

INDEX OF SHEETS
SEE SHEET NO. 2

REGISTERED ACCESSIBILITY SPECIALIST (RAS)
INSPECTION REQUIRED. TDLR NO. TABS2024016963

STATE OF TEXAS DEPARTMENT OF TRANSPORTATION

DESIGN SPEED: 65 MPH
ADT (2024) = 36,600
ADT (2044) = 51,600
FC: PRINCIPAL ARTERIAL

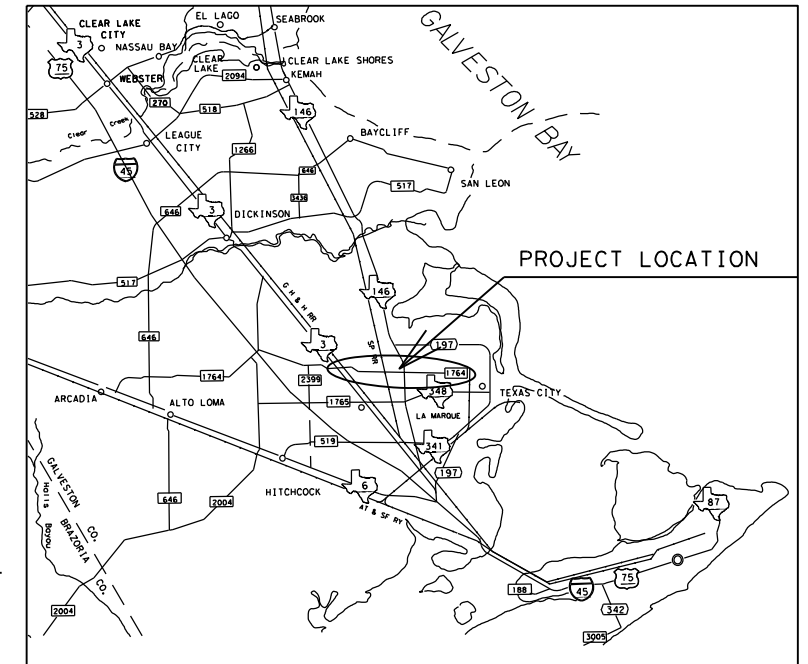
FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.
6	F 2B24(352), ETC.	1
STATE	STATE DIST.	COUNTY
TEXAS	12	GALVESTON
CSJ		HIGHWAY NO.
1607	01 057, ETC.	FM 1764

PLANS OF PROPOSED STATE HIGHWAY IMPROVEMENT CONTROL: CSJ 1607-01-057, ETC. PROJECT NO. F 2B24(352), ETC GALVESTON COUNTY FM 1764 LIMITS: W OF SH 3 TO 14th ST

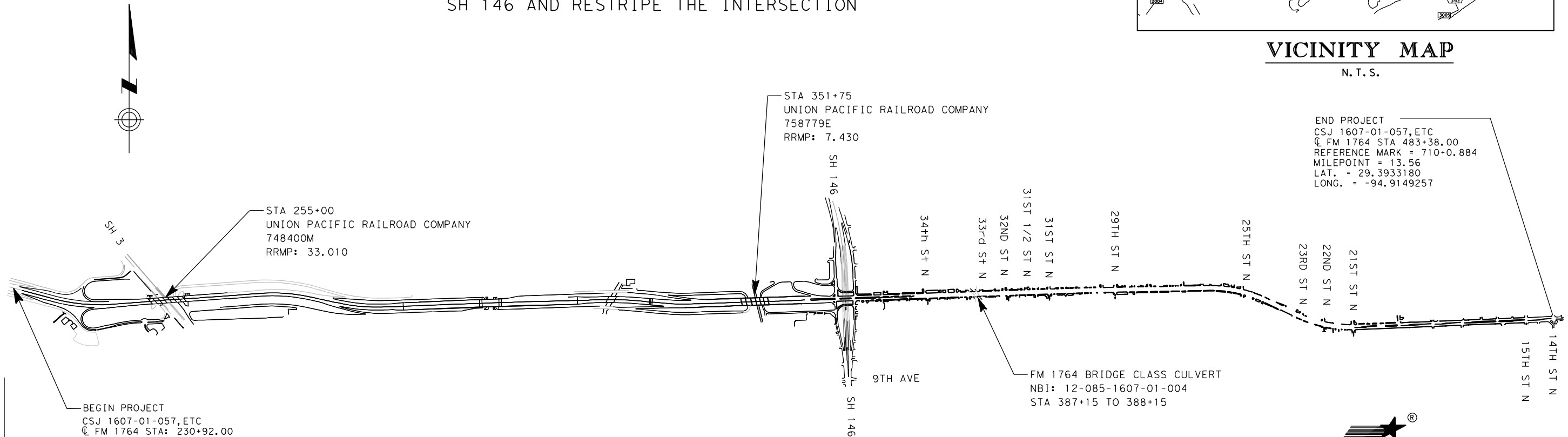
NET LENGTH OF PROJECT : 25246.00FT = 4.78 MI

LENGTH OF ROADWAY: 23650 FT = 4.48 MI LENGTH OF BRIDGE: 1596 FT = 0.3 MI

BASE REPAIR, MILLING, SEAL COAT, 3" D-GR HMA, SIDEWALK, RECONSTRUCT INTERSECTION AT SH 146 AND RESTRIPE THE INTERSECTION



VICINITY MAP
N. T. S.



END PROJECT
CSJ 1607-01-057, ETC
Q FM 1764 STA 483+38.00
REFERENCE MARK = 710+0.884
MILEPOINT = 13.56
LAT. = 29.3933180
LONG. = -94.9149257

STA 255+00
UNION PACIFIC RAILROAD COMPANY
748400M
RRMP: 33.010

STA 351+75
UNION PACIFIC RAILROAD COMPANY
758779E
RRMP: 7.430

BEGIN PROJECT
CSJ 1607-01-057, ETC
Q FM 1764 STA: 230+92.00
REFERENCE MARK = 706+0.292
MILEPOINT = 8.73
LAT. = 29.3961939
LONG. = -94.9895338

FM 1764 BRIDGE CLASS CULVERT
NBI: 12-085-1607-01-004
STA 387+15 TO 388+15

PROJECT LOCATION MAP
N. T. S.

RR CROSSINGS: UNION PACIFIC RAILROAD COMPANY, STA 255+00, STA 351+75
EQUATIONS: NONE
EXCEPTIONS: NONE

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SUBMITTED FOR LETTING: 5-24-2024
[Signature]
AREA ENGINEER

RECOMMENDED FOR LETTING: 5/28/2024
[Signature]
FOR DIRECTOR'S REVIEW

COUNTY GALVESTON PROJ. NO. _____
HWY. NO. FM 1764 LETTING DATE _____
DATE ACCEPTED _____

NOTE:
SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION,
NOVEMBER 1, 2014 AND THE SPECIFICATION ITEMS LISTED AND DATED AS
FOLLOWS SHALL GOVERN ON THIS PROJECT: REQUIRED CONTRACT PROVISIONS,
FOR ALL FEDERAL-AID CONSTRUCTION CONTRACTS (FORM FHWA 1273, OCTOBER 23, 2023).

INDEX OF SHEETS

GENERAL

- 1 TITLE SHEET
- 2 INDEX OF SHEETS
- 3-10 TYPICAL SECTIONS
- 11-12 IRI DATA
- 13, 13A-13O GENERAL NOTES
- 14, 14A-14D ESTIMATE & QUANTITY
- 15-16 SUMMARY OF ROADWAY QUANTITIES
- 17-20 SUMMARY OF PAVEMENT MARKING QUANTITIES
- 21-23 SUMMARY OF TRAFFIC CONTROL QUANTITIES
- 24-32 SUMMARY OF SMALL SIGNS
- 33 SUMMARY OF LARGE SIGNS
- 34 SUMMARY OF BRIDGE QUANTITIES
- 35-38 SUMMARY OF DRIVEWAY QUANTITIES
- 39-40 SUMMARY OF SIDEWALK QUANTITIES

TRAFFIC CONTROL PLAN

- 41 SEQUENCE OF CONSTRUCTION
- 42 FM 1764 OVERALL TCP LAYOUT
- 43-45 SH 146 TRAFFIC CONTROL PLANS PHASE 1 STEP 1
- 46-50 SH 146 TRAFFIC CONTROL PLANS PHASE 1 STEP 2
- 51-52 SH 146 TRAFFIC CONTROL PLANS PHASE 2 STEP 1
- 53-54 SH 146 TRAFFIC CONTROL PLANS PHASE 2 STEP 2
- 55-57 SH 146 TRAFFIC CONTROL PLANS PHASE 3 STEP 1
- 58-60 SH 146 TRAFFIC CONTROL PLANS PHASE 3 STEP 2
- 61-62 SH 146 TRAFFIC CONTROL PLANS PHASE 4 STEP 1
- 63-64 SH 146 TRAFFIC CONTROL PLANS PHASE 4 STEP 2
- 65-68 SH 146 TRAFFIC CONTROL PLANS PHASE 5 STEP 1
- 69-70 SH 146 TRAFFIC CONTROL PLANS PHASE 5 STEP 2
- 71-73 FM 1764 TRAFFIC CONTROL PLANS PHASE 6 STEP 1
- 74-76 FM 1764 TRAFFIC CONTROL PLANS PHASE 6 STEP 2
- 77-80 FM 1764 TRAFFIC CONTROL PLANS PHASE 7 STEP 1
- 81-84 FM 1764 TRAFFIC CONTROL PLANS PHASE 7 STEP 2
- 85-87 9TH AVE DETOUR PLAN PHASE 4 STEP 2
- 88-90 9TH AVE DETOUR PLAN PHASE 5
- 91-92 36TH ST DETOUR PLAN PHASE 2 STEP 2
- 92A-92B FM 1764 DETOUR PLAN PHASE 6 STEP 1
- 92C-92D FM 1764 DETOUR PLAN PHASE 6 STEP 2
- 92E-92G FM 1764 DETOUR PLAN PHASE 7 STEP 1
- 92H-92J FM 1764 DETOUR PLAN PHASE 7 STEP 2

TRAFFIC CONTROL STANDARDS

- 93-104 *BARRICADE AND CONSTRUCTION STANDARDS BC (1)-21 THRU BC (12)-21
- 105 *TRAFFIC CONTROL PLAN TCP (1-1)-18
- 106 *TRAFFIC CONTROL PLAN TCP (1-2)-18
- 107 *TRAFFIC CONTROL PLAN TCP (1-3)-18
- 108 *TRAFFIC CONTROL PLAN TCP (1-4)-18
- 109 *TRAFFIC CONTROL PLAN TCP (1-5)-18
- 110 *TRAFFIC CONTROL PLAN TCP (1-6)-18
- 111 *TRAFFIC CONTROL PLAN TCP (2-1)-18
- 112 *TRAFFIC CONTROL PLAN TCP (2-2)-18
- 113 *TRAFFIC CONTROL PLAN TCP (2-3)-23
- 114 *TRAFFIC CONTROL PLAN TCP (2-4)-18
- 115 *TRAFFIC CONTROL PLAN TCP (2-5)-18
- 116 *TRAFFIC CONTROL PLAN TCP (2-6)-18
- 117 *TRAFFIC CONTROL PLAN TCP (2-7)-23
- 118 *TRAFFIC CONTROL PLAN TCP (2-8)-23
- 119 *TRAFFIC CONTROL PLAN TCP (3-1)-13
- 120 *TRAFFIC CONTROL PLAN TCP (3-2)-13
- 121 *TRAFFIC CONTROL PLAN TCP (3-3)-14
- 122 *TRAFFIC CONTROL PLAN TCP (3-4)-13
- 123 *TRAFFIC CONTROL PLAN TCP (5-1)-18
- 124 *TRAFFIC CONTROL PLAN TCP (6-1)-12
- 125 *TRAFFIC CONTROL PLAN TCP (6-2)-12
- 126 *TRAFFIC CONTROL PLAN TCP (6-3)-12
- 127 *TRAFFIC CONTROL PLAN TCP (6-4)-12
- 128 *TRAFFIC CONTROL PLAN TCP (6-5)-12
- 129 *TRAFFIC CONTROL PLAN TCP (6-6)-12
- 130 *TRAFFIC CONTROL PLAN TCP (6-7)-12
- 131 *TRAFFIC CONTROL PLAN TCP (6-8)-14
- 132 *TRAFFIC CONTROL PLAN TCP (6-9)-14
- 133 *TRAFFIC CONTROL PLAN TCP (7-1)-13
- 134 *WORK ZONE SHORT TERM PAVEMENT MARKINGS WZ(STPM)-23
- 135 *WORK ZONE "GIVE US A BREAK" SIGNS WZ (BRK)-13
- 136 *TRAFFIC SIGNAL WORK TYPICAL DETAILS WZ (BTS-1)-13
- 137 *TRAFFIC SIGNAL WORK TYPICAL DETAILS WZ (BTS-2)-13
- 138 *WORK ZONE ROAD CLOSURE DETAILS WZ(RCD)-13
- 139 *TRAFFIC CONTROL PLAN TYPICAL DETAILS WZ(TD)-17
- 140 *SIGNING FOR UNEVEN LANES WZ (UL)-13

ROADWAY DETAILS

- 141-145 HORIZONTAL ALIGNMENT DATA
- 146-148 SH 146 HORIZONTAL GEOMETRY LAYOUT
- 149-150 FM 1764 HORIZONTAL GEOMETRY LAYOUT
- 151-190 FM 1764 MILL AND ASPHALT OVERLAY LAYOUTS
- 191-197 SH 146 AND FM 1764 CONCRETE PAVEMENT LAYOUT
- 198-249 FM 1764 SIDEWALK LAYOUTS

ROADWAY STANDARDS

- 250 *EDGE LINE RUMBLE STRIPS ON FREEWAYS AND DIVIDED HIGHWAYS RS(1)-23
- 251 *EDGE LINE RUMBLE STRIPS ON UNDIVIDED OR TWO LANE HIGHWAYS RS(2)-23
- 252 *TAPERED EDGE DETAILS TE(HMAC)-11
- 253-254 *CONCRETE PAVEMENT DETAILS CONTRACTION DESIGN CPCD-14
- 255-256 *CONTINUOUSLY REINFORCED CONCRETE PAVEMENT CRCP (1)-23
- 257-258 *CONTINUOUSLY REINFORCED CONCRETE PAVEMENT CRCP (2)-23
- 259-260 *CONTINUOUSLY REINFORCED CONCRETE PAVEMENT HOUSTON SUPPLEMENT CRCP-HS
- 261 *FAST TRACK CONTINUOUSLY REINFORCED CONCRETE PAVEMENT DETAILS CRCP-FT (HOU DIST)
- 262 *CONCRETE PAVEMENT DETAILS JOINT SEALS JS-14
- 263-264 *REPAIR OF CONCRETE PAVEMENT REPCP-14
- 265 *CONCRETE PAVEMENT DETAILS TRANSITION SLAB TRANS-20
- 266-267 *CONCRETE PAVEMENT JUNCTURES CPJ (HOU DIST)
- 268-270 *WIDE FLANGE PAVEMENT TERMINALS WFPT (HOU DIST)
- 271 *MOW STRIP MS (MOD)
- 272 *EMBANKMENT/BACKFILL DETAIL
- 273 *BRIDGE END DETAIL BED-14
- 274 *METAL BEAM GUARD FENCE (DOWNSTREAM ANCHOR TERMINAL) GF(31)DAT-19
- 275 *METAL BEAM GUARD FENCE (MOW STRIP) GF(31)MS-19
- 276-277 *METAL BEAM GUARD FENCE THRUE -BEAM TRANSITION GF(31)TR TL3-20
- 278 *METAL BEAM GUARD FENCE TL-3 MASH COMPLIANT GF(31)-19
- 279 *TRINITY HIGHWAY SOFTSTOP END TERMINAL MASH TL-3 SGT (10S)31-16
- 280 *MAX-TENSION END TERMINAL SGT(11S)31-18
- 281 *SINGLE GUARDRAIL TERMINAL SGT(12S)31-18
- 282 *RETROFIT STANDARD SKT 31" WOOD POST SYSTEM TO MASH MSKT SGT (14W)31-18
- 283 *CONCRETE CURB AND GUTTER CCCG-22
- 284 *BASE REPAIR DETAIL
- 285-287 *DRIVEWAY DETAIL DD (HOU DIST)
- 288 *HOU-U-CURB (HOU DIST)
- 289-297 *MISCELLANEOUS DETAILS
- 298-301 *PEDESTRIAN FACILITIES CURB RAMPS PED-18
- 302-304 *PEDESTRIAN HANDRAIL DETAILS PRD-13
- 305 *MISCELLANEOUS CURB AND SIDEWALK DETAILS
- 306 *TRAFFIC SIGNAL POLE FOUNDATION TS-FD-12

TRAFFIC ITEMS

- 307-350 SIGNING AND PAVEMENT MARKING LAYOUT
- 351 SMALL GUIDE SIGN DETAILS
- 352 LARGE SIGN GUIDE DETAILS

TRAFFIC STANDARDS

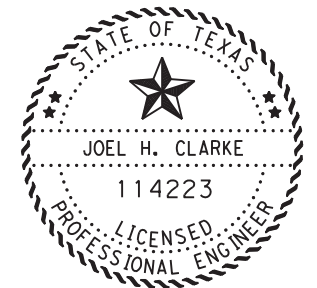
- 353 *TYPICAL STANDARD PAVEMENT MARKINGS PM(1)-22
- 354 *TYPICAL STANDARD PAVEMENT MARKINGS PM(2)-22
- 355 *TYPICAL STANDARD PAVEMENT MARKINGS PM(3)-22
- 356 *TYPICAL STANDARD PAVEMENT MARKINGS PM(4)-22A
- 357 *TYPICAL STANDARD PAVEMENT MARKINGS PM(5)-22
- 358-363 *DELINEATOR & OBJECT MARKER D & OM(1)-20 THRU D & OM(6)-20
- 364 *DELINEATOR & OBJECT MARKER D & OM(VIA)-20
- 365-370 *TYPICAL STANDARD FREEWAY PAVEMENT MARKINGS FPM(1)-22 THRU FPM(6)-22
- 371 *CONTRAST AND SHADOW PAVEMENT MARKINGS CPM(1)-23
- 372 *SIGN MOUNTING DETAILS SMD (GEN)-08
- 373 *SIGN MOUNTING DETAILS SMD (SLIP-1)-08
- 374 *SIGN MOUNTING DETAILS SMD (SLIP-2)-08
- 375 *SIGN MOUNTING DETAILS SMD (SLIP-3)-08
- 376 *SIGN MOUNTING DETAILS SMD (TWT)-08
- 377 *SIGN MOUNTING DETAILS SMD (FRP)-08
- 378 *SIGN MOUNTING DETAILS SMD (2-1)-08
- 379 *SIGN MOUNTING DETAILS SMD (2-2)-08
- 380 *SIGN MOUNTING DETAILS SMD (2-3)-08
- 381 *SIGN MOUNTING DETAILS SMD (2-4)-08
- 382 *SIGN MOUNTING DETAILS SMD (2-6)-01
- 383 *SIGN MOUNTING DETAILS SMD (TY G)-08
- 384 *LARGE ROADSIDE SIGN SUPPORTS SMD (8W1)-08
- 385 *LARGE ROADSIDE SIGN SUPPORTS SMD (8W2)-08
- 386-390 *TYPICAL SIGN REQUIREMENTS TSR(1)-13 THRU TSR(5)-13
- 391-393 *BRIDGE RAILING SIGN MOUNT DETAILS SMD (BR-1)-14 THRU (BR-3)-14

BRIDGES

- 394 DRAINAGE DITCH TYPICAL SECTION
- 395 DRAINAGE DITCH LAYOUT
- 396 *CONCRETE SUPERSTRUCTURE REPAIR DETAILS

ENVIRONMENTAL ISSUES

- 397 SW3P SIDEWALK GENERAL LAYOUT
- 398-399 STORMWATER POLLUTION PREVENTION PLAN (SW3P)
- 400 *TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES EC(1)-16
- 401 *TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES EC(3)-16
- 402 *EROSION CONTROL LOG ECL-12 (HOU DIST)
- 403-405 *TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES EC(9)-16
- 406 ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS EPIC
- 407 *FERTILIZER, SEED, SOD, STRAW, COMPOST AND WATER FSSSCW-15 (HOU DIST)
- 408-409 RAILROAD SCOPE OF WORK



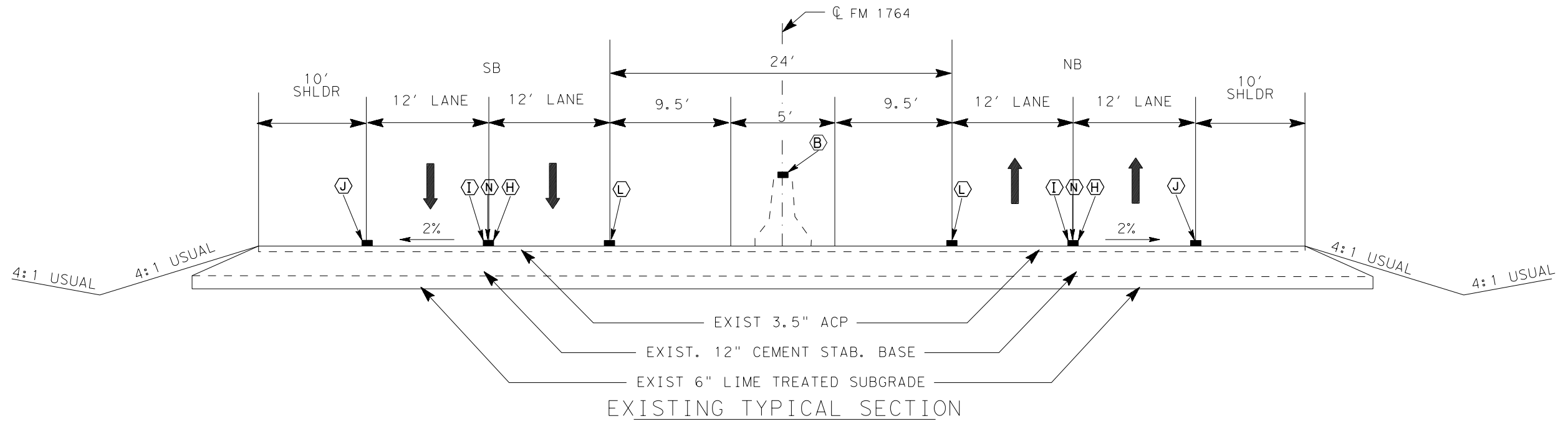
THE STANDARD SHEETS SPECIFICALLY IDENTIFIED WITH A "*" HAVE BEEN ISSUED BY ME AND ARE APPLICABLE TO THIS PROJECT.

Joel H. Clarke 5-25-2024
 NAME DATE



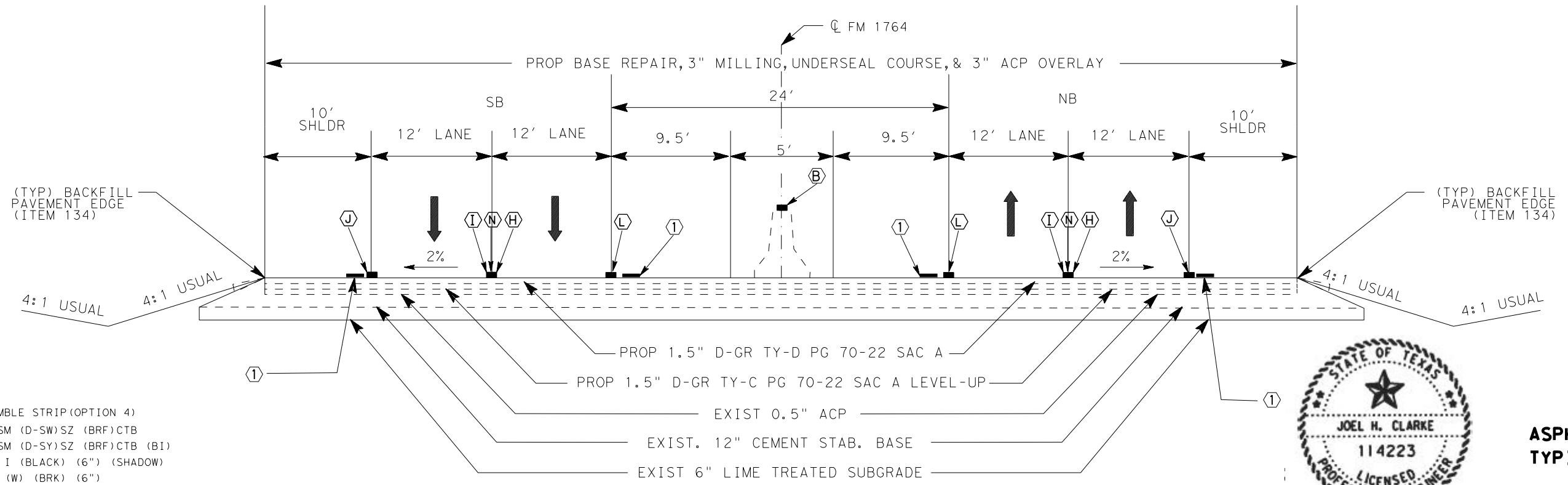
FM 1764 INDEX OF SHEET

© TxDOT	2024	CONT	SECT	JOB	HIGHWAY
		1607	01	057, ETC.	FM 1764
		DIST FEDERAL AID PROJECT NUMBER			
		12			
		COUNTY			SHEET NO.
		GALVESTON			2



EXISTING TYPICAL SECTION

STA 230+92.00 TO 252+17.00
 STA 252+17.00 TO 257+76.00 (BRIDGE; NO ACP)
 STA 257+76.00 TO 282+73.00
 STA 282+73.00 TO 334+57.00 (BRIDGE; NO ACP)
 STA 334+57.00 TO 349+20.00



PROPOSED TYPICAL SECTION

STA 230+92.00 TO 252+17.00
 STA 252+17.00 TO 257+76.00 (BRIDGE; NO ACP)
 STA 257+76.00 TO 282+73.00
 STA 282+73.00 TO 334+57.00 (BRIDGE; NO ACP)
 STA 334+57.00 TO 349+20.00

LEGEND

- ① EDGE LINE RUMBLE STRIP (OPTION 4)
- Ⓐ INSTL DEL ASSM (D-SW)SZ (BRF)CTB
- Ⓑ INSTL DEL ASSM (D-SY)SZ (BRF)CTB (BI)
- Ⓘ RE PV MRK TY I (BLACK) (6") (SHADOW)
- Ⓜ REFL PAV MRK (W) (BRK) (6")
- Ⓝ REFL PAV MRK (W) (SLD) (6")
- Ⓚ REFL PAV MRK (Y) (BRK) (6")
- Ⓛ REFL PAV MRK (Y) (SLD) (6")
- Ⓜ REFL PAV MRKR TYII-A-A
- Ⓝ REFL PAV MRKR TYII-C-R
- Ⓚ REFL PAV MRKR TYI-C
- Ⓛ REFL PAV MRK TY II (Y) 12" (SLD)



Joel H. Clarke

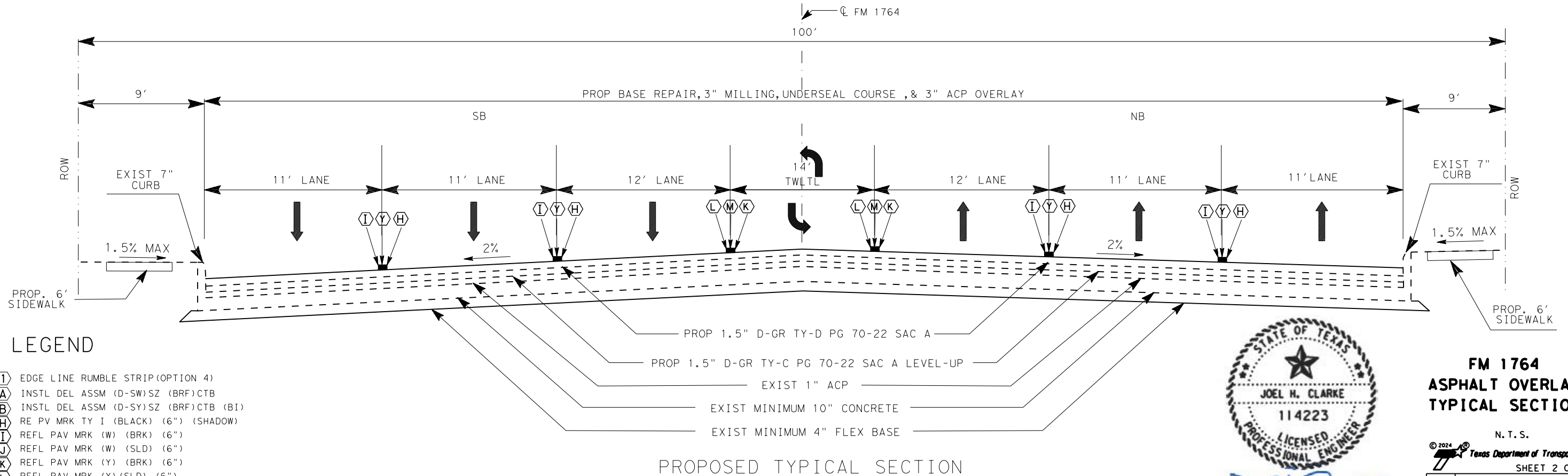
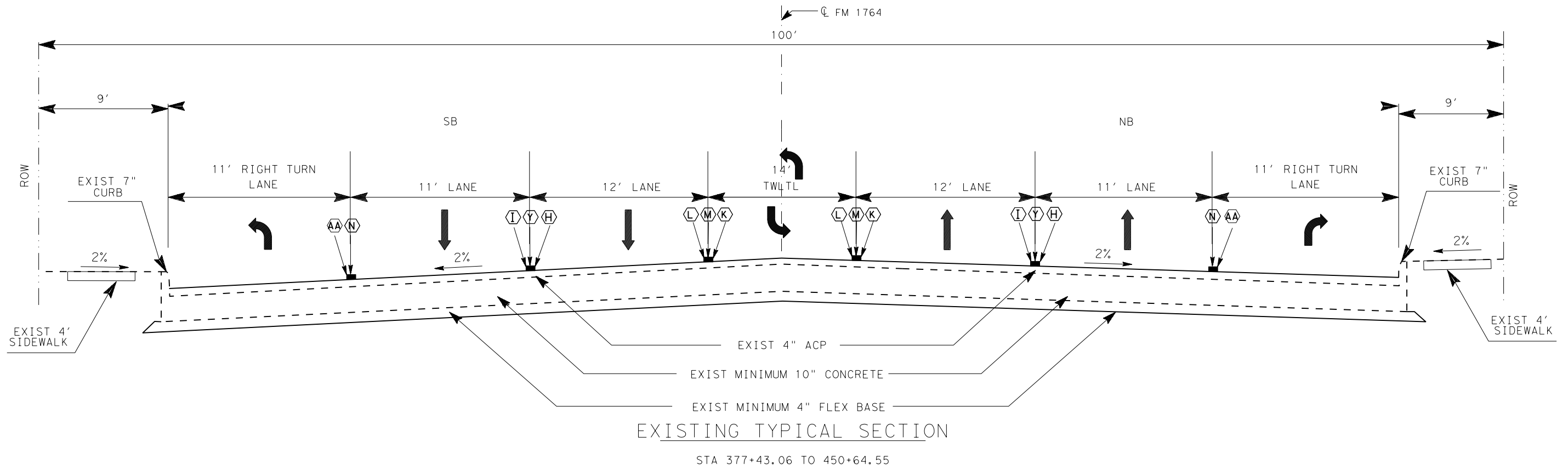
May 24 2024

**FM 1764
 ASPHALT OVERLAY
 TYPICAL SECTION**

N. T. S.

FHWA TEXAS DIVISION		FEDERAL AID PROJECT NO.		SHEET NO.	
TEXAS		HOUSTON		3	
CONTROL SECTION		JOB		HIGHWAY NO.	
1607		01 057		FM 1764	

ETC.



LEGEND

- (I) EDGE LINE RUMBLE STRIP (OPTION 4)
- (A) INSTL DEL ASSM (D-SW) SZ (BRF) CTB
- (B) INSTL DEL ASSM (D-SY) SZ (BRF) CTB (BI)
- (H) RE PV MRK TY I (BLACK) (6") (SHADOW)
- (I) REFL PAV MRK (W) (BRK) (6")
- (J) REFL PAV MRK (W) (SLD) (6")
- (K) REFL PAV MRK (Y) (BRK) (6")
- (L) REFL PAV MRK (Y) (SLD) (6")
- (M) REFL PAV MRKR TYII-A-A
- (N) REFL PAV MRKR TYII-C-R
- (Y) REFL PAV MRKR TYI-C
- (AA) REFL PAV MRK TY I (W) 6" (LNDP)



May 24 2024

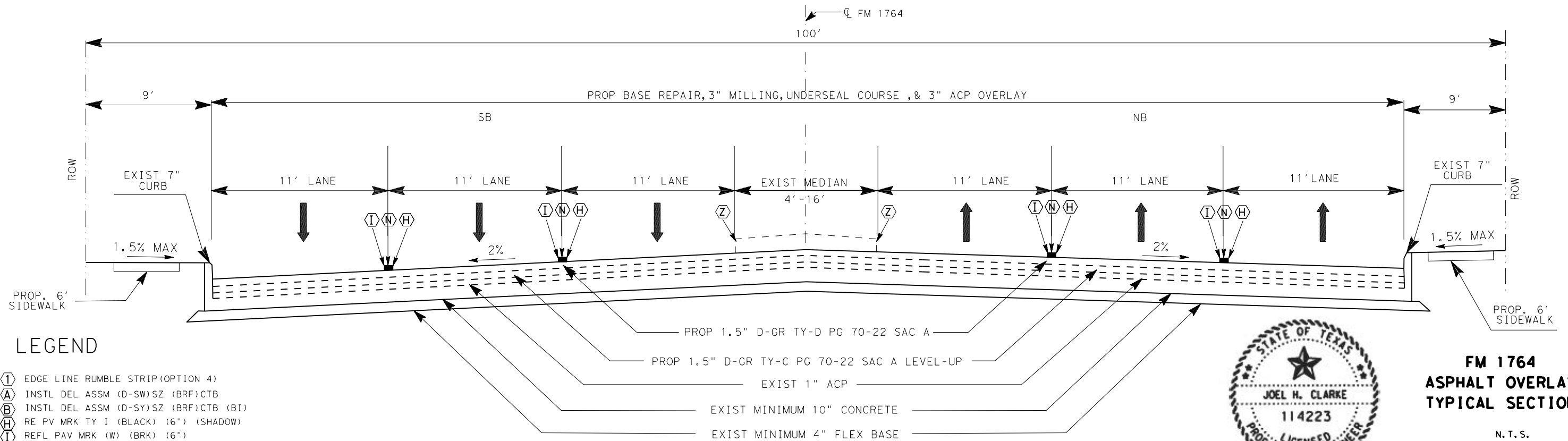
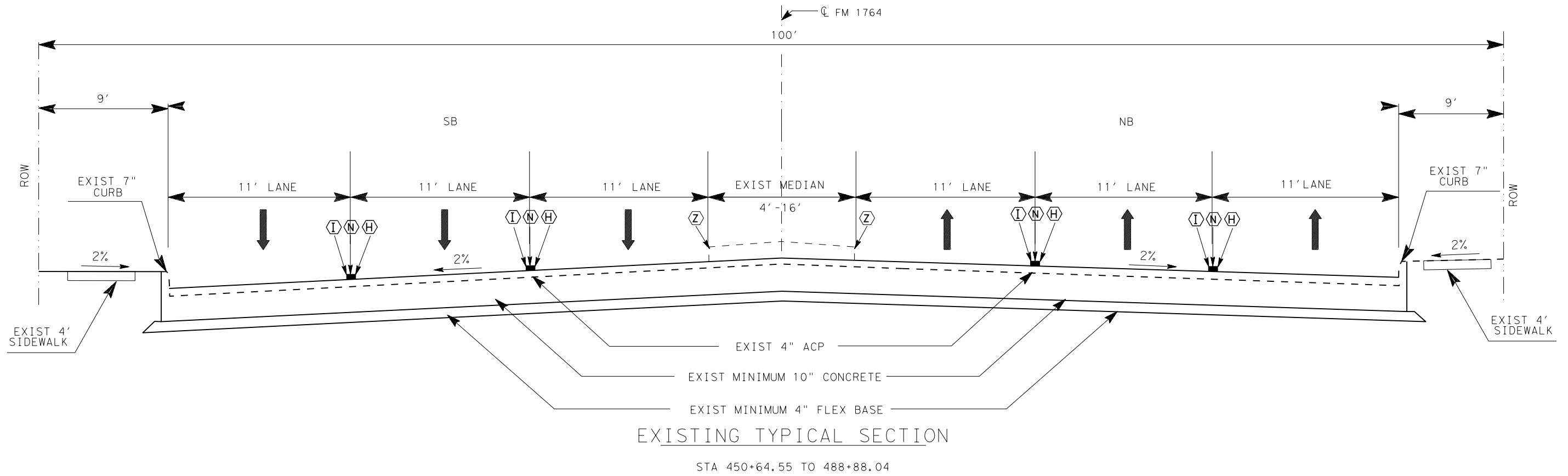
FM 1764
ASPHALT OVERLAY
TYPICAL SECTION

N. T. S.

Texas Department of Transportation			
SHEET 2 OF 3			
FHWA TEXAS DIVISION	FEDERAL AID PROJECT NO.	SHEET NO.	
		4	
STATE	DISTRICT	COUNTY	
TEXAS	HOU	GALVESTON	
CONTROL	SECTION	JOB	HIGHWAY NO.
1607	01	057,	FM 1764

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ETC.



LEGEND

- (I) EDGE LINE RUMBLE STRIP (OPTION 4)
- (A) INSTL DEL ASSM (D-SW)SZ (BRF)CTB
- (B) INSTL DEL ASSM (D-SY)SZ (BRF)CTB (BI)
- (H) RE PV MRK TY I (BLACK) (6") (SHADOW)
- (I) REFL PAV MRK (W) (BRK) (6")
- (L) REFL PAV MRK (W) (SLD) (6")
- (K) REFL PAV MRK (Y) (BRK) (6")
- (L) REFL PAV MRK (Y) (SLD) (6")
- (M) REFL PAV MRKR TYII-A-A
- (N) REFL PAV MRKR TYII-C-R
- (Y) REFL PAV MRKR TYI-C
- (Z) REFL PAV MRK TY II (Y) 12" (SLD)

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Joel H. Clarke

May 24 2024

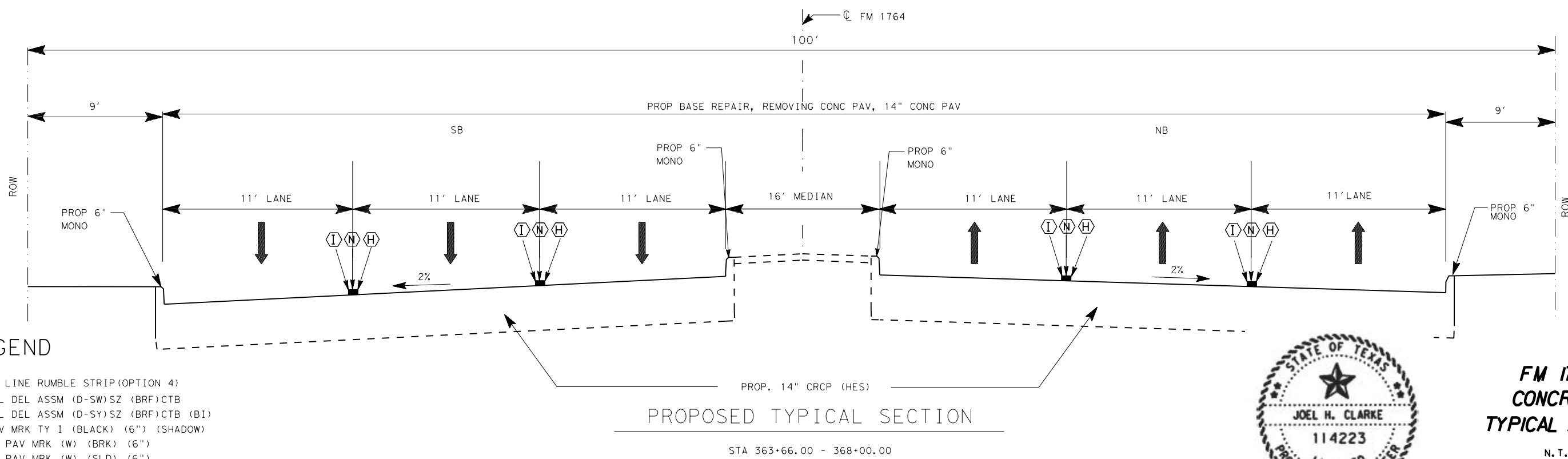
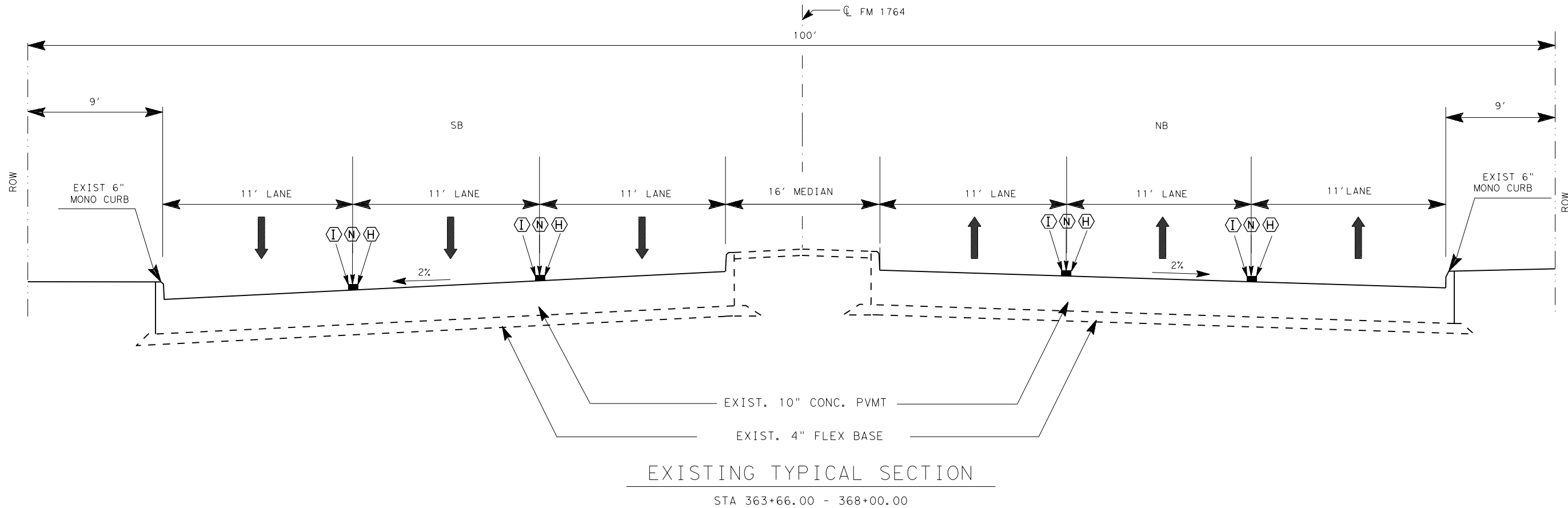
**FM 1764
ASPHALT OVERLAY
TYPICAL SECTION**

N. T. S.

Texas Department of Transportation			
SHEET 3 OF 3			
FHWA TEXAS DIVISION	FEDERAL AID PROJECT NO.	SHEET NO.	
		5	
STATE	DISTRICT	COUNTY	
TEXAS	HOU	GALVESTON	
CONTROL	SECTION	JOB	HIGHWAY NO.
1607	01	057	FM 1764

ETC.

