FED. RD. DIV. NO.	PROJECT NO.			SHEET NO.
6	C 228-4-43, Etc.			1
STATE	DIST.	COUNTY		
TEXAS	ODA	ANDREWS		
CONT.	SECT.	JOB	HIGHWAY NO.	
0228	04	043, ETC.	US 385, ETC.	

INDEX OF SHEETS

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STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

STATE PROJECT NO. C 228-4-43 & C 354-6-29

NET LENGTH OF PROJECT =	CSJ 0228-04-043: 72,529.40 FT =	13.736 MI
	CSJ 0354-06-029: 2,027.00 FT =	0.384 MI
TOTAL =	74,556.40 FT =	14.120 MI

ANDREWS COUNTY
US 385 & SH 115

US 385: FROM AVENUE K TO GAINES COUNTY LINE
SH 115: FROM 0.4 MI. WEST OF SH 176 TO SH 176

FOR THE CONSTRUCTON OF REHABILITATION OF EXISTING ROAD.

CONSISTING OF GRADING, FLEX BASE, SP-B, FDR EMULSION TREATMENT, SMAR-F, CABLE BARRIER, SIGNING, AND PAVEMENT MARKINGS

FUNCTIONAL CLASSIFICATION : US 385 PRINCIPAL ARTERIAL
SH 115 PRINCIPAL ARTERIAL

DESIGN SPEED : US 385 = 50 MPH (RURAL)
= 30 MPH (URBAN)
SH 115 = 30 MPH (URBAN)

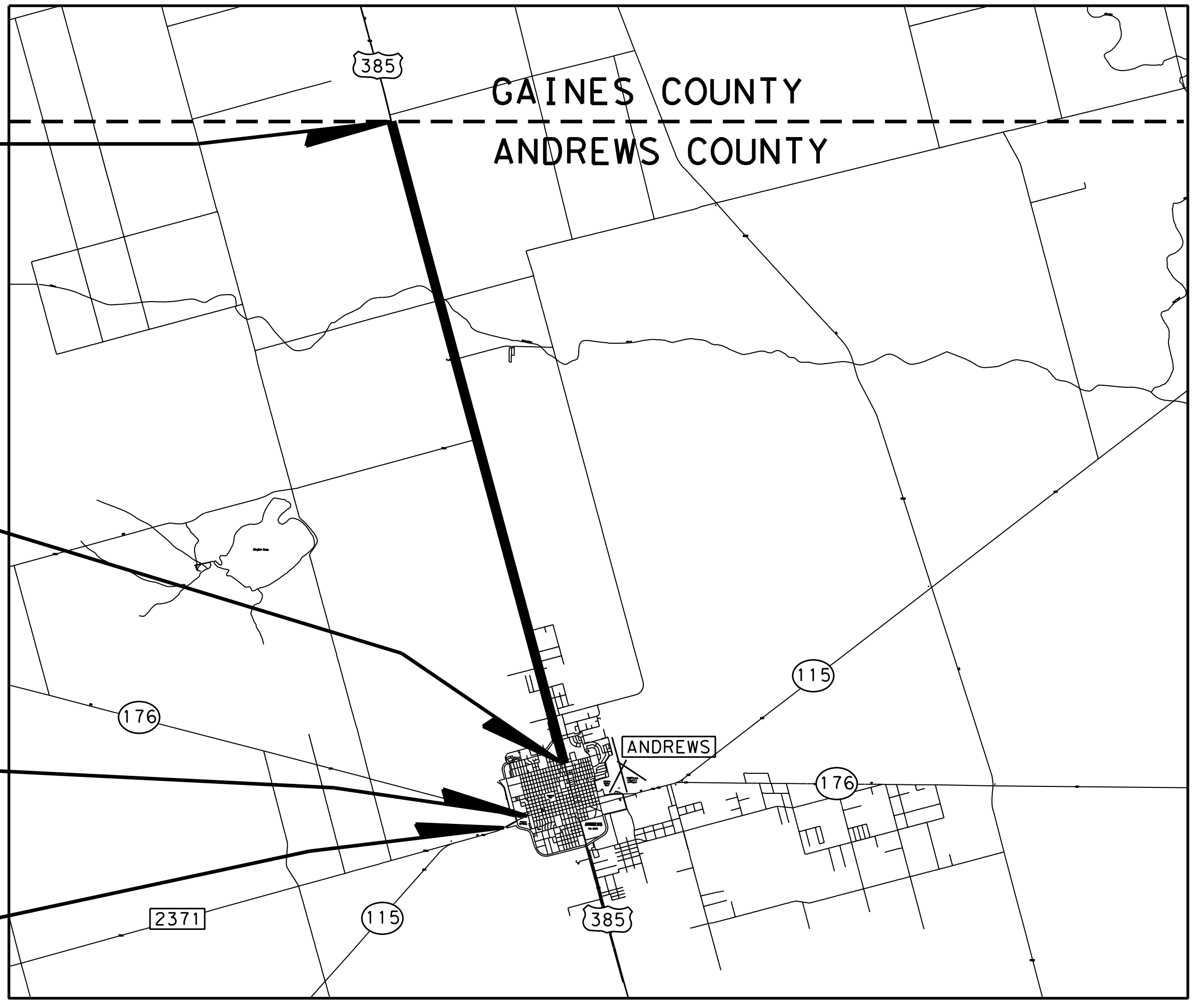
TRAFFIC DATA : US 385 (2018 ADT) = 6,905-10,894 VPD
(2022 ADT) = 11,800 VPD
(2042 ADT) = 17,000 VPD
12.4% TRUCKS
SH 115 (2018 ADT) = 2241 VPD
42.9% TRUCKS

US 385
END PROJECT C 228-4-43
STA. 726+29.40
CSJ: 0228-04-043
= REF.MRKR. 306+0.002

US 385
BEGIN PROJECT C 228-4-43
STA. 1+00.00
CSJ: 0228-04-043
= REF.MRKR. 320-0.110

SH 115
END PROJECT C 354-6-29
STA. 1281+45.00
CSJ: 0354-06-029
= REF.MRKR. 326-0.352

SH 115
BEGIN PROJECT C 354-6-29
STA. 1261+18.00
CSJ: 0354-06-029
= REF.MRKR. 326+0.034



VICINITY MAP
NO EXCEPTIONS
NO EQUATIONS
NO RAILROAD CROSSINGS

0 1 2 3 4 MILES

LOCHNER
5767 Eagles Nest Blvd
Tyler, Texas 75703
TBPE Firm Reg. No. 10488

SUBMITTED FOR LETTING: DATE: 09/25/2020
JOHN B. GOODWIN, P.E.
PROJECT MANAGER, LOCHNER

Texas Department of Transportation

RECOMMENDED FOR LETTING: DATE: 9-30-2020
AREA ENGINEER

RECOMMENDED FOR LETTING: DATE: 10/1/2020
DocuSigned by: Robert Ornelas, P.E.
3811713A8D... DIRECTOR OF TPD

APPROVED FOR LETTING: DATE: 10/1/2020
DocuSigned by:
39AB22B... 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: SPECIAL LABOR PROVISIONS FOR STATE PROJECTS (000---008).

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DATE: 9/25/2020 TIME: 2:15:27 PM
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INDEX OF SHEETS

THE STANDARD SHEETS SPECIFICALLY IDENTIFIED WITH A " * " HAVE BEEN ISSUED BY ME AND ARE APPLICABLE TO THIS PROJECT.

THE STANDARD SHEETS SPECIFICALLY IDENTIFIED WITH A " * " HAVE BEEN ISSUED BY ME AND ARE APPLICABLE TO THIS PROJECT.

DocuSigned by: [signature], P.E. 12/2/2021

7CFFCC37BD5945C...

FRED G. HERRERA, PE $DATE$

STATE OF TEXAS
FRED G. HERRERA
95706
LICENSED
PROFESSIONAL ENGINEER

INDEX OF SHEETS

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LOCHNER
TBPE Firm Reg. No. 10488

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STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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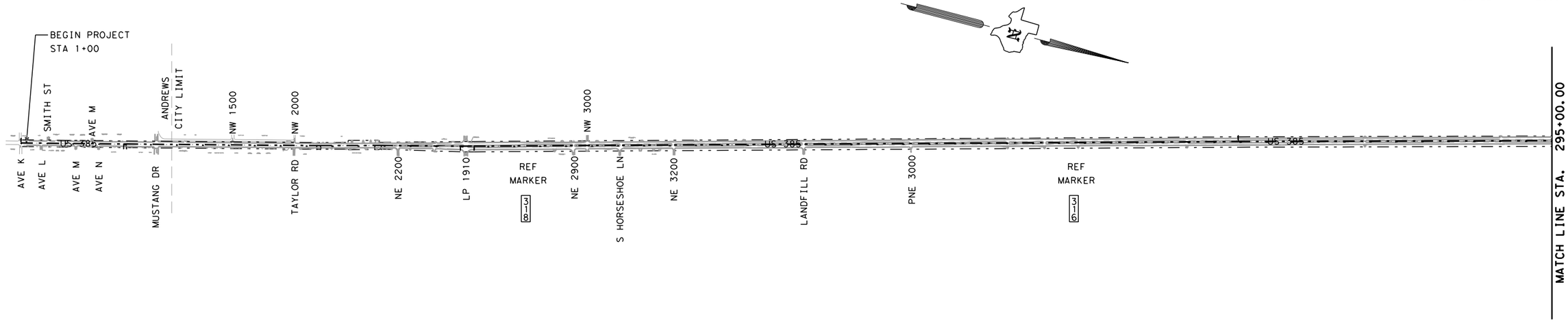
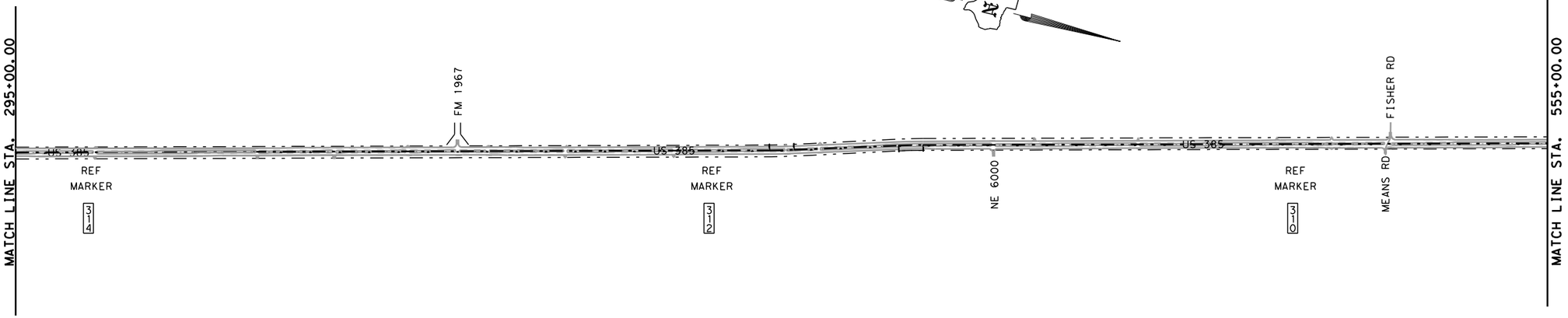
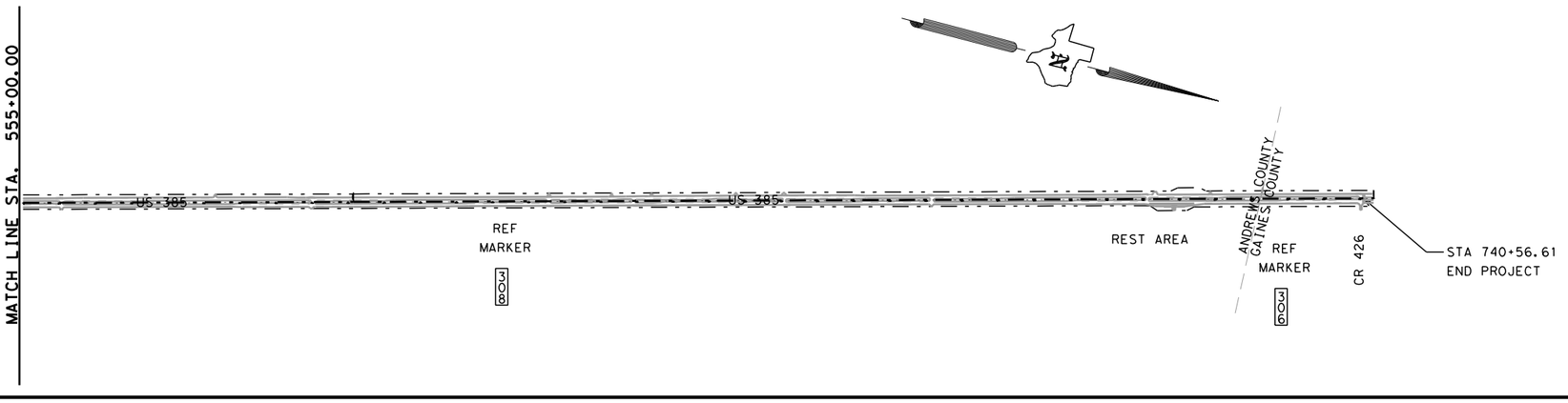
SCALE: 1" = 2000'







05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER

P.E.

PROJECT LAYOUT

SHEET 1 OF 1

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FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		3
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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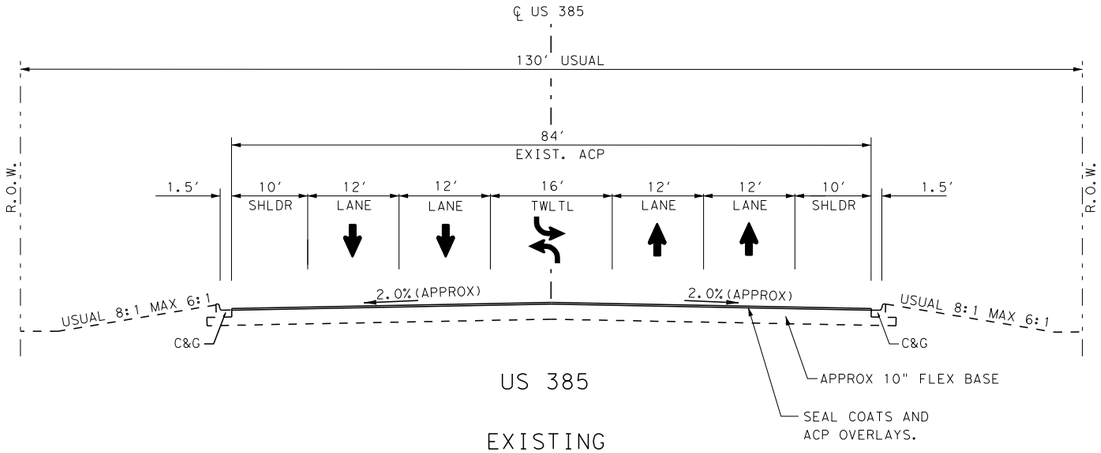
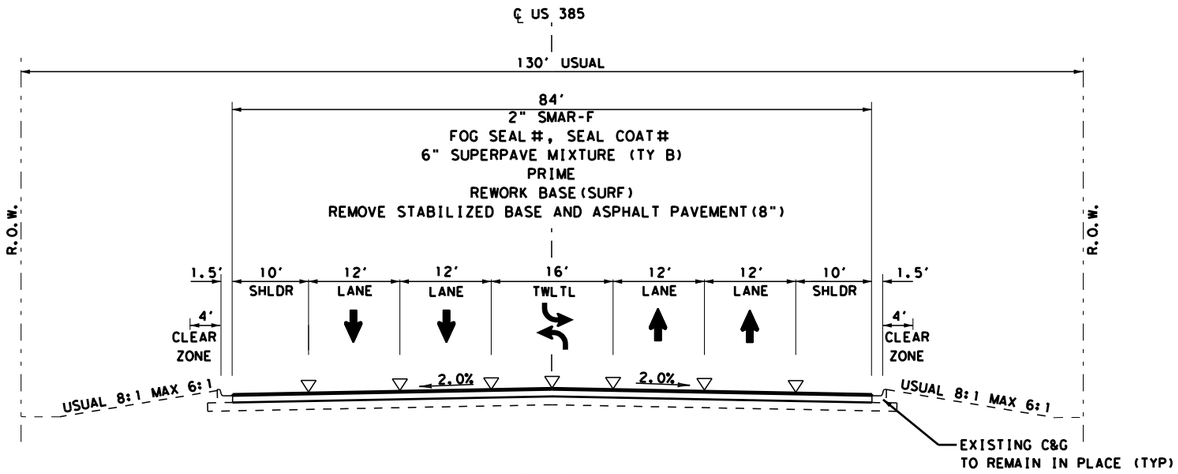


US 385

EXISTING
TYPICAL SECTION ##
STA. 1+00.00 TO 52+32.70



US 385

PROPOSED
TYPICAL SECTION ##
STA. 1+00.00 TO 52+32.70

NOTES:

▽ DENOTES PERMISSIBLE ACP CONSTRUCTION JOINT.

PLACE 6" SUPERPAVE MIXTURE IN TWO 3" LIFTS.

PERFORM FOG SEAL AND SEAL COAT AS DIRECTED BY THE ENGINEER.

SEE TYPICAL OUTSIDE WIDENING AND TYPICAL INSIDE WIDENING TYPICAL SECTION DETAIL FOR ADDITIONAL INFORMATION FOR EXISTING AND PROPOSED TURN LANES AND RESULTING ROADWAY WIDTHS.

* CABLE BARRIER TYPICALLY ALTERNATES BETWEEN LEFT AND RIGHT MEDIAN SIDE SLOPE 20' FROM NEAREST THROUGH LANE.

** UP TO 3' ADDITIONAL WIDTH OF FLEX BASE FROM ORIGINAL 7' WIDTH SHOULDERS.

QUANTITIES FOR SUPERPAVE (TY B), PRIME, EMULSION TREATMENT, FLEX BASE, AND REWORK BASE INCLUDE 9" TAPERED EDGE WIDTH WHEN APPLICABLE.

0 10 20 FT
HORIZONTAL SCALE

09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

TYPICAL SECTIONS

SHEET 1 OF 13

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FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		4
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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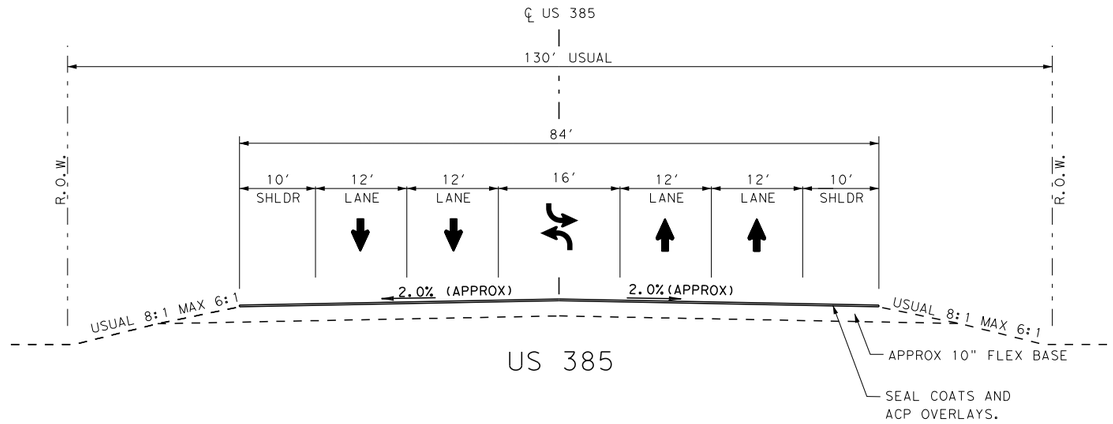
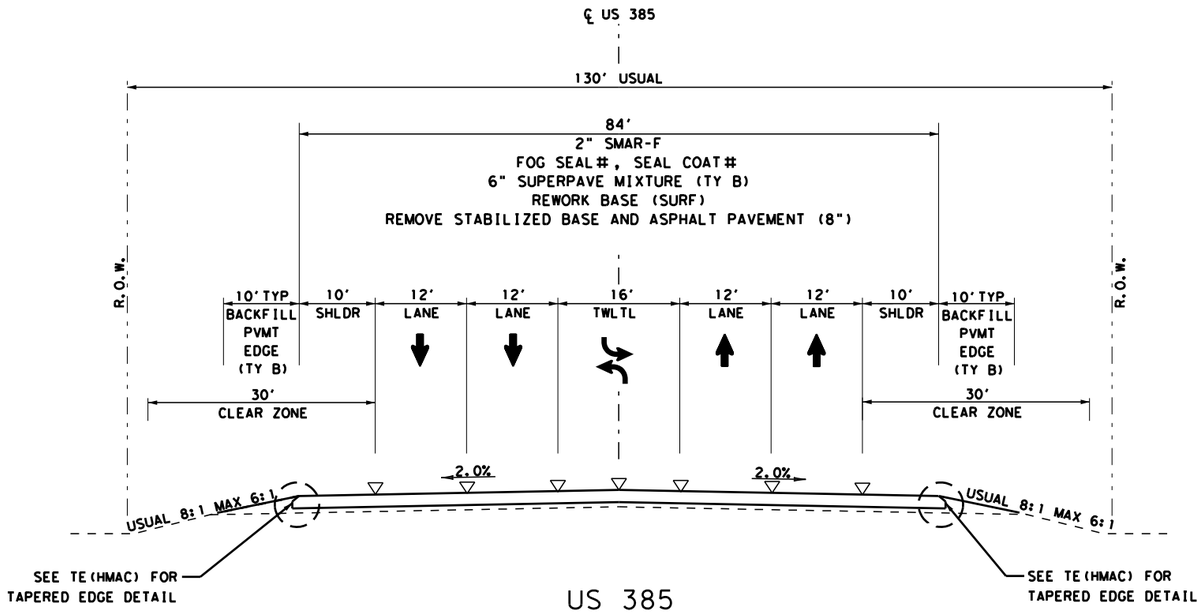


EXISTING
TYPICAL SECTION

STA. 52+32.70 TO 55+00.00



PROPOSED
TYPICAL SECTION

STA. 52+32.70 TO 55+00.00

NOTES:

▽ DENOTES PERMISSIBLE ACP CONSTRUCTION JOINT.

PLACE 6" SUPERPAVE MIXTURE IN TWO 3" LIFTS.

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0 10 20 FT
HORIZONTAL SCALE

09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

TYPICAL SECTIONS

SHEET 2 OF 13

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TBPE Firm Reg. No. 10488

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		5
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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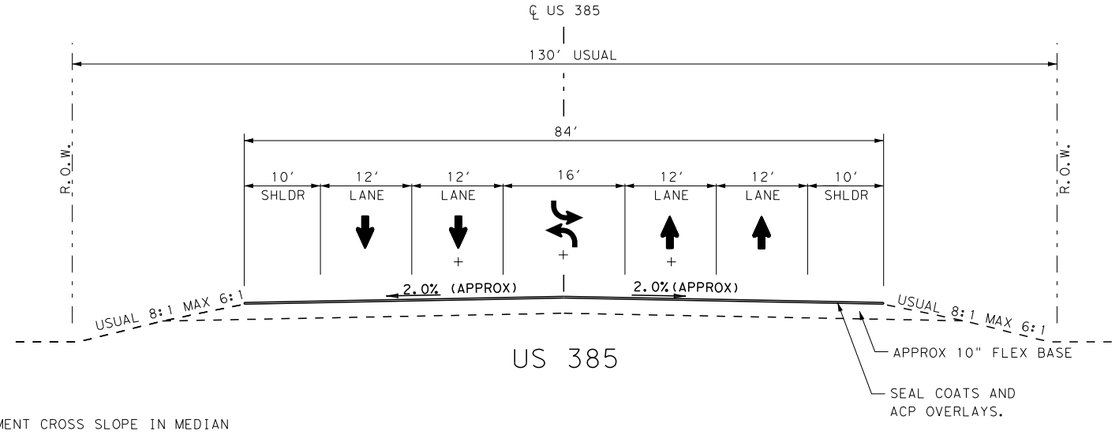

+ PAVEMENT CROSS SLOPE IN MEDIAN AND INSIDE LANES TRANSITIONS FROM APPROX. 2% SLOPING OUT TO APPROX. 2% SLOPING IN AT THE END OF SECTION LIMITS.

EXISTING TYPICAL SECTION

STA. 55+00.00 TO 68+10.88

NOTES:

▽ DENOTES PERMISSIBLE ACP CONSTRUCTION JOINT.

PLACE 6" SUPERPAVE MIXTURE IN TWO 3" LIFTS.

PERFORM FOG SEAL AND SEAL COAT AS DIRECTED BY THE ENGINEER.

SEE TYPICAL OUTSIDE WIDENING AND TYPICAL INSIDE WIDENING TYPICAL SECTION DETAIL FOR ADDITIONAL INFORMATION FOR EXISTING AND PROPOSED TURN LANES AND RESULTING ROADWAY WIDTHS.

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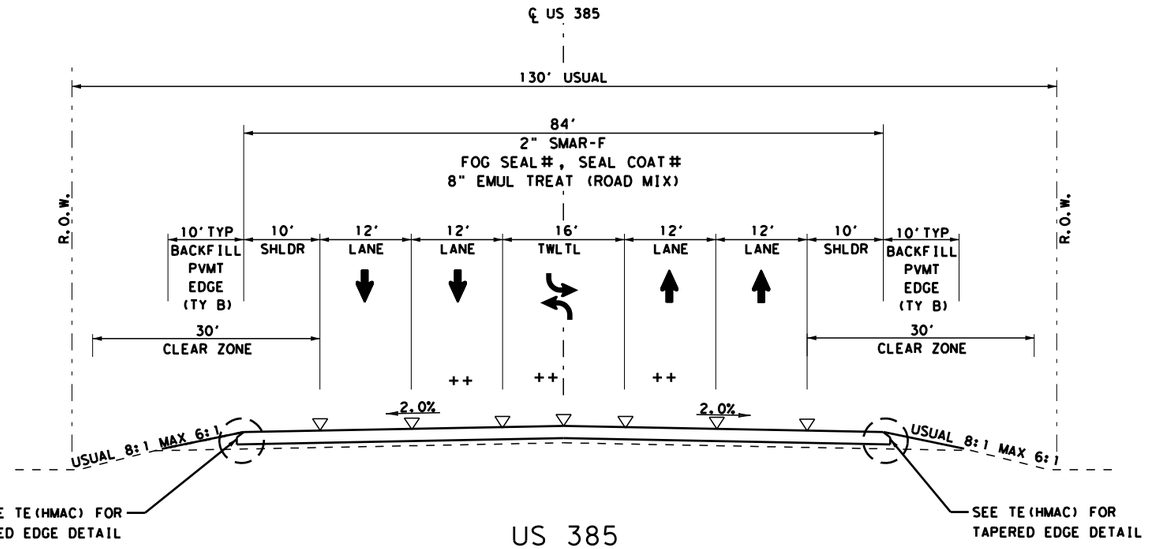
∗∗ UP TO 3' ADDITIONAL WIDTH OF FLEX BASE FROM ORIGINAL 7' WIDTH SHOULDERS.

QUANTITIES FOR SUPERPAVE (TY B), PRIME, EMULSION TREATMENT, FLEX BASE, AND REWORK BASE INCLUDE 9" TAPERED EDGE WIDTH WHEN APPLICABLE.



++ MAINTAIN EXISTING PAVEMENT CROSS SLOPE IN MEDIAN AND INSIDE LANES AT END OF SECTION LIMITS.

PROPOSED TYPICAL SECTION

STA. 55+00.00 TO 68+10.88

0 10 20 FT
HORIZONTAL SCALE

09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

TYPICAL SECTIONS

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Texas Department of Transportation

LOCHNER
TBPE Firm Reg. No. 10488

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		6
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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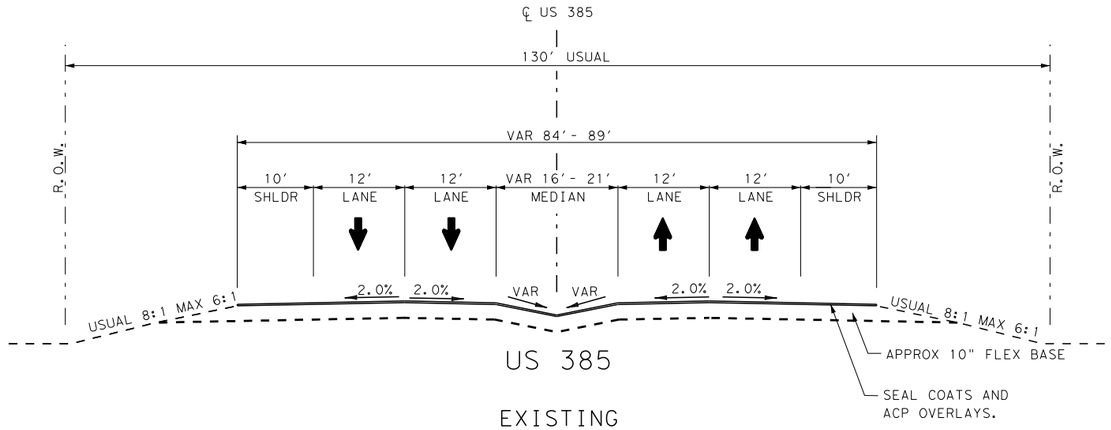
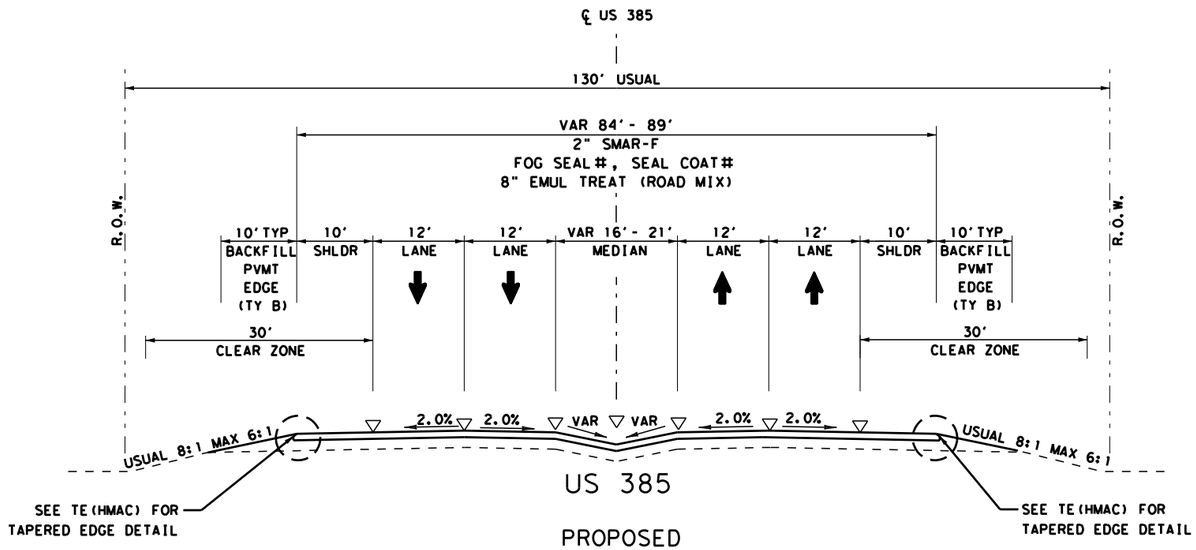


EXISTING
TYPICAL SECTION

STA. 68+10.88 TO 71+50.00



PROPOSED
TYPICAL SECTION

STA. 68+10.88 TO 71+50.00

NOTES:

▽ DENOTES PERMISSIBLE ACP CONSTRUCTION JOINT.

PLACE 6" SUPERPAVE MIXTURE IN TWO 3" LIFTS.

PERFORM FOG SEAL AND SEAL COAT AS DIRECTED BY THE ENGINEER.

SEE TYPICAL OUTSIDE WIDENING AND TYPICAL INSIDE WIDENING TYPICAL SECTION DETAIL FOR ADDITIONAL INFORMATION FOR EXISTING AND PROPOSED TURN LANES AND RESULTING ROADWAY WIDTHS.

* CABLE BARRIER TYPICALLY ALTERNATES BETWEEN LEFT AND RIGHT MEDIAN SIDE SLOPE 20' FROM NEAREST THROUGH LANE.

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QUANTITIES FOR SUPERPAVE (TY B), PRIME, EMULSION TREATMENT, FLEX BASE, AND REWORK BASE INCLUDE 9" TAPERED EDGE WIDTH WHEN APPLICABLE.

0 10 20 FT
HORIZONTAL SCALE

09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

TYPICAL SECTIONS

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FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		7
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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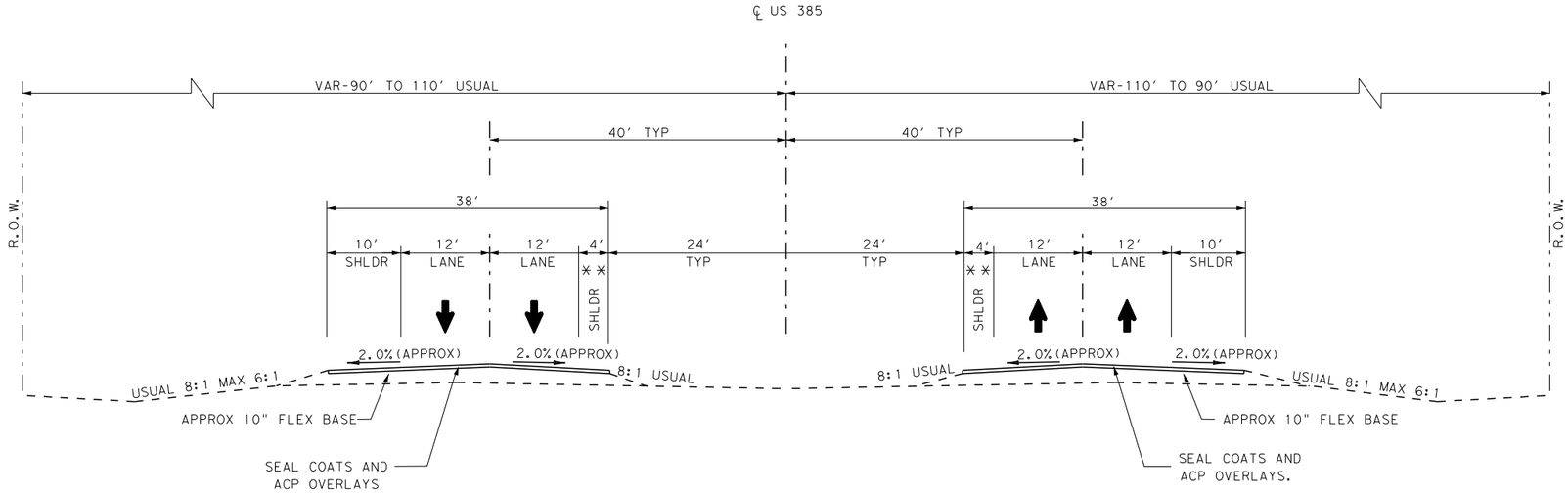

US 385

EXISTING
SOUTHBOUND MAINLANES ##
STA. 71+50.00 TO 82+00.00
STA. 87+00.00 TO 740+56.61

US 385

EXISTING
NORTHBOUND MAINLANES ##
STA. 71+50.00 TO 82+00.00
STA. 87+00.00 TO 740+56.61

NOTES:

▽ DENOTES PERMISSIBLE ACP CONSTRUCTION JOINT.

PLACE 6" SUPERPAVE MIXTURE IN TWO 3" LIFTS.

\# PERFORM FOG SEAL AND SEAL COAT AS DIRECTED BY THE ENGINEER.

\## SEE TYPICAL OUTSIDE WIDENING AND TYPICAL INSIDE WIDENING TYPICAL SECTION DETAIL FOR ADDITIONAL INFORMATION FOR EXISTING AND PROPOSED TURN LANES AND RESULTING ROADWAY WIDTHS.

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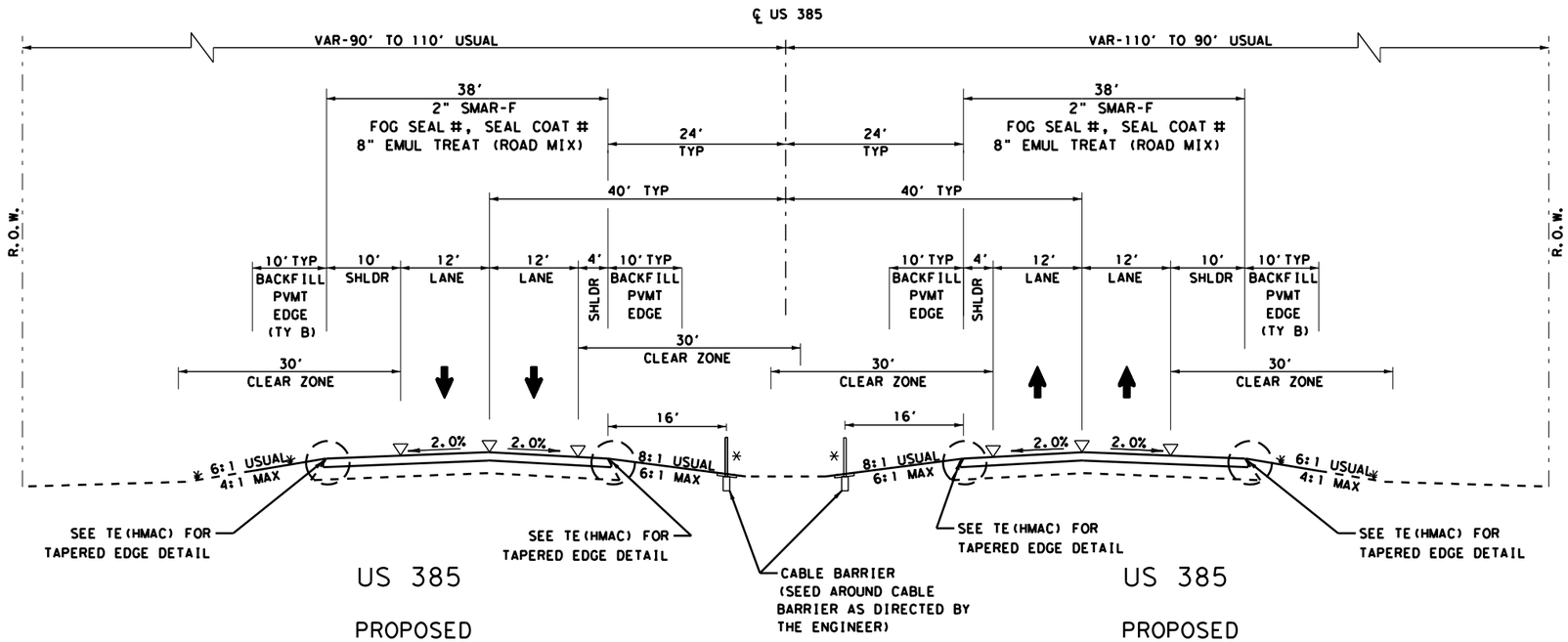

US 385

PROPOSED
SOUTHBOUND MAINLANES ##
[-] STA. 71+50.00 TO 82+00.00 (WITHOUT CABLE BARRIER)
[-] STA. 87+00.00 TO 740+56.61

US 385

PROPOSED
NORTHBOUND MAINLANES ##
[-] STA. 71+50.00 TO 82+00.00 (WITHOUT CABLE BARRIER)
[-] STA. 87+00.00 TO 565+00.00
[-] STA. 581+00.00 TO 740+56.61

[-] SKIP STATIONS SHOWN FOR US 385 SECTION AT MAJOR ACCESS LOCATIONS AND PERFORM PAVEMENT WORK SHOWN FOR THOSE LOCATIONS. SEE NEXT SHEET.

0 10 20 FT
HORIZONTAL SCALE

09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

TYPICAL SECTIONS

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TEXAS	ODA	ANDREWS	
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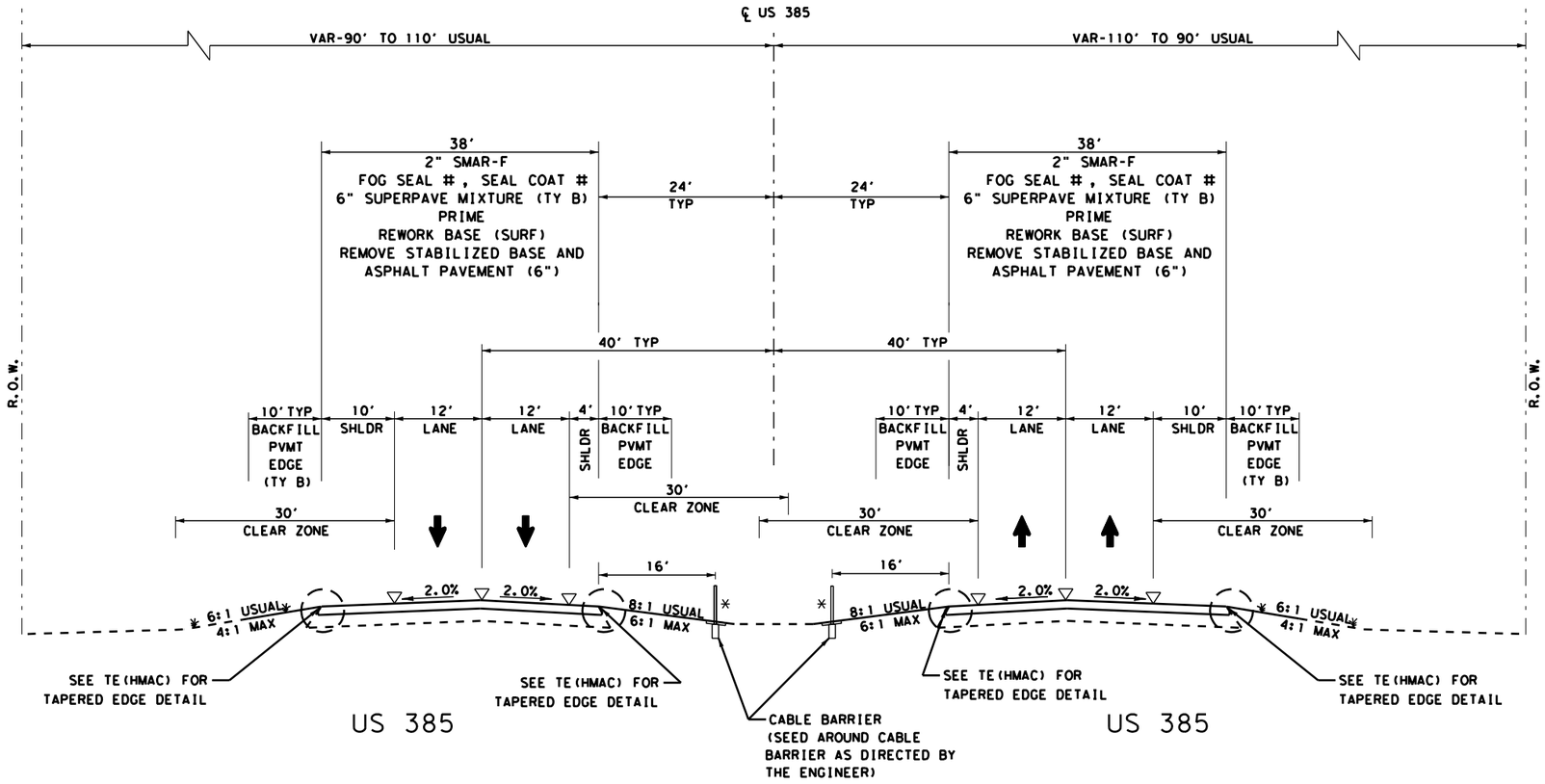

NE 2900 & NW 3000 & HORSESHOE LN

NOTES:

▽ DENOTES PERMISSIBLE ACP CONSTRUCTION JOINT.

PLACE 6" SUPERPAVE MIXTURE IN TWO 3" LIFTS.

PERFORM FOG SEAL AND SEAL COAT AS DIRECTED BY THE ENGINEER.

SEE TYPICAL OUTSIDE WIDENING AND TYPICAL INSIDE WIDENING TYPICAL SECTION DETAIL FOR ADDITIONAL INFORMATION FOR EXISTING AND PROPOSED TURN LANES AND RESULTING ROADWAY WIDTHS.

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** UP TO 3' ADDITIONAL WIDTH OF FLEX BASE FROM ORIGINAL 7' WIDTH SHOULDERS.

QUANTITIES FOR SUPERPAVE (TY B), PRIME, EMULSION TREATMENT, FLEX BASE, AND REWORK BASE INCLUDE 9" TAPERED EDGE WIDTH WHEN APPLICABLE.

0 10 20 FT
HORIZONTAL SCALE

PROPOSED SOUTHBOUND MAINLANES

STA.	71+50.00	TO 75+11.00	(NE 2200) (NE 2200)
STA.	103+96.00	TO 117+85.00	(NE 2900 & NW 3000 & S HORSESHOE LN)
STA.	123+31.00	TO 128+31.00	(NE 3200)
STA.	148+30.00	TO 153+30.00	(LANDFALL RD)
STA.	168+97.00	TO 173+97.00	(PNE 3600)
STA.	187+59.00	TO 192+59.00	(OIL FIELD ACCESS ROAD)
STA.	222+16.00	TO 227+16.00	(OIL FIELD ACCESS ROAD)
STA.	282+68.00	TO 287+68.00	(OIL FIELD ACCESS ROAD)
STA.	305+95.00	TO 310+95.00	(OIL FIELD ACCESS ROAD)
STA.	367+47.00	TO 372+47.00	(FM 1967)
STA.	385+74.00	TO 390+74.00	(OIL FIELD ACCESS ROAD)
STA.	458+45.00	TO 463+45.00	(NE 6000)
STA.	525+37.00	TO 530+37.00	(FISHER ROAD & MEANS ROAD)
STA.	579+10.00	TO 584+10.00	(OIL FIELD ACCESS ROAD)
STA.	592+40.00	TO 597+40.00	(OIL FIELD ACCESS ROAD)
STA.	651+18.00	TO 662+82.00	(2 OIL FIELD ACCESS ROADS)
STA.	708+12.00	TO 720+62.00	(REST AREA)
STA.	737+68.00	TO 740+56.61	(CR 426)

PROPOSED NORTHBOUND MAINLANES

STA.	71+50.00	TO 75+11.00	(NE 2200) (NE 2200)
STA.	103+96.00	TO 117+85.00	(NE 2900 & NW 3000 & S HORSESHOE LN)
STA.	123+31.00	TO 128+31.00	(NE 3200)
STA.	148+30.00	TO 153+30.00	(LANDFALL RD)
STA.	168+97.00	TO 173+97.00	(PNE 3600)
STA.	187+59.00	TO 192+59.00	(OIL FIELD ACCESS ROAD)
STA.	222+16.00	TO 227+16.00	(OIL FIELD ACCESS ROAD)
STA.	282+68.00	TO 287+68.00	(OIL FIELD ACCESS ROAD)
STA.	305+95.00	TO 310+95.00	(OIL FIELD ACCESS ROAD)
STA.	367+47.00	TO 372+47.00	(FM 1967)
STA.	385+74.00	TO 390+74.00	(OIL FIELD ACCESS ROAD)
STA.	458+45.00	TO 463+45.00	(NE 6000)
STA.	525+37.00	TO 530+37.00	(FISHER ROAD & MEANS ROAD)
STA.	592+40.00	TO 597+40.00	(OIL FIELD ACCESS ROAD)
STA.	651+18.00	TO 662+82.00	(2 OIL FIELD ACCESS ROADS)
STA.	708+12.00	TO 720+62.00	(REST AREA)
STA.	737+68.00	TO 740+56.61	(CR 426)

US 385 SECTION AT MAJOR ACCESS LOCATIONS

09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

TYPICAL SECTIONS

SHEET 6 OF 13

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FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		9
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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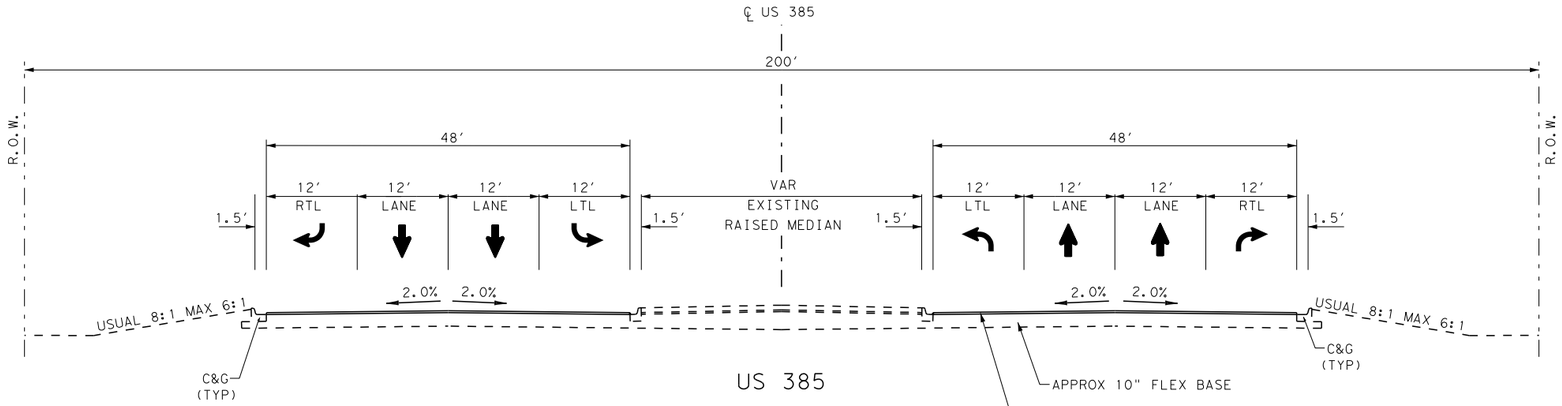


US 385

EXISTING
TYPICAL SECTION
(AT LP 1910)

STA. 82+00.00 TO 87+00.00

NOTES:

▽ DENOTES PERMISSIBLE ACP CONSTRUCTION JOINT.

PLACE 6" SUPERPAVE MIXTURE IN TWO 3" LIFTS.

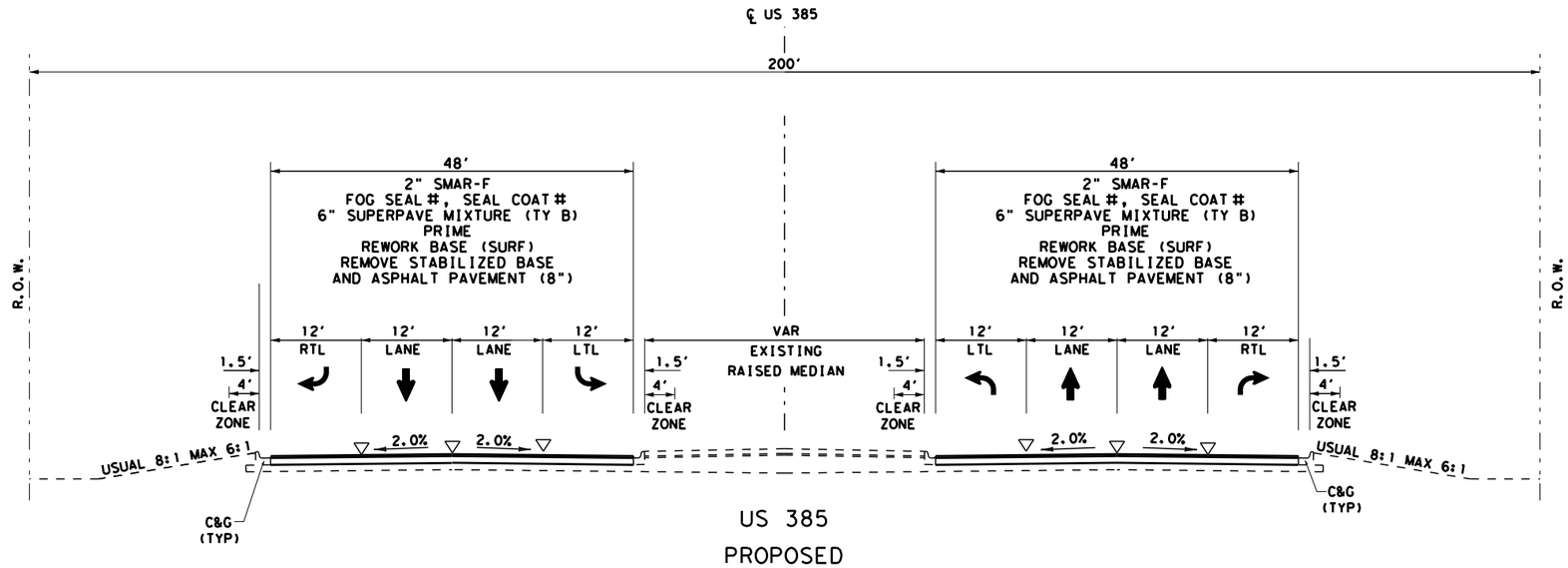
PERFORM FOG SEAL AND SEAL COAT AS DIRECTED BY THE ENGINEER.

SEE TYPICAL OUTSIDE WIDENING AND TYPICAL INSIDE WIDENING TYPICAL SECTION DETAIL FOR ADDITIONAL INFORMATION FOR EXISTING AND PROPOSED TURN LANES AND RESULTING ROADWAY WIDTHS.

* CABLE BARRIER TYPICALLY ALTERNATES BETWEEN LEFT AND RIGHT MEDIAN SIDE SLOPE 20′ FROM NEAREST THROUGH LANE.

** UP TO 3′ ADDITIONAL WIDTH OF FLEX BASE FROM ORIGINAL 7′ WIDTH SHOULDERS.

QUANTITIES FOR SUPERPAVE (TY B), PRIME, EMULSION TREATMENT, FLEX BASE, AND REWORK BASE INCLUDE 9" TAPERED EDGE WIDTH WHEN APPLICABLE.



US 385

PROPOSED
TYPICAL SECTION
(AT LP 1910)

STA. 82+00.00 TO 87+00.00

0 10 20 FT
HORIZONTAL SCALE

09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

TYPICAL SECTIONS

SHEET 7 OF 13

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LOCHNER
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FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		10
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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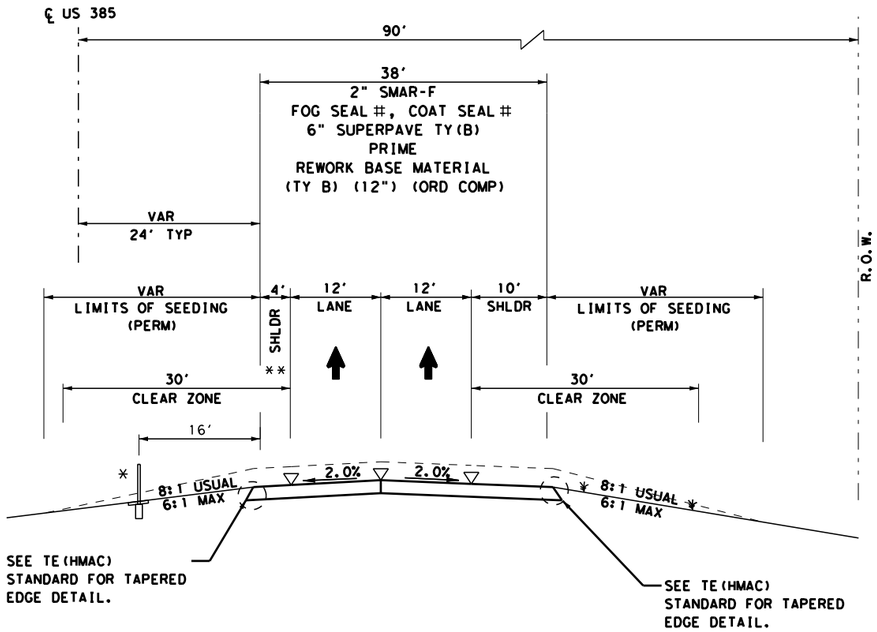

US 385

PROPOSED
NORTHBOUND MAINLANES

STA. 565+00.00 TO 581+00.00

NOTE: THIS SECTION USED FOR PROPOSED GRADE CHANGE.

NOTES:

▽ DENOTES PERMISSIBLE ACP CONSTRUCTION JOINT.

PLACE 6" SUPERPAVE MIXTURE IN TWO 3" LIFTS.

PERFORM FOG SEAL AND SEAL COAT AS DIRECTED BY THE ENGINEER.

SEE TYPICAL OUTSIDE WIDENING AND TYPICAL INSIDE WIDENING TYPICAL SECTION DETAIL FOR ADDITIONAL INFORMATION FOR EXISTING AND PROPOSED TURN LANES AND RESULTING ROADWAY WIDTHS.

* CABLE BARRIER TYPICALLY ALTERNATES BETWEEN LEFT AND RIGHT MEDIAN SIDE SLOPE 20' FROM NEAREST THROUGH LANE.

** UP TO 3' ADDITIONAL WIDTH OF FLEX BASE FROM ORIGINAL 7' WIDTH SHOULDERS.

QUANTITIES FOR SUPERPAVE (TY B), PRIME, EMULSION TREATMENT, FLEX BASE, AND REWORK BASE INCLUDE 9" TAPERED EDGE WIDTH WHEN APPLICABLE.

0 10 20 FT
HORIZONTAL SCALE

09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER

P.E.

TYPICAL SECTIONS

SHEET 8 OF 13

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FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		11
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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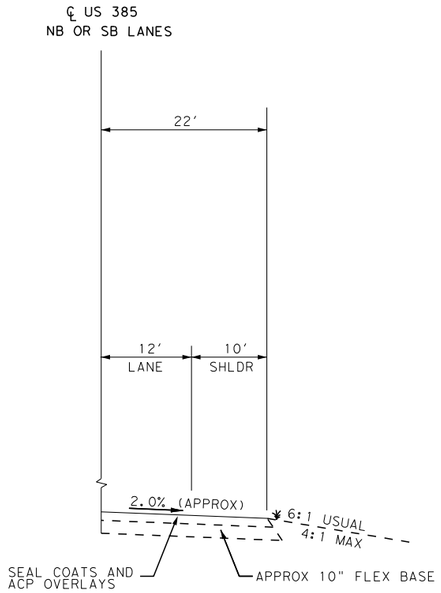
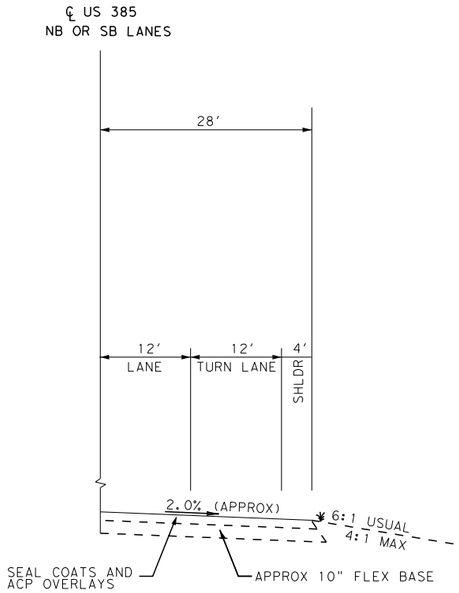
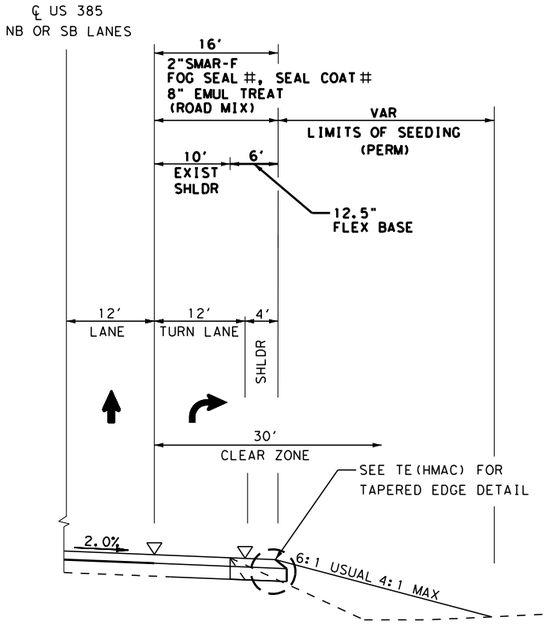


EXISTING TYPICAL OUTSIDE WIDENING
WITHOUT EXISTING TURN LANE
AS VIEWED IN DIRECTION OF TRAFFIC



EXISTING TYPICAL OUTSIDE LANE
WIDENING WITH EXISTING TURN LANE
AS VIEWED IN DIRECTION OF TRAFFIC



PROPOSED TYPICAL OUTSIDE WIDENING
AS VIEWED IN DIRECTION OF TRAFFIC
SHOWING EMULSION TREATMENT WIDENING

NOTES:

▽ DENOTES PERMISSIBLE ACP CONSTRUCTION JOINT.

PLACE 6" SUPERPAVE MIXTURE IN TWO 3" LIFTS.

PERFORM FOG SEAL AND SEAL COAT AS DIRECTED BY THE ENGINEER.

SEE TYPICAL OUTSIDE WIDENING AND TYPICAL INSIDE WIDENING TYPICAL SECTION DETAIL FOR ADDITIONAL INFORMATION FOR EXISTING AND PROPOSED TURN LANES AND RESULTING ROADWAY WIDTHS.

EXISTING ACCEL/DECEL LANE

* CABLE BARRIER TYPICALLY ALTERNATES BETWEEN LEFT AND RIGHT MEDIAN SIDE SLOPE 20' FROM NEAREST THROUGH LANE.

** UP TO 3' ADDITIONAL WIDTH OF FLEX BASE FROM ORIGINAL 7' WIDTH SHOULDERS.

*** SEE PLAN LAYOUTS FOR TRANSITION LIMITS

QUANTITIES FOR SUPERPAVE (TY B), PRIME, EMULSION TREATMENT, FLEX BASE, AND REWORK BASE INCLUDE 9" TAPERED EDGE WIDTH WHEN APPLICABLE.

WIDEN TYING TO EXISTING PAVEMENT ON 2% PAVEMENT CROSS SLOPE WITH MATCHING PAVEMENT LAYERS

0 10 20 FT
HORIZONTAL SCALE

NB OUTSIDE
*** FULL WIDTH LIMITS

	STA	to	STA
###	87+00.00		98+07.00
	98+07.00		103+96.00
	140+85.00		148+30.00
	161+56.00		168+97.00
	214+69.00		222+16.00
	227+16.00		242+96.00
	298+65.00		305+95.00
	310+95.00		326+75.00
	378+45.00		385+74.00
	390+74.00		406+58.00
	450+97.00		458+45.00
	463+45.00		479+33.00
	517+83.00		525+37.00
	530+37.00		546+00.00
	585+34.00		592+40.00
	597+40.00		613+40.00
	700+79.00		708+12.00
	720+62.00		737+69.00

SB OUTSIDE
*** FULL WIDTH LIMITS

	STA	to	STA
###	98+07.00		95+72.00
	173+97.00		187+59.00
	192+59.00		199+87.00
	287+68.00		305+95.00
	310+95.00		318+22.00
	343+17.00		367+47.00
	372+47.00		379+87.00
	509+65.00		525+37.00
###	530+37.00		532+06.00
	532+06.00		538+04.00
	563+32.00		579+10.00
	584+10.00		591+57.00
	641+74.00		651+18.00
	662+82.00		670+25.00

OUTSIDE TURN LANE WIDENING WITH EMULSION TREATMENT

09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED
PROFESSIONAL ENGINEER
P.E.

TYPICAL SECTIONS

SHEET 9 OF 13

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FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		12
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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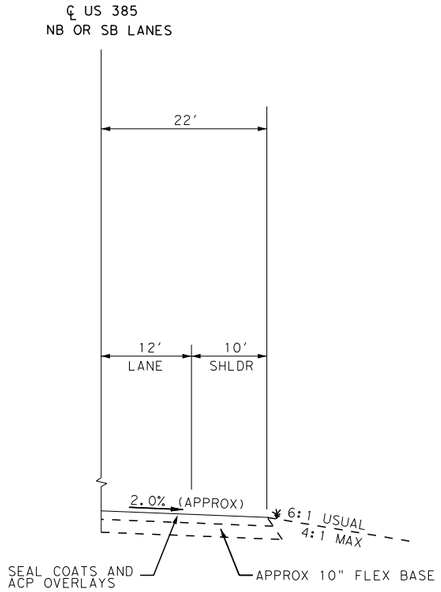
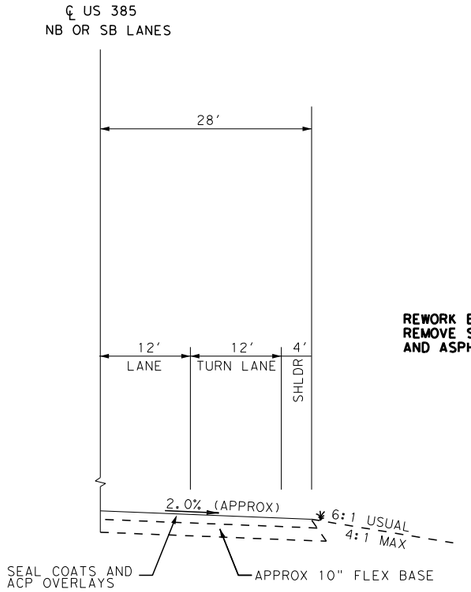
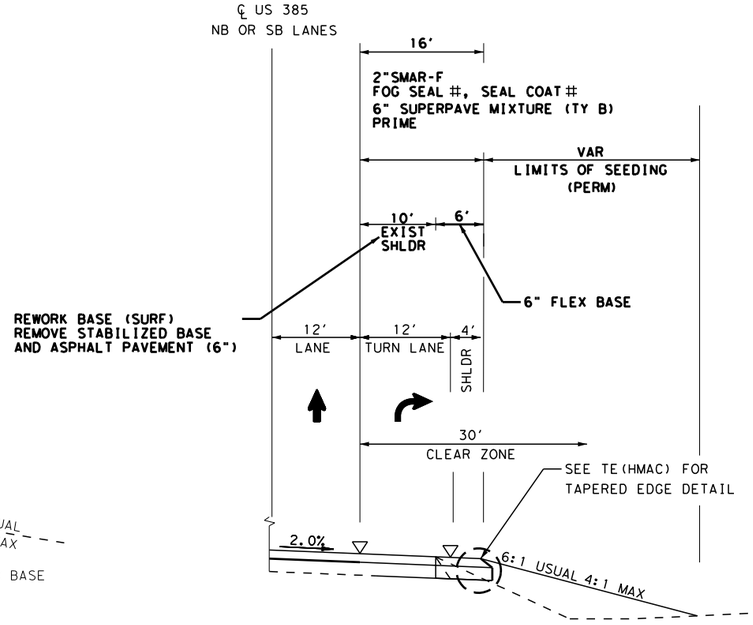


EXISTING TYPICAL OUTSIDE WIDENING
WITHOUT EXISTING TURN LANE
AS VIEWED IN DIRECTION OF TRAFFIC



EXISTING TYPICAL OUTSIDE LANE
WIDENING WITH EXISTING TURN LANE
AS VIEWED IN DIRECTION OF TRAFFIC



PROPOSED TYPICAL OUTSIDE WIDENING
AS VIEWED IN DIRECTION OF TRAFFIC
SHOWING SUPERPAVE WIDENING

NOTES:

▽ DENOTES PERMISSIBLE ACP CONSTRUCTION JOINT.

PLACE 6" SUPERPAVE MIXTURE IN TWO 3" LIFTS.

\# PERFORM FOG SEAL AND SEAL COAT AS DIRECTED BY THE ENGINEER.

\## SEE TYPICAL OUTSIDE WIDENING AND TYPICAL INSIDE WIDENING TYPICAL SECTION DETAIL FOR ADDITIONAL INFORMATION FOR EXISTING AND PROPOSED TURN LANES AND RESULTING ROADWAY WIDTHS.

\### EXISTING ACCEL/DECEL LANE

* CABLE BARRIER TYPICALLY ALTERNATES BETWEEN LEFT AND RIGHT MEDIAN SIDE SLOPE 20' FROM NEAREST THROUGH LANE.

** UP TO 3' ADDITIONAL WIDTH OF FLEX BASE FROM ORIGINAL 7' WIDTH SHOULDERS.

*** SEE PLAN LAYOUTS FOR TRANSITION LIMITS

QUANTITIES FOR SUPERPAVE (TY B), PRIME, EMULSION TREATMENT, FLEX BASE, AND REWORK BASE INCLUDE 9" TAPERED EDGE WIDTH WHEN APPLICABLE.

WIDEN TYING TO EXISTING PAVEMENT ON 2% PAVEMENT CROSS SLOPE WITH MATCHING PAVEMENT LAYERS

0 10 20 FT
HORIZONTAL SCALE

NB OUTSIDE
*** FULL WIDTH LIMITS

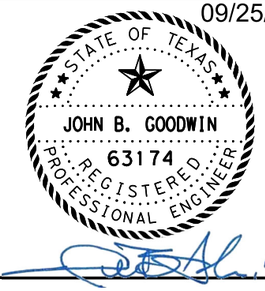
	STA	to	STA
###	22+73.00		25+36.46
	103+96.00		106+27.00
	148+30.00		150+66.00
	168+97.00		171+34.00
	222+16.00		227+16.00
	305+95.00		310+95.00
	385+74.00		390+74.00
	458+45.00		463+45.00
	525+37.00		530+37.00
	592+40.00		597+40.00
	708+12.00		710+43.00
	718+12.00		720+62.00
	737+68.00		740+07.00

SB OUTSIDE
***FULL WIDTH LIMITS

	STA	to	STA
###	26+62.94		31+39.81
	171+78.00		173+97.00
	187+59.00		192+59.00
	285+31.00		287+68.00
	305+95.00		310+95.00
	367+47.00		372+47.00
###	528+49.00		530+37.00
	579+11.00		584+11.00
	525+37.00		528+22.00
	651+18.00		662+82.00

OUTSIDE TURN LANE WIDENING WITH SUPERPAVE

09/25/2020



TYPICAL SECTIONS

SHEET 10 OF 13

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FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		12A
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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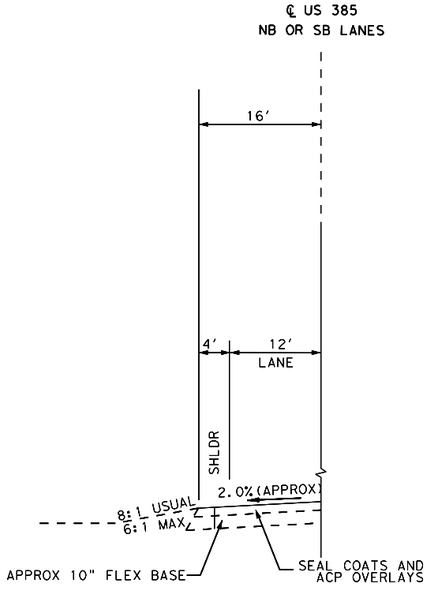
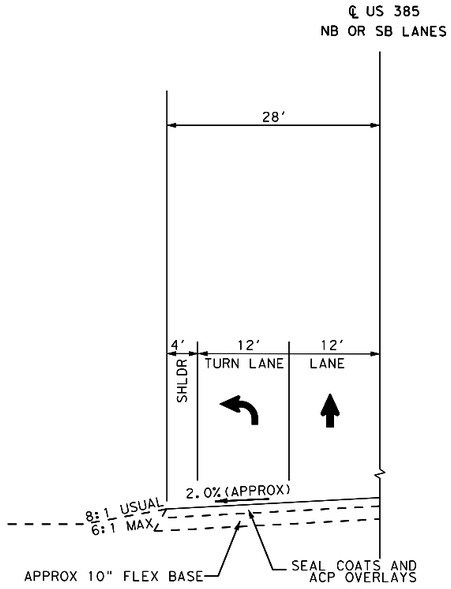
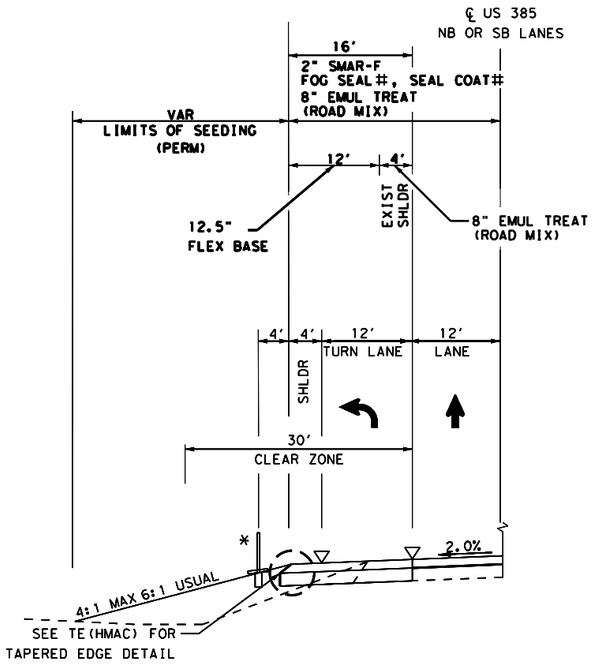


EXISTING TYPICAL INSIDE WIDENING
AS VIEWED IN DIRECTION OF TRAFFIC



EXISTING TYPICAL INSIDE LANE
WIDENING WITH EXISTING TURN LANE
AS VIEWED IN DIRECTION OF TRAFFIC



PROPOSED TYPICAL INSIDE WIDENING
AS VIEWED IN DIRECTION OF TRAFFIC
SHOWING EMULSION TREATMENT WIDENING

NOTES:

▽ DENOTES PERMISSIBLE ACP CONSTRUCTION JOINT.

PLACE 6" SUPERPAVE MIXTURE IN TWO 3" LIFTS.

\# PERFORM FOG SEAL AND SEAL COAT AS DIRECTED BY THE ENGINEER.

\## SEE TYPICAL OUTSIDE WIDENING AND TYPICAL INSIDE WIDENING TYPICAL SECTION DETAIL FOR ADDITIONAL INFORMATION FOR EXISTING AND PROPOSED TURN LANES AND RESULTING ROADWAY WIDTHS.

\### EXISTING ACCEL/DECEL LANE

* CABLE BARRIER TYPICALLY ALTERNATES BETWEEN LEFT AND RIGHT MEDIAN SIDE SLOPE 20' FROM NEAREST THROUGH LANE.

** UP TO 3' ADDITIONAL WIDTH OF FLEX BASE FROM ORIGINAL 7' WIDTH SHOULDERS.

*** SEE PLAN LAYOUTS FOR TRANSITION LIMITS

QUANTITIES FOR SUPERPAVE (TY B), PRIME, EMULSION TREATMENT, FLEX BASE, AND REWORK BASE INCLUDE 9" TAPERED EDGE WIDTH WHEN APPLICABLE.

WIDEN TYING TO EXISTING PAVEMENT ON 2% PAVEMENT CROSS SLOPE WITH MATCHING PAVEMENT LAYERS

0 10 20 FT
HORIZONTAL SCALE

NB INSIDE
*** FULL WIDTH LIMITS

STA	to	STA
96+59.00		103+96.00
119+07.00		123+31.00
140+85.00		148+30.00
161+56.00		168+97.00
180+08.00		187+59.00
192+59.00		196+94.00
199+15.00		203+57.00
214+69.00		222+16.00
249+09.00		258+74.00
275+23.00		282+68.00
298+65.00		348+74.00
326+08.00		335+73.00
339+09.00		348+74.00
351+59.00		361+26.00
364+40.00		367+47.00
372+47.00		374+90.00
364+40.00		367+47.00
372+47.00		374+90.00

NB INSIDE
*** FULL WIDTH LIMITS

STA	to	STA
378+45.00		385+74.00
396+89.00		406+50.00
415+89.00		431+11.00
450+97.00		458+45.00
475+54.00		485+19.00
505+60.00		515+25.00
517+83.00		523+89.00
### 523+89.00		525+37.00
550+39.00		560+04.00
585+34.00		592+40.00
617+81.00		627+46.00
630+84.00		639+29.00
643+87.00		651+18.00
670+88.00		680+54.00
700+79.00		708+12.00
730+31.00		737+69.00

SB INSIDE
*** FULL WIDTH LIMITS

STA	to	STA
### 87+00.00		95+72.00
117+85.00		122+28.00
128+31.00		135+49.00
153+30.00		160+79.00
173+97.00		181+47.00
192+59.00		194+76.00
197+49.00		201+89.00
203+95.00		213+60.00
227+16.00		234+44.00
259+13.00		268+78.00
387+68.00		295+09.00
310+95.00		318+22.00
336+25.00		345+90.00
349+36.00		359+00.00
361+83.00		367+11.00
372+47.00		385+02.00

SB INSIDE
*** FULL WIDTH LIMITS (CONT.)

STA	to	STA
390+74.00		398+12.00
407+15.00		416+80.00
425+83.00		441+21.00
463+45.00		470+79.00
485+77.00		495+42.00
515+84.00		525+49.00
### 530+37.00		532+06.00
532+06.00		538+03.00
560+55.00		570+20.00
597+41.00		604+94.00
628+01.00		636+46.00
639+74.00		649+39.00
662+82.00		670+25.00
681+07.00		690+72.00

INSIDE TURN LANE WIDENING WITH EMULSION TREATMENT

09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED
PROFESSIONAL ENGINEER
P.E.

TYPICAL SECTIONS

SHEET 11 OF 13

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FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	12B

STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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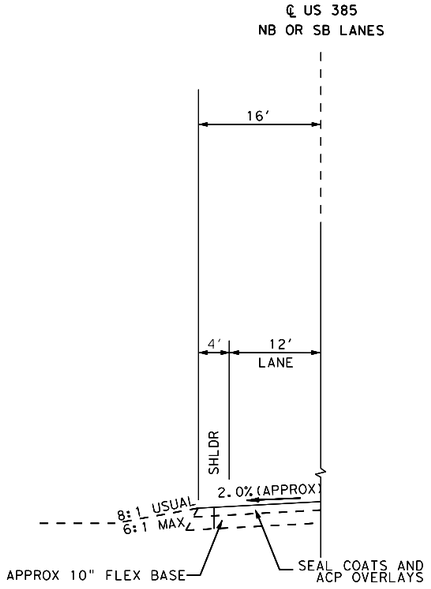
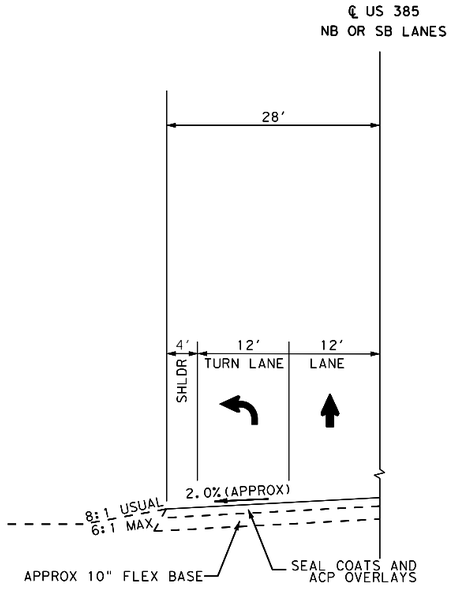
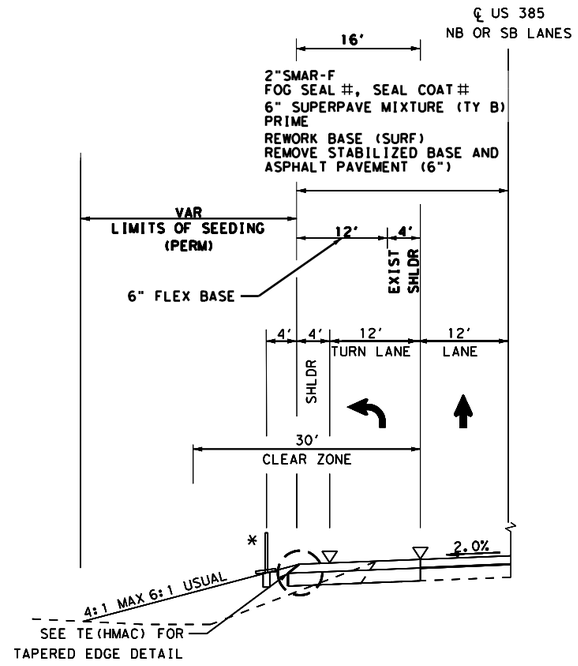


EXISTING TYPICAL INSIDE WIDENING
AS VIEWED IN DIRECTION OF TRAFFIC



EXISTING TYPICAL INSIDE LANE
WIDENING WITH EXISTING TURN LANE
AS VIEWED IN DIRECTION OF TRAFFIC



PROPOSED TYPICAL INSIDE WIDENING
AS VIEWED IN DIRECTION OF TRAFFIC
SHOWING SUPERPAVE WIDENING

NOTES:

▽ DENOTES PERMISSIBLE ACP CONSTRUCTION JOINT.

PLACE 6" SUPERPAVE MIXTURE IN TWO 3" LIFTS.

\# PERFORM FOG SEAL AND SEAL COAT AS DIRECTED BY THE ENGINEER.

\## SEE TYPICAL OUTSIDE WIDENING AND TYPICAL INSIDE WIDENING TYPICAL SECTION DETAIL FOR ADDITIONAL INFORMATION FOR EXISTING AND PROPOSED TURN LANES AND RESULTING ROADWAY WIDTHS.

\### EXISTING ACCEL/DECEL LANE

* CABLE BARRIER TYPICALLY ALTERNATES BETWEEN LEFT AND RIGHT MEDIAN SIDE SLOPE 20' FROM NEAREST THROUGH LANE.

** UP TO 3' ADDITIONAL WIDTH OF FLEX BASE FROM ORIGINAL 7' WIDTH SHOULDERS.

*** SEE PLAN LAYOUTS FOR TRANSITION LIMITS

QUANTITIES FOR SUPERPAVE (TY B), PRIME, EMULSION TREATMENT, FLEX BASE, AND REWORK BASE INCLUDE 9" TAPERED EDGE WIDTH WHEN APPLICABLE.

WIDEN TYING TO EXISTING PAVEMENT ON 2% PAVEMENT CROSS SLOPE WITH MATCHING PAVEMENT LAYERS

0 10 20 FT
HORIZONTAL SCALE

NB INSIDE
*** FULL WIDTH LIMITS

	STA	to	STA
	103+96.00		108+82.00
	110+96.00		115+37.00
	123+31.00		125+39.00
	148+30.00		150+50.00
	168+97.00		171+21.00
	187+59.00		189+83.00
	222+16.00		224+34.00
	282+68.00		284+88.00
	305+95.00		308+15.00
	367+47.00		372+47.00
	385+74.00		387+96.00
	458+45.00		460+62.00
	525+37.00		527+33.00
	592+40.00		594+85.00
	651+18.00		653+18.00
	655+78.00		660+19.00
	708+12.00		710+45.00
	737+69.00		739+93.00
###	739+93.00		740+00.00

SB INSIDE
*** FULL WIDTH LIMITS

	STA	to	STA
	106+64.00		113+70.00
	115+98.00		117+85.00
	125+94.00		128+31.00
	151+11.00		153+30.00
	171+71.00		173+97.00
	190+33.00		192+59.00
	224+93.00		227+16.00
	285+44.00		287+68.00
	308+72.00		310+95.00
	370+28.00		372+47.00
	388+62.00		390+74.00
	461+29.00		463+45.00
###	528+53.00		530+37.00
	595+43.00		597+40.00
	653+85.00		658+26.00
	660+60.00		662+82.00
	710+78.00		720+44.00

INSIDE TURN LANE WIDENING WITH SUPERPAVE

09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED
PROFESSIONAL ENGINEER
P.E.

TYPICAL SECTIONS

SHEET 12 OF 13

Texas Department of Transportation
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LOCHNER
TBPE Firm Reg. No. 10488

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		12C
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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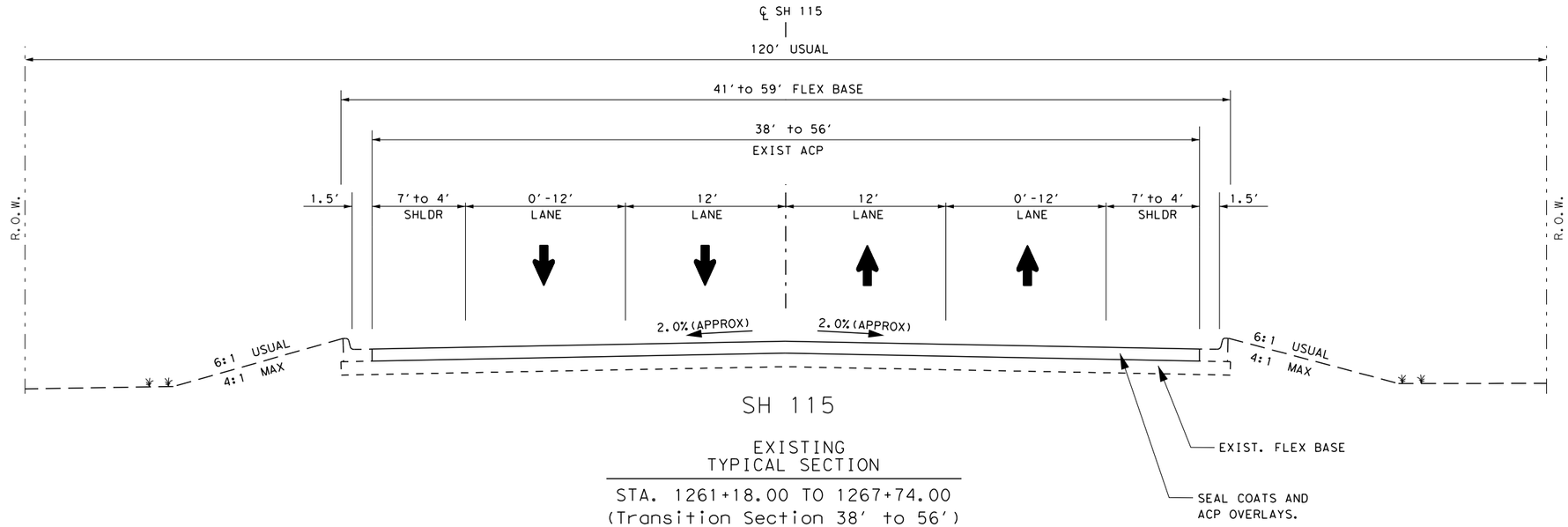


SH 115

EXISTING
TYPICAL SECTION

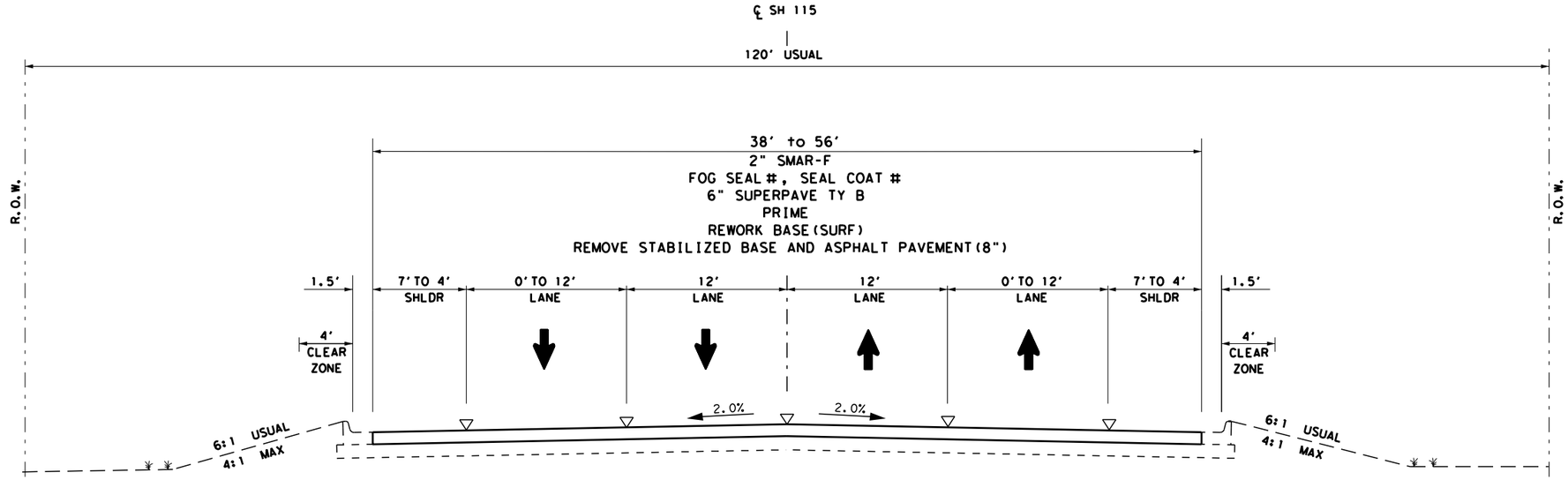
STA. 1261+18.00 TO 1267+74.00
(Transition Section 38' to 56')
STA. 1267+74.00 TO 1284+10.00
(56' Pavement)

NOTES:

▽ DENOTES PERMISSIBLE ACP CONSTR JOINT.

PLACE 6" SUPERPAVE MIXTURE IN TWO 3" LIFTS

PERFORM FOG SEAL AND SEAL COAT AS DIRECTED BY THE ENGINEER.



SH 115

PROPOSED
TYPICAL SECTION

STA. 1261+18.00 TO 1267+74.00
(Transition Section 38' to 56')
STA. 1267+74.00 TO 1284+10.00
(56' Pavement)

0 5 10 FT
HORIZONTAL SCALE

09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

TYPICAL SECTIONS

SHEET 13 OF 13

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LOCHNER
TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		12D
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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Material Specification Information

Grading Requirements

Item	Description	Grading Requirements Percent Retained - Sieves				Soil Constants		Wet Ball Mill
						L.L. Max.	P.I. Max.	Max.
		1-3/4”	7/8”	3/8”	#40			
247	Type A GR 4	0-3	10-35	20-55	65-85	40	12	40

The maximum increase in material passing the number 40 sieve resulting from the wet ball mill test shall not exceed 20%.

Cure the finished section of flex base until the moisture content is at least 3 percentage points below the optimum as or as directed by the engineer before applying the next successive course or prime coat.

There is potential for gypsum in the area and additional time may be necessary to process the subgrade and/or base material.

Contractor questions on this project will be accepted through email at the following address:

- ODA-PreLettingQuestions@txdot.gov

All contractor questions will be reviewed by the Engineer. All questions and/or responses will be posted to TxDOT’s Public FTP at the following Address:

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

The site is organized by District, Project Type (Construction or Maintenance), Letting Date, CCSJ/Project Name.

Item 5: Control of the Work

For any structures containing bird nests, schedule all work to complete the demolition of the existing structures identified in the plans between September 15, 2021 and March 15, 2022. Failure to complete this work during the specified timeframe may cause construction delays due to environmental regulations.

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 https://www.txdot.gov/inside-txdot/forms-publications/consultants-contractors/publications/bridge.html#design. 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

The existing alignment is the control for the Contractor staking. Establish reference points for the control prior to removing the existing surface.

Use method C for construction surveying.

In the event the finished surface does not conform to the typical sections or does not meet the required IRI, rework the non-conforming area to the limits necessary and employ additional survey control as directed.

The contractor is cautioned that the location and/or elevations of existing utilities as shown on these plans is based on records of the various utility companies and where possible, measurements taken in the field. The information is not to be relied on as being exact or complete. The contractor must call the local utility location center at least 48 hours before any excavation to request exact field location of utilities.

Item 6: Control of Materials

Restrict storage of equipment and materials to approved areas. The Engineer will not approve storage in any TxDOT yard.

Promptly and properly dispose of any waste generated from servicing equipment on the project.

Item 7: Legal Relations and Responsibilities

If access to the project is required through a new or unapproved driveway (i.e. Material source, stockpile location, field office, etc.), obtain an approved “Permit to Construct Access Driveway Facilities on Highway Right Of Way” (TxDOT Form 1058) before beginning any construction operations.

Utilities (public, private and TxDOT) exist throughout the project. Prior to any excavation, investigate to determine the utility locations within the project right of way. Contact the TxDOT Odessa Traffic Operations shop at 432-498-4690 to investigate and determine the location of any TxDOT utility that may exist within the project right of way. Exercise caution when excavating in areas where investigations have determined that utilities exist. The contractor is responsible for maintaining utility markings.

No significant traffic generator events identified.

As an element of ensuring public safety and convenience under Article 7.2.4, the Contractor is hereby directed to open all closed lanes and shoulder and remove all traffic control devices from any areas where work is not being actively performed unless overnight traffic control is required and approved by the engineer. Removed devices must be stored outside of the clear zones near the right of way line or removed from the right of way line entirely.

Item 8: Prosecution and Progress

The following portions of the plans may affect the Contractor's planned construction sequencing. The Contractor’s attention is directed to the appropriate plan sheet or standard sheet.

-Traffic Control Plan

-Storm Water Pollution Prevention Plan

-Environmental Permit, Issues And Commitments (EPIC)

Maintain ingress and egress to side streets and private property at all times.

Working days will be computed and charged in accordance with article 8. 3.1.4. “Standard Workweek.”

During pavement removal and filling operations, a “wedge” of material shall be placed longitudinally between lanes, at intersections and at driveways. Material will be as approved by the Engineer. This work will not be paid for directly but will be subsidiary to various bid items.

90 day lead time is needed to allow for sufficient time to obtain and produce materials needed for various bid items in this project.

Increased Liquidated Damages apply to this project using a Road User Cost (RUC) of $12,434 per Working Day.

Item 100: Preparing Right Of Way Do not disturb natural vegetation and trees wherever possible.

ROW clearing shall be performed utilizing a forestry mulcher or similar equipment as approved by the engineer to minimize soil disturbance.

Item 105: Removing Treated and Untreated Base And Asphalt Pavement

Saw cut and remove existing asphaltic pavement by an approved method.

Start work after the mix design for the pavement base paving material has been accepted.

Remove only the volume of material that can reasonably be replaced with new material within 24 hours of removal based on anticipated production rates. The Engineer may halt further Item 105 work if any removed volumes have not been replaced with replacement material within 48 hours of excavation.

Remove existing raised pavement markers as part of this work and dispose of properly.

Item 110: Excavation

Broom the existing base or subgrade to remove any loose material dropped during excavation operations. This work is considered subsidiary to this item.

Before excavation and embankment operations begin, windrow all topsoil (approx. 4 inches) to be reused on side slopes or behind the proposed curb and gutter. This work is subsidiary to Item110, "Excavation" and Item132, "Embankment".

Item 132: Embankment

For all material with a plasticity index of less than 20, use test method Tex-113-E in lieu of test method Tex-114-E for determining the percent of density.

Material quality test requirements will be waived for material excavated from the right of way on this project and utilized in embankment.

Type X embankment material shall meet testing requirements of Type A with the exception that the specification limit for PI is between 6 and 15, and no more that 15% of the total aggregate may be field sand or other uncrushed fine aggregate.

Item 150: Blading

Use blading as directed.

When directed, fill and grade low areas outside the embankment areas to drain.

Preserve the top 4" of topsoil outside of the work area. Preserve this material in windrows until topsoil can be replaced and seeded to stabilize all exposed terrain.

Item 164 Seeding for Erosion Control

Unless otherwise approved, planting dates for permanent seeding is from February 1 until May 15.

Provide a permanent rural seed mix in accordance with the species and rates shown for sandy soils in Table 1 for the Odessa District.

Use Table 4 for dates, seed mix, and rates for Temporary Warm Season seeding for the Odessa District.

The Engineer shall be notified in writing of the unavailability of any plant species, and of any proposed change(s) to the seed mix as a result of an unavailable species.

Any change(s) to a seed mix shall be approved by the Engineer.

For temporary seeding, use bonded fiber matrix that are on the Approved Products List, Erosion Control Approved Products. Use approved equipment to vertically track the seedbed as directed by the Engineer. Apply bonded fiber matrix uniformly over the seeded area at a minimum rate of 2500 pounds per acre.

Item 216: Proof Rolling

Proof rolling will be required on rock embankments where density tests are not practical and at other locations as directed.

Item 247: Flexible Base

The estimated quantity of flexible base shown includes all roadways, intersecting streets and driveways. The measured area for payment will be the crown width only. The side slope tapers are not included in the measurements for the flexible base but are considered subsidiary to this item.

Maintain moisture during compaction as directed by the Engineer. Determine the moisture content of the material in accordance with Tex-115-E or Tex-103-E as directed by the Engineer.

Item 302: Aggregates for Surface Treatments

Flakiness index for aggregates will not be required on this project.

Coat aggregate with 1.0 percent by weight of residual bitumen.

Use an unmodified asphalt with a minimum performance grade of 64-16 (PG 64-16) or better for aggregate pre-coating.

Use a liquid asphalt anti-stripping agent of a type and at a rate approved by the Engineer.

Item 310: Prime Coat

MC-30 will have a minimum 72 hour curing time or as directed by the engineer.

Item 316: Seal Coat

Furnish class “A” aggregate for the non-surface course.

Do not apply polymer modified asphalt cement between August 31st and May 1st unless authorized in writing.

Place a string line or other suitable marking where needed to assure smooth neat lines, or as directed.

Surface treat the existing surfaced intersections, auxiliary lanes, curve widenings and widened dip sections plus any additional areas encountered during construction to conform to the existing surface. The limits are the greater of the end of the curb returns, the right of way line, or the adjacent traffic lane.

Rates are shown in the plans.

Perform rock land and shoot test strips for each day’s work at each location or as directed by the Engineer.

Provide the Engineer with this information prior to the seal coat application. Provide control that is acceptable to the Engineer for yield calculations.

Ensure that all sealed expansion joints on bridges are covered by an approved method immediately prior to seal coat application. Keep the expansion joints covered until sweeping operations are complete. This work will be paid for under Item 316 as part of surface preparation.

Wet the stockpile of aggregate prior to use.

The use of a variable rate nozzle will be required on this project as determined by the engineer.

Contractor shall provide a list of stockpile locations prior to any material placed on the job site. Contractor shall have the Engineer and Odessa District Environmental Officer approve any and all stockpile locations prior to stockpiling of aggregate or other material. Stockpile locations will not be permitted on or adjacent to landscaped and non-mow areas.

As seal coat operations are completed at each location, clean and level all stockpile locations to the satisfaction of the Engineer.

Clean up paper, asphalt and excess rock after seal coat placement as each reference location is completed. Contractor shall not proceed ahead more than two reference locations before clean-up operations have been accomplished at the previous completed reference locations.

Contractor shall clean and remove asphalt from unauthorized concrete at the expense of the Contractor.

Item 346: Stone-Matrix Asphalt

Binder:

Furnish type “I” asphalt-rubber binder containing grade “C” rubber.

Aggregate quality:

Provide class "A" aggregate.

Blending of SAC A and SAC B will not be allowed for the coarse aggregate.

Magnesium sulfate soundness loss will not be greater than 20 percent when class “A” aggregate is required.

Mixture design:

Test method Tex-530-c (boil test) will not be required.

No RAP will be allowed in the surface course.

No RAS will be allowed.

Field sand will not be allowed.

Mineral filler will not be allowed.

Lime as anti-stripping agent is not allowed.

Placement:

Semi-trailer type vehicles are specifically prohibited from dumping directly into the finishing machine for the finished surface. This type of haul truck will be allowed to unload into the finishing machine if the trailer is equipped with an auger slatted chain or another approved conveyor.

Item 400: Excavation and Backfill for Structures

Aggregate for cement stabilized backfill will be an approved material.

The addition of cement stabilized backfill under the pipe will not be required for this project. However, the Contractor will be required to shape the subgrade (trench bottom) to conform to a class C bedding in sand or loam. If rock or rock outcrops are encountered, a class B bedding consisting of sand or chat material will be required under the pipe.

Item 421: Hydraulic Cement Concrete

Furnish disposable 4" or 6" cylinder molds and caps that meet testing tolerances.

The Engineer will provide strength testing equipment for acceptance testing.

Furnish type II or IP cement.

All plants and trucks may be inspected and approved by the Engineer in lieu of the NRMCA or Non-Department Engineer Sealed Certifications. The criteria and frequency of the Engineer approval of plants and trucks is the same used for NRMCA certification.

Item 432: Riprap

Reinforce all riprap on this project with no. 3 bars spaced 12 inches O.C.B.W. or no. 4 bars spaced at 18 inches O.C.B.W.

Broom finish all riprap on this project unless otherwise directed.

Polypropylene fiber may not be used in lieu of reinforcing steel.

Item 464: Reinforced Concrete Pipe

At locations where existing culverts are cut, use class A concrete to patch the areas at the joint between the new construction and the existing structure.

Item 467: Safety End Treatment

Provide shop drawings for pipe runners.

Provide riprap at precast safety end treatments in accordance with standard PSET-RR.

Item 502: Barricades, Signs, and Traffic Handling

Stop work immediately if any major traffic control element such as an advanced warning flashing panel or TMA or PCMS is not in good working order or control setup.

Maintain "No Center Line", "Do Not Pass" and "Pass With Care" signs until the permanent lane markings have been placed in accordance with plans.

Place orange fencing around sidewalk, wheelchair ramps and other pedestrian areas that pose a hazard to pedestrian traffic as directed.

Use Shoulder Drop-Off (CW8-9A) signs during construction when shoulder drop-off conditions are 3 inches or greater or as directed. Placement shall be in accordance with the "Texas Manual on Uniform Traffic Control Devices".

This project has a regulatory work zone speed reduction within the project limits. The work zone speed limit is reduced from 75 mph to 60 mph, 60 mph to 50 mph, 55 mph to 45 mph, and 45 mph to 35 mph. Placement of speed reduction zone signs shall comply with BC (3)-21. Speed resumption sign(s) is required at the end of a speed reduction zone.

Place chevrons, at a minimum, on every other drum used for outsides of curves, merging tapers and shifting tapers.

Vertical panels shall be self-righting.

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

When construction operations result in a drop-off of more than 2 inches, a 3:1 or flatter slope will be required. The slope must be constructed with a compacted material capable of supporting vehicles as approved by the Engineer. This work shall be done expeditiously during daylight hours. Flaggers and appropriate signing to safely guide traffic through the work area will be required as directed by the Engineer. This shall be considered subsidiary to Item 502.

Item 504: Field Office and Laboratory

Provide a Type C structure (field office) on the project site. The field office will not be required to be piped for water and fuel. Do not furnish and install security lighting, potable water, fuel, and an exhaust fan. The building will not be required to be serviced with a sewer or septic tank with connections and will not require a rest room with a toilet and lavatory. A parking area and chain link fence enclosing the field laboratory will not be required.

Provide a Type D structure (asphalt mix control laboratory) for the asphalt mix control laboratory for the Engineer's exclusive use. In addition to the requirements of Item 504, this structure will have a minimum height of 8 feet and provide a minimum of 400 square feet of gross floor area for permanently located asphalt plants, or 200 square feet for temporary located plants serving one project. The floor area will be partitioned into a minimum of two interconnected rooms, each room furnished with an exterior door and a minimum of two windows. The floor will have sufficient strength to support the testing equipment and have an impervious covering.

Item 506: Temporary Erosion, Sedimentation, and Environmental Controls

In accordance with the Construction General Permit (CGP), erosion control and stabilization measures should be initiated as soon as practicable to include replacing topsoil from windrow, erosion control logs, and seeding.

The total disturbed area for this project is 68 Acres. The disturbed area in this project, all project locations in the contract, and Contractor Project Specific Locations (PSLS), within 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 any required authorization from the TCEQ for any Contractor PSLS for construction support activities on or off the right of way. When the total area disturbed for all projects in the contract and PSLS within 1 mile of the project limits exceeds 5 acres, provide a copy of the Contractor NOI for PSLS on the right of way, to the Engineer (or to the appropriate MS4 operator when on an off-state system route).

Upon acceptance of the project, all SWP3 devices will become property of the State and maintenance responsibility is transferred to the State until final stabilization is attained.

When applying cement for emulsion, asphalt treatment, or any other soil stabilization, sprinkle water as needed to control cement from blowing and contaminating adjacent vegetation and waters.

Item 529: Concrete Curb, Gutter, and Combined Curb And Gutter

Use and place approved expansion joint material between the existing curb and the proposed curb and at least every 50 feet in the proposed curb sections.

Polypropylene fibers may not be used in lieu of reinforcing steel.

After construction, restore the adjacent surface to a condition approved by the Engineer. Consider this work subsidiary to this bid item.

Item 533: Milled Rumble Strips

Use option 4 with milled depressions 6” from edgeline on 4’ shoulders and 36” from edgeline on 10’ shoulders.

Item 585: Ride Quality for Pavement Surfaces

Use surface test type “B” pay adjustment schedule “2” to evaluate ride quality of the travel lanes in accordance with Item 585, “Ride Quality for Pavement Surfaces.”

Item 644: Small Roadside Sign Assemblies

All new sign supports for stop and yield signs will have a 12” red strip of Type C high specific intensity reflective tape. Place the top of the tape 4’ above the edge of the roadway. This work will not be paid for directly and will be subsidiary to the pertinent bid item.

For standard small sign details and dimensions, refer to the “Standard Highway Sign Designs for Texas (SHSD)”; a supplement to the Texas Manual on Uniform Traffic Control Devices (TMUTCD)".

Locate and mark existing reference marker(s) perpendicular to the road and along the right of way, or as directed, prior to removal. Erect new reference marker(s) at the original location, upon completion of construction.

Only bolt clamp style slip bases will be allowed for sign assemblies. Set screws will not be allowed.

Item 658: Delineator and Object Marker Assemblies

Delineator and object marker assembly posts shall be composed of post-consumer recycled materials. Embedded stub shall be perforated square tubing.

Item 662: Work Zone Pavement Markings

After permanent pavement markings are placed, pull tabs from hot mix surface and/or cut off tabs flush with the pavement on seal coat surface. Remove tabs from the project and dispose of properly.

Materials used for non-removable work zone pavement markings will be paint and beads or other approved materials.

Item 666 Reflectorized Pavement Markings

Type I markings shall meet the minimum retroreflectivity values defined by Article 4.4 Retroreflectivity Requirements.

This Contract totals more than 50,000 feet of pavement markings; use a mobile retroreflectometer for retroreflectivity measurements. Portable retroreflectometers may not be used for this Contract.

Place Type I pavement markings with a ribbon-gun application.

Measure thickness for markings in accordance with Tex-854-B using usage rates (Part II).

Item 3077: Superpave Mixtures

Binder:

Provide a binder that has a performance grade of 70-22 (PG 70-22) for the type “B” mix.

Aggregate quality:

Furnish class “B” aggregate for the type ”B” mix.

Furnish aggregates for the shoulders and/or ramps that meet project SAC requirements.

Magnesium sulfate soundness loss will not be greater than 20 percent when Class A aggregate is required.

Mixture design:

Design a mixture with a gradation that has stone on stone contact and passes below the reference zone.

Test method Tex-530-C (Boil Test) will not be required.

Placement:

Semi-trailer type vehicles are prohibited from dumping directly into the finishing machine for the finished surface unless the trailer is equipped with an auger slatted chain or another approved conveyor.

No RAP will be allowed in the surface course.

No more than 10% RAP will be allowed in non-surface courses.

No RAS will be allowed.

Mineral filler will not be allowed.

Lime will not be allowed as an anti-stripping agent.

Field sand will not be allowed.

Item 3089: Emulsion Treatment (Road Mixed)

Schedule and participate in a mandatory pre-paving meeting with the Engineer on or before the first day of paving.

Prepare the surface as part of this work by removing raised pavement markers and objectionable material such as dirt and debris as approved by the Engineer. Dispose of removed raised pavement markers properly off of the ROW.

Correct 0.1-mile sections having an average international roughness index (IRI) value greater than 100.0 in. per mile to an IRI value of 100.0 in. per mile or less for each wheel path.

Maintain moisture during compaction as directed by the Engineer. Determine the moisture content of the material in accordance with Tex-115-E or Tex-103-E as directed by the Engineer.

Provide a Type C vibratory roller. Roller shall have at least a xx-ton load with tamping feet as specified in Item 210.2.2.2, Heavy Tamping Roller.

Item 6001: Portable Changeable Message Sign

PCMS shall be placed in operation a minimum of one (1) week prior to construction. Location(s) and duration for PCMS shall be as directed by the Engineer;

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

General Note 5 of TCP (1-1)-18 provides for additional shadow vehicle(s) with truck mounted attenuator (TMA); one (1) additional shadow vehicle with TMA is included in the basis of estimate for this operation. The shadow vehicle(s) with TMA specified on the traffic control plan as "required" plus the 'additional shadow vehicle' is the quantity that has been estimated for this operation.

General Note 6 of TCP (1-2)-18 provides for additional shadow vehicle(s) with truck mounted attenuator (TMA); one (1) additional shadow vehicle with TMA is included in the basis of estimate for this operation. The shadow vehicle(s) with TMA specified on the traffic control plan as "required" plus the 'additional shadow vehicle' is the quantity that has been estimated for this operation.

General Note 7 of TCP (1-3)-18 provides for additional shadow vehicle(s) with truck mounted attenuator (TMA); one (1) additional shadow vehicle with TMA is included in the basis of estimate for this operation. The shadow vehicle(s) with TMA specified on the traffic control plan as "required" plus the 'additional shadow vehicle' is the quantity that has been estimated for this operation.

General Note 5 of TCP (1-4)-18 provides for additional shadow vehicle(s) with truck mounted attenuator (TMA); one (1) additional shadow vehicle with TMA is included in the basis of estimate for this operation. The shadow vehicle(s) with TMA specified on the traffic control plan as "required" plus the 'additional shadow vehicle' is the quantity that has been estimated for this operation.

General Note 5 of TCP (1-5)-18 provides for additional shadow vehicle(s) with truck mounted attenuator (TMA); one (1) additional shadow vehicle with TMA is included in the basis of estimate for this operation. The shadow vehicle(s) with TMA specified on the traffic control plan as "required" plus the 'additional shadow vehicle' is the quantity that has been estimated for this operation.

General Note 5 of TCP (2-1)-18 provides for additional shadow vehicle(s) with truck mounted attenuator (TMA); one (1) additional shadow vehicle with TMA is included in the basis of estimate for this operation. The shadow vehicle(s) with TMA specified on the traffic control plan as "required" plus the 'additional shadow vehicle' is the quantity that has been estimated for this operation.

General Note 7 of TCP (2-2)-18 provides for additional shadow vehicle(s) with truck mounted attenuator (TMA); one (1) additional shadow vehicle with TMA is included in the basis of estimate for this operation. The shadow vehicle(s) with TMA specified on the traffic control plan as "required" plus the 'additional shadow vehicle' is the quantity that has been estimated for this operation.

General Note 8 of TCP (2-3)-18 provides for additional shadow vehicle(s) with truck mounted attenuator (TMA); one (1) additional shadow vehicle with TMA is included in the basis of estimate for this operation. The shadow vehicle(s) with TMA specified on the traffic control plan as

"required" plus the 'additional shadow vehicle' is the quantity that has been estimated for this operation.

General Note 6 of TCP (2-4)-18 provides for additional shadow vehicle(s) with truck mounted attenuator (TMA); one (1) additional shadow vehicle with TMA is included in the basis of estimate for this operation. The shadow vehicle(s) with TMA specified on the traffic control plan as "required" plus the 'additional shadow vehicle' is the quantity that has been estimated for this operation.

General Note 7 of TCP (2-6)-18 provides for additional shadow vehicle(s) with truck mounted attenuator (TMA); one (1) additional shadow vehicle with TMA is included in the basis of estimate for this operation. The shadow vehicle(s) with TMA specified on the traffic control plan as "required" plus the 'additional shadow vehicle' is the quantity that has been estimated for this operation.

****Basis of Estimate for Stationary TMAs**

Standard	Description	TMA (Stationary)		
		Required	Optional	Total
TCP 1-1	TCP - Conventional Road Shoulder Work	1 EA	1 EA	2 EA
TCP 1-2	TCP - One-Lane Two-Way Traffic Control	1 EA	1 EA	2 EA
TCP 1-3(a)	TCP - Traffic Shifts on Two Lane Roads-Adequate View	1 EA	1 EA	2 EA
TCP 1-3(b)	TCP - Traffic Shifts on Two Lane Roads-Inadequate View	2 EA	2 EA	4 EA
TCP 1-4	TCP - Lane Closures on Multilane Conventional Roads	1 EA	1 EA	2 EA
TCP 1-5	TCP - Lane Closures for Divided Highways	1 EA	1 EA	2 EA
TCP 2-1	TCP - Conventional Road Shoulder Work	1 EA	1 EA	2 EA
TCP 2-2	TCP - One-Lane Two-Way Traffic Control	1 EA	1 EA	2 EA
TCP 2-3(a)	TCP - Traffic Shifts on Two-Lane Roads-Adequate View	1 EA	1 EA	2 EA
TCP 2-3(b)	TCP - Traffic Shifts on Two-Lane Roads-Inadequate View	2 EA	2 EA	4 EA
TCP 2-4	TCP - Lane Closures on Multilane Conventional Roads	1 EA	1 EA	2 EA
TCP 2-6	TCP - Lane Closures on Divided Highways	1 EA	1 EA	2 EA

** For Informational Purposes Only

There are no General Notes for additional shadow vehicle(s) with truck mounted attenuator (TMA) on TCP (3-1)-13; the shadow vehicle(s) with TMA specified on the traffic control plan as "required" is the quantity that has been estimated for this operation.

There are no General Notes for additional shadow vehicle(s) with truck mounted attenuator (TMA) on TCP (3-2)-13; the shadow vehicle(s) with TMA specified on the traffic control plan as "required" is the quantity that has been estimated for this operation. No additional shadow vehicle with TMA and Arrow Board has been estimated for workers on foot in the work space shown in TCP(3-2b).

There are no General Notes for additional shadow vehicle(s) with truck mounted attenuator (TMA) on TCP (3-3)-14; the shadow vehicle(s) with TMA specified on the traffic control plan as "required" is the quantity that has been estimated for this operation.

There are no General Notes for additional shadow vehicle(s) with truck mounted attenuator (TMA) on TCP (3-4)-13; the shadow vehicle(s) with TMA specified on the traffic control plan as "required" is the quantity that has been estimated for this operation.

****Basis of Estimate for Mobile Operation TMAs**

Standard	Description	TMA (Mobile Operation)		
		Required	Optional	Total
TCP (3-1)	TCP - Mobile Operations - Undivided Highways	2 EA	0 EA	2 EA
TCP (3-2)	TCP - Mobile Operations - Divided Highways	3 EA	0 EA	3 EA
TCP (3-3a), (3-3b), and (3-3d)	TCP - Mobile Operations - Raised Pavement Marker: 2 Lane Highway With Shoulders, 2 Lane Highway Without Shoulders, Undivided Multilane Highway	2 EA	0 EA	2 EA
TCP (3-3c)	TCP - Mobile Operations - Raised Pavement Marker: Divided Multilane Highway	3 EA	0 EA	3 EA
TCP (3-4)	TCP - Mobile Operations for Isolated Work Areas Undivided Highways: Center Turn Lane Symbol Markings	2 EA	0 EA	2 EA
TCP (3-4)	TCP - Mobile Operations for Isolated Work Areas Undivided Highways: Other Lane Symbol Markings	1 EA	0 EA	1 EA

** For Informational Purposes Only

The Contractor will be responsible for determining if one or more operations will be ongoing at the same time to determine the total number of TMAs needed for the project.

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0228-04-043 **DISTRICT** Odessa **COUNTY** Andrews
HIGHWAY SH 115, US 385

ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL
	100-6002	PREPARING ROW	STA	3.000	
	104-6009	REMOVING CONC (RIPRAP)	SY	9.800	
	104-6022	REMOVING CONC (CURB AND GUTTER)	LF	200.000	
	105-6002	REMOVING STAB BASE AND ASPH PAV (2")	SY	2,038.000	
	105-6106	REMOVING STAB BASE AND ASPH PAV(6"-9")	SY	210,235.000	
	106-6001	OBLITERATING ABANDONED ROAD	STA	3.900	
	110-6001	EXCAVATION (ROADWAY)	CY	34,281.000	
	132-6002	EMBANKMENT (FINAL)(DENS CONT)(TY A)	CY	15,259.000	
	134-6002	BACKFILL (TY B)	STA	1,105.000	
	150-6002	BLADING	HR	56.000	
	164-6033	DRILL SEEDING (PERM) (RURAL) (SANDY)	SY	312,259.000	
	164-6055	BONDED FBR MTRX SEED (TEMP)(WARM)	SY	82,028.000	
	216-6001	PROOF ROLLING	HR	8.000	
	247-6064	FL BS (CMP IN PLC)(TY A GR 4) (6")	SY	31,608.000	
	247-6104	FL BS (RDWY DEL) (TY A GR 4) (IN VEH)	CY	560.000	
	247-6314	FL BS (CMP IN PLC) (TY A GR 4) (12.5")	SY	87,517.000	
	251-6037	REWORK BS MTL (TY D) (6") (ORD COMP)	SY	15,120.000	
	251-6079	REWORK BS MTL (TY D)(SURF)(ORD COMP)	SY	212,273.000	
	251-6106	REWORK BS MTL (TY B) (12")(ORD COMP)	SY	6,756.000	
	310-6005	PRIME COAT (AE-P)	GAL	44,381.000	
	315-6004	FOG SEAL (CSS-1H)	GAL	117,072.000	
	316-6017	ASPH (AC-20-5TR)	GAL	249,759.000	
	316-6126	AGGR(TY-PB GR-4 SAC-A)	CY	7,092.000	
	346-6040	STONE-MTRX-ASPH SMAR-F SAC-A	TON	86,059.000	
	346-6058	TACK COAT	GAL	46,831.000	
	400-6001	STRUCT EXCAV	CY	219.400	
	400-6005	CEM STABIL BKFL	CY	32.500	
	416-6018	DRILL SHAFT (SIGN MTS) (24 IN)	LF	12.000	
	420-6009	CL A CONC (COLLAR)	EA	7.000	
	432-6001	RIPRAP (CONC)(4 IN)	CY	3.900	
	432-6045	RIPRAP (MOW STRIP)(4 IN)	CY	3,421.100	
	462-6045	CONC BOX CULV (3 FT X 2 FT)(EXTEND)	LF	133.000	
	464-6002	RC PIPE (CL III)(15 IN)	LF	178.000	
	464-6003	RC PIPE (CL III)(18 IN)	LF	102.000	
	464-6005	RC PIPE (CL III)(24 IN)	LF	19.000	
	467-6106	SET (TY I)(S=3 FT)(HW=3FT)(4:1)(C)	EA	4.000	
	467-6338	SET (TY II) (15 IN) (RCP) (4: 1) (C)	EA	3.000	
	467-6341	SET (TY II) (15 IN) (RCP) (6: 1) (P)	EA	3.000	
	467-6363	SET (TY II) (18 IN) (RCP) (6: 1) (P)	EA	6.000	
	467-6394	SET (TY II) (24 IN) (RCP) (6: 1) (C)	EA	4.000	
	480-6001	CLEAN EXIST CULVERTS	EA	32.000	

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0228-04-043 **DISTRICT** Odessa **COUNTY** Andrews
HIGHWAY SH 115, US 385

ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL
	496-6004	REMOV STR (SET)	EA	19.000	
	496-6016	REMOV STR (PIPE)	EA	1.000	
	500-6001	MOBILIZATION	LS	1.000	
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	19.000	
	506-6042	BIODEG EROSN CONT LOGS (INSTL) (18")	LF	2,160.000	
	506-6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	2,160.000	
	529-6008	CONC CURB & GUTTER (TY II)	LF	200.000	
	533-6001	RUMBLE STRIPS (SHOULDER)	LF	124,986.000	
	543-6002	CABLE BARRIER SYSTEM (TL-4)	LF	60,262.000	
	543-6020	CABLE BARRIER TERMINAL SECTION (TL-4)	EA	122.000	
	560-6011	MAILBOX INSTALL-S (TWW-POST) TY 4	EA	2.000	
	560-6013	MAILBOX INSTALL-M (TWW-POST) TY 4	EA	10.000	
	636-6002	ALUMINUM SIGNS (TY G)	SF	155.000	
	636-6007	REPLACE EXISTING ALUMINUM SIGNS(TY A)	SF	41.000	
	644-6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	258.000	
	644-6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	97.000	
	644-6007	IN SM RD SN SUP&AM TY10BWG(1)SA(U)	EA	4.000	
	644-6030	IN SM RD SN SUP&AM TYS80(1)SA(T)	EA	40.000	
	644-6076	REMOVE SM RD SN SUP&AM	EA	314.000	
	647-6001	INSTALL LRSS (STRUCT STEEL)	LB	697.000	
	647-6003	REMOVE LRSA	EA	1.000	
	658-6095	INSTL DEL ASSM (D-DY)SZ 1(YFLX)GND	EA	76.000	
	658-6099	INSTL OM ASSM (OM-2Z)(WFLX)GND	EA	16.000	
	662-6001	WK ZN PAV MRK NON-REMOV (W)4"(BRK)	LF	75,666.000	
	662-6004	WK ZN PAV MRK NON-REMOV (W)4"(SLD)	LF	303,740.000	
	662-6010	WK ZN PAV MRK NON-REMOV (W)8"(DOT)	LF	41,526.000	
	662-6012	WK ZN PAV MRK NON-REMOV (W)8"(SLD)	LF	40,821.000	
	662-6016	WK ZN PAV MRK NON-REMOV (W)24"(SLD)	LF	1,453.000	
	662-6017	WK ZN PAV MRK NON-REMOV (W)(ARROW)	EA	380.000	
	662-6029	WK ZN PAV MRK NON-REMOV(W)(WORD)	EA	377.000	
	662-6031	WK ZN PAV MRK NON-REMOV(W)36"(YLD TRI)	EA	1,381.000	
	662-6032	WK ZN PAV MRK NON-REMOV (Y)4"(BRK)	LF	6,868.000	
	662-6034	WK ZN PAV MRK NON-REMOV (Y)4"(SLD)	LF	299,972.000	
	662-6048	WK ZN PAV MRK REMOV (REFL) TY I-C	EA	428.000	
	662-6050	WK ZN PAV MRK REMOV (REFL) TY II-A-A	EA	698.000	
	662-6052	WK ZN PAV MRK REMOV (REFL) TY II-C-R	EA	8,723.000	
	662-6109	WK ZN PAV MRK SHT TERM (TAB)TY W	EA	49,645.000	
	662-6111	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	EA	4,321.000	
	666-6030	REFL PAV MRK TY I (W)8"(DOT)(100MIL)	LF	20,662.000	
	666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	19,416.000	
	666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	940.000	

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0228-04-043 **DISTRICT** Odessa **COUNTY** Andrews
HIGHWAY SH 115, US 385

ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL
	666-6300	RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)	LF	37,332.000	
	666-6303	RE PM W/RET REQ TY I (W)4"(SLD)(100MIL)	LF	149,571.000	
	666-6312	RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)	LF	3,050.000	
	666-6315	RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)	LF	147,992.000	
	668-6077	PREFAB PAV MRK TY C (W) (ARROW)	EA	187.000	
	668-6085	PREFAB PAV MRK TY C (W) (WORD)	EA	186.000	
	668-6092	PREFAB PAV MRK TY C (W) (36")(YLD TRI)	EA	691.000	
	672-6007	REFL PAV MRKR TY I-C	EA	256.000	
	672-6009	REFL PAV MRKR TY II-A-A	EA	394.000	
	672-6010	REFL PAV MRKR TY II-C-R	EA	4,310.000	
	3077-6007	SP MIXESSP-BSAC-B PG70-22	TON	68,313.000	
	3077-6023	SP MIXESSP-CSAC-B PG70-22	TON	2,805.000	
	3077-6075	TACK COAT	GAL	13,385.000	
	3089-6002	CEMENT	TON	2,361.000	
	3089-6003	EMULSION	GAL	2,846,689.000	
	3089-6004	EMUL TRTMNT (MX EXST MTRL) 8"	SY	605,678.000	
	6001-6001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY	58.000	
	6185-6002	TMA (STATIONARY)	DAY	1,350.000	
	6185-6005	TMA (MOBILE OPERATION)	DAY	117.000	
	08	EROSION CONTROL MAINTENANCE (NON-PART)	LS	1.000	
		SAFETY CONTINGENCY (NON-PART)	LS	1.000	

SUMMARY OF ROADWAY QUANTITIES

CSJ (HWY)	LOCATION		AREA *	AREA**	AREA ***	100 6002 PREPARING ROW	105 6002 REMOVING STAB BASE AND ASPH PAV (2")	105 6106 REMOVING STAB BASE AND ASPH PAV(6"-9")	106 6001 OBLITERATING ABANDONED ROAD	110 6001 EXCAVATION (ROADWAY)	132 6002 EMBANKMENT (FINAL)(DENS CONT)(TY A)	134 6002 BACKFILL (TY B)	150 6002 BLADING	216 6001 PROOF ROLLING	247 6064 FL BS (CMP IN PLC)(TY A GR 4)(6")	247 6104 FL BS (RDWY DEL) (TY A GR 4) (IN VEH)	247 6314 FL BS (CMP IN PLC) (TY A GR 4) (12.5")	251 6037 REWORK BS MTL (TY D) (6") (ORD COMP)	251 6079 REWORK BS MTL (TY D)(SURF)(ORD COMP)	251 6106 REWORK BS MTL (TY B)(12")(ORD COMP)
	FROM STA	TO STA	SY	SY	SY	STA	SY	SY	STA	CY	CY	STA	HR	HR	SY	CY	SY	SY	SY	SY
CSJ: 0228-04-043 (US 385)																				
US 385 / SHEET 1 OF 31	1+00.00	21+00.00	18,667		19,102			19,102						2					19,102	
US 385 / SHEET 2 OF 31	21+00.00	45+00.00	23,303		23,869			23,869						2					23,869	
US 385 / SHEET 3 OF 31	45+00.00	69+00.00	22,486	12,528	9,300			12,528		26	67	34.00		2					12,528	
US 385 / SHEET 4 OF 31	69+00.00	93+00.00	24,449	24,554	5,789			5,789				34.00	2						5,789	
US 385 / SHEET 5 OF 31	93+00.00	117+00.00	28,314	12,170	17,000			17,000	2.00	1,249	484	42.00	2		2,334	48	2,142	1,296	17,000	
US 385 / SHEET 6 OF 31	117+00.00	141+00.00	24,093	12,394	6,412			6,412	0.70	834	353	46.00	2		852	16	2,417	432	6,412	
US 385 / SHEET 7 OF 31	141+00.00	165+00.00	25,021	20,109	5,758			5,758		1,180	731	33.00	2		835	16	3,234	432	5,758	
US 385 / SHEET 8 OF 31	165+00.00	189+00.00	24,452	19,377	7,413			7,413		1,439	868	30.00	2		1,177	16	3,962	432	7,413	
US 385 / SHEET 9 OF 31	189+00.00	213+00.00	26,104	22,482	4,521			4,521		1,349	600	39.00	2		716	48	3,828	1,296	4,521	
US 385 / SHEET 10 OF 31	213+00.00	237+00.00	25,243	20,256	5,833			5,833		1,071	1,346	36.00	2		949	16	3,429	432	5,833	
US 385 / SHEET 11 OF 31	237+00.00	261+00.00	22,634	23,445						555	541	48.00	2			16	2,105	432	0	
US 385 / SHEET 12 OF 31	261+00.00	285+00.00	22,836	21,283	2,399			2,399		545	430	48.00	2		303		2,199		2,399	
US 385 / SHEET 13 OF 31	285+00.00	309+00.00	26,329	19,967	7,213	3.00		7,213		1,384	787	24.00	2		1,194	32	3,700	864	7,213	
US 385 / SHEET 14 OF 31	309+00.00	333+00.00	24,570	23,165	2,252			2,252		1,191	757	32.00	2		573		3,764		2,252	
US 385 / SHEET 15 OF 31	333+00.00	357+00.00	26,927	27,299						1,643	877	34.00	2			32	5,929	864		
US 385 / SHEET 16 OF 31	357+00.00	381+00.00	28,363	22,787	6,415			6,415		2,218	350	26.00	2		985	48	5,379	1,296	6,415	
US 385 / SHEET 17 OF 31	381+00.00	405+00.00	26,461	21,487	5,824			5,824		1,793	845	32.00	2		971	16	4,641	432	5,824	
US 385 / SHEET 18 OF 31	405+00.00	429+00.00	25,007	25,198						1,095	493	46.00	2			32	3,939	864		
US 385 / SHEET 19 OF 31	429+00.00	453+00.00	22,949	23,761						701	259	46.00	2			16	2,452	432		
US 385 / SHEET 20 OF 31	453+00.00	477+00.00	23,579	18,304	6,057			6,057		1,223	386	38.00	2		892	16	3,255	432	6,057	
US 385 / SHEET 21 OF 31	477+00.00	501+00.00	23,344	24,152						815	177	43.00	2			16	2,703	432		
US 385 / SHEET 22 OF 31	501+00.00	525+00.00	25,930	26,728						1,511	895	31.00	2			16	5,038	432		
US 385 / SHEET 23 OF 31	525+00.00	549+00.00	25,603	19,221	7,216			7,216		1,105	354	46.00	2		778	16	2,095	432	7,216	
US 385 / SHEET 24 OF 31	549+00.00	573+00.00	24,089	24,897	3,378			3,378		2,754	263	36.00	2			16	3,489	432	3,378	3,378
US 385 / SHEET 25 OF 31	573+00.00	597+00.00	24,439	19,903	11,431			11,431		2,125	649	38.00	2		1,285	16	2,252	432	11,431	3,378
US 385 / SHEET 26 OF 31	597+00.00	621+00.00	23,146	23,552	440			440		798	459	48.00	2		86		2,800		440	
US 385 / SHEET 27 OF 31	621+00.00	645+00.00	25,441	25,864						1,346	525	43.00	2			32	4,513	864		
US 385 / SHEET 28 OF 31	645+00.00	669+00.00	26,980	14,033	13,793			13,793		1,815	496	27.00	2		2,764	32	1,749	864	13,793	
US 385 / SHEET 29 OF 31	669+00.00	693+00.00	23,752	24,561						849	329	46.00	2			16	3,124	432		
US 385 / SHEET 30 OF 31	693+00.00	717+00.00	25,559	14,899	11,596			11,596		904	249	38.00	2		1,347	16	1,561	432	11,596	
US 385 / SHEET 31 OF 31	717+00.00	740+56.61	24,135	17,302	7,700			7,700	1.20	763	689	41.00	2		765	16	1,818	432	7,700	
SUMMARY OF SIDE ROADS					14,108		2,038								12,070				2,038	
CSJ: 0228-04-043 TOTAL (US 385)			764,202	605,678	204,819	3.00	2,038	193,939	3.90	34,281	15,259	1,105	56	6	30,876	560	87,517	15,120	195,977	6,756
CSJ: 0354-06-029 SH 115																				
SH 115 / SHEET 1 OF 1	1261+18.00	1284+10.00	16,296	0	16,296	0	0	16,296	0	0	0	0	0	2	0	0	0	0	16,296	0
SUMMARY OF SIDE ROADS			1,896		1,896										732					
CSJ 0354-06-029 TOTAL (SH 115)			18,192	0	18,192	0	0	16,296	0	0	0	0	0	2	732	0	0	0	16,296	0
PROJECT TOTALS			782,394	605,678	223,011	3.00	2,038	210,235	3.90	34,281	15,259	1,105	56	8	31,608	560	87,517	15,120	212,273	6,756

NOTES:

*- AREA FOR ITEM 315,316, AND 346

**- AREA FOR ITEM 3089

***- AREA FOR ITEM 3077

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QUANTITY SUMMARIES

SHEET 1 OF 11

Texas Department of Transportation

LOCHNER
TBPE Firm Reg. No. 10488

FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	15

STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

SUMMARY OF ROADWAY QUANTITIES

CSJ (HWY)	LOCATION		AREA *	AREA**	AREA ***	310 6005 PRIME COAT (AE-P)	315 6004 FOG SEAL (CSS-1H)	316 6017 ASPH (AC-20-5TR)	316 6126 AGGR(TY-PB GR-4 SAC-A)	346 6040 STONE-MTRX-A SPH SMAR-F SAC-A	346 6058 TACK COAT	3077 6007 SUPERPAVE MIXTURES SP-B SAC-B PG70-22	3077 6023 SUPERPAVE MIXTURES SP-C SAC-B PG70-22	3077 6075 TACK COAT	3089 6002 CEMENT	3089 6003 EMULSION	3089 6004 EMUL TRTMNT (MX EXST MTRL) 8"
						(0.20 GAL/SY)	(0.15 GAL/SY)	(0.32 GAL/SY)	(1 CY/110 SY)	(220 LBS/SY)	(0.06 GAL / SY)	(660 LBS/SY)	(440 LBS/SY)	(0.06 GAL /SY)	(7.8 LBS/SY)	(4.7 GAL/SY)	
	FROM STA	TO STA	SY	SY	SY	GAL	GAL	GAL	CY	TON	GAL	TON	TON	GAL	TON	GAL	SY
CSJ: 0228-04-043 (US 385)																	
US 385 / SHEET 1 OF 31	1+00.00	21+00.00	18,667		19,102	3,820	2,800	5,974	170	2,053	1,120	6,304		1,146			
US 385 / SHEET 2 OF 31	21+00.00	45+00.00	23,303		23,869	4,774	3,495	7,457	212	2,563	1,398	7,877		1,432			
US 385 / SHEET 3 OF 31	45+00.00	69+00.00	22,486	12,528	9,300	1,860	3,373	7,195	204	2,473	1,349	3,069		752	49	58,882	12,528
US 385 / SHEET 4 OF 31	69+00.00	93+00.00	24,449	24,554	5,789	1,158	3,667	7,824	222	2,689	1,467	1,910		347	96	115,404	24,554
US 385 / SHEET 5 OF 31	93+00.00	117+00.00	28,314	12,170	17,000	3,400	4,247	9,060	257	3,115	1,699	5,610		1,020	47	57,199	12,170
US 385 / SHEET 6 OF 31	117+00.00	141+00.00	24,093	12,394	6,412	1,282	3,614	7,710	219	2,650	1,446	2,116		385	48	58,252	12,394
US 385 / SHEET 7 OF 31	141+00.00	165+00.00	25,021	20,109	5,758	1,152	3,753	8,007	227	2,752	1,501	1,900		345	78	94,512	20,109
US 385 / SHEET 8 OF 31	165+00.00	189+00.00	24,452	19,377	7,413	1,483	3,668	7,825	222	2,690	1,467	2,446		445	76	91,072	19,377
US 385 / SHEET 9 OF 31	189+00.00	213+00.00	26,104	22,482	4,521	904	3,916	8,353	237	2,871	1,566	1,492		271	88	105,665	22,482
US 385 / SHEET 10 OF 31	213+00.00	237+00.00	25,243	20,256	5,833	1,167	3,786	8,078	229	2,777	1,515	1,925		350	79	95,203	20,256
US 385 / SHEET 11 OF 31	237+00.00	261+00.00	22,634	23,445		0	3,395	7,243	206	2,490	1,358				91	110,192	23,445
US 385 / SHEET 12 OF 31	261+00.00	285+00.00	22,836	21,283	2,399	480	3,425	7,307	208	2,512	1,370	792		144	83	100,030	21,283
US 385 / SHEET 13 OF 31	285+00.00	309+00.00	26,329	19,967	7,213	1,443	3,949	8,425	239	2,896	1,580	2,380		433	78	93,845	19,967
US 385 / SHEET 14 OF 31	309+00.00	333+00.00	24,570	23,165	2,252	450	3,685	7,862	223	2,703	1,474	743		135	90	108,876	23,165
US 385 / SHEET 15 OF 31	333+00.00	357+00.00	26,927	27,299			4,039	8,617	245	2,962	1,616				106	128,305	27,299
US 385 / SHEET 16 OF 31	357+00.00	381+00.00	28,363	22,787	6,415	1,283	4,254	9,076	258	3,120	1,702	2,117		385	89	107,099	22,787
US 385 / SHEET 17 OF 31	381+00.00	405+00.00	26,461	21,487	5,824	1,165	3,969	8,467	241	2,911	1,588	1,922		349	84	100,989	21,487
US 385 / SHEET 18 OF 31	405+00.00	429+00.00	25,007	25,198			3,751	8,002	227	2,751	1,500				98	118,431	25,198
US 385 / SHEET 19 OF 31	429+00.00	453+00.00	22,949	23,761			3,442	7,344	209	2,524	1,377				93	111,678	23,761
US 385 / SHEET 20 OF 31	453+00.00	477+00.00	23,579	18,304	6,057	1,211	3,537	7,545	214	2,594	1,415	1,999		363	71	86,029	18,304
US 385 / SHEET 21 OF 31	477+00.00	501+00.00	23,344	24,152			3,502	7,470	212	2,568	1,401				94	113,514	24,152
US 385 / SHEET 22 OF 31	501+00.00	525+00.00	25,930	26,728			3,890	8,298	236	2,852	1,556				104	125,622	26,728
US 385 / SHEET 23 OF 31	525+00.00	549+00.00	25,603	19,221	7,216	1,443	3,840	8,193	233	2,816	1,536	2,381		433	75	90,339	19,221
US 385 / SHEET 24 OF 31	549+00.00	573+00.00	24,089	24,897	3,378	676	3,613	7,708	219	2,650	1,445	1,115		203	97	117,016	24,897
US 385 / SHEET 25 OF 31	573+00.00	597+00.00	24,439	19,903	11,431	2,286	3,666	7,820	222	2,688	1,466	3,772		686	78	93,544	19,903
US 385 / SHEET 26 OF 31	597+00.00	621+00.00	23,146	23,552	440	88	3,472	7,407	210	2,546	1,389	145		26	92	110,694	23,552
US 385 / SHEET 27 OF 31	621+00.00	645+00.00	25,441	25,864			3,816	8,141	231	2,799	1,526				101	121,561	25,864
US 385 / SHEET 28 OF 31	645+00.00	669+00.00	26,980	14,033	13,793	2,759	4,047	8,633	245	2,968	1,619	4,552		828	55	65,955	14,033
US 385 / SHEET 29 OF 31	669+00.00	693+00.00	23,752	24,561			3,563	7,601	216	2,613	1,425				96	115,437	24,561
US 385 / SHEET 30 OF 31	693+00.00	717+00.00	25,559	14,899	11,596	2,319	3,834	8,179	232	2,811	1,534	3,827		696	58	70,025	14,899
US 385 / SHEET 31 OF 31	717+00.00	740+56.61	24,135	17,302	7,700	1,540	3,620	7,723	219	2,655	1,448	2,541		462	67	81,319	17,302
SUMMARY OF SIDE ROADS					14,108	2,833				204			2,643	728			
CSJ: 0228-04-043 TOTAL (US 385)			764,202	605,678	204,819	40,976	114,628	244,544	6,944	84,266	45,853	62,935	2,643	12,364	2,361	2,846,689	605,678
CSJ: 0354-06-029 SH 115																	
SH 115 / SHEET 1 OF 1	1261+18.00	1284+10.00	16,296	0	16,296	3,259	2,444	5,215	148	1,793	978	5,378	0	978	0	0	0
SUMMARY OF SIDE ROADS			1,896		1,896	146							162	43			
CSJ 0354-06-029 TOTAL (SH 115)			18,192	0	18,192	3,405	2,444	5,215	148	1,793	978	5,378	162	1,021	0	0	0
PROJECT TOTALS			782,394	605,678	223,011	44,381	117,072	249,759	7,092	86,059	46,831	68,313	2,805	13,385	2,361	2,846,689	605,678

NOTES:

*- AREA FOR ITEM 315,316, AND 346
**- AREA FOR ITEM 3089
***- AREA FOR ITEM 3077

(1)

SUMMARY OF SIDEROAD & TURNOUTS (SH 115)

SH 115 REF #	STA	LT/RT	"W"	"L"	RADIUS (FT) R1	RADIUS (FT) R2	AREA	105 6002 REMOVING STAB BASE AND ASPH PAV (2")	247 6064 FL BS (CMP IN PLC)(TY A GR 4) (6")	310 6005 PRIME COAT (AE-P)	3077 6023 SUPERPAVE MIXTURES SP-C SAC-B PG70-22	3077 6075 TACK COAT
										(0.20 GAL/SY)	(440 LBS/SY)	(0.06 GAL/SY)
			FT	FT			SY	SY	SY	GAL	TON	GAL
CSJ: 0354-06-029												
SR 1-1	1260+60	RT	26	36	15	15	117		117	23	26	7
SR 1-2	1262+43	RT	21	35	15	15	91		91	18	20	5
SR 1-3	1263+49	RT	24	34	15	15	104		104	21	23	6
SR 1-4	1263+74	RT	78	33	15	15	304		304	61	67	18
SR 1-5	1265+83	LT	35	37	15	15	116		116	23	26	7
SR 1-6	1266+50	RT	24	32	15	15	99	SIDEROAD WORK MATCHES ML PAVEMENT AND IS ACCOUNTED FOR IN ML QUANTITIES				
SR 1-7	1271+13	RT	42	76	60	40	533	SIDEROAD WORK MATCHES ML PAVEMENT AND IS ACCOUNTED FOR IN ML QUANTITIES				
SR 1-8	1271+61	LT	66	56	60	40	532	SIDEROAD WORK MATCHES ML PAVEMENT AND IS ACCOUNTED FOR IN ML QUANTITIES				
CSJ: 0354-06-029 TOTAL							1,896	0	732	146	162	43

(1) FOR CONTRACTORS INFORMATION:
QUANTITIES INCLUDED IN SUMMARY OF ROADWAY QUANTITIES

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QUANTITY SUMMARIES

SHEET 2 OF 11

Texas Department of Transportation
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LOCHNER
TBPE Firm Reg. No. 10488

FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	15A

STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

(1)

SUMMARY OF SIDEROAD & TURNOUTS

US 385			"W"	"L"	RADIUS (FT)		AREA	105 6002 REMOVING STAB BASE AND ASPH PAV (2")	247 6064 FL BS (CMP IN PLC) (TY A GR 4) (6")	251 6079 REWORK BS MTL (TY D) (SURF) (ORD COMP)	310 6005 PRIME COAT (AE-P) (0.20 GAL/SY)	346 6040 STONE-MTRX-A SPH SMAR-F SAC-A (220 LBS/SY)	3077 6023 SUPERPAVE MIXTURES SP-C SAC-B PG70-22 (440 LBS/SY)	3077 6075 TACK COAT (0.06 GAL/SY)
REF #	STA	LT/RT	FT	FT	R1	R2	SY	SY	SY	SY	GAL	TON	TON	GAL
CSJ: 0228-04-043														
SR 1-1	05+23	LT	37	25	25	25	133	SIDEROAD WORK MATCHES ML PAVEMENT AND IS ACCOUNTED FOR IN ML QUANTITIES						
SR 1-2	03+87	RT	33	25	15	15	104	SIDEROAD WORK MATCHES ML PAVEMENT AND IS ACCOUNTED FOR IN ML QUANTITIES						
SR 1-3	10+54	RT	29	25	25	25	110	SIDEROAD WORK MATCHES ML PAVEMENT AND IS ACCOUNTED FOR IN ML QUANTITIES						
SR 1-4	14+93	RT	27	25	25	25	104	SIDEROAD WORK MATCHES ML PAVEMENT AND IS ACCOUNTED FOR IN ML QUANTITIES						
SR 1-5	13+66	LT	31	18	25	25	87	SIDEROAD WORK MATCHES ML PAVEMENT AND IS ACCOUNTED FOR IN ML QUANTITIES						
SR 2-1	26+05	LT	56	30	30	30	250	SIDEROAD WORK MATCHES ML PAVEMENT AND IS ACCOUNTED FOR IN ML QUANTITIES						
SR 2-2	26+03	RT	75	38	30	30	386	SIDEROAD WORK MATCHES ML PAVEMENT AND IS ACCOUNTED FOR IN ML QUANTITIES						
SR 2-3	31+70	LT	44	23	10	10	116		116		23		26	7
SR 2-4	40+77	RT	45	25	10	10	116	SIDEROAD WORK MATCHES ML PAVEMENT AND IS ACCOUNTED FOR IN ML QUANTITIES						
SR 3-1	52+61	LT	40	23	10	25	115	SIDEROAD WORK MATCHES ML PAVEMENT AND IS ACCOUNTED FOR IN ML QUANTITIES						
SR 3-2	56+00	LT	30	18	25	25	84		84		17		18	5
SR 3-3	52+53	RT	34	40	80	40	281	SIDEROAD WORK MATCHES ML PAVEMENT AND IS ACCOUNTED FOR IN ML QUANTITIES						
SR 3-4	57+16	LT	15	18	15	15	42		42		8		9	3
SR 3-5	58+15	LT	15	18	15	15	42		42		8		9	3
SR 3-6	60+35	LT	14	18	15	15	39		39		8		9	2
SR 3-7	63+75	LT	15	58	15	15	105		105		21		23	6
SR 3-8	61+91	LT	21	18	15	15	52		52		10		11	3
SR 3-9	65+91	LT	20	58	30	30	173		173		35		38	10
SR 3-10	67+36	LT	20	58	15	15	140		140		28		31	8
SR 3-11	68+59	LT	58	58	20	20	395		395		79		87	24
SR 3-12	59+83	RT	18	27	15	15	66		66		13		15	4
SR 3-13	62+62	RT	26	28	15	15	90		90		18		20	5
SR 3-14	63+37	RT	30	38	15	15	135		135		27		30	8
SR 3-15	66+50	RT	40	38	25	25	198		198		40		44	12
SR 3-16	68+51	RT	28	38	25	25	148		148		30		33	9
SR 4-1	70+50	LT	100	20	20	40	247		247		49		54	15
SR 4-2	72+82	LT	28	21	25	25	95		95		19		21	6
SR 4-3	74+73	LT	28	21	25	25	98		98		20		22	6
SR 4-4	76+81	LT	17	24	25	25	75		75		15		17	5
SR 4-5	77+80	LT	20	25	15	15	66		66		13		15	4
SR 4-6	79+86	LT	30	27	30	30	130		130		26		29	8
SR 4-7	69+60	RT	18	29	20	20	77		77		15		17	5
SR 4-8	70+47	RT	18	30	15	15	71		71		14		16	4
SR 4-9	71+41	RT	20	31	15	15	81		81		16		18	5
SR 4-10	72+62	RT	24	54	55	35	245	SIDEROAD WORK MATCHES ML PAVEMENT AND IS ACCOUNTED FOR IN ML QUANTITIES						
SR 4-11	74+97	RT	20	35	15	15	90		90		18		20	5
SR 4-12	79+61	RT	40	43	25	25	221		221		44		49	13
SR 4-13	83+19	LT	42	22	30	30	145		145		29		32	9
SR 4-14	85+62	LT	58	54	83	83	599	SIDEROAD WORK MATCHES ML PAVEMENT AND IS ACCOUNTED FOR IN ML QUANTITIES						
SR 4-15	85+71	RT	63	83	85	80	912	SIDEROAD WORK MATCHES ML PAVEMENT AND IS ACCOUNTED FOR IN ML QUANTITIES						
SR 5-1	99+69	LT	27	27	26	26	111		111		22		24	7
SR 5-2	104+27	LT	33	28	30	28	143		143		29		31	9
SR 5-3	102+80	RT	30	42	25	25	172		172		34		38	10
SR 5-4	105+89	LT	18	28	20	20	75		75		15		17	5
SR 5-5	106+50	LT	18	28	20	20	75		75		15		17	5
SR 5-6	108+11	LT	18	28	20	20	75		75		15		17	5
SR 5-7	109+10	LT	25	50	50	50	260	SIDEROAD WORK MATCHES ML PAVEMENT AND IS ACCOUNTED FOR IN ML QUANTITIES						
SR 5-8	111+00	LT	50	28	25	25	185		185		37		41	11
SR 5-9	106+38	RT	51	37	80	40	327	SIDEROAD WORK MATCHES ML PAVEMENT AND IS ACCOUNTED FOR IN ML QUANTITIES						
SR 5-10	109+06	RT	40	48	25	25	243		243		49		53	15
SR 5-11	115+34	RT	25	60	70	60	361	SIDEROAD WORK MATCHES ML PAVEMENT AND IS ACCOUNTED FOR IN ML QUANTITIES						
SR 6-1	119+63	LT	45	28	32	28	182		182		36		40	11
SR 6-2	118+94	RT	40	48	25	25	243		243		49		53	15
SR 6-3	121+87	RT	30	48	25	25	190		190		38		42	11
SR 6-4	123+04	RT	30	48	25	25	190		190		38		42	11
SR 6-5	125+80	RT	23	45	45	30	185	SIDEROAD WORK MATCHES ML PAVEMENT AND IS ACCOUNTED FOR IN ML QUANTITIES						
SR 6-6	130+03	LT	33	28	30	30	146		146		29		32	9
SR 6-7	139+25	LT	37	28	30	30	156		156		31		34	9
SR 7-1	150+79	RT	27	53	50	40	260	SIDEROAD WORK MATCHES ML PAVEMENT AND IS ACCOUNTED FOR IN ML QUANTITIES						
SR 8-1	171+46	RT	24	45	30	30	164	SIDEROAD WORK MATCHES ML PAVEMENT AND IS ACCOUNTED FOR IN ML QUANTITIES						
SR 9-1	190+09	LT	25	22	22	22	83		83		17		18	5
SR 9-2	190+10	RT	16	48	20	20	105		105		21		23	6
SR 9-3	197+19	RT	22	48	25	25	149		149		30		33	9
SR 9-4	203+70	RT	17	48	28	28	127		127		25		28	8
SR 10-1	224+65	RT	24	42	24	24	139		139		28		31	8
SR 11-1	259+00	LT	35	28	28	28	147		147		29		32	9
SR 11-2	258+95	RT	21	48	30	30	153		153		31		34	9

(1) FOR CONTRACTORS INFORMATION:
QUANTITIES INCLUDED IN SUMMARY OF ROADWAY QUANTITIES

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QUANTITY SUMMARIES

LOCHNER
TBPE Firm Reg. No. 10488

FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	15B

STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

(1) SUMMARY OF SIDEROAD & TURNOUTS (CONTINUED)

US 385			"W"	"L"	RADIUS (FT)		AREA	105 6002 REMOVING STAB BASE AND ASPH PAV (2")	247 6064 FL BS (CMP IN PLC) (TY A GR 4) (6")	251 6079 REWORK BS MTL (TY D) (SURF) (ORD COMP)	310 6005 PRIME COAT (AE-P)	346 6040 STONE-MTRX-A SPH SMAR-F SAC-A	3077 6023 SUPERPAVE MIXTURES SP-C SAC-B PG70-22	3077 6075 TACK COAT
REF #	STA	LT/RT	FT	FT	R1	R2	SY	SY	SY	SY	(0.20 GAL/SY) GAL	(220 LBS/SY) TON	(440 LBS/SY) TON	(0.06 GAL/SY) GAL
CSJ: 0228-04-043														
SR 13-1	285+18	LT	25	25	30	30	109		109		22		24	7
SR 13-2	308+60	LT	30	22	25	25	102		102		20		22	6
SR 13-3	308+44	RT	25	42	27	27	154		154		31		34	9
SR 15-1	336+01	RT	20	48	30	30	151		151		30		33	9
SR 15-2	349+05	RT	29	48	30	30	202		202		40		44	12
SR 16-1	361+54	LT	36	22	22	23	112	SIDEROAD WORK MATCHES ML PAVEMENT AND IS ACCOUNTED FOR IN ML QUANTITIES						
SR 16-2	370+00	LT	32	60	60	60	385		385		77		85	23
SR 16-3	375+21	LT	27	22	30	30	103		103		21		23	6
SR 17-1	388+50	LT	21	28	25	25	95		95		19		21	6
SR 17-2	388+24	RT	28	42	30	30	175		175		35		39	11
SR 18-1	406+68	RT	24	42	25	25	145		145		29		32	9
SR 18-2	425+69	LT	15	31	25	25	83		83		17		18	5
SR 19-1	431+54	LT	35	36	30	30	181		181		36		40	11
SR 20-1	460+95	RT	31	55	60	50	333	SIDEROAD WORK MATCHES ML PAVEMENT AND IS ACCOUNTED FOR IN ML QUANTITIES						
SR 20-2	467+93	LT	26	48	25	25	167		167		33		34	10
SR 21-1	485+53	LT	11	48	25	25	88		88		18		18	5
SR 22-1	509+07	LT	15	43	30	30	115		115		23		23	7
SR 22-2	518+37	LT	25	42	25	25	145		145		29		29	9
SR 22-3	518+37	RT	30	22	25	25	103		103		21		21	6
SR 23-1	528+35	LT	26	80	80	80	659	SIDEROAD WORK MATCHES ML PAVEMENT AND IS ACCOUNTED FOR IN ML QUANTITIES						
SR 23-2	527+47	RT	24	58	60	60	459	SIDEROAD WORK MATCHES ML PAVEMENT AND IS ACCOUNTED FOR IN ML QUANTITIES						
SR 24-1	560+34	RT	29	28	30	30	133		133		27		29	8
SR 25-1	581+61	LT	19	42	30	30	134		134		27		29	8
SR 25-2	594+90	RT	32	22	30	30	116		116		23		26	7
SR 27-1	627+82	LT	28	46	30	30	184		184		37		40	11
SR 27-2	636+48	LT	17	45	25	25	115		115		23		25	7
SR 27-3	642+00	LT	12	38	35	35	118		118		24		26	7
SR 28-1	653+68	LT	28	38	25	25	145		145		29		32	9
SR 28-2	660+32	LT	35	37	35	35	203		203		41		45	12
SR 29-1	680+74	RT	25	28	30	30	121		121		24		27	7
SR 30-1	714+00	RT					2,038	2,038		2,038	408	204		
SR 30-2	711+73	LT	48	39	25	25	246		246		49		54	15
SR 31-1	719+34	LT	16	38	30	30	111		111		22		24	7
SR 31-2	740+18	RT	24	48	45	45	225	SIDEROAD WORK MATCHES ML PAVEMENT AND IS ACCOUNTED FOR IN ML QUANTITIES						
TO 3-1	55+95	LT					154		154		31		34	9
TO 3-2	64+12	LT					140		140		28		31	8
TO 5-1	113+11	LT					185		185		37		41	11
TO 6-1	125+34	LT					33		33		7		7	2
TO 7-1	150+61	LT					33		33		7		7	2
TO 8-1	172+21	LT					33		33		7		7	2
TO 9-1	196+99	LT					130		130		26		29	8
TO 9-2	203+45	LT					131		131		26		29	8
TO 10-1	224+43	LT					33		33		7		7	2
TO 13-1	205+35	RT					33		33		7		7	2
TO 15-1	335+75	LT					33		33		7		7	2
TO 15-2	348+86	LT					33		33		7		7	2
TO 16-1	361+74	RT					33		33		7		7	2
TO 16-2	370+14	RT					33		33		7		7	2
TO 16-3	375+30	RT					33		33		7		7	2
TO 17-1	388+08	LT					33		33		7		7	2
TO 18-1	406+65	LT					33		33		7		7	2
TO 18-2	426+03	RT					33		33		7		7	2
TO 19-1	431+61	RT					33		33		7		7	2
TO 20-1	460+79	LT					33		33		7		7	2
TO 21-1	485+69	RT					33		33		7		7	2
TO 22-1	515+34	LT					33		33		7		7	2
TO 24-1	560+05	LT					33		33		7		7	2
TO 25-1	594+93	LT					33		33		7		7	2
TO 27-1	627+96	RT					33		33		7		7	2
TO 27-2	639+24	LT					33		33		7		7	2
TO 27-3	639+79	RT					33		33		7		7	2
TO 28-1	654+02	RT					33		33		7		7	2
TO 28-2	660+68	RT					33		33		7		7	2
TO 29-1	680+57	LT					33		33		7		7	2
TO 30-1	710+29	LT					33		33		7		7	2
TO 31-1	739+90	LT					33		33		7		7	2
CSJ: 0228-04-043 TOTAL							20,895	2,038	12,070	2,038	2,833	204	2,643	728
SIDEROAD WORK AREA ACCOUNTED FOR IN ML QUANTITIES							6,787							
SIDEROAD WORK AREA IN SIDEROAD QUANTITIES							14,108							

(1) FOR CONTRACTORS INFORMATION:
QUANTITIES INCLUDED IN SUMMARY OF ROADWAY QUANTITIES

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QUANTITY SUMMARIES

LOCHNER
TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		15C
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

SUMMARY OF DRAINAGE ITEMS

US 385	104 6009 REMOVING CONC (RIPRAP)	400 6001 STRUCT EXCAV	400 6005 CEM STABIL BKFL	420 6009 CL A CONC (COLLAR)	432 6001 RIPRAP (CONC)(4 IN)	462 6045 CONC BOX CULV (3 FT X 2 FT)(EXTEND)	464 6002 RC PIPE (CL III)(15 IN)	464 6003 RC PIPE (CL III)(18 IN)	464 6005 RC PIPE (CL III)(24 IN)	467 6106 SET (TY I)(S=3 FT)(HW=3FT)(4:1)(C)	467 6338 SET (TY II) (15 IN) (RCP) (4: 1) (C)	467 6341 SET (TY II) (15 IN) (RCP) (6: 1) (P)	467 6363 SET (TY II) (18 IN) (RCP) (6: 1) (P)	467 6394 SET (TY II) (24 IN) (RCP) (6: 1) (C)	480 6001 CLEAN EXIST CULVERTS	496 6004 REMOV STR (SET)	496 6016 REMOV STR (PIPE)	658 6099 INSTL OM ASSM (OM-2Z)(WFLX)GND
	SY	CY	CY	EA	CY	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	EA	EA	EA
CSJ: 0228-04-043																		
US 385 / 22+02	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
US 385 / 26+02	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
US 385 / 35+00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
US 385 / 68+01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
US 385 / 85+50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
US 385 / 108+00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
US 385 / 159+99	0	42	1.9	0	0	36	0	34	0	0	0	0	2	0	2	2	0	2
US 385 / 195+00	0	0	0	1	0	0	4	0	0	0	1	0	0	0	1	1	0	0
US 385 / 202+50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
US 385 / 259+00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
US 385 / 267+00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
US 385 / 291+00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
US 385 / 334+00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
US 385 / 348+12	0	0	0	1	0	0	4	0	0	0	1	0	0	0	1	1	0	0
US 385 / 370+00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
US 385 / 382+12	0	4.7	0	1	0	0	0	0	14	0	0	0	0	2	1	2	0	2
US 385 / 396+89	0	50.7	2.6	0	0.5	47	0	34	0	1	0	0	2	0	2	3	0	3
US 385 / 418+12	0	0	0	1	0	0	4	0	0	0	0	1	0	0	1	1	0	0
US 385 / 455+13	9.8	3.8	0	1	1.1	0	0	0	3	0	0	0	0	1	1	1	0	1
US 385 / 465+14	0	3.8	0	1	0	0	0	0	2	0	0	0	0	1	1	1	0	1
US 385 / 491+15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
US 385 / 521+89	0	57.6	2.6	0	1.1	41	0	34	0	2	0	0	2	0	2	4	0	4
US 385 / 527+89	0	48.3	23.3	0	0.7	0	162	0	0	0	0	2	0	0	0	2	1	2
US 385 / 548+00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
US 385 / 612+15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
US 385 / 629+14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
US 385 / 651+14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
US 385 / 683+00	0	0	0	1	0	0	4	0	0	0	1	0	0	0	1	0	0	0
US 385 / 728+35	0	8.5	2.1	0	0.5	9	0	0	0	1	0	0	0	0	2	1	0	1
CSJ: 0228-04-043 TOTAL	9.8	219.4	32.5	7	3.9	133	178	102	19	4	3	3	6	4	32	19	1	16
PROJECT TOTALS	9.8	219.4	32.5	7	3.9	133	178	102	19	4	3	3	6	4	32	19	1	16

SUMMARY OF CABLE BARRIER

US 385	432 6045 RIPRAP (MOW STRIP)(4 IN)	543 6002 CABLE BARRIER SYSTEM (TL-4)	543 6020 CABLE BARRIER TERMINAL SECTION (TL-4)
	CY	LF	EA
CSJ: 0228-04-043			
SHEET 4 OF 31	29.9	500	1
SHEET 5 OF 31	109	1787	6
SHEET 6 OF 31	138.3	2382	6
SHEET 7 OF 31	128.4	2286	4
SHEET 8 OF 31	126.9	2259	4
SHEET 9 OF 31	108.4	1776	6
SHEET 10 OF 31	128.4	2286	4
SHEET 11 OF 31	128.9	2296	4
SHEET 12 OF 31	129.2	2406	3
SHEET 13 OF 31	119.1	2203	4
SHEET 14 OF 31	131.4	2451	3
SHEET 15 OF 31	129.4	2107	8
SHEET 16 OF 31	105.7	1720	6
SHEET 17 OF 31	140.4	2416	6
SHEET 18 OF 31	122.5	2061	6
SHEET 19 OF 31	128.2	2281	4
SHEET 20 OF 31	129.1	2298	4
SHEET 21 OF 31	127.7	2271	4
SHEET 22 OF 31	127.5	2266	4
SHEET 23 OF 31	123.6	2188	4
SHEET 24 OF 31	118.1	2180	2
SHEET 25 OF 31	127.7	2271	4
SHEET 26 OF 31	133.6	2496	2
SHEET 27 OF 31	122.3	2056	6
SHEET 28 OF 31	124.7	2106	6
SHEET 29 OF 31	128.4	2286	4
SHEET 30 OF 31	129.4	2306	4
SHEET 31 OF 31	124.9	2321	3
CSJ: 0228-04-043 TOTAL	3421.1	60262	122
PROJECT TOTALS	3421.1	60262	122

SUMMARY OF BARRICADES

CSJ (HWY)	502 6001 BARRICADES, SIGNS AND TRAFFIC
	MO
CSJ: 0228-04-043 (US 385)	18.0
CSJ: 0354-06-029 (SH 115)	1.0
PROJECT TOTALS	19.0

SUMMARY OF CURB & GUTTER

US 385	104 6022 REMOVING CONC (CURB AND GUTTER)	529 6008 CONC CURB & GUTTER (TY II)
	LF	LF
CSJ: 0228-04-043 TOTAL	200	200
PROJECT TOTALS	200	200

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QUANTITY SUMMARIES

SHEET 5 OF 11

Texas Department of Transportation

LOCHNER
TBPE Firm Reg. No. 10488

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		15D
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

SUMMARY OF SIGNING ITEMS

CSJ (HWY)	416 6018 DRILL SHAFT (SIGN MTS) (24 IN) LF	636 6002 ALUMINUM SIGNS (TY G) SF	636 6007 REPLACE EXISTING ALUMINUM SIGNS(TY A) SF	644 6001 IN SM RD SN SUP&AM TY10BWG(1)SA(P) EA	644 6004 IN SM RD SN SUP&AM TY10BWG(1)SA(T) EA	644 6007 IN SM RD SN SUP&AM TY10BWG(1)SA(U) EA	644 6030 IN SM RD SN SUP&AM TYS80(1)SA(T) EA	644 6076 REMOVE SM RD SN SUP&AM EA	647 6001 INSTALL LRSS (STRUCT STEEL) LB	647 6003 REMOVE LRSA EA
CSJ: 0228-04-043 (US 385)										
SOSS SH 1				19	5		1			
SOSS SH 2				13	11		1			
SOSS SH 3				15	6	1				
SOSS SH 4				9	6		5			
SOSS SH 5			9	11	7		4			
SOSS SH 6				15	5		3			
SOSS SH 7				13	7		2			
SOSS SH 8				17	6	1	1			
SOSS SH 9				14	3	1	4			
SOSS SH 10				10	2		6			
SOSS SH 11				16	7					
SOSS SH 12				12	4		4			
SOSS SH 13				18	4		1			
SOSS SH 14				16	4		3			
SOSS SH 15				14	5		2			
SOSS SH 16				15	7		1			
SOSS SH 17				13	8		2			
SOLS	12	155							697	
SIGN REMOVAL SUMMARY SH 1								68		
SIGN REMOVAL SUMMARY SH 2								68		
SIGN REMOVAL SUMMARY SH 3								64		1
SIGN REMOVAL SUMMARY SH 4								67		
SIGN REMOVAL SUMMARY SH 5								29		
CSJ: 0228-04-043 TOTAL (US 385)	12	155	9	240	97	3	40	296	697	1
CSJ: 0354-06-029 (SH 115)										
SOSS SH 1			32	16		1				
SOSS SH 2				2						
SIGN REMOVAL SUMMARY SH 1								18		
CSJ: 0354-06-029 TOTAL (SH 115)	0	0	32	18	0	1	0	18	0	0
PROJECT TOTALS	12	155	41	258	97	4	40	314	697	1

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QUANTITY SUMMARIES

Texas Department of Transportation

LOCHNER
TBPE Firm Reg. No. 10488

FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	15E

STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

SUMMARY OF WORKZONE TRAFFIC CONTROL ITEMS

CSJ (HWY)	662 6001 WK ZN PAV MRK NON-REMOV (W)4" (BRK) LF	662 6004 WK ZN PAV MRK NON-REMOV (W)4" (SLD) LF	662 6010 WK ZN PAV MRK NON-REMOV (W)8" (DOT) LF	662 6012 WK ZN PAV MRK NON-REMOV (W)8" (SLD) LF	662 6016 WK ZN PAV MRK NON-REMOV (W)24" (SLD) LF	662 6017 WK ZN PAV MRK NON-REMOV (W) (ARROW) EA	662 6029 WK ZN PAV MRK NON-REMOV (W) (WORD) EA	662 6031 WK ZN PAV MRK NON-REMOV (W)36" (Y LD TRI) EA	662 6032 WK ZN PAV MRK NON-REMOV (Y)4" (BRK) LF	662 6034 WK ZN PAV MRK NON-REMOV (Y)4" (SLD) LF	662 6048 WK ZN PAV MRK REMOV (REFL) TY I-C EA	662 6050 WK ZN PAV MRK REMOV (REFL) TY II-A-A EA	662 6052 WK ZN PAV MRK REMOV (REFL) TY II-C-R EA	662 6109 WK ZN PAV MRK SHT TERM (TAB)TY W EA	662 6111 WK ZN PAV MRK SHT TERM (TAB)TY Y-2 EA	6001 6001 PORTABLE CHANGEABLE MESSAGE SIGN DAY	6185 6002 TMA (STATIONARY) DAY	6185 6005 TMA (MOBILE OPERATION) DAY
CSJ: 0228-04-043 (US 385)																		
PHASE 1 CONSTRUCTION																		
SHEET 24 OF 31	400	1600								1600			40	120				
SHEET 25 OF 31	400	1600								1600			40	120				
PHASE 1 SUB-TOTAL	800	3200	0	0	0	0	0	0	0	3200	0	0	80	240	0	0	22	3
PHASE 2 CONSTRUCTION - STEP 1																		
SHEET 4 OF 31	1140	4846	212	2172	120	5	5	20					183	493				
SHEET 5 OF 31	1150	4468	271	151	109	2	2						88	407				
SHEET 6 OF 31	1180	4711	3		28								59	355				
SHEET 7 OF 31	1180	4709	285	150	27	3	3						90	419				
SHEET 8 OF 31	1180	4731	486	396	25	1	1						119	471				
SHEET 9 OF 31	1200	4724	200	219		2	2						88	411				
SHEET 10 OF 31	1200	4719	461	300		2	2						113	467				
SHEET 11 OF 31	1200	4800	149										72	390				
SHEET 12 OF 31	1200	4775											60	360				
SHEET 13 OF 31	1170	4596	689	473		4	4						140	512				
SHEET 14 OF 31	1200	4800	609	300		2	2						126	497				
SHEET 15 OF 31	1200	4800	354										90	431				
SHEET 16 OF 31	1170	4845	506	441	24	3	3						123	474				
SHEET 17 OF 31	1190	4715	470	445		1	1						121	473				
SHEET 18 OF 31	1200	4800	36										63	367				
SHEET 19 OF 31	1190	4800	47			1	1						63	366				
SHEET 20 OF 31	1180	4693	470	432	30	1	1						120	470				
SHEET 21 OF 31	1200	4800	58										65	372				
SHEET 22 OF 31	1200	4800	546			1	1						106	469				
SHEET 23 OF 31	1140	4479	582	825	58	3	3						147	500				
SHEET 24 OF 31	1200	4800	242										80	408				
SHEET 25 OF 31	1180	4631	493	974		4	4						149	501				
SHEET 26 OF 31	1200	4800	371	158									99	442				
SHEET 27 OF 31	1200	4800	87										67	377				
SHEET 28 OF 31	1180	4691	428	615		1	1						125	470				
SHEET 29 OF 31	1200	4800	31			1	1						63	366				
SHEET 30 OF 31	1200	4740	197	150		2	2						84	407				
SHEET 31 OF 31	1180	4540	452	481	26	1	1						121	468				
PHASE 2 STEP 1 SUB-TOTAL	33210	132413	8735	8682	0	40	40	0	0	0	0	0	2823	12144	0	0	304	30
PHASE 2 CONSTRUCTION - STEP 2																		
SHEET 4 OF 31			98	620	56	3	3	28		3876			39	51				
SHEET 5 OF 31			488	653		10	10	50		4428			73	130				
SHEET 6 OF 31			455	303		5	5	16		4678			53	106				
SHEET 7 OF 31			480	300		5	5	22		4648			55	111				
SHEET 8 OF 31			525	368		4	4	16		4672			62	123				
SHEET 9 OF 31			523	631		10	10	50		4420			75	136				
SHEET 10 OF 31			416	300		5	5	20		4654			50	98				
SHEET 11 OF 31			211	300		3	3	14		4694			33	57				
SHEET 12 OF 31			394	150		3	3	4		4744			40	86				
SHEET 13 OF 31			402	323		4	4	34		4568			50	97				
SHEET 14 OF 31			196	150		3	3			4800			24	47				
SHEET 15 OF 31			723	600		7	7	38		4512			90	175				
SHEET 16 OF 31			665	704		11	11	61		4470			91	168				
SHEET 17 OF 31			639	300		5	5	22		4638			68	143				
SHEET 18 OF 31			547	503		7	7	33		4564			71	135				
SHEET 19 OF 31			345	200		5	5	15		4696			39	79				
SHEET 20 OF 31			389	300		4	4	24		4638			47	93				
SHEET 21 OF 31			269	300		3	3	10		4656			37	69				
SHEET 22 OF 31			856	300		5	4	20		4652			86	186				
SHEET 23 OF 31			228	300		3	4	38		4500			34	61				
SHEET 24 OF 31			406	300		4	4	27		4670			49	96				
SHEET 25 OF 31			199	302		3	3	20		4654			32	55				
SHEET 26 OF 31			278			2	2			4800			23	56				
SHEET 27 OF 31			527	610		7	7	34		4542			74	136				
SHEET 28 OF 31			631	500		7	7	26		4596			78	151				
SHEET 29 OF 31			429	320		5	5	18		4664			52	102				
SHEET 30 OF 31			315	310		4	4	12		4098			42	79				
SHEET 31 OF 31			286	160		2	2	18		4576			32	65				
PHASE 2 STEP 2 SUB-TOTAL	0	0	11920	10107	56	139	139	670	0	128108	0	0	1499	2889	0	0	620	30

QUANTITY SUMMARIES

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FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		15F
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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SUMMARY OF WORKZONE TRAFFIC CONTROL ITEMS -CONTINUED

CSJ (HWY)	662 6001 WK ZN PAV MRK NON-REMOV (W)4" (BRK) LF	662 6004 WK ZN PAV MRK NON-REMOV (W)4" (SLD) LF	662 6010 WK ZN PAV MRK NON-REMOV (W)8" (DOT) LF	662 6012 WK ZN PAV MRK NON-REMOV (W)8" (SLD) LF	662 6016 WK ZN PAV MRK NON-REMOV (W)24" (SLD) LF	662 6017 WK ZN PAV MRK NON-REMOV (W) (ARROW) EA	662 6029 WK ZN PAV MRK NON-REMOV (W) (WORD) EA	662 6031 WK ZN PAV MRK NON-REMOV (W)36" (YLD TRI) EA	662 6032 WK ZN PAV MRK NON-REMOV (Y)4" (BRK) LF	662 6034 WK ZN PAV MRK NON-REMOV (Y)4" (SLD) LF	662 6048 WK ZN PAV MRK REMOV (REFL) TY I-C EA	662 6050 WK ZN PAV MRK REMOV (REFL) TY II-A-A EA	662 6052 WK ZN PAV MRK REMOV (REFL) TY II-C-R EA	662 6109 WK ZN PAV MRK SHT TERM (TAB)TY W EA	662 6111 WK ZN PAV MRK SHT TERM (TAB)TY Y-2 EA	6001 6001 PORTABLE CHANGEABLE MESSAGE SIGN DAY	6185 6002 TMA (STATIONARY) DAY	6185 6005 TMA (MOBILE OPERATION) DAY
CSJ: 0228-04-043 (US 385)																		
SUMMARY OF WORKZONE TRAFFIC CONTROL ITEMS (CONT.)																		
PHASE 3A CONSTRUCTION																		
SHEET 1 OF 31	1040	3931		59	50	2	1		940	3952	58	94		315	294			
SHEET 2 OF 31	1040	4438	94	574	182	6	6		950	4650	88	95		360	330			
SHEET 3 OF 31	360	1429							360	1464	18	36		108	108			
PHASE 3A SUB-TOTAL	2440	9798	94	633	232	8	7	0	2250	10066	164	225	0	782	732	24	44	6
PHASE 3B CONSTRUCTION																		
SHEET 3 OF 31	800	3195							800	3628	40	80		240	240			
SHEET 4 OF 31	62	496	28	190					768	1000	3	77		34	230			
PHASE 3B SUB-TOTAL	862	3691	28	190		0	0	0	1568	4628	43	157	0	274	470	0	24	3
PHASE 3C CONSTRUCTION																		
SHEET 4 OF 31	160	902		1723	147	6	5	20		962	8		8	134	0			
PHASE 3C SUB-TOTAL	160	902	0	1723	147	6	5	20	0	962	8	0	8	134	0	10	12	3
PHASE 4 CONSTRUCTION (FOG SEAL/SEAL COAT)																		
SHEET 1 OF 31	1040	3931		125	50	2	1		940	3952	58	94		315	294			
SHEET 2 OF 31	1040	4438	94	572	238	6	6		950	4650	88	95		360	330			
SHEET 3 OF 31	1180	4624			53				1160	5092	59	115		348	348			
SHEET 4 OF 31	1140	4846	310	2792	174	8	8	48		5056	8	12	222	711	230			
SHEET 5 OF 31	1150	4468	759	804	109	12	12	50		4428			161	537				
SHEET 6 OF 31	1180	4711	458	303	28	5	5	16		4678			112	461				
SHEET 7 OF 31	1180	4709	765	450	27	8	8	22		4648			145	530				
SHEET 8 OF 31	1180	4731	1011	764	25	5	5	16		4672			181	594				
SHEET 9 OF 31	1200	4724	723	850		12	12	50		4420			163	547				
SHEET 10 OF 31	1200	4719	877	600		7	7	20		4654			163	565				
SHEET 11 OF 31	1200	4800	360	300		3	3	14		4694			105	447				
SHEET 12 OF 31	1200	4775	394	150		3	3	4		4744			100	446				
SHEET 13 OF 31	1170	4596	1091	796		8	8	34		4568			189	609				
SHEET 14 OF 31	1200	4800	805	450		5	5			4800			150	544				
SHEET 15 OF 31	1200	4800	1077	600		7	7	38		4512			180	605				
SHEET 16 OF 31	1170	4845	1171	1145	27	14	14	61		4470			213	642				
SHEET 17 OF 31	1190	4715	1109	745		6	6	22		4638			189	616				
SHEET 18 OF 31	1200	4800	583	503		7	7	33		4564			134	502				
SHEET 19 OF 31	1190	4800	392	200		6	6	15		4696			102	445				
SHEET 20 OF 31	1180	4693	859	732	30	5	5	24		4638			167	562				
SHEET 21 OF 31	1200	4800	327	300		3	3	20		4656			102	440				
SHEET 22 OF 31	1200	4800	1402	300		6	5	20		4652			192	655				
SHEET 23 OF 31	1140	4479	810	1125	81	6	7	38		4500			181	560				
SHEET 24 OF 31	1200	4800	648	300		4	4	18		4670			129	505				
SHEET 25 OF 31	1180	4631	692	1276		7	7	20		4654			180	556				
SHEET 26 OF 31	1200	4800	649	158		2	2			4800			122	498				
SHEET 27 OF 31	1200	4800	614	610		7	7	34		4542			142	513				
SHEET 28 OF 31	1180	4691	1059	1115		8	8	26		4596			203	622				
SHEET 29 OF 31	1200	4800	460	320		6	6	18		4664			114	468				
SHEET 30 OF 31	1200	4740	512	460		6	6	12		4098			126	485				
SHEET 31 OF 31	1180	4540	738	641	26	3	3	18		4610			145	534				
PHASE 4 (FOG SEAL/SEAL COAT) SUB-TOTAL	36470	145406	20749	19486	868	187	186	691	3050	143016	213	316	4313.65	16224	1203	0	100	9

QUANTITY SUMMARIES

SHEET 8 OF 11

Texas Department of Transportation
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LOCHNER
TBPE Firm Reg. No. 10488

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		15G
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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SUMMARY OF WORKZONE TRAFFIC CONTROL ITEMS -CONTINUED

CSJ (HWY)	662 6001	662 6004	662 6010	662 6012	662 6016	662 6017	662 6029	662 6031	662 6032	662 6034	662 6048	662 6050	662 6052	662 6109	662 6111	6001 6001	6185 6002	6185 6005
	WK ZN PAV MRK NON-REMOV (W) 4" (BRK)	WK ZN PAV MRK NON-REMOV (W) 4" (SLD)	WK ZN PAV MRK NON-REMOV (W) 8" (DOT)	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)	WK ZN PAV MRK NON-REMOV (W) 24" (SLD)	WK ZN PAV MRK NON-REMOV (W) (ARROW)	WK ZN PAV MRK NON-REMOV (W) (WORD)	WK ZN PAV MRK NON-REMOV (W) 36" (YLD TRI)	WK ZN PAV MRK NON-REMOV (Y) 4" (BRK)	WK ZN PAV MRK NON-REMOV (Y) 4" (SLD)	WK ZN PAV MRK REMOV (REFL) TY I-C	WK ZN PAV MRK REMOV (REFL) TY II-A-A	WK ZN PAV MRK REMOV (REFL) TY II-C-R	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)
	LF	LF	LF	LF	LF	EA	EA	EA	LF	LF	EA	EA	EA	EA	EA	DAY	DAY	DAY
CSJ: 0228-04-043 (US 385)																		
PHASE 4 CONSTRUCTION (FINAL SURFACE)																		
SHEET 1 OF 31														315	294			
SHEET 2 OF 31														360	330			
SHEET 3 OF 31														348	348			
SHEET 4 OF 31														711	230			
SHEET 5 OF 31														537				
SHEET 6 OF 31														461				
SHEET 7 OF 31														530				
SHEET 8 OF 31														594				
SHEET 9 OF 31														547				
SHEET 10 OF 31														565				
SHEET 11 OF 31														447				
SHEET 12 OF 31														446				
SHEET 13 OF 31														609				
SHEET 14 OF 31														544				
SHEET 15 OF 31														605				
SHEET 16 OF 31														642				
SHEET 17 OF 31														616				
SHEET 18 OF 31														502				
SHEET 19 OF 31														445				
SHEET 20 OF 31														562				
SHEET 21 OF 31														440				
SHEET 22 OF 31														655				
SHEET 23 OF 31														560				
SHEET 24 OF 31														505				
SHEET 25 OF 31														556				
SHEET 26 OF 31														498				
SHEET 27 OF 31														513				
SHEET 28 OF 31														622				
SHEET 29 OF 31														468				
SHEET 30 OF 31														485				
SHEET 31 OF 31														534				
PHASE 4 (FINAL SURFACE) SUB-TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	16224	1203	0	192	24
CSJ: 0228-04-043 TOTAL TOTAL (US 385)	73942	295410	41526	40821	1303	380	377	1381	6868	289980	428	698	8723	48911	3608	34	1318	108
CSJ: 0354-06-029 (SH 115)																		
PHASE 1 CONSTRUCTION																		
SHEET 1 OF 1	862	4165			75					4996				259	250			
PHASE 1 SUB-TOTAL	862	4165	0	0	75	0	0	0	0	4996		0	0	259	250	14	20	3
PHASE 2 CONSTRUCTION (FOG SEAL/SEAL COAT)																		
SHEET 1 OF 1	862	4165			75					4996				259	250			
PHASE 2 (FOG SEAL/SEAL COAT) SUB-TOTAL	862	4165	0	0	75	0	0	0	0	4996	0	0	0	259	250	0	4	3
PHASE 2 CONSTRUCTION (FINAL SURFACE)																		
SHEET 1 OF 1														217	213			
PHASE 2 (FINAL SURFACE) SUB-TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	217	213	10	8	3
CSJ: 0354-06-029 TOTAL (SH 115)	1724	8330	0	0	150	0	0	0	0	9992	0	0	0	734	713	24	32	9
PROJECT TOTALS	75666	303740	41526	40821	1453	380	377	1381	6868	299972	428	698	8723	49645	4321	58	1350	117

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QUANTITY SUMMARIES

SHEET 9 OF 11

Texas Department of Transportation

LOCHNER
TBPE Firm Reg. No. 10488

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		15H
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

SUMMARY OF PAVEMENT MARKING ITEMS

CSJ (HWY)	533 6001 RUMBLE STRIPS (SHOULDER) LF	658 6095 INSTL DEL ASSM (D-DY) SZ 1 (YFLX) GND EA	666 6030 REFL PAV MRK TY I (W)8"(DOT) (100MIL) LF	666 6036 REFL PAV MRK TY I (W)8"(SLD) (100MIL) LF	666 6048 REFL PAV MRK TY I (W)24"(SLD)(100MIL) LF	666 6300 RE PM W/RET REQ TY I (W)4"(BRK) (100MIL) LF	666 6303 RE PM W/RET REQ TY I (W)4"(SLD) (100MIL) LF	666 6312 RE PM W/RET REQ TY I (Y)4"(BRK) (100MIL) LF	666 6315 RE PM W/RET REQ TY I (Y)4"(SLD) (100MIL) LF	668 6077 PREFAB PAV MRK TY C (W) (ARROW) EA	668 6085 PREFAB PAV MRK TY C (W) (WORD) EA	668 6092 PREFAB PAV MRK TY C (W) (36")(YLD TRI) EA	672 6007 REFL PAV MRKR TY I-C EA	672 6009 REFL PAV MRKR TY II-A-A EA	672 6010 REFL PAV MRKR TY II-C-R EA
CSJ: 0228-04-043 (US 385)															
SHEET 1 OF 31				125	50	1040	3931	940	3952	2	1		58	94	
SHEET 2 OF 31			94	572	238	1040	4438	950	4650	6	6		88	95	
SHEET 3 OF 31					53	1180	4624	1160	5092				59	116	
SHEET 4 OF 31		7	310	2789	174	1140	4846		5036	8	8	48	8	12	222
SHEET 5 OF 31	2120	6	843	804	109	1150	4468		4428	12	12	50			168
SHEET 6 OF 31	5777	2	460	303	28	1180	4711		4678	5	5	16			112
SHEET 7 OF 31	4935	2	765	450	27	1180	4709		4648	8	8	22			145
SHEET 8 OF 31	3283	2	1011	764	25	1180	4731		4672	5	5	16			181
SHEET 9 OF 31	4286	6	723	850		1200	4724		4420	12	12	50			163
SHEET 10 OF 31	4345	1	877	593		1200	4719		4654	7	7	20			163
SHEET 11 OF 31	6714	2	360	300		1200	4800		4694	3	3	14			105
SHEET 12 OF 31	7094	1	394	150		1200	4775		4744	3	3	4			100
SHEET 13 OF 31	3213	3	1091	796		1170	4596		4568	8	8	34			189
SHEET 14 OF 31	4118		805	391		1200	4800		4800	5	5				147
SHEET 15 OF 31	2945	4	1077	600		1200	4800		4512	7	7	38			180
SHEET 16 OF 31	1994	6	1171	1145	24	1170	4845		4470	14	14	61			213
SHEET 17 OF 31	3398	2	1109	745		1190	4715		4638	6	6	22			189
SHEET 18 OF 31	5180	4	583	503		1200	4800		4564	7	7	33			134
SHEET 19 OF 31	7114	2	392	200		1190	4800		4696	6	6	15			102
SHEET 20 OF 31	4578	2	859	732	30	1180	4693		4638	5	5	24			167
SHEET 21 OF 31	6406	2	427	300		1200	4800		4656	3	3	20			111
SHEET 22 OF 31	3386	2	1149	300		1200	4800		4652	6	5	20			171
SHEET 23 OF 31	3762	2	790	1125	81	1140	4479		4500	6	7	38			179
SHEET 24 OF 31	5120	2	648	300		1200	4800		4670	4	4	18			129
SHEET 25 OF 31	4568	2	692	1275		1180	4631		4654	7	7	20			180
SHEET 26 OF 31	5967		649	158		1200	4800		4800	2	2				122
SHEET 27 OF 31	4386	4	614	610		1200	4800		4542	7	7	34			142
SHEET 28 OF 31	3075	4	1059	1115		1180	4691		4596	8	8	26			203
SHEET 29 OF 31	6395	2	460	320		1200	4800		4664	6	6	18			114
SHEET 30 OF 31	5707	2	512	460		1200	4740		4098	6	6	12			126
SHEET 31 OF 31	5120	2	738	641	26	1180	4540		4610	3	3	18			153
CSJ: 0228-04-043 TOTAL (US 385)	124986	76	20662	19416	865	36470	145406	3050	142996	187	186	691	213	317	4310
CSJ: 0354-06-029 (SH 115)															
SHEET 1 OF 1					75	862	4165		4996				43	77	
CSJ: 0354-06-029 TOTAL (SH 115)	0	0	0	0	75	862	4165	0	4996	0	0	0	43	77	0
PROJECT TOTALS	124986	76	20662	19416	940	37332	149571	3050	147992	187	186	691	256	394	4310

QUANTITY SUMMARIES

SHEET 10 OF 11

Texas Department of Transportation

LOCHNER
TBPE Firm Reg. No. 10488

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		151
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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SUMMARY OF MAILBOXES				
			560 6011	560 6013
LOCATION	SIDE	REF #	MAILBOX INSTALL-S (TWW-POST) TY 4	MAILBOX INSTALL-M (TWW-POST) TY 4
			EA	EA
CSJ: 0228-04-043 (US 385)				
SHEET 3 OF 31	RT	TO 3-1		3
SHEET 3 OF 31	RT	TO 3-2		1
SHEET 5 OF 31	RT	TO 5-1		6
SHEET 9 OF 31	RT	TO 9-1	1	
SHEET 9 OF 31	RT	TO 9-2	1	
PROJECT TOTALS			**2**	**10**

SUMMARY OF EROSION CONTROL ITEMS				
	164 6033	164 6055	506 6042	506 6043
US 385	DRILL SEEDING (PERM) (RURAL) (SANDY)	BONDED FBR MTRX SEED (TEMP) (W ARM)	BIODEG EROSN CONT LOGS (INSTL) (18")	BIODEG EROSN CONT LOGS (REMOVE)
	SY	SY	LF	LF
CSJ: 0228-04-043 (US 385)				
SHEET 1 OF 31				
SHEET 2 OF 31				
SHEET 3 OF 31	7556	1985	160	160
SHEET 4 OF 31	10667	2802		
SHEET 5 OF 31	10667	2802	80	80
SHEET 6 OF 31	10667	2802		
SHEET 7 OF 31	10750	2824	120	120
SHEET 8 OF 31	10765	2828		
SHEET 9 OF 31	10667	2802	80	80
SHEET 10 OF 31	11704	3075		
SHEET 11 OF 31	11189	2939		
SHEET 12 OF 31	10667	2802	80	80
SHEET 13 OF 31	10679	2805	80	80
SHEET 14 OF 31	10763	2827		
SHEET 15 OF 31	10667	2802	160	160
SHEET 16 OF 31	10667	2802		
SHEET 17 OF 31	10906	2865	200	200
SHEET 18 OF 31	10667	2802	80	80
SHEET 19 OF 31	10667	2802		
SHEET 20 OF 31	11137	2926	200	200
SHEET 21 OF 31	10667	2802	100	100
SHEET 22 OF 31	10931	2872	120	120
SHEET 23 OF 31	10667	2802	100	100
SHEET 24 OF 31	12161	3195		
SHEET 25 OF 31	12195	3204		
SHEET 26 OF 31	10667	2802	160	160
SHEET 27 OF 31	10667	2802	100	100
SHEET 28 OF 31	10667	2802	80	80
SHEET 29 OF 31	10667	2802	80	80
SHEET 30 OF 31	10667	2802		
SHEET 31 OF 31	10851	2851	180	180
CSJ: 0228-04-043 TOTAL	312259	82028	2160	2160
PROJECT TOTALS	312259	82028	2160	2160

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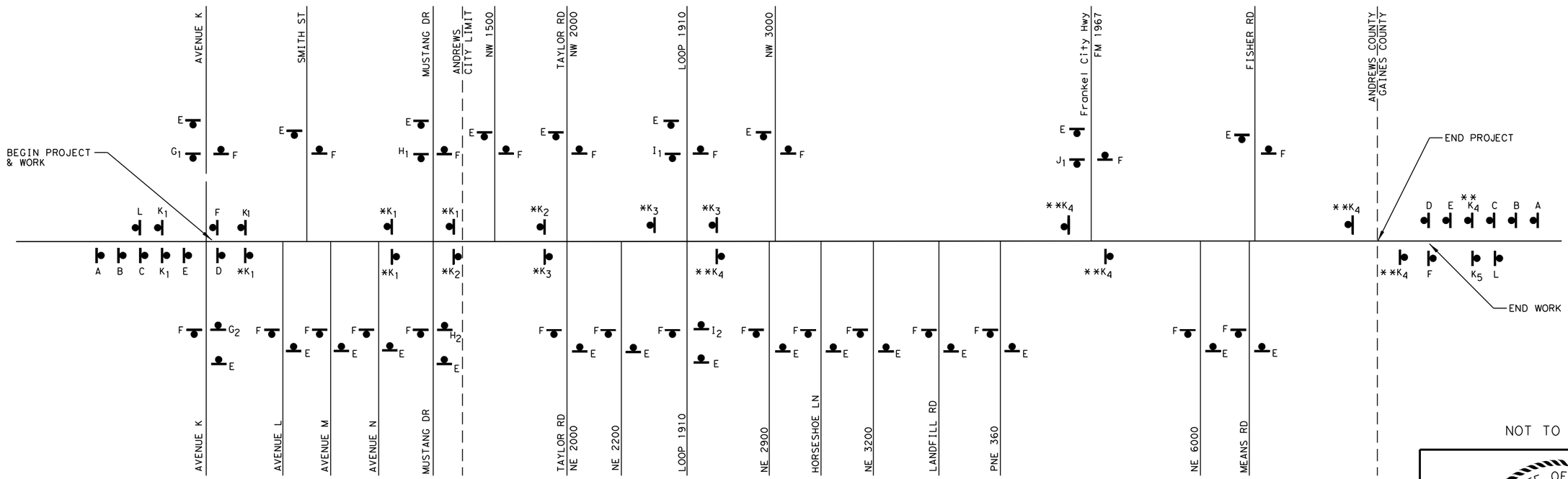
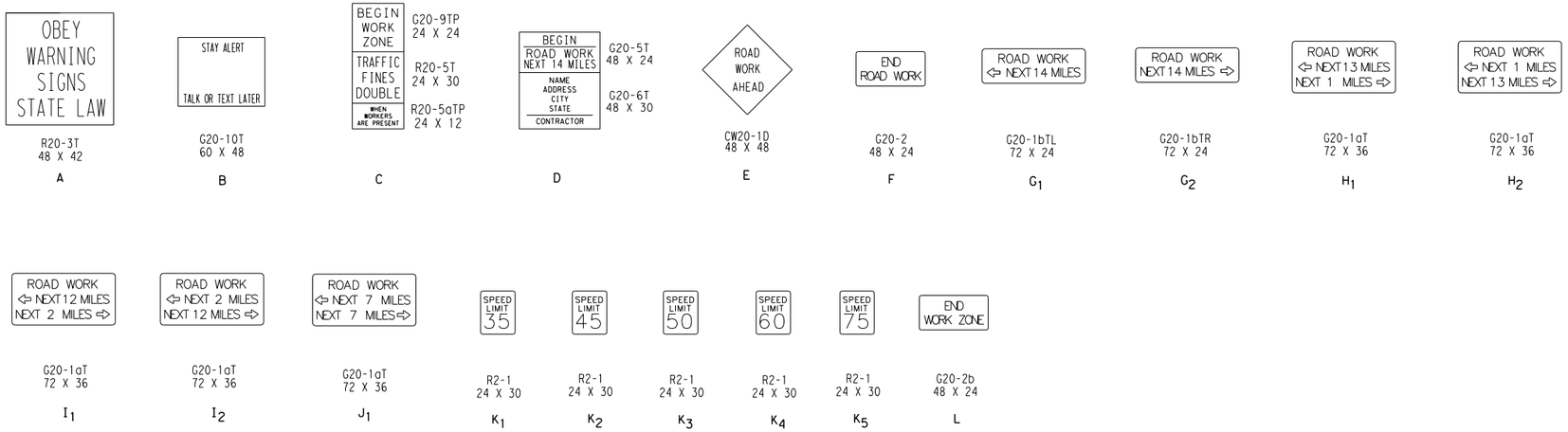
QUANTITY SUMMARIES

LOCHNER
TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		15J
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

* - 10 MPH CONSTRUCTION SPEED ZONE REDUCTION
** - 15 MPH CONSTRUCTION SPEED ZONE REDUCTION





NOT TO SCALE

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

ADVANCE PROJECT WARNING SIGNS (US 385)

SHEET 1 OF 1

Texas Department of Transportation

LOCHNER
TBPE Firm Reg. No. 10488

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		16
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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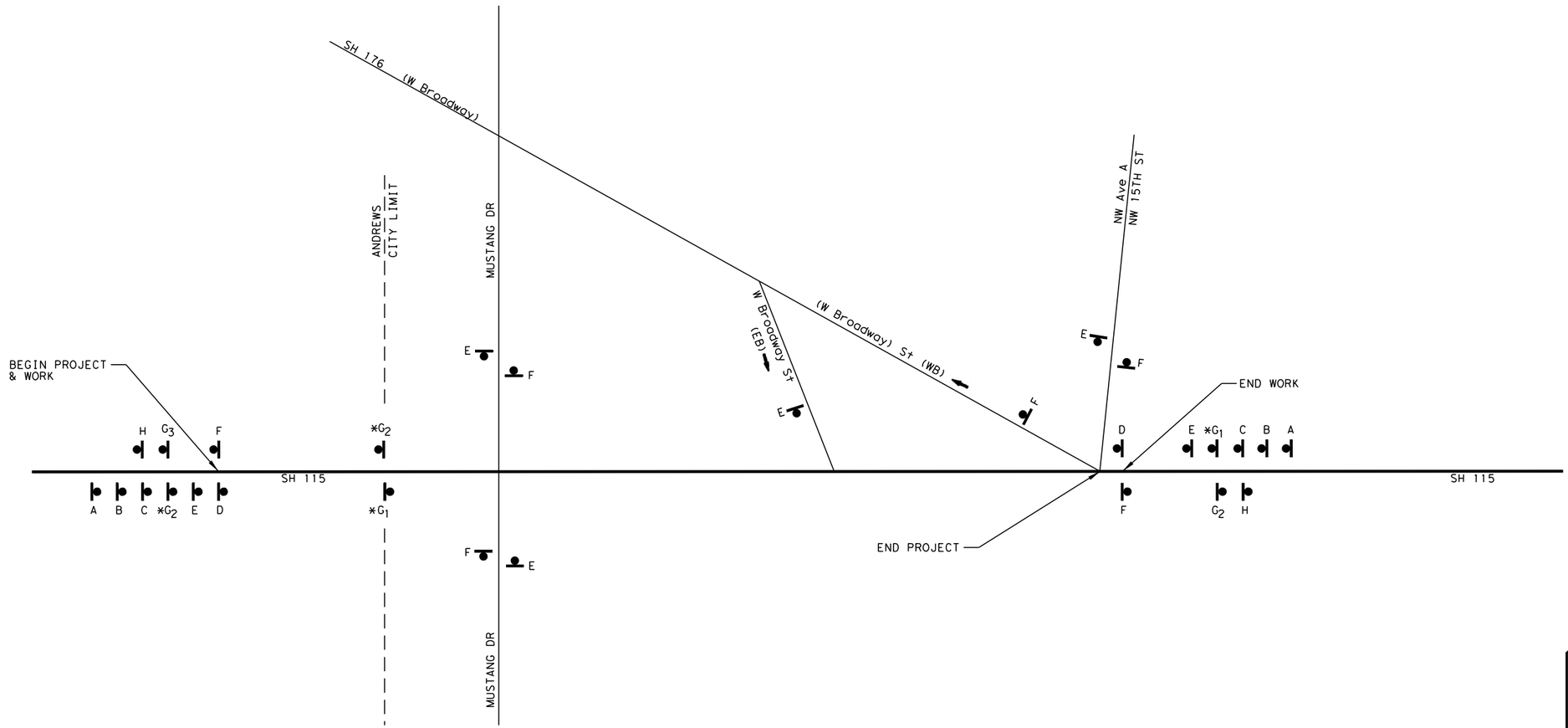
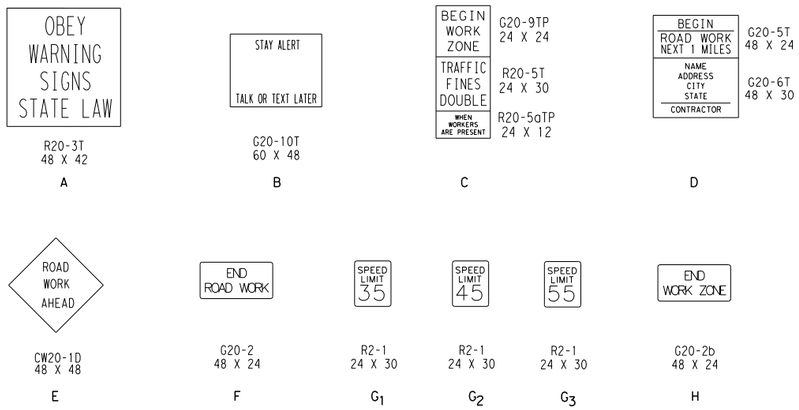
* - 10 MPH CONSTRUCTION SPEED ZONE REDUCTION





NOT TO SCALE

09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

ADVANCE PROJECT WARNING SIGNS (SH 115)

SHEET 1 OF 1

Texas Department of Transportation
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LOCHNER
TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		17
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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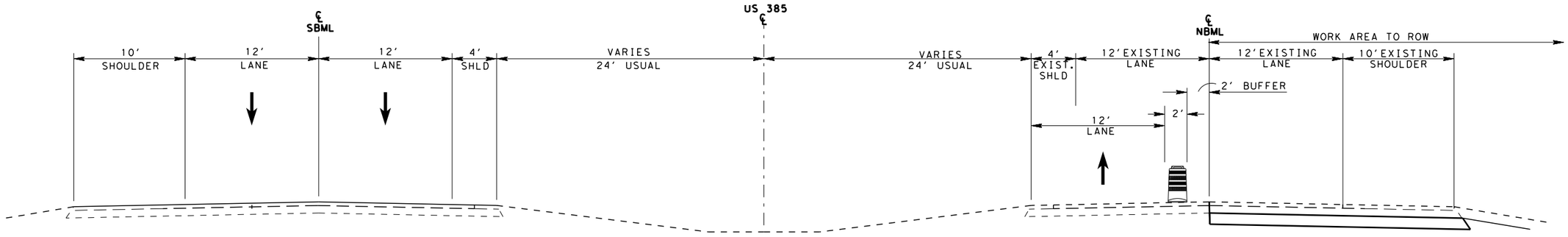
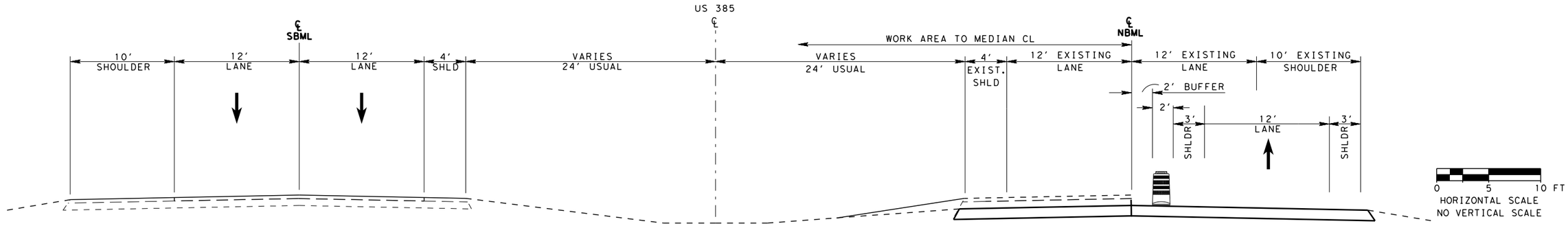


US 385 SOUTHBOUND

US 385 NORTHBOUND

STEP 1



US 385 SOUTHBOUND

US 385 NORTHBOUND

PHASE 1

STEP 2

US 385 TCP PHASE NARRATIVE

PLACE ADVANCE PROJECT WARNING SIGNING

PHASE 1: NB PAVEMENT GRADE CHANGE.

