SEE SHEET 2 FOR INDEX OF SHEETS

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

PROJECT NO. : C 2744-1-32, ETC.

MONTGOMERY COUNTY

CSJ: 2744-01-032, ETC.

FM 2854, SL 336

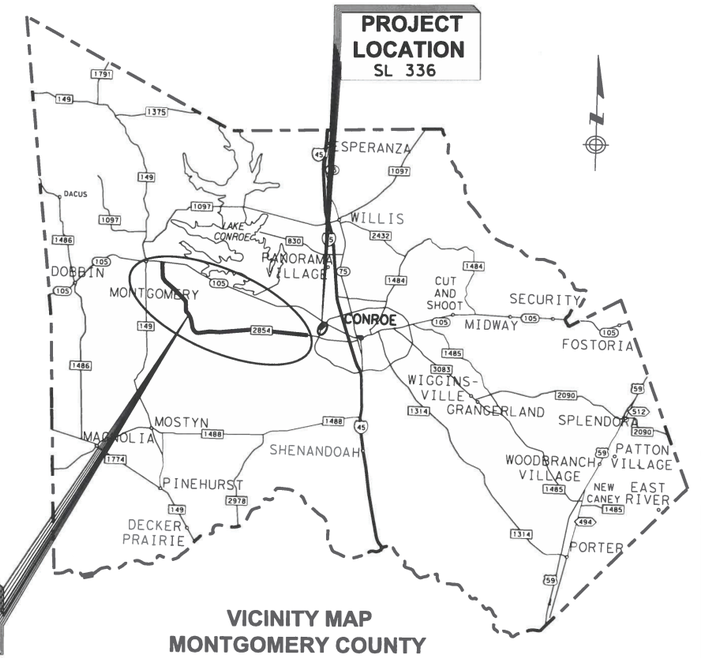
FOR THE CONSTRUCTION OF MILL, OVERLAY AND ADD TURN LANES CONSISTING OF LIME TREATED, SUBGRADE, LIME, ASB, 2" MILL, 2" HMA LEVEL-UP, 2" HMA SURFACE, OCST, PAVEMENT MARKINGS AND SIGNS.

FM 2854, ETC.
FUNCTION CLASSIFICATION:
RURAL MAJOR COLLECTOR

DESIGN SPEED		
MAINLANES .....60 MPH		
DESIGN ADT		
MAINLANES		
	2022	2042
FM 2854....	8,600	12,100
SL 336....	18,600	26,200

FED. RD. DIV. NO.	PROJECT NUMBER	HIGHWAY NUMBER
6	C 2744-1-32, ETC.	FM 2854, ETC.
STATE	DISTRICT	COUNTY
TEXAS	HOU	MONTGOMERY
CONTROL	SECTION	JOB / SHEET NO.
2744	01	032,etc / 1

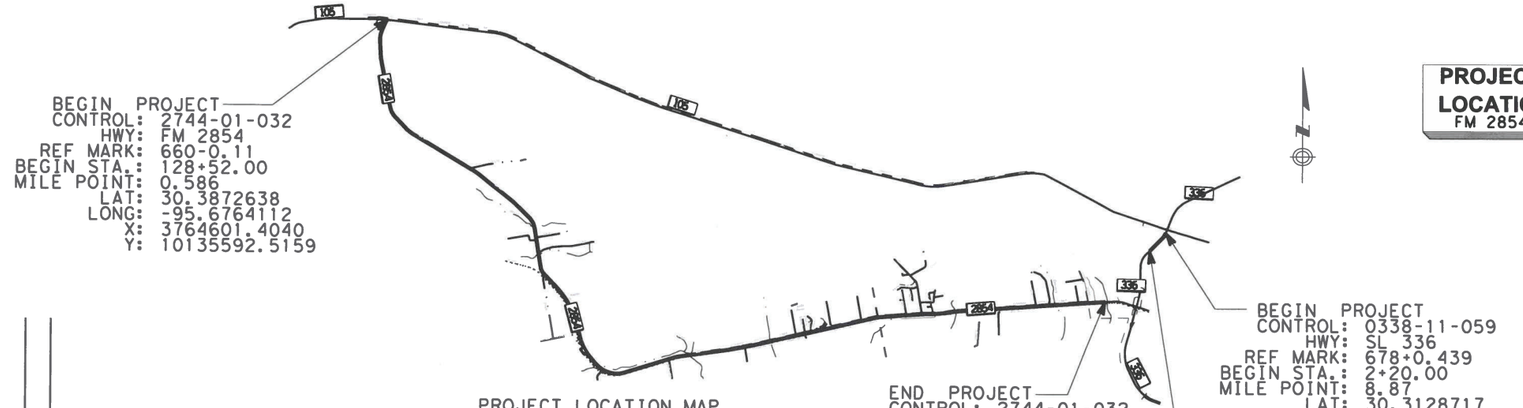
CSJ	HIGHWAY	LIMITS	STATION	ROADWAY		BRIDGE		TOTAL	
				FT	MI	FT	MI	FT	MI
2744-01-032	FM 2854	FROM SH 105 TO SAN JACINTO RIVER	128+52.00-836+35.00	70783	13.41	480	0.09	71263	13.50
0338-11-059	SL 336	FROM SH 105 TO FM 2854	2+20.00-33+00.00	3580	0.68	0	0	3580	0.68



VICINITY MAP
MONTGOMERY COUNTY

FM 2854 : KEY MAP NO. 123, BLOCK U,Y
KEY MAP NO. 153, BLOCK C,G,H
KEY MAP NO. 154, BLOCK E,J,N,S,T,X,Y,Z
KEY MAP NO. 155, BLOCK W,X,Y,Z
KEY MAP NO. 156, BLOCK W,X,Y,Z
SL 336 : KEY MAY NO. 157, BLOCK S,V

NOT TO SCALE



PROJECT LOCATION MAP
(NTS)

NO EXCEPTIONS
NO EQUATIONS
NO RAILROAD CROSSINGS

NOTES:

1. HORIZONTAL CONTROL IS BASED ON TXDOT GPS OBSERVATIONS (RTN) FOR ALL CONTROL AND TARGET POINTS. ALL BEARINGS AND COORDINATES ARE BASED ON THE TEXAS COORDINATE SYSTEM, CENTRAL ZONE (4203), NORTH AMERICAN DATUM OF 1983 (NAD 83), (2011), EPOCH 2010.00. ALL DISTANCES AND COORDINATES SHOWN HEREON ARE SURFACE VALUES (U.S. SURVEY FEET) AND MAY BE CONVERTED TO GRID BY DIVIDING BY THE COMBINED ADJUSTMENT FACTOR OF 1.00003.

2. VERTICAL CONTROL IS BASED ON DIGITAL LEVEL LOOPS. STATIC GPS OBSERVATIONS USING TXDOT REGIONAL REFERENCE POINTS TXCN AND TXLI AND NGS CORS STATION ZHU1. ELEVATIONS SHOWN HEREON ARE U.S. SURVEY FEET) REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

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

COUNTY MONTGOMERY PROJ. NO. C 2744-1-32, ETC.
HWY. NO. FM 2854, ETC. LETTING DATE AUGUST 2022
CONTRACTOR NAME _____
CONTRACT BEGIN DATE _____
WORK COMPLETED DATE _____
DATE OF ACCEPTANCE _____

CSJ: 0720-02-077

Texas Department of Transportation

SUBMITTED FOR LETTING: 5/18/22

Stephen M Duggan PE
AREA ENGINEER

APPROVED FOR LETTING: 5/26/2022

DocuSigned by:
James Koch , P.E.
B02ACFA465C24CC... NGINEER

DN: | CK: | DW: | CK:

DATE: 07/07/2022 05:36 PM
FILE: pw:\txdot.projectwiseonline.com:TXDOT3\Documents\12 - HOU\Design Projects\0523100047\4 - Design\Plan Set\1. General\INDEX OF SHEETS.dgn

GENERAL

	1	TITLE SHEET
	2	INDEX OF SHEETS
	3-7	FM 2854 EXISTING TYPICAL SECTION
	8-19	FM 2854 PROPOSED TYPICAL SECTION
	20-21	SL 336 EXISTING TYPICAL SECTION
	22-23	SL 336 PROPOSED TYPICAL SECTION
	24,24A-24J	GENERAL NOTES
	25,25A-25B	ESTIMATE & QUANTITY SHEET
	26	FM 2854,ETC.ROADWAY SUMMARY QUANTITIES
	26A	FM 2854 SW3P QUANTITY SUMMARY
	27-29	FM 2854 DRIVEWAY QUANTITIES
	30	FM 2854 INTERSECTION QUANTITIES
	31	SL 336 DRIVEWAY & INTERSECTION QUANTITIES
	32-33,33A	FM 2854, ETC, PAVEMENT MARKING SUMMARY QUANTITIES
	33B	FM 2854, ETC, WORK ZONE PAVEMENT MARKING SUMMARY QUANTITIES
	34-36,36A-36H	FM 2854, ETC, SUMMARY OF SMALL SIGNS SHEET

TRAFFIC CONTROL PLAN STANDARDS

*	37	BC (1) -21
*	38	BC (2) -21
*	39	BC (3) -21
*	40	BC (4) -21
*	41	BC (5) -21
*	42	BC (6) -21
*	43	BC (7) -21
*	44	BC (8) -21
*	45	BC (9) -21
*	46	BC (10) -21
*	47	BC (11) -21
*	48	BC (12) -21
*	49	TCP (1-1) - 18
*	49A	TCP (1-3) - 18
*	49B	TCP (1-4) - 18
*	49C	TCP (2-1) - 18
*	49D	TCP (2-3) - 18
*	49E	TCP (2-4) - 18
*	49F	TCP (3-1) - 13
*	49G	TCP (3-2) - 13
*	49H	TCP (3-3) - 14
*	49I	TCP (3-4) - 14
*	49J	WZ (BRK) - 13
*	50	WZ(STPM)-13

ROADWAY DETAILS

	50A-50H	FM 2854 HORIZONTAL ALIGMENT DATA
	50I	SL 336 HORIZONTAL ALIGMENT DATA
	51-102	FM 2854 PROPOSED ROADWAY LAYOUT
	103-105	SL 336 PROPOSED ROADWAY LAYOUT

ROADWAY DETAILS STANDARDS

*	106-108	DD
*	108A-108D	MB(1)-21 THRU MB(4) -21

PAVEMENT MARKING AND DELINEATION DETAILS

	109-160	FM 2854 PAVEMENT MARKING AND SIGNING LAYOUT
	161-163	SL 336 PAVEMENT MARKING AND SIGNING LAYOUT
	163A-163C	FM 2854 GUIDE SIGN DETAILS

PAVEMENT MARKING AND DELINATION STANDARDS

*	164	D & OM(1)-20
*	165	D & OM(2)-20
*	166	D & OM(3)-20
*	167	D & OM(4)-20
*	168	D & OM(5)-20
*	169	D & OM(6)-20
*	170	D & OM(VIA)-20
*	171	PM (2)-20
*	172	PM (3)-20
*	172A	PM(4)-22
*	173	SMD (2-1)-08
*	174	SMD (2-2)-08
*	175	SMD (GEN)-08
*	176	SMD (SLIP-1) - 08
*	177	SMD (SLIP-2) - 08
*	178	SMD (SLIP-3) - 08
*	179	PM-20(HOU DIST)
*	180	PM (WAS)-07 (HOU DIST)
*	181	PM(CLL)-14(HOU DIST)

ENVIRONMENTAL DATA

*	182	ENVIRONMENTAL PERMITS,ISSUES,AND COMMITMENTS (EPIC)(HOU DIST)
	183	TXDOT STORM WATER POLLUTION PREVENTION PLAN SW3P (HOU DIST)

TEMPORARY EROSION CONTROL

	184-189	FM 2854 SW3P LAYOUT

TEMPORARY EROSION CONTROL STANDARDS

*	190	EC (1) - 16
*	191	EC (2) - 16

RAILROAD EXHIBIT

	192-193	RAILROAD REQUIREMENTS FOR NON-BRIDGE CONSTRUCTION PROJECTS
	194-206	RAILROAD SCOPE OF WORK

THE STANDARD SHEETS SPECIFICALLY IDENTIFIED ABOVE (*) HAVE BEEN SELECTED BY ME, OR UNDER RESPONSIBLE SUPERVISION AS BEING APPLICABLE TO THIS POJECT.

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

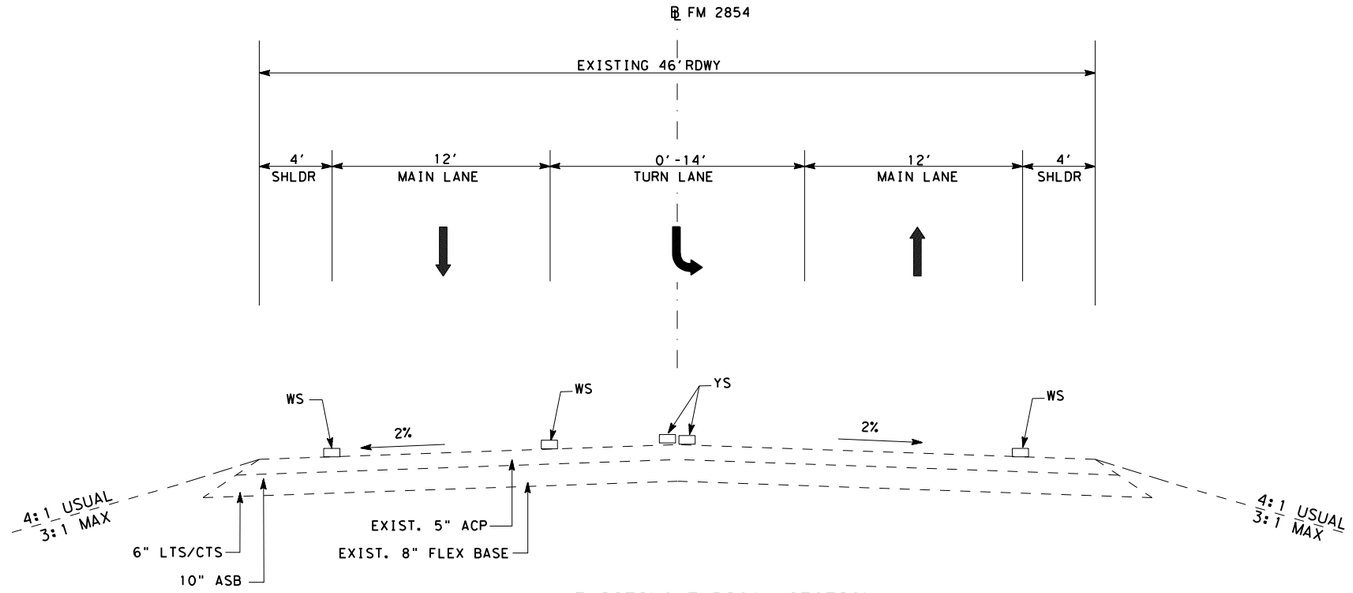
Micah J. Schluter, P.E.
07.07.22

FM 2854, ETC.
INDEX OF SHEETS

SHEET 1 OF 1

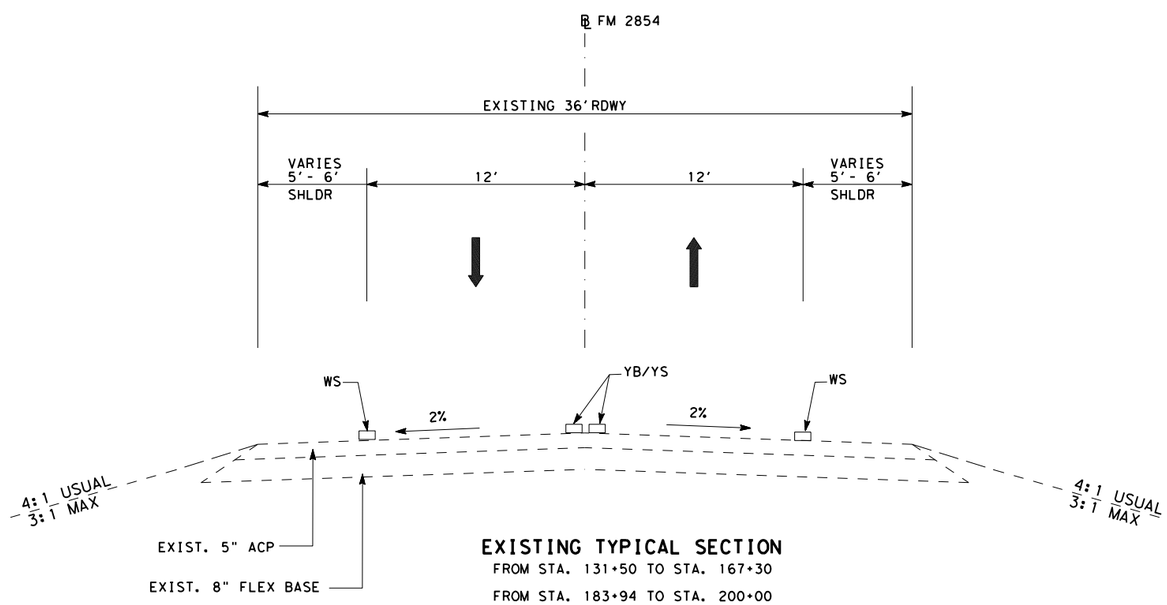
Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		2



EXISTING TYPICAL SECTION

FROM STA.128+52 TO 131+50
FROM STA.167+30 TO 183+94
FROM STA.378+00 TO 389+00



EXISTING TYPICAL SECTION

FROM STA. 131+50 TO STA. 167+30
FROM STA. 183+94 TO STA. 200+00
FROM STA. 229+00 TO STA. 261+60
FROM STA. 290+40 TO STA. 329+00
FROM STA. 710+00 TO STA. 747+35
FROM STA. 763+00 TO STA. 836+35
BRIDGE :
FROM STA. 802+60 TO STA. 805+00

LEGEND:

YS = YELLOW SOLID STRIPING
YB = YELLOW BROKEN STRIPING
WS = WHITE SOLID STRIPING
ASB = AGREGATE SUBBASE
CTS = CEMENT TREATED SUBGRADE
LTS = LIME TREATED SUBGRADE

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

Micah J. Schluter, P.E.

05.24.22

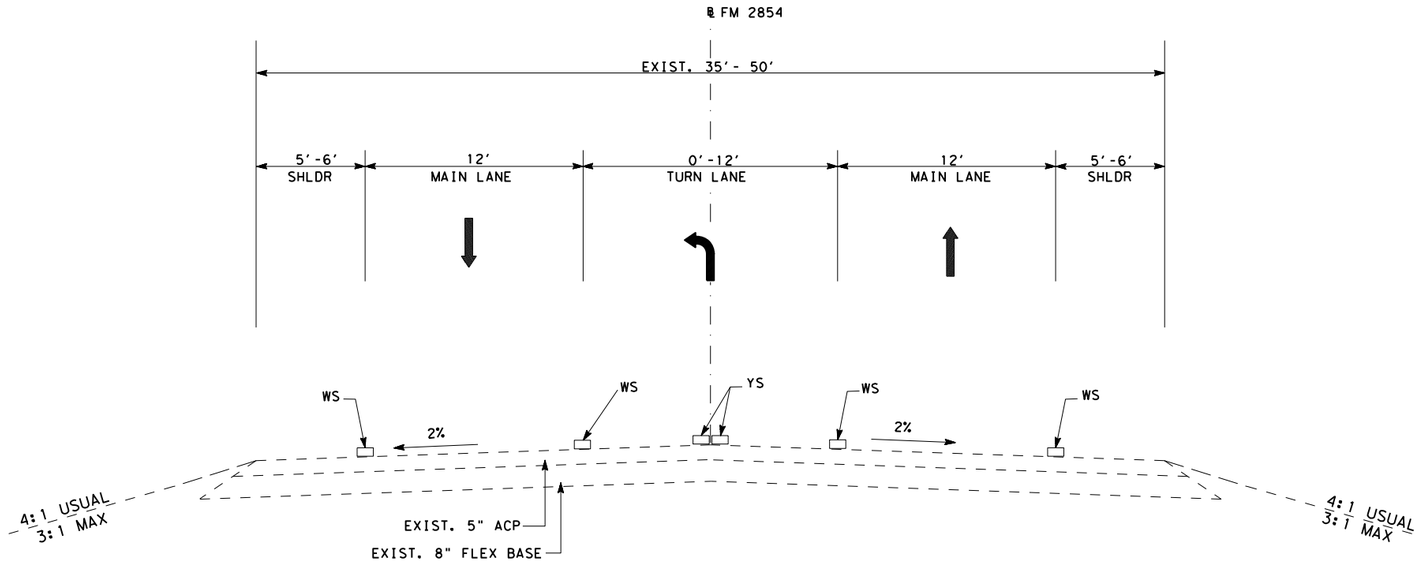
FM 2854 EXISTING TYPICAL SECTION

SHEET 1 OF 8

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		3

DATE: DATE TIME
FILE: DOCUMENT NAME

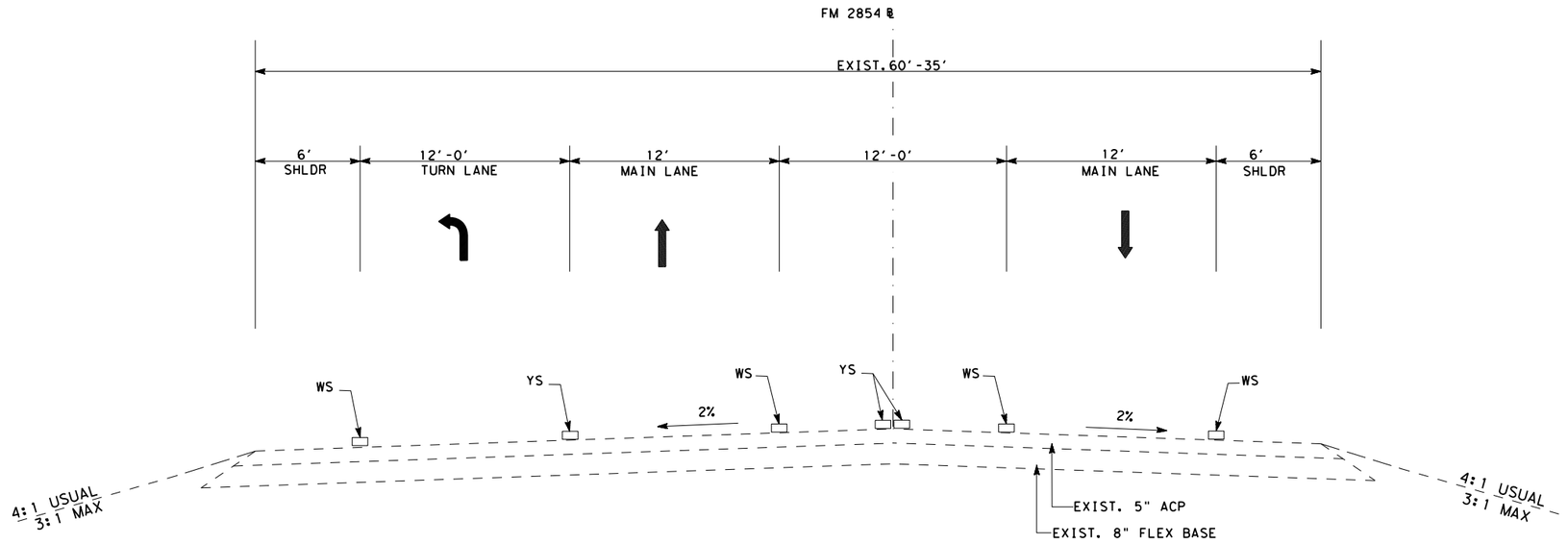


EXISTING TYPICAL SECTION

FROM STA. 200+00 TO 221+00
FROM STA. 551+00 TO 566+10

LEGEND:

YS = YELLOW SOLID STRIPING
YB = YELLOW BROKEN STRIPING
WS = WHITE SOLID STRIPING
ASB = AGREGATE SUBBASE
CTS = CEMENT TREATED SUBGRADE
LTS = LIME TREATED SUBGRADE



EXISTING TYPICAL SECTION

FROM STA. 221+00 TO 229+00
FROM STA. 389+00 TO 394+45

NOTE:
FOR PAVEMENT BID ITEM CODE AND DESCRIPTIONS
SEE SHEET 26 FM 2854, ETC. ROADWAY QUANTITY SUMMARY.

STATE OF TEXAS
MICAH J. SCHLUTER
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Micah J. Schluter, P.E.
05.24.22

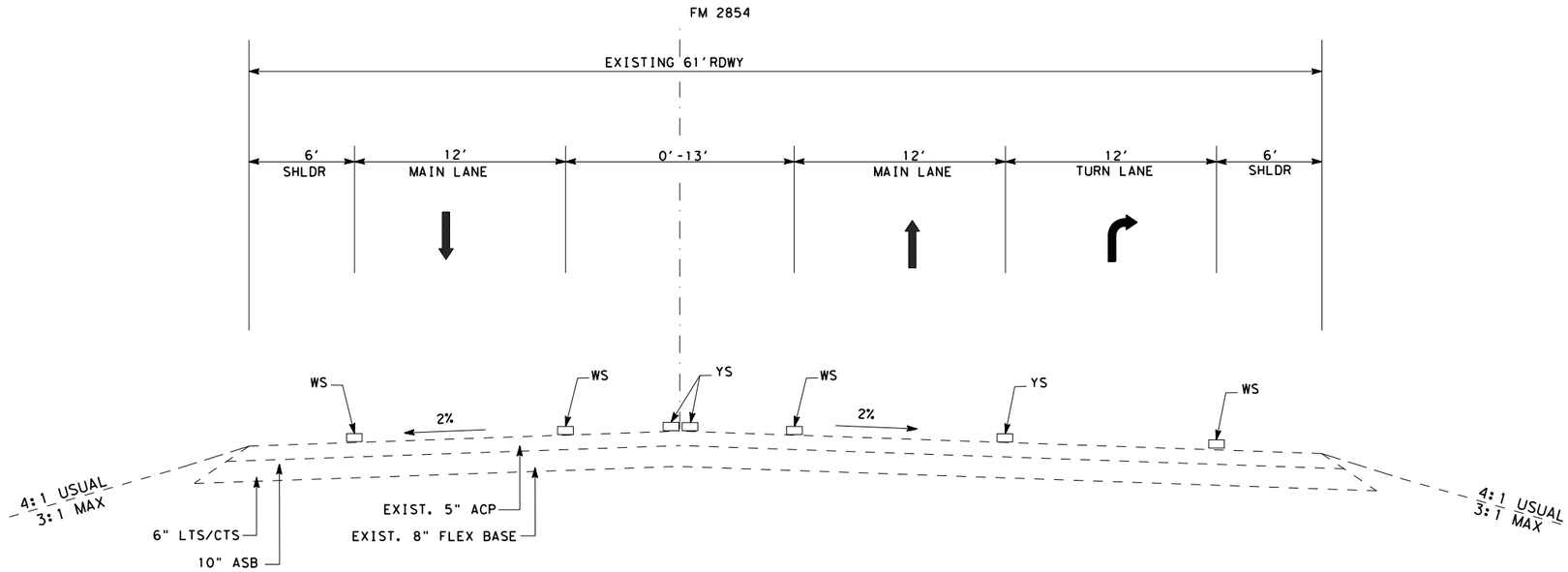
FM 2854
EXISTING TYPICAL SECTION

SHEET 2 OF 8

Texas Department of Transportation

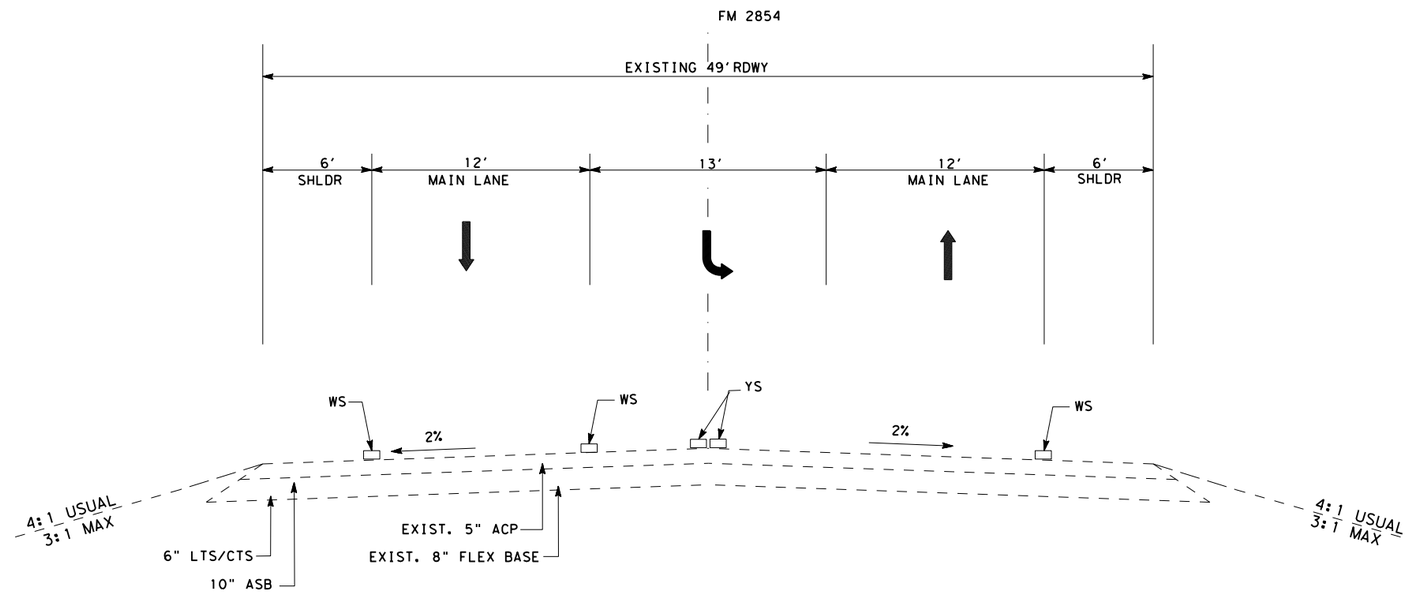
CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		4

DATE: DATE TIME
FILE: DOCUMENT NAME



EXISTING TYPICAL SECTION

FROM STA. 261+60 TO 265+10



EXISTING TYPICAL SECTION

FROM STA. 265+10 TO STA. 273+23

FROM STA. 278+89 TO STA. 290+40

LEGEND:

YS = YELLOW SOLID STRIPING
YB = YELLOW BROKEN STRIPING
WS = WHITE SOLID STRIPING
ASB = AGREGATE SUBBASE
CTS = CEMENT TREATED SUBGRADE
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STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

Micah J. Schluter, P.E.

05.24.22

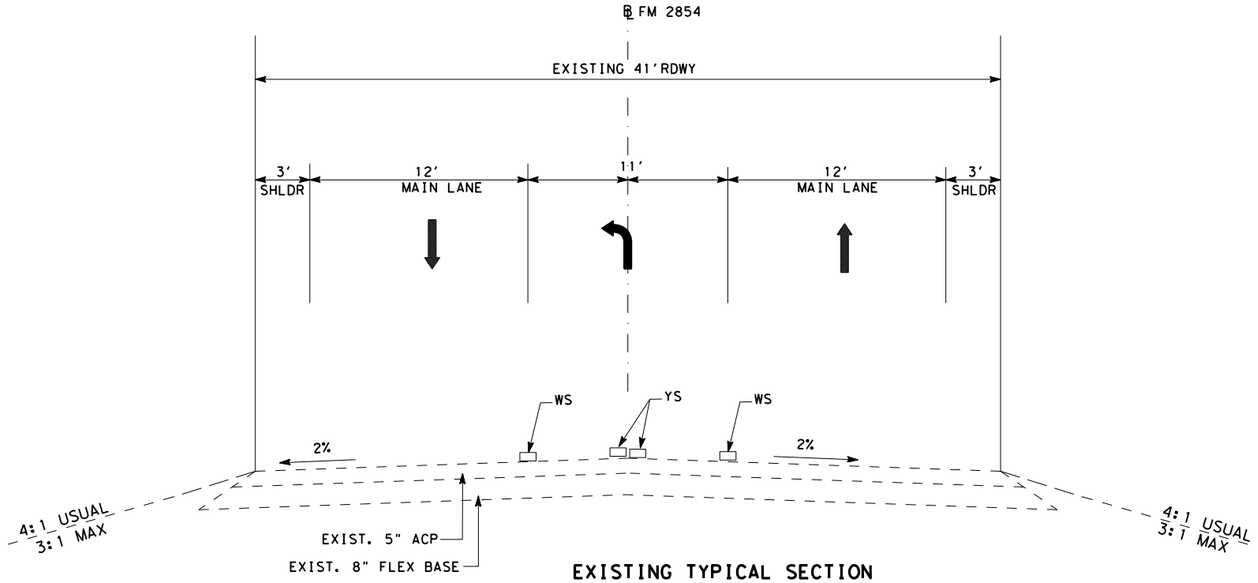
FM 2854 EXISTING TYPICAL SECTION

SHEET 3 OF 8

Texas Department of Transportation

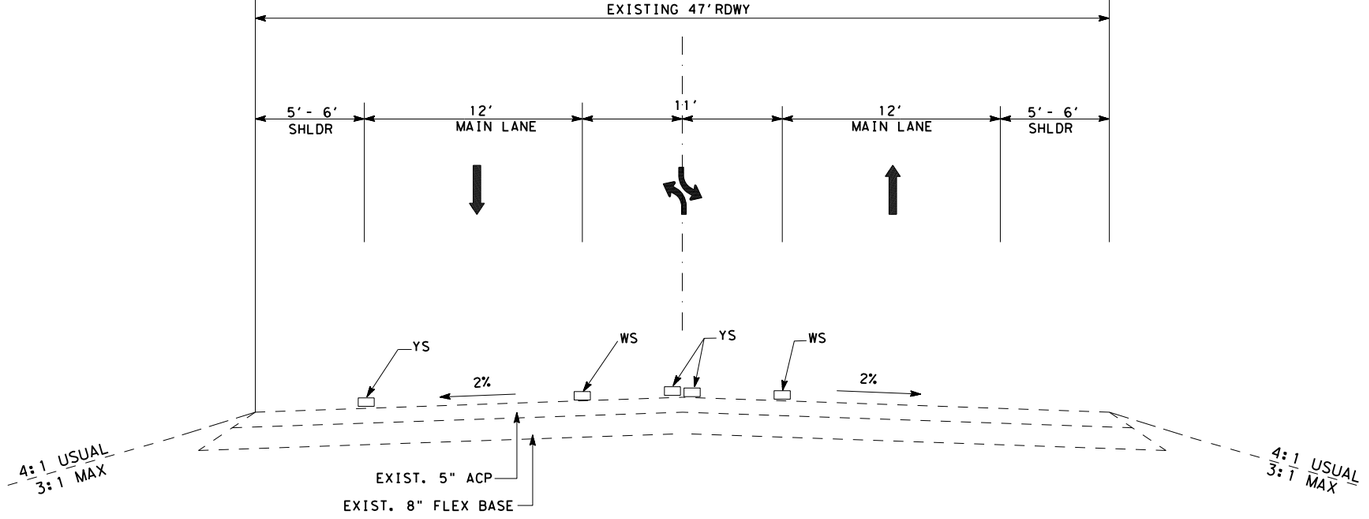
CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		5

DATE: DATE TIME
FILE: DOCUMENT NAME



EXISTING TYPICAL SECTION

FROM STA. 484+50 TO STA. 494+42



EXISTING TYPICAL SECTION

FROM STA. 273+00 TO STA. 278+89

FROM STA. 551+00 TO STA. 565+10

LEGEND:

YS = YELLOW SOLID STRIPING

YB = YELLOW BROKEN STRIPING

WS = WHITE SOLID STRIPING

ASB = AGREGATE SUBBASE

CTS = CEMENT TREATED SUBGRADE

LTS = LIME TREATED SUBGRADE

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

Micah J. Schluter, P.E.

05.24.22

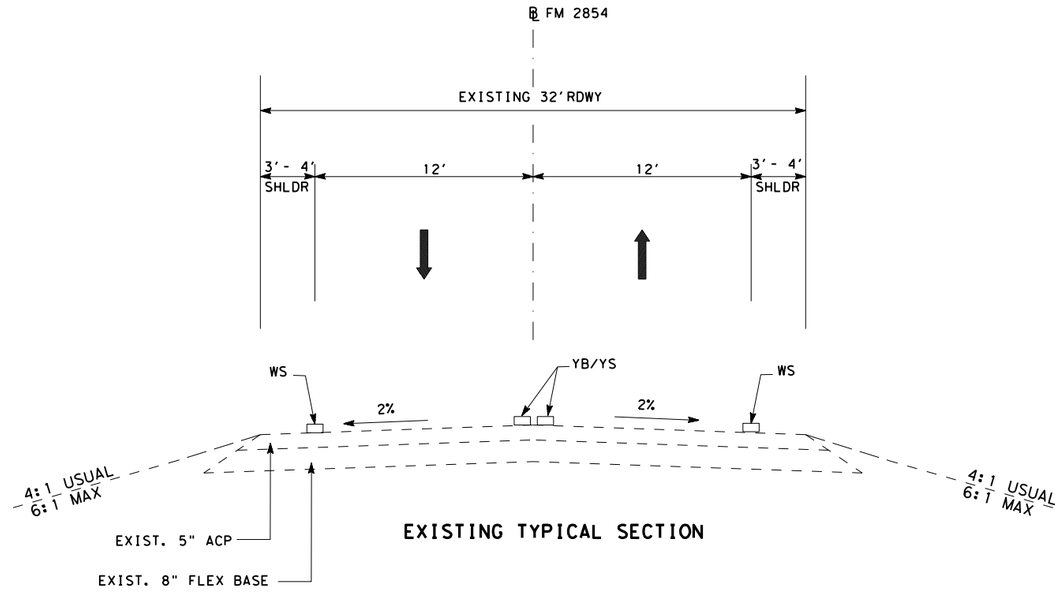
FM 2854 EXISTING TYPICAL SECTION

SHEET 4 OF 8

Texas Department of Transportation

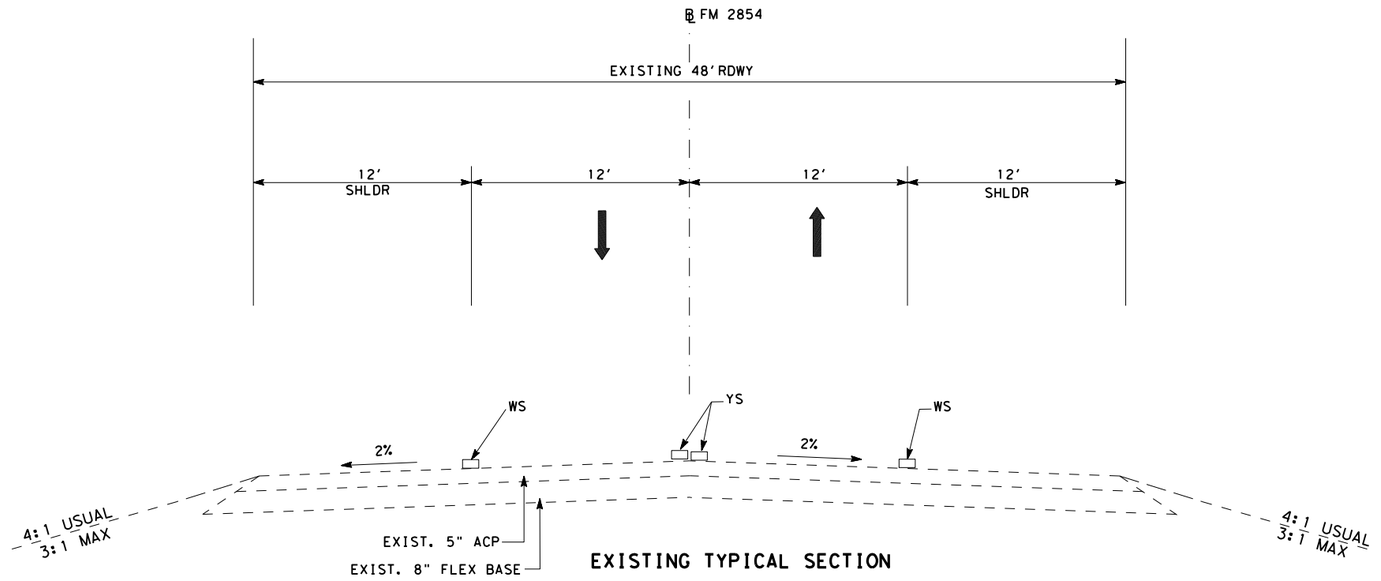
CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		6

DATE: DATE TIME
FILE: DOCUMENT NAME



EXISTING TYPICAL SECTION

FROM STA. 329+00 TO STA. 379+00
FROM STA. 394+45 TO STA. 476+68
FROM STA. 431+78 TO STA. 463+35
FROM STA. 483+34 TO STA. 484+50
FROM STA. 504+00 TO STA. 551+00
FROM STA. 565+10 TO STA. 578+00
FROM STA. 603+60 TO STA. 710+00
FROM STA. 638+16 TO STA. 712+94
FROM STA. 724+35 TO STA. 747+35



EXISTING TYPICAL SECTION

FROM STA. 476+68 TO 483+34
EXECEPTION BRIDGE FROM STA. 478+75 TO STA. 480+36

LEGEND:

YS = YELLOW SOLID STRIPING
YB = YELLOW BROKEN STRIPING
WS = WHITE SOLID STRIPING
ASB = AGREGATE SUBBASE
CTS = CEMENT TREATED SUBGRADE
LTS = LIME TREATED SUBGRADE

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

Micah J. Schluter, P.E.
05.24.22

FM 2854 EXISTING TYPICAL SECTION

SHEET 5 OF 8

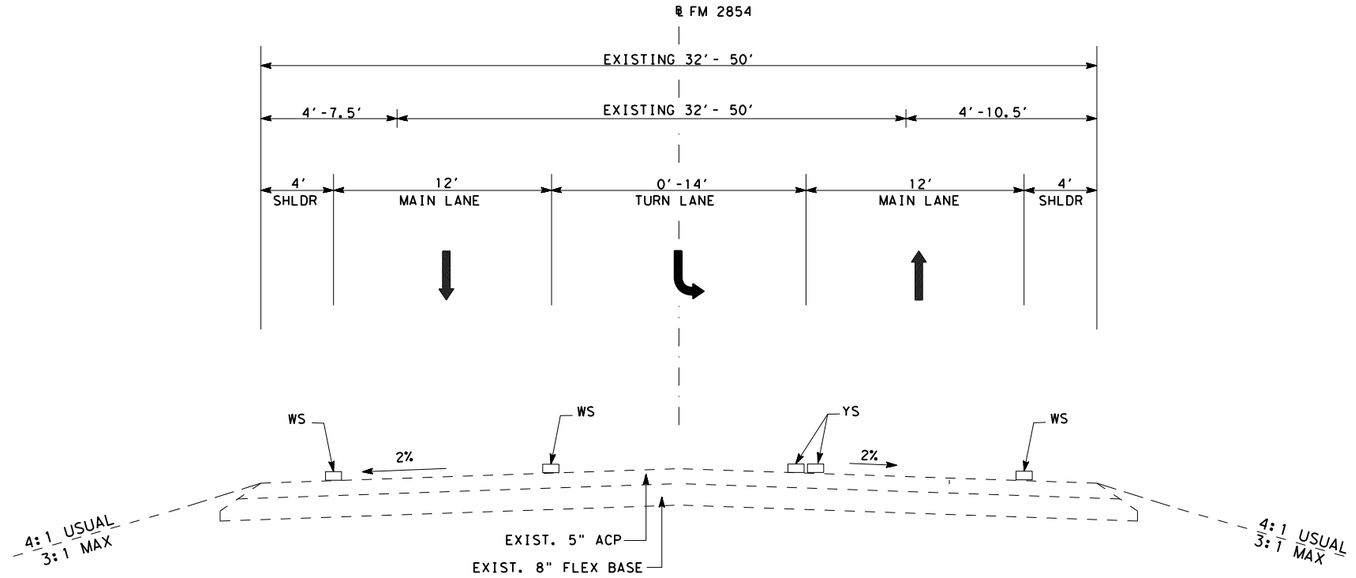
Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		7

DATE: DATE TIME
FILE: DOCUMENT NAME

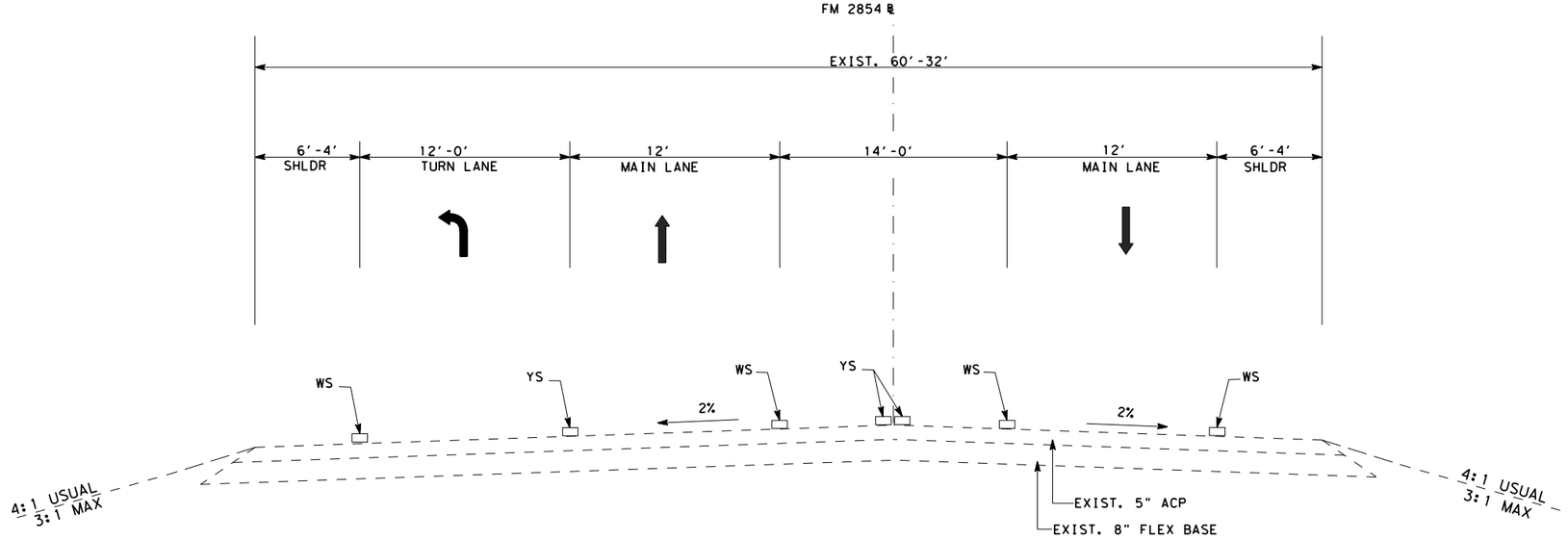
LEGEND:

YS = YELLOW SOLID STRIPING
YB = YELLOW BROKEN STRIPING
WS = WHITE SOLID STRIPING
ASB = AGREGATE SUBBASE
CTS = CEMENT TREATED SUBGRADE
LTS = LIME TREATED SUBGRADE



EXISTING TYPICAL SECTION

FROM STA. 379+00 TO STA. 389+00



EXISTING TYPICAL SECTION

FROM STA. 389+00 TO STA. 394+57
FROM STA. 542+00 TO STA. 603+30

STATE OF TEXAS
MICAH J. SCHLUTER
TO CHANGE
LICENSED
PROFESSIONAL ENGINEER

Micah J. Schluter P.E.
05.24.22

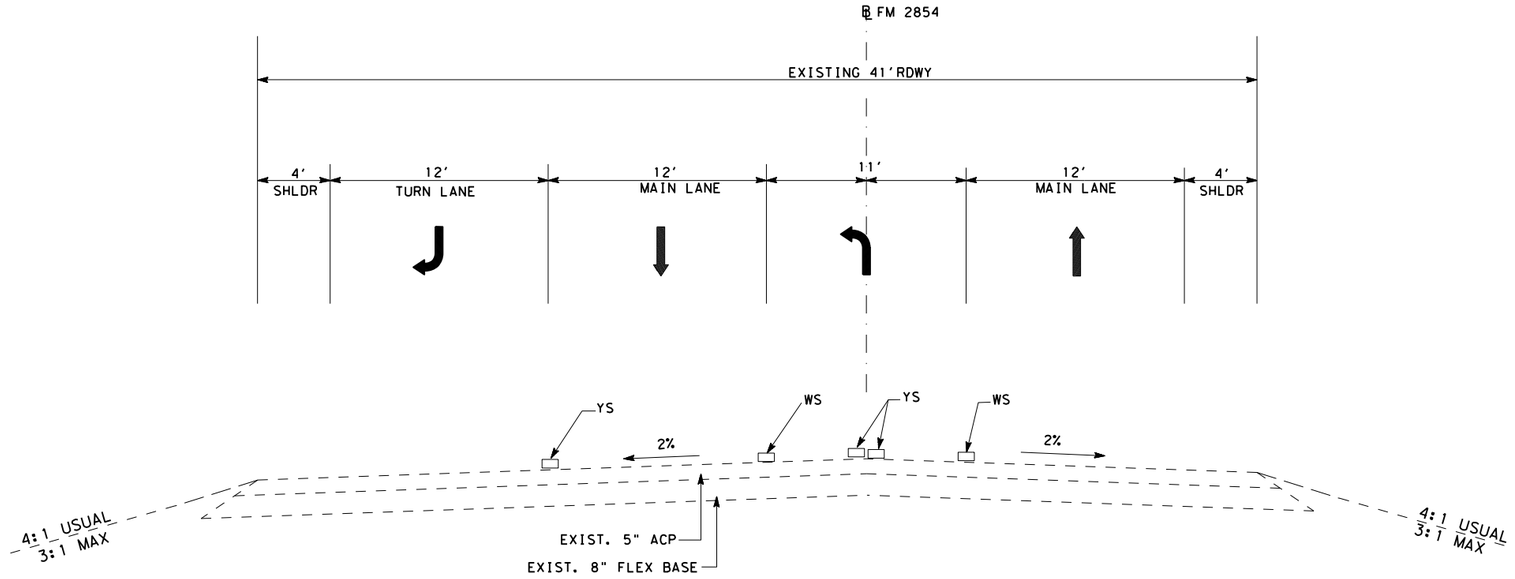
FM 2854
EXISTING TYPICAL SECTION

N. T. S.

Texas Department of Transportation

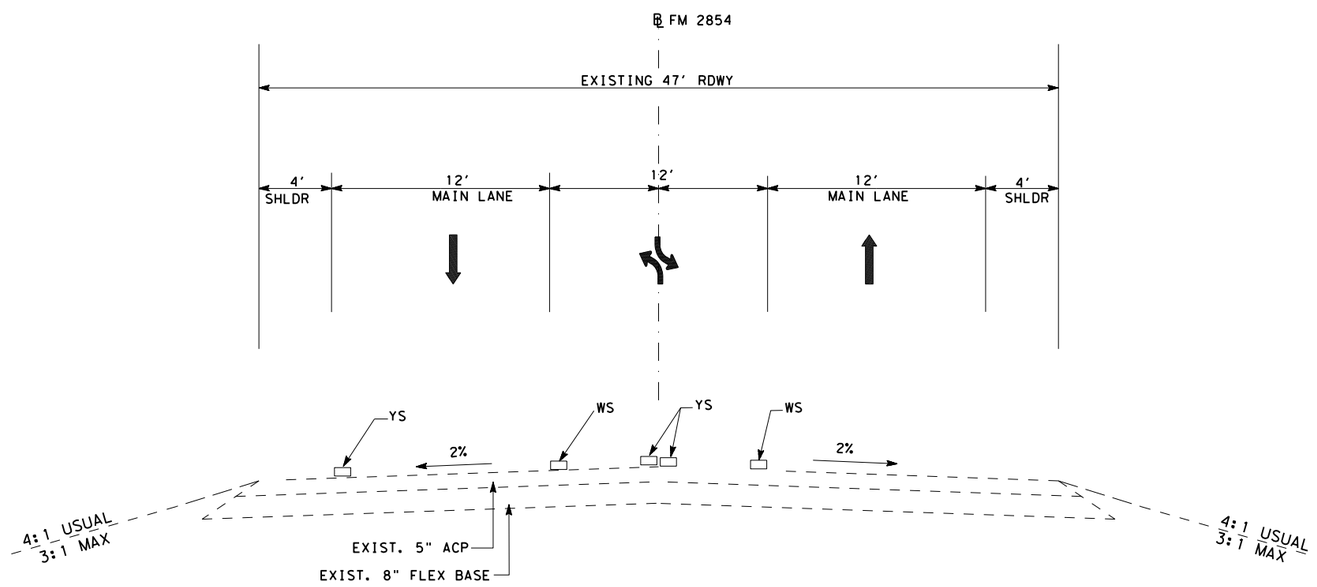
CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		7A

DATE: DATE TIME
FILE: DOCUMENT NAME



EXISTING TYPICAL SECTION

FROM STA. 494+42 TO STA. 504+00



EXISTING TYPICAL SECTION

FROM STA. 747+35 TO STA. 763+00

LEGEND:

YS = YELLOW SOLID STRIPING
YB = YELLOW BROKEN STRIPING
WS = WHITE SOLID STRIPING
ASB = AGREGATE SUBBASE
CTS = CEMENT TREATED SUBGRADE
LTS = LIME TREATED SUBGRADE

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

Micah J. Schluter, P.E.

05.24.22

FM 2854
EXISTING
TYPICAL
SECTION

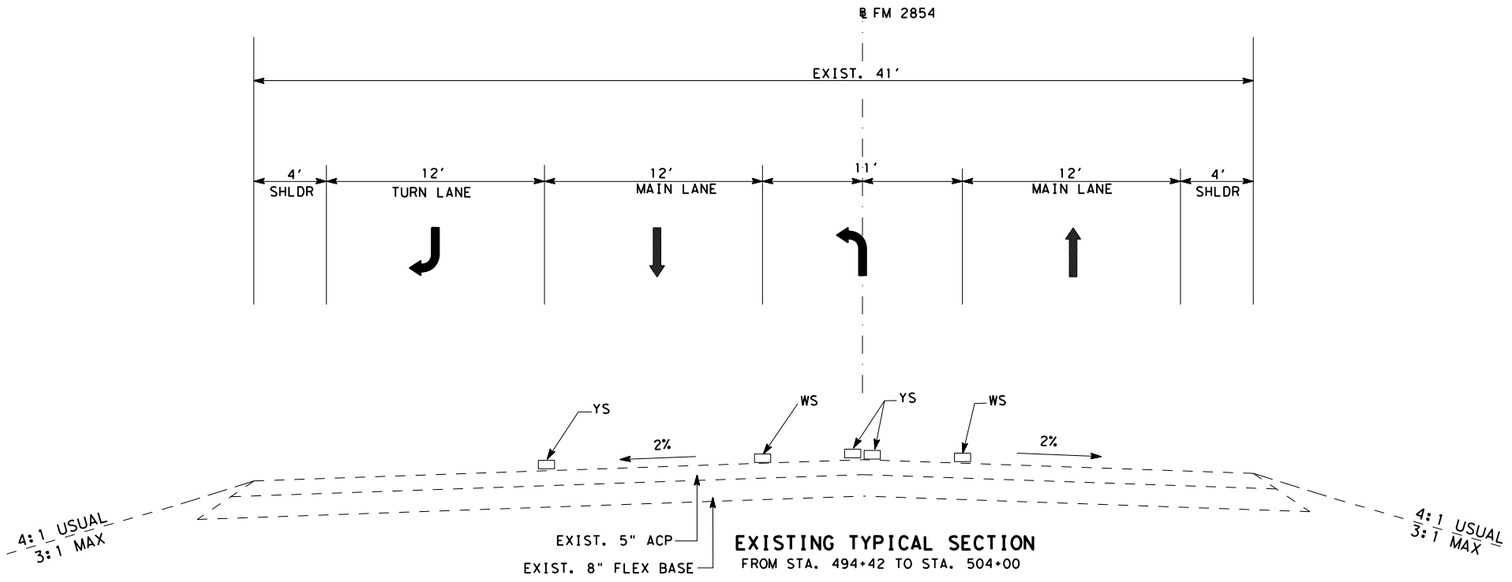
SHEET 7 OF 8

Texas Department of Transportation

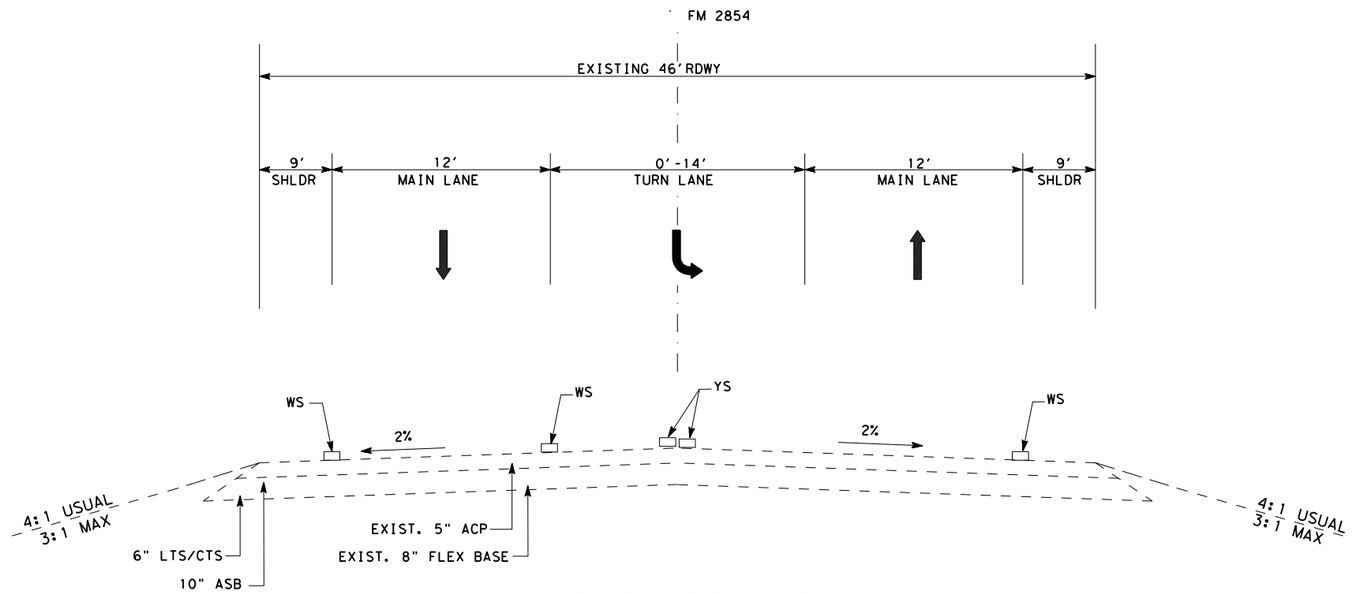
CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		7B

CK:
DW:
CK:
DN:

DATE: DATE TIME
FILE: DOCUMENT NAME



EXISTING TYPICAL SECTION
FROM STA. 494+42 TO STA. 504+00



EXISTING TYPICAL SECTION

FROM STA.576+00 TO 582+00
FROM STA.578+00 TO 592+00

LEGEND:

YS = YELLOW SOLID STRIPING
YB = YELLOW BROKEN STRIPING
WS = WHITE SOLID STRIPING
ASB = AGREGATE SUBBASE
CTS = CEMENT TREATED SUBGRADE
LTS = LIME TREATED SUBGRADE

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

Micah J. Schluter, P.E.

05.24.22

FM 2854
EXISTING TYPICAL SECTION

SHEET 8 OF 8

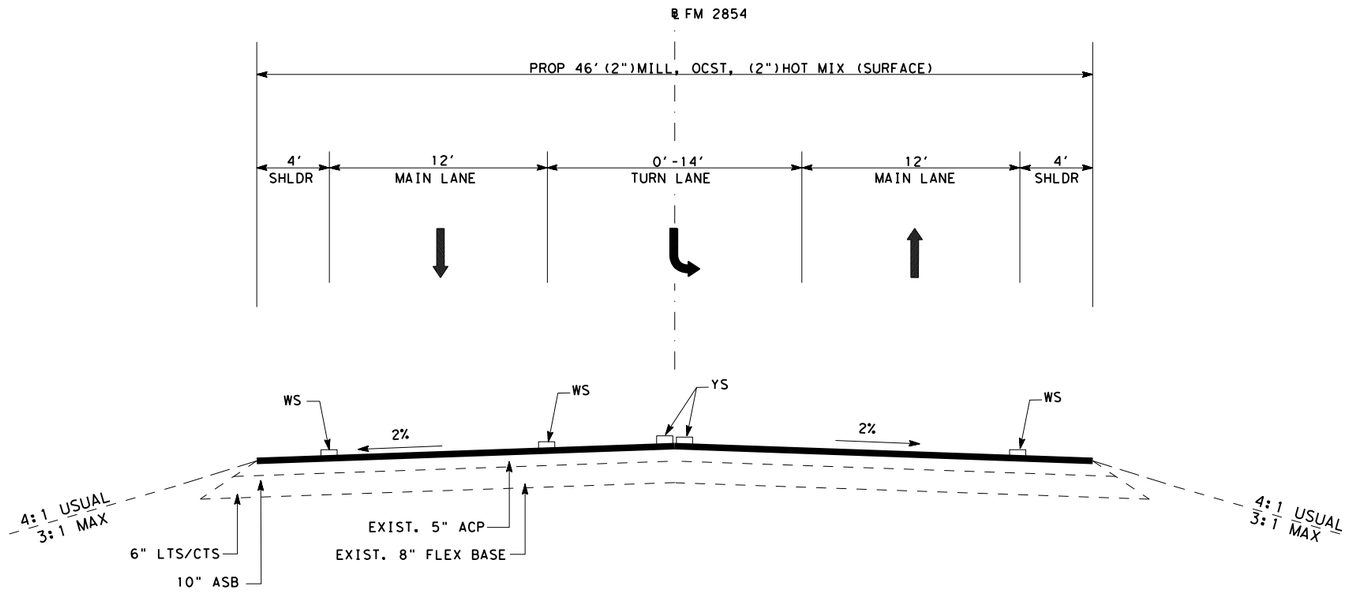
Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		7C

DATE: DATE TIME
FILE: DOCUMENT NAME

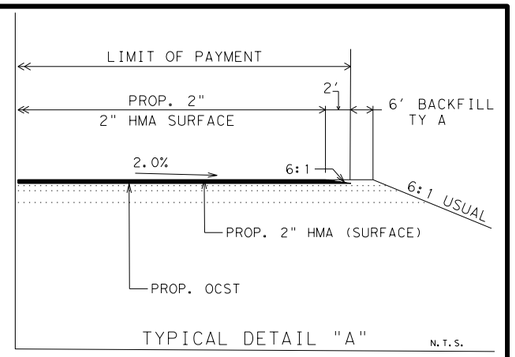
LEGEND:

YS = YELLOW SOLID STRIPING
YB = YELLOW BROKEN STRIPING
WS = WHITE SOLID STRIPING
ASB = AGREGATE SUBBASE
CTS = CEMENT TREATED SUBGRADE
LTS = LIME TREATED SUBGRADE

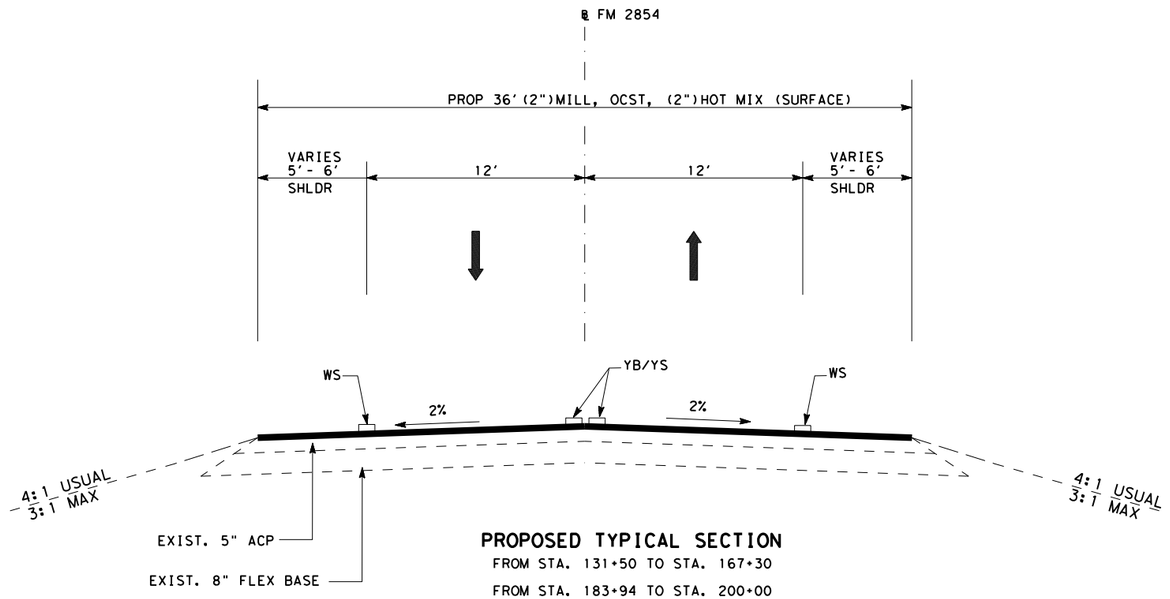


PROPOSED TYPICAL SECTION

FROM STA.128+52 TO 131+50



TYPICAL DETAIL "A" N.T.S.



PROPOSED TYPICAL SECTION

FROM STA. 131+50 TO STA. 167+30
FROM STA. 183+94 TO STA. 200+00
FROM STA. 229+00 TO STA. 261.60
FROM STA. 290+40 TO STA. 329+00
FROM STA. 724+35 TO STA. 747+35
FROM STA. 763+00 TO STA. 836+35
BRIDGE
FROM STA. 802+60 TO STA. 805+00

NOTE:
FOR PAVEMENT BID ITEM CODE AND DESCRIPTIONS
SEE SHEET 26 FM 2854,ETC.ROADWAY QUANTITY SUMMARY.

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

Micah J. Schluter, P.E.
05.24.22

FM 2854
PROPOSED TYPICAL SECTION

SHEET 1 OF 15

Texas Department of Transportation

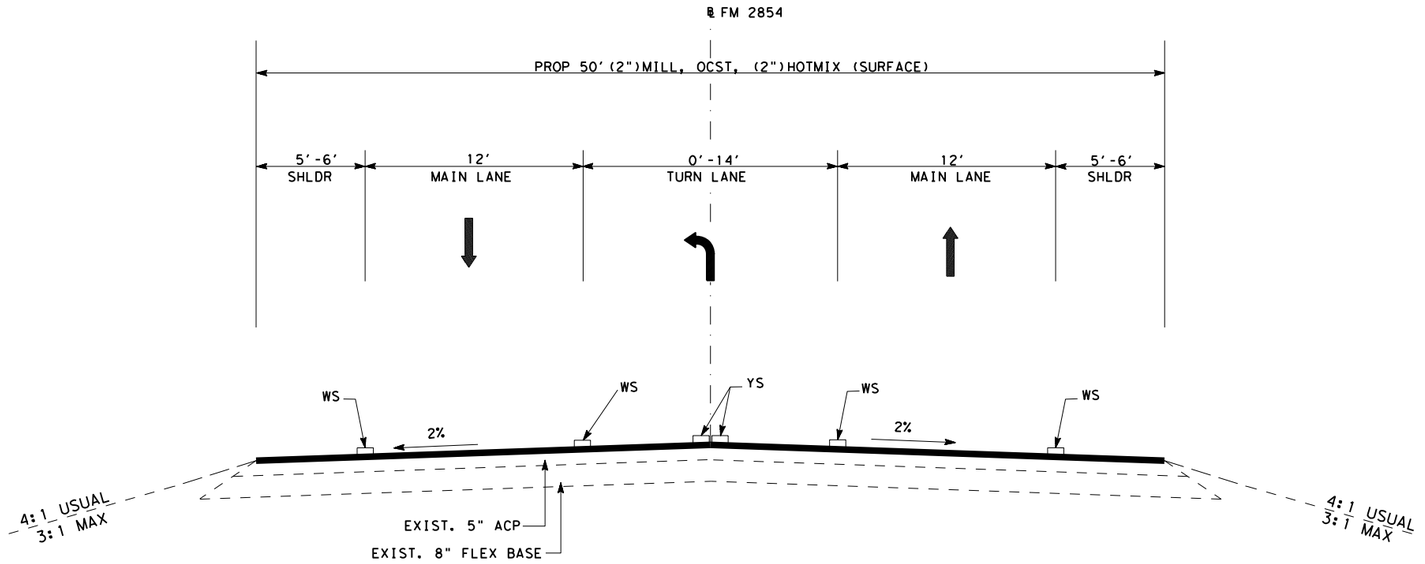
CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		8

DATE: DATE TIME
FILE: DOCUMENT NAME

CK:
DW:
CK:
DN:

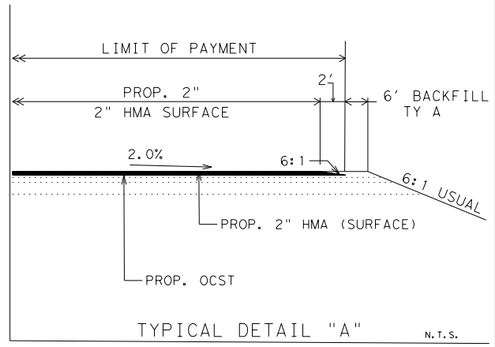
LEGEND:

YS = YELLOW SOLID STRIPING
YB = YELLOW BROKEN STRIPING
WS = WHITE SOLID STRIPING
ASB = AGREGATE SUBBASE
CTS = CEMENT TREATED SUBGRADE
LTS = LIME TREATED SUBGRADE

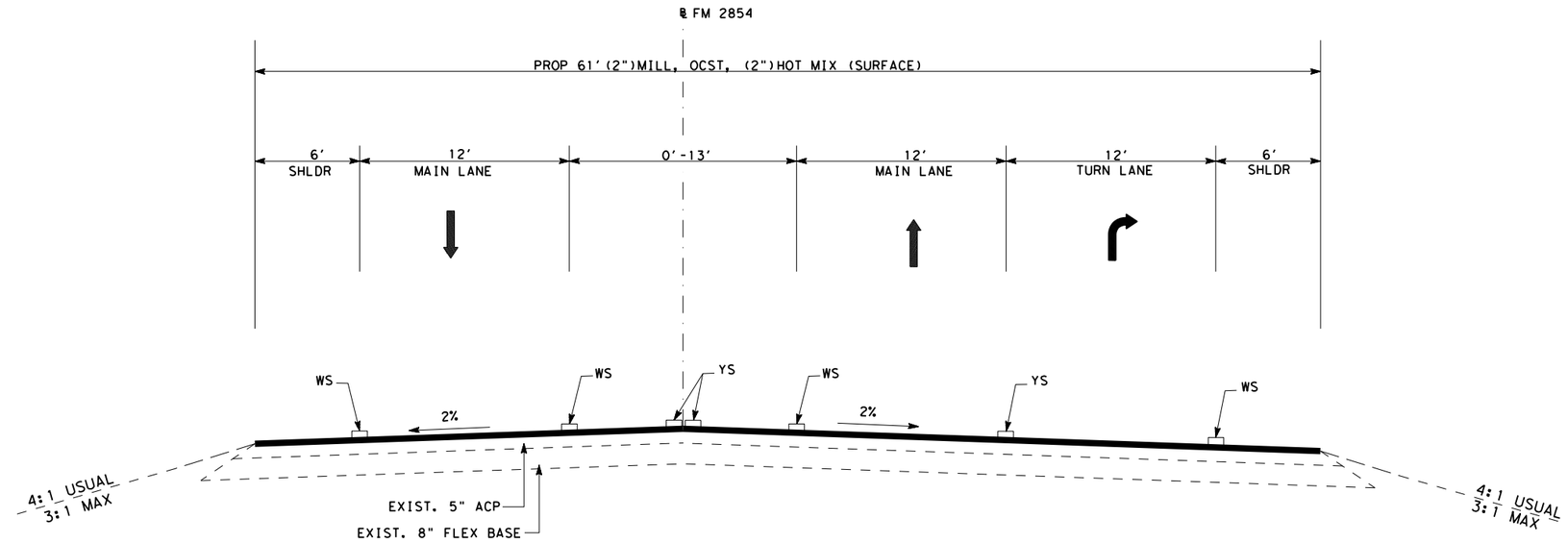


PROPOSED TYPICAL SECTION

FROM STA.167+30 TO 183+94



TYPICAL DETAIL "A" N.T.S.



PROPOSED TYPICAL SECTION

FROM STA.261+60 TO 265+10

NOTE:
FOR PAVEMENT BID ITEM CODE AND DESCRIPTIONS
SEE SHEET 26 FM 2854,ETC.ROADWAY QUANTITY SUMMARY.

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FILE: DOCUMENT NAME

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Micah J. Schluter, P.E.
05.24.22

FM 2854
PROPOSED TYPICAL SECTION

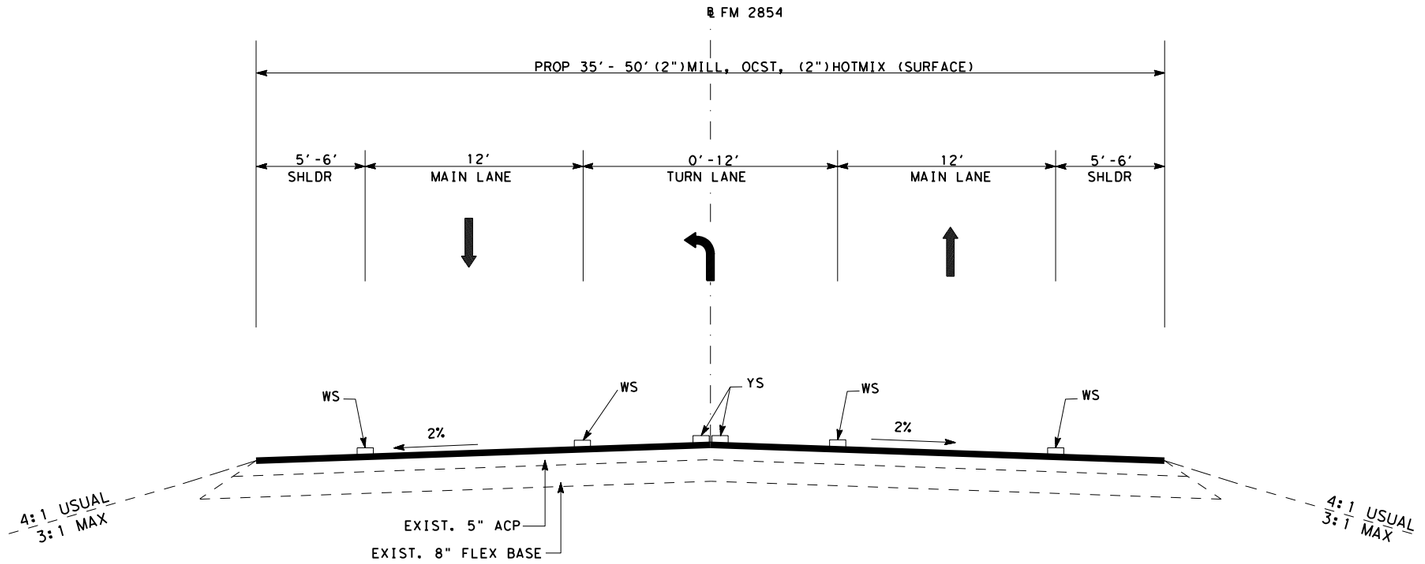
Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		9

CK:
DW:
CK:
DN:

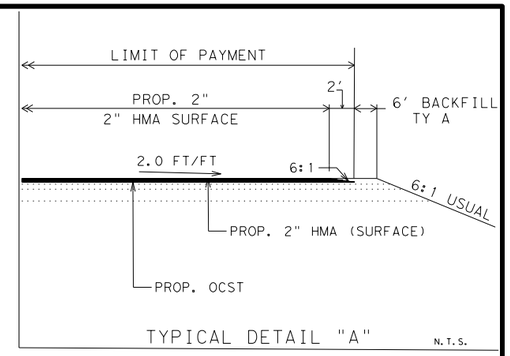
LEGEND:

YS = YELLOW SOLID STRIPING
YB = YELLOW BROKEN STRIPING
WS = WHITE SOLID STRIPING
ASB = AGREGATE SUBBASE
CTS = CEMENT TREATED SUBGRADE
LTS = LIME TREATED SUBGRADE

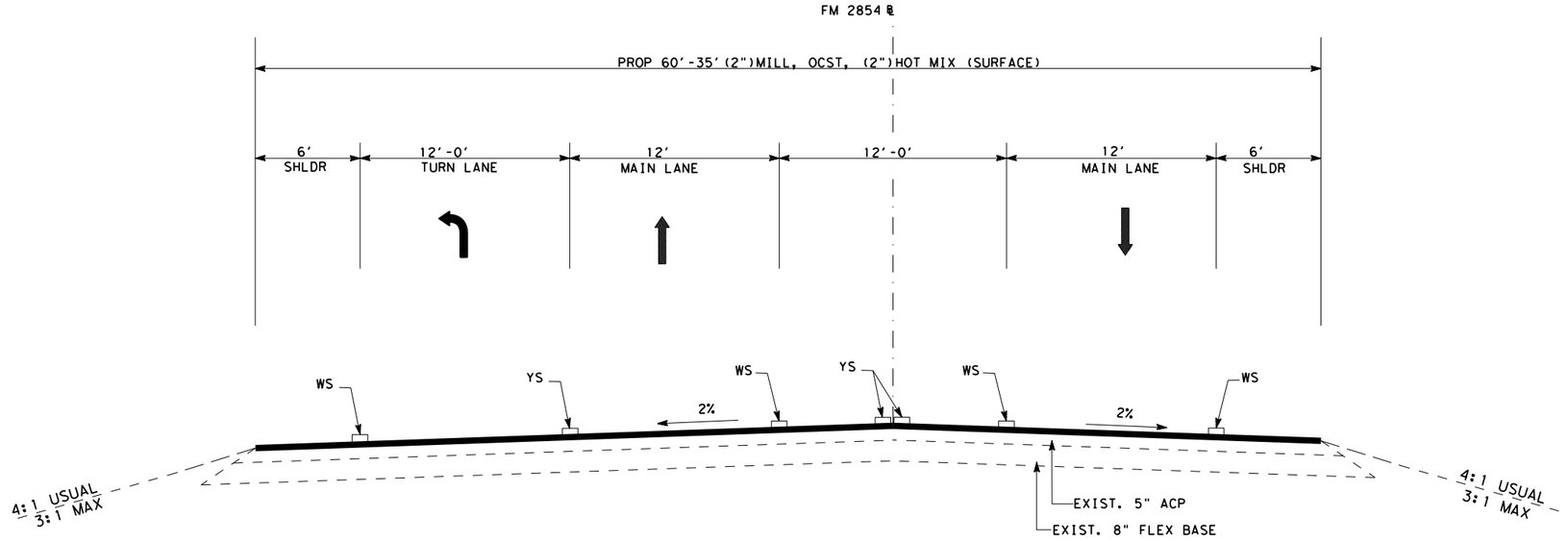


PROPOSED TYPICAL SECTION

FROM STA.200+00 TO 221+00



TYPICAL DETAIL "A" N.T.S.



PROPOSED TYPICAL SECTION

FROM STA.221+00 TO 229+00

NOTE:
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SEE SHEET 26 FM 2854,ETC.ROADWAY QUANTITY SUMMARY.

DATE: DATE TIME
FILE: DOCUMENT NAME

STATE OF TEXAS
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136908
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Micah J. Schluter, P.E.
05.24.22

FM 2854
PROPOSED TYPICAL SECTION

SHEET 3 OF 15

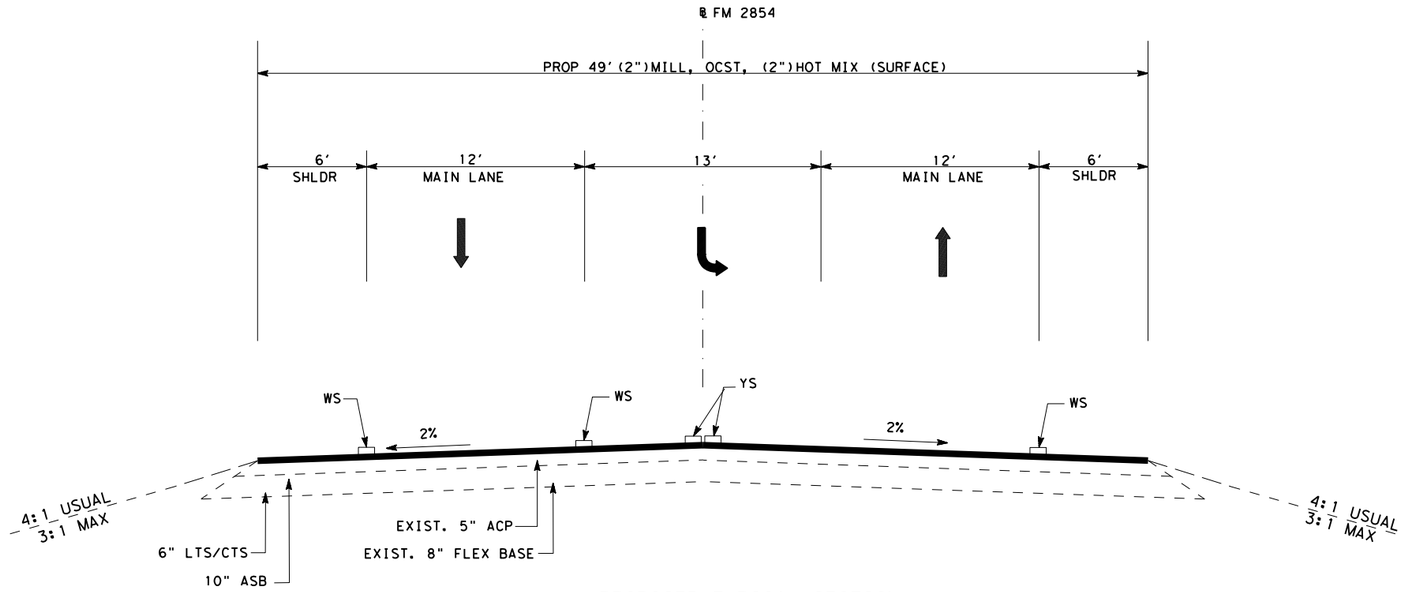
Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		10

CK:
DW:
CK:
DN:

LEGEND:

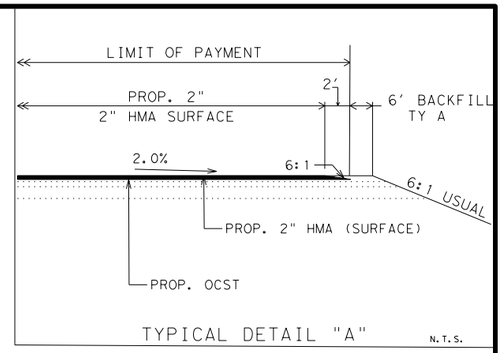
YS = YELLOW SOLID STRIPING
YB = YELLOW BROKEN STRIPING
WS = WHITE SOLID STRIPING
ASB = AGREGATE SUBBASE
CTS = CEMENT TREATED SUBGRADE
LTS = LIME TREATED SUBGRADE



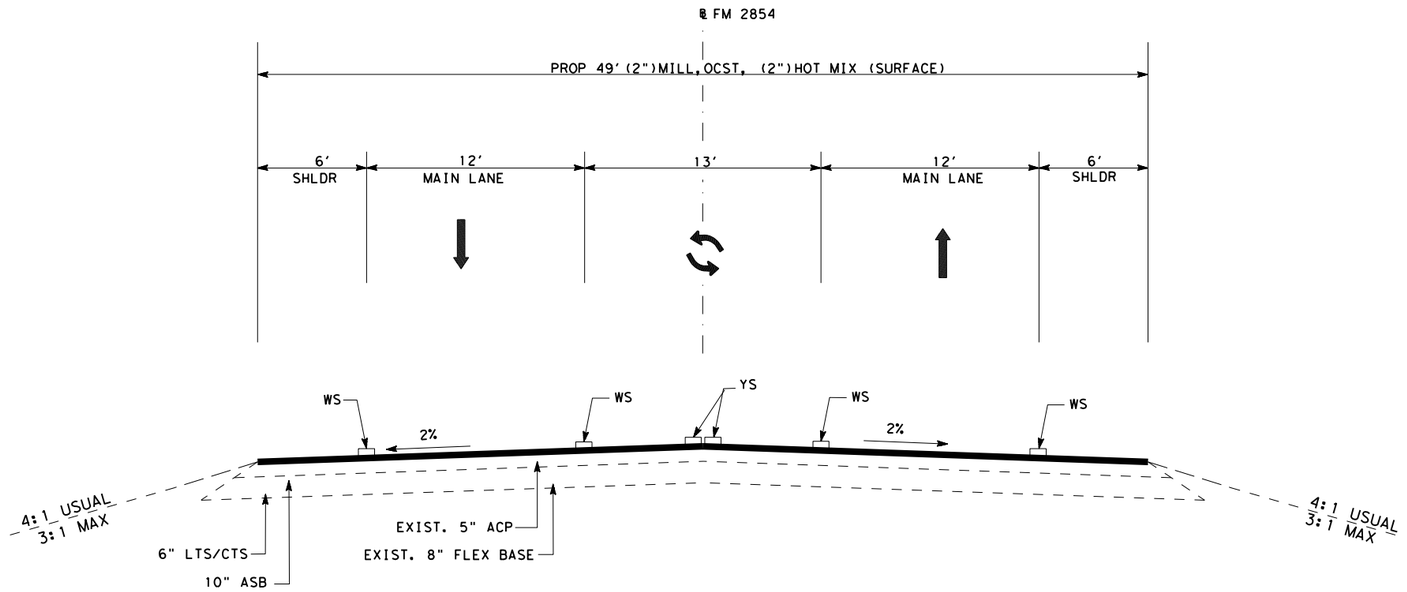
PROPOSED TYPICAL SECTION

FROM STA. 265+10 TO STA. 273+23

FROM STA. 278+89 TO STA. 290+40



TYPICAL DETAIL "A" N.T.S.



PROPOSED TYPICAL SECTION

FROM STA. 273+23 TO 278+89

NOTE:
FOR PAVEMENT BID ITEM CODE AND DESCRIPTIONS
SEE SHEET 26 FM 2854, ETC. ROADWAY QUANTITY SUMMARY.

DATE: DATE TIME
FILE: DOCUMENT NAME

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

Micah J. Schluter, P.E.

05.24.22

FM 2854
PROPOSED TYPICAL SECTION

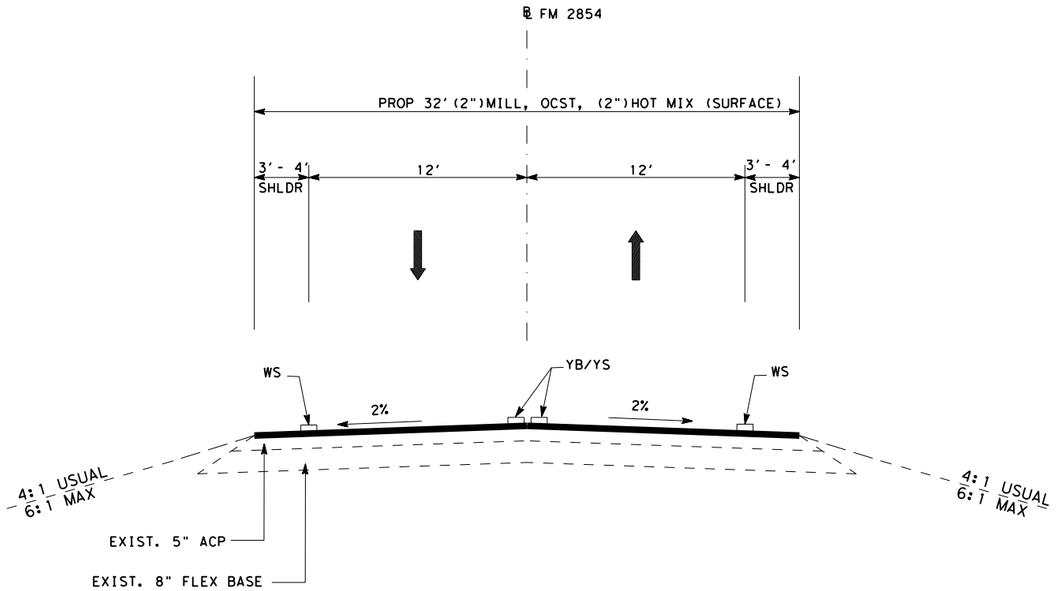
Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		11

CK:
DW:
CK:
DN:

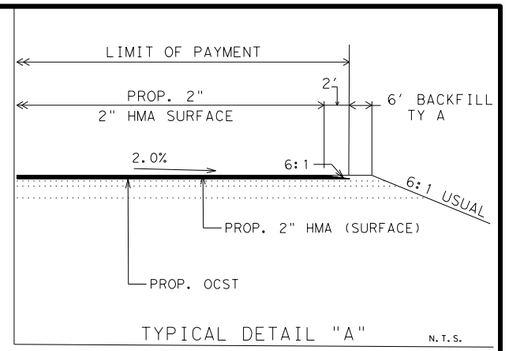
LEGEND:

YS = YELLOW SOLID STRIPING
YB = YELLOW BROKEN STRIPING
WS = WHITE SOLID STRIPING
ASB = AGREGATE SUBBASE
CTS = CEMENT TREATED SUBGRADE
LTS = LIME TREATED SUBGRADE



PROPOSED TYPICAL SECTION

FROM STA. 329+00 TO STA. 379+00
FROM STA. 394+57 TO STA. 401+48
FROM STA. 414+27 TO STA. 418+15
FROM STA. 431+78 TO STA. 463+35
FROM STA. 475+00 TO STA. 476+68
FROM STA. 483+34 TO STA. 484+50
FROM STA. 504+00 TO STA. 514+00
FROM STA. 525+47 TO STA. 551+00
FROM STA. 565+10 TO STA. 579+22
FROM STA. 605+36 TO STA. 625+48
FROM STA. 638+16 TO STA. 712+94



TYPICAL DETAIL "A" N.T.S.

NOTE:
FOR PAVEMENT BID ITEM CODE AND DESCRIPTIONS
SEE SHEET 26 FM 2854,ETC.ROADWAY QUANTITY SUMMARY.

DATE: DATE TIME
FILE: DOCUMENT NAME

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

Micah J. Schluter, P.E.
05.24.22

FM 2854
PROPOSED TYPICAL SECTION

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		12

LEGEND:

YS = YELLOW SOLID STRIPING
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WS = WHITE SOLID STRIPING
ASB = AGREGATE SUBBASE
CTS = CEMENT TREATED SUBGRADE
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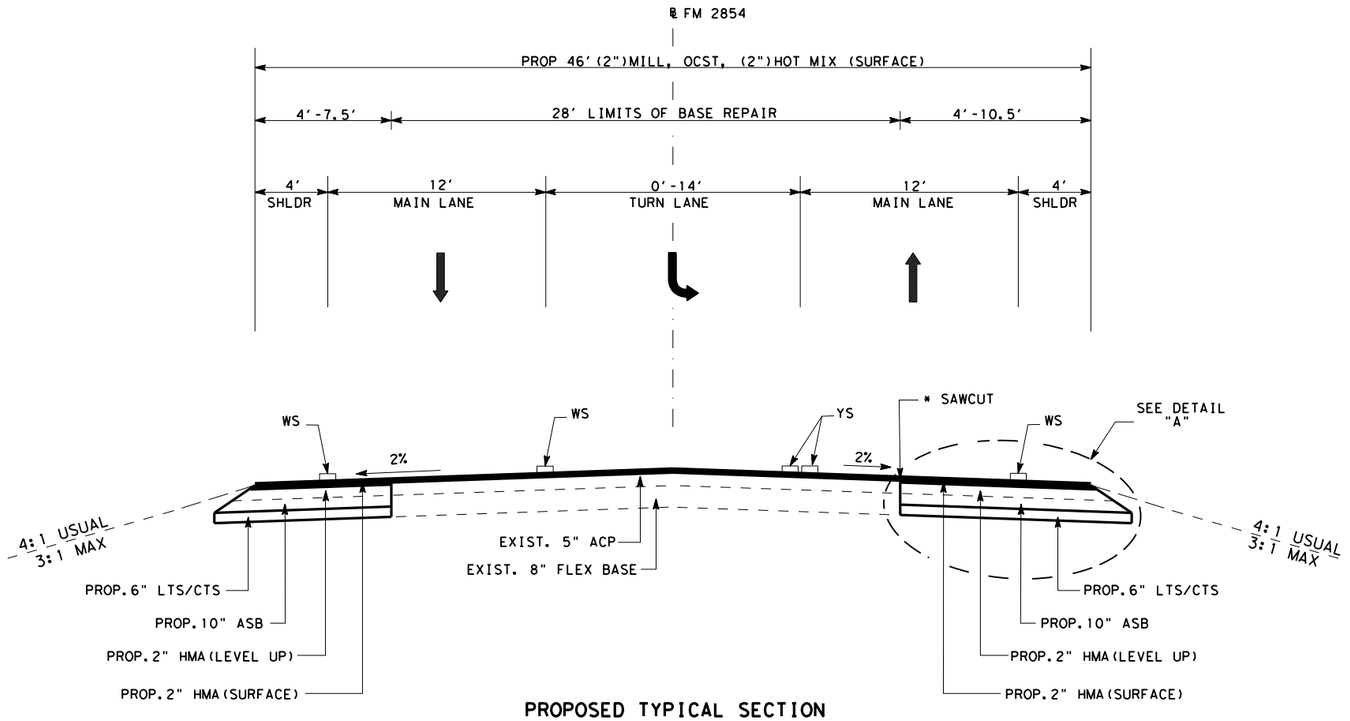
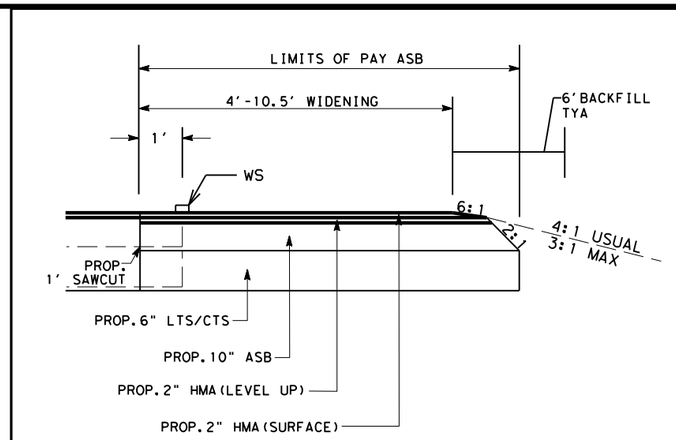


PROPOSED TYPICAL SECTION

FROM STA. 401+48 TO STA. 414+27
FROM STA. 418+15 TO STA. 431+78
FROM STA. 463+35 TO STA. 475+00
FROM STA. 401+48 TO STA. 414+27
FROM STA. 418+15 TO STA. 431+78
FROM STA. 463+35 TO STA. 475+00

LEFT TURN LANE AT:
COLLIER CEMETERY RD
DEER LAKE LODGE RD



TYPICAL DETAIL "A"

N.T.S.

NOTE:

1. SAWCUT TO BE PERFORMED 1' FROM EXISTING EDGE OF PAVEMENT.
2. SAWCUT WILL BE CONSIDERED INCIDENTAL TO OTHER PERTINENT BID ITEMS.
3. FOR PAVEMENT BID ITEM CODE AND DESCRIPTIONS SEE SHEET 26 FM 2854, ETC. ROADWAY QUANTITY SUMMARY.

STATE OF TEXAS
MICAH J. SCHLUTER
TO CHANGE
LICENSED
PROFESSIONAL ENGINEER

Micah J. Schluter, P.E.
05.24.22

FM 2854
PROPOSED TYPICAL SECTION

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		13

DATE: DATE TIME
FILE: DOCUMENT NAME

LEGEND:

YS = YELLOW SOLID STRIPING
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CTS = CEMENT TREATED SUBGRADE
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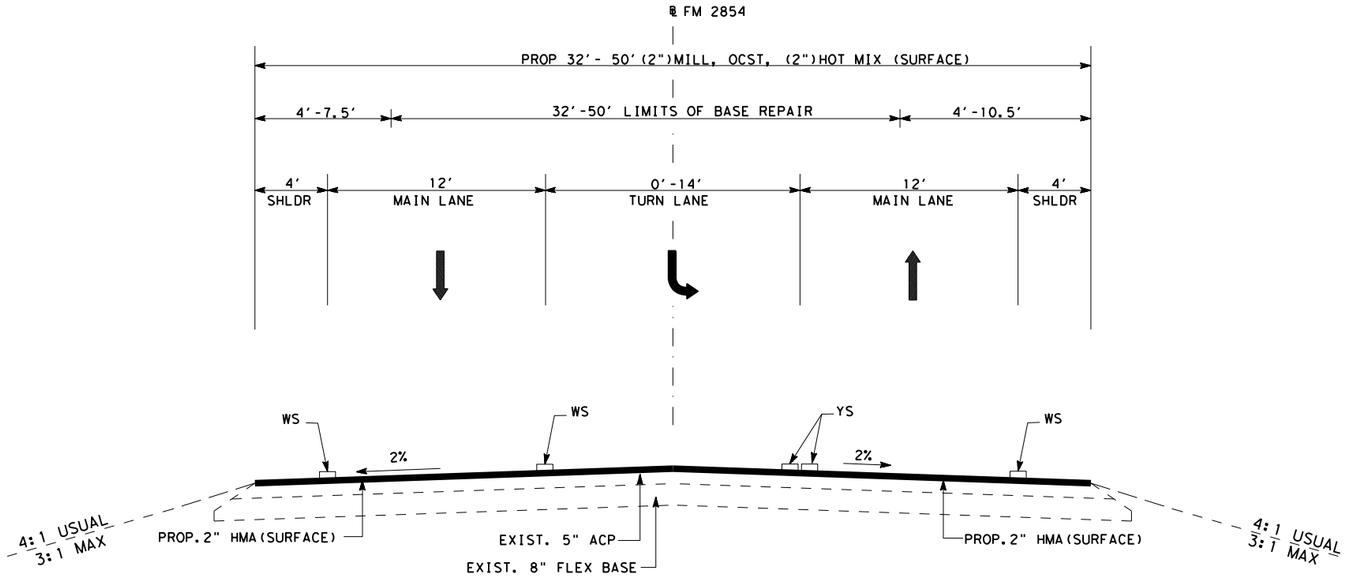
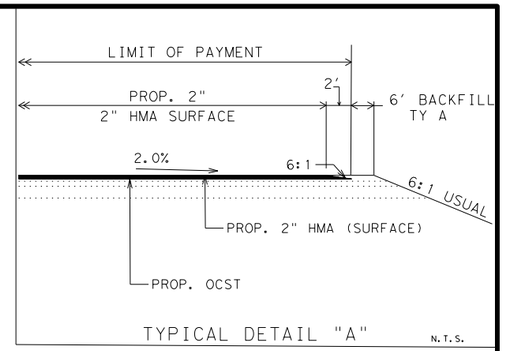
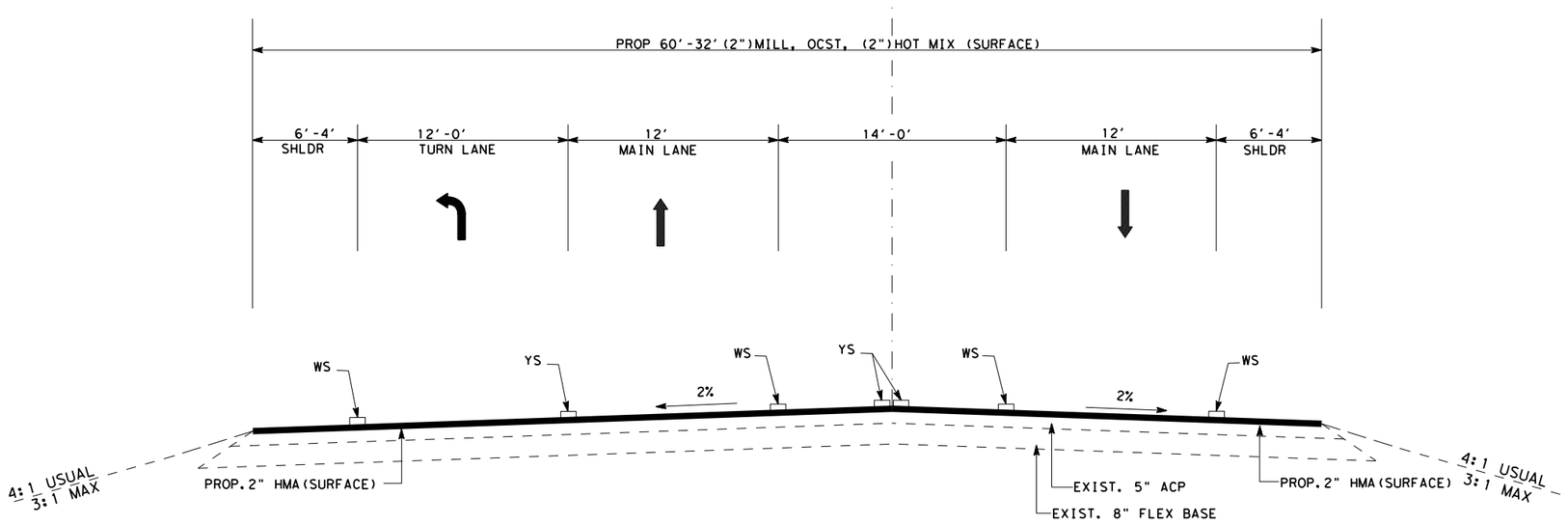


PROPOSED TYPICAL SECTION

FROM STA. 379+00 TO STA. 389+00





PROPOSED TYPICAL SECTION

FROM STA. 389+00 TO STA. 394+57

STATE OF TEXAS
MICAH J. SCHLUTER
TO CHANGE
LICENSED
PROFESSIONAL ENGINEER

Micah J. Schluter, P.E.

05.24.22

FM 2854
PROPOSED TYPICAL SECTION

N.T.S.

SHEET 7 OF 15

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		14

DATE: DATE TIME
FILE: DOCUMENT NAME

LEGEND:

YS = YELLOW SOLID STRIPING
YB = YELLOW BROKEN STRIPING
WS = WHITE SOLID STRIPING
ASB = AGREGATE SUBBASE
CTS = CEMENT TREATED SUBGRADE
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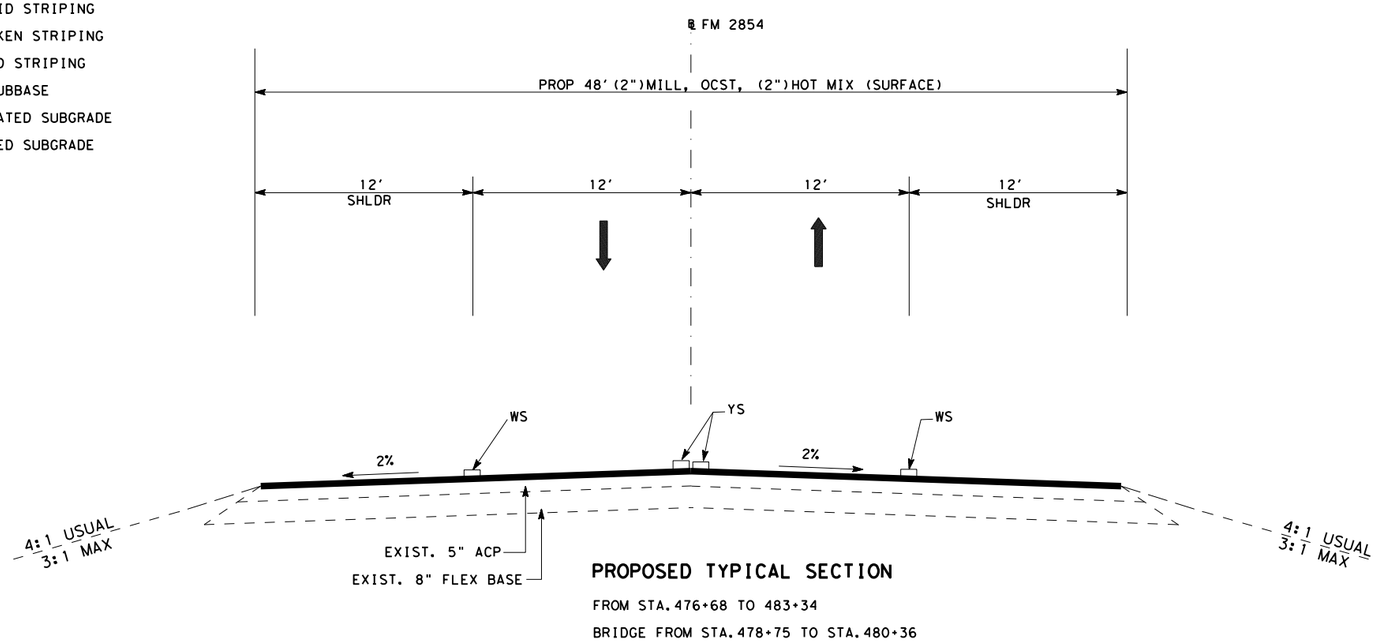
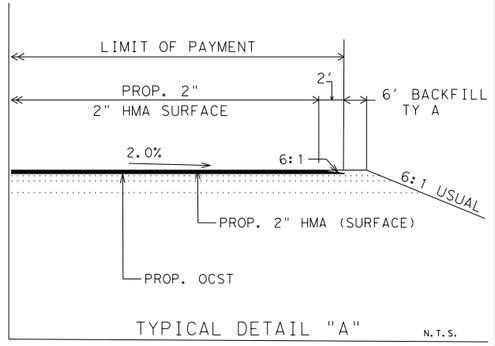
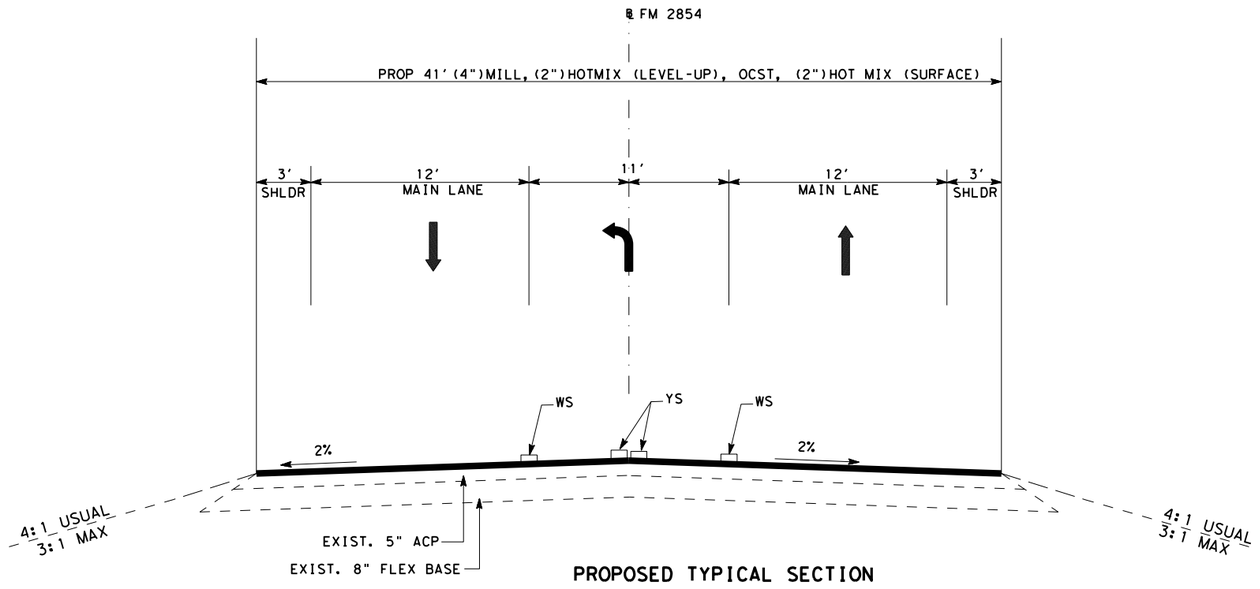


PROPOSED TYPICAL SECTION

FROM STA. 476+68 TO 483+34
BRIDGE FROM STA. 478+75 TO STA. 480+36



TYPICAL DETAIL "A" N.T.S.



PROPOSED TYPICAL SECTION

FROM STA. 484+50 TO STA. 494+42

NOTE:
FOR PAVEMENT BID ITEM CODE AND DESCRIPTIONS
SEE SHEET 26 FM 2854,ETC. ROADWAY QUANTITY SUMMARY.

STATE OF TEXAS
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Micah J. Schluter P.E.
05.24.22

FM 2854
PROPOSED TYPICAL SECTION

SHEET 8 OF 15

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		15

DATE: DATE TIME
FILE: DOCUMENT NAME

CK:
DW:
CK:
DN:

LEGEND:

YS = YELLOW SOLID STRIPING
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WS = WHITE SOLID STRIPING
ASB = AGREGATE SUBBASE
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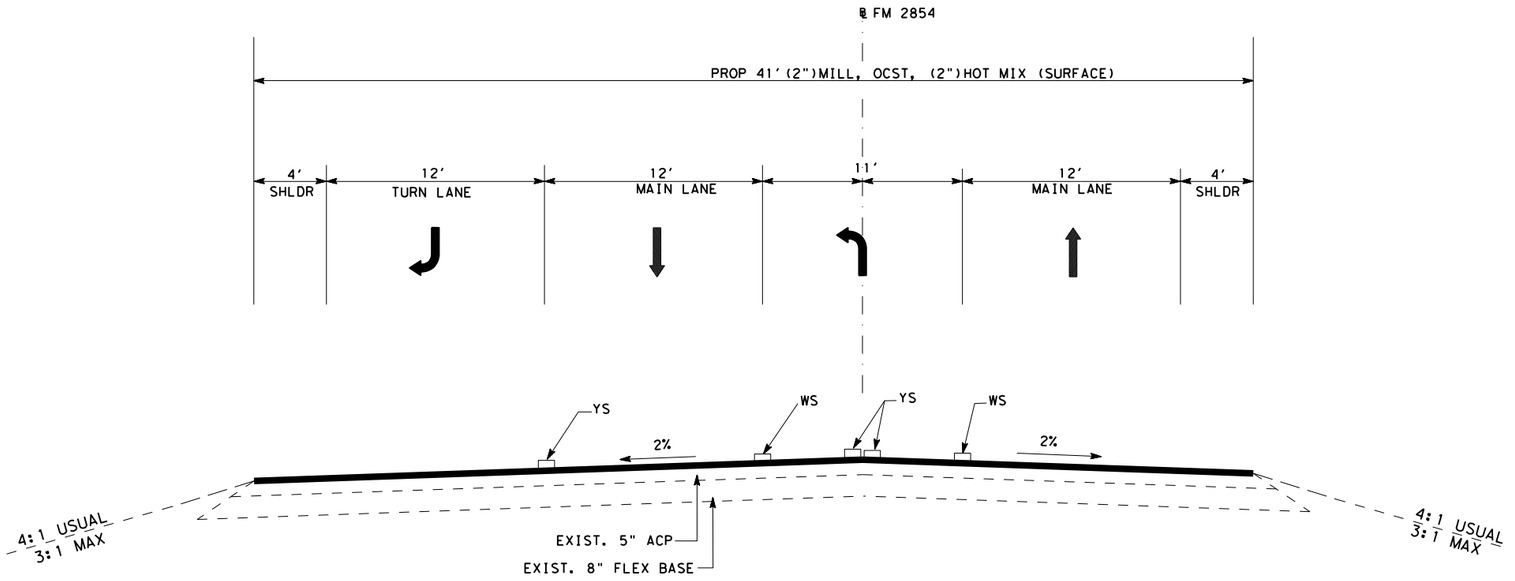

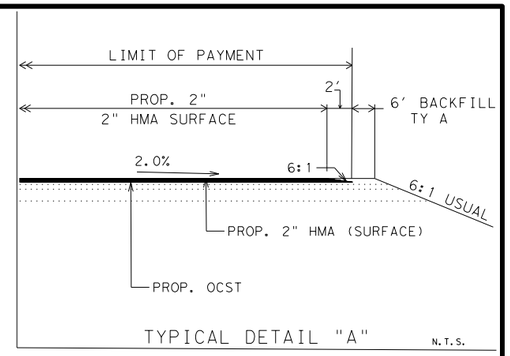

PROPOSED TYPICAL SECTION

FROM STA. 494+42 TO STA. 504+00
FROM STA. 592+55 TO STA. 605+36

NOTE:
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DATE: DATE TIME
FILE: DOCUMENT NAME

STATE OF TEXAS
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136908
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PROFESSIONAL ENGINEER

Micah J. Schluter, P.E.
05.24.22

FM 2854
PROPOSED TYPICAL SECTION

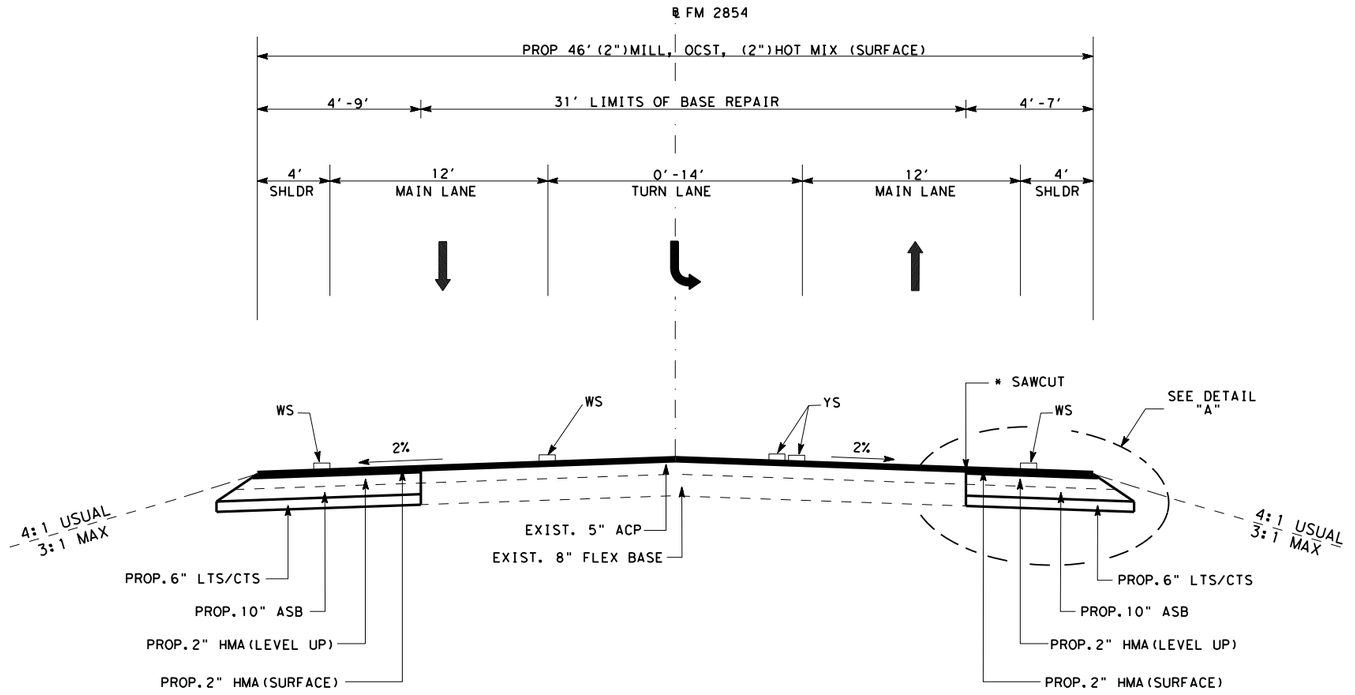
SHEET 9 OF 15

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		16

LEGEND:

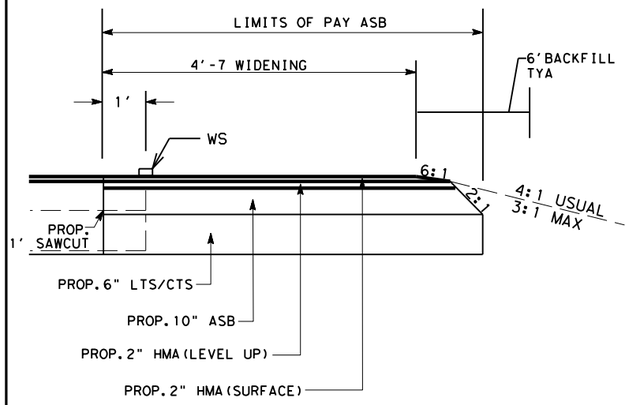
YS = YELLOW SOLID STRIPING
YB = YELLOW BROKEN STRIPING
WS = WHITE SOLID STRIPING
ASB = AGREGATE SUBBASE
CTS = CEMENT TREATED SUBGRADE
LTS = LIME TREATED SUBGRADE



PROPOSED TYPICAL SECTION

FROM STA. 514+00 TO 525+47.00

LEFT TURN LANE AT:
JOHNSON RD



TYPICAL DETAIL "A"

N.T.S.

NOTE:

1. SAWCUT TO BE PERFORMED 1' FROM EXISTING EDGE OF PAVEMENT.
2. SAWCUT WILL BE CONSIDERED INCIDENTAL TO OTHER PERTINENT BID ITEMS.
3. FOR PAVEMENT BID ITEM CODE AND DESCRIPTIONS SEE SHEET 26 FM 2854,ETC. ROADWAY QUANTITY SUMMARY.

STATE OF TEXAS
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136908
LICENSED PROFESSIONAL ENGINEER

Micah J. Schluter, P.E.
05.24.22

FM 2854
PROPOSED TYPICAL SECTION

SHEET 10 OF 15

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		17

DATE: DATE TIME
FILE: DOCUMENT NAME

CK:
DW:
CK:
DN:

LEGEND:

YS = YELLOW SOLID STRIPING
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WS = WHITE SOLID STRIPING
ASB = AGREGATE SUBBASE
CTS = CEMENT TREATED SUBGRADE
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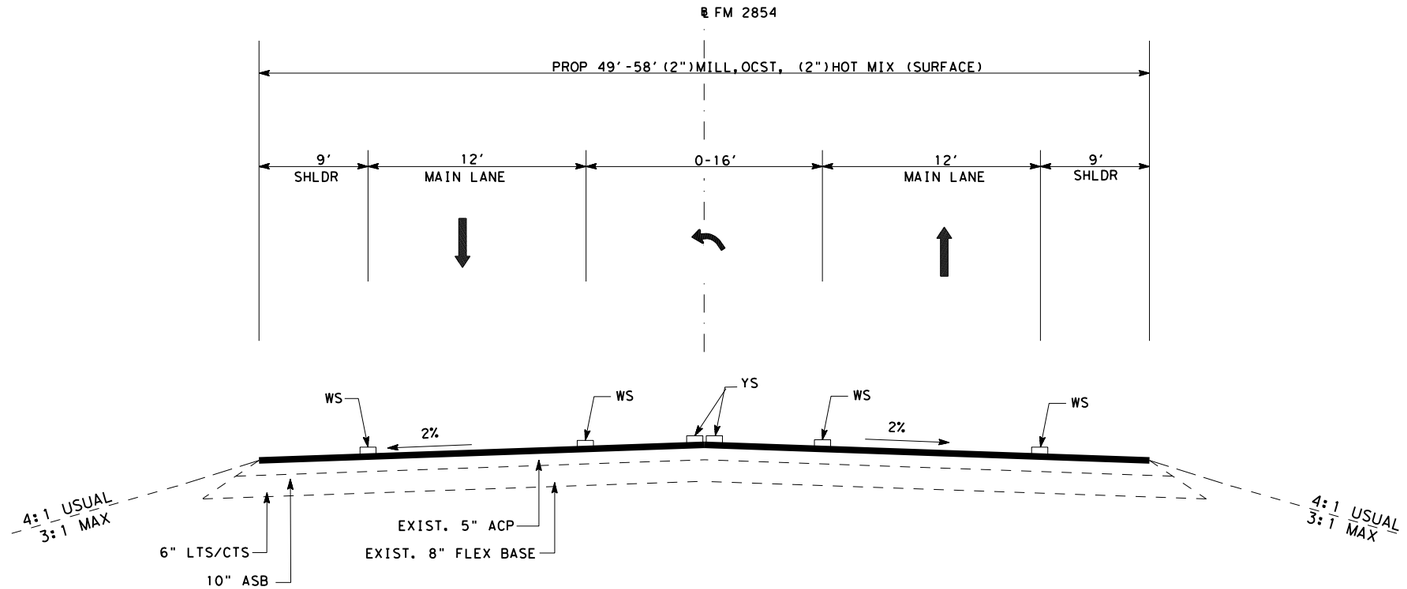
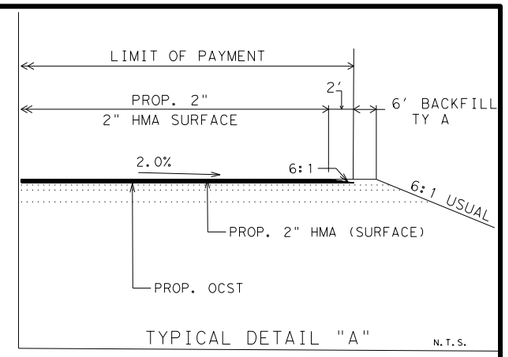


PROPOSED TYPICAL SECTION

FROM STA. 579+22 TO 592+55



TYPICAL DETAIL "A" N.T.S.

NOTE:
FOR PAVEMENT BID ITEM CODE AND DESCRIPTIONS
SEE SHEET 26 FM 2854,ETC. ROADWAY QUANTITY SUMMARY.

STATE OF TEXAS
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Micah J. Schluter, P.E.
05.24.22

FM 2854
PROPOSED TYPICAL SECTION

SHEET 11 OF 15

Texas Department of Transportation

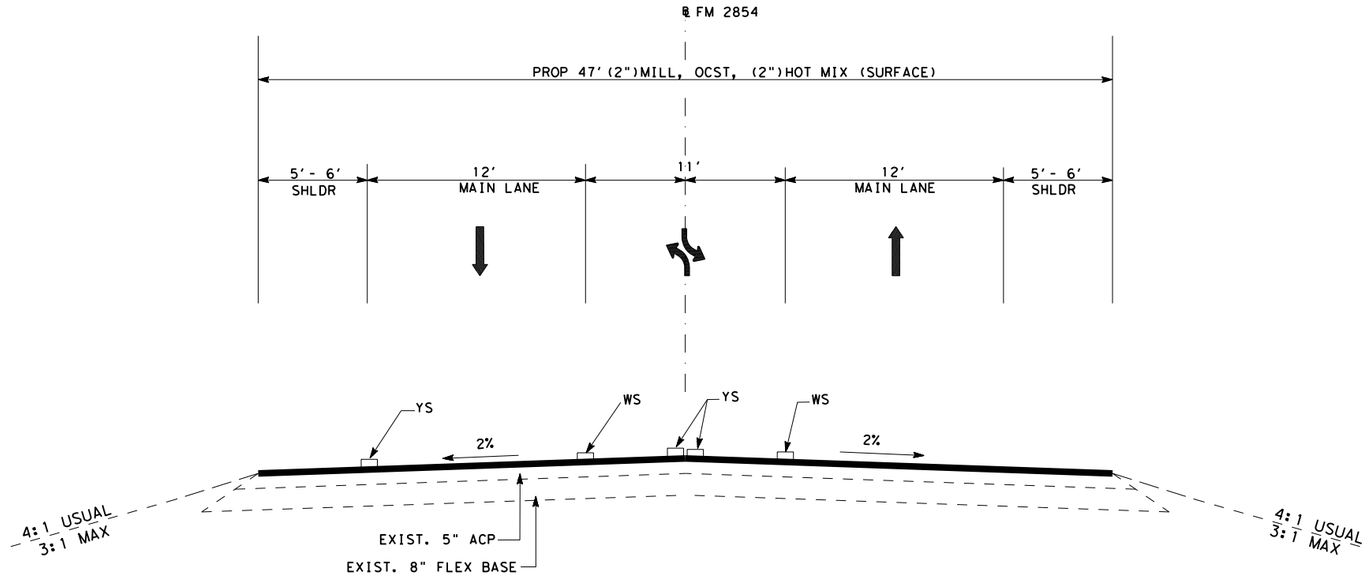
CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		18

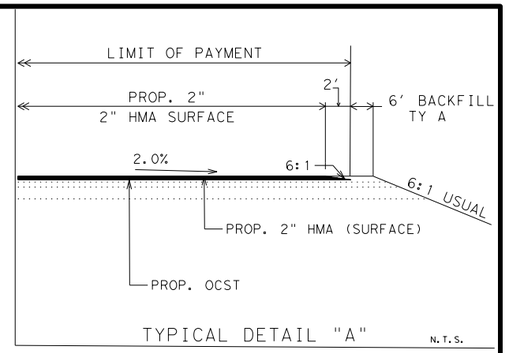
DATE: DATE TIME
FILE: DOCUMENT NAME

CK:
DW:
CK:
DN:

LEGEND:

YS = YELLOW SOLID STRIPING
YB = YELLOW BROKEN STRIPING
WS = WHITE SOLID STRIPING
ASB = AGREGATE SUBBASE
CTS = CEMENT TREATED SUBGRADE
LTS = LIME TREATED SUBGRADE





TYPICAL DETAIL "A" N.T.S.

PROPOSED TYPICAL SECTION

FROM STA. 592+55 TO STA. 602+25

NOTE:
FOR PAVEMENT BID ITEM CODE AND DESCRIPTIONS
SEE SHEET 26 FM 2854,ETC. ROADWAY QUANTITY SUMMARY.

STATE OF TEXAS
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136908
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Micah J. Schluter, P.E.
05.24.22

FM 2854
PROPOSED TYPICAL SECTION

SHEET 12 OF 15

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		19

DATE: DATE TIME
FILE: DOCUMENT NAME

LEGEND:

YS = YELLOW SOLID STRIPING
YB = YELLOW BROKEN STRIPING
WS = WHITE SOLID STRIPING
ASB = AGREGATE SUBBASE
CTS = CEMENT TREATED SUBGRADE
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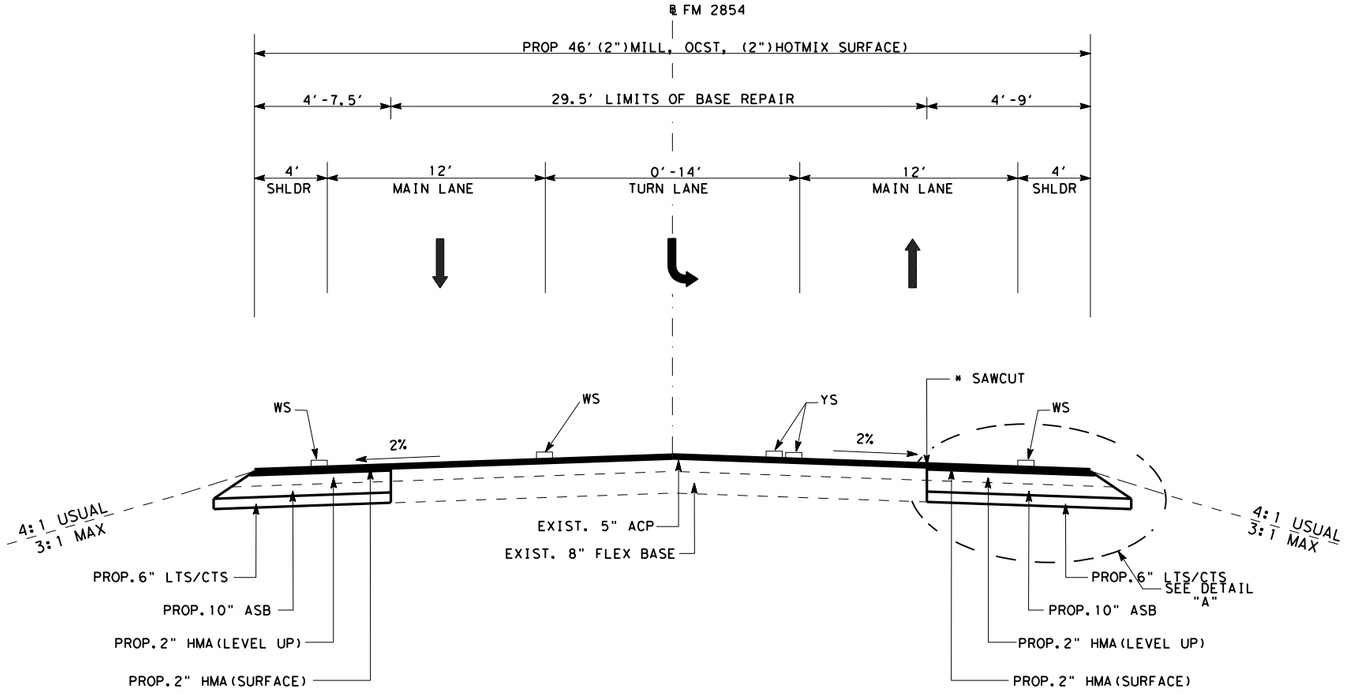
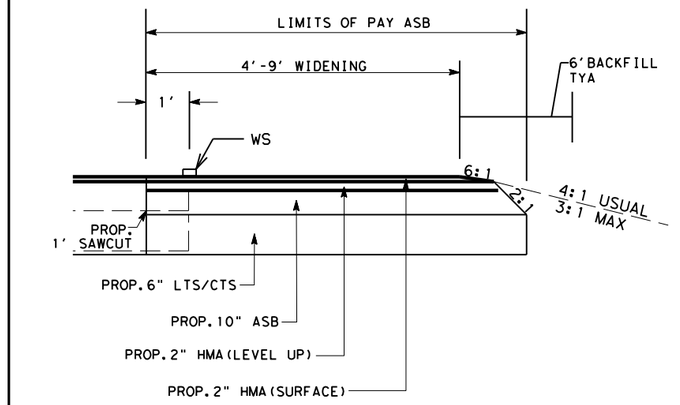


PROPOSED TYPICAL SECTION

FROM STA.625+48 TO STA. 638+16

LEFT TURN LANE AT:
PONDEROSA DR



TYPICAL DETAIL "A"

N.T.S.

NOTE:

1. SAWCUT TO BE PERFORMED 1' FROM EXISTING EDGE OF PAVEMENT.
2. SAWCUT WILL BE CONSIDERED INCIDENTAL TO OTHER PERTINENT BID ITEMS.
3. FOR PAVEMENT BID ITEM CODE AND DESCRIPTIONS SEE SHEET 26 FM 2854,ETC.ROADWAY QUANTITY SUMMARY.

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

Micah J. Schluter, P.E.
05.24.22

FM 2854
PROPOSED TYPICAL SECTION

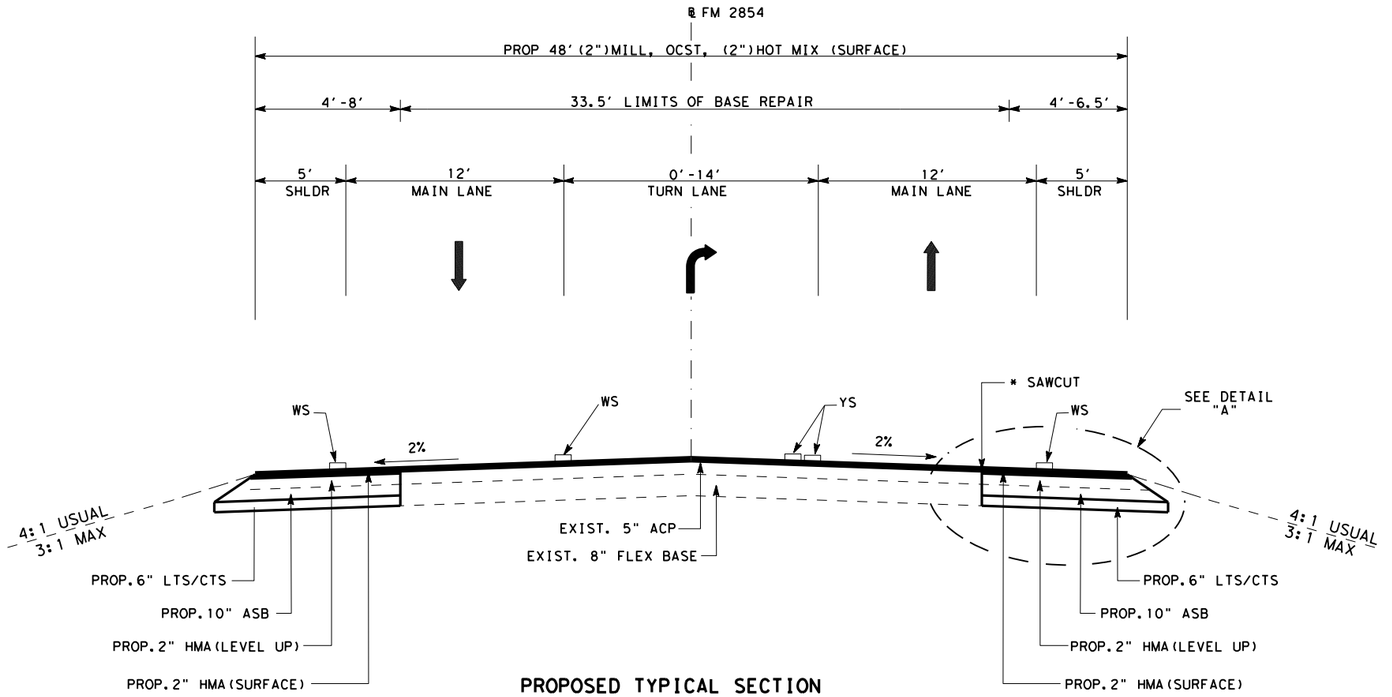
Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		19A

DATE: DATE TIME
FILE: DOCUMENT NAME

LEGEND:

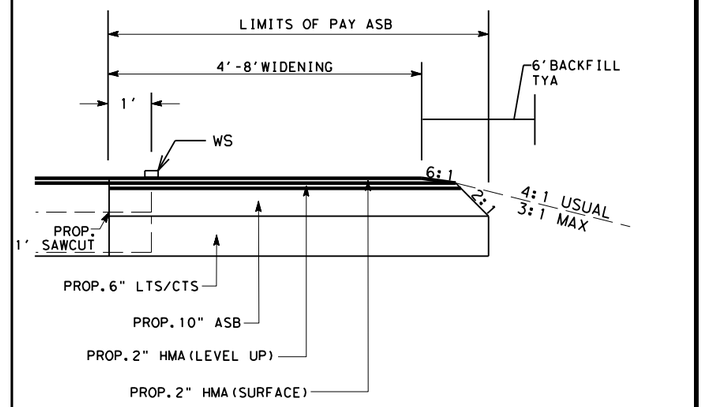
YS = YELLOW SOLID STRIPING
YB = YELLOW BROKEN STRIPING
WS = WHITE SOLID STRIPING
ASB = AGREGATE SUBBASE
CTS = CEMENT TREATED SUBGRADE
LTS = LIME TREATED SUBGRADE



PROPOSED TYPICAL SECTION

FROM STA. 712+94 TO STA. 724.35

LEFT AND RIGHT TURN LANE AT:
OLD HWY 105 W



TYPICAL DETAIL "A"

N. T. S.

NOTE:

1. SAWCUT TO BE PERFORMED 1' FROM EXISTING EDGE OF PAVEMENT.
2. SAWCUT WILL BE CONSIDERED INCIDENTAL TO OTHER PERTINENT BID ITEMS.
3. FOR PAVEMENT BID ITEM CODE AND DESCRIPTIONS
   SEE SHEET 26 FM 2854, ETC. ROADWAY QUANTITY SUMMARY.

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

Micah J. Schluter P.E.

05.24.22

FM 2854
PROPOSED TYPICAL SECTION

SHEET 14 OF 15

Texas Department of Transportation

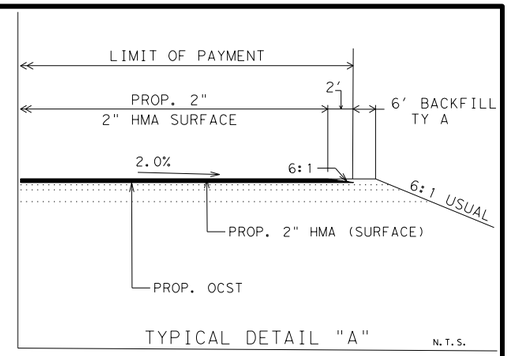
CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		19B

DATE: DATE TIME
FILE: DOCUMENT NAME

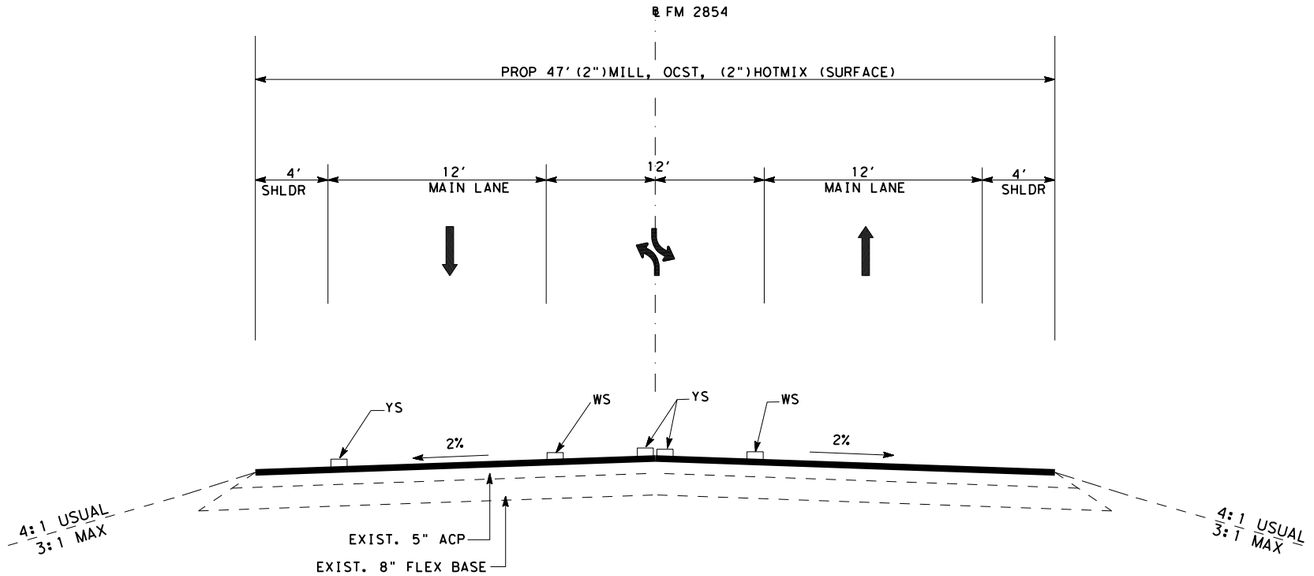
CK:
DW:
CK:
DN:

LEGEND:

YS = YELLOW SOLID STRIPING
YB = YELLOW BROKEN STRIPING
WS = WHITE SOLID STRIPING
ASB = AGREGATE SUBBASE
CTS = CEMENT TREATED SUBGRADE
LTS = LIME TREATED SUBGRADE



TYPICAL DETAIL "A" N.T.S.



PROPOSED TYPICAL SECTION

FROM STA. 747+35 TO STA. 763+00

NOTE:
FOR PAVEMENT BID ITEM CODE AND DESCRIPTIONS
SEE SHEET 26 FM 2854, ETC. ROADWAY QUANTITY SUMMARY.

