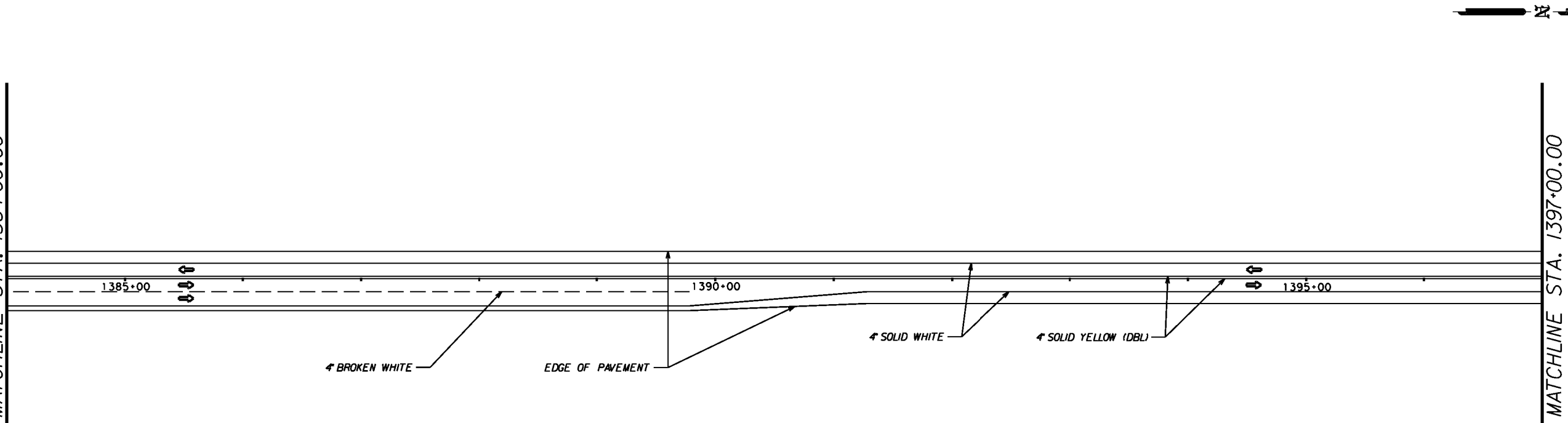
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DWG: CDS: DPH: CDS: CDS:

MATCHLINE STA. 1371+00.00



MATCHLINE STA. 1384+00.00



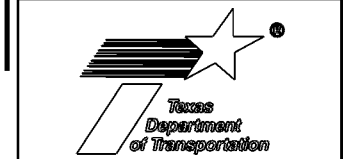
STATE OF TEXAS
 RYAN J. REID
 139507
 LICENSED
 PROFESSIONAL ENGINEER

Ryan J. Reid P.E.
 07/22/2022

MATCHLINE STA. 1397+00.00

STRIPING LAYOUT

SHEET 5 OF 18

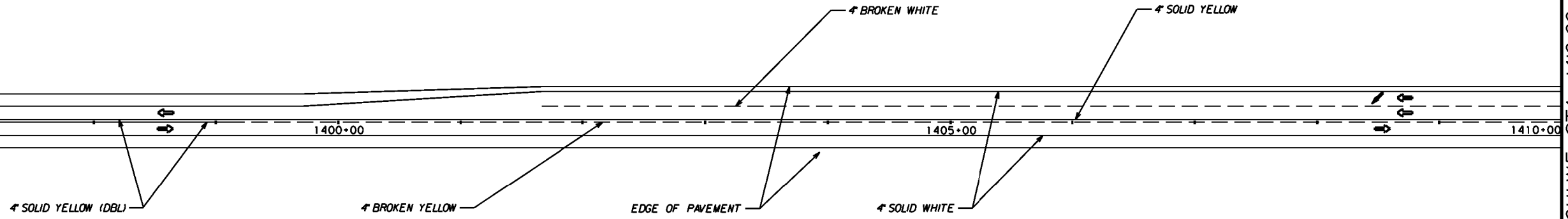


CONT	SECT	JOB	HIGHWAY
0032	01	034	US 62/83
DIST	COUNTY		SHEET NO.
CHS	CHILDRESS		63

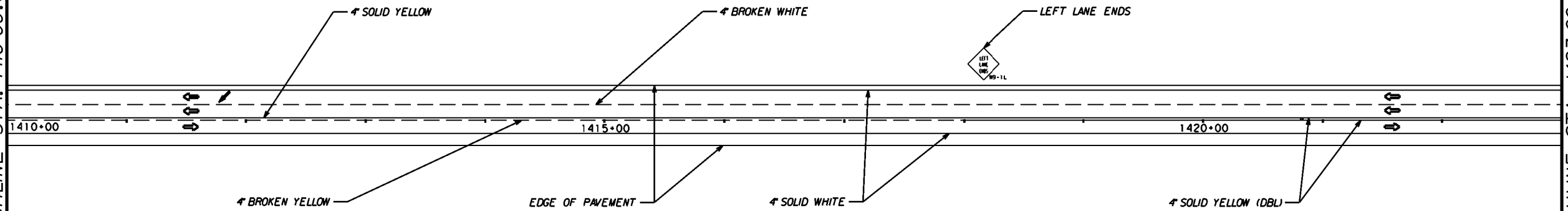
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MATCHLINE STA. 1397+00.00



MATCHLINE STA. 1410+00.00



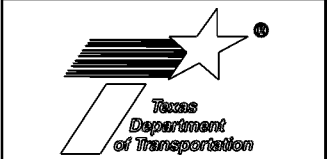
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STRIPING LAYOUT

SHEET 6 OF 18

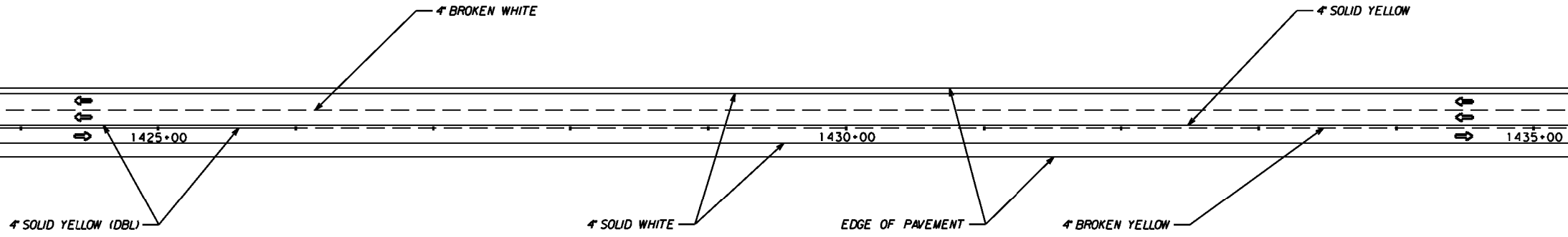


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DIST	COUNTY		SHEET NO.
CHS	CHILDRESS		64

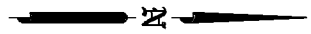
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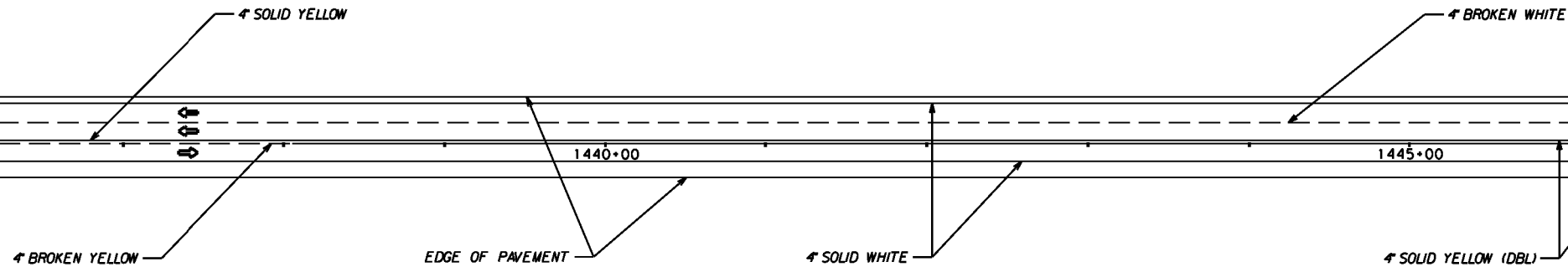
MATCHLINE STA. 1423+00.00



MATCHLINE STA. 1436+00.00



MATCHLINE STA. 1436+00.00



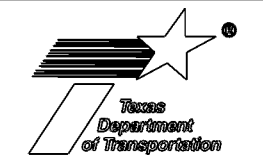
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STRIPING LAYOUT

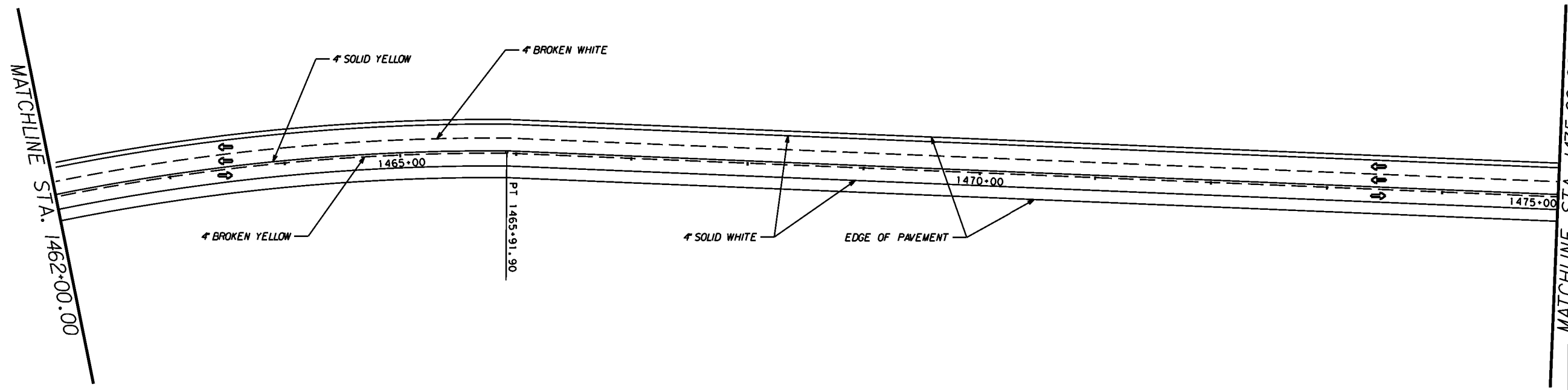
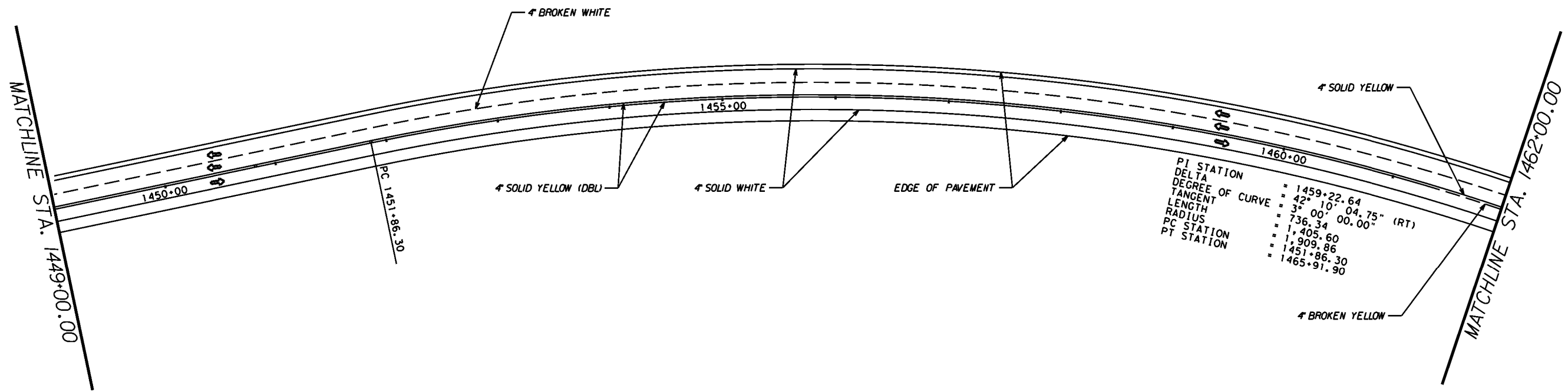
SHEET 7 OF 18



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DIST	COUNTY		SHEET NO.
CHS	CHILDRESS		65

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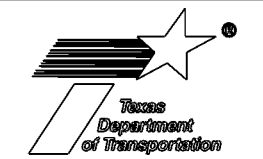
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STRIPING LAYOUT

SHEET 8 OF 18

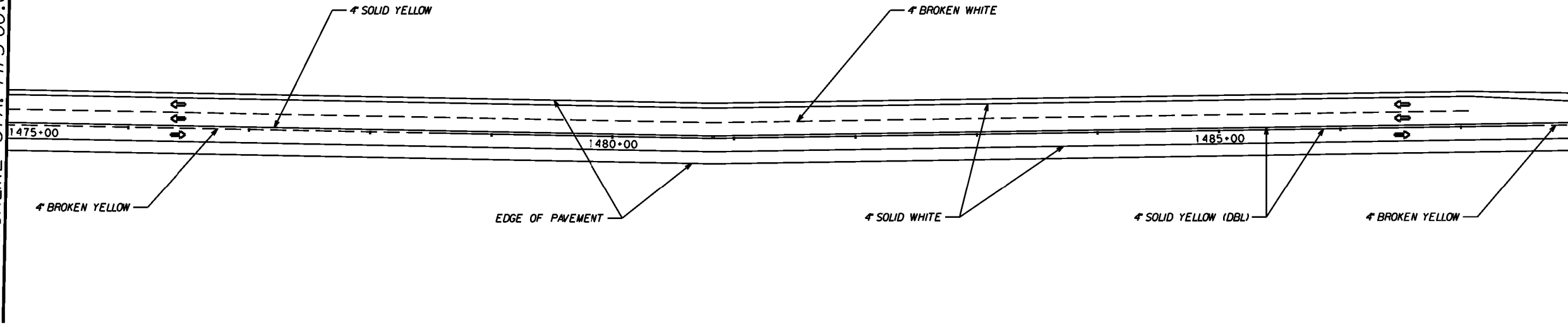


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DIST	COUNTY		SHEET NO.
CHS	CHILDRESS		66

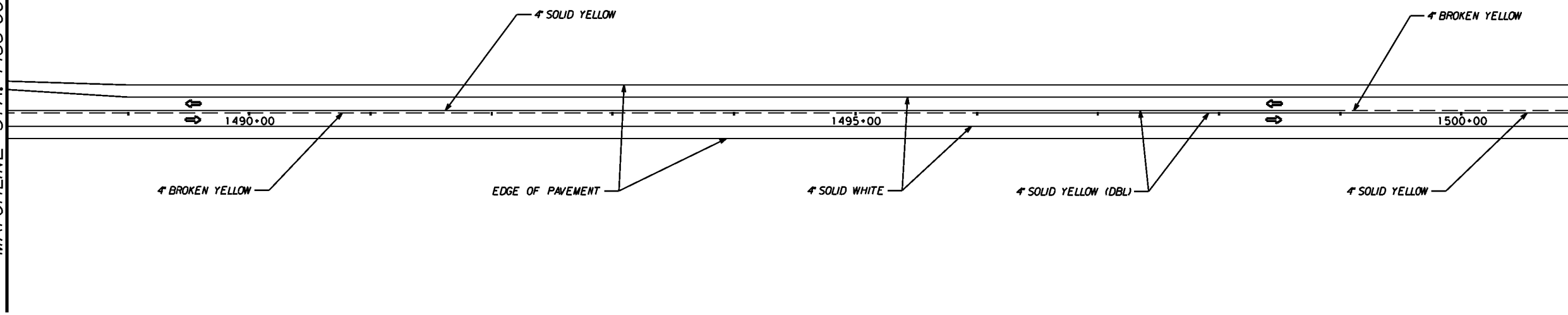
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DWG: CHS
 DATE: 07/22/2022
 CHK: RJR

MATCHLINE STA. 1475+00.00



MATCHLINE STA. 1488+00.00



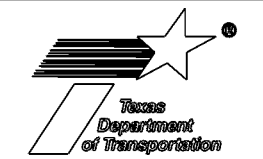
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STRIPING LAYOUT

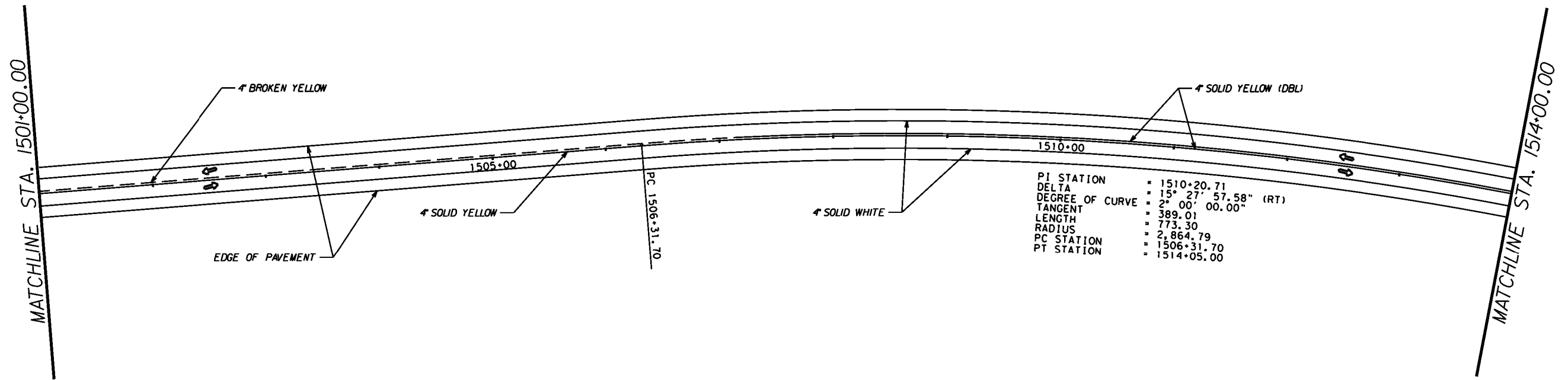
SHEET 9 OF 18



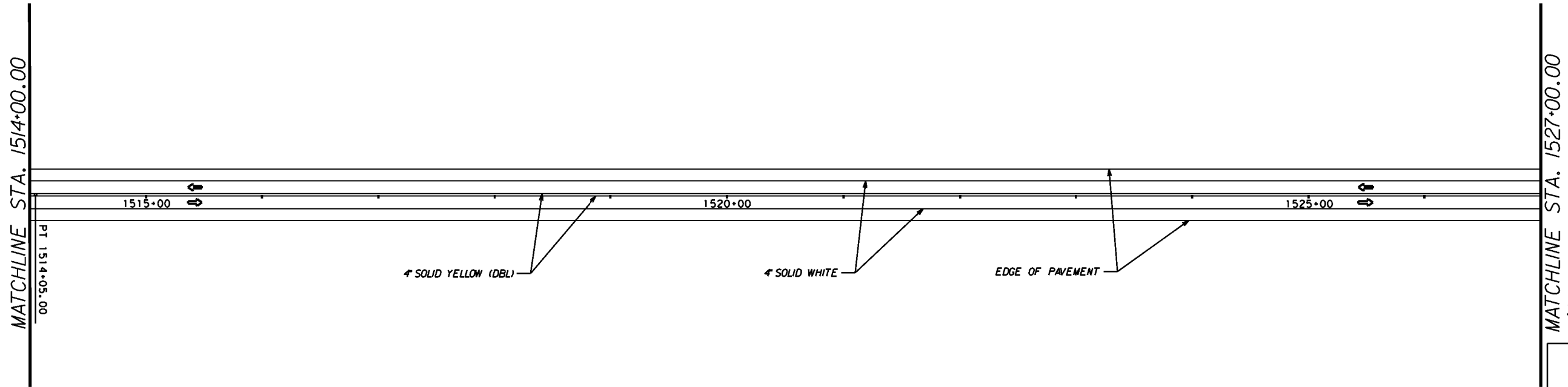
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DIST	COUNTY		SHEET NO.
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DWG: CHS
 DWF: CHS
 CDS: CHS



PI STATION	= 1510+20.71
DELTA	= 15° 27' 57.58" (RT)
DEGREE OF CURVE	= 2° 00' 00.00"
TANGENT	= 389.01
LENGTH	= 773.30
RADIUS	= 2,864.79
PC STATION	= 1506+31.70
PT STATION	= 1514+05.00



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STRIPING LAYOUT

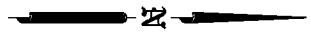
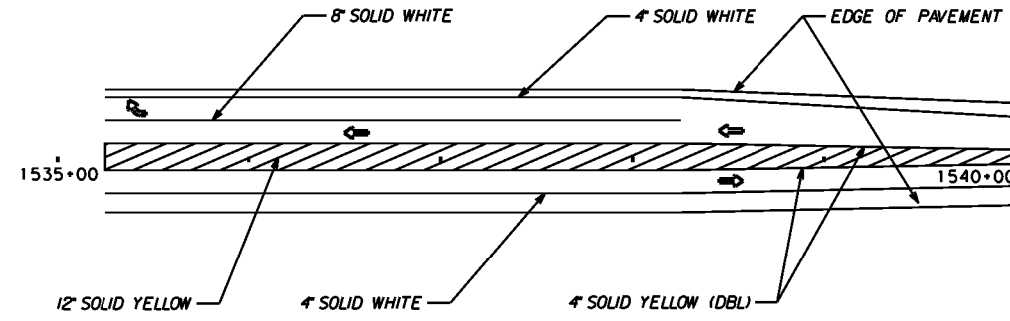
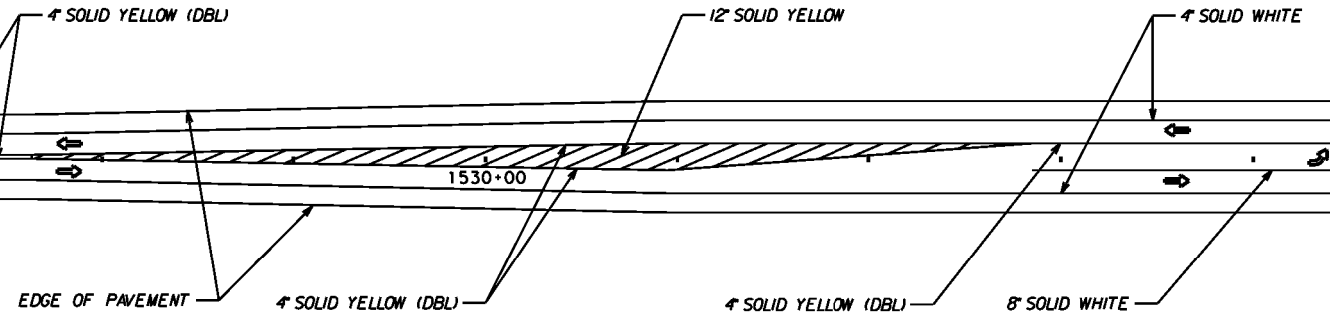
SHEET 10 OF 18