NOTE: PHASE 1 MAY BE PERFORMED DURING PHASE 2 AS APPROVED BY THE ENGINEER.

TCP RESTRICTIONS AND OBLIGATIONS:

1. MAINTAIN ONE OPEN NB LANE AT ALL TIMES.
2. MAINTAIN ONE OPEN SB LANE AT ALL TIMES.
3. LIMIT ACTIVE WORK AREA TO ONE GRADE CHANGE LOCATION UNLESS APPROVED BY ENGINEER.
4. MINIMIZE PAVEMENT DROPOFFS DURING WORKING HOURS AND MAINTAIN ACCEPTABLE PAVEMENT EDGES WHEN WORK IS NOT IN PROGRESS (AT NIGHT OR ON NON-WORK DAYS).
5. PERFORM WORK AT PUBLIC SIDEROAD INTERSECTIONS TO OPEN ALL LANES AT END OF WORK DAY WITH NO MORE THAN A 2" PAVEMENT DROPOFF.
6. MAINTAIN ACCESS TO DRIVEWAYS. USE MILLINGS OR BASE MATERIAL FOR TEMPORARY SURFACE TAPERS TO ALLOW VEHICULAR ACCESS. DELINEATE TEMPORARY DRIVEWAY ACCESS LOCATIONS USING CHANNELIZING DEVICES AND/OR SIGNS AS APPROVED BY THE ENGINEER.
7. PERFORM PAVEMENT WORK IN ACCORDANCE TO MOBILE, SHORT DURATION, SHORT TERM STATIONARY, OR INTERMEDIATE TERM STATIONARY WORK CONDITIONS.

WORK SEQUENCE:

STEP 1:

1. INSTALL SW3P FEATURES. REF:TCP(1-1).
2. REMOVE EXISTING PAVEMENT AND LOWER SUBGRADE OVER PARTIAL WIDTH WITH LONGITUDINAL JOINT ALONG CENTERLINE. REF:TCP(1-5),TCP(2-6).
3. PLACE BASE OVER SUBGRADE AND PRIME. REF:TCP(1-5),TCP(2-6).
4. PLACE SUPERPAVE MIXTURE OVER PARTIAL WIDTH WITH LONGITUDINAL JOINTS ALONG LANE LINES AND GRADE FRONT SLOPE. REF:TCP(1-5),TCP(2-6).
5. PLACE SHORT TERM WORK ZONE PAVEMENT MARKINGS AND ADDRESS PAVEMENT EDGES DAILY AS NEEDED. REF:TCP(1-5),TCP(2-6).
6. PLACE STANDARD WORK ZONE PAVEMENT MARKINGS NO LATER THAN 14 DAYS AFTER PLACING SHORT TERM MARKINGS. PLACE CENTERLINE MARKINGS 6" INSIDE STEP 1 WORK AREA. REF:TCP(3-2).

STEP 2:

REPEAT STEP 1 WORK SEQUENCE FOR REMAINING PHASE DESIGN WIDTH.

09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

TRAFFIC CONTROL PLAN SEQUENCE OF CONSTRUCTION (US 385)

SHEET 1 OF 6

LOCHNER
TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		18
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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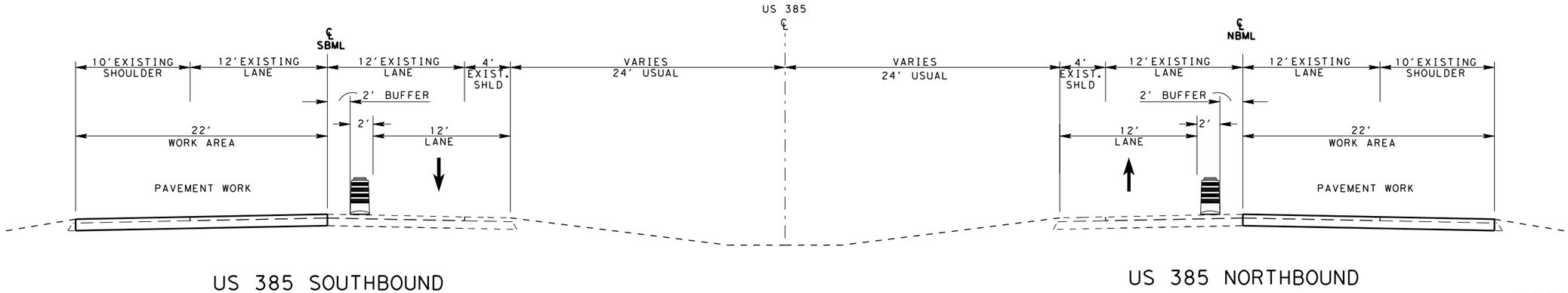


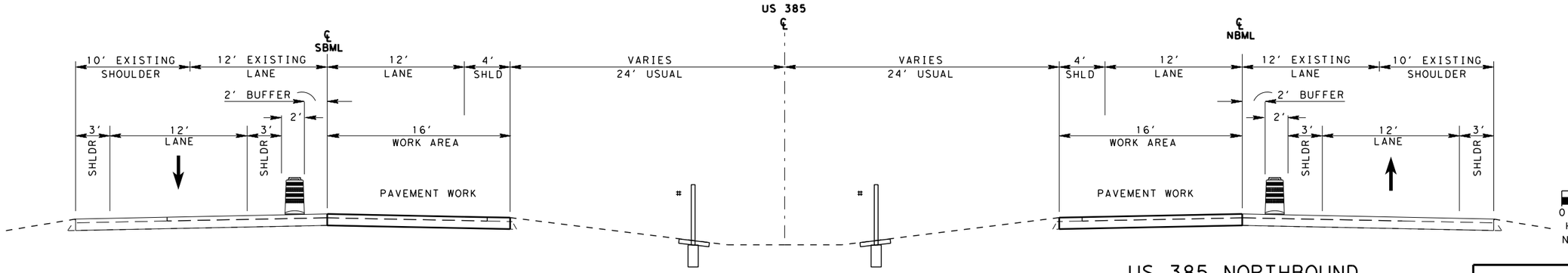
US 385 SOUTHBOUND

STEP 1

US 385 NORTHBOUND

STEP 1

#- CABLE BARRIER TYPICALLY ALTERNATES BETWEEN LEFT AND RIGHT MEDIAN SIDE SLOPE 20' FROM NEAREST THROUGH LANE.



US 385 SOUTHBOUND

STEP 2

US 385 NORTHBOUND

STEP 2

0 5 10 FT
HORIZONTAL SCALE
NO VERTICAL SCALE

PHASE 2
WITHOUT WIDENING

US 385 TCP PHASE NARRATIVE

PHASE 2: NB AND SB PAVEMENT REHABILITATION IN DEPRESSED MEDIAN WORK AREAS

TCP RESTRICTIONS AND OBLIGATIONS:

1. MAINTAIN ONE OPEN SB LANE AT ALL TIMES.
2. MAINTAIN ONE OPEN NB LANE AT ALL TIMES.
3. LIMIT ACTIVE WORK AREA TO 2 MILES CUMULATIVE LENGTH(NB AND SB) UNLESS APPROVED BY ENGINEER.
4. MINIMIZE PAVEMENT DROPOFFS DURING WORKING HOURS AND MAINTAIN ACCEPTABLE PAVEMENT EDGES WHEN WORK IS NOT IN PROGRESS (AT NIGHT OR ON NON-WORK DAYS).
5. PERFORM WORK AT PUBLIC SIDEROAD INTERSECTIONS TO OPEN ALL LANES AT END OF WORK DAY WITH NO MORE THAN A 2" PAVEMENT DROPOFF.
6. MAINTAIN ACCESS TO DRIVEWAYS. USE MILLINGS OR FLEX BASE FOR TEMPORARY SURFACE TAPERS TO ALLOW VEHICULAR ACCESS. DELINEATE TEMPORARY DRIVEWAY ACCESS LOCATIONS USING CHANNELIZING DEVICES AND/OR SIGNS AS APPROVED BY THE ENGINEER.
7. PERFORM PAVEMENT WORK IN ACCORDANCE TO MOBILE, SHORT DURATION, SHORT TERM STATIONARY, OR INTERMEDIATE TERM STATIONARY WORK CONDITIONS.

WORK SEQUENCE WITHOUT WIDENING:

STEP 1:

1. INSTALL SW3P FEATURES. REF:TCP(1-1)
2. WORK PAVEMENT OVER PARTIAL HALF WIDTH WITH LONGITUDINAL JOINTS ALONG LANE LINES FOR PAVEMENT REHABILITATION. REF:TCP(1-5),TCP(2-6).
3. PLACE SHORT TERM WORK ZONE PAVEMENT MARKINGS AND ADDRESS PAVEMENT EDGES DAILY AS NEEDED. REF:TCP(1-5),TCP(2-6).
4. PLACE STANDARD WORK ZONE PAVEMENT MARKINGS NO LATER THAN 14 DAYS AFTER PLACING SHORT TERM MARKINGS. PLACE CENTERLINE MARKINGS 6" INSIDE STEP 1 WORK AREA. REF:TCP(3-2).
5. PROCEED TO STEP 2.

STEP 2:

1. REPEAT STEP 1 WORK SEQUENCE FOR REMAINING PHASE DESIGN WIDTH.
2. INSTALL CABLE BARRIER AND PERMANENT SIGNS IN MEDIAN. REF:TCP(1-1),TCP(2-1).

09/25/2020

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TRAFFIC CONTROL PLAN SEQUENCE OF CONSTRUCTION (US 385)

SHEET 2 OF 6

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FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		19
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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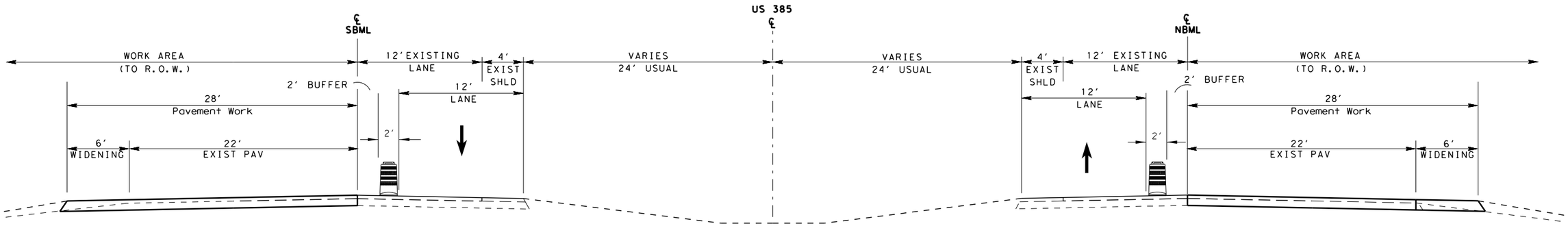


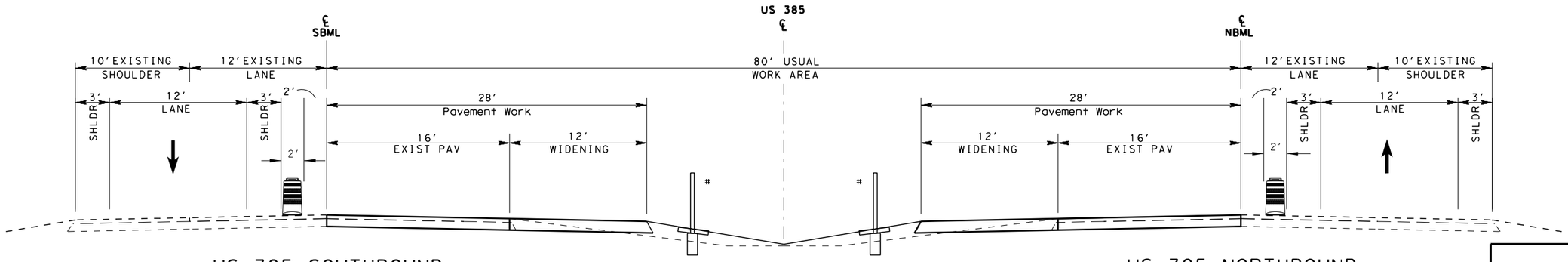
US 385 SOUTHBOUND

STEP 1

US 385 NORTHBOUND

STEP 1

#- CABLE BARRIER TYPICALLY ALTERNATES BETWEEN LEFT AND RIGHT MEDIAN SIDE SLOPE 20' FROM NEAREST THROUGH LANE.



US 385 SOUTHBOUND

STEP 2

PHASE 2
WITH WIDENING

US 385 NORTHBOUND

STEP 2

0 5 10 FT
HORIZONTAL SCALE
NO VERTICAL SCALE

US 385 TCP PHASE NARRATIVE
PHASE 2 (CONTINUED)

WORK SEQUENCE WITH WIDENING:

STEP 1:
1. INSTALL SW3P FEATURES. REF:TCP(1-1).
2. ADJUST DRAINAGE STRUCTURES. REF:TCP(1-1),TCP(2-1).
3. PERFORM EARTHWORK FOR WIDENED PAVEMENT AND DRAINAGE DITCHES; MAINTAIN SIGNING. REF:TCP(1-1),TCP(2-1).
4. PLACE FLEX BASE OVER WIDENED PAVEMENT AREA. REF:TCP(1-1),TCP(2-1).
5. PERFORM PAVEMENT WORK OVER PAVEMENT AREA. REF:TCP(1-5),TCP(2-6).
6. PERFORM PAVEMENT WORK ON SIDE ROADS AND TURNOUTS. REF:TCP(1-1),TCP(1-2),TCP(1-4).
7. DRESS SIDE SLOPES AND PLACE TEMPORARY SEEDING. REF:TCP(1-1).
8. INSTALL OUTSIDE PERMANENT SIGNS AND OBJECT MARKERS. REF:TCP(1-1).
9. PLACE CONSTRUCTION STRIPING FOR OUTSIDE WIDENED AREAS, AND OPEN TO TRAFFIC. REF:TCP(3-2).
   PLACE CENTERLINE MARKINGS 6" INSIDE STEP 1 WORK AREA.

STEP 2:
1. INSTALL SW3P FEATURES. REF:TCP(1-1).
2. ADJUST AND REPAIR DRAINAGE STRUCTURES. REF:TCP(1-1),TCP(2-1).
3. OBTAIN APPROVAL FROM ENGINEER PRIOR TO ANY TEMPORARY CROSSOVER CLOSURE TO EXPEDITE CONSTRUCTION.
4. PERFORM EARTHWORK FOR WIDENED PAVEMENT AND DRAINAGE DITCHES; MAINTAIN SIGNING. REF:TCP(1-1),TCP(2-1).
5. SAWCUT AND OBLITERATE CROSSOVERS DESIGNATED TO BE REMOVED. REF:TCP(5-1).
6. PLACE FLEX BASE OVER WIDENED PAVEMENT AREA. REF:TCP(1-1),TCP(2-1).
7. PERFORM PAVEMENT WORK OVER PAVEMENT AREA. REF:TCP(1-5),TCP(2-6).
8. PERFORM PAVEMENT WORK ON CROSSOVERS. REF:TCP(1-1),TCP(2-1).
9. DRESS MEDIAN SLOPES AND PLACE TEMPORARY SEEDING. REF:TCP(1-1).
10. INSTALL CABLE BARRIER, PERMANENT SIGNS, AND OBJECT MARKERS IN MEDIAN. REF:TCP(1-1),TCP(2-1).
11. PLACE CONSTRUCTION STRIPING FOR INSIDE WIDENED AREAS, AND OPEN TO TRAFFIC. REF:TCP(3-2).

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TRAFFIC CONTROL PLAN SEQUENCE OF CONSTRUCTION (US 385)

SHEET 3 OF 6

Texas Department of Transportation

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6	SEE TITLE SHEET		20
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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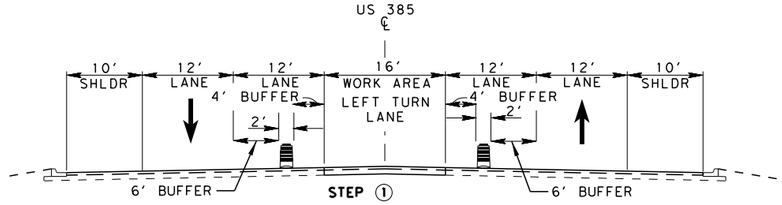

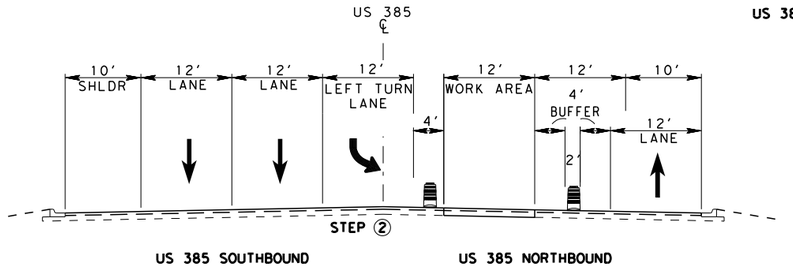

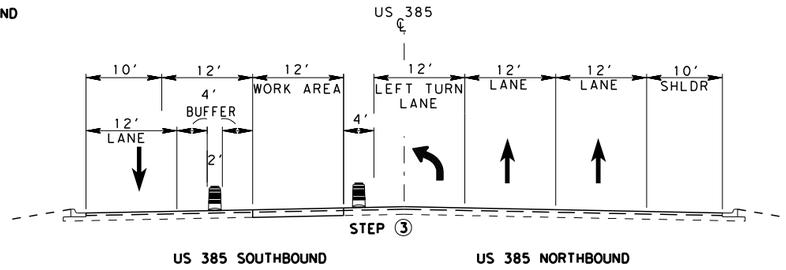

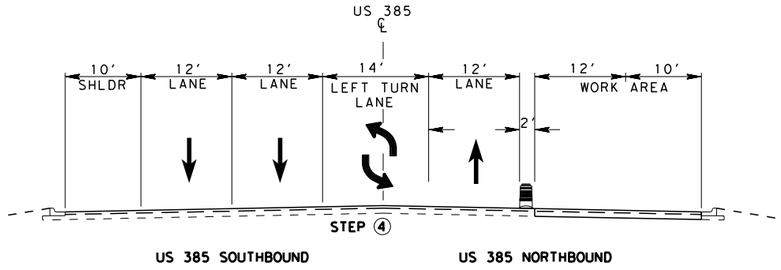

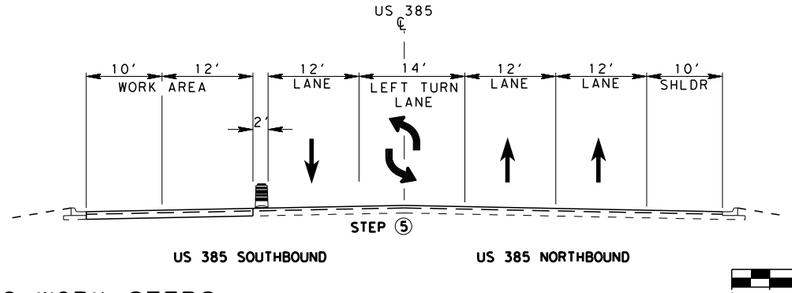

PHASE 3A FLUSH MEDIAN WITH C&G WORK STEPS

0 10 20 FT
HORIZONTAL SCALE
NO VERTICAL SCALE

US 385 TCP PHASE NARRATIVE

PHASE 3: NB AND SB PAVEMENT REHABILITATION IN FLUSH MEDIAN OR RAISED MEDIAN WORK AREAS
NOTE: PHASE 3 MAY BE PERFORMED BEFORE, DURING OR AFTER PHASE 1 OR 2 AS APPROVED BY ENGINEER.

TCP RESTRICTIONS AND OBLIGATIONS:

1. MAINTAIN ONE OPEN SB LANE AT ALL TIMES.
2. MAINTAIN ONE OPEN NB LANE AT ALL TIMES.
3. LIMIT ACTIVE WORK AREA TO APPROXIMATELY 0.5 MILES (AVE K TO MUSTANG DR; MUSTANG DR TO TAYLOR RD; TAYLOR RD TO LP 1910) UNLESS OTHERWISE APPROVED BY ENGINEER.
4. MINIMIZE PAVEMENT DROPOFFS DURING WORKING HOURS AND MAINTAIN ACCEPTABLE PAVEMENT EDGES WHEN WORK IS NOT IN PROGRESS (AT NIGHT OR ON NON-WORK DAYS).
5. PROVIDE TEMPORARY DRAINAGE PROVISIONS AT SAG LOCATIONS.
6. PERFORM WORK AT PUBLIC SIDEROAD INTERSECTIONS TO OPEN ALL LANES AT END OF WORK DAY WITH NO MORE THAN A 2" PAVEMENT DROPOFF.
7. MAINTAIN ACCESS TO DRIVEWAYS. USE MILLINGS OR BASE MATERIAL FOR TEMPORARY SURFACE TAPERS TO ALLOW VEHICULAR ACCESS. DELINEATE TEMPORARY DRIVEWAY ACCESS LOCATIONS USING CHANNELIZING DEVICES AND/OR SIGNS AS APPROVED BY THE ENGINEER.
8. PROVIDE TEMPORARY U-TURN CROSSOVERS WITHIN 0.5 MILE WORK SECTION WHEN TWLTL AND INSIDE LANES ARE CLOSED. DELINEATE TEMPORARY CROSSOVER LOCATIONS USING CHANNELIZING DEVICES AND/OR SIGNS AS APPROVED BY THE ENGINEER.
9. PERFORM PAVEMENT WORK IN ACCORDANCE TO MOBILE, SHORT DURATION, SHORT TERM STATIONARY, OR INTERMEDIATE TERM STATIONARY WORK CONDITIONS.

PHASE 3A- FLUSH MEDIAN WITH C&G WORK AREAS (AVE K TO TAYLOR ROAD)

STEP 1:
1. REMOVE PAVEMENT OVER PARTIAL WIDTH WITH LONGITUDINAL JOINTS ALONG LANE LINES. REF:TCP(1-5),TCP(2-6).
2. REWORK EXISTING BASE COURSE IN REMOVAL AREAS (SURFACE REFINISHING) AND PRIME PARTIAL WIDTH. REF:TCP(1-5),TCP(2-6).
3. PLACE SUPERPAVE MIXTURE OVER PARTIAL WIDTH WITH LONGITUDINAL JOINTS ALONG LANE LINES. REF:TCP(1-5),TCP(2-6).
4. PLACE SHORT TERM WORK ZONE PAVEMENT MARKINGS AND ADDRESS PAVEMENT EDGES DAILY AS NEEDED. REF:TCP(1-5),TCP(2-6).
5. PLACE STANDARD WORK ZONE PAVEMENT MARKINGS NO LATER THAN 14 DAYS AFTER PLACING SHORT TERM MARKINGS. REF:TCP(3-2).

STEP 2 AND ADDITIONAL STEPS:
1. REPEAT STEP 1 WORK SEQUENCE UNTIL TOTAL DESIGN WIDTH IS WORKED.
2. PAVE SIDE ROADS AND TURNOUTS. REF:TCP(1-1),TCP(1-2),TCP(1-3),TCP(1-4),TCP(2-1),TCP(2-2),TCP(2-3),TCP(2-4).
3. INSTALL PERMANENT SIGNS. REF:TCP(1-1).

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TRAFFIC CONTROL PLAN
SEQUENCE OF CONSTRUCTION
(US 385)

SHEET 4 OF 6

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FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		21
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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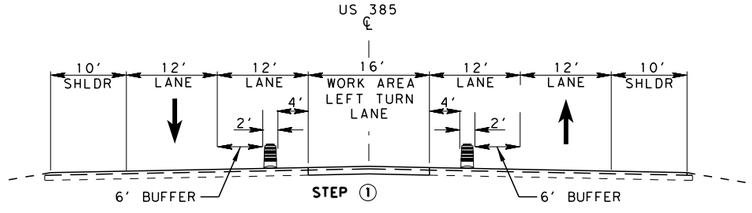
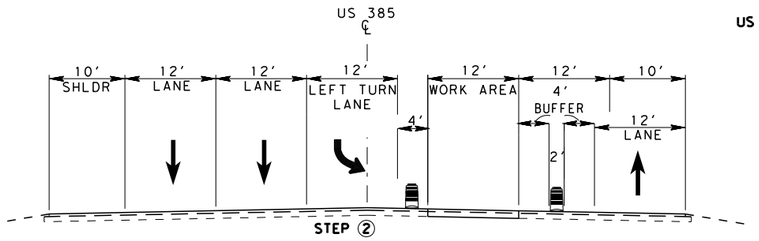


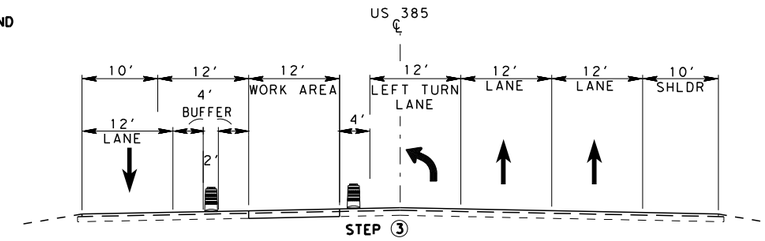
STEP ①

US 385 SOUTHBOUND US 385 NORTHBOUND



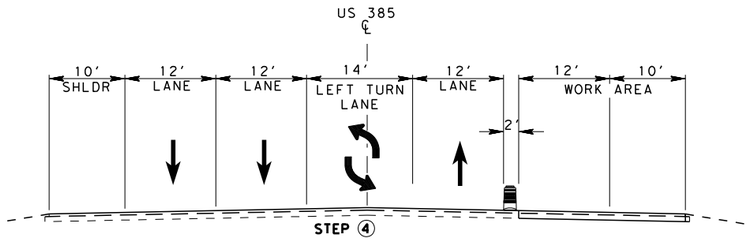
STEP ②

US 385 SOUTHBOUND US 385 NORTHBOUND



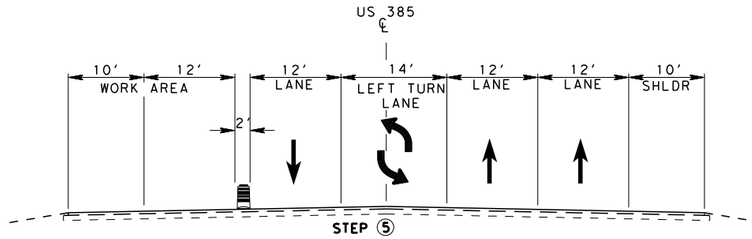
STEP ③

US 385 SOUTHBOUND US 385 NORTHBOUND



STEP ④

US 385 SOUTHBOUND US 385 NORTHBOUND



STEP ⑤

US 385 SOUTHBOUND US 385 NORTHBOUND

PHASE 3B FLUSH MEDIAN WITHOUT C&G WORK STEPS

NTS

PHASE 3B- FLUSH MEDIAN WITHOUT C&G WORK AREAS (TAYLOR ROAD TO DEPRESSED MEDIAN SECTION)

WORK SEQUENCE:

STEP 1:
1. PERFORM PAVEMENT WORK OVER PARTIAL WIDTH WITH LONGITUDINAL JOINTS ALONG LANE LINES. REF:TCP(1-5),TCP(2-6).
2. PLACE SHORT TERM WORK ZONE PAVEMENT MARKINGS AND ADDRESS PAVEMENT EDGES DAILY AS NEEDED. REF:TCP(1-5),TCP(2-6).
3. PLACE STANDARD WORK ZONE PAVEMENT MARKINGS NO LATER THAN 14 DAYS AFTER PLACING SHORT TERM MARKINGS. REF:TCP(3-2).

STEP 2 AND ADDITIONAL STEPS:
1. REPEAT STEP 1 WORK SEQUENCE UNTIL TOTAL DESIGN WIDTH IS WORKED.
2. PERFORM PAVEMENT WORK ON SIDE ROADS AND TURNOUTS. REF:TCP(1-1),TCP(1-2),TCP(1-3),TCP(1-4),TCP(2-1),TCP(2-2),TCP(2-3),TCP(2-4).
3. INSTALL PERMANENT SIGNS. REF:TCP(1-1).

09/25/2020

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TRAFFIC CONTROL PLAN SEQUENCE OF CONSTRUCTION (US 385)

SHEET 5 OF 6

Texas Department of Transportation

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FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		22
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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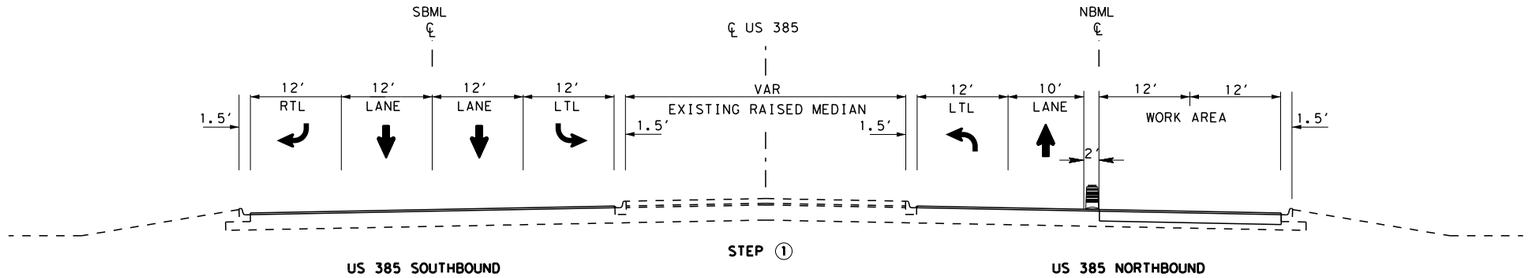

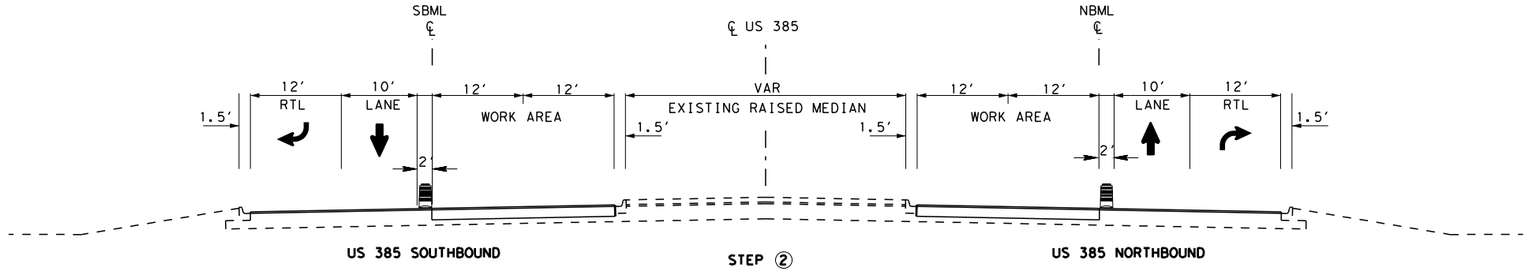

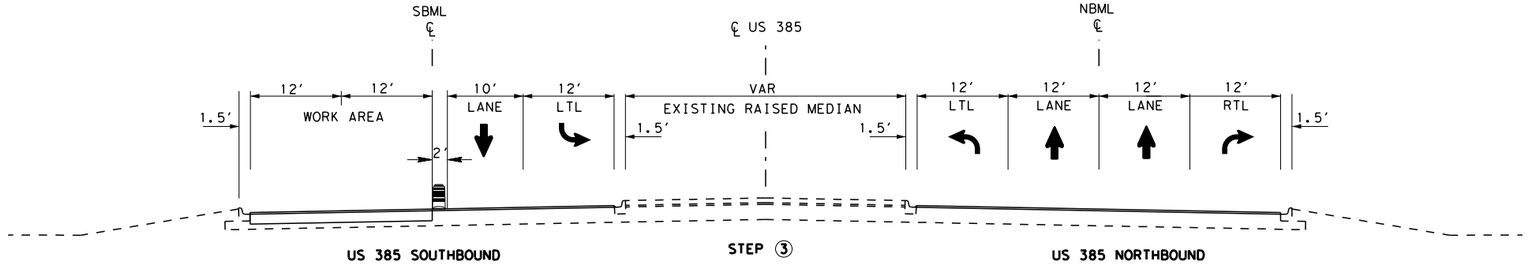

NTS

PHASE 3C RAISED MEDIAN WITH C&G WORK STEPS (LP 1910)

PHASE 3C- RAISED MEDIAN WORK AREAS (AT LOOP 1910). SEE TRAFFIC CONTROL PLAN AT INTERSECTIONS FOR ADDITIONAL INFORMATION.

STEP 1:

1. REMOVE PAVEMENT OVER PARTIAL WIDTH WITH LONGITUDINAL JOINTS ALONG LANE LINES. REF:TCP(1-5),TCP(2-6).
2. REWORK EXISTING BASE COURSE IN REMOVAL AREAS (SURFACE REFINISHING) AND PRIME PARTIAL WIDTH. REF:TCP(1-5),TCP(2-6).
3. PLACE SUPERPAVE MIXTURE OVER PARTIAL WIDTH WITH LONGITUDINAL JOINTS ALONG LANE LINES. REF:TCP(1-5),TCP(2-6).
4. PLACE SHORT TERM WORK ZONE PAVEMENT MARKINGS AND ADDRESS PAVEMENT EDGES DAILY AS NEEDED. REF:TCP(1-5),TCP(2-6).
5. PLACE STANDARD WORK ZONE PAVEMENT MARKINGS NO LATER THAN 14 DAYS AFTER PLACING SHORT TERM MARKINGS. REF:TCP(3-2).

STEP 2 AND ADDITIONAL STEPS:

1. REPEAT STEP 1 WORK SEQUENCE UNTIL TOTAL DESIGN WIDTH IS WORKED.
2. INSTALL PERMANENT SIGNS. REF:TCP(1-1).

PHASE 4 PAVEMENT PROTECTION, FINAL SURFACING, CLEAN-UP

PHASE 4: FOG SEAL, SEAL COAT, FINAL SURFACE, PAVEMENT BACKFILL, AND CLEAN-UP

NOTE: FOG SEAL AND/OR SEAL COAT MAY BE REQUIRED TO BE PERFORMED DURING PHASE 3 TO PROTECT UNDERLYING PAVEMENT INTEGRITY AS DIRECTED BY THE ENGINEER.

TCP RESTRICTIONS AND OBLIGATIONS:

1. MAINTAIN ONE OPEN SB LANE AT ALL TIMES.
2. MAINTAIN ONE OPEN NB LANE AT ALL TIMES.
3. LIMIT LANE CLOSURES FOR WORK TO 2 MILES CUMMULATIVE LENGTH (NB AND SB) UNLESS APPROVED BY ENGINEER.

WORK SEQUENCE:

1. PLACE FOG SEAL/SEAL COAT AND SHORT TERM WORKZONE TABS. REF:TCP(1-2),TCP(1-5),TCP(7-1).
2. PLACE STANDARD WORK ZONE PAVEMENT MARKINGS NO LATER THAN 14 DAYS. REF:TCP(3-1),TCP(3-2).
3. PLACE FINAL SURFACES AND SHORT TERM WORKZONE TABS. REF:TCP(1-2),TCP(1-5).
4. PLACE FINAL PAVEMENT MARKINGS NO LATER THAN 14 DAYS AFTER PLACING SHORT TERM WORKZONE TABS. REF:TCP(3-1),TCP(3-2),TCP(3-3),TCP(3-4).
5. BACKFILL PAVEMENT EDGES, DRESS SLOPES, AND PLACE PERMANENT SEEDING. REF:TCP(1-1).
6. PERFORM FINAL CLEAN UP.

09/25/2020

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TRAFFIC CONTROL PLAN SEQUENCE OF CONSTRUCTION (US 385)

SHEET 6 OF 6

Texas Department of Transportation

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6	SEE TITLE SHEET		23
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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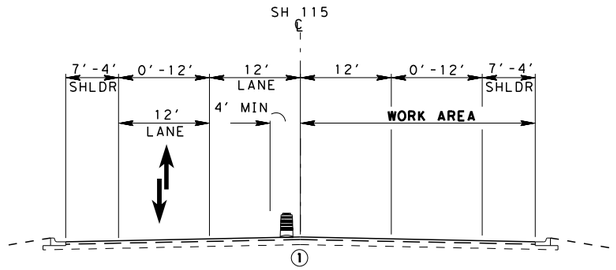
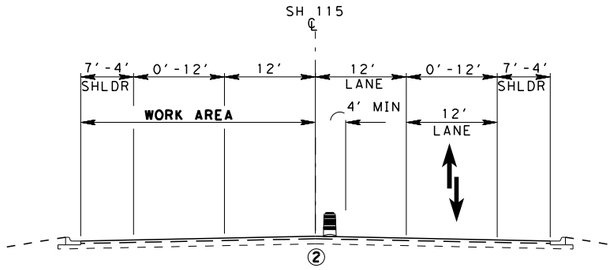


REFER TO TCP STANDARDS FOR
ONE LANE TWO-WAY TRAFFIC CONTROL



REFER TO TCP STANDARDS FOR
ONE LANE TWO-WAY TRAFFIC CONTROL

HORIZONTAL SCALE
NO VERTICAL SCALE

SH 115 TCP PHASE NARRATIVE

PLACE ADVANCE PROJECT WARNING SIGNING

PHASE1: PAVEMENT REMOVAL AND PAVEMENT REHABILITATION

TCP RESTRICTIONS AND OBLIGATIONS:
1. MAINTAIN THROUGH TRAFFIC AT ALL TIMES.
2. MINIMIZE PAVEMENT DROPOFFS DURING WORKING HOURS.
3. MAINTAIN ACCESS TO DRIVEWAYS AND SIDEROADS.
4. DELINEATE DRIVEWAY AND SIDE ROAD ACCESS LOCATIONS USING CHANNELIZING DEVICES AND/OR SIGNS AS APPROVED BY THE ENGINEER.
5. PERFORM WORK TO OPEN ALL LANES AT END OF WORK DAY WITH NO MORE THAN A 2" PAVEMENT DROPOFF.
6. PERFORM PAVEMENT WORK IN ACCORDANCE TO MOBILE, SHORT DURATION, SHORT TERM STATIONARY, OR INTERMEDIATE TERM STATIONARY WORK CONDITIONS.

WORK SEQUENCE:

STEP 1:
1. REMOVE PAVEMENT OVER PARTIAL HALF WIDTH WITH LONGITUDINAL JOINTS ALONG LANE LINES. REF:TCP(1-2),TCP(1-4).
2. REWORK EXISTING BASE COURSE (REFINISHING) IN REMOVAL AREAS AND PRIME PARTIAL WIDTH. REF:TCP(1-2),TCP(1-4).
3. PLACE SUPERPAVE MIXTURE OVER PARTIAL WIDTH WITH LONGITUDINAL JOINTS ALONG LANE LINES. REF:TCP(1-2),TCP(1-4).
4. PLACE SHORT TERM WORK ZONE PAVEMENT MARKINGS AND ADDRESS PAVEMENT EDGES DAILY AS NEEDED. REF:TCP(1-2),TCP(1-4).
5. PLACE STANDARD WORK ZONE PAVEMENT MARKINGS NO LATER THAN 14 DAYS AFTER PLACING SHORT TERM MARKINGS. REF:TCP(3-1).

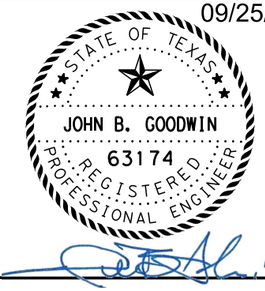
STEP 2:
1. REPEAT STEP 1 WORK SEQUENCE FOR REMAINING PHASE DESIGN WIDTH.
2. REMOVE EXISTING SIGNS; INSTALL PERMANENT SIGNS. REF:TCP(1-1).

PHASE 2: FOG SEAL. SEAL COAT, FINAL SURFACE AND CLEAN-UP

TCP RESTRICTIONS AND OBLIGATIONS:
1. MAINTAIN THROUGH TRAFFIC AT ALL TIMES.
2. PERFORM PAVEMENT WORK IN ACCORDANCE TO MOBILE, SHORT DURATION, SHORT TERM STATIONARY, OR INTERMEDIATE TERM STATIONARY WORK CONDITIONS.

WORK SEQUENCE:
1. PLACE FOG SEAL/SEAL COAT AND SHORT TERM WORKZONE TABS. REF:TCP(1-2),TCP(1-4),TCP(7-1).
2. PLACE STANDARD WORK ZONE PAVEMENT MARKINGS NO LATER THAN 14 DAYS. REF:TCP(3-1).
3. PLACE FINAL SURFACES AND SHORT TERM WORKZONE TABS. REF:TCP(1-2),TCP(1-4).
4. PLACE FINAL PAVEMENT MARKINGS NO LATER THAN 14 DAYS AFTER PLACING SHORT TERM WORKZONE TABS. REF:TCP(3-1),TCP(3-3),TCP(3-4).
5. BACKFILL PAVEMENT EDGES, DRESS SLOPES, AND PLACE PERMANENT SEEDING. REF:TCP(1-1).
6. BACKFILL FINAL CLEAN UP.

09/25/2020



TRAFFIC CONTROL PLAN SEQUENCE OF CONSTRUCTION (SH 115)

SHEET 1 OF 1

Texas Department of Transportation

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FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		24
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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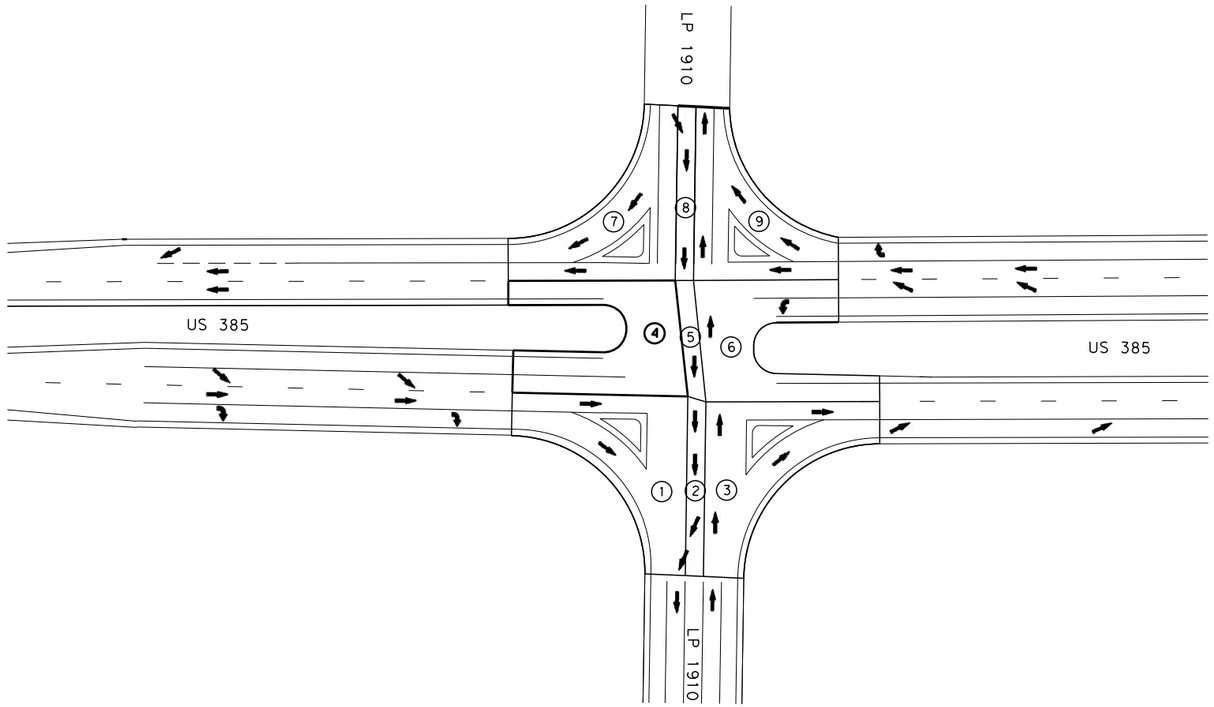

TRAFFIC CONTROL PLAN AT LOOP 1910 INTERSECTION

SCALE: 1"= 100'

AREA ④ WORK TRAFFIC LOCATION SHOWN IN ILLUSTRATION ABOVE

RECOMMENDED AREA SEQUENCE GROUPING:
1. ① , ② , & ③
2. ④ , ⑤ , & ⑥
3. ⑦ , ⑧ , & ⑨

NOTE: CONSTRUCT AREAS OF PERMANENT PAVEMENT AS SHOWN IN THE TRAFFIC CONTROL PLANS. AREAS OF PERMANENT PAVING CONSTRUCTED UNDER TRAFFIC WILL BE CONSTRUCTED BY UTILIZING LANE CLOSURES TRAFFIC CONTROL, REF: TCP(2-3), TCP(2-6), TCP(3-1), TCP(3-2).

THIS WORK WILL BE PERFORMED DURING NIGHT OPERATIONS TO MINIMIZE THE DISRUPTION OF TRAFFIC. THE CONTRACTOR'S FLAGGERS WILL HAVE SUPPLEMENTAL LIGHTING IN ADDITION TO REQUIRED LIGHTING ON EQUIPMENT AND WORK VEHICLES TO INSURE ADEQUATE LIGHTING FOR WORKERS SAFETY AND INSPECTION.

ALL WORK AREAS CONSTRUCTED UNDER TRAFFIC WILL BE OPENED TO TRAFFIC AT THE CONCLUSION OF THAT NIGHTS WORK AS DIRECTED.

TYPICAL 9 STEP MAJOR INTERSECTION
WORK AREA AND SEQUENCE FOR PAVEMENT REMOVAL AND REHABILITATION WORK
(LP 1910)

1) SET-UP ALL TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH APPLICABLE TCP STANDARDS.
2) REMOVE PAVEMENT IN AREA ① WITH LONGITUDINAL JOINTS ALONG LANE LINES.
3) REWORK EXISTING BASE COURSE (REFINISHING) AND PRIME.
4) PLACE SUPERPAVE MIXTURE WITH LONGITUDINAL JOINTS ALONG LANE LINES.
5) REPEAT 1 THROUGH 4 FOR EACH PROCEEDING WORK AREA (② THROUGH ⑨).
6) PLACE SHORT TERM WORK ZONE PAVEMENT MARKINGS.
7) PLACE STANDARD WORK ZONE PAVEMENT MARKINGS NO LATER THAN 14 DAYS AFTER PLACING SHORT TERM WORK ZONE MARKINGS.

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

TRAFFIC CONTROL PLAN AT INTERSECTIONS

SHEET 1 OF 3

Texas Department of Transportation

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TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		25
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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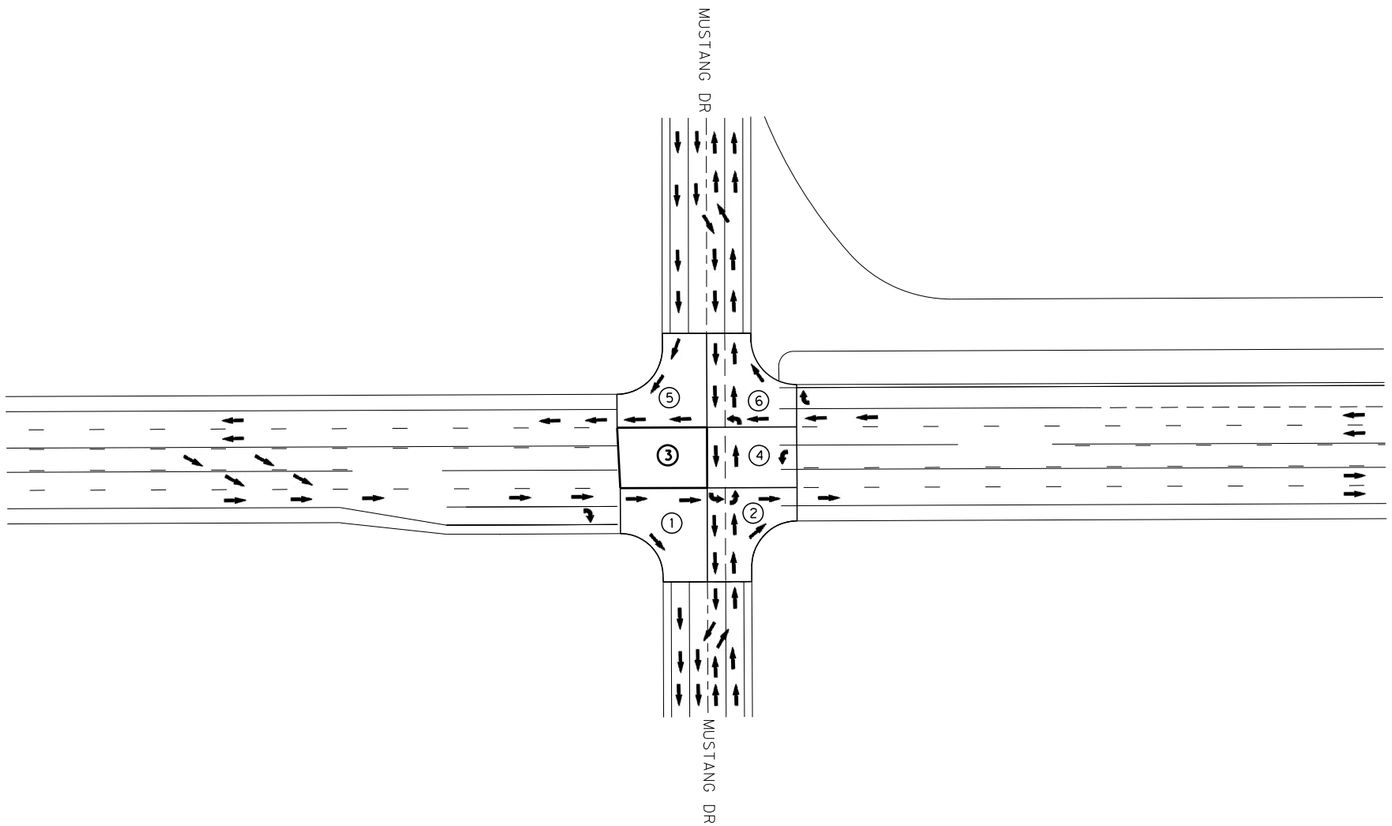

TRAFFIC CONTROL PLAN AT MUSTANG DR INTERSECTION

AREA ③ WORK TRAFFIC LOCATION SHOWN IN ILLUSTRATION ABOVE

RECOMMENDED AREA SEQUENCE GROUPING:
1. ① & ②
2. ③ & ④
3. ⑤ & ⑥

NOTE: CONSTRUCT AREAS OF PERMANENT PAVEMENT AS SHOWN IN THE TRAFFIC CONTROL PLANS. AREAS OF PERMANENT PAVING CONSTRUCTED UNDER TRAFFIC WILL BE CONSTRUCTED BY UTILIZING LANE CLOSURES TRAFFIC CONTROL. REF:TCP(2-4),TCP(2-6),TCP(3-1),TCP(3-2).

THIS WORK WILL BE PERFORMED DURING NIGHT OPERATIONS TO MINIMIZE THE DISRUPTION OF TRAFFIC. THE CONTRACTOR'S FLAGGERS WILL HAVE SUPPLEMENTAL LIGHTING IN ADDITION TO REQUIRED LIGHTING ON EQUIPMENT AND WORK VEHICLES TO INSURE ADEQUATE LIGHTING FOR WORKERS SAFETY AND INSPECTION.

ALL WORK AREAS CONSTRUCTED UNDER TRAFFIC WILL BE OPENED TO TRAFFIC AT THE CONCLUSION OF THAT NIGHTS WORK AS DIRECTED.

TYPICAL 6 STEP MAJOR INTERSECTION
WORK AREA AND SEQUENCE FOR PAVEMENT REMOVAL AND REHABILITATION WORK
(MUSTANG DRIVE)

1) SET-UP ALL TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH APPLICABLE TCP STANDARDS.
2) REMOVE PAVEMENT IN AREA ① WITH LONGITUDINAL JOINTS ALONG LANE LINES.
3) REWORK EXISTING BASE COURSE (REFINISHING) AND PRIME.
4) PLACE SUPERPAVE MIXTURE WITH LONGITUDINAL JOINTS ALONG LANE LINES.
5) REPEAT 1 THROUGH 4 FOR EACH PROCEEDING WORK AREA (② THROUGH ⑥).
6) PLACE SHORT TERM WORK ZONE PAVEMENT MARKINGS.
7) PLACE STANDARD WORK ZONE PAVEMENT MARKINGS NO LATER THAN 14 DAYS AFTER PLACING SHORT TERM WORK ZONE MARKINGS.

SCALE: 1"= 100'

05/28/2020

STATE OF TEXAS
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TRAFFIC CONTROL PLAN AT INTERSECTIONS

SHEET 2 OF 3

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6	SEE TITLE SHEET		26
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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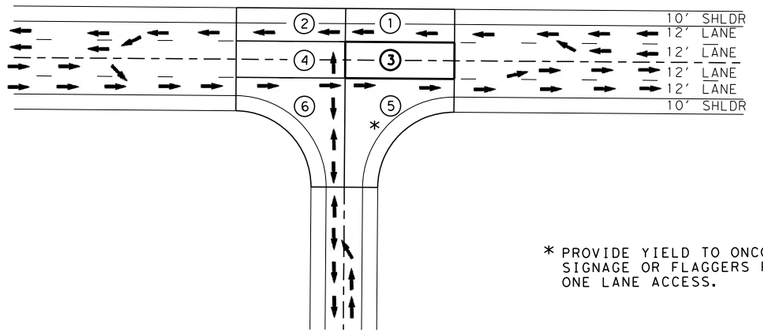
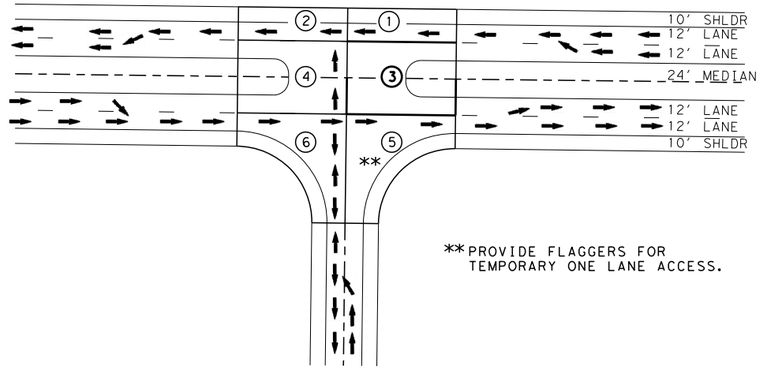


* PROVIDE YIELD TO ONCOMING TRAFFIC SIGNAGE OR FLAGGERS FOR TEMPORARY ONE LANE ACCESS.

TRAFFIC CONTROL PLAN AT MINOR INTERSECTIONS

AREA ③ WORK TRAFFIC LOCATION SHOWN IN ILLUSTRATION ABOVE

RECOMMENDED AREA SEQUENCE GROUPING:
1. ① & ②
2. ③ & ④
3. ⑤ & ⑥



** PROVIDE FLAGGERS FOR TEMPORARY ONE LANE ACCESS.

TRAFFIC CONTROL PLAN AT FM 1967

AREA ③ WORK TRAFFIC LOCATION SHOWN IN ILLUSTRATION ABOVE

RECOMMENDED AREA SEQUENCE GROUPING:
1. ① & ②
2. ③ & ④
3. ⑤ & ⑥

NOTE: CONSTRUCT AREAS OF PERMANENT PAVEMENT AS SHOWN IN THE TRAFFIC CONTROL PLANS. AREAS OF PERMANENT PAVING CONSTRUCTED UNDER TRAFFIC WILL BE CONSTRUCTED BY UTILIZING LANE CLOSURES TRAFFIC CONTROL, REF:TCP(2-2),TCP(2-6),TCP(3-1),TCP(3-2).

UNLESS OTHERWISE APPROVED BY THE ENGINEER,THIS WORK WILL BE PERFORMED DURING NIGHT OPERATIONS TO MINIMIZE THE DISRUPTION OF TRAFFIC. THE CONTRACTOR'S FLAGGERS WILL HAVE SUPPLEMENTAL LIGHTING IN ADDITION TO REQUIRED LIGHTING ON EQUIPMENT AND WORK VEHICLES TO INSURE ADEQUATE LIGHTING FOR WORKERS SAFETY AND INSPECTION.

ALL WORK AREAS CONSTRUCTED UNDER TRAFFIC WILL BE OPENED TO TRAFFIC AT THE CONCLUSION OF THAT NIGHTS WORK AS DIRECTED.

TYPICAL 6 STEP MINOR INTERSECTION
WORK AREA AND SEQUENCE FOR PAVEMENT REMOVAL AND REHABILITATION WORK
(MINOR INTERSECTIONS AND FM 1967)

1) SET-UP ALL TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH APPLICABLE TCP STANDARDS.
2) REMOVE PAVEMENT IN AREA ① WITH LONGITUDINAL JOINTS ALONG LANE LINES.
3) REWORK EXISTING BASE COURSE (REFINISHING) AND PRIME.
4) PLACE SUPERPAVE MIXTURE WITH LONGITUDINAL JOINTS ALONG LANE LINES.
5) REPEAT 1 THROUGH 4 FOR EACH PROCEEDING WORK AREA (② THROUGH ⑥).
6) PLACE SHORT TERM WORK ZONE PAVEMENT MARKINGS.
7) PLACE STANDARD WORK ZONE PAVEMENT MARKINGS NO LATER THAN 14 DAYS AFTER PLACING SHORT TERM WORK ZONE MARKINGS.

NOTE: AREAS ① AND ② MAY BE CONSTRUCTED SIMULTANEOUSLY AS DIRECTED BY THE ENGINEER.

SCALE: 1"= 100'

05/28/2020

STATE OF TEXAS
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TRAFFIC CONTROL PLAN AT INTERSECTIONS

SHEET 3 OF 3

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FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		27
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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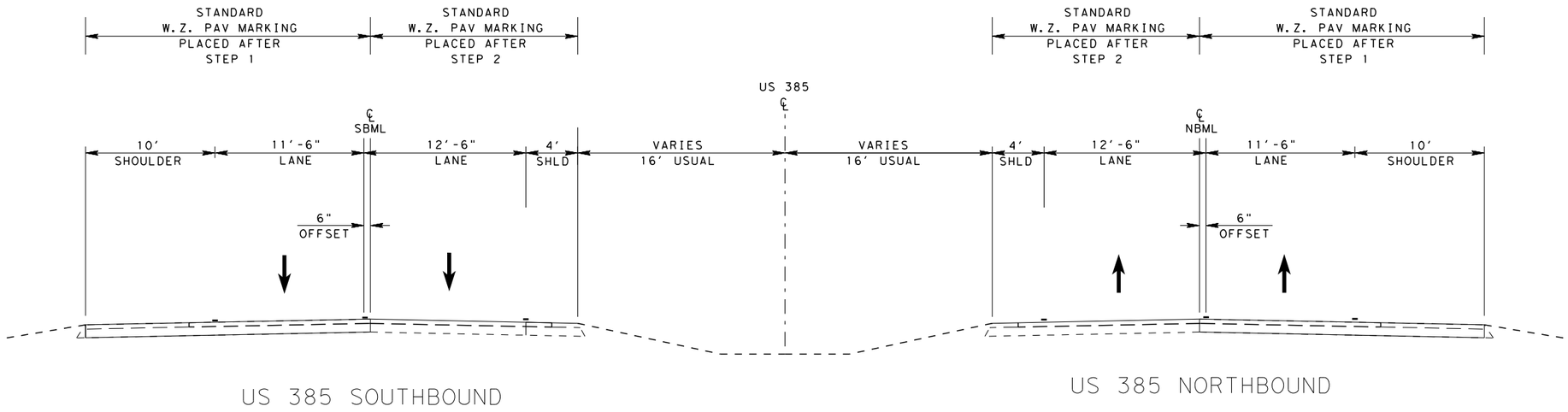
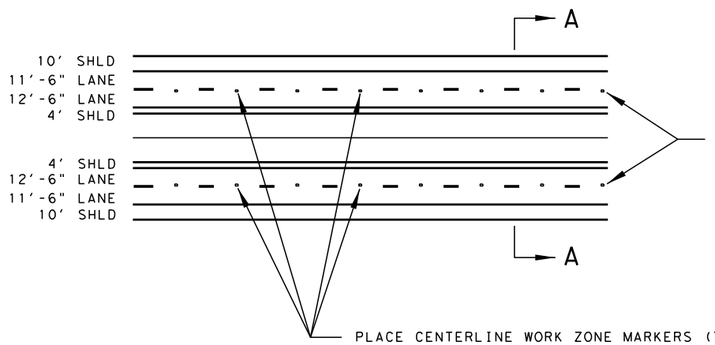


SECTION A-A



PLAN VIEW

TYPICAL STANDARD WORK ZONE PAVEMENT MARKING DETAIL WITH WORKZONE PAVEMENT MARKING OFFSETS (DEPRESSED MEDIAN SECTIONS)

NOT TO SCALE

05/28/2020

STATE OF TEXAS
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STANDARD WORKZONE PAVEMENT MARKING DETAILS

SHEET 1 OF 2

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6	SEE TITLE SHEET		28
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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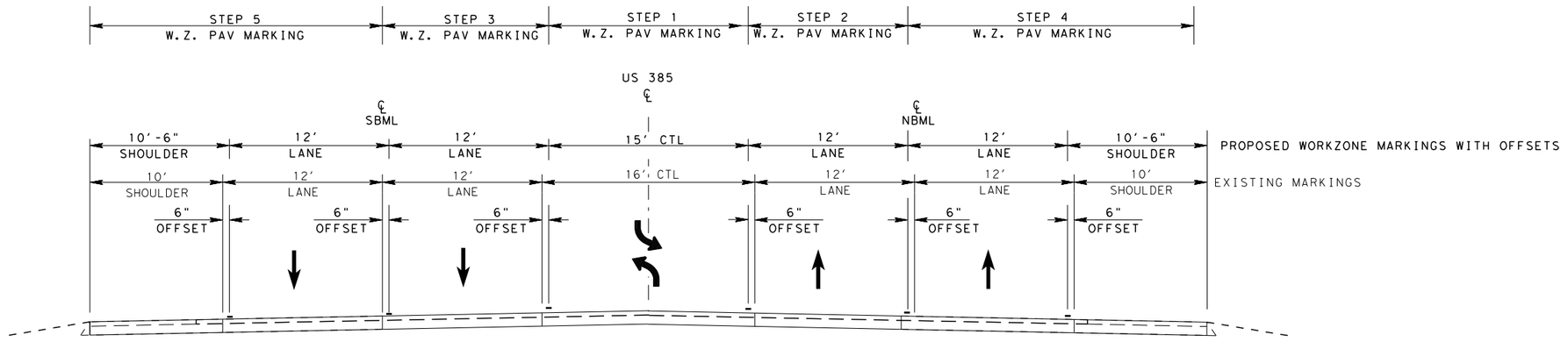
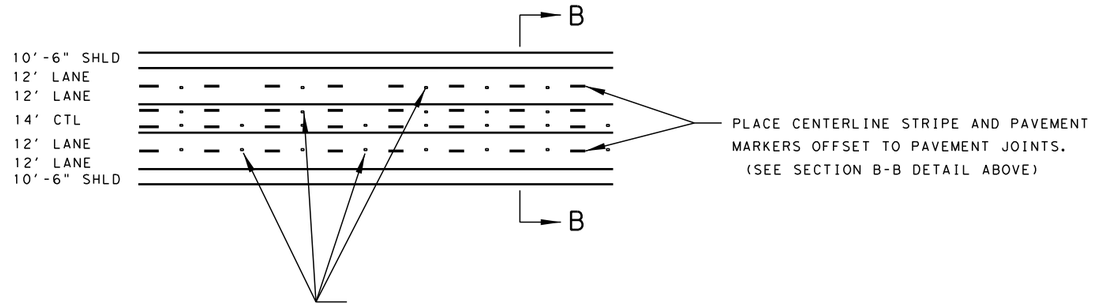


SECTION B-B



PLACE WORK ZONE MARKERS (TYPE II-AA AND TYPE I-C) WITH STANDARD WORKZONE PAVEMENT MARKINGS ON CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE.
PLACE WORKZONE MARKERS ON 40' C-C TYPICAL SPACING.

PLAN VIEW

TYPICAL STANDARD WORK ZONE PAVEMENT MARKING DETAIL WITH WORKZONE PAVEMENT MARKING OFFSETS (FLUSH MEDIAN SECTIONS)

NOT TO SCALE

05/28/2020

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STANDARD WORKZONE PAVEMENT MARKING DETAILS

SHEET 2 OF 2

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6	SEE TITLE SHEET		29
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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DATE:
FILE:

BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

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

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

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

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

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

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

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

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

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

10. Where highway construction or maintenance work is being undertaken, other than mobile operations as defined by the Texas Manual on Uniform Traffic Control Devices, CSJ limit signs are required. CSJ limit signs are shown on BC(2). The OBEY WARNING SIGNS STATE LAW sign, STAY ALERT TALK OR TEXT LATER and the WORK ZONE TRAFFIC FINES DOUBLE sign with plaque shall be erected in advance of the CSJ limits. The BEGIN ROAD WORK NEXT X MILES, CONTRACTOR and END ROAD WORK signs shall be erected at or near the CSJ limits. For mobile operations, CSJ limit signs are not required.

11. Traffic control devices should be in place only while work is actually in progress or a definite need exists.

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

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

WORKER SAFETY NOTES:

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

2. Except in emergency situations, flagger stations shall be illuminated when flagging is used at night.

COMPLIANT WORKZONE TRAFFIC CONTROL DEVICES

1. Only pre-qualified products shall be used. The "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources.

2. Work zone traffic control devices shall be compliant with the Manual for Assessing safety Hardware (MASH).

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

Texas Department of Transportation

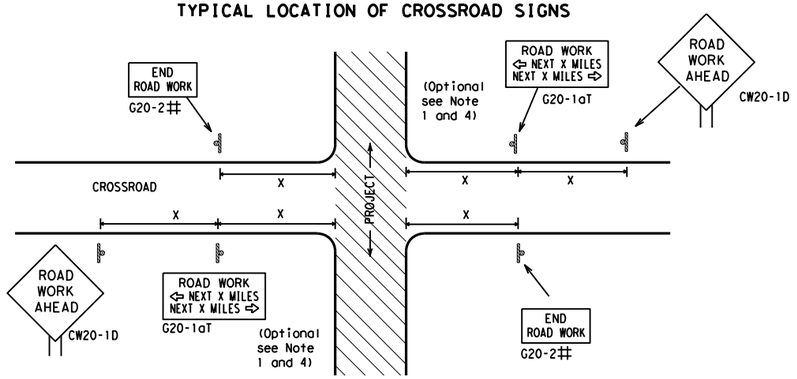
Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

BC(1)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043, ETC.	US 385, ETC.
4-03 7-13	DIST	COUNTY		SHEET NO.
9-07 8-14	0228	ANDREWS		30
5-10 5-21				

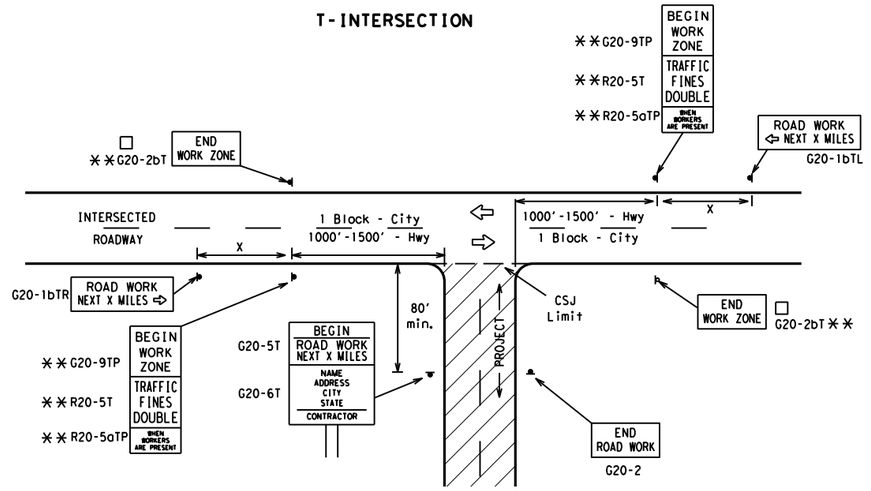
TYPICAL LOCATION OF CROSSROAD SIGNS



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

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

T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

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

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

SIZE

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

SPACING

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

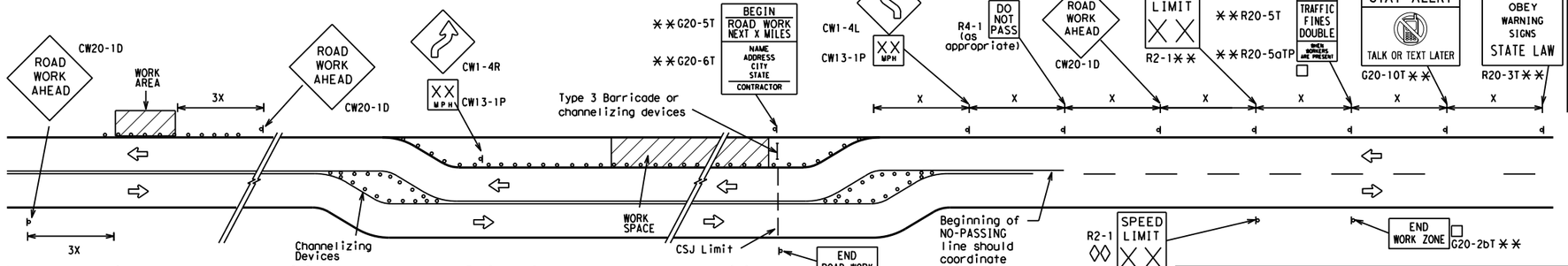
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

GENERAL NOTES

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

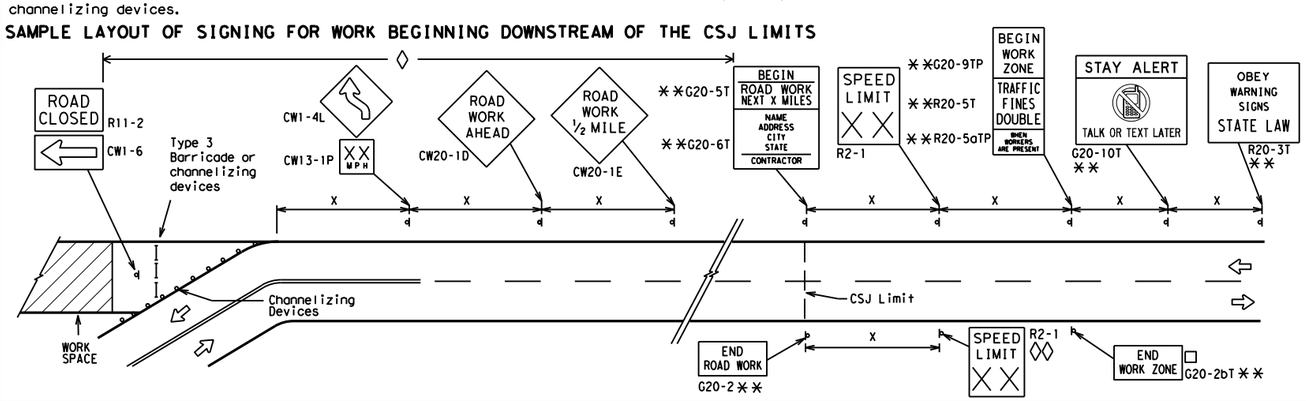
WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS



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

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS

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



NOTES

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

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

** CSJ limit signing is required for highway construction and maintenance work, with the exception of mobile operations.

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

◊◊ Contractor will install a regulatory speed limit sign at the end of the work zone.

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

SHEET 2 OF 12

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043, ETC.	US 385, ETC.
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	0228	ANDREWS		31

DATE:
FILE:

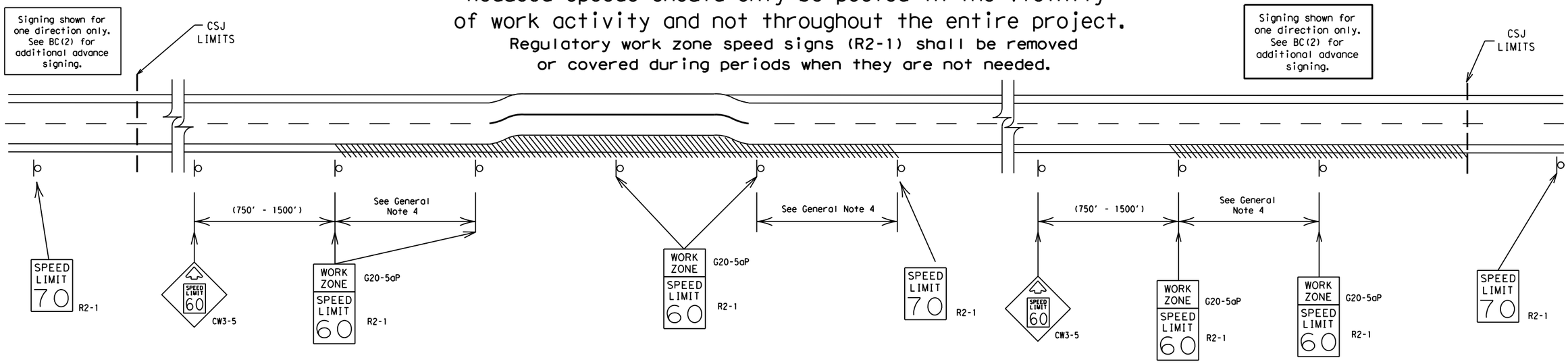
DATE:
FILE:

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:

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

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

SHORT TERM WORK ZONE SPEED LIMITS

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

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

GENERAL NOTES

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

BC(3)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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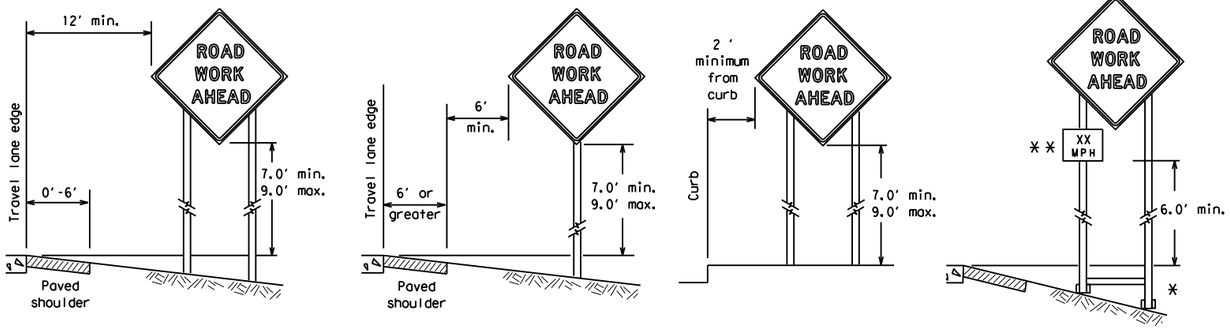
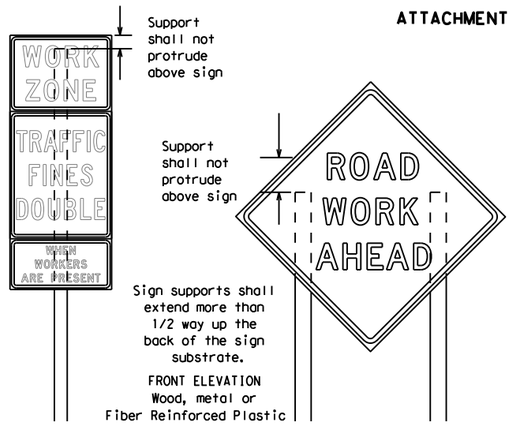
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS

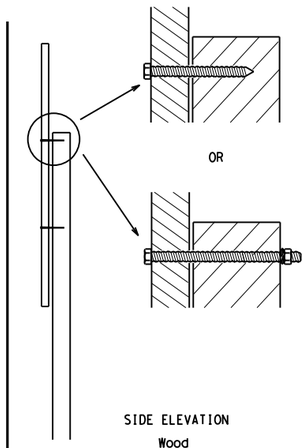


* When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

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

ATTACHMENT FOR SIGN SUPPORTS





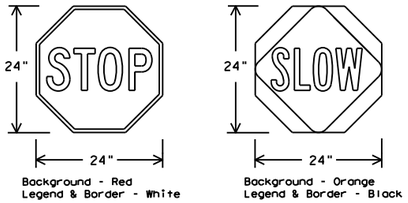
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

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

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

STOP/SLOW PADDLES

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



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

CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

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

GENERAL NOTES FOR WORK ZONE SIGNS

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

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

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

SIGN MOUNTING HEIGHT

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

SIZE OF SIGNS

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

SIGN SUBSTRATES

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

REFLECTIVE SHEETING

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

SIGN LETTERS

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

REMOVING OR COVERING

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

SIGN SUPPORT WEIGHTS

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

FLAGS ON SIGNS

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC(4)-21

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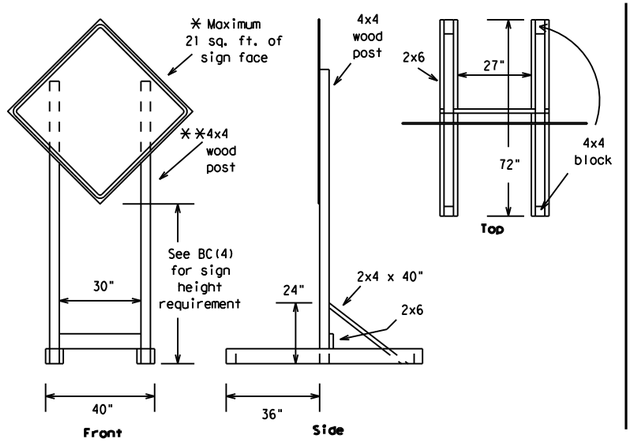
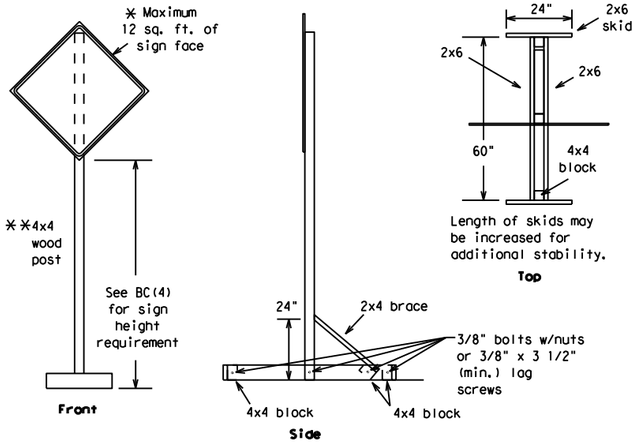
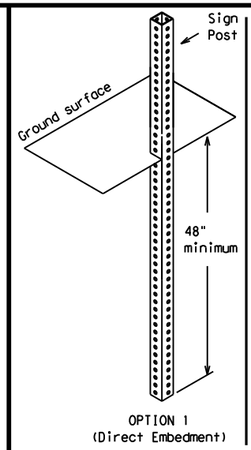
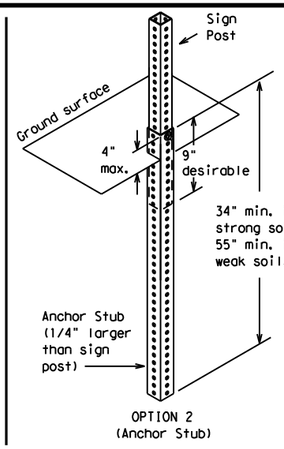


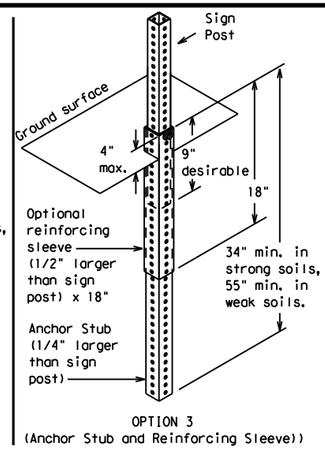


SKID MOUNTED WOOD SIGN SUPPORTS

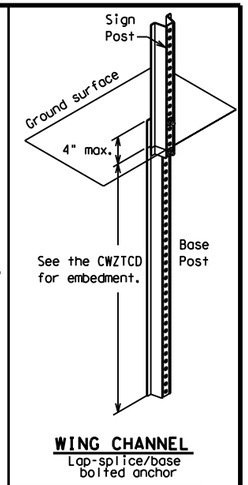
* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS







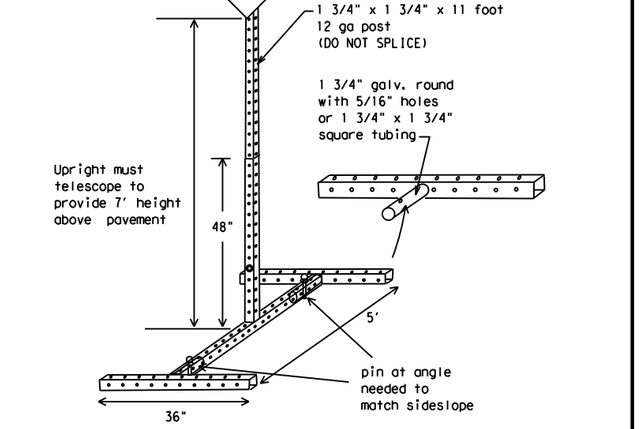
PERFORATED SQUARE METAL TUBING

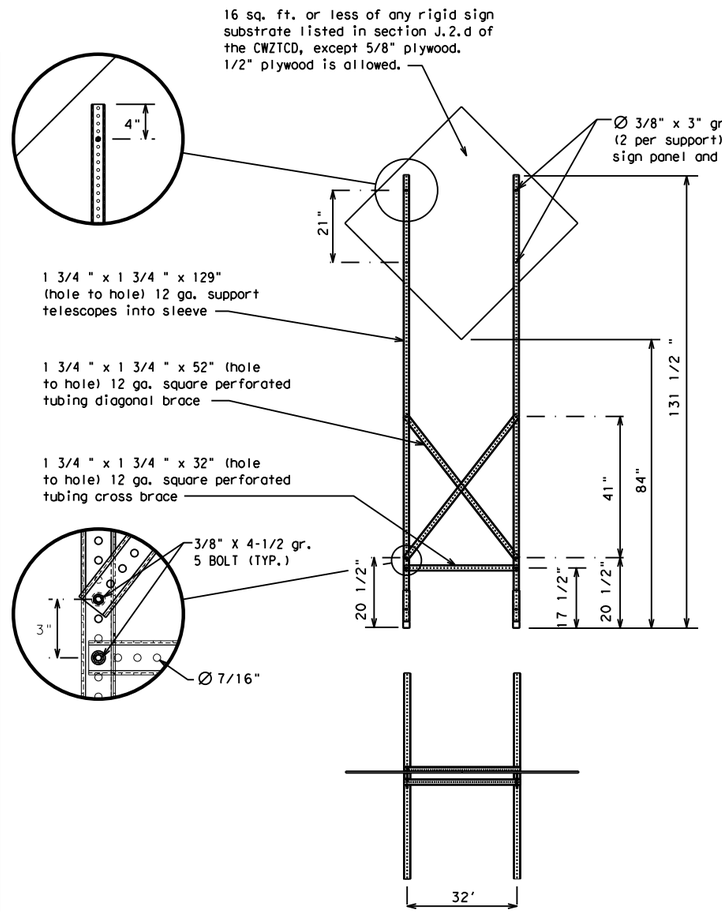


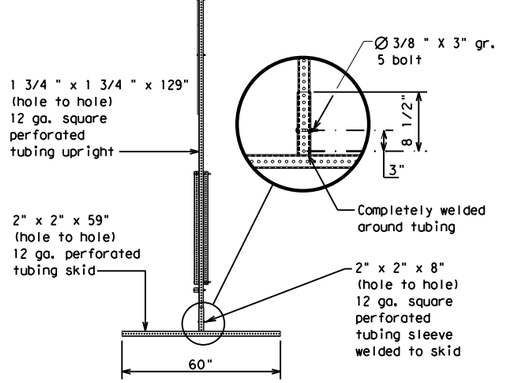
WING CHANNEL
Lap-splice/base bolted anchor

GROUND MOUNTED SIGN SUPPORTS

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







SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

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

WEDGE ANCHORS

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

OTHER DESIGNS

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

GENERAL NOTES

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

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

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

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

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)-21

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

PORTABLE CHANGEABLE MESSAGE SIGNS

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

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

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

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

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

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

Phase 1: Condition Lists

Road/Lane/Ramp Closure List

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

Other Condition List

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

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

Phase 2: Possible Component Lists

Action to Take/Effect on Travel List

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

Location List

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

Warning List

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

** Advance Notice List

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

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

** See Application Guidelines Note 6.

APPLICATION GUIDELINES

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

WORDING ALTERNATIVES

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

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

FULL MATRIX PCMS SIGNS

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

Texas Department of Transportation

Traffic Safety Division Standard

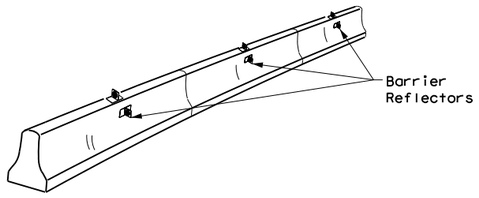
BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC(6)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043, ETC.	US 385, ETC.
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	0228	ANDREWS		35

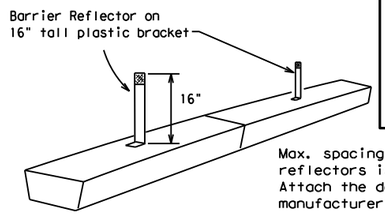
DATE:
FILE:

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



CONCRETE TRAFFIC BARRIER (CTB)

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

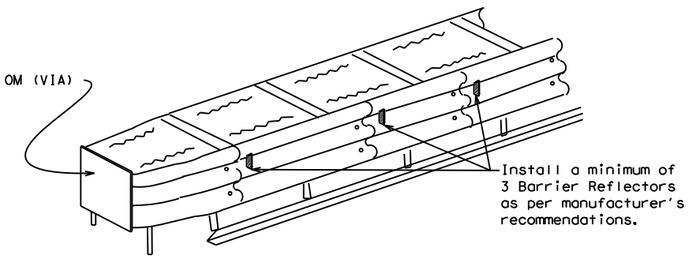


Max. spacing of barrier reflectors is 20 feet. Attach the delineators as per manufacturer's recommendations.

LOW PROFILE CONCRETE BARRIER (LPCB) 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.

LOW PROFILE CONCRETE BARRIER (LPCB)

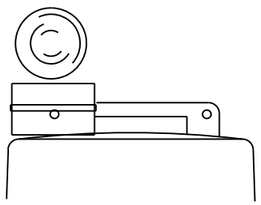


DELINEATION OF END TREATMENTS

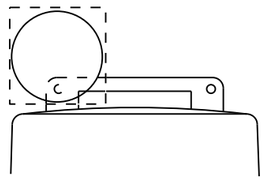
END TREATMENTS FOR CTB'S USED IN WORK ZONES

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

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS



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



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

WARNING LIGHTS

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

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

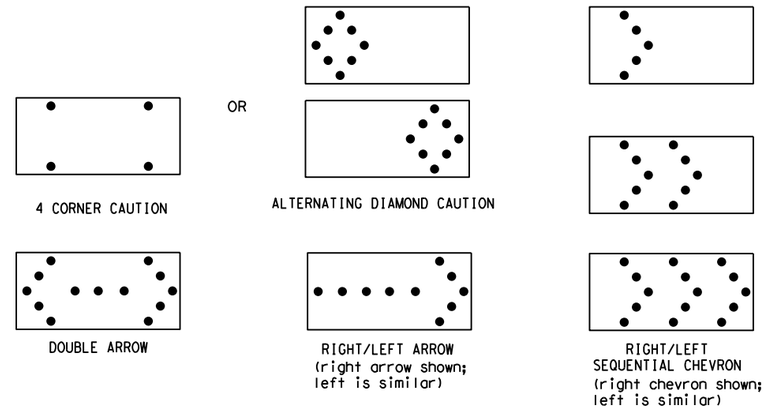
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing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

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

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

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

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



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

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

ATTENTION

Flashing Arrow Boards shall be equipped with automatic dimming devices.

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

FLASHING ARROW BOARDS

TRUCK-MOUNTED ATTENUATORS

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

Texas Department of Transportation

Traffic Safety Division Standard

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

BC(7)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS	0228	04	043, ETC.	US 385, ETC.
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	0228	ANDREWS		36

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DATE:
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GENERAL NOTES

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

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

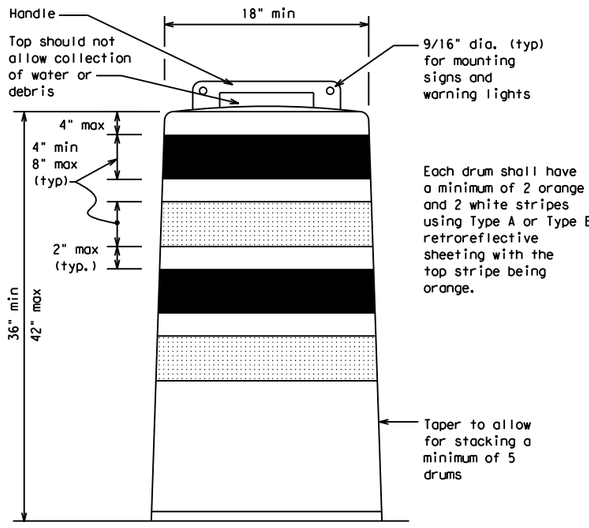
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents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

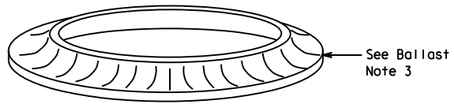
RETROREFLECTIVE SHEETING

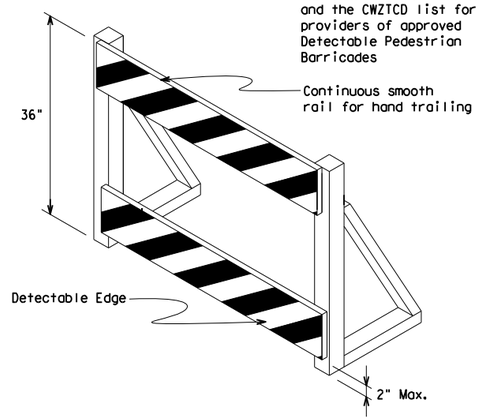
1. The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials." Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
2. The sheeting shall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

BALLAST

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

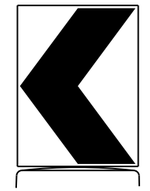




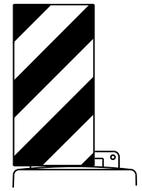


DETECTABLE PEDESTRIAN BARRICADES

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



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



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

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

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(8)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043, ETC.	US 385, ETC.
4-03 8-14	DIST	COUNTY		SHEET NO.
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7-13				

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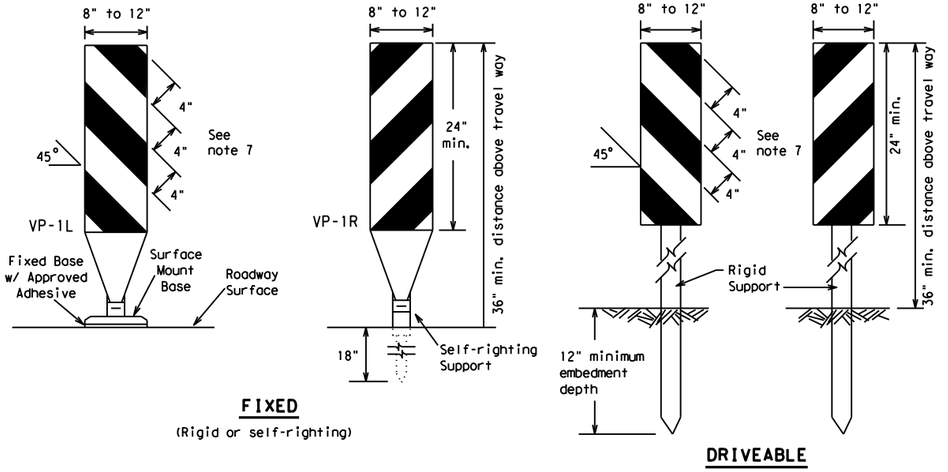
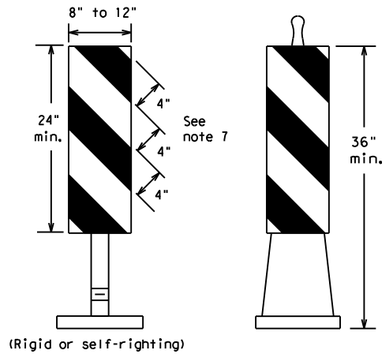


FIXED
(Rigid or self-righting)

DRIVEABLE

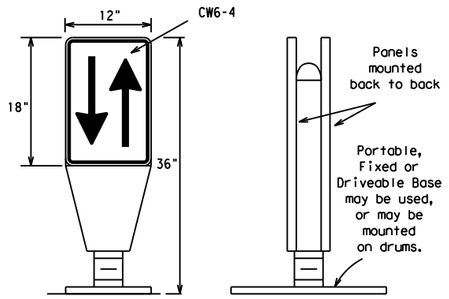


(Rigid or self-righting)

PORTABLE

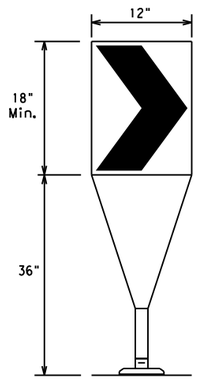
1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is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

VERTICAL PANELS (VPs)



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

OPPOSING TRAFFIC LANE DIVIDERS (OTLD)



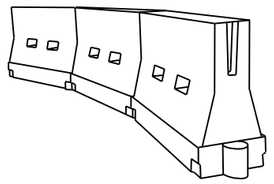
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

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

CHEVRONS

GENERAL NOTES

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



LONGITUDINAL CHANNELIZING DEVICES (LCD)

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

WATER BALLASTED SYSTEMS USED AS BARRIERS

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

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

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

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

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

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-21

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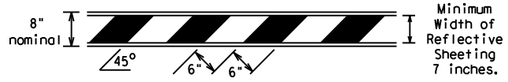
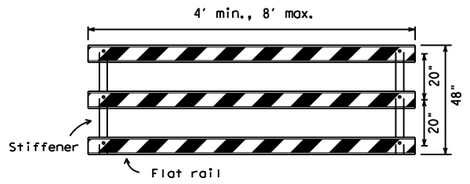
TYPE 3 BARRICADES

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

Barricades shall NOT be used as a sign support.



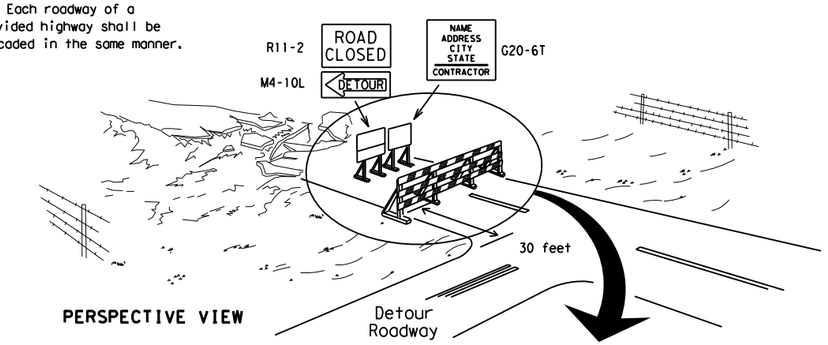
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

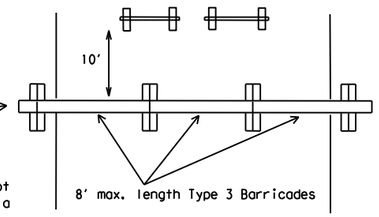
TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

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



PERSPECTIVE VIEW

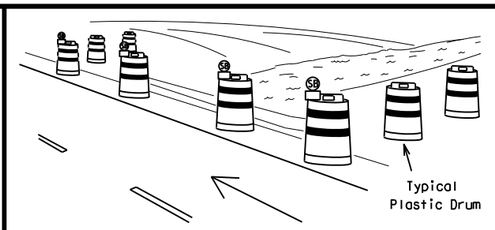
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

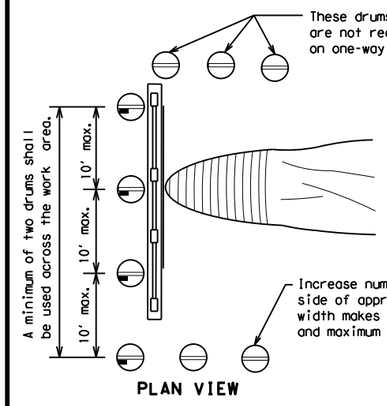
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

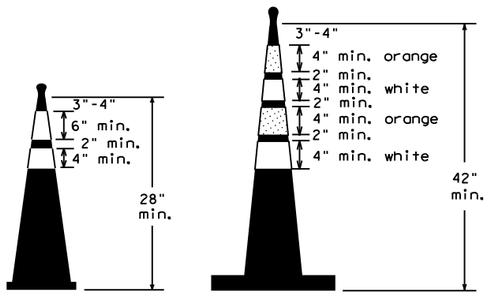
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder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



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

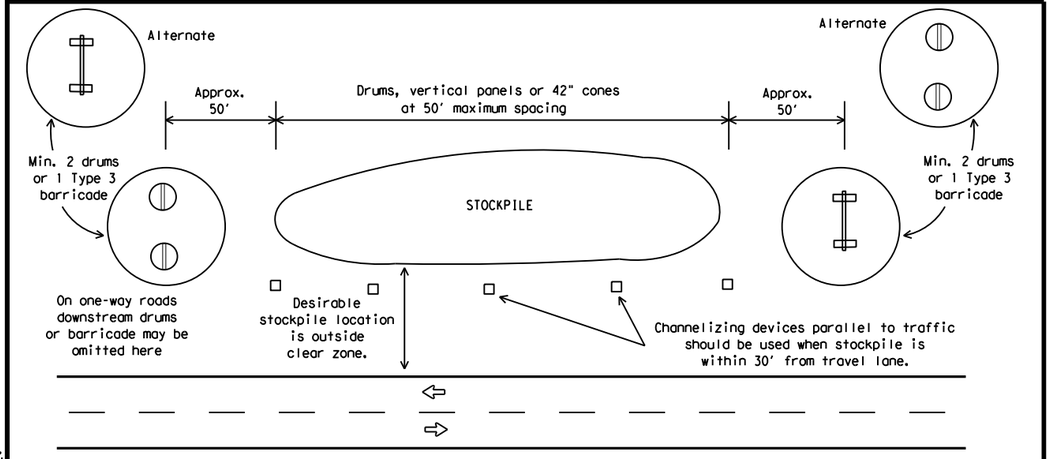
PLAN VIEW

CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



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

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



TRAFFIC CONTROL FOR MATERIAL STOCKPILES

SHEET 10 OF 12

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(10)-21

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WORK ZONE PAVEMENT MARKINGS

GENERAL

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

RAISED PAVEMENT MARKERS

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

PREFABRICATED PAVEMENT MARKINGS

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

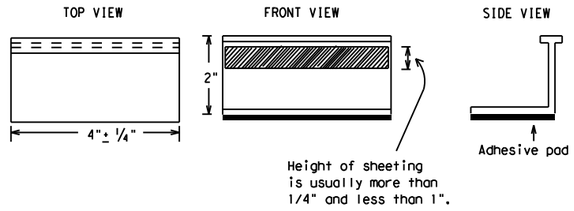
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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

REMOVAL OF PAVEMENT MARKINGS

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

Temporary Flexible-Reflective Roadway Marker Tabs



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

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

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

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

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

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

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

BC(11)-21

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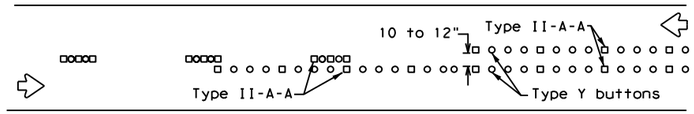
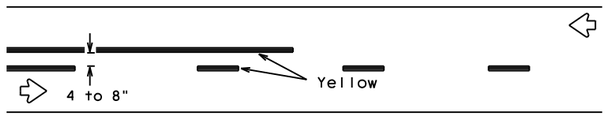
PAVEMENT MARKING PATTERNS

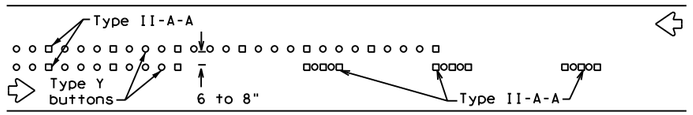
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



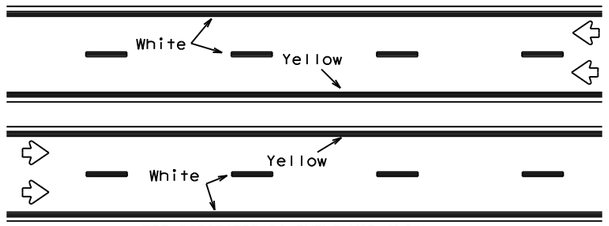
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



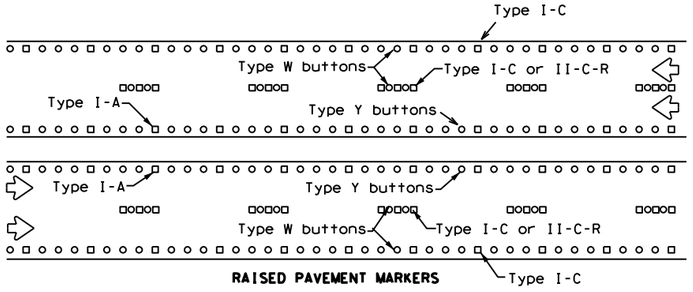
RAISED PAVEMENT MARKERS - PATTERN B

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

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



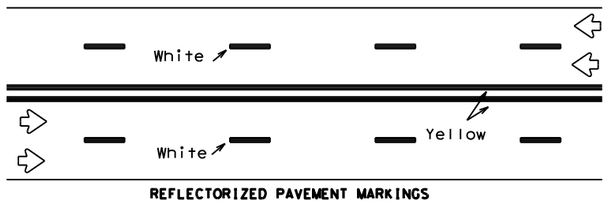
REFLECTORIZED PAVEMENT MARKINGS



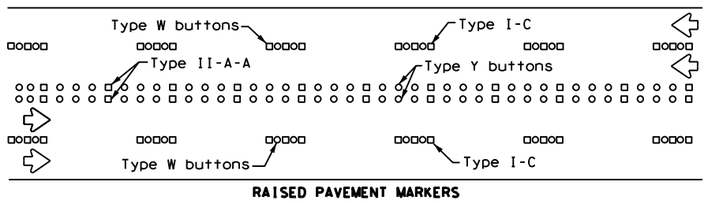
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



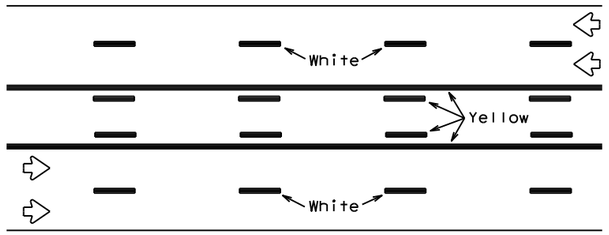
REFLECTORIZED PAVEMENT MARKINGS



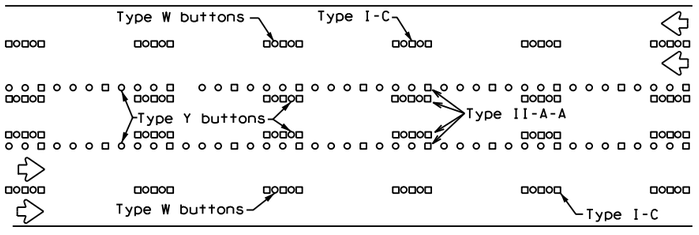
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

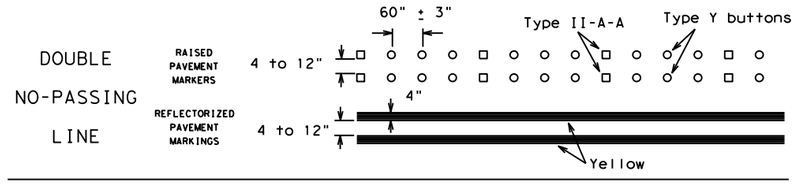
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

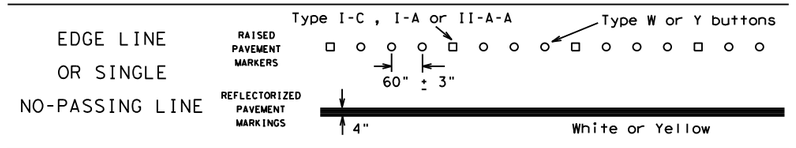
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

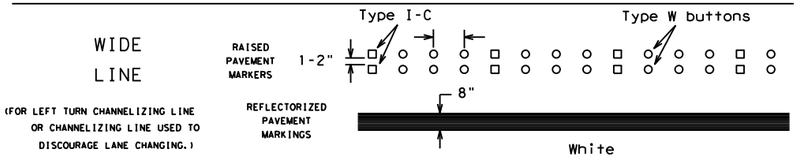


EDGE LINE OR SINGLE NO-PASSING LINE



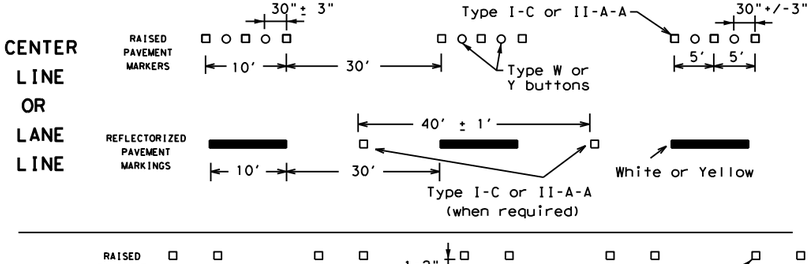
WIDE LINE

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

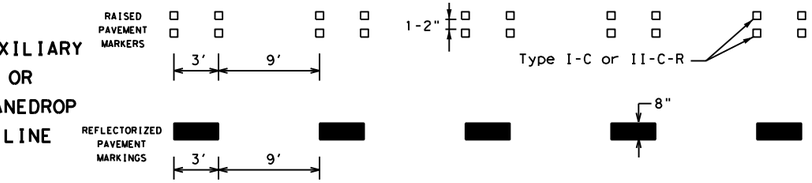


BROKEN LINES

CENTER LINE OR LANE LINE

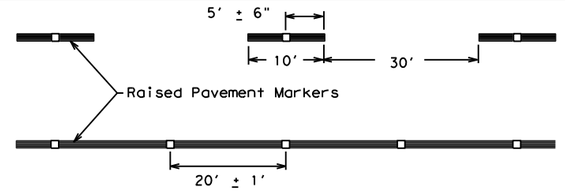


AUXILIARY OR LANEDROP LINE



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

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



Centerline only - not to be used on edge lines

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

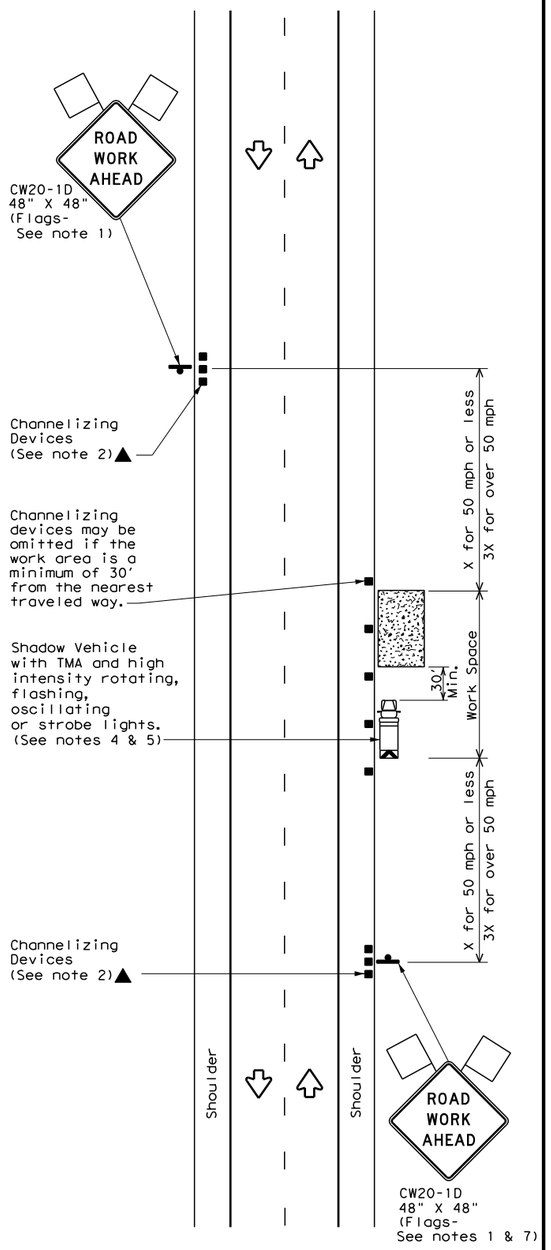
Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

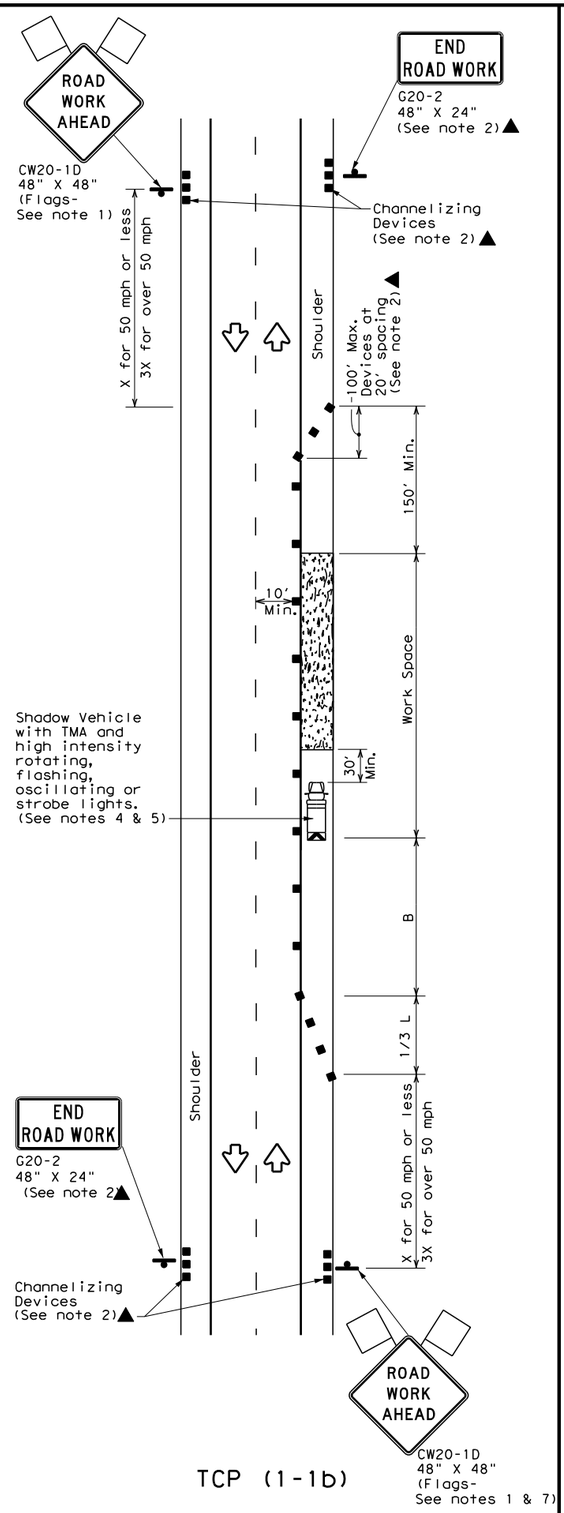
BC(12)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS 1-97 9-07 5-21 2-98 7-13 11-02 8-14	0228	04	043, ETC.	US 385, ETC.
	DIST	COUNTY		SHEET NO.
	0228	ANDREWS		41



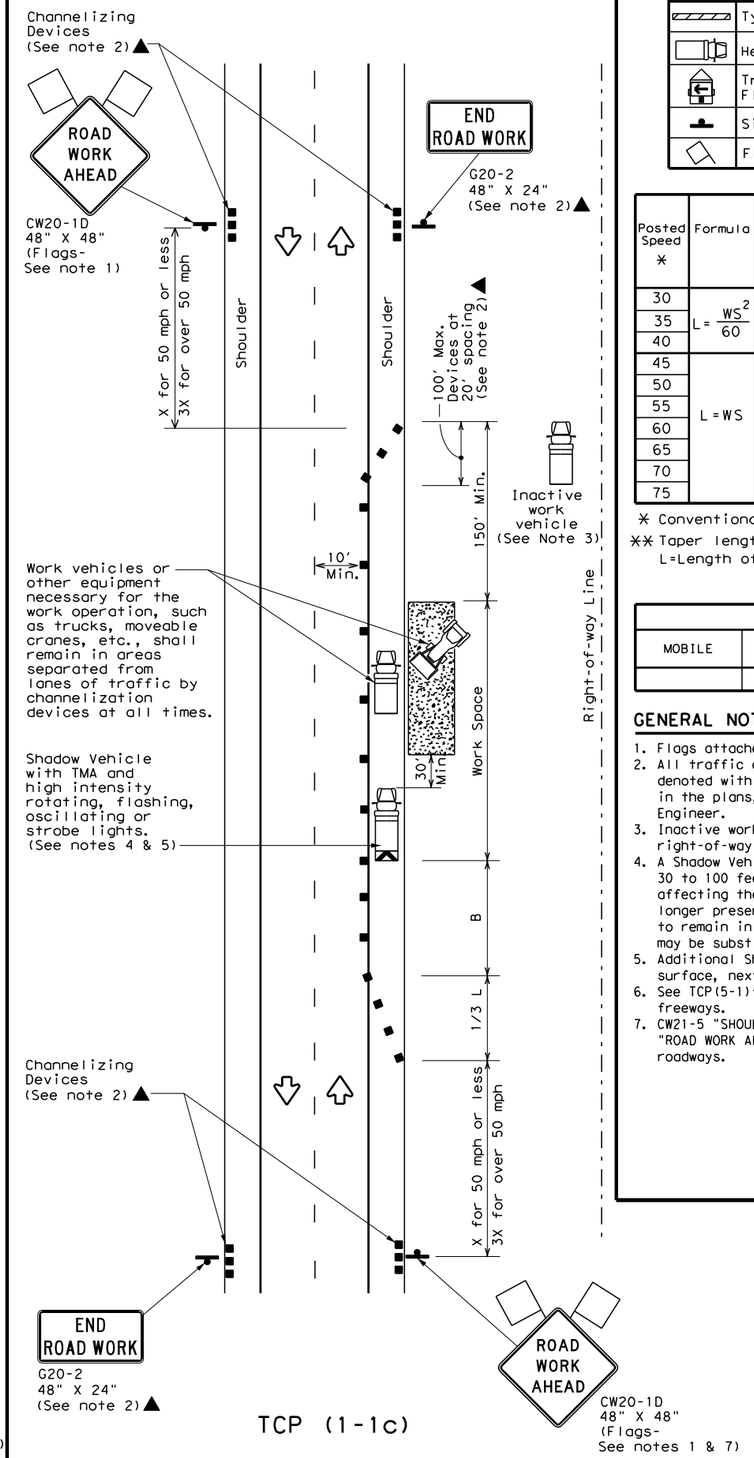
TCP (1-1a)

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	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

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

* Conventional Roads Only

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

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

GENERAL NOTES

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

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN CONVENTIONAL ROAD SHOULDER WORK

TCP(1-1)-18

FILE: tcp1-1-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-94 4-98	0228	04	043,ETC	US 385,ETC
8-95 2-12	DIST	COUNTY		SHEET NO.
1-97 2-18	ODA	ANDREWS		42

151

DATE: 5/28/2020 4:52:44 PM
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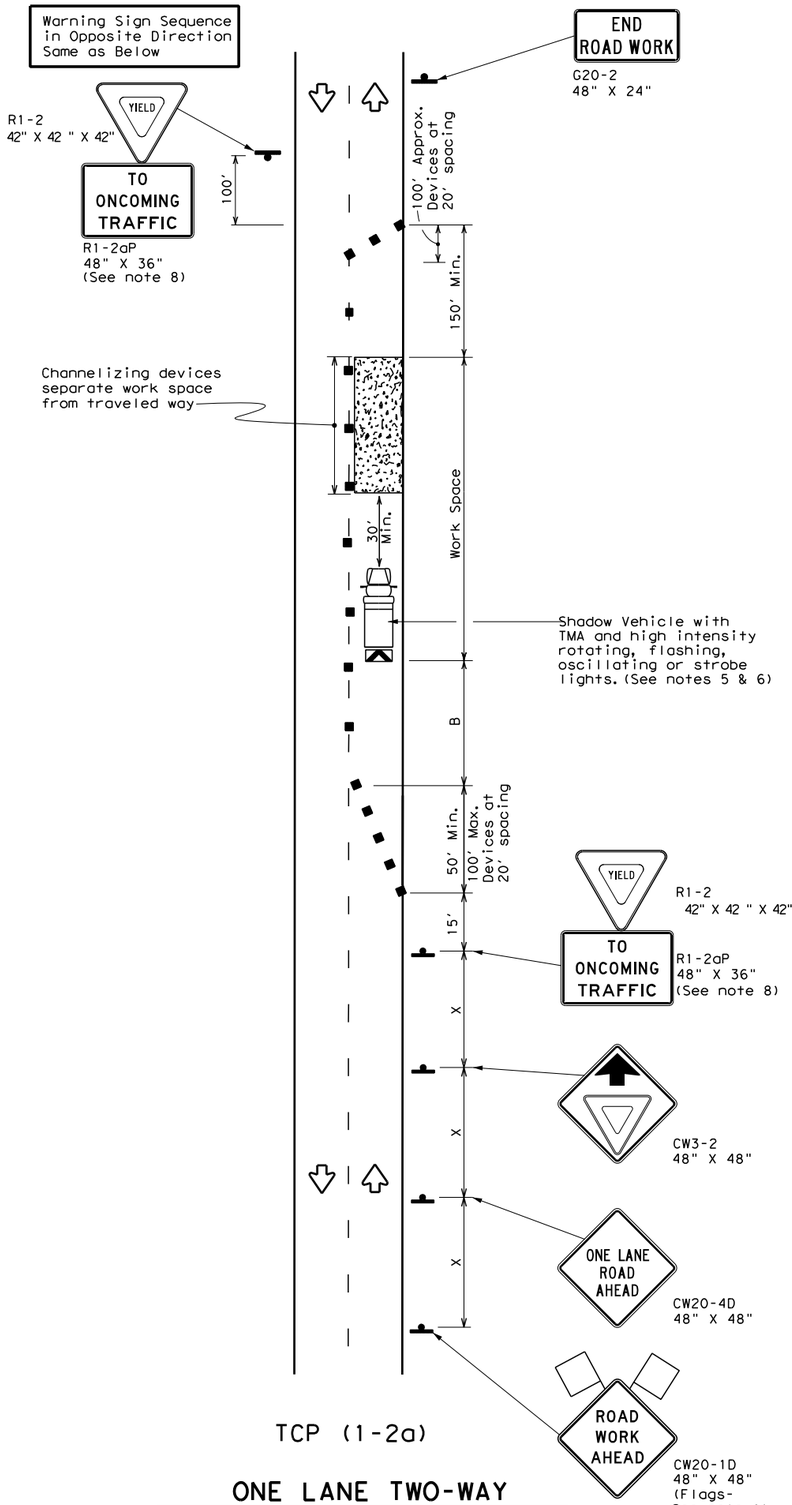
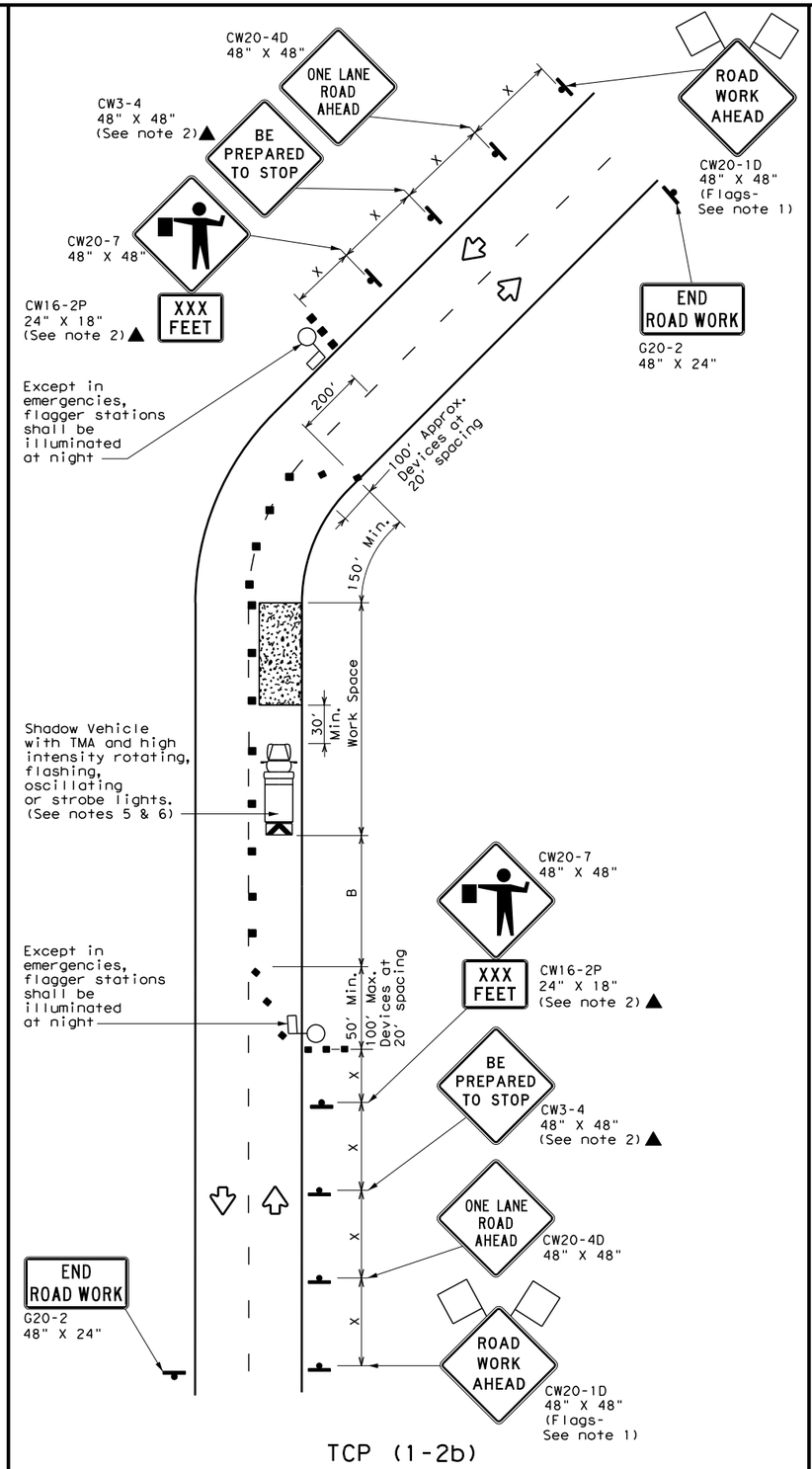


TCP (1-2a)

ONE LANE TWO-WAY
CONTROL WITH YIELD SIGNS
(Less than 2000 ADT - See note 7)



TCP (1-2b)

ONE LANE TWO-WAY
CONTROL WITH FLAGGERS

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

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

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

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

GENERAL NOTES

1. Flags attached to signs where shown are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. The CW3-4 "BE PREPARED TO STOP" sign may be installed after the CW20-4D "ONE LANE ROAD AHEAD" sign, but proper sign spacing shall be maintained.
4. Sign spacing may be increased or an additional CW20-1D "ROAD WORK AHEAD" sign may be used if advance warning ahead of the flagger or R1-2 "YIELD" sign is less than 1500 feet.
5. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
6. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.

TCP (1-2a)

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

TCP (1-2b)

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

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
ONE-LANE TWO-WAY
TRAFFIC CONTROL

TCP(1-2)-18

FILE: tcp1-2-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-90 4-98 2-94 2-12 1-97 2-18	0228	04	043,ETC	US 385,ETC
	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		43

152

DATE: 5/28/2020 4:52:45 PM
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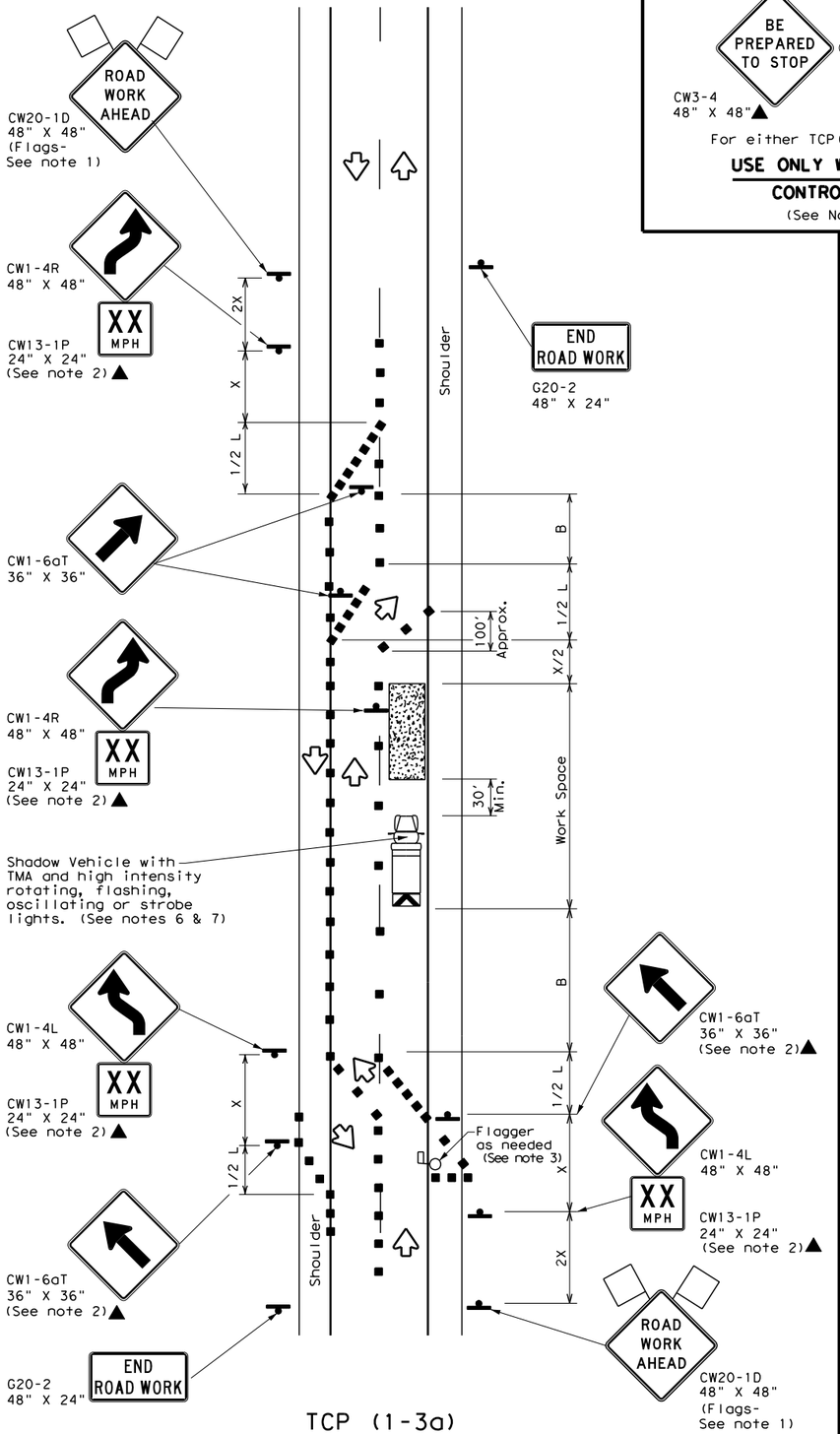
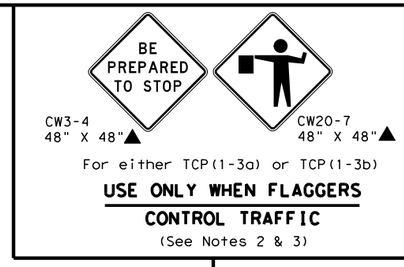


TCP (1-3a)
2-LANE ROADWAY WITH PAVED SHOULDERS

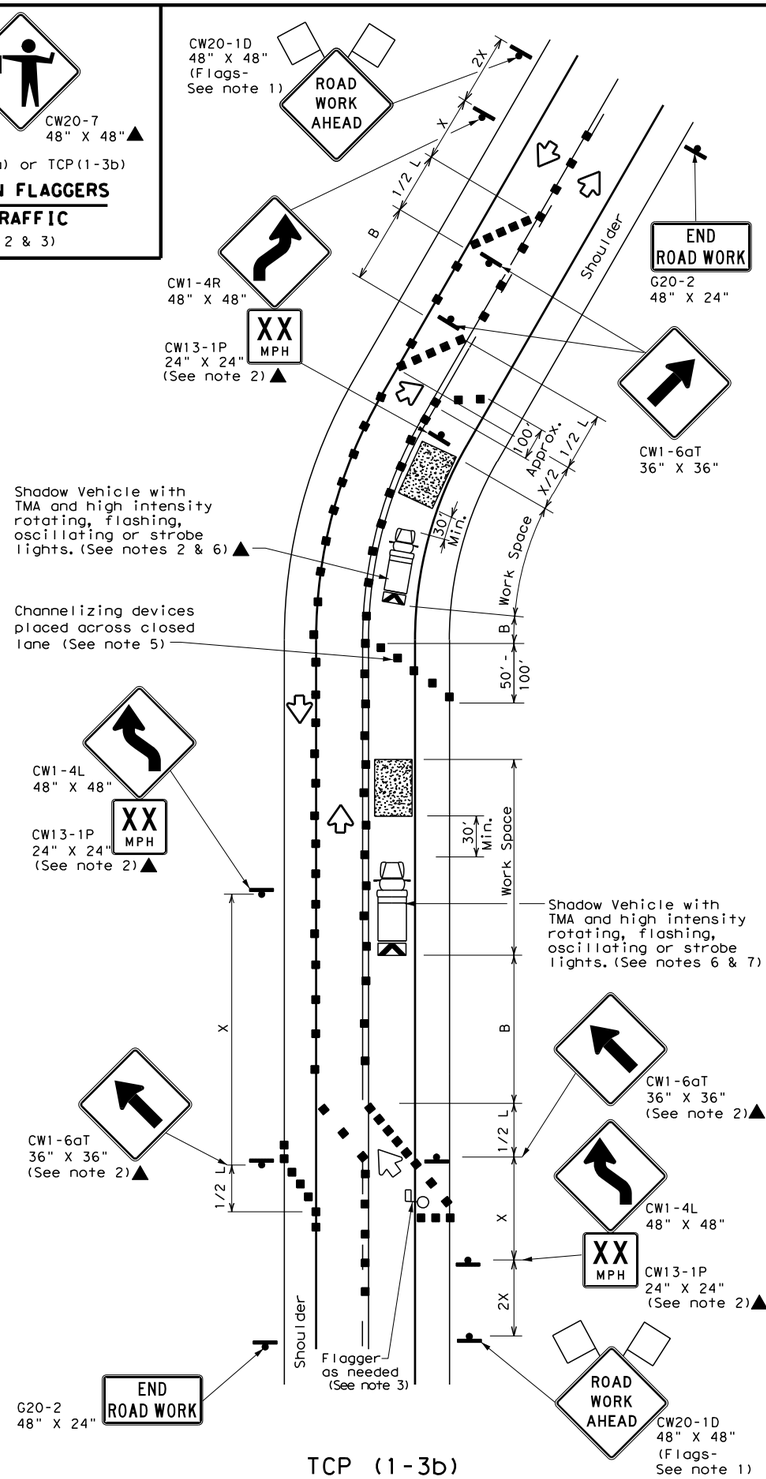
ONE LANE CLOSED
ADEQUATE FIELD OF VIEW



For either TCP(1-3a) or TCP(1-3b)

USE ONLY WHEN FLAGGERS CONTROL TRAFFIC

(See Notes 2 & 3)



TCP (1-3b)
2-LANE ROADWAY WITH PAVED SHOULDERS

ONE LANE CLOSED
INADEQUATE FIELD OF VIEW

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

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

* Conventional Roads Only

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

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

GENERAL NOTES

1. Flags attached to signs where shown are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. Flagger control should NOT be used unless roadway conditions or heavy traffic volume require additional emphasis to safely control traffic. Additional flaggers may be positioned in advance of traffic queues to alert traffic to reduce speed.
4. DO NOT PASS, PASS WITH CARE and construction regulatory speed zone signs may be installed downstream of the ROAD WORK AHEAD signs.
5. When the work zone is made up of several work spaces, channelizing devices should be placed laterally across the closed lane to re-emphasize closure. Laterally placed channelizing devices should be repeated every 500 to 1000 feet in urban areas and every 1/4 to 1/2 mile in rural areas.
6. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
7. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.
8. 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 speed 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 area of conflicting markings not the entire work zone.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN TRAFFIC SHIFTS ON TWO LANE ROADS

TCP(1-3)-18

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© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043,ETC	US 385,ETC
2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 2-12	ODA	ANDREWS		44
1-97 2-18				

153

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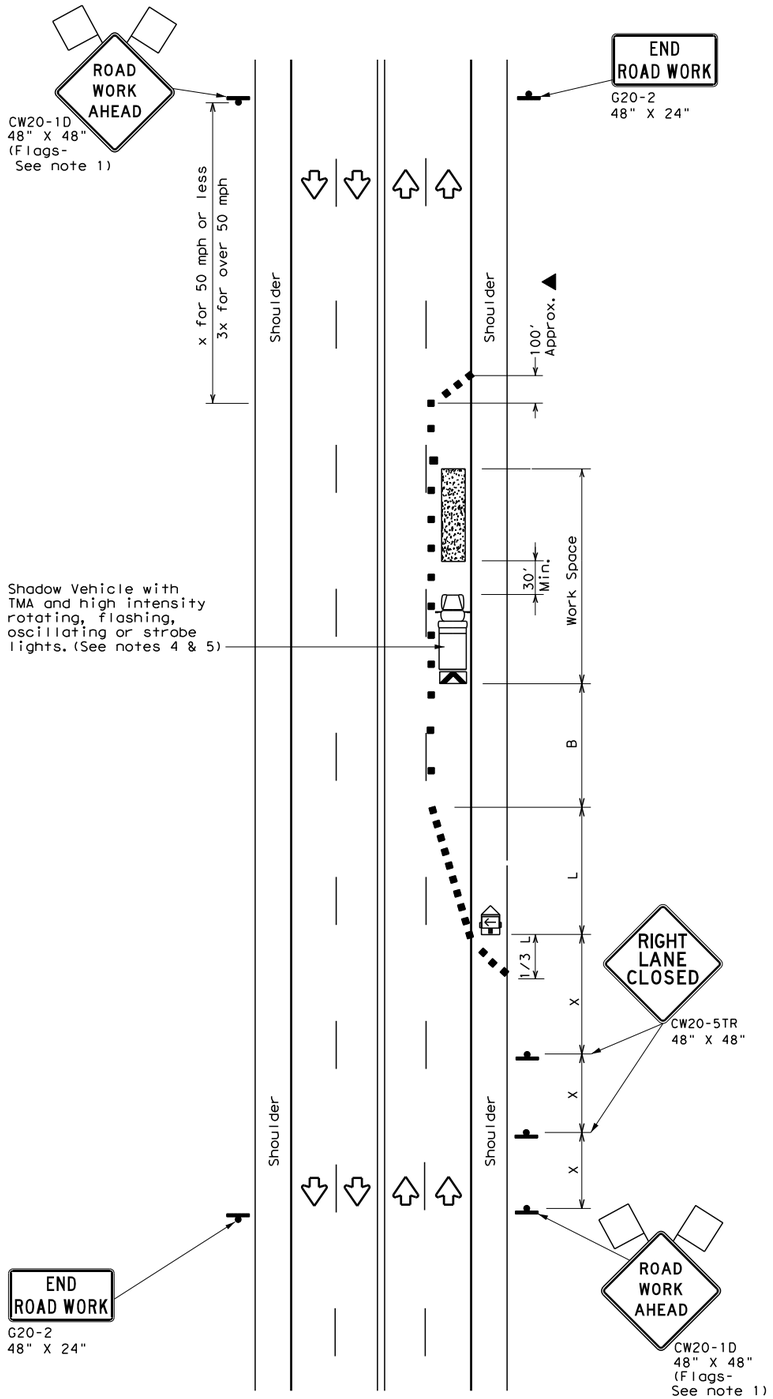
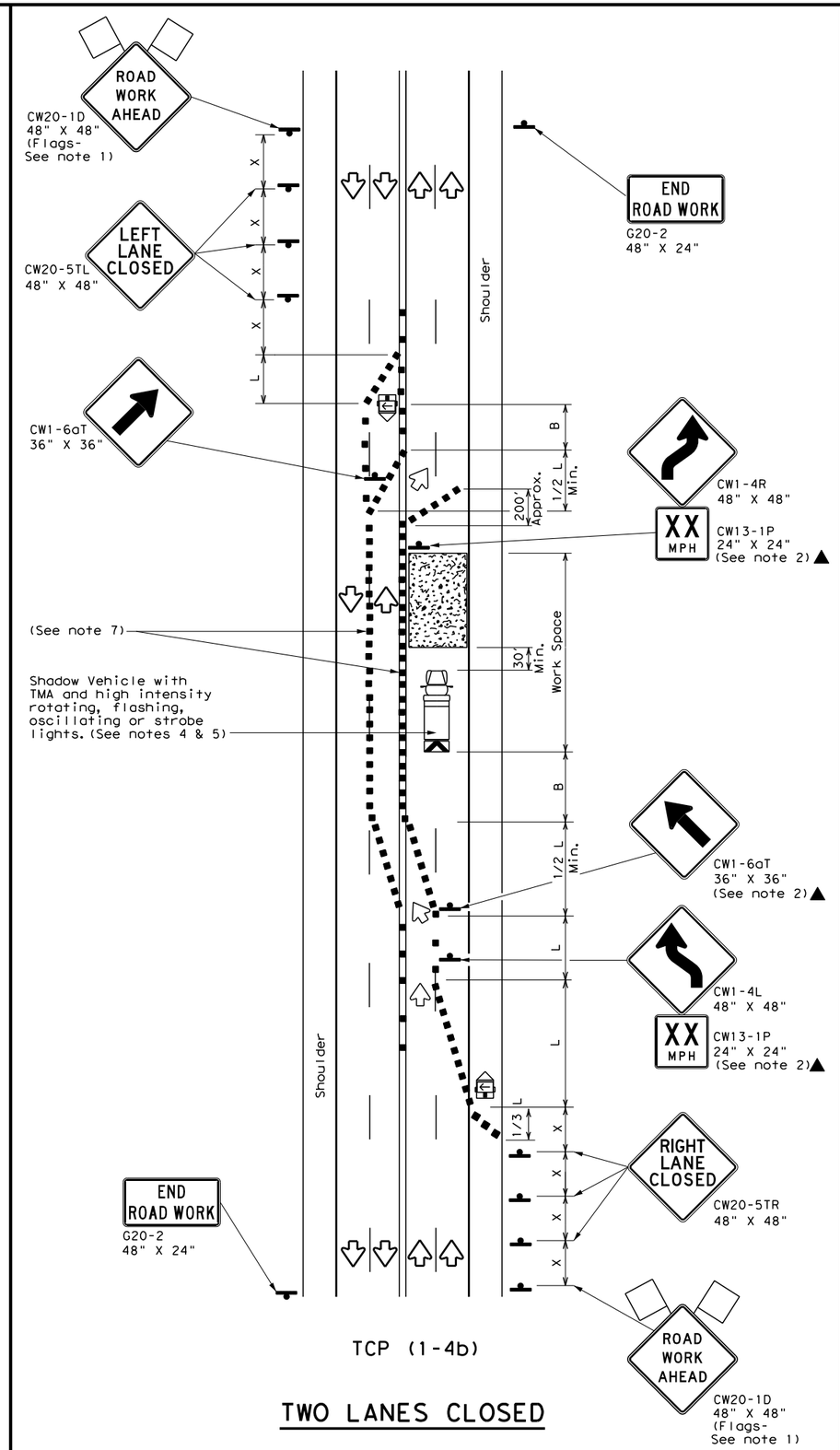


TCP (1-4a)

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	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

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

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

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

GENERAL NOTES

1. Flags attached to signs where shown are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. The CW20-1D "ROAD WORK AHEAD" sign may be repeated if the visibility of the work zone is less than 1500 feet.
4. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
5. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.

TCP (1-4a)

6. 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)

7. 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
REVISIONS 2-94 4-98 8-95 2-12 1-97 2-18	0228	04	043,ETC	US 385,ETC
	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		45

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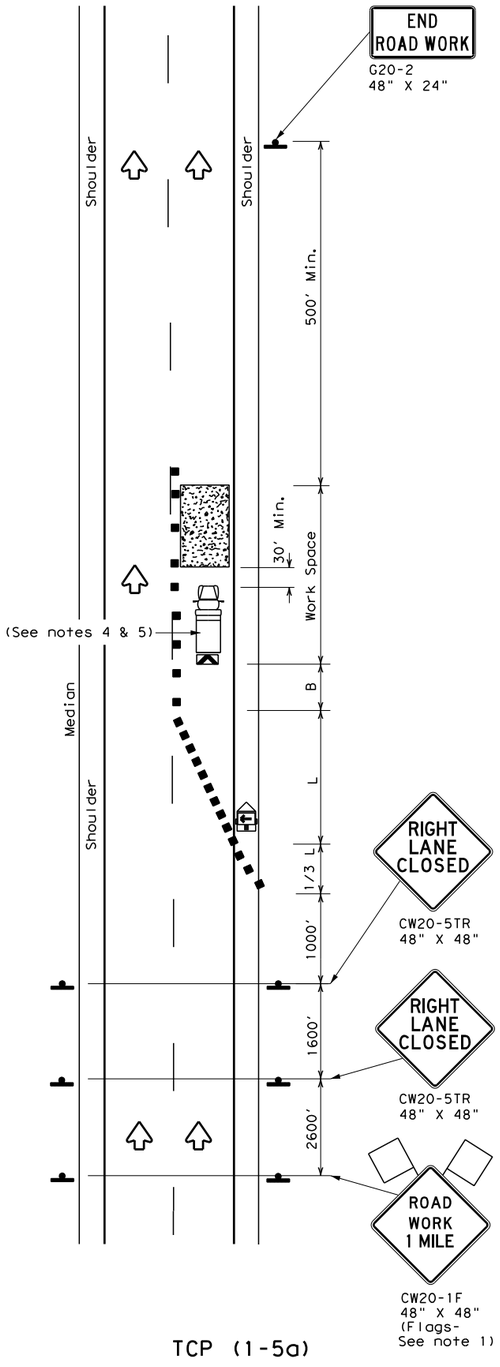
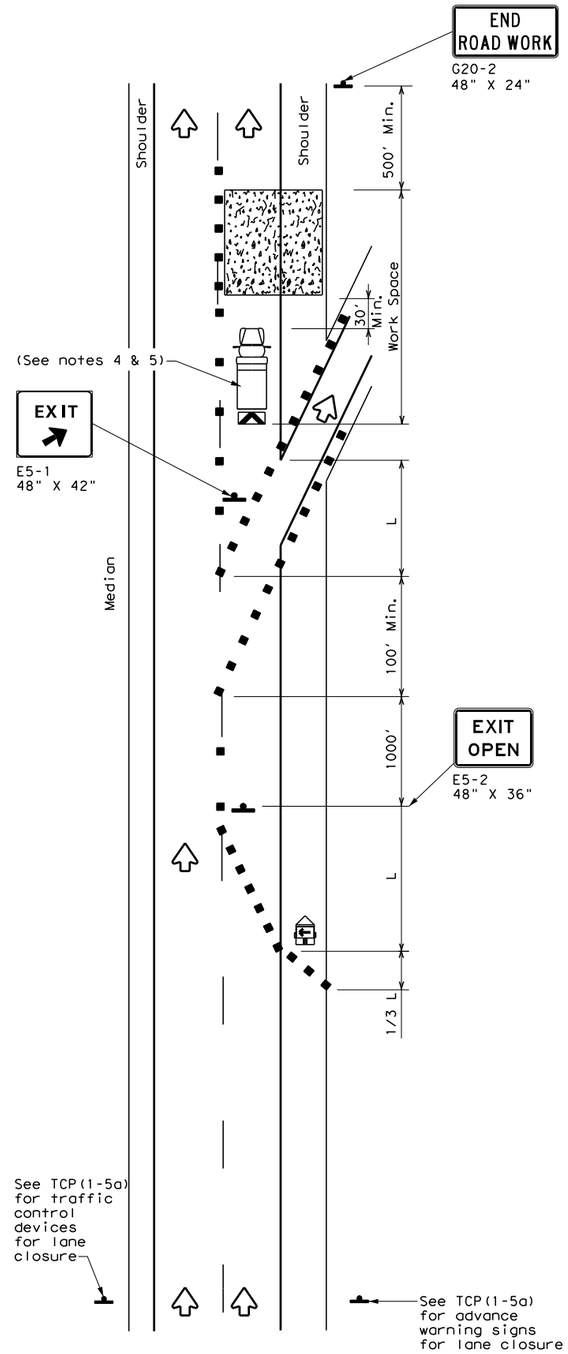


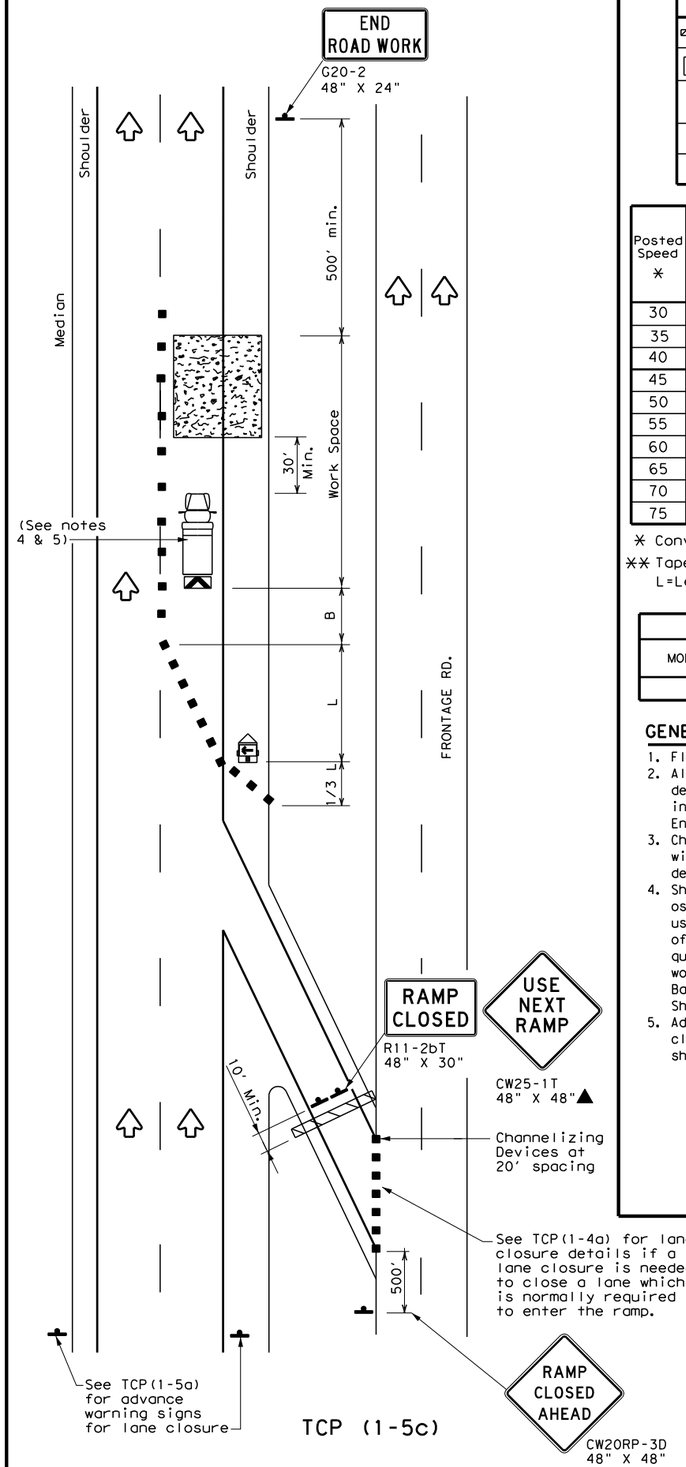
TCP (1-5a)

ONE LANE CLOSURE



TCP (1-5b)

LANE CLOSURE NEAR EXIT RAMPS



TCP (1-5c)

LANE CLOSURE NEAR ENTRANCE RAMPS

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

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

* Conventional Roads Only

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

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

GENERAL NOTES

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

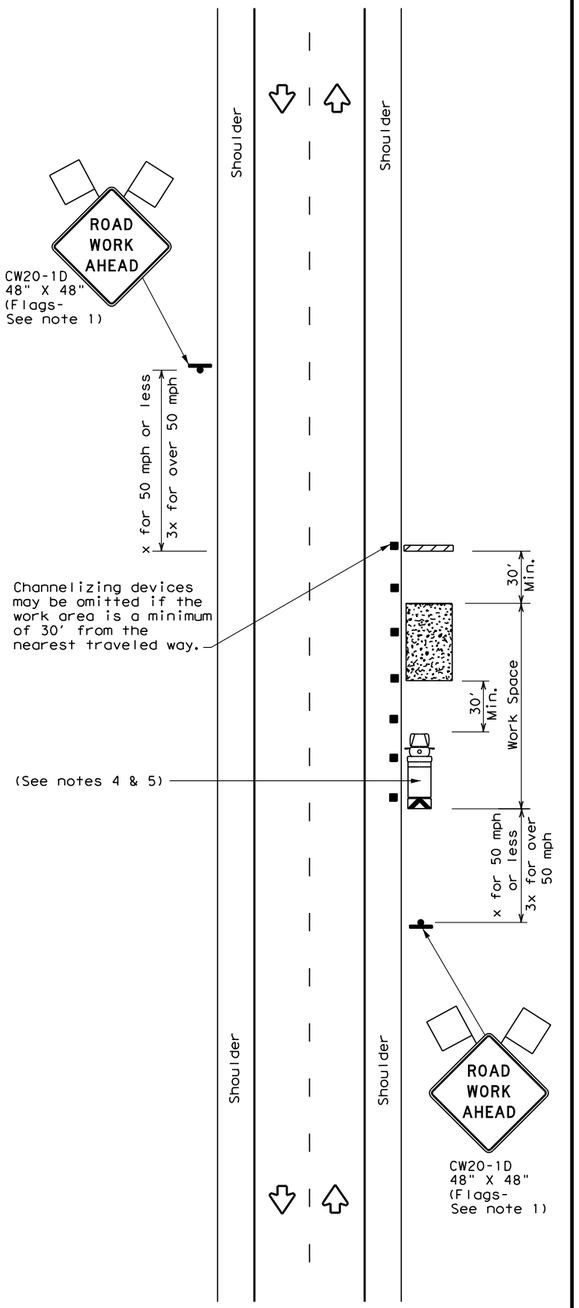
Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES FOR DIVIDED HIGHWAYS

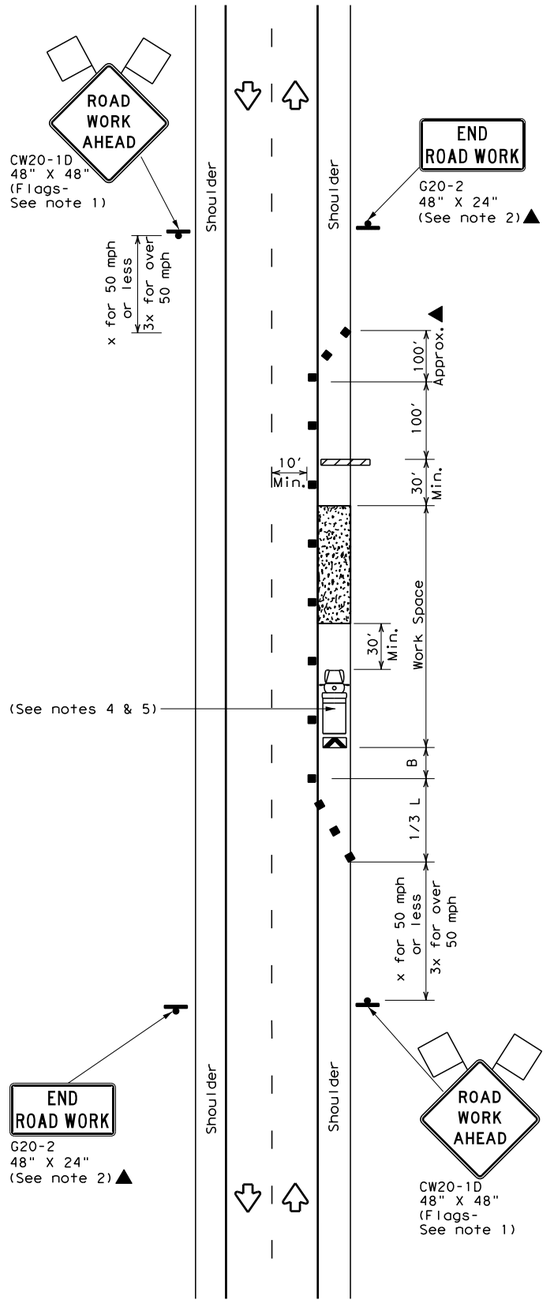
TCP(1-5)-18

FILE: tcp1-5-18.dgn	DN:	CK:	DW:	CK:
©TxDOT February 2012	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-18	0228	04	043,ETC	US 385,ETC
	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		46



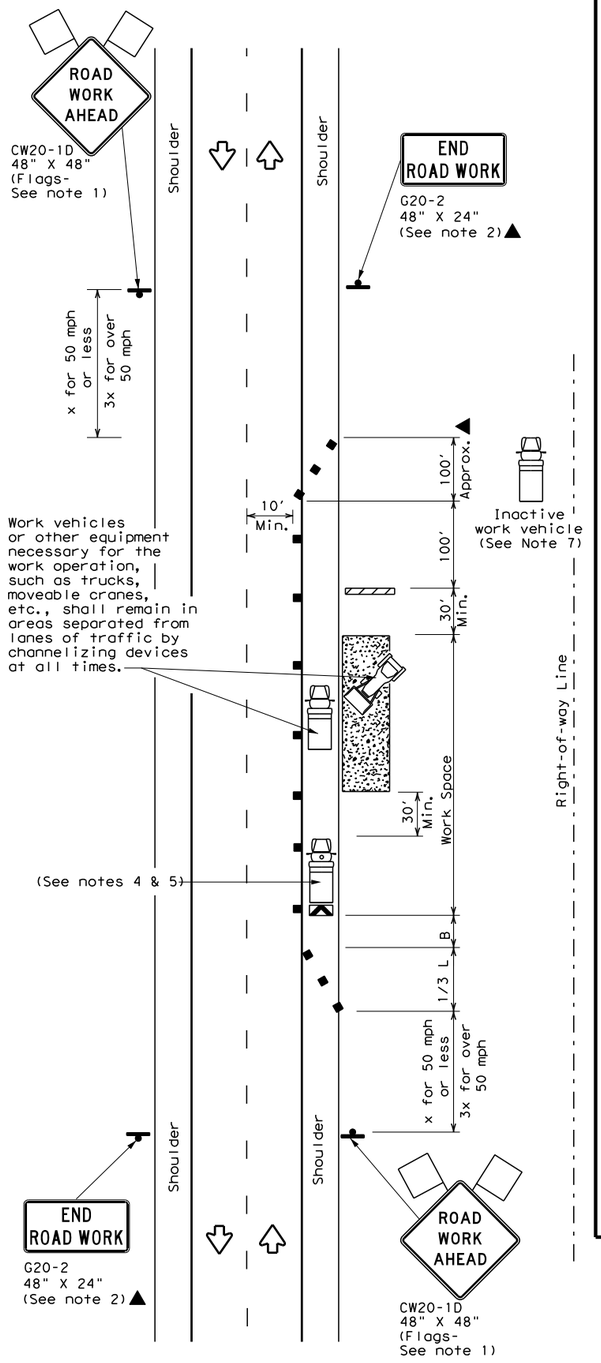
TCP (2-1a)

WORK SPACE NEAR SHOULDER
Conventional Roads



TCP (2-1b)

WORK SPACE ON SHOULDER
Conventional Roads



TCP (2-1c)

WORK VEHICLES ON SHOULDER
Conventional Roads

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

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

* Conventional Roads Only

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

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

GENERAL NOTES

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

Texas Department of Transportation — Traffic Operations Division Standard

TRAFFIC CONTROL PLAN CONVENTIONAL ROAD SHOULDER WORK

TCP(2-1)-18

FILE: tcp2-1-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043,ETC	US 385,ETC
2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 2-12	ODA	ANDREWS		47
1-97 2-18				

161

DATE: 5/28/2020 4:53:00 PM
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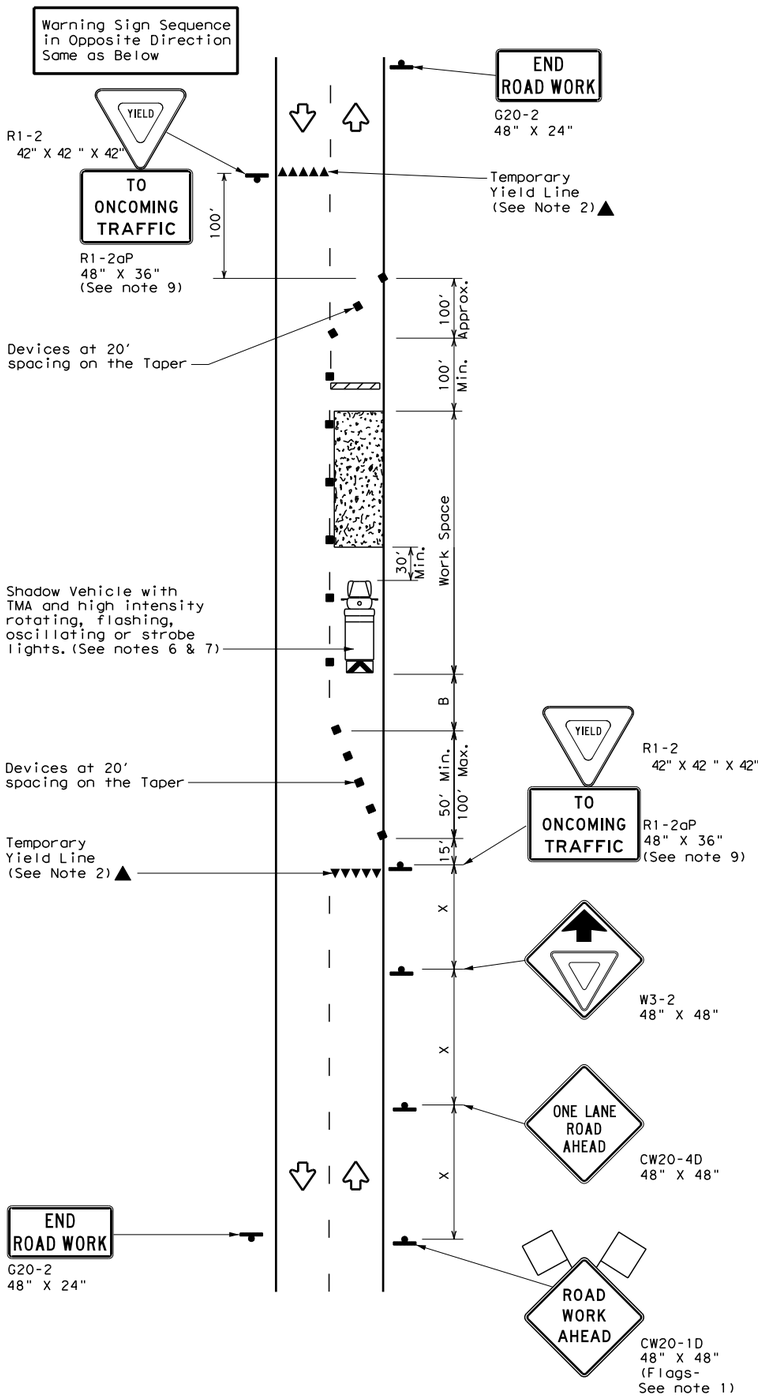


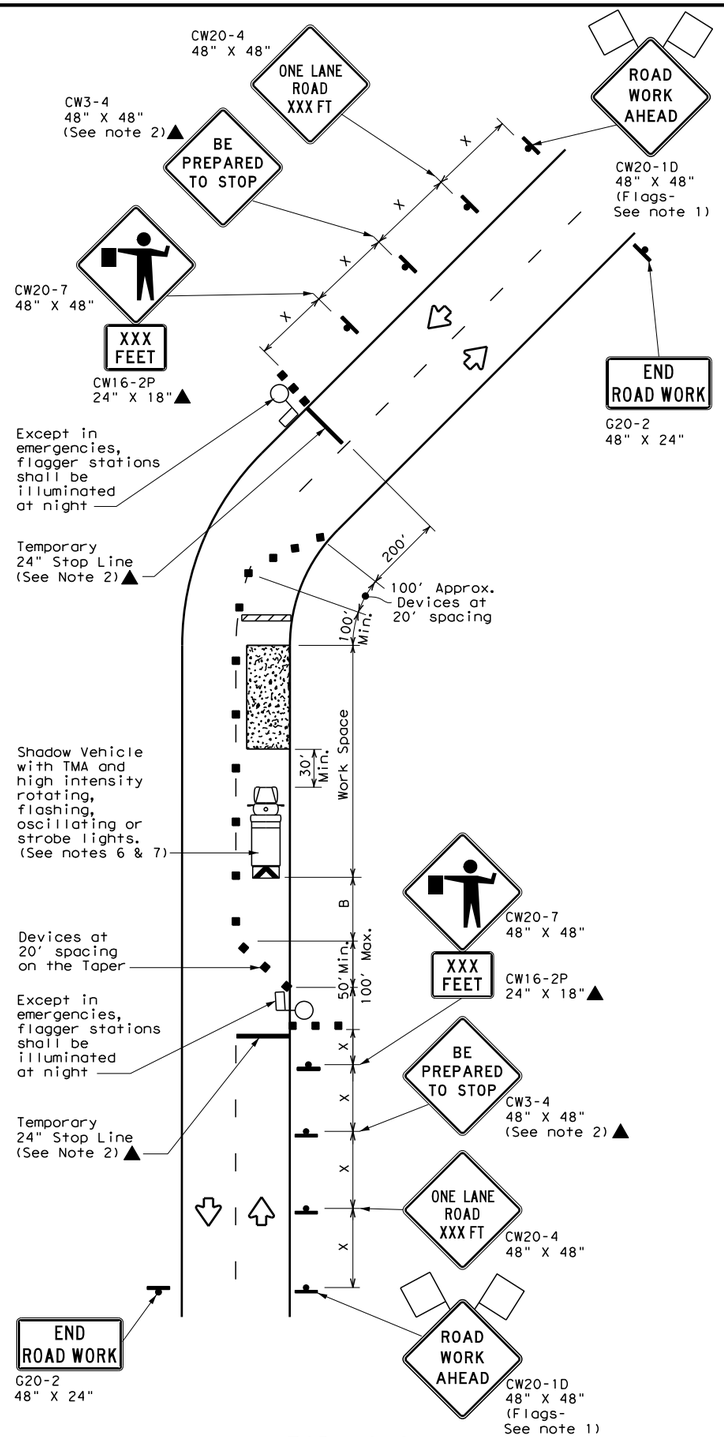
TCP (2-2a)

2-LANE ROADWAY WITHOUT PAVED SHOULDERS

ONE LANE TWO-WAY

CONTROL WITH YIELD SIGNS

(Less than 2000 ADT - See Note 9)



TCP (2-2b)

2-LANE ROADWAY WITHOUT PAVED SHOULDERS

ONE LANE TWO-WAY

CONTROL WITH FLAGGERS

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

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

* Conventional Roads Only

** Taper lengths have been rounded off.

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

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

GENERAL NOTES

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

TCP (2-2a)

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

TCP (2-2b)

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

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN ONE-LANE TWO-WAY TRAFFIC CONTROL

TCP(2-2)-18

FILE: tcp2-2-18.dgn	DN:	CK:	DW:	CK:
©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 3-03 1-97 2-12 4-98 2-18	0228	04	043,ETC	US 385,ETC
	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		48

DATE: 5/28/2020 4:53:01 PM
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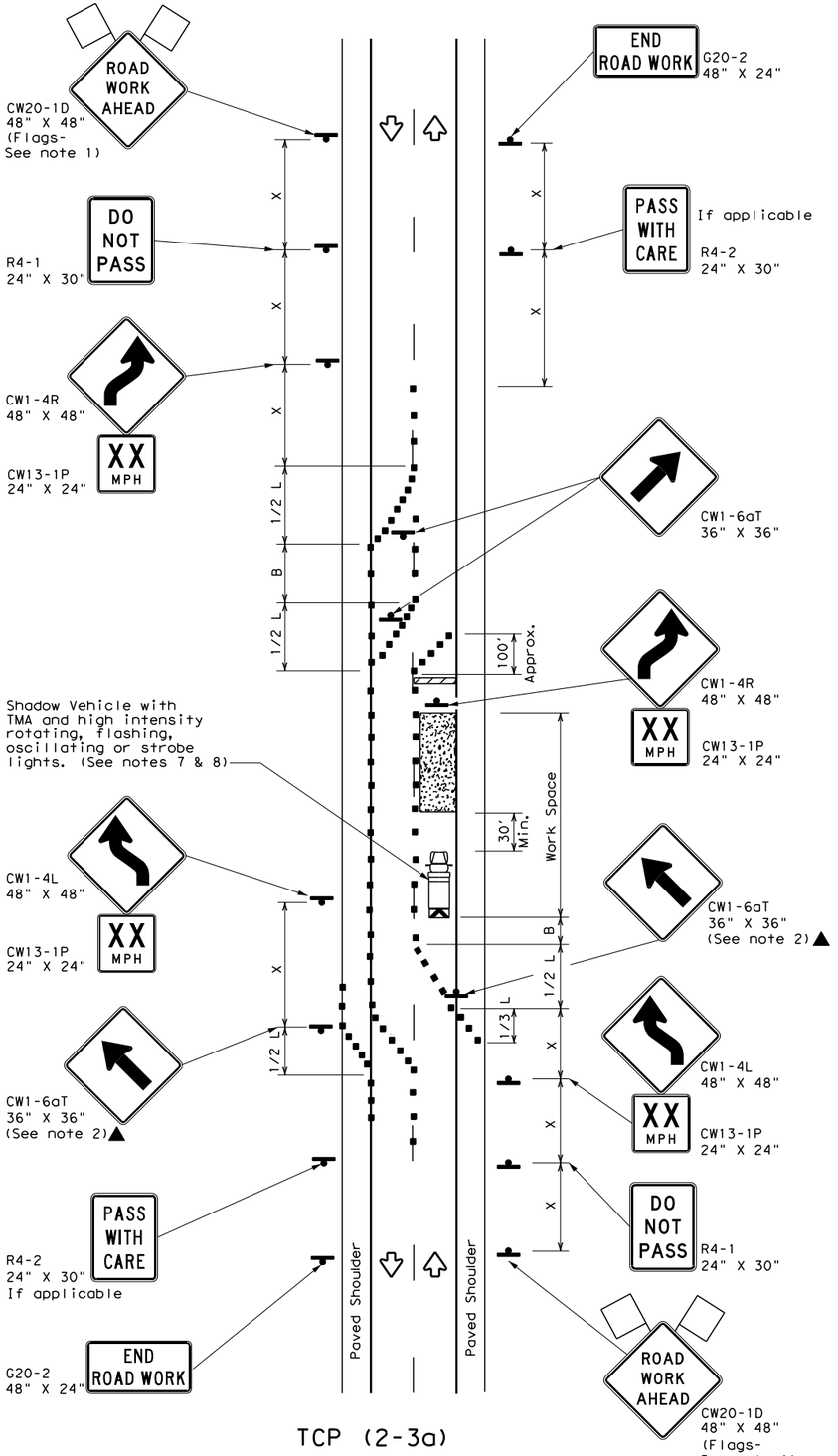
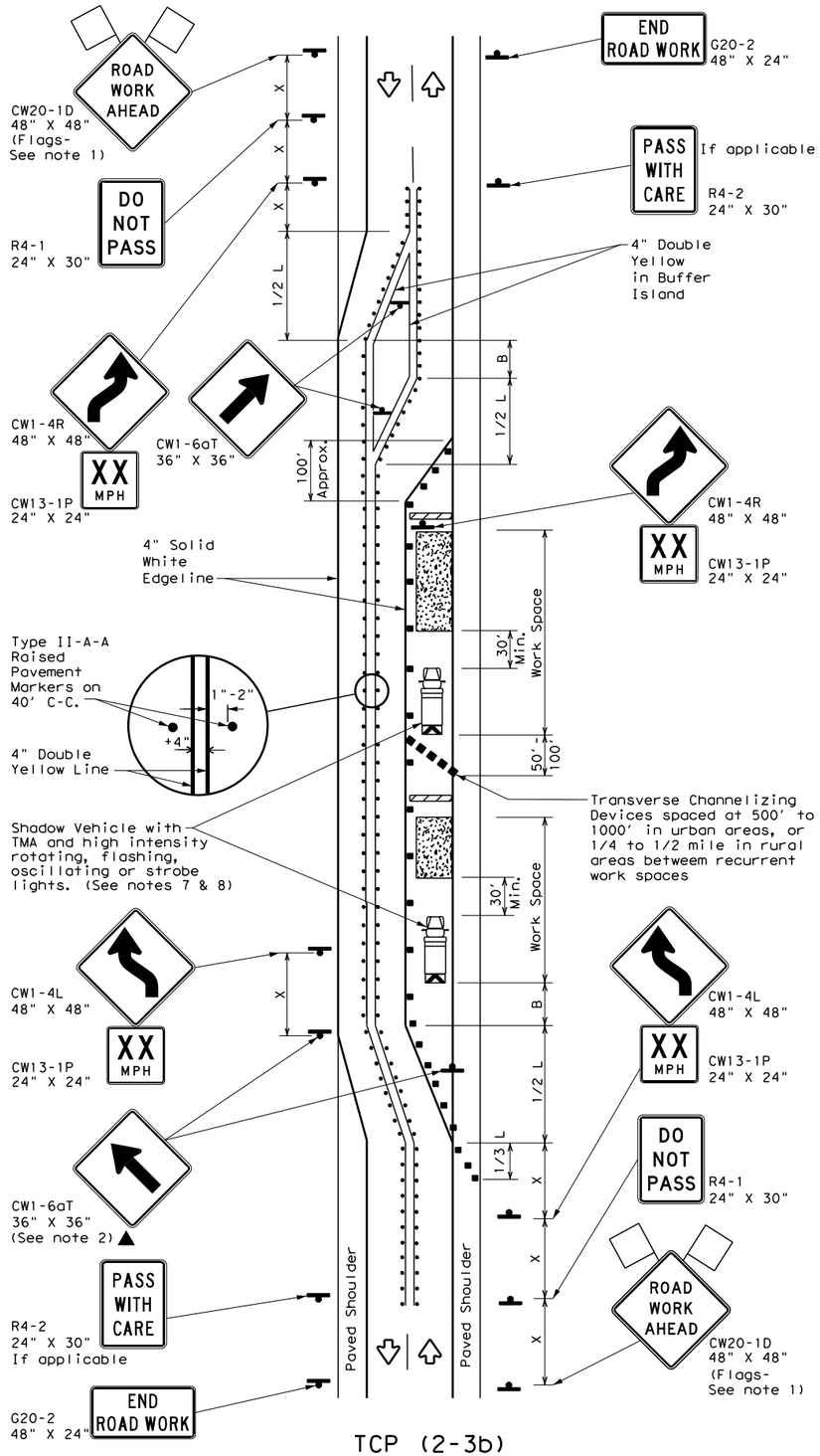


TCP (2-3a)
2-LANE ROADWAY WITH PAVED SHOULDERS

ONE LANE CLOSED
ADEQUATE FIELD OF VIEW



TCP (2-3b)
2-LANE ROADWAY WITH PAVED SHOULDERS

ONE LANE CLOSED
INADEQUATE FIELD OF VIEW

LEGEND			
	Type 3 Barricade	■ ■	Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	....	Raised Pavement Markers Ty II-AA
	Sign		Traffic Flow
	Flag		Flagger

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

* Conventional Roads Only

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

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
				TCP(2-3b)ONLY
			✓	✓

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. When work space will be in place less than three days existing pavement markings may remain in place. Channelizing devices shall be used to separate traffic.
4. Flagger control should NOT be used unless roadway conditions or heavy traffic volume require additional emphasis to safely control traffic. Flagger should be positioned at end of traffic queue.
5. The R4-1 "DO NOT PASS," R4-2 " PASS WITH CARE" and construction regulatory speed zone signs may be installed within CW20-1D "ROAD WORK AHEAD" signs. Proper spacing of signs shall be maintained.
6. Conflicting pavement marking shall be removed for long term projects.
7. 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.
8. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.