DATE: DATE TIME
FILE: DOCUMENT NAME

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

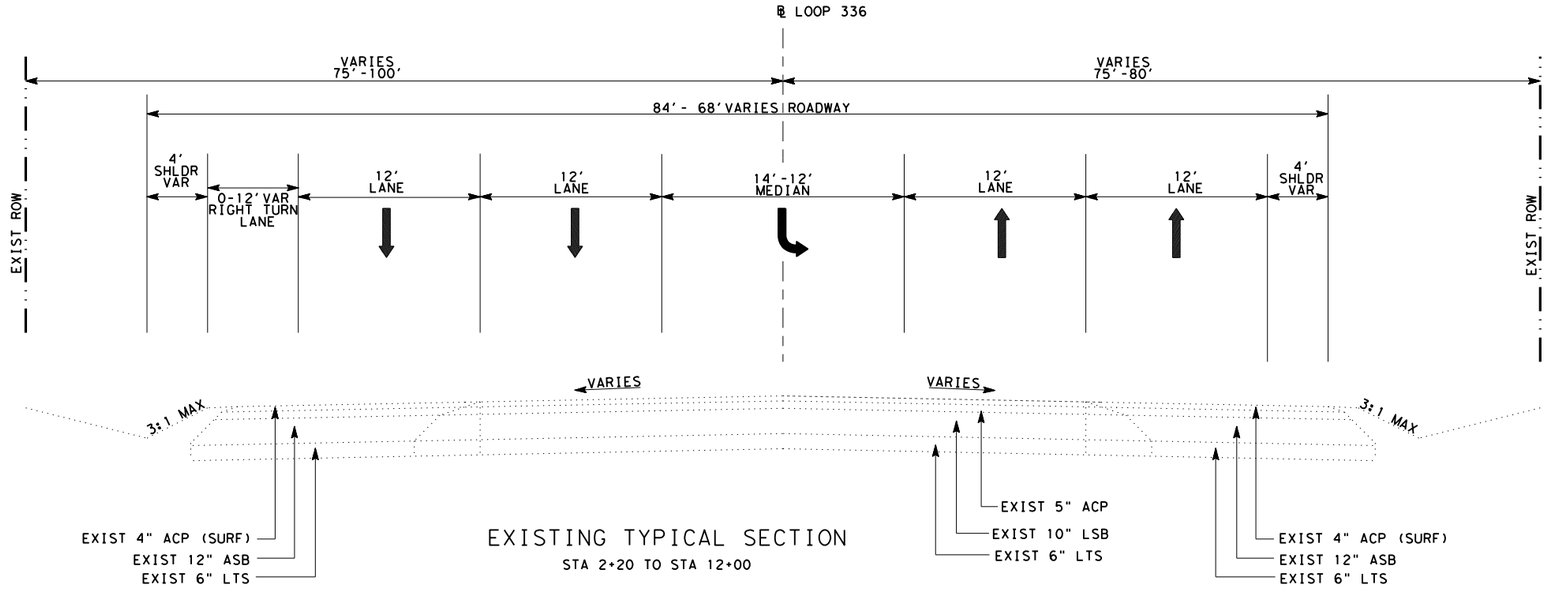
Micah J. Schluter, P.E.
05.24.22

FM 2854
PROPOSED TYPICAL SECTION

SHEET 15 OF 15

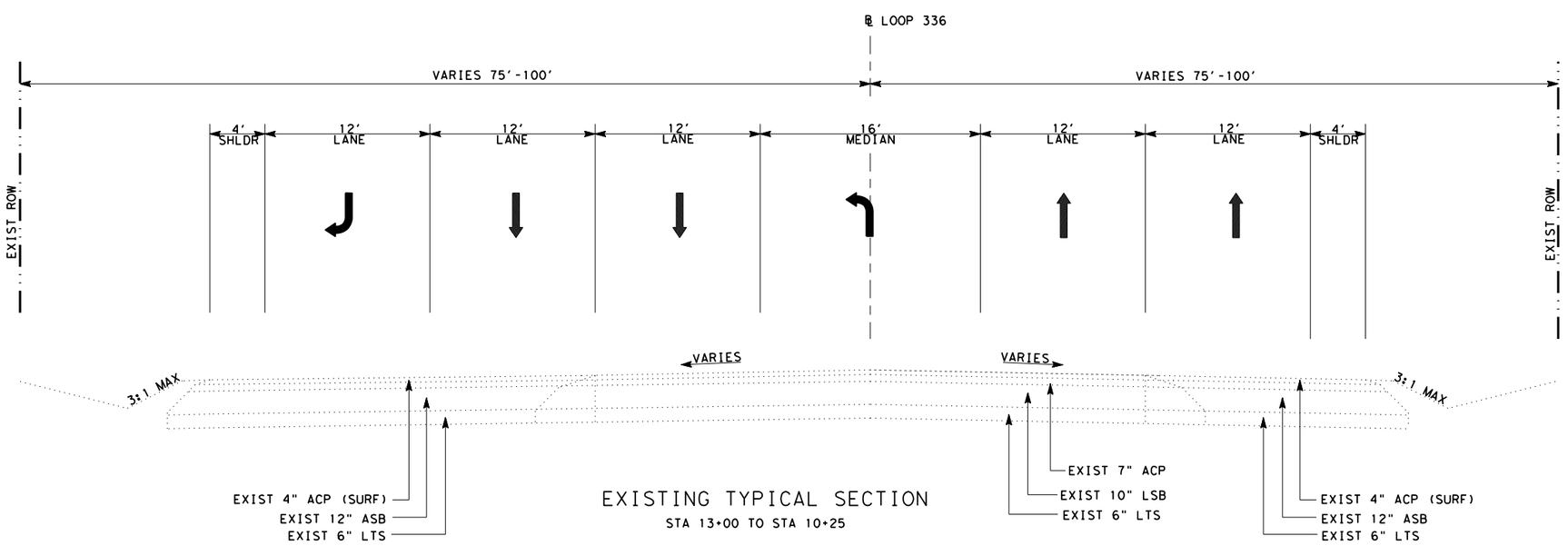
Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		19C



EXISTING TYPICAL SECTION

STA 2+20 TO STA 12+00



EXISTING TYPICAL SECTION

STA 13+00 TO STA 10+25

LEGEND

ACP - ASPHALT CONCRETE PAVEMENT
ASB - ASPHALT STABILIZED BASE
LSB - LIME STABILIZED BASE
LTS - LIME TREATED SUBGRADE

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

Micah J. Schluter P.E.

05.24.22

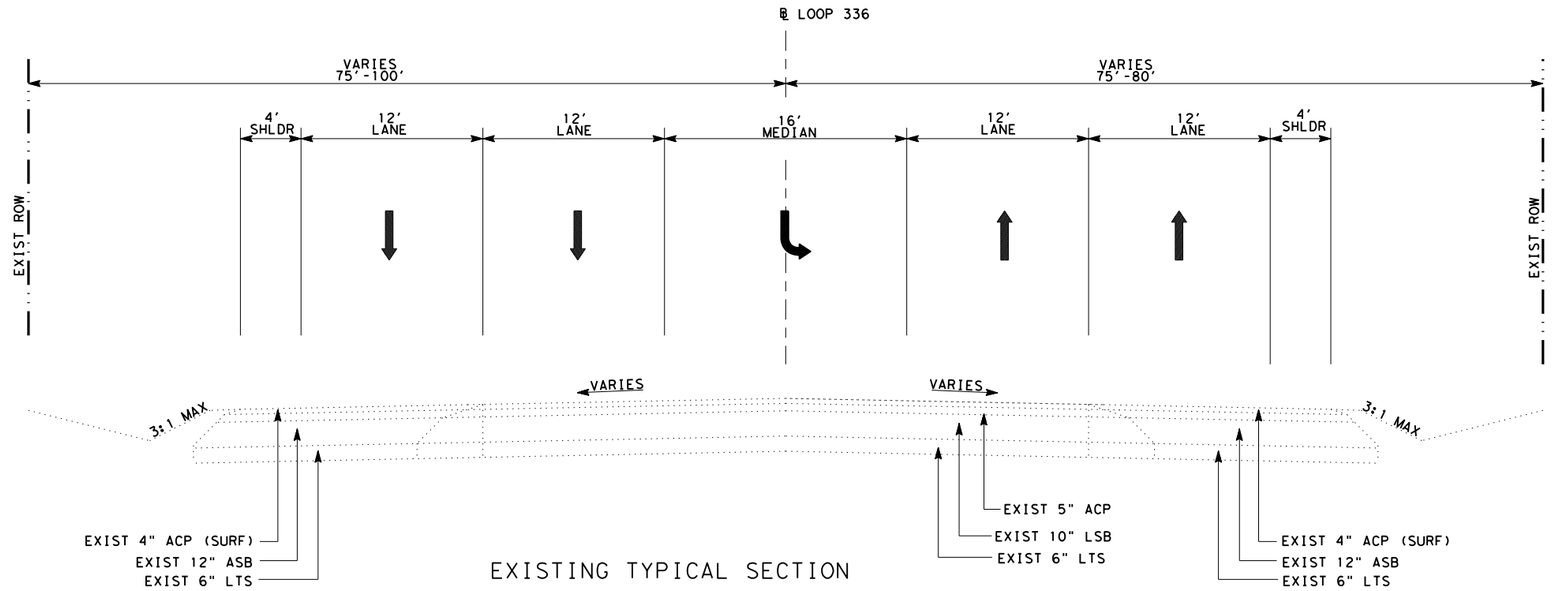
SL 336
EXISTING TYPICAL SECTION

NTS

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		20

DATE: 05/16/2022 02:18 PM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT3\Documents\12 - HOU\Design Projects\2744010324 - Design\Plan Set\1. General\TYPICAL SECTIONS\020 SL 336 EXISTING TYPICAL SECTION SHEET



EXISTING TYPICAL SECTION

STA 17+67 TO STA 30+25

LEGEND

ACP	ASPHALT CONCRETE PAVEMENT
ASB	ASPHALT STABILIZED BASE
LSB	LIME STABILIZED BASE
LTS	LIME TREATED SUBGRADE

STATE OF TEXAS
MICAH J. SCHLUTER
130908
LICENSED
PROFESSIONAL ENGINEER

Micah J. Schluter, P.E.
05.24.22

SL 336
EXISTING TYPICAL SECTION

NTS

SHEET 2 OF 2

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		21

DATE: 05/16/2022 03:15 PM
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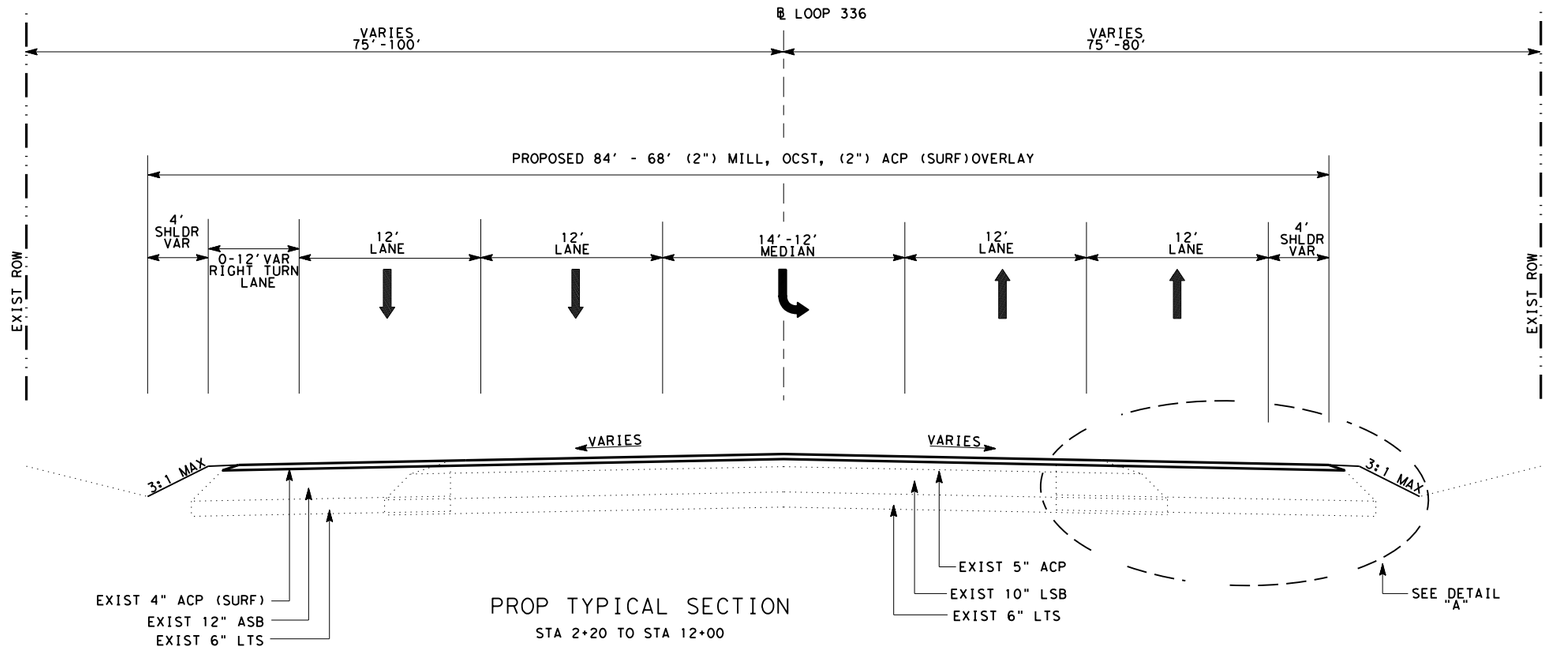
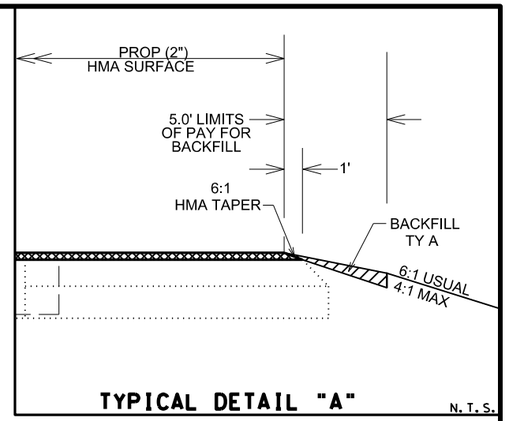


PROP TYPICAL SECTION

STA 2+20 TO STA 12+00



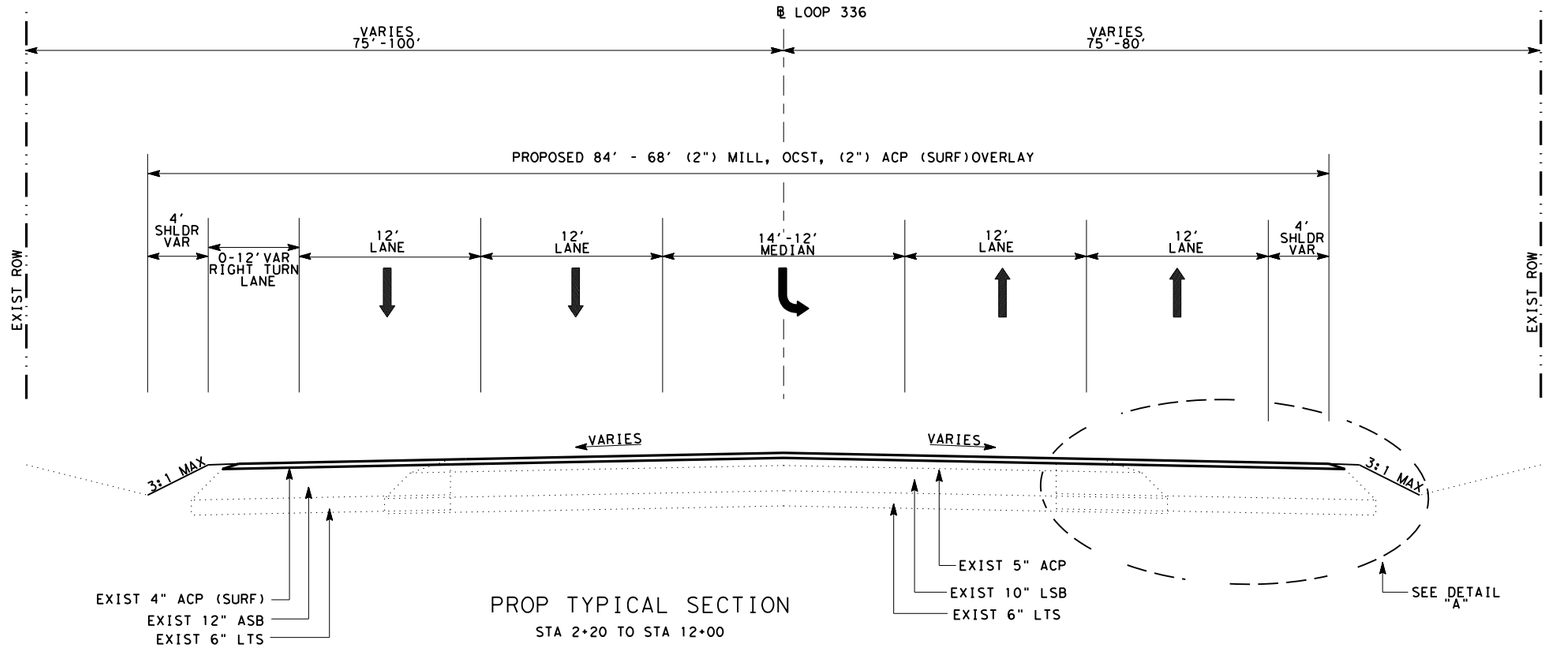
TYPICAL DETAIL "A" N.T.S.

NOTE:

FOR PAVEMENT BID ITEM CODE AND DESCRIPTIONS SEE SHEET 26 FM 2854,ETC.ROADWAY QUANTITY SUMMARY.

LEGEND

ACP - ASPHALT CONCRETE PAVEMENT
ASB - ASPHALT STABILIZED BASE
LSB - LIME STABILIZED BASE
LTS - LIME TREATED SUBGRADE



PROP TYPICAL SECTION

STA 2+20 TO STA 12+00

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

Micah J. Schluter, P.E.

05.24.22

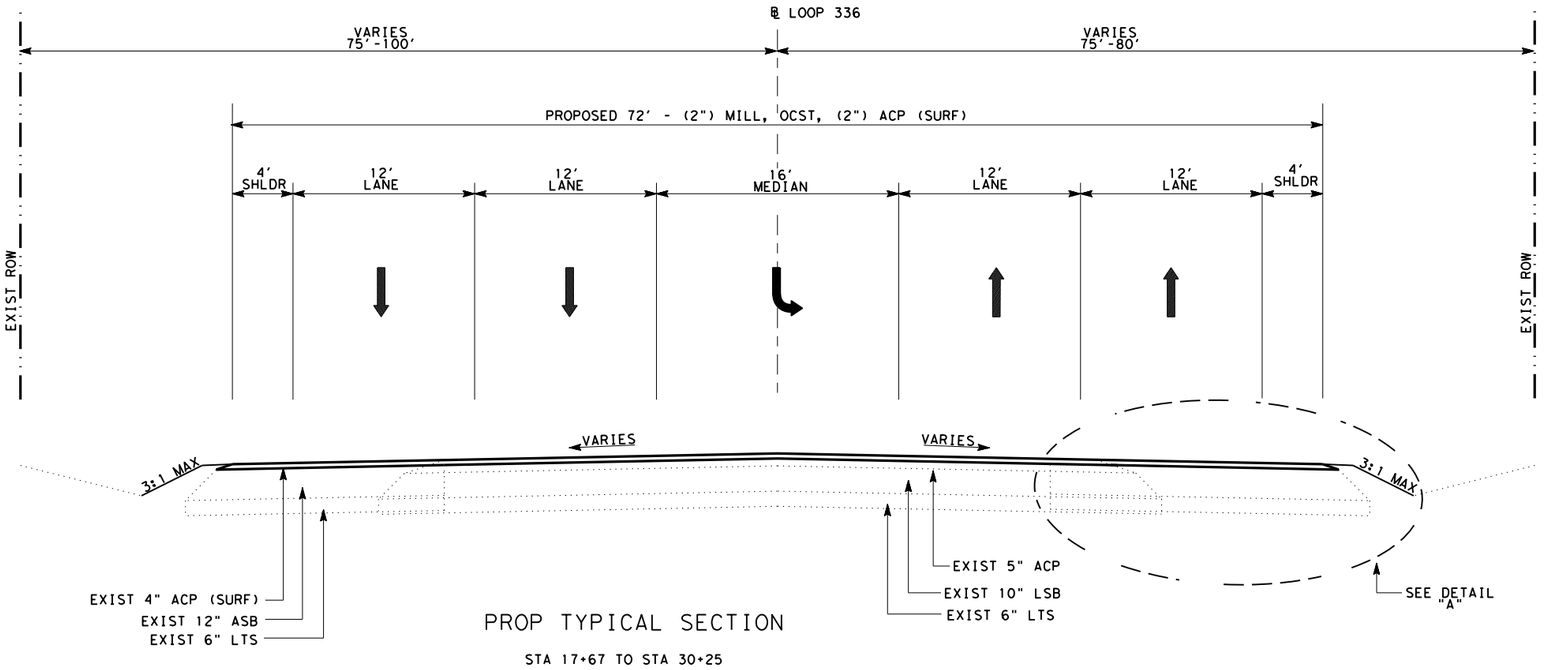
SL 336
PROPOSED
TYPICAL SECTION

NTS SHEET 1 OF 2

Texas Department of Transportation

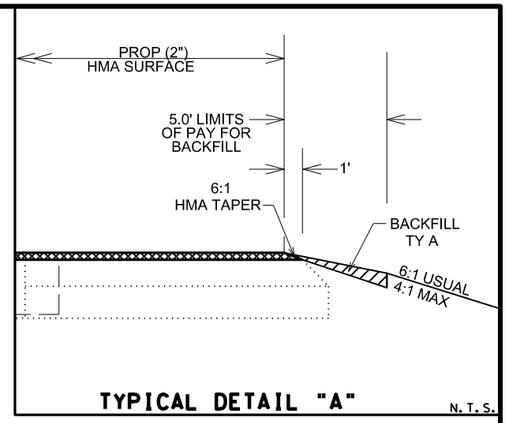
CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		22

DATE: 05/16/2022 03:53 PM
FILE:



PROP TYPICAL SECTION

STA 17+67 TO STA 30+25



TYPICAL DETAIL "A" N.T.S.

NOTE:

FOR PAVEMENT BID ITEM CODE AND DESCRIPTIONS SEE SHEET 26 FM 2854, ETC. ROADWAY QUANTITY SUMMARY.

LEGEND

ACP	ASPHALT CONCRETE PAVEMENT
ASB	ASPHALT STABILIZED BASE
LSB	LIME STABILIZED BASE
LTS	LIME TREATED SUBGRADE

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

Micah J. Schluter, P.E.

05.24.22

SL 336
PROPOSED
TYPICAL SECTION

NTS

SHEET 2 OF 2

®2020

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		23

DATE: 05/16/2022 03:57 PM
FILE:

General Notes:

General:

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

Abraham M. Guzman, P.E. *Abe.Guzman@txdot.gov*
Matthew M Connelly, P.E. *Matthew.Connelly@txdot.gov*

Contractor questions will be accepted through email, phone, and in person by the above individuals. Contractor questions will be reviewed by the Area Engineer or Assistant Area Engineer. Once a response is developed, it will be posted to TxDOT's Public FTP at the following address:

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

Questions submitted that generate a response will be posted through this site. The site is organized by District, Project Type (Construction or Maintenance), Letting Date, and CCSJ/Project Name.

If fixed features require, the governing slopes shown may vary between the limits shown and to the extent determined by the Engineer.

Superelevate the curves to match the existing surface.

Notify the Engineer immediately if discrepancies are discovered in the horizontal control or the benchmark data.

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

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

Grade street intersections and median openings for surface drainage.

If a foundation is to be placed where a riprap surface or an asphalt concrete surface presently exists, use caution in breaking out the existing surface for placement. Break out no greater area than is required to place the foundation. After placing the foundation, wrap the periphery with 0.5 in. pre-molded mastic expansion joint. Then replace the remaining portion of the broken out surface with Class A or Class C concrete or cold mix asphalt concrete to the exact slope, pattern,

and thickness of the existing riprap or asphalt. Payment for breaking out the existing surface, wrapping the foundation, and replacing the surface is subsidiary to the various bid items.

The lengths of the posts for ground mounted signs and the tower legs for the overhead sign supports are approximate. Verify the lengths before ordering these materials to meet the existing field conditions and to conform to the minimum sign mounting heights shown in the plans.

Furnish aluminum Type A signs instead of plywood signs for signs shown on the Summary of Small Signs sheet.

Clearly mark or highlight on the shop drawings, the items being furnished for this project. Submit required shop drawings in accordance with the shop drawing distribution list shown in the note for Item 5 for review and distribution.

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

General: Site Management

Mow the grass and weeds within the project limits a maximum of 3 times a year as directed. This work is subsidiary to the various bid items.

Mark stations every 100 ft. and maintain the markings for the project duration. Remove the station markings at the completion of the project. This work is subsidiary to the various bid items.

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

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

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

Tricycle Type	**Truck Type - 4 Wheel**
Wayne Series 900	M-B Cruiser II
Elgin White Wing	Wayne Model 945
Elgin Pelican	Mobile TE-3
	Mobile TE-4
	Murphy 4042

General: Traffic Control and Construction

Schedule construction operations such that preparing individual items of work follows in close sequence to constructing storm drains in order to provide as little inconvenience as practical to the businesses and residents along the project.

Schedule work so that the base placement operations follow the subgrade work as closely as practical to reduce the hazard to the traveling public and to prevent undue delay caused by wet weather.

This project requires extensive grading operations in an environmentally sensitive area.

If relocating mailboxes, place them with the post firmly in the ground at nearby locations. Upon completing the project, the Engineer will locate the final mailbox placement. Perform this work in accordance with the requirements of the Item, "Mailbox Assemblies," except for measurement and payment. This work is subsidiary to the various bid items.

If fences cross construction easements shown on the plans and work is required beyond the fences, remove and replace the fences as directed. This work and the materials are subsidiary to the various bid items.

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

General: Utilities

Consider the locations of underground utilities depicted in the plans as approximate and employ responsible care to avoid damaging utility facilities. Depending upon scope and magnitude of planned construction activities, advanced field confirmation by the utility owner or operator may be prudent. Where possible, protect and preserve permanent signs, markers, and designations of underground facilities.

If the Contractor damages or causes damage (breaks, leaks, nicks, dents, gouges, etc.) to the utility, contact the utility facility owner or operator immediately.
At least 72 hours before starting work, make arrangements for locating existing Department-owned above ground and underground fiber optic, communications, power, illumination, and

traffic signal cabling and conduit. Do this by calling the Department's Houston District Traffic Signal Operations Office at 713-802-5662, or by e-mailing the Department's Houston District Traffic Signal Operations Office at HOU-LocateRequest@txdot.gov, to schedule marking of underground lines on the ground. Use caution if working in these areas to avoid damaging or interfering with existing facilities.

Notify the Engineer at least 48 hours before constructing junction boxes at storm drain and utility intersections.

Install or remove poles and luminaires located near overhead or underground electrical lines using established industry and utility safety practices. Consult the appropriate utility company before beginning such work.

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

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

Perform electrical work in conformance with the National Electrical Code (NEC) and Department's standard sheets.

Before beginning any underground work, notify the City of Houston's Chief Inspector, Public Works and Engineering, to establish the locations of any existing electrical systems for lighting facilities within the limits of this project.

Item 5: Control of Work

Before contract letting, cross-section data for this project will be available to the prospective bidders in PDF format on the Department's Houston District website located at:

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

The cross-section data provided above is for non-construction purposes only and it is the responsibility of the prospective bidder to validate the data with the appropriate plans, specifications, and estimates for the projects.

Submit shop drawings electronically for the fabrication of items as documented in Table 1 or Table 2 below. Information and requirements for electronic submittals can be viewed in the "Guide to Electronic Shop Drawing Submittal" which can be accessed through the following web link, ftp://ftp.dot.state.tx.us/pub/txdot-info/library/pubs/bus/bridge/e_submit_guide.pdf.

References to 11 in. x 17 in. sheets in individual specifications for structural items imply electronic CAD sheets.

Table 1

2014 Construction Specification Required Shop/Working Drawing Submittals - TxDOT Generated Plans

Spec Item No.'s	Product	Submittal Required	Approval Required (Y/N)	Contractor/ Fabricator P.E. Seal Required	Reviewing Party	Shop or Working Drawing (Note 1)
7.16.1&.2	Construction Load Analyses	Y	Y	Y	B	WD
400	Excavation and Backfill for Structures (cofferdams)	Y	N	Y	A	WD
403	Temporary Special Shoring	Y	N	Y	C	WD
420	Formwork/Falsework	Y	N	Y	A	WD
423	Retaining Walls, (calcs req'd.)	Y	Y	Y	C	SD
425	Optional Design Calculations (Prstrs Bms)	Y	Y	Y	B	SD
425	Prestr Concr Sheet Piling	Y	Y	N	B	SD
425	Prestr Concr Beams	Y	Y	N	B	SD
425	Prestr Concr Bent	Y	Y	N	B	SD
426	Post Tension Details	Y	Y	N	B	SD
434	Elastomeric Bearing Pads (All)	Y	Y	N	B	SD
441	Bridge Protective Assembly	Y	Y	N	B	SD
441	Misc Steel (various steel assemblies)	Y	Y	N	B	SD
441	Steel Pedestals (bridge raising)	Y	Y	N	B	SD
441	Steel Bearings	Y	Y	N	B	SD
441	Steel Bent	Y	Y	N	B	SD
441	Steel Diaphragms	Y	Y	N	B	SD
441	Steel Finger Joint	Y	Y	N	B	SD
441	Steel Plate Girder	Y	Y	N	B	SD
441	Steel Tub-Girders	Y	Y	N	B	SD
441	Erection Plans, including Falsework	Y	N	Y	A	WD
449	Sign Structure Anchor Bolts	Y	Y	N	T	SD
450	Railing	Y	Y	N	A	SD
462	Concrete Box Culvert	Y	Y	N	C	SD
462	Concrete Box Culvert (Alternate Designs Only,calcs reqd.)	Y	Y	Y	B	SD
464	Reinforced Concrete Pipe (Jack and Bore only; ONLY when requested)	Y	Y	Y	A	SD
465	Pre-cast Junction Boxes, Grates, and Inlets	Y	Y	N	A	SD
465	Pre-cast Junction Boxes, Grates, and Inlets (Alternate Designs Only, calcs req'd.)	Y	Y	Y	B	SD
466	Pre-cast Headwalls and Wingwalls	Y	Y	N	A	SD
467	Pre-cast Safety End Treatments	Y	Y	N	A	SD
495	Raising Existing Structure (calcs reqd.)	Y	Y	Y	B	SD
610	Roadway Illumination Supports (Non-Standard only, calcs reqd.)	Y	Y	Y	BRG	SD
613	High Mast Illumination Poles (Non-standard only, calcs reqd.)	Y	Y	Y	BRG	SD
627	Treated Timber Poles	Y	Y	N	T	SD
644	Special Non-Standard Supports (Bridge Mounts, Barrier Mounts, Etc.)	Y	Y	Y	T	SD
647	Large Roadside Sign Supports	Y	Y	Y	T	SD
650	Cantilever Sign Structure Supports - Alternate Design Calcs.	Y	Y	Y	T	SD
650	Sign Structures	Y	Y	N	T	SD
680	Installation of Highway Traffic Signals	Y	Y	N	T	SD
682	Vehicle and Pedestrian Signal Heads	Y	Y	N	T	SD
684	Traffic Signal Cables	Y	Y	N	T	SD
685	Roadside Flashing Beacon Assemblies	Y	Y	N	T	SD
686	Traffic Signal Pole Assemblies (Steel) (Non-Standard only)	Y	Y	Y	T	SD
687	Pedestal Pole Assemblies	Y	Y	N	T	SD
688	Detectors	Y	Y	N	A	SD
784	Repairing Steel Bridge Members	Y	Y	Y	B	WD
SS	Prestr Concr Crown Span	Y	Y	N	B	SD
SS	Sound Barrier Walls	Y	Y	Y	A	SD
SS	Camera Poles	Y	Y	Y	TMS	SD
SS	Pedestrian Bridge (Calcs req'd.)	Y	Y	Y	B	SD
SS	Screw-In Type Anchor Foundations	Y	Y	N	T	SD
SS	Fiber Optic/Communication Cable	Y	Y	N	TMS	SD
SS	Spread Spectrum Radios for Signals	Y	Y	N	T	SD
SS	VIVDS System for Signals	Y	Y	N	T	SD
SS	CTMS Equipment	Y	Y	N	TMS	SD

Notes:

1. Document flow for Working Drawings differs from Shop Drawings in that Working Drawings must be submitted to the Engineer rather than the Engineer of Record and they are for the information of the Engineer only; an approval stamp and distribution to all project offices is not required.

Key to Reviewing Party

A - Area Office

Area Office	Email Address
Brazoria Area Office	HOU-BRZAShpDrwgs@txdot.gov
Fort Bend Area Office	HOU-FBAShpDrwgs@txdot.gov
Galveston Area Office	HOU-GALVAShpDrwgs@txdot.gov
Montgomery Area Office	HOU-MONTAShpDrwgs@txdot.gov
North Harris Area Office	HOU-NHAShpDrwgs@txdot.gov
Southeast Area Office	HOU-SEHAShpDrwgs@txdot.gov
Traffic Systems Construction Office	HOU-TSCShpDrwgs@txdot.gov
West/Central Harris Area Office	HOU-WWCHAOShpDrwgs@txdot.gov

B - Houston Bridge Engineer

Bridge Design (Houston TxDOT)	HOU-BrgShpDrwgs@txdot.gov

BRG - Austin Bridge Division

Bridge Design (Austin TxDOT)	BRG_ShopPlanReview@txdot.gov

C - Construction Office	
Construction	HOU-ConstrShpDrwgs@txdot.gov
Laboratory	HOU-LabShpDrwgs@txdot.gov
T - Traffic Engineer	
Traffic Operations	HOU-TrfShpDrwgs@txdot.gov
TMS – Traffic Management System	
Computerized Traffic Management Systems (CTMS)	HOU-CTMSShpDrwgs@txdot.gov

Key to Reviewing Party

D – Consultant: Submit to Engineer of Record at *email@host.xxx*	
TMS – Traffic Management System	
Computerized Traffic Management Systems (CTMS)	HOU-CTMSShpDrwgs@txdot.gov

Item 7: Legal Relations and Responsibilities

Do not initiate activities in a Project Specific Location (PSL), associated with a U.S. Army Corps of Engineers (USACE) permit area, that have not been previously evaluated by the USACE as part of the permit review of this project. Such activities include those pertaining to, but are not limited to, haul roads, equipment staging areas, borrow and disposal sites. Associated defined here means materials are delivered to or from the PSL. The permit area includes the waters of the U.S. or associated wetlands affected by activities associated with this project. Special restrictions may be required for such work. Assume responsibility for consultations with the USACE regarding activities, including PSLs that have not been previously evaluated by the USACE. Provide the Department with a copy of consultations or approvals from the USACE before initiating activities.

The Contractor may proceed with activities in PSLs that do not affect a USACE permit area if a self-determination has been made that the PSL is non-jurisdictional or if proper USACE clearances have been obtained in jurisdictional areas or have been previously evaluated by the USACE as part of the permit review of this project. The Contractor is solely responsible for documenting any determinations that their activities do not affect a USACE permit area. Maintain copies of their determinations for review by the Department or any regulatory agency.

Document and coordinate with the USACE, if required, before hauling any excavation from or hauling any embankment to a USACE permit area by either 1 or 2 below:

1. **Restricted Use of Materials for the Previously Evaluated Permit Areas.**
   Document both the Project Specific Locations (PSL) and their authorization. Maintain copies for review by the Department or any regulatory agency. When an

area within the project limits has been evaluated by the USACE as part of the permit process for this project:

a. Suitable excavation of required material in the areas shown on the plans and cross sections as specified in the Item, "Excavation" is used for permanent or temporary fill (under the Item, "Embankment") within a USACE permit area.
b. Suitable embankment (under the Item, "Embankment") from within the USACE permit area is used as fill within a USACE evaluated area.
c. Unsuitable excavation or excess excavation, "Waste" (under the Item, "Excavation"), that is disposed of at a location approved within a USACE evaluated area.

2. **Contractor Materials from Areas Other than Previously Evaluated Areas.**
   Provide the Department with a copy of USACE coordination or approvals before initiating any activities for an area within the project limits that has not been evaluated by the USACE or for any off right of way locations used for the following, but not limited to, haul roads, equipment staging areas, borrow and disposal sites:
   a. The Item, "Embankment" used for temporary or permanent fill within a USACE permit area.
   b. Unsuitable excavation or excess excavation, "Waste" (under the Item, "Excavation"), that is disposed of outside a USACE evaluated area.

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

Maintain the roadway slope stability. Maintaining slope stability is subsidiary to the various bid items.

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

The nesting / breeding season for migratory birds is February 15 through September 30.

Conduct any tree removal outside of the migratory bird nesting season. If this is not possible due to scheduling, then exercise caution to remove only those trees with no active nests. Do not destroy nests on structures or in trees within the project limits during the nesting / breeding season.

Take measures to prevent the building of nests on any structures or trees within the project limits throughout the duration of the construction if work / removal will be performed during the nesting / breeding season. This can be accomplished by application of bird repellent gel, netting by hand every 3 to 4 days, or any other non-threatening method approved by the Houston District Environmental Section. Obtain this approval well in advance of the planned use. Contact the Houston District Environmental Section at 713-802-5244. The cost of this work is subsidiary to the various bid items.

No significant traffic generator events have been identified.

Item 8: Prosecution and Progress

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

Working days will be computed and charged based on a standard workweek in accordance with Section 8.3.3.2.2.

The maximum number of days the time charges on this contract may be suspended due to contractor mobilization, and material fabrication/accumulation or processing delays is 60 days. The Engineer and the Contractor may mutually agree, in writing, to decrease this maximum number of days.

The Lane Closure Assessment Fee is $200.00 / $400.00. This fee applies to the Contractor for closures or obstructions that overlap into restricted hour traffic for each hour or portion thereof, per lane, regardless of the length of lane closure or obstruction. For Restricted Hours subject to Lane Assessment Fee refer to the Item, “Barricades, Signs, and Traffic Handling.”

Item 100: Preparing Right of Way

Clean existing ditches under fill sections of undesirable materials including grass, muck, and trash. Perform this work in accordance with the Construction section of the Item, “Preparing Right of Way.” This work is subsidiary to this bid Item.

The Item, “Preparing Right of Way” will be measured for payment only in those designated areas shown on the plans. Preparing right of way necessary to perform construction that is outside designated areas is subsidiary to this bid Item.

Remove abandoned utilities that are in conflict with the new utilities, at no expense to the Department.

Reestablish and maintain right of way stakes after completing the right of way preparation activities and until the new utilities are in place.

Remove and assume ownership of the existing ground mounted signs within the limits of roadway construction unless otherwise noted or directed. This work is subsidiary to the Item, “Preparing Right of Way.”

Item 105: Removing Treated and Untreated Base and Asphalt Pavement
Item 305: Salvaging, Hauling, and Stockpiling Reclaimable Asphalt Pavement

Case 1 - ACP over asphalt treatment

Removing the Asphalt Concrete Pavement (ACP) and the asphalt treatment/asphalt stabilized base are paid for under the Item, “Salvaging, Hauling, and Stockpiling Reclaimable Asphalt Pavement.”

Remove the ACP separately from the asphalt treatment/asphalt stabilized base. Make the removed depth as uniform as possible during each removal pass if the pavement depth being removed is composed of different asphalt layers. Unless otherwise approved, stockpile Reclaimable Asphalt Pavement (RAP) of differing types of quality separately by its intended use such as for the asphalt treatment, cement treatment, lime treatment, or asphalt concrete pavement. Break, crush, or mill the stockpiled materials so that 100 percent pass the 2-in. sieve.

Item 110: Excavation

If manipulating the excavated material requires moving the same material more than once to accomplish the desired results, the excavation is measured and paid for only once regardless of the manipulation required.

Transition the ditch grades and channel bottom widths at structure locations. Use only approved channel excavation in the embankment.

Item 132: Embankment

If salvaged base is used for the embankment material, break it into small pieces to achieve the required density and to facilitate placing in the embankment. Obtain approval of the material before placing in the embankment.

Furnish Type C material with a maximum Liquid Limit (LL) of 65, a minimum Plasticity Index (PI) of 5, and composed of suitable earth material such as loam, clay, or other materials that form a suitable embankment.

The embankment material used on the project which has a Liquid Limit exceeding 45 will be tested for Liquid Limits at the rate of one test per 20,000 cu. yd. or per total quantity less than 20,000 cu. yd., unless otherwise directed. Only use material that passes the above tests.

For unpaved areas, provide a finished grade with the top 4 in. capable of sustaining vegetation. Use fertile soil that is easily cultivated, free from objectionable material and highly resistant to erosion.

Item 161: Compost
Item 162: Sodding for Erosion Control
Item 166: Fertilizer
Item 168: Vegetative Watering

Refer to the "Fertilizer, Seed, Sod, Straw, Compost, and Water" plan sheet for material specifications, application rates, and for watering requirements.

Item 204: Sprinkling

Perform subsidiary sprinkling as required under various other items in accordance with the Item, "Sprinkling."

Sprinkling for dust control is subsidiary to the various bid items.

Item 210: Rolling

Use a medium pneumatic roller meeting the requirements of Item 210 as directed. This work is subsidiary to the various bid items. On every asphalt shot, use a minimum of 3 pneumatic rollers or as directed. Use approved rolling patterns. Successive asphalt shots will not be allowed until acceptable rolling has been accomplished on the preceding asphalt shot.

Item 260: Lime Treatment (Road-Mixed)

For slurry placing, before discharging through the distributors, sufficiently agitate or mix the lime and water to place the lime in suspension and to obtain a uniform mixture.

The Engineer will observe the lime treatment that the Contractor elects to open to construction traffic immediately after compaction. If the construction traffic damages the subgrade, route the traffic off the damaged section in accordance with the standard specification. If the construction traffic does not damage the subgrade, cure the subgrade until other courses of material cover it. Apply these courses within 14 days with a maximum curing period of 7 days.

Place the hydrated and the commercial lime as a water suspension or slurry according to the slurry placing method shown in Section 260.4.3.2, "Slurry Placement."

Use the type of lime at particular locations as directed.

Place the quicklime dry or as a slurry.

For the dry quicklime, a spreader box is not required if the lime material is evenly distributed.

In limited areas, the Contractor may construct the lime slurry subgrade under a sequence of work in which the application, mixing, and compaction are completed in the same working day, if approved by the Engineer.

Provide documentation from certified public scales showing gross, tare, and net weights. Provide producer's delivery tickets also showing gross, tare, and net weights. Completely empty the lime trailers at the project site. The Engineer may direct the Contractor to reweigh any shipment of lime on certified scales. The cost of this operation is subsidiary to the Item, "Lime Treatment (Road-Mixed)."

The percentage of lime shown on the plans is estimated on the basis of engineering tests. If soil tests made during construction indicate properties different than those originally anticipated, the Engineer may vary the percentage of the lime to provide soil characteristics similar to those of the preliminary tests.

Mix the lime with the new base material in an approved pug mill type stationary mixer.

If using Type A aggregate in accordance with the Item, "Flexible Base," use only crushed stone, Grade 1.

Item 276: Cement Treatment (Plant-Mixed)

Before placing the new base, wet and coat the vertical construction joints between the new base and the previously placed base with dry cement.

If the total thickness of the cement treatment is greater than 8 in., compact it in multiple lifts in accordance with Section 276.4.3, "Compaction." Place the courses in the same working day unless otherwise approved.

Use Class N Cement Treatment containing 4.5 percent cement based on the dry weight of the aggregate. There is no minimum compressive strength requirement for this Item.

The requirement for core drilling to determine the thickness of cement treatment is waived if using less than 500 sq. yd. at one location.

For widening the existing pavement, the Engineer may waive the requirements for preparing the subgrade by scarifying and compacting if the as-cut subgrade can be maintained to the density of the natural ground and to a uniform consistency when placing the base course. Keep the subgrade wet.

Compact in accordance with the standard specifications and complete the finishing operations within a period of 5 hours after adding the cement to the base material.

Cure the final course of cement treatment using an asphalt distributor that distributes the approved curing material and water mixture material at a rate of 0.25 gallons per square-yard evenly and smoothly or as recommended by the manufacturer at the recommended dilution rate, under a pressure necessary for proper distribution. Provide a curing material meeting the requirements of the Item, "Asphalts, Oils, and Emulsions" for curing the cement treatment. Use the following materials for curing the courses of cement treatment:

Curing Material	Application
Water	All courses, except final course
PCE	Final course

Continue curing until placing another course or opening the finished section to traffic.

Spread the material so that the layers of base are uniform in depth and in loose density before compacting.

Type E material consists of Type A material, crushed concrete (except under flexible pavement), or Reclaimed Asphalt Pavement (RAP) meeting the requirements of the Item, "Flexible Base." If approved, the 50 percent maximum RAP limitation may be waived.

Unless otherwise directed, place the next pavement layer within 7 working days of placing the base.

If using crushed stone for the Type E material under this Item, ensure it meets the requirements for the Item, "Flexible Base," Type A, Grade 1-2. Texas Test Method TEX-117-E is not required for this Item.

If using Recycled Type E cement treatment under proposed flexible pavement, produce it using the existing base salvaged from within this project or from other approved Department projects and salvaged asphalt concrete pavement. Do not use crushed concrete under flexible pavement.

If using Recycled Type E cement treatment under proposed concrete pavement, produce it using the existing base salvaged from within this project or from other approved Department projects, salvaged asphalt concrete pavement, or crushed concrete. If using crushed concrete as an aggregate, meet the requirements of Grade 3.

If using salvaged existing base and asphalt concrete pavement as described above, size it so that all the material, except the existing individual aggregate, passes the 2-in. sieve and is of a gradation that allows satisfactory compaction. Provide salvaged material that does not contain deleterious material such as clay or organic material. Provide material passing the No. 40 sieve, defined as soil binder, with a maximum Plasticity Index of 10 and a maximum Liquid Limit of 35 when tested in accordance with test method TEX-106-E.

Meet the following additional requirements if the base and ACP are salvaged from other Department projects:

1. Obtain written approval before using the material.
2. Salvage and stockpile by approved methods.
3. Stockpile the material for exclusive use by the Department.

Item 316: Seal Coat

The asphalt application rate shown on the "Basis of Estimate" is an average rate for calculating asphalt quantities. Vary the rate based on the pavement conditions and other factors such as the type and grade of aggregate used, weather, and traffic.

Allowable Asphalt Cements based on Average Daily Traffic (ADT) are shown below:

For ADT greater than 5000	ADT 1000 to 5000	ADT less than 1000
AC-20 XP	AC-15P	AC-10-2TR
AC-20-5TR	AC-20-5TR	AC-10 w/2% SBR
	AC-20-XP	AC-15P

Item 351: Flexible Pavement Structure Repair

Use asphalt stabilized base for the base material.

For base repair, place the asphalt stabilized base in compacted lifts of 4 in. maximum, unless otherwise directed.

Item 354: Planing and Texturing Pavement

Stockpile the material at The Department's Maintenance yard located at 901 N. FM 3083 E. Conroe, TX 77303 as directed by the Area Engineer at (936) 538-3300.

Item 502: Barricades, Signs, and Traffic Handling

Use a traffic control plan for handling traffic through the various phases of construction. Follow the phasing sequence unless otherwise agreed upon by the Area Engineer and the Project Manager. Ensure this plan conforms to the latest "Texas Manual on Uniform Traffic Control Devices" and the latest Barricade and Construction (BC) Standard Sheets. The latest versions of Work Zone Standard Sheets WZ (BTS-1) and WZ (BTS-2) are the traffic control plan for the signal installations.

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

Furnish and maintain the barricades and warning signs, including the necessary temporary and portable traffic control devices, during the various phases of construction. Place and construct

these barricades and warning signs in accordance with the latest "Texas Manual on Uniform Traffic Control Devices" for typical construction layouts.

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

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

If a section is not complete before the end of the workday, pull back the base material to the existing pavement edge on a 6H: 1V slope. Edge drop-offs during the hours of darkness are not permitted.

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

Cover or remove the permanent signs and construction signs that are incorrect or that do not apply to the current situation for a particular phase.

Replace the overhead signs, informational signs, and exit signs to be removed, with temporary signs providing the correct information to the traveling public. Size the replacement signs and include them in the traffic control plan.

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

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

Place positive barriers to protect drop-off conditions greater than 2 ft. within the clear zone that remain overnight.

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

One Lane Closure

Day	Daytime Closure Hours	Nighttime Closure Hours	Restricted Hours Subject to Lane Assessment Fee
Monday	8:30 AM – 3:30 PM	9:00 PM – 12:00 AM	12:00 AM – 8:30 AM 3:30 PM – 9:00 PM
Tuesday	8:30 AM – 3:30 PM	12:00 AM – 5:00 AM 9:00 PM – 12:00 AM	5:00 AM – 8:30 AM 3:30 PM – 9:00 PM

Day	Daytime Closure Hours	Nighttime Closure Hours	Restricted Hours Subject to Lane Assessment Fee
Wednesday	8:30 AM – 3:30 PM	12:00 AM – 5:00 AM 9:00 PM – 12:00 AM	5:00 AM – 8:30 AM 3:30 PM – 9:00 PM
Thursday	8:30 AM – 3:30 PM	12:00 AM – 5:00 AM 9:00 PM – 12:00 AM	5:00 AM – 8:30 AM 3:30 PM – 9:00 PM
Friday	8:30 AM – 3:30 PM	12:00 AM – 5:00 AM 9:00 PM – 12:00 AM	5:00 AM – 8:30 AM 3:30 PM – 9:00 PM
Saturday/ Sunday	No Weekend Closures	No Weekend Closures	12:00 AM – 11:59 PM

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

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

Item 506: Temporary Erosion, Sedimentation and Environmental Controls

A Storm Water Pollution Prevention Plan (SWP3) is required. Since the disturbed area is more than 5 acres, a "Notice of Intent" (NOI) is also required.

Use appropriate measures to prevent, minimize, and control the spill of hazardous materials in the construction staging area. Remove and dispose of materials in compliance with State and Federal laws.

Before starting construction, review with the Engineer the SWP3 used for temporary erosion control as outlined on the plans. Before construction, place the temporary erosion and sedimentation control features as shown on the SWP3.

Schedule the seeding or sodding work as soon as possible. The project schedule provides for a vegetation management plan.

After completing earthwork operations, restore and reseed the disturbed areas in accordance with the Department's specifications for permanent or temporary erosion control.

Implement temporary and permanent erosion control measures to comply with the National Pollution Discharge Elimination System (NPDES) general permit under the Clean Water Act.

Before starting grading operations and during the project duration, place the temporary or permanent erosion control measures to prevent sediment from leaving the right of way.

Item 530: Intersections, Driveways, and Turnouts

An air-entraining admixture is not required.

For concrete curbs, use Grade 7 aggregate conforming to Section 421.2.6 of the Item, "Hydraulic Cement Concrete."

For driveways and turnouts, coarse aggregate Grade No. 3 through No. 8 conforming to the gradation requirements specified in the Item, "Hydraulic Cement Concrete" will be permitted.

For reinforcing steel in sidewalks and pedestrian ramps, use No. 4 bars at a maximum 18 in. spacing center-to-center in both directions.

Item 585: Ride Quality for Pavement Surfaces

To eliminate the need for corrective action due to excessive deviations in the final surface layers, exercise caution to ensure satisfactory profile results in the intermediate paving layers (mixture).

Milling will not be allowed as a corrective action for excessive deviations in the final surface layer of hot-mix asphalt.

Item 644: Small Roadside Sign Assemblies

Sign locations shown on the plans are approximate. Before placing them, obtain approval of and then stake the exact locations for these signs.

Use the Texas Universal Triangular Slip Base with the concrete foundation for small ground mounted signs, unless otherwise shown in the plans.

Remove existing street name signs from existing stop signs and re-install them above the new stop signs. Removing and re-installing existing street name signs is subsidiary to the Item, "Small Roadside Sign Assemblies."

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

Use Type E Super High Specific Intensity (Fluorescent Prismatic) yellow green reflective sheeting background to fabricate school signs (S1-1, S3-1, S4-3, S5-1, W16-2, SW16-9p, and SW16-7pL(R)).

Assume ownership of the removed existing signs.

Locations of the relocated signs are approximate. Before placing them, obtain approval of and then stake the exact locations for these signs.

Replace existing signs that become damaged during relocation at no expense to the Department.

Item 662: Work Zone Pavement Markings

At the end of each workday, mark roadways that remain open to traffic during construction operations with standard pavement markings, in accordance with the latest "Texas Manual on Uniform Traffic Control Devices."

Do not use raised pavement markers as optional work zone pavement markings on final asphalt surfaces.

For transition lane lines and detour lane lines, use raised pavement markers as shown for solid lines on the latest Barricade and Construction standard sheet for "Work Zone Pavement Marking Details."

Item 662: Work Zone Pavement Markings
Item 666: Reflectorized Pavement Markings
Item 668: Prefabricated Pavement Markings
Item 6038: Multipolymer Pavement Markings (MPM)

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

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

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

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

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

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

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

Stripe all roadways before opening them to traffic.

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

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

Item 672: Raised Pavement Markers

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

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

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

Item 678: Pavement Surface Preparation for Markings

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

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

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

Do not clean concrete pavement by grinding.

Item 3076: Dense-Graded Hot Mix Asphalt

Taper the asphalt concrete pavement at the beginning and ending points.

Use a maximum 6H:1V slope for the asphalt concrete pavement edge.

Where the 6H:1V ACP edge taper extends over onto the unsurfaced shoulders, blade off the loose existing shoulder material to provide a solid base for the outside taper edge. After placing the ACP overlay, blade this material back against the edge taper. This work is subsidiary to the various bid items.

The stockpile will be the point of sampling of coarse aggregate for test method TEX-217-F (Part II, decantation).

Place the asphalt concrete pavement in courses as shown on the typical sections.

Do not use petroleum-based solvents in the beds of hot mix asphalt delivery vehicles.

Dilution of tack coat is not allowed.

Do not use Surface Aggregate Classification (SAC) C for this project.

For determining the Asphalt Content, only ignition ovens will be allowed.

The tack coat rate shown on the "Basis of Estimate" is an average rate for calculating tack coat quantities. Vary the rate based on the pavement conditions and other factors such as manufacturer's recommendations and weather.

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

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

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

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

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

County: Montgomery **Control:** 2744-01-032

Highway: FM 2854

Basis of Estimate

260	Lime Treatment (Road-Mixed) For materials used as subgrade * • Lime(HYD, COM, or QK)(SLRY) or QK(DRY)	 6 % by weight based on 100 Lb. / Cu. Ft. subgrade	SY TON
292	Asphalt Treatment (Plant-Mixed) • Asphalt • Aggregate	110 Lb. / Sq. Yd.-In. 5 % by weight 95 % by weight	TON
316	Seal Coat • Asphalt • Aggregate (Gr 4) A-R Binder • Asphalt • Aggregate (Gr 4)	 0.32 Gal. / Sq. Yd. 1/130 Cu. Yd. / Sq. Yd. 0.42 Gal. / Sq. Yd. 1/130 Cu. Yd. / Sq. Yd.	 GAL CY GAL CY
3076	Dense-Graded Hot Mix Asphalt • Asphalt • Aggregate Tack Coat • Applied on new HMA • Applied on Existing HMA • Applied on Milled HMA	110 Lb. / Sq. Yd.-In. 6 % by weight 94 % by weight 0.06 Gal. / Sq. Yd. 0.09 Gal. / Sq. Yd. 0.11 Gal. / Sq. Yd.	TON

* If used in existing roadway base, rate will be determined on a case by case basis.

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 2744-01-032 **DISTRICT** Houston **COUNTY** Montgomery
HIGHWAY FM 2854, SL 336

			CONTROL SECTION JOB		**0338-11-059**		**2744-01-032**		TOTAL EST.	TOTAL FINAL
			PROJECT ID		**A00184110**		**A00119784**			
			COUNTY		**Montgomery**		**Montgomery**			
			HIGHWAY		**SL 336**		**FM 2854**			
ALT	**BID CODE**	**DESCRIPTION**		**UNIT**	EST.	FINAL	EST.	FINAL		
	100-6002	PREPARING ROW		STA			71.000		71.000	
	105-6020	REMOVING STAB BASE & ASPH PAV (12")		SY			780.000		780.000	
	110-6001	EXCAVATION (ROADWAY)		CY			3,556.000		3,556.000	
	132-6006	EMBANKMENT (FINAL)(DENS CONT)(TY C)		CY			85.000		85.000	
	134-6001	BACKFILL (TY A)		STA	34.000		711.000		745.000	
	162-6002	BLOCK SODDING		SY			21,355.000		21,355.000	
	166-6001	FERTILIZER		AC			4.400		4.400	
	168-6001	VEGETATIVE WATERING		MG			530.000		530.000	
	260-6006	LIME TRT (EXST MATL) (6")		SY			4,274.000		4,274.000	
	260-6012	LIME(HYD,COM OR QK)(SLRY)OR QK(DRY)		TON			30.000		30.000	
	275-6001	CEMENT		TON			30.000		30.000	
	275-6002	CEMENT TREAT (EXIST MATL) (6")		SY			4,274.000		4,274.000	
	292-6002	ASPHALT STAB BASE (GR 2)(PG 64)		TON			4,654.000		4,654.000	
	305-6004	SALV, HAUL & STKPL RCL APH PV (4 TO 6")		SY			780.000		780.000	
	316-6001	ASPH (MULTI OPTION)		GAL	7,949.000		91,483.000		99,432.000	
	316-6434	AGGR (TY-PB GR-4 OR TY-PL GR-4 (SAC-B)		CY	191.000		2,199.000		2,390.000	
	351-6004	FLEXIBLE PAVEMENT STRUCTURE REPAIR(8")		SY	1,425.000		13,871.000		15,296.000	
	354-6024	PLANE ASPH CONC PAV(2" TO 4")		SY			4,397.000		4,397.000	
	354-6045	PLANE ASPH CONC PAV (2")		SY	26,713.000		309,109.000		335,822.000	
	500-6001	MOBILIZATION		LS			1.000		1.000	
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING		MO	1.000		8.000		9.000	
	506-6038	TEMP SEDMT CONT FENCE (INSTALL)		LF			13,253.000		13,253.000	
	506-6039	TEMP SEDMT CONT FENCE (REMOVE)		LF			13,253.000		13,253.000	
	530-6002	INTERSECTIONS (ACP)		SY	229.000		7,357.000		7,586.000	
	530-6005	DRIVEWAYS (ACP)		SY	1,642.000		15,866.000		17,508.000	
	560-6011	MAILBOX INSTALL-S (TWW-POST) TY 4		EA			5.000		5.000	
	636-6001	ALUMINUM SIGNS (TY A)		SF	16.000		128.000		144.000	
	636-6003	ALUMINUM SIGNS (TY O)		SF			82.600		82.600	
	644-6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)		EA	5.000		79.000		84.000	
	644-6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)		EA	3.000		60.000		63.000	
	644-6007	IN SM RD SN SUP&AM TY10BWG(1)SA(U)		EA			2.000		2.000	
	644-6018	IN SM RD SN SUP&AM TY10BWG(2)SA(P-EXAL)		EA			2.000		2.000	
	644-6030	IN SM RD SN SUP&AM TYS80(1)SA(T)		EA			12.000		12.000	
	644-6036	IN SM RD SN SUP&AM TYS80(1)SA(U-BM)		EA			2.000		2.000	
	644-6076	REMOVE SM RD SN SUP&AM		EA	8.000		138.000		146.000	
	644-6078	REMOVE SM RD SN SUP&AM (SIGN ONLY)		EA	1.000				1.000	
	662-6005	WK ZN PAV MRK NON-REMOV (W)6"(BRK)		LF	57.000				57.000	

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 2744-01-032 **DISTRICT** Houston **COUNTY** Montgomery
HIGHWAY FM 2854, SL 336

				0338-11-059		2744-01-032		TOTAL EST.	TOTAL FINAL
			CONTROL SECTION JOB						
			PROJECT ID	A00184110		A00119784			
			COUNTY	Montgomery		Montgomery			
			HIGHWAY	SL 336		FM 2854			
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL		
	662-6008	WK ZN PAV MRK NON-REMOV (W)6"(SLD)	LF	15.000		159.000		174.000	
	662-6012	WK ZN PAV MRK NON-REMOV (W)8"(SLD)	LF	20,298.000		366,678.000		386,976.000	
	662-6014	WK ZN PAV MRK NON-REMOV (W)12"(SLD)	LF	33.000		174.000		207.000	
	662-6016	WK ZN PAV MRK NON-REMOV (W)24"(SLD)	LF			6.000		6.000	
	662-6017	WK ZN PAV MRK NON-REMOV (W)(ARROW)	EA	1,092.000		24,045.000		25,137.000	
	662-6018	WK ZN PAV MRK NON-REMOV (W)(DBL ARW)	EA			1,230.000		1,230.000	
	662-6029	WK ZN PAV MRK NON-REMOV(W)(WORD)	EA	108.000		3,039.000		3,147.000	
	662-6035	WK ZN PAV MRK NON-REMOV (Y)6"(BRK)	LF	786.000		14,175.000		14,961.000	
	662-6045	WK ZN PV MK NON-REM (Y)(4")SLD W/MRKR	LF	52,404.000		819,363.000		871,767.000	
	666-6027	REFL PAV MRK TY I (W)8"(BRK)(100MIL)	LF			45.000		45.000	
	666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	364.000		10,025.000		10,389.000	
	666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	36.000		1,230.000		1,266.000	
	666-6147	REFL PAV MRK TY I (Y)24"(SLD)(100MIL)	LF			3,850.000		3,850.000	
	666-6225	PAVEMENT SEALER 6"	LF			1,605.000		1,605.000	
	666-6306	RE PM W/RET REQ TY I (W)6"(BRK)(100MIL)	LF	1,811.000				1,811.000	
	666-6309	RE PM W/RET REQ TY I (W)6"(SLD)(100MIL)	LF	7,200.000		143,465.000		150,665.000	
	666-6318	RE PM W/RET REQ TY I (Y)6"(BRK)(100MIL)	LF	1,691.000		10,770.000		12,461.000	
	666-6321	RE PM W/RET REQ TY I (Y)6"(SLD)(100MIL)	LF	6,766.000		115,395.000		122,161.000	
	668-6077	PREFAB PAV MRK TY C (W) (ARROW)	EA	11.000		55.000		66.000	
	668-6085	PREFAB PAV MRK TY C (W) (WORD)	EA	5.000		55.000		60.000	
	672-6007	REFL PAV MRKR TY I-C	EA	19.000		514.000		533.000	
	672-6009	REFL PAV MRKR TY II-A-A	EA	262.000		4,084.000		4,346.000	
	678-6002	PAV SURF PREP FOR MRK (6")	LF	17,468.000		271,235.000		288,703.000	
	678-6004	PAV SURF PREP FOR MRK (8")	LF	364.000		10,070.000		10,434.000	
	678-6008	PAV SURF PREP FOR MRK (24")	LF	36.000		5,080.000		5,116.000	
	678-6009	PAV SURF PREP FOR MRK (ARROW)	EA	11.000		55.000		66.000	
	678-6016	PAV SURF PREP FOR MRK (WORD)	EA	5.000		55.000		60.000	
	3076-6041	D-GR HMA TY-D SAC-A PG70-22	TON	2,732.000		31,469.000		34,201.000	
	3076-6043	D-GR HMA TY-D PG70-22 (LEVEL-UP)	TON			936.000		936.000	
	6001-6001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY	10.000		100.000		110.000	
	6038-6004	MULTIPOLYMER PAV MRK (W)(6")(SLD)	LF			722.000		722.000	
	6038-6018	MULTIPOLYMER PAV MRK (Y)(6")(BRK)	LF			90.000		90.000	
	6185-6002	TMA (STATIONARY)	DAY	10.000		90.000		100.000	
	6185-6003	TMA (MOBILE OPERATION)	HR	24.000		32.000		56.000	
	02	RAILROAD FLAGGING: RAILROAD FORCE ACCOUNT WORK (NON PARTICIPATING)	LS			1.000		1.000	
	08	CONTRACTOR FORCE ACCOUNT RAILROAD FLAGGING (NON-PARTICIPATING)	LS			1.000		1.000	

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 2744-01-032 **DISTRICT** Houston **COUNTY** Montgomery
HIGHWAY FM 2854, SL 336

			CONTROL SECTION JOB		**0338-11-059**		**2744-01-032**		TOTAL EST.	TOTAL FINAL
			PROJECT ID		**A00184110**		**A00119784**			
			COUNTY		**Montgomery**		**Montgomery**			
			HIGHWAY		**SL 336**		**FM 2854**			
ALT	**BID CODE**	**DESCRIPTION**		**UNIT**	EST.	FINAL	EST.	FINAL		
	08	CONTRACTOR FORCE ACCOUNT LAW ENFORCEMENT (NON-PARTICIPATING)		LS			1.000		1.000	
		CONTRACTOR FORCE ACCOUNT SAFETY CONTINGENCY (NON-PARTICIPATING)		LS			1.000		1.000	

CK:
DW:
CK:
DN:

ROADWAY QUANTITY SUMMARY

LOCATION	100 6002 PREPARING ROW	105 6020 REMOVING STAB BASE & ASPH PAV (12")	110 6001 EXCAVATION (ROADWAY)	132 6006 EMBANKMENT (FINAL)(DENS CONT)(TY C)	134 6001 BACKFILL (TY A)	260 6006 LIME TRT (EXST MATL) (6")	260 6012 LIME(HYD,COM OR QK)(SLRY)OR QK(DRY)	275 6001 CEMENT	275 6002 CEMENT TREAT (EXIST MATL) (6")	292 6002 ASPHALT STAB BASE (GR 2)(PG 64)	305 6004 SALV, HAUL & STKPL RCLD APH PV (4 TO 6")	316 6001 ASPH (MULTI OPTION)	316 6434 AGGR (TY-PB GR-4 OR TY-PL GR-4 (SAC-B)	351 6004 FLEXIBLE PAVEMENT STRUCTURE REPAIR(8")	354 6024 PLANE ASPH CONC PAV(2" TO 4")	354 6045 PLANE ASPH CONC PAV (2")	560 6011 MAILBOX INSTALL-S (TWW-POST) TY 4	3076 6041 D-GR HMA TY-D SAC-A PG 70-22	3076 6043 D-GR HMA TY-D PG70-22 (LEVEL-UP)
	STA	SY	CY	CY	STA	SY	TON	TON	SY	TON	SY	GAL	CY	SY	SY	SY	EA	TON	TON
FM 2854																			
SHEET 1 OF 55	3	28	50	5	13	93	2	2	93	100	28	1552	37		833	4849		533	20
SHEET 2 OF 55					13							1590	38			4970		547	
SHEET 3 OF 55					13							1570	38			4905		540	
SHEET 4 OF 55					13							2032	49			6349		698	
SHEET 5 OF 55					13							1770	43			5531		608	
SHEET 6 OF 55					13							1774	43			5544		610	
SHEET 7 OF 55					13							2195	53			6859		754	
SHEET 8 OF 55					13							2174	52			6793		747	
SHEET 9 OF 55					13							1599	38			4996		550	
SHEET 10 OF 55					13							1624	39			5074		558	
SHEET 11 OF 55					13							2265	54			7078		779	
SHEET 12 OF 55					13							2274	55			7105		782	
SHEET 13 OF 55					13							1866	45			5830		641	
SHEET 14 OF 55					13							1618	39			5057		556	
SHEET 15 OF 55					13							1629	39			5091		560	
SHEET 16 OF 55					13							1517	36			4741		522	
SHEET 17 OF 55					13							1490	36			4655		512	
SHEET 18 OF 55					13							1491	36			4658		512	
SHEET 19 OF 55					13							1501	36			4690		516	
SHEET 20 OF 55					13							1942	47			6069		668	
SHEET 21 OF 55					13							2100	50			6564		722	
SHEET 22 OF 55					13							1925	46			6016		662	
SHEET 23 OF 55	9	99	436	5	13	589	4	4	589	642	99	1477	36			4615	2	508	129
SHEET 24 OF 55	6	53	200	5	13	254	2	2	254	277	53	1418	34			4431		487	56
SHEET 25 OF 55					13							1445	35			4515		497	
SHEET 26 OF 55	3	30	79	6	13	112	1	1	112	122	30	1472	35			4601		506	25
SHEET 27 OF 55	9	99	448	8	13	636	4	4	636	693	99	1236	30		854	3864	1	430	139
SHEET 28 OF 55					13							1391	33		778	4347		483	
SHEET 29 OF 55					13							2284	55			7139		785	
SHEET 30 OF 55	4	44	173	10	13	234	2	2	234	255	44	1592	38			4974	1	547	51
SHEET 31 OF 55	9	97	843	8	13	624	4	4	624	680	97	1457	35			4554		501	137
SHEET 32 OF 55					13							1480	36			4624		509	
SHEET 33 OF 55					13							1685	41			5265		579	
SHEET 34 OF 55					13							1801	43			5628		619	
SHEET 35 OF 55					13							1670	40			5220		574	
SHEET 36 OF 55					13							2816	68			8801		968	
SHEET 37 OF 55					13							2044	49			6386		702	
SHEET 38 OF 55					13							1465	35			4577		503	
SHEET 39 OF 55	10	106	406	9	13	473	3	3	473	515	106	1531	37			4783		526	112
SHEET 40 OF 55	3	35	144	12	13	191	1	1	191	208	35	1438	35			4494		494	42
SHEET 41 OF 55					13							1440	35			4500		495	
SHEET 42 OF 55					13							1429	34			4465		491	
SHEET 43 OF 55					13							1442	35			4505		496	
SHEET 44 OF 55					13							1465	35			4577		503	
SHEET 45 OF 55	7	76	355	11	13	498	3	3	498	542	76	1494	36			4670		514	108
SHEET 46 OF 55	8	113	422	6	13	569	4	4	569	620	113	1736	42			5424	1	597	117
SHEET 47 OF 55					13							1652	40			5163		568	
SHEET 48 OF 55					13							1717	41			5366		590	
SHEET 49 OF 55					13							1960	47			6126		674	
SHEET 50 OF 55					13							1631	39			5098		561	
SHEET 51 OF 55					13							1630	39			5095		560	
SHEET 52 OF 55					13							1233	30		683	3852		428	
SHEET 53 OF 55					13							1046	25		683	3270		364	
SHEET 54 OF 55					13							1460	35			4563		502	
SHEET 55 OF 55					9							950	23		566	2970		330	
																* 23223			
2744-01-032 TOTAL	71	780	3556	85	711	4274	30	30	4274	4654	780	91483	2199	13871	4397	309109	5	31469	936
SL 336																			
SHEET 1 OF 3					13							2573	62			8040		884	
SHEET 2 OF 3					13							3167	76			9898		1089	
SHEET 3 OF 3					8							2209	53			6904		759	
																* 1871			
0338-11-059 TOTAL					34							7949	191	1425		26713		2732	
PROJECT TOTAL	**71**	**780**	**3556**	**85**	**745**	**4274**	**30**	**30**	**4274**	**4654**	**780**	**99432**	**2390**	**15296**	**4397**	**335822**	**5**	**34201**	**936**

*QUANTITY FOR PLANING ASPHALT INTERSECTIONS AND DRIVEWAYS. SEE SUMMARY OF INTERSECTION AND DRIVEWAY SHEETS

DATE:
FILE:

FM 2854, ETC.
ROADWAY QUANTITY SUMMARY

SHEET 1 OF 1

®2020

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		26

CK:
DW:
CK:
DN:

SWP3 QUANTITY SUMMARY

CSJ 2744-01-032	162 6002 BLOCK SODDING SY	166 6001 FERTILIZER AC	168 6001 VEGETATIVE WATERING MG	506 6038 TEMP SEDMT CONT FENCE (INSTALL) LF	506 6039 TEMP SEDMT CONT FENCE (REMOVE) LF
SHEET 1 OF 6	4711	0.97	117	2624	2624
SHEET 2 OF 6	5311	1.10	132	2495	2495
SHEET 3 OF 6	4572	0.94	113	2395	2395
SHEET 4 OF 6	3093	0.64	77	2460	2460
SHEET 5 OF 6	3357	0.69	83	2114	2114
SHEET 6 OF 6	311	0.06	8	1165	1165
PROJECT TOTALS	**21355**	**4.40**	**530**	**13253**	**13253**

DATE:
FILE:

FM 2854
SWP3
QUANTITY
SUMMARY

SHEET 1 OF 1

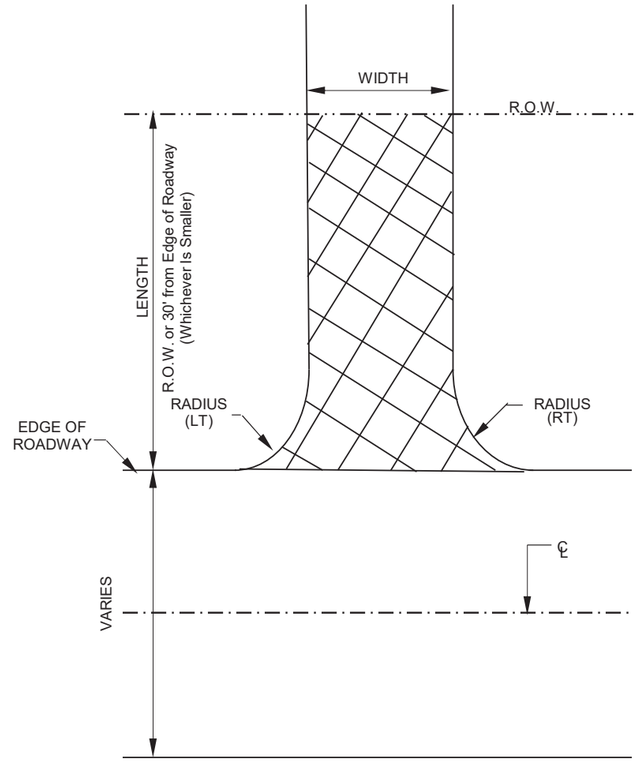
®2020

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		**26A**

SUMMARY OF DRIVEWAYS

			EXISTING DRIVEWAY		PROPOSED DRIVEWAY				
RDWY	DRWY	APPROX	SURF	*ITEM 354	LT	RT	LENGTH	WIDTH	ITEM 530
PLAN &	NO	RDWY STA	TYPE	6045	RADIUS	RADIUS			6005
PROFILE		AT CL DRWY		PLANE					DRIVEWAYS
SHEET				A.C.P.					(ACP)
				2.0"					
				SY	FT	FT	FT	FT	SY
1	1	130+14.80 LT	ACP	98	15	15	46	13	98
1	2	133+16.55 RT	ACP	223	25	25	53	30	223
2	3	141+96.70 LT	ACP	91	15	15	62	11	91
2	4	146+19.00 RT	ACP	123	15	15	62	15	123
3	5	160+35.18 LT	ACP	75	15	15	44	12	75
5	6	187+72.12 RT	ACP	116	15	15	64	14	116
5	7	189+28.09 RT	ACP	170	15	15	85	14	170
6	8	200+06.46 RT	ACP	61	15	15	41	12	61
6	9	202+62.90 RT	ACP	70	15	15	42	12	70
6	10	205.00+00 RT	ACP	58	15	15	42	12	58
7	11	207+13.48 RT	ACP	69	15	15	36	25	69
7	12	208+76.12 RT	ACP	112	15	15	43	16	112
7	13	217+59.74 RT	ACP	64	15	15	42	14	64
8	14	225+21.74 LT	ACP	73	15	15	42	15	73
8	15	230+53.67 LT	ACP	68	15	15	42	12	68
9	16	241+41.71 RT	ACP	189	25	25	43	24	189
9	17	241+45.15 LT	ACP	311	25	25	44	36	311
9	18	242+94.23 RT	ACP	55	15	15	42	11	55
9	19	243+04.54 LT	ACP	149	15	15	42	23	149
10	20	254+85.87 RT	ACP	106	15	15	61	12	106
11	21	258+19.86 RT	ACP	70	15	15	42	12	70
11	22	259+78.06 RT	ACP	71	15	15	44	12	71
11	23	260+98.31 LT	ACP	66	15	15	41	12	66
11	24	262+44.35 RT	ACP	56	15	15	27	17	56
11	25	267+82.75 LT	ACP	66	15	15	53	11	66
12	26	272+77.91 LT	ACP	57	15	15	35	12	57
12	27	282+17.50 LT	ACP	45	15	15	36	12	45
13	28	288+51.14 LT	ACP	59	15	15	38	12	59
13	29	290+09.83 LT	ACP	57	15	15	44	12	57
13	30	290+82.62 LT	ACP	57	15	15	44	12	57
13	31	292+46.47 RT	ACP	62	15	15	41	12	62
13	32	294+57.33 LT	ACP	232	25	25	44	34	232
14	33	297+34.35 LT	ACP	118	25	25	47	18	118
14	34	299+87.35 LT	ACP	100	15	15	58	14	100
14	35	308+91.52 LT	ACP	81	15	15	57	11	81
15	36	310+72.39 LT	ACP	126	15	15	67	12	126
15	37	315+18.75 RT	ACP	123	25	25	77	12	123
15	38	322+56.60 LT	ACP	61	15	15	43	12	61
16	39	327+27.23 LT	ACP	90	15	15	52	15	90
16	40	328+14.01 RT	ACP	75	15	15	42	15	75
16	41	334+89.93 RT	ACP	69	15	15	43	12	69
16	42	335+56.74 RT	ACP	73	15	15	43	12	73
17	43	337+31.14 RT	ACP	54	15	15	44	10	54
17	44	338+39.95 LT	ACP	281	25	25	131	14	281
17	45	338+52.14 RT	ACP	62	15	15	47	14	62
17	46	342+63.29 RT	ACP	112	20	20	48	14	112
17	47	343+53.05 LT	ACP	70	15	15	50	14	70
TOTAL				4,673					4,674



DRIVEWAY DETAIL

NTS

*NOTE: ITEM 354 SHOWN HERE FOR CONTRACTOR'S INFORMATION. TOTAL QUANTITY FOR THIS ITEM IS SHOWN ON THE ROADWAY QUANTITY SUMMARY SHEET

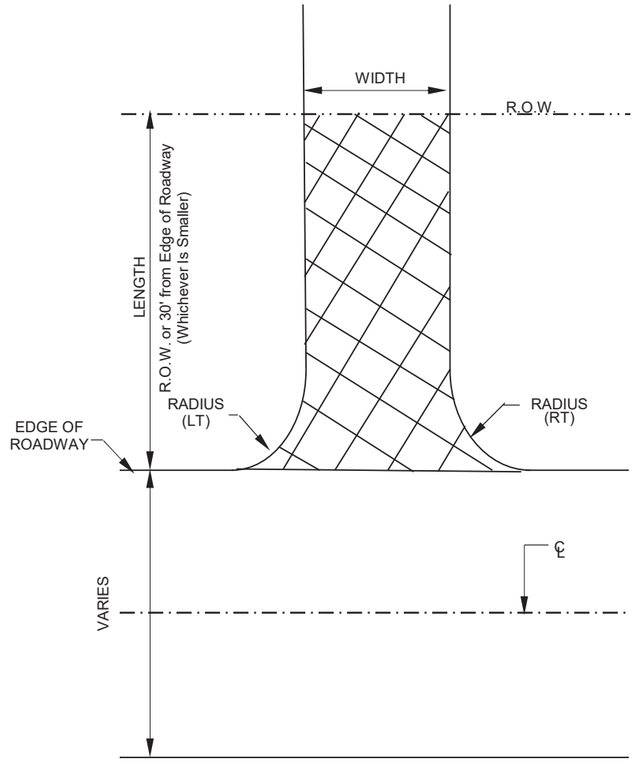
FM 2854 DRIVEWAY QUANTITIES

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6			027
STATE	STATE DIST. NO.	COUNTY	
TEXAS	HOU	MONTGOMERY	
CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854

SUMMARY OF DRIVEWAYS

		EXISTING DRIVEWAY		PROPOSED DRIVEWAY					
RDWY	DRWY	APPROX	SURF	* ITEM 354	LT	RT	LENGTH	WIDTH	ITEM 530
PLAN &	NO	RDWY STA	TYPE	6045	RADIUS	RADIUS			6005
PROFILE		AT CL DRWY		PLANE					DRIVEWAYS
SHEET				A.C.P.					(ACP)
				2.0"					
				SY	FT	FT	FT	FT	SY
17	48	348+30.53 LT	ACP	75	15	15	61	12	75
18	49	361+20.18 LT	ACP	149	15	15	61	12	149
19	50	366+21.60 LT	ACP	75	15	15	59	12	75
22	51	402+03.37 LT	ACP	53	15	15	42	11	53
22	52	412+71.75 LT	ACP	87	15	15	61	12	87
23	53	425+39.44 LT	ACP	72	15	15	36	12	72
24	54	439+55.54 LT	ACP	112	25	25	40	14	112
25	55	447+03.17 LT	ACP	195	25	15	43	20	195
25	56	447+53.17 LT	ACP	86	15	15	40	14	86
27	57	467+64.49 LT	ACP	38	15	15	30	11	38
27	58	470+29.11 LT	ACP	30	15	15	25	11	30
28	59	487+12.44 LT	ACP	47	15	15	31	12	47
29	60	491+97.91 RT	ACP	78	15	15	28	14	78
29	61	494+86.04 LT	ACP	149	25	25	18	51	149
29	62	498+51.84 LT	ACP	224	25	25	32	40	224
29	63	503+94.73 LT	ACP	82	15	15	53	11	82
30	64	506+20.06 LT	ACP	100	15	15	58	14	100
30	65	516+12.35 LT	ACP	58	15	15	46	11	58
31	66	518+13.63 LT	ACP	61	15	15	55	12	61
31	67	525+85.92 LT	ACP	85	15	15	52	12	85
32	68	537+53.65 LT	ACP	412	25	25	63	44	412
32	69	543+38.11 RT	ACP	69	25	25	33	10	69
32	70	543+57.02 LT	ACP	423	15	15	62	42	423
33	71	553+41.19 LT	ACP	343	20	20	55	45	343
33	72	555+51.43 LT	ACP	100	15	15	51	12	100
34	73	559+25.90 LT	ACP	65	15	15	42	12	65
35	74	571+62.36 LT	ACP	205	20	20	43	35	205
35	75	572+89.94 LT	ACP	81	20	20	46	10	81
35	76	578+67.49 LT	ACP	131	20	20	52	10	131
35	77	582+94.29 LT	ACP	80	15	15	50	11	80
36	78	584+74.64 LT	ACP	125	15	15	48	20	125
36	79	589+27.82 LT	ACP	140	15	15	49	24	140
36	80	590+14.87 LT	ACP	80	15	15	40	12	80
36	81	595+47.96 LT	ACP	251	15	37	55	27	251
37	82	603+13.45 LT	ACP	192	15	15	75	18	192
38	83	609+54.21 LT	ACP	140	15	15	63	10	140
38	84	614+59.23 LT	ACP	145	15	15	64	12	145
39	85	628+71.54 LT	ACP	180	15	15	38	16	180
39	86	628+71.54 LT	ACP	184	15	15	38	16	184
39	87	629+88.93 LT	ACP	55	15	15	32	12	55
39	88	633+72.09 LT	ACP	89	15	15	38	19	89
40	89	637+72.63 LT	ACP	65	15	15	37	12	65
40	90	642+73.35 LT	ACP	236	20	20	42	35	236
40	91	644+38.26 LT	ACP	56	15	15	42	12	56
40	92	647+90.00 LT	ACP	129	20	17	44	17	129
41	93	649+12.00 LT	ACP	160	15	15	17	25	160
41	94	650+10.00 LT	ACP	150	15	15	43	12	150
SHEET TOTAL				6,142					6,142



DRIVEWAY DETAIL

NTS

*NOTE: ITEM 354 SHOWN HERE FOR CONTRACTOR'S INFORMATION. TOTAL QUANTITY FOR THIS ITEM IS SHOWN ON THE ROADWAY QUANTITY SUMMARY SHEET

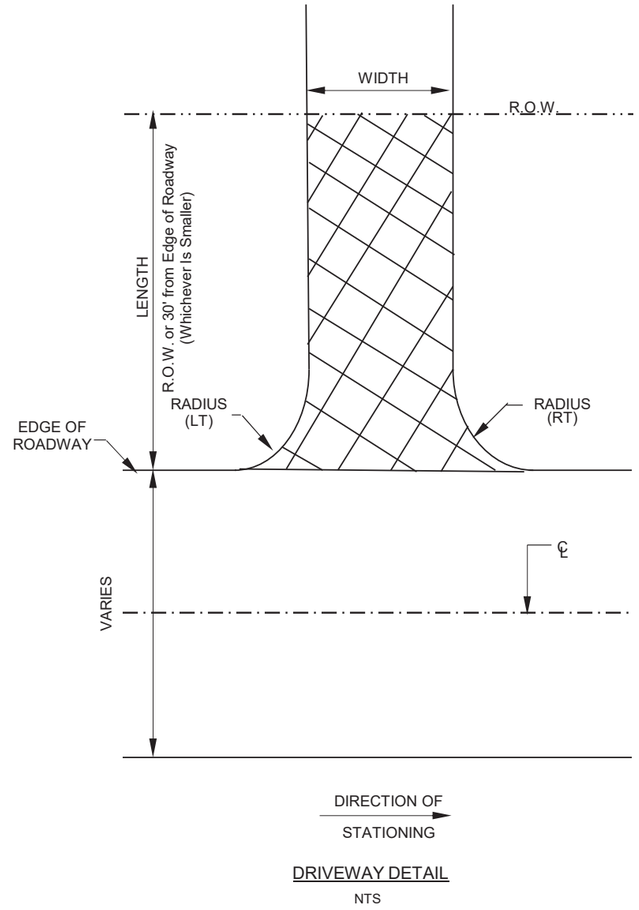
FM 2854 DRIVEWAY QUANTITIES

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6			028
STATE	STATE DIST. NO.	COUNTY	
TEXAS	HOU	MONTGOMERY	
CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854

SUMMARY OF DRIVEWAYS

			EXISTING DRIVEWAY		PROPOSED DRIVEWAY				
RDWY	DRWY	APPROX	SURF	* ITEM 354	LT	RT	LENGTH	WIDTH	ITEM 530
PLAN &	NO	RDWY STA	TYPE	6045	RADIUS	RADIUS			6005
PROFILE		AT CL DRWY		PLANE					DRIVEWAYS
SHEET				A.C.P.					(ACP)
				2.0"					
				SY	FT	FT	FT	FT	SY
41	95	653+13.32 LT	ACP	41	15	15	33	12	41
41	96	655+46.68 LT	ACP	150	15	15	43	19	150
41	97	657+38.50 LT	ACP	101	15	15	43	12	101
41	98	657+71.00 LT	ACP	89	15	15	43	12	89
41	99	658+87.37 LT	ACP	59	15	15	43	12	59
42	100	661+48.42 LT	ACP	347	15	15	45	12	347
42	101	663+79.36 LT	ACP	102	15	15	45	12	102
42	102	666+85.19 LT	ACP	76	15	15	45	12	76
42	103	668+22.97 LT	ACP	60	15	15	44	12	60
42	104	670+39.19 LT	ACP	50	15	15	42	12	50
43	105	676+75.28 LT	ACP	104	15	15	56	12	104
44	106	691+75.08 LT	ACP	89	15	15	43	12	89
44	107	693+30.45 LT	ACP	120	15	15	43	12	120
44	108	694+17.57 LT	ACP	51	15	15	42	8	51
44	109	696+14.07 LT	ACP	151	30	30	42	20	151
44	110	697+97.59 LT	ACP	100	15	15	42	12	100
45	111	700+08.72 LT	ACP	70	15	15	35	12	70
45	112	709+21.81 LT	ACP	76	15	15	56	11	76
46	113	719+01.07 LT	ACP	89	15	15	33	21	89
46	114	720+42.81 LT	ACP	114	15	15	34	23	114
46	115	721+33.46 LT	ACP	157	15	15	37	30	157
46	116	721+84.13 LT	ACP	98	15	15	31	16	98
46	117	724+02.55 LT	ACP	121	15	15	40	18	121
47	118	728+49.69 LT	ACP	162	15	15	44	27	162
47	119	730+52.84 LT	ACP	188	20	20	43	32	188
49	120	752+66.38 LT	ACP	66	15	15	39	12	66
49	121	761+18.08 LT	ACP	46	15	15	41	12	46
49	122	763+39.08 LT	ACP	197	15	15	42	34	197
49	123	764+42.40 LT	ACP	86	15	15	44	12	86
50	124	766+03.86 LT	ACP	90	15	15	45	12	90
50	125	769+94.93 LT	ACP	58	15	15	40	12	58
50	126	771+94.93 LT	ACP	144	15	15	45	20	144
50	127	772+54.76 LT	ACP	108	15	15	44	17	108
50	128	774+21.78 LT	ACP	92	15	15	45	12	92
50	129	776+97.82 LT	ACP	254	15	15	44	35	254
51	130	779+54.23 LT	ACP	162	20	20	43	24	162
51	131	781+03.91 LT	ACP	194	20	20	43	33	194
51	132	784+23.00 RT	ACP	104	20	20	43	33	104
51	133	784+28.55 LT	ACP	142	20	20	42	20	142
52	134	792+67.85 LT	ACP	81	20	20	28	21	81
52	135	793+71.03 LT	ACP	64	15	15	30	17	64
53	136	806+57.00 RT	ACP	39	15	15	18	12	39
54	137	816+55.00 LT	ACP	49	15	15	35	10	49
55	138	830+20.00 LT	ACP	187	38	34	48	22	187
55	139	834+05.00 RT	ACP	123	40	2022	48	21	123
SHEET TOTAL				5,051					5,051
HIGHWAY TOTAL				**15,866**					**15,866**



DRIVEWAY DETAIL

NTS

*NOTE: ITEM 354 SHOWN HERE FOR CONTRACTOR'S INFORMATION. TOTAL QUANTITY FOR THIS ITEM IS SHOWN ON THE ROADWAY QUANTITY SUMMARY SHEET

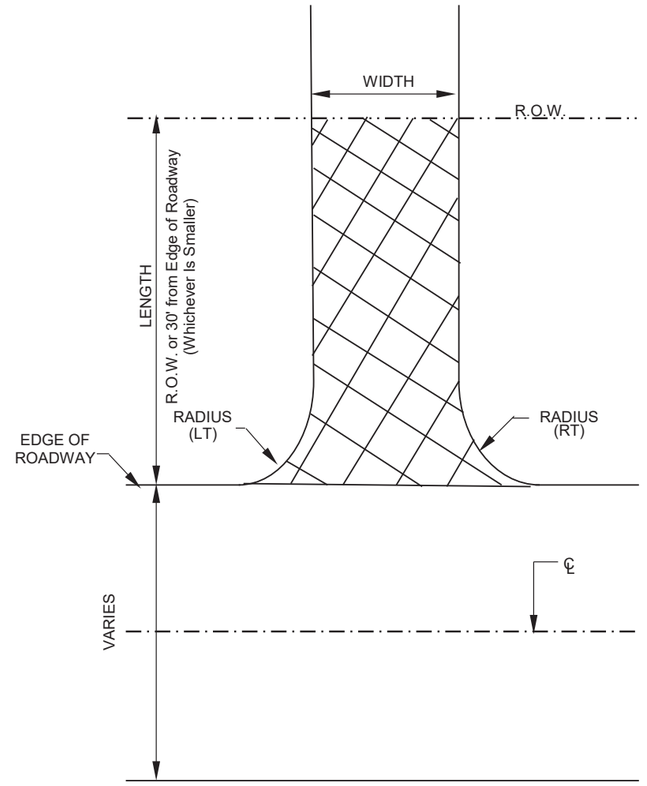
FM 2854 DRIVEWAY QUANTITIES

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6			29
STATE	STATE DIST. NO.	COUNTY	
TEXAS	HOU	MONTGOMERY	
CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854

SUMMARY OF INTERSECTION

			EXISTING INTERSECTION		PROPOSED INTERSECTION				
RDWY	INTERSECTION	APPROX	SURF	*ITEM 354	LT	RT	LENGTH	WIDTH	ITEM 530
PLAN &		RDWY STA	TYPE	6045	RADIUS	RADIUS			6002
PROFILE		AT CL INTERSECTION		PLANE					INTERSECTIONS
SHEET				A.C.P.					(ACP)
				2.0"					2.0"
				SY	FT	FT	FT	FT	SY
2	HAVENSHIRE DR	147+14.65 LT	ACP	148	25	25	51	20	148
4	HILLTOP RANCH DR.	178+97.72 LT	ACP	324	20	20	46	58	324
7	GRAND ELM GREEN DR	209+93.00 LT	ACP	140	20	20	43	20	140
8	FAIRWATER PARKWAY	220+00.00 LT	ACP	84	15	15	43	16	84
8	WESTERN TRAILS BLV.	229+02.32 RT	ACP	333	28	35	43	66	333
10	MAIL ROUTE RD.	256+58.70 RT	ACP	263	25	25	41	30	263
11	SCHOOL RD.	265+32.60 RT	ACP	178	20	20	37	37	178
12	SCHOOL RD.	279+10.97 RT	ACP	159	20	20	36	38	159
15	KINKAID RD E	320+33.07 LT	ACP	131	20	20	40	21	131
15	KINKAID RD W	322+01.15 RT	ACP	136	20	20	53	17	136
16	RABON CHAPEL RD.	329+87.25 LT	ACP	232	25	25	67	21	232
17	ADOUE RD.	346+26.20 RT	ACP	166	15	15	45	27	166
18	TACKER RD	356+83.58 LT	ACP	277	15	15	61	24	277
20	KATY	375+03.51 LT	ACP	208	20	20	58	22	208
22	KEENAN CUT OFF RD	405+99.87 LT	ACP	150	20	20	27	36	150
23	COLLIER CEMETERY RD	420+90.63 RT	ACP	115	20	20	27	29	115
24	AMHERST GLADE RD	430+55.71 LT	ACP	63	15	15	40	9	63
25	LEGACY CREEK CT	451+60.90 LT	ACP	346	15	15	43	47	346
27	DEER LAKE LODGE RD	466+13.17 RT	ACP	136	15	15	30	24	136
30	JOHNSON RD	516+72.88 RT	ACP	97	15	15	25	23	97
33	RABON CHAPEL RD	551+20.35 LT	ACP	248	20	20	61	22	248
34	SPINGWOOD DR	557+47.12 LT	ACP	132	15	15	54	18	132
34	HONEA EGYPT RD	557+49.81 RT	ACP	317	20	20	31	59	317
34	LAKESHORE DR	561+58.98 LT	ACP	125	15	15	53	18	125
34	LAKESIDE DR	565+33.00 LT	ACP	144	15	15	58	17	144
35	LAKEVIEW FOREST DR	574+91.91 LT	ACP	159	15	15	58	17	159
36	FISH CREEK THROUGFARE	592+56.11 LT	ACP	305	20	20	50	39	305
39	PONDEROSA DR	629+44.00 RT	ACP	94	15	15	25	24	94
39	PINCHBACK RD	630+74.90 LT	ACP	97	20	20	37	13	97
42	ANNIE BELL	665+29.92 LT	ACP	96	15	15	44	12	96
44	COWL SPUR CT	687+34.00 LT	ACP	214	20	20	44	30	214
45	MISTY HAVEN DR	704+50.00 LT	ACP	169	15	15	50	20	169
46	OLD HWY 105 W	715+60.00 LT	ACP	162	20	20	52	23	162
46	FELDER LN	722+74.00 LT	ACP	104	20	20	27	18	104
46	HOKE MADELEY RD	723+60.00 RT	ACP	91	20	20	42	27	91
48	CHASEWOOD BLVB	742+40.00 LT	ACP	192	20	20	42	27	192
49	LEONIDAS HORTON RD	753+00.00 RT	ACP	82	20	20	24	20	82
49	E WOODMARK DR	756+91.00 LT	ACP	251	15	15	40	48	251
50	WAHRENBERGER RD	769+31.00 RT	ACP	88	15	15	29	18	88
51	ALLEN DR	790+74.00 LT	ACP	141	15	15	35	22	141
52	ALLEN DR	799+54.00 LT	ACP	152	20	17	44	22	152
54	DREW LN	818+97.00 LT	ACP	151	20	20	45	19	151
54	STEVE OWENS RD	825+60.00 LT	ACP	157	30	30	49	17	157
TOTAL				7,357					7,357



DIRECTION OF
STATIONING

DRIVEWAY DETAIL
NTS

*NOTE: ITEM 354 SHOWN HERE FOR CONTRACTOR'S INFORMATION. TOTAL QUANTITY FOR THIS ITEM IS SHOWN ON THE ROADWAY QUANTITY SUMMARY SHEET

FM 2854 INTERSECTION QUANTITIES

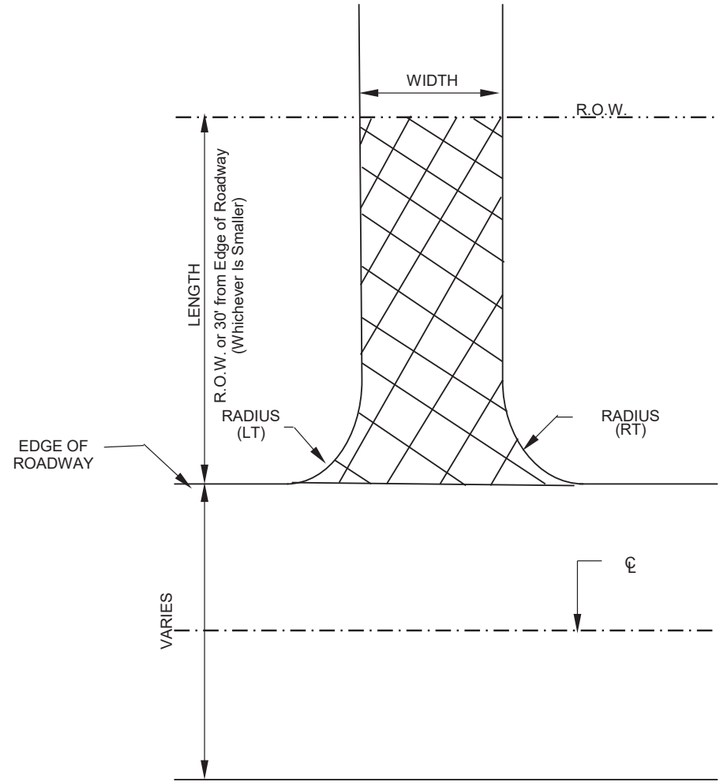
SHEET 1 OF 1

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6			30
STATE	STATE DIST. NO.	COUNTY	
TEXAS	HOU	MONTGOMERY	
CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854

SUMMARY OF DRIVEWAYS & INTERSECTION

				EXISTING DRIVEWAY		PROPOSED DRIVEWAY & INTERSECTION					
RDWY	DRWY	INTERSECTION	APPROX	SURF	* ITEM 354	LT	RT	LENGTH	WIDTH	ITEM 530	ITEM 530
PLAN &	NO		RDWY STA	TYPE	6045	RADIUS	RADIUS			6002	6005
PROFILE			AT CL DRWY		PLANE					INTERSECTION	DRIVEWAYS
SHEET					A.C.P.					(ACP)	(ACP)
					2.0"					2.0"	2.0"
					SY	FT	FT	FT	FT	SY	SY
1	1		04+58.00 LT	ACP	329	20	20	63	43		329
1	2		06+10.00 RT	ACP	294	60	60	55	30		294
1	3		08+56.24 RT	ACP	212	20	20	53	34		212
1	4		10+66.18 RT	ACP	104	20	15	42	20		104
1	5		10+77.37 LT	ACP	202	35	35	33	37		202
1	6		10+93.05 RT	ACP	114	15	20	42	21		114
2	7		12+74.04 LT	ACP	156	25	25	43	26		156
2	8		18+59.55 LT	ACP	231	20	20	43	50		231
2		OLD COUNTRY CLUB RD	22+47.00 LT	ACP	229	43	43	45	30	229	
TOTAL					**1871**					**229**	**1642**



DRIVEWAY DETAIL

NTS

*NOTE: ITEM 354 SHOWN HERE FOR CONTRACTOR'S INFORMATION. TOTAL QUANTITY FOR THIS ITEM IS SHOWN ON THE ROADWAY QUANTITY SUMMARY SHEET

SL 336 DRIVEWAY & INTERSECTION QUANTITIES

SHEET 1 OF 1

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6			31
STATE	STATE DIST. NO.	COUNTY	
TEXAS	HOU	MONTGOMERY	
CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	SL 336

SUMMARY OF PERMANENT PAVEMENT MARKING QUANTITIES

LAYOUT SHEET NO.	666 - RETROFLECTORIZED PAVEMENT MARKINGS								668		672-RAISED PAV MRKS		678 - PAV SURF PREP FOR MARKINGS				
	6027	6036	6048	6147	6225	6309	6318	6321	6077	6085	6007	6009	6002	6004	6008	6009	6016
	REFL PAV MRK TY I (W) 8" (BRK) (100MIL)	REFL PAV MRK TY I (W) 8" (SLD) (100MIL)	REFL PAV MRK TY I (W) 24" (SLD) (100MIL)	REFL PAV MRK TY I (Y) 24" (SLD) (100MIL)	PAVEMENT SEALER 6"	RE PM W/RET REQ TY I (W) 6" (SLD) (100MIL)	RE PM W/RET REQ TY I (Y) 6" (BRK) (100MIL)	RE PM W/RET REQ TY I (Y) 6" (SLD) (100MIL)	PREFAB PAV MRK TY C (W) (ARROW)	PREFAB PAV MRK TY C (W) (WORD)	REFL PAV MRKR TY I-C	REFL PAV MRKR TY II-A-A	(6")	(8")	(24")	(ARROW)	(WORD)
	LF	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	LF	LF	LF	EA	EA
1	-	295	50	30	-	2565	230	1755	2	2	14	60	4550	295	80	2	2
2	-	-	10	-	-	2610	320	1230	-	-	-	30	4160	0	10	0	0
3	-	-	-	-	-	2600	320	1300	-	-	-	34	4220	0	0	0	0
4	-	515	20	255	-	2625	10	3485	3	3	26	170	6120	515	275	3	3
5	-	-	-	145	-	2600	-	3310	-	-	-	94	5910	0	145	0	0
6	-	-	-	5	-	2600	-	2740	-	-	-	44	5340	0	5	0	0
7	-	355	-	520	-	2600	-	4435	2	2	18	200	7035	355	520	2	2
8	-	770	55	230	-	2605	70	3170	4	4	38	146	5845	770	285	4	4
9	-	-	-	-	-	2600	320	1300	-	-	-	34	4220	0	0	0	0
10	-	-	25	-	-	2620	310	1200	-	-	-	30	4130	0	25	0	0
11	-	805	140	90	-	2670	90	2780	6	6	40	118	5540	805	230	6	6
12	-	470	25	105	-	2640	240	3015	3	3	24	116	5895	470	130	3	3
13	-	-	-	125	-	2600	160	2715	-	-	-	108	5475	0	125	0	0
14	-	-	-	-	-	2600	330	1300	-	-	-	32	4230	0	0	0	0
15	-	-	20	-	-	2825	30	1300	-	-	-	32	4155	0	20	0	0
16	-	-	15	-	-	2685	300	1215	-	-	-	30	4200	0	15	0	0
17	-	-	15	-	-	2650	310	1295	-	-	-	32	4255	0	15	0	0
18	-	-	15	-	-	2600	310	1225	-	-	-	32	4135	0	15	0	0
19	-	-	15	-	-	2640	320	1270	-	-	-	32	4230	0	15	0	0
20	-	505	-	125	-	2635	90	2820	2	3	26	126	5545	505	125	2	3
21	-	515	-	75	-	2635	160	2725	4	3	28	118	5520	515	75	4	3
22	-	-	-	-	-	2600	20	2550	-	-	-	32	5170	0	0	0	0
23	-	440	15	60	-	2610	90	2460	3	3	22	104	5160	440	75	3	3
24	-	-	-	105	-	2600	200	2460	-	-	-	98	5260	0	105	0	0
25	-	-	25	-	-	2610	310	1215	-	-	-	30	4135	0	25	0	0
26	-	-	-	70	-	2620	250	1935	-	-	-	64	4805	0	70	0	0
27	-	440	15	120	100	2600	40	2955	3	3	24	120	5695	440	135	3	3
28	-	-	-	205	545	2600	20	3700	-	-	-	140	6865	0	205	0	0
TOTALS	0	5,110	460	2,265	645	73,445	4,850	62,860	32	32	260	2,206	141,800	5,110	2,725	32	32

FM 2854,ETC.
SUMMARY OF PERMANENT PAVEMENT MARKING QUANTITIES

STATE	FEDERAL	PROJECT NO.		SHEET
DISTRICT	REGION			32
HOU	6			HIGHWAY
COUNTY	CONTROL	SECTION	JOB	NO.
MONTGOMERY	2744	01	032	FM 2854

SUMMARY OF PERMANENT PAVEMENT MARKING QUANTITIES

LAYOUT SHEET NO.	666 - RETROFLECTORIZED PAVEMENT MARKINGS								668		672-RAISED PAV MRKS		678 - PAV SURF PREP FOR MARKINGS				
	6027	6036	6048	6147	6225	6309	6318	6321	6077	6085	6007	6009	6002	6004	6008	6009	6016
	REFL PAV MRK TY I (W) 8" (BRK) (100MIL)	REFL PAV MRK TY I (W) 8" (SLD) (100MIL)	REFL PAV MRK TY I (W) 24" (SLD) (100MIL)	REFL PAV MRK TY I (Y) 24" (SLD) (100MIL)	PAVEMENT SEALER 6"	RE PM W/RET REQ TY I (W) 6" (SLD) (100MIL)	RE PM W/RET REQ TY I (Y) 6" (BRK) (100MIL)	RE PM W/RET REQ TY I (Y) 6" (SLD) (100MIL)	PREFAB PAV MRK TY C (W) (ARROW)	PREFAB PAV MRK TY C (W) (WORD)	REFL PAV MRKR TY I-C	REFL PAV MRKR TY II-A-A	(6")	(8")	(24")	(ARROW)	(WORD)
	LF	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	LF	LF	LF	EA	EA
29	45	1065	100	65	-	2675	20	3230	6	6	56	144	5925	1110	165	6	6
30	-	100	10	65	-	2615	230	1995	1	1	6	70	4840	100	75	1	1
31	-	470	-	115	-	2600	100	2810	2	2	24	124	5510	470	115	2	2
32	-	-	-	-	-	2600	330	1300	-	-	-	32	4230	0	0	0	0
33	-	120	50	70	-	2670	170	2395	1	1	6	86	5235	120	120	1	1
34	-	190	265	70	-	2800	110	2815	2	2	10	100	5725	190	335	2	2
35	-	-	10	90	-	2680	230	2280	-	-	-	80	5190	0	100	0	0
36	-	1090	75	200	-	2675	-	3135	-	-	56	150	5810	1090	275	0	0
37	-	660	75	165	-	2645	90	3090	4	4	34	130	5825	660	240	4	4
38	-	-	-	-	-	2600	320	1300	-	-	-	34	4220	0	0	0	0
39	-	440	10	120	-	2610	80	2905	3	3	22	122	5595	440	130	3	3
40	-	-	-	140	-	2600	240	2185	-	-	-	80	5025	0	140	0	0
41	-	-	-	-	-	2600	330	1300	-	-	-	32	4230	0	0	0	0
42	-	-	5	-	-	2670	310	1255	-	-	-	32	4235	0	5	0	0
43	-	-	-	-	-	2605	320	1280	-	-	-	32	4205	0	0	0	0
44	-	-	20	-	-	2635	300	1225	-	-	-	32	4160	0	20	0	0
45	-	285	10	145	-	2670	140	2550	2	2	14	108	5360	285	155	2	2
46	-	495	30	75	-	2710	170	1685	2	2	26	80	4565	495	105	2	2
47	-	-	-	-	-	2600	330	1300	-	-	-	32	4230	0	0	0	0
48	-	-	15	85	-	2640	180	2440	-	-	-	90	5260	0	100	0	0
49	-	-	35	180	-	2635	210	3165	-	-	-	122	6010	0	215	0	0
50	-	-	10	-	-	2630	310	1245	-	-	-	22	4185	0	10	0	0
51	-	-	10	-	-	2640	310	1250	-	-	-	32	4200	0	10	0	0
52	-	-	15	-	560	2645	300	1235	-	-	-	32	4740	0	15	0	0
53	-	-	-	-	400	2600	330	1300	-	-	-	32	4630	0	0	0	0
54	-	-	10	-	-	2660	300	1230	-	-	-	32	4190	0	10	0	0
55	-	-	15	-	-	1310	160	635	-	-	-	16	2105	0	15	0	0
TOTALS	45	4,915	770	1,585	960	70,020	5,920	52,535	23	23	254	1,878	129,435	4,960	2,355	23	23
GRAND TOTALS	45	10,025	1,230	3,850	1,605	143,465	10,770	115,395	55	55	514	4,084	271,235	10,070	5,080	55	55

FM 2854,ETC.
SUMMARY OF PERMANENT PAVEMENT MARKING QUANTITIES

SHEET 2 OF 3

STATE DISTRICT	FEDERAL REGION	PROJECT NO.		SHEET
HOU	6			32 HIGHWAY
COUNTY	CONTROL	SECTION	JOB	NO.
MONTGOMERY	2744	01	032	FM 2854

CK:
DW:
CK:
DN:

SUMMARY OF PERMANENT PAVEMENT MARKING QUANTITIES

CSJ 2744-01-032	666 6027	666 6036	666 6048	666 6147	666 6225	666 6309	666 6306	666 6318	666 6321	668 6077	668 6085	672 6007
	REFL PAV MRK TY I (W)8"(BRK)(100MIL)	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	REFL PAV MRK TY I (Y)24"(SLD)(100MIL)	PAVEMENT SEALER 6"	RE PM W/RET REQ TY I (W)6"(SLD)(100MIL)	RE PM W/RET REQ TY I (W)6"(BRK)(100MIL)	RE PM W/RET REQ TY I (Y)6"(BRK)(100MIL)	RE PM W/RET REQ TY I (Y)6"(SLD)(100MIL)	PREFAB PAV MRK TY C (W) (ARROW)	PREFAB PAV MRK TY C (W) (WORD)	REFL PAV MRKR TY I-C
	LF	LF	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA
FM 2854												
2744-01-032 TOTAL	45	10025	1230	3850	1605	143465	0	10770	115395	55	55	514
LOOP 336												
SHEET 1	364	364	36	2000	2000	2000	449	391	1566	5	5	19
SHEET 2	0	0	0	2600	2600	2600	650	650	2600	0	0	0
SHEET 3	0	0	0	2600	2600	2600	712	650	2600	6	0	0
0338-11-059 TOTAL	364	364	36	7200	7200	7200	1811	1691	6766	11	5	19
PROJECT TOTALS	**409**	**10389**	**1266**	**11050**	**8805**	**150665**	**1811**	**12461**	**122161**	**66**	**60**	**533**

SUMMARY OF PAVEMENT MARKING ITEMS

CSJ 2744-01-032	672 6009	678 6002	678 6004	678 6008	678 6009	678 6016
	REFL PAV MRKR TY II-A-A	PAV SURF PREP FOR MRK (6")	PAV SURF PREP FOR MRK (8")	PAV SURF PREP FOR MRK (24")	PAV SURF PREP FOR MRK (ARROW)	PAV SURF PREP FOR MRK (WORD)
	EA	LF	LF	LF	EA	EA
FM 2854						
2744-01-032 TOTAL	4084	271235	10070	5080	55	55
LOOP 336						
SHEET 1	63	4840	364	2000	5	19
SHEET 2	98	6500	0	2600	0	0
SHEET 3	101	6562	0	2600	0	0
0338-11-059 Total	262	17902	364	7200	5	19
PROJECT TOTALS	**4346**	**289137**	**10434**	**12280**	**60**	**74**

DATE:
FILE:

FM 2854, ETC.
PAVEMENT MARKING SUMMARY QUANTITIES

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		33A

CK:
DW:
CK:
DN:

WORK ZONE PAVEMENT MARKING SUMMARY QUANTITIES

SUMMARY OF PAVEMENT MARKING ITEMS

CSJ 2744-01-032	662 6008 WK ZN PAV MRK NON-REMOV (W)6"(SLD)	662 6035 WK ZN PAV MRK NON-REMOV (Y)6"(BRK)	662 6045 WK ZN PV MK NON-REM (Y)(4")SLD W/MRKR	662 6012 WK ZN PAV MRK NON-REMOV (W)8"(SLD)	662 6005 WK ZN PAV MRK NON-REMOV (W)6"(BRK)	662 6014 WK ZN PAV MRK NON-REMOV (W)12"(SLD)	662 6016 WK ZN PAV MRK NON-REMOV (W)24"(SLD)	662 6017 WK ZN PAV MRK NON-REMOV (W)(ARROW)	662 6018 WK ZN PAV MRK NON-REMOV (W)(DBL ARW)	662 6029 WK ZN PAV MRK NON-REMOV(W)(WORD)
	EA	LF	LF	LF		EA	EA	LF	LF	LF
FM 2854										
SHEET 1 OF 52	6	225	14862	5886		3	6	309	0	120
SHEET 2 OF 52	0	48	12276	3492		0	0	0	0	27
SHEET 3 OF 52	0	51	8775	0		0	0	0	0	0
SHEET 4 OF 52	6	564	19071	11226		6	0	1542	0	63
SHEET 5 OF 52	0	312	19362	11562		0	0	0	0	0
SHEET 6 OF 52	0	99	15600	7800		0	0	0	0	0
SHEET 7 OF 52	0	48	12159	3384		0	0	0	0	0
SHEET 8 OF 52	0	51	8775	0		0	0	0	0	0
SHEET 9 OF 52	0	87	11754	2979		0	0	0	0	0
SHEET 10 OF 52	0	75	10497	2100		0	0	0	0	72
SHEET 11 OF 52	21	381	14007	7536		21	0	2367	237	150
SHEET 12 OF 52	12	315	18096	9450		30	0	1350	0	72
SHEET 13 OF 52	0	357	14877	6582		0	0	0	0	0
SHEET 14 OF 52	0	78	13980	2280		0	0	0	0	0
SHEET 15 OF 52	0	87	13158	4734		0	0	0	0	57
SHEET 16 OF 52	0	84	11550	2565		0	0	0	0	36
SHEET 17 OF 52	0	96	10167	5580		0	0	0	0	45
SHEET 18 OF 52	0	96	15273	7458		0	0	0	0	45
SHEET 19 OF 52	0	96	15507	7719		0	0	0	0	42
SHEET 20 OF 52	0	96	15402	7614		0	0	0	0	0
SHEET 21 OF 52	0	99	15600	7800		0	0	0	0	0
SHEET 22 OF 52	6	672	20634	12822		6	0	735	0	66
SHEET 23 OF 52	12	444	16938	9078		12	0	1323	0	48
SHEET 24 OF 52	0	396	17271	8925		0	0	0	0	0
SHEET 25 OF 52	0	99	13200	4500		0	0	0	0	72
SHEET 26 OF 52	0	153	13260	4500		0	0	0	0	0
SHEET 27 OF 52	12	387	15696	7422		12	0	1323	0	54
SHEET 28 OF 52	0	480	17967	9192		0	0	0	0	0
SHEET 29 OF 52	24	525	18702	11028		24	0	3033	0	228
SHEET 30 OF 32	3	318	16896	9036		3	0	300	0	45
SHEET 31 OF 32	9	438	16257	8232		9	0	1413	0	0
SHEET 32 OF 32	0	93	12180	3405		0	0	0	0	0
SHEET 33 OF 32	3	342	17196	9162		3	0	306	0	135
SHEET 34 OF 32	6	351	16497	8304		6	0	522	993	306
SHEET 35 OF 32	0	270	13254	4632		0	0	0	0	30
SHEET 36 OF 32	9	471	16923	9378		9	0	1680	0	129
SHEET 37 OF 32	0	402	18192	10092		0	0	0	0	0
SHEET 38 OF 32	0	99	16710	8280		0	0	0	0	0
SHEET 39 OF 32	12	444	17052	8982		12	0	1323	0	78
SHEET 40 OF 32	0	255	13461	4920		0	0	0	0	0
SHEET 41 OF 32	0	162	11775	3000		0	0	0	0	0
SHEET 42 OF 32	0	66	9849	900		0	0	0	0	0
SHEET 43 OF 32	0	72	10575	1800		0	0	0	0	0
SHEET 44 OF 32	0	99	12771	3900		0	0	0	0	66
SHEET 45 OF 32	6	366	15684	7245		6	0	849	0	66
SHEET 46 OF 32	12	249	14964	6153		12	0	1359	0	102
SHEET 47 OF 32	0	51	8775	0		0	0	0	0	0
SHEET 48 OF 32	0	363	15174	6750		0	0	0	0	48
SHEET 49 OF 32	0	402	19188	10656		0	0	0	0	105
SHEET 50 OF 32	0	189	15375	7464		0	0	0	0	30
SHEET 51 OF 32	0	189	15360	7464		0	0	0	0	39
SHEET 52 OF 32	0	18	13569	6276		0	0	0	0	42
LOOP 336										
SHEET 1	15	189	13218	4698	57	15	0	1092	0	108
SHEET 2	0	294	19500	7800	0	0	0	0	0	0
SHEET 3	0	303	19686	7800	0	18	0	0	0	0
PROJECT TOTALS	**174**	**12996**	**814497**	**351543**	**57**	**207**	**6**	**20826**	**1230**	**2526**

FM 2854, ETC.
WORK ZONE PAVEMENT MARKING SUMMARY QUANTITIES

SHEET 1 OF 1

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		33B

DATE:
FILE:

SUMMARY OF SMALL SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN TYPE	SIGN TEXT	SIGN DIMENSIONS INxIN	SIGN (SF)	ALUMINUM TYPE A	644-INS SM RD SN SUP & AM															636
							6001	6002	6004	6005	6007	6009	6018	6027	6030	6031	6033	6034	6036	6037	6068	6076	6007
							TY 10BWG (1) SA (P)	TY 10BWG (1) SA (P-BM)	TY 10BWG (1) SA (T)	TY 10BWG (1) SA (T-2EXT)	TY 10BWG (1) SA (U)	TY 10BWG (1) SB (P)	TY 10BWG (2) SA (P-EXAL)	TY 10BWG (1) SA (P)	TY 80 (1) SA (T)	TY 80 (1) SA (T-2EXT)	TY 80 (1) SA (U)	TY 80 (1) SA (U-1EXT)	TY 80 (1) SA (U-BM)	TY 80 (1) SA (U-WC)	RELOCATE SM RD SN SUP & AM TY 10BWG	REMOVE SM RD SN SUP&AM	REPLACE EXT ALUM SIGNS (TY A)
							EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	SF
1																							
	1	R3-7R	RIGHT LANE MUST TURN RIGHT	30 X 30	6.3	X	X																
	2	M1-6T	TEXAS 105	24 X 24	4.0	X	X															X	
		M6-4	↔	21 X 15	2.2	X																	
	3A	D7-7aTL	HISTORICAL MARKER ← 7903	48 X 48	16.0	X																	
	3B	D7-7aTR	HISTORICAL MARKER → 7903	48 X 48	16.0	X					X		BACK TO BACK									X	
		M1-6F	TEXAS FARM ROAD 2854	24 X 24	4.0	X																	
	4A	D10-7aT	REFERENCE MARKER 660	3 X 10	0.2	X	X						BACK TO BACK									X	
	4B	D10-7aT	REFERENCE MARKER 660	3 X 10	0.2	X																	
	5	R1-1	STOP	36 X 36	9.0	X	X															X	
	6	R2-1	SPEED LIMIT 60	36 X 48	12.0	X			X													X	
	7	W1-5R		48 X 48	16.0	X									X							X	
		W13-1P	50 MPH	24 X 24	4.0	X																	
2																							
	1	I-2aT	Montgomery CITY LIMIT	84 X 24	14.0	X			X													X	
	2	W1-2R		48 X 48	16.0	X									X							X	
		W13-1P	55 MPH	24 X 24	4.0	X																	
	3	R1-1	STOP	36 X 36	9.0	X	X															X	
	4	M2-1	JUNCTION	21 X 15	2.2	X	X															X	
		M1-6T	TEXAS 105	24 X 24	4.0	X																	
3																							
	1	R2-1	SPEED LIMIT 55	36 X 48	12.0	X			X													X	
4																							
	1	R1-1	STOP	36 X 36	9.0	X	X															X	
5																							
	1	W2-2R	SIDE ROAD RIGHT	48 X 48	16.0	X			X													X	
			SUB TOTAL				7		4		1				2							13	

ALUMINUM SIGN BLANKS (TYPE A)

Square Ft.	Min. Thickness
Less than 7.5	0.080"
7.5 to 15	0.100"
Greater than 15	0.125"

Sign support 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 plan, the Contractor shall stake and the Engineer will verify all sign support locations.

FM 2854, ETC. SUMMARY OF SMALL SIGNS

 SHEET 1 OF 11

DISTRICT	COUNTY	CONTROL	SECTION	JOB	HIGHWAY NO.
HOU	MONTGOMERY	2744	01	032	FM 2854

DISTRICT + FEDERAL REGION	FEDERAL AID PROJECT NO.	SHEET
6		34

SUMMARY OF SMALL SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN TYPE	SIGN TEXT	SIGN DIMENSIONS INxIN	SIGN (SF)	ALUMINUM TYPE A	644-INS SM RD SN SUP & AM														636
							6001	6002	6004	6005	6007	6009	6018	6027	6030	6031	6033	6034	6036	6037	6068	6076	6007
							TY 10BWG (1) SA (P)	TY 10BWG (1) SA (P-BM)	TY 10BWG (1) SA (T)	TY 10BWG (1) SA (T-2EXT)	TY 10BWG (1) SA (U)	TY 10BWG (1) SB (P)	TY 10BWG (2) SA (P-EXAL)	TY S80 (1) SA (P)	TY S80 (1) SA (T)	TY S80 (1) SA (T-2EXT)	TY S80 (1) SA (U)	TY S80 (1) SA (U-1EXT)	TY S80 (1) SA (U-BM)	TY S80 (1) SA (U-WC)	RELOCATE SM RD SN SUP & AM TY 10BWG	REMOVE SM RD SN SUP&AM	REPLACE EXT ALUM SIGNS (TY A)
							EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	SF
7																							
	1	W1-2R		48 X 48	16.0	X									X							X	
		W13-1P		24 X 24	4.0	X																	
8																							
	1	R1-1	STOP	36 X 36	9.0	X	X															X	
	2	R3-7R	RIGHT LANE MUST TURN RIGHT	30 X 30	6.3	X	X																
	3	R3-7R	RIGHT LANE MUST TURN RIGHT	30 X 30	6.3	X	X																
	4	M1-6F	TEXAS FARM ROAD 2854	24 X 24	4.0	X	X															X	
	5	R1-1	STOP	36 X 36	9.0	X	X															X	
10																							
	1A	D10-7aT	REFERENCE MARKER 662	3 X 10	0.2	X																	
	1B	M1-6F	TEXAS FARM ROAD 2854	24 X 24	4.0	X	X				BACK TO BACK												
		D10-7aT	REFERENCE MARKER 662	3 X 10	0.2	X																	
	2	R2-1	SPEED LIMIT 60	36 X 48	12.0	X			X													X	
	3	R1-1	STOP	36 X 36	9.0	X	X															X	
11																							
	1	R2-1	SPEED LIMIT 55	36 X 48	12.0	X			X													X	
	2	R3-7R	RIGHT LANE MUST TURN RIGHT	30 X 30	6.3	X	X																
	3	R3-7R	RIGHT LANE MUST TURN RIGHT	30 X 30	6.3	X	X																
	X-1																					X	
12																							
	1	R2-1	SPEED LIMIT 55	36 X 48	12.0	X			X													X	
	2	R1-1	STOP	36 X 36	9.0	X	X															X	
	3	R2-1	SPEED LIMIT 60	36 X 48	12.0	X			X													X	
13																							
	1	W1-2R		48 X 48	16.0	X									X							X	
		W13-1P		24 X 24	4.0	X																	
15																							
	1	W1-5L		48 X 48	16.0	X									X							X	
		W13-1P		24 X 24	4.0	X																	
		SUB TOTAL					10		4						3							13	

ALUMINUM SIGN BLANKS (TYPE A)

Square Ft.	Min. Thickness
Less than 7.5	0.080"
7.5 to 15	0.100"
Greater than 15	0.125"

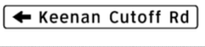
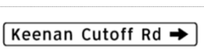
Sign support shall be located as shown on the plans, except that the Engineer may shift the sign supports, within design guidelines, where necessary to secure a more desirable location or to avoid conflict with utilities. Unless otherwise shown on the plan, the Contractor shall stake and the Engineer will verify all sign support locations.

FM 2854, ETC.
SUMMARY OF SMALL SIGNS

DISTRICT	COUNTY	CONTROL	SECTION	JOB	HIGHWAY NO.
HOU	MONTGOMERY	2744	01	032	FM 2854

FEDERAL REGION	FEDERAL AID PROJECT NO.	SHEET
6		35

SUMMARY OF SMALL SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN TYPE	SIGN TEXT	SIGN DIMENSIONS INxIN	SIGN (SF)	ALUMINUM TYPE A	644-INS SM RD SN SUP & AM															636
							6001	6002	6004	6005	6007	6009	6018	6027	6030	6031	6033	6034	6036	6037	6068	6076	6007
							TY 10BWG (1) SA (P)	TY 10BWG (1) SA (P-BM)	TY 10BWG (1) SA (T)	TY 10BWG (1) SA (T-2EXT)	TY 10BWG (1) SA (U)	TY 10BWG (1) SB (P)	TY 10BWG (2) SA (P-EXAL)	TY S80 (1) SA (P)	TY S80 (1) SA (T)	TY S80 (1) SA (T-2EXT)	TY S80 (1) SA (U)	TY S80 (1) SA (U-1EXT)	TY S80 (1) SA (U-BM)	TY S80 (1) SA (U-WC)	RELOCATE SM RD SN SUP & AM TY 10BWG	REMOVE SM RD SN SUP&AM	REPLACE EXT ALUM SIGNS (TY A)
							EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	SF
15																							
	2	R1-1	STOP	36 X 36	9.0	X	X															X	
	3	R1-1	STOP	36 X 36	9.0	X	X															X	
16																							
	1	R2-1	SPEED LIMIT 60	36 X 48	12.0	X			X													X	
	2	R1-1	STOP	36 X 36	9.0	X	X															X	
	3	R2-1	SPEED LIMIT 60	36 X 48	12.0	X			X													X	
	4	W1-5R		48 X 48	16.0	X									X							X	
		W13-1P		24 X 24	4.0	X																	
17																							
	1	W10-3R	PARALLEL RAILROAD CROSSING (SIDE ROAD) RIGHT	48 X 48	16.0	X			X													X	
	2	R1-1	STOP	36 X 36	9.0	X	X															X	
18																							
	1	W10-3L	PARALLEL RAILROAD CROSSING (SIDE ROAD) LEFT	48 X 48	16.0	X			X													X	
	2	R1-1	STOP	36 X 36	9.0	X	X															X	
		M1-6F	TEXAS FARM ROAD 2854	24 X 24	4.0	X																	
	3A	D10-7aT	REFERENCE MARKER 664	3 X 10	0.2	X	X						BACK TO BACK									X	
	3B	D10-7aT	REFERENCE MARKER 664	3 X 10	0.2	X																	
19																							
	1	R1-1	STOP	36 X 36	9.0	X	X															X	
20																							
	1	R2-1	SPEED LIMIT 60	36 X 48	12.0	X			X													X	
	2	W2-2L	SIDE ROAD LEFT	48 X 48	16.0	X			X														
	3	D21-1TL		96 X 12	8.0	X			X														
	X-1																					X	
21																							
	1	R1-1	STOP	36 X 36	9.0	X	X															X	
	2	R3-7R	RIGHT LANE MUST TURN RIGHT	30 X 30	6.3	X	X																
	3	D21-1TR		96 X 12	8.0	X			X														
	4	R3-7R	RIGHT LANE MUST TURN RIGHT	30 X 30	6.3	X	X																
		SUB TOTAL					10		8						1							15	

ALUMINUM SIGN BLANKS (TYPE A)

Square Ft.	Min. Thickness
Less than 7.5	0.080"
7.5 to 15	0.100"
Greater than 15	0.125"

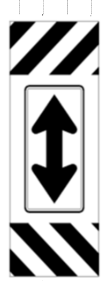
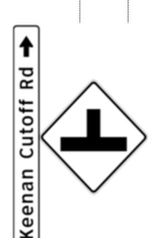
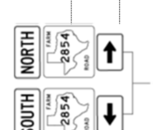
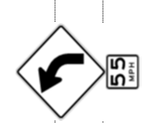
Sign support shall be located as shown on the plans, except that the Engineer may shift the sign supports, within design guidelines, where necessary to secure a more desirable location or to avoid conflict with utilities. Unless otherwise shown on the plan, the Contractor shall stake and the Engineer will verify all sign support locations.

FM 2854, ETC.
SUMMARY OF SMALL SIGNS

DISTRICT	COUNTY	CONTROL	SECTION	JOB	HIGHWAY NO.
HOU	MONTGOMERY	2744	01	032	FM 2854

FEDERAL REGION	FEDERAL AID PROJECT NO.	SHEET
6		36

SUMMARY OF SMALL SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN TYPE	SIGN TEXT	SIGN DIMENSIONS INxIN	SIGN (SF)	ALUMINUM TYPE A	636 6007 REPLACE EXT ALUM SIGNS (TY A) SF	644-INS SM RD SN SUP & AM 6076 REMOVE SM RD SN SUP&AM EA	6068 RELOCATE SM RD SN SUP & AM TY 10BWG EA	6037 TY S80 (1) SA (U-WC) EA	6036 TY S80 (1) SA (U-BM) EA	6034 TY S80 (1) SA (U-1EXT) EA	6033 TY S80 (1) SA (U) EA	6031 TY S80 (1) SA (T-2EXT) EA	6030 TY S80 (1) SA (T) EA	6027 TY S80 (1) SA (P) EA	6018 TY 10BWG (2) SA (P-EXAL) EA	6009 TY 10BWG (1) SB (P) EA	6007 TY 10BWG (1) SA (U) EA	6005 TY 10BWG (1) SA (T-2EXT) EA	6004 TY 10BWG (1) SA (T) EA	6002 TY 10BWG (1) SA (P-BM) EA	6001 TY 10BWG (1) SA (P) EA
21	5	W2-2R	SIDE ROAD RIGHT	48 X 48	16.0	X															X		
	6	M1-6F	TEXAS FARM ROAD 2854	24 X 24	4.0	X																	X
		M6-4	↕	21 X 15	2.2	X																	
	7	W1-7T		96 X 36	24.0	X		X									X						
	X-1							X															
	X-2							X															
22	1	W1-5R		48 X 48	16.0	X		X							X								
		W13-1P		24 X 24	4.0	X																	
	2	R2-1	SPEED LIMIT 60	36 X 48	12.0	X		X													X		
	3	W1-2L		48 X 48	16.0	X		X							X								
		W13-1P		24 X 24	4.0	X																	
	4	W10-3R	PARALLEL RAILROAD CROSSING (SIDE ROAD) RIGHT	48 X 48	16.0	X		X													X		
		W10-5P	LOW GROUND CLEARANCE	30 X 24	5.0	X																	
23	1	W1-2R		48 X 48	16.0	X		X							X								
		W13-1P		24 X 24	4.0	X																	
	2	R1-1	STOP	36 X 36	9.0	X		X															X
	3	W1-2L		48 X 48	16.0	X		X							X								
		W13-1P		24 X 24	4.0	X																	
24	1	W10-3L	PARALLEL RAILROAD CROSSING (SIDE ROAD) LEFT	48 X 48	16.0	X		X							X								
		W10-5P	LOW GROUND CLEARANCE	30 X 24	5.0	X																	
SUB TOTAL								11							5		1				3		2

Sign support 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 plan, the Contractor shall stake and the Engineer will verify all sign support locations.

ALUMINUM SIGN BLANKS (TYPE A)

Square Ft.	Min. Thickness
Less than 7.5	0.080"
7.5 to 15	0.100"
Greater than 15	0.125"

FM 2854, ETC. SUMMARY OF SMALL SIGNS

 SHEET 4 OF 11

STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT NO.			SHEET
HOU	6				36A
COUNTY		CONTROL	SECTION	JOB	HIGHWAY NO.
MONTGOMERY		2744	01	032	FM 2854

SUMMARY OF SMALL SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN TYPE	SIGN TEXT	SIGN DIMENSIONS INxIN	SIGN (SF)	ALUMINUM TYPE A	644-INS SM RD SN SUP & AM														636
							6001	6002	6004	6005	6007	6009	6018	6027	6030	6031	6033	6034	6036	6037	6068	6076	6007
							TY 10BWG (1) SA (P)	TY 10BWG (1) SA (P-BM)	TY 10BWG (1) SA (T)	TY 10BWG (1) SA (T-2EXT)	TY 10BWG (1) SA (U)	TY 10BWG (1) SB (P)	TY 10BWG (2) SA (P-EXAL)	TY S80 (1) SA (P)	TY S80 (1) SA (T)	TY S80 (1) SA (T-2EXT)	TY S80 (1) SA (U)	TY S80 (1) SA (U-1EXT)	TY S80 (1) SA (U-BM)	TY S80 (1) SA (U-WC)	RELOCATE SM RD SN SUP & AM TY 10BWG	REMOVE SM RD SN SUP&AM	REPLACE EXT ALUM SIGNS (TY A)
							EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	SF
25																							
	1	W1-2R		48 X 48	16.0	X									X							X	
		W13-1P	55 MPH	24 X 24	4.0	X																	
	2	R1-1	STOP	36 X 36	9.0	X	X															X	
26																							
	1A	D10-7aT	REFERENCE MARKER 666	3 X 10	0.2	X																	
	1B	M1-6F	TEXAS FARM ROAD 2854	24 X 24	4.0	X	X				BACK TO BACK												
		D10-7aT	REFERENCE MARKER 666	3 X 10	0.2	X																	
	2	R2-1	SPEED LIMIT 60	36 X 48	12.0	X			X													X	
	3	W10-3R	PARALLEL RAILROAD CROSSING (SIDE ROAD) RIGHT	48 X 48	16.0	X			X													X	
27																							
	1	W10-3L	PARALLEL RAILROAD CROSSING (SIDE ROAD) LEFT	48 X 48	16.0	X			X													X	
	2	R1-1	STOP	36 X 36	9.0	X	X															X	
	3	R2-1	SPEED LIMIT 55	36 X 48	12.0	X			X													X	
	4	W8-13aT	BRIDGE MAY ICE IN COLD WEATHER	48 X 48	16.0	X			X													X	
	5	I-3	Mound Creek	54 X 30	11.3	X			X													X	
28																							
	1	I-3	Mound Creek	54 X 30	11.3	X			X													X	
	2	W8-13aT	BRIDGE MAY ICE IN COLD WEATHER	48 X 48	16.0	X			X													X	
	3	S5-2aTP	END SCHOOL ZONE	36 X 18	4.5	X			X													X	
		R2-1	SPEED LIMIT 60	36 X 48	12.0	X																	
	X-1																					X	
29																							
	1	R3-7R	RIGHT LANE MUST TURN RIGHT	30 X 30	6.3	X	X																
	2	R3-7R	RIGHT LANE MUST TURN RIGHT	30 X 30	6.3	X	X																
	3	R1-1	STOP	36 X 36	9.0	X	X															X	
	4	R3-7R	RIGHT LANE MUST TURN RIGHT	30 X 30	6.3	X	X															X	
	5	R3-7R	RIGHT LANE MUST TURN RIGHT	30 X 30	6.3	X	X																
	X-1																					X	
			SUB TOTAL				8		9						1							16	

ALUMINUM SIGN BLANKS (TYPE A)

Square Ft.	Min. Thickness
Less than 7.5	0.080"
7.5 to 15	0.100"
Greater than 15	0.125"

Sign support 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 plan, the Contractor shall stake and the Engineer will verify all sign support locations.

FM 2854, ETC.
SUMMARY OF SMALL SIGNS

DISTRICT	COUNTY	CONTROL	SECTION	JOB	HIGHWAY NO.	SHEET
HOU	MONTGOMERY	2744	01	032	FM 2854	36B

FEDERAL REGION	FEDERAL AID PROJECT NO.
6	

SUMMARY OF SMALL SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN TYPE	SIGN TEXT	SIGN DIMENSIONS INxIN	SIGN (SF)	ALUMINUM TYPE A	644-INS SM RD SN SUP & AM															636
							6001	6002	6004	6005	6007	6009	6018	6027	6030	6031	6033	6034	6036	6037	6068	6076	6007
							TY 10BWG (1) SA (P)	TY 10BWG (1) SA (P-BM)	TY 10BWG (1) SA (T)	TY 10BWG (1) SA (T-2EXT)	TY 10BWG (1) SA (U)	TY 10BWG (1) SB (P)	TY 10BWG (2) SA (P-EXAL)	TY S80 (1) SA (P)	TY S80 (1) SA (T)	TY S80 (1) SA (T-2EXT)	TY S80 (1) SA (U)	TY S80 (1) SA (U-1EXT)	TY S80 (1) SA (U-BM)	TY S80 (1) SA (U-WC)	RELOCATE SM RD SN SUP & AM TY 10BWG	REMOVE SM RD SN SUP&AM	REPLACE EXT ALUM SIGNS (TY A)
							EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	SF
30																							
	1	S4-5		48 X 48	16.0	X			X														
	2	R2-1	SPEED LIMIT 55	36 X 48	12.0	X			X													X	
	3	S5-2aTP	END SCHOOL ZONE	36 X 18	4.5	X			X													X	
		R2-1	SPEED LIMIT 60	36 X 48	12.0	X																	
	4	W10-3R	PARALLEL RAILROAD CROSSING (SIDE ROAD) RIGHT	48 X 48	16.0	X			X													X	
	5	R1-1	STOP	36 X 36	9.0	X	X															X	
	6	R2-1	SPEED LIMIT 60	36 X 48	12.0	X			X													X	
	X-1		SCHOOL SPEED ZONE AHEAD																			X	
31																							
	1	W10-3L	PARALLEL RAILROAD CROSSING (SIDE ROAD) LEFT	48 X 48	16.0	X			X													X	
33																							
	1	R2-1	SPEED LIMIT 60	36 X 48	12.0	X			X													X	
	2	R1-1	STOP	36 X 36	9.0	X	X															X	
	3	W10-3R	PARALLEL RAILROAD CROSSING (CROSS ROAD) RIGHT	48 X 48	16.0	X			X													X	
	4	I-3	← Spring Wood Dr / Honea Egypt Rd → NEXT SIGNAL	90 X 42	26.3	X													X			X	
34																							
	1	R1-1	STOP	36 X 36	9.0	X	X															X	
	2	I-3	← Honea Egypt Rd / Spring Wood Dr → NEXT SIGNAL	90 X 42	26.3	X													X			X	
	3	R1-1	STOP	36 X 36	9.0	X	X															X	
	4	W10-3L	PARALLEL RAILROAD CROSSING (CROSS ROAD) LEFT	48 X 48	16.0	X			X													X	
		M1-6F	TEXAS FARM ROAD 2854	24 X 24	4.0	X																	
	5A	D10-7aT	REFERENCE MARKER 668	3 X 10	0.2	X	X						BACK TO BACK									X	
	5B	D10-7aT	REFERENCE MARKER 668	3 X 10	0.2	X																	
			SUB TOTAL				5		9										2			16	

ALUMINUM SIGN BLANKS (TYPE A)

Square Ft.	Min. Thickness
Less than 7.5	0.080"
7.5 to 15	0.100"
Greater than 15	0.125"

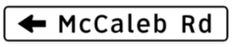
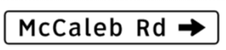
Sign support shall be located as shown on the plans, except that the Engineer may shift the sign supports, within design guidelines, where necessary to secure a more desirable location or to avoid conflict with utilities. Unless otherwise shown on the plan, the Contractor shall stake and the Engineer will verify all sign support locations.

FM 2854, ETC.
SUMMARY OF SMALL SIGNS

DISTRICT	COUNTY	CONTROL	SECTION	JOB	HIGHWAY NO.
HOU	MONTGOMERY	2744	01	032	FM 2854

FEDERAL REGION	FEDERAL AID PROJECT NO.	SHEET
6		36C

SUMMARY OF SMALL SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN TYPE	SIGN TEXT	SIGN DIMENSIONS INxIN	SIGN (SF)	ALUMINUM TYPE A	644-INS SM RD SN SUP & AM																636
							6001	6002	6004	6005	6007	6009	6018	6027	6030	6031	6033	6034	6036	6037	6068	6076	6007
							TY 10BWG (1) SA (P)	TY 10BWG (1) SA (P-BM)	TY 10BWG (1) SA (T)	TY 10BWG (1) SA (T-2EXT)	TY 10BWG (1) SA (U)	TY 10BWG (1) SB (P)	TY 10BWG (2) SA (P-EXAL)	TY S80 (1) SA (P)	TY S80 (1) SA (T)	TY S80 (1) SA (T-2EXT)	TY S80 (1) SA (U)	TY S80 (1) SA (U-1EXT)	TY S80 (1) SA (U-BM)	TY S80 (1) SA (U-WC)	RELOCATE SM RD SN SUP & AM TY 10BWG	REMOVE SM RD SN SUP&AM	REPLACE EXT ALUM SIGNS (TY A)
							EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	SF
35																							
	1	R1-1	STOP	36 X 36	9.0	X	X															X	
	2	R2-1	SPEED LIMIT 60	36 X 48	12.0	X			X													X	
36																							
	1	M3-4	WEST	24 X 12	2.0	X	X															X	
		M1-6F	TEXAS FARM ROAD 2854	24 X 24	4.0	X																	
	2	R3-7R	RIGHT LANE MUST TURN RIGHT	30 X 30	6.3	X	X																
	3	R3-7R	RIGHT LANE MUST TURN RIGHT	30 X 30	6.3	X	X															X	
	4	M1-6F	TEXAS FARM ROAD 2854	24 X 24	4.0	X	X																
		M6-4	↔	21 X 15	2.2	X																	
	5	W1-7T		96 X 36	24.0	X							X									X	
	6	M3-2	EAST	24 X 12	2.0	X	X															X	
		M1-6F	TEXAS FARM ROAD 2854	24 X 24	4.0	X																	
	7	D21-1TL		72 X 12	6.0	X			X													X	
	X-1																					X	
37																							
	1	R3-7R	RIGHT LANE MUST TURN RIGHT	30 X 30	6.3	X	X																
	2	D21-1TR		72 X 12	6.0	X			X													X	
	3	R3-7R	RIGHT LANE MUST TURN RIGHT	30 X 30	6.3	X	X															X	
	4	R2-1	SPEED LIMIT 60	36 X 48	12.0	X			X													X	
38																							
	1	R2-1	SPEED LIMIT 60	36 X 48	12.0	X			X													X	
	2	R2-1	SPEED LIMIT 60	36 X 48	12.0	X			X													X	
	3	W10-3R	PARALLEL RAILROAD CROSSING (SIDE ROAD) RIGHT	48 X 48	16.0	X			X													X	
		W10-5P	LOW GROUND CLEARANCE	30 X 24	5.0	X																	
39																							
	1	R1-1	STOP	36 X 36	9.0	X	X															X	
	2	W11-8L	FIRE STATION LEFT	48 X 48	16.0	X			X													X	
SUB TOTAL							9		8				1									16	

ALUMINUM SIGN BLANKS (TYPE A)

Square Ft.	Min. Thickness
Less than 7.5	0.080"
7.5 to 15	0.100"
Greater than 15	0.125"

Sign support 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 plan, the Contractor shall stake and the Engineer will verify all sign support locations.