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DIST		COUNTY		SHEET NO.
CHS		CHILDRESS		68

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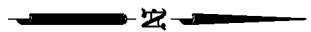
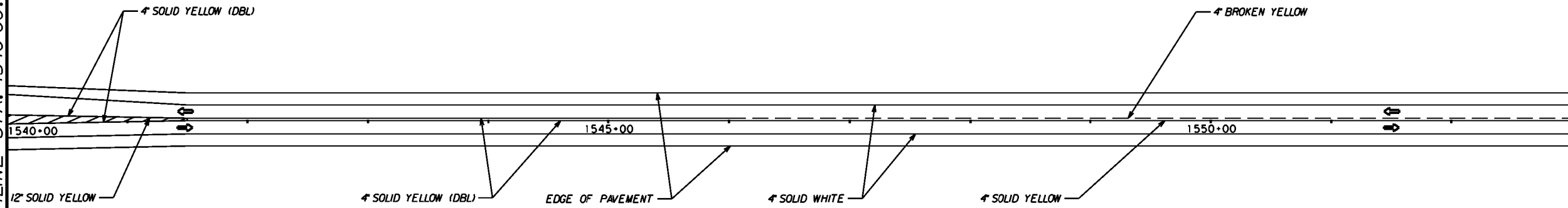
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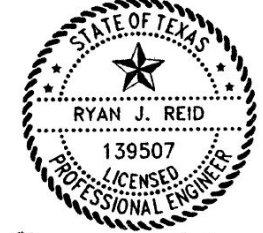


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MATCHLINE STA. 1540+00.00



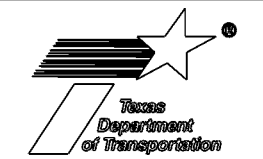
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STRIPING LAYOUT

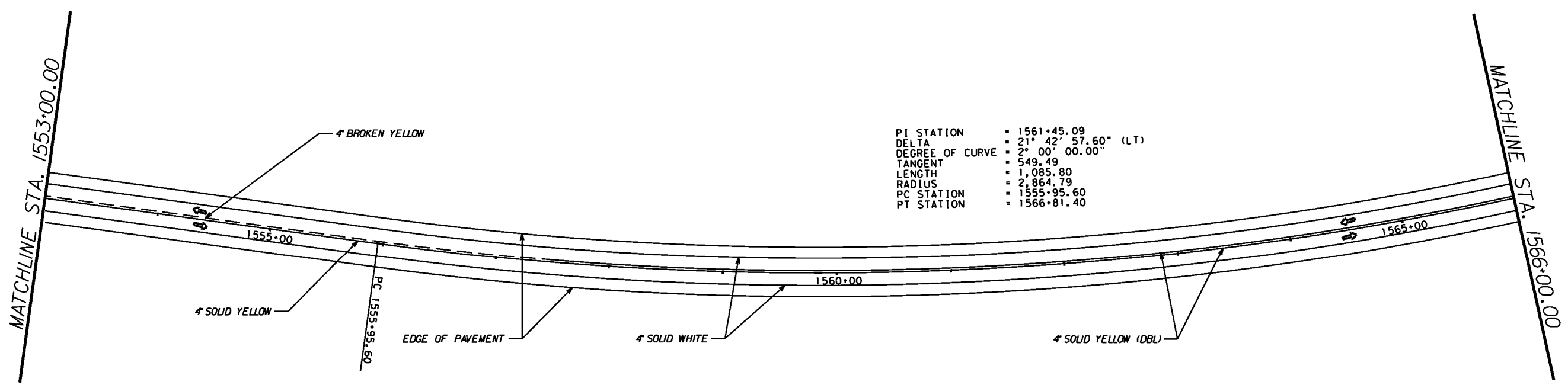
SHEET 11 OF 18



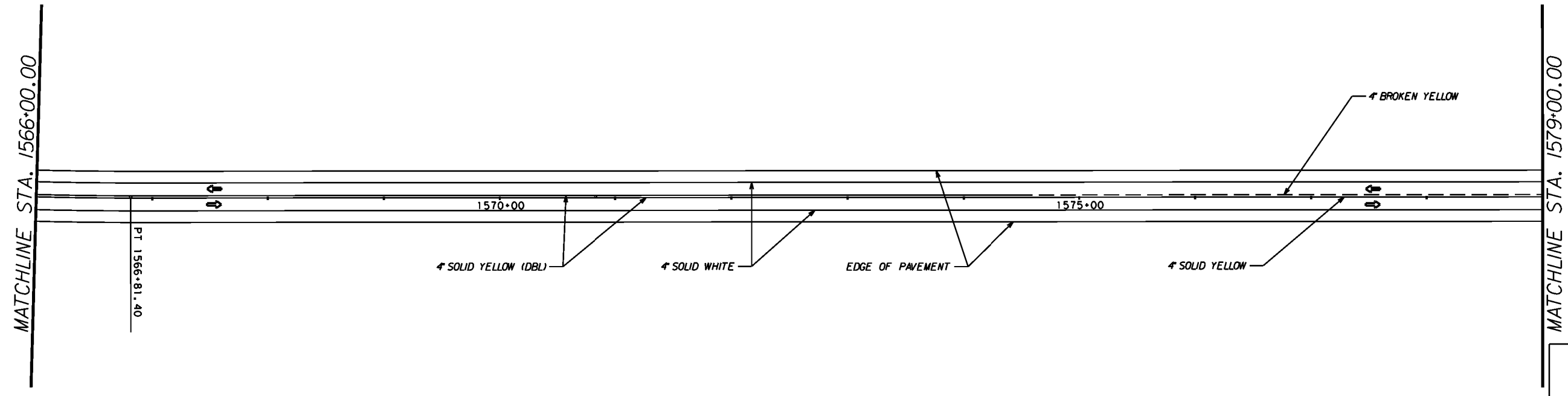
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DIST	COUNTY		SHEET NO.
CHS	CHILDRESS		69

DATE: 7/7/2022 10:53:28 AM
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DWG: CDS: DPH: CDS: CDS:



PI STATION = 1561+45.09
 DELTA = 21° 42' 57.60" (LT)
 DEGREE OF CURVE = 2° 00' 00.00"
 TANGENT = 549.49
 LENGTH = 1,085.80
 RADIUS = 2,864.79
 PC STATION = 1555+95.60
 PT STATION = 1566+81.40

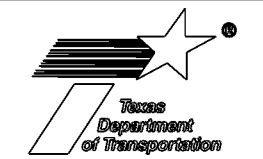


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MATCHLINE STA. 1579+00.00

STRIPING LAYOUT

SHEET 12 OF 18



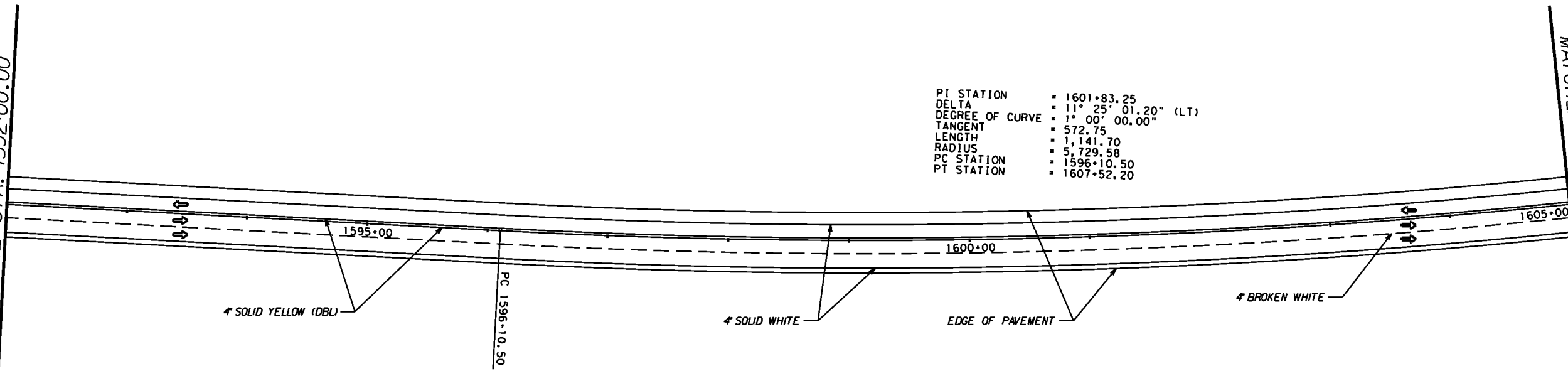
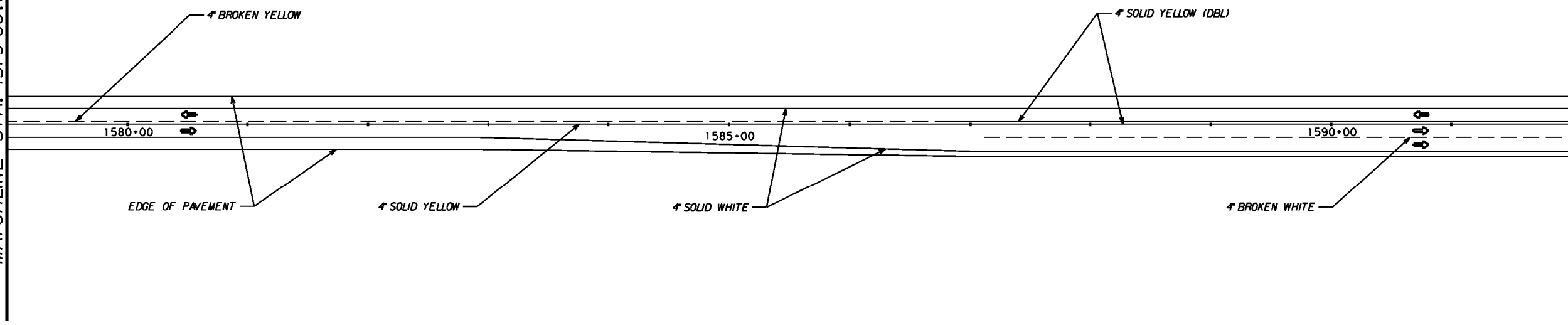
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DIST	COUNTY		SHEET NO.
CHS	CHILDRESS		70

DATE: 7/7/2022 10:53:57 AM
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DWG: CHS
 DWF: CHS
 CDS: CHS

MATCHLINE STA. 1579+00.00

MATCHLINE STA. 1592+00.00



PI STATION = 1601+83.25
 DELTA = 11° 25' 01.20" (LT)
 DEGREE OF CURVE = 1° 00' 00.00"
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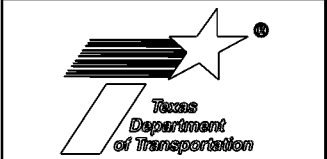


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 07/22/2022

MATCHLINE STA. 1605+00.00

STRIPING LAYOUT

SHEET 13 OF 18

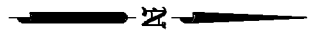
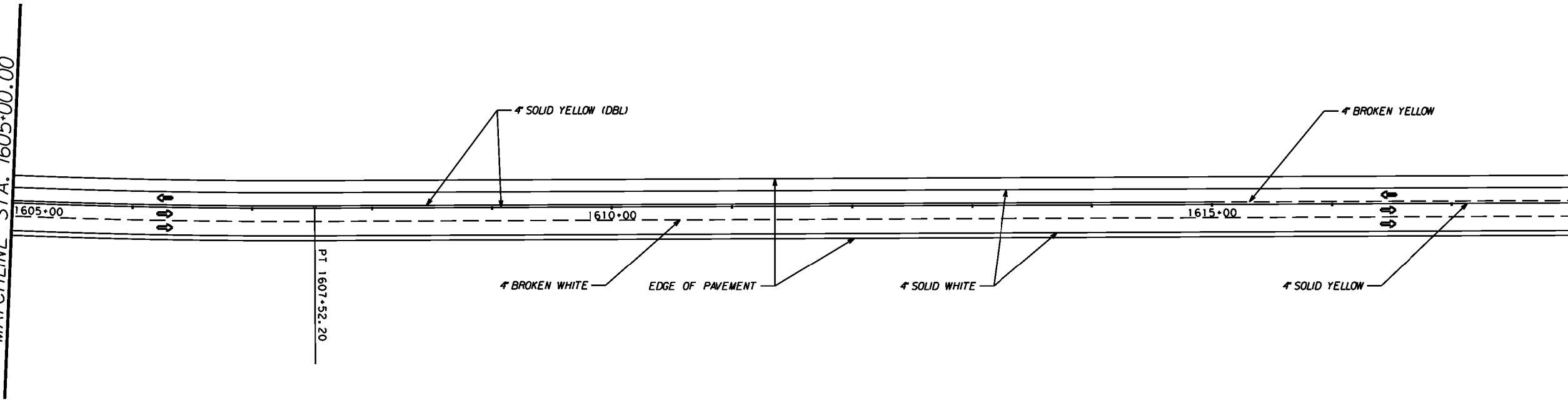


CONT	SECT	JOB	HIGHWAY
0032	01	034	US 62/83
DIST	COUNTY		SHEET NO.
CHS	CHILDRESS		71

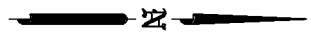
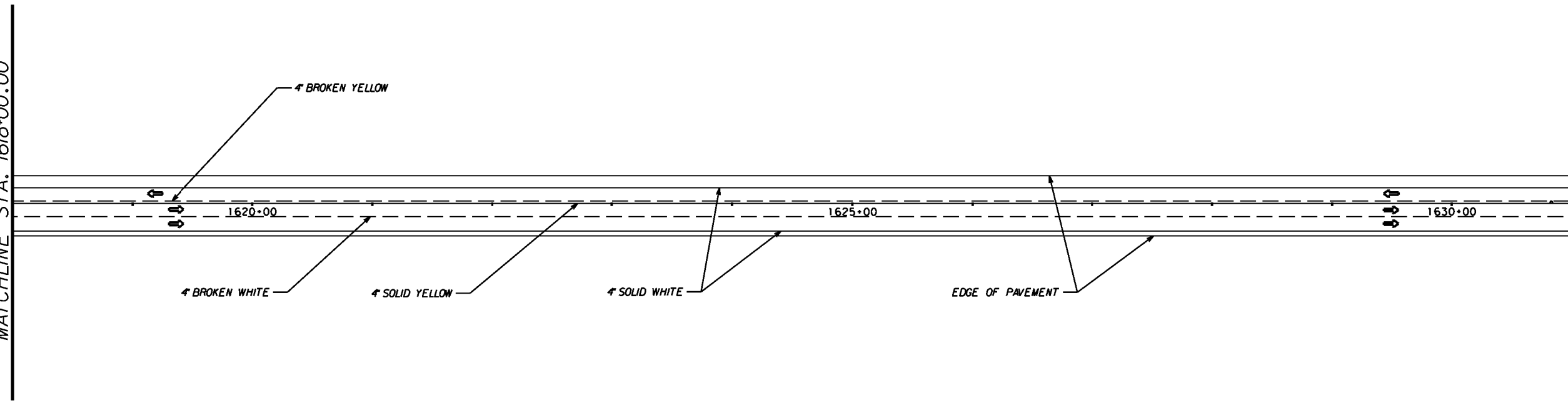
DATE: 7/7/2022 10:54:23 AM
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DWG: CDS: DWF: CDS: CDS:

MATCHLINE STA. 1605+00.00



MATCHLINE STA. 1618+00.00

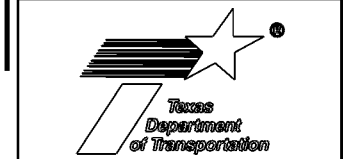


Ryan J. Reid P.E.
07/22/2022

MATCHLINE STA. 1631+00.00

STRIPING LAYOUT

SHEET 14 OF 18



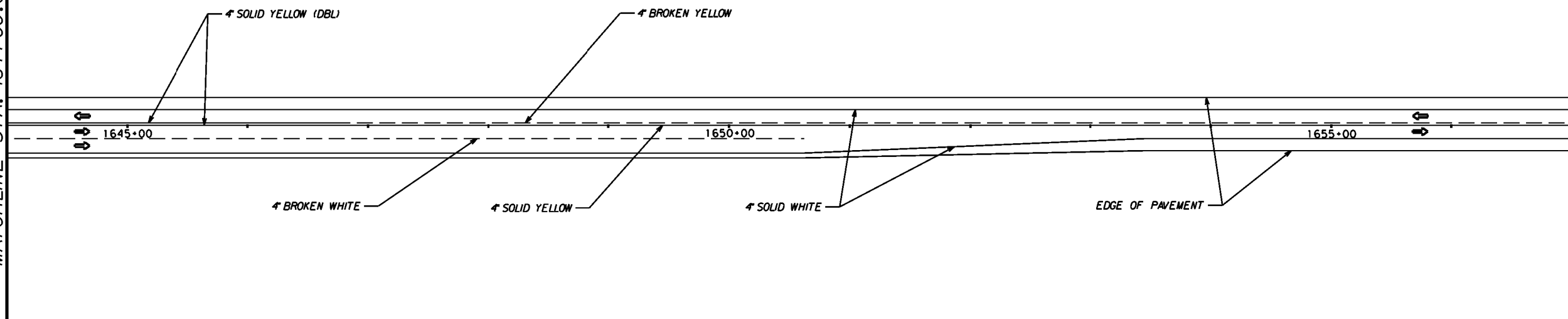
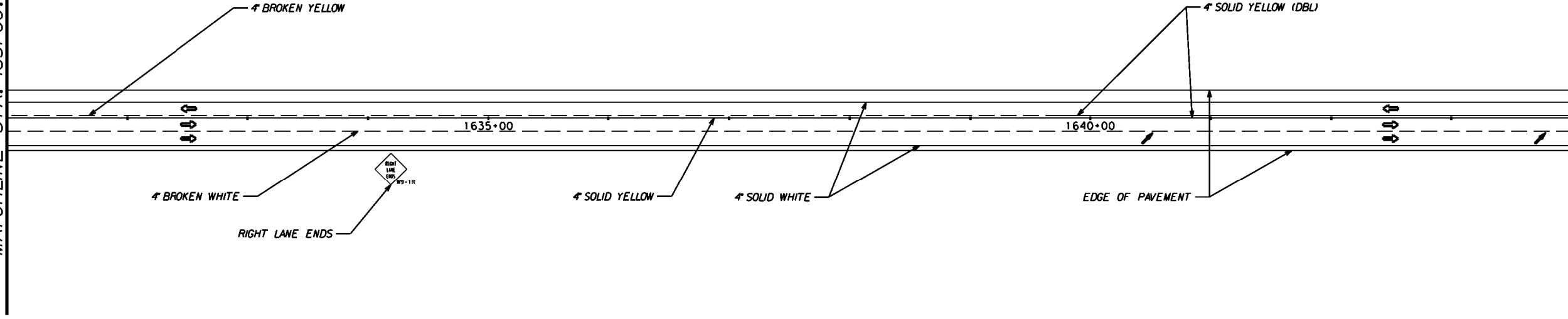
CONT	SECT	JOB	HIGHWAY
0032	01	034	US 62/83
DIST	COUNTY		SHEET NO.
CHS	CHILDRESS		72

DATE: 7/7/2022 10:54:48 AM
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DWG: CDS: DPH: CDS: CDS:

MATCHLINE STA. 1631+00.00

MATCHLINE STA. 1644+00.00



MATCHLINE STA. 1644+00.00

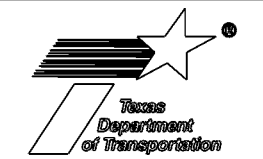
MATCHLINE STA. 1657+00.00



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STRIPING LAYOUT

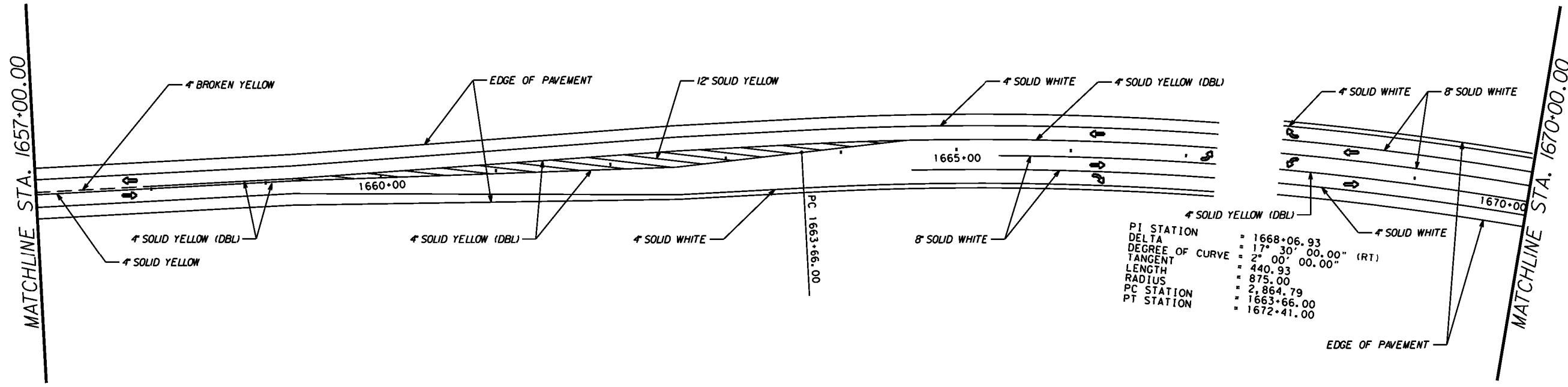
SHEET 15 OF 18



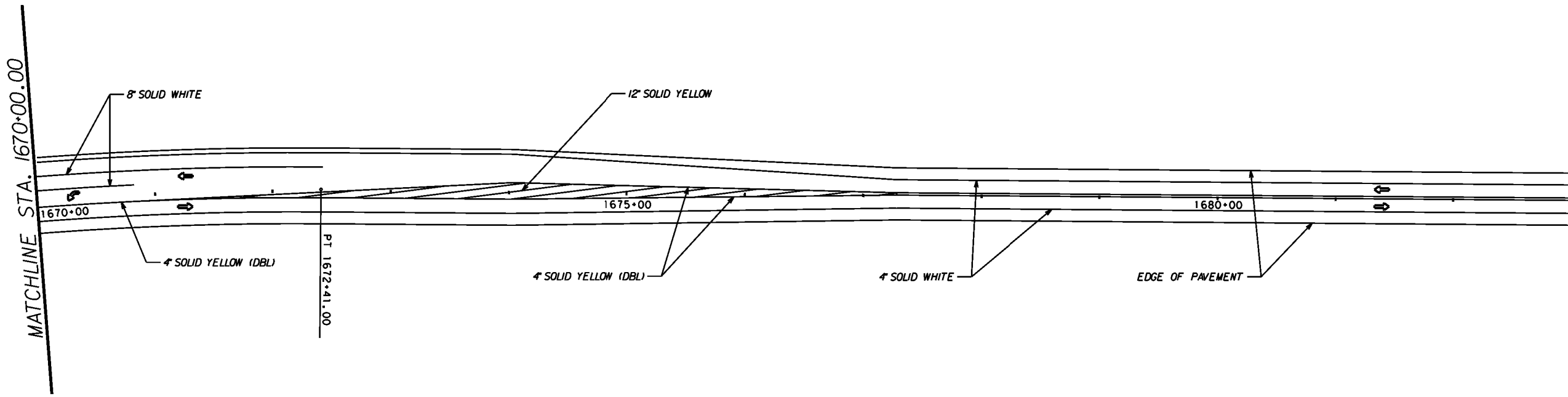
CONT	SECT	JOB	HIGHWAY
0032	01	034	US 62/83
DIST	COUNTY	SHEET NO.	
CHS	CHILDRESS	73	