TCP (2-3a)

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

Texas Department of Transportation — Traffic Operations Division Standard

TRAFFIC CONTROL PLAN TRAFFIC SHIFTS ON TWO-LANE ROADS

TCP(2-3)-18

FILE: tcp(2-3)-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043,ETC	US 385,ETC
8-95 3-03	DIST	COUNTY		SHEET NO.
1-97 2-12	ODA	ANDREWS		49
4-98 2-18				

163

DATE: 5/28/2020 4:53:08 PM
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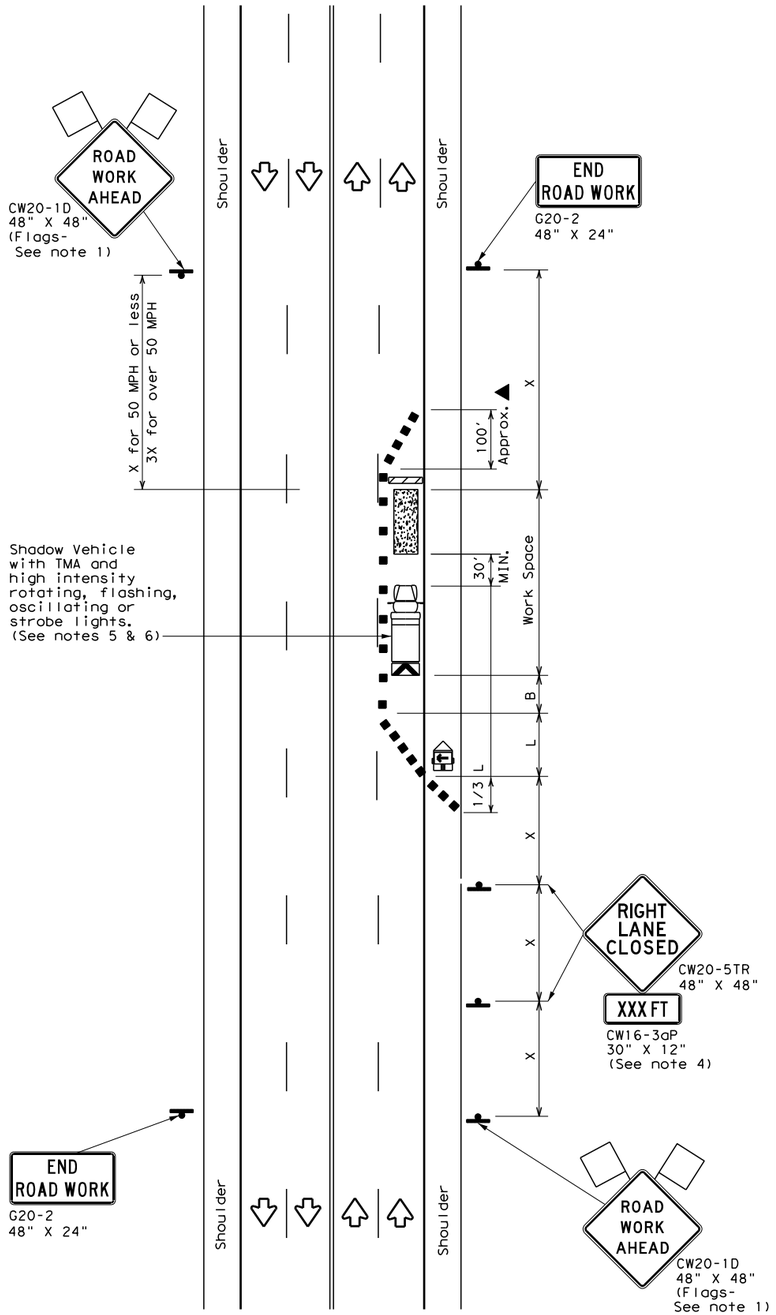
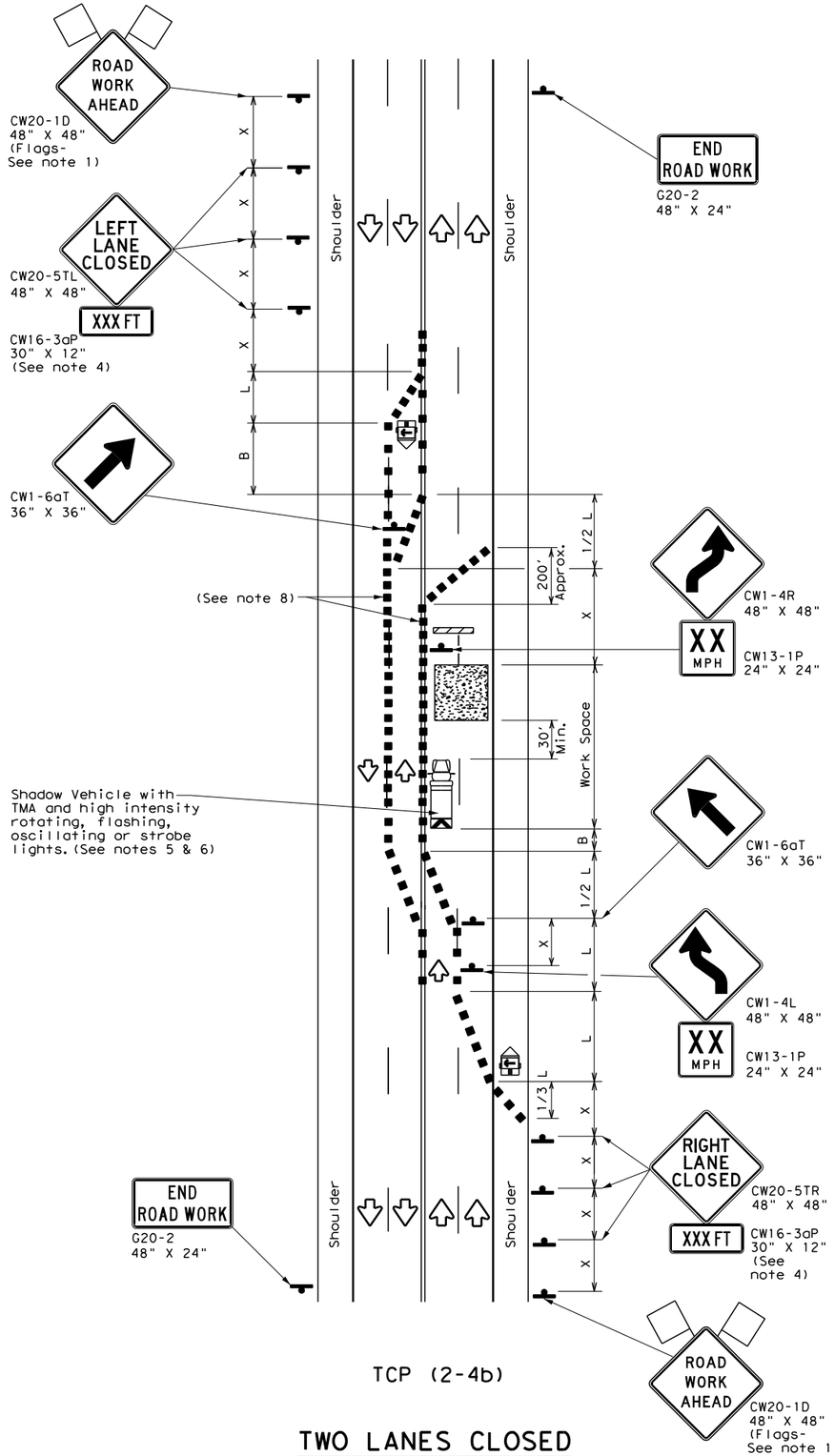


TCP (2-4a)

ONE LANE CLOSED



TCP (2-4b)

TWO LANES CLOSED

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

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

* Conventional Roads Only

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

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

GENERAL NOTES

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

TCP (2-4a)

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

TCP (2-4b)

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

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS

TCP(2-4)-18

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© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 3-03	0228	04	043,ETC	US 385,ETC
1-97 2-12	DIST	COUNTY		SHEET NO.
4-98 2-18	ODA	ANDREWS		50

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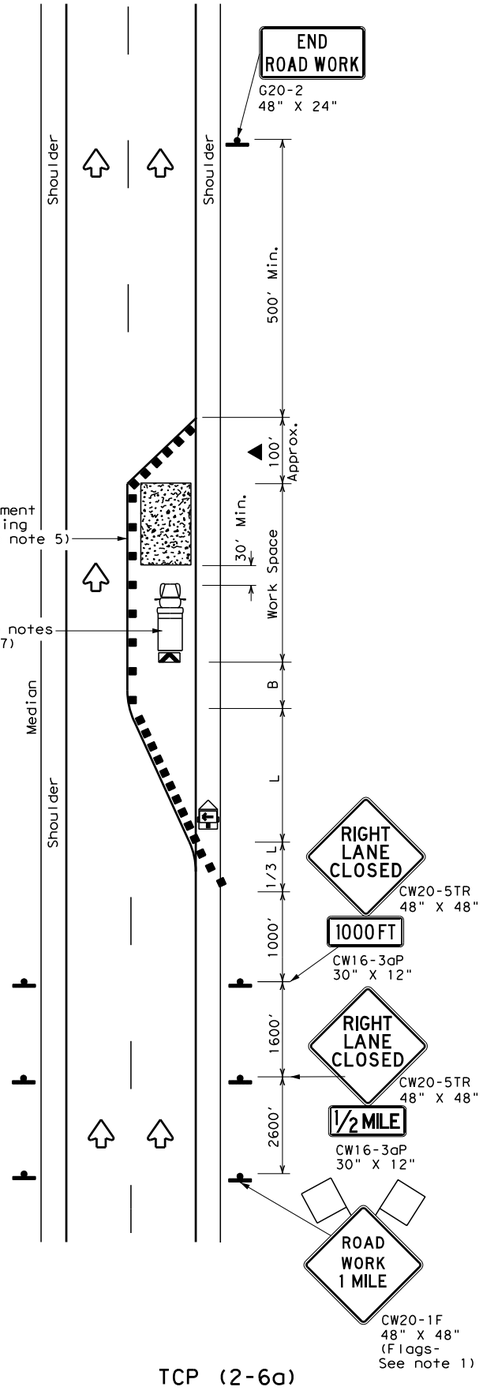
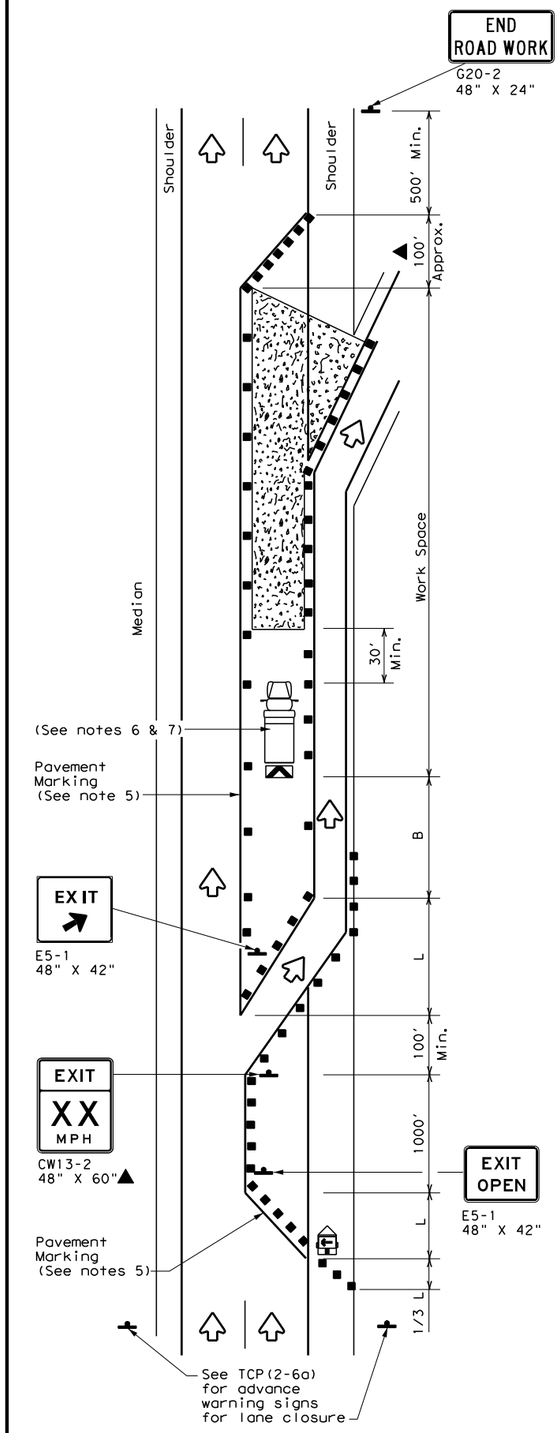


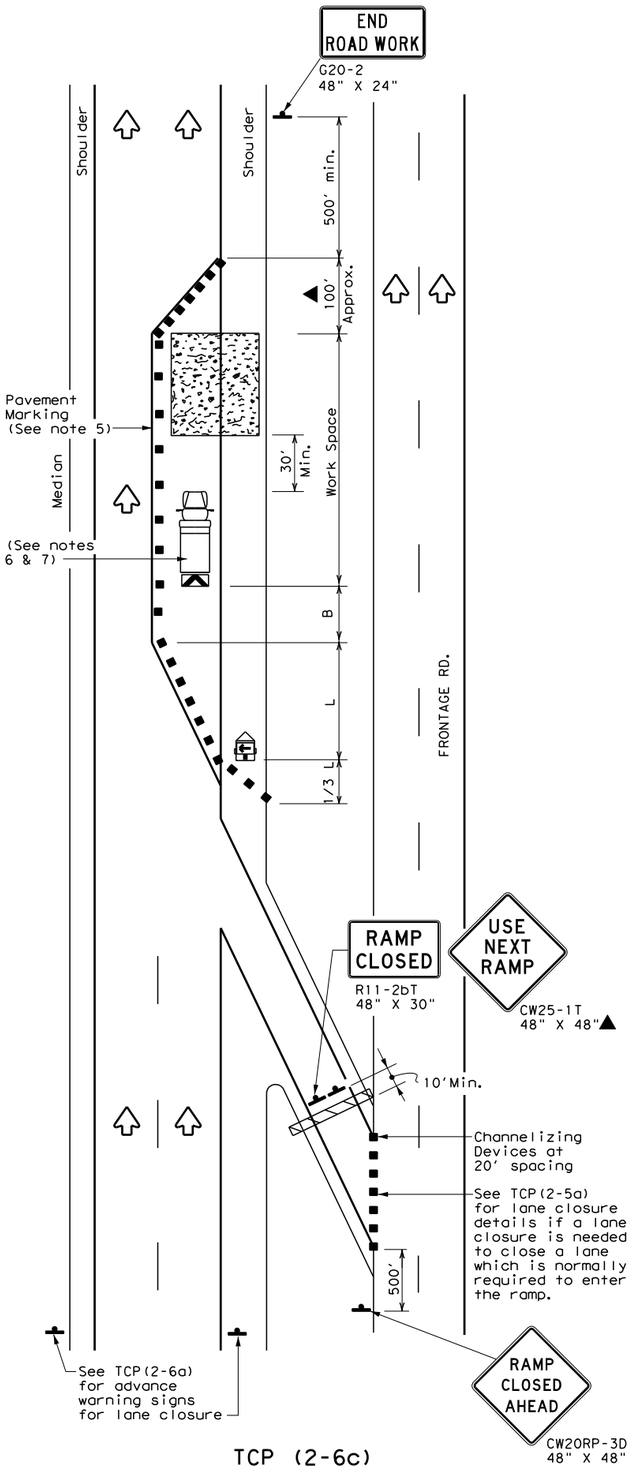
TCP (2-6a)

ONE LANE CLOSURE



TCP (2-6b)

LANE CLOSURE NEAR EXIT RAMPS



TCP (2-6c)

LANE CLOSURE NEAR ENTRANCE RAMPS

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

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

* Conventional Roads Only

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

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

GENERAL NOTES

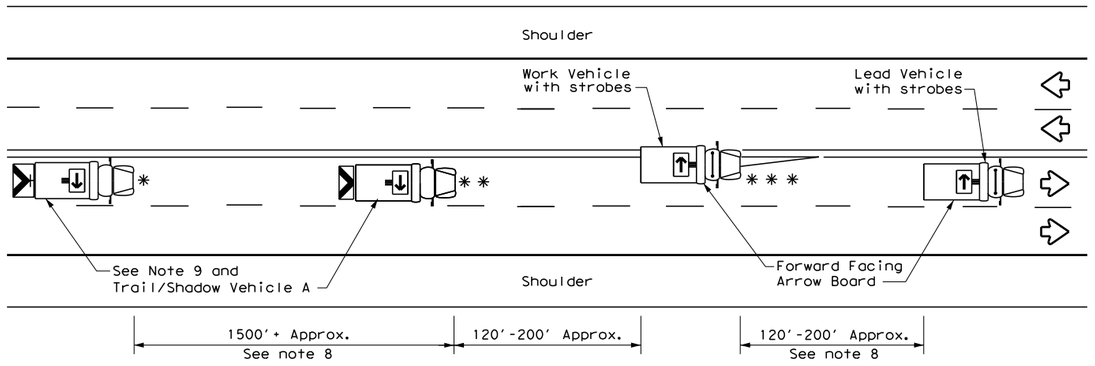
1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. Channelizing devices used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

Texas Department of Transportation — *Traffic Operations Division Standard*

TRAFFIC CONTROL PLAN LANE CLOSURES ON DIVIDED HIGHWAYS

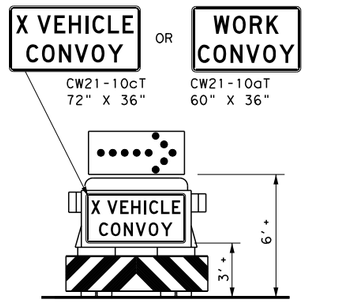
TCP(2-6)-18

FILE: tcp2-6-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-94 4-98 8-95 2-12 1-97 2-18	0228	04	043,ETC	US 385,ETC
	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		51



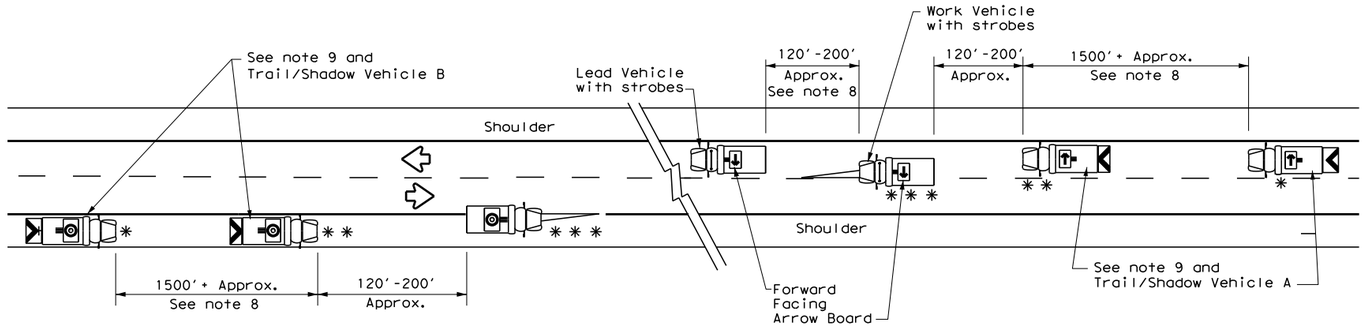
TCP (3-1a)

UNDIVIDED MULTILANE ROADWAY



TRAIL/SHADOW VEHICLE A

with RIGHT Directional display Flashing Arrow Board

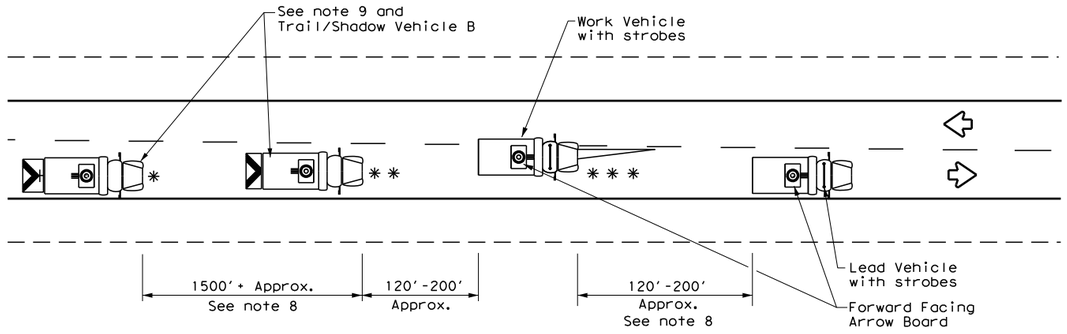


WORK ON SHOULDER

WORK ON TRAVEL LANE

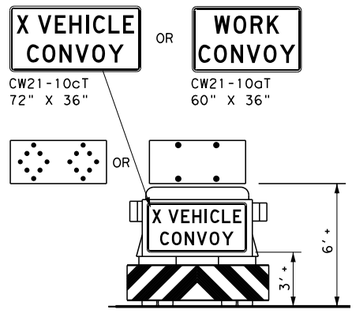
TCP (3-1b)

TWO-WAY ROADWAY WITH PAVED SHOULDERS



TCP (3-1c)

TWO-WAY ROADWAY WITHOUT PAVED SHOULDERS



TRAIL/SHADOW VEHICLE B

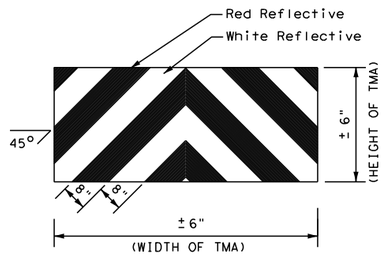
with Flashing Arrow Board in CAUTION display

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.



STRIPING FOR TMA

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN MOBILE OPERATIONS UNDIVIDED HIGHWAYS

TCP(3-1)-13

FILE: tcp3-1.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-94 4-98 8-95 7-13 1-97	0228	04	043,ETC	US 385,ETC
	DIST	COUNTY		SHEET NO.
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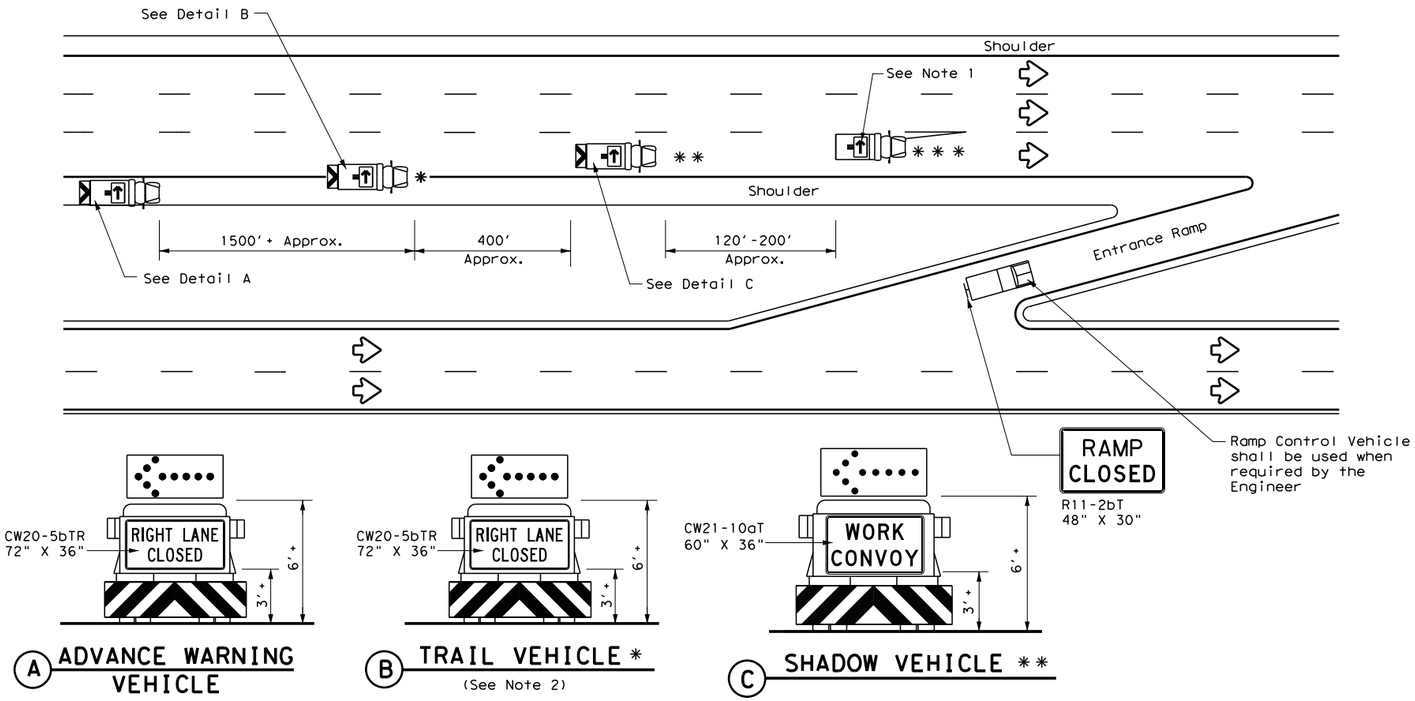
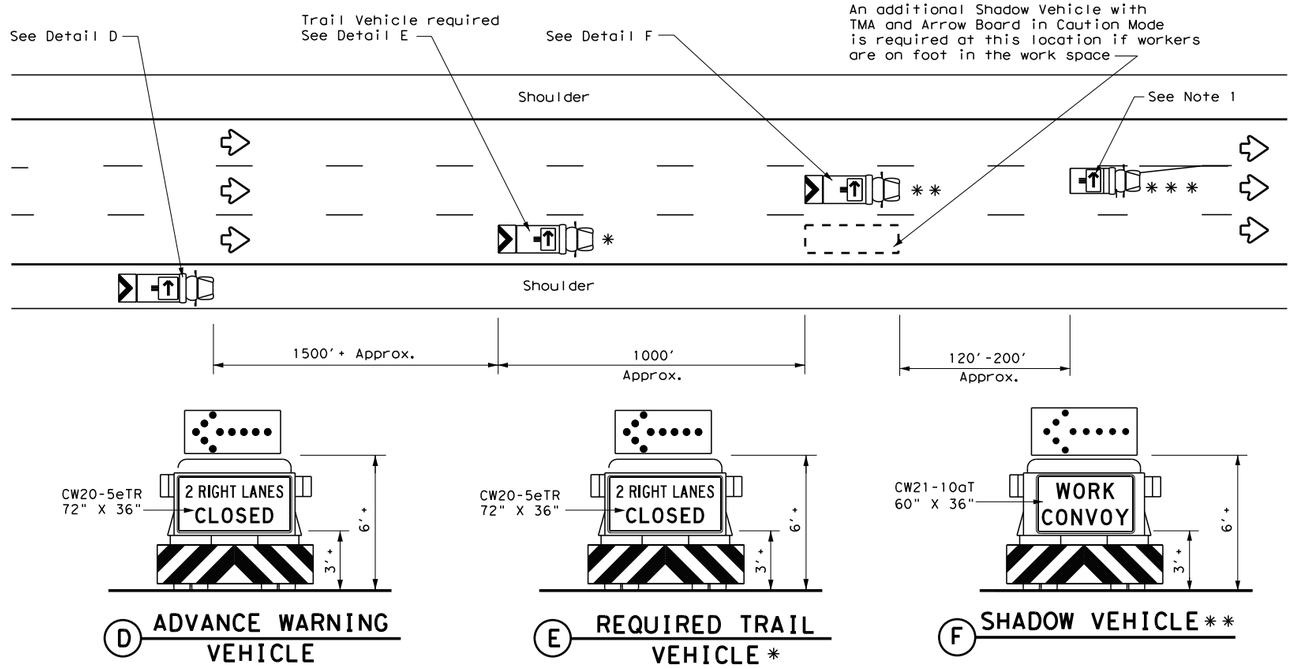


RIGHT LANE CLOSURE ON DIVIDED HIGHWAY - TCP(3-2a)



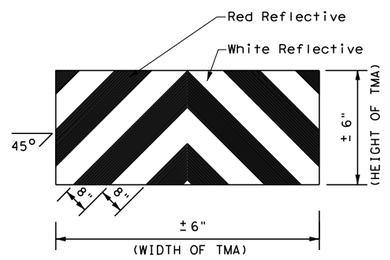
INTERIOR LANE CLOSURE ON MULTI-LANE DIVIDED HIGHWAY - TCP(3-2b)

LEGEND			
*	Trail Vehicle	ARROW BOARD DISPLAY	
**	Shadow Vehicle		
***	Work Vehicle		RIGHT Directional
	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. ADVANCE WARNING, TRAIL and SHADOW vehicles shall be equipped with Type B or Type C flashing arrow boards as per the Barricade and Construction (BC) standards. Arrow boards on WORK vehicles will be optional based on the type of work being performed. The arrow boards shall be operated from inside the vehicle.
2. For TCP(3-2a) the Engineer will determine if the TRAIL VEHICLE is required based on prevailing roadway conditions, traffic volume, and sight distance restrictions. All other vehicles shown for both TCP(3-2a) and TCP(3-2b) are required.
3. 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.
4. The use of truck mounted attenuators (TMA) on the ADVANCE WARNING, SHADOW, and TRAIL vehicles are required.
5. Reflective sheeting on the rear of the TMA shall meet or exceed the reflectivity and color requirements of DMS 8300, Type A.
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 may vary according to terrain, work activity and other factors.
9. Standard 48" X 48" diamond shaped warning signs with the same message as those shown may be used where adequate mounting space exists.
10. The signs shown should be used on the Advance Warning Vehicle. As an option, a portable changeable message sign (PCMS) or a truck mounted changeable message sign (TMCMS) with a minimum character height of 12", and displaying the same legend may be substituted for these signs. An appropriate directional arrow display, simulating the size and legibility of the flashing arrow board, must be used in the second phase of the PCMS/TMCMS message. When this is done, the arrow board will not be required on the Advance Warning Vehicle.
11. Standard diamond shape versions of the CW20-5 series signs may be used as an option if the rectangular signs shown are not available.
12. The principles on this sheet may be used to close lanes from the left side of the roadway considering the number of lanes, shoulder width, sight distance, and ramp frequency.
13. Signs and flashing arrow board modes shall be appropriately altered when implementing left lane closures or interior closures which close the left lanes.
14. The Advance Warning Vehicle may straddle the edgeline when shoulder width makes it necessary.



STRIPING FOR TMA

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN MOBILE OPERATIONS DIVIDED HIGHWAYS

TCP(3-2)-13

FILE: tcp3-2.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-94 4-98 8-95 7-13 1-97	0228	04	043,ETC	US 385,ETC
	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		53

176

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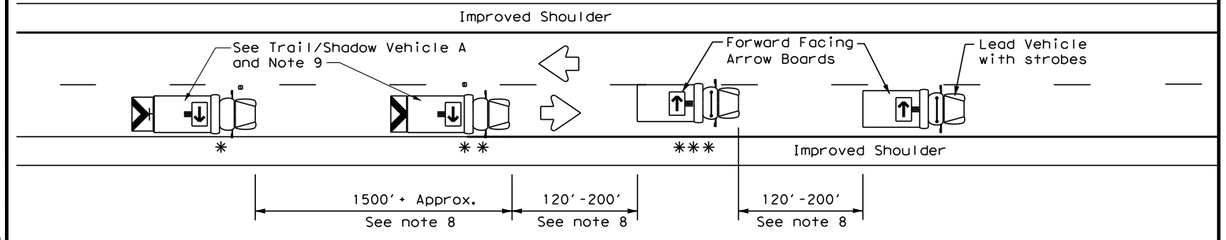
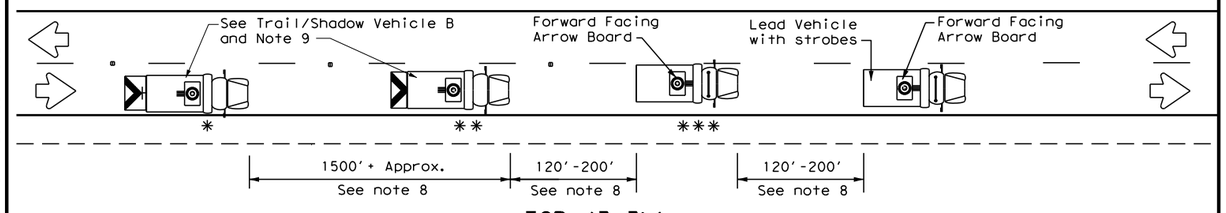


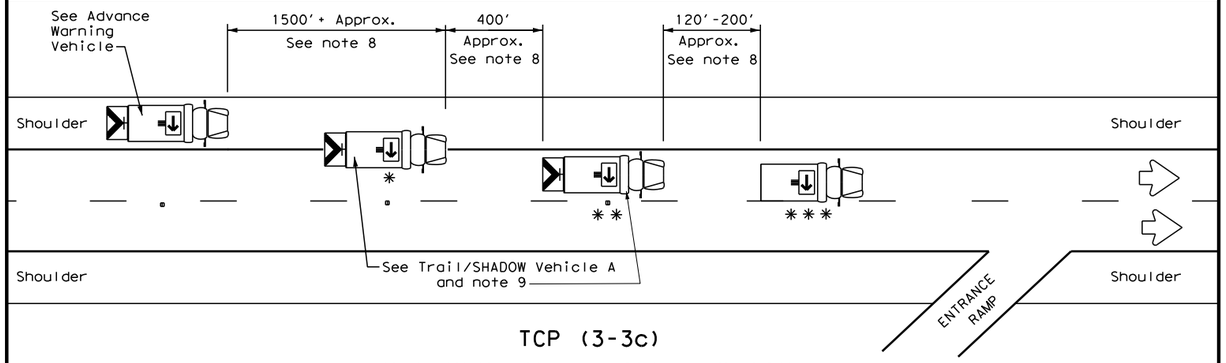
TCP (3-3a)

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



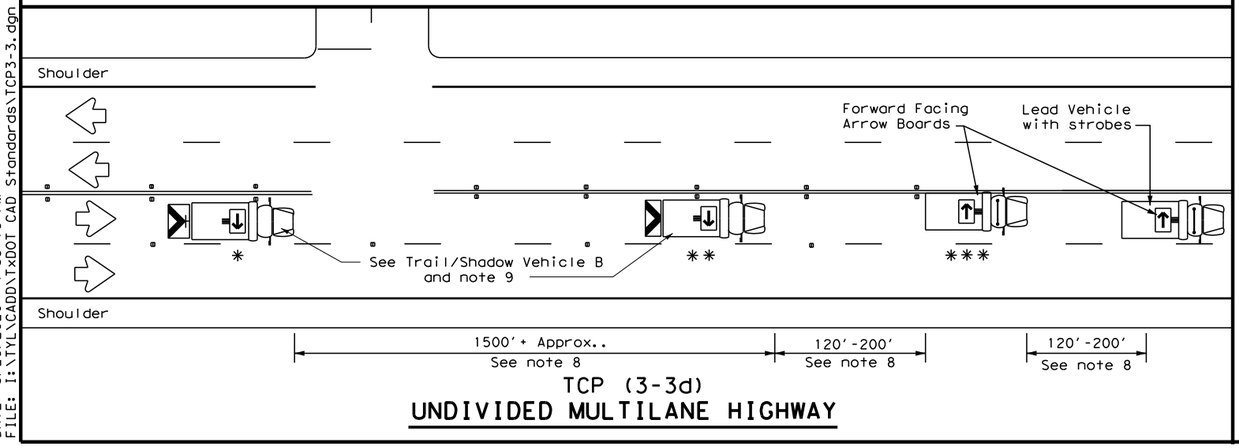
TCP (3-3b)

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



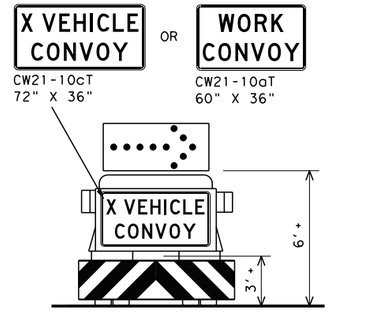
TCP (3-3c)

DIVIDED MULTILANE HIGHWAY



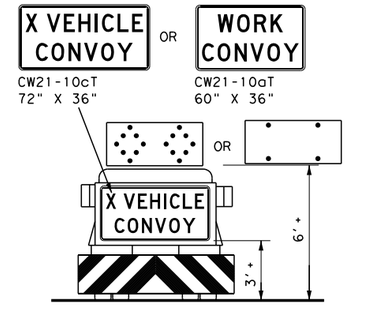
TCP (3-3d)

UNDIVIDED MULTILANE HIGHWAY



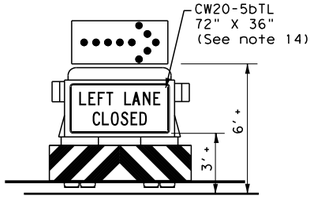
TRAIL/SHADOW VEHICLE A

with RIGHT Directional display
Flashing Arrow Board

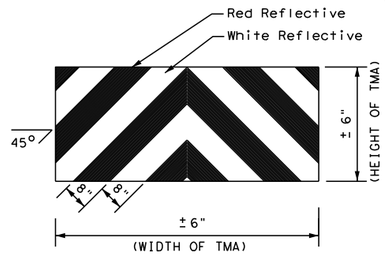


TRAIL/SHADOW VEHICLE B

with Flashing Arrow Board
in Caution Mode



ADVANCE WARNING VEHICLE



STRIPING FOR TMA

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

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

GENERAL NOTES

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

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN MOBILE OPERATIONS RAISED PAVEMENT MARKER INSTALLATION/ REMOVAL

TCP(3-3)-14

FILE: tcp3-3.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT September 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043,ETC	US 385,ETC
2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 7-13	ODA	ANDREWS		54
1-97 7-14				

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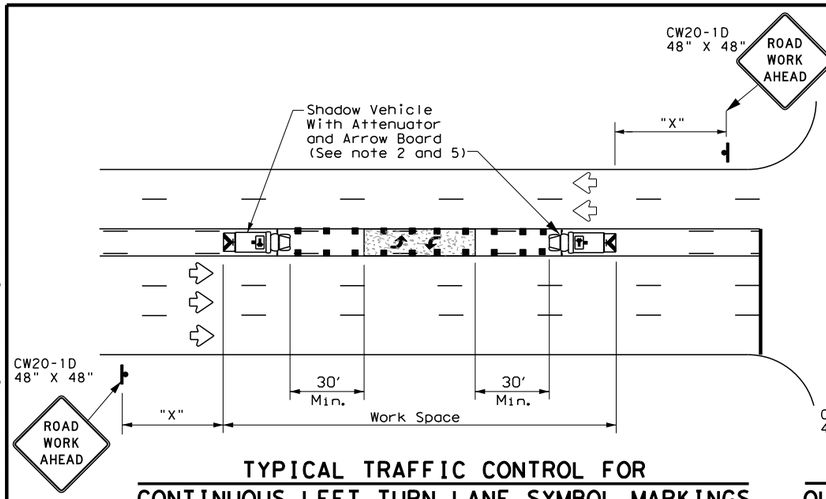
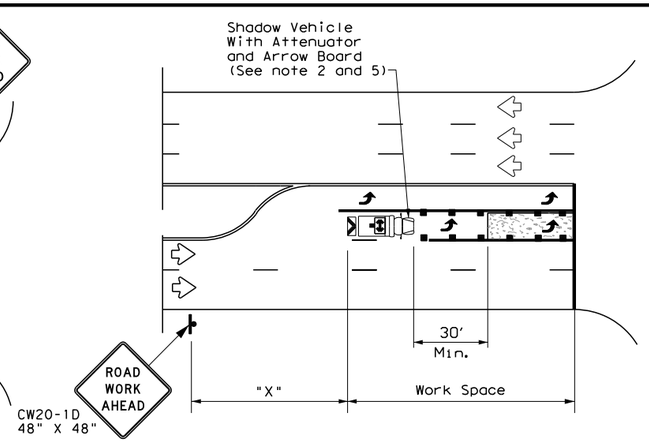
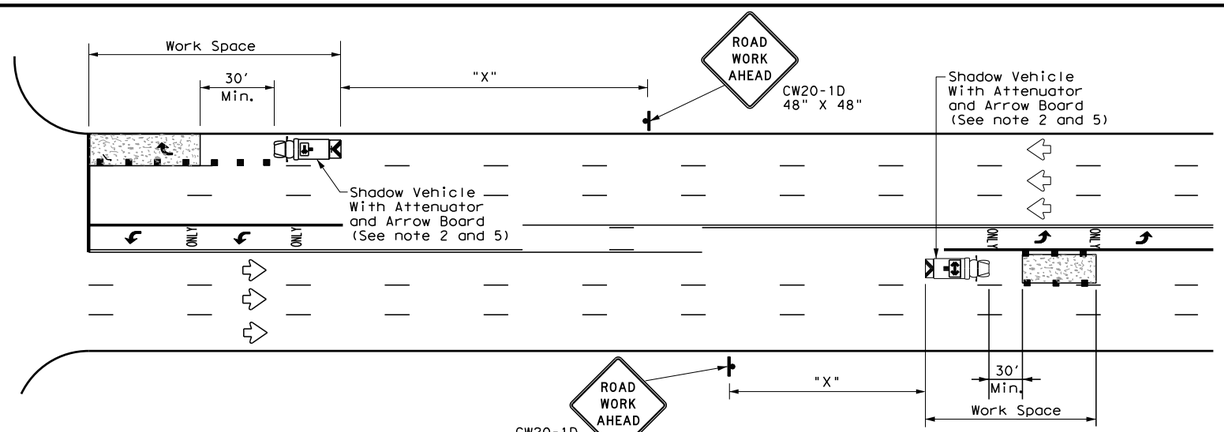


TYPICAL TRAFFIC CONTROL FOR
CONTINUOUS LEFT TURN LANE SYMBOL MARKINGS

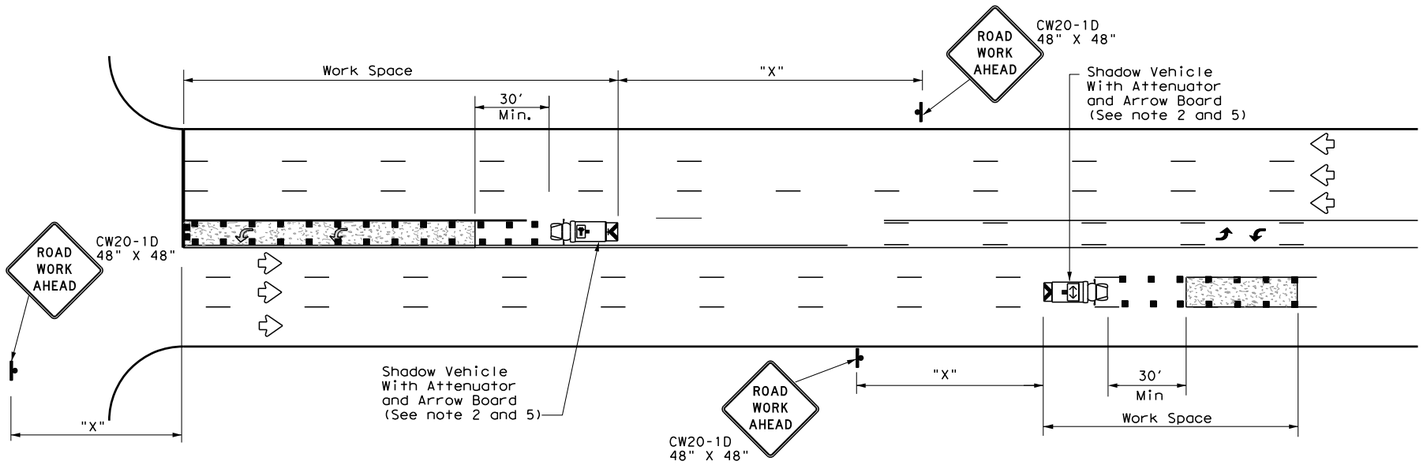


TYPICAL TRAFFIC CONTROL FOR
OUTSIDE DUAL LEFT TURN LANE SYMBOL MARKINGS



TYPICAL TRAFFIC CONTROL FOR
OUTSIDE LANE MARKINGS

TYPICAL TRAFFIC CONTROL FOR
INSIDE LANE MARKINGS



TYPICAL TRAFFIC CONTROL FOR
LEFT TURN LANE MARKINGS

TYPICAL TRAFFIC CONTROL FOR
CENTER LANE MARKINGS

LEGEND

*	Trail Vehicle	ARROW BOARD DISPLAY	
**	Shadow Vehicle		
***	Work Vehicle		RIGHT Directional
	Heavy Work Vehicle		LEFT Directional
	Truck Mounted Attenuator (TMA)		Double Arrow
	Traffic Flow		Channelizing Devices

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

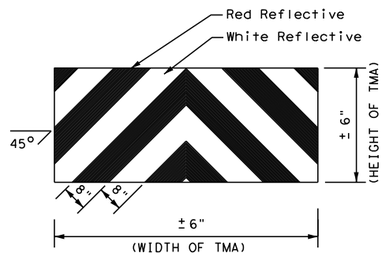
* Conventional Roads Only

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

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

GENERAL NOTES

1. This traffic control plan is for use on conventional roads posted at 45 mph or less and is intended for mobile operations that move continuously or intermittently (stopping up to approximately 15 minutes) such as short-line striping and in-lane rumble strips. When activities are anticipated to take longer amounts of time or traffic conditions warrant, a short duration or short-term stationary traffic control plan should be used.
2. A Truck Mounted Attenuator shall be used on Shadow Vehicle. Striping on the back panel of all truck mounted attenuators shall be 8" red and white reflective sheeting placed in an inverted "V" design. Reflective sheeting shall meet or exceed the reflectivity and color requirements of departmental material specification DMS-8300, Type A.
3. All traffic control devices shall be in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD), latest edition.
4. The use of yellow rotating beacons or strobe lights on vehicles are required. Blue high intensity rotating, flashing, oscillating or strobe lights when mounted on the drivers side of the vehicle may be operated simultaneously with the amber beacons or strobe lights.
5. Flashing arrow board shall be used on Shadow Vehicle. Flashing arrow board shall be Type B or Type C as per BC Standards. The arrow board operation shall be controlled from inside the truck.



STRIPING FOR TMA

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN MOBILE OPERATIONS FOR ISOLATED WORK AREAS UNDIVIDED HIGHWAYS

TCP(3-4)-13

FILE: tcp3-4.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT July, 2013	CONT	SECT	JOB	HIGHWAY
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	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		55

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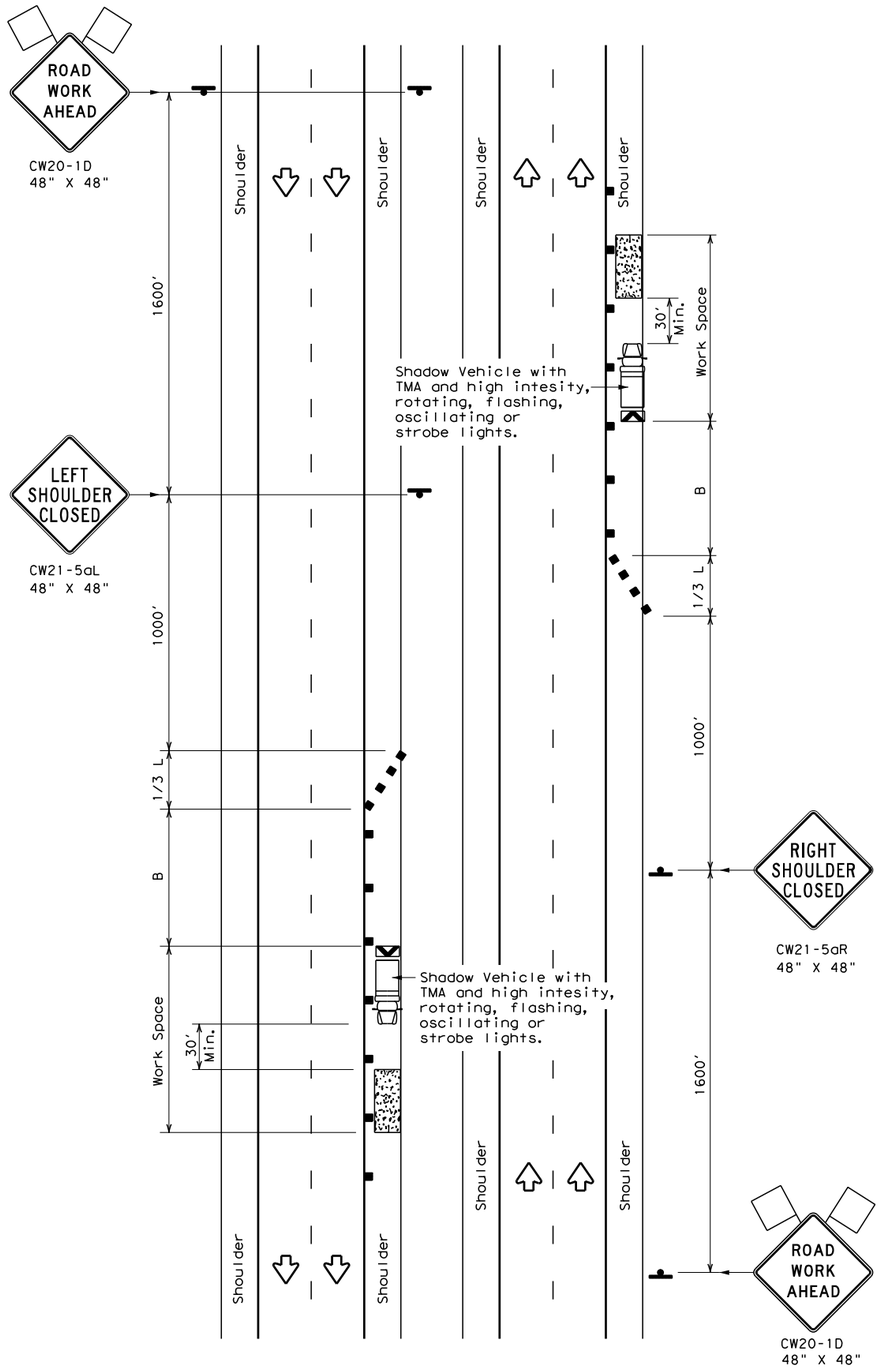
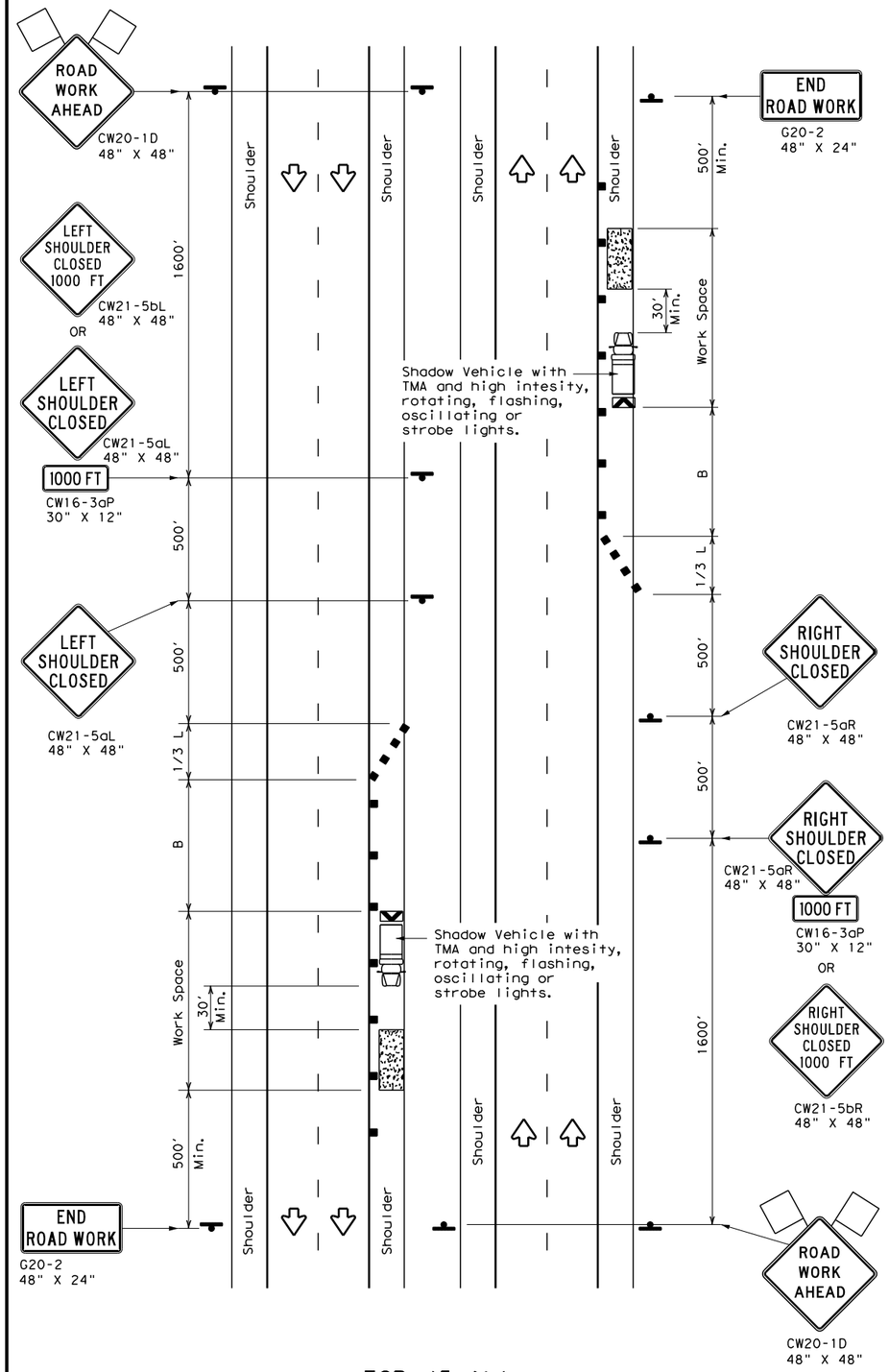


TCP (5-1a)

WORK AREA ON SHOULDER



TCP (5-1b)

WORK AREA ON SHOULDER

LEGEND

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

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

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

TYPICAL USAGE

MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	TCP(5-1a)	TCP(5-1b)	TCP(5-1b)	

GENERAL NOTES

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

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN SHOULDER WORK FOR FREEWAYS / EXPRESSWAYS

TCP(5-1)-18

FILE: tcp5-1-18.dgn	DN:	CK:	DW:	CK:
©TxDOT February 2012	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-18	0228	04	043,ETC	US 385,ETC
	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		56

DATE: 5/28/2020 4:53:26 PM
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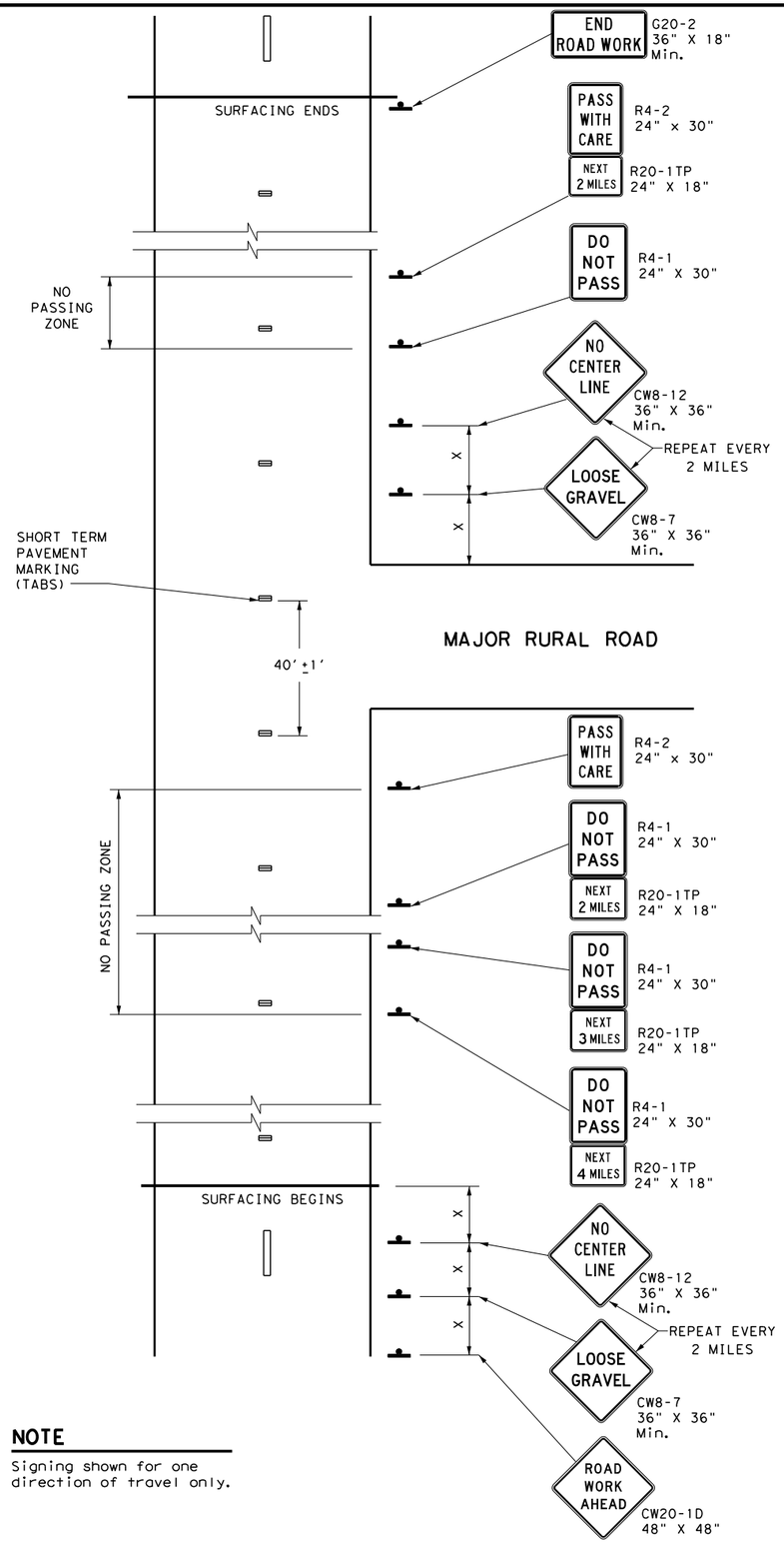
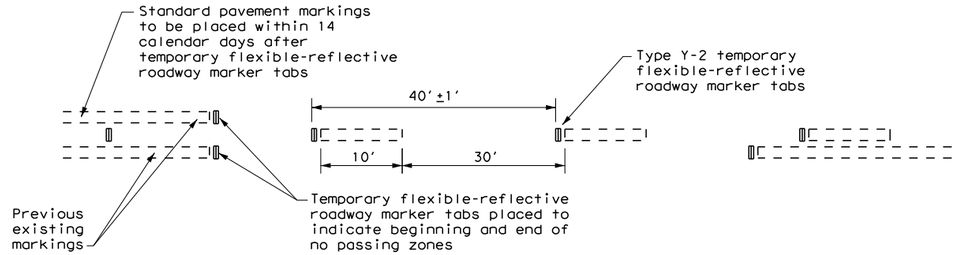


NOTE

Signing shown for one direction of travel only.

NO PASSING ZONES ON TWO-LANE TWO-WAY ROADS



TABS ON CENTERLINES OF TWO-LANE TWO-WAY ROADS

For seal coat, micro-surface or similar operations

"DO NOT PASS" SIGN (R4-1) and NO-PASSING ZONES

A. Prior to the beginning of construction, all currently striped no-passing zones shall be signed with the DO NOT PASS (R4-1) signs and PASS WITH CARE (R4-2) signs placed at the beginning and end of each zone for each direction of travel except as otherwise provided herein. Signs marking these individual no-passing zones need not be covered prior to construction if the signs supplement the existing pavement markings.

B. At the discretion of the Engineer, in areas of numerous no-passing zones, several zones may be combined as a single zone. If passing is to be prohibited over one or more lengthy sections, a DO NOT PASS sign and a NEXT XX MILES (R20-1TP) plaque may be used at the beginning of such zones. The DO NOT PASS sign and the NEXT XX MILES plaque should be repeated every mile to the end of the no-passing zone. In areas where there is considerable distance between no-passing zones, the end of the no-passing zone may be signed with a PASS WITH CARE sign and a NEXT XX MILES plaque.

C. Depending on traffic volumes and length of sections, it may be desirable to prohibit passing throughout the project to prevent damage to windshield and lights. The DO NOT PASS sign and NEXT XX MILES plaque should be used and repeated as often as necessary for this purpose. Where several existing zones are to be combined into one individual no-passing zone, the sign at the beginning of the zone should be covered until the surfacing operation has passed this location so as not to have the DO NOT PASS sign conflict with the existing pavement markings. Also, unless one days operation completes the entire length of such combined zones, appropriate DO NOT PASS and PASS WITH CARE signs should be placed at the beginning and end of the no-passing zones where the surfacing operation has stopped for the day.

D. R4-1 and R4-2 are to remain in place until standard pavement markings are installed.

"NO CENTER LINE" SIGN (CW8-12)

A. Center line markings are yellow pavement markings that delineate the separation of travel lanes that have opposite directions of travel on a roadway. Divided highways do not typically have center line markings.

B. At the time construction activity obliterates the existing center line markings(low volume roads may not have an existing centerline), a NO CENTER LINE (CW8-12) sign should be erected at the beginning of the work area, at approximately 2 mile intervals within the work area, beyond major intersections and other locations deemed necessary by the Engineer.

C. The NO CENTER LINE signs are to remain in place until standard pavement markings are installed.

"LOOSE GRAVEL" SIGN (CW8-7)

A. When construction begins, a LOOSE GRAVEL (CW8-7) sign should be erected at each end of the work area and repeated at intervals of approximately 2 miles in rural areas and closer in urban areas.

B. The LOOSE GRAVEL signs are to remain in place until the condition no longer exists.

PAVEMENT MARKINGS

A. Temporary markings for surfacing projects shall be Temporary Flexible-reflective Roadway Marker Tabs unless otherwise approved by the Engineer. Tabs are to be installed to provide true alignment for striping crews or as directed by the Engineer. Tabs will be placed at the spacing indicated. Tabs should be applied to the pavement
no more than two (2) days before the surfacing is applied. After the surfacing is rolled and swept, the cover over the reflective strip shall be removed.

B. Tabs shall not be used to simulate edge lines.

C. Tab placement for overlay/inlay operations shall be as shown on the WZ(STPM) standard sheet.

COORDINATION OF SIGN LOCATIONS

A. The location of warning signs at the beginning and end of a work area are to be coordinated with other signing typically shown on the Barricade and Construction Standards for project limits to ensure adequate sign spacing.

B. Where possible the ROAD WORK AHEAD (CW20-1D), LOOSE GRAVEL (CW8-7), and NO CENTER LINE (CW8-12) signs should be placed in the sequence shown following the OBEY WARNING SIGNS STATE LAW (R20-3T) and the TRAFFIC FINES DOUBLE (R20-5T) sign, and one "X" sign spacing prior to the CONTRACTOR (G20-6T)sign typically located at or near the limits of surfacing. LOOSE GRAVEL and NO CENTER LINE signs will then be repeated as described above.

Posted Speed *	Minimum Sign Spacing "X" Distance
30	120'
35	160'
40	240'
45	320'
50	400'
55	500'
60	600'
65	700'
70	800'
75	900'

* Conventional Roads Only

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

GENERAL NOTES

1. The traffic control devices detailed on this sheet will be furnished and erected as directed by the Engineer on sections of roadway where tabs must be placed prior to the surfacing operation which will cover or obliterate the existing pavement markings.
2. The devices shown on this sheet are to be used to supplement those required by the BC Standards or others required elsewhere in the plans.
3. Signs shall be erected as detailed on the BC Standards or the Compliant Work Zone Traffic Control Devices List (CWZTCD) on supports approved for Long-Term / Intermediate-Term Work Zone Sign Supports.
4. When surfacing operations take place on divided highways, freeways or expressways, the size of diamond shaped construction warning signs shall be 48" x 48".
5. Signs on divided highways, freeways and expressways will be placed on both right and left sides of the roadway based on roadway conditions as directed by the Engineer.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL DETAILS FOR SURFACING OPERATIONS

TCP(7-1)-13

FILE: tcp7-1.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT March 1991	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043,ETC	US 385,ETC
4-92 4-98	DIST	COUNTY		SHEET NO.
1-97 7-13	ODA	ANDREWS		57

210

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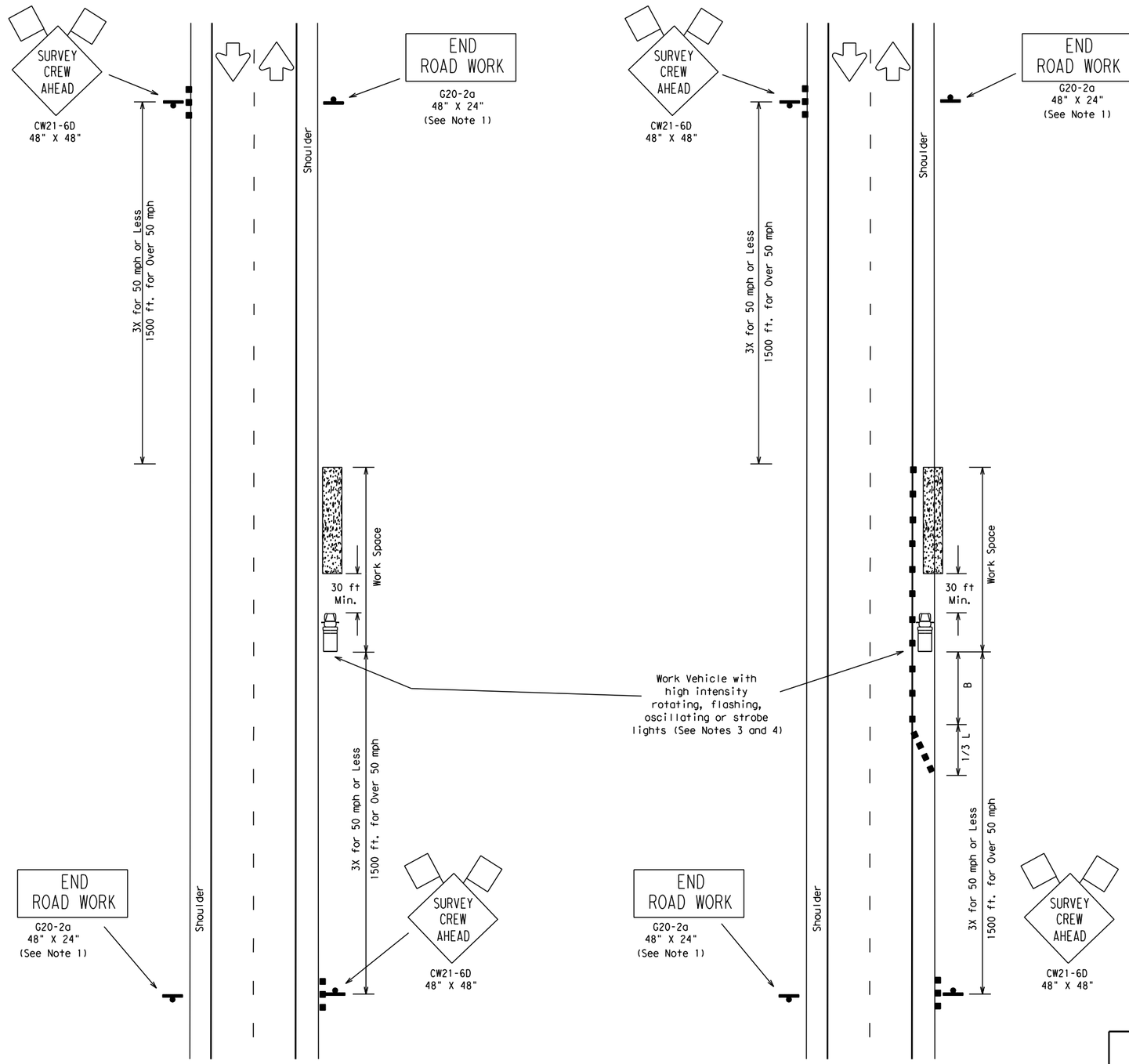

TCP (S-1a)
WORK OFF SHOULDER OR PAVED SURFACE

TCP (S-1b)
WORK ON SHOULDER

LEGEND

Type III Barricade ■ ■ Channelizing Devices Flag
Heavy Work Vehicle Truck Mounted Attenuator (TMA)
Trailer Mounted Flashing Arrow Panel (M) Portable Changeable Message Sign (PCMS)
Flagger Sign Post

Posted Speed ✳	Formula	Minimum Desirable Taper Lengths ✳✳ 10′ Offset	11′ Offset	12′ Offset	Suggested Maximum Spacing of Device On a Taper	On a Tangent	Min. Sign Spacing "X" Distance	Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150′	165′	180′	30′	60′-75′	120′	90′
35		205′	225′	245′	35′	70′-90′	160′	120′
40		265′	295′	320′	40′	80′-100′	240′	155′
45	L=WS	450′	495′	540′	45′	90′-110′	320′	195′
50		500′	550′	600′	50′	100′-125′	400′	240′
55		550′	605′	660′	55′	110′-140′	500′	295′
60		600′	660′	720′	60′	120′-150′	600′	350′
65		650′	715′	780′	65′	130′-165′	700′	410′
70		700′	770′	840′	70′	140′-175′	800′	475′
75		750′	825′	900′	75′	150′-185′	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
	✓	✓		

DEFINITIONS:
SHORT DURATION - work that occupies a location up to 1 hour.
SHORT TERM STATIONARY - daytime work that occupies a location for more than 1 hour within a single daylight period.

GENERAL NOTES:

1. The G20-2a "END ROAD WORK" sign may be placed on the back of the CW21-6D "SURVEY CREW AHEAD" sign or may be omitted for short duration (less than 1 hour) work.
2. Channelizing devices on the shoulder taper and tangent section may be omitted for short duration (less than 1 hour) work.
3. If line-of-sight requirements for surveying operations will preclude the placement of the Work Vehicle to protect workers, the channelizing devices mentioned in Note 2 are required.
4. ⚠1 A Shadow Vehicle with a Truck Mounted Attenuator and flashing warning lights/arrow panel in caution mode may be used in lieu of the Work Vehicle to protect the work space.
5. The CW20-1D "ROAD WORK AHEAD" sign may be substituted for the CW21-6D "SURVEY CREW AHEAD" sign.
6. This plan may also be used for shoulder work or off shoulder work for multilane undivided roadways.
7. The CW21-6D "SURVEY CREW AHEAD" sign for low volume intersecting side roads is desirable, but is not required when working less than 15 minutes in area of the side road, as determined by the Engineer.

TCP(S-1a)

8. Cones may be placed at edge of pavement adjacent to the work space to enhance safety.

WHENEVER POSSIBLE, SURVEY PARTIES SHOULD AVOID, BY THE USE OF OFFSET LINES, ANY UNNECCESSARY PERIODS OF TIME ON THE ROAD SURFACE.

8-18-08 Revision
⚠1 Corrected misspelling.

Texas Department of Transportation
Traffic Operations Division

TRAFFIC CONTROL PLAN FOR SURVEYING OPERATIONS

TCP(S-1)-08A

REVISIONS
8-08

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
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ODA	ANDREWS		58

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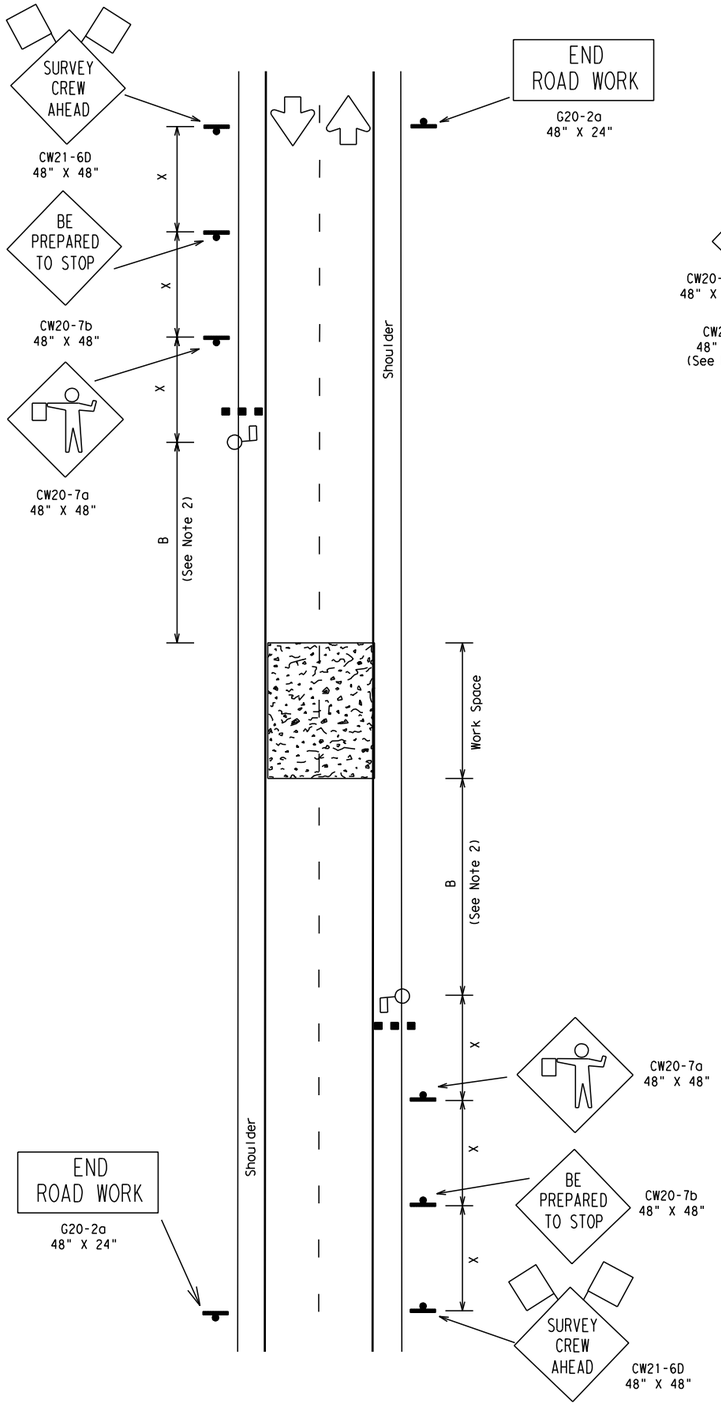
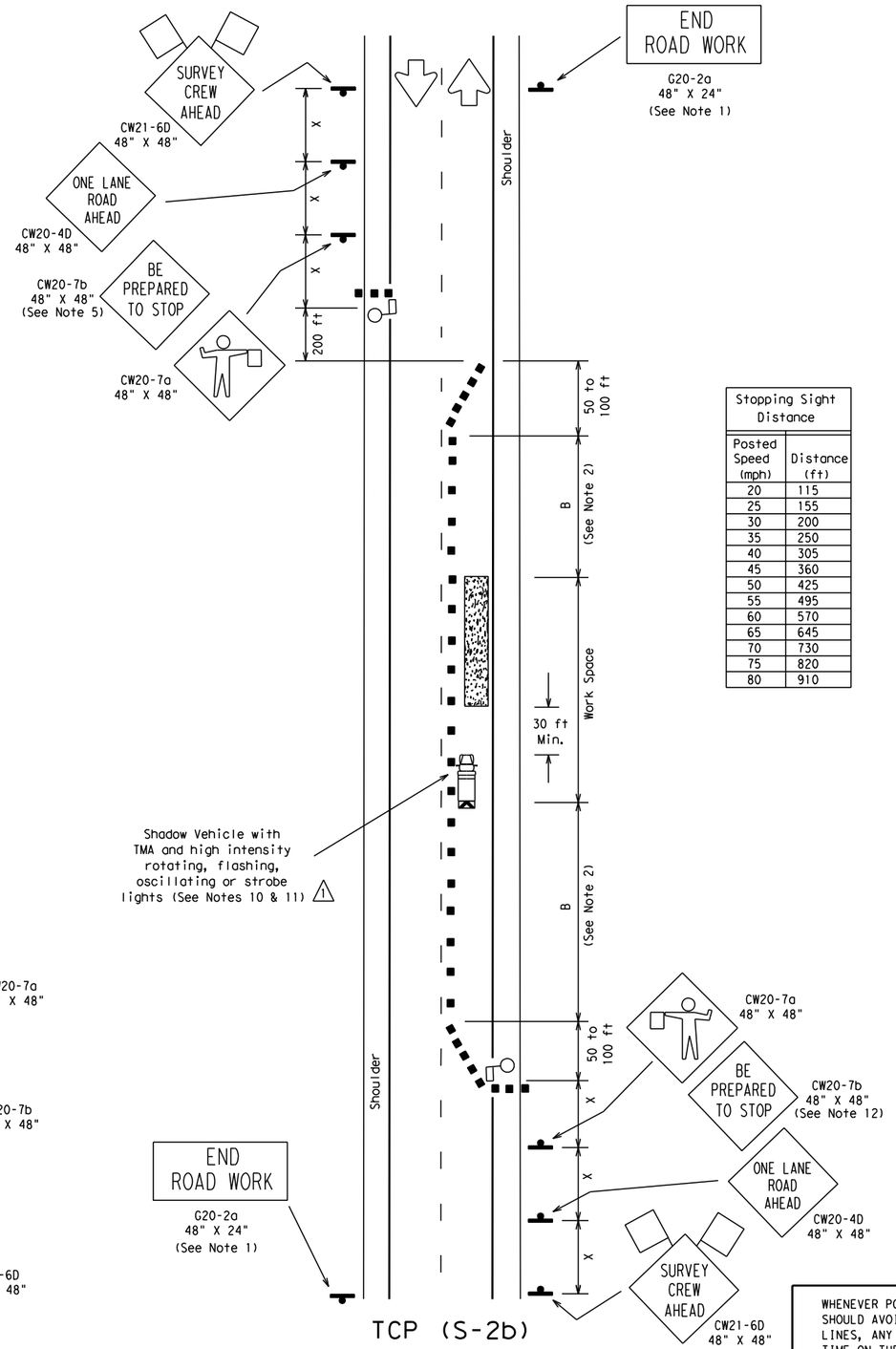


TCP (S-2a)
ROAD CLOSED FOR LESS THAN 20 MINUTES -
OFF PEAK TRAFFIC HOURS
WITH OR WITHOUT SHOULDERS



TCP (S-2b)
WORK IN ROADWAY
OFF PEAK TRAFFIC HOURS
WITH OR WITHOUT SHOULDERS

Stopping Sight Distance	
Posted Speed (mph)	Distance (ft)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730
75	820
80	910

LEGEND

Type III Barricade ■ ■ Channelizing Devices Flag
Heavy Work Vehicle Truck Mounted Attenuator (TMA)
Trailer Mounted Flashing Arrow Panel (M) Portable Changeable Message Sign (PCMS)
Flagger Sign Post

Posted Speed ✳	Formula	Minimum Desirable Taper Lengths ✳✳ 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Device On a Taper	On a Tangent	Min. Sign Spacing "X" Distance	Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'-75'	120'	90'
35		205'	225'	245'	35'	70'-90'	160'	120'
40		265'	295'	320'	40'	80'-100'	240'	155'
45	L=WS	450'	495'	540'	45'	90'-110'	320'	195'
50		500'	550'	600'	50'	100'-125'	400'	240'
55		550'	605'	660'	55'	110'-140'	500'	295'
60		600'	660'	720'	60'	120'-150'	600'	350'
65		650'	715'	780'	65'	130'-165'	700'	410'
70		700'	770'	840'	70'	140'-175'	800'	475'
75		750'	825'	900'	75'	150'-185'	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
	✓	✓		

DEFINITIONS:
SHORT DURATION - work that occupies a location up to 1 hour.
SHORT TERM STATIONARY - daytime work that occupies a location for more than 1 hour within a single daylight period.

GENERAL NOTES:
1. The G20-2a "END ROAD WORK" sign may be placed on the back of the CW21-6D "SURVEY CREW AHEAD" sign or may be omitted for short duration (less than 1 hour) work.
2. Adequate Stopping Sight Distance (see Stopping Sight Distance table) should be maintained from approaching traffic to the flagger or a queue of stopped vehicles. The Buffer Space "B" should be extended around curves or other obstacles, when necessary, to have adequate Stopping Sight Distance to the flagger station.
3. Flaggers should use two-way radios or other means of communication while flagging.
4. The length of the work space should be based on the ability of the flaggers to communicate.
5. CW20-1D "ROAD WORK AHEAD" signs may be substituted for CW21-6D "SURVEY CREW AHEAD" signs.
6. The CW21-6D "SURVEY CREW AHEAD" sign for low volume intersecting side roads is desirable, but is not required when working less than 15 minutes in area of the side road, as determined by the Engineer.

TCP(S-2a)

7. Road closures shall be less than 20 minutes. Closures less than 5 minutes are desirable.
8. Sign spacing should be increased if traffic repeatedly queues past the CW20-7b "BE PREPARED TO STOP" sign.
9. The surveying instrument should not be located on the paved surface.

TCP (S-2B)

10. For short duration work the Shadow Vehicle with a TMA may be replaced by another Work Vehicle with high intensity rotating, flashing or strobe lights.
11. Shadow Vehicles with a TMA are desirable when workers or equipment are in the work space. When approved by the engineer, Type III barricades or other channelizing devices may be substituted for the Shadow Vehicle.
12. The CW20-7b "BE PREPARED TO STOP" sign is optional. When used, it should be installed after the CW20-4D "ONE LANE ROAD AHEAD" sign.

WHENEVER POSSIBLE, SURVEY PARTIES SHOULD AVOID, BY THE USE OF OFFSET LINES, ANY UNNECCESSARY PERIODS OF TIME ON THE ROAD SURFACE.

8-18-08 Revision
1 Corrected referrence to notes.

Texas Department of Transportation
Traffic Operations Division

TRAFFIC CONTROL PLAN FOR SURVEYING OPERATIONS

TCP(S-2)-08A

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

REVISIONS
8-08

CONT	SECT	JOB	HIGHWAY
0228	04	043,ETC	US 385,ETC
DIST	COUNTY		SHEET NO.
ODA	ANDREWS		59

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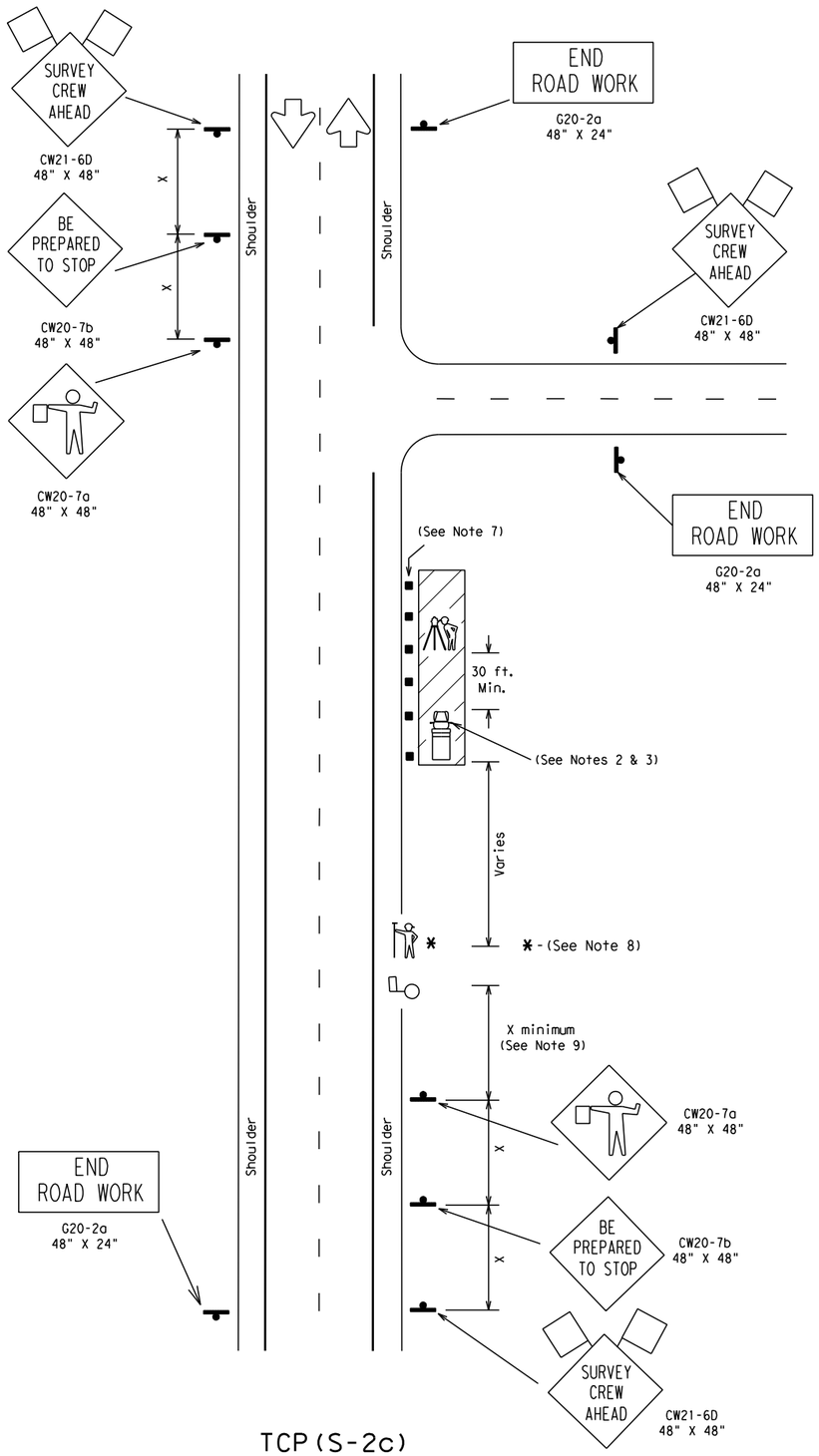

TCP(S-2c)

Stopping Sight Distance	
Posted Speed (mph)	Distance (ft)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730
75	820
80	910

LEGEND

Type III Barricade ■ ■ Channelizing Devices Flag

Work Vehicle Truck Mounted Attenuator (TMA)

Flagger Sign Post Survey Rodman Instrument Person

Posted Speed ✳	Formula	Minimum Desirable Taper Lengths ✳✳ 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Device On a Taper	On a Tangent	Min. Sign Spacing "X" Distance	Longitudinal Buffer Space "B"
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'-75'	120'	90'
35		205'	225'	245'	35'	70'-90'	160'	120'
40		265'	295'	320'	40'	80'-100'	240'	155'
45	L=WS	450'	495'	540'	45'	90'-110'	320'	195'
50		500'	550'	600'	50'	100'-125'	400'	240'
55		550'	605'	660'	55'	110'-140'	500'	295'
60		600'	660'	720'	60'	120'-150'	600'	350'
65		650'	715'	780'	65'	130'-165'	700'	410'
70		700'	770'	840'	70'	140'-175'	800'	475'
75		750'	825'	900'	75'	150'-185'	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
	✓	✓		

DEFINITIONS:

MOBILE - work that moves continously or intermittently (stopping up to approximately 15 minutes).

SHORT DURATION - work that occupies a location up to 1 hour.

SHORT TERM STATIONARY - daytime work that occupies a location for more than 1 hour within a single daylight period.

GENERAL NOTES:

1. The G20-2a "END ROAD WORK" sign may be placed on the back of the CW21-6D "SURVEY CREW AHEAD" sign or may be omitted for short duration (less than 1 hour) work.
2. Work Vehicle with high intensity rotating, flashing, oscillating or strobe lights should be used to protect work space.
3. When approved by the engineer, Type III barricades or other channelizing devices may be substituted for the Heavy Work Vehicle.
4. CW20-1D "ROAD WORK AHEAD" signs may be substituted for CW21-6D "SURVEY CREW AHEAD" SIGNS.
5. The CW21-6D "SURVEY CREW AHEAD" sign for low volume intersecting side roads may be omitted when approved by the Engineer.
6. The Surveying Instrument shall not be located on the paved surface.
7. Cones at edge of pavement adjacent to instrument person may be omitted when approved by the Engineer.
8. Rodman may only enter roadway when accompanied by flagger and as traffic allows.
9. The distance between the advance warning signs and the work should not exceed a two mile maximum.
10. Flaggers and Survey Crew should use two-way radios or other means of communication.
11. Survey Crew and Flaggers shall wear high-visibility apparel meeting the ANSI 107-2007 standard performance for Class 2 or Class 3 risk exposure.
12. Additional traffic control devices may be required to address local site conditions.
13. Stopping Sight Distance shall be maintained from approaching traffic to the flagger. See "Stopping Sight Distance" table.

SURVEY PARTIES SHOULD AVOID ANY UNNECCESSARY PERIODS OF TIME ON THE ROAD SURFACE.

This TCP is to cover two lane rural type roadways as determined by the Engineer. All other type roadways will be covered by other established Survey TCP'S.

Texas Department of Transportation
Traffic Operations Division

TRAFFIC CONTROL PLAN FOR SURVEYING OPERATIONS

TCP(S-2c)-10

REVISIONS

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

CONT	SECT	JOB	HIGHWAY
0228	04	043,ETC	US 385,ETC

DIST	COUNTY	SHEET NO.
ODA	ANDREWS	60

212A

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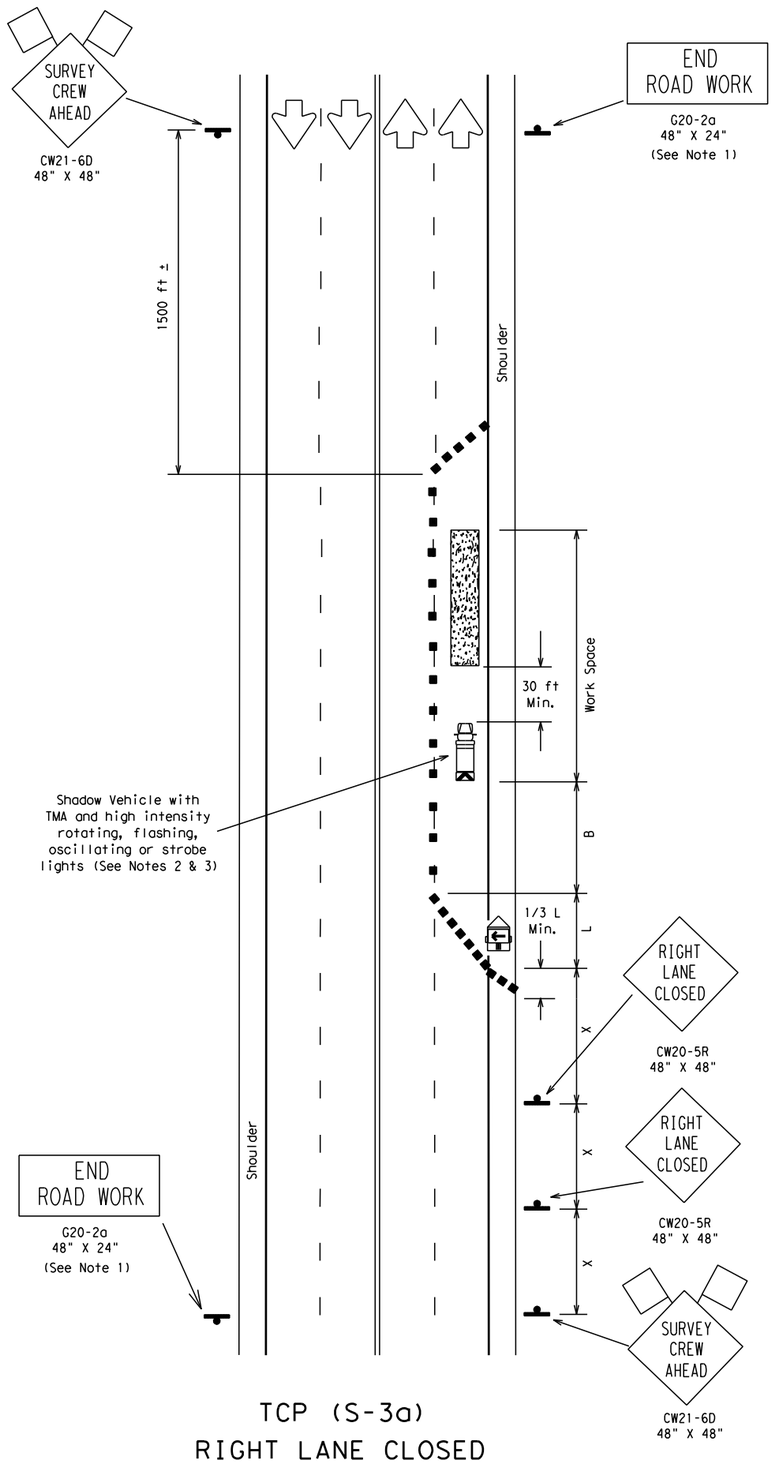
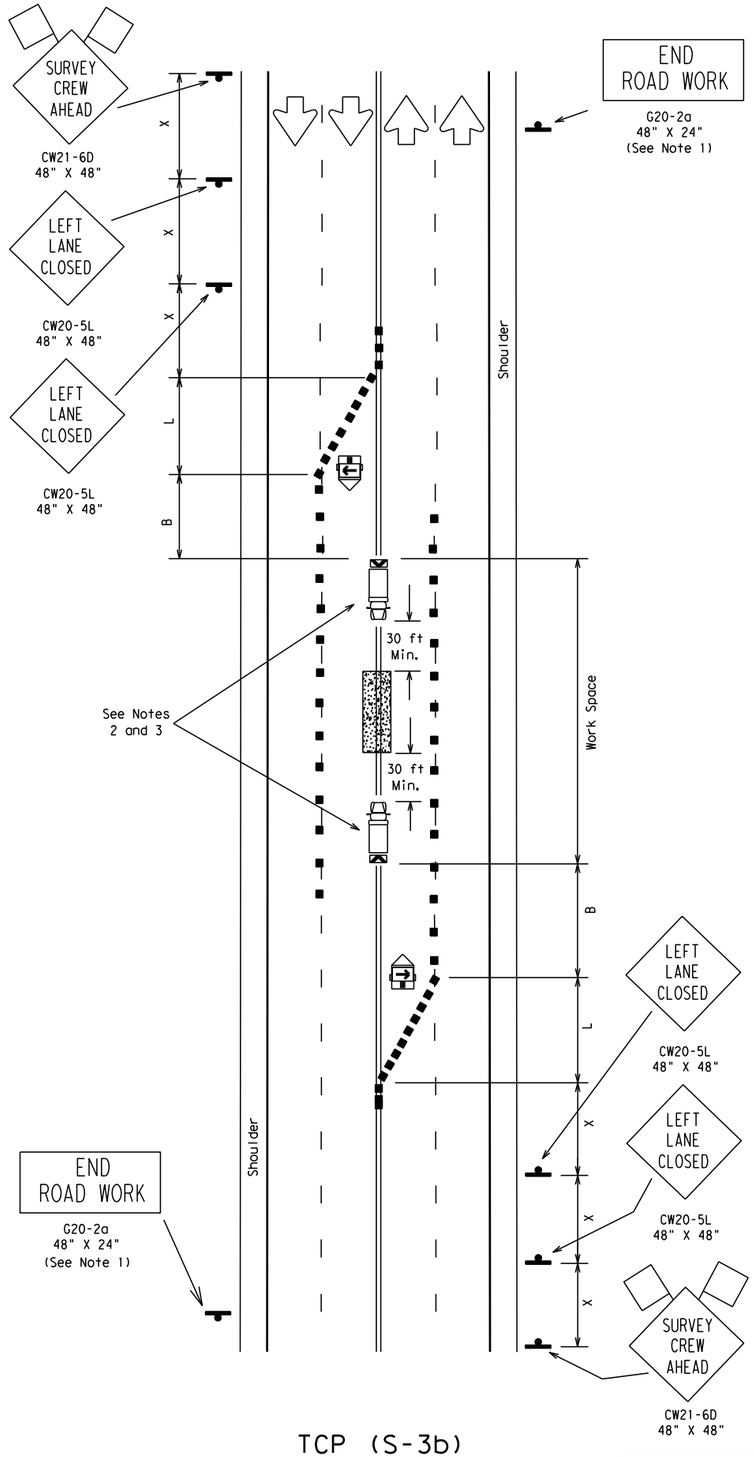


TCP (S-3a)
RIGHT LANE CLOSED
WITH OR WITHOUT SHOULDERS



TCP (S-3b)
WORK ON CENTERLINE

WHENEVER POSSIBLE, SURVEY PARTIES SHOULD AVOID, BY THE USE OF OFFSET LINES, ANY UNNECCESSARY PERIODS OF TIME ON THE ROAD SURFACE.

LEGEND

Type III Barricade ■ ■ Channelizing Devices Flag
Heavy Work Vehicle Truck Mounted Attenuator (TMA)
Trailer Mounted Flashing Arrow Panel (M) Portable Changeable Message Sign (PCMS)
Flagger Sign Post

Posted Speed ✳	Formula	Minimum Desirable Taper Lengths ✳✳ 10′ Offset	11′ Offset	12′ Offset	Suggested Maximum Spacing of Device On a Taper	On a Tangent	Min. Sign Spacing "X" Distance	Longitudinal Buffer Space "B"
30	$L = \frac{WS^2}{60}$	150′	165′	180′	30′	60′-75′	120′	90′
35		205′	225′	245′	35′	70′-90′	160′	120′
40		265′	295′	320′	40′	80′-100′	240′	155′
45	L=WS	450′	495′	540′	45′	90′-110′	320′	195′
50		500′	550′	600′	50′	100′-125′	400′	240′
55		550′	605′	660′	55′	110′-140′	500′	295′
60		600′	660′	720′	60′	120′-150′	600′	350′
65		650′	715′	780′	65′	130′-165′	700′	410′
70		700′	770′	840′	70′	140′-175′	800′	475′
75		750′	825′	900′	75′	150′-185′	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
	✓	✓		

DEFINITIONS:
SHORT DURATION - work that occupies a location up to 1 hour.
SHORT TERM STATIONARY - daytime work that occupies a location for more than 1 hour within a single daylight period.

GENERAL NOTES:
1. The G20-2a "END ROAD WORK" sign may be placed on the back of the CW21-6D "SURVEY CREW AHEAD" sign or may be omitted for short duration (less than 1 hour) work.
2. For short duration work the Shadow Vehicle with TMA may be replaced by another Work Vehicle with high intensity rotating, flashing or strobe lights.
3. Shadow Vehicles with a TMA are desirable when workers or equipment are in the work space. When approved by the engineer, Type III barricades or other channelizing devices may be substituted for the Shadow Vehicle.
4. CW20-1D "ROAD WORK AHEAD" signs may be substituted for CW21-6D "SURVEY CREW AHEAD" signs.
5. The CW21-6D "SURVEY CREW AHEAD" sign for low volume intersecting side roads is desirable, but is not required when working less than 15 minutes in area of the side road, as determined by the Engineer.

TCP(S-3a)

6. If shoulders are not present, the 1/3L shoulder taper is to be omitted and four channelizing devices shall be placed in front of the arrow panel, perpendicular to traffic.

TCP(S-3b)

7. One CW20-5L "LEFT LANE CLOSED" sign in each direction may be omitted when the posted speed is less than 45mph and volume is less then 2000 ADT.

Texas Department of Transportation
Traffic Operations Division

TRAFFIC CONTROL PLAN FOR SURVEYING OPERATIONS

TCP(S-3)-08

REVISIONS

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

CONT	SECT	JOB	HIGHWAY
0228	04	043,ETC	US 385,ETC

DIST	COUNTY	SHEET NO.
ODA	ANDREWS	61

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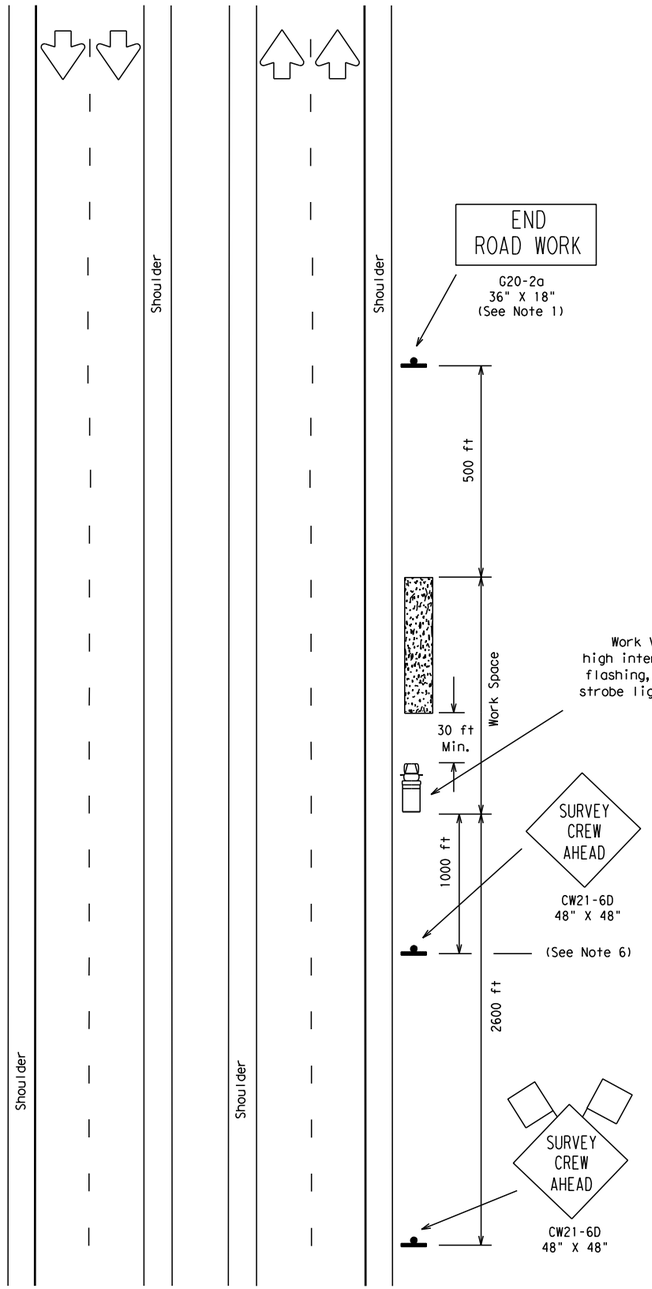
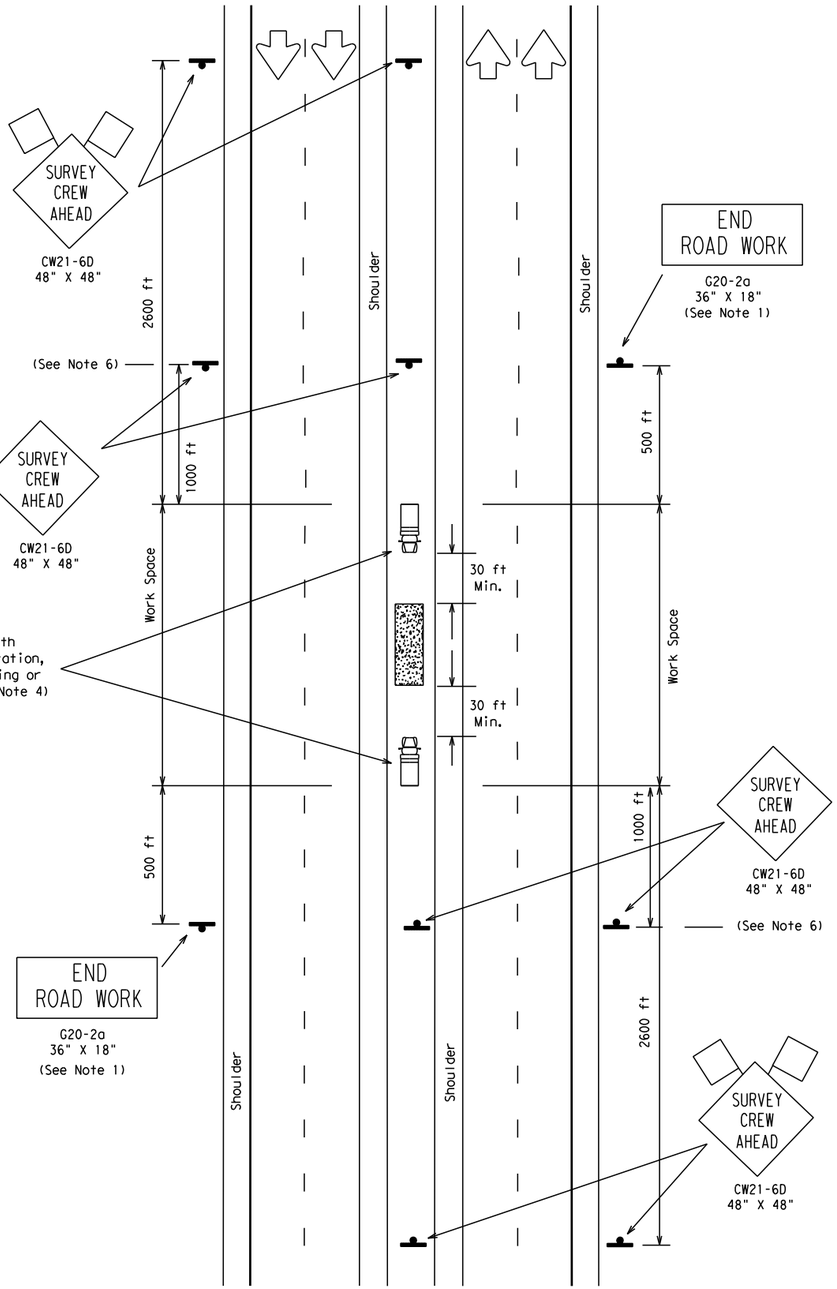


TCP (S-4a)
WORK OFF RIGHT SHOULDER
OF DIVIDED ROADWAYS



TCP (S-4b)
WORK IN MEDIAN
OF DIVIDED ROADWAYS

LEGEND

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

Posted Speed ✳	Formula	Minimum Desirable Taper Lengths ✳✳ 10′ Offset	11′ Offset	12′ Offset	Suggested Maximum Spacing of Device On a Taper	On a Tangent	Min. Sign Spacing "X" Distance	Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150′	165′	180′	30′	60′-75′	120′	90′
35		205′	225′	245′	35′	70′-90′	160′	120′
40		265′	295′	320′	40′	80′-100′	240′	155′
45	L=WS	450′	495′	540′	45′	90′-110′	320′	195′
50		500′	550′	600′	50′	100′-125′	400′	240′
55		550′	605′	660′	55′	110′-140′	500′	295′
60		600′	660′	720′	60′	120′-150′	600′	350′
65		650′	715′	780′	65′	130′-165′	700′	410′
70		700′	770′	840′	70′	140′-175′	800′	475′
75		750′	825′	900′	75′	150′-185′	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
	✓	✓		

DEFINITIONS:
SHORT DURATION - work that occupies a location up to 1 hour.
SHORT TERM STATIONARY - daytime work that occupies a location for more than 1 hour within a single daylight period.

GENERAL NOTES:

1. The G20-2a "END ROAD WORK" sign may be omitted for short duration (less than 1 hour) work.
2. When median work is protected on one side by existing median barriers, signing and protection vehicle may be omitted for the protected direction only.
3. CW20-1D "ROAD WORK AHEAD" signs may be substituted for "SURVEY CREW AHEAD" signs.
⚠1 4. A Shadow Vehicle with a TMA and flashing warning lights/arrow panel in caution mode may be used in lieu of the Work Vehicle to protect the work space.
5. The CW21-6D "SURVEY CREW AHEAD" sign for low volume intersecting side roads is desirable, but is not required when working less than 15 minutes in area of the side road, as determined by the Engineer.
6. The CW21-6D "SURVEY CREW AHEAD" sign placed at 1000′ ahead of the work space is optional, at the discretion of the Engineer. The signs shown at 2600′ from the work space are required.
7. Cones may be placed at edge of pavement adjacent to the work space to enhance safety.

WHENEVER POSSIBLE, SURVEY PARTIES SHOULD AVOID, BY THE USE OF OFFSET LINES, ANY UNNECCESSARY PERIODS OF TIME ON THE ROAD SURFACE.

8-18-08 Revision
⚠1 Corrected misspelling.

Texas Department of Transportation
Traffic Operations Division

TRAFFIC CONTROL PLAN FOR SURVEYING OPERATIONS

TCP(S-4)-08A

REVISIONS
8-08

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

CONT	SECT	JOB	HIGHWAY
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DIST	COUNTY		SHEET NO.
ODA	ANDREWS		62

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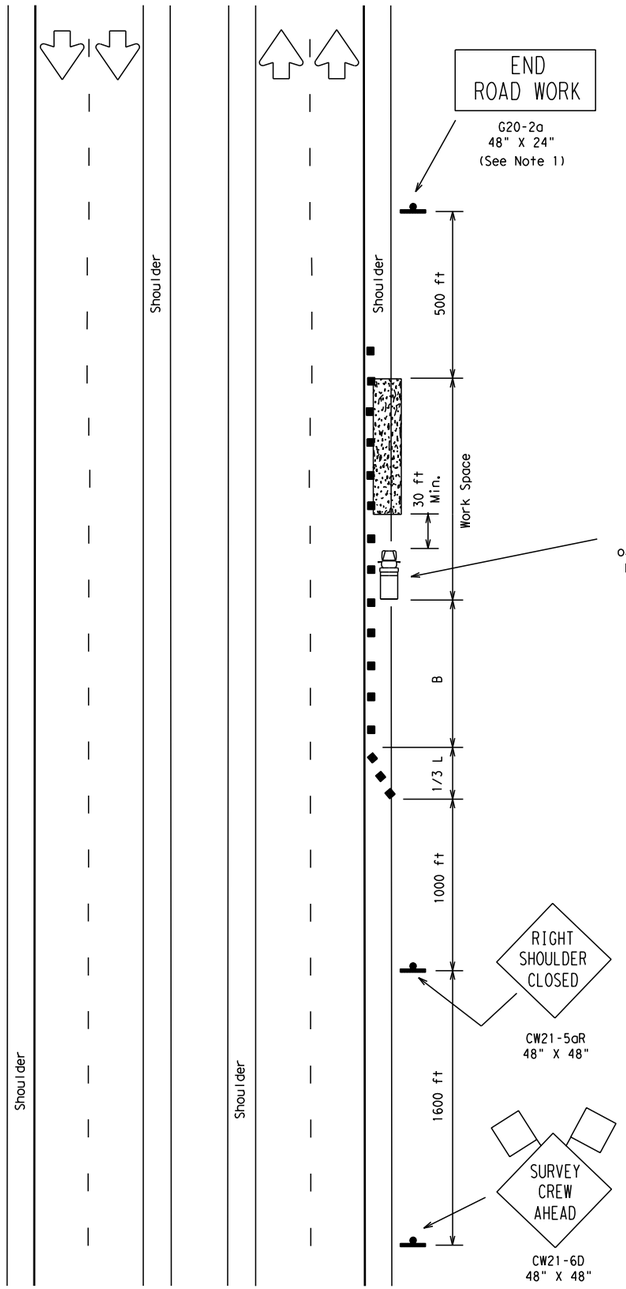
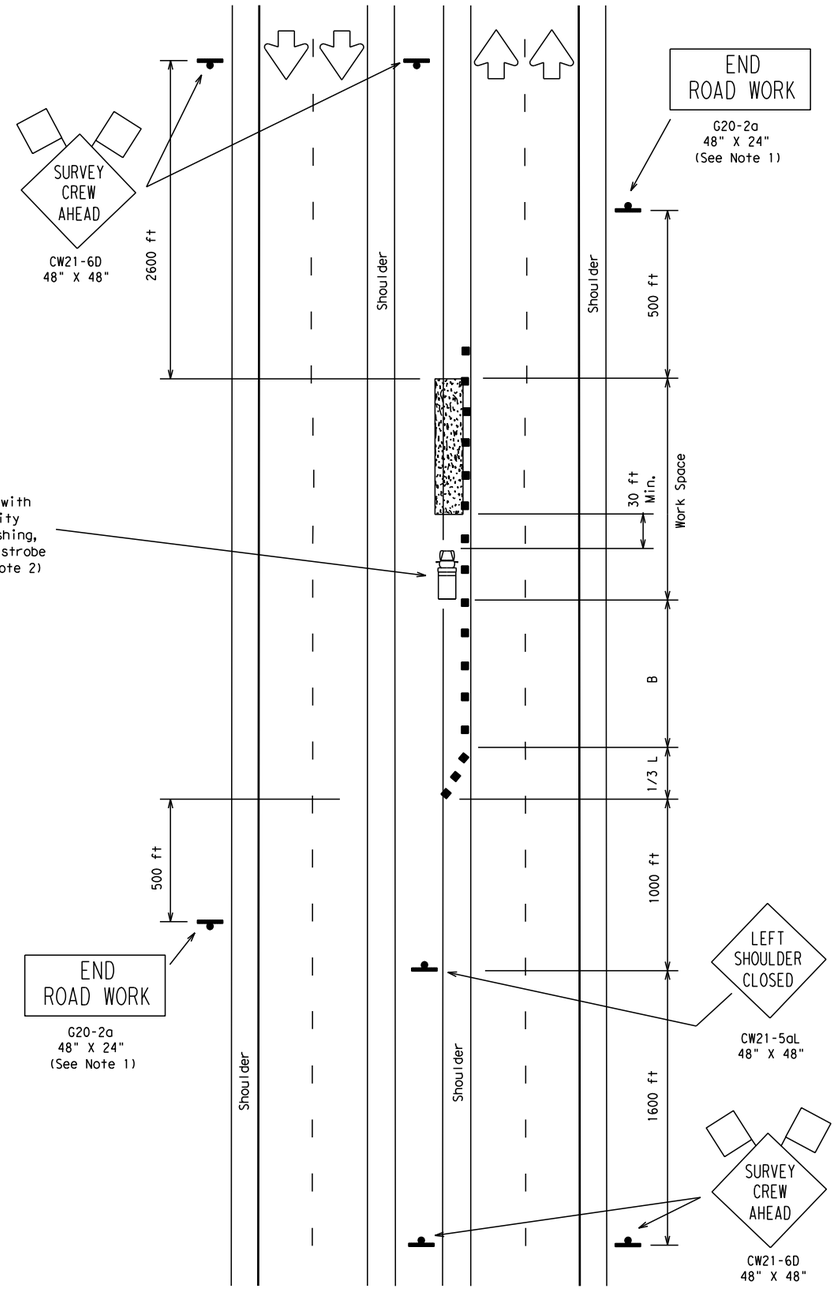


TCP (S-5a)
WORK ON RIGHT SHOULDER
OF DIVIDED ROADWAYS



TCP (S-5b)
WORK ON MEDIAN SHOULDER
OF DIVIDED ROADWAYS

WHENEVER POSSIBLE, SURVEY PARTIES SHOULD AVOID, BY THE USE OF OFFSET LINES, ANY UNNECCESSARY PERIODS OF TIME ON THE ROAD SURFACE.

LEGEND

Type III Barricade ■ ■ Channelizing Devices Flag
Heavy Work Vehicle Truck Mounted Attenuator (TMA)
Trailer Mounted Flashing Arrow Panel (M) Portable Changeable Message Sign (PCMS)
Flagger Sign Post

Posted Speed ✳	Formula	Minimum Desirable Taper Lengths ✳✳ 10′ Offset	11′ Offset	12′ Offset	Suggested Maximum Spacing of Device On a Taper	On a Tangent	Min. Sign Spacing "X" Distance	Longitudinal Buffer Space "B"
30	$L = \frac{WS^2}{60}$	150′	165′	180′	30′	60′-75′	120′	90′
35		205′	225′	245′	35′	70′-90′	160′	120′
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50		500′	550′	600′	50′	100′-125′	400′	240′
55		550′	605′	660′	55′	110′-140′	500′	295′
60		600′	660′	720′	60′	120′-150′	600′	350′
65		650′	715′	780′	65′	130′-165′	700′	410′
70		700′	770′	840′	70′	140′-175′	800′	475′
75		750′	825′	900′	75′	150′-185′	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
	✓	✓		

DEFINITIONS:
SHORT DURATION - work that occupies a location up to 1 hour.
SHORT TERM STATIONARY - daytime work that occupies a location for more than 1 hour within a single daylight period.

GENERAL NOTES:

1. The G20-2a "END ROAD WORK" sign may be omitted for short duration (less than 1 hour) work.
2. For short duration work, the Shadow Vehicle with TMA may be replaced by another Work Vehicle with high intensity rotating, flashing or strobe lights.
3. Shadow Vehicles with a TMA are desirable when workers or equipment are in the work space. When approved by the engineer, Type III barricades or other channelizing devices may be substituted for the Shadow Vehicle.
4. If shoulders are not present, the 1/3L shoulder taper is to be omitted and four channelizing devices shall be placed in front of the arrow panel, perpendicular to traffic.
5. CW20-1D "ROAD WORK AHEAD" signs may be substituted for CW21-6D "SURVEY CREW AHEAD" signs.
6. The CW21-6D "SURVEY CREW AHEAD" sign for low volume intersecting side roads is desirable, but is not required when working less than 15 minutes in area of the side road, as determined by the Engineer.

Texas Department of Transportation
Traffic Operations Division

TRAFFIC CONTROL PLAN FOR SURVEYING OPERATIONS

TCP(S-5)-08

REVISIONS

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

CONT	SECT	JOB	HIGHWAY
0228	04	043,ETC	US 385,ETC

DIST	COUNTY	SHEET NO.
ODA	ANDREWS	63

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DATE: 5/28/2020 4:53:37 PM
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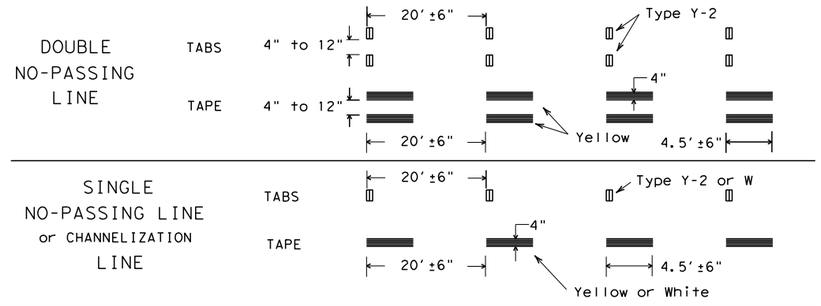
WORK ZONE SHORT TERM PAVEMENT MARKINGS DETAILS



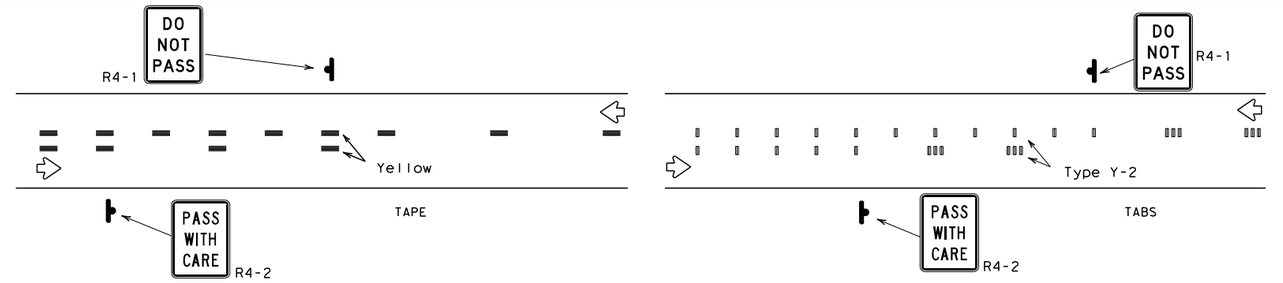
NOTES:

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

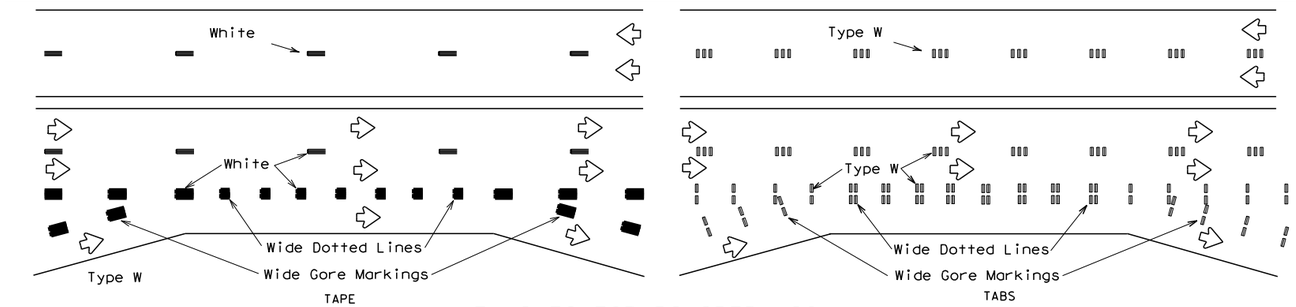
TEMPORARY FLEXIBLE, REFLECTIVE ROADWAY MARKER TABS (TABS)

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

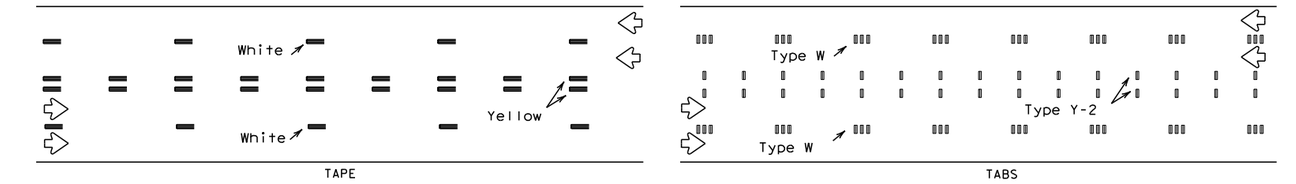
WORK ZONE SHORT TERM PAVEMENT MARKINGS PATTERNS



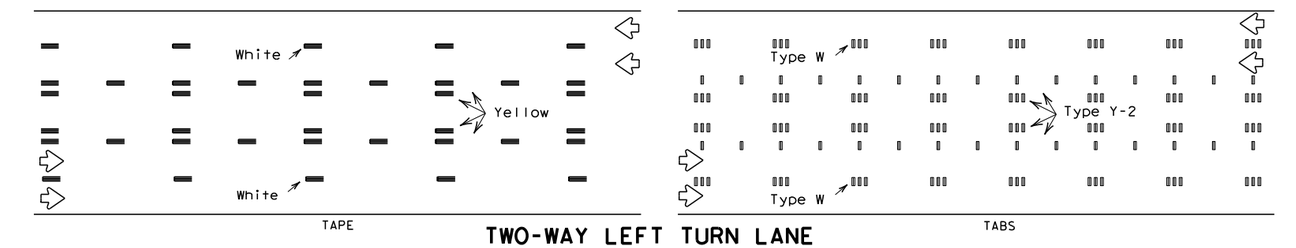
CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO LANE TWO-WAY HIGHWAYS



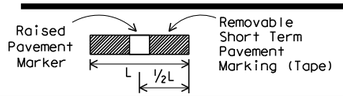
LANE LINES FOR DIVIDED HIGHWAY



LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



TWO-WAY LEFT TURN LANE



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

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

RAISED PAVEMENT MARKERS

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

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

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

Texas Department of Transportation

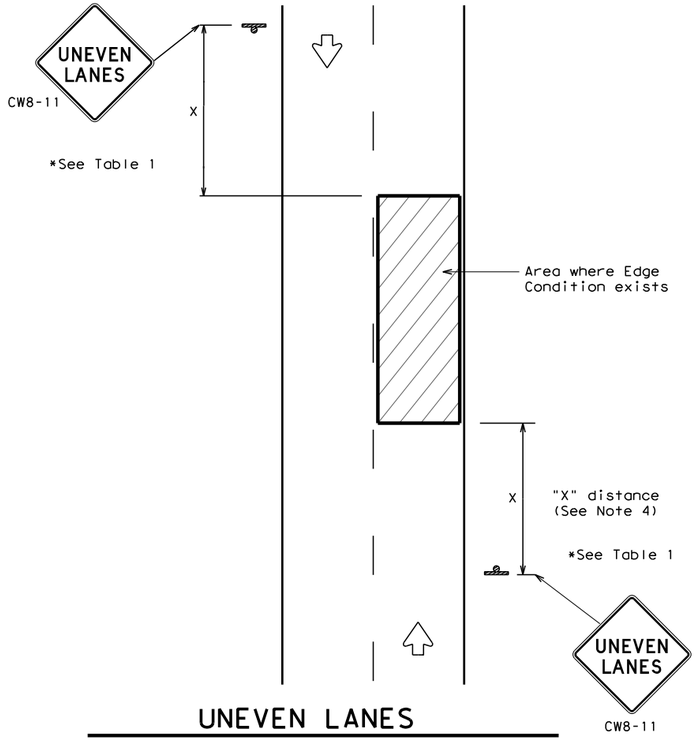
Traffic Operations Division Standard

WORK ZONE SHORT TERM PAVEMENT MARKINGS

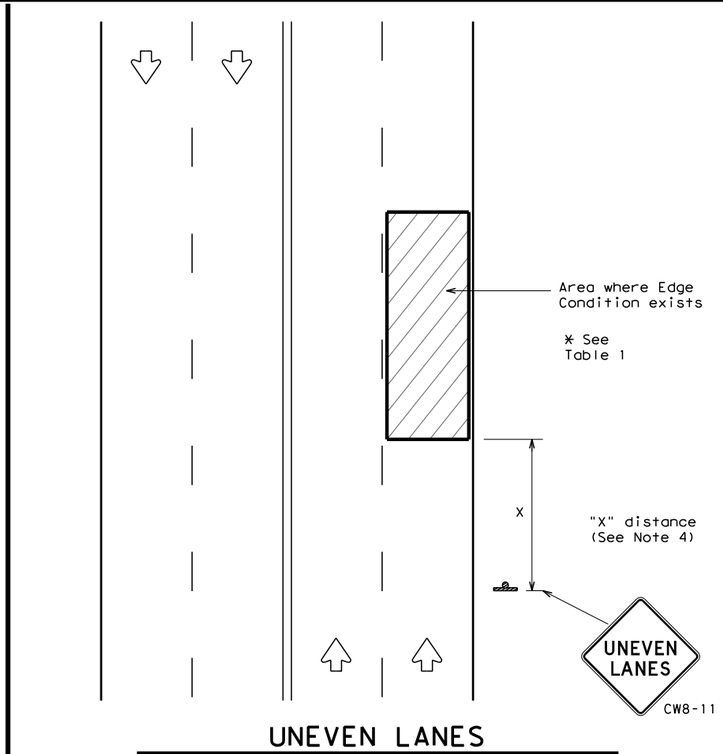
WZ(STPM)-13

FILE:	wzstpm-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT	April 1992	CONT	SECT	JOB	HIGHWAY
REVISIONS		0228	04	043,ETC	US 385,ETC
1-97		DIST	COUNTY		SHEET NO.
3-03		ODA	ANDREWS		64
7-13					

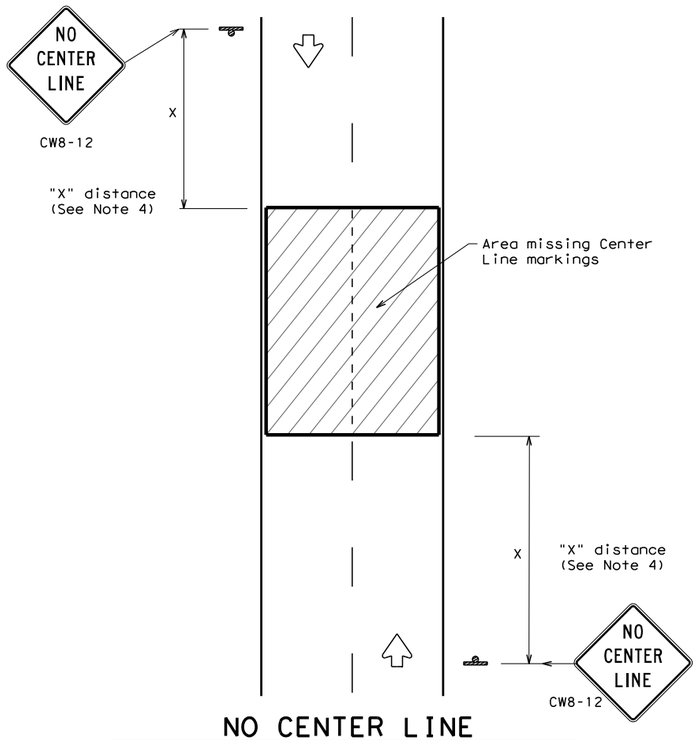
111



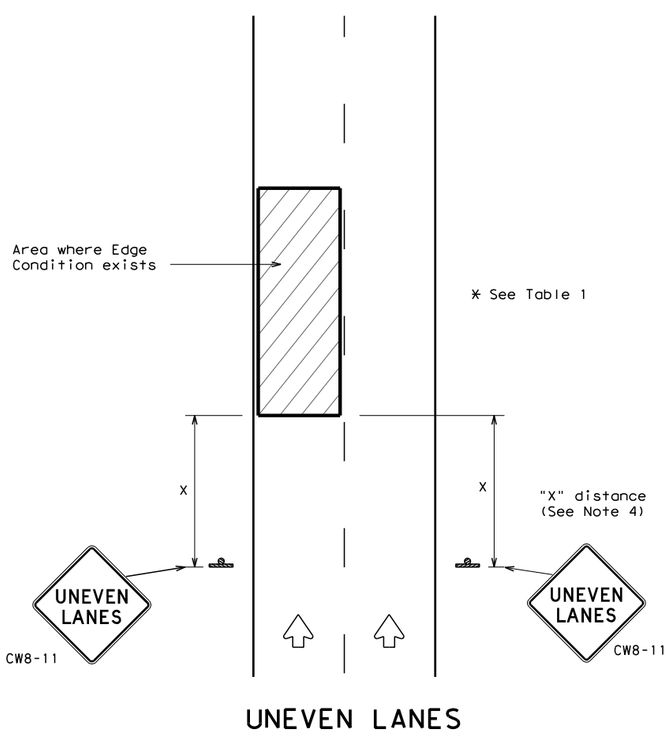
UNEVEN LANES
TWO LANE CONVENTIONAL ROAD



UNEVEN LANES
FOUR LANE CONVENTIONAL ROAD



NO CENTER LINE
TWO LANE CONVENTIONAL ROAD



UNEVEN LANES
DIVIDED ROADWAY

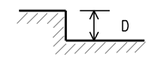
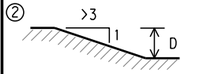
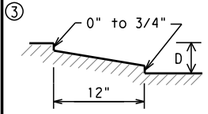
DEPARTMENTAL MATERIAL SPECIFICATIONS	
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240
TEMPORARY (REMOVABLE) PREFABRICATED PAVEMENT MARKINGS	DMS-8241
SIGN FACE MATERIALS	DMS-8300

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

GENERAL NOTES

1. 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.
2. 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.
3. 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.
4. Signs shall be spaced at the distances recommended as per BC standards.
5. 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."
6. 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.
7. Short term markings shall not be used to simulate edge lines.
8. 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: 1¼" (maximum-planing) 1½" (typical-overlay)	Sign: CW8-11
	Distance "D" may be a maximum of 1 1/4 " for planing operations and 2" for overlay operations if uneven lanes with edge condition 1 are open to traffic after work operations cease.	
② 	Less than or equal to 3"	Sign: CW8-11
③  Notched Wedge Joint	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"

Texas Department of Transportation

Traffic Operations Division Standard

SIGNING FOR UNEVEN LANES

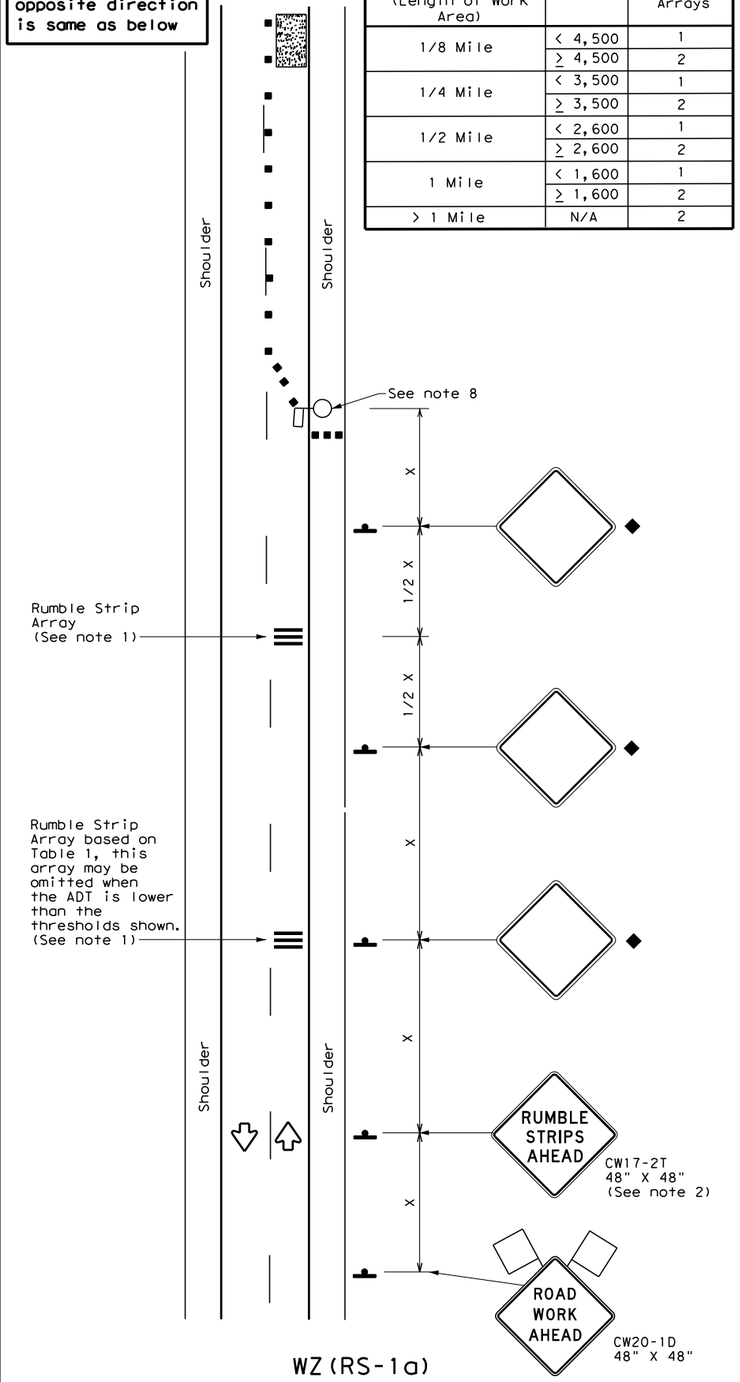
WZ(UL)-13

FILE: wzul-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT April 1992	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043,ETC	US 385,ETC
8-95 2-98 7-13	DIST	COUNTY		SHEET NO.
1-97 3-03	ODA	ANDREWS		65

112

DATE: 5/28/2020 4:53:38 PM
FILE: I:\TYL\CADD\TxDOT CAD Standards\WZUL-13.dgn

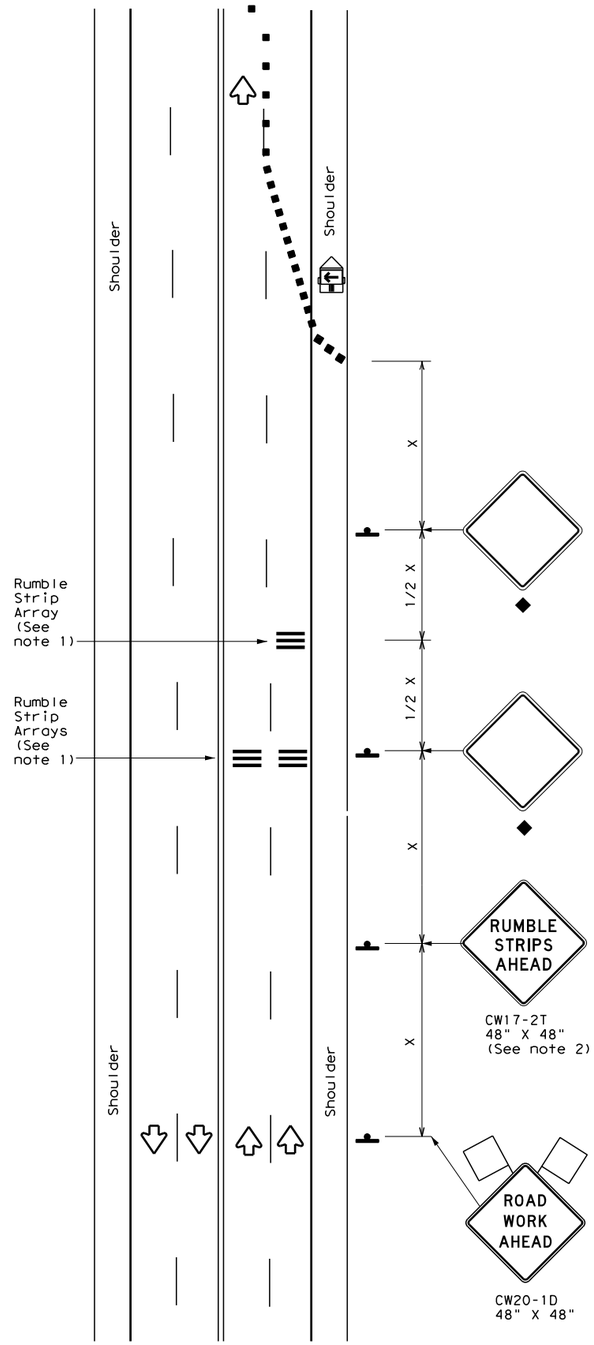
Warning sign and rumble strip sequence in opposite direction is same as below



WZ(RS-1a)
75 mph or Less

RUMBLE STRIPS ON ONE-LANE TWO-WAY APPLICATION

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



WZ(RS-1b)
75 mph or Less

RUMBLE STRIPS FOR LANE CLOSURE ON CONVENTIONAL ROADWAY

GENERAL NOTES

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

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

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

* Conventional Roads Only

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

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

◆ **Signs are for illustrative purposes only. Signs required may vary depending on the TCP, TMUTCD Typical Application, or project specific details for the project.**

TABLE 2	
Speed	Approximate distance between strips in an Array
≤ 40 MPH	10'
> 40 MPH & ≤ 55 MPH	15'
> 55 MPH	20'

Texas Department of Transportation

Traffic Operations Division Standard

TEMPORARY RUMBLE STRIPS

WZ(RS)-16

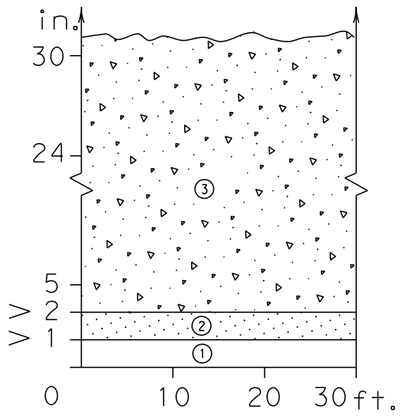
FILE:	wzrs16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT	November 2012	CONT	SECT	JOB	HIGHWAY
REVISIONS		0228	04	043,ETC	US 385,ETC
2-14		DIST	COUNTY		SHEET NO.
4-16		ODA	ANDREWS		66

DATE: 5/28/2020 4:53:38 PM
FILE: I:\TYL\CADD\TxDOT CAD Standards\WZRS16.dgn

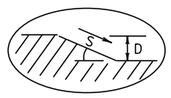
DATE:
FILE:

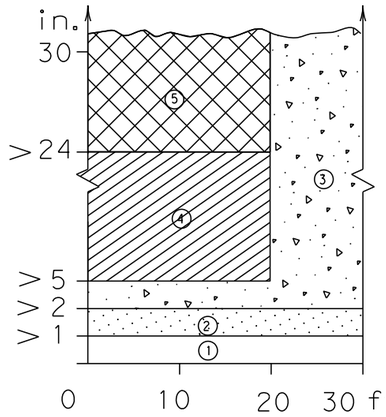
DEFINITION OF TREATMENT ZONES FOR VARIOUS EDGE CONDITIONS

Edge Height (D) in Inches versus Lateral Clearance (Y) in Feet

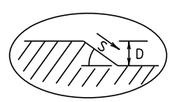


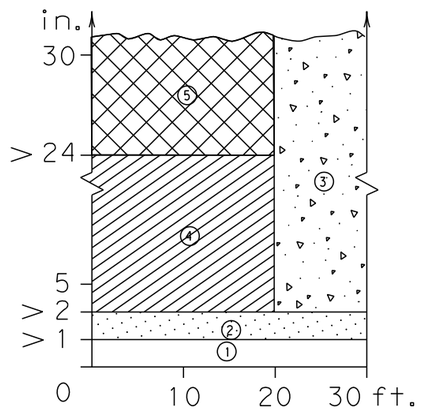
Edge Condition I
S = (3:1) (or flatter)



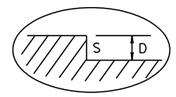


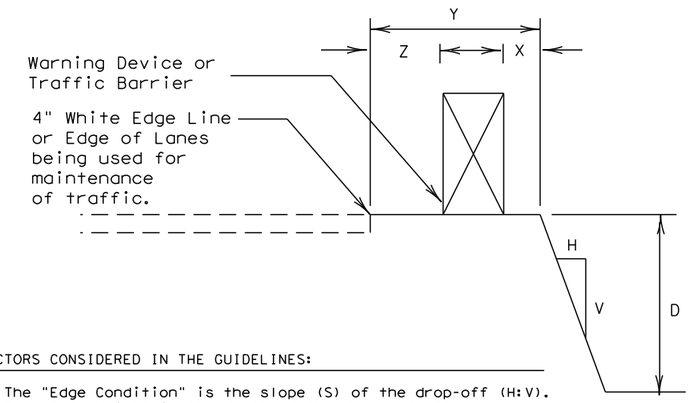
Edge Condition II
S = ((2.99):1) to (1:1)





Edge Condition III
S is steeper than (1:1)





FACTORS CONSIDERED IN THE GUIDELINES:

1. The "Edge Condition" is the slope (S) of the drop-off (H:V). The "Edge Height is the depth of the drop-off "D".

2. Distance "X" is to be the maximum practical under job conditions. Two feet minimum for high speed conditions. Distance "Y" is the lateral clearance from edge of travel lane to edge of dropoff. Distance "Z" does not have a minimum.

3. In addition to the factors considered in the guidelines, each construction zone drop-off situation should be analyzed individually, taking into account other variables, such as: traffic mix, posted speed in the construction zone, horizontal curvature, and the practicality of the treatment options.

4. The conditions for indicating the use of positive or protective barriers are given by Zone-5 and Figure-1. Traffic barriers are primarily applicable for high speed conditions. Urban areas with speeds of 30 mph or less may have a lesser need for signing, delineation, and barriers. Right-angled edges, however, with "D" greater than 2 inches and located within a lateral offset of 6 feet, may indicate a higher level of treatment.

5. If the distance "Y" must be less than 3 feet, the use of a positive barrier may not be feasible. In such a case, consider either: 1) narrowing the lanes to a desired 11 to 12 feet or 10 foot minimum (see CW20-8 sign), or 2) provide an edge slope such as Edge Condition I.

Zone	Treatment Types Guidelines:
①	No treatment.
②	CW 8-11 "Uneven Lanes" signs.
③	CW 8-9a "Shoulder Drop-Off" or CW 8-11 signs plus vertical panels.
④	CW 8-9a or CW 8-11, signs plus drums. Where restricted space precludes the use of drums, use vertical panels. An edge fill may be provided to change the edge slope to that of the preferable Edge Condition I.
⑤	Check indications (Figure-1) for positive barrier. Where positive barrier is not indicated, the treatment shown above for Zone- 4 may be used after consideration of other applicable factors.

Edge Condition Notes:

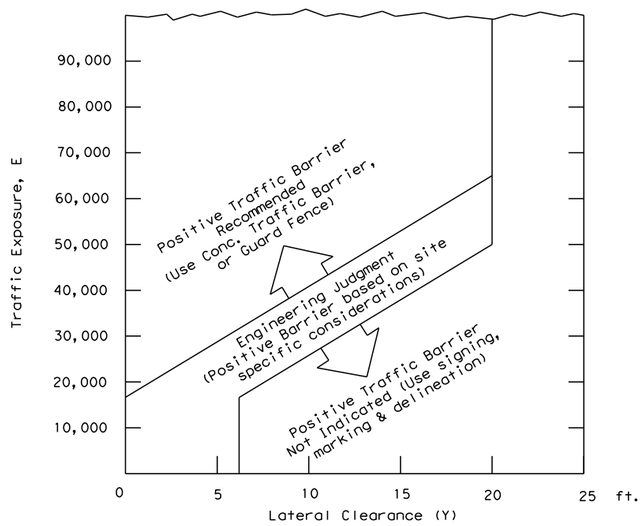
1. Edge Condition I: Most vehicles are able to traverse an edge condition with a slope rate of (3 to 1) or flatter. The slope must be constructed with a compacted material capable of supporting vehicles.

2. Edge Condition II: Most vehicles are able to traverse an edge condition with a slope between (2.99 to 1) and (1to 1) so long as "D" does not exceed 5 inches. Under-carriage drag on most automobiles will occur when "D" exceeds 6 inches. As "D" exeeds 24 inches, the possibility for rollover is greater in most vehicles.

3. Edge Condition III: When slopes are greater than (1 to 1) and where "D" is greater than 2 inches, a more difficult control factor may exist for some vehicles, if not properly treated. For example, where "D" is greater than 2 inches and up to 24 inches different types of vehicles may experience different steering control at different edge heights. Automobiles might experience more steering control differential when "D" is greater than 2 inches and up to 5 inches. Trucks, particularly those with high loads, have more steering control differential when "D" is greater than 5 inches and up to 24 inches. When "D" exceeds 24 inches, the possibility of rollover is greater for most vehicles.

4. Milling or overlay operations that result in Edge Condition III should not be in place without appropriate warning treatments, and these conditions should not be left in place for extended periods of time.

FIGURE-1: CONDITIONS INDICATING USE OF POSITIVE BARRIER FOR ZONE 5 (▨)



1 E = ADT x T
Where ADT is that portion of the average daily traffic volume traveling within 20 feet (generally two adjacent lanes) of the edge dropoff condition; and, T is the duration time in years of the dropoff condition.

2 Figure-1 provides a practical approach to the use of positive barriers for the protection of vehicles from pavement drop-offs. Other factors, such as the presence of heavy machinery, construction workers, or the mix and volume of traffic may make the use of positive barriers appropriate, even when the edge condition alone may not justify the use of a barrier.

3 An approved end treatment should be provided for any positive barrier end located within a lateral offset of 20 feet from the edge of the travel lane.

These guidelines apply to temporary traffic control areas or work zones where continuous pavement edges or drop-offs exists parallel and adjacent to a lane used by traffic. The edge conditions may be present between shoulders and travel lanes, between adjacent or opposing travel lanes, or at intermediate points across the width of the paved surface. Due to the variability in construction operations, tolerances in the variables may be allowed by the engineer. These guidelines do not apply to short term operations. These guidelines do not constitute a rigid standard or policy; rather, they are guidance to be used in conjunction with engineering judgement. These guidelines may be updated on the Design Division's on-line manuals.

Engineer's Seal

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED
PROFESSIONAL ENGINEER

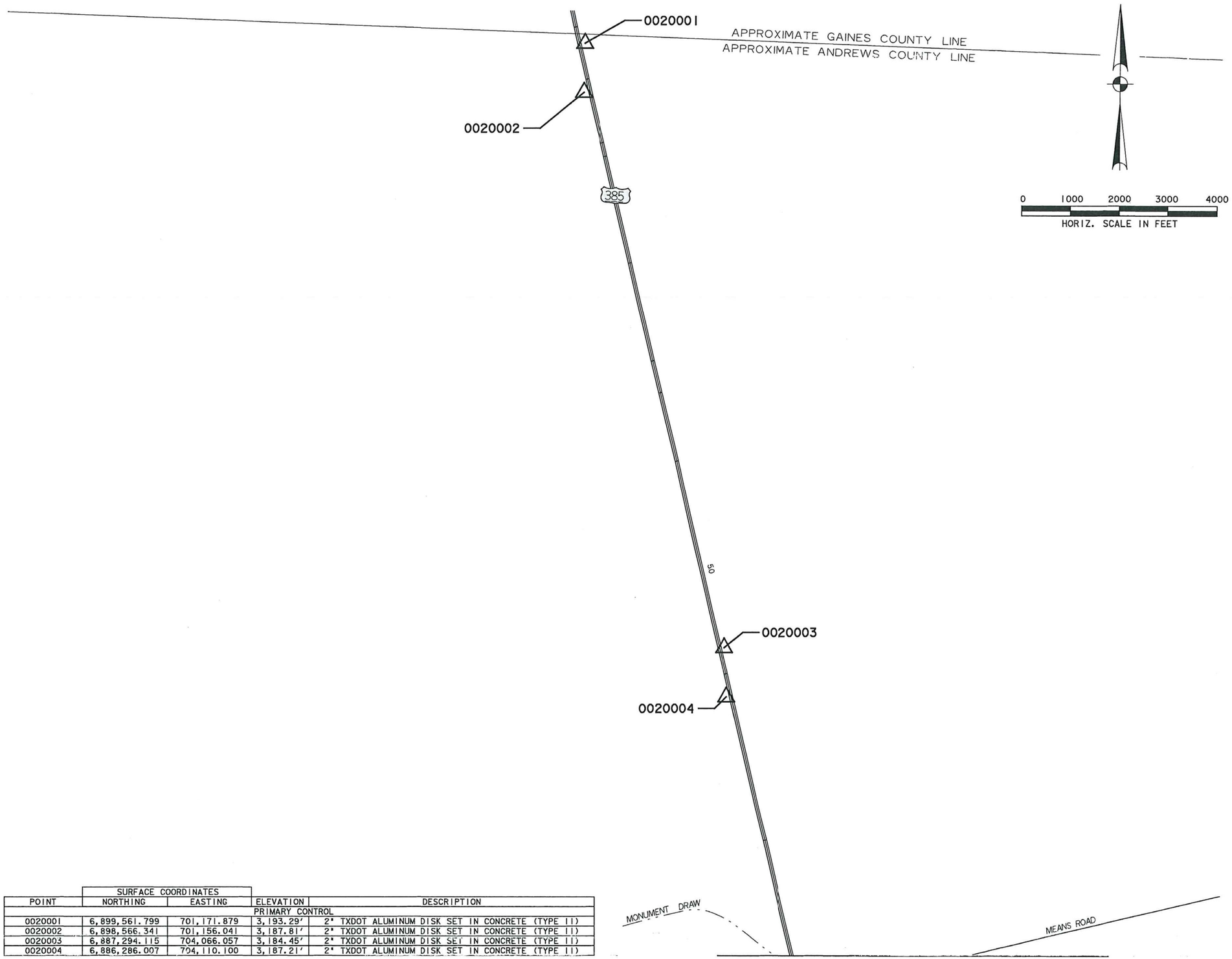
Date 05/28/2020

P.E.

Texas Department of Transportation
Traffic Operations Division

TREATMENT FOR VARIOUS EDGE CONDITIONS

REVISIONS	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
03-01	CONT	SECT	JOB	HIGHWAY
08-01 correct typos	0228	04	043,ETC	US 385,ETC
	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		67



POINT	SURFACE COORDINATES NORTHING	SURFACE COORDINATES EASTING	ELEVATION	DESCRIPTION
PRIMARY CONTROL				
0020001	6,899,561.799	701,171.879	3,193.29'	2" TXDOT ALUMINUM DISK SET IN CONCRETE (TYPE II)
0020002	6,898,566.341	701,156.041	3,187.81'	2" TXDOT ALUMINUM DISK SET IN CONCRETE (TYPE II)
0020003	6,887,294.115	704,066.057	3,184.45'	2" TXDOT ALUMINUM DISK SET IN CONCRETE (TYPE II)
0020004	6,886,286.007	704,110.100	3,187.21'	2" TXDOT ALUMINUM DISK SET IN CONCRETE (TYPE II)

MATCHLINE SHEET 2 OF 8

NOTES:

HORIZONTAL COORDINATES ARE IN U.S. SURVEY FEET BASED ON THE TEXAS COORDINATE SYSTEM OF 1983, NORTH CENTRAL ZONE 4202, NORTH AMERICAN DATUM OF 1983 (NAD83) (2011 ADJ.), EPOCH 2010.00, GEOID 12A MODEL, WITH A GRID TO SURFACE ADJUSTMENT FACTOR OF 1.000210 (ANDREWS COUNTY). PRIMARY CONTROL VALUES ARE DERIVED FROM LEVEL 3 TXDOT RTN GPS OBSERVATIONS. ELEVATIONS ARE IN U.S. SURVEY FEET BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) DERIVED FROM LEVEL 3 TXDOT RTN GPS OBSERVATIONS.

I, THE UNDERSIGNED, A REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF TEXAS, DO HEREBY CERTIFY THAT THE COORDINATE AND ELEVATION INFORMATION SHOWN WERE DERIVED FROM A SURVEY MADE ON THE GROUND UNDER MY SUPERVISION.

STATE OF TEXAS
REGISTERED
HEATH W. BROWN
6189
PROFESSIONAL
LAND SURVEYOR

Heath W. B 7-30-2019

HEATH W. BROWN
RPLS NO. 6189

DATE

NO.	REVISIONS	BY	DATE

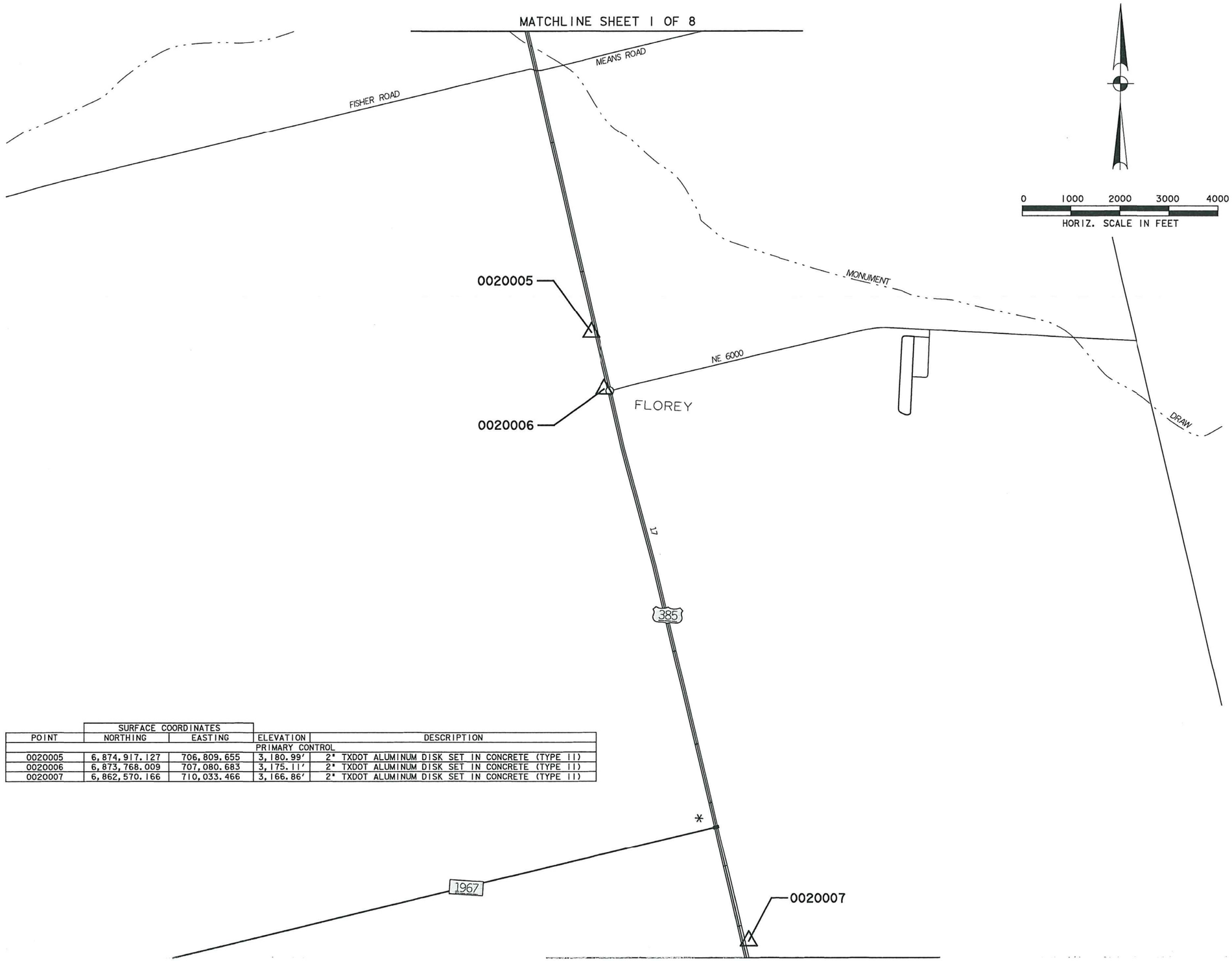
ARREDONDO, ZEPEDA & BRUNZ, LLC
11355 McCree Road - Dallas, Texas 75238
(214) 341-9900
FIRM REGISTRATION No. F-10098
TBPLS REGISTRATION No. 10068700

Texas Department of Transportation

SURVEY CONTROL INDEX SHEET

SHEET 1 OF 4

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		SHEET NO.
6			68
STATE	DISTRICT	COUNTY	
TEXAS	ODESSA	ANDREWS	
CONTROL	SECTION	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.



POINT	SURFACE COORDINATES NORTHING	EASTING	ELEVATION	DESCRIPTION
			PRIMARY CONTROL	
0020005	6,874,917.127	706,809.655	3,180.99'	2" TXDOT ALUMINUM DISK SET IN CONCRETE (TYPE II)
0020006	6,873,768.009	707,080.683	3,175.11'	2" TXDOT ALUMINUM DISK SET IN CONCRETE (TYPE II)
0020007	6,862,570.166	710,033.466	3,166.86'	2" TXDOT ALUMINUM DISK SET IN CONCRETE (TYPE II)

NOTES:

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HEATH W. BROWN
6189
PROFESSIONAL
LAND SURVEYOR

Heath W. B 7-30-2019

HEATH W. BROWN DATE
RPLS NO. 6189

NO.	REVISIONS	BY	DATE

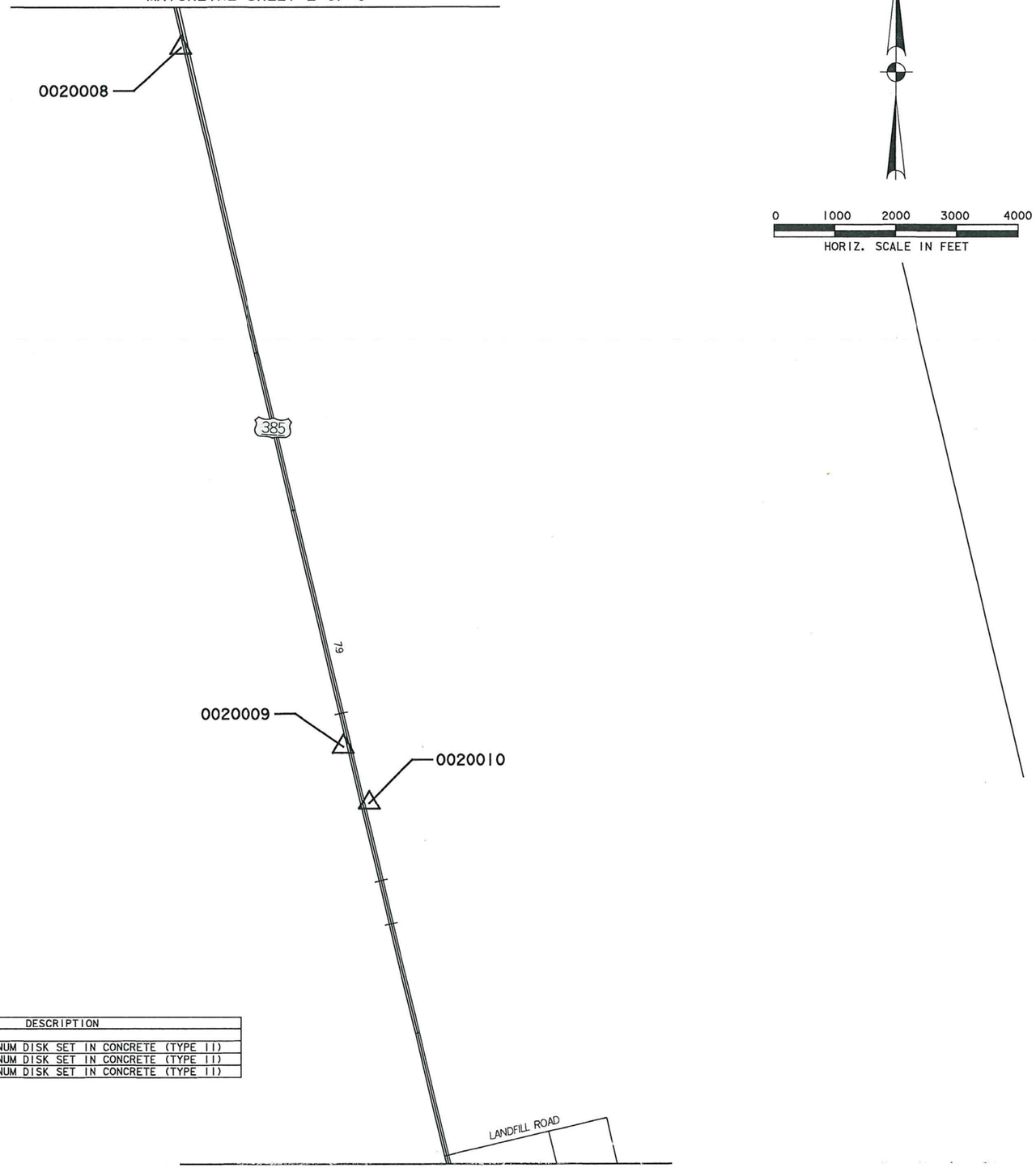
AZ&B
ARREDONDO, ZEPEDA & BRUNZ, LLC
11355 McCree Road - Dallas, Texas 75238
(214) 341-9900
FIRM REGISTRATION No. F-10098
TBPLS REGISTRATION No. 10088700

Texas Department of Transportation

SURVEY CONTROL INDEX SHEET

SHEET 2 OF 4

FED.RD. DIV. NO.	FEDERAL AID PROJECT NO.		SHEET NO.
6			69
STATE	DISTRICT	COUNTY	
TEXAS	ODESSA	ANDREWS	
CONTROL	SECTION	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.



POINT	SURFACE COORDINATES NORTHING	SURFACE COORDINATES EASTING	ELEVATION	DESCRIPTION
PRIMARY CONTROL				
0020008	6,861,574.120	710,067.730	3,171.73'	2" TXDOT ALUMINUM DISK SET IN CONCRETE (TYPE II)
0020009	6,850,222.374	712,757.721	3,198.26'	2" TXDOT ALUMINUM DISK SET IN CONCRETE (TYPE II)
0020010	6,849,311.332	713,182.596	3,175.38'	2" TXDOT ALUMINUM DISK SET IN CONCRETE (TYPE II)

NOTES:

HORIZONTAL COORDINATES ARE IN U.S. SURVEY FEET BASED ON THE TEXAS COORDINATE SYSTEM OF 1983, NORTH CENTRAL ZONE 4202, NORTH AMERICAN DATUM OF 1983 (NAD83) (2011 ADJ.), EPOCH 2010.00, GEOID 12A MODEL, WITH A GRID TO SURFACE ADJUSTMENT FACTOR OF 1.000210 (ANDREWS COUNTY). PRIMARY CONTROL VALUES ARE DERIVED FROM LEVEL 3 TXDOT RTN GPS OBSERVATIONS. ELEVATIONS ARE IN U.S. SURVEY FEET BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) DERIVED FROM LEVEL 3 TXDOT RTN GPS OBSERVATIONS.

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HEATH W. BROWN
RPLS NO. 6189

DATE

NO.	REVISIONS	BY	DATE

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11355 McCree Road - Dallas, Texas 75238
(214) 341-9900
FIRM REGISTRATION No. F-10098
TBPLS REGISTRATION No. 10088700

Texas Department of Transportation

SURVEY CONTROL INDEX SHEET

SHEET 3 OF 4

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		SHEET NO.
6			70
STATE	DISTRICT	COUNTY	
TEXAS	ODESSA	ANDREWS	
CONTROL	SECTION	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

POINT	SURFACE COORDINATES NORTHING	SURFACE COORDINATES EASTING	ELEVATION	DESCRIPTION
			PRIMARY CONTROL	
0020011	6,838,298.368	715,631.604	3,164.04'	2" TXDOT ALUMINUM DISK SET IN CONCRETE (TYPE II)
0020012	6,837,385.701	716,049.531	3,170.26'	2" TXDOT ALUMINUM DISK SET IN CONCRETE (TYPE II)
0020013	6,826,047.231	718,543.085	3,181.71'	MAG NAIL WITH SHINER SET IN ASPHALT
0020014	6,825,042.589	718,686.525	3,175.82'	MAG NAIL WITH SHINER SET IN BRICK PAVERS

NOTES:

HORIZONTAL COORDINATES ARE IN U.S. SURVEY FEET BASED ON THE TEXAS COORDINATE SYSTEM OF 1983, NORTH CENTRAL ZONE 4202, NORTH AMERICAN DATUM OF 1983 (NAD83) (2011 ADJ.), EPOCH 2010.00, GEOID 12A MODEL, WITH A GRID TO SURFACE ADJUSTMENT FACTOR OF 1.000210 (ANDREWS COUNTY). PRIMARY CONTROL VALUES ARE DERIVED FROM LEVEL 3 TXDOT RTN GPS OBSERVATIONS. ELEVATIONS ARE IN U.S. SURVEY FEET BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) DERIVED FROM LEVEL 3 TXDOT RTN GPS OBSERVATIONS.

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TBPLS REGISTRATION No. 10088700

Texas Department of Transportation

SURVEY CONTROL INDEX SHEET

SHEET 4 OF 4

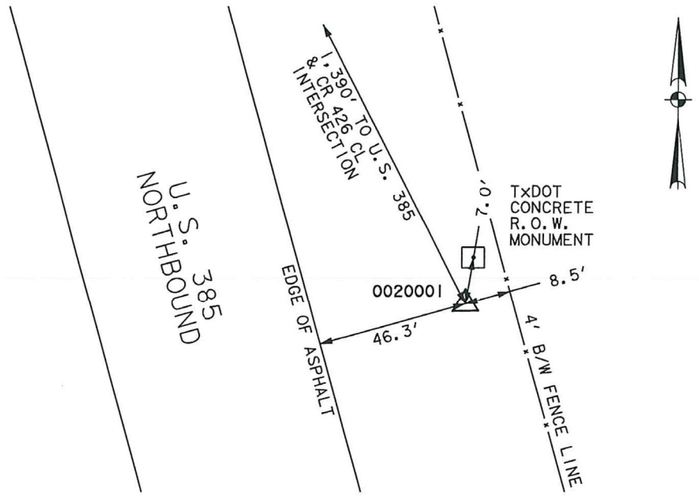
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		SHEET NO.
6			71
STATE	DISTRICT	COUNTY	
TEXAS	ODESSA	ANDREWS	
CONTROL	SECTION	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

CONTROL POINT 0020001

APPROXIMATE LOCATION:

A 2" TXDOT ALUMINUM DISK STAMPED "0020001", SET IN CONCRETE (TYPE II) LOCATED APPROXIMATELY 1,390' SOUTHEAST OF THE CENTERLINE INTERSECTION OF THE U.S. 385 NORTHBOUND AND CR 426, 7.0' SOUTHWEST OF TxDOT CONCRETE R.O.W. MONUMENT, 8.5' SOUTHWEST OF A 4' BARBED WIRE FENCE LINE AND 46.3' NORTHEAST OF AN EDGE OF ASPHALT.

SKETCH
(NOT TO SCALE)



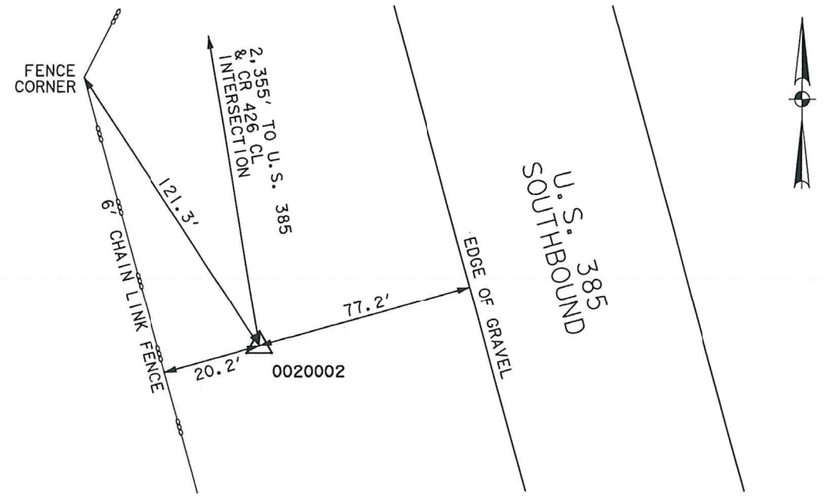
GRID NORTHING:	6,898,113.195	SURFACE NORTHING:	6,899,561.799
GRID EASTING:	701,024.664	SURFACE EASTING:	701,171.879
NAVD88 ELEVATION:	3,193.29'	NAVD88 ELEVATION:	3,193.29'

CONTROL POINT 0020002

APPROXIMATE LOCATION:

A 2" TXDOT ALUMINUM DISK STAMPED "0020002", SET IN CONCRETE (TYPE II) LOCATED APPROXIMATELY 2,355' SOUTHEAST OF THE CENTERLINE INTERSECTION OF THE U.S. 385 SOUTHBOUND AND CR 426, 77.2' SOUTHWEST OF AN EDGE OF GRAVEL, 20.2' NORTHEAST OF A 6' CHAIN LINK FENCE AND 121.3' SOUTHEAST OF A FENCE CORNER.

SKETCH
(NOT TO SCALE)



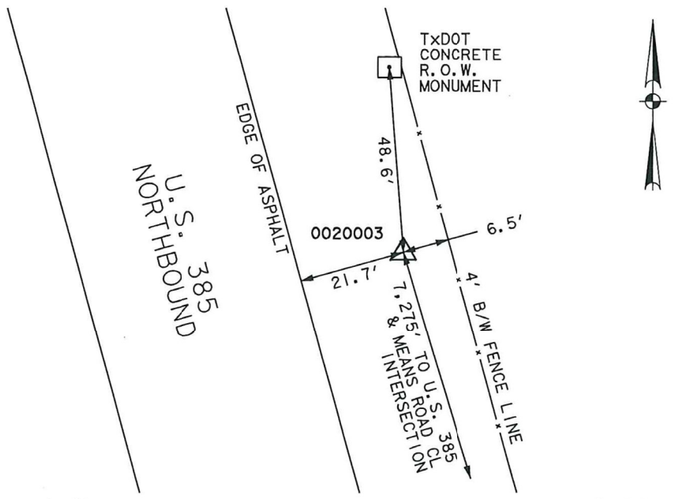
GRID NORTHING:	6,897,117.947	SURFACE NORTHING:	6,898,566.341
GRID EASTING:	701,008.830	SURFACE EASTING:	701,156.041
NAVD88 ELEVATION:	3,187.81'	NAVD88 ELEVATION:	3,187.81'

CONTROL POINT 0020003

APPROXIMATE LOCATION:

A 2" TXDOT ALUMINUM DISK STAMPED "0020003", SET IN CONCRETE (TYPE II) LOCATED APPROXIMATELY 7,275' NORTHWEST OF THE CENTERLINE INTERSECTION OF THE U.S. 385 NORTHBOUND AND MEANS ROAD, 21.7' NORTHEAST OF AN EDGE OF ASPHALT, 48.6' SOUTH OF TxDOT CONCRETE R.O.W. MONUMENT AND 6.5' SOUTHWEST OF A 4' BARBED WIRE FENCE LINE.

SKETCH
(NOT TO SCALE)



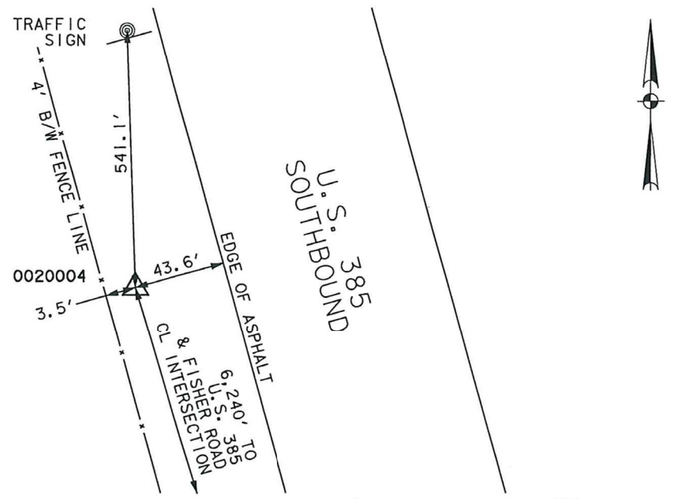
GRID NORTHING:	6,885,848.087	SURFACE NORTHING:	6,887,294.115
GRID EASTING:	703,918.234	SURFACE EASTING:	704,066.057
NAVD88 ELEVATION:	3,184.45'	NAVD88 ELEVATION:	3,184.45'

CONTROL POINT 0020004

APPROXIMATE LOCATION:

A 2" TXDOT ALUMINUM DISK STAMPED "0020004", SET IN CONCRETE (TYPE II) LOCATED APPROXIMATELY 6,240' NORTHWEST OF THE CENTERLINE INTERSECTION OF THE U.S. 385 SOUTHBOUND AND FISHER ROAD, 3.5' NORTHEAST OF A 4' BARBED WIRE FENCE LINE, 541.1' SOUTHWEST OF A TRAFFIC SIGN AND 43.6' SOUTHWEST OF AN EDGE OF ASPHALT.

SKETCH
(NOT TO SCALE)



GRID NORTHING:	6,884,840.191	SURFACE NORTHING:	6,886,286.007
GRID EASTING:	703,962.268	SURFACE EASTING:	704,110.100
NAVD88 ELEVATION:	3,187.21'	NAVD88 ELEVATION:	3,187.21'

NOTES:

HORIZONTAL COORDINATES ARE IN U.S. SURVEY FEET BASED ON THE TEXAS COORDINATE SYSTEM OF 1983, NORTH CENTRAL ZONE 4202, NORTH AMERICAN DATUM OF 1983 (NAD83) (2011 ADJ.), EPOCH 2010.00, GEOID 12A MODEL, WITH A GRID TO SURFACE ADJUSTMENT FACTOR OF 1.000210 (ANDREWS COUNTY). PRIMARY CONTROL VALUES ARE DERIVED FROM LEVEL 3 TXDOT RTN GPS OBSERVATIONS. ELEVATIONS ARE IN U.S. SURVEY FEET BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) DERIVED FROM LEVEL 3 TXDOT RTN GPS OBSERVATIONS.

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STATE OF TEXAS
REGISTERED
HEATH W. BROWN
6189
PROFESSIONAL
LAND SURVEYOR

Heath W. B 7-30-2019

HEATH W. BROWN
RPLS NO. 6189
DATE

NO.	REVISIONS	BY	DATE

AZ&B
ARREDONDO, ZEPEDA & BRUNZ, LLC
11355 McCree Road - Dallas, Texas 75238
(214) 341-9900
FIRM REGISTRATION No. F-10008
TBPLS REGISTRATION No. 10068700

Texas Department of Transportation

HORIZONTAL AND VERTICAL CONTROL SHEET

SHEET 1 OF 4

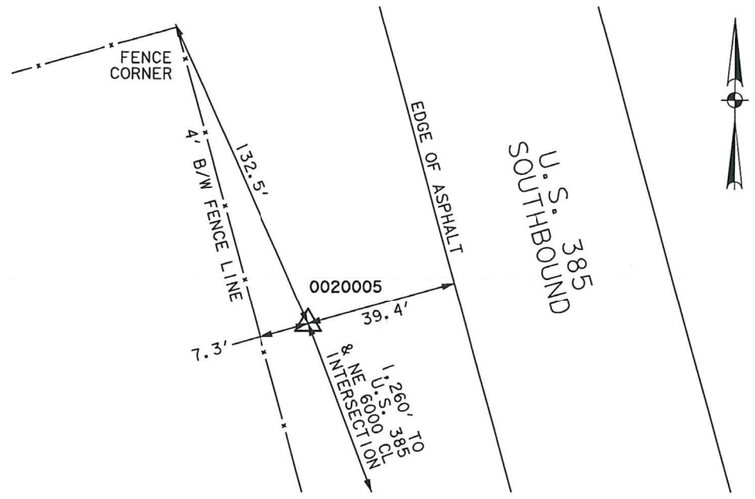
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		SHEET NO.
6			72
STATE	DISTRICT	COUNTY	
TEXAS	ODESSA	ANDREWS	
CONTROL	SECTION	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

CONTROL POINT 0020005

APPROXIMATE LOCATION:

A 2" TXDOT ALUMINUM DISK STAMPED "0020005", SET IN CONCRETE (TYPE II) LOCATED APPROXIMATELY 1,260' NORTHWEST OF THE CENTERLINE INTERSECTION OF THE U.S. 385 SOUTHBOUND AND NE 6000, 7.3' NORTHEAST OF A 4' BARBED WIRE FENCE LINE, 132.5' SOUTHEAST OF A FENCE CORNER AND 39.4' SOUTHWEST OF AN EDGE OF ASPHALT.

SKETCH
(NOT TO SCALE)



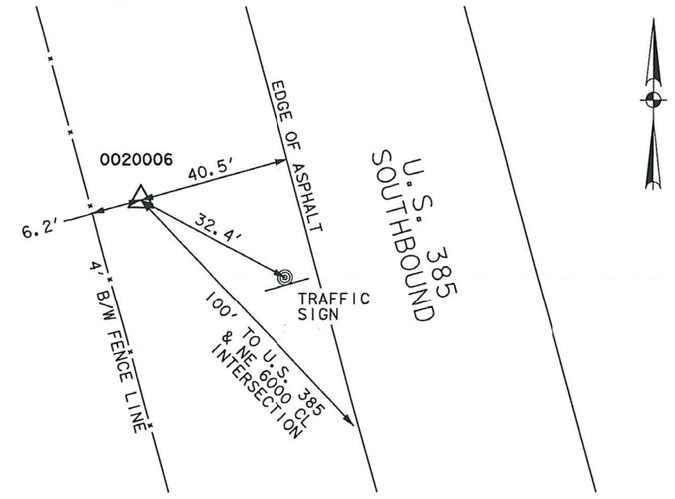
GRID NORTHING:	6,873,473.698	SURFACE NORTHING:	6,874,917.127
GRID EASTING:	706,661.256	SURFACE EASTING:	706,809.655
NAVD88 ELEVATION:	3,180.99'	NAVD88 ELEVATION:	3,180.99'

CONTROL POINT 0020006

APPROXIMATE LOCATION:

A 2" TXDOT ALUMINUM DISK STAMPED "0020006", SET IN CONCRETE (TYPE II) LOCATED APPROXIMATELY 100' NORTHWEST OF THE CENTERLINE INTERSECTION OF THE U.S. 385 SOUTHBOUND AND NE 6000, 6.2' NORTHEAST OF A 4' BARBED WIRE FENCE LINE, 40.5' SOUTHWEST OF AN EDGE OF ASPHALT AND 32.4' NORTHWEST OF A TRAFFIC SIGN.

SKETCH
(NOT TO SCALE)



GRID NORTHING:	6,872,324.821	SURFACE NORTHING:	6,873,768.009
GRID EASTING:	706,932.228	SURFACE EASTING:	707,080.683
NAVD88 ELEVATION:	3,175.11'	NAVD88 ELEVATION:	3,175.11'

NOTES:

HORIZONTAL COORDINATES ARE IN U.S. SURVEY FEET BASED ON THE TEXAS COORDINATE SYSTEM OF 1983, NORTH CENTRAL ZONE 4202, NORTH AMERICAN DATUM OF 1983 (NAD83) (2011 ADJ.), EPOCH 2010.00, GEOID 12A MODEL, WITH A GRID TO SURFACE ADJUSTMENT FACTOR OF 1.000210 (ANDREWS COUNTY). PRIMARY CONTROL VALUES ARE DERIVED FROM LEVEL 3 TXDOT RTN GPS OBSERVATIONS. ELEVATIONS ARE IN U.S. SURVEY FEET BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) DERIVED FROM LEVEL 3 TXDOT RTN GPS OBSERVATIONS.

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STATE OF TEXAS
REGISTERED
HEATH W. BROWN
6189
PROFESSIONAL
LAND SURVEYOR

Heath W. B 7-30-2019

HEATH W. BROWN
RPLS NO. 6189

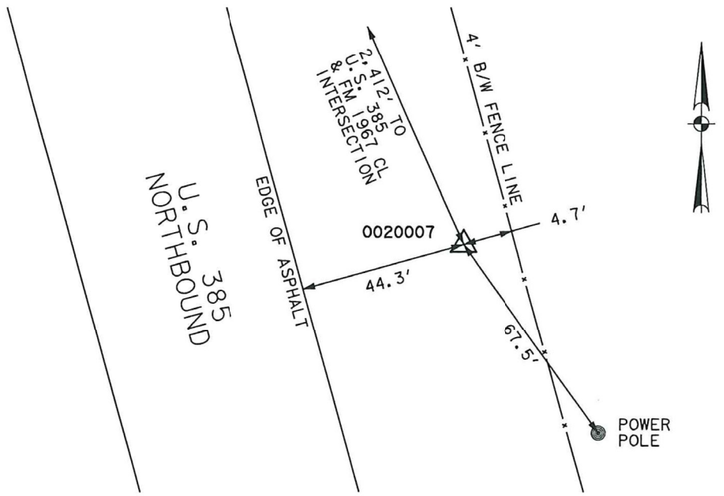
DATE

CONTROL POINT 0020007

APPROXIMATE LOCATION:

A 2" TXDOT ALUMINUM DISK STAMPED "0020007", SET IN CONCRETE (TYPE II) LOCATED APPROXIMATELY 2,412' SOUTHEAST OF THE CENTERLINE INTERSECTION OF THE U.S. 385 NORTHBOUND AND FM 1967, 4.7' SOUTHWEST OF A 4' BARBED WIRE FENCE LINE, 67.5' NORTHWEST OF A POWER POLE AND 44.3' NORTHEAST OF AN EDGE OF ASPHALT.

SKETCH
(NOT TO SCALE)



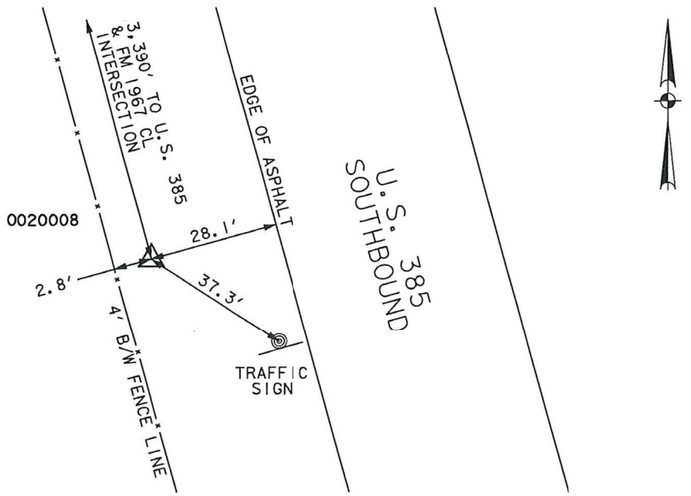
GRID NORTHING:	6,861,129.329	SURFACE NORTHING:	6,862,570.166
GRID EASTING:	709,884.390	SURFACE EASTING:	710,033.466
NAVD88 ELEVATION:	3,166.86'	NAVD88 ELEVATION:	3,166.86'

CONTROL POINT 0020008

APPROXIMATE LOCATION:

A 2" TXDOT ALUMINUM DISK STAMPED "0020008", SET IN CONCRETE (TYPE II) LOCATED APPROXIMATELY 3,390' SOUTHEAST OF THE CENTERLINE INTERSECTION OF THE U.S. 385 SOUTHBOUND AND FM 1967, 28.1' SOUTHWEST OF AN EDGE OF ASPHALT, 37.3' NORTHWEST OF A TRAFFIC SIGN AND 2.8' NORTHEAST OF A 4' BARBED WIRE FENCE LINE.

SKETCH
(NOT TO SCALE)



GRID NORTHING:	6,860,133.492	SURFACE NORTHING:	6,861,574.120
GRID EASTING:	709,918.647	SURFACE EASTING:	710,067.730
NAVD88 ELEVATION:	3,171.73'	NAVD88 ELEVATION:	3,171.73'

NO.	REVISIONS	BY	DATE

AZ&B
ARREDONDO, ZEPEDA & BRUNZ, LLC
11355 McCree Road - Dallas, Texas 75238
(214) 341-9900
FIRM REGISTRATION No. F-10098
TBPLS REGISTRATION No. 10088700

Texas Department of Transportation

HORIZONTAL AND VERTICAL CONTROL SHEET

SHEET 2 OF 4

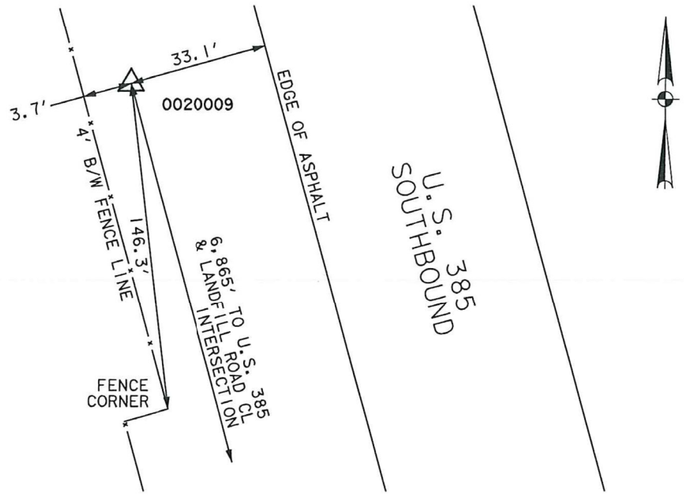
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		SHEET NO.
6			73
STATE	DISTRICT	COUNTY	
TEXAS	ODESSA	ANDREWS	
CONTROL	SECTION	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

CONTROL POINT 0020009

APPROXIMATE LOCATION:

A 2" TXDOT ALUMINUM DISK STAMPED "0020009", SET IN CONCRETE (TYPE II) LOCATED APPROXIMATELY 6,865' NORTHWEST OF THE CENTERLINE INTERSECTION OF THE U.S. 385 SOUTHBOUND AND LANDFILL ROAD, 146.3' NORTH OF A FENCE CORNER, 3.7' NORTHEAST OF A 4' BARBED WIRE FENCE LINE AND 33.1' SOUTHWEST OF AN EDGE OF ASPHALT.

SKETCH
(NOT TO SCALE)



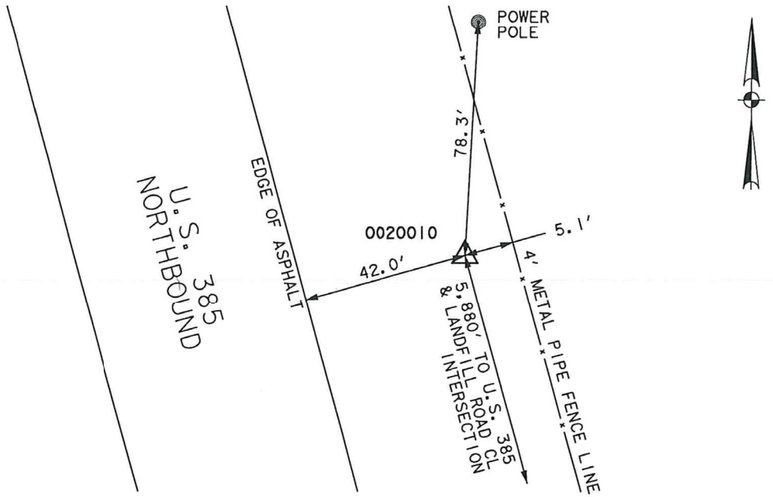
GRID NORTHING:	6,848,784.129	SURFACE NORTHING:	6,850,222.374
GRID EASTING:	712,608.074	SURFACE EASTING:	712,757.721
NAVD88 ELEVATION:	3,198.26'	NAVD88 ELEVATION:	3,198.26'

CONTROL POINT 0020010

APPROXIMATE LOCATION:

A 2" TXDOT ALUMINUM DISK STAMPED "0020010", SET IN CONCRETE (TYPE II) LOCATED APPROXIMATELY 5,880' NORTHWEST OF THE CENTERLINE INTERSECTION OF THE U.S. 385 NORTHBOUND AND LANDFILL ROAD, 42.0' NORTHEAST OF AN EDGE OF ASPHALT, 78.3' SOUTH OF A POWER POLE AND 5.1' SOUTHWEST OF A 4' METAL PIPE FENCE LINE.

SKETCH
(NOT TO SCALE)



GRID NORTHING:	6,847,873.279	SURFACE NORTHING:	6,849,311.332
GRID EASTING:	713,032.860	SURFACE EASTING:	713,182.596
NAVD88 ELEVATION:	3,175.38'	NAVD88 ELEVATION:	3,175.38'

NOTES:

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STATE OF TEXAS
REGISTERED
HEATH W. BROWN
6189
PROFESSIONAL
LAND SURVEYOR

Heath W. B — 7-30-2019

HEATH W. BROWN
RPLS NO. 6189

DATE

NO.	REVISIONS	BY	DATE

AZ&B
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FIRM REGISTRATION No. F-10098
TBPLS REGISTRATION No. 10088700

Texas Department of Transportation

HORIZONTAL AND VERTICAL CONTROL SHEET

SHEET 3 OF 4

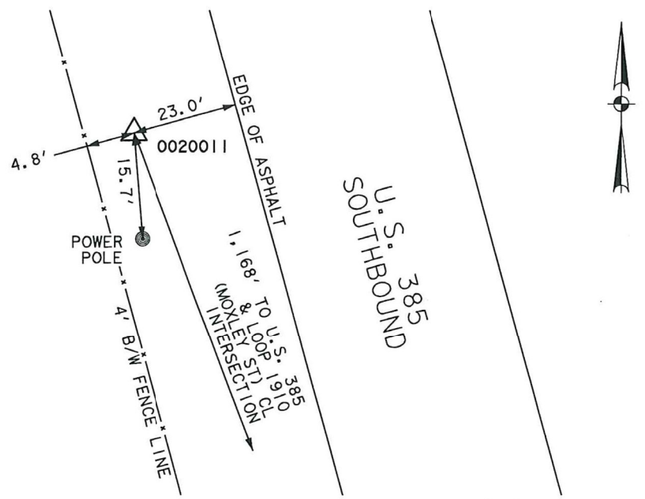
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		SHEET NO.
6			74
STATE	DISTRICT	COUNTY	
TEXAS	ODESSA	ANDREWS	
CONTROL	SECTION	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

CONTROL POINT 0020011

APPROXIMATE LOCATION:

A 2" TXDOT ALUMINUM DISK STAMPED "0020011", SET IN CONCRETE (TYPE II) LOCATED APPROXIMATELY 1,168' NORTHWEST OF THE CENTERLINE INTERSECTION OF THE U.S. 385 SOUTHBOUND AND LOOP 1910 (MOXLEY ST), 15.7' NORTH OF A POWER POLE, 4.8' NORTHEAST OF A 4' BARBED WIRE FENCE LINE AND 23.0' SOUTHWEST OF AN EDGE OF ASPHALT.

SKETCH
(NOT TO SCALE)



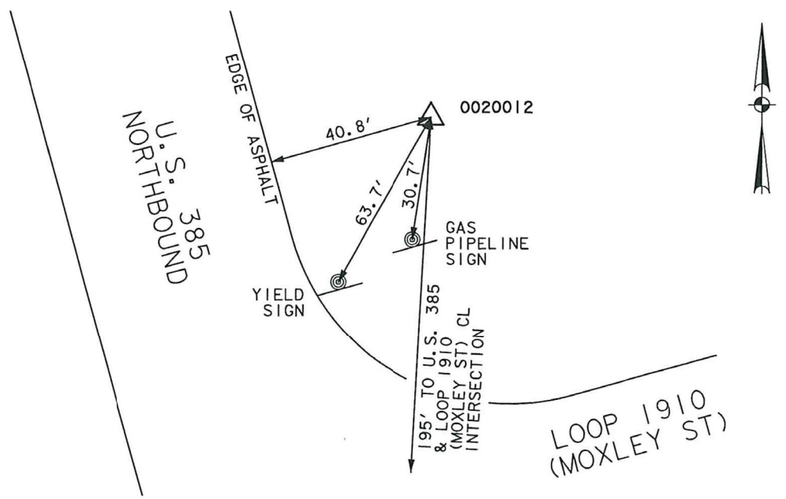
GRID NORTHING:	6,836,862.627	SURFACE NORTHING:	6,838,298.368
GRID EASTING:	715,481.353	SURFACE EASTING:	715,631.604
NAVD88 ELEVATION:	3,164.04'	NAVD88 ELEVATION:	3,164.04'

CONTROL POINT 0020012

APPROXIMATE LOCATION:

A 2" TXDOT ALUMINUM DISK STAMPED "0020012", SET IN CONCRETE (TYPE II) LOCATED APPROXIMATELY 195' NORTH OF THE CENTERLINE INTERSECTION OF THE U.S. 385 NORTHBOUND AND LOOP 1910 (MOXLEY ST), 30.7' NORTH OF A GAS PIPELINE SIGN, 63.7' NORTHEAST OF A YIELD SIGN AND 40.8' NORTHEAST OF AN EDGE OF ASPHALT.

SKETCH
(NOT TO SCALE)



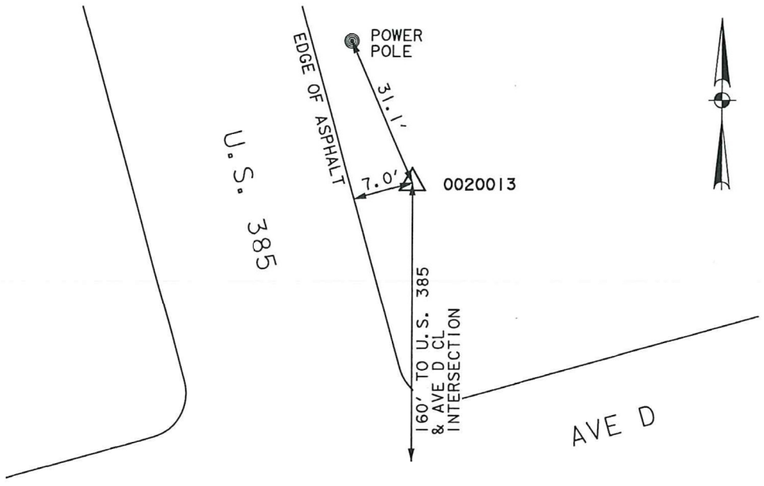
GRID NORTHING:	6,835,950.151	SURFACE NORTHING:	6,837,385.701
GRID EASTING:	715,899.192	SURFACE EASTING:	716,049.531
NAVD88 ELEVATION:	3,170.26'	NAVD88 ELEVATION:	3,170.26'

CONTROL POINT 0020013

APPROXIMATE LOCATION:

A MAG NAIL WITH SHINER SET IN ASPHALT LOCATED APPROXIMATELY 160' NORTH OF THE CENTERLINE INTERSECTION OF U.S. 385 AND AVE D, 7.0' NORTHEAST OF AN EDGE OF ASPHALT AND 31.1' SOUTHEAST OF A POWER POLE.

SKETCH
(NOT TO SCALE)



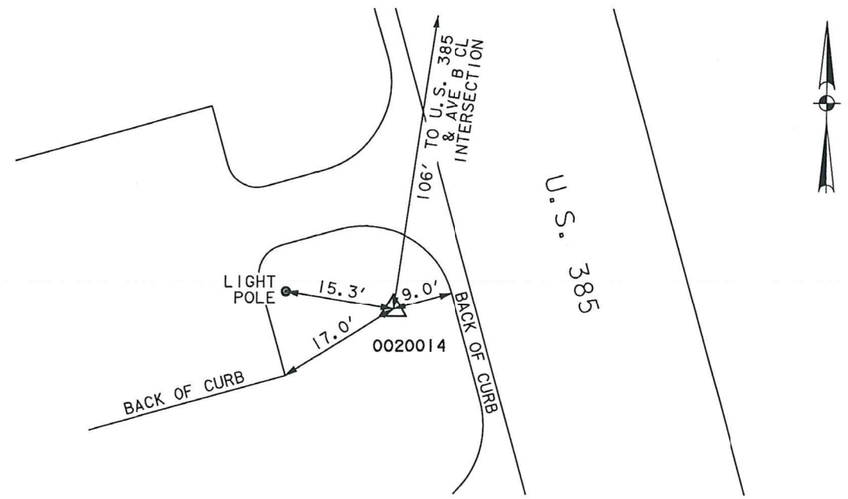
GRID NORTHING:	6,824,614.062	SURFACE NORTHING:	6,826,047.231
GRID EASTING:	718,392.222	SURFACE EASTING:	718,543.085
NAVD88 ELEVATION:	3,181.71'	NAVD88 ELEVATION:	3,181.71'

CONTROL POINT 0020014

APPROXIMATE LOCATION:

A MAG NAIL WITH SHINER SET IN BRICK PAVERS LOCATED APPROXIMATELY 106' SOUTHWEST OF THE CENTERLINE INTERSECTION OF U.S. 385 AND AVE B, 9.0' SOUTHWEST OF A BACK OF CURB, 17.0' NORTHEAST OF ANOTHER BACK OF CURB AND 15.3' SOUTHEAST OF A LIGHT POLE.

SKETCH
(NOT TO SCALE)



GRID NORTHING:	6,823,609.631	SURFACE NORTHING:	6,825,042.589
GRID EASTING:	718,535.633	SURFACE EASTING:	718,686.525
NAVD88 ELEVATION:	3,175.82'	NAVD88 ELEVATION:	3,175.82'

NOTES:

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Heath W. B 7-30-2019

HEATH W. BROWN DATE
RPLS NO. 6189

NO.	REVISIONS	BY	DATE

AZ&B
ARREDONDO, ZEPEDA & BRUNZ, LLC
11355 McCree Road - Dallas, Texas 75238
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FIRM REGISTRATION No. F-10098
TBPLS REGISTRATION No. 10088700

Texas Department of Transportation

HORIZONTAL AND VERTICAL CONTROL SHEET

SHEET 4 OF 4

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		SHEET NO.
6			75
STATE	DISTRICT	COUNTY	
TEXAS	ODESSA	ANDREWS	
CONTROL	SECTION	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

US 385

Beginning chain US385_ANDREW description

Point P01 X 717,869.61 Y 6,828,875.10 Sta 0+00.00

Course from P01 to PC US385_CURV01 N 12° 31′ 57.30" W Dist 1,971.33

Curve Data

Curve US385_CURV01						
P.I. Station		19+98.81	X	717,435.29	Y	6,830,826.15
Delta	=	0° 24′ 00.36"	(RT)			
Degree	=	0° 43′ 40.90"				
Tangent	=	27.48				
Length	=	54.96				
Radius	=	7,870.00				
External	=	0.05				
Long Chord	=	54.96				
Mid. Ord.	=	0.05				
P.C. Station		19+71.33	X	717,441.84	Y	6,830,799.46
P.T. Station		20+26.29	X	717,428.93	Y	6,830,852.88
C.C.			X	725,085.29	Y	6,832,674.15
Back	= N	13° 46′ 50.75" W				
Ahead	= N	13° 22′ 50.39" W				
Chord Bear	= N	13° 34′ 50.57" W				

Course from PT US385_CURV01 to PC US385_CURV02 N 12° 41′ 42.34" W Dist 3,667.00

Curve Data

Curve US385_CURV02						
P.I. Station		57+28.78	X	716,614.75	Y	6,834,464.74
Delta	=	0° 31′ 00.28"	(RT)			
Degree	=	0° 43′ 40.90"				
Tangent	=	35.49				
Length	=	70.98				
Radius	=	7,870.00				
External	=	0.08				
Long Chord	=	70.98				
Mid. Ord.	=	0.08				
P.C. Station		56+93.29	X	716,623.06	Y	6,834,430.24
P.T. Station		57+64.27	X	716,606.75	Y	6,834,499.31
C.C.			X	724,274.20	Y	6,836,273.34
Back	= N	13° 32′ 38.83" W				
Ahead	= N	13° 01′ 38.55" W				
Chord Bear	= N	13° 17′ 08.69" W				

Course from PT US385_CURV02 to PC US385_CURV03 N 13° 18′ 58.45" W Dist 1,046.61

Curve Data

Curve US385_CURV03						
P.I. Station		68+73.85	X	716,350.79	Y	6,835,578.97
Delta	=	0° 55′ 00.53"	(RT)			
Degree	=	0° 43′ 40.90"				
Tangent	=	62.97				
Length	=	125.93				
Radius	=	7,870.00				
External	=	0.25				
Long Chord	=	125.93				
Mid. Ord.	=	0.25				
P.C. Station		68+10.88	X	716,365.69	Y	6,835,517.79
P.T. Station		69+36.81	X	716,336.87	Y	6,835,640.38
C.C.			X	724,012.20	Y	6,837,379.99
Back	= N	13° 41′ 13.67" W				
Ahead	= N	12° 46′ 13.14" W				
Chord Bear	= N	13° 13′ 43.40" W				

Course from PT US385_CURV03 to PC US385_CURV04 N 12° 38′ 25.06" W Dist 1,521.63

Curve Data

Curve US385_CURV04						
P.I. Station		85+91.86	X	715,971.76	Y	6,837,254.61
Delta	=	1° 20′ 02.83"	(RT)			
Degree	=	0° 30′ 00.00"				
Tangent	=	133.42				
Length	=	266.82				
Radius	=	11,459.16				
External	=	0.78				
Long Chord	=	266.82				
Mid. Ord.	=	0.78				
P.C. Station		84+58.44	X	716,003.89	Y	6,837,125.12
P.T. Station		87+25.26	X	715,942.66	Y	6,837,384.82
C.C.			X	727,125.79	Y	6,839,884.80
Back	= N	13° 56′ 07.29" W				
Ahead	= N	12° 36′ 04.46" W				
Chord Bear	= N	13° 16′ 05.87" W				

Course from PT US385_CURV04 to P10 N 13° 31′ 07.25" W Dist 14,732.92

Point P10 X 712,498.65 Y 6,851,709.55 Sta 234+58.18

Course from P10 to PC US385_CURV05 N 13° 19′ 55.65" W Dist 18,838.62

Curve Data

Curve US385_CURV05						
P.I. Station		425+05.35	X	708,106.09	Y	6,870,243.29
Delta	=	2° 05′ 06.61"	(LT)			
Degree	=	0° 30′ 00.00"				
Tangent	=	208.54				
Length	=	417.03				
Radius	=	11,459.16				
External	=	1.90				
Long Chord	=	417.01				
Mid. Ord.	=	1.90				
P.C. Station		422+96.81	X	708,154.56	Y	6,870,040.46
P.T. Station		427+13.84	X	708,050.28	Y	6,870,444.23
C.C.			X	697,009.11	Y	6,867,377.49
Back	= N	13° 26′ 15.75" W				
Ahead	= N	15° 31′ 22.35" W				
Chord Bear	= N	14° 28′ 49.05" W				

Course from PT US385_CURV05 to PC US385_CURV06 N 15° 30′ 09.34" W Dist 1,768.65

Curve Data

Curve US385_CURV06						
P.I. Station		446+91.03	X	707,521.88	Y	6,872,349.50
Delta	=	2° 05′ 06.42"	(RT)			
Degree	=	0° 30′ 00.00"				
Tangent	=	208.53				
Length	=	417.02				
Radius	=	11,459.16				
External	=	1.90				
Long Chord	=	417.00				
Mid. Ord.	=	1.90				
P.C. Station		444+82.49	X	707,577.55	Y	6,872,148.53
P.T. Station		448+99.52	X	707,473.55	Y	6,872,552.36
C.C.			X	718,620.76	Y	6,875,207.93
Back	= N	15° 29′ 05.22" W				
Ahead	= N	13° 23′ 58.80" W				
Chord Bear	= N	14° 26′ 32.01" W				

Course from PT US385_CURV06 to P15 N 13° 19′ 44.66" W Dist 15,174.14

Point P15 X 703,975.25 Y 6,887,317.73 Sta 600+73.65

Course from P15 to P16 N 13° 22′ 33.33" W Dist 14,126.35

Point P16 X 700,707.28 Y 6,901,060.88 Sta 742+00.00

Ending chain US385_ANDREW description

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED
PROFESSIONAL ENGINEER
P.E.