FM 2854, ETC.
SUMMARY OF SMALL SIGNS

DISTRICT	COUNTY	CONTROL	SECTION	JOB	HIGHWAY NO.	SHEET
HOU	MONTGOMERY	2744	01	032	FM 2854	36D

FEDERAL REGION	FEDERAL AID PROJECT NO.
6	

SUMMARY OF SMALL SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN TYPE	SIGN TEXT	SIGN DIMENSIONS INxIN	SIGN (SF)	ALUMINUM TYPE A	644-INS SM RD SN SUP & AM															636
							6001	6002	6004	6005	6007	6009	6018	6027	6030	6031	6033	6034	6036	6037	6068	6076	6007
							TY 10BWG (1) SA (P)	TY 10BWG (1) SA (P-BM)	TY 10BWG (1) SA (T)	TY 10BWG (1) SA (T-2EXT)	TY 10BWG (1) SA (U)	TY 10BWG (1) SB (P)	TY 10BWG (2) SA (P-EXAL)	TY S80 (1) SA (P)	TY S80 (1) SA (T)	TY S80 (1) SA (T-2EXT)	TY S80 (1) SA (U)	TY S80 (1) SA (U-1EXT)	TY S80 (1) SA (U-BM)	TY S80 (1) SA (U-WC)	RELOCATE SM RD SN SUP & AM TY 10BWG	REMOVE SM RD SN SUP&AM	REPLACE EXT ALUM SIGNS (TY A)
							EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	SF
40																							
	1	W10-3L	PARALLEL RAILROAD CROSSING (SIDE ROAD) LEFT	48 X 48	16.0	X			X													X	
		W10-5P	LOW GROUND CLEARANCE	30 X 24	5.0	X																	
41																							
	1	W11-8R	FIRE STATION RIGHT	48 X 48	16.0	X			X													X	
42																							
	1	R1-1	STOP	36 X 36	9.0	X	X															X	
	2A	D10-7aT	REFERENCE MARKER 670	3 X 10	0.2	X																	
	2B	M1-6F	TEXAS FARM ROAD 2854	24 X 24	4.0	X	X					BACK TO BACK											
		D10-7aT	REFERENCE MARKER 670	3 X 10	0.2	X																	
44																							
	1	R1-1	STOP	36 X 36	9.0	X	X															X	
45																							
	1	R1-1	STOP	36 X 36	9.0	X	X															X	
	2	W2-2L	SIDE ROAD LEFT	48 X 48	16.0	X			X													X	
46																							
	1	R2-1	SPEED LIMIT 60	36 X 48	12.0	X			X													X	
	2	R1-1	STOP	36 X 36	9.0	X	X															X	
	3	R3-7R	RIGHT LANE MUST TURN RIGHT	30 X 30	6.3	X	X																
	4	R3-7R	RIGHT LANE MUST TURN RIGHT	30 X 30	6.3	X	X																
	5	D21-1TR	Old Hwy 105 W →	78 X 12	6.5	X			X														
	6	R1-1	STOP	36 X 36	9.0	X	X															X	
	7	D21-1TL	← Old Hwy 105 W	78 X 12	6.5	X			X														
	8	R1-1	STOP	36 X 36	9.0	X	X															X	
48																							
	1	R1-1	STOP	36 X 36	9.0	X	X															X	
	2	W10-3R	PARALLEL RAILROAD CROSSING (SIDE ROAD) RIGHT	48 X 48	16.0	X			X													X	
49																							
	1	R1-1	STOP	36 X 36	9.0	X	X															X	
	2	W10-3L	PARALLEL RAILROAD CROSSING (SIDE ROAD) LEFT	48 X 48	16.0	X			X													X	
	3	R1-1	STOP	36 X 36	9.0	X	X															X	
		SUB TOTAL					12		8													15	

ALUMINUM SIGN BLANKS (TYPE A)

Square Ft.	Min. Thickness
Less than 7.5	0.080"
7.5 to 15	0.100"
Greater than 15	0.125"

Sign support 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 plan, the Contractor shall stake and the Engineer will verify all sign support locations.

FM 2854, ETC.
SUMMARY OF SMALL SIGNS

DISTRICT	COUNTY	CONTROL	SECTION	JOB	HIGHWAY NO.
HOU	MONTGOMERY	2744	01	032	FM 2854

FEDERAL REGION	FEDERAL AID PROJECT NO.	SHEET
6		36E

SUMMARY OF SMALL SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN TYPE	SIGN TEXT	SIGN DIMENSIONS INxIN	SIGN (SF)	ALUMINUM TYPE A	644-INS SM RD SN SUP & AM																636
							6001	6002	6004	6005	6007	6009	6018	6027	6030	6031	6033	6034	6036	6037	6068	6076	6007
							TY 10BWG (1) SA (P)	TY 10BWG (1) SA (P-BM)	TY 10BWG (1) SA (T)	TY 10BWG (1) SA (T-2EXT)	TY 10BWG (1) SA (U)	TY 10BWG (1) SB (P)	TY 10BWG (2) SA (P-EXAL)	TY S80 (1) SA (P)	TY S80 (1) SA (T)	TY S80 (1) SA (T-2EXT)	TY S80 (1) SA (U)	TY S80 (1) SA (U-1EXT)	TY S80 (1) SA (U-BM)	TY S80 (1) SA (U-WC)	RELOCATE SM RD SN SUP & AM TY 10BWG	REMOVE SM RD SN SUP&AM	REPLACE EXT ALUM SIGNS (TY A)
							EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	SF
50																							
	1	R1-1	STOP	36 X 36	9.0	X	X															X	
		M1-6F	TEXAS FARM ROAD 2854	24 X 24	4.0	X																	
	2A	D10-7aT	REFERENCE MARKER 672	3 X 10	0.2	X	X						BACK TO BACK										
	2B	D10-7aT	REFERENCE MARKER 672	3 X 10	0.2	X																	
51																							
	1	W10-3L	PARALLEL RAILROAD CROSSING (SIDE ROAD) LEFT	48 X 48	16.0	X			X													X	
	2	R1-1	STOP	36 X 36	9.0	X	X															X	
52																							
	1	R1-1	STOP	36 X 36	9.0	X	X															X	
	2	W8-13aT	BRIDGE MAY ICE IN COLD WEATHER	48 X 48	16.0	X			X													X	
53																							
	1	W8-13aT	BRIDGE MAY ICE IN COLD WEATHER	48 X 48	16.0	X			X													X	
	2	R1-1	STOP	36 X 36	9.0	X	X															X	
	3	W3-5		48 X 48	16.0	X			X													X	
54																							
	1	M1-6F	TEXAS FARM ROAD 2854	24 X 24	4.0	X	X															X	
	2	R2-1	SPEED LIMIT 60	36 X 48	12.0	X			X													X	
	3			42 X 24	7.0	X	X															X	
	4	R1-1	STOP	36 X 36	9.0	X	X															X	
	5	R8-3a	NO PARKING	24 X 30	5.0	X	X															X	
	6	R8-3a	NO PARKING	24 X 30	5.0	X	X															X	
	7	R8-3a	NO PARKING	24 X 30	5.0	X	X															X	
	8	R8-3a	NO PARKING	24 X 30	5.0	X	X															X	
	9	R1-1	STOP	36 X 36	9.0	X	X															X	
	10	R2-1	SPEED LIMIT 45	36 X 48	12.0	X			X													X	
	11	I-2aT		42 X 24	7.0	X	X															X	
			SUB TOTAL				14		6													19	

ALUMINUM SIGN BLANKS (TYPE A)

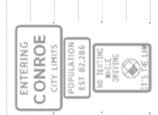
Square Ft.	Min. Thickness
Less than 7.5	0.080"
7.5 to 15	0.100"
Greater than 15	0.125"

Sign support 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 plan, the Contractor shall stake and the Engineer will verify all sign support locations.

FM 2854, ETC.
SUMMARY OF SMALL SIGNS

DISTRICT + FEDERAL REGION	COUNTY	CONTROL	SECTION	JOB	HIGHWAY NO.	FEDERAL AID PROJECT NO.	SHEET
HOU 6	MONTGOMERY	2744	01	032	FM 2854		36F

SUMMARY OF SMALL SIGNS

Item	Code	Description	Unit	Plan Sheet 54		Plan Sheet 55			SUB TOTAL	PROJECT TOTALS
636	6007	REPLACE EXT ALUM SIGNS (TY A)	SF							
644-INS SM RD SN SUP & AM	6076	REMOVE SM RD SN SUP&AM	EA	X		X	X	X	4	138
	6068	RELOCATE SM RD SN SUP & AM TY 10BWG	EA							
	6037	TY S80 (1) SA (U-WC)	EA							
	6036	TY S80 (1) SA (U-BM)	EA							2
	6034	TY S80 (1) SA (U-1EXT)	EA							
	6033	TY S80 (1) SA (U)	EA							
	6031	TY S80 (1) SA (T-2EXT)	EA							
	6030	TY S80 (1) SA (T)	EA							12
	6027	TY S80 (1) SA (P)	EA							
	6018	TY 10BWG (2) SA (P-EXAL)	EA							2
	6009	TY 10BWG (1) SB (P)	EA							
	6007	TY 10BWG (1) SA (U)	EA					X	1	2
	6005	TY 10BWG (1) SA (T-2EXT)	EA							
	6004	TY 10BWG (1) SA (T)	EA	X					1	60
	6002	TY 10BWG (1) SA (P-BM)	EA							
	6001	TY 10BWG (1) SA (P)	EA			X	X		2	79
		ALUMINUM TYPE A		X		X	X X	X		
		SIGN (SF)		16.0		5.0	2.2 4.0	15.0		
		SIGN DIMENSIONS INxIN		48 X 48		30 X 24	15 X 21 24 X 24	30 X 72		
		SIGN TEXT		BRIDGE MAY ICE IN COLD WEATHER		NO PARKING	JUNCTION LOOP 336	San Jacinto River		
		SIGN TYPE		W8-13aT		R8-3a	M2-1 M1-6L-3	I-3		
		SIGN NO.		12	X-1	1	2	3		
		PLAN SHEET NO.		54		55				

Sign support 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 plan, the Contractor shall stake and the Engineer will verify all sign support locations.

ALUMINUM SIGN BLANKS (TYPE A)

Square Ft.	Min. Thickness
Less than 7.5	0.080"
7.5 to 15	0.100"
Greater than 15	0.125"

FM 2854, ETC. SUMMARY OF SMALL SIGNS

 SHEET 10 OF 11

STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT NO.			SHEET
HOU	6				36G
COUNTY		CONTROL	SECTION	JOB	HIGHWAY NO.
MONTGOMERY		2744	01	032	FM 2854

SUMMARY OF SMALL SIGNS

LAYOUT SHEET NO.	SIGN NO.	SIGN TYPE	SIGN TEXT	SIGN DIMENSIONS (IN)	PLYWOOD SIGNS	ALUMINUM SIGNS TYPE A	644 - INS SM RD SN SUP & AM								636 - REPLACE EXISTING SIGNS	
							TYPE OF MOUNT								TYPE OF SIGNS	
							6001 10BWG (1) SA (P) EA	6002 10BWG (1) SA (P-BM)	6004 10BWG (1) SA (T) EA	6007 TY10BWG (1) SA (U) EA	6018 TY10BWG (2) SA (P-EXAL) EA	6030 TYS80 (1) SA (T) EA	6036 TYS80 (1) SA (U-BM) EA	6076 REMOVE SM RD SN SUP&AM EA	6078 REMOVE SM RD SN SUP&AM (SIGN ONLY) EA	6001 (TY A) SF	6003 (TY O) SF
SL 336																
1 OF 3		R2-1	SPEED LIMIT (45)	36 X 48		X			X					X			
		R1-1	STOP	48 X 48		X	X							X			
		W3-3	ADVANCE SIGNAL AHEAD	48 X 48		X									X	16	
2 OF 3		R3-9a	TWO-WAY LEFT TURN ONLY (OVERHEAD)	36 X 30		X	X							X			
		M2-1	JCT	21 X 15		X	X							X			
		M1-6T	TEXAS ROUTE MARKER	36 X 36		X											
		R1-1	STOP	48 X 48		X	X							X			
3 OF 3		R2-1	SPEED LIMIT (55)	36 X 48		X			X					X			
		R3-9a	TWO-WAY LEFT TURN ONLY (OVERHEAD)	36 X 30		X	X							X			
		R2-1	SPEED LIMIT (45)	36 X 48		X			X					X			
			SL 336 SUBTOTAL				5		3					8	1	16	
			FM 2854 SHEET 1 SUBTOTAL				7		4	1		2		13			
			FM 2854 SHEET 2 SUBTOTAL				10		4			3		13			
			FM 2854 SHEET 3 SUBTOTAL				10		8			1		15			
			FM 2854 SHEET 4 SUBTOTAL				2		3		1	5		11			
			FM 2854 SHEET 5 SUBTOTAL				8		9			1		16			
			FM 2854 SHEET 6 SUBTOTAL				5		9				2	16			
			FM 2854 SHEET 7 SUBTOTAL				9		8		1			16			
			FM 2854 SHEET 8 SUBTOTAL				12		8					15			
			FM 2854 SHEET 9 SUBTOTAL				14		6					19			
			FM 2854 SHEET 10 SUBTOTAL				2		1	1				4			
			SL 336 SUBTOTAL				5		3					8	1	16	
			TOTAL				84		63	2	2	12	2	146	1	16	

ALL SIGNS SHALL BE ERECTED ACCORDING TO THE LOCATION SHOWN ON THE LAYOUT SHEETS EXCEPT THAT THE ENGINEER MAY SHIFT A SIGN IN ORDER TO SECURE A MORE DESIRABLE LOCATION. THE CONTRACTOR WILL STAKE ALL SIGN LOCATIONS, AND NO CHANGES IN THOSE LOCATIONS SHALL BE MADE WITHOUT PRIOR APPROVAL OF THE ENGINEER.

ALUMINUM SIGN BLANKSITY A)

Min. Thickness
0.080"
0.100"
0.125"

FM 2854, ETC.

SUMMARY OF SMALL SIGNS SHEET

DISTRICT	FEDERAL REGION	PROJECT NO.	SHEET
HOU	6		SHEET 11 OF 11
COUNTY	CONTROL	SECTION	JOB
MONTGOMERY	2744	01	032
HIGHWAY			
FM 2854, ETC.			

STD-N29

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

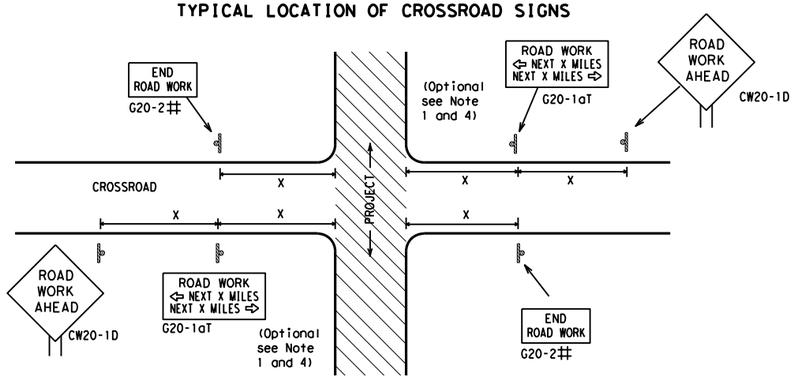
BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

BC(1)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-03 7-13 9-07 8-14 5-10 5-21	2744	01	032	FM 2854
	DIST	COUNTY		SHEET NO.
	12	MONTGOMERY		37

DATE:
FILE:

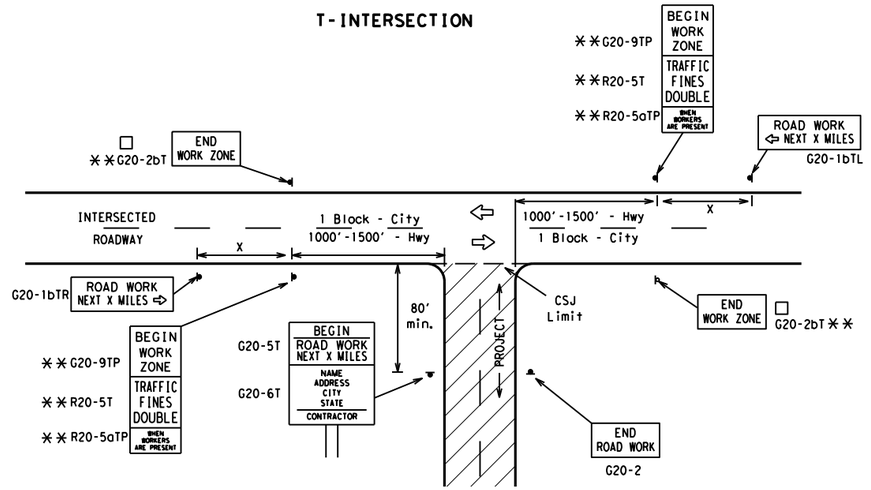
TYPICAL LOCATION OF CROSSROAD SIGNS



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

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

T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

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

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

SIZE

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

SPACING

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

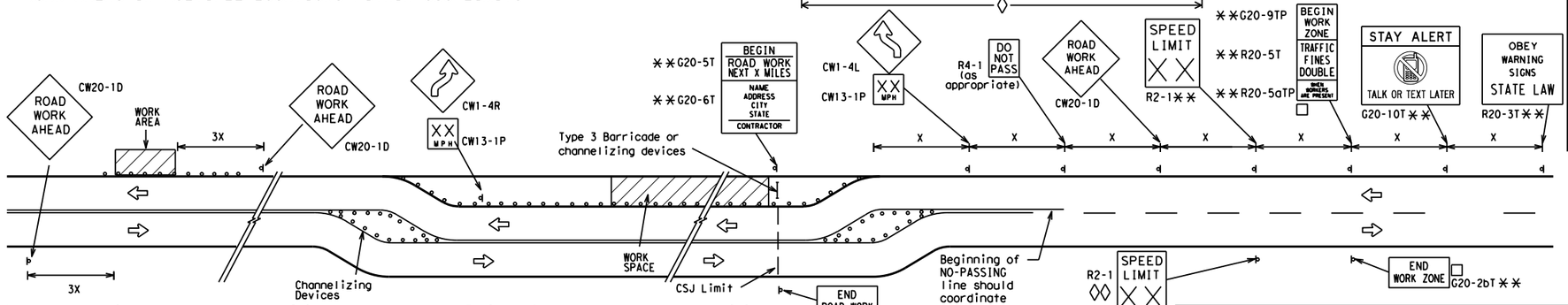
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

GENERAL NOTES

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

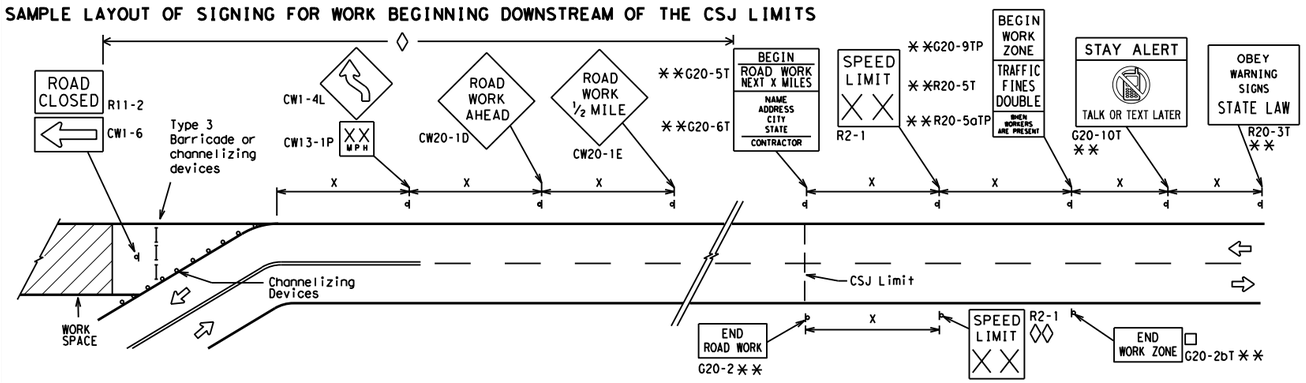
WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS



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

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS

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



NOTES

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

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

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

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

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

LEGEND

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS	2744	01	032	FM 2854
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DATE:
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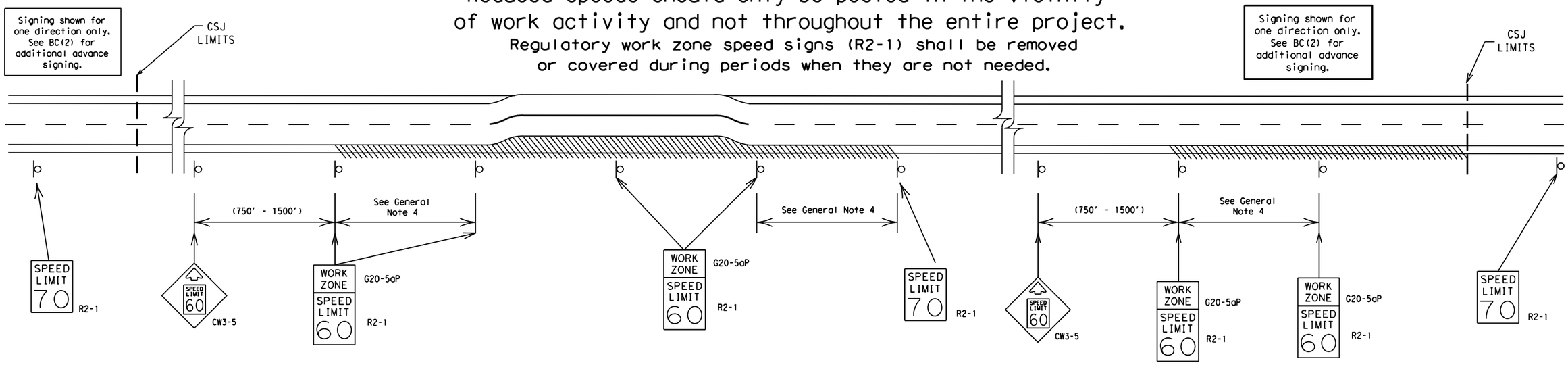
TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

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

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

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



GUIDANCE FOR USE:

LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

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

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

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

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

SHORT TERM WORK ZONE SPEED LIMITS

This type of work zone speed limit may be included on the design of the traffic control plans when workers or equipment are not behind concrete barrier, when work activity is within 10 feet of the traveled way or actually in the 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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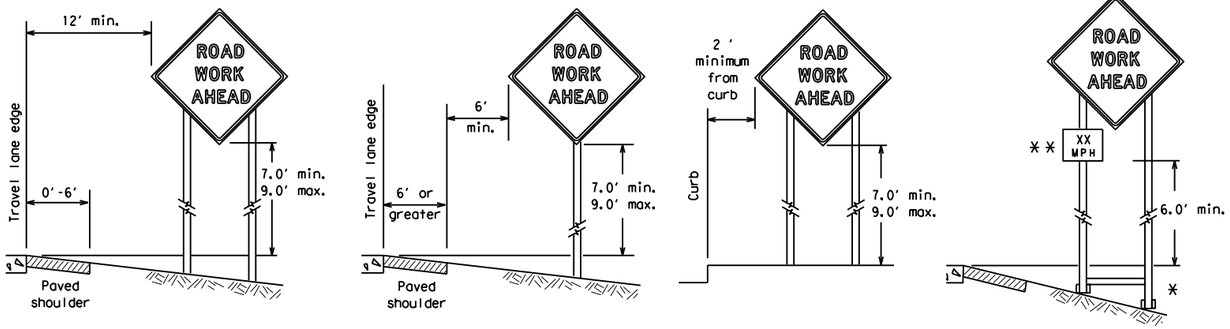
REVISIONS	2744	01	032	FM 2854
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	12	MONTGOMERY		39

DATE:
FILE:

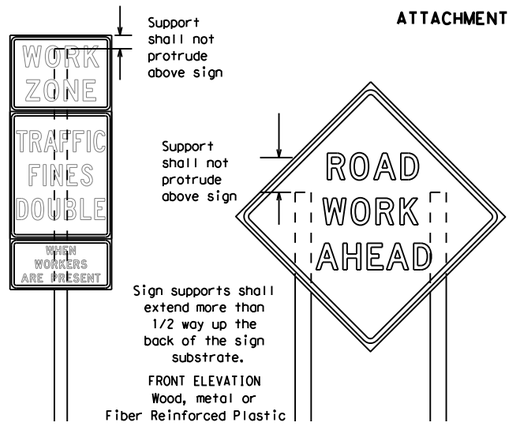
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS

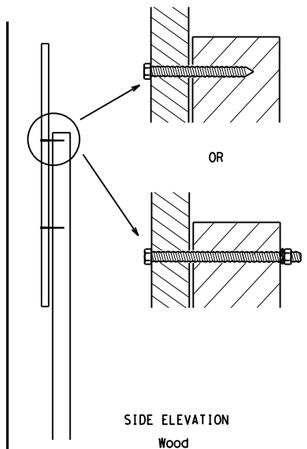


* When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

** 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





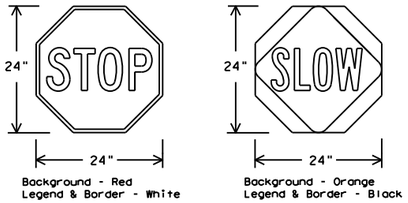
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

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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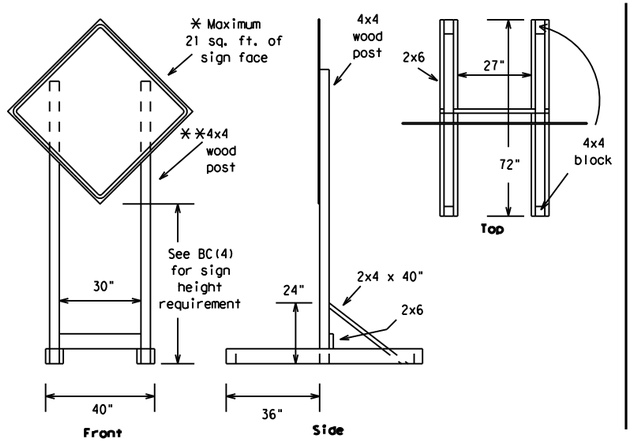
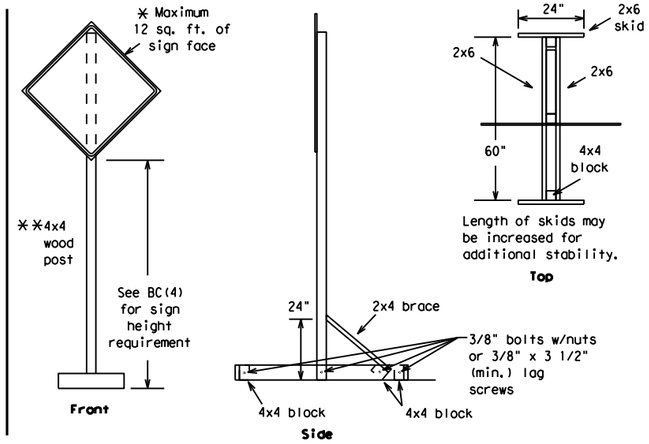
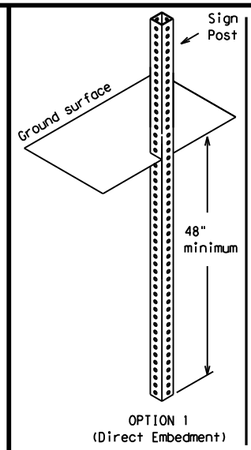
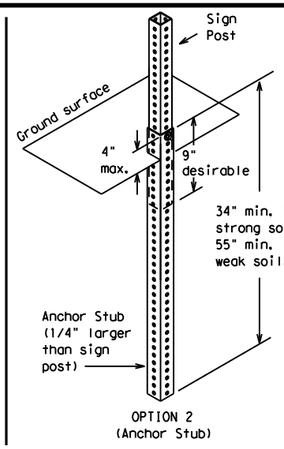


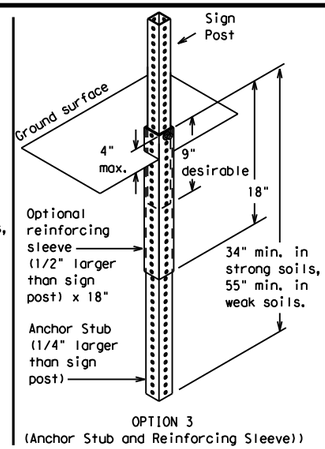


SKID MOUNTED WOOD SIGN SUPPORTS

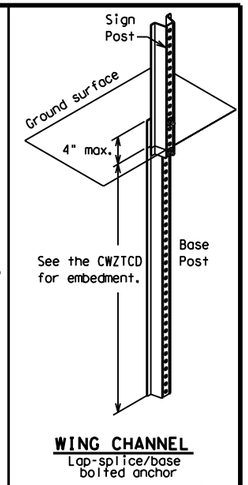
* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS





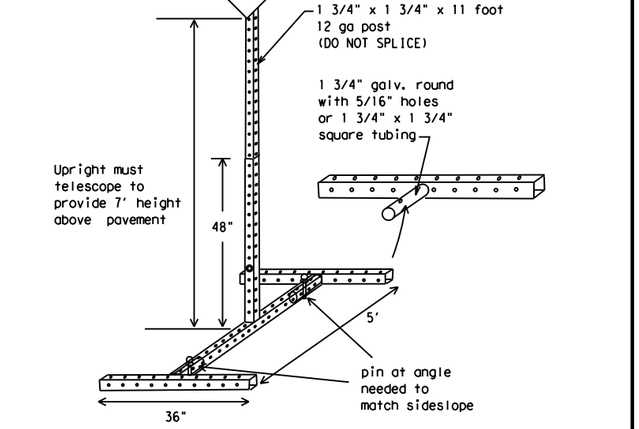


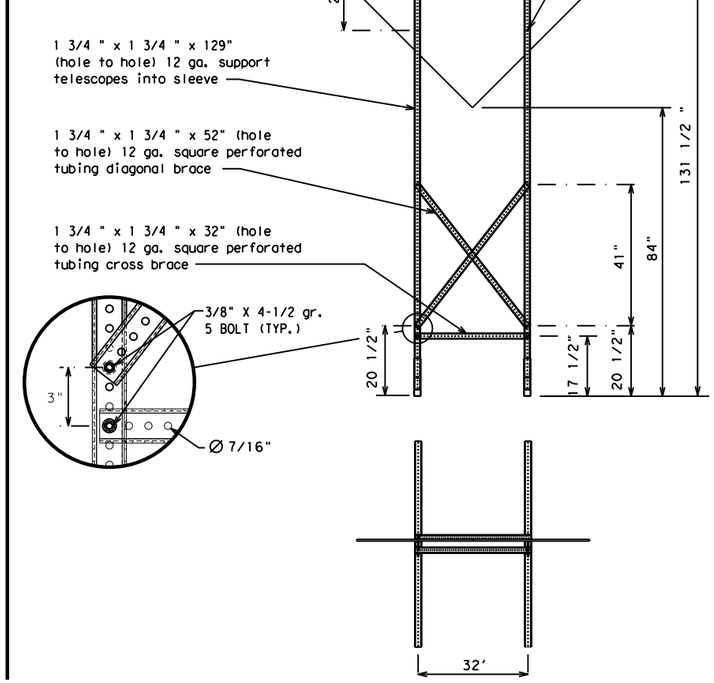
PERFORATED SQUARE METAL TUBING

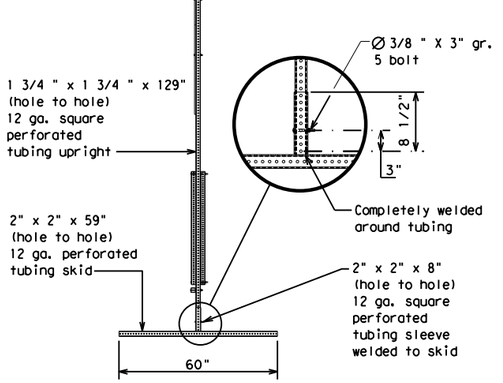


GROUND MOUNTED SIGN SUPPORTS

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.

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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
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

** 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

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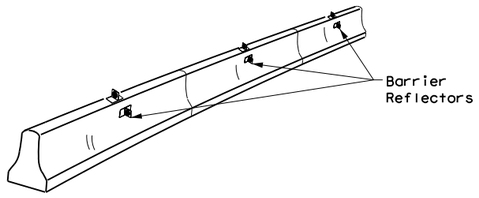
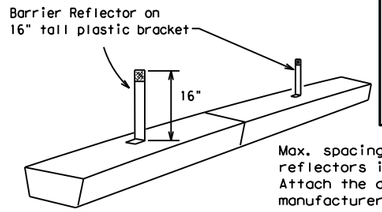
1. Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
2. Color of Barrier Reflectors shall be as specified in the TMUTCD. The cost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



CONCRETE TRAFFIC BARRIER (CTB)

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

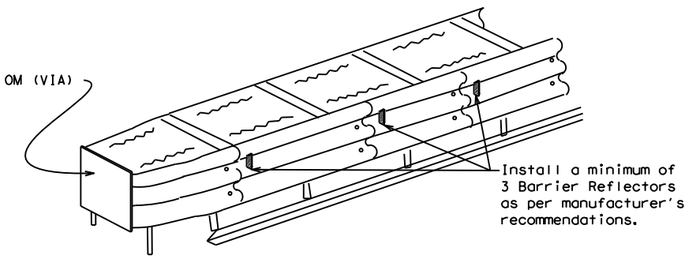


Max. spacing of barrier reflectors is 20 feet. Attach the delineators as per manufacturer's recommendations.

LOW PROFILE CONCRETE BARRIER (LPCB) 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)

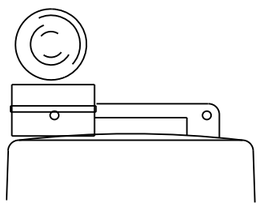


DELINEATION OF END TREATMENTS

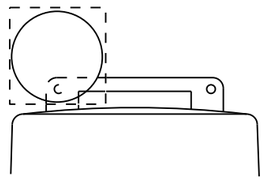
END TREATMENTS FOR CTB'S USED IN WORK ZONES

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

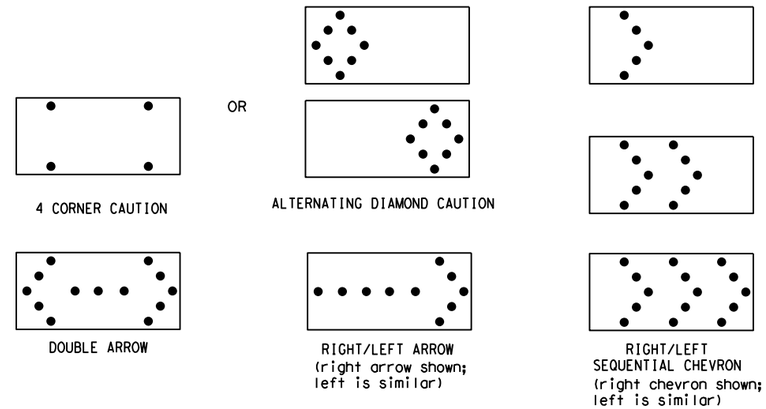
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing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

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REVISIONS	2744	01	032	FM 2854
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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:

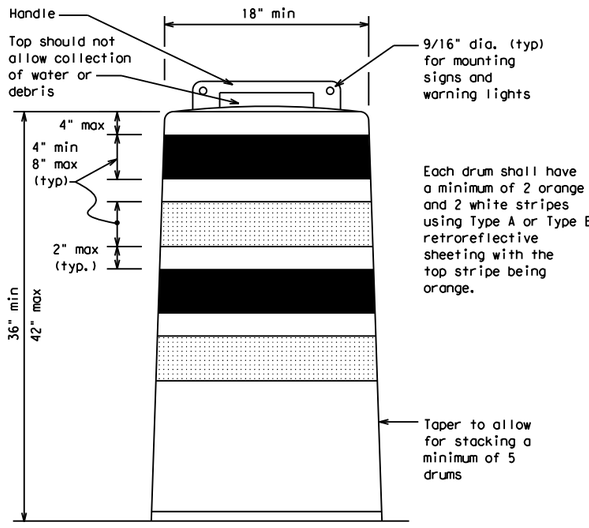
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents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

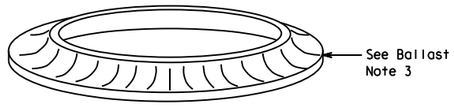
RETROREFLECTIVE SHEETING

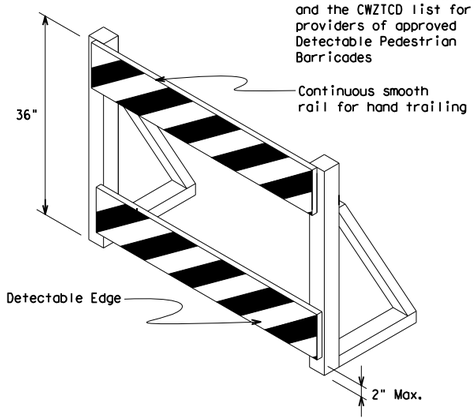
1. The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials," Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
2. The sheeting shall 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.

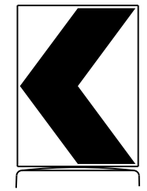




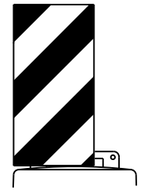


DETECTABLE PEDESTRIAN BARRICADES

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

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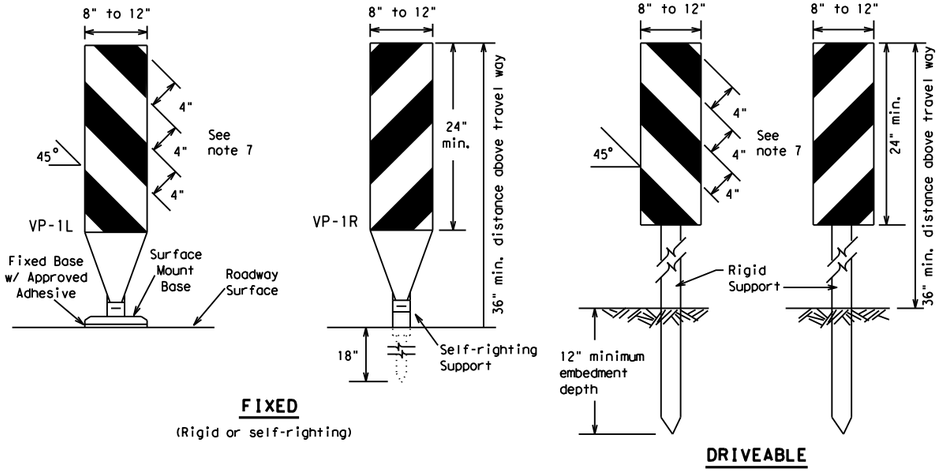
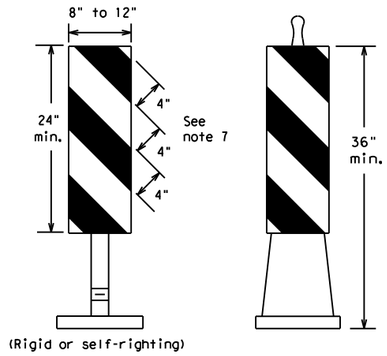


FIXED
(Rigid or self-righting)

DRIVEABLE

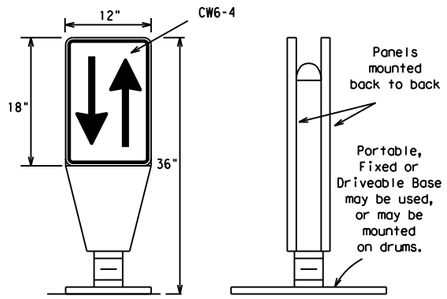


(Rigid or self-righting)

PORTABLE

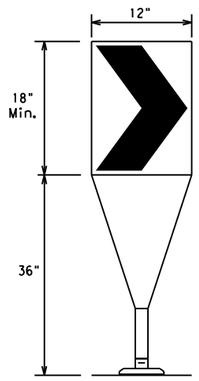
1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is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



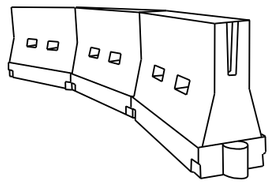
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

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

SHEET 9 OF 12

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-21

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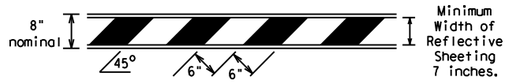
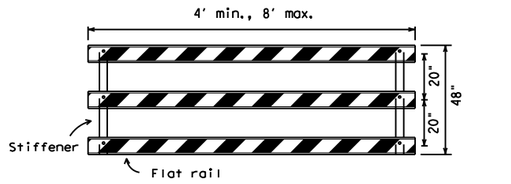
TYPE 3 BARRICADES

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.



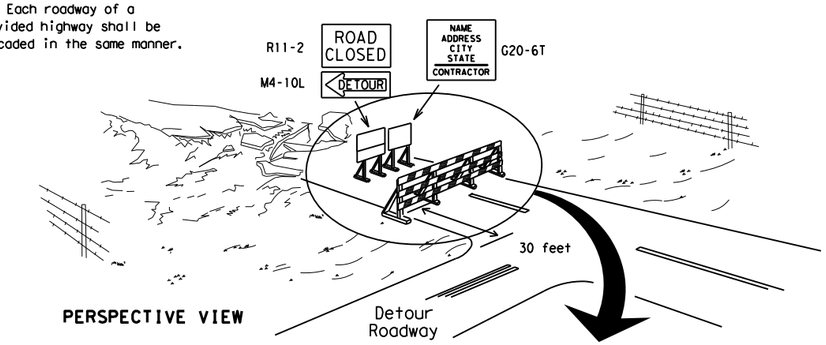
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

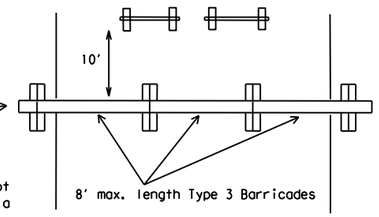
TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

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



PERSPECTIVE VIEW

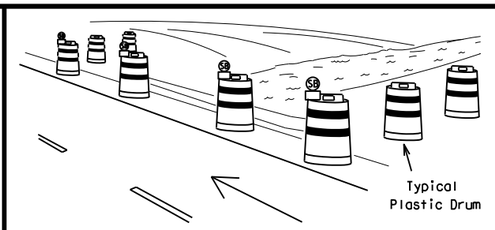
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

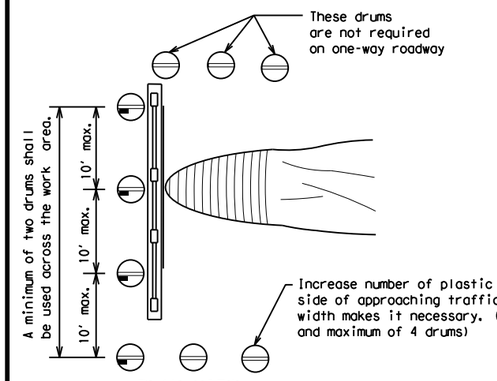
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

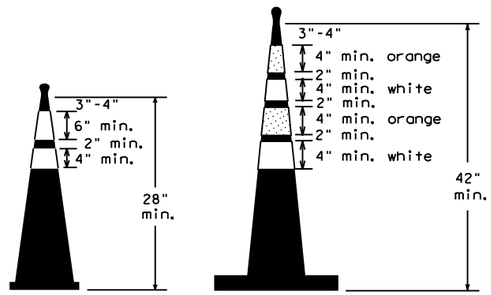
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder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



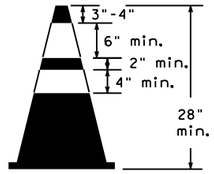
LEGEND	
	Plastic drum
	Plastic drum with steady burn light or yellow warning reflector
SB	Steady burn warning light or yellow warning reflector

PLAN VIEW

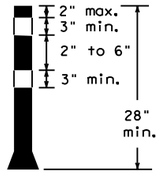
CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



Two-Piece cones



One-Piece cones

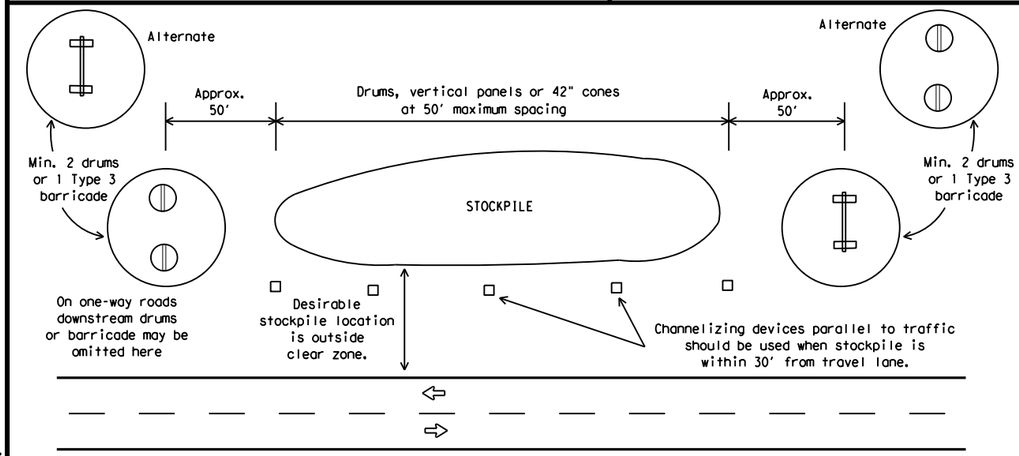


Tubular Marker

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

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

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



TRAFFIC CONTROL FOR MATERIAL STOCKPILES

DATE:
FILE:

SHEET 10 OF 12

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(10)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS 9-07 8-14 7-13 5-21	2744	01	032	FM 2854
	DIST	COUNTY		SHEET NO.
	12	MONTGOMERY		46

104

DATE:
FILE:

WORK ZONE PAVEMENT MARKINGS

GENERAL

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

RAISED PAVEMENT MARKERS

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

PREFABRICATED PAVEMENT MARKINGS

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

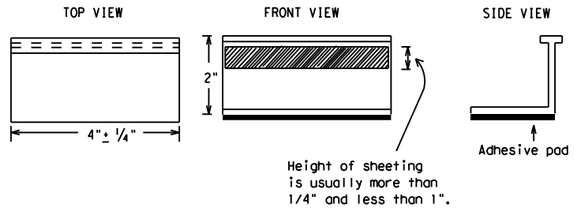
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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

REMOVAL OF PAVEMENT MARKINGS

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

Temporary Flexible-Reflective Roadway Marker Tabs



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

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

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

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

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

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

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

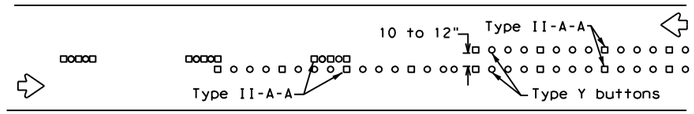
BC(11)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS	2744	01	032	FM 2854
2-98 9-07 5-21	DIST	COUNTY		SHEET NO.
1-02 7-13	12	MONTGOMERY		47
11-02 8-14				

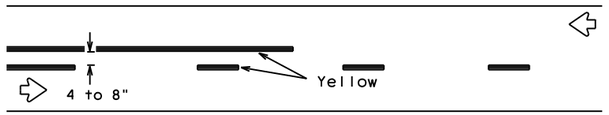
DATE:
FILE:

PAVEMENT MARKING PATTERNS

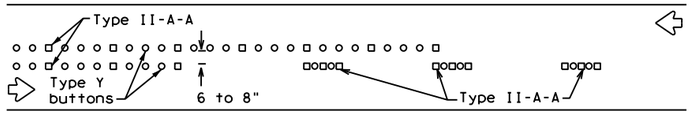
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



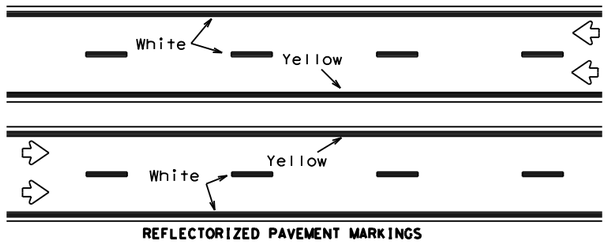
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



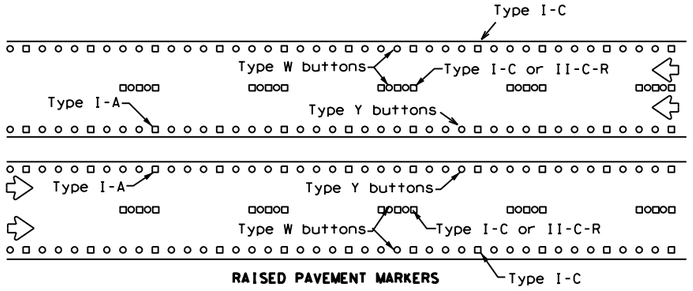
RAISED PAVEMENT MARKERS - PATTERN B

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



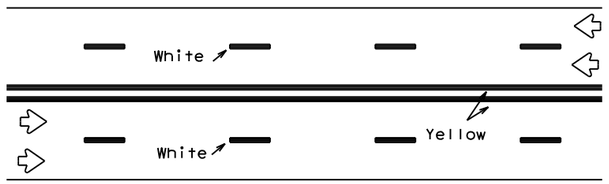
REFLECTORIZED PAVEMENT MARKINGS



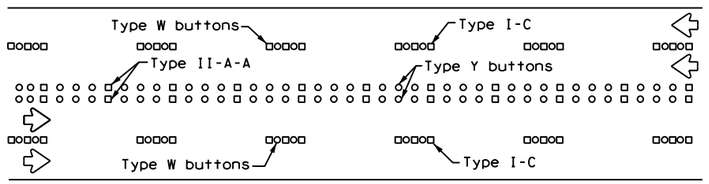
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



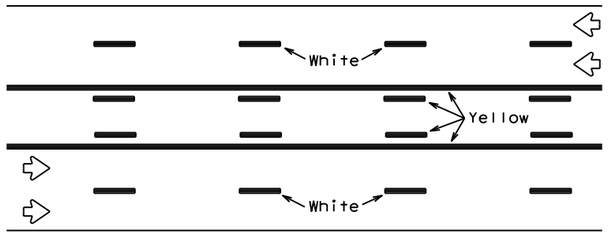
REFLECTORIZED PAVEMENT MARKINGS



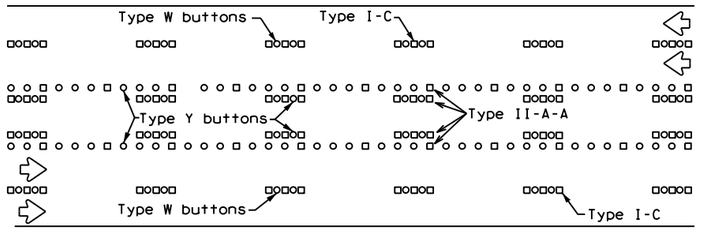
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

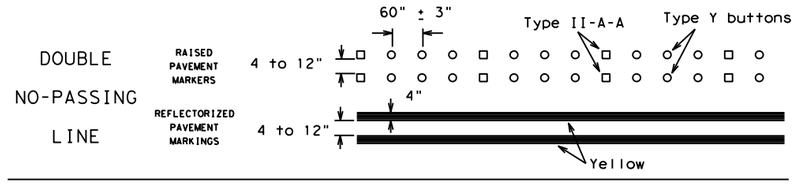
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

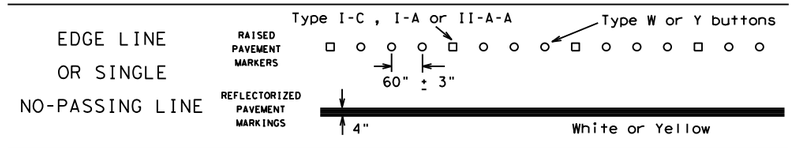
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

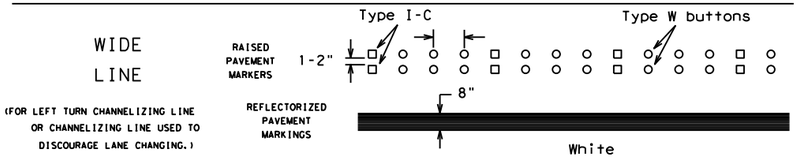


EDGE LINE OR SINGLE NO-PASSING LINE



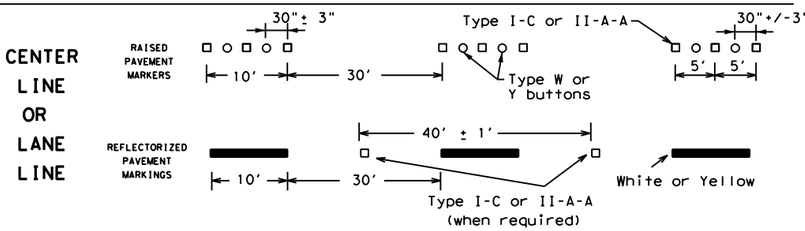
WIDE LINE

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

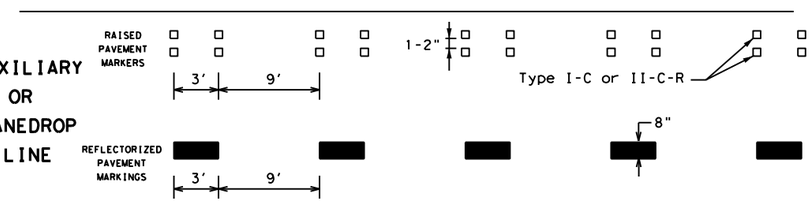


BROKEN LINES

CENTER LINE OR LANE LINE

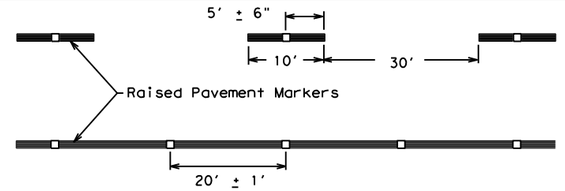


AUXILIARY OR LANEDROP LINE



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

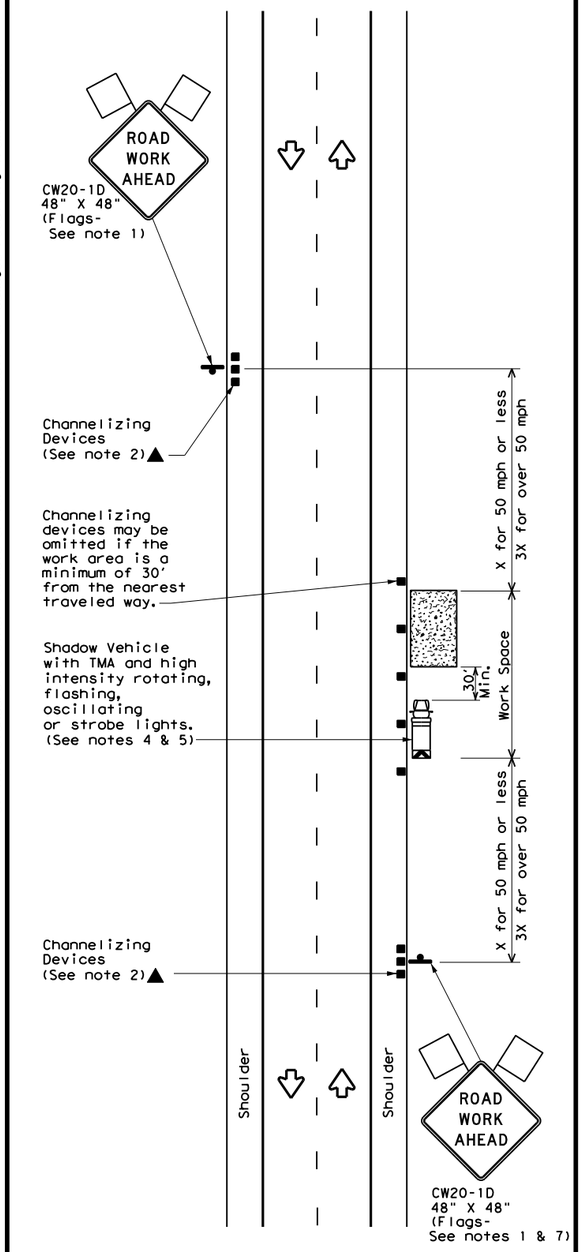
Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC(12)-21

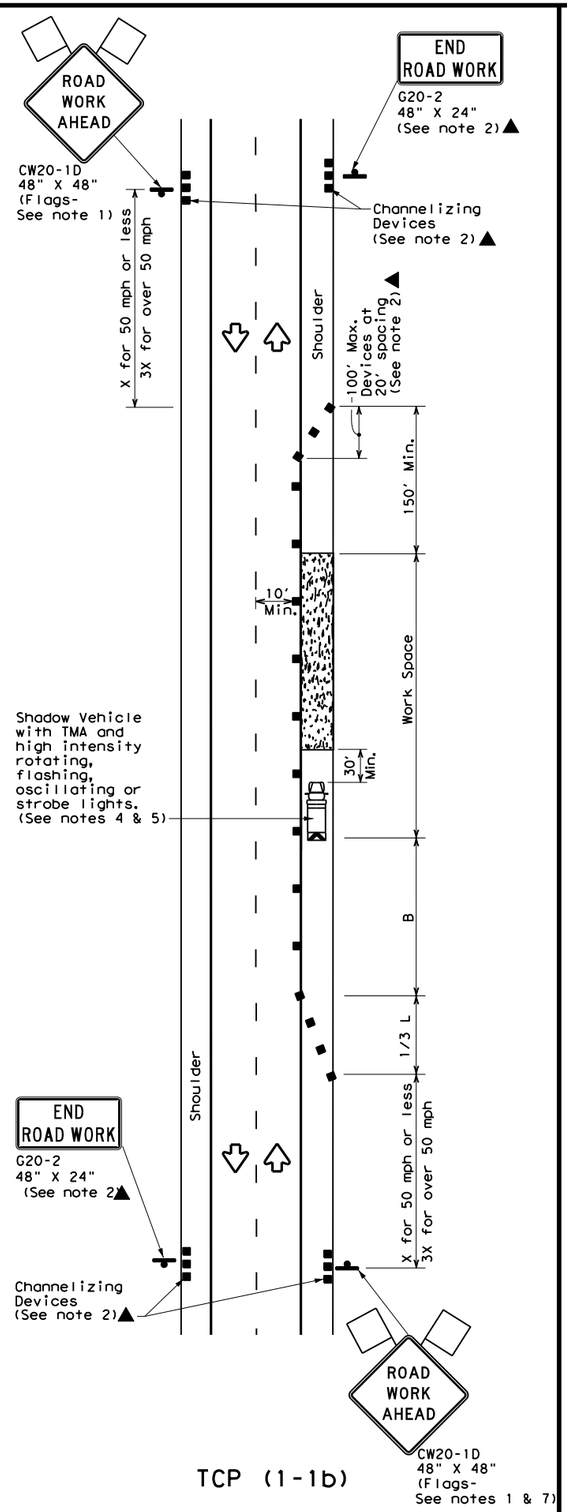
FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS 1-97 9-07 5-21 2-98 7-13 11-02 8-14	2744	01	032	FM 2854
	DIST	COUNTY		SHEET NO.
	12	MONTGOMERY		48

DATE:
FILE:



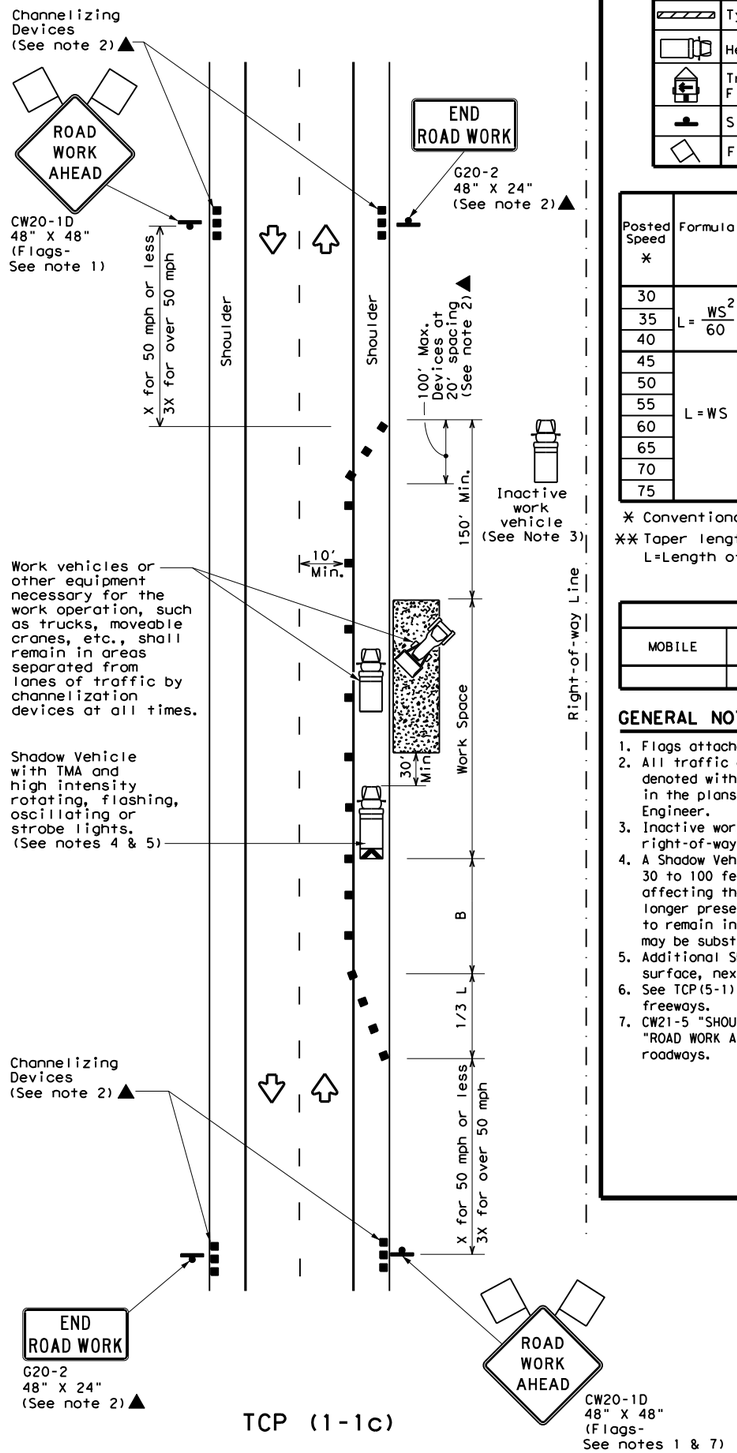
TCP (1-1a)

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

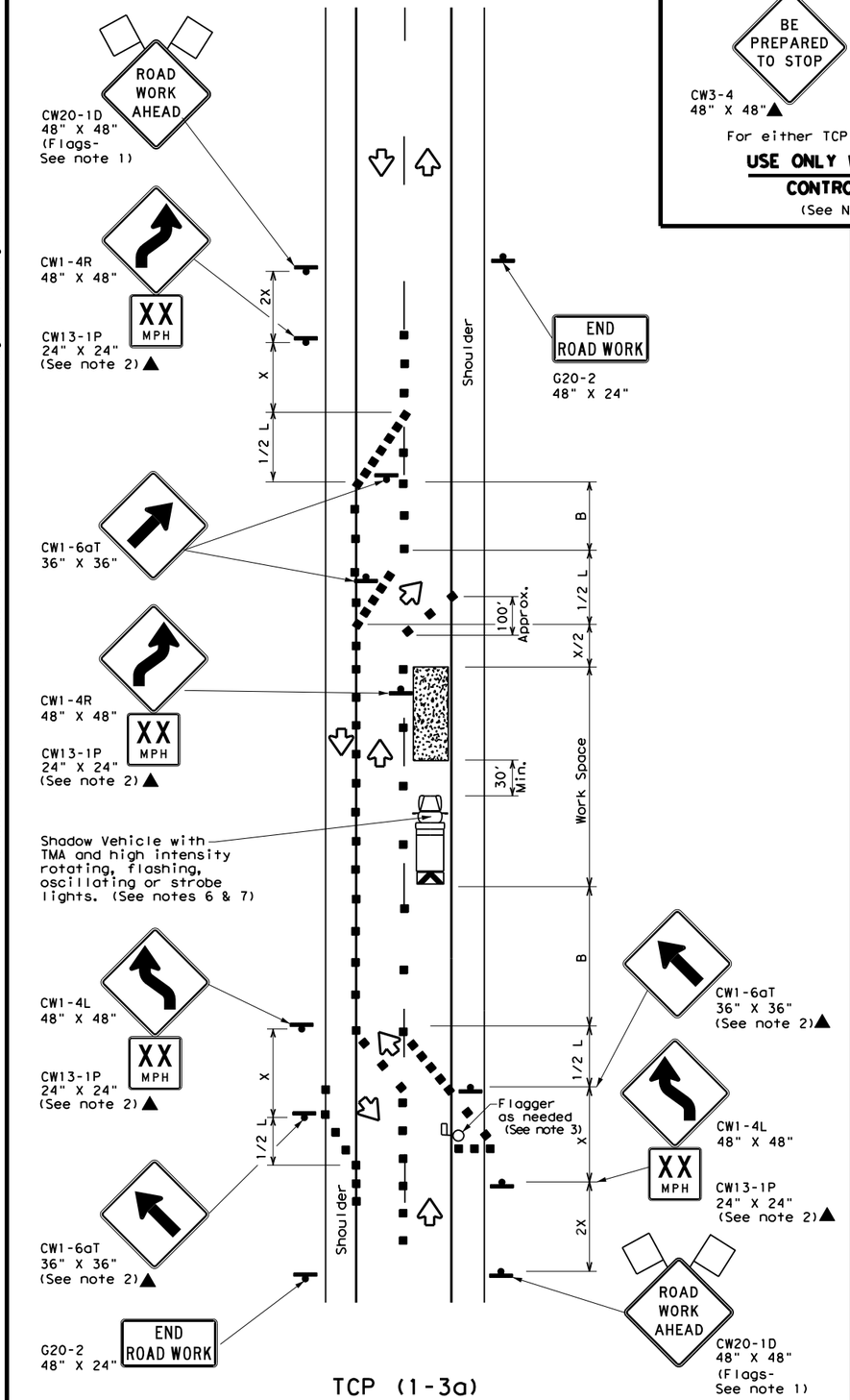
Traffic Operations Division Standard

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 8-95 2-12 1-97 2-18	2744	01	032	FM 2854
	DIST	COUNTY		SHEET NO.
	HOU	MONTGOMERY		49

DATE:
FILE:



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

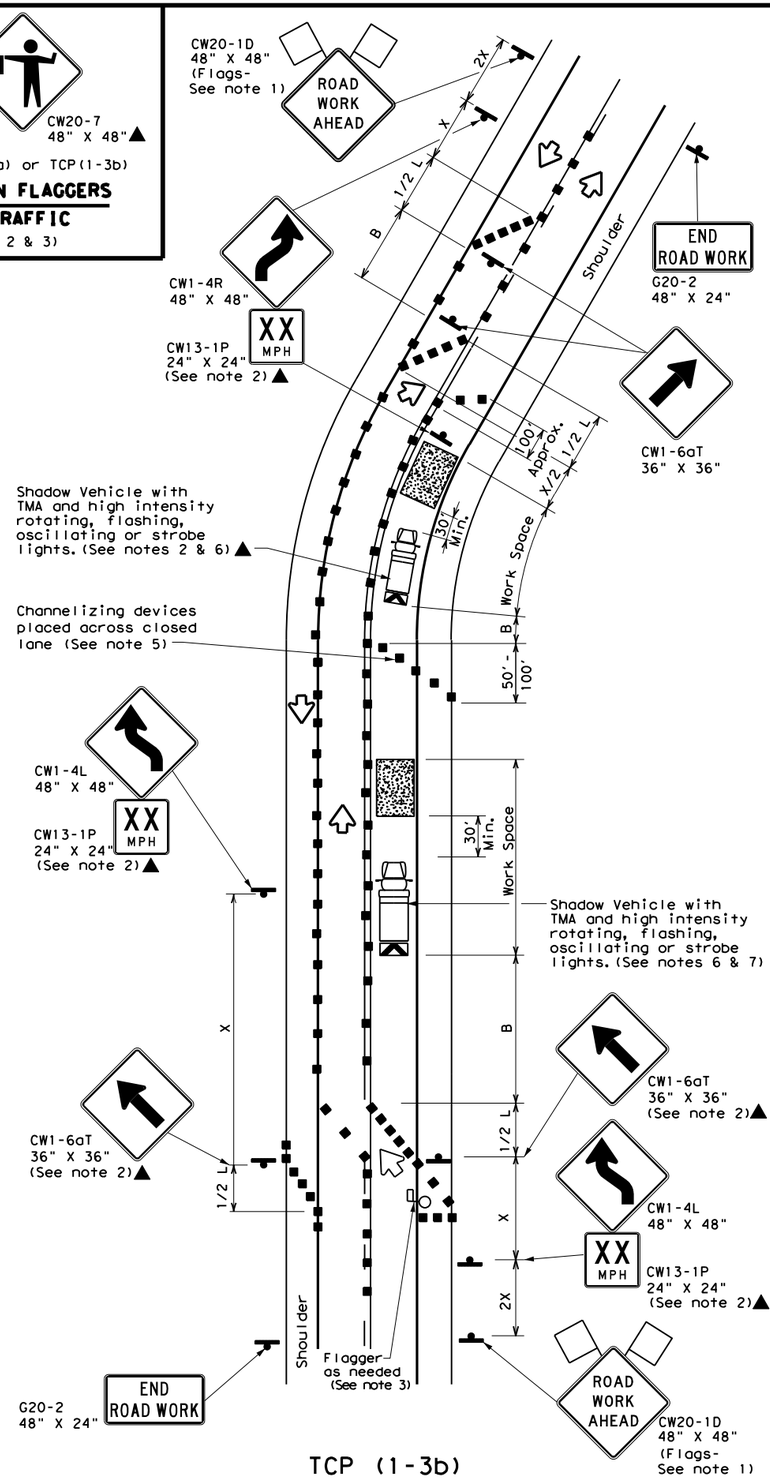
ONE LANE CLOSED
ADEQUATE FIELD OF VIEW

BE PREPARED TO STOP
CW3-4 48" X 48"
CW20-7 48" X 48"

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

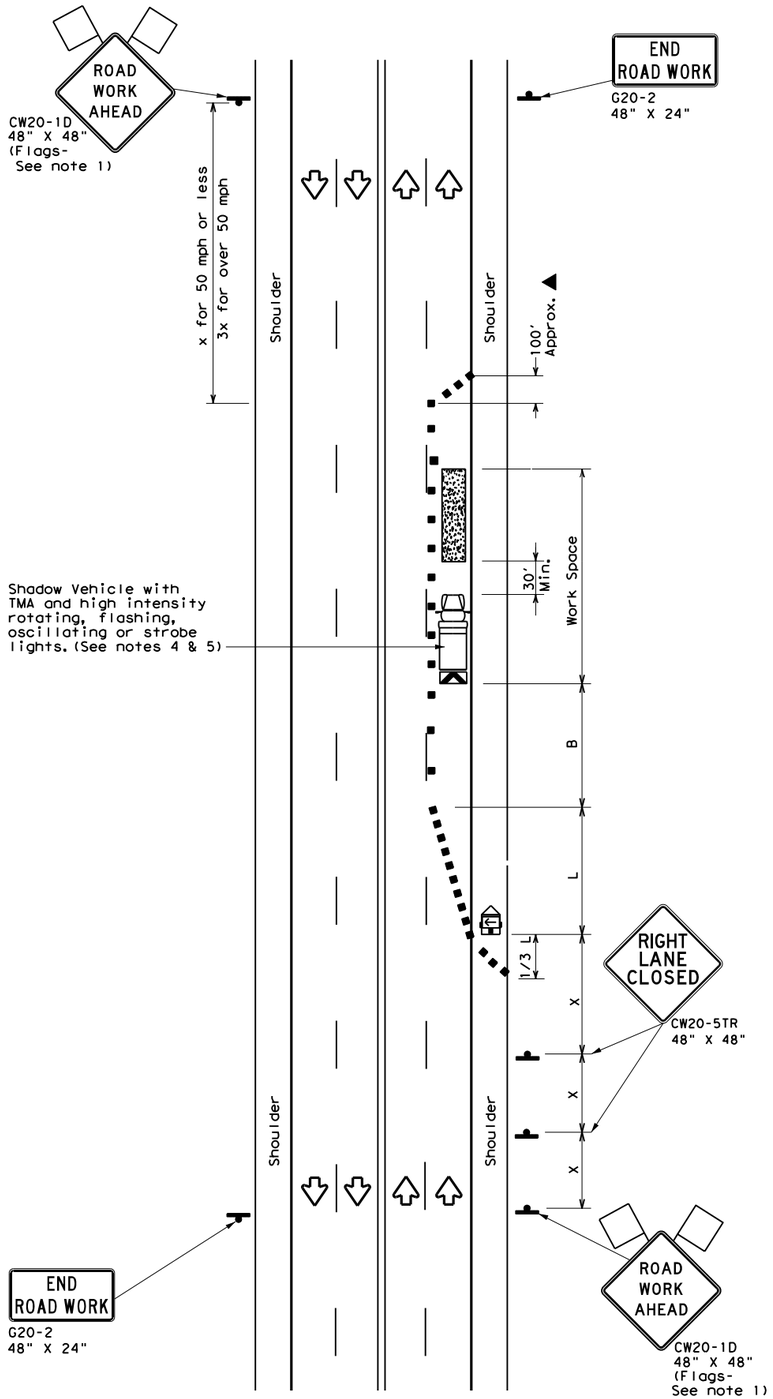
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
TRAFFIC SHIFTS ON TWO LANE ROADS

TCP(1-3)-18

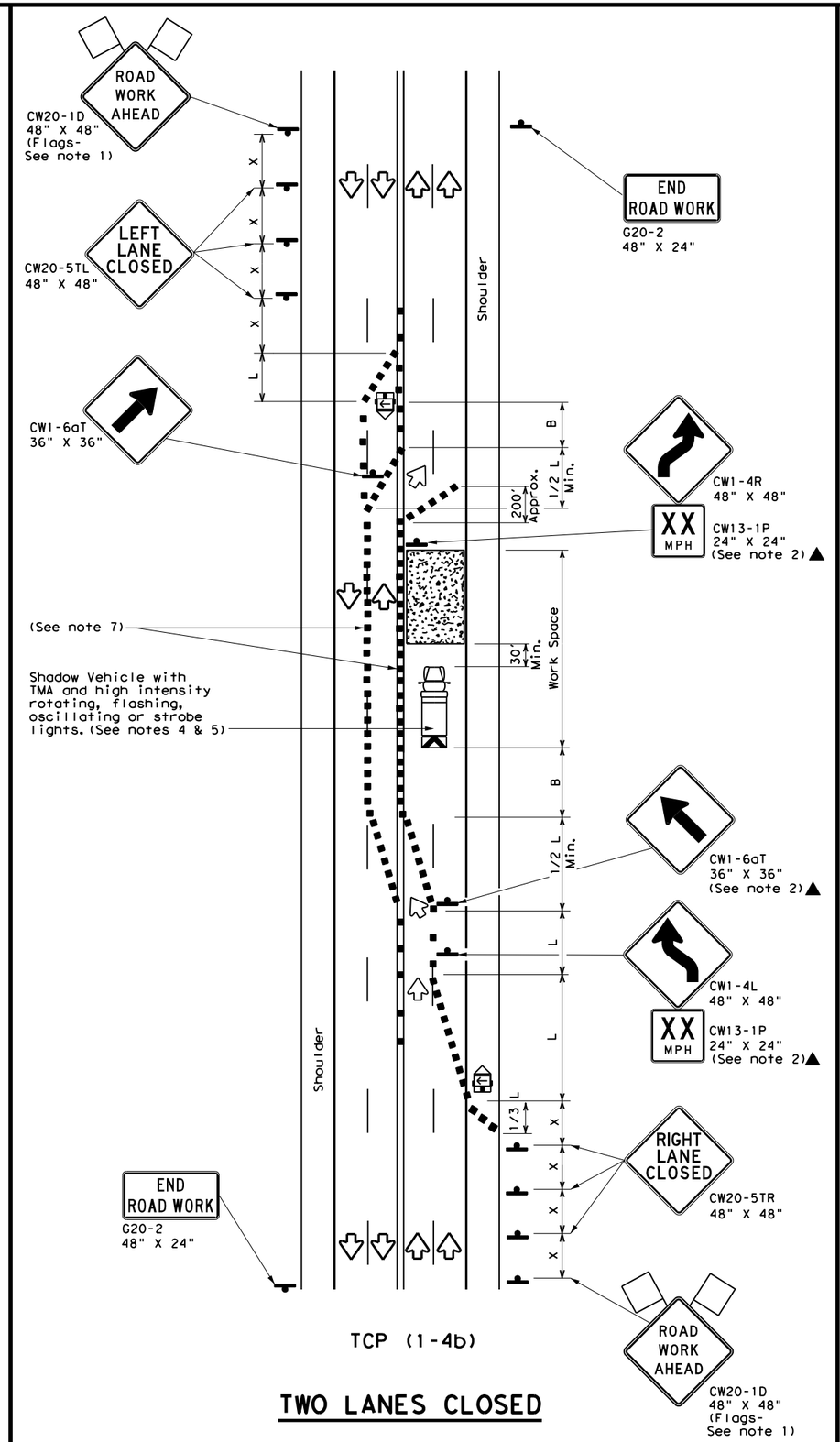
FILE: tcp1-3-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	2744	01	032	FM 2854
2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 2-12	HOU	MONTGOMERY		49A
1-97 2-18				

DATE:
FILE:



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

FILE: tcp1-4-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	2744	01	032	FM 2854
2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 2-12	HOU	MONTGOMERY		49B
1-97 2-18				

DATE:
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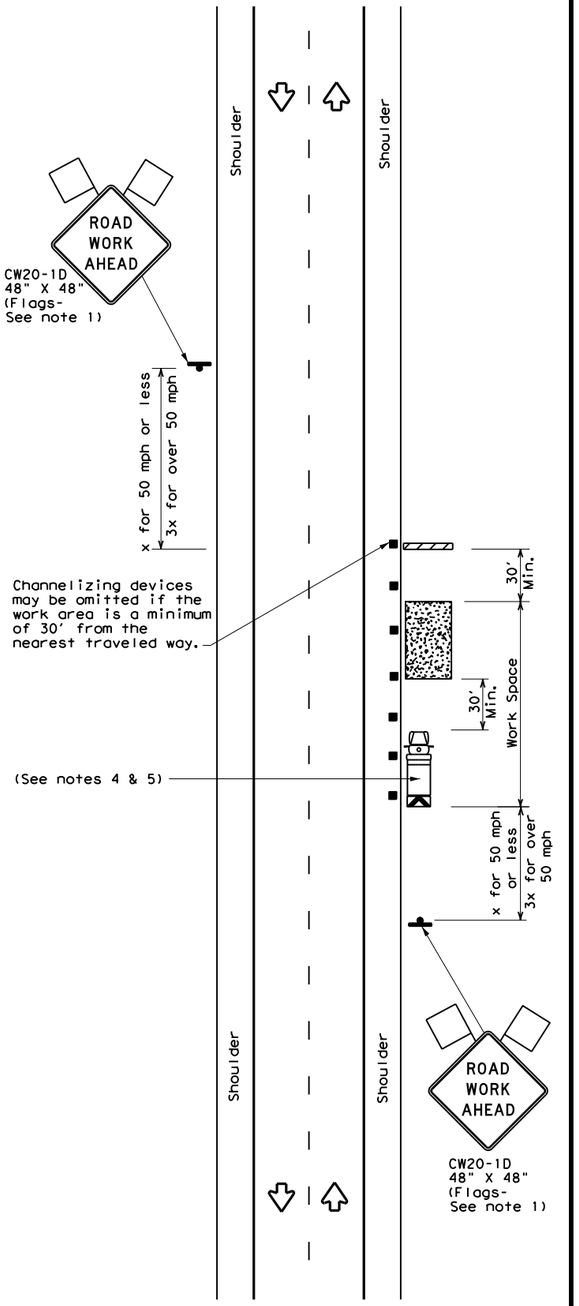
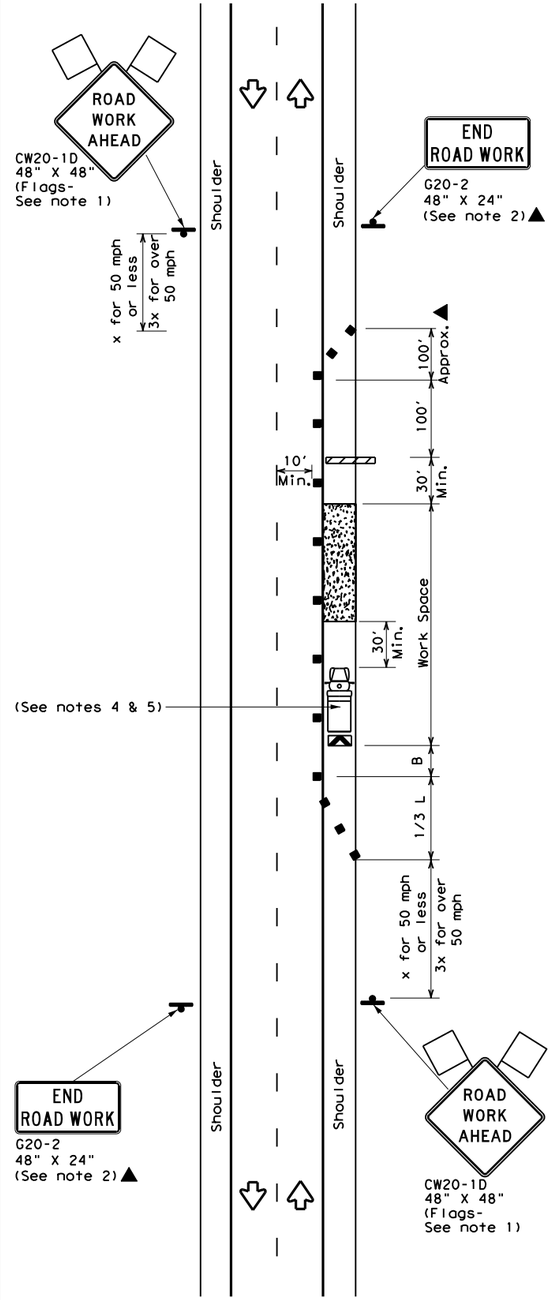


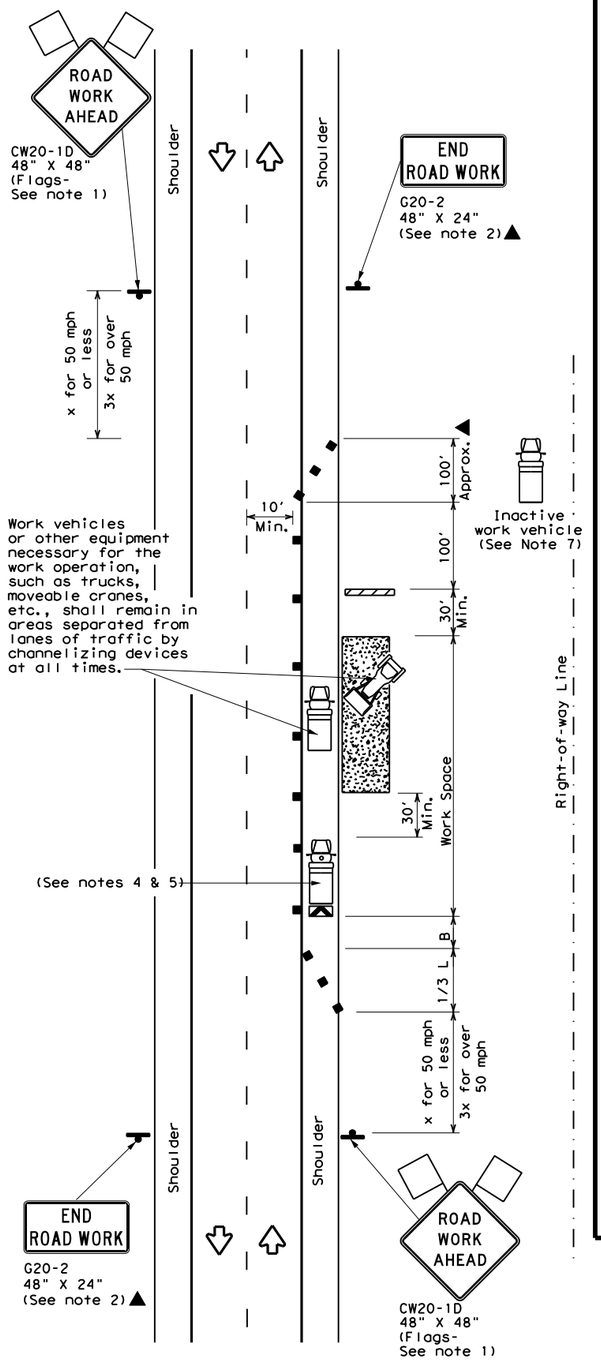
TCP (2-1a)

WORK SPACE NEAR SHOULDER
Conventional Roads



TCP (2-1b)

WORK SPACE ON SHOULDER
Conventional Roads



TCP (2-1c)

WORK VEHICLES ON SHOULDER
Conventional Roads

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

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

* Conventional Roads Only

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

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

GENERAL NOTES

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

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN CONVENTIONAL ROAD SHOULDER WORK

TCP(2-1)-18

FILE: tcp2-1-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	2744	01	032	FM 2854
2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 2-12	HOU	MONTGOMERY		49C
1-97 2-18				

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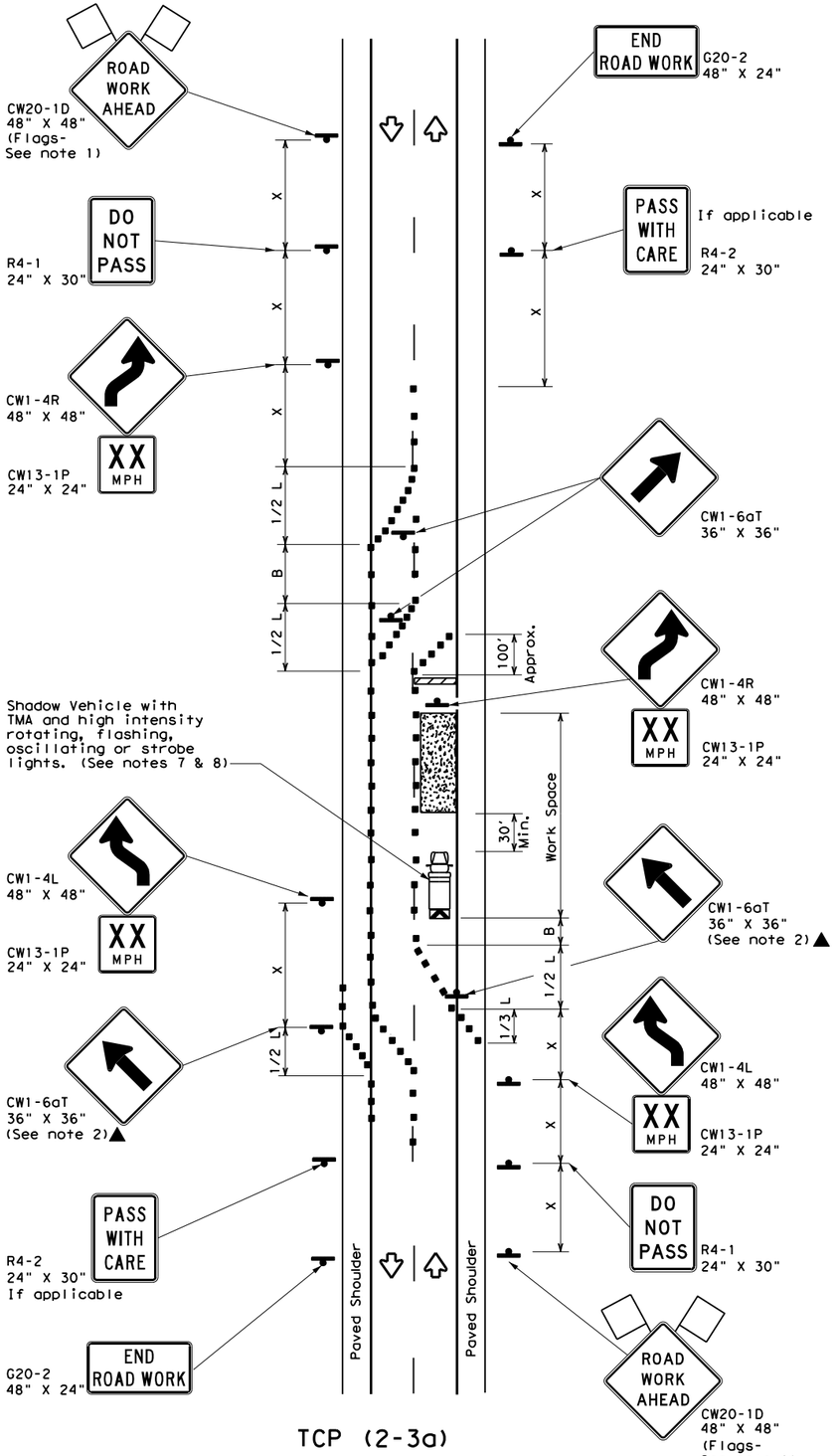
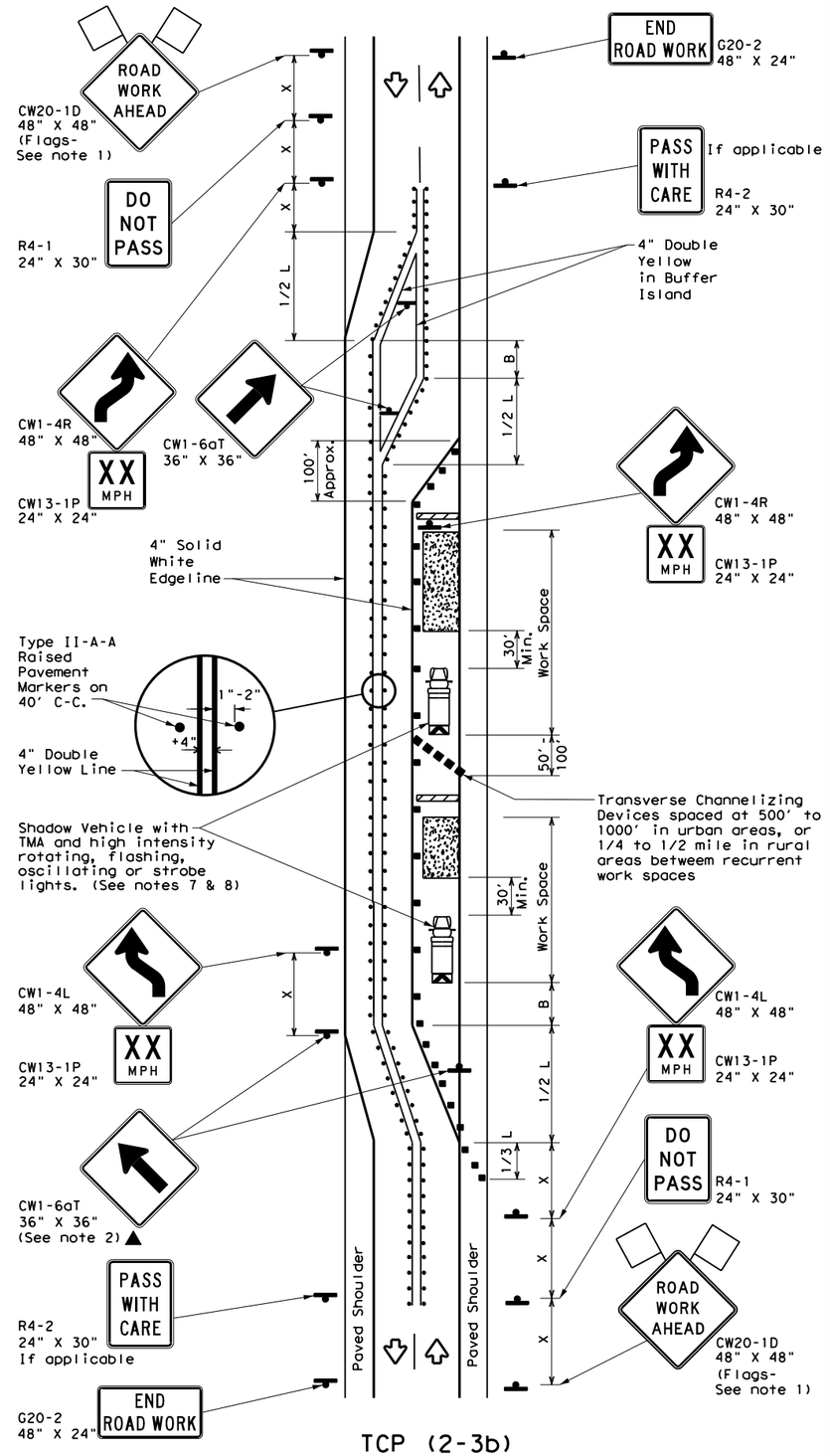
DATE:
FILE:



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	2744	01	032	FM 2854
8-95 3-03	DIST	COUNTY		SHEET NO.
1-97 2-12	HOU	MONTGOMERY		49D
4-98 2-18				

DATE:
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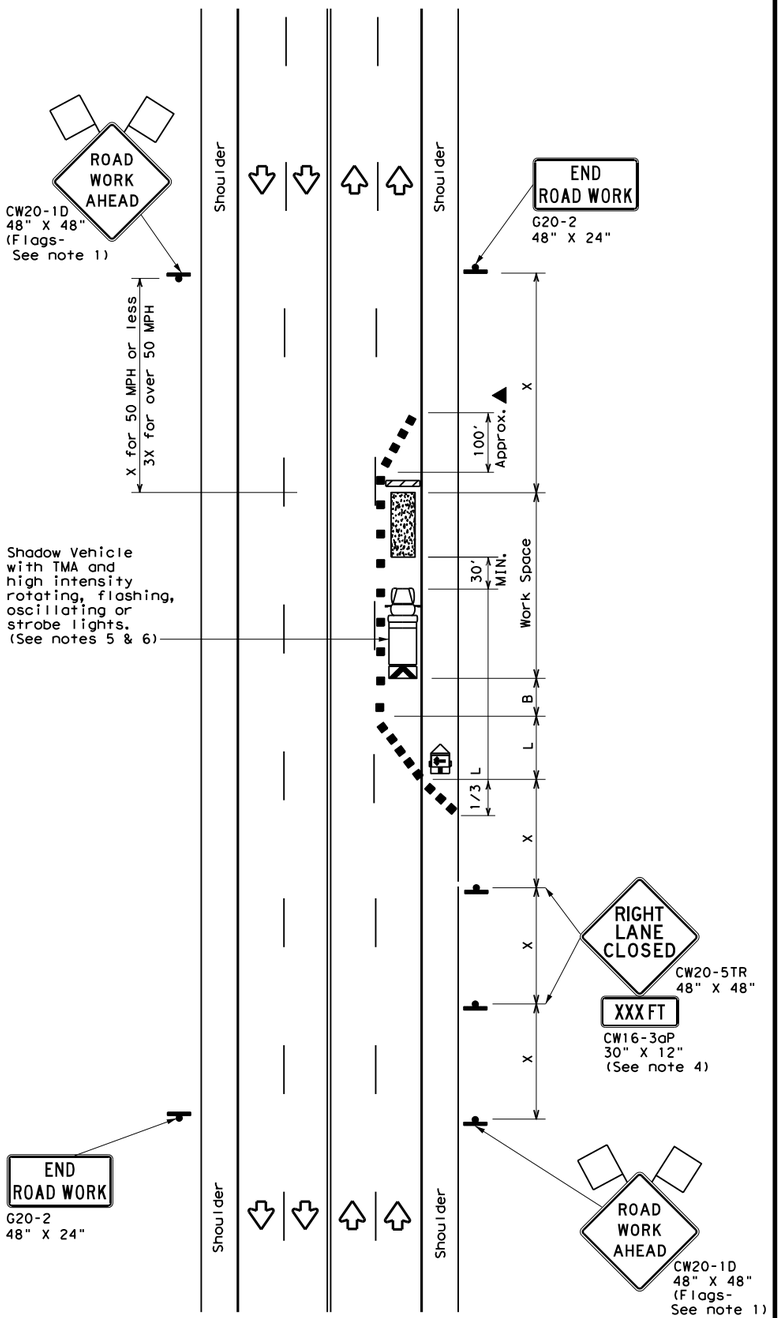
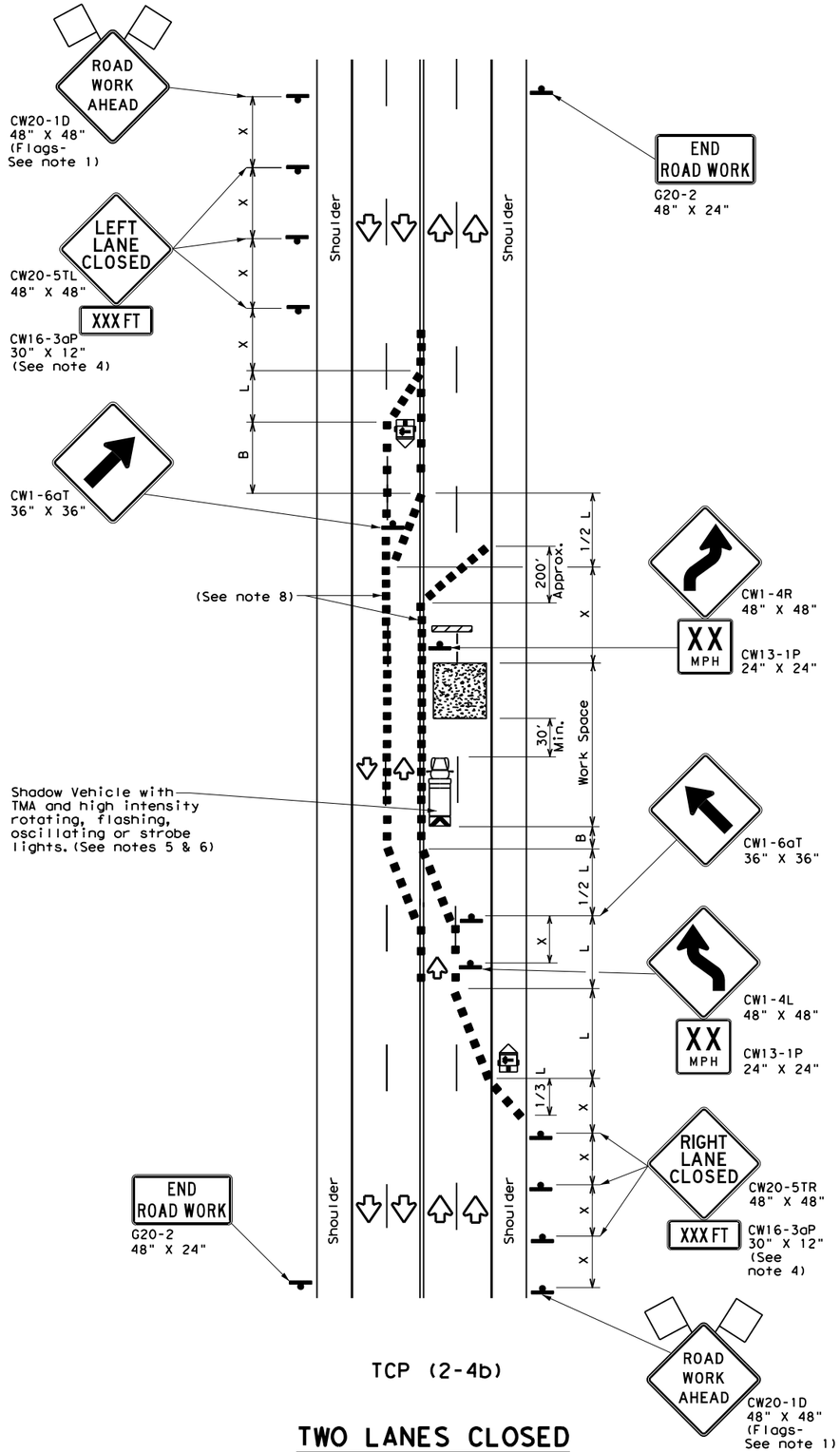


TCP (2-4a)

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

FILE: tcp2-4-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 3-03	2744	01	032	FM 2854
1-97 2-12	DIST	COUNTY		SHEET NO.
4-98 2-18	HOU	MONTGOMERY		49E

DATE:
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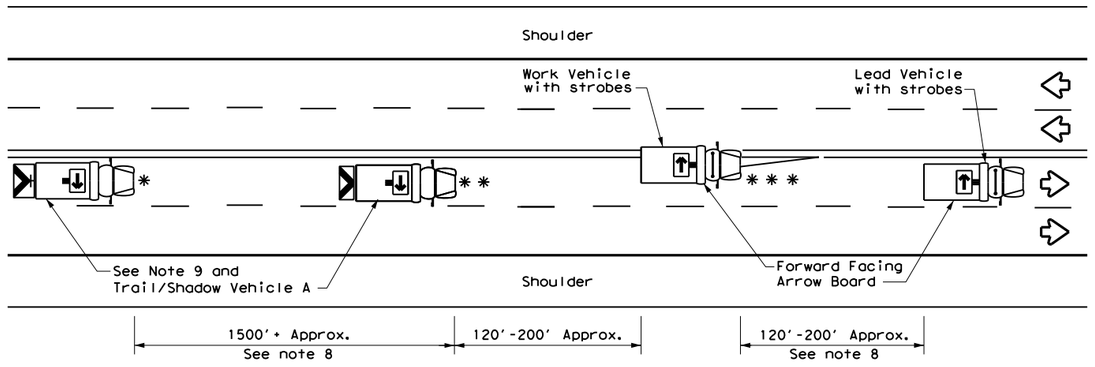
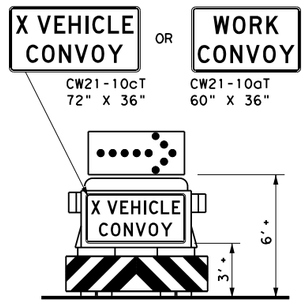


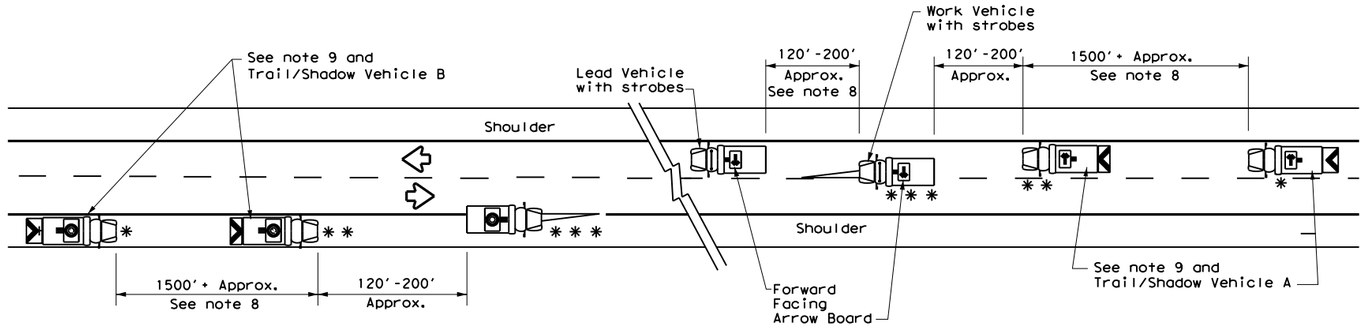
TCP (3-1a)

UNDIVIDED MULTILANE ROADWAY



TRAIL/SHADOW VEHICLE A

with RIGHT Directional display Flashing Arrow Board

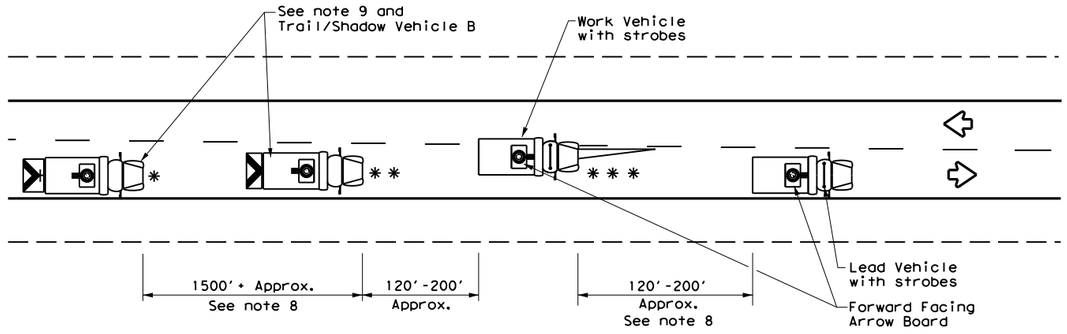


WORK ON SHOULDER

WORK ON TRAVEL LANE

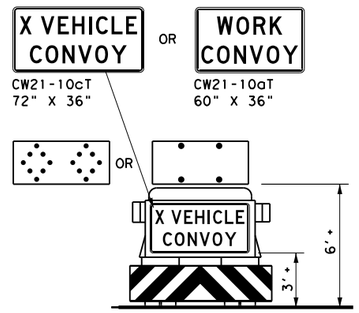
TCP (3-1b)

TWO-WAY ROADWAY WITH PAVED SHOULDERS



TCP (3-1c)

TWO-WAY ROADWAY WITHOUT PAVED SHOULDERS



TRAIL/SHADOW VEHICLE B

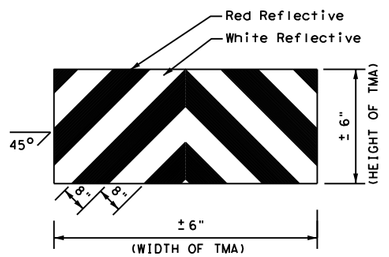
with Flashing Arrow Board in CAUTION display

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

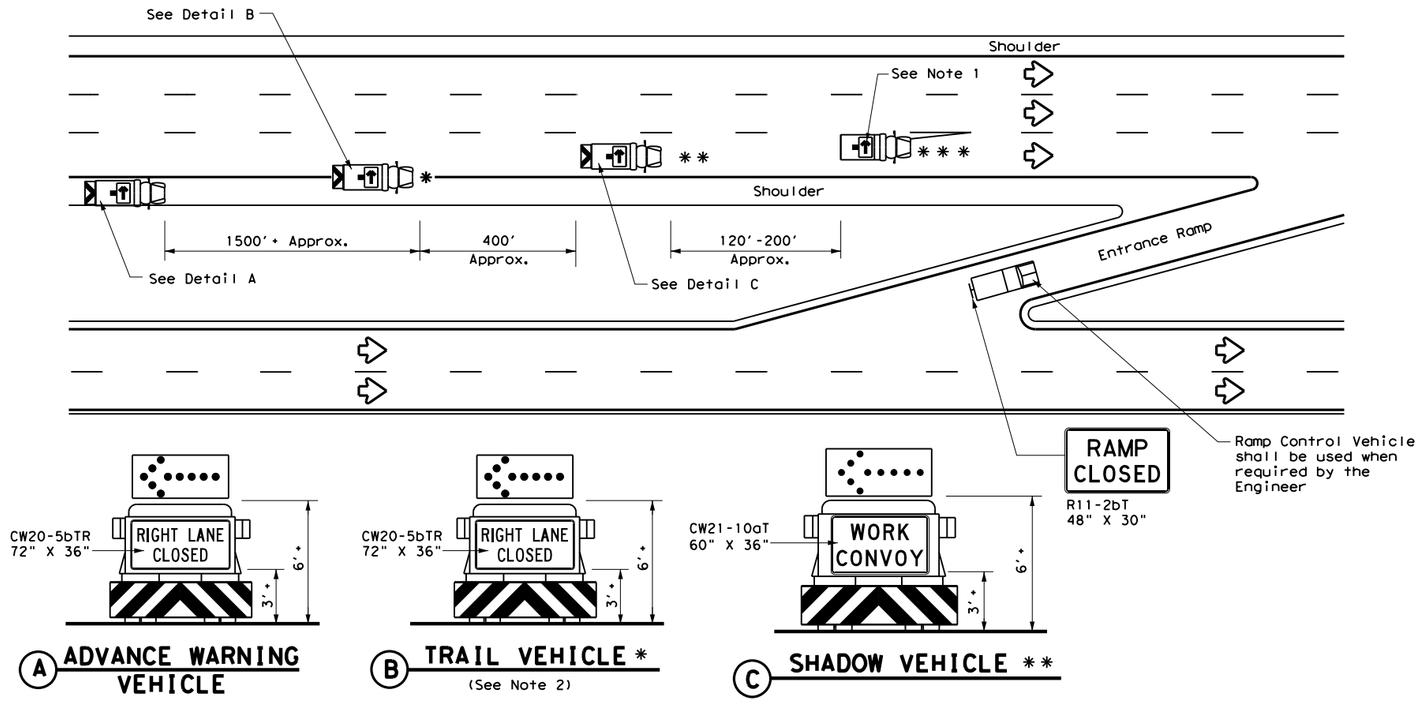
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN MOBILE OPERATIONS UNDIVIDED HIGHWAYS

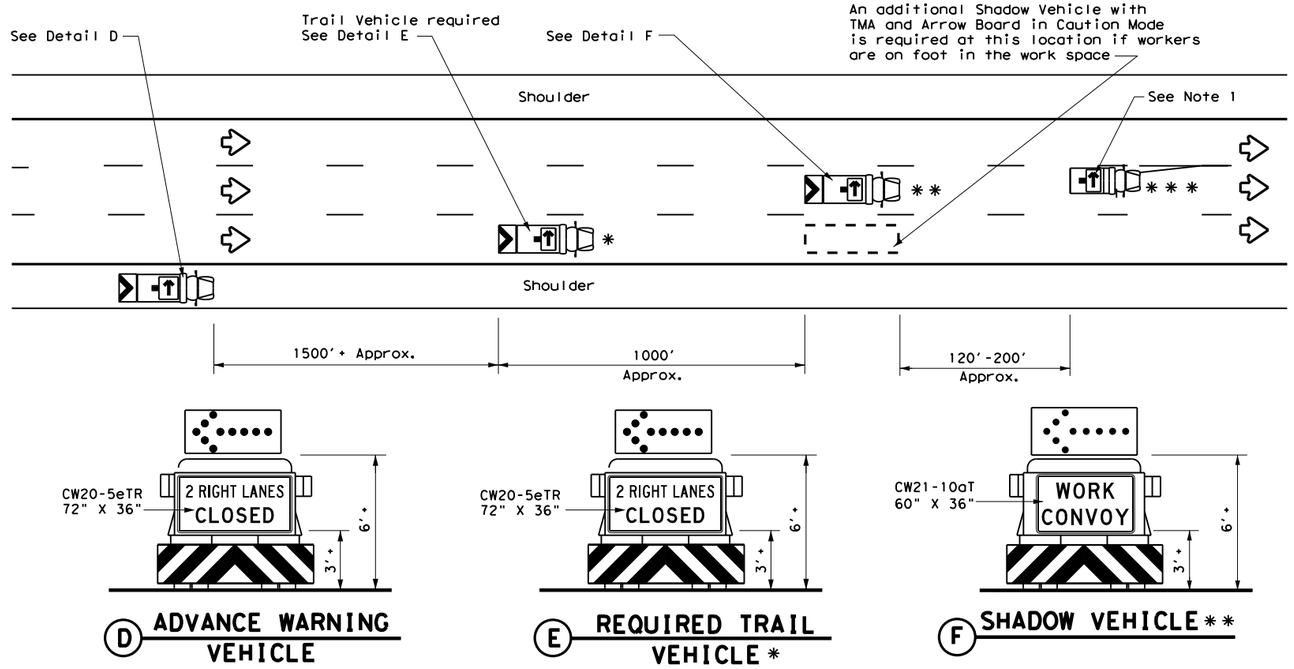
TCP(3-1)-13

FILE: tcp3-1.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	2744	01	032	FM 2854
2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 7-13	HOU	MONTGOMERY		049F
1-97				

DATE:
FILE:



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



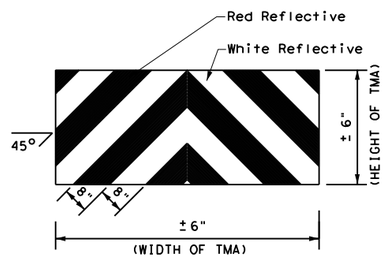
INTERIOR LANE CLOSURE ON MULTI-LANE DIVIDED HIGHWAY - TCP(3-2b)

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
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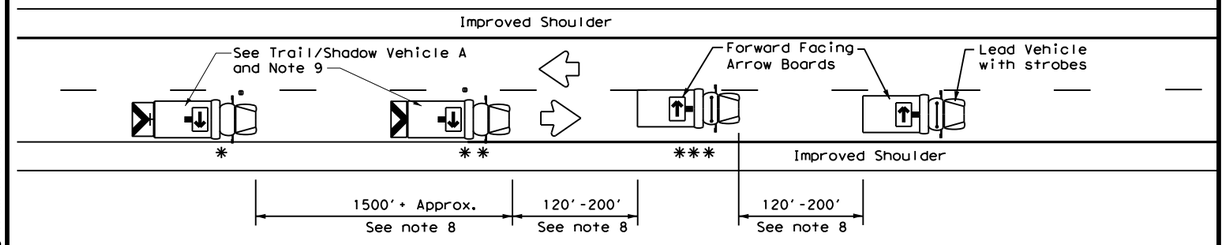
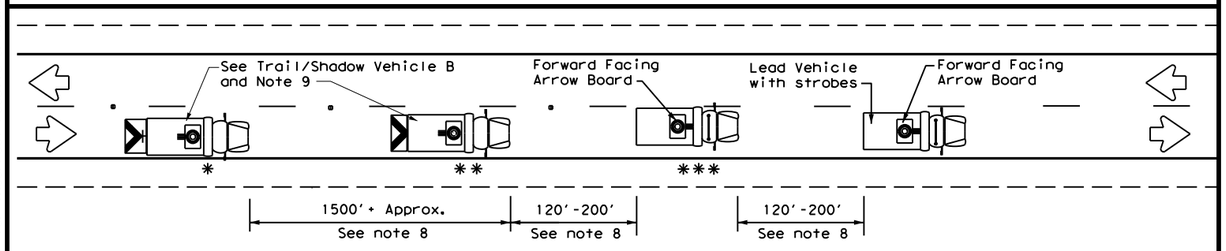
2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 7-13	HOU	MONTGOMERY		049G
1-97				



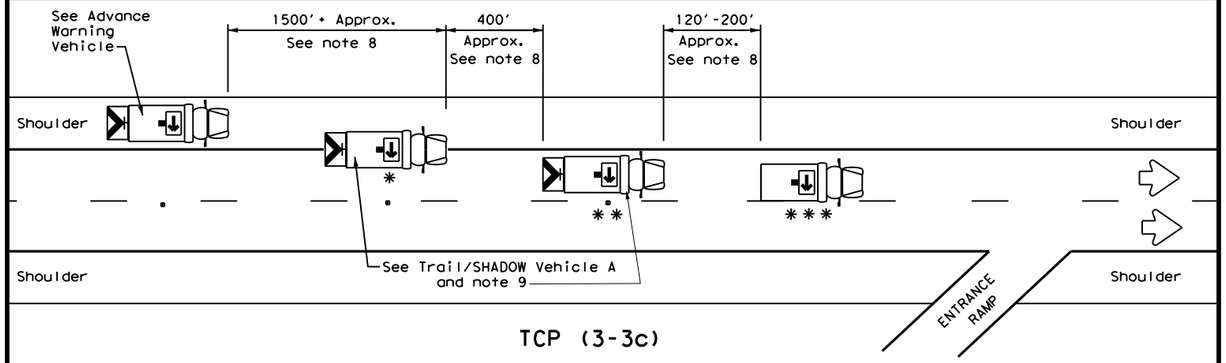
TCP (3-3a)

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



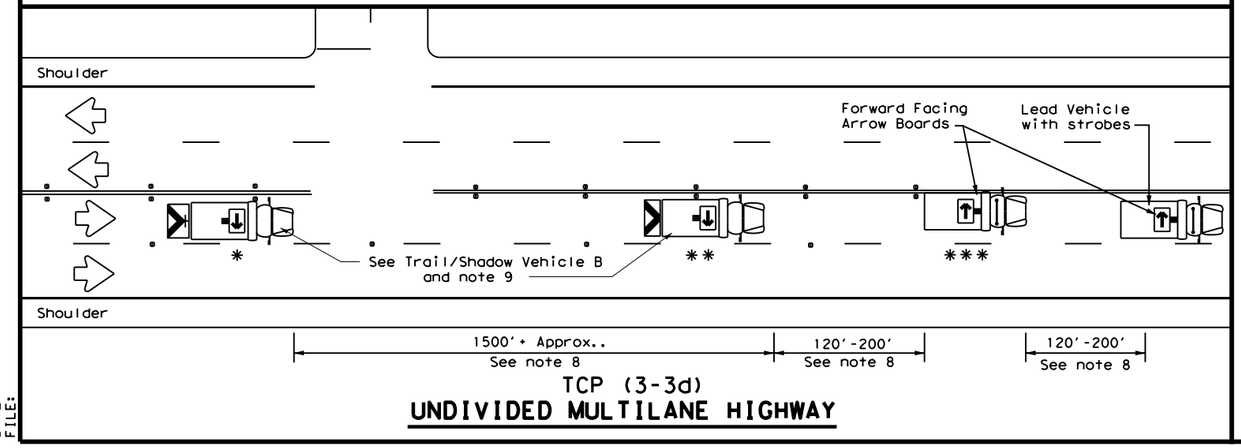
TCP (3-3b)

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



TCP (3-3c)

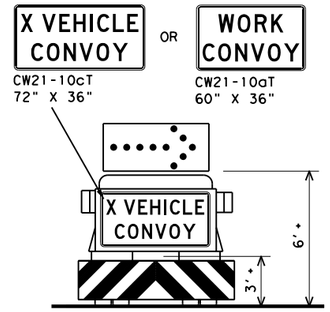
DIVIDED MULTILANE HIGHWAY



TCP (3-3d)

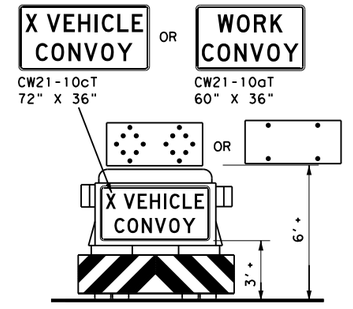
UNDIVIDED MULTILANE HIGHWAY

DATE:
FILE:



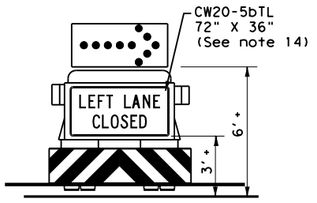
TRAIL/SHADOW VEHICLE A

with RIGHT Directional display
Flashing Arrow Board

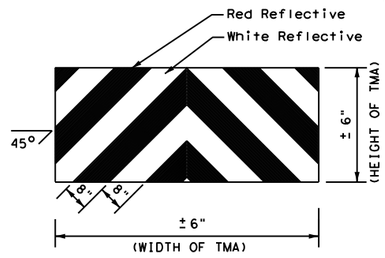


TRAIL/SHADOW VEHICLE B

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	2744	01	032	FM 2854
2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 7-13	HOU	MONTGOMERY		49H
1-97 7-14				

DATE:
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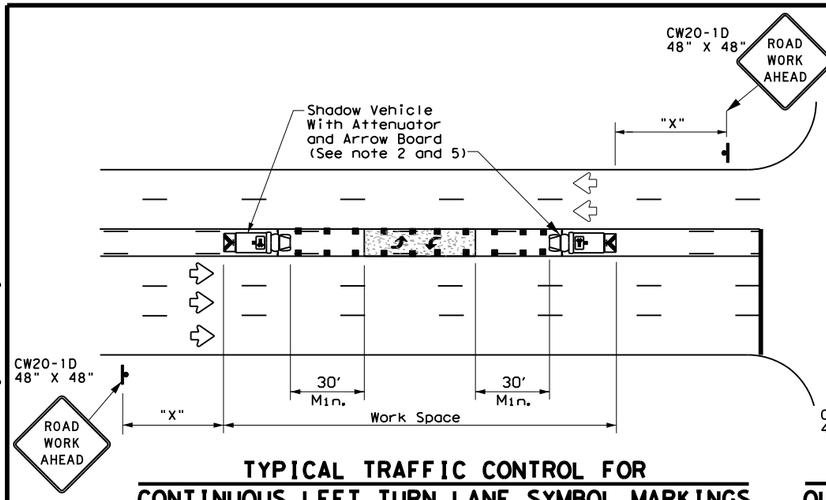
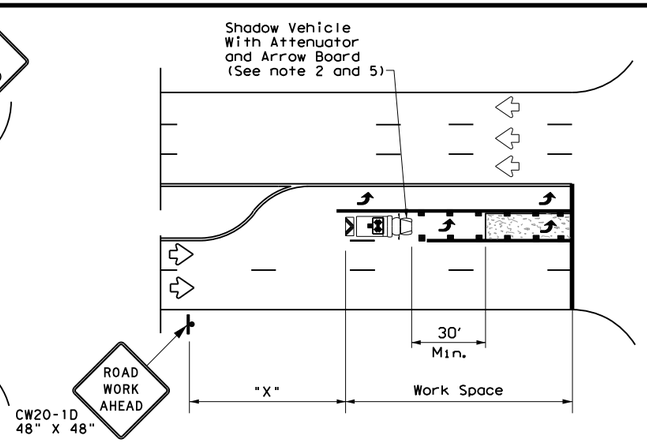
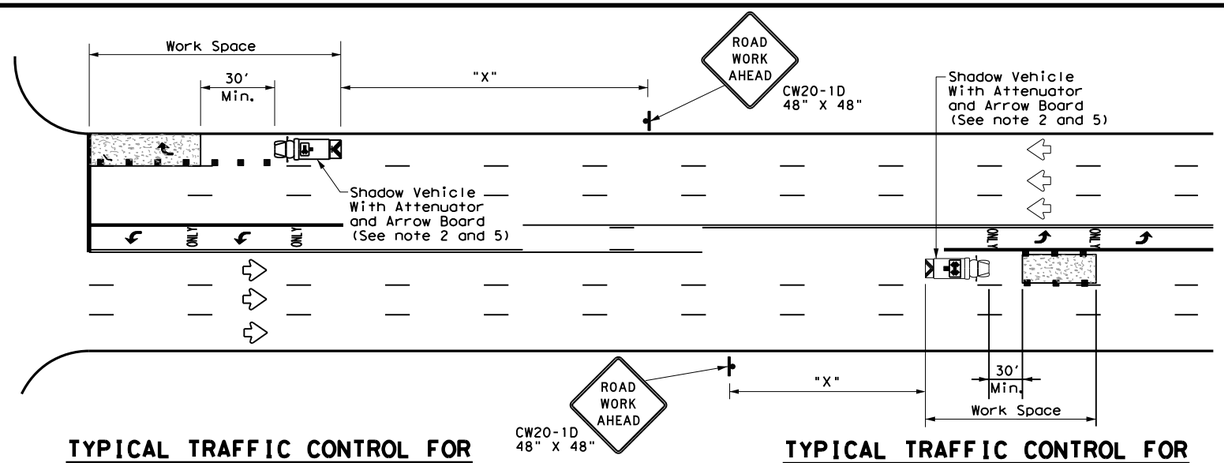


TYPICAL TRAFFIC CONTROL FOR CONTINUOUS LEFT TURN LANE SYMBOL MARKINGS

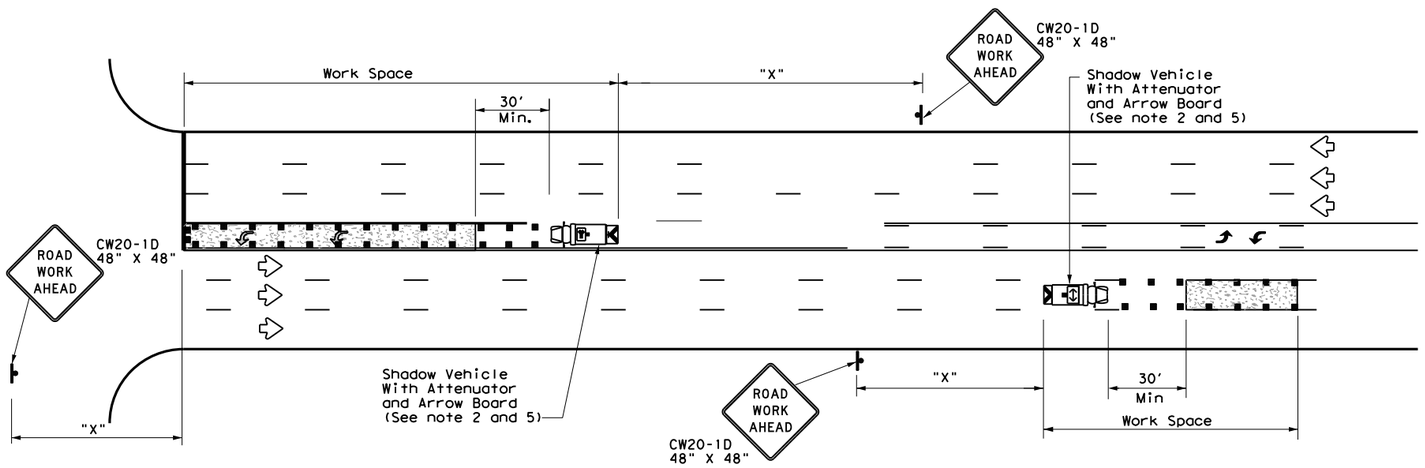


TYPICAL TRAFFIC CONTROL FOR OUTSIDE DUAL LEFT TURN LANE SYMBOL MARKINGS



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'

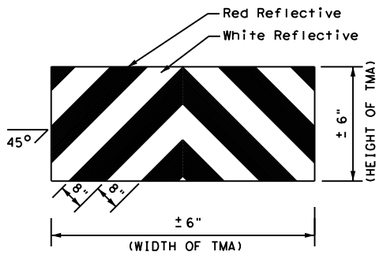
* Conventional Roads Only

** 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
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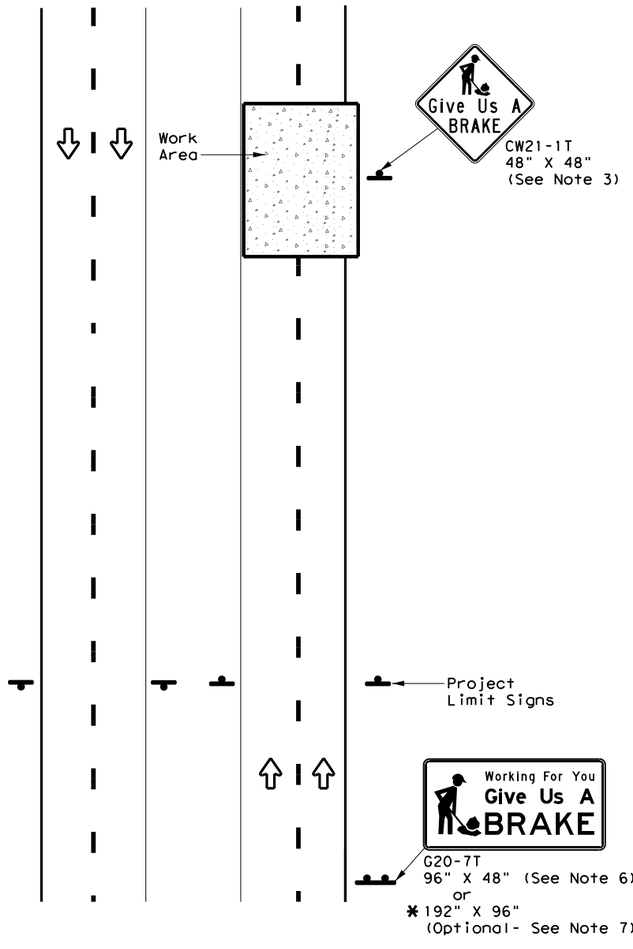
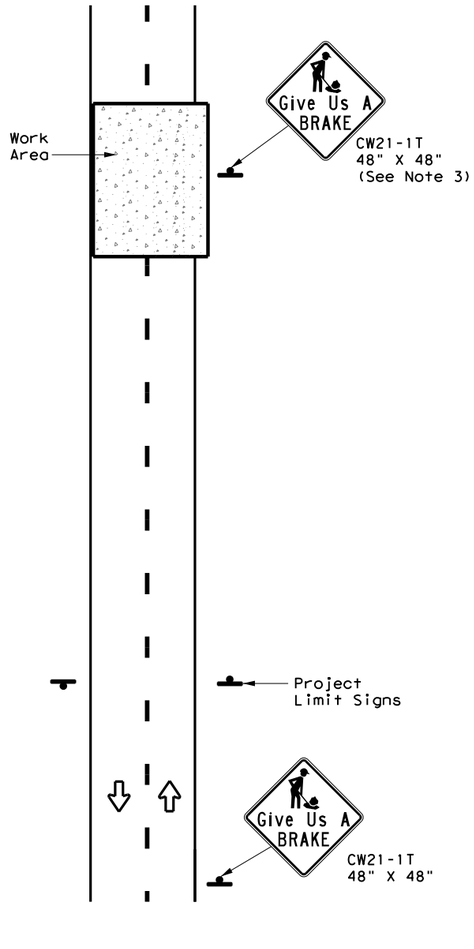
	DIST	COUNTY		SHEET NO.
	HOU	MONTGOMERY		491



DIVIDED HIGHWAY



UNDIVIDED HIGHWAY

SIGNS ARE SHOWN FOR ONE DIRECTION OF TRAVEL

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

DATE:
FILE:

SUMMARY OF LARGE SIGNS

BACKGROUND COLOR	SIGN DESIGNATION	SIGN	SIGN DIMENSIONS	REFLECTIVE SHEETING	SQ FT	GALVANIZED STRUCTURAL STEEL			DRILLED SHAFT 24" DIA. (LF)
						Size	(LF) ①	(LF) ②	
Orange	G20-7T	Working For You Give Us A BRAKE	96" X 48"	Type B_{FL} or C_{FL}	32	▲	▲	▲	▲
Orange	G20-7T	Working For You Give Us A BRAKE	192" X 96"	Type B_{FL} or C_{FL}	128	W8x18	16	17	12

▲ See Note 6 Below

LEGEND	
	Sign
	Large Sign
	Traffic Flow

DEPARTMENTAL MATERIAL SPECIFICATIONS	
PLYWOOD SIGN BLANKS	DMS-7100
ALUMINUM SIGN BLANKS	DMS-7110
SIGN FACE MATERIALS	DMS-8300

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

GENERAL NOTES

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

Texas Department of Transportation

Traffic Operations Division Standard

WORK ZONE "GIVE US A BRAKE" SIGNS

WZ(BRK)-13

FILE: wzbrk-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT August 1995	CONT	SECT	JOB	HIGHWAY
REVISIONS	2744	01	032	FM 2854
6-96 5-98 7-13	DIST	COUNTY		SHEET NO.
8-96 3-03	HOU	MONTGOMERY		49J

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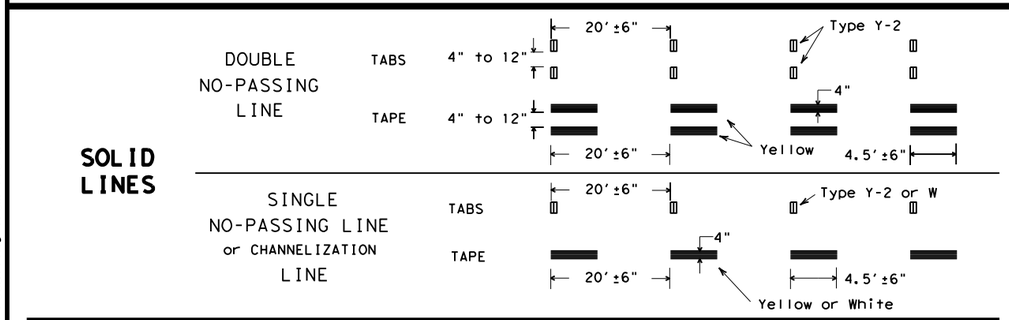
DATE:
FILE:

WORK ZONE SHORT TERM PAVEMENT MARKINGS DETAILS



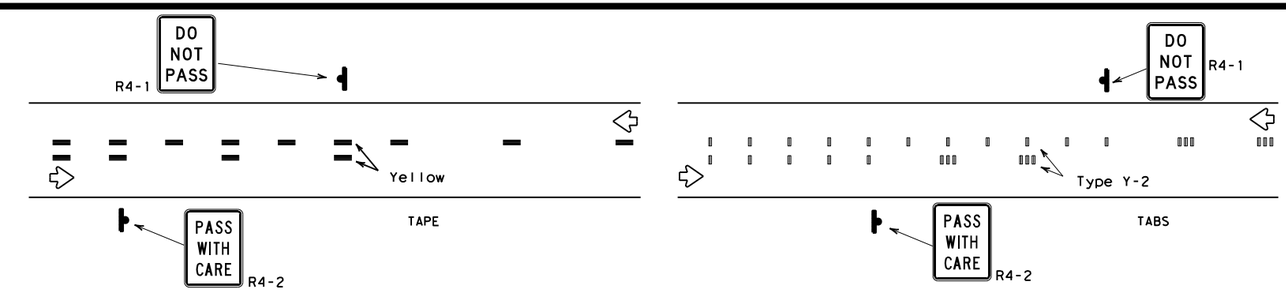
NOTES:

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.

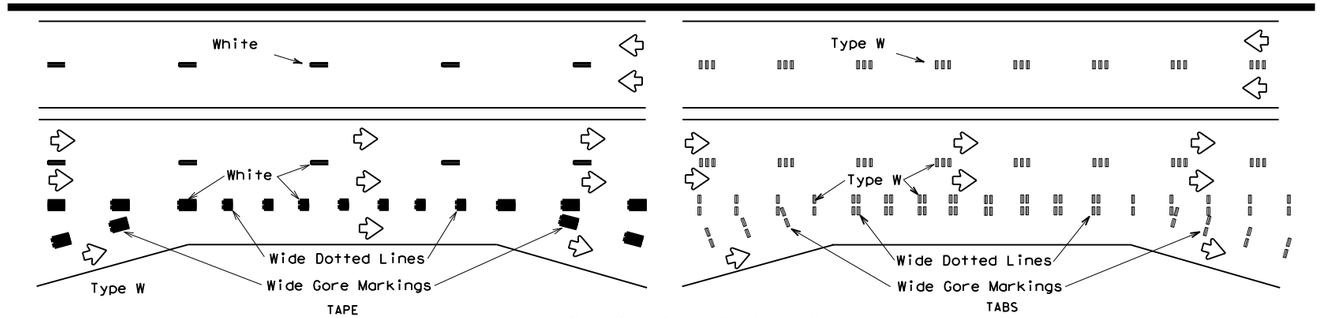
TEMPORARY FLEXIBLE, REFLECTIVE ROADWAY MARKER TABS (TABS)

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.