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LEGEND

- (I) EDGE LINE RUMBLE STRIP (OPTION 4)
- (A) INSTL DEL ASSM (D-SW)SZ (BRF)CTB
- (B) INSTL DEL ASSM (D-SY)SZ (BRF)CTB (BI)
- (E) RE PV MRK TY I (BLACK) (6") (SHADOW)
- (F) REFL PAV MRK (W) (BRK) (6")
- (G) REFL PAV MRK (W) (SLD) (6")
- (H) REFL PAV MRK (Y) (BRK) (6")
- (J) REFL PAV MRK (Y) (SLD) (6")
- (M) REFL PAV MRKR TYII-A-A
- (N) REFL PAV MRKR TYII-C-R
- (Y) REFL PAV MRKR TYI-C
- (Z) REFL PAV MRK TY II (Y) 12" (SLD)



May 24 2024

FM 1764
 CONCRETE
 TYPICAL SECTION

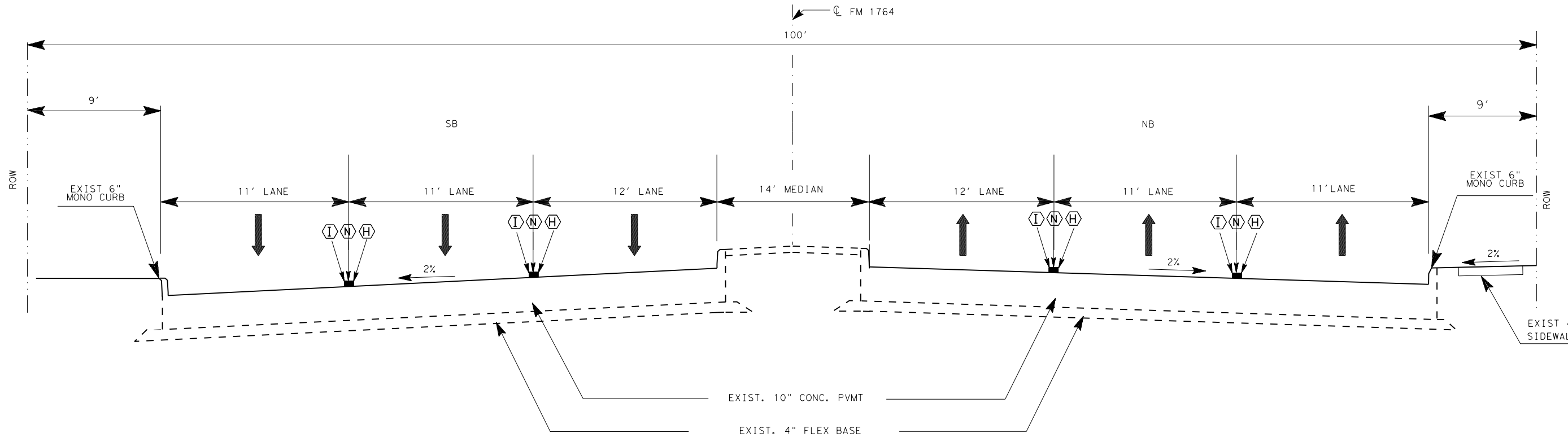
N. T. S.

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STATE	DISTRICT	COUNTY
TEXAS	HOU	GALVESTON
CONTROL SECTION	JOB	HIGHWAY NO.
1607	01	057, ETC. FM 1764

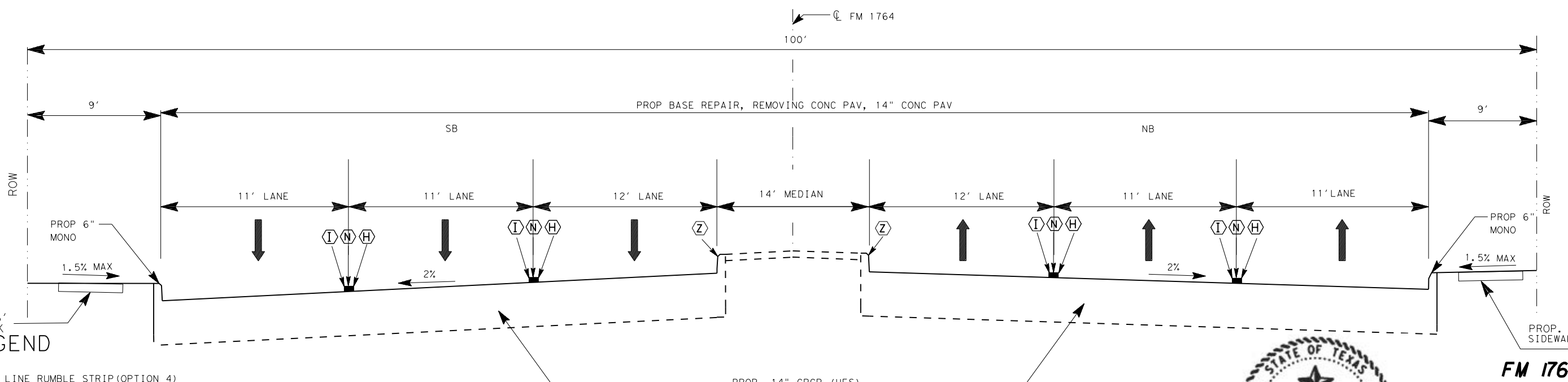
FEDERAL AID PROJECT NO. SHEET NO. 6

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EXISTING TYPICAL SECTION

STA 368+00.00 - 377+43.00



PROPOSED TYPICAL SECTION

STA 368+00.00 - 377+43.00

- LEGEND**
- (I) EDGE LINE RUMBLE STRIP (OPTION 4)
 - (A) INSTL DEL ASSM (D-SW)SZ (BRF)CTB
 - (B) INSTL DEL ASSM (D-SY)SZ (BRF)CTB (BI)
 - (E) RE PV MRK TY I (BLACK) (6") (SHADOW)
 - (F) REFL PAV MRK (W) (BRK) (6")
 - (G) REFL PAV MRK (W) (SLD) (6")
 - (K) REFL PAV MRK (Y) (BRK) (6")
 - (L) REFL PAV MRK (Y) (SLD) (6")
 - (M) REFL PAV MRKR TYII-A-A
 - (N) REFL PAV MRKR TYII-C-R
 - (Y) REFL PAV MRKR TYI-C
 - (Z) REFL PAV MRK TY II (Y) 12" (SLD)



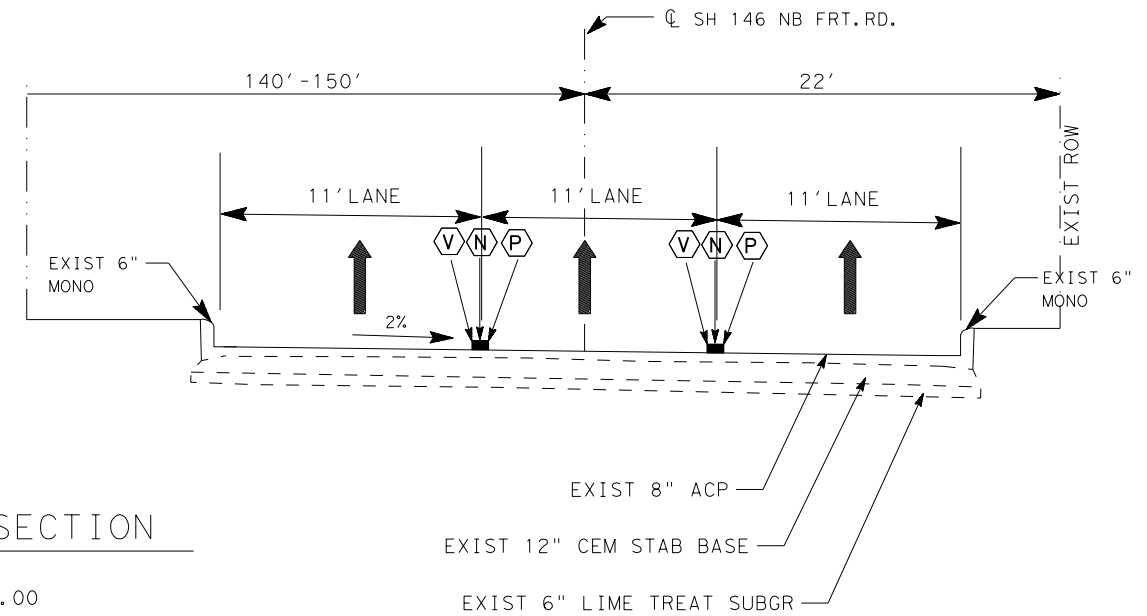
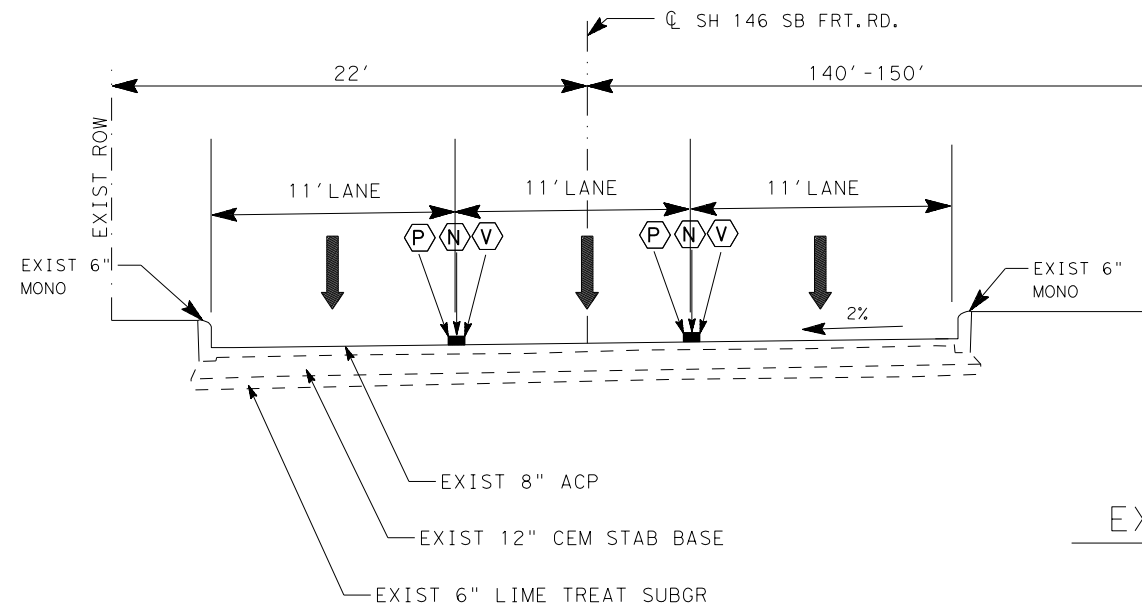
May 24 2024

**FM 1764
 CONCRETE
 TYPICAL SECTION**

N. T. S.

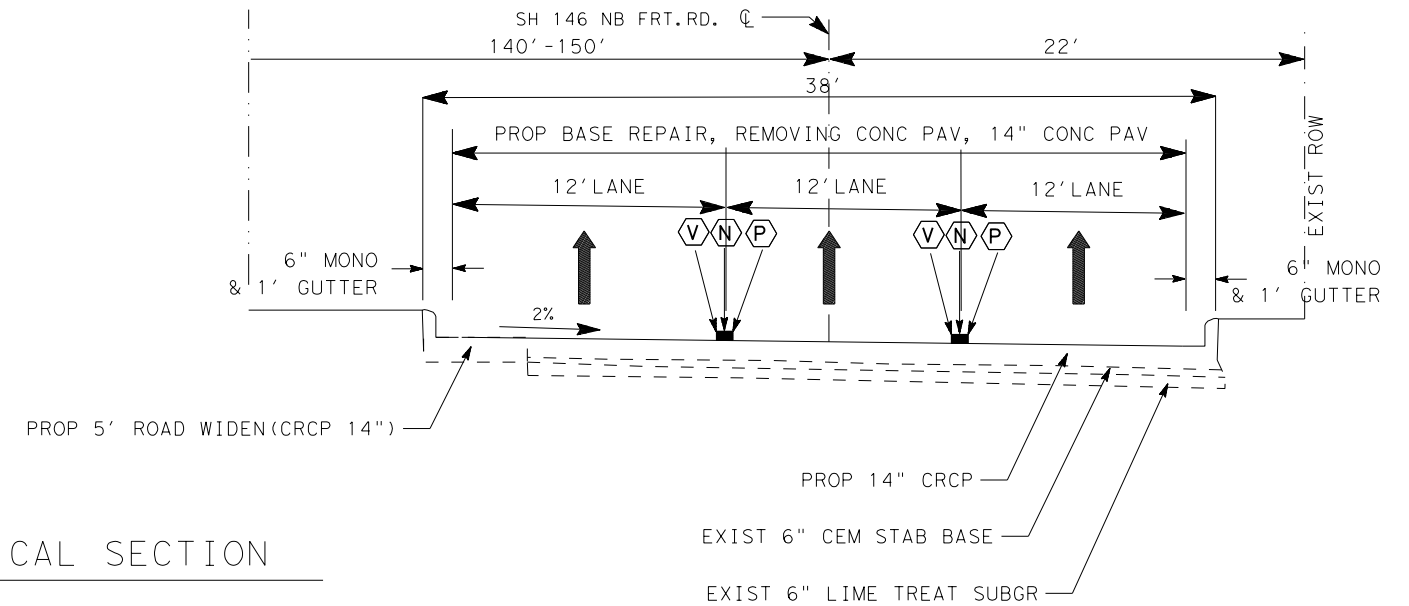
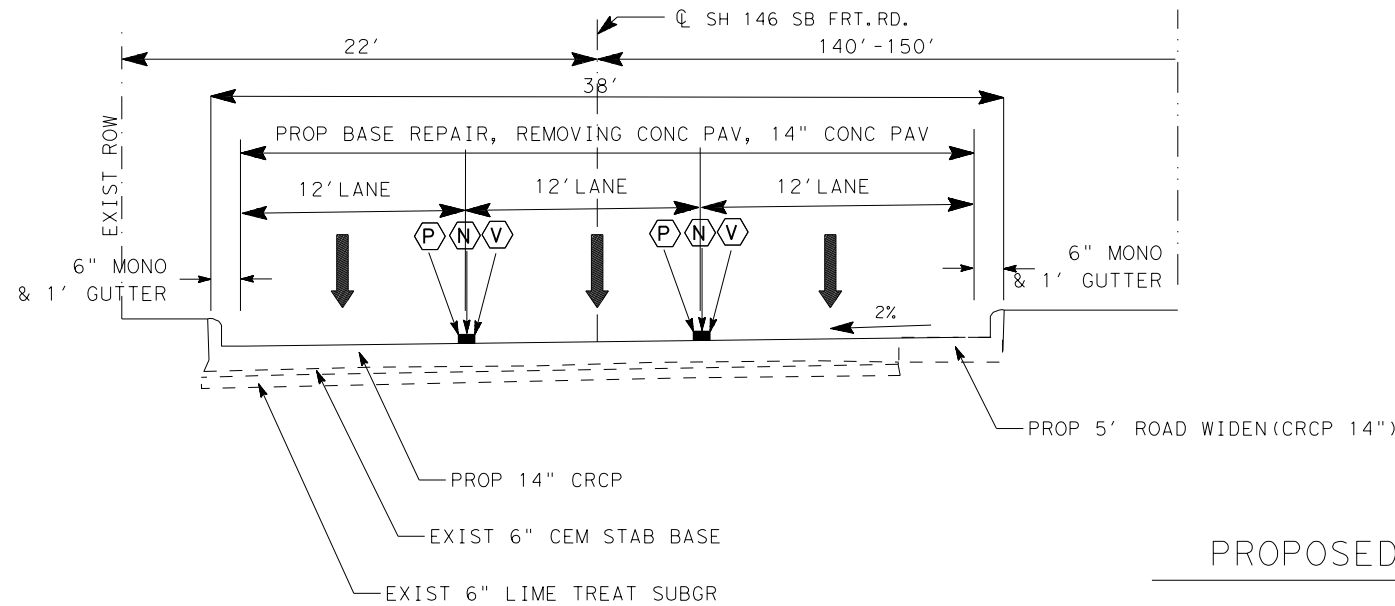
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FEDERAL AID PROJECT NO.		SHEET NO.	
		7	
STATE	DISTRICT	COUNTY	
TEXAS	HOU	GALVESTON	
CONTROL	SECTION	JOB	HIGHWAY NO.
1607	01	057, ETC.	FM 1764



EXISTING TYPICAL SECTION

STA 599+77.00 - 600+50.00



PROPOSED TYPICAL SECTION

STA 599+77.00 - 600+50.00

LEGEND

- (P) MULTIPOLYMER PAV MRK (W) (6") (BRK)
- (V) MULTIPOLYMER PAV MRK (BLK) (6") (BRK)
- (N) REFL PAV MRKR TY11-C-R



Joel H. Clarke

May 24 2024

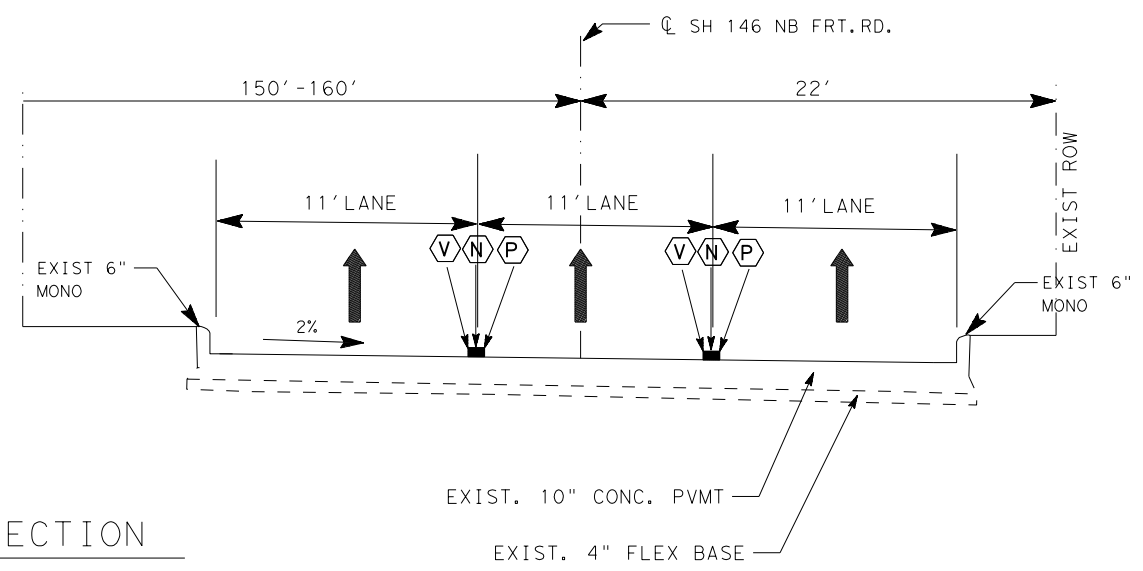
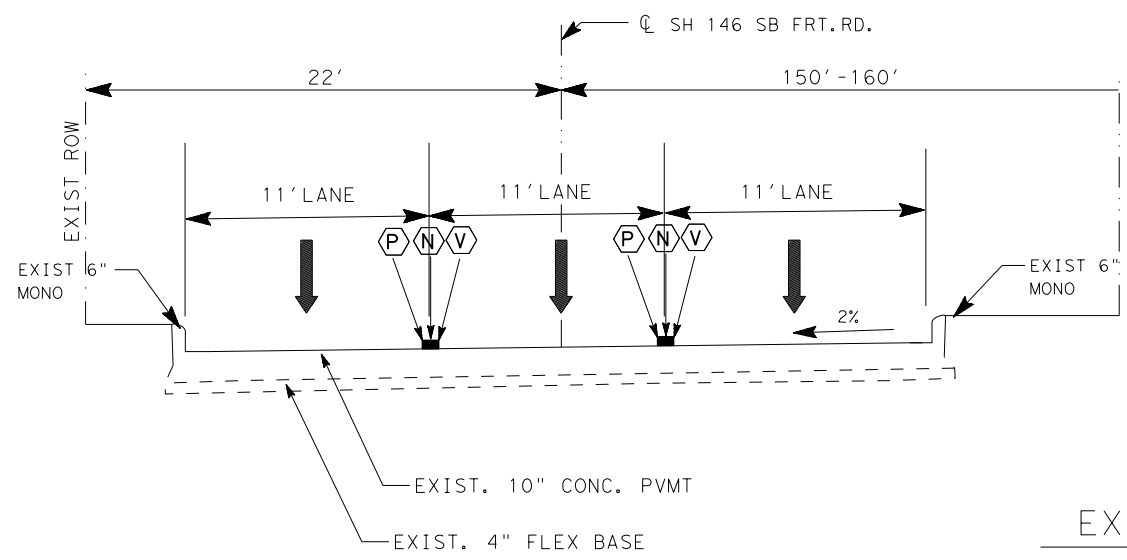
SH 146
CONCRETE
TYPICAL SECTION

N. T. S.

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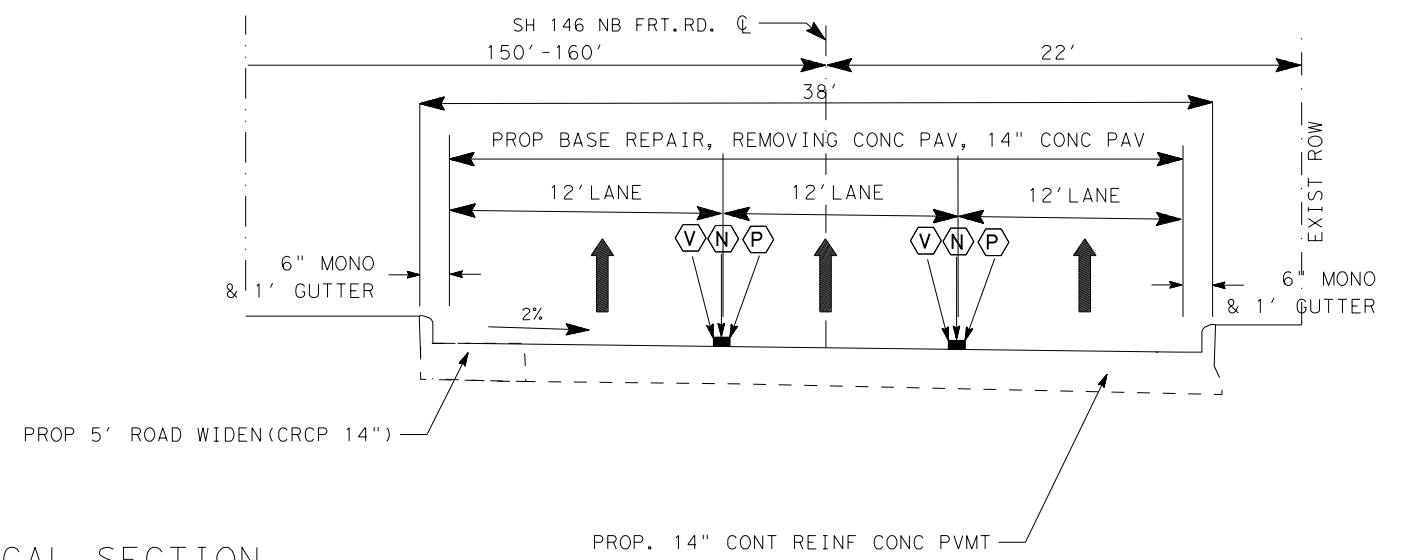
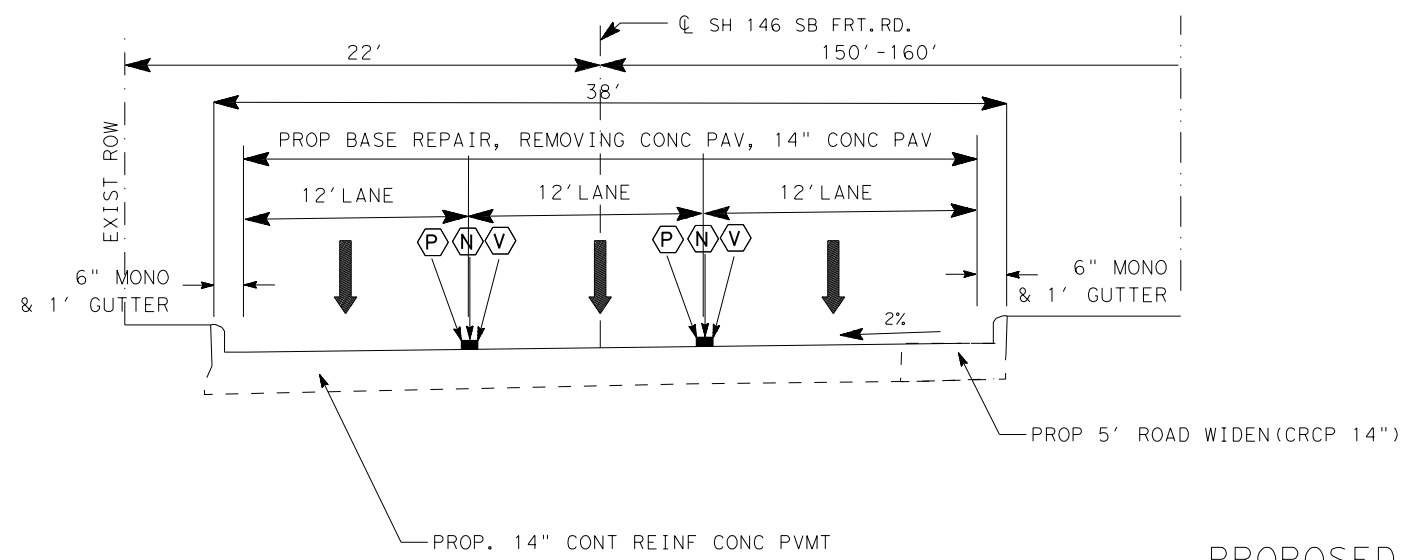
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		8	
STATE	DISTRICT	COUNTY	
TEXAS	HOU	GALVESTON	
CONTROL	SECTION	JOB	HIGHWAY NO.
1607	01	057, ETC.	SH 146

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EXISTING TYPICAL SECTION

STA 600+50.00 - 609+00.00



PROPOSED TYPICAL SECTION

STA 600+50.00 - 609+00.00

LEGEND

- (P) MULTIPOLYMER PAV MRK (W) (6") (BRK)
- (V) MULTIPOLYMER PAV MRK (BLK) (6") (BRK)
- (N) REFL PAV MRKR TY11-C-R



May 24 2024

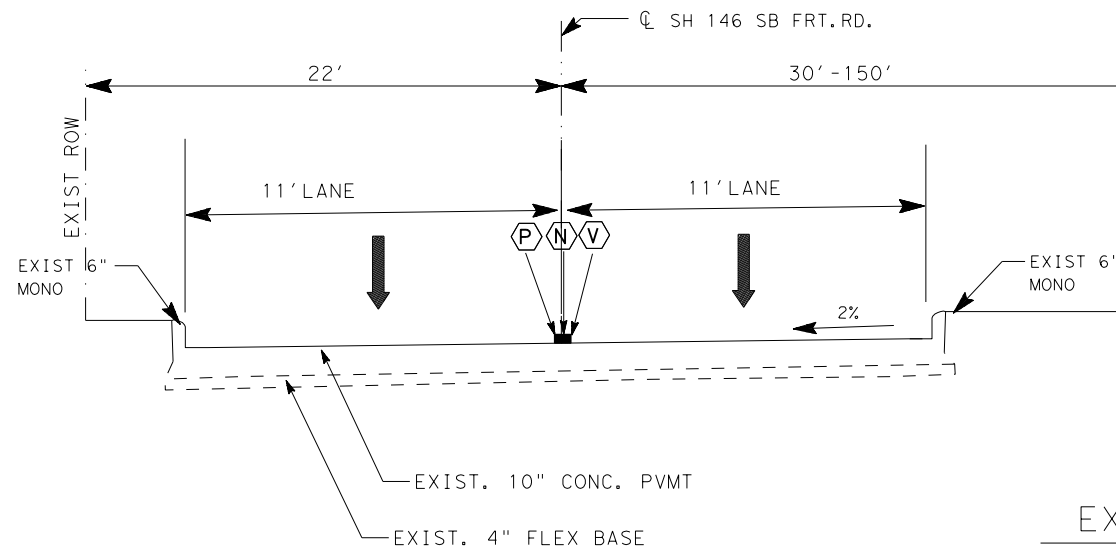
SH 146
CONCRETE
TYPICAL SECTION

N. T. S.

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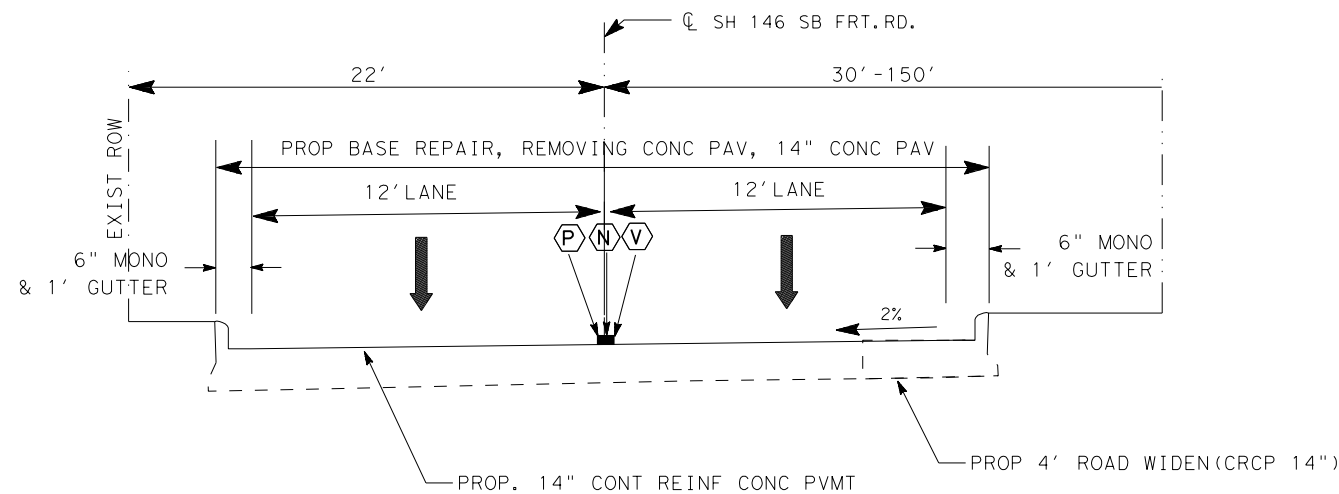
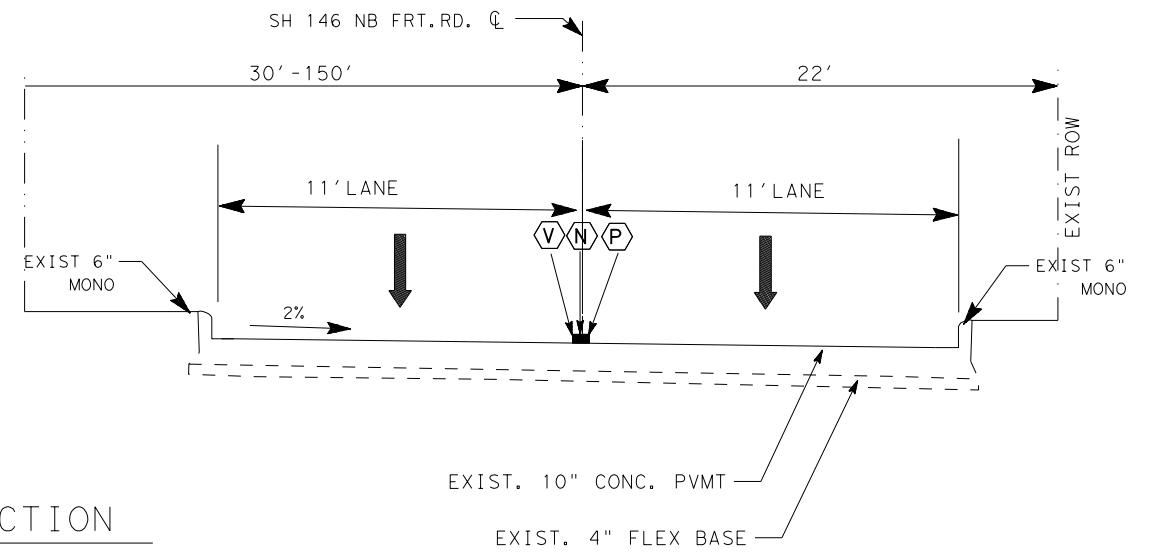
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		9	
STATE	DISTRICT	COUNTY	
TEXAS	HOU	GALVESTON	
CONTROL	SECTION	JOB	HIGHWAY NO.
1607	01	DST, ETC.	SH 146

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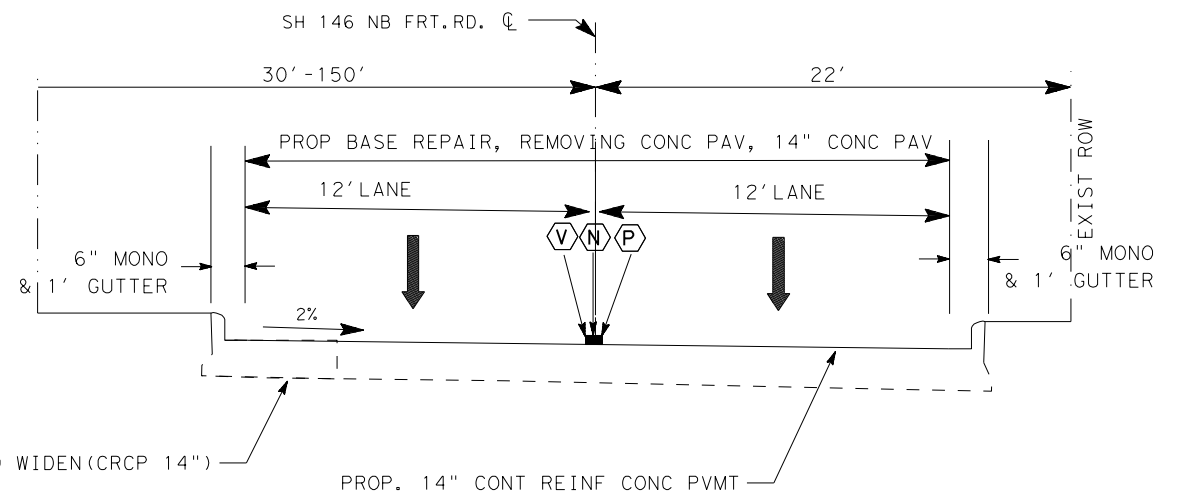
EXISTING TYPICAL SECTION

STA 609+00.00 - 620+31.00



PROPOSED TYPICAL SECTION

STA 609+00.00 - 620+31.00



LEGEND

- (P) MULTIPOLYMER PAV MRK (W) (6") (BRK)
- (V) MULTIPOLYMER PAV MRK (BLK) (6") (BRK)
- (N) REFL PAV MRKR TY11-C-R



May 24 2024

SH 146
CONCRETE
TYPICAL SECTION

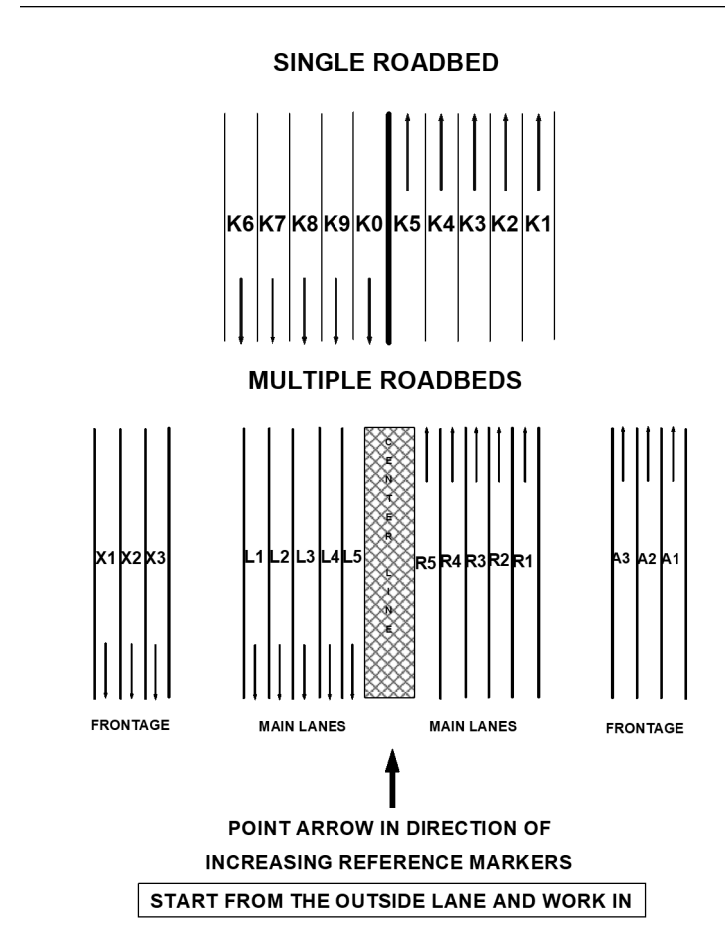
N. T. S.

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FEDERAL AID PROJECT NO.		SHEET NO.	
1607 01		10	
STATE	DISTRICT	COUNTY	
TEXAS	HOU	GALVESTON	
CONTROL	SECTION	JOB	HIGHWAY NO.
1607	01	PST, ETC.	SH 146

INTERNATIONAL ROUGHNESS INDEX DATA

F Y	M S E C	H I G H W A Y	R D B E D	R E F E R E N C E _ M A R K E R S				L E N	P T Y P E	T E S T D I S T	I R I (I N / M I)			C O M M E N T S		
				B E G I N		E N D					M M / D D / Y Y Y Y	L E F T	R I G H T		S I	
2024	03	SH0146	A1	0512	+	0.500	0512	+	0.600	0.1	03	8/18/2023	136	160	2.9	
2024	03	SH0146	A1	0512	+	0.600	0512	+	0.700	0.1	03	8/18/2023	246	259	1.7	
2024	03	SH0146	A1	0512	+	0.700	0512	+	0.800	0.1	03	8/18/2023	164	161	2.7	
2024	03	SH0146	A1	0512	+	0.800	0512	+	0.828	0.1	03	8/18/2023	153	146	2.9	
2024	03	SH0146	X1	0512	+	0.500	0512	+	0.572	0.1	03	8/18/2023	92	171	3.1	
2024	03	SH0146	X1	0512	+	0.572	0512	+	0.672	0.1	03	8/18/2023	126	148	3.1	
2024	03	SH0146	X1	0512	+	0.672	0512	+	0.772	0.1	03	8/18/2023	257	281	1.5	
2024	03	SH0146	X1	0512	+	0.772	0512	+	0.872	0.1	03	8/18/2023	182	179	2.5	




Comment Code Descriptions:

1. Ride data error, speed below 12mph or IRIs > 500
2. Deep rutting data error
3. Rut data error, badcounts exceeded
4. Bridge
5. RMN
6. Railroad crossing
7. Intersection
8. Other
9. Ride/Rut equipment error

Pavement Types

Code	Description
01	Continuously Reinforced Concrete Pavement
02	Jointed Reinforced Concrete Pavement
03	Jointed Plain Concrete Pavement
04	Thick Asphaltic Concrete Pavement (greater than 5-1/2")
05	Intermediate Thickness Asphaltic Concrete Pavement (2-1/2" to 5-1/2")
06	Thin Surfaced Flexible Base Pavement (less than 2-1/2")
07	Asphalt Surfacing with Heavily Stabilized Base
08	Overlaid and/or Widened Old Concrete Pavement
09	Overlaid and/or Widened Old Flexible Pavement
10	Thin Surfaced Flexible Base Pavement (Surface Treatment-Seal Coat Combination)



TEXAS DEPARTMENT OF TRANSPORTATION

INTERNATIONAL ROUGHNESS INDEX
DATA VALUE SHEET
SH 146

SCALE:		SHEET 2 OF 2	
DN: 0	ORIGINAL DATE OF DRAWING:	STATE: 6 TEXAS	PROJECT NO.:
CK DN: 0	REVISIONS:	STATE DIST. NO. HOU	COUNTY GALVESTON
DW: 0		CONTRACT NO. 1607	SECTION NO. 01
CK DW: 0		JOB NO. 057	SHEET NO. 12
TR: 0			
CK TR: 0			

* FOR CONTRACTOR INFORMATION ONLY (NON-PAY ITEM)

County: Galveston

Highway: FM 1764

General Notes:

General:

Area Engineer contact information for this project follows:

Area Engineer David R Lazaro, P.E. David.Lazaro@txdot.gov Phone: 409-978-2505

Assistant Area Engineer Joel H Clarke, P.E. Joel.Clarke@txdot.gov Phone: 409-978-2502

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

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

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

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

[Index of /pub/txdot-info/Pre-Letting Responses/Houston District \(state.tx.us\)](https://pub.txdot-info/Pre-Letting%20Responses/Houston%20District) or

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

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.

Modified Standards

MOW STRIP MS (MOD)

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.

County: Galveston

Highway: FM 1764

Sheet 13

Control: 1607-01-057, ETC.

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.

Stencil the National Bridge Inventory (NBI) number on each existing bridge shown on these plans. The NBI number is shown above the title block for each bridge layout.

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.

Right of way parcels or utility adjustments shown to be unclear on the plans but not listed on the special provisions will have no effect on construction.

Make requests for additional soil information for this project at the Area Engineer's office.

Any groundwater elevation information provided is representative of conditions existing on the day when and for the specific location where this information was collected. The actual groundwater elevation may fluctuate with time, climatic conditions, and construction activity.

Unless otherwise shown on the plans or otherwise directed, commence work after sunrise and ensure construction equipment is off the road by sunset.

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

General: Roadway Illumination and Electrical

For roadway illumination and electrical items, use materials from pre-qualified producers as shown on the Construction Division (CST) of the Department's material producers list. Check the latest link on the Department's website for this list. The category/item is "Roadway Illumination and Electrical Supplies." No substitutions will be allowed for materials found on this list.

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

General: Traffic Signals

For traffic signal items, use materials from the Pre-Qualified Producers List (located at <http://www.dot.state.tx.us/GSD/purchasing/supps.htm>) and the materials pre-qualified for illumination and electrical items (located at <https://ftp.dot.state.tx.us/pub/txdot-info/cmd/mpl/archive/>) as shown on the Department’s Material Producers List and the Roadway Illumination and Electrical Supplies List. Check the latest links on the Department’s website for these lists. No substitutions will be allowed for materials found on these lists.

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.

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

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

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

Tricycle Type

Wayne Series 900
Elgin White Wing
Elgin Pelican

Truck Type - 4 Wheel

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

General: 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.

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.

When work affects access to signed transit stops, the contractor shall notify Gulf Coast Transit District (GCTA) 60 days prior to the start of work at that location(s). GCTA will set up temporary bus signs for the duration of work at that location(s). When work is complete, notify GCTA of the completion of work and request removal of temporary bus signs.

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.

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

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

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

Submit shop drawings electronically for the fabrication of items as documented in Table 1 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, https://ftp.txdot.gov/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.

Key to Reviewing Party

A - Area Office	
Area Office	Email Address
Galveston Area Office	HOU-GALVASHpDrwgs@txdot.gov
Traffic Systems Construction Office	HOU-TSCShpDrwgs@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

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)
400	Excavation and Backfill for Structures (cofferdams)	Y	N	Y	A	WD
420	Formwork/Falsework	Y	N	Y	A	WD
450	Railing	Y	Y	N	A	SD
465	Pre-cast Junction Boxes, Grates, and Inlets	Y	Y	N	A	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
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
687	Pedestal Pole Assemblies	Y	Y	N	T	SD
688	Detectors	Y	Y	N	A	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.

When a precast or cast-in-place concrete element is included in the plans, a precast concrete alternate may be submitted in accordance with “Standard Operating Procedure for Alternate Precast Proposal Submission” found online at <https://www.txdot.gov/inside-txdot/forms-publications/consultants-contractors/publications/bridge.html#design>. Acceptance or denial of an alternate is at the sole discretion of the Engineer. Impacts to the project schedule and any additional costs resulting from the use of alternates are the sole responsibility of the Contractor.

Item 6: Control of Materials

To comply with the latest provisions of the Build America, Buy America Act (BABA Act) of the Bipartisan Infrastructure Law, the Contractor must submit a original of the TxDOT Construction Material Buy America Certification Form for items classified as construction materials. This form is not required for materials classified as a manufactured product.

Refer to the Buy America Material Classification Sheet for clarification on material categorization.

The Buy America Material Classification Sheet is located at the below link.

<https://www.txdot.gov/business/resources/materials/buy-america-material-classification-sheet.html> for clarification on material categorization.

Item 7: Legal Relations and Responsibilities

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.