US 385
HORIZONTAL ALIGNMENT DATA

SHEET 1 OF 1

LOCHNER
TBPE Firm Reg. No. 10488

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		76
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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US 385 VERTICAL CURVE DESIGN SPEED DATA FROM PREVIOUS CONSTRUCTION PLANS, EXISTING FIELD SURVEYS, AND PROPOSED REGRADING

	VPI STA	APPROACH GRADE 1 %	DEPARTURE GRADE 2 %	VC LENGTH FT	e FT	K VALUE	CREST DS (MPH)	SAG DS (MPH)	VPI (L=0) GRADE CHANGE < 0.5% FOR DS>45 MPH
	NBML (NEWER LANES)								
	4+00	0.0720	-0.9020	200	-0.24	205	65		
	9+00	-0.9020	-0.2960	200	0.15	-330		80	
	14+00	-0.2960	-0.6870	200	-0.10	512	80		
	22+00	-0.6870	-0.2500	0					0.4370
	25+00	-0.2500	1.3400	400	0.80	-252		80	
	29+00	1.3400	0.0000	400	-0.67	299	70		
	35+00	0.0000	0.6600	200	0.17	-303		80	
	40+00	0.6600	0.2200	200	-0.11	455	80		
	47+00	0.2200	0.8800	200	0.17	-303		80	
	52+00	0.8800	0.1500	200	-0.18	274	70		
	57+00	0.1500	-1.0600	400	-0.61	331	75		
	63+00	-1.0600	-0.1000	200	0.24	-208		75	
	69+00	-0.1000	0.4800	200	0.15	-345		80	
	76+00	0.4800	-1.2800	400	-0.88	227	65		
	81+00	-1.2800	-1.0200	0					0.2600
	93+00	-1.0200	-0.0600	200	0.24	-208		75	
	101+00	-0.0600	-0.1600	0					0.1000
	104+00	-0.1600	-0.0070	0					0.1530
	110+00	-0.0070	0.6300	200	0.16	-314		80	
	116+00	0.6300	0.2140	200	-0.10	481	80		
	134+00	0.2140	1.1000	200	0.22	-226		75	
	140+00	1.1000	-1.3200	800	-2.42	331	75		
	147+00	-1.3200	-0.4700	200	0.21	-235		80	
	153+00	-0.4700	-0.9400	200	-0.12	426	80		
	158+00	-0.9400	-0.0400	200	0.23	-222		75	
	163+00	-0.0400	0.9900	200	0.26	-194		70	
	169+00	0.9900	0.4200	200	-0.14	351	75		
	180+00	0.4200	1.0000	200	0.15	-345		80	
	184+00	1.0000	-0.8700	400	-0.94	214	65		
	191+00	-0.8700	0.0300	200	0.23	-222		75	
	198+00	0.0300	1.0000	200	0.24	-206		75	
	202+00	1.0000	0.5110	200	-0.12	409	80		
	209+00	0.5110	1.9000	400	0.69	-288		80	
	217+00	1.9000	0.8400	200	-0.27	189	60		
	226+00	0.8400	1.1300	0					0.2900
	234+00	1.1300	-0.8500	600	-1.49	303	70		
	241+00	-0.8500	0.1000	200	0.24	-211		75	
	246+00	0.1000	-0.7700	200	-0.22	230	65		
	251+00	-0.7700	-2.7500	600	-1.49	303	70		
	260+00	-2.7500	-0.4800	600	1.70	-264		80	
	266+00	-0.4800	0.2900	200	0.19	-260		80	
	273+00	0.2900	-0.0600	0					0.3500
	280+00	-0.0600	-0.5700	200	-0.13	392	80		
	284+00	-0.5700	-0.2000	200	0.09	-541		80	
	291+00	-0.2000	0.0000	0					0.2000
	295+00	0.0000	-0.0600	0					0.0600
	303+00	-0.0600	0.5100	200	0.14	-351		80	
	317+00	0.5100	0.2300	0					0.2800
	325+00	0.2300	-0.4540	200	-0.17	292	70		
	334+00	-0.4540	-0.8700	200	-0.10	481	80		
	338+00	-0.8700	-0.1220	200	0.19	-267		80	
	348+00	-0.1220	0.0300	0					0.1520
	358+00	0.0300	0.5300	200	0.13	-400		80	
	376+00	0.5300	-0.7100	400	-0.62	323	75		
	382+00	-0.7100	0.7730	400	0.74	-270		80	
	388+00	0.7730	-1.6300	600	-1.80	250	70		
	394+00	-1.6300	-0.1010	400	0.76	-262		80	
	404+00	-0.1010	0.7310	200	0.21	-240		80	
	412+00	0.7310	-0.4830	400	-0.61	329	75		
	418+00	-0.4830	0.1000	200	0.15	-343		80	
	429+00	0.1000	-0.1000	0					0.2000
	436+00	-0.1000	0.2720	200	0.09	-538		80	
	447+00	0.2720	-0.3230	200	-0.15	336	75		
	NBML (OLDER LANES)								
#	454+30	-0.2774	0.5798	450	0.48	-525		80	
#	460+85	0.5798	-0.0843	250	-0.21	376	75		
#	470+85	-0.0843	1.1035	430	0.64	-362		80	
	473+00	0.9000	0.6250	0					0.0000
	475+00	0.6250	0.4750	0					0.1500
	477+00	0.4750	0.7330	0					0.2580
	483+00	0.7330	-0.2670	300	-0.38	300	70		
	486+00	-0.2670	-0.3750	0					0.1080
	492+00	-0.3750	0.6220	200	0.25	-201		70	
	499+80	0.6220	-1.2000	300	-0.68	165	60		
	505+30	-1.2000	0.0000	300	0.45	-250		80	
	514+80	0.0000	-3.8180	740	-3.53	194	65		
	520+50	-3.8180	0.0000	370	1.77	-97		50	
	525+90	0.0000	2.8210	300	1.06	-106		50	
	531+50	2.8210	0.3140	700	-2.19	279	70		
	535+00	0.3140	0.1000	0					0.2140
	540+00	0.1000	0.1500	0					0.0500
	544+50	0.1500	-0.8890	300	-0.39	289	70		
	549+00	-0.8890	1.3000	220	0.60	-101		50	
	555+00	1.3000	0.5000	200	-0.20	250	70		
	561+20	0.5000	1.8230	400	0.66	-302		80	
###	568+25	1.7290	-1.4395	620	-2.46	196	65		
###	574+30	-1.4395	0.6755	340	0.90	-161		65	
###	579+00	0.6755	-1.2375	370	-0.88	193	65		

- EXISTING VERTICAL CURVE DATA BASED ON 2019 FIELD SURVEYS
- PROPOSED VERTICAL CURVE REGRADING

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
VERTICAL ALIGNMENT DATA

SHEET 1 OF 3

Texas Department of Transportation

LOCHNER
TBPE Firm Reg. No. 10488

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		77
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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US 385 VERTICAL CURVE DESIGN SPEED DATA FROM PREVIOUS CONSTRUCTION PLANS, EXISTING FIELD SURVEYS, AND PROPOSED REGRADING

VPI STA	APPROACH GRADE 1 %	DEPARTURE GRADE 2 %	VC LENGTH FT	e FT	K VALUE	CREST DS (MPH)	SAG DS (MPH)	VPI (L=0) GRADE CHANGE < 0.5% FOR DS>45 MPH
NBML (OLDER LANES) (CONTINUED)								
583+00	-1.3333	-0.1111	250	0.38	-205		70	
587+50	-0.1111	-0.8000	300	-0.26	435	80		
592+50	-0.8000	0.6250	200	0.36	-140		60	
596+50	0.6250	-0.4194	200	-0.26	192	60		
612+00	-0.4194	0.1250	300	0.20	-551		80	
616+00	0.1250	0.4545	100	0.04	-303		80	
621+50	0.4545	-1.2000	500	-1.03	302	70		
626+50	-1.2000	0.0000	200	0.30	-167		65	
630+50	0.0000	1.6000	200	0.40	-125		55	
635+50	1.6000	-0.0588	400	-0.83	241	65		
644+00	-0.0588	-0.4118	200	-0.09	567	80		
652+50	-0.4118	0.5556	300	0.36	-310		80	
657+00	0.5556	-0.0526	200	-0.15	329	75		
666+50	-0.0526	0.3846	200	0.11	-457		80	
673+00	0.3846	0.0000	0					0.3846
679+50	0.0000	-0.2857	0					0.2857
683+00	-0.2857	0.0909	0					0.3766
694+00	0.0909	0.1250	0					0.0341
698+00	0.1250	0.5000	0					0.3750
701+00	0.5000	0.0556	0					0.4444
710+00	0.0556	0.3333	0					0.2778
714+50	0.3333	-0.0571	0					0.3905
718+00	-0.0571	0.1667	0					0.2238
721+00	0.1667	0.6667	100	0.06	-200		70	
725+50	0.6667	-0.5560	200	-0.31	164	60		

VPI STA	APPROACH GRADE 1 %	DEPARTURE GRADE 2 %	VC LENGTH FT	e FT	K VALUE	CREST DS (MPH)	SAG DS (MPH)	VPI (L=0) GRADE CHANGE < 0.5% FOR DS>45 MPH
SBML (OLDER LANES)								
4+60	0.0000	-1.0200	300	-0.38	294	70		
9+50	-1.0200	-0.1660	200	0.21	-234		80	
12+50	-0.1660	-0.4670	0					0.3010
14+00	-0.4670	-0.8500	200	-0.10	522	80		
16+00	-0.8500	-1.0230	0					0.1730
20+40	-1.0230	0.0000	300	0.38	-293		80	
25+00	0.0000	1.3500	300	0.51	-222		75	
29+00	1.3500	-0.0740	300	-0.53	211	65		
34+40	-0.0740	0.6740	300	0.28	-401		80	
39+00	0.6740	0.4750	0					0.1990
43+00	0.4750	0.0000	200	-0.12	421	80		
46+00	0.0000	0.4500	200	0.11	-444		80	
48+00	0.4500	0.9750	200	0.13	-381		80	
52+00	0.9750	0.1610	400	-0.41	491	80		
57+60	0.1610	-1.3040	400	-0.73	273	70		
63+20	-1.3040	0.0000	300	0.49	-230		75	
72+00	0.0000	0.9500	200	0.24	-211		75	
76+00	0.9500	-1.4200	300	-0.89	127	55		
81+00	-1.4200	-0.8040	200	0.15	-325		80	
85+60	-0.8040	-1.2000	300	-0.15	758	80		
92+60	-1.2000	-0.0530	300	0.43	-262		80	
102+00	-0.0530	-0.8500	200	-0.20	251	70		
104+00	-0.8500	0.0000	200	0.21	-235		80	
110+60	0.0000	1.0620	300	0.40	-282		80	
115+40	1.0620	0.1520	200	-0.23	220	65		
120+00	0.1520	-0.1500	0					0.3020
123+00	-0.1500	0.0610	0					0.2110
132+00	0.0610	1.2430	400	0.59	-338		80	
139+40	1.2430	-0.9720	300	-0.83	135	55		
143+00	-0.9720	-1.4250	200	-0.11	442	80		
147+00	-1.4250	-0.3960	300	0.39	-292		80	
152+30	-0.3960	-1.2780	200	-0.22	227	65		
156+80	-1.2780	0.0000	200	0.32	-156		60	
163+20	0.0000	1.0650	200	0.27	-188		70	
168+60	1.0650	0.4460	300	-0.23	485	80		
176+00	0.4460	0.3610	0	0.00				0.0850
179+60	0.3610	1.0450	200	0.17	-292		80	
184+00	1.0450	-0.9120	200	-0.49	102	50		
188+00	-0.9120	-0.8500	0					0.0620
192+00	-0.8500	0.0000	400	0.43	-471		80	
197+00	0.0000	1.0100	400	0.51	-396		80	
202+20	1.0100	0.2770	200	-0.18	273	70		
208+70	0.2770	2.0490	400	0.89	-226		75	
216+80	2.0490	0.7870	400	-0.63	317	75		

- EXISTING VERTICAL CURVE DATA BASED ON 2019 FIELD SURVEYS
- PROPOSED VERTICAL CURVE REGRADING

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385 VERTICAL ALIGNMENT DATA

SHEET 2 OF 3

Texas Department of Transportation

LOCHNER
TBPE Firm Reg. No. 10488

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		78
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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US 385 VERTICAL CURVE DESIGN SPEED DATA FROM PREVIOUS CONSTRUCTION PLANS, EXISTING FIELD SURVEYS, AND PROPOSED REGRADING

VPI STA	APPROACH GRADE 1 %	DEPARTURE GRADE 2 %	VC LENGTH FT	e FT	K VALUE	CREST DS (MPH)	SAG DS (MPH)	VPI (L=0) GRADE CHANGE < 0.5% FOR DS>45 MPH
SBML (OLDER LANES) (CONTINUED)								
225+00	0.7870	1.1530	0					0.3660
234+50	1.1530	-1.1000	400	-1.13	178	60		
241+00	-1.1000	0.3000	300	0.53	-214		75	
245+50	0.3000	0.0000	0					0.3000
251+00	0.0000	-4.0000	800	-4.00	200	65		
258+00	-4.0000	-0.5060	600	2.62	-172		65	
266+50	-0.5060	0.5780	300	0.41	-277		80	
271+00	0.5780	-0.0670	200	-0.16	310	70		
280+00	-0.0670	-0.5750	200	-0.13	394	80		
284+00	-0.5750	-0.3000	0					0.2750
288+00	-0.3000	-0.6000	0					0.3000
291+00	-0.6000	0.4630	300	0.40	-282		80	
295+00	0.4630	-0.0900	200	-0.14	362	75		
300+00	-0.0900	0.0240	0					0.1140
304+20	0.0240	0.6900	200	0.17	-300		80	
310+00	0.6900	0.3920	0					0.2980
316+00	0.3920	0.1750	0					0.2170
322+00	0.1750	0.3250	0					0.1500
326+00	0.3250	-0.7250	400	-0.53	381	75		
330+00	-0.7250	-0.1110	200	0.15	-326		80	
333+60	-0.1110	-0.9570	200	-0.21	236	65		
340+60	-0.9570	0.0000	200	0.24	-209		75	
352+00	0.0000	0.1550	0					0.1550
360+00	0.1550	0.4870	0					0.3320
369+00	0.4870	0.7280	0					0.2410
376+50	0.7280	-1.3150	400	-1.02	196	65		
382+00	-1.3150	1.6050	500	1.83	-171		65	
388+20	1.6050	-2.0880	740	-3.42	200	65		
394+80	-2.0880	-0.0670	300	0.76	-148		60	
400+00	-0.0670	0.0140	0					0.0810
406+00	0.0140	1.3310	300	0.49	-228		75	
412+50	1.3310	-1.1270	700	-2.15	285	70		
418+00	-1.1270	0.1370	400	0.63	-316		80	
422+00	0.1370	0.1750	0					0.0380
424+00	0.1750	0.4500	0					0.2750
426+00	0.4500	0.6000	0					0.1500
429+00	0.6000	-0.6620	400	-0.63	317	75		0.0000
435+00	-0.6620	0.0600	200	0.18	-277		80	0.0000
438+00	0.0600	0.4480	0					0.3880
444+00	0.4480	0.7000	0					0.2520
SBML (NEWER LANES)								
448+00	0.2720	-0.3890	200	-0.17	303	70		
452+00	-0.3890	-1.2300	200	-0.21	238	65		
455+00	-1.2300	1.1400	400	1.19	-169		65	
461+00	1.1400	-0.1720	400	-0.66	305	70		

VPI STA	APPROACH GRADE 1 %	DEPARTURE GRADE 2 %	VC LENGTH FT	e FT	K VALUE	CREST DS (MPH)	SAG DS (MPH)	VPI (L=0) GRADE CHANGE < 0.5% FOR DS>45 MPH
SBML (NEWER LANES) (CONTINUED)								
466+00	-0.1720	0.6960	400	0.43	-461		80	
483+00	0.6960	-0.1870	200	-0.22	227	65		
491+00	-0.1870	0.3470	200	0.13	-375		80	
501+00	0.3470	-1.0500	400	-0.70	286	70		
507+00	-1.0500	-0.2900	200	0.19	-263		80	
514+00	-0.2900	-2.9670	600	-2.01	224	65		
521+00	-2.9670	0.5540	600	2.64	-170		65	
526+00	0.5540	2.2040	400	0.83	-242		80	
533+00	2.2040	0.1833	400	-1.01	198	65		
545+00	0.1833	-0.7500	200	-0.23	214	65		
550+00	-0.7500	1.3000	400	1.03	-195		70	
556+00	1.3000	0.6660	200	-0.16	315	75		
562+00	0.6660	1.6300	200	0.24	-207		75	
569+00	1.6300	-1.4300	800	-3.06	261	70		
576+00	-1.4300	1.0660	240	0.75	-96		50	
579+00	1.0660	-1.2500	360	-1.04	155	60		
583+00	-1.2500	-0.1100	200	0.29	-175		65	
588+00	-0.1100	-0.8900	200	-0.20	256	70		
592+00	-0.8900	0.2000	200	0.27	-183		70	
598+00	0.2000	-0.4200	200	-0.16	323	75		
611+00	-0.4200	0.1300	200	0.14	-364		80	
622+00	0.1300	-0.5500	400	-0.34	588	80		
629+00	-0.5500	0.8830	200	0.36	-140		60	
635+00	0.8830	-0.0500	200	-0.23	214	65		
651+00	-0.0500	0.1000	0					0.1500
660+00	0.1000	0.1419	0					0.0419
680+00	0.1419	-0.0260	0					0.1679
690+00	-0.0260	0.0000	0					0.0260
697+00	0.0000	0.3700	200	0.09	-541		80	
702+00	0.3700	0.1400	0					0.2300
721+00	0.1400	0.4300	200	0.07	-690		80	0.0000

- EXISTING VERTICAL CURVE DATA BASED ON 2019 FIELD SURVEYS
- PROPOSED VERTICAL CURVE REGRADING

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED
PROFESSIONAL ENGINEER

P.E.

US 385 VERTICAL ALIGNMENT DATA

SHEET 3 OF 3

Texas Department of Transportation

LOCHNER
TBPE Firm Reg. No. 10488

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		79
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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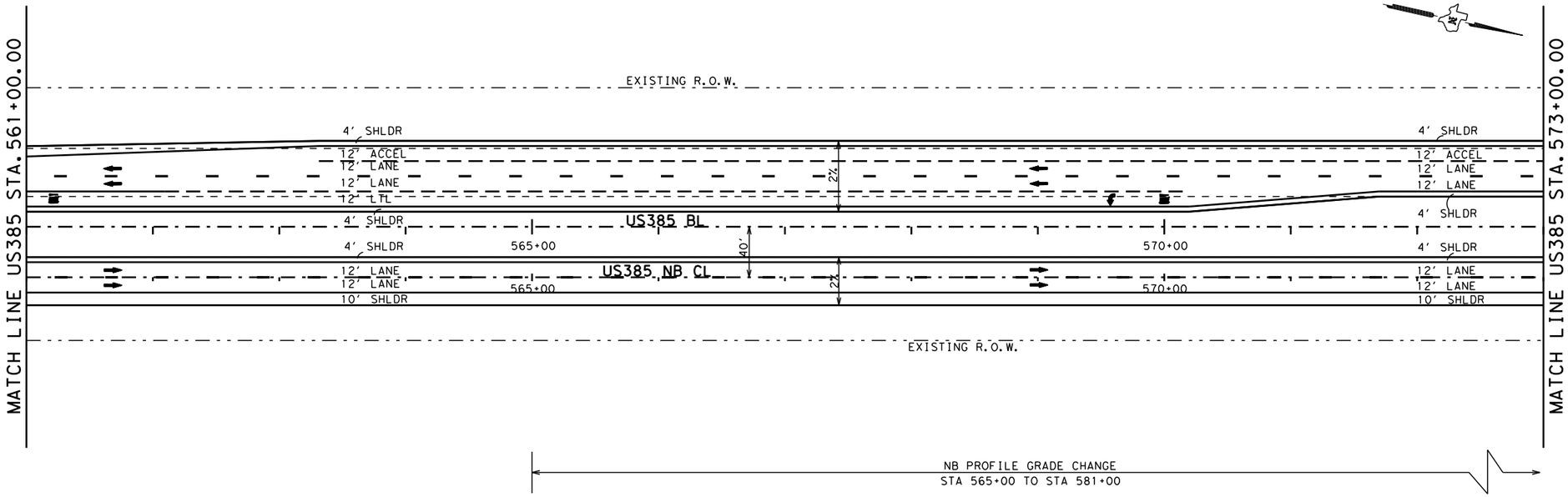
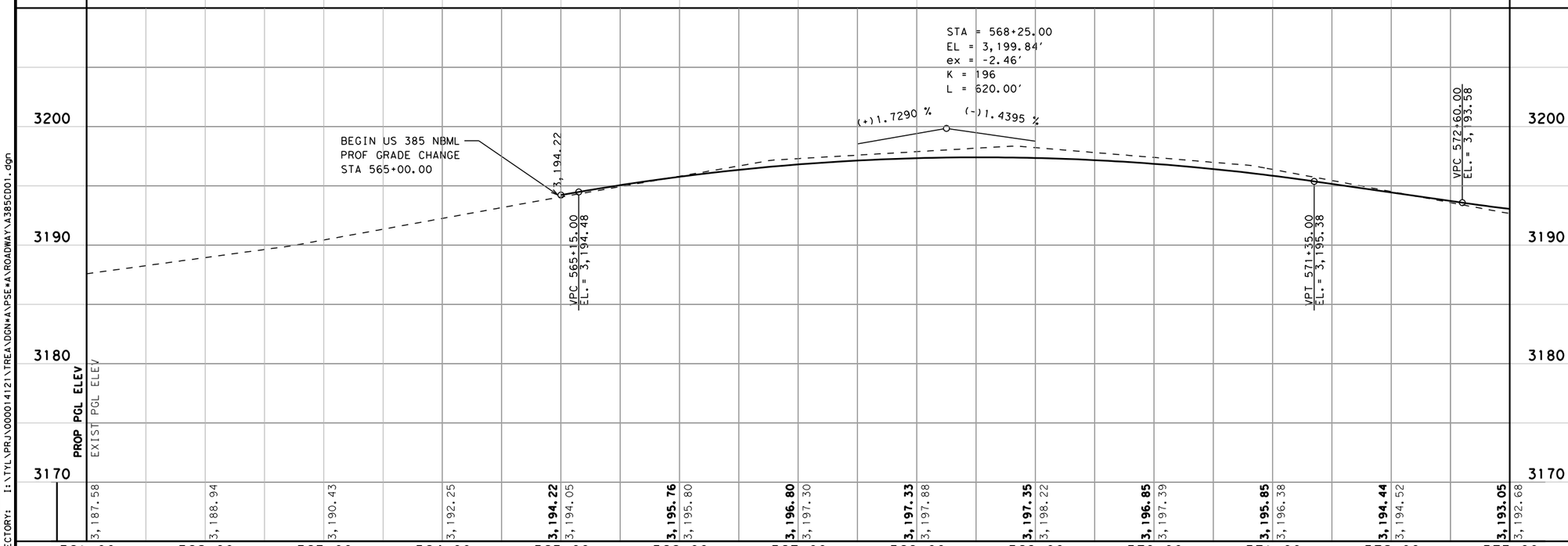


SECTION TOTALS			
EST.	FINAL	UNIT	DESCRIPTION
		CY	EXCAVATION (RDWY)
		CY	EMBANKMENT

* SEE PLAN LAYOUT SHEETS 24 & 25 FOR
STA. 565+00.00 - STA. 581+00.00 EARTHWORK QTYS.



05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
PLAN & PROFILE

STA 561+00.00 to STA 573+00.00

HORIZONTAL SCALE: 1" = 100'
VERTICAL SCALE: 1" = 10'

SHEET 1 OF 2

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TBPE Firm Reg. No. 10488

FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	80
STATE	DIST.	COUNTY
TEXAS	ODA	ANDREWS
CONT.	SECT.	JOB / HIGHWAY NO.
0228	04	043, ETC. / US 385, ETC.

FILE: A385CD01.dgn
DATE: 5/28/2020 TIME: 5:56:00 PM
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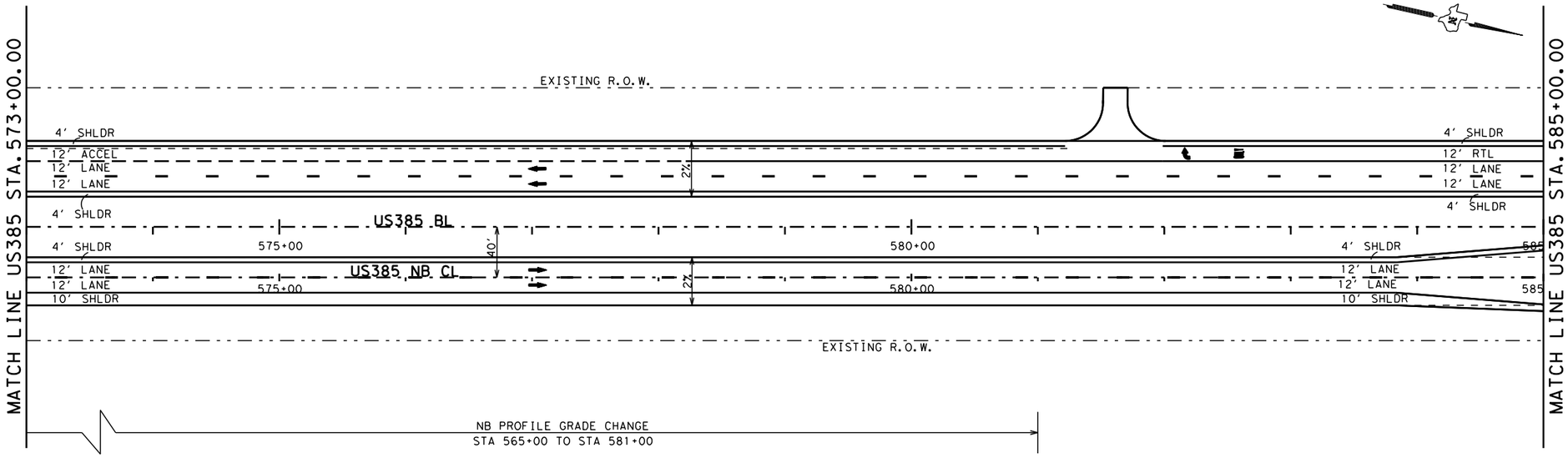
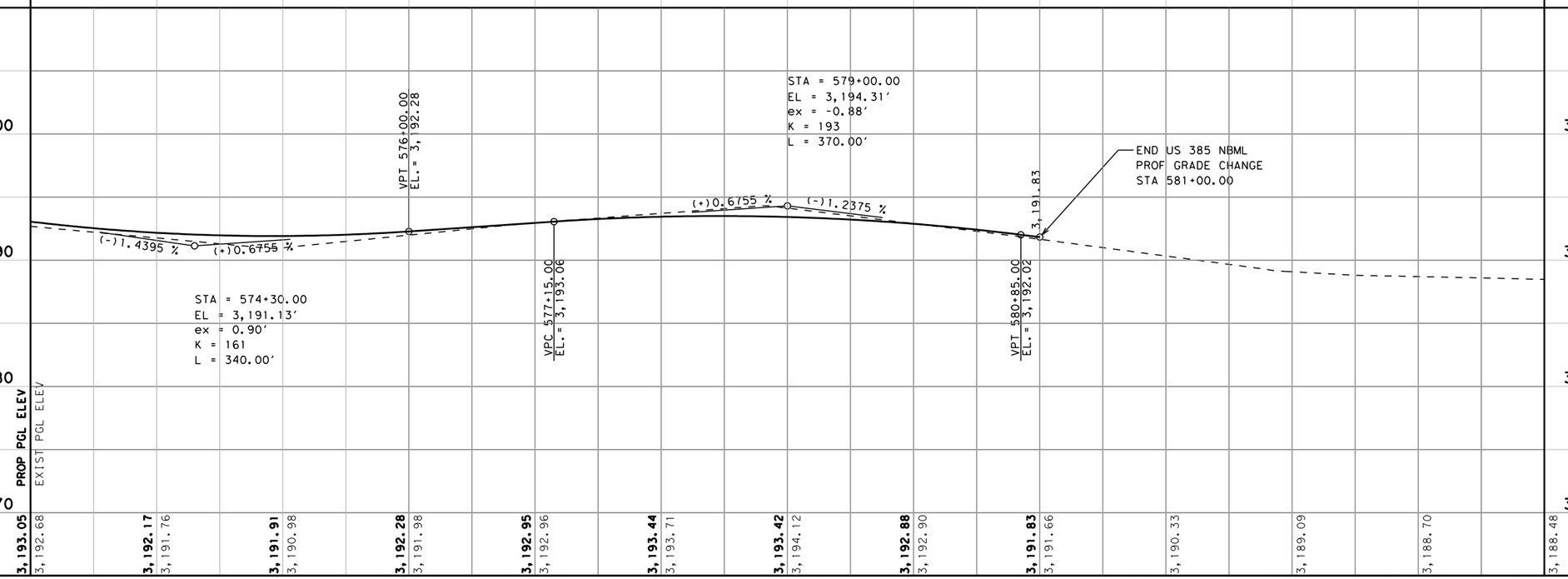


SECTION TOTALS			
EST.	FINAL	UNIT	DESCRIPTION
		CY	EXCAVATION (RDWY)
		CY	EMBANKMENT

* SEE PLAN LAYOUT SHEETS 24 & 25 FOR STA. 565+00.00 - STA. 581+00.00 EARTHWORK QTYS.



05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
PLAN & PROFILE

STA 573+00.00 to STA 585+00.00

HORIZONTAL SCALE: 1" = 100'
VERTICAL SCALE: 1" = 10'

SHEET 2 OF 2

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FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	81
STATE	DIST.	COUNTY
TEXAS	ODA	ANDREWS
CONT.	SECT.	JOB / HIGHWAY NO.
0228	04	043, ETC. / US 385, ETC.

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DATE: 5/28/2020 TIME: 5:56:02 PM
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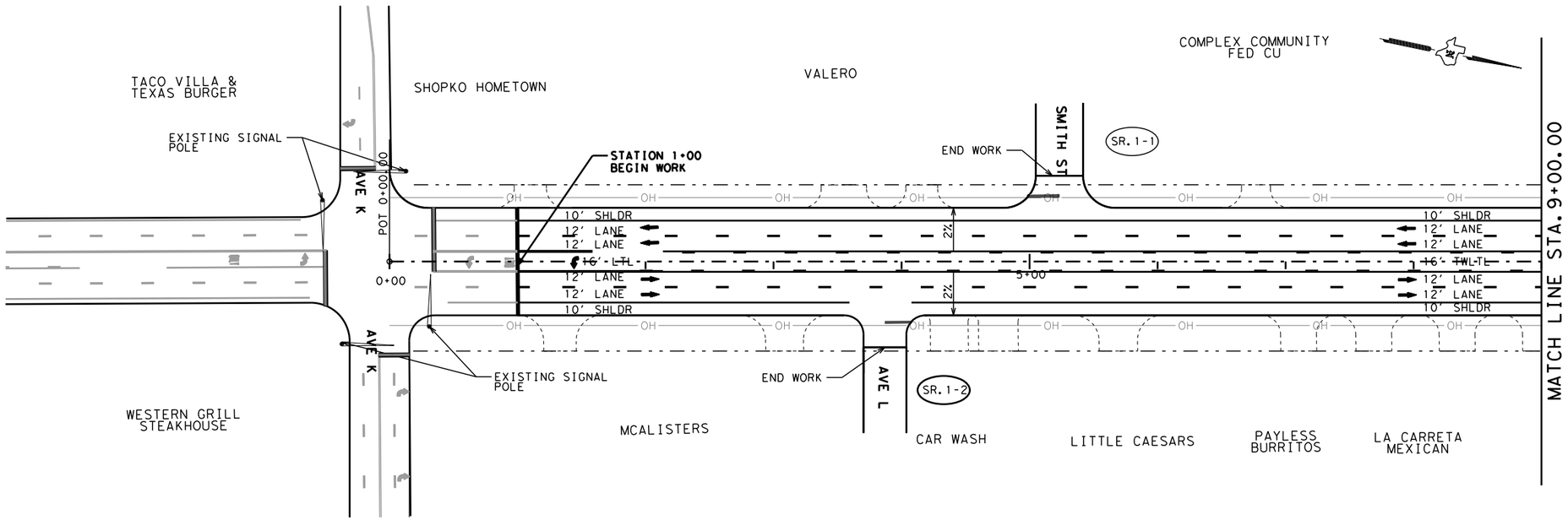
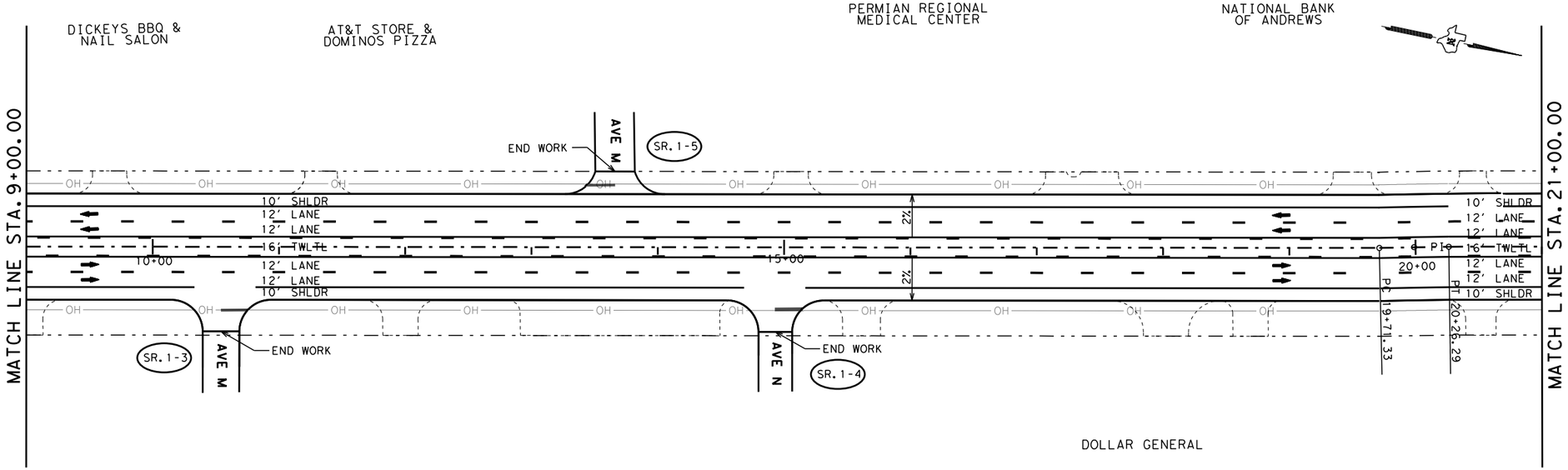
													SECTION TOTALS			
													EST.	FINAL	UNIT	DESCRIPTION
0	0	0	0	0	0	0	0	0	0	0	0	0	**0**		CY	EXCAVATION (RDWY)
0	0	0	0	0	0	0	0	0	0	0	0	0	**0**		CY	EMBANKMENT



													SECTION TOTALS			
													EST.	FINAL	UNIT	DESCRIPTION
0	0	0	0	0	0	0	0	0	0	0	0	0	**0**		CY	EXCAVATION (RDWY)
0	0	0	0	0	0	0	0	0	0	0	0	0	**0**		CY	EMBANKMENT



09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
PLAN LAYOUT

STA 00+00.00 to STA 21+00.00

HORIZONTAL SCALE: 1" = 100'

SHEET 1 OF 31

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FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		82
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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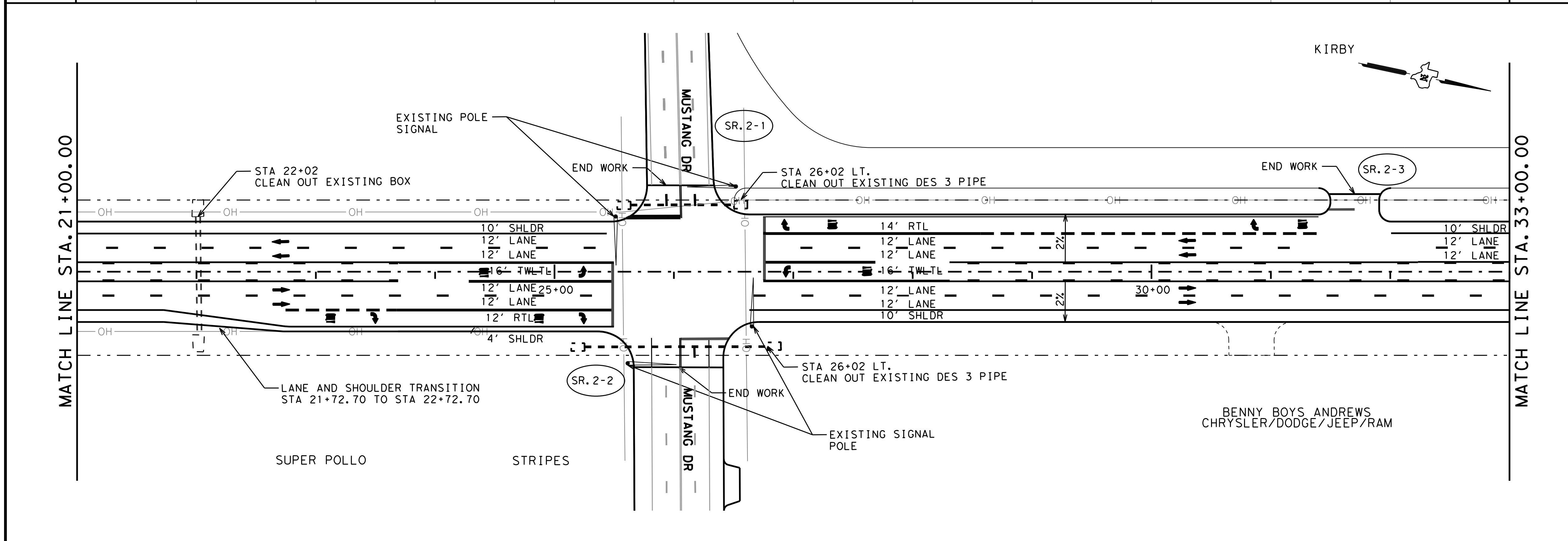
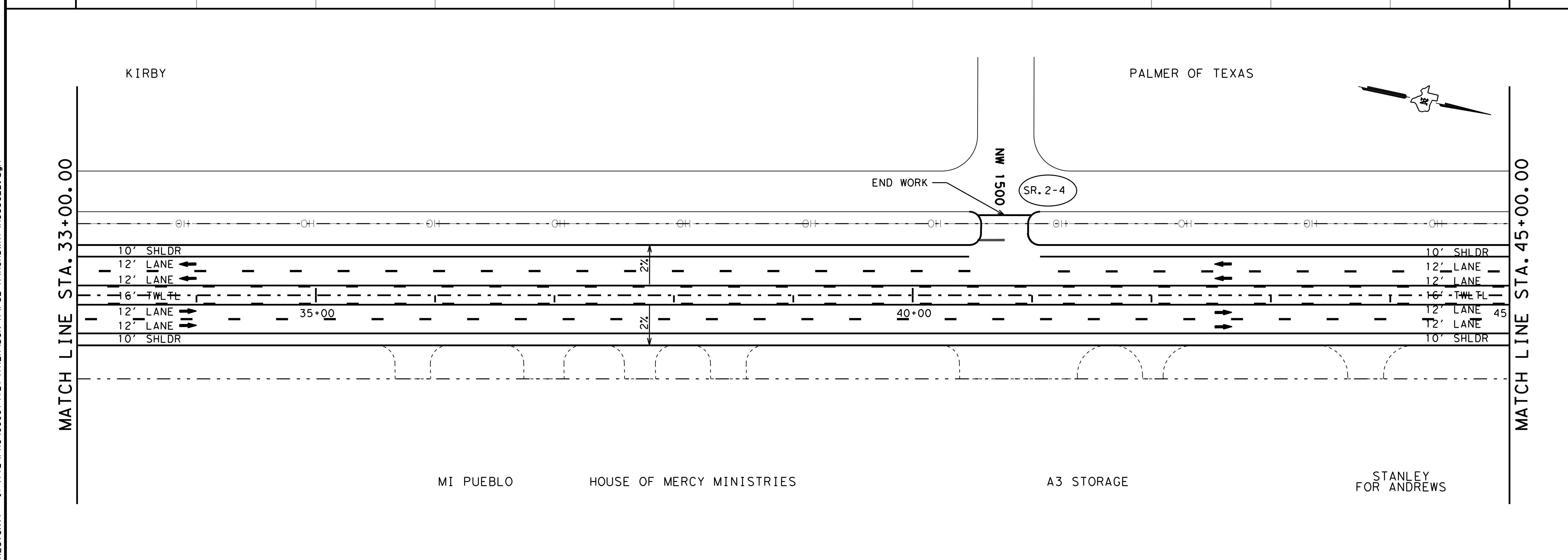
												EST.	FINAL	UNIT	DESCRIPTION
												SECTION TOTALS			
0	0	0	0	0	0	0	0	0	0	0	0	0		CY	EXCAVATION (RDWY)
0	0	0	0	0	0	0	0	0	0	0	0	0		CY	EMBANKMENT



LEGEND:

- SR. X-X - SIDE ROADS
- TO. X-X - TURN OUTS
- TERMINAL SECTION
- CABLE BARRIER
- PAVEMENT REMOVAL AREAS
- LANE ADDITION OR WIDENING
- EXISTING ROW
- CENTERLINE & STATIONING (0+00)

												EST.	FINAL	UNIT	DESCRIPTION
												SECTION TOTALS			
0	0	0	0	0	0	0	0	0	0	0	0	0		CY	EXCAVATION (RDWY)
0	0	0	0	0	0	0	0	0	0	0	0	0		CY	EMBANKMENT



09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER

P.E.

US 385
PLAN LAYOUT

STA 21+00.00 to STA 45+00.00

HORIZONTAL SCALE: 1" = 100'

SHEET 2 OF 31

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FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		83
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

FILE: A385CE2.dgn
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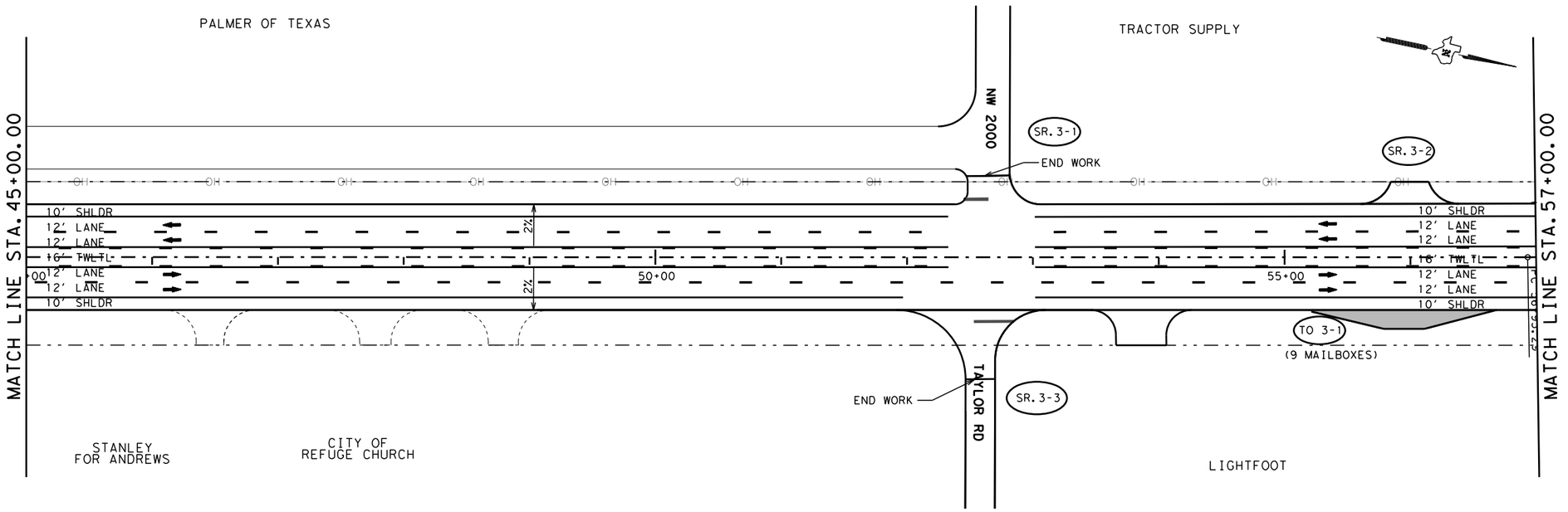
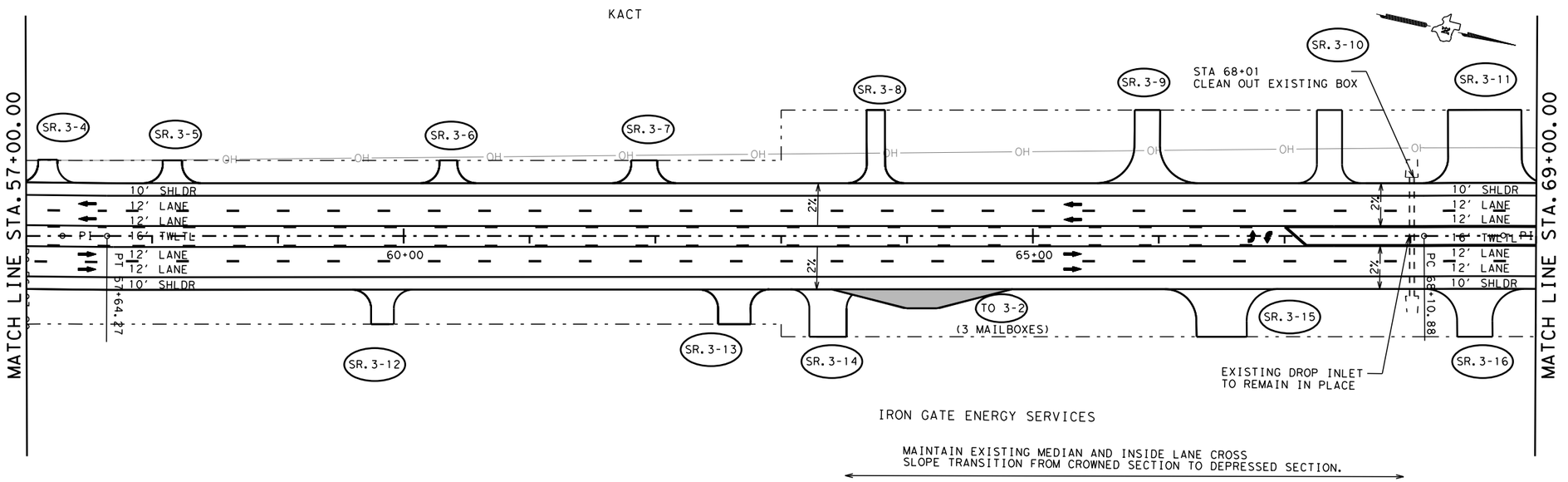
													SECTION TOTALS			
													EST.	FINAL	UNIT	DESCRIPTION
0	0	0	0	0	0	0	0	0	0	8	5		13		CY	EXCAVATION (RDWY)
0	0	0	0	0	0	0	0	0	0	20	15		35		CY	EMBANKMENT



LEGEND:

- (SR. X-X) - SIDE ROADS
- (TO. X-X) - TURN OUTS
- -TERMINAL SECTION
- - CABLE BARRIER
- - PAVEMENT REMOVAL AREAS
- - LANE ADDITION OR WIDENING
- - EXISTING ROW
- - CENTERLINE & STATIONING (0+00)

													SECTION TOTALS			
													EST.	FINAL	UNIT	DESCRIPTION
0	0	0	0	0	0	0	5	8	0	0	0	0	13		CY	EXCAVATION (RDWY)
0	0	0	0	0	0	11	21	0	0	0	0	0	32		CY	EMBANKMENT



09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
PLAN LAYOUT

STA 45+00.00 to STA 69+00.00

HORIZONTAL SCALE: 1" = 100'

SHEET 3 OF 31

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TBPE Firm Reg. No. 10488

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		84
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

FILE: A385CE3.dgn
DATE: 9/25/2020 TIME: 2:29:00 PM
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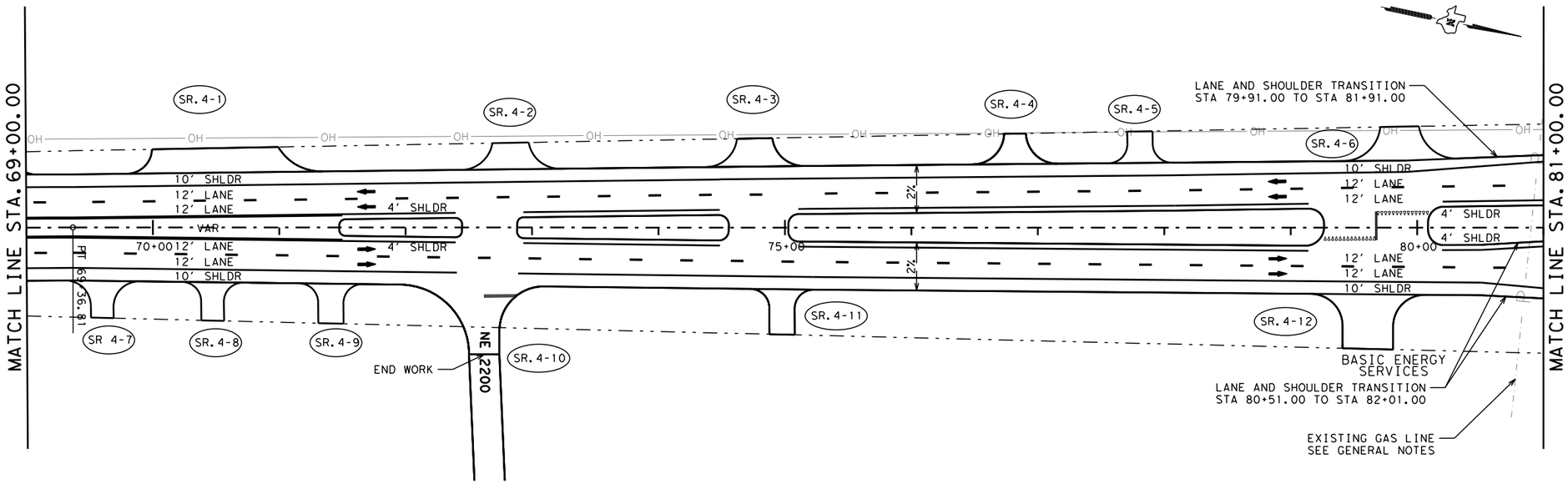
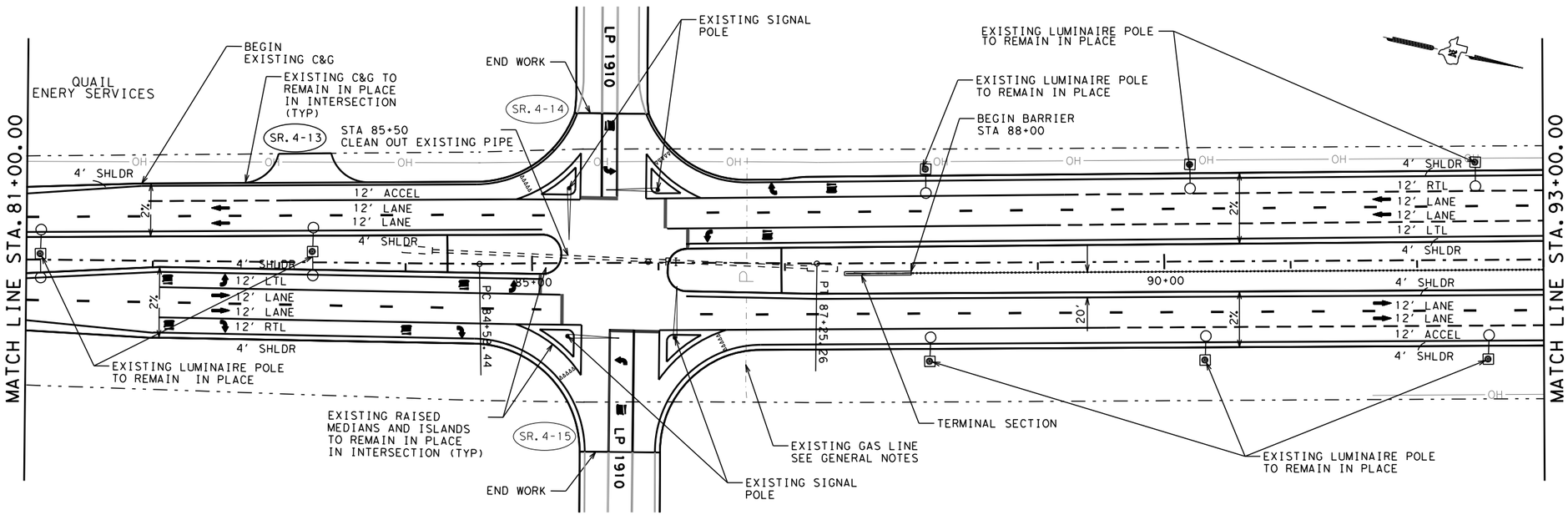
													SECTION TOTALS			
													EST.	FINAL	UNIT	DESCRIPTION
0	0	0	0	0	0	0	0	0	0	0	0	0	**0**		CY	EXCAVATION (RDWY)
0	0	0	0	0	0	0	0	0	0	0	0	0	**0**		CY	EMBANKMENT



LEGEND:

- (SR. X-X) - SIDE ROADS
- (TO. X-X) - TURN OUTS
- -TERMINAL SECTION
- - CABLE BARRIER
- - PAVEMENT REMOVAL AREAS
- - LANE ADDITION OR WIDENING
- - EXISTING ROW
- - CENTERLINE & STATIONING (0+00)

													SECTION TOTALS			
													EST.	FINAL	UNIT	DESCRIPTION
0	0	0	0	0	0	0	0	0	0	0	0	0	**0**		CY	EXCAVATION (RDWY)
0	0	0	0	0	0	0	0	0	0	0	0	0	**0**		CY	EMBANKMENT



09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
PLAN LAYOUT

STA 69+00.00 to STA 93+00.00

HORIZONTAL SCALE: 1" = 100'

SHEET 4 OF 31

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TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	85

STATE	DIST.	COUNTY
TEXAS	ODA	ANDREWS

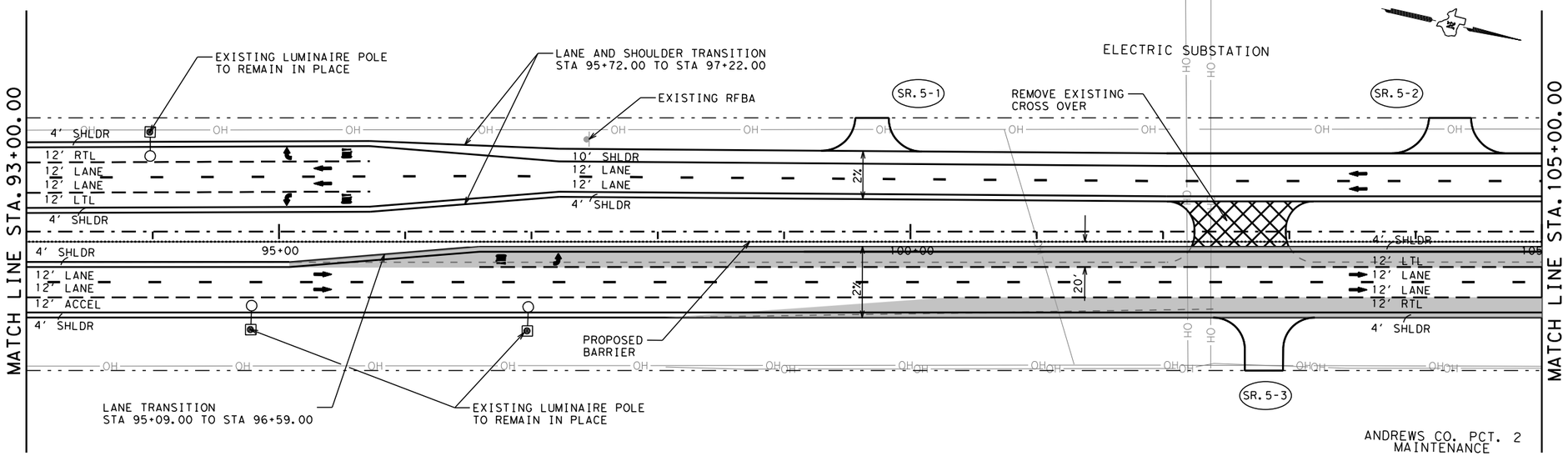
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

FILE: A385CE4.dgn
DATE: 9/25/2020 TIME: 2:29:03 PM
DIRECTORY: I:\TYL\PRJ\0001412\TREA\DGN*AVPSE*A\ROADWAY\A385CE4.dgn

0	0	14	38	41	59	66	72	69	34	53	66	
0	0	1	4	5	9	11	12	18	83	59	20	

SECTION TOTALS

EST.	FINAL	UNIT	DESCRIPTION
512		CY	EXCAVATION (RDWY)
222		CY	EMBANKMENT



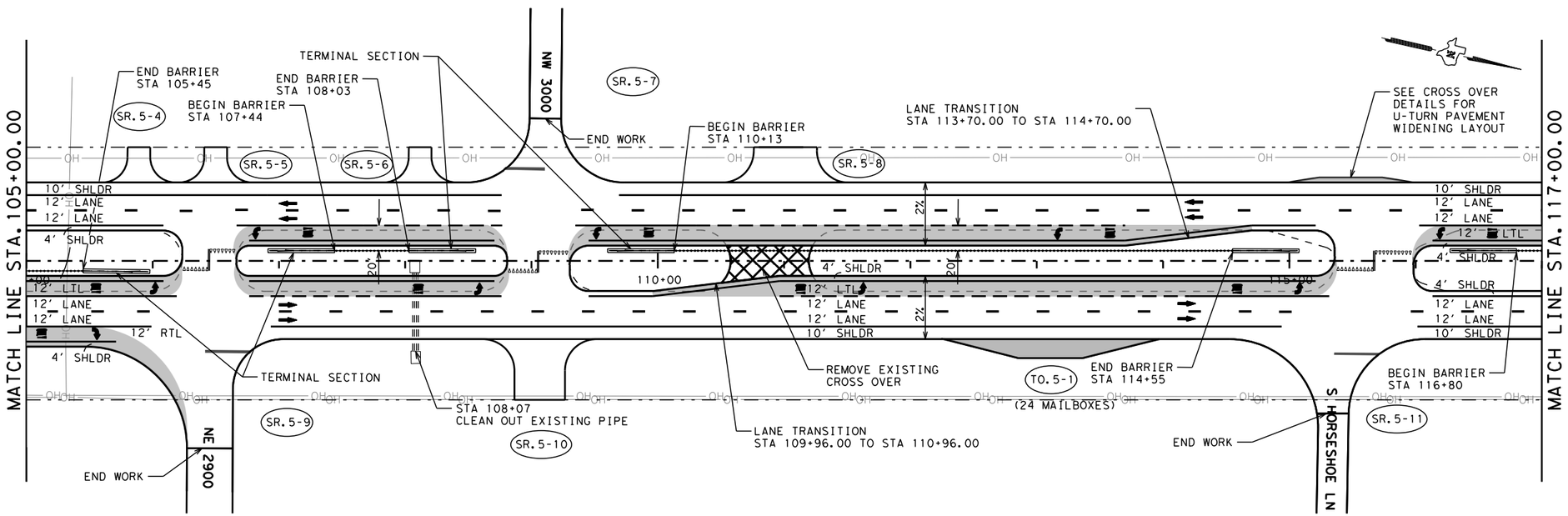
LEGEND:

- (SR. X-X) - SIDE ROADS
- (TO. X-X) - TURN OUTS
- -TERMINAL SECTION
- - CABLE BARRIER
- - PAVEMENT REMOVAL AREAS
- - LANE ADDITION OR WIDENING
- - EXISTING ROW
- 0+00 - CENTERLINE & STATIONING

72	108	85	83	45	14	31	80	83	49	50	37	
12	4	18	13	1	48	55	34	49	9	13	6	

SECTION TOTALS

EST.	FINAL	UNIT	DESCRIPTION
737		CY	EXCAVATION (RDWY)
262		CY	EMBANKMENT



09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
PLAN LAYOUT

STA 93+00.00 to STA 117+00.00

HORIZONTAL SCALE: 1" = 100'

SHEET 5 OF 31

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TBPE Firm Reg. No. 10488

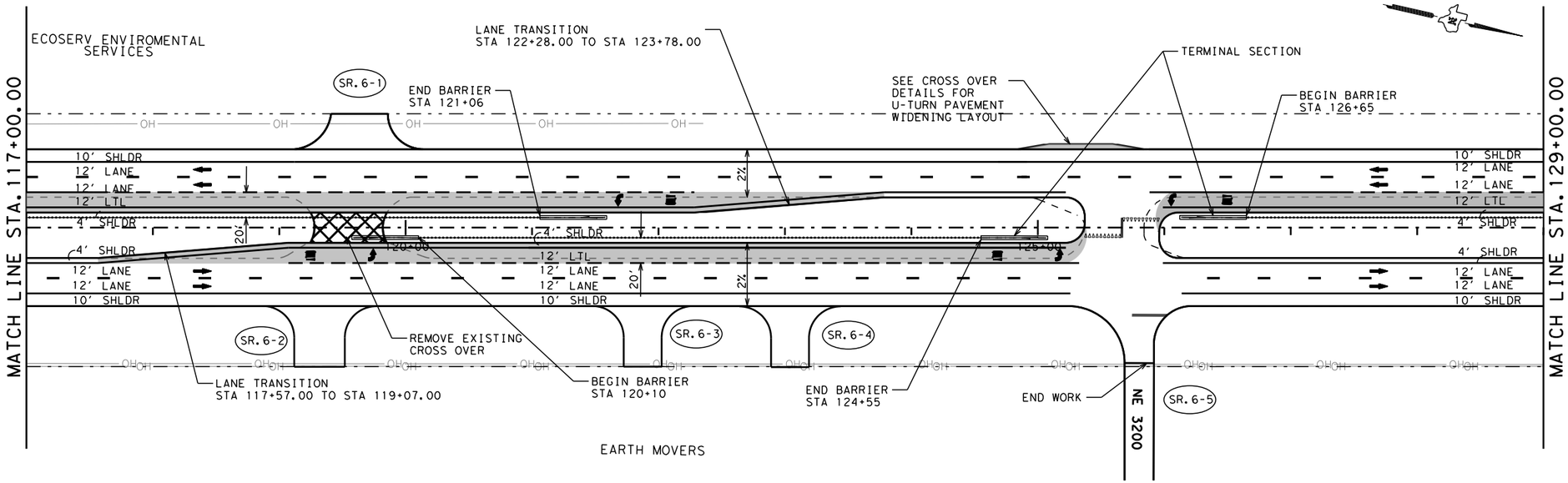
FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	86

STATE	DIST.	COUNTY
TEXAS	ODA	ANDREWS

CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

FILE: A385CE5.dgn
DATE: 9/25/2020 TIME: 2:29:06 PM
DIRECTORY: I:\TPL\PRJ\00001412\TREA\DGN*A*PSE*A*ROADWAY*A385CE5.dgn

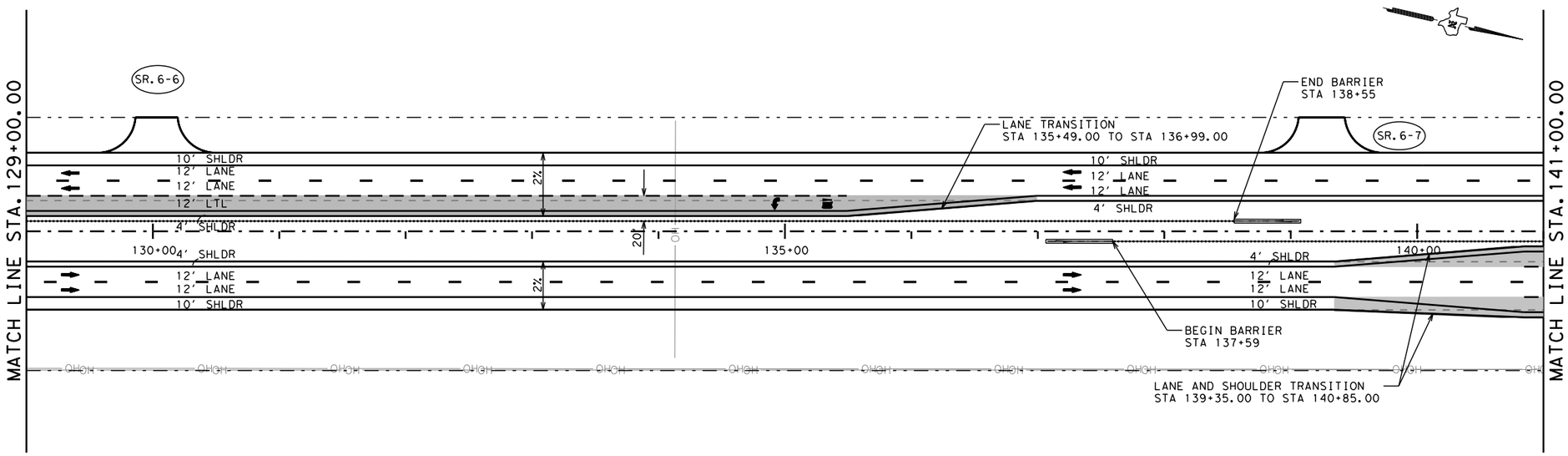
													SECTION TOTALS			
													EST.	FINAL	UNIT	DESCRIPTION
41	66	20	72	75	66	41	38	41	37	33	32		**562**		CY	EXCAVATION (RDWY)
7	8	75	13	15	22	32	21	13	5	9	10		**230**		CY	EMBANKMENT



LEGEND:

- (SR.X-X) - SIDE ROADS
- (TO.X-X) - TURN OUTS
- -TERMINAL SECTION
- - CABLE BARRIER
- - PAVEMENT REMOVAL AREAS
- - LANE ADDITION OR WIDENING
- - EXISTING ROW
- - CENTERLINE & STATIONING (0+00)

													SECTION TOTALS			
													EST.	FINAL	UNIT	DESCRIPTION
29	29	31	30	26	26	28	14	0	0	13	46		**272**		CY	EXCAVATION (RDWY)
10	10	11	13	18	19	14	5	0	0	4	19		**123**		CY	EMBANKMENT



09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
PLAN LAYOUT

STA 117+00.00 to STA 141+00.00

HORIZONTAL SCALE: 1" = 100'

SHEET 6 OF 31

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TBPE Firm Reg. No. 10488

FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	87

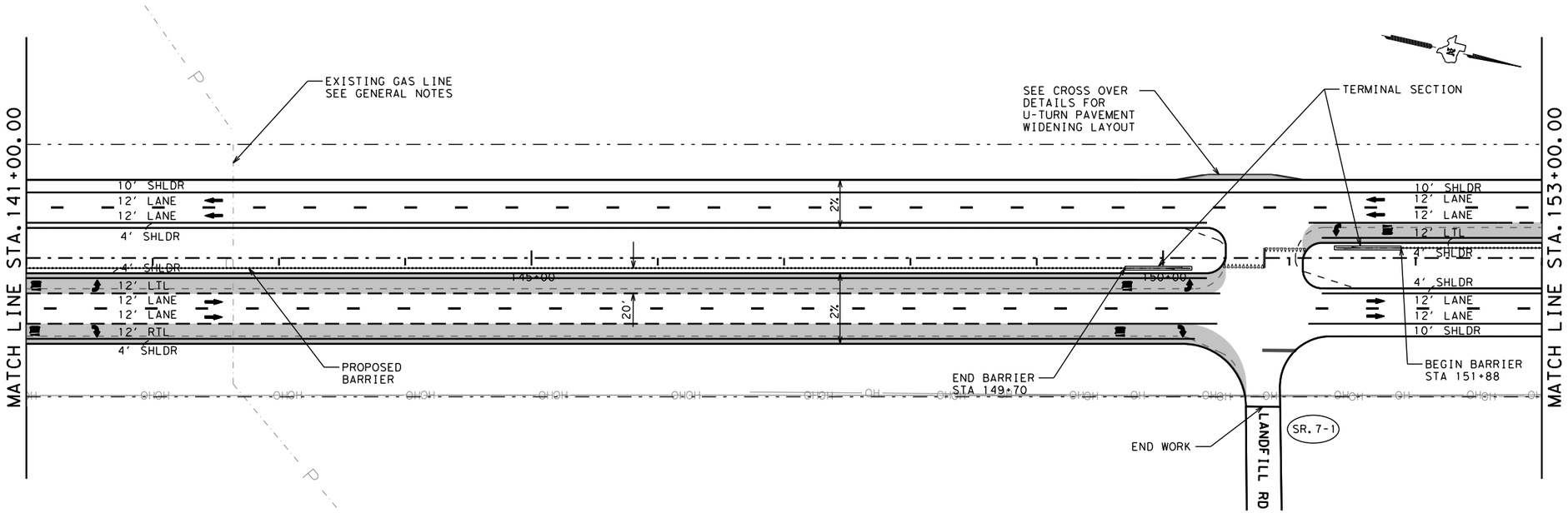
STATE	DIST.	COUNTY
TEXAS	ODA	ANDREWS

CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

FILE: A385CE6.dgn
DATE: 9/25/2020 TIME: 2:29:10 PM
DIRECTORY: I:\TYL\PRJ\0000141211\TREA\DGN*APSE*A\ROADWAY\A385CE6.dgn

56	57	56	55	56	56	56	57	59	63	42	37	
24	23	27	29	29	29	28	22	13	13	10	17	

SECTION TOTALS			
EST.	FINAL	UNIT	DESCRIPTION
650		CY	EXCAVATION (RDWY)
264		CY	EMBANKMENT

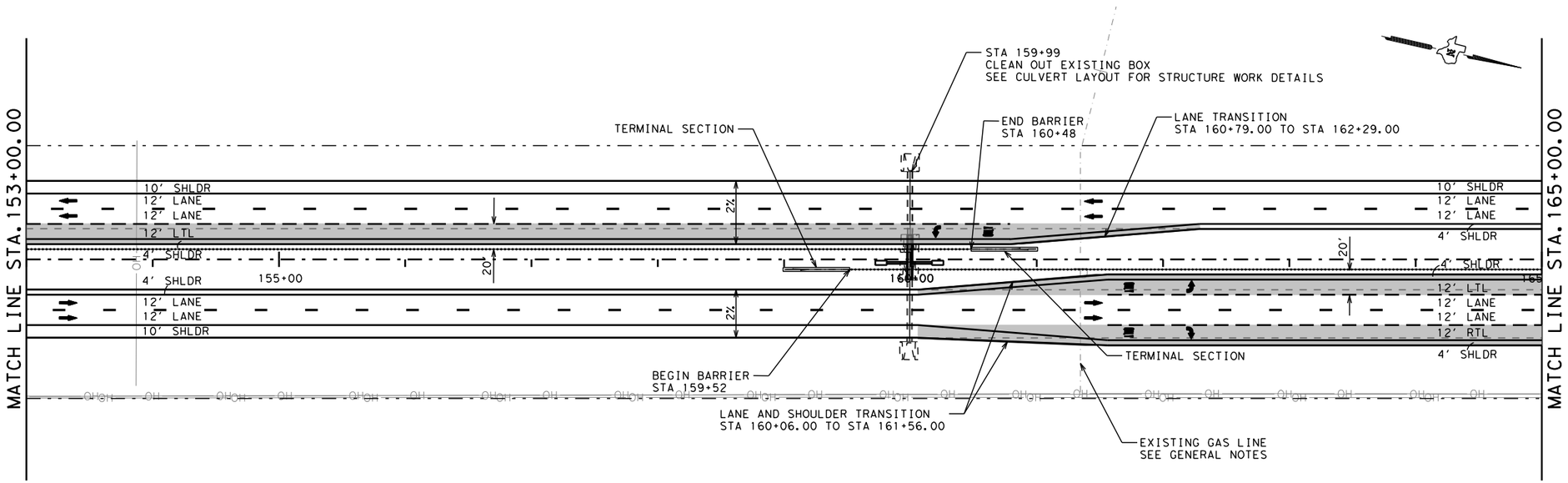


LEGEND:

- (SR. X-X) - SIDE ROADS
- (TO. X-X) - TURN OUTS
- -TERMINAL SECTION
- - CABLE BARRIER
- - PAVEMENT REMOVAL AREAS
- - LANE ADDITION OR WIDENING
- - EXISTING ROW
- 0+00 - CENTERLINE & STATIONING

39	41	40	37	34	26	24	55	68	60	53	53	
16	13	11	13	18	32	106	87	64	36	34	37	

SECTION TOTALS			
EST.	FINAL	UNIT	DESCRIPTION
530		CY	EXCAVATION (RDWY)
467		CY	EMBANKMENT



09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
PLAN LAYOUT

STA 141+00.00 to STA 165+00.00

HORIZONTAL SCALE: 1" = 100'

SHEET 7 OF 31

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TBPE Firm Reg. No. 10488

FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	88

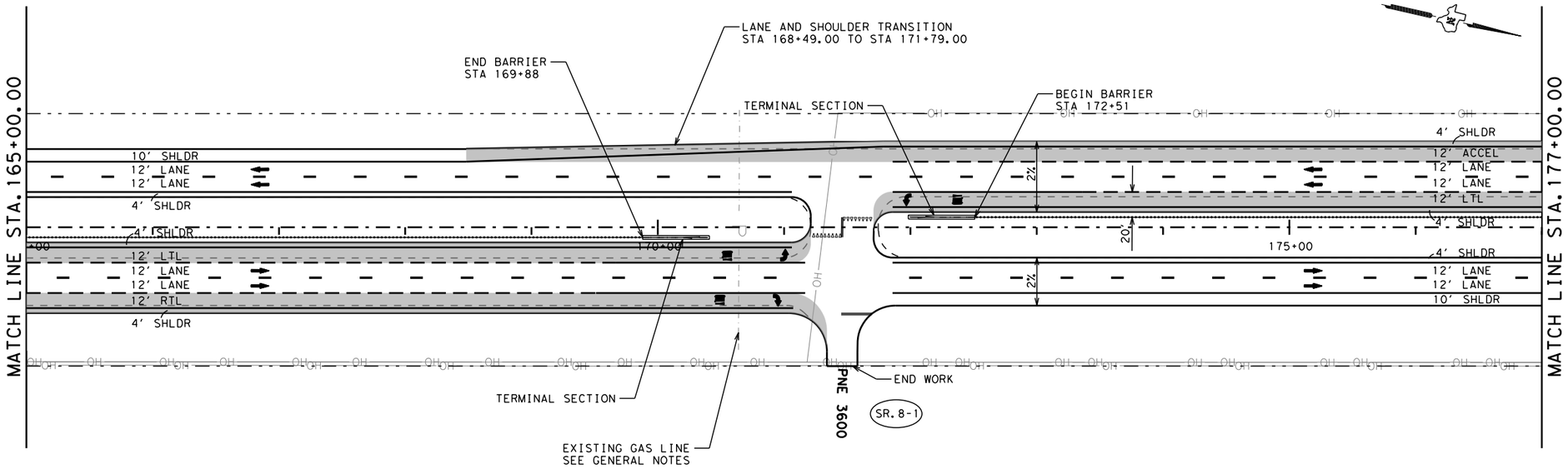
STATE	DIST.	COUNTY
TEXAS	ODA	ANDREWS

CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

FILE: A385CE7.dgn
DATE: 9/25/2020 TIME: 2:29:13 PM
DIRECTORY: I:\TYL\PRJ\0000141211\TREA\DGN*AVPSE*A\ROADWAY\A385CE7.dgn

52	50	49	52	56	64	98	53	57	62	61	57	
39	44	51	51	50	40	18	31	27	23	22	28	

SECTION TOTALS			
EST.	FINAL	UNIT	DESCRIPTION
711		CY	EXCAVATION (RDWY)
424		CY	EMBANKMENT

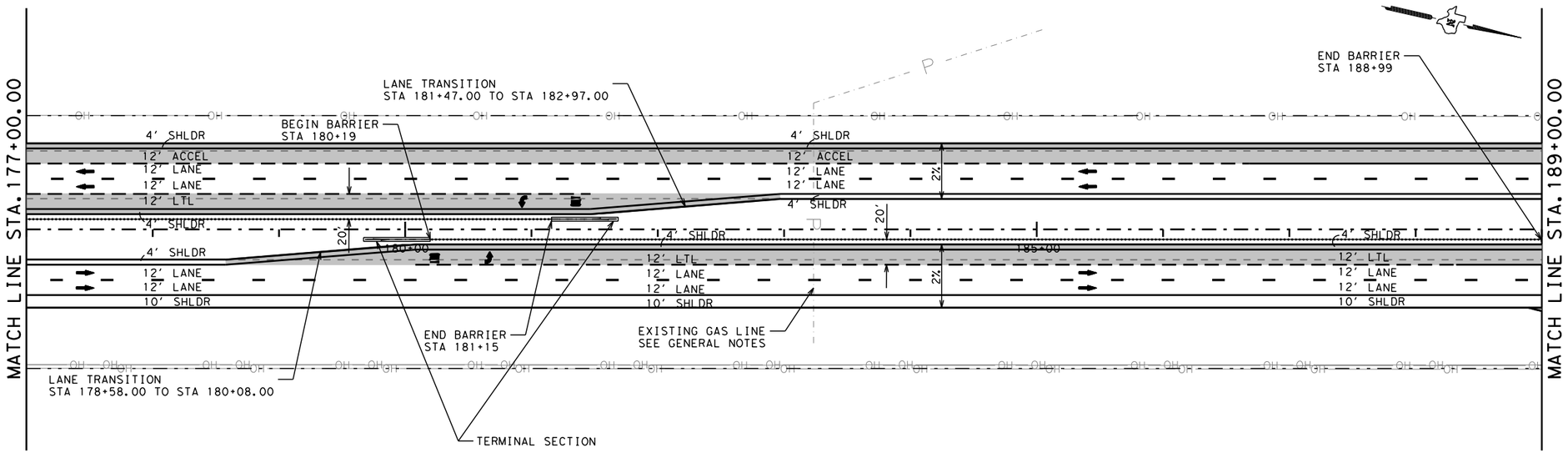


LEGEND:

- (SR. X-X) - SIDE ROADS
- (TO. X-X) - TURN OUTS
- -TERMINAL SECTION
- - CABLE BARRIER
- - PAVEMENT REMOVAL AREAS
- - LANE ADDITION OR WIDENING
- - EXISTING ROW
- 0+00 - CENTERLINE & STATIONING

54	62	78	86	84	72	52	49	47	47	45	52	
34	35	45	54	51	36	24	29	35	37	37	27	

SECTION TOTALS			
EST.	FINAL	UNIT	DESCRIPTION
728		CY	EXCAVATION (RDWY)
444		CY	EMBANKMENT



09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
PLAN LAYOUT

STA 165+00.00 to STA 189+00.00

HORIZONTAL SCALE: 1" = 100'

SHEET 8 OF 31

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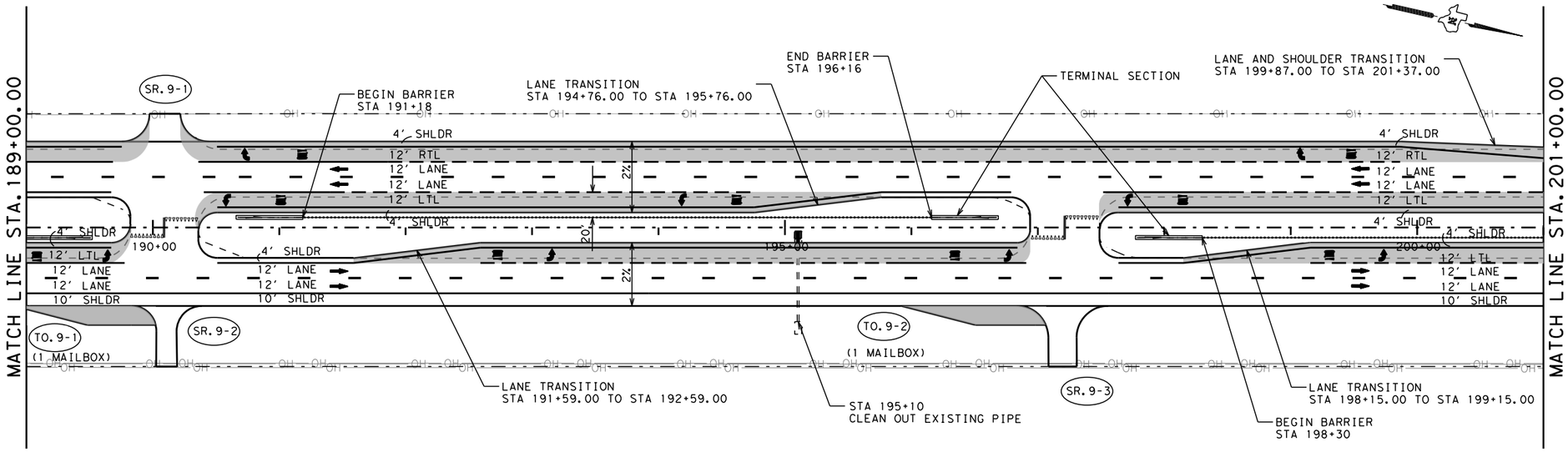
TBPE Firm Reg. No. 10488

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		89
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

FILE: A385CE8.dgn
DATE: 9/25/2020 TIME: 2:29:17 PM
DIRECTORY: I:\TYL\PRJ\0001412\TREA\DGN*A*PSE*A*ROADWAY*A385CE8.dgn

70	57	57	83	91	89	70	78	70	76	87	72	
41	20	21	28	32	38	31	36	13	15	37	49	

SECTION TOTALS			
EST.	FINAL	UNIT	DESCRIPTION
900		CY	EXCAVATION (RDWY)
361		CY	EMBANKMENT

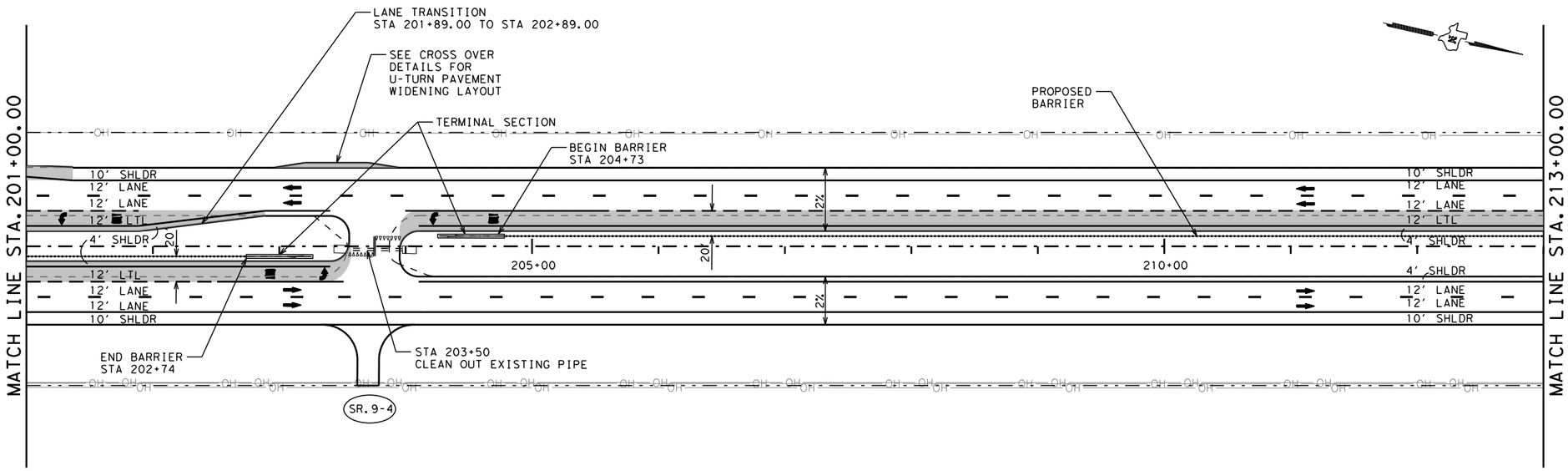


LEGEND:

- SR. X-X - SIDE ROADS
- TO. X-X - TURN OUTS
- -TERMINAL SECTION
- - CABLE BARRIER
- - PAVEMENT REMOVAL AREAS
- - LANE ADDITION OR WIDENING
- - EXISTING ROW
- 0+00 - CENTERLINE & STATIONING

56	40	55	38	33	33	36	36	33	30	31	28	
57	37	22	8	12	12	8	8	14	19	18	24	

SECTION TOTALS			
EST.	FINAL	UNIT	DESCRIPTION
449		CY	EXCAVATION (RDWY)
239		CY	EMBANKMENT



09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
PLAN LAYOUT

STA 189+00.00 to STA 213+00.00

HORIZONTAL SCALE: 1" = 100'

SHEET 9 OF 31

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TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		90
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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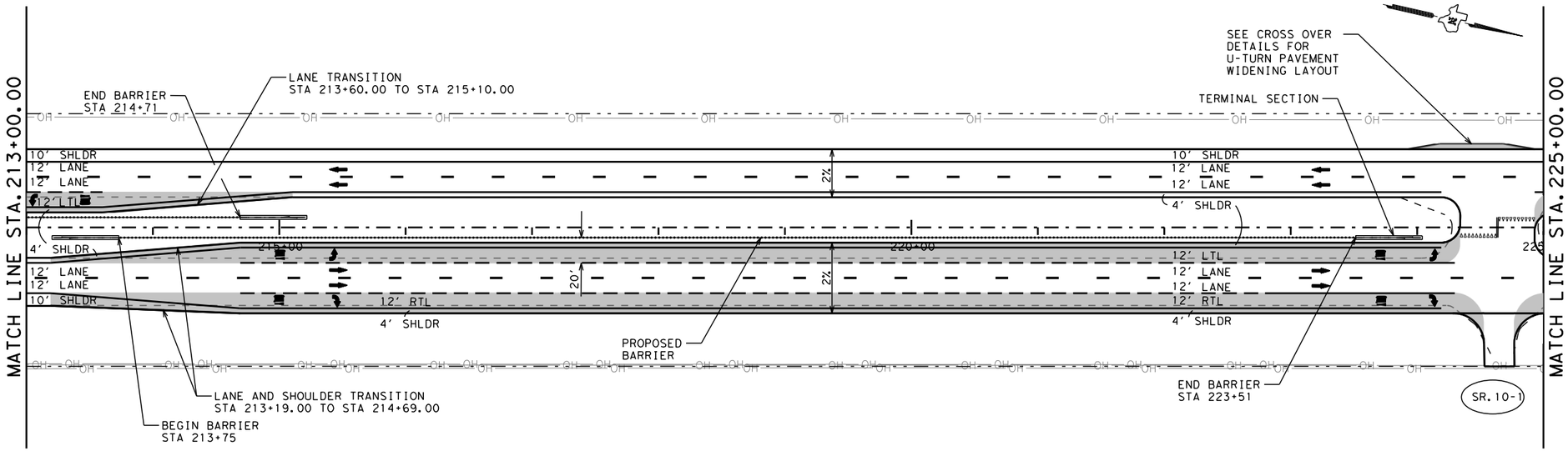
DATE: 9/25/2020 TIME: 2:29:20 PM
DIRECTORY: I:\TPL\PRJ\0000141211\TREA\DGN\APSE*A\ROADWAY\A385CE9.dgn

39	53	43	41	44	45	44	43	43	42	46	64	
50	66	67	70	63	64	64	68	70	60	44	32	

SECTION TOTALS

EST.	FINAL	UNIT	DESCRIPTION
547		CY	EXCAVATION (RDWY)
718		CY	EMBANKMENT



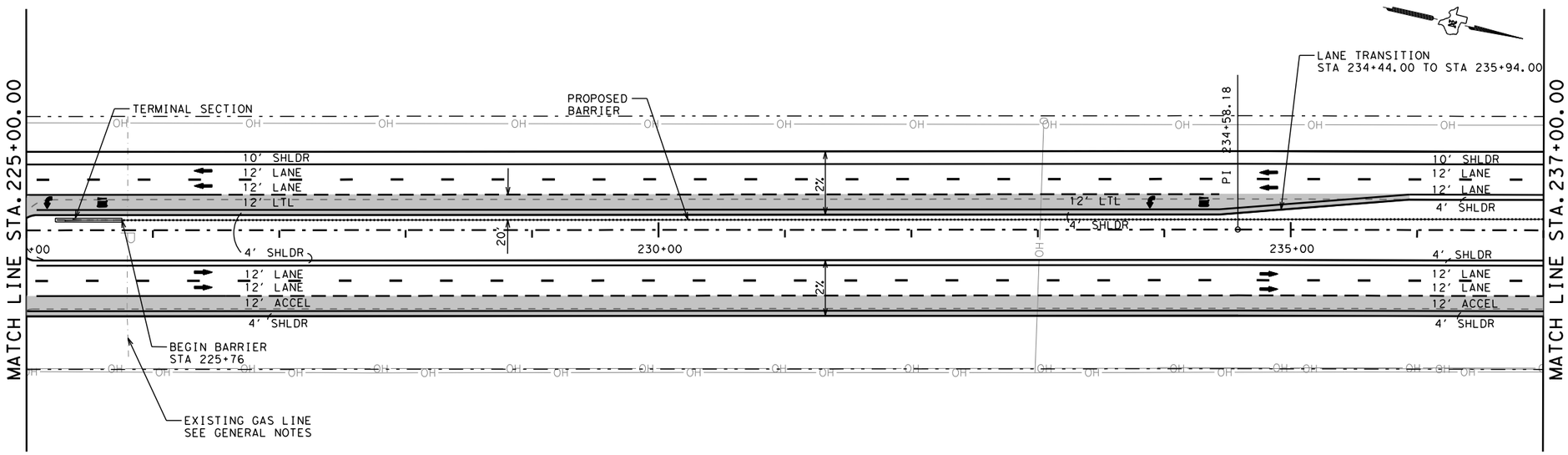
LEGEND:

- SR. X-X - SIDE ROADS
- TO. X-X - TURN OUTS
- -TERMINAL SECTION
- - CABLE BARRIER
- - PAVEMENT REMOVAL AREAS
- - LANE ADDITION OR WIDENING
- - EXISTING ROW
- - CENTERLINE & STATIONING (0+00)

47	45	47	49	51	50	47	45	45	44	32	22	
46	56	57	59	55	56	65	69	67	64	28	6	

SECTION TOTALS

EST.	FINAL	UNIT	DESCRIPTION
524		CY	EXCAVATION (RDWY)
628		CY	EMBANKMENT



09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
PLAN LAYOUT

STA 213+00.00 to STA 237+00.00

HORIZONTAL SCALE: 1" = 100'

SHEET 10 OF 31

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FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	91

STATE	DIST.	COUNTY
TEXAS	ODA	ANDREWS

CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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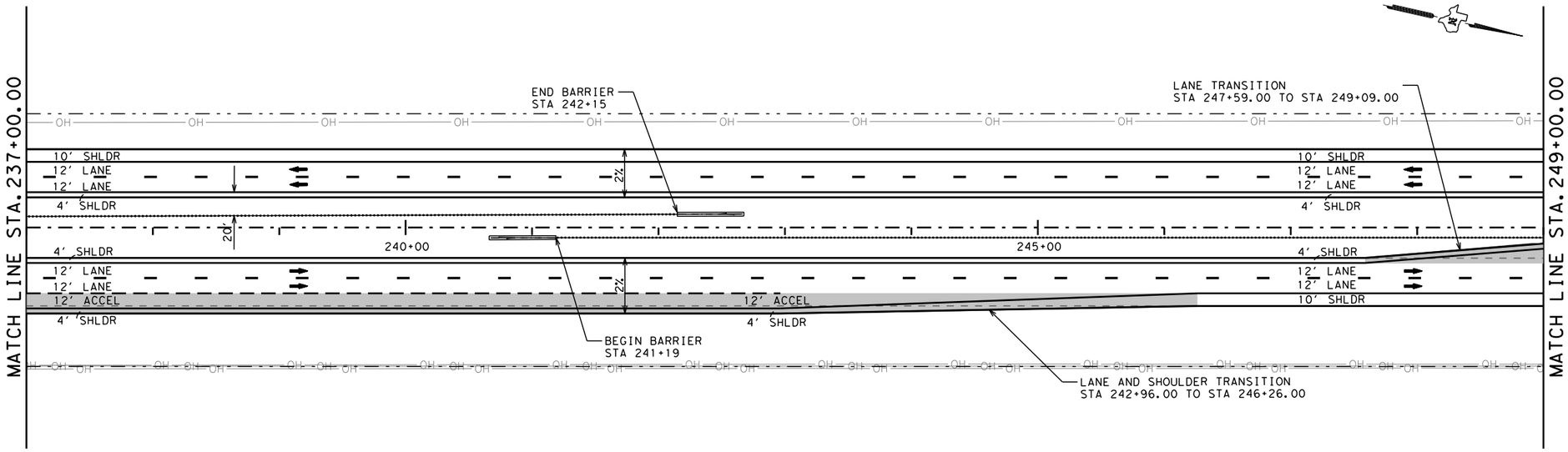
DATE: 9/25/2020 TIME: 2:29:24 PM
DIRECTORY: I:\TYL\PRJ\0000141211\TREA\DGN\APSE*A\ROADWAY\A385CE10.dgn

24	25	24	21	21	23	20	14	8	2	4	25	
5	4	8	17	25	22	22	27	14	0	0	4	

SECTION TOTALS

EST.	FINAL	UNIT	DESCRIPTION
211		CY	EXCAVATION (RDWY)
148		CY	EMBANKMENT



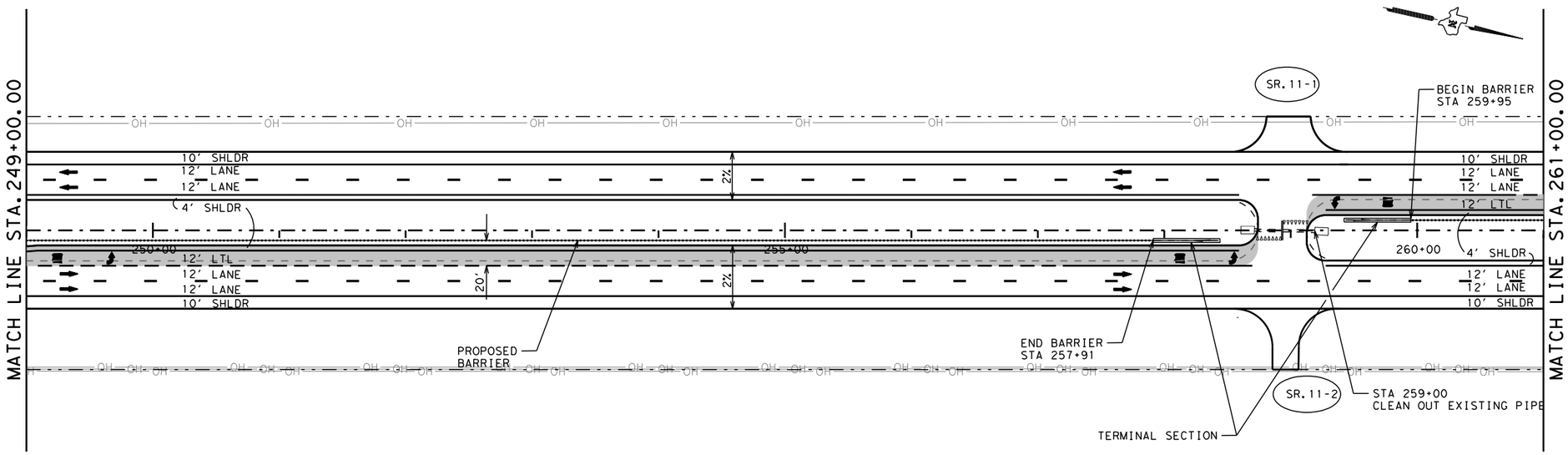
LEGEND:

- (SR. X-X) - SIDE ROADS
- (TO. X-X) - TURN OUTS
- -TERMINAL SECTION
- - CABLE BARRIER
- - PAVEMENT REMOVAL AREAS
- - LANE ADDITION OR WIDENING
- - EXISTING ROW
- - CENTERLINE & STATIONING (0+00)

37	35	30	25	23	22	21	19	18	33	46	35	
7	8	17	30	37	41	51	65	76	49	3	9	

SECTION TOTALS

EST.	FINAL	UNIT	DESCRIPTION
344		CY	EXCAVATION (RDWY)
393		CY	EMBANKMENT



09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
PLAN LAYOUT

STA 237+00.00 to STA 261+00.00

HORIZONTAL SCALE: 1" = 100'

SHEET 11 OF 31

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FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	92

STATE	DIST.	COUNTY
TEXAS	ODA	ANDREWS

CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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DATE: 9/25/2020 TIME: 2:29:27 PM
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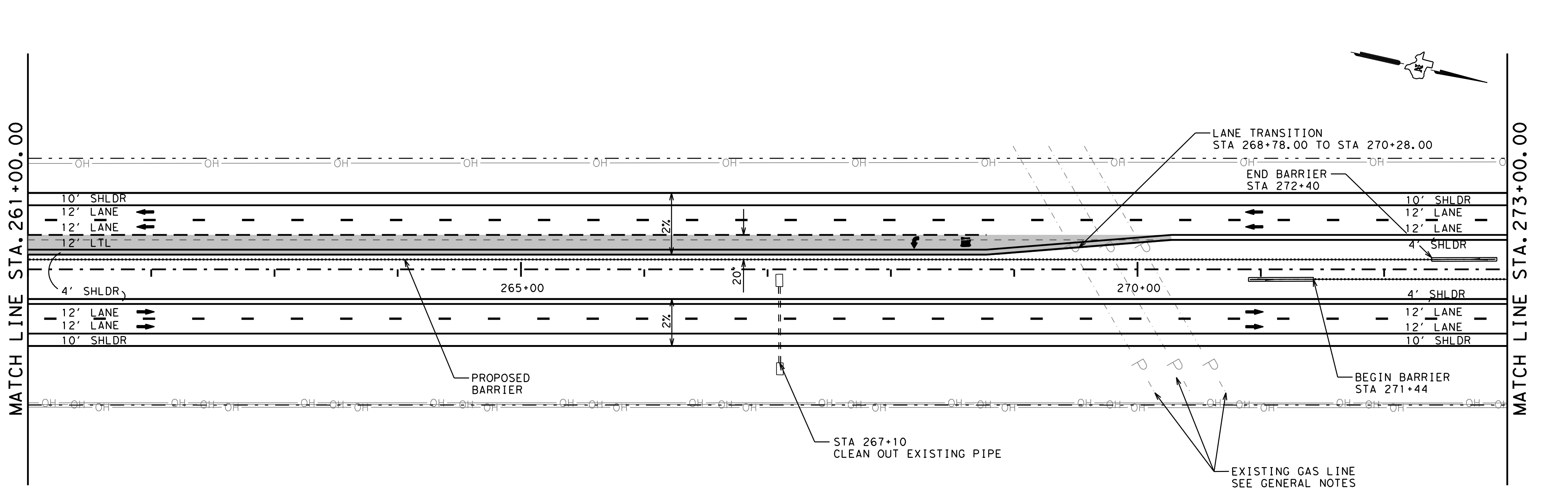
												EST.	FINAL	UNIT	DESCRIPTION
33	33	33	30	29	32	33	29	19	3	0	0	274		CY	EXCAVATION (RDWY)
13	13	13	14	14	14	16	25	14	0	0	0	136		CY	EMBANKMENT

SECTION TOTALS

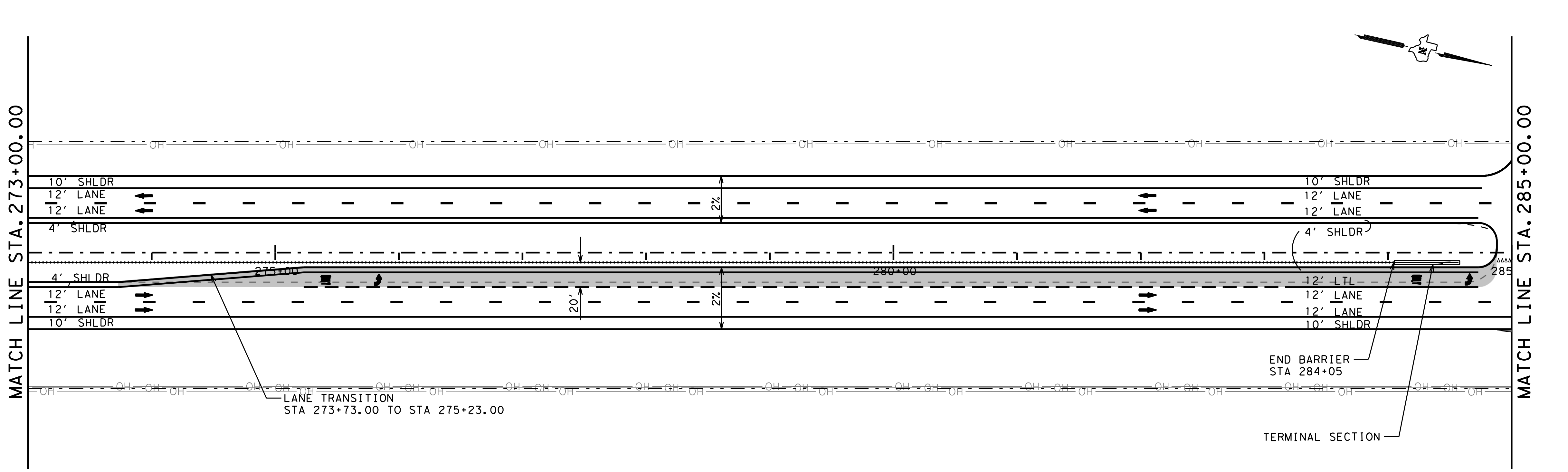


LEGEND:

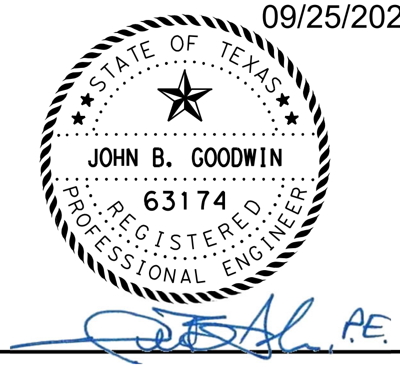
- SR. X-X - SIDE ROADS
- TO. X-X - TURN OUTS
- TERMINAL SECTION
- CABLE BARRIER
- PAVEMENT REMOVAL AREAS
- LANE ADDITION OR WIDENING
- EXISTING ROW
- 0+00 CENTERLINE & STATIONING

												EST.	FINAL	UNIT	DESCRIPTION
3	15	22	25	27	25	24	26	26	23	22	33	271		CY	EXCAVATION (RDWY)
1	21	38	28	24	27	28	26	26	30	29	16	294		CY	EMBANKMENT

SECTION TOTALS



09/25/2020



US 385
PLAN LAYOUT

STA 261+00.00 to STA 285+00.00

HORIZONTAL SCALE: 1" = 100'

SHEET 12 OF 31

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FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		93
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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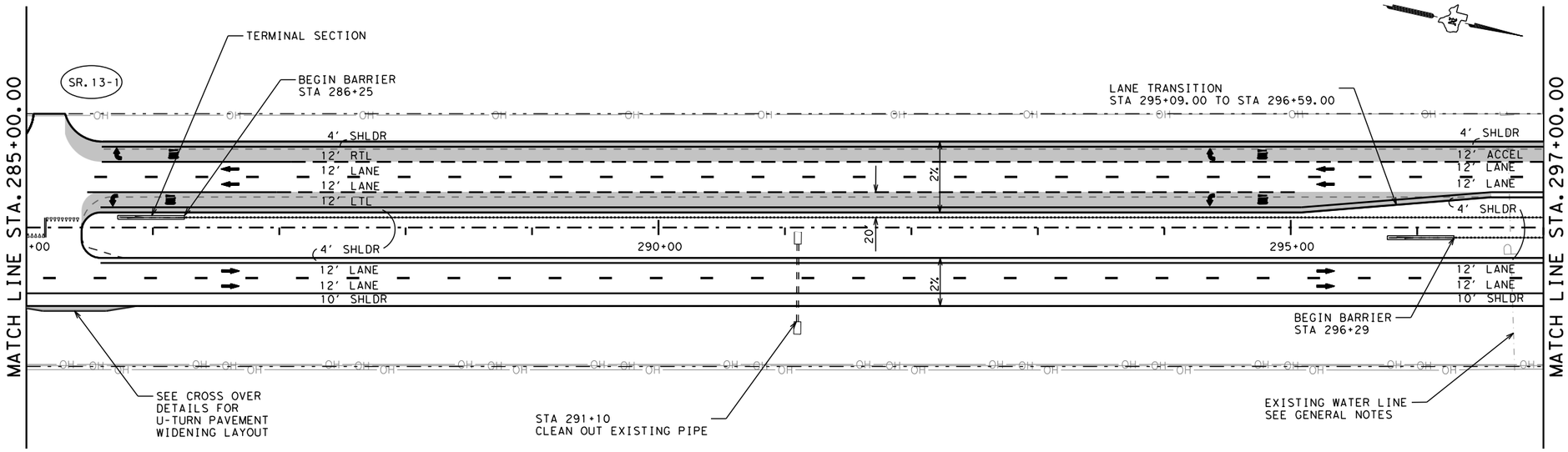
61	53	50	51	51	50	50	50	49	50	47	32	
19	17	25	27	27	32	32	32	34	31	18	6	

SECTION TOTALS

EST.	FINAL	UNIT	DESCRIPTION
594		CY	EXCAVATION (RDWY)
300		CY	EMBANKMENT



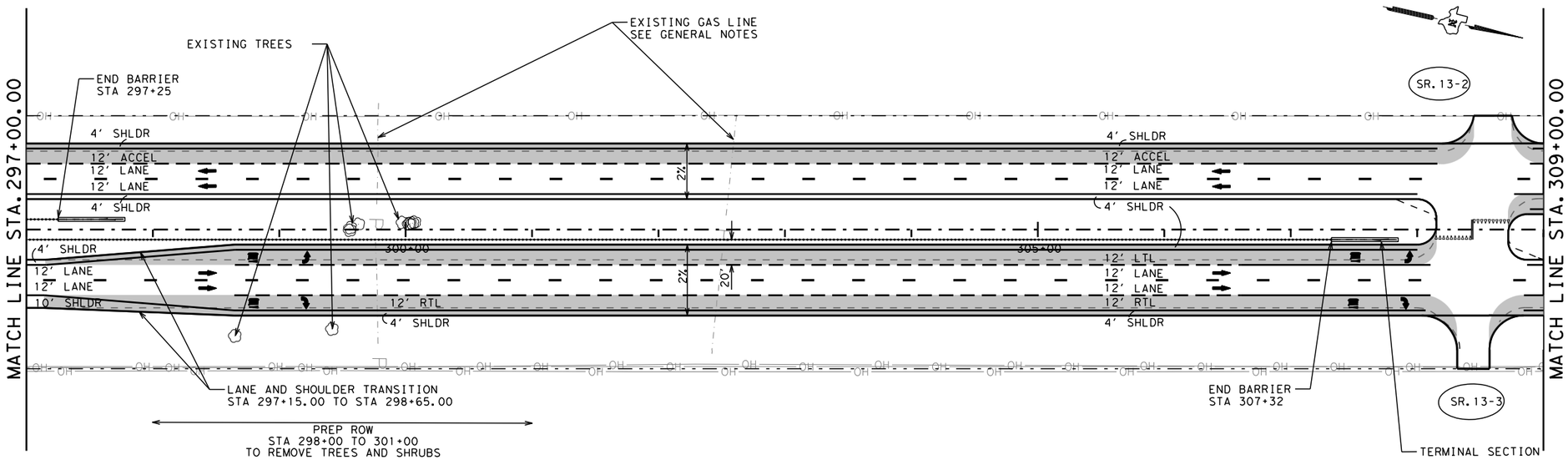
LEGEND:

- SR. X-X - SIDE ROADS
- TO. X-X - TURN OUTS
- -TERMINAL SECTION
- - CABLE BARRIER
- - PAVEMENT REMOVAL AREAS
- - LANE ADDITION OR WIDENING
- - EXISTING ROW
- - CENTERLINE & STATIONING (0+00)

40	61	65	66	67	66	64	62	61	62	68	108	
21	50	49	43	43	48	53	55	54	40	23	8	

SECTION TOTALS

EST.	FINAL	UNIT	DESCRIPTION
790		CY	EXCAVATION (RDWY)
487		CY	EMBANKMENT



09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
PLAN LAYOUT

STA 285+00.00 to STA 309+00.00

HORIZONTAL SCALE: 1" = 100'

SHEET 13 OF 31

Texas Department of Transportation

LOCHNER
TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	94

STATE	DIST.	COUNTY
TEXAS	ODA	ANDREWS

CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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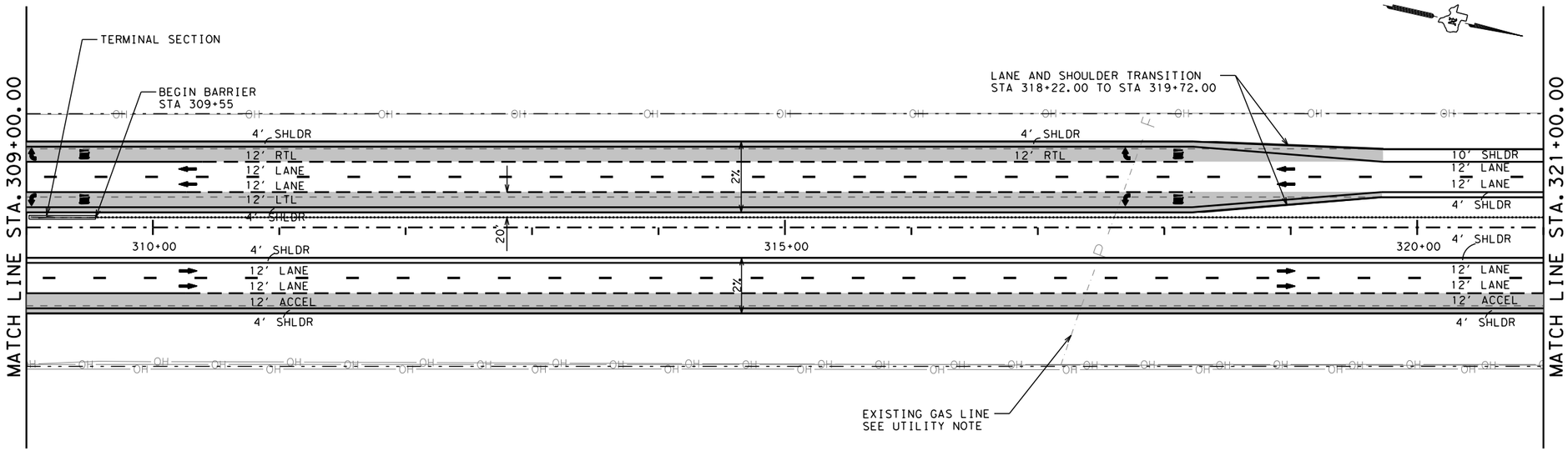
76	75	74	72	71	72	76	76	76	70	39	21	
22	36	59	67	60	54	43	35	33	26	13	17	

SECTION TOTALS

EST.	FINAL	UNIT	DESCRIPTION
798		CY	EXCAVATION (RDWY)
465		CY	EMBANKMENT



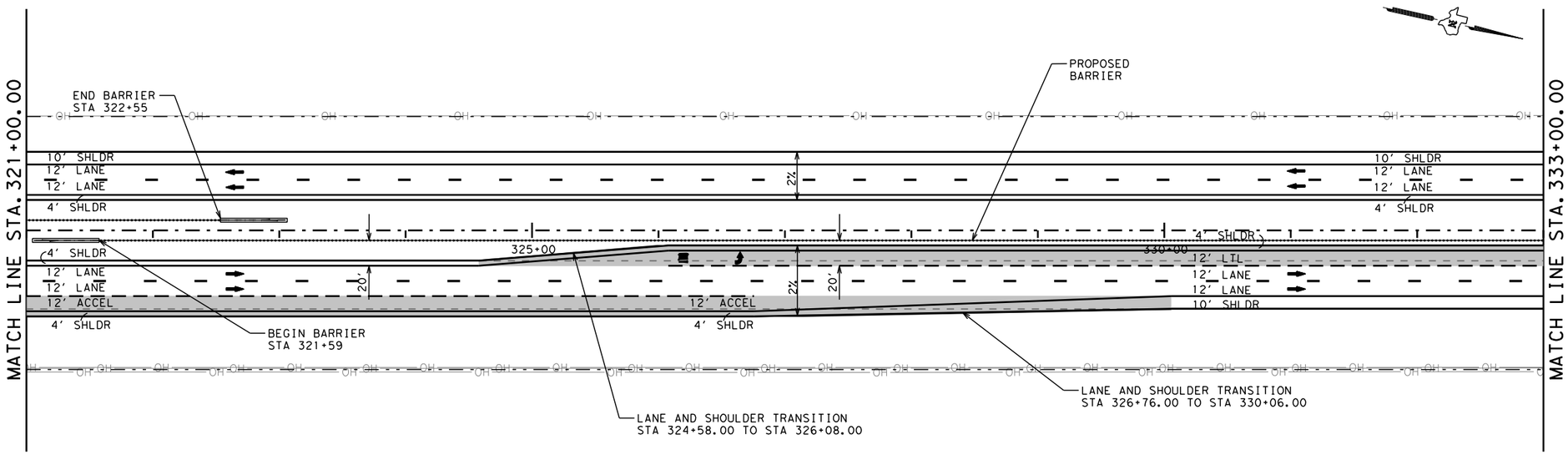
LEGEND:

- (SR. X-X) - SIDE ROADS
- (TO. X-X) - TURN OUTS
- -TERMINAL SECTION
- - CABLE BARRIER
- - PAVEMENT REMOVAL AREAS
- - LANE ADDITION OR WIDENING
- - EXISTING ROW
- 0+00 - CENTERLINE & STATIONING

21	22	23	29	44	48	42	38	34	31	30	31	
19	12	6	5	18	38	50	47	32	23	22	20	

SECTION TOTALS

EST.	FINAL	UNIT	DESCRIPTION
393		CY	EXCAVATION (RDWY)
292		CY	EMBANKMENT



09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
PLAN LAYOUT

STA 309+00.00 to STA 333+00.00

HORIZONTAL SCALE: 1" = 100'

SHEET 14 OF 31

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FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	95

STATE	DIST.	COUNTY
TEXAS	ODA	ANDREWS

CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

FILE: A385CE14.dgn
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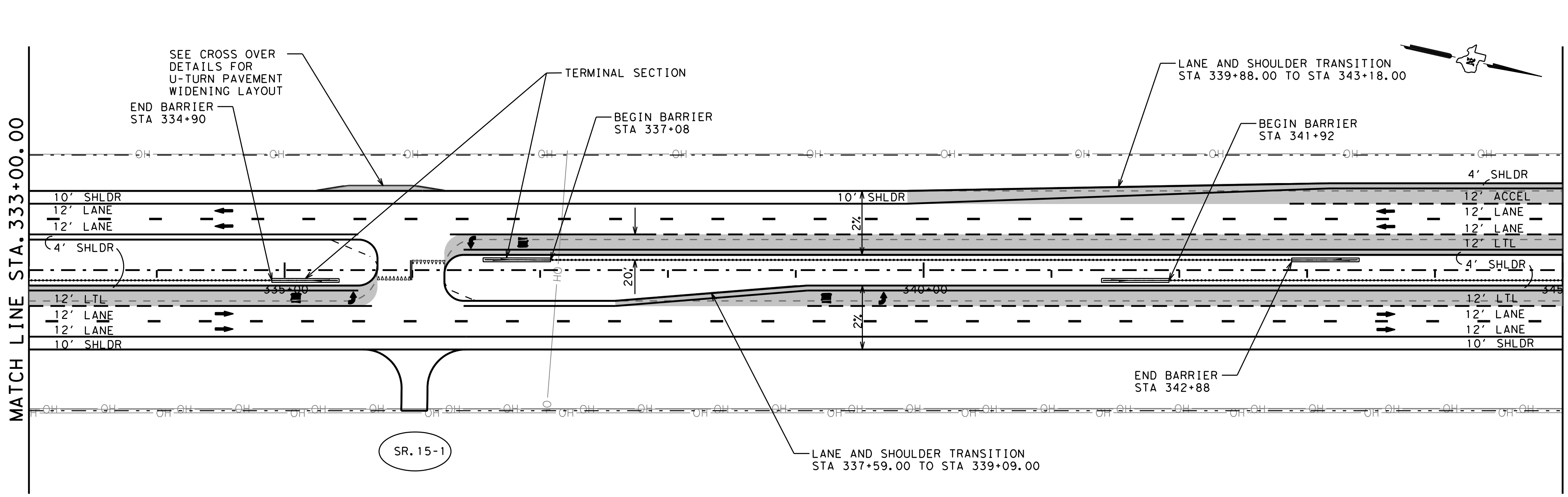
DIRECTORY: I:\TYL\PRJ\0000141211\TREA\DGN*A\PSE*A\ROADWAY\A385CE14.dgn

												EST.	FINAL	UNIT	DESCRIPTION
32	33	50	48	41	56	67	70	73	77	84	86	717		CY	EXCAVATION (RDWY)
17	13	10	4	8	18	28	37	50	63	63	57	368		CY	EMBANKMENT

SECTION TOTALS

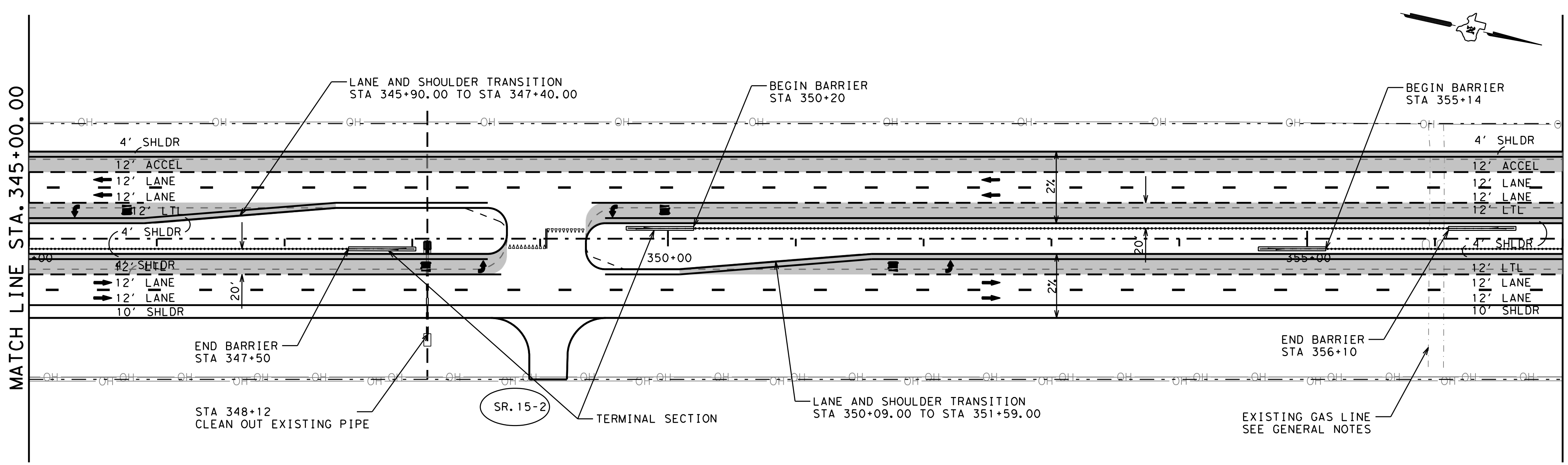


LEGEND:

- (SR. X-X) - SIDE ROADS
- (TO. X-X) - TURN OUTS
- TERMINAL SECTION
- CABLE BARRIER
- PAVEMENT REMOVAL AREAS
- LANE ADDITION OR WIDENING
- EXISTING ROW
- CENTERLINE & STATIONING (0+00)

												EST.	FINAL	UNIT	DESCRIPTION
83	70	52	57	64	72	83	83	84	89	95	94	926		CY	EXCAVATION (RDWY)
59	56	51	35	11	28	58	61	53	39	28	30	509		CY	EMBANKMENT

SECTION TOTALS



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STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER

US 385 PLAN LAYOUT

STA 333+00.00 to STA 357+00.00

HORIZONTAL SCALE: 1" = 100'

SHEET 15 OF 31

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FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		96
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

FILE: A385CE15.dgn
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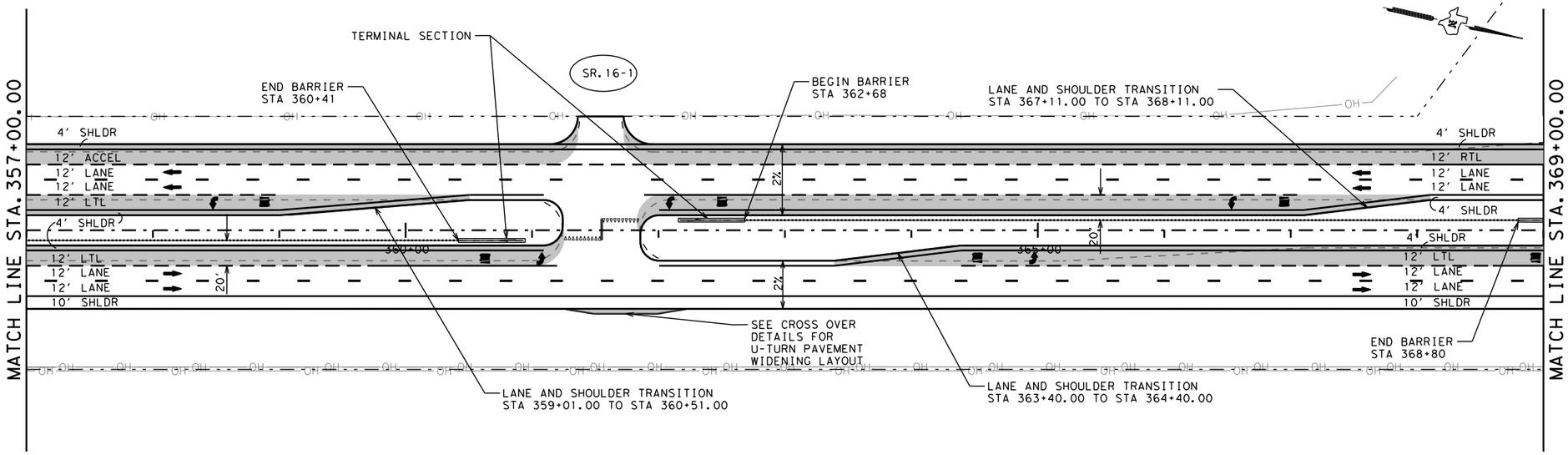
DIRECTORY: I:\TYL\PRJ\00001412\TREA\DGN\AVPSE\ROADWAY\A385CE15.dgn

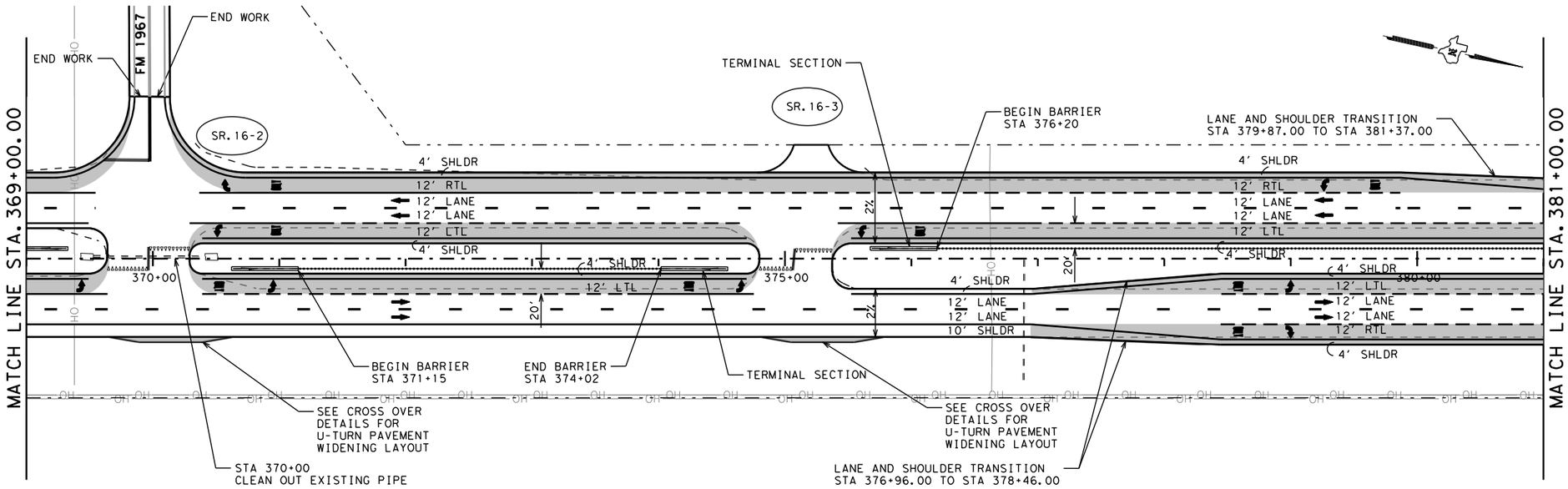
													SECTION TOTALS			
													EST.	FINAL	UNIT	DESCRIPTION
93	96	88	67	82	68	72	103	103	85	61	38		**956**		CY	EXCAVATION (RDWY)
35	31	23	18	12	11	15	23	9	4	2	1		**184**		CY	EMBANKMENT



LEGEND:

- (SR. X-X) - SIDE ROADS
- (TO. X-X) - TURN OUTS
- -TERMINAL SECTION
- - CABLE BARRIER
- - PAVEMENT REMOVAL AREAS
- - LANE ADDITION OR WIDENING
- - EXISTING ROW
- - CENTERLINE & STATIONING (0+00)

													SECTION TOTALS			
													EST.	FINAL	UNIT	DESCRIPTION
61	135	95	101	102	110	86	79	107	138	132	116		**1262**		CY	EXCAVATION (RDWY)
4	34	22	12	13	12	3	3	4	12	21	26		**166**		CY	EMBANKMENT



09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
PLAN LAYOUT

STA 357+00.00 to STA 381+00.00

HORIZONTAL SCALE: 1" = 100'

SHEET 16 OF 31

Texas Department of Transportation

LOCHNER
TBPE Firm Reg. No. 10488

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		97
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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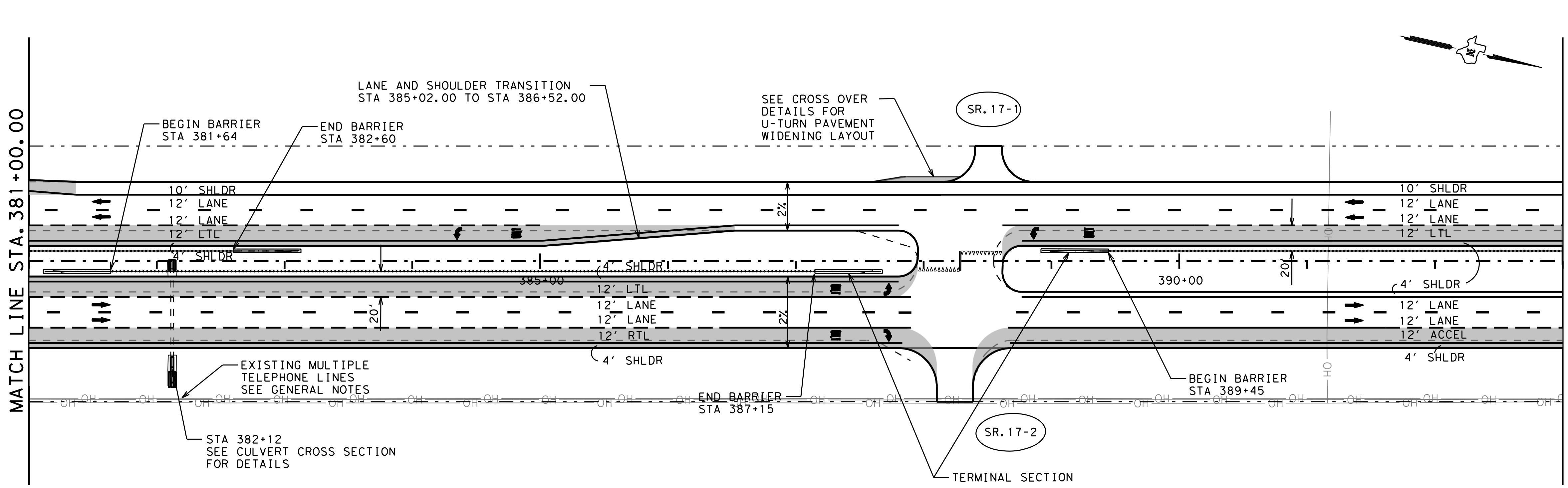
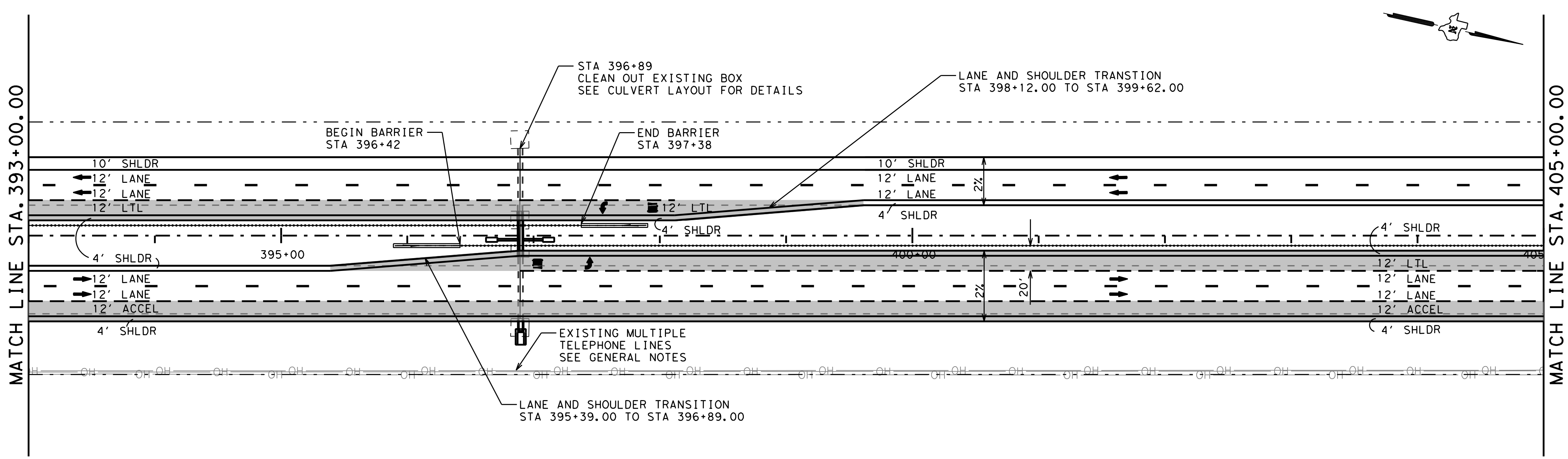
												EST.	FINAL	UNIT	DESCRIPTION
												SECTION TOTALS			
89	84	102	112	101	74	72	64	59	56	61	66	**940**		CY	EXCAVATION (RDWY)
67	96	36	19	14	11	9	11	23	26	20	12	**344**		CY	EMBANKMENT



LEGEND:

- SR. X-X - SIDE ROADS
- TO. X-X - TURN OUTS
- TERMINAL SECTION
- CABLE BARRIER
- PAVEMENT REMOVAL AREAS
- LANE ADDITION OR WIDENING
- EXISTING ROW
- CENTERLINE & STATIONING (0+00)

												EST.	FINAL	UNIT	DESCRIPTION
												SECTION TOTALS			
72	75	85	74	92	99	70	54	56	59	59	58	**853**		CY	EXCAVATION (RDWY)
6	3	5	272	100	22	18	19	17	13	12	14	**501**		CY	EMBANKMENT



09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385 PLAN LAYOUT

STA 381+00.00 to STA 405+00.00

HORIZONTAL SCALE: 1" = 100'

SHEET 17 OF 31

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FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		98
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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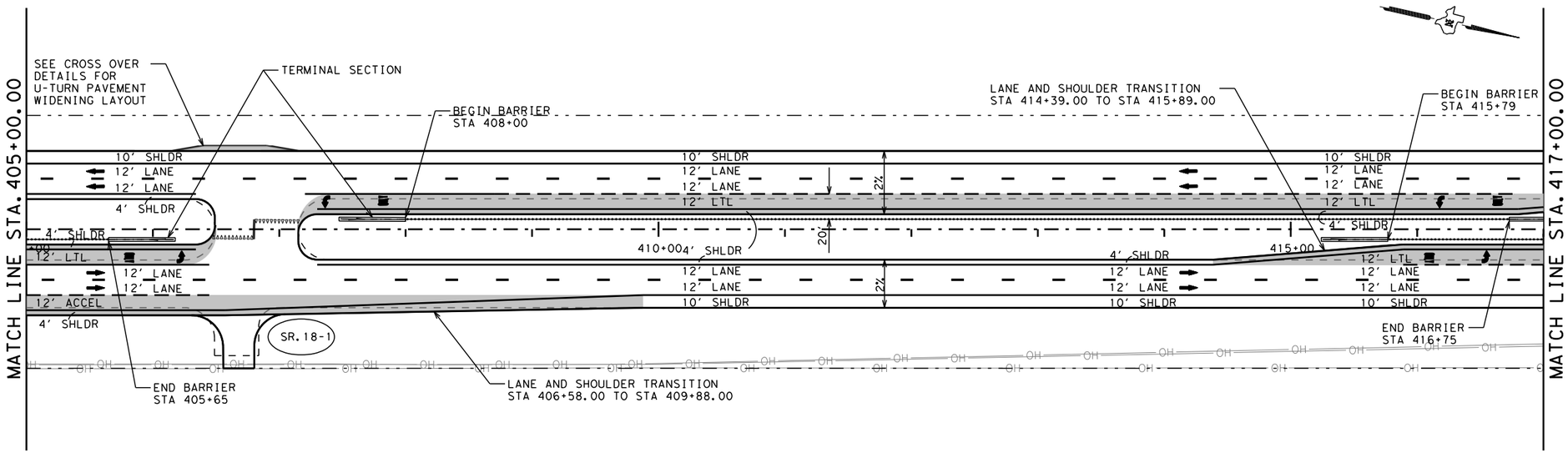
57	54	64	50	39	31	30	31	32	40	59	69	
17	18	8	8	12	16	18	17	14	14	22	23	

SECTION TOTALS

EST.	FINAL	UNIT	DESCRIPTION
556		CY	EXCAVATION (RDWY)
187		CY	EMBANKMENT



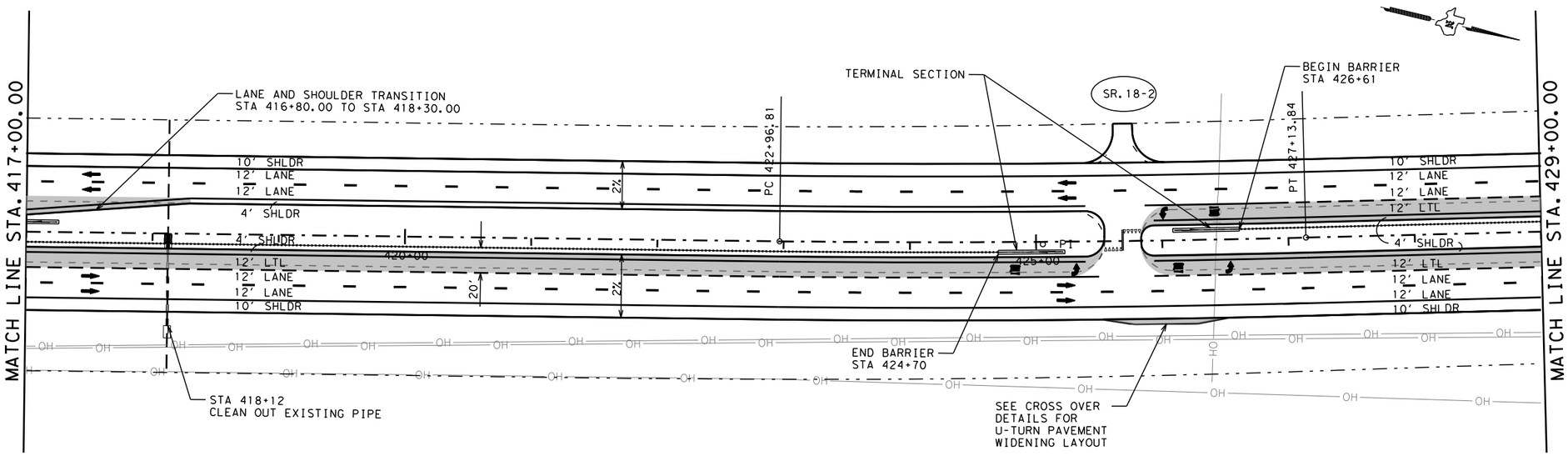
LEGEND:

- (SR. X-X) - SIDE ROADS
- (TO. X-X) - TURN OUTS
- -TERMINAL SECTION
- - CABLE BARRIER
- - PAVEMENT REMOVAL AREAS
- - LANE ADDITION OR WIDENING
- - EXISTING ROW
- - CENTERLINE & STATIONING (0+00)

58	32	29	29	29	29	30	32	56	79	69	67	
24	35	32	31	32	31	25	17	12	23	21	23	

SECTION TOTALS

EST.	FINAL	UNIT	DESCRIPTION
539		CY	EXCAVATION (RDWY)
306		CY	EMBANKMENT



09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
PLAN LAYOUT

STA 405+00.00 to STA 429+00.00

HORIZONTAL SCALE: 1" = 100'

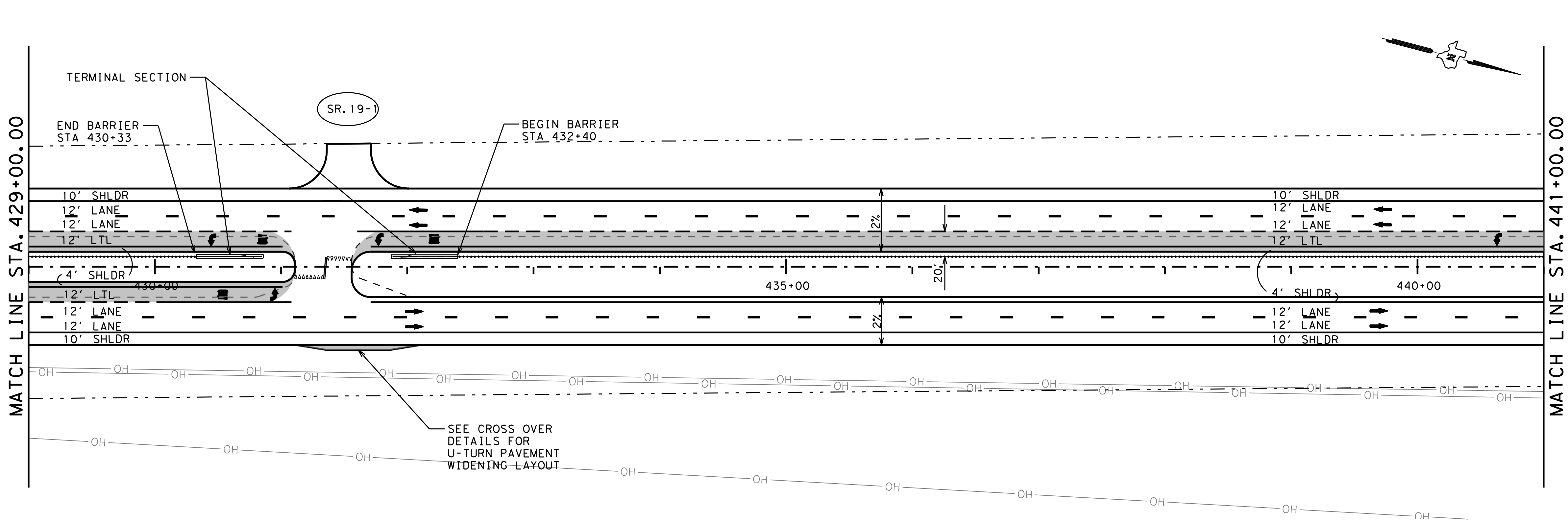
SHEET 18 OF 31

LOCHNER
TBPE Firm Reg. No. 10488

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		99
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

FILE: A385CE18.dgn
DATE: 9/25/2020 TIME: 2:29:51 PM
DIRECTORY: I:\TYL\PRJ\00001412\TREA\DGN*AVPSE*A\ROADWAY\A385CE18.dgn

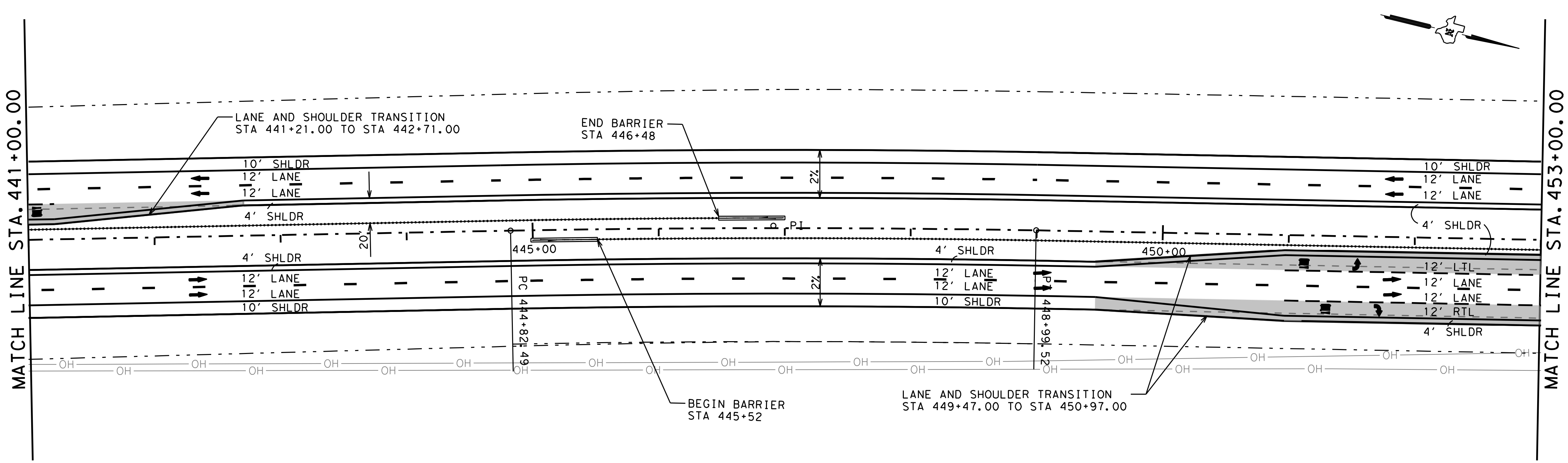
												SECTION TOTALS EST.	FINAL	UNIT	DESCRIPTION
71	78	70	35	33	33	33	33	33	29	23	24	495		CY	EXCAVATION (RDWY)
17	9	14	12	12	13	13	13	15	23	35	29	205		CY	EMBANKMENT



LEGEND:

- SR. X-X - SIDE ROADS
- TO. X-X - TURN OUTS
- TERMINAL SECTION
- CABLE BARRIER
- PAVEMENT REMOVAL AREAS
- LANE ADDITION OR WIDENING
- EXISTING ROW
- CENTERLINE & STATIONING (0+00)

												SECTION TOTALS EST.	FINAL	UNIT	DESCRIPTION
27	9	0	0	0	0	0	0	9	43	59	59	206		CY	EXCAVATION (RDWY)
11	1	0	0	0	0	0	0	2	9	14	17	54		CY	EMBANKMENT



09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
PLAN LAYOUT

STA 429+00.00 to STA 453+00.00

HORIZONTAL SCALE: 1" = 100'

SHEET 19 OF 31

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TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		100
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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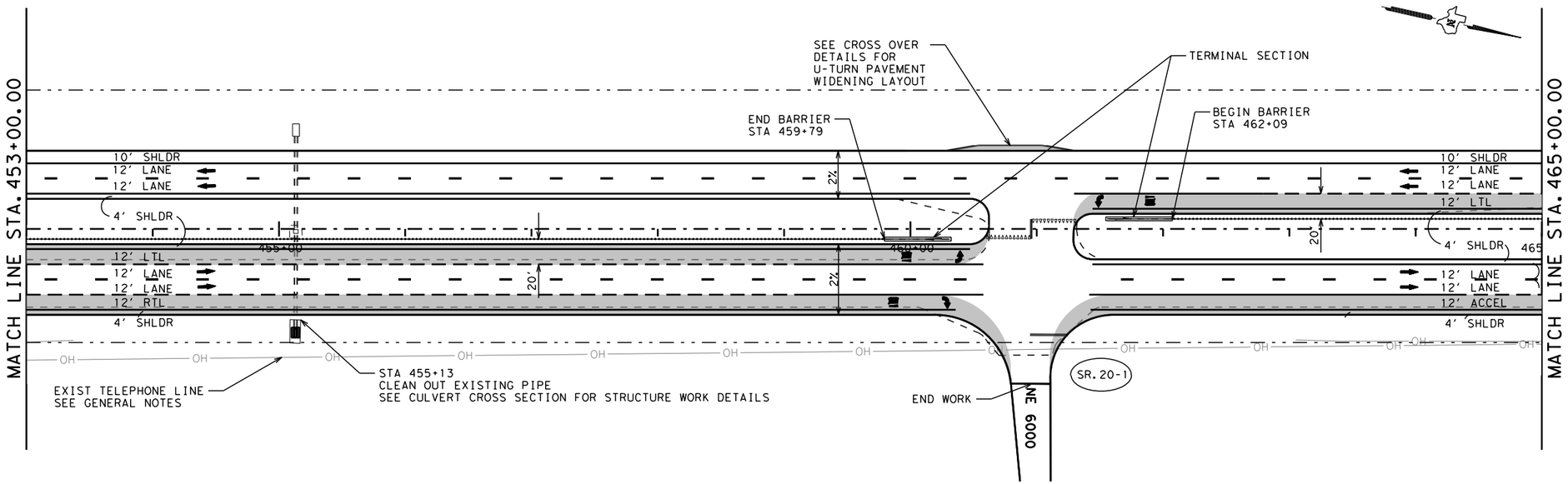
57	56	56	55	53	53	57	71	43	33	33	42	
22	33	35	32	29	19	10	10	3	1	3	17	

SECTION TOTALS			
EST.	FINAL	UNIT	DESCRIPTION
609		CY	EXCAVATION (RDWY)
214		CY	EMBANKMENT

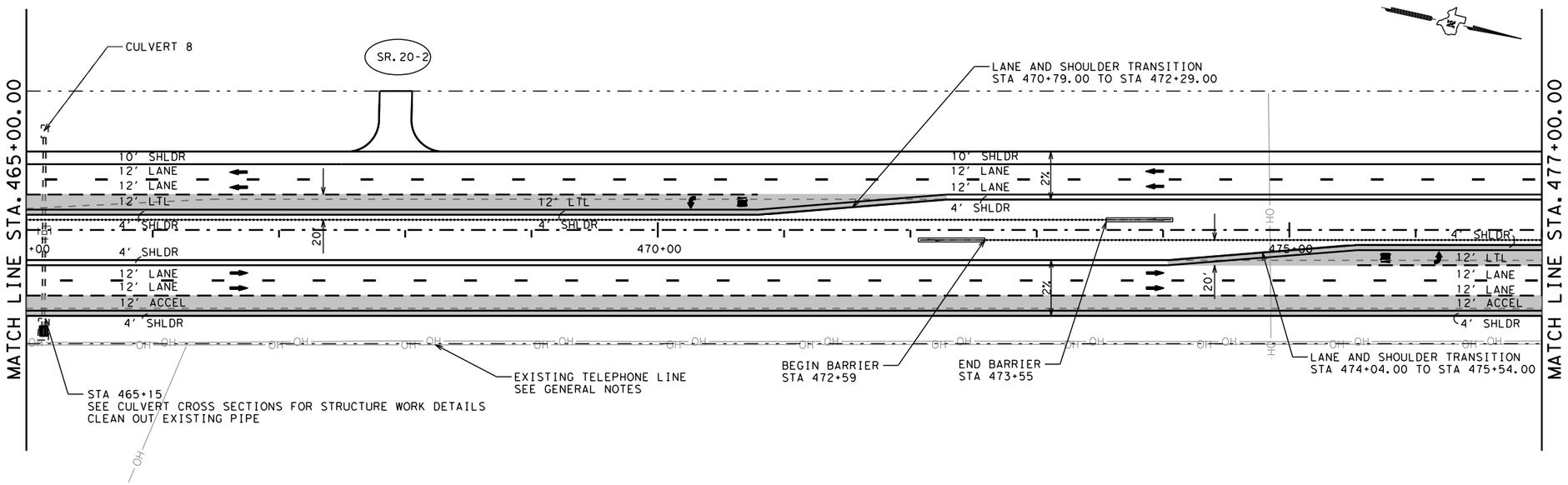


LEGEND:

- (SR. X-X) - SIDE ROADS
- (TO. X-X) - TURN OUTS
- -TERMINAL SECTION
- - CABLE BARRIER
- - PAVEMENT REMOVAL AREAS
- - LANE ADDITION OR WIDENING
- - EXISTING ROW
- 0+00 - CENTERLINE & STATIONING

59	62	60	60	59	58	46	28	26	40	59	57	
26	22	24	22	22	25	11	0	0	2	7	11	

SECTION TOTALS			
EST.	FINAL	UNIT	DESCRIPTION
614		CY	EXCAVATION (RDWY)
172		CY	EMBANKMENT



09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
PLAN LAYOUT

STA 453+00.00 to STA 477+00.00

HORIZONTAL SCALE: 1" = 100'

SHEET 20 OF 31

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FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	101

STATE	DIST.	COUNTY
TEXAS	ODA	ANDREWS

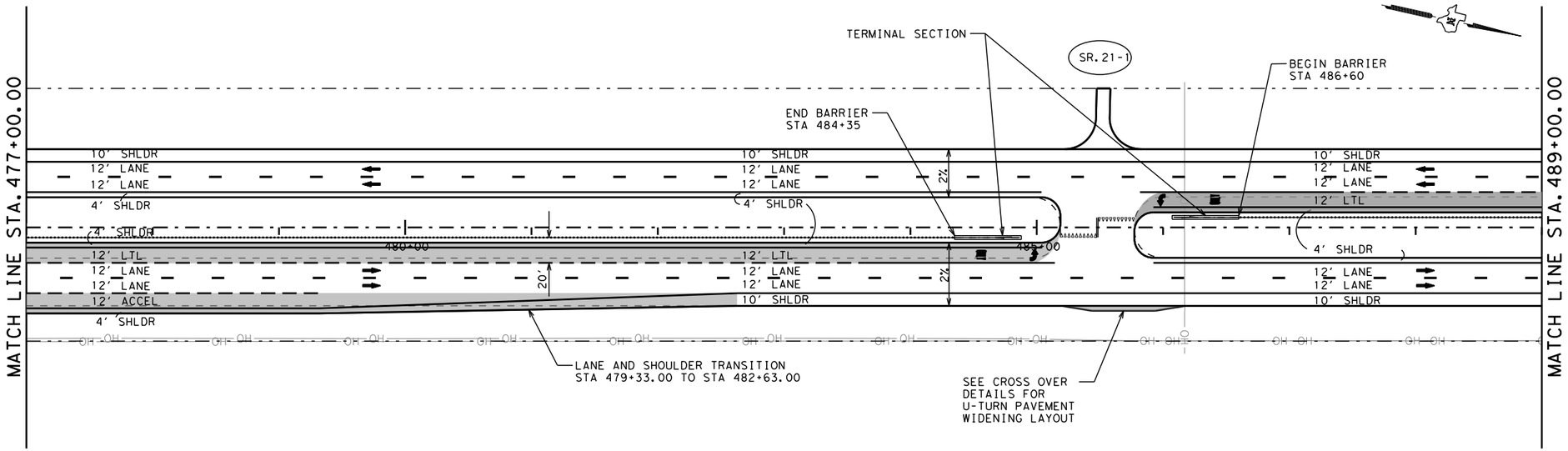
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

FILE: A385CE20.dgn
DATE: 9/25/2020 TIME: 2:29:58 PM
DIRECTORY: I:\TPL\PRJ\00001412\TREA\DGN*A*PSE*A*ROADWAY*A385CE20.dgn

54	56	54	44	40	43	43	46	64	45	41	40	
11	10	10	12	11	5	2	1	0	4	4	4	

SECTION TOTALS

EST.	FINAL	UNIT	DESCRIPTION
570		CY	EXCAVATION (RDWY)
74		CY	EMBANKMENT



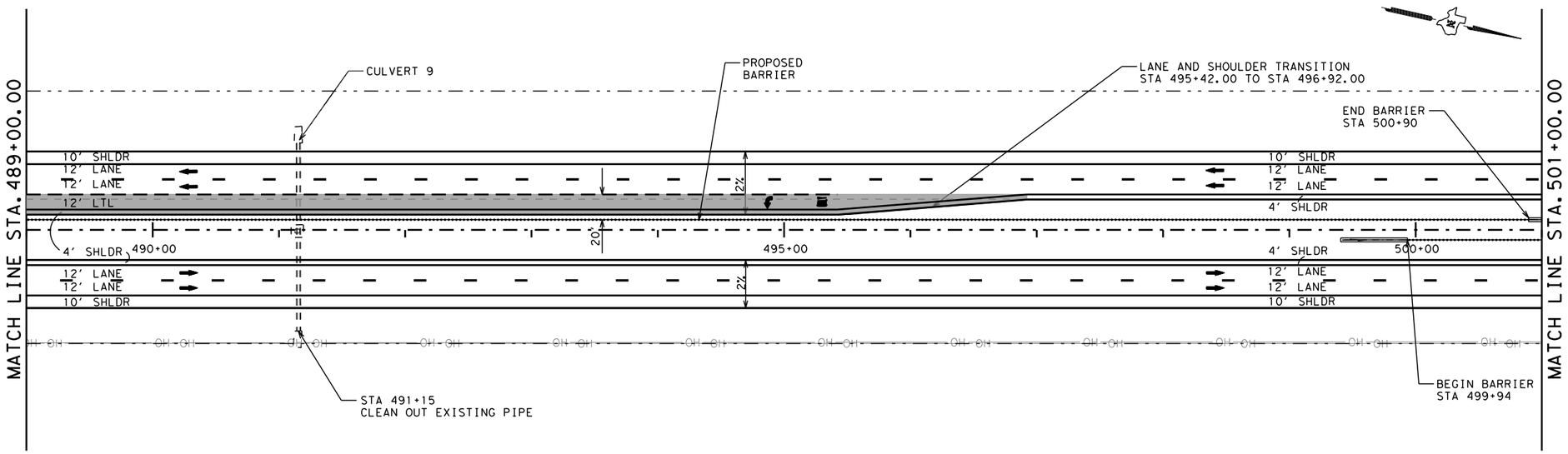
LEGEND:

- (SR. X-X) - SIDE ROADS
- (TO. X-X) - TURN OUTS
- -TERMINAL SECTION
- - CABLE BARRIER
- - PAVEMENT REMOVAL AREAS
- - LANE ADDITION OR WIDENING
- - EXISTING ROW
- - CENTERLINE & STATIONING (0+00)

39	36	34	34	32	31	27	12	0	0	0	0	
5	8	10	12	16	22	24	6	0	0	0	0	

SECTION TOTALS

EST.	FINAL	UNIT	DESCRIPTION
245		CY	EXCAVATION (RDWY)
103		CY	EMBANKMENT



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STATE OF TEXAS
JOHN B. GOODWIN
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REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
PLAN LAYOUT

STA 477+00.00 to STA 501+00.00

HORIZONTAL SCALE: 1" = 100'

SHEET 21 OF 31

Texas Department of Transportation

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FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	102

STATE	DIST.	COUNTY
TEXAS	ODA	ANDREWS

CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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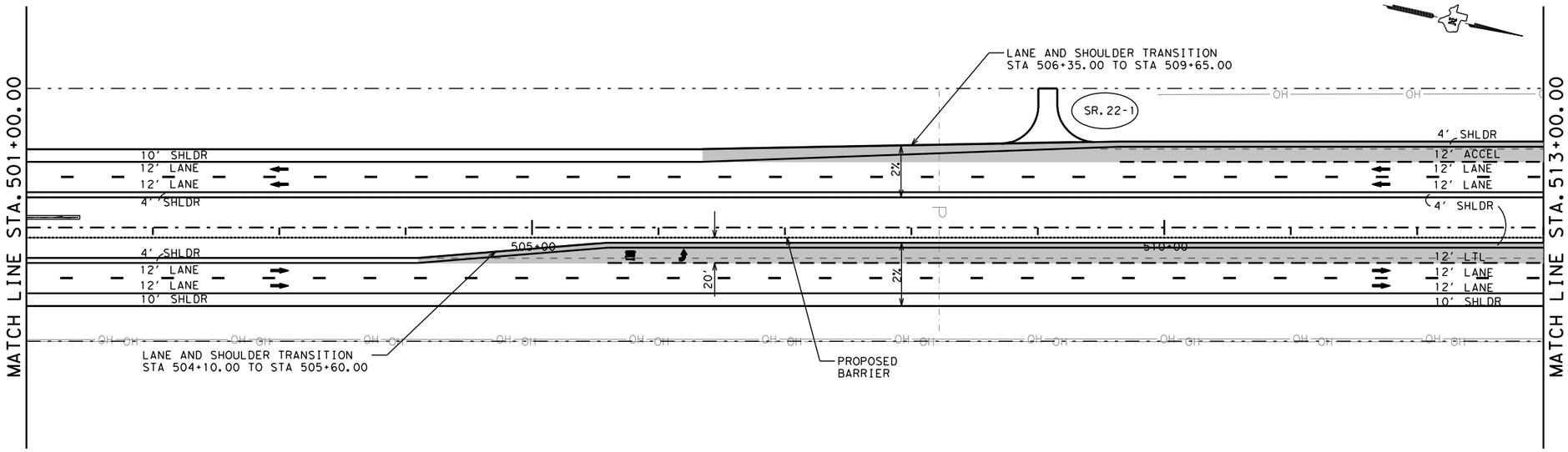
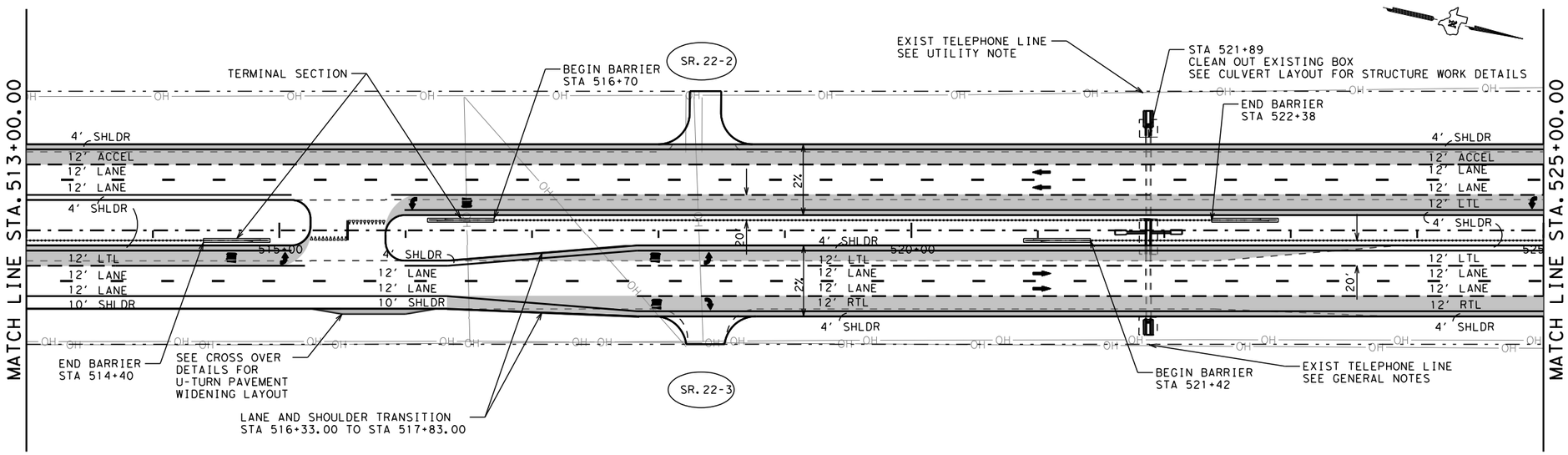
													SECTION TOTALS			
													EST.	FINAL	UNIT	DESCRIPTION
0	0	0	14	38	44	47	51	56	54	54	53		**411**		CY	EXCAVATION (RDWY)
0	0	0	1	2	4	7	10	13	19	19	22		**97**		CY	EMBANKMENT



LEGEND:

- (SR. X-X) - SIDE ROADS
- (TO. X-X) - TURN OUTS
- -TERMINAL SECTION
- - CABLE BARRIER
- - PAVEMENT REMOVAL AREAS
- - LANE ADDITION OR WIDENING
- - EXISTING ROW
- - CENTERLINE & STATIONING (0+00)

													SECTION TOTALS			
													EST.	FINAL	UNIT	DESCRIPTION
52	60	90	84	108	111	117	118	95	98	97	70		**1100**		CY	EXCAVATION (RDWY)
24	13	2	14	35	42	38	47	233	167	94	89		**798**		CY	EMBANKMENT



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STATE OF TEXAS
JOHN B. GOODWIN
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REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
PLAN LAYOUT

STA 501+00.00 to STA 525+00.00

HORIZONTAL SCALE: 1" = 100'

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FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	103

STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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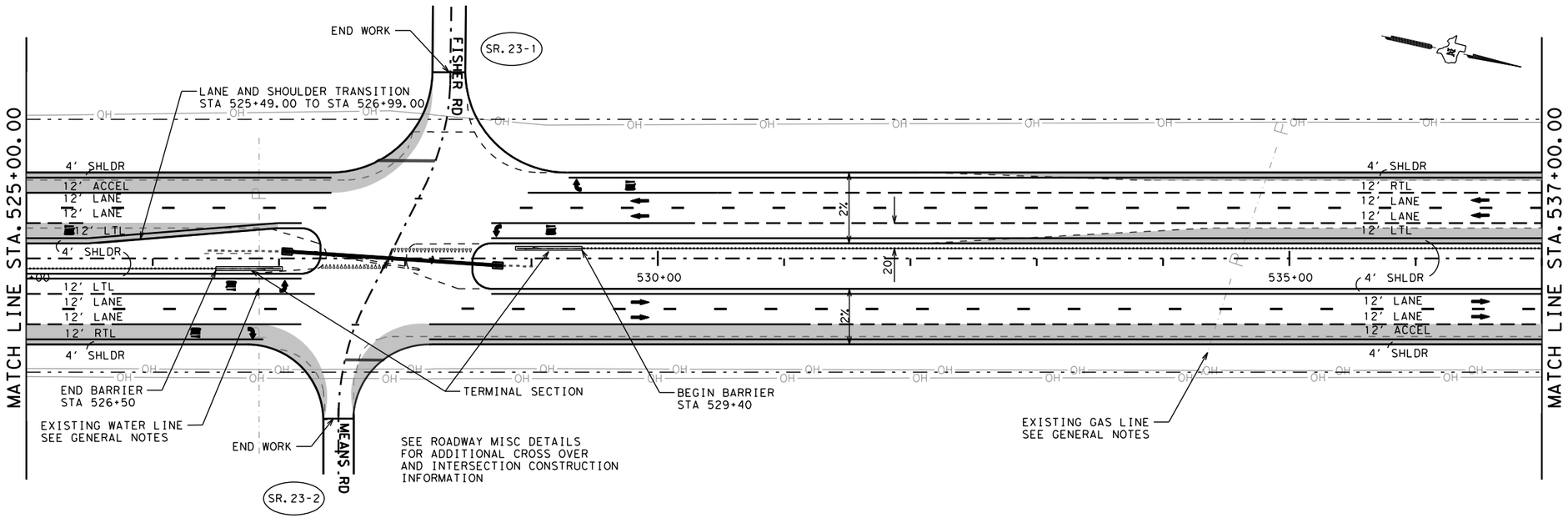
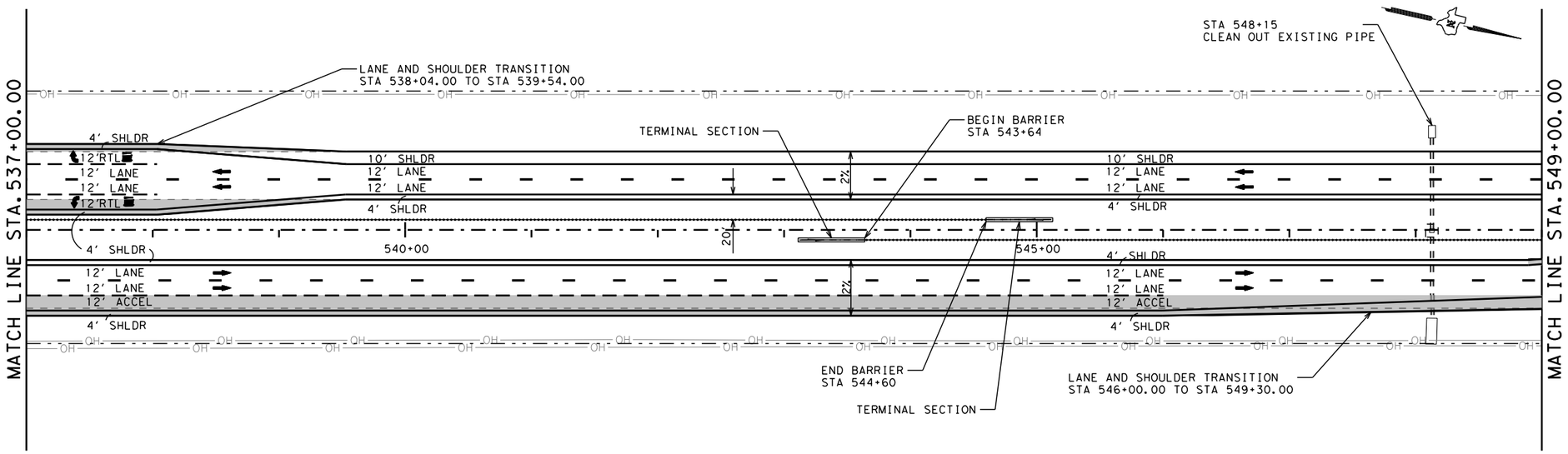
67	63	68	40	25	25	25	57	81	86	86	92
80	29	24	10	2	2	2	6	18	32	25	15

SECTION TOTALS			
EST.	FINAL	UNIT	DESCRIPTION
715		CY	EXCAVATION (RDWY)
245		CY	EMBANKMENT



SECTION TOTALS			
EST.	FINAL	UNIT	DESCRIPTION
390		CY	EXCAVATION (RDWY)
109		CY	EMBANKMENT

90	73	39	24	25	25	25	24	23	19	14	9
19	18	6	3	2	3	3	6	12	16	15	6



LEGEND:

- (SR. X-X) - SIDE ROADS
- (TO. X-X) - TURN OUTS
- -TERMINAL SECTION
- - CABLE BARRIER
- - PAVEMENT REMOVAL AREAS
- - LANE ADDITION OR WIDENING
- - EXISTING ROW
- 0+00 - CENTERLINE & STATIONING

09/25/2020

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JOHN B. GOODWIN
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P.E.