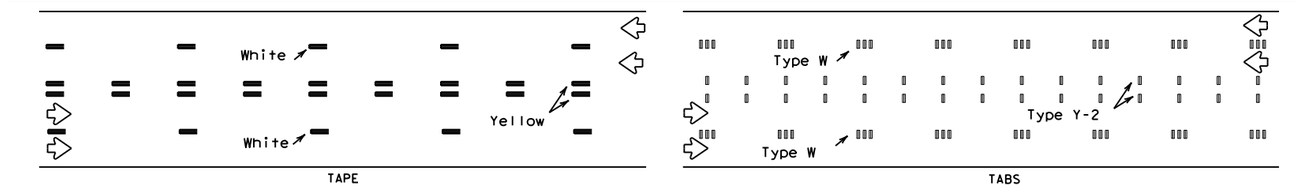
WORK ZONE SHORT TERM PAVEMENT MARKINGS PATTERNS



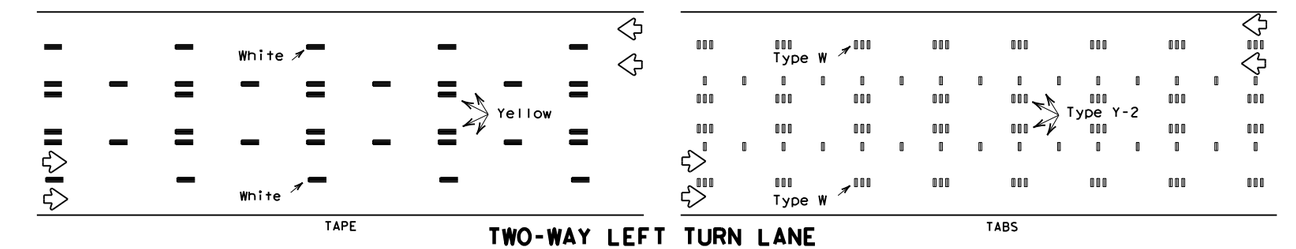
CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO LANE TWO-WAY HIGHWAYS



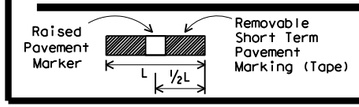
LANE LINES FOR DIVIDED HIGHWAY



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		2744	01	032	FM 2854
1-97		DIST	COUNTY		SHEET NO.
3-03		HOU	MONTGOMERY		50
7-13					

DATE: 05/11/2022 11:37 AM
FILE: pw:\txdot.projectwiseonline.com:TXDOT3\Documents\12 - HOU\Design Projects\274401032\4 - Design\Plan Set\1. General\050A FM 2854 HORIZONTAL ALIGNMENT DATA SHEET (SHEET 1 OF 8)

Beginning chain FM_2854_CL description
Feature: Road_Centerline

Point 3 N 10,135,606.4582 E 3,764,606.9366 Sta 128+37.00

Course from 3 to PC FM_2854_CL_3 S 21° 38′ 39.21" W Dist 172.4852

Curve Data					
Curve FM_2854_CL_3					
P.I. Station	130+55.80	N	10,135,403.0814	E	3,764,526.2324
Delta =	5° 18′ 14.34" (RT)				
Degree =	5° 43′ 46.48"				
Tangent =	46.3191				
Length =	92.5720				
Radius =	1,000.0000				
External =	1.0722				
Long Chord =	92.5389				
Mid. Ord. =	1.0710				
P.C. Station	130+09.49	N	10,135,446.1346	E	3,764,543.3168
P.T. Station	131+02.06	N	10,135,361.7918	E	3,764,505.2413
C.C.		N	10,135,814.9767	E	3,763,613.8247
Back = S	21° 38′ 39.21" W				
Ahead = S	26° 56′ 53.55" W				
Chord Bear = S	24° 17′ 46.38" W				

Course from PT FM_2854_CL_3 to PC FM_2854_CL_6 S 26° 56′ 53.55" W Dist 217.4837

Curve Data					
Curve FM_2854_CL_6					
P.I. Station	133+58.26	N	10,135,133.4112	E	3,764,389.1355
Delta =	4° 26′ 03.52" (LT)				
Degree =	5° 43′ 46.48"				
Tangent =	38.7160				
Length =	77.3933				
Radius =	1,000.0000				
External =	0.7492				
Long Chord =	77.3740				
Mid. Ord. =	0.7486				
P.C. Station	133+19.54	N	10,135,167.9232	E	3,764,406.6810
P.T. Station	133+96.93	N	10,135,097.6459	E	3,764,374.3108
C.C.		N	10,134,714.7383	E	3,765,298.0975
Back = S	26° 56′ 53.55" W				
Ahead = S	22° 30′ 50.03" W				
Chord Bear = S	24° 43′ 51.79" W				

Course from PT FM_2854_CL_6 to PC FM_2854_CL_9 S 22° 30′ 50.03" W Dist 102.3473

Curve Data					
Curve FM_2854_CL_9					
P.I. Station	136+12.29	N	10,134,898.7054	E	3,764,291.8504
Delta =	5° 45′ 01.85" (LT)				
Degree =	2° 32′ 47.32"				
Tangent =	113.0059				
Length =	225.8221				
Radius =	2,250.0000				
External =	2.8361				
Long Chord =	225.7274				
Mid. Ord. =	2.8325				
P.C. Station	134+99.28	N	10,135,003.0988	E	3,764,335.1213
P.T. Station	137+25.10	N	10,134,790.5017	E	3,764,259.2573
C.C.		N	10,134,141.5569	E	3,766,413.6413
Back = S	22° 30′ 50.03" W				
Ahead = S	16° 45′ 48.18" W				
Chord Bear = S	19° 38′ 19.10" W				

Course from PT FM_2854_CL_9 to PC FM_2854_CL_12 S 16° 45′ 48.18" W Dist 45.6010

Curve Data					
Curve FM_2854_CL_12					
P.I. Station	138+94.69	N	10,134,628.1235	E	3,764,210.3456
Delta =	6° 18′ 29.05" (LT)				
Degree =	2° 32′ 47.32"				
Tangent =	123.9839				
Length =	247.7174				
Radius =	2,250.0000				
External =	3.4134				
Long Chord =	247.5923				
Mid. Ord. =	3.4082				
P.C. Station	137+70.70	N	10,134,746.8386	E	3,764,246.1050
P.T. Station	140+18.42	N	10,134,506.1981	E	3,764,187.8464
C.C.		N	10,134,097.8938	E	3,766,400.4891
Back = S	16° 45′ 48.18" W				
Ahead = S	10° 27′ 19.13" W				
Chord Bear = S	13° 36′ 33.65" W				

Course from PT FM_2854_CL_12 to PC FM_2854_CL_15 S 10° 27′ 19.13" W Dist 34.8185

Curve Data					
Curve FM_2854_CL_15					
P.I. Station	141+30.80	N	10,134,395.6865	E	3,764,167.4534
Delta =	2° 57′ 42.75" (LT)				
Degree =	1° 54′ 35.49"				
Tangent =	77.5590				
Length =	155.0834				
Radius =	3,000.0000				
External =	1.0024				
Long Chord =	155.0661				
Mid. Ord. =	1.0021				
P.C. Station	140+53.24	N	10,134,471.9577	E	3,764,181.5280
P.T. Station	142+08.32	N	10,134,318.7898	E	3,764,157.3388
C.C.		N	10,133,927.5519	E	3,767,131.7182
Back = S	10° 27′ 19.13" W				
Ahead = S	7° 29′ 36.38" W				
Chord Bear = S	8° 58′ 27.75" W				

Course from PT FM_2854_CL_15 to PC FM_2854_CL_18 S 7° 29′ 36.38" W Dist 9.7325

Curve Data					
Curve FM_2854_CL_18					
P.I. Station	143+08.44	N	10,134,219.5243	E	3,764,144.2818
Delta =	2° 04′ 16.74" (LT)				
Degree =	1° 08′ 45.30"				
Tangent =	90.3881				
Length =	180.7565				
Radius =	5,000.0000				
External =	0.8169				
Long Chord =	180.7467				
Mid. Ord. =	0.8168				
P.C. Station	142+18.06	N	10,134,309.1405	E	3,764,156.0695
P.T. Station	143+98.81	N	10,134,129.5406	E	3,764,135.7408
C.C.		N	10,133,657.0773	E	3,769,113.3685
Back = S	7° 29′ 36.38" W				
Ahead = S	5° 25′ 19.63" W				
Chord Bear = S	6° 27′ 28.01" W				

Course from PT FM_2854_CL_18 to PC FM_2854_CL_21 S 5° 25′ 19.63" W Dist 441.0900

Curve Data					
Curve FM_2854_CL_21					
P.I. Station	148+58.22	N	10,133,672.1922	E	3,764,092.3304
Delta =	0° 11′ 26.82" (LT)				
Degree =	0° 31′ 15.13"				
Tangent =	18.3140				
Length =	36.6279				
Radius =	11,000.0000				
External =	0.0152				
Long Chord =	36.6279				
Mid. Ord. =	0.0152				
P.C. Station	148+39.90	N	10,133,690.4243	E	3,764,094.0610
P.T. Station	148+76.53	N	10,133,653.9545	E	3,764,090.6606
C.C.		N	10,132,651.0049	E	3,775,044.8421
Back = S	5° 25′ 19.63" W				
Ahead = S	5° 13′ 52.81" W				
Chord Bear = S	5° 19′ 36.22" W				

Course from PT FM_2854_CL_21 to PC FM_2854_CL_24 S 5° 13′ 52.81" W Dist 210.9369

Curve Data					
Curve FM_2854_CL_24					
P.I. Station	152+99.03	N	10,133,233.2118	E	3,764,052.1380
Delta =	8° 04′ 04.29" (LT)				
Degree =	1° 54′ 35.49"				
Tangent =	211.5657				
Length =	422.4320				
Radius =	3,000.0000				
External =	7.4508				
Long Chord =	422.0831				
Mid. Ord. =	7.4323				
P.C. Station	150+87.47	N	10,133,443.8963	E	3,764,071.4280
P.T. Station	155+09.90	N	10,133,021.9053	E	3,764,062.6076
C.C.		N	10,133,170.3646	E	3,767,058.9320
Back = S	5° 13′ 52.81" W				
Ahead = S	2° 50′ 11.48" E				
Chord Bear = S	1° 11′ 50.67" W				

Course from PT FM_2854_CL_24 to PC FM_2854_CL_27 S 2° 50′ 11.48" E Dist 1,644.3895

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

Micah J. Schluter, P.E.
05.18.22

FM 2854 HORIZONTAL ALIGNMENT DATA SHEET

SHEET 1 OF 8

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		50A

Curve Data

Curve FM_2854_CL_27
P.I. Station 171+58.64 N 10,131,375.1884 E 3,764,144.1977
Delta = 0° 02′ 43.04" (RT)
Degree = 0° 31′ 15.13"
Tangent = 4.3474
Length = 8.6948
Radius = 11,000.0000
External = 0.0009
Long Chord = 8.6948
Mid. Ord. = 0.0009
P.C. Station 171+54.29 N 10,131,379.5305 E 3,764,143.9826
P.T. Station 171+62.98 N 10,131,370.8462 E 3,764,144.4094
C.C. N 10,130,835.1800 E 3,753,157.4598
Back = S 2° 50′ 11.48" E
Ahead = S 2° 47′ 28.44" E
Chord Bear = S 2° 48′ 49.96" E

Course from PT FM_2854_CL_27 to PC FM_2854_CL_30 S 2° 47′ 28.44" E Dist 762.9957

Curve Data

Curve FM_2854_CL_30
P.I. Station 179+72.24 N 10,130,562.5486 E 3,764,183.8178
Delta = 0° 28′ 54.94" (LT)
Degree = 0° 31′ 15.13"
Tangent = 46.2620
Length = 92.5235
Radius = 11,000.0000
External = 0.0973
Long Chord = 92.5232
Mid. Ord. = 0.0973
P.C. Station 179+25.98 N 10,130,608.7557 E 3,764,181.5650
P.T. Station 180+18.50 N 10,130,516.3620 E 3,764,186.4592
C.C. N 10,131,144.4219 E 3,775,168.5146
Back = S 2° 47′ 28.44" E
Ahead = S 3° 16′ 23.38" E
Chord Bear = S 3° 01′ 55.91" E

Course from PT FM_2854_CL_30 to PC FM_2854_CL_33 S 3° 16′ 23.38" E Dist 257.8495

Curve Data

Curve FM_2854_CL_33
P.I. Station 183+55.25 N 10,130,180.1694 E 3,764,205.6859
Delta = 4° 31′ 04.30" (LT)
Degree = 2° 51′ 53.24"
Tangent = 78.8925
Length = 157.7031
Radius = 2,000.0000
External = 1.5554
Long Chord = 157.6623
Mid. Ord. = 1.5542
P.C. Station 182+76.35 N 10,130,258.9332 E 3,764,201.1814
P.T. Station 184+34.06 N 10,130,102.0052 E 3,764,216.3806
C.C. N 10,130,373.1259 E 3,766,197.9188
Back = S 3° 16′ 23.38" E
Ahead = S 7° 47′ 27.68" E
Chord Bear = S 5° 31′ 55.53" E

Course from PT FM_2854_CL_33 to PC FM_2854_CL_36 S 7° 47′ 27.68" E Dist 27.6743

Curve Data

Curve FM_2854_CL_36
P.I. Station 187+95.89 N 10,129,743.5156 E 3,764,265.4303
Delta = 17° 16′ 23.32" (LT)
Degree = 2° 36′ 15.67"
Tangent = 334.1553
Length = 663.2412
Radius = 2,200.0000
External = 25.2325
Long Chord = 660.7324
Mid. Ord. = 24.9464
P.C. Station 184+61.73 N 10,130,074.5864 E 3,764,220.1321
P.T. Station 191+24.97 N 10,129,440.8265 E 3,764,406.9895
C.C. N 10,130,372.8191 E 3,766,399.8241
Back = S 7° 47′ 27.68" E
Ahead = S 25° 03′ 51.00" E
Chord Bear = S 16° 25′ 39.34" E

Course from PT FM_2854_CL_36 to PC FM_2854_CL_39 S 25° 03′ 51.01" E Dist 14.2677

Curve Data

Curve FM_2854_CL_39
P.I. Station 193+42.67 N 10,129,243.6298 E 3,764,499.2129
Delta = 10° 33′ 57.44" (LT)
Degree = 2° 36′ 15.67"
Tangent = 203.4286
Length = 405.7035
Radius = 2,200.0000
External = 9.3853
Long Chord = 405.1289
Mid. Ord. = 9.3454
P.C. Station 191+39.24 N 10,129,427.9023 E 3,764,413.0338
P.T. Station 195+44.94 N 10,129,078.2841 E 3,764,617.7203
C.C. N 10,130,359.8949 E 3,766,405.8684
Back = S 25° 03′ 51.00" E
Ahead = S 35° 37′ 48.44" E
Chord Bear = S 30° 20′ 49.72" E

Course from PT FM_2854_CL_39 to PC FM_2854_CL_42 S 35° 37′ 48.44" E Dist 268.3702

Curve Data

Curve FM_2854_CL_42
P.I. Station 198+53.89 N 10,128,827.1727 E 3,764,797.6982
Delta = 0° 25′ 21.78" (LT)
Degree = 0° 31′ 15.13"
Tangent = 40.5780
Length = 81.1556
Radius = 11,000.0000
External = 0.0748
Long Chord = 81.1554
Mid. Ord. = 0.0748
P.C. Station 198+13.31 N 10,128,860.1543 E 3,764,774.0594
P.T. Station 198+94.47 N 10,128,794.3664 E 3,764,821.5796
C.C. N 10,135,268.2082 E 3,773,714.8001
Back = S 35° 37′ 48.44" E
Ahead = S 36° 03′ 10.22" E
Chord Bear = S 35° 50′ 29.33" E

Course from PT FM_2854_CL_42 to PC FM_2854_CL_45 S 36° 03′ 10.22" E Dist 604.9941

Curve Data

Curve FM_2854_CL_45
P.I. Station 207+23.32 N 10,128,124.2648 E 3,765,309.3817
Delta = 9° 08′ 30.67" (LT)
Degree = 2° 02′ 46.60"
Tangent = 223.8527
Length = 446.7552
Radius = 2,800.0000
External = 8.9340
Long Chord = 446.2815
Mid. Ord. = 8.9056
P.C. Station 204+99.46 N 10,128,305.2441 E 3,765,177.6374
P.T. Station 209+46.22 N 10,127,966.5158 E 3,765,468.2064
C.C. N 10,129,953.1311 E 3,767,441.3663
Back = S 36° 03′ 10.22" E
Ahead = S 45° 11′ 40.89" E
Chord Bear = S 40° 37′ 25.55" E

Course from PT FM_2854_CL_45 to PC FM_2854_CL_48 S 45° 11′ 40.88" E Dist 7.1911

Curve Data

Curve FM_2854_CL_48
P.I. Station 211+34.70 N 10,127,833.6916 E 3,765,601.9364
Delta = 7° 09′ 15.60" (LT)
Degree = 1° 58′ 32.58"
Tangent = 181.2923
Length = 362.1133
Radius = 2,900.0000
External = 5.6612
Long Chord = 361.8781
Mid. Ord. = 5.6501
P.C. Station 209+53.41 N 10,127,961.4482 E 3,765,473.3085
P.T. Station 213+15.52 N 10,127,722.9492 E 3,765,745.4739
C.C. N 10,130,019.0140 E 3,767,516.9384
Back = S 45° 11′ 40.89" E
Ahead = S 52° 20′ 56.49" E
Chord Bear = S 48° 46′ 18.69" E

Course from PT FM_2854_CL_48 to PC FM_2854_CL_51 S 52° 20′ 56.49" E Dist 2,445.0840

Curve Data

Curve FM_2854_CL_51
P.I. Station 239+57.36 N 10,126,109.1828 E 3,767,837.1400
Delta = 2° 02′ 58.03" (LT)
Degree = 0° 31′ 15.13"
Tangent = 196.7542
Length = 393.4664
Radius = 11,000.0000
External = 1.7595
Long Chord = 393.4455
Mid. Ord. = 1.7592
P.C. Station 237+60.61 N 10,126,229.3701 E 3,767,681.3606
P.T. Station 241+54.07 N 10,125,994.6434 E 3,767,997.1179
C.C. N 10,134,938.5814 E 3,774,400.7086
Back = S 52° 20′ 56.49" E
Ahead = S 54° 23′ 54.51" E
Chord Bear = S 53° 22′ 25.50" E

Course from PT FM_2854_CL_51 to PC FM_2854_CL_54 S 54° 23′ 54.51" E Dist 1,477.3487

Curve Data

Curve FM_2854_CL_54
P.I. Station 258+63.48 N 10,124,999.5204 E 3,769,387.0130
Delta = 10° 36′ 23.23" (RT)
Degree = 2° 17′ 30.59"
Tangent = 232.0600
Length = 462.7939
Radius = 2,500.0000
External = 10.7473
Long Chord = 462.1333
Mid. Ord. = 10.7013
P.C. Station 256+31.42 N 10,125,134.6129 E 3,769,198.3284
P.T. Station 260+94.22 N 10,124,832.0063 E 3,769,547.6084
C.C. N 10,123,101.8997 E 3,767,742.9669
Back = S 54° 23′ 54.51" E
Ahead = S 43° 47′ 31.28" E
Chord Bear = S 49° 05′ 42.89" E

Course from PT FM_2854_CL_54 to PC FM_2854_CL_57 S 43° 47′ 31.28" E Dist 525.2396

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

Micah J. Schluter, P.E.
05.18.22

FM 2854
HORIZONTAL ALIGNMENT DATA SHEET

SHEET 2 OF 8

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		50B

DATE: 03/03/2022 04:52 PM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT3\Documents\12 - HOU\Design Projects\274401032\4 - Design\Plan Set\1. General\050C FM 2854 HORIZONTAL ALIGNMENT DATA SHEET (SHEET 3 OF 8)

Curve Data

Curve FM_2854_CL_57
P.I. Station 266+38.91 N 10,124,438.8150 E 3,769,924.5602
Delta = 0° 12′ 09.61" (RT)
Degree = 0° 31′ 15.13"
Tangent = 19.4549
Length = 38.9098
Radius = 11,000.0000
External = 0.0172
Long Chord = 38.9097
Mid. Ord. = 0.0172
P.C. Station 266+19.45 N 10,124,452.8587 E 3,769,911.0966
P.T. Station 266+58.36 N 10,124,424.7238 E 3,769,937.9741
C.C. N 10,116,840.3894 E 3,761,970.6739
Back = S 43° 47′ 31.28" E
Ahead = S 43° 35′ 21.67" E
Chord Bear = S 43° 41′ 26.47" E

Course from PT FM_2854_CL_57 to PC FM_2854_CL_60 S 43° 35′ 21.67" E Dist 2,748.7710

Curve Data

Curve FM_2854_CL_60
P.I. Station 295+32.93 N 10,122,342.6747 E 3,771,919.9450
Delta = 2° 52′ 56.76" (RT)
Degree = 1° 08′ 45.30"
Tangent = 125.7964
Length = 251.5397
Radius = 5,000.0000
External = 1.5822
Long Chord = 251.5132
Mid. Ord. = 1.5817
P.C. Station 294+07.14 N 10,122,433.7890 E 3,771,833.2103
P.T. Station 296+58.68 N 10,122,247.3140 E 3,772,001.9881
C.C. N 10,118,986.3643 E 3,768,211.7102
Back = S 43° 35′ 21.67" E
Ahead = S 40° 42′ 24.91" E
Chord Bear = S 42° 08′ 53.29" E

Course from PT FM_2854_CL_60 to PC FM_2854_CL_63 S 40° 42′ 24.91" E Dist 47.7564

Curve Data

Curve FM_2854_CL_63
P.I. Station 298+63.71 N 10,122,091.8894 E 3,772,135.7070
Delta = 1° 38′ 17.80" (RT)
Degree = 0° 31′ 15.13"
Tangent = 157.2742
Length = 314.5270
Radius = 11,000.0000
External = 1.1243
Long Chord = 314.5163
Mid. Ord. = 1.1242
P.C. Station 297+06.43 N 10,122,211.1120 E 3,772,033.1343
P.T. Station 300+20.96 N 10,121,969.7831 E 3,772,234.8292
C.C. N 10,115,037.0226 E 3,763,694.5229
Back = S 40° 42′ 24.91" E
Ahead = S 39° 04′ 07.10" E
Chord Bear = S 39° 53′ 16.01" E

Course from PT FM_2854_CL_63 to PC FM_2854_CL_66 S 39° 04′ 07.10" E Dist 452.8051

Curve Data

Curve FM_2854_CL_66
P.I. Station 307+54.62 N 10,121,400.1772 E 3,772,697.2179
Delta = 19° 19′ 11.68" (RT)
Degree = 3° 28′ 20.90"
Tangent = 280.8529
Length = 556.3735
Radius = 1,650.0000
External = 23.7319
Long Chord = 553.7414
Mid. Ord. = 23.3954
P.C. Station 304+73.76 N 10,121,618.2290 E 3,772,520.2101
P.T. Station 310+30.14 N 10,121,135.8431 E 3,772,792.1169
C.C. N 10,120,578.3150 E 3,771,239.1641
Back = S 39° 04′ 07.10" E
Ahead = S 19° 44′ 55.43" E
Chord Bear = S 29° 24′ 31.27" E

Course from PT FM_2854_CL_66 to PC FM_2854_CL_69 S 19° 44′ 55.42" E Dist 1.4058

Curve Data

Curve FM_2854_CL_69
P.I. Station 313+11.87 N 10,120,870.6843 E 3,772,887.3120
Delta = 19° 52′ 29.86" (RT)
Degree = 3° 34′ 51.55"
Tangent = 280.3234
Length = 555.0136
Radius = 1,600.0000
External = 24.3710
Long Chord = 552.2352
Mid. Ord. = 24.0054
P.C. Station 310+31.54 N 10,121,134.5200 E 3,772,792.5919
P.T. Station 315+86.56 N 10,120,590.3616 E 3,772,886.6944
C.C. N 10,120,593.8866 E 3,771,286.6983
Back = S 19° 44′ 55.43" E
Ahead = S 0° 07′ 34.44" W
Chord Bear = S 9° 48′ 40.50" E

Course from PT FM_2854_CL_69 to PC FM_2854_CL_72 S 0° 07′ 34.44" W Dist 615.2936

Curve Data

Curve FM_2854_CL_72
P.I. Station 322+16.50 N 10,119,960.4183 E 3,772,885.3066
Delta = 0° 09′ 09.46" (RT)
Degree = 0° 31′ 15.13"
Tangent = 14.6512
Length = 29.3024
Radius = 11,000.0000
External = 0.0098
Long Chord = 29.3024
Mid. Ord. = 0.0098
P.C. Station 322+01.85 N 10,119,975.0695 E 3,772,885.3389
P.T. Station 322+31.15 N 10,119,945.7673 E 3,772,885.2353
C.C. N 10,119,999.3043 E 3,761,885.3655
Back = S 0° 07′ 34.44" W
Ahead = S 0° 16′ 43.89" W
Chord Bear = S 0° 12′ 09.16" W

Course from PT FM_2854_CL_72 to PC FM_2854_CL_75 S 0° 16′ 43.89" W Dist 1,468.8461

Curve Data

Curve FM_2854_CL_75
P.I. Station 339+40.64 N 10,118,236.3012 E 3,772,876.9152
Delta = 16° 41′ 42.35" (LT)
Degree = 3° 29′ 37.12"
Tangent = 240.6403
Length = 477.8704
Radius = 1,640.0000
External = 17.5608
Long Chord = 476.1817
Mid. Ord. = 17.3747
P.C. Station 337+00.00 N 10,118,476.9386 E 3,772,878.0864
P.T. Station 341+77.87 N 10,118,005.4709 E 3,772,944.9233
C.C. N 10,118,468.9567 E 3,774,518.0670
Back = S 0° 16′ 43.89" W
Ahead = S 16° 24′ 58.45" E
Chord Bear = S 8° 04′ 07.28" E

Course from PT FM_2854_CL_75 to PC FM_2854_CL_78 S 16° 24′ 58.41" E Dist 0.3812

Curve Data

Curve FM_2854_CL_78
P.I. Station 345+08.71 N 10,117,688.1210 E 3,773,038.4222
Delta = 22° 39′ 01.03" (LT)
Degree = 3° 28′ 20.90"
Tangent = 330.4556
Length = 652.2814
Radius = 1,650.0000
External = 32.7658
Long Chord = 648.0423
Mid. Ord. = 32.1279
P.C. Station 341+78.25 N 10,118,005.1052 E 3,772,945.0311
P.T. Station 348+30.53 N 10,117,431.5504 E 3,773,246.6827
C.C. N 10,118,471.4171 E 3,774,527.7671
Back = S 16° 24′ 58.45" E
Ahead = S 39° 03′ 59.49" E
Chord Bear = S 27° 44′ 28.97" E

Course from PT FM_2854_CL_78 to PC FM_2854_CL_81 S 39° 03′ 59.49" E Dist 642.2111

Curve Data

Curve FM_2854_CL_81
P.I. Station 356+60.14 N 10,116,787.4331 E 3,773,769.5180
Delta = 4° 17′ 33.84" (RT)
Degree = 1° 08′ 45.30"
Tangent = 187.3935
Length = 374.6117
Radius = 5,000.0000
External = 3.5104
Long Chord = 374.5241
Mid. Ord. = 3.5079
P.C. Station 354+72.74 N 10,116,932.9282 E 3,773,651.4184
P.T. Station 358+47.35 N 10,116,633.5062 E 3,773,876.3956
C.C. N 10,113,781.8168 E 3,769,769.3447
Back = S 39° 03′ 59.49" E
Ahead = S 34° 46′ 25.65" E
Chord Bear = S 36° 55′ 12.57" E

Course from PT FM_2854_CL_81 to PC FM_2854_CL_84 S 34° 46′ 25.65" E Dist 33.9227

Curve Data

Curve FM_2854_CL_84
P.I. Station 360+59.28 N 10,116,459.4255 E 3,773,997.2668
Delta = 4° 04′ 40.39" (RT)
Degree = 1° 08′ 45.30"
Tangent = 178.0064
Length = 355.8626
Radius = 5,000.0000
External = 3.1676
Long Chord = 355.7875
Mid. Ord. = 3.1656
P.C. Station 358+81.28 N 10,116,605.6418 E 3,773,895.7430
P.T. Station 362+37.14 N 10,116,306.3597 E 3,774,088.1358
C.C. N 10,113,753.9524 E 3,769,788.6920
Back = S 34° 46′ 25.65" E
Ahead = S 30° 41′ 45.26" E
Chord Bear = S 32° 44′ 05.45" E

Course from PT FM_2854_CL_84 to PC FM_2854_CL_87 S 30° 41′ 45.26" E Dist 38.8682

STATE OF TEXAS
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FM 2854 HORIZONTAL ALIGNMENT DATA SHEET

SHEET 3 OF 8

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		50C

DATE: 03/03/2022 04:55 PM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT3\Documents\12 - HOU\Design Projects\274401032\4 - Design\Plan Set\1. General\050D FM 2854 HORIZONTAL ALIGNMENT DATA SHEET (SHEET 4 OF 8)

Curve Data

Curve FM_2854_CL_87
P.I. Station 363+80.82 N 10,116,182.8101 E 3,774,161.4823
Delta = 2° 24′ 06.40" (RT)
Degree = 1° 08′ 45.30"
Tangent = 104.8127
Length = 209.5947
Radius = 5,000.0000
External = 1.0984
Long Chord = 209.5794
Mid. Ord. = 1.0982
P.C. Station 362+76.01 N 10,116,272.9374 E 3,774,107.9773
P.T. Station 364+85.60 N 10,116,090.5198 E 3,774,211.1633
C.C. N 10,113,720.5300 E 3,769,808.5336
Back = S 30° 41′ 45.26" E
Ahead = S 28° 17′ 38.86" E
Chord Bear = S 29° 29′ 42.06" E

Course from PT FM_2854_CL_87 to PC FM_2854_CL_90 S 28° 17′ 38.86" E Dist 27.1120

Curve Data

Curve FM_2854_CL_90
P.I. Station 366+82.25 N 10,115,917.3624 E 3,774,304.3760
Delta = 3° 53′ 02.72" (RT)
Degree = 1° 08′ 45.30"
Tangent = 169.5403
Length = 338.9507
Radius = 5,000.0000
External = 2.8736
Long Chord = 338.8658
Mid. Ord. = 2.8719
P.C. Station 365+12.71 N 10,116,066.6470 E 3,774,224.0143
P.T. Station 368+51.67 N 10,115,762.9771 E 3,774,374.4409
C.C. N 10,113,696.6572 E 3,769,821.3846
Back = S 28° 17′ 38.86" E
Ahead = S 24° 24′ 36.14" E
Chord Bear = S 26° 21′ 07.50" E

Course from PT FM_2854_CL_90 to PC FM_2854_CL_93 S 24° 24′ 36.14" E Dist 58.2554

Curve Data

Curve FM_2854_CL_93
P.I. Station 370+16.94 N 10,115,612.4726 E 3,774,442.7446
Delta = 2° 27′ 08.70" (RT)
Degree = 1° 08′ 45.30"
Tangent = 107.0231
Length = 214.0136
Radius = 5,000.0000
External = 1.1453
Long Chord = 213.9973
Mid. Ord. = 1.1450
P.C. Station 369+09.92 N 10,115,709.9291 E 3,774,398.5158
P.T. Station 371+23.93 N 10,115,513.2128 E 3,774,482.7628
C.C. N 10,113,643.6092 E 3,769,845.4594
Back = S 24° 24′ 36.14" E
Ahead = S 21° 57′ 27.44" E
Chord Bear = S 23° 11′ 01.79" E

Course from PT FM_2854_CL_93 to PC FM_2854_CL_96 S 21° 57′ 27.44" E Dist 24.7209

Curve Data

Curve FM_2854_CL_96
P.I. Station 373+18.40 N 10,115,332.8491 E 3,774,555.4793
Delta = 3° 32′ 08.09" (RT)
Degree = 1° 02′ 30.27"
Tangent = 169.7496
Length = 339.3915
Radius = 5,500.0000
External = 2.6189
Long Chord = 339.3376
Mid. Ord. = 2.6177
P.C. Station 371+48.66 N 10,115,490.2852 E 3,774,492.0064
P.T. Station 374+88.05 N 10,115,171.7984 E 3,774,609.1226
C.C. N 10,113,433.7212 E 3,769,390.9728
Back = S 21° 57′ 27.44" E
Ahead = S 18° 25′ 19.35" E
Chord Bear = S 20° 11′ 23.40" E

Course from PT FM_2854_CL_96 to PC FM_2854_CL_99 S 18° 25′ 19.35" E Dist 20.4674

Curve Data

Curve FM_2854_CL_99
P.I. Station 377+81.18 N 10,114,893.6849 E 3,774,701.7575
Delta = 5° 40′ 34.83" (RT)
Degree = 1° 02′ 30.27"
Tangent = 272.6679
Length = 544.8897
Radius = 5,500.0000
External = 6.7547
Long Chord = 544.6669
Mid. Ord. = 6.7465
P.C. Station 375+08.51 N 10,115,152.3799 E 3,774,615.5906
P.T. Station 380+53.40 N 10,114,627.7359 E 3,774,761.9146
C.C. N 10,113,414.3026 E 3,769,397.4408
Back = S 18° 25′ 19.35" E
Ahead = S 12° 44′ 44.52" E
Chord Bear = S 15° 35′ 01.93" E

Course from PT FM_2854_CL_99 to PC FM_2854_CL_102 S 12° 44′ 44.52" E Dist 14.0510

Curve Data

Curve FM_2854_CL_102
P.I. Station 382+87.18 N 10,114,399.7238 E 3,774,813.4905
Delta = 4° 34′ 31.53" (RT)
Degree = 1° 02′ 30.27"
Tangent = 219.7214
Length = 439.2093
Radius = 5,500.0000
External = 4.3871
Long Chord = 439.0926
Mid. Ord. = 4.3836
P.C. Station 380+67.45 N 10,114,614.0311 E 3,774,765.0146
P.T. Station 385+06.66 N 10,114,182.2325 E 3,774,844.7163
C.C. N 10,113,400.5978 E 3,769,400.5407
Back = S 12° 44′ 44.52" E
Ahead = S 8° 10′ 12.99" E
Chord Bear = S 10° 27′ 28.75" E

Course from PT FM_2854_CL_102 to PC FM_2854_CL_105 S 8° 10′ 12.99" E Dist 60.1447

Curve Data

Curve FM_2854_CL_105
P.I. Station 386+86.51 N 10,114,004.2128 E 3,774,870.2750
Delta = 3° 25′ 41.31" (RT)
Degree = 1° 25′ 56.62"
Tangent = 119.7004
Length = 239.3294
Radius = 4,000.0000
External = 1.7906
Long Chord = 239.2937
Mid. Ord. = 1.7898
P.C. Station 385+66.81 N 10,114,122.6983 E 3,774,853.2638
P.T. Station 388+06.14 N 10,113,884.9222 E 3,774,880.1708
C.C. N 10,113,554.2367 E 3,770,893.8634
Back = S 8° 10′ 12.99" E
Ahead = S 4° 44′ 31.68" E
Chord Bear = S 6° 27′ 22.33" E

Course from PT FM_2854_CL_105 to PC FM_2854_CL_108 S 4° 44′ 31.68" E Dist 3.8132

Curve Data

Curve FM_2854_CL_108
P.I. Station 389+31.66 N 10,113,759.8339 E 3,774,890.5476
Delta = 1° 16′ 04.07" (RT)
Degree = 0° 31′ 15.13"
Tangent = 121.7048
Length = 243.3996
Radius = 11,000.0000
External = 0.6733
Long Chord = 243.3947
Mid. Ord. = 0.6732
P.C. Station 388+09.95 N 10,113,881.1221 E 3,774,880.4861
P.T. Station 390+53.35 N 10,113,638.3528 E 3,774,897.9231
C.C. N 10,112,971.7369 E 3,763,918.1406
Back = S 4° 44′ 31.68" E
Ahead = S 3° 28′ 27.61" E
Chord Bear = S 4° 06′ 29.64" E

Course from PT FM_2854_CL_108 to PC FM_2854_CL_111 S 3° 28′ 27.61" E Dist 129.2340

Curve Data

Curve FM_2854_CL_111
P.I. Station 395+76.10 N 10,113,116.5627 E 3,774,929.6025
Delta = 15° 43′ 22.58" (LT)
Degree = 2° 00′ 37.36"
Tangent = 393.5168
Length = 782.0885
Radius = 2,850.0000
External = 27.0394
Long Chord = 779.6369
Mid. Ord. = 26.7852
P.C. Station 391+82.59 N 10,113,509.3563 E 3,774,905.7548
P.T. Station 399+64.67 N 10,112,744.9285 E 3,775,058.9994
C.C. N 10,113,682.0704 E 3,777,750.5167
Back = S 3° 28′ 27.61" E
Ahead = S 19° 11′ 50.18" E
Chord Bear = S 11° 20′ 08.90" E

Course from PT FM_2854_CL_111 to PC FM_2854_CL_114 S 19° 11′ 50.18" E Dist 36.4863

Curve Data

Curve FM_2854_CL_114
P.I. Station 400+53.93 N 10,112,660.6345 E 3,775,088.3492
Delta = 4° 01′ 47.13" (LT)
Degree = 3° 49′ 10.99"
Tangent = 52.7712
Length = 105.4988
Radius = 1,500.0000
External = 0.9280
Long Chord = 105.4771
Mid. Ord. = 0.9274
P.C. Station 400+01.16 N 10,112,710.4712 E 3,775,070.9969
P.T. Station 401+06.66 N 10,112,612.1405 E 3,775,109.1608
C.C. N 10,113,203.7038 E 3,776,487.5849
Back = S 19° 11′ 50.18" E
Ahead = S 23° 13′ 37.31" E
Chord Bear = S 21° 12′ 43.75" E

Course from PT FM_2854_CL_114 to PC FM_2854_CL_117 S 23° 13′ 37.31" E Dist 62.7144

STATE OF TEXAS
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05.18.22

FM 2854
HORIZONTAL ALIGNMENT DATA SHEET

SHEET 4 OF 8

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		50D

Curve Data

Curve FM_2854_CL_117
P.I. Station 403+04.57 N 10,112,430.2669 E 3,775,187.2135
Delta = 5° 09′ 38.81" (LT)
Degree = 1° 54′ 35.49"
Tangent = 135.2003
Length = 270.2178
Radius = 3,000.0000
External = 3.0450
Long Chord = 270.1265
Mid. Ord. = 3.0419
P.C. Station 401+69.37 N 10,112,554.5092 E 3,775,133.8939
P.T. Station 404+39.59 N 10,112,311.3245 E 3,775,251.4928
C.C. N 10,113,737.6357 E 3,777,890.7420
Back = S 23° 13′ 37.31" E
Ahead = S 28° 23′ 16.12" E
Chord Bear = S 25° 48′ 26.72" E

Course from PT FM_2854_CL_117 to PC FM_2854_CL_120 S 28° 23′ 16.12" E Dist 768.7819

Curve Data

Curve FM_2854_CL_120
P.I. Station 413+18.48 N 10,111,538.1216 E 3,775,669.3495
Delta = 7° 12′ 01.64" (LT)
Degree = 3° 16′ 26.56"
Tangent = 110.1077
Length = 219.9254
Radius = 1,750.0000
External = 3.4605
Long Chord = 219.7807
Mid. Ord. = 3.4537
P.C. Station 412+08.37 N 10,111,634.9888 E 3,775,617.0002
P.T. Station 414+28.30 N 10,111,448.5798 E 3,775,733.4274
C.C. N 10,112,467.0036 E 3,777,156.5622
Back = S 28° 23′ 16.12" E
Ahead = S 35° 35′ 17.76" E
Chord Bear = S 31° 59′ 16.94" E

Course from PT FM_2854_CL_120 to PC FM_2854_CL_123 S 35° 35′ 17.76" E Dist 2.7007

Curve Data

Curve FM_2854_CL_123
P.I. Station 416+29.73 N 10,111,284.7698 E 3,775,850.6531
Delta = 11° 20′ 57.53" (LT)
Degree = 2° 51′ 53.24"
Tangent = 198.7331
Length = 396.1658
Radius = 2,000.0000
External = 9.8495
Long Chord = 395.5185
Mid. Ord. = 9.8012
P.C. Station 414+31.00 N 10,111,446.3836 E 3,775,734.9990
P.T. Station 418+27.16 N 10,111,149.0759 E 3,775,995.8495
C.C. N 10,112,610.2965 E 3,777,361.4389
Back = S 35° 35′ 17.76" E
Ahead = S 46° 56′ 15.30" E
Chord Bear = S 41° 15′ 46.53" E

Course from PT FM_2854_CL_123 to PC FM_2854_CL_126 S 46° 56′ 15.30" E Dist 3.7370

Curve Data

Curve FM_2854_CL_126
P.I. Station 419+74.27 N 10,111,048.6315 E 3,776,103.3280
Delta = 9° 22′ 01.65" (LT)
Degree = 3° 16′ 26.56"
Tangent = 143.3707
Length = 286.1025
Radius = 1,750.0000
External = 5.8631
Long Chord = 285.7840
Mid. Ord. = 5.8435
P.C. Station 418+30.90 N 10,111,146.5243 E 3,775,998.5798
P.T. Station 421+17.00 N 10,110,969.0929 E 3,776,222.6124
C.C. N 10,112,425.0923 E 3,777,193.4705
Back = S 46° 56′ 15.30" E
Ahead = S 56° 18′ 16.94" E
Chord Bear = S 51° 37′ 16.12" E

Course from PT FM_2854_CL_126 to PC FM_2854_CL_129 S 56° 18′ 16.94" E Dist 15.9265

Curve Data

Curve FM_2854_CL_129
P.I. Station 428+86.30 N 10,110,542.3042 E 3,776,862.6688
Delta = 43° 15′ 28.14" (LT)
Degree = 3° 00′ 56.04"
Tangent = 753.3724
Length = 1,434.4835
Radius = 1,900.0000
External = 143.9104
Long Chord = 1,400.6558
Mid. Ord. = 133.7778
P.C. Station 421+32.93 N 10,110,960.2572 E 3,776,235.8633
P.T. Station 435+67.41 N 10,110,667.4573 E 3,777,605.5730
C.C. N 10,112,541.0566 E 3,777,289.9378
Back = S 56° 18′ 16.94" E
Ahead = N 80° 26′ 14.91" E
Chord Bear = S 77° 56′ 01.01" E

Course from PT FM_2854_CL_129 to PC FM_2854_CL_132 N 80° 26′ 14.91" E Dist 3,252.1597

Curve Data

Curve FM_2854_CL_132
P.I. Station 472+90.71 N 10,111,285.9848 E 3,781,277.1303
Delta = 8° 58′ 46.40" (RT)
Degree = 0° 57′ 17.75"
Tangent = 471.1331
Length = 940.3367
Radius = 6,000.0000
External = 18.4688
Long Chord = 939.3747
Mid. Ord. = 18.4121
P.C. Station 468+19.57 N 10,111,207.7184 E 3,780,812.5437
P.T. Station 477+59.91 N 10,111,290.7784 E 3,781,748.2390
C.C. N 10,105,291.0890 E 3,781,809.2864
Back = N 80° 26′ 14.91" E
Ahead = N 89° 25′ 01.31" E
Chord Bear = N 84° 55′ 38.11" E

Course from PT FM_2854_CL_132 to PC FM_2854_CL_135 N 89° 25′ 01.31" E Dist 395.1821

Curve Data

Curve FM_2854_CL_135
P.I. Station 486+62.25 N 10,111,299.9593 E 3,782,650.5303
Delta = 1° 09′ 44.19" (RT)
Degree = 0° 06′ 52.53"
Tangent = 507.1559
Length = 1,014.2770
Radius = 50,000.0000
External = 2.5720
Long Chord = 1,014.2596
Mid. Ord. = 2.5719
P.C. Station 481+55.09 N 10,111,294.7992 E 3,782,143.4007
P.T. Station 491+69.37 N 10,111,294.8316 E 3,783,157.6603
C.C. N 10,061,297.3873 E 3,782,652.1288
Back = N 89° 25′ 01.31" E
Ahead = S 89° 25′ 14.50" E
Chord Bear = N 89° 59′ 53.41" E

Course from PT FM_2854_CL_135 to PC FM_2854_CL_138 S 89° 25′ 14.50" E Dist 169.6131

Curve Data

Curve FM_2854_CL_138
P.I. Station 493+94.59 N 10,111,292.5545 E 3,783,382.8718
Delta = 0° 34′ 45.50" (LT)
Degree = 0° 31′ 15.13"
Tangent = 55.6099
Length = 111.2188
Radius = 11,000.0000
External = 0.1406
Long Chord = 111.2184
Mid. Ord. = 0.1406
P.C. Station 493+38.98 N 10,111,293.1167 E 3,783,327.2648
P.T. Station 494+50.20 N 10,111,292.5545 E 3,783,438.4817
C.C. N 10,122,292.5545 E 3,783,438.4817
Back = S 89° 25′ 14.50" E
Ahead = Due East
Chord Bear = S 89° 42′ 37.25" E

Course from PT FM_2854_CL_138 to PC FM_2854_CL_141 Due East Dist 211.2766

Curve Data

Curve FM_2854_CL_141
P.I. Station 497+10.47 N 10,111,292.5545 E 3,783,698.7500
Delta = 0° 30′ 37.31" (LT)
Degree = 0° 31′ 15.13"
Tangent = 48.9917
Length = 97.9828
Radius = 11,000.0000
External = 0.1091
Long Chord = 97.9824
Mid. Ord. = 0.1091
P.C. Station 496+61.48 N 10,111,292.5545 E 3,783,649.7583
P.T. Station 497+59.46 N 10,111,292.9909 E 3,783,747.7397
C.C. N 10,122,292.5545 E 3,783,649.7583
Back = Due East
Ahead = N 89° 29′ 22.69" E
Chord Bear = N 89° 44′ 41.35" E

Course from PT FM_2854_CL_141 to PC FM_2854_CL_144 N 89° 29′ 22.69" E Dist 156.7750

Curve Data

Curve FM_2854_CL_144
P.I. Station 500+09.01 N 10,111,295.2137 E 3,783,997.2776
Delta = 0° 57′ 59.14" (LT)
Degree = 0° 31′ 15.13"
Tangent = 92.7727
Length = 185.5411
Radius = 11,000.0000
External = 0.3912
Long Chord = 185.5389
Mid. Ord. = 0.3912
P.C. Station 499+16.24 N 10,111,294.3873 E 3,783,904.5085
P.T. Station 501+01.78 N 10,111,297.6046 E 3,784,090.0195
C.C. N 10,122,293.9509 E 3,783,806.5271
Back = N 89° 29′ 22.69" E
Ahead = N 88° 31′ 23.55" E
Chord Bear = N 89° 00′ 23.12" E

Course from PT FM_2854_CL_144 to PC FM_2854_CL_147 N 88° 31′ 23.55" E Dist 198.8824

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

Micah J. Schluter, P.E.

05.18.22

FM 2854
HORIZONTAL ALIGNMENT DATA SHEET

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		50E

DATE: 03/03/2022 04:59 PM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT3\Documents\12 - HOU\Design Projects\2744010324 - Design\Plan Set\1. General\050E FM 2854 HORIZONTAL ALIGNMENT DATA SHEET (SHEET 5 OF 8)

DATE: 03/03/2022 05:04 PM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT3\Documents\12 - HOU\Design Projects\274401032\4 - Design\Plan Set\1. General\050F FM 2854 HORIZONTAL ALIGNMENT DATA SHEET (SHEET 6 OF 8)

Curve Data

Curve FM_2854_CL_147
P.I. Station = 503+52.38 N 10,111,304.0630 E 3,784,340.5341
Delta = 0° 32′ 19.45" (RT)
Degree = 0° 31′ 15.13"
Tangent = 51.7154
Length = 103.4301
Radius = 11,000.0000
External = 0.1216
Long Chord = 103.4297
Mid. Ord. = 0.1216
P.C. Station = 503+00.66 N 10,111,302.7302 E 3,784,288.8358
P.T. Station = 504+04.09 N 10,111,304.9097 E 3,784,392.2426
C.C. N 10,100,306.3839 E 3,784,572.3283
Back = N 88° 31′ 23.55" E
Ahead = N 89° 03′ 43.00" E
Chord Bear = N 88° 47′ 33.27" E

Course from PT FM_2854_CL_147 to PC FM_2854_CL_150 N 89° 03′ 43.00" E Dist 462.2395

Curve Data

Curve FM_2854_CL_150
P.I. Station = 513+50.27 N 10,111,320.4000 E 3,785,338.2955
Delta = 5° 02′ 17.37" (LT)
Degree = 0° 31′ 15.13"
Tangent = 483.9403
Length = 967.2568
Radius = 11,000.0000
External = 10.6402
Long Chord = 966.9452
Mid. Ord. = 10.6299
P.C. Station = 508+66.33 N 10,111,312.4772 E 3,784,854.4201
P.T. Station = 518+33.59 N 10,111,370.7857 E 3,785,819.6057
C.C. N 10,122,311.0030 E 3,784,674.3344
Back = N 89° 03′ 43.00" E
Ahead = N 84° 01′ 25.63" E
Chord Bear = N 86° 32′ 34.32" E

Course from PT FM_2854_CL_150 to PC FM_2854_CL_153 N 84° 01′ 25.63" E Dist 927.1197

Curve Data

Curve FM_2854_CL_153
P.I. Station = 527+79.84 N 10,111,469.3056 E 3,786,760.7180
Delta = 0° 11′ 57.63" (RT)
Degree = 0° 31′ 15.13"
Tangent = 19.1354
Length = 38.2707
Radius = 11,000.0000
External = 0.0166
Long Chord = 38.2707
Mid. Ord. = 0.0166
P.C. Station = 527+60.71 N 10,111,467.3133 E 3,786,741.6866
P.T. Station = 527+98.98 N 10,111,471.2317 E 3,786,779.7562
C.C. N 10,100,527.0961 E 3,787,886.9579
Back = N 84° 01′ 25.63" E
Ahead = N 84° 13′ 23.26" E
Chord Bear = N 84° 07′ 24.45" E

Course from PT FM_2854_CL_153 to PC FM_2854_CL_156 N 84° 13′ 23.26" E Dist 679.4031

Curve Data

Curve FM_2854_CL_156
P.I. Station = 534+92.29 N 10,111,541.0165 E 3,787,469.5445
Delta = 0° 08′ 41.52" (LT)
Degree = 0° 31′ 15.13"
Tangent = 13.9062
Length = 27.8124
Radius = 11,000.0000
External = 0.0088
Long Chord = 27.8124
Mid. Ord. = 0.0088
P.C. Station = 534+78.38 N 10,111,539.6168 E 3,787,455.7089
P.T. Station = 535+06.19 N 10,111,542.4512 E 3,787,483.3766
C.C. N 10,122,483.7524 E 3,786,348.5072
Back = N 84° 13′ 23.26" E
Ahead = N 84° 04′ 41.74" E
Chord Bear = N 84° 09′ 02.50" E

Course from PT FM_2854_CL_156 to PC FM_2854_CL_159 N 84° 04′ 41.74" E Dist 755.6208

Curve Data

Curve FM_2854_CL_159
P.I. Station = 542+66.62 N 10,111,620.9043 E 3,788,239.7441
Delta = 0° 03′ 00.18" (LT)
Degree = 0° 31′ 15.13"
Tangent = 4.8045
Length = 9.6091
Radius = 11,000.0000
External = 0.0010
Long Chord = 9.6091
Mid. Ord. = 0.0010
P.C. Station = 542+61.81 N 10,111,620.4086 E 3,788,234.9652
P.T. Station = 542+71.42 N 10,111,621.4041 E 3,788,244.5225
C.C. N 10,122,561.7098 E 3,787,100.0958
Back = N 84° 04′ 41.74" E
Ahead = N 84° 01′ 41.56" E
Chord Bear = N 84° 03′ 11.65" E

Course from PT FM_2854_CL_159 to PC FM_2854_CL_162 N 84° 01′ 41.56" E Dist 913.1422

Curve Data

Curve FM_2854_CL_162
P.I. Station = 551+88.19 N 10,111,716.7840 E 3,789,156.3193
Delta = 0° 02′ 16.12" (LT)
Degree = 0° 31′ 15.13"
Tangent = 3.6296
Length = 7.2592
Radius = 11,000.0000
External = 0.0006
Long Chord = 7.2592
Mid. Ord. = 0.0006
P.C. Station = 551+84.56 N 10,111,716.4063 E 3,789,152.7094
P.T. Station = 551+91.82 N 10,111,717.1640 E 3,789,159.9289
C.C. N 10,122,656.7120 E 3,788,008.2826
Back = N 84° 01′ 41.56" E
Ahead = N 83° 59′ 25.44" E
Chord Bear = N 84° 00′ 33.50" E

Course from PT FM_2854_CL_162 to PC FM_2854_CL_165 N 83° 59′ 25.44" E Dist 1,470.3342

Curve Data

Curve FM_2854_CL_165
P.I. Station = 566+76.91 N 10,111,872.6458 E 3,790,636.8589
Delta = 0° 09′ 13.44" (RT)
Degree = 0° 31′ 15.13"
Tangent = 14.7573
Length = 29.5146
Radius = 11,000.0000
External = 0.0099
Long Chord = 29.5146
Mid. Ord. = 0.0099
P.C. Station = 566+62.16 N 10,111,871.1008 E 3,790,622.1827
P.T. Station = 566+91.67 N 10,111,874.1514 E 3,790,651.5392
C.C. N 10,100,931.5528 E 3,791,773.8290
Back = N 83° 59′ 25.44" E
Ahead = N 84° 08′ 38.87" E
Chord Bear = N 84° 04′ 02.15" E

Course from PT FM_2854_CL_165 to PC FM_2854_CL_168 N 84° 08′ 38.87" E Dist 1,151.0693

Curve Data

Curve FM_2854_CL_168
P.I. Station = 578+74.36 N 10,111,994.8170 E 3,791,828.0579
Delta = 0° 19′ 45.87" (RT)
Degree = 0° 31′ 15.13"
Tangent = 31.6210
Length = 63.2419
Radius = 11,000.0000
External = 0.0454
Long Chord = 63.2418
Mid. Ord. = 0.0454
P.C. Station = 578+42.74 N 10,111,991.5908 E 3,791,796.6019
P.T. Station = 579+05.98 N 10,111,997.8623 E 3,791,859.5320
C.C. N 10,101,048.9922 E 3,792,918.8917
Back = N 84° 08′ 38.87" E
Ahead = N 84° 28′ 24.74" E
Chord Bear = N 84° 18′ 31.81" E

Course from PT FM_2854_CL_168 to PC FM_2854_CL_171 N 84° 28′ 24.74" E Dist 1,397.0694

Curve Data

Curve FM_2854_CL_171
P.I. Station = 593+43.57 N 10,112,136.3097 E 3,793,290.4361
Delta = 0° 25′ 19.49" (LT)
Degree = 0° 31′ 15.13"
Tangent = 40.5169
Length = 81.0334
Radius = 11,000.0000
External = 0.0746
Long Chord = 81.0332
Mid. Ord. = 0.0746
P.C. Station = 593+03.05 N 10,112,132.4077 E 3,793,250.1076
P.T. Station = 593+84.09 N 10,112,140.5086 E 3,793,330.7349
C.C. N 10,123,081.2778 E 3,792,190.7478
Back = N 84° 28′ 24.74" E
Ahead = N 84° 03′ 05.26" E
Chord Bear = N 84° 15′ 45.00" E

Course from PT FM_2854_CL_171 to PC FM_2854_CL_174 N 84° 03′ 05.26" E Dist 2,631.3539

Curve Data

Curve FM_2854_CL_174
P.I. Station = 624+71.44 N 10,112,460.4676 E 3,796,401.4687
Delta = 8° 41′ 32.38" (RT)
Degree = 0° 57′ 17.75"
Tangent = 456.0041
Length = 910.2583
Radius = 6,000.0000
External = 17.3034
Long Chord = 909.3856
Mid. Ord. = 17.2536
P.C. Station = 620+15.44 N 10,112,413.2095 E 3,795,947.9200
P.T. Station = 629+25.70 N 10,112,438.6387 E 3,796,856.9500
C.C. N 10,106,445.5172 E 3,796,569.7311
Back = N 84° 03′ 05.26" E
Ahead = S 87° 15′ 22.37" E
Chord Bear = N 88° 23′ 51.45" E

Course from PT FM_2854_CL_174 to PC FM_2854_CL_177 S 87° 15′ 22.37" E Dist 457.3989

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

Micah J. Schluter, P.E.

05.18.22

FM 2854 HORIZONTAL ALIGNMENT DATA SHEET

SHEET 6 OF 8

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		50F

Curve Data

Curve FM_2854_CL_177

P.I. Station	634+09.65	N	10,112,415.4718	E	3,797,340.3512
Delta =	0° 16′ 35.96"	(RT)			
Degree =	0° 31′ 15.13"				
Tangent =	26.5571				
Length =	53.1142				
Radius =	11,000.0000				
External =	0.0321				
Long Chord =	53.1141				
Mid. Ord. =	0.0321				
P.C. Station	633+83.10	N	10,112,416.7431	E	3,797,313.8245
P.T. Station	634+36.21	N	10,112,414.0725	E	3,797,366.8715
C.C.		N	10,101,429.3537	E	3,796,787.2565
Back =	S 87° 15′ 22.37" E				
Ahead =	S 86° 58′ 46.40" E				
Chord Bear =	S 87° 07′ 04.39" E				

Course from PT FM_2854_CL_177 to PC FM_2854_CL_180 S 86° 58′ 46.40" E Dist 1,617.5591

Curve Data

Curve FM_2854_CL_180

P.I. Station	650+84.33	N	10,112,327.2295	E	3,799,012.6980
Delta =	0° 19′ 05.97"	(LT)			
Degree =	0° 31′ 15.13"				
Tangent =	30.5570				
Length =	61.1138				
Radius =	11,000.0000				
External =	0.0424				
Long Chord =	61.1138				
Mid. Ord. =	0.0424				
P.C. Station	650+53.77	N	10,112,328.8396	E	3,798,982.1834
P.T. Station	651+14.88	N	10,112,325.7889	E	3,799,043.2210
C.C.		N	10,123,313.5584	E	3,799,561.7984
Back =	S 86° 58′ 46.40" E				
Ahead =	S 87° 17′ 52.37" E				
Chord Bear =	S 87° 08′ 19.39" E				

Course from PT FM_2854_CL_180 to PC FM_2854_CL_183 S 87° 17′ 52.37" E Dist 243.7837

Curve Data

Curve FM_2854_CL_183

P.I. Station	653+75.62	N	10,112,313.4970	E	3,799,303.6664
Delta =	0° 10′ 35.73"	(RT)			
Degree =	0° 31′ 15.13"				
Tangent =	16.9516				
Length =	33.9031				
Radius =	11,000.0000				
External =	0.0131				
Long Chord =	33.9031				
Mid. Ord. =	0.0131				
P.C. Station	653+58.67	N	10,112,314.2962	E	3,799,286.7337
P.T. Station	653+92.57	N	10,112,312.6457	E	3,799,320.5966
C.C.		N	10,101,326.5267	E	3,798,768.1563
Back =	S 87° 17′ 52.37" E				
Ahead =	S 87° 07′ 16.64" E				
Chord Bear =	S 87° 12′ 34.51" E				

Course from PT FM_2854_CL_183 to PC FM_2854_CL_186 S 87° 07′ 16.64" E Dist 1,040.5471

Curve Data

Curve FM_2854_CL_186

P.I. Station	664+40.57	N	10,112,260.0134	E	3,800,367.2703
Delta =	0° 04′ 39.36"	(RT)			
Degree =	0° 31′ 15.13"				
Tangent =	7.4491				
Length =	14.8982				
Radius =	11,000.0000				
External =	0.0025				
Long Chord =	14.8982				
Mid. Ord. =	0.0025				
P.C. Station	664+33.12	N	10,112,260.3875	E	3,800,359.8306
P.T. Station	664+48.02	N	10,112,259.6292	E	3,800,374.7095
C.C.		N	10,101,274.2685	E	3,799,807.3904
Back =	S 87° 07′ 16.64" E				
Ahead =	S 87° 02′ 37.28" E				
Chord Bear =	S 87° 04′ 56.96" E				

Course from PT FM_2854_CL_186 to PC FM_2854_CL_189 S 87° 02′ 37.28" E Dist 590.9083

Curve Data

Curve FM_2854_CL_189

P.I. Station	670+57.57	N	10,112,228.1918	E	3,800,983.4509
Delta =	0° 11′ 39.21"	(LT)			
Degree =	0° 31′ 15.13"				
Tangent =	18.6444				
Length =	37.2887				
Radius =	11,000.0000				
External =	0.0158				
Long Chord =	37.2887				
Mid. Ord. =	0.0158				
P.C. Station	670+38.92	N	10,112,229.1534	E	3,800,964.8314
P.T. Station	670+76.21	N	10,112,227.2934	E	3,801,002.0737
C.C.		N	10,123,214.5141	E	3,801,532.1504
Back =	S 87° 02′ 37.28" E				
Ahead =	S 87° 14′ 16.50" E				
Chord Bear =	S 87° 08′ 26.89" E				

Course from PT FM_2854_CL_189 to PC FM_2854_CL_192 S 87° 14′ 16.50" E Dist 6.3823

Curve Data

Curve FM_2854_CL_192

P.I. Station	675+69.71	N	10,112,203.5124	E	3,801,494.9958
Delta =	0° 16′ 44.74"	(RT)			
Degree =	0° 01′ 43.13"				
Tangent =	487.1132				
Length =	974.2244				
Radius =	200,000.0000				
External =	0.5932				
Long Chord =	974.2234				
Mid. Ord. =	0.5932				
P.C. Station	670+82.60	N	10,112,226.9858	E	3,801,008.4486
P.T. Station	680+56.82	N	10,112,177.6693	E	3,801,981.4230
C.C.		N	9,912,459.3368	E	3,791,370.6889
Back =	S 87° 14′ 16.50" E				
Ahead =	S 86° 57′ 31.75" E				
Chord Bear =	S 87° 05′ 54.13" E				

Course from PT FM_2854_CL_192 to PC FM_2854_CL_195 S 86° 57′ 31.75" E Dist 722.9649

Curve Data

Curve FM_2854_CL_195

P.I. Station	687+95.88	N	10,112,138.4592	E	3,802,719.4462
Delta =	0° 10′ 03.76"	(LT)			
Degree =	0° 31′ 15.13"				
Tangent =	16.0992				
Length =	32.1983				
Radius =	11,000.0000				
External =	0.0118				
Long Chord =	32.1983				
Mid. Ord. =	0.0118				
P.C. Station	687+79.79	N	10,112,139.3133	E	3,802,703.3697
P.T. Station	688+11.98	N	10,112,137.6522	E	3,802,735.5251
C.C.		N	10,123,123.8216	E	3,803,286.9601
Back =	S 86° 57′ 31.75" E				
Ahead =	S 87° 07′ 35.52" E				
Chord Bear =	S 87° 02′ 33.64" E				

Course from PT FM_2854_CL_195 to PC FM_2854_CL_198 S 87° 07′ 35.52" E Dist 556.5016

Curve Data

Curve FM_2854_CL_198

P.I. Station	693+75.63	N	10,112,109.3965	E	3,803,298.4591
Delta =	0° 04′ 27.81"	(RT)			
Degree =	0° 31′ 15.13"				
Tangent =	7.1411				
Length =	14.2822				
Radius =	11,000.0000				
External =	0.0023				
Long Chord =	14.2822				
Mid. Ord. =	0.0023				
P.C. Station	693+68.49	N	10,112,109.7545	E	3,803,291.3270
P.T. Station	693+82.77	N	10,112,109.0293	E	3,803,305.5907
C.C.		N	10,101,123.5850	E	3,802,739.8920
Back =	S 87° 07′ 35.52" E				
Ahead =	S 87° 03′ 07.71" E				
Chord Bear =	S 87° 05′ 21.61" E				

Course from PT FM_2854_CL_198 to PC FM_2854_CL_201 S 87° 03′ 07.71" E Dist 1,864.3892

Curve Data

Curve FM_2854_CL_201

P.I. Station	712+54.30	N	10,112,012.7817	E	3,805,174.6455
Delta =	0° 04′ 27.85"	(LT)			
Degree =	0° 31′ 15.13"				
Tangent =	7.1421				
Length =	14.2841				
Radius =	11,000.0000				
External =	0.0023				
Long Chord =	14.2841				
Mid. Ord. =	0.0023				
P.C. Station	712+47.16	N	10,112,013.1490	E	3,805,167.5128
P.T. Station	712+61.44	N	10,112,012.4237	E	3,805,181.7786
C.C.		N	10,122,998.5933	E	3,805,733.2115
Back =	S 87° 03′ 07.71" E				
Ahead =	S 87° 07′ 35.55" E				
Chord Bear =	S 87° 05′ 21.63" E				

Course from PT FM_2854_CL_201 to PC FM_2854_CL_204 S 87° 07′ 35.55" E Dist 1,450.4861

Curve Data

Curve FM_2854_CL_204

P.I. Station	727+20.75	N	10,111,939.2681	E	3,806,639.2546
Delta =	0° 05′ 30.95"	(RT)			
Degree =	0° 31′ 15.13"				
Tangent =	8.8248				
Length =	17.6497				
Radius =	11,000.0000				
External =	0.0035				
Long Chord =	17.6497				
Mid. Ord. =	0.0035				
P.C. Station	727+11.93	N	10,111,939.7104	E	3,806,630.4409
P.T. Station	727+29.58	N	10,111,938.8115	E	3,806,648.0677
C.C.		N	10,100,953.5409	E	3,806,079.0079
Back =	S 87° 07′ 35.55" E				
Ahead =	S 87° 02′ 04.60" E				
Chord Bear =	S 87° 04′ 50.08" E				

Course from PT FM_2854_CL_204 to PC FM_2854_CL_207 S 87° 02′ 04.60" E Dist 4,991.2304

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05.18.22

FM 2854 HORIZONTAL ALIGNMENT DATA SHEET

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		50G

DATE: 03/03/2022 05:02 PM
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Curve Data

Curve FM_2854_CL_207

P.I. Station	777+45.98	N	10,111,679.2997	E	3,811,657.7493
Delta =	0° 15′ 43.88"	(LT)			
Degree =	0° 31′ 15.13"				
Tangent =	25.1683				
Length =	50.3366				
Radius =	11,000.0000				
External =	0.0288				
Long Chord =	50.3365				
Mid. Ord. =	0.0288				
P.C. Station	777+20.81	N	10,111,680.6017	E	3,811,632.6147
P.T. Station	777+71.14	N	10,111,678.1127	E	3,811,682.8896
C.C.		N	10,122,665.8723	E	3,812,201.6744
Back =	S 87° 02′ 04.60" E				
Ahead =	S 87° 17′ 48.48" E				
Chord Bear =	S 87° 09′ 56.54" E				

Course from PT FM_2854_CL_207 to PC FM_2854_CL_210 S 87° 17′ 48.48" E Dist 542.5085

Curve Data

Curve FM_2854_CL_210

P.I. Station	784+56.87	N	10,111,645.7721	E	3,812,367.8567
Delta =	4° 06′ 04.48"	(LT)			
Degree =	1° 25′ 56.62"				
Tangent =	143.2216				
Length =	286.3209				
Radius =	4,000.0000				
External =	2.5632				
Long Chord =	286.2598				
Mid. Ord. =	2.5616				
P.C. Station	783+13.65	N	10,111,652.5267	E	3,812,224.7944
P.T. Station	785+99.97	N	10,111,649.2664	E	3,812,511.0356
C.C.		N	10,115,648.0757	E	3,812,413.4434
Back =	S 87° 17′ 48.48" E				
Ahead =	N 88° 36′ 07.04" E				
Chord Bear =	S 89° 20′ 50.72" E				

Course from PT FM_2854_CL_210 to PC FM_2854_CL_213 N 88° 36′ 07.04" E Dist 284.3238

Curve Data

Curve FM_2854_CL_213

P.I. Station	791+49.50	N	10,111,662.6738	E	3,813,060.3980
Delta =	4° 20′ 21.64"	(RT)			
Degree =	0° 49′ 06.64"				
Tangent =	265.2022				
Length =	530.1509				
Radius =	7,000.0000				
External =	5.0219				
Long Chord =	530.0242				
Mid. Ord. =	5.0183				
P.C. Station	788+84.30	N	10,111,656.2034	E	3,812,795.2748
P.T. Station	794+14.45	N	10,111,649.0655	E	3,813,325.2509
C.C.		N	10,104,658.2871	E	3,812,966.0612
Back =	N 88° 36′ 07.04" E				
Ahead =	S 87° 03′ 31.32" E				
Chord Bear =	S 89° 13′ 42.14" E				

Course from PT FM_2854_CL_213 to PC FM_2854_CL_216 S 87° 03′ 31.32" E Dist 1,108.8070

Curve Data

Curve FM_2854_CL_216

P.I. Station	805+24.43	N	10,111,592.1093	E	3,814,433.7694
Delta =	0° 00′ 44.02"	(RT)			
Degree =	0° 31′ 15.13"				
Tangent =	1.1737				
Length =	2.3474				
Radius =	11,000.0000				
External =	0.0001				
Long Chord =	2.3474				
Mid. Ord. =	0.0001				
P.C. Station	805+23.25	N	10,111,592.1695	E	3,814,432.5972
P.T. Station	805+25.60	N	10,111,592.0488	E	3,814,434.9415
C.C.		N	10,100,606.6606	E	3,813,868.1562
Back =	S 87° 03′ 31.32" E				
Ahead =	S 87° 02′ 47.30" E				
Chord Bear =	S 87° 03′ 09.31" E				

Course from PT FM_2854_CL_216 to PC FM_2854_CL_219 S 87° 02′ 47.30" E Dist 3,400.2035

Curve Data

Curve FM_2854_CL_219

P.I. Station	839+72.81	N	10,111,414.4283	E	3,817,877.5673
Delta =	1° 04′ 37.77"	(RT)			
Degree =	1° 08′ 45.30"				
Tangent =	47.0013				
Length =	93.9999				
Radius =	5,000.0000				
External =	0.2209				
Long Chord =	93.9985				
Mid. Ord. =	0.2209				
P.C. Station	839+25.81	N	10,111,416.8501	E	3,817,830.6284
P.T. Station	840+19.81	N	10,111,411.1246	E	3,817,924.4523
C.C.		N	10,106,423.4918	E	3,817,572.9987
Back =	S 87° 02′ 47.30" E				
Ahead =	S 85° 58′ 09.53" E				
Chord Bear =	S 86° 30′ 28.42" E				

Course from PT FM_2854_CL_219 to PC FM_2854_CL_222 S 85° 58′ 09.53" E Dist 130.2506

Curve Data

Curve FM_2854_CL_222

P.I. Station	846+48.15	N	10,111,366.9581	E	3,818,551.2385
Delta =	20° 54′ 16.40"	(RT)			
Degree =	2° 07′ 19.44"				
Tangent =	498.0897				
Length =	985.1040				
Radius =	2,700.0000				
External =	45.5588				
Long Chord =	979.6491				
Mid. Ord. =	44.8029				
P.C. Station	841+50.06	N	10,111,401.9692	E	3,818,054.3808
P.T. Station	851+35.16	N	10,111,156.9666	E	3,819,002.8987
C.C.		N	10,108,708.6475	E	3,817,864.5958
Back =	S 85° 58′ 09.53" E				
Ahead =	S 65° 03′ 53.13" E				
Chord Bear =	S 75° 31′ 01.33" E				

Course from PT FM_2854_CL_222 to 4 S 65° 03′ 53.13" E Dist 776.5041

Point 4 N 10,110,829.5974 E 3,819,707.0209 Sta 859+11.66

==========

Ending chain FM_2854_CL description

Micah J. Schluter, P.E.

05.18.22

FM 2854
HORIZONTAL ALIGNMENT DATA SHEET

SHEET 8 OF 8

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		50H

DATE: 03/03/2022 05:07 PM
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Chain BL336 contains:
3360 3361 CUR BL3361 CUR BL3362 CUR BL3363 3362

Beginning chain BL336 description

Point 3360 N 10,115,734.4809 E 3,822,206.5240 Sta 0+00.00

Course from 3360 to 3361 S 28° 18′ 35.00" W Dist 66.9900

Point 3361 N 10,115,675.5031 E 3,822,174.7548 Sta 0+66.99

Course from 3361 to PC BL3361 S 25° 35′ 32.68" W Dist 79.9400

		Curve Data				
Curve BL3361						
P.I. Station		5+39.07	N	10,115,249.7378	E	3,821,970.8316
Delta	= 28° 24′ 26.43"	(RT)				
Degree	= 3° 41′ 53.33"					
Tangent	= 392.1413					
Length	= 768.1504					
Radius	= 1,549.3100					
External	= 48.8565					
Long Chord	= 760.3068					
Mid. Ord.	= 47.3630					
P.C. Station		1+46.93	N	10,115,603.4060	E	3,822,140.2234
P.T. Station		9+15.08	N	10,115,019.2415	E	3,821,653.5836
C.C.			N	10,116,272.6557	E	3,820,742.9166
Back	= S 25° 35′ 32.68" W					
Ahead	= S 53° 59′ 59.11" W					
Chord Bear	= S 39° 47′ 45.89" W					

Course from PT BL3361 to PC BL3362 S 54° 08′ 48.53" W Dist 959.1459

		Curve Data				
Curve BL3362						
P.I. Station		27+24.07	N	10,113,961.5993	E	3,820,185.9934
Delta	= 47° 58′ 29.66"	(LT)				
Degree	= 2° 59′ 59.77"					
Tangent	= 849.8412					
Length	= 1,599.1976					
Radius	= 1,909.9000					
External	= 180.5421					
Long Chord	= 1,552.8884					
Mid. Ord.	= 164.9495					
P.C. Station		18+74.23	N	10,114,457.4599	E	3,820,876.1762
P.T. Station		34+73.42	N	10,113,116.9390	E	3,820,092.2973
C.C.			N	10,112,906.3700	E	3,821,990.5541
Back	= S 54° 18′ 16.96" W					
Ahead	= S 6° 19′ 47.29" W					
Chord Bear	= S 30° 19′ 02.12" W					

Course from PT BL3362 to PC BL3363 S 6° 25′ 51.41" W Dist 978.7715

		Curve Data				
Curve BL3363						
P.I. Station		46+84.53	N	10,111,913.5082	E	3,819,956.1329
Delta	= 13° 52′ 18.68"	(RT)				
Degree	= 2° 59′ 59.77"					
Tangent	= 232.3385					
Length	= 462.4050					
Radius	= 1,909.9000					
External	= 14.0800					
Long Chord	= 461.2765					
Mid. Ord.	= 13.9770					
P.C. Station		44+52.20	N	10,112,144.3263	E	3,819,982.6694
P.T. Station		49+14.60	N	10,111,695.7842	E	3,819,875.0314
C.C.			N	10,112,362.4650	E	3,818,085.2676
Back	= S 6° 33′ 29.99" W					
Ahead	= S 20° 25′ 48.67" W					
Chord Bear	= S 13° 29′ 39.33" W					

Course from PT BL3363 to 3362 S 20° 25′ 48.67" W Dist 860.8500

Point 3362 N 10,110,889.0832 E 3,819,574.5381 Sta 57+75.45

Ending chain BL336 description

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Micah J. Schluter P.E.

05.18.22

SL 336
HORIZONTAL
ALIGNMENT
DATA SHEET

SHEET 1 OF 1

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	SL 336
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		501

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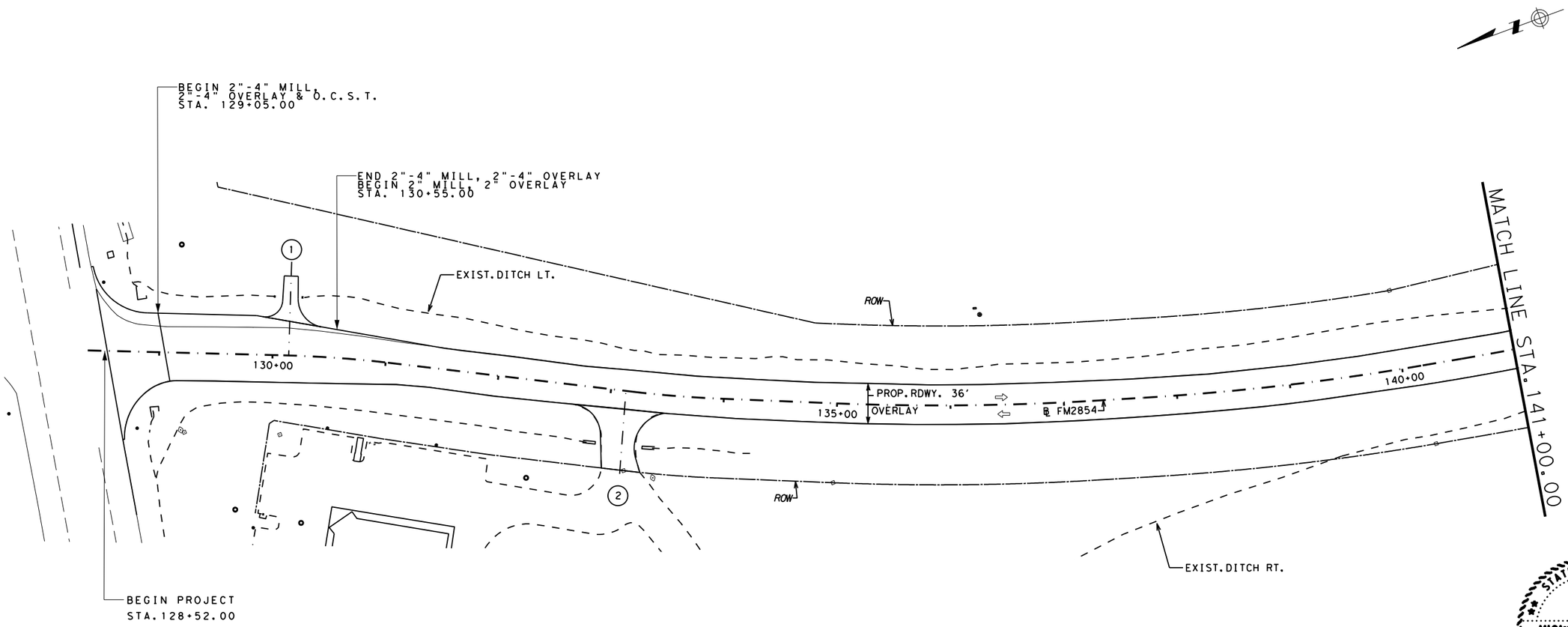

LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
MICAH J. SCHLUTER
136908
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05.24.22

FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 1 OF 55

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CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		51

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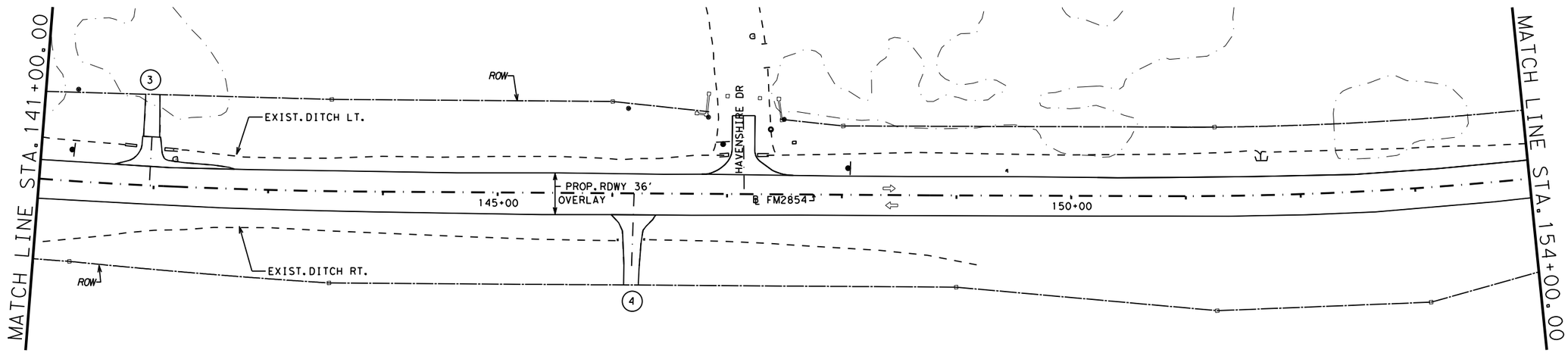

LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
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FM 2854
PROPOSED ROADWAY LAYOUT

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CONT	SECT	JOB	HIGHWAY
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DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		52

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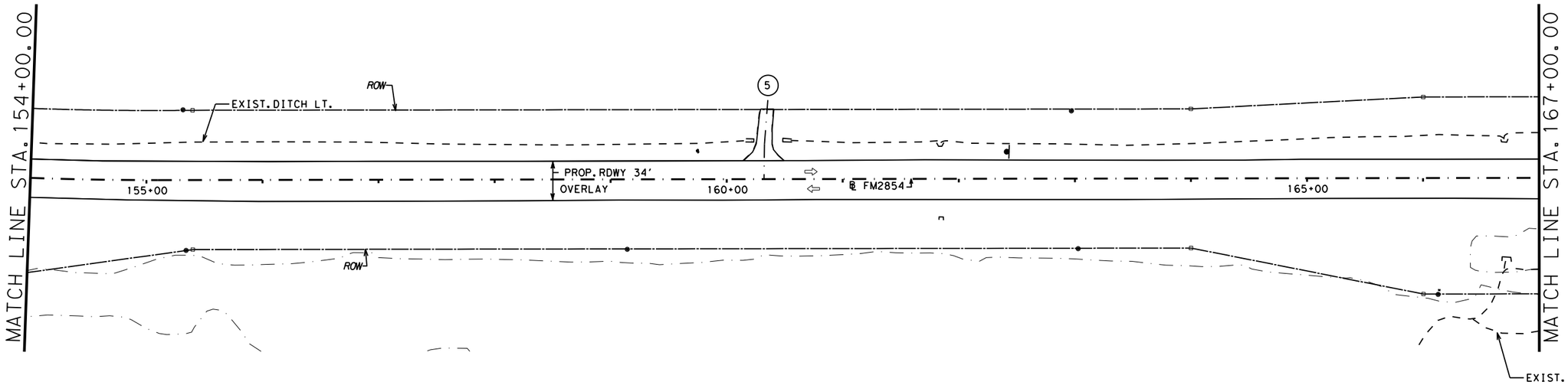

LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
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FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 3 OF 55

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		53

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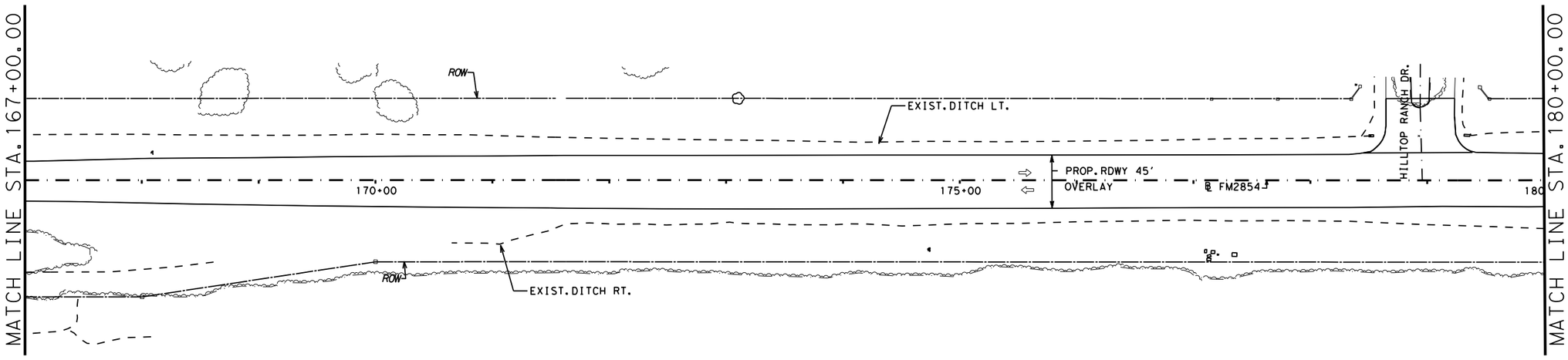

LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

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FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 4 OF 55

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		54

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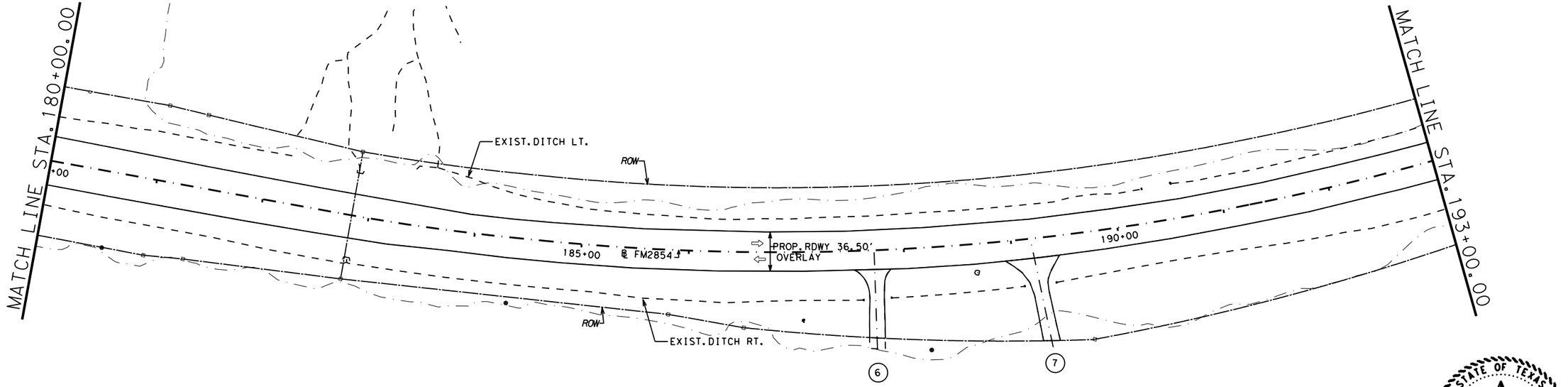

LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

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05.24.22

FM 2854
PROPOSED ROADWAY LAYOUT

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CONT	SECT	JOB	HIGHWAY
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HOU	MONTGOMERY		55

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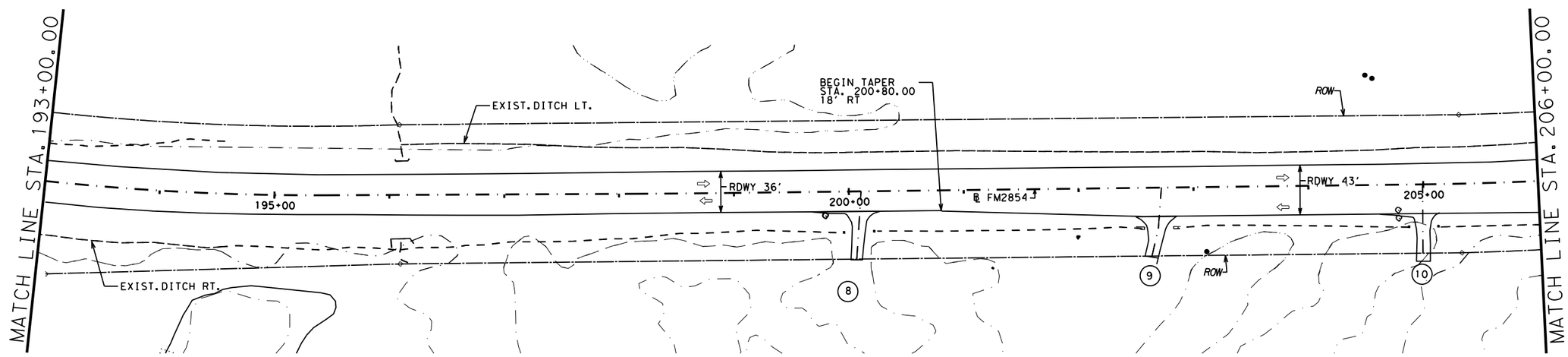

LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

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SCALE IN FEET

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FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 6 OF 55

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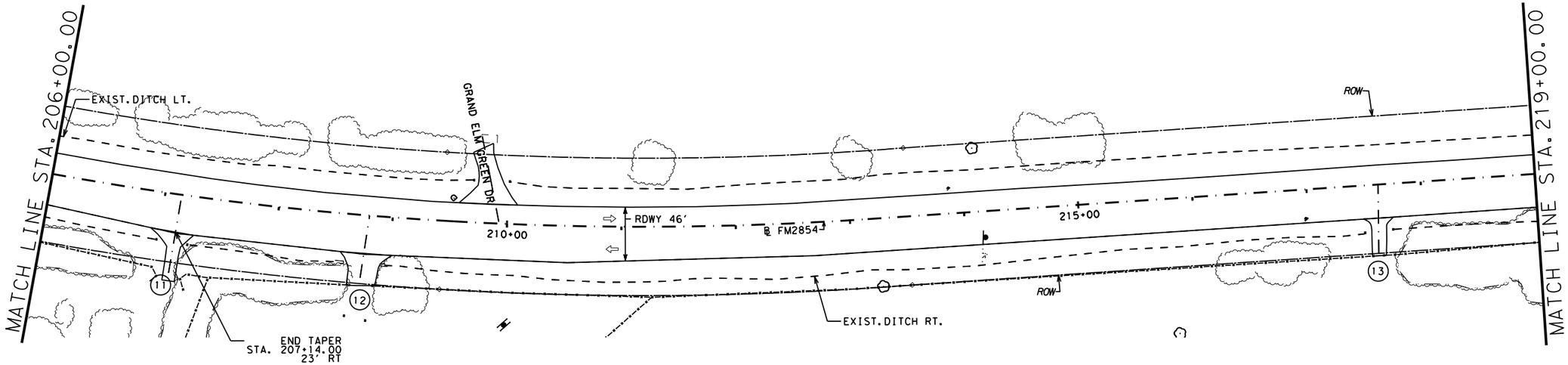
Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		56



LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
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05.24.22

FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 7 OF 55

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Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		57

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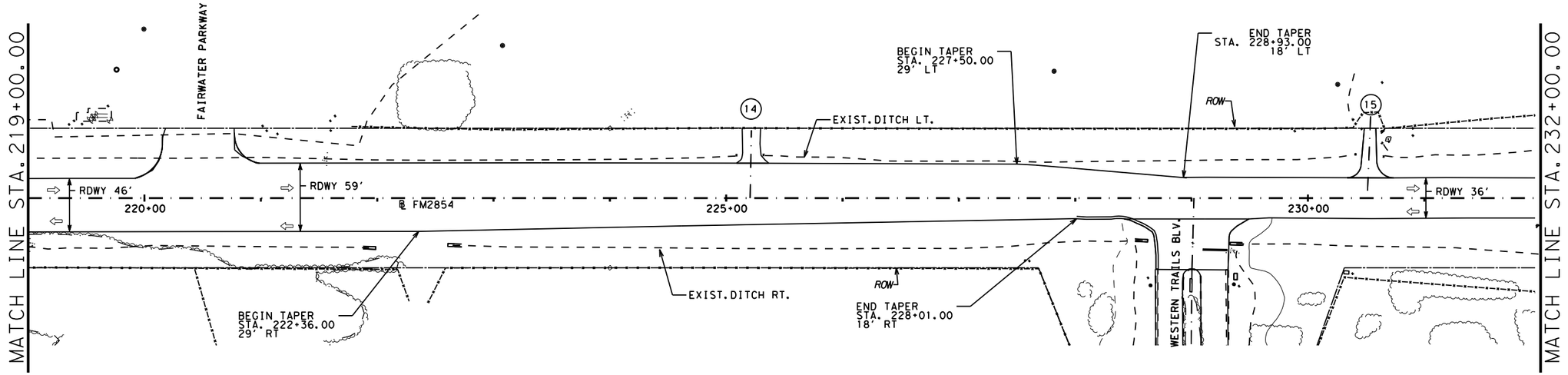

LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

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05.24.22

FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 8 OF 55

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		58

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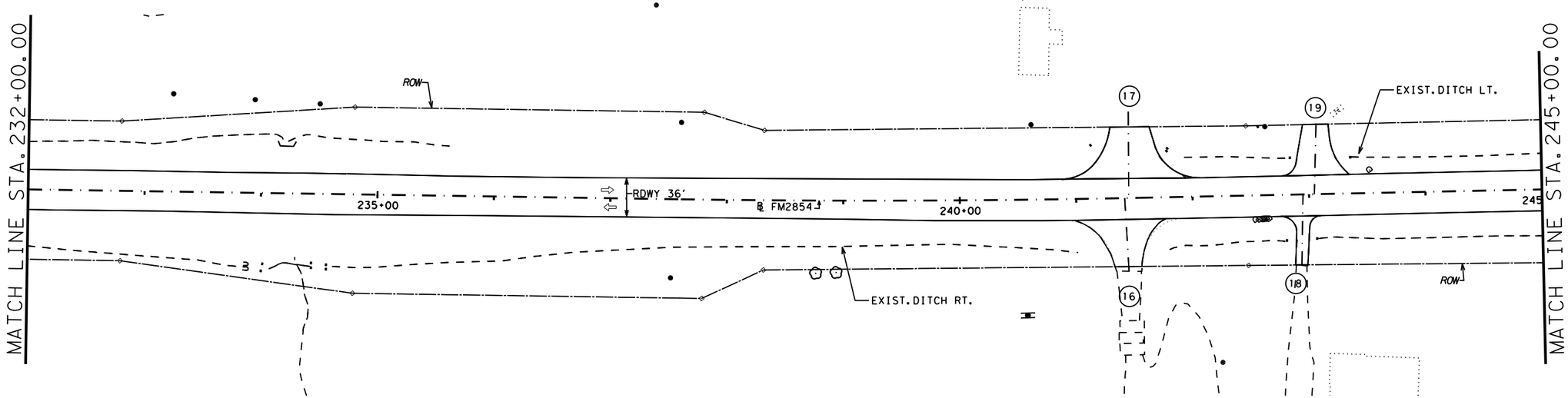

LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
MICAH J. SCHLUTER
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05.24.22

FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 9 OF 55

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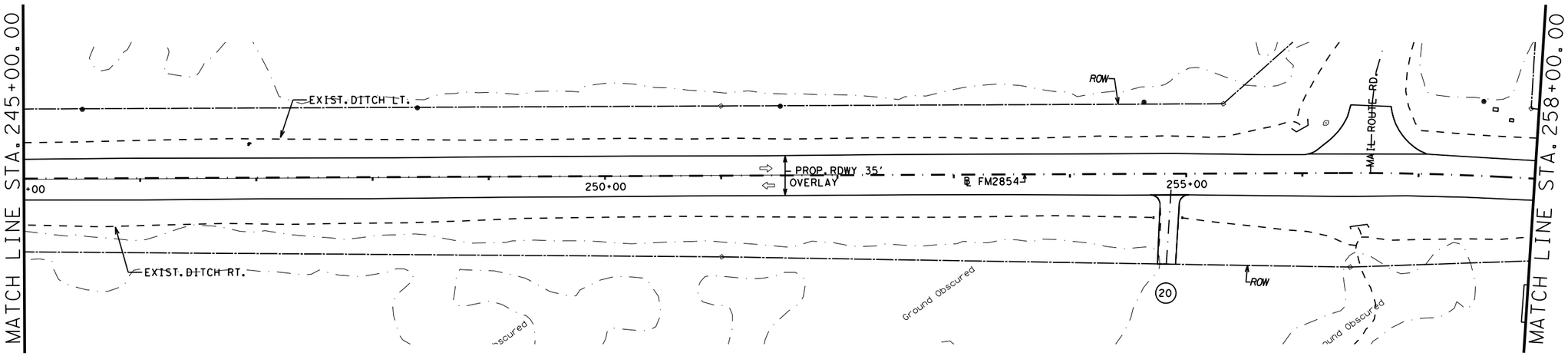
Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		59



LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

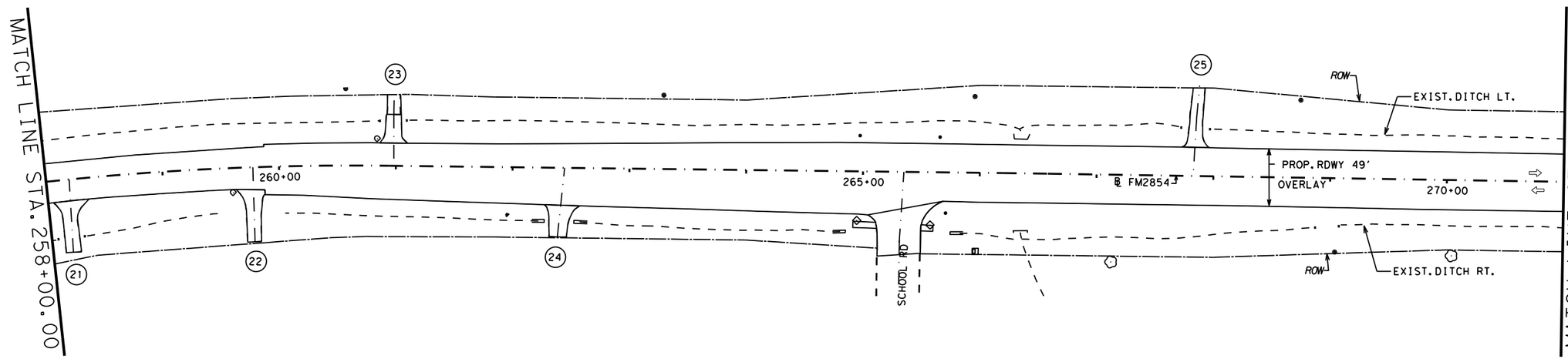
Micah J. Schluter, P.E.
05.24.22

FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 10 OF 55

®2020
Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		60



LEGEND

PROP. ROADWAY/DRIVEWAY

CENTER LINE

EXIST. ROW

(#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
MICAH J. SCHLUTER
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05.24.22

FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 11 OF 55

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CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		61

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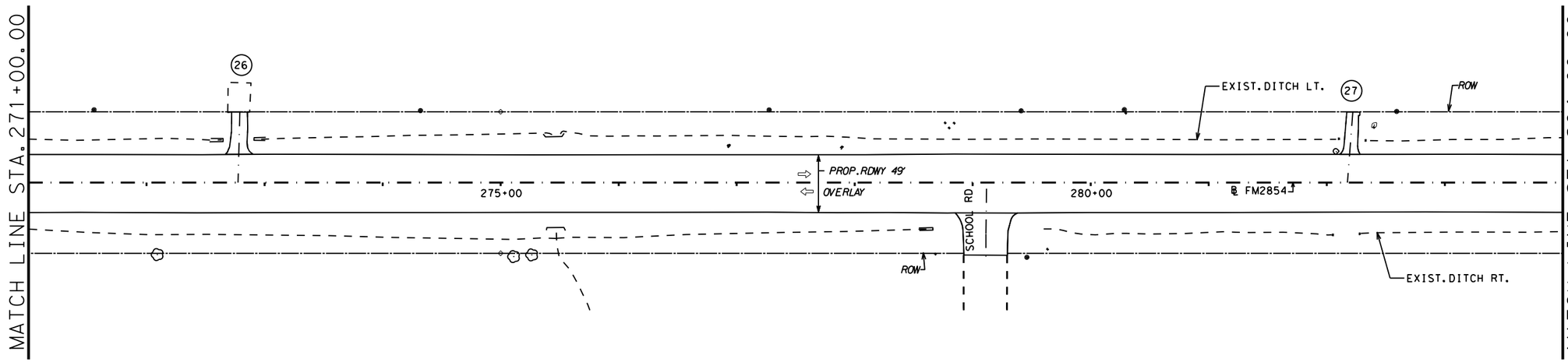

LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
MICAH J. SCHLUTER
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FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 12 OF 55

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Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		62

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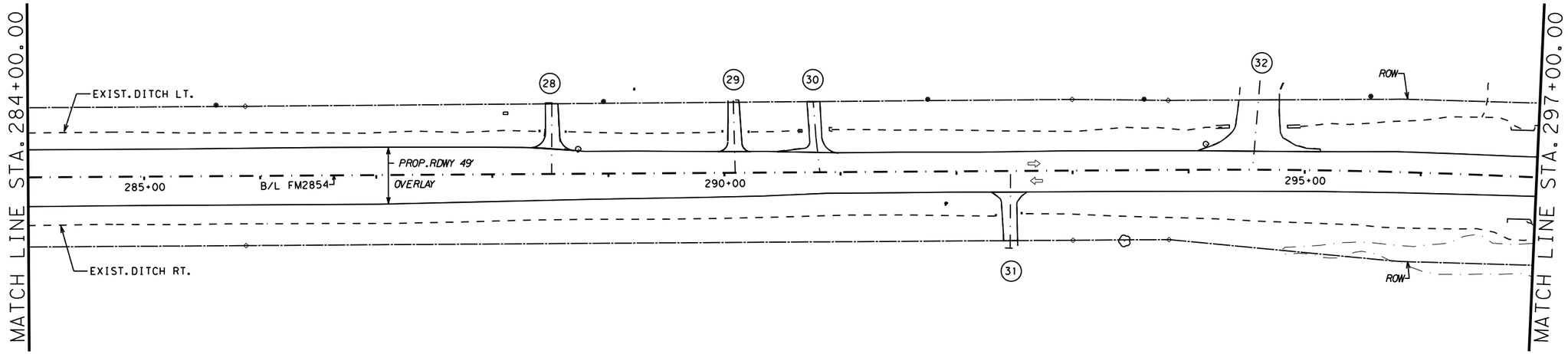

LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
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Micah J. Schluter P.E.
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FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 13 OF 55

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		63

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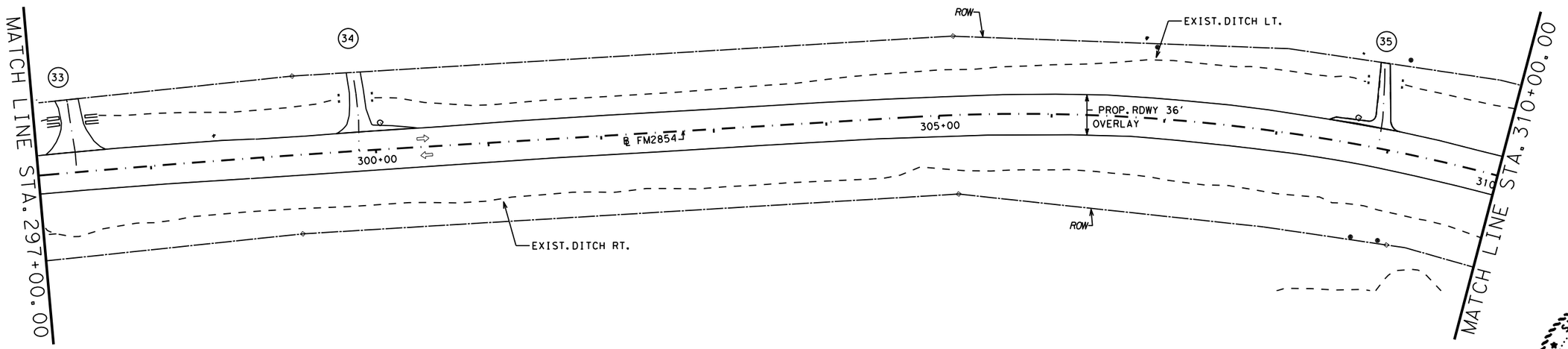

LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
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05.24.22

FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 14 OF 55

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		64

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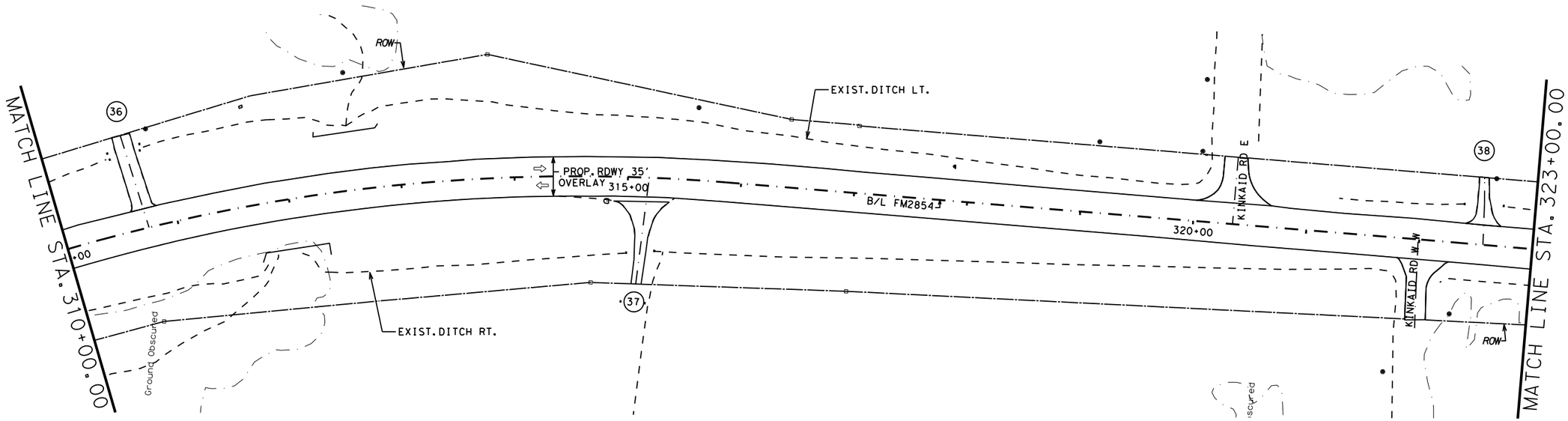

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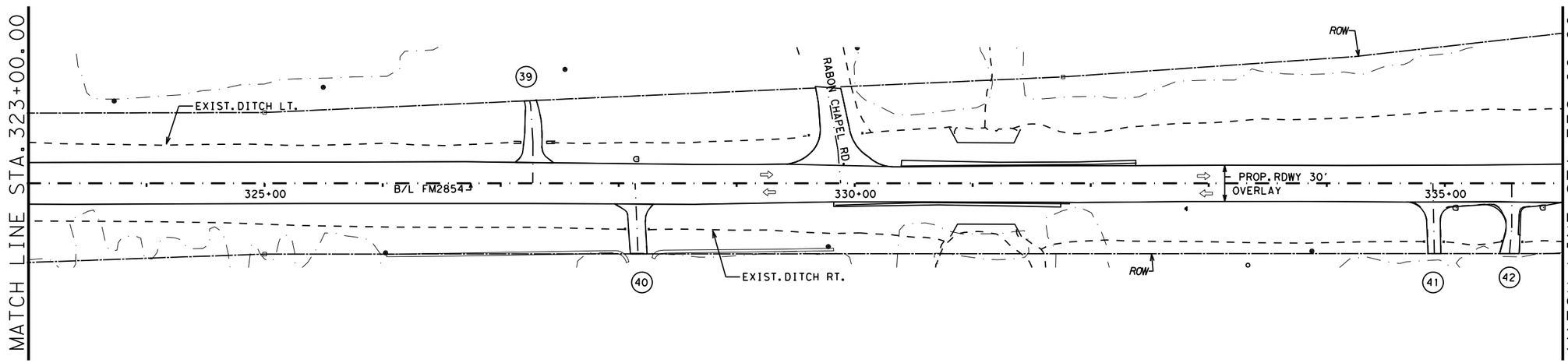
FM 2854
PROPOSED ROADWAY LAYOUT

0 50 100
SCALE IN FEET

SHEET 15 OF 55

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		65



LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

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PROPOSED ROADWAY LAYOUT

SHEET 16 OF 55

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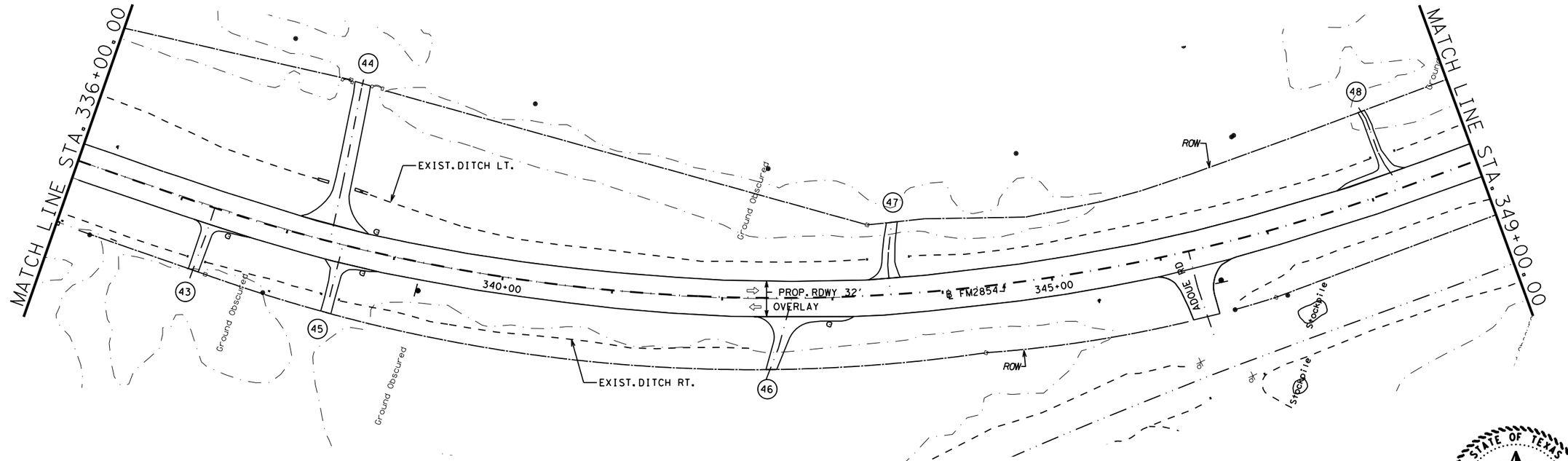
Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		66



LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

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FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 17 OF 55

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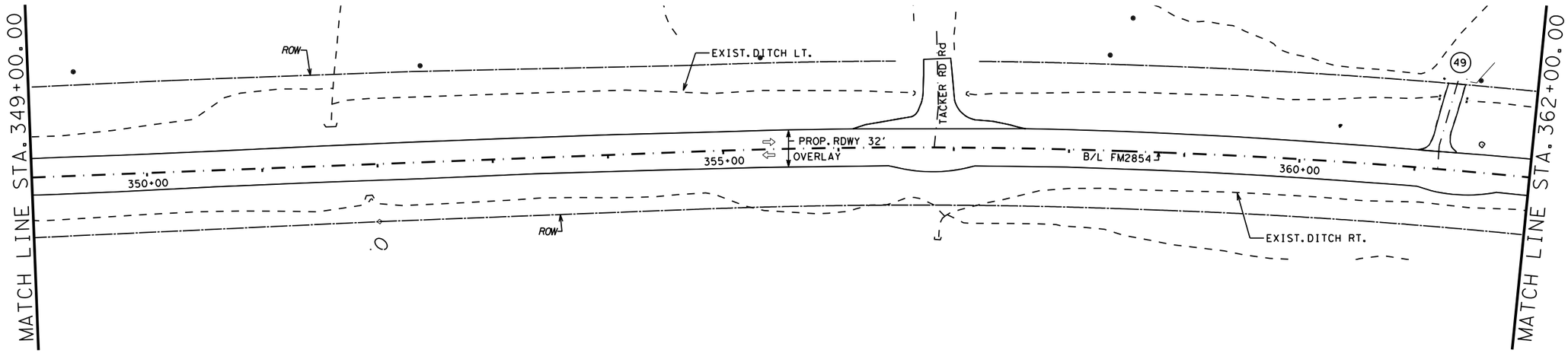
Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		67



LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
MICAH J. SCHLUTER
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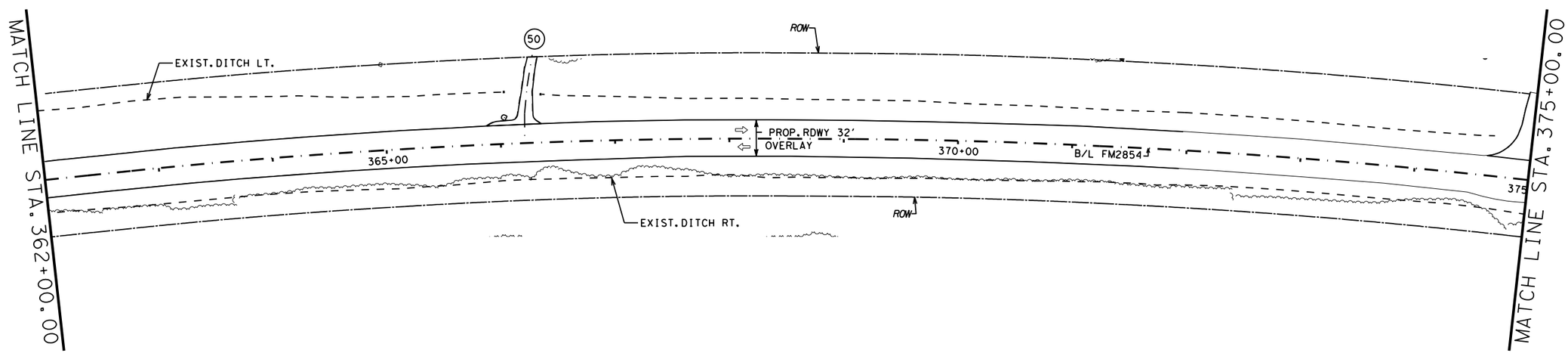
Micah J. Schluter, P.E.
05.24.22

FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 18 OF 55

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		68



LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

NOTES:

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FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 19 OF 55

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		69

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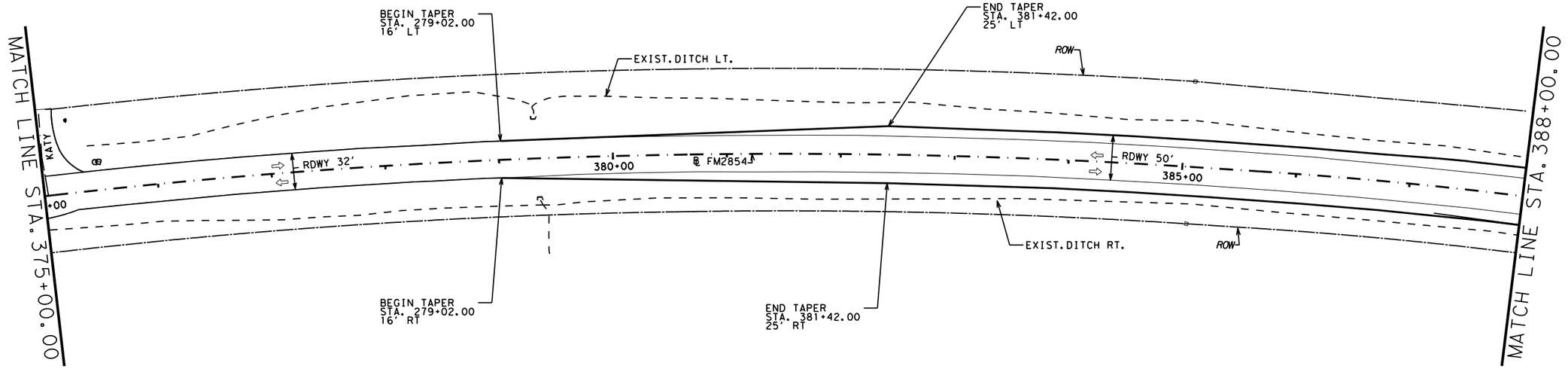

LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
MICAH J. SCHLUTER
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05.24.22

FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 20 OF 55

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		70

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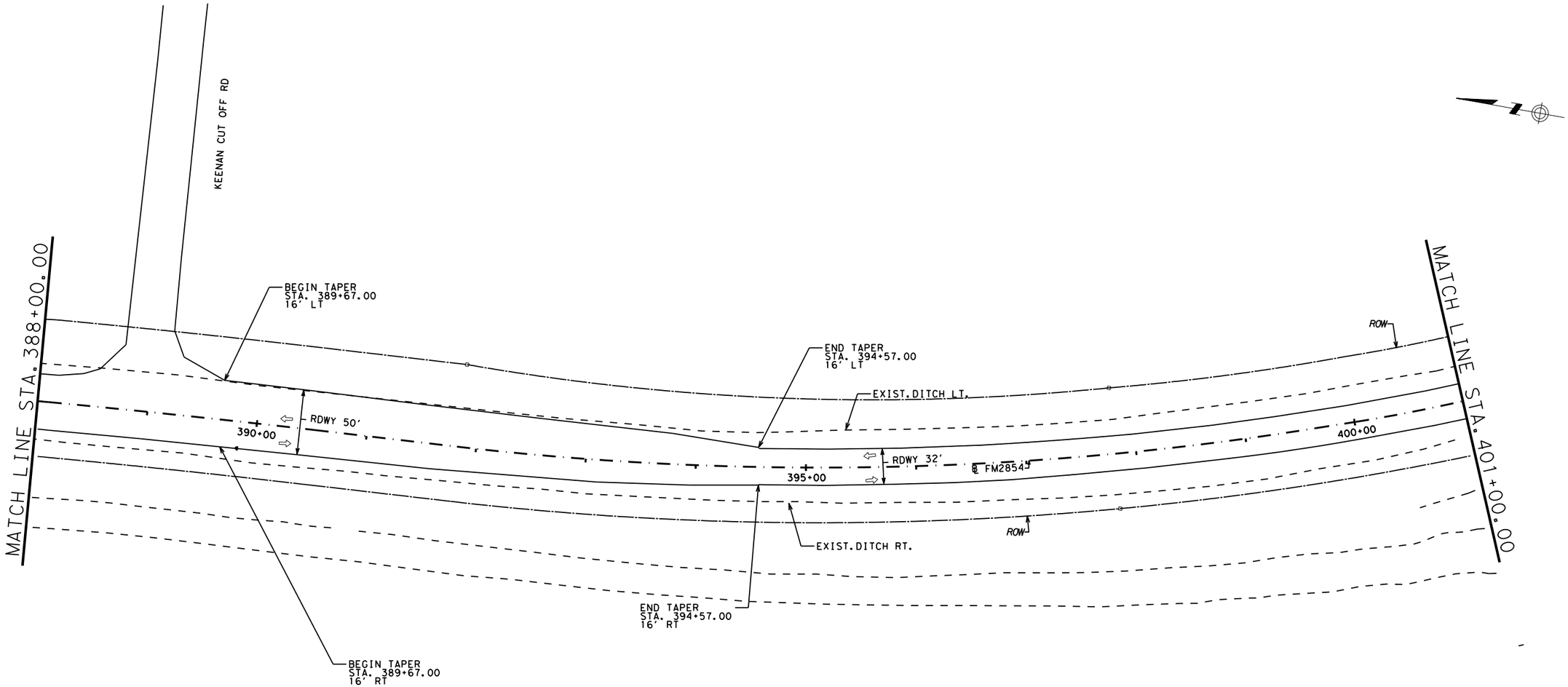

LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
MICAH J. SCHLUTER
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05.24.22

FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 21 OF 55

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		71

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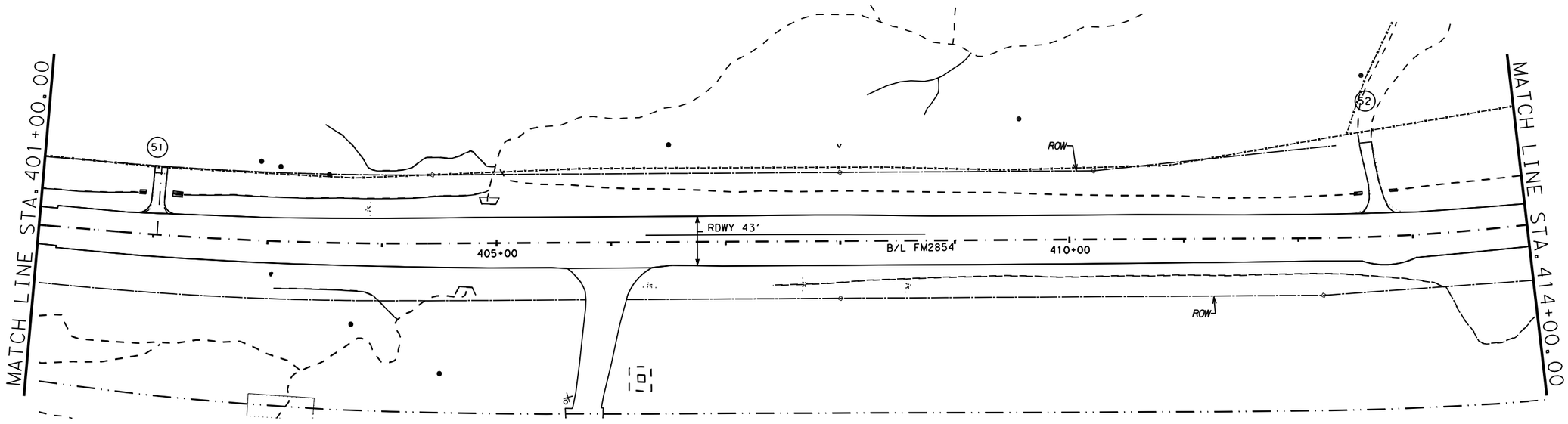

LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
MICAH J. SCHLUTER
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05.24.22

FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 22 OF 55

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		72

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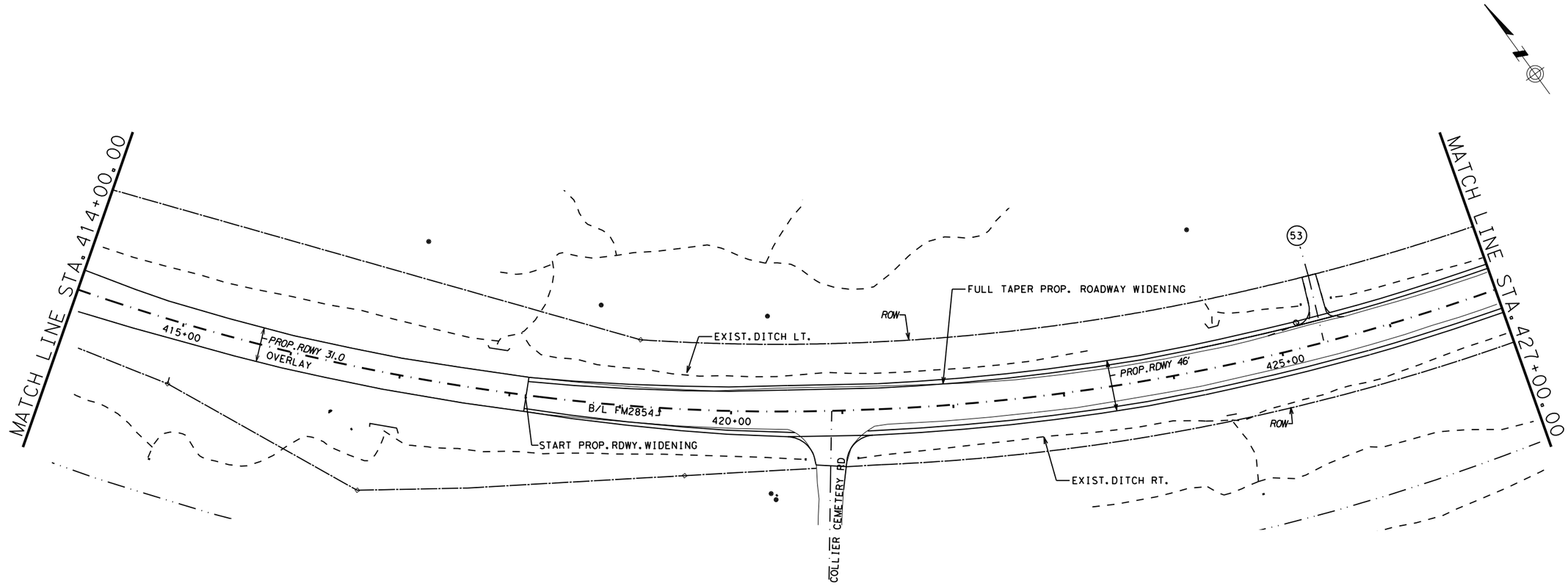

LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
MICAH J. SCHLUTER
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PROFESSIONAL ENGINEER

Micah J. Schluter, P.E.

05.24.22

FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 23 OF 55

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		73

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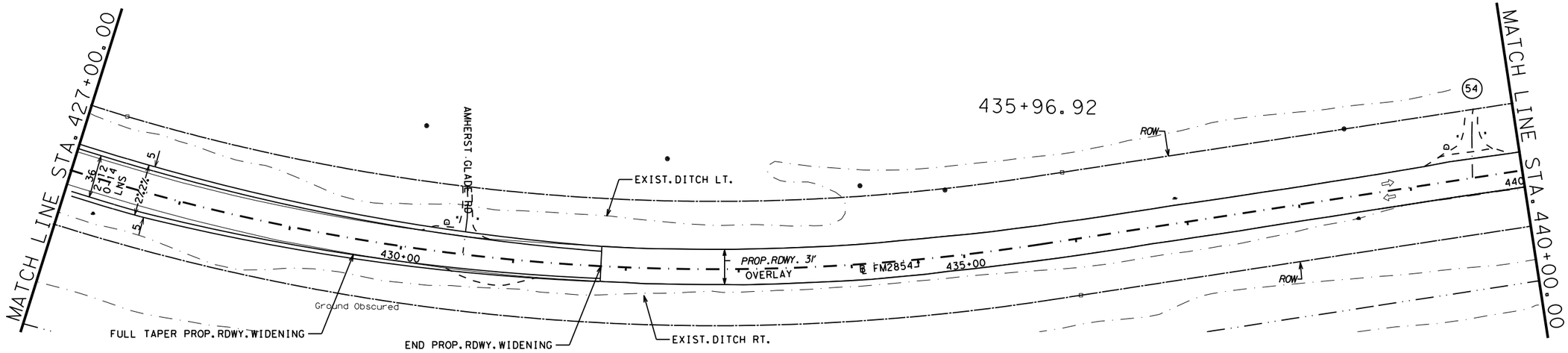

LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
MICAH J. SCHLUTER
136908
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05.24.22

FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 24 OF 55

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		74

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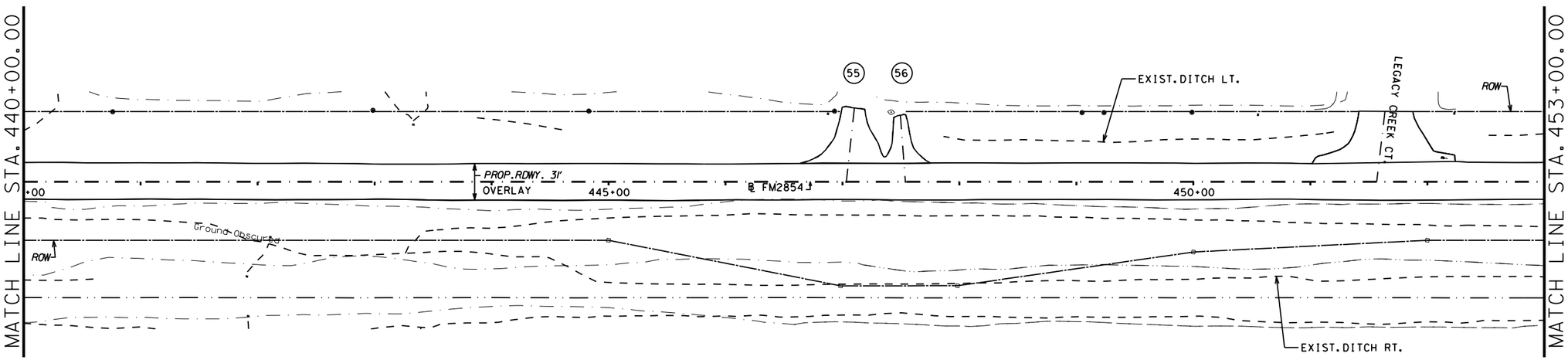

LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
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FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 25 OF 55

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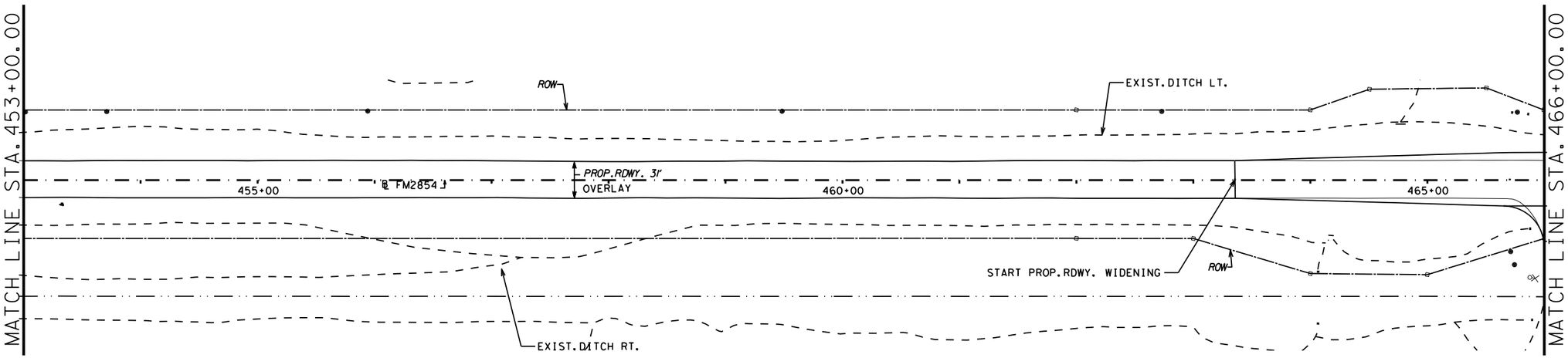
CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		75



LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

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05.24.22

FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 26 OF 55

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		76

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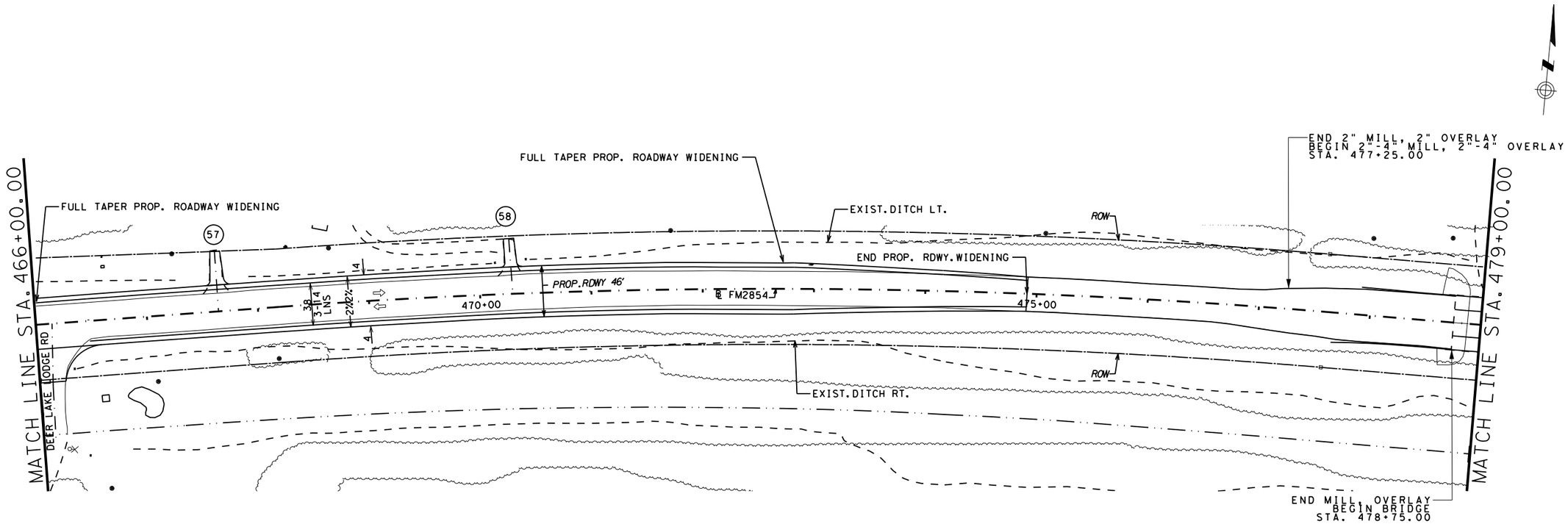

LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
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Micah J. Schluter, P.E.
05.24.22

FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 27 OF 55

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		77

DATE: 05/18/2022 06:38 PM
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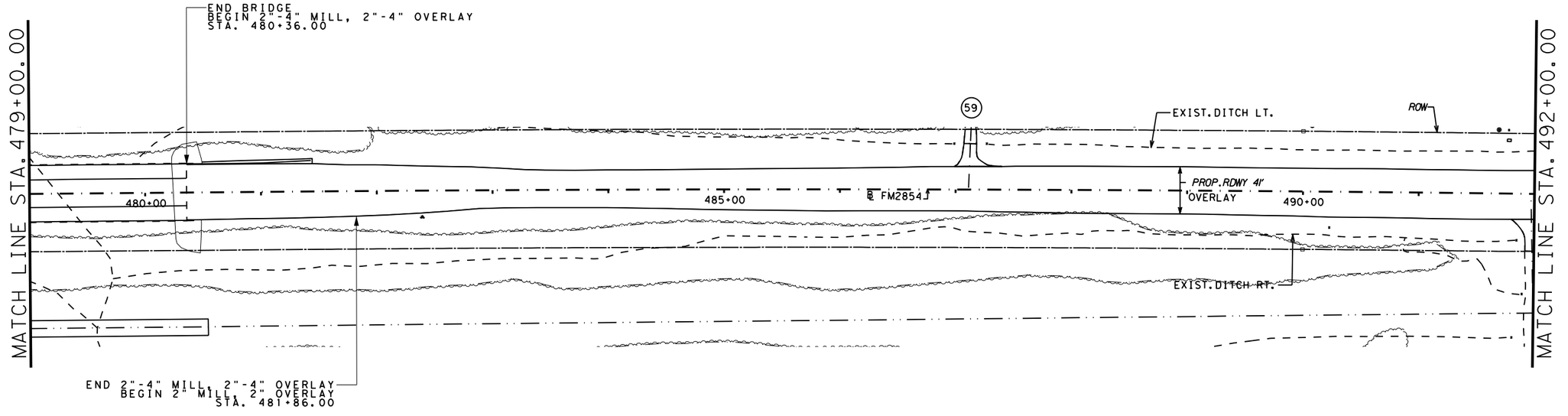

LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
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Micah J. Schluter, P.E.

05.24.22

FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 28 OF 55

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Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		78

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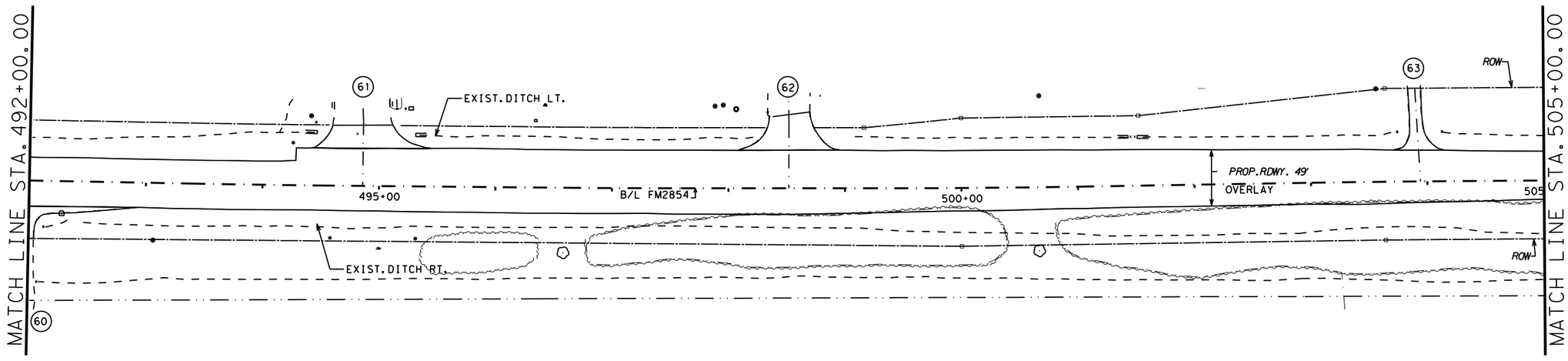

LEGEND

PROP. ROADWAY/DRIVEWAY

CENTER LINE

EXIST. ROW

(#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

Micah J. Schluter, P.E.