DATE: 7/7/2022 10:55:10 AM
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DATE: 7/7/2022 10:55:10 AM
 FILE: I:\CHSD\PROJECTS\CHILDRESS\0032-01-034 (US 62 & 83)\Geopak\US 62 Stripe Sheets.dgn



PI STATION = 1668+06.93
 DELTA = 17° 30' 00.00" (RT)
 DEGREE OF CURVE = 2° 00' 00.00"
 TANGENT = 440.93
 LENGTH = 875.00
 RADIUS = 2,864.79
 PC STATION = 1663+66.00
 PT STATION = 1672+41.00

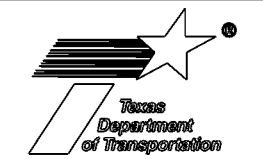


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 07/22/2022

MATCHLINE STA. 1683+00.00

STRIPING LAYOUT

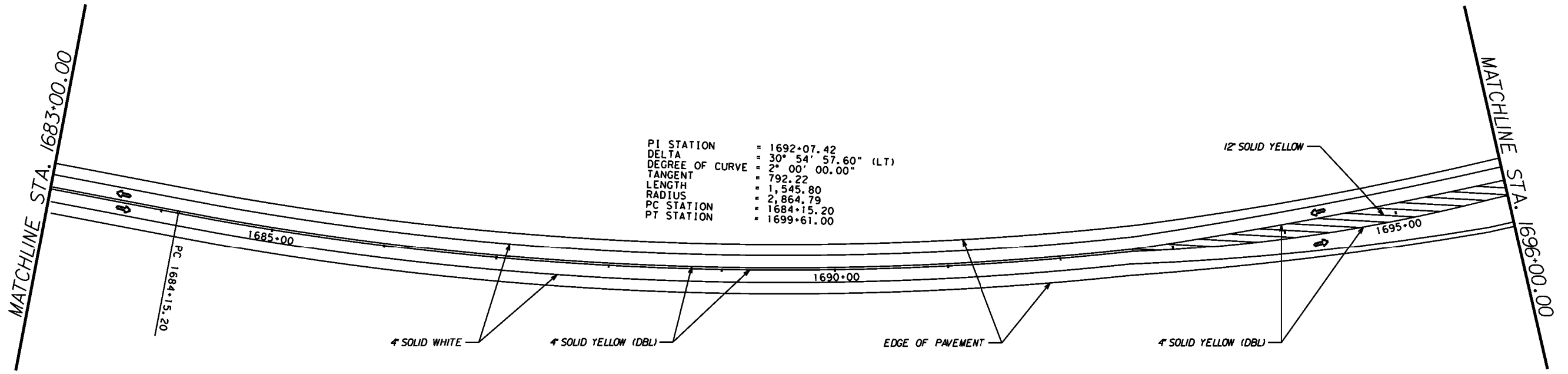
SHEET 16 OF 18



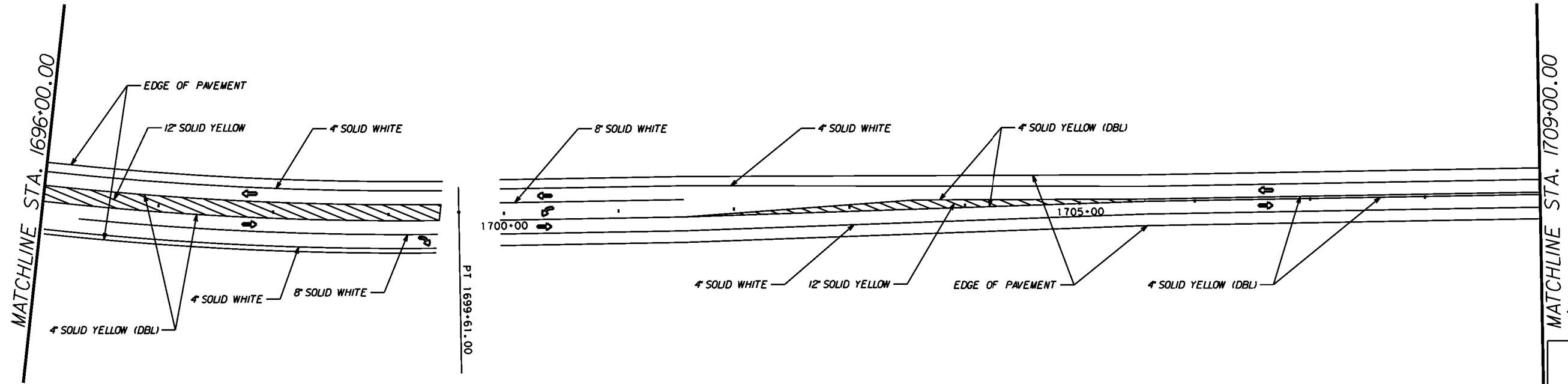
CONT	SECT	JOB	HIGHWAY
0032	01	034	US 62/83
DIST	COUNTY		SHEET NO.
CHS	CHILDRESS		74

DATE: 7/7/2022 10:55:33 AM
 FILE: I:\CHSD\PROJECTS\CHILDRESS\0032-01-034 (US 62 & 83)\Geopak\US 62 Stripe Sheets.dgn

CRG:
 DRG:
 CHK:
 DNG:



PI STATION = 1692+07.42
 DELTA = 30° 54' 57.60" (LT)
 DEGREE OF CURVE = 2° 00' 00.00"
 TANGENT = 792.22
 LENGTH = 1,545.80
 RADIUS = 2,864.79
 PC STATION = 1684+15.20
 PT STATION = 1699+61.00

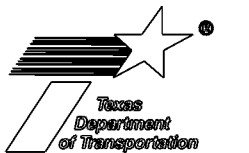


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STRIPING LAYOUT

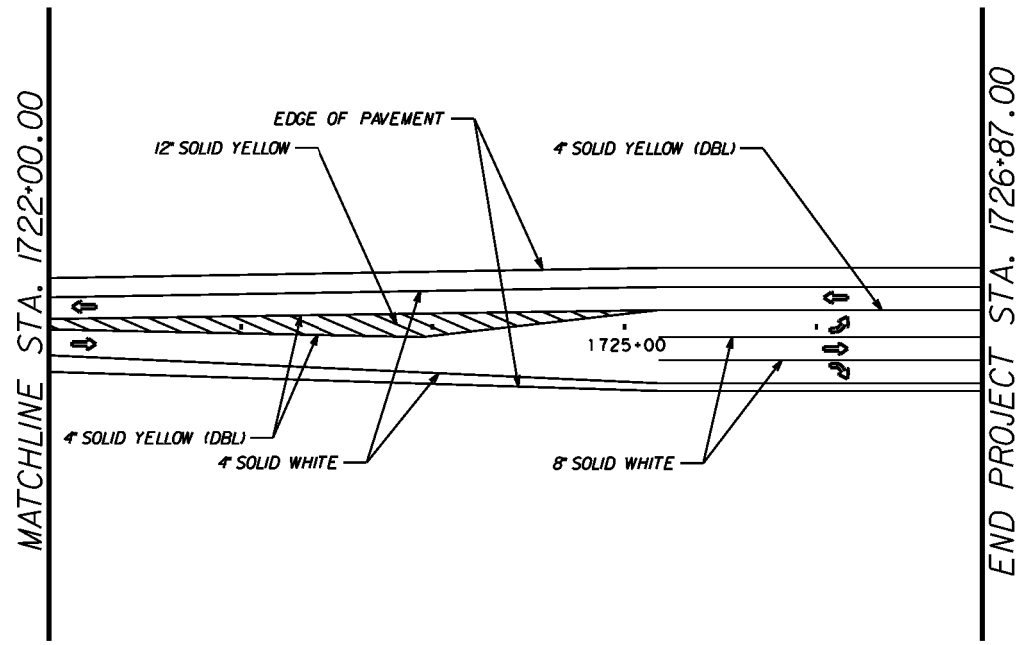
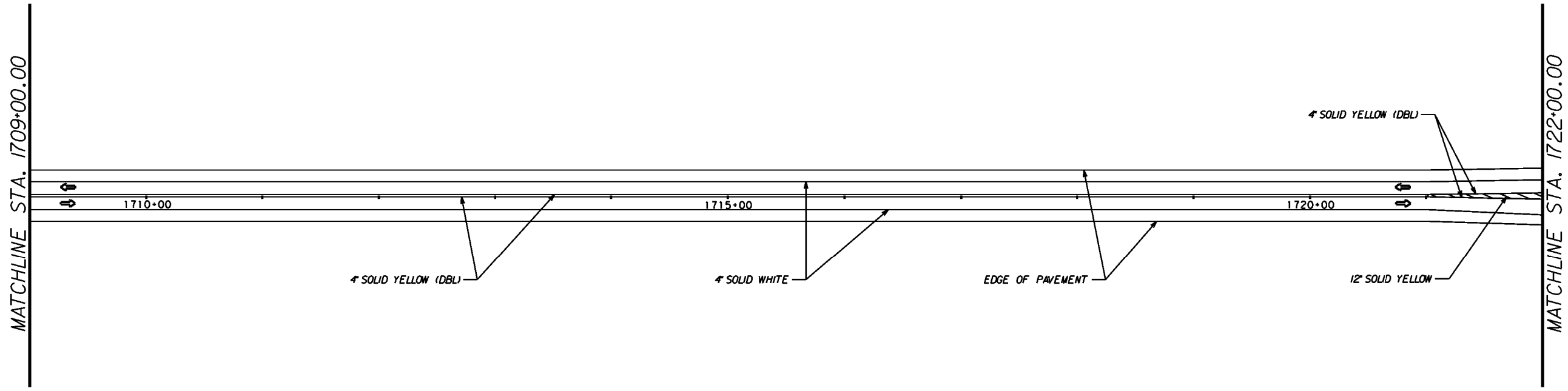
SHEET 17 OF 18

CONT		SECT	JOB	HIGHWAY
0032	01		034	US 62/83
DIST		COUNTY		SHEET NO.
CHS		CHILDRESS		75



DATE: 7/7/2022 10:55:54 AM
 FILE: I:\CHSD\PROJECTS\CHILDRESS\0032-01-034 (US 62 & 83)\Geopak\US 62 Stripe Sheets.dgn

DWG: CHS: DWF: CHS: CDS: CHS:



Ryan J. Reid P.E.
 07/22/2022

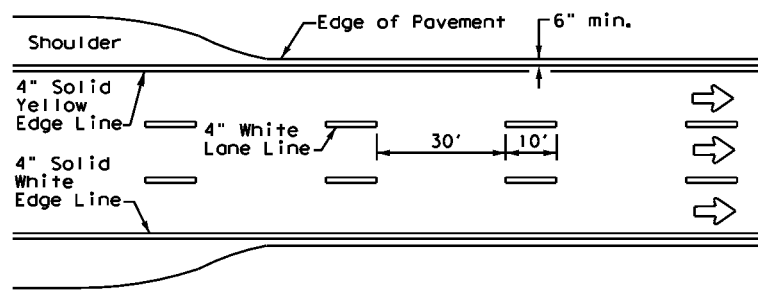
STRIPING LAYOUT

SHEET 18 OF 18

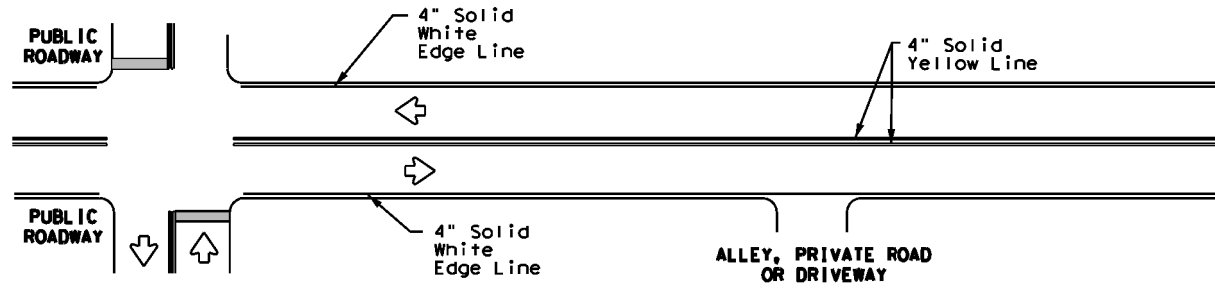


CONT	SECT	JOB	HIGHWAY
0032	01	034	US 62/83
DIST	COUNTY		SHEET NO.
CHS	CHILDRESS		76

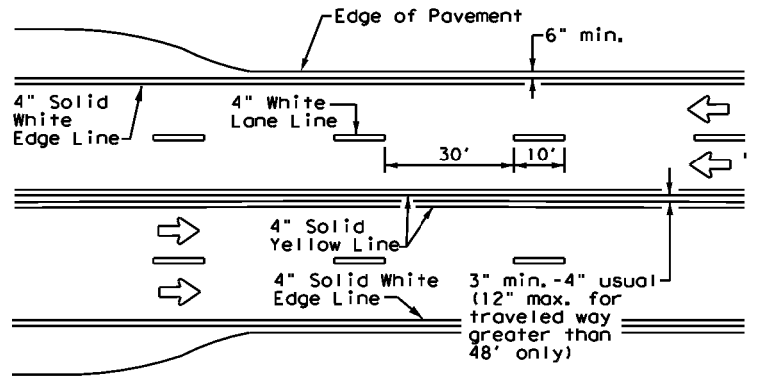
DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.



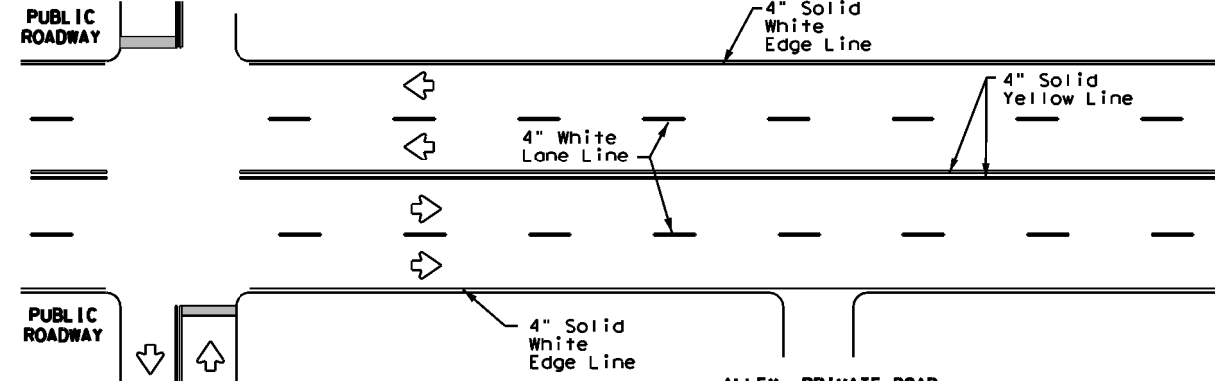
**EDGE LINE AND LANE LINES
ONE-WAY ROADWAY
WITH OR WITHOUT SHOULDERS**



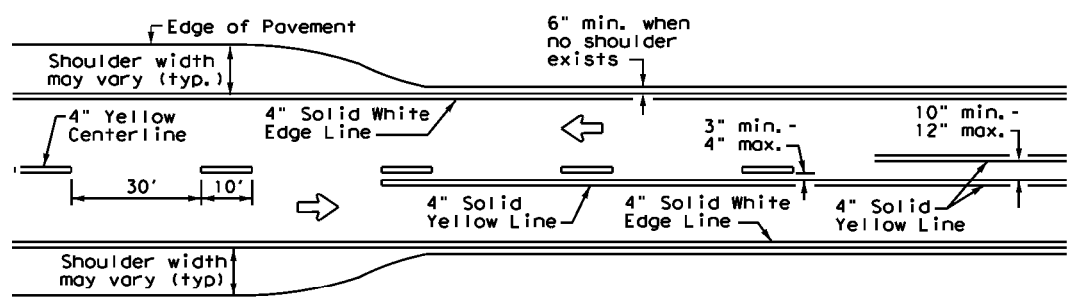
**TYPICAL TWO-LANE, TWO-WAY PAVEMENT
MARKINGS THROUGH INTERSECTIONS**



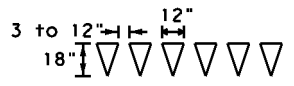
**CENTERLINE AND LANE LINES
FOUR LANE TWO-WAY ROADWAY
WITH OR WITHOUT SHOULDERS**



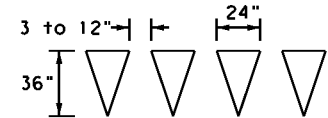
**TYPICAL MULTI-LANE, TWO-WAY PAVEMENT
MARKINGS THROUGH INTERSECTIONS**



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

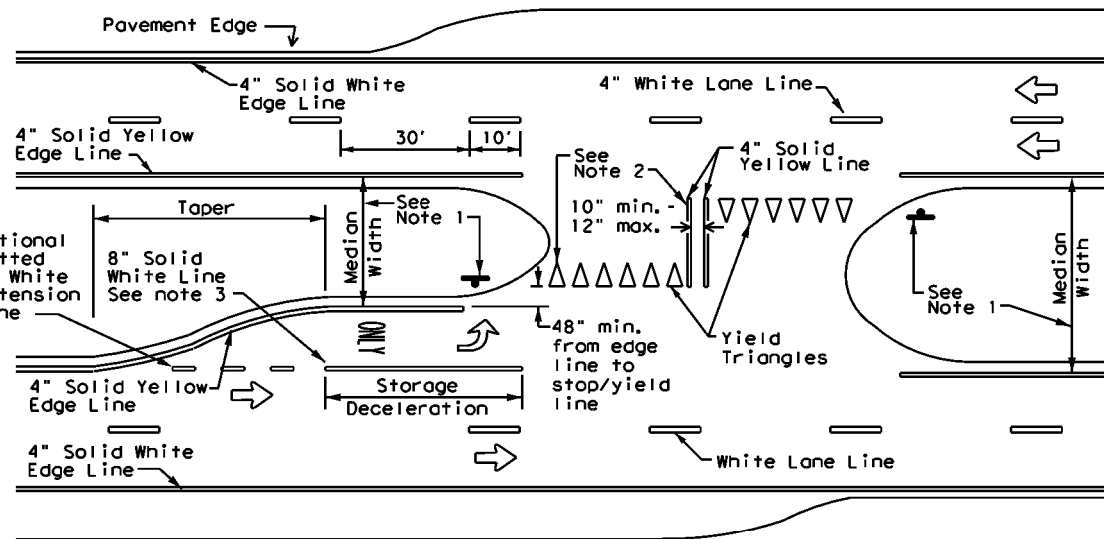


For posted speed on road being marked equal to or less than 40 MPH.



For posted speed on road being marked equal to or greater than 45 MPH.

YIELD LINES



FOUR LANE DIVIDED ROADWAY CROSSOVERS

NOTES

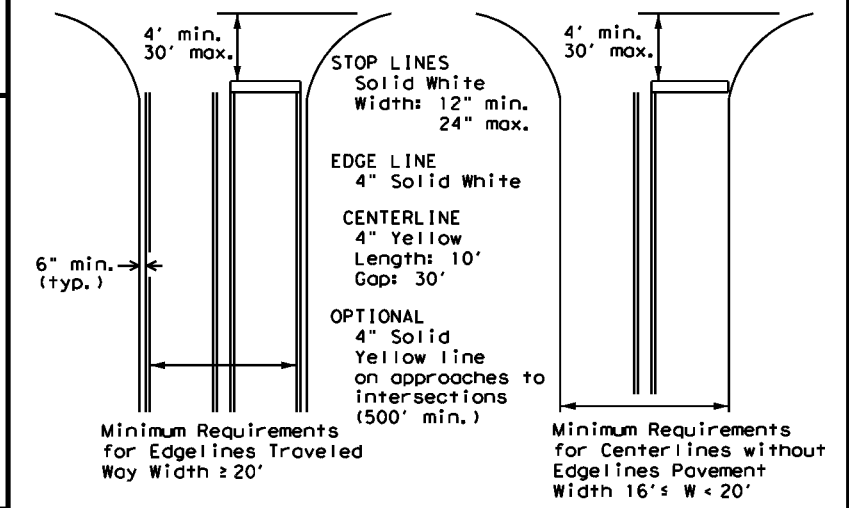
- Where divided highways are separated by median widths at the median opening itself of 30 feet or more, median openings shall be signed as two separate intersections. Each median opening has two width measurements, with one measurement for each approach. The narrow median width will be the controlling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