US 385
PLAN LAYOUT

STA 525+00.00 to STA 549+00.00

HORIZONTAL SCALE: 1" = 100'

SHEET 23 OF 31

Texas Department of Transportation

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FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		104
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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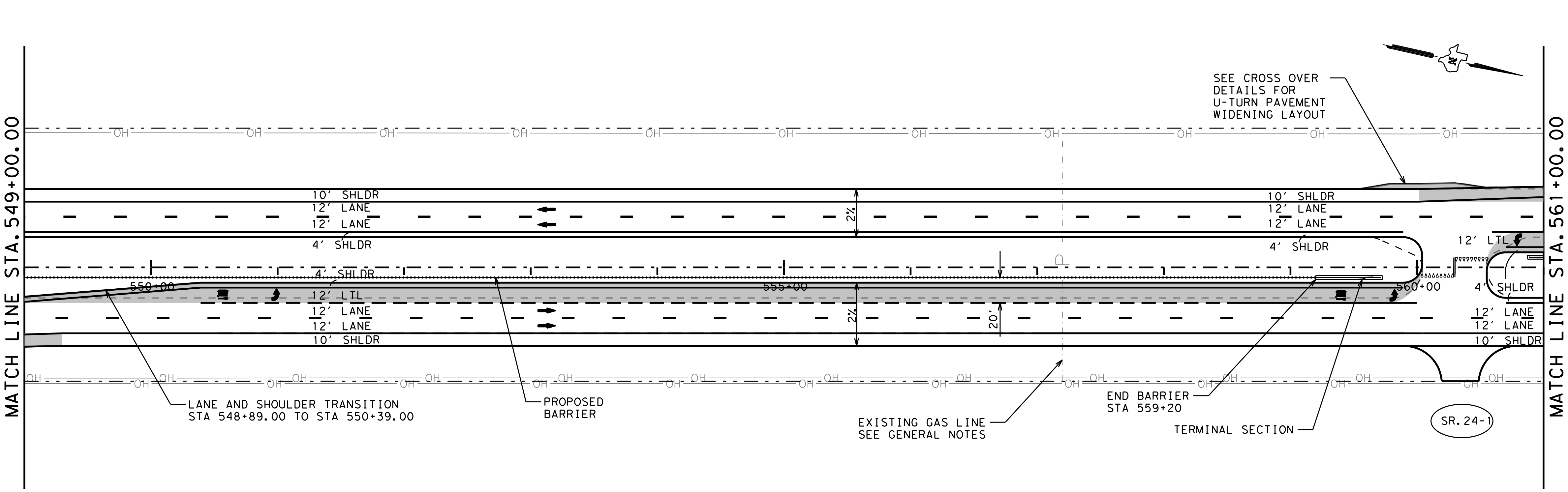
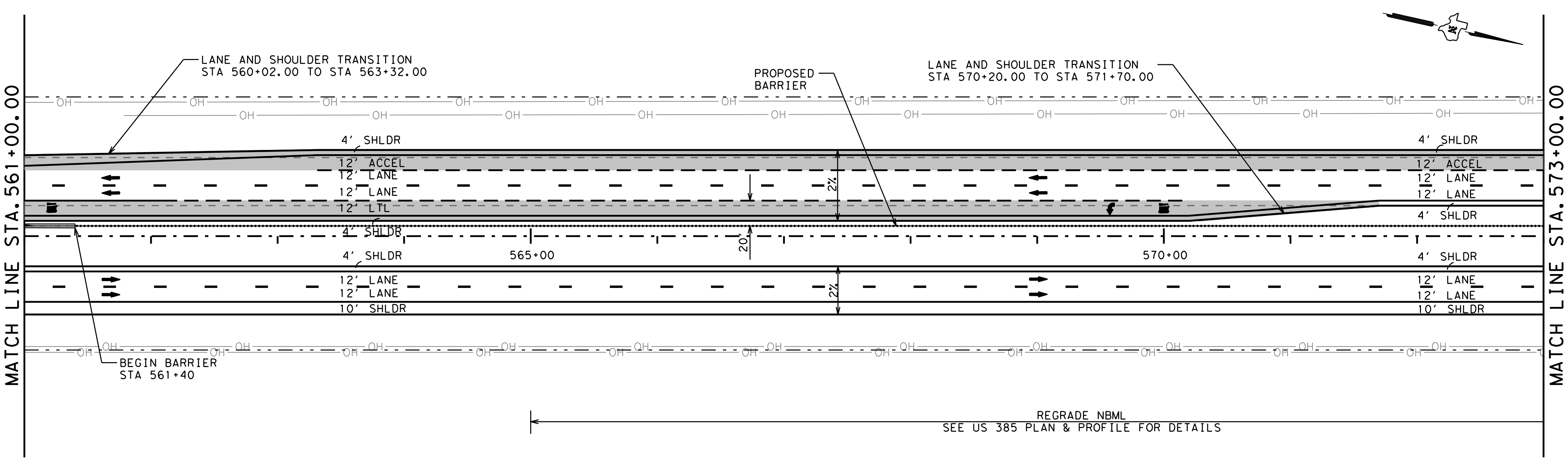
												EST.	FINAL	UNIT	DESCRIPTION
												SECTION TOTALS			
18	26	24	23	25	28	31	36	40	43	52	55	**401**		CY	EXCAVATION (RDWY)
7	17	19	17	12	9	8	6	4	2	2	6	**109**		CY	EMBANKMENT



LEGEND:

- SR. X-X - SIDE ROADS
- TO. X-X - TURN OUTS
- TERMINAL SECTION
- CABLE BARRIER
- PAVEMENT REMOVAL AREAS
- LANE ADDITION OR WIDENING
- EXISTING ROW
- 0+00 CENTERLINE & STATIONING

												EST.	FINAL	UNIT	DESCRIPTION
												SECTION TOTALS			
47	57	62	100	154	223	299	362	366	318	236	129	**2353**		CY	EXCAVATION (RDWY)
12	8	8	17	19	10	6	6	7	9	16	36	**154**		CY	EMBANKMENT



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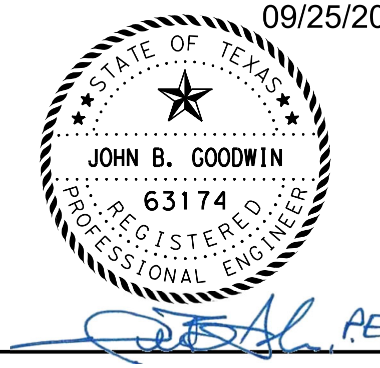

US 385
PLAN LAYOUT

STA 549+00.00 to STA 573+00.00

HORIZONTAL SCALE: 1" = 100'

SHEET 24 OF 31

Texas Department of Transportation

LOCHNER
TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		105
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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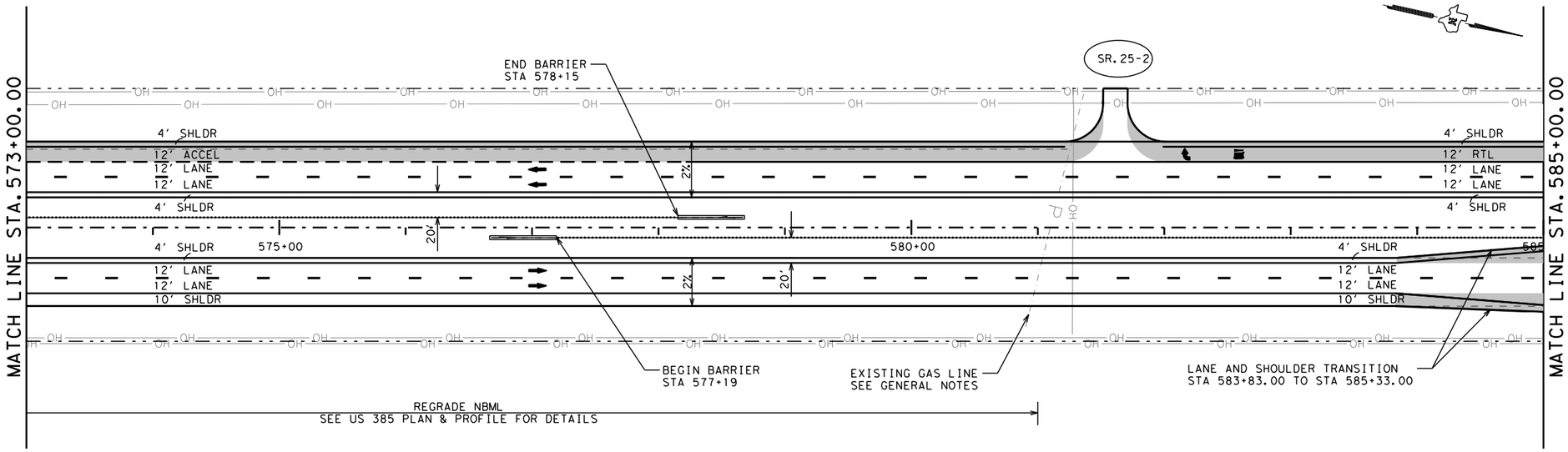
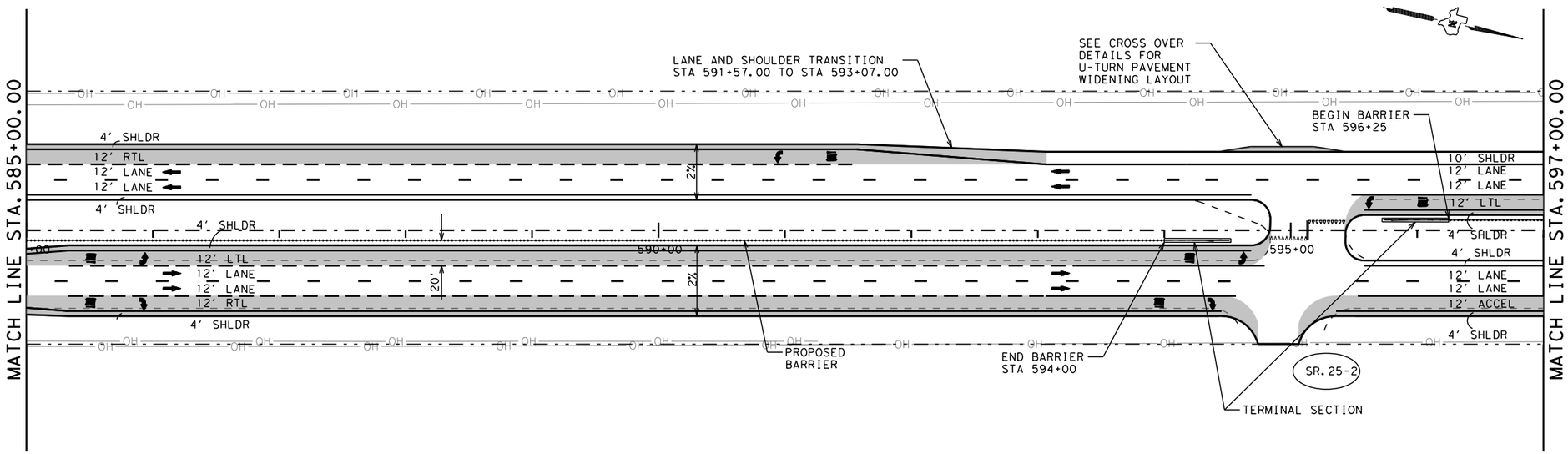
													SECTION TOTALS			
													EST.	FINAL	UNIT	DESCRIPTION
76	46	52	105	174	292	248	108	55	22	28	55		**1261**		CY	EXCAVATION (RDWY)
61	91	70	24	14	7	11	26	20	4	3	15		**346**		CY	EMBANKMENT



LEGEND:

- (SR. X-X) - SIDE ROADS
- (TO. X-X) - TURN OUTS
- -TERMINAL SECTION
- - CABLE BARRIER
- - PAVEMENT REMOVAL AREAS
- - LANE ADDITION OR WIDENING
- - EXISTING ROW
- - CENTERLINE & STATIONING (0+00)

													SECTION TOTALS			
													EST.	FINAL	UNIT	DESCRIPTION
77	81	81	78	74	76	79	67	56	69	69	57		**864**		CY	EXCAVATION (RDWY)
27	27	33	39	39	32	23	18	20	16	9	20		**303**		CY	EMBANKMENT



09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
PLAN LAYOUT

STA 573+00.00 to STA 597+00.00

HORIZONTAL SCALE: 1" = 100'

SHEET 25 OF 31

LOCHNER
TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		106
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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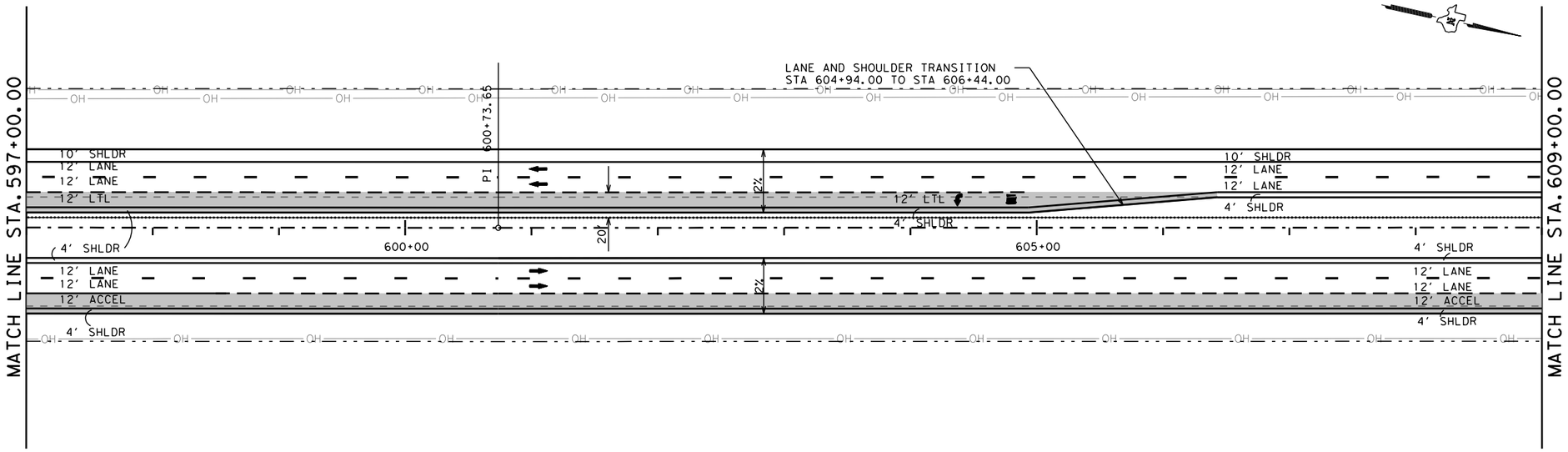
52	54	53	51	51	54	56	57	48	29	20	21
30	35	38	38	37	35	30	25	18	10	8	8

SECTION TOTALS

EST.	FINAL	UNIT	DESCRIPTION
546		CY	EXCAVATION (RDWY)
312		CY	EMBANKMENT



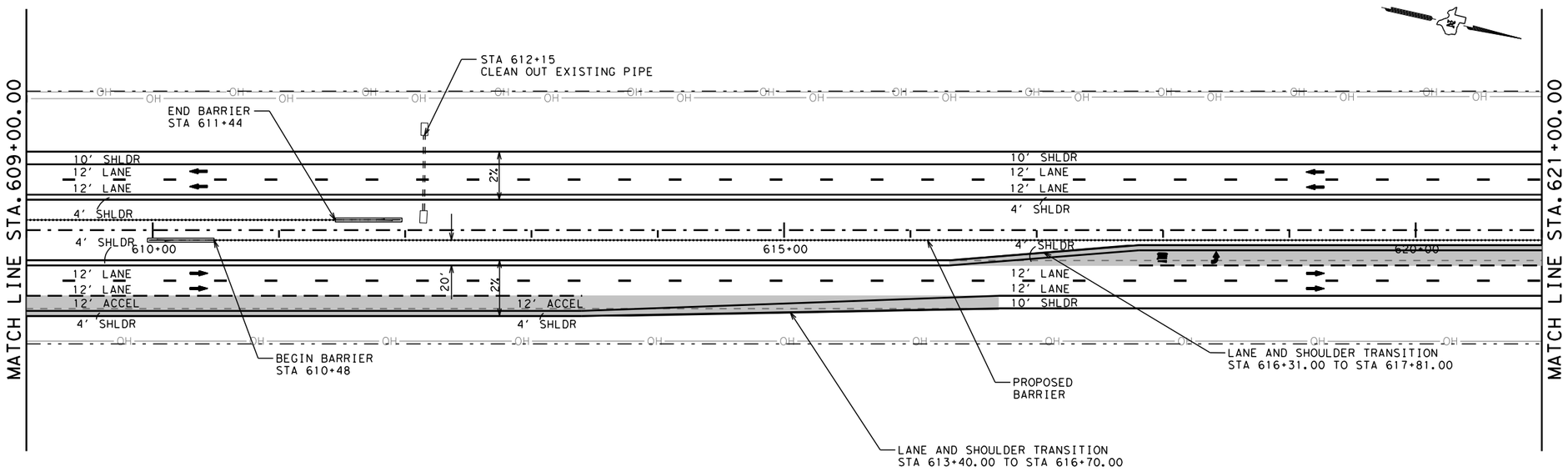
LEGEND:

- (SR. X-X) - SIDE ROADS
- (TO. X-X) - TURN OUTS
- -TERMINAL SECTION
- - CABLE BARRIER
- - PAVEMENT REMOVAL AREAS
- - LANE ADDITION OR WIDENING
- - EXISTING ROW
- - CENTERLINE & STATIONING (0+00)

22	22	21	21	19	16	10	11	24	28	28	30
6	6	6	5	5	6	4	4	21	31	29	24

SECTION TOTALS

EST.	FINAL	UNIT	DESCRIPTION
252		CY	EXCAVATION (RDWY)
147		CY	EMBANKMENT



09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
PLAN LAYOUT

STA 597+00.00 to STA 621+00.00

HORIZONTAL SCALE: 1" = 100'

SHEET 26 OF 31

LOCHNER
TBPE Firm Reg. No. 10488

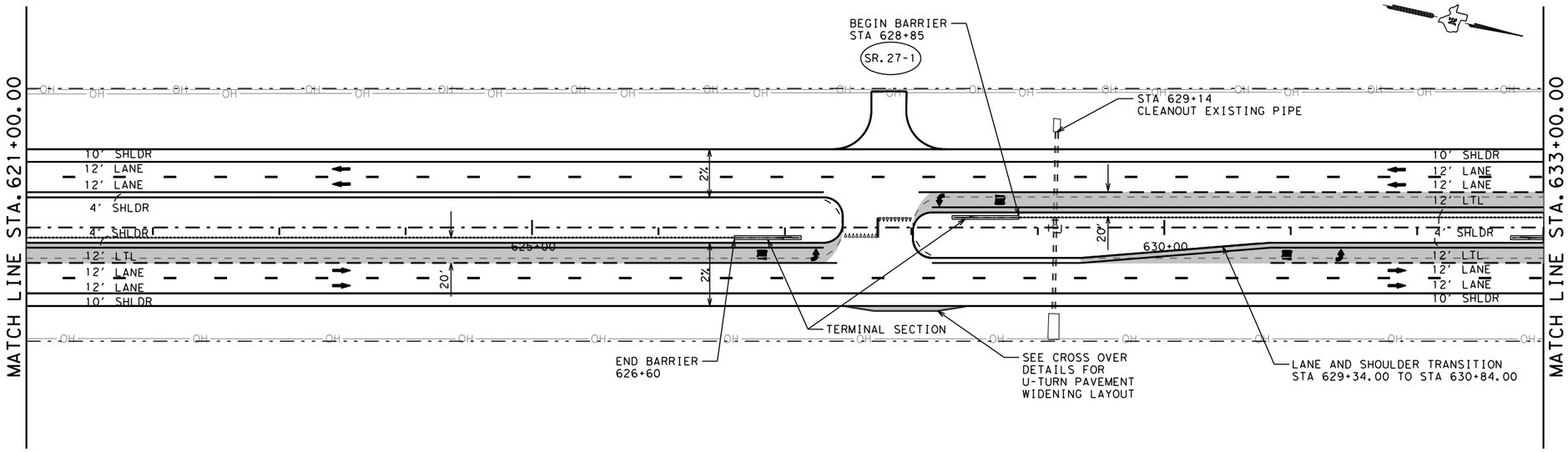
FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		107
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

FILE: A385CE26.dgn
DATE: 9/25/2020 TIME: 2:30:20 PM
DIRECTORY: I:\TYL\PRJ\00001412\TREA\DGN*AVPSE*A\ROADWAY\A385CE26.dgn

32	33	34	36	36	37	37	58	56	76	80	77	
19	14	11	9	8	8	9	6	2	10	16	18	

SECTION TOTALS

EST.	FINAL	UNIT	DESCRIPTION
592		CY	EXCAVATION (RDWY)
130		CY	EMBANKMENT



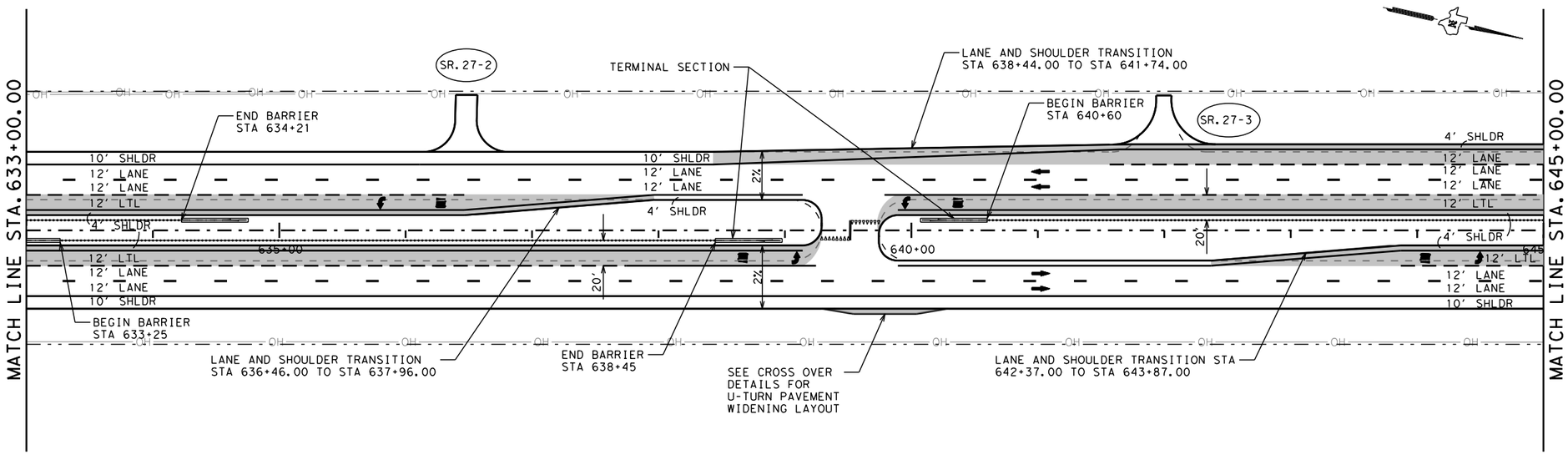
LEGEND:

- (SR. X-X) - SIDE ROADS
- (TO. X-X) - TURN OUTS
- -TERMINAL SECTION
- - CABLE BARRIER
- - PAVEMENT REMOVAL AREAS
- - LANE ADDITION OR WIDENING
- - EXISTING ROW
- - CENTERLINE & STATIONING (0+00)

72	64	56	51	37	28	62	64	64	72	88	96	
22	35	57	69	54	43	19	11	9	14	32	30	

SECTION TOTALS

EST.	FINAL	UNIT	DESCRIPTION
754		CY	EXCAVATION (RDWY)
395		CY	EMBANKMENT



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STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
PLAN LAYOUT

STA 621+00.00 to STA 645+00.00

HORIZONTAL SCALE: 1" = 100'

SHEET 27 OF 31

Texas Department of Transportation

LOCHNER
TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		108
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

FILE: A385CE27.dgn
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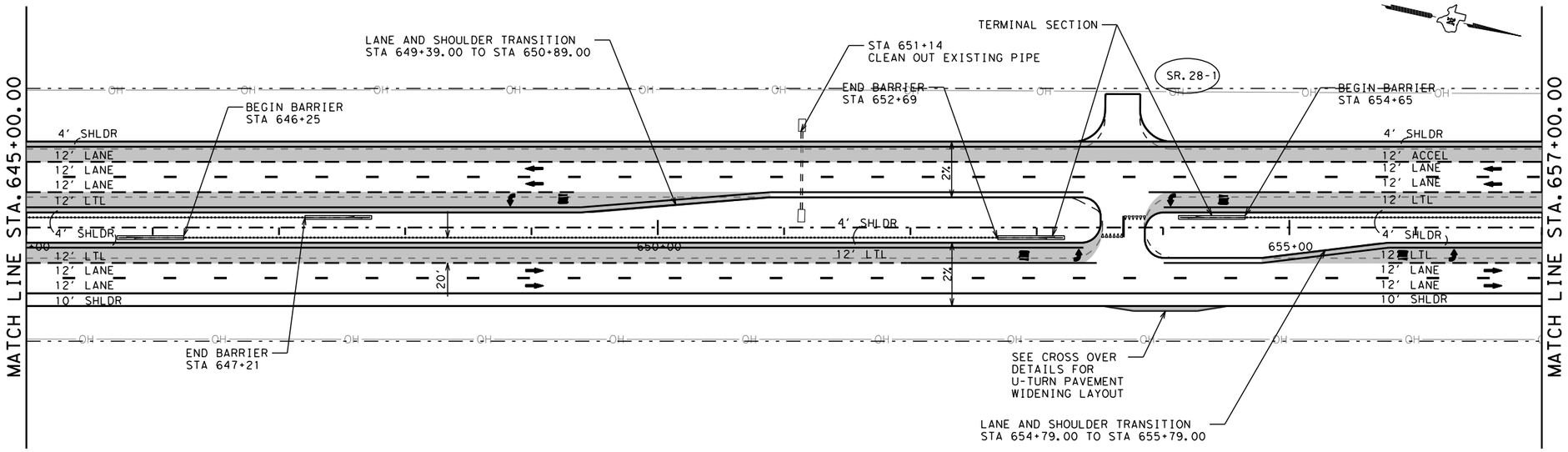
DIRECTORY: I:\TYL\PRJ\00001412\TREA\DGN*A*PSE*A*ROADWAY*A385CE27.dgn

105	108	106	104	97	80	56	56	75	70	84	88
15	14	19	24	34	23	18	15	8	23	37	51

SECTION TOTALS

EST.	FINAL	UNIT	DESCRIPTION
1029		CY	EXCAVATION (RDWY)
281		CY	EMBANKMENT



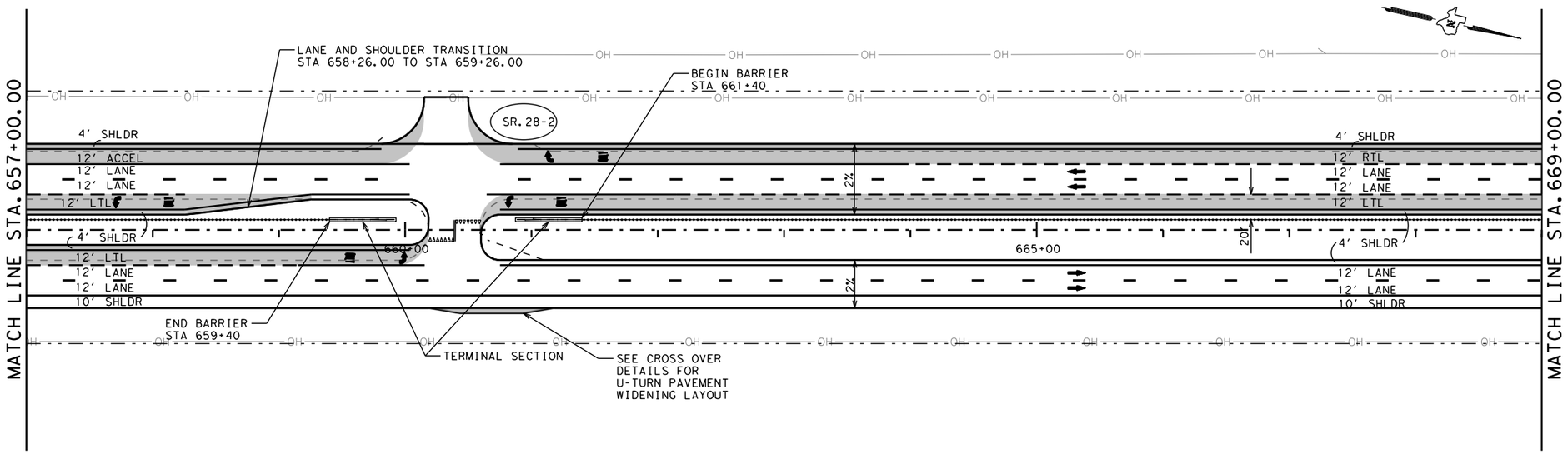
LEGEND:

- (SR. X-X) - SIDE ROADS
- (TO. X-X) - TURN OUTS
- -TERMINAL SECTION
- - CABLE BARRIER
- - PAVEMENT REMOVAL AREAS
- - LANE ADDITION OR WIDENING
- - EXISTING ROW
- - CENTERLINE & STATIONING (0+00)

85	82	83	91	67	64	60	50	45	49	53	57
50	32	10	11	5	4	9	16	20	21	20	17

SECTION TOTALS

EST.	FINAL	UNIT	DESCRIPTION
786		CY	EXCAVATION (RDWY)
215		CY	EMBANKMENT



09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
PLAN LAYOUT

STA 645+00.00 to STA 669+00.00

HORIZONTAL SCALE: 1" = 100'

SHEET 28 OF 31

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TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	109

STATE	DIST.	COUNTY
TEXAS	ODA	ANDREWS

CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

FILE: A385CE28.dgn
DATE: 9/25/2020 TIME: 2:30:27 PM
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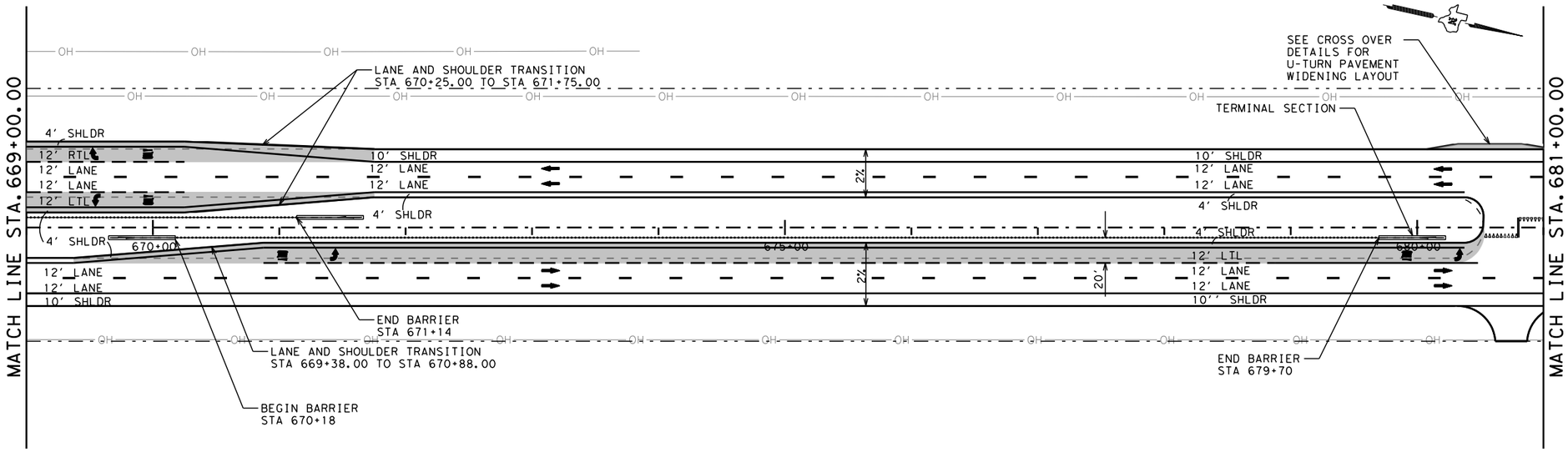
66	77	46	28	31	34	34	33	34	37	37	44	
15	21	25	26	19	10	10	13	12	8	8	15	

SECTION TOTALS

EST.	FINAL	UNIT	DESCRIPTION
501		CY	EXCAVATION (RDWY)
182		CY	EMBANKMENT



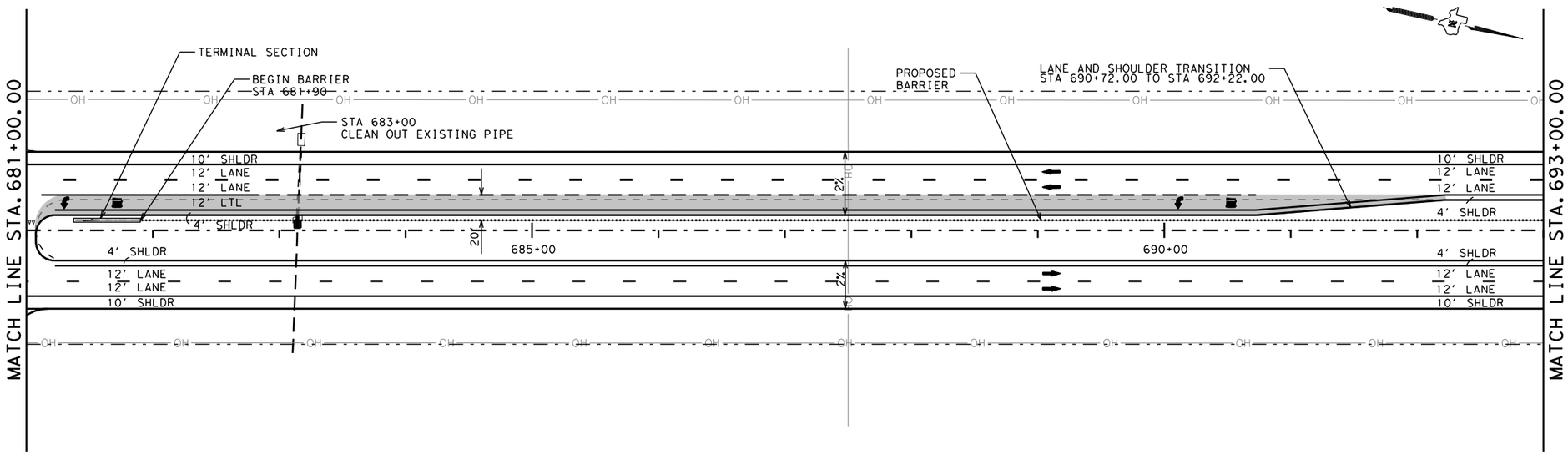
LEGEND:

- (SR. X-X) - SIDE ROADS
- (TO. X-X) - TURN OUTS
- -TERMINAL SECTION
- - CABLE BARRIER
- - PAVEMENT REMOVAL AREAS
- - LANE ADDITION OR WIDENING
- - EXISTING ROW
- 0+00 - CENTERLINE & STATIONING

36	25	27	33	35	33	32	34	36	35	20	2	
16	29	26	12	9	12	13	10	8	8	4	0	

SECTION TOTALS

EST.	FINAL	UNIT	DESCRIPTION
348		CY	EXCAVATION (RDWY)
147		CY	EMBANKMENT



09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
PLAN LAYOUT

STA 669+00.00 to STA 693+00.00

HORIZONTAL SCALE: 1" = 100'

SHEET 29 OF 31

Texas Department of Transportation

LOCHNER
TBPE Firm Reg. No. 10488

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		110
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

FILE: A385CE29.dgn
DATE: 9/25/2020 TIME: 2:30:30 PM
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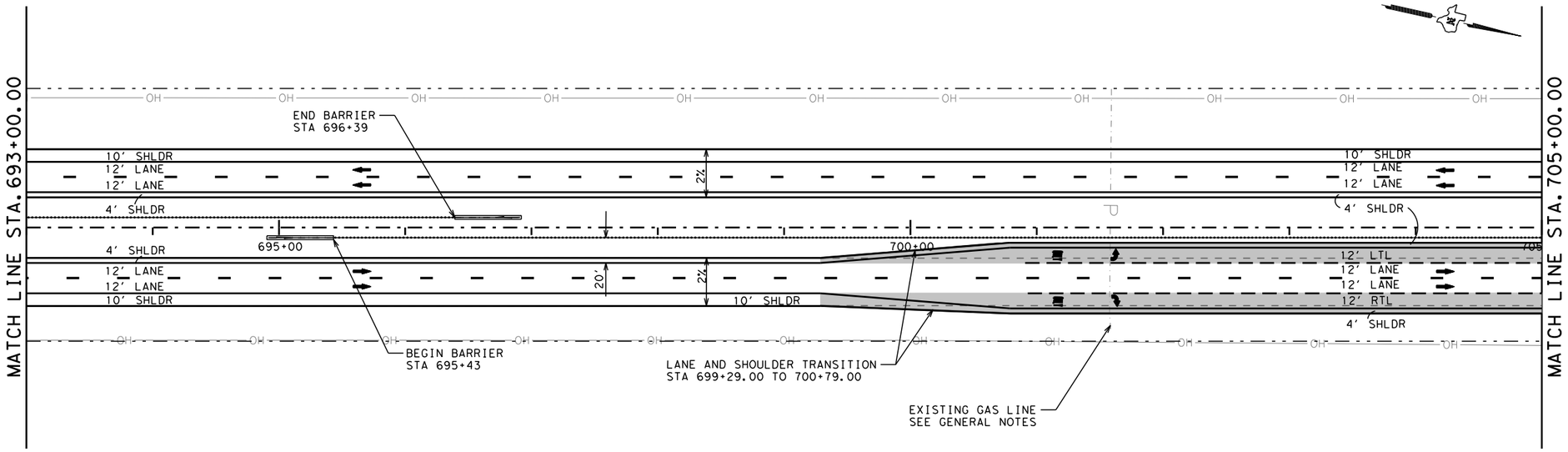
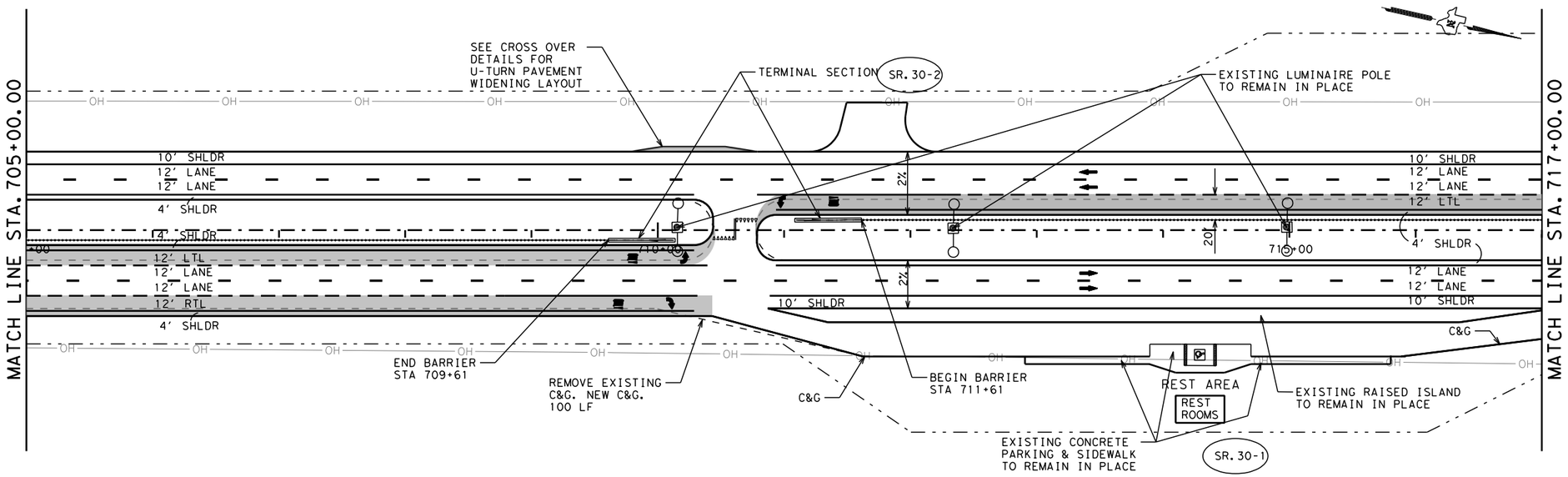
													SECTION TOTALS			
													EST.	FINAL	UNIT	DESCRIPTION
0	0	0	0	0	0	15	52	61	56	52	51		287		CY	EXCAVATION (RDWY)
0	0	0	0	0	0	1	6	10	17	26	31		91		CY	EMBANKMENT



LEGEND:

- (SR. X-X) - SIDE ROADS
- (TO. X-X) - TURN OUTS
- -TERMINAL SECTION
- - CABLE BARRIER
- - PAVEMENT REMOVAL AREAS
- - LANE ADDITION OR WIDENING
- - EXISTING ROW
- 0+00 - CENTERLINE & STATIONING

													SECTION TOTALS			
													EST.	FINAL	UNIT	DESCRIPTION
53	57	60	59	68	73	53	54	40	32	34	34		617		CY	EXCAVATION (RDWY)
28	18	10	7	6	12	2	2	9	20	22	22		158		CY	EMBANKMENT



09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
PLAN LAYOUT

STA 693+00.00 to STA 717+00.00

HORIZONTAL SCALE: 1" = 100'

SHEET 30 OF 31

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FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	111

STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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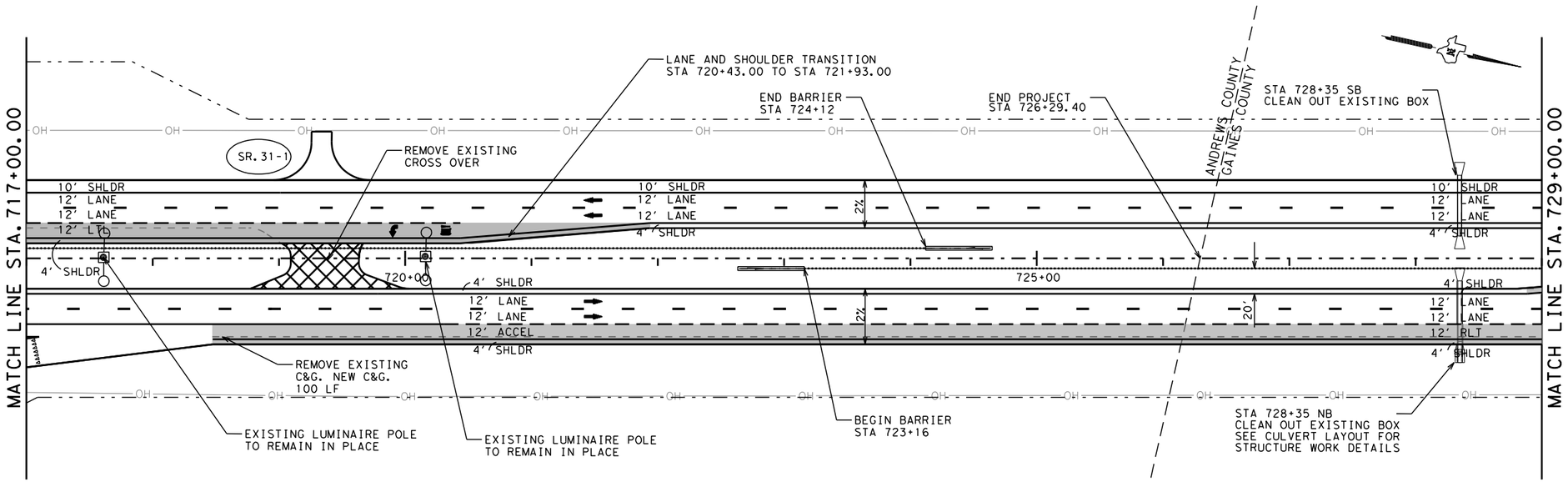
DIRECTORY: I:\TYL\PRJ\0000141211\TREA\DGN\APSE*A\ROADWAY\A385CE30.dgn

33	59	33	54	41	23	22	22	21	19	14	15	
20	9	32	15	12	5	7	9	9	8	25	39	

SECTION TOTALS

EST.	FINAL	UNIT	DESCRIPTION
356		CY	EXCAVATION (RDWY)
190		CY	EMBANKMENT



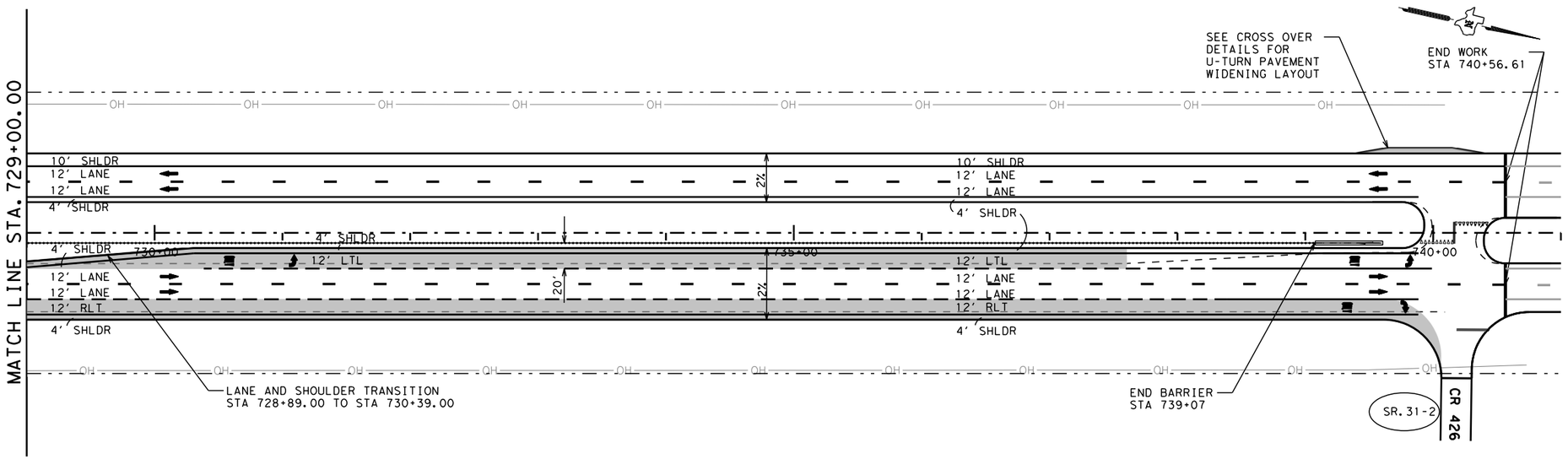
LEGEND:

- (SR. X-X) - SIDE ROADS
- (TO. X-X) - TURN OUTS
- -TERMINAL SECTION
- - CABLE BARRIER
- - PAVEMENT REMOVAL AREAS
- - LANE ADDITION OR WIDENING
- - EXISTING ROW
- - CENTERLINE & STATIONING (0+00)

29	36	38	39	39	42	46	47	38	20	29	4	
64	90	77	64	58	47	33	29	20	3	10	4	

SECTION TOTALS

EST.	FINAL	UNIT	DESCRIPTION
407		CY	EXCAVATION (RDWY)
499		CY	EMBANKMENT



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US 385 PLAN LAYOUT

STA 717+00.00 to STA 740+56.61

HORIZONTAL SCALE: 1" = 100'

SHEET 31 OF 31

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FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		112
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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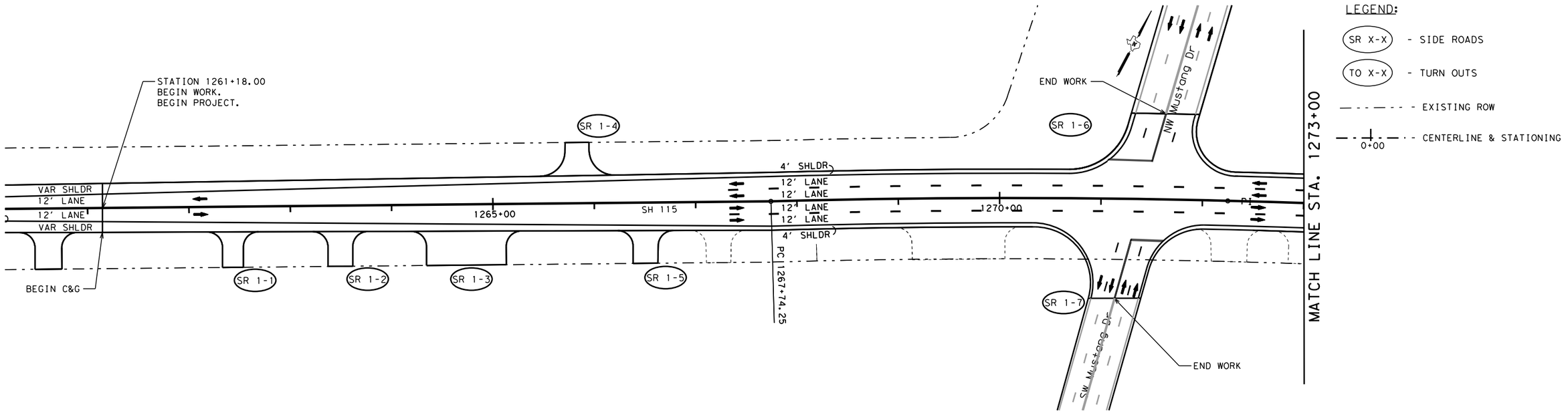
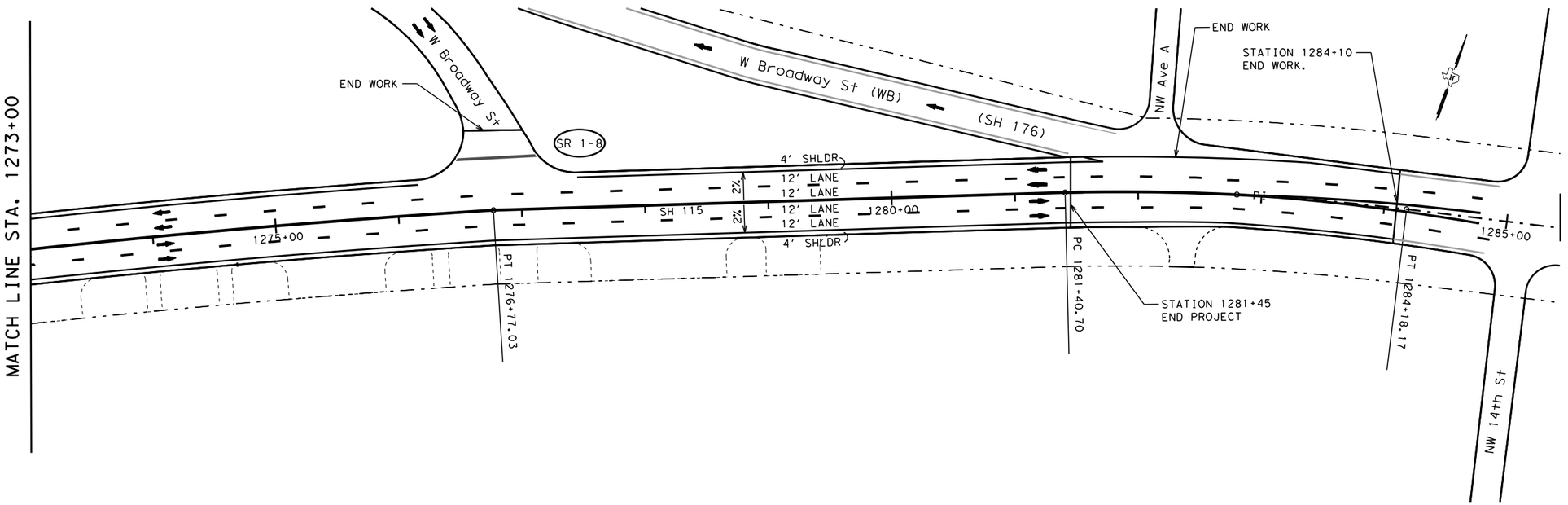
SECTION TOTALS			
EST.	FINAL	UNIT	DESCRIPTION
		CY	EXCAVATION (RDWY)
		CY	EMBANKMENT



LEGEND:

- SR X-X - SIDE ROADS
- TO X-X - TURN OUTS
- EXISTING ROW
- 0+00 - CENTERLINE & STATIONING

SECTION TOTALS			
EST.	FINAL	UNIT	DESCRIPTION
		CY	EXCAVATION (RDWY)
		CY	EMBANKMENT



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JOHN B. GOODWIN
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P.E.

SH 115
PLAN LAYOUT

HORIZONTAL SCALE: 1" = 100'

SHEET 1 OF 1

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FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		113
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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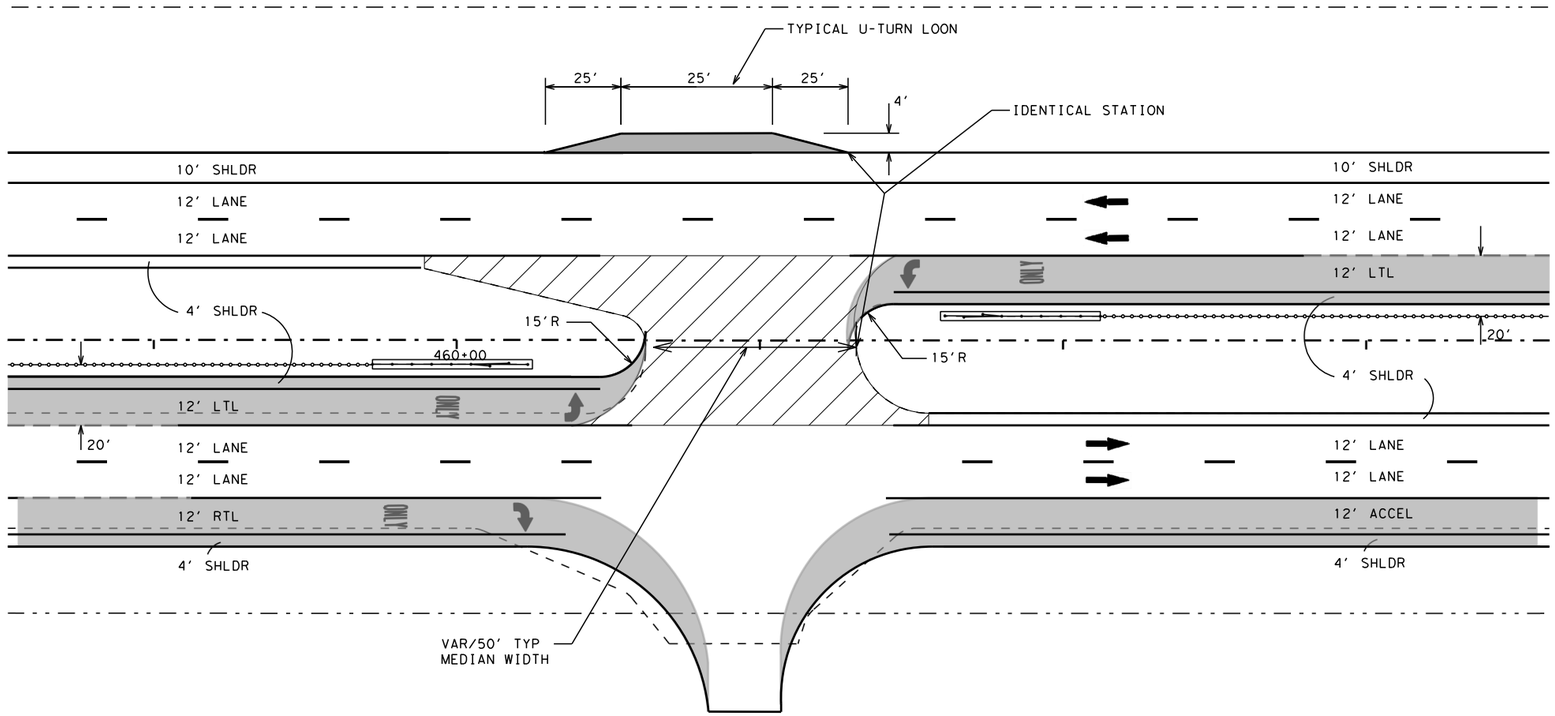

TYPICAL CROSSOVER LAYOUT

LEGEND:

- DIRECTION OF TRAFFIC
- PROPOSED PAVEMENT/WIDENING
- EXISTING CROSSOVER PAVEMENT
- CABLE BARRIER
- TERMINAL SECTION

NOTES:

1. SEE INTERSECTION AND DRIVEWAY DETAIL SHEETS AND ROADWAY PLAN LAYOUTS FOR ADDITIONAL ROADWAY DETAILS

#-QUANTITY OF FLEX BASE APPROVED BY THE ENGINEER

NOT TO SCALE

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CROSSOVER DETAILS

SHEET 1 OF 2

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FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		114
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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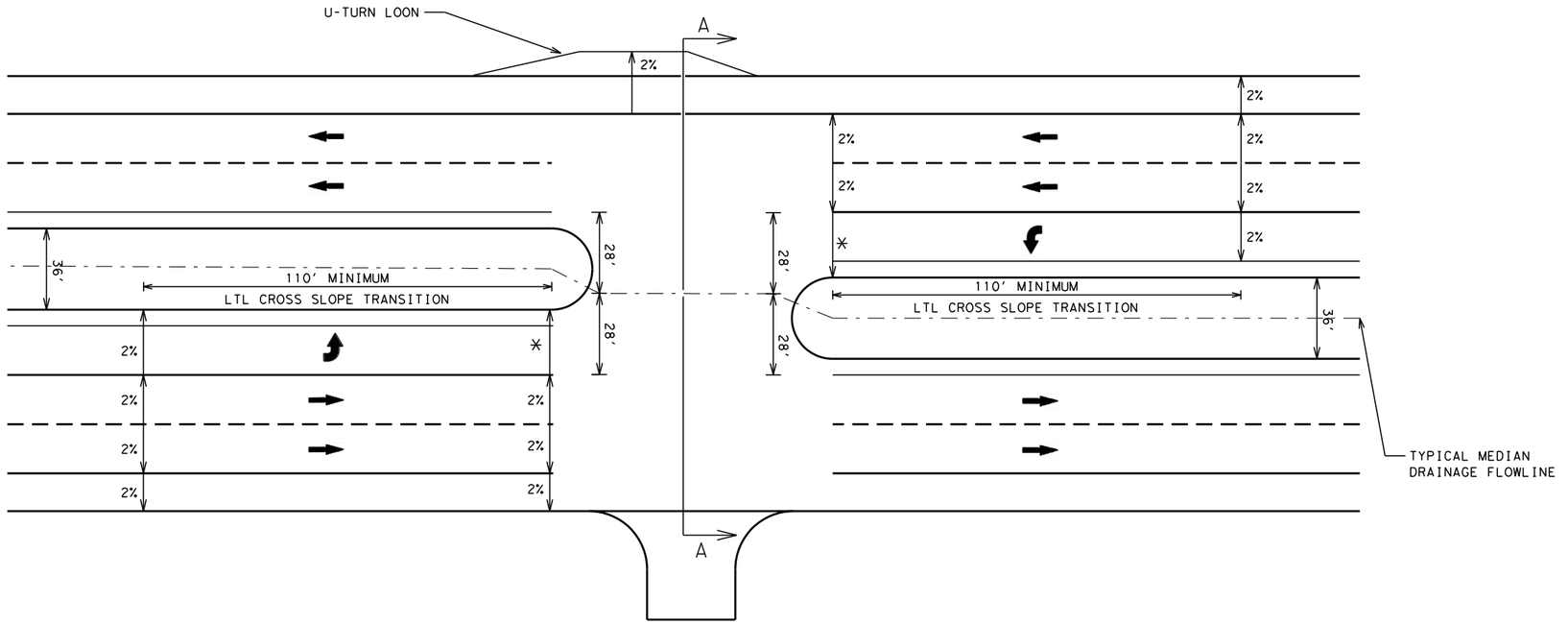


TYPICAL CROSSOVER CROSS SLOPES

LEGEND:

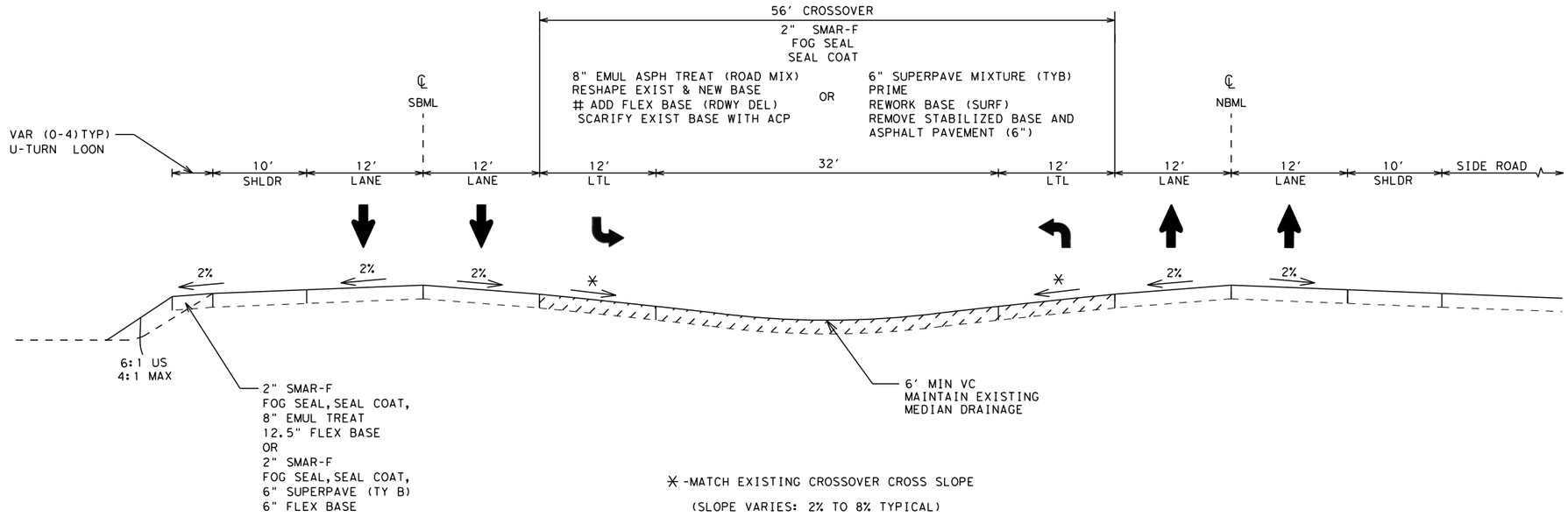
- DIRECTION OF TRAFFIC
- PROPOSED PAVEMENT/WIDENING
- EXISTING CROSSOVER PAVEMENT
- CABLE BARRIER
- TERMINAL SECTION

NOTES:

1. SEE INTERSECTION AND DRIVEWAY DETAIL SHEETS AND ROADWAY PLAN LAYOUTS FOR ADDITIONAL ROADWAY DETAILS

#-QUANTITY OF FLEX BASE APPROVED BY THE ENGINEER

NOT TO SCALE



* -MATCH EXISTING CROSSOVER CROSS SLOPE

(SLOPE VARIES: 2% TO 8% TYPICAL)

SECTION A-A

09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

CROSSOVER DETAILS

SHEET 2 OF 2

Texas Department of Transportation

LOCHNER
TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		115
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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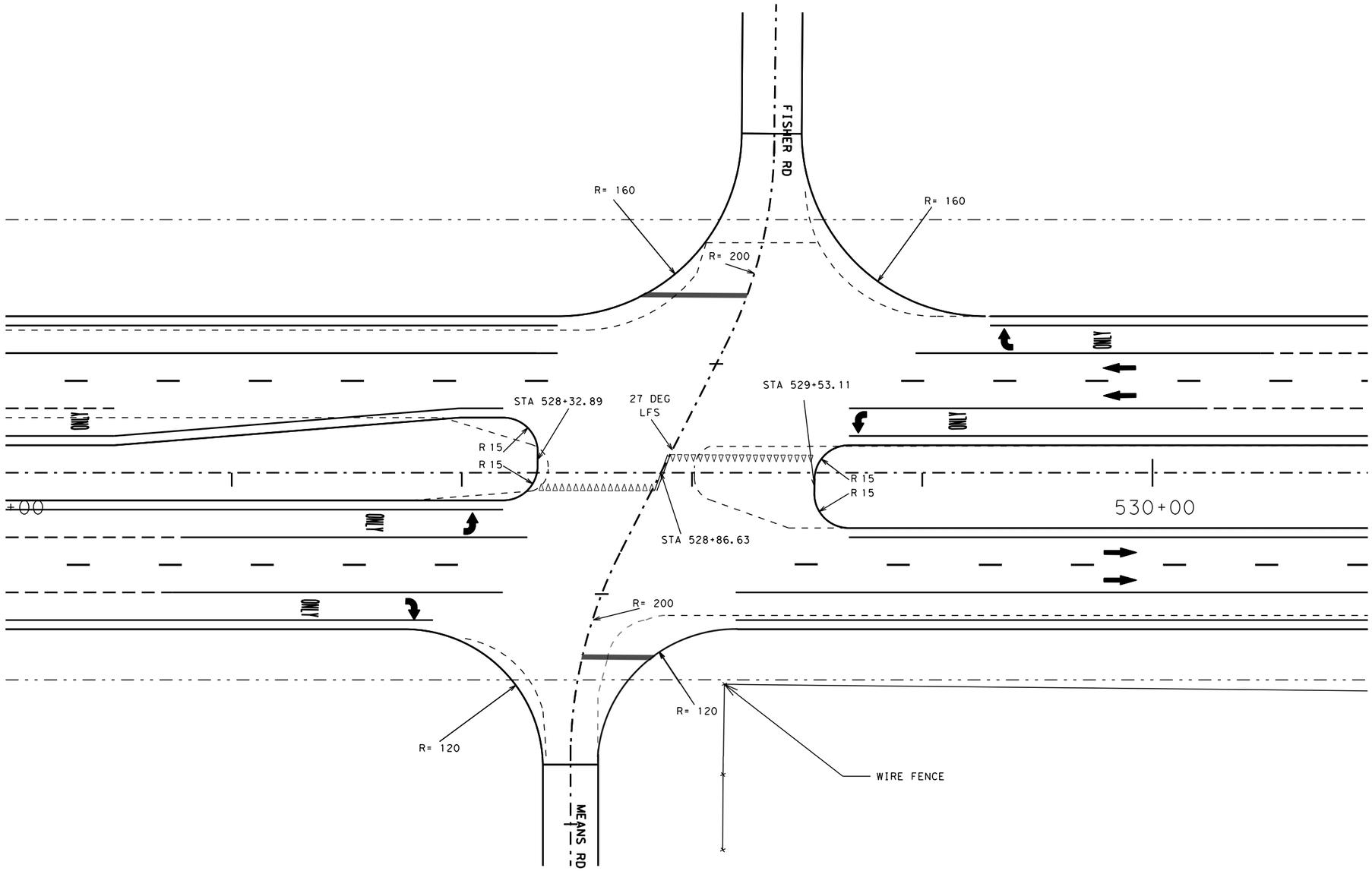

0 25 50 FT
HORIZONTAL SCALE

DETAILS AT
MEANS ROAD AND FISHER ROAD

09/25/2020

STATE OF TEXAS
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INTERSECTION DETAILS

SHEET 1 OF 2

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FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		116
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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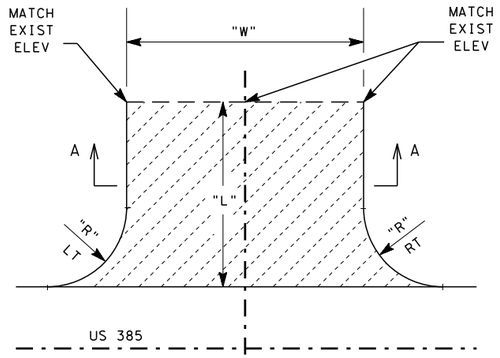
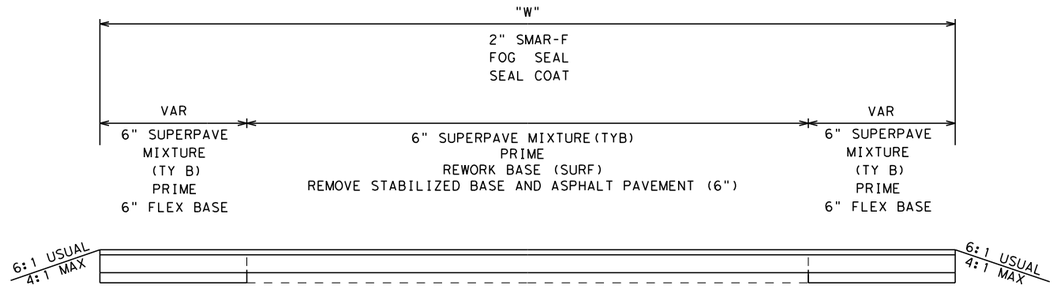
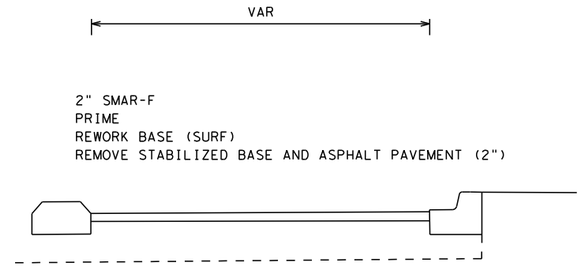


PLAN VIEW



SECTION A-A VIEW



REST AREA(SR 30-1) SECTION VIEW

INTERSECTION AND MAJOR ACCESS LOCATIONS AND AREAS

REFERENCE SIDE ROAD	ROADWAY	US 385 STATION	LT/RT	WIDTH (FT) "W"	LENGTH (FT) "L"	RADIUS-LT (FT) "L"	RADIUS-RT (FT) "L"	EXIST PAVE AREA (SY)	WIDENING AREA AREA (SY)	TOTAL AREA (SY)
SR. 1-1	SMITH ST	05+23	LT	37	25	25	25	123		123
SR. 1-2	AVE L	03+87	RT	33	25	15	15	104		104
SR. 1-3	AVE M	10+54	RT	29	25	25	25	110		110
SR. 1-4	AVE N	14+93	RT	27	25	25	25	104		104
SR. 2-1	MUSTANG DR	26+05	LT	56	30	30	30	250		250
SR. 2-2	MUSTANG DR	26+03	RT	75	38	30	30	386		386
SR. 2-4	NW 1500	40+77	RT	45	25	10	10	116		116
SR. 3-1	NW 2000	52+61	LT	40	23	10	25	115		115
SR. 3-3	TAYLOR RD	52+53	RT	34	40	80	40	281		281
SR. 4-10	NE 2200	72+62	RT	24	54	55	35	245		245
SR. 4-14	LP 1910	85+62	LT	58	54	83	83	599		599
SR. 4-15	LP 1910	85+71	RT	63	83	85	80	912		912
SR. 5-7	NW 3000	109+10	LT	25	50	50	50	260		260
SR. 5-9	NE 2900	106+38	RT	51	37	80	40	327		327
SR. 5-11	S HORSESHOE LN	115+34	RT	25	60	70	60	361		361
SR. 6-5	NE 3200	125+80	RT	23	45	45	30	185		185
SR. 7-1	LANDFILL RD	150+79	RT	27	53	50	40	260		260
SR. 8-1	PNE 3600	171+46	RT	24	45	30	30	164		164
SR. 16-1	FM 1967	361+54	LT	36	22	22	23	112		112
SR. 20-1	NE 6000	460+95	RT	31	55	60	50	333		333
SR. 23-1	FISHER RD	528+35	LT	26	80	80	80	535	124	659
SR. 23-2	MEANS RD	527+47	RT	24	58	60	60	327	132	459
SR. 30-1	REST AREA	714+00	RT	SEE ROADWAY LAYOUT SHEETS FOR LAYOUT INFORMATION				2038		2038
SR. 31-2	CR 426	740+18	RT	24	48	45	45	225		225

09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
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P.E.

INTERSECTION DETAILS

SHEET 2 OF 2

Texas Department of Transportation

LOCHNER
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FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		117
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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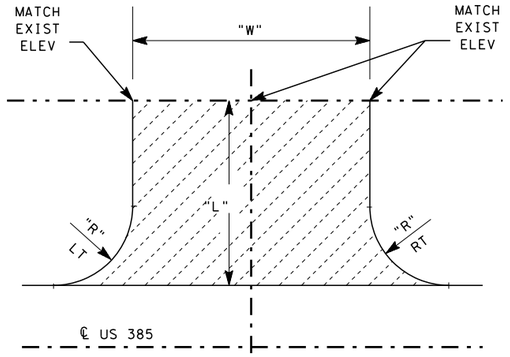
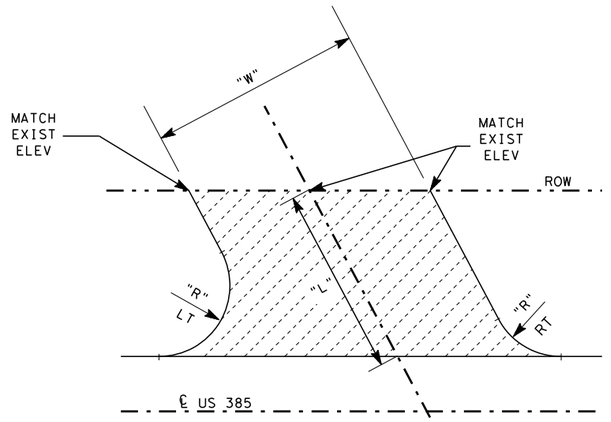
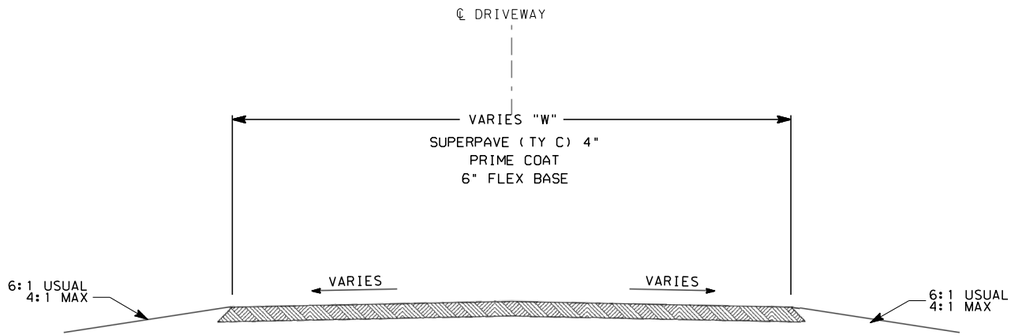


DRIVEWAY TYPICAL DETAILS (NORMAL)



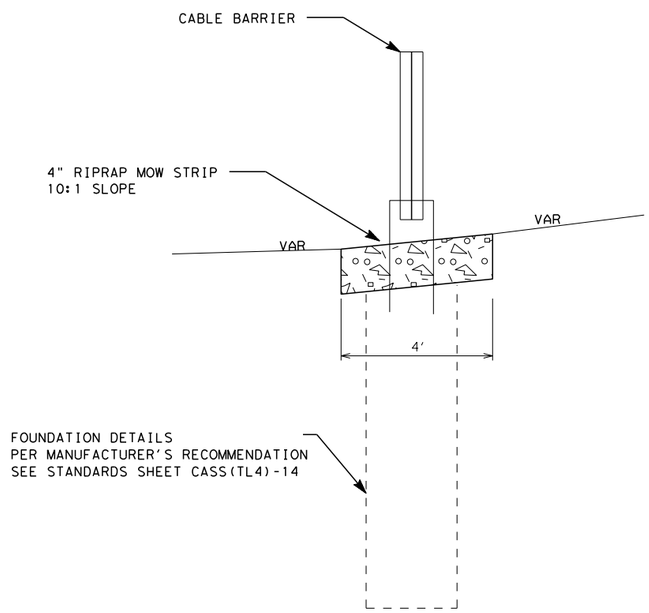
DRIVEWAY TYPICAL DETAILS (SKEWED)



DRIVEWAY TYPICAL SECTION

SEE SUMMARY OF DRIVEWAY ITEMS FOR: LOCATION, DIMENSION, "W".

PLACE 4" SUPERPAVE (TY C) IN TWO 2" LIFTS.



CABLE BARRIER
RIPRAP DETAILS

05/28/2020

STATE OF TEXAS
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DRIVEWAY AND RIPRAP DETAILS

SHEET 1 OF 1

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FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		118
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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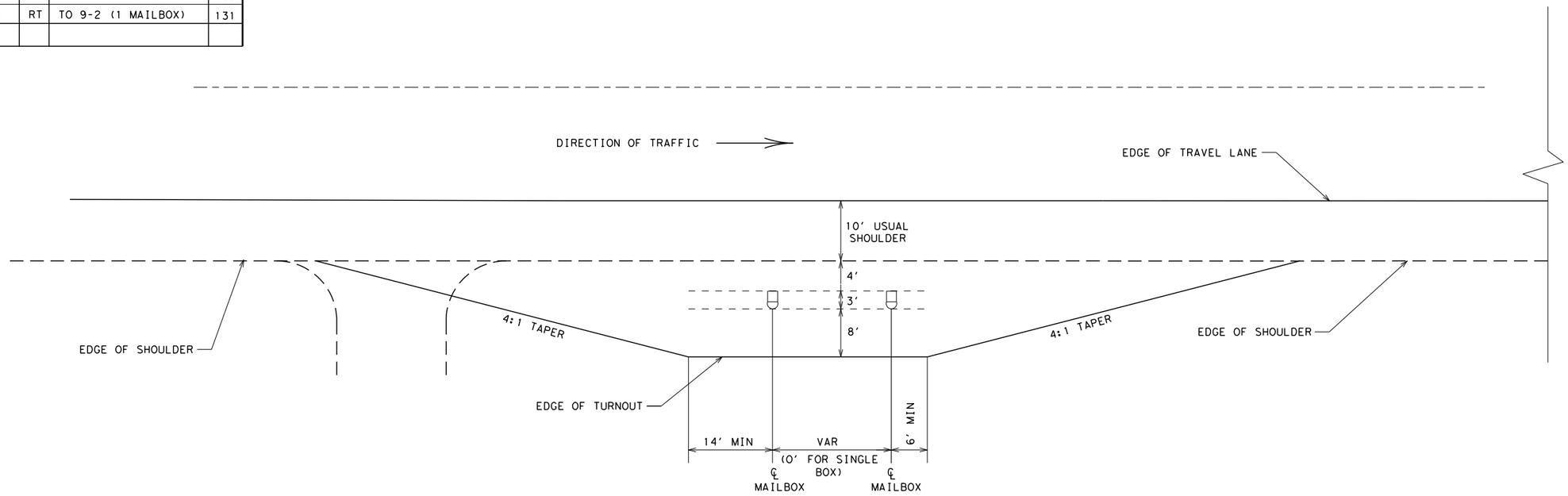
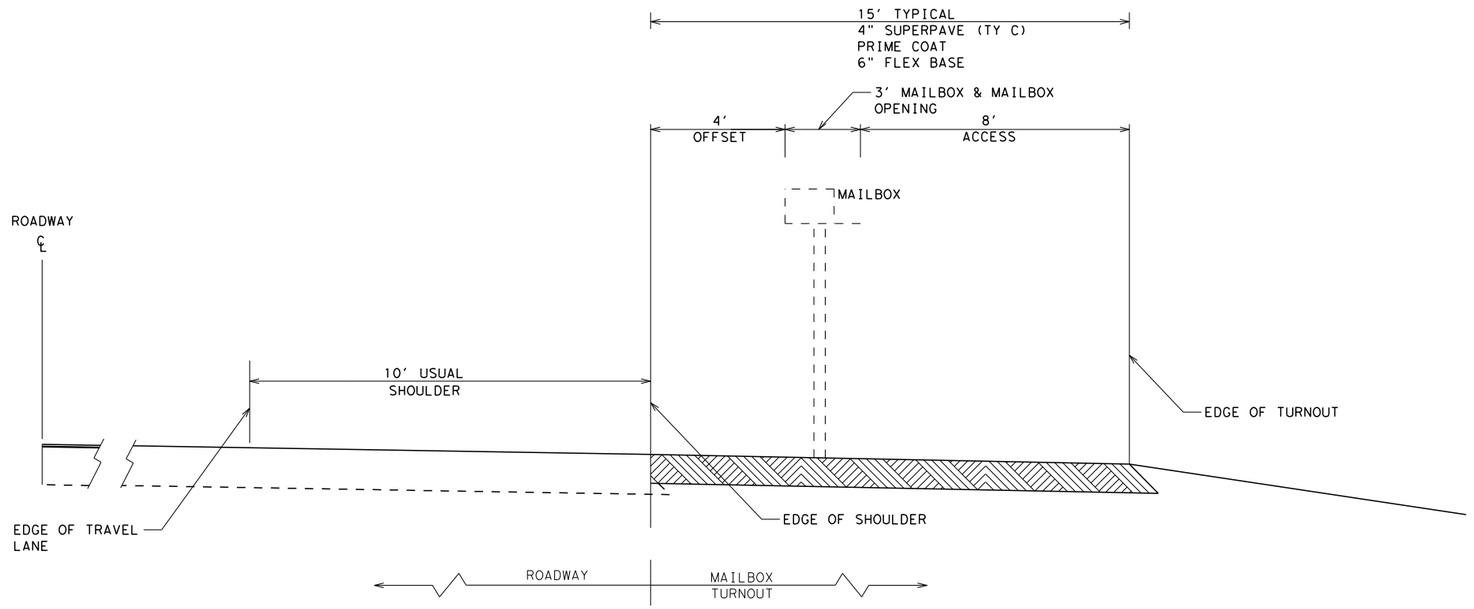
SUMMARY OF MAILBOX TURNOUTS

SHEET	STA.		NAME	SY
SHEET 3 OF 31	55+95	RT	TO 3-1 (9 MAILBOXES)	154
SHEET 3 OF 31	64+12	RT	TO 3-2 (3 MAILBOXES)	140
SHEET 5 OF 31	113+11	RT	TO 5-1 (24 MAILBOXES)	185
SHEET 9 OF 31	189+83	RT	TO 9-1 (1 MAILBOX)	130
SHEET 9 OF 31	196+75	RT	TO 9-2 (1 MAILBOX)	131
TOTALS				



PLAN

NOT TO SCALE



TYPICAL SECTION

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

MAILBOX TURNOUT DETAILS

SHEET 1 OF 1

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FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		119
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

FILE: MAILBOX TURNOUT.dgn
DATE: 5/28/2020 TIME: 5:57:43 PM
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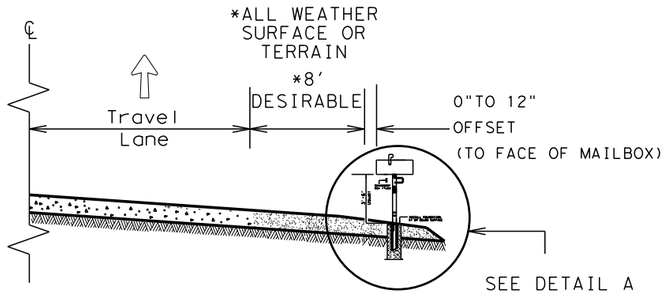
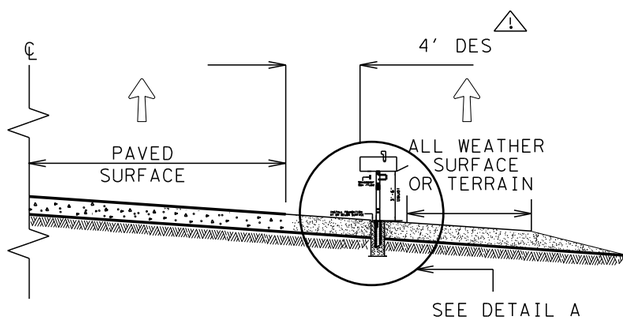
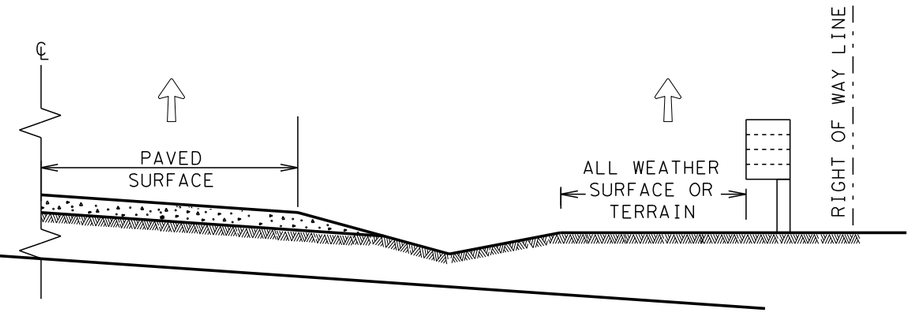


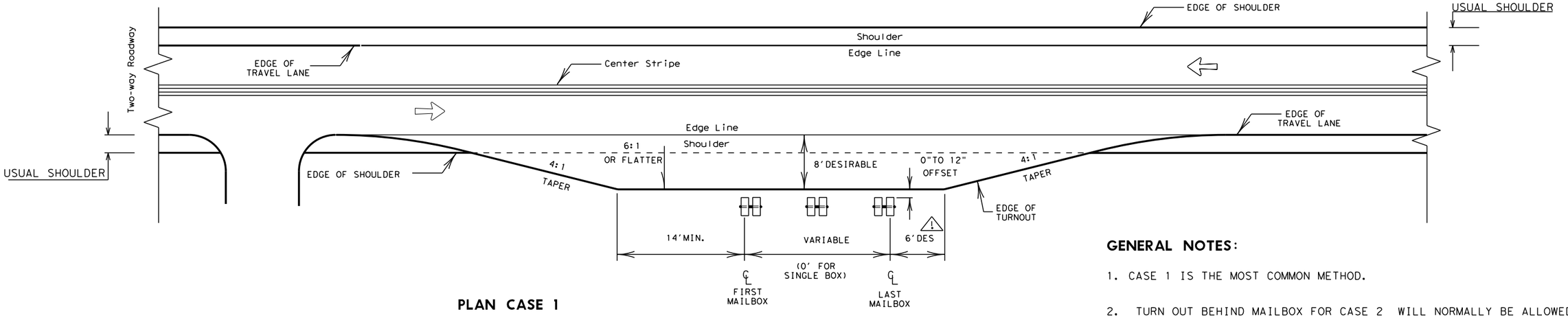
CASE 1. OFF TRAVEL WAY DELIVERY



CASE 2. BACK SIDE DELIVERY



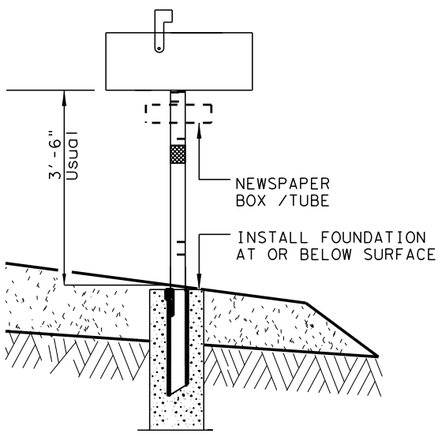
CASE 3. DELIVERY NEAR RIGHT OF WAY LINE



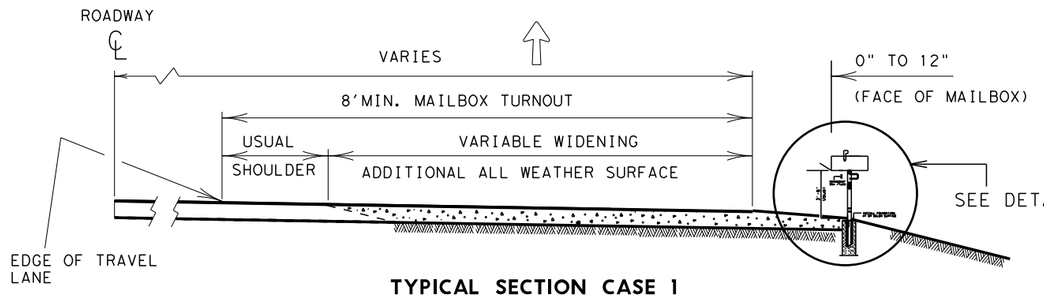
PLAN CASE 1

GENERAL NOTES:

1. CASE 1 IS THE MOST COMMON METHOD.
2. TURN OUT BEHIND MAILBOX FOR CASE 2 WILL NORMALLY BE ALLOWED FOR NATURAL TERRAIN THAT WILL SERVE AS AN ALL WEATHER SURFACE.
3. ALL WEATHER DRIVEWAYS FOR CASE 3 MAILBOXES LOCATED AT THE RIGHT OF WAY LINE SHOULD NORMALLY BE PLACED IN CONJUNCTION WITH COUNTY ROADS OR OTHER CONNECTING COMMUNITY ROADS OR STREETS. IF THE NUMBER OF MAILBOXES EXCEEDS FOUR, A COMMUNITY MAIL BOX SHOULD BE ENCOURAGED AT THESE LOCATIONS.



DETAIL A



TYPICAL SECTION CASE 1

MAIL DELIVERY VEHICLE TRAVEL DIRECTION

SHEET 1 OF 3

Texas Department of Transportation | Maintenance Division Standard

Guideline

MAILBOX SIDE ROAD PLACEMENT AND TURNOUTS
MB-14(2)

FILE: MB14(2).DGN	DN: JEO	CK:	DW: JEO	CK:
© TxDOT MAY 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS DECEMBER 2012-NEW TXDOT TITLE BLOCK	0228	04	043, ETC	US 385, ETC
	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		120

DATE: 5/28/2020 5:57:43 PM
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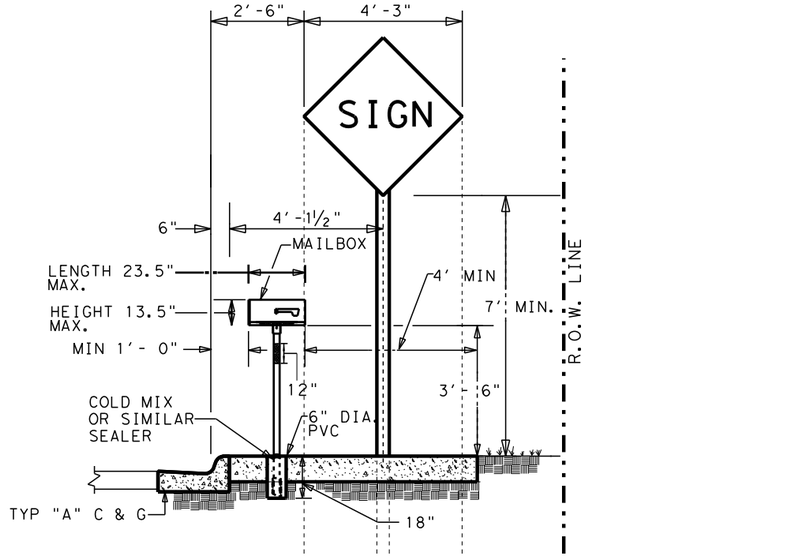
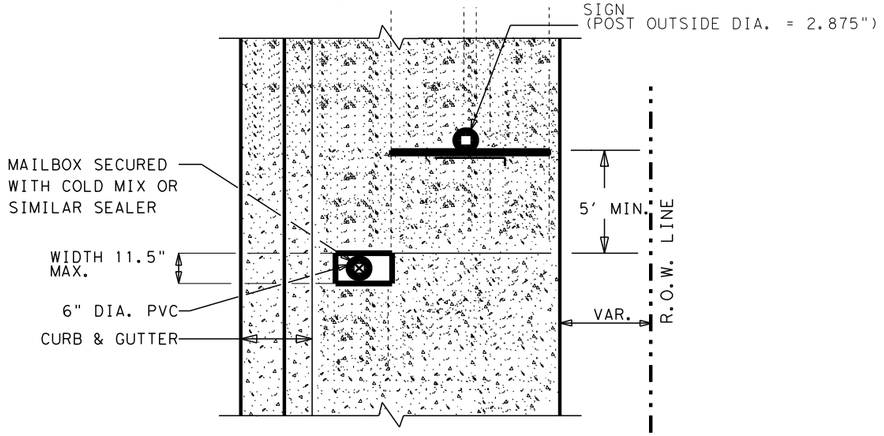
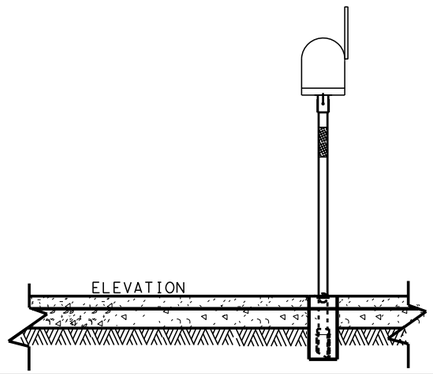
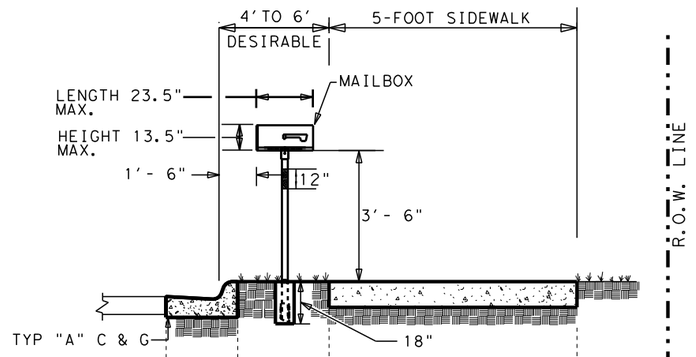


MAILBOX SIDEWALK INSTALLATION RELATIVE TO ANY OTHER OBSTRUCTION SUCH AS A SIGN
(MINIMUM BORDER DISTANCE)

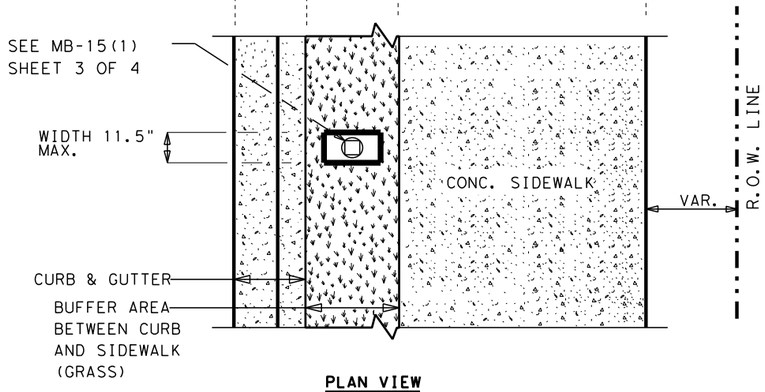


PLAN VIEW





MAILBOX SIDEWALK INSTALLATION
(DESIRABLE BORDER DISTANCE)



PLAN VIEW

DATE: 5/28/2020 5:57:44 PM
FILE: I:\TYE\CADD\TxDOT CAD Standards\MB-14(2A).dgn

Texas Department of Transportation

Maintenance Division Standard

SINGLE MAILBOX PLACEMENT BEHIND CURBS WITH OR WITHOUT SIDEWALKS

MB-14(2A)

FILE: MB-14(2A)	DN:	CK:	DW:	CK:
© TxDOT MAY 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043, ETC	US 385, ETC
	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		121

DATE: 5/28/2020 5:57:45 PM
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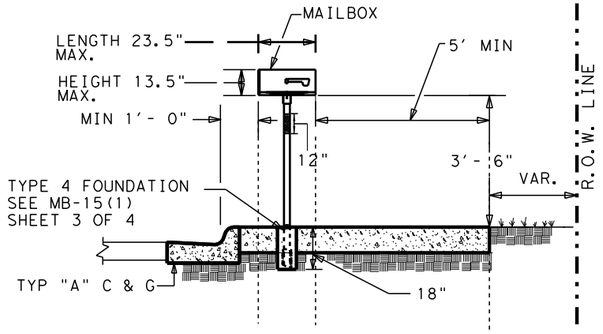
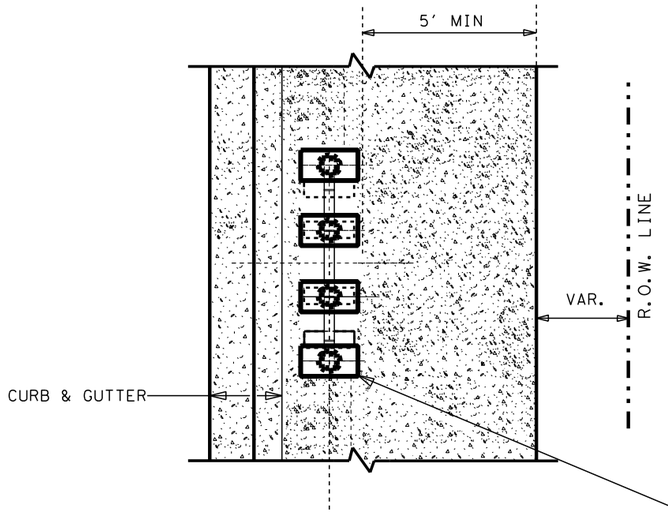
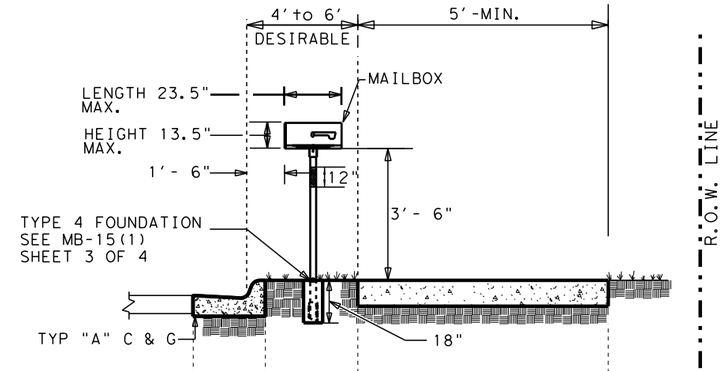


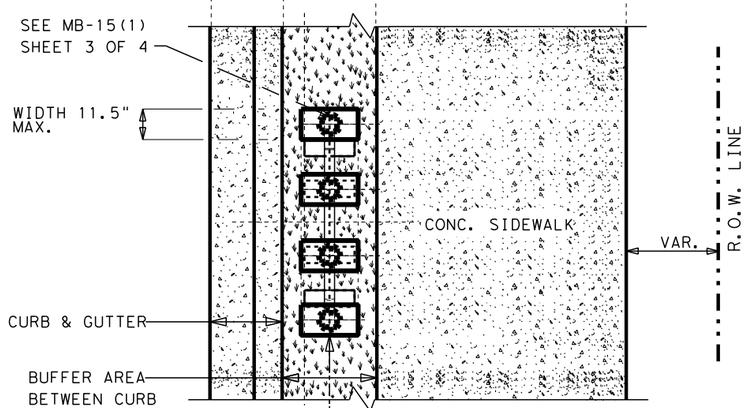
MAILBOX SIDEWALK INSTALLATION RELATIVE TO ANY OTHER OBSTRUCTION SUCH AS A SIGN
(MINIMUM BORDER DISTANCE)



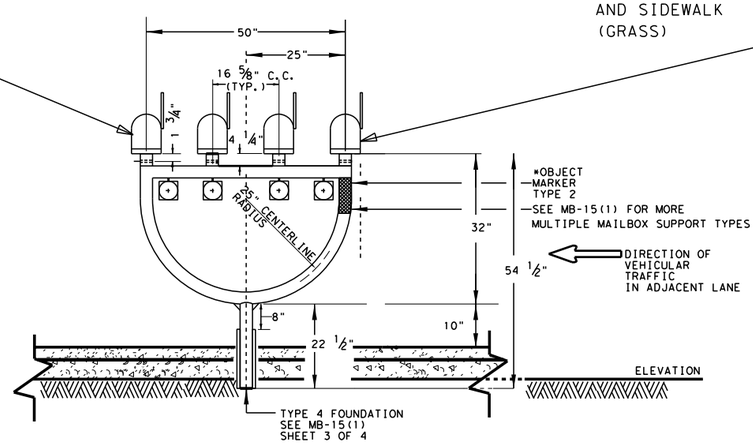
PLAN VIEW



MAILBOX SIDEWALK INSTALLATION
(DESIRABLE BORDER DISTANCE)



PLAN VIEW



SHEET 3 OF 3

Texas Department of Transportation | Maintenance Division Standard

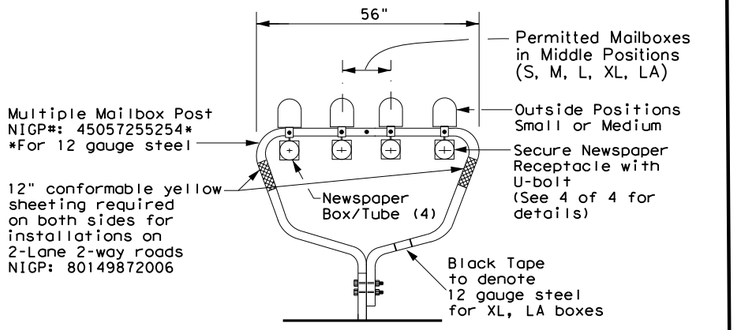
MULTIPLE MAILBOX PLACEMENT BEHIND CURBS WITH OR WITHOUT SIDEWALKS

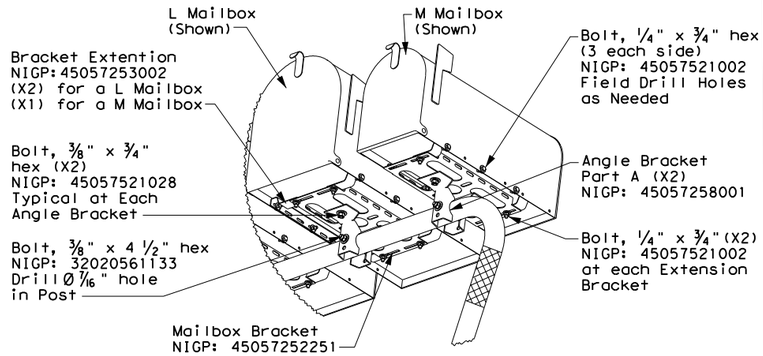
MB-14(2B)

FILE: MB-14(2A)	DN:	CK:	DW:	CK:
© TxDOT MAY 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043,ETC	US 385,ETC
	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		122

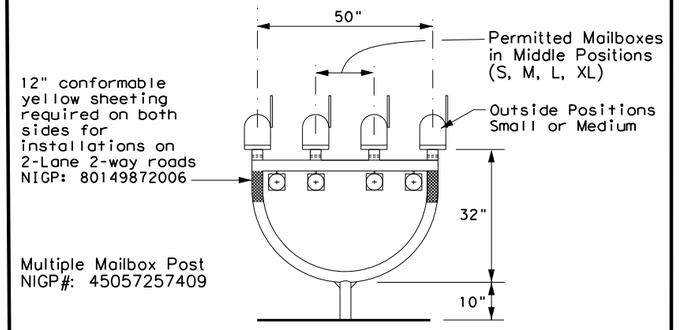
DATE:
FILE:

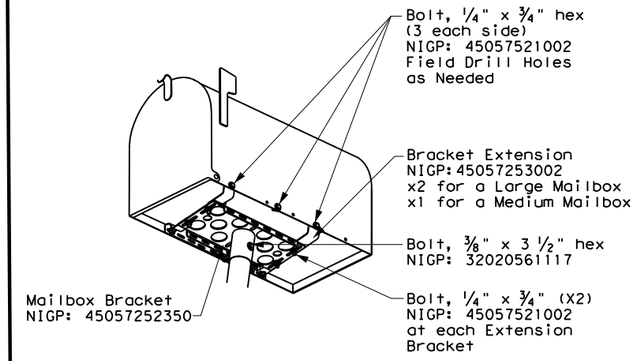
TYPE 1 - MULTIPLE





TYPE 4 - MULTIPLE





MAILBOX SIZES

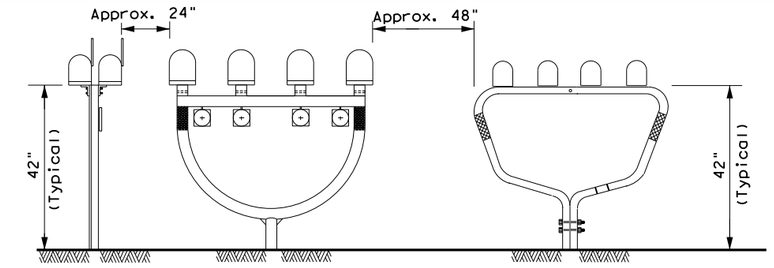
MAILBOX SIZE	TYPICAL DIMENSIONS			MAX **
	LENGTH	WIDTH	HEIGHT	WEIGHT
SMALL	19 1/2"	6"	7"	6 LBS
MEDIUM	22 1/2" *	8" *	11 1/2" *	8 LBS
LARGE	23 1/2"	11 1/2"	13 1/2"	11 LBS
EXTRA LARGE	18"	14"	12"	13 LBS
LOCKABLE	18"	11 1/2"	15"	23 LBS

* See Note 1.
** Excluding Molded Plastic on 4 X 4 Post

GENERAL NOTES:

1. Dimensions shown (length, width, and height) are typical, not maximums. However, anytime a medium size mailbox is mounted on a single/double mount or on the outside position on a multi mount, the dimensions shown are maximums.
2. Mailboxes shall be made of light weight sheet metal or light weight plastic. Heavy steel, cast iron or decorative mailboxes shall not be used on the state highway system.

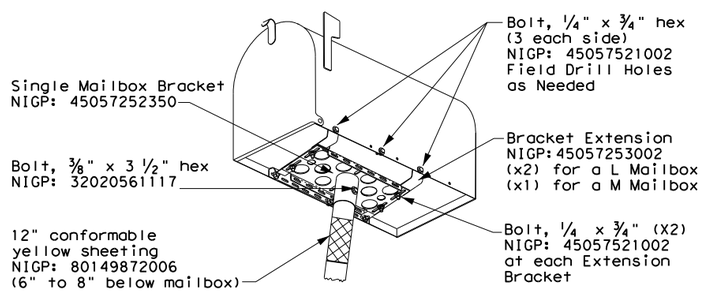
TYPICAL INSTALLATION MEASUREMENTS

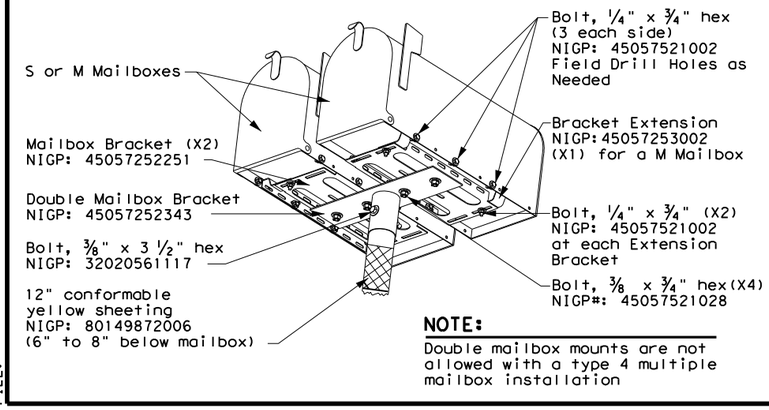


NOTE:

Mailbox installations in sidewalk areas shall be in accordance with the latest TxDOT Design Standard sheets PED-Pedestrian Facilities Curb Ramps.

TYPE 2 and 4 - SINGLE/DOUBLE

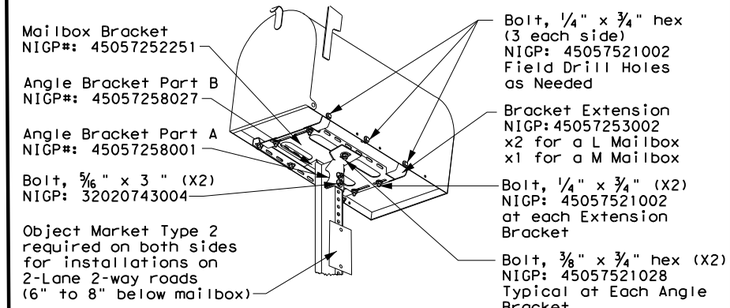


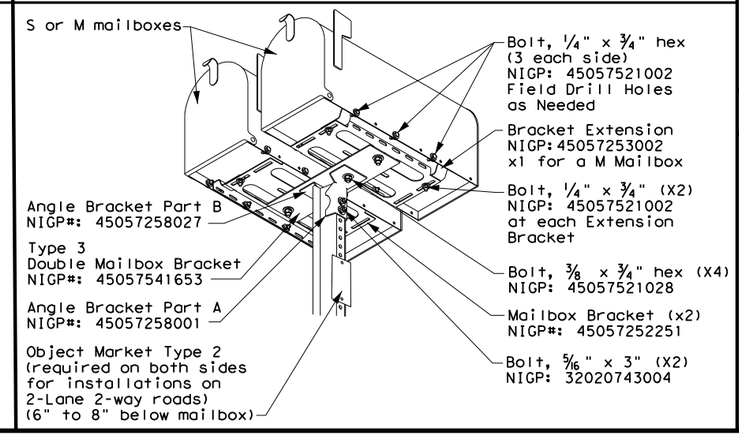


NOTE:

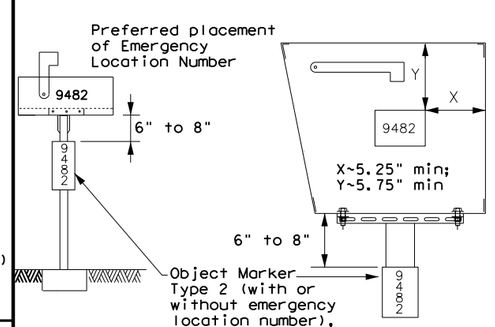
Double mailbox mounts are not allowed with a type 4 multiple mailbox installation

TYPE 3 - SINGLE/DOUBLE





PLACEMENT OF EMERGENCY LOCATION NUMBER

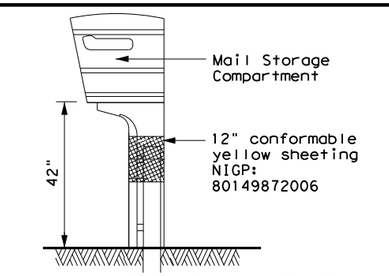


NOTES:

1. Location numbers are provided by homeowner. Minimum size 1" height.
2. Location number is typically placed on the mailbox in a contrasting color.
3. Black numbers may be placed on the Type 2 object marker if the numbers cannot be placed on the mailbox.
4. Alternatively, a green or blue plate with white numbers attached may be mounted below the object marker. Other contrasting color configuration, as approved, may be used.
5. See 3 of 4 for Foundation details.
6. See 4 of 4 for Hardware details.

SHEET 1 OF 4

TYPE 5



Typical Molded Plastic Mailbox

Texas Department of Transportation

Maintenance Division Standard

MAILBOX MOUNTING AND ASSEMBLY

MB(1)-21

FILE: MB-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT March 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS 2/2005 11/2009 4/2015 6/2005 1/2011 11/2006 7/2014	0228	04	043, ETC.	US 385, ETC.
	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		123

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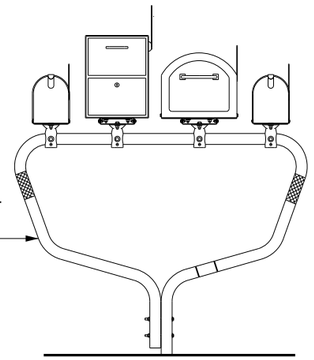
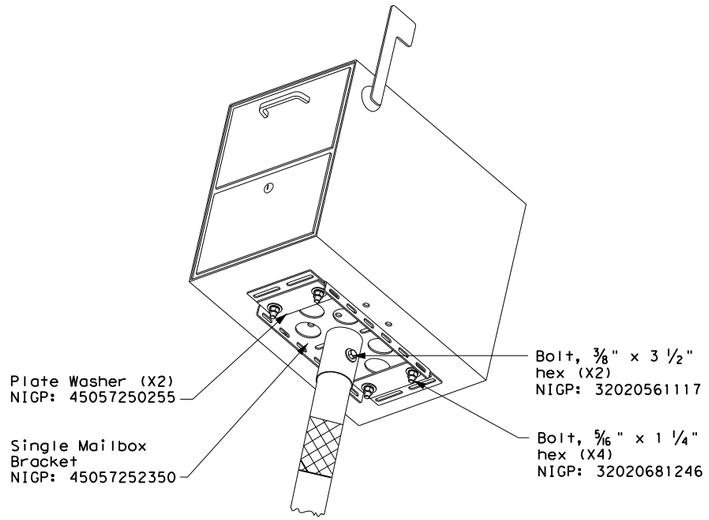
DATE:
FILE:

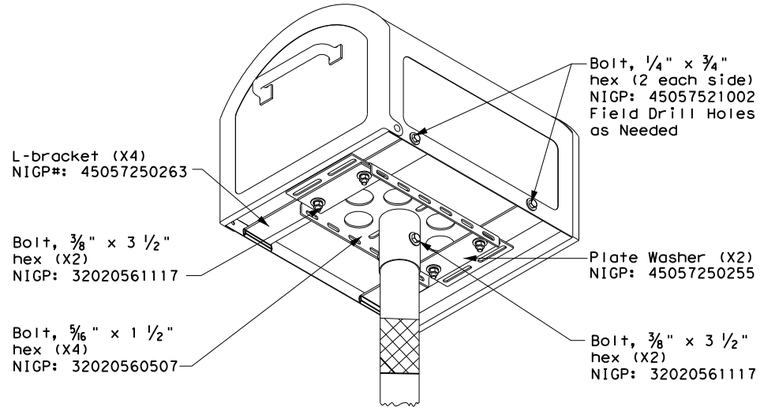
TYPE 1- MULTI LOCKABLE AND XL MAILBOX



TYPE 2/4 - SINGLE LOCKABLE MAILBOX

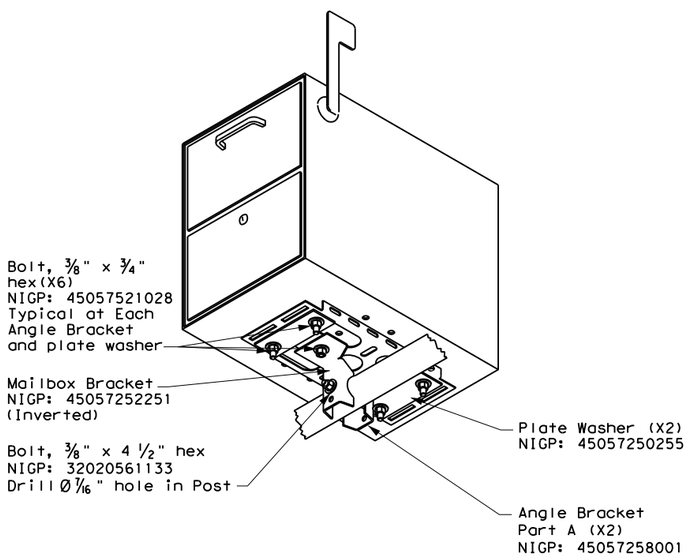


TYPE 2/4 - SINGLE XL MAILBOX

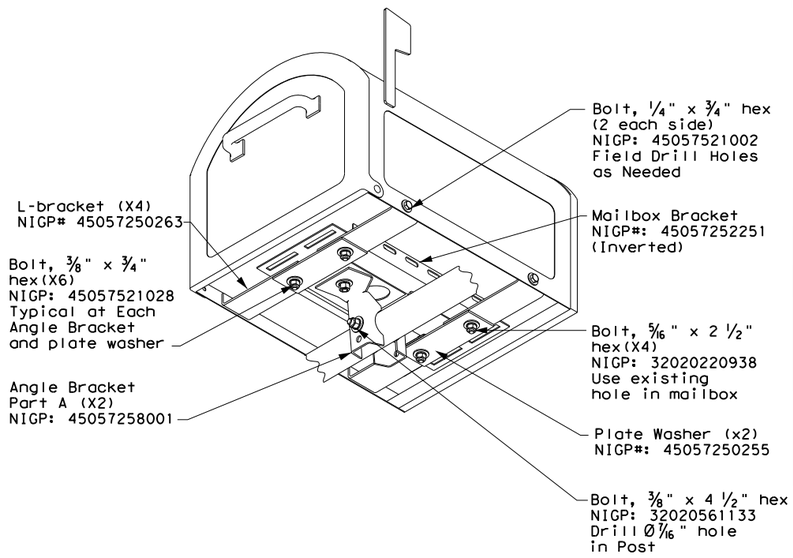


NOTE:
Follow same configuration when mounting an XL mailbox on a Type 4 multi post.

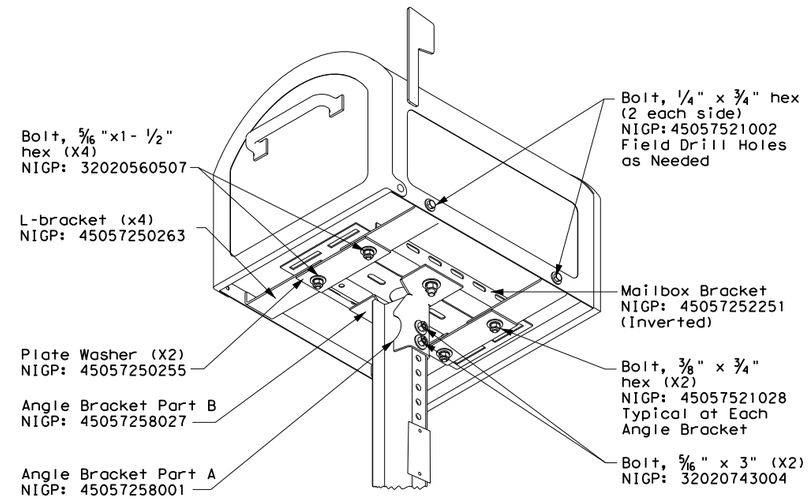
TYPE 1 MULTI – LOCKABLE ARCHITECTURAL (LA)



TYPE 1 MULTI – XL MAILBOX



TYPE 3 - XL MAILBOX MOUNTING



Texas Department of Transportation | Maintenance Division Standard

XL AND LOCKABLE ARCHITECTURAL MAILBOX ASSEMBLY

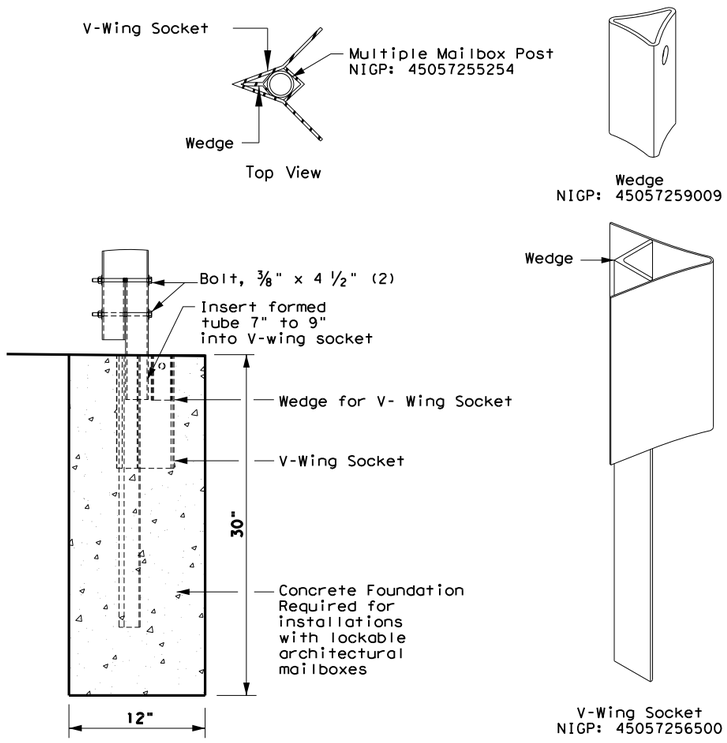
MB(2)-21

FILE: MB-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT March 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS 2/2005 11/2009 4/2015 6/2005 1/2011 11/2006 7/2014	0228	04	043, ETC.	US 385, ETC.
	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		124

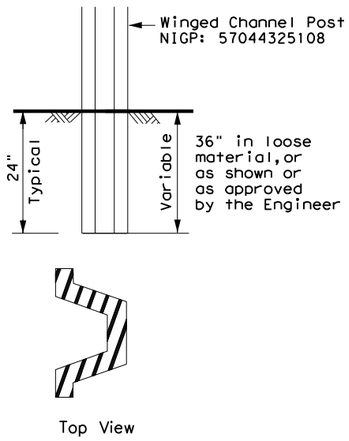
DATE:
FILE:

TYPE 1 - SUPPORT/FOUNDATION

Thin Wall Tube w/ V-LOC Anchorage



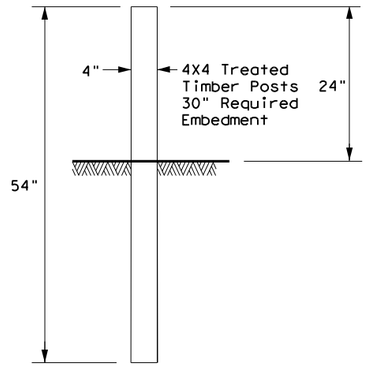
TYPE 3 - SUPPORT/FOUNDATION



NOTES:

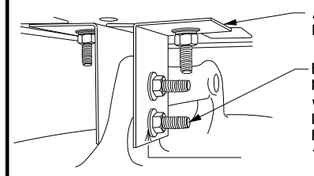
1. Attach Object Marker (OM) facing direction of traffic.
2. OM will also be required on opposite side if installed on a 2-Lane, 2-Way roadway.

TYPE 5 - SUPPORT/FOUNDATION



Molded Plastic Mailboxes shall be installed on 4"x4" treated timber posts only. The use of steel pipe or structural tubing in place of timber post is prohibited.

TYPE 6 - TEMPORARY MAILBOX SUPPORT



Plastic Drum NIGP: 55093383655
Rubber Collar NIGP: 55093387102

NOTES:

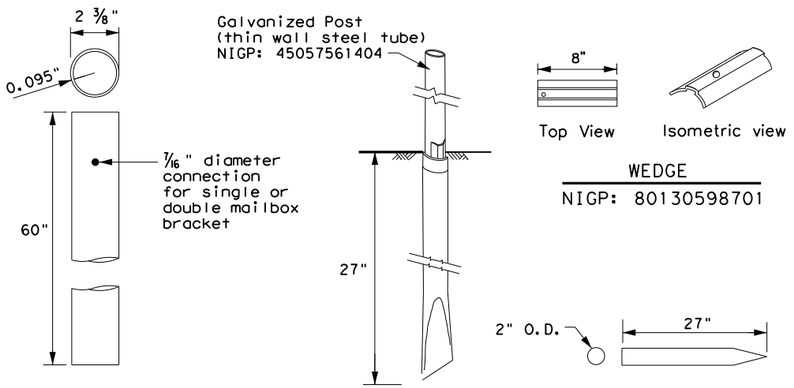
1. Place on approved plastic drum as shown in the Compliant Work Zone Traffic Control Devices (CWZTCD).
2. Existing attachment hardware shall be used unless damaged. Damaged hardware shall be replaced.

GENERAL NOTES:

1. Erect post plumb or vertical.
2. When galvanized part is required galvanize in accordance with Item 445.
3. Use a concrete footing as shown or when directed. Concrete footing will be required when soils do not hold the support/foundations in a stable condition, only on Type 1, Type 2, and Type 4

TYPE 2 - SUPPORT/FOUNDATION

Thin Wall Steel Tube w/Wedge Anchor System

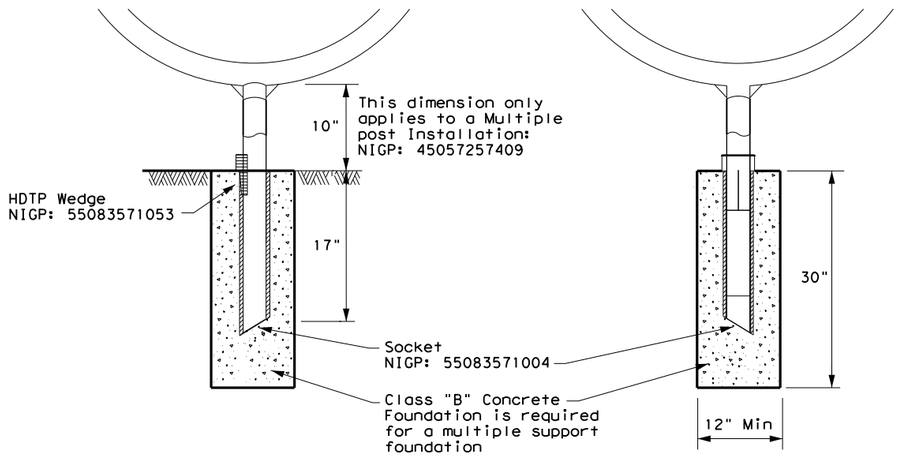


MAILBOX POST

WEDGE ANCHOR
NIGP: 80130238407

TYPE 4 - SUPPORT/FOUNDATION

Whitecoated steel post NIGP: 45057561107
Multiple post NIGP: 45057257409
Recycled Rubber post (RR) NIGP: 45057561057



SHEET 3 OF 4

Texas Department of Transportation

Maintenance Division Standard

MAILBOX SUPPORT AND FOUNDATION

MB(3)-21

FILE: MB-21.dgn	DN:	CK:	DW:	CK:
© TxDOT March 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS 2/2005 11/2009 4/2015 6/2005 1/2011 11/2006 7/2014	0228	04	043, ETC.	US 385, ETC.
	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		125

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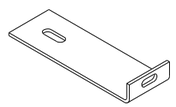
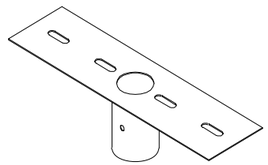
DATE:
FILE:

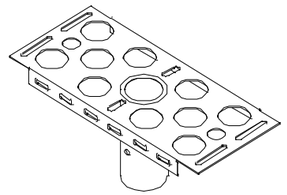
TYPE	TYPE 1	TYPE 2	TYPE 3	TYPE 4			TYPE 5	TYPE 6
Configuration	Multiple	Single or Double	Single or Double	Single	Double	Multiple	Single	Single
Mailbox Size NIGP #	Outside Position: S or M Inside Position: S, M, L, XL, or LA	Single: S, M, L, XL, or LA Double: SS, SM, MM	Single: S, M, L, or XL Double: SS, SM, MM	S, M, L, XL, or LA	SS, SM, or MM	Outside Position: S or M Inside Position: S, M, L, or XL	Molded Plastic	S, or M
Mailbox Post NIGP #	45057255254 (Galvanized Multiple)	45057561404 (Thin Walled Gavanize)	57044325108 (Wing Channel Post)	45057561107 (Thin walled white powder coated) 45057561057 (Recycled Rubber Post: S or M only)	45057561107 (Thin Walled White Powder Coated)	45057257409 (White Powder Coated Multiple)	4x4 Timber	Construction Barrel
Post and Mailbox Hardware NIGP #	45057259009 (Wedge) 45057256500 (V-Wing Socket) 45057253002 (Bracket Extension) 45057252251 (Mailbox Bracket) 45057258001 (Part A Angle Bracket x2) 45057250255 (Plate Washer for XL/LA x2) 45057250263 (L-Bracket for XL x4)	80130598701 (Wedge) 80130238407 (Wedge Anchor) 45057253002 (Bracket Extension) 45057252343 (Double MB Bracket) 45057252350 (S. Mailbox Bracket) 45057252251 (Mailbox Bracket) 45057250255 (Plate Washer for XL/LA x2) 45057250263 (L-Bracket forXL x4)	45057541653 (Type 3 Double Mailbox Bracket) 45057252251 (Mailbox Bracket) 45057253002 (Bracket Extension) 45057258001 (Part A Angle Bracket) 45057258027 (Part B Angle Bracket) 45057250255 (Plate Washer for XL x2) 45057250263 (L-Bracket for XL x4)	55083571053 (Wedge) 55083571004 (Socket) 45057252350 (Single Mailbox Bracket) 45057253002 (Bracket Extension) 45057250255 (Plate Washer for XL/LA x2) 45057250263 (L-Bracket for XL x4)	55083571053 (Wedge) 55083571004 (Socket) 45057253002 (Bracket Extension) 45057252343 (Double Mount Bracket) 45057252251 (Mailbox Bracket x2)	55083571053 (Wedge) 55083571004 (Socket) 45057253002 (Bracket Extension) 45057252350 (Single Mount Bracket) 45057250255 (Plate Washer for XL x2) 45057250263 (L-Bracket for XL x4)	None	45057251055 Angle Bracket (x2)
Foundation Used	Class B Concrete (Required for LA Mailboxes)	Class B Concrete (Required for LA Mailboxes)	None	Class B Concrete (not used with recycled rubber post, required for LA Mailboxes)	Class B Concrete (not required)	Class B Concrete	None	None



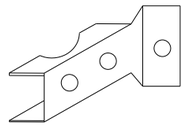
NIGP: 45057250263
L-Bracket x4 for
XL sized mailboxes



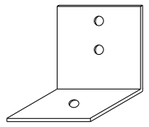
NIGP: 45057252343
Double Mailbox Bracket
For Type 2 and Type 4
double mount



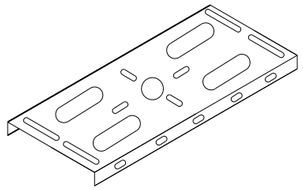
NIGP: 45057252350
Single Mailbox Bracket
For Type 2 single and for
Type 4 single and multi mount



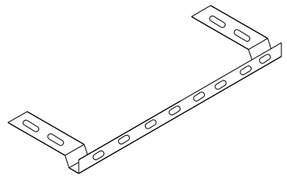
NIGP: 45057258001
Part "A" Angle Bracket
For Type 1 multi (2 per mailbox)
and Type 3 single and double



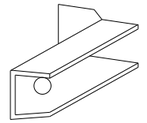
NIGP: 45057251055
Type 6 Angle Bracket
(2 per mailbox)



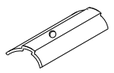
NIGP: 45057252251
Mailbox Bracket
For Type 1 multi and
any double mount (use 2)



NIGP: 45057253002
Bracket Extension
Use 1 for a medium Mailbox
Use 2 for a Large Mailbox



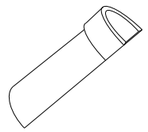
NIGP: 45057258027
Part "B" Angle Bracket
For Type 3 single
and double



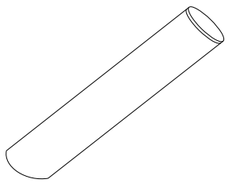
NIGP: 80130598701
Wedge for Type 2

NIGP: 45057250255
Plate Washer for Architecural
and XL Mailboxes

NIGP: 45057541653
Type 3 double mailbox bracket

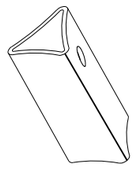


NIGP: 55083571053
Type 4 Mailbox Wedge

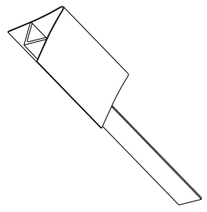


NIGP: 55083571004
Type 4 Mailbox Socket

NIGP: 80130238407
Type 2 Wedge Anchor



NIGP: 45057259009
Wedge for Type 1 V-wing Socket



NIGP: 45057256500
V-wing Socket for
Type 1 Foundation

NIGP #	OBJECT MARKERS AND CONFORMABLE SHEETING
55008311759	Type 2 OM 4"x4" (3 Needed) for Type 3 Wing Channel Post
55008312906	Type 2 OM 6"x12" (1 needed) for Type 3 Wing Channel Post
80149872006	12" Conformable Reflective Yellow Sheeting for Flexible Posts

NOTES:

1. Type 2 object marker in accordance with Traffic Engineering Standard Delineators & Object Markers.
2. A light weight receptacle for newspaper delivery can be attached to mailbox posts if the receptacle does not touch the mailbox, present a hazard to traffic or delivery of the mail, extend beyond the front of the mailbox, or display advertising, except the publication title.

BID CODES FOR CONTRACTS

MB-(X) ASSM TY (XXX) (X)

Type of Mailbox
- S = Single
- D = Double
- M = Multiple
- MP = Molded Plastic

Type of Post
- WC = Winged Channel Post
- RR = Recycled Rubber
- TWW = Thin Walled White Tubing
- TWG = Thin Walled Galvanized Tubing
- TIM = Timber

Type of Foundation
- Ty 1 = V-Loc
- Ty 2 = Wedge Anchor Steel System
- Ty 3 = Winged Channel post
- Ty 4 = Wedge Anchor Plastic System
- Ty 5 = 4 X 4 Post

Texas Department of Transportation — Maintenance Division Standard

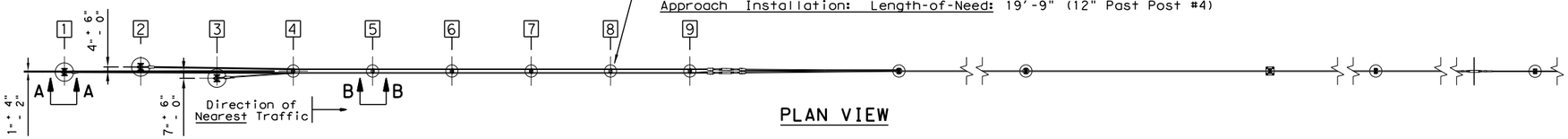
NIGP PARTS LIST AND COMPATIBILITY

MB(4)-21

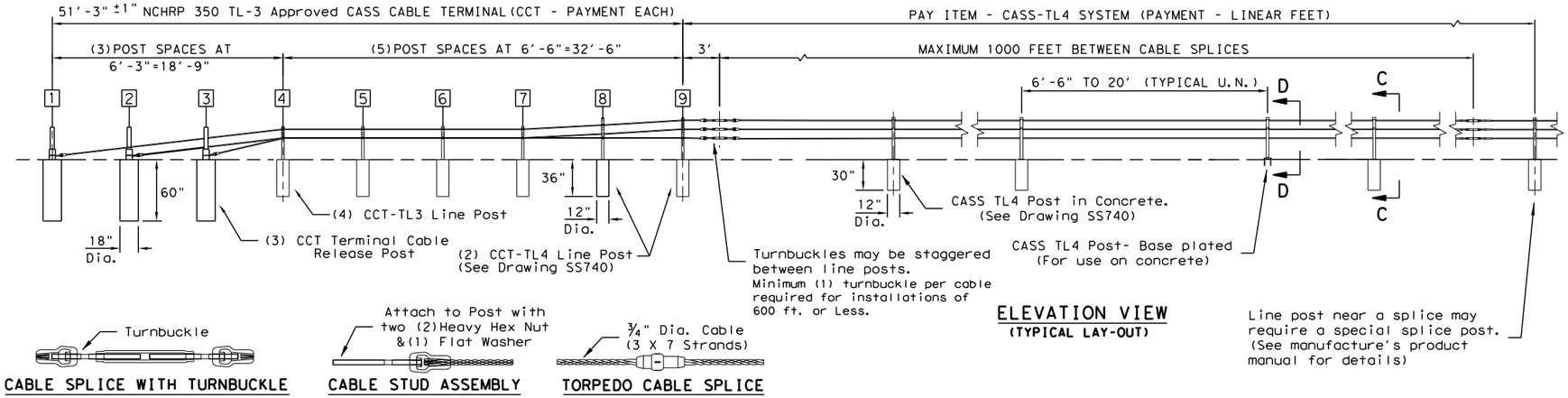
FILE: MB-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT March 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS 2/2005 11/2009 4/2015 6/2005 1/2011 11/2006 7/2014	0228	04	043, ETC.	US 385, ETC.
	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		126

Preferred Installation: Locate post #2 away from nearest traffic.
System has been succesfully tested with opposite installation.

Length-of-Need Cass Cable Terminal (CCT):
Departure Installation: Length-of-Need: 44'-9" (At Post #8)
Approach Installation: Length-of-Need: 19'-9" (12" Past Post #4)



PLAN VIEW

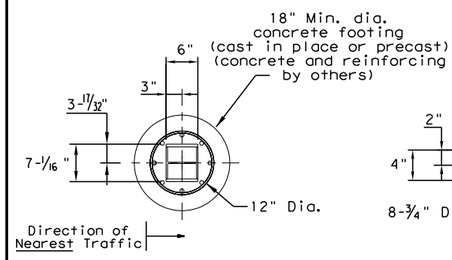


ELEVATION VIEW
(TYPICAL LAY-OUT)

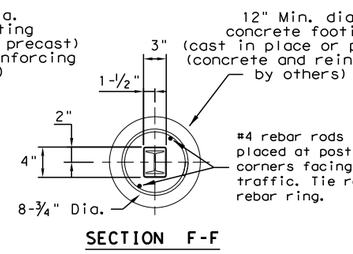
CABLE SPLICE WITH TURNBUCKLE
(OPEN BODY STYLE)

CABLE STUD ASSEMBLY

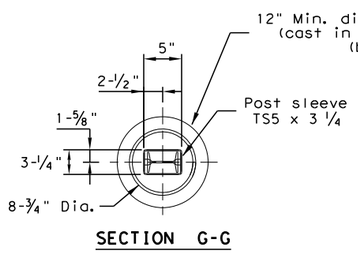
TORPEDO CABLE SPLICE



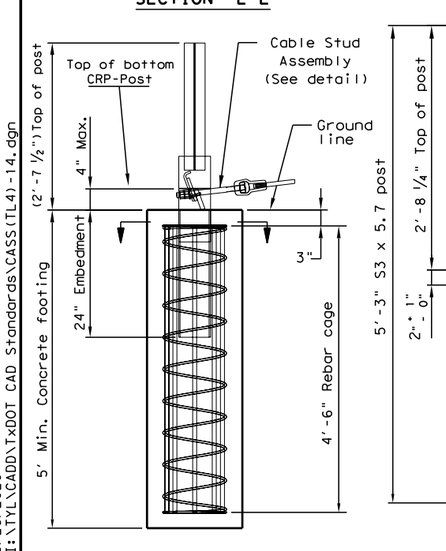
SECTION E-E



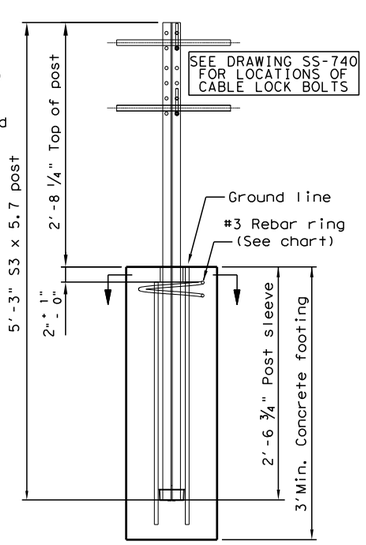
SECTION F-F



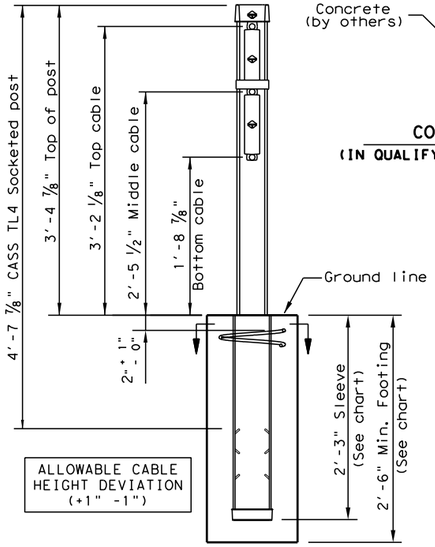
SECTION G-G



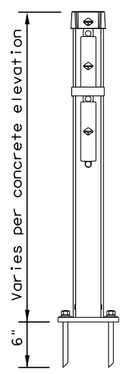
VIEW A-A
(CABLE RELEASE POST 1-3)



VIEW B-B
(TERMINAL LINE POST 4-7)



SECTION C-C
(SOCKETED POST)



SECTION D-D
(BASE PLATED POST)

CONCRETE FOOTING
(IN QUALIFYING MOW STRIP SEE CHART)

STANDARD POST & CONCRETE FOOTING
(SOCKETED POST)

GENERAL NOTES

1. This drawing is a general overview of CASS TL-4 Barrier System. See SS-740 (latest version) for specific details of CASS cable terminal (CCT) and cable safety system (CASS) requirements, proper installation, options and specification.
2. CASS is designed for bi-directional traffic flows and can be installed on either side of the median. Contact Trinity (800-527-6050) or consult the design, installation, or repair manual(s) for additional information.
3. All concrete for CASS footings shall be TxDOT class A. If class A or stronger concrete is utilized for the mowstrip, please see chart below for allowable footing depth and sleeve deviations.
4. All posts shall be socketed unless otherwise specified. All cables shall be pre-stretched unless otherwise specified.
5. For payment see Special Specification "Cable Barrier System".
6. CASS-TL4 shall be installed on shoulders or medians with slopes of 6:1 or flatter without obstructions, depressions, etc. That may significantly affect the stability of an errant vehicle. Grading of site and/or appropriate fill materials may be required. The designer/installer shall "Flatten" or "Round" various topographical inconsistencies that could interfere with the ability of the installer to consistently maintain the design height (in relation to the terrain) of the cables. Please consult manual(s) and / or TxDOT Memo(s) for installations in "Ditch Sections".
7. CASS TL-4 post spacing may be modified to avoid obstacles that conflict with the installation of cass-tl4 line posts or to reduce deflection on radiuses. No post space can exceed the maximum post TxDOT space limit of 20'. Reducing or increasing post spacing affects deflection. CASS TL-4 may be laterally transferred at a rate not to exceed 30:1.
8. Post foundations may be drilled through existing pavement. Please see line post foundation chart for minimum footing requirements in various applications.
9. For aesthetic purposes Trinity recommends all sleeves, driven posts, and lower cable release posts to be installed reasonably plumb (approximately 1/8" per foot).
10. CASS TL-4 shall be installed in well-drained, compacted, NCHRP Report 350 Standard soil. If soil does not meet this classification, if solid rock/concrete is encountered below grade or if soil is susceptable to severe freeze/thaw cycles, please contact Trinity about alternate footing design(s). Trinity suggests the use of "Mow strips" for erosion prevention and ease of maintenance / installation.
11. See the Texas MUTCD for proper "Barrier" Delineation.

MOW STRIP DETAIL*			CONCRETE FOOTING CHART		
MOW STRIP	DEPTH	WIDTH	FOOTING	TUBE SLEEVE	REBAR RING
NONE			30" Min.	27" Min.	YES
HMA	6" Min.	3' Min.	27" Min.	15" Min.	NO
HMA	8" Min.	3' Min.	24" Min.	15" Min.	NO
RC	3" Min.	3' Min.	24" Min.	15" Min.	NO

Chart does not apply to Terminal Posts 1 thru 9.
* Mow strip or pavement.
HMA = Hot Mix Asphalt (Not Recycled Asphalt Pavement).
RC = Reinforced Concrete (TxDOT Class A Minimum).

CABLE TENSION CHART	
FAHRENHEIT	PRE-STRETCHED
DEGREES	LB / FORCE
-10	7300
0	7000
10	6600
20	6300
30	6000
40	5600
50	5300
60	5000
70	4600
80	4300
90	4000
100	3600
110	3300
120	3000
130	2700
140	2500
150	2300

Allowable deviation from chart in tangent sections: +800, -200 pounds/force. Cable tension readings are typically higher in curved cable sections.

Trinity Highway Products, LLC.
2525 Stemmons Freeway
Dallas, TX 75207
Phone: (800) 644-7976

Product.INFO@TRIN.NET

Texas Department of Transportation — Design Division Standard

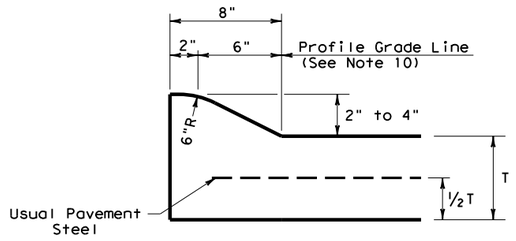
TRINITY CABLE SAFETY SYSTEM (TL-4)

CASS(TL4)-14

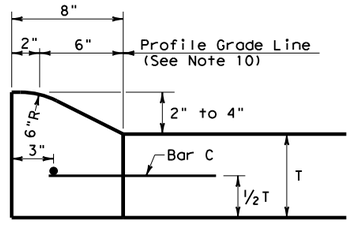
FILE: casst1414.dgn	DN: TxDOT	CK: RM	DW: VP	CK:
©TxDOT: March 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043,ETC	US 385,ETC
	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		127

DATE: 5/28/2020
FILE: I:\TYL\CADD\TxDOT CAD Standards\CASS\(TL4)-14.dgn

DATE:
FILE:



TYPE I CURB (MONOLITHIC)
2" - 4" HEIGHT



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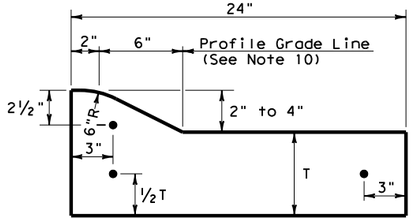
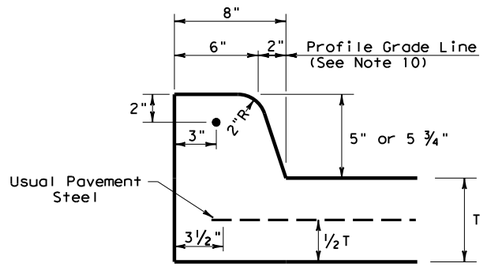
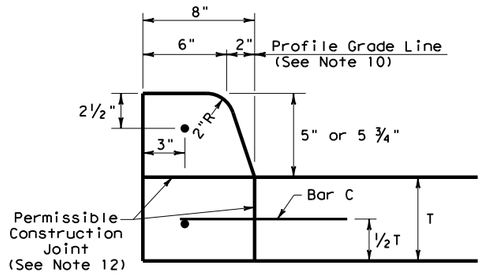


TYPE I CURB AND GUTTER
2" - 4" HEIGHT



TYPE II CURB (MONOLITHIC)
5" - 5 ¾" HEIGHT



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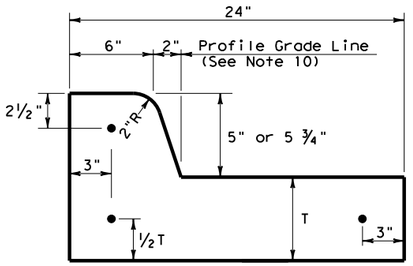

TYPE II CURB AND GUTTER
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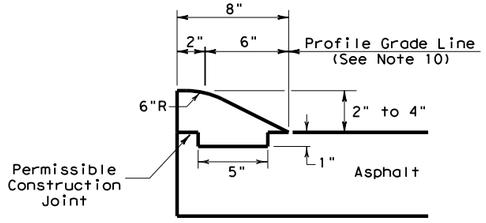

TYPE III CURB (KEYED)
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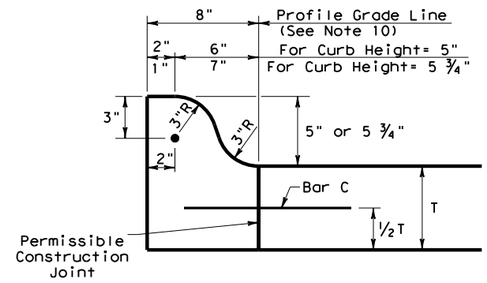
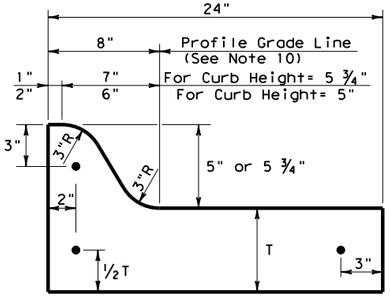
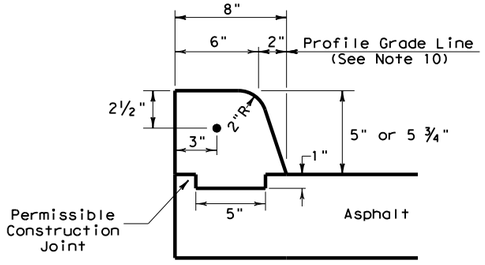


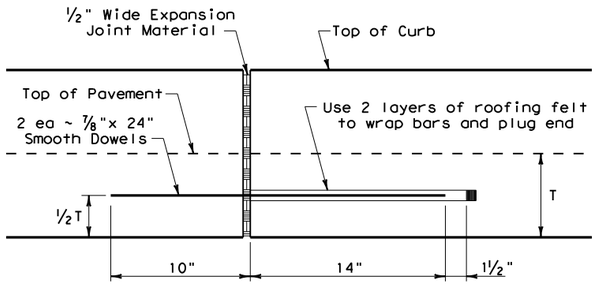
TYPE IIa CURB
5" - 5 ¾" HEIGHT



TYPE IIa CURB AND GUTTER
5" - 5 ¾" HEIGHT

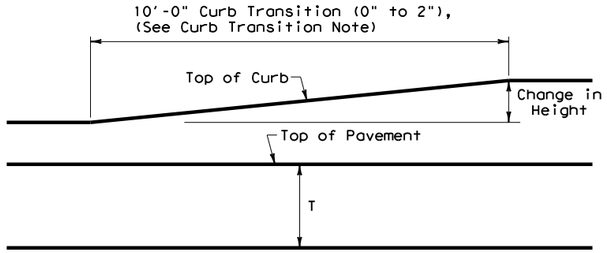


TYPE IV CURB (KEYED)
5" - 5 ¾" HEIGHT



EXPANSION JOINT DETAIL

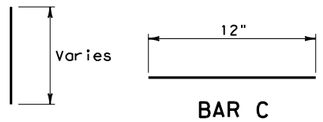
CURB TRANSITION NOTE:
Field conditions may require a longer or shorter transition, and shall be shown elsewhere in the plans, or as directed by the Engineer.



CURB TRANSITION
Note: To be paid for as Highest Curb

GENERAL NOTES

1. All materials and construction shall be in accordance with Item 529, "Concrete Curb, Gutter, and Combined Curb and Gutter."
2. Concrete shall be Class A.
3. When reinforcing bars are used, they shall be No.4 unless otherwise shown. The use of fiber reinforced concrete in lieu of reinforcing steel is acceptable. Use fibers meeting the requirements of DMS 4550, "Fibers for Concrete," and dose fibers in accordance with Material Producers List (MPL) "Fibers for Class A and B Concrete Applications."
4. Round exposed sharp edges with a rounding tool, to a minimum radius of ¼ inch.
5. All existing curbs and driveways to be removed shall be sawed or removed at existing joints.
6. Where concrete curb is to be placed on existing concrete pavement, Bar B may be drilled and the grouted in place, or may be inserted into fresh concrete.
7. Expansion and contraction joints shall be constructed to match pavement joints in all curbs and curb and gutter adjacent to jointed concrete pavement. Where placement of curb or curb and gutter is not adjacent to concrete pavement, expansion joints shall be provided at structures, curb returns at streets, and at locations directed by The Engineer.
8. Vertical and horizontal dowel bars and transverse reinforcing bars shall be placed at four feet C~C.
9. Dimension 'T' shown is the thickness of concrete pavement. When curb is installed adjacent to flexible pavement dimension 'T' is 8" maximum.
10. Usual profile grade line. Refer to typical sections and plan-profile sheets for exact locations.
11. One-half inch expansion joint material shall be provided where curb or curb and gutter is adjacent to sidewalk or riprap.
12. When horizontal permissible construction joints are used, the longitudinal pavement steel shall be placed in accordance with pavement details shown elsewhere in the plans. Reinforcing steel for curb section shall then conform to that required for concrete curb.
13. Bar B used as needed to support curb reinforcing steel during concrete placement.



BAR B

BAR C

Texas Department of Transportation

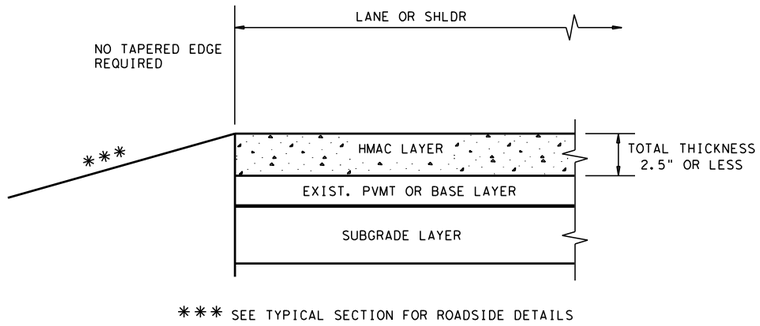
Design Division Standard

CONCRETE CURB AND CURB AND GUTTER

CCCG-21

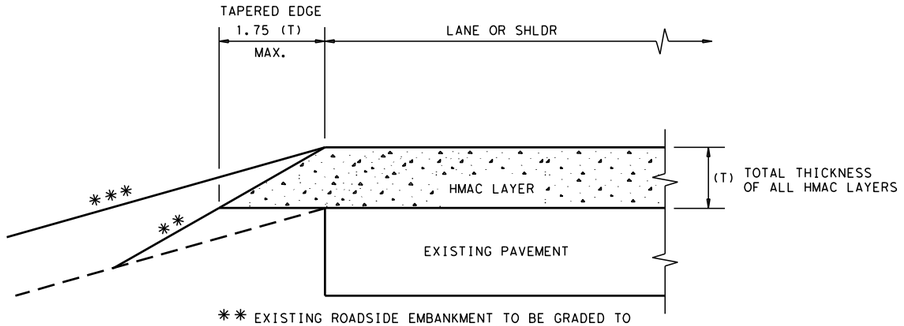
FILE: cccg21.dgn	DN: TXDOT	CK: AN	DW: SS	CK: KM
© TxDOT: FEBRUARY 2021	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043, ETC.	US 385
	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		128

DATE: 5/28/2020
FILE: I:\TYL\CADD\TxDOT CAD Standards\TEHMAC11.dgn



*** SEE TYPICAL SECTION FOR ROADSIDE DETAILS

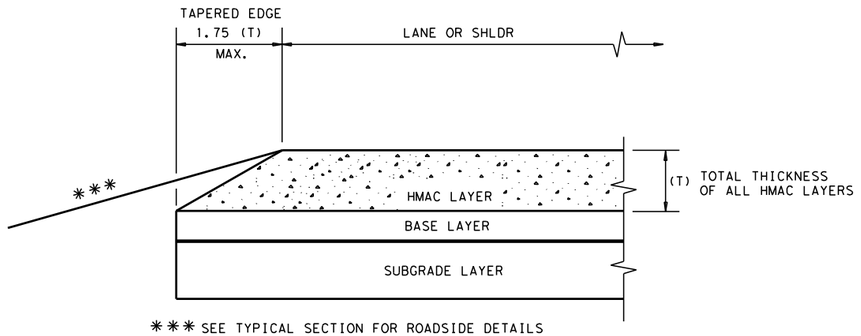
CONDITION - 1
THIN HMAC SURFACES OR HMAC OVERLAY
WITH THICKNESS OF 2.5" OR LESS



** EXISTING ROADSIDE EMBANKMENT TO BE GRADED TO PRODUCE A SMOOTH LEVEL SURFACE FOR PLACEMENT OF TAPERED EDGE. THIS WORK IS SUBSIDIARY TO THE VARIOUS BID ITEMS.

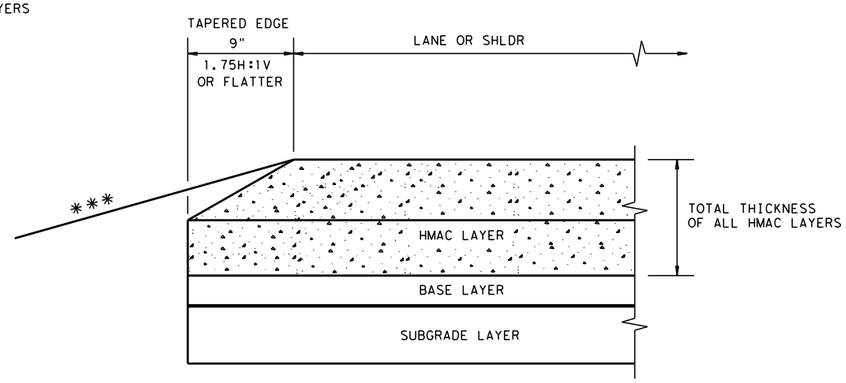
*** SEE TYPICAL SECTION FOR ROADSIDE DETAILS

CONDITION - 2
OVERLAY OF EXISTING PAVEMENT
HMAC THICKNESS 2.5" TO 5"



*** SEE TYPICAL SECTION FOR ROADSIDE DETAILS

CONDITION - 3
NEW OR RECONSTRUCTED PAVEMENT
HMAC THICKNESS 2.5" TO 5"



*** SEE TYPICAL SECTION FOR ROADSIDE DETAILS

CONDITION - 4
NEW OR RECONSTRUCTED PAVEMENT
HMAC THICKNESS 5" OR GREATER

(NOT TO SCALE)

GENERAL NOTES

1. UNLESS OTHERWISE SHOWN IN THE PLANS, A VERTICAL EDGE IS PERMISSIBLE FOR HMAC PLACED GREATER THAN 5" BELOW THE EDGE OF PAVEMENT AND FOR THICKNESS OF HMAC LESS THAN 2.5".
2. FOR FURTHER INFORMATION REGARDING THE ROADSIDE AND PAVEMENT DETAILS, SEE TYPICAL SECTIONS.
3. PAYMENT FOR TAPERED EDGE WILL BE IN ACCORDANCE WITH APPLICABLE ITEMS IN THE CONTRACT.
4. THE SLOPE OF THE TAPERED EDGE SHALL BE 1.75H:1V OR FLATTER.
5. THE TAPERED EDGE SHALL BE PRODUCED BY USE OF A SCREED ATTACHMENT CAPABLE OF PRODUCING A SMOOTH COMPACTED SURFACE. ADDITIONAL COMPACTING EFFORT BEHIND THE SCREED IS NOT REQUIRED.

Texas Department of Transportation

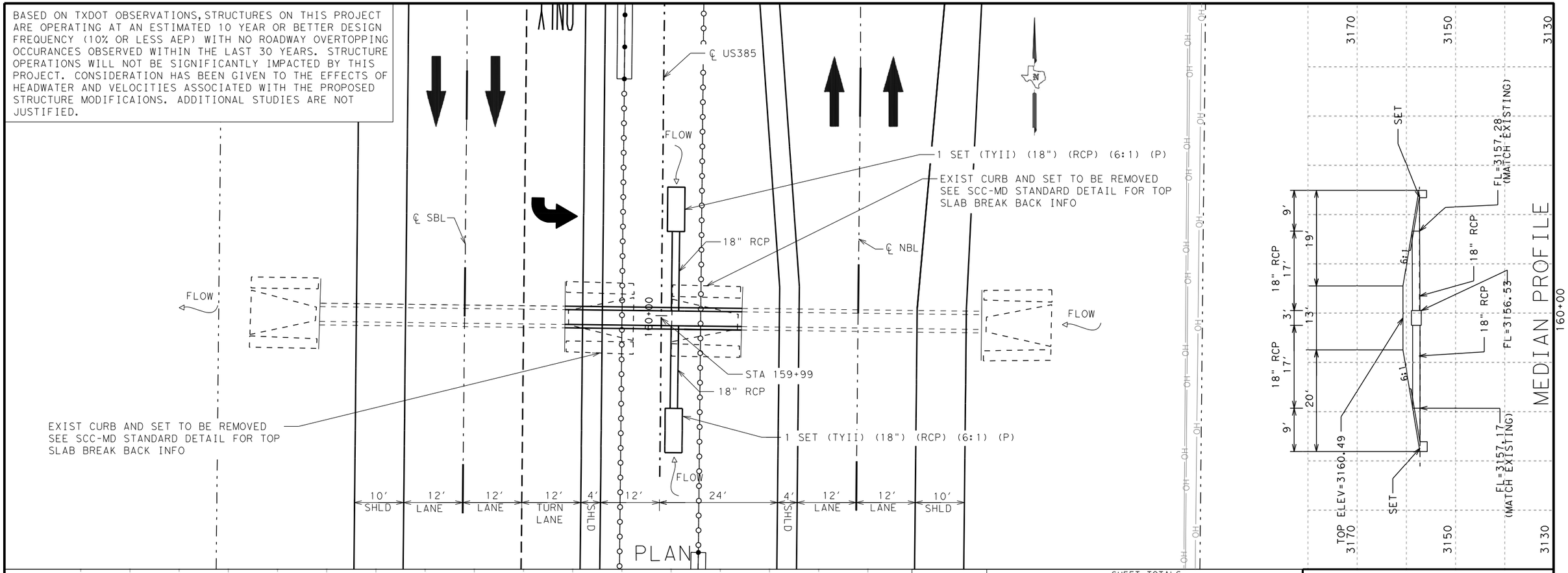
Design Division Standard

TAPERED EDGE DETAILS
HMAC PAVEMENT

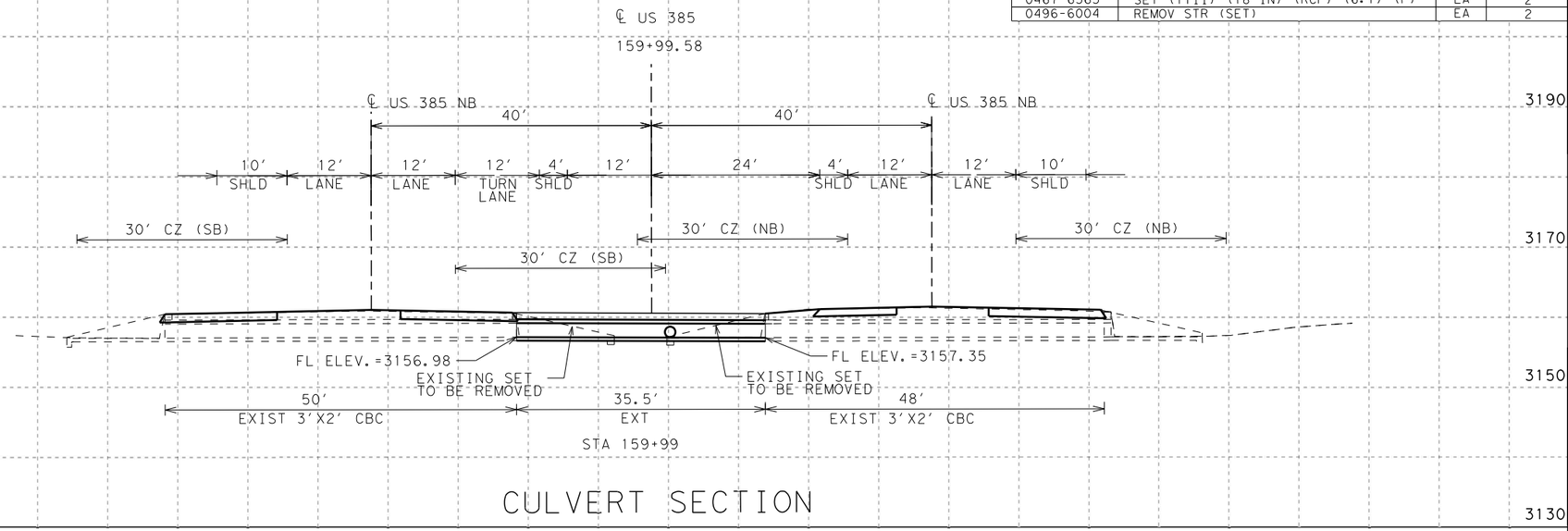
TE(HMAC)-11

FILE: tehmac11.dgn	DN: TxDOT	CK: RL	DW: KB	CK:
© TxDOT January 2011	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043,ETC	US 385,ETC
	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		129

BASED ON TXDOT OBSERVATIONS, STRUCTURES ON THIS PROJECT ARE OPERATING AT AN ESTIMATED 10 YEAR OR BETTER DESIGN FREQUENCY (10% OR LESS AEP) WITH NO ROADWAY OVERTOPPING OCCURANCES OBSERVED WITHIN THE LAST 30 YEARS. STRUCTURE OPERATIONS WILL NOT BE SIGNIFICANTLY IMPACTED BY THIS PROJECT. CONSIDERATION HAS BEEN GIVEN TO THE EFFECTS OF HEADWATER AND VELOCITIES ASSOCIATED WITH THE PROPOSED STRUCTURE MODIFICAIONS. ADDITIONAL STUDIES ARE NOT JUSTIFIED.



ITEM DESC CODE	SHEET TOTALS DESCRIPTION	UNIT	QUANTITY
0400-6001	STRUCT EXCAV	CY	42
0400-6005	CEM STABIL BKFL	CY	1.9
0462-6045	CONC BOX CULV (3'x2') (EXT)	LF	36
0464-6003	RC PIPE (CLASS III) (18")	LF	34
0467-6363	SET (TYII) (18 IN) (RCP) (6:1) (P)	EA	2
0496-6004	REMOV STR (SET)	EA	2



CULVERT SECTION

05/28/2020

STATE OF TEXAS
MARK A. STURROCK
72267
REGISTERED PROFESSIONAL ENGINEER

Mark Sturrock

CULVERT PLAN, PROFILE, & SECTION

STA 159+99

SCALE: HORIZONTAL 1"=20'
VERTICAL 1"=20'

SHEET 1 OF 3

Texas Department of Transportation

LOCHNER
TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		130
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

FILE: A385ECO1.dgn
DATE: 5/28/2020 TIME: 7:57:57 PM
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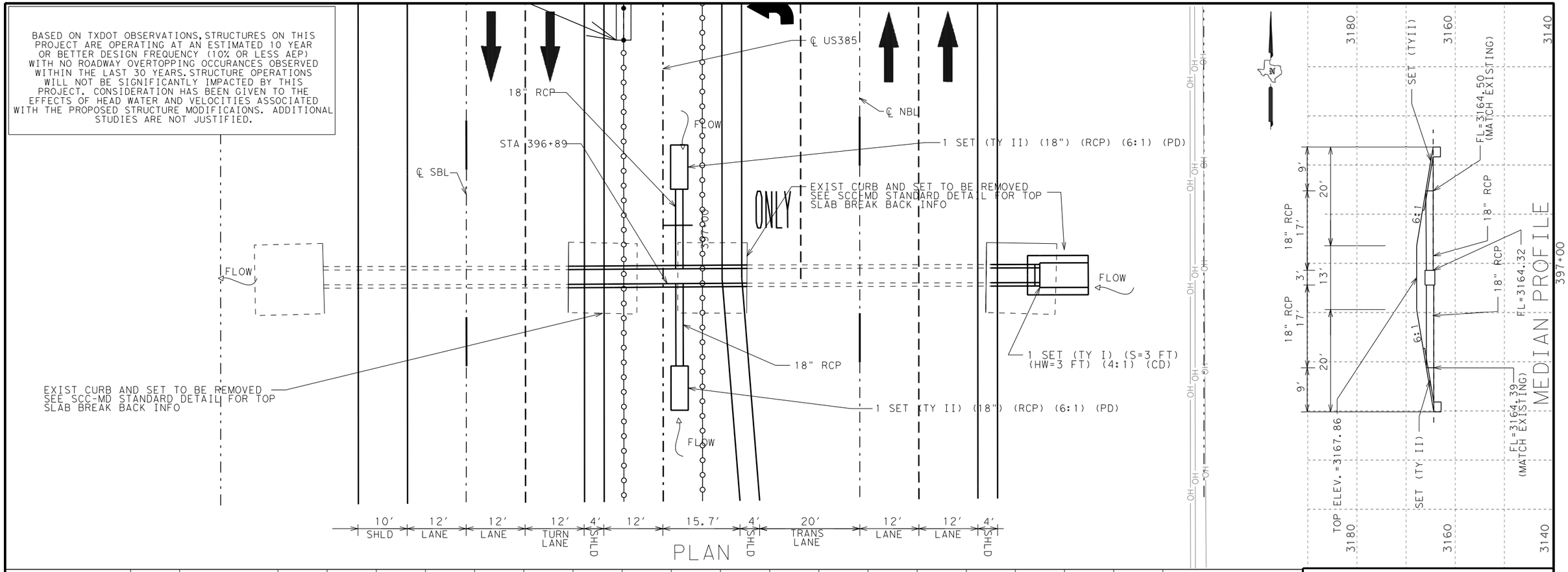
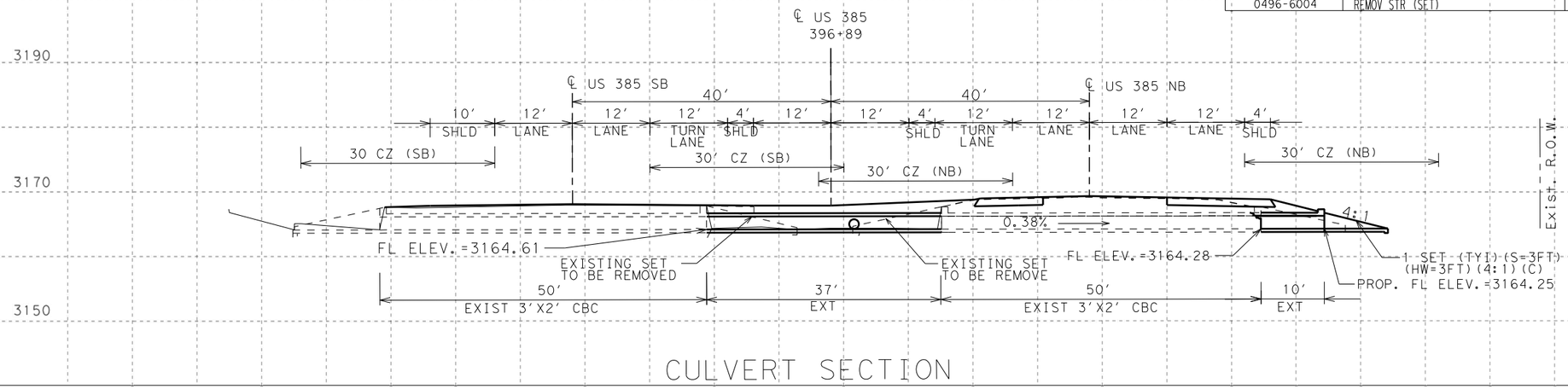
BASED ON TXDOT OBSERVATIONS, STRUCTURES ON THIS PROJECT ARE OPERATING AT AN ESTIMATED 10 YEAR OR BETTER DESIGN FREQUENCY (10% OR LESS AEP) WITH NO ROADWAY OVERTOPPING OCCURANCES OBSERVED WITHIN THE LAST 30 YEARS. STRUCTURE OPERATIONS WILL NOT BE SIGNIFICANTLY IMPACTED BY THIS PROJECT. CONSIDERATION HAS BEEN GIVEN TO THE EFFECTS OF HEAD WATER AND VELOCITIES ASSOCIATED WITH THE PROPOSED STRUCTURE MODIFICAIONS. ADDITIONAL STUDIES ARE NOT JUSTIFIED.



ITEM DESC CODE	DESCRIPTION	UNIT	SHEET TOTALS QUANTITY
0400-6001	STRUCT EXCAV	CY	50.7
0400-6005	CEM STABIL BKFL	CY	2.6
0432-6001	RIPRAP (CONC) (4 IN)	CY	0.5
0462-6045	CONC BOX CULV (3'x2') (EXT)	LF	47
0465-6003	RC PIPE (CLASS III) (18")	LF	34
0467-6106	SET (TYI) (S=3 FT) (HW=3 FT) (4:1) (C)	EA	1
0467-6363	SET (TYII) (18 IN) (RCP) (6:1) (PD)	EA	2
0496-6004	REMOV STR (SET)	EA	3



05/28/2020

STATE OF TEXAS
MARK A. STURROCK
72267
REGISTERED PROFESSIONAL ENGINEER

Mark Sturrock

CULVERT PLAN, PROFILE, & SECTION

STA 396+89

SCALE: HORIZONTAL 1"=20'
VERTICAL 1"=20'

SHEET 2 OF 3

Texas Department of Transportation
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LOCHNER
TBPE Firm Reg. No. 10488

FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	131

STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043,ETC.	US 385, ETC.

FILE: A385EC02.dgn
DATE: 5/28/2020 TIME: 7:57:58 PM
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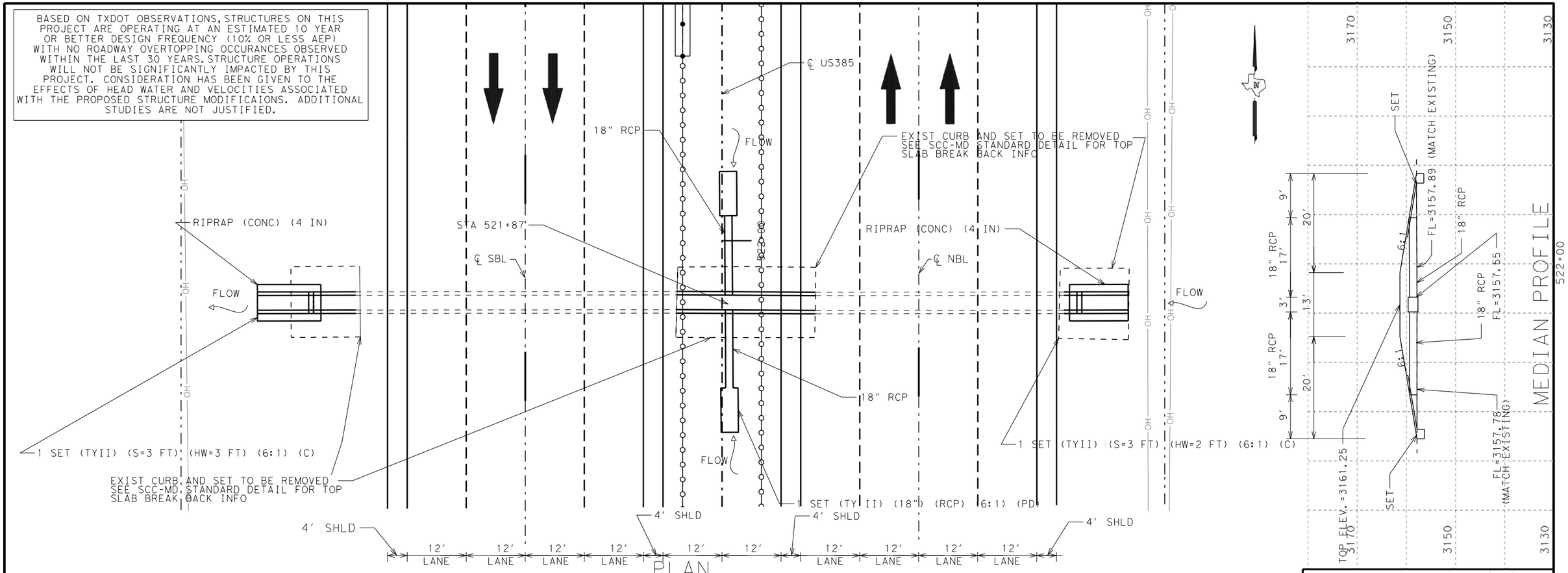
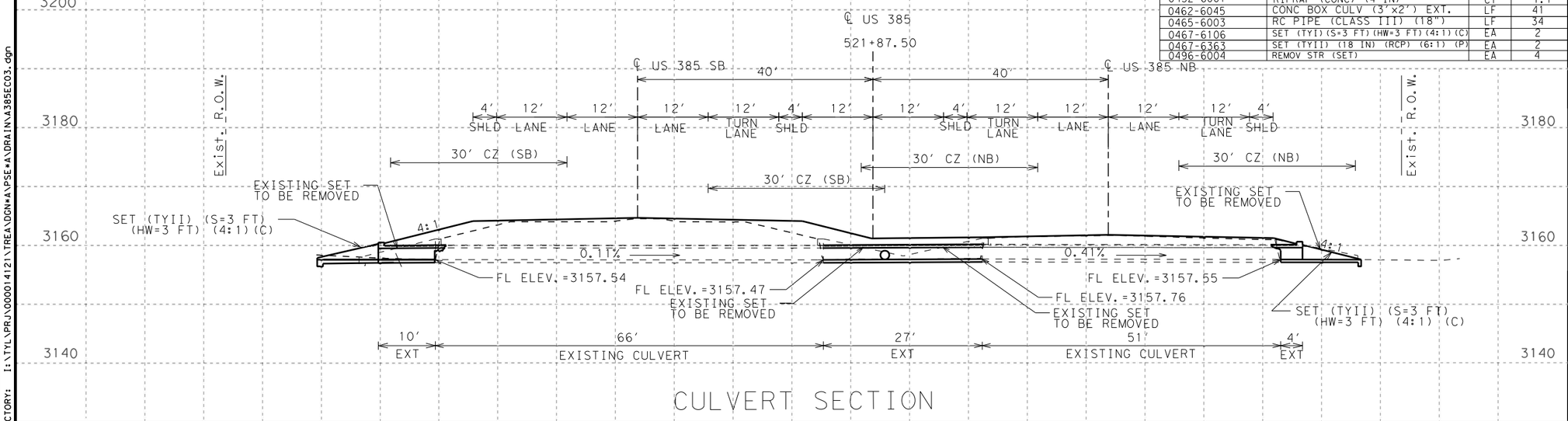
BASED ON TXDOT OBSERVATIONS, STRUCTURES ON THIS PROJECT ARE OPERATING AT AN ESTIMATED 10 YEAR OR BETTER DESIGN FREQUENCY (10% OR LESS AEP) WITH NO ROADWAY OVERTOPPING OCCURANCES OBSERVED WITHIN THE LAST 30 YEARS. STRUCTURE OPERATIONS WILL NOT BE SIGNIFICANTLY IMPACTED BY THIS PROJECT. CONSIDERATION HAS BEEN GIVEN TO THE EFFECTS OF HEAD WATER AND VELOCITIES ASSOCIATED WITH THE PROPOSED STRUCTURE MODIFICAIONS. ADDITIONAL STUDIES ARE NOT JUSTIFIED.





SHEET TOTALS

ITEM DESC CODE	DESCRIPTION	UNIT	QUANTITY
0400-6001	STRUCT EXCAV	CY	57.6
0400-6005	CEM STABIL BKFL	CY	2.6
0432-6001	RIPRAP (CONC) (4 IN)	CY	1.1
0462-6045	CONC BOX CULV (3'x2') EXT.	LF	41
0465-6003	RC PIPE (CLASS III) (18")	LF	34
0467-6106	SET (TYI) (S=3 FT) (HW=3 FT) (4:1) (C)	EA	2
0467-6363	SET (TYII) (18 IN) (RCP) (6:1) (P)	EA	2
0496-6004	REMOV STR (SET)	EA	4

09/25/2020

STATE OF TEXAS
MARK A. STURROCK
72267
REGISTERED PROFESSIONAL ENGINEER

Mark Sturrock

CULVERT PLAN, PROFILE, & SECTION

STA 521+87

SCALE: HORIZONTAL 1"=20'
VERTICAL 1"=20'

SHEET 3 OF 3

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LOCHNER
TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		132
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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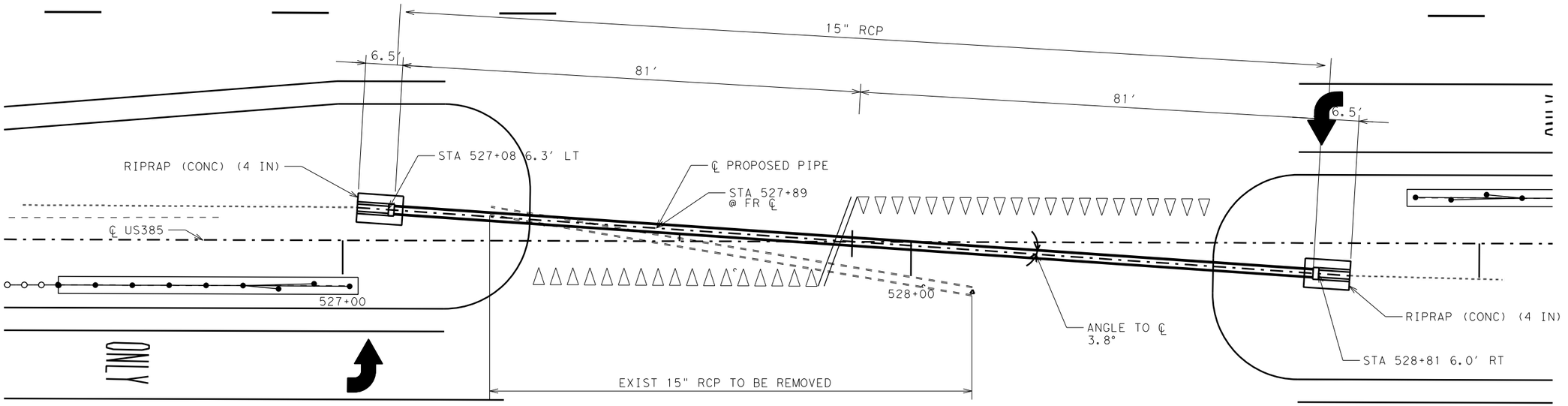
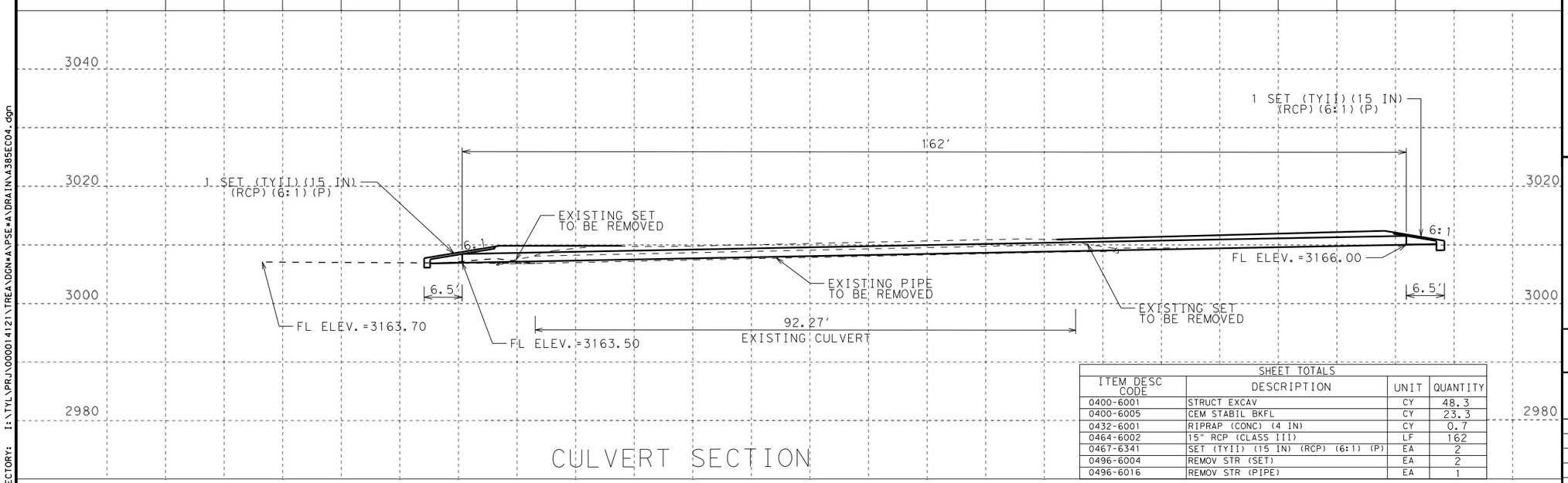


PLAN



CULVERT SECTION

SHEET TOTALS			
ITEM DESC CODE	DESCRIPTION	UNIT	QUANTITY
0400-6001	STRUCT EXCAV	CY	48.3
0400-6005	CEM STABIL BKFL	CY	23.3
0432-6001	RIPRAP (CONC) (4 IN)	CY	0.7
0464-6002	15" RCP (CLASS III)	LF	162
0467-6341	SET (TYII) (15 IN) (RCP) (6:1) (P)	EA	2
0496-6004	REMOV STR (SET)	EA	2
0496-6016	REMOV STR (PIPE)	EA	1

05/28/2020

STATE OF TEXAS
MARK A. STURROCK
72267
REGISTERED PROFESSIONAL ENGINEER

Mark Sturrock

CROSSOVER CULVERT PLAN & SECTION

STA 527+89

SCALE: HORIZONTAL 1"=20'
VERTICAL 1"= 20'

SHEET 1 OF 1

LOCHNER
TBPE Firm Reg. No. 10488

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		133
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043,ETC.	US 385, ETC.

FILE: A385EC04.dgn
DATE: 5/28/2020 TIME: 1:58:07 PM
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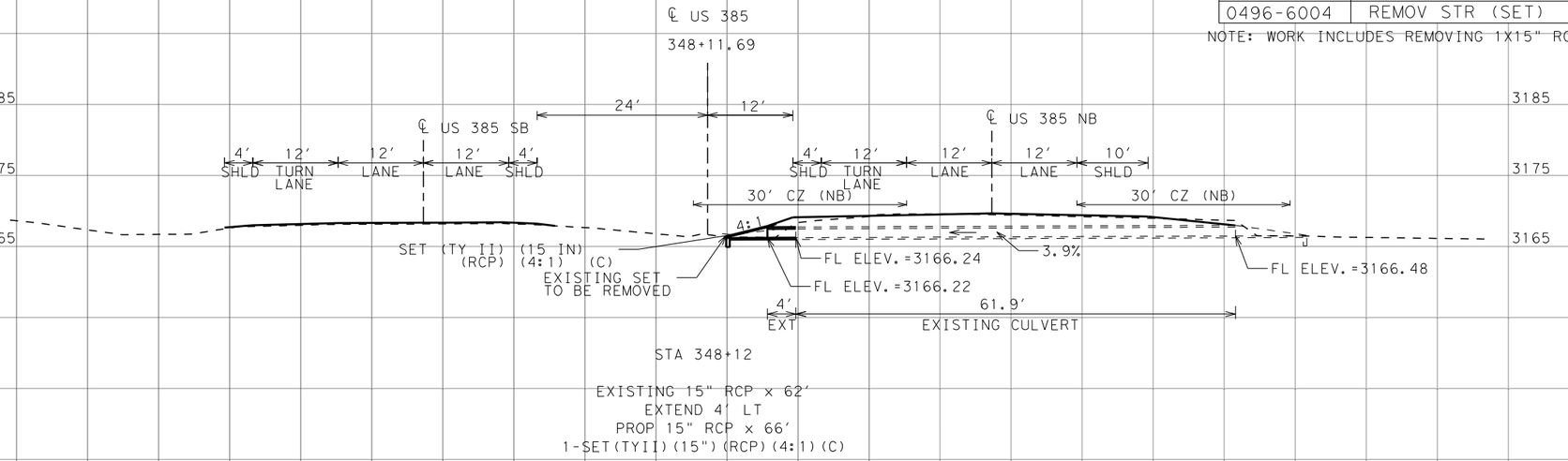
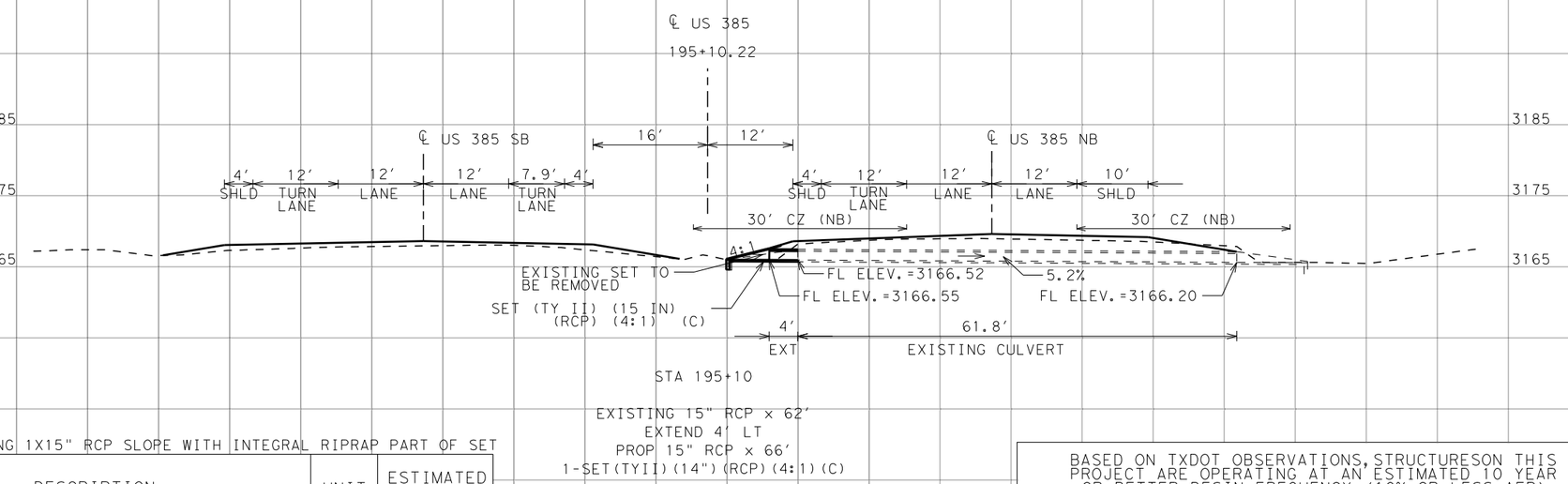
ITEM DESC CODE	DESCRIPTION	UNIT	ESTIMATED QUANTITY
0420-6009	CLASS A CONC COLLAR	EA	1
0464-6002	RC PIPE (CLASS III) (15")	LF	4
0467-6338	SET (TYII) (15 IN) (RCP) (4:1) (C)	EA	1
0496-6004	REMOV STR (SET)	EA	1

NOTE: WORK INCLUDES REMOVING 1X15" RCP SLOPE WITH INTEGRAL RIPRAP PART OF SET





NOTE: WORK INCLUDES REMOVING 1X15" RCP SLOPE WITH INTEGRAL RIPRAP PART OF SET

ITEM DESC CODE	DESCRIPTION	UNIT	ESTIMATED QUANTITY
0420-6009	CLASS A CONC COLLAR	EA	1
0464-6002	RC PIPE (CLASS III) (15")	LF	4
0467-6338	SET (TYII) (15 IN) (RCP) (4:1) (C)	EA	1
0496-6004	REMOV STR (SET)	EA	1

BASED ON TXDOT OBSERVATIONS, STRUCTURESON THIS PROJECT ARE OPERATING AT AN ESTIMATED 10 YEAR OR BETTER DESIN FREQUENCY (10% OR LESS AEP) WITH NO ROAWAY OVERTOPPING OCCURANCES OBSERVED WITHIN THE LAST 30 YEARS. STRUCTURE OPERATIONS WILL NOT BE SIGNIFICANTLY IMPACTED BY THIS PROJECT. CONSIDERATION HAS BEEN GIVEN TO THE EFFECTS OF HEAD WATER AN ELOCITIES ASSOCIATED WITH THE PROPOSED STRUCTURE MODIFICATIONS. ADDITIONAL STUDIES ARE NOT JUSTIFIED.

SCALE: HORIZ. 1"=20′
VERT. 1"=20′

05/28/2020

STATE OF TEXAS
MARK A. STURROCK
72267
REGISTERED PROFESSIONAL ENGINEER

CULVERT CROSS SECTIONS

STA 195+10.22
STA 348+11.69

SHEET 1 OF 4

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LOCHNER
TBPE Firm Reg. No. 10488

FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	134
STATE	DIST.	COUNTY
TEXAS	ODA	ANDREWS
CONT.	SECT.	JOB / HIGHWAY NO.
0228	04	043, ETC. / US 385, ETC.

FILE: A385ED01.dgn
DATE: 5/28/2020 TIME: 7:58:08 PM
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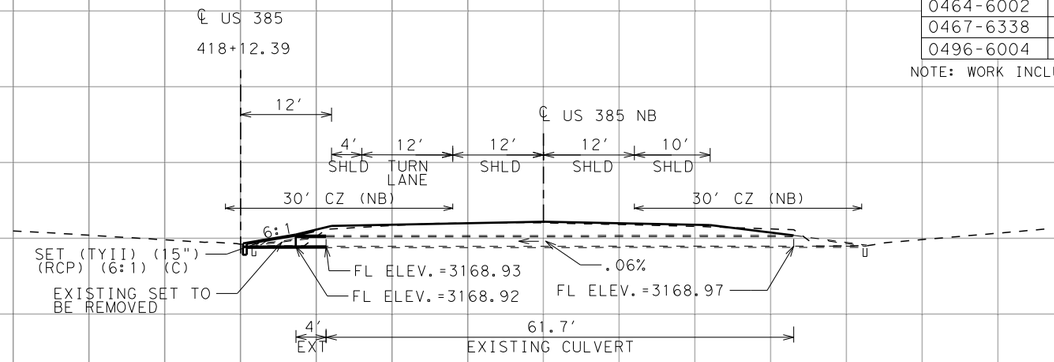
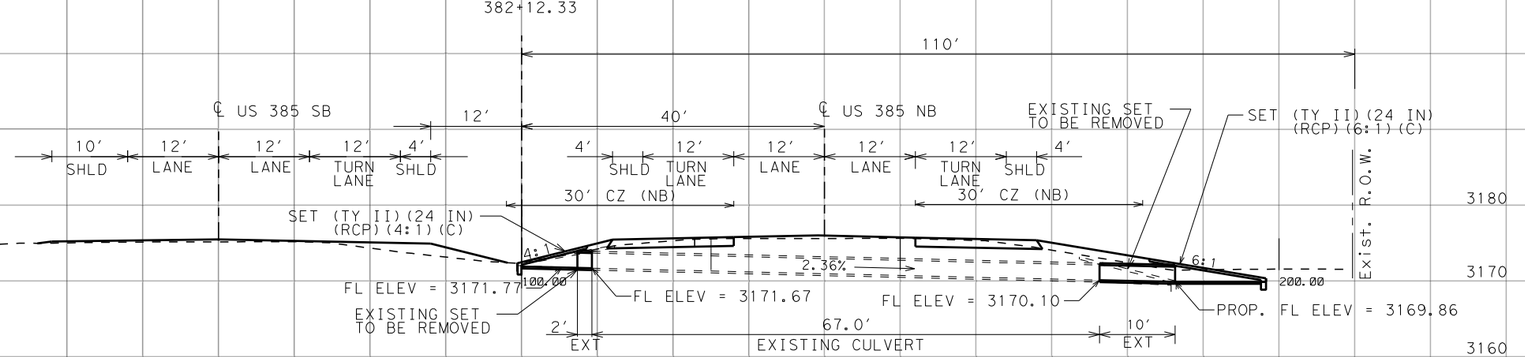
ITEM DESC CODE	DESCRIPTION	UNIT	ESTIMATED QUANTITY
0420-6009	CLASS A CONC COLLAR	EA	1
0464-6002	RC PIPE (CLASS III) (15")	LF	4
0467-6338	SET (TYII) (15 IN) (RCP) (4:1) (C)	EA	1
0496-6004	REMOV STR (SET)	EA	1

NOTE: WORK INCLUDES REMOVING 1X15" RCP SLOPE WITH INTEGRAL RIPRAP PART OF SET



STA 418+12

EXISTING 15" RCP x 62′
EXTEND 4′ LT
PROP 24" RCP x 66′
2-SET(TYII)(24")(RCP)(6:1)(C)



STA 382+12

EXISTING 24" RCP x 67′
EXTEND 4′ LT AND 8′ RT
PROP 24" RCP x 81′
2-SET(TYII)(24")(RCP)(6:1)(C)

NOTE: WORK INCLUDES REMOVING 2X24" RCP SLOPE WITH INTEGRAL RIPRAP PART OF SET

ITEM DESC CODE	DESCRIPTION	UNIT	ESTIMATED QUANTITY
0400-6001	STRUCT EXCAV	CY	4.7
0420-6009	CLASS A CONC COLLAR	EA	1
0464-6005	RC PIPE (CLASS III) (24")	LF	14
0467-6390	SET (TYII) (24 IN) (RCP) (4:1) (C)	EA	1
0467-6394	SET (TYII) (24 IN) (RCP) (6:1) (C)	EA	1
0496-6004	REMOV STR (SET)	EA	2

BASED ON TXDOT OBSERVATIONS, STRUCTURESON THIS PROJECT ARE OPERATING AT AN ESTIMATED 10 YEAR OR BETTER DESIN FREQUENCY (10% OR LESS AEP) WITH NO ROAWAY OVERTOPPING OCCURANCES OBSERVED WITHIN THE LAST 30 YEARS. STRUCTURE OPERATIONS WILL NOT BE SIGNIFICANTLY IMPACTED BY THIS PROJECT. CONSIDERATION HAS BEEN GIVEN TO THE EFFECTS OF HEAD WATER AN ELOCITIES ASSOCIATED WITH THE PROPOSED STRUCTURE MODIFICATIONS. ADDITIONAL STUDIES ARE NOT JUSTIFIED.

SCALE: HORIZ. 1"=20′
VERT. 1"=20′

05/28/2020

STATE OF TEXAS
MARK A. STURROCK
72267
REGISTERED PROFESSIONAL ENGINEER

Mark Sturrock

CULVERT CROSS SECTIONS

STA 382+12.33
STA 418+12.39

SHEET 2 OF 4

Texas Department of Transportation
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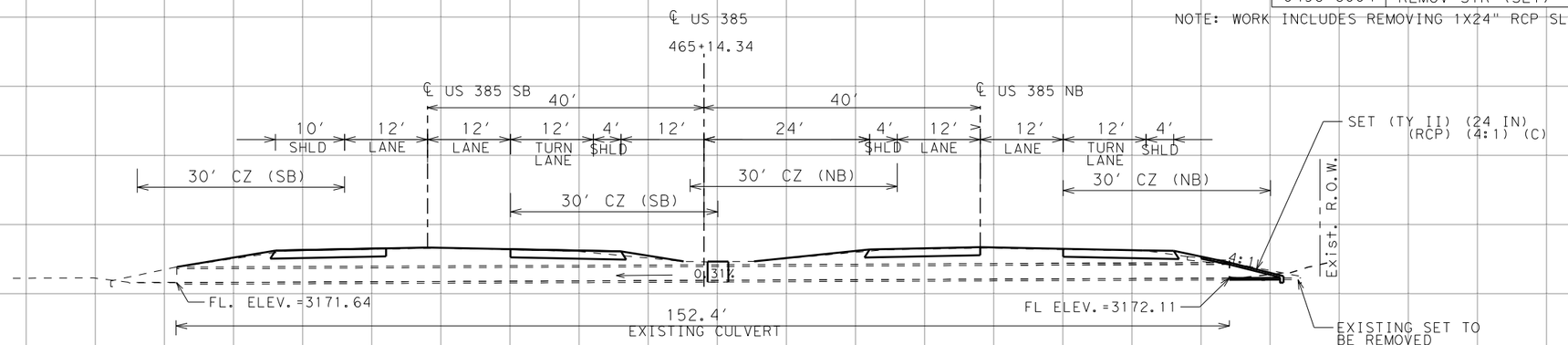
LOCHNER
TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		135
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

FILE: A385ED02.dgn
DATE: 5/28/2020 TIME: 7:58:09 PM
DIRECTORY: I:\TYL\PRJ\0001412\TREA\DGN*A\PSE*A\DRAIN\A385ED02.dgn

ITEM DESC CODE	DESCRIPTION	UNIT	ESTIMATED QUANTITY
0400-6001	STRUCT EXCAV	CY	3.8
0420-6009	CLASS A CONC COLLAR	EA	1
0467-6390	SET (TYII) (24 IN) (RCP) (4:1) (C)	EA	1
0496-6004	REMOV STR (SET)	EA	1

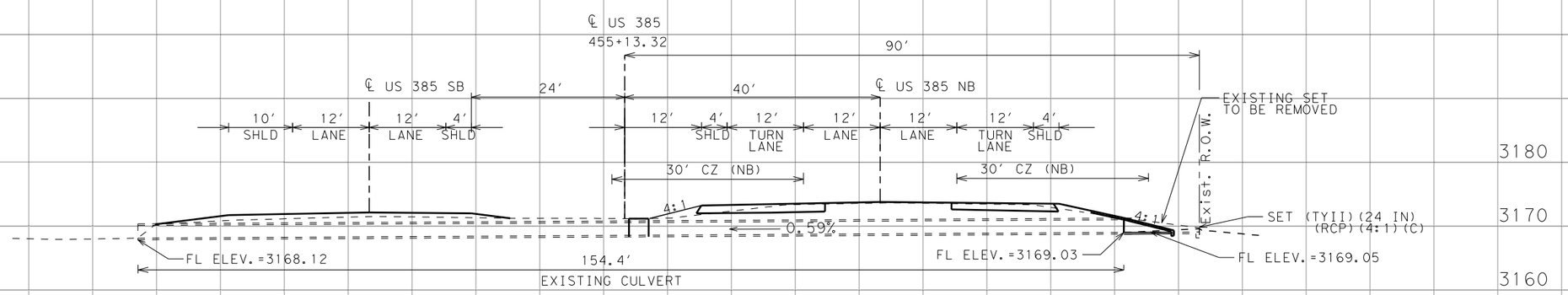
NOTE: WORK INCLUDES REMOVING 1X24" RCP SLOPE WITH INTEGRAL RIPRAP PART OF SET



STA 465+15

EXISTING 24" CMP x 152'
PROP 24" CMP x 152'
1-SET(TYII)(24")(RCP)(4:1)(C)

SCALE: HORIZ. 1"=20'
VERT. 1"=20'



STA 455+13

EXISTING 24" RCP x 155'
PROP 24" RCP x 155'
1-SET(TYII)(24")(RCP)(4:1)(C)

NOTE: WORK INCLUDES REMOVING 1X24" RCP SLOPE WITH INTEGRAL RIPRAP PART OF SET

ITEM DESC CODE	DESCRIPTION	UNIT	ESTIMATED QUANTITY
0104-6009	REMOVING CONC (RIPRAP)	SY	9.8
0400-6001	STRUCT EXCAV	CY	3.8
0420-6009	CLASS A CONC COLLAR	EA	1
0432-6001	RIPRAP (CONC) (4 IN)	CY	1.1
0467-6390	SET (TYII) (24 IN) (RCP) (4:1) (C)	EA	1
0496-6004	REMOV STR (SET)	EA	1

BASED ON TXDOT OBSERVATIONS, STRUCTURES ON THIS PROJECT ARE OPERATING AT AN ESTIMATED 10 YEAR OR BETTER DESIGN FREQUENCY (10% OR LESS AEP) WITH NO ROADWAY OVERTOPPING OCCURANCES OBSERVED WITHIN THE LAST 30 YEARS. STRUCTURE OPERATIONS WILL NOT BE SIGNIFICANTLY IMPACTED BY THIS PROJECT. CONSIDERATION HAS BEEN GIVEN TO THE EFFECTS OF HEAD WATER AND VELOCITIES ASSOCIATED WITH THE PROPOSED STRUCTURE MODIFICAIONS. ADDITIONAL STUDIES ARE NOT JUSTIFIED.

05/28/2020

STATE OF TEXAS
MARK A. STURROCK
72267
REGISTERED PROFESSIONAL ENGINEER

Mark Sturrock

CULVERT CROSS SECTIONS

STA 455+13.32
STA 465+14.34

SHEET 3 OF 4

Texas Department of Transportation
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LOCHNER
TBPE Firm Reg. No. 10488

FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	136

STATE	DIST.	COUNTY
TEXAS	ODA	ANDREWS

CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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DATE: 5/28/2020 TIME: 7:58:15 PM
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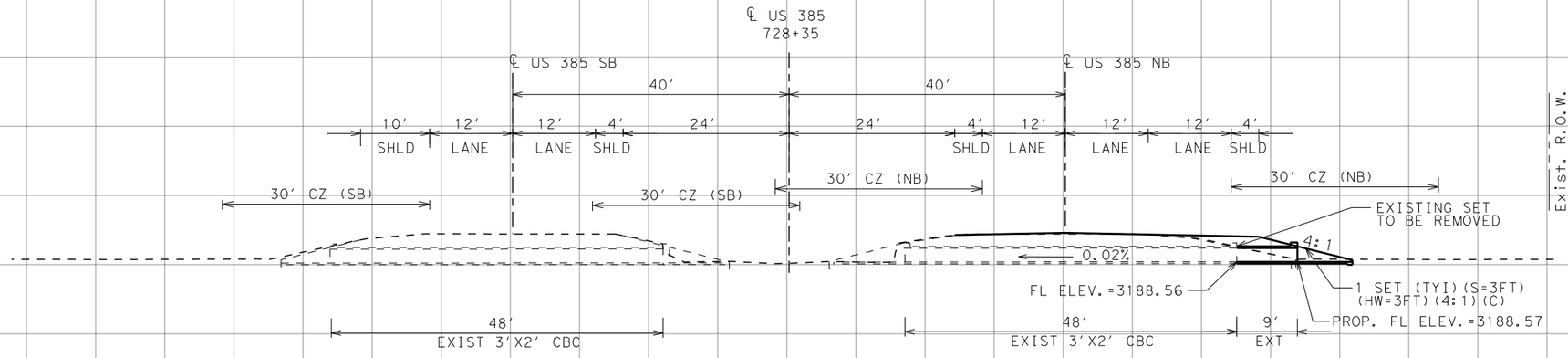
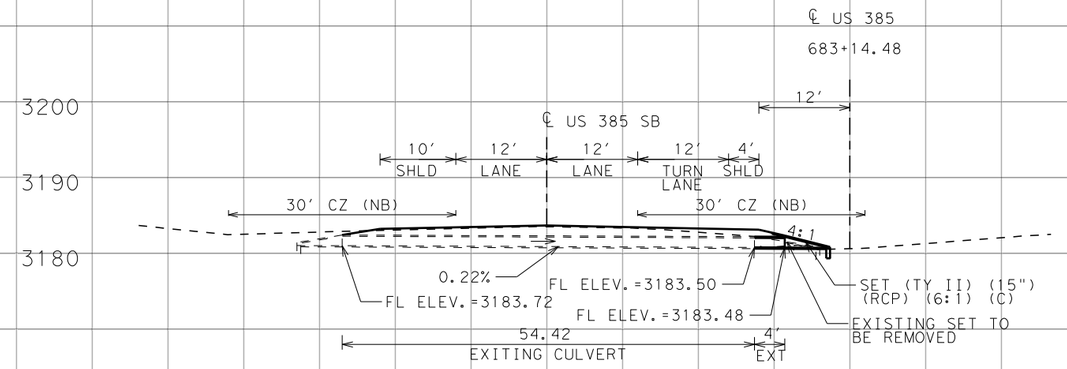
ITEM DESC CODE	DESCRIPTION	UNIT	QUANTITY
0400-6001	STRUCT EXCAV	CY	8.5
0400-6005	CEM STABIL BKFL	CY	2.1
0432-6001	RIPRAP (CONC) (4 IN)	CY	0.5
0462-6045	CONC BOX CULV (3'x2') EXT.	LF	9
0467-6106	SET (TYI)(S=3 FT)(HW=3 FT)(4:1)(C)	EA	1
0496-6004	REMOV STR (SET)	EA	1



STA 728+35

EXISTING 3'x2' CBC x 48'
EXTEND 9' RT
PROP 3'x2' CBC x 57'
1-SET(TYI)(S=3FT)(4:1)(C)



STA 683+15

EXISTING 15" RCP x 55'
EXTEND 4' RT
PROP 15" RCP x 59'
1-SET(TYII)(15")(RCP)(4:1)(C)

NOTE: WORK INCLUDES REMOVING 1X15" RCP SLOPE WITH INTEGRAL RIPRAP PART OF SET

ITEM DESC CODE	DESCRIPTION	UNIT	ESTIMATED QUANTITY
0420-6009	CLASS A CONC COLLAR	EA	1
0464-6002	RC PIPE (CLASS III) (15")	LF	4
0467-6338	SET (TYII) (15 IN) (RCP) (4:1) (C)	EA	1
0496-6004	REMOV STR (SET)	EA	1

BASED ON TXDOT OBSERVATIONS, STRUCTURES ON THIS PROJECT ARE OPERATING AT AN ESTIMATED 10 YEAR OR BETTER DESIGN FREQUENCY (10% OR LESS AEP) WITH NO ROADWAY OVERTOPPING OCCURANCES OBSERVED WITHIN THE LAST 30 YEARS. STRUCTURE OPERATIONS WILL NOT BE SIGNIFICANTLY IMPACTED BY THIS PROJECT. CONSIDERATION HAS BEEN GIVEN TO THE EFFECTS OF HEAD WATER AND VELOCITIES ASSOCIATED WITH THE PROPOSED STRUCTURE MODIFICAIONS. ADDITIONAL STUDIES ARE NOT JUSTIFIED.

SCALE: HORIZ. 1"=20'
VERT. 1"=20'

09/25/2020

STATE OF TEXAS
MARK A. STURROCK
72267
REGISTERED PROFESSIONAL ENGINEER

Mark Sturrock

CULVERT CROSS SECTIONS

STA 683+14.48

SHEET 4 OF 4

Texas Department of Transportation
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LOCHNER
TBPE Firm Reg. No. 10488

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		137
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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DATE: 9/25/2020 TIME: 2:38:33 PM
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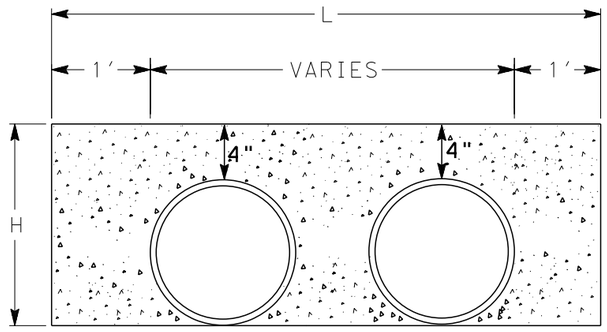
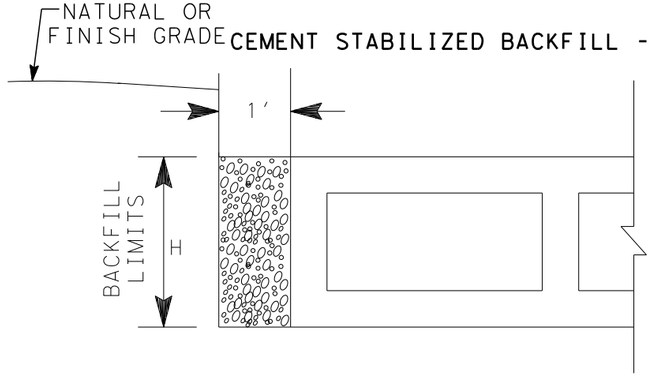
CALCULATIONS OF CEMENT STABILIZED BACKFILL												
STA.	NO. OF PIPES	DIA IN	NO. OF BOXES	SIZE	TYP	W FT	L FT	H FT	TOTAL PIPE VOL. CF	PIPE VOL. CF	VOL. NEEDED CF	400 6005 CEM STABIL BKFL VOL. NEEDED CY
159+99			1	3′ X 2′	CBC	8	2	3.16			50	1.9
396+89			1	3′ X 2′	CBC	8	2	3.16			50	1.9
396+89			1	3′ X 2′	CBC	3	2	3.16			19	0.7
521+89			1	3′ X 2′	CBC	8	2	3.16			50	1.9
521+89	1	15"	1	3′ X 2′	CBC	3	2	3.16			19	0.7
527+90					RCP	122	3.2	2	781	150	631	23.3
728+35			1	3′ X 2′	CBC	9	2	3.16			19	2.1



CEMENT STABILIZED BACKFILL - PIPES



CEMENT STABILIZED BACKFILL - BOXES

CALCULATIONS OF STRUCTURE EXCAVATION											
STA.	NO. OF PIPES	DIA IN	NO. OF BOXES	SIZE	TYP	W FT	L FT	H FT	TOTAL VOL. CF	TOTAL VOL CY	400 6001 STR EXCA VOL. CY
159+99			1	3′ X 2′	CBC	32	6.16	4.16	820	30.4	
159+99			1	3.5′ X 5′	JB	3.5	5	4.16	72.8	2.7	42
159+99	2	18			RCP	32	3.75	2.5	240	8.9	
382+12	1	24			RCP	20	4.25	1.5	127.5	4.7	4.7
396+89			1	3′ X 2′	CBC	32.8	6.16	4.16	840	31.1	
396+89			1	3.5′ X 5′	JB	3.5	5	4.16	72.8	2.7	42.7
396+89	2	18			RCP	32	3.75	2.5	240	8.9	
396+89			1	3′ X 2′	CBC	8.5	6.16	4.16	218	8	8
455+13	1	24			RCP	16	4.25	1.5	102	3.8	3.8
465+15	1	24			RCP	16	4.25	1.5	102	3.8	3.8
521+89			1	3′ X 2′	CBC	14.5	6.16	4.16	372	13.8	
521+89			1	3′ X 2′	CBC	23.5	6.16	4.16	602	22.3	
521+89			1	3.5′ X 5′	JB	3.5	5	4.16	72.8	2.7	47.7
521+89	2	18			RCP	32	3.75	2.5	240	8.9	
521+89			1	3′ X 2′	CBC	10.5	6.16	4.16	269	9.9	9.9
527+90	1	15			RCP	172	3.3	2.3	1305	48.3	48.3
548+15	1	24			RCP	10.5	4.25	1.5	66.9	2.5	2.5
728+35			1	3′ X 2′	CBC	6.16	9.00	4.16	231	8.5	8.5

Not to Scale

09/25/2020

STATE OF TEXAS
MARK A. STURROCK
72267
REGISTERED PROFESSIONAL ENGINEER

Mark Sturrock

CULVERT DETAILS

SHEET 1 OF 1

Texas Department of Transportation

LOCHNER
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FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		138
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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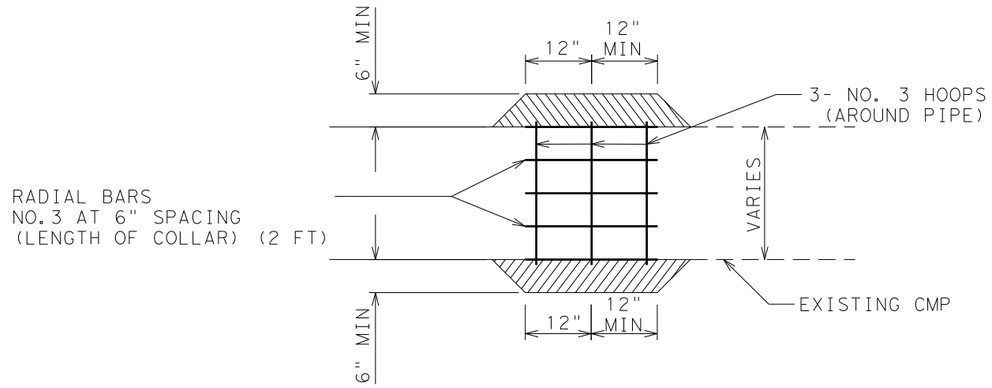
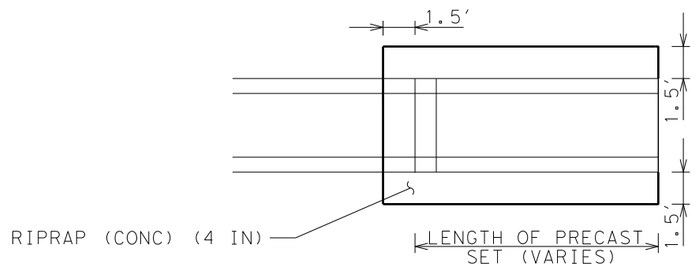


CONCRETE COLLAR
FOR PIPE CONNECTION TO CMP

PIPE CONNECTION GENERAL NOTES

1. SAW CUT A MAXIMUM 1/2" DEPTH AT BREAK-BACK LINE. USE REMOVAL METHOS THAT WILL NOT DAMAGE REMAINING CONCRETE OR CULVERT REINFORCING.
2. PACK MORTAR OR JOINT COMPOUND INTO THE SPACE BETWEEN THE OUTSIDE WALL OF PIPE AND THE CULVERT WALL.
3. MATERIAL & LABOR INCLUDING BOX REMOVAL & MORTAR CONNECTIONS WILL NOT BE PAID FOR DIRECTLY, BUT WILL BE SUBSIDARY TO ITEM 464
4. PLACE CL A CONC (COLLAR) ON OUTSIDE OF BOX CULVERT WALL. COLLAR TO BE PAID FOR UNDER ITEM 420.