05.24.22

FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 29 OF 55

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		79

DATE: 05/17/2022 02:44 PM
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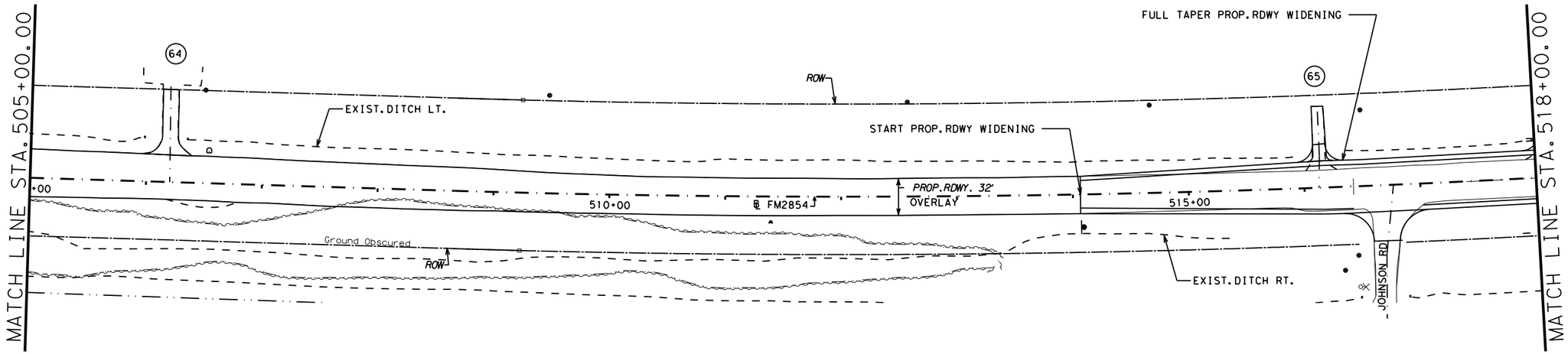

LEGEND

PROP. ROADWAY/DRIVEWAY

CENTER LINE

EXIST. ROW

(#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
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FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 30 OF 55

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		80

DATE: 05/17/2022 02:54 PM
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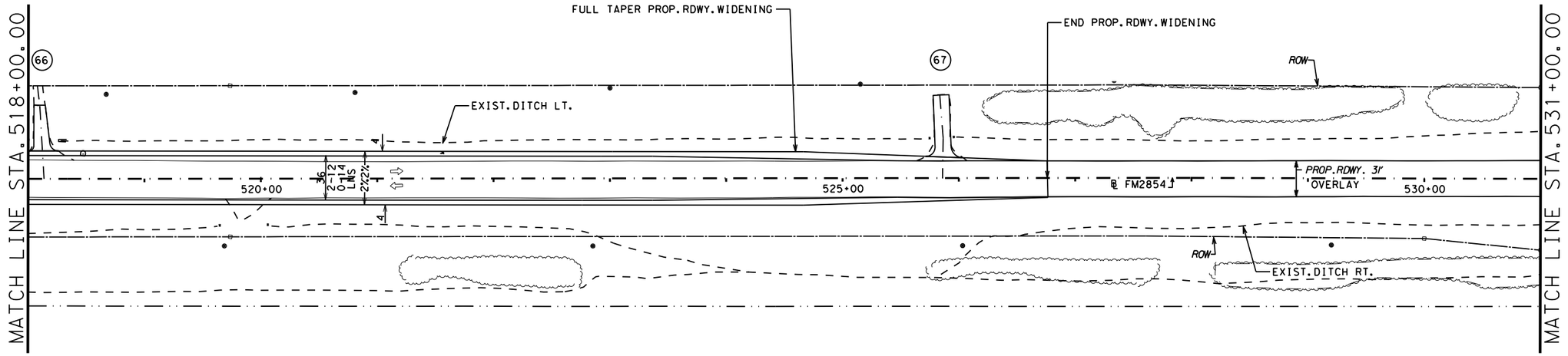

LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

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FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 31 OF 55

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CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		81

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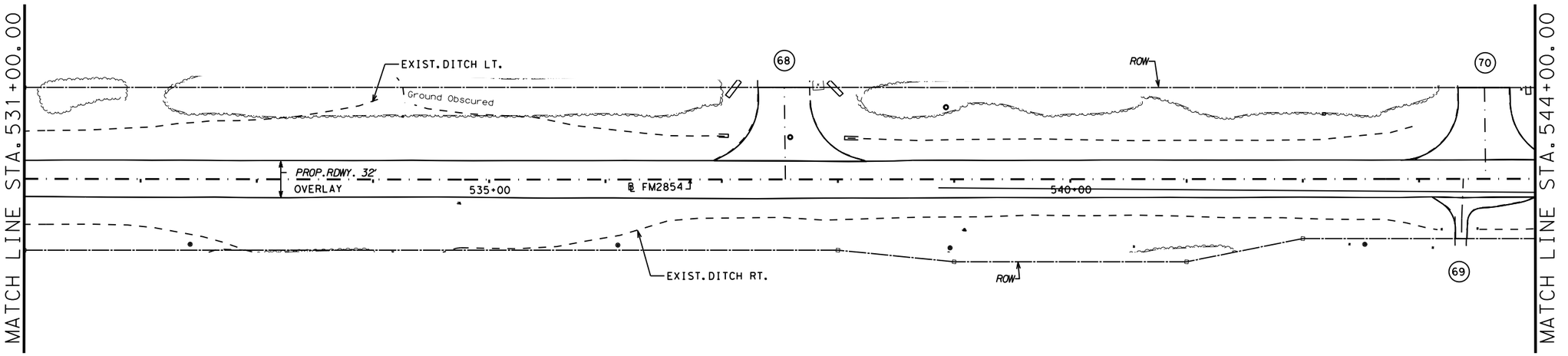

LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
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FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 32 OF 55

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CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		82

DATE: 05/17/2022 04:23 PM
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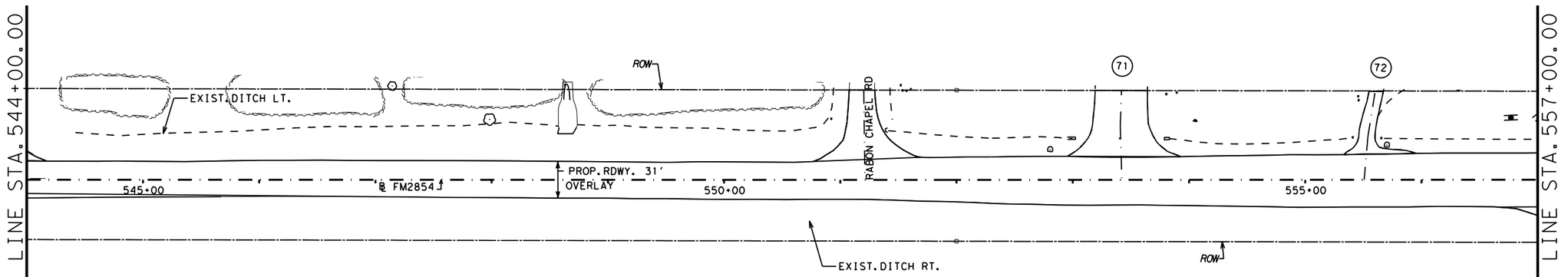

LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
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05.24.22

FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 33 OF 55

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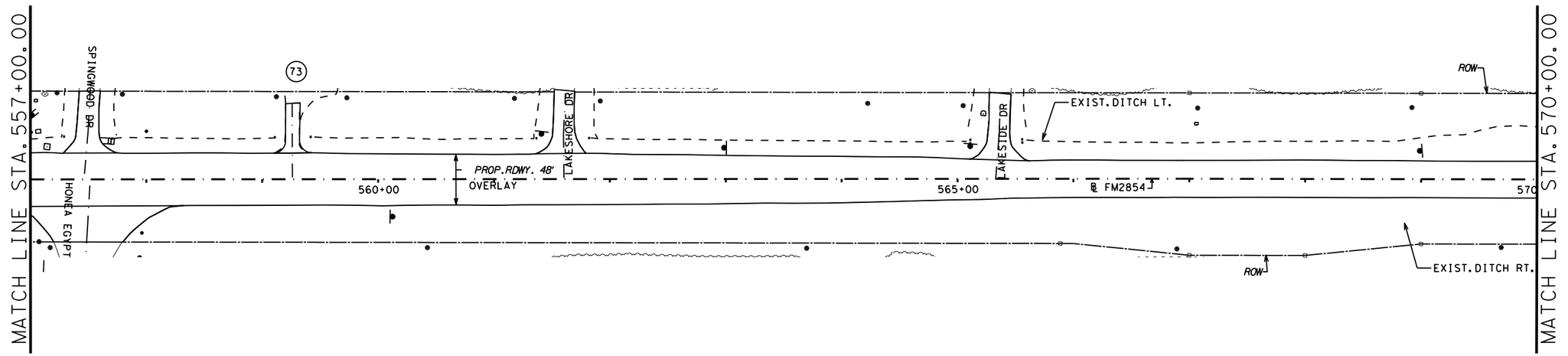
Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		83



LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
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FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 34 OF 55

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CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		84

DATE: 05/17/2022 04:30 PM
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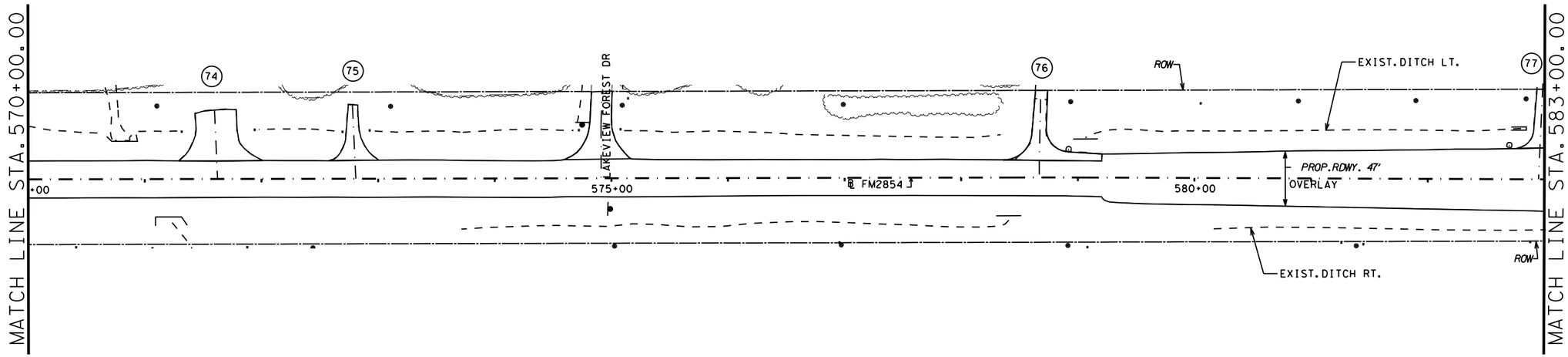

LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

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FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 35 OF 55

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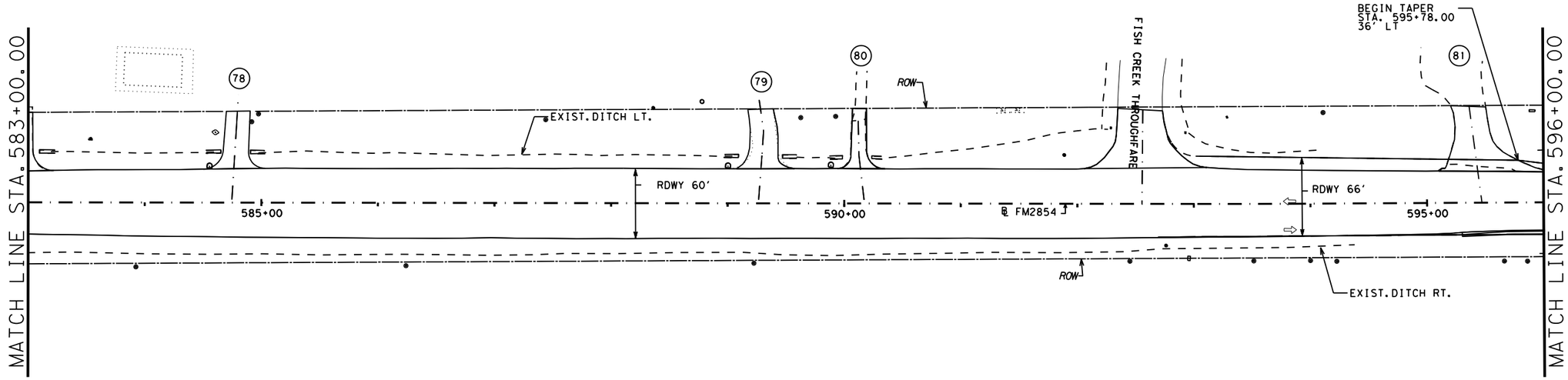
Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		85



LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

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SCALE IN FEET

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FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 36 OF 55

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		86

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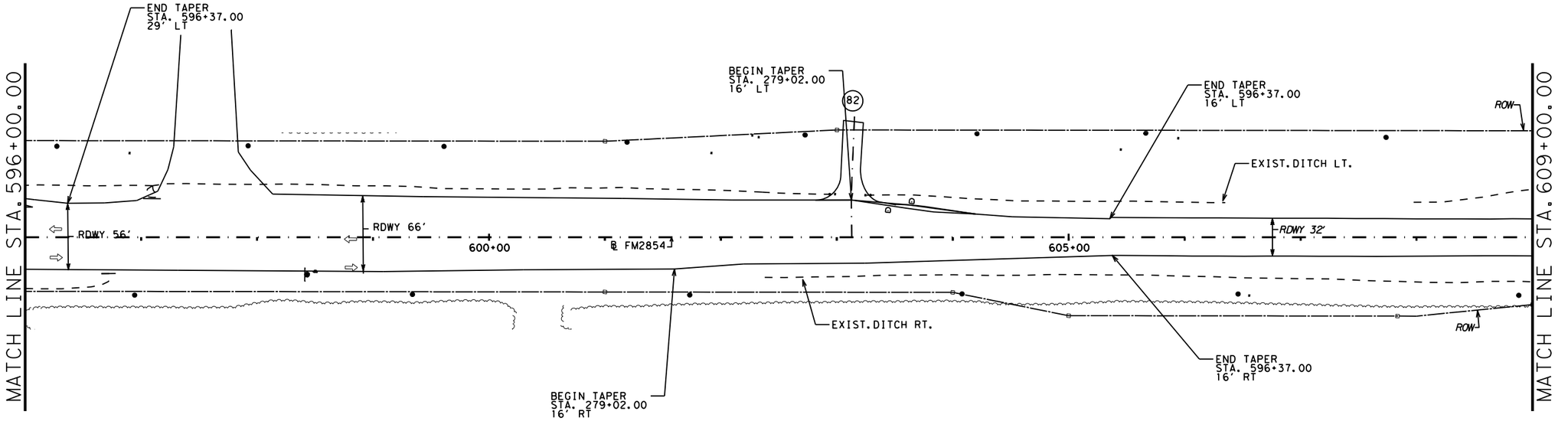

LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
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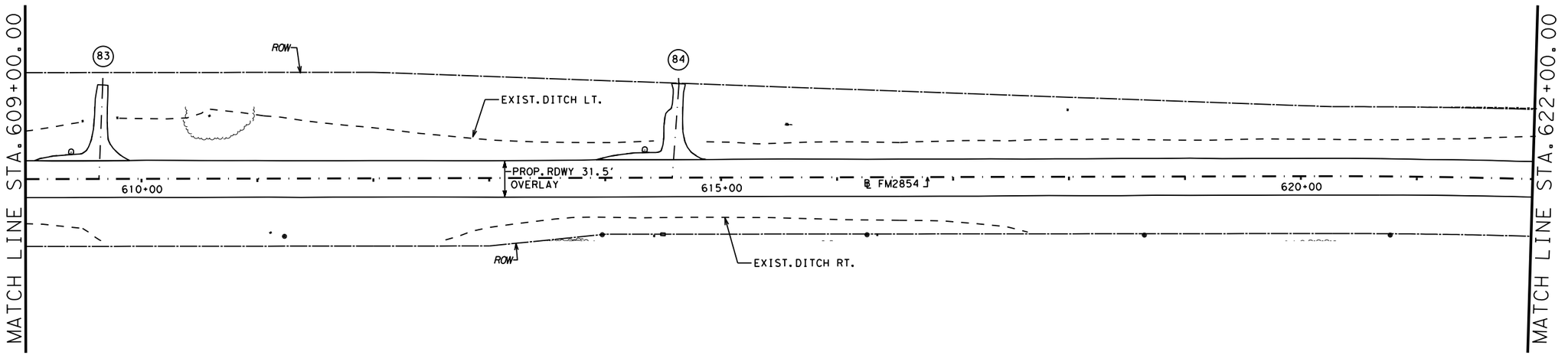
FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 37 OF 55

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		87



LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
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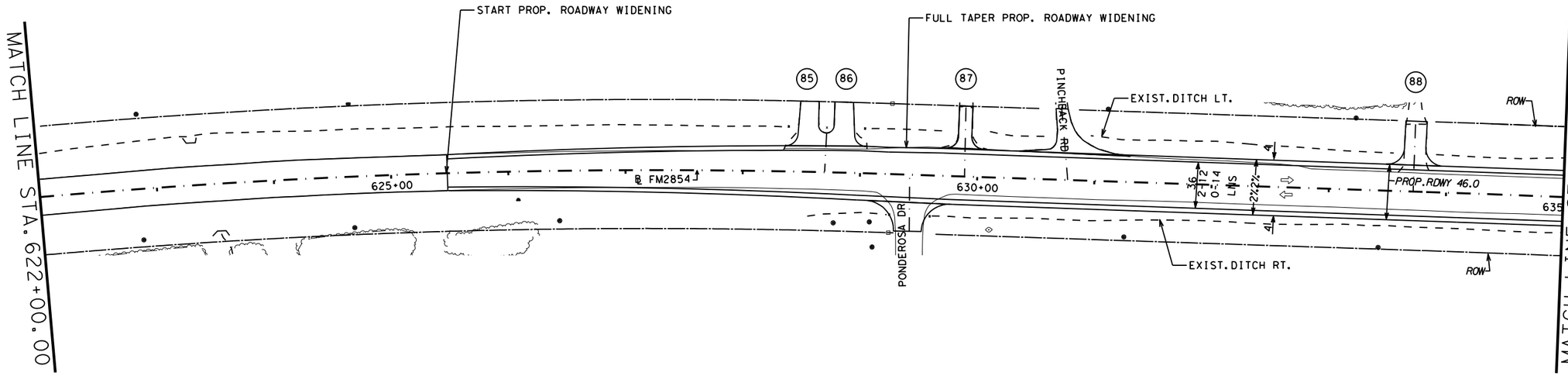
FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 38 OF 55

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		88



LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

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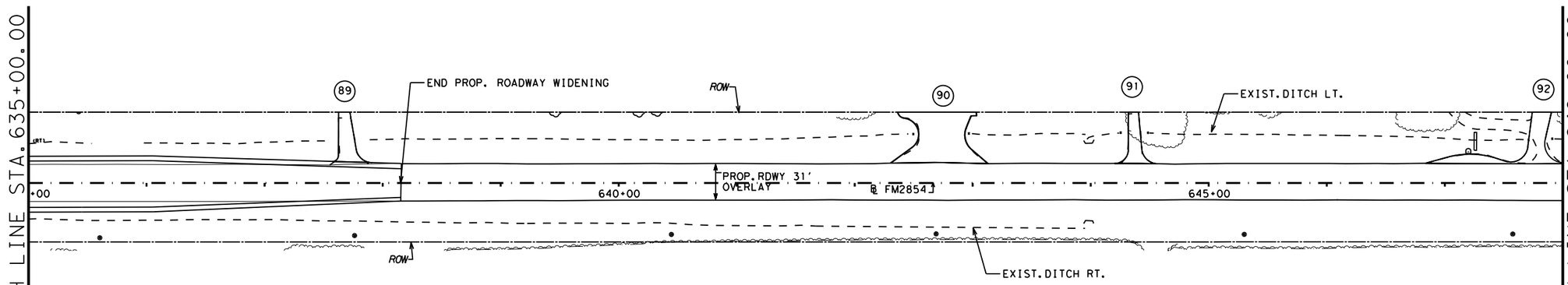
05.24.22

FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 39 OF 55

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		89



LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
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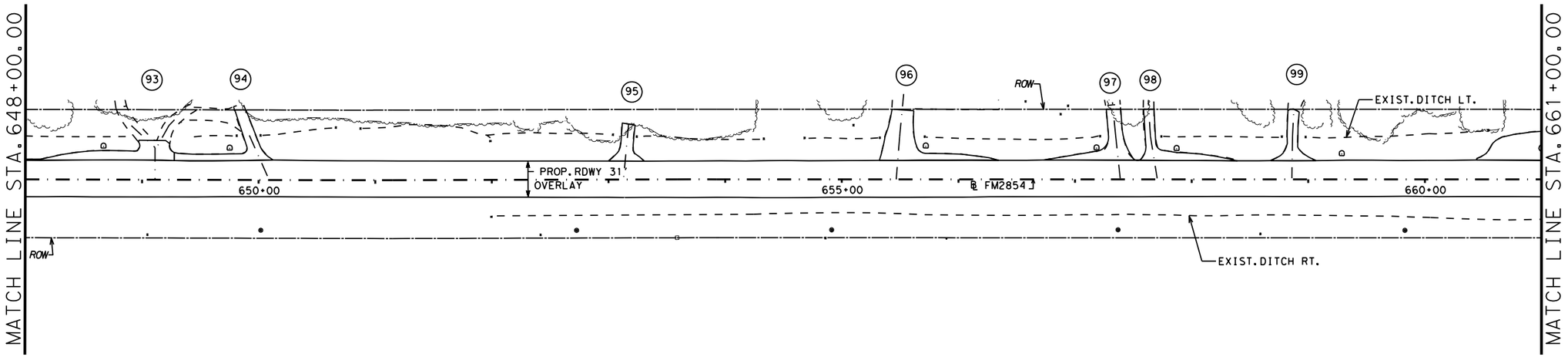
FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 40 OF 55

®2020 Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		90



LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
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Micah J. Schluter, P.E.
05.24.22

FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 41 OF 55

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		91

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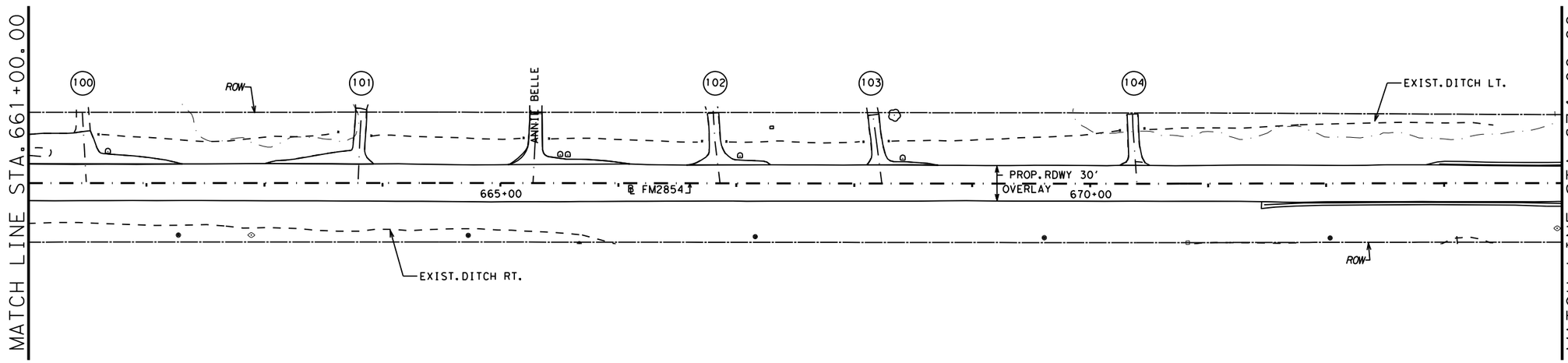

LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
MICAH J. SCHLUTER
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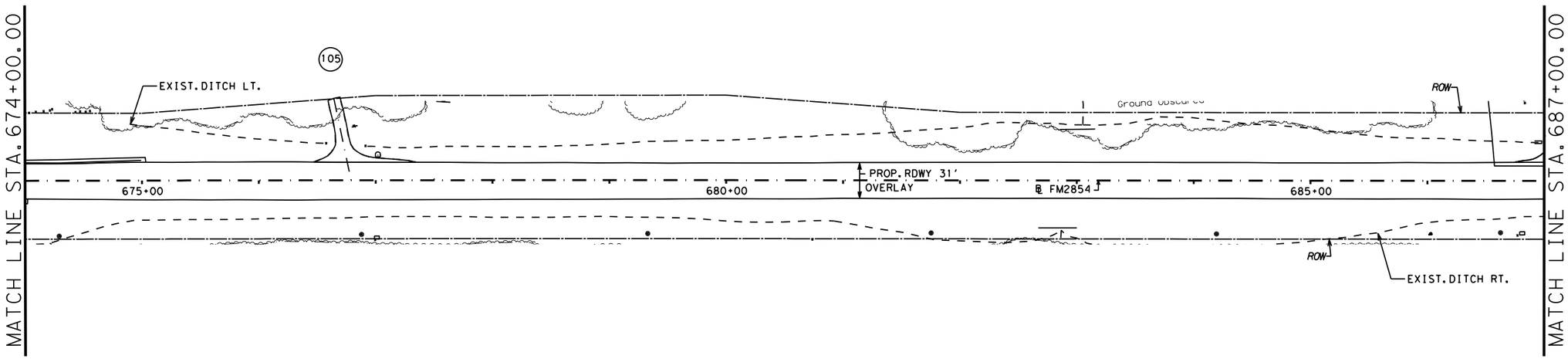
05.24.22

FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 42 OF 55

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		92



LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
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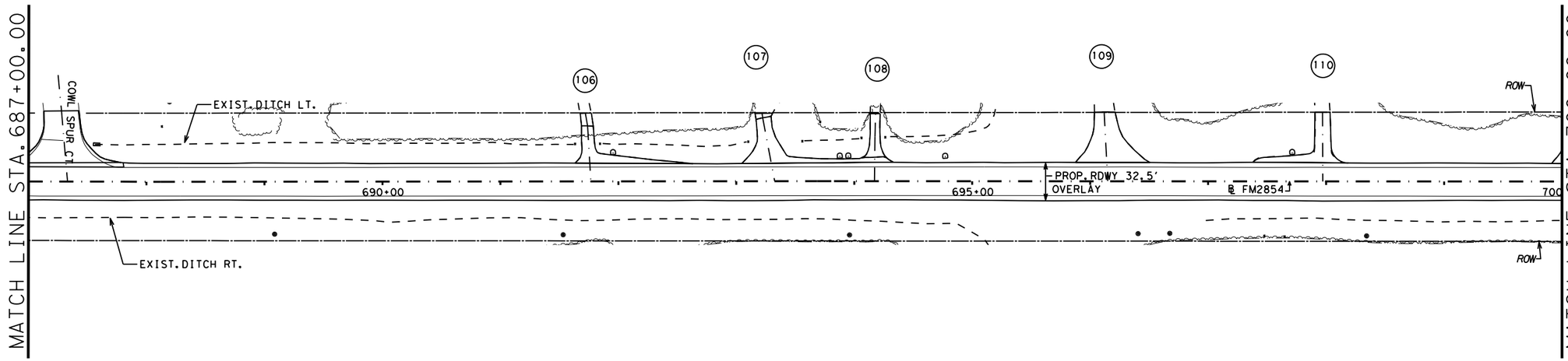
Micah J. Schluter, P.E.
05.24.22

FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 43 OF 55

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		93



LEGEND

PROP. ROADWAY/DRIVEWAY

CENTER LINE

EXIST. ROW

(#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
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05.24.22

FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 44 OF 55

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Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		94

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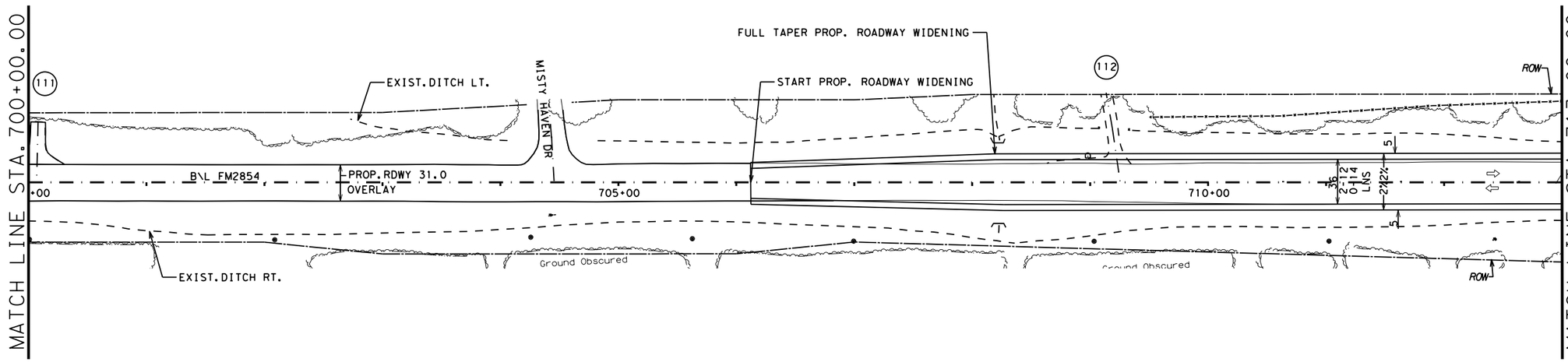

LEGEND

PROP. ROADWAY/DRIVEWAY

CENTER LINE

EXIST. ROW

(#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
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05.24.22

FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 45 OF 55

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		95

DATE: 05/17/2022 05:23 PM
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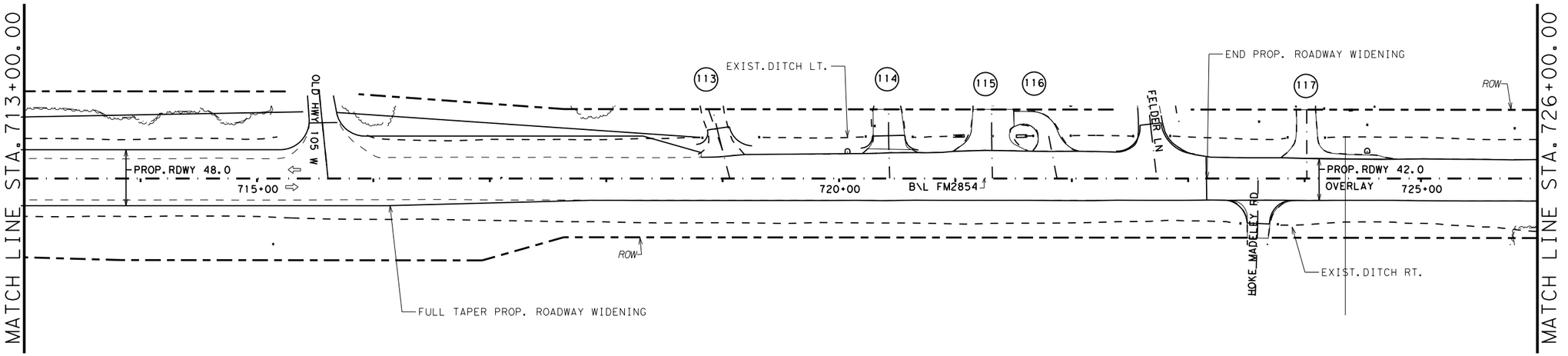

LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
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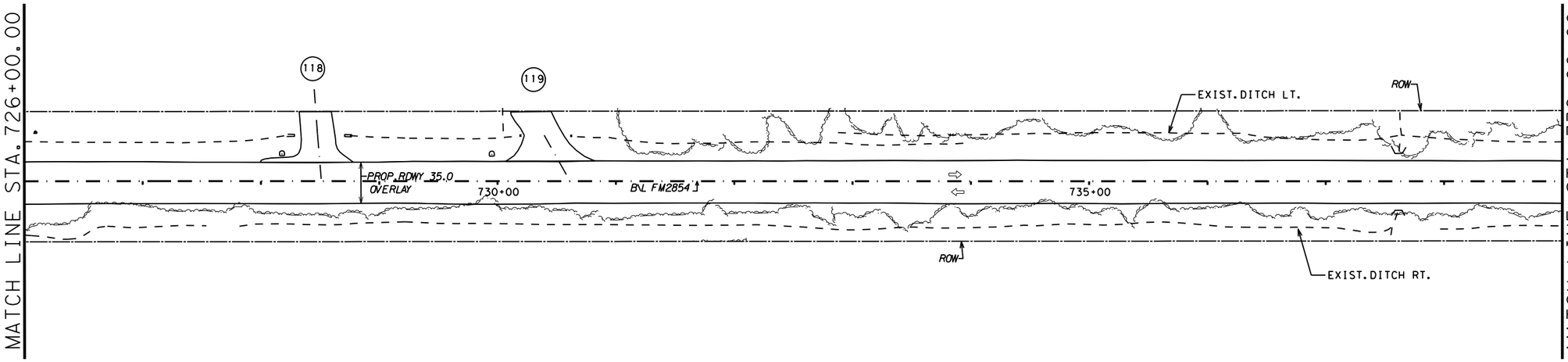
Micah J. Schluter, P.E.
05.24.22

FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 46 OF 52

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		96



LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

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SCALE IN FEET

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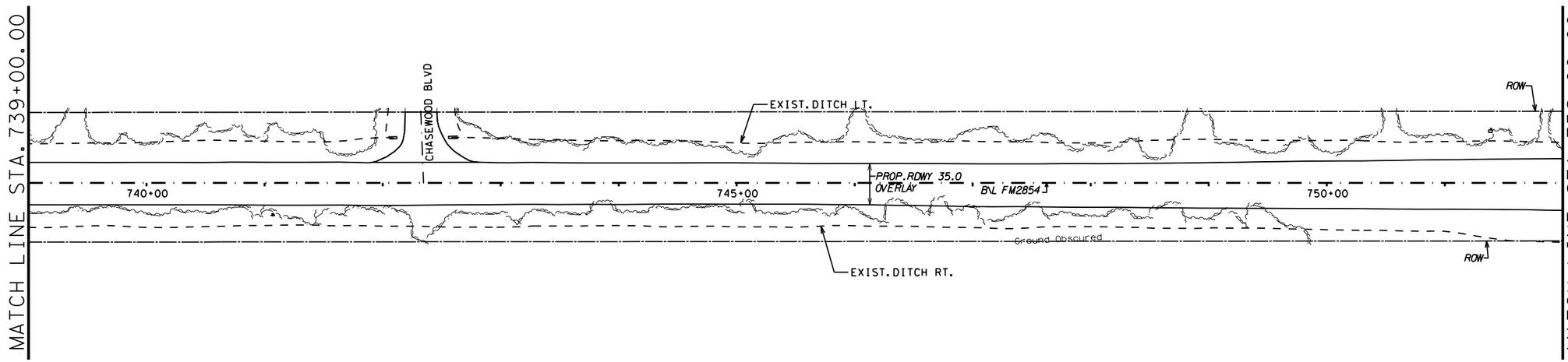
05.24.22

FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 47 OF 55

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		97



LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

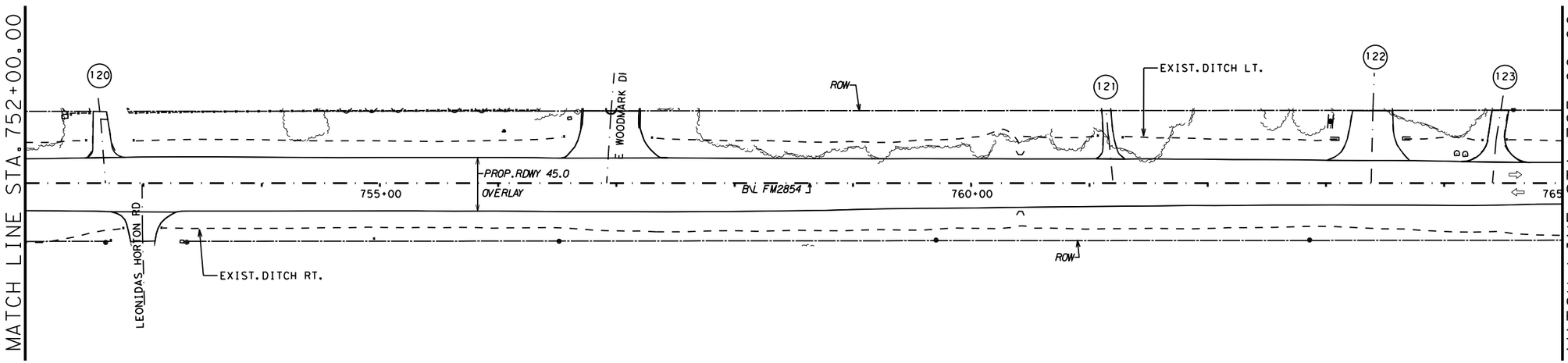
Micah J. Schluter, P.E.
05.24.22

FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 48 OF 55

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		98



LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

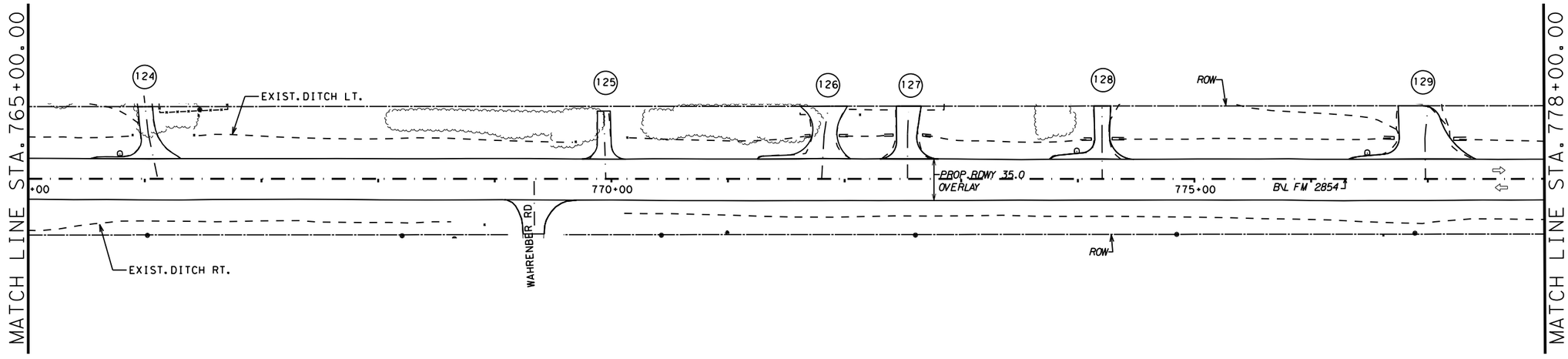
Micah J. Schluter P.E.
05.24.22

FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 49 OF 55

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		99



LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

Micah J. Schluter, P.E.
05.24.22

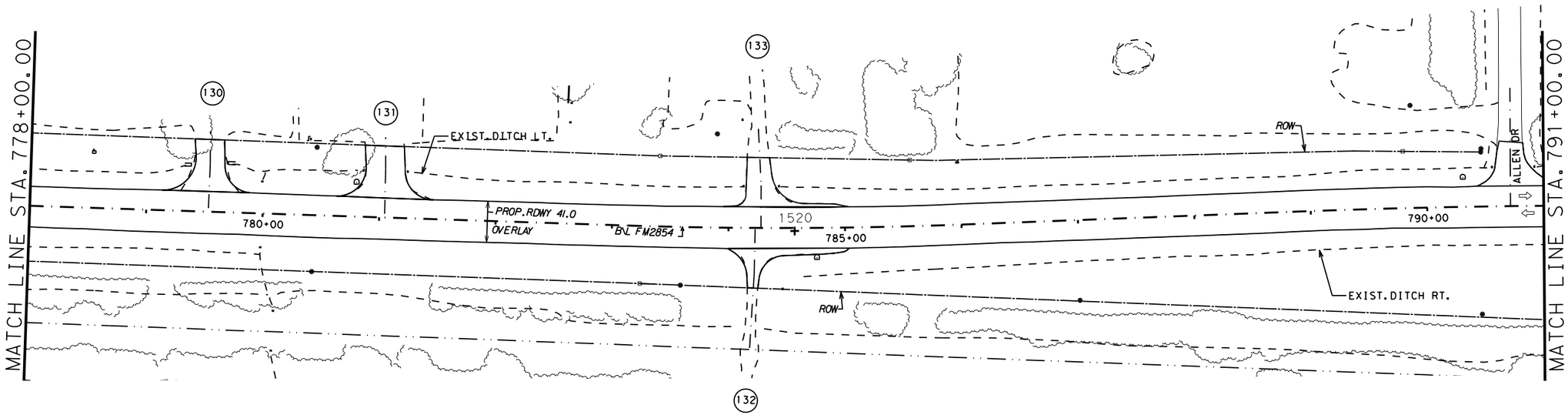
FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 50 OF 55

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		100

DATE: 05/17/2022 05:37 PM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT3\Documents\12 - HOU\Design Projects\2744010324 - Design\Plan Set\3. Roadway\100 FM2854 PROPOSED ROADWAY LAYOUT SHEET 50 OF 55.dgn



LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

Micah J. Schluter, P.E.

05.24.22

FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 51 OF 55

®2020

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		101

DATE: 05/17/2022 05:40 PM
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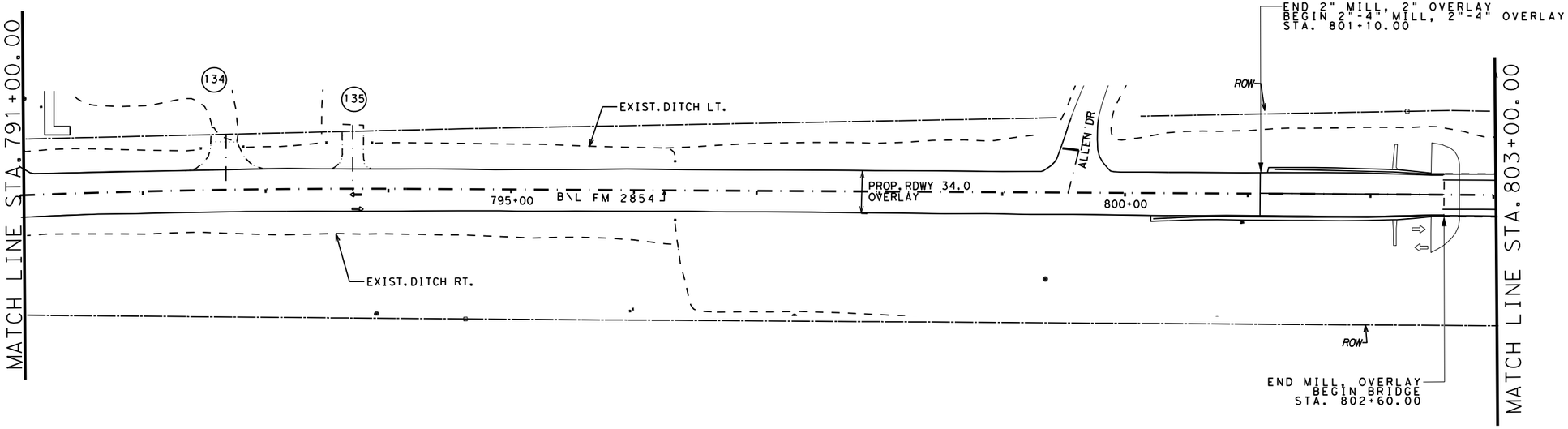


LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

Micah J. Schluter, P.E.
05.24.22

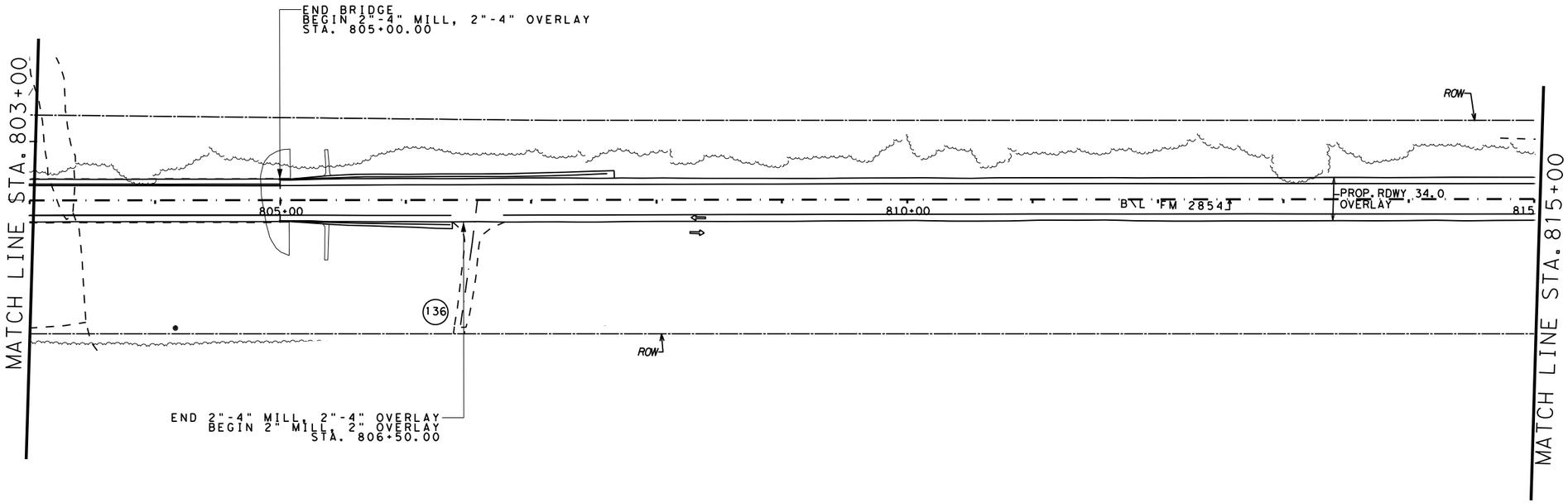
FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 52 OF 55

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		102

DATE: 05/18/2022 06:38 PM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT3\Documents\12 - HOU\Design Projects\274401032\4 - Design\Plan Set\3. Roadway\102 FM2854 PROPOSED ROADWAY LAYOUT SHEET 52 OF 55.dgn



LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST. ROW
- (#) PROP. DRIVEWAY

NOTES:

1. SEE FM 2854 INTERSECTION QUANTITIES
2. SEE FM 2854 DRIVEWAY QUANTITIES
3. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

Micah J. Schluter, P.E.
05.24.22

FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 53 OF 55

®2020

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		102A

DATE: 05/18/2022 06:38 PM
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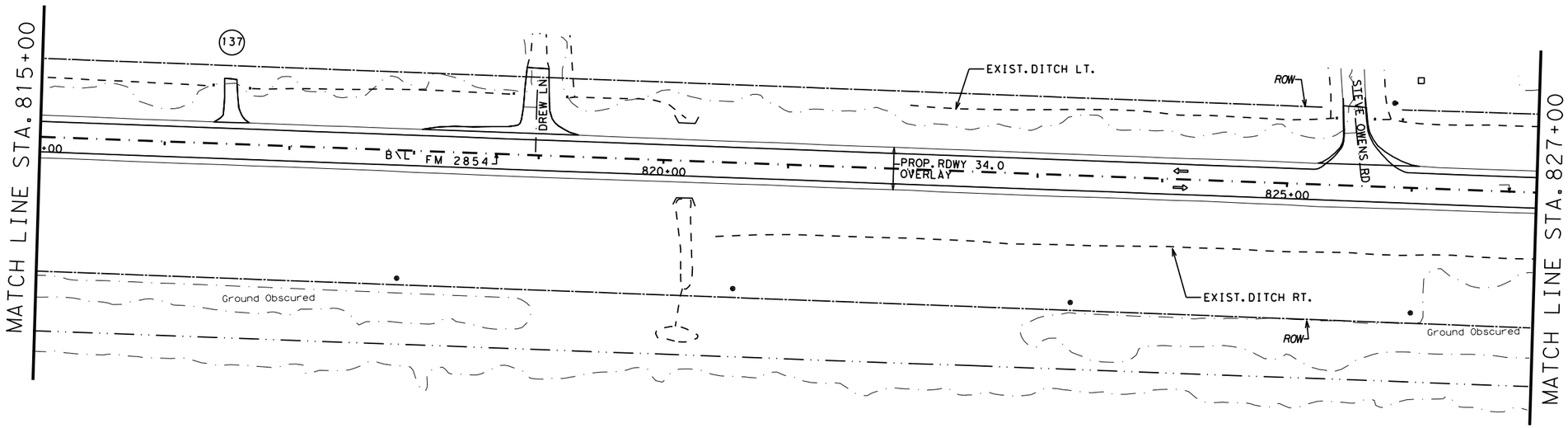

LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST ROW
- (#) PROPOSED DRIVEWAY

NOTES:

1. SEE SL 336 DRIVEWAY & INTERSECTION QUANTITIES.
2. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

Micah J. Schluter, P.E.
05.24.22

FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 54 OF 55

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		102B

DATE: 05/18/2022 05:41 PM
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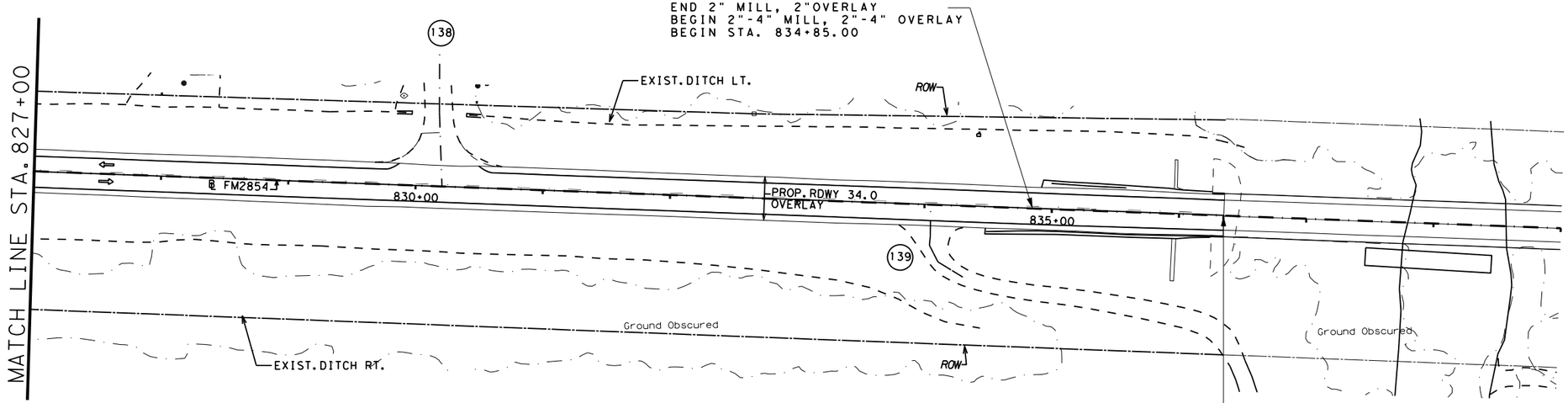

END 2"-4" MILL, 2"-4" OVERLAY
AND OCST
END STA. 836+35.00

LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST ROW
- (#) PROPOSED DRIVEWAY

NOTES:

1. SEE SL 336 DRIVEWAY & INTERSECTION QUANTITIES.
2. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

Micah J. Schluter, P.E.
05.24.22

FM 2854
PROPOSED ROADWAY LAYOUT

SHEET 55 OF 55

®2020
Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		102C

DATE: 05/18/2022 06:37 PM
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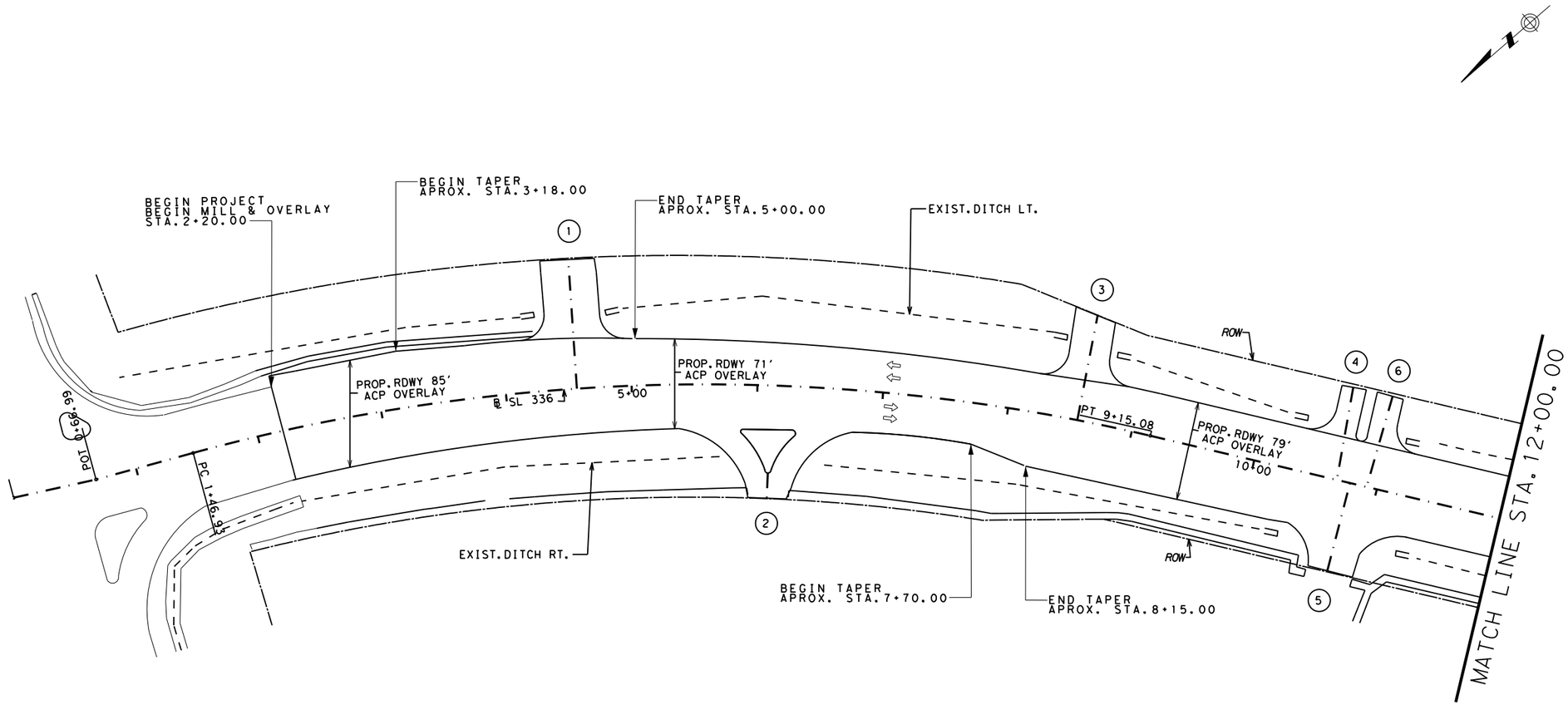


LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST ROW
- (#) PROPOSED DRIVEWAY

NOTES:

1. SEE SL 336 DRIVEWAY & INTERSECTION QUANTITIES.
2. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

Micah J. Schluter P.E.
05.24.22

SL 336
PROPOSED ROADWAY LAYOUT

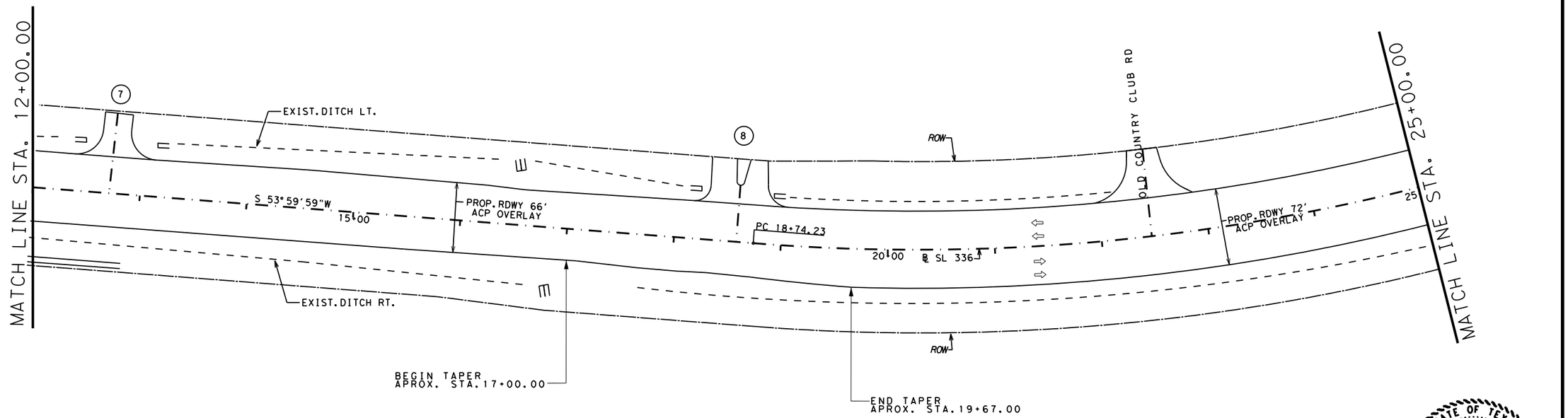
SHEET 1 OF 3

®2020

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		103

DATE: 05/18/2022 07:10 AM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT3\Documents\12 - HOU\Design Projects\274401032\4 - Design\Plan Set\3. Roadway\103 SL 336 PROPOSED ROADWAY LAYOUT SHEET 1 OF 3.dgn



LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST ROW
- (#) PROPOSED DRIVEWAY

NOTES:

1. SEE SL 336 DRIVEWAY & INTERSECTION QUANTITIES.
2. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

Micah J. Schluter, P.E.

05.24.22

SL 336
PROPOSED ROADWAY LAYOUT

SHEET 2 OF 3

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		104

DATE: 05/18/2022 07:19 AM
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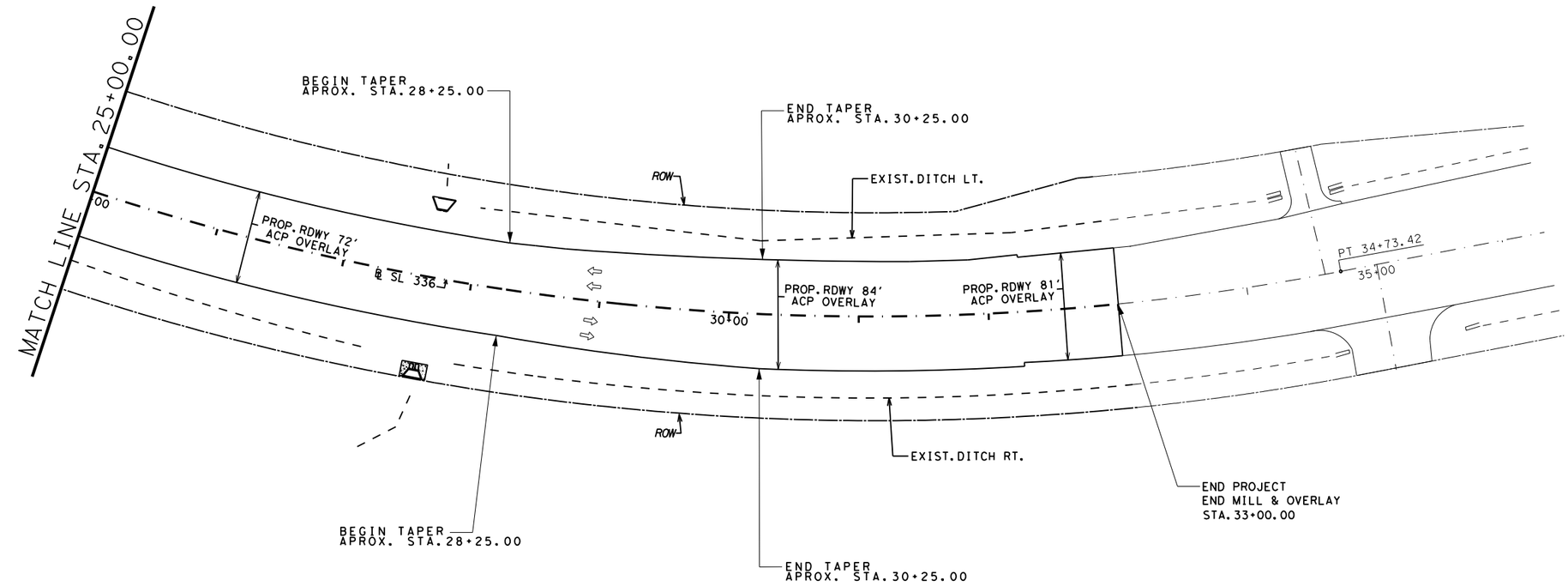

LEGEND

- PROP. ROADWAY/DRIVEWAY
- CENTER LINE
- EXIST ROW
- (#) PROPOSED DRIVEWAY

NOTES:

1. SEE SL 336 DRIVEWAY & INTERSECTION QUANTITIES.
2. MILL & OVERLAY INTERSECTIONS AND DRIVEWAYS TO ENSURE A SMOOTH TRANSITION AT EOP AND ROW.

0 50 100
SCALE IN FEET

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

Micah J. Schluter P.E.
05.24.22

SL 336
PROPOSED ROADWAY LAYOUT

SHEET 3 OF 3

®2020
Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		105

DATE: 05/18/2022 07:29 AM
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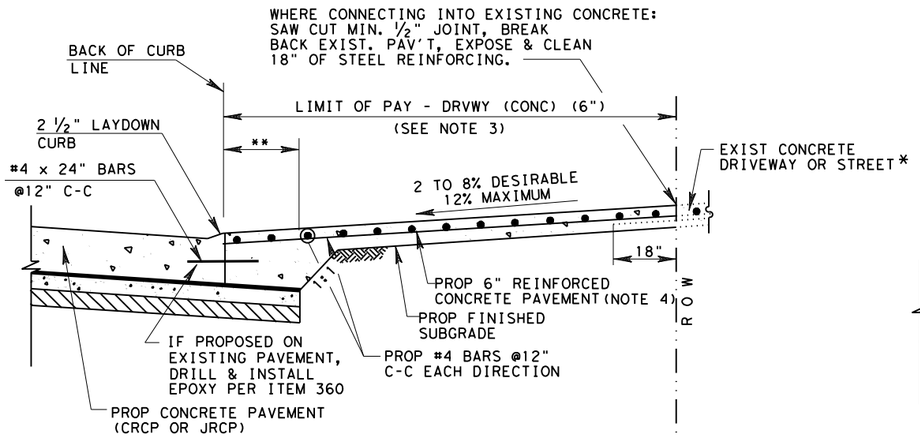
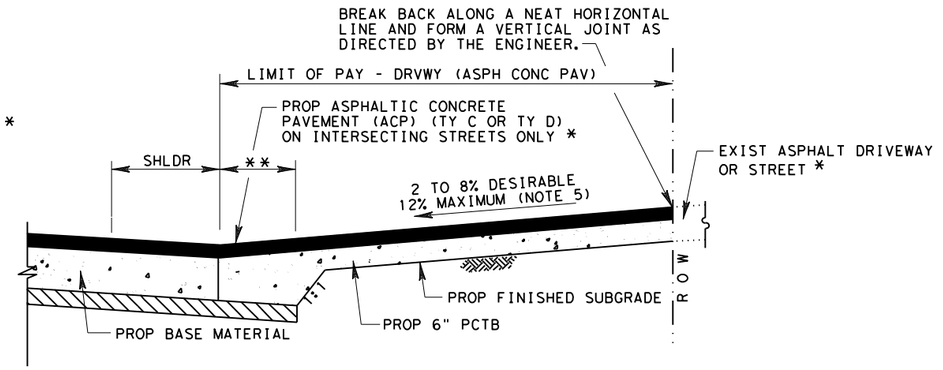
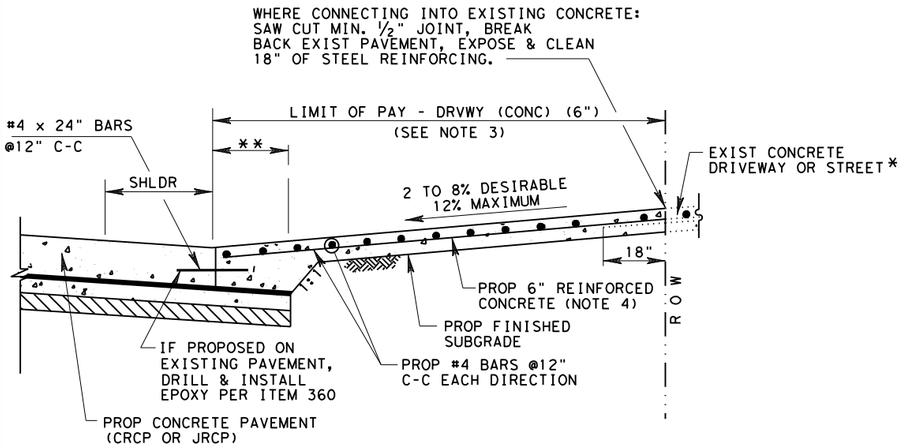


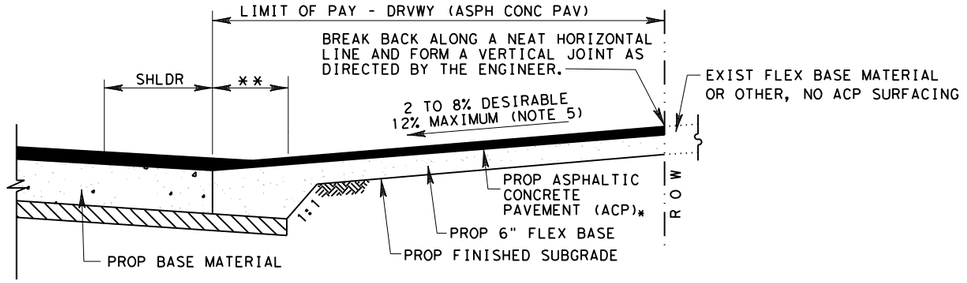
PROPOSED DRIVEWAY DETAIL
REINFORCED CONCRETE AT CONCRETE
CURB AND GUTTER ROADWAY



PROPOSED DRIVEWAY DETAIL
ASPHALT W/ PCTB AT ASPHALT ROADWAY



PROPOSED DRIVEWAY DETAIL
REINFORCED CONCRETE AT CONCRETE ROADWAY



PROPOSED DRIVEWAY DETAIL
ASPHALT W/ FLEX BASE AT ASPHALT ROADWAY

NOTES:

1. ALSO SEE SHEET 2 OF 2 FOR DRIVEWAY SLOPES WITH PROPOSED SIDEWALKS.
2. FOR INTERSECTIONS BUILT WITH CRCP PAVEMENT SEE CRCP DETAIL.
3. FAST TRACK CONCRETE IS PAID AS DRVWY (CONC) (FAST TRACK).
4. THICKNESS OF DRIVEWAY IS 6 INCHES FOR REGULAR AND FAST TRACK CONCRETE.
5. MAXIMUM SLOPE IS: 12% RESIDENTIAL
   8% OTHERS

LEGEND:

PCTB- PORTLAND CEMENT TREATED BASE

JRCP- JOINTED REINFORCED CONCRETE PAVEMENT

CRCP- CONTINUOUSLY REINFORCED CONCRETE PAVEMENT

ACP- ASPHALTIC CONCRETE PAVEMENT

* FOR STREET INTERSECTIONS REFER TO PAVING DETAILS AND INTERSECTION DETAILS FOR REINFORCING STEEL AND SECTION REQUIREMENTS.

** PROPOSED LIMIT OF ROADWAY BASE AND/OR SUBGRADE

SHEET 1 OF 3

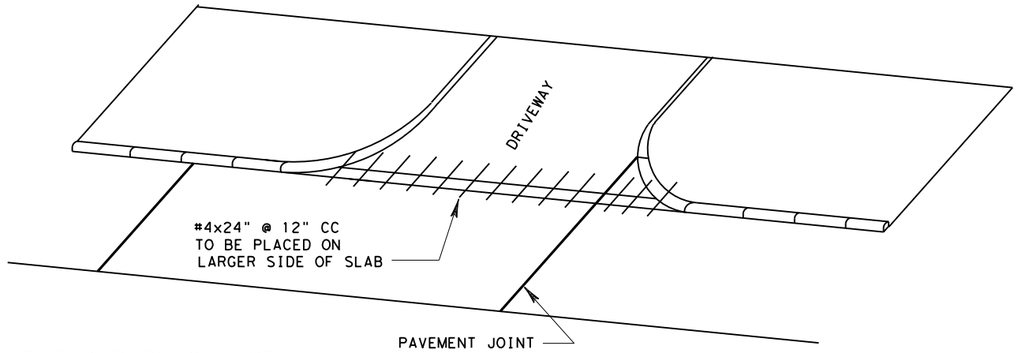
Texas Department of Transportation
Houston District

DRIVEWAY DETAILS

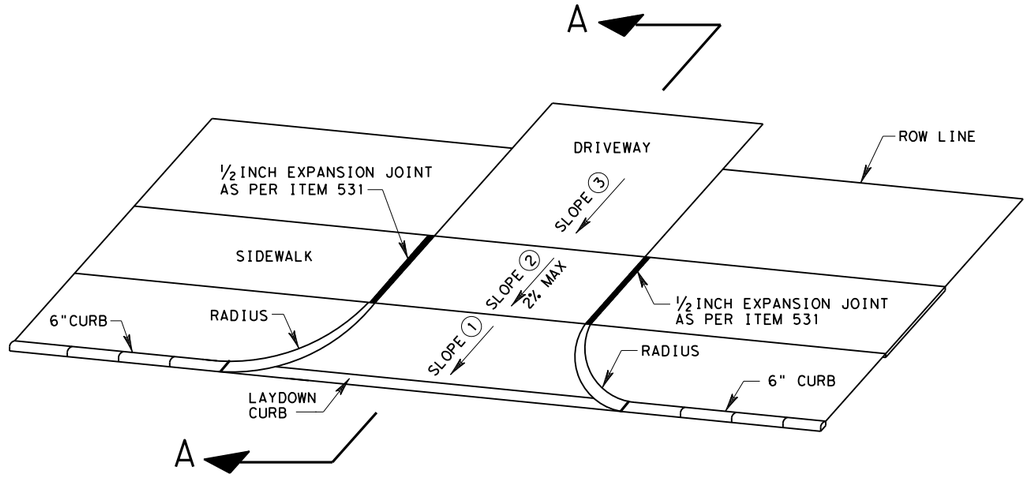
DD

FILE: STDB-8a.dgn	DN:	CK:	DW:	CK:		
© TxDOT SEPT. 2004	DIST	FED REG	PROJECT NO.			SHEET
REVISIONS 11/15 ADDED NOTE FOR PCTB 3/17 MODIFIED PAVEMENT SLOPES	HOU	6				106
	COUNTY		CONTROL	SECT	JOB	HIGHWAY
	MONTGOMERY		2744	01	032	FM 2854

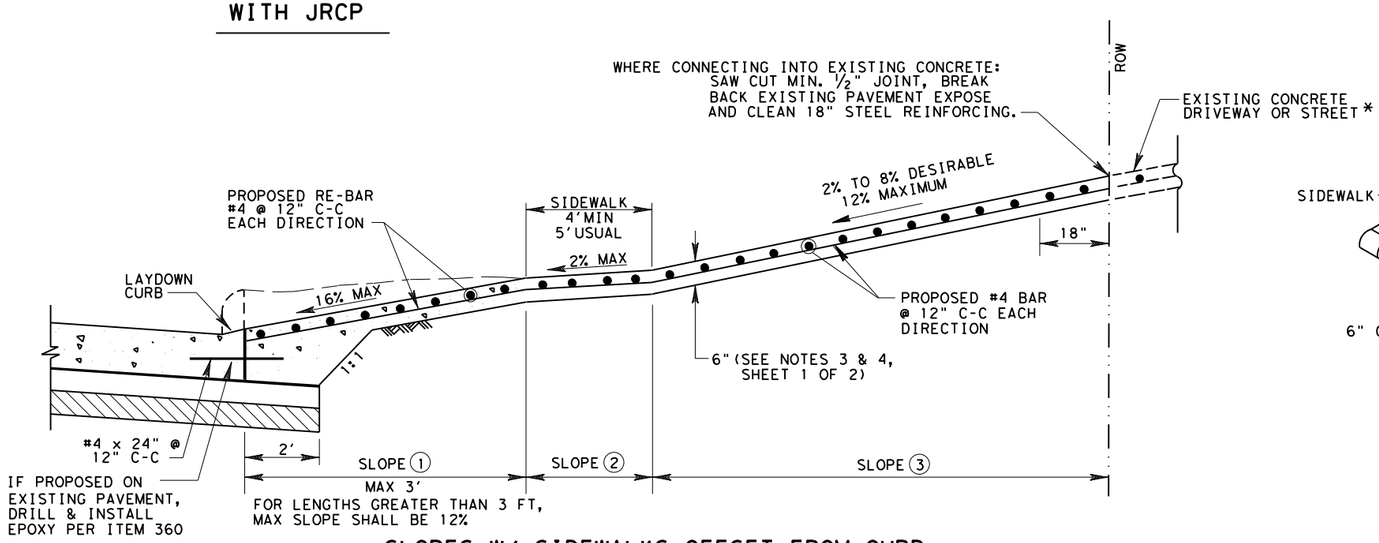
STDB8A



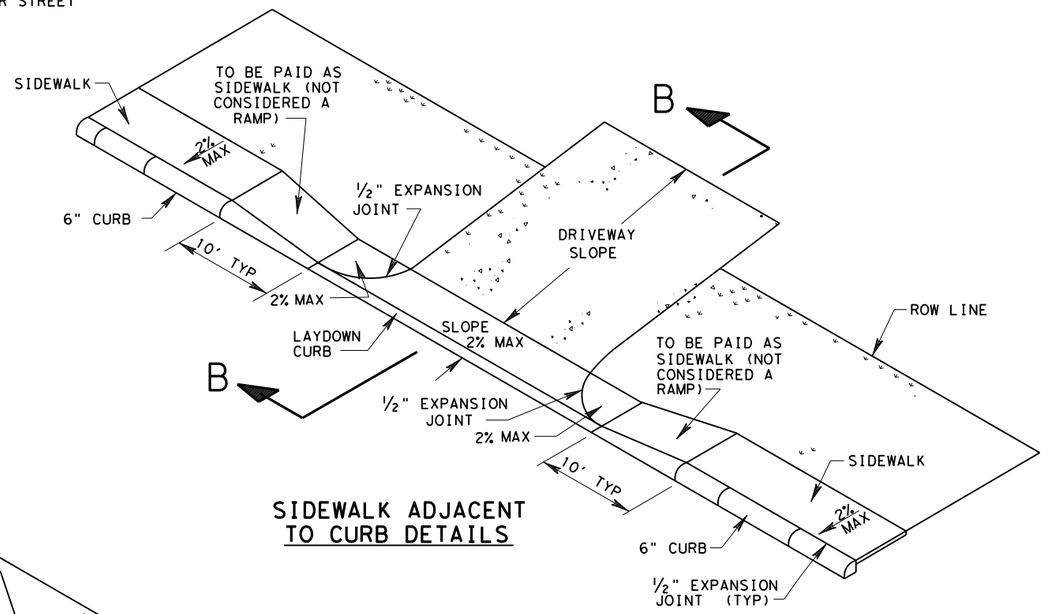
TIE BAR PLACEMENT WITH JRCP



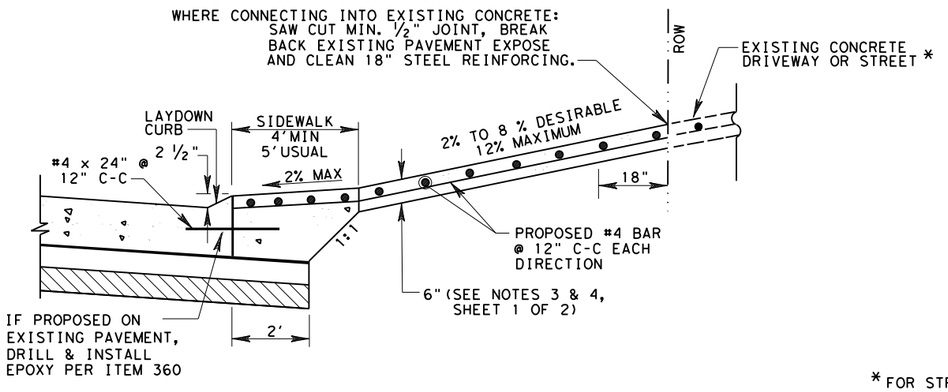
SIDEWALK OFFSET FROM CURB DETAILS



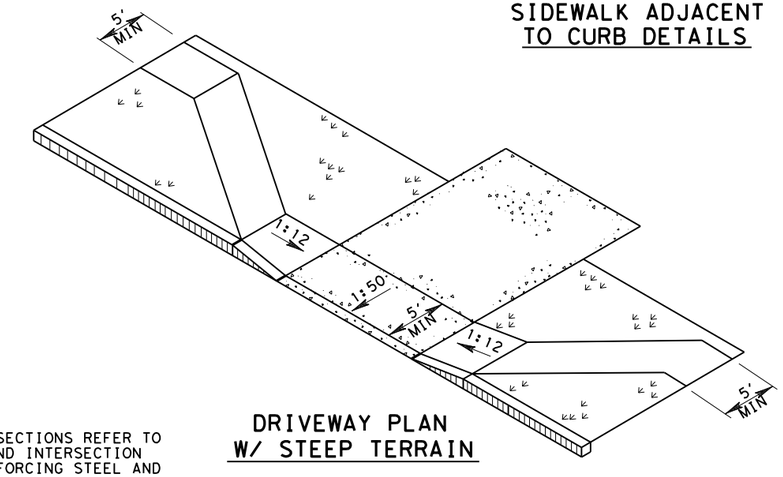
SLOPES W/ SIDEWALKS OFFSET FROM CURB (SECTION A-A)



SIDEWALK ADJACENT TO CURB DETAILS



DRIVEWAY SLOPES W/ SIDEWALKS ADJACENT TO CURB (SECTION B-B)



DRIVEWAY PLAN W/ STEEP TERRAIN

* FOR STREET INTERSECTIONS REFER TO PAVING DETAILS AND INTERSECTION DETAILS FOR REINFORCING STEEL AND SECTION REQUIREMENTS.

SHEET 2 OF 3

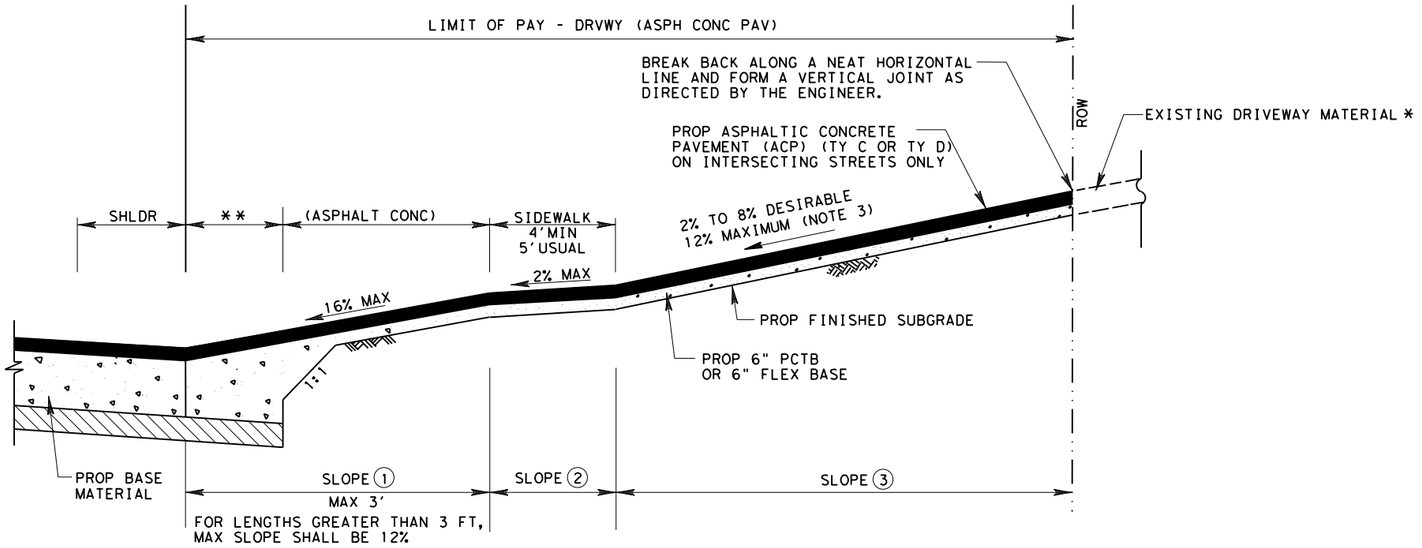
Texas Department of Transportation
Houston District

DRIVEWAY DETAILS

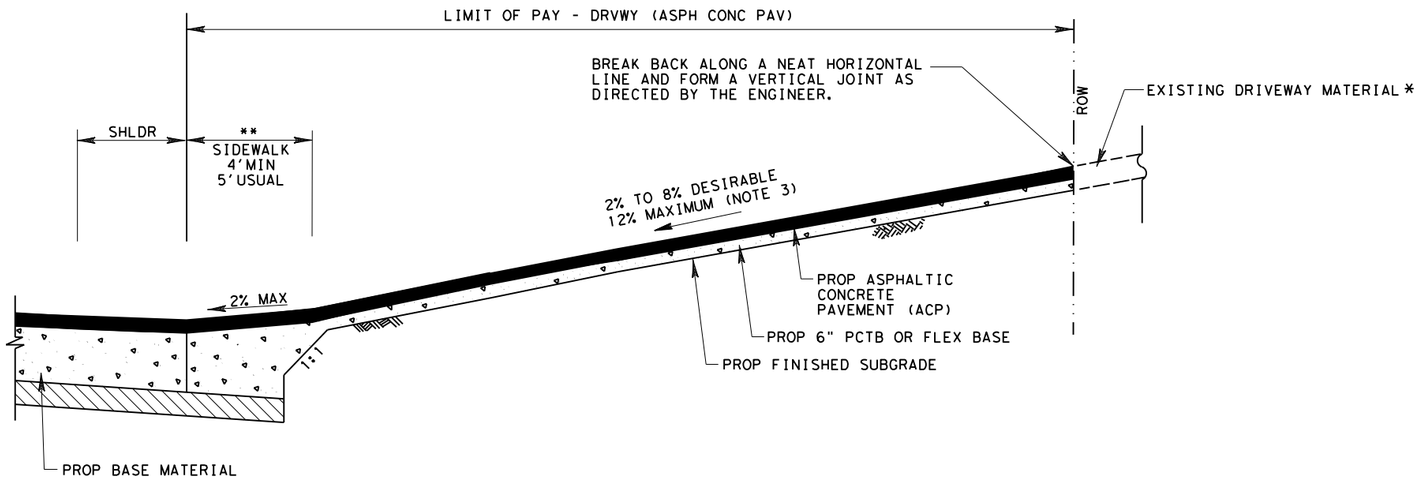
DD

FILE: STDB-8b.dgn	DN:	CK:	DW:	CK:
© TxDOT SEPT. 2004	DIST	FED REG	PROJECT NO.	SHEET
REVISIONS 9/09 ADDED NOTE FOR ITEM 360. 11/15 ADDED NOTE FOR PCTB	HOU	6		107
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	MONTGOMERY	2744	01	032	FM 2854

STDB8B



PROPOSED DRIVEWAY SLOPES
WITH SIDEWALKS OFFSET



PROPOSED DRIVEWAY SLOPES
WITH SIDEWALKS ADJACENT

NOTES:

1. ALSO SEE SHEET 2 OF 3 FOR DRIVEWAY SLOPES WITH PROPOSED SIDEWALKS.
2. FOR INTERSECTIONS BUILT WITH CRCP PAVEMENT SEE CRCP DETAIL.
3. MAXIMUM SLOPE IS: 12% RESIDENTIAL 8% OTHERS

LEGEND:

PCTB- PORTLAND CEMENT TREATED BASE

ACP- ASPHALTIC CONCRETE PAVEMENT

* FOR STREET INTERSECTIONS REFER TO PAVING DETAILS AND INTERSECTION DETAILS.

** PROPOSED LIMIT OF ROADWAY BASE AND/OR SUBGRADE

Texas Department of Transportation
Houston District

DRIVEWAY DETAILS

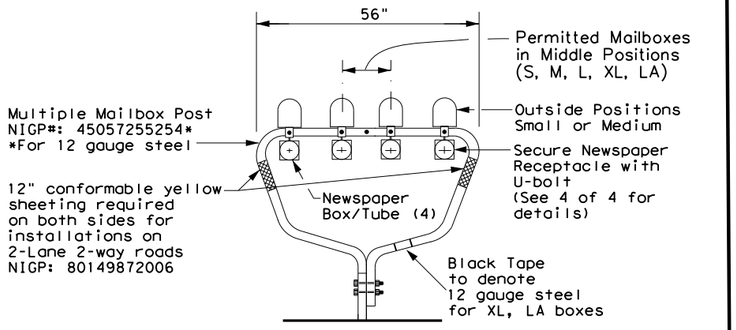
DD

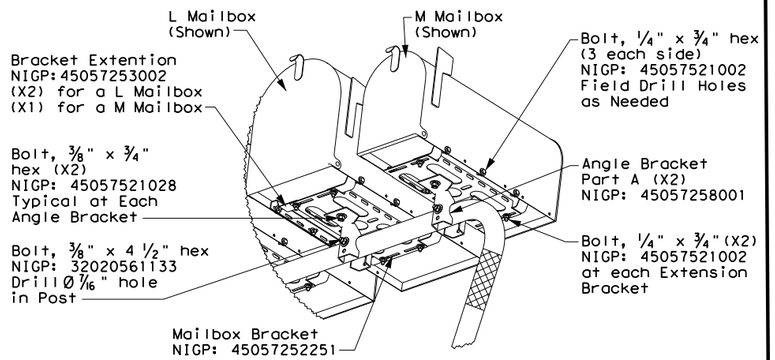
FILE: STDB-8c.dgn	DN:	CK:	DW:	CK:		
© TxDOT SEPT. 2004	DIST	FED REG	PROJECT NO.			SHEET
REVISIONS 11/15 ADDED NOTE FOR PCTB 3/17 MODIFIED PAVEMENT SLOPES	HOU	6				108
	COUNTY		CONTROL	SECT	JOB	HIGHWAY
	MONTGOMERY		2744	01	32	FM 2854

STDB8C

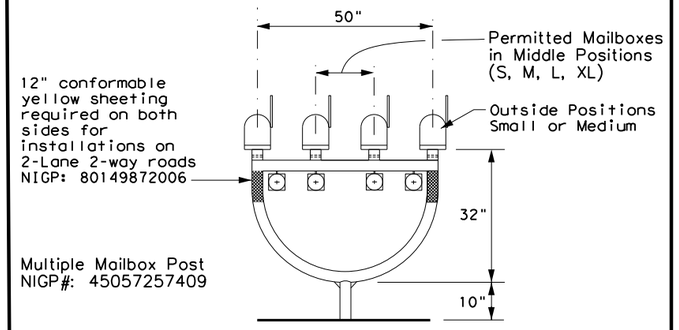
DATE:
FILE:

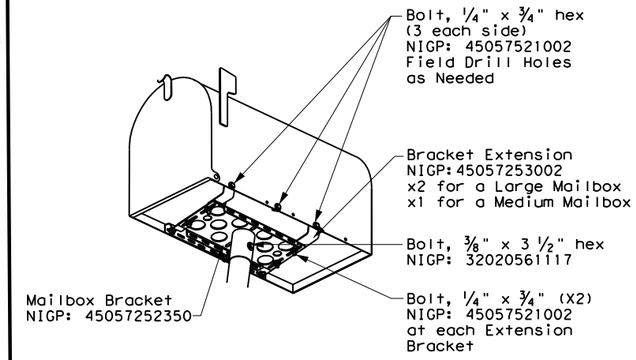
TYPE 1 - MULTIPLE





TYPE 4 - MULTIPLE





MAILBOX SIZES

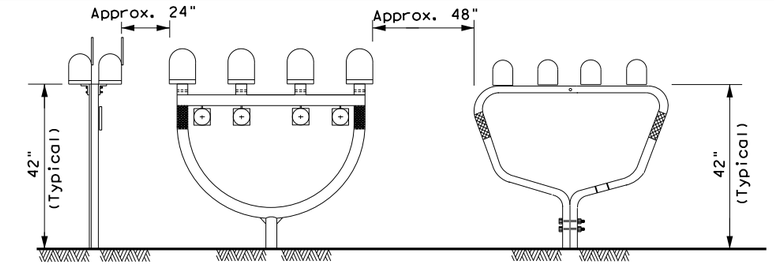
MAILBOX SIZE	TYPICAL DIMENSIONS			MAX **
	LENGTH	WIDTH	HEIGHT	WEIGHT
SMALL	19 1/2"	6"	7"	6 LBS
MEDIUM	22 1/2" *	8" *	11 1/2" *	8 LBS
LARGE	23 1/2"	11 1/2"	13 1/2"	11 LBS
EXTRA LARGE	18"	14"	12"	13 LBS
LOCKABLE	18"	11 1/2"	15"	23 LBS

* 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.

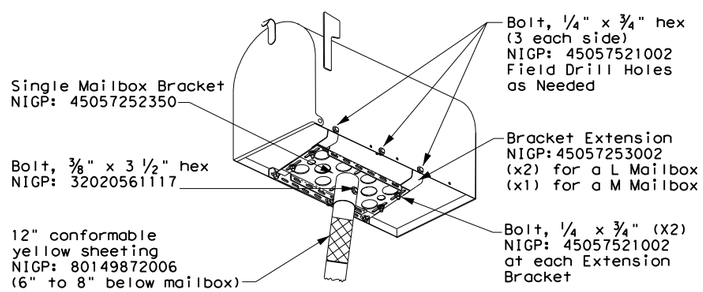
TYPICAL INSTALLATION MEASUREMENTS

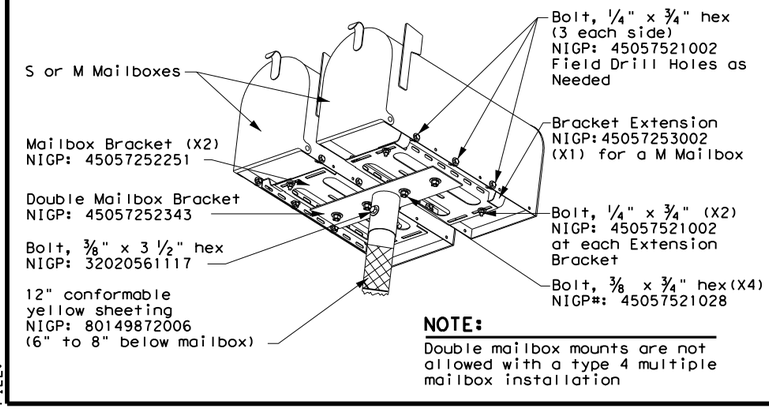


NOTE:

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

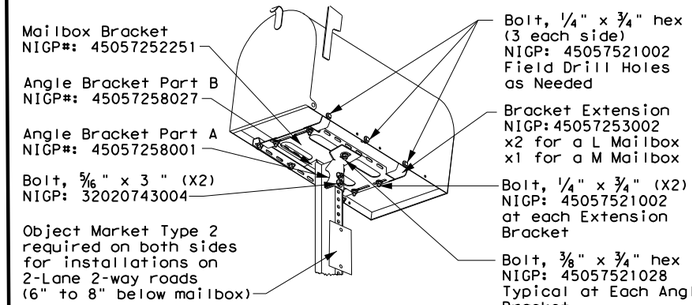


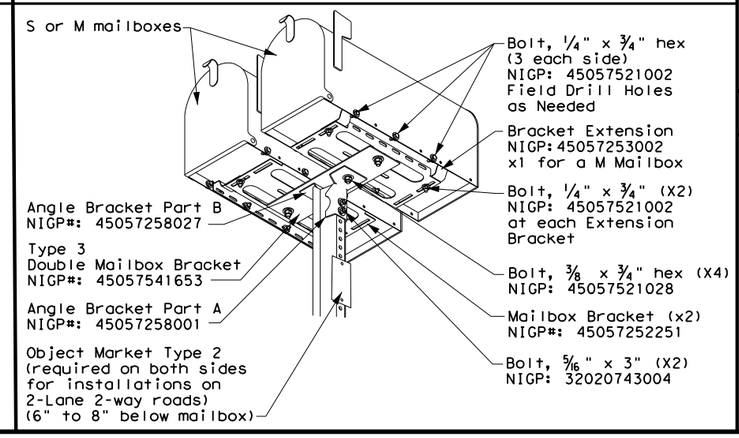


NOTE:

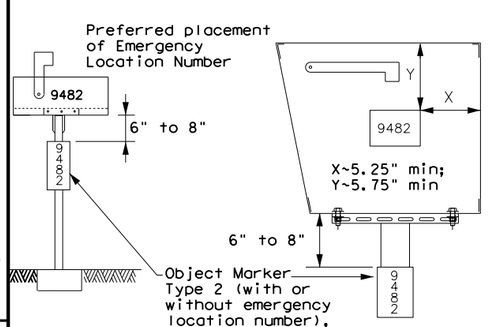
Double mailbox mounts are not allowed with a type 4 multiple mailbox installation

TYPE 3 - SINGLE/DOUBLE





PLACEMENT OF EMERGENCY LOCATION NUMBER

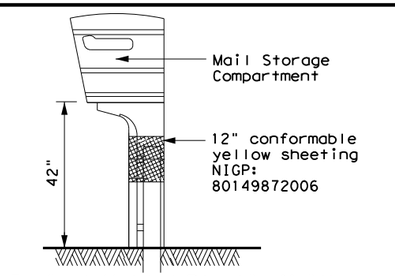


NOTES:

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

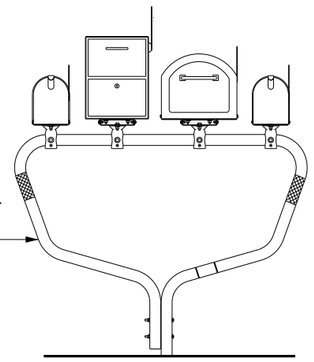
MAILBOX MOUNTING AND ASSEMBLY

MB(1)-21

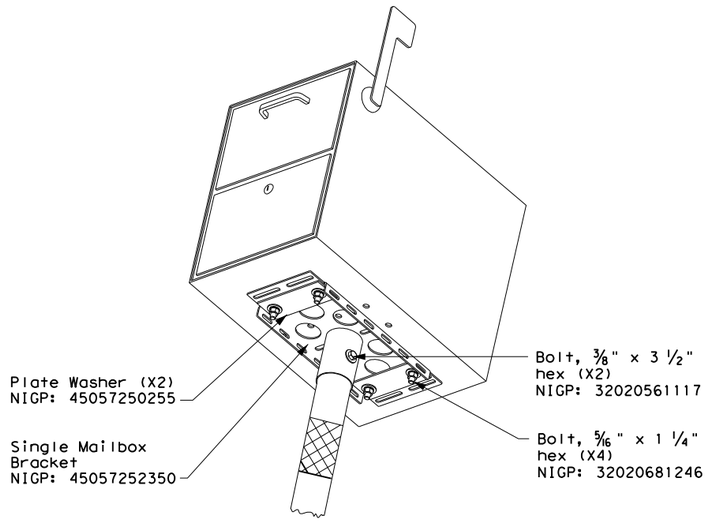
FILE: MB-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT March 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS 2/2005 11/2009 4/2015 6/2005 1/2011 11/2006 7/2014	2744	01	032	FM 2854
	DIST	COUNTY		SHEET NO.
	HOU	MONTGOMERY		108A

DATE:
FILE:

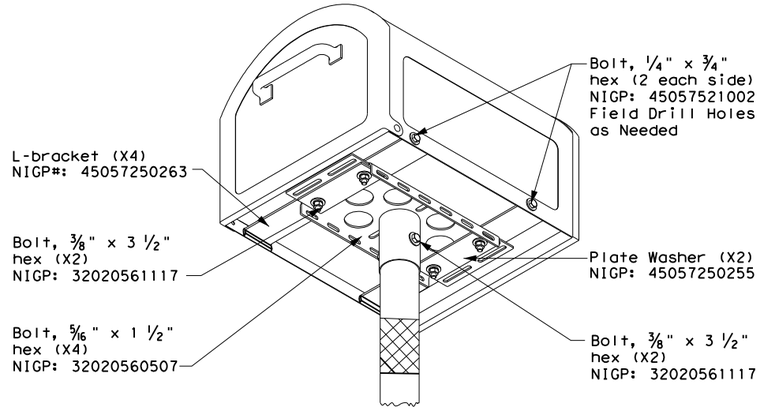
TYPE 1- MULTI LOCKABLE AND XL MAILBOX



TYPE 2/4 - SINGLE LOCKABLE MAILBOX

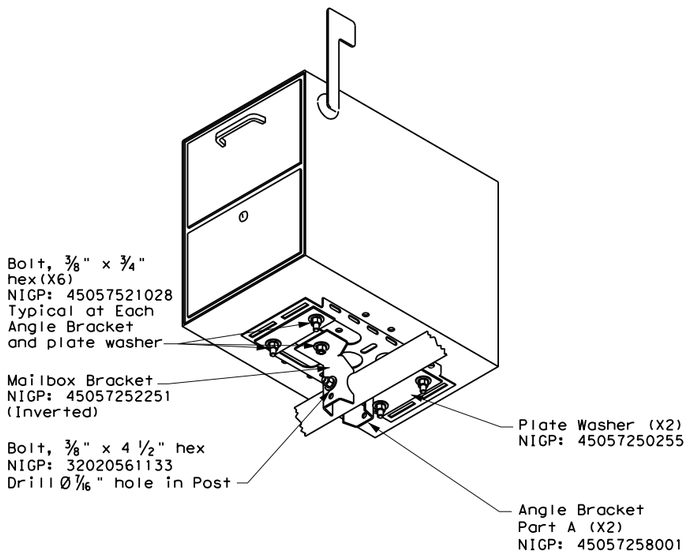


TYPE 2/4 - SINGLE XL MAILBOX

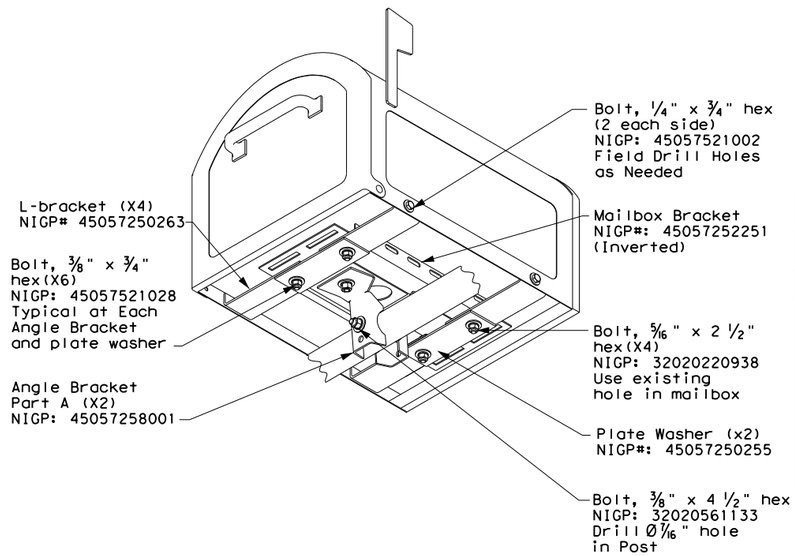


NOTE:
Follow same configuration when mounting an XL mailbox on a Type 4 multi post.

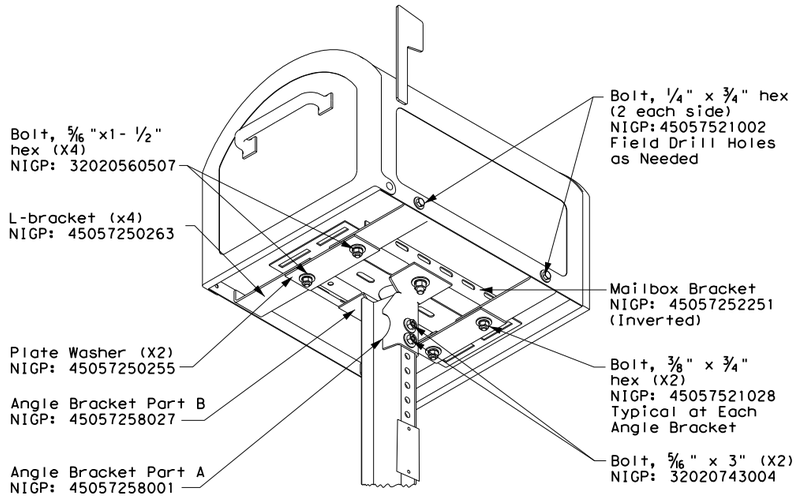
TYPE 1 MULTI – LOCKABLE ARCHITECTURAL (LA)



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
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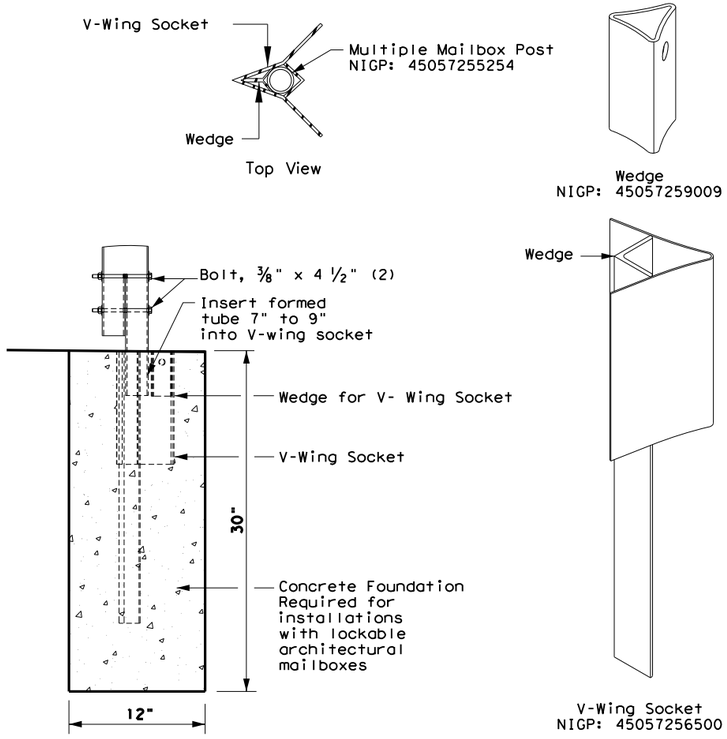
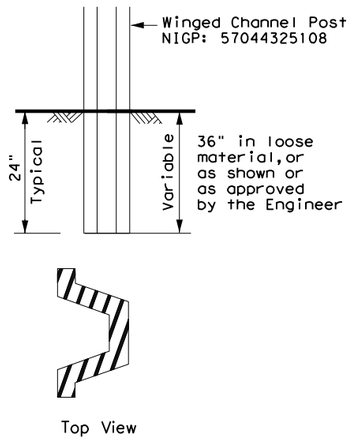
REVISIONS 2/2005 11/2009 4/2015 6/2005 1/2011 11/2006 7/2014	2744	01	032	FM 2854
	DIST	COUNTY		SHEET NO.
	HOU	MONTGOMERY		108B

DATE:
FILE:

TYPE 1 - SUPPORT/FOUNDATION
Thin Wall Tube w/ V-LOC Anchorage



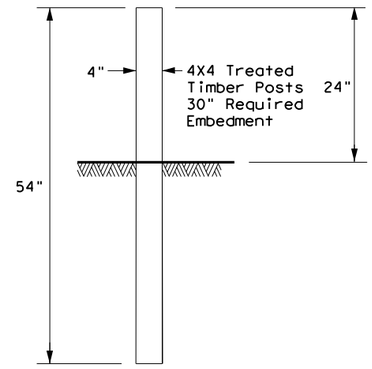
TYPE 3 - SUPPORT/FOUNDATION



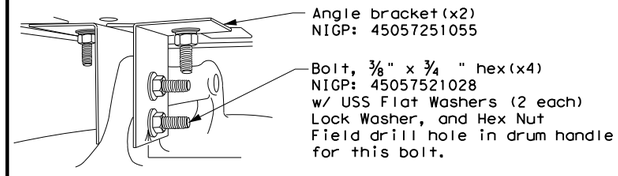
NOTES:

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



TYPE 6 - TEMPORARY MAILBOX SUPPORT



Plastic Drum NIGP: 55093383655
Rubber Collar NIGP: 55093387102

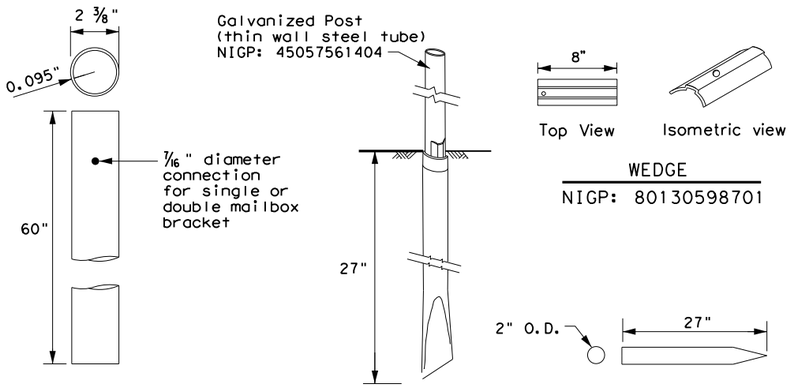
NOTES:

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

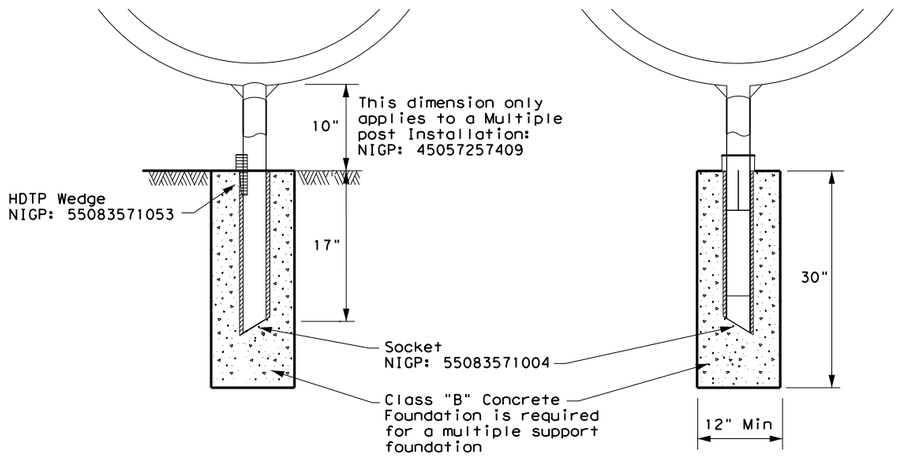
TYPE 2 - SUPPORT/FOUNDATION
Thin Wall Steel Tube w/Wedge Anchor System



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:
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REVISIONS 2/2005 11/2009 4/2015 6/2005 1/2011 11/2006 7/2014	2744	01	032	FM 2854
	DIST	COUNTY		SHEET NO.
	HOU	MONTGOMERY		108C

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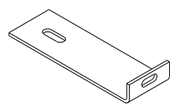
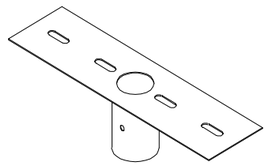
DATE:
FILE:

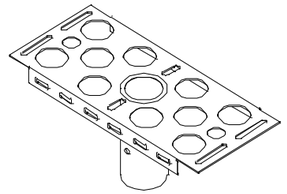
TYPE	TYPE 1	TYPE 2	TYPE 3	TYPE 4			TYPE 5	TYPE 6
Configuration	Multiple	Single or Double	Single or Double	Single	Double	Multiple	Single	Single
Mailbox Size NIGP #	Outside Position: S or M Inside Position: S, M, L, XL, or LA	Single: S, M, L, XL, or LA Double: SS, SM, MM	Single: S, M, L, or XL Double: 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



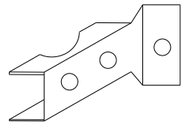
NIGP: 45057250263
L-Bracket x4 for
XL sized mailboxes



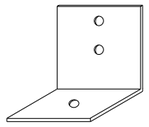
NIGP: 45057252343
Double Mailbox Bracket
For Type 2 and Type 4
double mount



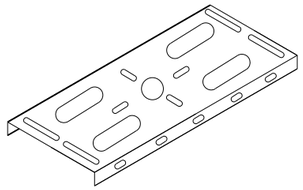
NIGP: 45057252350
Single Mailbox Bracket
For Type 2 single and for
Type 4 single and multi mount



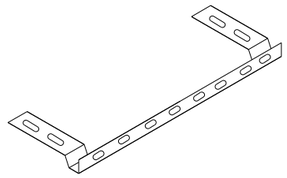
NIGP: 45057258001
Part "A" Angle Bracket
For Type 1 multi (2 per mailbox)
and Type 3 single and double



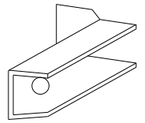
NIGP: 45057251055
Type 6 Angle Bracket
(2 per mailbox)



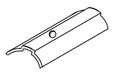
NIGP: 45057252251
Mailbox Bracket
For Type 1 multi and
any double mount (use 2)



NIGP: 45057253002
Bracket Extension
Use 1 for a medium Mailbox
Use 2 for a Large Mailbox



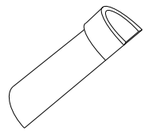
NIGP: 45057258027
Part "B" Angle Bracket
For Type 3 single
and double



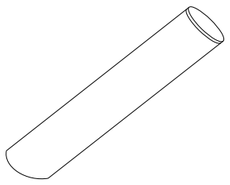
NIGP: 80130598701
Wedge for Type 2

NIGP: 45057250255
Plate Washer for Architecural
and XL Mailboxes

NIGP: 45057541653
Type 3 double mailbox bracket

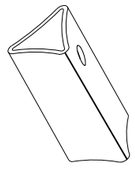


NIGP: 55083571053
Type 4 Mailbox Wedge

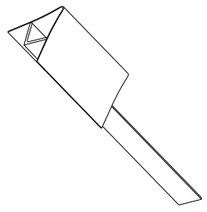


NIGP: 55083571004
Type 4 Mailbox Socket

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	2744	01	032	FM 2854
	DIST	COUNTY		SHEET NO.
	HOU	MONTGOMERY		108D

BEGIN PROJECT
CSJ 0179-01-049
STA. 128+52.00

BEGIN PAV MARKINGS
MATCH EXIST PAV MARKINGS

R3-7R 30X30
RIGHT LANE MUST TURN RIGHT

129+60

1

105 TEXAS
M1-6T 24X24
M6-4 21X15

132+52

2

DBL
G I E
D @20′ E I G DBL

DETAIL "A"

HISTORICAL MARKER 7903
D7-7aTL 48X48

3A

HISTORICAL MARKER 7903
D7-7aTR 48X48

136+39

3B

SEE TRAFFIC SIGNAL LAYOUTS

℄ FM 2854

SEE DETAIL "A"

A @20′ C H
I @20′ G DBL

FM 105

R.O.W.

135+00

140+00

SEE DETAIL "B"

R.O.W.

MATCH LINE STA 141+00.00

7

137+27

W1-5R 48X48
50 MPH W13-1P 24X24

4A

131+05

4B

M1-6F 24X24
FARM 2854 ROAD
D10-7aT 3X10
660
D10-7aT 3X10
660

5

133+30

STOP
R1-1 36X36

6

134+15

SPEED LIMIT 60
R2-1 36X48

@40′ F E
G E I @40′

DETAIL "B"

LEGEND:

A	REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
B	REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
C	REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
D	REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
E	RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
F	RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
G	RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
H	REFL PAV MRKR TY I-C
I	REFL PAV MRKR TY II-A-A
	PREFAB PAV MRK TY C (W)(ARROW)
	PREFAB PAV MRK TY C (W)(DBL ARROW)
ONLY	PREFAB PAV MRK TY C (W)(WORD)
	PROPOSED SMALL SIGN
	EXIST SIGN TO REMAIN
T-	RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
S-	RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
X-	REMOVE SM RD SN SUP & AM (644-6076)

NOTE: ALL CONCRETE SURFACES USING THERMOPLASTIC PAVEMENT MARKINGS REQUIRE SEALER.

STATE OF TEXAS
GAURANG S. PANDIT
111896
REGISTERED PROFESSIONAL ENGINEER

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06/16/2022.

FM 2854 SIGNING & PAVEMENT MARKING LAYOUT

Texas Department of Transportation®

CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		109

SCALE 1"=100′
SHEET 1 OF 55

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6/15/2022
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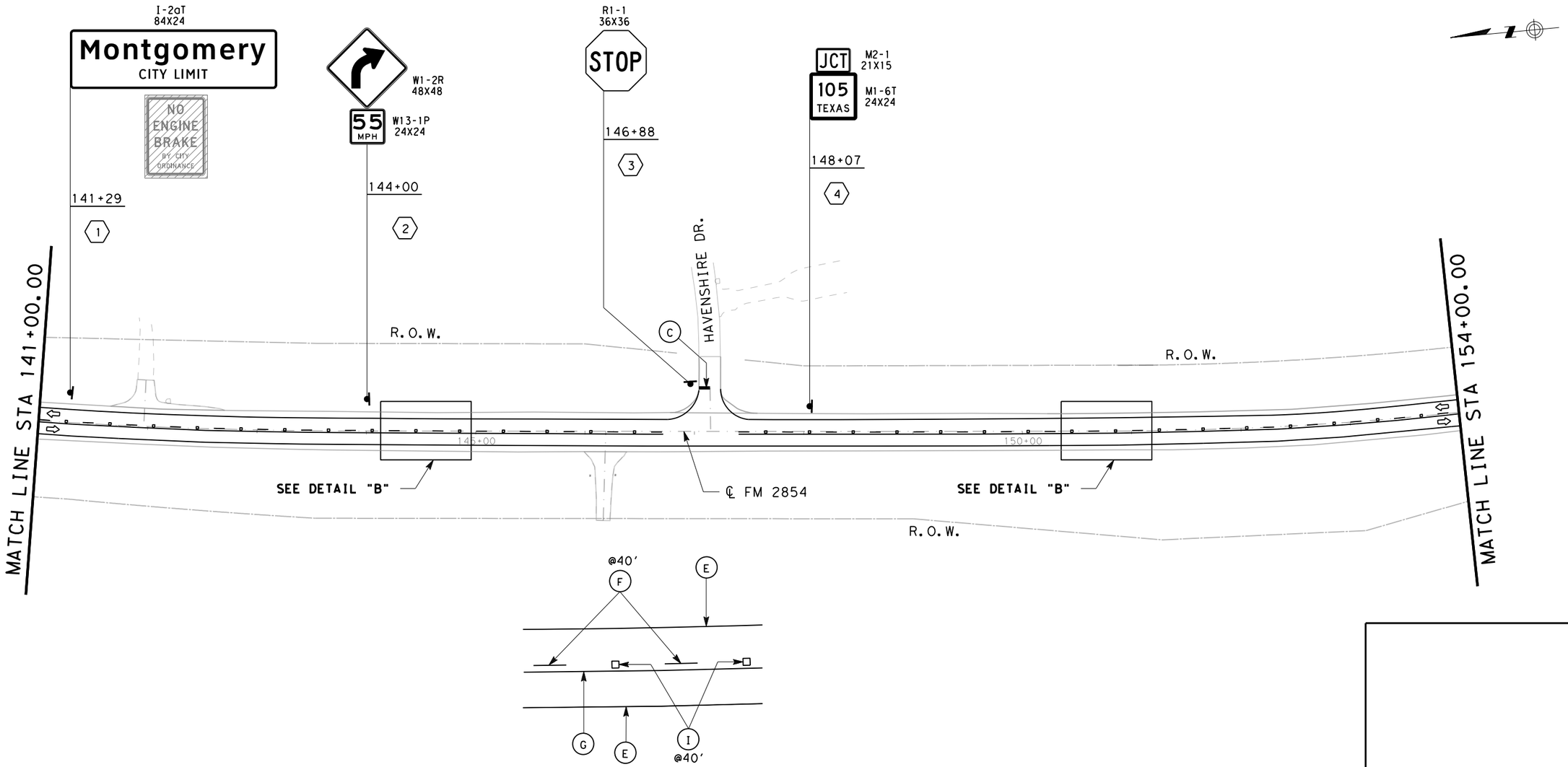

DETAIL "B"

LEGEND:

- (A) REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
- (B) REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
- (C) REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
- (D) REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
- (E) RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
- (F) RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
- (G) RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
- (H) REFL PAV MRKR TY I-C
- (I) REFL PAV MRKR TY II-A-A

- PREFAB PAV MRK TY C (W)(ARROW)
- PREFAB PAV MRK TY C (W)(DBL ARROW)
- ONLY PREFAB PAV MRK TY C (W)(WORD)
- PROPOSED SMALL SIGN
- EXIST SIGN TO REMAIN
- (T-) RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
- (S-) RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
- (X-) REMOVE SM RD SN SUP & AM (644-6076)

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06/16/2022.

SCALE 1"=100'
SHEET 2 OF 55

FM 2854
SIGNING & PAVEMENT MARKING LAYOUT

Texas Department of Transportation®

CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		110

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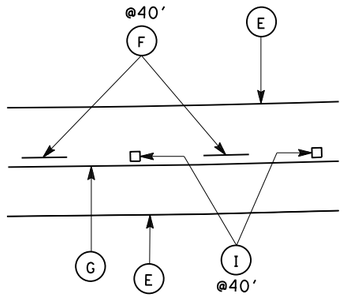

DETAIL "B"

R2-1
36X48

162+40

1

SEE DETAIL "B"

MATCH LINE STA 154+00.00

MATCH LINE STA 167+00.00

R.O.W.

℄ FM 2854

155+00

160+00

165+00

R.O.W.

LEGEND:

(A)	REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
(B)	REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
(C)	REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
(D)	REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
(E)	RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
(F)	RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
(G)	RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
(H)	REFL PAV MRKR TY I-C
(I)	REFL PAV MRKR TY II-A-A
	PREFAB PAV MRK TY C (W)(ARROW)
	PREFAB PAV MRK TY C (W)(DBL ARROW)
ONLY	PREFAB PAV MRK TY C (W)(WORD)
	PROPOSED SMALL SIGN
	EXIST SIGN TO REMAIN
T-	RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
S-	RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
X-	REMOVE SM RD SN SUP & AM (644-6076)

NOTE: ALL CONCRETE SURFACES USING THERMOPLASTIC PAVEMENT MARKINGS REQUIRE SEALER.

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SCALE 1"=100'
SHEET 3 OF 55

FM 2854
SIGNING & PAVEMENT MARKING LAYOUT

Texas Department of Transportation®

CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		111

9:06:06 AM
6/15/2022
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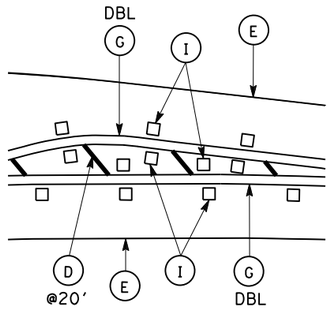

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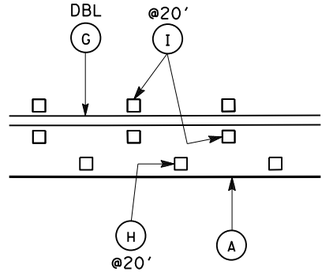

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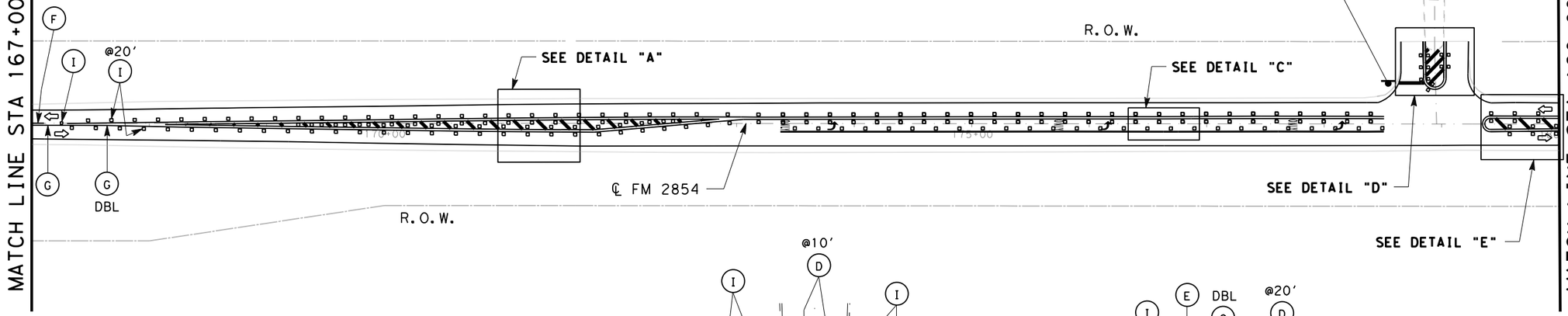

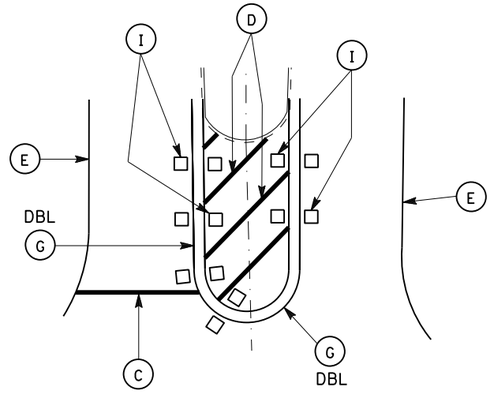

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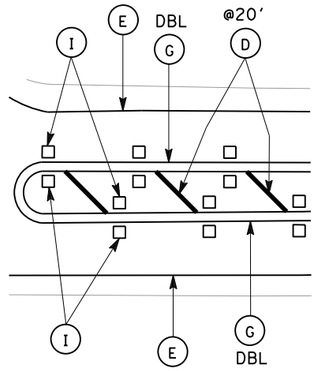

DETAIL "E"

LEGEND:

- (A) REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
- (B) REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
- (C) REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
- (D) REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
- (E) RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
- (F) RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
- (G) RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
- (H) REFL PAV MRKR TY I-C
- (I) REFL PAV MRKR TY II-A-A

- PREFAB PAV MRK TY C (W)(ARROW)
- PREFAB PAV MRK TY C (W)(DBL ARROW)
- ONLY PREFAB PAV MRK TY C (W)(WORD)
- PROPOSED SMALL SIGN
- EXIST SIGN TO REMAIN
- (T-) RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
- (S-) RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
- (X-) REMOVE SM RD SN SUP & AM (644-6076)

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SIGNING & PAVEMENT MARKING LAYOUT

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CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		112

SCALE 1"=100'
SHEET 4 OF 55

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6/15/2022
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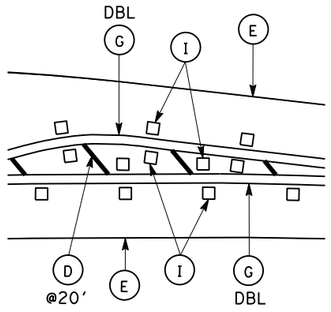

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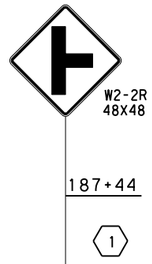

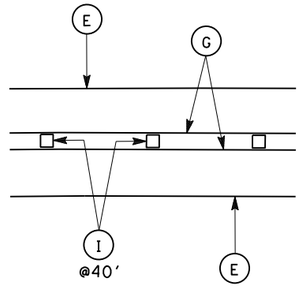

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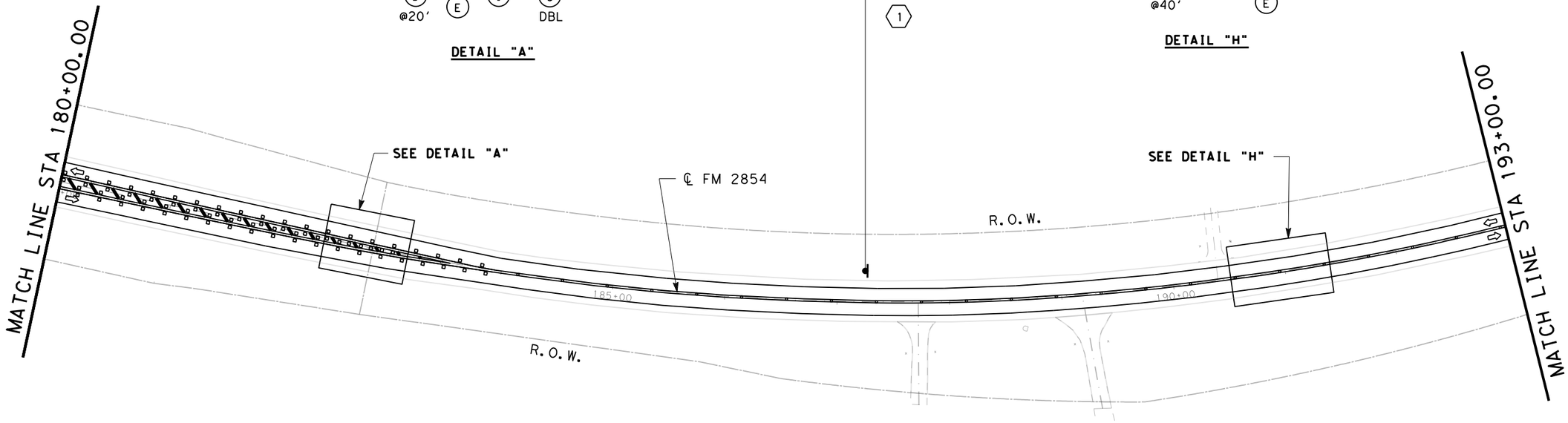

LEGEND:

(A)	REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
(B)	REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
(C)	REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
(D)	REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
(E)	RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
(F)	RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
(G)	RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
(H)	REFL PAV MRKR TY I-C
(I)	REFL PAV MRKR TY II-A-A
	PREFAB PAV MRK TY C (W)(ARROW)
	PREFAB PAV MRK TY C (W)(DBL ARROW)
ONLY	PREFAB PAV MRK TY C (W)(WORD)
	PROPOSED SMALL SIGN
	EXIST SIGN TO REMAIN
T-	RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
S-	RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
X-	REMOVE SM RD SN SUP & AM (644-6076)

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SCALE 1"=100'
SHEET 5 OF 55

FM 2854
SIGNING & PAVEMENT MARKING LAYOUT

Texas Department of Transportation®

CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		113

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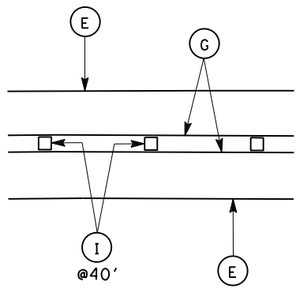

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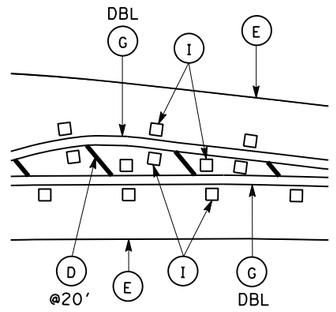

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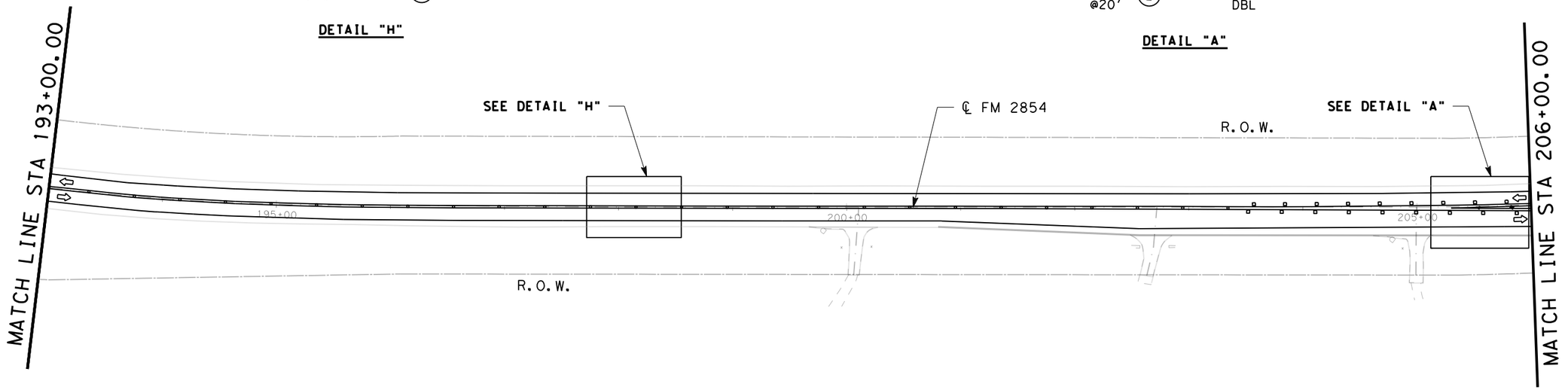

LEGEND:

- (A) REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
- (B) REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
- (C) REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
- (D) REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
- (E) RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
- (F) RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
- (G) RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
- (H) REFL PAV MRKR TY I-C
- (I) REFL PAV MRKR TY II-A-A

- PREFAB PAV MRK TY C (W)(ARROW)
- PREFAB PAV MRK TY C (W)(DBL ARROW)
- ONLY PREFAB PAV MRK TY C (W)(WORD)
- PROPOSED SMALL SIGN
- EXIST SIGN TO REMAIN
- (T-) RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
- (S-) RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
- (X-) REMOVE SM RD SN SUP & AM (644-6076)

NOTE: ALL CONCRETE SURFACES USING THERMOPLASTIC PAVEMENT MARKINGS REQUIRE SEALER.

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REGISTERED PROFESSIONAL ENGINEER

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06/16/2022.

SCALE 1"=100'
SHEET 6 OF 55

FM 2854
SIGNING & PAVEMENT MARKING LAYOUT

Texas Department of Transportation®

CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		114

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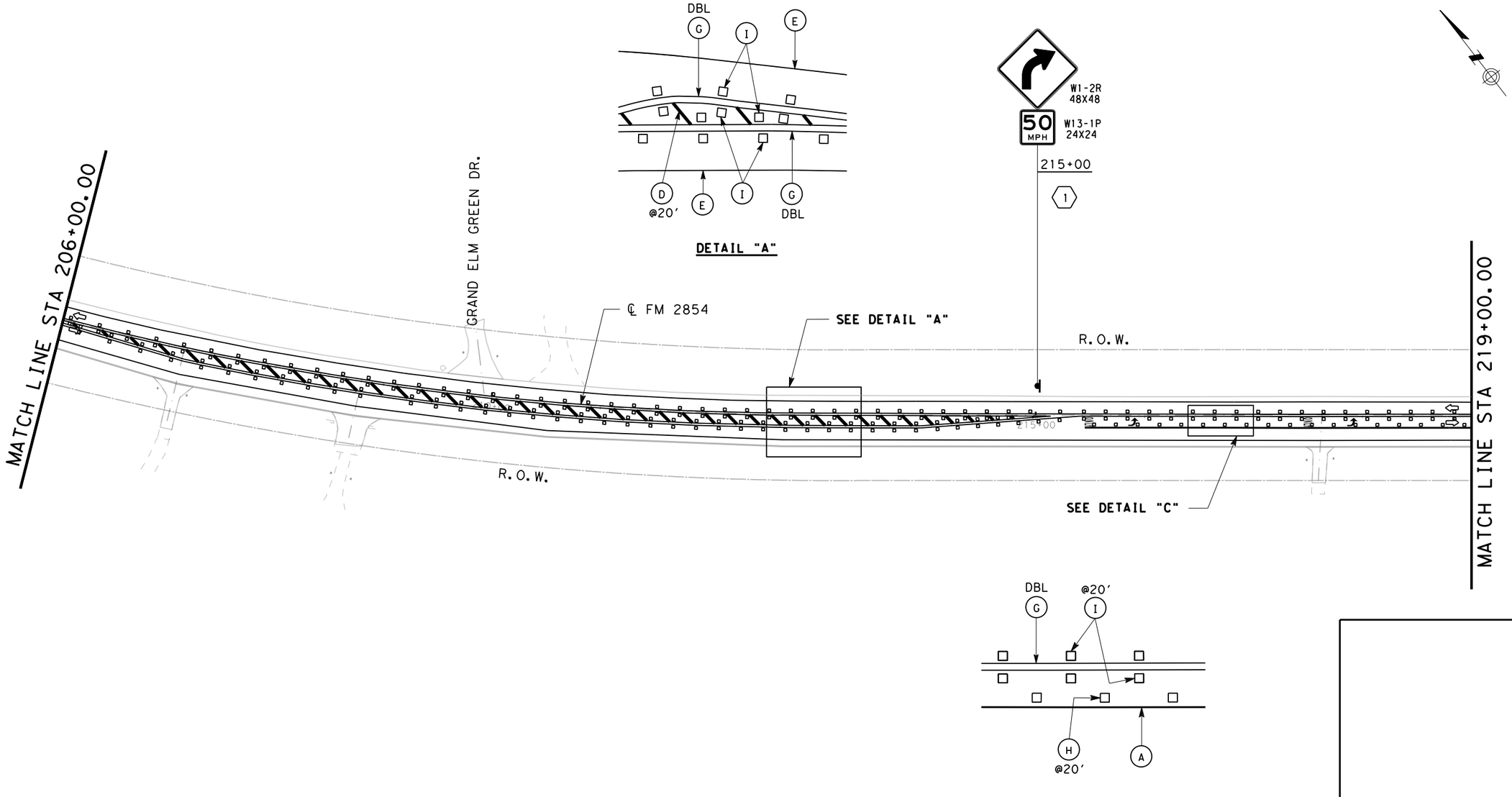


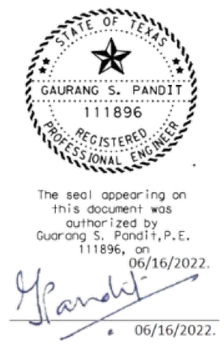
DETAIL "A"

DETAIL "C"

LEGEND:

(A)	REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
(B)	REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
(C)	REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
(D)	REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
(E)	RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
(F)	RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
(G)	RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
(H)	REFL PAV MRKR TY I-C
(I)	REFL PAV MRKR TY II-A-A
	PREFAB PAV MRK TY C (W)(ARROW)
	PREFAB PAV MRK TY C (W)(DBL ARROW)
ONLY	PREFAB PAV MRK TY C (W)(WORD)
	PROPOSED SMALL SIGN
	EXIST SIGN TO REMAIN
(T-)	RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
(S-)	RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
(X-)	REMOVE SM RD SN SUP & AM (644-6076)

NOTE: ALL CONCRETE SURFACES USING THERMOPLASTIC PAVEMENT MARKINGS REQUIRE SEALER.



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06/16/2022.

SCALE 1"=100'
SHEET 7 OF 55

FM 2854
SIGNING & PAVEMENT MARKING LAYOUT

Texas Department of Transportation®

CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		115

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6/15/2022
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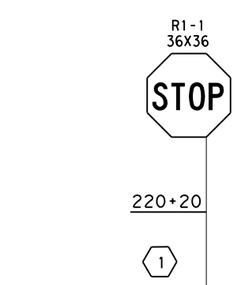

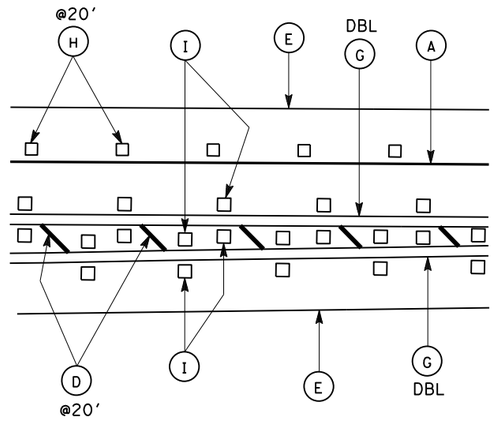

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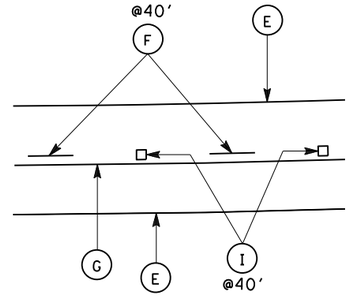

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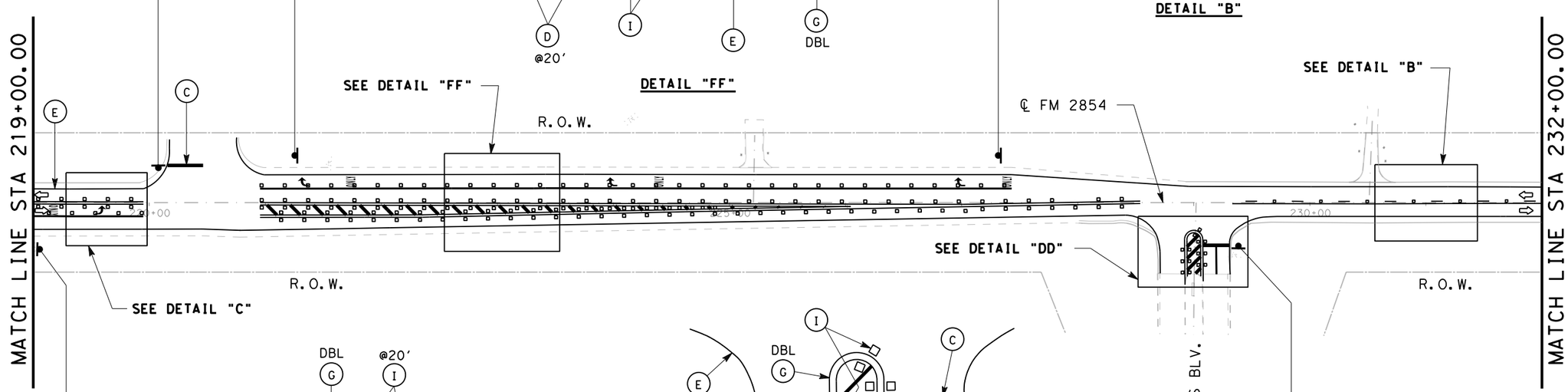

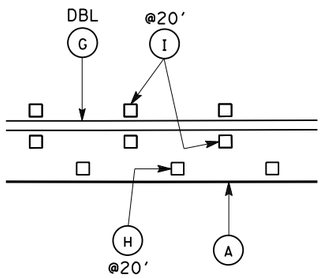

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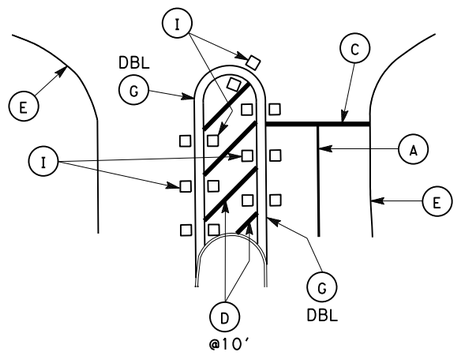

DETAIL "DD"

LEGEND:

(A)	REFL PAV MRK TY I (W) 8" (SLD)(100MIL)	↰	PREFAB PAV MRK TY C (W)(ARROW)
(B)	REFL PAV MRK TY I (W) 8" (BRK)(100MIL)	↰↱	PREFAB PAV MRK TY C (W)(DBL ARROW)
(C)	REFL PAV MRK TY I (W) 24" (SLD)(100MIL)	ONLY	PREFAB PAV MRK TY C (W)(WORD)
(D)	REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)	⬡	PROPOSED SMALL SIGN
(E)	RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)	▨	EXIST SIGN TO REMAIN
(F)	RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)	⟨T-⟩	RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
(G)	RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)	⟨S-⟩	RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
(H)	REFL PAV MRKR TY I-C	⟨X-⟩	REMOVE SM RD SN SUP & AM (644-6076)
(I)	REFL PAV MRKR TY II-A-A		

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06/16/2022.

SCALE 1"=100'
SHEET 8 OF 55

FM 2854
SIGNING & PAVEMENT MARKING LAYOUT

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CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		116

10:27:50 AM
6/15/2022
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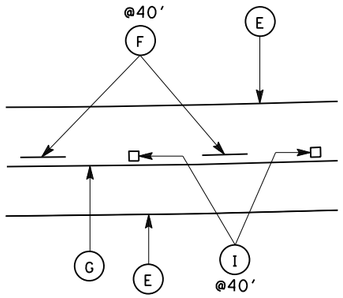
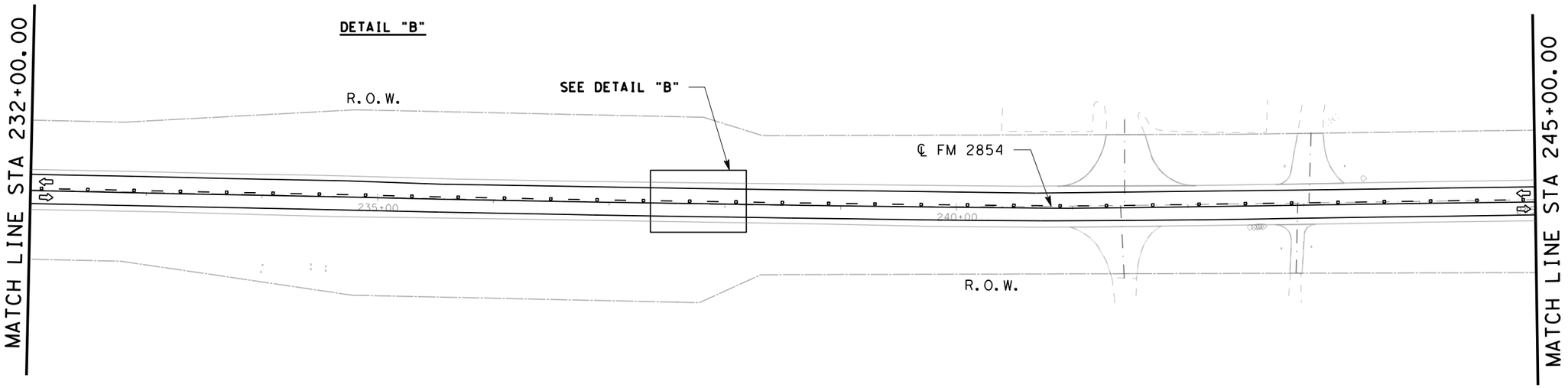


DETAIL "B"



LEGEND:

- (A) REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
- (B) REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
- (C) REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
- (D) REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
- (E) RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
- (F) RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
- (G) RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
- (H) REFL PAV MRKR TY I-C
- (I) REFL PAV MRKR TY II-A-A

- PREFAB PAV MRK TY C (W)(ARROW)
- PREFAB PAV MRK TY C (W)(DBL ARROW)
- ONLY PREFAB PAV MRK TY C (W)(WORD)
- PROPOSED SMALL SIGN
- EXIST SIGN TO REMAIN
- (I_) RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
- (S_) RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
- (X_) REMOVE SM RD SN SUP & AM (644-6076)

NOTE: ALL CONCRETE SURFACES USING THERMOPLASTIC PAVEMENT MARKINGS REQUIRE SEALER.

STATE OF TEXAS
GAURANG S. PANDIT
111896
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06/16/2022.

SCALE 1"=100'
SHEET 9 OF 55

FM 2854
SIGNING & PAVEMENT MARKING LAYOUT

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CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		117

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6/15/2022
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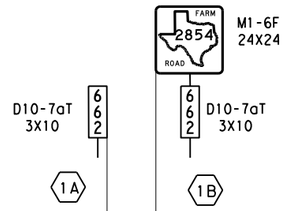

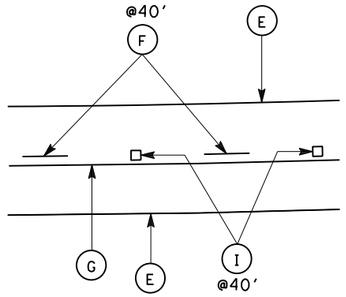

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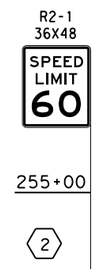
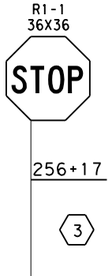
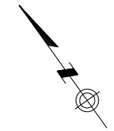
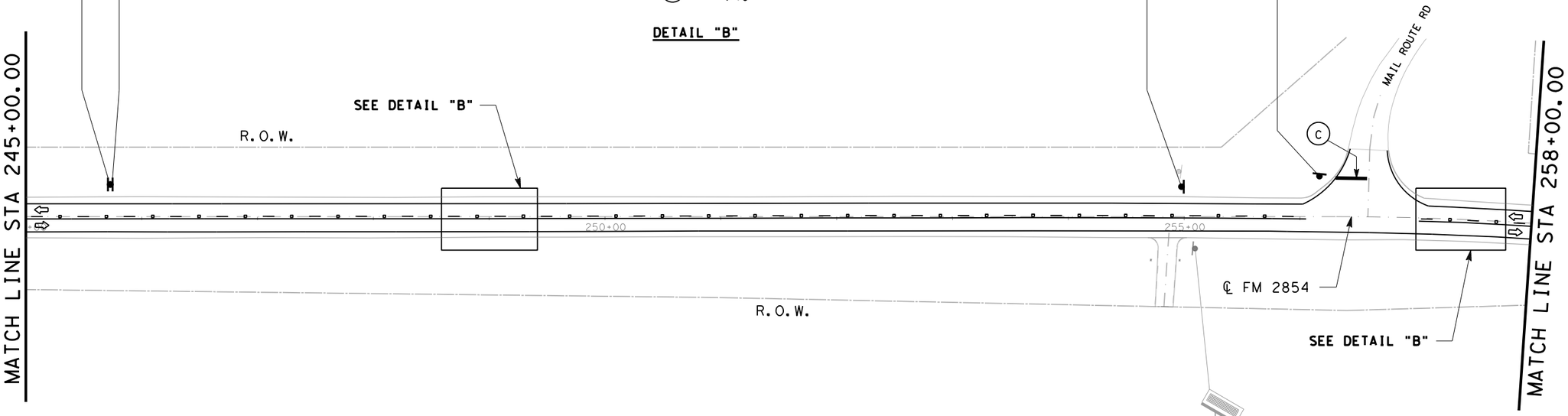
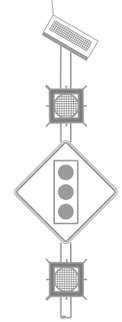










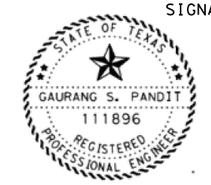
SEE TRAFFIC
SIGNAL LAYOUTS

LEGEND:

- (A) REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
- (B) REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
- (C) REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
- (D) REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
- (E) RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
- (F) RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
- (G) RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
- (H) REFL PAV MRKR TY I-C
- (I) REFL PAV MRKR TY II-A-A

- PREFAB PAV MRK TY C (W)(ARROW)
- PREFAB PAV MRK TY C (W)(DBL ARROW)
- ONLY PREFAB PAV MRK TY C (W)(WORD)
- PROPOSED SMALL SIGN
- EXIST SIGN TO REMAIN
- (T-) RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
- (S-) RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
- (X-) REMOVE SM RD SN SUP & AM (644-6076)

NOTE: ALL CONCRETE SURFACES USING THERMOPLASTIC PAVEMENT MARKINGS REQUIRE SEALER.



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06/16/2022.

SCALE 1"=100'
SHEET 10 OF 55

FM 2854
SIGNING & PAVEMENT MARKING LAYOUT

Texas Department of Transportation®

CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		118

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6/15/2022
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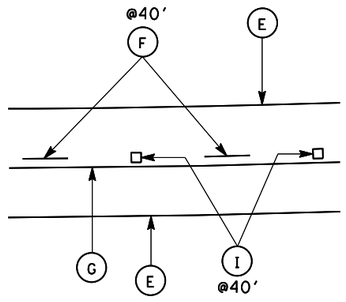

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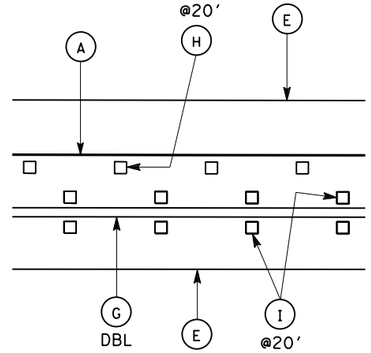


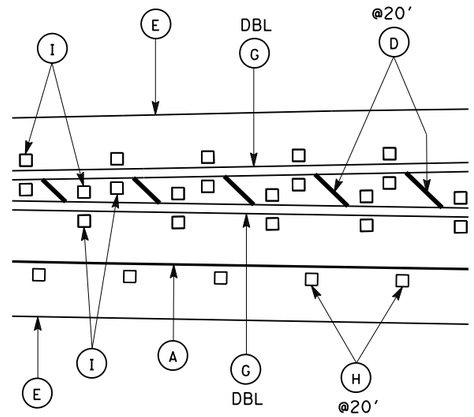
DETAIL "CC"

LEGEND:

- (A) REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
- (B) REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
- (C) REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
- (D) REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
- (E) RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
- (F) RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
- (G) RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
- (H) REFL PAV MRKR TY I-C
- (I) REFL PAV MRKR TY II-A-A

- PREFAB PAV MRK TY C (W)(ARROW)
- PREFAB PAV MRK TY C (W)(DBL ARROW)
- ONLY PREFAB PAV MRK TY C (W)(WORD)
- PROPOSED SMALL SIGN
- EXIST SIGN TO REMAIN
- (T-) RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
- (S-) RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
- (X-) REMOVE SM RD SN SUP & AM (644-6076)

NOTE: ALL CONCRETE SURFACES USING THERMOPLASTIC PAVEMENT MARKINGS REQUIRE SEALER.