GENERAL NOTES

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

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

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



**GUIDE FOR PLACEMENT OF STOP LINES,
EDGE LINE & CENTERLINE**

Based on Traveled Way and Pavement Widths for Undivided Highways



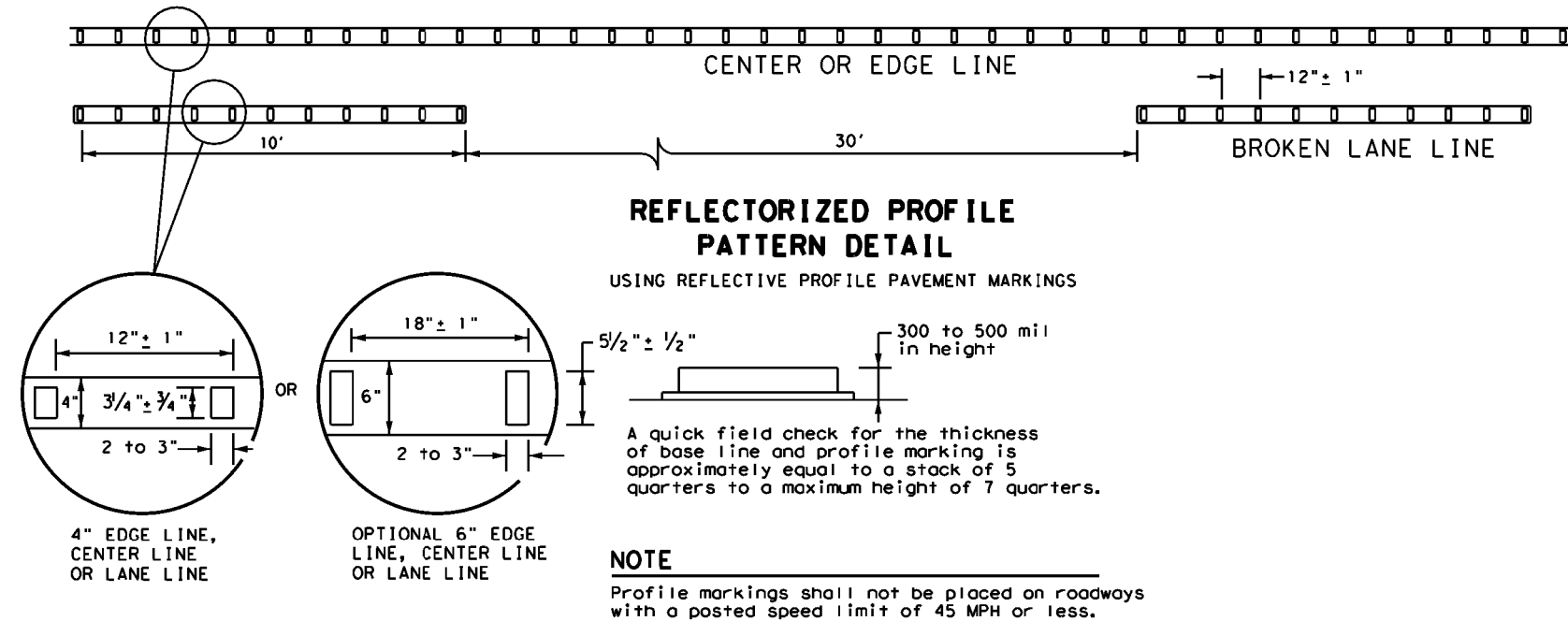
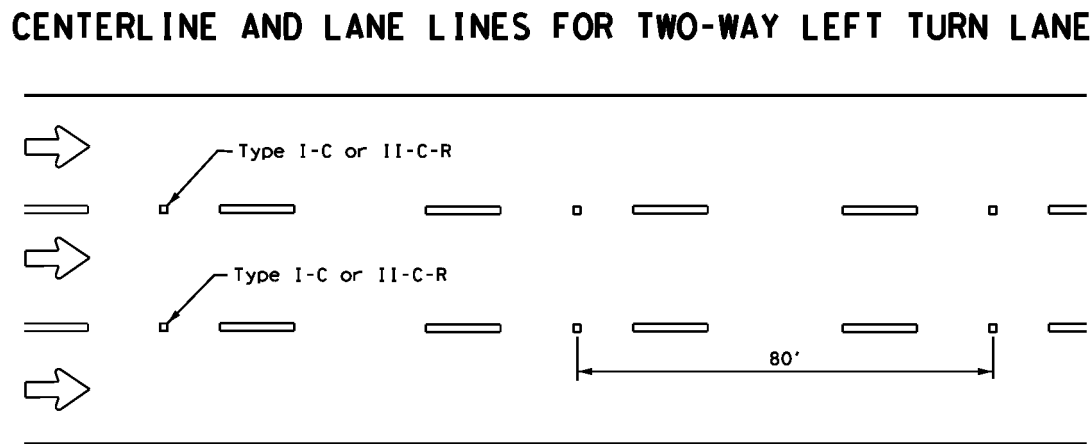
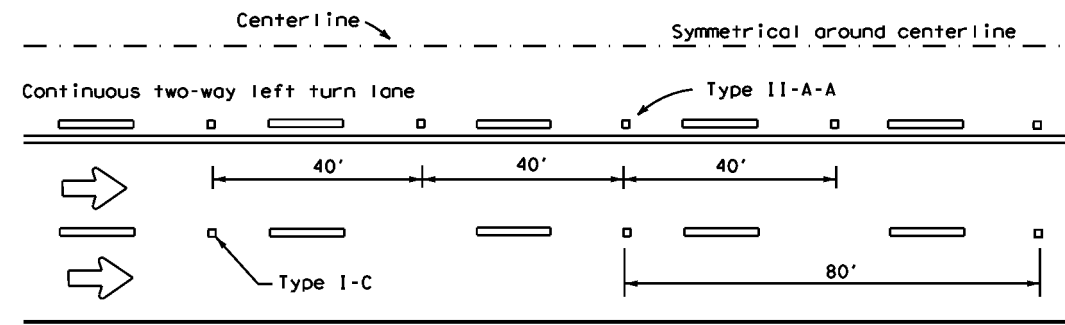
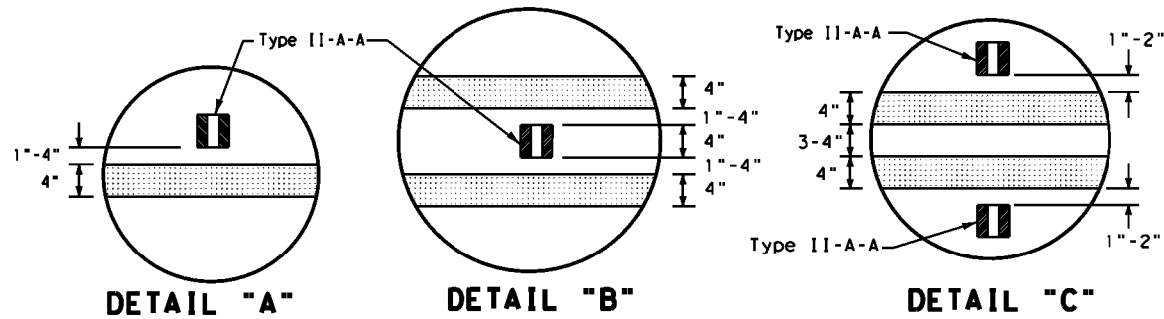
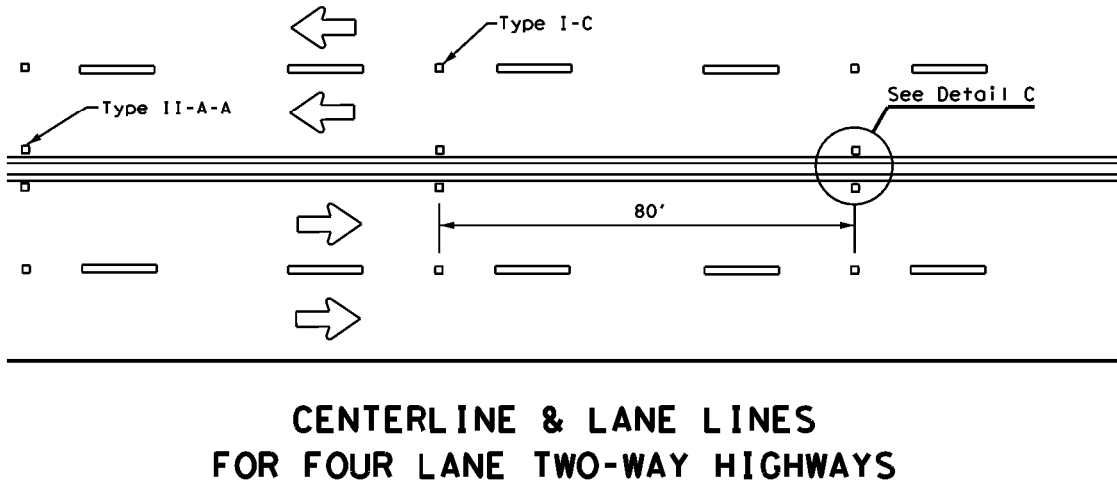
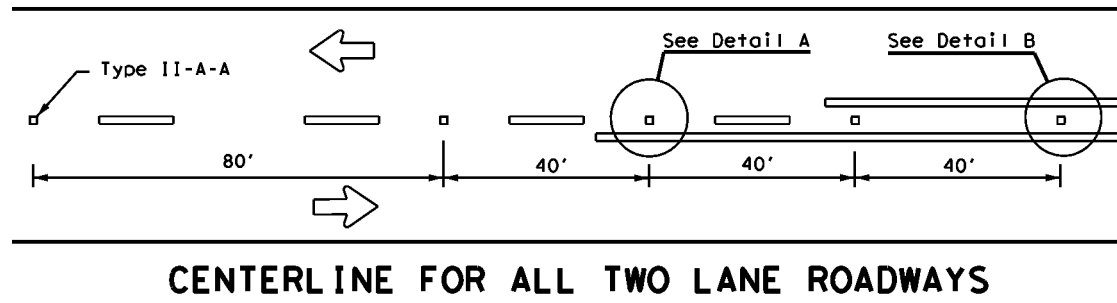
**TYPICAL STANDARD
PAVEMENT MARKINGS**

PM(1)-20

FILE: pml-20.dgn	DN:	CKI:	DW:	CKI:
© TxDOT November 1978	CONT	SECT	JOB	HIGHWAY
8-95 3-03 REVISIONS	0032	01	034	US 62/83
5-00 2-12	DIST	COUNTY		SHEET NO.
8-00 6-20	CHS	CHILDRESS		77

REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE

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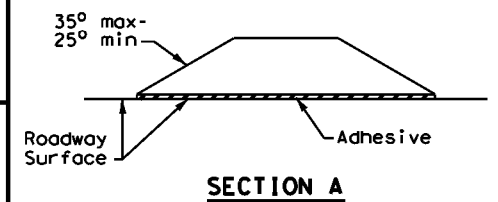
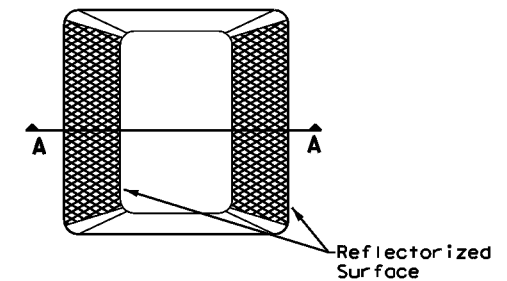
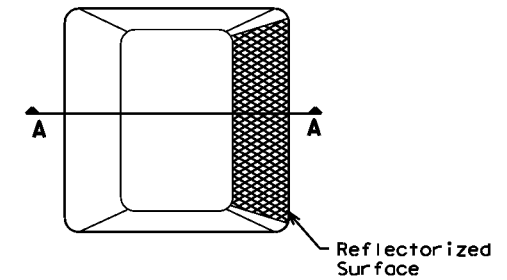


GENERAL NOTES

- All raised pavement markers placed in broken lines shall be placed in line with and midway between the stripes.
- On concrete pavements the raised pavement markers should be placed to one side of the longitudinal joints.

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

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



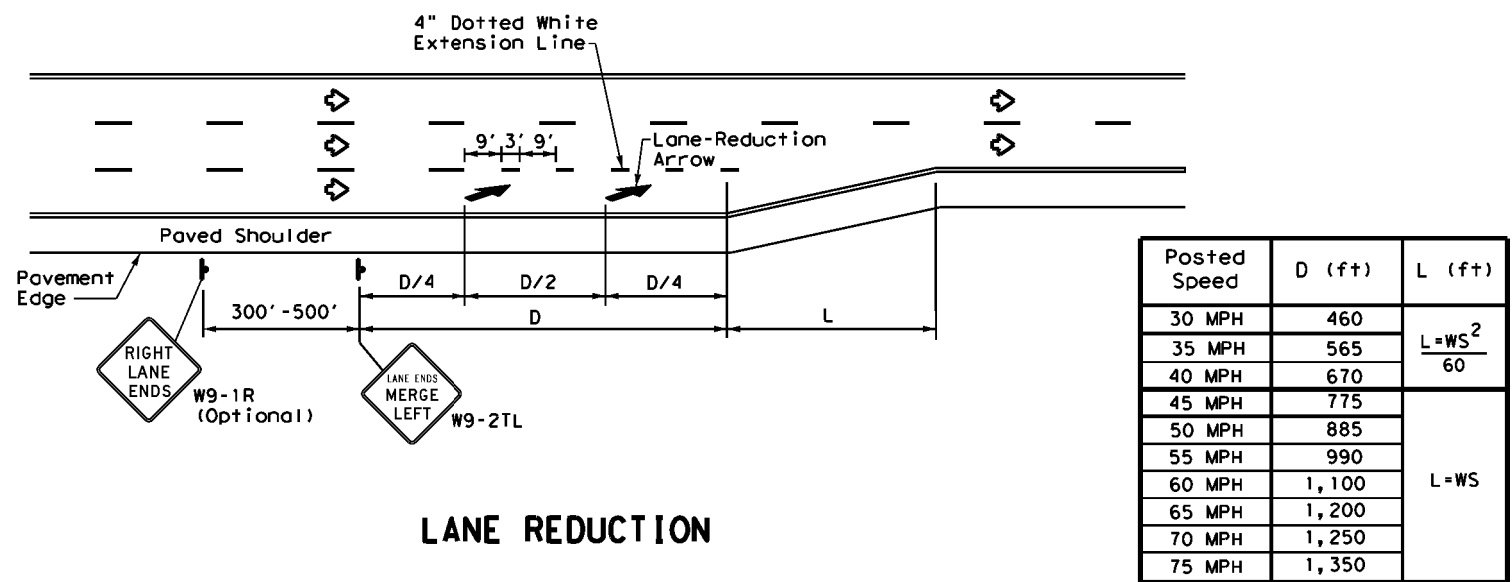
RAISED PAVEMENT MARKERS



POSITION GUIDANCE USING RAISED MARKERS REFLECTORIZED PROFILE MARKINGS PM(2) - 20

FILE: pm2-20.dgn	DN:	CKI:	DW:	CKI:
© TxDOT April 1977	CONT	SECT	JOB	HIGHWAY
4-92 2-10 REVISIONS	0032	01	034	US 62/83
5-00 2-12	DIST	COUNTY	SHEET NO.	
8-00 6-20	CHS	CHILDRESS	78	

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LANE REDUCTION

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

NOTES

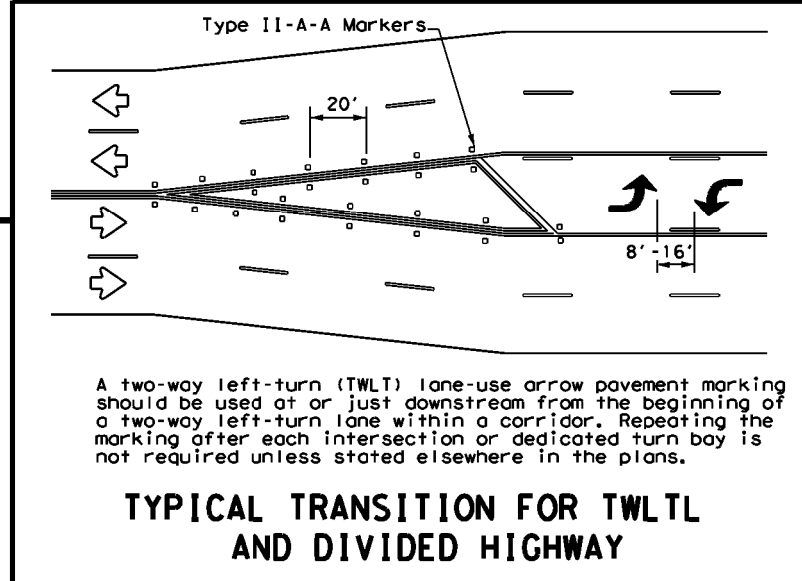
- Lane reduction pavement markings are used where the number of through lanes is reduced because of narrowing of the roadway or because of a section of on-street parking in what would otherwise be a through lane. For Texas Super 2 Passing Lanes, see TS2(PL) standard sheets.
- On divided highways, an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

GENERAL NOTES

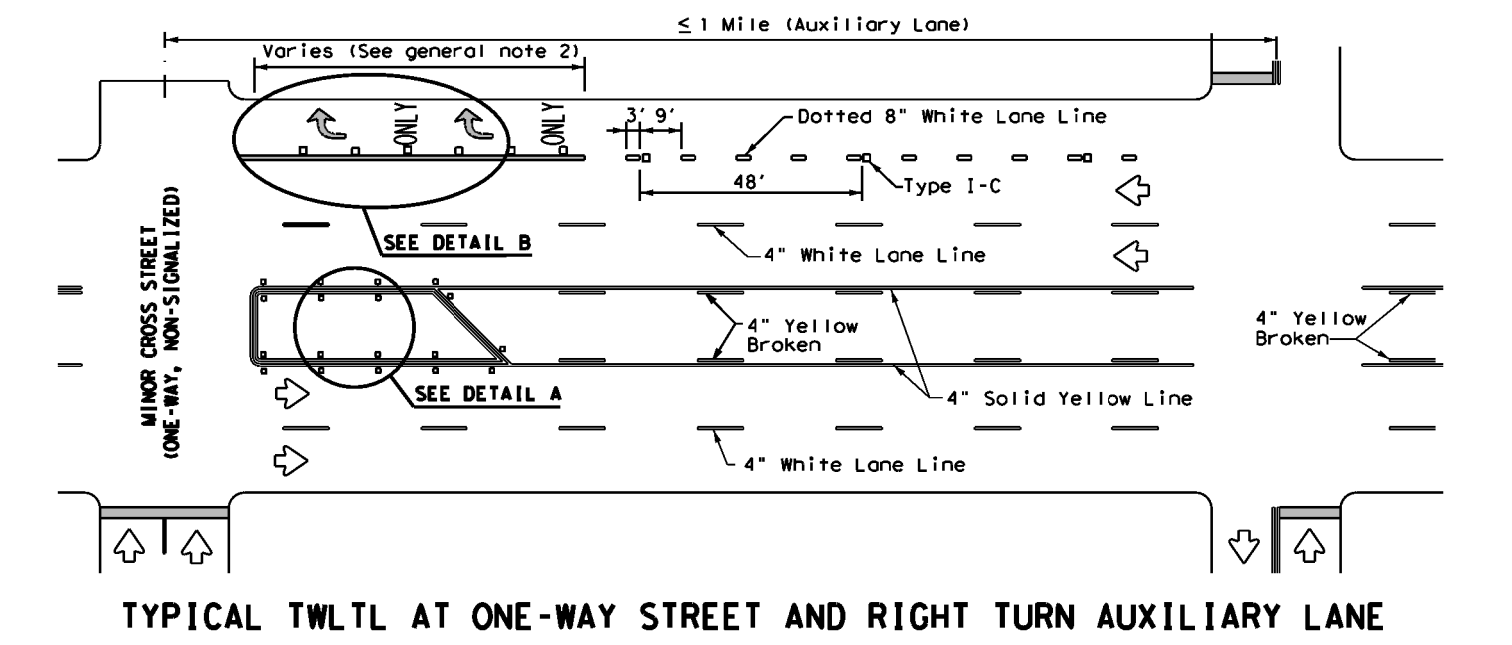
- Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn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

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

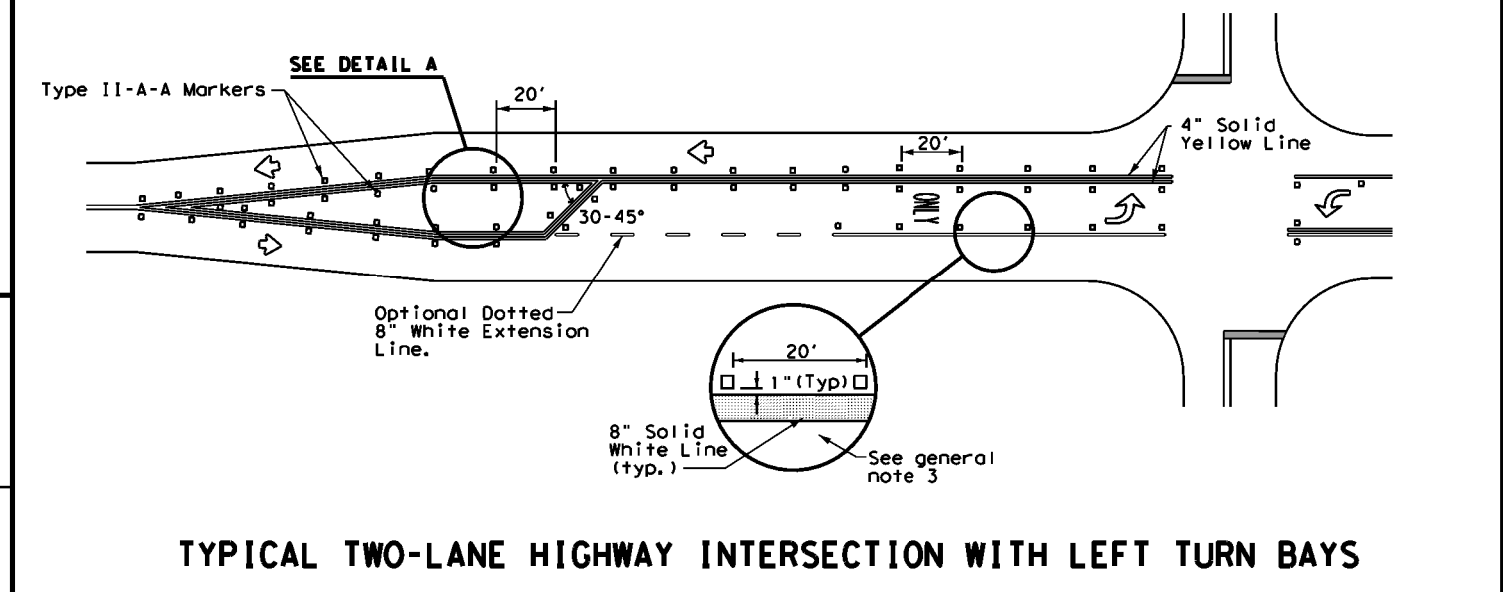
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



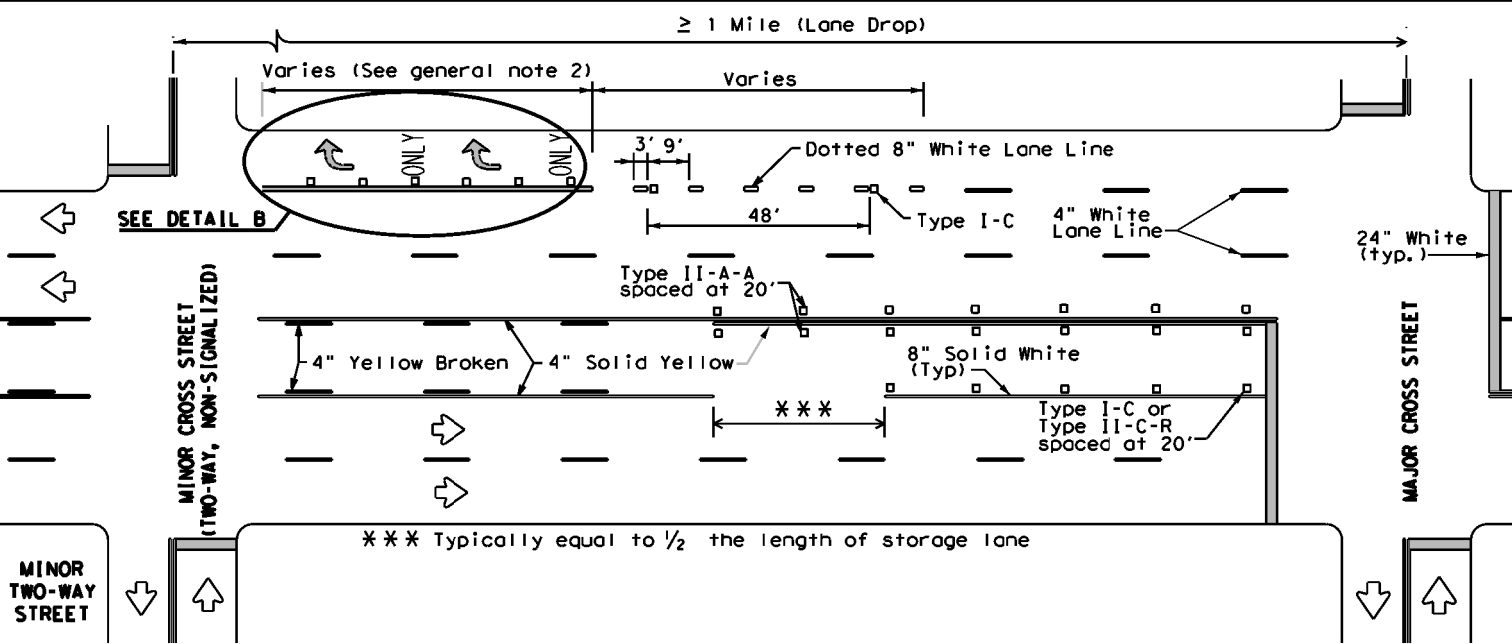
TYPICAL TRANSITION FOR TWLT AND DIVIDED HIGHWAY