The total area disturbed for this project is 3.698 acres. The disturbed area in this project, the project locations in the Contract, and Contractor project specific locations (PSLs) within 1 mile of the project limits for the Contract, will further establish the authorization requirements for storm water discharges. The Department will obtain an authorization to discharge storm water from the Texas Commission on Environmental Quality (TCEQ) for the construction activities shown on the plans. The Contractor is to obtain required authorization from the TCEQ for Contractor PSLs for construction support activities on or off the ROW. When the total area disturbed in the Contract and PSLs within 1 mile of the project limits exceeds 5 acres, provide a copy of the Contractor NOI for PSLs on the ROW to the Engineer (to the appropriate MS4 operator when on an off-state system route) and to the local government that operates a separate storm drain system.

Before bidding on this project, obtain a copy of the complete U.S. Army Corps of Engineers Nationwide Permit Number 14 at the Area Engineer's office. Review the permit before bidding on the project and become aware of its conditions.

Place erosion control measures around the perimeter of impacted wetlands as shown in the above-mentioned U.S. Army Corps of Engineers Nationwide permits. During staging and construction operations, equipment is not allowed in the Waters of the United States.

Do not place temporary fill in areas determined to be wetlands. This prohibition includes constructing staging areas, temporary fills or other actions that would result in placing fill in wetlands within the right of way, which are not addressed in the plans. The Engineer will coordinate with the Houston District Environmental Section to determine if wetlands are present on this project before placing temporary fill. If wetlands exist, obtain the appropriate permits from the U.S. Army Corps of Engineers.

Avoid encroaching into the unnamed tributary of Moses Lake between 34th and 33rd St (STA. 386+25.00 to 388+51.00) and Sting Creek (STA. 469+00 to 470+00). Place erosion control measures around the wetlands as shown on the plans. No construction work or construction equipment is permitted within this delineated area. If applicable for bridge construction, construct drilled shafts outside of this delineated area. Secure approval for the locations of field offices, material storage sites, material disposal sites, plants, borrow pits, etc. in writing before use to ensure that the proposed location is not within Jurisdictional Waters of the United States (wetlands).

Do not store any material in Waters of the United States inside the right of way without written approval.

Before construction operations begin, provide a drawing of the location of proposed temporary access roads, haul roads, or temporary fill used during construction operations to ensure that they are not within Jurisdictional Waters of the United States.

If the Contractor elects to use an area not permitted and determined to be within Jurisdictional Waters of the United States during the prosecution of the work, the Contractor will hold the Department harmless for delays caused by procuring the necessary permits from the United States Army Corps of Engineers.

This project requires Nationwide permit with environmental resource agencies. There is a high probability of encountering environmentally sensitive areas on Contractor designated project specific locations (PSLs) for this project (haul roads, equipment staging areas, borrow pits, disposal sites, field

offices, storage areas, parking areas, etc.). This Item provides listings of regulatory agencies the Contractor may need to contact for this project. A Section 404 Nationwide Permit 14 (Linear Transportation Projects) from the United States Army Corps of Engineers (USACE), Galveston District, is required for the spill repair at the unnamed tidal stream tributary of Moses Lake crossing FM 1764 between 34th and 33rd Street (STA. 386+25.00 to 388+51.00). Do not initiate construction activities within this stream until the U.S. Army Corps of Engineers permit has been obtained.

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

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.

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

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

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

No significant traffic generator events have been identified.

Item 8: Prosecution and Progress

The road-user cost liquidated damages are \$ 3421.00 per day. After the project is substantially complete, the liquidated damages become those based on contract administration costs.

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

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

The Lane Closure Assessment Fee is \$ 529.26. 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." The time increment for the Lane Closure Assessment fee for this project is one hour.

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 104: Removing Concrete

Removing concrete curb is paid as a separate bid item if the existing pavement on which it rests is not removed at the same time.

Item 105: Removing Treated and Untreated Base and Asphalt Pavement

Removing curb on cement-treated and untreated base or on cement treatment being removed at the same time is subsidiary to this bid Item.

Obtain a secured site for the stockpile of the treated material to be salvaged from this project. Haul and stockpile the unused material as directed. This work is subsidiary to this bid Item.

County: Galveston

Highway: FM 1764

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.

The total excavation quantity shown on the plans includes the quantity for excavating to 2 ft. behind the back of the proposed curb.

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. Furnish material with a maximum Liquid Limit (LL) of 65.

Item 134: Backfilling Pavement Edges

Quantity by station includes both sides of the roadway.

The Contractor has the option of selecting the type of backfill material consisting of Reclaimable Asphalt Pavement (RAP), Flex Base, or Crushed Concrete provided that it meets the requirements listed below.

For Permeable Friction Courses (PFC), the backfill material chosen must meet the requirements of Department Test Method Tex-246-F.

If using salvaged asphalt concrete pavement, size it so that all the material, passes the 2-in. sieve. Use RAP that does not contain deleterious material such as clay or organic material.

Flex Base must meet the requirements of Item 247, Type A, Grade 1-2. Department Test Method Tex-117-E will not be required.

Crushed concrete must meet the requirements of Item 247, Grade 1-2. Department Test Methods Tex-116-E and Tex-117-E will not be required.

County: Galveston

Sheet 13E

Highway: FM 1764

Control: 1607-01-057, ETC.

Place emulsified asphalt (SS-1, CSS-1, or CSS-1H) at an application rate of 0.25 gal/sq. yard.

Item 156: Bulldozer Work

Perform bulldozer work to grade or make repairs to slopes to control erosion if such work is not within the scope of other contract requirements.

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 3076: Dense-Graded Hot Mix Asphalt

Unless otherwise shown on the plans, RAP generated by this project will become the property of the Contractor for use in the current construction project or in future projects.

Item 292: Asphalt Treatment (Plant-Mixed)

If using the iron ore topsoil as the primary aggregate, meaning 80 percent or more by weight of the total mixture, the requirements for the water susceptibility test are waived.

Mixtures containing the iron ore topsoil are exempted from test methods TEX-217-F (Part I, separation of deleterious material and Part II, decantation test for coarse aggregate) and TEX-203-F (Sand Equivalent Test).

Assume responsibility for proportioning the materials entering the asphalt mixture, regardless of the type of plant used.

Furnish the mix designs for approval.

Compact the courses to a minimum density of 95 percent of the maximum density as determined using test method TEX-126-E.

Item 316: Seal Coat

The Department will furnish the material under this Item at locations shown on the plans.

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

AC-20 XP	AC-15P	AC-10-2TR
AC-20-5TR	AC-20-5TR	AC-10 w/2% SBR
	AC-20-XP	AC-15P
	AC-10-2TR	

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 360: Concrete Pavement

Where the pavement curb is left off for a later tie, provide the dowels or the tie bars as indicated on the paving detail sheets. The dowel bars and tie bars are subsidiary to the various bid items.

Repair portions of the concrete pavement surfaces that are damaged while in a plastic state before that area receives permanent pavement markings and opens to traffic. Perform repairs that are structurally equivalent to and cosmetically uniform with the adjacent undamaged areas. Do not repair by grouting onto the surface.

On pavement widening, hand finishing in place of the longitudinal float will be permitted.

Where existing pavement is widened with new pavement, place the new pavement a minimum of 2 ft. wide.

Equip the batching plants to proportion by weight, aggregates and bulk cement, using approved proportioning devices and approved automatic scales.

For mono curb, the curb height transitions will be paid at the contract unit price of the larger curb height in the transition. The 2.5-in. laydown curbs for driveways will be paid at the unit price bid for the Item, "Conc Curb (Mono) (Ty II)."

High-early strength cement may be used for frontage road and city street intersection construction.

Do not use limestone dust of fracture as fine aggregate.

If the concrete design requires greater than 5.5 sacks of cementitious material per cubic yard, obtain written approval. If placing concrete pavement mixes from April 1 to October 31, inclusive, use Mix Design Option 1 as specified in Section 421.4.2.6.1.

Perform saw cutting as shown on the plans in accordance with Section 360.4.10, "Sawing Joints." This saw cutting is subsidiary to this bid Item.

Unless otherwise directed in writing, provide Class HES concrete with a minimum average flexural strength of 425 psi or a minimum average compressive strength of 3,000 psi in 16 hours.

When directed in writing, open the pavement to traffic before the minimum requirements have been attained.

When needed, place and remove forms in accordance with Section 360.4.5, except do not remove forms until at least 6 hours after concrete has been placed. The time for the form removal may be extended with the direction of the Engineer if weather or other conditions make it advisable.

Sprinkling and rolling, required for the compaction of the rough subgrade in advance of fine grading are subsidiary to this Item. Maintenance of a moist condition of the subgrade in advance of fine-grading and concrete is subsidiary work, as provided above.

Items 360, 420, and 421: All Concrete Items

For the Department's concrete cylinder split samples, transport the test cylinders to the Houston District Laboratory located at 7600 Washington Avenue in Houston, or to the appropriate Area Laboratory, when applicable. Transporting the test cylinders is subsidiary to the various bid items.

The approach pavement is paid for under the Item, "Concrete Pavement."

Item 361: Repair of Concrete Pavement

For full depth repair, remove only the quantity of pavement replaceable during the daily allowable work schedule.

Remove loose sub-base material and replace it with concrete. Use a bondbreaker, such as a polyethylene sheet, at the interface between the replaced sub-base material and the new concrete pavement.

Supply polyethylene fabric on the job site sufficient to cover the area of repair.

Do not place concrete if impending weather may result in rainfall or low temperatures that may impair the quality of the finished work.

Repair portions of the concrete pavement surfaces that are damaged while in a plastic state before those areas receive permanent pavement markings and open to traffic. Perform repairs that are structurally equivalent to and cosmetically uniform with adjacent undamaged areas. Do not repair by grouting onto the surface.

Ready mix concrete will be permitted if the equipment and construction methods can produce the desired results. Hand finishing will be permitted.

Perform saw cutting as shown on the plans in accordance with Section 360.4.10, "Sawing Joints." This saw cutting is subsidiary to this bid Item.

Item 400: Excavation and Backfill for Structures

Plugging existing pipe culverts is subsidiary to the various bid items.

If Recycled Cement Treatment (Type D) is included in the plans, the following additional requirements apply:

1. Use only approved sand, crushed concrete, or salvaged base free from deleterious matter, as aggregate for cement-stabilized backfill.
2. Provide crushed concrete or salvaged base backfill material in accordance with the Item, "Cement Treatment (Plant-Mixed) (Type D)" (base or crushed concrete), except the recycled Type D material must not contain Reclaimed Asphalt Pavement (RAP).
3. For backfill material below the spring line of pipes, use cement-stabilized sand rather than Recycled Type D backfill material.
4. For the cement-stabilized sand backfill, use a minimum of 7 percent of hydraulic cement based on the dry weight of backfill material. The cement content for the crushed concrete and salvaged base is specified in the Item, "Cement Treatment (Plant-Mixed) (Type D)."
5. Place and compact the stabilized backfill material using a gradation that provides a dense mass without segregating and is impervious to passing of water.

Item 416: Drilled Shaft Foundations

Include the cost for furnishing and installing anchor bolts mounted in the drilled shafts in the unit bid price for the various diameter drilled shafts.

The Department may test using ultrasonic methods the anchor bolts for overhead sign supports, light standards, and traffic signal poles after they are installed. Replace faulty anchor bolts as directed. Do not weld the anchor bolts.

Item 420: Concrete Substructures

Unless otherwise noted, use Class C concrete with an ordinary surface finish for signal, lighting, or sign structure foundations.

Item 432: Riprap

If stone riprap is shown on the plans, use common stone riprap in accordance with Section 432.2.3.3, placed dry in accordance with Section 432.3.2.3. Do not grout. Crushed concrete may also be used.

Item 465: Junction Boxes, Manholes, and Inlets

If required on the plans, build manholes and inlets to stage 1 construction, cover with temporary pavement, and complete in a later phase of construction. This temporary covering and pavement are subsidiary to the various bid items.

Construct manholes and inlets in graded areas, first to an elevation at least 4 in. above the top of the highest entering pipe and cover with a wooden cover. Complete the construction of such manholes and inlets to the finished elevation when completing the grading work for such manholes and inlets. Adjust the final elevation, if required, since this elevation is approximate.

Construct manholes and inlets in paved areas to an elevation so their temporary wooden covers are flush with the surface of the base material.

Do not leave excavations or trenches open overnight.

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."

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

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.

Coordinate and schedule the work with the appropriate Metro representative if requiring access to the High Occupancy Vehicle lanes.

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	9:00 AM - 4:00PM	9:00 PM - 5:00 AM	4:00 PM – 9:00 PM 5:00 AM – 9:00 AM
Tuesday	9:00 AM - 4:00PM	9:00 PM - 5:00 AM	4:00 PM – 9:00 PM 5:00 AM – 9:00 AM
Wednesday	9:00 AM - 4:00PM	9:00 PM - 5:00 AM	4:00 PM – 9:00 PM 5:00 AM – 9:00 AM
Thursday	9:00 AM - 4:00PM	9:00 PM - 5:00 AM	4:00 PM – 9:00 PM 5:00 AM – 9:00 AM
Friday	9:00 AM - 4:00PM	9:00 PM - 5:00 AM	4:00 PM – 9:00 PM 5:00 AM – 9:00 AM
Saturday	N/A	N/A	N/A
Sunday	N/A	N/A	N/A

Two Lane Closure

Day	Daytime Closure Hours	Nighttime Closure Hours	Restricted Hours Subject to Lane Assessment Fee
Monday	9:00 AM - 4:00PM	9:00 PM - 5:00 AM	4:00 PM – 9:00 PM 5:00 AM – 9:00 AM
Tuesday	9:00 AM - 4:00PM	9:00 PM - 5:00 AM	4:00 PM – 9:00 PM 5:00 AM – 9:00 AM
Wednesday	9:00 AM - 4:00PM	9:00 PM - 5:00 AM	4:00 PM – 9:00 PM 5:00 AM – 9:00 AM
Thursday	9:00 AM - 4:00PM	9:00 PM - 5:00 AM	4:00 PM – 9:00 PM 5:00 AM – 9:00 AM

Day	Daytime Closure Hours	Nighttime Closure Hours	Restricted Hours Subject to Lane Assessment Fee
Friday	9:00 AM - 4:00PM	9:00 PM - 5:00 AM	4:00 PM – 9:00 PM 5:00 AM – 9:00 AM
Saturday	N/A	N/A	N/A
Sunday	N/A	N/A	N/A

FM 1764 Intersection/SH 146 Bridge & Ramp Closure

Day	Daytime Closure Hours	Nighttime Closure Hours	Restricted Hours Subject to Lane Assessment Fee
Monday*	N/A	12:00 AM – 5:00 AM	5:00 AM – 11:59 PM
Tuesday	N/A	N/A	12:00 AM – 11:59 PM
Wednesday	N/A	N/A	12:00 AM – 11:59 PM
Thursday	N/A	N/A	12:00 AM – 11:59 PM
Friday*	N/A	9:00 PM – 11:59 PM	12:00 AM – 9:00 PM
Saturday*	5:00 AM – 7:59 PM	12:00 AM – 5:00 AM 8:00 PM – 11:59 PM	N/A
Sunday*	5:00 AM – 7:59 PM	12:00 AM – 5:00 AM 8:00 PM – 11:59 PM	N/A

***Require written approval by the Engineer**

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

Law enforcement assistance will be required for this project and is expected to be required for major traffic control changes and lane closures. Coordinate with local law enforcement and arrange for law enforcement as directed or agreed by the Engineer. Before payment will be made, complete the “Daily Report on Law Enforcement Force Account Work” (Form 318), provided by the Department and submit daily invoices that agree with this form for any day during the month in which approved services were provided.

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

A minimum of 7 days in advance of any total closure, notify the Houston District Public Information Office of which roadways, ramps, intersections, or lanes will be closed, the dates they will remain closed, and when they will be opened again to traffic.

A minimum of 7 days in advance of any total closure, place a portable changeable message (PCM) sign at the location of each total closure which informs the traveling public of the details of the closure. Alternately, if the Traffic Control Plan provides a positive barrier at the location, a non-trailer mounted static message board sign behind the positive barrier may be used in place of a PCM.

Minimize the number of working days for street closures. The following table lists the maximum number of working days allowed for each street closure. The closure period for each intersection occurs only during the phase when constructing that street, unless otherwise directed. Reopen the street within the number of working days allowed; otherwise the Engineer may cease construction activities not affiliated with reopening the closed street, until it fully reopens to the traveling public. Time charges will not be suspended nor increased to compensate for this occurrence.

Street Name	Number of Working Days Allowed for Closure
9 th Ave	2 weekend days
FM 1764 & SH 146 NB Intersection	2 weekend days
FM 1764 & SH 146 SB Intersection	2 weekend days

During the various phases of construction, maintain and relocate Logo signs/Specific Service signs located within the project limits. Maintenance and relocation of these signs are subsidiary to the Item, "Barricades, Signs, and Traffic Handling." These signs are Department-owned and administered by LoneStar Logos, a Department signage contractor.

Relocate a logo sign to avoid interference with construction phases as necessary. Assure that relocated signs meet clearance requirements. If clearance requirements cannot be met using the existing sign, contact the logo sign contractor to manufacture and deliver to the jobsite a smaller logo sign within 3 weeks. If there is absolutely no room to display the relocated logo sign, 2 weeks before relocating, contact the logo sign contractor to remove the sign and place it in storage. The telephone number for LoneStar Logos is (512) 462-1310 and the e-mail address for the regional manager, Tyler Starr, is tstarr@lonestarlogos.com.

When relocating a logo sign, provide wooden skid mounted sign supports for the sign that are crashworthy and in accordance with the latest edition of the "Texas Manual on Uniform Traffic Control Devices." Specific information on crash worthy skid mounted signs can be found at: <http://d2dtl5nnlpfr0r.cloudfront.net/tti.tamu.edu/documents/0-6782-2.pdf>

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

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.

The contractor will not impact waters and wetlands in the following locations until USACE permitting has been obtained for the unnamed tidal stream tributary of Moses Lake crossing FM 1764 between 34th and 33rd St (STA. 386+25.00 to 388+51.00).

Until permit is obtained, the Contractor will delineate and prohibit access to these areas using orange construction fencing. This work is considered subsidiary to Item 506.

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 512: Portable Traffic Barrier

Use only the J-J Hook type connection between barriers.

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

Item 530: Intersections, Driveways, and Turnouts

Item 531: Sidewalks

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. 3 bars at a maximum 12 in. spacing center-to-center in both directions.

Driveways (Conc) will be constructed with HES concrete.

Install an approved cast in place detectable warning surface on all new curb ramps.

Construct compliant curb ramps based upon referenced design criteria, Texas Accessibility Standards and TxDOT Pedestrian Facilities Standards. Consider the locations of existing traffic and pedestrian control devices including loop detectors and pedestrian push buttons during curb ramp construction at signalized intersections, and construct ramps to allow such existing facilities to remain undisturbed and reused to the fullest extent possible while providing for full ADA compliance. All corners are unique

and it may be necessary to use various combinations of ramp elements to achieve a compliant ramp configuration.

Review the curb ramp location and layout with TxDOT’s inspector prior to demolition so that both parties agree that the curb ramp can be installed properly. Should it become apparent at any time during the ramp layout and construction process that a curb ramp cannot be installed as indicated on the Project Drawings, promptly notify the TxDOT inspector.

Any approval, inspection, or checking of the contractor’s layout by TxDOT and the acceptance of all or any part of it shall not relieve the contractor of his responsibility to secure the proper dimensions, grades and elevations of the various parts of the work.

Construction of each curb ramp is to be completed within seven (7) working days after start of construction process. Construction process of curb ramps shall include: demolition of existing conditions, placement of concrete or brick, removal of lips, street surface patching in front of the curb or ramp, adjustment of counter slope within 24-inches of the bottom of the ramp or curb and gutter, street level landings, backfill, placement of topsoil, grading and sodding, and clean-up. All other related work such as adjustment of crosswalk, special heat-welds, asphalt overlays, and other work that does not affect accessibility shall be completed per a schedule pre-approved by TxDOT.

Furnish and install #3 dia. reinforcing steel bars @ 18” O.C./B.W. for sidewalk, curb ramps and curb ramp components.

Proposed curb ramps, sidewalks, curbs, and riprap is to be doweled 8in minimum into existing, using 1/2in reinforcement placed on 12in centers.

Areas labeled with a “T” on the construction drawings allow the contractor to transition to existing conditions. Slope and grade of all transitions must be approved by the engineer.

The curb ramp locations shown in the plans have taken into account the geometric features of the intersection, traffic signals, and the pavement markings. If anything changes during construction, the location of curb ramps must be adjusted to ensure they meet PROWAG requirements.

Contractor is to match existing concrete color and texturing at various locations which, as directed by the engineer, require matching.

Item 540: Metal Beam Guard Fence

Painting the timber posts is not required.

Use timber posts for galvanized steel metal beam guard fence, except for anchorage at turned down ends.

Furnish and install wood blocks between the rail elements and the timber posts as detailed on the plans. These block-outs are subsidiary to this bid Item.

The quantity of the metal beam guard fence is subject to change.

Provide a mow strip as shown on the plans, at metal beam guard fence locations, including any guardrail end treatments.

Galvanize the rail elements supplied for this project by using a Type II Zinc Coating.

At locations requiring attachment of Metal Beam Guard Fence (MBGF) to concrete railing or concrete traffic barrier, repair and fill any existing holes in the railing or barrier that are not in the correct location for attaching the new MBGF. Perform this work in accordance with the Item, “Concrete Structure Repair.” Existing anchor bolt holes that cannot be utilized must be filled with an epoxy grout before drilling new holes. Then core-drill new holes in the correct locations and repair any resulting spalls at no expense to the Department. This work is considered subsidiary to the MBGF transition section (Item 540).

Item 542: Removing Metal Beam Guard Fence

Remove and assume ownership of unsalvageable metal beam guard fence rail elements and posts. Transport and store any functional, salvageable rail elements, including steel posts, which are not reused in this project, to the Department’s stockpile located at at 5407 Gulf Freeway La Marque TX, 77598.

Replace removed wood posts which are unusable because of damage by the Contractor, at no expense to the Department.

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.

For Continuously Reinforced Concrete Pavement (CRCP) mainlanes and direct connectors, use Surface Test Type B and Pay Adjustment Schedule 2. For ramps use Surface Test Type A.

For asphalt mainlanes and direct connectors, use Surface Test Type B and Pay Adjustment Schedule 1. For ramps use Surface Test Type A.

Item 618: Conduit
Item 620: Electrical Conductors
Item 628: Electrical Services

If the specifications for electrical items require UL-listed products, this means UL-listed or CSA-listed.

Item 618: Conduit

When backfilling bore pits, ensure that the conduit is not damaged during installation or due to settling backfill material. Compact select backfill in 3 equal lifts to the bottom of the conduit; or if using sand, place it 2 in. above the conduit. Ensure backfill density is equal to that of the existing soil. Prevent material from entering the conduit.

Construct bore pits a minimum of 5 ft. from the edge of the base or pavement. Close the bore pit holes overnight.

Unless otherwise shown on the plans, install underground conduit a minimum of 24 in. deep. Install the conduit in accordance with the latest National Electrical Code (NEC) and applicable Department standard sheets. Place conduit under driveways or roadways a minimum of 24 in. below the pavement surface.

If using casing to place bored conduit, the casing is subsidiary to the conduit.

If placing the conduit under existing pavement to reach the service poles, bore the conduit in place and extend it a minimum distance of 5 ft. beyond the edge of shoulder or the back of curb.

Where PVC, duct cable, and HDPE conduit 1 in. and larger is allowed and installed per Department standards, provide a PVC elbow in place of the galvanized rigid metal elbow required by the Electrical Details standards. Ensure the PVC elbow is of the same schedule rating as the conduit to which it is connected. Use only a flat, high tensile strength polyester fiber pull tape to pull conductors through the PVC conduit system.

Remove conductor and conduit to be abandoned to 1 ft. below the ground level. This work is subsidiary to the various bid items.

Do not use cast iron junction boxes in concrete traffic barriers and single slope traffic barriers. Use polymer concrete junction boxes as shown on standard sheet ED(4)-14. Mount the junction boxes flush (+ 0 in., - 1/2 in.) with the concrete surface of the concrete barrier.

Locate the underground utilities within the project limits. Provide the equipment necessary for locating these utilities, locate, and mark them before starting any excavation work in the area. This work is subsidiary to the various bid items. If the Contractor damages or cause damage to any existing underground utilities, repair such damage at no cost to the Department.

Ensure the interconnection of new equipment to the existing system does not interfere with the operation of the remaining system components. Ensure the system remains completely operational between the hours of 6:00 a.m. Monday and 12:00 a.m. (midnight) Saturday.

Do not interrupt system operation without coordinating with the Department's operations personnel at Houston Transtar at (713) 881-3285.

Provide Liquid-Tight Flexible Metal (LTFM) conduit if the plans refer to flexible metal conduit. Do not use flexible metal conduit.

Unless otherwise shown on the plans, place conduit runs behind curbs at locations where curbs exist.

Use schedule 80 PVC conduit to house conductor runs under paved riprap, roadway, or driveways, unless otherwise shown on the plans.

Use Rigid Metal Conduit (RMC) for exposed conduit.

Before backfilling conduit trenches, place a detectable underground metalized mylar marking tape above the conduit and concrete encasement. Imprint the marking tape with, "TxDOT CONDUIT AND FIBER OPTIC CABLE SYSTEM. CALL (713) 802-5909 BEFORE PROCEEDING" every 18 in. Supplying and installing the marking tapes is subsidiary to the various bid items.

Conduit elbows and rigid metal extensions required when installing PVC conduit systems are subsidiary to the various bid items.

Install a continuous bare or green insulated copper wire No. 8 AWG or larger in every conduit throughout the electrical system in accordance with the Electrical Detail Standard Sheets, and the latest edition of the NEC.

Provide a single 1/C #14 insulated wire in conduit runs which have been identified in the plans to carry fiber optic cable. Provide UL-listed solid copper wire with orange color low density polyethylene insulation, suitable for conduit installation, rated for a temperature range of -20 C to +60 C and a voltage rating of 600V. This wire will serve as a tracer, or locate, wire for locating underground conduit containing fiber optic cabling and will be paid for under Item 620, "Electrical Conductors."

Item 620: Electrical Conductors

Test each wire of each cable or conductor after installation. Incomplete circuits or damage to the wire or the cable are cause for immediate rejection of the entire cable being tested. Remove and replace the entire cable at no expense to the Department. Also test the replacement cable after installation.

When pulling cables or conductors through the conduit, do not exceed the manufacturer's recommended pulling tensions. Lubricate the cables or conductors with a lubricant recommended by the cable manufacturer.

For both transformer and shoe-base type illumination poles, provide double-pole breakaway fuse holders as shown on the Department's Construction Division (CST) material producers list. Check the latest link on the Department's website for this list. The category is "Roadway Illumination and Electrical Supplies." The fuse holder is shown on the list under Items 610 and 620. Provide 10 Amp time delay fuses.

Ensure that circuits test clear of faults, grounds, and open circuits.

Split bolt connectors are allowed only for splices on the grounding conductors.

For Roadside Flashing Beacon Assemblies (Item 685) and Pedestal Pole Assemblies (Item 687) within the project, provide single-pole breakaway disconnects as shown on the Construction Division (CST) material producers list. Check the latest link on the Department's website for this list. The category is "Roadway Illumination and Electrical Supplies." The fuse holder is shown on the list under Item 685. For underground (hot) conductors, install a breakaway connector with a dummy fuse (slug). Provide dummy fuse (slug). For grounded (neutral) conductors, install a breakaway connector with a white colored marking and a permanently installed dummy fuse (slug).

For electrical licensing and electrical certification requirements for this project, see Item 7 of the Standard Specifications and any applicable special provisions to Item 7.

Item 624: Ground Boxes

The ground box locations are approximate. Alternate ground box locations may be used as directed, to avoid placing in sidewalks or driveways.

Ground metal ground box covers. Bond the ground box cover and ground conductors to a ground rod located in the ground box and to the system ground.

Ground the existing metal ground box covers as shown on the latest standard sheet ED (4)-14.

During construction and until project completion, provide personnel and equipment necessary to remove ground box lids for inspection. Provide this assistance within 24 hours of notification.

Construct concrete aprons in accordance with the latest standard sheet ED (4)-14. Make the depth of the concrete apron the same as the depth of the ground box, except for Type 1 and Type 2 ground boxes. For Type 1 or Type 2 ground boxes, construct the concrete apron in accordance with details shown on the “Ground Box Details Installations” standard.

Item 628: Electrical Services

Verify and coordinate the electrical service location with the engineering section of the appropriate utility district or company.

Identify the electrical service pole with an address number assigned by the Utility Service Provider. Provide 2-in. numerals visible from the highway. Provide numbers cut out aluminum figures nailed to wood poles or painted figures on steel poles or service cabinets.

Item 636: Signs

For design details not shown on the plans, provide signs and arrows conforming to the latest “Standard Highway Sign Designs for Texas” manual.

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 signposts. Store removed sign panels at the Contractor’s field office, to be picked up by the maintenance office. This work is subsidiary to this item.

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 647: Large Roadside Sign Supports and Assemblies

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.

Assume ownership of the removed existing signposts. Store removed sign panels at the Contractor’s field office, to be picked up by the maintenance office. This work is subsidiary to this item.

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.”

Using raised markers for removable work zone pavement markings on final concrete surfaces is optional.

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 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 677: Eliminating Existing Pavement Markings and Markers

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

Item 678: Pavement Surface Preparation for Markings

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

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

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

Do not clean concrete pavement by grinding.

Item 680: Highway Traffic Signals

Clearly mark or highlight on the shop drawings the items being furnished for this project.

Furnish labor, tools, equipment, and materials as shown on the plans and specifications for a complete and operating signal installation.

Furnish the type of controller cabinet specified on the plans. Refer to the table shown in the Departmental Material Specifications (DMS-11170, Fully Actuated, Solid-State Traffic Signal Controller Assembly), Section 11170.6.A, Type 2 cabinet, page 4 of 39, regarding the size of the cabinet, back panel configuration, and the size of the load bay. Use the following website to view this specification:

<https://www.txdot.gov/business/resources/materials/material-specifications.html>

Complete traffic signal construction work, including correcting discrepancies shown on the Department inspector's "Traffic Signal Installation Inspection Report" before the beginning of the test period.

Provide a full-time qualified traffic signal technician responsible for installing, maintaining, or replacing traffic signal devices.

Staking in the field is subject to approval.

Adjust project construction, if needed, due to conflicts with underground utilities.

Do not aim the luminaire arms mounted on traffic signal poles into the intersection. Aim each arm perpendicular to the centerline of the roadway it is intended to cover, to develop the proper illumination pattern for the intersection.

Allow the electrical work to be inspected by the City. Complying with the provisions and requirements of the City electrical ordinance is not required. Such inspection does not make the City a party to this contract.

Provide continuous conductors without splices from signal controller to signal heads. Route the conductors for luminaires to the service enclosure.

Provide continuous conductors without splices from signal controller to signal heads. Route the conductors for luminaires to the service enclosure. Splices or attachments to the terminal block in the access compartment of the mast arm pole are not permitted except for the luminaire cable.

Abrasions to the conductor insulation caused while pulling cable for the traffic signal system are cause for immediate rejection. Remove and replace the entire damaged cable at no expense to the Department.

When pulling cables or conductors through conduit, do not exceed the manufacturer's recommended pulling tensions. Lubricate the cables or conductors with a lubricant as recommended by the cable manufacturer.

Bond the controller housing, signal poles, conduit, and spans to a minimum No. 6 AWG stranded copper conductor. An equipment grounding conductor is required in every conduit to form a continuous grounding system. Effectively connect the grounding system to ground rods or concrete encased grounding electrodes as indicated in the plans.

Wrap signal heads with dark plastic or suitable material to conceal the signal faces from the time of installation until placing into operation. Do not use burlap.

Furnish signal heads from the same manufacturer.

Use Type B (high intensity prismatic) or Type D (diamond grade) retroreflective sheeting for signs mounted under or adjacent to the signal heads.

Furnish and attach compression type connectors. Install the connectors with a compression mechanical release hand-crimping tool to each individual conductor before making connections to the terminal strips.

Item 682: Vehicle and Pedestrian Signal Heads

Install two set screws on vehicle signal head mounting hardware fittings.

Furnish black housings for vehicle and pedestrian signals. Furnish black vehicle signal head back plates with 2 in. retroreflective yellow borders.

Furnish black housings for vehicle and pedestrian signals. Ensure the door and visor match the mast arm and pedestrian pole color. Furnish black vehicle signal head back plates with 2 in. retroreflective yellow borders.

Item 687: Pedestal Pole Assemblies

Furnish black powder coated traffic signal poles. Apply powder coated finish over the galvanized surface. Prepare galvanized surfaces for powder coating in accordance with the powder coating manufacturer's recommendations. Do not water-quench or chromate-quench galvanized surfaces to be powder coated. After preparing galvanized surfaces, powder coat with a minimum of 2.0 mils dry film thickness (DFT) of urethane powder or triglycidyl isocyanurate (TGIC) polyester powder. Provide powder coat adhesion meeting the 5A or 5B classifications of ASTM D3359. Ensure powder coating is uniform in appearance and free of scratches.

Item 688: Pedestrian Detectors and Vehicle Loop Detectors

Provide pedestrian push buttons a minimum of 2 in. diameter in the smallest dimension.

Install a rubber grommet or bushing between the push button assembly and the signal pole to protect the conductors.

Provide a black tube loop detector wire as specified in the "International Municipal Signal Association, Inc." (IMSA) Specifications.

At intersections where a minimum of 10 ft. spacing between adjacent accessible pedestrian signal units is not possible, provide each accessible pedestrian pushbutton with the following features: a pushbutton locator tone, a tactile arrow, a speech walk message for the walking person indication and a speech pushbutton information message.

Provide pedestrian push buttons a minimum of 2 in. diameter in the smallest dimension.

Install a rubber grommet or bushing between the push button assembly and the signal pole to protect the conductors.

If the loop sealant supplied by the Contractor is not on the Department's pre-qualified product list, before applying the sealant provide a 5-gal. container of loop sealant for testing.

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.

For Level-Up, use SAC-A aggregate classification.

Item 3085: Underseal Course

Use only a spray applied underseal membrane or a single layer of seal coat.

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.

In addition to the shadow vehicles with TMAs/TAs that are specified as being required on the TCP layout sheets for this project, provide additional shadow vehicles with TMAs/TAs as shown on the TCP Standard sheets. 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.

Basis of Estimate

Item	Description	Limit and Rate	Unit
134	Backfilling Pavement Edges <ul style="list-style-type: none"> Asphalt Emulsion 	0.25 Gal. / Sq. Yd.	STA
292	Asphalt Treatment (Plant-Mixed) <ul style="list-style-type: none"> Asphalt Aggregate 	110 Lb. / Sq. Yd.-In. 5 % by weight 95 % by weight	TON
316	Seal Coat <ul style="list-style-type: none"> Asphalt Aggregate (Gr 4) A-R Binder <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> Asphalt Aggregate Tack Coat <ul style="list-style-type: none"> 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 GAL



Estimate & Quantity Sheet

CONTROLLING PROJECT ID 1607-01-057

DISTRICT Houston
HIGHWAY FM 1764

COUNTY Galveston

CONTROL SECTION JOB				1607-01-055		1607-01-057		TOTAL EST.	TOTAL FINAL
PROJECT ID				A00130759		A00205982			
COUNTY				Galveston		Galveston			
HIGHWAY				FM 1764		FM 1764			
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL		
	100-6003	PREPARING ROW(TREE)(5" TO 12" DIA)	EA			5.000		5.000	
	104-6001	REMOVING CONC (PAV)	SY	33,784.900				33,784.900	
	104-6011	REMOVING CONC (MEDIANS)	SY			2.000		2.000	
	104-6017	REMOVING CONC (DRIVEWAYS)	SY			6,280.000		6,280.000	
	104-6024	REMOVING CONC (RETAINING WALLS)	SY			5.000		5.000	
	104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF			91.000		91.000	
	104-6036	REMOVING CONC (SIDEWALK OR RAMP)	SY			9,237.000		9,237.000	
	105-6011	REMOVING STAB BASE AND ASPH PAV (2"-6")	SY	33,784.900				33,784.900	
	105-6037	REMOVING STAB BASE AND ASPH PAV(0"-16")	SY			289.000		289.000	
	110-6001	EXCAVATION (ROADWAY)	CY	534.700				534.700	
	110-6003	EXCAVATION (SPECIAL)	CY			150.000		150.000	
	132-6001	EMBANKMENT (FINAL)(ORD COMP)(TY A)	CY	223.600				223.600	
	132-6003	EMBANKMENT (FINAL)(ORD COMP)(TY B)	CY			150.000		150.000	
	134-6004	BACKFILL (TY A OR B)	STA	107.300				107.300	
	162-6002	BLOCK SODDING	SY			3,325.000		3,325.000	
	166-6001	FERTILIZER	AC			0.680		0.680	
	168-6001	VEGETATIVE WATERING	MG			128.000		128.000	
	354-6002	PLAN & TEXT ASPH CONC PAV(0" TO 2")	SY			500.000		500.000	
	354-6048	PLANE ASPH CONC PAV (3")	SY	186,226.800				186,226.800	
	360-6056	CONC PAV (CONT REINF)(HES)(14")	SY	35,277.700				35,277.700	
	361-6052	FULL - DEPTH REPAIR CRCP (8"-14")	SY	1,862.270				1,862.270	
	400-6008	CUT & RESTORE ASPH PAVING	SY			857.000		857.000	
	401-6001	FLOWABLE BACKFILL	CY			20.000		20.000	
	416-6015	DRILL SHAFT (NON - REINFORCED) (12 IN)	LF	48.000				48.000	
	420-6002	CL A CONC (MISC)	CY			10.000		10.000	
	429-6007	CONC STR REPAIR (VERTICAL & OVERHEAD)	SF	266.000				266.000	
	432-6001	RIPRAP (CONC)(4 IN)	CY			6.900		6.900	
	432-6003	RIPRAP (CONC)(6 IN)	CY	150.800				150.800	
	432-6045	RIPRAP (MOW STRIP)(4 IN)	CY	112.800				112.800	
	450-6052	RAIL (HANDRAIL)(TY F)	LF			184.000		184.000	
	465-6240	INLET (COMPL)(TY C1)(STAGE II)	EA	25.000				25.000	
	479-6001	ADJUSTING MANHOLES	EA	20.000				20.000	
	496-6043	REMOV STR (SMALL FENCE)	LF			150.000		150.000	
	500-6001	MOBILIZATION	LS	1.000				1.000	
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	23.000				23.000	
	506-6035	SANDBAGS FOR EROSION CONTROL	EA			50.000		50.000	
	506-6038	TEMP SEDMT CONT FENCE (INSTALL)	LF			1,500.000		1,500.000	



Estimate & Quantity Sheet

CONTROLLING PROJECT ID 1607-01-057

DISTRICT Houston
HIGHWAY FM 1764

COUNTY Galveston

CONTROL SECTION JOB				1607-01-055		1607-01-057		TOTAL EST.	TOTAL FINAL
PROJECT ID				A00130759		A00205982			
COUNTY				Galveston		Galveston			
HIGHWAY				FM 1764		FM 1764			
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL		
	506-6039	TEMP SEDMT CONT FENCE (REMOVE)	LF			1,500.000		1,500.000	
	506-6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF			1,500.000		1,500.000	
	506-6043	BIODEG EROSN CONT LOGS (REMOVE)	LF			1,500.000		1,500.000	
	512-6087	PORT CTB (ALIGNING)	LF	12,861.000				12,861.000	
	529-6002	CONC CURB (TY II)	LF			605.000		605.000	
	529-6005	CONC CURB (MONO) (TY II)	LF	12,138.000				12,138.000	
	529-6010	CONC CURB (U-TURN)	LF	876.000				876.000	
	529-6016	CONC CURB (TY F1)	LF			51.000		51.000	
	529-6018	CONC CURB (TY F3)	LF			20.000		20.000	
	530-6004	DRIVEWAYS (CONC)	SY			6,592.000		6,592.000	
	530-6005	DRIVEWAYS (ACP)	SY	2,592.900				2,592.900	
	531-6001	CONC SIDEWALKS (4")	SY			9,930.000		9,930.000	
	531-6002	CONC SIDEWALKS (5")	SY			500.000		500.000	
	531-6004	CURB RAMPS (TY 1)	EA	6.000		5.000		11.000	
	531-6005	CURB RAMPS (TY 2)	EA			8.000		8.000	
	531-6006	CURB RAMPS (TY 3)	EA			8.000		8.000	
	531-6010	CURB RAMPS (TY 7)	EA			42.000		42.000	
	531-6013	CURB RAMPS (TY 10)	EA			8.000		8.000	
	531-6016	CURB RAMPS (TY 21)	EA	1.000		1.000		2.000	
	531-6017	CURB RAMPS (TY 22)	EA	2.000		1.000		3.000	
	540-6001	MTL W-BEAM GD FEN (TIM POST)	LF	2,431.000				2,431.000	
	540-6006	MTL BEAM GD FEN TRANS (THRIE-BEAM)	EA	4.000				4.000	
	540-6016	DOWNSTREAM ANCHOR TERMINAL SECTION	EA	2.000				2.000	
	542-6001	REMOVE METAL BEAM GUARD FENCE	LF	2,431.000				2,431.000	
	542-6002	REMOVE TERMINAL ANCHOR SECTION	EA	2.000				2.000	
	542-6004	RM MTL BM GD FENCE TRANS (THRIE-BEAM)	EA	4.000				4.000	
	544-6001	GUARDRAIL END TREATMENT (INSTALL)	EA	2.000				2.000	
	544-6003	GUARDRAIL END TREATMENT (REMOVE)	EA	2.000				2.000	
	618-6023	CONDT (PVC) (SCH 40) (2")	LF			425.000		425.000	
	620-6007	ELEC CONDR (NO.8) BARE	LF			425.000		425.000	
	636-6007	REPLACE EXISTING ALUMINUM SIGNS(TY A)	SF	49.000				49.000	
	636-6008	REPLACE EXISTING ALUMINUM SIGNS(TY G)	SF	180.000				180.000	
	644-6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	79.000		1.000		80.000	
	644-6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	18.000				18.000	
	644-6027	IN SM RD SN SUP&AM TYS80(1)SA(P)	EA	1.000				1.000	
	644-6030	IN SM RD SN SUP&AM TYS80(1)SA(T)	EA	18.000				18.000	
	644-6031	IN SM RD SN SUP&AM TYS80(1)SA(T-2EXT)	EA	1.000				1.000	



Estimate & Quantity Sheet

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DISTRICT Houston
HIGHWAY FM 1764