DETAIL "F"

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CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		119

SCALE 1"=100'
SHEET 11 OF 55

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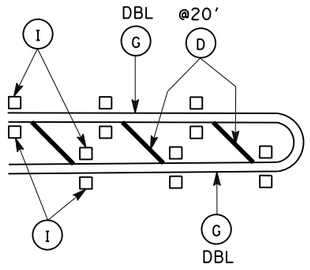

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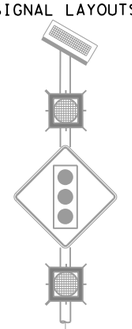

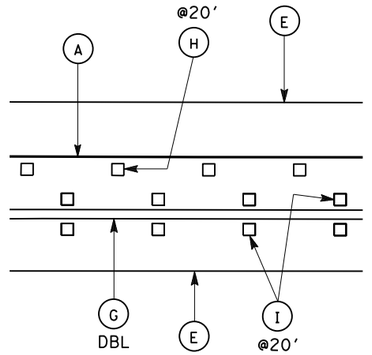

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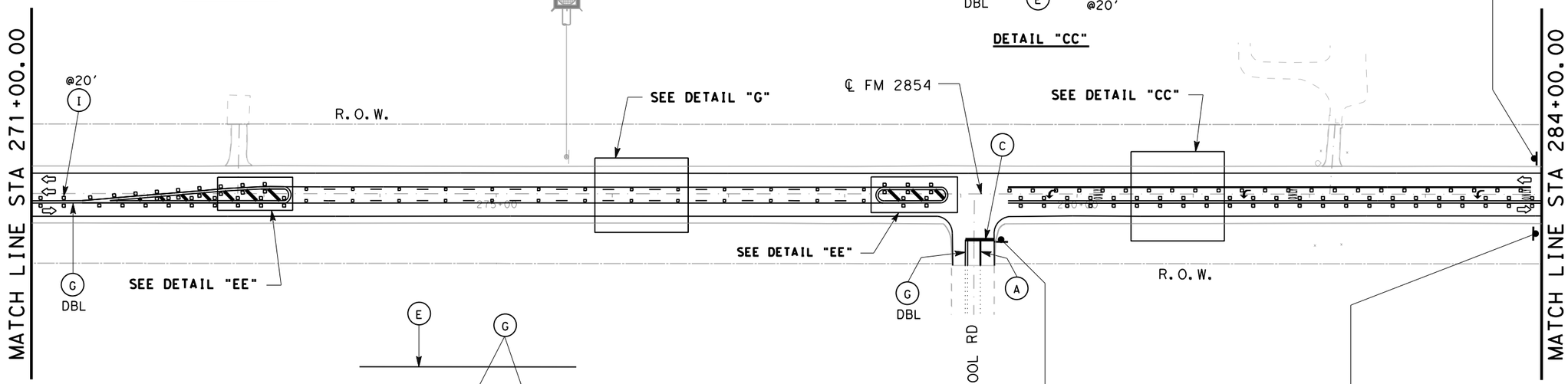

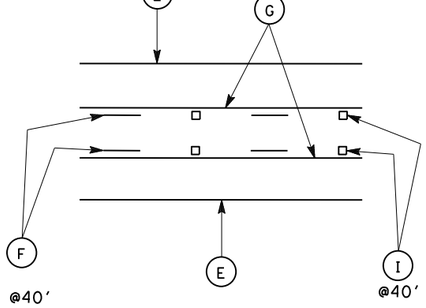

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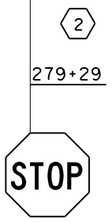

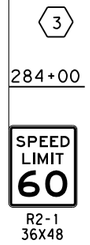

LEGEND:

(A)	REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
(B)	REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
(C)	REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
(D)	REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
(E)	RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
(F)	RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
(G)	RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
(H)	REFL PAV MRKR TY I-C
(I)	REFL PAV MRKR TY II-A-A
	PREFAB PAV MRK TY C (W)(ARROW)
	PREFAB PAV MRK TY C (W)(DBL ARROW)
ONLY	PREFAB PAV MRK TY C (W)(WORD)
	PROPOSED SMALL SIGN
	EXIST SIGN TO REMAIN
T-	RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
S-	RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
X-	REMOVE SM RD SN SUP & AM (644-6076)

NOTE: ALL CONCRETE SURFACES USING THERMOPLASTIC PAVEMENT MARKINGS REQUIRE SEALER.

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SCALE 1"=100'
SHEET 12 OF 55

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CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		120

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6/15/2022
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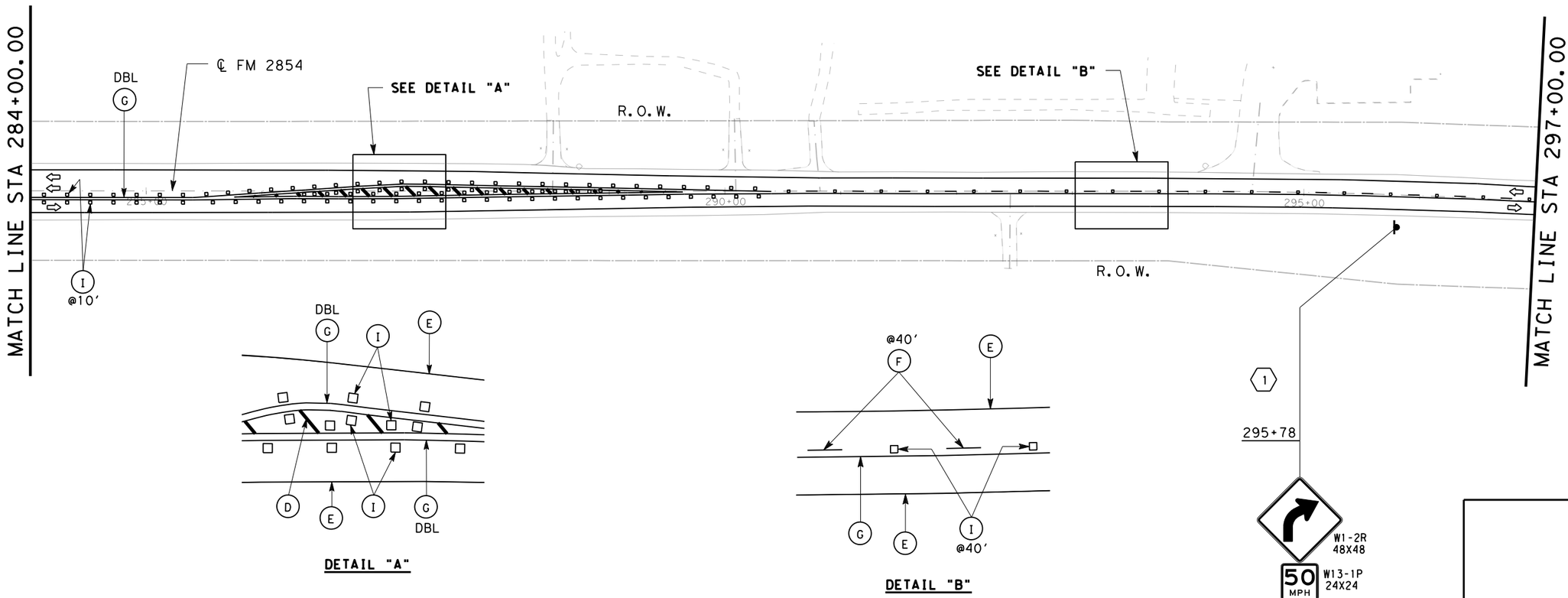

DETAIL "A"

DETAIL "B"

LEGEND:

(A)	REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
(B)	REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
(C)	REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
(D)	REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
(E)	RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
(F)	RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
(G)	RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
(H)	REFL PAV MRKR TY I-C
(I)	REFL PAV MRKR TY II-A-A
	PREFAB PAV MRK TY C (W)(ARROW)
	PREFAB PAV MRK TY C (W)(DBL ARROW)
ONLY	PREFAB PAV MRK TY C (W)(WORD)
	PROPOSED SMALL SIGN
	EXIST SIGN TO REMAIN
(T-)	RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
(S-)	RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
(X-)	REMOVE SM RD SN SUP & AM (644-6076)

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SHEET 13 OF 55

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CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		121

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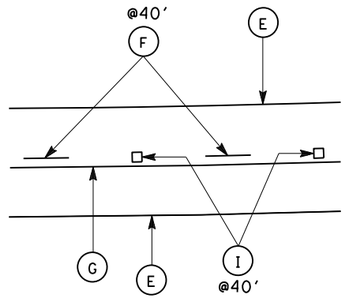

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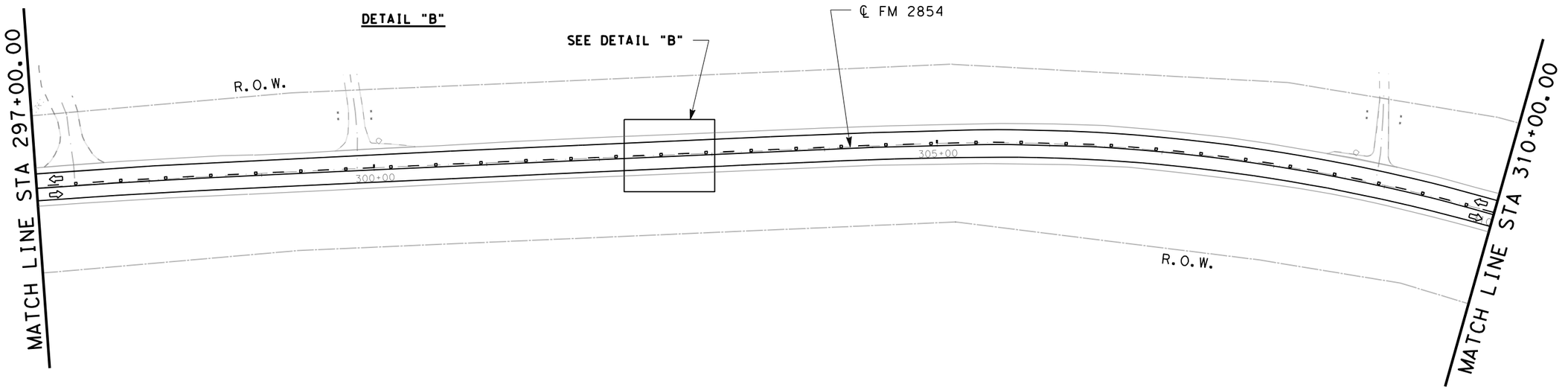

LEGEND:

A	REFL PAV MRK TY I (W) 8" (SLD)(100MIL)		PREFAB PAV MRK TY C (W)(ARROW)
B	REFL PAV MRK TY I (W) 8" (BRK)(100MIL)		PREFAB PAV MRK TY C (W)(DBL ARROW)
C	REFL PAV MRK TY I (W) 24" (SLD)(100MIL)	ONLY	PREFAB PAV MRK TY C (W)(WORD)
D	REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)		PROPOSED SMALL SIGN
E	RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)		EXIST SIGN TO REMAIN
F	RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)	I-	RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
G	RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)	S-	RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
H	REFL PAV MRKR TY I-C	X-	REMOVE SM RD SN SUP & AM (644-6076)
I	REFL PAV MRKR TY II-A-A		

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SCALE 1"=100'
SHEET 14 OF 55

FM 2854
SIGNING & PAVEMENT MARKING LAYOUT

Texas Department of Transportation®

CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		122

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6/15/2022
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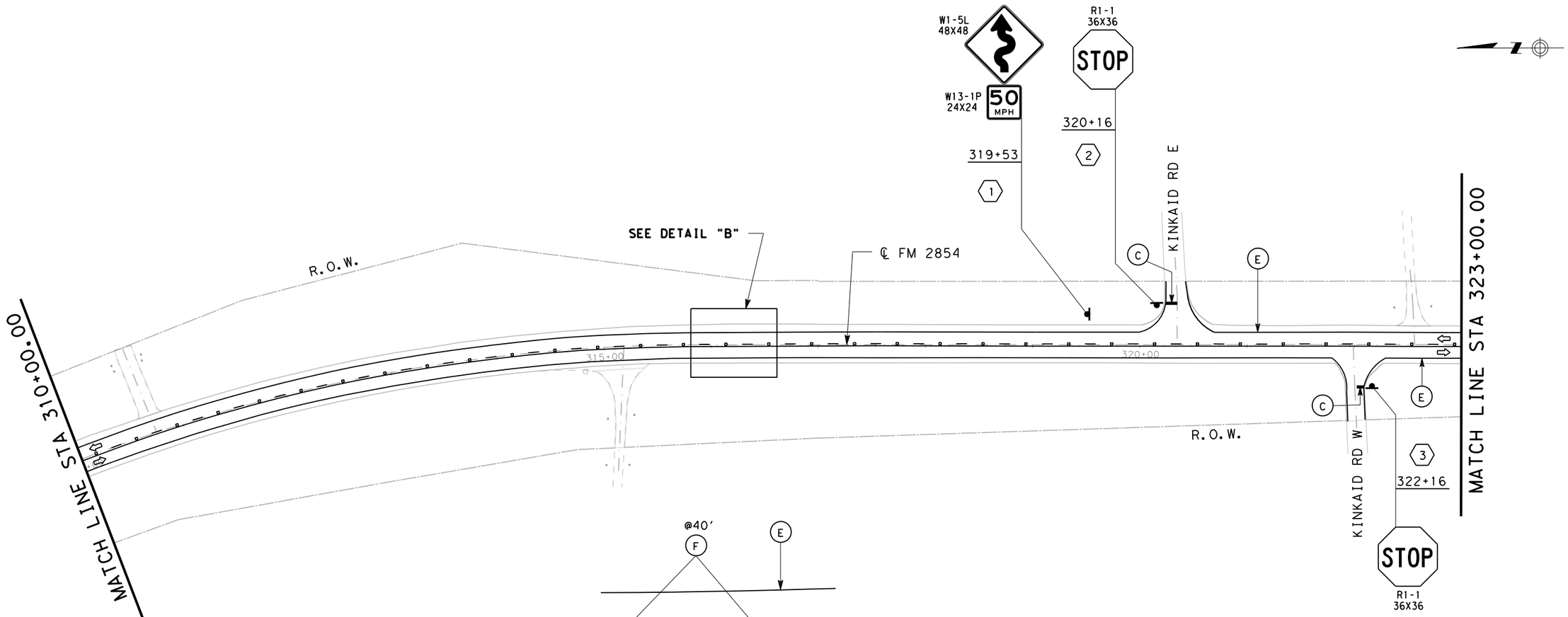

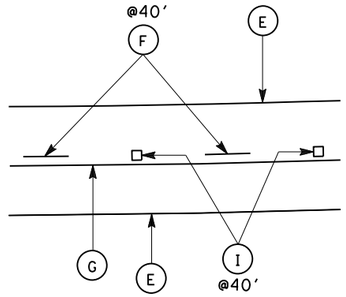

DETAIL "B"

LEGEND:

- (A) REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
- (B) REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
- (C) REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
- (D) REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
- (E) RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
- (F) RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
- (G) RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
- (H) REFL PAV MRKR TY I-C
- (I) REFL PAV MRKR TY II-A-A

- PREFAB PAV MRK TY C (W)(ARROW)
- PREFAB PAV MRK TY C (W)(DBL ARROW)
- ONLY PREFAB PAV MRK TY C (W)(WORD)
- PROPOSED SMALL SIGN
- EXIST SIGN TO REMAIN
- (T-) RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
- (S-) RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
- (X-) REMOVE SM RD SN SUP & AM (644-6076)

NOTE: ALL CONCRETE SURFACES USING THERMOPLASTIC PAVEMENT MARKINGS REQUIRE SEALER.

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SCALE 1"=100'
SHEET 15 OF 55

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CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		123

10:54:52 AM
6/15/2022
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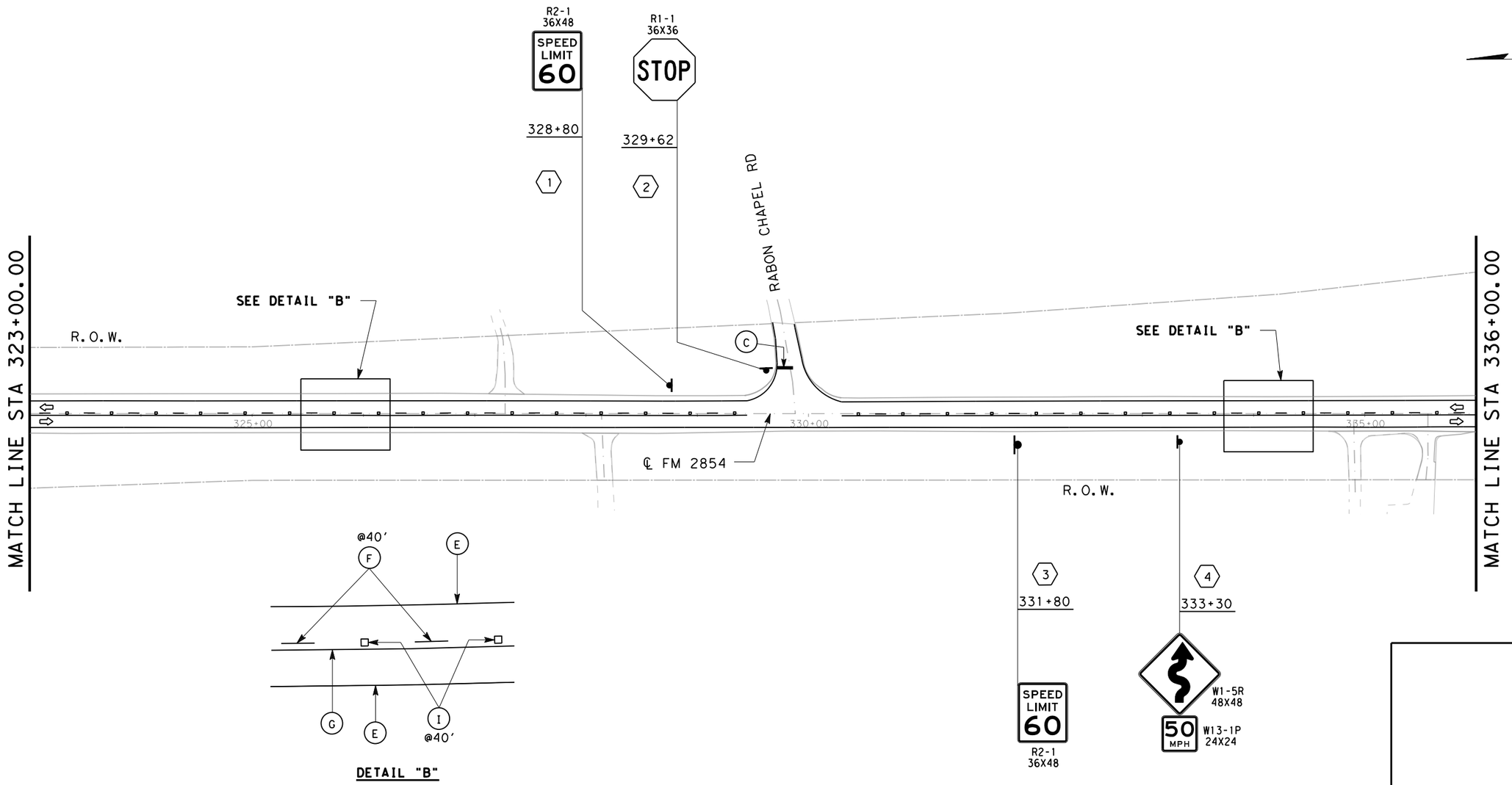

DETAIL "B"

LEGEND:

(A)	REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
(B)	REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
(C)	REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
(D)	REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
(E)	RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
(F)	RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
(G)	RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
(H)	REFL PAV MRKR TY I-C
(I)	REFL PAV MRKR TY II-A-A
	PREFAB PAV MRK TY C (W)(ARROW)
	PREFAB PAV MRK TY C (W)(DBL ARROW)
ONLY	PREFAB PAV MRK TY C (W)(WORD)
	PROPOSED SMALL SIGN
	EXIST SIGN TO REMAIN
(T-)	RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
(S-)	RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
(X-)	REMOVE SM RD SN SUP & AM (644-6076)

NOTE: ALL CONCRETE SURFACES USING THERMOPLASTIC PAVEMENT MARKINGS REQUIRE SEALER.

STATE OF TEXAS
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111896
REGISTERED PROFESSIONAL ENGINEER

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06/16/2022.

SCALE 1"=100'
SHEET 16 OF 55

FM 2854
SIGNING & PAVEMENT MARKING LAYOUT

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CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		124

10:59:15 AM
6/15/2022
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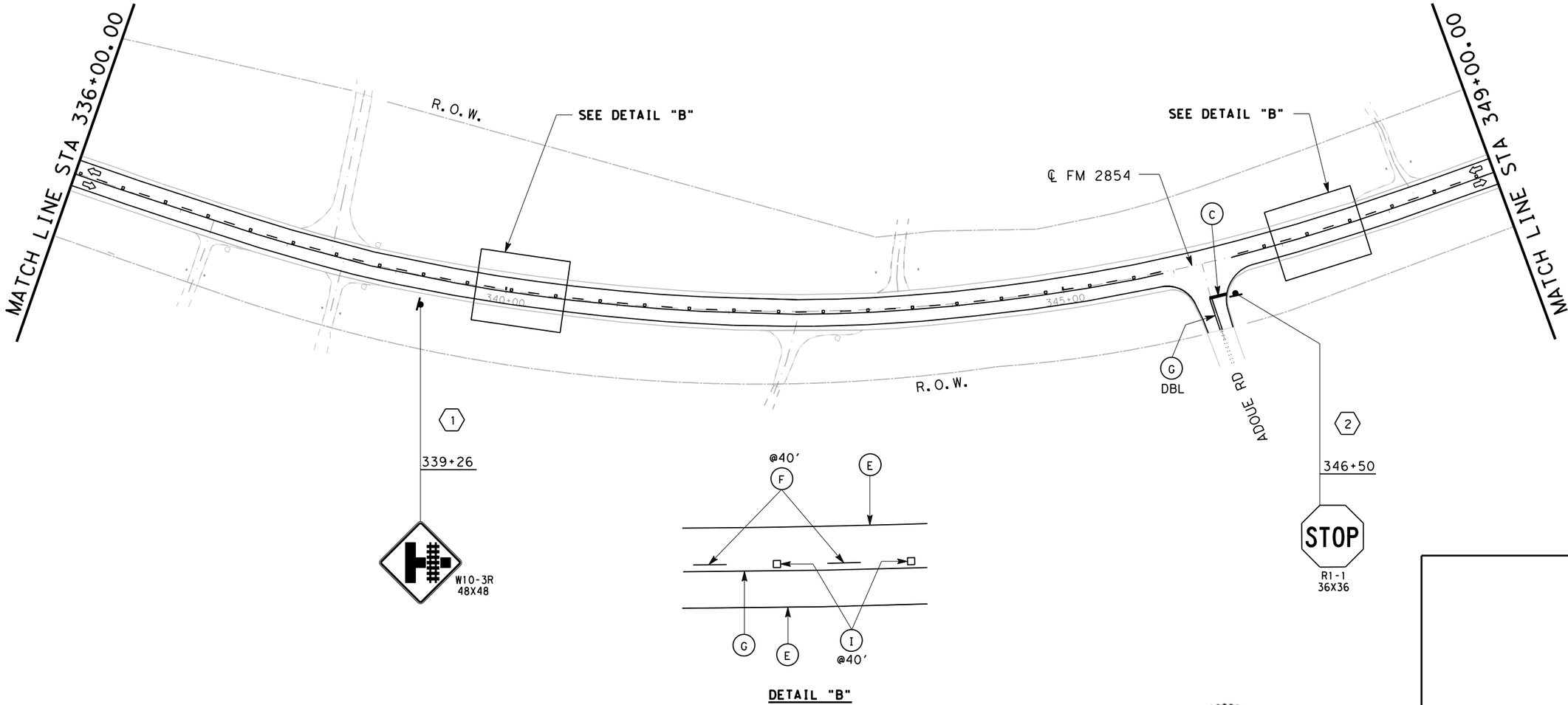

DETAIL "B"

LEGEND:

(A)	REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
(B)	REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
(C)	REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
(D)	REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
(E)	RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
(F)	RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
(G)	RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
(H)	REFL PAV MRKR TY I-C
(I)	REFL PAV MRKR TY II-A-A
	PREFAB PAV MRK TY C (W)(ARROW)
	PREFAB PAV MRK TY C (W)(DBL ARROW)
ONLY	PREFAB PAV MRK TY C (W)(WORD)
	PROPOSED SMALL SIGN
	EXIST SIGN TO REMAIN
T-	RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
S-	RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
X-	REMOVE SM RD SN SUP & AM (644-6076)

NOTE: ALL CONCRETE SURFACES USING THERMOPLASTIC PAVEMENT MARKINGS REQUIRE SEALER.

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SCALE 1"=100'
SHEET 17 OF 55

FM 2854
SIGNING & PAVEMENT MARKING LAYOUT

Texas Department of Transportation®

CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		125

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6/15/2022
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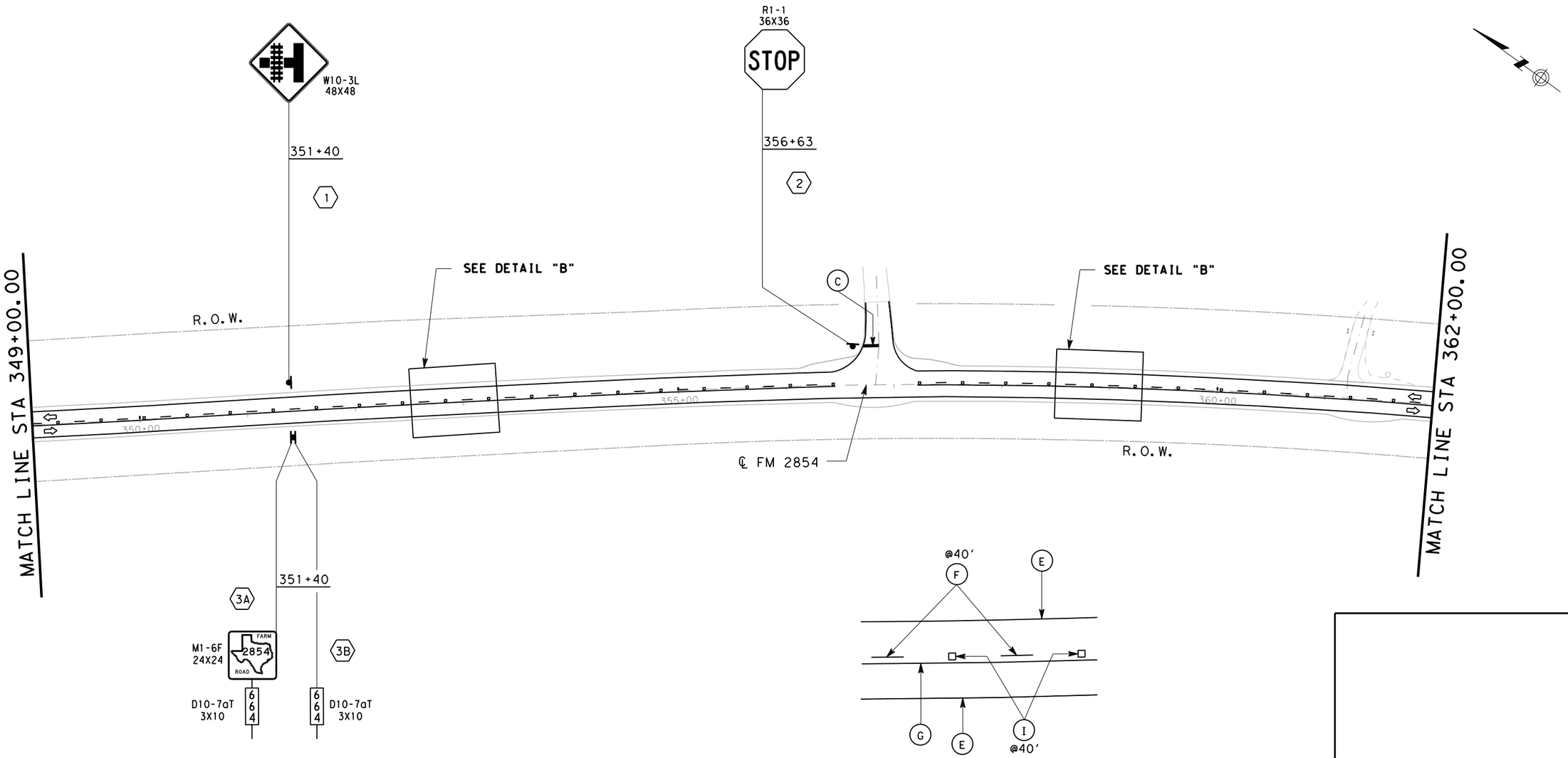

DETAIL "B"

LEGEND:

(A)	REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
(B)	REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
(C)	REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
(D)	REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
(E)	RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
(F)	RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
(G)	RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
(H)	REFL PAV MRKR TY I-C
(I)	REFL PAV MRKR TY II-A-A
	PREFAB PAV MRK TY C (W)(ARROW)
	PREFAB PAV MRK TY C (W)(DBL ARROW)
ONLY	PREFAB PAV MRK TY C (W)(WORD)
	PROPOSED SMALL SIGN
	EXIST SIGN TO REMAIN
(T-)	RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
(S-)	RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
(X-)	REMOVE SM RD SN SUP & AM (644-6076)

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SCALE 1"=100'
SHEET 18 OF 55

FM 2854
SIGNING & PAVEMENT MARKING LAYOUT

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CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		126

11:07:51 AM
6/15/2022
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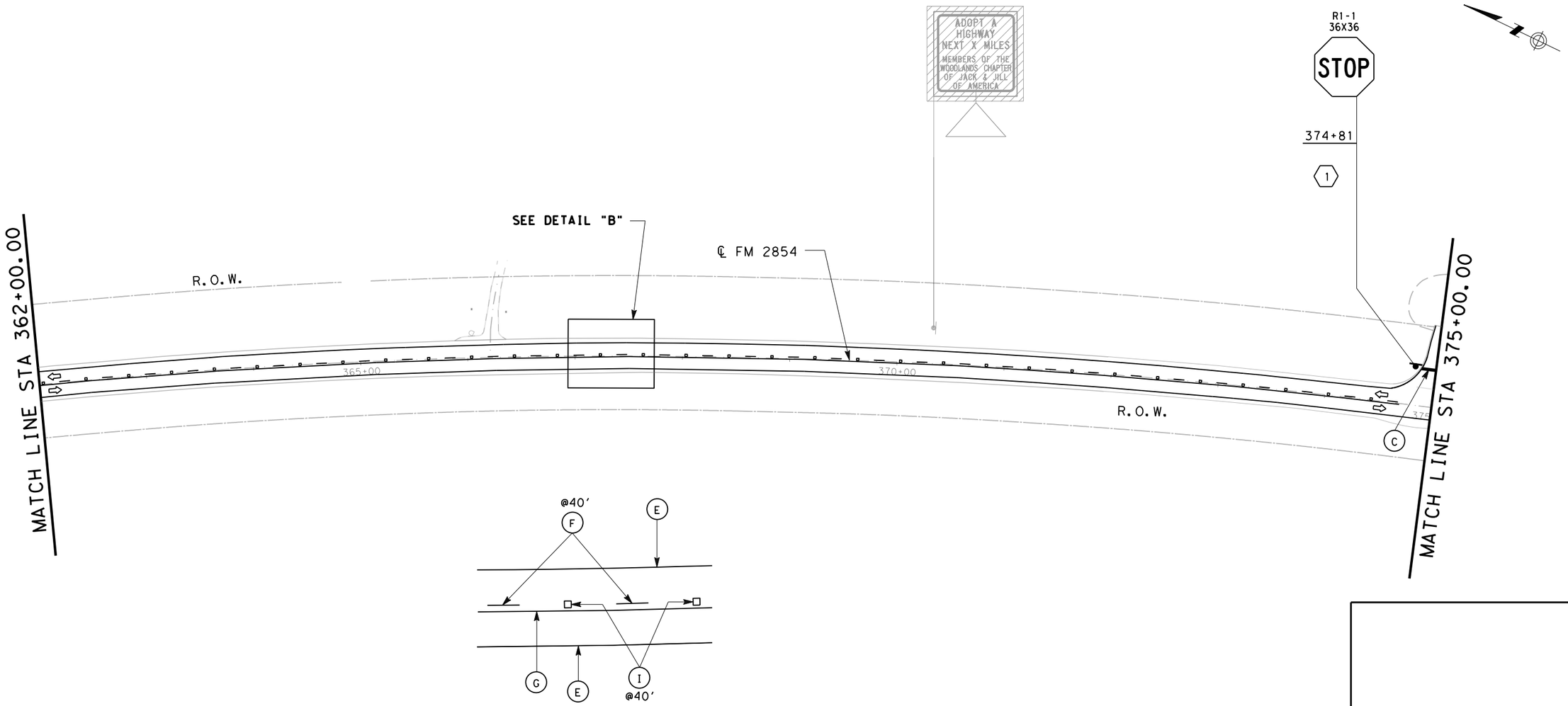

DETAIL "B"

LEGEND:

(A)	REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
(B)	REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
(C)	REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
(D)	REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
(E)	RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
(F)	RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
(G)	RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
(H)	REFL PAV MRKR TY I-C
(I)	REFL PAV MRKR TY II-A-A
	PREFAB PAV MRK TY C (W)(ARROW)
	PREFAB PAV MRK TY C (W)(DBL ARROW)
ONLY	PREFAB PAV MRK TY C (W)(WORD)
	PROPOSED SMALL SIGN
	EXIST SIGN TO REMAIN
T-	RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
S-	RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
X-	REMOVE SM RD SN SUP & AM (644-6076)

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CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		127

SCALE 1"=100'
SHEET 19 OF 55

11:10:21 AM
6/15/2022
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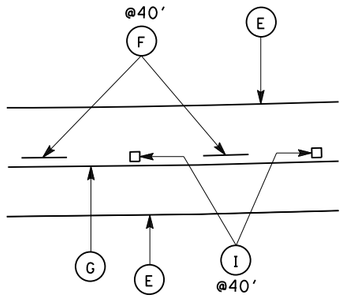

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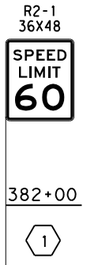

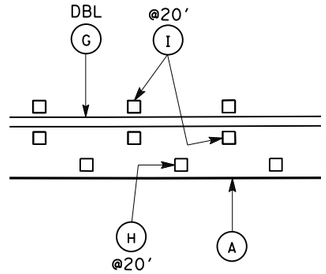

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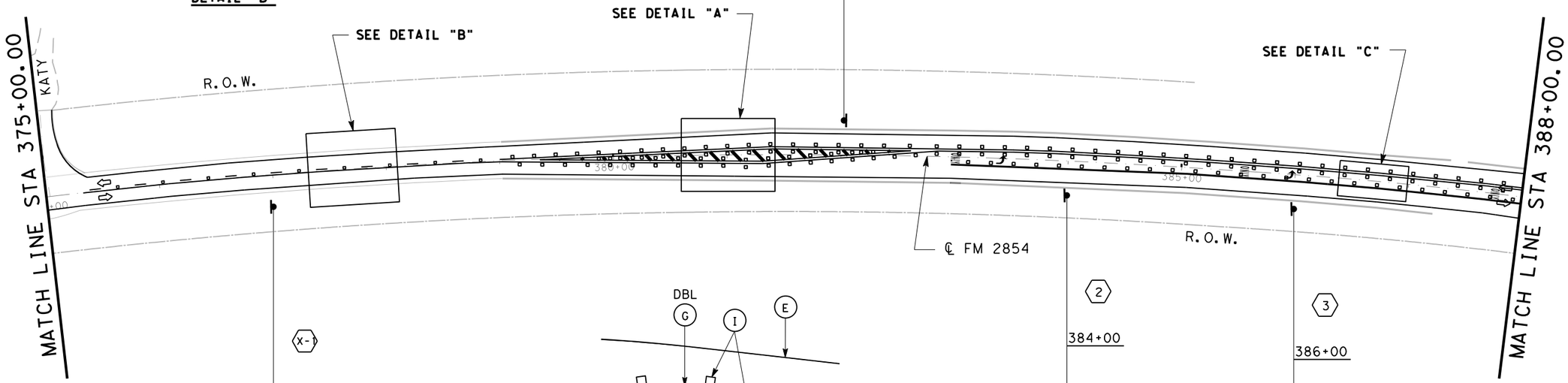

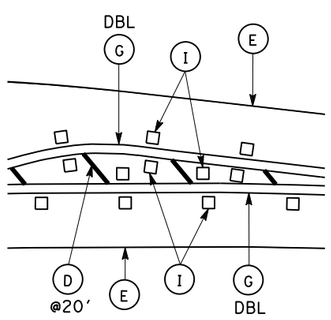

DETAIL "A"

LEGEND:

(A)	REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
(B)	REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
(C)	REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
(D)	REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
(E)	RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
(F)	RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
(G)	RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
(H)	REFL PAV MRKR TY I-C
(I)	REFL PAV MRKR TY II-A-A
	PREFAB PAV MRK TY C (W)(ARROW)
	PREFAB PAV MRK TY C (W)(DBL ARROW)
ONLY	PREFAB PAV MRK TY C (W)(WORD)
	PROPOSED SMALL SIGN
	EXIST SIGN TO REMAIN
(T-)	RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
(S-)	RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
(X-)	REMOVE SM RD SN SUP & AM (644-6076)

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SCALE 1"=100'
SHEET 20 OF 55

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CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		128

11:14:12 AM
6/15/2022
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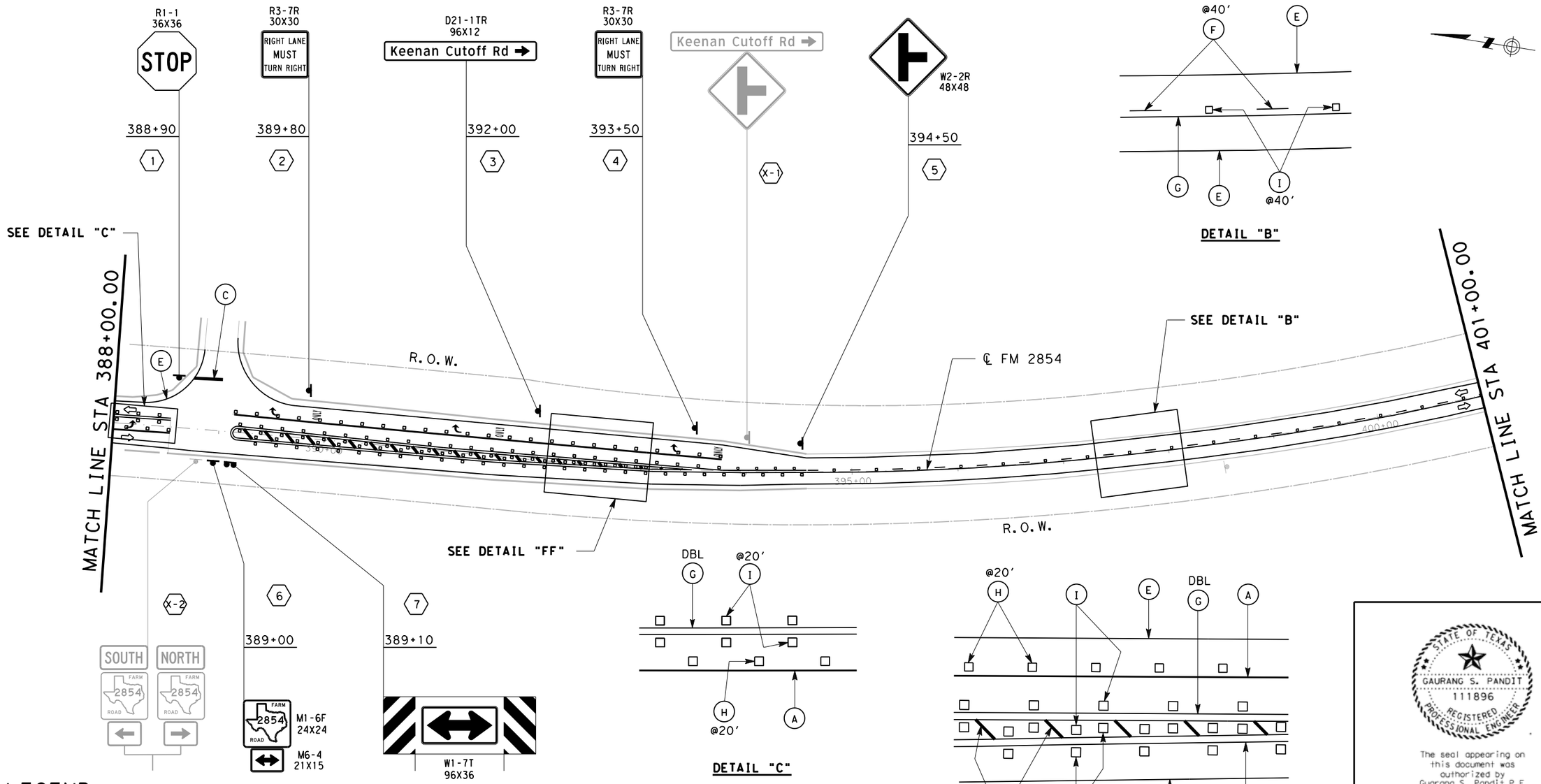

LEGEND:

(A)	REFL PAV MRK TY I (W) 8" (SLD)(100MIL)		PREFAB PAV MRK TY C (W)(ARROW)
(B)	REFL PAV MRK TY I (W) 8" (BRK)(100MIL)		PREFAB PAV MRK TY C (W)(DBL ARROW)
(C)	REFL PAV MRK TY I (W) 24" (SLD)(100MIL)	ONLY	PREFAB PAV MRK TY C (W)(WORD)
(D)	REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)	⬡	PROPOSED SMALL SIGN
(E)	RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)	▨	EXIST SIGN TO REMAIN
(F)	RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)	T-	RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
(G)	RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)	S-	RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
(H)	REFL PAV MRKR TY I-C	X-	REMOVE SM RD SN SUP & AM (644-6076)
(I)	REFL PAV MRKR TY II-A-A		

NOTE: ALL CONCRETE SURFACES USING THERMOPLASTIC PAVEMENT MARKINGS REQUIRE SEALER.

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CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		129

SCALE 1"=100'
SHEET 21 OF 55

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6/15/2022
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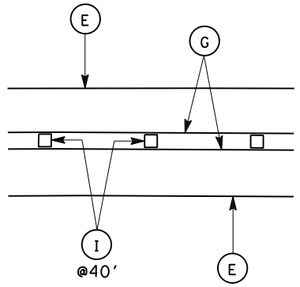
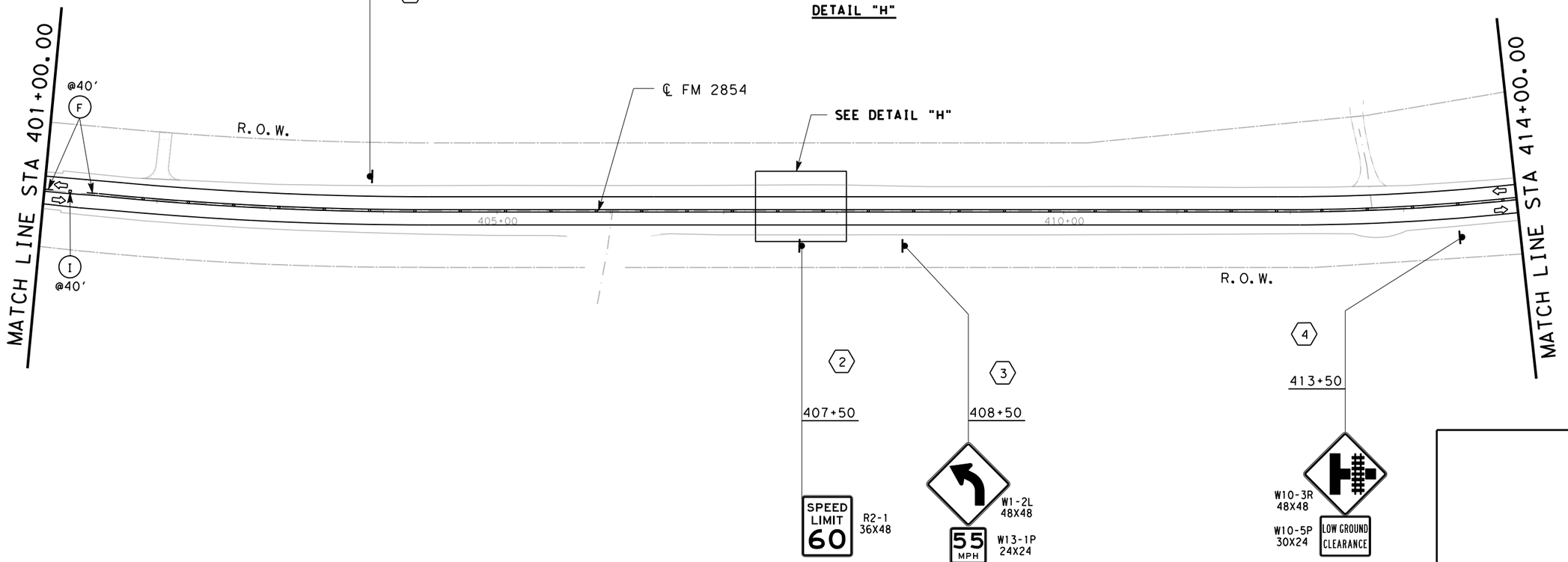


DETAIL "H"



LEGEND:

- (A) REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
- (B) REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
- (C) REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
- (D) REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
- (E) RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
- (F) RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
- (G) RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
- (H) REFL PAV MRKR TY I-C
- (I) REFL PAV MRKR TY II-A-A

- PREFAB PAV MRK TY C (W)(ARROW)
- PREFAB PAV MRK TY C (W)(DBL ARROW)
- ONLY PREFAB PAV MRK TY C (W)(WORD)
- PROPOSED SMALL SIGN
- EXIST SIGN TO REMAIN
- (T-) RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
- (S-) RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
- (X-) REMOVE SM RD SN SUP & AM (644-6076)

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SHEET 22 OF 55

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CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		130

11:36:49 AM
6/15/2022
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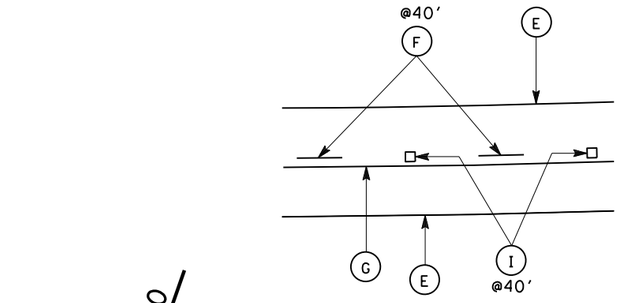
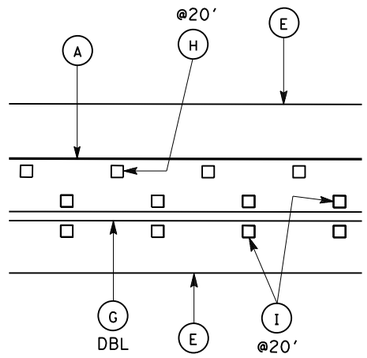


DETAIL "B"

419+30

1



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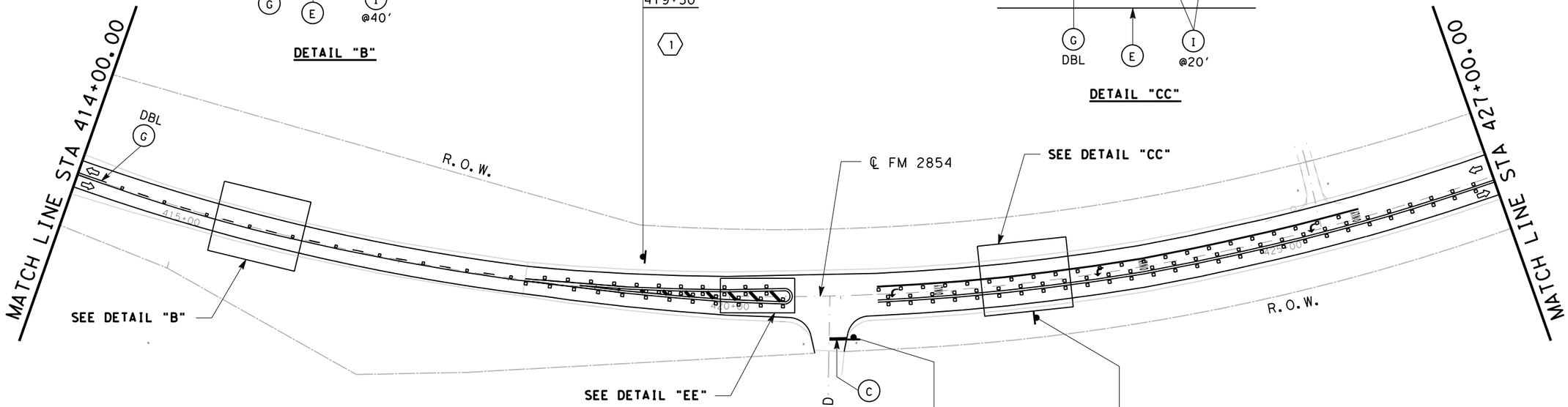

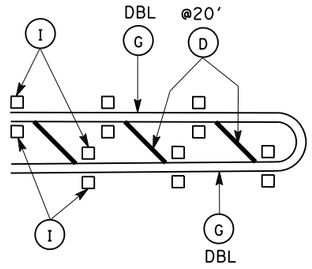

DETAIL "EE"

LEGEND:

(A)	REFL PAV MRK TY I (W) 8" (SLD)(100MIL)		PREFAB PAV MRK TY C (W)(ARROW)
(B)	REFL PAV MRK TY I (W) 8" (BRK)(100MIL)		PREFAB PAV MRK TY C (W)(DBL ARROW)
(C)	REFL PAV MRK TY I (W) 24" (SLD)(100MIL)	ONLY	PREFAB PAV MRK TY C (W)(WORD)
(D)	REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)	⬡	PROPOSED SMALL SIGN
(E)	RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)	▨	EXIST SIGN TO REMAIN
(F)	RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)	⬡ T-	RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
(G)	RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)	⬡ S-	RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
(H)	REFL PAV MRKR TY I-C	⬡ X-	REMOVE SM RD SN SUP & AM (644-6076)
(I)	REFL PAV MRKR TY II-A-A		

NOTE: ALL CONCRETE SURFACES USING THERMOPLASTIC PAVEMENT MARKINGS REQUIRE SEALER.

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SCALE 1"=100'
SHEET 23 OF 55

FM 2854
SIGNING & PAVEMENT MARKING LAYOUT

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CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		131

11:44:15 AM
6/15/2022
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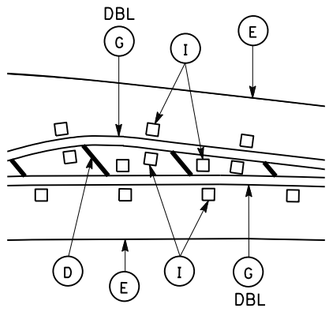
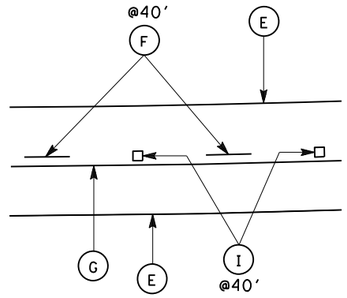


DETAIL "A"



DETAIL "B"

ADOPT A HIGHWAY NEXT X MILES
IN MEMORY OF THE FLYING TIGERS

LEGEND:

(A)	REFL PAV MRK TY I (W) 8" (SLD)(100MIL)		PREFAB PAV MRK TY C (W)(ARROW)
(B)	REFL PAV MRK TY I (W) 8" (BRK)(100MIL)		PREFAB PAV MRK TY C (W)(DBL ARROW)
(C)	REFL PAV MRK TY I (W) 24" (SLD)(100MIL)	ONLY	PREFAB PAV MRK TY C (W)(WORD)
(D)	REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)	⬡	PROPOSED SMALL SIGN
(E)	RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)	▨	EXIST SIGN TO REMAIN
(F)	RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)	T-	RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
(G)	RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)	S-	RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
(H)	REFL PAV MRKR TY I-C	X-	REMOVE SM RD SN SUP & AM (644-6076)
(I)	REFL PAV MRKR TY II-A-A		

NOTE: ALL CONCRETE SURFACES USING THERMOPLASTIC PAVEMENT MARKINGS REQUIRE SEALER.

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SCALE 1"=100'
SHEET 24 OF 55

FM 2854
SIGNING & PAVEMENT MARKING LAYOUT

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CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		132

11:47:48 AM
6/15/2022
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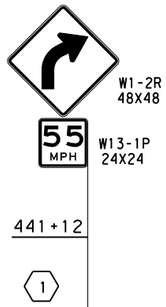
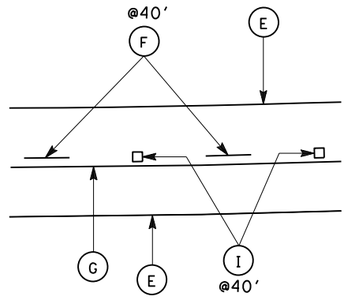
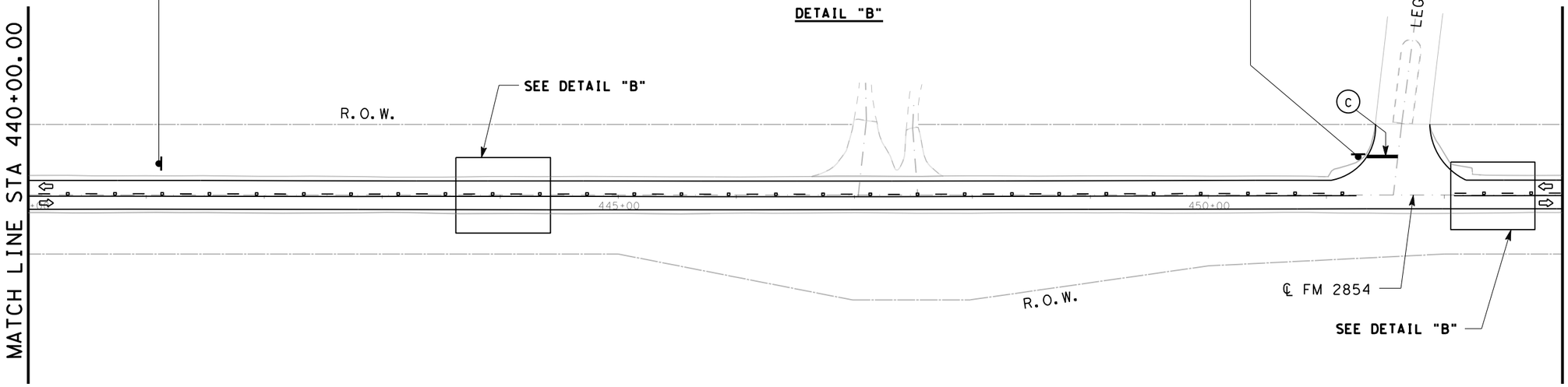




DETAIL "B"



LEGEND:

(A)	REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
(B)	REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
(C)	REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
(D)	REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
(E)	RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
(F)	RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
(G)	RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
(H)	REFL PAV MRKR TY I-C
(I)	REFL PAV MRKR TY II-A-A

	PREFAB PAV MRK TY C (W)(ARROW)
	PREFAB PAV MRK TY C (W)(DBL ARROW)
ONLY	PREFAB PAV MRK TY C (W)(WORD)
	PROPOSED SMALL SIGN
	EXIST SIGN TO REMAIN
T-	RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
S-	RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
X-	REMOVE SM RD SN SUP & AM (644-6076)

NOTE: ALL CONCRETE SURFACES USING THERMOPLASTIC PAVEMENT MARKINGS REQUIRE SEALER.

STATE OF TEXAS
GAURANG S. PANDIT
111896
REGISTERED PROFESSIONAL ENGINEER

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06/16/2022.

SCALE 1"=100'
SHEET 25 OF 55

FM 2854
SIGNING & PAVEMENT MARKING LAYOUT

Texas Department of Transportation®

CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		133

11:50:03 AM
6/15/2022
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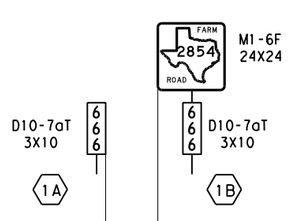
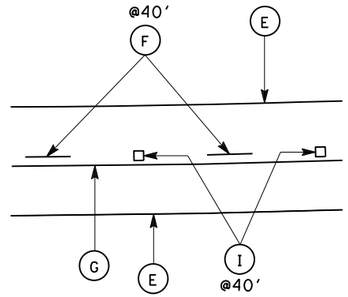
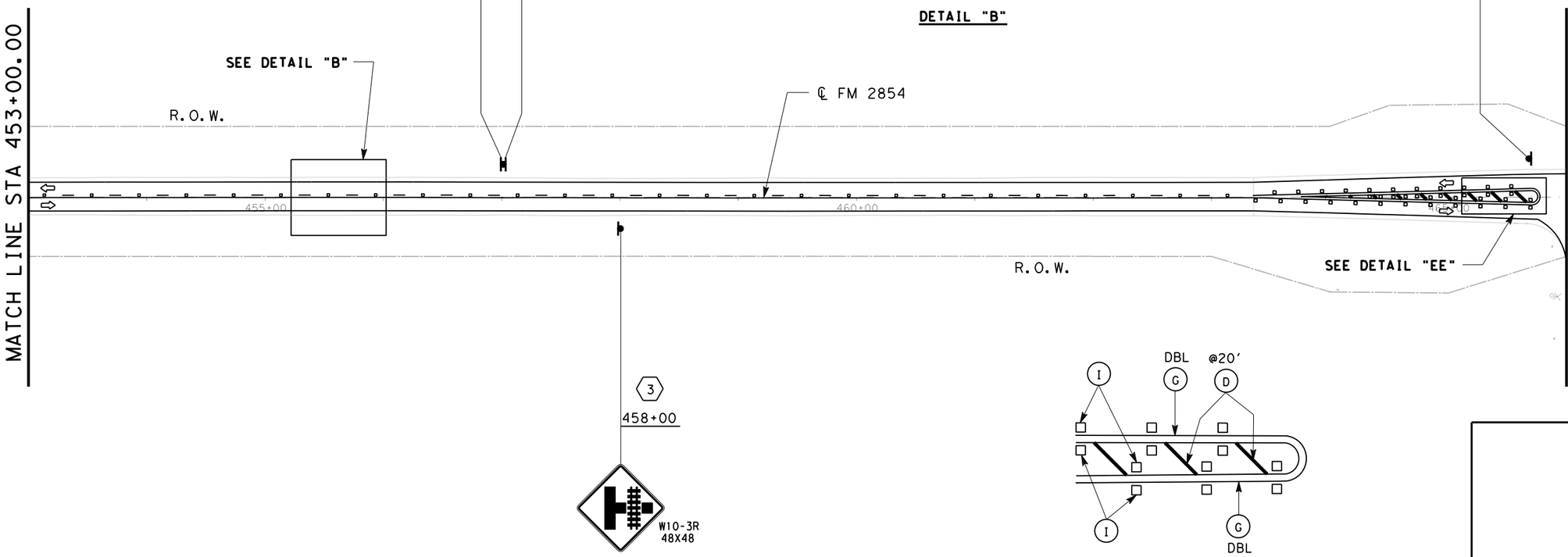




DETAIL "B"



DETAIL "EE"

LEGEND:

- (A) REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
- (B) REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
- (C) REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
- (D) REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
- (E) RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
- (F) RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
- (G) RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
- (H) REFL PAV MRKR TY I-C
- (I) REFL PAV MRKR TY II-A-A

- PREFAB PAV MRK TY C (W)(ARROW)
- PREFAB PAV MRK TY C (W)(DBL ARROW)
- ONLY PREFAB PAV MRK TY C (W)(WORD)
- PROPOSED SMALL SIGN
- EXIST SIGN TO REMAIN
- (T-) RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
- (S-) RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
- (X-) REMOVE SM RD SN SUP & AM (644-6076)

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06/16/2022.

SCALE 1"=100'
SHEET 26 OF 55

FM 2854
SIGNING & PAVEMENT MARKING LAYOUT

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© 2022

CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		134

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6/15/2022
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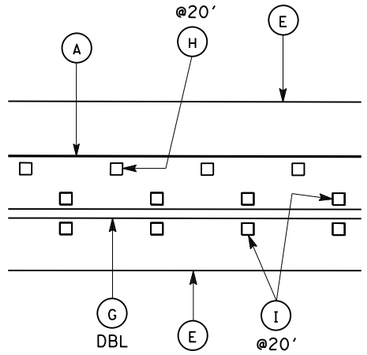

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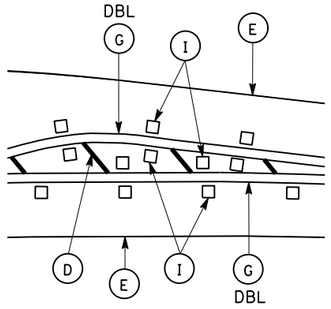

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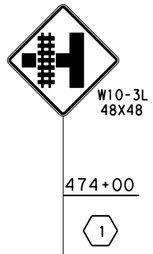
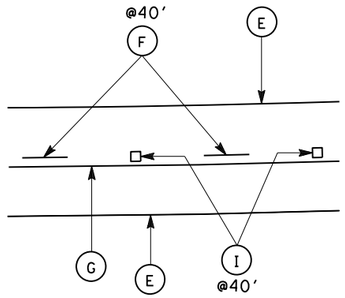
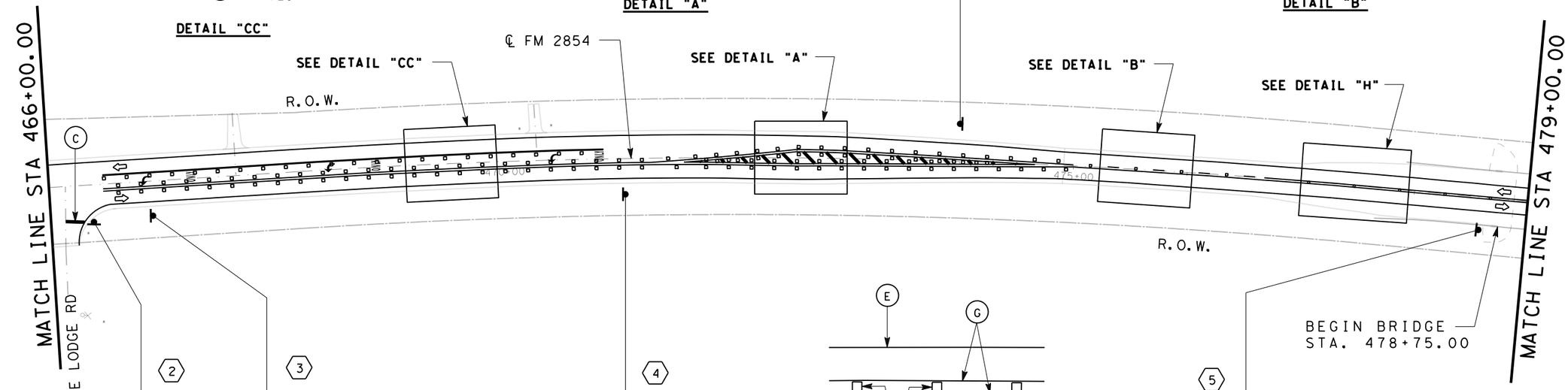
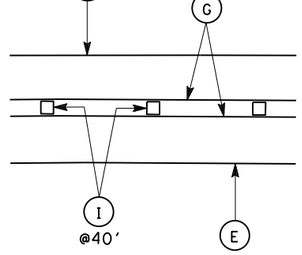




DETAIL "B"





DETAIL "H"

LEGEND:

(A)	REFL PAV MRK TY I (W) 8" (SLD)(100MIL)	↰	PREFAB PAV MRK TY C (W)(ARROW)
(B)	REFL PAV MRK TY I (W) 8" (BRK)(100MIL)	↰↱	PREFAB PAV MRK TY C (W)(DBL ARROW)
(C)	REFL PAV MRK TY I (W) 24" (SLD)(100MIL)	ONLY	PREFAB PAV MRK TY C (W)(WORD)
(D)	REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)	⬡	PROPOSED SMALL SIGN
(E)	RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)	▨	EXIST SIGN TO REMAIN
(F)	RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)	(T-)	RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
(G)	RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)	(S-)	RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
(H)	REFL PAV MRKR TY I-C	(X-)	REMOVE SM RD SN SUP & AM (644-6076)
(I)	REFL PAV MRKR TY II-A-A		

NOTE: ALL CONCRETE SURFACES USING THERMOPLASTIC PAVEMENT MARKINGS REQUIRE SEALER.

STATE OF TEXAS
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06/16/2022.

SCALE 1"=100'
SHEET 27 OF 55

FM 2854
SIGNING & PAVEMENT MARKING LAYOUT

Texas Department of Transportation®

CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		135

11:55:28 AM
6/15/2022
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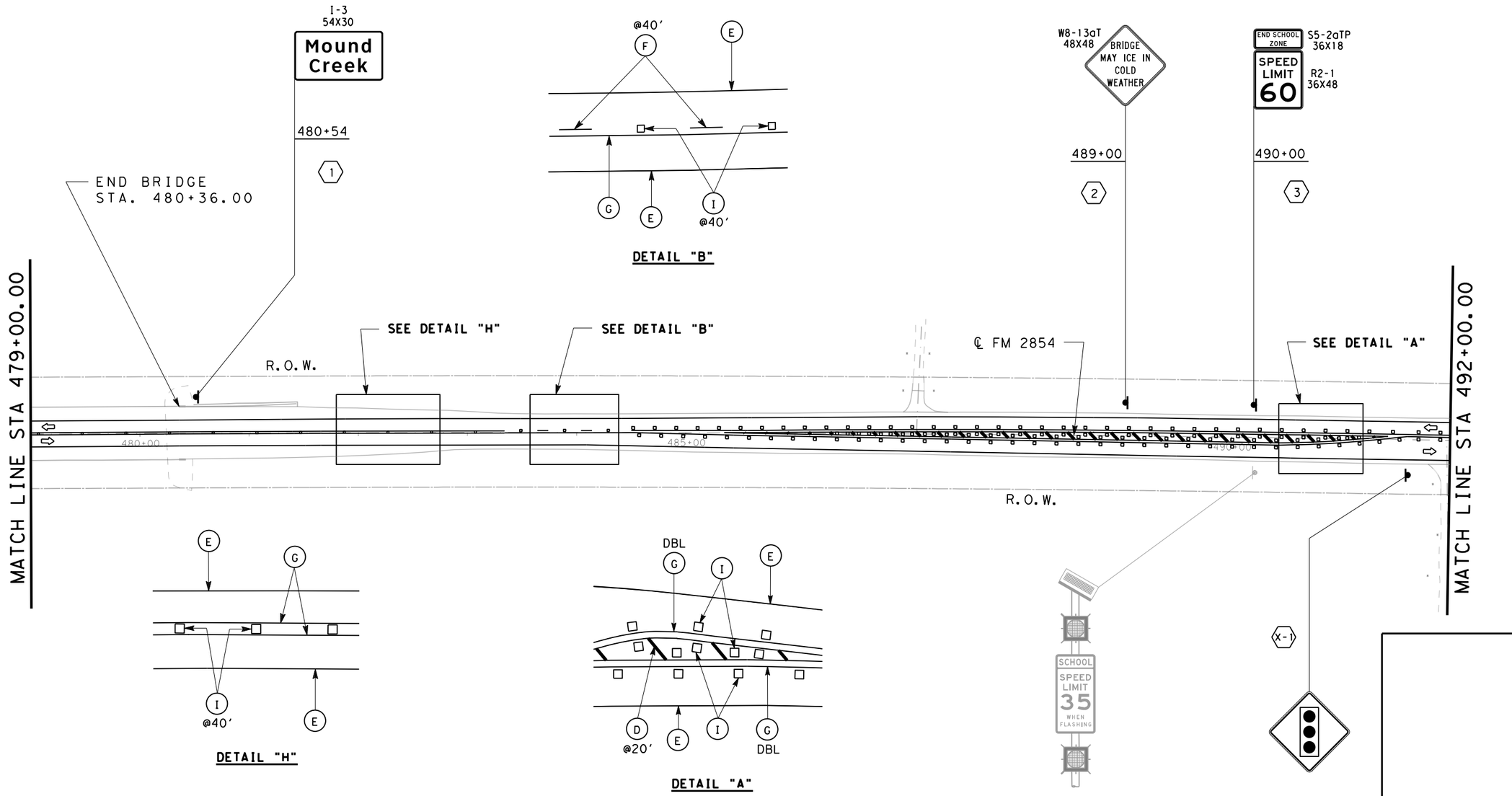

DETAIL "B"

DETAIL "H"

DETAIL "A"

SEE TRAFFIC SIGNAL LAYOUTS

LEGEND:

(A)	REFL PAV MRK TY I (W) 8" (SLD)(100MIL)		PREFAB PAV MRK TY C (W)(ARROW)
(B)	REFL PAV MRK TY I (W) 8" (BRK)(100MIL)		PREFAB PAV MRK TY C (W)(DBL ARROW)
(C)	REFL PAV MRK TY I (W) 24" (SLD)(100MIL)	ONLY	PREFAB PAV MRK TY C (W)(WORD)
(D)	REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)	⬡	PROPOSED SMALL SIGN
(E)	RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)	▨	EXIST SIGN TO REMAIN
(F)	RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)	(T-)	RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
(G)	RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)	(S-)	RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
(H)	REFL PAV MRKR TY I-C	(X-)	REMOVE SM RD SN SUP & AM (644-6076)
(I)	REFL PAV MRKR TY II-A-A		

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FM 2854
SIGNING & PAVEMENT MARKING LAYOUT

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CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		136

SCALE 1"=100'
SHEET 28 OF 55

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6/15/2022
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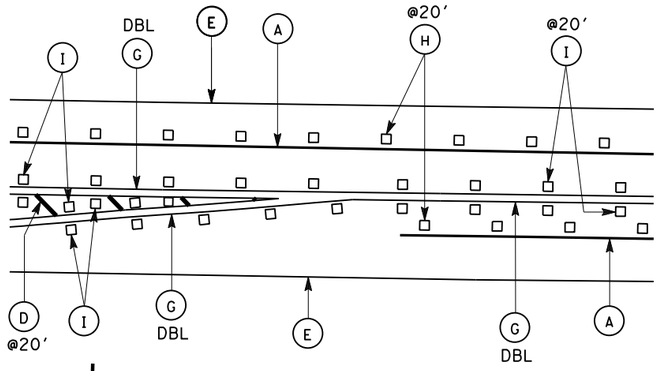
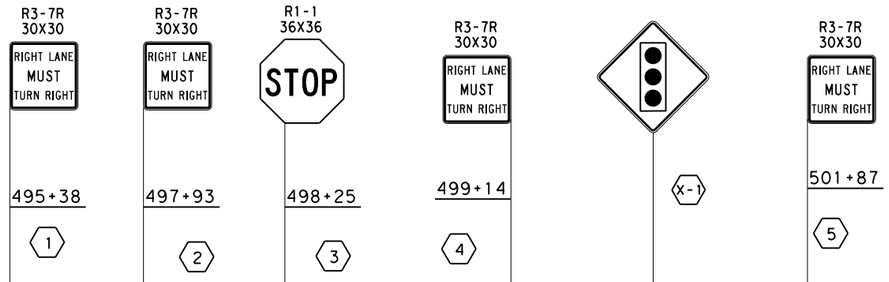
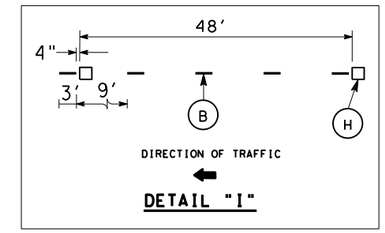
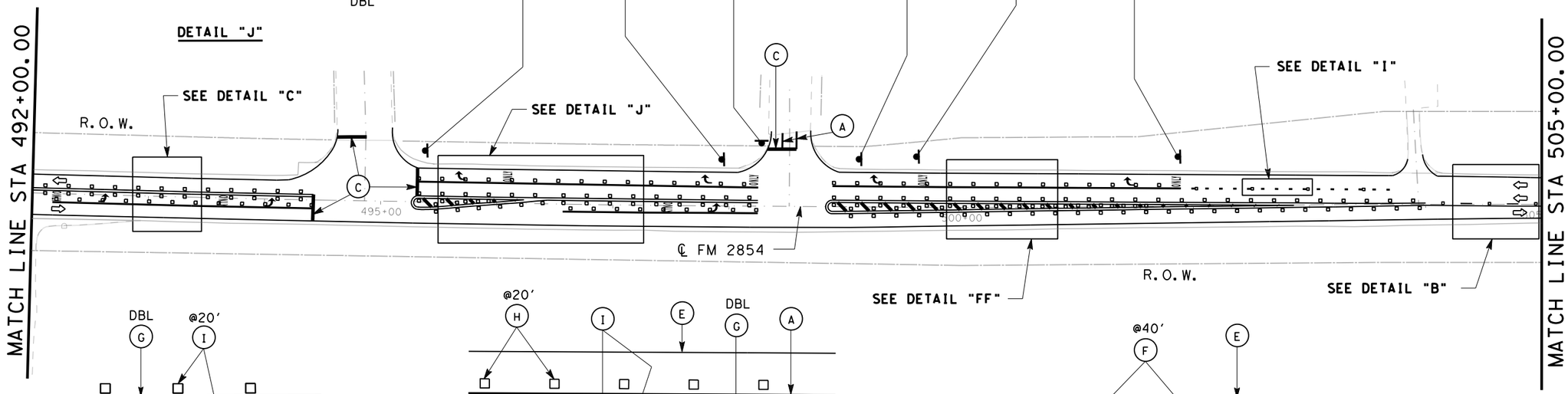


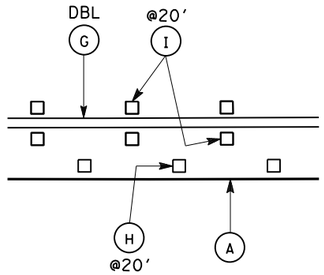




DETAIL "I"

DETAIL "J"





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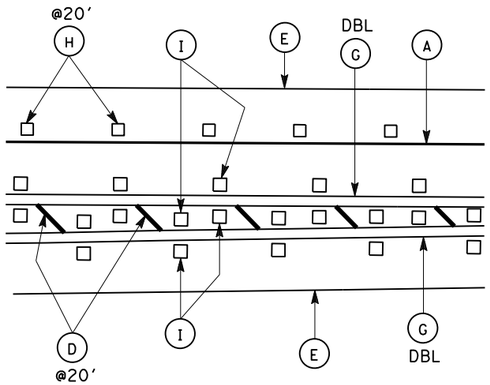

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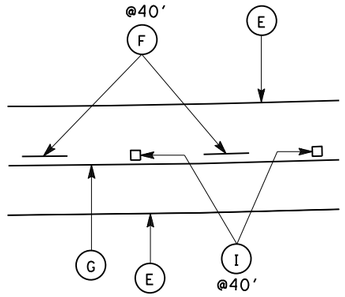

DETAIL "B"

LEGEND:

(A)	REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
(B)	REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
(C)	REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
(D)	REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
(E)	RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
(F)	RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
(G)	RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
(H)	REFL PAV MRKR TY I-C
(I)	REFL PAV MRKR TY II-A-A
	PREFAB PAV MRK TY C (W)(ARROW)
	PREFAB PAV MRK TY C (W)(DBL ARROW)
ONLY	PREFAB PAV MRK TY C (W)(WORD)
	PROPOSED SMALL SIGN
	EXIST SIGN TO REMAIN
(T-)	RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
(S-)	RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
(X-)	REMOVE SM RD SN SUP & AM (644-6076)

NOTE: ALL CONCRETE SURFACES USING THERMOPLASTIC PAVEMENT MARKINGS REQUIRE SEALER.

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SCALE 1"=100'
SHEET 29 OF 55

FM 2854
SIGNING & PAVEMENT MARKING LAYOUT

Texas Department of Transportation®

CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		137

1:16:39 PM
6/15/2022
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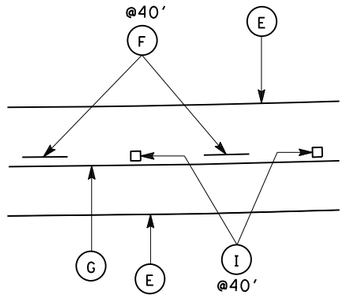
SEE TRAFFIC SIGNAL LAYOUTS



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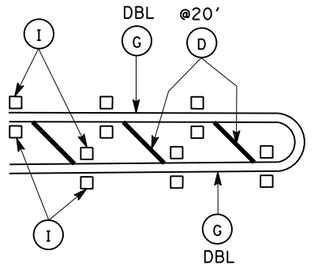


DETAIL "EE"

MATCH LINE STA 505+00.00

R.O.W.

510+00

SEE DETAIL "B"

515+00

SEE DETAIL "EE"

SEE DETAIL "CC"

℄ FM 2854

R.O.W.

JOHNSON RD

MATCH LINE STA 518+00.00

515+15

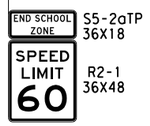
516+40

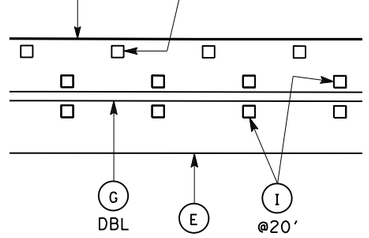
517+50

514+07

516+93

507+10





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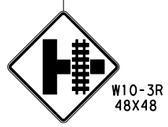

LEGEND:

- (A) REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
- (B) REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
- (C) REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
- (D) REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
- (E) RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
- (F) RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
- (G) RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
- (H) REFL PAV MRKR TY I-C
- (I) REFL PAV MRKR TY II-A-A

- PREFAB PAV MRK TY C (W)(ARROW)
- PREFAB PAV MRK TY C (W)(DBL ARROW)
- ONLY PREFAB PAV MRK TY C (W)(WORD)
- PROPOSED SMALL SIGN
- EXIST SIGN TO REMAIN
- (T-) RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
- (S-) RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
- (X-) REMOVE SM RD SN SUP & AM (644-6076)

NOTE: ALL CONCRETE SURFACES USING THERMOPLASTIC PAVEMENT MARKINGS REQUIRE SEALER.

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06/16/2022.

FM 2854
SIGNING & PAVEMENT MARKING LAYOUT

Texas Department of Transportation®

CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		138

SCALE 1"=100'
SHEET 30 OF 55

1:20:53 PM
6/15/2022
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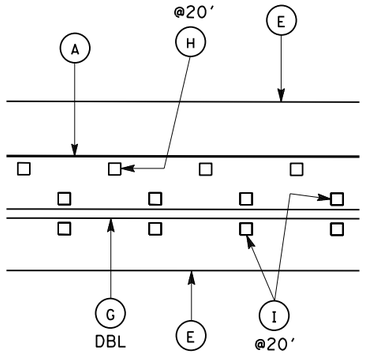

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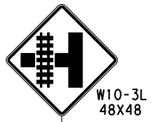

523+50

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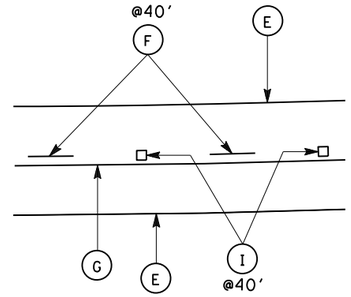
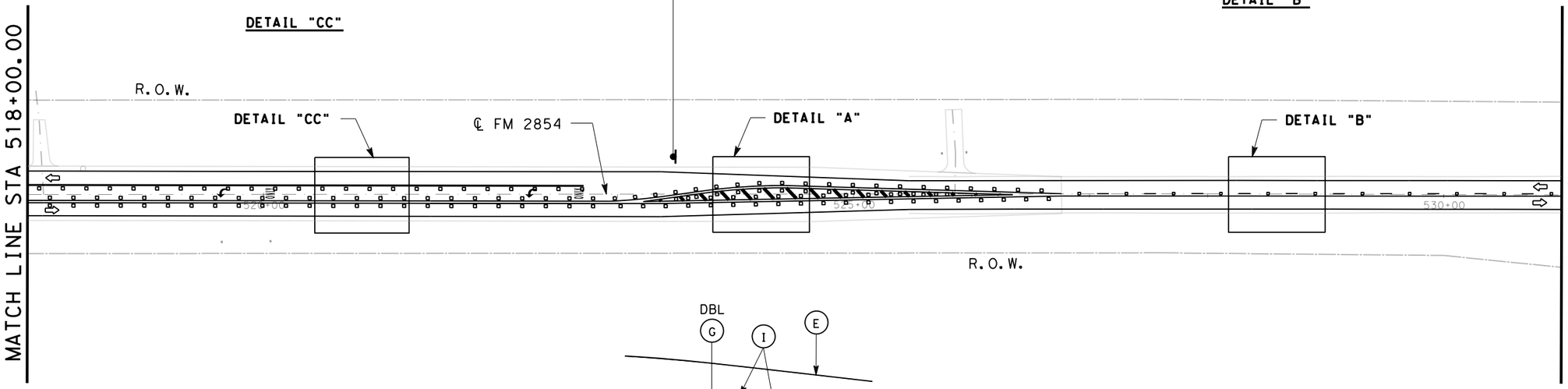
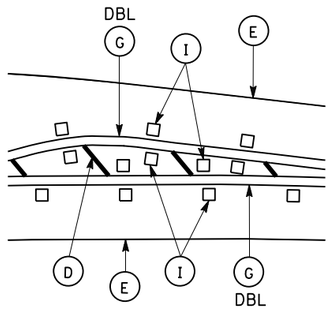


DETAIL "B"





DETAIL "A"

LEGEND:

(A)	REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
(B)	REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
(C)	REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
(D)	REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
(E)	RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
(F)	RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
(G)	RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
(H)	REFL PAV MRKR TY I-C
(I)	REFL PAV MRKR TY II-A-A
↰	PREFAB PAV MRK TY C (W)(ARROW)
↰↱	PREFAB PAV MRK TY C (W)(DBL ARROW)
ONLY	PREFAB PAV MRK TY C (W)(WORD)
⬡	PROPOSED SMALL SIGN
▨	EXIST SIGN TO REMAIN
T-	RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
S-	RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
X-	REMOVE SM RD SN SUP & AM (644-6076)

NOTE: ALL CONCRETE SURFACES USING THERMOPLASTIC PAVEMENT MARKINGS REQUIRE SEALER.

STATE OF TEXAS
GAURANG S. PANDIT
111896
REGISTERED PROFESSIONAL ENGINEER

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06/16/2022.

FM 2854
SIGNING & PAVEMENT MARKING LAYOUT

Texas Department of Transportation®

CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		139

SCALE 1"=100'
SHEET 31 OF 55

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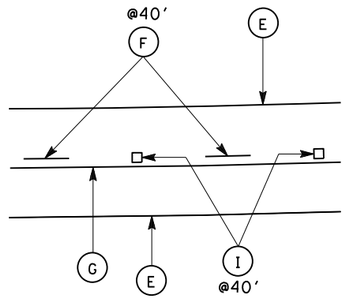

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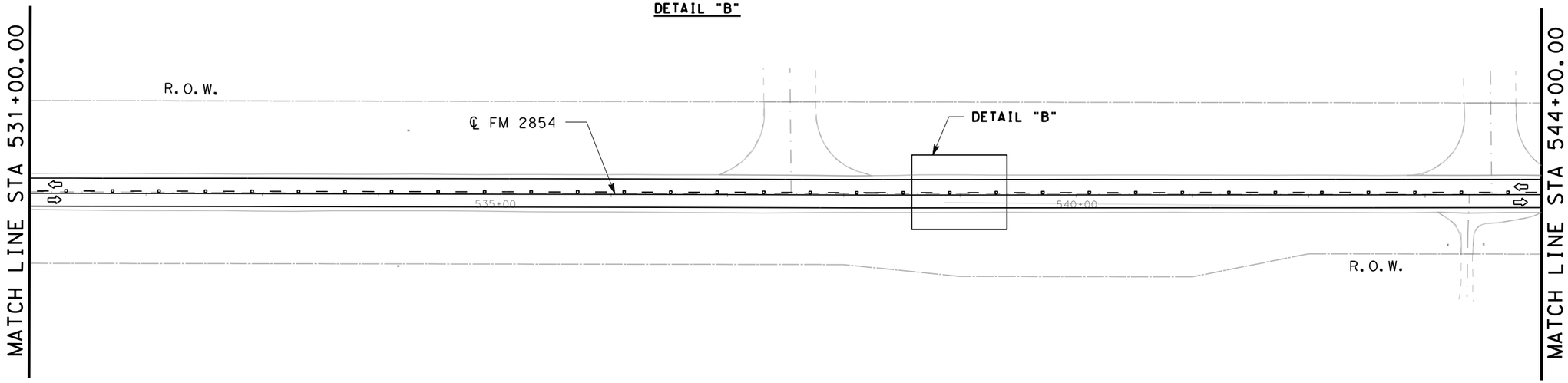

LEGEND:

(A)	REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
(B)	REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
(C)	REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
(D)	REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
(E)	RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
(F)	RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
(G)	RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
(H)	REFL PAV MRKR TY I-C
(I)	REFL PAV MRKR TY II-A-A
	PREFAB PAV MRK TY C (W)(ARROW)
	PREFAB PAV MRK TY C (W)(DBL ARROW)
ONLY	PREFAB PAV MRK TY C (W)(WORD)
	PROPOSED SMALL SIGN
	EXIST SIGN TO REMAIN
T-	RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
S-	RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
X-	REMOVE SM RD SN SUP & AM (644-6076)

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FM 2854
SIGNING & PAVEMENT MARKING LAYOUT

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CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		140

SCALE 1"=100'
SHEET 32 OF 55

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6/15/2022
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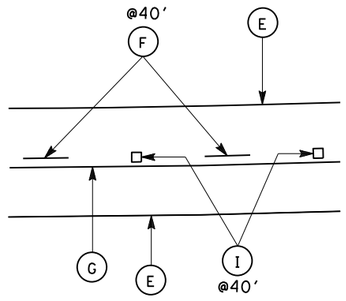

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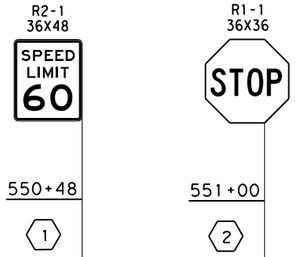

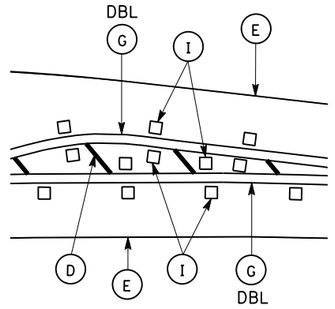

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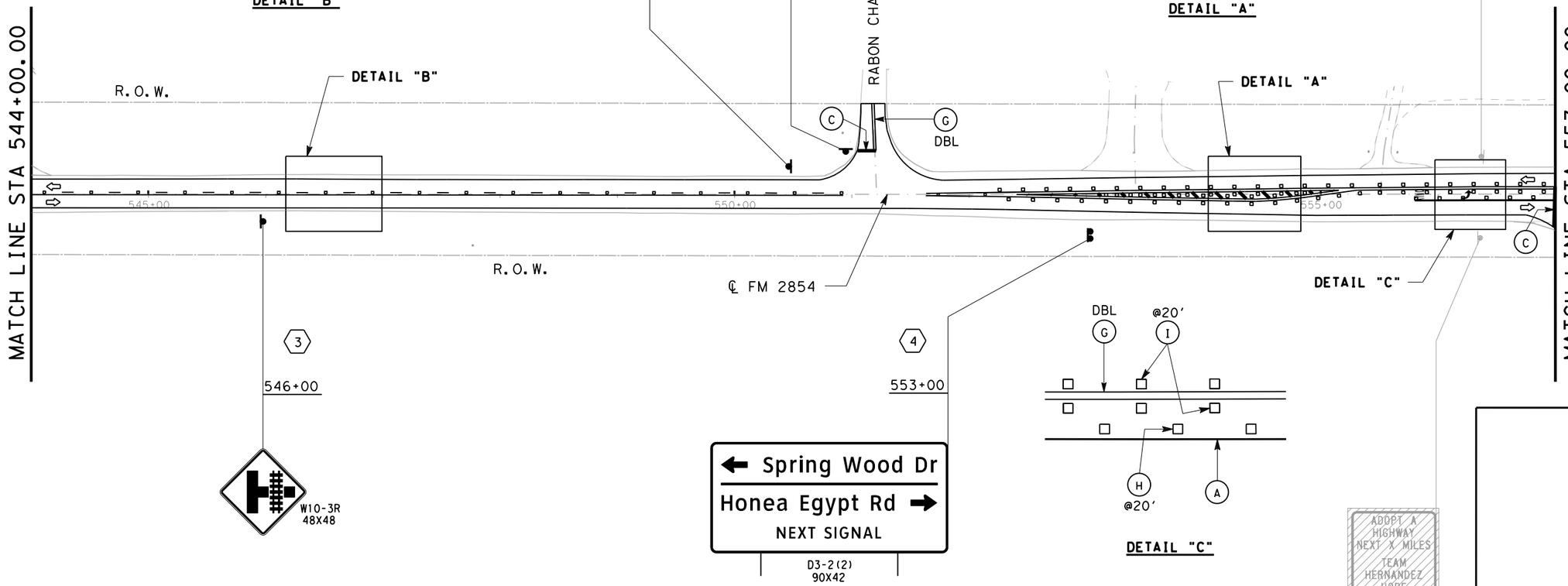

DETAIL "C"

LEGEND:

(A)	REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
(B)	REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
(C)	REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
(D)	REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
(E)	RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
(F)	RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
(G)	RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
(H)	REFL PAV MRKR TY I-C
(I)	REFL PAV MRKR TY II-A-A
	PREFAB PAV MRK TY C (W)(ARROW)
	PREFAB PAV MRK TY C (W)(DBL ARROW)
ONLY	PREFAB PAV MRK TY C (W)(WORD)
	PROPOSED SMALL SIGN
	EXIST SIGN TO REMAIN
T-	RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
S-	RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
X-	REMOVE SM RD SN SUP & AM (644-6076)

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FM 2854
SIGNING & PAVEMENT MARKING LAYOUT

Texas Department of Transportation®

CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		141

SCALE 1"=100'
SHEET 33 OF 55

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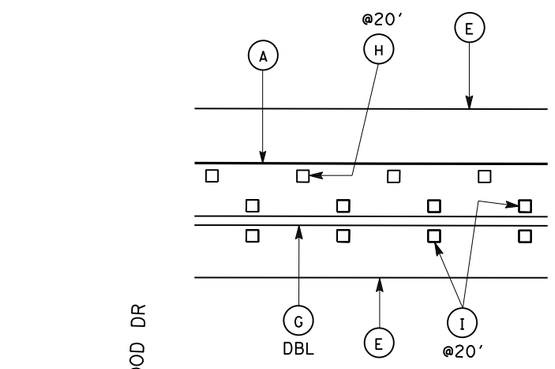

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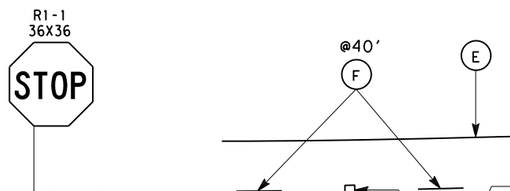

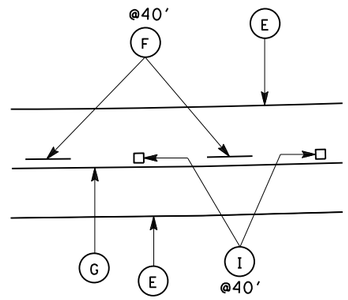

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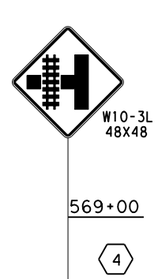

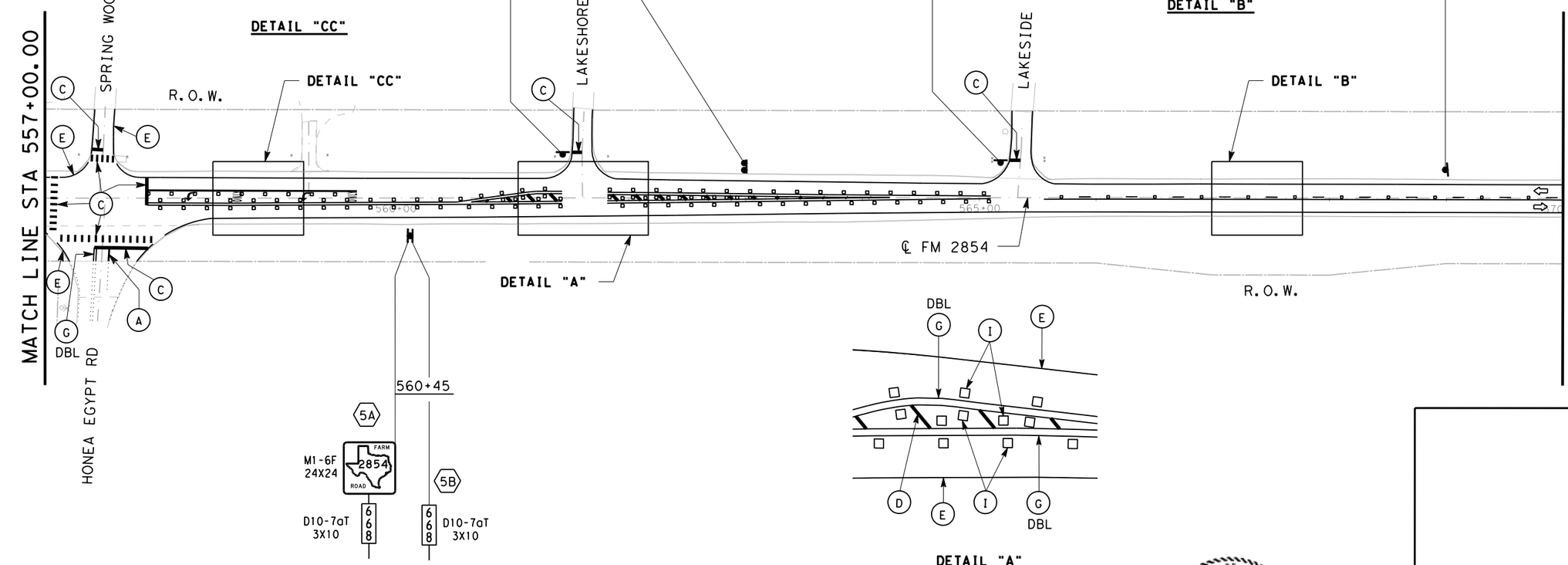

DETAIL "A"

LEGEND:

- (A) REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
- (B) REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
- (C) REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
- (D) REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
- (E) RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
- (F) RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
- (G) RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
- (H) REFL PAV MRKR TY I-C
- (I) REFL PAV MRKR TY II-A-A

- PREFAB PAV MRK TY C (W)(ARROW)
- PREFAB PAV MRK TY C (W)(DBL ARROW)
- ONLY PREFAB PAV MRK TY C (W)(WORD)
- PROPOSED SMALL SIGN
- EXIST SIGN TO REMAIN
- (T-) RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
- (S-) RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
- (X-) REMOVE SM RD SN SUP & AM (644-6076)

NOTE: ALL CONCRETE SURFACES USING THERMOPLASTIC PAVEMENT MARKINGS REQUIRE SEALER.

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FM 2854
SIGNING & PAVEMENT MARKING LAYOUT

Texas Department of Transportation®

CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		142

SCALE 1"=100'
SHEET 34 OF 55

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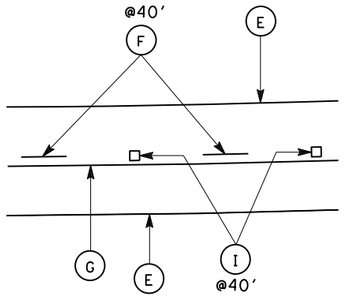
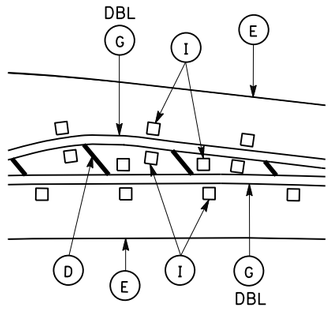


DETAIL "B"

574+75

1

LAKEVIEW FOREST DR



DETAIL "A"

MATCH LINE STA 570+00.00

R.O.W.

C

℄ FM 2854

575+00

580+00

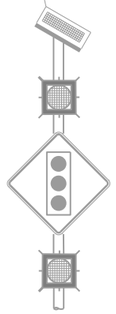
SEE DETAIL "A"

SEE DETAIL "B"

SEE DETAIL "B"

R.O.W.

MATCH LINE STA 583+00.00



SEE TRAFFIC
SIGNAL LAYOUTS

2

579+00

R2-1
36X48

LEGEND:

- (A) REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
- (B) REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
- (C) REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
- (D) REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
- (E) RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
- (F) RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
- (G) RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
- (H) REFL PAV MRKR TY I-C
- (I) REFL PAV MRKR TY II-A-A

- PREFAB PAV MRK TY C (W)(ARROW)
- PREFAB PAV MRK TY C (W)(DBL ARROW)
- ONLY PREFAB PAV MRK TY C (W)(WORD)
- PROPOSED SMALL SIGN
- EXIST SIGN TO REMAIN
- (T-) RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
- (S-) RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
- (X-) REMOVE SM RD SN SUP & AM (644-6076)

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CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		143

SCALE 1"=100'
SHEET 35 OF 55

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6/15/2022
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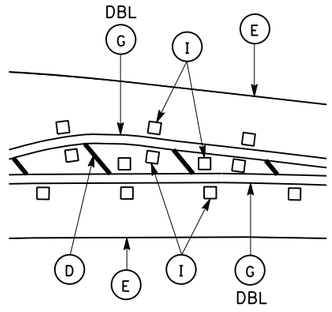

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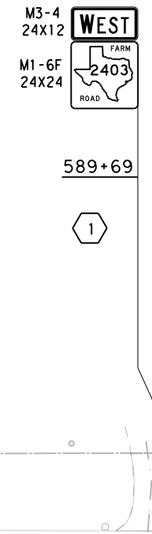

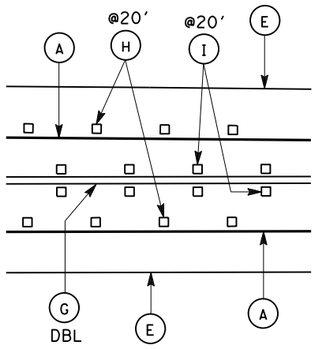

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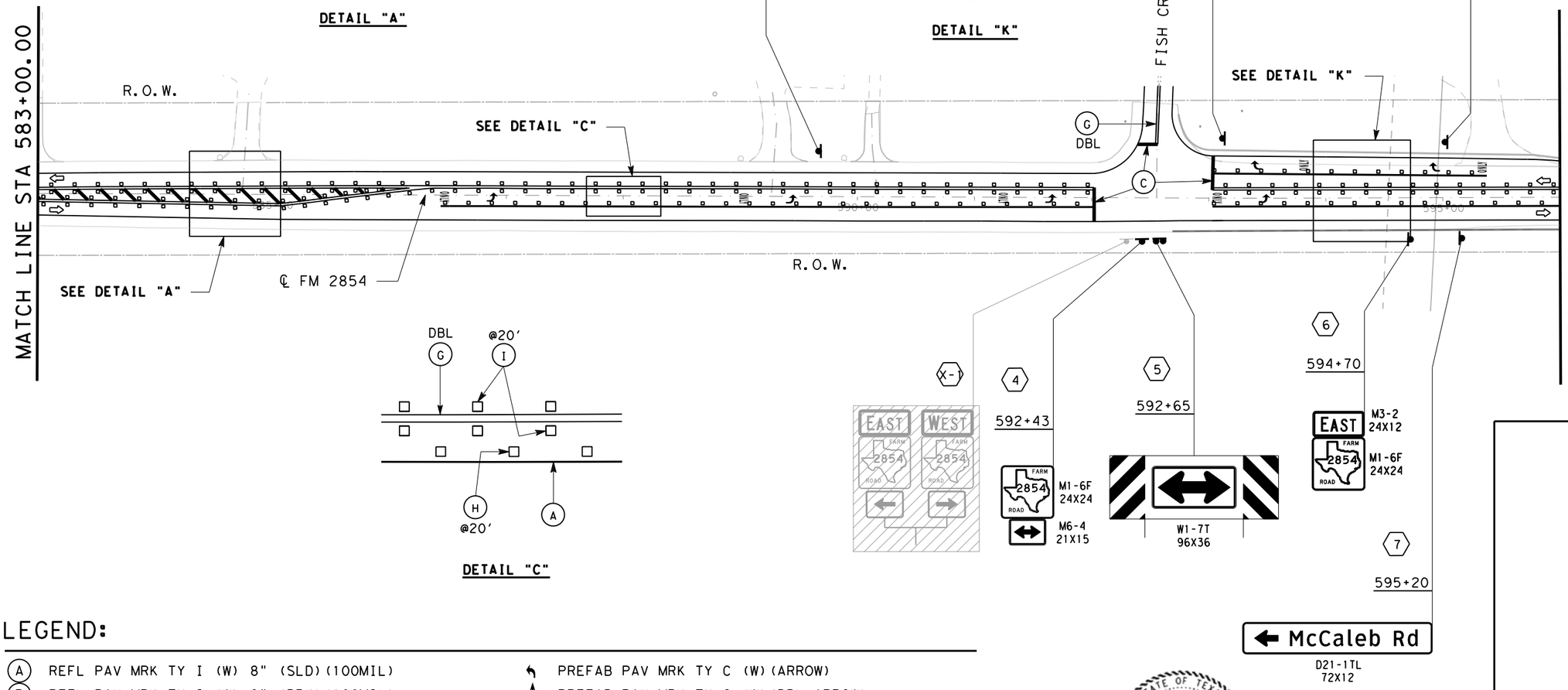

DETAIL "C"

LEGEND:

(A)	REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
(B)	REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
(C)	REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
(D)	REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
(E)	RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
(F)	RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
(G)	RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
(H)	REFL PAV MRKR TY I-C
(I)	REFL PAV MRKR TY II-A-A
	PREFAB PAV MRK TY C (W)(ARROW)
	PREFAB PAV MRK TY C (W)(DBL ARROW)
ONLY	PREFAB PAV MRK TY C (W)(WORD)
	PROPOSED SMALL SIGN
	EXIST SIGN TO REMAIN
(T-)	RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
(S-)	RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
(X-)	REMOVE SM RD SN SUP & AM (644-6076)

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FM 2854
SIGNING & PAVEMENT MARKING LAYOUT

Texas Department of Transportation®

CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		144

SCALE 1"=100'
SHEET 36 OF 55

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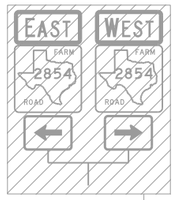


R3-7R
30X30
RIGHT LANE
MUST
TURN RIGHT

598+35

1

D21-1TL
72X12
McCaleb Rd

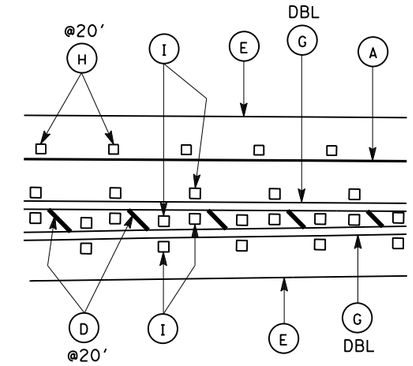
599+00

2

R3-7R
30X30
RIGHT LANE
MUST
TURN RIGHT

601+00

3



DETAIL "FF"

McCALEB RD

DBL
G

R.O.W.

SEE DETAIL "FF"

SEE DETAIL "B"

C

ONLY

605+00

MATCH LINE STA 596+00.00

SEE
DETAIL "K"

℄ FM 2854

4

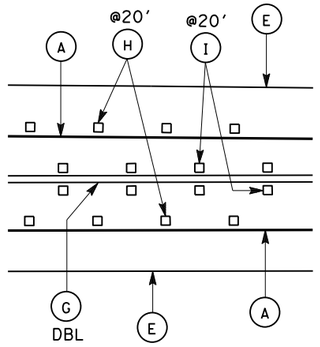
598+40

SPEED
LIMIT
60

R2-1
36X48

R.O.W.

MATCH LINE STA 609+00.00



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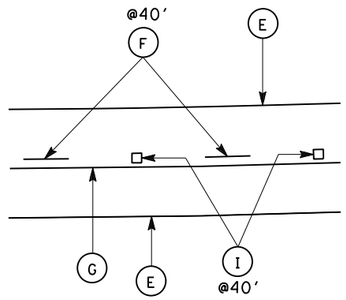

DETAIL "B"

LEGEND:

(A)	REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
(B)	REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
(C)	REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
(D)	REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
(E)	RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
(F)	RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
(G)	RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
(H)	REFL PAV MRKR TY I-C
(I)	REFL PAV MRKR TY II-A-A
	PREFAB PAV MRK TY C (W)(ARROW)
	PREFAB PAV MRK TY C (W)(DBL ARROW)
ONLY	PREFAB PAV MRK TY C (W)(WORD)
	PROPOSED SMALL SIGN
	EXIST SIGN TO REMAIN
T-	RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
S-	RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
X-	REMOVE SM RD SN SUP & AM (644-6076)

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FM 2854
SIGNING & PAVEMENT MARKING LAYOUT

Texas Department of Transportation®

CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		145

SCALE 1"=100'
SHEET 37 OF 55

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6/15/2022
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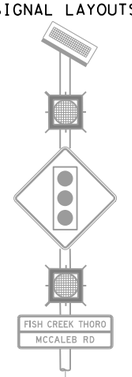
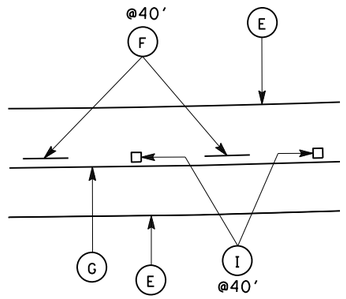
SEE TRAFFIC SIGNAL LAYOUTS





DETAIL "B"

R2-1
36X48
SPEED LIMIT 60

619+00

1

MATCH LINE STA 609+00.00

R.O.W.

℄ FM 2854

610+00

615+00

620+00

SEE DETAIL "B"

R.O.W.

MATCH LINE STA 622+00.00

2

619+00

SPEED LIMIT 60

R2-1
36X48

3

621+20

W10-3R
48X48

LOW GROUND CLEARANCE

W10-5P
30X24

LEGEND:

(A)	REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
(B)	REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
(C)	REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
(D)	REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
(E)	RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
(F)	RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
(G)	RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
(H)	REFL PAV MRKR TY I-C
(I)	REFL PAV MRKR TY II-A-A

	PREFAB PAV MRK TY C (W)(ARROW)
	PREFAB PAV MRK TY C (W)(DBL ARROW)
ONLY	PREFAB PAV MRK TY C (W)(WORD)
	PROPOSED SMALL SIGN
	EXIST SIGN TO REMAIN
(T-)	RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
(S-)	RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
(X-)	REMOVE SM RD SN SUP & AM (644-6076)

NOTE: ALL CONCRETE SURFACES USING THERMOPLASTIC PAVEMENT MARKINGS REQUIRE SEALER.

STATE OF TEXAS
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111896
REGISTERED PROFESSIONAL ENGINEER

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06/16/2022.

SCALE 1"=100'
SHEET 38 OF 55

FM 2854
SIGNING & PAVEMENT MARKING LAYOUT

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CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		146

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6/15/2022
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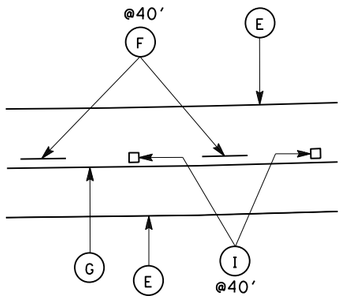

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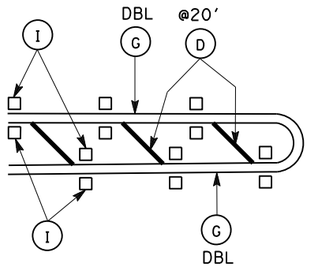

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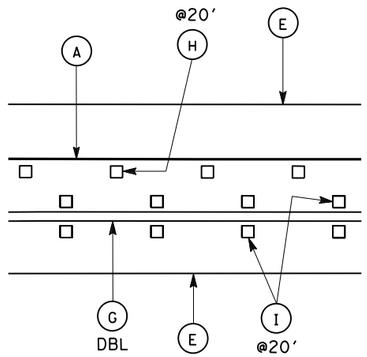

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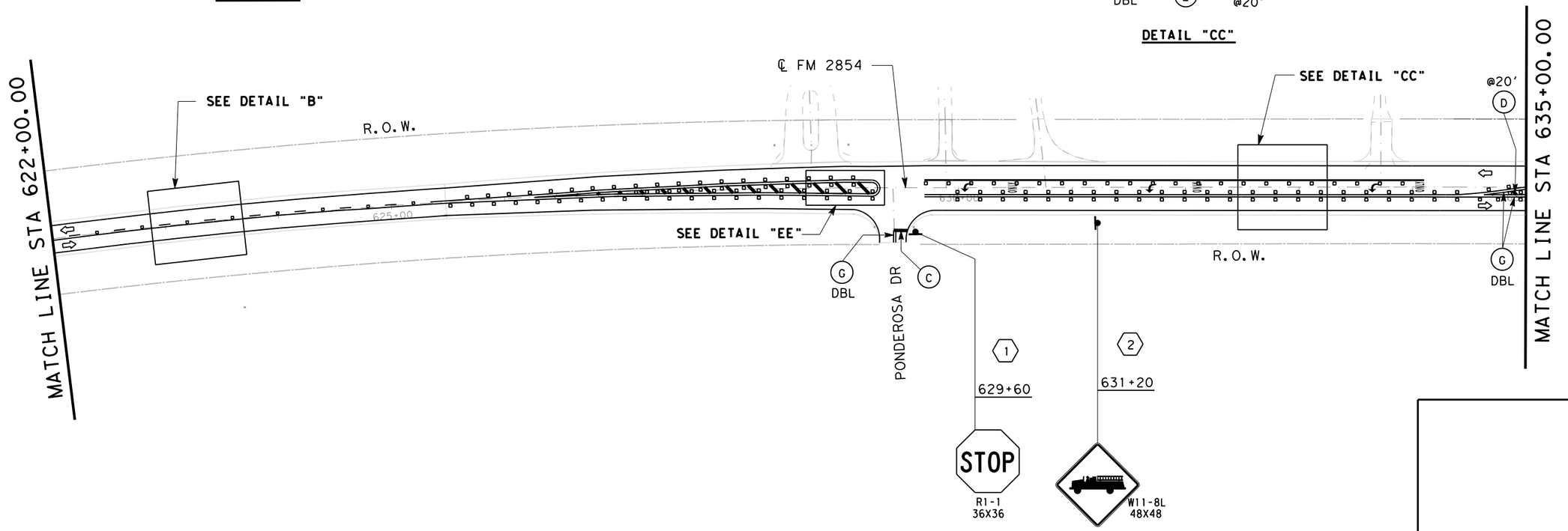

LEGEND:

(A)	REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
(B)	REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
(C)	REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
(D)	REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
(E)	RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
(F)	RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
(G)	RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
(H)	REFL PAV MRKR TY I-C
(I)	REFL PAV MRKR TY II-A-A
	PREFAB PAV MRK TY C (W)(ARROW)
	PREFAB PAV MRK TY C (W)(DBL ARROW)
ONLY	PREFAB PAV MRK TY C (W)(WORD)
	PROPOSED SMALL SIGN
	EXIST SIGN TO REMAIN
T-	RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
S-	RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
X-	REMOVE SM RD SN SUP & AM (644-6076)

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SHEET 39 OF 55

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SIGNING & PAVEMENT MARKING LAYOUT

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CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		147

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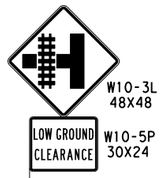

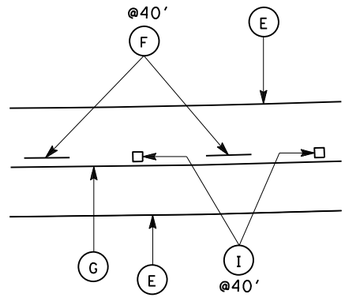

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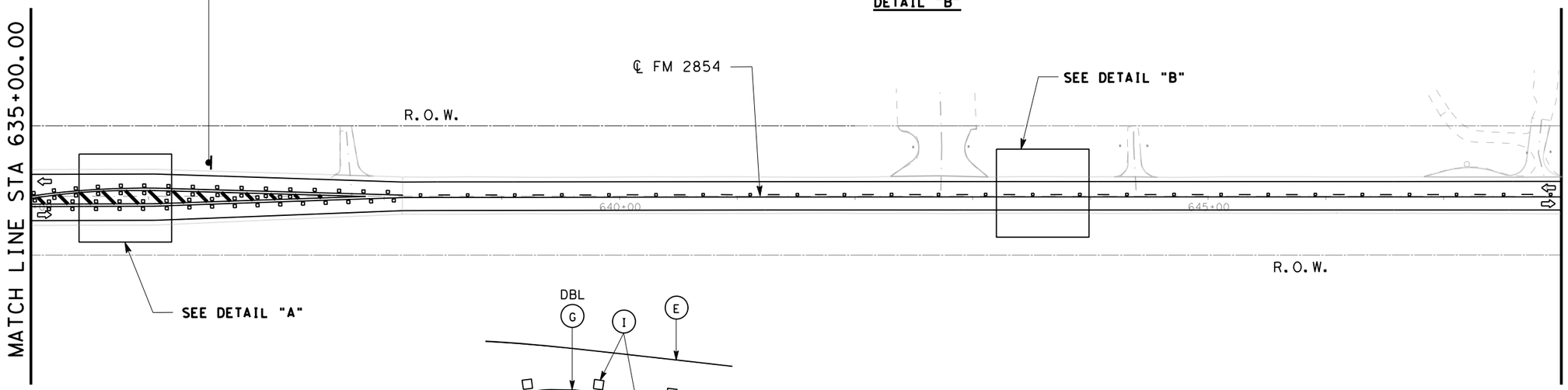

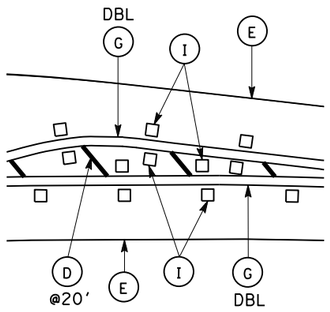

DETAIL "A"

LEGEND:

(A)	REFL PAV MRK TY I (W) 8" (SLD)(100MIL)	↰	PREFAB PAV MRK TY C (W)(ARROW)
(B)	REFL PAV MRK TY I (W) 8" (BRK)(100MIL)	↰↱	PREFAB PAV MRK TY C (W)(DBL ARROW)
(C)	REFL PAV MRK TY I (W) 24" (SLD)(100MIL)	ONLY	PREFAB PAV MRK TY C (W)(WORD)
(D)	REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)	⬡	PROPOSED SMALL SIGN
(E)	RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)	▨	EXIST SIGN TO REMAIN
(F)	RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)	⟨T-⟩	RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
(G)	RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)	⟨S-⟩	RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
(H)	REFL PAV MRKR TY I-C	⟨X-⟩	REMOVE SM RD SN SUP & AM (644-6076)
(I)	REFL PAV MRKR TY II-A-A		

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CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		148

SCALE 1"=100'
SHEET 40 OF 55

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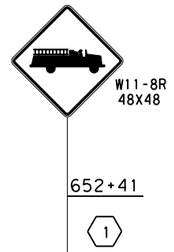

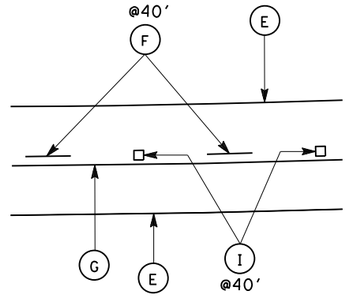

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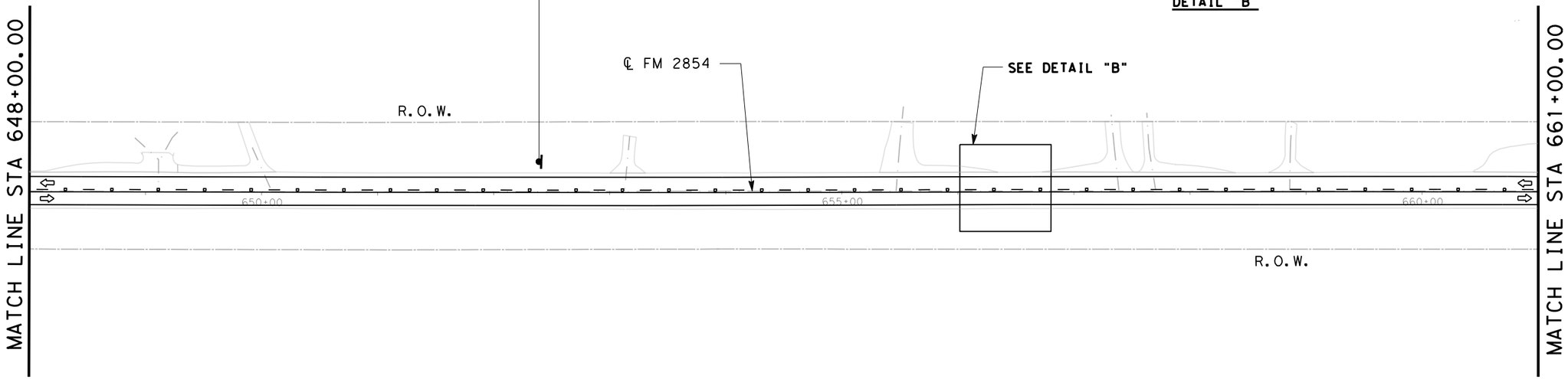

LEGEND:

A	REFL PAV MRK TY I (W) 8" (SLD)(100MIL)	↰	PREFAB PAV MRK TY C (W)(ARROW)
B	REFL PAV MRK TY I (W) 8" (BRK)(100MIL)	↰↱	PREFAB PAV MRK TY C (W)(DBL ARROW)
C	REFL PAV MRK TY I (W) 24" (SLD)(100MIL)	ONLY	PREFAB PAV MRK TY C (W)(WORD)
D	REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)	⬡	PROPOSED SMALL SIGN
E	RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)	▨	EXIST SIGN TO REMAIN
F	RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)	T-	RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
G	RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)	S-	RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
H	REFL PAV MRKR TY I-C	X-	REMOVE SM RD SN SUP & AM (644-6076)
I	REFL PAV MRKR TY II-A-A		

NOTE: ALL CONCRETE SURFACES USING THERMOPLASTIC PAVEMENT MARKINGS REQUIRE SEALER.

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SHEET 41 OF 55

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CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		149

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6/15/2022
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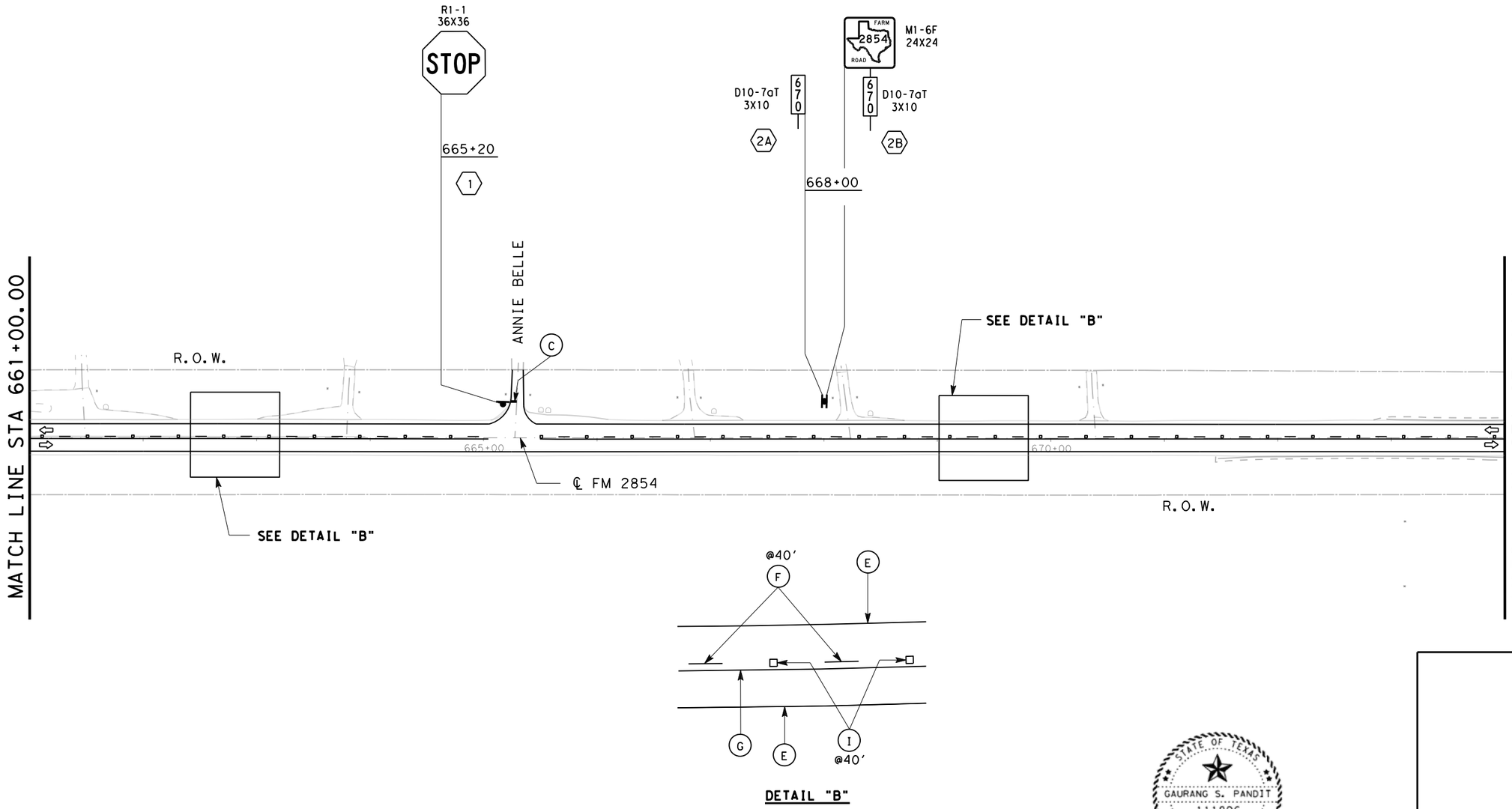

DETAIL "B"

LEGEND:

A	REFL PAV MRK TY I (W) 8" (SLD)(100MIL)		PREFAB PAV MRK TY C (W)(ARROW)
B	REFL PAV MRK TY I (W) 8" (BRK)(100MIL)		PREFAB PAV MRK TY C (W)(DBL ARROW)
C	REFL PAV MRK TY I (W) 24" (SLD)(100MIL)	ONLY	PREFAB PAV MRK TY C (W)(WORD)
D	REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)		PROPOSED SMALL SIGN
E	RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)		EXIST SIGN TO REMAIN
F	RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)	T-	RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
G	RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)	S-	RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
H	REFL PAV MRKR TY I-C	X-	REMOVE SM RD SN SUP & AM (644-6076)
I	REFL PAV MRKR TY II-A-A		

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CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		150

SCALE 1"=100'
SHEET 42 OF 55

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6/15/2022
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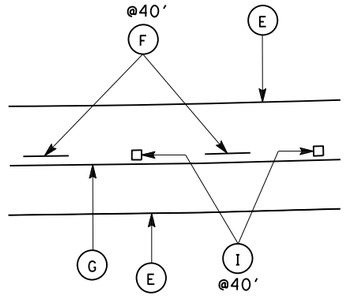

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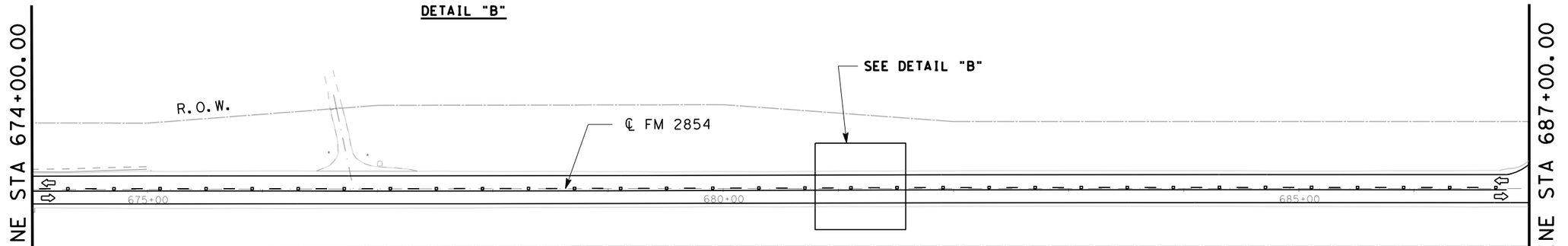

LEGEND:

(A)	REFL PAV MRK TY I (W) 8" (SLD)(100MIL)		PREFAB PAV MRK TY C (W)(ARROW)
(B)	REFL PAV MRK TY I (W) 8" (BRK)(100MIL)		PREFAB PAV MRK TY C (W)(DBL ARROW)
(C)	REFL PAV MRK TY I (W) 24" (SLD)(100MIL)	ONLY	PREFAB PAV MRK TY C (W)(WORD)
(D)	REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)		PROPOSED SMALL SIGN
(E)	RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)		EXIST SIGN TO REMAIN
(F)	RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)	T-	RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
(G)	RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)	S-	RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
(H)	REFL PAV MRKR TY I-C	X-	REMOVE SM RD SN SUP & AM (644-6076)
(I)	REFL PAV MRKR TY II-A-A		

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CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		151

SCALE 1"=100'
SHEET 43 OF 55

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6/15/2022
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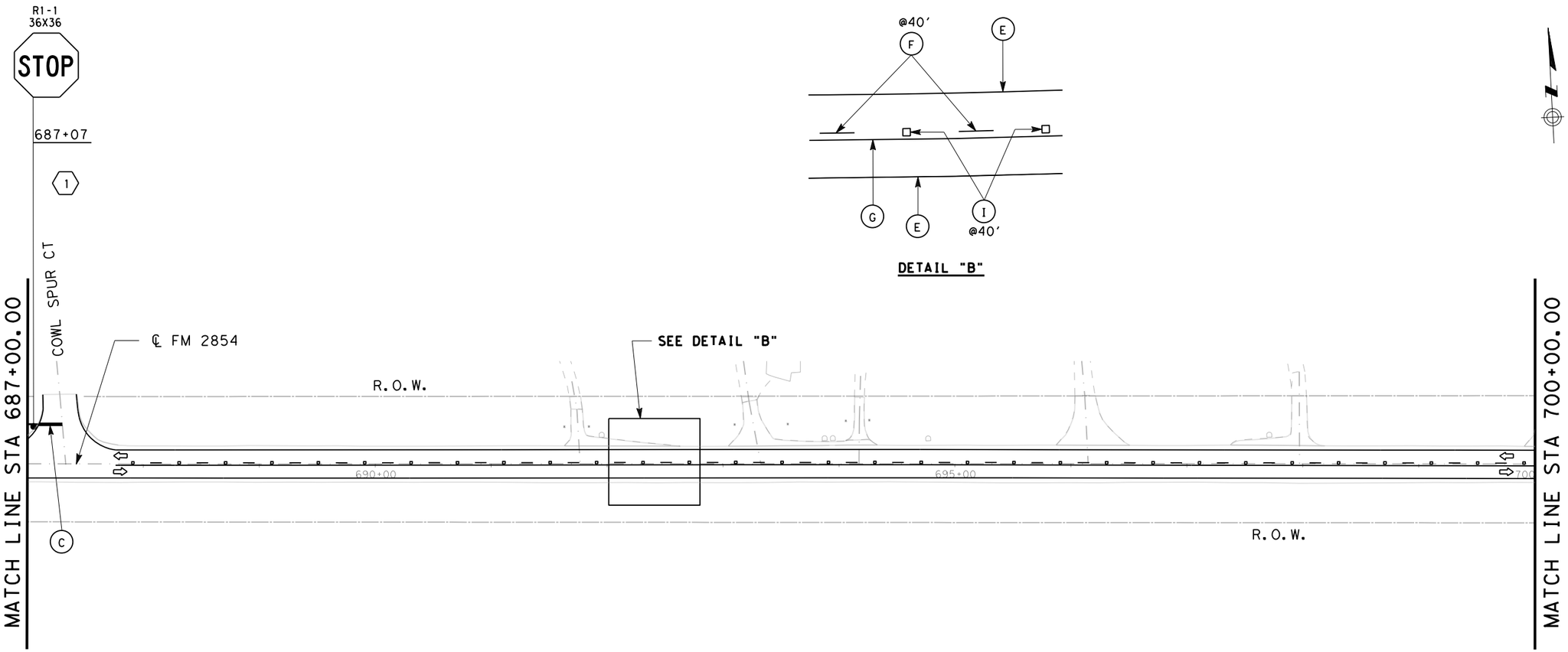

DETAIL "B"

LEGEND:

(A)	REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
(B)	REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
(C)	REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
(D)	REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
(E)	RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
(F)	RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
(G)	RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
(H)	REFL PAV MRKR TY I-C
(I)	REFL PAV MRKR TY II-A-A
	PREFAB PAV MRK TY C (W)(ARROW)
	PREFAB PAV MRK TY C (W)(DBL ARROW)
ONLY	PREFAB PAV MRK TY C (W)(WORD)
	PROPOSED SMALL SIGN
	EXIST SIGN TO REMAIN
T-	RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
S-	RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
X-	REMOVE SM RD SN SUP & AM (644-6076)

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SCALE 1"=100'
SHEET 44 OF 55

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SIGNING & PAVEMENT MARKING LAYOUT

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CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		152

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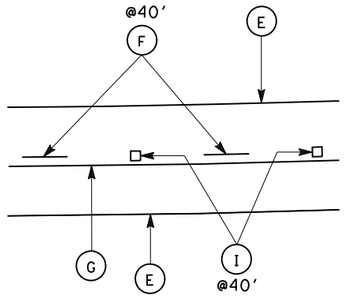

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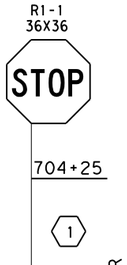
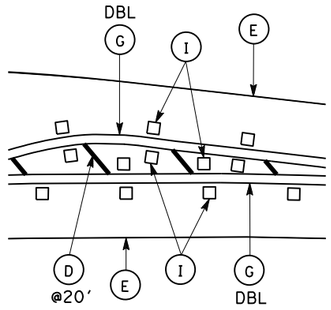




DETAIL "A"

ADOPT A HIGHWAY NEXT X MILES
TEAM HERNANDEZ HOPE

MATCH LINE STA 700+00.00

SEE DETAIL "B"

R.O.W.

MISTY HAVEN DR

C

SEE DETAIL "B"

SEE DETAIL "A"

705+00

710+00

℄ FM 2854

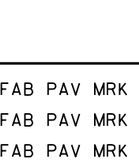
SEE DETAIL "C"

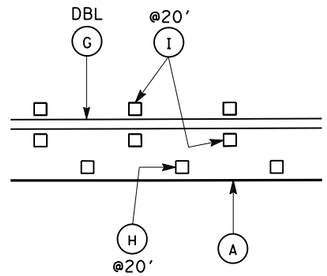
R.O.W.

MATCH LINE STA 713+00.00

2

705+00





DETAIL "C"

LEGEND:

(A)	REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
(B)	REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
(C)	REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
(D)	REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
(E)	RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
(F)	RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
(G)	RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
(H)	REFL PAV MRKR TY I-C
(I)	REFL PAV MRKR TY II-A-A
	PREFAB PAV MRK TY C (W)(ARROW)
	PREFAB PAV MRK TY C (W)(DBL ARROW)
ONLY	PREFAB PAV MRK TY C (W)(WORD)
	PROPOSED SMALL SIGN
	EXIST SIGN TO REMAIN
T-	RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
S-	RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
X-	REMOVE SM RD SN SUP & AM (644-6076)

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CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		153

SCALE 1"=100'
SHEET 45 OF 55

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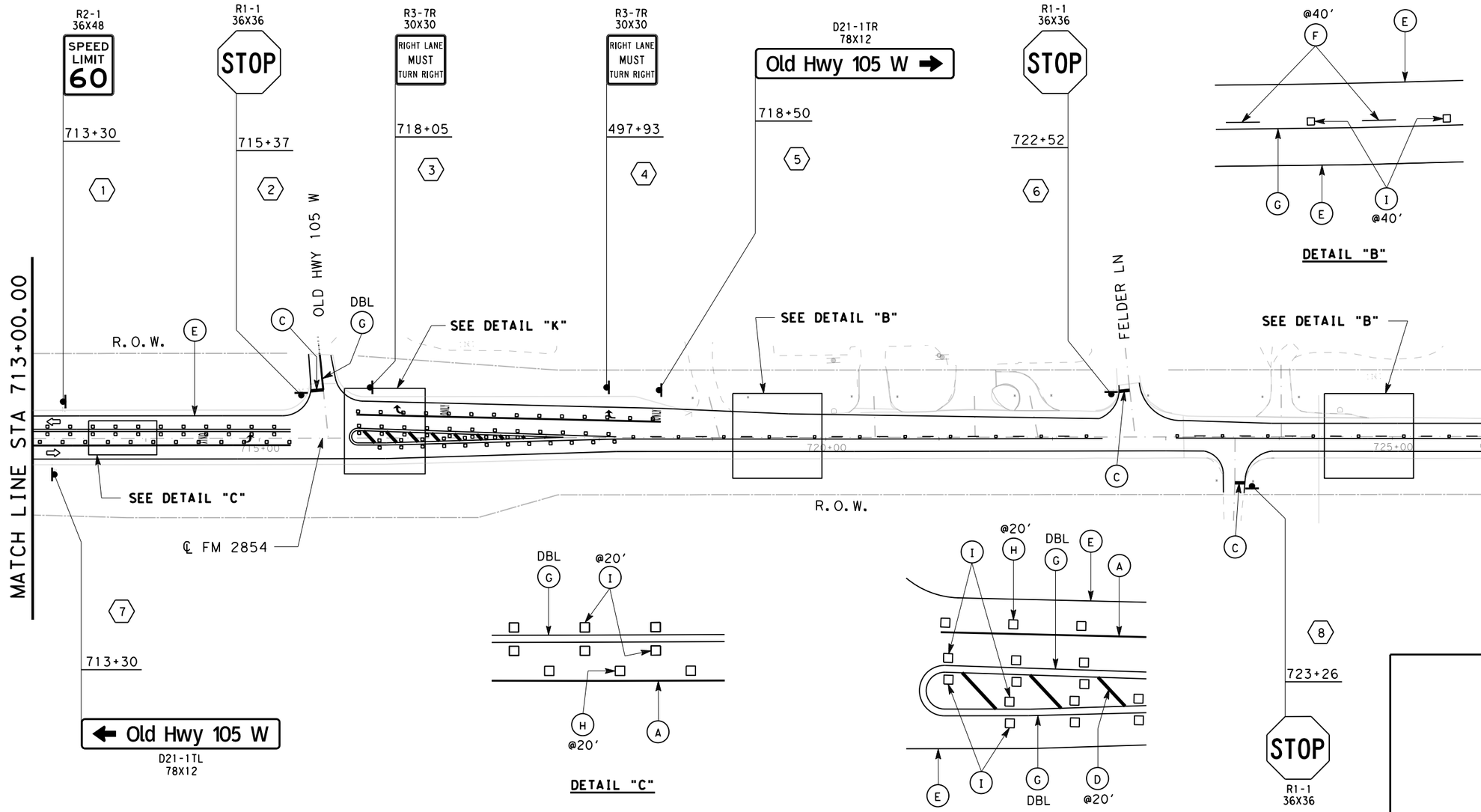

LEGEND:

(A)	REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
(B)	REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
(C)	REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
(D)	REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
(E)	RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
(F)	RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
(G)	RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
(H)	REFL PAV MRKR TY I-C
(I)	REFL PAV MRKR TY II-A-A
	PREFAB PAV MRK TY C (W)(ARROW)
	PREFAB PAV MRK TY C (W)(DBL ARROW)
ONLY	PREFAB PAV MRK TY C (W)(WORD)
	PROPOSED SMALL SIGN
	EXIST SIGN TO REMAIN
(T-)	RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
(S-)	RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
(X-)	REMOVE SM RD SN SUP & AM (644-6076)

NOTE: ALL CONCRETE SURFACES USING THERMOPLASTIC PAVEMENT MARKINGS REQUIRE SEALER.

STATE OF TEXAS
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06/16/2022.

SCALE 1"=100'
SHEET 46 OF 55

FM 2854
SIGNING & PAVEMENT MARKING LAYOUT

Texas Department of Transportation®

CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		154

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6/15/2022
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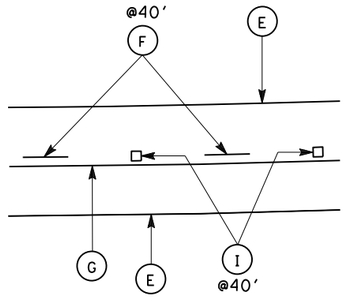
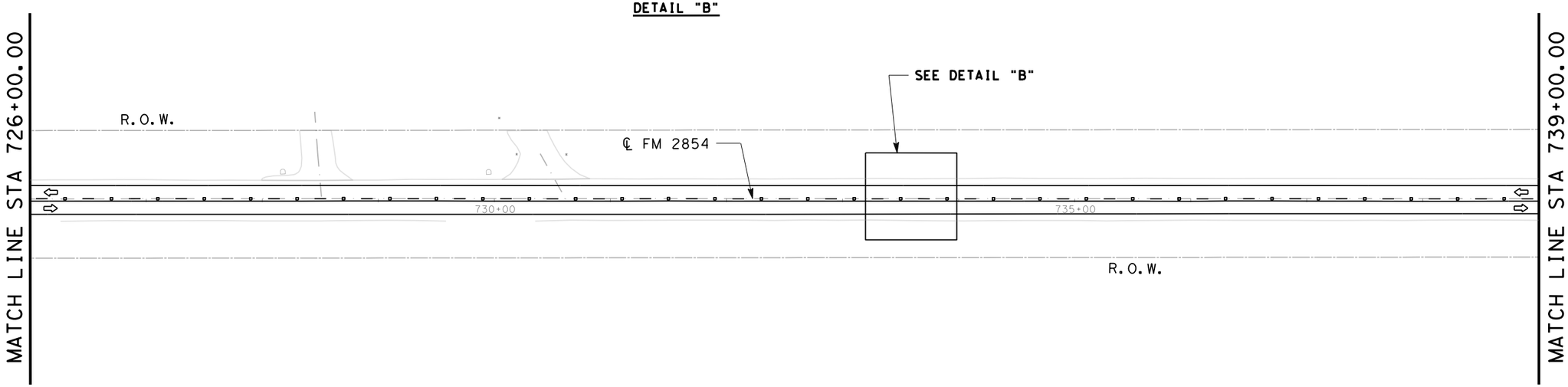


DETAIL "B"



LEGEND:

- (A) REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
- (B) REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
- (C) REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
- (D) REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
- (E) RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
- (F) RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
- (G) RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
- (H) REFL PAV MRKR TY I-C
- (I) REFL PAV MRKR TY II-A-A

- PREFAB PAV MRK TY C (W)(ARROW)
- PREFAB PAV MRK TY C (W)(DBL ARROW)
- ONLY PREFAB PAV MRK TY C (W)(WORD)
- PROPOSED SMALL SIGN
- EXIST SIGN TO REMAIN
- (T-) RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
- (S-) RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
- (X-) REMOVE SM RD SN SUP & AM (644-6076)

NOTE: ALL CONCRETE SURFACES USING THERMOPLASTIC PAVEMENT MARKINGS REQUIRE SEALER.