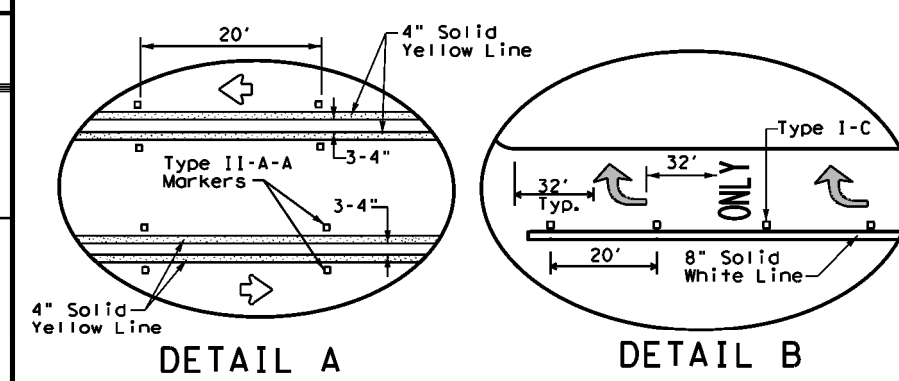
TYPICAL TWLT AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE



TYPICAL TWO-LANE HIGHWAY INTERSECTION WITH LEFT TURN BAYS



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



DETAIL A

DETAIL B

Texas Department of Transportation
Traffic Safety Division Standard

TWO-WAY LEFT TURN LANES, RURAL LEFT TURN BAYS, AND LANE REDUCTION PAVEMENT MARKINGS PM(3)-20

FILE: pm3-20.dgn	DN:	CK1	DW:	CK1
© TxDOT April 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS	0032	01	034	US 62/83
5-00 2-10	DIST	COUNTY	SHEET NO.	
8-00 2-12	CHS	CHILDRESS	79	
3-03 6-20				

DATE:
FILE:

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REFLECTOR UNIT SIZES FOR DELINEATORS AND OBJECT MARKERS				DELINEATORS				D & OM DESCRIPTIVE CODES	
DEVICE	SIZE 1	SIZE 2	SIZE 3	SIZE 4	DEVICE	SINGLE	DOUBLE	INSTL DEL ASSM (D-XX)SZ X (XXXX)XXX (XX)	
								NUMBER OF REFLECTORS S = Single D = Double COLOR OF REFLECTORS W = White Y = Yellow R = Red REFLECTOR UNIT SIZE 1 or 2 TYPE OF POST OR DELINEATOR WC = Wing Channel Post YFLX = Yellow Flexible Post WFLX = White Flexible Post BRF = Barrier Reflector TYPE OF MOUNT GND = Embedded (drivable or set in concrete) CTB = Concrete Barrier Mount GF1 or GF2 = Guard Fence Attachment SRF = Surface Mount DIRECTION If Required BI = Bi-Directional BR = Bi-Directional with red on back	
SHEETING: Yellow, White or Red Type B or C reflective sheeting				SHEETING: Yellow, White or Red Type B or C Reflective Sheeting					
NOTE: 1. Size 1 and 4 - Direct applied reflective sheeting for use on flexible post (fix). 2. Size 2 and 3 - For use on wing channel (wc) post only. Use approved metal, plastic or fiberglass backplate with 17/64" mounting holes.				POST TYPE: WC, YFLX, WFLX, GND					
				MOUNT TYPE: GND, SRF					

OBJECT MARKERS								INSTL OM ASSM (OM-XX) (XXXX)XXX (XX)	
DEVICE	Type 1 (OM-1)	Type 2 (OM-2)		Type 3 (OM-3)			Type 4 (OM-4)	TYPE OF OBJECT MARKER 1, 2, 3, or 4 NUMBER OF REFLECTORS OR DIRECTION X = 3-Size 2 reflector unit (Type 2 only) Y = 1-Size 3 reflector unit (Type 2 only) Z = 3-Size 1 or 1-Size 4 reflector units (Type 2 only) L = Left Side (Type 3 Object Marker only) R = Right Side (Type 3 Object Marker only) C = Center (Type 3 Object Marker only) TYPE OF POST WC = Wing Channel Post WFLX = White Flexible Post TWT = Thin Walled Tubing TYPE OF MOUNT GND = Embedded (drivable) SRF = Surface Mount WAS = Wedge Anchor Steel WAP = Wedge Anchor Plastic DIRECTION If Required BI = Bi-Directional	
	OM-1	OM-2X	OM-2Y	OM-2Z	OM-3L	OM-3R	OM-3C	OM-4	
SHEETING: Yellow-Type B or C Sheeting FL	SHEETING: Yellow - Type B or C Sheeting			SHEETING: Alternating acrylic black and retroreflective yellow - Type B _{FL} or C _{FL} Sheeting			SHEETING: Red -Type B _{FL} or C _{FL} Sheeting		
POST TYPE: TWT	WC	WC	WFLX	TWT			TWT		
MOUNT TYPE: WAS, WAP	GND	GND	GND, SRF	WAS, WAP			WAS, WAP		

DEPARTMENTAL MATERIAL SPECIFICATIONS	
FLEXIBLE DELINEATOR & OBJECT MARKER POSTS (EMBEDDED & SURFACE MOUNT TYPES)	DMS-4400
SIGN FACE MATERIALS	DMS-8300
DELINEATORS, OBJECT MARKERS AND BARRIER REFLECTORS	DMS-8600

BARRIER REFLECTORS (BRF)			CHEVRONS				ONE DIRECTION LARGE ARROW		NOTE: Delineator and object marker substrates and sign substrates shall be 0.080" Aluminum sign blank to conform to ASTM B-209 Alloy 6061-T6 or approved alternative.
DEVICE	GF1	GF2	CTB	W1-8		W1-6			
1. Barrier reflectors shall meet the requirements of DMS 8600. 2. Approved Barrier Reflectors are listed on the "Barrier Reflectors" Material Producer List at: www.txdot.gov.			SIZE (W x L): 18"x 24" (Conventional), 24"x 30" (Conventional Oversize), 30"x 36" (Expressway), 36" x 48" (Freeway)		SIZE (W x L): 48" x 24" (Conventional), 60" x 30" (Expressway & Freeway)				
MOUNTING HEIGHT: 4'-0" or 7'-0"			MOUNTING HEIGHT: 7'-0" Only		MOUNTING HEIGHT: 7'-0"				
SHEETING: Yellow, White, Red			NOTE: 1. CHEVRON (W1-8) signs and ONE DIRECTION LARGE ARROW (W1-6) Signs shall be installed per Sign Mounting Details (SMD) Standard Sheets and paid under Item 644 (Small Roadside Sign Assemblies). 2. When there is a need to increase conspicuity, the Texas version of the ONE DIRECTION LARGE ARROW sign (W1-9T) may be used instead of the ONE DIRECTION LARGE ARROW (W1-6).						
NOTE: 1. Reflective sheeting shall have a minimum dimension of 3 inches and minimum surface area of 9 square inches.									



DELINEATOR & OBJECT MARKER MATERIAL DESCRIPTION D & OM(1)-20

FILE: dom1-20.dgn	DN: TxDOT	CR: TxDOT	OW: TxDOT	CR: TxDOT
© TxDOT August 2004	CONT: 0032	SECT: 01	JOB: 034	HIGHWAY: US 62/83
10-09 3-15	DIST: CHS	COUNTY: CHILDRESS	SHEET NO. 80	

DATE: FILE:

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DATE: FILE:

POST TYPE AND SUPPORT FOUNDATION DETAILS

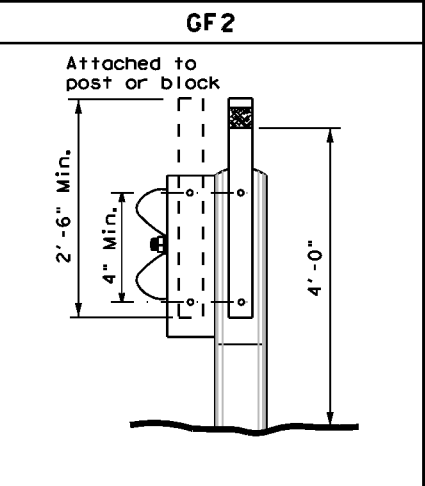
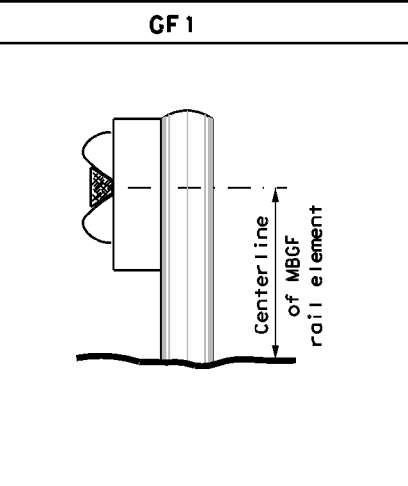
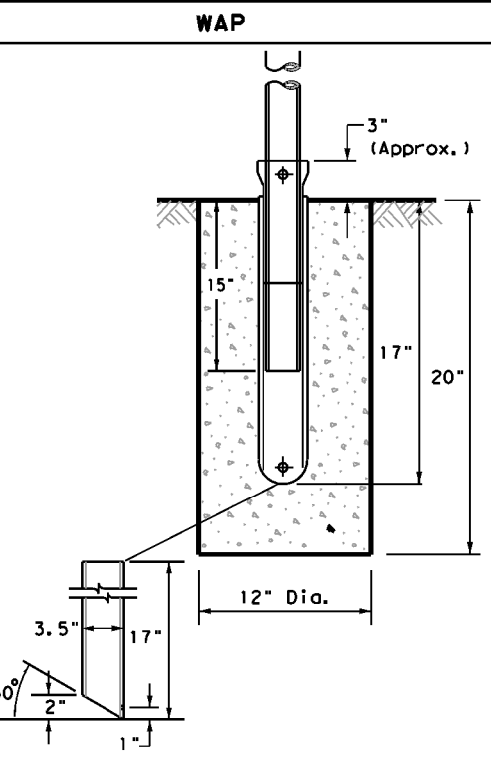
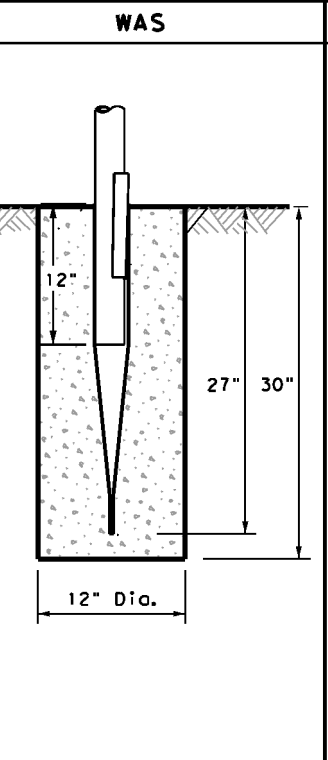
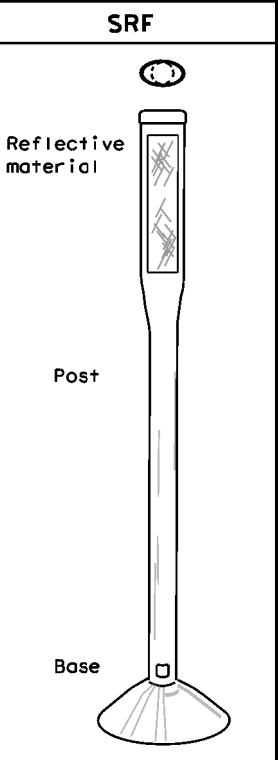
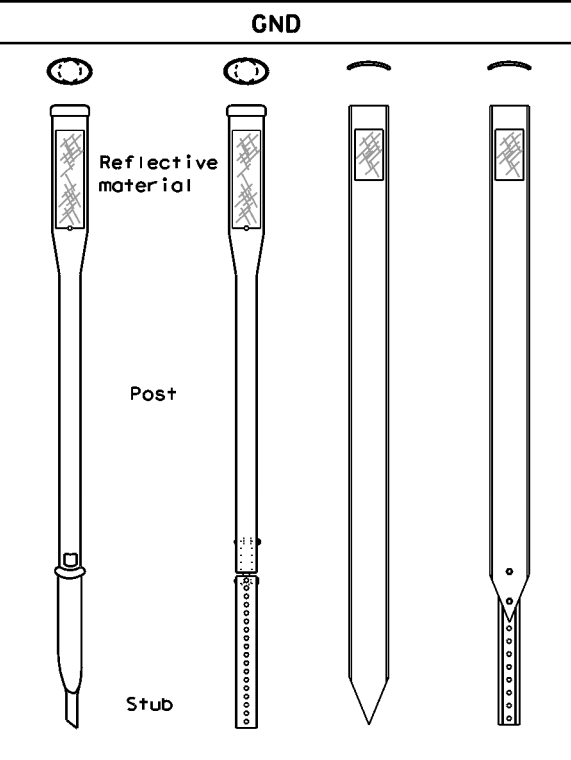
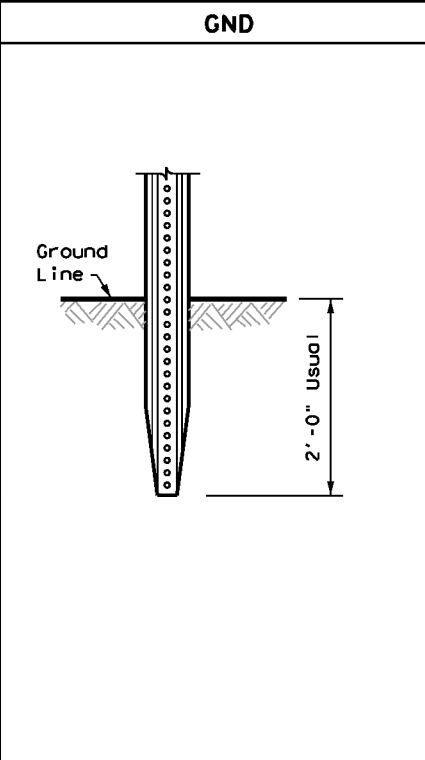
TYPE OF BARRIER MOUNTS

WING CHANNEL (WC)

FLEXIBLE POSTS (YFLX, WFLX)

WEDGE ANCHOR SYSTEMS

GUARD FENCE ATTACHMENT



NOTES

1. Embedded Wing Channel (WC) post option may be used for Type 2 Object Markers and Delineators only.
2. 1.12 lbs/ft steel per ASTM A 1011 SS Gr. 50, or ASTM A499.

EMBEDDED **SURFACE MOUNT**

NOTES

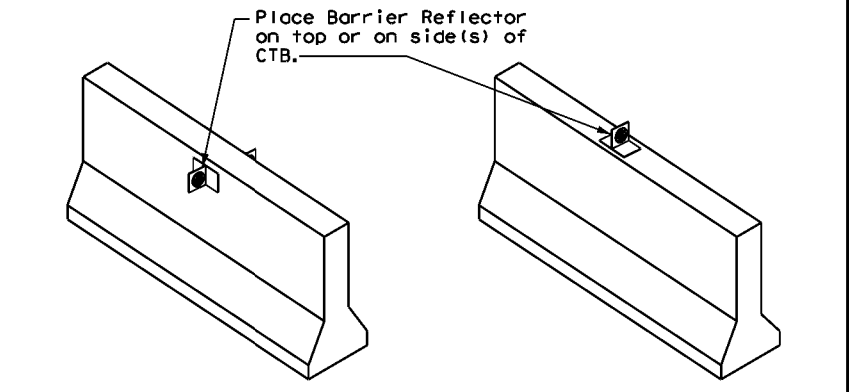
1. See "Flexible Delineator and Object Marker Posts" Material Producer List for approved devices.
2. Install per manufacturer's recommendations.
3. Post length may vary to meet field conditions.
4. When using yellow delineators with flexible posts to separate opposing direction of travel, such as centerline or median use, the flexible posts shall be yellow.

STEEL **PLASTIC**

NOTE

1. Install per manufacturer's recommendations.

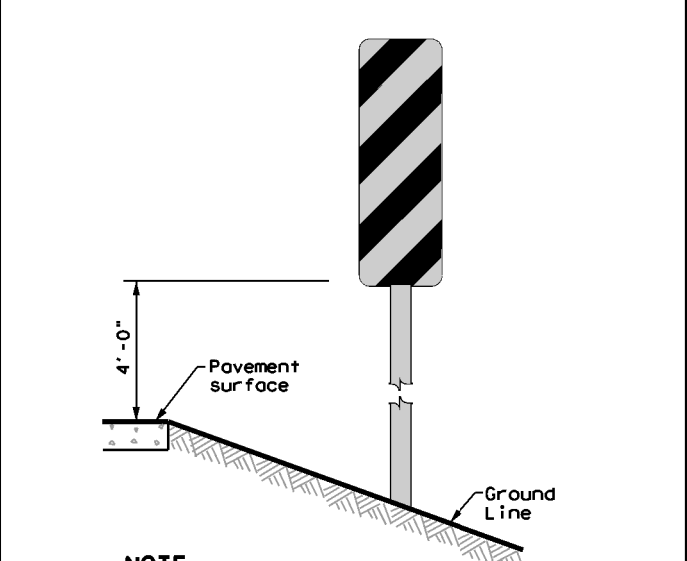
CONCRETE TRAFFIC BARRIER (CTB)



GENERAL NOTES

1. Place delineators on a section of roadway at a consistent distance from the edge of pavement.
2. Where a restriction prevents consistent placement from the pavement edge, place the affected object markers in line with the innermost edge of the obstruction.
3. When Type 2 object markers and delineators are more than 8'-0" from the edge of the pavement, it may not be possible to maintain a height of approximately 4'-0". If this is the case, place the object marker or delineator as close to the desired height as possible.
4. Install all delineators, object markers and barrier reflectors in accordance with the manufacturer's recommendation.
5. Barrier reflectors should be installed a minimum of 18 inches above the edge of the pavement surface.
6. Diagonal stripes on Type 3 object markers shall slope down toward the intended travel lane.

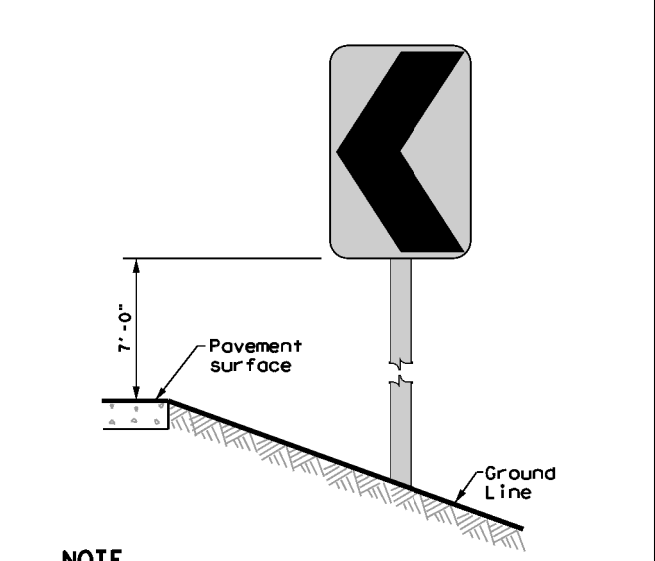
TYPES 1,3, AND 4 OBJECT MARKERS AND CHEVRONS



NOTE

Mounting at 4 feet to the bottom of the chevron is permitted for chevrons that will not exceed a height of 6'-6" to the top of the chevron (sizes 24" x 30" and smaller)

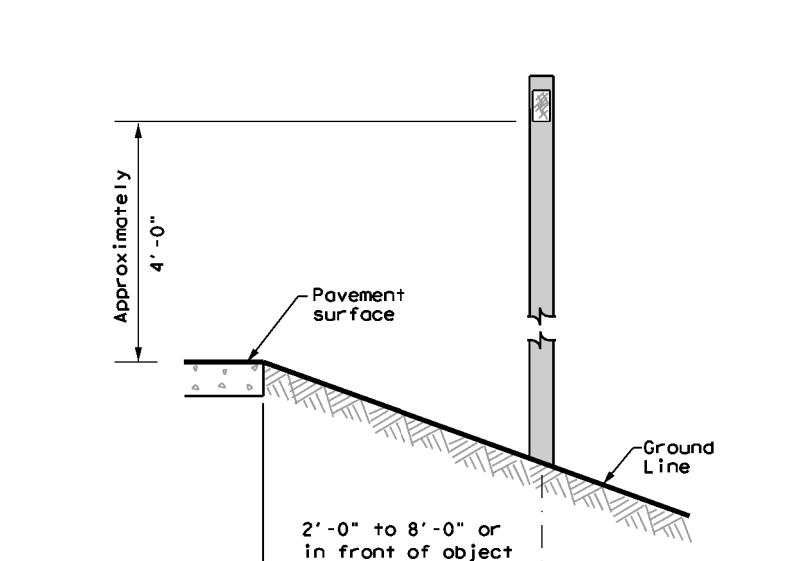
CHEVRONS AND ONE DIRECTION LARGE ARROW SIGN



NOTE

Chevrons 30" x 36" and larger shall be mounted at a height of 7' to the bottom of the chevron. Chevron sign and ONE DIRECTION LARGE ARROW sign (W1-9T) shall be installed per SMD standard sheets and paid under item 644.

DELINEATORS AND TYPE 2 OBJECT MARKERS



See general notes 1, 2 and 3.