COUNTY Galveston

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PROJECT ID				A00130759		A00205982			
COUNTY				Galveston		Galveston			
HIGHWAY				FM 1764		FM 1764			
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL		
	644-6034	IN SM RD SN SUP&AM TYS80(1)SA(U-1EXT)	EA	4.000				4.000	
	644-6052	IN SM RD SN SUP&AM TYS80(2)SA(T-2EXT)	EA	1.000				1.000	
	644-6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA			16.000		16.000	
	644-6076	REMOVE SM RD SN SUP&AM	EA	139.000				139.000	
	647-6001	INSTALL LRSS (STRUCT STEEL)	LB	1,469.600				1,469.600	
	647-6003	REMOVE LRSA	EA	6.000				6.000	
	658-6010	INSTL DEL ASSM (D-SW)SZ 2(WC)GND	EA	34.000				34.000	
	658-6013	INSTL DEL ASSM (D-SW)SZ (BRF)CTB	EA	77.000				77.000	
	658-6047	INSTL OM ASSM (OM-2Y)(WC)GND	EA	8.000				8.000	
	658-6071	INSTL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	EA	140.000				140.000	
	662-6005	WK ZN PAV MRK NON-REMOV (W)6"(BRK)	LF	82,512.000				82,512.000	
	662-6008	WK ZN PAV MRK NON-REMOV (W)6"(SLD)	LF	89,106.000				89,106.000	
	662-6010	WK ZN PAV MRK NON-REMOV (W)8"(DOT)	LF	1,197.000				1,197.000	
	662-6012	WK ZN PAV MRK NON-REMOV (W)8"(SLD)	LF	6,249.000				6,249.000	
	662-6013	WK ZN PAV MRK NON-REMOV (W)12"(LNDP)	LF	444.000				444.000	
	662-6014	WK ZN PAV MRK NON-REMOV (W)12"(SLD)	LF	1,269.000				1,269.000	
	662-6016	WK ZN PAV MRK NON-REMOV (W)24"(SLD)	LF	3,588.000				3,588.000	
	662-6017	WK ZN PAV MRK NON-REMOV (W)(ARROW)	EA	90.000				90.000	
	662-6018	WK ZN PAV MRK NON-REMOV (W)(DBL ARW)	EA	6.000				6.000	
	662-6019	WK ZN PAV MRK NON-REMOV (W)(ENTR GORE)	EA	12.000				12.000	
	662-6020	WK ZN PAV MRK NON-REMOV (W)(EXIT GORE)	EA	18.000				18.000	
	662-6029	WK ZN PAV MRK NON-REMOV(W)(WORD)	EA	60.000				60.000	
	662-6035	WK ZN PAV MRK NON-REMOV (Y)6"(BRK)	LF	7,956.000				7,956.000	
	662-6037	WK ZN PAV MRK NON-REMOV (Y)6"(SLD)	LF	85,233.000				85,233.000	
	662-6041	WK ZN PAV MRK NON-REMOV (Y)24"(SLD)	LF	291.000				291.000	
	662-6043	WK ZN PAV MRK NON-REMOV (Y)(MED NOSE)	EA	20.000				20.000	
	662-6064	WK ZN PAV MRK REMOV (W)6"(BRK)	LF	2,494.000				2,494.000	
	662-6065	WK ZN PAV MRK REMOV (W)6"(DOT)	LF	142.000				142.000	
	662-6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	1,888.000				1,888.000	
	662-6071	WK ZN PAV MRK REMOV (W)8"(SLD)	LF	1,818.000				1,818.000	
	662-6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	642.000				642.000	
	662-6080	WK ZN PAV MRK REMOV (W)(ARROW)	EA	18.000				18.000	
	662-6081	WK ZN PAV MRK REMOV (W)(DBL ARROW)	EA	6.000				6.000	
	662-6082	WK ZN PAV MRK REMOV (W)(ENTR GORE)	EA	4.000				4.000	
	662-6083	WK ZN PAV MRK REMOV (W)(EXIT GORE)	EA	4.000				4.000	
	662-6090	WK ZN PAV MRK REMOV (W)(WORD)	EA	12.000				12.000	
	662-6091	WK ZN PAV MRK REMOV (W)18"(YLD TRI)	EA	24.000				24.000	



Estimate & Quantity Sheet

CONTROLLING PROJECT ID 1607-01-057

DISTRICT Houston
HIGHWAY FM 1764

COUNTY Galveston

CONTROL SECTION JOB				1607-01-055		1607-01-057		TOTAL EST.	TOTAL FINAL
PROJECT ID				A00130759		A00205982			
COUNTY				Galveston		Galveston			
HIGHWAY				FM 1764		FM 1764			
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL		
	666-6030	REFL PAV MRK TY I (W)8"(DOT)(100MIL)	LF	309.000				309.000	
	666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	2,005.000				2,005.000	
	666-6039	REFL PAV MRK TY I (W)12"(LNDP)(100MIL)	LF	39.000				39.000	
	666-6042	REFL PAV MRK TY I (W)12"(SLD)(100MIL)	LF	423.000				423.000	
	666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	506.000		2,728.000		3,234.000	
	666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	21.000				21.000	
	666-6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA	19.000				19.000	
	666-6081	REFL PAV MRK TY I(W)(ENTR GORE)(100MIL)	EA	6.000				6.000	
	666-6084	REFL PAV MRK TY I(W)(EXIT GORE)(100MIL)	EA	8.000				8.000	
	666-6099	REF PAV MRK TY I(W)18"(YLD TRI)(100MIL)	EA	8.000				8.000	
	666-6147	REFL PAV MRK TY I (Y)24"(SLD)(100MIL)	LF	97.000				97.000	
	666-6162	RE PV MRK TY I(BLACK)6"(SHADOW)(100MIL)	LF	13,752.000				13,752.000	
	666-6212	REFL PAV MRK TY II (Y) 12" (SLD)	LF	6,184.000				6,184.000	
	666-6285	REF PROF PAV MRK TY I(W)6"(SLD)(090MIL)	LF	3,379.000				3,379.000	
	666-6289	REF PROF PAV MRK TY I(Y)6"(SLD)(090MIL)	LF	3,932.000				3,932.000	
	666-6306	RE PM W/RET REQ TY I (W)6"(BRK)(100MIL)	LF	13,752.000				13,752.000	
	666-6309	RE PM W/RET REQ TY I (W)6"(SLD)(100MIL)	LF	16,453.000				16,453.000	
	666-6318	RE PM W/RET REQ TY I (Y)6"(BRK)(100MIL)	LF	2,652.000				2,652.000	
	666-6321	RE PM W/RET REQ TY I (Y)6"(SLD)(100MIL)	LF	28,411.000				28,411.000	
	672-6007	REFL PAV MRKR TY I-C	EA	349.000				349.000	
	672-6009	REFL PAV MRKR TY II-A-A	EA	470.000				470.000	
	672-6010	REFL PAV MRKR TY II-C-R	EA	1,002.000				1,002.000	
	677-6002	ELIM EXT PAV MRK & MRKS (6")	LF	27,283.000				27,283.000	
	677-6005	ELIM EXT PAV MRK & MRKS (12")	LF	109.000		419.000		528.000	
	677-6007	ELIM EXT PAV MRK & MRKS (24")	LF			64.000		64.000	
	677-6008	ELIM EXT PAV MRK & MRKS (ARROW)	EA	1.000				1.000	
	677-6012	ELIM EXT PAV MRK & MRKS (WORD)	EA	1.000				1.000	
	678-6002	PAV SURF PREP FOR MRK (6")	LF	27,283.000				27,283.000	
	678-6006	PAV SURF PREP FOR MRK (12")	LF	109.000				109.000	
	678-6008	PAV SURF PREP FOR MRK (24")	LF			2,728.000		2,728.000	
	678-6009	PAV SURF PREP FOR MRK (ARROW)	EA	1.000				1.000	
	678-6016	PAV SURF PREP FOR MRK (WORD)	EA	1.000				1.000	
	680-6011	INSTALL HWY TRF SIG (UPGRADE)	EA			8.000		8.000	
	682-6018	PED SIG SEC (LED)(COUNTDOWN)	EA			4.000		4.000	
	684-6007	TRF SIG CBL (TY A)(12 AWG)(2 CONDR)	LF			6,520.000		6,520.000	
	684-6031	TRF SIG CBL (TY A)(14 AWG)(5 CONDR)	LF			100.000		100.000	
	687-6001	PED POLE ASSEMBLY	EA			16.000		16.000	



Estimate & Quantity Sheet

CONTROLLING PROJECT ID 1607-01-057


DISTRICT Houston
HIGHWAY FM 1764

COUNTY Galveston

CONTROL SECTION JOB				1607-01-055		1607-01-057		TOTAL EST.	TOTAL FINAL
PROJECT ID				A00130759		A00205982			
COUNTY				Galveston		Galveston			
HIGHWAY				FM 1764		FM 1764			
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL		
	688-6001	PED DETECT PUSH BUTTON (APS)	EA			54.000		54.000	
	688-6003	PED DETECTOR CONTROLLER UNIT	EA			8.000		8.000	
	690-6007	REPLACE OF GROUND BOXES	EA			14.000		14.000	
	690-6030	REMOVAL OF PEDESTRIAN PUSH BUTTONS	EA			52.000		52.000	
	3076-6027	D-GR HMA TY-C PG70-22 (LEVEL-UP)	TON	15,363.700				15,363.700	
	3076-6041	D-GR HMA TY-D SAC-A PG70-22	TON	15,363.700				15,363.700	
	3076-6076	D-GR HMA TY-D SAC-A PG70-22 (EXEMPT)	TON			20.000		20.000	
	3085-6001	UNDERSEAL COURSE	GAL	40,969.900				40,969.900	
	5008-6001	WHEEL STOPS	EA			25.000		25.000	
	5033-6005	REMOVE BOLLARD	EA			1.000		1.000	
	6001-6001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY	678.000				678.000	
	6038-6004	MULTIPOLYMER PAV MRK (W)(6")(SLD)	LF	10,814.000				10,814.000	
	6038-6005	MULTIPOLYMER PAV MRK (W)(6")(BRK)	LF	5,610.000				5,610.000	
	6038-6006	MULTIPOLYMER PAV MRK (W)(6")(DOT)	LF	107.000				107.000	
	6038-6007	MULTIPOLYMER PAV MRK (W)(8")(SLD)	LF	987.000				987.000	
	6038-6009	MULTIPOLYMER PAV MRK (W)(8")(DOT)	LF	90.000				90.000	
	6038-6012	MULTIPOLYMER PAV MRK (W)(12")(LNDP)	LF	109.000				109.000	
	6038-6013	MULTIPOLYMER PAV MRK (W)(24")(SLD)	LF	854.000				854.000	
	6038-6017	MULTIPOLYMER PAV MRK (Y)(6")(SLD)	LF	8,980.000				8,980.000	
	6038-6024	MULTIPOLYMER PAV MRK (BLK)(6")(BRK)	LF	5,281.000				5,281.000	
	6038-6025	MULTIPOLYMER PAV MRK (W) (ARROW)	EA	18.000				18.000	
	6038-6026	MULTIPOLYMER PAV MRK (W) (DBL ARROW)	EA	5.000				5.000	
	6038-6027	MULTIPOLYMER PAV MRK (W) (WORD)	EA	7.000				7.000	
	6038-6028	MULTIPOLYMER PAV MRK (W) 36" YLD TRI	EA	32.000				32.000	
	6185-6002	TMA (STATIONARY)	DAY	339.000				339.000	
	6185-6003	TMA (MOBILE OPERATION)	HR	136.000				136.000	
18		EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS			1.000		1.000	
		LAW ENFORCEMENT: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS			1.000		1.000	
		SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS			1.000		1.000	

SUMMARY OF ROADWAY ITEMS															
SHEET LAYOUT NUMBER	104	105	110	132	134	3076	3076	3085	354	360	361	432	432	465	479
	6001	6011	6001	6001	6004	6027	6041	6001	6048	6056	6052	6003	6045	6240	6001
	REMOVING CONC (PAV)	REMOVING STAB BASE AND ASPH PAV (2"-6")	EXCAVATION (ROADWAY)	EMBANKMENT (FINAL) (ORD COMP) (TY A)	BACKFILL (TY A OR B)	D-GR HMA TY-C PG70-22 (LEVEL-UP)	D-GR HMA TY-D SAC-A PG70-22	UNDERSEAL COURSE	PLANE ASPH CONC PAV (3")	CONC PAV (CONT REINF) (HES) (14")	FULL - DEPTH REPAIR CRCP (8"-14")	RIPRAP (CONC) (6 IN)	RIPRAP (MOW STRIP) (4 IN)	INLET (COMPL) (TY C1) (STAGE I)	ADJUSTING MANHOLES
SY	SY	CY	CY	STA	TON	TON	GAL	SY	SY	SY	CY	CY	EA	EA	
1					0.2	18.5	18.5	49.4	224.5						
2					6.5	570.0	570.0	1520.0	6908.9						
3					7	643.0	643.0	1714.6	7793.8						
4					6.5	701.4	701.4	1870.5	8502.2						
5					1.6	127.9	127.9	341.0	1550						
6					5.3	497.4	497.4	1326.3	6028.8						
7					6.5	569.4	569.4	1518.5	6902.4						
8					6.5	621.4	621.4	1657.2	7532.6						
9					7.4	706.6	706.6	1884.2	8564.5						
10					11.6	120.9	120.9	322.4	1465.6						
11					0.27										
12															
13															
14															
15					2										
16					5.2										
17					9.6	129.7	129.7	345.8	1571.7						
18					15.1	845.6	845.6	2254.8	10249.1				9.4		
19					98.2	717.2	717.2	1912.6	8693.6				47.7		
20					27.0	231.7	231.7	617.8	2808.1				13.8		
21					83.3	758.9	758.9	2023.6	9198.4				41.9		
22					2.9	213.7	213.7	569.9	2590.6						
23															2
24						263.7	263.7	703.1	3196.1						2
25						489.4	489.4	1305.0	5931.8						
26						513.2	513.2	1368.5	6220.5						
27						510.6	510.6	1361.5	6188.6						
28						476.7	476.7	1271.2	5778.3						
29						501.9	501.9	1338.5	6084.1						2
30						489.6	489.6	1305.7	5935						
31						490.2	490.2	1307.2	5941.9						
32						517.1	517.1	1379.0	6268.2						3
33						480.3	480.3	1280.7	5821.3						1
34						517.7	517.7	1380.6	6275.4						5
35						488.1	488.1	1301.5	5915.8						1
36						443.6	443.6	1182.8	5376.4						1
37						440.6	440.6	1174.8	5340.2						
38						437.3	437.3	1166.1	5300.3						1
39						403.5	403.5	1076.0	4890.9						2
40						427.1	427.1	1139.0	5177.2						
41	3771.3	3771.3	182							4238				2	
42	9767.7	9767.7	115.6							10065.0				8	
43	3831.9	3831.9	224.3							4504.7				5	
44	7610.9	7610.9	21.8							7667				6	
45	774	774								774	17.0				
46	4968	4968								4968	111.0			2	
47	3061	3061								3061	22.8			2	
PROJECT TOTALS	33784.9	33784.9	543.7	223.6	107.3	15363.7	15363.7	40969.9	186226.8	35277.7	1862.27	150.8	112.8	25.0	20

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 **Texas Department of Transportation**
 Galveston Area Office


FM 1764
SUMMARY OF ROADWAY QUANTITIES

SHEET 1 OF 2

© TXDOT 2024		DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
CONT	SECT	JOB		HIGHWAY	
1607	01	057, ETC		FM 1764	
DIST	COUNTY			SHEET NO.	
HOU	GALVESTON			15	

SUMMARY OF ROADWAY ITEMS															
SHEET LAYOUT NUMBER	512	529	529	530	531	531	531	540	540	540	542	542	542	544	544
	6087	6005	6010	6005	6004	6016	6017	6001	6006	6016	6001	6002	6004	6001	6003
	PORT CTB (ALIGNING)	CONC CURB (MONO) (TY 11)	CONC CURB (U-TURN)	DRIVEWAYS (ACP)	CURB RAMPS (TY 1)	CURB RAMPS (TY 21)	CURB RAMPS (TY 22)	MTL W-BEAM GD FEN (TIM POST)	MTL BEAM GD FEN TRANS (THRIE-BEAM)	DOWNSTREAM ANCHOR TERMINAL SECTION	REMOVE METAL BEAM GUARD FENCE	REMOVE TERMINAL ANCHOR SECTION	RM MTL BM GD FENCE TRANS (THRIE-BEAM)	GUARDRAIL END TREATMENT (INSTALL)	GUARDRAIL END TREATMENT (REMOVE)
LF	LF	LF	SY	EA	EA	EA	LF	EA	EA	LF	EA	EA	EA	EA	
1	21														
2	650														
3	650														
4	650														
5	650														
6	650														
7	650														
8	650														
9	650														
10	650														
11	650														
12	650														
13	650														
14	650														
15	650														
16	650														
17	650														
18	650														
19	650							128			128			1	1
20	650							1105			1105	1			
21	490							318	4		318			4	
22								880			880	1		1	1
23															
24				265											
25															
26				337.1											
27				262.6											
28															
29				218											
30				118.9											
31				105.8											
32				401.9											
33															
34				384.7											
35				128.1											
36															
37				35.6											
38				44.4											
39															
40				290.8											
41		1531													
42		2895	725		6	1	2								
43		2274	151												
44		2038													
45		292													
46		1991													
47		1117													
PROJECT TOTALS	12861	12138.0	876.0	2592.9	6.0	1.0	2.0	2431	4	2	2431	2	4	2	2

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Texas Department of Transportation
Galveston Area Office


FM 1764 SUMMARY OF ROADWAY QUANTITIES

SHEET 2 OF 2

© TXDOT 2024		DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
CONT	SECT	JOB		HIGHWAY	
1607	01	057, ETC		FM 1764	
DIST	COUNTY			SHEET NO.	
HOU	GALVESTON			16	

SUMMARY OF PAVEMENT MARKING ITEMS															
SHEET LAYOUT NUMBER	658 6010	658 6013	658 6047	658 6071	666 6030	666 6036	666 6039	666 6042	666 6048	666 6054	666 6078	666 6081	666 6084	666 6099	666 6147
	INSTL DEL ASSM (D-SW) SZ 2(WC) GND	INSTL DEL ASSM (D-SW) SZ (BRF) CTB	INSTL OM ASSM (OM-2Y) (WC) GND	INSTL DEL ASSM (D-SY) SZ (BRF) CTB (B1)	REFL PAV MRK TY 1 (W) 8" (DOT) (100M IL)	REFL PAV MRK TY 1 (W) 8" (SLD) (100M IL)	REFL PAV MRK TY 1 (W) 12" (LNDP) (10 OMIL)	REFL PAV MRK TY 1 (W) 12" (SLD) (100 MIL)	REFL PAV MRK TY 1 (W) 24" (SLD) (100 MIL)	REFL PAV MRK TY 1 (W) (ARROW) (100M IL)	REFL PAV MRK TY 1 (W) (WORD) (100MIL)	REFL PAV MRK TY 1 (W) (ENTR GORE) (100MIL)	REFL PAV MRK TY 1 (W) (EXIT GORE) (100MIL)	REF PAV MRK TY 1 (W) 18" (YLD TRI) (100MIL)	REFL PAV MRK TY 1 (Y) 24" (SLD) (100 MIL)
	EA	EA	EA	EA	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA
1				1											
2				7											
3				7											
4				7								1			
5		11		7									1		
6		3		7											
7				7											
8				7								1			
9				7								1		1	
10				7									1		
11				7											
12		14		7											
13		12		7											
14		13		7											
15		10		7											
16		4		7											
17				7											
18	2		1	7								1		1	
19	15		1	7			14	423		1	1			1	
20	5	10	4	7			25								
21	12		2	6										1	
22						200									
23							288								
24								21	2	2					
25					19										
26					9	70		21	1	1					62
27					9	119		38	2	1					
28					13	31				1					
29					26	132		21	2	2					35
30															
31															
32					22	136		45	2	2					
33															
34						14		44							
35					30	130		93	2	2					
36					38	130			2	2					
37					60	131			2						
38					53	133		88	2	2					
39						43			1	1					
40					30	448		135	2	2				8	
41												1	1		
42															
43															
44															
PROJECT TOTALS	34	77	8	140	309	2005	39	423	506	21	19	6	8	8	97

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Texas Department of Transportation
Galveston Area Office


FM 1764
SUMMARY OF PAVEMENT MARKINGS QUANTITIES

NTS
SHEET 1 OF 4

© TXDOT 2024		DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
CONT	SECT	JOB		HIGHWAY	
1607	01	057, ETC		FM 1764	
DIST	COUNTY			SHEET NO.	
HOU	GALVESTON			17	

SUMMARY OF PAVEMENT MARKING ITEMS															
SHEET LAYOUT NUMBER	666 6162	666 6212	666 6285	666 6289	666 6306	666 6309	666 6318	666 6321	672 6007	672 6009	672 6010	677 6002	677 6005	677 6008	677 6012
	RE PV MRK TY I (BLACK) 6" (SHADOW) (100MIL)	REFL PAV MRK TY I (Y) 12" (SLD)	REF PROF PAV MRK TY I (W) 6" (SLD) (090 MIL)	REF PROF PAV MRK TY I (Y) 6" (SLD) (090 MIL)	RE PM W/RET REQ TY I (W) 6" (BRK) (100MIL)	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)	REFL PAV MRKR TY I-C	REFL PAV MRKR TY I-A-A	REFL PAV MRKR TY I-C-R	ELIM EXT PAV MRK & MRKS (6")	ELIM EXT PAV MRK & MRKS (12")	ELIM EXT PAV MRK & MRKS (ARROW)	ELIM EXT PAV MRK & MRKS (WORD)
	LF	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	LF	LF	EA	EA
1	20				20	42		42			2				
2	330				330	1304		1301			16				
3	325				325	1511		1478			28				
4	324				324	1417		1426			69				
5	77		1150	1150	77	146		146			18	556			
6	293		286	286	293	1012		1012			16	60			
7	325				325	1303		1301			16				
8	324				324	1300		1299			18				
9	304				304	1308		1308			15	162			
10						557		509			19	3237			
11											16	3250			
12											16	3250			
13			688	688							16	1874			
14			276	276							16	2694			
15											16	3250			
16			420	420							16	2418			
17	29				29	440		440			17	2958			
18	365				365	1792		1789			59				
19	488				488	1300		1300			40				
20	186		559	1112	186	421		186			58	1219	109	1	1
21	650				650	1523		1403			2				
22	232	418			232	468					34	813			
23		877									35	1213			
24	145	870			145	85		470	19	24	20	329			
25	650				650		286	1300	33	65					
26	505				505	113	162	1201	30	56					
27	528				528	93	188	1056	34	53					
28	638				638		283	1305	35	38					
29	502				502	103	169	1147		40					
30	650				650		325	1300	33	33					
31	650				650		325	1300	33	33					
32	515				515	107	191	1179	35	39					
33	650				650		325	1300	33	33					
34	651				651		259	1068	34	27					
35	498	278			498	108	139	845	30	29	10				
36	650	587			650						42				
37	650	847			650						45				
38	567	628			567						40				
39	650	389			650						35				
40	381	970			381						45				
41											46				
42											61				
43											35				
44											65				
PROJECT TOTALS	13752	6184	3379	3932	13752	16453	2652	28411	349	470	1002	27283	109	1	1

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FM 1764
SUMMARY OF PAVEMENT MARKINGS QUANTITIES

NTS
SHEET 2 OF 4

© TXDOT 2024		DW: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
CONT	SECT	JOB		HIGHWAY	
1607	01	057, ETC		FM 1764	
DIST	COUNTY			SHEET NO.	
HOU	GALVESTON			18	

SUMMARY OF PAVEMENT MARKING ITEMS															
SHEET LAYOUT NUMBER	678 6002	678 6006	678 6009	678 6016	6038 6004	6038 6005	6038 6006	6038 6007	6038 6009	6038 6012	6038 6013	6038 6017	6038 6024	6038 6025	6038 6026
	PAV SURF PREP FOR MRK (6")	PAV SURF PREP FOR MRK (12")	PAV SURF PREP FOR MRK (ARROW)	PAV SURF PREP FOR MRK (WORD)	MULTIPOLYMER PAV MRK (W) (6") (SLD)	MULTIPOLYMER PAV MRK (W) (6") (BRK)	MULTIPOLYMER PAV MRK (W) (6") (DOT)	MULTIPOLYMER PAV MRK (W) (8") (SLD)	MULTIPOLYMER PAV MRK (W) (8") (DOT)	MULTIPOLYMER PAV MRK (W) (12") (LNDP)	MULTIPOLYMER PAV MRK (W) (24") (SLD)	MULTIPOLYMER PAV MRK (Y) (6") (SLD)	MULTIPOLYMER PAV MRK (BLK) (6") (BRK)	MULTIPOLYMER PAV MRK (W) (ARROW)	MULTIPOLYMER PAV MRK (W) (DBL ARROW)
	LF	LF	EA	EA	LF	LF	LF	LF	LF	LF	LF	LF	LF	EA	EA
1															
2															
3															
4															
5	556					278							278		
6	60					30							30		
7															
8															
9	162				41	20						81	20		
10	3237				1292	324						1297	324		
11	3250				1300	325						1300	325		
12	3250				1300	325						1300	325		
13	1874				612	325						612	325		
14	2694				1022	325						1022	325		
15	3250				1300	325						1300	325		
16	2418				884	325						884	325		
17	2958				1182	296						1184	296		
18															
19															
20	1219	109	1	1	559	330				109			330	1	
21															
22	813				297	240	36	78			218		240	4	2
23	1213				81	566			61		143		566	2	
24	329					329			29		329			2	
25															
26															
27															
28															
29															
30															
31															
32															
33															
34															
35															
36															
37															
38															
39															
40															
41						346							346		
42					40	356	71	570			164		356	8	3
43						285		264					285		
44					904	260		75					260	1	
PROJECT TOTALS	27283	109	1	1	10814	5610	107	987	90	109	854	8980	5281	18	5

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Texas Department of Transportation
Galveston Area Office


FM 1764 SUMMARY OF PAVEMENT MARKINGS QUANTITIES

NTS SHEET 3 OF 4

© TXDOT 2024		DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
CONT	SECT	JOB		HIGHWAY	
1607	01	057, ETC		FM 1764	
DIST	COUNTY			SHEET NO.	
HOU	GALVESTON			19	

SUMMARY OF PAVEMENT MARKING ITEMS		
SHEET LAYOUT NUMBER	6038	6038
	6027	6028
	MULTIPOLYMER PAV MRK (W) (WORD)	MULTIPOLYMER PAV MRK (W) 36" YLD TRI
	EA	EA
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20	1	
21		
22		32
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		
41		
42	4	
43	1	
44	1	
PROJECT TOTALS	7	32

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SH 146
SUMMARY OF PAVEMENT MARKINGS QUANTITIES

NTS SHEET 4 OF 4

© TXDOT 2024		DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
CONT	SECT	JOB		HIGHWAY	
1607	01	057, ETC		SH 146	
DIST	COUNTY			SHEET NO.	
HOU	GALVESTON			20	

SUMMARY OF WORKZONE TRAFFIC CONTROL ITEMS															
FM 1764 SHEET LAYOUT NUMBER	662 6005	662 6008	662 6010	662 6012	662 6013	662 6014	662 6016	662 6017	662 6018	662 6019	662 6020	662 6029	662 6035	662 6037	662 6041
	WK ZN PAV MRK NON-REMOV (W) 6" (BRK)	WK ZN PAV MRK NON-REMOV (W) 6" (SLD)	WK ZN PAV MRK NON-REMOV (W) 8" (DOT)	WK ZN PAV MRK NON-REMOV (W) 8" (SLD)	WK ZN PAV MRK NON-REMOV (W) 12" (LNDP)	WK ZN PAV MRK NON-REMOV (W) 12" (SLD)	WK ZN PAV MRK NON-REMOV (W) 24" (SLD)	WK ZN PAV MRK NON-REMOV (W) (ARROW)	WK ZN PAV MRK NON-REMOV (W) (DBL ARW)	WK ZN PAV MRK NON-REMOV (W) (ENTR GORE)	WK ZN PAV MRK NON-REMOV (W) (EXIT GORE)	WK ZN PAV MRK NON-REMOV (W) (WO RD)	WK ZN PAV MRK NON-REMOV (Y) 6" (BRK)	WK ZN PAV MRK NON-REMOV (Y) 6" (SLD)	WK ZN PAV MRK NON-REMOV (Y) 24" (SLD)
	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	LF	LF	LF
1	120	126													126
2	1980	3912													3903
3	1950	4533													4434
4	1944	4251								3					4278
5	462	3888									3				438
6	1758	3894													3036
7	1950	3909													3903
8	1944	3900								3					3897
9	1824	4047								3	3				3924
10		5547									3				1527
11		3900													
12		3900													
13		3900													
14		3894													
15		3900													
16		3912													
17	174	4866													1320
18	2190	5376								3	3				5367
19	2928	3900			42	1269		3			3		3		3900
20	1116	4617			402			3					3		558
21	3900	4569									3				4209
22	1392	2295		834			654	12	6						
23		243	183				429	6							
24	870	255	87	864			1050	12					6		1410
25	3900		57										858		3900
26	3030	339	27	210			63	3				3	486		3603
27	3168	279	27	357			114	6				3	564		3168
28	3828		39	93								3	849		3915
29	3012	309	78	396			63	6				6	507		3441
30	3900												975		3900
31	3900												975		3900
32	3090	321	66	408			135	6				6	573		3537
33	3900												975		3900
34	3906			42			132						777		3204
35	2988	324	90	390			279	6				6	417		2535
36	3900		114	390				6				6			
37	3900		180	393				6							
38	3402		159	399			264	6				6			
39	3900			129				3				3			
40	2286		90	1344			405	6				6			
41															
42															
43															
44															
PROJECT TOTALS	82512	89106	1197	6249	444	1269	3588	90	6	12	18	60	7956	85233	291

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 **Texas Department of Transportation**
 Galveston Area Office

FM 1764
SUMMARY OF TRAFFIC CONTROL QUANTITIES

NTS SHEET 1 OF 3

© TXDOT 2024		DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
CONT	SECT	JOB		HIGHWAY	
1607	01	057, ETC		FM 1764	
DIST	COUNTY			SHEET NO.	
HOU	GALVESTON			21	

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FM 1764 SHEET LAYOUT NUMBER	SUMMARY OF WORKZONE TRAFFIC CONTROL ITEMS											
	662 6043	662 6064	662 6065	662 6067	662 6071	662 6075	662 6080	662 6081	662 6082	662 6083	662 6090	662 6091
	WK ZN PAV MRK NON-REMOV (Y) (MED NOSE)	WK ZN PAV MRK REMOV (W) 6" (BRK)	WK ZN PAV MRK REMOV (W) 6" (DOT)	WK ZN PAV MRK REMOV (W) 6" (SLD)	WK ZN PAV MRK REMOV (W) 8" (SLD)	WK ZN PAV MRK REMOV (W) 24" (SLD)	WK ZN PAV MRK REMOV (W) (ARROW)	WK ZN PAV MRK REMOV (W) (DBL ARROW)	WK ZN PAV MRK REMOV (W) (ENTR GORE)	WK ZN PAV MRK REMOV (W) (EXIT GORE)	WK ZN PAV MRK REMOV (W) (WORD)	WK ZN PAV MRK REMOV (W) 18" (YLD TRI)
	EA	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22	4											
23	1											
24	1											
25												
26												
27												
28												
29												
30												
31												
32												
33												
34												
35	1											
36	3											
37	2											
38	2											
39	2											
40	3											24
41		692							2	2		
42		712	142	80	1140	642	16	6			8	
43		570			528						2	
44	1	520		1808	150		2		2	2	2	
PROJECT TOTALS	20	2494	142	1888	1818	642	18	6	4	4	12	24



**FM 1764
 SUMMARY OF
 TRAFFIC CONTROL
 QUANTITIES**

NTS SHEET 2 OF 3

© TXDOT 2024		DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
CONT	SECT	JOB		HIGHWAY	
1607	01	057, ETC		FM 1764	
DIST	COUNTY			SHEET NO.	
HOU	GALVESTON			22	

SUMMARY OF WORKZONE TRAFFIC CONTROL ITEMS					
FM 1764 SHEET LAYOUT NUMBER	500	502	6001	6185	6185
	6001	6001	6001	6002	6003
	MOBILIZATION	BARRICADES, SIGNS AND TRAFFIC HANDLING	PORTABLE CHANGEABLE MESSAGE SIGN	TMA (STATIONARY)	TMA (MOBILE OPERATION)
	LS	MO	DAY	DAY	HR
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					
41					
42					
43					
44					
PROJECT TOTALS	1	23	678	339	136

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FM 1764
SUMMARY OF
TRAFFIC CONTROL
QUANTITIES

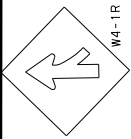
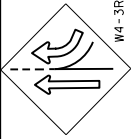
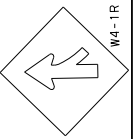
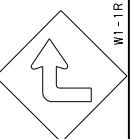
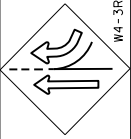
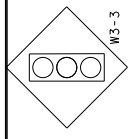
NTS SHEET 3 OF 3

© TXDOT 2024		DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
CONT	SECT	JOB		HIGHWAY	
1607	01	057, ETC		FM 1764	
DIST	COUNTY			SHEET NO.	
HOU	GALVESTON			23	

SUMMARY OF SMALL SIGNS

644 - INS SM RD SN SUP & AM

636

LAYOUT SHEET NO.	SIGN SHEET NO.	SIGN TYPE	SIGN TEXT	SIGN DIMENSIONS	SIGNS (SF)	ALUMINUM SIGNS TYPE A	6001	6002	6004	6005	6007	6009	6012	6027	6028	6030	6031	6033	6034	6036	6068	6070	6076	6001	6007
							EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	SF	SF
2	1	W4-1R		48 X 48	16	✓																			
2	2	W4-3R		48 X 48	16	✓																			
3	1	W4-1R		48 X 48	16	✓																			
4	1	W1-1R		48 X 48	16	✓																			
6	1	D9-18b	HOSPITAL NEXT RIGHT	84 X 36	21	✓																			
7	2	R2-1	SPEED LIMIT 65	48 X 60	20	✓																			
7	3	W8-5aT	SLOW DOWN ON WET ROAD	48 X 48	16	✓																			
9	1	W13-2	EXIT SPEED LIMIT 35	48 X 60	20	✓																			
15	1	R2-1	SPEED LIMIT 55	48 X 60	20	✓																			
16	1	R2-1	SPEED LIMIT 65	48 X 60	20	✓																			
16	2	W3-5	SPEED LIMIT AHEAD	36 X 36	9	✓																			
17	1	W4-3R		48 X 48	16	✓																			
18	1	R2-1	SPEED LIMIT 55	48 X 60	15	✓																			
19	1	R3-33TR	RIGHT LANE MUST EXIT	48 X 48	16	✓																			
19	2	R2-1	SPEED LIMIT 45	48 X 60	20	✓																			
20	R-1	W3-3		48 X 48	16	✓																			
21	1	M2-1 M1-6T	JCT 3 TEXAS	21 X 15 24 X 24	2.2 4	✓																			
21	2	R3-33TR	RIGHT LANE MUST EXIT	48 X 48	16	✓																			
21	3	R2-1	SPEED LIMIT 45	48 X 60	20	✓																			

CSJ 1607-01-057, ETC (SHT 1 OF 9)

GENERAL NOTES:
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 BLANKS (TYPE A)

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

SUMMARY OF SMALL SIGNS FM 1764

SUMMARY OF SMALL SIGNS

644 - INS SM RD SN SUP & AM

636

LAYOUT SHEET NO.	SIGN SHEET NO.	SIGN TYPE	SIGN TEXT	SIGN DIMENSIONS	SIGNS (SF)	ALUMINUM SIGNS TYPE A	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA
21	4	M3-4 M1-6F		24 X 12 24 X 24	2 4	✓	✓											
21	5	M2-1 M1-6T		21 X 15 24 X 24	2.2 4	✓												
21	6	EM-1GT M6-1LB		24 X 24 21 X 15	4 2.2	✓												
21	7	W12-2		48 X 48	16	✓												
22	1	W13-2	EXIT SPEED LIMIT 25	48 X 60	20	✓												
22	2	D2-1	EMMETT F. LOWRY EXPRESSWAY	114 X 36	28.5	✓												
22	3	W8-5aT	SLOW DOWN ON WET ROAD	48 X 48	16	✓												
22	4	M3-3 M1-6T M6-1L		24 X 12 24 X 24 21 X 15	2 4 2.2	✓												
22	5	R3-8 MS R4-7		36 X 30 24 X 30	7.5 5	✓												
22	6	R3-7R D1-2	RIGHT LANE MUST TURN RIGHT KEMAH/GALVESTON	36 X 36 96 X 30	9 20	✓												
22	8	M3-2 M1-6F M6-3		24 X 12 24 X 24 21 X 15	2 4 2.2	✓												
22		M3-1 M1-6T M6-1L		24 X 24 21 X 15 24 X 12	4 2 2	✓												
22		M3-3 M1-6T M6-1L		24 X 24 21 X 15 24 X 12	4 2 2	✓												
22		M1-6T M6-1L		24 X 24 24 X 24	4 4	✓												
22		M1-6T M6-1L		24 X 24 24 X 24	4 4	✓												
22		M1-6T M6-1L		24 X 24 24 X 24	4 4	✓												
22	9	R1-2	YIELD	48x48x48	7	✓												
22	10	R4-7 R3-4		24 X 30 24 X 24	5 4	✓												
22	11	R3-8 MS		36 X 30	7.5	✓												
22	12	M3-1 M1-6T M6-1L R5-1		24 X 12 24 X 24 21 X 15 36 X 36	2 4 2.2 9	✓												

GENERAL NOTES:
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 BLANKS(TY A)	
Square Ft.	Min. Thickness
Less than 7.5	0.080"
7.5 to 15	0.100"
Greater than 15	0.125"

CSJ 1607-01-057, ETC (SHT 2 OF 9)

SUMMARY OF SMALL SIGNS FM 1764

STATE DISTRICT		FEDERAL REGION		PROJECT NO.			SHEET
HOU 6		6					25
COUNTY	CONTROL	SECTION	JOB	HIGHWAY NO.			
GALVESTON	1607	01	057, FM 1764				

SUMMARY OF SMALL SIGNS

644 - INS SM RD SN SUP & AM

636

LAYOUT SHEET NO.	SIGN SHEET NO.	SIGN TYPE	SIGN TEXT	SIGN DIMENSIONS	SIGNS (SF)	ALUMINUM SIGNS TYPE A	6001	6002	6004	6005	6007	6009	6012	6027	6028	6030	6033	6034	6036	6068	6070	6076	6001	6007						
23	1	M3-4 M1-6F M6-3 M3-3 M1-6T M6-1L M3-1 M1-6T M6-R1		24 X 12 24 X 24 21 X 15 24 X 12 24 X 24 21 X 15 24 X 12 24 X 24 21 X 15	2 4 2.2 2 4 2.2 2 4 2.2	✓																								
23	2	EM-1R		36 X 36	9	✓																								
23	3	M2-1 M1-6T		21 X 15 24 X 24	2.2 2	✓																								
23	4	R2-1	SPEED LIMIT 40	30 X 36	7.5	✓																								
23	5	M3-2 M1-6F		24 X 12 24 X 24	2 4	✓																								
24	X-1	W9-1R	RIGHT LANE ENDS	36 X 36	9	✓																								
24	X-2	R3-5R		30 X 36	7.5	✓																								
25	1	R2-1	SPEED LIMIT 40	30 X 36	7.5	✓																								
25	2	EM-1S		36 X 36	9	✓																								
25	3	R2-1	SPEED LIMIT 40	30 X 36	7.5	✓																								
26	X-1	R3-7R	RIGHT LANE MUST TURN RIGHT	30 X 30	6.3	✓																								
26	1	R1-1	STOP	36 X 36	9	✓																								
26	2	R1-1	STOP	36 X 36	9	✓																								
27	1	R1-1	STOP	36 X 36	9	✓																								
27	X-1	R3-5R		30 X 36	7.5	✓																								
27	2	R2-1	SPEED LIMIT 40	30 X 36	7.5	✓																								
27	X-2	R3-7R	RIGHT LANE MUST TURN RIGHT	30 X 30	6.3	✓																								
28	1	R2-1	SPEED LIMIT 40	30 X 36	7.5	✓																								
28	X-1	R3-7R	RIGHT LANE MUST TURN RIGHT	30 X 30	6.3	✓																								
29	X-1	R3-5R		30 X 36	7.5	✓																								

GENERAL NOTES:
 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 BLANKS (TYPE A)

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


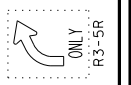





CSJ 1607-01-057, ETC (SHT 3 OF 9)

SUMMARY OF SMALL SIGNS FM 1764

SUMMARY OF SMALL SIGNS

644 - INS SM RD SN SUP & AM

636

LAYOUT SHEET NO.	SIGN SHEET NO.	SIGN TYPE	SIGN TEXT	SIGN DIMENSIONS	SIGNS (SF)	ALUMINUM SIGNS TYPE A	6001	6002	6004	6005	6007	6009	6012	6027	6028	6030	6031	6033	6034	6036	6068	6070	6076	6001	6007	
	29	X-2	R3-7R	RIGHT LANE MUST TURN RIGHT	30 X 30	6.3	✓																			
	29	X-3	R3-7R	RIGHT LANE MUST TURN RIGHT	30 X 30	6.3	✓																			
	29	X-4	R3-5R		30 X 36	7.5	✓																			
	30	1	R2-1	SPEED LIMIT 40	30 X 36	7.5	✓																			
	32	1	R2-1	SPEED LIMIT 40	30 X 36	7.5	✓																			
	32	X-1	R3-5R		30 X 36	7.5	✓																			
	32	2	EM-10T		24 X 24	4	✓																			
	32	X-2	R3-7R	RIGHT LANE MUST TURN RIGHT	30 X 30	6.3	✓																			
	32	X-3	R3-5R		30 X 36	7.5	✓																			
	33	X-1	R3-7R	RIGHT LANE MUST TURN RIGHT	30 X 30	6.3	✓																			
	33	1	R2-1	SPEED LIMIT 40	30 X 36	7.5	✓																			
	33	2	M1-6F		24 X 24	4	✓																			
	34	1	R1-1	STOP	36 X 36	9	✓																			
	34	2	R1-1	STOP	36 X 36	9	✓																			
	35	1	R2-1	SPEED LIMIT 40	30 X 36	7.5	✓																			
	35	X-1	R3-5R		30 X 36	7.5	✓																			
	35	2	R3-7R	RIGHT LANE MUST TURN RIGHT	30 X 30	6.3	✓																			
	35	3	R1-1	STOP	36 X 36	9	✓																			
	35	X-2	R3-7R	RIGHT LANE MUST TURN RIGHT	30 X 30	6.3	✓																			
	35	4	D22-1TL (R)	U.S. POST OFFICE	30 X 30	6.3	✓																			
	36	X-1	R3-7R	RIGHT LANE MUST TURN RIGHT	30 X 30	6.3	✓																			
	36	1	S5-2	END SCHOOL ZONE	24 X 30	5	✓																			
	36	2	R2-1	SPEED LIMIT 35	30 X 36	7.5	✓																			
	36	R-1	S5-1 S7-1T		24 X 48 24 X 18	8 3	✓ ✓																			

GENERAL NOTES:
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 BLANKS (TYPE A)
Square Ft. Min. Thickness
Less than 7.5 0.080"
7.5 to 15 0.100"
Greater than 15 0.125"

CSJ 1607-01-057, ETC (SHT 4 OF 9)