CONCRETE RIPRAP
FOR CONCRETE BOX

NOT TO SCALE

05/28/2020

STATE OF TEXAS
MARK A. STURROCK
72267
REGISTERED PROFESSIONAL ENGINEER

Mark Sturrock

MISC DETAILS

SHEET 1 OF 1

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FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		139
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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DATE: 5/28/2020 TIME: 1:58:23 PM
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Culvert Station and/or Creek name followed by applicable end (Lt, Rt or Both)	Description of Box Culvert No. Spans ~ Span X Height	Max Fill Height (Ft)	Applicable Box Culvert Standard (4)	Applicable Wingwall or End Treatment Standard	Skew Angle (0°, 15°, 30° or 45°)	Side Slope or Channel Slope Ratio (SL:1)	T Culvert Top Slab Thickness (In)	U Culvert Wall Thickness (In)	C Estimated Curb Height (Ft)	Hw (1) Height of Wingwall (Ft)	A Curb to End of Wingwall (Ft)	B Offset of End of Wingwall (Ft)	Lw Length of Longest Wingwall (Ft)	Ltw Culvert Toewall Length (Ft)	Atw Anchor Toewall Length (Ft)	Riprap Apron (C.Y.)	Class "C" Conc (Curb) (2) (C.Y.)	Class "C" Conc (Wingwall) (3) (C.Y.)	Total Wingwall Area (S.F.)
STA 396+89 (Rt)	1 ~ 3'x 2'	3'	SCC-3&4	SETB-CD	0°	4:1	7"	7"	0.500'	2.833'	N/A	N/A	10.000'	N/A	4.167'	0.0	0.1	1.7	N/A
STA 521+87 (Both)	1 ~ 3'x 2'	3'	SCC-3&4	SETB-CD	0°	4:1	7"	7"	0.500'	2.833'	N/A	N/A	10.000'	N/A	4.167'	0.0	0.1	1.7	N/A
STA 728+35 (Rt)	1 ~ 3'x 2'	3'	SCC-3&4	SETB-CD	0°	4:1	7"	7"	0.500'	2.833'	N/A	N/A	10.000'	N/A	4.167'	0.0	0.1	1.7	N/A

NOTES:

Skew Angle = 0° for SW-0, FW-0, SETB-CD, SETB-SW-0, and SETB-FW-0 standards.
30° Maximum for Safety End Treatment

SL:1 = Horizontal:1 Vertical
Side Slope at culvert for Flared or Straight Wingwalls. Channel Slope for Parallel Wingwalls.
Slope shall be 3:1 or flatter for Safety End Treatments.

T = Box Culvert Top Slab Thickness. Dimension can be found on the applicable Box Culvert Standard.

U = Box Culvert Wall Thickness. Dimension can be found on the applicable Box Culvert Standard.

C = Curb Height.

See applicable wing or end treatment standards for calculations of Hw, A, B, Lw, Ltw, Atw, and Total Wingwall Area.
Hw = Height of Wingwall.
A = Distance from Face of Curb to End of Wingwall (Not applicable to Parallel or Straight Wingwalls).
B = Offset of End of Wingwall (Not applicable to Parallel or Straight Wingwalls).
Lw = Length of Longest Wingwall.
Ltw = Length of Culvert Toewall (Not applicable when using Riprap Apron).
Atw = Length of Anchor Toewall (Applicable to Safety End Treatment only).
Total Wingwall Area = Wingwall area in S.F. for two wingwalls (one structure end) if Lt or Rt.
Area for four wingwalls (two structure ends) if Both.

(1) The wall heights shown will be rounded to the nearest Foot for bidding purposes.

(2) Concrete volume shown is for box culvert curb only. For curbs using the RAC standard, quantities shown must be increased by a factor of 2. If Class "S" concrete is required for the top slab of the culvert, the curb concrete shall also be Class "S". Curb concrete is considered part of the Box Culvert for payment.

(3) Concrete volume shown is total of wing, footing, culvert toewall (if any), anchor toewall (if any) and wingwall toewall. Riprap apron, culvert and curb quantities are not included.

(4) Regardless of the type of culvert shown on this sheet, the Contractor shall have the option of furnishing cast-in-place or precast culverts unless otherwise shown elsewhere on the plans. If the Contractor elects to provide culverts of a different type than those shown on this sheet, it shall be the Contractor's responsibility to make the necessary adjustments to the dimensions and quantities shown.

09/14/2020

STATE OF TEXAS
MARK A. STURROCK
72267
REGISTERED PROFESSIONAL ENGINEER

Mark Sturrock

SHEET 1 OF 1

Texas Department of Transportation

Bridge Division Standard

BOX CULVERT SUPPLEMENT
WINGS AND END TREATMENTS

BCS

FILE: bcsstde1.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: GAF
©TxDOT February 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043,ETC	US 385, ETC
	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		140

DATE: 9/14/2020 5:35:20 PM
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DATE:
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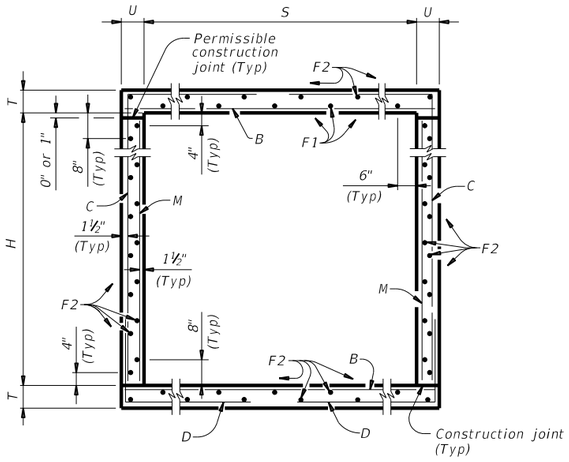
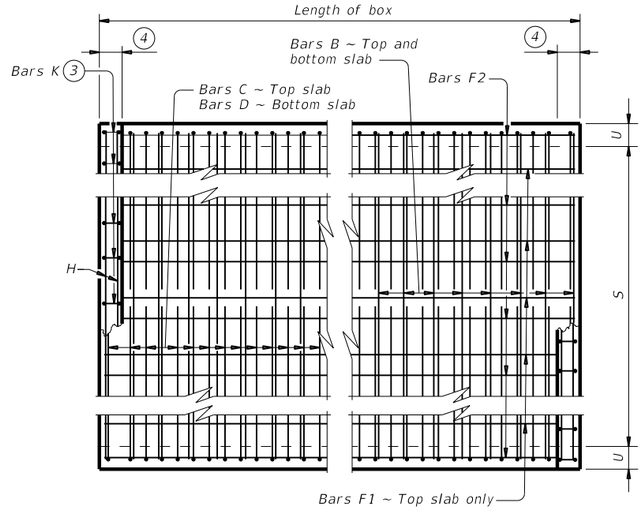
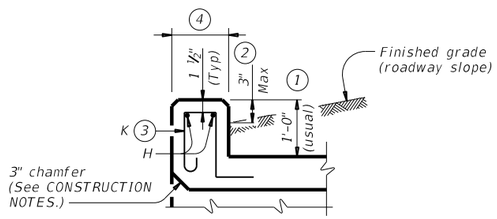


TYPICAL SECTION



PLAN OF REINF STEEL



SECTION THRU CURB

1. 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail or curbs taller than 1'-0", refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (T631-CM) standard sheet. Refer to the Rail Anchorage Curb (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.

2. For vehicle safety, the following requirements must be met:
   - For structures without bridge rail, construct curbs no more than 3" above finished grade.
   - For structures with bridge rail, construct curbs flush with finished grade.

   Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

3. For curbs less than 1'-0" high, tilt Bars K or reduce bar height as necessary to maintain cover. For curbs less than 3" high, Bars K may be omitted.

4. 1'-0" typical. 2'-3" when the Rail Anchorage Curb (RAC) standard sheet is referred to elsewhere in the plans.

The Contractor may replace Bars B, C, D, E, F1, F2, M, Y, and/or Z with deformed welded wire reinforcement (WWR) meeting the requirements of ASTM A1064. The area of required reinforcement may be reduced by the ratio of 60 ksi / 70 ksi. Spacing of WWR is limited to 4" Min and 18" Max. When required, provide lap splices in the WWR of the same length required for the equivalent bar size, rounded up for wire sizes between conventional bar sizes. The lap length required for WWR is never less than the lap length required for uncoated #4 bars.

Example conversion: Replacing No. 6 Gr 60 at 6" Spacing with WWR.
Required WWR = (0.44 sq. in. per 0.5 ft.) x (60 ksi / 70 ksi) = 0.755 sq. in. per ft.
If D30.6 wire is used to meet the 0.755 sq. in. per ft. requirement in this example, the required spacing = (0.306 sq. in.) / (0.755 sq. in. per ft.) x (12 in. per ft.) = 4.86" Max spacing. Required lap length for the provided D30.6 wire is 2'-1" (the same minimum lap length required for uncoated #5 bars, as listed under MATERIAL NOTES).

CONSTRUCTION NOTES:

Do not use permanent forms.

Chamfer the bottom edge of the top slab 3" at the entrance.

Optionally, raise construction joints shown at the flow line by a maximum of 6". If this option is taken, Bars M may be cut off or raised, Bars C and D may be reversed.

MATERIAL NOTES:

Provide Grade 60 reinforcing steel.

Provide galvanized reinforcing steel if required elsewhere in the plans.

Provide Class C concrete (f'c = 3,600 psi) for culvert barrel and curb, with the following exceptions: provide Class S concrete (f'c = 4,000 psi) for top slabs of:

- culverts with overlay,
- culverts with 1-to-2 course surface treatment, or
- culverts with the top slab as the final riding surface.

Provide bar laps, where required, as follows:

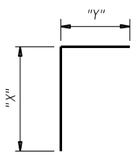
- Uncoated or galvanized ~ #4 = 1'-8" Min
- Uncoated or galvanized ~ #5 = 2'-1" Min

GENERAL NOTES:

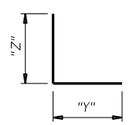
Designed according to AASHTO LRFD Bridge Design Specifications for the range of fill heights shown.

See the Single Box Culverts Cast-In-Place Miscellaneous Detail (SCC-MD) standard sheet for details pertaining to skewed ends, angle sections, and lengthening.

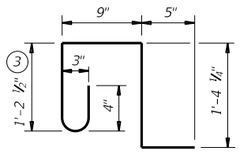
Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.



BARS C



BARS D



BARS K (#4)
(Spa = 1'-0" Max)
(Length = 4'-2")

HL93 LOADING SHEET 1 OF 2

Texas Department of Transportation

Bridge Division Standard

SINGLE BOX CULVERTS CAST-IN-PLACE
0' TO 30' FILL

SCC-3 & 4

FILE: scc34ste-21.dgn	DN: TBE	CK: BMP	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043, ETC.	US 385, ETC.
04/2021 Updated X values.	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		141

SECTION DIMENSIONS				FILL HEIGHT (5)	BILLS OF REINFORCING STEEL (For Box Length = 40 feet)																										QUANTITIES					
					Bars B					Bars C							Bars D							Bars M ~ #4				Bars F1 ~ #4 at 18" Spa			Bars F2 ~ #4 at 18" Spa			Bars H 4 ~ #4		Bars K		Per Foot of Barrel		Curb		Total	
S	H	T	U		No.	Size	Spa	Length	Weight	No.	Size	Spa	Length	Weight	" X "	" Y "	No.	Size	Spa	Length	Weight	" Y "	" Z "	No.	Spa	Length	Weight	No.	Length	Wt	No.	Length	Wt	Length	Wt	No.	Wt	Conc (CY)	Reinf (Lb)	Conc (CY)	Reinf (Lb)	Conc (CY)	Reinf (Lb)
3' – 0"	2' – 0"	8"	7"	30'	108	#5	9"	3' – 11"	441	108	#4	9"	5' – 4"	385	2' – 6"	2' – 10"	108	#4	9"	5' – 1"	367	2' – 10"	2' – 3"	108	9"	2' – 0"	144	3	39' – 9"	80	19	39' – 9"	505	3' – 11"	10	10	28	0.292	48.1	0.3	38	12.0	1,960
3' – 0"	3' – 0"	8"	7"	30'	108	#5	9"	3' – 11"	441	108	#4	9"	6' – 4"	457	3' – 6"	2' – 10"	108	#4	9"	5' – 1"	367	2' – 10"	2' – 3"	108	9"	3' – 0"	216	3	39' – 9"	80	23	39' – 9"	611	3' – 11"	10	10	28	0.335	54.3	0.3	38	13.7	2,210
4' – 0"	2' – 0"	8"	7"	30'	108	#5	9"	4' – 11"	554	162	#4	6"	5' – 8"	613	2' – 6"	3' – 2"	162	#4	6"	5' – 5"	586	3' – 2"	2' – 3"	108	9"	2' – 0"	144	3	39' – 9"	80	21	39' – 9"	558	4' – 11"	13	12	33	0.342	63.4	0.4	46	14.1	2,581
4' – 0"	3' – 0"	8"	7"	30'	108	#5	9"	4' – 11"	554	162	#4	6"	6' – 8"	721	3' – 6"	3' – 2"	162	#4	6"	5' – 5"	586	3' – 2"	2' – 3"	108	9"	3' – 0"	216	3	39' – 9"	80	25	39' – 9"	664	4' – 11"	13	12	33	0.385	70.5	0.4	46	15.8	2,867
4' – 0"	4' – 0"	8"	7"	30'	108	#5	9"	4' – 11"	554	162	#4	6"	7' – 8"	830	4' – 6"	3' – 2"	162	#4	6"	5' – 5"	586	3' – 2"	2' – 3"	108	9"	4' – 0"	289	3	39' – 9"	80	25	39' – 9"	664	4' – 11"	13	12	33	0.428	75.1	0.4	46	17.5	3,049

(5) For direct traffic culverts (fill height ≤ 2 ft.), identify the required box size and select the option with the minimum fill height.

DATE:
FILE:

HL93 LOADING SHEET 2 OF 2

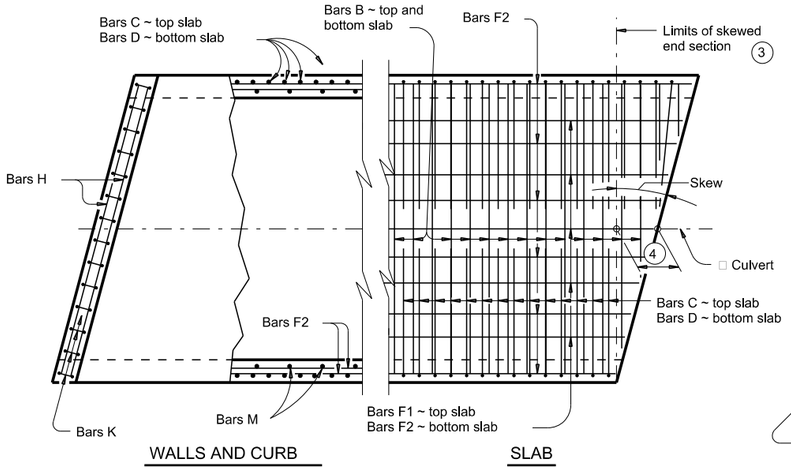
Texas Department of Transportation

Bridge Division Standard

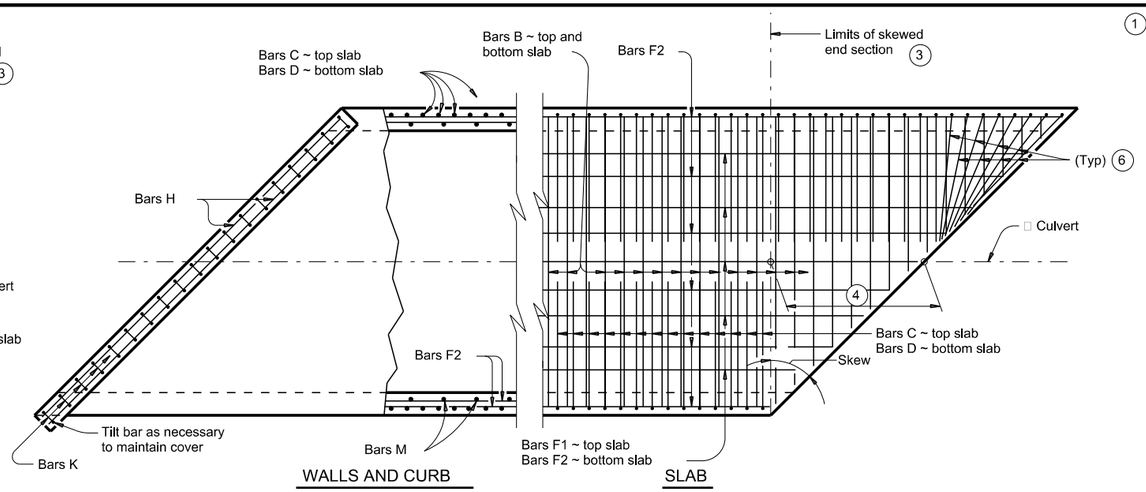
SINGLE BOX CULVERTS CAST-IN-PLACE
0' TO 30' FILL

SCC-3 & 4

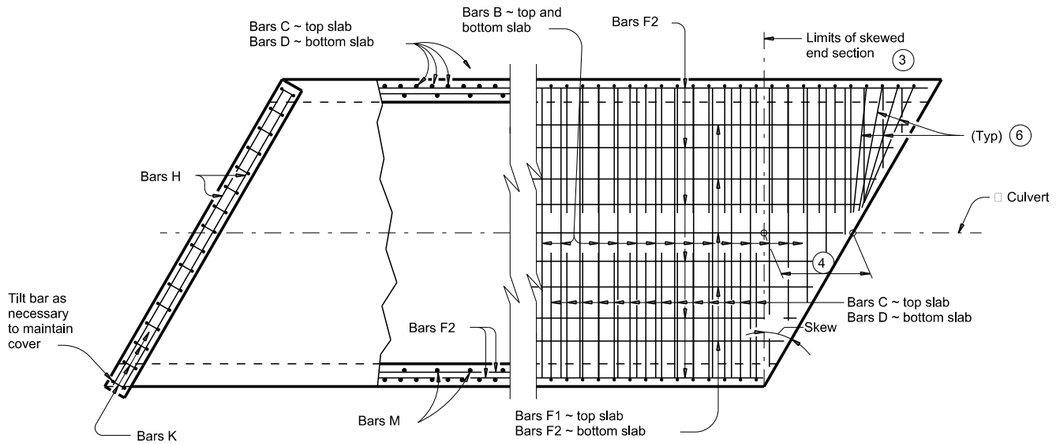
FILE: scc34ste-21.dgn	DN: TBE	CK: BMP	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043, ETC.	US 385, ETC.
04/2021 Updated X values.	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		142



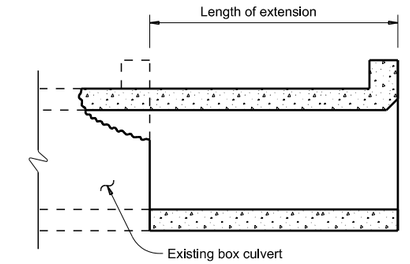
PLAN OF SKEWED ENDS ~ FROM 0° TO 15° (7)



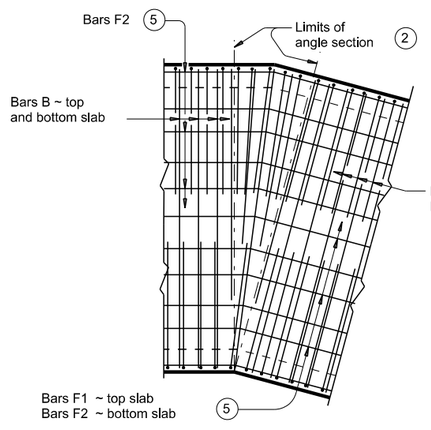
PLAN OF SKEWED ENDS ~ OVER 30° TO 45°



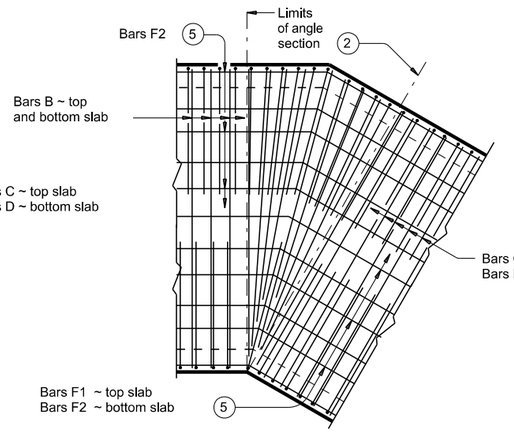
PLAN OF SKEWED ENDS ~ OVER 15° TO 30°



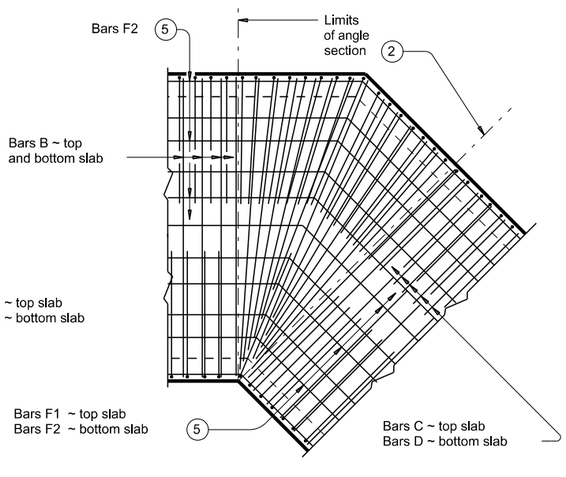
LENGTHENING DETAIL (1)



PLAN OF ANGLE SECTION ~ FROM 0° TO 15°



PLAN OF ANGLE SECTION ~ OVER 15° TO 30°



PLAN OF ANGLE SECTION ~ OVER 30° TO 45°

(1) For skewed box culverts with less than 2'-0" of fill, break back the top slab to provide a 1'-10" minimum lap of the existing longitudinal bars with the longitudinal bars in the extension.

For non-skewed box culverts with less than 2'-0" of fill and for skewed or non-skewed culverts with a fill depth of 2'-0" or greater, break back the top slab to provide a 1'-10" minimum lap of the existing longitudinal bars with the longitudinal bars in the extension. Alternatively, if the box is non-skewed, embed #6 anchor bars with a Type III, C, D , E, or F ancher adhesive into the existing walls, top and bottom slab at 1'-6" center-to-center spacing. Minimum embedment depth is 8". Anchor adhesive chosen must be able to achieve a basic bond strength in tension, Nba, of 26.4 kips. Submit signed and sealed calculations or the manufacturer's published literature showing the proposed anchor adhesive's ability to develop this load to the Engineer for approval prior to use. Anchor installation, including hole size, drilling, and clean out, must be in accordance with Item 450, "Railing." Test adhesive anchors in accordance with Item 450.3.3, "Tests." Test 3 anchors per 100 anchors installed.

Break back wings and apron as necessary to install the extension. Clean and extend the exposed wingwall and apron reinforcing into the extension. When lengthening existing box culverts with dimensions different than current standard dimensions, form horizontal and vertical transitions as directed by the Engineer. Match bottom slabs to maintain an uninterrupted flow line. Field bend existing and new reinforcing into transitions and maintain specified cover requirements. For top slabs of culverts with overlay, with 1-to-2 course surface treatment, or with the top slab as the final riding surface, adjust the "H" dimension to provide a smooth riding surface.

(2) When the spacing between Bars B becomes less than half of the normal spacing, cut bars to avoid conflict.

(3) The length of Bars B vary in the skewed end sections.

(4) [One half of overall width] x [tangent of the skew angle]

(5) Place Bars F1 and F2 continuously through the angle section. Bend Bars F1 and F2 to remain parallel to the walls of the box culvert.

(6) When necessary to avoid conflictin acute corners, shorten the slab extension leg of Bars C and Bars D to a minimum of 1'-6" for skews of 30° thru 45°.

(7) At the Contractor's option, for skews of 15° or less, place Bars B, C, and D parallel to the skewed end while maintaining spacing along centerline of box. Increase lengths of Bars B shown on the Single Box Culverts Cast-In-Place (SCC) standards sheets to accommodate the skew.

CONSTRUCTION NOTES:

Do not use permanent forms.
When required, lap Bars H 1'-8" for uncoated or galvanized bars.
Provide a minimum of 1 ½" clear cover.

MATERIAL NOTES:

Provide Grade 60 reinforcing steel.
Provide galvanized reinforcing steel, if required elsewhere in the plans.
Provide Class C concrete (f'c = 3,600 psi) with these exceptions:
provide Class S concrete (f'c = 4,000 psi) for top slabs of culverts with overlay, with 1-to-2 course surface treatment, or with the top slab as the final riding surface.

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.

Refer to Single Box Culverts Cast-in-Place (SCC) standard sheets for details of straight sections of culvert.

For skewed sections and angle sections, refer to Single Box Culverts Cast-in-Place (SCC) standard sheets for slab and wall dimensions, bar sizes, maximum bar spacing, and any other details not shown.

For skewed ends with curbs, adjust length of Bars H, number of Bars K, curb concrete volume, and reinforcing steel weight by dividing the values shown on the culvert Single Box Culverts Cast-In-Place (SCC) standard sheets by the cosine of the skew angle.

Cover dimensions are clear dimensions, unless noted otherwise.

HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

SINGLE BOX CULVERTS CAST-IN-PLACE MISCELLANEOUS DETAILS

SCC-MD

FILE: sccmdste-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043,ETC	US 385,ETC
	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		143

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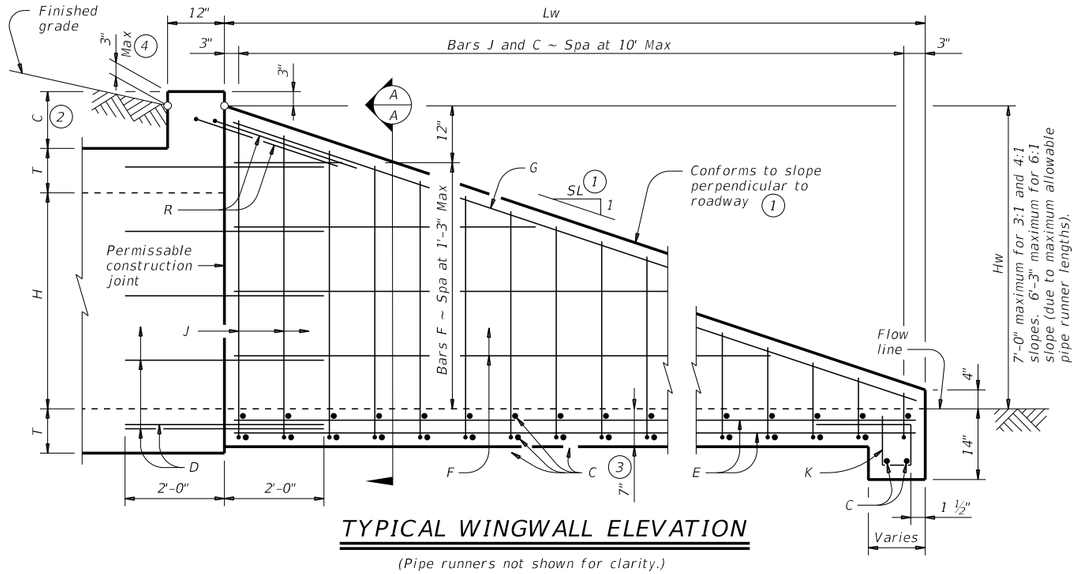
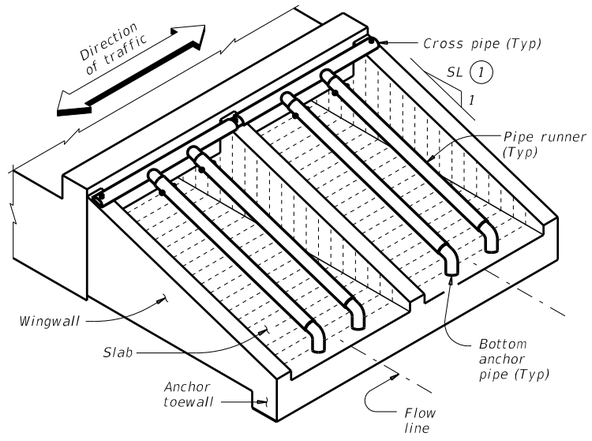


TYPICAL WINGWALL ELEVATION

(Pipe runners not shown for clarity.)



ISOMETRIC VIEW OF TYPICAL INSTALLATION

WING DIMENSION CALCULATIONS:

$Hw = H + T + C - 0.250'$

$Lw = (Hw - 0.333') (SL)$

For cast-in-place culverts:

$Atw = (N) (S) + (N + 1) (U)$

For precast culverts:

$Atw = (N) (2U + S) + (N - 1) (0.500')$

Total Wingwall Area (SF)
$= (0.5) (Hw + 0.333') (Lw) (N + 1)$

Total Concrete Volume (CY)
$= [(\text{Wingwall Area}) (0.583') +$
$(Lw) (Atw) (0.583') +$
$(Atw) (1.167') (1.167' - 0.583')] \div (27)$

PIPE RUNNER DIMENSION CALCULATIONS:

Pipe Runner Length
$= (Lw) (K1) - (1.917')$

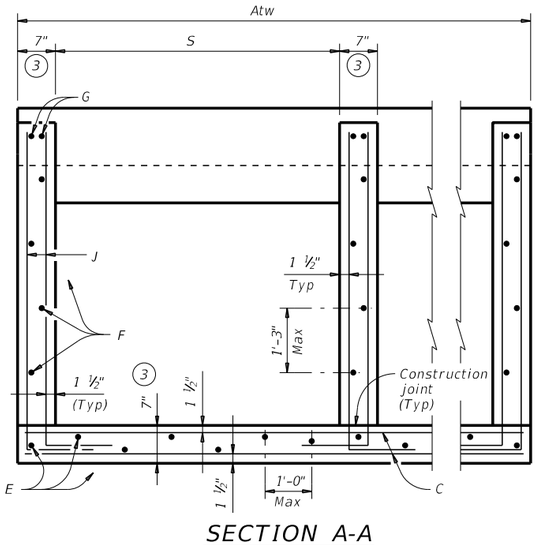
Total Reinforcing (Lb)
$= (1.55) (Lw) (Atw) +$
$(4.43) (Atw) +$
$(K2) (Hw) (N + 1) (\sqrt{Lw})$

C = Height of curb above top of top slab (feet)
Hw = Height of wingwall (feet)
K = Constant value for use in formulas

Slope SL:1	K1	K2
3:1	~ 1.054 ~	7.45
4:1	~ 1.031 ~	8.49
6:1	~ 1.014 ~	10.30

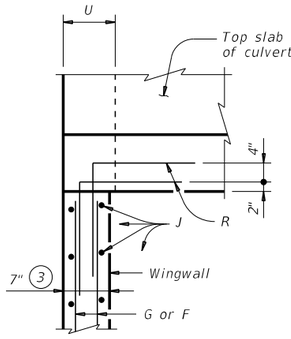
Atw = Anchor toewall length (feet)
Lw = Length of wingwall (feet)
N = Number of culvert barrels
SL:1 = Side slope ratio (horizontal : 1 vertical)

See applicable box culvert standard for H, S, T, and U values.



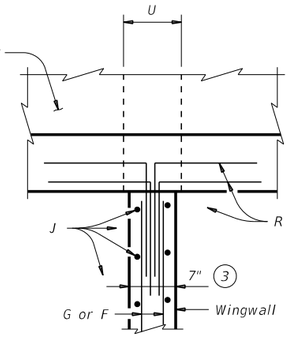
SECTION A-A

(Showing typical wingwall and wing slab reinforcing. Pipe runners not shown for clarity.)



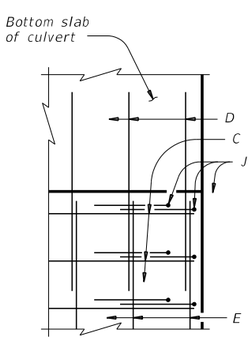
AT TOP OF EXTERIOR WINGWALL

(Cast-in-place culvert)



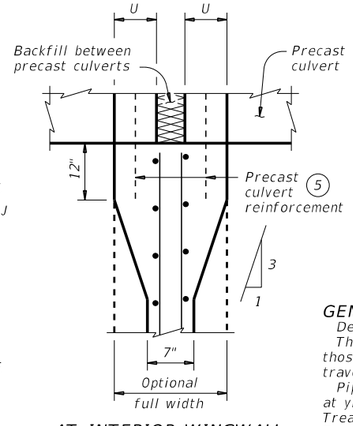
AT TOP OF INTERIOR WINGWALL

(Cast-in-place culvert)



AT OUTSIDE OF BOTTOM SLAB

(Cast-in-place culvert)



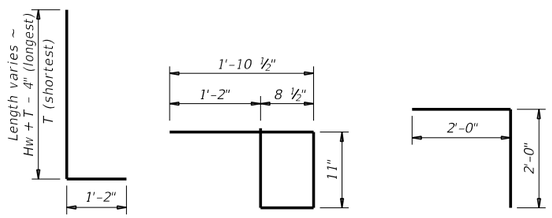
AT INTERIOR WINGWALL

(Precast culvert)

PLAN VIEWS OF CORNER DETAILS

TABLE OF REINFORCING BAR SIZES AND SPACING

Bar	Size	Spacing
C	#4	10" Max
D	#4	Match F and E
E	#4	1'-0" Max
F	#4	1'-3" Max
G	#6	As shown
J	#4	10" Max
K	#4	1'-0" Max
R	#4	As shown



(1) Recommended values of slope are: 3:1, 4:1, and 6:1. Provide 3:1 or flatter slope.

(2) 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures without railing and curbs taller than 1'-0", refer to the Extended Curb Details (ECD) standard sheet.

(3) Wingwall and slab thicknesses may be the same as the adjacent culvert wall and slab thicknesses (7" minimum). If thicknesses greater than the minimum (7") are used, no changes will be made in quantities and no additional compensation will be allowed.

(4) For vehicle safety, reduce curb height, if necessary, to provide a maximum 3" projection. No changes will be made in quantities and no additional compensation will be allowed for this work.

(5) For culverts with C = 0", the precast culvert reinforcing may extend 1'-0" minimum into wingwall. Wingwall Bars D and R may be omitted. Otherwise, refer to the Wingwall Connection detail on the Box Culvert Precast Miscellaneous Details (SCP-MD) standard sheet.

MATERIAL NOTES:

Provide Grade 60 reinforcing steel.

Provide galvanized reinforcing steel if required elsewhere in the plans.

Adjust reinforcing as necessary to provide a minimum clear cover of 1 ½".

Provide Class "C" concrete (f`c = 3,600 psi).

Provide pipe runners, cross pipes, and anchor pipes meeting the requirements of ASTM A53 (Type E or S, Gr B), ASTM A500 Gr B, or API 5LX52.

Provide ASTM A307 bolts.

Galvanize all steel components, except the concrete reinforcing, unless required elsewhere in the plans, after fabrication.

Repair galvanizing damaged during transport or construction in accordance with the Item 445, "Galvanizing".

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.

The safety end treatments shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the pipe runners.

Pipe runners are designed for a traversing load of 1,800 pounds at yield as recommended by Research Report 280-1, "Safety Treatment of Roadside Cross-Drainage Structures", Texas Transportation Institute, March 1981.

The quantities for pipe runners, reinforcing steel, and concrete resulting from the formulas given herein are for Contractor's information only.

See the Box Culvert Supplement (BCS) standard sheet for additional dimensions and information.

Alternate design drawings bearing the seal of a professional engineer will be acceptable for precast construction of the safety end treatments.

Cover dimensions are clear dimensions, unless noted otherwise. Reinforcing dimensions are out-to-out of bars.

Texas Department of Transportation

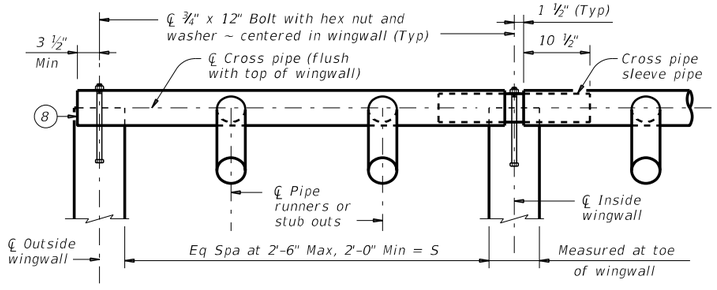
Bridge Division Standard

SAFETY END TREATMENT

FOR 0° SKEW BOX CULVERTS (MAXIMUM Hw = 7'-0") TYPE I ~ CROSS DRAINAGE

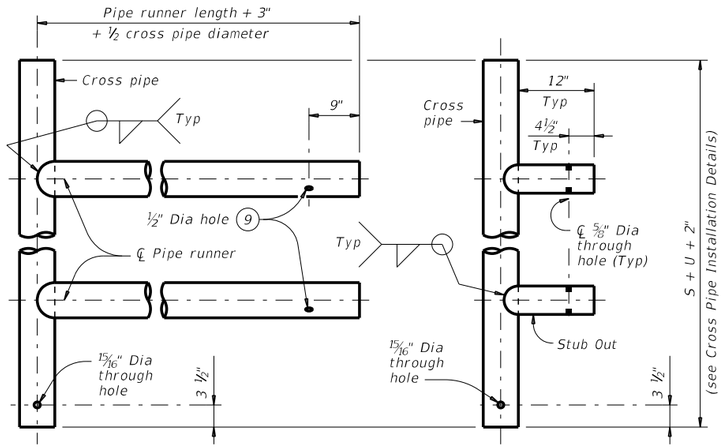
SETB-CD

FILE: setbcdse-20.dgn	DN: GAF	CK: CAT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043,ETC	US 385,ETC
	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		144



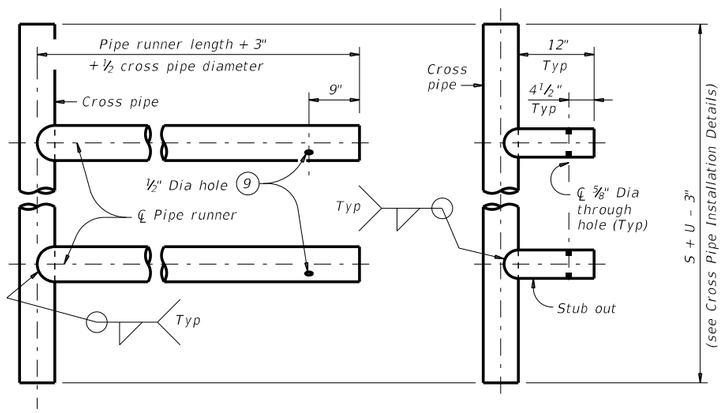
NOTE: At Contractor's option, make the cross pipe continuous across the inside wingwalls. If option is selected, omit the sleeve pipe and make a $^{15}/_{16}$" diameter through hole in the cross pipe to accept the anchor bolt at the centerline of each inside wingwall.

CROSS PIPE INSTALLATION DETAILS



OPTION A2 OPTION A1

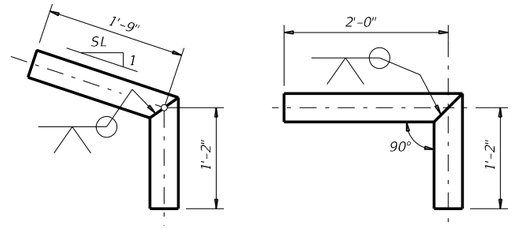
FOR USE IN OUTSIDE CULVERT BAY



OPTION A2 OPTION A1

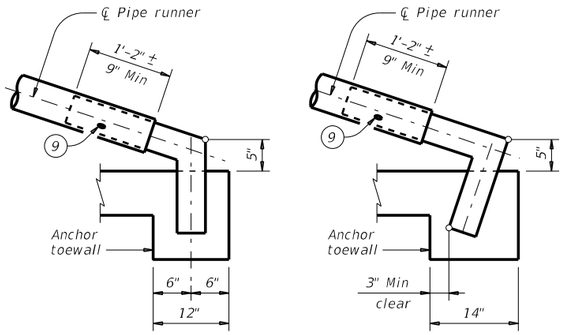
FOR USE IN INSIDE CULVERT BAY

CROSS PIPE AND CONNECTIONS DETAILS



OPTION A OPTION B

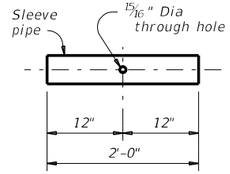
BOTTOM ANCHOR PIPE DETAILS (10)



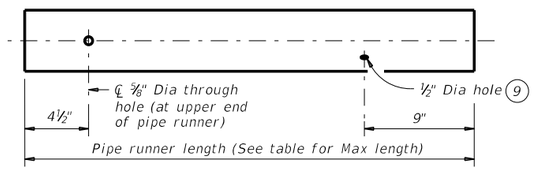
OPTION B1 OPTION B2

BOTTOM ANCHOR TOEWALL DETAILS

(Wingwall not shown for clarity.)

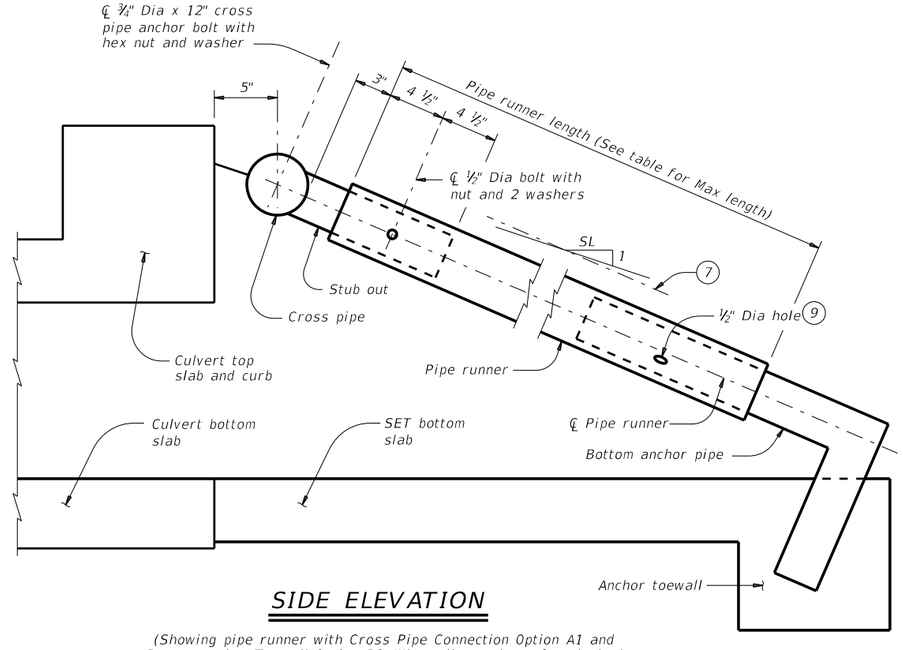


CROSS PIPE SLEEVE PIPE DETAILS



NOTE: The separate pipe runner shown is required when Cross Pipe Connection Option A1 is used.

PIPE RUNNER DETAILS



SIDE ELEVATION

(Showing pipe runner with Cross Pipe Connection Option A1 and Bottom Anchor Toewall Option B2. Wingwall not shown for clarity.)

(6) Cross pipe is the same size as the pipe runner. Cross pipe stub out is the same size as the anchor pipe.

(7) Note that actual slope of safety pipe runner may vary slightly from side slope.

(8) Take care to ensure that riprap concrete does not flow into the cross pipe so as to permit disassembly of the bolted connection to allow cleanout access.

(9) After installation, inspect the 1#2" hole to ensure that the lap of the safety pipe runner with the bottom anchor pipe is adequate.

(10) At fabricator's option, a heat bend to a smooth 5" radius or a manufactured elbow (of the same material as the runner) may be substituted for the mitered and welded joint in the bottom anchor pipe.

MAXIMUM PIPE RUNNER LENGTHS AND (6) REQUIRED PIPE RUNNER AND ANCHOR PIPE SIZES

Maximum Pipe Runner Length	Required Pipe Runner Size			Required Anchor Pipe Size		
	Pipe Size	Pipe O.D.	Pipe I.D.	Pipe Size	Pipe O.D.	Pipe I.D.
10'- 0"	3" STD	3.500"	3.068"	2" STD	2.375"	2.067"
19'- 8"	4" STD	4.500"	4.026"	3" STD	3.500"	3.068"
34'- 2"	5" STD	5.563"	5.047"	4" STD	4.500"	4.026"

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SHEET 2 OF 2

Texas Department of Transportation — Bridge Division Standard

SAFETY END TREATMENT

FOR 0° SKEW BOX CULVERTS
(MAXIMUM Hw = 7'-0")
TYPE I ~ CROSS DRAINAGE

SETB-CD

FILE: setbcdse-20.dgn	DN: GAF	CK: CAT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043, ETC	US 385, ETC
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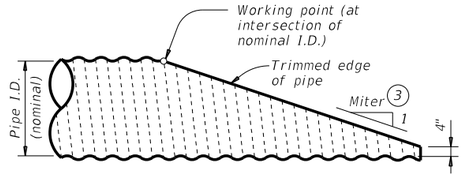
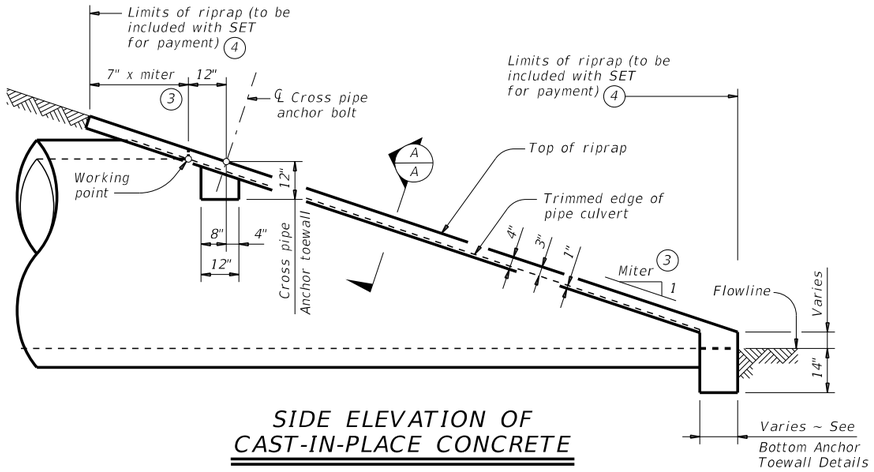
	ODA	ANDREWS		145



NOTE: All pipe runners, calculations, and dimensions are based on the pipe culverts mitered as shown in this detail. Alternate styles of mitered ends will require that appropriate adjustments be made to the values presented on this standard.

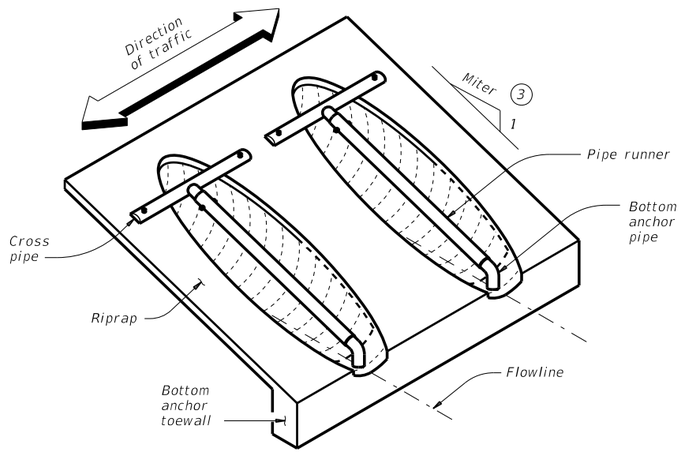
SIDE ELEVATION OF TYPICAL PIPE CULVERT MITER

(Showing corrugated metal pipe (CMP) culvert.
Details of reinforced concrete pipe (RCP) culvert are similar.)



SIDE ELEVATION OF CAST-IN-PLACE CONCRETE

(Showing reinforced concrete pipe (RCP) culvert.
Details of corrugated metal pipe (CMP) culvert
are similar. Pipe runners not shown for clarity)



ISOMETRIC VIEW OF TYPICAL INSTALLATION

(Showing installation with no skew.)

CROSS PIPE LENGTHS AND PIPE RUNNER LENGTHS (1) (2)

Nominal Culvert I.D.	Pipe Culvert Spa ~ G	Cross Pipe Length	Pipe Runner Length											
			3:1 Side Slope				4:1 Side Slope				6:1 Side Slope			
			0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew
24"	1' - 7"	3' - 5"	N/A	N/A	N/A	5' - 10"	N/A	N/A	N/A	8' - 1"	N/A	N/A	N/A	12' - 9"
27"	1' - 8"	3' - 8"	N/A	N/A	5' - 5"	6' - 11"	N/A	N/A	7' - 7"	9' - 7"	N/A	N/A	11' - 11"	14' - 11"
30"	1' - 10"	3' - 11"	N/A	N/A	6' - 4"	8' - 0"	N/A	N/A	8' - 9"	11' - 0"	N/A	N/A	13' - 8"	17' - 0"
33"	1' - 11"	4' - 2"	6' - 2"	6' - 5"	7' - 3"	9' - 1"	8' - 6"	8' - 10"	10' - 0"	12' - 5"	13' - 3"	13' - 9"	15' - 5"	19' - 2"
36"	2' - 1"	4' - 5"	6' - 11"	7' - 3"	8' - 2"	10' - 2"	9' - 6"	9' - 11"	11' - 2"	13' - 10"	14' - 9"	15' - 3"	17' - 2"	21' - 3"
42"	2' - 4"	4' - 11"	8' - 6"	8' - 10"	9' - 11"	12' - 4"	11' - 7"	12' - 0"	13' - 6"	16' - 8"	17' - 9"	18' - 5"	20' - 8"	25' - 7"
48"	2' - 7"	5' - 5"	10' - 1"	10' - 5"	11' - 9"	N/A	13' - 7"	14' - 2"	15' - 10"	N/A	20' - 9"	21' - 6"	24' - 2"	N/A
54"	3' - 0"	5' - 11"	11' - 8"	12' - 1"	N/A	N/A	15' - 8"	16' - 3"	N/A	N/A	23' - 10"	24' - 8"	N/A	N/A
60"	3' - 3"	6' - 5"	13' - 3"	N/A	N/A	N/A	17' - 9"	N/A	N/A	N/A	26' - 10"	N/A	N/A	N/A

TYPICAL PIPE CULVERT MITERS (3)

Side Slope	0° Skew	15° Skew	30° Skew	45° Skew
3:1	3:1	3.106:1	3.464:1	4.243:1
4:1	4:1	4.141:1	4.619:1	5.657:1
6:1	6:1	6.212:1	6.928:1	8.485:1

CONDITIONS WHERE PIPE RUNNERS ARE NOT REQUIRED (2)

Nominal Culvert I.D.	Single Pipe Culvert	Multiple Pipe Culverts
12" thru 21"	Skews thru 45°	Skews thru 45°
24"	Skews thru 45°	Skews thru 30°
27"	Skews thru 30°	Skews thru 15°
30"	Skews thru 15°	Skews thru 15°
33"	Skews thru 15°	Always required
36"	Normal (no skew)	Always required
42" thru 60"	Always required	Always required

STANDARD PIPE SIZES AND MAX PIPE RUNNER LENGTHS (1)

Pipe Size	Pipe O.D.	Pipe I.D.	Max Pipe Runner Length
2" STD	2.375"	2.067"	N/A
3" STD	3.500"	3.068"	10' - 0"
4" STD	4.500"	4.026"	19' - 8"
5" STD	5.563"	5.047"	34' - 2"

ESTIMATED CONCRETE RIPRAP QUANTITIES (CY) (5)

Nominal Culvert I.D.	3:1 Side Slope				4:1 Side Slope				6:1 Side Slope			
	0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew
12"	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.6	0.7	0.7	0.7	0.8
15"	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.9
18"	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.8	0.9	1.0
21"	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.9	0.9	0.9	1.0	1.2
24"	0.6	0.7	0.7	0.8	0.8	0.8	0.8	1.0	1.0	1.0	1.1	1.3
27"	0.7	0.7	0.8	0.9	0.8	0.9	0.9	1.1	1.1	1.1	1.2	1.4
30"	0.8	0.8	0.8	0.9	0.9	0.9	1.0	1.2	1.2	1.2	1.3	1.6
33"	0.8	0.8	0.9	1.0	1.0	1.0	1.1	1.3	1.3	1.4	1.5	1.7
36"	0.9	0.9	0.9	1.1	1.1	1.1	1.2	1.4	1.4	1.5	1.6	1.8
42"	1.0	1.0	1.1	1.3	1.2	1.3	1.3	1.6	1.6	1.7	1.8	2.1
48"	1.1	1.1	1.2	N/A	1.4	1.4	1.5	N/A	1.9	1.9	2.1	N/A
54"	1.3	1.3	N/A	N/A	1.6	1.6	N/A	N/A	2.1	2.1	N/A	N/A
60"	1.4	N/A	N/A	N/A	1.7	N/A	N/A	N/A	2.3	N/A	N/A	N/A

(1) Provide pipe runner of the size shown in the tables. Provide cross pipe of the same size as the pipe runner. Provide cross pipe stub out and bottom anchor pipe of the next smaller size pipe as shown in the Standard Pipe Sizes and Max Pipe Runner Lengths table.

(2) This standard allows for the placement of only one pipe runner across each culvert pipe opening. In order to limit the clear opening to be traversed by an errant vehicle, the following conditions must be met:

For 60" culvert pipes, the skew must not exceed 0°.
For 54" culvert pipes, the skew must not exceed 15°.
For 48" culvert pipes, the skew must not exceed 30°.
For all culvert pipe sizes 42" and less, the skew must not exceed 45°.

If the above conditions cannot be met, the designer should consider using a safety end treatment with flared wings. For further information, refer to the TxDOT Roadway Design Manual.

(3) Miter = slope of mitered end of pipe culvert.

(4) Riprap placed beyond the limits shown will be paid for as concrete riprap in accordance with Item 432, "Riprap".

(5) Quantities shown are for one end of one reinforced concrete pipe (RCP) culvert. For multiple pipe culverts or for corrugated metal pipe (CMP) culverts, quantities will need to be adjusted. Riprap quantities are for Contractor's information only.

Texas Department of Transportation

Bridge Division Standard

SAFETY END TREATMENT

FOR 12" DIA TO 60" DIA
PIPE CULVERTS
TYPE II ~ CROSS DRAINAGE

SETP-CD

FILE: setpcdse-20.dgn	DN: GAF	CK: CAT	DW: JRP	CK: GAF
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043,ETC	US 385,ETC
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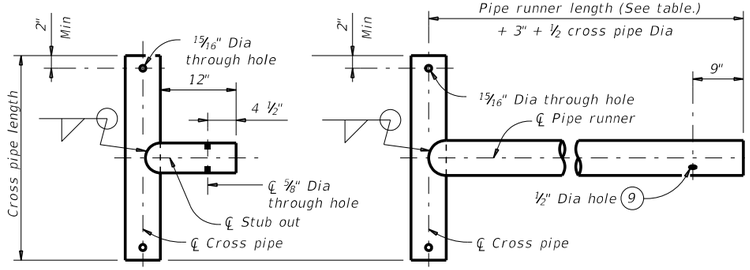
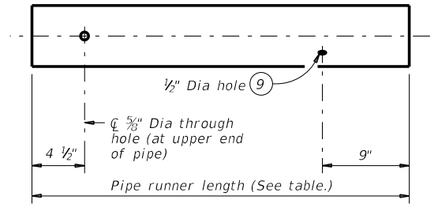


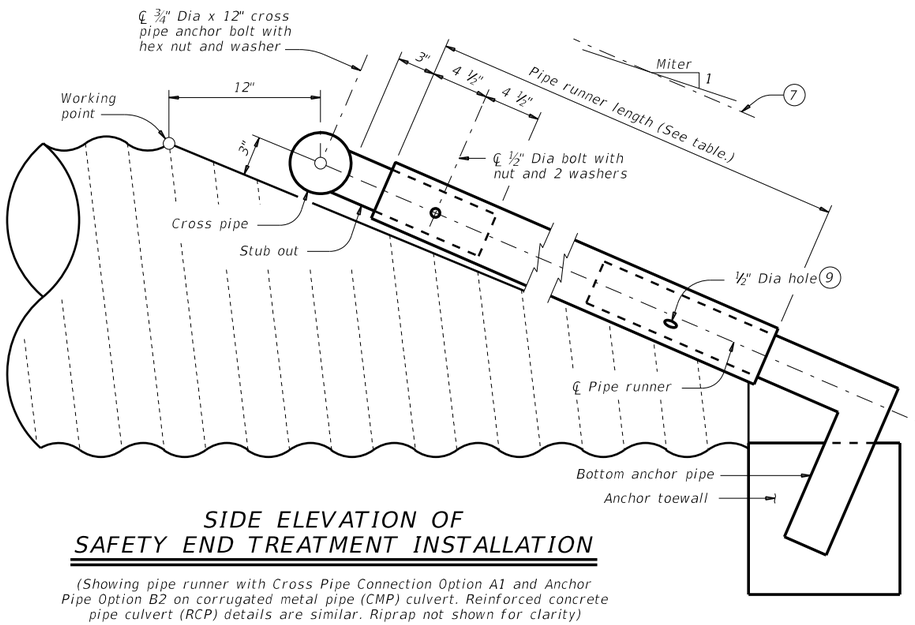
OPTION A1 OPTION A2

CROSS PIPE AND CONNECTIONS DETAILS



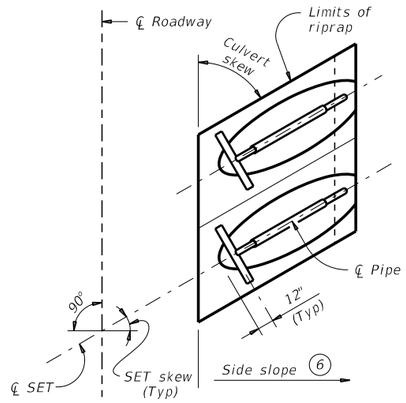
NOTE: The separate pipe runner shown is required when Cross Pipe Connection Option A1 is used.

PIPE RUNNER DETAILS

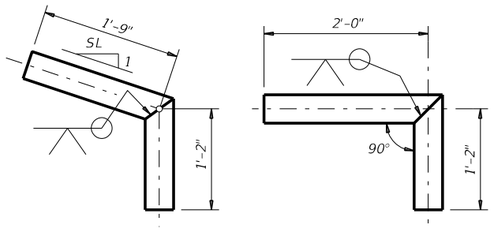


SIDE ELEVATION OF SAFETY END TREATMENT INSTALLATION

(Showing pipe runner with Cross Pipe Connection Option A1 and Anchor Pipe Option B2 on corrugated metal pipe (CMP) culvert. Reinforced concrete pipe culvert (RCP) details are similar. Riprap not shown for clarity)

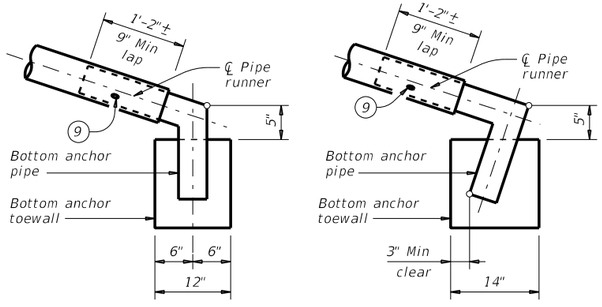


PLAN OF SKEWED INSTALLATION



OPTION B1 OPTION B2

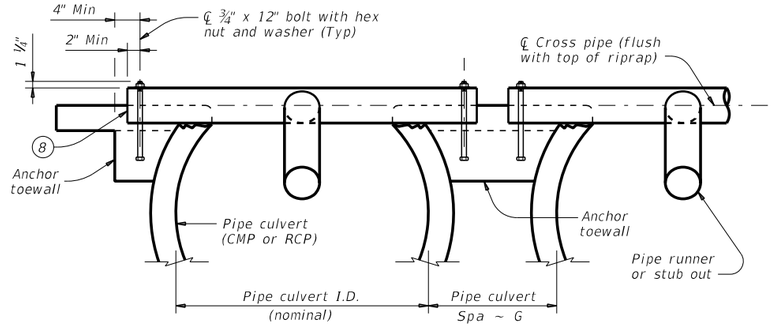
BOTTOM ANCHOR PIPE DETAILS (10)



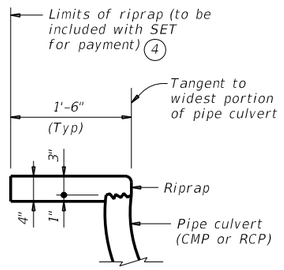
OPTION B1 OPTION B2

BOTTOM ANCHOR TOEWALL DETAILS

(Culvert and riprap not shown for clarity.)



SHOWING CROSS PIPE AND ANCHOR TOEWALL



SHOWING TYPICAL PIPE CULVERT AND RIPRAP

SECTION A-A

(4) Riprap placed beyond the limits shown will be paid for as concrete riprap in accordance with Item 432, "Riprap".

(6) Recommended values of side slope are 3:1, 4:1, and 6:1. All quantities, calculations, and dimensions shown herein are based on these recommended values. Slope of 3:1 or flatter is required for vehicle safety.

(7) Note that actual slope of pipe runner may vary slightly from side slope of riprap and trimmed culvert pipe edge.

(8) Ensure that riprap concrete does not flow into the cross pipe so as to permit disassembly of the bolted connection to allow cleanout access.

(9) After installation, inspect the 1/2" hole to ensure that the lap of the pipe runner with the bottom anchor pipe is adequate.

(10) At fabricator's option, a heat bend to a smooth 5" radius or a manufactured elbow (of the same material as the runner) may be substituted for the mitered and welded joint in the bottom anchor pipe.

MATERIAL NOTES:

Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.

Provide pipe runners, cross pipes, and anchor pipes conforming to the requirements of ASTM A53 (Type E or S, Gr B), ASTM A500 Gr B, or API 5LX52.

Provide ASTM A307 bolts and nuts.

Galvanize all steel components, except concrete reinforcing, after fabrication.

Repair galvanizing damaged during transport or construction in accordance with the specifications.

GENERAL NOTES:

Pipe runners are designed for a traversing load of 1,800 pounds at yield as recommended by Research Report 280-1, "Safety Treatment of Roadside Cross-Drainage Structures", Texas Transportation Institute, March 1981.

Safety end treatments (SET) shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the pipe runners.

Payment for riprap and toewall is included in the price bid for each safety end treatment.

Construct concrete riprap and all necessary inverts in accordance with the requirements of Item 432, "Riprap".

SHEET 2 OF 2

Texas Department of Transportation

Bridge Division Standard

SAFETY END TREATMENT

FOR 12" DIA TO 60" DIA PIPE CULVERTS TYPE II ~ CROSS DRAINAGE

SETP-CD

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©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043,ETC	US 385,ETC
	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		147

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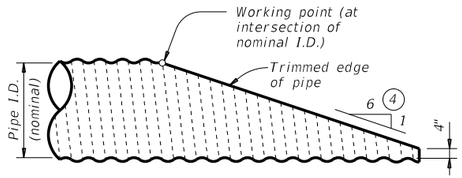
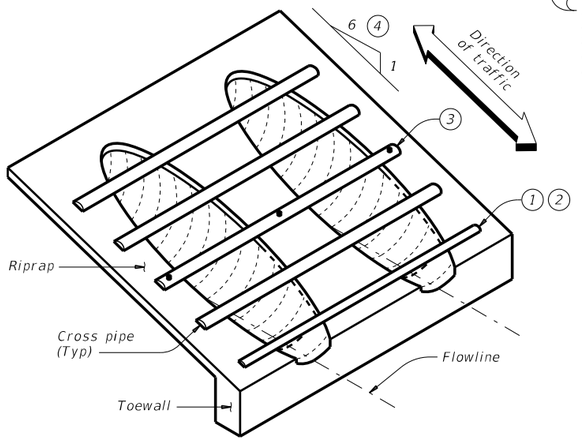


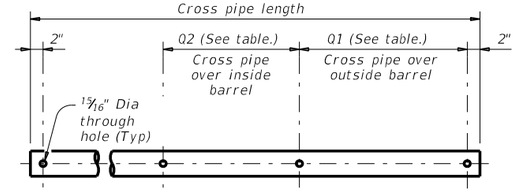
NOTE: All cross pipes, calculations, and dimensions are based on the pipe culverts mitered as shown in this detail. Alternate styles of mitered ends will require that appropriate adjustments be made to the values presented on this standard.

SIDE ELEVATION OF TYPICAL PIPE CULVERT MITER

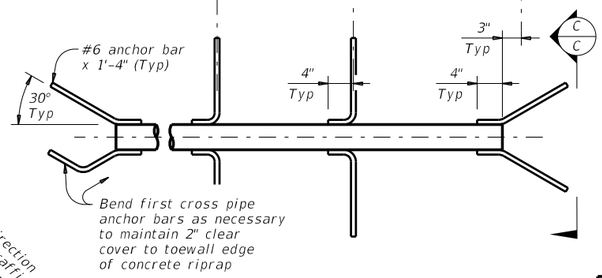
(Showing corrugated metal pipe (CMP) culvert Details at reinforced concrete pipe (RCP) culvert are similar.)



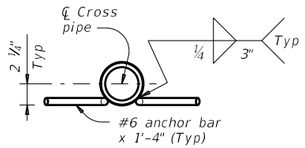
ISOMETRIC VIEW OF TYPICAL INSTALLATION



PIPE WITH BOLTED ANCHOR

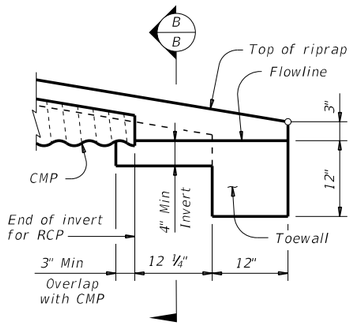


PIPE WITH ANCHOR BARS



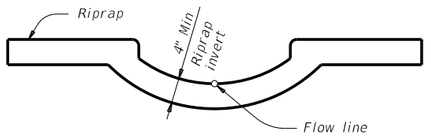
SECTION C-C

CROSS PIPE DETAILS



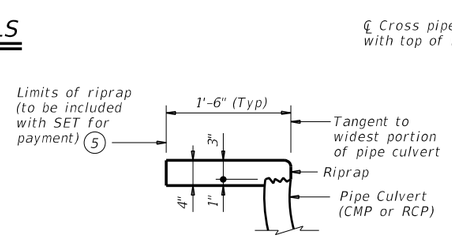
DETAIL "A"

(Showing invert with corrugated metal pipe (CMP) culvert. Reinforced concrete pipe (RCP) culvert details are similar. Cross pipes not shown for clarity.)

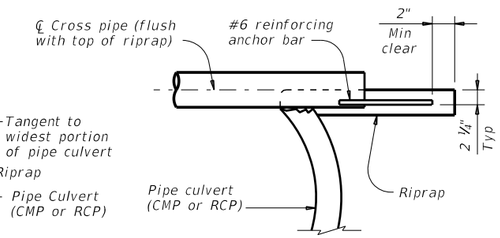


SECTION B-B

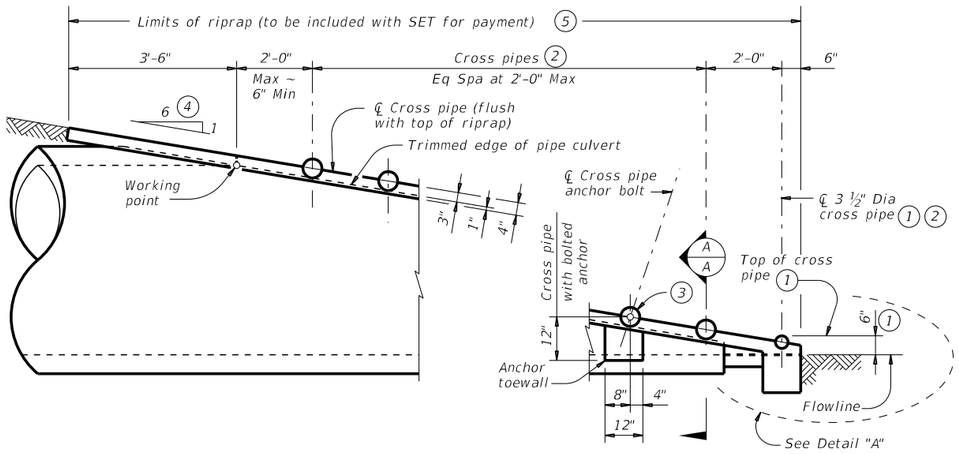
(Cross pipes not shown for clarity.)



SHOWING TYPICAL PIPE CULVERT AND RIPRAP

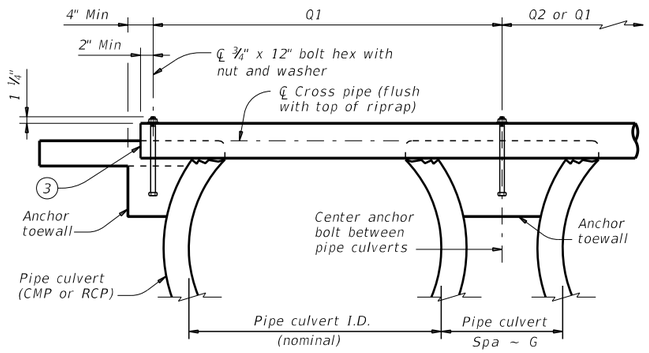


SHOWING CROSS PIPE WITH ANCHOR BAR



SIDE ELEVATION OF CAST-IN-PLACE CONCRETE

(Showing reinforced concrete pipe (RCP) culvert. Details at corrugated metal pipe (CMP) culvert are similar.)



SHOWING CROSS PIPE WITH BOLTED ANCHOR

SECTION A-A

CROSS PIPE LENGTHS, REQUIRED PIPE SIZES, AND RIPRAP QUANTITIES (2)

Nominal Culvert I.D.	Conc Riprap (CY) (6)	Pipe Culvert Spa ~ G	Single Barrel ~ Q1	Multi-Barrel ~ Q1	Q2	Conditions for Use of Cross Pipes	Cross Pipe Sizes
12"	0.6	0' - 9"	N/A	2' - 1"	1' - 9"	3 or more pipe culverts	3" Std (3.500" O.D.)
15"	0.7	0' - 11"	N/A	2' - 5"	2' - 2"		
18"	0.8	1' - 2"	N/A	2' - 10"	2' - 8"		
21"	0.9	1' - 4"	N/A	3' - 2"	3' - 1"		
24"	0.9	1' - 7"	N/A	3' - 6"	3' - 7"		
27"	1.0	1' - 8"	N/A	3' - 10"	3' - 11"	3 or more pipe culverts	3 1/2" Std (4.000" O.D.)
30"	1.1	1' - 10"	N/A	4' - 2"	4' - 4"	2 or more pipe culverts	
33"	1.2	1' - 11"	4' - 2"	4' - 5"	4' - 8"	All pipe culverts	
36"	1.3	2' - 1"	4' - 5"	4' - 9"	5' - 1"	All pipe culverts	4" Std (4.500" O.D.)
42"	1.5	2' - 4"	4' - 11"	5' - 5"	5' - 10"		
48"	1.7	2' - 7"	5' - 5"	6' - 0"	6' - 7"	All pipe culverts	5" Std (5.563" O.D.)
54"	2.0	3' - 0"	5' - 11"	6' - 9"	7' - 6"		
60"	2.2	3' - 3"	6' - 5"	7' - 4"	8' - 3"		
66"	2.4	3' - 3"	6' - 11"	7' - 10"	8' - 9"		
72"	2.7	3' - 4"	7' - 5"	8' - 5"	9' - 4"		

(1) The proper installation of the first cross pipe is critical for vehicle safety. Place the top of the first cross pipe no more than 6" above the flow line.

(2) Provide cross pipes, except the first bottom pipe, of the size shown in the table. Provide a 3 1#2" standard pipe (4" O.D.) for the first bottom pipe.

(3) Install the third cross pipe from the bottom of the culvert using a bolted connection. Ensure that riprap concrete does not flow into the cross pipe so as to permit disassembly of the bolted connection to allow cleanout access. At the Contractor's option, install all other cross pipes using the bolted connection details.

(4) Match cross slope as shown elsewhere in the plans. Cross slope of 6:1 or flatter is required for vehicle safety.

(5) Riprap placed beyond the limits shown will be paid for as concrete riprap in accordance with Item 432, "Riprap".

(6) Quantities shown are for one end of one reinforced concrete pipe (RCP) culvert. For multiple pipe culverts or for corrugated metal pipe (CMP) culverts, quantities will need to be adjusted. Riprap quantities are for contractor's information only.

MATERIAL NOTES:

Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.

Provide cross pipes that meet the requirements of ASTM A53 (Type E or S, Gr B), ASTM A500 (Gr B), or API 5LX52.

Provide ASTM A307 bolts and nuts.

Galvanize all steel components, except concrete reinforcing, after fabrication. Repair galvanizing damaged during transport or construction in accordance with the specifications.

GENERAL NOTES:

Cross pipes are designed for a traversing load of 10,000 pounds at yield as recommended by Research Report 280-2F, "Safety Treatment of Roadside Parallel-Drainage Structures", Texas Transportation Institute, March 1981.

Safety end treatments (SET) shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the cross pipes.

Construct concrete riprap and all necessary inverts in accordance with the requirements of Item 432, "Riprap".

Payment for riprap and toewall is included in the Price Bid for each Safety End Treatment.

Texas Department of Transportation

Bridge Division Standard

SAFETY END TREATMENT

FOR 12" DIA TO 72" DIA PIPE CULVERTS TYPE II ~ PARALLEL DRAINAGE

SETP-PD

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©TxDOT	February 2020	CONT	SECT	JOB	HIGHWAY
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		ODA	ANDREWS		148

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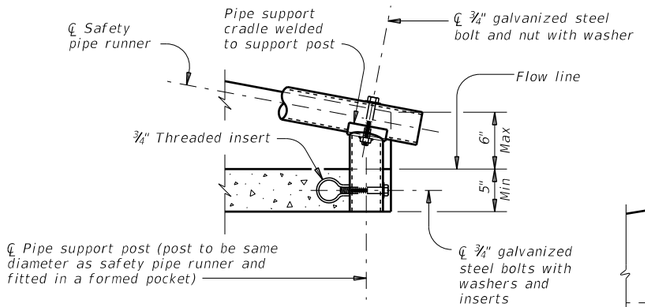
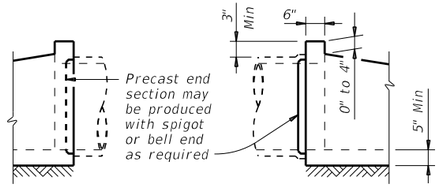
REQUIREMENTS FOR CULVERT PIPES AND SAFETY PIPE RUNNERS

Pipe I.D.	RCP Wall "B" Thickness	TP Wall Thickness (8)	"D" (1)	Slope	Min Length of Unit	Single Pipe Skew	Single Pipe Pipe Runners Required	Multiple Pipes Skew	Multiple Pipes Pipe Runners Required
12"	2"	1.15"	17.00"	3:1	2' – 11"	≤ 45°	No	≤ 45°	No
				4:1	3' – 6"				
				6:1	4' – 9"				
15"	2 ¼"	1.30"	20.50"	3:1	3' – 8"	≤ 45°	No	≤ 45°	No
				4:1	4' – 7"				
				6:1	6' – 5"				
18"	2 ½"	1.60"	24.00"	3:1	4' – 6"	≤ 45°	No	≤ 45°	No
				4:1	5' – 8"				
				6:1	8' – 0"				
24"	3"	1.95"	31.00"	3:1	6' – 2"	≤ 45°	No	= 30°	No
				4:1	7' – 10"			> 30°	Yes
				6:1	11' – 3"				
30"	3 ½"	2.65"	38.50"	3:1	7' – 10"	= 15°	No	= 15°	No
				4:1	10' – 1"	> 15°	Yes	> 15°	Yes
				6:1	14' – 8"				
36"	4"	2.75"	45.50"	3:1	9' – 5"	= 0°	No	≥ 0°	Yes
				4:1	12' – 3"	> 0°	Yes		
				6:1	17' – 11"				
42"	4 ½"	N/A	52.50"	3:1	11' – 1"	≥ 0°	Yes	≥ 0°	Yes
				4:1	14' – 5"				
				6:1	21' – 2"				



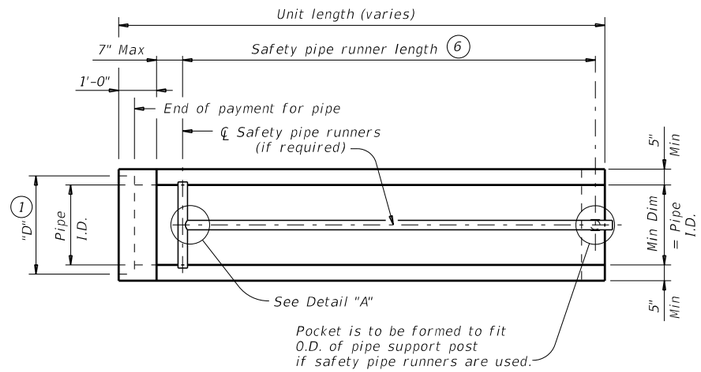
END DETAIL FOR INSTALLATION OF SAFETY PIPE RUNNERS

(If required)



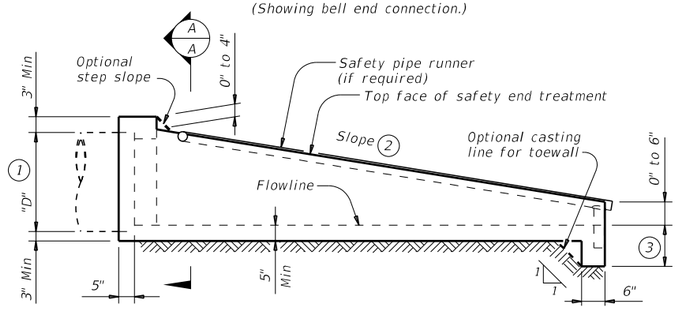
OPTIONAL JOINT FOR RCP

(Showing joint between RCP and precast safety end treatment)



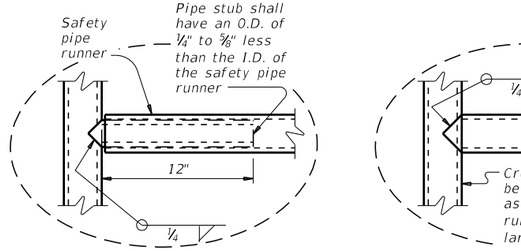
PLAN

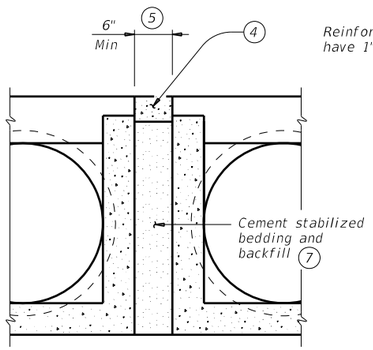
(Showing bell end connection.)



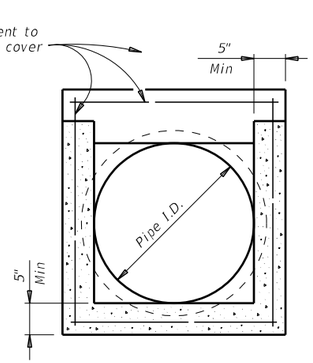
LONGITUDINAL ELEVATION

(Showing bell end connection.)

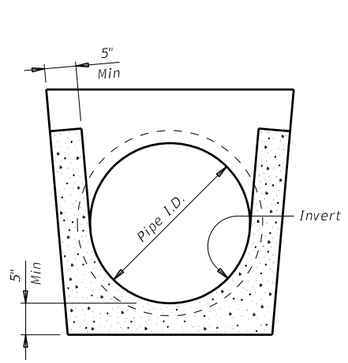




MULTIPLE PIPE INSTALLATION

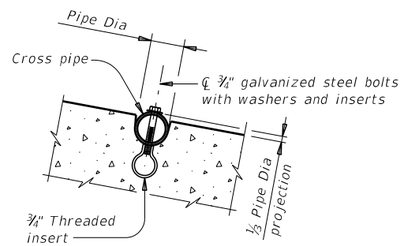


OPTION WITH SQUARE BOTTOM



OPTION WITH INVERT BOTTOM

SECTION A-A



INSTALLATION DETAIL FOR SAFETY PIPE RUNNERS

(If required)

SAFETY PIPE RUNNER DIMENSIONS

Max Safety Pipe Runner Length	Required Pipe Runner Size: Pipe Size	Pipe O.D.	Pipe I.D.
11' – 2"	3" STD	3.500"	3.068"
15' – 6"	3 ½" STD	4.000"	3.548"
20' – 10"	4" STD	4.500"	4.026"
35' – 4"	5" STD	5.563"	5.047"

(1) Dimension "D" is based on reinforced concrete pipe (RCP) meeting the requirements of ASTM C-76, Class III, (RCP Wall "B" thickness). Adjust "D" for any other wall thickness used. For thermoplastic pipe (TP) take into account the annular space requirements for grouted connections.

(2) Slope as shown elsewhere in plans. Slope of 3:1 or flatter is required for vehicle safety.

(3) Toewall to be used only when dimension is shown elsewhere in the plans.

(4) Fill the top 4" of void between precast end treatments with concrete riprap. Concrete riprap is considered subsidiary to the Item 467, "Safety End Treatment".

(5) Adjust clear distance between pipes to provide for the minimum distance between safety end treatments.

(6) Measured along slope.

(7) Provide cement stabilized bedding and backfill in accordance with the Item 400, "Excavation and Backfill for Structures". Bedding and backfill is considered subsidiary to the Item 467, "Safety End Treatment". When concrete riprap is specified around the safety end treatment, backfill as directed by Engineer.

(8) Thermoplastic pipe wall thickness may vary. Adjust accordingly. Thermoplastic pipe requires the safety end treatments to have a bell end for grouted connections.

GENERAL NOTES:

Precast safety end treatment for reinforced concrete pipe (RCP), and thermoplastic pipe (TP) may be used for TYPE II end treatment as specified in Item "Safety End Treatment".

When precast safety end treatment is used as a Contractor's alternate to mitered RCP, riprap will not be required unless noted otherwise on the plans.

Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.

Manufacture this product in accordance with Item 467, "Safety End Treatment" except as noted below :

A. Provide minimum reinforcing of #4 at 6" (Grade 40) or #4 at 9" (Grade 60) each way or 6"x6" – D12 x D12 or 5"x5" – D10 x D10 welded wire reinforcement (WWR).
B. For precast (steel formed) sections, provide Class "C" concrete (f'c = 3,600 psi).

At the option and expense of the Contractor, the next larger size of safety end treatment may be furnished as long as the "D" dimension cast is that of the required size of pipe.

Pipe runners are designed for a traversing load of 1,800 Lbs at yield as recommended by Research Report 280-1, "Safety Treatment of Roadside Cross-Drainage Structures", Texas Transportation Institute, March 1981.

Provide safety pipe runners, cross pipes, pipe support posts, and pipe stubs meeting the requirements of ASTM A53 (Type E or S, Grade B), ASTM A500 (Grade B), or API 5LX52.

Galvanize all steel components except reinforcing steel after fabrication. Repair galvanizing damaged during transport or construction in accordance with the specifications.

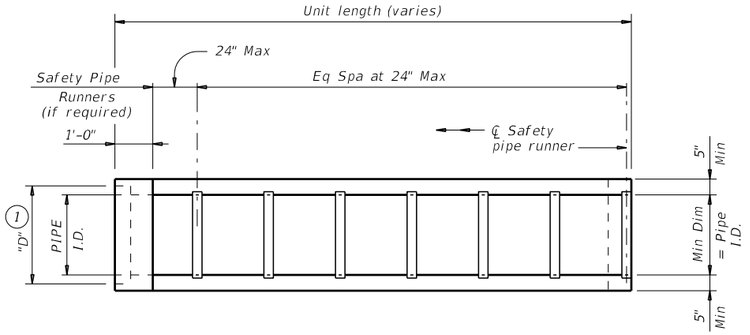
Connect RCP using the Optional Joint for RCP detail shown or in accordance with Item 464 "Reinforced Concrete Pipe". Connect TP by grouting. See PBGC standard for grouted connections with TP and precast safety end treatment.

Texas Department of Transportation — Bridge Division Standard

PRECAST SAFETY END TREATMENT
TYPE II ~ CROSS DRAINAGE

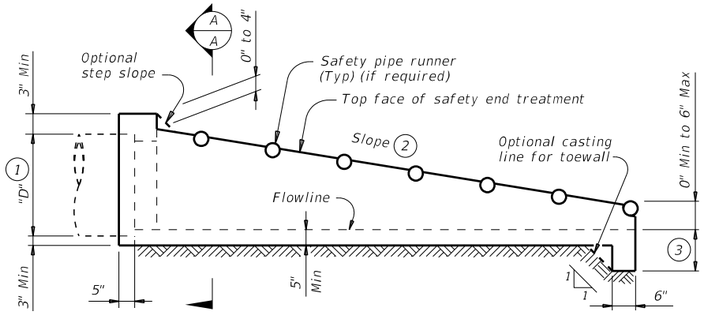
PSET-SC

FILE: psetscss-20.dgn	DN: RLW	CK: KLR	DW: JTR	CK: GAF
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043,ETC	US 385,ETC
	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		149



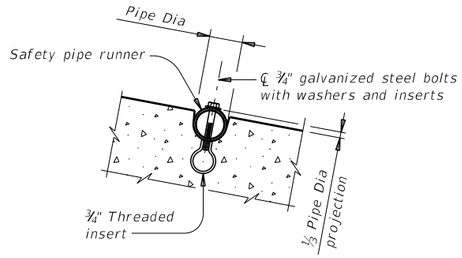
PLAN

(Showing bell end connection.)



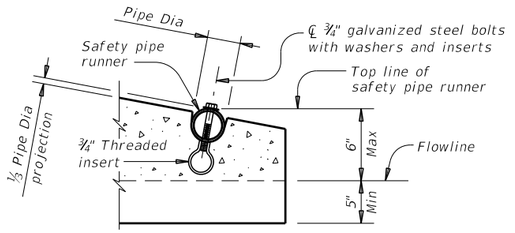
LONGITUDINAL ELEVATION

(Showing bell end connection.)

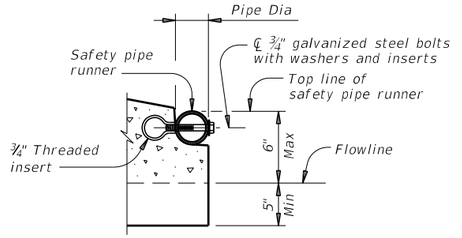


INSTALLATION DETAIL FOR SAFETY PIPE RUNNERS

(If required)



OPTION A



OPTION B

END DETAILS FOR INSTALLATION OF SAFETY PIPE RUNNERS

(If required)

REQUIREMENTS FOR CULVERT PIPES AND SAFETY PIPE RUNNERS

Pipe I.D.	RCP Wall "B" Thickness	TP Wall Thickness (7)	"D" (1)	Slope	Min Length	Pipe Runners Required		Required Pipe Runner Size		
						Single Pipe	Multiple Pipe	Nominal Dia.	O.D.	I.D.
12"	2"	1.15"	17.00"	6:1	4' – 9"	No	Yes, for > 2 pipes	3" STD	3.500"	3.068"
15"	2 ¼"	1.30"	20.50"	6:1	6' – 5"	No	Yes, for > 2 pipes	3" STD	3.500"	3.068"
18"	2 ½"	1.60"	24.00"	6:1	8' – 0"	No	Yes, for > 2 pipes	3" STD	3.500"	3.068"
24"	3"	1.95"	31.00"	6:1	11' – 3"	No	Yes, for > 2 pipes	3" STD	3.500"	3.068"
30"	3 ½"	2.65"	38.50"	6:1	14' – 8"	No	Yes	4" STD	4.500"	4.026"
36"	4"	2.75"	45.50"	6:1	17' – 11"	Yes	Yes	4" STD	4.500"	4.026"
42"	4 ½"	N/A	52.50"	6:1	21' – 2"	Yes	Yes	4" STD	4.500"	4.026"

(1) Dimension "D" is based on reinforced concrete pipe (RCP) meeting the requirements of ASTM C-76, Class III, (RCP Wall "B" thickness). Adjust "D" for any other wall thickness used. For thermoplastic pipe (TP) take into account the annular space requirements for grouted connections.

(2) Slope as shown elsewhere in the plans. Slope of 6:1 or flatter is required for vehicle safety.

(3) Toewall to be used only when dimension is shown elsewhere in the plans.

(4) Fill the top 4" of void between precast end treatments with concrete riprap. Concrete riprap is considered subsidiary to the Item 467, "Safety End Treatment".

(5) Adjust clear distance between pipes to provide for the minimum distance between safety end treatments.

(6) Provide cement stabilized bedding and backfill in accordance with the Item 400, "Excavation and Backfill for Structures". Bedding and backfill is considered subsidiary to the Item 467, "Safety End Treatment". When concrete riprap is specified around the safety end treatment, backfill as directed by Engineer.

(7) Thermoplastic pipe wall thickness may vary. Adjust accordingly. Thermoplastic pipe requires the safety end treatments to have a bell end for grouted connections.

GENERAL NOTES:

Precast safety end treatment for reinforced concrete pipe (RCP), and thermoplastic pipe (TP) may be used for TYPE II end treatment as specified in Item "Safety End Treatment".

When precast safety end treatment is used as a Contractor's alternate to mitered RCP, riprap will not be required unless noted otherwise on the plans.

Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.

Manufacture this product in accordance with Item 467, "Safety End Treatment" except as noted below :

A. Provide minimum reinforcing of #4 at 6" (Grade 40) or #4 at 9" (Grade 60) each way or 6"x6" – D12 x D12 or 5"x5" – D10 x D10 welded wire reinforcement (WWR).

B. For precast (steel formed) sections, provide Class "C" concrete (f'c = 3,600 psi).

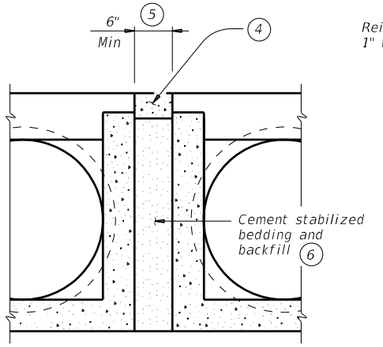
At the option and expense of the Contractor the next larger size of safety end treatment may be furnished; as long as the "D" dimension cast is that of the required size of pipe.

Pipe runners are designed for a traversing load of 10,000 Lbs at yield as recommended by Research Report 280-2F, "Safety Treatment of Roadside Parallel-Drainage Structures", Texas Transportation Institute, March 1981.

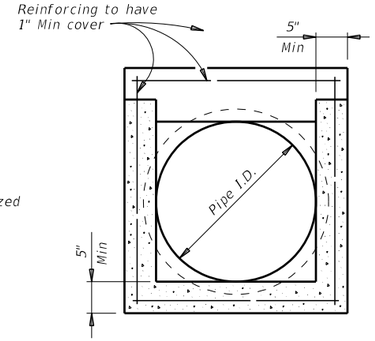
Provide pipe runners meeting the requirements of ASTM A53 (Type E or S, Grade B), ASTM A500 (Grade B), or API 5LX52.

Galvanize all steel components except reinforcing steel after fabrication. Repair galvanizing damaged during transport or construction in accordance with the specifications.

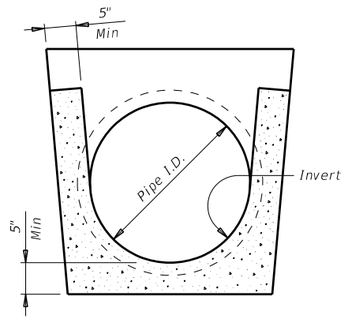
Connect RCP using the Optional Joint for RCP detail shown or in accordance with Item 464, "Reinforced Concrete Pipe". Connect TP by grouting. See PBGC standard for grouted connections with TP and precast safety end treatment.



MULTIPLE PIPE INSTALLATION

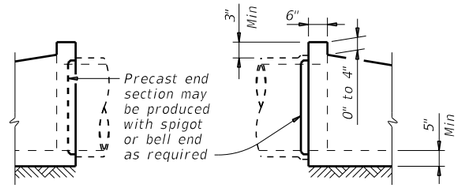


OPTION WITH SQUARE BOTTOM



OPTION WITH INVERT BOTTOM

SECTION A-A



OPTIONAL JOINT FOR RCP

(Showing joint between RCP and precast safety end treatment.)

Texas Department of Transportation

Bridge Division Standard

PRECAST SAFETY END TREATMENT

TYPE II ~ PARALLEL DRAINAGE

PSET-SP

FILE: psetspss-20.dgn	DN: RLW	CK: KLR	DW: JTR	CK: GAF
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043,ETC	US 385,ETC
	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		150

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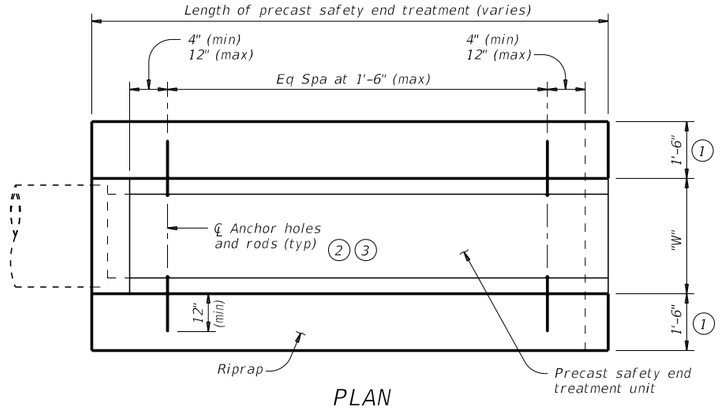
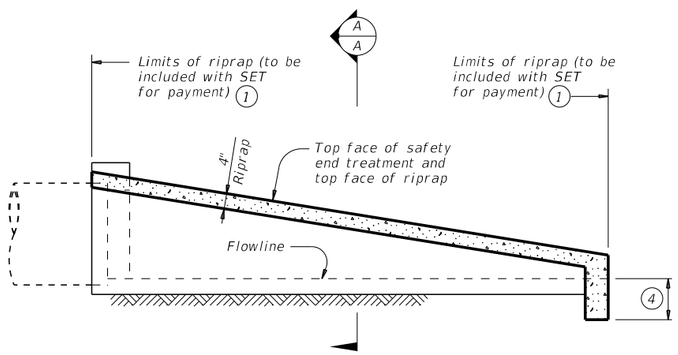
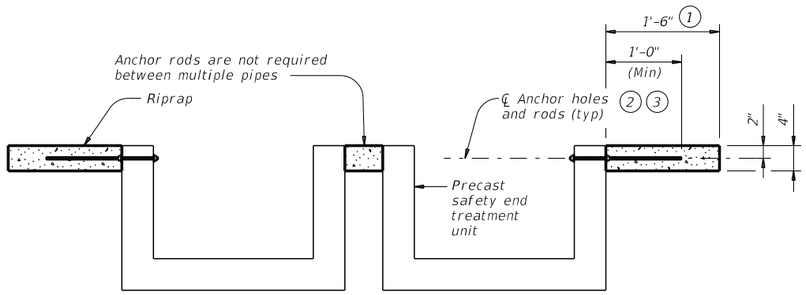


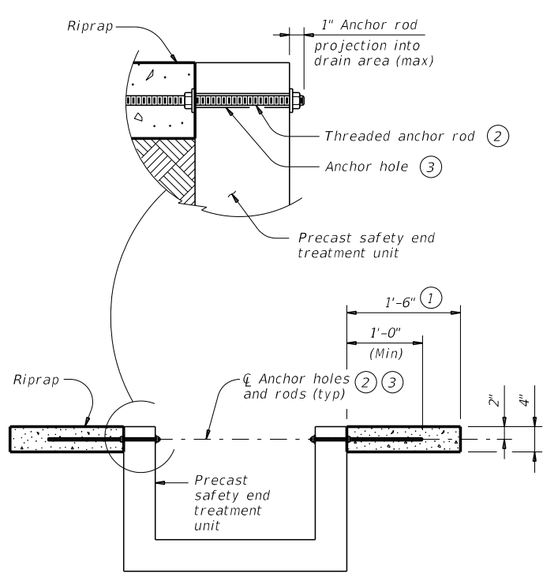
PLAN



LONGITUDINAL ELEVATION



MULTIPLE PIPE INSTALLATION



SINGLE PIPE INSTALLATION

SECTION A-A

ESTIMATED CONCRETE RIPRAP QUANTITIES (CY) 5

Nominal Culvert (Pipe) I.D.	PSET-SC and PSET-SP Standards				PSET-RC and PSET-RP Standards			
	Unit Width "W"	Side Slope			Unit Width "W"	Side Slope		
		3:1	4:1	6:1		3:1	4:1	6:1
12"	23.0"	0.1	0.2	0.2	16.0"	0.1	0.1	0.2
15"	26.5"	0.2	0.2	0.3	19.5"	0.1	0.2	0.2
18"	30.0"	0.2	0.2	0.3	23.0"	0.2	0.2	0.3
24"	37.0"	0.3	0.3	0.5	30.0"	0.2	0.3	0.4
30"	44.5"	0.3	0.4	0.6	37.0"	0.3	0.3	0.5
36"	51.5"	0.4	0.5	0.7	44.0"	0.3	0.4	0.6
42"	58.5"	0.5	0.6	0.8	51.0"	0.4	0.5	0.7

(1) Riprap placed beyond the limits shown will be paid as concrete riprap in accordance with Item 432, "Riprap". When riprap is cast integrally with the precast safety end treatment, this dimension is 1'-0" minimum.

(2) 1#2" Dia ASTM A307 Gr A threaded anchor rod with 2 nuts and 2 washers. Galvanize all components in accordance with Item 445, "Galvanizing". Repair galvanizing that is damaged during transport or construction in accordance with the specifications.

(3) 3#4" through holes in walls of safety end treatment for riprap anchor rods may be drilled with rotary (coring or masonry) type drilling equipment or may be formed. Do not use percussive (star) type drilling equipment. If holes are drilled, patch spalls in the inside face of the wall exceeding 1#2" from the holes.

(4) Provide riprap toe wall when dimension is shown elsewhere in the plans or when field conditions require a toe wall.

(5) Quantities shown are for one end of one reinforced concrete pipe culvert. For multiple pipe culverts, quantities will need to be adjusted. Riprap quantities are for Contractor's information only. Quantities are based on the minimum unit lengths shown on the Precast Saftey End Treatment (SET) standard sheets.

MATERIAL NOTES:

Provide Class "B" riprap in accordance with Item 432, "Riprap".
Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise. The anchor rods shown are always required.

GENERAL NOTES:

Precast safety end treatment for reinforced concrete pipe may be used for TYPE II end treatment as specified in Item 467, "Safety End Treatment".
Refer to PSET-SC or PSET-SP standard sheets for details of square safety end treatments not shown. Refer to PSET-RC or PSET-RP standard sheets for details of round safety end treatments not shown.
For precast units with integrally cast riprap, substitute reinforcing steel in the amount on 0.26 in./ft. minimum for the threaded anchor rods shown. When requested, submit sealed engineering drawings for approval prior to construction. Shop drawings will not be required. Note that a proprietary precast unit with integral riprap is available from L&R Precast Concrete Works, Inc. (956) 583-6293 or www.lrprecast.com.
Payment for riprap and toewalls is included in the price bid for each safety end treatment.

These riprap details are only applicable when notes that require placement of riprap with precast safety end treatments are shown elsewhere in the plans.

Precast units with integrally cast riprap are permitted unless noted otherwise on the plans.

Texas Department of Transportation

Bridge Division Standard

PRECAST SAFETY END TREATMENT
TYPE II
RIPRAP DETAILS

PSET-RR

FILE: psetrrse-20.dgn	DN: GAF	CK: TxDOT	DW: JRP	CK: GAF
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
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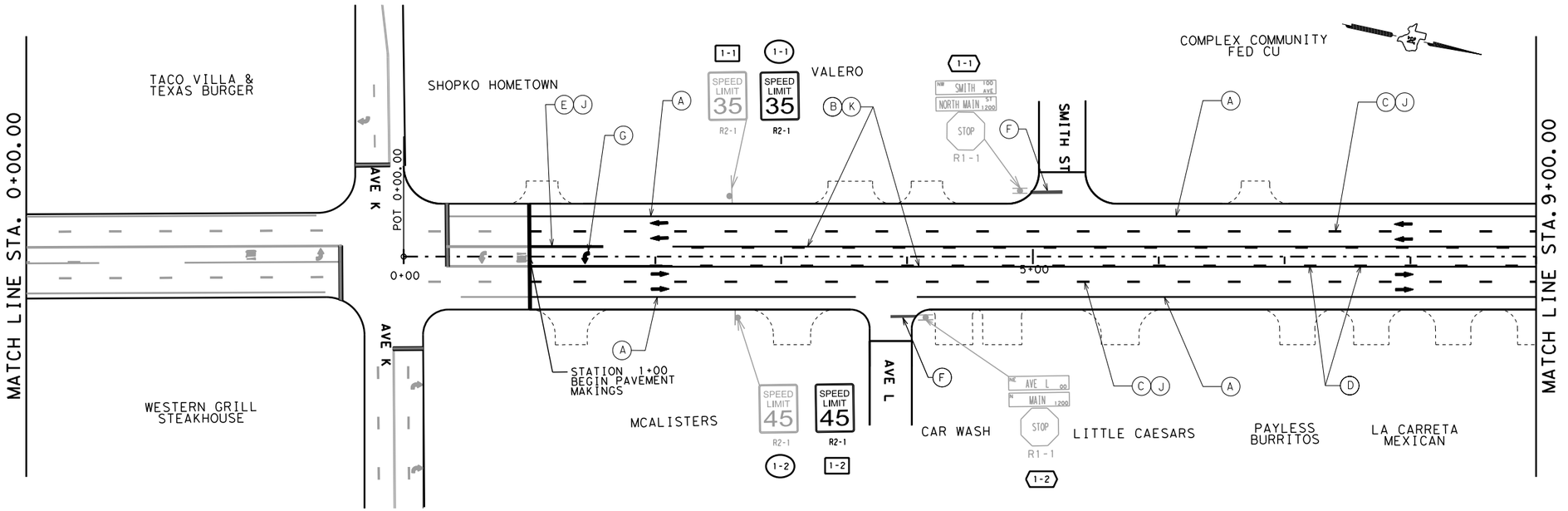
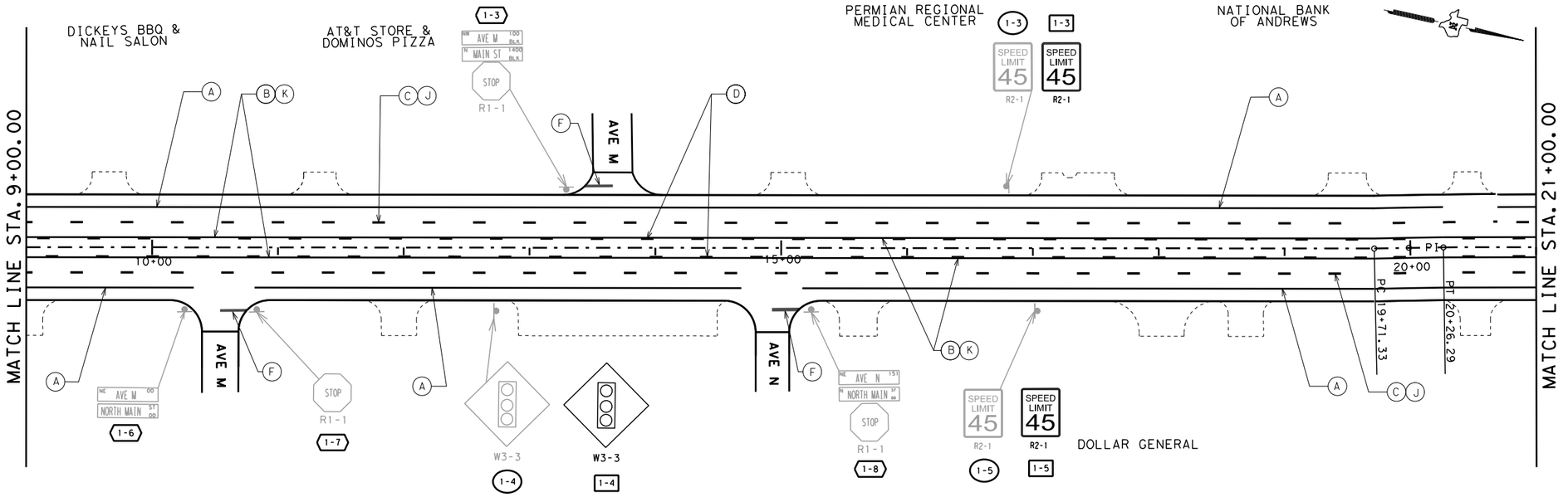
	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		151





LEGEND

- (A) RE PM W/RET REQ TY I (W) 4" (SLD) (100MIL)
- (B) RE PM W/RET REQ TY I (Y) 4" (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (W) 4" (BRK) (100MIL)
- (D) RE PM W/RET REQ TY I (Y) 4" (BRK) (100MIL)
- (E) REFL PAV MRK TY I (W) 8" (SLD) (100MIL)
- (F) REFL PAV MRK TY I (W) 24" (SLD) (100MIL)
- (G) PREFAB PAV MRK TY C (W) (ARROW)
- (H) PREFAB PAV MRK TY C (W) 36" (YLD TRI)
- (I) PREFAB PAV MRK TY C (W) (WORD)
- (J) REFL PAV MRKR TY I-C
- (K) REFL PAV MRKR TY II-A-A
- (L) REFL PAV MRK TY II-C-R
- (M) RUMBLE STRIPS (SHOULDER)
- (N) REFL PAV MARK TY I (W) 4" (DOT) (100 MIL)
- (O) REFL PAV MRK TY I (W) 8" (DOT) (100MIL)
- SIGN (SMALL SIGN)
- SIGN (LARGE SIGN)
- TYPE D-DY DELINEATOR (CROSSOVER)
- #-# EXISTING SMALL SIGN TO REMAIN & NUMBER (SHEET AND SIGN NUMBER)
- #-# PROPOSED SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- #-# REMOVE EXISTING SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- R-#-# PROPOSED ALUMINIUM SIGN (REPLACEMENT AND NUMBER)
- L-# PROPOSED LARGE SIGN & NUMBER
- L-# REMOVE EXISTING LARGE SIGN & NUMBER
- DIRECTIONAL TRAFFIC FLOW

0 25 50 100 FT
HORIZONTAL SCALE

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385 SIGNING AND PAVEMENT MARKING LAYOUT

STA 00+00.00 to STA 21+00.00

SHEET 1 OF 31

Texas Department of Transportation

LOCHNER
TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		152
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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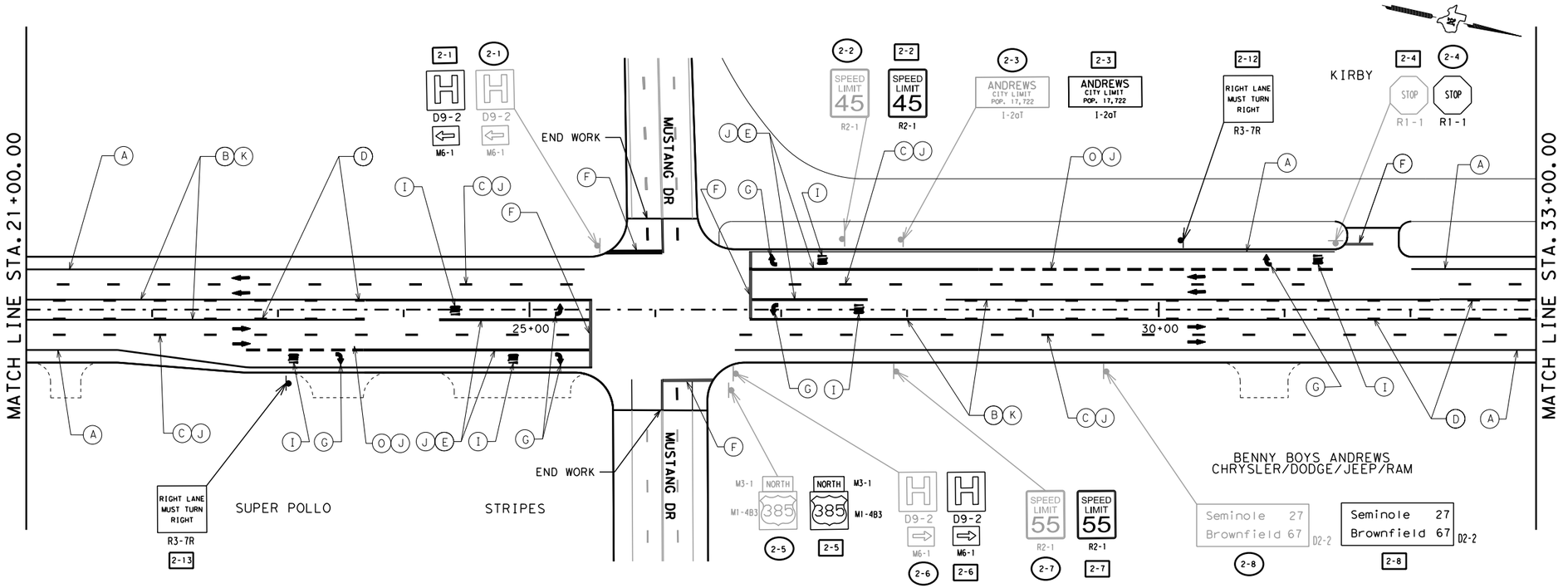

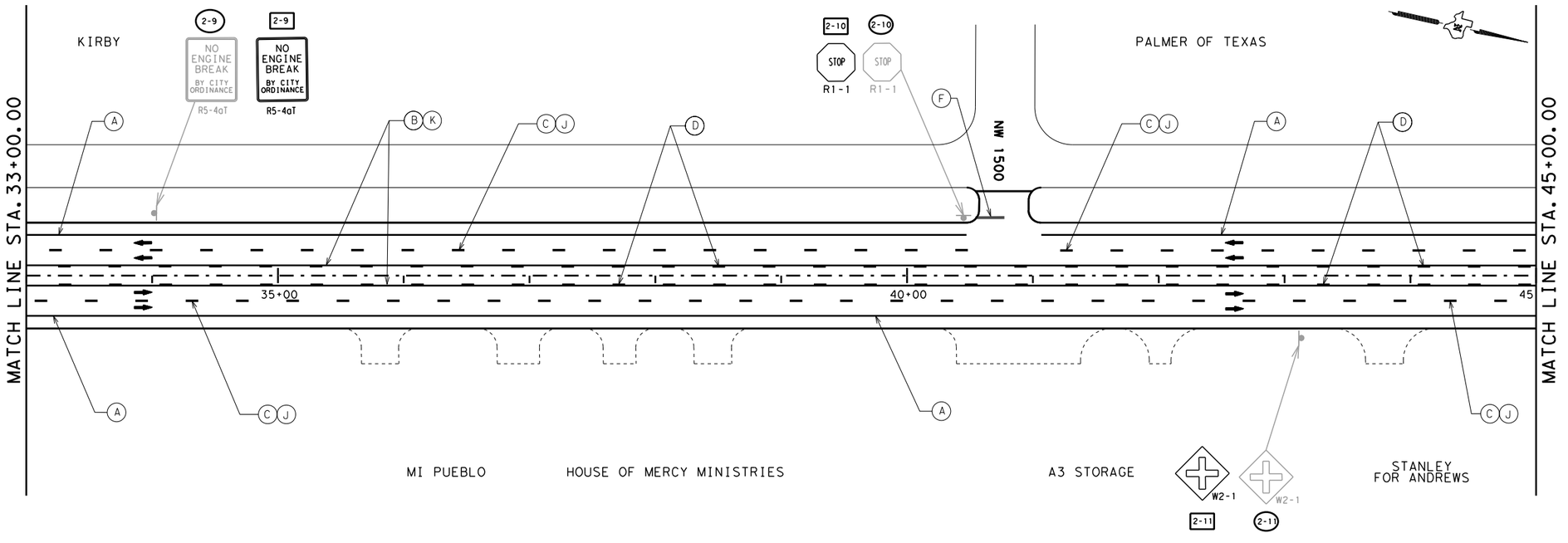

LEGEND

- (A) RE PM W/RET REQ TY I (W)4"(SLD)(100MIL)
- (B) RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)
- (C) RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)
- (D) RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)
- (E) REFL PAV MRK TY I (W)8"(SLD)(100MIL)
- (F) REFL PAV MRK TY I (W)24"(SLD)(100MIL)
- (G) PREFAB PAV MRK TY C (W)(ARROW)
- (H) PREFAB PAV MRK TY C (W)36"(YLD TRI)
- (I) PREFAB PAV MRK TY C (W)(WORD)
- (J) REFL PAV MRKR TY I-C
- (K) REFL PAV MRKR TY II-A-A
- (L) REFL PAV MRK TY II-C-R
- (M) RUMBLE STRIPS (SHOULDER)
- (N) REFL PAV MARK TY I (W) 4" (DOT) (100 MIL)
- (O) REFL PAV MRK TY I (W)8"(DOT)(100MIL)
- SIGN (SMALL SIGN)
- SIGN (LARGE SIGN)
- TYPE D-DY DELINEATOR (CROSSOVER)
- #-# EXISTING SMALL SIGN TO REMAIN & NUMBER (SHEET AND SIGN NUMBER)
- #-# PROPOSED SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- (#-#) REMOVE EXISTING SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- R-#-# PROPOSED ALUMINIUM SIGN (REPLACEMENT AND NUMBER)
- L-# PROPOSED LARGE SIGN & NUMBER
- (L-#) REMOVE EXISTING LARGE SIGN & NUMBER
- DIRECTIONAL TRAFFIC FLOW

0 25 50 100 FT
HORIZONTAL SCALE

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
SIGNING AND PAVEMENT MARKING LAYOUT

STA 21+00.00 to STA 45+00.00

SHEET 2 OF 31

Texas Department of Transportation
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LOCHNER
TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		153
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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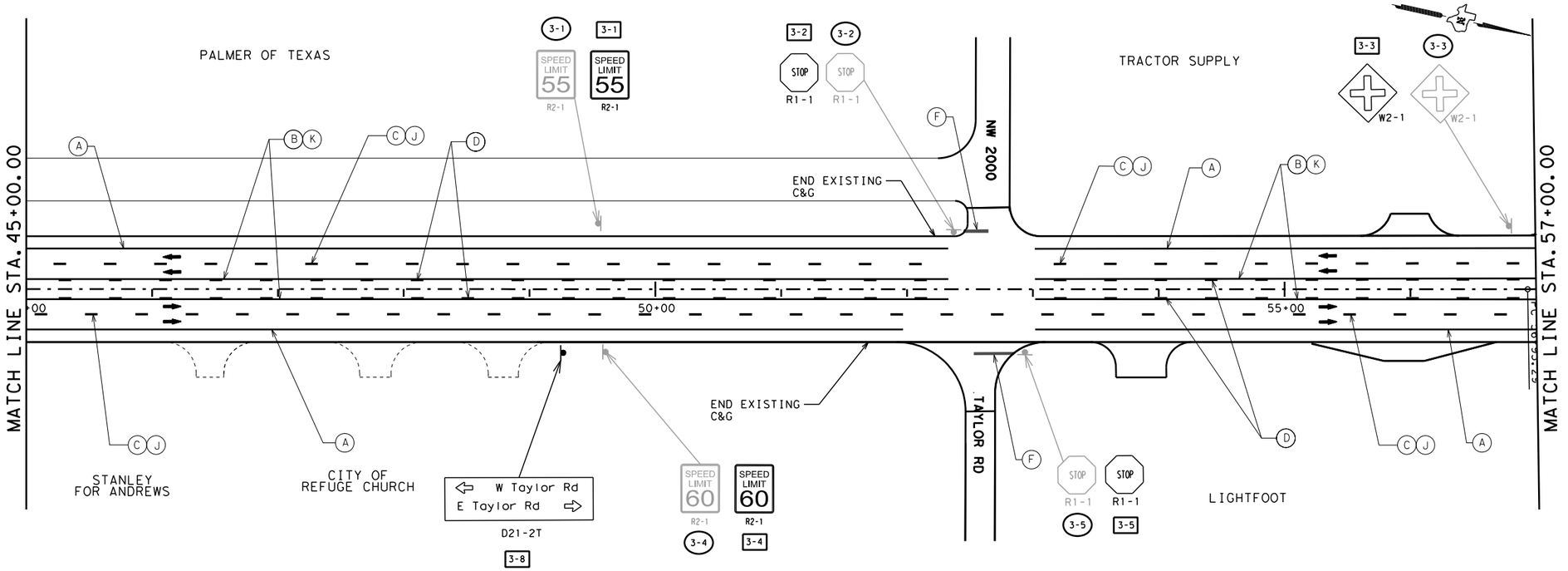

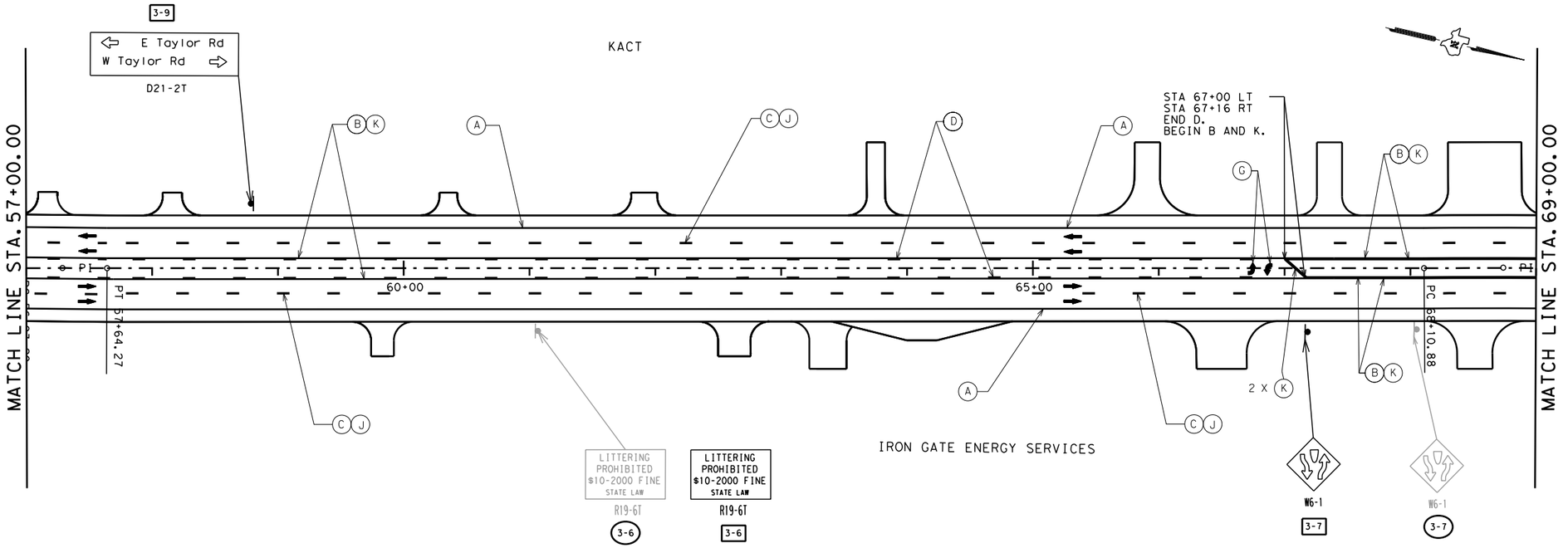

LEGEND

- (A) RE PM W/RET REQ TY I (W)4"(SLD)(100MIL)
- (B) RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)
- (C) RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)
- (D) RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)
- (E) REFL PAV MRK TY I (W)8"(SLD)(100MIL)
- (F) REFL PAV MRK TY I (W)24"(SLD)(100MIL)
- (G) PREFAB PAV MRK TY C (W)(ARROW)
- (H) PREFAB PAV MRK TY C (W)36"(YLD TRI)
- (I) PREFAB PAV MRK TY C (W)(WORD)
- (J) REFL PAV MRKR TY I-C
- (K) REFL PAV MRKR TY II-A-A
- (L) REFL PAV MRK TY II-C-R
- (M) RUMBLE STRIPS (SHOULDER)
- (N) REFL PAV MARK TY I (W) 4" (DOT) (100 MIL)
- (O) REFL PAV MRK TY I (W)8"(DOT)(100MIL)
- SIGN (SMALL SIGN)
- SIGN (LARGE SIGN)
- TYPE D-DY DELINEATOR (CROSSOVER)
- #-# EXISTING SMALL SIGN TO REMAIN & NUMBER (SHEET AND SIGN NUMBER)
- #-# PROPOSED SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- #-# REMOVE EXISTING SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- R-#-# PROPOSED ALUMINIUM SIGN (REPLACEMENT AND NUMBER)
- L-# PROPOSED LARGE SIGN & NUMBER
- L-# REMOVE EXISTING LARGE SIGN & NUMBER
- DIRECTIONAL TRAFFIC FLOW

0 25 50 100 FT
HORIZONTAL SCALE

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385 SIGNING AND PAVEMENT MARKING LAYOUT

STA 45+00.00 to STA 69+00.00

SHEET 3 OF 31

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LOCHNER
TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		154
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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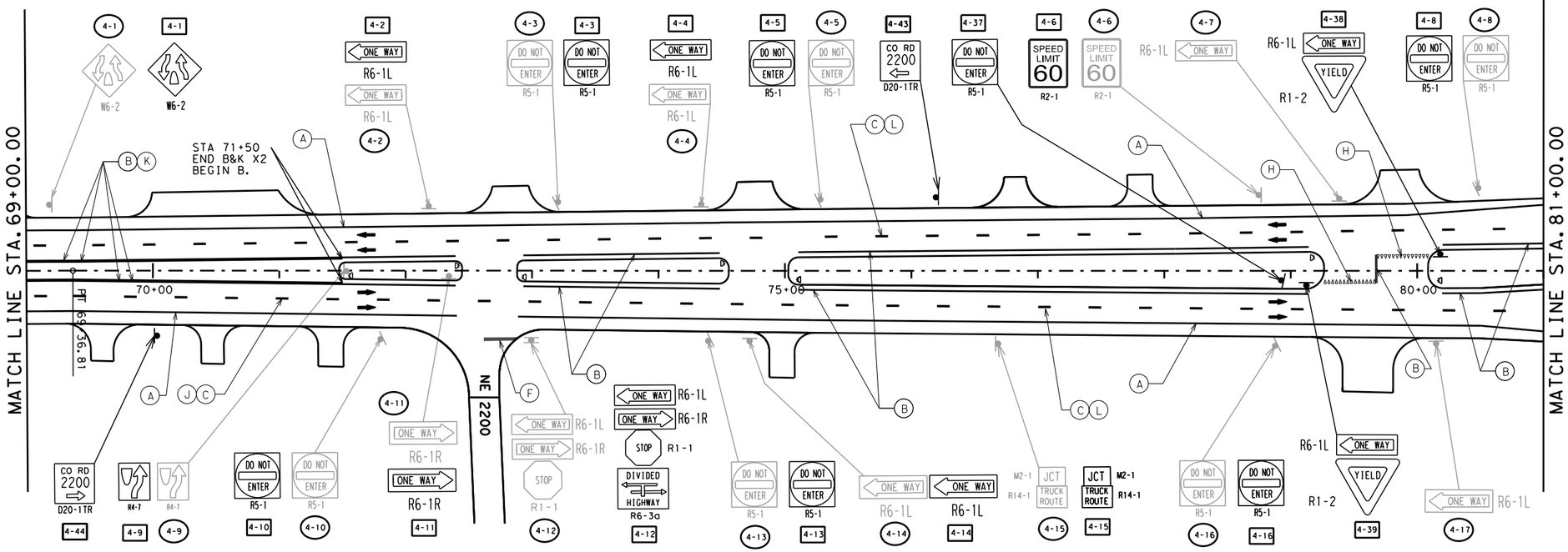

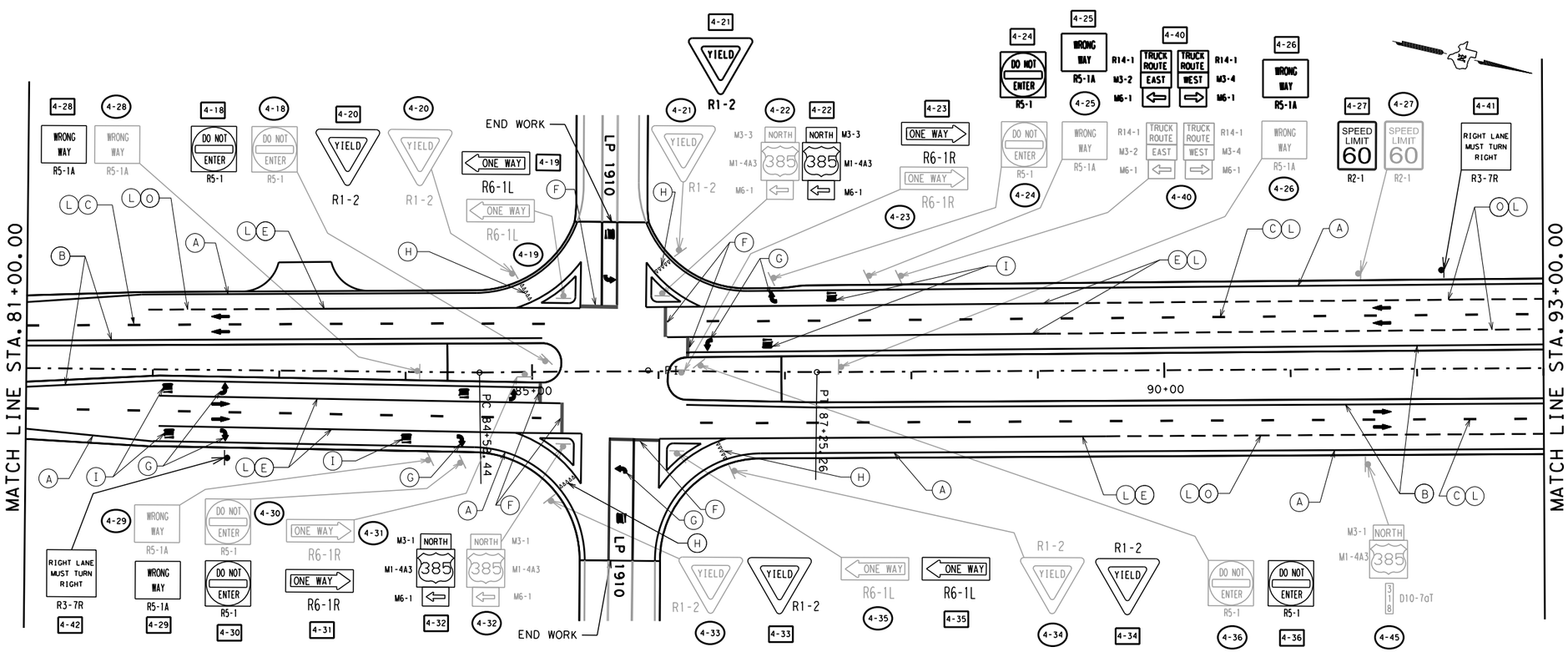

LEGEND

- (A) RE PM W/RET REQ TY I (W) 4" (SLD) (100MIL)
- (B) RE PM W/RET REQ TY I (Y) 4" (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (W) 4" (BRK) (100MIL)
- (D) RE PM W/RET REQ TY I (Y) 4" (BRK) (100MIL)
- (E) REFL PAV MRK TY I (W) 8" (SLD) (100MIL)
- (F) REFL PAV MRK TY I (W) 24" (SLD) (100MIL)
- (G) PREFAB PAV MRK TY C (W) (ARROW)
- (H) PREFAB PAV MRK TY C (W) 36" (YLD TRI)
- (I) PREFAB PAV MRK TY C (W) (WORD)
- (J) REFL PAV MRKR TY I-C
- (K) REFL PAV MRKR TY II-A-A
- (L) REFL PAV MRK TY II-C-R
- (M) RUMBLE STRIPS (SHOULDER)
- (N) REFL PAV MARK TY I (W) 4" (DOT) (100 MIL)
- (O) REFL PAV MRK TY I (W) 8" (DOT) (100MIL)
- SIGN (SMALL SIGN)
- SIGN (LARGE SIGN)
- TYPE D-DY DELINEATOR (CROSSOVER)
- #-# EXISTING SMALL SIGN TO REMAIN & NUMBER (SHEET AND SIGN NUMBER)
- #-# PROPOSED SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- #-# REMOVE EXISTING SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- R-#-# PROPOSED ALUMINIUM SIGN (REPLACEMENT AND NUMBER)
- L-# PROPOSED LARGE SIGN & NUMBER
- (L-#) REMOVE EXISTING LARGE SIGN & NUMBER
- DIRECTIONAL TRAFFIC FLOW

0 25 50 100 FT
HORIZONTAL SCALE

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
SIGNING AND PAVEMENT MARKING LAYOUT

STA 69+00.00 to STA 93+00.00

SHEET 4 OF 31

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FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		155
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

FILE: A385HA4.dgn
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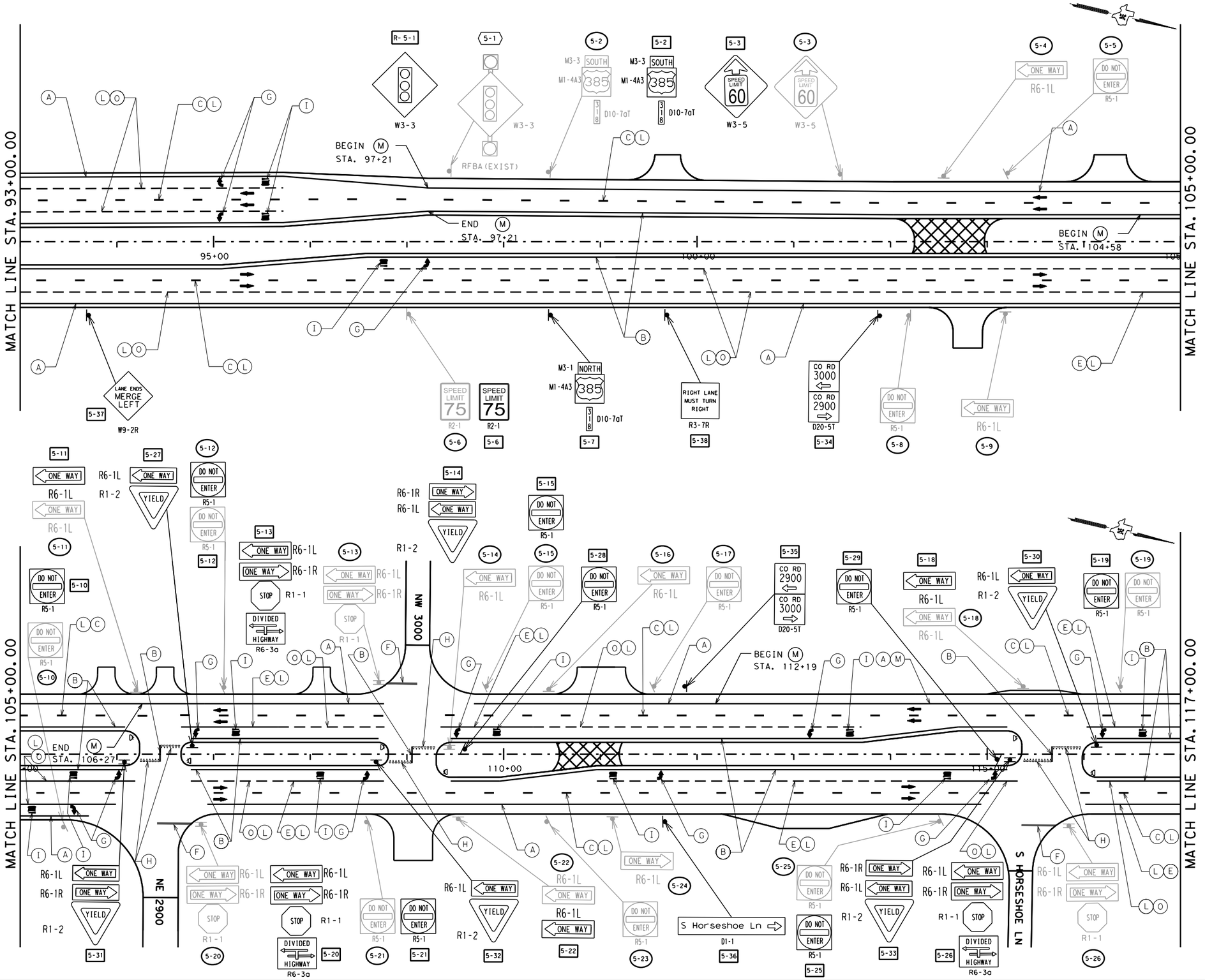

LEGEND

- (A) RE PM W/RET REQ TY I (W) 4" (SLD) (100MIL)
- (B) RE PM W/RET REQ TY I (Y) 4" (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (W) 4" (BRK) (100MIL)
- (D) RE PM W/RET REQ TY I (Y) 4" (BRK) (100MIL)
- (E) REFL PAV MRK TY I (W) 8" (SLD) (100MIL)
- (F) REFL PAV MRK TY I (W) 24" (SLD) (100MIL)
- (G) PREFAB PAV MRK TY C (W) (ARROW)
- (H) PREFAB PAV MRK TY C (W) 36" (YLD TRI)
- (I) PREFAB PAV MRK TY C (W) (WORD)
- (J) REFL PAV MRKR TY I-C
- (K) REFL PAV MRKR TY II-A-A
- (L) REFL PAV MRK TY II-C-R
- (M) RUMBLE STRIPS (SHOULDER)
- (N) REFL PAV MARK TY I (W) 4" (DOT) (100 MIL)
- (O) REFL PAV MRK TY I (W) 8" (DOT) (100MIL)
- SIGN (SMALL SIGN)
- SIGN (LARGE SIGN)
- TYPE D-DY DELINEATOR (CROSSOVER)
- #-# EXISTING SMALL SIGN TO REMAIN & NUMBER (SHEET AND SIGN NUMBER)
- #-# PROPOSED SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- (#-#) REMOVE EXISTING SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- R-#-# PROPOSED ALUMINIUM SIGN (REPLACEMENT AND NUMBER)
- L-# PROPOSED LARGE SIGN & NUMBER
- (L-#) REMOVE EXISTING LARGE SIGN & NUMBER
- DIRECTIONAL TRAFFIC FLOW

0 25 50 100 FT
HORIZONTAL SCALE

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
SIGNING AND PAVEMENT MARKING LAYOUT

STA 93+00.00 to STA 117+00.00

SHEET 5 OF 31

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FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		156
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

FILE: A385HA5.dgn
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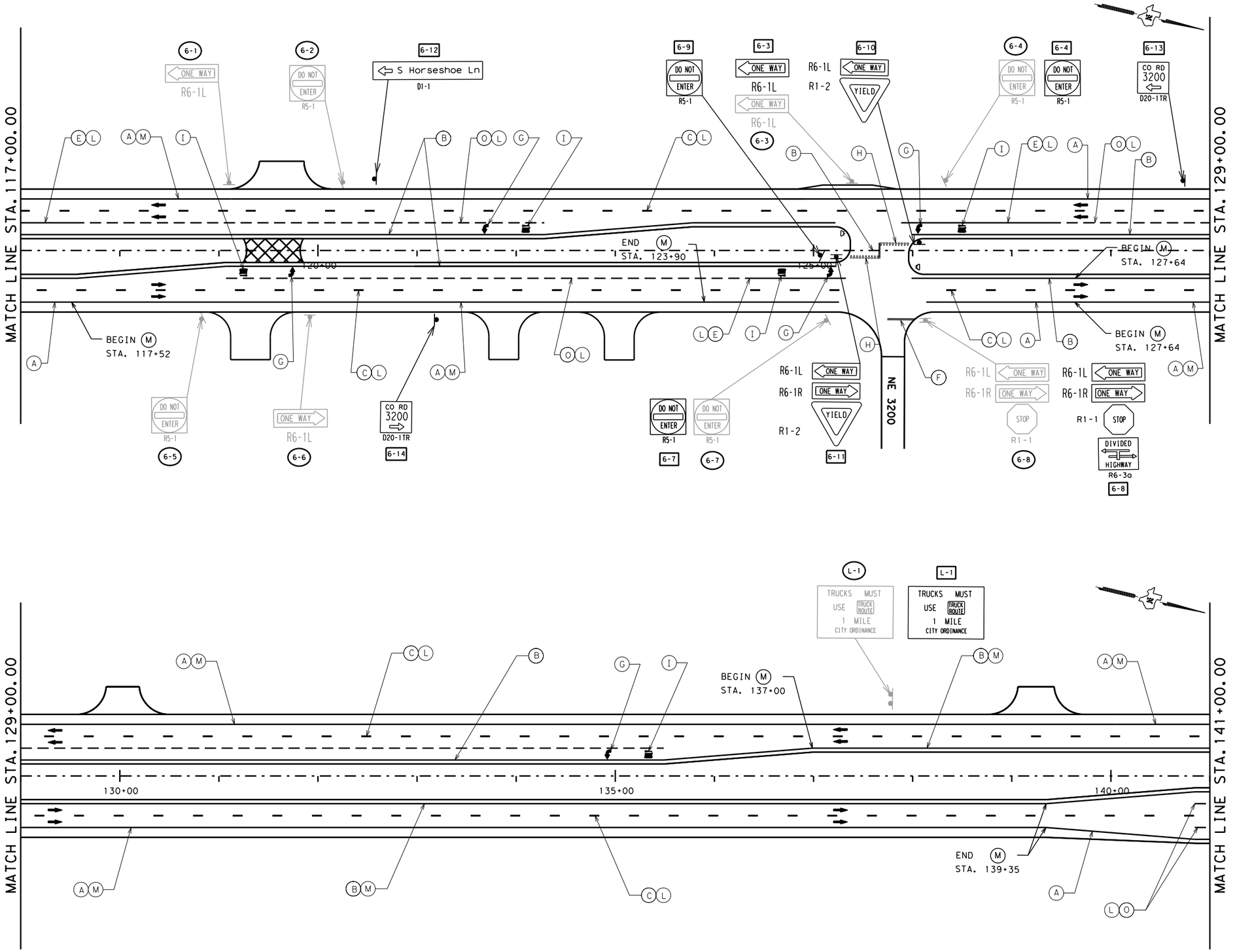

LEGEND

- (A) RE PM W/RET REQ TY I (W)4"(SLD)(100MIL)
- (B) RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)
- (C) RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)
- (D) RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)
- (E) REFL PAV MRK TY I (W)8"(SLD)(100MIL)
- (F) REFL PAV MRK TY I (W)24"(SLD)(100MIL)
- (G) PREFAB PAV MRK TY C (W)(ARROW)
- (H) PREFAB PAV MRK TY C (W)36"(YLD TRI)
- (I) PREFAB PAV MRK TY C (W)(WORD)
- (J) REFL PAV MRKR TY I-C
- (K) REFL PAV MRKR TY II-A-A
- (L) REFL PAV MRK TY II-C-R
- (M) RUMBLE STRIPS (SHOULDER)
- (N) REFL PAV MARK TY I (W) 4" (DOT) (100 MIL)
- (O) REFL PAV MRK TY I (W)8"(DOT)(100MIL)
- SIGN (SMALL SIGN)
- SIGN (LARGE SIGN)
- TYPE D-DY DELINEATOR (CROSSOVER)
- #-# EXISTING SMALL SIGN TO REMAIN & NUMBER (SHEET AND SIGN NUMBER)
- #-# PROPOSED SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- #-# REMOVE EXISTING SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- R-#-# PROPOSED ALUMINIUM SIGN (REPLACEMENT AND NUMBER)
- L-# PROPOSED LARGE SIGN & NUMBER
- L-# REMOVE EXISTING LARGE SIGN & NUMBER
- DIRECTIONAL TRAFFIC FLOW

0 25 50 100 FT
HORIZONTAL SCALE

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
SIGNING AND PAVEMENT MARKING LAYOUT

STA 117+00.00 to STA 141+00.00

SHEET 6 OF 31

Texas Department of Transportation

LOCHNER
TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		157
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

FILE: A385HA6.dgn
DATE: 5/28/2020 TIME: 8:22:33 PM
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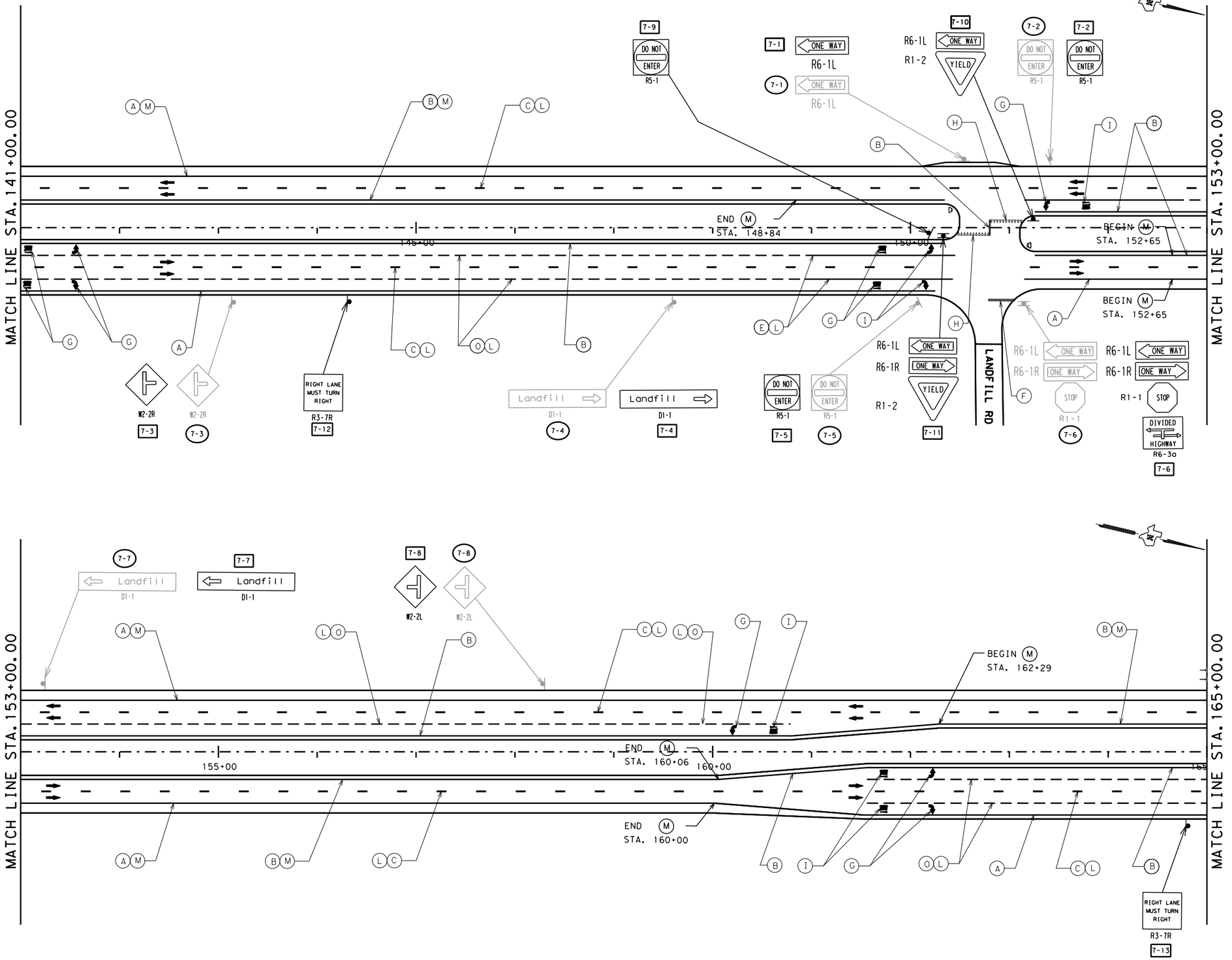

LEGEND

- (A) RE PM W/RET REQ TY I (W)4"(SLD)(100MIL)
- (B) RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)
- (C) RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)
- (D) RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)
- (E) REFL PAV MRK TY I (W)8"(SLD)(100MIL)
- (F) REFL PAV MRK TY I (W)24"(SLD)(100MIL)
- (G) PREFAB PAV MRK TY C (W)(ARROW)
- (H) PREFAB PAV MRK TY C (W)36"(YLD TRI)
- (I) PREFAB PAV MRK TY C (W)(WORD)
- (J) REFL PAV MRKR TY I-C
- (K) REFL PAV MRKR TY II-A-A
- (L) REFL PAV MRK TY II-C-R
- (M) RUMBLE STRIPS (SHOULDER)
- (N) REFL PAV MARK TY I (W) 4" (DOT) (100 MIL)
- (O) REFL PAV MRK TY I (W)8"(DOT)(100MIL)
- SIGN (SMALL SIGN)
- SIGN (LARGE SIGN)
- TYPE D-DY DELINEATOR (CROSSOVER)
- (#-#) EXISTING SMALL SIGN TO REMAIN & NUMBER (SHEET AND SIGN NUMBER)
- [#-#] PROPOSED SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- (#-#) REMOVE EXISTING SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- [R-#-#] PROPOSED ALUMINIUM SIGN (REPLACEMENT AND NUMBER)
- [L-#] PROPOSED LARGE SIGN & NUMBER
- (L-#) REMOVE EXISTING LARGE SIGN & NUMBER
- DIRECTIONAL TRAFFIC FLOW

0 25 50 100 FT
HORIZONTAL SCALE

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
SIGNING AND PAVEMENT MARKING LAYOUT

STA 141+00.00 to STA 165+00.00

SHEET 7 OF 31

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TBPE Firm Reg. No. 10488

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		158
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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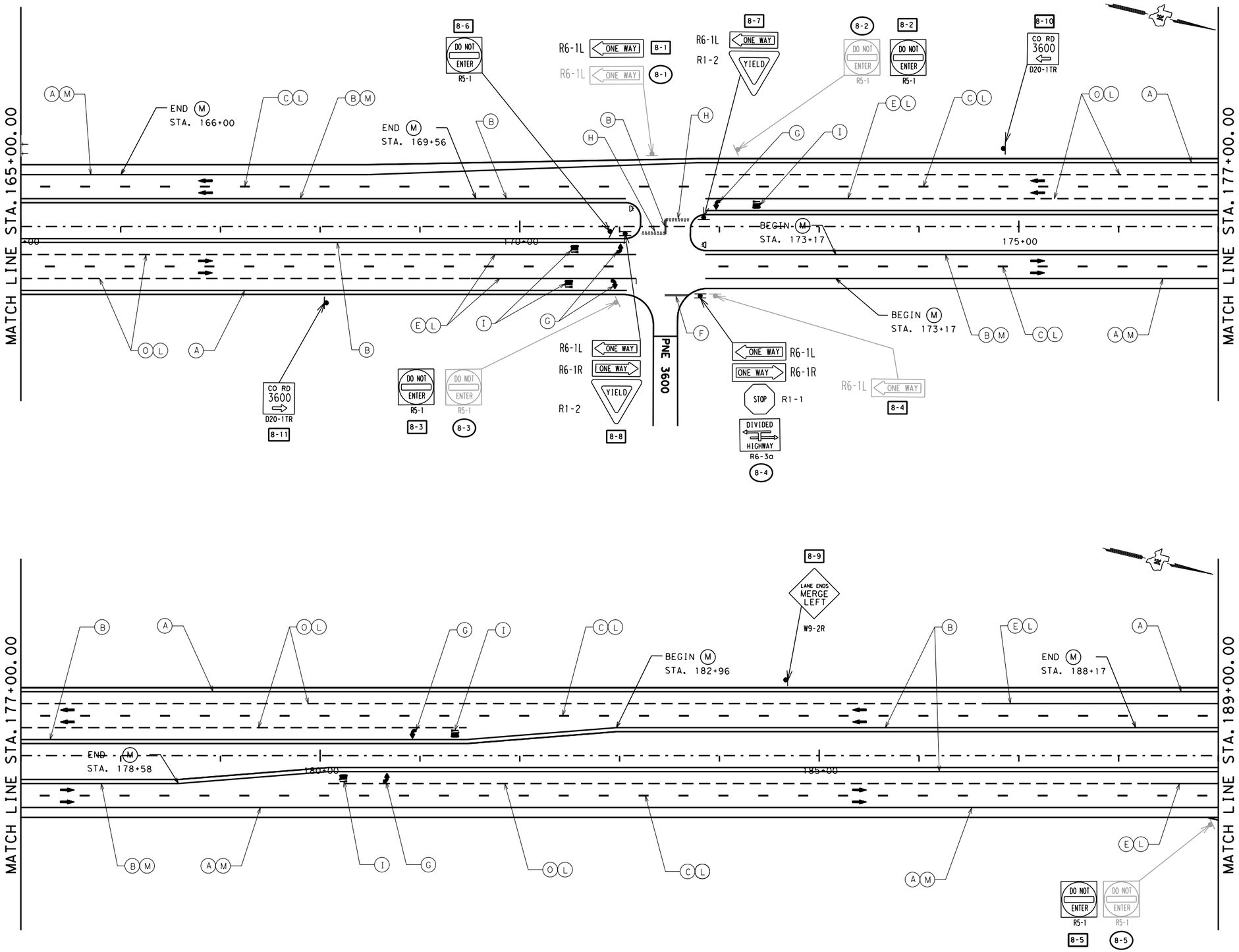

LEGEND

- (A) RE PM W/RET REQ TY I (W)4"(SLD)(100MIL)
- (B) RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)
- (C) RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)
- (D) RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)
- (E) REFL PAV MRK TY I (W)8"(SLD)(100MIL)
- (F) REFL PAV MRK TY I (W)24"(SLD)(100MIL)
- (G) PREFAB PAV MRK TY C (W)(ARROW)
- (H) PREFAB PAV MRK TY C (W)36"(YLD TRI)
- (I) PREFAB PAV MRK TY C (W)(WORD)
- (J) REFL PAV MRKR TY I-C
- (K) REFL PAV MRKR TY II-A-A
- (L) REFL PAV MRK TY II-C-R
- (M) RUMBLE STRIPS (SHOULDER)
- (N) REFL PAV MARK TY I (W) 4" (DOT) (100 MIL)
- (O) REFL PAV MRK TY I (W)8"(DOT)(100MIL)
- SIGN (SMALL SIGN)
- SIGN (LARGE SIGN)
- TYPE D-DY DELINEATOR (CROSSOVER)
- (#-#) EXISTING SMALL SIGN TO REMAIN & NUMBER (SHEET AND SIGN NUMBER)
- [#-#] PROPOSED SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- (#-#) REMOVE EXISTING SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- [R-#-#] PROPOSED ALUMINIUM SIGN (REPLACEMENT AND NUMBER)
- [L-#] PROPOSED LARGE SIGN & NUMBER
- (L-#) REMOVE EXISTING LARGE SIGN & NUMBER
- DIRECTIONAL TRAFFIC FLOW

0 25 50 100 FT
HORIZONTAL SCALE

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
SIGNING AND PAVEMENT MARKING LAYOUT

STA 165+00.00 to STA 189+00.00

SHEET 8 OF 31

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FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		159
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

FILE: A385HA8.dgn
DATE: 5/28/2020 TIME: 8:22:35 PM
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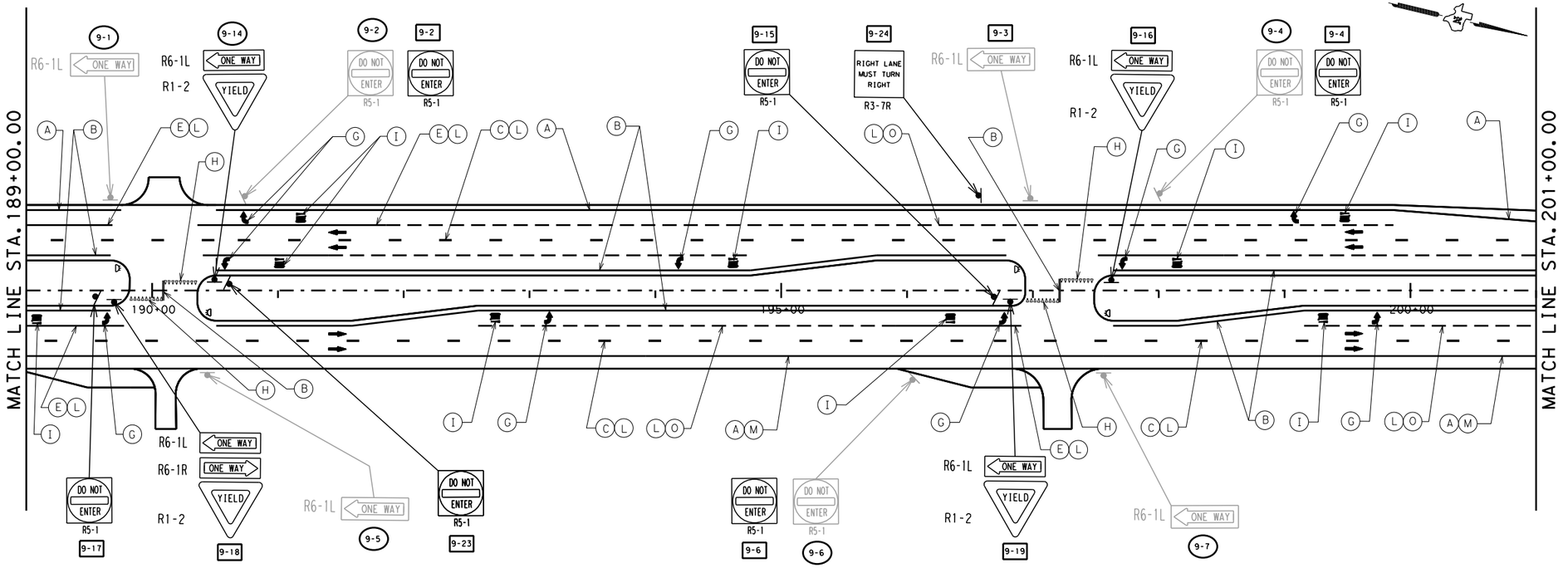

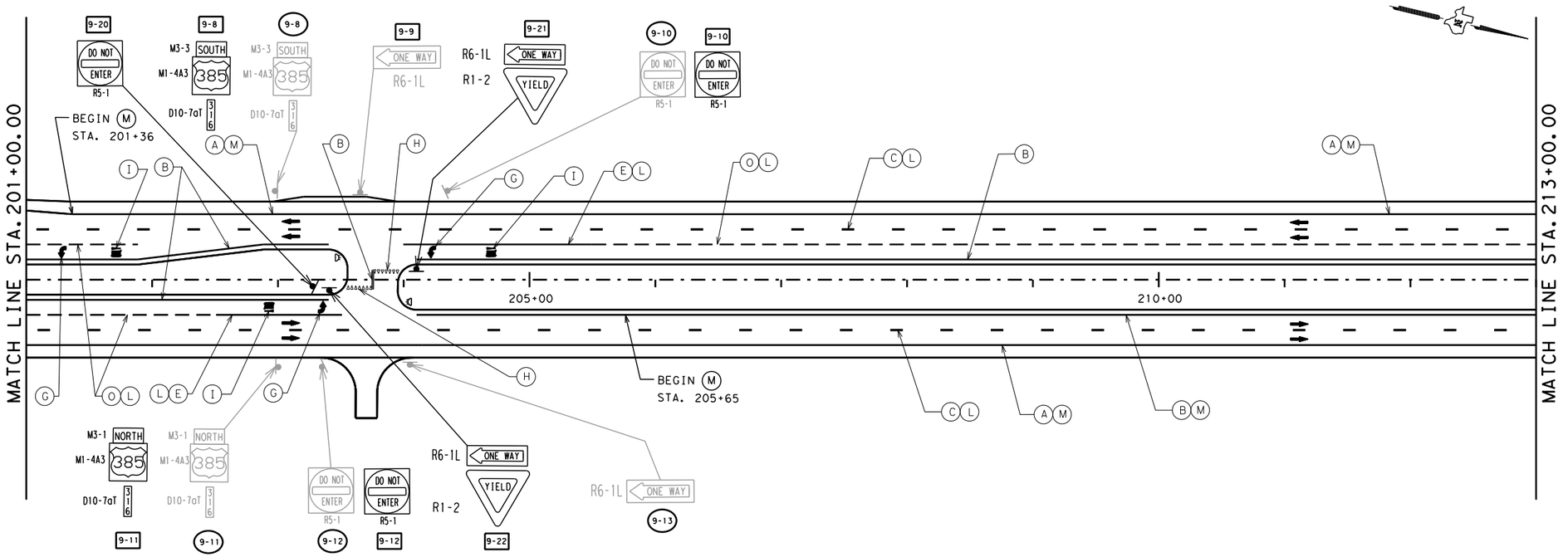

LEGEND

- (A) RE PM W/RET REQ TY I (W)4"(SLD)(100MIL)
- (B) RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)
- (C) RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)
- (D) RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)
- (E) REFL PAV MRK TY I (W)8"(SLD)(100MIL)
- (F) REFL PAV MRK TY I (W)24"(SLD)(100MIL)
- (G) PREFAB PAV MRK TY C (W)(ARROW)
- (H) PREFAB PAV MRK TY C (W)36"(YLD TRI)
- (I) PREFAB PAV MRK TY C (W)(WORD)
- (J) REFL PAV MRKR TY I-C
- (K) REFL PAV MRKR TY II-A-A
- (L) REFL PAV MRK TY II-C-R
- (M) RUMBLE STRIPS (SHOULDER)
- (N) REFL PAV MARK TY I (W) 4" (DOT) (100 MIL)
- (O) REFL PAV MRK TY I (W)8"(DOT)(100MIL)
- SIGN (SMALL SIGN)
- SIGN (LARGE SIGN)
- TYPE D-DY DELINEATOR (CROSSOVER)
- (#-#) EXISTING SMALL SIGN TO REMAIN & NUMBER (SHEET AND SIGN NUMBER)
- [#-#] PROPOSED SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- (#-#) REMOVE EXISTING SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- [R-#-#] PROPOSED ALUMINIUM SIGN (REPLACEMENT AND NUMBER)
- [L-#] PROPOSED LARGE SIGN & NUMBER
- (L-#) REMOVE EXISTING LARGE SIGN & NUMBER
- DIRECTIONAL TRAFFIC FLOW

0 25 50 100 FT
HORIZONTAL SCALE

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
SIGNING AND PAVEMENT MARKING LAYOUT

STA 189+00.00 to STA 213+00.00

SHEET 9 OF 31

Texas Department of Transportation

LOCHNER
TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		160
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

FILE: A385HA9.dgn
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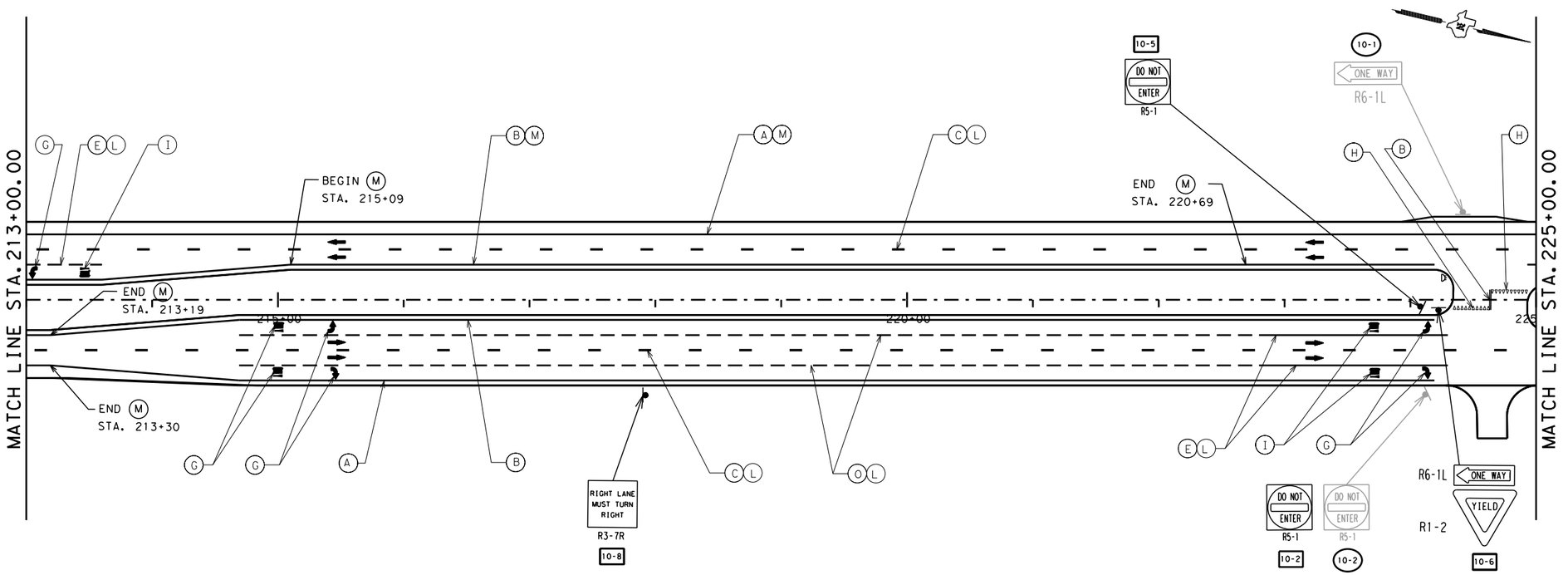

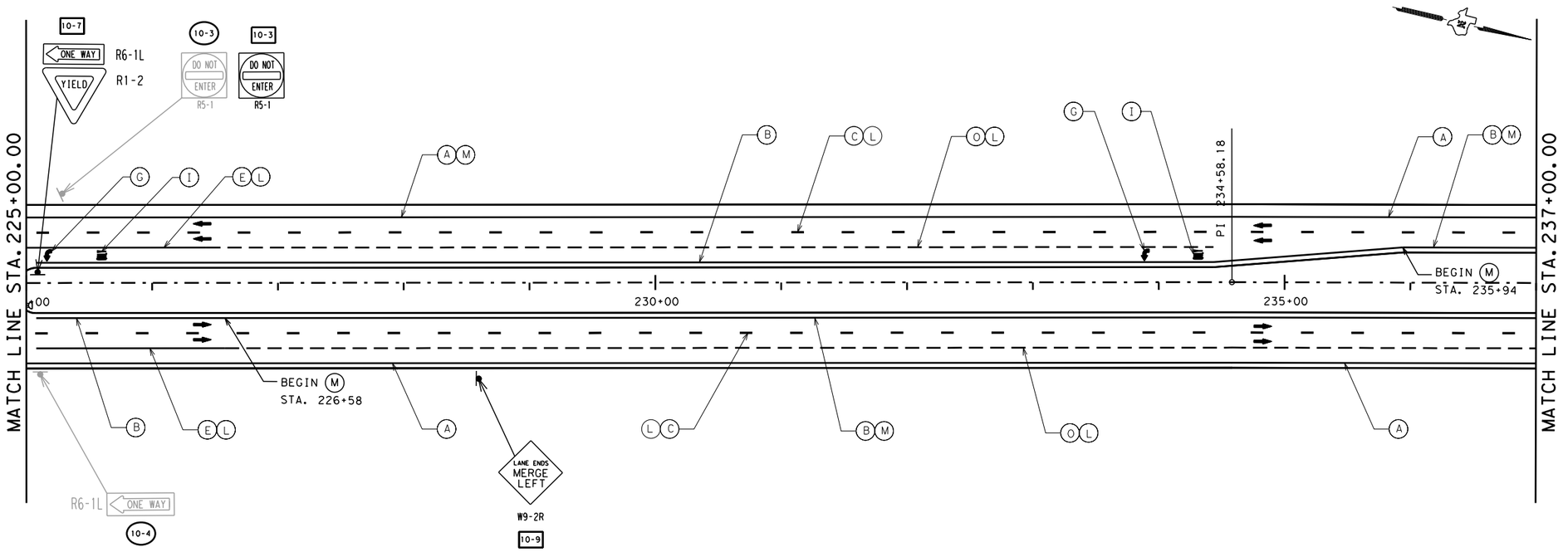

LEGEND

- (A) RE PM W/RET REQ TY I (W)4"(SLD)(100MIL)
- (B) RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)
- (C) RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)
- (D) RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)
- (E) REFL PAV MRK TY I (W)8"(SLD)(100MIL)
- (F) REFL PAV MRK TY I (W)24"(SLD)(100MIL)
- (G) PREFAB PAV MRK TY C (W)(ARROW)
- (H) PREFAB PAV MRK TY C (W)36"(YLD TRI)
- (I) PREFAB PAV MRK TY C (W)(WORD)
- (J) REFL PAV MRKR TY I-C
- (K) REFL PAV MRKR TY II-A-A
- (L) REFL PAV MRK TY II-C-R
- (M) RUMBLE STRIPS (SHOULDER)
- (N) REFL PAV MARK TY I (W) 4" (DOT) (100 MIL)
- (O) REFL PAV MRK TY I (W)8"(DOT)(100MIL)
- SIGN (SMALL SIGN)
- SIGN (LARGE SIGN)
- TYPE D-DY DELINEATOR (CROSSOVER)
- #-# EXISTING SMALL SIGN TO REMAIN & NUMBER (SHEET AND SIGN NUMBER)
- #-# PROPOSED SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- #-# REMOVE EXISTING SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- R-#-# PROPOSED ALUMINIUM SIGN (REPLACEMENT AND NUMBER)
- L-# PROPOSED LARGE SIGN & NUMBER
- L-# REMOVE EXISTING LARGE SIGN & NUMBER
- DIRECTIONAL TRAFFIC FLOW

0 25 50 100 FT
HORIZONTAL SCALE

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
SIGNING AND PAVEMENT MARKING LAYOUT

STA 213+00.00 to STA 237+00.00

SHEET 10 OF 31

Texas Department of Transportation

LOCHNER
TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		161
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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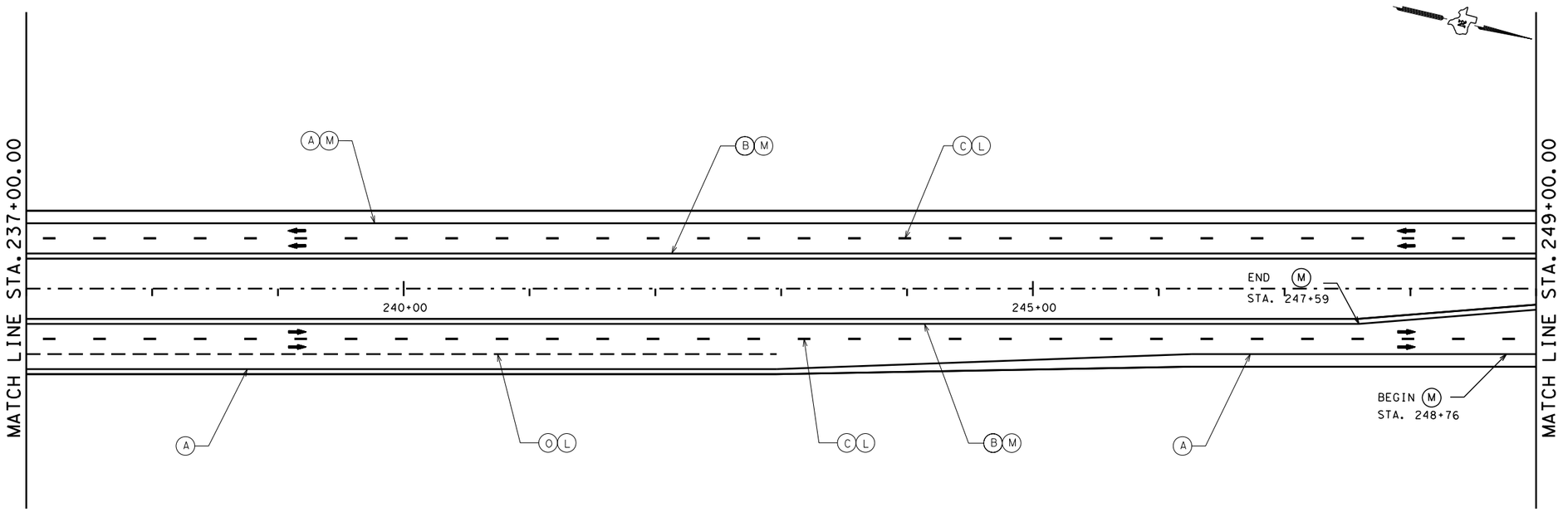

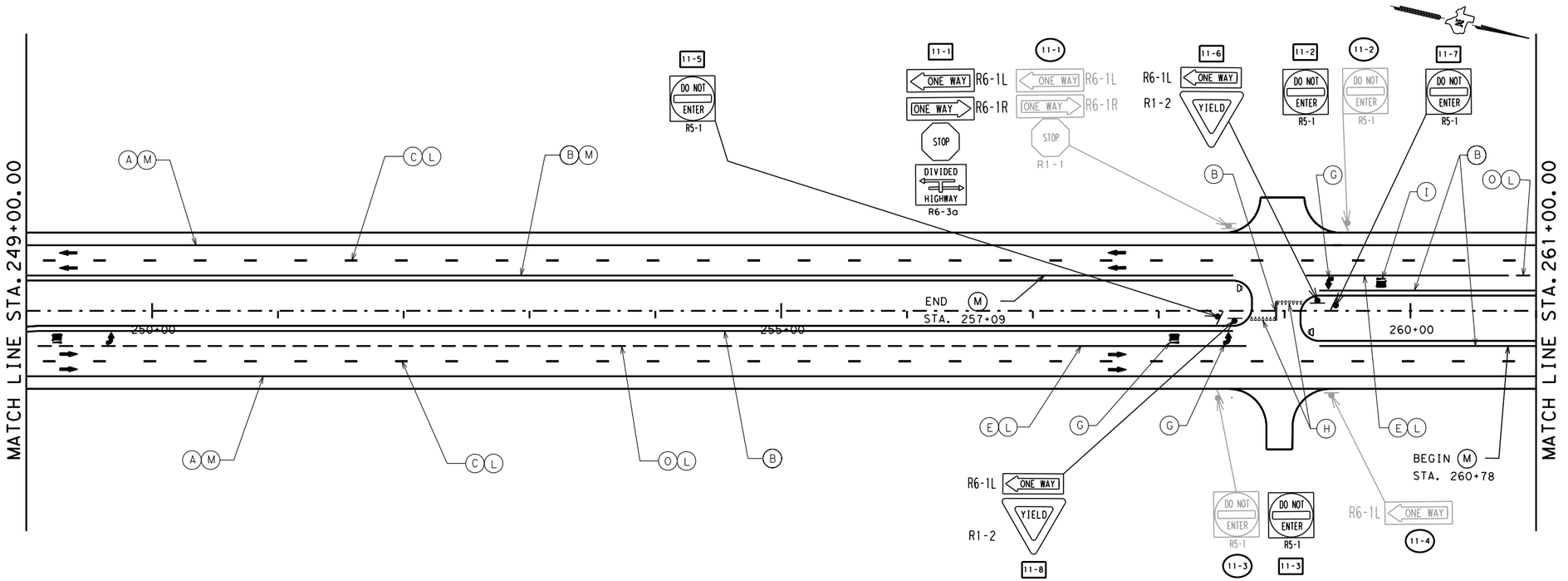

LEGEND

- (A) RE PM W/RET REQ TY I (W)4"(SLD)(100MIL)
- (B) RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)
- (C) RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)
- (D) RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)
- (E) REFL PAV MRK TY I (W)8"(SLD)(100MIL)
- (F) REFL PAV MRK TY I (W)24"(SLD)(100MIL)
- (G) PREFAB PAV MRK TY C (W)(ARROW)
- (H) PREFAB PAV MRK TY C (W)36"(YLD TRI)
- (I) PREFAB PAV MRK TY C (W)(WORD)
- (J) REFL PAV MRKR TY I-C
- (K) REFL PAV MRKR TY II-A-A
- (L) REFL PAV MRK TY II-C-R
- (M) RUMBLE STRIPS (SHOULDER)
- (N) REFL PAV MARK TY I (W) 4" (DOT) (100 MIL)
- (O) REFL PAV MRK TY I (W)8"(DOT)(100MIL)
- SIGN (SMALL SIGN)
- SIGN (LARGE SIGN)
- TYPE D-DY DELINEATOR (CROSSOVER)
- #-# EXISTING SMALL SIGN TO REMAIN & NUMBER (SHEET AND SIGN NUMBER)
- #-# PROPOSED SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- (#-#) REMOVE EXISTING SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- R-#-# PROPOSED ALUMINIUM SIGN (REPLACEMENT AND NUMBER)
- L-# PROPOSED LARGE SIGN & NUMBER
- (L-#) REMOVE EXISTING LARGE SIGN & NUMBER
- DIRECTIONAL TRAFFIC FLOW

0 25 50 100 FT
HORIZONTAL SCALE

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
SIGNING AND PAVEMENT MARKING LAYOUT

STA 237+00.00 to STA 261+00.00

SHEET 11 OF 31

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TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		162
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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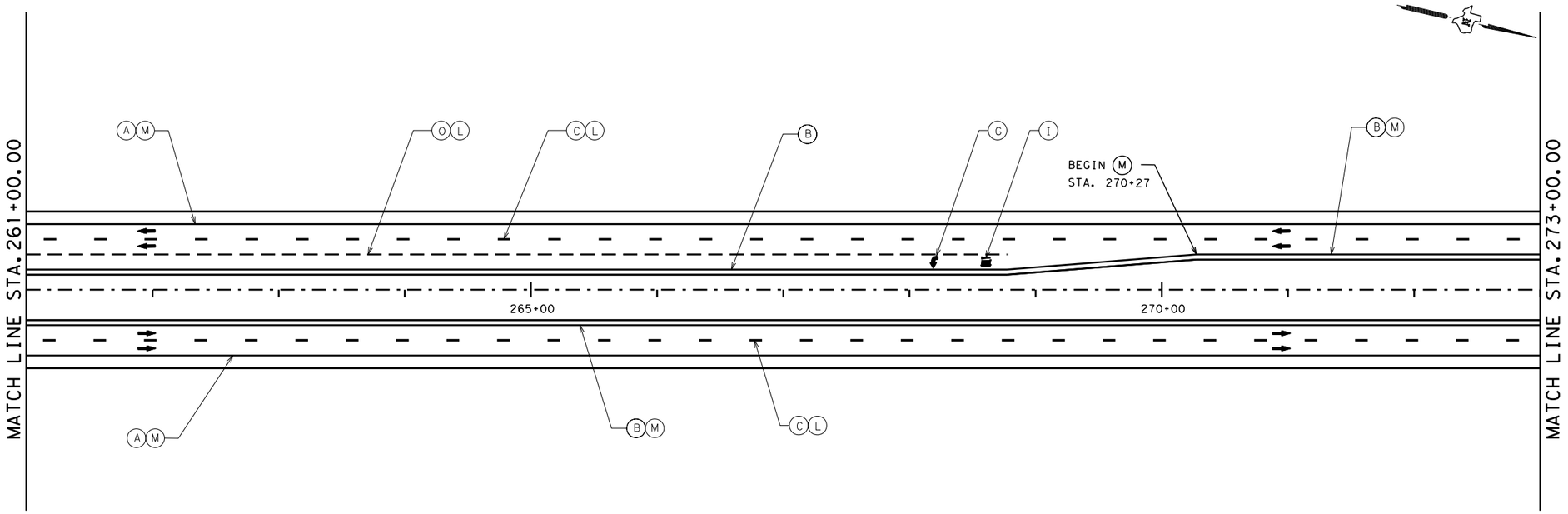

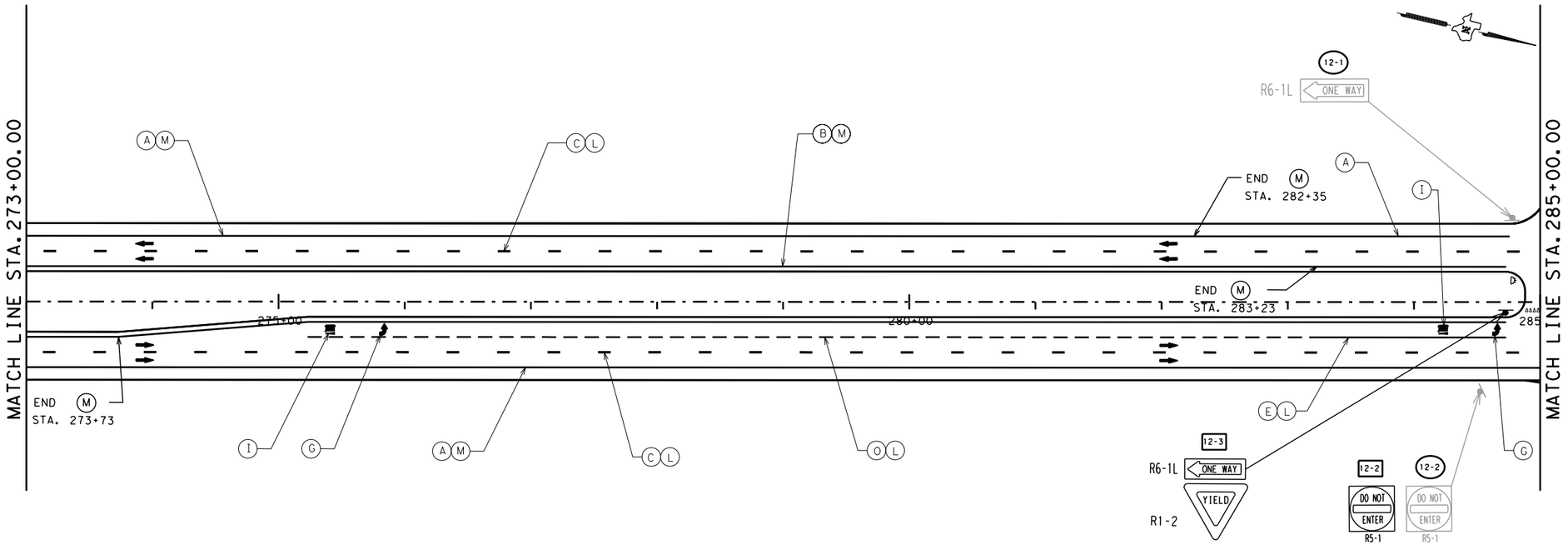

LEGEND

- (A) RE PM W/RET REQ TY I (W)4"(SLD)(100MIL)
- (B) RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)
- (C) RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)
- (D) RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)
- (E) REFL PAV MRK TY I (W)8"(SLD)(100MIL)
- (F) REFL PAV MRK TY I (W)24"(SLD)(100MIL)
- (G) PREFAB PAV MRK TY C (W)(ARROW)
- (H) PREFAB PAV MRK TY C (W)36"(YLD TRI)
- (I) PREFAB PAV MRK TY C (W)(WORD)
- (J) REFL PAV MRKR TY I-C
- (K) REFL PAV MRKR TY II-A-A
- (L) REFL PAV MRK TY II-C-R
- (M) RUMBLE STRIPS (SHOULDER)
- (N) REFL PAV MARK TY I (W) 4" (DOT) (100 MIL)
- (O) REFL PAV MRK TY I (W)8"(DOT)(100MIL)
- SIGN (SMALL SIGN)
- SIGN (LARGE SIGN)
- TYPE D-DY DELINEATOR (CROSSOVER)
- #-# EXISTING SMALL SIGN TO REMAIN & NUMBER (SHEET AND SIGN NUMBER)
- #-# PROPOSED SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- #-# REMOVE EXISTING SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- R-#-# PROPOSED ALUMINIUM SIGN (REPLACEMENT AND NUMBER)
- L-# PROPOSED LARGE SIGN & NUMBER
- L-# REMOVE EXISTING LARGE SIGN & NUMBER
- DIRECTIONAL TRAFFIC FLOW

0 25 50 100 FT
HORIZONTAL SCALE

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
SIGNING AND PAVEMENT MARKING LAYOUT

STA 261+00.00 to STA 285+00.00

SHEET 12 OF 31

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FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		163
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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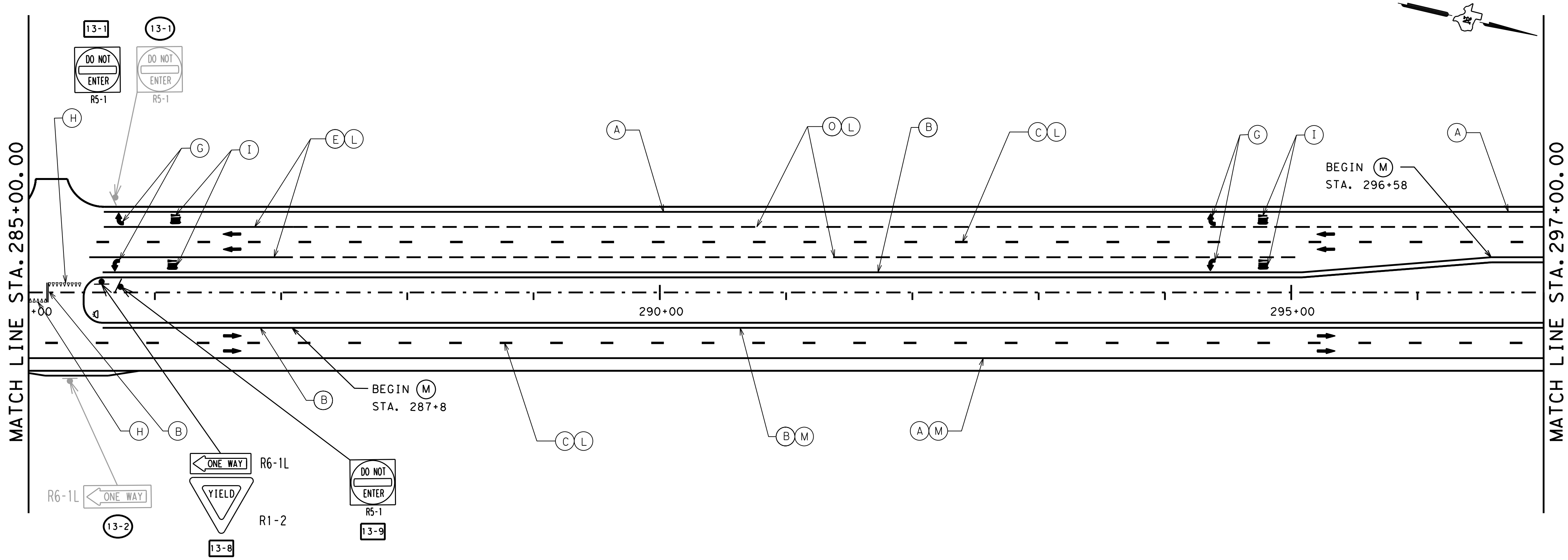

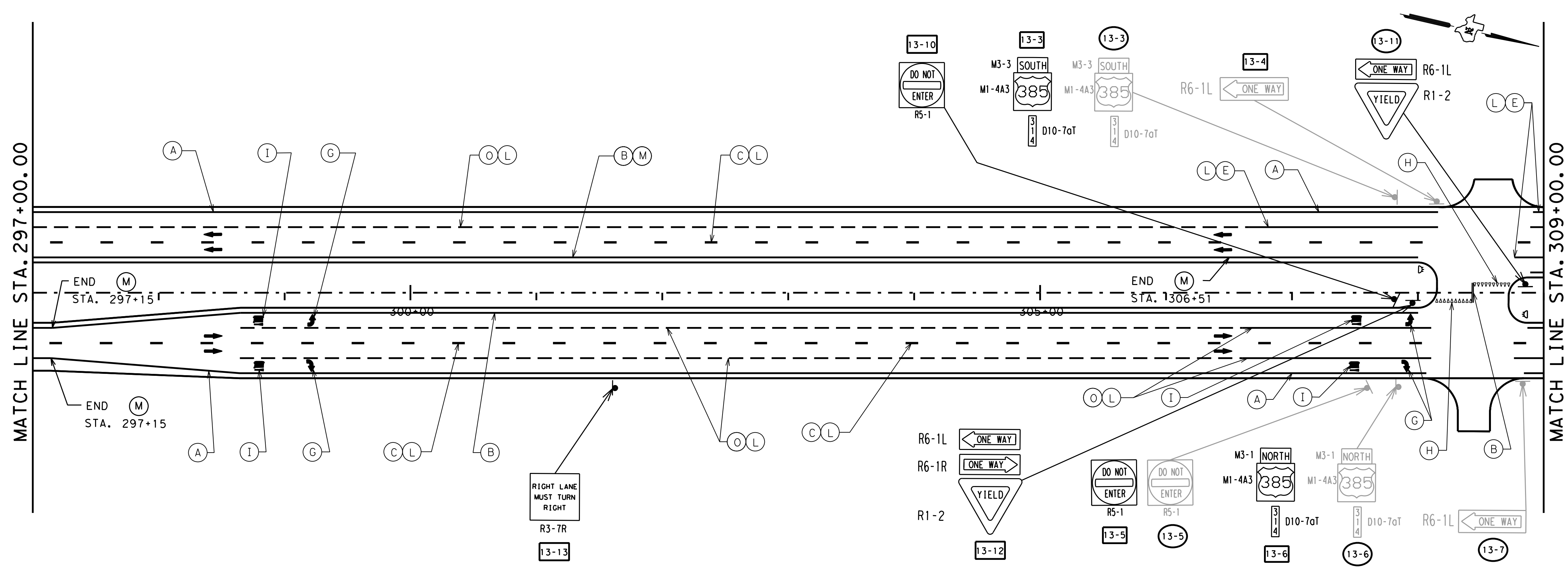

LEGEND

- (A) RE PM W/RET REQ TY I (W) 4" (SLD) (100MIL)
- (B) RE PM W/RET REQ TY I (Y) 4" (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (W) 4" (BRK) (100MIL)
- (D) RE PM W/RET REQ TY I (Y) 4" (BRK) (100MIL)
- (E) REFL PAV MRK TY I (W) 8" (SLD) (100MIL)
- (F) REFL PAV MRK TY I (W) 24" (SLD) (100MIL)
- (G) PREFAB PAV MRK TY C (W) (ARROW)
- (H) PREFAB PAV MRK TY C (W) 36" (YLD TRI)
- (I) PREFAB PAV MRK TY C (W) (WORD)
- (J) REFL PAV MRKR TY I-C
- (K) REFL PAV MRKR TY II-A-A
- (L) REFL PAV MRK TY II-C-R
- (M) RUMBLE STRIPS (SHOULDER)
- (N) REFL PAV MARK TY I (W) 4" (DOT) (100 MIL)
- (O) REFL PAV MRK TY I (W) 8" (DOT) (100MIL)
- SIGN (SMALL SIGN)
- SIGN (LARGE SIGN)
- TYPE D-DY DELINEATOR (CROSSOVER)
- #-# EXISTING SMALL SIGN TO REMAIN & NUMBER (SHEET AND SIGN NUMBER)
- #-# PROPOSED SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- #-# REMOVE EXISTING SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- R-#-# PROPOSED ALUMINIUM SIGN (REPLACEMENT AND NUMBER)
- L-# PROPOSED LARGE SIGN & NUMBER
- L-# REMOVE EXISTING LARGE SIGN & NUMBER
- DIRECTIONAL TRAFFIC FLOW

0 25 50 100 FT
HORIZONTAL SCALE

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
SIGNING AND PAVEMENT MARKING LAYOUT

STA 285+00.00 to STA 309+00.00

SHEET 13 OF 31

LOCHNER
TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.			SHEET NO.
6	SEE TITLE SHEET			164
STATE	DIST.	COUNTY		
TEXAS	ODA	ANDREWS		
CONT.	SECT.	JOB	HIGHWAY NO.	
0228	04	043, ETC.	US 385, ETC.	