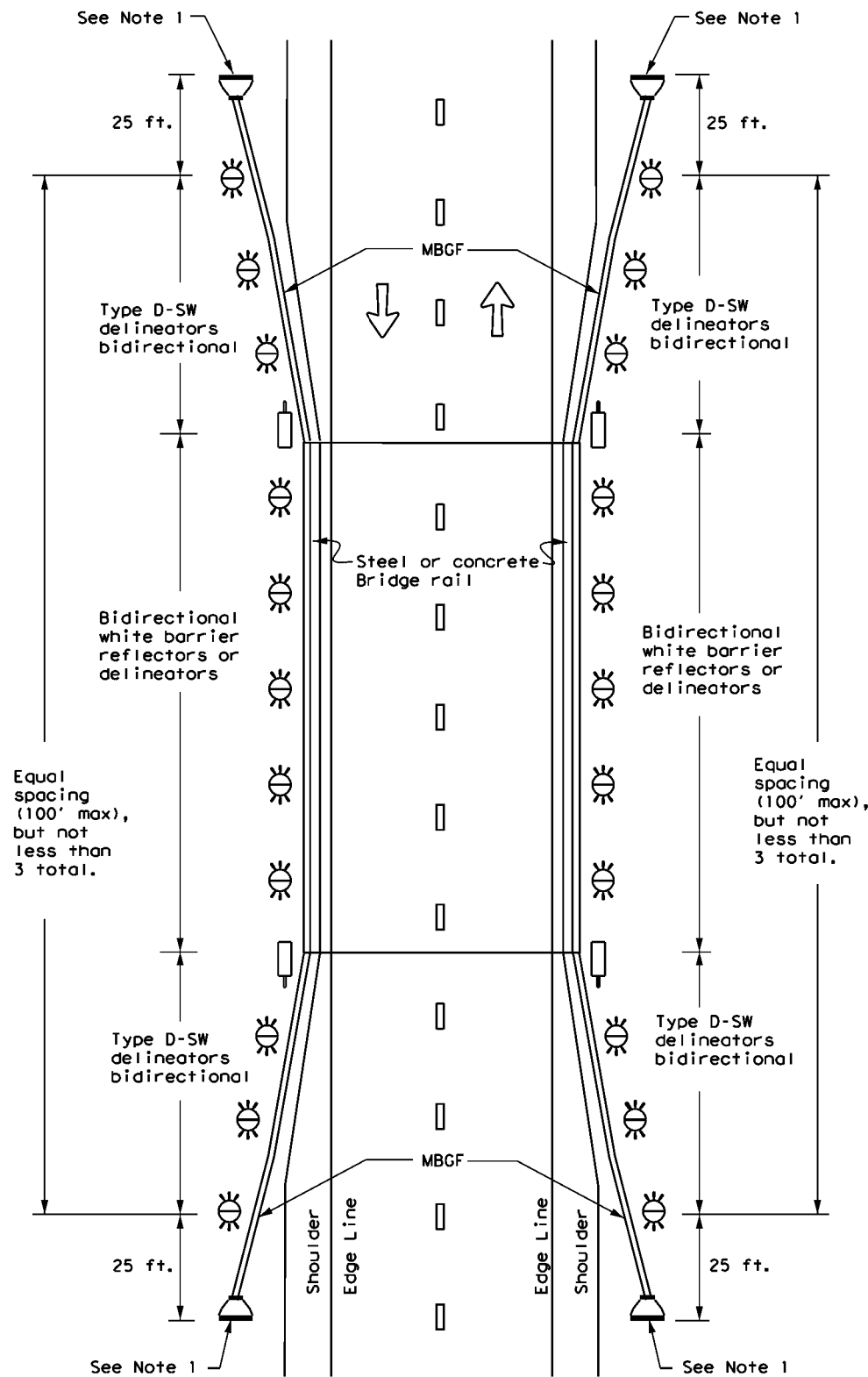


DELINEATOR & OBJECT MARKER INSTALLATION

D & OM(2)-20

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© TxDOT August 2004	CONT	SECT	JOB	HIGHWAY
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10-09 3-15	DIST	COUNTY	SHEET NO.	
4-10 7-20	CHS	CHILDRESS	81	

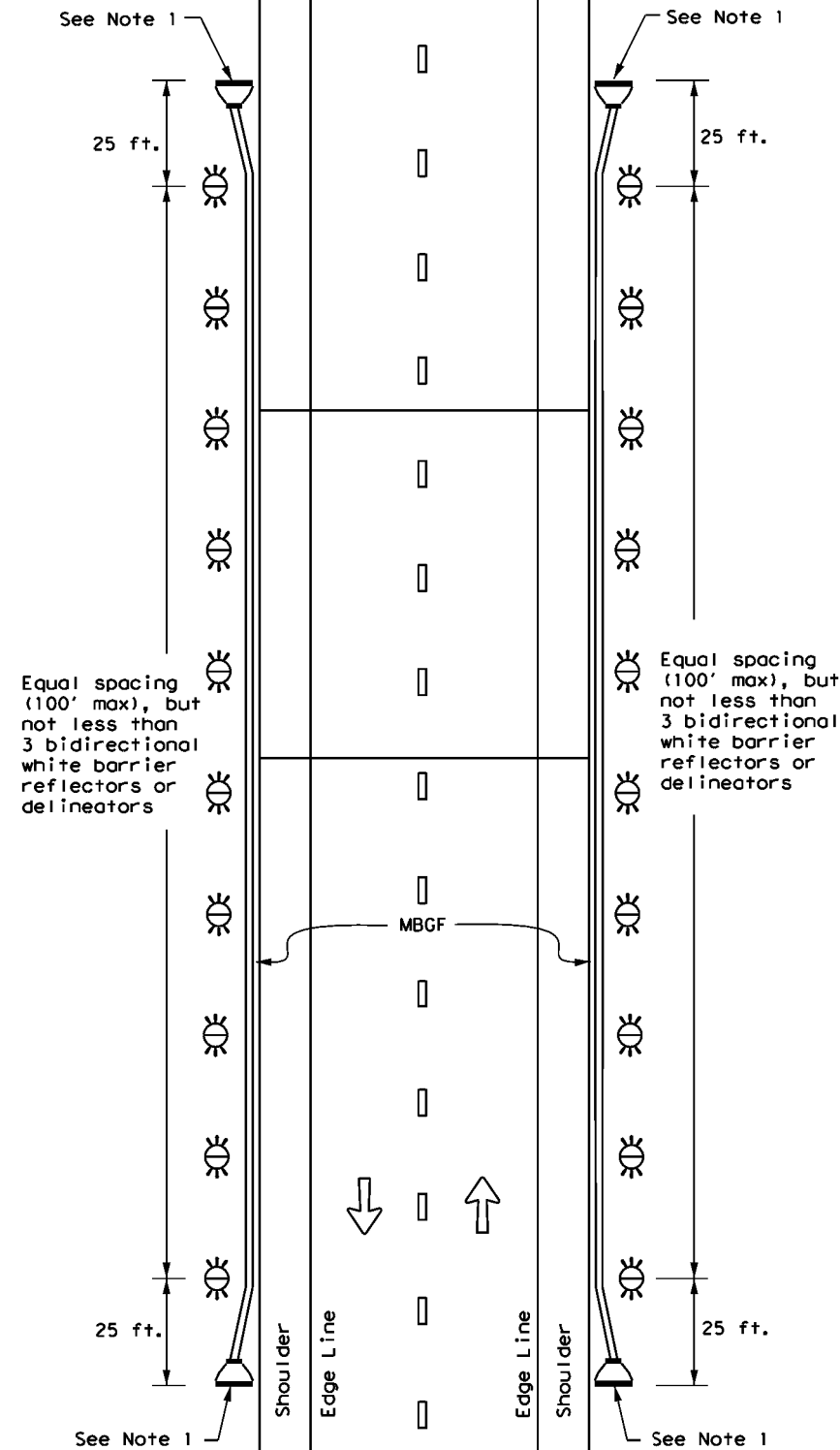
**TWO-WAY, TWO LANE ROADWAY
WITH REDUCED WIDTH APPROACH RAIL**



NOTE:

1. Terminal ends require reflective sheeting provided by manufacturer per D & OM (VIA) or a Type 3 Object Marker (OM-3) in front of the terminal end.

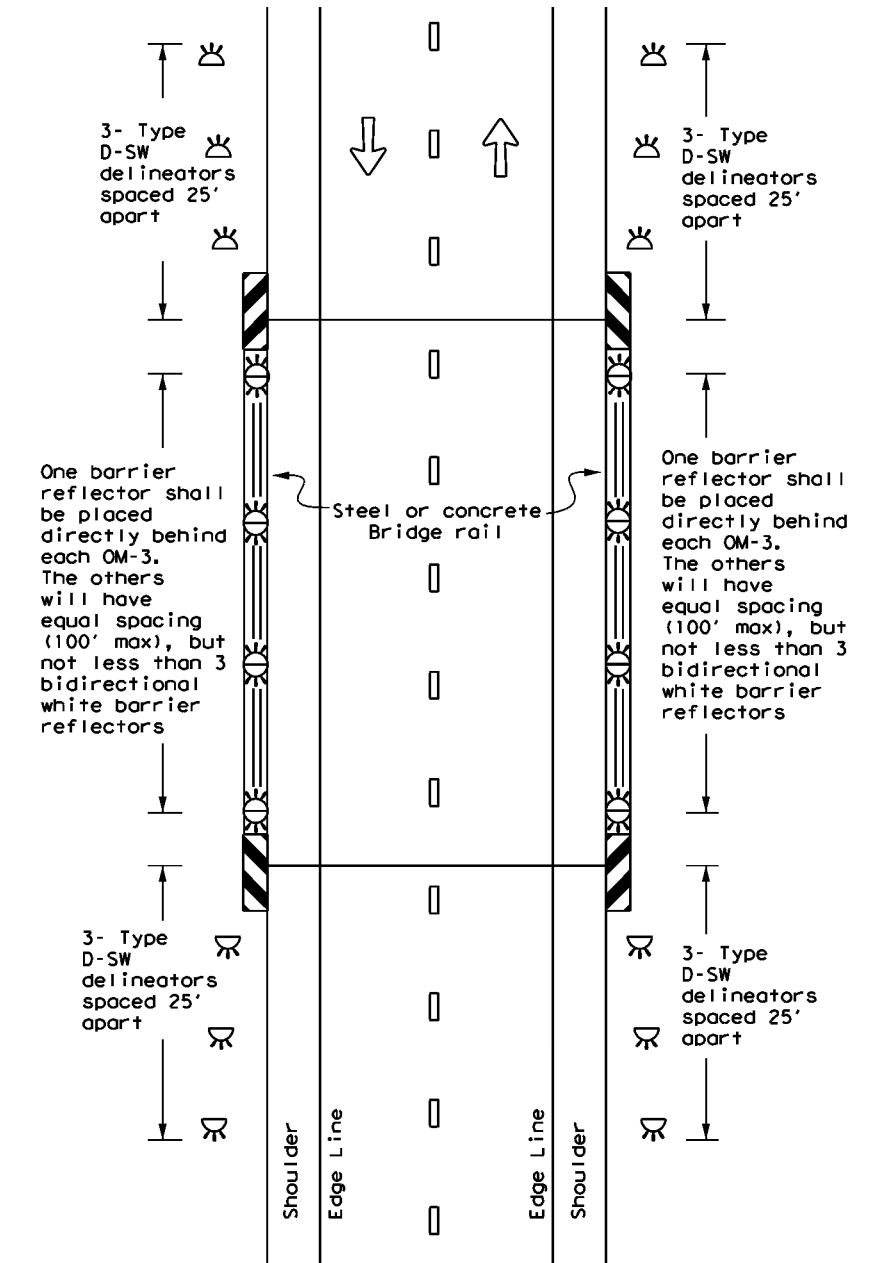
**TWO-WAY, TWO LANE ROADWAY
WITH METAL BEAM GUARD FENCE (MBGF)**



NOTE:

1. Terminal ends require reflective sheeting provided by manufacturer per D & OM (VIA) or a Type 3 Object Marker (OM-3) in front of the terminal end.

**TWO-WAY, TWO LANE ROADWAY
BRIDGE WITH NO APPROACH RAIL**



LEGEND

	Bidirectional Delineator
	Delineator
	OM-3
	OM-2
	Terminal End
	Traffic Flow



**DELINEATOR &
OBJECT MARKER
PLACEMENT DETAILS**

D & OM(5) - 20

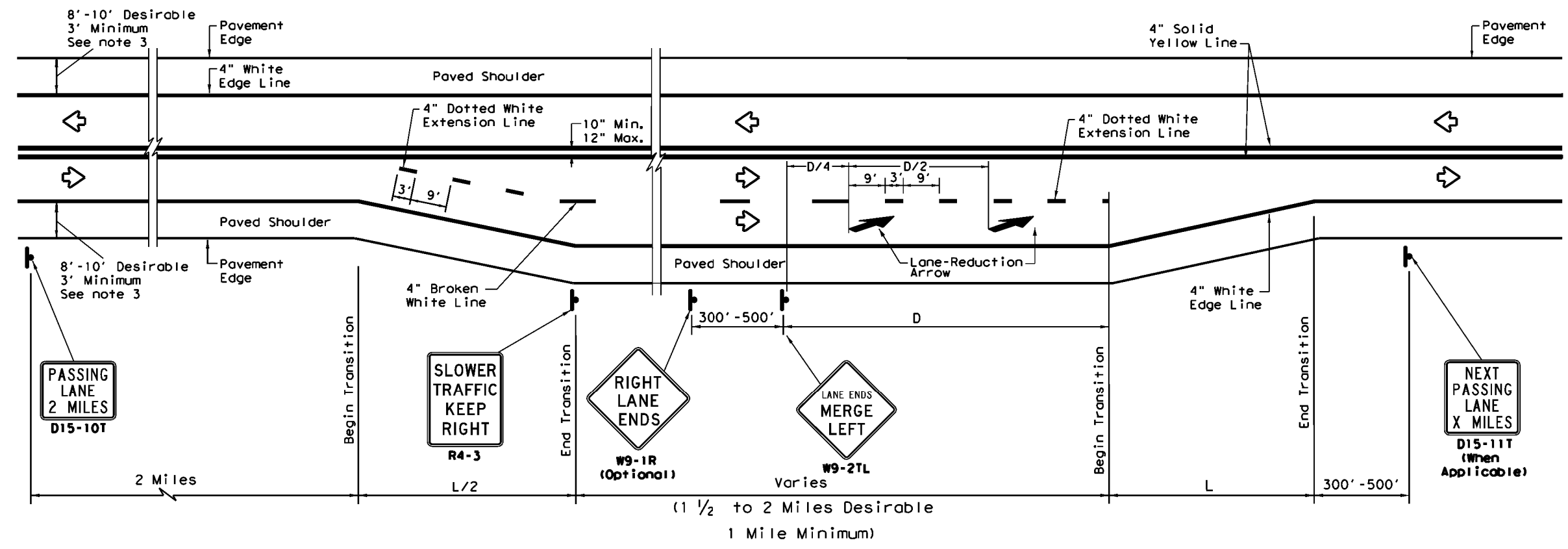
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© TxDOT August 2015	CONT: 0032	SECT: 01	JOB: 034	HIGHWAY: US 62/83
7-20	DIST: CHS	COUNTY: CHILDRRESS	SHEET NO. 82	

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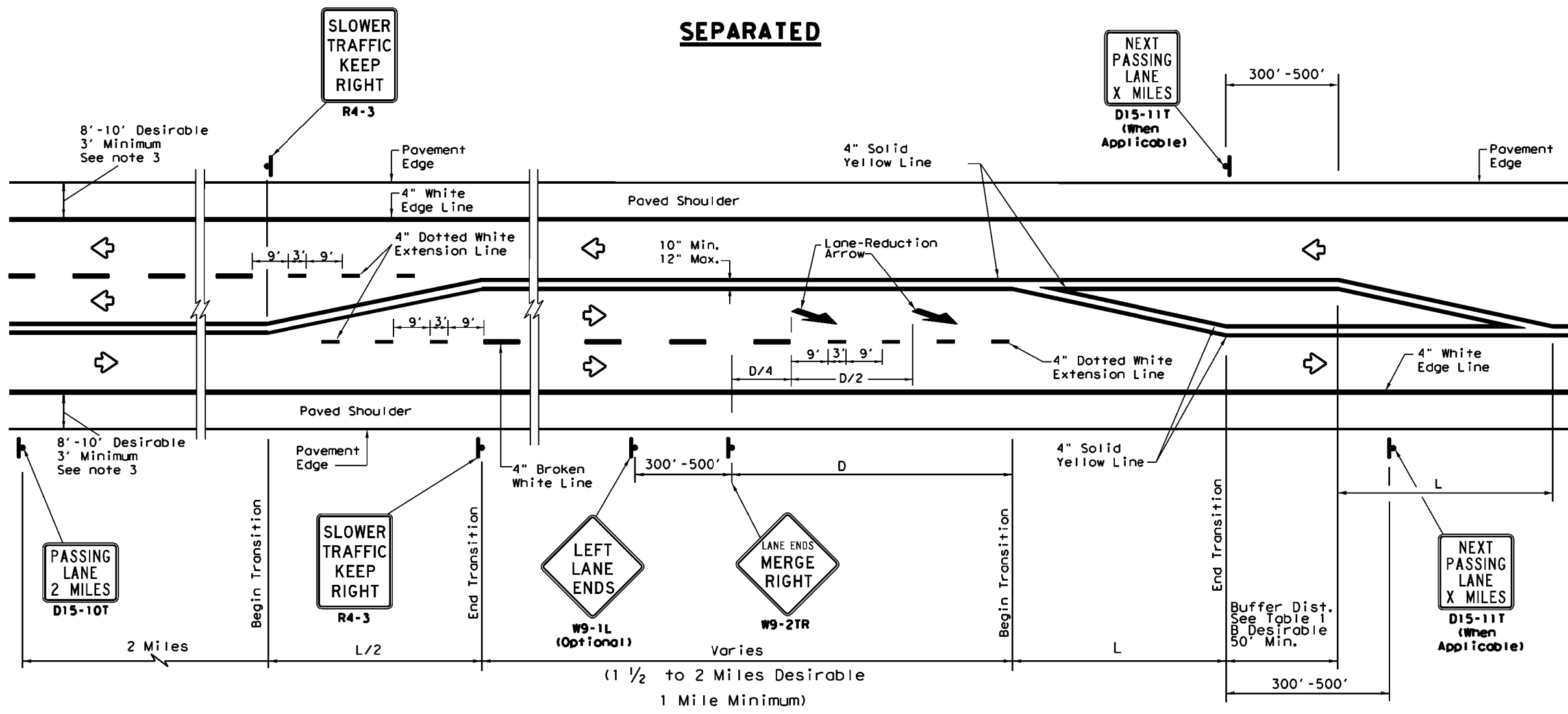
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SEPARATED



ALTERNATING

LEGEND	
	Sign
	Traffic Flow

TYPICAL TAPER LENGTH (L)	
Formula *	$L = WS$

* Transition length should be rounded up to nearest 5 foot increment.

L=Length of Transition (FT)
 W=Width of Offset (FT)
 S=Posted Speed (MPH)

EXAMPLE
 A 12 foot lane is added on a 70 mph roadway. The length of the transition should be:
 $L = 12 \times 70 = 840 \text{ ft}$

**TABLE 1
 ADVANCE WARNING SIGN
 DISTANCE (D)
 AND BUFFER DISTANCE (B)**

Posted Speed	D (FT)	B (FT)
40	670	305
45	775	360
50	885	425
55	990	495
60	1100	570
65	1200	645
70	1250	730
75	1350	820

GENERAL NOTES

- For minimum and desirable design details, see the Roadway Design Manual, Chapter 4, Section 6, Super 2 Highways.
- For Raised Pavement Markers (RPM) details, see Pavement Markings Standard sheet, PM(2). Note that RPMs are not recommended on the 4" dotted white extension lines.
- For rumble strip options available for the designed shoulder width, see rumble strip standard sheet RS(4).



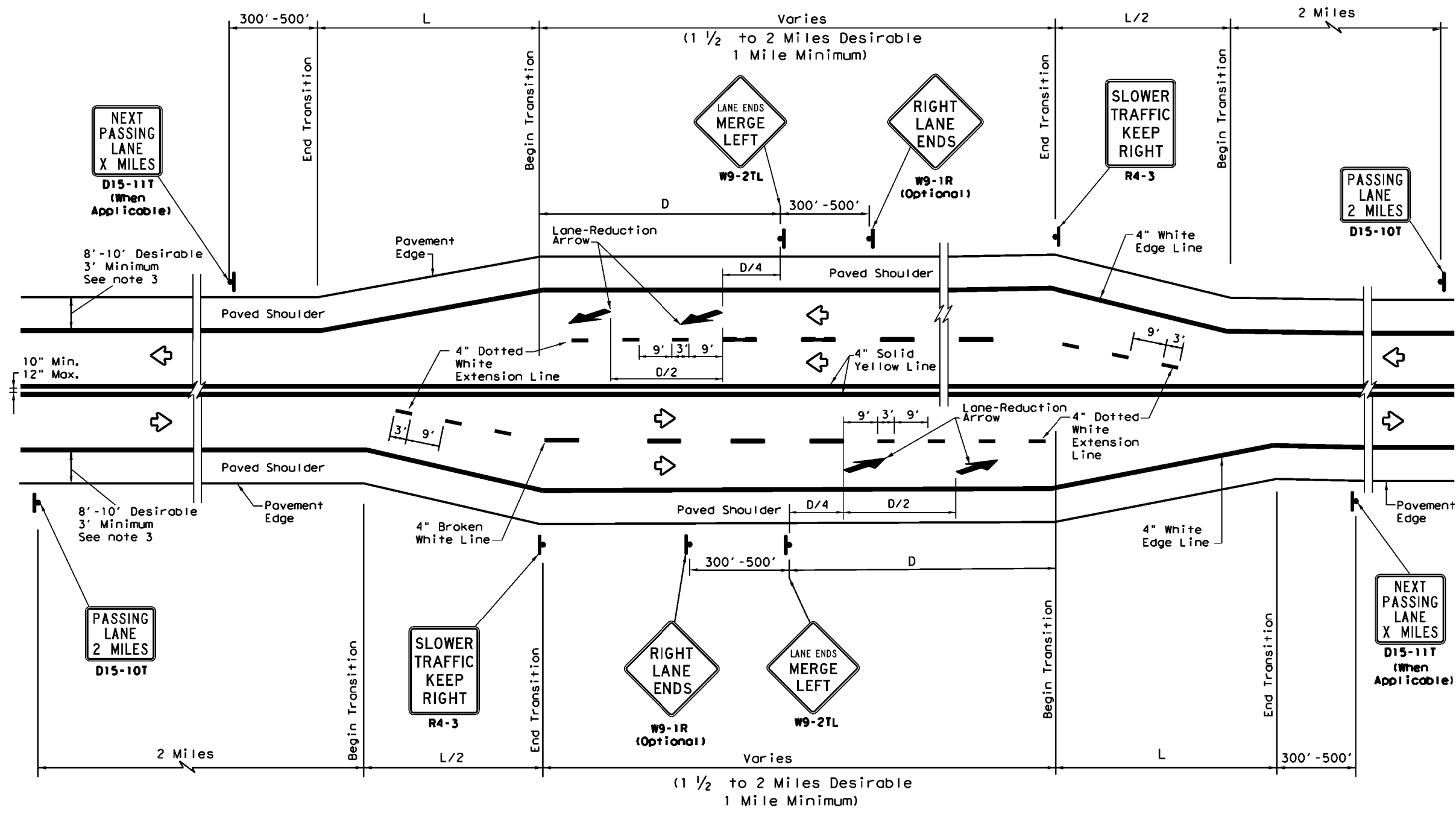
**TEXAS SUPER 2
 PASSING LANES**

TS2(PL-1)-18

FILE: ts2-1-18.dgn	DN:	CK1	DW:	CK1
© TxDOT May 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS	0032	01	034	US 62/83
2-12	DIST	COUNTY	SHEET NO.	
3-12	CHS	CHILDRESS	83	
3-18				

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SIDE BY SIDE PASSING LANES

LEGEND	
	Sign
	Traffic Flow

TYPICAL TAPER LENGTH (L)	
Formula *	L = WS

* Transition length should be rounded up to nearest 5 foot increment.