SUMMARY OF SMALL SIGNS FM 1764

644 - INS SM RD SN SUP & AM

SUMMARY OF SMALL SIGNS

LAYOUT SHEET NO.	SIGN NO.	SIGN TYPE	SIGN TEXT	SIGN DIMENSIONS	SIGNS (SF)	ALUMINUM SIGNS TYPE A	644 - INS SM RD SN SUP & AM																		
							EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA							
37	1	S1-1 S4-3P		36 X 36 36 X 12	9 3	✓ ✓	6001	6002	6004	6005	6007	6009	6012	6027	6028	6030	6031	6033	6034	6036	6068	6070	6076	6001	6007
							TY 10B WG (1) SA (P-BM)	TY 10B WG (1) SA (T)	TY 10B WG (1) SA (P)	TY 10B WG (1) SA (T-2EXT)	TY 10B WG (1) SA (U)	TY 10B WG (1) SA (P)	TY S80 (1) SA (P)	TY S80 (1) SA (P-BM)	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)	RELOCATE SM RD SN SUP & AM TY 10B WG	RELOCATE SM RD SN SUP & AM TY S80	REMOVE SM RD SN SUP & AM	ALUM SIGNS (TY A)	REPLACE EXT ALUM SIGNS (TY A)	
37	2	S4-3P R2-1 S4-4P		24 X 8 24 X 30 24 X 10	1.3 5 1.7	✓ ✓ ✓	6001	6002	6004	6005	6007	6009	6012	6027	6028	6030	6031	6033	6034	6036	6068	6070	6076	6001	6007
							TY 10B WG (1) SA (P)	TY 10B WG (1) SA (T)	TY 10B WG (1) SA (P)	TY 10B WG (1) SA (T-2EXT)	TY 10B WG (1) SA (U)	TY 10B WG (1) SA (P)	TY S80 (1) SA (P)	TY S80 (1) SA (P-BM)	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)	RELOCATE SM RD SN SUP & AM TY 10B WG	RELOCATE SM RD SN SUP & AM TY S80	REMOVE SM RD SN SUP & AM	ALUM SIGNS (TY A)	REPLACE EXT ALUM SIGNS (TY A)	
37	3	S1-1		36 X 36	9	✓	6001	6002	6004	6005	6007	6009	6012	6027	6028	6030	6031	6033	6034	6036	6068	6070	6076	6001	6007
							TY 10B WG (1) SA (P)	TY 10B WG (1) SA (T)	TY 10B WG (1) SA (P)	TY 10B WG (1) SA (T-2EXT)	TY 10B WG (1) SA (U)	TY 10B WG (1) SA (P)	TY S80 (1) SA (P)	TY S80 (1) SA (P-BM)	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)	RELOCATE SM RD SN SUP & AM TY 10B WG	RELOCATE SM RD SN SUP & AM TY S80	REMOVE SM RD SN SUP & AM	ALUM SIGNS (TY A)	REPLACE EXT ALUM SIGNS (TY A)	
37	4	S1-1 S4-3P		36 X 36 36 X 12	9 3	✓ ✓	6001	6002	6004	6005	6007	6009	6012	6027	6028	6030	6031	6033	6034	6036	6068	6070	6076	6001	6007
							TY 10B WG (1) SA (P)	TY 10B WG (1) SA (T)	TY 10B WG (1) SA (P)	TY 10B WG (1) SA (T-2EXT)	TY 10B WG (1) SA (U)	TY 10B WG (1) SA (P)	TY S80 (1) SA (P)	TY S80 (1) SA (P-BM)	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)	RELOCATE SM RD SN SUP & AM TY 10B WG	RELOCATE SM RD SN SUP & AM TY S80	REMOVE SM RD SN SUP & AM	ALUM SIGNS (TY A)	REPLACE EXT ALUM SIGNS (TY A)	
37	5	S1-1 S4-3P		36 X 36 36 X 12	9 3	✓ ✓	6001	6002	6004	6005	6007	6009	6012	6027	6028	6030	6031	6033	6034	6036	6068	6070	6076	6001	6007
							TY 10B WG (1) SA (P)	TY 10B WG (1) SA (T)	TY 10B WG (1) SA (P)	TY 10B WG (1) SA (T-2EXT)	TY 10B WG (1) SA (U)	TY 10B WG (1) SA (P)	TY S80 (1) SA (P)	TY S80 (1) SA (P-BM)	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)	RELOCATE SM RD SN SUP & AM TY 10B WG	RELOCATE SM RD SN SUP & AM TY S80	REMOVE SM RD SN SUP & AM	ALUM SIGNS (TY A)	REPLACE EXT ALUM SIGNS (TY A)	
38	1	R1-1 W4-4P	STOP CROSS TRAFFIC DOES NOT STOP	36 X 36 36 X 18	9 4.5	✓ ✓	6001	6002	6004	6005	6007	6009	6012	6027	6028	6030	6031	6033	6034	6036	6068	6070	6076	6001	6007
							TY 10B WG (1) SA (P)	TY 10B WG (1) SA (T)	TY 10B WG (1) SA (P)	TY 10B WG (1) SA (T-2EXT)	TY 10B WG (1) SA (U)	TY 10B WG (1) SA (P)	TY S80 (1) SA (P)	TY S80 (1) SA (P-BM)	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)	RELOCATE SM RD SN SUP & AM TY 10B WG	RELOCATE SM RD SN SUP & AM TY S80	REMOVE SM RD SN SUP & AM	ALUM SIGNS (TY A)	REPLACE EXT ALUM SIGNS (TY A)	
38	2	R1-5BL W11-1		36 X 36	9	✓	6001	6002	6004	6005	6007	6009	6012	6027	6028	6030	6031	6033	6034	6036	6068	6070	6076	6001	6007
							TY 10B WG (1) SA (P)	TY 10B WG (1) SA (T)	TY 10B WG (1) SA (P)	TY 10B WG (1) SA (T-2EXT)	TY 10B WG (1) SA (U)	TY 10B WG (1) SA (P)	TY S80 (1) SA (P)	TY S80 (1) SA (P-BM)	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)	RELOCATE SM RD SN SUP & AM TY 10B WG	RELOCATE SM RD SN SUP & AM TY S80	REMOVE SM RD SN SUP & AM	ALUM SIGNS (TY A)	REPLACE EXT ALUM SIGNS (TY A)	
38	3	R1-5BL R1-6A		36 X 36 36 X 18	9 4.5	✓ ✓	6001	6002	6004	6005	6007	6009	6012	6027	6028	6030	6031	6033	6034	6036	6068	6070	6076	6001	6007
							TY 10B WG (1) SA (P)	TY 10B WG (1) SA (T)	TY 10B WG (1) SA (P)	TY 10B WG (1) SA (T-2EXT)	TY 10B WG (1) SA (U)	TY 10B WG (1) SA (P)	TY S80 (1) SA (P)	TY S80 (1) SA (P-BM)	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)	RELOCATE SM RD SN SUP & AM TY 10B WG	RELOCATE SM RD SN SUP & AM TY S80	REMOVE SM RD SN SUP & AM	ALUM SIGNS (TY A)	REPLACE EXT ALUM SIGNS (TY A)	
38	4	S4-3P R2-1 S4-4P		24 X 8 24 X 30 24 X 10	1.3 5 1.7	✓ ✓ ✓	6001	6002	6004	6005	6007	6009	6012	6027	6028	6030	6031	6033	6034	6036	6068	6070	6076	6001	6007
							TY 10B WG (1) SA (P)	TY 10B WG (1) SA (T)	TY 10B WG (1) SA (P)	TY 10B WG (1) SA (T-2EXT)	TY 10B WG (1) SA (U)	TY 10B WG (1) SA (P)	TY S80 (1) SA (P)	TY S80 (1) SA (P-BM)	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)	RELOCATE SM RD SN SUP & AM TY 10B WG	RELOCATE SM RD SN SUP & AM TY S80	REMOVE SM RD SN SUP & AM	ALUM SIGNS (TY A)	REPLACE EXT ALUM SIGNS (TY A)	
40	1	R1-1	STOP	36 X 36	9	✓	6001	6002	6004	6005	6007	6009	6012	6027	6028	6030	6031	6033	6034	6036	6068	6070	6076	6001	6007
							TY 10B WG (1) SA (P)	TY 10B WG (1) SA (T)	TY 10B WG (1) SA (P)	TY 10B WG (1) SA (T-2EXT)	TY 10B WG (1) SA (U)	TY 10B WG (1) SA (P)	TY S80 (1) SA (P)	TY S80 (1) SA (P-BM)	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)	RELOCATE SM RD SN SUP & AM TY 10B WG	RELOCATE SM RD SN SUP & AM TY S80	REMOVE SM RD SN SUP & AM	ALUM SIGNS (TY A)	REPLACE EXT ALUM SIGNS (TY A)	
40	R-1	S5-1 S7-1T		24 X 48 24 X 18	8 3	✓ ✓	6001	6002	6004	6005	6007	6009	6012	6027	6028	6030	6031	6033	6034	6036	6068	6070	6076	6001	6007
							TY 10B WG (1) SA (P)	TY 10B WG (1) SA (T)	TY 10B WG (1) SA (P)	TY 10B WG (1) SA (T-2EXT)	TY 10B WG (1) SA (U)	TY 10B WG (1) SA (P)	TY S80 (1) SA (P)	TY S80 (1) SA (P-BM)	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)	RELOCATE SM RD SN SUP & AM TY 10B WG	RELOCATE SM RD SN SUP & AM TY S80	REMOVE SM RD SN SUP & AM	ALUM SIGNS (TY A)	REPLACE EXT ALUM SIGNS (TY A)	

GENERAL NOTES:
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 BLANKS (TY A)

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

CSJ 1607-01-057, ETC (SHT 5 OF 9)

SUMMARY OF SMALL SIGNS
FM 1764

c 2024 TxDOT SHEET 5 OF 9





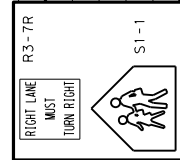
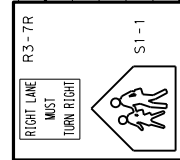
STATE DISTRICT	FEDERAL REGION	PROJECT NO.	SHEET
HOU	6		28
COUNTY	CONTROL	SECTION	JOB
GALVESTON	1607	01	057, FM 1764

644 - INS SM RD SN SUP & AM

636

6001 6002 6004 6005 6007 6009 6012 6027 6028 6030 6031 6033 6034 6036 6068 6070 6076 6001 6007

RELOCATE SM RD SN SUP & AM TY S80
RELOCATE SM RD SN SUP & AM TY 10BWG
TY S80 (1) SA (U-BM)
TY S80 (1) SA (U-1EXT)
TY S80 (1) SA (U)
TY S80 (1) SA (T-2EXT)
TY S80 (1) SA (T)
TY S80 (1) SA (P-BM)
TY S80 (1) SA (P)
TY 10BWG (1) SA (T)
TY 10BWG (1) SA (U)
TY 10BWG (1) SA (P)
TY 10BWG (1) SA (T-2EXT)
TY 10BWG (1) SA (T)
TY 10BWG (1) SA (P-BM)
TY 10BWG (1) SA (P)

LAYOUT SHEET NO.	SIGN NO.	SIGN TYPE	SIGN TEXT	SIGN DIMENSIONS	SIGNS (SF)	ALUMINUM SIGNS TYPE A
40	2	R1-5DL		36 X 36	9	✓
40	3	R2-1	SPEED LIMIT 35	30 X 36	7.5	✓
40	R-2	S5-1 S7-1T	 	24 X 48 24 X 18	8 3	✓ ✓
40	4	R1-5DL		36 X 36	9	✓
40	5	R1-1	STOP	30 X 30	6.3	✓
40	6	R3-7R S1-1	 	30 X 30 36 X 36	6.3 9	✓ ✓
40	7	R3-7R	RIGHT LANE MUST TURN RIGHT	30 X 30	6.3	✓
40	8	R1-2	YIELD	48x48x48	7	✓

PROPOSED SIGN
PROPOSED SIGN

7

CSJ 1607-01-057, ETC (SHT 6 OF 9)

11 SF

GENERAL NOTES:
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 BLANKS(TY A)

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

SUMMARY OF SMALL SIGNS FM 1764

c 2024 TxDOT SHEET 6 OF 9

STATE DISTRICT	FEDERAL REGION	PROJECT NO.	SHEET
HOU 6			29
COUNTY	CONTROL	SECTION	JOB
GALVESTON	1607	01	057, FM 1764

SUMMARY OF SMALL SIGNS

644 - INS SM RD SN SUP & AM

636

LAYOUT SHEET NO.	SIGN NO.	SIGN TYPE	SIGN TEXT	SIGN DIMENSIONS	SIGNS (SF)	ALUMINUM SIGN TYPE	6001	6002	6004	6005	6007	6009	6012	6027	6028	6030	6031	6033	6034	6052	6068	6070	6076	6001	6007		
41	1	R6-2R	ONE WAY ↑ R6-2R	30 X 36	7.5	✓	✓																				
41	2	R2-1	SPEED LIMIT 50	36 X 60	15	✓																					
41	3	R5-1	DO NOT ENTER R5-1	36 X 36	9	✓																					
41	4	R6-2R	ONE WAY ↑ R6-2R	30 X 36	7.5	✓																					
42	1	R5-1	DO NOT ENTER R5-1	36 X 36	9	✓																					
42	2	R6-2R	ONE WAY ↑ R6-2R	30 X 36	7.5	✓																					
42	3	R1-2	YIELD	48x48x48	7	✓																					
42	4	M1-6T M6-3 M3-4 M1-6F M6-1L M3-2 M1-6F M6-1R		24 X 24 21 X 15 24 X 12 24 X 24 24 X 12 24 X 24 24 X 24 21 X 15	4 2.2 2 4 4 2 4 2.2	✓																					
42	5	R5-1	DO NOT ENTER R5-1	36 X 36	9	✓																					
42	6	R5-1 R3-8G		36 X 36 48 X 30	9 10	✓																					
42	7	R3-7L	LEFT LANE MUST TURN LEFT	30 X 30	6.3	✓																					
42	8	R3-8 R5-1G		48 X 30 48 X 36	10 12	✓																					

GENERAL NOTES:
 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 BLANKS (TY A)

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

CSJ 1607-01-057, ETC (SHT 7 OF 9)

SUMMARY OF SMALL SIGNS SH 146

c 2024 TxDOT SHEET 7 OF 9

STATE DISTRICT	FEDERAL REGION	PROJECT NO.	SHEET
HOU	6		30
COUNTY	CONTROL	SECTION	JOB
GALVESTON	1607	01	057, SH 146

SUMMARY OF SMALL SIGNS

644 - INS SM RD SN SUP & AM

636

LAYOUT SHEET NO.	SIGN SHEET NO.	SIGN TYPE	SIGN TEXT	SIGN DIMENSIONS	SIGNS (SF)	ALUMINUM SIGNS TYPE A	6001	6002	6004	6005	6007	6009	6012	6027	6028	6030	6031	6033	6034	6052	6068	6070	6076	6001	6007	
42	9	D1-2	TEXAS CITY TO JCT 3	102 X 30	21.25	✓																				
		D9-2	H	30 X 30	6.3	✓																				
		M6-1	M6-1	21 X 15	2.2	✓																				
		R5-1	DO NOT ENTER	36 X 36	9	✓																				
42	10	R3-8UT	R3-8UT ONLY	30 X 36	7.5	✓																				
42	11	M3-3	M3-3 SOUTH	24 X 12	2	✓																				
		M1-6T	M1-6T	24 X 24	4	✓																				
		M6-3	M6-3	21 X 15	2.2	✓																				
		M3-2	M3-2	24 X 12	2	✓																				
		M1-6F	M1-6F	24 X 24	4	✓																				
		M6-1L	M6-1L	21 X 15	2.2	✓																				
		M3-4	M3-4	24 X 12	2	✓																				
		M1-6F	M1-6F	24 X 24	4	✓																				
		M6-2R	M6-2R	21 X 15	2.2	✓																				
42	12	R3-8	R3-8	48 X 30	10	✓																				
		R5-1	DO NOT ENTER	36 X 36	9	✓																				
42	13	R1-2	YIELD	48 X 48 X 48	7	✓																				
42	14	R1-2	YIELD	48 X 48 X 48	7	✓																				
43	1	M3-3	M3-3 SOUTH	24 X 12	2	✓																				
		M1-6T	M1-6T	24 X 24	4	✓																				
		M6-1L	M6-1L	21 X 15	2.2	✓																				
43	2	R6-2R	ONE WAY	30 X 36	7.5	✓																				
43	3	R3-8	R3-8	48 X 30	10	✓																				
		R5-1a	R5-1a	48 X 36	12	✓																				
43	4	R6-2R	ONE WAY	30 X 36	7.5	✓																				
43	5	R1-2	YIELD	48 X 48 X 48	7	✓																				
43	6	R6-2R	ONE WAY	30 X 36	7.5	✓																				
43	7	W9-1R	RIGHT LANE ENDS	48 X 48	16	✓																				
43	8	R2-1	SPEED LIMIT 50	36 X 60	15	✓																				
43	9	R6-2R	ONE WAY	30 X 36	7.5	✓																				

GENERAL NOTES:
 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 BLANKS (TYPE A)

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

CSJ 1607-01-057, ETC (SHT 8 OF 9)

SUMMARY OF SMALL SIGNS SH 146

c 2024 TxDOT SHEET 8 OF 9

STATE DISTRICT	FEDERAL REGION	PROJECT NO.	SHEET
HOU	6		31
COUNTY	CONTROL	SECTION	JOB
GALVESTON	1607	01	057, SH 146

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

DATE:
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SUMMARY OF LARGE SIGNS

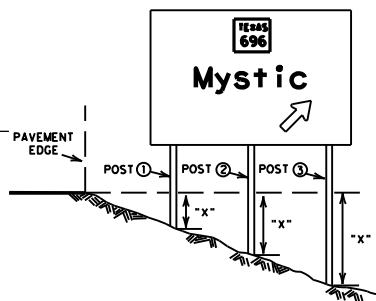
PLAN SHEET NO.	SIGN NO.	SIGN BACK-GROUND COLOR	SIGN TEXT	SIGN DIMENSIONS	PLAQUES, & OTHER ATTACHMENTS		BACKGROUND SUBSTRATE (SQ FT)		TYPE OF MOUNT	"X" DIMENSION @			*** GALVANIZED STRUCTURAL STEEL			DRILLED SHAFT							
					DIRECT APPLY	* ALUMINUM (TYPE A)	GROUND MOUNT (TYPE G)	OVERHEAD (TYPE O)		post ①	post ②	post ③	SIZE	post ①	post ②	post ③	TOTAL WEIGHT LBS.	NON-REINF 12"φ	LINEAR FEET REINFORCED 24"φ 30"φ 36"φ				
2	1	GREEN	EXIT ↗	6'0"X5'0"			30		121	0		0	S4X7.7	12		12	239.8	8					
														GROUND MOUNTED									
4	1	GREEN	EXIT ↗	6'0"X5'0"			30		121	0		0	S4X7.7	12		12	239.8	8					
														GROUND MOUNTED									
10	1	GREEN	EXIT ↗	6'0"X5'0"			30		121	0		0	S4X7.7	12		12	239.8	8					
														GROUND MOUNTED									
18	1	GREEN	EXIT ↗	6'0"X5'0"			30		121	1		0	S4X7.7	13		12	247.5	8					
														GROUND MOUNTED									
21	1	GREEN	EXIT ↗	6'0"X5'0"			30		121	1		2	S4X7.7	13		14	262.9	8					
														GROUND MOUNTED									
4 (SH 146)	1	GREEN	EXIT ↗	6'0"X5'0"			30		121	0		0	S4X7.7	12		12	239.8	8					
														GROUND MOUNTED									

PAGE TOTALS

180

PAGE TOTALS

1469.6 48



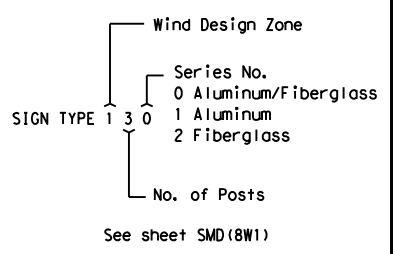
Ⓣ The "x" dimension is the elevation difference at the post between the ground and the edge of pavement or top of curb.
 Sign supports shall be located as shown on the plans, except that the Engineer may shift the sign supports, within design guidelines, where necessary to secure a more desirable location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

* This column is for aluminum Type A and not direct apply. Direct apply is subsidiary to the sign.

** OBJECT MARKER (OM1-3) NEED TO BE INSTALLED ON EACH POST. FURNISHING AND INSTALLING OBJECT MARKER OM1-3 IS SUBSIDIARY TO THE ITEM, "ALUMINUM SIGNS (TYPE G)".

*** THE SLOPE OF THE ROADSIDE WAS APPROXIMATED BY FIELD MEASUREMNT. THE CONTRACTOR SHALL VERIFY THE LENGTH OF THE POST PRIOR TO ANY CONSTRUCTION.

SIGN TYPE




SUMMARY OF LARGE SIGNS SOLS

© TxDOT May 1987			
DN.- TxDOT	REVISIONS		
CK.- TxDOT	11-93	1-04	
DN.- TxDOT	8-95	9-08	
CK.- TxDOT	5-01		
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		33

DATE: 5/8/2024 4:53:32 PM
FILE: E:\DESIGN\160701055\160701055\Fm1764\Docs\Summary of Bridge.dgn

SUMMARY OF BRIDGE # 1 ITEMS		NBI: 12-085-1607-01-004		
SHEET LAYOUT NUMBER	429 6007			
	CONC STR REPAIR (VERTICAL & OVERHEAD)			
	SF			
1	266			
PROJECT TOTALS	266			

 **Texas Department of Transportation**
Galveston Area Office

FM 1764
SUMMARY OF
BRIDGE
QUANTITIES

SHEET 1 OF 1

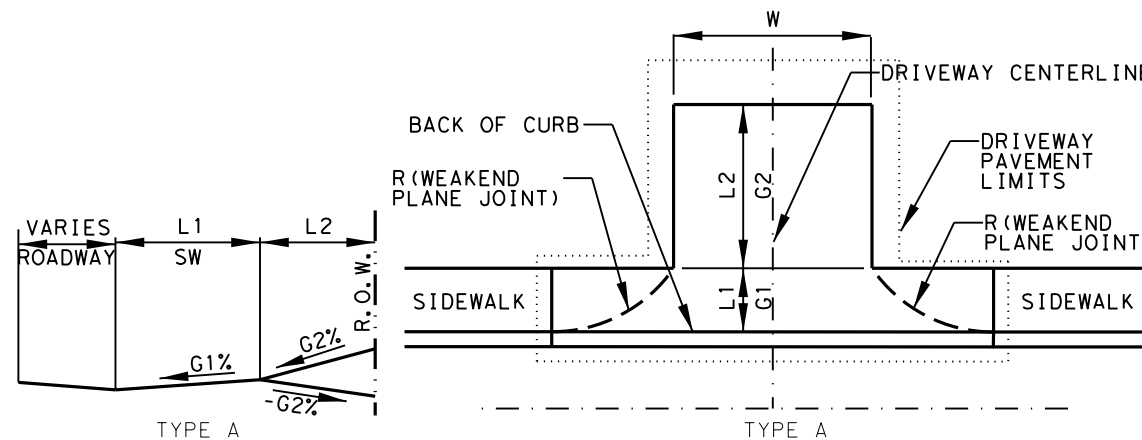
© TXDOT 2024		DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
CONT	SECT	JOB		HIGHWAY	
1607	01	057, ETC		FM 1764	
DIST	COUNTY			SHEET NO.	
HOU	GALVESTON			34	

DRIVEWAY TABLE*

SHEET	DRIVEWAY	MATERIAL	L OR R	DRIVEWAY LENGTH (FT)	THROAT WIDTH (FT)	RADIUS (FT)	TYPE	G1 (%)	L1 LENGTH (FT)	G2 (%)	L2 LENGTH (FT)	G3 (%)	L3 LENGTH (FT)
199	2-1	CONCRETE	R	9.0	35.0	15.0	B	12.0	2.0	1.5	4.0	8.4	3.0
199	2-2	CONCRETE	R	14.5	26.0	15.0	B	12.0	2.0	1.5	4.0	12	8.5
199	2-3	CONCRETE	L	11.0	40.0	15.0	B	12.0	2.0	1.5	4.0	12.0	5.0
199	2-4	CONCRETE	R	9.0	26.0	15.0	A	1.5	6.0	7.2	3.0		
200	3-1	CONCRETE	R	9.0	36.5	15.0	A	1.5	6.0	6	3.0		
200	3-2	CONCRETE	L	9.5	40.0	15.0	B	12.0	2.0	1.5	4.0	12.0	3.5
201	4-1	CONCRETE	L	9.0	37.5	15.0	B	12.0	2.0	1.5	4.0	6.1	3.0
202	5-1	CONCRETE	R	9.0	33.0	15.0	A	1.5	6.0	10	3.0		
202	5-2	CONCRETE	L	12.0	35.0	15.0	B	12.0	1.0	1.5	4.0	12.0	7.0
204	7-1	CONCRETE	R	9.0	30.0	15.0	A	1.5	6.0	12	3.0		
204	7-2	CONCRETE	L	9.5	27.0	15.0	B	12.0	3.0	1.5	4.0	9.8	2.5
204	7-3	CONCRETE	L	9.5	34.0	15.0	B	5.0	3.0	1.5	4.0	4.9	2.5
204	7-4	CONCRETE	R	9.0	31.0	15.0	B	12.0	2.0	1.5	4.0	10.4	3.0
205	8-1	CONCRETE	L	9.5	50.0	15.0	B	12.0	3.0	1.5	4.0	6.0	2.5
205	8-2	CONCRETE	R	16.5	24.0	15.0	B	12.0	2.0	1.5	4.0	1.5	10.5
205	8-3	CONCRETE	L	9.5	41.0	15.0	A	5.0	3.0	1.5	4.0	7.6	2.5
205	8-4	CONCRETE	L	12.0	40.0	15.0	A	5.0	3.0	1.5	6.0	5.0	3.0
205	8-5	CONCRETE	R	20.6	24.0	15.0	B	12.0	2.0	1.5	4.0	12.0	14.6
206	9-1	CONCRETE	R	23.0	36.0	15.0	B	12.0	2.0	1.5	4.0	12.0	17.0
206	9-2	CONCRETE	L	9.0	47.5	15.0	B	5.0	3.0	1.5	5.0	4.0	1.0
206	9-3	CONCRETE	R	6.0	40.0	15.0	A	1.5	6.0				
206	9-4	CONCRETE	R	8.0	37.0	15.0	A	1.5	6.0	3.5	2.0		
207	10-1	CONCRETE	R	9.0	39.0	15.0	B	12.0	2.0	1.5	4.0	12.0	3.0
208	11-1	CONCRETE	L	9.0	37.0	15.0	A	1.5	5.0	10.4	4.0		
208	11-2	CONCRETE	R	11.0	25.5	15.0	B	12.0	2.0	1.5	4.0	25.0	5.0
208	11-3	CONCRETE	L	9.5	19.5	15.0	B	5.0	3.0	1.5	4.0	11.70	2.5
208	11-4	CONCRETE	L	9.5	26.0	15.0	B	12.0	2.0	1.5	5.0	11.3	2.5
208	11-5	CONCRETE	R	10.5	33.0	15.0	B	12.0	2.0	1.5	4.0	12.0	4.5
208	11-6	CONCRETE	R	10.5	26.5	15.0	B	12.0	2.0	1.5	4.0	12.0	4.5
209	12-1	CONCRETE	L	15.0	39.5	15.0	B	12.0	2.0	1.5	4.0	15.0	9.0
209	12-2	CONCRETE	R	16.0	24.0	15.0	B	12.0	2.0	1.5	4.0	12.0	10.0
209	12-3	CONCRETE	R	8.5	31.0	15.0	B	12.0	2.0	1.5	4.0	12.0	2.5
209	12-4	CONCRETE	L	9.0	33.5	15.0	A	1.5	5.0	12	4.0		
210	13-1	CONCRETE	L	9.0	24.0	15.0	B	12.0	3.0	1.5	4.0	12.3	2.0
210	13-2	CONCRETE	R	15.0	24.0	15.0	B	12.0	2.0	1.5	4.0	15.0	9.0
210	13-3	CONCRETE	L	9.0	52.0	15.0	B	5.0	3.0	1.5	4.0	9.4	2.0
210	13-4	CONCRETE	R	9.0	32.5	15.0	B	12.0	2.0	1.5	4.0	9.3	3.0

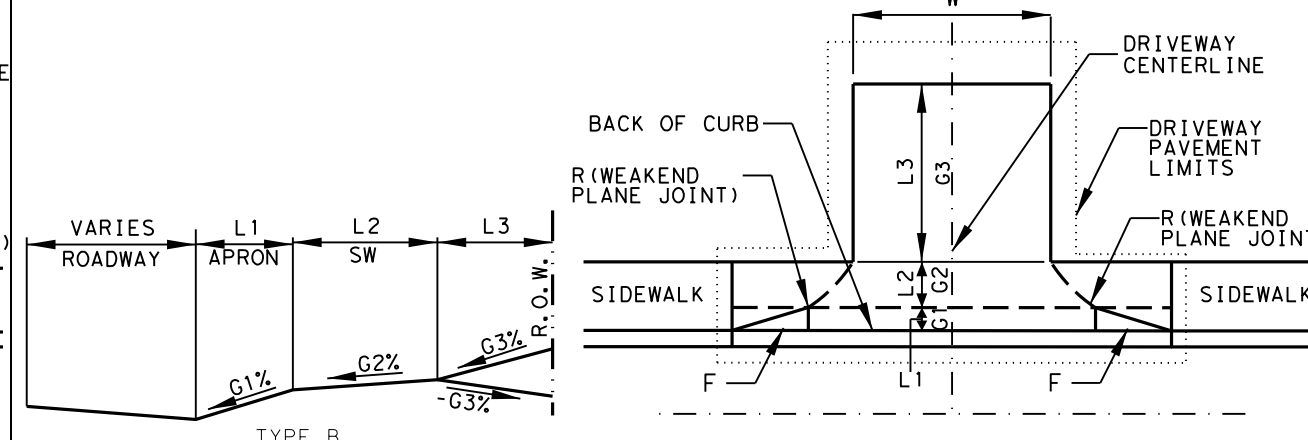
NOTES:

1. REFER TO DRIVEWAY DETAILS FOR MORE INFORMATION.



DRIVEWAY PROFILE

TYPICAL PLAN VIEW



DRIVEWAY PROFILE

TYPICAL PLAN VIEW

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Signature: *ALD*
 5/16/2024

Kimley»Horn F-928
 Texas Department of Transportation

SUMMARY OF DRIVEWAY QUANTITIES

TEXAS CITY, TEXAS

SHEET 1 OF 4

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
		FM 1764
STATE	DIST.	COUNTY
TEXAS	HOUSTON	GALVESTON
CONT.	SECT.	JOB
1607	01	057, ETC.

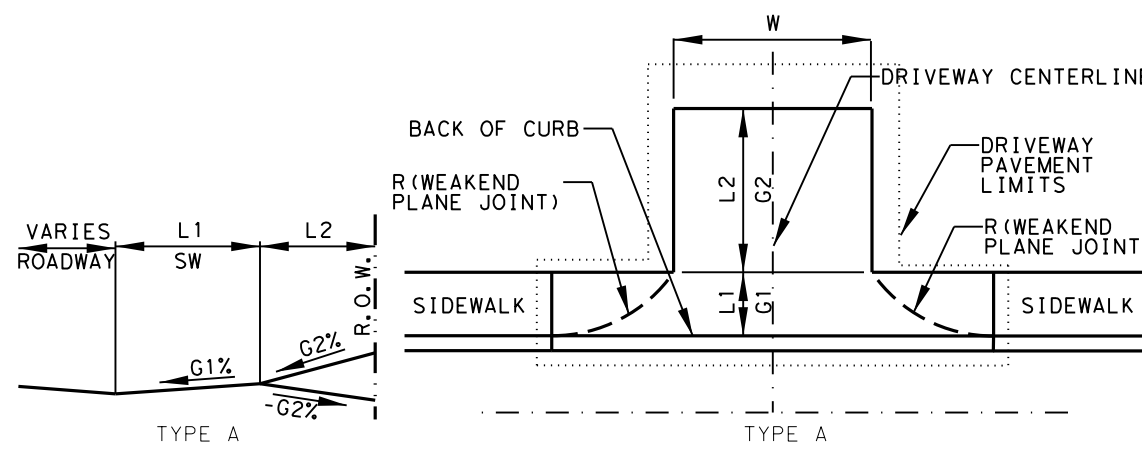
SHEET NO. 35

DRIVEWAY TABLE*

SHEET	DRIVEWAY	MATERIAL	L OR R	DRIVEWAY LENGTH (FT)	THROAT WIDTH (FT)	RADIUS (FT)	TYPE	G1 (%)	L1 LENGTH (FT)	G2 (%)	L2 LENGTH (FT)	G3 (%)	L3 LENGTH (FT)
211	14-1	CONCRETE	R	9.0	47.5	15.0	A	1.5	6.0	6.9	3.0		
211	14-2	CONCRETE	L	9.0	51.5	15.0	B	2.0	3.0	1.5	4.0	2.1	2.0
211	14-3	CONCRETE	L	10.0	38.5	15.0	B	12.0	3.0	1.5	4.0	12.0	3.0
212	15-1	CONCRETE	R	14.5	31.5	15.0	B	12.0	2.0	1.5	6.0	12.0	6.5
212	15-2	CONCRETE	R	17.5	31.0	15.0	B	12.0	2.0	1.5	6.0	12.0	9.5
212	15-3	CONCRETE	L	10.0	15.0	15.0	B	12.0	2.0	1.5	4.0	12.0	4.0
212	15-4	CONCRETE	L	16.5	41.0	15.0	B	12.0	2.0	1.5	4.0	12.0	10.5
212	15-5	CONCRETE	R	16.0	14.0	15.0	B	12.0	2.0	1.5	4.0	12.0	10.0
213	16-1	CONCRETE	R	17.2	14.0	15.0	B	12.0	2.0	1.5	4.0	12.0	11.2
213	16-2	CONCRETE	L	9.0	40.0	15.0	B	12.0	2.0	1.5	4.0	9.5	3.0
213	16-3	CONCRETE	R	29.0	30.0	15.0	B	12.0	2.0	1.5	4.0	12.0	23.0
213	16-4	CONCRETE	L	11.0	22.0	15.0	B	12.0	2.0	1.5	4.0	12.0	5.0
213	16-5	CONCRETE	R	16.5	23.0	15.0	B	12.0	2.0	1.5	4.0	12.0	10.5
214	17-1	CONCRETE	L	11.5	30.0	15.0	B	12.0	2.0	1.5	4.0	12.0	5.5
214	17-2	CONCRETE	R	9.0	29.0	15.0	B	12.0	2.0	1.5	4.0	12.0	3.0
214	17-3	CONCRETE	L	9.0	20.0	15.0	A	1.5	6.0	12	3.0		
214	17-4	CONCRETE	R	14.0	16.0	15.0	B	12.0	2.0	1.5	4.0	12.0	8.0
214	17-5	CONCRETE	L	9.0	75.0	15.0	A	1.5	6.0	10.8	3.0		
214	17-6	CONCRETE	R	9.0	38.0	15.0	B	12.0	2.0	1.5	4.0	12.0	3.0
215	18-1	CONCRETE	R	9.0	37.0	15.0	B	12.0	2.0	1.5	4.0	11.3	3.0
215	18-2	CONCRETE	L	9.0	26.0	15.0	A	1.5	6.0	6.4	3.0		
215	18-3	CONCRETE	R	9.0	30.0	15.0	A	1.5	6.0	10.2	3.0		
215	18-4	CONCRETE	L	9.0	30.0	15.0	B	12.0	2.0	1.5	4.0	12.0	3.0
215	18-5	CONCRETE	R	9.0	30.0	15.0	A	1.5	5.0	10.5	4.0		
215	18-6	CONCRETE	R	9.0	37.0	15.0	A	1.5	6.0	9	3.0		
215	18-7	CONCRETE	L	9.0	30.0	15.0	B	12.0	2.0	1.5	4.0	12.0	3.0
216	19-1	CONCRETE	R	9.0	37.0	15.0	A	1.5	6.0	9	3.0		
216	19-2	CONCRETE	L	9.0	36.0	15.0	A	1.5	6.0	12	3.0		
216	19-3	CONCRETE	R	18.5	33.0	15.0	B	12.0	2.0	1.5	4.0	12.0	12.5
216	19-4	CONCRETE	R	11.5	35.5	15.0	B	12.0	2.0	1.5	4.0	12.0	5.5
218	21-1	CONCRETE	L	9.0	36.0	15.0	B	12.0	2.0	1.5	5.0	5.9	2.0
218	21-2	CONCRETE	L	9.0	64.0	15.0	B	2.0	2.0	1.5	5.0	4.5	2.0
218	21-3	CONCRETE	L	9.0	25.0	15.0	B	5.0	2.0	1.5	5.0	10.0	2.0
218	21-4	CONCRETE	L	9.0	37.0	15.0	B	12.0	2.0	1.5	4.0	12.0	3.0
219	22-1	CONCRETE	R	16.0	35.0	15.0	B	5.0	8.0	1.5	6.0	7.1	2.0
219	22-2	CONCRETE	L	9.0	55.0	15.0	B	12.0	2.0	1.5	6.0	10.5	1.0
219	22-3	CONCRETE	L	9.0	15.0	15.0	B	12.0	2.0	1.5	4.0	11.4	3.0

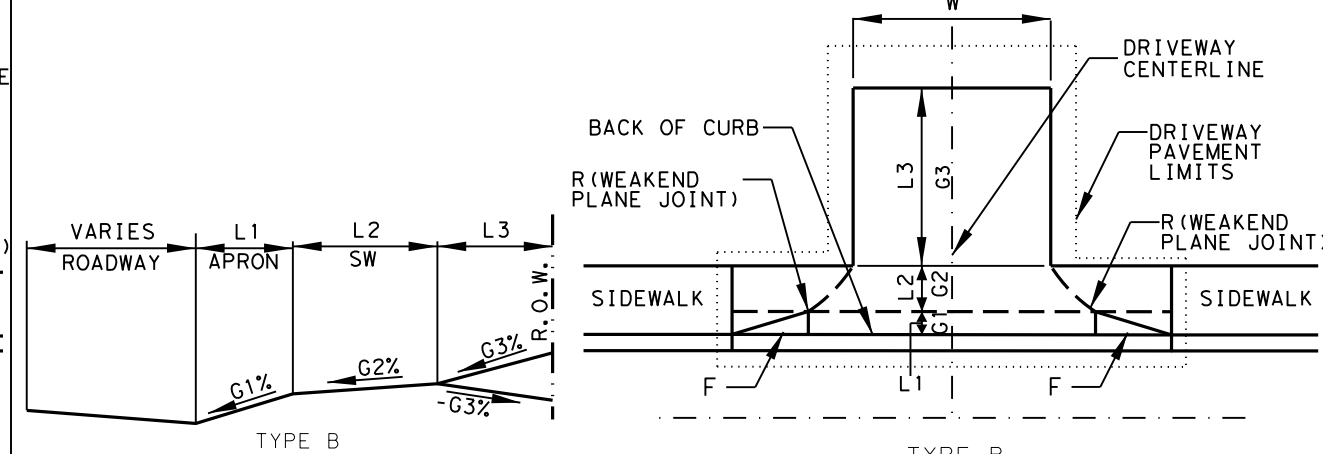
NOTES:

1. REFER TO DRIVEWAY DETAILS FOR MORE INFORMATION.



DRIVEWAY PROFILE

TYPICAL PLAN VIEW



DRIVEWAY PROFILE

TYPICAL PLAN VIEW

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Signature: *ALJ*
 5/16/2024

Kimley Horn F-928
 Texas Department of Transportation

SUMMARY OF DRIVEWAY QUANTITIES

TEXAS CITY, TEXAS

SHEET 2 OF 4

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
		FM 1764
STATE	DIST.	COUNTY
TEXAS	HOUSTON	GALVESTON
CONT.	SECT.	JOB
1607	01	057, ETC.

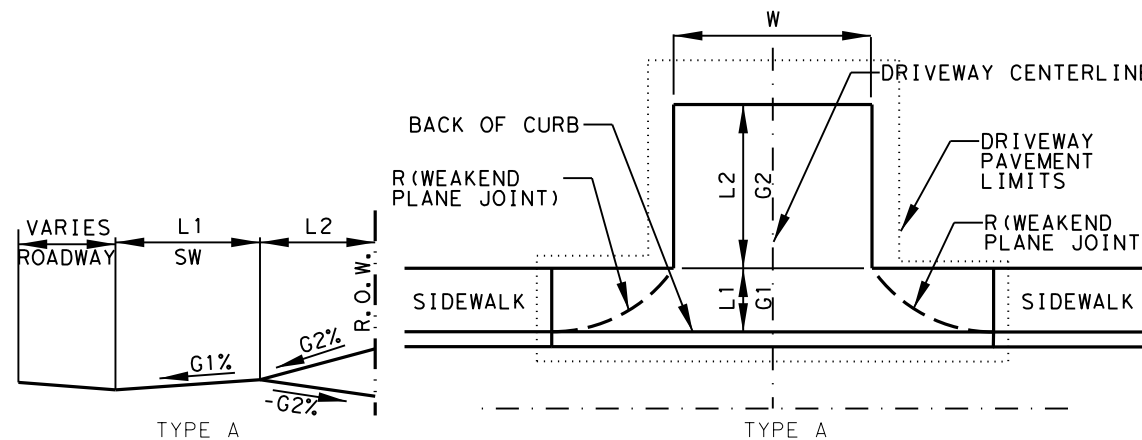
SHEET NO. 36

DRIVEWAY TABLE*

SHEET	DRIVEWAY	MATERIAL	L OR R	DRIVEWAY LENGTH (FT)	THROAT WIDTH (FT)	RADIUS (FT)	TYPE	G1 (%)	L1 LENGTH (FT)	G2 (%)	L2 LENGTH (FT)	G3 (%)	L3 LENGTH (FT)
219	22-4	CONCRETE	L	9.0	38.0	15.0	B	5.0	2.0	1.5	4.0	10.0	3.0
220	23-1	CONCRETE	R	8.0	33.0	15.0	B	2.0	2.0	1.5	5.0	10.3	1.0
220	23-2	CONCRETE	L	9.0	35.0	15.0	B	12.0	2.0	1.5	4.0	6.4	3.0
220	23-3	CONCRETE	L	9.0	35.0	15.0	B	12.0	2.0	1.5	4.0	5.0	3.0
220	23-4	CONCRETE	R	8.0	35.0	15.0	B	2.0	2.0	1.5	5.0	10.3	1.0
220	23-5	CONCRETE	L	13.0	21.0	15.0	B	12.0	2.0	1.5	4.0	12.0	7.0
221	24-1	CONCRETE	L	10.5	26.0	15.0	B	12.0	5.0	1.5	4.0	12.0	1.5
221	24-2	CONCRETE	L	9.0	30.0	15.0	B	2.0	2.0	1.5	5.0	7.9	2.0
221	24-3	CONCRETE	R	9.0	35.0	15.0	B	12.0	2.0	1.5	5.0	5.2	2.0
221	24-4	CONCRETE	L	9.0	24.0	15.0	B	12.0	2.0	1.5	5.0	12.0	2.0
221	24-5	CONCRETE	L	10.5	18.0	15.0	B	12.0	2.0	1.5	4.0	12.0	4.5
222	25-1	CONCRETE	L	9.0	30.0	15.0	B	12.0	2.0	1.5	4.0	12.0	3.0
222	25-2	CONCRETE	L	9.0	18.0	15.0	B	12.0	2.0	1.5	6.0	4.2	1.0
222	25-3	CONCRETE	R	9.0	49.0	15.0	B	12.0	2.0	1.5	5.0	6.8	2.0
222	25-4	CONCRETE	R	9.0	35.0	15.0	B	12.0	2.0	1.5	5.0	10.0	2.0
222	25-5	CONCRETE	L	8.0	36.0	15.0	B	2.0	2.0	1.5	6.0		
223	26-1	CONCRETE	R	11.0	31.0	15.0	B	12.0	2.0	1.5	4.0	12.0	5.0
223	26-2	CONCRETE	L	9.0	44.0	15.0	B	2.0	2.0	1.5	5.0	-5.8	2.0
224	27-1	CONCRETE	L	19.0	21.0	15.0	B	12.0	2.0	1.5	5.0	12.0	12.0
224	27-2	CONCRETE	R	12.5	29.0	15.0	B	12.0	2.0	1.5	4.0	12.0	6.5
224	27-3	CONCRETE	R	11.0	40.0	15.0	B	12.0	2.0	1.5	4.0	12.0	5.0
225	28-1	CONCRETE	R	11.0	30.0	15.0	B	5.0	2.0	1.5	6.0	8.0	3.0
225	28-2	CONCRETE	L	13.0	31.0	15.0	B	12.0	3.0	1.5	4.0	12.0	6.0
225	28-3	CONCRETE	R	11.0	22.0	15.0	B	12.0	2.0	1.5	4.0	12.0	5.0
226	29-1	CONCRETE	L	11.0	35.0	15.0	B	12.0	3.0	1.5	4.0	12.0	4.0
227	30-1	CONCRETE	L	9.0	26.0	15.0	A	1.5	4.0	12.1	5.0		
227	30-2	CONCRETE	R	9.0	30.0	15.0	A	1.5	6.0	11.4	3.0		
227	30-3	CONCRETE	R	9.0	30.0	15.0	B	12.0	2.0	1.5	4.0	12.0	3.0
228	31-1	CONCRETE	L	9.0	55.0	15.0	A	1.5	6.0	12	3.0		
228	31-2	CONCRETE	R	9.0	45.0	15.0	B	12.0	2.0	1.5	4.0	12.0	3.0
228	31-3	CONCRETE	R	11.0	20.0	15.0	B	12.0	2.0	1.5	6.0	12.0	3.0
228	31-4	CONCRETE	L	9.0	43.0	15.0	B	12.0	2.0	1.5	4.0	10.5	3.0
229	32-1	CONCRETE	L	10.0	35.0	15.0	B	12.0	2.0	1.5	4.0	12.0	4.0
229	32-2	CONCRETE	R	9.0	18.0	15.0	B	12.0	2.0	1.5	4.0	12.0	3.0
229	32-3	CONCRETE	R	16.0	28.0	15.0	B	12.0	2.0	1.5	4.0	12.5	10.0
229	32-4	CONCRETE	L	10.0	28.0	15.0	B	12.0	2.0	1.5	4.0	12.0	4.0
230	33-1	CONCRETE	R	9.0	25.0	15.0	B	12.0	2.0	1.5	4.0	12.0	3.0