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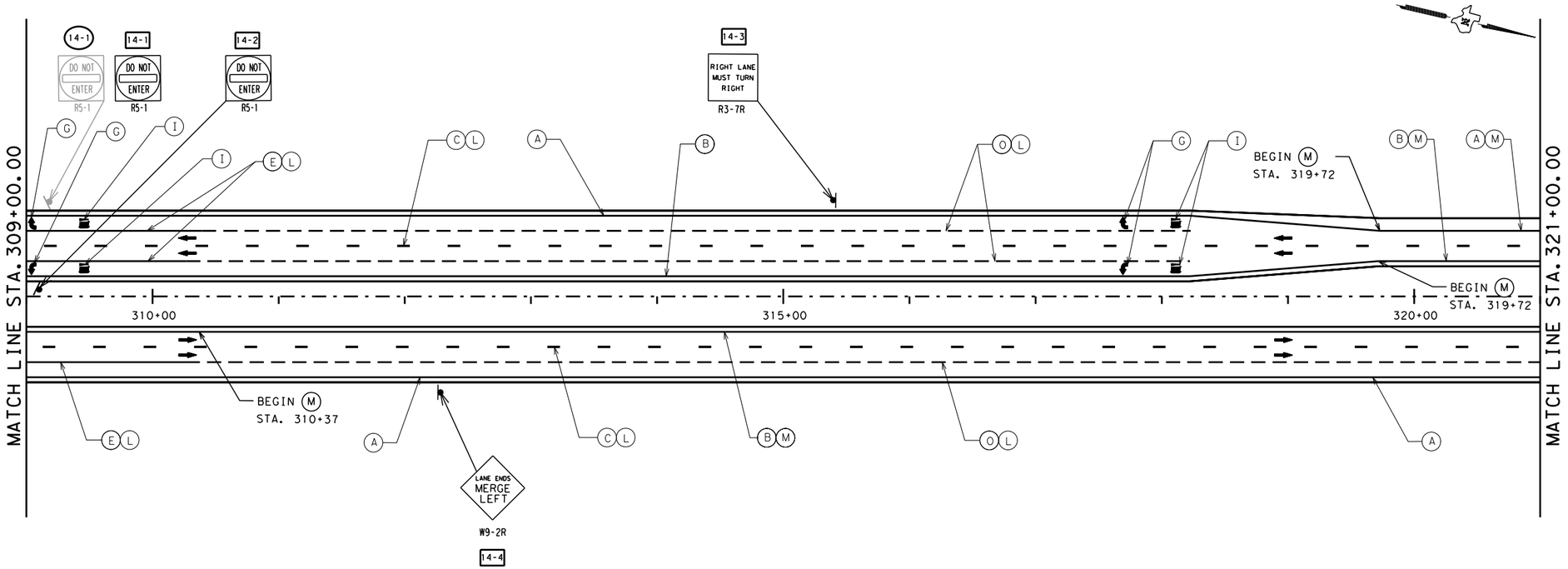

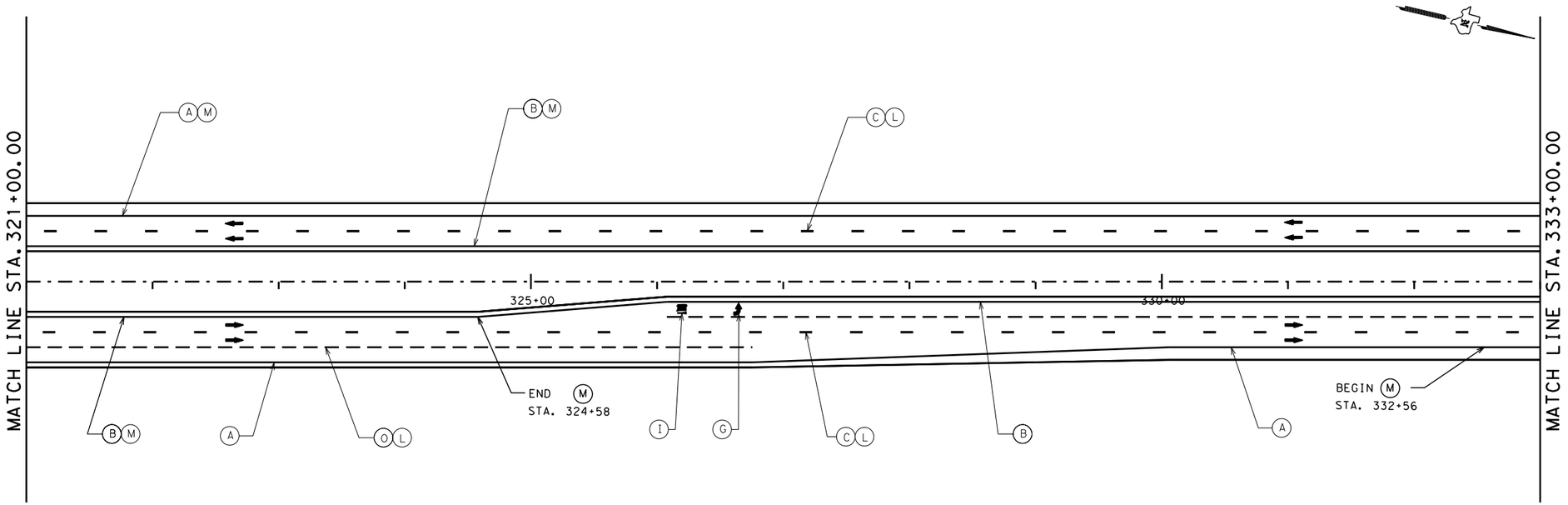

LEGEND

- (A) RE PM W/RET REQ TY I (W)4"(SLD)(100MIL)
- (B) RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)
- (C) RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)
- (D) RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)
- (E) REFL PAV MRK TY I (W)8"(SLD)(100MIL)
- (F) REFL PAV MRK TY I (W)24"(SLD)(100MIL)
- (G) PREFAB PAV MRK TY C (W)(ARROW)
- (H) PREFAB PAV MRK TY C (W)36"(YLD TRI)
- (I) PREFAB PAV MRK TY C (W)(WORD)
- (J) REFL PAV MRKR TY I-C
- (K) REFL PAV MRKR TY II-A-A
- (L) REFL PAV MRK TY II-C-R
- (M) RUMBLE STRIPS (SHOULDER)
- (N) REFL PAV MARK TY I (W) 4" (DOT) (100 MIL)
- (O) REFL PAV MRK TY I (W)8"(DOT)(100MIL)
- SIGN (SMALL SIGN)
- SIGN (LARGE SIGN)
- TYPE D-DY DELINEATOR (CROSSOVER)
- #-# EXISTING SMALL SIGN TO REMAIN & NUMBER (SHEET AND SIGN NUMBER)
- #-# PROPOSED SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- #-# REMOVE EXISTING SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- R-#-# PROPOSED ALUMINIUM SIGN (REPLACEMENT AND NUMBER)
- L-# PROPOSED LARGE SIGN & NUMBER
- L-# REMOVE EXISTING LARGE SIGN & NUMBER
- DIRECTIONAL TRAFFIC FLOW

0 25 50 100 FT
HORIZONTAL SCALE

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
SIGNING AND PAVEMENT MARKING LAYOUT

STA 309+00.00 to STA 333+00.00

SHEET 14 OF 31

Texas Department of Transportation

LOCHNER
TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		165
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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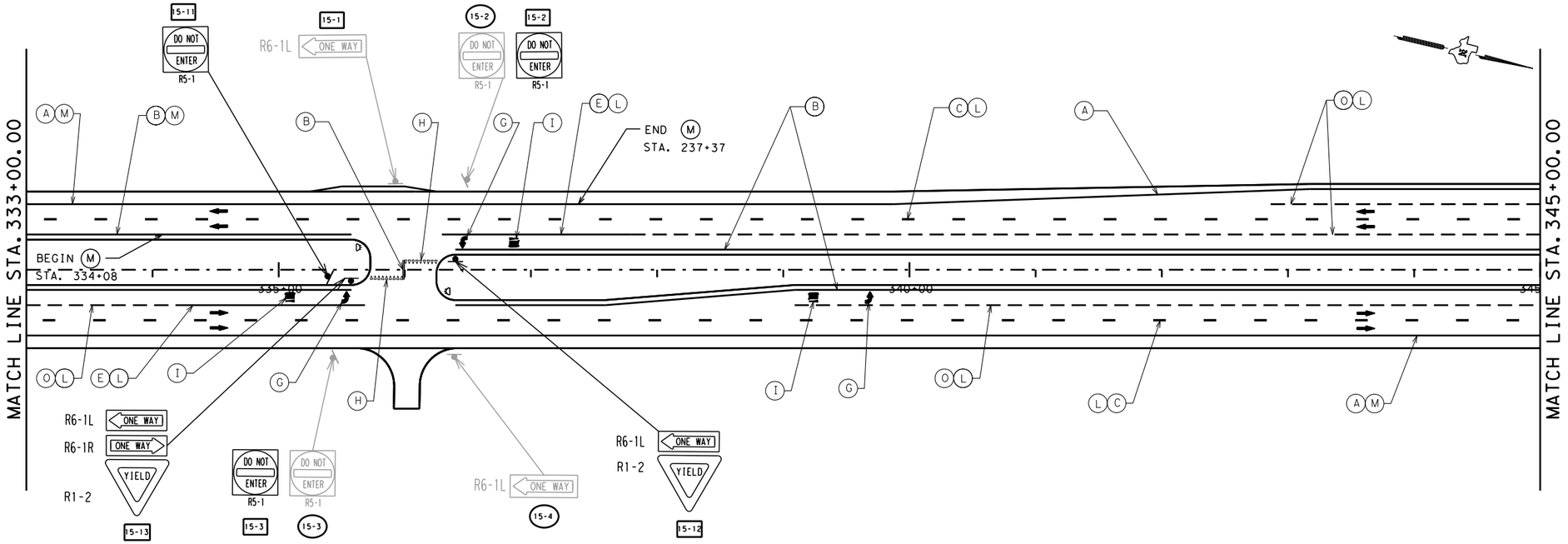

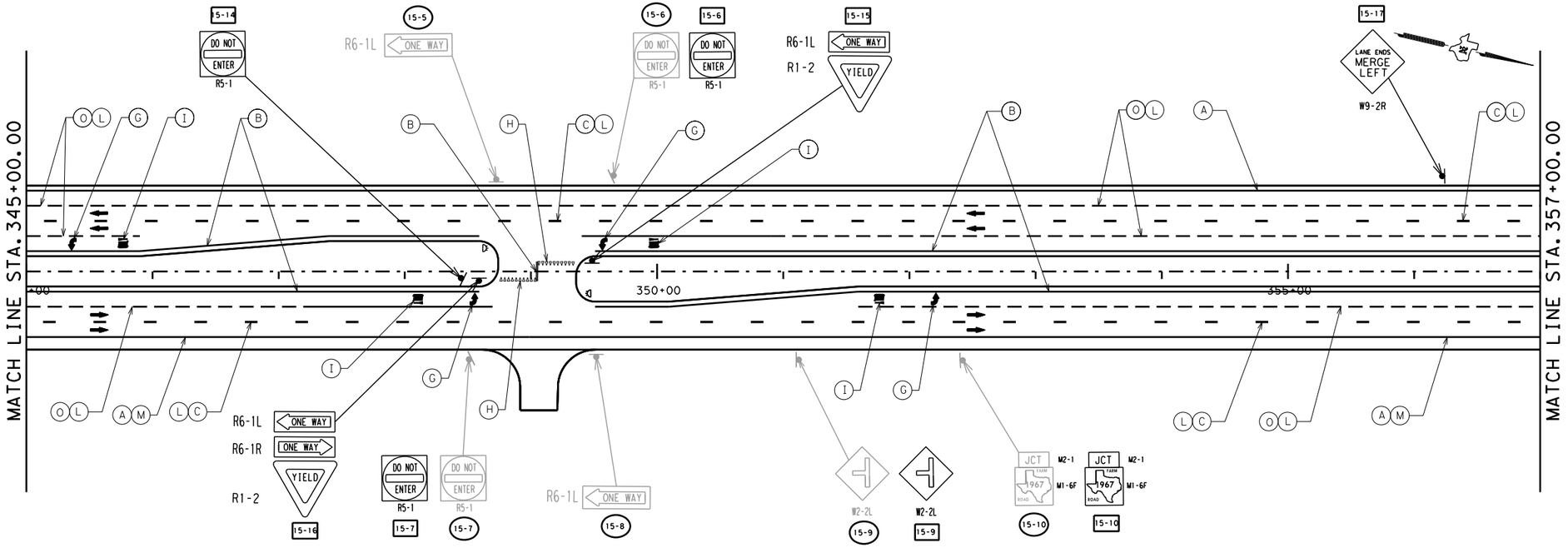

LEGEND

- (A) RE PM W/RET REQ TY I (W)4"(SLD)(100MIL)
- (B) RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)
- (C) RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)
- (D) RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)
- (E) REFL PAV MRK TY I (W)8"(SLD)(100MIL)
- (F) REFL PAV MRK TY I (W)24"(SLD)(100MIL)
- (G) PREFAB PAV MRK TY C (W)(ARROW)
- (H) PREFAB PAV MRK TY C (W)36"(YLD TRI)
- (I) PREFAB PAV MRK TY C (W)(WORD)
- (J) REFL PAV MRKR TY I-C
- (K) REFL PAV MRKR TY II-A-A
- (L) REFL PAV MRK TY II-C-R
- (M) RUMBLE STRIPS (SHOULDER)
- (N) REFL PAV MARK TY I (W) 4" (DOT) (100 MIL)
- (O) REFL PAV MRK TY I (W)8"(DOT)(100MIL)
- SIGN (SMALL SIGN)
- SIGN (LARGE SIGN)
- TYPE D-DY DELINEATOR (CROSSOVER)
- (#-#) EXISTING SMALL SIGN TO REMAIN & NUMBER (SHEET AND SIGN NUMBER)
- [#-#] PROPOSED SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- (#-#) REMOVE EXISTING SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- [R-#-#] PROPOSED ALUMINIUM SIGN (REPLACEMENT AND NUMBER)
- [L-#] PROPOSED LARGE SIGN & NUMBER
- (L-#) REMOVE EXISTING LARGE SIGN & NUMBER
- DIRECTIONAL TRAFFIC FLOW

0 25 50 100 FT
HORIZONTAL SCALE

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
SIGNING AND PAVEMENT MARKING LAYOUT

STA 333+00.00 to STA 357+00.00

SHEET 15 OF 31

LOCHNER
TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		166
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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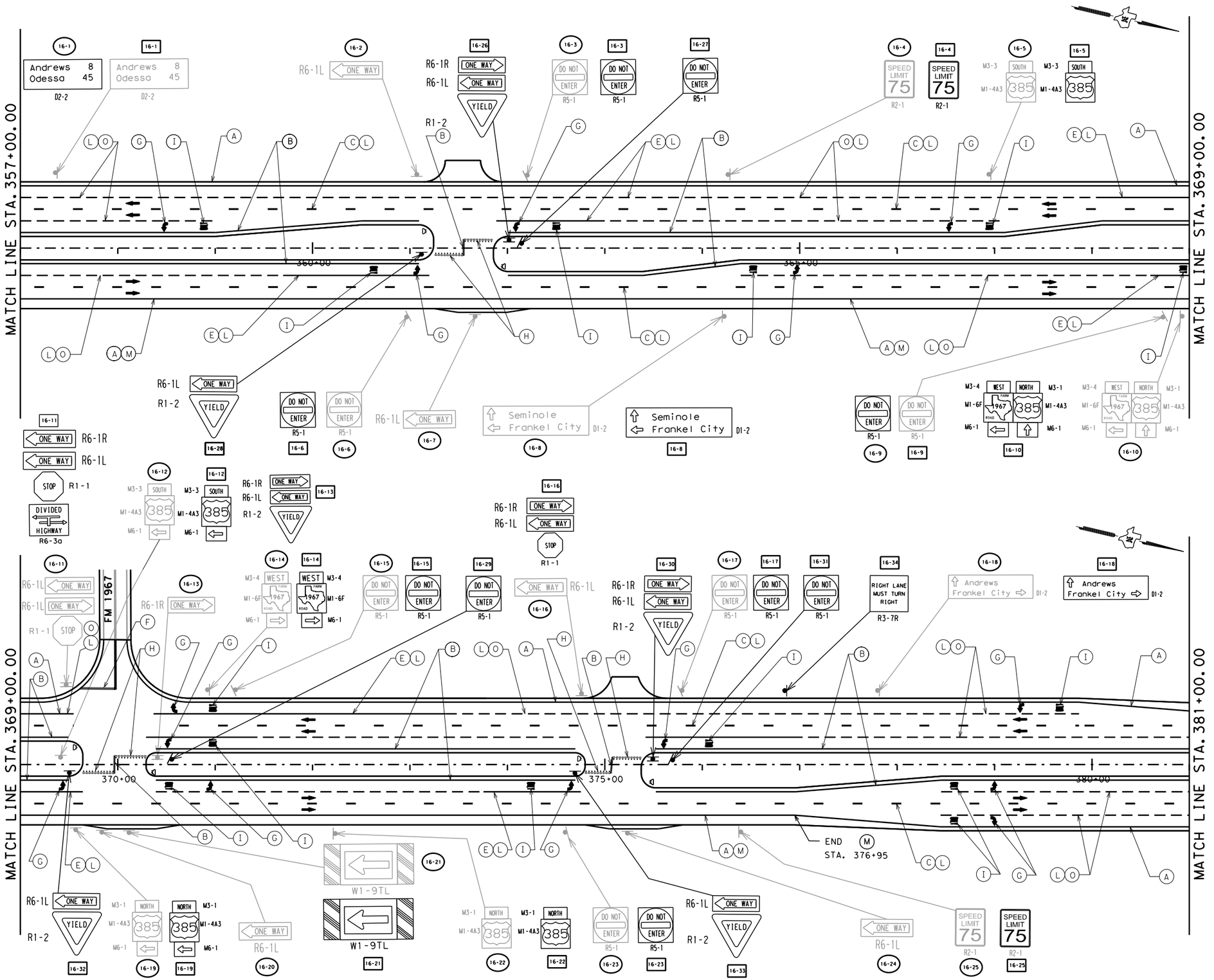

LEGEND

- (A) RE PM W/RET REQ TY I (W)4"(SLD)(100MIL)
- (B) RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)
- (C) RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)
- (D) RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)
- (E) REFL PAV MRK TY I (W)8"(SLD)(100MIL)
- (F) REFL PAV MRK TY I (W)24"(SLD)(100MIL)
- (G) PREFAB PAV MRK TY C (W)(ARROW)
- (H) PREFAB PAV MRK TY C (W)36"(YLD TRI)
- (I) PREFAB PAV MRK TY C (W)(WORD)
- (J) REFL PAV MRKR TY I-C
- (K) REFL PAV MRKR TY II-A-A
- (L) REFL PAV MRK TY II-C-R
- (M) RUMBLE STRIPS (SHOULDER)
- (N) REFL PAV MARK TY I (W) 4" (DOT) (100 MIL)
- (O) REFL PAV MRK TY I (W)8"(DOT)(100MIL)
- SIGN (SMALL SIGN)
- SIGN (LARGE SIGN)
- TYPE D-DY DELINEATOR (CROSSOVER)
- (#-#) EXISTING SMALL SIGN TO REMAIN & NUMBER (SHEET AND SIGN NUMBER)
- [#-#] PROPOSED SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- (#-#) REMOVE EXISTING SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- [R-#-#] PROPOSED ALUMINIUM SIGN (REPLACEMENT AND NUMBER)
- [L-#] PROPOSED LARGE SIGN & NUMBER
- (L-#) REMOVE EXISTING LARGE SIGN & NUMBER
- DIRECTIONAL TRAFFIC FLOW

0 25 50 100 FT
HORIZONTAL SCALE

09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
SIGNING AND PAVEMENT MARKING LAYOUT

STA 357+00.00 to STA 381+00.00

SHEET 16 OF 31

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FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		167
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

FILE: A385HA16.dgn
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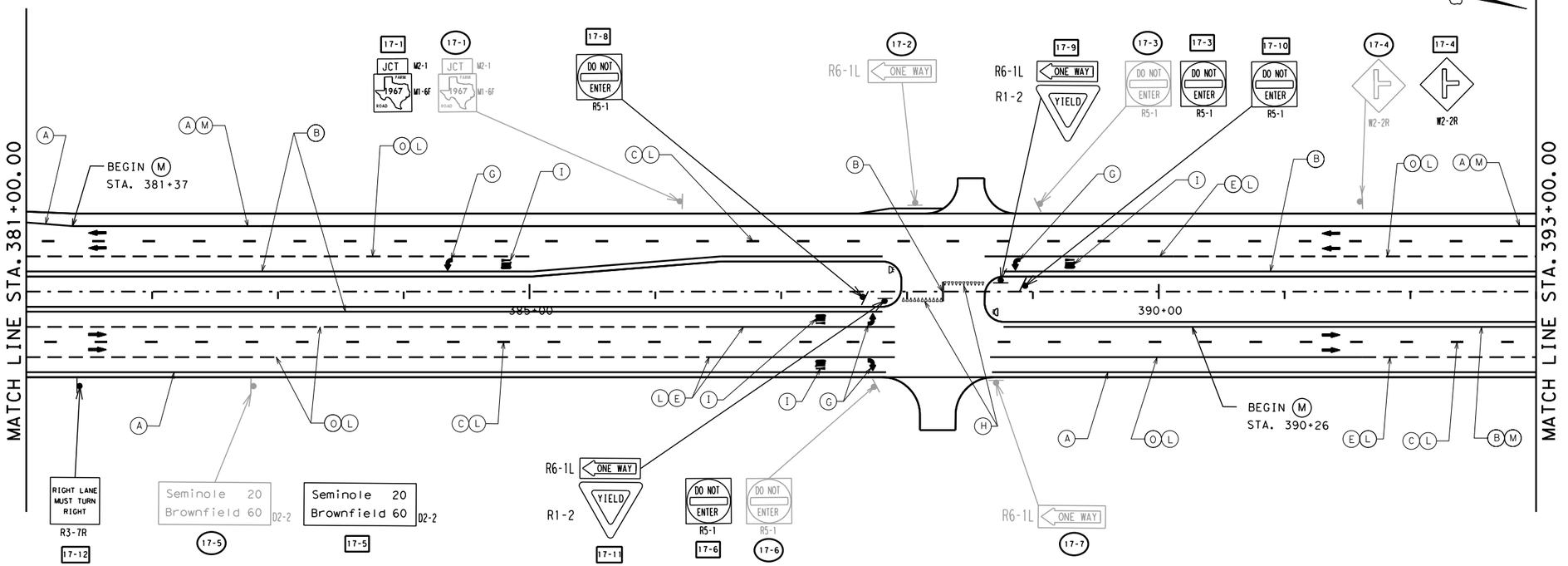

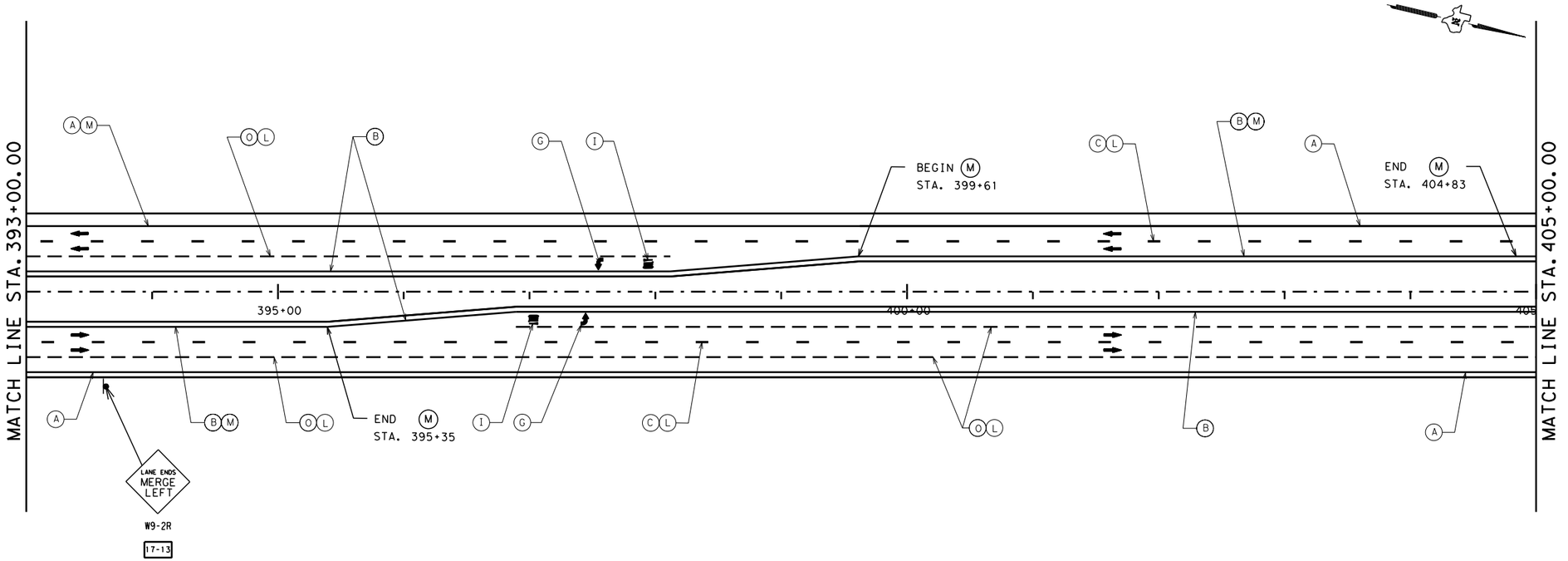

LEGEND

- (A) RE PM W/RET REQ TY I (W)4"(SLD)(100MIL)
- (B) RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)
- (C) RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)
- (D) RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)
- (E) REFL PAV MRK TY I (W)8"(SLD)(100MIL)
- (F) REFL PAV MRK TY I (W)24"(SLD)(100MIL)
- (G) PREFAB PAV MRK TY C (W)(ARROW)
- (H) PREFAB PAV MRK TY C (W)36"(YLD TRI)
- (I) PREFAB PAV MRK TY C (W)(WORD)
- (J) REFL PAV MRKR TY I-C
- (K) REFL PAV MRKR TY II-A-A
- (L) REFL PAV MRK TY II-C-R
- (M) RUMBLE STRIPS (SHOULDER)
- (N) REFL PAV MARK TY I (W) 4" (DOT) (100 MIL)
- (O) REFL PAV MRK TY I (W)8"(DOT)(100MIL)
- SIGN (SMALL SIGN)
- SIGN (LARGE SIGN)
- TYPE D-DY DELINEATOR (CROSSOVER)
- (#-#) EXISTING SMALL SIGN TO REMAIN & NUMBER (SHEET AND SIGN NUMBER)
- [#-#] PROPOSED SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- (#-#) REMOVE EXISTING SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- [R-#-#] PROPOSED ALUMINIUM SIGN (REPLACEMENT AND NUMBER)
- [L-#] PROPOSED LARGE SIGN & NUMBER
- (L-#) REMOVE EXISTING LARGE SIGN & NUMBER
- DIRECTIONAL TRAFFIC FLOW

0 25 50 100 FT
HORIZONTAL SCALE

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
SIGNING AND PAVEMENT MARKING LAYOUT

STA 381+00.00 to STA 405+00.00

SHEET 17 OF 31

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TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		168
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

FILE: A385HA17.dgn
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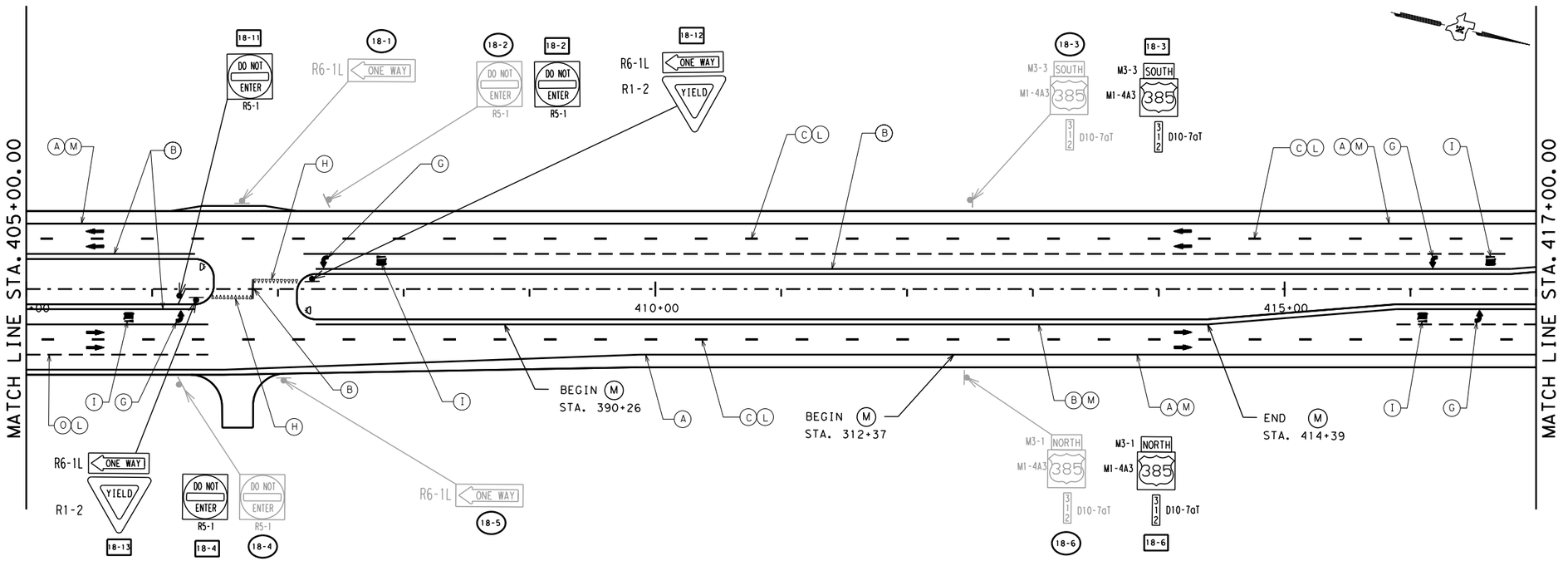

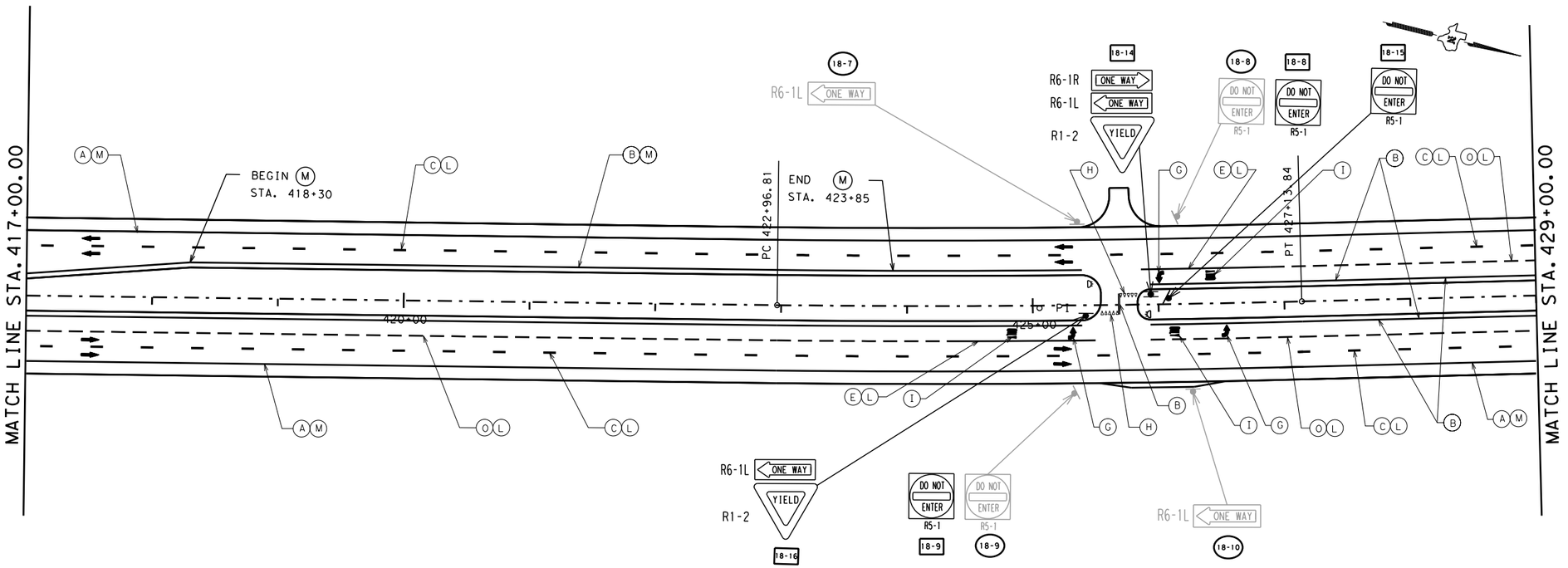

LEGEND

- (A) RE PM W/RET REQ TY I (W)4"(SLD)(100MIL)
- (B) RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)
- (C) RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)
- (D) RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)
- (E) REFL PAV MRK TY I (W)8"(SLD)(100MIL)
- (F) REFL PAV MRK TY I (W)24"(SLD)(100MIL)
- (G) PREFAB PAV MRK TY C (W)(ARROW)
- (H) PREFAB PAV MRK TY C (W)36"(YLD TRI)
- (I) PREFAB PAV MRK TY C (W)(WORD)
- (J) REFL PAV MRKR TY I-C
- (K) REFL PAV MRKR TY II-A-A
- (L) REFL PAV MRK TY II-C-R
- (M) RUMBLE STRIPS (SHOULDER)
- (N) REFL PAV MARK TY I (W) 4" (DOT) (100 MIL)
- (O) REFL PAV MRK TY I (W)8"(DOT)(100MIL)
- SIGN (SMALL SIGN)
- SIGN (LARGE SIGN)
- TYPE D-DY DELINEATOR (CROSSOVER)
- (#-#) EXISTING SMALL SIGN TO REMAIN & NUMBER (SHEET AND SIGN NUMBER)
- [#-#] PROPOSED SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- (#-#) REMOVE EXISTING SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- [R-#-#] PROPOSED ALUMINIUM SIGN (REPLACEMENT AND NUMBER)
- [L-#] PROPOSED LARGE SIGN & NUMBER
- (L-#) REMOVE EXISTING LARGE SIGN & NUMBER
- DIRECTIONAL TRAFFIC FLOW

0 25 50 100 FT
HORIZONTAL SCALE

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385 SIGNING AND PAVEMENT MARKING LAYOUT

STA 405+00.00 to STA 429+00.00

SHEET 18 OF 31

Texas Department of Transportation

LOCHNER
TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		169
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

FILE: A385HA18.dgn
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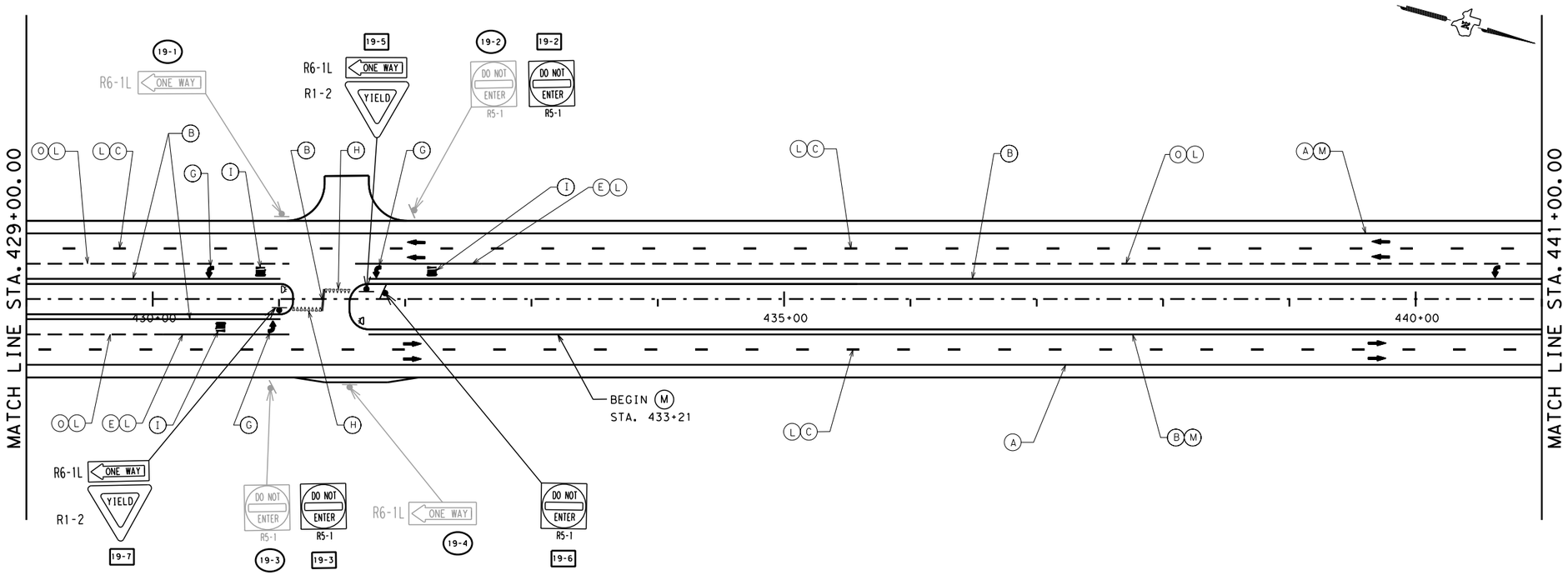

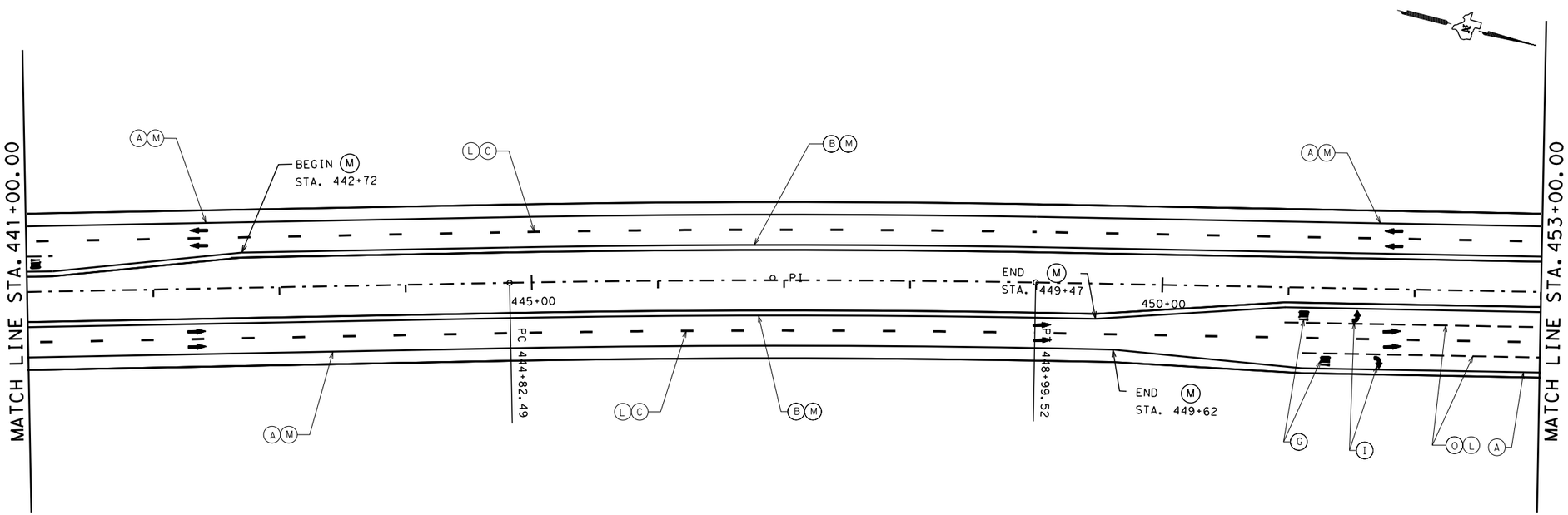

LEGEND

- (A) RE PM W/RET REQ TY I (W)4"(SLD)(100MIL)
- (B) RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)
- (C) RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)
- (D) RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)
- (E) REFL PAV MRK TY I (W)8"(SLD)(100MIL)
- (F) REFL PAV MRK TY I (W)24"(SLD)(100MIL)
- (G) PREFAB PAV MRK TY C (W)(ARROW)
- (H) PREFAB PAV MRK TY C (W)36"(YLD TRI)
- (I) PREFAB PAV MRK TY C (W)(WORD)
- (J) REFL PAV MRKR TY I-C
- (K) REFL PAV MRKR TY II-A-A
- (L) REFL PAV MRK TY II-C-R
- (M) RUMBLE STRIPS (SHOULDER)
- (N) REFL PAV MARK TY I (W) 4" (DOT) (100 MIL)
- (O) REFL PAV MRK TY I (W)8"(DOT)(100MIL)
- SIGN (SMALL SIGN)
- SIGN (LARGE SIGN)
- TYPE D-DY DELINEATOR (CROSSOVER)
- (#-#) EXISTING SMALL SIGN TO REMAIN & NUMBER (SHEET AND SIGN NUMBER)
- [#-#] PROPOSED SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- (#-#) REMOVE EXISTING SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- [R-#-#] PROPOSED ALUMINIUM SIGN (REPLACEMENT AND NUMBER)
- [L-#] PROPOSED LARGE SIGN & NUMBER
- (L-#) REMOVE EXISTING LARGE SIGN & NUMBER
- DIRECTIONAL TRAFFIC FLOW

0 25 50 100 FT
HORIZONTAL SCALE

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
SIGNING AND PAVEMENT MARKING LAYOUT

STA 529+00.00 to STA 453+00.00

SHEET 19 OF 31

Texas Department of Transportation

LOCHNER
TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		170
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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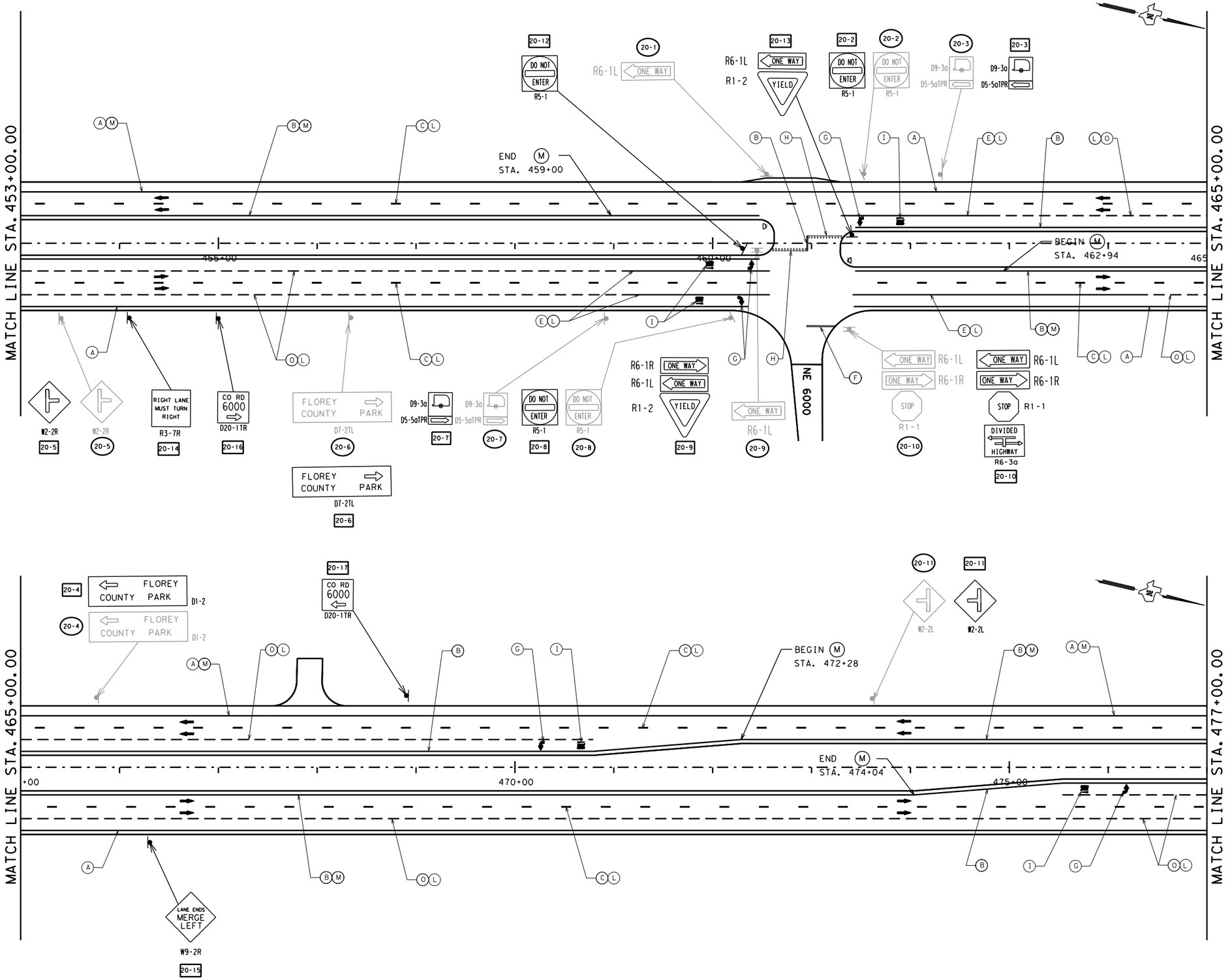

LEGEND

- (A) RE PM W/RET REQ TY I (W) 4" (SLD) (100MIL)
- (B) RE PM W/RET REQ TY I (Y) 4" (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (W) 4" (BRK) (100MIL)
- (D) RE PM W/RET REQ TY I (Y) 4" (BRK) (100MIL)
- (E) REFL PAV MRK TY I (W) 8" (SLD) (100MIL)
- (F) REFL PAV MRK TY I (W) 24" (SLD) (100MIL)
- (G) PREFAB PAV MRK TY C (W) (ARROW)
- (H) PREFAB PAV MRK TY C (W) 36" (YLD TRI)
- (I) PREFAB PAV MRK TY C (W) (WORD)
- (J) REFL PAV MRKR TY I-C
- (K) REFL PAV MRKR TY II-A-A
- (L) REFL PAV MRK TY II-C-R
- (M) RUMBLE STRIPS (SHOULDER)
- (N) REFL PAV MARK TY I (W) 4" (DOT) (100 MIL)
- (O) REFL PAV MRK TY I (W) 8" (DOT) (100MIL)
- SIGN (SMALL SIGN)
- SIGN (LARGE SIGN)
- TYPE D-DY DELINEATOR (CROSSOVER)
- #-# EXISTING SMALL SIGN TO REMAIN & NUMBER (SHEET AND SIGN NUMBER)
- #-# PROPOSED SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- (#-#) REMOVE EXISTING SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- R-#-# PROPOSED ALUMINIUM SIGN (REPLACEMENT AND NUMBER)
- L-# PROPOSED LARGE SIGN & NUMBER
- (L-#) REMOVE EXISTING LARGE SIGN & NUMBER
- DIRECTIONAL TRAFFIC FLOW

0 25 50 100 FT
HORIZONTAL SCALE

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
SIGNING AND PAVEMENT MARKING LAYOUT

STA 453+00.00 to STA 477+00.00

SHEET 20 OF 31

LOCHNER
TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		171
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

FILE: A385HA20.dgn
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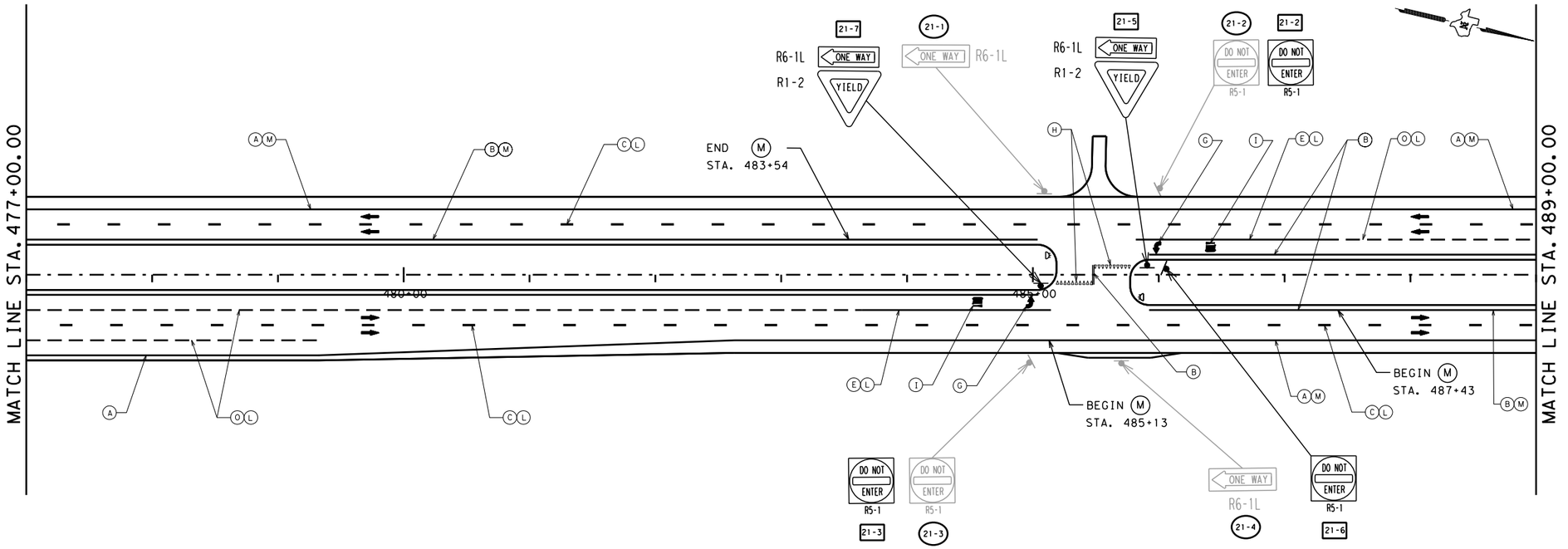

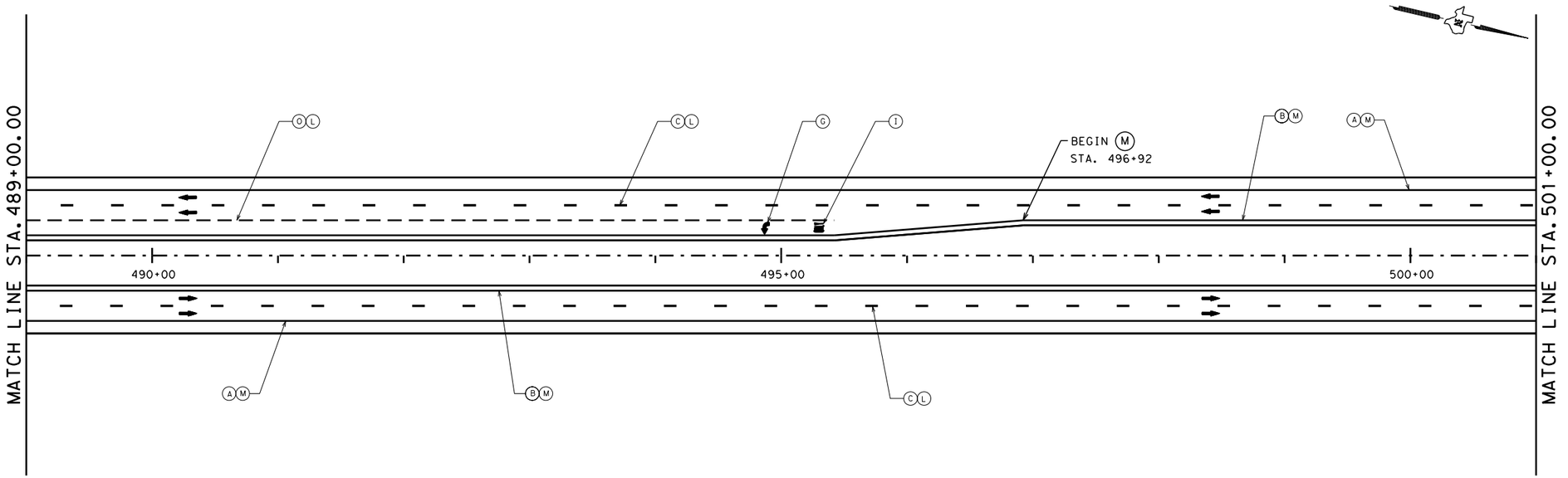

LEGEND

- (A) RE PM W/RET REQ TY I (W)4"(SLD)(100MIL)
- (B) RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)
- (C) RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)
- (D) RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)
- (E) REFL PAV MRK TY I (W)8"(SLD)(100MIL)
- (F) REFL PAV MRK TY I (W)24"(SLD)(100MIL)
- (G) PREFAB PAV MRK TY C (W)(ARROW)
- (H) PREFAB PAV MRK TY C (W)36"(YLD TRI)
- (I) PREFAB PAV MRK TY C (W)(WORD)
- (J) REFL PAV MRKR TY I-C
- (K) REFL PAV MRKR TY II-A-A
- (L) REFL PAV MRK TY II-C-R
- (M) RUMBLE STRIPS (SHOULDER)
- (N) REFL PAV MARK TY I (W) 4" (DOT) (100 MIL)
- (O) REFL PAV MRK TY I (W)8"(DOT)(100MIL)
- SIGN (SMALL SIGN)
- SIGN (LARGE SIGN)
- TYPE D-DY DELINEATOR (CROSSOVER)
- (#-#) EXISTING SMALL SIGN TO REMAIN & NUMBER (SHEET AND SIGN NUMBER)
- [#-#] PROPOSED SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- (#-#) REMOVE EXISTING SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- [R-#-#] PROPOSED ALUMINIUM SIGN (REPLACEMENT AND NUMBER)
- [L-#] PROPOSED LARGE SIGN & NUMBER
- (L-#) REMOVE EXISTING LARGE SIGN & NUMBER
- DIRECTIONAL TRAFFIC FLOW

0 25 50 100 FT
HORIZONTAL SCALE

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
SIGNING AND PAVEMENT MARKING LAYOUT

STA 477+00.00 to STA 501+00.00

SHEET 21 OF 31

Texas Department of Transportation

LOCHNER
TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		172
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

FILE: A385HA21.dgn
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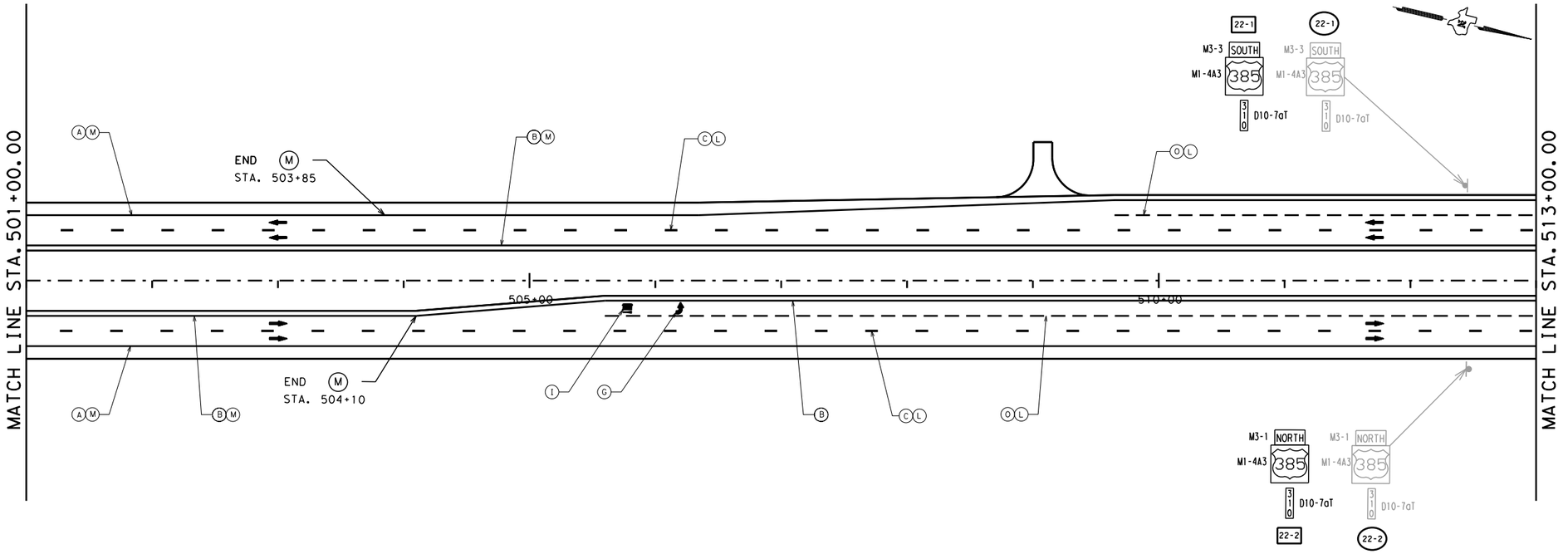

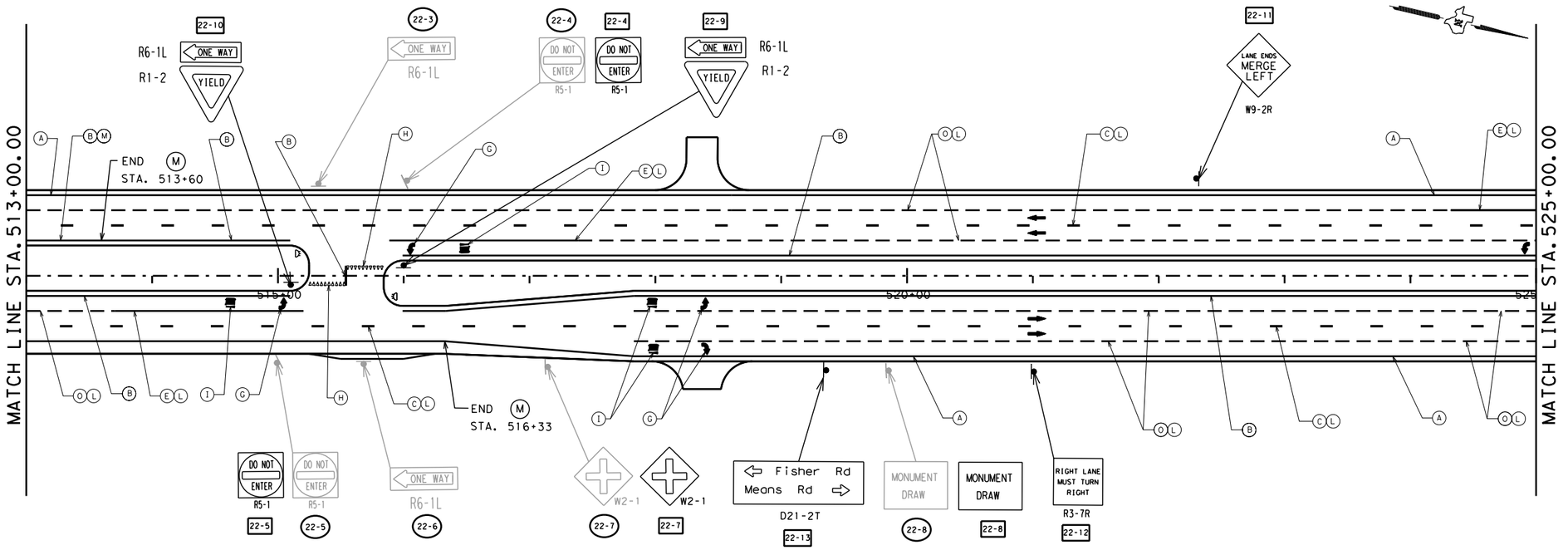

LEGEND

- (A) RE PM W/RET REQ TY I (W)4"(SLD)(100MIL)
- (B) RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)
- (C) RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)
- (D) RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)
- (E) REFL PAV MRK TY I (W)8"(SLD)(100MIL)
- (F) REFL PAV MRK TY I (W)24"(SLD)(100MIL)
- (G) PREFAB PAV MRK TY C (W)(ARROW)
- (H) PREFAB PAV MRK TY C (W)36"(YLD TRI)
- (I) PREFAB PAV MRK TY C (W)(WORD)
- (J) REFL PAV MRKR TY I-C
- (K) REFL PAV MRKR TY II-A-A
- (L) REFL PAV MRK TY II-C-R
- (M) RUMBLE STRIPS (SHOULDER)
- (N) REFL PAV MARK TY I (W) 4" (DOT) (100 MIL)
- (O) REFL PAV MRK TY I (W)8"(DOT)(100MIL)
- SIGN (SMALL SIGN)
- SIGN (LARGE SIGN)
- TYPE D-DY DELINEATOR (CROSSOVER)
- (#-#) EXISTING SMALL SIGN TO REMAIN & NUMBER (SHEET AND SIGN NUMBER)
- [#-#] PROPOSED SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- (#-#) REMOVE EXISTING SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- [R-#-#] PROPOSED ALUMINIUM SIGN (REPLACEMENT AND NUMBER)
- [L-#] PROPOSED LARGE SIGN & NUMBER
- (L-#) REMOVE EXISTING LARGE SIGN & NUMBER
- DIRECTIONAL TRAFFIC FLOW

0 25 50 100 FT
HORIZONTAL SCALE

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385 SIGNING AND PAVEMENT MARKING LAYOUT

STA 501+00.00 to STA 525+00.00

SHEET 22 OF 31

Texas Department of Transportation
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TBPE Firm Reg. No. 10488

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		173
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

FILE: A385HA22.dgn
DATE: 5/28/2020 TIME: 8:22:59 PM
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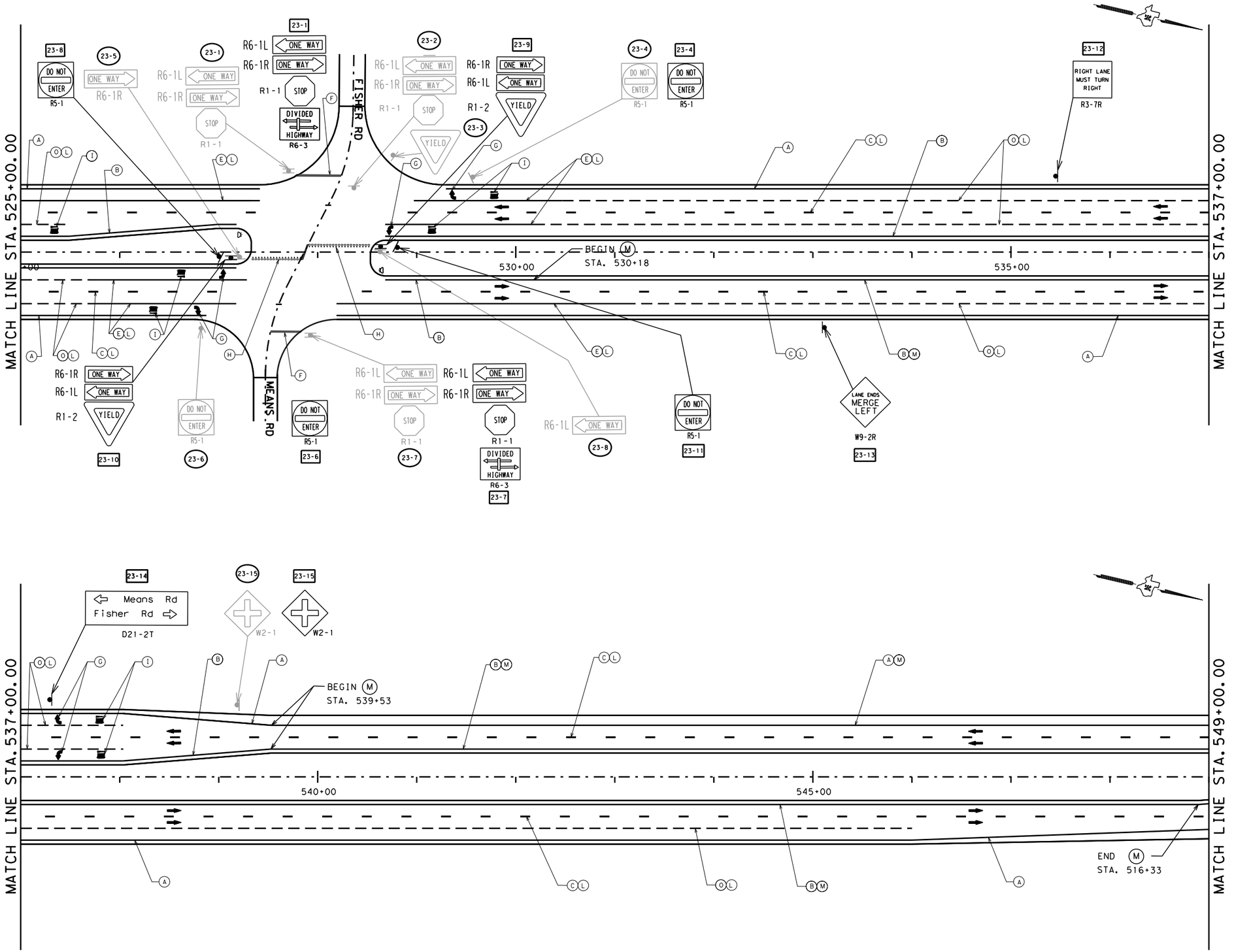

LEGEND

- (A) RE PM W/RET REQ TY I (W)4"(SLD)(100MIL)
- (B) RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)
- (C) RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)
- (D) RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)
- (E) REFL PAV MRK TY I (W)8"(SLD)(100MIL)
- (F) REFL PAV MRK TY I (W)24"(SLD)(100MIL)
- (G) PREFAB PAV MRK TY C (W)(ARROW)
- (H) PREFAB PAV MRK TY C (W)36"(YLD TRI)
- (I) PREFAB PAV MRK TY C (W)(WORD)
- (J) REFL PAV MRKR TY I-C
- (K) REFL PAV MRKR TY II-A-A
- (L) REFL PAV MRK TY II-C-R
- (M) RUMBLE STRIPS (SHOULDER)
- (N) REFL PAV MARK TY I (W) 4" (DOT) (100 MIL)
- (O) REFL PAV MRK TY I (W)8"(DOT)(100MIL)
- SIGN (SMALL SIGN)
- SIGN (LARGE SIGN)
- TYPE D-DY DELINEATOR (CROSSOVER)
- #-# EXISTING SMALL SIGN TO REMAIN & NUMBER (SHEET AND SIGN NUMBER)
- #-# PROPOSED SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- #-# REMOVE EXISTING SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- R-#-# PROPOSED ALUMINIUM SIGN (REPLACEMENT AND NUMBER)
- L-# PROPOSED LARGE SIGN & NUMBER
- L-# REMOVE EXISTING LARGE SIGN & NUMBER
- DIRECTIONAL TRAFFIC FLOW

0 25 50 100 FT
HORIZONTAL SCALE

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
SIGNING AND PAVEMENT MARKING LAYOUT

STA 525+00.00 to STA 549+00.00

SHEET 23 OF 31

Texas Department of Transportation
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LOCHNER
TBPE Firm Reg. No. 10488

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		174
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

FILE: A385HA23.dgn
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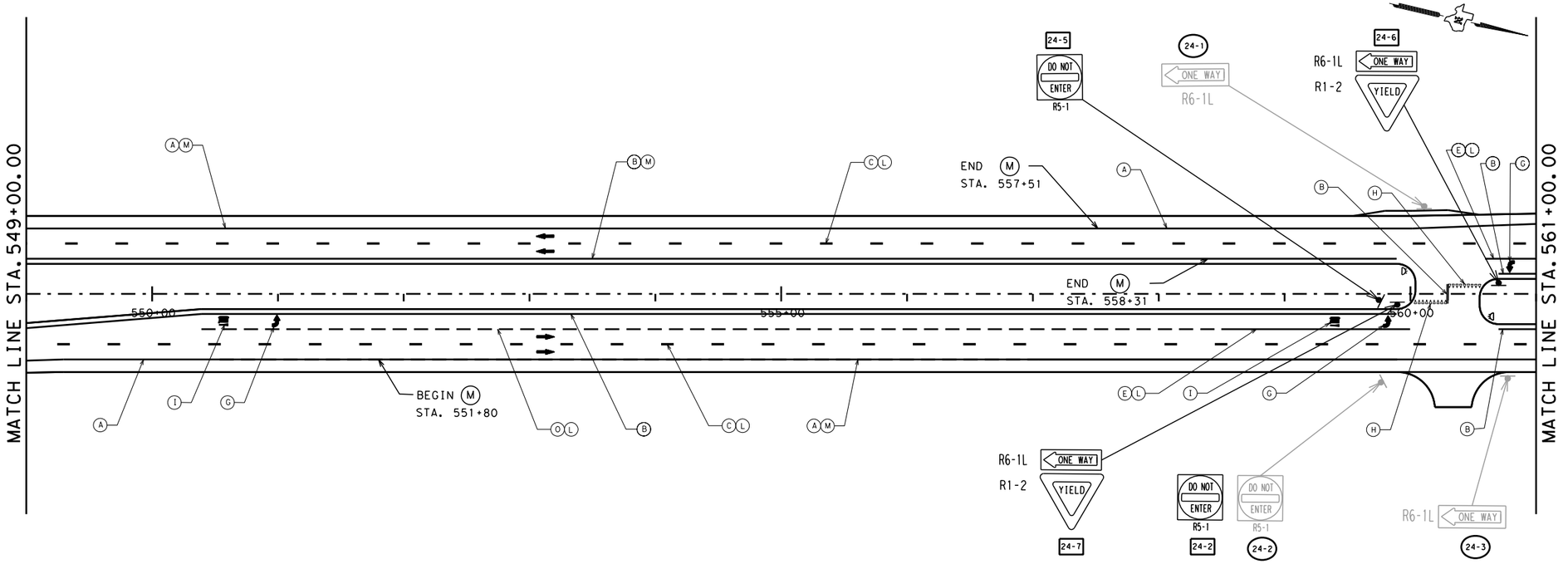

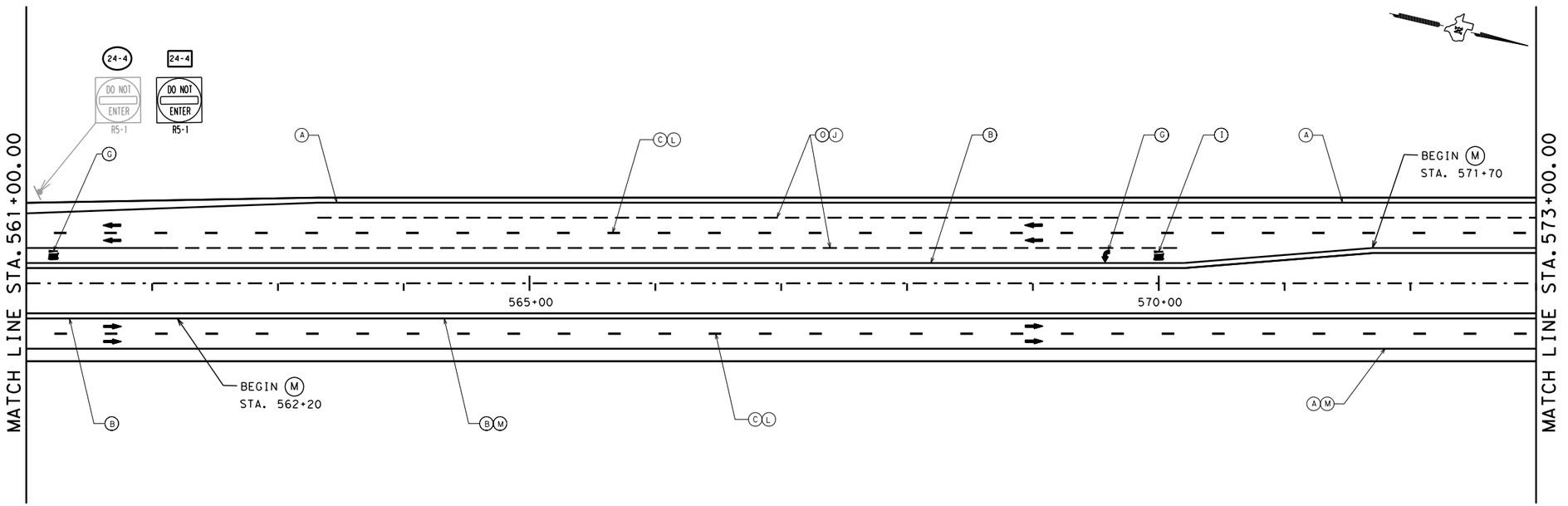

LEGEND

- (A) RE PM W/RET REQ TY I (W)4"(SLD)(100MIL)
- (B) RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)
- (C) RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)
- (D) RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)
- (E) REFL PAV MRK TY I (W)8"(SLD)(100MIL)
- (F) REFL PAV MRK TY I (W)24"(SLD)(100MIL)
- (G) PREFAB PAV MRK TY C (W)(ARROW)
- (H) PREFAB PAV MRK TY C (W)36"(YLD TRI)
- (I) PREFAB PAV MRK TY C (W)(WORD)
- (J) REFL PAV MRKR TY I-C
- (K) REFL PAV MRKR TY II-A-A
- (L) REFL PAV MRK TY II-C-R
- (M) RUMBLE STRIPS (SHOULDER)
- (N) REFL PAV MARK TY I (W) 4" (DOT) (100 MIL)
- (O) REFL PAV MRK TY I (W)8"(DOT)(100MIL)
- SIGN (SMALL SIGN)
- SIGN (LARGE SIGN)
- TYPE D-DY DELINEATOR (CROSSOVER)
- (#-#) EXISTING SMALL SIGN TO REMAIN & NUMBER (SHEET AND SIGN NUMBER)
- [#-#] PROPOSED SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- (#-#) REMOVE EXISTING SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- [R-#-#] PROPOSED ALUMINIUM SIGN (REPLACEMENT AND NUMBER)
- [L-#] PROPOSED LARGE SIGN & NUMBER
- (L-#) REMOVE EXISTING LARGE SIGN & NUMBER
- DIRECTIONAL TRAFFIC FLOW

0 25 50 100 FT
HORIZONTAL SCALE

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
SIGNING AND PAVEMENT MARKING LAYOUT

STA 549+00.00 to STA 573+00.00

SHEET 24 OF 31

Texas Department of Transportation

LOCHNER
TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		175
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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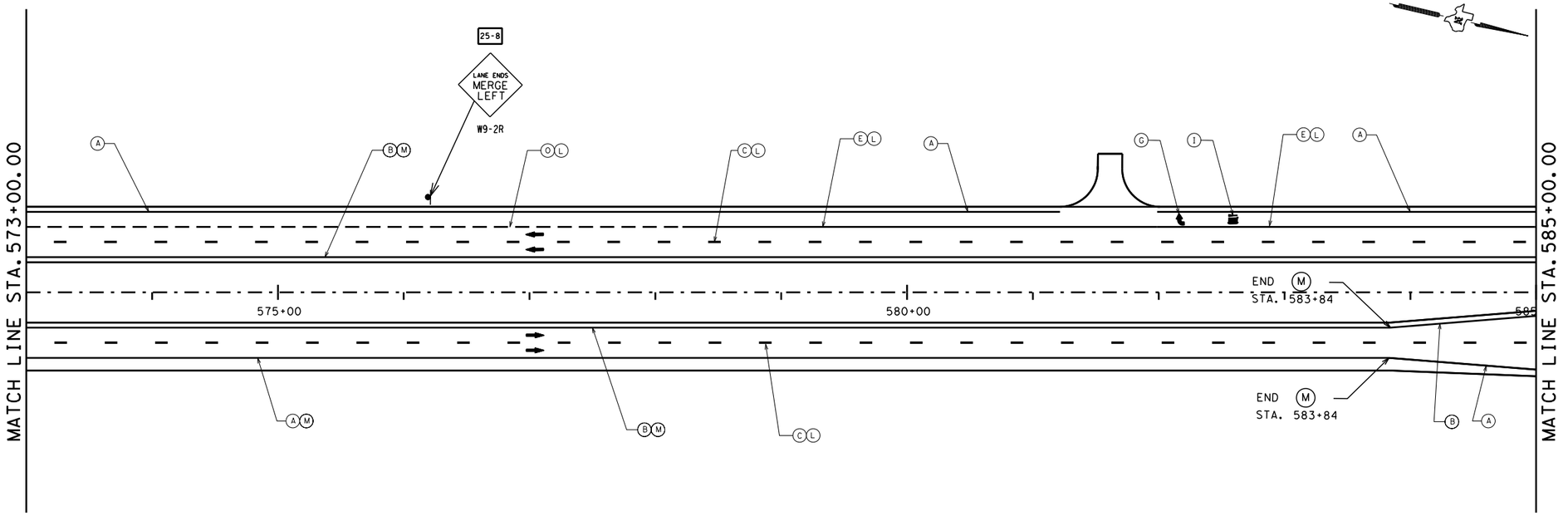
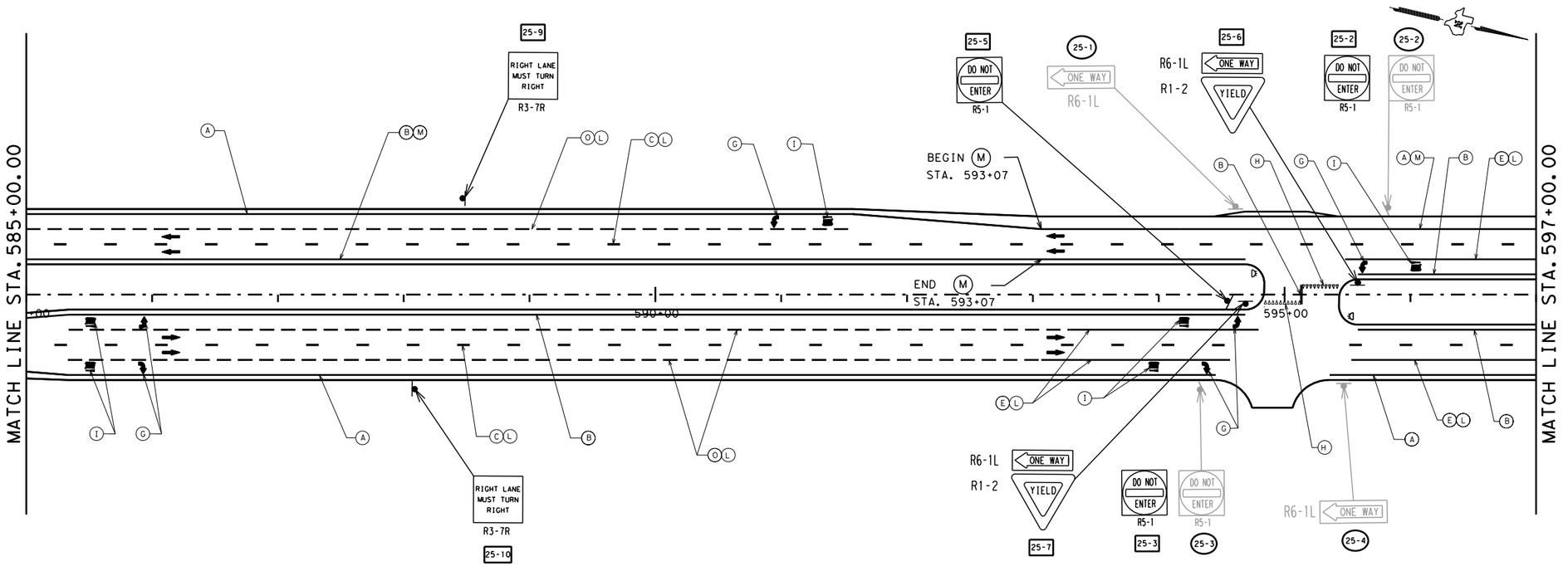


LEGEND

- (A) RE PM W/RET REQ TY I (W)4"(SLD)(100MIL)
- (B) RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)
- (C) RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)
- (D) RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)
- (E) REFL PAV MRK TY I (W)8"(SLD)(100MIL)
- (F) REFL PAV MRK TY I (W)24"(SLD)(100MIL)
- (G) PREFAB PAV MRK TY C (W)(ARROW)
- (H) PREFAB PAV MRK TY C (W)36"(YLD TRI)
- (I) PREFAB PAV MRK TY C (W)(WORD)
- (J) REFL PAV MRKR TY I-C
- (K) REFL PAV MRKR TY II-A-A
- (L) REFL PAV MRK TY II-C-R
- (M) RUMBLE STRIPS (SHOULDER)
- (N) REFL PAV MARK TY I (W) 4" (DOT) (100 MIL)
- (O) REFL PAV MRK TY I (W)8"(DOT)(100MIL)
- SIGN (SMALL SIGN)
- SIGN (LARGE SIGN)
- TYPE D-DY DELINEATOR (CROSSOVER)
- #-# EXISTING SMALL SIGN TO REMAIN & NUMBER (SHEET AND SIGN NUMBER)
- #-# PROPOSED SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- #-# REMOVE EXISTING SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- R-#-# PROPOSED ALUMINIUM SIGN (REPLACEMENT AND NUMBER)
- L-# PROPOSED LARGE SIGN & NUMBER
- L-# REMOVE EXISTING LARGE SIGN & NUMBER
- DIRECTIONAL TRAFFIC FLOW



0 25 50 100 FT
HORIZONTAL SCALE

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED
PROFESSIONAL ENGINEER
P.E.

US 385
SIGNING AND PAVEMENT MARKING LAYOUT

STA 573+00.00 to STA 597+00.00

SHEET 25 OF 31

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LOCHNER
TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		176
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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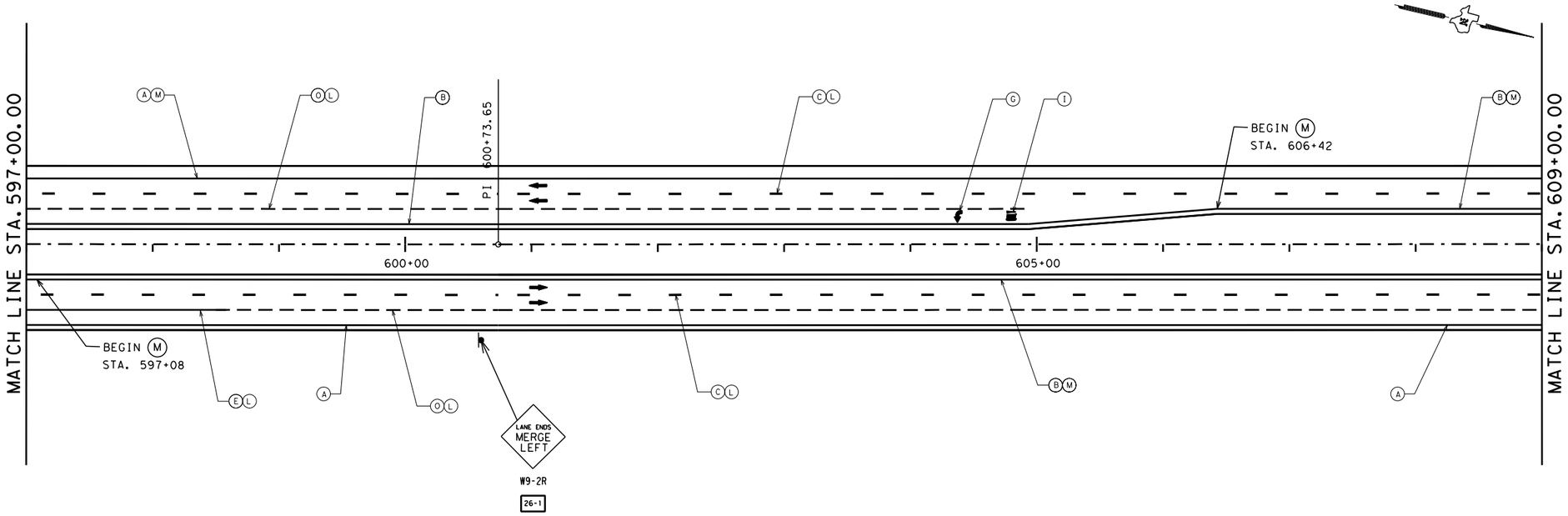

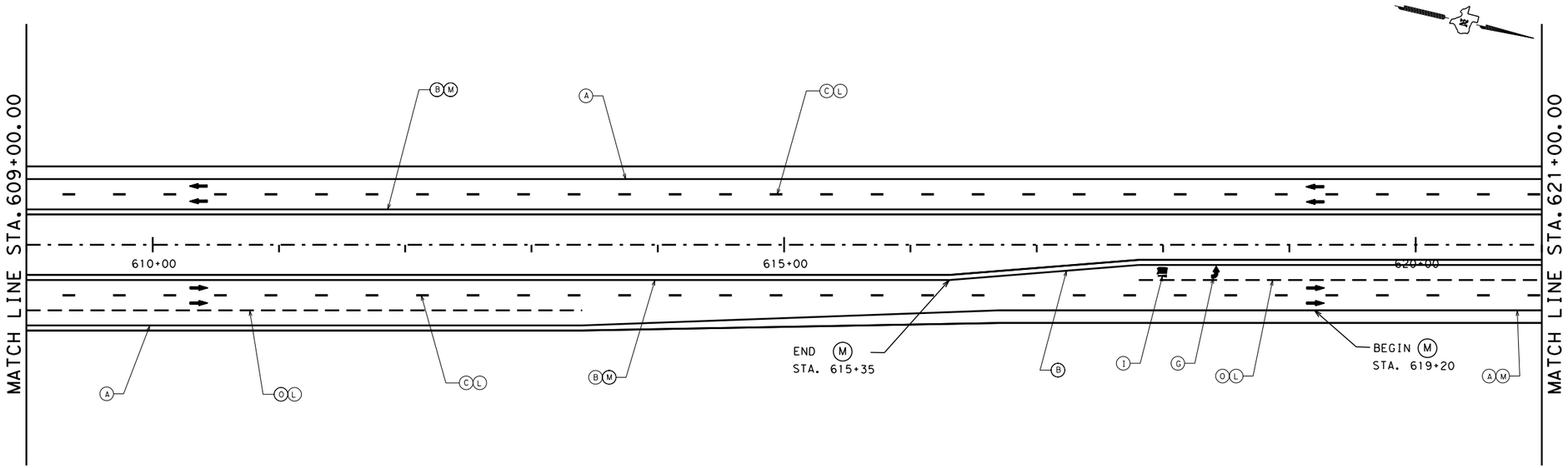

LEGEND

- (A) RE PM W/RET REQ TY I (W)4"(SLD)(100MIL)
- (B) RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)
- (C) RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)
- (D) RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)
- (E) REFL PAV MRK TY I (W)8"(SLD)(100MIL)
- (F) REFL PAV MRK TY I (W)24"(SLD)(100MIL)
- (G) PREFAB PAV MRK TY C (W)(ARROW)
- (H) PREFAB PAV MRK TY C (W)36"(YLD TRI)
- (I) PREFAB PAV MRK TY C (W)(WORD)
- (J) REFL PAV MRKR TY I-C
- (K) REFL PAV MRKR TY II-A-A
- (L) REFL PAV MRK TY II-C-R
- (M) RUMBLE STRIPS (SHOULDER)
- (N) REFL PAV MARK TY I (W) 4" (DOT) (100 MIL)
- (O) REFL PAV MRK TY I (W)8"(DOT)(100MIL)
- SIGN (SMALL SIGN)
- SIGN (LARGE SIGN)
- TYPE D-DY DELINEATOR (CROSSOVER)
- (#-#) EXISTING SMALL SIGN TO REMAIN & NUMBER (SHEET AND SIGN NUMBER)
- [#-#] PROPOSED SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- (#-#) REMOVE EXISTING SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- [R-#-#] PROPOSED ALUMINIUM SIGN (REPLACEMENT AND NUMBER)
- [L-#] PROPOSED LARGE SIGN & NUMBER
- (L-#) REMOVE EXISTING LARGE SIGN & NUMBER
- DIRECTIONAL TRAFFIC FLOW

0 25 50 100 FT
HORIZONTAL SCALE

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
SIGNING AND PAVEMENT MARKING LAYOUT

STA 597+00.00 to STA 621+00.00

SHEET 26 OF 31

Texas Department of Transportation
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LOCHNER
TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		177
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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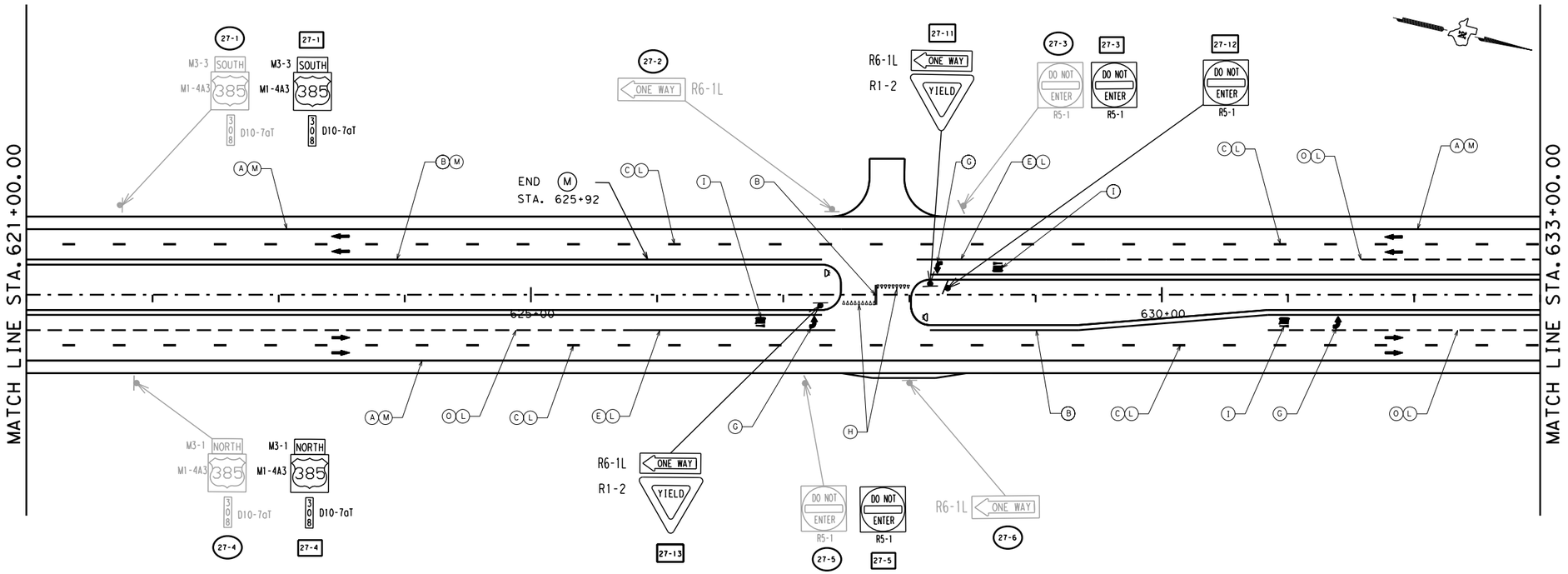

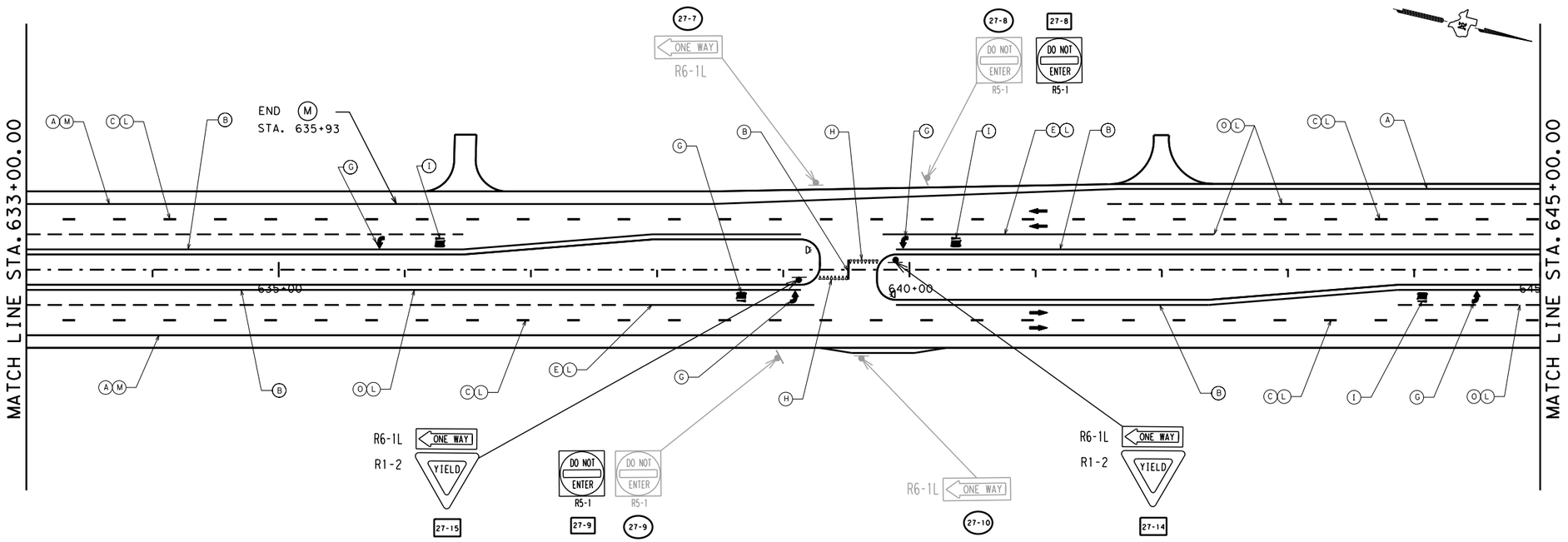

LEGEND

- (A) RE PM W/RET REQ TY I (W)4"(SLD)(100MIL)
- (B) RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)
- (C) RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)
- (D) RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)
- (E) REFL PAV MRK TY I (W)8"(SLD)(100MIL)
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- (G) PREFAB PAV MRK TY C (W)(ARROW)
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- (K) REFL PAV MRKR TY II-A-A
- (L) REFL PAV MRK TY II-C-R
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- SIGN (SMALL SIGN)
- SIGN (LARGE SIGN)
- TYPE D-DY DELINEATOR (CROSSOVER)
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- [R-#-#] PROPOSED ALUMINIUM SIGN (REPLACEMENT AND NUMBER)
- [L-#] PROPOSED LARGE SIGN & NUMBER
- (L-#) REMOVE EXISTING LARGE SIGN & NUMBER
- DIRECTIONAL TRAFFIC FLOW

0 25 50 100 FT
HORIZONTAL SCALE

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
SIGNING AND PAVEMENT MARKING LAYOUT

STA 521+00.00 to STA 645+00.00

SHEET 27 OF 31

Texas Department of Transportation

LOCHNER
TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		178
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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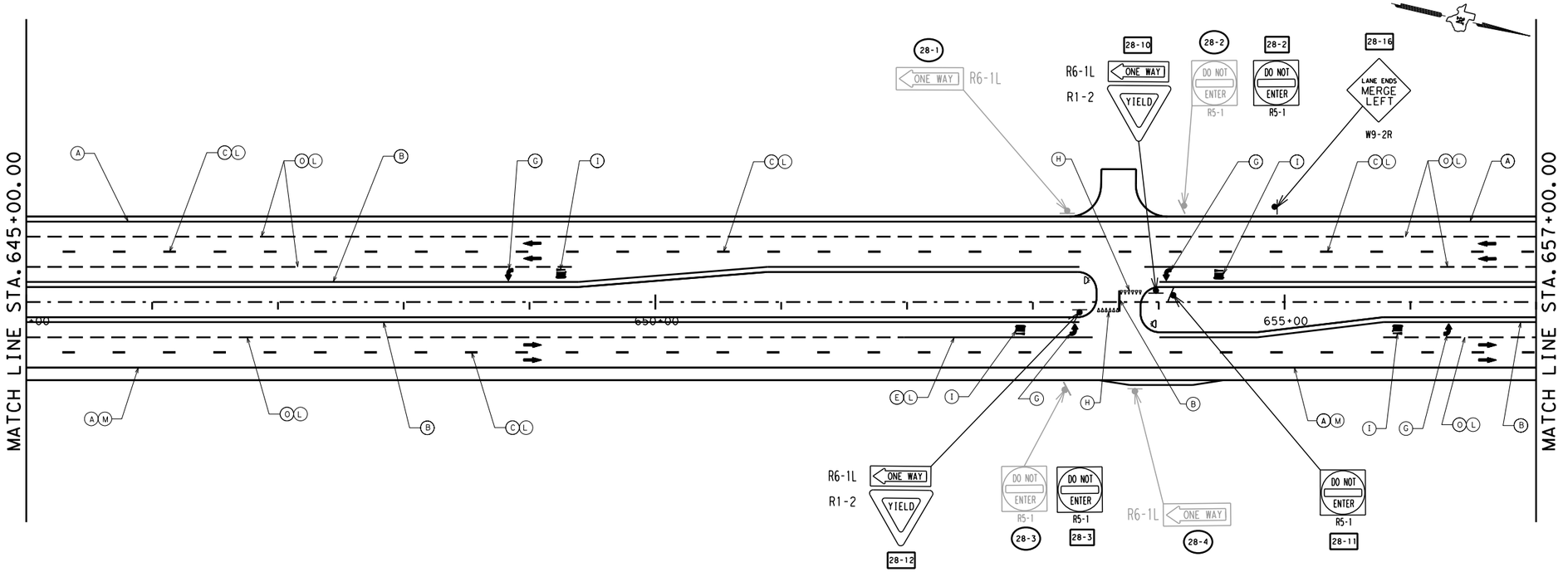

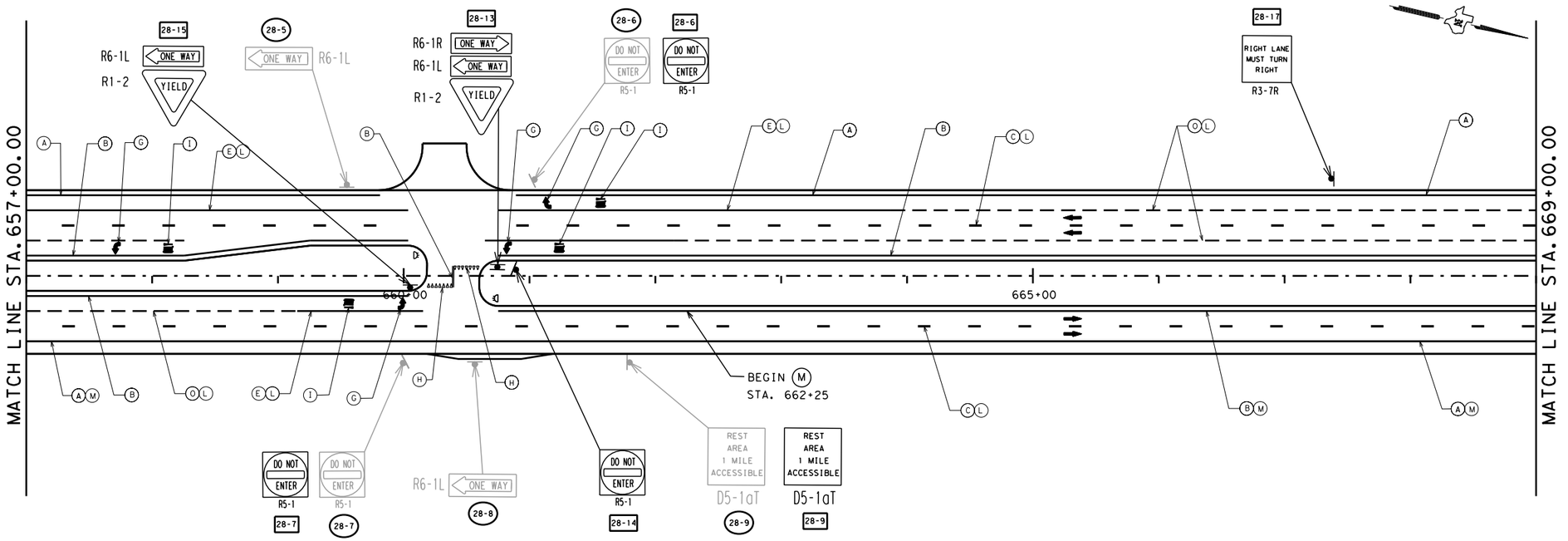

LEGEND

- (A) RE PM W/RET REQ TY I (W)4"(SLD)(100MIL)
- (B) RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)
- (C) RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)
- (D) RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)
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- R-#-# PROPOSED ALUMINIUM SIGN (REPLACEMENT AND NUMBER)
- L-# PROPOSED LARGE SIGN & NUMBER
- L-# REMOVE EXISTING LARGE SIGN & NUMBER
- DIRECTIONAL TRAFFIC FLOW

0 25 50 100 FT
HORIZONTAL SCALE

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
SIGNING AND PAVEMENT MARKING LAYOUT

STA 645+00.00 to STA 669+00.00

SHEET 28 OF 31

Texas Department of Transportation

LOCHNER
TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		179
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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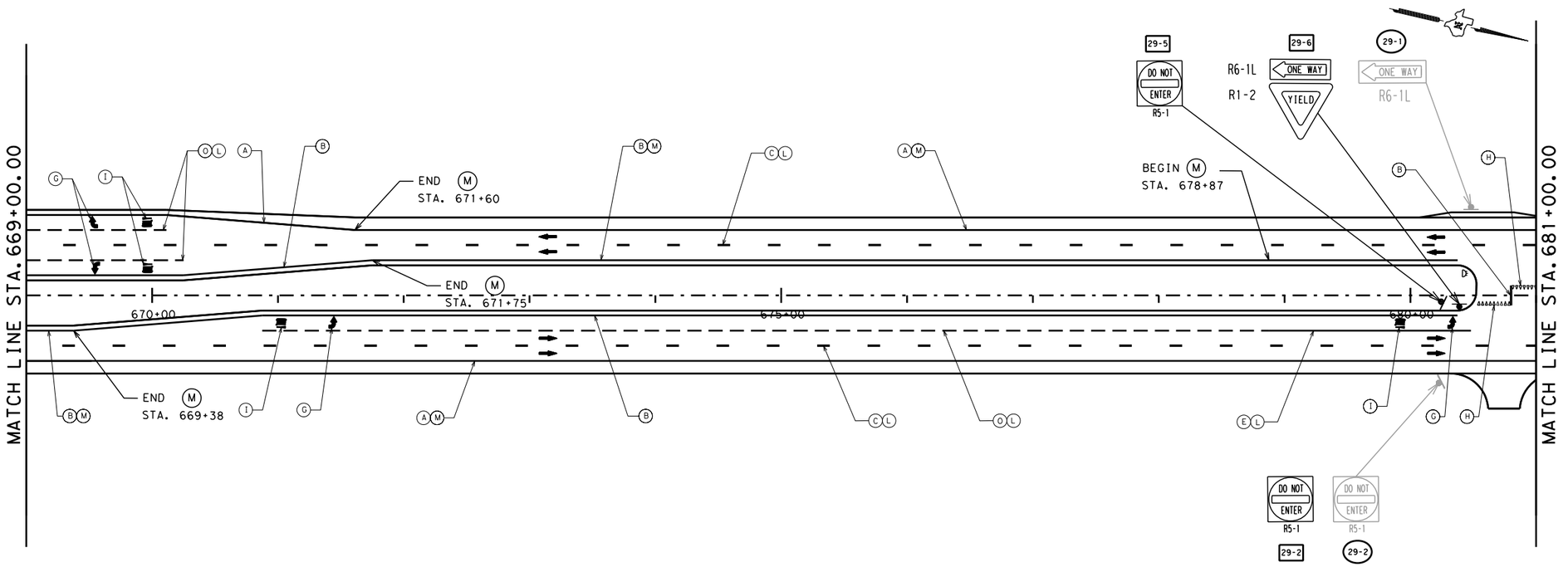

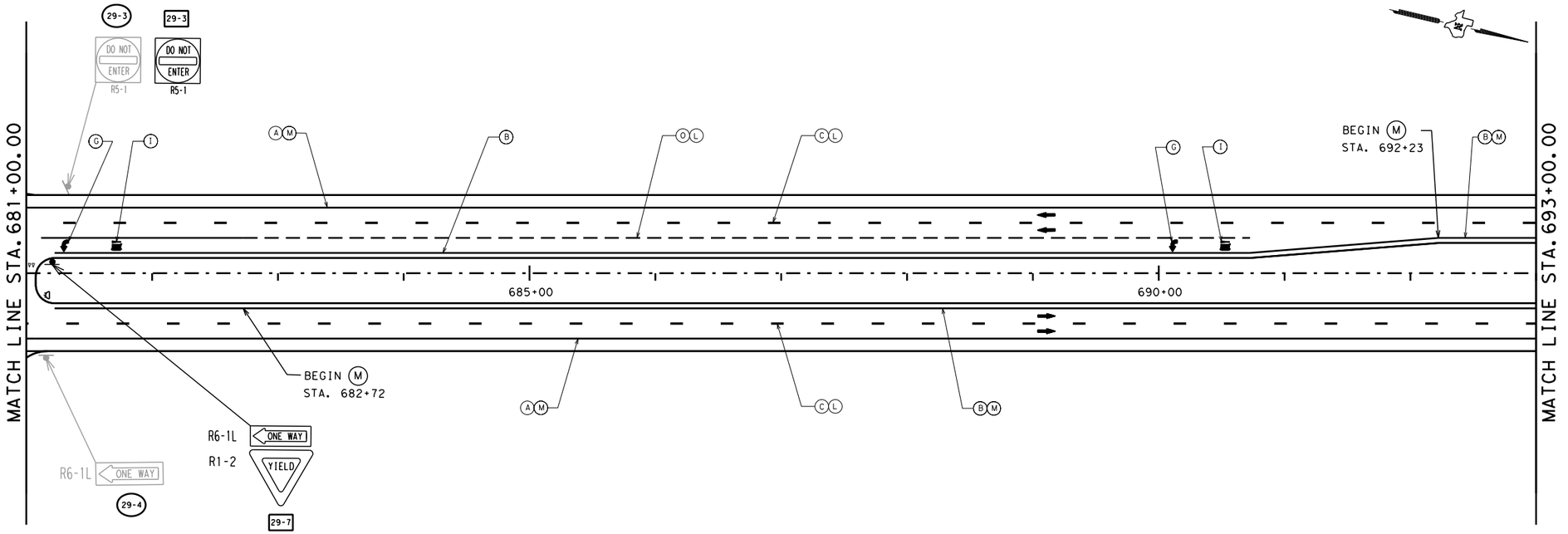

LEGEND

- (A) RE PM W/RET REQ TY I (W)4"(SLD)(100MIL)
- (B) RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)
- (C) RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)
- (D) RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)
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- (F) REFL PAV MRK TY I (W)24"(SLD)(100MIL)
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- (H) PREFAB PAV MRK TY C (W)36"(YLD TRI)
- (I) PREFAB PAV MRK TY C (W)(WORD)
- (J) REFL PAV MRKR TY I-C
- (K) REFL PAV MRKR TY II-A-A
- (L) REFL PAV MRK TY II-C-R
- (M) RUMBLE STRIPS (SHOULDER)
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- R-#-# PROPOSED ALUMINIUM SIGN (REPLACEMENT AND NUMBER)
- L-# PROPOSED LARGE SIGN & NUMBER
- (L-#) REMOVE EXISTING LARGE SIGN & NUMBER
- DIRECTIONAL TRAFFIC FLOW

0 25 50 100 FT
HORIZONTAL SCALE

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385 SIGNING AND PAVEMENT MARKING LAYOUT

STA 669+00.00 to STA 693+00.00

SHEET 29 OF 31

Texas Department of Transportation

LOCHNER
TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		180
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

FILE: A385HA29.dgn
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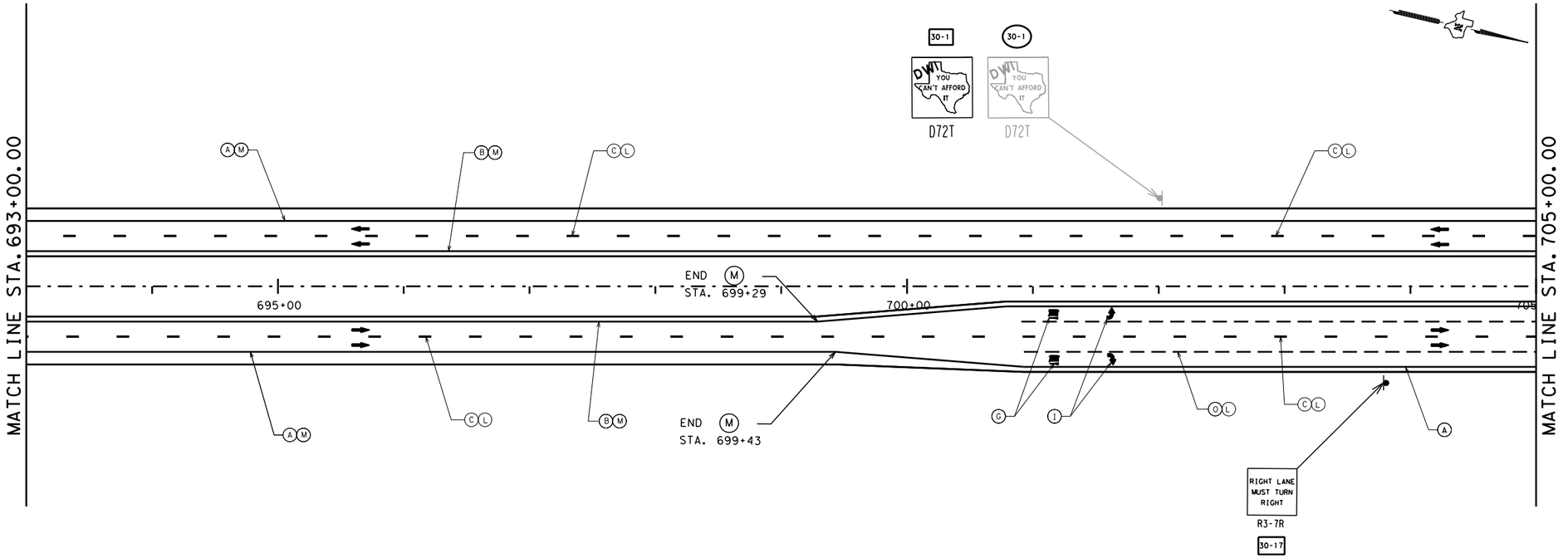

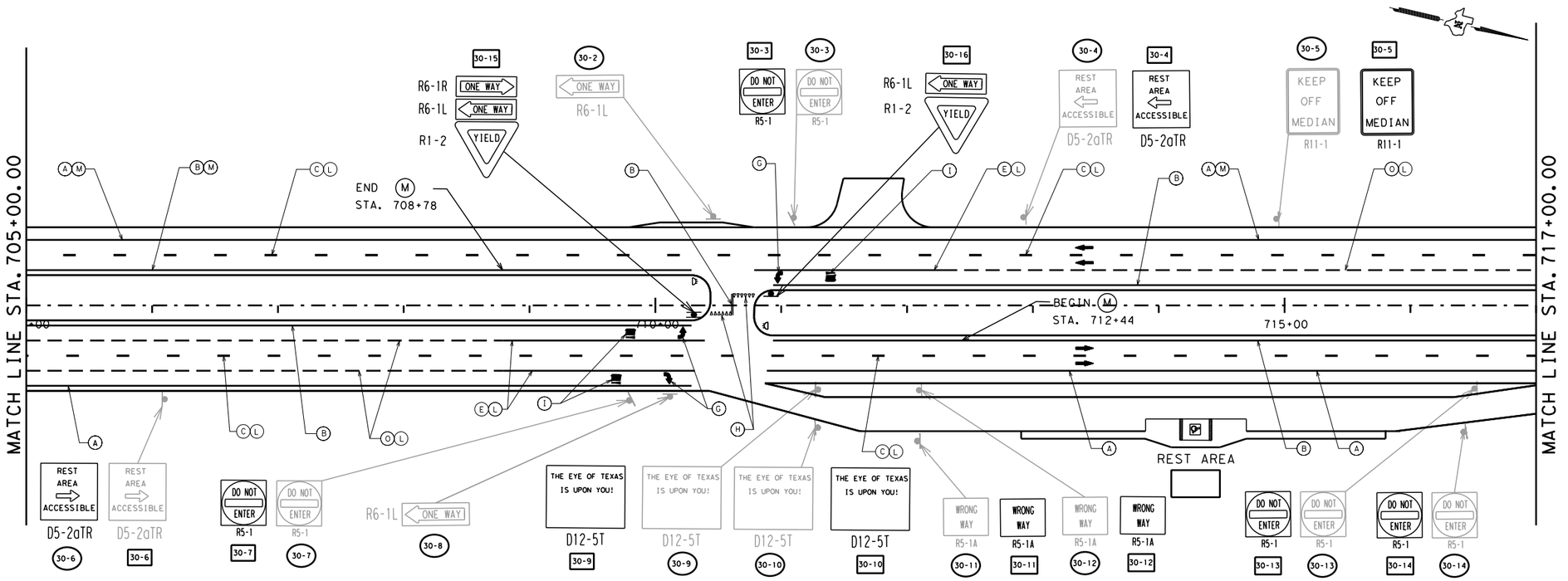

LEGEND

- (A) RE PM W/RET REQ TY I (W)4"(SLD)(100MIL)
- (B) RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)
- (C) RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)
- (D) RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)
- (E) REFL PAV MRK TY I (W)8"(SLD)(100MIL)
- (F) REFL PAV MRK TY I (W)24"(SLD)(100MIL)
- (G) PREFAB PAV MRK TY C (W)(ARROW)
- (H) PREFAB PAV MRK TY C (W)36"(YLD TRI)
- (I) PREFAB PAV MRK TY C (W)(WORD)
- (J) REFL PAV MRKR TY I-C
- (K) REFL PAV MRKR TY II-A-A
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- (M) RUMBLE STRIPS (SHOULDER)
- (N) REFL PAV MARK TY I (W) 4" (DOT) (100 MIL)
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- (#-#) REMOVE EXISTING SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- [R-#-#] PROPOSED ALUMINIUM SIGN (REPLACEMENT AND NUMBER)
- [L-#] PROPOSED LARGE SIGN & NUMBER
- (L-#) REMOVE EXISTING LARGE SIGN & NUMBER
- DIRECTIONAL TRAFFIC FLOW

0 25 50 100 FT
HORIZONTAL SCALE

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385 SIGNING AND PAVEMENT MARKING LAYOUT

STA 693+00.00 to STA 717+00.00

SHEET 30 OF 31

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LOCHNER
TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		181
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

FILE: A385HA30.dgn
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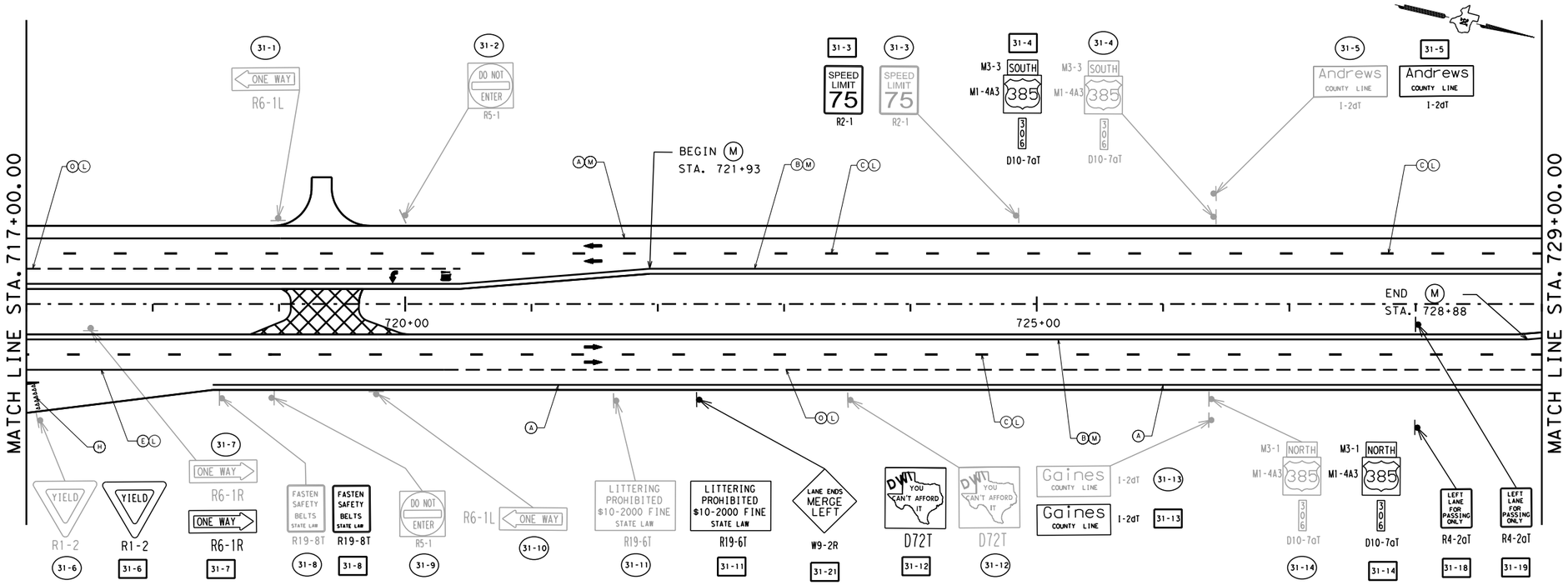

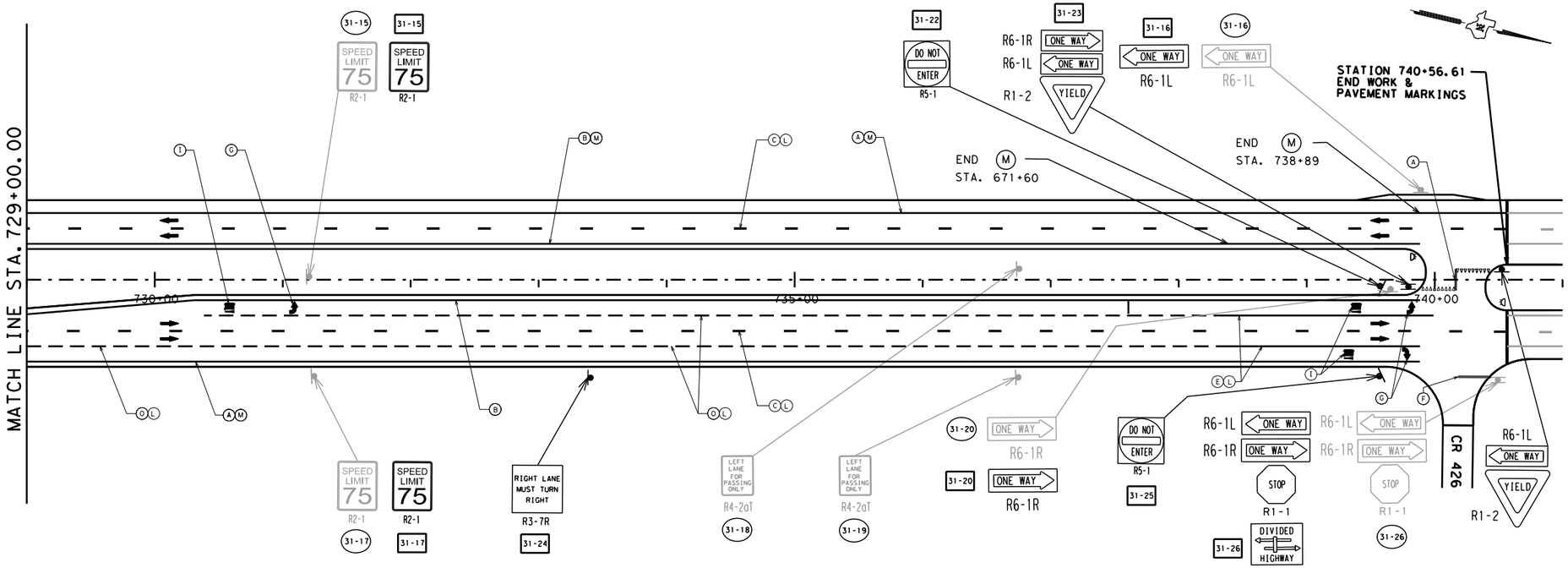

LEGEND

- (A) RE PM W/RET REQ TY I (W) 4" (SLD) (100MIL)
- (B) RE PM W/RET REQ TY I (Y) 4" (SLD) (100MIL)
- (C) RE PM W/RET REQ TY I (W) 4" (BRK) (100MIL)
- (D) RE PM W/RET REQ TY I (Y) 4" (BRK) (100MIL)
- (E) REFL PAV MRK TY I (W) 8" (SLD) (100MIL)
- (F) REFL PAV MRK TY I (W) 24" (SLD) (100MIL)
- (G) PREFAB PAV MRK TY C (W) (ARROW)
- (H) PREFAB PAV MRK TY C (W) 36" (YLD TRI)
- (I) PREFAB PAV MRK TY C (W) (WORD)
- (J) REFL PAV MRKR TY I-C
- (K) REFL PAV MRKR TY II-A-A
- (L) REFL PAV MRK TY II-C-R
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- (L-#) REMOVE EXISTING LARGE SIGN & NUMBER
- DIRECTIONAL TRAFFIC FLOW

0 25 50 100 FT
HORIZONTAL SCALE

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385 SIGNING AND PAVEMENT MARKING LAYOUT

STA 717+00.00 to STA 740+09.18

SHEET 31 OF 31

Texas Department of Transportation
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LOCHNER
TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		182
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

FILE: A385HA31.dgn
DATE: 5/28/2020 TIME: 8:23:17 PM
DIRECTORY: I:\TYL\PRJ\000014121\TREA\DGN*A\PSE*A\TRAFFIC\A385HA31.dgn

STATION	LOC.	SIGN TYPE	SIGN TEXT	SIGN DIMENSIONS	0644-2060 REMOVE SM RD SN SUP & AM
ANDREWS COUNTY (US 385)					EA.
2+61	SB	R2-1	SPEED LIMIT 35	30" X 36"	1
2+63	NB	R2-1	SPEED LIMIT 45	30" X 36"	1
16+81	SB	R2-1	SPEED LIMIT 45	30" X 36"	1
12+72	NB	W3-3	SIGNAL AHEAD	48" X 48"	1
17+03	NB	R2-1	SPEED LIMIT 45	30" X 36"	1
25+36	SB	D9-2	HOSPITAL H	24" X 24"	1
		M6-1L	←	21" X 15"	
27+42	SB	R2-1	SPEED LIMIT 45	30" X 36"	1
27+92	SB	I-2aT	ANDREWS city limit	58" X 24"	1
31+35	SB	R1-1	STOP	36" X 36"	1
26+50	NB	M3-1	NORTH	21" X 15"	1
		M1-4B3	385	30" X 24"	
26+69	NB	D9-2	HOSPITAL H	24" X 24"	1
		M6-1R	→	21" X 15"	
27+72	NB	R2-1	SPEED LIMIT 55	30" X 36"	1
29+58	NB	D2-2	Seminole 27	56" X 30"	1
			Brownfield 67		
34+03	SB	R5-4aT	NO ENGINE BREAK	36" X 48"	1
			BY CITY ORDINANCE		
40+45	SB	R1-1	STOP	36" X 36"	1
43+13	NB	W2-1	INTERSECTION WARNING ✛	36" X 36"	1
49+55	SB	R2-1	SPEED LIMIT 55	30" X 36"	1
52+29	SB	R1-1	STOP	36" X 36"	1
56+78	SB	W2-1	INTERSECTION WARNING ✛	36" X 36"	1
49+60	NB	R2-1	SPEED LIMIT 60	30" X 36"	1
52+91	NB	R1-1	STOP	36" X 36"	1
61+07	NB	R19-6aT	LITTERING PROHIBITED	48" X 30"	1
			$10 - 2000 FINE		
			STATE LAW		
68+33	NB	W6-1	DIVIDED HIGHWAY	36" X 36"	1
69+18	SB	W6-2	DIVIDED HIGHWAY	36" X 36"	1
72+18	SB	R6-1L	ONE WAY	54" X 18"	1
73+10	SB	R5-1	DO NOT ENTER	36" X 36"	1
74+34	SB	R6-1L	ONE WAY	54" X 18"	1
75+28	SB	R5-1	DO NOT ENTER	36" X 36"	1
78+75	SB	R2-1	SPEED LIMIT 60	36" X 48"	1
79+38	SB	R6-1L	ONE WAY	54" X 18"	1
80+48	SB	R5-1	DO NOT ENTER	36" X 36"	1
71+53	CENTER	R4-7	KEEP RIGHT	36" X 48"	1
71+80	NB	R-1	DO NOT ENTER	36" X 36"	1
72+34	CENTER	R6-1R	ONE WAY	54" X 18"	1
73+02	NB	R6-1R	ONE WAY	54" X 18"	1
		R6-1L	ONE WAY	54" X 18"	
		R1-1	STOP	36" X 36"	
				SUBTOTAL:	35

STATION	LOC.	SIGN TYPE	SIGN TEXT	SIGN DIMENSIONS	0644-2060 REMOVE SM RD SN SUP & AM
ANDREWS COUNTY (US 385)					EA.
74+39	NB	R5-1	DO NOT ENTER	36" X 36"	1
74+72	NB	R6-1L	ONE WAY	54" X 18"	1
76+69	NB	M2-1	JCT	21" X 15"	1
		M1-6F	FARM ROAD	24" X 24"	
78+88	NB	R5-1	DO NOT ENTER	36" X 36"	1
80+16	NB	R6-1L	ONE WAY	54" X 18"	1
85+10	CENTER	R5-1	DO NOT ENTER	36" X 36"	1
85+25	SB	R6-1L	ONE WAY	54" X 18"	1
85+11	SB	R1-2	YIELD	48" X 48" X 48"	1
86+16	SB	R1-2	YIELD	48" X 48" X 48"	1
86+04	SB	M3-3	SOUTH	24" X 12"	1
		M1-4A3	385	30" X 24"	
		M6-1L	←	21" X 15"	
86+18	SB	R6-1L	ONE WAY	54" X 18"	1
86+90	SB	R5-1	DO NOT ENTER	36" X 36"	1
87+45	CENTER	R5-1A	WRONG WAY	42" X 30"	1
87+67	SB	R5-1A	WRONG WAY	42" X 30"	1
87+92	SB	R14-1	TRUCK ROUTE	24" X 18"	1
		M3-2	EAST	24" X 12"	1
		M6-1L	←	21" X 15"	
		R14-1	TRUCK ROUTE	24" X 18"	
		M3-4	WEST	24" X 12"	
		M6-1R	→	21" X 15"	
92+03	SB	R2-1	SPEED LIMIT 60	36" X 48"	
83+60	CENTER	R5-1A	WRONG WAY	42" X 30"	1
83+56	NB	R5-1A	WRONG WAY	42" X 30"	1
84+26	NB	R5-1	DO NOT ENTER	36" X 36"	1
84+95	CENTER	R6-1R	ONE WAY	54" X 18"	1
85+25	NB	M3-3	NORTH	24" X 12"	1
		M1-4A3	385	30" X 24"	
		M6-1R	→	21" X 15"	
85+14	NB	R1-2	YIELD	48" X 48" X 48"	1
86+56	NB	R1-2	YIELD	48" X 48" X 48"	1
86+14	NB	R6-1L	ONE WAY	54" X 18"	1
86+33	CENTER	R5-1	DO NOT ENTER	36" X 36"	1
91+50	NB	M3-3	NORTH	24" X 12"	1
		M1-4A3	385	30" X 24"	
		D10-7aT	318	3" X 10"	
98+20	SB	W3-3	SIGNAL AHEAD	36" X 36"	1
98+37	SB	M3-3	SOUTH	24" X 12"	1
		M1-4A3	385	30" X 24"	
		D10-7aT	318	3" X 10"	
101+48	SB	W3-5	REDUCE SPEED LIMIT AHEAD	36" X 36"	1
102+55	SB	R6-1L	ONE WAY	54" X 18"	1
103+21	SB	R5-1	DO NOT ENTER	36" X 36"	1
97+02	NB	R2-1	SPEED LIMIT 75	36" X 48"	1
102+19	NB	R5-1	DO NOT ENTER	36" X 36"	1
				SUBTOTAL:	33
				SHEET SUBTOTAL:	68

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
SIGN REMOVAL SUMMARY

SHEET 1 OF 5

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LOCHNER
TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		183
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

FILE: A385*SIGNING REMOVAL SUMMARY.DGN
DATE: 5/28/2020 TIME: 8:23:25 PM
DIRECTORY: I:\TYL\PRJ\00001412\TREA\DGN*A\PSE*A\TRAFFIC\A385*SIGNING REMOVAL SUMMARY.DGN

STATION	LOC.	SIGN TYPE	SIGN TEXT	SIGN DIMENSIONS	0644-2060 REMOVE SM RD SN SUP & AM
ANDREWS COUNTY (US 385)					EA.
103+18	NB	R6-1L	ONE WAY	54" X 18"	1
105+45	NB	R5-1	DO NOT ENTER	36" X 36"	1
106+05	SB	R6-1L	ONE WAY	54" X 18"	1
107+12	SB	R5-1	DO NOT ENTER	36" X 36"	1
108+80	SB	R6-1R	ONE WAY	54" X 18"	
	SB	R6-1L	ONE WAY	54" X 18"	1
	SB	R1-1	STOP	36" X 36"	
110+57	SB	R6-1L	ONE WAY	54" X 18"	1
111+64	SB	R5-1	DO NOT ENTER	36" X 36"	1
110+57	SB	R6-1L	ONE WAY	54" X 18"	1
111+65	SB	R5-1	DO NOT ENTER	36" X 36"	1
115+38	SB	R6-1L	ONE WAY	54" X 18"	1
116+61	SB	R5-1	DO NOT ENTER	36" X 36"	1
106+87	NB	R6-1R	ONE WAY	54" X 18"	
		R6-1L	ONE WAY	54" X 18"	1
		R1-1	STOP	36" X 36"	
108+58	NB	R5-1	DO NOT ENTER	36" X 36"	1
109+30	NB	R6-1L	ONE WAY	54" X 18"	1
110+44	NB	R5-1	DO NOT ENTER	36" X 36"	1
111+13	NB	R6-1L	ONE WAY	54" X 18"	1
114+49	NB	R5-1	DO NOT ENTER	36" X 36"	1
115+89	NB	R6-1R	ONE WAY	54" X 18"	
		R6-1L	ONE WAY	54" X 18"	1
		R1-1	STOP	36" X 36"	
119+10	SB	R6-1L	ONE WAY	54" X 18"	1
120+37	SB	R5-1	DO NOT ENTER	36" X 36"	1
125+39	SB	R6-1L	ONE WAY	54" X 18"	1
126+33	SB	R5-1	DO NOT ENTER	36" X 36"	1
118+83	NB	R5-1	DO NOT ENTER	36" X 36"	1
119+98	NB	R6-1L	ONE WAY	54" X 18"	1
124+96	NB	R5-1	DO NOT ENTER	36" X 36"	1
126+16	NB	R6-1R	ONE WAY	54" X 18"	
		R6-1L	ONE WAY	54" X 18"	1
		R1-1	STOP	36" X 36"	
150+53	SB	R6-1L	ONE WAY	54" X 18"	1
151+54	SB	R5-1	DO NOT ENTER	36" X 36"	1
143+14	NB	W2-2R	INTERSECTION WARNING	36" X 36"	1
147+60	NB	D1-1	Landfill →	72" X 18"	1
149+88	NB	R5-1	DO NOT ENTER	36" X 36"	1
151+19	NB	R6-1R	ONE WAY	54" X 18"	
		R6-1L	ONE WAY	54" X 18"	1
		R1-1	STOP	36" X 36"	
153+22	SB	D1-1	Landfill →	78" X 18"	1
158+29	SB	W2-2L	INTERSECTION WARNING	36" X 36"	1
				SUBTOTAL:	34

STATION	LOC.	SIGN TYPE	SIGN TEXT	SIGN DIMENSIONS	0644-2060 REMOVE SM RD SN SUP & AM
ANDREWS COUNTY (US 385)					EA.
171+33	SB	R6-1L	ONE WAY	54" X 18"	1
172+18	SB	R5-1	DO NOT ENTER	36" X 36"	1
170+84	NB	R5-1	DO NOT ENTER	36" X 36"	1
171+84	NB	R6-1L	ONE WAY	54" X 18"	1
188+92	NB	R5-1	DO NOT ENTER	36" X 36"	1
189+67	SB	R6-1L	ONE WAY	54" X 18"	1
190+80	SB	R5-1	DO NOT ENTER	36" X 36"	1
196+99	SB	R6-1L	ONE WAY	54" X 18"	1
198+01	SB	R5-1	DO NOT ENTER	36" X 36"	1
190+56	NB	R6-1L	ONE WAY	54" X 18"	1
196+45	NB	R5-1	DO NOT ENTER	36" X 36"	1
197+56	NB	R6-1L	ONE WAY	54" X 18"	1
203+30	SB	M3-1	SOUTH	24" X 12"	
		M1-4A3	385	30" X 24"	1
		D10-7aT	316	3" X 10"	
203+65	SB	R6-1L	ONE WAY	54" X 18"	1
204+41	SB	R5-1	DO NOT ENTER	36" X 36"	1
202+83	NB	M3-1	NORTH	24" X 12"	
		M1-4A3	385	30" X 24"	1
		D10-7aT	316	3" X 10"	
203+21	NB	R5-1	DO NOT ENTER	36" X 36"	1
204+06	NB	R6-1L	ONE WAY	54" X 18"	1
224+42	SB	R6-1L	ONE WAY	54" X 18"	1
225+38	NB	R5-1	DO NOT ENTER	36" X 36"	1
223+91	SB	R5-1	DO NOT ENTER	36" X 36"	1
225+11	NB	R6-1L	ONE WAY	54" X 18"	1
258+58	SB	R6-1R	ONE WAY	54" X 18"	
		R6-1L	ONE WAY	54" X 18"	1
		R1-1	STOP	36" X 36"	
259+59	SB	R5-1	DO NOT ENTER	36" X 36"	1
258+47	NB	R5-1	DO NOT ENTER	36" X 36"	1
259+37	NB	R6-1L	ONE WAY	54" X 18"	1
284+78	SB	R6-1L	ONE WAY	54" X 18"	1
284+48	NB	R5-1	DO NOT ENTER	36" X 36"	1
285+78	SB	R5-1	DO NOT ENTER	36" X 36"	1
285+12	NB	R6-1L	ONE WAY	54" X 18"	1
307+79	SB	M3-1	SOUTH	24" X 12"	
		M1-4A3	385	30" X 24"	1
		D10-7aT	314	3" X 10"	
308+15	SB	R6-1L	ONE WAY	54" X 18"	1
307+76	NB	M3-1	NORTH	24" X 12"	
		M1-4A3	385	30" X 24"	1
		D10-7aT	314	3" X 10"	
307+96	NB	R5-1	DO NOT ENTER	36" X 36"	1
				SUBTOTAL:	34
				SHEET SUBTOTAL:	68

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DATE: 5/28/2020 TIME: 8:23:25 PM
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05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
SIGN REMOVAL SUMMARY

SHEET 2 OF 5

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FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		184
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

STATION	LOC.	SIGN TYPE	SIGN TEXT	SIGN DIMENSIONS	0644-2060 REMOVE SM RD SN SUP & AM
ANDREWS COUNTY (US 385)					EA.
308+83	NB	R6-1L	ONE WAY	54" X 18"	1
309+18	SB	R5-1	DO NOT ENTER	36" X 36"	1
335+93	SB	R6-1L	ONE WAY	54" X 18"	1
336+67	SB	R5-1	DO NOT ENTER	36" X 36"	1
335+43	NB	R5-1	DO NOT ENTER	36" X 36"	1
336+39	NB	R6-1L	ONE WAY	54" X 18"	1
348+72	SB	R6-1L	ONE WAY	54" X 18"	1
349+83	SB	R5-1	DO NOT ENTER	36" X 36"	1
348+38	NB	R5-1	DO NOT ENTER	36" X 36"	1
349+50	NB	R6-1L	ONE WAY	54" X 18"	1
351+12	NB	W2-2L	INTERSECTION WARNING	36" X 36"	1
352+43	NB	M2-1	JCT	21" X 15"	1
		M1-6F	FARM ROAD	24" X 24"	1
357+35	SB	D2-2	Andrews 8	78" X 30"	1
			Odessa 45		
361+07	SB	R6-1L	ONE WAY	54" X 18"	1
362+20	SB	R5-1	DO NOT ENTER	36" X 36"	1
364+27	SB	R2-1	SPEED LIMIT 75	30" X 36"	1
366+94	SB	M3-3	SOUTH	24" X 12"	1
		M1-4A3	385	30" X 24"	
360+89	NB	R5-1	DO NOT ENTER	36" X 36"	1
361+67	NB	R6-1L	ONE WAY	54" X 18"	1
364+24	NB	D1-2	↑ Seminole	102" X 30"	1
			← Frankel City		
368+61	NB	R5-1	DO NOT ENTER	36" X 36"	1
368+92	NB	M3-4	WEST	24" X 12"	1
		M1-6F	TEXAS FARM ROAD	24" X 24"	
		M6-1	←	21" X 15"	
		M3-1	NORTH	24" X 12"	
		M1-4A3	385	30" X 24"	
		M6-1	↑	21" X 15"	
369+47	SB	R6-1R	ONE WAY	54" X 18"	1
		R6-1L	ONE WAY	54" X 18"	
		R1-1	STOP	36" X 36"	
369+41	SB	M3-3	SOUTH	24" X 12"	1
		M1-4A3	385	30" X 24"	
		M6-1	←	21" X 15"	
370+50	SB	R6-1L	ONE WAY	54" X 18"	1
370+92	SB	M3-4	WEST	24" X 12"	1
		M1-6F	TEXAS FARM ROAD	24" X 24"	
		M6-1	→	21" X 15"	
371+21	SB	R5-1	DO NOT ENTER	36" X 36"	1
374+75	SB	R6-1L	ONE WAY	54" X 18"	1
375+94	SB	R5-1	DO NOT ENTER	36" X 36"	1
				SUBTOTAL:	30

STATION	LOC.	SIGN TYPE	SIGN TEXT	SIGN DIMENSIONS	0644-2060 REMOVE SM RD SN SUP & AM
ANDREWS COUNTY (US 385)					EA.
378+51	SB	D1-2	↑ Andrews	102 X 30"	1
			Frankel City →		
369+57	NB	M3-1	NORTH	24" X 12"	1
		M1-4A3	385	30" X 24"	
		M6-1	→	21" X 15"	
369+84	SB	R6-1L	ONE WAY	54" X 18"	1
370+11	NB	W1-9TL	← Chevron One Direction	96" X 36"	1
372+23	NB	M3-1	NORTH	24" X 12"	1
		M1-4A3	385	30" X 24"	
374+56	SB	R5-1	DO NOT ENTER	36" X 36"	1
375+23	SB	R6-1L	ONE WAY	54" X 18"	1
376+95	SB	R2-1	SPEED LIMIT 75	30" X 36"	1
386+19	NB	M2-1	JCT	21" X 15"	1
	SB	M1-6F	FARM ROAD	24" X 24"	
388+06	SB	R6-1L	ONE WAY	54" X 18"	1
389+15	SB	R5-1	DO NOT ENTER	36" X 36"	1
391+60	SB	W2-2L	INTERSECTION WARNING	36" X 36"	1
382+81	NB	D2-2	Seminole 20	96" X 30"	1
			Brownfield 60		
387+66	NB	R5-1	DO NOT ENTER	36" X 36"	1
388+70	NB	R6-1L	ONE WAY	54" X 18"	
406+72	SB	R6-1L	ONE WAY	54" X 18"	1
407+51	SB	R5-1	DO NOT ENTER	36" X 36"	1
412+50	SB	M3-1	SOUTH	24" X 12"	1
		M1-4A3	385	30" X 24"	
		D10-7aT	312	3" X 10"	
406+07	NB	R5-1	DO NOT ENTER	36" X 36"	1
407+05	NB	R6-1L	ONE WAY	54" X 18"	1
412+47	NB	M3-1	NORTH	24" X 12"	1
		M1-4A3	385	30" X 24"	
		D10-7aT	312	3" X 10"	
425+41	SB	R6-1L	ONE WAY	54" X 18"	1
426+16	SB	R5-1	DO NOT ENTER	36" X 36"	1
425+06	NB	R5-1	DO NOT ENTER	36" X 36"	1
426+26	NB	R6-1L	ONE WAY	54" X 18"	1
431+02	SB	R6-1L	ONE WAY	54" X 18"	1
432+59	SB	R5-1	DO NOT ENTER	36" X 36"	1
430+71	NB	R5-1	DO NOT ENTER	36" X 36"	1
431+56	NB	R6-1L	ONE WAY	54" X 18"	1
460+55	SB	R6-1L	ONE WAY	54" X 18"	1
461+56	SB	R5-1	DO NOT ENTER	36" X 36"	1
462+31	SB	D9-3a	TRAILER CAMPING	36" X 36"	1
		D5-5aTPR	←	36" X 36"	1
				SUBTOTAL:	34
				SHEET SUBTOTAL:	64

FILE: A385*SIGNING REMOVAL SUMMARY.DGN
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DIRECTORY: I:\TYL\PRJ\00001412\TREA\DGN*A\PSE*A\TRAFFIC\A385*SIGNING REMOVAL SUMMARY.DGN

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385 SIGN REMOVAL SUMMARY

SHEET 3 OF 5

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FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		185
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

STATION	LOC.	SIGN TYPE	SIGN TEXT	SIGN DIMENSIONS	0644-2060 REMOVE SM RD SN SUP & AM
ANDREWS COUNTY (US 385)					EA.
464+87	SB	D1-2	← FLOREY	60" X 24"	1
			COUNTY PARK		
453+41	NB	W2-2L	INTERSECTION WARNING	36" X 36"	1
456+34	NB	D1-2	FLOREY →	78" X 24"	1
			COUNTY PARK		
458+92	NB	D9-3a	TRAILER CAMPING	36" X 36"	1
		D5-5aTPR	→	36" X 36"	1
460+18	NB	R5-1	DO NOT ENTER	36" X 36"	1
460+39	CENTER	R6-1L	ONE WAY	54" X 18"	1
461+48	NB	R6-1R	ONE WAY	54" X 18"	1
		R6-1L	ONE WAY	54" X 18"	
		R1-1	STOP	36" X 36"	
473+61	SB	W2-2L	INTERSECTION WARNING	36" X 36"	1
485+09	SB	R6-1L	ONE WAY	54" X 18"	1
486+01	SB	R5-1	DO NOT ENTER	36" X 36"	1
484+81	NB	R5-1	DO NOT ENTER	36" X 36"	1
485+77	NB	R6-1L	ONE WAY	54" X 18"	1
512+44	SB	M3-1	SOUTH	24" X 12"	1
		M1-4A3	385	30" X 24"	
		D10-7aT	310	3" X 10"	
512+46	NB	M3-1	NORTH	24" X 12"	1
		M1-4A3	385	30" X 24"	
		D10-7aT	310	3" X 10"	
515+32	SB	R6-1L	ONE WAY	54" X 18"	1
516+02	SB	R5-1	DO NOT ENTER	36" X 36"	1
514+99	NB	R5-1	DO NOT ENTER	36" X 36"	1
515+63	NB	R6-1L	ONE WAY	54" X 18"	1
517+15	NB	W2-1	INTERSECTION WARNING	36" X 36"	1
519+21	NB		MONUMENT DRAW		1
527+51	SB	R6-1R	ONE WAY	54" X 18"	1
		R6-1L	ONE WAY	54" X 18"	
		R1-1	STOP	36" X 36"	
528+36	SB	R6-1R	ONE WAY	54" X 18"	1
		R6-1L	ONE WAY	54" X 18"	
		R1-1	STOP	36" X 36"	
528+76	SB	R1-2	YIELD	48" X 48" X 48"	1
529+57	SB	R5-1	DO NOT ENTER	36" X 36"	1
527+14	CENTER	R6-1L	ONE WAY	54" X 18"	1
526+93	NB	R5-1	DO NOT ENTER	36" X 36"	1
528+80	NB	R6-1R	ONE WAY	54" X 18"	1
		R6-1L	ONE WAY	54" X 18"	
		R1-1	STOP	36" X 36"	
528+63	CENTER	R6-1L	ONE WAY	54" X 18"	1
539+20	SB	W2-1	INTERSECTION WARNING	36" X 36"	1
560+27	SB	R6-1L	ONE WAY	54" X 18"	1
				SUBTOTAL:	31

STATION	LOC.	SIGN TYPE	SIGN TEXT	SIGN DIMENSIONS	0644-2060 REMOVE SM RD SN SUP & AM
ANDREWS COUNTY (US 385)					EA.
559+77	NB	R5-1	DO NOT ENTER	36" X 36"	1
560+75	NB	R6-1L	ONE WAY	54" X 18"	1
	SB	R5-1	DO NOT ENTER	36" X 36"	
594+61	SB	R6-1L	ONE WAY	54" X 18"	1
595+82	SB	R5-1	DO NOT ENTER	36" X 36"	1
594+33	NB	R5-1	DO NOT ENTER	36" X 36"	1
595+47	NB	R6-1L	ONE WAY	54" X 18"	1
621+74	SB	M3-1	SOUTH	24" X 12"	1
		M1-4A3	385	30" X 24"	
		D10-7aT	308	3" X 10"	
627+39	SB	R6-1L	ONE WAY	54" X 18"	1
628+43	SB	R5-1	DO NOT ENTER	36" X 36"	1
621+87	NB	M3-1	NORTH	24" X 12"	1
		M1-4A3	385	30" X 24"	
		D10-7aT	308	3" X 10"	
627+13	NB	R5-1	DO NOT ENTER	36" X 36"	1
628+18	NB	R6-1L	ONE WAY	54" X 18"	1
639+26	SB	R6-1L	ONE WAY	54" X 18"	1
640+14	SB	R5-1	DO NOT ENTER	36" X 36"	1
638+95	NB	R5-1	DO NOT ENTER	36" X 36"	1
639+56	NB	R6-1L	ONE WAY	54" X 18"	1
653+27	SB	R6-1L	ONE WAY	54" X 18"	1
654+21	SB	R5-1	DO NOT ENTER	36" X 36"	1
653+22	NB	R5-1	DO NOT ENTER	36" X 36"	1
653+73	NB	R6-1L	ONE WAY	54" X 18"	1
659+55	SB	R6-1L	ONE WAY	54" X 18"	1
661+22	SB	R5-1	DO NOT ENTER	36" X 36"	1
660+00	NB	R5-1	DO NOT ENTER	36" X 36"	1
660+51	NB	R6-1L	ONE WAY	54" X 18"	1
661+80	NB	D5-1aT	REST AREA	36" X 36"	1
			1 MILE ACCESSIBLE		
680+49	SB	R6-1L	ONE WAY	54" X 18"	1
680+19	SB	R5-1	DO NOT ENTER	36" X 36"	1
681+57	NB	R5-1	DO NOT ENTER	36" X 36"	1
681+13	NB	R6-1L	ONE WAY	54" X 18"	1
702+01	SB	D72T	DWI	48" X 48"	1
			YOU CANT AFFORD IT		
710+51	SB	R6-1L	ONE WAY	54" X 18"	1
711+10	SB	R5-1	DO NOT ENTER	36" X 36"	1
712+92	SB	D5-2aTL	← REST AREA ACCESSIBLE	36" X 36"	1
		D9-1	TELEPHONE	24" X 24"	
714+93	SB	R11-1	KEEP OFF MEDIAN	24" X 30"	1
706+10	NB	D5-2aTL	REST AREA ACCESSIBLE →	36" X 36"	1
	NB	D9-1	TELEPHONE	24" X 24"	1
				SUBTOTAL:	36
				SHEET SUBTOTAL:	67

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385 SIGN REMOVAL SUMMARY

SHEET 4 OF 5

Texas Department of Transportation
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LOCHNER
TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		186
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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STATION	LOC.	SIGN TYPE	SIGN TEXT	SIGN DIMENSIONS	0644-2060 REMOVE SM RD SN SUP & AM
ANDREWS COUNTY (US 385)					EA.
709+69	NB	R5-1	DO NOT ENTER	36" X 36"	1
710+11	NB	R6-1L	ONE WAY	54" X 18"	1
711+29	NB	D12-5T	THE EYE OF TEXAS	48" X 48"	1
			IS UPON YOU		
711+29	NB	D12-5T	THE EYE OF TEXAS	48" X 48"	1
			IS UPON YOU		
712+10	NB	R5-1A	WRONG WAY	42" X 30"	1
712+08	NB	R5-1A	WRONG WAY	42" X 30"	1
716+51	NB	R5-1	DO NOT ENTER	36" X 36"	1
716+43	NB	R5-1	DO NOT ENTER	36" X 36"	1
718+99	SB	R6-1L	ONE WAY	54" X 18"	1
720+00	SB	R5-1	DO NOT ENTER	36" X 36"	1
724+84	SB	R2-1	SPEED LIMIT 75	30" X 36"	1
726+40	SB	M3-1	SOUTH	24" X 12"	1
		M1-4A3	385	30" X 24"	
		D10-7aT	306	3" X 10"	
726+40	SB	I-2aT	Andrews COUNTY LINE	58" X 24"	1
717+08	NB	R1-2	YIELD	48" X 48" X 48"	1
717+51	CENTER	R6-1R	ONE WAY	54" X 18"	1
718+55	NB	R19-8T	FASTEN SAFETY BELT	30" X 30"	1
			STATE LAW		
718+95	NB	R5-1	DO NOT ENTER	36" X 36"	1
719+77	NB	R6-1L	ONE WAY	54" X 18"	1
721+67	NB	R19-6T	LITTERING PROHIBITED	48" X 30"	1
			$10 - 2000 FINE		
			STATE LAW		
723+53	NB	D72T	DWI	48" X 48"	1
			YOU CANT AFFORD IT		
726+38	NB	M3-1	NORTH	24" X 12"	1
		M1-4A3	385	30" X 24"	
		D10-7aT	306	3" X 10"	
726+38	NB	I-2aT	Gaines COUNTY LINE	58" X 24"	1
731+21	CENTER	R2-1	SPEED LIMIT 75	30" X 36"	1
739+89	SB	R6-1L	ONE WAY	54" X 18"	1
731+25	NB	R2-1	SPEED LIMIT 75	30" X 36"	1
736+75	CENTER	R4-2aT	LEFT LANE FOR PASSING ONLY	24" X 36"	1
736+75	NB	R4-2aT	LEFT LANE FOR PASSING ONLY	24" X 36"	1
739+64	CENTER	R6-1L	ONE WAY	54" X 18"	1
740+50	NB	R6-1R	ONE WAY	54" X 18"	1
		R6-1L	ONE WAY	54" X 18"	
		R1-1	STOP	36" X 36"	
				SUBTOTAL:	29
				PROJECT TOTAL:	295

LARGE SIGN REMOVAL SUMMARY

STATION	LOC.	DISIGNATION	SIGN TEXT	APPROXIMATE SIGN DIMENSIONS	0647-6003 REMOVE LRSA
ANDREWS COUNTY (US 385)					EA.
137+79	SB	LS-1	ALL COMMERCIAL VEHICLES	15.5' X 10'	1
				PROJECT TOTAL:	1

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385 SIGN REMOVAL SUMMARY

SHEET 5 OF 5

Texas Department of Transportation

LOCHNER
TBPE Firm Reg. No. 10488

FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	187

STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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SUMMARY OF SMALL SIGNS

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

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
1	1-1	R2-1	SPEED LIMIT 35	30" X 36"	✓		10BGW	1	SA	P		
	1-2	R2-1	SPEED LIMIT 45	30" X 36"	✓		10BWG	1	SA	P		
	1-3	R2-1	SPEED LIMIT 45	30" X 36"	✓		10BWG	1	SA	P		
	1-4	W3-3	SIGNAL AHEAD	36" X 36"	✓		10BWG	1	SA	T		
	1-5	R2-1	SPEED LIMIT 45	30" X 36"	✓		10BWG	1	SA	P		
2	2-1	D9-2	HOSPITAL H	36" X 36"	✓		10BWG	1	SA	P		
		M6-1	←	30" X 24"	✓							
	2-2	R2-1	SPEED LIMIT 45	30" X 36"	✓		10BWG	1	SA	P		
	2-3	I-2aT	ANDREWS city limit POP. 11088	48" X 24"	✓		10BWG	1	SA	T		
	2-4	R1-1	STOP	36" X 36"	✓		10BWG	1	SA	P		
	2-5	M3-1	NORTH	21" X 15"	✓		10BWG	1	SA	P		
		M1-4B3	385	30" X 24"	✓							
	2-6	D9-2	HOSPITAL H	36" X 36"	✓		10BWG	1	SA	P		
		M6-1	→	30" X 24"	✓							
	2-7	R2-1	SPEED LIMIT 55	30" X 36"	✓		10BWG	1	SA	P		
	2-8	D2-2	Seminole 27 Brownfield 67	96" X 30"	✓		SCH80	1	SA	T		
	2-9	R5-4aT	NO ENGINE BREAK BY CITY ORDINANCE	36" X 48"	✓		10BWG	1	SA	T		
	2-10	R1-1	STOP	36" X 36"	✓		10BWG	1	SA	P		
	2-11	W2-1	INTERSECTION WARNING ✢	36" X 36"	✓		10BWG	1	SA	T		
	2-12	R3-7R	RIGHT LANE MUST TURN RIGHT	36" X 36"	✓		10BWG	1	SA	P		
	2-13	R3-7R	RIGHT LANE MUST TURN RIGHT	36" X 36"	✓		10BWG	1	SA	P		
3	3-1	R2-1	SPEED LIMIT 55	30" X 36"	✓		10BWG	1	SA	P		
	3-2	R1-1	STOP	36" X 36"	✓		10BWG	1	SA	P		
	3-3	W2-1	INTERSECTION WARNING ✢	36" X 36"	✓		10BWG	1	SA	P		
	3-4	R2-1	SPEED LIMIT 60	30" X 36"	✓		10BWG	1	SA	P		
	3-5	R1-1	STOP	36" X 36"	✓		10BWG	1	SA	P		
	3-6	R19-6aT	LITTERING PROHIBITED $10 - 2000 FINE STATE LAW	48" X 30"	✓		10BWG	1	SA	T		
	3-7	W6-1	DIVIDED HIGHWAY	36" X 36"	✓		10BWG	1	SA	P		

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STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
05/28/2020

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

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

http://www.txdot.gov/

NOTE:

1. Sign supports shall be located as shown on the plans, except that the Engineer may shift the sign supports, within design guidelines, where necessary to secure a more desirable location or to avoid conflict with utilities. Unless otherwise shown on the plans, the Contractor shall stake and the Engineer will verify all sign support locations.
2. For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS)Standard Sheet.
3. For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD(GEN).

Texas Department of Transportation

Traffic Operations Division Standard

US 385
SUMMARY OF SMALL SIGNS

SOSS

FILE: sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS	0228	04	043,ETC	US 385,ETC
4-16	DIST	COUNTY		SHEET NO.
8-16	ODA	ANDREWS		188

TB

SUMMARY OF SMALL SIGNS

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

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
3	3-8	D21-2T	← W Taylor Rd E Taylor Rd →	78" X 24"	✓		10BWG	1	SA	T		
	3-9	D21-2T	← E Taylor Rd W Taylor Rd →	78" X 24"	✓		10BWG	1	SA	T		
4	4-1	W6-2	DIVIDED HIGHWAY	36" X 36"	✓		10BWG	1	SA	P		
	4-2	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
	4-3	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	4-4	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
	4-5	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	4-6	R2-1	SPEED LIMIT 60	30" X 36"	✓		10BWG	1	SA	P		
	4-8	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	4-9	R4-7	KEEP RIGHT	36" X 48"	✓		10BWG	1	SA	T		
	4-10	R-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	4-11	R6-1R	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
	4-12	R6-1R	ONE WAY	54" X 18"	✓		SCH80	1	SA	T		
		R6-1L	ONE WAY	54" X 18"	✓							
		R1-1	STOP	36" X 36"	✓							
		R6-3a	DIVIDED HIGHWAY	30" X 24"	✓							
	4-13	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	4-14	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
	4-15	M2-1	JCT	21" X 15"	✓		10BWG	1	SA	P		
		M1-6F	TRUCK ROAD	24" X 24"	✓							
	4-16	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	4-18	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	4-19	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
	4-20	R1-2	YIELD	48" X 48" X 48"	✓		10BWG	1	SA	T		
	4-21	R1-2	YIELD	48" X 48" X 48"	✓		10BWG	1	SA	T		
	4-22	M3-3	NORTH	24" X 12"	✓		10BWG	1	SA	P		
		M1-4A3	385	30" X 24"	✓							
		M6-1L	←	21" X 15"	✓							
	4-23	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
	4-24	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	4-25	R5-1A	WRONG WAY	42" X 30"	✓		10BWG	1	SA	P		

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STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
05/28/2020

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

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Texas Department of Transportation

Traffic Operations Division Standard

US 385
SUMMARY OF SMALL SIGNS

SOSS

FILE:	sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT	May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS		0228	04	043,ETC	US 385,ETC
4-16		DIST	COUNTY		SHEET NO.
8-16		ODA	ANDREWS		189

18

SUMMARY OF SMALL SIGNS

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

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
	4-26	R5-1A	WRONG WAY	42" X 30"	✓		10BWG	1	SA	P		
	4-27	R2-1	SPEED LIMIT 60	30" X 36"	✓		10BWG	1	SA	P		
	4-28	R5-1A	WRONG WAY	42" X 30"	✓		10BWG	1	SA	P		
4	4-29	R5-1A	WRONG WAY	42" X 30"	✓		10BWG	1	SA	P		
	4-30	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	4-31	R6-1R	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
	4-32	M3-3	NORTH	24" X 12"	✓		10BWG	1	SA	P		
		M1-4A3	385	30" X 24"	✓							
		M6-1R	→	21" X 15"	✓							
	4-33	R1-2	YIELD	48" X 48" X 48"	✓		10BWG	1	SA	T		
	4-34	R1-2	YIELD	48" X 48" X 48"	✓		10BWG	1	SA	T		
	4-35	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
	4-36	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	4-37	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	4-38	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	4-39	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	4-40	R14-1	TRUCK ROUTE (Side by Side)	24" X 18"	✓		10BWG	1	SA	U		
		M3-2	EAST	24" X 12"	✓							
		M6-1	←	21" X 15"	✓							
		R14-1	TRUCK ROUTE (Side by Side)	24" X 18"	✓							
		M3-2	WEST	24" X 12"	✓							
		M6-1	→	21" X 15"	✓							
	4-41	R3-7R	RIGHT LANE MUST TURN RIGHT	36" X 36"	✓		10BWG	1	SA	P		
	4-42	R3-7R	RIGHT LANE MUST TURN RIGHT	36" X 36"	✓		10BWG	1	SA	P		
	4-43	D20-1TR	← CO ROAD 2200	24" X 24"	✓		10BWG	1	SA	P		
	4-44	D20-1TR	CO ROAD 2200 →	24" X 24"	✓		10BWG	1	SA	P		
5	5-1	W3-3	SIGNAL AHEAD (ON EXIST RFBA)	36" X 36"	9		(ALUMINIUM SIGN REPLACEMENT)					
	5-2	M3-3	SOUTH	24" X 12"	✓		10BWG	1	SA	P		
		M1-4A3	385	30" X 24"	✓							
		D10-7aT	318	3" X 10"	✓							
	5-3	W3-5	REDUCE SPEED LIMIT AHEAD	36" X 36"	✓		10BWG	1	SA	P		
	5-6	R2-1	SPEED LIMIT 75	30" X 36"	✓		10BWG	1	SA	P		

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STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
05/28/2020

ALUMINUM SIGN BLANKS THICKNESS	
Square Feet	Minimum Thickness
Less than 7.5	0.080"
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Texas Department of Transportation — Traffic Operations Division Standard

US 385
SUMMARY OF SMALL SIGNS

SOSS

FILE: sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043,ETC	US 385,ETC
4-16 8-16	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		190

18

SUMMARY OF SMALL SIGNS

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

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
5	5-7	M3-3	NORTH	24" X 12"	✓		10BWG	1	SA	P		
		M1-4A3	385	30" X 24"	✓							
		D10-7aT	318	3" X 10"	✓							
	5-10	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	5-11	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
	5-12	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	5-13	R6-1R	ONE WAY	54" X 18"	✓		SCH80	1	SA	T		
		R6-1L	ONE WAY	54" X 18"	✓							
		R1-1	STOP	36" X 36"	✓							
		R6-3a	DIVIDED HIGHWAY	30" X 24"	✓							
	5-14	R6-1R	ONE WAY	54" X 18"	✓		SCH80	1	SA	T		
		R6-1L	ONE WAY	54" X 18"	✓							
		R1-2	YIELD	48" X 48" X 48"	✓							
	5-15	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	5-18	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
	5-19	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	5-20	R6-1R	ONE WAY	54" X 18"	✓		SCH80	1	SA	T		
		R6-1L	ONE WAY	54" X 18"	✓							
		R1-1	STOP	36" X 36"	✓							
		R6-3a	DIVIDED HIGHWAY	30" X 24"	✓							
	5-21	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	5-22	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
	5-25	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	5-26	R6-1R	ONE WAY	54" X 18"	✓		SCH80	1	SA	T		
		R6-1L	ONE WAY	54" X 18"	✓							
		R1-1	STOP	36" X 36"	✓							
		R6-3a	DIVIDED HIGHWAY	30" X 24"	✓							
	5-27	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	5-28	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	5-29	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	5-30	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	5-31	R6-1R	ONE WAY	54" X 18"	✓		SCH80	1	SA	T		
		R6-1L	ONE WAY	54" X 18"	✓							
		R1-2	YIELD	48" X 48" X 48"	✓							
	5-32	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							

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STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
05/28/2020

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

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Texas Department of Transportation

Traffic Operations Division Standard

US 385
SUMMARY OF SMALL SIGNS

SOSS

FILE: sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043,ETC	US 385,ETC
4-16 8-16	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		191

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SUMMARY OF SMALL SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) POST TYPE	POSTS	ANCHOR TYPE	MOUNTING DESIGNATION PREFABRICATED	MOUNTING DESIGNATION 1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE
							FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	1 or 2	UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	P = "Plain" T = "T" U = "U"		TY N TY S
	5-33	R6-1R	ONE WAY	54" X 18"	✓		SCH80	1	SA	T		
		R6-1L	ONE WAY	54" X 18"	✓							
		R1-2	YIELD	48" X 48" X 48"	✓							
	5-34	D20-5T	← CO ROAD 3000	24" X 42"	✓		10BWG	1	SA	P		
			CO ROAD 2900 →									
	5-35	D20-5T	← CO ROAD 2900	24" X 42"	✓		10BWG	1	SA	P		
			CO ROAD 3000 →									
	5-36	D1-1	S Horseshoe Ln →	120" X 18"	✓		10BWG	1	SA	T		
	5-37	W9-2R	LANE ENDS MERGE LEFT	36" X 36"	✓		10BWG	1	SA	P		
	5-38	R3-7R	RIGHT LANE MUST TURN RIGHT	36" X 36"	✓		10BWG	1	SA	P		
6	6-3	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
	6-4	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	6-7	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	6-8	R6-1R	ONE WAY	54" X 18"	✓		SCH80	1	SA	T		
		R6-1L	ONE WAY	54" X 18"	✓							
		R1-1	STOP	36" X 36"	✓							
		R6-3a	DIVIDED HIGHWAY	30" X 24"	✓							
	6-9	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	6-10	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	6-11	R6-1L	ONE WAY	54" X 18"	✓		SCH80	1	SA	T		
		R6-1R	ONE WAY	54" X 18"	✓							
		R1-2	YIELD	48" X 48" X 48"	✓							
	6-12	D1-1	← S Horseshoe Ln	120" X 18"	✓		10BWG	1	SA	T		
	6-13	D20-1TR	CO ROAD 3200 →	24" X 24"	✓		10BWG	1	SA	P		
	6-14	D20-1TR	← CO ROAD 3200	24" X 24"	✓		10BWG	1	SA	P		
7	7-1	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
	7-2	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	7-3	W2-2R	INTERSECTION WARNING	36" X 36"	✓		10BWG	1	SA	T		
	7-4	D1-1	Landfill →	72" X 18"	✓		10BWG	1	SA	T		
	7-5	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	7-6	R6-1R	ONE WAY	54" X 18"	✓		SCH80	1	SA	T		
		R6-1L	ONE WAY	54" X 18"	✓							
		R1-1	STOP	36" X 36"	✓							
		R6-3a	DIVIDED HIGHWAY	30" X 24"	✓							

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STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
05/28/2020

ALUMINUM SIGN BLANKS THICKNESS	
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Texas Department of Transportation
Traffic Operations Division Standard

US 385
SUMMARY OF SMALL SIGNS

SOSS

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©TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043,ETC	US 385,ETC
4-16	DIST	COUNTY		SHEET NO.
8-16	ODA	ANDREWS		192

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SUMMARY OF SMALL SIGNS

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

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
7	7-7	D1-1	← Landfill	78" X 18"	✓		10BWG	1	SA	T		
	7-8	W2-2L	INTERSECTION WARNING	36" X 36"	✓		10BWG	1	SA	T		
	7-9	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	7-10	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	7-11	R6-1L	ONE WAY	54" X 18"	✓		SCH80	1	SA	T		
		R6-1R	ONE WAY	54" X 18"	✓							
		R1-2	YIELD	48" X 48" X 48"	✓							
	7-12	R3-7R	RIGHT LANE MUST TURN RIGHT	36" X 36"	✓		10BWG	1	SA	P		
	7-13	R3-7R	RIGHT LANE MUST TURN RIGHT	36" X 36"	✓		10BWG	1	SA	P		
8	8-1	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
	8-2	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	8-3	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	8-4	R6-1R	ONE WAY	54" X 18"	✓		SCH80	1	SA	T		
		R6-1L	ONE WAY	54" X 18"	✓							
		R1-1	STOP	36" X 36"	✓							
		R6-3a	DIVIDED HIGHWAY	30" X 24"	✓							
	8-5	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	8-6	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	8-7	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	8-8	R6-1L	ONE WAY	54" X 18"	✓		SCH80	1	SA	T		
		R6-1R	ONE WAY	54" X 18"	✓							
		R1-2	YIELD	48" X 48" X 48"	✓							
	8-9	W9-7R	LANE ENDS MERGE LEFT	36" X 36"	✓		10BWG	1	SA	P		
	8-10	D20-1TR	← CO ROAD 3600	24" X 24"	✓		10BWG	1	SA	P		
	8-11	D20-1TR	CO ROAD 3600 →	24" X 24"	✓		10BWG	1	SA	P		
9	9-2	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	9-4	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	9-6	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	9-8	M3-3	SOUTH	24" X 12"	✓		10BWG	1	SA	P		
		M1-4A3	385	30" X 24"	✓							
		D10-7aT	316	3" X 10"	✓							
	9-10	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		

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STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
05/28/2020

ALUMINUM SIGN BLANKS THICKNESS	
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Texas Department of Transportation

Traffic Operations Division Standard

US 385
SUMMARY OF SMALL SIGNS

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FILE: sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043,ETC	US 385,ETC
4-16 8-16	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		193

18

SUMMARY OF SMALL SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) POST TYPE: FRP = Fiberglass, TWT = Thin-Wall, 10BWG = 10 BWG, S80 = Sch 80	POSTS: 1 or 2	ANCHOR TYPE: UA=Universal Conc, UB=Universal Bolt, SA=Slipbase-Conc, SB=Slipbase-Bolt, WS=Wedge Steel, WP=Wedge Plastic	MOUNTING DESIGNATION: PREFABRICATED: P = "Plain", T = "T", U = "U"	MOUNTING DESIGNATION: 1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE: TY N, TY S
9	9-11	M3-3	NORTH	24" X 12"	✓		10BWG	1	SA	P		
		M1-4A3	385	30" X 24"	✓							
		D10-7aT	316	3" X 10"	✓							
	9-12	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	9-14	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	9-15	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	9-16	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	9-17	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	9-18	R6-1R	ONE WAY	54" X 18"	✓		SCH80	1	SA	T		
		R6-1L	ONE WAY	54" X 18"	✓							
		R1-2	YIELD	48" X 48" X 48"	✓							
	9-19	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	9-20	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	9-21	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	9-22	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	9-23	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	9-24	R3-7R	RIGHT LANE MUST TURN RIGHT	36" X 36"	✓		10BWG	1	SA	P		
10	10-2	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	10-3	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	10-5	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	10-6	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	10-7	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	10-8	R3-7R	RIGHT LANE MUST TURN RIGHT	36" X 36"	✓		10BWG	1	SA	P		
	10-9	R3-7R	RIGHT LANE MUST TURN RIGHT	36" X 36"	✓		10BWG	1	SA	P		
11	11-1	R6-1R	ONE WAY	54" X 18"	✓		SCH80	1	SA	T		
		R6-1L	ONE WAY	54" X 18"	✓							
		R1-1	STOP	36" X 36"	✓							
		R6-3a	DIVIDED HIGHWAY	30" X 24"	✓							
	11-3	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		

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STATE OF TEXAS
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05/28/2020

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Texas Department of Transportation — Traffic Operations Division Standard

US 385 SUMMARY OF SMALL SIGNS

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8-16		ODA	ANDREWS		194

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							FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	1 or 2	UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	P = "Plain" T = "T" U = "U"		TY N TY S
11	11-2	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	11-5	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	11-6	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	11-7	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	11-8	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
12	12-2	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	12-3	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
13	13-1	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	13-3	M3-3	SOUTH	24" X 12"	✓		10BWG	1	SA	P		
		M1-4A3	385	30" X 24"	✓							
		D10-7aT	314	3" X 10"	✓							
	13-5	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	13-6	M3-1	NORTH	24" X 12"	✓		10BWG	1	SA	P		
		M1-4A3	385	30" X 24"	✓							
		D10-7aT	314	3" X 10"	✓							
	13-8	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	13-9	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	13-10	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	13-11	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	13-12	R6-1R	ONE WAY	54" X 18"	✓		SCH80	1	SA	T		
		R6-1L	ONE WAY	54" X 18"	✓							
		R1-2	YIELD	48" X 48" X 48"	✓							
	13-13	R3-7R	RIGHT LANE MUST TURN RIGHT	36" X 36"	✓		10BWG	1	SA	P		
14	14-1	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	14-2	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	14-3	R3-7R	RIGHT LANE MUST TURN RIGHT	36" X 36"	✓		10BWG	1	SA	P		
	14-4	W9-2R	LANE ENDS MERGE LEFT	36" X 36"	✓		10BWG	1	SA	P		
15	15-2	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	15-3	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		

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STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
05/28/2020

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

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Texas Department of Transportation

Traffic Operations Division Standard

US 385 SUMMARY OF SMALL SIGNS

SOSS

FILE: sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-16 8-16	0228	04	043,ETC	US 385,ETC
	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		195

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SUMMARY OF SMALL SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) POST TYPE (FRP = Fiberglass, TWT = Thin-Wall, 10BWG = 10 BWG, S80 = Sch 80)	POSTS (1 or 2)	ANCHOR TYPE (UA=Universal Conc, UB=Universal Bolt, SA=Slipbase-Conc, SB=Slipbase-Bolt, WS=Wedge Steel, WP=Wedge Plastic)	MOUNTING DESIGNATION: PREFABRICATED (P = "Plain", T = "T", U = "U")	MOUNTING DESIGNATION: 1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE (TY N, TY S)
15	15-6	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	15-7	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	15-9	W2-2L	INTERSECTION WARNING	36" X 36"	✓		10BWG	1	SA	P		
	15-10	M2-1	JCT	21" X 15"	✓		10BWG	1	SA	P		
		M1-6F	TEXAS FARM ROAD	24" X 24"	✓							
	15-11	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	15-12	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	15-13	R6-1R	ONE WAY	54" X 18"	✓		SCH80	1	SA	T		
		R6-1L	ONE WAY	54" X 18"	✓							
		R1-2	YIELD	48" X 48" X 48"	✓							
	15-14	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	15-15	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	15-16	R6-1R	ONE WAY	54" X 18"	✓		SCH80	1	SA	T		
		R6-1L	ONE WAY	54" X 18"	✓							
		R1-2	YIELD	48" X 48" X 48"	✓							
	15-17	W9-2R	LANE ENDS MERGE LEFT	36" X 36"	✓		10BWG	1	SA	P		
16	16-1	D2-2	Andrews 8 Odessa 45	78" X 30"	✓		10BWG	1	SA	T		
	16-3	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	16-4	R2-1	SPEED LIMIT 75	30" X 36"	✓		10BWG	1	SA	P		
	16-5	M3-3	SOUTH	24" X 12"	✓		10BWG	1	SA	P		
		M1-4A3	385	30" X 24"	✓							
	16-6	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	16-8	D1-2	↑ Seminole ← Frankel City	102" X 30"	✓		SCH80	1	SA	T		
	16-9	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	16-6	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	16-8	D1-2	↑ Seminole ← Frankel City	102" X 30"	✓		SCH80	1	SA	T		
	16-9	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	16-10	M3-4	WEST (Side by Side)	24" X 12"	✓		10BWG	1	SA	U		
		M1-6F	TEXAS FARM ROAD	24" X 24"	✓							
		M6-1	←	21" X 15"	✓							
		M3-1	NORTH (Side by Side)	24" X 12"	✓							
		M1-4A3	385	30" X 24"	✓							
		M6-1	↑	21" X 15"	✓							

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STATE OF TEXAS
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Texas Department of Transportation — Traffic Operations Division Standard

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4-16 8-16	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		196

TB

SUMMARY OF SMALL SIGNS

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

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
16	16-11	R6-1R	ONE WAY	54" X 18"	✓		SCH80	1	SA	T		
		R6-1L	ONE WAY	54" X 18"	✓							
		R1-1	STOP	36" X 36"	✓							
		R6-3a	DIVIDED HIGHWAY	30" X 24"	✓							
	16-12	M3-3	SOUTH	24" X 12"	✓		10BWG	1	SA	P		
		M1-4A3	385	30" X 24"	✓							
		M6-1	←	21" X 15"	✓							
	16-13	R6-1R	ONE WAY	54" X 18"	✓		SCH80	1	SA	T		
		R6-1L	ONE WAY	54" X 18"	✓							
		R1-2	YIELD	48" X 48" X 48"	✓							
	16-14	M3-4	WEST	24" X 12"	✓		10BWG	1	SA	T		
		M1-6F	TEXAS FARM ROAD	24" X 24"	✓							
		M6-1	→	21" X 15"	✓							
	16-15	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	16-16	R6-1R	ONE WAY	54" X 18"	✓		SCH80	1	SA	T		
		R6-1L	ONE WAY	54" X 18"	✓							
		R1-1	STOP	36" X 36"	✓							
	16-17	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	16-18	D1-2	↑ Andrews Frankel City →	102" X 30"	✓		SCH80	1	SA	T		
	16-19	M3-1	NORTH	24" X 12"	✓		10BWG	1	SA	P		
		M1-4A3	385	30" X 24"	✓							
		M6-1	→	21" X 15"	✓							
	16-21	W1-9TL	← Chevron One Direction	96" X 36"	✓		10BWG	1	SA	U		
	16-22	M3-1	NORTH	24" X 12"	✓		10BWG	1	SA	P		
		M1-4A3	385	30" X 24"	✓							
	16-23	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	16-25	R2-1	SPEED LIMIT 75	30" X 36"	✓		10BWG	1	SA	P		
	16-26	R6-1R	ONE WAY	54" X 18"	✓		SCH80	1	SA	T		
		R6-1L	ONE WAY	54" X 18"	✓							
		R1-2	YIELD	36" X 36"	✓							
	16-27	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	16-28	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	16-29	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	16-30	R6-1R	ONE WAY	54" X 18"	✓		SCH80	1	SA	T		
		R6-1L	ONE WAY	54" X 18"	✓							
		R1-2	YIELD	36" X 36"	✓							
	16-31	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		

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STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
05/28/2020

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Texas Department of Transportation

Traffic Operations Division Standard

US 385
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REVISIONS	0228	04	043,ETC	US 385,ETC
4-16 8-16	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		197

18

SUMMARY OF SMALL SIGNS

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

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
16	16-32	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	16-33	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	16-34	R3-7R	RIGHT LANE MUST TURN RIGHT	36" X 36"	✓		10BWG	1	SA	P		
17	17-1	M2-1	JCT	21" X 15"	✓		10BWG	1	SA	P		
		M1-6F	TEXAS FARM ROAD	24" X 24"	✓							
	17-3	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	17-4	W2-2R	INTERSECTION WARNING	36" X 36"	✓		10BWG	1	SA	P		
	17-5	D2-2	Seminole 20 Brownfield 60	96" X 30"	✓		10BWG	1	SA	T		
	17-6	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	17-8	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	17-9	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	17-10	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	17-11	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	17-12	R3-7R	RIGHT LANE MUST TURN RIGHT	36" X 36"	✓		10BWG	1	SA	P		
	17-13	W9-2R	LANE ENDS MERGE LEFT	36" X 36"	✓		10BWG	1	SA	P		
18	18-2	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	18-3	M3-3	SOUTH	24" X 12"	✓		10BWG	1	SA	P		
		M1-4A3	385	30" X 24"	✓							
		D10-7aT	312	3" X 10"	✓							
	18-4	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	18-6	M3-1	NORTH	24" X 12"	✓		10BWG	1	SA	P		
		M1-4A3	385	30" X 24"	✓							
		D10-7aT	312	3" X 10"	✓							
	18-8	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	18-9	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	18-11	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	18-12	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	18-13	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							

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STATE OF TEXAS
JOHN B. GOODWIN
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REGISTERED PROFESSIONAL ENGINEER
05/28/2020

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SUMMARY OF SMALL SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) POST TYPE	POSTS	ANCHOR TYPE	MOUNTING DESIGNATION PREFABRICATED	MOUNTING DESIGNATION 1EXT or 2EXT = # of Ext BM = 1.12 #/ft Wing WC = Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE
							FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	1 or 2	UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	P = "Plain" T = "T" U = "U"	Extruded Wind Beam Extruded Alum Sign Panels	TY N TY S
18	18-14	R6-1R	ONE WAY	54" X 18"	✓		SCH80	1	SA	T		
		R6-1L	ONE WAY	54" X 18"	✓							
		R1-2	YIELD	48" X 48" X 48"	✓							
	18-15	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	18-16	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
19	19-2	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	19-3	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	19-5	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	P		
		R1-2	YIELD	48" X 48" X 48"	✓							
	19-6	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	19-7	R6-1L	ONE WAY	54" X 18"	✓		SCH80	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
20	20-2	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	20-3	D9-3a	TRAILER CAMPING	24" X 24"	✓		10BWG	1	SA	P		
		D5-5aTPR	←	24" X 6"	✓							
	20-4	D7-2TL	← FLOREY COUNTY PARK	60" X 24"	✓		10BWG	1	SA	T		
	20-5	W2-2R	INTERSECTION WARNING	36" X 36"	✓		10BWG	1	SA	P		
	20-6	D7-2TR	FLOREY → COUNTY PARK	78" X 24"	✓		10BWG	1	SA	T		
	20-7	D9-3a	TRAILER CAMPING	24" X 24"	✓		10BWG	1	SA	P		
		D5-5aTPR	→	24" X 6"	✓							
	20-8	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	20-9	R6-1R	ONE WAY	54" X 18"	✓		SCH80	1	SA	T		
		R6-1L	ONE WAY	54" X 18"	✓							
		R1-2	YIELD	48" X 48" X 48"	✓							
	20-10	R6-1R	ONE WAY	54" X 18"	✓		SCH80	1	SA	T		
		R6-1L	ONE WAY	54" X 18"	✓							
		R1-1	STOP	36" X 36"	✓							
		R6-3a	DIVIDED HIGHWAY	30" X 24"	✓							
	20-11	W2-2R	INTERSECTION WARNING	36" X 36"	✓		10BWG	1	SA	P		
	20-12	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	20-13	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	20-14	R3-7R	RIGHT LANE MUST TURN RIGHT	36" X 36"	✓		10BWG	1	SA	P		

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8-16		ODA	ANDREWS		199

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SUMMARY OF SMALL SIGNS

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

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
20	20-15	W9-2R	LANE ENDS MERGE LEFT	36" X 36"	✓		10BWG	1	SA	P		
	20-16	D20-1TR	CO ROAD 6000 →	24" X 24"	✓		10BWG	1	SA	P		
	20-17	D20-1TR	← CO ROAD 6000	24" X 24"	✓		10BWG	1	SA	P		
21	21-2	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	21-3	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	21-5	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	21-6	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	21-7	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
22	22-1	M3-3	SOUTH	24" X 12"	✓		10BWG	1	SA	P		
		M1-4A3	385	30" X 24"	✓							
		D10-7aT	310	3" X 10"	✓							
	22-2	M3-3	NORTH	24" X 12"	✓		10BWG	1	SA	P		
		M1-4A3	385	30" X 24"	✓							
		D10-7aT	310	3" X 10"	✓							
	22-4	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	22-5	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	22-7	W2-1	INTERSECTION WARNING	36" X 36"	✓		10BWG	1	SA	P		
	22-8		MONUMENT DRAW		✓		10BWG	1	SA	P		
	22-9	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	22-10	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	P		
		R1-2	YIELD	48" X 48" X 48"	✓							
	22-11	W9-2R	LANE ENDS MERGE LEFT	36" X 36"	✓		10BWG	1	SA	P		
	22-12	R3-7R	RIGHT LANE MUST TURN RIGHT	36" X 36"	✓		10BWG	1	SA	P		
	22-13	D21-2T	← Fisher Rd Means Rd →	66" X 42"	✓		10BWG	1	SA	T		
23	23-1	R6-1R	ONE WAY	54" X 18"	✓		SCH80	1	SA	T		
		R6-1L	ONE WAY	54" X 18"	✓							
		R1-1	STOP	36" X 36"	✓							
		R6-3a	DIVIDED HIGHWAY	30" X 24"	✓							
	23-4	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	23-6	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		

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STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
05/28/2020

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

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Texas Department of Transportation
Traffic Operations Division Standard

US 385
SUMMARY OF SMALL SIGNS

SOSS

FILE: sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043,ETC	US 385,ETC
4-16 8-16	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		200

SUMMARY OF SMALL SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) POST TYPE	POSTS	ANCHOR TYPE	MOUNTING DESIGNATION PREFABRICATED	MOUNTING DESIGNATION 1EXT or 2EXT = # of Ext BM = 1.12 #/ft Wing WC = Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE
							FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	1 or 2	UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	P = "Plain" T = "T" U = "U"	Extruded Wind Beam / 1.12 #/ft Wing Channel / Extruded Alum Sign Panels	TY N TY S
23	23-7	R6-1R	ONE WAY	54" X 18"	✓		SCH80	1	SA	T		
		R6-1L	ONE WAY	54" X 18"	✓							
		R1-1	STOP	36" X 36"	✓							
		R6-3a	DIVIDED HIGHWAY	30" X 24"	✓							
	23-8	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	23-9	R6-1R	ONE WAY	54" X 18"	✓		SCH80	1	SA	T		
		R6-1L	ONE WAY	54" X 18"	✓							
		R1-2	YIELD	48" X 48" X 48"	✓							
	23-10	R6-1R	ONE WAY	54" X 18"	✓		SCH80	1	SA	T		
		R6-1L	ONE WAY	54" X 18"	✓							
		R1-2	YIELD	48" X 48" X 48"	✓							
	23-11	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	23-12	R3-7R	RIGHT LANE MUST TURN RIGHT	36" X 36"	✓		10BWG	1	SA	P		
	23-13	W9-2R	LANE ENDS MERGE LEFT	36" X 36"	✓		10BWG	1	SA	P		
	23-14	D21-2T	← Means Rd Fisher Rd →	66" X 42"	✓		10BWG	1	SA	P		
	23-15	W2-1	INTERSECTION WARNING	36" X 36"	✓		10BWG	1	SA	P		
24	24-2	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	24-4	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	24-5	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	24-6	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	24-7	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
25	25-2	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	25-3	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	25-5	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	25-6	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	25-7	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	25-8	W9-2R	LANE ENDS MERGE LEFT	36" X 36"	✓		10BWG	1	SA	P		
	25-9	R3-7R	RIGHT LANE MUST TURN RIGHT	36" X 36"	✓		10BWG	1	SA	P		
	25-10	R3-7R	RIGHT LANE MUST TURN RIGHT	36" X 36"	✓		10BWG	1	SA	P		
26	26-1	W9-2R	LANE ENDS MERGE LEFT	36" X 36"	✓		10BWG	1	SA	P		

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STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
05/28/2020

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

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3. For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD(GEN).

Texas Department of Transportation

Traffic Operations Division Standard

US 385 SUMMARY OF SMALL SIGNS

SOSS

FILE: sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043,ETC	US 385,ETC
4-16	DIST	COUNTY		SHEET NO.
8-16	ODA	ANDREWS		201

TB

SUMMARY OF SMALL SIGNS

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

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
27	27-1	M3-3	SOUTH	24" X 12"	✓		10BWG	1	SA	P		
		M1-4A3	385	30" X 24"	✓							
		D10-7aT	308	3" X 10"	✓							
	27-3	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	27-4	M3-1	NORTH	24" X 12"	✓		10BWG	1	SA	P		
		M1-4A3	385	30" X 24"	✓							
		D10-7aT	308	3" X 10"	✓							
	27-5	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	27-8	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	27-9	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	27-11	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	27-12	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	27-13	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	27-14	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	27-15	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
28	28-2	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	28-3	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	28-6	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	28-7	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	28-9	D5-1aT	REST AREA 1 MILE ACCESSIBLE	36" X 36"	✓		10BWG	1	SA	P		
	28-10	R6-1R	ONE WAY	54" X 18"	✓		SCH80	1	SA	T		
		R6-1L	ONE WAY	54" X 18"	✓							
		R1-2	YIELD	48" X 48" X 48"	✓							
	28-11	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	28-12	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	28-13	R6-1R	ONE WAY	54" X 18"	✓		SCH80	1	SA	T		
		R6-1L	ONE WAY	54" X 18"	✓							
		R1-2	YIELD	48" X 48" X 48"	✓							
	28-14	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		

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STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
05/28/2020

ALUMINUM SIGN BLANKS THICKNESS	
Square Feet	Minimum Thickness
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©TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043,ETC	US 385,ETC
4-16	DIST	COUNTY		SHEET NO.
8-16	ODA	ANDREWS		202

SUMMARY OF SMALL SIGNS

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

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
28	28-15	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	28-16	W9-2R	LANE ENDS MERGE LEFT	36" X 36"	✓		10BWG	1	SA	P		
	28-17	R3-7R	RIGHT LANE MUST TURN RIGHT	36" X 36"	✓		10BWG	1	SA	P		
29	29-2	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	29-3	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	29-5	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	29-6	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	29-7	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
30	30-1	D72T	DWI	48" X 48"	✓		10BWG	1	SA	T		
			YOU CANT AFFORD IT									
	30-3	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	30-4	D5-2aTL	← REST AREA ACCESSIBLE	36" X 36"	✓		10BWG	1	SA	P		
		D9-1	TELEPHONE	24" X 24"	✓							
	30-5	R11-1	KEEP OFF MEDIAN	24" X 30"	✓		10BWG	1	SA	P		
	30-6	D5-2aTL	REST AREA ACCESSIBLE →	36" X 36"	✓		10BWG	1	SA	P		
		D9-1	TELEPHONE	24" X 24"	✓							
	30-7	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	30-9	D12-5T	THE EYE OF TEXAS	48" X 48"	✓		10BWG	1	SA	T		
			IS UPON YOU									
	30-10	D12-5T	THE EYE OF TEXAS	48" X 48"	✓		10BWG	1	SA	T		
			IS UPON YOU									
	30-11	R5-1A	WRONG WAY	42" X 30"	✓		10BWG	1	SA	P		
	30-12	R5-1A	WRONG WAY	42" X 30"	✓		10BWG	1	SA	P		
	30-13	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	30-14	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	30-15	R6-1R	ONE WAY	54" X 18"	✓		SCH80	1	SA	T		
		R6-1L	ONE WAY	54" X 18"	✓							
		R1-2	YIELD	48" X 48" X 48"	✓							
	30-16	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
		R1-2	YIELD	48" X 48" X 48"	✓							
	30-17	R3-7R	RIGHT LANE MUST TURN RIGHT	36" X 36"	✓		10BWG	1	SA	P		

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STATE OF TEXAS
JOHN B. GOODWIN
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05/28/2020

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Texas Department of Transportation

Traffic Operations Division Standard

US 385
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©TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
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4-16	DIST	COUNTY		SHEET NO.
8-16	ODA	ANDREWS		203

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31	31-3	R2-1	SPEED LIMIT 75	30" X 36"	✓		10BWG	1	SA	P		
	31-4	M3-3	SOUTH	24" X 12"	✓		10BWG	1	SA	P		
		M1-4A3	385	30" X 24"	✓							
		D10-7aT	306	3" X 10"	✓							
	31-5	I-2dT	Andrews COUNTY LINE	66" X 24"	✓		10BWG	1	SA	T		
	31-6	R1-2	YIELD	48" X 48" X 48"	✓		10BWG	1	SA	T		
	31-7	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
	31-8	R19-8T	FASTEN SAFETY BELT	30" X 30"	✓		10BWG	1	SA	P		
			STATE LAW									
	31-11	R19-6T	LITTERING PROHIBITED	48" X 30"	✓		10BWG	1	SA	T		
			$10 to 2000 FINE									
			STATE LAW									
	31-12	D72T	DWI	48" X 48"	✓		10BWG	1	SA	T		
			YOU CANT AFFORD IT									
	31-13	I-2dT	Gaines COUNTY LINE	54" X 24"	✓		10BWG	1	SA	P		
	31-14	M3-1	NORTH	24" X 12"	✓		10BWG	1	SA	P		
		M1-4A3	385	30" X 24"	✓							
		D10-7aT	306	3" X 10"	✓							
	31-15	R2-1	SPEED LIMIT 75	30" X 36"	✓		10BWG	1	SA	T		
	31-16	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
	31-17	R2-1	SPEED LIMIT 75	30" X 36"	✓		10BWG	1	SA	P		
	31-18	R4-2aT	LEFT LANE FOR PASSING ONLY	24" X 36"	✓		10BWG	1	SA	P		
	31-19	R4-2aT	LEFT LANE FOR PASSING ONLY	24" X 36"	✓		10BWG	1	SA	P		
	31-20	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	T		
	31-21	W9-2R	LANE ENDS MERGE LEFT	36" X 36"	✓		10BWG	1	SA	P		
	31-22	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	31-23	R6-1R	ONE WAY	54" X 18"	✓		SCH80	1	SA	T		
		R6-1L	ONE WAY	54" X 18"	✓							
		R1-2	YIELD	36" X 36"	✓							
	31-24	R3-7R	RIGHT LANE MUST TURN RIGHT	36" X 36"	✓		10BWG	1	SA	P		
	31-25	R5-1	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	31-26	R6-1R	ONE WAY	54" X 18"	✓		SCH80	1	SA	T		
		R6-1L	ONE WAY	54" X 18"	✓							
		R1-1	STOP	36" X 36"	✓							
		R6-3a	DIVIDED HIGHWAY	30" X 24"	✓							
	22-10	R6-1L	ONE WAY	54" X 18"	✓		10BWG	1	SA	P		
		R1-2	YIELD	48" X 48" X 48"	✓							

DATE: 5/28/2020 8:23:35 PM
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STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
05/28/2020

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

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.
http://www.txdot.gov/

NOTE:

1. Sign supports shall be located as shown on the plans, except that the Engineer may shift the sign supports, within design guidelines, where necessary to secure a more desirable location or to avoid conflict with utilities. Unless otherwise shown on the plans, the Contractor shall stake and the Engineer will verify all sign support locations.
2. For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS)Standard Sheet.
3. For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD(GEN).

Texas Department of Transportation
Traffic Operations Division Standard

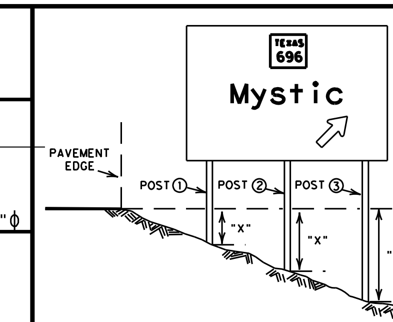
US 385
SUMMARY OF SMALL SIGNS

SOSS

FILE: sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043,ETC	US 385,ETC
4-16	DIST	COUNTY		SHEET NO.
8-16	ODA	ANDREWS		204

SUMMARY OF LARGE SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN BACK-GROUND COLOR	SIGN TEXT	SIGN DIMENSIONS	PLAQUES, & OTHER ATTACHMENTS: DIRECT APPLY	PLAQUES, & OTHER ATTACHMENTS: * ALUMINUM (TYPE A)	BACKGROUND SUBSTRATE (SQ FT): GROUND MOUNT (TYPE G)	BACKGROUND SUBSTRATE (SQ FT): OVERHEAD (TYPE O)	TYPE OF MOUNT	"X" DIMENSION ◒ post (1)	"X" DIMENSION ◒ post (2)	"X" DIMENSION ◒ post (3)	GALVANIZED STRUCTURAL STEEL: SIZE	LINEAR FEET post (1)	LINEAR FEET post (2)	LINEAR FEET post (3)	TOTAL WEIGHT LBS.	DRILLED SHAFT LINEAR FEET: NON-REINF 12"ϕ	REINFORCED 24"ϕ	REINFORCED 30"ϕ	REINFORCED 36"ϕ
1	1L	WHITE	TRUCKS MUST USE TRUCK ROUTE 1 MILE CITY ORDINANCE	15.5 X 10	12		155		221	1.4	0.9		W8X18	18.4	17.9		697		12		
					PAGE TOTALS		155									PAGE TOTALS	697		12		



◒ The "X" dimension is the elevation difference at the post between the ground and the edge of pavement or top of curb.

Sign supports shall be located as shown on the plans, except that the Engineer may shift the sign supports, within design guidelines, where necessary to secure a more desirable location or to avoid conflict with utilities. Unless otherwise shown on the plans, the Contractor shall stake and the Engineer will verify all sign support locations.

The post lengths listed here are approximations, The corrected post lengths will be furnished by the Contractor after the stud posts are placed.

Tower heights shall be verified with the Engineer before fabrication.

* This column is for aluminum Type A and not direct apply. Direct apply is subsidiary to the sign.

05/28/2020

STATE OF TEXAS
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REGISTERED PROFESSIONAL ENGINEER
P.E.

SIGN TYPE

SIGN TYPE 1 3 0
- Wind Design Zone
- Series No. 0 Aluminum/Fiberglass, 1 Aluminum, 2 Fiberglass
- No. of Posts

See sheet SMD(8W1)

DATE: 5/28/2020 8:23:36 PM
FILE: I:\TYL\PRJ\000014121\TREA\DGN*A\PSE*A\TRAFFIC\A385HD06LargeSummary.dgn

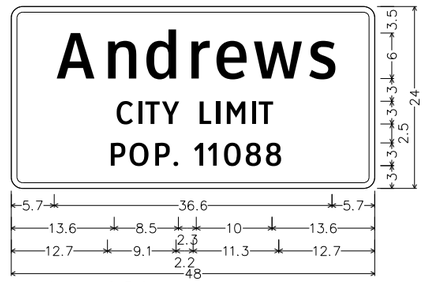
US 385
SUMMARY OF LARGE SIGNS
SOLS

DN.: TxDOT	CK.: TxDOT	DW.: TxDOT	CK.: TxDOT	REVISIONS
				11-93, 8-95, 5-01, 1-04, 9-08

CONT	SECT	JOB	HIGHWAY
0228	04	043,ETC	US 385,ETC

DIST	COUNTY	SHEET NO.
ODA	ANDREWS	205

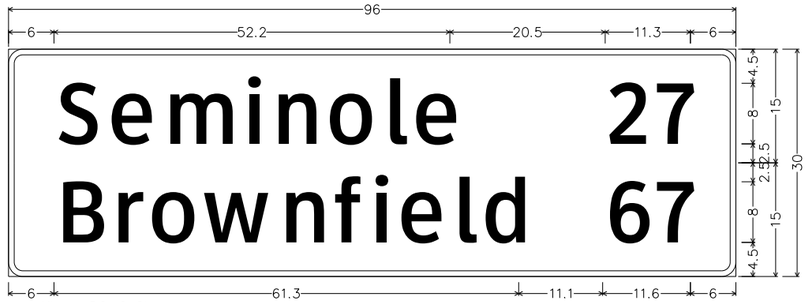
(1)



Identifier : I-2aT 6in;
1.5" Radius, 0.8" Border, White on Green;
[Andrews] ClearviewHwy-3-W;
[CITY LIMIT] ClearviewHwy-3-W;
[POP. 11088] ClearviewHwy-3-W;

SIGN 2-3

(1) UPDATE CITY OF ANDREWS' POPULATION NUMBER TO 2020 CENSUS VALUE IF AVAILABLE DURING TIME OF FABRICATION.