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SCALE 1"=100'
SHEET 47 OF 55

FM 2854
SIGNING & PAVEMENT MARKING LAYOUT

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CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		155

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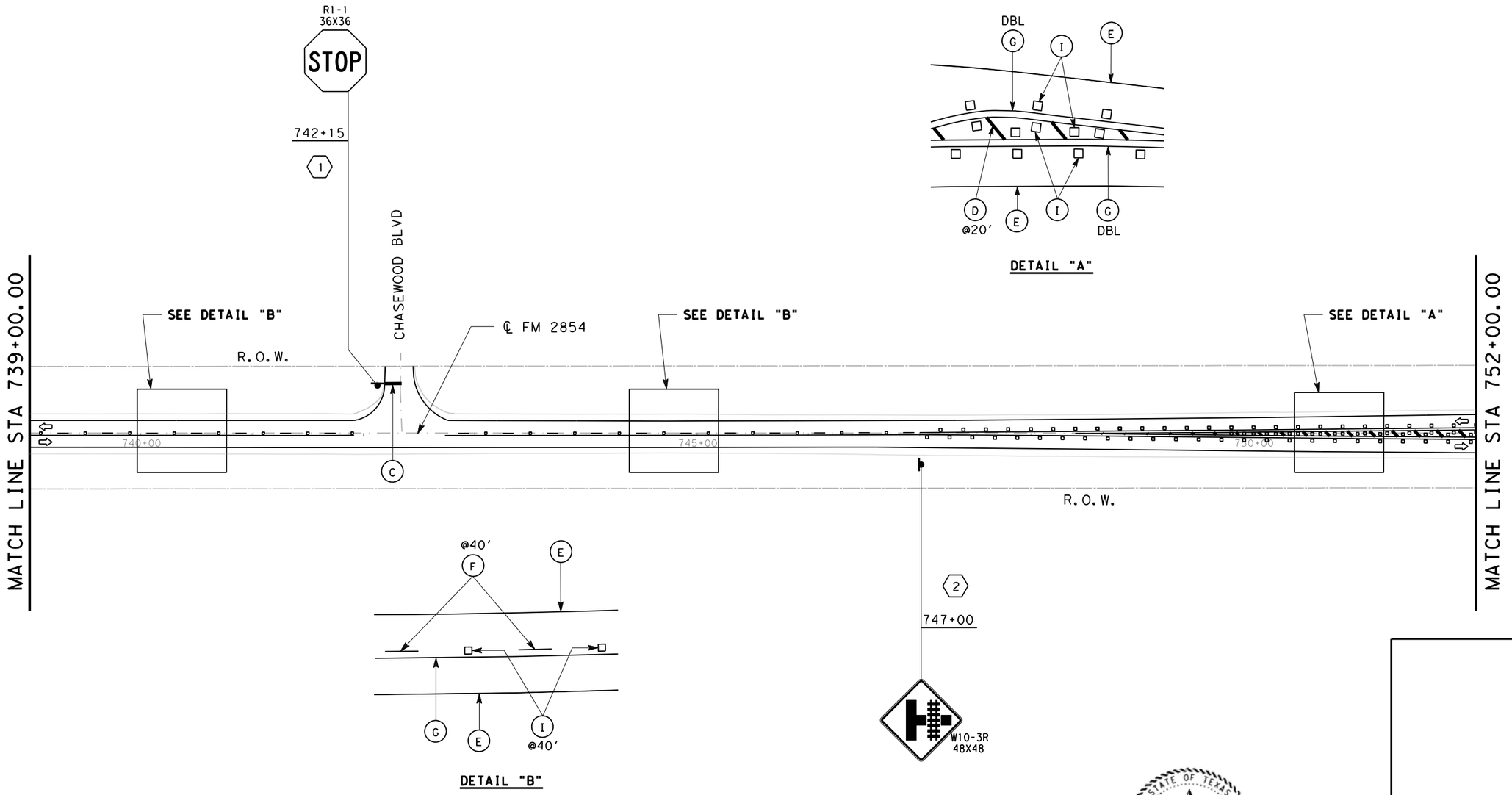

DETAIL "A"

DETAIL "B"

LEGEND:

(A)	REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
(B)	REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
(C)	REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
(D)	REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
(E)	RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
(F)	RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
(G)	RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
(H)	REFL PAV MRKR TY I-C
(I)	REFL PAV MRKR TY II-A-A
	PREFAB PAV MRK TY C (W)(ARROW)
	PREFAB PAV MRK TY C (W)(DBL ARROW)
ONLY	PREFAB PAV MRK TY C (W)(WORD)
	PROPOSED SMALL SIGN
	EXIST SIGN TO REMAIN
T-	RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
S-	RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
X-	REMOVE SM RD SN SUP & AM (644-6076)

NOTE: ALL CONCRETE SURFACES USING THERMOPLASTIC PAVEMENT MARKINGS REQUIRE SEALER.

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06/16/2022.

SCALE 1"=100'
SHEET 48 OF 55

FM 2854
SIGNING & PAVEMENT MARKING LAYOUT

Texas Department of Transportation®

CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		156

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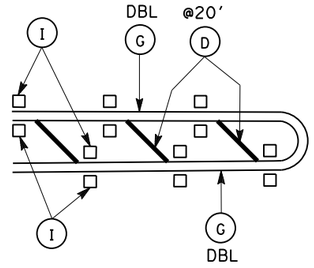

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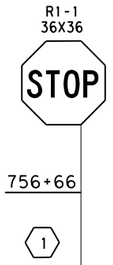

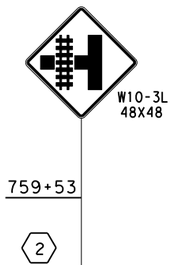

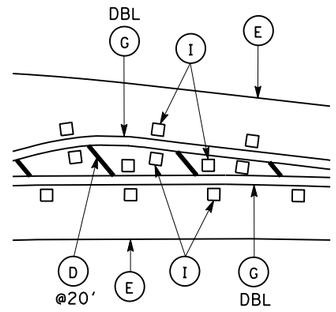

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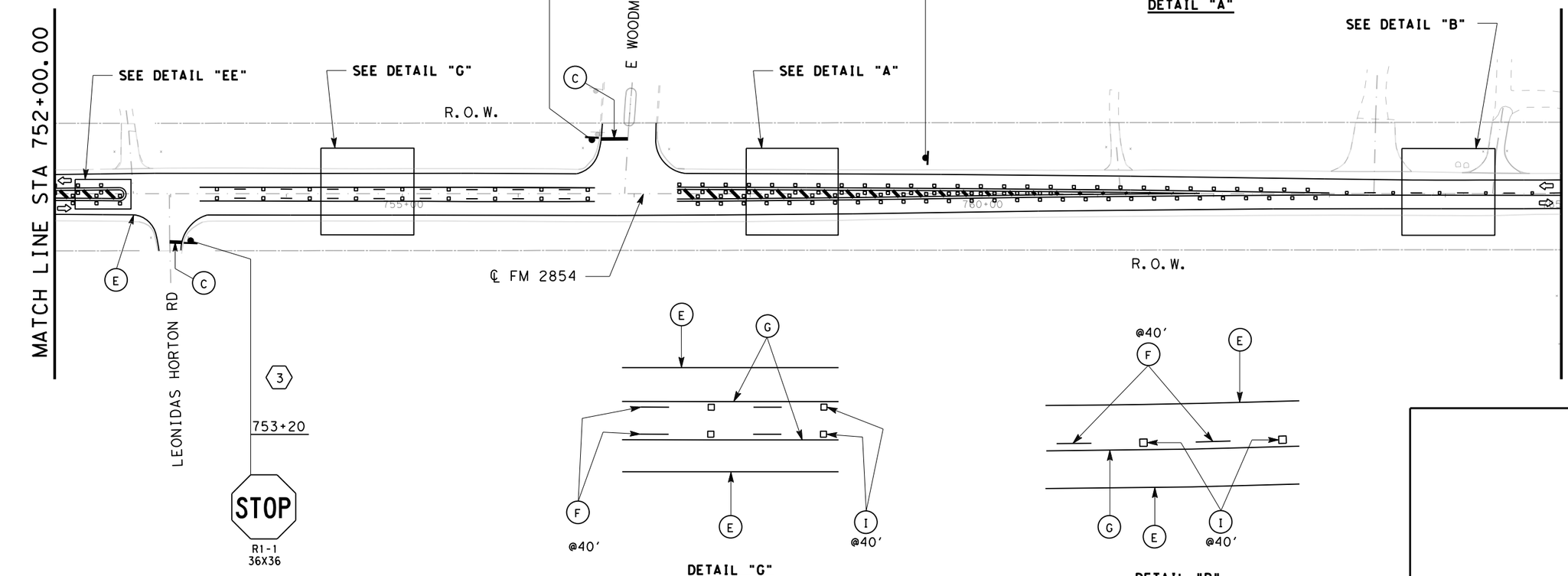

DETAIL "G"

DETAIL "B"

LEGEND:

- (A) REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
- (B) REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
- (C) REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
- (D) REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
- (E) RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
- (F) RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
- (G) RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
- (H) REFL PAV MRKR TY I-C
- (I) REFL PAV MRKR TY II-A-A

- PREFAB PAV MRK TY C (W)(ARROW)
- PREFAB PAV MRK TY C (W)(DBL ARROW)
- ONLY PREFAB PAV MRK TY C (W)(WORD)
- PROPOSED SMALL SIGN
- EXIST SIGN TO REMAIN
- (T-) RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
- (S-) RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
- (X-) REMOVE SM RD SN SUP & AM (644-6076)

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CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		157

SCALE 1"=100'
SHEET 49 OF 55

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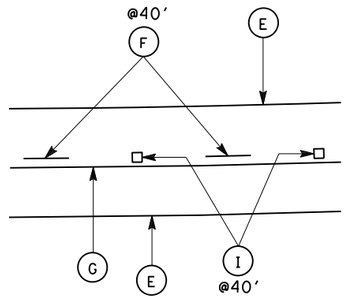

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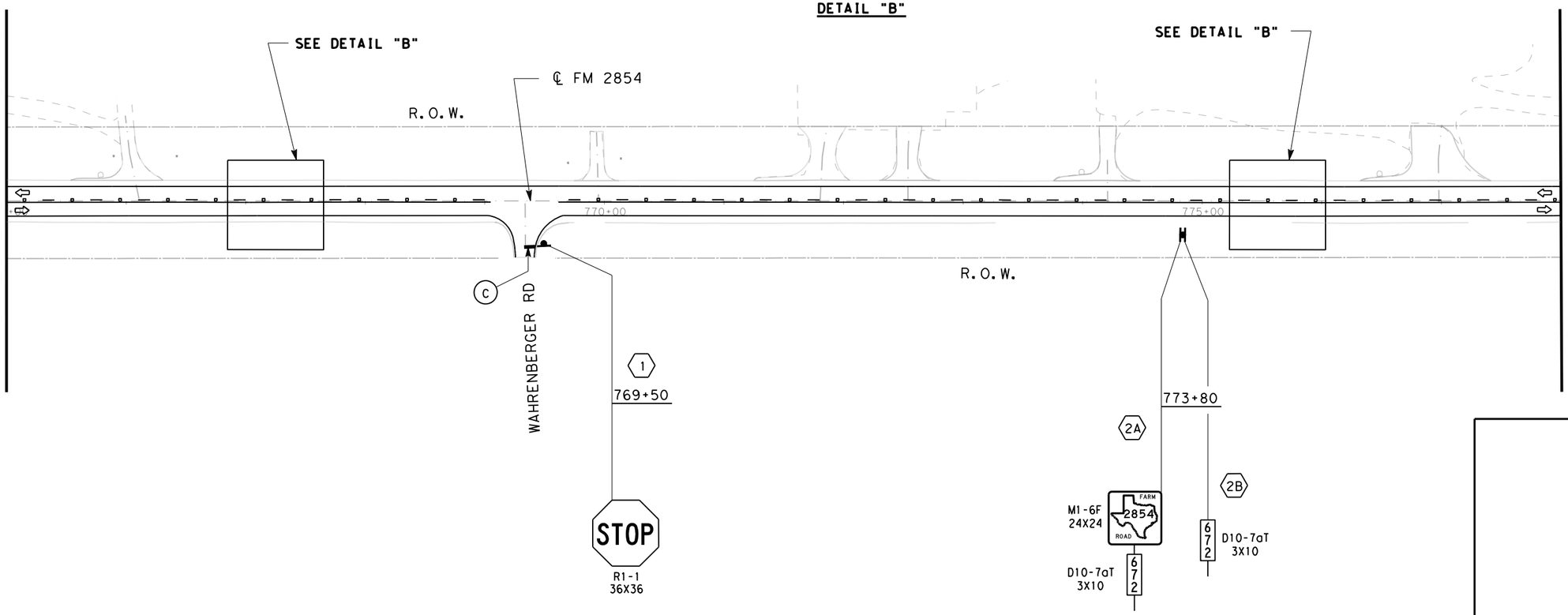

LEGEND:

- (A) REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
- (B) REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
- (C) REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
- (D) REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
- (E) RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
- (F) RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
- (G) RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
- (H) REFL PAV MRKR TY I-C
- (I) REFL PAV MRKR TY II-A-A

- PREFAB PAV MRK TY C (W)(ARROW)
- PREFAB PAV MRK TY C (W)(DBL ARROW)
- ONLY PREFAB PAV MRK TY C (W)(WORD)
- PROPOSED SMALL SIGN
- EXIST SIGN TO REMAIN
- (T-) RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
- (S-) RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
- (X-) REMOVE SM RD SN SUP & AM (644-6076)

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SCALE 1"=100'
SHEET 50 OF 55

FM 2854
SIGNING & PAVEMENT MARKING LAYOUT

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CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		158

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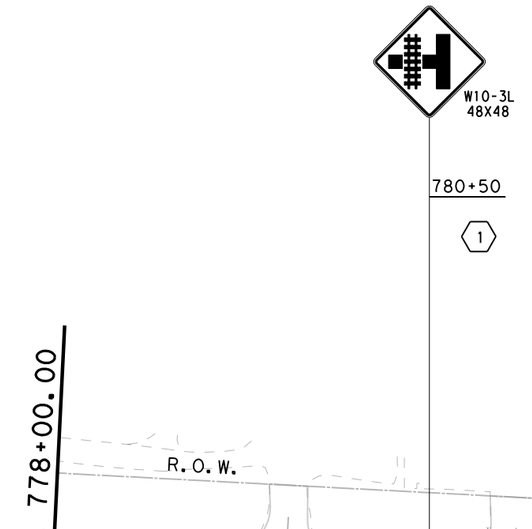

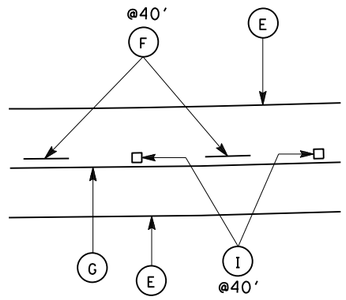

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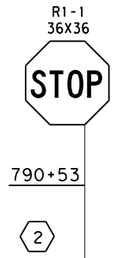

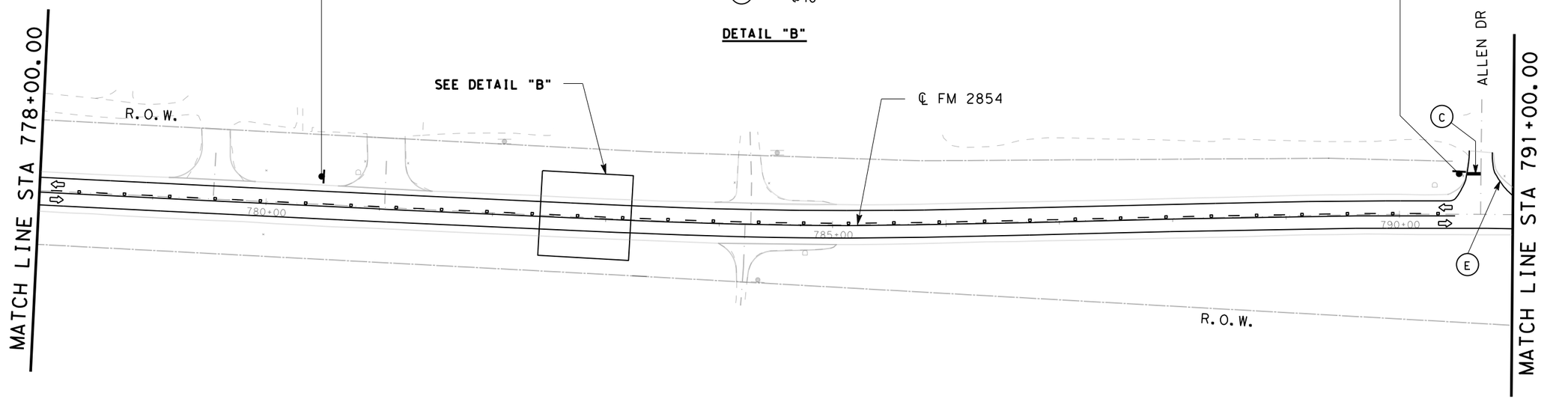

LEGEND:

- (A) REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
- (B) REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
- (C) REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
- (D) REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
- (E) RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
- (F) RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
- (G) RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
- (H) REFL PAV MRKR TY I-C
- (I) REFL PAV MRKR TY II-A-A

- PREFAB PAV MRK TY C (W)(ARROW)
- PREFAB PAV MRK TY C (W)(DBL ARROW)
- ONLY PREFAB PAV MRK TY C (W)(WORD)
- PROPOSED SMALL SIGN
- EXIST SIGN TO REMAIN
- (T-) RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
- (S-) RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
- (X-) REMOVE SM RD SN SUP & AM (644-6076)

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SCALE 1"=100'
SHEET 51 OF 55

FM 2854
SIGNING & PAVEMENT MARKING LAYOUT

Texas Department of Transportation®

CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		159

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6/15/2022
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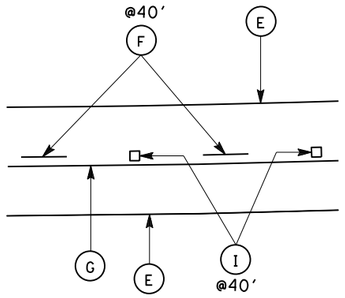

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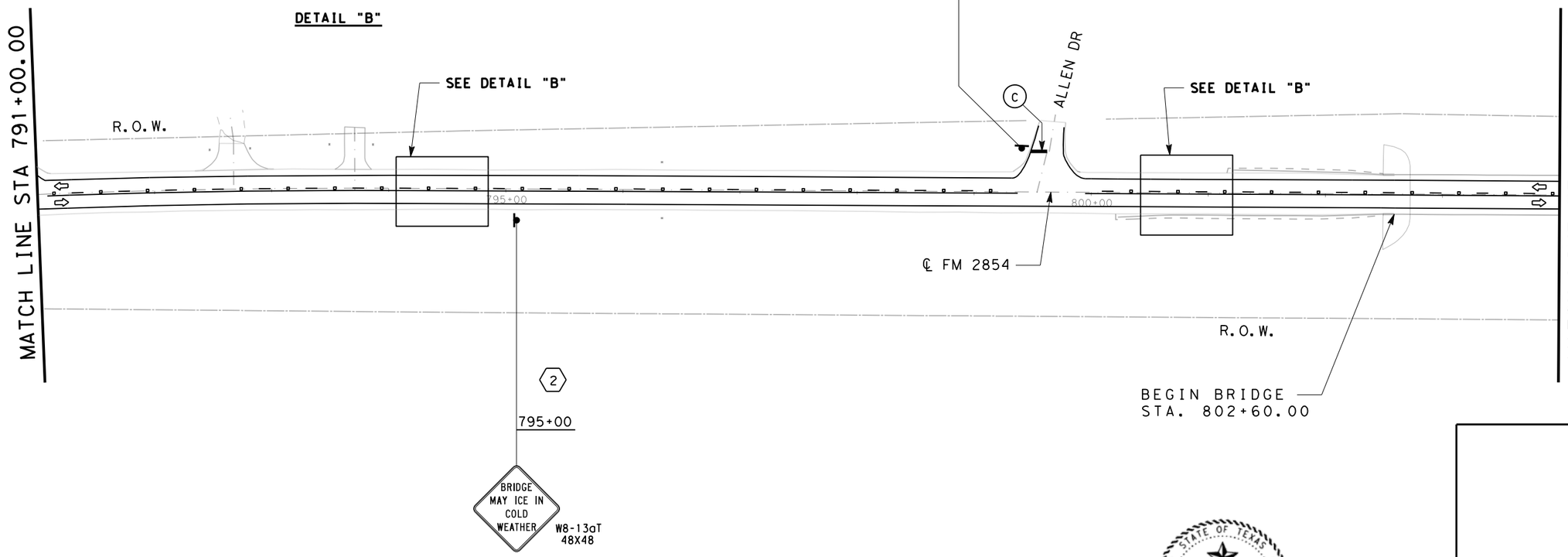

LEGEND:

- (A) REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
- (B) REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
- (C) REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
- (D) REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
- (E) RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
- (F) RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
- (G) RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
- (H) REFL PAV MRKR TY I-C
- (I) REFL PAV MRKR TY II-A-A

- PREFAB PAV MRK TY C (W)(ARROW)
- PREFAB PAV MRK TY C (W)(DBL ARROW)
- ONLY PREFAB PAV MRK TY C (W)(WORD)
- PROPOSED SMALL SIGN
- EXIST SIGN TO REMAIN
- (T-) RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
- (S-) RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
- (X-) REMOVE SM RD SN SUP & AM (644-6076)

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CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		160

SCALE 1"=100'
SHEET 52 OF 55

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6/15/2022
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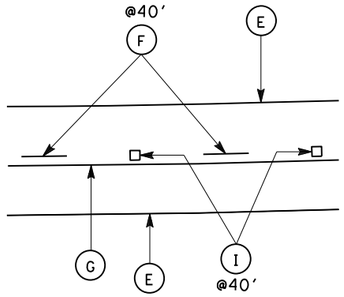

DETAIL "B"

W8-13aT
48X48

814+85

1

END BRIDGE
STA. 805+00.00

SEE DETAIL "B"

R.O.W.

℄ FM 2854

MATCH LINE STA 804+00.00

MATCH LINE STA 817+00.00

805+00 810+00 815+00

R.O.W.

2

806+65

R1-1
36X36

3

814+85

W3-5
48X48

LEGEND:

- (A) REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
- (B) REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
- (C) REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
- (D) REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
- (E) RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
- (F) RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
- (G) RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
- (H) REFL PAV MRKR TY I-C
- (I) REFL PAV MRKR TY II-A-A

- PREFAB PAV MRK TY C (W)(ARROW)
- PREFAB PAV MRK TY C (W)(DBL ARROW)
- ONLY PREFAB PAV MRK TY C (W)(WORD)
- PROPOSED SMALL SIGN
- EXIST SIGN TO REMAIN
- (T-) RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
- (S-) RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
- (X-) REMOVE SM RD SN SUP & AM (644-6076)

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06/16/2022.

SCALE 1"=100'
SHEET 53 OF 55

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SIGNING & PAVEMENT MARKING LAYOUT

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CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		160A

2:41:13 PM
6/15/2022
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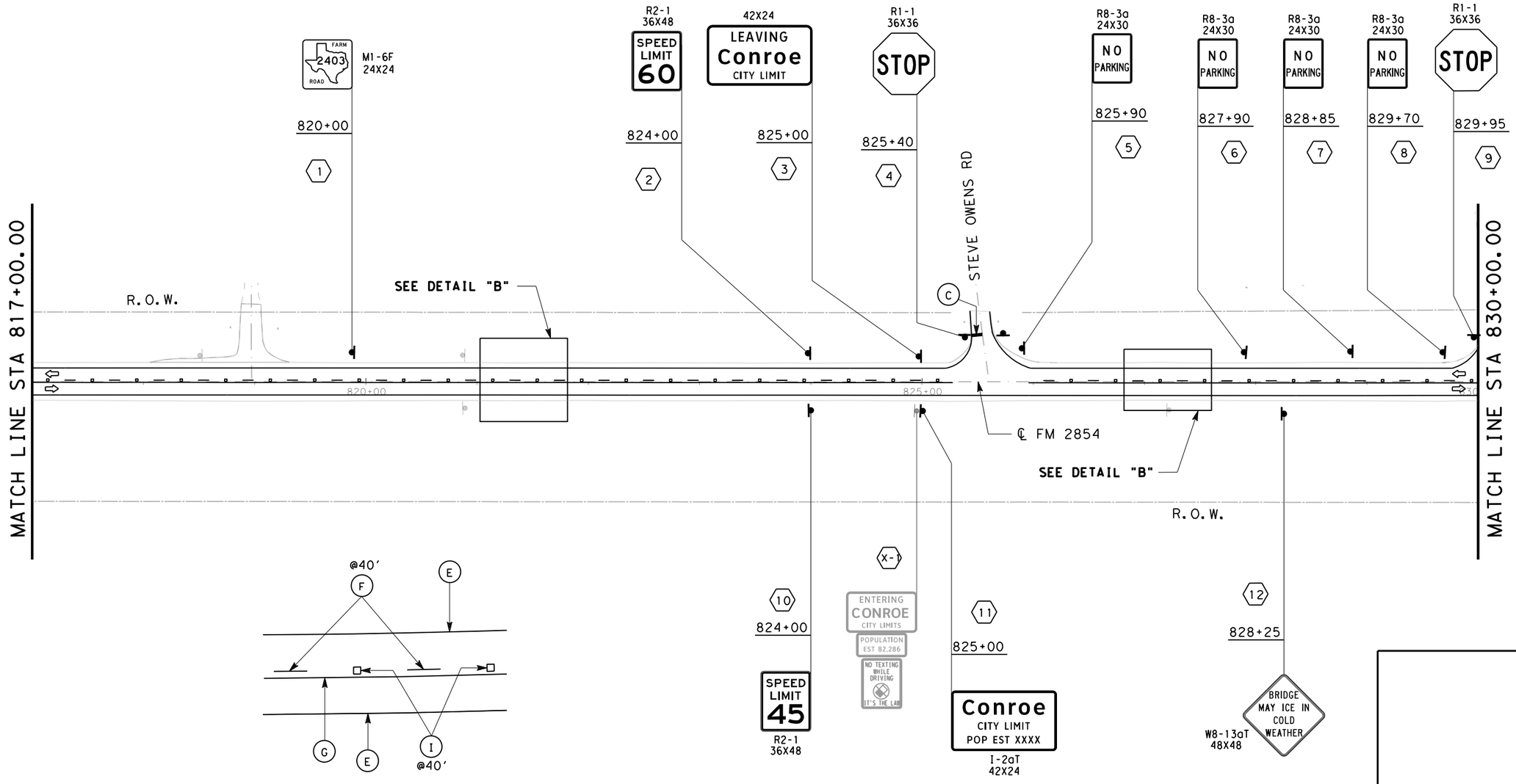

DETAIL "B"

LEGEND:

- (A) REFL PAV MRK TY I (W) 8" (SLD)(100MIL)
- (B) REFL PAV MRK TY I (W) 8" (BRK)(100MIL)
- (C) REFL PAV MRK TY I (W) 24" (SLD)(100MIL)
- (D) REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)
- (E) RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)
- (F) RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)
- (G) RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)
- (H) REFL PAV MRKR TY I-C
- (I) REFL PAV MRKR TY II-A-A

- PREFAB PAV MRK TY C (W)(ARROW)
- PREFAB PAV MRK TY C (W)(DBL ARROW)
- ONLY PREFAB PAV MRK TY C (W)(WORD)
- PROPOSED SMALL SIGN
- EXIST SIGN TO REMAIN
- (T-) RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
- (S-) RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
- (X-) REMOVE SM RD SN SUP & AM (644-6076)

NOTE: ALL CONCRETE SURFACES USING THERMOPLASTIC PAVEMENT MARKINGS REQUIRE SEALER.

STATE OF TEXAS
GAURANG S. PANDIT
111896
REGISTERED PROFESSIONAL ENGINEER

The seal appearing on this document was authorized by Guarang S. Pandit, P.E. 111896, on 06/16/2022.

06/16/2022.

SCALE 1"=100'
SHEET 54 OF 55

FM 2854
SIGNING & PAVEMENT MARKING LAYOUT

Texas Department of Transportation®
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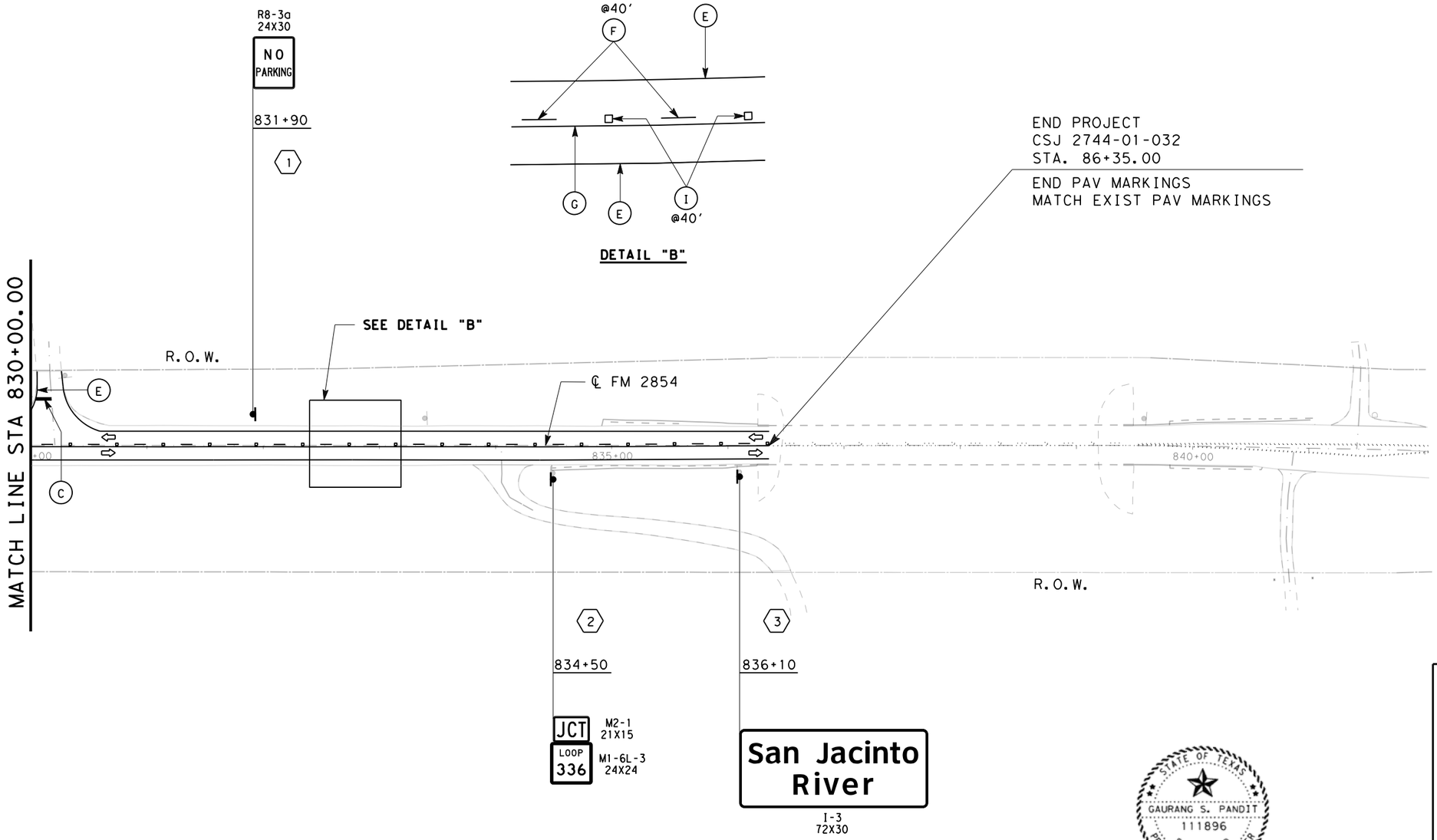
CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		160B

2:42:41 PM
6/15/2022
c:\txdot\pw*online\txdot3\pwonline*m.abdulrazzak\d0516555\td032FM*2854-54.dgn



LEGEND:

(A)	REFL PAV MRK TY I (W) 8" (SLD)(100MIL)	↰	PREFAB PAV MRK TY C (W)(ARROW)
(B)	REFL PAV MRK TY I (W) 8" (BRK)(100MIL)	↱	PREFAB PAV MRK TY C (W)(DBL ARROW)
(C)	REFL PAV MRK TY I (W) 24" (SLD)(100MIL)	ONLY	PREFAB PAV MRK TY C (W)(WORD)
(D)	REFL PAV MRK TY I (Y) 24" (SLD)(100MIL)	⬡	PROPOSED SMALL SIGN
(E)	RE PM W/RET REQ TY I (W) 6" (SLD)(100MIL)	▨	EXIST SIGN TO REMAIN
(F)	RE PM W/RET REQ TY I (Y) 6" (BRK)(100MIL)	T-	RELOCATE SM RD SN SUP & AM TY 10BWG (644-6068)
(G)	RE PM W/RET REQ TY I (Y) 6" (SLD)(100MIL)	S-	RELOCATE SM RD SN SUP & AM TY S80 (644-6070)
(H)	REFL PAV MRKR TY I-C	X-	REMOVE SM RD SN SUP & AM (644-6076)
(I)	REFL PAV MRKR TY II-A-A		

NOTE: ALL CONCRETE SURFACES USING THERMOPLASTIC PAVEMENT MARKINGS REQUIRE SEALER.

STATE OF TEXAS
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06/16/2022.

FM 2854
SIGNING & PAVEMENT MARKING LAYOUT

Texas Department of Transportation®

CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		160C

SCALE 1"=100'
SHEET 55 OF 55

2:43:25 PM
6/15/2022
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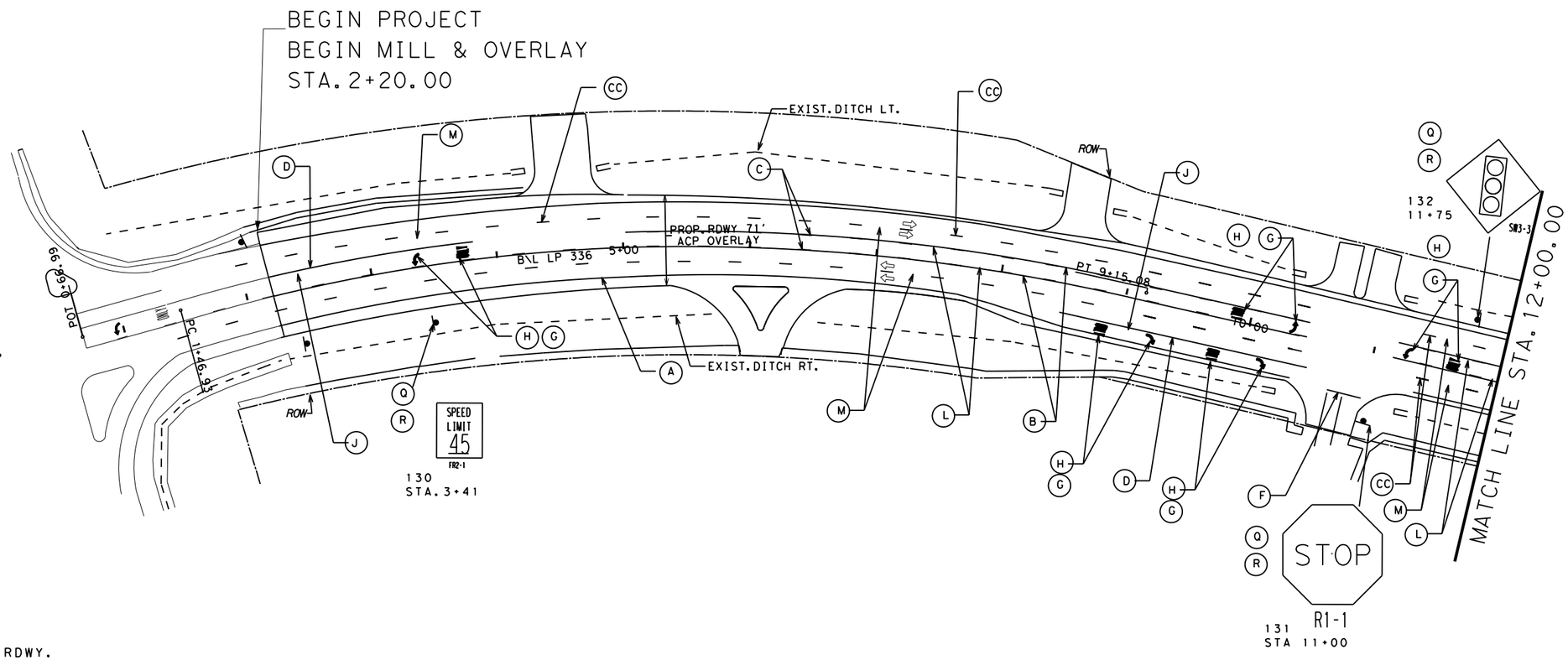


LEGEND

- PROP. RDWY.
- EXIST. ROW
- EXIST. RDWY.
- TRAFFIC FLOW ARROW
- (A) RE PM W/RET REQ TY I (W) 6" (SLD) (100MIL)
- (B) REF PM W/RET REQ TY I (Y) 6" (SLD) (100MIL)
- (C) REF PM W/RET REQ TY I (Y) 6" (BRK) (100MIL)
- (CC) REF PM W/RET REQ TY I (W) 6" (BRK) (100MIL)
- (D) PROP. REFL PAV MRK TY I (W) 8" (SLD) (100MIL)
- (E) PROP. REFL PAV MRK TY I (W) 12" (SLD) (100MIL)
- (F) PROP. REFL PAV MRK TY I (W) 24" (SLD) (100MIL)
- (G) PREFAB PAV MRK TY C (W) (WORD)
- (H) PREFAB PAV MRK TY C (W) (ARROW)
- (I) PREFAB PAV MRK TY C (W) (DOUBLE ARROW)
- (J) PROP. REFL PAV MRKR TY I-C SPACED AT 20'
- (K) PROP. REFL PAV MRKR TY II-A-A SPACED AT 20'
- (L) PROP. REFL PAV MRKR TY II-A-A SPACED AT 40'
- (M) PROP. REFL PAV MRKR TY II-A-A SPACED AT 80'
- (N) MULTIPOLYMER PAV MRK (W) (6") (SLD)
- (O) MULTIPOLYMER PAV MRK (Y) (6") (SLD)
- (P) MULTIPOLYMER PAV MRK (Y) (6") (BRK)
- (Q) PROP. SIGN
- (R) REMOVE SIGN
- (S) REMOVE SIGN ONLY
- (T) PROP. OVERHEAD SIGN ONLY
- (U) PROP. SIGN ONLY

FOR PAVEMENT MARKINGS AND MARKERS SEE STANDARDS:
PM(1)-20, PM(2)-20, PM(3)-20, PM(WAS)-07
FOR SMALL SIGN INSTALLATION, SEE SIGN MOUNTING DETAIL STANDARDS

0 50 100
SCALE IN FEET

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

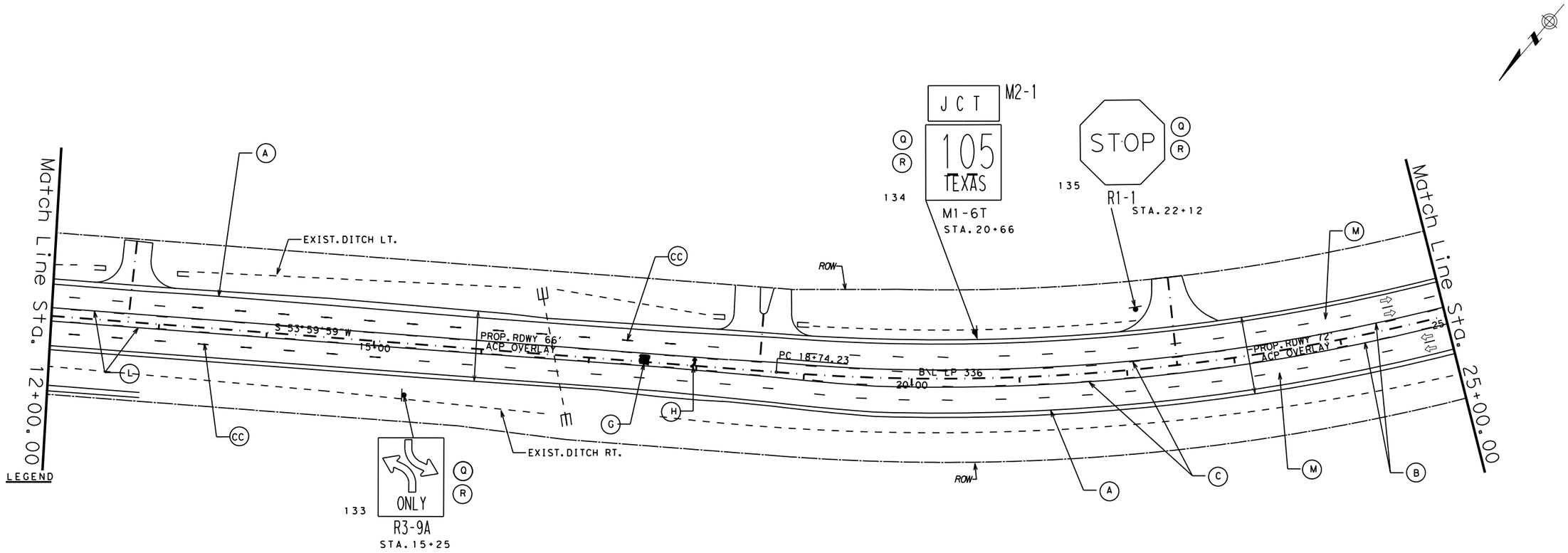
SL 336
PAVEMENT MARKING AND SIGNING LAYOUT

SHEET 1 OF 3

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		161

DATE: 05/25/2022 02:10 PM
FILE: pw:\txdot.projectwiseonline.com:TXDOT3\Documents\12 - HOU\Design Projects\274401032\4 - Design\Plan Set\8. Traffic\PROPOSED PAVEMENT MARKING\FM SL 336 PAVEMENT MARKING AND S



LEGEND

PROP. RDWY.

EXIST. ROW

EXIST. RDWY.

TRAFFIC FLOW ARROW

(A) RE PM W/RET REQ TY I (W)6" (SLD) (100MIL)

(B) REF PM W/RET REQ TY I (Y)6" (SLD) (100MIL)

(C) REF PM W/RET REQ TY I (Y)6" (BRK) (100MIL)

(CC) REF PM W/RET REQ TY I (W)6" (BRK) (100MIL)

(D) PROP. REFL PAV MRK TY I (W) 8" (SLD) (100MIL)

(E) PROP. REFL PAV MRK TY I (W) 12" (SLD) (100MIL)

(F) PROP. REFL PAV MRK TY I (W) 24" (SLD) (100MIL)

(G) PREFAB PAV MRK TY C (W) (WORD)

(H) PREFAB PAV MRK TY C (W) (ARROW)

(I) PREFAB PAV MRK TY C (W) (DOUBLE ARROW)

(J) PROP. REFL PAV MRKR TY I-C SPACED AT 20'

(K) PROP. REFL PAV MRKR TY II-A-A SPACED AT 20'

(L) PROP. REFL PAV MRKR TY II-A-A SPACED AT 40'

(M) PROP. REFL PAV MRKR TY II-A-A SPACED AT 80'

(N) MULTIPOLYMER PAV MRK(W)(6")(SLD)

(O) MULTIPOLYMER PAV MRK(Y)(6")(SLD)

(P) MULTIPOLYMER PAV MRK(Y)(6")(BRK)

(Q) PROP. SIGN

(R) REMOVE SIGN

(S) REMOVE SIGN ONLY

(T) PROP. OVERHEAD SIGN ONLY

(U) PROP. SIGN ONLY

0 50 100
SCALE IN FEET

FOR PAVEMENT MARKINGS AND MARKERS SEE STANDARDS:
PM(1)-20, PM(2)-20, PM(3)-20, PM(WAS)-07
FOR SMALL SIGN INSTALLATION, SEE SIGN MOUNTING DETAIL STANDARDS

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

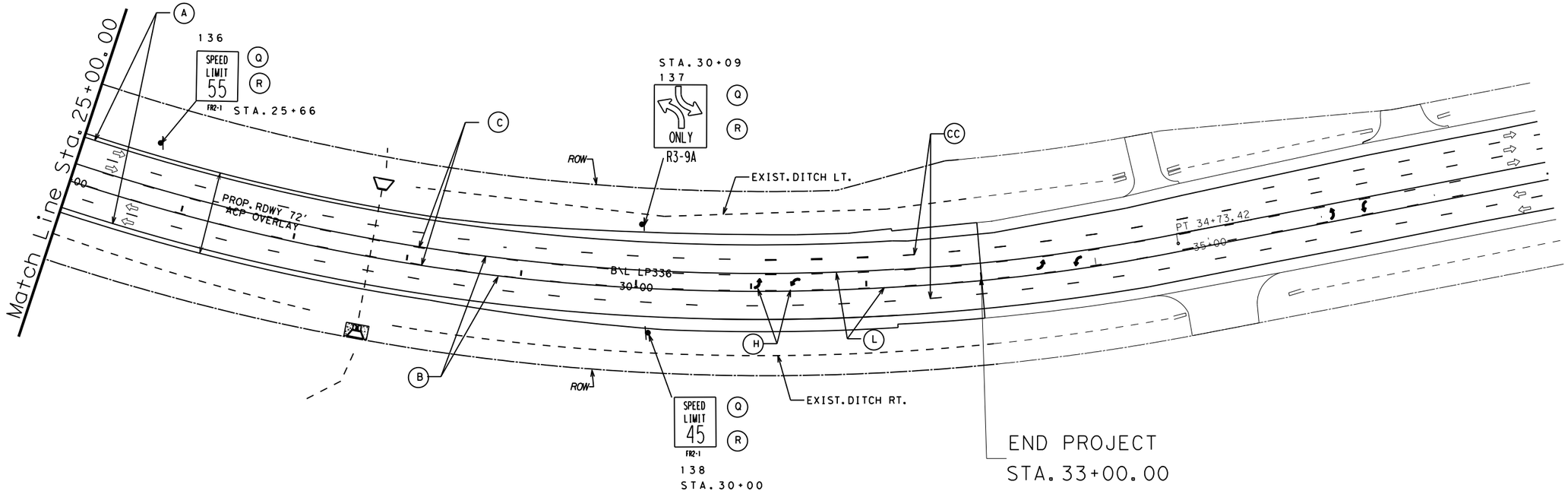
SL 336
PAVEMENT MARKING AND SIGNING LAYOUT

SHEET 2 OF 3

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		162

DATE: 05/24/2022 09:52 AM
FILE: pw:\txdot.projectwiseonline.com:TXDOT3\Documents\12 - HOU\Design Projects\2744010032\4 - Design\Plan Set\8. Traffic\PROPOSED PAVEMENT MARKING\162 SL 336 PAVEMENT MARKING AND S



LEGEND

- PROP. RDWY.
- EXIST. ROW
- EXIST. RDWY.
- TRAFFIC FLOW ARROW
- (A) RE PM W/RET REQ TY I (W)6"(SLD)(100MIL)
- (B) REF PM W/RET REQ TY I (Y)6"(SLD)(100MIL)
- (C) REF PM W/RET REQ TY I (Y)6"(BRK)(100MIL)
- (CC) REF PM W/RET REQ TY I (W)6"(BRK)(100MIL)
- (D) PROP.REFL PAV MRK TY I (W) 8" (SLD) (100MIL)
- (E) PROP.REFL PAV MRK TY I (W) 12" (SLD) (100MIL)
- (F) PROP.REFL PAV MRK TY I (W) 24" (SLD) (100MIL)
- (G) PREFAB PAV MRK TY C (W)(WORD)
- (H) PREFAB PAV MRK TY C (W)(ARROW)
- (I) PREFAB PAV MRK TY C (W)(DOUBLE ARROW)
- (J) PROP.REFL PAV MRKR TY I-C SPACED AT 20'
- (K) PROP.REFL PAV MRKR TY II-A-A SPACED AT 20'
- (L) PROP.REFL PAV MRKR TY II-A-A SPACED AT 40'
- (M) PROP.REFL PAV MRKR TY II-A-A SPACED AT 80'
- (N) MULTIPOLYMER PAV MRK(W)(6")(SLD)
- (O) MULTIPOLYMER PAV MRK(Y)(6")(SLD)
- (P) MULTIPOLYMER PAV MRK(Y)(6")(BRK)
- (Q) PROP. SIGN
- (R) REMOVE SIGN
- (S) REMOVE SIGN ONLY
- (T) PROP. OVERHEAD SIGN ONLY
- (U) PROP. SIGN ONLY

FOR PAVEMENT MARKINGS AND MARKERS SEE STANDARDS:
PM(1)-20, PM(2)-20, PM(3)-20, PM(WAS)-07
FOR SMALL SIGN INSTALLATION, SEE SIGN MOUNTING DETAIL STANDARDS

0 50 100
SCALE IN FEET

STATE OF TEXAS
MICAH J. SCHLUTER
136908
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PROFESSIONAL ENGINEER

SL 336 PAVEMENT MARKING AND SIGNING LAYOUT

SHEET 3 OF 3

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		163

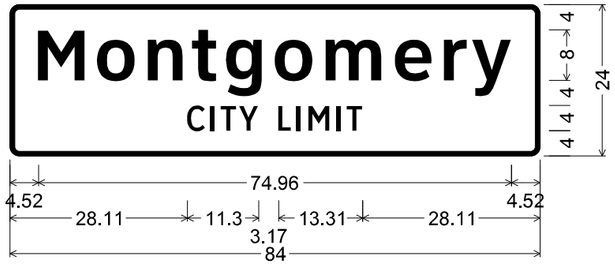
DATE: 05/24/2022 04:43 PM
FILE: pw:\txdot.projectwiseonline.com:TXDOT3\Documents\12 - HOU\Design Projects\274401032\4 - Design\Plan Set\8. Traffic\PROPOSED PAVEMENT MARKING\163 SL 336 PAVEMENT MARKING AND S

D7-7aTL_48x48;
3.00" Radius, 1.00" Border, White on, Brown;
"HISTORICAL", C;
"MARKER", C;
Standard Arrow Custom 27.00" X 8.13" 180';
"7903", C;

Sign No.: 3A; Sta. No.: 136+39; Layout No.: 1 of 55

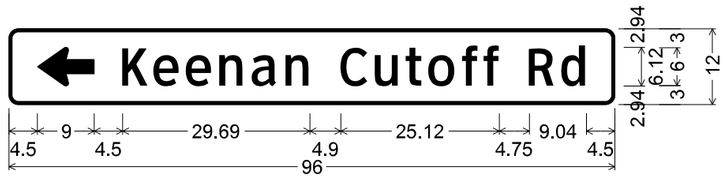
D7-7aTR_48x48;
3.00" Radius, 1.00" Border, White on, Brown;
"HISTORICAL", C;
"MARKER", C;
Standard Arrow Custom 27.00" X 8.13" 0';
"7903", C;

Sign No.: 3B; Sta. No.: 136+39; Layout No.: 1 of 55



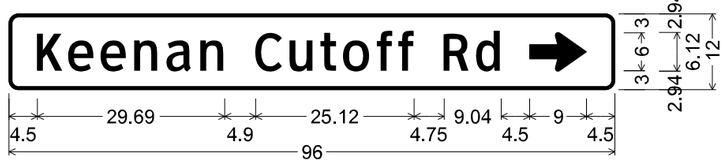
I-2aT 8in;
1.50" Radius, 0.75" Border, White on, Green;
"Montgomery", ClearviewHwy-5-W-R 85% spacing;
"CITY LIMIT", ClearviewHwy-3-W;

Sign No.: 1; Sta. No.: 141+29; Layout No.: 2 of 55



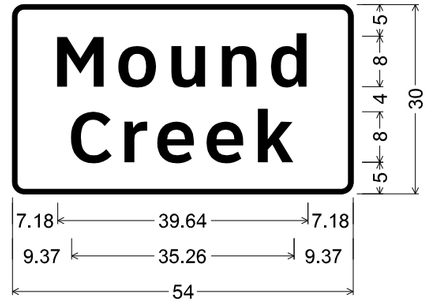
D21-1TL_VARx12;
1.50" Radius, 0.50" Border, White on, Green;
Standard Arrow Custom 9.00" X 6.13" 180';
"Keenan Cutoff Rd", ClearviewHwy-3-W specified length;

Sign No.: 3; Sta. No.: 386+00; Layout No.: 20 of 55



D21-1TR_VARx12;
1.50" Radius, 0.50" Border, White on, Green;
"Keenan Cutoff Rd", ClearviewHwy-3-W specified length;
Standard Arrow Custom 9.00" X 6.13" 0';

Sign No.: 3; Sta. No.: 392+00; Layout No.: 21 of 55



I-3 8in;
1.88" Radius, 0.75" Border, White on, Green;
"Mound", ClearviewHwy-5-W-R;
"Creek", ClearviewHwy-5-W-R;

Sign No.: 5; Sta. No.: 478+57; Layout No.: 27 of 55
Sign No.: 1; Sta. No.: 480+54; Layout No.: 28 of 55

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06/16/2022.

SHEET 1 OF 3

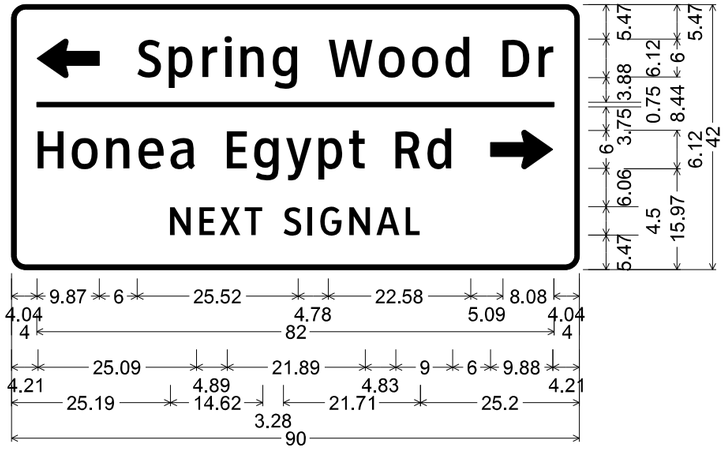
FM 2854
GUIDE SIGN DETAILS

Texas Department of Transportation®

CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		163A

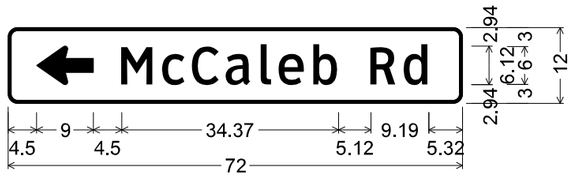
SCALE 1"=2'
SHEET 1 OF 3

8:45:08 AM
6/15/2022
c:\txdot\pw*online\txdot3\pwonline*m.abdulrazzak\d0516553\032*FM 2854*Guide Sign Details-01.dgn



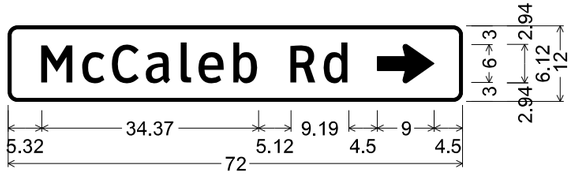
D3-2(2)_VARx42;
2.25" Radius, 0.75" Border, White on, Green;
Standard Arrow Custom 9.88" X 6.13" 180';
"Spring Wood Dr", ClearviewHwy-3-W 85% spacing;
"Honea Egypt Rd", ClearviewHwy-3-W 85% spacing;
Standard Arrow Custom 9.88" X 6.13" 0';
"NEXT SIGNAL", ClearviewHwy-3-W;

Sign No.: 4; Sta. No.: 553+00; Layout No.: 33 of 55



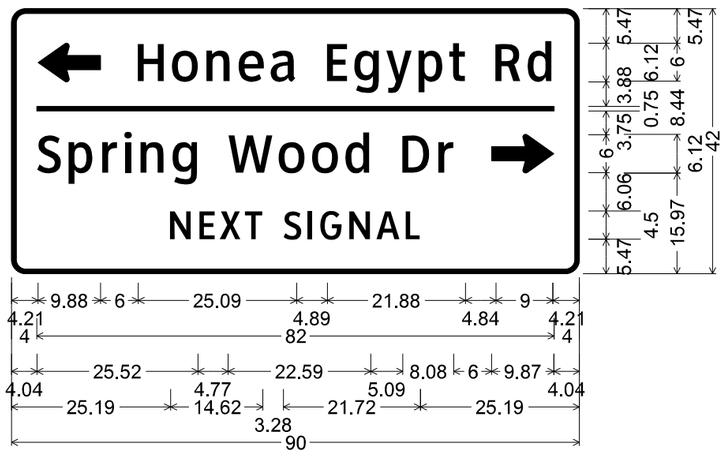
D21-1TL_VARx12;
1.50" Radius, 0.50" Border, White on, Green;
Standard Arrow Custom 9.00" X 6.13" 180';
"McCaleb Rd", ClearviewHwy-3-W;

Sign No.: 7; Sta. No.: 595+20; Layout No.: 36 of 55



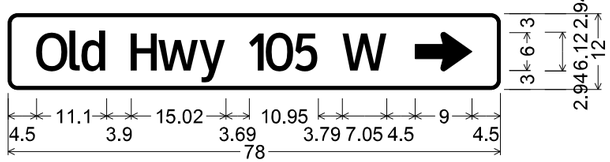
D21-1TR_VARx12;
1.50" Radius, 0.50" Border, White on, Green;
"McCaleb Rd", ClearviewHwy-3-W;
Standard Arrow Custom 9.00" X 6.13" 0';

Sign No.: 2; Sta. No.: 599+00; Layout No.: 37 of 55



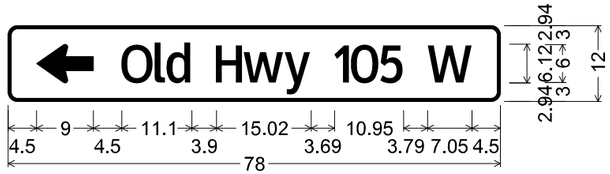
D3-2(2)_VARx42;
2.25" Radius, 0.75" Border, White on, Green;
Standard Arrow Custom 9.88" X 6.13" 180';
"Honea Egypt Rd", ClearviewHwy-3-W 85% spacing;
"Spring Wood Dr", ClearviewHwy-3-W 85% spacing;
Standard Arrow Custom 9.88" X 6.13" 0';
"NEXT SIGNAL", ClearviewHwy-3-W;

Sign No.: 2; Sta. No.: 563+00; Layout No.: 34 of 55



D21-1TR_VARx12;
1.50" Radius, 0.50" Border, White on, Green;
"Old Hwy 105 W", ClearviewHwy-3-W specified length;
Standard Arrow Custom 9.00" X 6.13" 0';

Sign No.: 5; Sta. No.: 718+50; Layout No.: 46 of 55



D21-1TL_VARx12;
1.50" Radius, 0.50" Border, White on, Green;
Standard Arrow Custom 9.00" X 6.13" 180';
"Old Hwy 105 W", ClearviewHwy-3-W specified length;

Sign No.: 7; Sta. No.: 713+20; Layout No.: 46 of 55

STATE OF TEXAS
GAURANG S. PANDIT
111896
REGISTERED
PROFESSIONAL ENGINEER

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06/16/2022.

SHEET 2 OF 3

FM 2854
GUIDE SIGN DETAILS

Texas Department of Transportation®
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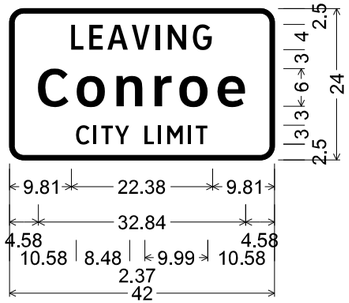
CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		163B

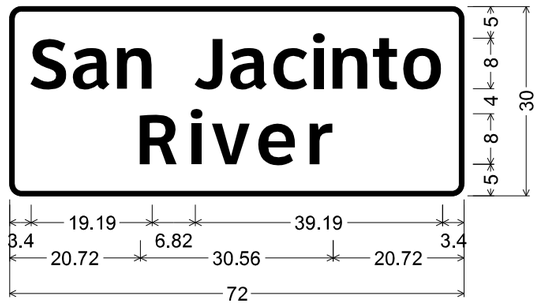
SCALE 1"=2'
SHEET 2 OF 3

8:43:58 AM
6/15/2022
c:\txdot\pw*online\txdot3\pwonline*m.abdulrazzak\d0516553\032*FM 2854*Guide Sign Details-02.dgn



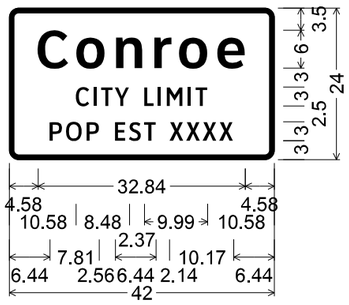
2.25" Radius, 0.75" Border, White on, Green;
"LEAVING", ClearviewHwy-3-W;
"Conroe", ClearviewHwy-5-W-R;
"CITY LIMIT", ClearviewHwy-3-W;

Sign No.: 3; Sta. No.: 825+00; Layout No.: 54 of 55



I-3 8in;
1.88" Radius, 0.75" Border, White on, Green;
"San Jacinto", ClearviewHwy-5-W-R 50% spacing;
"River", ClearviewHwy-5-W-R;

Sign No.: 3; Sta. No.: 836+10; Layout No.: 55 of 55



I-2aT 6in;
1.50" Radius, 0.75" Border, White on, Green;
"Conroe", ClearviewHwy-5-W-R;
"CITY LIMIT", ClearviewHwy-3-W;
"POP EST XXXX", ClearviewHwy-3-W;

Sign No.: 11; Sta. No.: 825+00; Layout No.: 54 of 55

STATE OF TEXAS
GAURANG S. PANDIT
111896
REGISTERED PROFESSIONAL ENGINEER

The seal appearing on this document was authorized by Guarang S. Pandit,P.E. 111896, on 06/16/2022.

06/16/2022.

SCALE 1"=2'
SHEET 3 OF 3

SHEET 3 OF 3

FM 2854
GUIDE SIGN DETAILS

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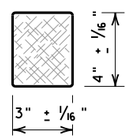
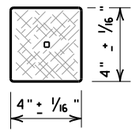
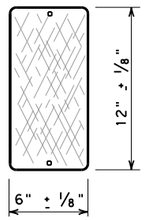
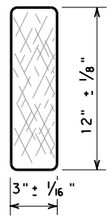
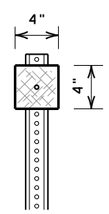
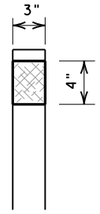
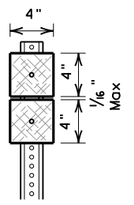
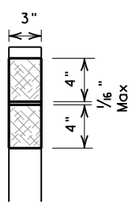
CONT.	SECT.	JOB	HIGHWAY NO.
2744	01	032	FM 2854
DIST.	COUNTY		SHEET NO.
HOU	MONTGOMERY		163C

c:\txdot\pw*online\txdot3\pwonline*m.abdulrazzak\d0516553\032*FM 2854*Guide Sign Details-03.dgn
6/15/2022
8:42:45 AM

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

	SINGLE		DOUBLE	
DEVICE				
	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

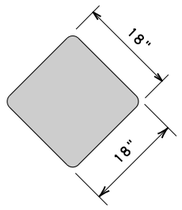
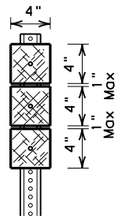
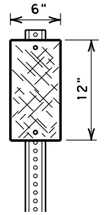
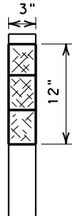
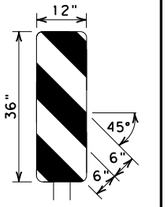
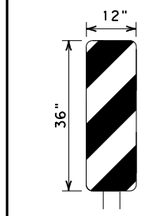
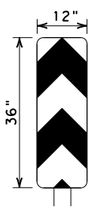
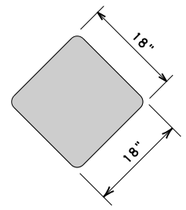
NUMBER OF REFLECTORS OR DIRECTION
X = 3-Size 2 reflector units (Type 2 only)
Y = 1-Size 3 reflector unit (Type 2 only)
Z = 3-Size 1 or 1-Size 4 reflector unit(s)(Type 2 only)
L = Left Side (Type 3 Object Marker only)
R = Right Side (Type 3 Object Marker only)
C = Center (Type 3 Object Marker only)

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

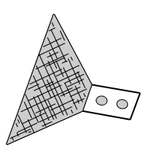
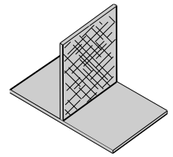
OBJECT MARKERS

	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
DEVICE								
		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)

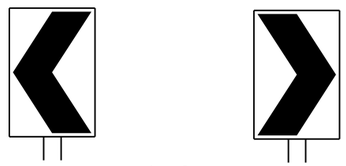
	GF1	GF2	CTB
DEVICE			

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.

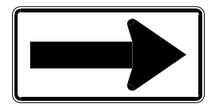
CHEVRONS

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	

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).

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:

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	2744	01	032	FM 2854
10-09 3-15	DIST	COUNTY		SHEET NO.
4-10 7-20	HOU	MONTGOMERY		164

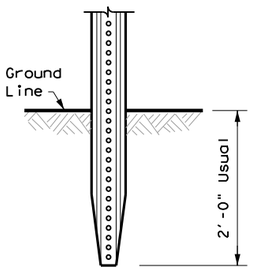
20A

DATE:
FILE:

POST TYPE AND SUPPORT FOUNDATION DETAILS

WING CHANNEL (WC)

GND

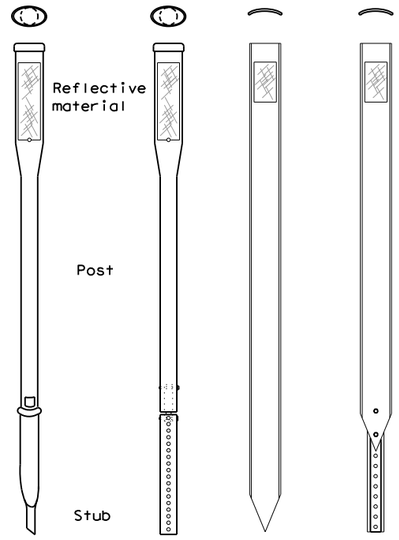


NOTES

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.

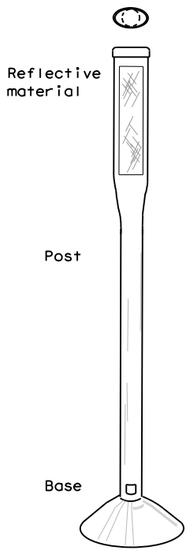
FLEXIBLE POSTS (YFLX, WFLX)

GND



EMBEDDED

SRF



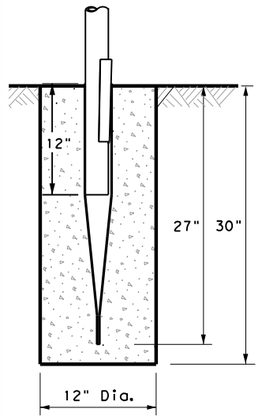
SURFACE MOUNT

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.

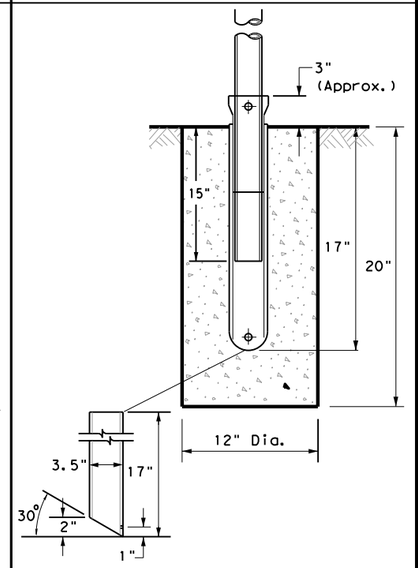
WEDGE ANCHOR SYSTEMS

WAS



STEEL

WAP



PLASTIC

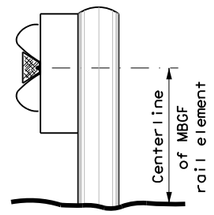
NOTE

1. Install per manufacturer's recommendations.

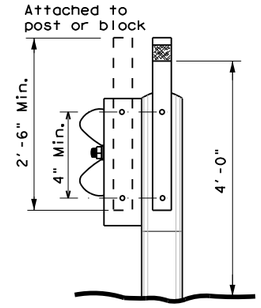
TYPE OF BARRIER MOUNTS

GUARD FENCE ATTACHMENT

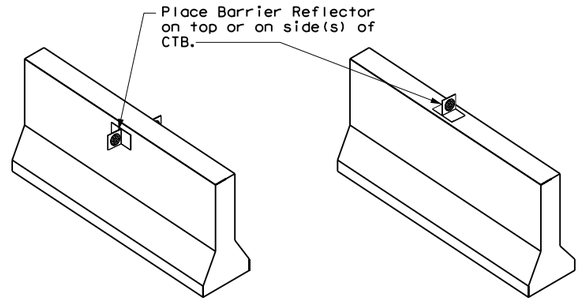
GF1



GF2



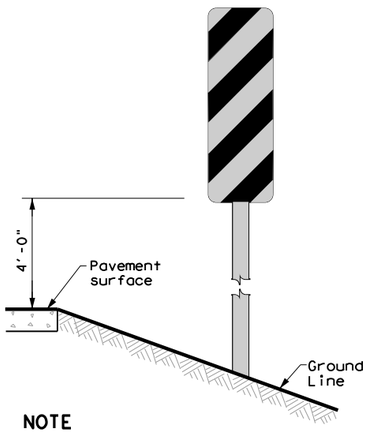
CONCRETE TRAFFIC BARRIER (CTB)



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.

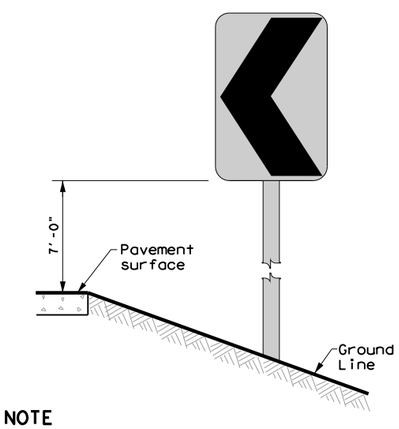
TYPES 1, 3, AND 4 OBJECT MARKERS AND CHEVRONS



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)

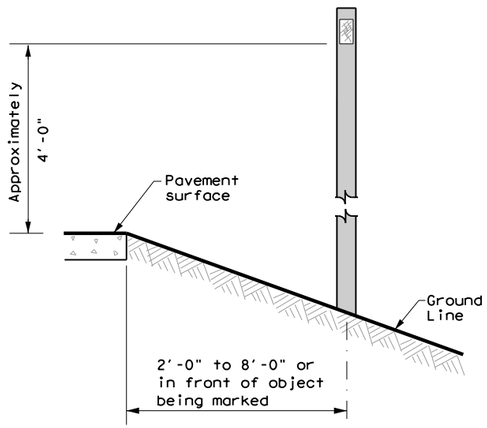
CHEVRONS AND ONE DIRECTION LARGE ARROW SIGN



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	2744	01	032	FM 2854
10-09 3-15	DIST	COUNTY		SHEET NO.
4-10 7-20	HOU	MONTGOMERY		165

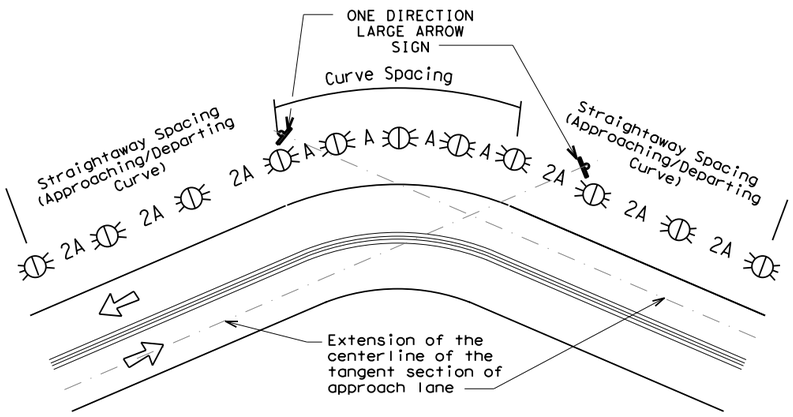
20B

DATE:
FILE:

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

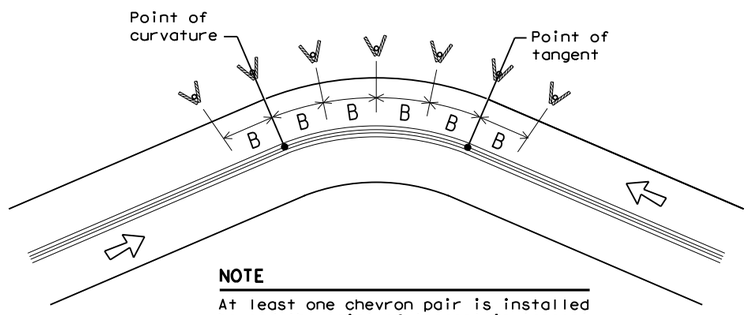
SUGGESTED SPACING FOR DELINEATORS ON HORIZONTAL CURVES



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

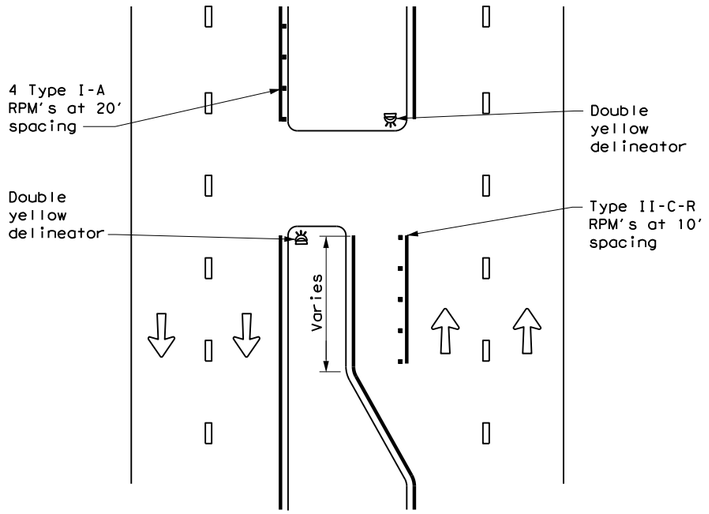
D & OM(3)-20

FILE: dom3-20.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
© TxDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS	2744	01	032	FM 2854
3-15 8-15	DIST	COUNTY		SHEET NO.
8-15 7-20	HOU	MONTGOMERY		166

DATE:
FILE:

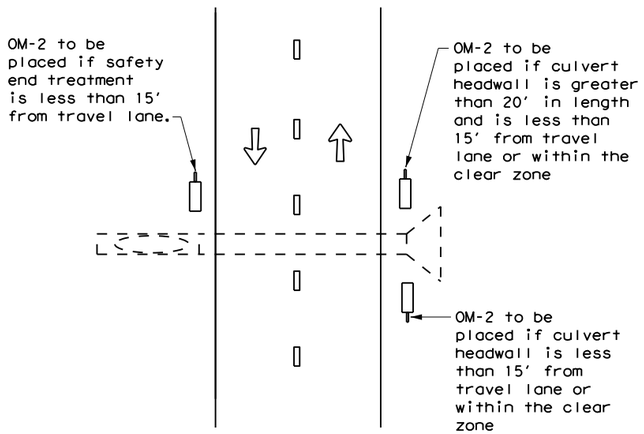
20C

CROSSOVERS



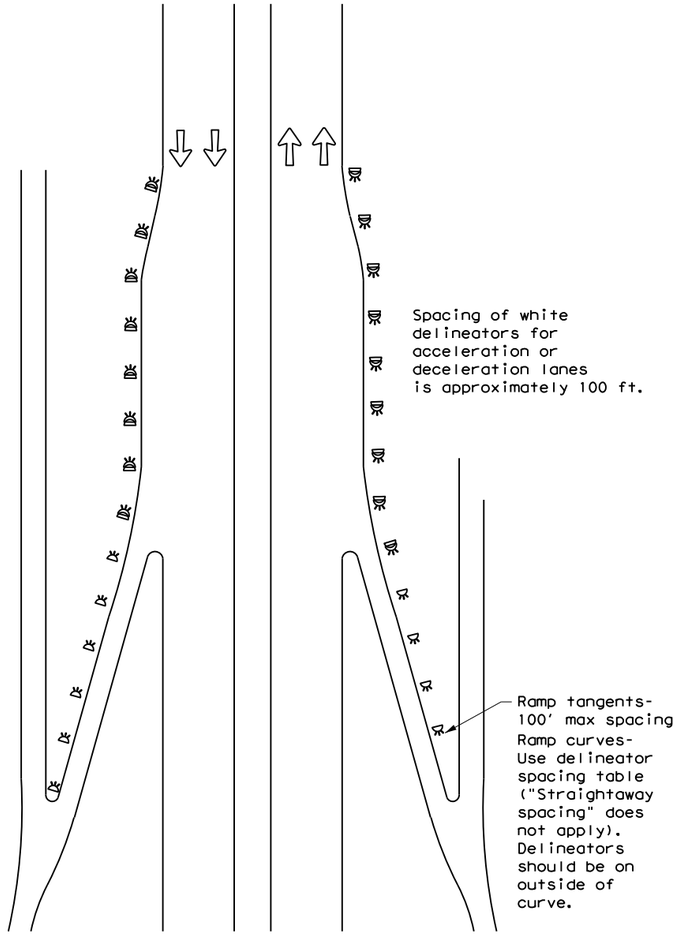
DETAIL 1

FOR CULVERTS WITHOUT MBGF



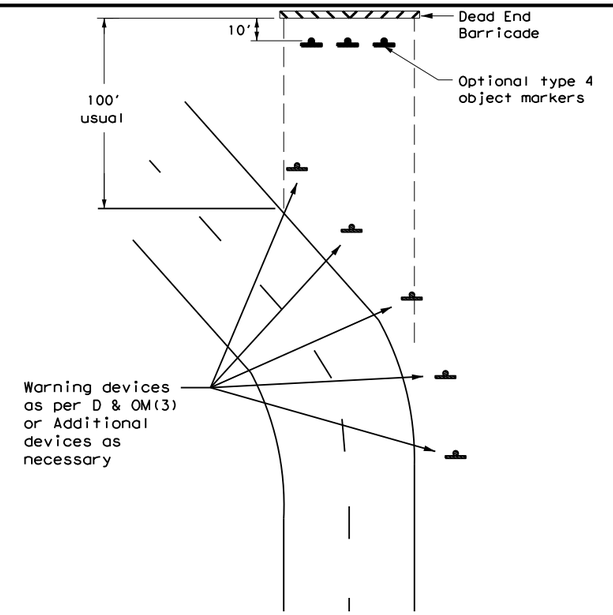
DETAIL 2

FREEWAY DELINEATION FOR RAMPS AND ACCELERATION/DECELERATION LANES



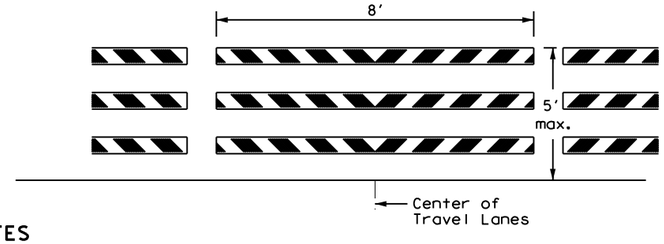
DETAIL 3

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

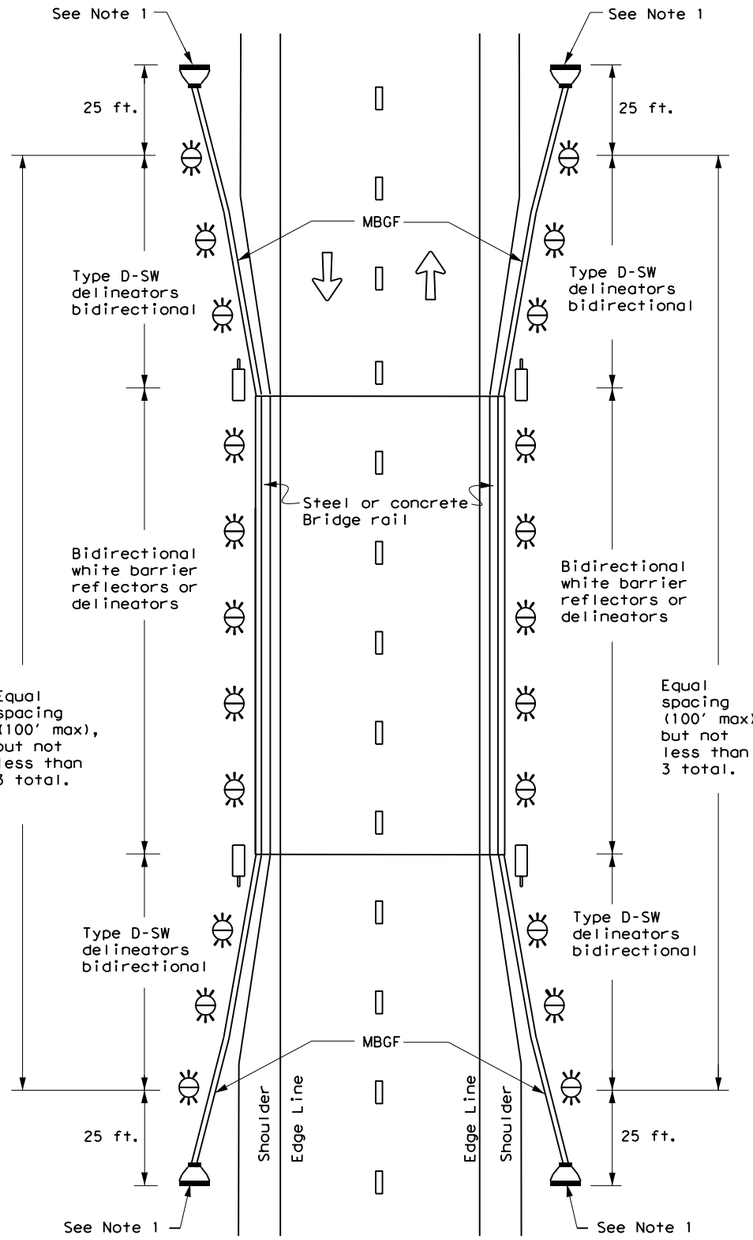
D & OM(4)-20

FILE: dom4-20.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
©TxDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS	2744	01	032	FM 2854
3-15	DIST	COUNTY		SHEET NO.
7-20	HOU	MONTGOMERY		167

DATE:
FILE:

20D

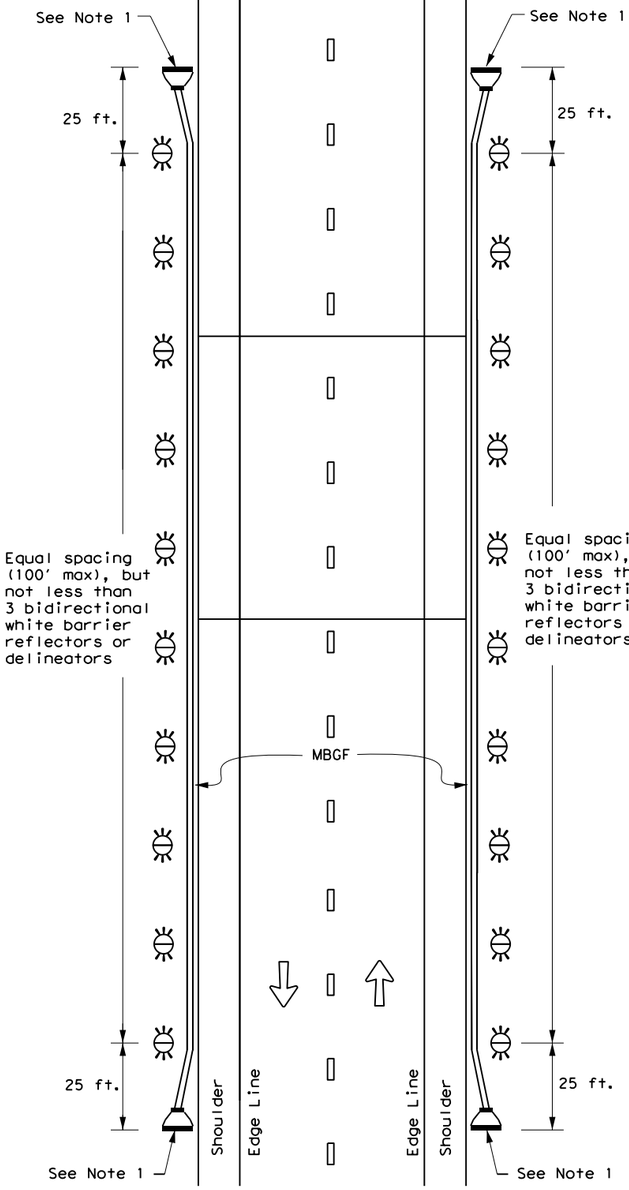
TWO-WAY, TWO LANE ROADWAY WITH REDUCED WIDTH APPROACH RAIL



NOTE:

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

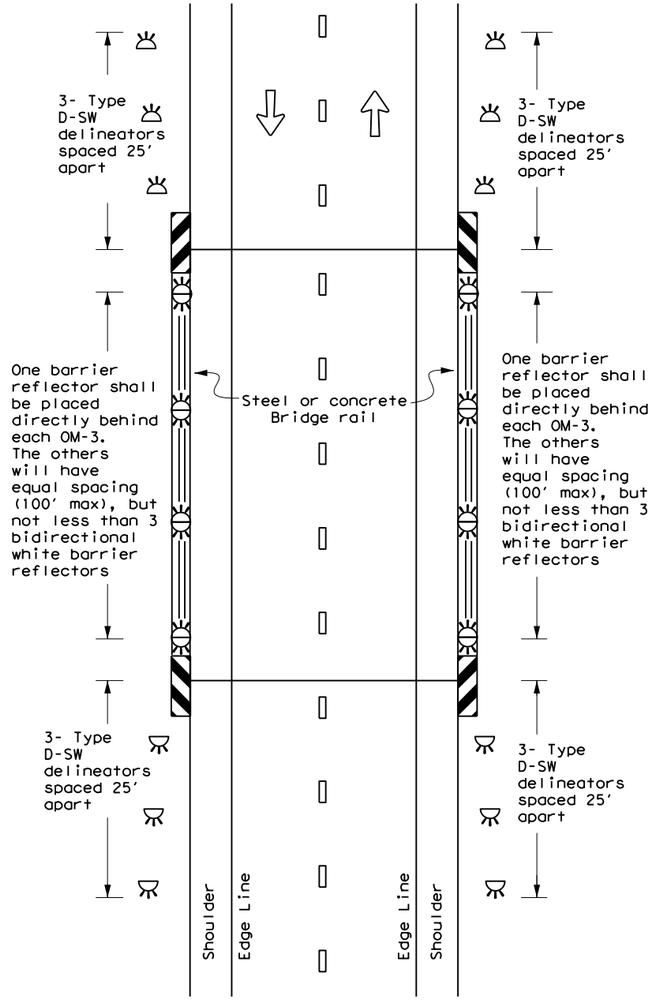
TWO-WAY, TWO LANE ROADWAY WITH METAL BEAM GUARD FENCE (MBGF)



NOTE:

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

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



LEGEND

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

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER PLACEMENT DETAILS

D & OM(5)-20

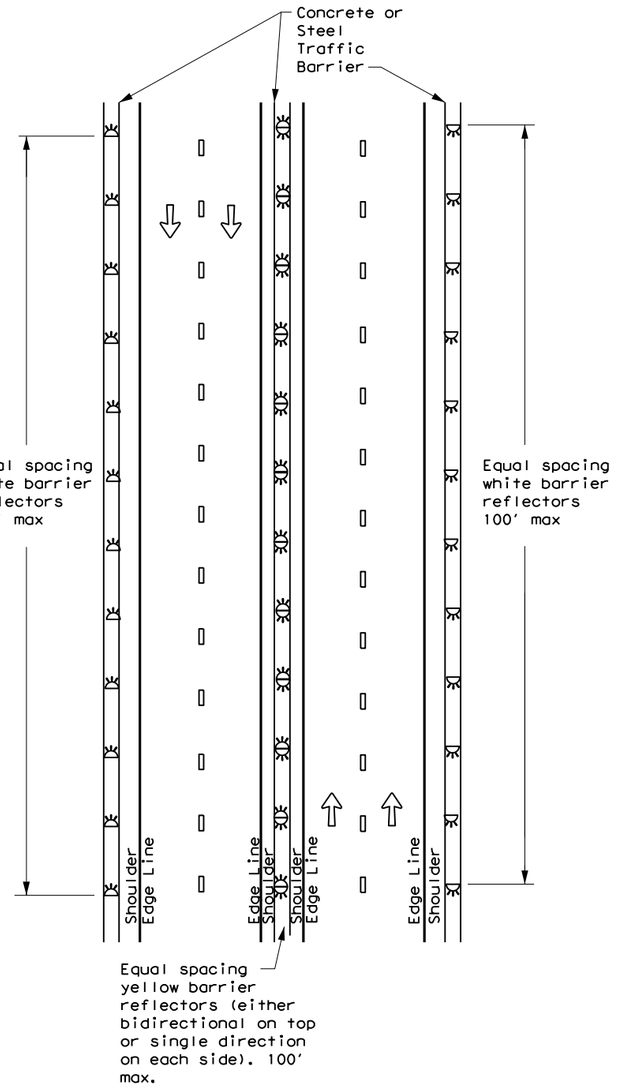
FILE: dom5-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT August 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS	2744	01	032	FM 2854
7-20	DIST	COUNTY		SHEET NO.
	HOU	MONTGOMERY		168

DATE:
FILE:

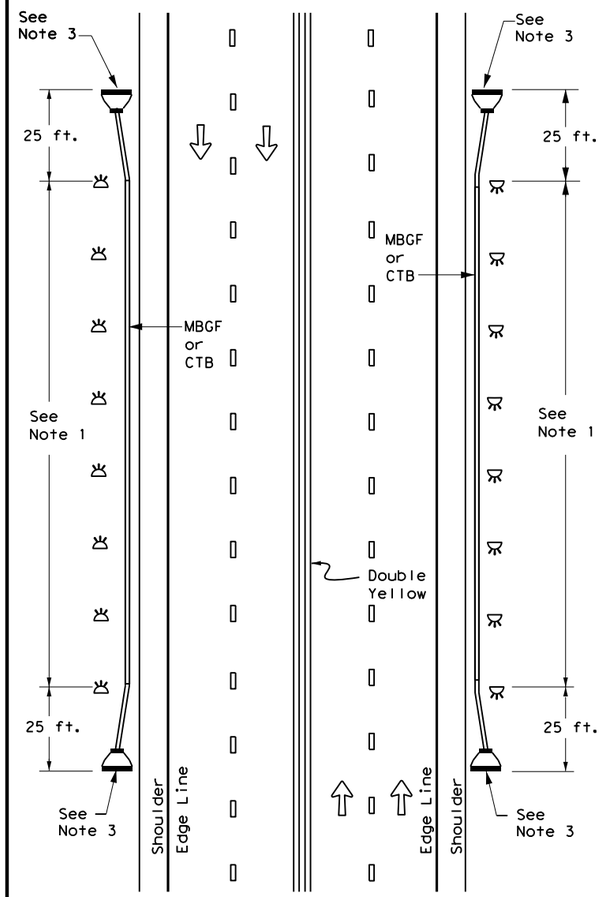
20E

DATE:
FILE:

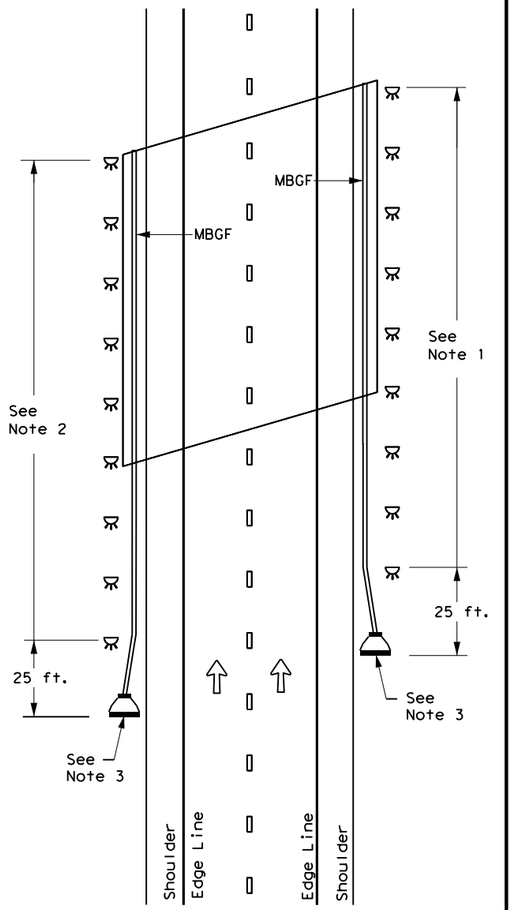
CONTINUOUS CONCRETE OR STEEL BARRIER



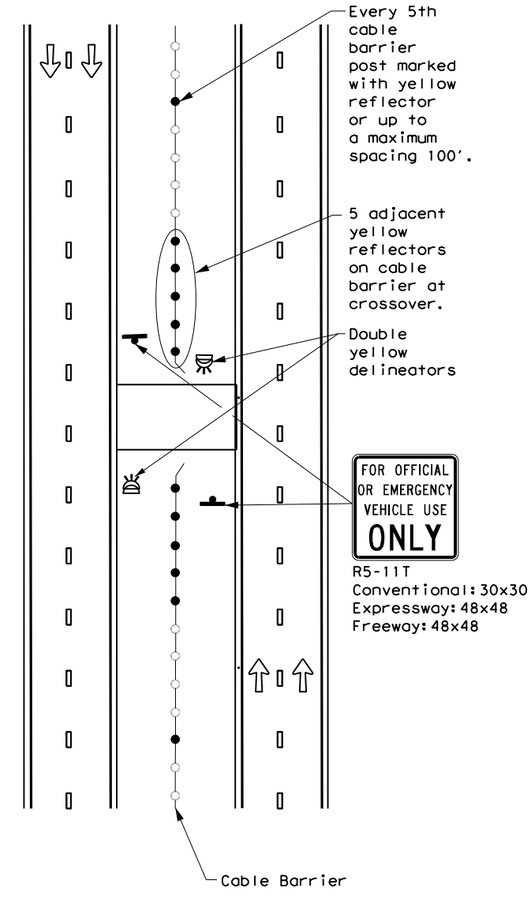
MULTI-LANE UNDIVIDED, TWO-WAY ROADWAY WITH METAL BEAM GUARD FENCE (MBGF)



DIVIDED ROADWAY WITH METAL BEAM GUARD FENCE (MBGF)



EMERGENCY CROSSOVER



NOTES

1. Equal spacing (100′ max), but not less than 3 single directional white barrier reflectors or delineators. On Continuos Barrier, equal spacing (100′ max.)
2. Equal spacing (100′ max), but not less than 3 single directional yellow barrier reflectors or delineators.
3. Terminal ends require reflective sheeting provided by manufacturer per D & OM (VIA) or a Type 3 Object Marker (OM-3)in front of the terminal end.

LEGEND

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

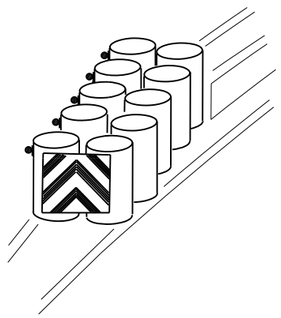
Texas Department of Transportation

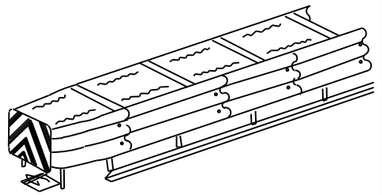
Traffic Safety Division Standard

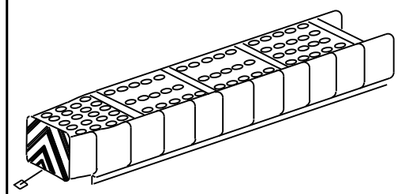
DELINEATOR & OBJECT MARKER PLACEMENT DETAILS

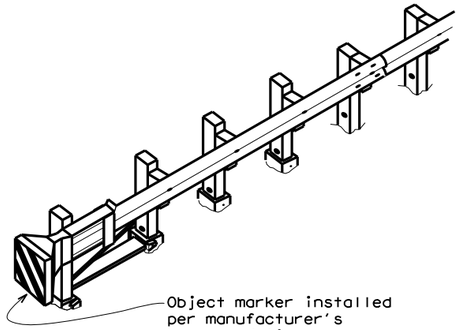
D & OM(6)-20

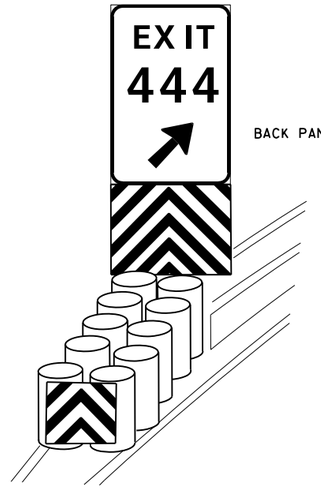
FILE: dom6-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT August 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS	2744	01	032	FM 2854
7-20	DIST	COUNTY		SHEET NO.
	HOU	MONTGOMERY		169

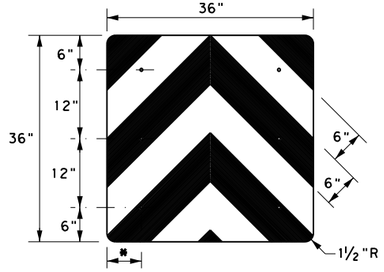


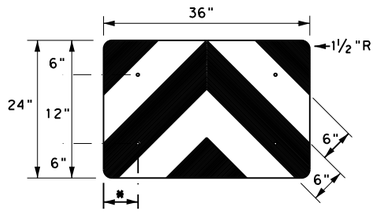




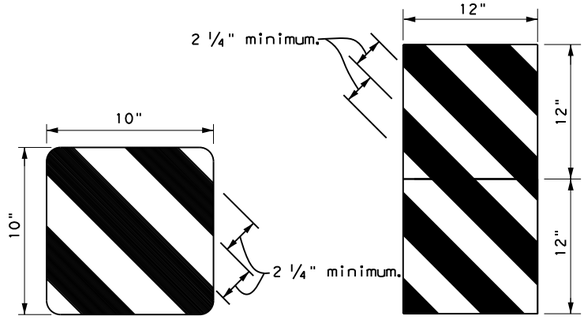




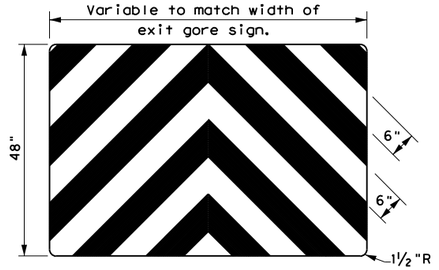


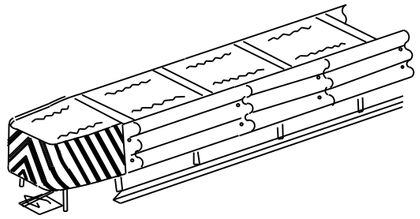


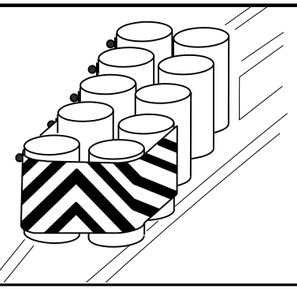
* Adjust to fit attenuator per manufacturer's recommendation, or as directed by the Engineer

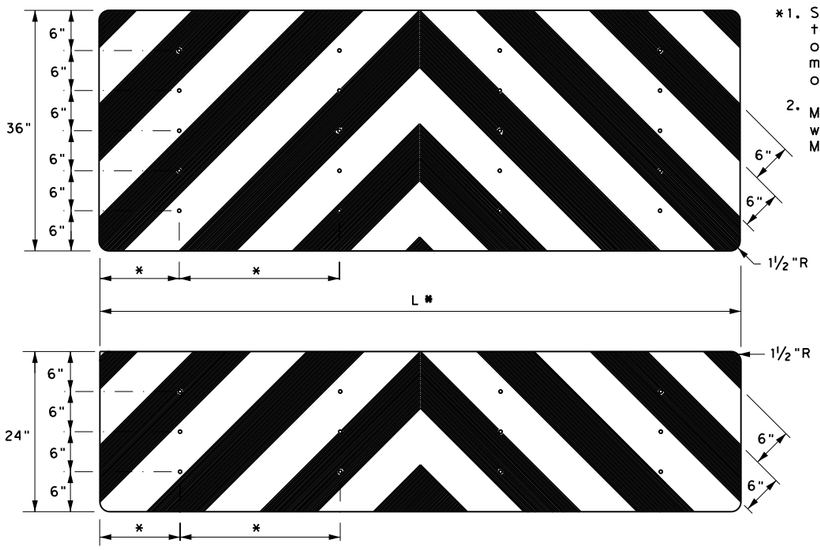


OBJECT MARKERS SMALLER THAN 3 FT^2









NOTES

*1. Spacing should be adjusted to attach through centerline of drum, per attenuator manufacturers recommendation, or as directed by the Engineer.

2. Mounting should be flush with top of attenuator. Minimum size 96" x 24".

NOTES

1. Object Markers shall conform to the Texas MUTCD and meet the color and reflectivity requirement of Department Material Specification DMS 8300. Background shall be yellow reflective sheeting (Type B or C) and Chevron shall be black.

2. Object Markers may be fabricated from adhesive backed reflective sheeting applied directly to guardrail end treatment, or applied directly to an "end cap" as per the manufacturer's recommendation. Direct applied sheeting shall provide a smooth surface and have no wrinkles, air bubbles, cuts or tears. A radius at the corners is not required for direct applied sheeting.

3. Object Marker size may be reduced to fit smaller devices. Width of alternating black and yellow stripes are typically 6". Object Markers smaller than 3ft may have reduced width stripes of a minimum of 2 ¼".

4. Pop rivets, screws, or nuts and bolts may be used to attach object markers and reflectors. Holes, slots or other openings may be cut or drilled through object markers to allow cable or other attachments.

5. Object Marker at nose of attenuator is subsidiary to the attenuator.

6. See D & OM (1-4) for required barrier reflectors.

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER FOR VEHICLE IMPACT ATTENUATORS

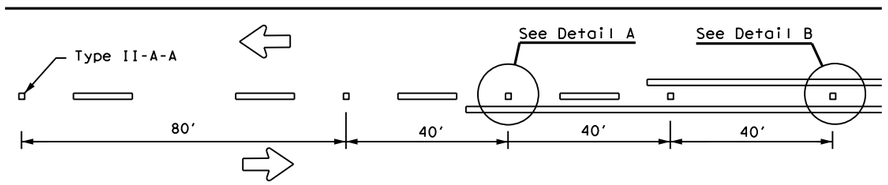
D & OM(VIA)-20

FILE: domvia20.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
© TxDOT December 1989	CONT	SECT	JOB	HIGHWAY
REVISIONS	0523	01	047	FM 1488
4-92 8-04	DIST	COUNTY		SHEET NO.
8-95 3-15	HOU	MONTGOMERY		170
4-98 7-20				

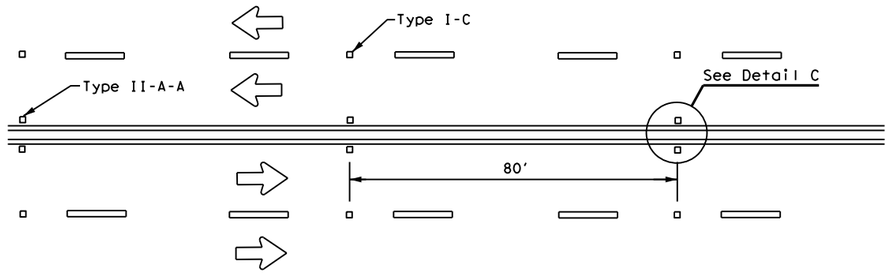
20G

DATE:
FILE:

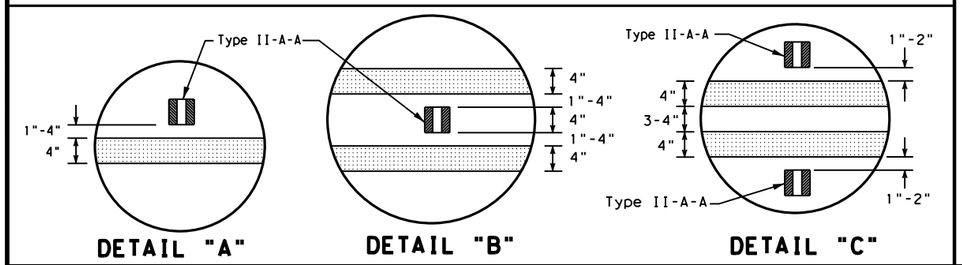
REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE



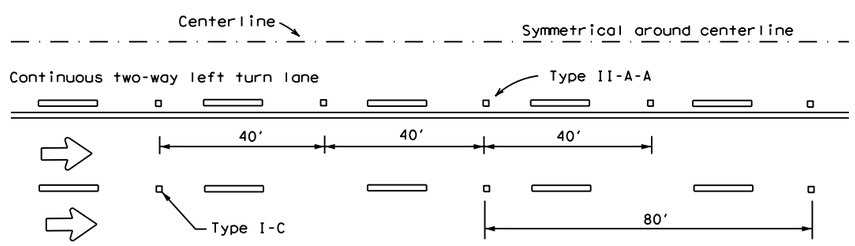
CENTERLINE FOR ALL TWO LANE ROADWAYS



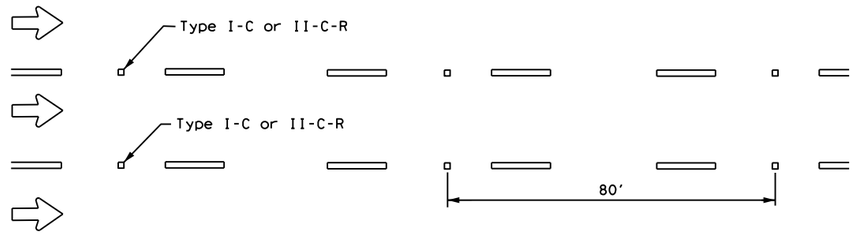
CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY HIGHWAYS



DETAIL "A" **DETAIL "B"** **DETAIL "C"**

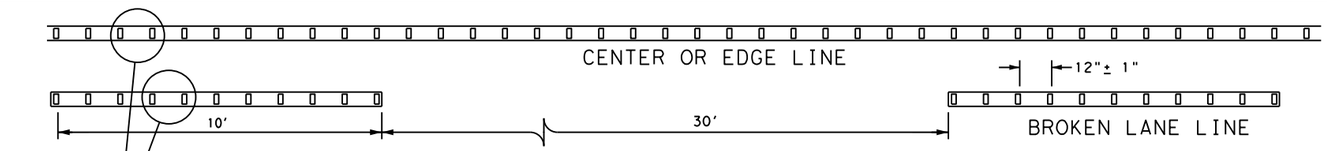


CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



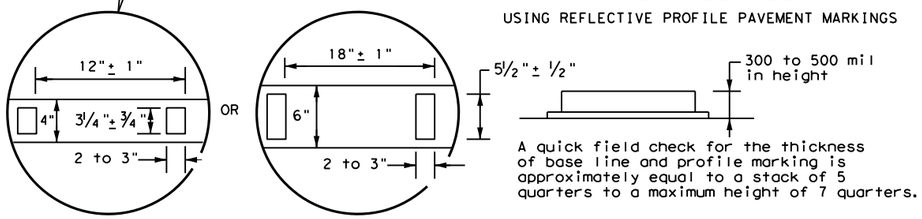
LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

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

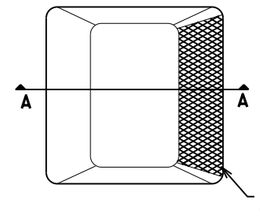
Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

GENERAL NOTES

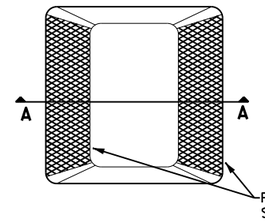
1. All raised pavement markers placed in broken lines shall be placed in line with and midway between the stripes.
2. On concrete pavements the raised pavement markers should be placed to one side of the longitudinal joints.

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

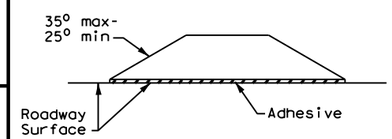
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)



Type II (Top View)



SECTION A

RAISED PAVEMENT MARKERS

Texas Department of Transportation

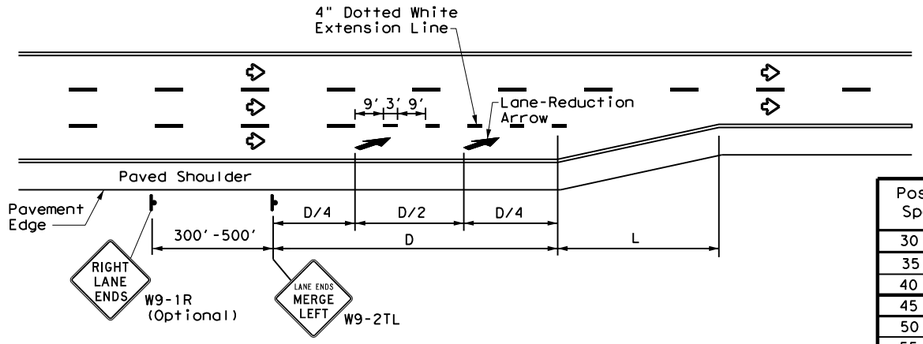
Traffic Safety Division Standard

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	2744	01	032	FM 2854
	DIST	COUNTY		SHEET NO.
	HOU	MONTGOMERY		171

22B

DATE:
FILE:

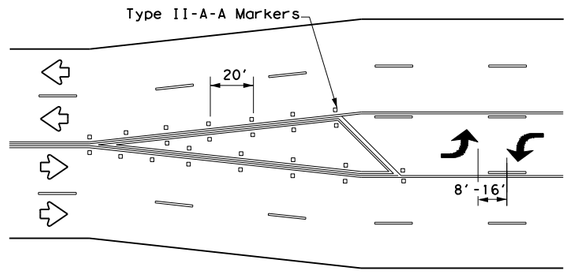


LANE REDUCTION

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.

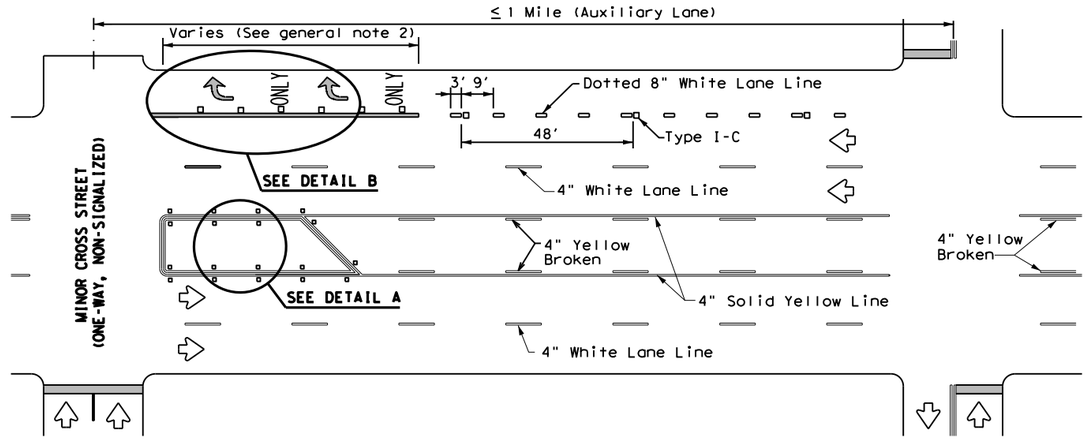
TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY

GENERAL NOTES

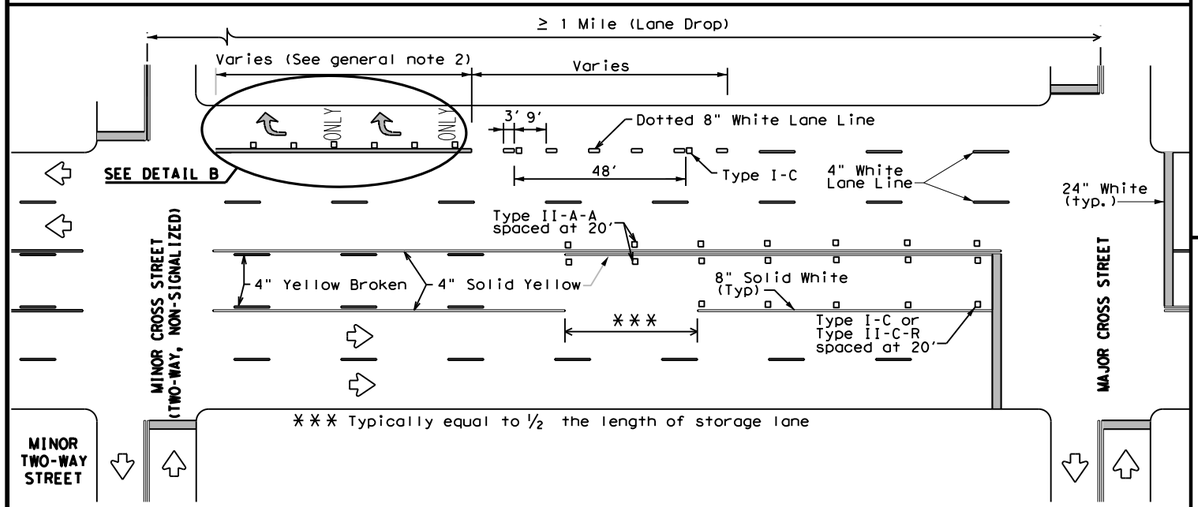
1. Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn 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

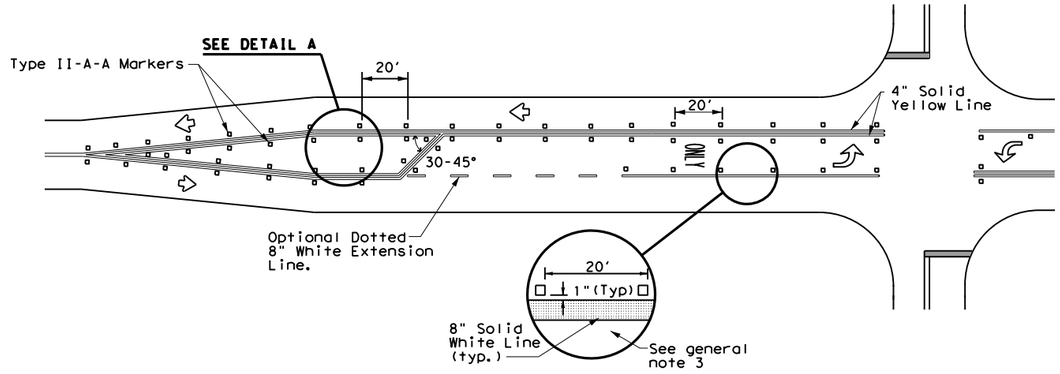
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



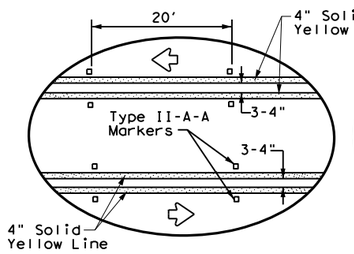
TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE



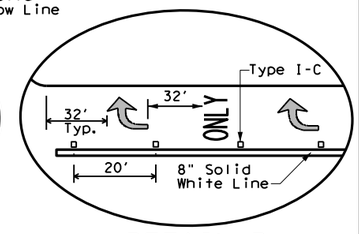
TYPICAL TWLTL AT TWO-WAY CROSS STREET AND RIGHT TURN LANE DROP



TYPICAL TWO-LANE HIGHWAY INTERSECTION WITH LEFT TURN BAYS



DETAIL A



DETAIL B

Texas Department of Transportation

Traffic Safety Division Standard

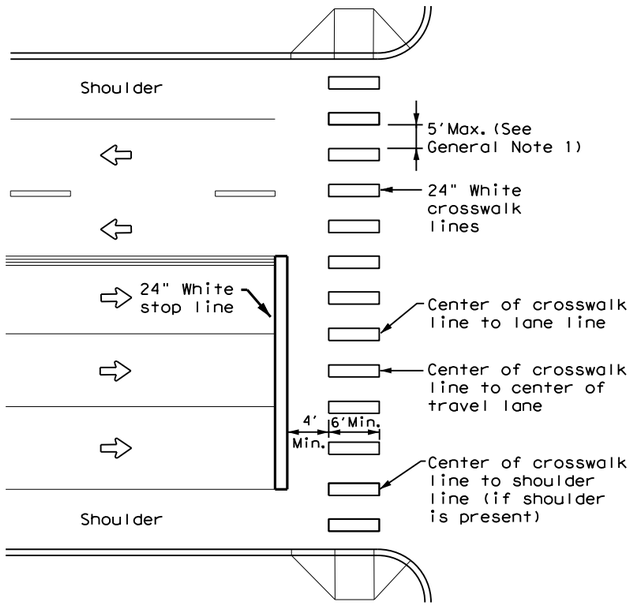
TWO-WAY LEFT TURN LANES, RURAL LEFT TURN BAYS, AND LANE REDUCTION PAVEMENT MARKINGS PM(3)-20

FILE: pm3-20.dgn	DN:	CK:	DW:	CK:
© TxDOT April 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS	2744	01	032	FM 2854
5-00 2-10	DIST	COUNTY		SHEET NO.
8-00 2-12	HOU	MONTGOMERY		172
3-03 6-20				

22C

DATE:
FILE:

DATE:
FILE:



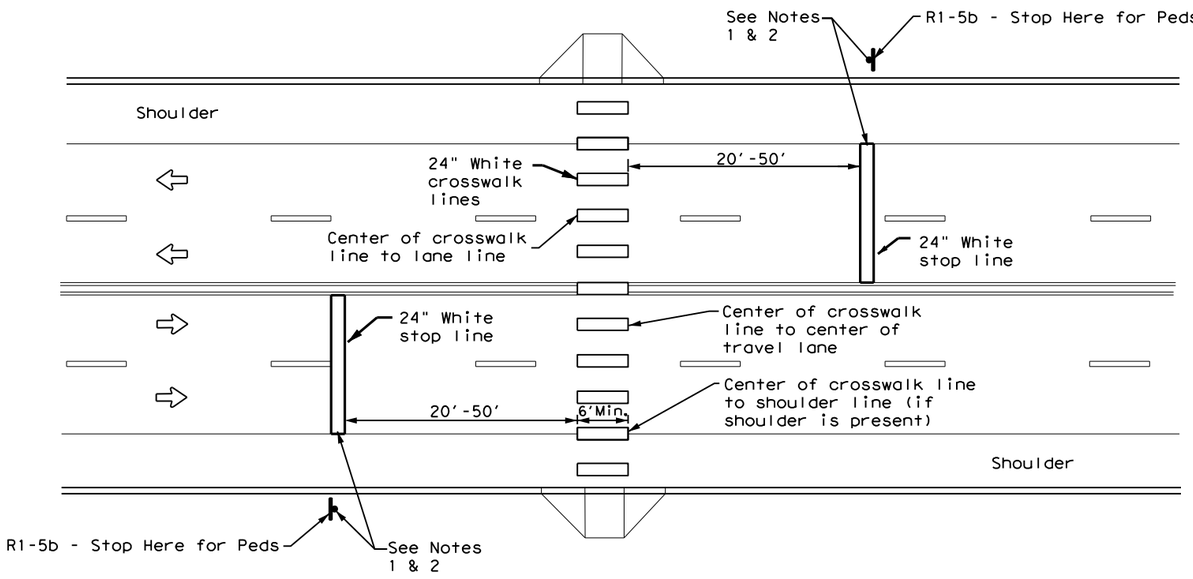
HIGH-VISIBILITY LONGITUDINAL CROSSWALK AT CONTROLLED APPROACH

GENERAL NOTES

1. Longitudinal crosswalk lines should not be placed in the wheel path of vehicles. Center the crosswalk lines on travel lanes, lane lines, and shoulder lines (if present).
2. A minimum 6" clear distance shall be provided to the curb face. If the last crosswalk line falls into this distance it must be omitted.
3. For divided roadways, adjustments in spacing of the crosswalk lines should be made in the median so that the crosswalk lines are maintained in their proper location across the travel portion of the roadway.
4. At skewed crosswalks, the crosswalk lines are to remain parallel to the lane lines.
5. Each crosswalk shall be a minimum of 6' wide.
6. The High-Visibility Longitudinal Crosswalk is the preferred crosswalk pattern on State Highways. Other crosswalk patterns as shown in the "Texas Manual on Uniform Traffic Control Devices" may be used. All crosswalk designs and dimension shall comply with the "Texas Manual on Uniform Traffic Control Devices."
7. Final placement of Stop Bar and Crosswalk shall be approved by the Engineer in the field.

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

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



UNSIGNALIZED MID BLOCK HIGH-VISIBILITY LONGITUDINAL CROSSWALK

NOTES:

1. Use stop bars with "Stop Here for Pedestrians" signs at unsignalized mid block cross walks.
2. Use stop bars with "Stop Here on Red" signs at mid block crosswalks controlled by traffic signals or pedestrian hybrid beacons.

Texas Department of Transportation

Traffic Safety Division Standard

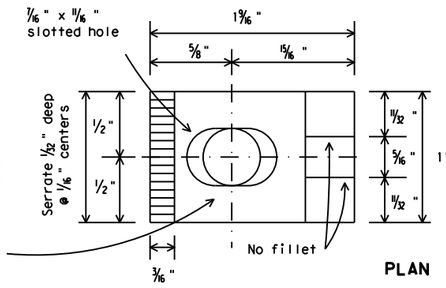
CROSSWALK PAVEMENT MARKINGS

PM(4)-22

FILE: pm4-22.dgn	DN:	CK:	DW:	CK:
© TxDOT June 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	2744	01	032	FM 2854
3-22	DIST	COUNTY		SHEET NO.
	HOU	MONTGOMERY		172A

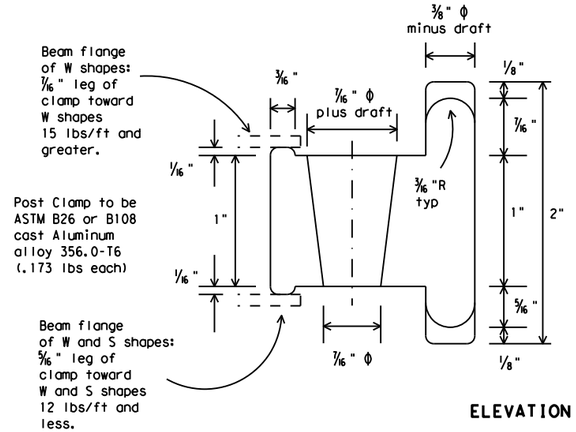
22D

DATE:
FILE:



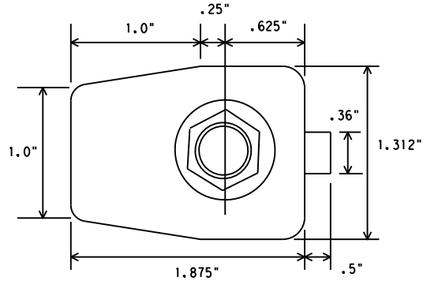
NOTE: centerline of hole for 3/8" diameter squarehead bolt x 2 1/4" long with a flat washer and self-locking nut, or lock washer and hex. nut. Bolt head dimensions shall be in accordance with ANSI B 18.2.1 as referred to in the AISC Manual of steel construction. Bolt assembly shall be galvanized.

PLAN

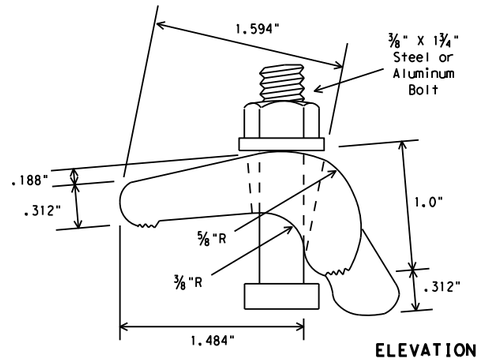


ELEVATION

POST CLAMP DETAIL

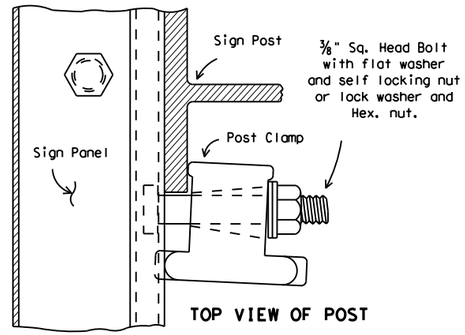


PLAN

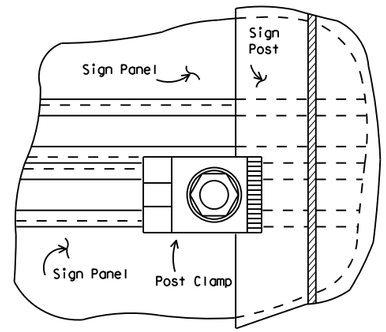


ELEVATION

ALTERNATE POST CLAMP DETAIL



TOP VIEW OF POST

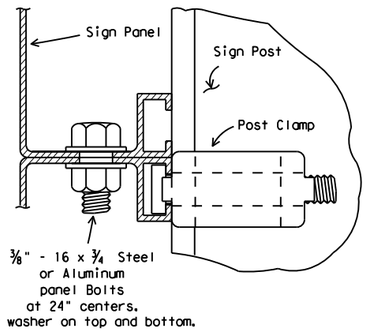


TOP VIEW OF CLAMP

DEPARTMENTAL MATERIAL SPECIFICATIONS	
SIGN HARDWARE	DMS-7120

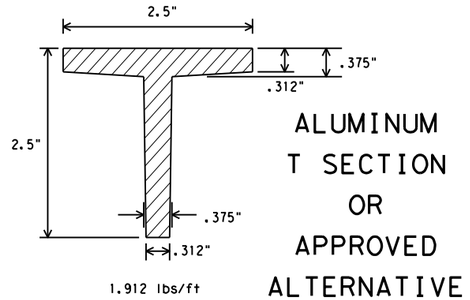
GENERAL NOTES:

1. Design conforms with AASHTO Specifications for the design and construction of structural supports for highway signs.
2. Materials and fabrication shall conform to the requirements of the Department material specifications.
3. Structural steel shall be "low-alloy steel" for non-bridge structures per Item 442, "Metal For Structures."
4. For fiberglass substrate connection details, see manufacturer's recommendations.



SIDE VIEW OF PANELS

CONNECTION DETAILS

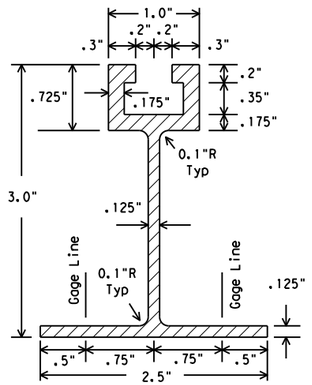


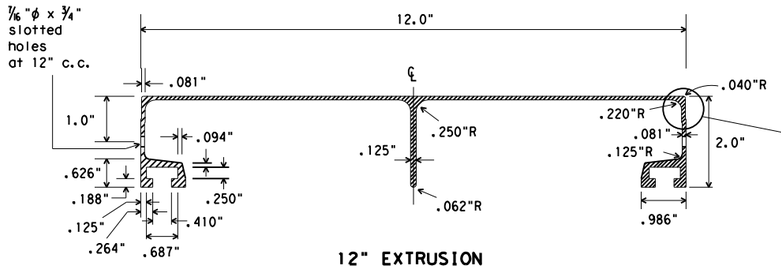
1.912 lbs/ft

ALUMINUM T SECTION OR APPROVED ALTERNATIVE

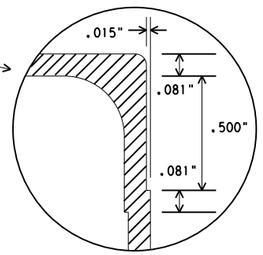
WINDBEAM CROSS SECTION

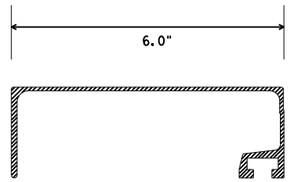
Windbeam to be extruded aluminum (1.175 lbs/ft) or approved alternative



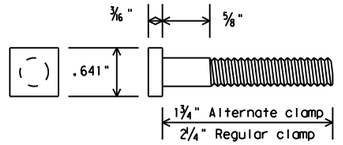


12" EXTRUSION





6" EXTRUSION



POST CLAMP BOLT DETAIL

ALUMINUM SIGN PANEL EXTRUSION DETAILS

Texas Department of Transportation
Traffic Operations Division

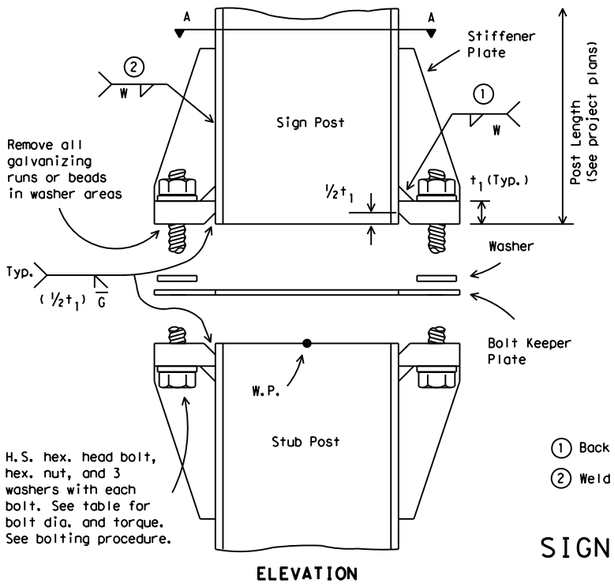
SIGN MOUNTING DETAILS- EXTRUDED ALUMINUM SIGN PANELS & HARDWARE

SMD(2-1)-08

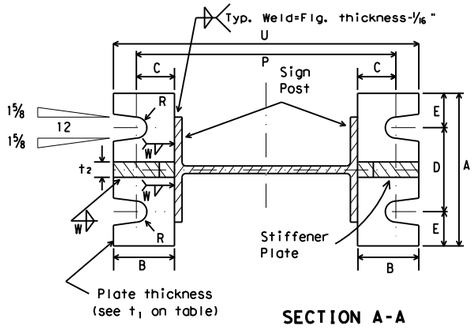
DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

REVISIONS	CONT	SECT	JOB	HIGHWAY
9-08	2744	01	032	FM 2854
	DIST	COUNTY		SHEET NO.
	HOU	MONTGOMERY		173

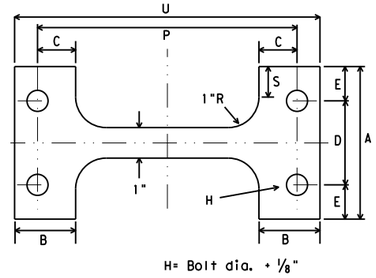
DATE:
FILE:



ELEVATION

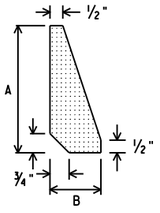


SECTION A-A



H= Bolt dia. + ⅛"

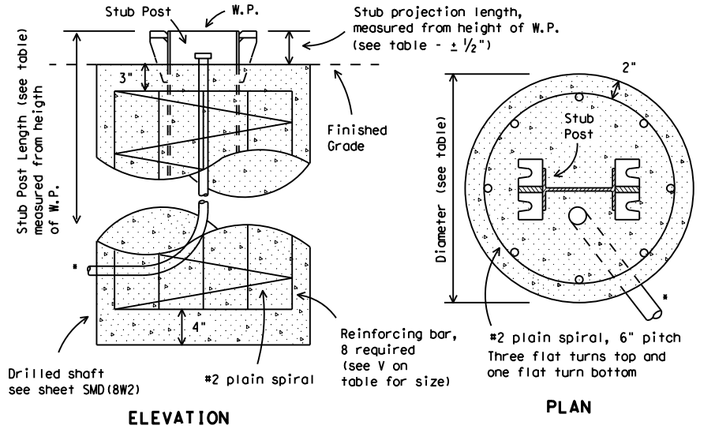
BOLT KEEPER PLATE
30 Ga galv. sheet steel



STIFFENER PLATE DETAIL

Steel Plate (thickness = t_2)

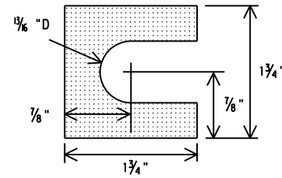
(See table for dimensions)



ELEVATION PLAN

FOUNDATION DETAIL

*Note: For signs with electrical apparatus, see ED(10) for conduit required in founation.



SHIM DETAIL

Furnish two .012"+ thick and two .032"+ thick shims per post. Shims shall be fabricated from brass shim stock or strip conforming to ASTM B36.

BOLTING PROCEDURE FOR ASSEMBLY OF BASE CONNECTION:

1. Assemble sign post, BOLT KEEPER PLATE and stub post with bolts and three flat washers per bolt as shown.
2. Shim as required to plumb post.
3. Tighten all bolts the maximum possible with a 12 to 15 inch wrench to clean bolt threads and to bed washers and shims.
4. Loosen each bolt in sequence and retighten bolts in a systematic order to the prescribed torque. Do not overtighten.
5. To prevent nut loosening, burr threads of bolt at junction with nut using a center punch.

Dimensions / Post Size	Base Connection Data Table: Bolt Size & Torque	A	B	C	D	E	t_1	t_2	W	R	Perforated Fuse Plate Data Table: F	G	J	K	M	d_1	d_2	t_3	Bolt Dia.	Wt. (ea.) (lbs.)	Bolt length	Bolt Keeper Data: P	S	U	Foundation Data: Stub length	Stub projection	Dr. Shaft diameter	Bar V Size
W6x9	⅝"ϕ x 2¾" 440-450 inch pounds 36-38 foot pounds	5"	2"	1¼"	2¾"	1⅛"	¾"	½"	¼"	11/32"	4¼"	2"	4"	2¼"	1"	9/16"	¾"	¼"	½"	1.01	1½"	8⅜"	1"	9⅞"	2'-0"	3"	24"	#5
W6x12																						8½"		10"	2'-0"	3"		#5
W6x15											5"	2½"	6"	3½"	1½"	11/16"	1¼"	⅜"	⅝"	2.51	2¼"	8½"		10"	2'-6"	3"		#6
W8x18											5"	2½"	5¼"	2¾"	1¼"	11/16"	1 1/16"	⅜"	⅝"	2.26	2¼"	10⅝"		12⅛"	2'-6"	3"		#7
W8x21	¾"ϕ x 3½" 740-750 inch pounds 62-63 foot pounds	6"	2¼"	1⅜"	3½"	1¼"	1"	¾"	5/16"	13/32"	5½"	2½"	5¼"	2¾"	1¼"	13/16"	1"	½"	¾"	3.35	2¼"	11"	1½"	12¾"	3'-0"	2½"		#8
W10x22											6"	3"	5¾"	2¾"	1⅜"	13/16"	1⅛"	½"	¾"	4.03	2¼"	12⅞"		14⅝"	3'-0"	2½"		#9
W10x26																						13⅛"		14⅞"	3'-0"	2½"		#10
W12x26											6"	3"	6½"	3½"	1⅝"	13/16"	1 5/16"	½"	¾"	4.47	2¼"	15"		16¾"	3'-0"	2½"		#11
S3x5.7	½"ϕ x 2½" 440-450 inch pounds 36-38 foot pounds	See Detail Below									3¾"	1½"	2⅝"	1½"	⅝"	9/16"	⅜"	¼"	½"	0.60	1½"	See Detail Below			3'-3½"	3½"	12"	Non-reinforced ③
S4x7.7																												

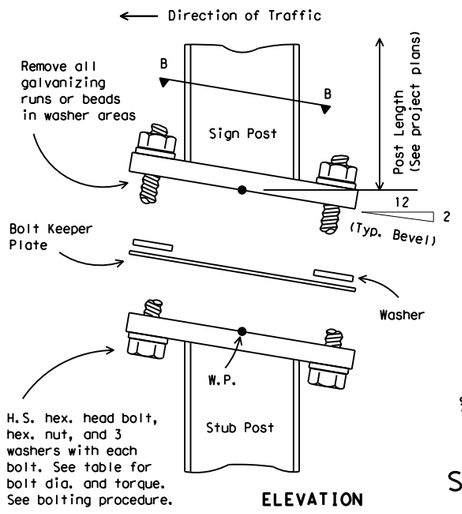
③ Foundation design shall be Type G Mount, see SMD (TY G).

① Back up weld to be made before installing stiffener plate

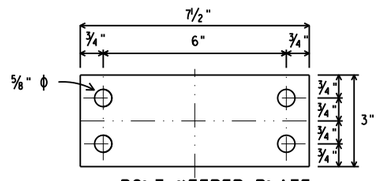
② Weld W may be continued across clips to seal joint

SIGN POST AND STUB POST

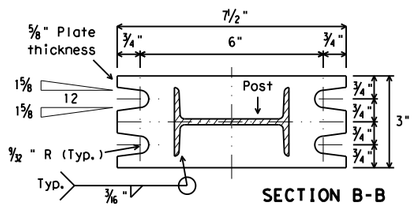
(For W Shapes)



ELEVATION



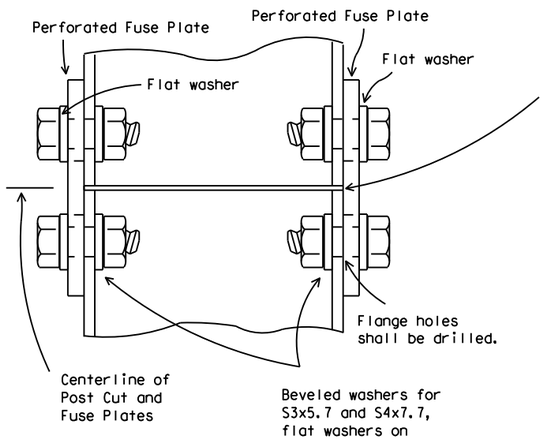
BOLT KEEPER PLATE
30 Ga galv. sheet steel



SECTION B-B

SIGN POST AND STUB POST

(For S4x7.7 and S3x5.7)



DETAIL "A"

Parts shall be saw cut either before galvanizing and the galvanized cut cleaned of zinc build-up, or saw cut after galvanizing and the cut surface repaired per Item 445, "Galvanizing."

PERFORATED FUSE PLATE DETAIL

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

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS- LARGE ROADSIDE SIGNS FOUNDATION & STUB

SMD(2-2)-08

REVISIONS
4-98
9-08

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

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		174

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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)

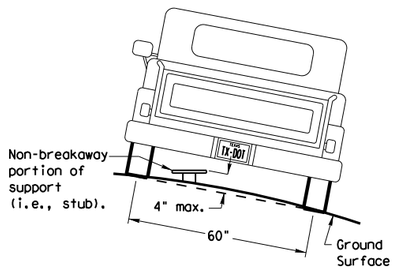
Anchor Type

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))

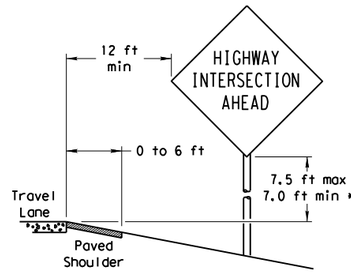
REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



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).

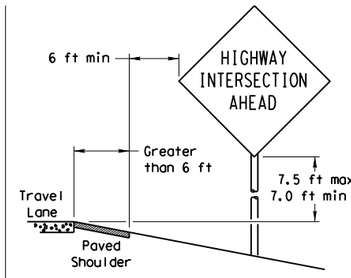
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

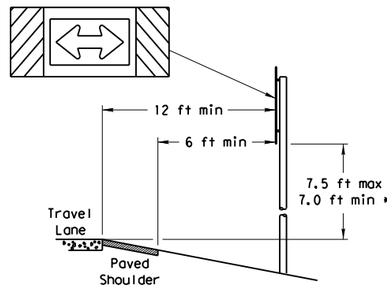
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.