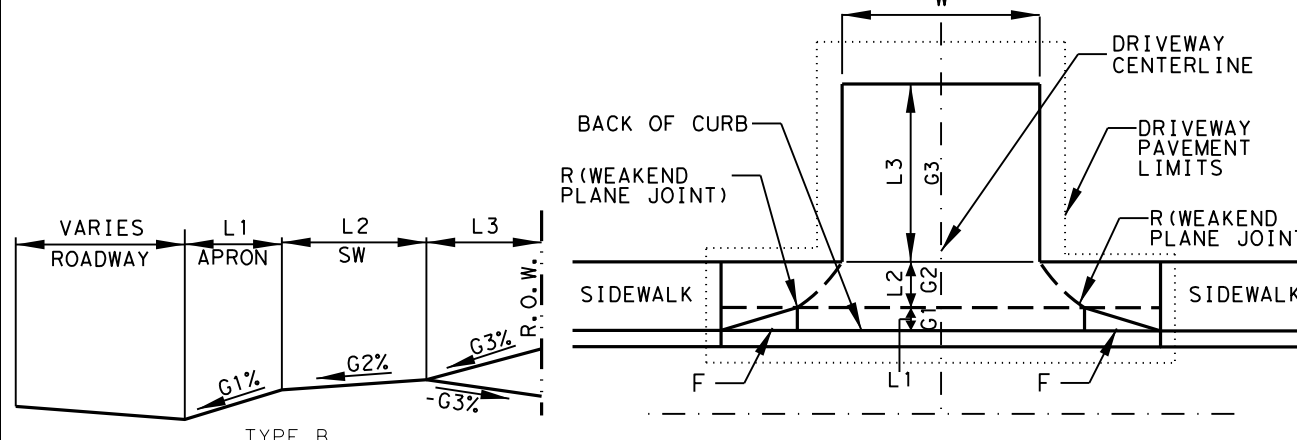
NOTES:

1. REFER TO DRIVEWAY DETAILS FOR MORE INFORMATION.



DRIVEWAY PROFILE

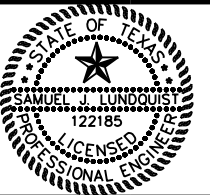
TYPICAL PLAN VIEW



DRIVEWAY PROFILE

TYPICAL PLAN VIEW

5/16/2024



Kimley Horn F-928

Texas Department of Transportation

SUMMARY OF DRIVEWAY QUANTITIES

TEXAS CITY, TEXAS

SHEET 3 OF 4

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
		FM 1764
STATE	DIST.	COUNTY
TEXAS	HOUSTON	GALVESTON
CONT.	SECT.	JOB
1607	01	057, ETC.
		SHEET NO.
		37

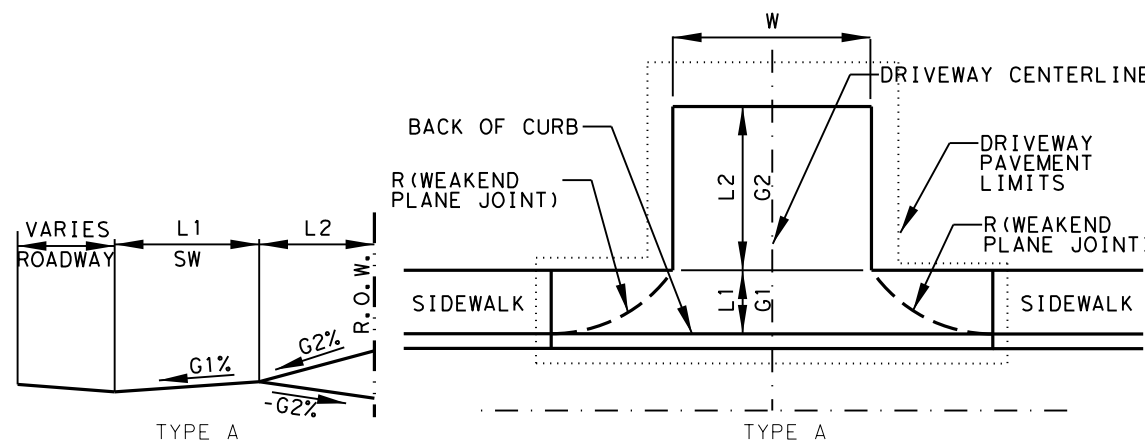
DRIVEWAY TABLE*

SHEET	DRIVEWAY	MATERIAL	L OR R	DRIVEWAY LENGTH (FT)	THROAT WIDTH (FT)	RADIUS (FT)	TYPE	G1 (%)	L1 LENGTH (FT)	G2 (%)	L2 LENGTH (FT)	G3 (%)	L3 LENGTH (FT)
230	33-2	CONCRETE	R	9.0	35.0	15.0	B	12.0	2.0	1.5	4.0	12.0	3.0
230	33-3	CONCRETE	R	9.0	25.0	15.0	B	12.0	2.0	1.5	4.0	12.0	3.0
230	33-4	CONCRETE	L	9.0	25.0	15.0	B	12.0	2.0	1.5	4.0	8.4	3.0
231	34-1	CONCRETE	R	12.0	36.0	15.0	B	12.0	2.0	1.5	4.0	12.0	6.0
231	34-2	CONCRETE	L	12.0	23.0	15.0	B	12.0	2.0	1.5	4.0	12.0	6.0
231	34-3	CONCRETE	L	17.0	30.0	15.0	B	12.0	2.0	1.5	4.0	12.0	11.0
231	34-4	CONCRETE	R	13.0	31.0	15.0	B	12.0	2.0	1.5	4.0	12.0	7.0
231	34-5	CONCRETE	L	9.0	16.0	15.0	B	12.0	2.0	1.5	4.0	12.0	3.0
232	35-1	CONCRETE	L	11.0	80.0	15.0	B	12.0	2.0	1.5	4.0	12.0	5.0
232	35-2	CONCRETE	R	9.0	108.0	15.0	B	12.0	2.0	1.5	4.0	8.0	3.0
232	35-3	CONCRETE	L	9.0	109.0	15.0	A	1.5	6.0	4.5	3.0		
233	36-1	CONCRETE	R	9.0	27.0	15.0	B	12.0	2.0	1.5	4.0	12.0	3.0
233	36-2	CONCRETE	L	9.0	30.0	15.0	A	1.5	6.0	10.2	3.0		
233	36-3	CONCRETE	R	9.0	25.0	15.0	B	12.0	2.0	1.5	4.0	12.0	3.0
234	37-1	CONCRETE	R	9.0	28.0	15.0	A	1.5	6.0	5.2	3.0		
234	37-2	CONCRETE	R	9.0	40.0	15.0	A	1.5	6.0	10.2	3.0		
234	37-3	CONCRETE	R	9.0	38.0	15.0	A	1.5	6.0	3.6	3.0		
234	37-4	CONCRETE	L	9.0	49.0	15.0	A	1.5	6.0	-1.5	3.0		
234	37-5	CONCRETE	R	9.0	38.0	15.0	A	1.5	6.0	6.5	3.0		
234	37-6	CONCRETE	R	9.0	34.0	15.0	A	1.5	6.0	3.9	3.0		
235	38-1	CONCRETE	L	9.0	35.0	15.0	B	12.0	2.0	1.5	4.0	12.0	3.0
236	39-1	CONCRETE	L	11.0	33.0	15.0	B	12.0	2.0	1.5	6.0	11.3	3.0
236	39-2	CONCRETE	L	16.0	36.0	15.0	B	12.0	2.0	1.5	4.0	12.0	10.0
237	40-1	CONCRETE	L	10.0	43.0	15.0	B	12.0	2.0	1.5	4.0	12.0	4.0
237	40-2	CONCRETE	L	9.0	30.0	15.0	B	12.0	2.0	1.5	4.0	12.0	3.0
238	41-1	CONCRETE	L	9.0	88.0	15.0	B	12.0	2.0	1.5	5.0	12.0	2.0
240	43-1	CONCRETE	L	9.0	30.0	15.0	B	2.0	2.0	1.5	6.0	-1.4	1.0
244	47-1	CONCRETE	L	9.0	35.0	15.0	B	5.0	2.0	1.5	5.0	7.7	2.0
245	48-1	CONCRETE	L	9.0	30.0	15.0	B	12.0	2.0	1.5	5.0	9.4	2.0
246	49-1	CONCRETE	L	13.0	30.0	15.0	B	12.0	2.0	1.5	4.0	12.0	7.0

NOTES:

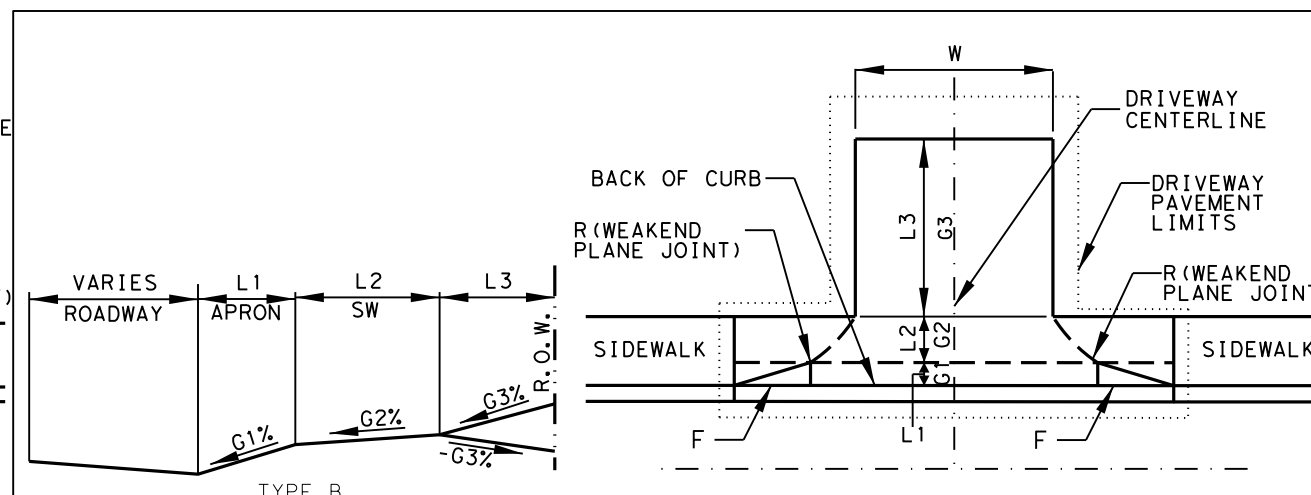
1. REFER TO DRIVEWAY DETAILS FOR MORE INFORMATION.

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DRIVEWAY PROFILE

TYPICAL PLAN VIEW



DRIVEWAY PROFILE

TYPICAL PLAN VIEW

Signature: *ALJ*
5/16/2024
Professional Engineer Seal: STATE OF TEXAS, SAMUEL J. LUNDAQUIST, 122185, LICENSED PROFESSIONAL ENGINEER

Kimley Horn F-928

Texas Department of Transportation

SUMMARY OF DRIVEWAY QUANTITIES

TEXAS CITY, TEXAS

SHEET 4 OF 4

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
		FM 1764
STATE	DIST.	COUNTY
TEXAS	HOUSTON	GALVESTON
CONT.	SECT.	JOB
1607	01	057, ETC.

SHEET NO.

38

SPEC ITEM #	0104 6011	0104 6017	0104 6024	0104 6029	0104 6036	0105 6037	0162 6002	0166 6001	0168 6001	0400 6008
LOCATION	REMOVING CONC (MEDIANS)	REMOVING CONC (DRIVEWAYS)	REMOVING CONC (RETAINING WALLS)	REMOVING CONC (CURB OR CURB & GUTTER)	REMOVING CONC (SIDEWALK OR RAMP)	REMOVING STAB BASE & ASPH PAV (0"-16")	BLOCK SODDING	FERTILIZER *	VEGETATIVE WATERING	CUT & RESTORE ASPH PAVING
UNITS	SY	SY	SY	LF	SY	SY	SY	AC	MG	SY
1607-01-057	2	6329	5	91	9189	289	3325	0.69	0.2	857

SPEC ITEM #	0432 6001	0450 6052	0496 6043	0529 6002	0529 6016	0529 6018	0530 6004	0531 6001	0531 6004	0531 6005	0531 6006
LOCATION	RIPRAP (CONC) (4IN)	RAIL (HANDRAIL) (TY F)	REMOV STR (SMALL FENCE)	CONC CURB (TY II)	CONC CURB (TY F1)	CONC CURB (TY F3)	DRIVEWAYS (CONC)	CONC SIDEWALKS (4")	CURB RAMPS (TY 1)	CURB RAMPS (TY 2)	CURB RAMPS (TY 3)
UNITS	CY	LF	LF	LF	LF	LF	SY	SY	EA	EA	EA
1607-01-057	6.9	184	150	550	51	20	6641	9885	5	8	8

SPEC ITEM #	0531 6010	0531 6013	0531 6016	0531 6017	0618 6023	0620 6007	0644 6001	0644 6068	0666 6048	0677 6005	0677 6007
LOCATION	CURB RAMPS (TY 7)	CURB RAMPS (TY 10)	CURB RAMPS (TY 21)	CURB RAMPS (TY 22)	CONDT (PVC) (SCH 40) (2")	ELEC CONDR (NO. 8) BARE	IN SM RD SN SUP&AM TY10BWG(1) SA(P)	RELOCATE SM RD SN SUP&AM TY 10BWG	REFL PAV MRK TY I (W) 24" (SLD) (100MIL)	ELIM EXT PAV MRK & MRKS (12")	ELIM EXT PAV MRK & MRKS (24")
UNITS	EA	EA	EA	EA	LF	LF	EA	EA	LF	LF	LF
1607-01-057	42	8	1	1	425	425	1	16	2728	419	64

SPEC ITEM #	0678 6008	0684 6007	0687 6001	0680 6011	0682 6018	0684 6031	0688 6001	0688 6003	0690 6007	0690 6030	5033 6005
LOCATION	PAV SURF PREP FOR MRK (24")	TRF SIG CBL (TY A) (12 AWG) (2 CONDR)	PED POLE ASSEMBLY	INSTALL HWY TRF SIG (UPGRADE)	PED SIG SEC (LED) (COUNTDOWN)	TRF SIG CBL (TY A) (14 AWG) (5 CONDR)	PED DETECT PUSH BUTTON (APS)	PED DETECTOR CONTROLLER UNIT	REPLACE OF GROUND BOXES	REMOVAL OF PEDESTRIAN PUSH BUTTONS	REMOVE BOLLARD
UNITS	LF	LF	EA	EA	EA	LF	EA	EA	EA	EA	EA
1607-01-057	2728	6520	16	8	4	100	54	8	14	52	1

ALJ

5/16/2024



Kimley»Horn F-928



SUMMARY OF SIDEWALK QUANTITIES

TEXAS CITY, TEXAS

SHEET 1 OF 2

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
		FM 1764
STATE	DIST.	COUNTY
TEXAS	HOUSTON	GALVESTON
CONT.	SECT.	JOB
1607	01	057, ETC.
SHEET NO.		
39		

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SUMMARY OF INDEFINITE QUANTITIES *

SPEC ITEM #	0100 6003 PREPARING ROW (TREE) (5" TO 12" DIA)	0110 6003 EXCAVATION (SPECIAL)	0132 6003 EMBANKMENT (FINAL) (ORD COMP) (TY B)	0354 6002 PLAN & TEXT ASPH CONC PAV (0" TO 2")	0401 6001 FLOWABLE BACKFILL	0420 6002 CL A CONC (MISC)	0506 6035 SANDBAGS FOR EROSION CONTROL	0506 6038 TEMP SDMT CONT FENCE (INSTALL)	0506 6039 TEMP SDMT CONT FENCE (REMOVE)	0506 6041 BIODEG EROSN CONT LOGS (INSTL) (12")
UNITS	EA	CY	CY	SY	CY	CY	EA	LF	LF	LF
PROJECT TOTAL	5	150	150	500	20	10	50	1500	1500	1500

SPEC ITEM #	0506 6043 BIODEG EROSN CONT LOGS (REMOVE)	0531 6002 CONC SIDEWALKS (5")	3076 6076 D-GR HMA SAC-A TY-D PG70-22 (EXEMPT)	5008 6001 WHEEL STOPS
UNITS	LF	SY	TON	EA
PROJECT TOTAL	1500	500	20	25

* AS APPROVED BY ENGINEER

ALJ

5/16/2024



Kimley»Horn F-928



**SUMMARY OF SIDEWALK
QUANTITIES**

TEXAS CITY, TEXAS

SHEET 2 OF 2

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
		FM 1764
STATE	DIST.	COUNTY
TEXAS	HOUSTON	GALVESTON
CONT.	SECT.	JOB
1607	01	057, ETC.
		SHEET NO.
		40

TRAFFIC CONTROL SEQUENCE

1. SET UP PERIMETER BARRICADES, SIGNS, AND PERTINENT TRAFFIC CONTROL DEVICES PER BARRICADE AND CONSTRUCTION STANDARDS.
2. SET UP ALL NECESSARY SW3P DEVICES.
3. REPAIR EXIST FLEXIBLE PAVEMENT STRUCTURE AS APPROVED BY THE ENGINEER.
4. PLACE WORK ZONE PAVEMENT MARKINGS AS SHOWN IN TCP PHASES, REMOVE AND REPLACE CONCRETE PAVEMENT, CURBS.
5. BEGIN CONSTRUCTION ON PROPOSED SIDEWALKS. ONLY NORTH OR SOUTH SIDEWALKS CAN BE CLOSED AT A TIME.
*SCHOOL ZONE MAY ONLY BE WORKED ON IN SUMMER
6. MILL ROADWAY, EXISTING DRIVEWAYS, AND INTERSECTIONS AS PER PLANS AND PLACE WORK ZONE PAVEMENT MARKINGS.
7. PLACE TEMPORARY COLD MIX 6:1 ACP TAPERS AROUND EXISTING MANHOLES. (NON-PAY)
8. PLACE UNDERSEAL COURSE OR SEAL COAT AND PLACE WORK ZONE PAVEMENT MARKINGS.
9. PLACE D-GR HMA TY-C (LEVEL-UP) AND PLACE WORK ZONE PAVEMENT MARKINGS.
10. PLACE D-GR HMA TY-D AND PLACE WORK ZONE PAVEMENT MARKINGS.
11. REMOVE AND REINSTALL NEW ALUMINIUM SIGNS TY A.
12. PLACE PERMANENT STRIPING, REFLECTIVE PAVEMENT MARKINGS AS PER SPECIFICATIONS.
13. PLACE DRILL SHAFTS AND INSTALL TRAFFIC SIGNAL POLES AND DETECTION COMPONENTS.
14. REMOVE PERIMETER BARRICADES, AND SIGNS, AND ANY SWP3 DEVICES.



Joel H. Clarke

May 21 2024

NOTES:

1. UTILIZE PERTINENT TCP STANDARDS TO HANDLE ALL TRAFFIC DURING MILLING, AND ACP OVERLAY AND STRIPING OPERATIONS.
2. UTILIZE POLICE OFFICERS FOR THE VARIOUS ITEMS OF WORK AS APPROVED BY THE ENGINEER, SHOULD TRAFFIC BACK-UPS WARRANT THEIR USE.
3. UNDERSEAL ASPHALT CONCRETE PAVEMENT OVERLAY OPERATIONS SHALL BEGIN WITHIN THREE (3) CALENDAR DAYS FOLLOWING MILLING OPERATIONS.
4. THIS IS A SUGGESTED SEQUENCE OF WORK. THE CONTRACTOR MAY SUBMIT A REVISED SEQUENCE OF WORK TO THE ENGINEER FOR APPROVAL. ALL WORK AND EQUIPMENT TO PERFORM TRAFFIC CONTROL OPERATIONS SHALL FOLLOW THE TMUTCD AND ARE SUBSIDIARY TO ITEM 502.



SEQUENCE OF CONSTRUCTION

© TxDOT 2024	CONT	SECT	JOB	HIGHWAY
	1607	01	057, ETC.	FM 1764
	DIST PROJECT NO.			
	HOU			
	COUNTY			SHEET NO.
	GALVESTON			41

LEGEND:

	PHASE 1 STEP 1
	PHASE 1 STEP 2
	PHASE 2 STEP 1
	PHASE 2 STEP 2
	PHASE 3 STEP 1
	PHASE 3 STEP 2
	PHASE 4 STEP 1
	PHASE 4 STEP 2
	PHASE 5 STEP 1
	PHASE 5 STEP 2
	PHASE 6 STEP 1
	PHASE 6 STEP 2
	PHASE 7 STEP 1
	PHASE 7 STEP 2

Overall Traffic Control Plan Layout & Construction Narrative

General:

- Contractor shall follow BC(2)-21 TXDOT Standard and install CSJ limit signing along with the signs shown in every phase and step of construction
- Contractor shall install PCMS 14-days in advance of any road work/closure.
- Contractor shall coordinate with businesses and property owners prior to any driveway closures. Contractor shall provide access to all properties during the construction. Contractor shall not close consecutive driveways at the same time.

Phase 1 Step 1:

- Construct temporary asphalt between the south bound FM 1764 exit and SH 146 frontage road prior to start of Phase 1 Step 1.
- As shown on TCP Phase 1 step 1, close one lane along the SB SH 146 frontage road and utilize the temporary asphalt constructed to divert the traffic from FM 1764 exit to the frontage road. Close one outside lane along Westbound FM 1764 for work at intersection.
- Construct concrete pavement along SH 146 SB frontage road between FM 1764 exit ramp and 1764 intersection including the U-turn while maintaining one lane open to traffic.

Phase 1 Step 2:

- As shown on TCP Phase 1 step 2, close SB SH 146 frontage road just south of entrance ramp at 25th Ave N and divert the traffic onto SH 146 main lanes. Close one outside lane along Westbound FM 1764 for work at intersection.
- Construct concrete pavement along SH 146 SB frontage road between FM 1764 exit ramp and 1764 intersection while maintaining two lanes open to traffic.

Phase 2 Step 1:

- As shown on TCP Phase 2 step 1, close one lane along the NB SH 146 frontage road south of FM 1764 intersection. Close one outside lane along Westbound FM 1764 for work at intersection.
- Construct concrete pavement along SH 146 NB frontage road between FM 1764 intersection and SH146 entrance ramp while maintaining two lanes open to traffic.

Phase 2 Step 2:

- As shown on TCP Phase 2 step 2, close one lane along the NB SH 146 frontage road south of FM 1764 intersection. Close one outside lane along Westbound FM 1764 for work at intersection.
- Construct concrete pavement along SH 146 NB frontage road between FM 1764 intersection and SH146 entrance ramp while maintaining one lane open to traffic.

Phase 3 Step 1:

- As shown on TCP Phase 3 step 1, close one lane along the SB SH 146 frontage road north of FM 1764 intersection. Close one outside lane along Eastbound FM 1764 for work at intersection.
- Construct concrete pavement along SH 146 NB frontage road between FM 1764 intersection and South of 9th Ave N while maintaining one lane open to traffic.

Phase 3 Step 2:

- As shown on TCP Phase 3 step 2, close one lane along the SB SH 146 frontage road north of FM 1764 intersection. Close one outside lane & right turn lane along Eastbound FM 1764 for work at intersection.
- Construct concrete pavement along SH 146 NB frontage road between FM 1764 intersection and 9th Ave N while maintaining one lane open to traffic.

Phase 4 Step 1:

- As shown on TCP Phase 4 step 1, close one lane along the SH 146 south of 9th Ave N intersection. Close one outside lane along Eastbound FM 1764 for work at intersection.
- Construct concrete pavement along SH 146 SB frontage road between FM 1764 intersection and 9th Ave N while maintaining one lane open to traffic.

Phase 4 Step 2:

- As shown on TCP Phase 4 step 2, close one lane along the SH 146 south of 9th Ave N intersection. Close one outside lane along Eastbound FM 1764 for work at intersection.
- Construct concrete pavement along SH 146 SB frontage road between FM 1764 intersection and 9th Ave N while maintaining one lane open to traffic.

Phase 5 Step 1:

- As shown on TCP Phase 5 step 1, close SH 146 SB main lanes north of FM 1764 intersection. Divert the traffic onto the south bound SH 146 frontage road. Work involving complete closure of SH 146 main lanes should be scheduled over the weekend between Friday 8:00 PM to Monday 5:00 AM. No closure is allowed during peak hours and weekdays.
- Construct concrete pavement along SH 146 SB main lanes north of 9th Ave N.

Phase 5 Step 2:

As shown on TCP Phase 5 step 2, close SH 146 NB main lanes south of FM 1764 intersection. Divert the traffic onto the south bound SH 146 frontage road. Work involving complete closure

- of SH 146 main lanes should be scheduled over the weekend between Friday 8:00 PM to Monday 5:00 AM. No closure is allowed during peak hours and weekdays.
- Construct concrete pavement along SH 146 NB main lanes north of 9th Ave N.

Phase 6 Step 1:

- As shown on TCP Phase 6 step 1, close two inside lanes along the eastbound and westbound of FM 1764.
- Construct concrete pavement along FM 1764 intersection at SH 146 intersection while maintaining one lane open to traffic in each direction. Utilize Detour plan Phase 6 Step 1 concept in combination with tcp TCP Phase 6 Step 1 to complete the construction of intersection.

Phase 6 Step 2:

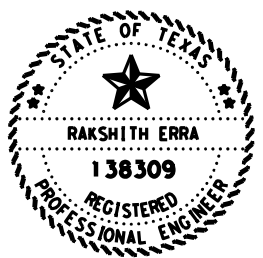
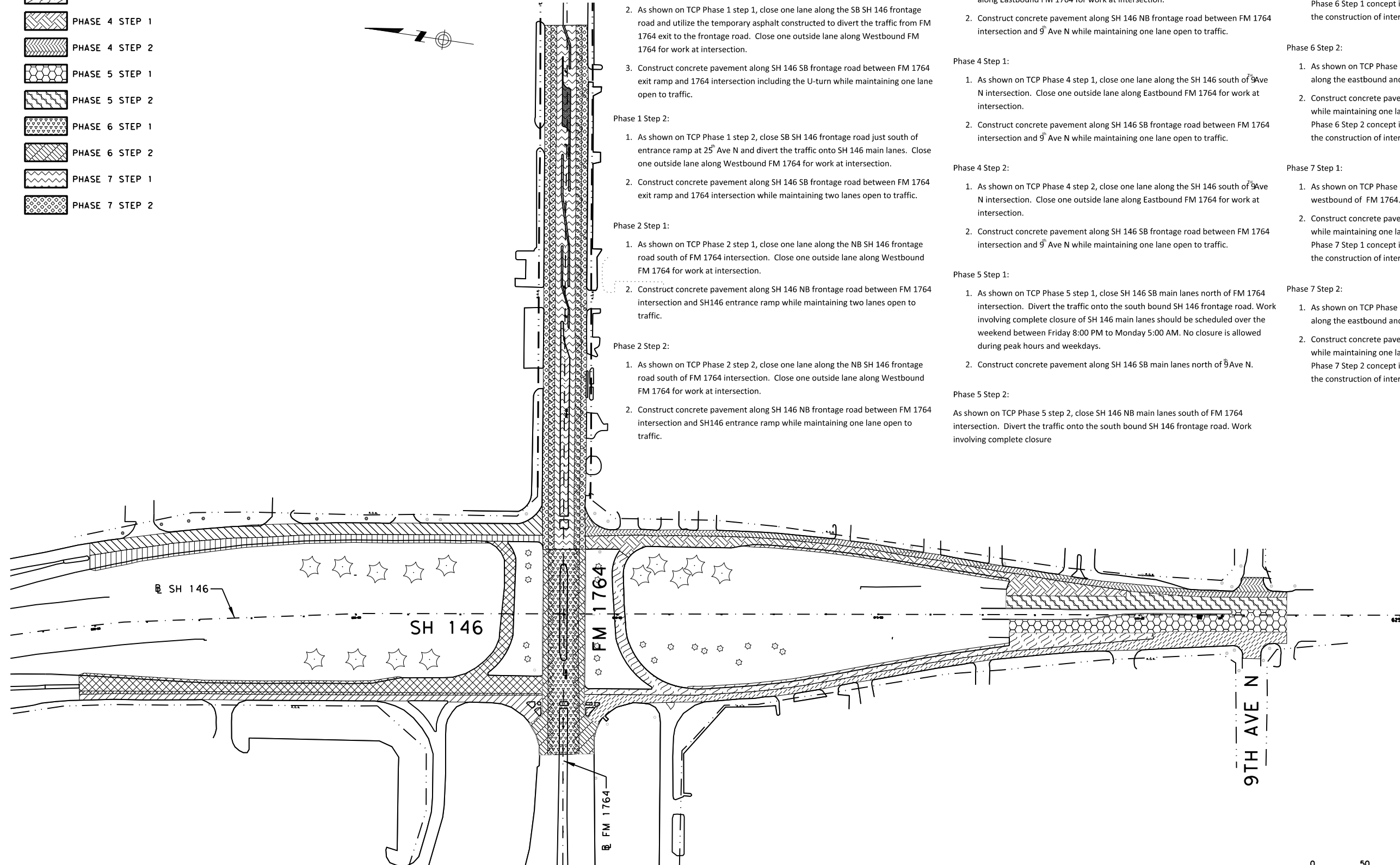
- As shown on TCP Phase 6 step 2, close outside two lanes with right turn lanes along the eastbound and westbound of FM 1764.
- Construct concrete pavement along FM 1764 intersection at SH 146 intersection while maintaining one lane open to traffic in each direction. Utilize Detour plan Phase 6 Step 2 concept in combination with tcp TCP Phase 6 Step 2 to complete the construction of intersection.

Phase 7 Step 1:

- As shown on TCP Phase 7 step 1, close two inside lanes along the eastbound and westbound of FM 1764.
- Construct concrete pavement along FM 1764 intersection east of SH 146 while maintaining one lane open to traffic in each direction. Utilize Detour plan Phase 7 Step 1 concept in combination with tcp TCP Phase 7 Step 1 to complete the construction of intersection.

Phase 7 Step 2:

- As shown on TCP Phase 7 step 2, close outside two lanes with right turn lanes along the eastbound and westbound of FM 1764.
- Construct concrete pavement along FM 1764 intersection east of SH 146 while maintaining one lane open to traffic in each direction. Utilize Detour plan Phase 7 Step 2 concept in combination with tcp TCP Phase 7 Step 2 to complete the construction of intersection.



Rakshith
 5/25/2024
FM 1764
 TCP
OVERALL LAYOUT

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		42

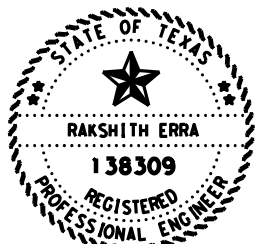
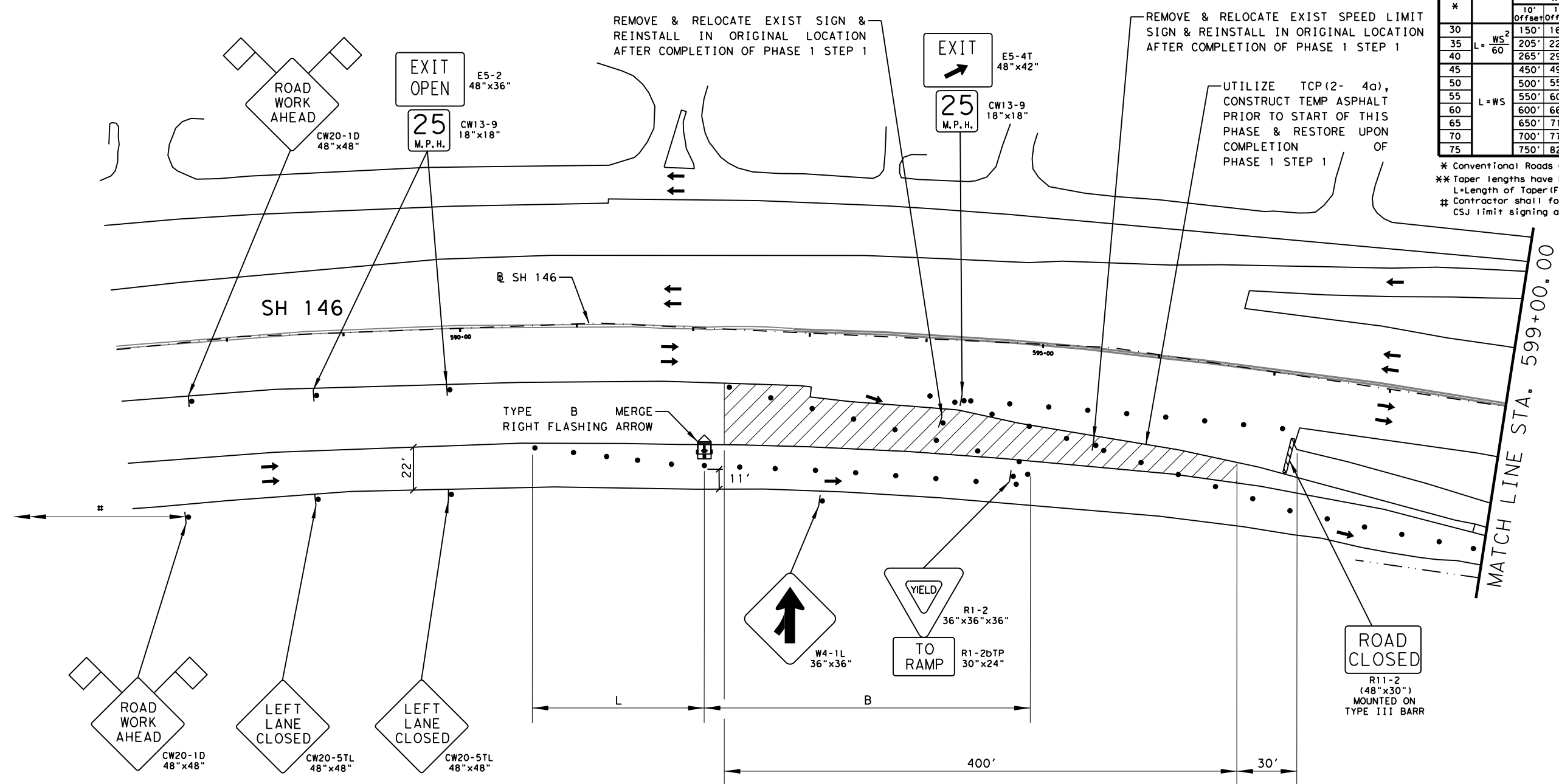
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LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

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

* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)
 † Contractor shall follow BC(2)-21 standard and install CSJ limit signing ahead of Road Work Ahead sign.

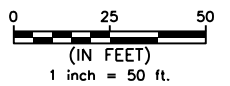


Rakshith
 5/25/2024

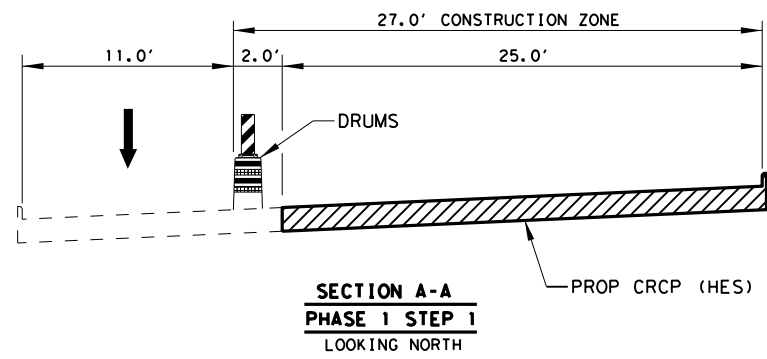
SH 146
TRAFFIC CONTROL
PLAN
PHASE 1 STEP 1

SHEET 1 OF 3

CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		43



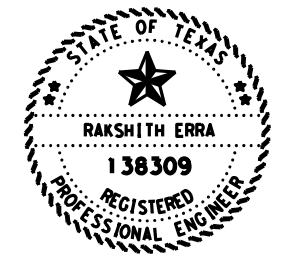
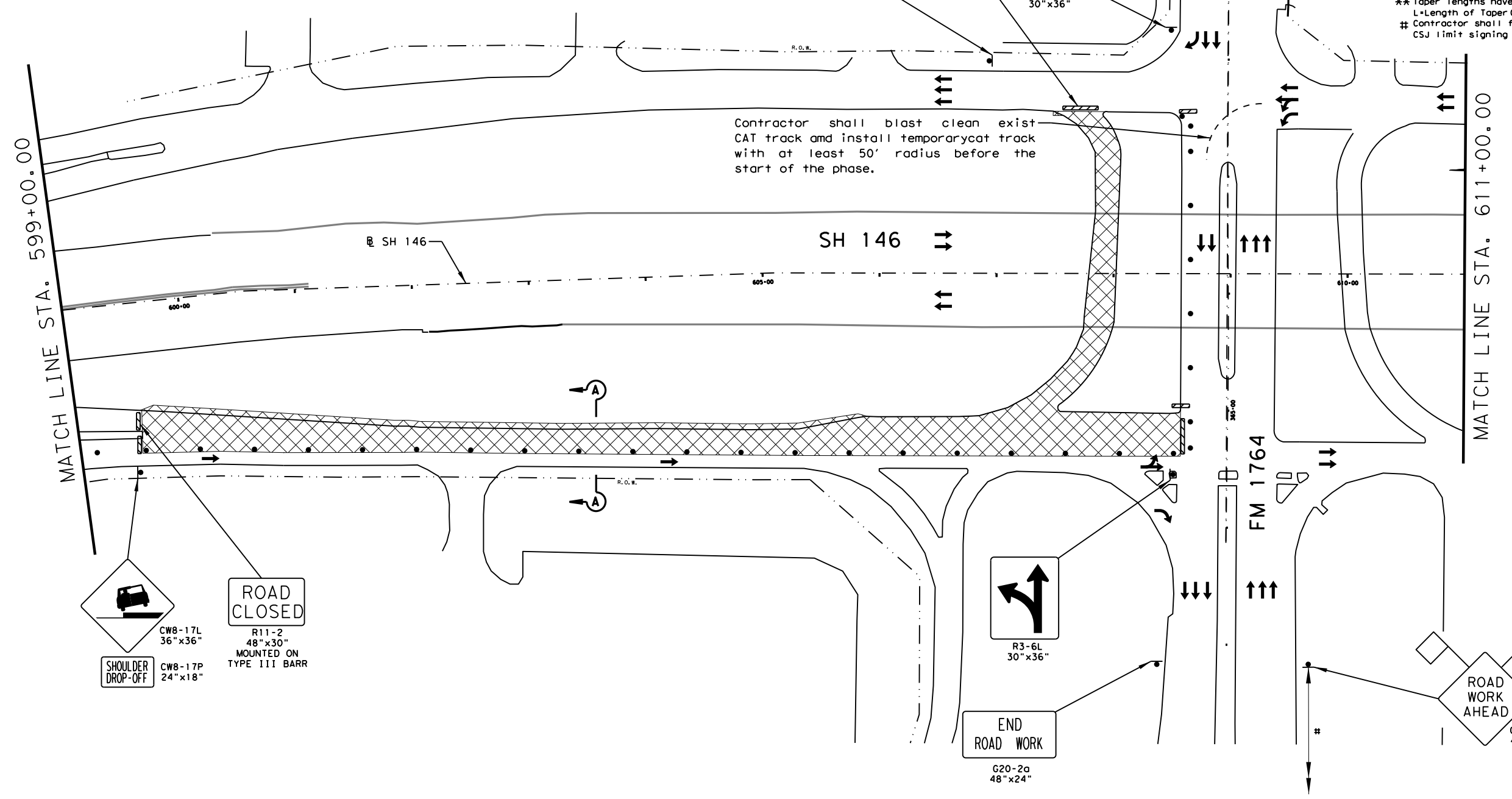
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LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

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

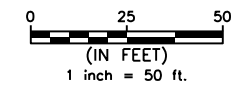
* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L-Length of Taper (FT) W-Width of Offset (FT) S-Posted Speed (MPH)
 # Contractor shall follow BC(2)-21 standard and install CSJ limit signing ahead of Road Work Ahead sign.



Rakshith
 5/25/2024
SH 146
TRAFFIC CONTROL PLAN
PHASE 1 STEP 1

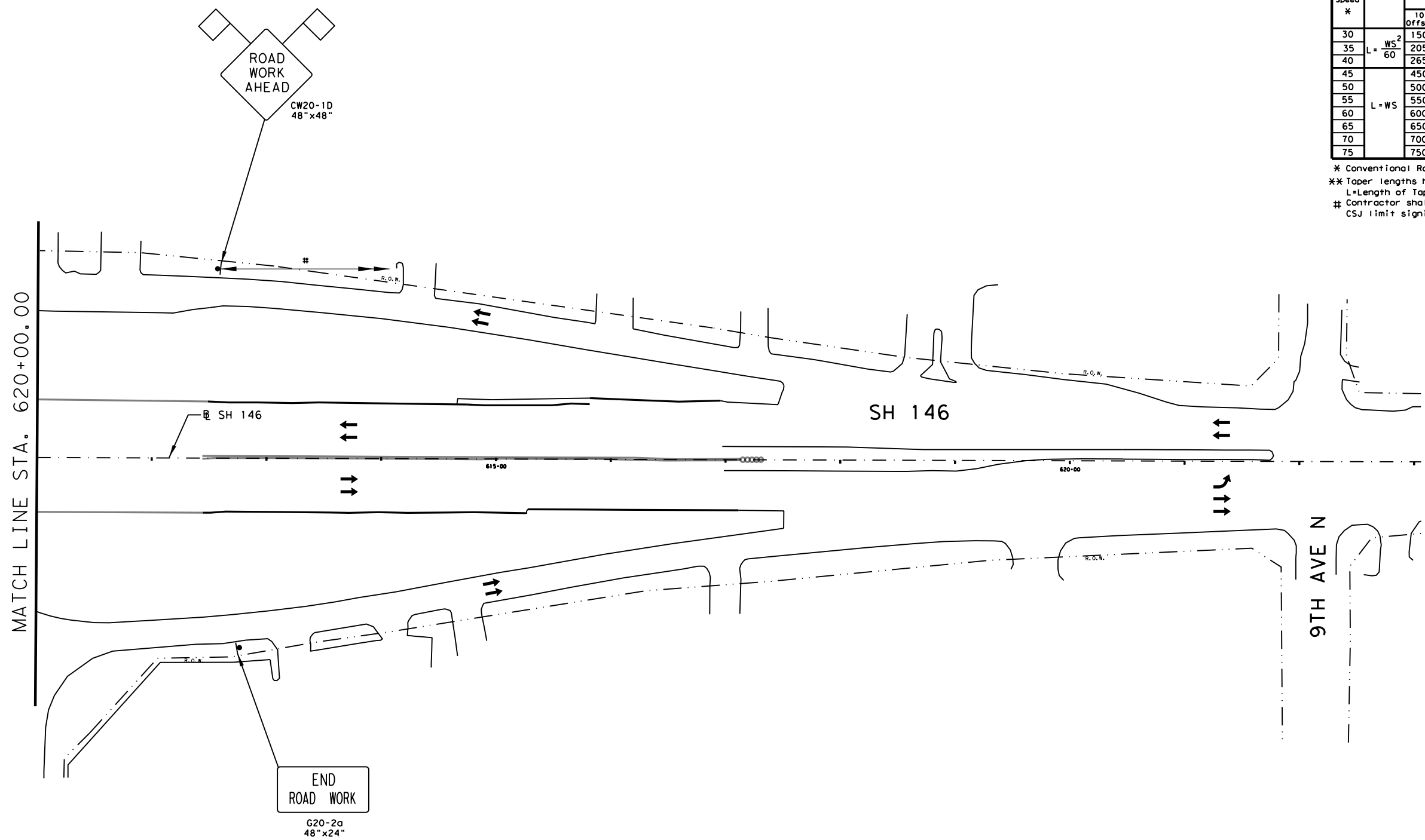
SHEET 2 OF 3

CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		44



DATE: 5/25/2024 1:12:40 PM
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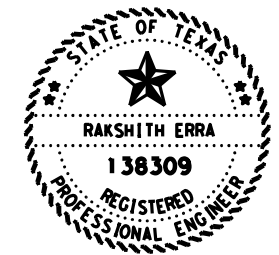
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LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

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

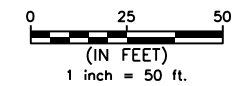
* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)
 # Contractor shall follow BC(2)-21 standard and install CSJ limit signing ahead of Road Work Ahead sign.