L=Length of Transition (FT)
 W=Width of Offset (FT)
 S=Posted Speed (MPH)

EXAMPLE
 A 12 foot lane is added on a 70 mph roadway. The length of the transition should be:
 L=12x70=840 ft

TABLE 1 ADVANCE WARNING SIGN DISTANCE (D)	
Posted Speed	D (FT)
40	670
45	775
50	885
55	990
60	1100
65	1200
70	1250
75	1350

- GENERAL NOTES**
- For minimum and desirable design details, see the Roadway Design Manual, Chapter 4, Section 6, Super 2 Highways.
 - For Raised Pavement Markers (RPM) details, see Pavement Markings Standard sheet, PM(2). Note that RPMs are not recommended on the 4" dotted white extension lines.
 - For rumble strip options available for the designed shoulder width, see rumble strip standard sheet RS(4).



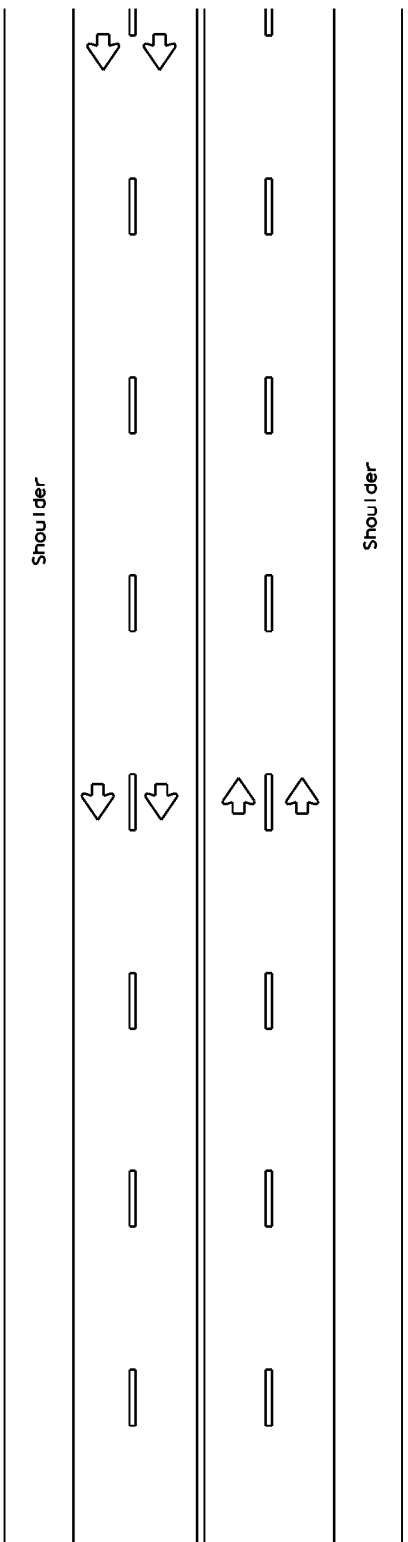
**TEXAS SUPER 2
PASSING LANES**

TS2(PL-2) - 18

FILE: ts2-2-18.dgn	DN:	CK1	DW:	CK1
© TxDOT May 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS	0032	01	034	US 62/83
2-12	DIST	COUNTY	SHEET NO.	
3-12	CHS	CHILDRESS	84	
3-18				

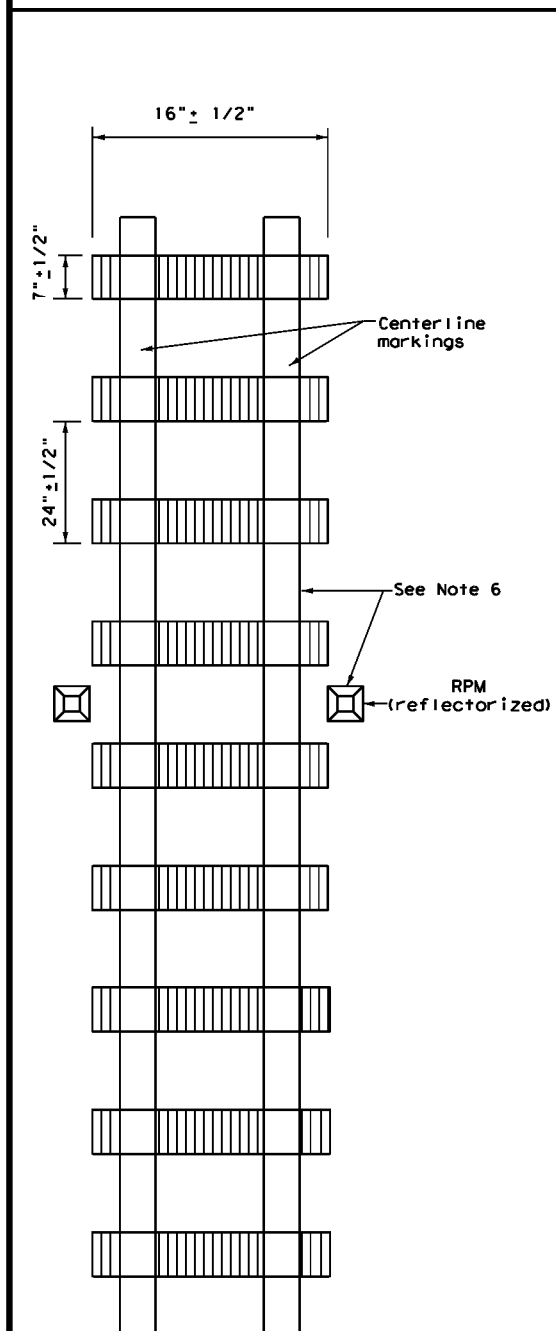
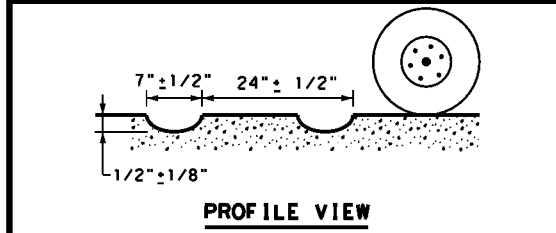
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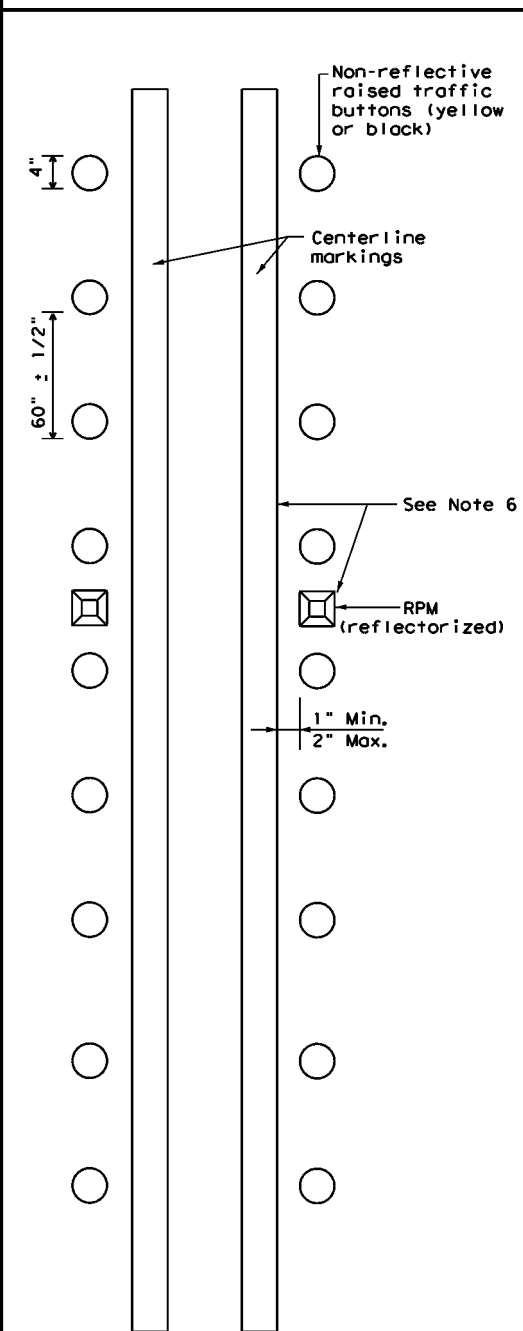
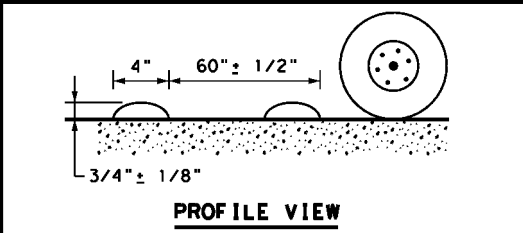


MULTILANE UNDIVIDED HIGHWAY WITH SHOULDER

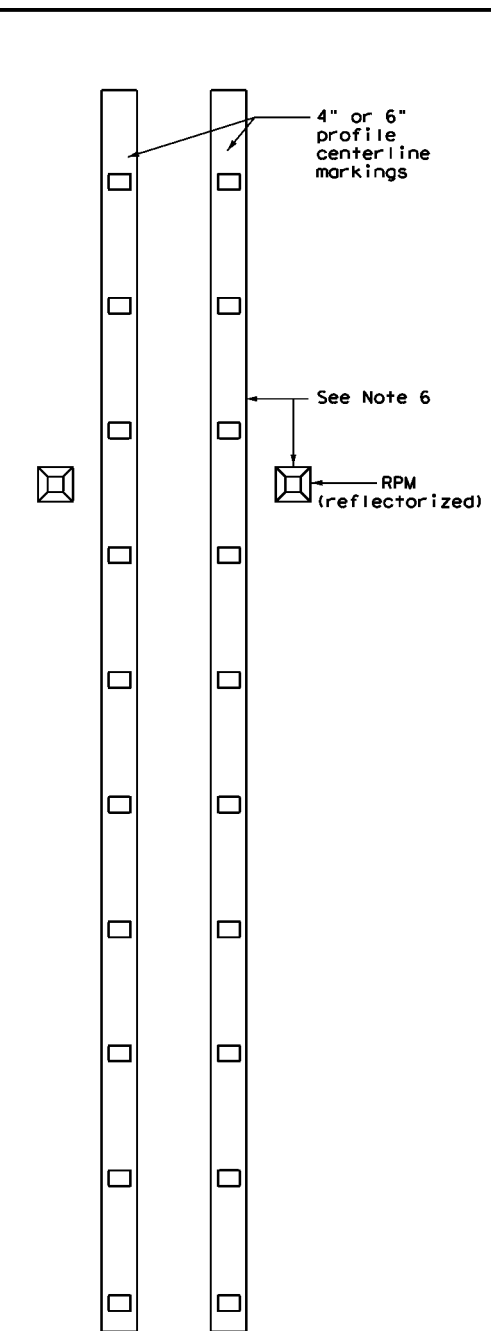
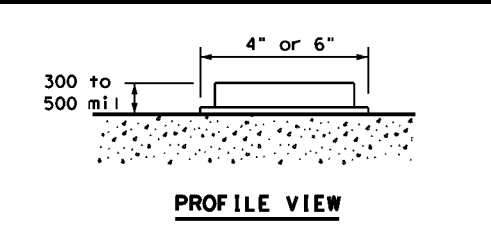
CENTERLINE RUMBLE STRIPS



PLAN VIEW OPTION 1
MILLED CENTERLINE RUMBLE STRIPS



PLAN VIEW OPTION 2
RAISED CENTERLINE RUMBLE STRIPS



PLAN VIEW OPTION 3
PROFILE CENTERLINE MARKINGS

- GENERAL NOTES**
1. This standard sheet provides guidelines for installing centerline rumble strips on multilane undivided highways.
 2. Centerline and edgeline rumble strips or profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.
 3. Milled rumble strips are preferred when adequate pavement depth is available. If pavement thickness is less than 2 inches, milled rumble strips shall not be used. Rumble strips shall not be milled or depressed into bridge decks.
 4. See dimensions for milled rumble strips. Other shapes and dimensions may be used if approved by the Traffic Operations Division.
 5. Breaks in milled centerline rumble strips shall occur at least 50 feet and no more than 150 feet in advance of bridges, railroad crossing, intersections and driveways with high usage of large trucks.
 6. Use Standard Sheet PM(2) for positioning, dimensioning, and spacing of all reflective raised pavement markers, pavement markings and profile markings.
 7. Consideration should be given to noise levels when centerline rumble strips are installed near residential areas, schools, churches, etc. A minimum of 3/8 inch depth of milled rumble strip may be considered in these areas.
 8. Pavement markings must be applied over milled centerline rumble strips for normal centerline spacing. For wider medians, specify in the plans the exact placement of the rumble strips. Place the rumble strips under each centerline marking or centered in the middle of the median.
- WHEN INSTALLING CENTERLINE RUMBLE STRIPS:**
9. Raised rumble strips consisting of non-reflective raised traffic buttons may be used. Non-reflective raised traffic buttons can be affixed to asphalt or concrete with bitumen or adhesives, as per manufacturer's recommendations.
 10. When using non-reflective raised traffic buttons as a centerline rumble strip, the button shall be placed adjacent to the pavement marking delineating the centerline. The color of the button should be yellow for a continuous no passing roadway. The button will be paid for under Item 672, "Raised Pavement Markers." Non-reflective traffic buttons must meet the requirements of DMS-4300.

- WHEN INSTALLING EDGELINE RUMBLE STRIPS WITH OR WITHOUT CENTERLINE RUMBLE STRIPS ON UNDIVIDED HIGHWAYS:**
11. See standard sheet RS(4).



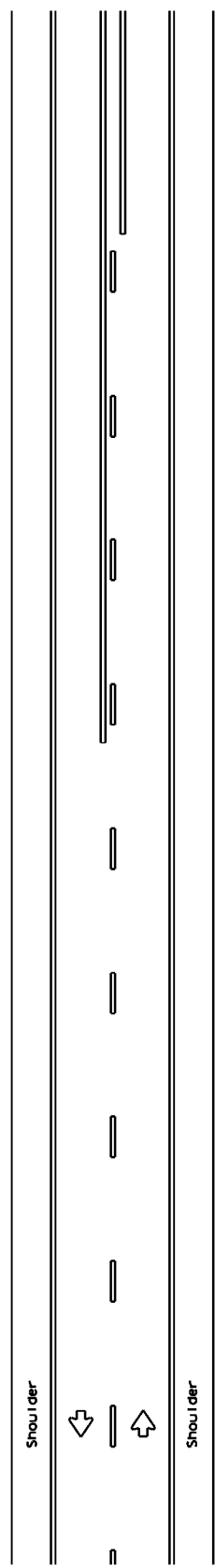
CENTERLINE RUMBLE STRIPS ON MULTILANE UNDIVIDED HIGHWAYS

RS(2) - 13

FILE: r's(2)-13.dgn	DN: TxDOT	CR: TxDOT	OW: TxDOT	CR: TxDOT
© TxDOT October 2013	CONT	SECT	JOB	HIGHWAY
REVISIONS	0032	01	034	US 62/83
	DIST	COUNTY	SHEET NO.	
	CHS	CHILDRESS	85	

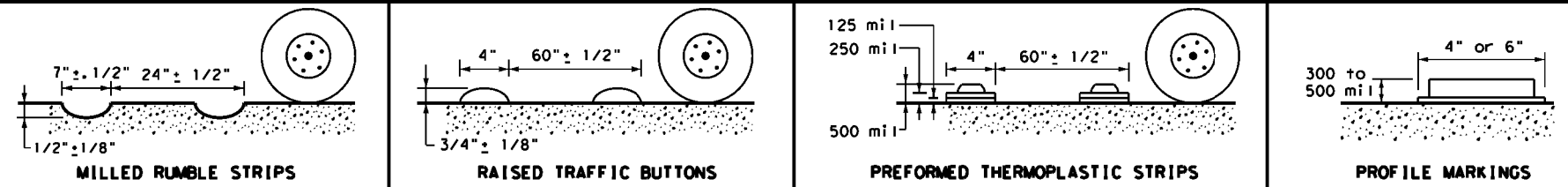
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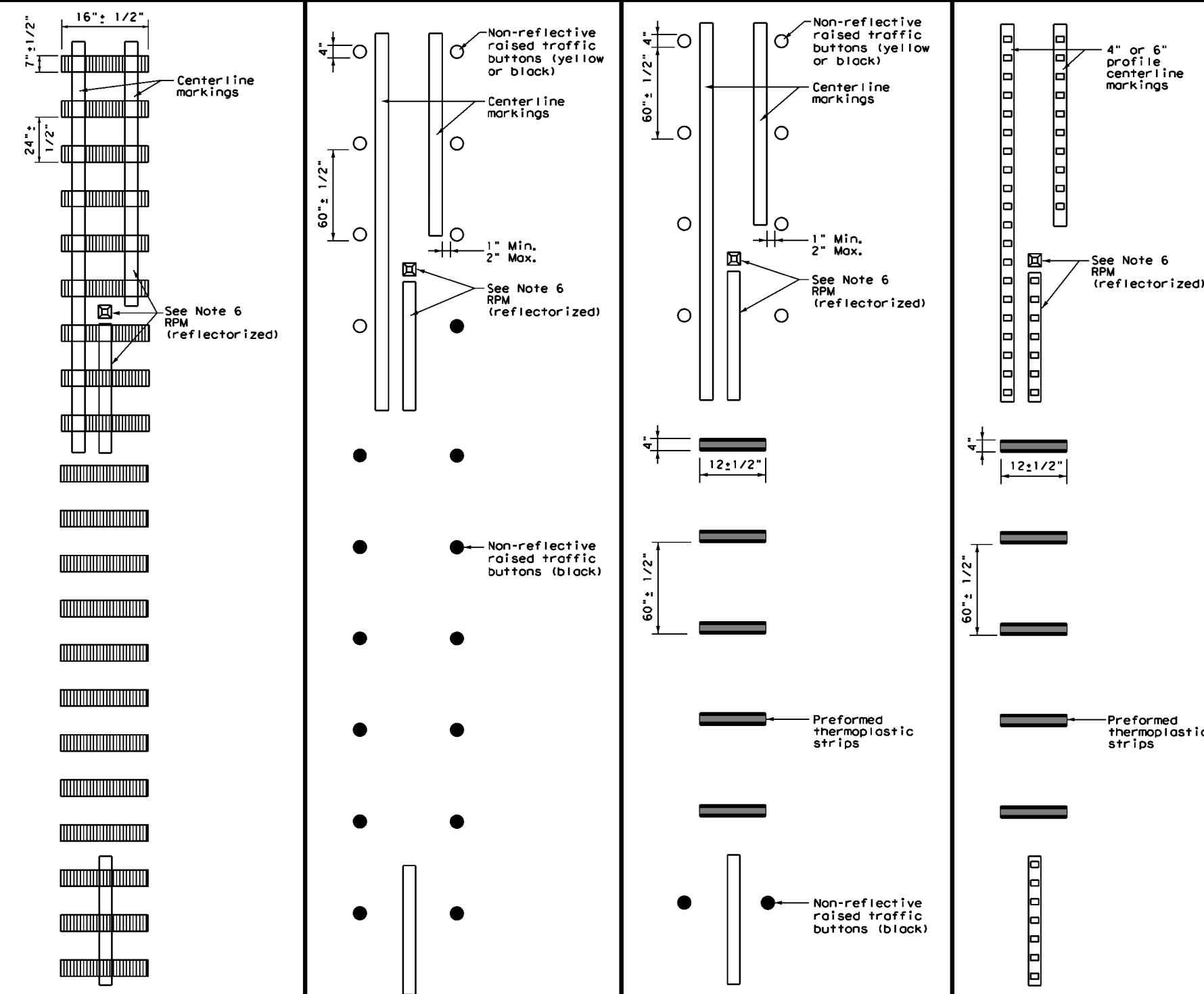


TWO LANE TWO-WAY ROADWAYS

CENTERLINE RUMBLE STRIPS



PROFILE VIEW



PLAN VIEW OPTION 1

MILLED CENTERLINE RUMBLE STRIPS

PLAN VIEW OPTION 2

RAISED CENTERLINE RUMBLE STRIPS

PLAN VIEW OPTION 3


RAISED CENTERLINE RUMBLE STRIPS AND PREFORMED THERMOPLASTIC STRIPS

PLAN VIEW OPTION 4

PROFILE CENTERLINE MARKINGS AND PREFORMED THERMOPLASTIC STRIPS

GENERAL NOTES

- This standard sheet provides guidelines for installing centerline rumble strips on two-lane highways with or without shoulders.
 - Centerline and edgeline rumble strips or profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.
 - Milled rumble strips are preferred when adequate pavement depth is available. If pavement thickness is less than 2 inches, milled rumble strips shall not be used. Rumble strips shall not be milled or depressed into bridge decks.
 - See dimensions for milled rumble strips. Other shapes and dimensions may be used if approved by the Traffic Operations Division.
 - Breaks in milled centerline rumble strips shall occur at least 50 feet and no more than 150 feet in advance of bridges, railroad crossings, intersections and driveways with high usage of large trucks.
 - Use Standard Sheet PM(2) for positioning, dimensioning, and spacing of all reflective raised pavement markers, and dimensions pavement markings and profile markings.
 - Consideration should be given to noise levels when centerline rumble strips are installed near residential areas, schools, churches, etc. A minimum of 3/8 inch depth of milled rumble strip may be considered in these areas.
 - Pavement markings must be applied over milled centerline rumble strips.
- WHEN INSTALLING CENTERLINE RUMBLE STRIPS:**
- Raised rumble strips consisting of non-reflective raised traffic buttons may be used. Non-reflective raised traffic buttons can be affixed to asphalt or concrete with bitumen or adhesives, as per manufacturer's recommendations.
 - When using non-reflective raised traffic buttons as a centerline rumble strip, the button shall be placed adjacent to the pavement marking delineating the centerline. The buttons will be paid for under Item 672, "Raised Pavement Markers." Non-reflective traffic buttons must meet the requirements of DMS-4300.
 - The color of the button should be yellow for a continuous no passing roadway. Black buttons should be used in areas where passing is allowed.
- WHEN INSTALLING EDGELINE RUMBLE STRIPS WITH OR WITHOUT CENTERLINE RUMBLE STRIPS ON UNDIVIDED HIGHWAYS:**
- See standard sheet RS(4).