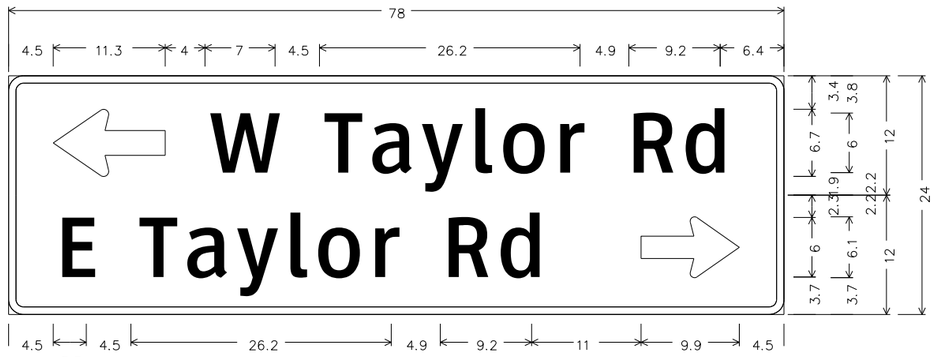


Identifier : D2-2 8in;
1.9" Radius, 0.8" Border, White on Green;
[Seminole] ClearviewHwy-3-W; [27] ClearviewHwy-3-W;
1.9" Radius, 0.8" Border, White on Green;
[Brownfield] ClearviewHwy-3-W; [67] ClearviewHwy-3-W;

SIGN 2-8

Identifier : R19-6T_48x30;
1.5" Radius, 0.8" Border, 0.5" Indent, Black on White;
[LITTERING] E; [PROHIBITED] E; [$10-2000 FINE] D;
[STATE LAW] D;

SIGN 3-6



D21-2T_VARx24;

1.5" Radius, 0.8" Border, White on, Green;

Standard Arrow Custom 11.3" X 6.8" 180';

"W Taylor Rd", ClearviewHwy-3-W;

1.5" Radius, 0.8" Border, White on, Green;

"E Taylor Rd", ClearviewHwy-3-W; Standard Arrow Custom 9.9" X 6.1" 0';

SIGN 3-8

05/28/2020

STATE OF TEXAS
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US 385
SMALL SIGN
DETAILS

SHEET 1 OF 6

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FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		206
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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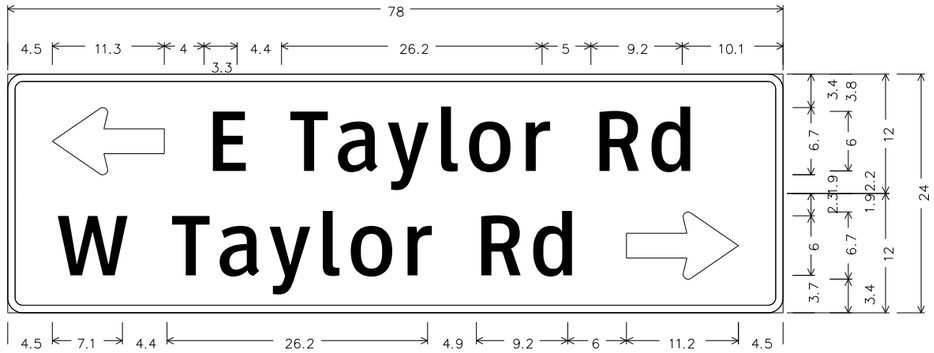


D21-2T_VARx24;

1.5" Radius, 0.8" Border, White on, Green;

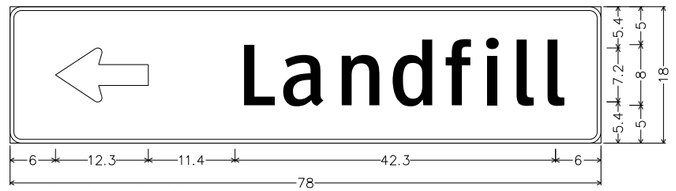
Standard Arrow Custom 11.3" X 6.8" 180';

"E Taylor Rd", ClearviewHwy-3-W;

1.5" Radius, 0.8" Border, White on, Green;

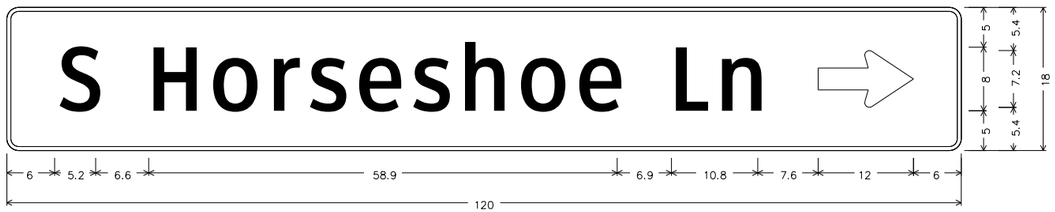
"W Taylor Rd", ClearviewHwy-3-W; Standard Arrow Custom 11.3" X 6.8" 0';

SIGN 3-9



Identifier : D1-1 8in LT;
1.5" Radius, 0.5" Border, White on Green;
Standard Arrow Custom 12.3" X 7.1" 180}; [Landfill] ClearviewHwy-3-W;

SIGN 7-7

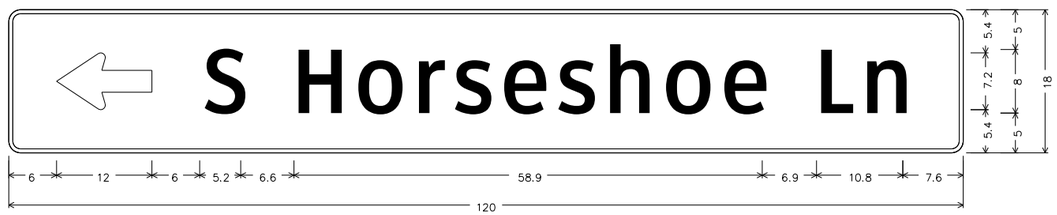


D1-1 8in RT;

1.5" Radius, 0.5" Border, White on, Green;

"S Horseshoe Ln", ClearviewHwy-3-W; Standard Arrow Custom 12.0" X 7.1" 0';

SIGN 5-36



D1-1 8in LT;

1.5" Radius, 0.5" Border, White on, Green;

Standard Arrow Custom 12.0" X 7.1" 180'; "S Horseshoe Ln", ClearviewHwy-3-W;

SIGN 6-12

05/28/2020

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SHEET 2 OF 6

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FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		207
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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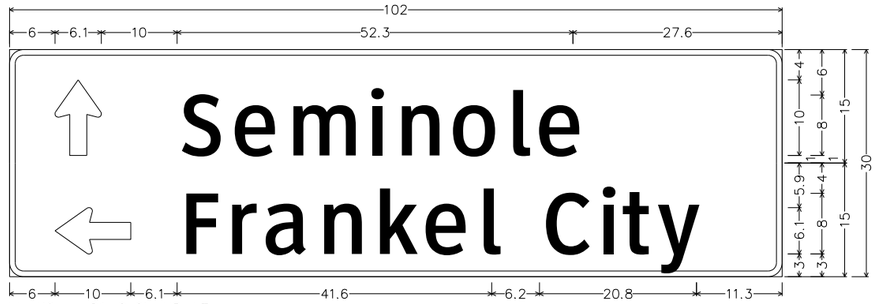
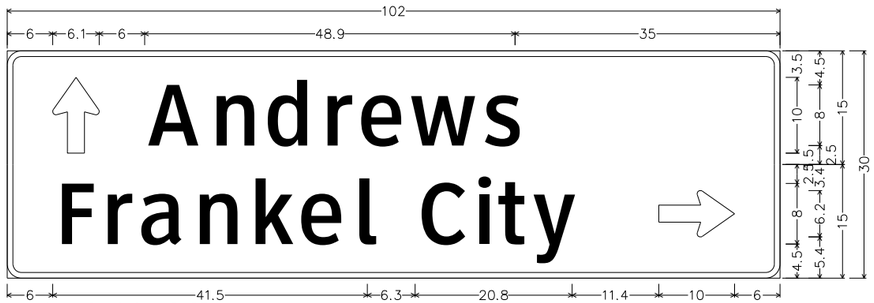
Identifier : D2-2 8in;
1.9" Radius, 0.8" Border, White on Green;
[Andrews] ClearviewHwy-3-W; [8] ClearviewHwy-3-W;
1.9" Radius, 0.8" Border, White on Green;
[Odessa] ClearviewHwy-3-W; [45] ClearviewHwy-3-W;

SIGN 16-1



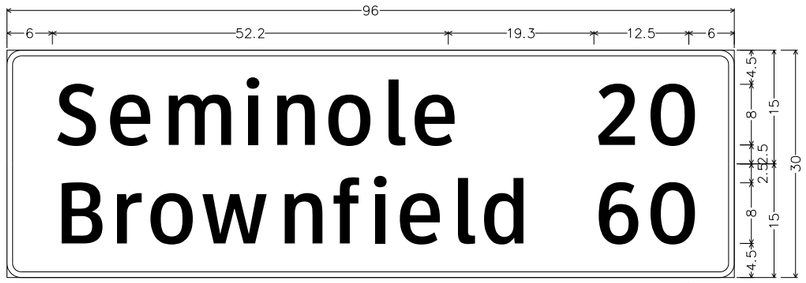
Identifier : D1-2 8in UP-LT;
1.9" Radius, 0.8" Border, White on Green;
Standard Arrow Custom 10.0" X 6.1" 90{; [Seminole] ClearviewHwy-3-W;
1.9" Radius, 0.8" Border, White on Green;
Standard Arrow Custom 10.0" X 6.1" 180{; [Frankel City] ClearviewHwy-3-W;

SIGN 16-8



Identifier : D1-2 8in UP-RT;
1.9" Radius, 0.8" Border, White on Green;
Standard Arrow Custom 10.0" X 6.1" 90{; [Andrews] ClearviewHwy-3-W;
1.9" Radius, 0.8" Border, White on Green;
[Frankel City] ClearviewHwy-3-W; Standard Arrow Custom 10.0" X 6.1" 0{;

SIGN 16-18



Identifier : D2-2 8in;
1.9" Radius, 0.8" Border, White on Green;
[Seminole] ClearviewHwy-3-W; [20] ClearviewHwy-3-W;
1.9" Radius, 0.8" Border, White on Green;
[Brownfield] ClearviewHwy-3-W; [60] ClearviewHwy-3-W;

SIGN 17-5

FILE: A385HD04.dgn
DATE: 5/28/2020 TIME: 8:23:42 PM
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05/28/2020

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SHEET 3 OF 6

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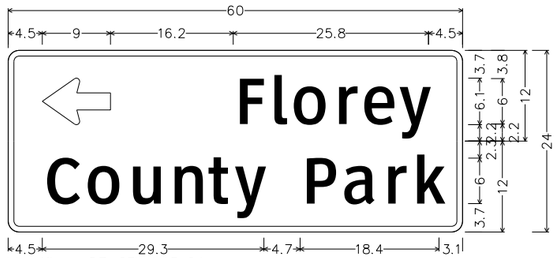
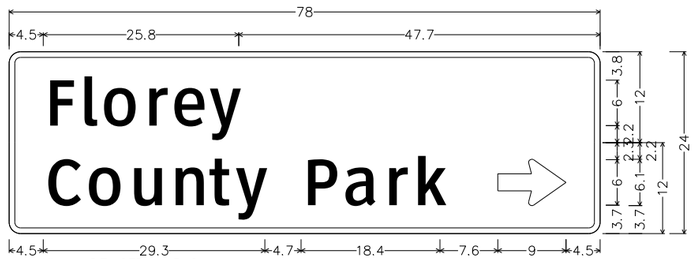
FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		208
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.



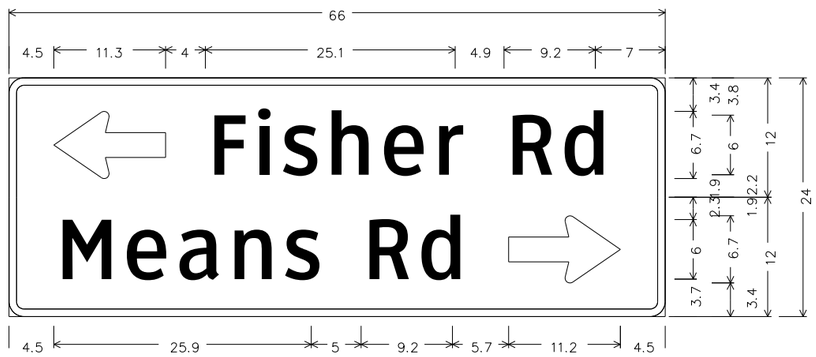
Identifier : D7-2TL_VARx24;
1.5" Radius, 0.8" Border, White on Brown;
Standard Arrow Custom 9.0" X 6.1" 180{}; [Florey] ClearviewHwy-3-W;
1.5" Radius, 0.8" Border, White on Brown;
[County Park] ClearviewHwy-3-W;

SIGN 20-4



Identifier : D7-2TR_VARx24;
1.5" Radius, 0.8" Border, White on Brown;
[Florey] ClearviewHwy-3-W;
1.5" Radius, 0.8" Border, White on Brown;
[County Park] ClearviewHwy-3-W; Standard Arrow Custom 9.0" X 6.1" 0{};

SIGN 20-6

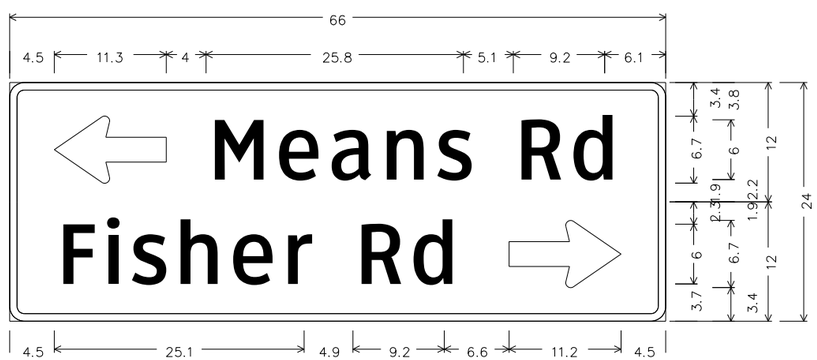


D21-2T_VARx24;

1.5" Radius, 0.8" Border, White on, Green;
Standard Arrow Custom 11.3" X 6.8" 180';
"Fisher Rd", ClearviewHwy-3-W;

1.5" Radius, 0.8" Border, White on, Green;
"Means Rd", ClearviewHwy-3-W;
Standard Arrow Custom 11.3" X 6.8" 0';

SIGN 22-13



D21-2T_VARx24;

1.5" Radius, 0.8" Border, White on, Green;
Standard Arrow Custom 11.3" X 6.8" 180';
"Means Rd", ClearviewHwy-3-W;

1.5" Radius, 0.8" Border, White on, Green;
"Fisher Rd", ClearviewHwy-3-W;
Standard Arrow Custom 11.3" X 6.8" 0';

SIGN 22-14

05/28/2020

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SHEET 4 OF 6

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FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		209
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

FILE: A385HD04B.dgn
DATE: 5/28/2020 TIME: 8:23:43 PM
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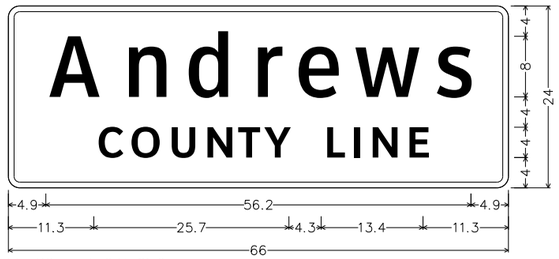
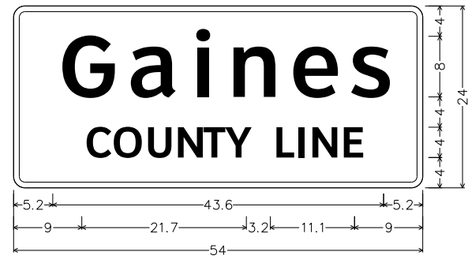


Identifier : I-2dT 8in?;
1.5" Radius, 0.8" Border, White on Green;
[Andrews] ClearviewHwy-5-W; [COUNTY LINE] ClearviewHwy-5-W;

SIGN 31-5



Identifier : I-2dT 8in?;
1.5" Radius, 0.8" Border, White on Green;
[Gaines] ClearviewHwy-5-W; [COUNTY LINE] ClearviewHwy-3-W;

SIGN 31-13

FILE: A385HD04C.dgn
DATE: 5/28/2020 TIME: 8:23:45 PM
DIRECTORY: I:\TYL\PRJ\00001412\TREA\DGN*A\PSE*A\TRAFFIC\A385HD04C.dgn

05/28/2020

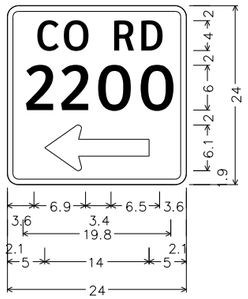
STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
SMALL SIGN DETAILS

SHEET 5 OF 6

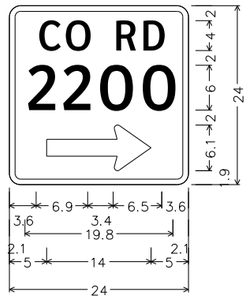
LOCHNER
TBPE Firm Reg. No. 10488

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		210
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.



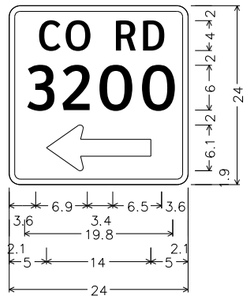
D20-1TL_24x24;
1.5" Radius, 0.8" Border, White on, Green;
"CO RD", ClearviewHwy-3-W;
"2200", ClearviewHwy-3-W;
Standard Arrow Custom 14.0" X 6.1" 180';

SIGN 4-43



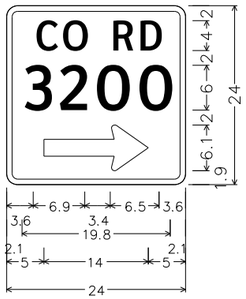
D20-1TR_24x24;
1.5" Radius, 0.8" Border, White on, Green;
"CO RD", ClearviewHwy-3-W;
"2200", ClearviewHwy-3-W;
Standard Arrow Custom 14.0" X 6.1" 0';

SIGN 4-44



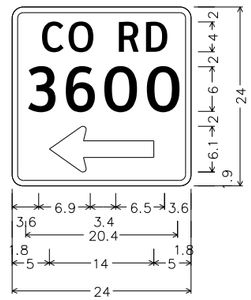
D20-1TL_24x24;
1.5" Radius, 0.8" Border, White on, Green;
"CO RD", ClearviewHwy-3-W;
"3200", ClearviewHwy-3-W;
Standard Arrow Custom 14.0" X 6.1" 180';

SIGN 6-13



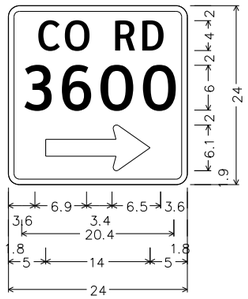
D20-1TR_24x24;
1.5" Radius, 0.8" Border, White on, Green;
"CO RD", ClearviewHwy-3-W;
"3200", ClearviewHwy-3-W;
Standard Arrow Custom 14.0" X 6.1" 0';

SIGN 6-14



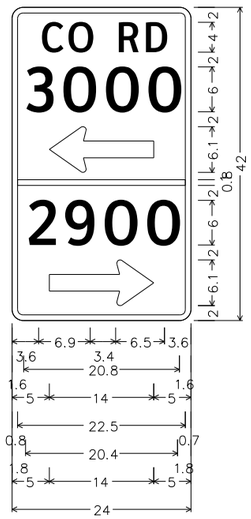
D20-1TL_24x24;
1.5" Radius, 0.8" Border, White on, Green;
"CO RD", ClearviewHwy-3-W;
"3600", ClearviewHwy-3-W;
Standard Arrow Custom 14.0" X 6.1" 180';

SIGN 8-9



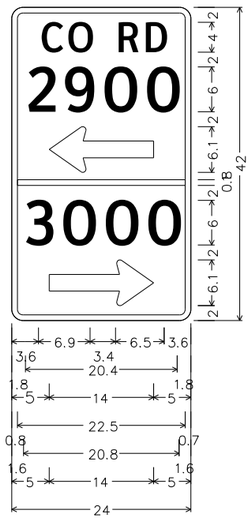
D20-1TR_24x24;
1.5" Radius, 0.8" Border, White on, Green;
"CO RD", ClearviewHwy-3-W;
"3600", ClearviewHwy-3-W;
Standard Arrow Custom 14.0" X 6.1" 0';

SIGN 8-10



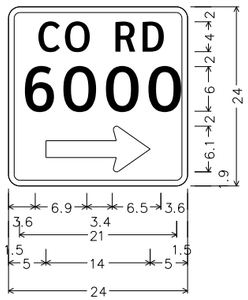
D20-5T_24x42;
1.5" Radius, 0.8" Border, White on, Green;
"CO RD", ClearviewHwy-3-W;
"3000", ClearviewHwy-3-W;
Standard Arrow Custom 14.0" X 6.1" 180';
"2900", ClearviewHwy-3-W;
Standard Arrow Custom 14.0" X 6.1" 0';

SIGN 5-34



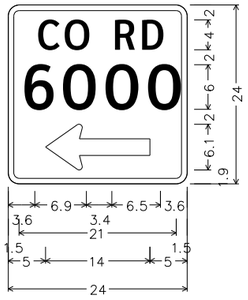
D20-5T_24x42;
1.5" Radius, 0.8" Border, White on, Green;
"CO RD", ClearviewHwy-3-W;
"2900", ClearviewHwy-3-W;
Standard Arrow Custom 14.0" X 6.1" 180';
"3000", ClearviewHwy-3-W;
Standard Arrow Custom 14.0" X 6.1" 0';

SIGN 5-35



D20-1TR_24x24;
1.5" Radius, 0.8" Border, White on, Green;
"CO RD", ClearviewHwy-3-W;
"6000", ClearviewHwy-3-W;
Standard Arrow Custom 14.0" X 6.1" 0';

SIGN 20-16



D20-1TL_24x24;
1.5" Radius, 0.8" Border, White on, Green;
"CO RD", ClearviewHwy-3-W;
"6000", ClearviewHwy-3-W;
Standard Arrow Custom 14.0" X 6.1" 180';

SIGN 20-17

05/28/2020

STATE OF TEXAS
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63174
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P.E.

US 385 SMALL SIGN DETAILS

SHEET 6 OF 6

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FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		211
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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DATE: 5/28/2020 TIME: 8:23:47 PM
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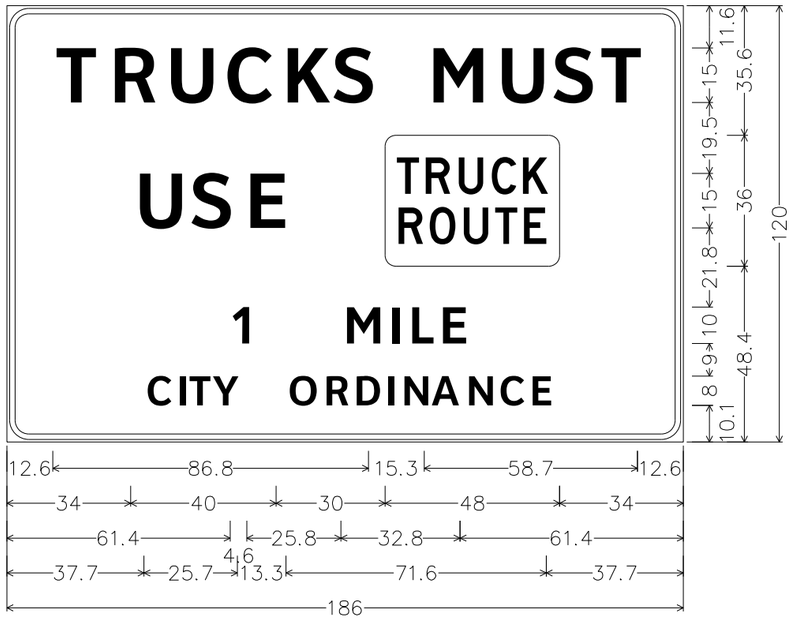
1L



6.0" Radius, 1.5" Border, 0.8" Indent, Black on White;
[TRUCKS MUST] ClearviewHwy-5-W-R; [USE] ClearviewHwy-5-W-R;
Rounded Rectangle 3.0" Radius White;
[1 MILE] ClearviewHwy-5-W-R;
[CITY ORDINANCE] ClearviewHwy-5-W-R;
Table of letter and object lefts.

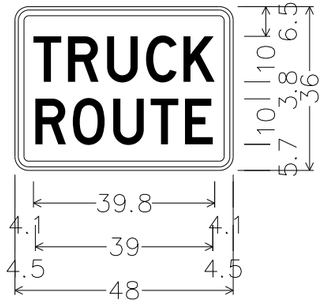
T 12.6	R 27.1	U 42.6	C 58.7	K 74.7	S 88.5	M 114.7	U 133.6	S 149.0	T 162.4

U 34.0	S 49.4	E 64.4	▭ 104.0

1 61.4	M 91.8	I 104.3	L 109.8	E 118.2

C 37.7	I 46.1	T 49.7	Y 56.3

O 76.7	R 86.5	D 94.8	I 103.6	N 108.0	A 116.4	N 125.7	C 134.7	E 143.2	



Identifier : R14-1_24x18;
3.0" Radius, 1.3" Border, 0.8" Indent, Black on White;
[TRUCK] D 80} spacing;
[ROUTE] D 80} spacing;
Table of letter and object lefts.

T 4.1	R 11.7	U 20.3	C 28.8	K 37.1

R 4.5	O 12.7	U 21.6	T 29.8	E 37.4

05/28/2020

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US 385 LARGE SIGN DETAILS

SHEET 1 OF 1

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FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		212
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

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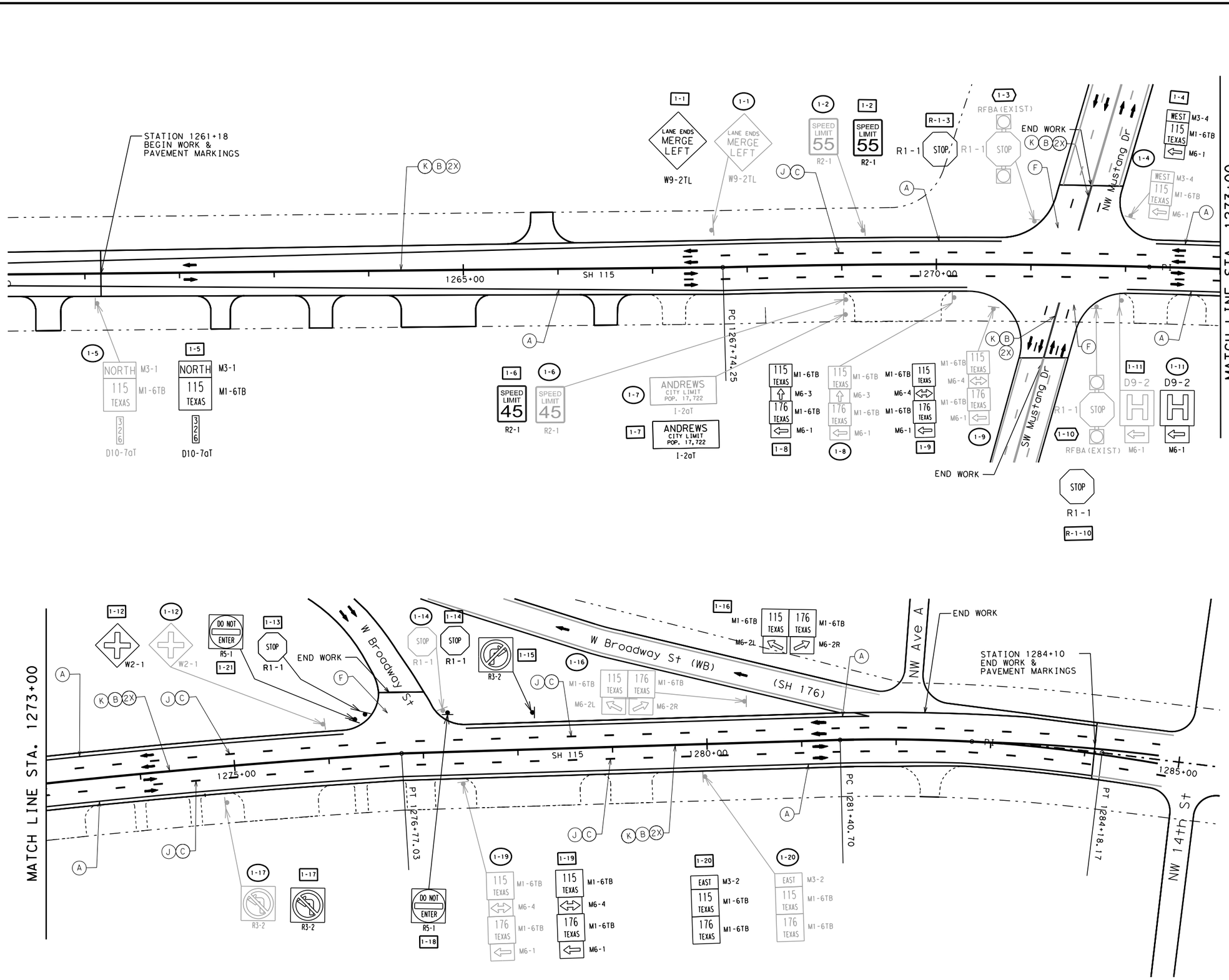

LEGEND

- (A) RE PM W/RET REQ TY I (W)4"(SLD)(100MIL)
- (B) RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)
- (C) RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)
- (D) RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)
- (E) REFL PAV MRK TY I (W)8"(SLD)(100MIL)
- (F) REFL PAV MRK TY I (W)24"(SLD)(100MIL)
- (G) PREFAB PAV MRK TY C (W)(ARROW)
- (H) PREFAB PAV MRK TY C (W)36"(YLD TRI)
- (I) PREFAB PAV MRK TY C (W)(WORD)
- (J) REFL PAV MRKR TY I-C
- (K) REFL PAV MRKR TY II-A-A
- (L) REFL PAV MRK TY II-C-R
- (M) RUMBLE STRIPS (SHOULDER)
- (N) REFL PAV MARK TY I (W) 4" (DOT) (100 MIL)
- (O) REFL PAV MRK TY I (W)8"(DOT)(100MIL)
- SIGN (SMALL SIGN)
- SIGN (LARGE SIGN)
- TYPE D-DY DELINEATOR (CROSSOVER)
- #-# EXISTING SMALL SIGN TO REMAIN & NUMBER (SHEET AND SIGN NUMBER)
- #-# PROPOSED SMALL SIGN & NUMBER (SHEET AND SIGN NUMBER)
- #-# REMOVE EXISTING SMALL SIGN & NUMBER (SHEET AND NUMBER)
- R-#-# PROPOSED ALUMINUM SIGN (REPLACEMENT AND NUMBER)
- DIRECTIONAL TRAFFIC FLOW

0 25 50 100 FT
HORIZONTAL SCALE

09/25/2020

STATE OF TEXAS
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SH 115 SIGNING AND PAVEMENT MARKING LAYOUT

SHEET 1 OF 1

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FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		213
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

FILE: ASH115HA01.dgn
DATE: 9/25/2020 TIME: 2:40:27 PM
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STATION	LOC.	SIGN TYPE	SIGN TEXT	SIGN DIMENSIONS	0644-2060 REMOVE SM RD SN SUP & AM
ANDREWS COUNTY (SH-II5)					EA.
1267+63	SB	W9-2TL	LANE ENDS MERGE LEFT	36" X 36"	1
1269+23	SB	R2-1	SPEED LIMIT 55	30" X 36"	1
1270+94	SB	R1-1	STOP	48" X 48"	1
1272+05	SB	M3-4	WEST	24" X 12"	1
		M1-6TB	115 TEXAS	24" X 24"	
		M6-1	←	21" X 15"	
1261+19	NB	M3-1	NORTH	24" X 12"	1
		M1-6TB	115 TEXAS	24" X 24"	
		D10-7aT	326	3" X 10"	
1269+19	NB	R2-1	SPEED LIMIT 45	30" X 36"	1
1269+18	NB	I-2aT	ANDREWS city limit	Var" X 24"	1
1270+19		M1-6TB	115 TEXAS	24" X 24"	
		M6-3	↑	21" X 15"	
		M1-6TB	176 TEXAS	24" X 24"	
		M6-1	←	21" X 15"	1
1270+76	NB	M1-6TB	115 TEXAS	24" X 24"	1
		M6-4	↔	21" X 15"	
		M1-6TB	176 TEXAS	24" X 24"	
		M6-1	←	21" X 15"	
1271+70	NB	R1-1	STOP	48" X 48"	1
1271+96	NB	D9-2	HOSPITAL H	36" X 36"	1
		M6-1	←	30" X 24"	1
1275+96	SB	W2-1	INTERSECTION WARNING	36" X 36"	1
1277+24	SB	R1-1	STOP	36" X 36"	1
1280+41	SB	M1-6TB	115 TEXAS	24" X 24"	1
		M6-2L	↖	21" X 15"	
		M1-6TB	176 TEXAS	24" X 24"	
		M6-2R	↗	21" X 15"	
1274+89	NB	R3-2	MOVEMENT PROHIBITION	36" X 36"	1
1277+41	NB	M1-6TB	115 TEXAS	24" X 24"	1
		M6-4	↔	21" X 15"	
		M1-6TB	176 TEXAS	24" X 24"	
		M6-1	←	21" X 15"	
1279+97	NB	M3-2	EAST	24" X 12"	1
		M1-6TB	115 TEXAS	24" X 24"	
		M1-6TB	176 TEXAS	24" X 24"	
			SHEET TOTAL:		18

FILE: ASH115xSIGNING REMOVAL SUMMARY.DGN
DATE: 5/28/2020 TIME: 8:24:07 PM
DIRECTORY: I:\TYL\PRJ\00001412\TREA\DGN*A\PSE*A\TRAFFIC\ASH115*SIGNING REMOVAL SUMMARY.DGN

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
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SH 115
SIGN REMOVAL SUMMARY

SHEET 1 OF 1

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FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		214
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

SUMMARY OF SMALL SIGNS

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

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
1	1-1	W9-2TL	LANE ENDS MERGE LEFT	36" X 36"	✓		10BWG	1	SA	P		
	1-2	R2-1	SPEED LIMIT 55	30" X 36"	✓		10BWG	1	SA	P		
	1-3	R1-1	STOP (ON EXIST RFBA)	48" X 48"	16		(ALUMINUM SIGN REPLACEMENT)					
	1-4	M3-4	WEST	24" X 12"	✓		10BWG	1	SA	P		
		M1-6TB	115 TEXAS	24" X 24"	✓							
		M6-1	←	21" X 15"	✓							
	1-5	M3-1	NORTH	24" X 12"	✓		10BWG	1	SA	P		
		M1-6TB	115 TEXAS	24" X 24"	✓							
		D10-7aT	326	3" X 10"	✓							
	1-6	R2-1	SPEED LIMIT 45	30" X 36"	✓		10BWG	1	SA	P		
	1-7	I-2aT	ANDREWS CITY LIMIT POP. 11,088	48" X 24"	✓		10BWG	1	SA	P		
	1-8	M1-6TB	115 TEXAS	24" X 24"	✓		10BWG	1	SA	P		
		M6-3	↑	21" X 15"	✓							
		M1-6TB	176 TEXAS	24" X 24"	✓							
		M6-1	←	21" X 15"	✓							
	1-9	M1-6TB	115 TEXAS	24" X 24"	✓		10BWG	1	SA	P		
		M6-4	↔	21" X 15"	✓							
		M1-6TB	176 TEXAS	24" X 24"	✓							
		M6-1	←	21" X 15"	✓							
	1-10	R1-1	STOP (ON EXIST RFBA)	48" X 48"	16		(ALUMINUM SIGN REPLACEMENT)					
	1-11	D9-2	HOSPITAL H	36" X 36"	✓		10BWG	1	SA	P		
		M6-1	←	30" X 24"	✓							
	1-12	W2-1	INTERSECTION WARNING	36" X 36"	✓		10BWG	1	SA	P		
	1-13	R1-1	STOP	36" X 36"	✓		10BWG	1	SA	P		
	1-14	R1-1	STOP	36" X 36"	✓		10BWG	1	SA	P		
	1-15	R3-2	MOVEMENT PROHIBITION	36" X 36"	✓		10BWG	1	SA	P		
	1-16	M1-6TB	115 TEXAS (side by side signs)	24" X 24"	✓		10BWG	1	SA	U		
		M6-2L	↖	21" X 15"	✓							
		M1-6TB	176 TEXAS (side by side signs)	24" X 24"	✓							
		M6-2R	↗	21" X 15"	✓							
	1-17	R3-2	MOVEMENT PROHIBITION	36" X 36"	✓		10BWG	1	SA	P		
	1-18	R3-2	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		
	1-19	M1-6TB	115 TEXAS	24" X 24"	✓		10BWG	1	SA	P		
		M6-4	↔	21" X 15"	✓							
		M1-6TB	176 TEXAS	24" X 24"	✓							
		M6-1	←	21" X 15"	✓							

DATE: 5/28/2020 8:24:09 PM
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05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER

P.E.

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

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

http://www.txdot.gov/

NOTE:

1. Sign supports shall be located as shown on the plans, except that the Engineer may shift the sign supports, within design guidelines, where necessary to secure a more desirable location or to avoid conflict with utilities. Unless otherwise shown on the plans, the Contractor shall stake and the Engineer will verify all sign support locations.
2. For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS)Standard Sheet.
3. For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD(GEN).

Texas Department of Transportation

Traffic Operations Division Standard

SH 115
SUMMARY OF SMALL SIGNS

SOSS

FILE: sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043,ETC	US 385,ETC
4-16 8-16	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		215

18

SUMMARY OF SMALL SIGNS

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

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
1	1-20	M3-2	EAST	24" X 12"	✓		10BWG	1	SA	P		
		M1-6TB	115 TEXAS	24" X 24"	✓							
		M1-6TB	176 TEXAS	24" X 24"	✓							
	1-21	R3-2	DO NOT ENTER	36" X 36"	✓		10BWG	1	SA	P		

DISCLAIMER:
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FILE: I:\TYLVPRJ\0000141211\TREA\DGN_A\PSE_A\TRAFFIC\ASH115HD01.dgn

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER

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

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

http://www.txdot.gov/

NOTE:

1. Sign supports shall be located as shown on the plans, except that the Engineer may shift the sign supports, within design guidelines, where necessary to secure a more desirable location or to avoid conflict with utilities. Unless otherwise shown on the plans, the Contractor shall stake and the Engineer will verify all sign support locations.
2. For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS)Standard Sheet.
3. For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD(GEN).

Texas Department of Transportation

Traffic Operations Division Standard

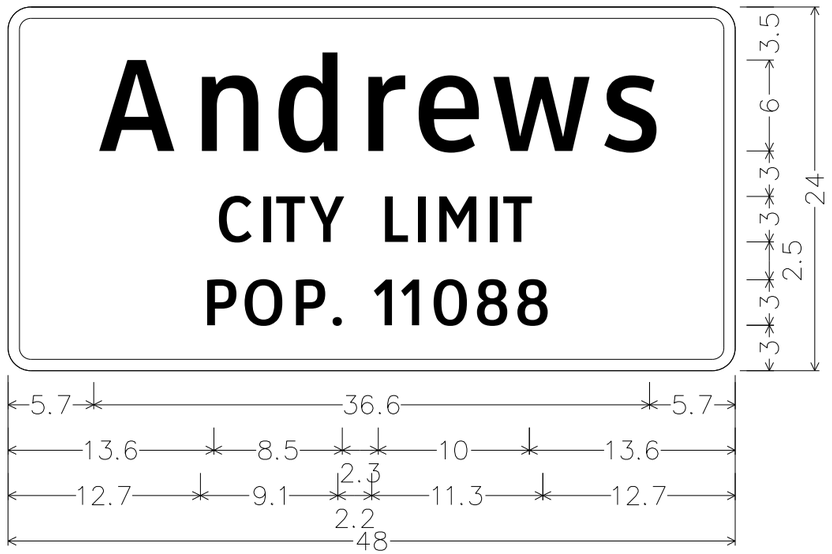
SH 115
SUMMARY OF SMALL SIGNS

SOSS

FILE: sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043,ETC	US 385,ETC
4-16 8-16	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		216

18

(1)



Identifier : I-2aT 6in?;
1.5" Radius, 0.8" Border, White on Green;
[Andrews] ClearviewHwy-3-W;
[CITY LIMIT] ClearviewHwy-3-W;
[POP. 11088] ClearviewHwy-3-W;

SIGN 1-7

(1) UPDATE CITY OF ANDREWS' POPULATION NUMBER TO 2020 CENSUS VALUE IF AVAILABLE DURING TIME OF FABRICATION.

FILE: ASH1115H002.dgn
DATE: 5/28/2020 TIME: 8:24:12 PM
DIRECTORY: I:\TYL\PRJ\0000141\TREA\DGN*A\PSE*A\TRAFFIC\ASH1115H002.dgn

05/28/2020

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SH 115
SMALL SIGN
DETAILS

SHEET 1 OF 1

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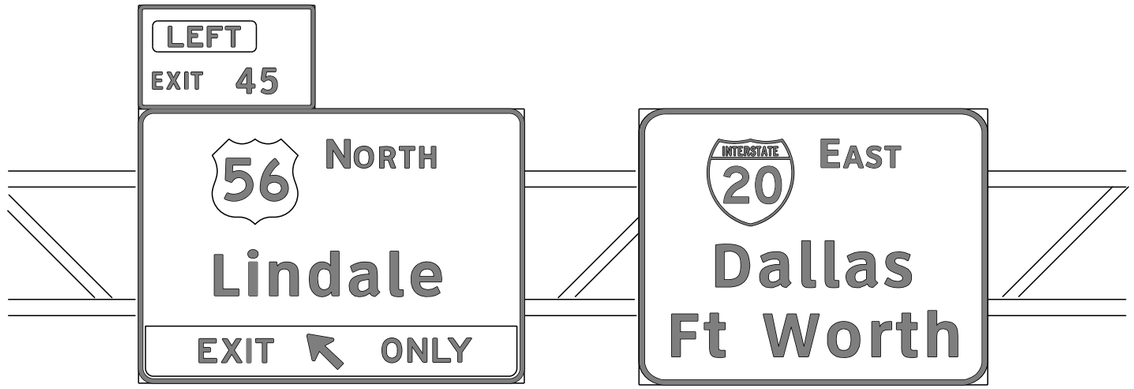
FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		217
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.

REQUIREMENTS FOR OVERHEAD AND LARGE GROUND-MOUNTED SIGNS

TYPICAL EXAMPLES



GENERAL NOTES

1. Signs to be furnished shall be as detailed elsewhere in the plans and/or as shown on sign summary sheet. Standard sign designs and arrow dimensions can be found in the "Standard Highway Sign Designs for Texas" (SHSD).
2. Black legend shall use the Federal Highway Administration (FHWA) Standard Highway Alphabets (B, C, D, E, Emod, or F).
   White legend shall use the Clearview Alphabet.
   The following Clearview fonts shall be used to replace the existing white FHWA lettering, when not specified in the SHSD or in the plans.

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

3. Lateral spacing between letters and numerals shall conform with the SHSD, and any approved changes thereto. Lateral spacing of legend shall provide a balanced appearance when spacing is not shown.
4. Black legend shall be applied by screening process or cut-out acrylic non-reflective black film to background sheeting, or combination thereof.
5. White legend and borders shall be cut-out white sheeting applied to colored background sheeting.
6. Information regarding borders and radii for signs is found in the "Standard Highway Sign Designs for Texas". Dimensions shown and described for borders and corner radii on parent sign are nominal. Borders may vary in width as much as 1/2 inch. Corner radii above 3 inches may vary in width as much as 1 inch. Borders and corner radii within a parent sign must be of matching widths. The sign area outside the corner radius need not be trimmed or rounded if fabricated from an extruded material.
7. Sign substrate for ground-mounted signs shall be any material that meets the Departmental Material Specification requirements of DMS-7110 or approved alternative. Sign substrate for overhead signs shall be any material that meets DMS-7110. Exit Number Panels attached above the parent sign shall be made with the same substrate and sheeting as the parent sign.
8. Mounting details of attachments to parent sign face are shown on Standard Plan Sheet TSR(5). Mounting details of exit number panels above parent sign are shown in the "SMD series" Standard Plan Sheets.
9. Background sheeting shall be applied to the substrate per sheeting manufacturer's recommendations. Sheeting will not be allowed to bridge the horizontal gap between panels.
10. Cut all legend, symbols, borders, and direct applied sign attachments at panel joints.

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

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

http://www.txdot.gov/

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

Texas Department of Transportation

Traffic Operations Division Standard

TYPICAL SIGN REQUIREMENTS

TSR(1)-13

FILE: tsr1-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2003	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043,ETC	US 385,ETC
12-03 7-13	DIST	COUNTY		SHEET NO.
9-08	ODA	ANDREWS		218

DATE: 5/28/2020 8:24:19 PM
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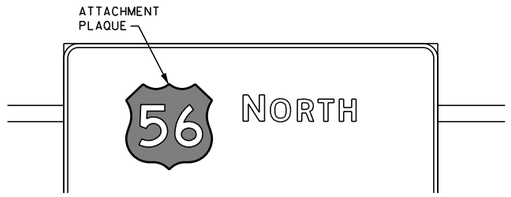
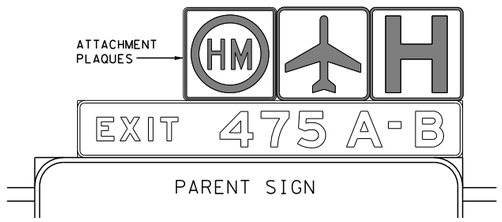
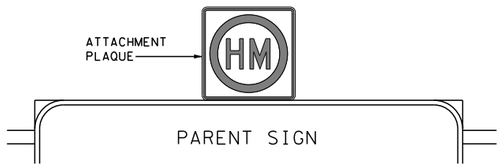
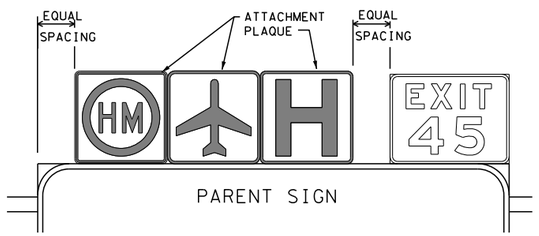
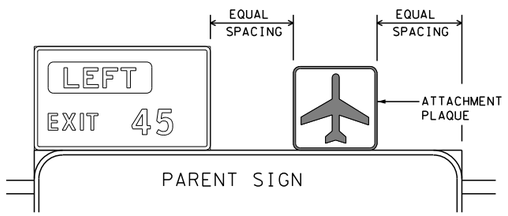
REQUIREMENTS FOR ATTACHMENTS TO OVERHEAD AND LARGE GROUND MOUNTED SIGNS











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

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

GENERAL NOTES

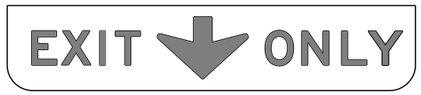
1. Signs to be furnished shall be as detailed elsewhere in the plans and/or as shown on sign tabulation sheet. Standard sign designs and arrow dimensions can be found in the "Standard Highway Sign Designs for Texas" (SHSD).
2. Route Marker legends (ie. IH, US, SH and FM shields) shall use the Federal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

TYPICAL EXAMPLES

REQUIREMENTS FOR EXIT ONLY AND LEFT EXIT PANELS

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

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



TYPICAL EXAMPLES

GENERAL NOTES

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

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

http://www.txdot.gov/

Texas Department of Transportation

Traffic Operations Division Standard

TYPICAL SIGN REQUIREMENTS

TSR(2)-13

FILE: tsr2-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS	0228	04	043,ETC	US 385,ETC
12-03 7-13	DIST	COUNTY		SHEET NO.
9-08	ODA	ANDREWS		219

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DATE: 5/28/2020 8:24:20 PM
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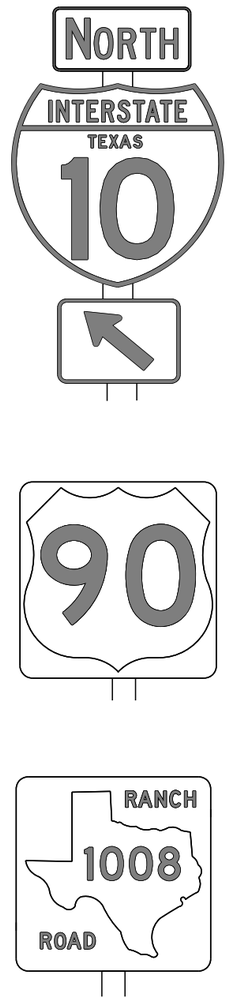
REQUIREMENTS FOR INDEPENDENT MOUNTED ROUTE SIGNS

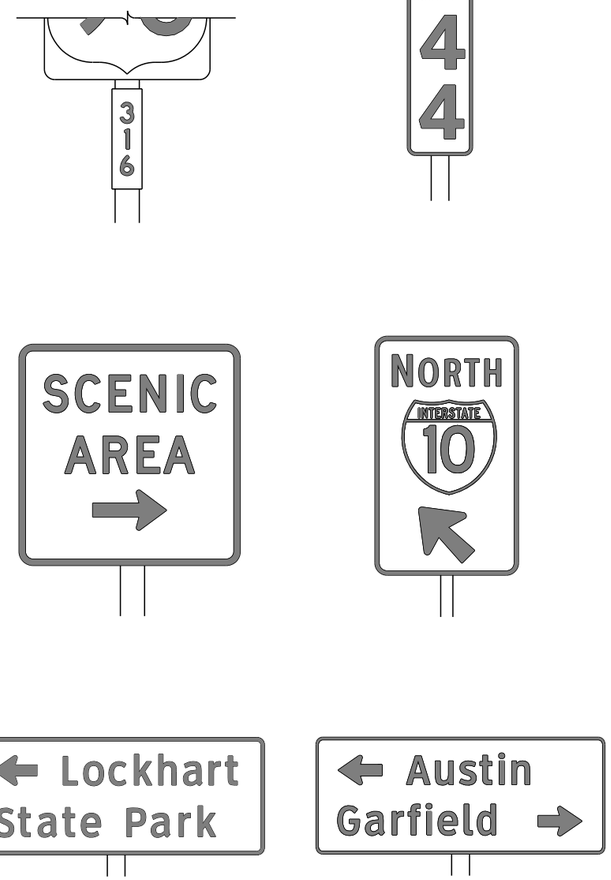
SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	WHITE	TYPE A SHEETING
BACKGROUND	ALL OTHERS	TYPE B OR C SHEETING
LEGEND & BORDERS	WHITE	TYPE A SHEETING
LEGEND & BORDERS	BLACK	ACRYLIC NON-REFLECTIVE FILM
LEGEND & BORDERS	ALL OTHERS	TYPE B or C SHEETING



TYPICAL EXAMPLES

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

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



TYPICAL EXAMPLES

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

http://www.txdot.gov/

Texas Department of Transportation

Traffic Operations Division Standard

TYPICAL SIGN REQUIREMENTS

TSR(3)-13

FILE: tsr3-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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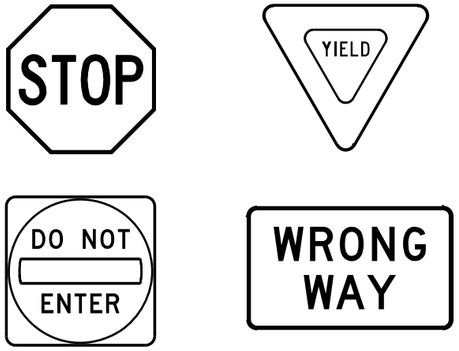
REVISIONS	0228	04	043,ETC	US 385,ETC
12-03 7-13	DIST	COUNTY		SHEET NO.
9-08	ODA	ANDREWS		220

DATE: 5/28/2020 8:24:21 PM
FILE: I:\TYE\CADD\TxDOT CAD Standards\TSR4-13.dgn

REQUIREMENTS FOR RED BACKGROUND REGULATORY SIGNS

(STOP, YIELD, DO NOT ENTER AND WRONG WAY SIGNS)



REQUIREMENTS FOR FOUR SPECIFIC SIGNS ONLY

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	RED	TYPE B OR C SHEETING
BACKGROUND	WHITE	TYPE B OR C SHEETING
LEGEND & BORDERS	WHITE	TYPE B OR C SHEETING
LEGEND	RED	TYPE B OR C SHEETING

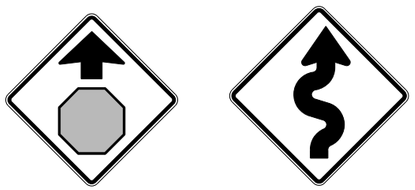
REQUIREMENTS FOR WHITE BACKGROUND REGULATORY SIGNS

(EXCLUDING STOP, YIELD, DO NOT ENTER AND WRONG WAY SIGNS)

TYPICAL EXAMPLES

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

REQUIREMENTS FOR WARNING SIGNS



TYPICAL EXAMPLES

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	FLOURESCENT YELLOW	TYPE B_{FL} OR C_{FL} SHEETING
LEGEND & BORDERS	BLACK	ACRYLIC NON-REFLECTIVE FILM
LEGEND & SYMBOLS	ALL OTHER	TYPE B OR C SHEETING

REQUIREMENTS FOR SCHOOL SIGNS

TYPICAL EXAMPLES

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	WHITE	TYPE A SHEETING
BACKGROUND	FLOURESCENT YELLOW GREEN	TYPE B_{FL} OR C_{FL} SHEETING
LEGEND, BORDERS AND SYMBOLS	BLACK	ACRYLIC NON-REFLECTIVE FILM
SYMBOLS	RED	TYPE B OR C SHEETING

GENERAL NOTES

1. Signs to be furnished shall be as detailed elsewhere in the plans and/or as shown on sign tabulation sheet. Standard sign designs and arrow dimensions can be found in the "Standard Highway Sign Designs for Texas" (SHSD).
2. Sign legend shall use the Federal Highway Administration (FHWA) Standard Highway Alphabets (B, C, D, E, Emod or F).
3. Lateral spacing between letters and numerals shall conform with the SHSD, and any approved changes thereto. Lateral spacing of legend shall provide a balanced appearance when spacing is not shown.
4. Black legend and borders shall be applied by screening process or cut-out acrylic non-reflective black film to background sheeting, or combination thereof.
5. White legend and borders shall be applied by screening process with transparent colored ink, transparent colored overlay film to white background sheeting or cut-out white sheeting to colored background sheeting, or combination thereof.
6. Colored legend shall be applied by screening process with transparent colored ink, transparent colored overlay film or colored sheeting to background sheeting, or combination thereof.
7. Sign substrate shall be any material that meets the Departmental Material Specification requirements of DMS-7110 or approved alternative.
8. Mounting details for roadside mounted signs are shown in the "SMD series" Standard Plan Sheets.

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

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

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

http://www.txdot.gov/

Texas Department of Transportation

Traffic Operations Division Standard

TYPICAL SIGN REQUIREMENTS

TSR(4)-13

FILE: tsr4-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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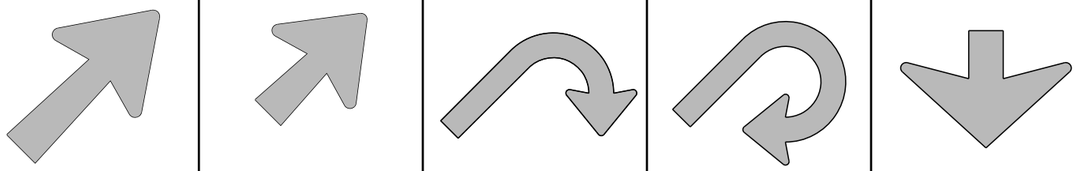
REVISIONS 12-03 7-13 9-08	0228	04	043,ETC	US 385,ETC
	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		221

ARROW DETAILS

for Large Ground-Mounted and Overhead Guide Signs



TYPE	LETTER SIZE	USE
A-1	10.67" U/L and 10" Caps	Single Lane Exits
A-2	13.33" U/L and 12" Caps	
A-3	16" & 20" U/L	
B-1	10.67" U/L and 10" Caps	Multiple Lane Exits
B-2	13.33" U/L and 12" Caps	
B-3	16" & 20" U/L	

CODE	USED ON SIGN NO.
E-3	E5-1aT
E-4	E5-1bT

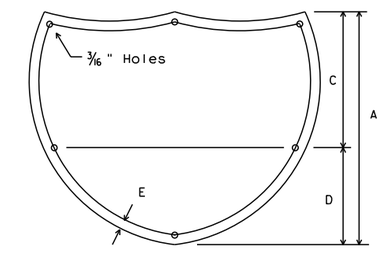
NOTE

Arrow dimensions are shown in the "Standard Highway Sign Designs for Texas" manual.

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

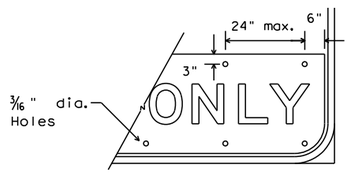
http://www.txdot.gov/

SIGN BLANK PUNCHING DETAILS FOR ATTACHMENTS WHEN SPECIFIED TO BE TYPE A ALUMINUM SIGNS (FOR MOUNTING TO GUIDE SIGN FACE)

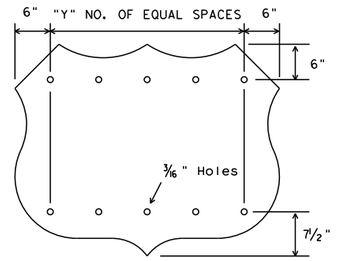


INTERSTATE ROUTE MARKERS

A	C	D	E
36	21	15	1 1/2
48	28	20	1 3/4

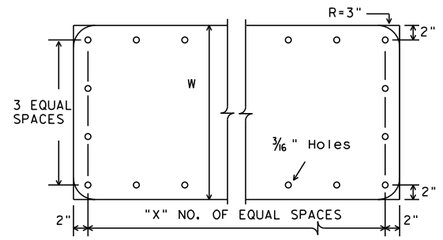


EXIT ONLY PANEL



U.S. ROUTE MARKERS

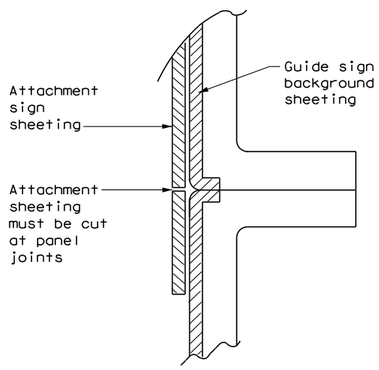
Sign Size	"Y"
24x24	2
30x24	3
36x36	3
45x36	4
48x48	4
60x48	5



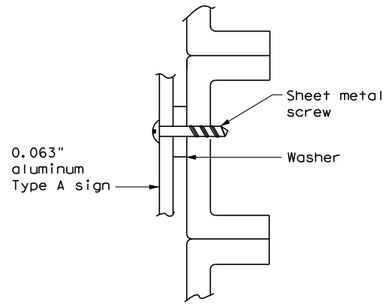
STATE ROUTE MARKERS

No. of Digits	W	X
4	24	4
4	36	5
4	48	6
3	24	3
3	36	4
3	48	5

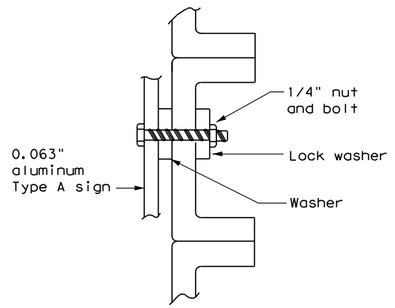
MOUNTING DETAILS OF ATTACHMENTS TO GUIDE SIGN FACE ("EXIT ONLY" AND "LEFT EXIT" PANELS, ROUTE MARKERS AND OTHER ATTACHMENTS)



DIRECT APPLIED ATTACHMENT



SCREW ATTACHMENT



NUT/BOLT ATTACHMENT

NOTE:

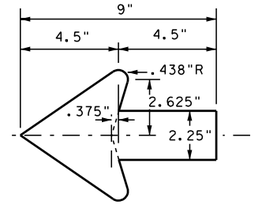
1. Sheeting for legend, symbols, and borders must be cut at panel joints.
2. Direct applied attachment signs will be subsidiary to "Aluminum Signs" or "Fiberglass Signs".

NOTE:

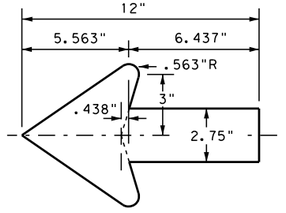
Furnish Type A aluminum sign attachments only when specified in the plans. These signs will be paid for under "Aluminum Signs".

ARROW DETAILS

for Destination Signs (Type D)



Standard arrow to be used with 6 inch letters.



Standard arrow to be used with 8 inch letters.

Texas Department of Transportation

Traffic Operations Division Standard

TYPICAL SIGN REQUIREMENTS

TSR(5)-13

FILE: tsr5-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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12-03 7-13	DIST	COUNTY		SHEET NO.
9-08	ODA	ANDREWS		222

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SIGN SUPPORT DESCRIPTIVE CODES

(Descriptive Codes correspond to project estimate and quantities sheets)

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

Post Type

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

Number of Posts (1 or 2)

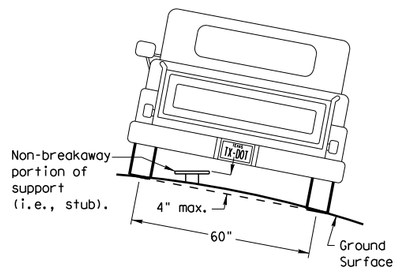
Anchor Type

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

Sign Mounting Designation

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

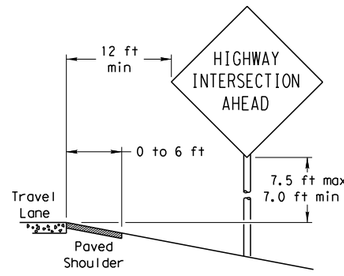
REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



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

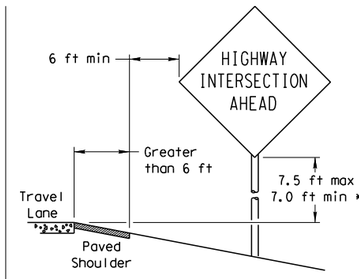
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

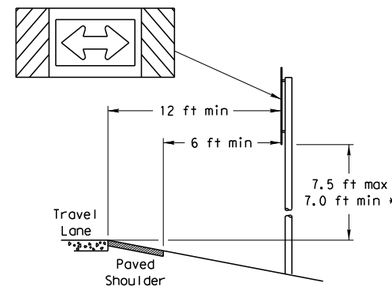
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.



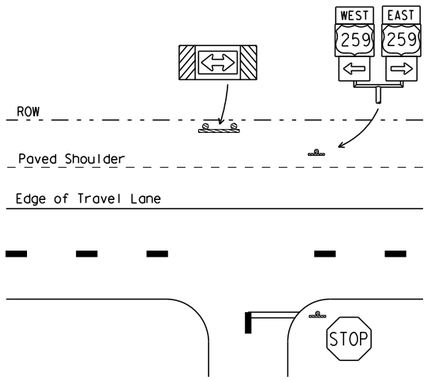
GREATER THAN 6 FT. WIDE

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

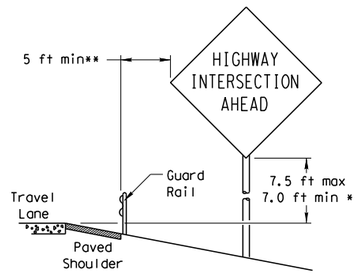
T-INTERSECTION



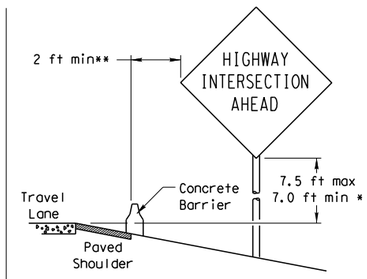
When this sign is needed at the end of a two-lane, two way roadway, the right edge of the sign should be in line with the centerline of the roadway. Place as close to ROW as practical.



BEHIND BARRIER



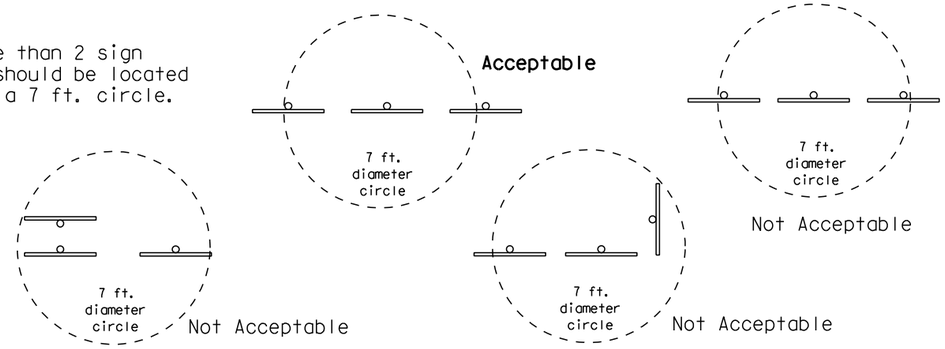
BEHIND GUARDRAIL



BEHIND CONCRETE BARRIER

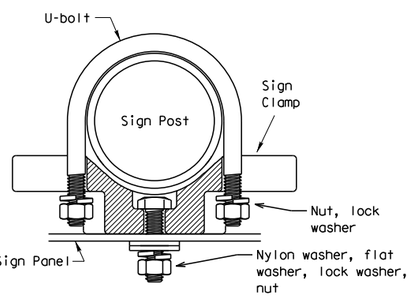
**Sign clearance based on distance required for proper guard rail or concrete barrier performance.

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

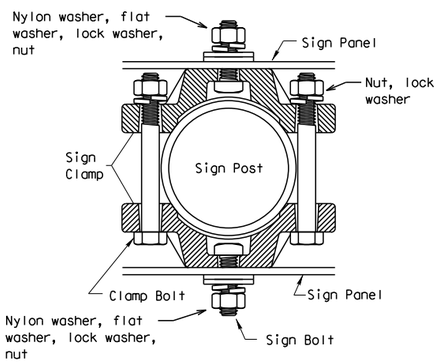


TYPICAL SIGN ATTACHMENT DETAIL

Single Signs



Back-to-Back Signs



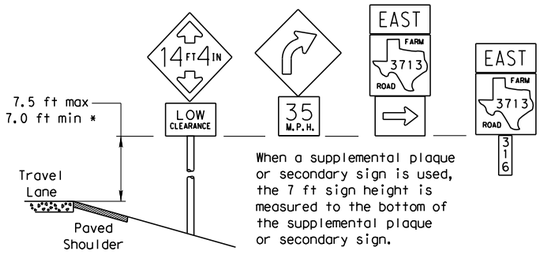
Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

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

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

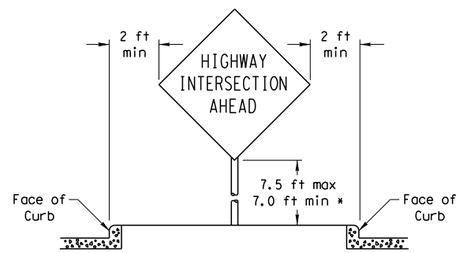
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES



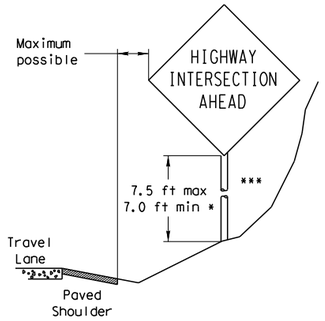
When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

CURB & GUTTER OR RAISED ISLAND



RESTRICTED RIGHT-OF-WAY

(When 6 ft min. is not possible.)



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

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

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

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

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

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

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

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

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

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

SMD(GEN)-08

9-08 REVISIONS

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
CONT	SECT	JOB	HIGHWAY
0228	04	043,ETC	US 385,ETC
DIST	COUNTY		SHEET NO.
ODA	ANDREWS		223

26A

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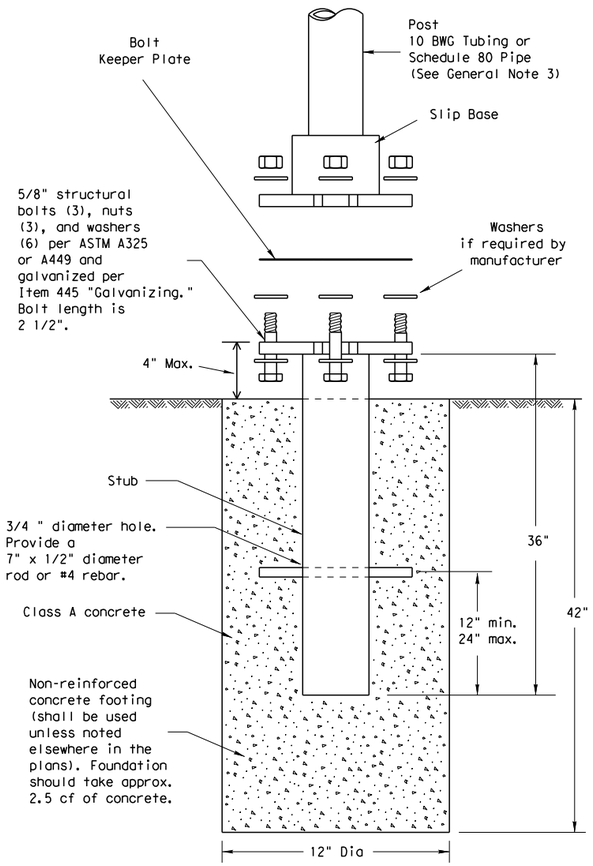
TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS



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

NOTE

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

GENERAL NOTES:

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

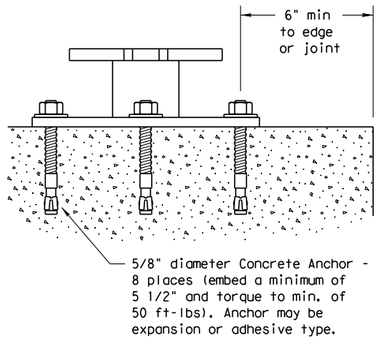
   Schedule 80 Pipe (2.875" outside diameter)
   - 0.276" nominal wall thickness
   - Steel tubing per ASTM A500 Gr C
   - Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the following:
     - 46,000 PSI minimum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

ASSEMBLY PROCEDURE

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

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

CONCRETE ANCHOR



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

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

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-1)-08

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

REVISIONS
9-08

CONT	SECT	JOB	HIGHWAY
0228	04	043,ETC	US 385,ETC

DIST	COUNTY	SHEET NO.
ODA	ANDREWS	224

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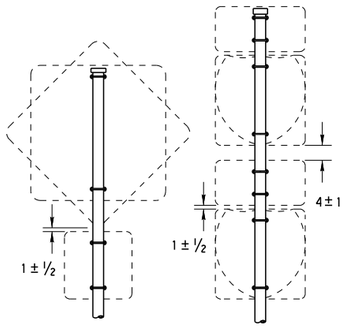
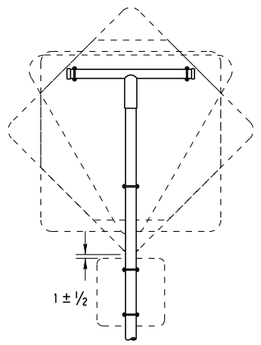
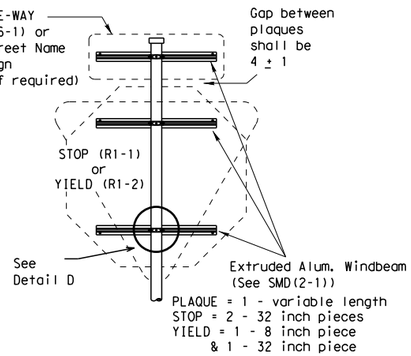


SM RD SGN ASSM TY XXXXX(1)XX(P)



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



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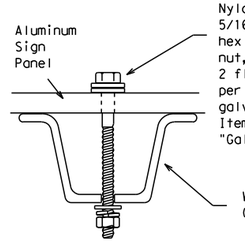
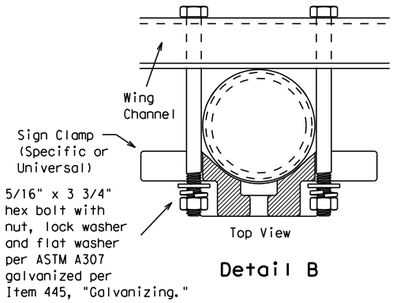
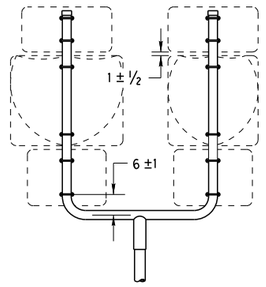


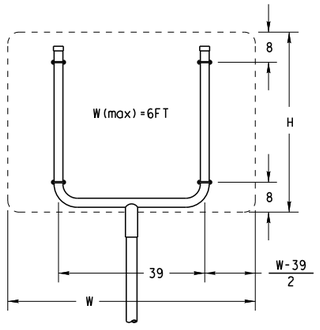
Detail A



Detail B



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



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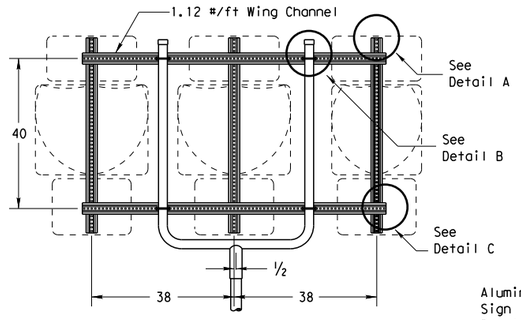
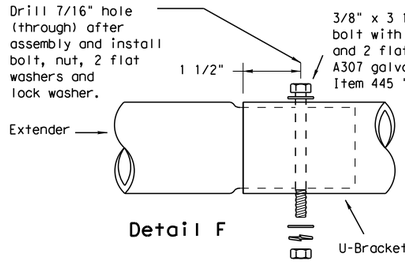
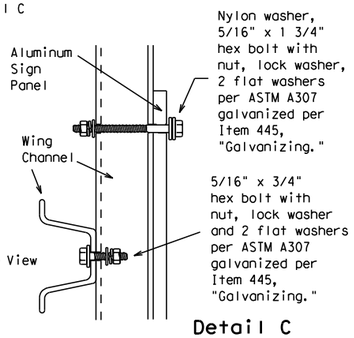


SM RD SGN ASSM TY XXXXX(1)XX(U-WC)
(See Note 11)

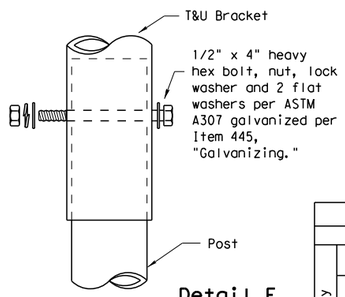


Detail F

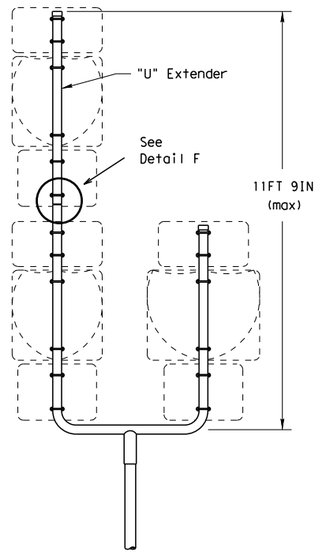
Splices shall only be allowed behind the sign substrate.



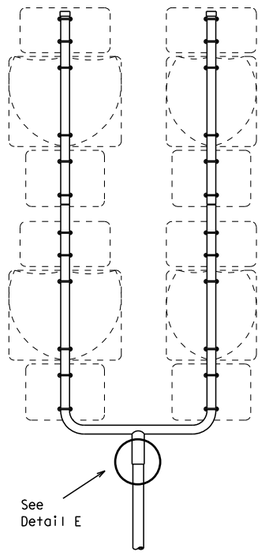
Detail C



Detail E



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



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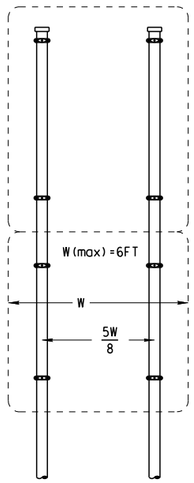
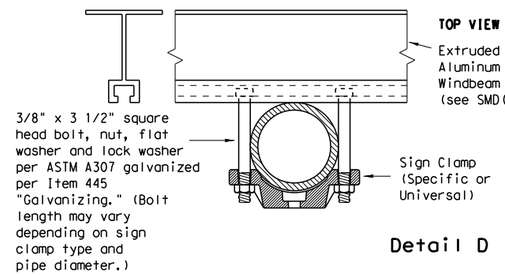
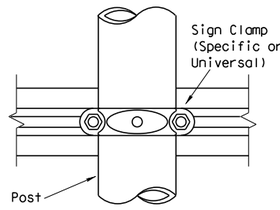


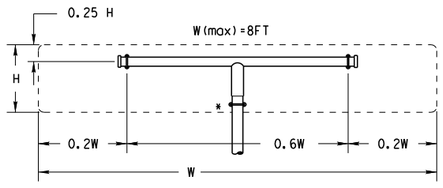
SM RD SGN ASSYM TY XXXXX(2)XX(P)

SIDE VIEW



Detail D

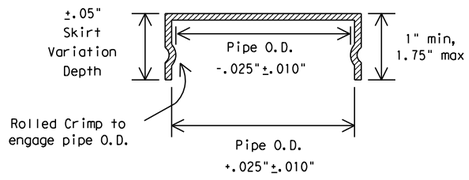




SM RD SGN ASSM TY XXXXX(1)XX(T)
(* - See Note 12)

All dimensions are in english unless detailed otherwise.

FRICTION CAP DETAIL



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

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

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

GENERAL NOTES:

1.

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

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

REQUIRED SUPPORT

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

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-2)-08

REVISIONS	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
9-08	CONT	SECT	JOB	HIGHWAY
	0228	04	043,ETC	US 385,ETC
	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		225

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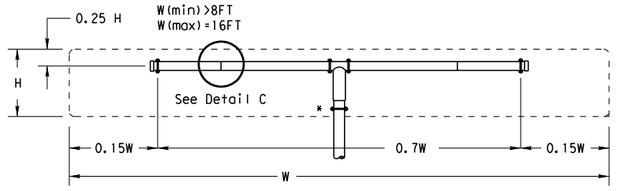
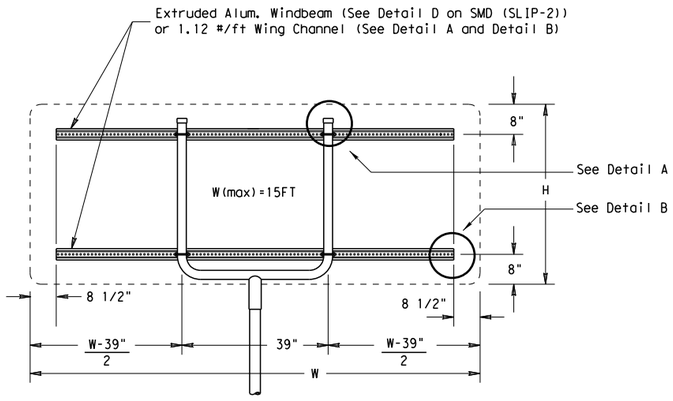


SM RD SGN ASSM TY XXXXX(1)XX(T-2EXT)

(* - See Note 12)



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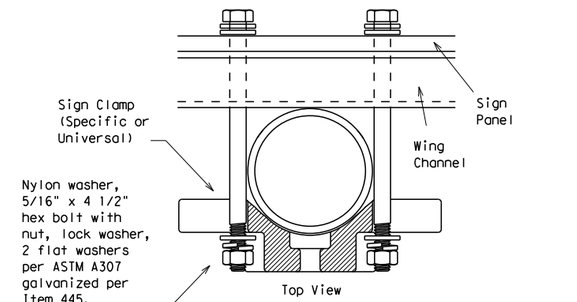
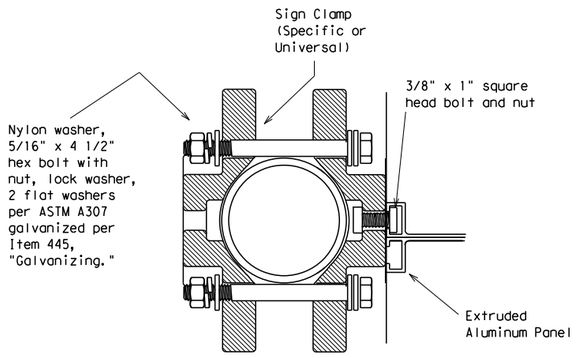


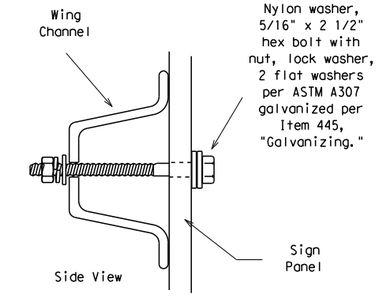
Top View

Detail A

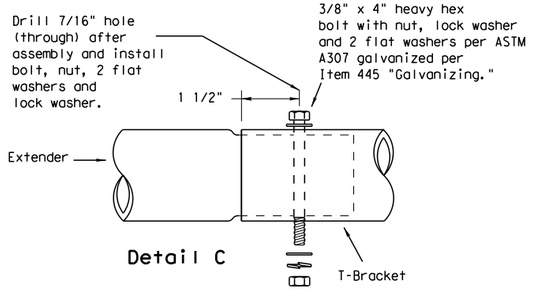


Detail D

EXTRUDED ALUMINUM SIGN WITH T BRACKET

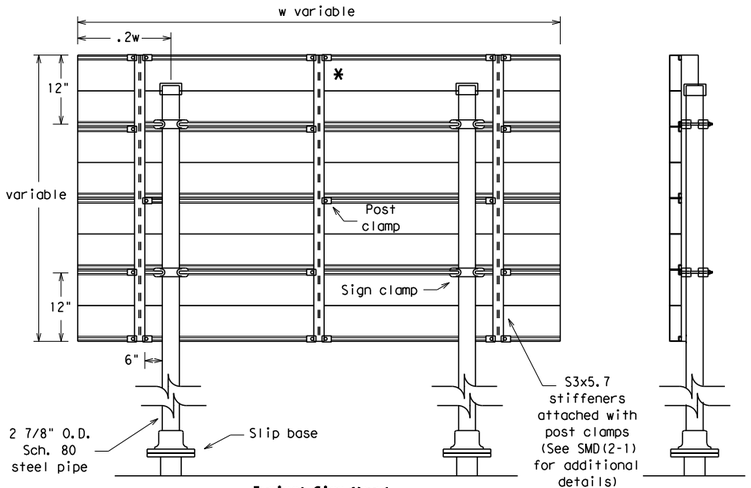


Detail B



Detail C

Splices shall only be allowed behind the sign substrate.

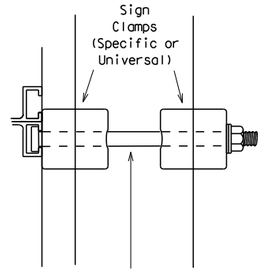


Typical Sign Mount

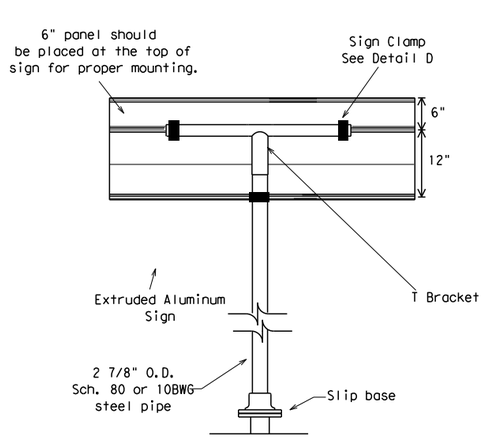
SM RD SGN ASSM TY S80(2)XX(P-EXAL)

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

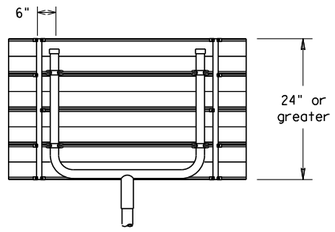
See Detail E
for clamp installation



Detail E



Extruded Aluminum Sign
With T Bracket



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

See Detail E
for clamp installation

GENERAL NOTES:

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

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

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

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-3)-08

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

REVISIONS
9-08

CONT	SECT	JOB	HIGHWAY
0228	04	043,ETC	US 385,ETC

DIST	COUNTY	SHEET NO.
ODA	ANDREWS	226

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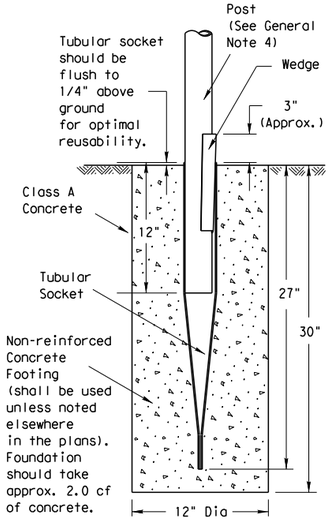
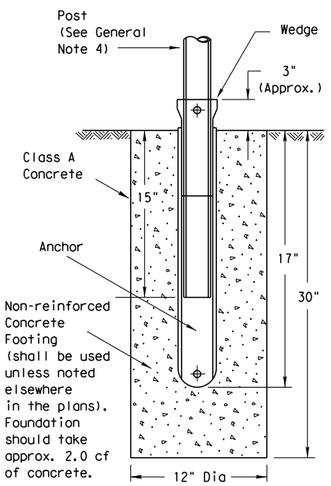
Wedge Anchor Steel System



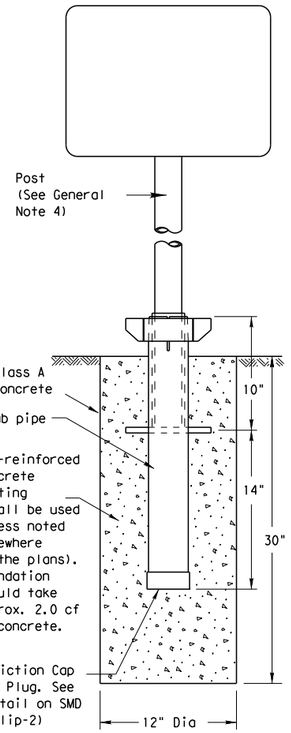
SM RD SGN ASSM TY TWT(X)WS(X)

Wedge Anchor High Density Polyethylene (HDPE) System

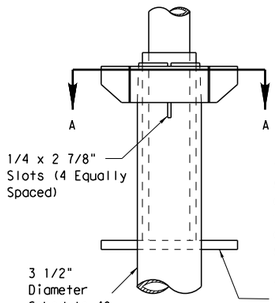


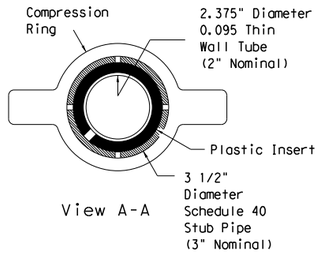
SMD RD SGN ASSM TY TWT(X)WP(X)

Universal Anchor System with Thin-Walled Tubing Post



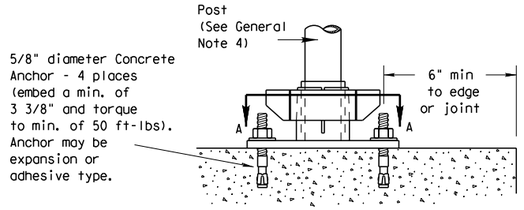
SM RD SGN ASSM TY TWT(X)UA(P)



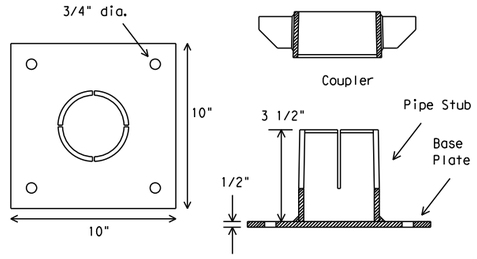


View A-A

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

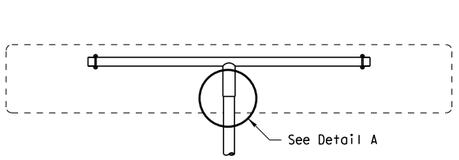


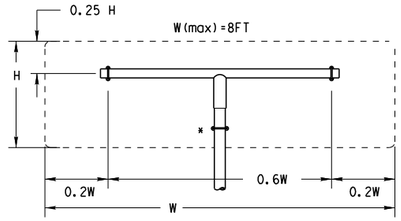
Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. A heavy hex nut per ASTM A563 and hardened washer per ASTM F436. The stud bolt shall have minimum yield and ultimate tensile strengths of 50 and 75 ksi, respectively. Nuts, bolts and washers shall be galvanized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



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

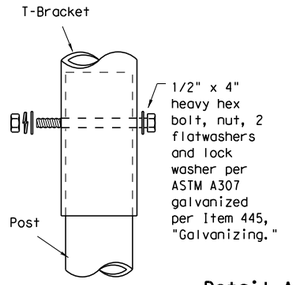
Sign Installation Using a Prefabricated T-Bracket for Thin-Wall Tubing Post





SM RD SGN ASSM TY TWT(X)XX(T)

(* - See General Note 6)



Detail A

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

NOTE

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

GENERAL NOTES:

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

WEDGE ANCHOR SYSTEM INSTALLATION PROCEDURE

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

UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURE

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

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS WEDGE & UNIVERSAL ANCHOR WITH THIN WALL TUBING POST

SMD(TWT)-08

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

9-08 REVISIONS

CONT	SECT	JOB	HIGHWAY
0228	04	043,ETC	US 385,ETC
DIST	COUNTY		SHEET NO.
ODA	ANDREWS		227

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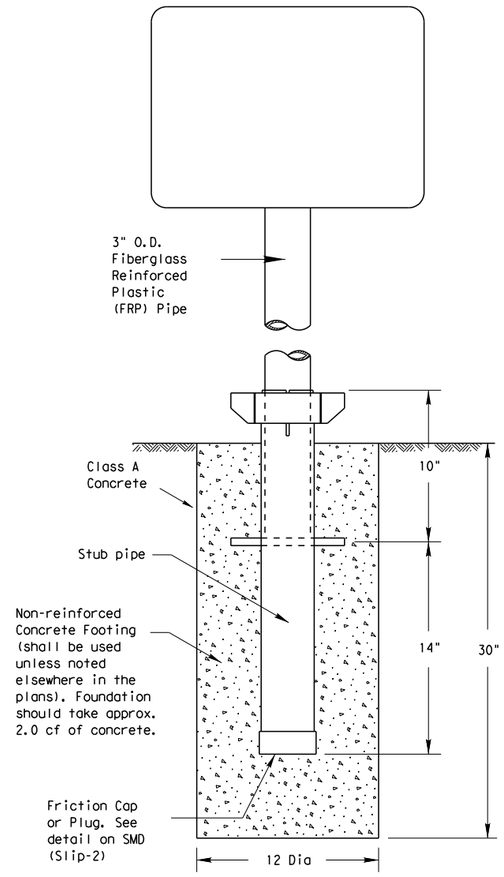
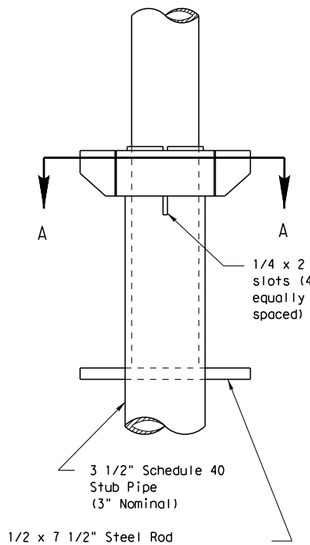
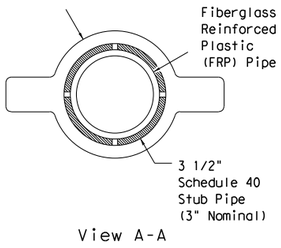
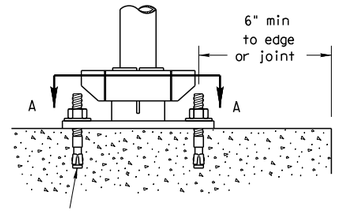
Universal Anchor System with Fiberglass Reinforced Plastic (FRP) Post





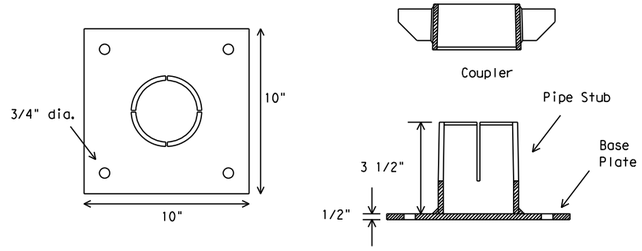


SM RD SGN ASSM TY FRP(X)UA(P)



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

BOLT-DOWN DETAILS



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

GENERAL NOTES:

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

FRP POST REQUIREMENTS

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

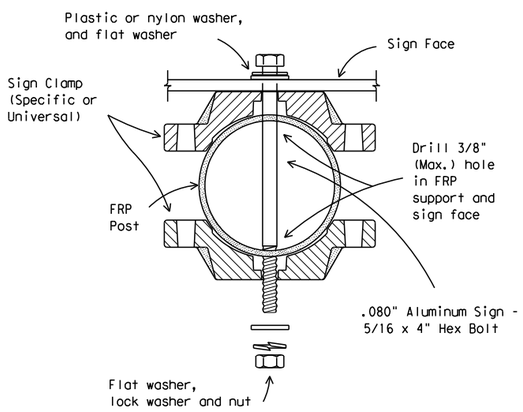
UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURES

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

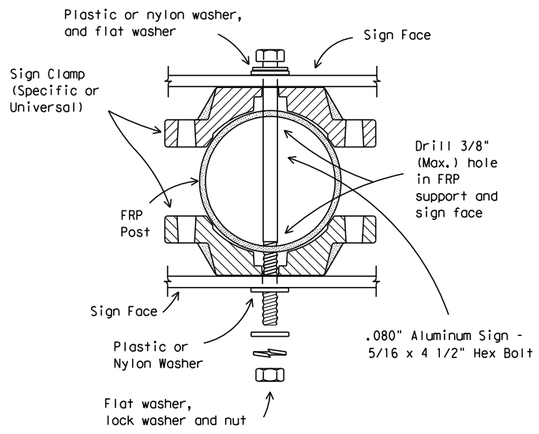
BOLT DOWN SIGN SUPPORT

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

Typical Sign Mounting Detail for FRP Support with Single Sign



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



Texas Department of Transportation
Traffic Operations Division

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

SMD(FRP)-08

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

CONT	SECT	JOB	HIGHWAY
0228	04	043,ETC	US 385,ETC

DIST	COUNTY	SHEET NO.
ODA	ANDREWS	228

9-08 REVISIONS

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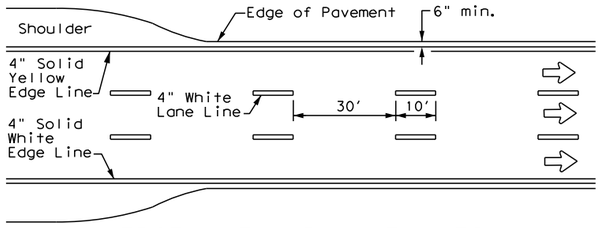
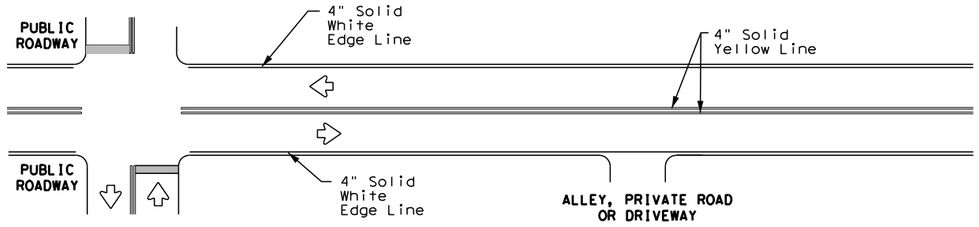
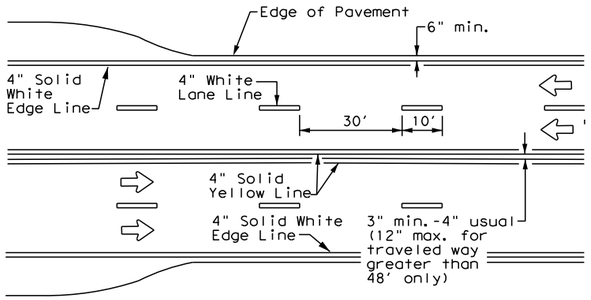


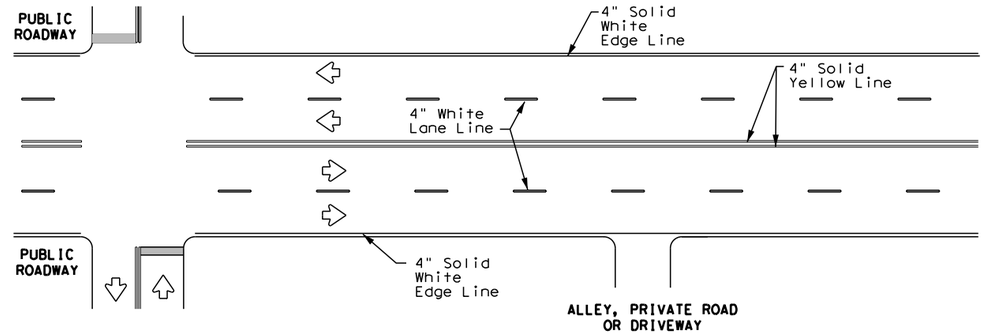
EDGE LINE AND LANE LINES ONE-WAY ROADWAY WITH OR WITHOUT SHOULDERS



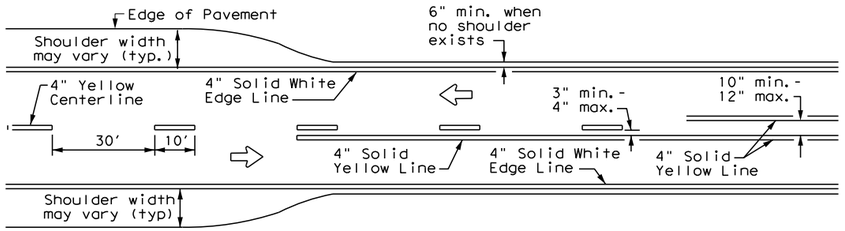
TYPICAL TWO-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS



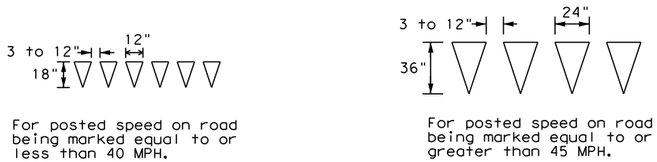
CENTERLINE AND LANE LINES FOUR LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS



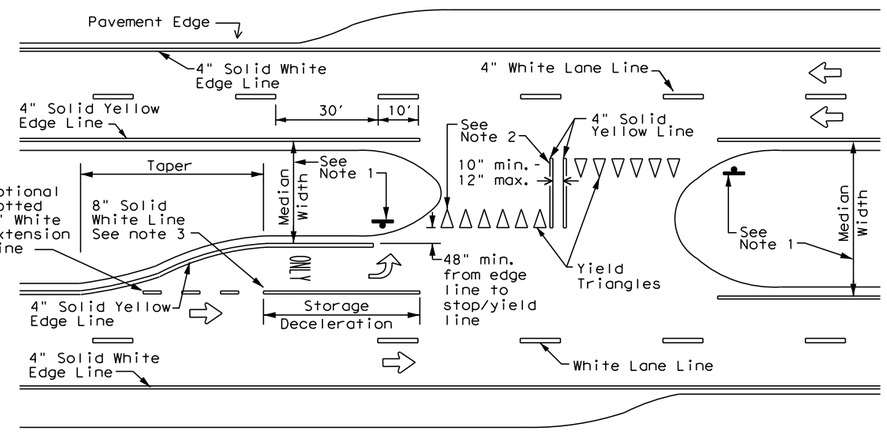
TYPICAL MULTI-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS



TWO LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS



YIELD LINES



FOUR LANE DIVIDED ROADWAY CROSSOVERS

NOTES

1. 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.

2. 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 traingles shall only be used with yield signs.

3. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.

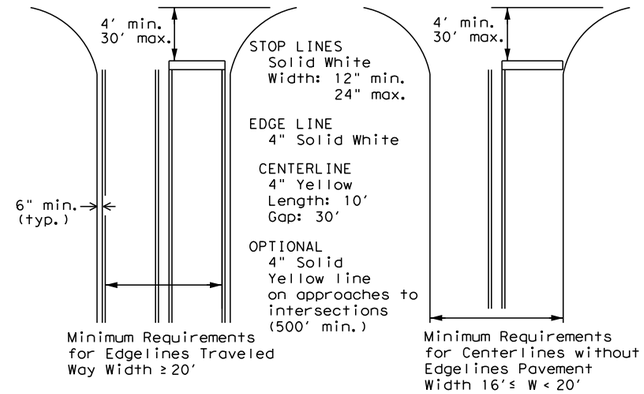
GENERAL NOTES

1. Edgeline striping shall be as shown in the plans or as directed by the Engineer. The edgeline should not be placed less 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.

2. 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

Texas Department of Transportation

Traffic Safety Division Standard

TYPICAL STANDARD PAVEMENT MARKINGS

PM(1)-20

FILE: pm1-20.dgn	DN:	CK:	DW:	CK:
© TxDOT November 1978	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 3-03	0228	04	043,ETC	US 385,ETC
5-00 2-12	DIST	COUNTY		SHEET NO.
8-00 6-20	ODA	ANDREWS		229

22A

DATE: 9/14/2020 6:11:29 PM
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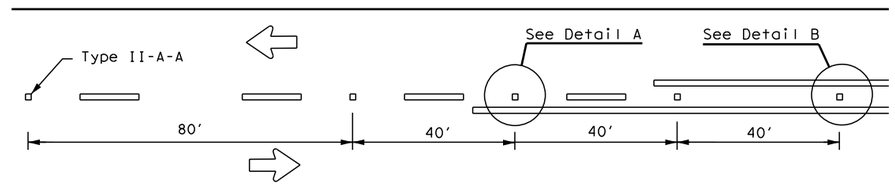
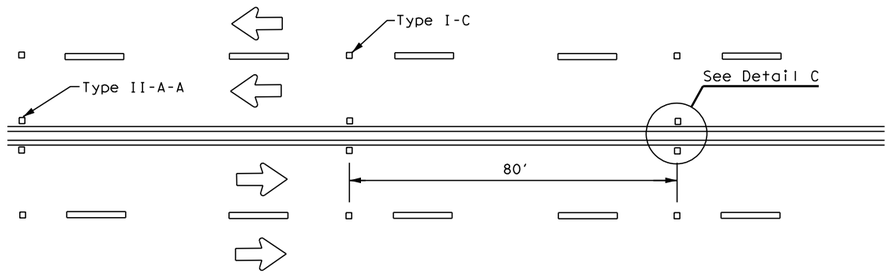
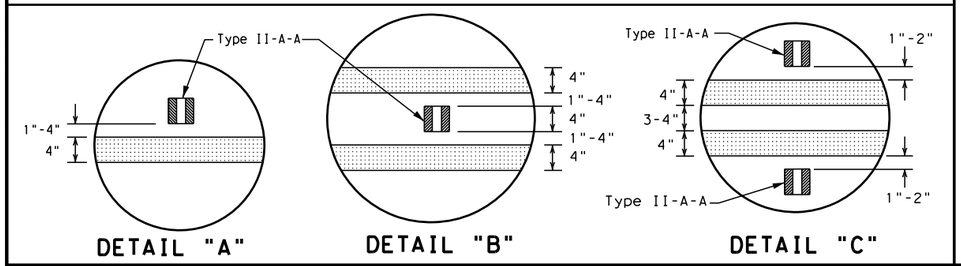
REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE



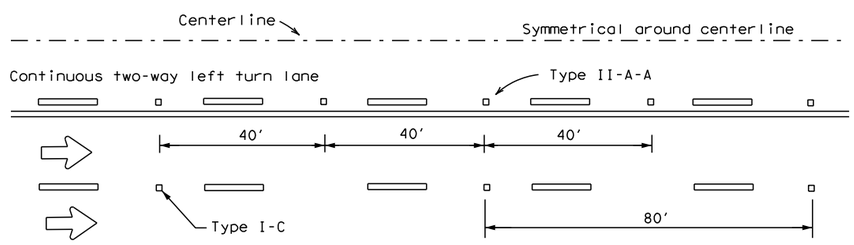
CENTERLINE FOR ALL TWO LANE ROADWAYS



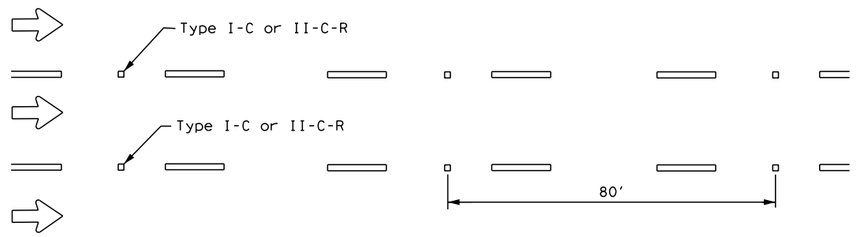
CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY HIGHWAYS



DETAIL "A" **DETAIL "B"** **DETAIL "C"**

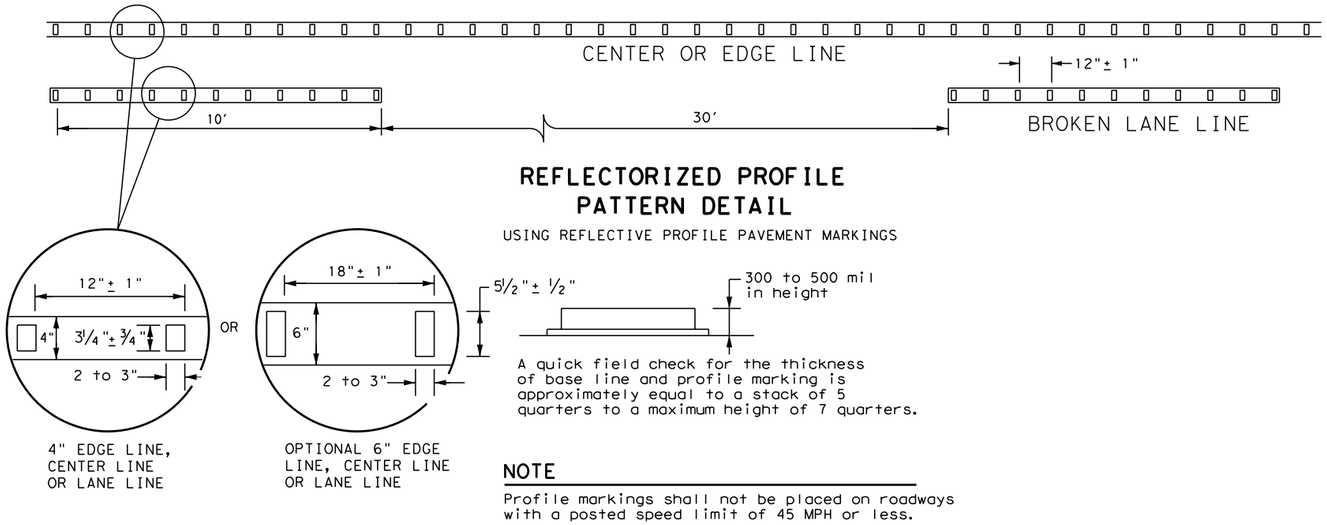


CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



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

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



REFLECTORIZED PROFILE PATTERN DETAIL

USING REFLECTIVE PROFILE PAVEMENT MARKINGS

4" EDGE LINE, CENTER LINE OR LANE LINE

OPTIONAL 6" EDGE LINE, CENTER LINE OR LANE LINE

A quick field check for the thickness of base line and profile marking is approximately equal to a stack of 5 quarters to a maximum height of 7 quarters.

NOTE

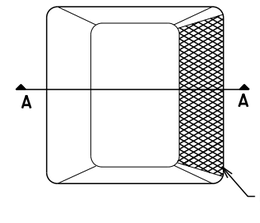
Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

GENERAL NOTES

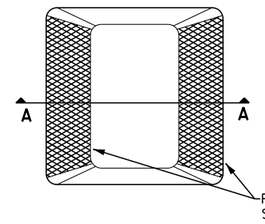
1. All raised pavement markers placed in broken lines shall be placed in line with and midway between the stripes.
2. On concrete pavements the raised pavement markers should be placed to one side of the longitudinal joints.

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

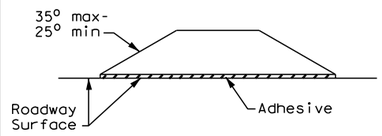
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)



Type II (Top View)



SECTION A

RAISED PAVEMENT MARKERS

Texas Department of Transportation

Traffic Safety Division Standard

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

FILE: pm2-20.dgn	DN:	CK:	DW:	CK:
© TxDOT April 1977	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-92 2-10 5-00 2-12 8-00 6-20	0228	04	043,ETC	US 385,ETC
	DIST	COUNTY		SHEET NO.
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22B

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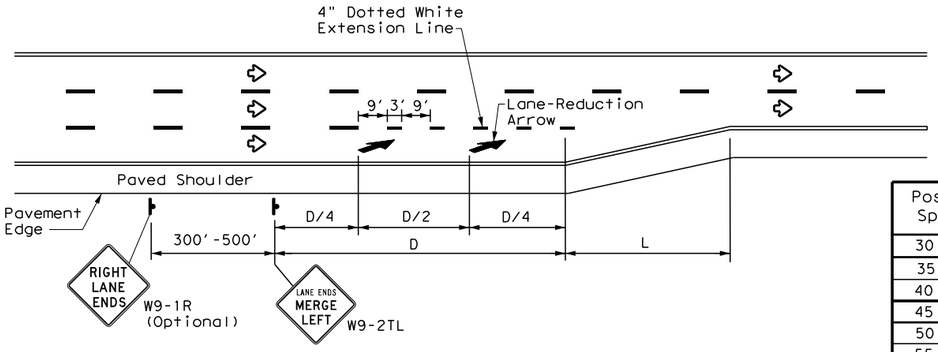
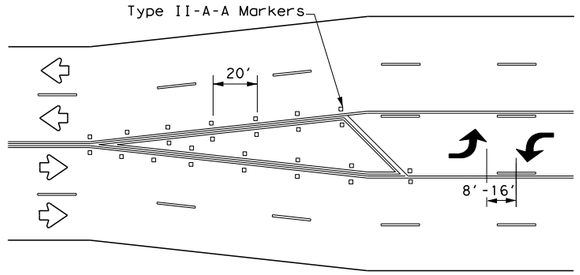


LANE REDUCTION

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

NOTES

1. 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.
2. 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.
3. 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.
4. For lane reductions on Freeways and Expressways, signing shall conform to the TxDOT Freeway Signing Handbook.



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

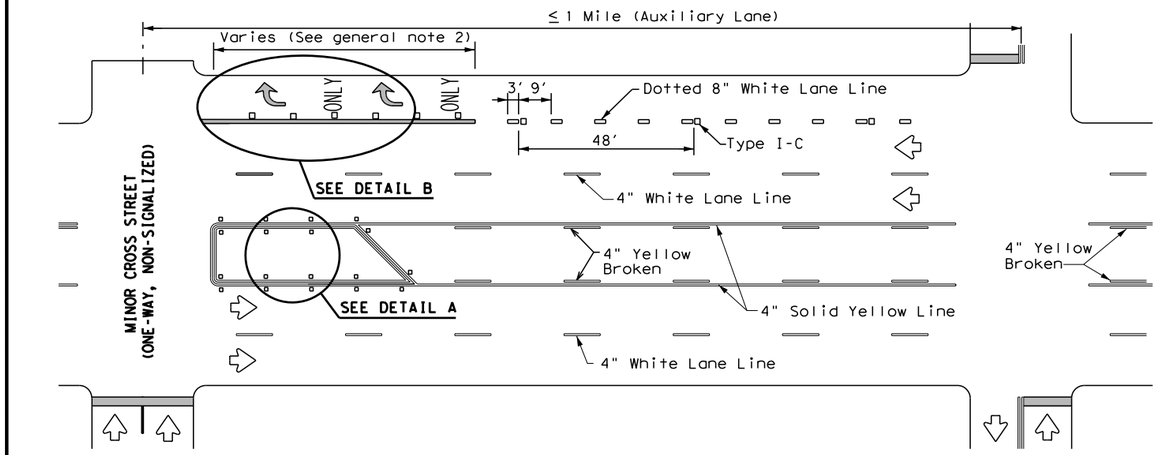
TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY

GENERAL NOTES

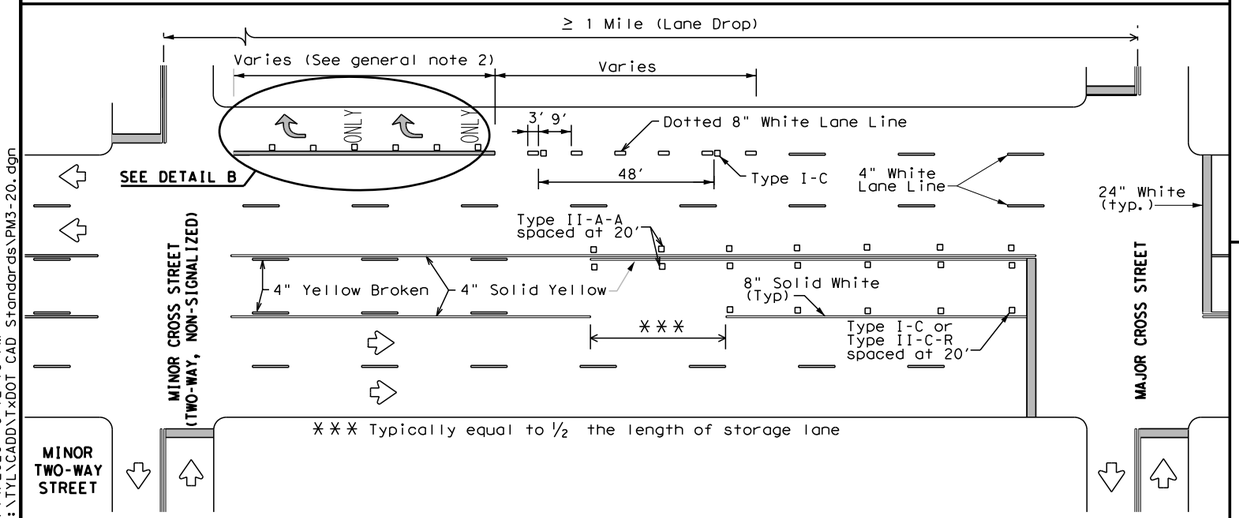
1. Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn bays for emphasis. Details for words and arrows are as shown in the Standard Highway Sign Designs for Texas.
2. 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.
3. 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.
4. 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

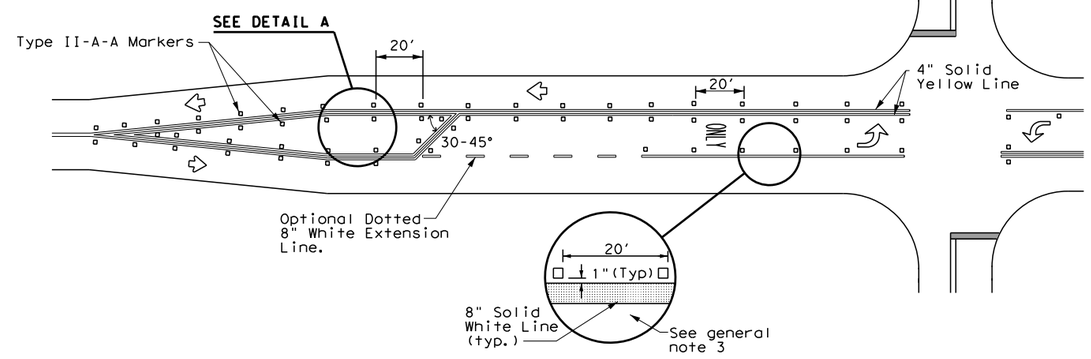
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



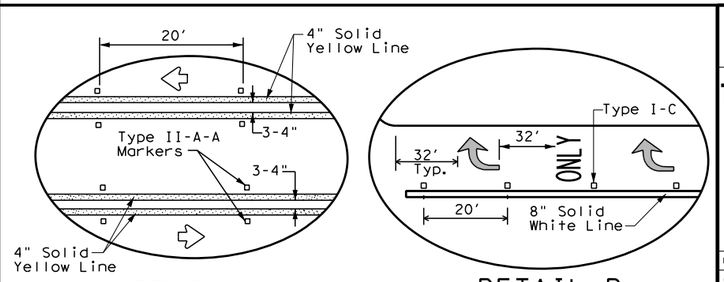
TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE



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



TYPICAL TWO-LANE HIGHWAY INTERSECTION WITH LEFT TURN BAYS



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:	CK:	DW:	CK:
©TxDOT April 1998	CONT	SECT	JOB	HIGHWAY
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5-00 2-10	DIST	COUNTY		SHEET NO.
8-00 2-12	ODA	ANDREWS		231
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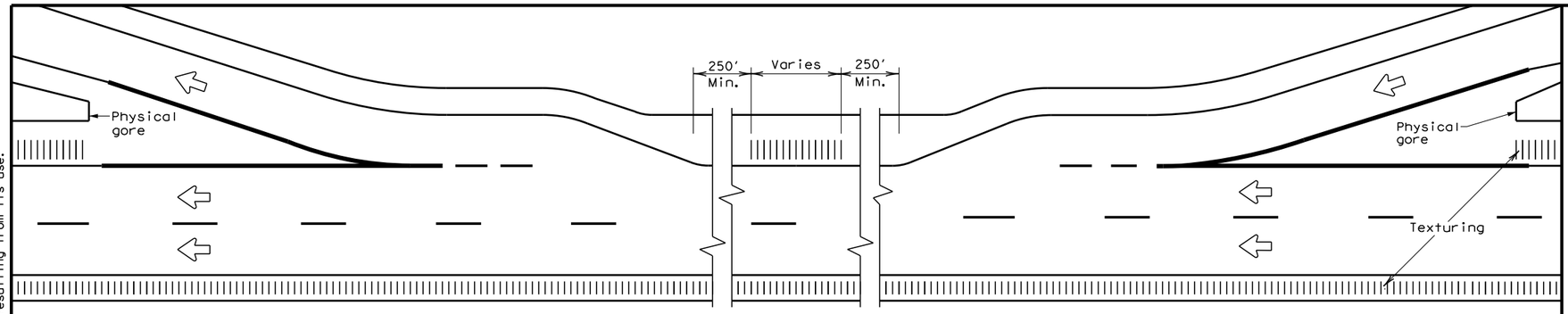
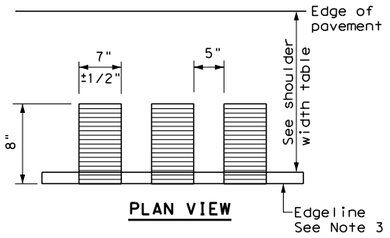


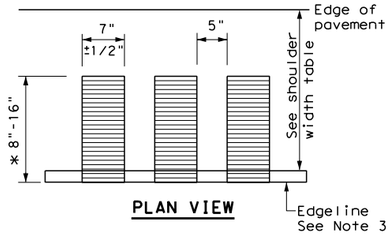
TYPICAL RUMBLE STRIP PLACEMENT AT EXIT AND ENTRANCE RAMPS



PLAN VIEW

PROFILE VIEW
OPTION 1

CONTINUOUS MILLED DEPRESSIONS
(Rumble Stripes)

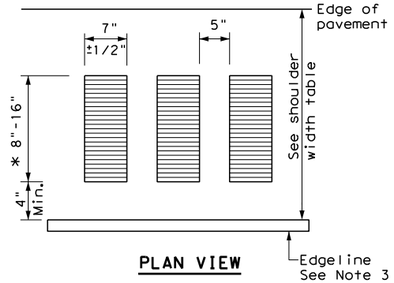


PLAN VIEW

* This distance may vary based on width of shoulder

PROFILE VIEW
OPTION 2

CONTINUOUS MILLED DEPRESSIONS
(Rumble Stripes)

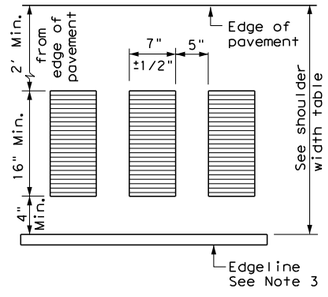


PLAN VIEW

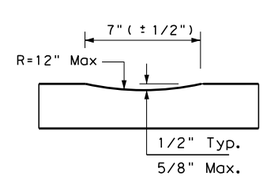
* This distance may vary based on width of shoulder

PROFILE VIEW
OPTION 3

CONTINUOUS MILLED DEPRESSIONS
(Rumble Strips)

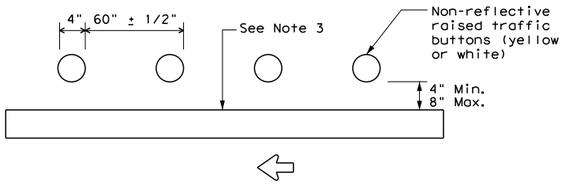


PLAN VIEW



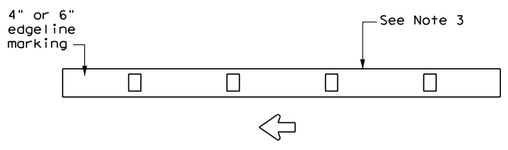
PROFILE VIEW
OPTION 4

CONTINUOUS MILLED DEPRESSIONS
(Rumble Strips)



PLAN VIEW
OPTION 5

RAISED EDGELINE RUMBLE STRIPS



PLAN VIEW
OPTION 6

PROFILE EDGELINE MARKINGS

GENERAL NOTES

1. Rumble strips and profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.
2. 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.
3. Use Standard Sheet PM(2) for positioning, dimensioning, and spacing of all reflective raised pavement markers, pavement markings, and profile markings.
4. See the table below for determining what options may be used for edgeline rumble strips.

WHEN INSTALLING MILLED DEPRESSION EDGELINE RUMBLE STRIPS:

5. See dimensions for milled rumble strips. Other shapes and dimensions may be used if approved by the Traffic Operations Division.
6. Pavement markings can be applied over milled shoulder rumble strips to create an edgeline rumble stripe.
7. 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.
8. Rumble strips shall not be placed across exit or entrance ramps, acceleration and deceleration lanes, crossovers, gore areas or intersections with other roadways.
9. 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.
10. 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:

11. 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.
12. 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.
13. 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.
14. 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.
15. The minimum distance between the edgeline and the buttons should be used if the shoulder is less than 8 feet in width.
16. Raised profile thermoplastic markings used as edgelines may substitute for buttons.

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

Texas Department of Transportation

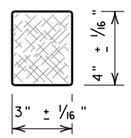
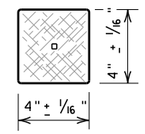
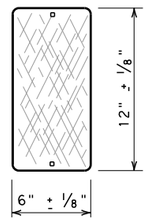
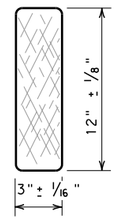
Traffic Operations Division Standard

EDGELINE RUMBLE STRIPS ON FREEWAYS AND DIVIDED HIGHWAYS
RS(1)-13

FILE: rs(1)-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT April 2006	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-10 10-13	0228	04	043,ETC	US 385,ETC
	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		232

DATE: 5/28/2020 8:24:29 PM
FILE: I:\TYL\CADD\TxDOT CAD Standards\RS(1)-13.dgn

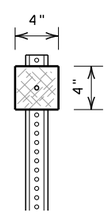
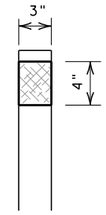
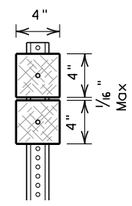
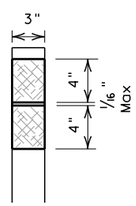
REFLECTOR UNIT SIZES FOR DELINEATORS AND OBJECT MARKERS

	SIZE 1	SIZE 2	SIZE 3	SIZE 4
DEVICE				
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 (flx).
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.

DELINEATORS

DEVICE	SINGLE		DOUBLE	
				
	1-Size 2 reflector unit	1-Size 1 reflector unit	2-Size 2 reflector units	2-Size 1 reflector units
SHEETING	Yellow, White or Red Type B or C Reflective Sheeting			
POST TYPE	WC	YFLX, WFLX	WC	YFLX, WFLX
MOUNT TYPE	GND	GND, SRF	GND	GND, SRF

D & OM DESCRIPTIVE CODES

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

INSTL OM ASSM (OM-XX) (XXXX)XXX(XX)

TYPE OF OBJECT MARKER
1, 2, 3, or 4

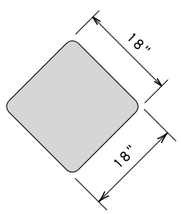
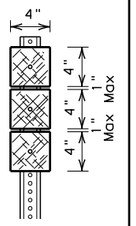
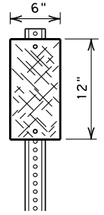
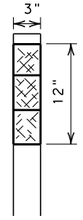
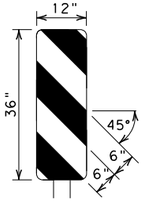
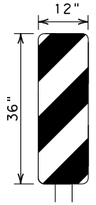
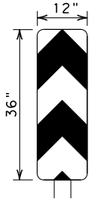
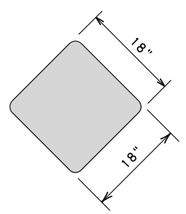
NUMBER OF REFLECTORS OR DIRECTION
X = 3-Size 2 reflector units (Type 2 only)
Y = 1-Size 3 reflector unit (Type 2 only)
Z = 3-Size 1 or 1-Size 4 reflector unit(s)(Type 2 only)
L = Left Side (Type 3 Object Marker only)
R = Right Side (Type 3 Object Marker only)
C = Center (Type 3 Object Marker only)

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

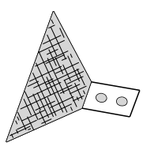
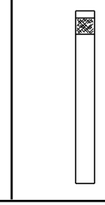
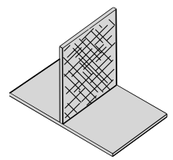
OBJECT MARKERS

DEVICE	Type 1 (OM-1)	Type 2 (OM-2)			Type 3 (OM-3)			Type 4 (OM-4)
	OM-1	OM-2X	OM-2Y	OM-2Z	OM-3L	OM-3R	OM-3C	OM-4
								
		3-Size 2 reflector units	1-Size 3 reflector unit	3-Size 1 reflector units or 1-Size 4 reflector unit				
SHEETING	Yellow-Type B_{FL} or C_{FL} Sheeting	Yellow - Type B or C Sheeting			Alternating acrylic black and retroflective yellow - Type B_{FL} or C_{FL} 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)

DEVICE	GF1	GF2	CTB
			

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.

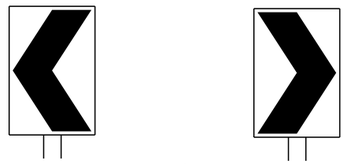
SHEETING: Yellow, White, Red

NOTE

1. Reflective sheeting shall have a minimum dimension of 3 inches and minimum surface area of 9 square inches.

CHEVRONS

DEVICE

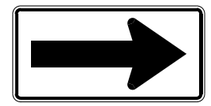


W1-8

SIZE (W x L)	18"x 24" (Conventional)	24"x 30" (Conventional Oversize)	30"x 36" (Expressway)	36" x 48" (Freeway)
MOUNTING HEIGHT	4'-0" or 7'-0"		7'-0" Only	

ONE DIRECTION LARGE ARROW

DEVICE



W1-6

SIZE (W x L)	48" x 24" (Conventional)	60" x 30" (Expressway & Freeway)
MOUNTING HEIGHT	7'-0"	

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:

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.

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER MATERIAL DESCRIPTION

D & OM(1)-20

FILE: dom1-20.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
©TxDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043,ETC	US 385,ETC
10-09 3-15	DIST	COUNTY		SHEET NO.
4-10 7-20	ODA	ANDREWS		233

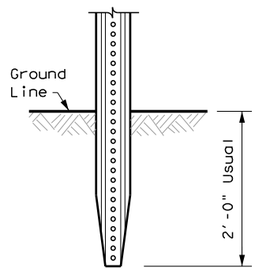
20A

DATE: 9/25/2020 3:01:33 PM
FILE: I:\TYL\CADD\TxDOT CAD Standards\DOM1-20.dgn

POST TYPE AND SUPPORT FOUNDATION DETAILS

WING CHANNEL (WC)

GND

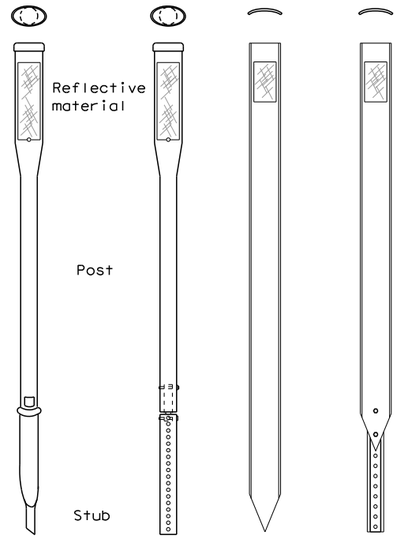


NOTES

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.

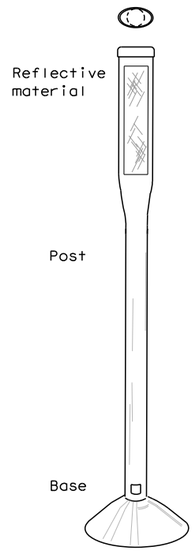
FLEXIBLE POSTS (YFLX, WFLX)

GND



EMBEDDED

SRF



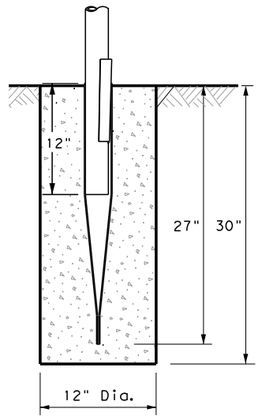
SURFACE MOUNT

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.

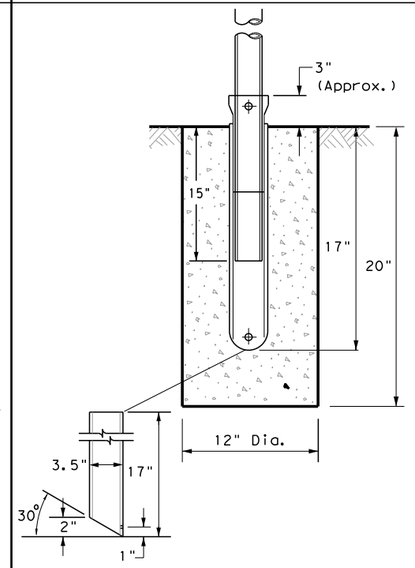
WEDGE ANCHOR SYSTEMS

WAS



STEEL

WAP



PLASTIC

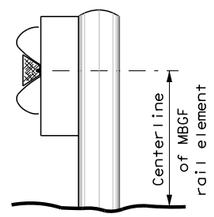
NOTE

1. Install per manufacturer's recommendations.

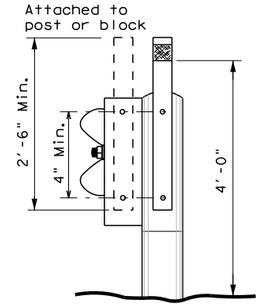
TYPE OF BARRIER MOUNTS

GUARD FENCE ATTACHMENT

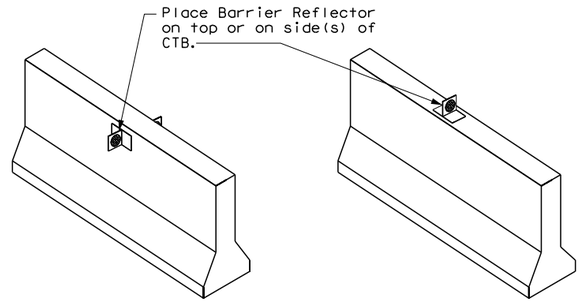
GF1



GF2



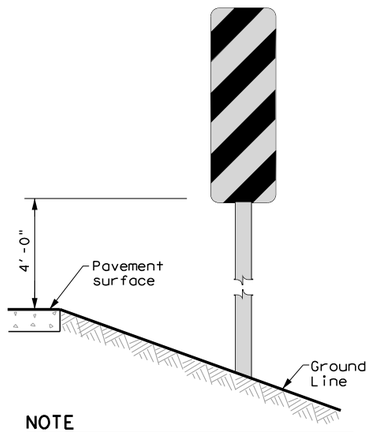
CONCRETE TRAFFIC BARRIER (CTB)



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.

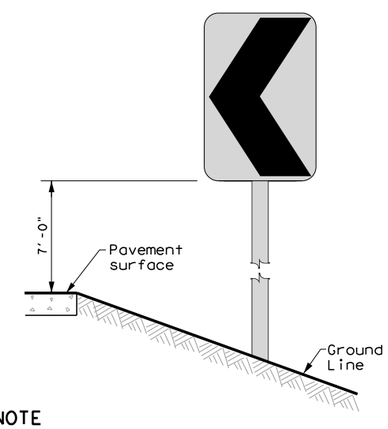
TYPES 1, 3, AND 4 OBJECT MARKERS AND CHEVRONS



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)

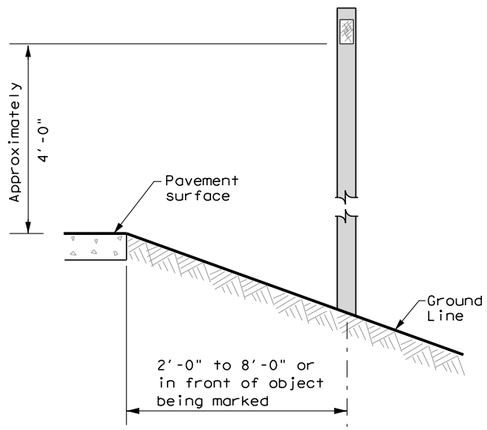
CHEVRONS AND ONE DIRECTION LARGE ARROW SIGN



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.

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER INSTALLATION

D & OM(2)-20

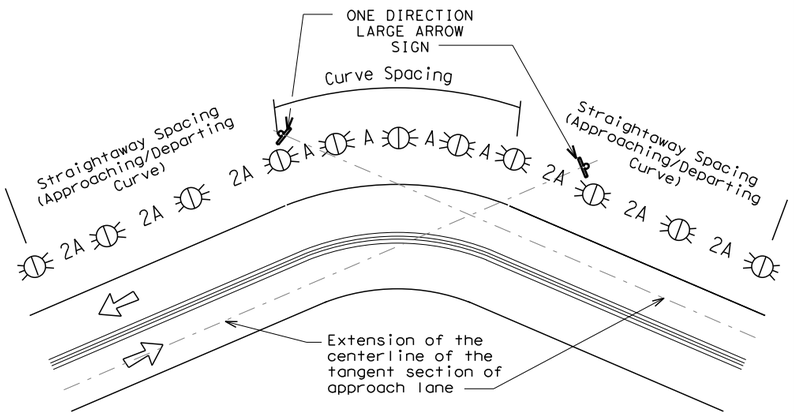
FILE: dom2-20.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
© TxDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043,ETC	US 385,ETC
10-09 3-15	DIST	COUNTY		SHEET NO.
4-10 7-20	ODA	ANDREWS		234

20B

MINIMUM WARNING DEVICES AT CURVES WITH ADVISORY SPEEDS

Amount by which Advisory Speed is less than Posted Speed	Curve Advisory Speed	
	Turn (30 MPH or less)	Curve (35 MPH or more)
5 MPH & 10 MPH	• RPMs	• RPMs
15 MPH & 20 MPH	• RPMs and One Direction Large Arrow sign	• RPMs and Chevrons; or • RPMs and One Direction Large Arrow sign where geometric conditions or roadside obstacles prevent the installation of chevrons.
25 MPH & more	• RPMs and Chevrons; or • RPMs and One Direction Large Arrow sign where geometric conditions or roadside obstacles prevent the installation of chevrons	• RPMs and Chevrons

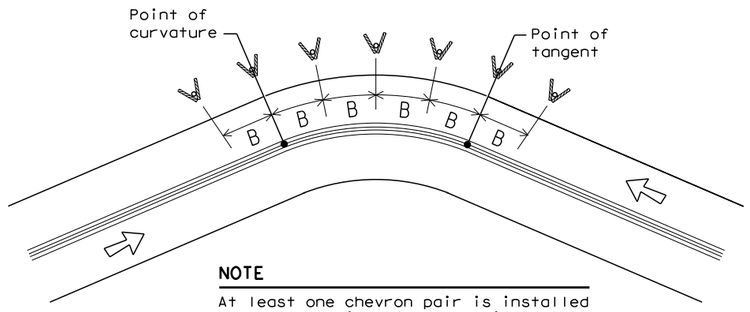
SUGGESTED SPACING FOR DELINEATORS ON HORIZONTAL CURVES



NOTE

ONE DIRECTION LARGE ARROW (W1-6) sign should be located at approximately and perpendicular to the extension of the centerline of the tangent section of approach lane.

SUGGESTED SPACING FOR CHEVRONS ON HORIZONTAL CURVES



NOTE

At least one chevron pair is installed beyond the point of tangent in tangent section.

DELINEATOR AND CHEVRON SPACING

WHEN DEGREE OF CURVE OR RADIUS IS KNOWN

Degree of Curve	FEET			
	Radius of Curve	Spacing in Curve	Spacing in Straightaway	Chevron Spacing in Curve
		A	2A	B
1	5730	225	450	——
2	2865	160	320	——
3	1910	130	260	200
4	1433	110	220	160
5	1146	100	200	160
6	955	90	180	160
7	819	85	170	160
8	716	75	150	160
9	637	75	150	120
10	573	70	140	120
11	521	65	130	120
12	478	60	120	120
13	441	60	120	120
14	409	55	110	80
15	382	55	110	80
16	358	55	110	80
19	302	50	100	80
23	249	40	80	80
29	198	35	70	40
38	151	30	60	40
57	101	20	40	40

Curve delineator approach and departure spacing should include 3 delineators spaced at 2A. This spacing should be used during design preparation or when the degree of curve is known.

DELINEATOR AND CHEVRON SPACING

WHEN DEGREE OF CURVE OR RADIUS IS NOT KNOWN

Advisory Speed (MPH)	Spacing in Curve	Spacing in Straightaway	Chevron Spacing in Curve
	A	2xA	B
65	130	260	200
60	110	220	160
55	100	200	160
50	85	170	160
45	75	150	120
40	70	140	120
35	60	120	120
30	55	110	80
25	50	100	80
20	40	80	80
15	35	70	40

If the degree of curve is not known, delineator spacing may be determined based on the Advisory Speed of the curve. Use the delineator curve spacing for each Advisory Speed (MPH).

DELINEATOR AND OBJECT MARKER APPLICATION AND SPACING

CONDITION	REQUIRED TREATMENT	MINIMUM SPACING
Frwy./Exp. Tangent	RPMs	See PM-series and FPM-series standard sheets
Frwy./Exp. Curve	Single delineators on right side	See delineator spacing table
Frwy/Exp.Ramp	Single delineators on at least one side of ramp (should be on outside of curves) (see Detail 3 on D&OM(4))	100 feet on ramp tangents Use delineator spacing table for ramp curves ("straightway spacing" does not apply to ramp curves)
Acceleration/Deceleration Lane	Double delineators (see Detail 3 on D&OM(4))	100 feet (See Detail 3 on D & OM (4))
Truck Escape Ramp	Single red delineators on both sides	50 feet
Bridge Rail (steel or concrete)and Metal Beam Guard Fence	Bi-Directional Delineators when undivided with one lane each direction Single Delineators when multiple lanes each direction	Equal spacing (100'max) but not less than 3 delineators
Concrete Traffic Barrier (CTB) or Steel Traffic Barrier	Barrier reflectors matching the color of the edge line	Equal spacing 100' max
Cable Barrier	Reflectors matching the color of the edge line	Every 5th cable barrier post (up to 100'max)
Guard Rail Terminus/Impact Head	Divided highway - Object marker on approach end Undivided 2-lane highways - Object marker on approach and departure end	Requires reflective sheeting provided by manufacturer per D & OM (VIA) or a Type 3 Object Marker (OM-3) in front of the terminal end See D & OM (5) and D & OM (6)
Bridges with no Approach Rail	Type 3 Object Marker (OM-3) at end of rail and 3 single delineators approaching rail	See D & OM(5)
Reduced Width Approaches to Bridge Rail	Type 2 and Type 3 Object Markers (OM-3) and 3 single delineators approaching bridge	Requires reflective sheeting provided by manufacturer per D & OM (VIA) or a Type 3 Object Marker (OM-3) in front of the terminal end See D & OM (5)
Culverts without MBGF	Type 2 Object Markers	See Detail 2 on D & OM(4)
Crossovers	Double yellow delineators and RPMs	See Detail 1 on D & OM (4)
Pavement Narrowing (lane merge) on Freeways/Expressway	Single delineators adjacent to affected lane for full length of transition	100 feet

NOTES

1. Unless indicated otherwise, the delineator or barrier reflector color shall conform to the color of the pavement edge line on the side of the road where the delineators or barrier reflectors are placed.
2. Barrier reflectors may be used to replace required delineators.
3. Single red delineators may be mounted on the back side of delineator posts for wrong way driver applications

LEGEND

	Bi-directional Delineator
	Delineator
	Sign

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER PLACEMENT DETAILS

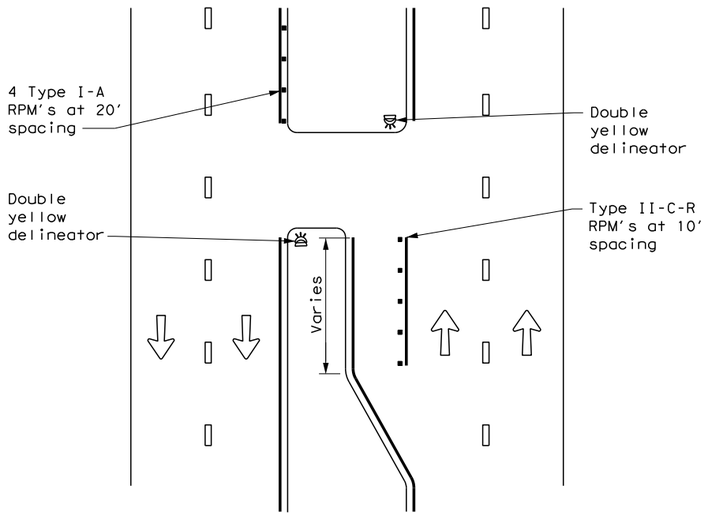
D & OM(3)-20

FILE: dom3-20.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
©TxDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043,ETC	US 385,ETC
3-15 8-15	DIST	COUNTY		SHEET NO.
8-15 7-20	ODA	ANDREWS		235

20C

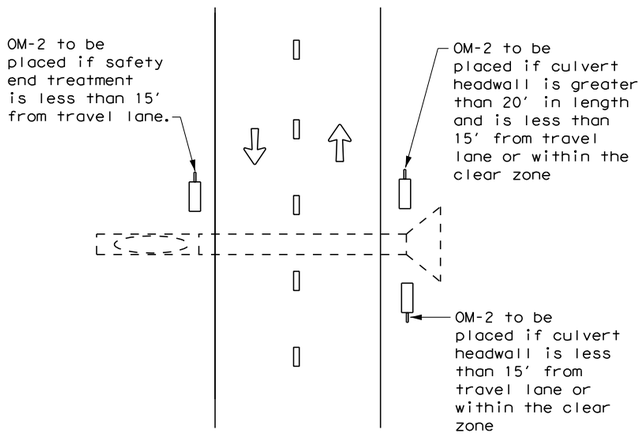
DATE: 9/25/2020 3:02:30 PM
FILE: I:\TYL\CADD\TxDOT CAD Standards\DOM3-20.dgn

CROSSOVERS



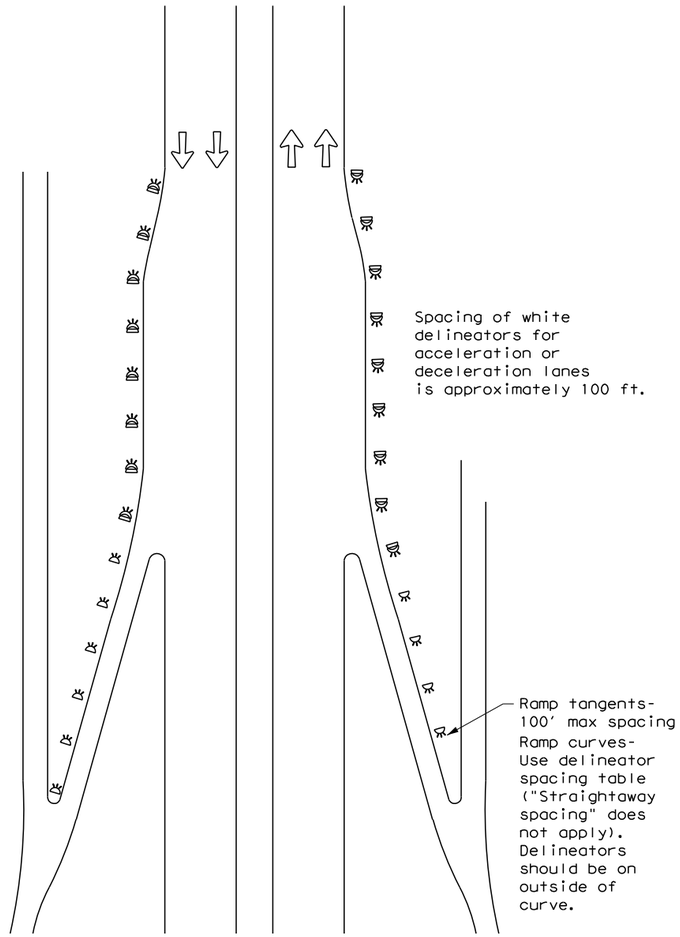
DETAIL 1

FOR CULVERTS WITHOUT MBGF



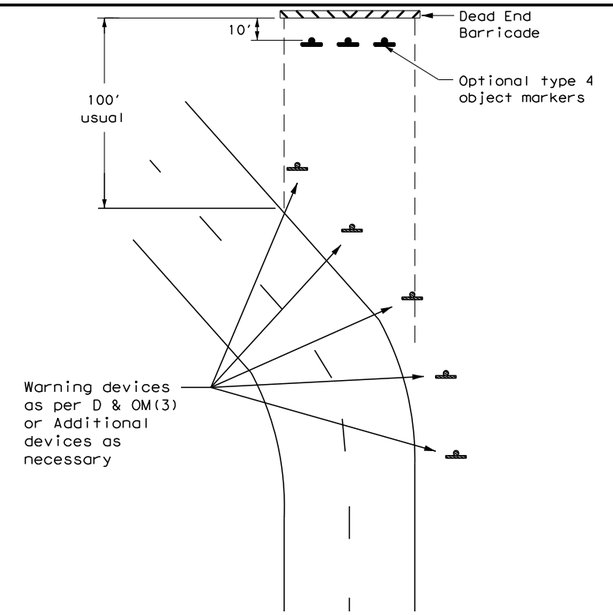
DETAIL 2

FREEWAY DELINEATION FOR RAMPS AND ACCELERATION/DECELERATION LANES



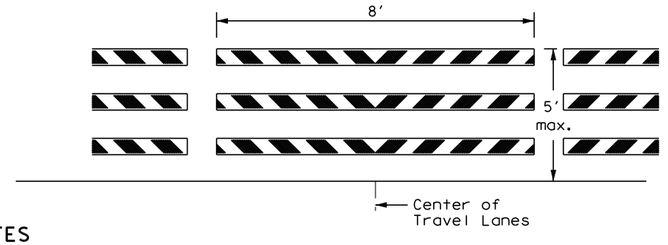
DETAIL 3

TYPICAL APPLICATION OF DEAD END BARRICADE



DETAIL 4

TYPICAL DEAD END BARRICADE INSTALLATION



NOTES

1. Barricade striping shall be red and white reflective sheeting for all permanent road closures.
2. Barricade striping is red and white sloping toward the center of the roadway.
3. Type 3 Barricade Supports should be anchored to soil or pavement as described in compliant Work Zone Traffic Control Devices List, section D.2.f and D.2.g.

DETAIL 5

LEGEND	
	Bidirectional Delineator
	Delineator
	OM-3
	Barricade
	Sign
	OM-2
	Double Delineator

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER PLACEMENT DETAILS

D & OM(4)-20

FILE: dom4-20.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
© TxDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043,ETC	US 385,ETC
3-15 7-20	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		236

20D

DATE: 9/25/2020 3:02:59 PM
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STORM WATER POLLUTION PREVENTION PLAN (SWP3):

This SWP3 has been developed in accordance with TPDES General Permit TXR150000. The operator, The Texas Department of Transportation ensures that: Project specifications provide that adequate BMPs have been developed for this project. The contractor shall be the party responsible for implementing the BMPs described herein. The contractor shall implement changes approved by the Project Engineer to the SWP3 within the times specified in the SWP3 or the TPDES General Permit. Operators affected by modifications to specifications will be notified in a timely manner.

1. SITE OR PROJECT DESCRIPTION:

NATURE OF THE CONSTRUCTION ACTIVITY: SEE TITLE SHEET

POTENTIAL POLLUTANTS AND	SOURCES:
Sediment laden storm water	*Storm water conveyance over disturbed areas*
Fuels, oils, and lubricants	*Construction vehicles and storage areas*
Transported soil	*Off site vehicle tracking*
Construction debris and waste	*Various construction activities*
Sanitary waste	*Restroom facilities*
Trash	*Construction site and Receptacles*

SEQUENCE OF ACTIVITIES THAT WILL DISTURB SOILS:

1. *Blade existing topsoil into windrows.*
2. *Grading operations, excavation, and embankment*
3. *Remove existing culvert headwalls, extend culvert and install proposed culvert headwalls*
4. *Bore Cable Barrier posts*
5. *Install Cable Barrier and mow strip*
6. *Rework slopes, grade ditches*
7. *Blade windrowed material back across slopes*
8. *Install seeding*

AREAS:

TOTAL AREA OF PROJECT: 336.13 ACRES

TOTAL AREA OF SOIL DISTURBANCE: 67.64 ACRES

TOTAL AREA OFF-SITE: Acreage and Description to be Attached

DATA DESCRIBING THE SOIL:

Soil within project area is Sandy Loam with smaller ares of Clay Loam

GENERAL LOCATION MAP: SEE TITLE SHEET

DETAILED SITE MAP: SEE SWP3 SITE MAP/S SHEET/S

THE LOCATION AND DESCRIPTION OF CONCRETE AND ASPHALT PLANTS:

Supporting Concrete Plant Facilities shall be located off site. See note DEDICATED CONCRETE PLANTS.

Supporting Asphalt Plant Facilities shall be located off site. See note DEDICATED ASPHALT PLANTS.

NAME OF RECEIVING WATERS:

Colorado River below Lake L.B.Thomas Segment 1412
Water flows to Monument Draw to Mustang Draw to Sulfur Draw/Beals Creek to the Colorado River

A COPY OF TPDES CGP TXR150000 IS INCLUDED IN THE SWP3 FILE.

REMARKS: *None*

401 WATER QUALITY CERTIFICATION: YES____ NO__X__

2. BEST MANAGEMENT PRACTICES (BMPs):

EROSION AND SEDIMENT CONTROLS: Erosion and sediment controls have been designed to retain sediment on-site. Controls shall be utilized to reduce off site transport of suspended sediments and pollutants if it is necessary to pump water from the site. Control measures shall be installed per specifications or as directed. Sediment must be removed from controls per the plan requirements or manufacturers recommendations, but no later than the time that design capacity has been reduced by 50%. If sediment escapes the site, accumulations will be removed to minimize further negative effects. Controls will be developed to limit the off site transportation of litter, construction debris, and construction materials.

INTERIM(INT), PERMANENT(PER), AND 401 CERTIFICATION BMP'S:

EROSION CONTROLS:	401	INT	PER
☐ *Blankets and Matting*	__	__	__
☐ *Sod*	__	__	__
☐ *Preserve Existing Vegetation*	__	__	__
☐ *Soil Stabilization*	__	__	__
☐ *Permanent Vegetation*	__	__	__
☐ *No Erosion Controls are Required.*			

SEDIMENT CONTROLS:	401	INT	PER
☐ *Silt Fence*	__	__	__
☐ *Rock Berm*	__	__	__
☐ *Buffer Zones*	__	__	__
☐ *Vegetative Filter Strips*	__	__	__
☐ *Ditch Block*	__	__	__
☒ *Erosion Control Logs*	__	X	__
☐ *No Sediment Controls are Required.*			

POST CONSTRUCTION TSS CONTROL (401 CERTIFICATION ONLY):

- ☐ *Vegetation Lined Drainage Ditch*
- ☐ *Retention/Irrigation*
- ☐ *Erosion Control Compost*
- ☐ *Grassy Swales*
- ☐ *Vegetative Filter Strips*
- ☒ *No Post Construction TSS Control Required.*

SEQUENCE OR SCHEDULE OF IMPLEMENTATION:

1. *Install Erosion Control Logs*
2. *Windrow topsoil to preserve seed bank*
3. *Maintain Erosion Control Logs*
4. *Windrow topsoil back*
5. *Inspect until 70% vegetative cover is attained*
6.
7.
8.

The dates of major grading activities, when construction activities temporarily or permanently cease on a portion of the site, and when stabilization practices are initiated, are available in the project diary or SWP3. Stabilization measures must be initiated as soon as practicable in portions of the site where construction has temporarily or permanently ceased. The Odessa District is located in a semi-arid area and the 14 and 21 day requirements are not applicable except, as directed by the Engineer.

3. STRUCTURAL CONTROL PRACTICES:

Structural control practices for this project are listed elsewhere herein.

4. PERMANENT STORM WATER CONTROLS:

Structural control practices installed during construction will be maintained and inspected after construction has ceased on the site and until final stabilization is attained. Unless specified in the plans, after project acceptance TxDOT will assume maintenance responsibilities for the controls and measures. Other permanent controls include existing and proposed; riprap at culvert inlets and outlets, diversion dikes, swales, retaining walls, and other similar devices.

5. OTHER CONTROLS:

OFF-SITE VEHICLE TRACKING OF SEDIMENTS AND THE GENERATION OF DUST: The off site vehicle tracking of sediments shall be minimized by removal of excess dirt from the road and at entrances to the work site. Stabilized Construction Entrances and Exits shall be constructed per the plans or as directed by the Project Engineer. The generation of dust will be minimized as directed by the Project Engineer by dampening haul roads and covering haul trucks with a tarpaulin.

CONSTRUCTION AND WASTE MATERIALS: The contractor will maintain a clean, orderly construction site. Construction waste including trash, rubble, scrap and vegetation shall be disposed of in lidded dumpsters or in a manner approved by the Project Engineer. Disposal methods must meet Federal, State, and Local waste management guidelines. No construction waste will be buried or burned on site. Spoils disposal, material storage, and materials resulting from the destruction of existing roads and structures shall be stored in areas designated by the Project Engineer and protected from run-off. All waterways shall be cleared of temporary embankment, temporary bridges, matting, false work, piling, debris, or other obstructions placed during construction operations, that are not part of the finished work, as soon as practicable. All excess soil generated by the construction will be collected and disposed of by the contractor. 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, water body, or stream bed.

POLLUTANT SOURCES FROM AREAS OTHER THAN CONSTRUCTION: Staging areas and vehicle maintenance areas shall be located and constructed in a manner to minimize the runoff of pollutants. If potential pollutant sources are identified after the start of construction, controls and measures shall be implemented as directed by the Project Engineer.

5. OTHER CONTROLS (CONT):

DEDICATED ASPHALT PLANTS: Asphalt or asphaltic material for this project will be produced off site. If the project requires a dedicated asphalt plant and the plant within 1 mile of the project limits it will be considered an off site PSL. Consideration shall be given to on site plant and storage facilities and measures implemented as directed by the Project Engineer.

DEDICATED CONCRETE PLANTS: Cement or Concrete material for this project will be produced off site. If the project requires a dedicated concrete plant and the plant is within 1 mile of the project limits it will be considered an off site PSL. Consideration shall be given to on site plant and storage facilities and measures implemented as directed by the Project Engineer. Concrete trucks shall be wasted or washed out in locations designated by the Project Engineer. The locations shall be protected by a berm sufficient to contain all waste and wash water. Wash water shall not be allowed to enter any storm drainage system or waterway. The residual material and contaminated soil shall be collected and disposed of in accordance with Federal, State, and Local guidelines. Staging areas and vehicle maintenance areas shall be located and constructed in a manner to minimize the runoff of pollutants.

HAZARDOUS MATERIALS AND SPILL REPORTING: The contractor shall take appropriate measures to prevent, minimize, and control the spillage or leakage of hazardous materials and any associated wastes on site and in maintenance and staging areas. hazardous materials shall include but are not limited to paints, acids, solvents, asphalt products, chemical additives, curing compounds, oils, fuels, and lubricants. Hazardous materials shall not be stored, accumulated, or transported in open containers subject to precipitation or spillage, but shall be stored, accumulated, or transported in closed containers of the type recommended by the manufacturer. In the event of a spill the Project Engineer should be contacted immediately. All spills shall be immediately cleaned and any contaminated soil removed and disposed of in accordance with Local, State, and Federal laws. Fuel tanks shall be protected by a secondary containment, such as a lined berm, capable of containing 1.5 times the capacity of the tank, or as approved by the Project Engineer.

OFF SITE PSLs: All off site project specific locations including dedicated asphalt plants, concrete plants, or utility installations, required by the contractor, are the contractor's responsibility. The contractor shall secure all permits required by local, state, or federal laws for off site PSLs. The contractor shall provide diagrams and areas of disturbance for all PSL's within 1 mile of the project.

SANITARY FACILITIES: All sanitary or septic wastes that are generated onsite shall be treated and disposed of in accordance with state and local regulations. Raw sewage or septage shall not be discharged or buried on site. Precaution shall be taken to prevent illicit discharges to storm water. Licensed waste management contractors shall be required to dispose of sanitary waste. Porta johns will be required for the laboratory and construction site or as directed by the Project Engineer.

VELOCITY DISSIPATION DEVICES: Velocity dissipation devices shall be placed at discharge locations and along the length of any outfall channel as shown in the plans or as directed by the Project Engineer to provide a non-erosive flow velocity from the structure to a watercourse so that the natural physical and biological characteristics and functions are maintained and protected.

6. APPROVED STATE AND LOCAL PLANS:

This SWP3 is consistent with requirements specified in applicable sediment and erosion site plans or site permits, or storm water management site plans or permits approved by federal, state, or local officials.

7. MAINTENANCE:

Control measures shall be properly installed according to specifications. If inspections or other information indicates a control has been installed, used, or is performing inadequately, the contractor must replace or modify the control as soon as practicable after discovery. Control measures shall be maintained in effective operating condition. If inspections determine that BMPs are not operating effectively maintenance will be performed as necessary to continue the effectiveness of the controls. Maintenance must be accomplished as soon as practicable. Controls adjacent to creeks, culverts, bridges, and water crossings shall have priority. Controls that have been disabled, run over, removed, or otherwise rendered ineffective must be corrected immediately upon discovery.

8. INSPECTION OF CONTROLS:

A TxDOT inspector will inspect disturbed areas of the site that have not been finally stabilized, areas used for storage of materials that are exposed to precipitation, and structural controls for evidence of, or the potential for, pollutants entering the drainage system. Sediment and erosion controls measures identified in the SWP3 will be inspected to ensure that they are operating correctly. Locations where vehicles enter or exit the site will be inspected for evidence of off-site vehicle tracking. Inspections will be conducted every month and within 24 hours after the end of a storm event of 0.5 inches or greater. The SWP3 will be modified based on the result of these inspections. Revisions will be completed within 7 Calendar days following the inspection. Revised implementation schedules will be described in the SWP3 and implemented as soon as practicable. Rain gages will be maintained on site for the duration of the project. Reports summarizing the scope of the inspections are included in the SWP3 file.

9. NON-STORM WATER COMPONENTS:

The contractor shall be required to implement appropriate pollution prevention controls and measures for all eligible non-storm water components of the discharge as approved and directed by the Project Engineer.

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER

05/28/2020

P.E.

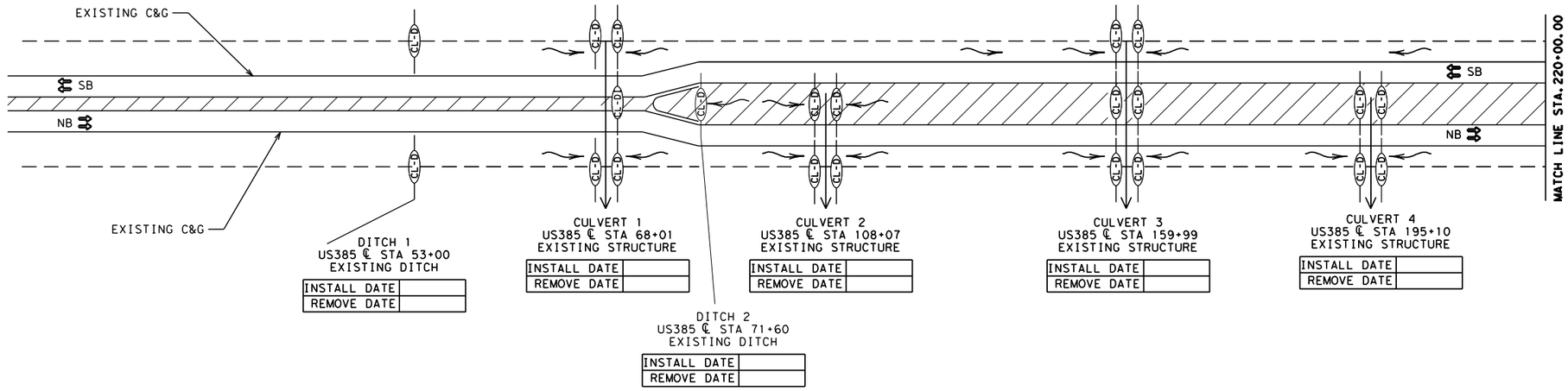
SWP3 Notes.dgn

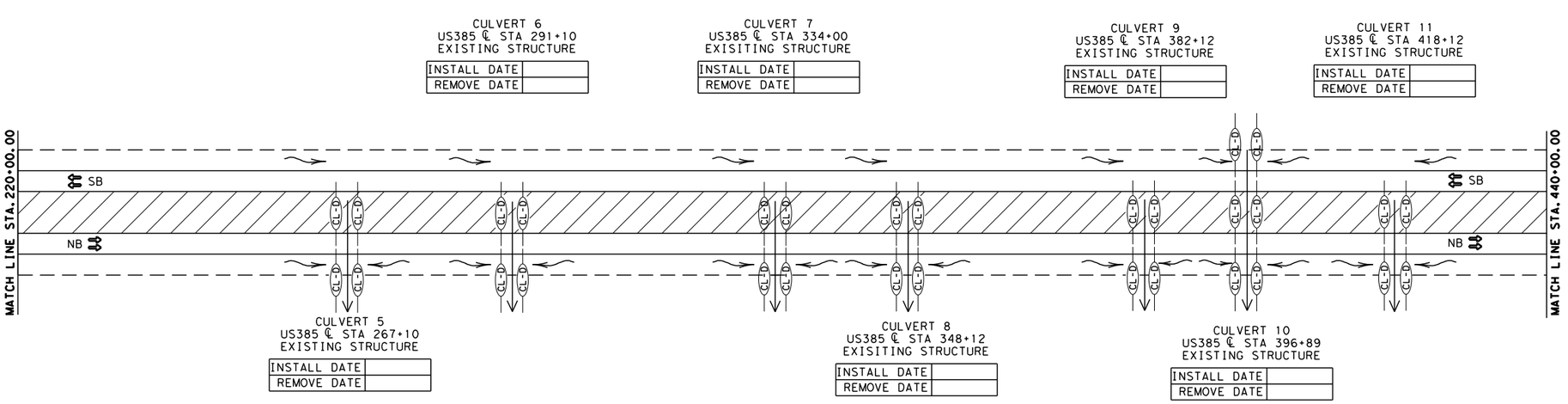
SWP3 NOTES

Texas Department of Transportation

REV: 10-25-16

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		237
STATE	STATE DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
0228	04	043, ETC.	US 385, ETC.





LEGEND

- CL-D — EROSION CONTROL LOG DAM
- CL-DI — EROSION CONTROL LOG AT DROP INLET
- AREA OF CONSTRUCTION (MEDIAN)
- DIRECTION OF FLOW

NOTE:

1. ESTIMATED 20 LF EROSION CONTROL LOG PER LOCATION UNLESS OTHERWISE NOTED.
2. LOCATIONS AND QUANTITIES TO BE DETERMINED AS NEEDED.

NOT TO SCALE

SHEET TOTAL	
506 6042	506 6043
BIODEG EROSN CONT LOGS (INSTL)(18")	BIODEG EROSN CONT LOGS (REMOVE)
LF	LF
1040	1040

05/28/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
SW3P SITE PLAN

SHEET 1 OF 2

Texas Department of Transportation
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LOCHNER
TBPE Firm Reg. No. 10488

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		238
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
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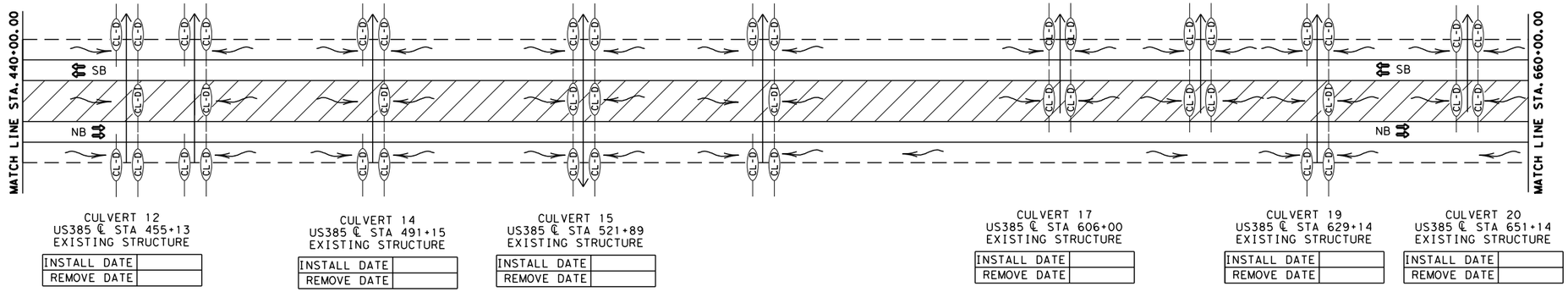

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US385 ℄ STA 455+13
EXISTING STRUCTURE

INSTALL DATE	
REMOVE DATE	

CULVERT 13
US385 ℄ STA 465+15
EXISTING STRUCTURE

INSTALL DATE	
REMOVE DATE	

CULVERT 14
US385 ℄ STA 491+15
EXISTING STRUCTURE

INSTALL DATE	
REMOVE DATE	

CULVERT 15
US385 ℄ STA 521+89
EXISTING STRUCTURE

INSTALL DATE	
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CULVERT 16
US385 ℄ STA 548+15
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INSTALL DATE	
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CULVERT 17
US385 ℄ STA 606+00
EXISTING STRUCTURE

INSTALL DATE	
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CULVERT 18
US385 ℄ STA 612+15
EXISTING STRUCTURE

INSTALL DATE	
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US385 ℄ STA 629+14
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CULVERT 20
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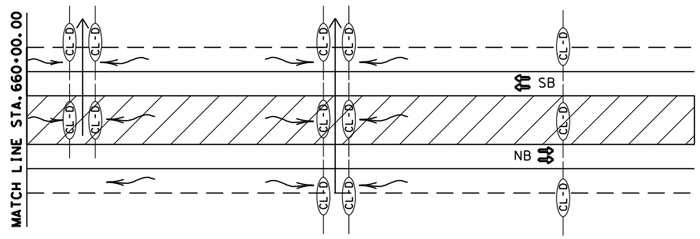

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EXISTING STRUCTURE

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US385 ℄ STA 728+35
EXISTING STRUCTURE

INSTALL DATE	
REMOVE DATE	

DITCH 2
US385 ℄ STA 740+56

INSTALL DATE	
REMOVE DATE	

LEGEND

- CL-D — EROSION CONTROL LOG DAM
- CL-DI — EROSION CONTROL LOG AT DROP INLET
- AREA OF CONSTRUCTION (MEDIAN)
- DIRECTION OF FLOW

NOTE:

1. ESTIMATED 20 LF EROSION CONTROL LOG PER LOCATION UNLESS OTHERWISE NOTED.
2. LOCATIONS AND QUANTITIES TO BE DETERMINED AS NEEDED.

NOT TO SCALE

SHEET TOTAL	
506 6042	506 6043
BIODEG EROSN CONT LOGS (INSTL)(18")	BIODEG EROSN CONT LOGS (REMOVE)
LF	LF
1120	1120

09/25/2020

STATE OF TEXAS
JOHN B. GOODWIN
63174
REGISTERED PROFESSIONAL ENGINEER
P.E.

US 385
SW3P SITE PLAN

SHEET 2 OF 2

Texas Department of Transportation

LOCHNER
TBPE Firm Reg. No. 10488

FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		239
STATE	DIST.	COUNTY	
TEXAS	ODA	ANDREWS	
CONT.	SECT.	JOB	HIGHWAY NO.
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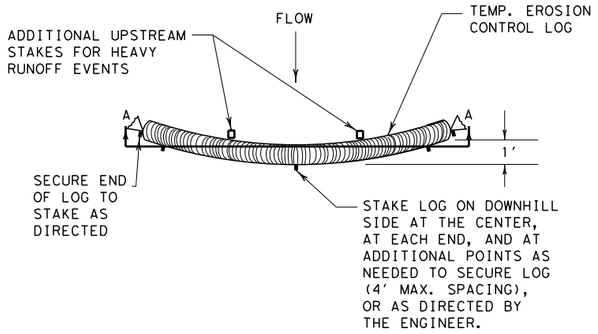
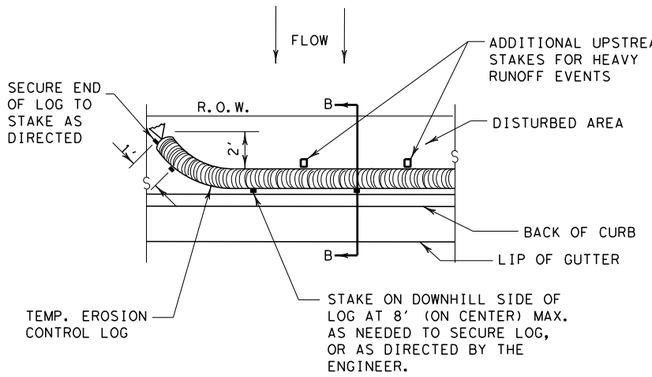


PLAN VIEW



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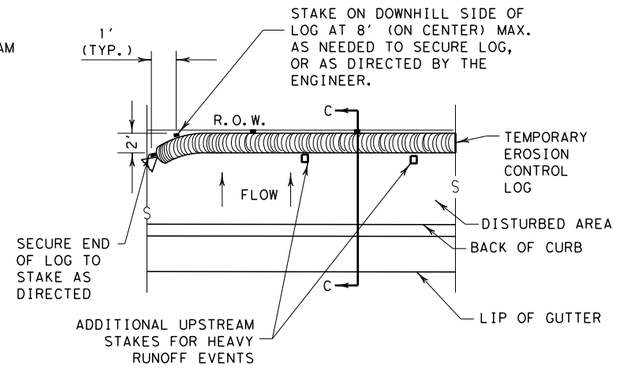

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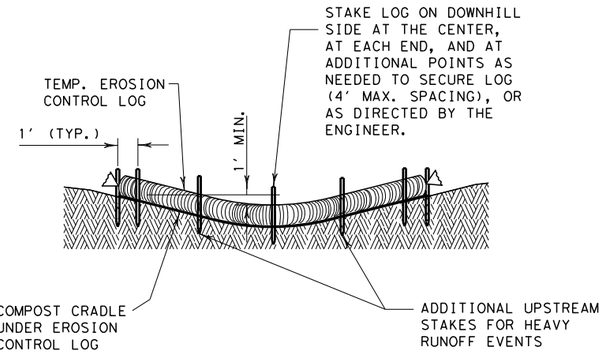
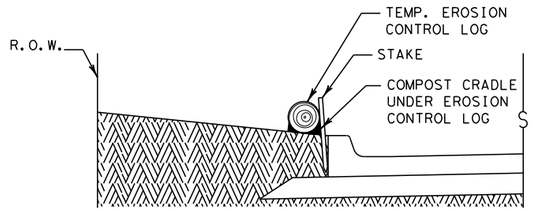


SECTION A-A

EROSION CONTROL LOG DAM

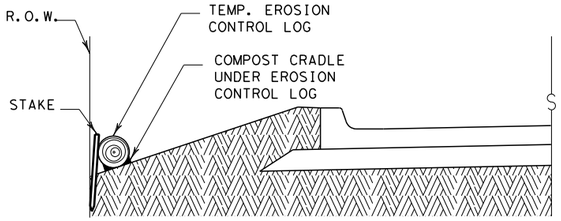
CL-D



SECTION B-B

EROSION CONTROL LOG AT BACK OF CURB

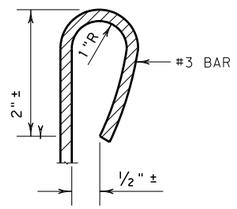
CL-BOC



SECTION C-C

EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY

CL-ROW



REBAR STAKE DETAIL

GENERAL NOTES:

1. EROSION CONTROL LOGS SHALL BE INSTALLED IN ACCORDANCE WITH MANFACTURER'S RECOMMENDATIONS, OR AS DIRECTED BY THE ENGINEER.
2. LENGTHS OF EROSION CONTROL LOGS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND AS REQUIRED FOR THE PURPOSE INTENDED.
3. UNLESS OTHERWISE DIRECTED, USE BIODEGRADABLE OR PHOTODEGRADABLE CONTAINMENT MESH ONLY WHERE LOG WILL REMAIN IN PLACE AS PART OF A VEGETATIVE SYSTEM. FOR TEMPORARY INSTALLATIONS, USE RECYCLABLE CONTAINMENT MESH.
4. FILL LOGS WITH SUFFICIENT FILTER MATERIAL TO ACHIEVE THE MINIMUM COMPACTED DIAMETER SPECIFIED IN THE PLANS WITHOUT EXCESSIVE DEFORMATION.
5. STAKES SHALL BE 2" X 2" WOOD OR #3 REBAR, 2'-4' LONG, EMBEDDED SUCH THAT 2" PROTRUDES ABOVE LOG, OR AS DIRECTED BY THE ENGINEER.
6. DO NOT PLACE STAKES THROUGH CONTAINMENT MESH.
7. COMPOST CRADLE MATERIAL IS INCIDENTAL & WILL NOT BE PAID FOR SEPARATELY.
8. SANDBAGS USED AS ANCHORS SHALL BE PLACED ON TOP OF LOGS & SHALL BE OF SUFFICIENT SIZE TO HOLD LOGS IN PLACE.
9. TURN THE ENDS OF EACH ROW OF LOGS UPSLOPE TO PREVENT RUNOFF FROM FLOWING AROUND THE LOG.
10. FOR HEAVY RUNOFF EVENTS, ADDITIONAL UPSTREAM STAKES MAY BE NECESSARY TO KEEP LOG FROM FOLDING IN ON ITSELF.

LEGEND

- CL-D — EROSION CONTROL LOG DAM
- CL-BOC — EROSION CONTROL LOG AT BACK OF CURB
- CL-ROW — EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY
- CL-SST — EROSION CONTROL LOGS ON SLOPES STAKE AND TRENCHING ANCHORING
- CL-SSL — EROSION CONTROL LOGS ON SLOPES STAKE AND LASHING ANCHORING
- CL-DI — EROSION CONTROL LOG AT DROP INLET
- CL-CI — EROSION CONTROL LOG AT CURB INLET
- CL-GI — EROSION CONTROL LOG AT CURB & GRATE INLET

SEDIMENT BASIN & TRAP USAGE GUIDELINES

An erosion control log sediment trap may be used to filter sediment out of runoff draining from an unstabilized area.

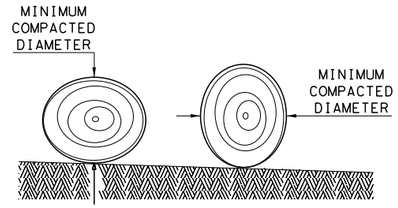
Log Traps: The drainage area for a sediment trap should not exceed 5 acres. The trap capacity should be 1800 CF/Acre (0.5" over the drainage area).

Control logs should be placed in the following locations:

1. Within drainage ditches spaced as needed or min. 500' on center
2. Immediately preceding ditch inlets or drain inlets
3. Just before the drainage enters a water course
4. Just before the drainage leaves the right of way
5. Just before the drainage leaves the construction limits where drainage flows away from the project.

The logs should be cleaned when the sediment has accumulated to a depth of 1/2 the log diameter.

Cleaning and removal of accumulated sediment deposits is incidental and will not be paid for separately.



DIAMETER MEASUREMENTS OF EROSION CONTROL LOGS SPECIFIED IN PLANS

SHEET 1 OF 3

Texas Department of Transportation — Design Division Standard

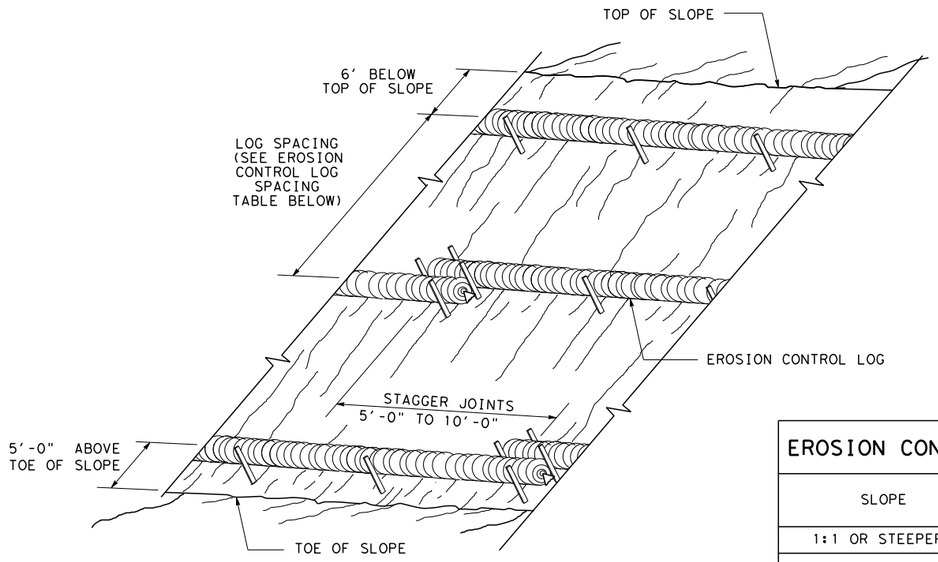
TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

EC(9)-16

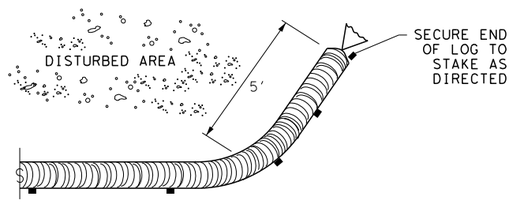
FILE: ec916	DN: TxDOT	CK: KM	DW: LS/PT	CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043,ETC	US 385,ETC
	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		240

DATE: 5/28/2020
FILE: I:\TYL\CADD\TxDOT CAD Standards\EC916.dgn



EROSION CONTROL LOGS ON SLOPES
STAKE AND TRENCHING ANCHORING

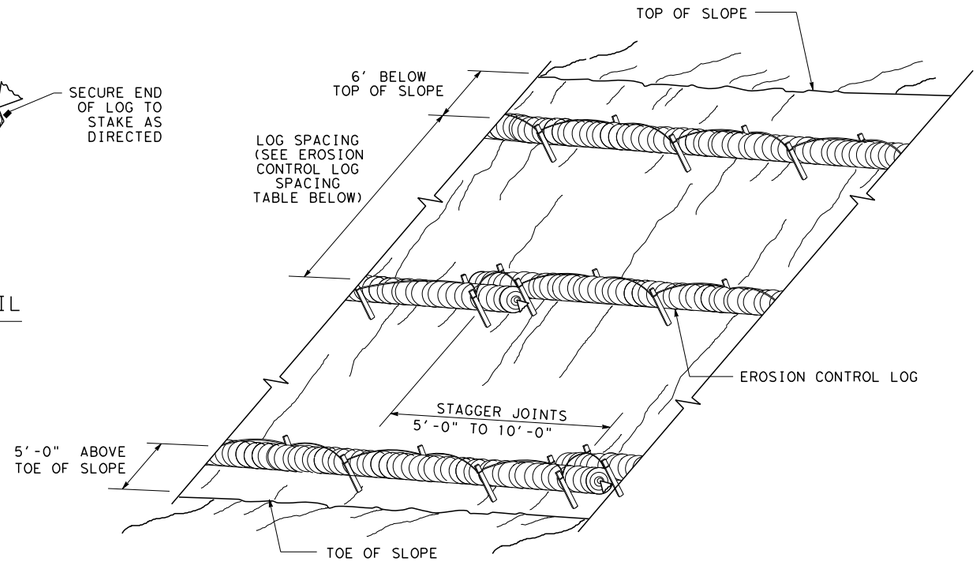
CL-SST



END SECTION RAP DETAIL

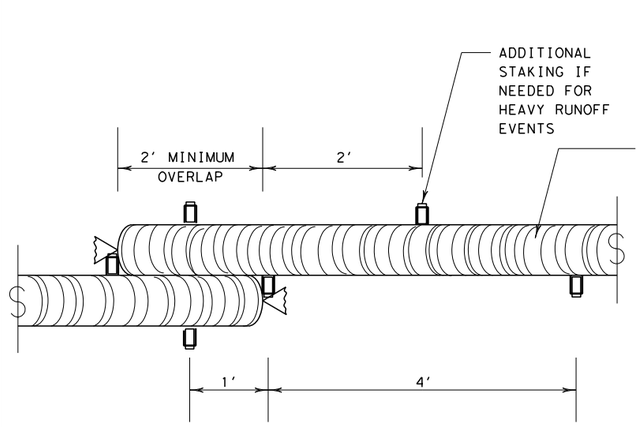
EROSION CONTROL LOG SPACING TABLE				
SLOPE	LOG DIAMETER			
	6"	8"	12"	18"
1:1 OR STEEPER	5'	10'	15'	20'
2:1	10'	20'	30'	40'
3:1	15'	30'	45'	60'
4:1 OR FLATTER	20'	40'	60'	80'

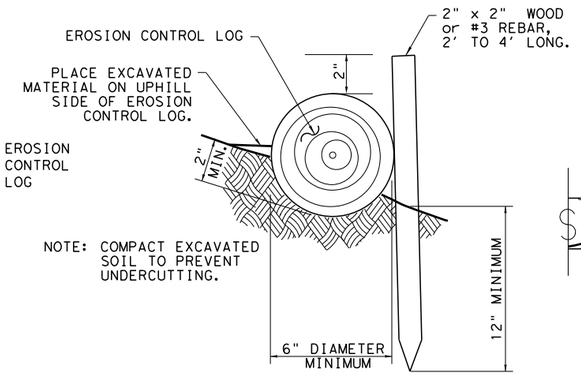
* ADJUSTMENTS CAN BE MADE FOR SOIL TYPE:
SOFT, LOAMY SOILS-ADJUST ROWS CLOSER TOGETHER;
HARD, ROCKY SOILS- ADJUST ROWS FARTHER APART



EROSION CONTROL LOGS ON SLOPES
STAKE AND LASHING ANCHORING

CL-SSL

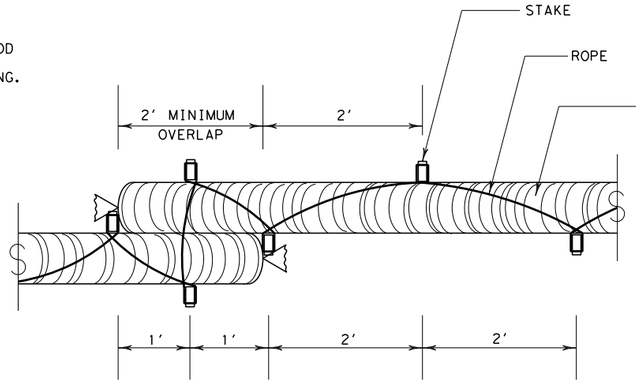


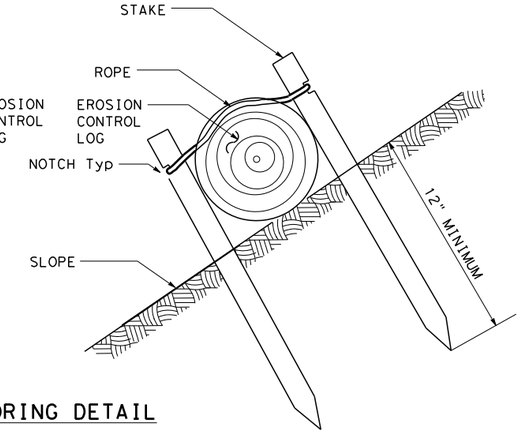


STAKE AND TRENCHING ANCHORING DETAIL

CL-SST

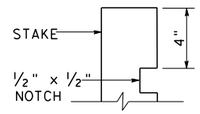
TRENCH DEPTH TABLE	
LOG DIAMETER	DEPTH
6"	2"
8"	3"
12"	4"
18"	5"





STAKE AND LASHING ANCHORING DETAIL

CL-SSL



STAKE NOTCH DETAIL

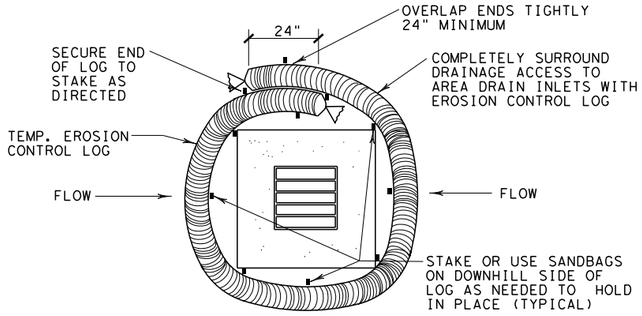
Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES
EROSION CONTROL LOG
EC(9)-16

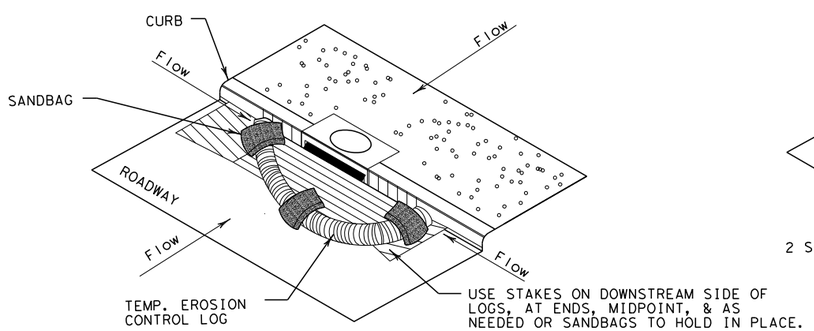
FILE: ec116	DN: TxDOT	CK: KM	DW: LS/PT	CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0228	04	043,ETC	US 385,ETC
	DIST	COUNTY		SHEET NO.
	ODA	ANDREWS		241

DATE: 5/28/2020
FILE: I:\TYL\CADD\TxDOT CAD Standards\EC916.dgn



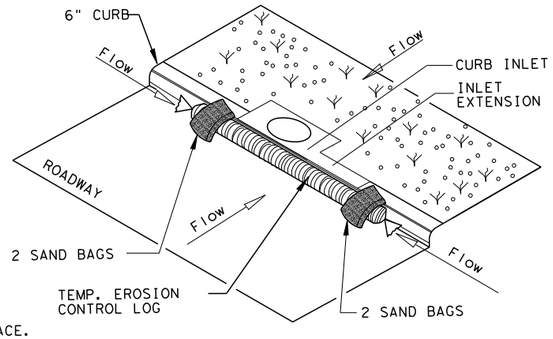
EROSION CONTROL LOG AT DROP INLET

CL-DI



EROSION CONTROL LOG AT CURB INLET

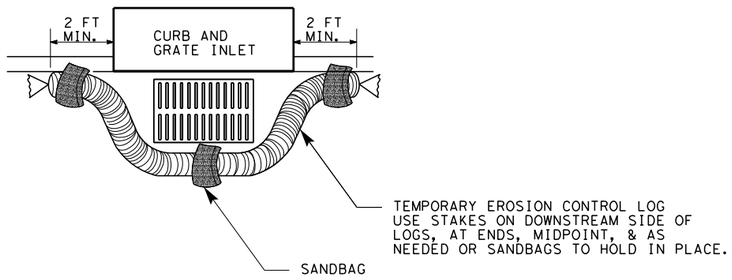
CL-CI



EROSION CONTROL LOG AT CURB INLET

CL-CI

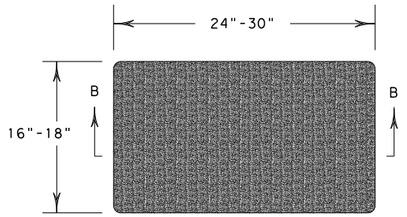
NOTE:
EROSION CONTROL LOGS USED AT CURB INLETS SHOULD ONLY BE USED IF THEY WILL NOT IMPEDE TRAFFIC OR FLOOD THE ROADWAY OR WHEN THE STORM SEWER SYSTEM IS NOT FULLY FUNCTIONAL.



EROSION CONTROL LOG AT CURB & GRADE INLET

CL-GI

SECTION B-B



SANDBAG DETAIL

SHEET 3 OF 3

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

EC(9)-16

FILE: ec916	DN: TxDOT		CK: KM	DW: LS/PT		CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB		HIGHWAY	
REVISIONS	0228	04	043,ETC		US 385,ETC	
	DIST	COUNTY			SHEET NO.	
	ODA	ANDREWS			242	

DATE:
FILE:

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.

1.

2.

☐ No Action Required ☒ Required Action

Action No.

1. Prevent stormwater pollution by controlling erosion and sedimentation in accordance with TPDES Permit TXR 150000
2. Comply with the SW3P and revise when necessary to control pollution or required by the Engineer.
3. Post Construction Site Notice (CSN) with SW3P information on or near the site, accessible to the public and TCEQ, EPA or other inspectors.
4. 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.

1.

2.

3.

4.

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
☐ Temporary Vegetation	☐ Silt Fence	☐ Vegetative Filter Strips
☐ Blankets/Matting	☐ Rock Berm	☐ Retention/Irrigation Systems
☐ Mulch	☐ Triangular Filter Dike	☐ Extended Detention Basin
☐ Sodding	☐ Sand Bag Berm	☐ Constructed Wetlands
☐ Interceptor Swale	☐ Straw Bale Dike	☐ Wet Basin
☐ Diversion Dike	☐ Brush Berms	☐ Erosion Control Compost
☐ Erosion Control Compost	☐ Erosion Control Logs	☐ Mulch Filter Berm and Socks
☐ Mulch Filter Berm and Socks	☐ Mulch Filter Berm and Socks	☐ Compost Filter Berm and Socks
☐ Compost Filter Berm and Socks	☐ Compost Filter Berm and Socks	☐ Vegetation Lined Ditches
	☐ Stone Outlet Sediment Traps	☐ Sand Filter Systems
	☐ Sediment Basins	☐ 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.

1.

2.

3.

4.

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.

1. Contractor will disturb the minimum amount of vegetation necessary.

2.

3.

4.

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

☐ No Action Required ☒ Required Action

Action No.

1. Contractor will avoid harm to the Texas Horned Lizard if encountered during construction and apply bonded fiber matrix seeding in excavation and embarkment areas for habitat enhancement.
2. AVOID HARVESTER ANT MOUNDS WHERE FEASIBLE.
3.
4.

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.

1.

2.

3.

VII. OTHER ENVIRONMENTAL ISSUES

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

☒ No Action Required ☐ Required Action

Action No.

1.

2.

3.

Texas Department of Transportation — Design Division Standard

ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS

EPIC

FILE: epic.dgn	DN: TxDOT	CK: RG	DW: VP	CK: AR	
©TxDOT: February 2015	CONT	SECT	JOB	HIGHWAY	
REVISIONS 12-12-2011 (DS) 05-07-14 ADDED NOTE SECTION IV. 01-23-2015 SECTION I (CHANGED ITEM 1122 TO ITEM 506, ADDED GRASSY SWALES.	0228	04	043,ETC.	US 385,ETC.	
	DIST	COUNTY		SHEET NO.	
	ODA	ANDREWS		243	