Rakshith
 5/25/2024

SH 146
TRAFFIC CONTROL
PLAN
PHASE 1 STEP 1

SHEET 3 OF 3



CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		45

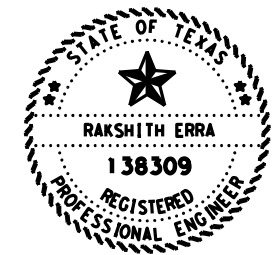
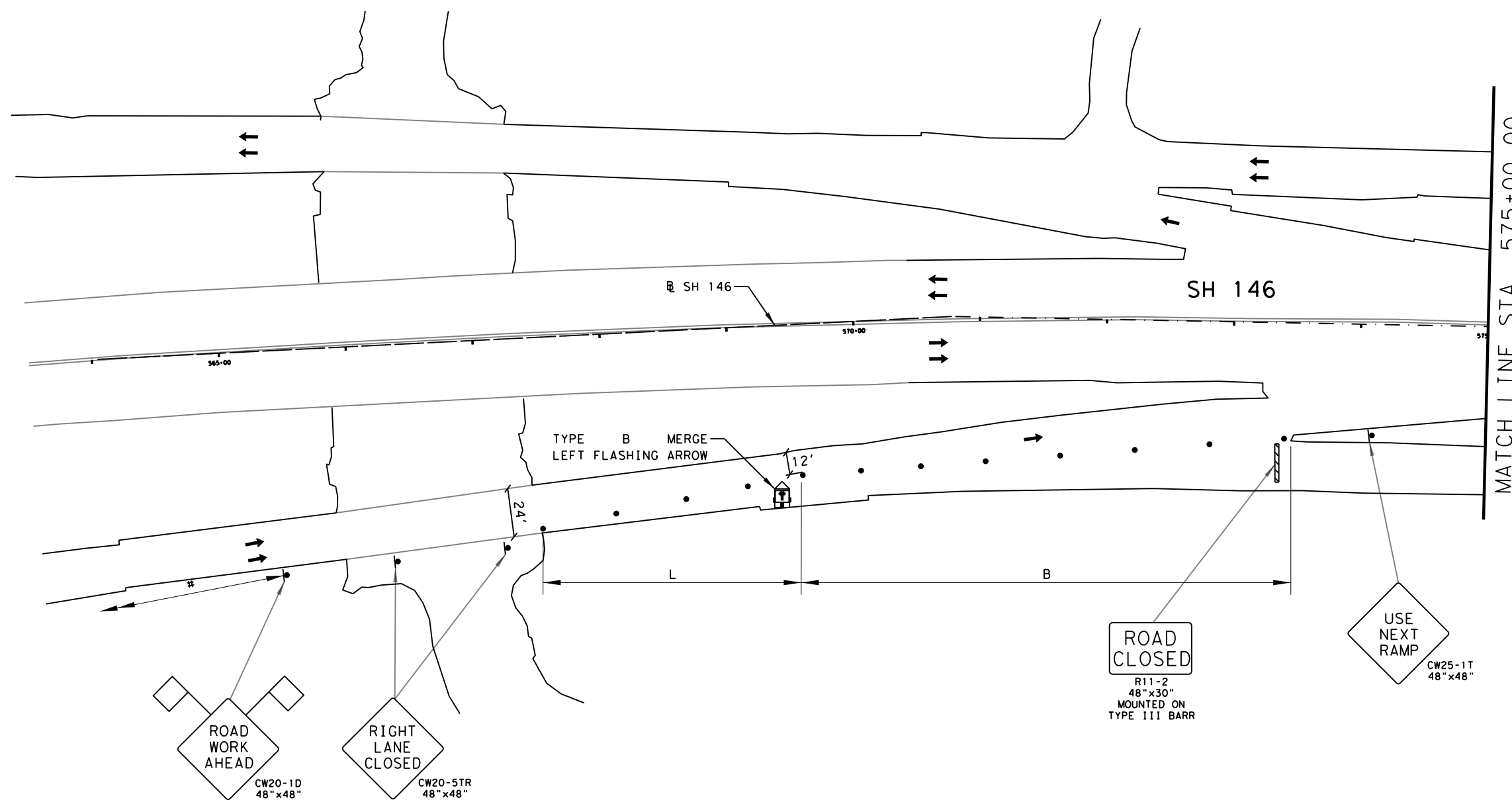
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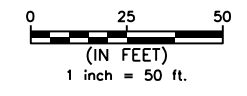
LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

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

* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)
 # Contractor shall follow BC(2)-21 standard and install CSJ limit signing ahead of Road Work Ahead sign.



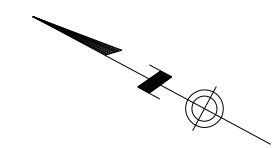
Rakshith
 5/25/2024
SH 146
TRAFFIC CONTROL PLAN
PHASE 1 STEP 2



SHEET 1 OF 5		
CONT	SECT	HIGHWAY
1607	01	057, ETC. FM 1764
DIST	COUNTY	SHEET NO.
HOU	Galveston	46

CK: _____
 DW: _____
 CK: _____
 DN: _____

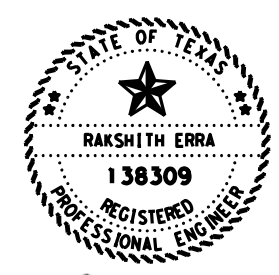
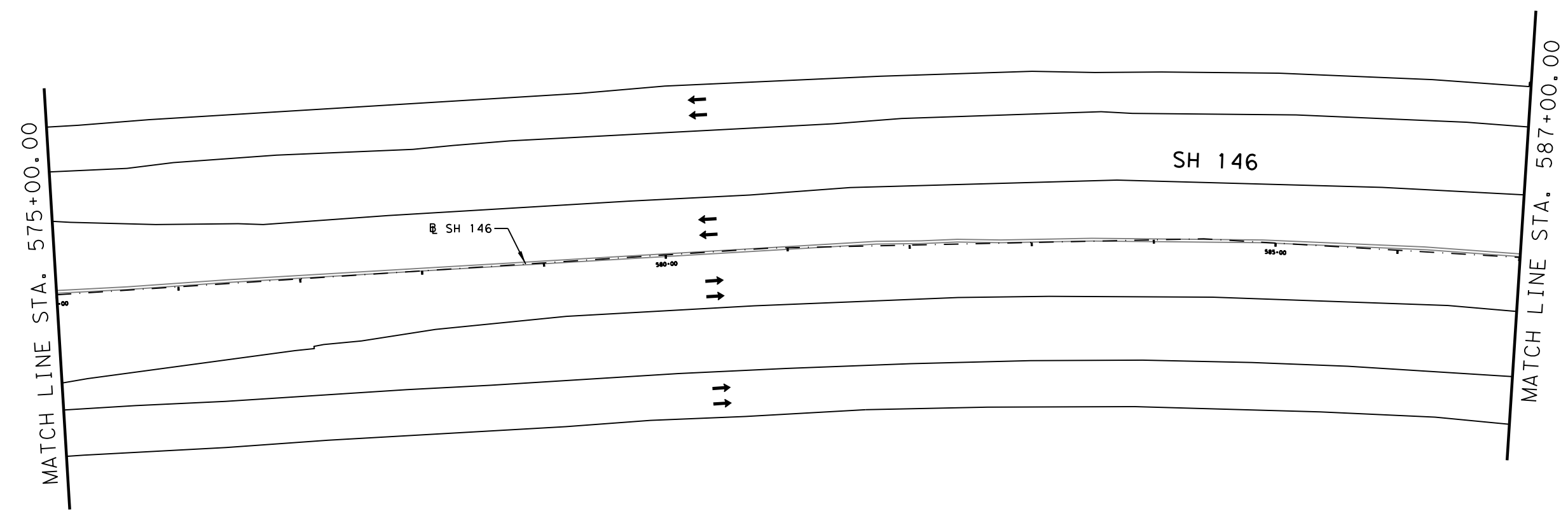
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LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

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

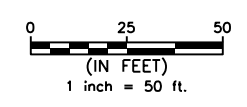
* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)



Rakshith
 5/25/2024

SH 146
TRAFFIC CONTROL
PLAN
PHASE 1 STEP 2

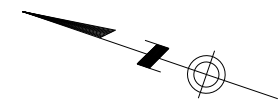
SHEET 2 OF 5



CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		47

DATE: 5/25/2024 1:12:42 PM
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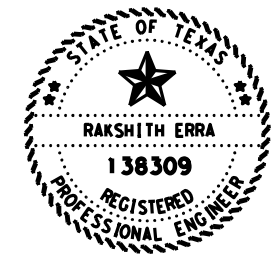
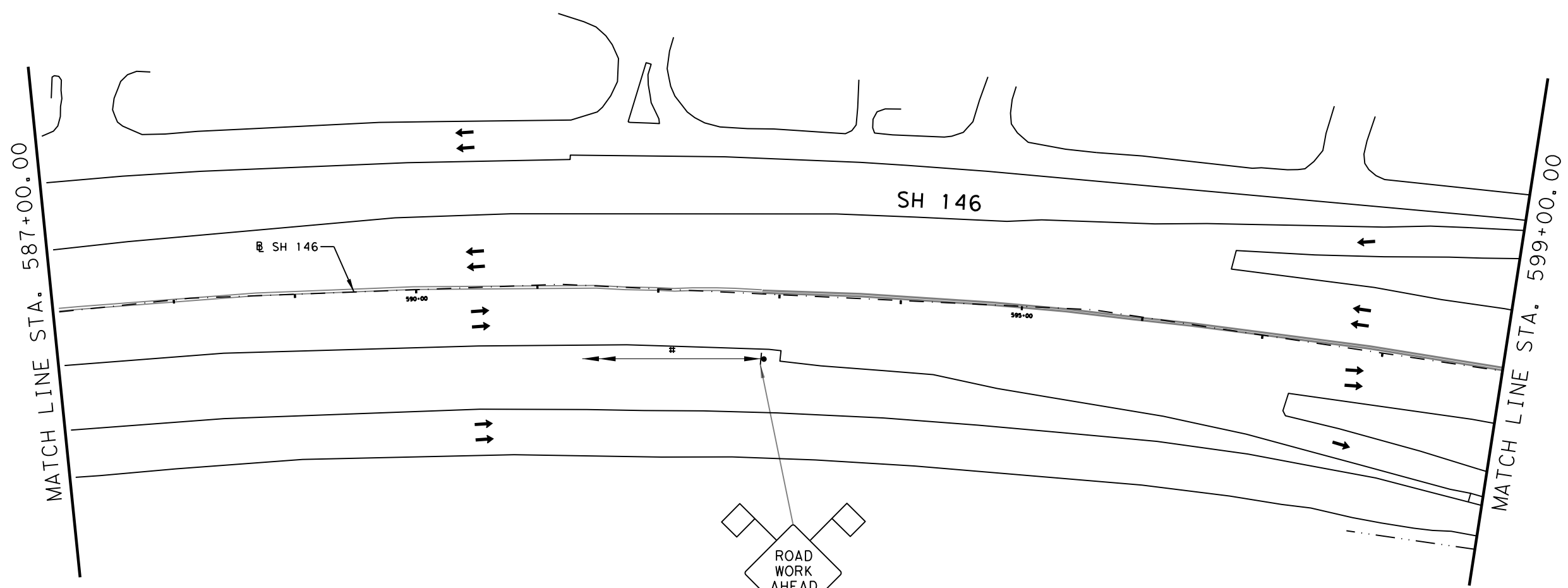
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LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

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

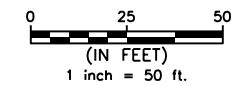
* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)
 # Contractor shall follow BC(2)-21 standard and install CSJ limit signing ahead of Road Work Ahead sign.



Rakshith
 5/25/2024

SH 146
TRAFFIC CONTROL
PLAN
PHASE 1 STEP 2

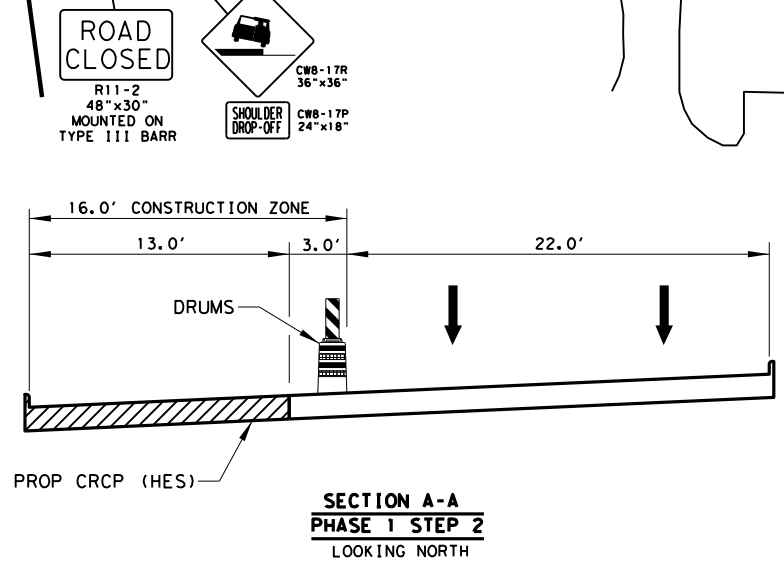
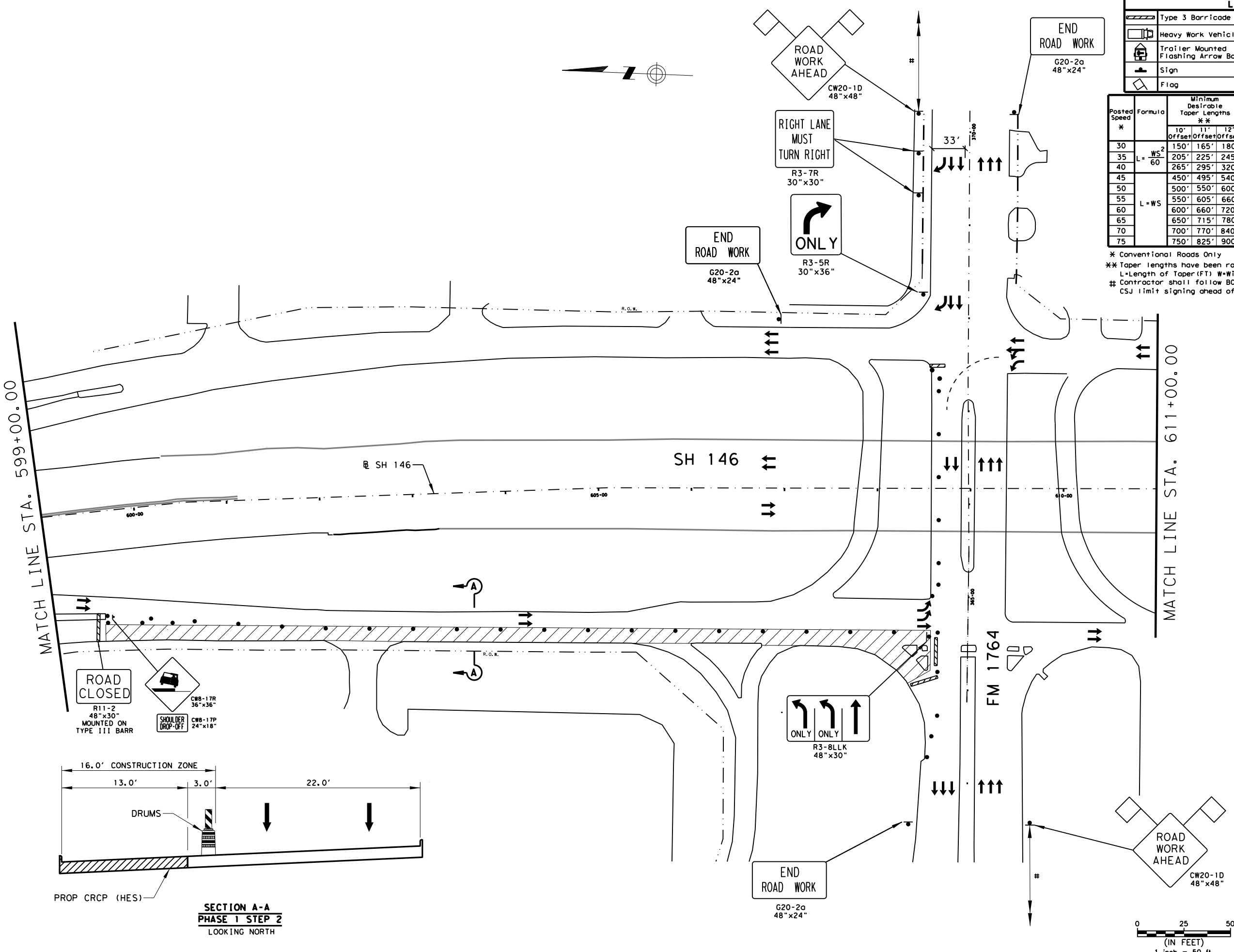
SHEET 3 OF 5



CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		48

CK: _____
 DW: _____
 CK: _____
 DN: _____

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

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

* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)
 # Contractor shall follow BC(2)-21standard and install CSJ limit signing ahead of Road Work Ahead sign.

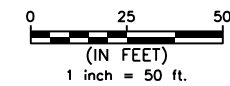


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 5/25/2024

**SH 146
 TRAFFIC CONTROL
 PLAN
 PHASE 1 STEP 2**

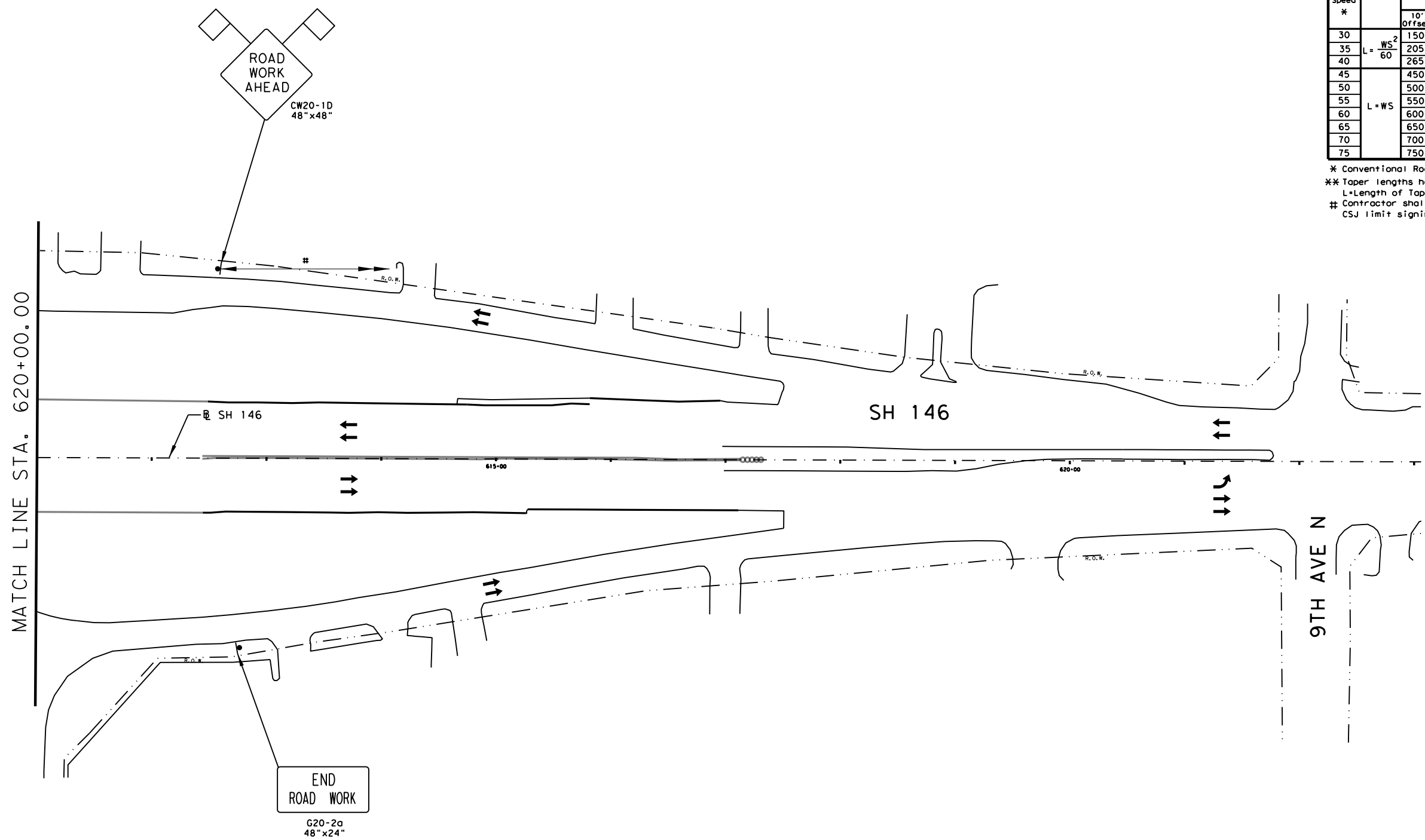
SHEET 4 OF 5

CONT	SECT
1607	01
JOB	
057, ETC.	
HIGHWAY	
FM 1764	
DIST	COUNTY
HOU	Galveston
SHEET NO.	
49	



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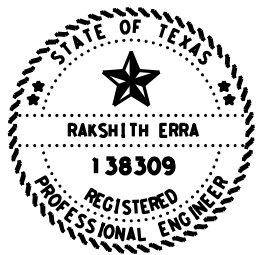
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LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

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

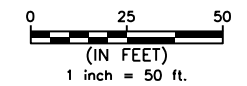
* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)
 # Contractor shall follow BC(2)-21 standard and install CSJ limit signing ahead of Road Work Ahead sign.



Rakshith
 5/25/2024

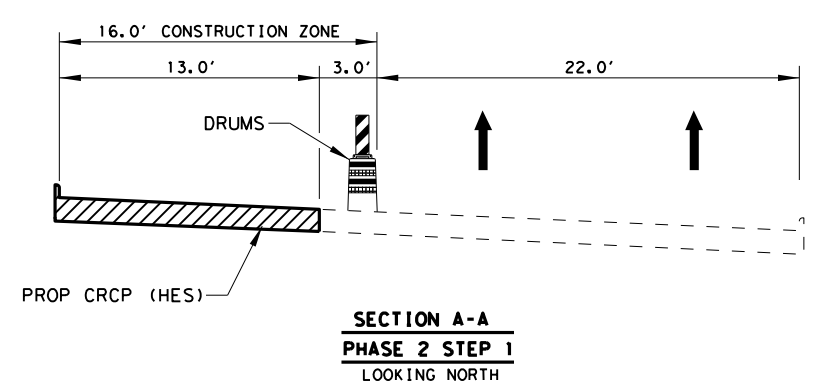
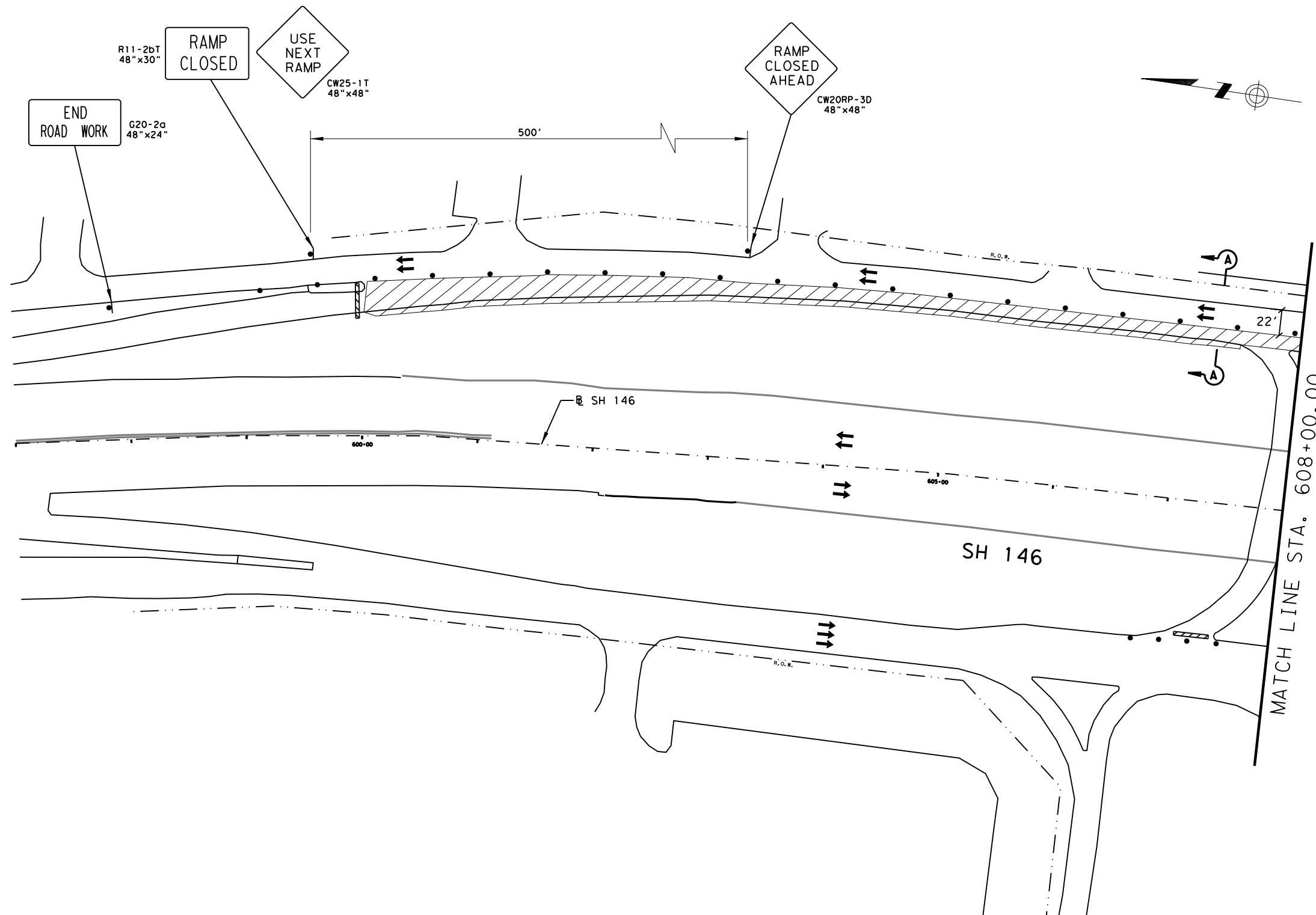
SH 146
TRAFFIC CONTROL
PLAN
PHASE 1 STEP 2

SHEET 5 OF 5



CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		50

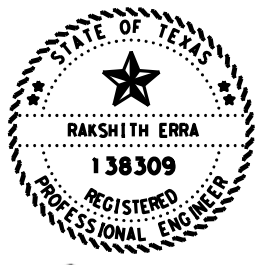
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LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

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

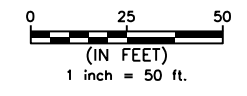
* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)



Rakshith
 5/25/2024

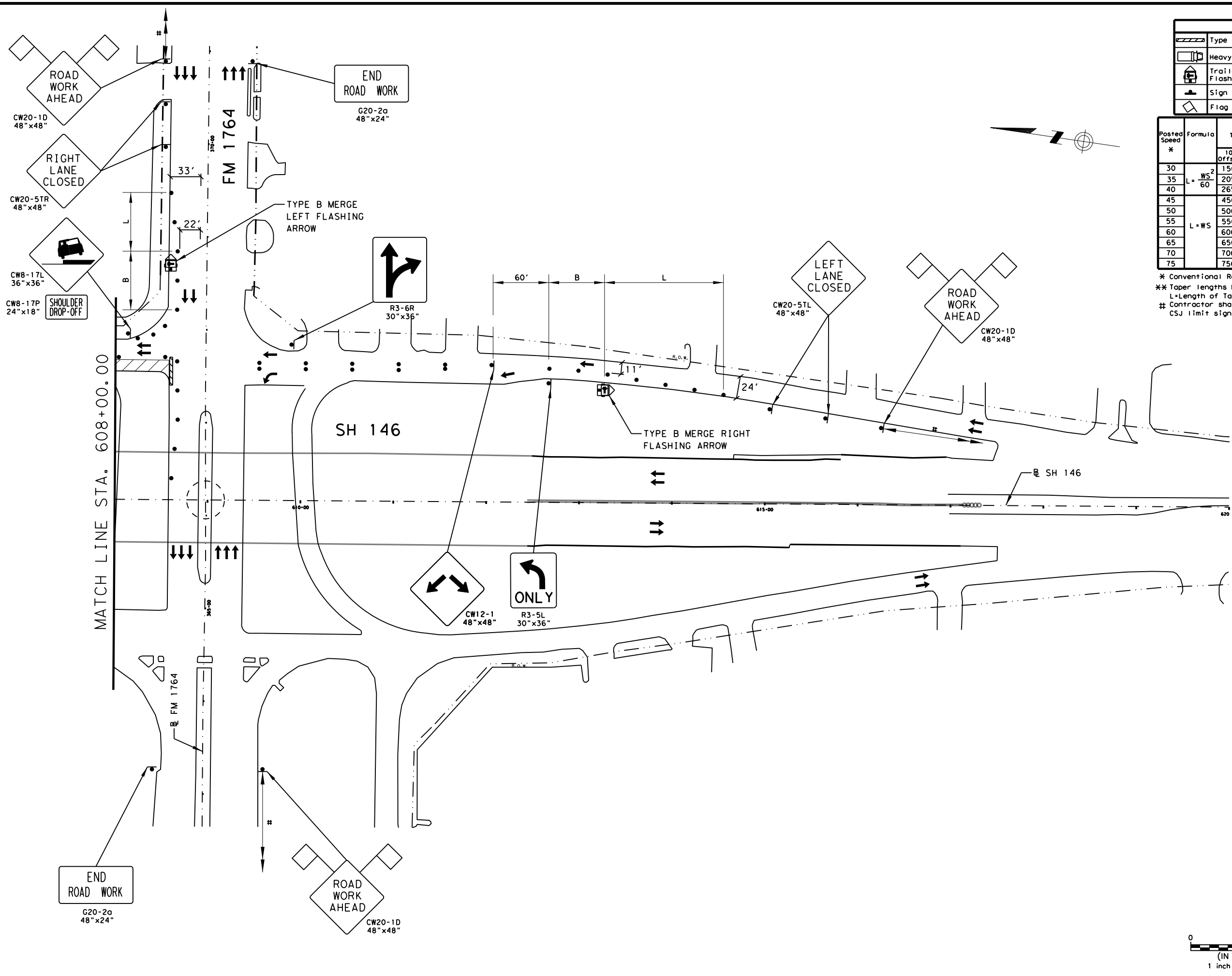
SH 146
TRAFFIC CONTROL PLAN
PHASE 2 STEP 1

SHEET 1 OF 2



CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		51

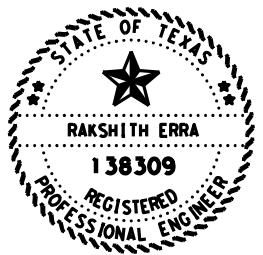
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LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

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

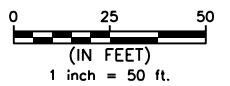
* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)
 # Contractor shall follow BC(2)-21 standard and install CSJ limit signing ahead of Road Work Ahead sign.



Rakshith
 5/25/2024

SH 146
TRAFFIC CONTROL
PLAN
PHASE 2 STEP 1

SHEET 2 OF 2



CONT	SECT
1607	01
JOB	
057, ETC.	
HIGHWAY	
FM 1764	
DIST	COUNTY
HOU	Galveston
SHEET NO.	
52	

CK: _____
 DW: _____
 CK: _____
 DN: _____

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ROAD CLOSED R11-2 48"x30" MOUNTED ON TYPE III BARR

END ROAD WORK G20-2a 48"x24"

ROAD CLOSED R11-2 48"x30" MOUNTED ON TYPE III BARR

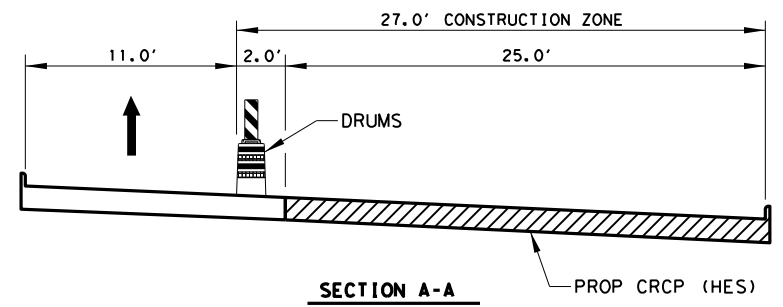
REFER TO 36TH ST N
 DETOUR PLAN

SH 146

SH 146

ROAD WORK AHEAD
 CW20-1D
 48"x48"

MATCH LINE STA. 608+00.00

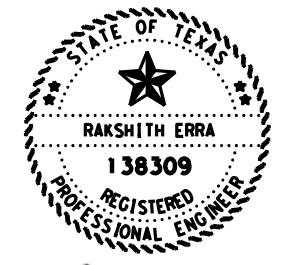


SECTION A-A
PHASE 2 STEP 2
 LOOKING NORTH

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

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

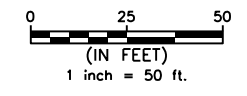
* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)
 # Contractor shall follow BC(2)-21 standard and install CSJ limit signing ahead of Road Work Ahead sign.



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 5/25/2024

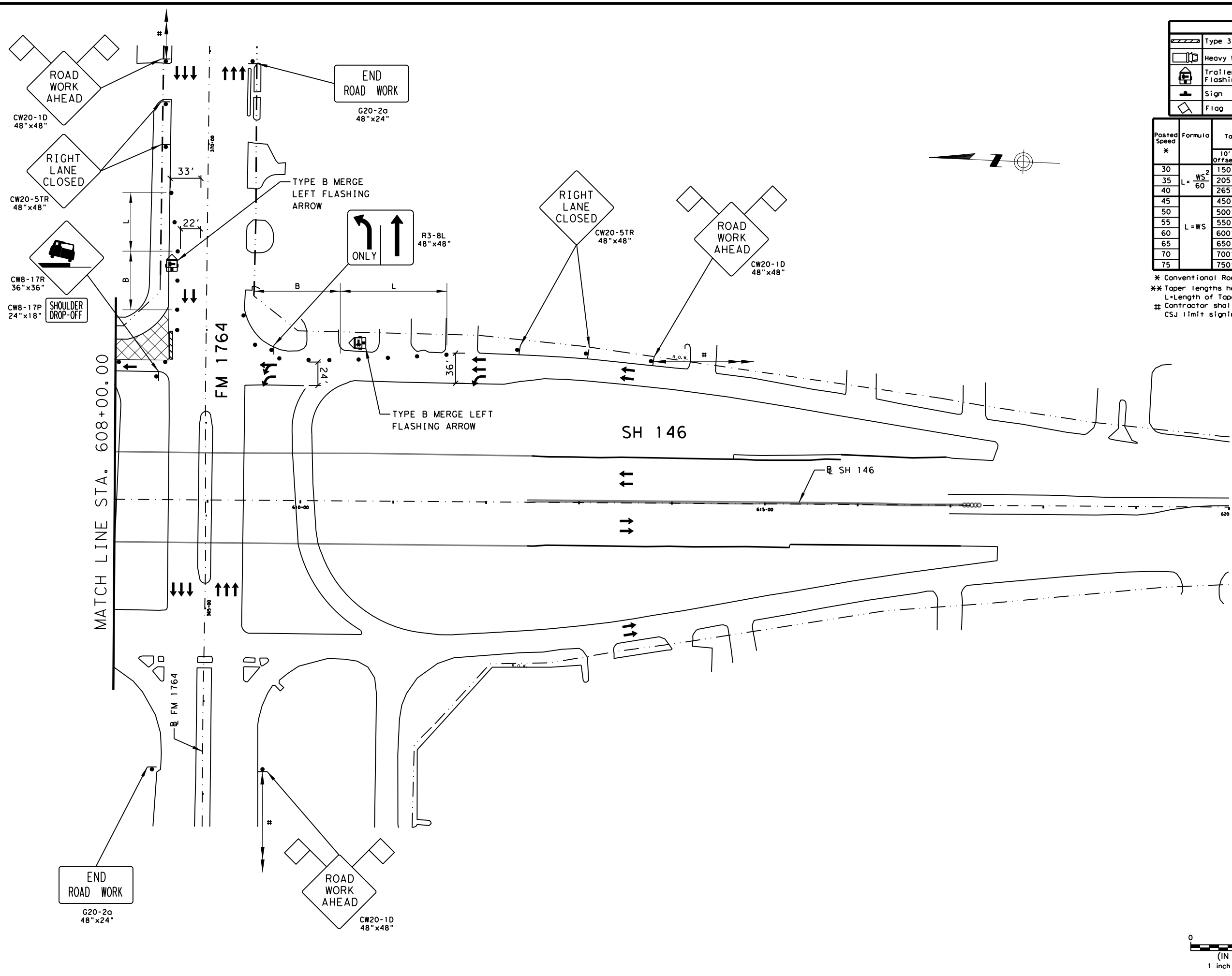
SH 146
TRAFFIC CONTROL PLAN
PHASE 2 STEP 2

SHEET 1 OF 2



CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		53

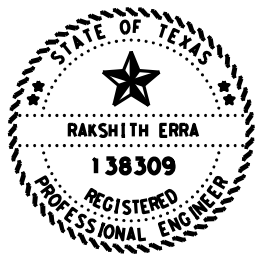
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LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

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

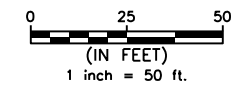
* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)
 # Contractor shall follow BC(2)-21standard and install CSJ limit signing ahead of Road Work Ahead sign.



Rakshith
 5/25/2024

SH 146
TRAFFIC CONTROL
PLAN
PHASE 2 STEP 2

SHEET 2 OF 2



CONT	SECT
1607	01
JOB	
057, ETC.	
HIGHWAY	
FM 1764	
DIST	COUNTY
HOU	Galveston
SHEET NO.	
54	

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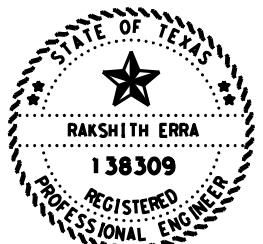
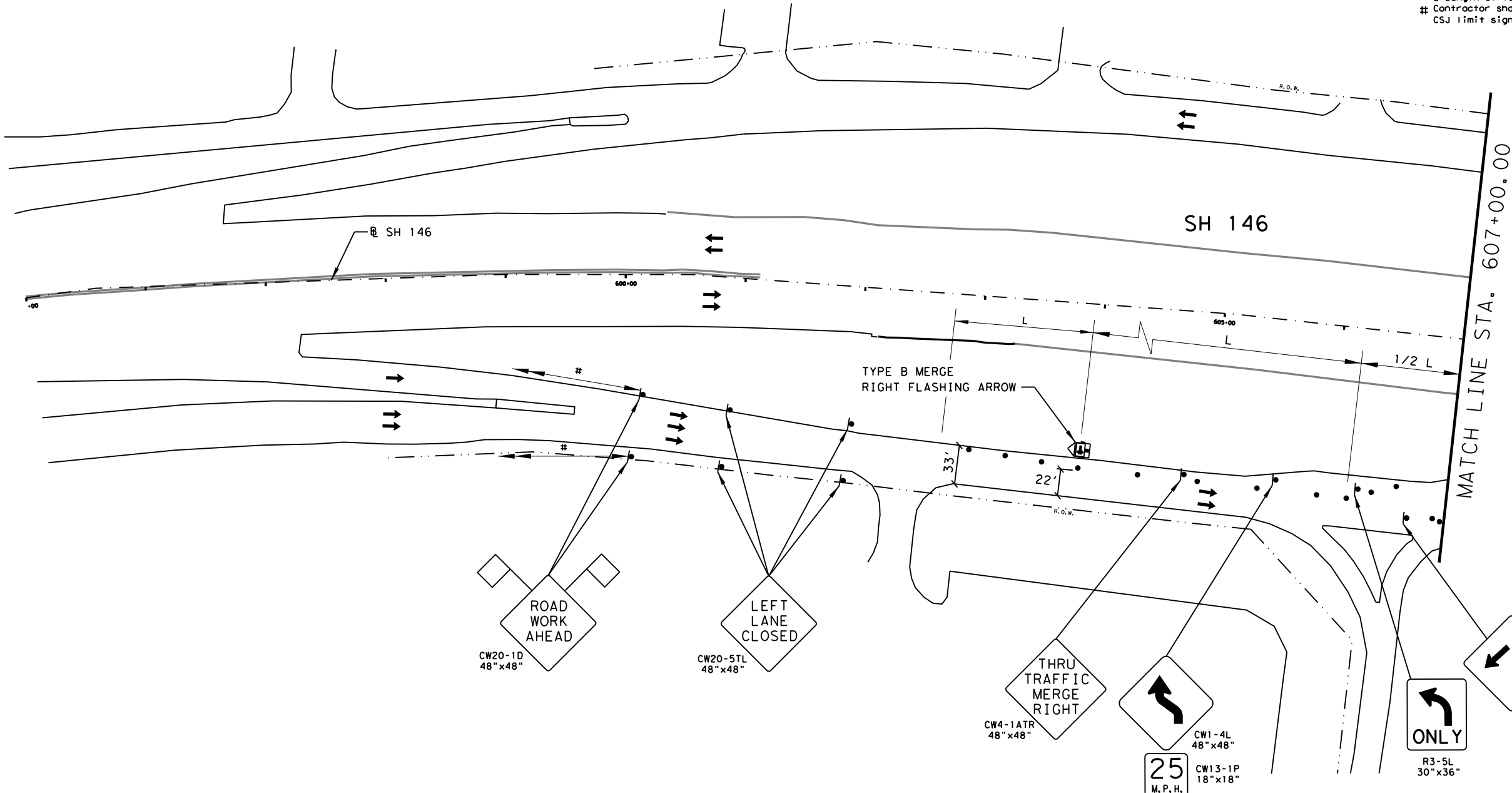
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LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing * Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L = WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60	L = WS	600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75	L = WS	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)
 # Contractor shall follow BC(2)-21 standard and install CSJ limit signing ahead of Road Work Ahead sign.



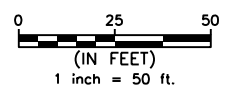
Rakshith
 5/25/2024

SH 146
TRAFFIC CONTROL
PLAN
PHASE 3 STEP 1

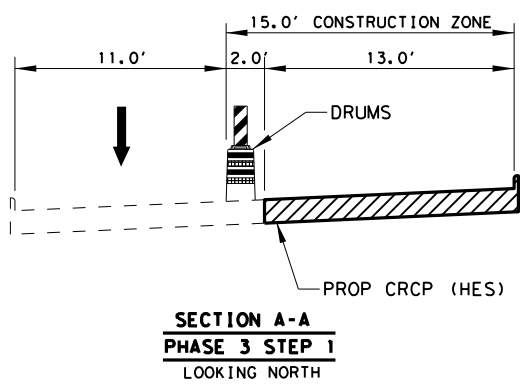
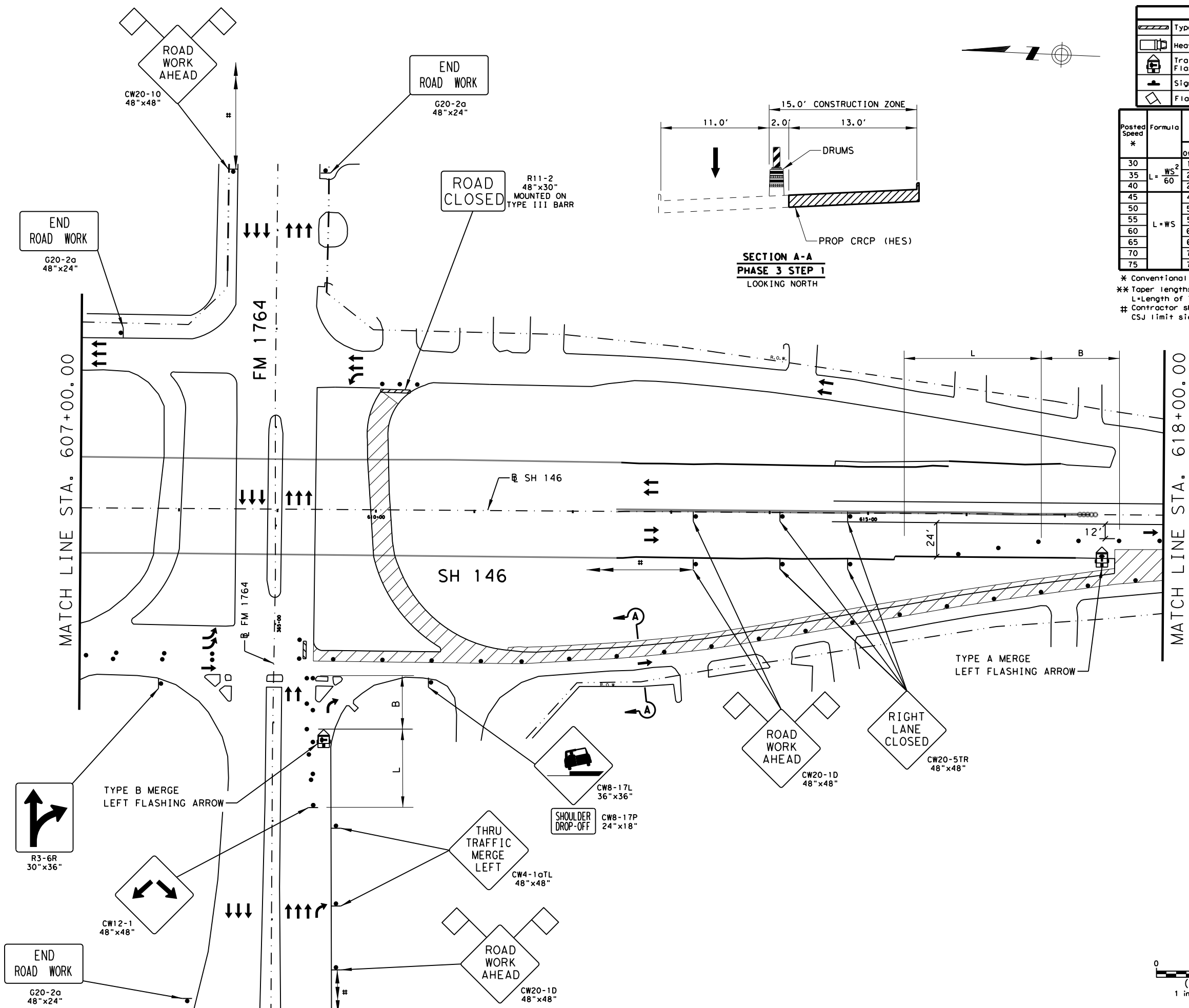
SHEET 1 OF 3



CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		55



DATE: 5/25/2024 1:12:59 PM
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LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "x" Distance	Suggested Longitudinal Buffer Space "b"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45		450'	495'	540'	45'	90'	320'	195'
50	$L = WS$	500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		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'

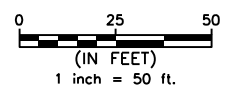
* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)
 # Contractor shall follow BC(2)-21 standard and install CSJ limit signing ahead of Road Work Ahead sign.