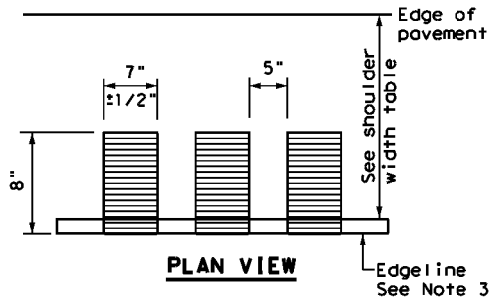

 Texas Department of Transportation
 Traffic Operations Division Standard

CENTERLINE RUMBLE STRIPS ON TWO LANE TWO-WAY HIGHWAYS
RS(3) - 13

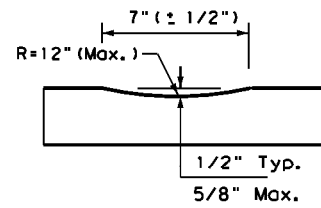
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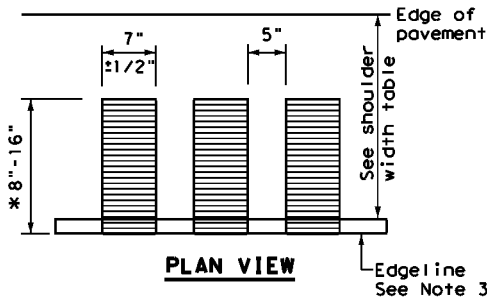


PLAN VIEW

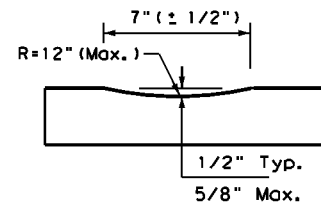


PROFILE VIEW
OPTION 1

CONTINUOUS MILLED
DEPRESSIONS
(Rumble Strips)

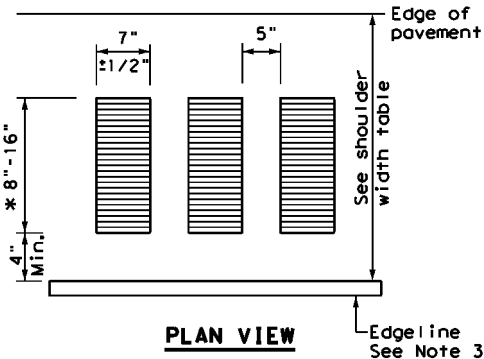


PLAN VIEW



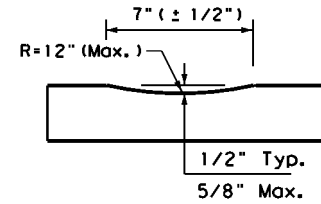
PROFILE VIEW
OPTION 2

CONTINUOUS MILLED
DEPRESSIONS
(Rumble Strips)



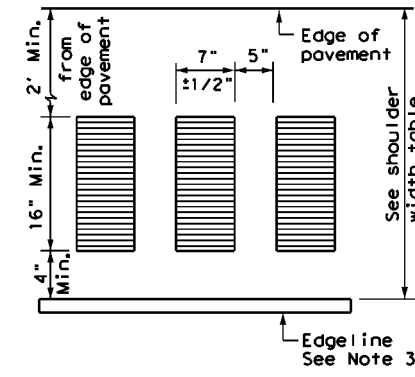
PLAN VIEW

* This distance may vary based on width of shoulder

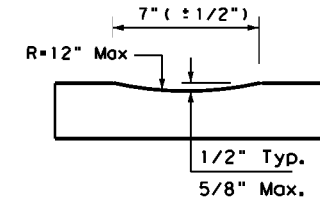


PROFILE VIEW
OPTION 3

CONTINUOUS MILLED
DEPRESSIONS
(Rumble Strips)

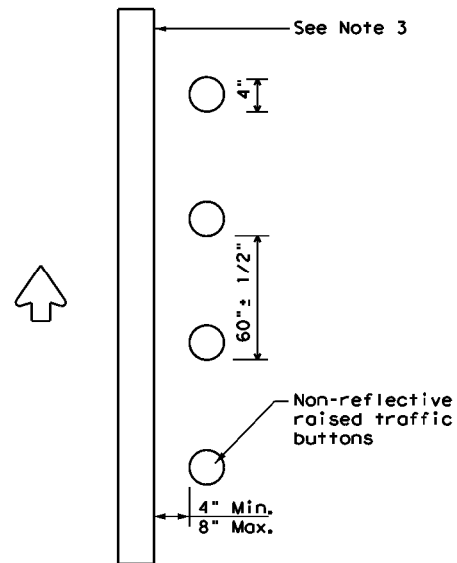


PLAN VIEW



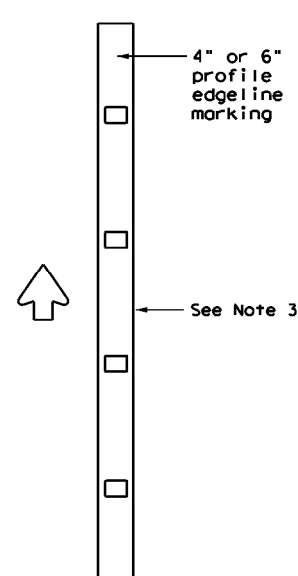
PROFILE VIEW
OPTION 4

CONTINUOUS MILLED
DEPRESSIONS
(Rumble Strips)



PLAN VIEW
OPTION 5

RAISED EDGELINE
RUMBLE STRIPS



PLAN VIEW
OPTION 6

PROFILE EDGELINE
MARKINGS

SHOULDER WIDTH TABLE		
EQUAL TO OR LESS THAN 2 FEET	GREATER THAN 2 FEET LESS THAN 4 FEET	EQUAL TO OR GREATER THAN 4 FEET
Option 1, 5 OR 6	Option 1, 2, 3 5 OR 6	Option 2, 4, 5 OR 6

GENERAL NOTES

- Rumble strips and profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.
- Milled rumble strips are preferred when adequate pavement depth is available. If pavement thickness is less than 2 inches, milled rumble strips shall not be used. Rumble strips shall not be milled or depressed into bridge decks.
- Use Standard Sheet PM(2) for positioning, dimensioning, and spacing of all reflective raised pavement markers, pavement markings, and profile markings.
- See the table below for determining what options may be used for edgeline rumble strips.

WHEN INSTALLING MILLED DEPRESSION EDGELINE RUMBLE STRIPS:

- See dimensions for milled rumble strips. Other shapes and dimensions may be used if approved by the Traffic Operations Division.
- Pavement markings can be applied over milled shoulder rumble strips to create an edgeline rumble stripe.
- Breaks in edgeline rumble strips shall occur at least 50 feet and no more than 150 feet in advance of bridges, railroad crossings, intersections and driveways with high usage of large trucks when installed on conventional highways.
- Rumble strips shall not be placed across exit or entrance ramps, acceleration and deceleration lanes, crossovers, gore areas or intersections with other roadways.
- Consideration should be given to noise levels when edgeline rumble strips are installed near residential areas, schools, churches, etc. A minimum of 3/8 inches depth of milled rumble strip may be considered in these areas.
- On roadways with high bicycle activity, consideration should be given before the installation of edgeline rumble strips. Things to consider include size of rumble strips, rumble strip material and location of rumble strips on the shoulder. If the designer determines that gaps are needed in the rumble strips due to bicycle use of the road, then follow the requirement shown in FHWA Technical Advisory T5040.39, or latest version. A detail of the spacing shall be included in the plans.

WHEN INSTALLING RAISED OR PROFILE EDGELINE RUMBLE STRIPS:

- Raised rumble strips consisting of non-reflective raised traffic buttons may be used. Non-reflective raised traffic buttons can be affixed to asphalt or concrete with bitumen or adhesives, as per the manufacturer's recommendations.
- Non-reflective traffic buttons shall be placed adjacent to the pavement marking delineating the edgeline when used as a rumble strip. The color of the button should match the color of the adjacent edgeline marking (white or yellow). The buttons will be paid for under Item 672, "Raised Pavement Markers." Non-reflective traffic buttons must meet the requirements of DMS-4300.
- Non-reflective traffic buttons shall not be placed across exit or entrance ramps, acceleration and deceleration lanes, crossovers, gore areas or intersections with other roadways.
- Breaks in edgeline rumble strips using raised traffic buttons shall occur at least 50 feet and no more than 150 feet in advance of bridges, railroad crossing, intersections and driveways with high usage of large trucks when installed on conventional highways.
- The minimum distance between the edgeline and the buttons should be used if the shoulder is less than 8 feet in width.
- Raised profile thermoplastic markings used as edgelines may substitute for buttons.

		Traffic Operations Division Standard	
EDGELINE RUMBLE STRIPS ON UNDIVIDED OR TWO LANE HIGHWAYS RS(4)-13			
FILE: rs(4)-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT
©TxDOT October 2013	CONT: 0032	SECT: 01	JOB: 034
REVISIONS			US 62/83
	DIST: CHS	COUNTY: CHILDRESS	SHEET NO.: 87

DATE: 7/7/2022 11:38:50 AM
FILE: I:\CHSD\PROJECTS\CHILDRESS\0032-01-034 (US 62 & 83)\Plan Review\90_95_Percent\ENV\DGN\sw3p_8-17-17.dgn

SITE DESCRIPTION

PROJECT LIMITS: FROM COTTLE C/L, NORTH TO FM 164

PROJECT DESCRIPTION: FOR THE CONSTRUCTION OF ASPHALTIC CONCRETE PAVEMENT OVERLAY CONSISTING OF HOTMIX

MAJOR SOIL DISTURBING ACTIVITIES: BACKFILL PAVEMENT EDGES.

TOTAL PROJECT AREA: 72.5 ACRES

TOTAL AREA TO BE DISTURBED: 25.95 ACRES

WEIGHTED RUNOFF COEFFICIENT (AFTER CONSTRUCTION):

EXISTING CONDITION OF SOIL & VEGETATIVE COVER AND % OF EXISTING VEGETATIVE COVER: THE PROJECT LIMITS ARE PRIMARILY COMPRISED OF LOAM TYPE SOILS WITH A 0% TO 20% SLOPE. THESE ARE WELL-DRAINED SOILS. THE EXISTING VEGETATIVE COVER IS APPROXIMATELY 80% WITH NATIVE GRASSES.

NAME OF RECEIVING WATERS: SEGMENT ID: 0220, UPPER PEASE/NORTH FORK PEASE RIVER RED RIVER BASIN

EROSION AND SEDIMENT CONTROLS

SOIL STABILIZATION PRACTICES:

- TEMPORARY SEEDING
- PERMANENT PLANTING, SODDING, OR SEEDING
- MULCHING
- SOIL RETENTION BLANKET
- BUFFER ZONES
- PRESERVATION OF NATURAL RESOURCES

OTHER: STABILIZATION OF DISTURBED AREAS MUST BE INITIATED IMMEDIATELY WHENEVER CONSTRUCTION HAS CEASED (TEMPORARILY OR PERMANENTLY) AND WILL NOT RESUME WITHIN 14 DAYS.

STRUCTURAL PRACTICES:

- SILT FENCES
- EROSION CONTROL LOGS
- ROCK BERMS
- DIVERSION, INTERCEPTOR, OR PERIMETER DIKES
- DIVERSION, INTERCEPTOR, OR PERIMETER SWALES
- DIVERSION DIKE AND SWALE COMBINATIONS
- PIPE SLOPE DRAINS
- PAVED FLUMES
- ROCK BEDDING AT CONSTRUCTION EXIT
- TIMBER MATTING AT CONSTRUCTION EXIT
- CHANNEL LINERS
- SEDIMENT TRAPS
- SEDIMENT BASINS
- STORM INLET SEDIMENT TRAP
- STONE OUTLET STRUCTURES
- CURBS AND GUTTERS
- STORM SEWERS
- VELOCITY CONTROL DEVICES

OTHER: THE LOCATION OF EACH STRUCTURAL PRACTICE NOTED ABOVE WILL BE DETERMINED BY THE ENGINEER UNLESS OTHERWISE NOTED IN THE PLANS AND AS CONTRACTOR'S OPERATIONS REQUIRE THE USE OF BEST MANAGEMENT PRACTICES.

EROSION AND SEDIMENT CONTROLS

NARRATIVE - SEQUENCE OF CONSTRUCTION (STORM WATER MANAGEMENT) ACTIVITIES:

- The order of activities will be as follows:
1. SET UP TCP AND EROSION CONTROL DEVICES
 2. ACP OVERLAY
 3. BACKFILL PAVEMENT EDGES
 4. FINAL CLEAN UP

STORM WATER MANAGEMENT: STORM WATER DRAINAGE IS PROVIDED BY DITCHES RUNNING ADJACENT TO ROADWAY.

OTHER EROSION AND SEDIMENT CONTROLS:

MAINTENANCE: All erosion and sediment controls will be maintained in good working order. If a repair is necessary, it will be done at the earliest date possible, but no later than 7 calendar days after the surrounding exposed ground has dried sufficiently to prevent further damage from heavy equipment. The areas adjacent to creeks and drainageways shall have priority followed by devices protecting storm sewer inlets.

INSPECTION: An inspection will be performed by a TxDOT inspector every fourteen (14) calendar days as well as after every half inch (1/2") of rain (as recorded in a rain gauge to be located at the project site). An inspection and maintenance report will be made for each inspection. Based on the inspection results, the controls shall be revised per the inspection report within seven (7) calendar days of the inspection. All changes made as a result of the inspection shall be updated on the SW3P.

WASTE MATERIALS: All waste material will be removed from project and disposed of as directed by the Engineer. No construction waste material will be buried on site.

HAZARDOUS WASTE (INCLUDING SPILL REPORTING): At a minimum, any products in the following categories are considered to be hazardous: Paints, Acids for cleaning masonry surfaces, Cleaning Solvents, Asphalt products, Chemical additives for soil stabilization, or Concrete curing compounds and additives. In the event of a spill which may be hazardous, the Spill Coordinator should be contacted immediately.

SANITARY WASTE: All sanitary waste will be collected from the portable units as necessary or as required by local regulation by a licensed sanitary waste management contractor.

OFFSITE VEHICLE TRACKING:

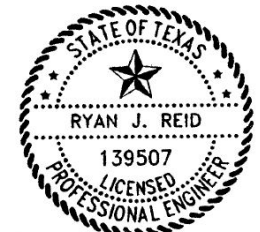
- HAUL ROADS DAMPENED FOR DUST CONTROL
- LOADED HAUL TRUCKS TO BE COVERED WITH TARPULIN
- EXCESS DIRT ON ROAD REMOVED DAILY
- STABILIZED CONSTRUCTION ENTRANCE

OTHER:

REMARKS: Disposal areas, stockpiles, and haul roads shall be constructed in a manner that will minimize and control the amount of sediment that may enter receiving waters. Disposal areas shall not be located in any wetland, waterbody or streambed. Construction staging areas and vehicle maintenance areas shall be constructed by the Contractor, off the R.O.W. in a manner to minimize the runoff of pollutants. All waterways shall be cleared, as soon as practicable, of temporary embankment, temporary bridges, matting, falsework, piling, debris or other obstructions placed during construction operations that are not a part of the finished work.

JOB SPECIFIC:

NOTES:



Ryan J. Reid P.E.
08/08/2022

TxDOT STORM WATER POLLUTION PREVENTION PLAN (SW3P)



CONT	SECT	JOB	HIGHWAY
0032	01	034	US 62/83
DIST	COUNTY	SHEET NO.	
CHS	CHILDRESS	88	

DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of units or for the accuracy of the information provided. TxDOT is not responsible for any errors or omissions in this document.

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I. STORMWATER POLLUTION PREVENTION-CLEAN WATER ACT SECTION 402

TPDES TXR 150000: Stormwater Discharge Permit or Construction General Permit 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.

List MS4 Operator(s) that may receive discharges from this project. They may need to be notified prior to construction activities.

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- No Action Required Required Action

- Action No.
- Prevent stormwater pollution by controlling erosion and sedimentation in accordance with TPDES Permit TXR 150000
 - Comply with the SW3P and revise when necessary to control pollution or 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's) increase disturbed soil area to 5 acres or more, submit NOI to TCEQ and the Engineer.

II. WORK IN OR NEAR STREAMS, WATERBODIES AND WETLANDS CLEAN WATER ACT SECTIONS 401 AND 404

USACE Permit required for filling, dredging, excavating or other work in any water bodies, rivers, creeks, streams, wetlands or wet areas. The Contractor must adhere to all of the terms and conditions associated with the following permit(s):

- No Permit Required
- Nationwide Permit 14 - PCN not Required (less than 1/10th acre waters or wetlands affected)
- Nationwide Permit 14 - PCN Required (1/10 to <1/2 acre, 1/3 in tidal waters)
- Individual 404 Permit Required
- Other Nationwide Permit Required: NWP# _____

Required Actions: List waters of the US permit applies to, location in project and check Best Management Practices planned to control erosion, sedimentation and post-project TSS.

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The elevation of the ordinary high water marks of any areas requiring work to be performed in the waters of the US requiring the use of a nationwide permit can be found on the Bridge Layouts.

Best Management Practices:

Erosion	Sedimentation	Post-Construction TSS
<input type="checkbox"/> Temporary Vegetation	<input type="checkbox"/> Silt Fence	<input type="checkbox"/> Vegetative Filter Strips
<input type="checkbox"/> Blankets/Matting	<input type="checkbox"/> Rock Berm	<input type="checkbox"/> Retention/Irrigation Systems
<input type="checkbox"/> Mulch	<input type="checkbox"/> Erosion Control Logs	<input type="checkbox"/> Extended Detention Basin
<input type="checkbox"/> Sodding	<input type="checkbox"/> Sand Bag Berm	<input type="checkbox"/> Constructed Wetlands
<input type="checkbox"/> Interceptor Swale	<input type="checkbox"/> Straw Bale Dike	<input type="checkbox"/> Wet Basin
<input type="checkbox"/> Diversion Dike	<input type="checkbox"/> Brush Berms	<input type="checkbox"/> Erosion Control Compost
<input type="checkbox"/> Mulch Filter Berm and Socks	<input type="checkbox"/> Erosion Control Compost	<input type="checkbox"/> Mulch Filter Berm and Socks
<input type="checkbox"/> Compost Filter Berm and Socks	<input type="checkbox"/> Mulch Filter Berm and Socks	<input type="checkbox"/> Compost Filter Berm and Socks
	<input type="checkbox"/> Compost Filter Berm and Socks	<input checked="" type="checkbox"/> Vegetation Lined Ditches
	<input type="checkbox"/> Stone Outlet Sediment Traps	<input type="checkbox"/> Sand Filter Systems
	<input type="checkbox"/> Sediment Basins	<input type="checkbox"/> Grassy Swales

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 immediate area and contact the Engineer immediately.

- No Action Required Required Action

Action No.

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IV. VEGETATION RESOURCES

Preserve native vegetation to the extent practical. Contractor must adhere to Construction Specification Requirements Specs 162, 164, 192, 193, 506, 730, 751, 752 in order to comply with requirements for invasive species, beneficial landscaping, and tree/brush removal commitments.

- No Action Required Required Action

Action No.

- Minimize impacts to existing vegetation in the project area; impacted vegetation should be replaced with in-kind native vegetation. Trim trees instead of removal (when possible). Re-vegetation proposed for the project would be in compliance with Executive Order 13112 on Invasive Species and the Executive Memorandum on Beneficial Landscapes.
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V. FEDERAL LISTED, PROPOSED THREATENED, ENDANGERED SPECIES, CRITICAL HABITAT, STATE LISTED SPECIES, CANDIDATE SPECIES AND MIGRATORY BIRDS.

- No Action Required Required Action

Action No.

- MIGRATORY BIRDS-DO NOT DISTURB, DESTROY, OR REMOVE ACTIVE NESTS INCLUDING NESTING BIRDS DURING THE NESTING SEASON. AVOID IMPACTS TO BIRDS, THEIR EGGS, AND THEIR YOUNG. AVOID THE REMOVAL OF UNOCCUPIED, INACTIVE NESTS, AS PRACTICALBE.

If any of the listed species are observed, cease work in the immediate area, do not disturb species or habitat and contact the Engineer immediately. The work may not remove active nests from bridges and other structures during nesting season of the birds associated with the nests. If caves or sinkholes are discovered, cease work in the immediate area, and contact the Engineer immediately.

LIST OF ABBREVIATIONS

BMP: Best Management Practice	SPCC: Spill Prevention Control and Countermeasure
CGP: Construction General Permit	SW3P: Storm Water Pollution Prevention Plan
DSHS: Texas Department of State Health Services	PCN: Pre-Construction Notification
FHWA: Federal Highway Administration	PSL: Project Specific Location
MOA: Memorandum of Agreement	TCEQ: Texas Commission on Environmental Quality
MOU: Memorandum of Understanding	TPDES: Texas Pollutant Discharge Elimination System
MS4: Municipal Separate Stormwater Sewer System	TPWD: Texas Parks and Wildlife Department
MBTA: Migratory Bird Treaty Act	TxDOT: Texas Department of Transportation
NOT: Notice of Termination	T&E: Threatened and Endangered Species
NWP: Nationwide Permit	USACE: U.S. Army Corps of Engineers
NOI: Notice of Intent	USFWS: U.S. Fish and Wildlife Service

VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES

General (applies to all projects):

Comply with the Hazard Communication Act (the Act) for personnel who will be working with hazardous materials by conducting safety meetings prior to beginning construction and making workers aware of potential hazards in the workplace. Ensure that all workers are provided with personal protective equipment appropriate for any hazardous materials used. Obtain and keep on-site Material Safety Data Sheets (MSDS) for all hazardous products used on the project, which may include, but are not limited to the following categories: Paints, acids, solvents, asphalt products, chemical additives, fuels and concrete curing compounds or additives. Provide protected storage, off bare ground and covered, for products which may be hazardous. Maintain product labelling as required by the Act. Maintain an adequate supply of on-site spill response materials, as indicated in the MSDS. In the event of a spill, take actions to mitigate the spill as indicated in the MSDS, in accordance with safe work practices, and contact the District Spill Coordinator immediately. The Contractor shall be responsible for the proper containment and cleanup of all product spills.

Contact the Engineer if any of the following are detected:

- Dead or distressed vegetation (not identified as normal)
- Trash piles, drums, canister, barrels, etc.
- Undesirable smells or odors
- Evidence of leaching or seepage of substances

Does the project involve any bridge class structure rehabilitation or replacements (bridge class structures not including box culverts)?

- Yes No

If "No", then no further action is required. If "Yes", then TxDOT is responsible for completing asbestos assessment/inspection.

Are the results of the asbestos inspection positive (is asbestos present)?

- Yes No

If "Yes", then TxDOT must retain a DSHS licensed asbestos consultant to assist with the notification, develop abatement/mitigation procedures, and perform management activities as necessary. The notification form to DSHS must be postmarked at least 15 working days prior to scheduled demolition.

If "No", then TxDOT is still required to notify DSHS 15 working days prior to any scheduled demolition.

In either case, the Contractor is responsible for providing the date(s) for abatement activities and/or demolition with careful coordination between the Engineer and asbestos consultant in order to minimize construction delays and subsequent claims.

Any other evidence indicating possible hazardous materials or contamination discovered on site. Hazardous Materials or Contamination Issues Specific to this Project:

- No Action Required Required Action

Action No.

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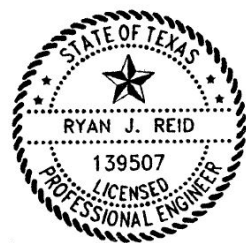
VII. OTHER ENVIRONMENTAL ISSUES

(includes regional issues such as Edwards Aquifer District, etc.)

- No Action Required Required Action

Action No.

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2.
3.



Ryan J. Reid P.E.
08/08/2022

		Design Division Standard	
ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS EPIC			
FILE: epic.dgn	DN: TxDOT	CR: RG	OW: VP
©TxDOT: February 2015	CONT	SECT	JOB
12-12-2011 1051 REVISIONS	0032	01	034
05-07-14 ADDED NOTE SECTION IV.	DIST	COUNTY	SHEET NO.
01-23-2015 SECTION I CHANGED ITEM 1122 TO ITEM 506, ADDED GRASSY SWALES.	CHS	CHILDRESS	89