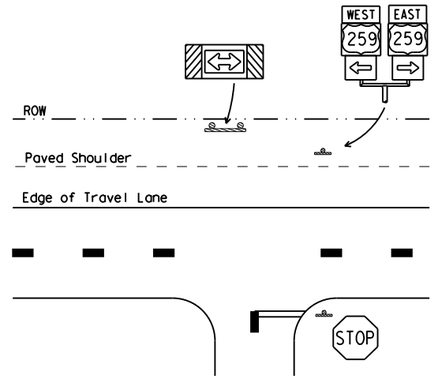
GREATER THAN 6 FT. WIDE

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.

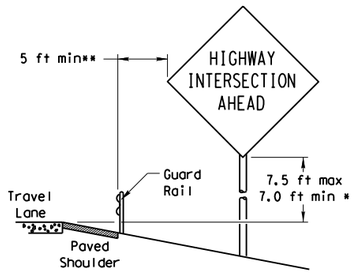
T-INTERSECTION



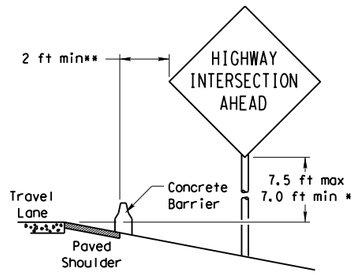
When this sign is needed at the end of a two-lane, two way roadway, the right edge of the sign should be in line with the centerline of the roadway. Place as close to ROW as practical.



BEHIND BARRIER



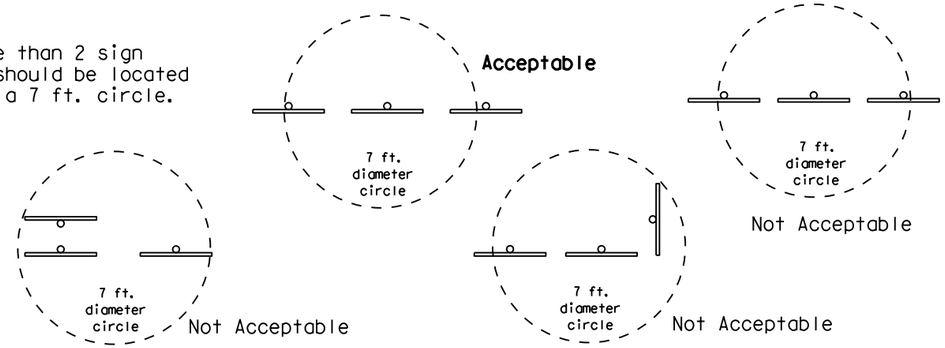
BEHIND GUARDRAIL



BEHIND CONCRETE BARRIER

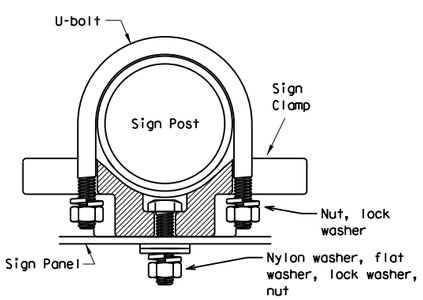
**Sign clearance based on distance required for proper guard rail or concrete barrier performance.

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



TYPICAL SIGN ATTACHMENT DETAIL

Single Signs

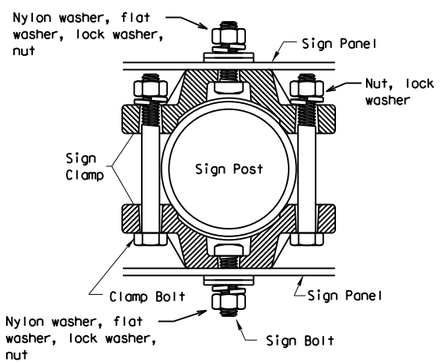


Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

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

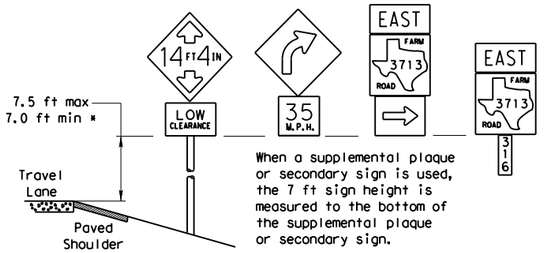
Sign clamps may be either the specific size clamp or the universal clamp.

Back-to-Back Signs



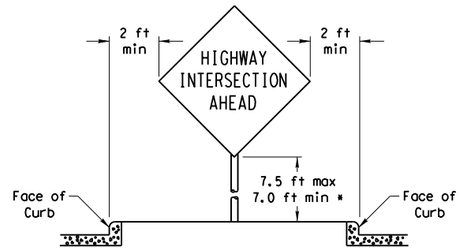
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES



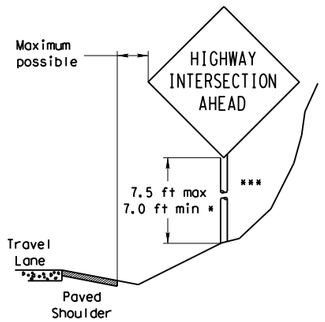
When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

CURB & GUTTER OR RAISED ISLAND



RESTRICTED RIGHT-OF-WAY

(When 6 ft min. is not possible.)



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

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

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

* 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

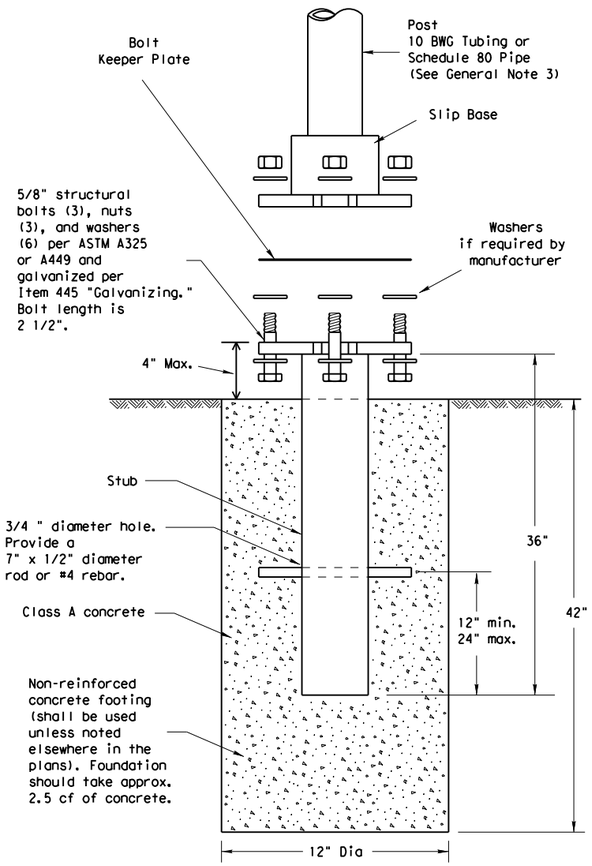
REVISIONS
9-08

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

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		175

DATE:
FILE:

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.

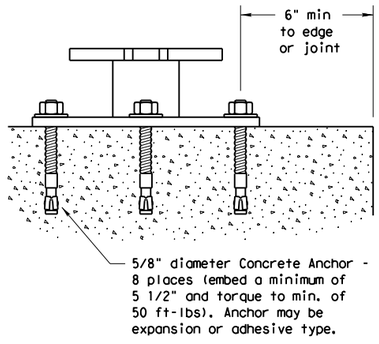
   Schedule 80 Pipe (2.875" outside diameter)
   - 0.276" nominal wall thickness
   - Steel tubing per ASTM A500 Gr C
   - Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the following:
     - 46,000 PSI minimum 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

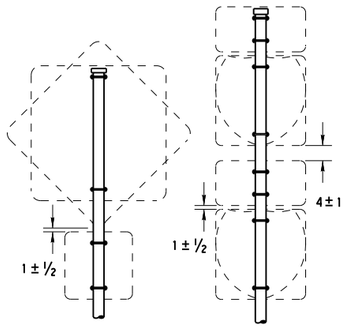
SMD(SLIP-1)-08

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
REVISIONS			
9-08			

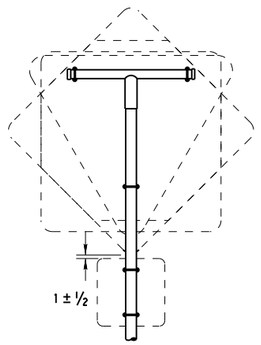
CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854

DIST	COUNTY	SHEET NO.
HOU	MONTGOMERY	176

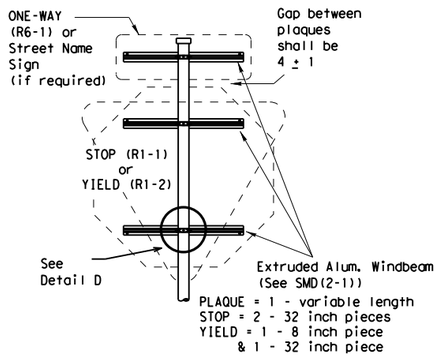
DATE:
FILE:



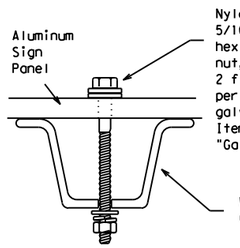
SM RD SGN ASSM TY XXXXX(1)XX(P)



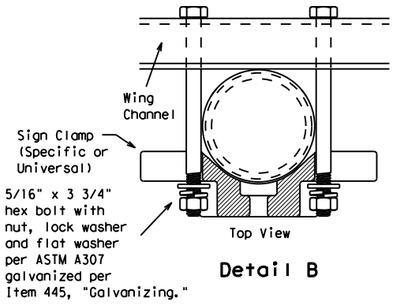
SM RD SGN ASSM TY XXXXX(1)XX(T)



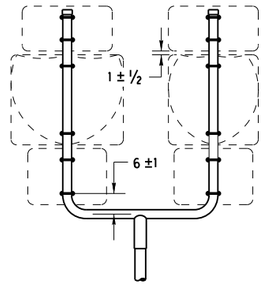
SM RD SGN ASSM TY XXXXX(1)XX(P-BM)



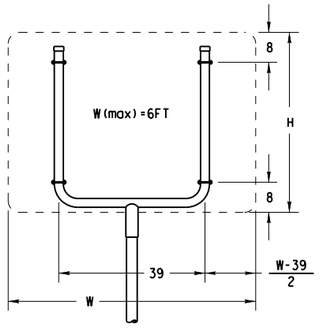
Detail A



Detail B



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



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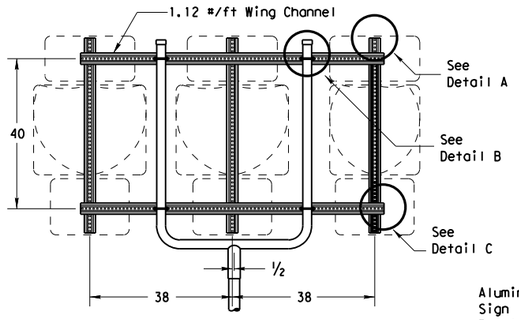
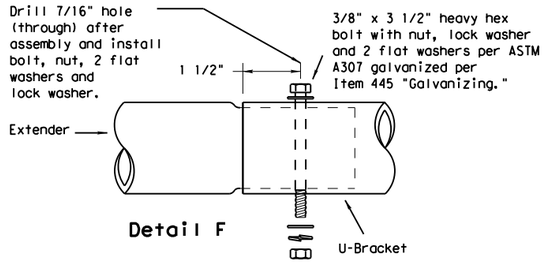
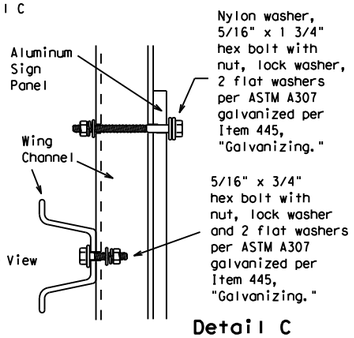


SM RD SGN ASSM TY XXXXX(1)XX(U-WC)
(See Note 11)

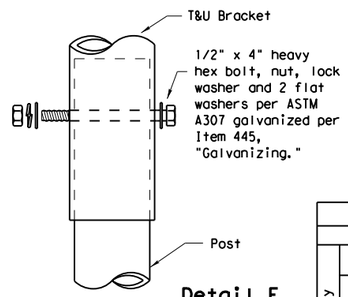


Detail F

Splices shall only be allowed behind the sign substrate.



Detail C



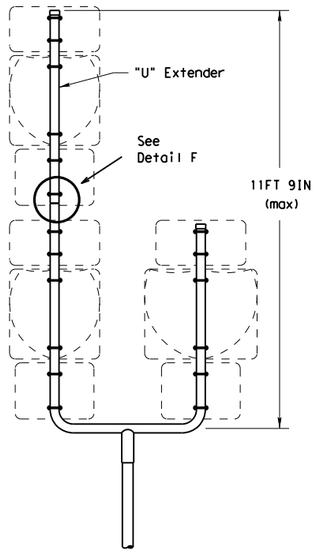
Detail E

GENERAL NOTES:

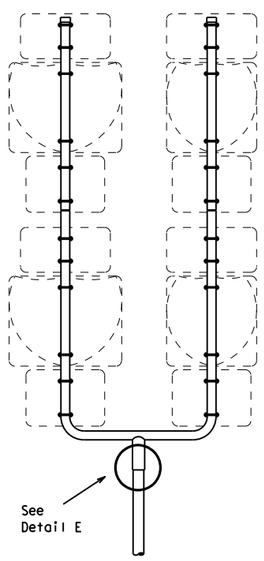
1.

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

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



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



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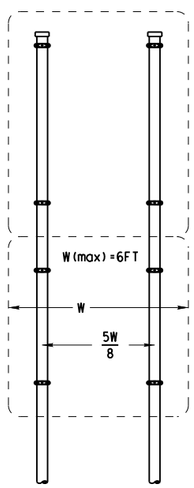
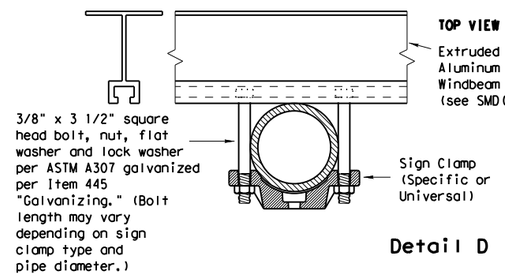
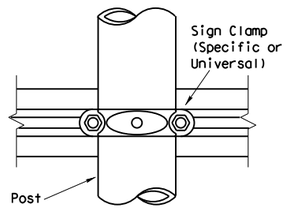


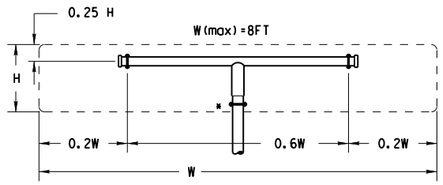
SM RD SGN ASSYM TY XXXXX(2)XX(P)



Detail D



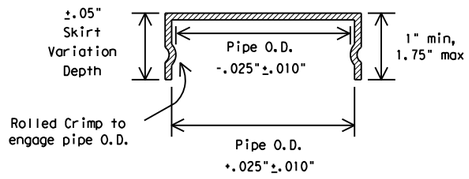
REQUIRED SUPPORT		
	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)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



All dimensions are in english unless detailed otherwise.

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

FRICTION CAP DETAIL



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

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

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

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-2)-08

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		177

9-08 REVISIONS

DATE:
FILE:

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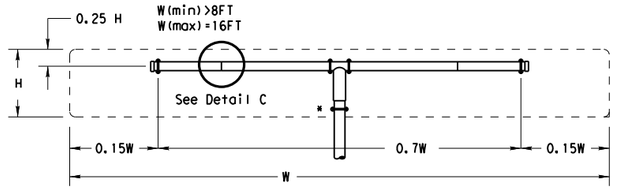
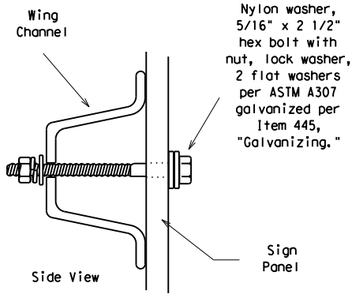
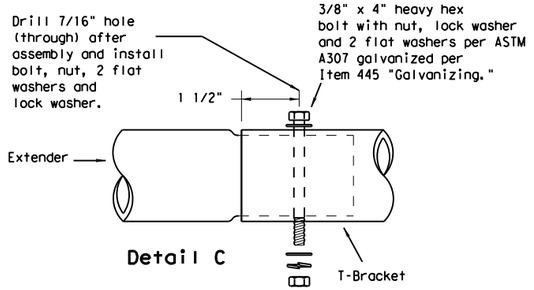


SM RD SGN ASSM TY XXXXX(1)XX(T-2EXT)

(* - See Note 12)



Detail B



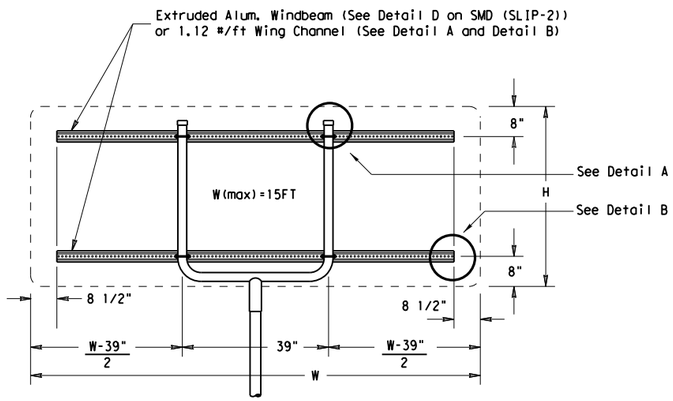
Detail C

Splices shall only be allowed behind the sign substrate.

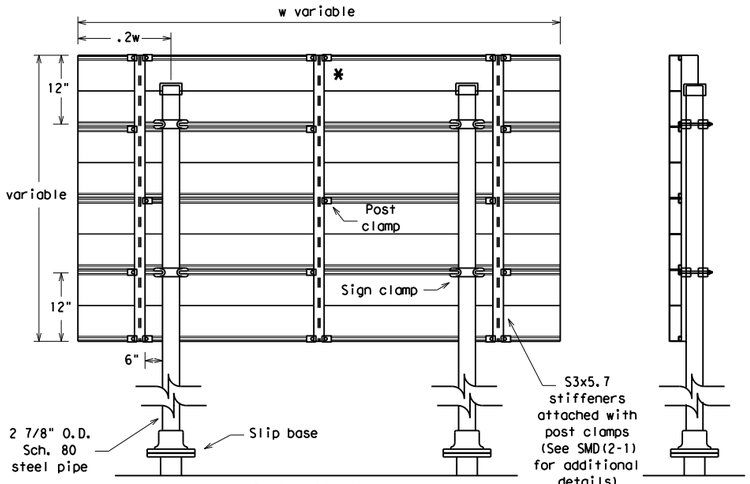
GENERAL NOTES:

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

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



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

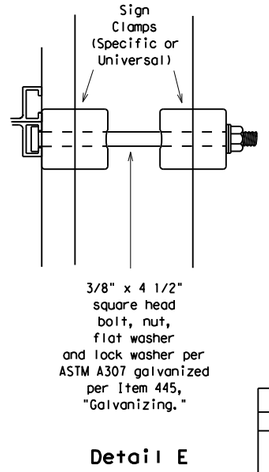


Typical Sign Mount

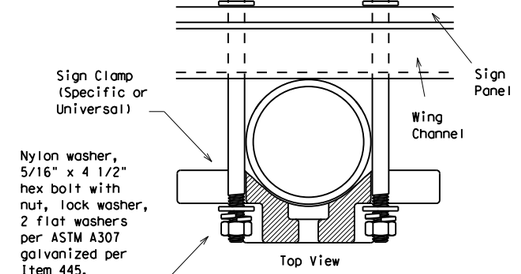
SM RD SGN ASSM TY S80(2)XX(P-EXAL)

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

See Detail E for clamp installation

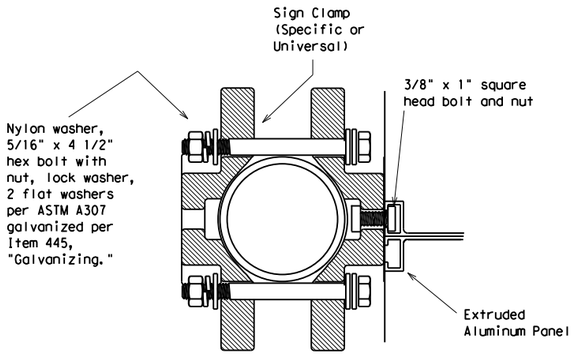


Detail E



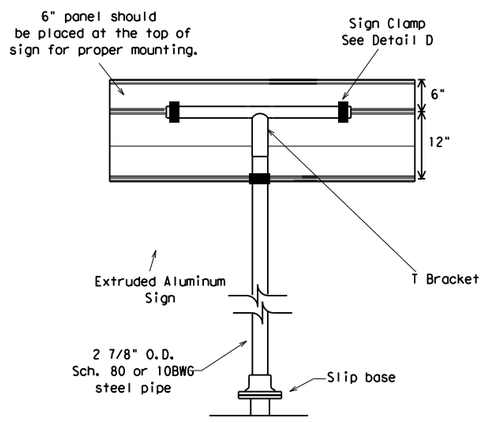
Top View

Detail A

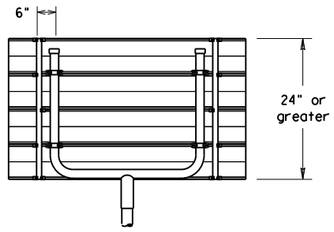


Detail D

EXTRUDED ALUMINUM SIGN WITH T BRACKET



Extruded Aluminum Sign With T Bracket



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

See Detail E for clamp installation

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

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

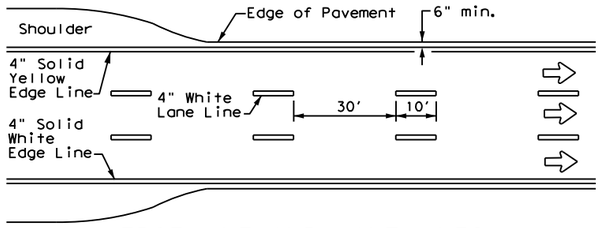
SMD(SLIP-3)-08

REVISIONS

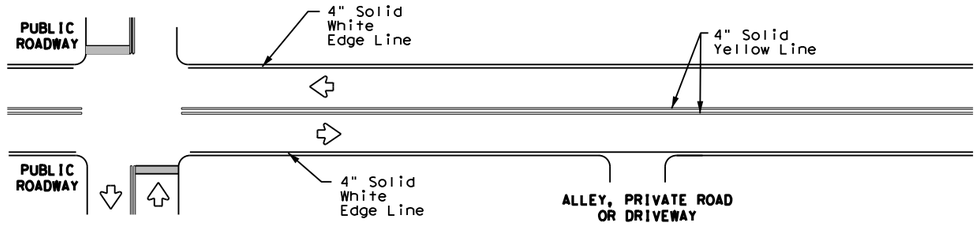
9-08

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
CONT	SECT	JOB	HIGHWAY
0523	01	047	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		178

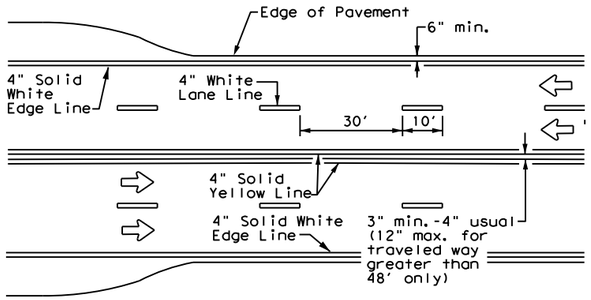
DATE:
FILE:



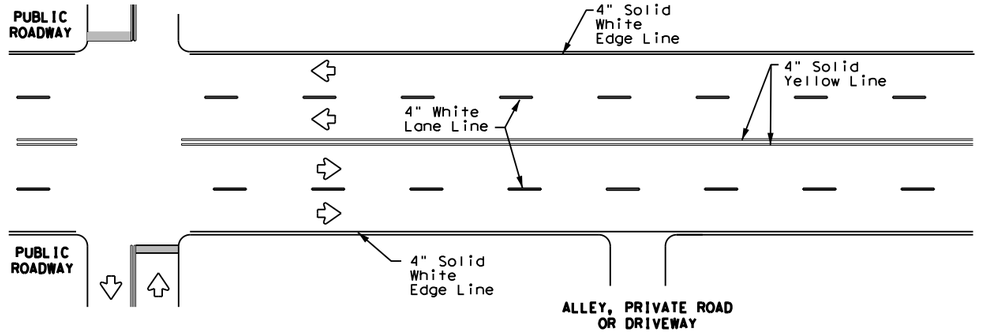
EDGE LINE AND LANE LINES ONE-WAY ROADWAY WITH OR WITHOUT SHOULDERS



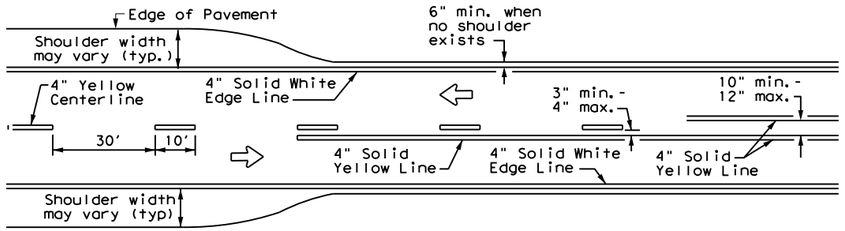
TYPICAL TWO-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS



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

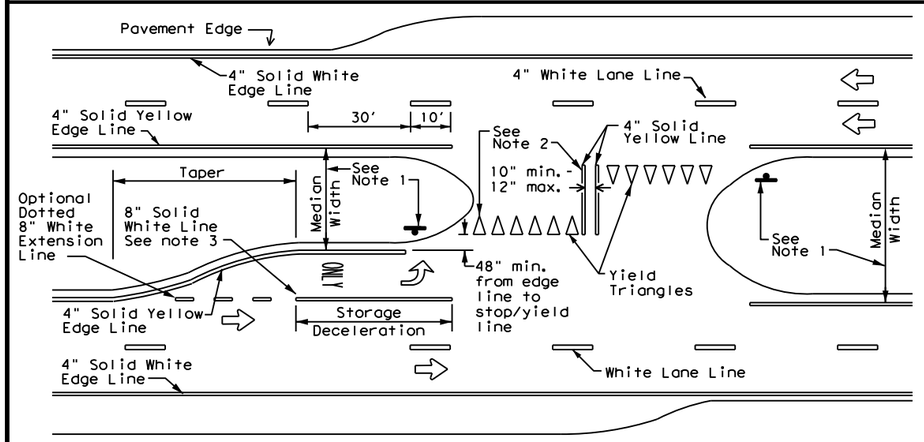


TYPICAL MULTI-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS



TWO LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS

YIELD LINES



FOUR LANE DIVIDED ROADWAY CROSSOVERS

NOTE:

1. Irrespective of shoulder, use 6in width lines (edge lines).
2. Use 4 in. width lines (edge and lane lines) when lane width is 10 ft. or less; and 6 in. width lines when lane width is greater than 10 ft.

NOTES

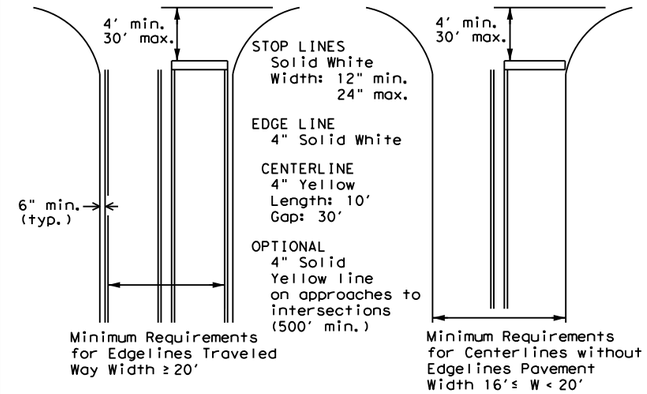
1. Where divided highways are separated by median widths at the median opening itself of 30 feet or more, median openings shall be signed as two separate intersections. Each median opening has two width measurements, with one measurement for each approach. The narrow median width will be the controlling 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
HOUSTON DISTRICT STANDARD

TYPICAL STANDARD PAVEMENT MARKINGS

PM-20

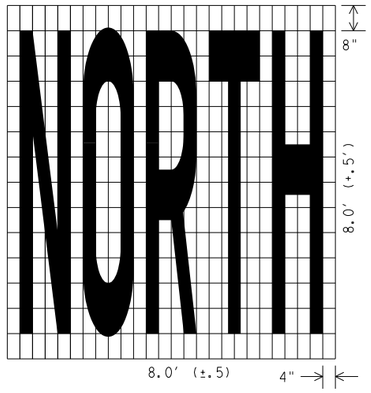
DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

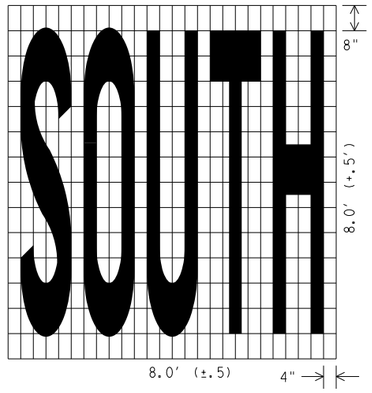
REVISIONS
8-95 2-12
5-00 8-16
8-00 7-20
3-03

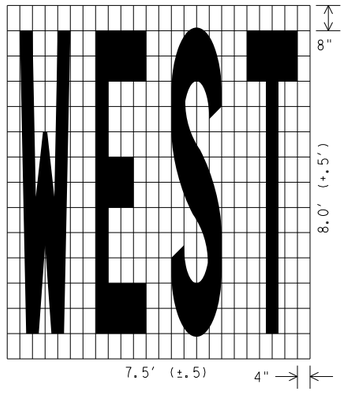
CONT	SECT	JOB	HIGHWAY
2744	01	032	FM 2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		179

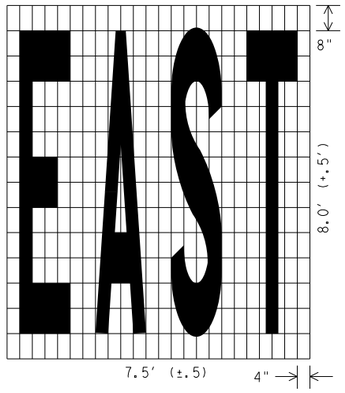
DATE:
FILE:

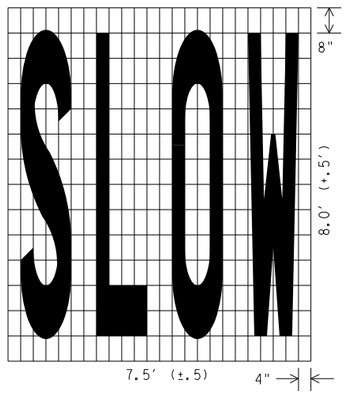
STD N-5a

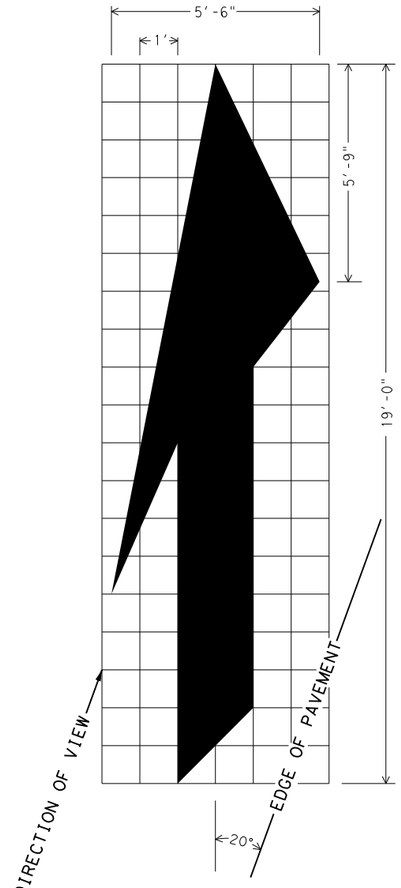






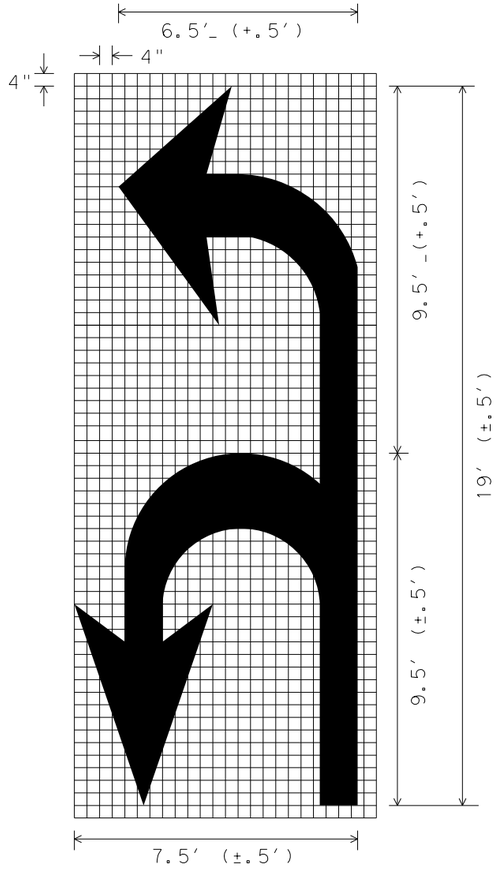




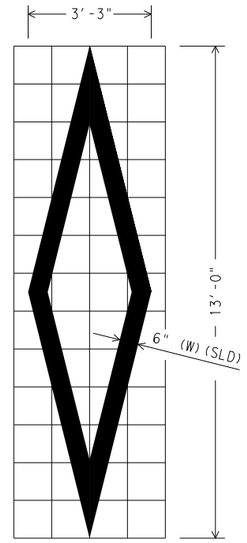


ISOMETRIC ARROW

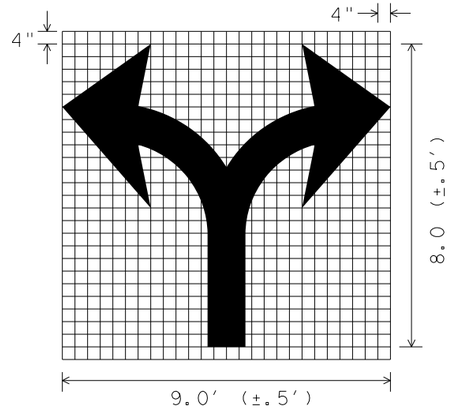
12 INCH GRID
AREA = 42 SQ. FT.
RIGHT LANE DROP ARROW
(FOR LEFT LANE, USE MIRROR IMAGE)



U-L ARROW



DIAMOND SYMBOL



SCALE 1/4" = 1′

Texas Department of Transportation
Houston District

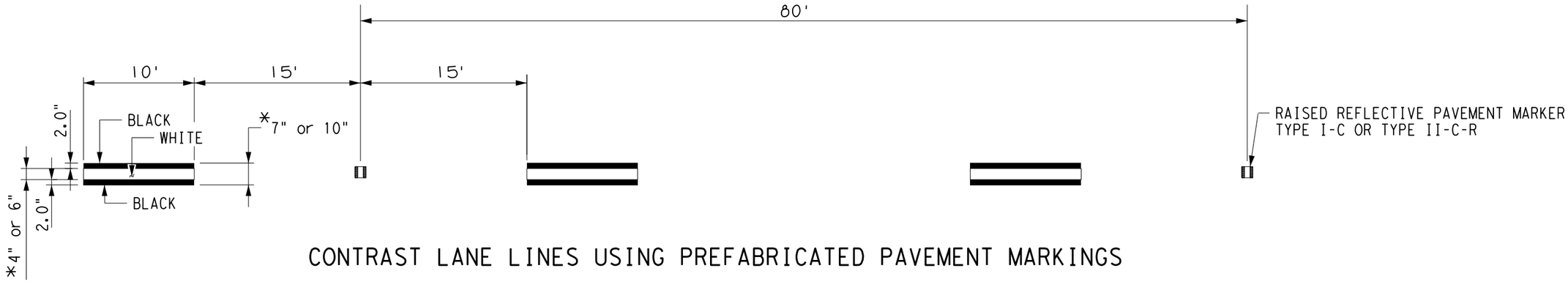
PAVEMENT MARKINGS (WORDS, ARROWS & SYMBOLS)

PM(WAS)-07

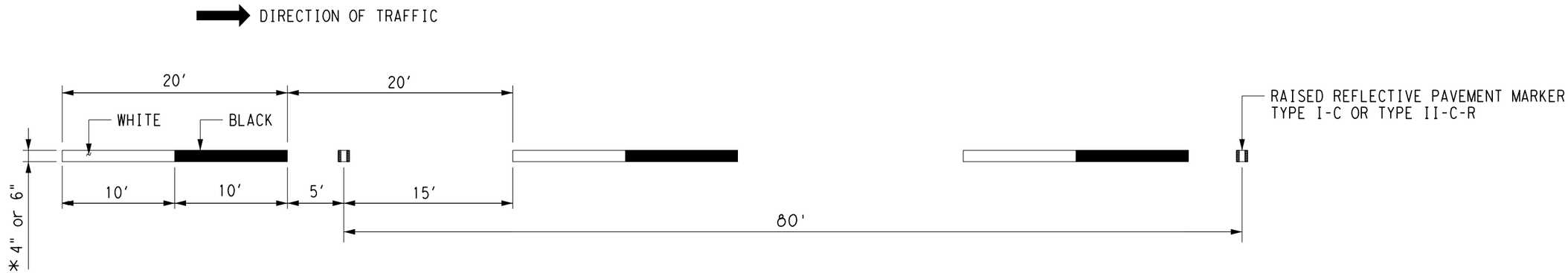
FILE:	DN:	CK:	DW:	CK:
© TxDOT 2022	DIST	FED REG	PROJECT NO.	SHEET
REVISIONS 03-19-07	HOU	6		180

COUNTY	CONTROL	SECT	JOB	HIGHWAY
MONTGOMERY	2744	01	032	FM 2854

STD-N31



CONTRAST LANE LINES USING PREFABRICATED PAVEMENT MARKINGS



CONTRAST LANE LINES USING LIQUID APPLICATIONS
(MULTIPOLYMER, THERMOPLASTIC, ETC.)

* AS SHOWN ON THE PLANS.

Texas Department of Transportation
Houston District

PAVEMENT MARKINGS
(CONTRAST LANE LINES)

PM(CLL)-14

FILE:	DN:	CK:	DW:	CK:	
© TxDOT 2003	DIST	FED REG	PROJECT NO.		SHEET
REVISIONS 01-10-06 02-12-08 10-2019 9" to 10"	HOU	6			181
	COUNTY		CONTROL	SECT	JOB	HIGHWAY
	MONTGOMERY		2744	01	032	FM 2854

STD N-30

I. STORMWATER POLLUTION PREVENTION

Texas Pollutant Discharge Elimination System (TPDES) TXR 150000: Stormwater Discharge Permit or Construction General Permit is required for projects with 1 or more acres disturbed soil. Projects with any disturbed soil must protect for erosion and sedimentation in accordance with Item 506. Refer to Storm Water Pollution Prevention Plan (SWP3) Houston District standard plan.

No Additional Comments

II. WORK IN OR NEAR STREAMS, WATERBODIES AND WETLANDS

United States Army Corps of Engineers (USACE) Permit is required for filling, dredging, excavating or other work in water bodies, rivers, creeks, streams, wetlands or wet areas. The Contractor must adhere to all of the terms and general conditions associated with the following permit(s). If additional work not represented in the plans is required, contact the Engineer immediately.

☒ No United States Army Corps (USACE) Permit Required

☐ Work is authorized by the United States Army Corps of Engineers (USACE) under a Nationwide Permit (NWP) without a Pre-Construction Notification (PCN). Project specific permit was not issued by USACE, therefore is not in the plan set. The USACE general conditions are in the “General Notes."

☐ Work is authorized by the United States Army Corps of Engineers (USACE) under a Nationwide Permit (NWP) with a Pre-Construction Notification (PCN). The project specific permit issued by the United States Army Corps of Engineers (USACE) is included in the plan set. The USACE general conditions are in the “General Notes."

☐ Work is authorized by the United States Army Corps of Engineers (USACE) under a Individual Permit (IP). The project specific permit issued by the United States Army Corps of Engineers (USACE) is included in the plan set.

☐ Work would be authorized by the United States Army Corps of Engineers (USACE) permit. The project specific permit issued by the USACE will be provided to the contractor.

United States Coast Guard (USCG) Permit is required for projects that involve the construction or modification (including changes to lighting) of a bridge or causeway across a water body determined to be navigable by the United States Coast Guard (USCG) under Section 9 of the Rivers and Harbors Act. If additional work not represented in the plans is required, contact the Engineer immediately.

☒ No United States Coast Guard (USCG) Coordination Required

☐ United States Coast Guard (USCG) Permit

☐ United States Coast Guard (USCG) Exemption

Additional Comments

III. CULTURAL RESOURCES

Refer to TxDOT Standard Specifications in the event historical issues or archeological artifacts are found during construction. Upon discovery of archeological artifacts (bones, burnt rock, flint, pottery, etc.) cease work in the area and contact the Engineer immediately.

No Additional Comments

IV. VEGETATION RESOURCES

Preserve native vegetation to the extent practical. Refer to TxDOT Standard Specifications in order to comply with requirements for invasive species, beneficial landscaping and tree/brush removal.

No Additional Comments

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

If any of the listed species below are observed, cease work in the area, do not disturb species or habitat and contact the Engineer immediately.

The work may not remove active nests (from bridges, structures, or vegetation adjacent to the roadway, etc.) during nesting season (February 15 to October 1). If removal of structures or vegetation is necessary during the nesting season, the Contractor shall conduct a bird survey no more than 3 days in advance of the clearing/demolish start date. All bird surveys shall be conducted by a Field Biologist and adhere to the guidance document “Avoiding Migratory Birds and Handling Potential Violations” found in the TxDOT Environmental Compliance Toolkits at the time of the survey. (See below for Field Biologist and Ornithologist qualifications)

No Additional Comments

Field Biologist, Ornithologist – a field biologist is defined as an individual qualified to perform field investigations, presence/absence surveys and habitat surveys for protected avian species or species of concern. A mandatory bachelor’s degree in biology or a related science is required. At a minimum, the Field Biologist, Ornithologist, shall have completed and reported a minimum of three presence/absence and habitat surveys for protected avian species in the past five years. A minimum of three projects must have been conducted in Texas. Surveys shall have been performed for documentation of species in accordance with a protocol approved by USFWS or TPWD, or following generally accepted methodologies.

VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES

Refer to TxDOT Standard Specifications in the event potentially contaminated materials are observed, such as dead or distressed vegetation, trash disposal areas, drums, canisters, barrels, leaching or seepage of substances, unusual smells or odors, or stained soil, cease work in the area and contact the Engineer immediately.

No Additional Comments

VII. OTHER ENVIRONMENTAL ISSUES

Comments:

DATE: May 24, 2022
FILE:

Version 2.1

Texas Department of Transportation

TxDOT Houston District

ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS

EPIC

FILE: EPIC Sheet.dgn	DN:	CK:	DW:	CK:
© TxDOT: March 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS	2744	01	032	FM 2854
UPDATED section V. text and added definition (10/17) ADDED USCG and USACE notes in Section VII (04/18)	DIST	COUNTY		SHEET NO.
	Hou	Montgomery		182

SITE DESCRIPTION

PROJECT LIMITS: From SH 105 To San Jacinto River

PROJECT DESCRIPTION: Construction of turn lane roadway milling Acp overlay , pavement marking and sign

MAJOR SOIL DISTURBING ACTIVITIES: Proposed widening existing roadway for turn lane

TOTAL PROJECT AREA: 7652 AC

TOTAL AREA TO BE DISTURBED: 1.75 AC

WEIGHTED RUNOFF COEFFICIENT: (AFTER CONSTRUCTION): 0.357

EXISTING CONDITION OF SOIL & VEGETATIVE COVER AND % OF EXISTING VEGETATIVE COVER: Grass

NAME OF RECEIVING WATERS: San Jacinto River and Mound Creek

EROSION AND SEDIMENT CONTROLS

SOIL STABILIZATION PRACTICES:

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

OTHER:

STRUCTURAL PRACTICES:

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

OTHER:

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

Prior to the widening for proposed turn lanes silt fence will be installed

STORM WATER MANAGEMENT:

Maintain project existing ditch lines outfalls

OTHER EROSION AND SEDIMENT CONTROLS:

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

INSPECTION: All inspections will be performed by a TxDOT inspector per one of the options below as directed by the Area Engineer

1. At least every 7 calendar days
2. At least every 14 days or after 0.5 inches or more of rainfall

An inspection and maintenance report should be made for each inspection. Based on the inspection results, the controls shall be revised according to the inspection report.

WASTE MATERIALS: The dumpster used to store all waste material will meet all state and local city solid waste management regulations. All trash and construction debris will be deposited in the dumpster. The dumpster will be emptied as necessary or as required by local regulation and the trash will be hauled to a local dump. No construction waste material will be buried on site.

HAZARDOUS WASTE (INCLUDING SPILL REPORTING): In the event of a spill which may be considered hazardous, the Houston District Safety Office shall be contacted immediately at 713-802-5962.

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

OFFSITE VEHICLE TRACKING:

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

OTHER:

REMARKS: Disposal areas, stockpiles, and haul roads shall be constructed in a manner that will minimize and control the sediment that may enter receiving waterways. Disposal areas shall not be located in any waterway, waterbody or streambed. Construction staging areas and vehicle maintenance areas shall be constructed by the contractor in a manner which minimizes the runoff of all pollutants. All waterways shall be cleared as soon as practical of temporary embankments, temporary bridges, matting, falsework, piling, debris, and other obstructions placed during construction operations that are not part of the finished work.

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

Micah J. Schluter, P.E.
05/18/2022

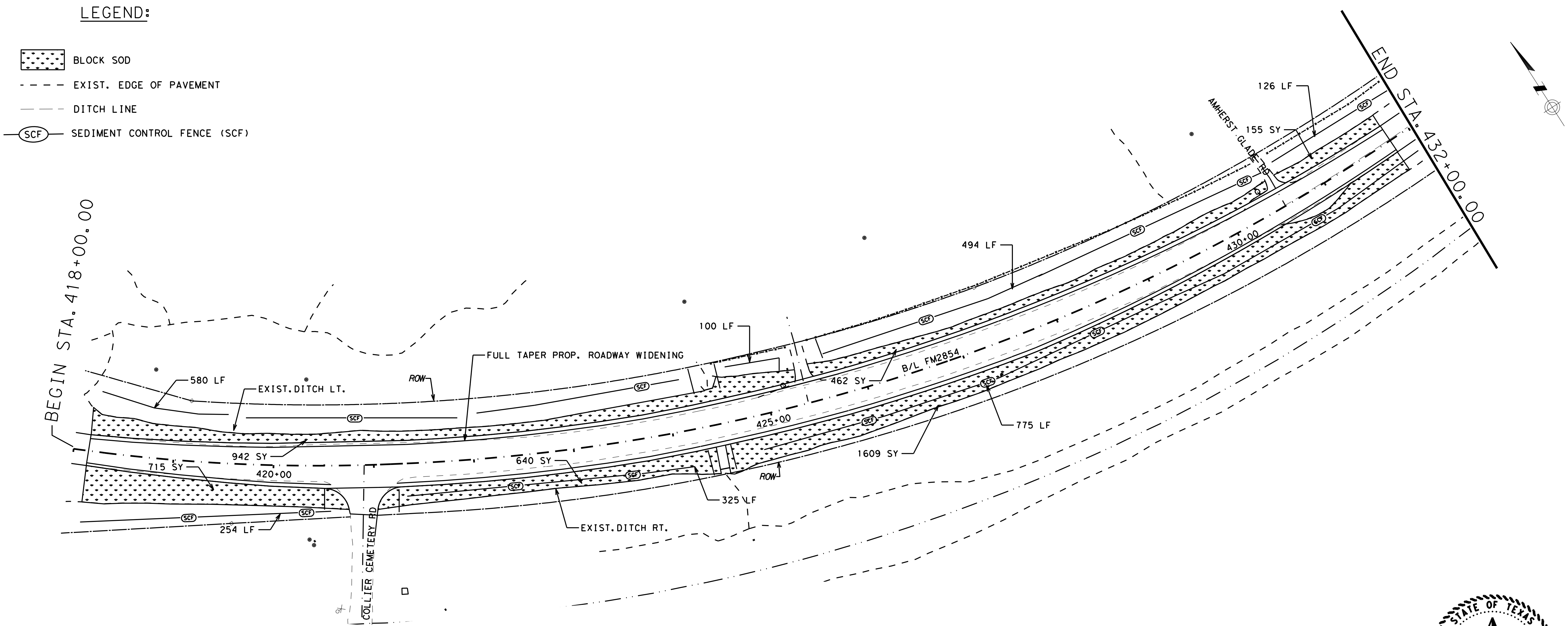
Texas Department of Transportation
Houston District

TxDOT STORM WATER POLLUTION PREVENTION PLAN

SW3P

FILE: STDG1.DGN	DN: TxDot	CK: TxDot	DW: TxDot	CK: TxDot
© TxDOT JANUARY 2007	DIST	FED REG	PROJECT NO.	SHEET
REVISIONS	HOU	6		183
9/2010 INSPECTION NOTE 9/2013 INSPECTION NOTE 11/2013 SW3P TO SWP3 03/2015 2014 SPECS	COUNTY		CONTROL	SECT	JOB	HIGHWAY
	MONTGOMERY		2744	01	032	FM 2854

STD G-1



NOTES:

1. SEE STANDARDS SHEETS FOR SW3P INFORMATION.

ITEM DESC.	DESCRIPTION	UNIT	QUANTITIES	DATE INSTALLED	QTY INSTALLED
162-6002	BLOCK SODDING	SY	4711		
166-6001	FERTILIZER	AC	.97		
168-6001	VEGETATIVE WATERING	MG	117		
506-6038	TEMPORARY SEDIMENT CONTROL FENCE INSTALL	LF	2624		
506-6039	TEMPORARY SEDIMENT CONTROL FENCE REMOVE	LF	2624		

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

Micah J. Schluter, P.E.
05.18.22

FM 2854
SW3P PLAN LAYOUT

0 50 100
SCALE IN FEET

SHEET 1 OF 6

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		184

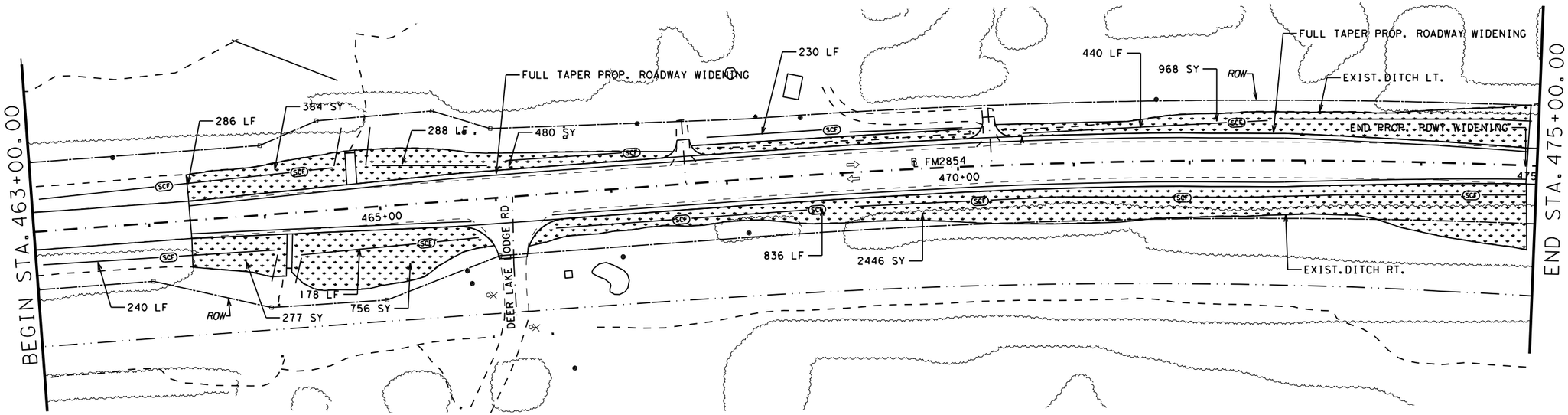
LEGEND:

BLOCK SOD

EXIST. EDGE OF PAVEMENT

DITCH LINE

SCF — SEDIMENT CONTROL FENCE (SCF)



NOTES:

1. SEE STANDARDS SHEETS FOR SW3P INFORMATION.

ITEM DESC.	DESCRIPTION	UNIT	QUANTITIES	DATE INSTALLED	QTY INSTALLED
162-6002	BLOCK SODDING	SY	5311		
166-6001	FERTILIZER	AC	1.10		
168-6001	VEGETATIVE WATERING	MG	132		
506-6038	TEMPORARY SEDIMENT CONTROL FENCE INSTALL	LF	2495		
506-6039	TEMPORARY SEDIMENT CONTROL FENCE REMOVE	LF	2495		

0 50 100
SCALE IN FEET

STATE OF TEXAS
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Micah J. Schluter P.E.
05.18.22

FM 2854
SW3P PLAN LAYOUT

SHEET 2 OF 6

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		185

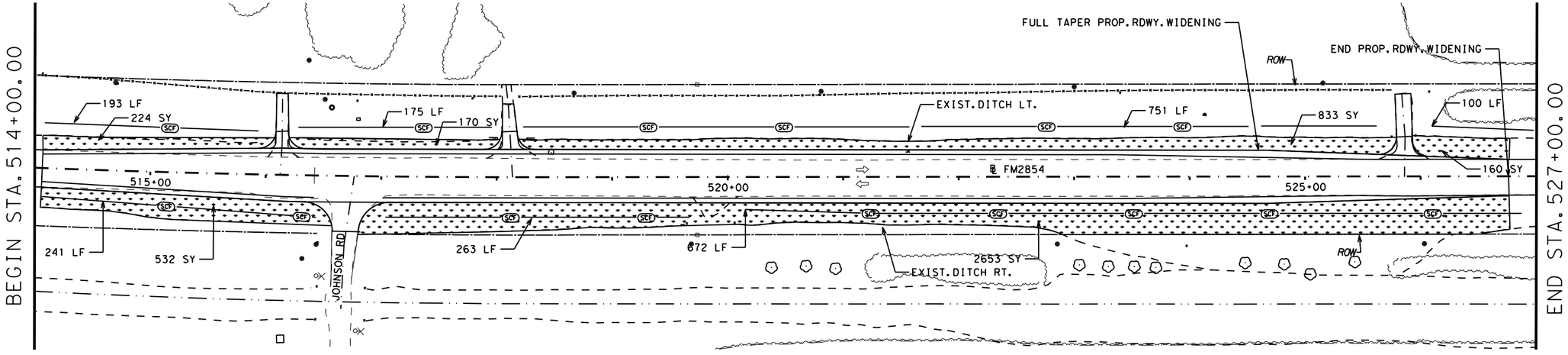
LEGEND:

BLOCK SOD

EXIST. EDGE OF PAVEMENT

DITCH LINE

SCF — SEDIMENT CONTROL FENCE (SCF)



NOTES:

1. SEE STANDARDS SHEETS FOR SW3P INFORMATION.

ITEM DESC.	DESCRIPTION	UNIT	QUANTITIES	DATE INSTALLED	QTY INSTALLED
162-6002	BLOCK SODDING	SY	4572		
166-6001	FERTILIZER	AC	0.94		
168-6001	VEGETATIVE WATERING	MG	113		
506-6038	TEMPORARY SEDIMENT CONTROL FENCE INSTALL	LF	2395		
506-6039	TEMPORARY SEDIMENT CONTROL FENCE REMOVE	LF	2395		

0 50 100
SCALE IN FEET

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

Micah J. Schluter P.E.

05.18.22

FM 2854
SW3P PLAN LAYOUT

SHEET 3 OF 6

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		186

DATE: 05/18/2022 09:30 AM
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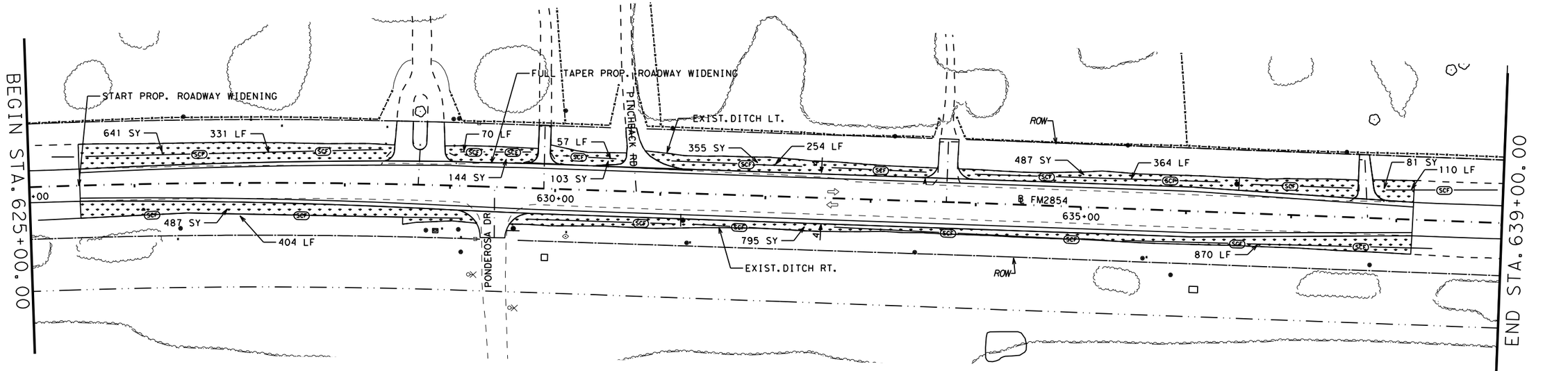
LEGEND:

BLOCK SOD
EXIST. EDGE OF PAVEMENT
DITCH LINE
SCF — SEDIMENT CONTROL FENCE (SCF)



NOTES:

1. SEE STANDARDS SHEETS FOR SW3P INFORMATION.

ITEM DESC.	DESCRIPTION	UNIT	QUANTITIES	DATE INSTALLED	QTY INSTALLED
162-6002	BLOCK SODDING	SY	3093		
166-6001	FERTILIZER	AC	0.64		
168-6001	VEGETATIVE WATERING	MG	77		
506-6038	TEMPORARY SEDIMENT CONTROL FENCE INSTALL	LF	2460		
506-6039	TEMPORARY SEDIMENT CONTROL FENCE REMOVE	LF	2460		

0 50 100
SCALE IN FEET

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

Micah J. Schluter, P.E.
05.18.22

FM 2854
SW3P PLAN LAYOUT

SHEET 4 OF 6

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		187

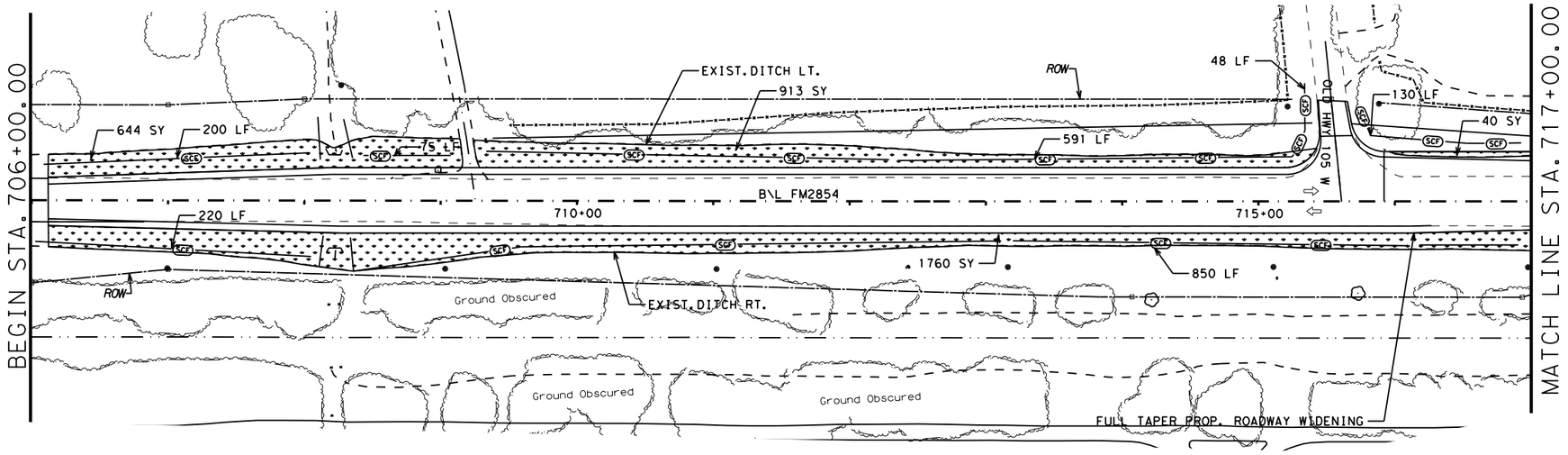
LEGEND:

BLOCK SOD

EXIST. EDGE OF PAVEMENT

DITCH LINE

SCF — SEDIMENT CONTROL FENCE (SCF)



NOTES:

1. SEE STANDARDS SHEETS FOR SW3P INFORMATION.

ITEM DESC.	DESCRIPTION	UNIT	QUANTITIES	DATE INSTALLED	QTY INSTALLED
162-6002	BLOCK SODDING	SY	3357		
166-6001	FERTILIZER	AC	0.69		
168-6001	VEGETATIVE WATERING	MG	83		
506-6038	TEMPORARY SEDIMENT CONTROL FENCE INSTALL	LF	2114		
506-6039	TEMPORARY SEDIMENT CONTROL FENCE REMOVE	LF	2114		

0 50 100
SCALE IN FEET

STATE OF TEXAS
MICAH J. SCHLUTER
136908
LICENSED
PROFESSIONAL ENGINEER

Micah J. Schluter, P.E.

05.18.22

FM 2854
SW3P PLAN LAYOUT

SHEET 5 OF 6

®2020

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		188

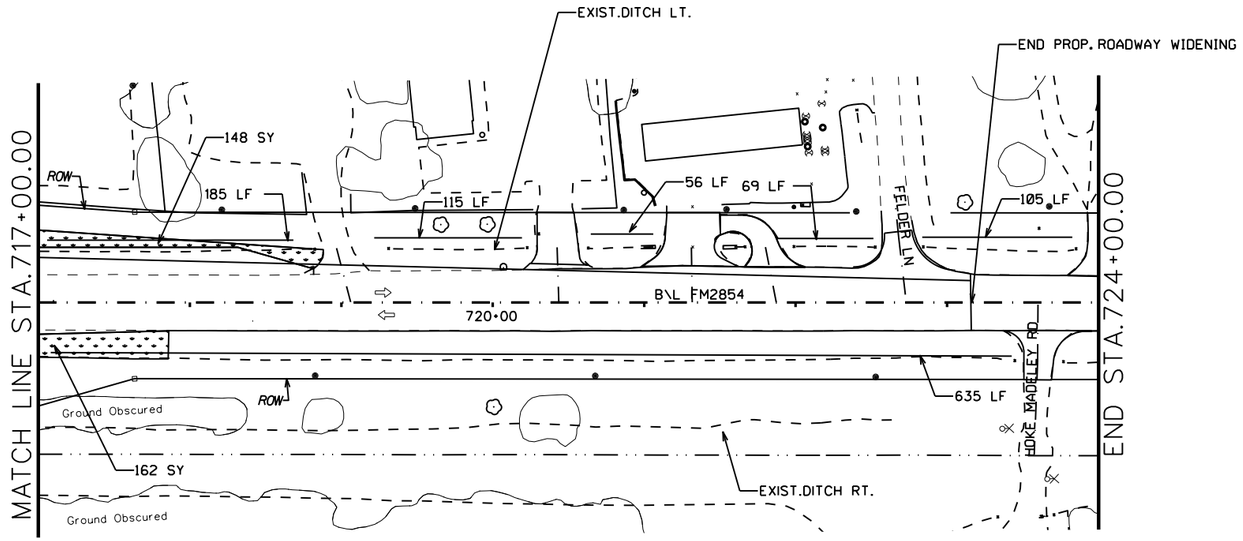
LEGEND:

BLOCK SOD

EXIST. EDGE OF PAVEMENT

DITCH LINE

SCF — SEDIMENT CONTROL FENCE (SCF)



NOTES:

1.SEE STANDARDS SHEETS FOR SW3P INFORMATION.

ITEM DESC.	DESCRIPTION	UNIT	QUANTITIES	DATE INSTALLED	QTY INSTALLED
162-6002	BLOCK SODDING	SY	311		
166-6001	FERTILIZER	AC	0.06		
168-6001	VEGETATIVE WATERING	MG	7		
506-6038	TEMPORARY SEDIMENT CONTROL FENCE INSTALL	LF	1165		
506-6039	TEMPORARY SEDIMENT CONTROL FENCE REMOVE	LF	1165		

0 50 100
SCALE IN FEET

STATE OF TEXAS
MICAH J. SCHLUTER
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PROFESSIONAL ENGINEER

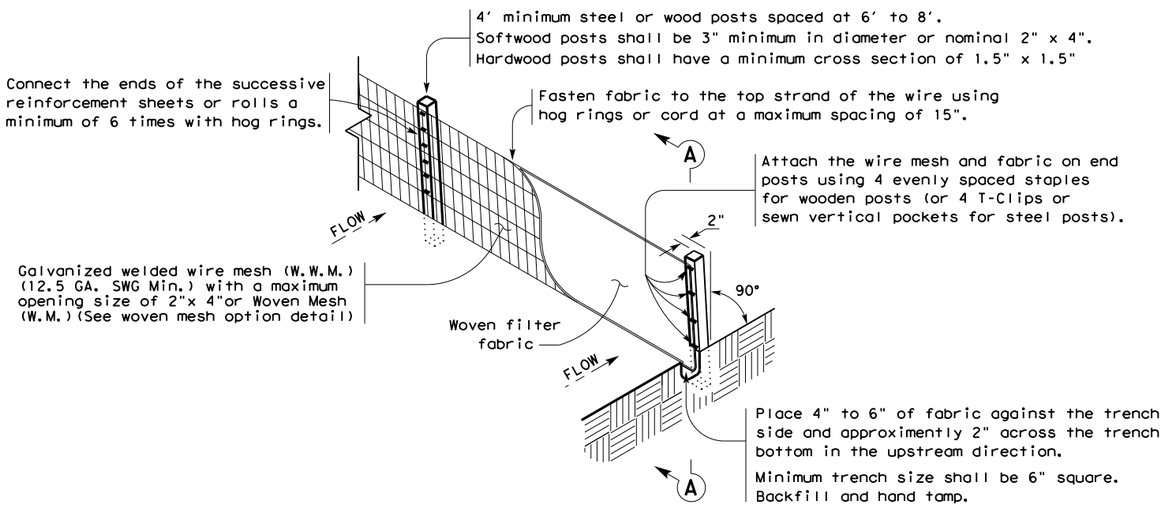
Micah J. Schluter P.E.
05.18.22

FM 2854
SW3P PLAN LAYOUT

SHEET 6 OF 6

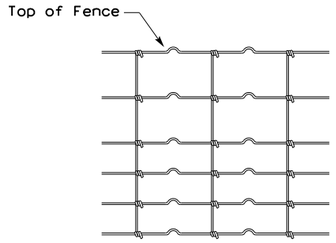
Texas Department of Transportation

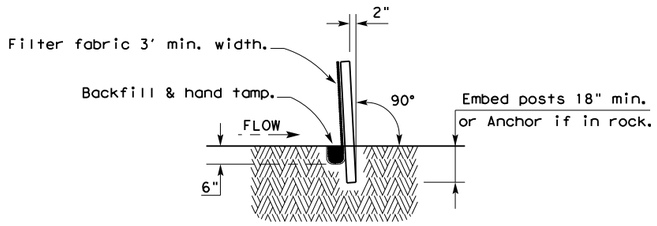
CONT	SECT	JOB	HIGHWAY
2744	01	032	FM2854
DIST	COUNTY		SHEET NO.
HOU	MONTGOMERY		189



TEMPORARY SEDIMENT CONTROL FENCE

SCF





SECTION A-A

HINGE JOINT KNOT WOVEN MESH (OPTION) DETAIL

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

SEDIMENT CONTROL FENCE USAGE GUIDELINES

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

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

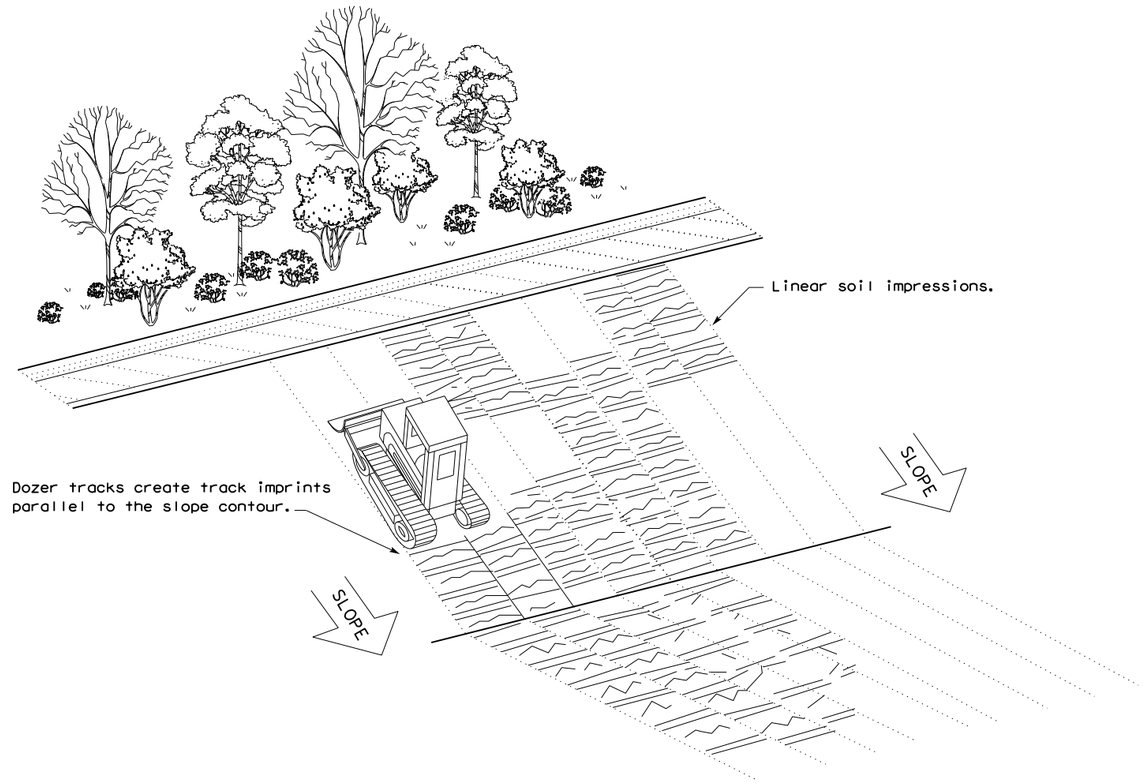
LEGEND

Sediment Control Fence

SCF

GENERAL NOTES

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



VERTICAL TRACKING

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

FENCE & VERTICAL TRACKING

EC(1)-16

FILE: ec116	DN: TxDOT		CK: KM		DW: VP	DN/CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB		HIGHWAY	
REVISIONS	2744	01	032		FM 2854	
	DIST	COUNTY			SHEET NO.	
	HOU	MONTGOMERY			190	

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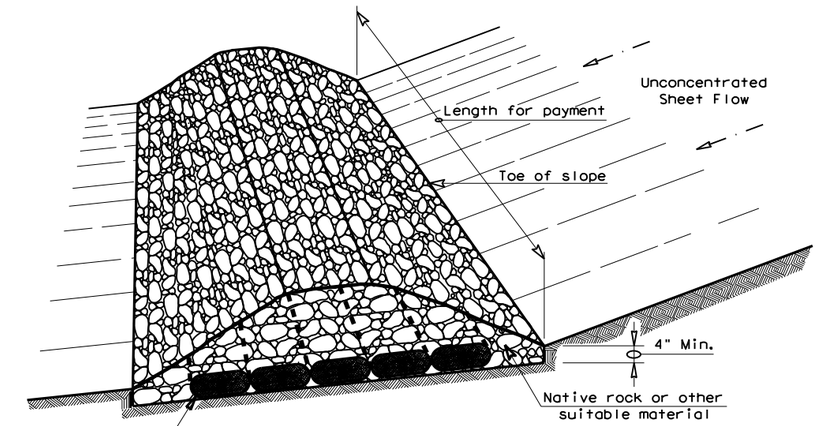
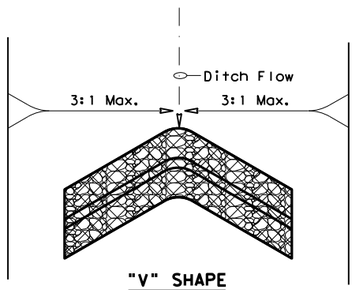
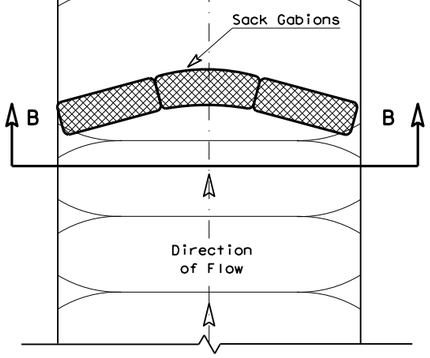


FILTER DAM AT TOE OF SLOPE

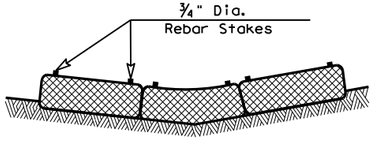
RFD1



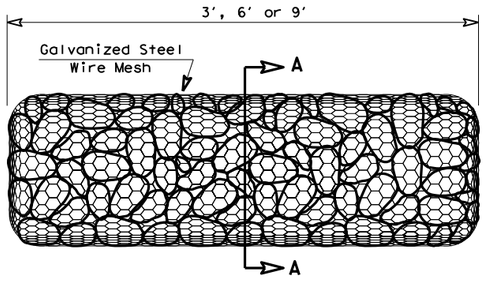
"V" SHAPE PLAN VIEW



PLAN VIEW

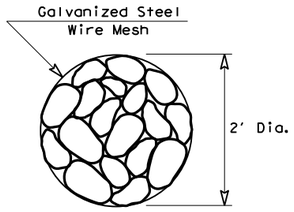


SECTION B-B

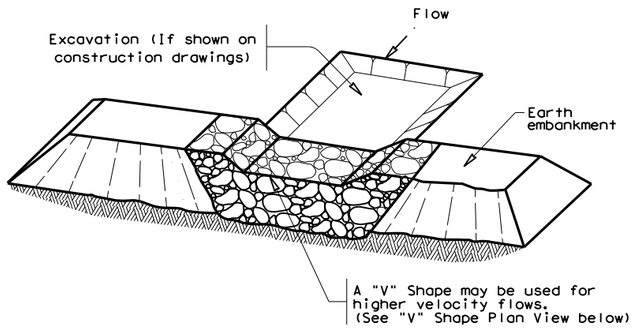


TYPE 4 (SACK GABIONS)

RFD4

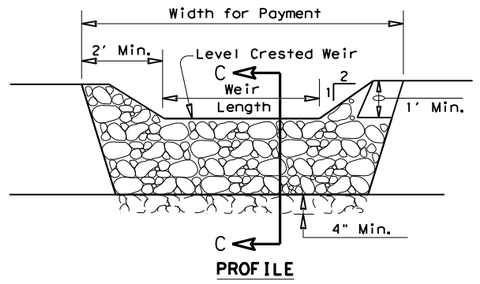


SECTION A-A

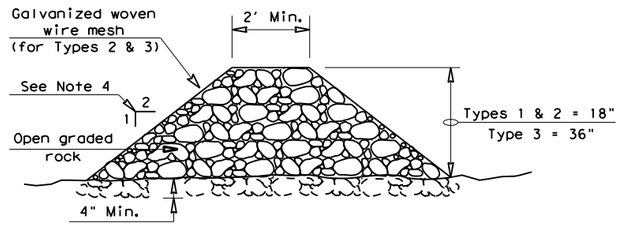


FILTER DAM AT SEDIMENT TRAP

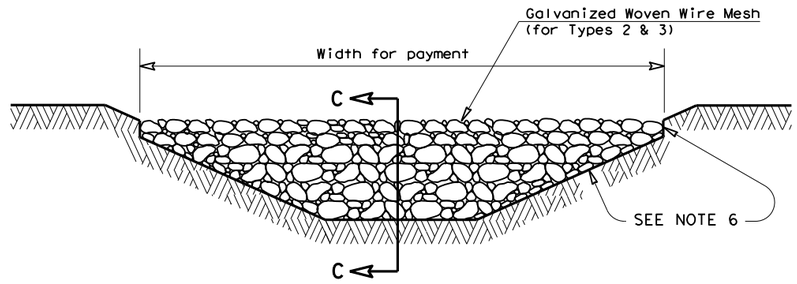
RFD1 OR RFD2



PROFILE



SECTION C-C



FILTER DAM AT CHANNEL SECTIONS

RFD1 OR RFD2 OR RFD3

ROCK FILTER DAM USAGE GUIDELINES

Rock Filter Dams should be constructed downstream from disturbed areas to intercept sediment from overland runoff and/or concentrated flow. The dams should be sized to filter a maximum flow through rate of 60 GPM/FT^2 of cross sectional area. A 2 year storm frequency may be used to calculate the flow rate.

Type 1 (18" high with no wire mesh) (3" to 6" aggregate): Type 1 may be used at the toe of slopes, around inlets, in small ditches, and at dike or swale outlets. This type of dam is recommended to control erosion from a drainage area of 5 acres or less. Type 1 may not be used in concentrated high velocity flows (approximently 8 Ft/Sec or more) in which aggregate wash out may occur. Sandbags may be used at the embedded foundation (4" deep min.) for better filtering efficiency of low flows if called for on the plans or directed by the Engineer.

Type 2 (18" high with wire mesh) (3" to 6" aggregate): Type 2 may be used in ditches and at dike or swale outlets.

Type 3 (36" high with wire mesh) (4" to 8" aggregate): Type 3 may be used in stream flow and should be secured to the stream bed.

Type 4 (Sack gabions) (3" to 6" aggregate): Type 4 May be used in ditches and smaller channels to form an erosion control dam.

Type 5: Provide rock filter dams as shown on plans.

GENERAL NOTES

1. If shown on the plans or directed by the Engineer, filter dams should be placed near the toe of slopes where erosion is anticipated, upstream and/or downstream at drainage structures, and in roadway ditches and channels to collect sediment.
2. Materials (aggregate, wire mesh, sandbags, etc.) shall be as indicated by the specification for "Rock Filter Dams for Erosion and Sedimentation Control".
3. The rock filter dam dimensions shall be as indicated on the SW3P plans.
4. Side slopes should be 2:1 or flatter. Dams within the safety zone shall have sideslopes of 6:1 or flatter.
5. Maintain a minimum of 1' between top of rock filter dam weir and top of embankment for filter dams at sediment traps.
6. Filter dams should be embedded a minimum of 4" into existing ground.
7. The sediment trap for ponding of sediment laden runoff shall be of the dimensions shown on the plans.
8. Rock filter dam types 2 & 3 shall be secured with 20 gauge galvanized woven wire mesh with 1" diameter hexagonal openings. The aggregate shall be placed on the mesh to the height & slopes specified. The mesh shall be folded at the upstream side over the aggregate and tightly secured to itself on the downstream side using wire ties or hog rings. For in stream use, the mesh should be secured or staked to the stream bed prior to aggregate placement.
9. Sack Gabions should be staked down with ¾" dia. rebar stakes, and have a double-twisted hexagonal weave with a nominal mesh opening of 2 ½" x 3 ¼"
10. Flow outlet should be onto a stabilized area (vegetation, rock, etc.).
11. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

PLAN SHEET LEGEND

Type 1 Rock Filter Dam	RFD1
Type 2 Rock Filter Dam	RFD2
Type 3 Rock Filter Dam	RFD3
Type 4 Rock Filter Dam	RFD4

Texas Department of Transportation — Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

ROCK FILTER DAMS

EC(2)-16

FILE: ec216	DN: TxDOT	CK: KM	DW: VP		DN/CK: LS
	CONT	SECT	JOB		HIGHWAY
REVISIONS	2744	01	032		FM 2854
	DIST	COUNTY			SHEET NO.
	HOU	MONTGOMERY			191

PART 1 - GENERAL

1.01 DESCRIPTION

This project includes construction work within the right of way and/or properties of the Railroad and adjacent to its tracks, wire lines and other facilities. These sheets describe the minimum special requirements for coordination with the Railroad when working upon, over or under Railroad Right of Way or when impacting current or future Railroad operations. Coordinate with the Railroad while performing the work outlined herein, and afford the same cooperation with the Railroad as with TxDOT. Complete all submittals and work in accordance with TxDOT Standard Specifications, Railroad Guidelines and AREMA recommendations as modified by these minimum special requirements or as directed in writing by the Railroad Designated Representative.

For purposes of this project, the Railroad Designated Representative is the person or persons designated by the Railroad Manager of Industry and Public Projects to handle specific tasks related to the project.

1.02 REQUEST FOR INFORMATION / CLARIFICATION

Submit Requests for Information ("RFI") involving work within any Railroad Right of Way to the TxDOT Engineer. The TxDOT Engineer will submit the RFI to the Railroad Designated Representative for review and approval for RFI's corresponding to work within Railroad Right of Way. Allow six (6) weeks total time for review and approval, which includes four (4) weeks for review and approval by the Railroad.

1.03 PLANS / SPECIFICATIONS

TxDOT has received written Railroad approval of the plans and specifications for this project. Any revisions or changes in the plans after award of the Contract must have the approval of TxDOT and the Railroad.

PART 2 - UTILITIES AND FIBER OPTIC

Construct all utility installations in accordance with current AREMA recommendations, Railroad, TxDOT and owning utility specifications and requirements. Railroad general guidelines can be found on the Railroad website or by contacting the Railroad Designated Representative.

PART 3 - CONSTRUCTION

3.01 GENERAL

A. Perform all work in compliance with all applicable Railroad, Federal Railroad Administration (FRA), and TxDOT rules and regulations. Arrange and conduct work in a manner that does not endanger or interfere with the safe operation of the tracks and property of the Railroad and the traffic moving on such tracks, or the wires, signals and other property of the Railroad, its tenants or licensees, at or in the vicinity of the Work. The safe operation of railroad train movements takes precedence over any work to be performed by the Contractor. The Contractor is responsible for train delay cost and lost revenue claims due to any delays or interruption of train operations resulting from Contractor's construction or other activities.

B. Construction activities within 15 feet of the operational tracks will only be allowed if absolutely necessary and the Railroad's Designated Representative grants approval. Construction activities within 15 feet of the operational track(s) preferably allow the tracks to stay operational. In such cases, coordination and approval by the Railroad Track Manager is required with regard to schedule, flagging, and slow orders. See Sections 3.07 and 3.08 for additional information.

C. Provide track protection for all work equipment (including rubber tired equipment) operating within 25 feet from nearest rail. When not in use, keep Contractor machinery and materials at least 50 feet from the Railroad's nearest track.

D. Vehicular crossings of railroad track are allowed only at existing crossings, or haul road crossings developed with Railroad approval.

E. The Contractor is also advised that new railroad facilities within the project may be built by the Railroad. If applicable, these facilities are delineated in the plans. Be aware of the limits of responsibilities and coordinate efforts with the Railroad and TxDOT.

F. Railroad requirements do not allow work within 50 feet of track centers when a train passes the work site and all personnel must clear the area within 50 feet of the track centerline and secure all equipment. Additional allowances may be pursued as outlined in 3.02 and 3.03.

G. All permanent clearances shall be verified before project closing.

3.02 RAILROAD OPERATIONS

A. Trains and/or equipment are expected on any track, at any time, in either direction. Become familiar with the train schedules in this location and structure bid assuming intermittent track windows in this period, as defined in Paragraph B that follows.

B. All railroad tracks within and adjacent to the contract site are active, and rail traffic over these facilities shall be maintained throughout the Project. Activities may include both through moves and switching moves to local customers. railroad traffic and operations will occur continuously throughout the day and night on these tracks and shall be maintained at all times as defined herein. Coordinate and schedule the work so that construction activities do not interfere with railroad operations.

C. Coordinate work windows with TxDOT and the Railroad's Designated Representative. Types of work windows include Conditional Work Windows and Absolute Work Windows, as defined below:

1. Conditional Work Window: A Conditional Work Window is a period of time that railroad operations have priority over construction activities. When construction activities may occur on and/or adjacent to the railroad tracks within 25 feet of the nearest track, a railroad flag person will be required. At the direction of the railroad flag person, upon approach of a train, and when trains are present on the tracks, the tracks must be cleared (i.e., no construction equipment, materials or personnel within 25 feet, or as directed by the Railroad Designated Representative, from the tracks). Conditional Work Windows are available for the Project.

2. Absolute Work Window: An Absolute Work Window is a period of time that construction activities are given priority over railroad operations. During this time frame, the designated railroad track(s) will be inactive for train movements and may be fouled by the Contractor. At the end of an Absolute Work Window, the railroad tracks and/or signals must be completely operational for train operations and all Railroad, Public Utilities Commission (PUC) and FRA requirements, codes and regulations for operational tracks must be satisfied. In the situation where the operating tracks and/or signals have been affected, the Railroad will perform inspections of the work prior to placing that track back into service. Railroad flag persons will be required for construction activities requiring an Absolute Work Window. Absolute Work Windows will not generally be granted. Any request will require a detailed explanation for Railroad review.

3.03 RIGHT OF ENTRY, ADVANCE NOTICE AND WORK STOPPAGES

A. Do not perform any work within Railroad Right of Way without a valid executed Right of Entry Agreement if required on this project.

B. Give advance notice to the Railroad as required in the "Contractor's Right of Entry Agreement" before commencing work in connection with construction upon or over Railroad Right of Way and observe the Railroad's rules and regulations with respect thereto.

C. Perform all work upon Railroad Right of Way in a manner to avoid interference with or endanger the operations of the Railroad. Whenever work may affect the operations or safety of trains, submit the work method to the Railroad Designated Representative for approval. Approval does not relieve the Contractor from liability. Do not commence any work which requires flagging service or inspection service until the flagging protection required by the Railroad is available at the job site. See Section 3.15 for railroad flagging requirements.

D. Make requests in writing for both Absolute and Conditional Work Windows, at least 30 days in advance of any work. Include in the written request:
1. Exactly what the work entails.
2. The days and hours that work will be performed.
3. The exact location of work, and proximity to the tracks.
4. The type of window requested and the amount of time requested.
5. The designated contact person.

Provide a written confirmation notice to the Railroad at least 48 hours before commencing work in connection with approved work windows when work is within 25 feet of nearest rail. Perform all work in accordance with previously approved work plans.

E. Make provisions to protect operations and property of the Railroad should a condition arising from, or in connection with the work, require immediate and unusual action. If in the judgment of the Railroad Designated Representative such provisions are insufficient, the Railroad Designated Representative may require or provide such provisions as deemed necessary. In any event, such provisions shall be at the Contractor's expense and without cost to the Railroad or TxDOT. The Railroad or TxDOT shall have the right to order the Contractor to temporarily cease operations in the event of an emergency or, if in the opinion of the Railroad Designated Representative, the Contractor's operations could endanger railroad operations. In the event of such an order, immediately notify TxDOT of the order.

3.04 INSURANCE

Do not begin work upon or over Railroad Right of Way until furnishing the Railroad with the insurance policies, binders, certificates and endorsements required by the "Contractor's Right of Entry Agreement", and until the Railroad Designated Representative has advised TxDOT that such insurance is in accordance with the Agreement.

3.05 RAILROAD SAFETY ORIENTATION

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

"UPRR, BNSF, KCS/TEXMEX will not accept on-track safety training certificates from other railroads. Refer to Railroad specific contractor right of entry for training information."

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

3.06 COOPERATION

The Railroad will cooperate with Contractor so that work may be conducted in an efficient manner, and will cooperate with Contractor in enabling use of Railroad Right of Way in performing the work.

3.07 MINIMUM CONSTRUCTION CLEARANCES FOR FALSEWORK AND OTHER TEMPORARY STRUCTURES

Abide by the following minimum temporary clearances during the course of construction:
A. 15' - 0" (BNSF)(UPRR)and 14'-0" (KCS) horizontal from centerline of track
B. 22' (KCS) and 21' - 6" (UPRR & BNSF) vertically above top of rail.

For construction clearance less than listed above, obtain local Railroad Operating Unit review and approval.

3.08 APPROVAL OF REDUCED CLEARANCES

A. Maintain minimum track clearances during construction as specified in Section 3.07.

B. Submit any proposed infringement on the specified minimum clearances to the Railroad Designated Representative through TxDOT at least 30 days in advance of the work. Do not proceed with such infringement without written approval by the Railroad Designated Representative.

C. Do not commence work involving an approved infringement without receiving written assurance from the Railroad Designated Representative that arrangements have been made for any necessary flagging service.

Texas Department of Transportation | Rail Division

RAILROAD REQUIREMENTS FOR NON-BRIDGE CONSTRUCTION PROJECTS

FILE:	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2018	2744	01	032	FM 2854
REVISIONS March 2020				

DIST	COUNTY	SHEET NO.
HOU	MONTGOMERY	192

DATE:
FILE:

3.09 MAINTENANCE OF RAILROAD FACILITIES

A. Maintain all ditches and drainage structures free of silt or other obstructions resulting from Contractor's operations. Repair eroded areas and any other damage within Railroad Right of Way and repair any other damage to the property of the Railroad, or its tenants.

B. Perform all such maintenance and repair of damages due to the Contractors's operations at Contractor's expense.

C. Submit a proposed method of erosion control for review by the Railroad prior to beginning any grading on the project site. Comply with all applicable local, state and federal regulations when developing and implementing such erosion control.

3.10 SITE INSPECTIONS BY RAILROAD's DESIGNATED REPRESENTATIVE

A. In addition to the office reviews of construction submittals, site inspections may be performed by the Railroad Designated Representative at significant points during construction, including the following if applicable:
   1. Pre-construction meetings.
   2. Pile driving/drilling of caissons or drilled shafts.
   3. Reinforcement and concrete placement for railroad bridge substructure and/or superstructure.
   4. Erection of precast concrete or steel bridge superstructure.
   5. Placement of waterproofing (prior to placing ballast on bridge deck).
   6. Completion of the bridge structure.

B. Site inspection is not limited to the milestone events listed above. Site visits to check progress of the work may be performed at any time throughout the construction as deemed necessary by the Railroad.

C. Provide a detailed construction schedule, including the proposed temporary horizontal and vertical clearances and construction sequence for all work to TxDOT for submittal to the Railroad Designated Representative for review prior to commencement of work. Include the anticipated dates when the above listed events will occur. Update this schedule for the above listed events as necessary and each month at a minimum to allow the Railroad to schedule site inspections.

3.11 RAILROAD REPRESENTATIVES

Railroad representatives, conductors, flag person or watch person will be provided by the Railroad at expense of TxDOT to protect Railroad facilities, property and movements of its trains or engines. In general, the Railroad will furnish such personnel or other protective services as follows:

A. When any part of any equipment is standing or being operated within 25 feet, measured horizontally, from nearest rail of any track on which trains may operate, or when any object is off the ground and any dimension thereof could extend inside the 25 foot limit, or when any erection or construction activities are in progress within such limits, regardless of elevation above or below track.

B. For any excavation below elevation of track subgrade if, in the opinion of the Railroad Designated Representative, track or other railroad facilities may be subject to settlement or movement.

C. During any clearing, grubbing, excavation or grading in proximity to railroad facilities, which, in the opinion of the Railroad Designated Representative, may endanger railroad facilities or operations.

D. During any Contractor's operations when, in the opinion of the Railroad Designated Representative, railroad facilities, including, but not limited to, tracks, buildings, signals, wire lines, or pipe lines, may be endangered.

E. Arrange with the Railroad Designated Representative to provide the adequate number of flag persons to accomplish the work.

3.12 COMMUNICATIONS AND SIGNAL LINES

If required, the Railroad will rearrange its communications and signal lines, its grade crossing warning devices, train signals and tracks, and facilities that are in use and maintained by the Railroad's forces in connection with its operation at expense of TxDOT. This work by the Railroad will be done by its own forces and it is not a part of the Work under this Contract.

3.13 TRAFFIC CONTROL

Coordinate any operations that control traffic across or around railroad facilities with the Railroad Designated Representative.

3.14 CONSTRUCTION EXCAVATIONS AND BORING ACTIVITIES UNDER TRACK

A. Take special precaution and care in connection with excavating and shoring. Excavations for construction of footings, piers, columns, walls or other facilities that require shoring shall comply with requirements of TxDOT, OSHA, AREMA and Railroad "Guidelines for Temporary Shoring".

B. The project plans indicate whether there are fiber optic lines or other such telecommunications systems that require consideration. Regardless, contact the necessary call center to determine if such cable systems are present:

   UPRR 1-800-336-9193
   7:00 AM to 9:00 PM CST Monday-Friday except holidays,
   staffed 24 hrs/day for emergencies
   48 hrs notice required

   BNSF 1-800-533-2891
   24 hour number
   5 working days notice required

   KCS 1-800-344-8377
   Texas One Call, a 24 hour number
   48 hrs notice required, excluding weekends and holidays

   If a telecommunications system is buried anywhere on or near railroad property, coordinate with TxDOT, the Railroad and the Telecommunication Company(ies) to arrange for relocation or protective measures prior to beginning work on or near railroad property. Refer to the project General Notes for additional information.

C. Projects involving a boring or jack and bore operation under track such as drainage pipes or culverts and utilities require an installation plan reviewed and approved by the Railroad and TxDOT prior to proceeding with such construction. A railroad inspector and contractor assisted monitoring of ground and track movement is required to maintain safe passage of rail traffic. Stop installation and do not allow passage of trains if movements in excess of 1/4 inch vertical or horizontal is detected in the tracks. Immediately repair the damage to the satisfaction of TxDOT and the Railroad before proceeding.

3.15 RAILROAD FLAGGING

Per the Right of Entry Agreement for flagging, notify the Railroad Representative at least 10 working days in advance of Contractor's work and at least 30 working days in advance of any Contractor's work in which any person or equipment will be within 25 feet of nearest rail or as specified in the Contractor Right of Entry (CROE).

3.16 CLEANING OF RIGHT-OF-WAY

When work is complete, remove all tools, implements, and other materials brought into Railroad Right of Way and leave the right of Way in a clean and presentable condition to the satisfaction of TxDOT and the Railroad.

Texas Department of Transportation | Rail Division

RAILROAD REQUIREMENTS FOR NON-BRIDGE CONSTRUCTION PROJECTS

FILE:	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2018	2744	01 032	FM 2854	
REVISIONS March 2020	DIST	COUNTY	SHEET NO.	
	HOU	MONTGOMERY	193	

DATE:
FILE:

DATE:
FILE:

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

DOT #: 024329E
Crossing Type: AT GRADE
RR Company Owning Track at Crossing: BURLINGTON NORTHERN SANTA FE (BNSF)
Operating RR Company at Track: BNSF
RR MP: 59.38
RR Subdivision: CONROE
City: CONROE
County: MONTGOMERY
CSJ at this Crossing: 2744-01-032
Highway/Roadway name crossing the railroad: ADOUE RD
# of regularly scheduled trains per day at this crossing: 8
# of switching movements per day at this crossing: 0
% of estimated contract cost of work within railroad ROW: 0

Scope of Work at this Crossing to Be Performed by State Contractor:
Mill and Overlay intersections and driveways up to Railroad ROW
TXDOT will work entirely within existing ROW

Scope of Work at this Crossing to Be Performed by Railroad Company:
N/A

II. OTHER PROJECT WORK WITHIN RAILROAD RIGHTS-OF-WAY (ROW)

N/A

III. FLAGGING & INSPECTION

of Days of Railroad Flagging Expected: 2

On this project, night or weekend flagging is:

☐ Expected
☒ Not Expected

Flagging services will be provided by:

☐ Railroad Company: TxDOT will pay flagging invoices
☒ Outside Party: Contractor will pay flagging invoices, to be reimbursed by TxDOT

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

Contact Information for Flagging:

☐ UPRR - UP.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging

☒ BNSF - BNSF.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging

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

☐ OTHERS _____

Contractor must incorporate Construction Inspection into anticipated construction schedule.

☒ Not Required

☐ Required: Contact Information for Construction Inspection:

IV. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

On this project, construction work to be performed by a railroad company is:

☐ Required
☒ Not Required

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

V. RAILROAD INSURANCE REQUIREMENTS

Railroad reference number shall be provided by TxDOT CST or DO.

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

Insurance policies must be issued for and on behalf of the Railroad. Where more than one Railroad Company is operating on the same right of way or where several Railroad Companies are involved and operate on their own separate rights of way, provide separate insurance policies in the name of each Railroad Company.

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

Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	$500,000 / $500,000 / $500,000
Commercial General Liability	$2,000,000 / $4,000,000
Business Automobile	$2,000,000 combined single limit
Railroad Protective Liability	
☒ Not Required	
☐ Non - Bridge Projects	$2,000,000 / $6,000,000
☐ Bridge Projects	$5,000,000 / $10,000,000
☐ Other	

VI. CONTRACTOR'S RIGHT OF ENTRY (ROE) AGREEMENT

On this project, an ROE agreement is:

☒ Not Required
☐ Required: TxDOT CST to assist in obtaining with the BNSF (see Item 5, Article 8.3)
☐ Required: Contractor to obtain (see Item 5, Article 8.4)
With the following railroad companies: _____

To view previously approved ROE Agreement templates agreed upon between the State and Railroad, see:

http://www.txdot.gov/inside-txdot/division/rail/samples.html

Approved ROE Agreement templates are not to be modified by the Contractor.

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

VII. RAILROAD COORDINATION MEETING

On this project, a Railroad Coordination Meeting is:

☒ Not Required
☐ Required

See Item 5, Article 8.1 for more details.

VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are required to maintain the same insurance coverage as required of the Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency Call
BNSF Railway (BNSF)
Railroad Emergency Line at 800-832-5452
Option 1
Location: DOT 024329E
RR Milepost 59.38
Subdivision CONROE

Texas Department of Transportation — Rail Division

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: RR Scope of Work.dgn	DN: TxDOT	CK:	DW:	CK:			
©TxDOT June 2014	CONT	SECT	JOB	HIGHWAY			
REVISIONS	2744	01	032	FM 2854			
3/2020	DIST	COUNTY		SHEET NO.			
	HOU	MONTGOMERY		194			

DATE:
FILE:

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

DOT #: 024330Y
Crossing Type: HIGHWAY OVERPASS
RR Company Owning Track at Crossing: BURLINGTON NORTHERN SANTA FE (BNSF)
Operating RR Company at Track: BNSF
RR MP: 60.51
RR Subdivision: CONROE
City: CONROE
County: MONTGOMERY
CSJ at this Crossing: 2744-01-032
Highway/Roadway name crossing the railroad: KEENAN CUTOFF RD
# of regularly scheduled trains per day at this crossing: 8
# of switching movements per day at this crossing: 0
% of estimated contract cost of work within railroad ROW: 0

Scope of Work at this Crossing to Be Performed by State Contractor:
Mill and Overlay intersections and driveways up to Railroad ROW
TXDOT will work entirely within ~~ex~~sROWg ROW

Scope of Work at this Crossing to Be Performed by Railroad Company:
N/A

II. OTHER PROJECT WORK WITHIN RAILROAD RIGHTS-OF-WAY (ROW)

N/A

III. FLAGGING & INSPECTION

of Days of Railroad Flagging Expected: 2

On this project, night or weekend flagging is:

☐ Expected
☒ Not Expected

Flagging services will be provided by:

☐ Railroad Company: TxDOT will pay flagging invoices
☒ Outside Party: Contractor will pay flagging invoices, to be reimbursed by TxDOT

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

Contact Information for Flagging:

☐ UPRR - UP.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging

☒ BNSF - BNSF.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging

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

☐ OTHERS _____

Contractor must incorporate Construction Inspection into anticipated construction schedule.

☒ Not Required

☐ Required: Contact Information for Construction Inspection:

IV. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

On this project, construction work to be performed by a railroad company is:

☐ Required
☒ Not Required

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

V. RAILROAD INSURANCE REQUIREMENTS

Railroad reference number shall be provided by TxDOT CST or DO.

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

Insurance policies must be issued for and on behalf of the Railroad. Where more than one Railroad Company is operating on the same right of way or where several Railroad Companies are involved and operate on their own separate rights of way, provide separate insurance policies in the name of each Railroad Company.

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

Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	$500,000 / $500,000 / $500,000
Commercial General Liability	$2,000,000 / $4,000,000
Business Automobile	$2,000,000 combined single limit
Railroad Protective Liability	
☒ Not Required	
☐ Non - Bridge Projects	$2,000,000 / $6,000,000
☐ Bridge Projects	$5,000,000 / $10,000,000
☐ Other	

VI. CONTRACTOR'S RIGHT OF ENTRY (ROE) AGREEMENT

On this project, an ROE agreement is:

☒ Not Required
☐ Required: TxDOT CST to assist in obtaining with the BNSF (see Item 5, Article 8.3)
☐ Required: Contractor to obtain (see Item 5, Article 8.4)
With the following railroad companies: _____

To view previously approved ROE Agreement templates agreed upon between the State and Railroad, see:

http://www.txdot.gov/inside-txdot/division/rail/samples.html

Approved ROE Agreement templates are not to be modified by the Contractor.

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

VII. RAILROAD COORDINATION MEETING

On this project, a Railroad Coordination Meeting is:

☒ Not Required
☐ Required

See Item 5, Article 8.1 for more details.

VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are required to maintain the same insurance coverage as required of the Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency Call
BNSF Railway (BNSF)
Railroad Emergency Line at 800-832-5452
Option 1
Location: DOT 024330Y
RR Milepost 60.51
Subdivision CONROE

Texas Department of Transportation | Rail Division

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: RR Scope of Work.dgn	DN: TxDOT	CK:	DW:	CK:			
©TxDOT June 2014	CONT	SECT	JOB	HIGHWAY			
REVISIONS	2744	01	032	FM 2854			
3/2020	DIST	COUNTY		SHEET NO.			
	HOU	MONTGOMERY		195			

DATE:
FILE:

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

DOT #: 024331F
Crossing Type: AT GRADE
RR Company Owning Track at Crossing: BURLINGTON NORTHERN SANTA FE (BNSF)
Operating RR Company at Track: BNSF
RR MP: 60.81
RR Subdivision: CONROE
City: CONROE
County: MONTGOMERY
CSJ at this Crossing: 2744-01-032
Highway/Roadway name crossing the railroad: COLLIER CEMETARY RD
# of regularly scheduled trains per day at this crossing: 8
# of switching movements per day at this crossing: 0
% of estimated contract cost of work within railroad ROW: 0

Scope of Work at this Crossing to Be Performed by State Contractor:
Mill and Overlay intersections and driveways up to Railroad ROW
TXDOT will work entirely within existing ROW

Scope of Work at this Crossing to Be Performed by Railroad Company:
N/A

II. OTHER PROJECT WORK WITHIN RAILROAD RIGHTS-OF-WAY (ROW)

N/A

III. FLAGGING & INSPECTION

of Days of Railroad Flagging Expected: 2

On this project, night or weekend flagging is:

☐ Expected
☒ Not Expected

Flagging services will be provided by:

☐ Railroad Company: TxDOT will pay flagging invoices
☒ Outside Party: Contractor will pay flagging invoices, to be reimbursed by TxDOT

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

Contact Information for Flagging:

☐ UPRR - UP.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging

☒ BNSF - BNSF.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging

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

☐ OTHERS _____

Contractor must incorporate Construction Inspection into anticipated construction schedule.

☒ Not Required

☐ Required: Contact Information for Construction Inspection:

IV. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

On this project, construction work to be performed by a railroad company is:

☐ Required
☒ Not Required

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

V. RAILROAD INSURANCE REQUIREMENTS

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Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	$500,000 / $500,000 / $500,000
Commercial General Liability	$2,000,000 / $4,000,000
Business Automobile	$2,000,000 combined single limit
Railroad Protective Liability	
☒ Not Required	
☐ Non - Bridge Projects	$2,000,000 / $6,000,000
☐ Bridge Projects	$5,000,000 / $10,000,000
☐ Other	

VI. CONTRACTOR'S RIGHT OF ENTRY (ROE) AGREEMENT

On this project, an ROE agreement is:

☒ Not Required
☐ Required: TxDOT CST to assist in obtaining with the BNSF (see Item 5, Article 8.3)
☐ Required: Contractor to obtain (see Item 5, Article 8.4)
With the following railroad companies: _____

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On this project, a Railroad Coordination Meeting is:

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☐ Required

See Item 5, Article 8.1 for more details.

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IX. EMERGENCY NOTIFICATION

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BNSF Railway (BNSF)
Railroad Emergency Line at 800-832-5452
Option 1
Location: DOT 024331F
RR Milepost 60.81
Subdivision CONROE

Texas Department of Transportation | Rail Division

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: RR Scope of Work.dgn	DN: TxDOT	CK:	DW:	CK:			
©TxDOT June 2014	CONT	SECT	JOB	HIGHWAY			
REVISIONS	2744	01	032	FM 2854			
3/2020	DIST	COUNTY		SHEET NO.			
	HOU	MONTGOMERY		196			

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

DOT #: 024332M
Crossing Type: AT GRADE
RR Company Owning Track at Crossing: BURLINGTON NORTHERN SANTA FE (BNSF)
Operating RR Company at Track: BNSF
RR MP: 61.71
RR Subdivision: CONROE
City: CONROE
County: MONTGOMERY
CSJ at this Crossing: 2744-01-032
Highway/Roadway name crossing the railroad: DEER LAKE LODGE RD
# of regularly scheduled trains per day at this crossing: 8
# of switching movements per day at this crossing: 0
% of estimated contract cost of work within railroad ROW: 0

Scope of Work at this Crossing to Be Performed by State Contractor:
Mill and Overlay intersections and driveways up to Railroad ROW
TXDOT will work entirely within existing ROW

Scope of Work at this Crossing to Be Performed by Railroad Company:
N/A

II. OTHER PROJECT WORK WITHIN RAILROAD RIGHTS-OF-WAY (ROW)

N/A

III. FLAGGING & INSPECTION

of Days of Railroad Flagging Expected: 2

On this project, night or weekend flagging is:

☐ Expected
☒ Not Expected

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☐ Railroad Company: TxDOT will pay flagging invoices
☒ Outside Party: Contractor will pay flagging invoices, to be reimbursed by TxDOT

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Call Center 877-315-0513, Select #1 for flagging

☒ BNSF - BNSF.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging

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

☐ OTHERS _____

Contractor must incorporate Construction Inspection into anticipated construction schedule.

☒ Not Required

☐ Required: Contact Information for Construction Inspection:

IV. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

On this project, construction work to be performed by a railroad company is:

☐ Required
☒ Not Required

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Business Automobile	$2,000,000 combined single limit
Railroad Protective Liability	
☒ Not Required	
☐ Non - Bridge Projects	$2,000,000 / $6,000,000
☐ Bridge Projects	$5,000,000 / $10,000,000
☐ Other	

VI. CONTRACTOR'S RIGHT OF ENTRY (ROE) AGREEMENT

On this project, an ROE agreement is:

☒ Not Required
☐ Required: TxDOT CST to assist in obtaining with the BNSF (see Item 5, Article 8.3)
☐ Required: Contractor to obtain (see Item 5, Article 8.4)
With the following railroad companies: _____

To view previously approved ROE Agreement templates agreed upon between the State and Railroad, see:

http://www.txdot.gov/inside-txdot/division/rail/samples.html

Approved ROE Agreement templates are not to be modified by the Contractor.

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

VII. RAILROAD COORDINATION MEETING

On this project, a Railroad Coordination Meeting is:

☒ Not Required
☐ Required

See Item 5, Article 8.1 for more details.

VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are required to maintain the same insurance coverage as required of the Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency Call
BNSF Railway (BNSF)
Railroad Emergency Line at 800-832-5452
Option 1
Location: DOT 024332M
RR Milepost 61.71
Subdivision CONROE

Texas Department of Transportation — Rail Division

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: RR Scope of Work.dgn	DN: TxDOT	CK:	DW:	CK:		
©TxDOT June 2014	CONT	SECT	JOB	HIGHWAY		
REVISIONS	2744	01	032	FM 2854		
3/2020	DIST	COUNTY		SHEET NO.		
	HOU	MONTGOMERY		197		

DATE:
FILE:

DATE:
FILE:

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

DOT #: 024334B
Crossing Type: AT GRADE
RR Company Owning Track at Crossing: BURLINGTON NORTHERN SANTA FE (BNSF)
Operating RR Company at Track: BNSF
RR MP: 62.17
RR Subdivision: CONROE
City: CONROE
County: MONTGOMERY
CSJ at this Crossing: 2744-01-032
Highway/Roadway name crossing the railroad: PRIVATE ROAD
# of regularly scheduled trains per day at this crossing: 8
# of switching movements per day at this crossing: 0
% of estimated contract cost of work within railroad ROW: 0

Scope of Work at this Crossing to Be Performed by State Contractor:
Mill and Overlay intersections and driveways up to Railroad ROW
TXDOT will work entirely within existing ROW

Scope of Work at this Crossing to Be Performed by Railroad Company:
N/A

II. OTHER PROJECT WORK WITHIN RAILROAD RIGHTS-OF-WAY (ROW)

N/A

III. FLAGGING & INSPECTION

of Days of Railroad Flagging Expected: 2

On this project, night or weekend flagging is:

☐ Expected
☒ Not Expected

Flagging services will be provided by:

☐ Railroad Company: TxDOT will pay flagging invoices
☒ Outside Party: Contractor will pay flagging invoices, to be reimbursed by TxDOT

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

Contact Information for Flagging:

☐ UPRR - UP.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging

☒ BNSF - BNSF.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging

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

☐ OTHERS _____

Contractor must incorporate Construction Inspection into anticipated construction schedule.

☒ Not Required

☐ Required: Contact Information for Construction Inspection:

IV. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

On this project, construction work to be performed by a railroad company is:

☐ Required
☒ Not Required

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

V. RAILROAD INSURANCE REQUIREMENTS

Railroad reference number shall be provided by TxDOT CST or DO.

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

Insurance policies must be issued for and on behalf of the Railroad. Where more than one Railroad Company is operating on the same right of way or where several Railroad Companies are involved and operate on their own separate rights of way, provide separate insurance policies in the name of each Railroad Company.

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

Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	$500,000 / $500,000 / $500,000
Commercial General Liability	$2,000,000 / $4,000,000
Business Automobile	$2,000,000 combined single limit
Railroad Protective Liability	
☒ Not Required	
☐ Non - Bridge Projects	$2,000,000 / $6,000,000
☐ Bridge Projects	$5,000,000 / $10,000,000
☐ Other	

VI. CONTRACTOR'S RIGHT OF ENTRY (ROE) AGREEMENT

On this project, an ROE agreement is:

☒ Not Required
☐ Required: TxDOT CST to assist in obtaining with the BNSF (see Item 5, Article 8.3)
☐ Required: Contractor to obtain (see Item 5, Article 8.4)
With the following railroad companies: _____

To view previously approved ROE Agreement templates agreed upon between the State and Railroad, see:

http://www.txdot.gov/inside-txdot/division/rail/samples.html

Approved ROE Agreement templates are not to be modified by the Contractor.

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

VII. RAILROAD COORDINATION MEETING

On this project, a Railroad Coordination Meeting is:

☒ Not Required
☐ Required

See Item 5, Article 8.1 for more details.

VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are required to maintain the same insurance coverage as required of the Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency Call
BNSF Railway (BNSF)
Railroad Emergency Line at 800-832-5452
Option 1
Location: DOT 024334B
RR Milepost 62.17
Subdivision CONROE

Texas Department of Transportation — Rail Division

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: RR Scope of Work.dgn	DN: TxDOT	CK:	DW:	CK:			
©TxDOT June 2014	CONT	SECT	JOB	HIGHWAY			
REVISIONS	2744	01	032	FM 2854			
3/2020	DIST	COUNTY		SHEET NO.			
	HOU	MONTGOMERY		198			

DATE:
FILE:

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

DOT #: 024335H
Crossing Type: AT GRADE
RR Company Owning Track at Crossing: BURLINGTON NORTHERN SANTA FE (BNSF)
Operating RR Company at Track: BNSF
RR MP: 62.70
RR Subdivision: CONROE
City: CONROE
County: MONTGOMERY
CSJ at this Crossing: 2744-01-032
Highway/Roadway name crossing the railroad: JOHNSON RD
# of regularly scheduled trains per day at this crossing: 8
# of switching movements per day at this crossing: 0
% of estimated contract cost of work within railroad ROW: 0

Scope of Work at this Crossing to Be Performed by State Contractor:
Mill and Overlay intersections and driveways up to Railroad ROW
TXDOT will work entirely within existing ROW

Scope of Work at this Crossing to Be Performed by Railroad Company:
N/A

II. OTHER PROJECT WORK WITHIN RAILROAD RIGHTS-OF-WAY (ROW)

N/A

III. FLAGGING & INSPECTION

of Days of Railroad Flagging Expected: 2

On this project, night or weekend flagging is:

☐ Expected
☒ Not Expected

Flagging services will be provided by:

☐ Railroad Company: TxDOT will pay flagging invoices
☒ Outside Party: Contractor will pay flagging invoices, to be reimbursed by TxDOT

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

Contact Information for Flagging:

☐ UPRR - UP.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging

☒ BNSF - BNSF.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging

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

☐ OTHERS _____

Contractor must incorporate Construction Inspection into anticipated construction schedule.

☒ Not Required

☐ Required: Contact Information for Construction Inspection:

IV. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

On this project, construction work to be performed by a railroad company is:

☐ Required
☒ Not Required

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

V. RAILROAD INSURANCE REQUIREMENTS

Railroad reference number shall be provided by TxDOT CST or DO.

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

Insurance policies must be issued for and on behalf of the Railroad. Where more than one Railroad Company is operating on the same right of way or where several Railroad Companies are involved and operate on their own separate rights of way, provide separate insurance policies in the name of each Railroad Company.

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

Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	$500,000 / $500,000 / $500,000
Commercial General Liability	$2,000,000 / $4,000,000
Business Automobile	$2,000,000 combined single limit
Railroad Protective Liability	
☒ Not Required	
☐ Non - Bridge Projects	$2,000,000 / $6,000,000
☐ Bridge Projects	$5,000,000 / $10,000,000
☐ Other	

VI. CONTRACTOR'S RIGHT OF ENTRY (ROE) AGREEMENT

On this project, an ROE agreement is:

☒ Not Required
☐ Required: TxDOT CST to assist in obtaining with the BNSF (see Item 5, Article 8.3)
☐ Required: Contractor to obtain (see Item 5, Article 8.4)
With the following railroad companies: _____

To view previously approved ROE Agreement templates agreed upon between the State and Railroad, see:

http://www.txdot.gov/inside-txdot/division/rail/samples.html

Approved ROE Agreement templates are not to be modified by the Contractor.

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

VII. RAILROAD COORDINATION MEETING

On this project, a Railroad Coordination Meeting is:

☒ Not Required
☐ Required

See Item 5, Article 8.1 for more details.

VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are required to maintain the same insurance coverage as required of the Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency Call
BNSF Railway (BNSF)
Railroad Emergency Line at 800-832-5452
Option 1
Location: DOT 024335H
RR Milepost 62.70
Subdivision CONROE

Texas Department of Transportation — Rail Division

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: RR Scope of Work.dgn	DN: TxDOT	CK:	DW:	CK:		
©TxDOT June 2014	CONT	SECT	JOB	HIGHWAY		
REVISIONS	2744	01	032	FM 2854		
3/2020	DIST	COUNTY		SHEET NO.		
	HOU	MONTGOMERY		199		

DATE:
FILE:

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

DOT #: 024336P
Crossing Type: AT GRADE
RR Company Owning Track at Crossing: BURLINGTON NORTHERN SANTA FE (BNSF)
Operating RR Company at Track: BNSF
RR MP: 63.15
RR Subdivision: CONROE
City: CONROE
County: MONTGOMERY
CSJ at this Crossing: 2744-01-032
Highway/Roadway name crossing the railroad: PRIVATE RD
# of regularly scheduled trains per day at this crossing: 8
# of switching movements per day at this crossing: 0
% of estimated contract cost of work within railroad ROW: 0

Scope of Work at this Crossing to Be Performed by State Contractor:
Mill and Overlay intersections and driveways up to Railroad ROW
TXDOT will work entirely within existing ROW

Scope of Work at this Crossing to Be Performed by Railroad Company:
N/A

II. OTHER PROJECT WORK WITHIN RAILROAD RIGHTS-OF-WAY (ROW)

N/A

III. FLAGGING & INSPECTION

of Days of Railroad Flagging Expected: 2

On this project, night or weekend flagging is:

☐ Expected
☒ Not Expected

Flagging services will be provided by:

☐ Railroad Company: TxDOT will pay flagging invoices
☒ Outside Party: Contractor will pay flagging invoices, to be reimbursed by TxDOT

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

Contact Information for Flagging:

☐ UPRR - UP.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging

☒ BNSF - BNSF.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging

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

☐ OTHERS _____

Contractor must incorporate Construction Inspection into anticipated construction schedule.

☒ Not Required

☐ Required: Contact Information for Construction Inspection:

IV. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

On this project, construction work to be performed by a railroad company is:

☐ Required
☒ Not Required

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

V. RAILROAD INSURANCE REQUIREMENTS

Railroad reference number shall be provided by TxDOT CST or DO.

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

Insurance policies must be issued for and on behalf of the Railroad. Where more than one Railroad Company is operating on the same right of way or where several Railroad Companies are involved and operate on their own separate rights of way, provide separate insurance policies in the name of each Railroad Company.

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

Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	$500,000 / $500,000 / $500,000
Commercial General Liability	$2,000,000 / $4,000,000
Business Automobile	$2,000,000 combined single limit
Railroad Protective Liability	
☒ Not Required	
☐ Non - Bridge Projects	$2,000,000 / $6,000,000
☐ Bridge Projects	$5,000,000 / $10,000,000
☐ Other	

VI. CONTRACTOR'S RIGHT OF ENTRY (ROE) AGREEMENT

On this project, an ROE agreement is:

☒ Not Required
☐ Required: TxDOT CST to assist in obtaining with the BNSF (see Item 5, Article 8.3)
☐ Required: Contractor to obtain (see Item 5, Article 8.4)
With the following railroad companies: _____

To view previously approved ROE Agreement templates agreed upon between the State and Railroad, see:

http://www.txdot.gov/inside-txdot/division/rail/samples.html

Approved ROE Agreement templates are not to be modified by the Contractor.

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

VII. RAILROAD COORDINATION MEETING

On this project, a Railroad Coordination Meeting is:

☒ Not Required
☐ Required

See Item 5, Article 8.1 for more details.

VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are required to maintain the same insurance coverage as required of the Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency Call
BNSF Railway (BNSF)
Railroad Emergency Line at 800-832-5452
Option 1
Location: DOT 024336P
RR Milepost 63.15
Subdivision CONROE

Texas Department of Transportation — Rail Division

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: RR Scope of Work.dgn	DN: TxDOT	CK:	DW:	CK:			
©TxDOT June 2014	CONT	SECT	JOB	HIGHWAY			
REVISIONS	2744	01	032	FM 2854			
3/2020	DIST	COUNTY		SHEET NO.			
	HOU	MONTGOMERY		200			

DATE:
FILE:

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

DOT #: 024337W
Crossing Type: AT GRADE
RR Company Owning Track at Crossing: BURLINGTON NORTHERN SANTA FE (BNSF)
Operating RR Company at Track: BNSF
RR MP: 63.41
RR Subdivision: CONROE
City: CONROE
County: MONTGOMERY
CSJ at this Crossing: 2744-01-032
Highway/Roadway name crossing the railroad: HONEA-EGYPT RD
# of regularly scheduled trains per day at this crossing: 8
# of switching movements per day at this crossing: 0
% of estimated contract cost of work within railroad ROW: 0

Scope of Work at this Crossing to Be Performed by State Contractor:
Mill and Overlay intersections and driveways up to Railroad ROW
TXDOT will work entirely within existing ROW

Scope of Work at this Crossing to Be Performed by Railroad Company:
N/A

II. OTHER PROJECT WORK WITHIN RAILROAD RIGHTS-OF-WAY (ROW)

N/A

III. FLAGGING & INSPECTION

of Days of Railroad Flagging Expected: 2

On this project, night or weekend flagging is:

☐ Expected
☒ Not Expected

Flagging services will be provided by:

☐ Railroad Company: TxDOT will pay flagging invoices
☒ Outside Party: Contractor will pay flagging invoices, to be reimbursed by TxDOT

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

Contact Information for Flagging:

☐ UPRR - UP.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging

☒ BNSF - BNSF.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging

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

☐ OTHERS _____

Contractor must incorporate Construction Inspection into anticipated construction schedule.

☒ Not Required

☐ Required: Contact Information for Construction Inspection:

IV. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

On this project, construction work to be performed by a railroad company is:

☐ Required
☒ Not Required

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

V. RAILROAD INSURANCE REQUIREMENTS

Railroad reference number shall be provided by TxDOT CST or DO.

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

Insurance policies must be issued for and on behalf of the Railroad. Where more than one Railroad Company is operating on the same right of way or where several Railroad Companies are involved and operate on their own separate rights of way, provide separate insurance policies in the name of each Railroad Company.

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

Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	$500,000 / $500,000 / $500,000
Commercial General Liability	$2,000,000 / $4,000,000
Business Automobile	$2,000,000 combined single limit
Railroad Protective Liability	
☒ Not Required	
☐ Non - Bridge Projects	$2,000,000 / $6,000,000
☐ Bridge Projects	$5,000,000 / $10,000,000
☐ Other	

VI. CONTRACTOR'S RIGHT OF ENTRY (ROE) AGREEMENT

On this project, an ROE agreement is:

☒ Not Required
☐ Required: TxDOT CST to assist in obtaining with the BNSF (see Item 5, Article 8.3)
☐ Required: Contractor to obtain (see Item 5, Article 8.4)
With the following railroad companies: _____

To view previously approved ROE Agreement templates agreed upon between the State and Railroad, see:

http://www.txdot.gov/inside-txdot/division/rail/samples.html

Approved ROE Agreement templates are not to be modified by the Contractor.

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

VII. RAILROAD COORDINATION MEETING

On this project, a Railroad Coordination Meeting is:

☒ Not Required
☐ Required

See Item 5, Article 8.1 for more details.

VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are required to maintain the same insurance coverage as required of the Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency Call
BNSF Railway (BNSF)
Railroad Emergency Line at 800-832-5452
Option 1
Location: DOT 024337W
RR Milepost 63.41
Subdivision CONROE

Texas Department of Transportation | Rail Division

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: RR Scope of Work.dgn	DN: TxDOT	CK:	DW:	CK:			
©TxDOT June 2014	CONT	SECT	JOB	HIGHWAY			
REVISIONS	2744	01	032	FM 2854			
3/2020	DIST	COUNTY		SHEET NO.			
	HOU	MONTGOMERY		201			

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

DOT #: 024338D
Crossing Type: AT GRADE
RR Company Owning Track at Crossing: BURLINGTON NORTHERN SANTA FE (BNSF)
Operating RR Company at Track: BNSF
RR MP: 64.77
RR Subdivision: CONROE
City: CONROE
County: MONTGOMERY
CSJ at this Crossing: 2744-01-032
Highway/Roadway name crossing the railroad: PONDEROSA CITY RD
# of regularly scheduled trains per day at this crossing: 8
# of switching movements per day at this crossing: 0
% of estimated contract cost of work within railroad ROW: 0

Scope of Work at this Crossing to Be Performed by State Contractor:
Mill and Overlay intersections and driveways up to Railroad ROW
TXDOT will work entirely within existing ROW

Scope of Work at this Crossing to Be Performed by Railroad Company:
N/A

II. OTHER PROJECT WORK WITHIN RAILROAD RIGHTS-OF-WAY (ROW)

N/A

III. FLAGGING & INSPECTION

of Days of Railroad Flagging Expected: 2

On this project, night or weekend flagging is:

☐ Expected
☒ Not Expected

Flagging services will be provided by:

☐ Railroad Company: TxDOT will pay flagging invoices
☒ Outside Party: Contractor will pay flagging invoices, to be reimbursed by TxDOT

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

Contact Information for Flagging:

☐ UPRR - UP.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging

☒ BNSF - BNSF.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging

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

☐ OTHERS _____

Contractor must incorporate Construction Inspection into anticipated construction schedule.

☒ Not Required

☐ Required: Contact Information for Construction Inspection:

IV. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

On this project, construction work to be performed by a railroad company is:

☐ Required
☒ Not Required

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

V. RAILROAD INSURANCE REQUIREMENTS

Railroad reference number shall be provided by TxDOT CST or DO.

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

Insurance policies must be issued for and on behalf of the Railroad. Where more than one Railroad Company is operating on the same right of way or where several Railroad Companies are involved and operate on their own separate rights of way, provide separate insurance policies in the name of each Railroad Company.

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

Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	$500,000 / $500,000 / $500,000
Commercial General Liability	$2,000,000 / $4,000,000
Business Automobile	$2,000,000 combined single limit
Railroad Protective Liability	
☒ Not Required	
☐ Non - Bridge Projects	$2,000,000 / $6,000,000
☐ Bridge Projects	$5,000,000 / $10,000,000
☐ Other	

VI. CONTRACTOR'S RIGHT OF ENTRY (ROE) AGREEMENT

On this project, an ROE agreement is:

☒ Not Required
☐ Required: TxDOT CST to assist in obtaining with the BNSF (see Item 5, Article 8.3)
☐ Required: Contractor to obtain (see Item 5, Article 8.4)
With the following railroad companies: _____

To view previously approved ROE Agreement templates agreed upon between the State and Railroad, see:

http://www.txdot.gov/inside-txdot/division/rail/samples.html

Approved ROE Agreement templates are not to be modified by the Contractor.

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

VII. RAILROAD COORDINATION MEETING

On this project, a Railroad Coordination Meeting is:

☒ Not Required
☐ Required

See Item 5, Article 8.1 for more details.

VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are required to maintain the same insurance coverage as required of the Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency Call
BNSF Railway (BNSF)
Railroad Emergency Line at 800-832-5452
Option 1
Location: DOT 024338D
RR Milepost 64.77
Subdivision CONROE

Texas Department of Transportation | Rail Division

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: RR Scope of Work.dgn	DN: TxDOT	CK:	DW:	CK:		
©TxDOT June 2014	CONT	SECT	JOB	HIGHWAY		
REVISIONS	2744	01	032	FM 2854		
3/2020	DIST	COUNTY		SHEET NO.		
	HOU	MONTGOMERY		202		

DATE:
FILE:

DATE:
FILE:

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

DOT #: 024339K
Crossing Type: AT GRADE
RR Company Owning Track at Crossing: BURLINGTON NORTHERN SANTA FE (BNSF)
Operating RR Company at Track: BNSF
RR MP: 66.56
RR Subdivision: CONROE
City: CONROE
County: MONTGOMERY
CSJ at this Crossing: 2744-01-032
Highway/Roadway name crossing the railroad: HOKE MADELEY RD
# of regularly scheduled trains per day at this crossing: 8
# of switching movements per day at this crossing: 0
% of estimated contract cost of work within railroad ROW: 0

Scope of Work at this Crossing to Be Performed by State Contractor:
Mill and Overlay intersections and driveways up to Railroad ROW
TXDOT will work entirely within existing ROW

Scope of Work at this Crossing to Be Performed by Railroad Company:
N/A

II. OTHER PROJECT WORK WITHIN RAILROAD RIGHTS-OF-WAY (ROW)

N/A

III. FLAGGING & INSPECTION

of Days of Railroad Flagging Expected: 2

On this project, night or weekend flagging is:

☐ Expected
☒ Not Expected

Flagging services will be provided by:

☐ Railroad Company: TxDOT will pay flagging invoices
☒ Outside Party: Contractor will pay flagging invoices, to be reimbursed by TxDOT

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

Contact Information for Flagging:

☐ UPRR - UP.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging

☒ BNSF - BNSF.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging

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

☐ OTHERS _____

Contractor must incorporate Construction Inspection into anticipated construction schedule.

☒ Not Required

☐ Required: Contact Information for Construction Inspection:

IV. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

On this project, construction work to be performed by a railroad company is:

☐ Required
☒ Not Required

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

V. RAILROAD INSURANCE REQUIREMENTS

Railroad reference number shall be provided by TxDOT CST or DO.

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

Insurance policies must be issued for and on behalf of the Railroad. Where more than one Railroad Company is operating on the same right of way or where several Railroad Companies are involved and operate on their own separate rights of way, provide separate insurance policies in the name of each Railroad Company.

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

Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	$500,000 / $500,000 / $500,000
Commercial General Liability	$2,000,000 / $4,000,000
Business Automobile	$2,000,000 combined single limit
Railroad Protective Liability	
☒ Not Required	
☐ Non - Bridge Projects	$2,000,000 / $6,000,000
☐ Bridge Projects	$5,000,000 / $10,000,000
☐ Other	

VI. CONTRACTOR'S RIGHT OF ENTRY (ROE) AGREEMENT

On this project, an ROE agreement is:

☒ Not Required
☐ Required: TxDOT CST to assist in obtaining with the BNSF (see Item 5, Article 8.3)
☐ Required: Contractor to obtain (see Item 5, Article 8.4)
With the following railroad companies: _____

To view previously approved ROE Agreement templates agreed upon between the State and Railroad, see:

http://www.txdot.gov/inside-txdot/division/rail/samples.html

Approved ROE Agreement templates are not to be modified by the Contractor.

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

VII. RAILROAD COORDINATION MEETING

On this project, a Railroad Coordination Meeting is:

☒ Not Required
☐ Required

See Item 5, Article 8.1 for more details.

VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are required to maintain the same insurance coverage as required of the Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency Call
BNSF Railway (BNSF)
Railroad Emergency Line at 800-832-5452
Option 1
Location: DOT 024339K
RR Milepost 66.56
Subdivision CONROE

Texas Department of Transportation | Rail Division

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: RR Scope of Work.dgn	DN: TxDOT	CK:	DW:	CK:			
©TxDOT June 2014	CONT	SECT	JOB	HIGHWAY			
REVISIONS	2744	01	032	FM 2854			
3/2020	DIST	COUNTY		SHEET NO.			
	HOU	MONTGOMERY		203			

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

DOT #: 024340E
Crossing Type: AT GRADE
RR Company Owning Track at Crossing: BURLINGTON NORTHERN SANTA FE (BNSF)
Operating RR Company at Track: BNSF
RR MP: 67.11
RR Subdivision: CONROE
City: CONROE
County: MONTGOMERY
CSJ at this Crossing: 2744-01-032
Highway/Roadway name crossing the railroad: LEONIDAS HORTON RD
# of regularly scheduled trains per day at this crossing: 8
# of switching movements per day at this crossing: 0
% of estimated contract cost of work within railroad ROW: 0

Scope of Work at this Crossing to Be Performed by State Contractor:
Mill and Overlay intersections and driveways up to Railroad ROW
TXDOT will work entirely within existing ROW

Scope of Work at this Crossing to Be Performed by Railroad Company:
N/A

II. OTHER PROJECT WORK WITHIN RAILROAD RIGHTS-OF-WAY (ROW)

N/A

III. FLAGGING & INSPECTION

of Days of Railroad Flagging Expected: 2

On this project, night or weekend flagging is:

☐ Expected
☒ Not Expected

Flagging services will be provided by:

☐ Railroad Company: TxDOT will pay flagging invoices
☒ Outside Party: Contractor will pay flagging invoices, to be reimbursed by TxDOT

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

Contact Information for Flagging:

☐ UPRR - UP.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging

☒ BNSF - BNSF.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging

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

☐ OTHERS _____

Contractor must incorporate Construction Inspection into anticipated construction schedule.

☒ Not Required

☐ Required: Contact Information for Construction Inspection:

IV. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

On this project, construction work to be performed by a railroad company is:

☐ Required
☒ Not Required

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

V. RAILROAD INSURANCE REQUIREMENTS

Railroad reference number shall be provided by TxDOT CST or DO.

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

Insurance policies must be issued for and on behalf of the Railroad. Where more than one Railroad Company is operating on the same right of way or where several Railroad Companies are involved and operate on their own separate rights of way, provide separate insurance policies in the name of each Railroad Company.

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

Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	$500,000 / $500,000 / $500,000
Commercial General Liability	$2,000,000 / $4,000,000
Business Automobile	$2,000,000 combined single limit
Railroad Protective Liability	
☒ Not Required	
☐ Non - Bridge Projects	$2,000,000 / $6,000,000
☐ Bridge Projects	$5,000,000 / $10,000,000
☐ Other	

VI. CONTRACTOR'S RIGHT OF ENTRY (ROE) AGREEMENT

On this project, an ROE agreement is:

☒ Not Required
☐ Required: TxDOT CST to assist in obtaining with the BNSF (see Item 5, Article 8.3)
☐ Required: Contractor to obtain (see Item 5, Article 8.4)
With the following railroad companies: _____

To view previously approved ROE Agreement templates agreed upon between the State and Railroad, see:

http://www.txdot.gov/inside-txdot/division/rail/samples.html

Approved ROE Agreement templates are not to be modified by the Contractor.

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

VII. RAILROAD COORDINATION MEETING

On this project, a Railroad Coordination Meeting is:

☒ Not Required
☐ Required

See Item 5, Article 8.1 for more details.

VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are required to maintain the same insurance coverage as required of the Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency Call
BNSF Railway (BNSF)
Railroad Emergency Line at 800-832-5452
Option 1
Location: DOT 024340E
RR Milepost 67.11
Subdivision CONROE

Texas Department of Transportation — Rail Division

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: RR Scope of Work.dgn	DN: TxDOT	CK:	DW:	CK:			
©TxDOT June 2014	CONT	SECT	JOB	HIGHWAY			
REVISIONS	2744	01	032	FM 2854			
3/2020	DIST	COUNTY		SHEET NO.			
	HOU	MONTGOMERY		204			

DATE:
FILE:

DATE:
FILE:

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

DOT #: 024341L
Crossing Type: AT GRADE
RR Company Owning Track at Crossing: BURLINGTON NORTHERN SANTA FE (BNSF)
Operating RR Company at Track: BNSF
RR MP: 67.42
RR Subdivision: CONROE
City: CONROE
County: MONTGOMERY
CSJ at this Crossing: 2744-01-032
Highway/Roadway name crossing the railroad: WAHRENBERGER RD
# of regularly scheduled trains per day at this crossing: 8
# of switching movements per day at this crossing: 0
% of estimated contract cost of work within railroad ROW: 0

Scope of Work at this Crossing to Be Performed by State Contractor:
Mill and Overlay intersections and driveways up to Railroad ROW
TXDOT will work entirely within existing ROW

Scope of Work at this Crossing to Be Performed by Railroad Company:
N/A

II. OTHER PROJECT WORK WITHIN RAILROAD RIGHTS-OF-WAY (ROW)

N/A

III. FLAGGING & INSPECTION

of Days of Railroad Flagging Expected: 4

On this project, night or weekend flagging is:

☐ Expected
☒ Not Expected

Flagging services will be provided by:

☐ Railroad Company: TxDOT will pay flagging invoices
☒ Outside Party: Contractor will pay flagging invoices, to be reimbursed by TxDOT

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

Contact Information for Flagging:

☐ UPRR - UP.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging

☒ BNSF - BNSF.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging

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

☐ OTHERS _____

Contractor must incorporate Construction Inspection into anticipated construction schedule.

☒ Not Required

☐ Required: Contact Information for Construction Inspection:

IV. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

On this project, construction work to be performed by a railroad company is:

☐ Required
☒ Not Required

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

V. RAILROAD INSURANCE REQUIREMENTS

Railroad reference number shall be provided by TxDOT CST or DO.

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

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

Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	$500,000 / $500,000 / $500,000
Commercial General Liability	$2,000,000 / $4,000,000
Business Automobile	$2,000,000 combined single limit
Railroad Protective Liability	
☒ Not Required	
☐ Non - Bridge Projects	$2,000,000 / $6,000,000
☐ Bridge Projects	$5,000,000 / $10,000,000
☐ Other	

VI. CONTRACTOR'S RIGHT OF ENTRY (ROE) AGREEMENT

On this project, an ROE agreement is:

☒ Not Required
☐ Required: TxDOT CST to assist in obtaining with the BNSF (see Item 5, Article 8.3)
☐ Required: Contractor to obtain (see Item 5, Article 8.4)
With the following railroad companies: _____

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VII. RAILROAD COORDINATION MEETING

On this project, a Railroad Coordination Meeting is:

☒ Not Required
☐ Required

See Item 5, Article 8.1 for more details.

VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are required to maintain the same insurance coverage as required of the Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency Call
BNSF Railway (BNSF)
Railroad Emergency Line at 800-832-5452
Option 1
Location: DOT 024341L
RR Milepost 67.42
Subdivision CONROE

Texas Department of Transportation | Rail Division

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: RR Scope of Work.dgn	DN: TxDOT	CK:	DW:	CK:			
©TxDOT June 2014	CONT	SECT	JOB	HIGHWAY			
REVISIONS	2744	01	032	FM 2854			
3/2020	DIST	COUNTY		SHEET NO.			
	HOU	MONTGOMERY		205			

DATE:
FILE:

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

DOT #: 024342T
Crossing Type: AT GRADE
RR Company Owning Track at Crossing: BURLINGTON NORTHERN SANTA FE (BNSF)
Operating RR Company at Track: BNSF
RR MP: 67.71
RR Subdivision: CONROE
City: CONROE
County: MONTGOMERY
CSJ at this Crossing: 2744-01-032
Highway/Roadway name crossing the railroad: THE CONASTER CAMP RD
# of regularly scheduled trains per day at this crossing: 8
# of switching movements per day at this crossing: 0
% of estimated contract cost of work within railroad ROW: 0

Scope of Work at this Crossing to Be Performed by State Contractor:
Mill and Overlay intersections and driveways up to Railroad ROW
TXDOT will work entirely within existing ROW

Scope of Work at this Crossing to Be Performed by Railroad Company:
N/A

II. OTHER PROJECT WORK WITHIN RAILROAD RIGHTS-OF-WAY (ROW)

N/A

III. FLAGGING & INSPECTION

of Days of Railroad Flagging Expected: 4

On this project, night or weekend flagging is:

☐ Expected
☒ Not Expected

Flagging services will be provided by:

☐ Railroad Company: TxDOT will pay flagging invoices
☒ Outside Party: Contractor will pay flagging invoices, to be reimbursed by TxDOT

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Contact Information for Flagging:

☐ UPRR - UP.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging

☒ BNSF - BNSF.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging

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

☐ OTHERS _____

Contractor must incorporate Construction Inspection into anticipated construction schedule.

☒ Not Required

☐ Required: Contact Information for Construction Inspection:

IV. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

On this project, construction work to be performed by a railroad company is:

☐ Required
☒ Not Required

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

V. RAILROAD INSURANCE REQUIREMENTS

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Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	$500,000 / $500,000 / $500,000
Commercial General Liability	$2,000,000 / $4,000,000
Business Automobile	$2,000,000 combined single limit
Railroad Protective Liability	
☒ Not Required	
☐ Non - Bridge Projects	$2,000,000 / $6,000,000
☐ Bridge Projects	$5,000,000 / $10,000,000
☐ Other	

VI. CONTRACTOR'S RIGHT OF ENTRY (ROE) AGREEMENT

On this project, an ROE agreement is:

☒ Not Required
☐ Required: TxDOT CST to assist in obtaining with the BNSF (see Item 5, Article 8.3)
☐ Required: Contractor to obtain (see Item 5, Article 8.4)
With the following railroad companies: _____

To view previously approved ROE Agreement templates agreed upon between the State and Railroad, see:

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

VII. RAILROAD COORDINATION MEETING

On this project, a Railroad Coordination Meeting is:

☒ Not Required
☐ Required

See Item 5, Article 8.1 for more details.

VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are required to maintain the same insurance coverage as required of the Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency Call
BNSF Railway (BNSF)
Railroad Emergency Line at 800-832-5452
Option 1
Location: DOT 024342T
RR Milepost 67.71
Subdivision CONROE

Texas Department of Transportation | Rail Division

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: RR Scope of Work.dgn	DN: TxDOT	CK:	DW:	CK:			
©TxDOT June 2014	CONT	SECT	JOB	HIGHWAY			
REVISIONS	2744	01	032	FM 2854			
3/2020	DIST	COUNTY		SHEET NO.			
	HOU	MONTGOMERY		206			