Rakshith
 5/25/2024

SH 146
TRAFFIC CONTROL
PLAN
PHASE 3 STEP 1

SHEET 2 OF 3



CONT	SECT
1607	01
JOB	
057, ETC.	
HIGHWAY	
FM 1764	
DIST	COUNTY
HOU	Galveston
SHEET NO.	
56	

CK: _____
 DW: _____
 CK: _____
 DN: _____

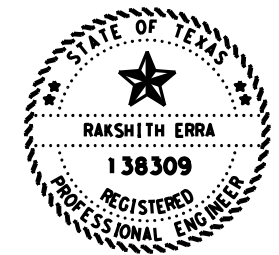
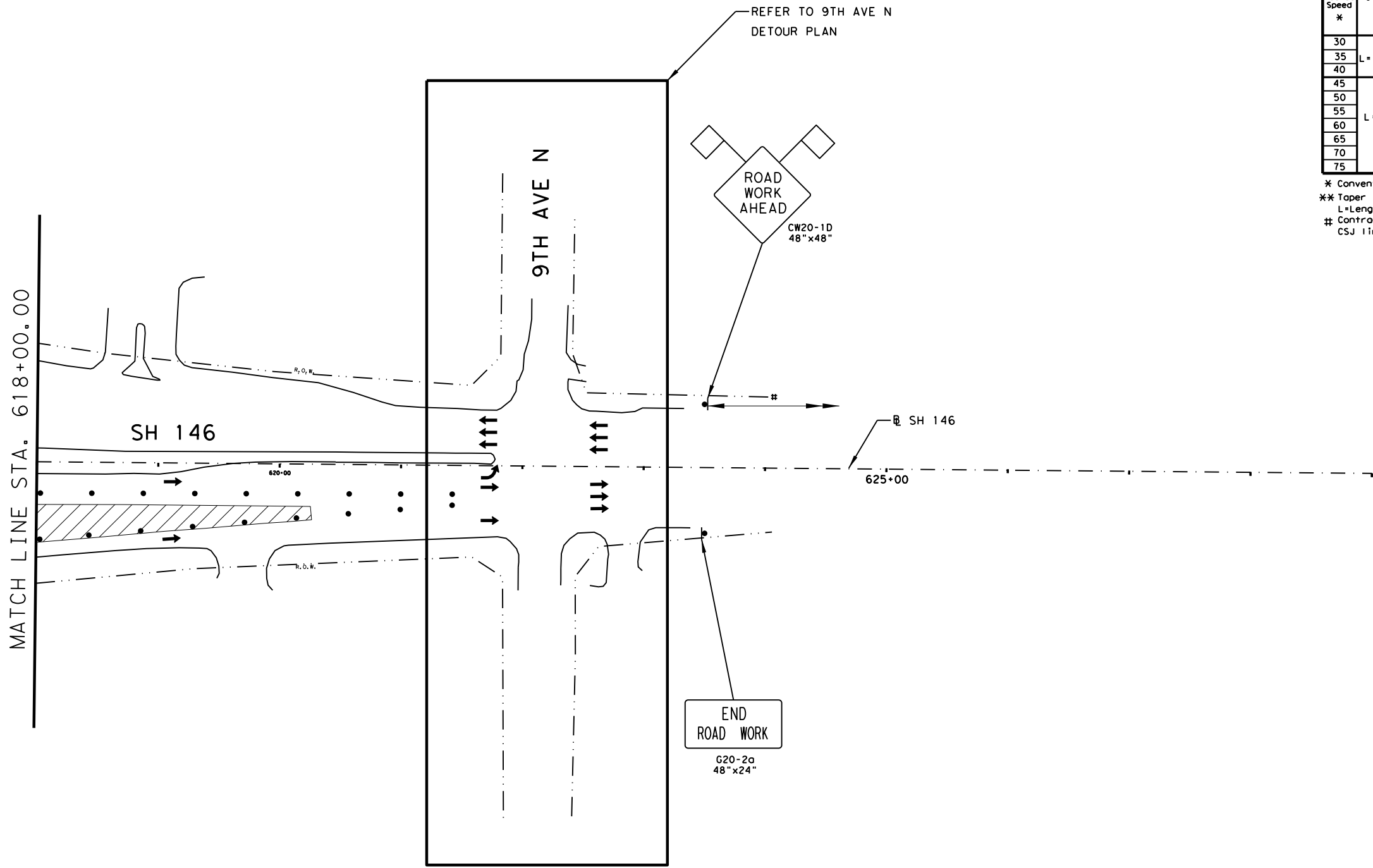
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LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

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

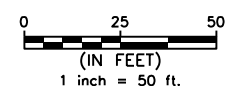
* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)
 † Contractor shall follow BC(2)-21 standard and install CSJ limit signing ahead of Road Work Ahead sign.



Rakshith
 5/25/2024

SH 146
TRAFFIC CONTROL
PLAN
PHASE 3 STEP 1

SHEET 3 OF 3



CONT	SECT
1607	01
JOB	
057, ETC.	
HIGHWAY	
FM 1764	
DIST	COUNTY
HOU	Galveston
SHEET NO.	
57	

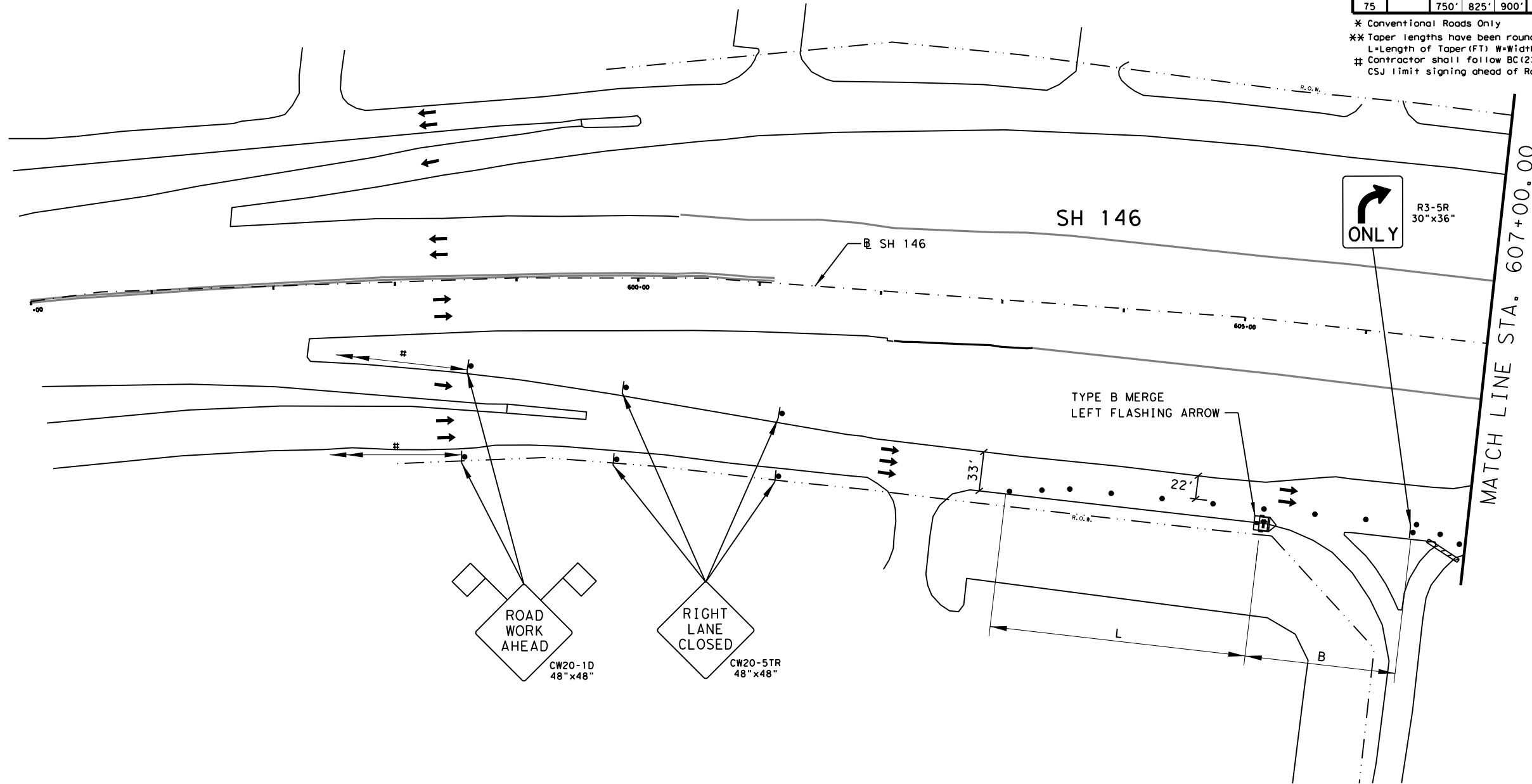
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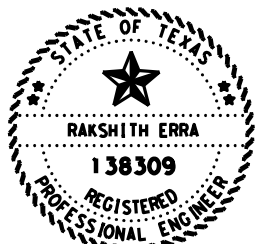
LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed * *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "x" Distance	Suggested Longitudinal Buffer Space "b"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L = WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60	L = WS	600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75	L = WS	750'	825'	900'	75'	150'	900'	540'
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)
 # Contractor shall follow BC(2)-21 standard and install CSJ limit signing ahead of Road Work Ahead sign.



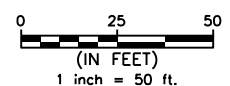
R3-5R
30" x 36"
ONLY



Rakshith
5/25/2024

SH 146
TRAFFIC CONTROL
PLAN
PHASE 3 STEP 2

SHEET 1 OF 3



CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		58

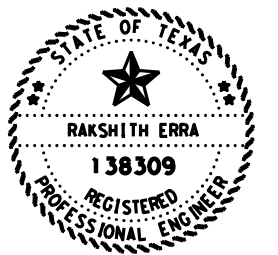
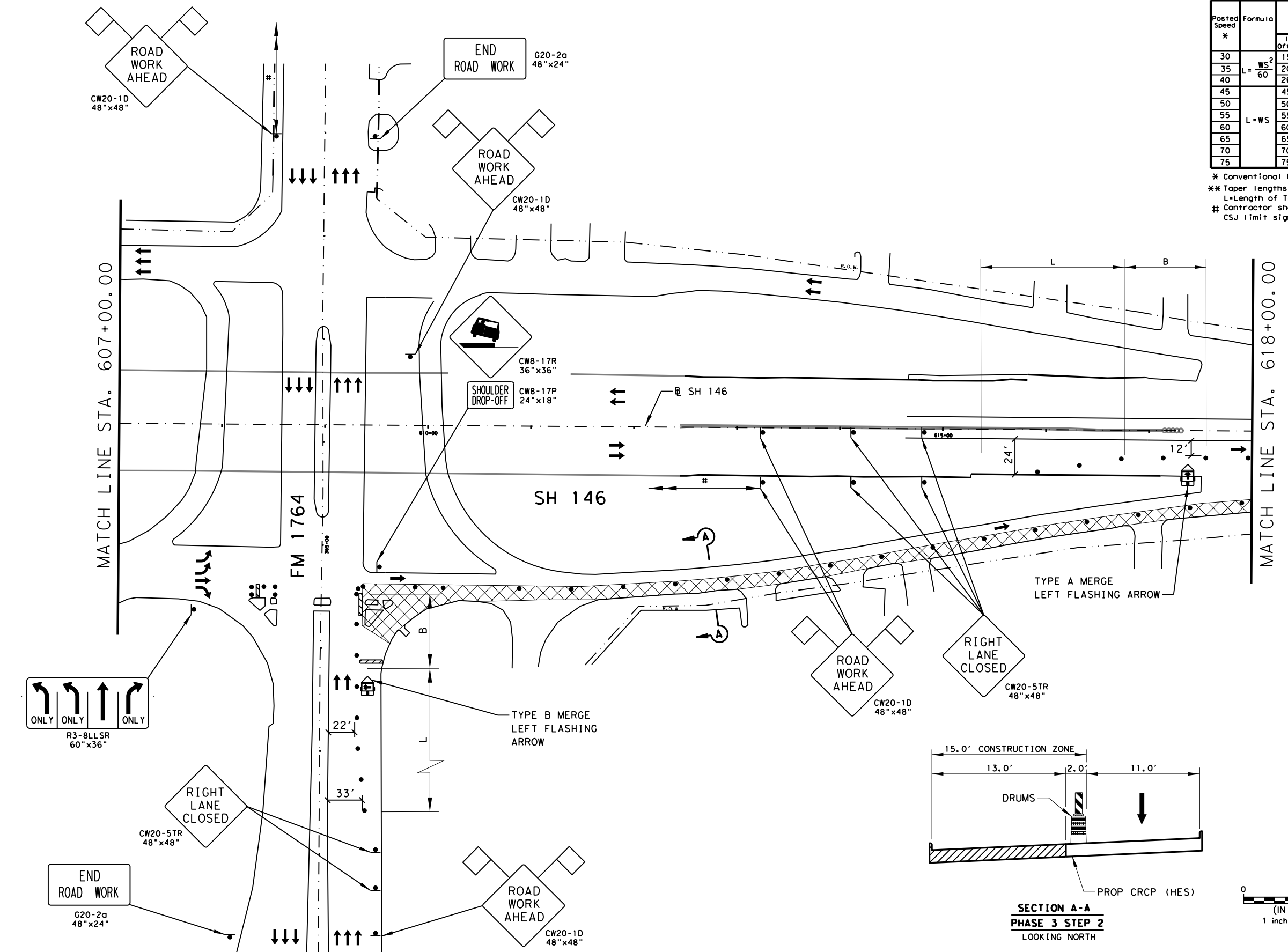
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LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

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

* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)
 # Contractor shall follow BC(2)-21 standard and install CSJ limit signing ahead of Road Work Ahead sign.

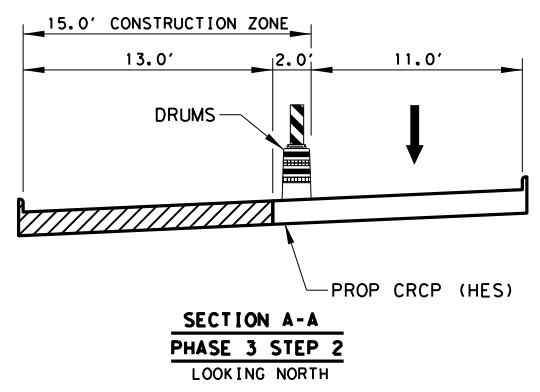
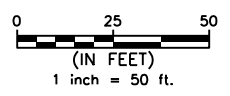


Rakshith
 5/25/2024

SH 146
TRAFFIC CONTROL
PLAN
PHASE 3 STEP 2

SHEET 2 OF 3

CONT	SECT
1607	01
JOB	
057, ETC.	
HIGHWAY	
FM 1764	
COUNTY	
Galveston	
SHEET NO.	
59	



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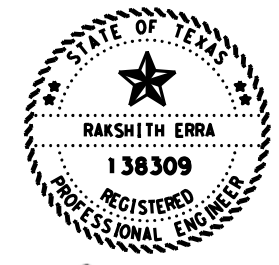
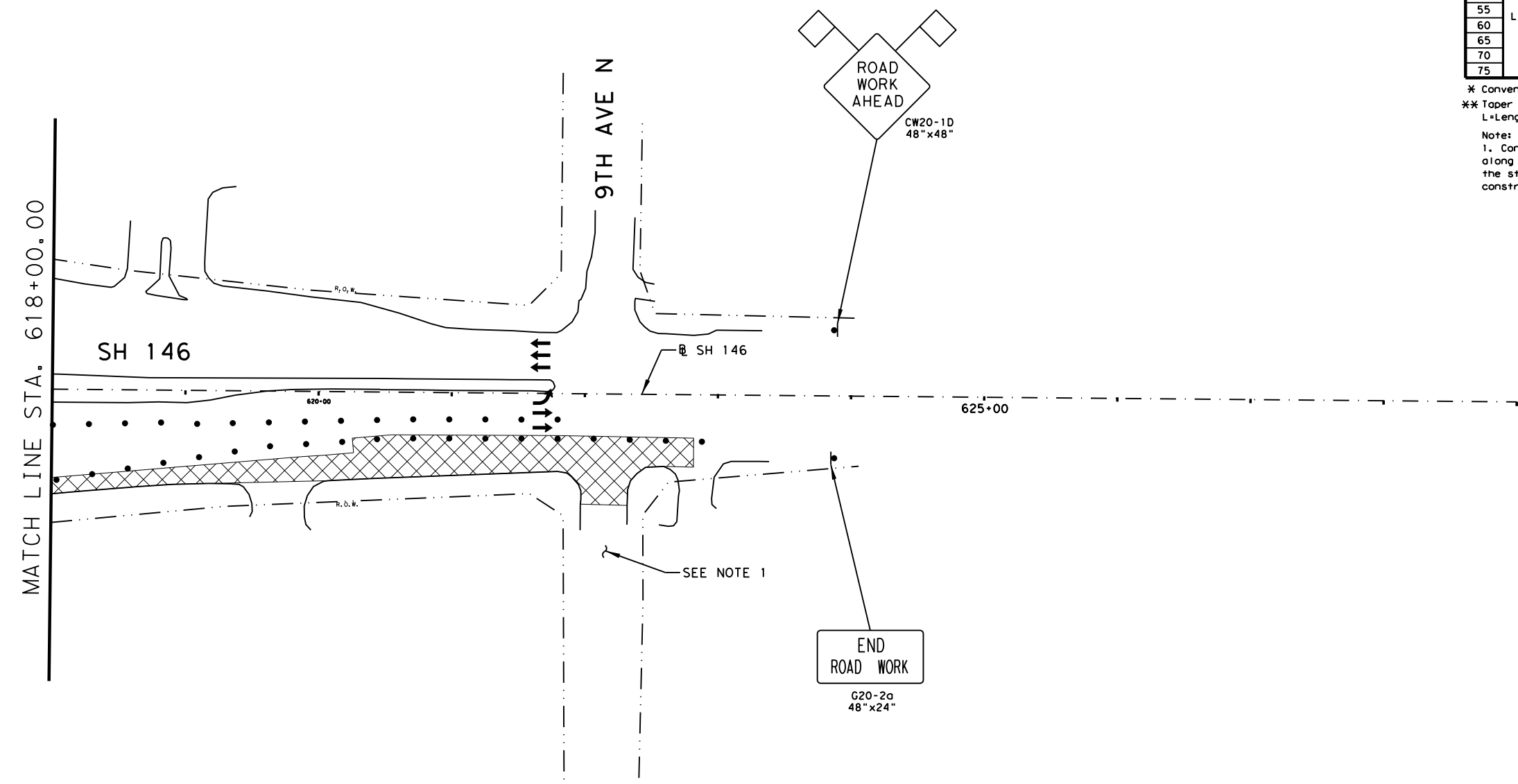
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LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

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

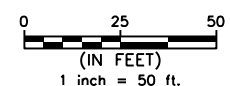
* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)
 Note:
 1. Contractor shall notify and coordinate with 3 properties along 9th Ave N on the West side of SH 146 14 days before the start of construction. Contractor shall phase the construction to provide access to properties at all times.



Rakshith
 5/25/2024

**SH 146
 TRAFFIC CONTROL
 PLAN
 PHASE 3 STEP 2**

SHEET 3 OF 3



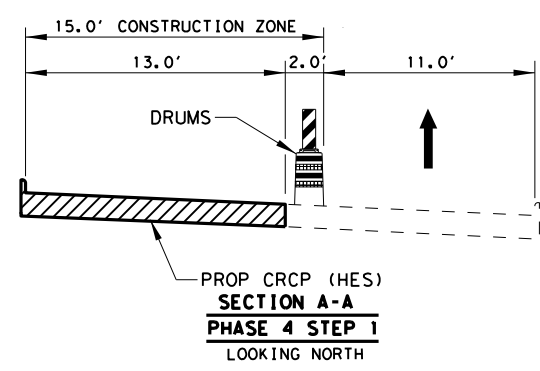
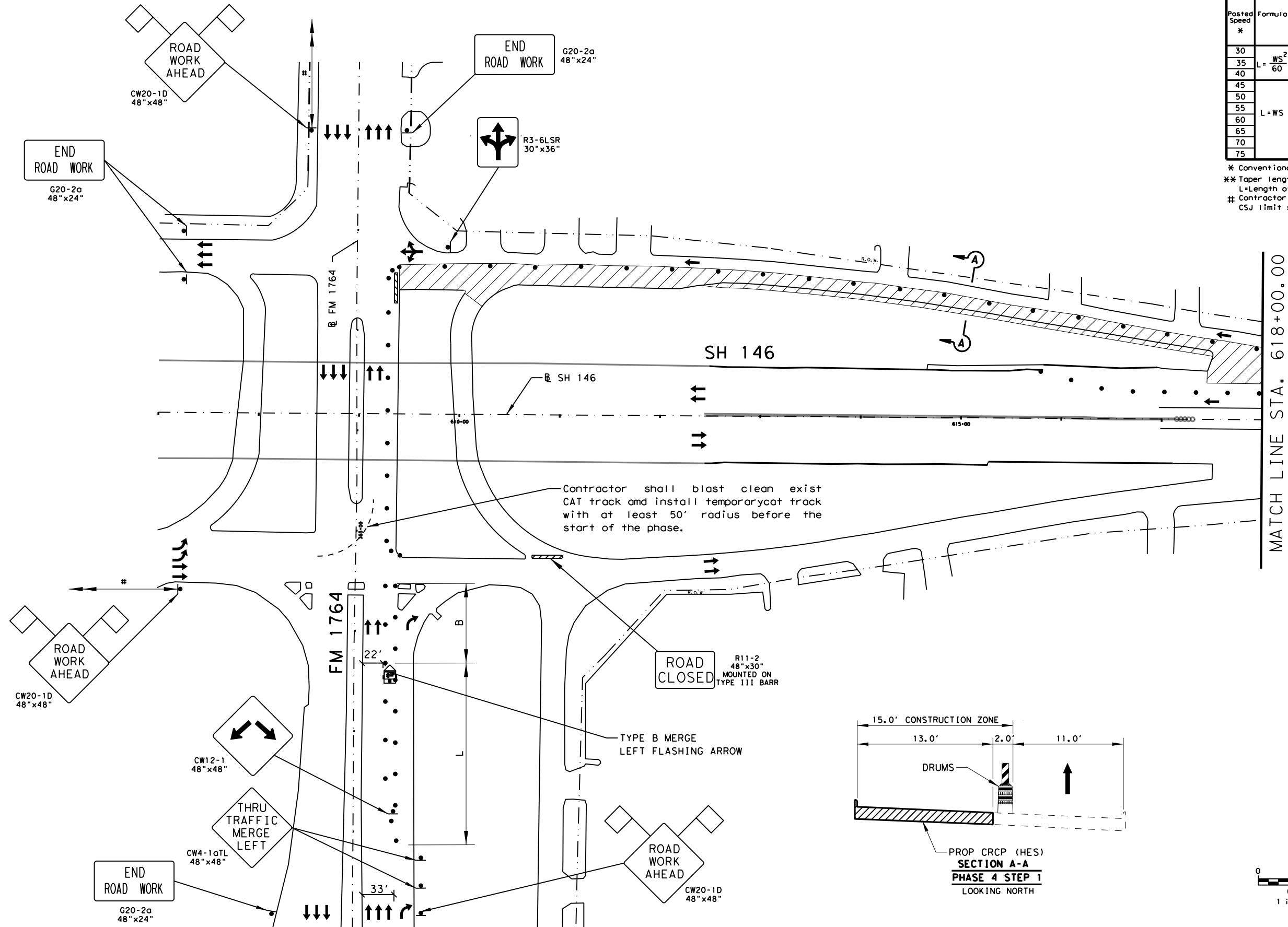
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		60

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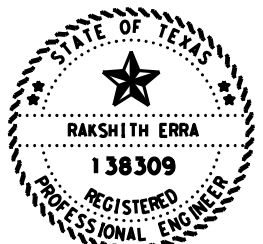
LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

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

* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)
 # Contractor shall follow BC(2)-21 standard and install CSJ limit signing ahead of Road Work Ahead sign.



MATCH LINE STA. 618+00.00



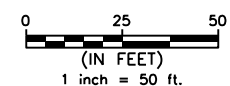
Rakshith
 5/25/2024

SH 146
TRAFFIC CONTROL
PLAN
PHASE 4 STEP 1

SHEET 1 OF 2



CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		61



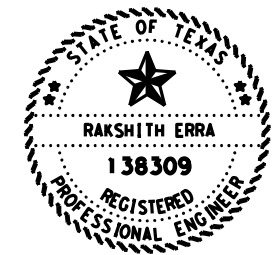
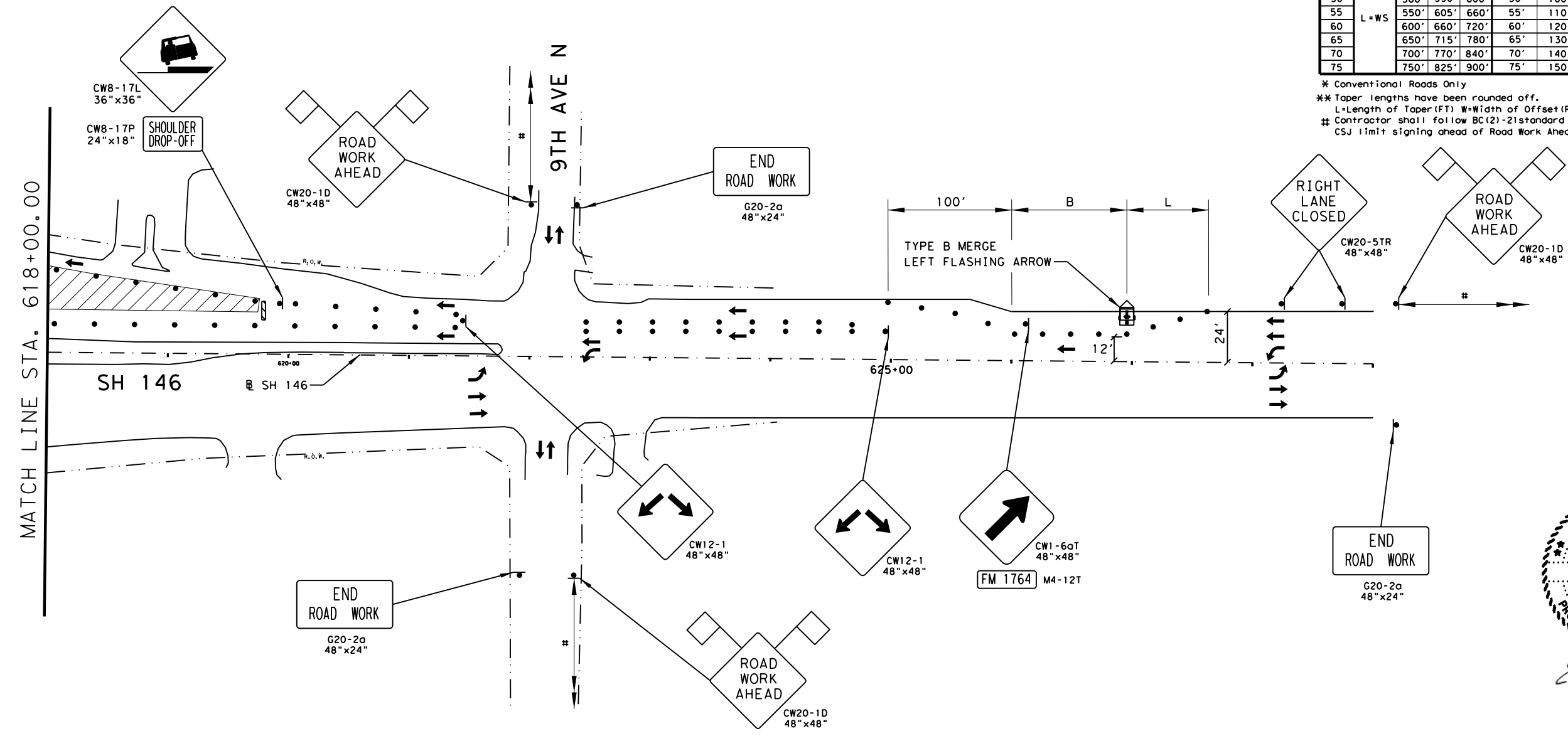
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LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

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

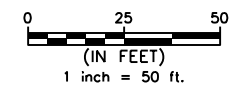
* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)
 # Contractor shall follow BC(2)-21 standard and install CSJ limit signing ahead of Road Work Ahead sign.



Rakshith
 5/25/2024

SH 146
TRAFFIC CONTROL PLAN
PHASE 4 STEP 1

SHEET 2 OF 2



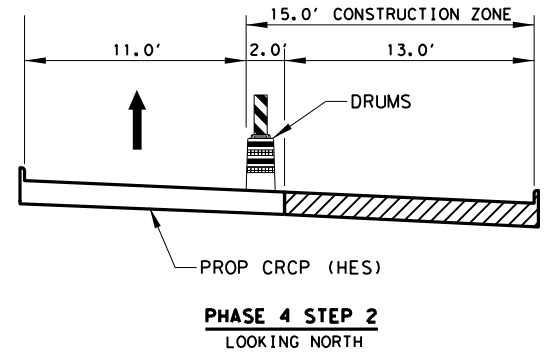
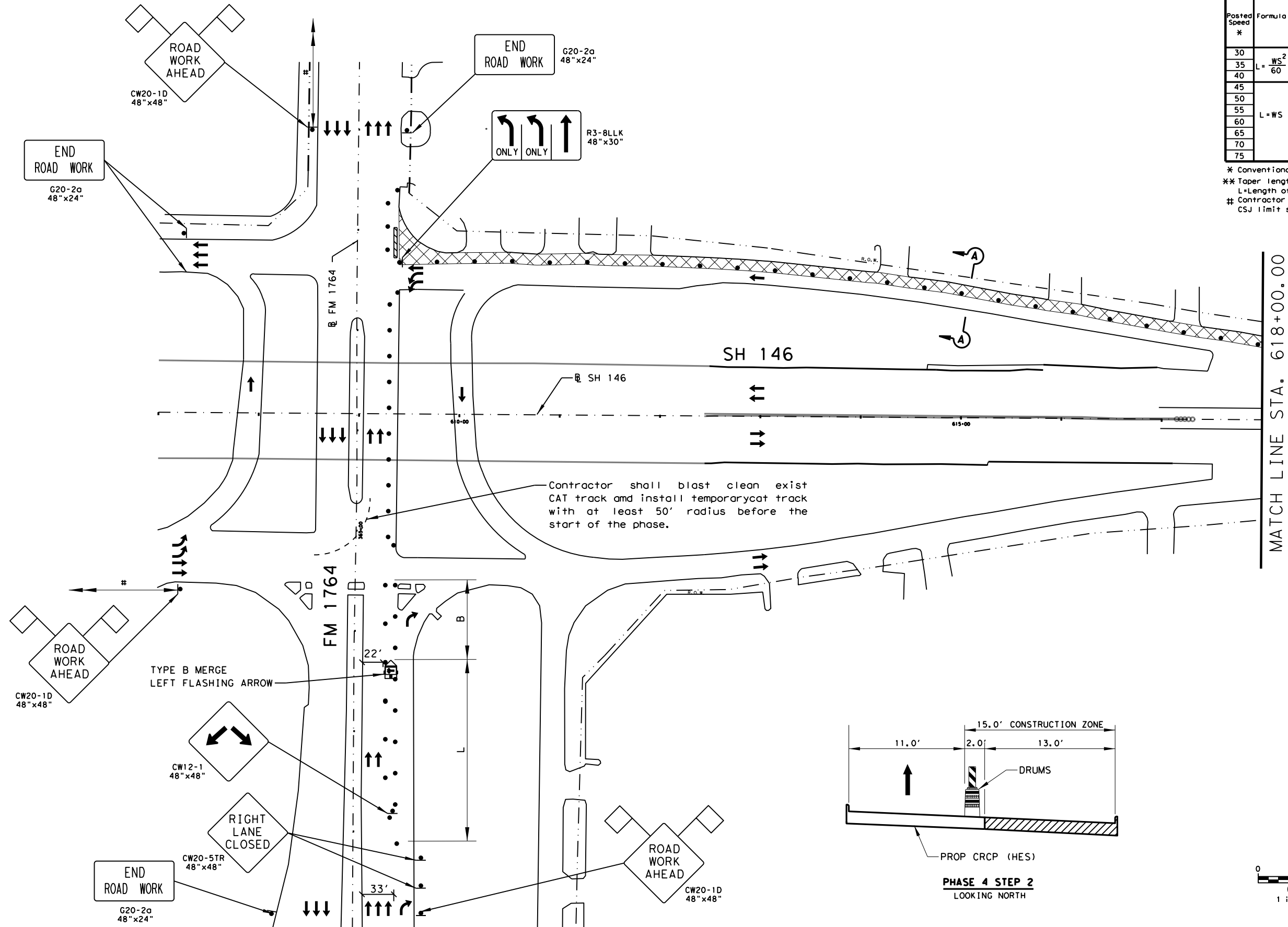
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		62

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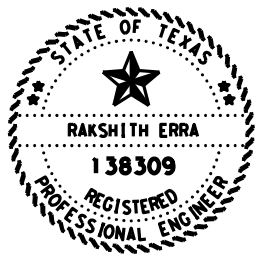
LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

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

* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)
 # Contractor shall follow BC(2)-21 standard and install CSJ limit signing ahead of Road Work Ahead sign.



MATCH LINE STA. 618+00.00



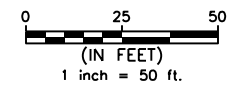
Rakshith
5/25/2024

SH 146
TRAFFIC CONTROL
PLAN
PHASE 4 STEP 2

SHEET 1 OF 2

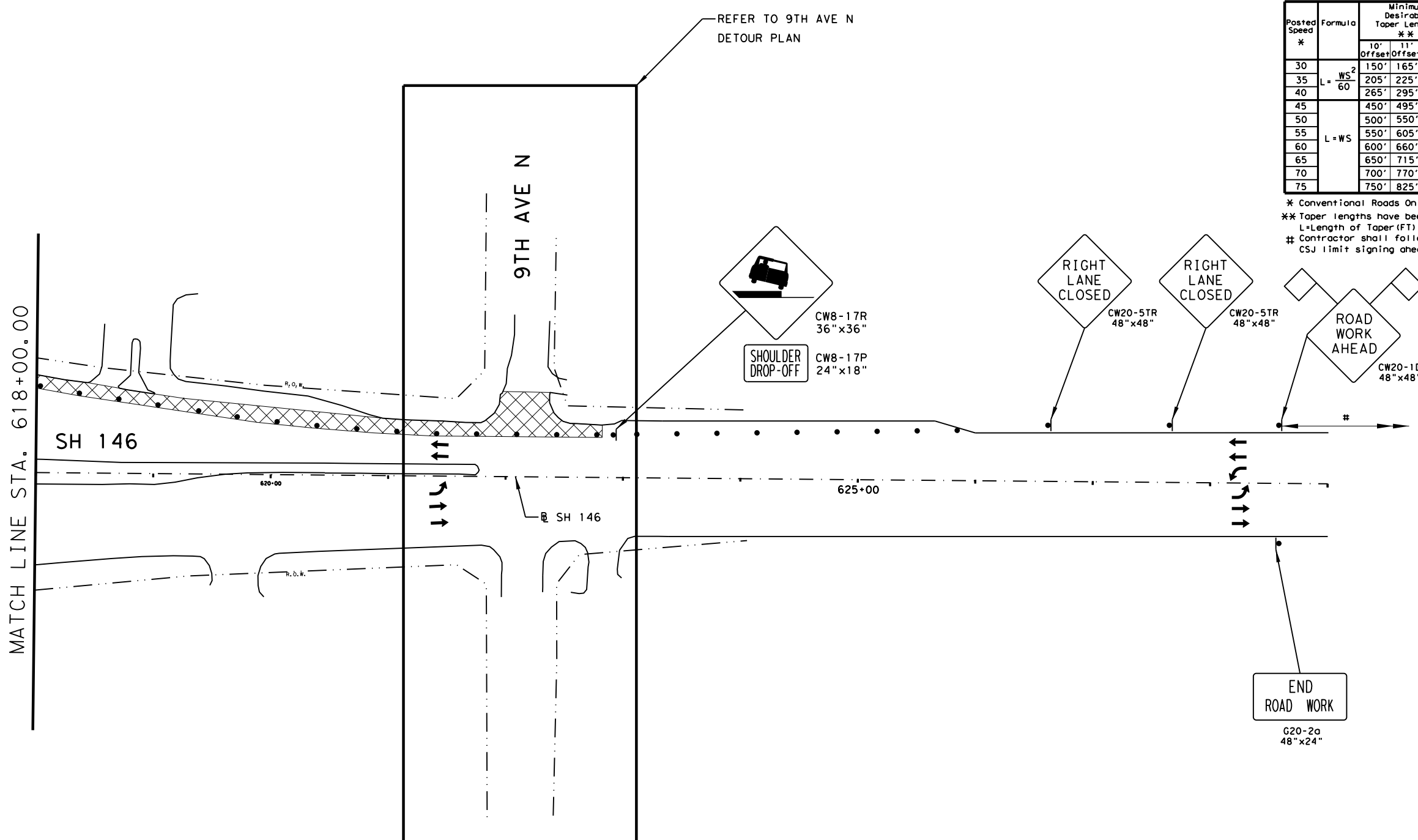


CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		63



CK: _____
 DW: _____
 CK: _____
 DN: _____

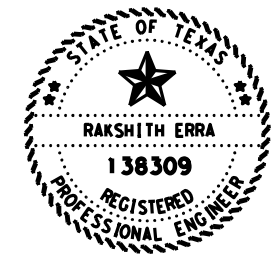
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LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

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

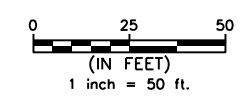
* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)
 # Contractor shall follow BC(2)-21 standard and install CSJ limit signing ahead of Road Work Ahead sign.



Rakshith
 5/25/2024

**SH 146
 TRAFFIC CONTROL
 PLAN
 PHASE 4 STEP 2**

SHEET 2 OF 2



CONT	SECT
1607	01
JOB	
057, ETC.	
HIGHWAY	
FM 1764	
DIST	COUNTY
HOU	Galveston
SHEET NO.	
64	

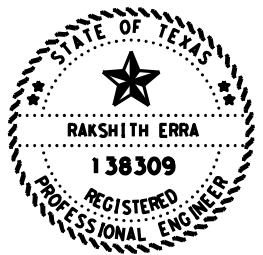
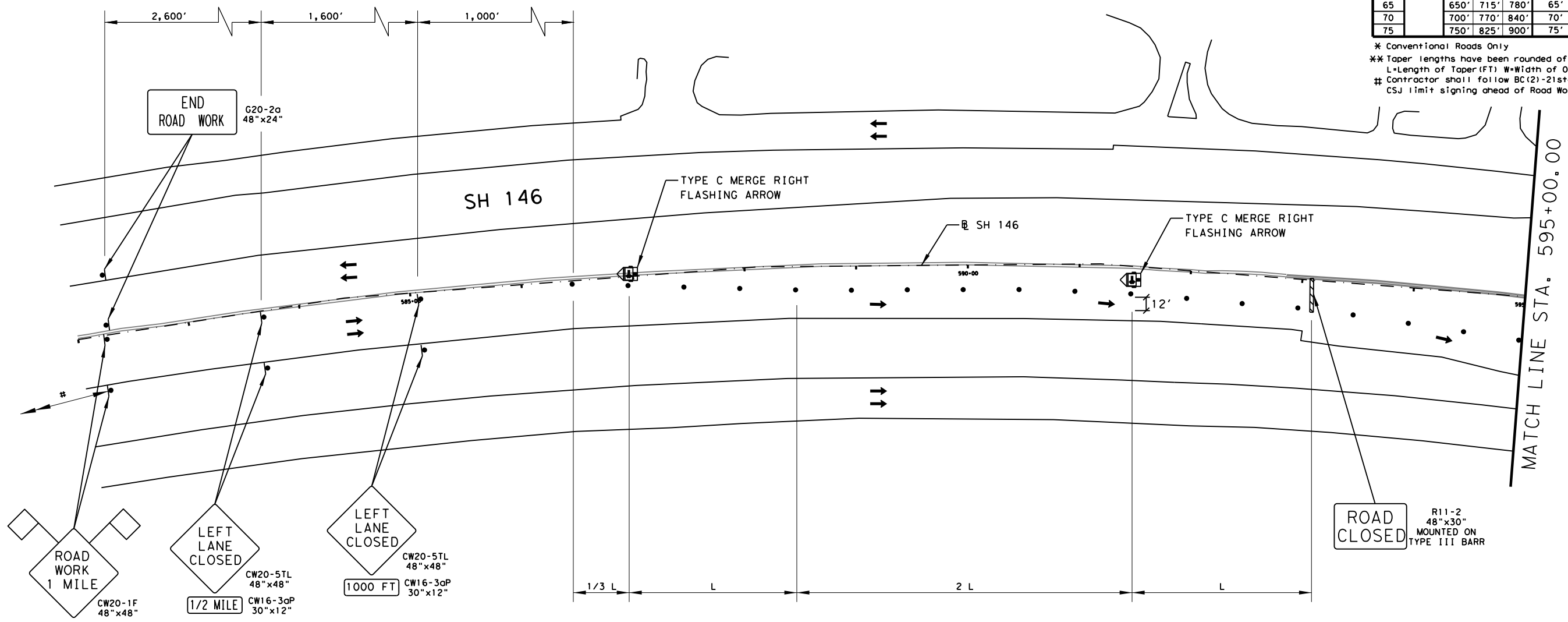
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LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

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

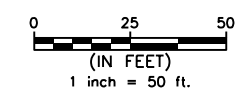
* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)
 # Contractor shall follow BC(2)-21 standard and install CSJ limit signing ahead of Road Work Ahead sign.



Rakshith
 5/25/2024

SH 146
TRAFFIC CONTROL
PLAN
PHASE 5 STEP 1

SHEET 1 OF 4



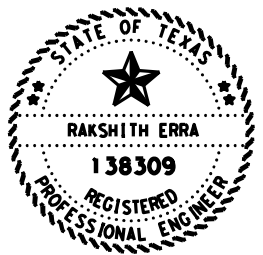
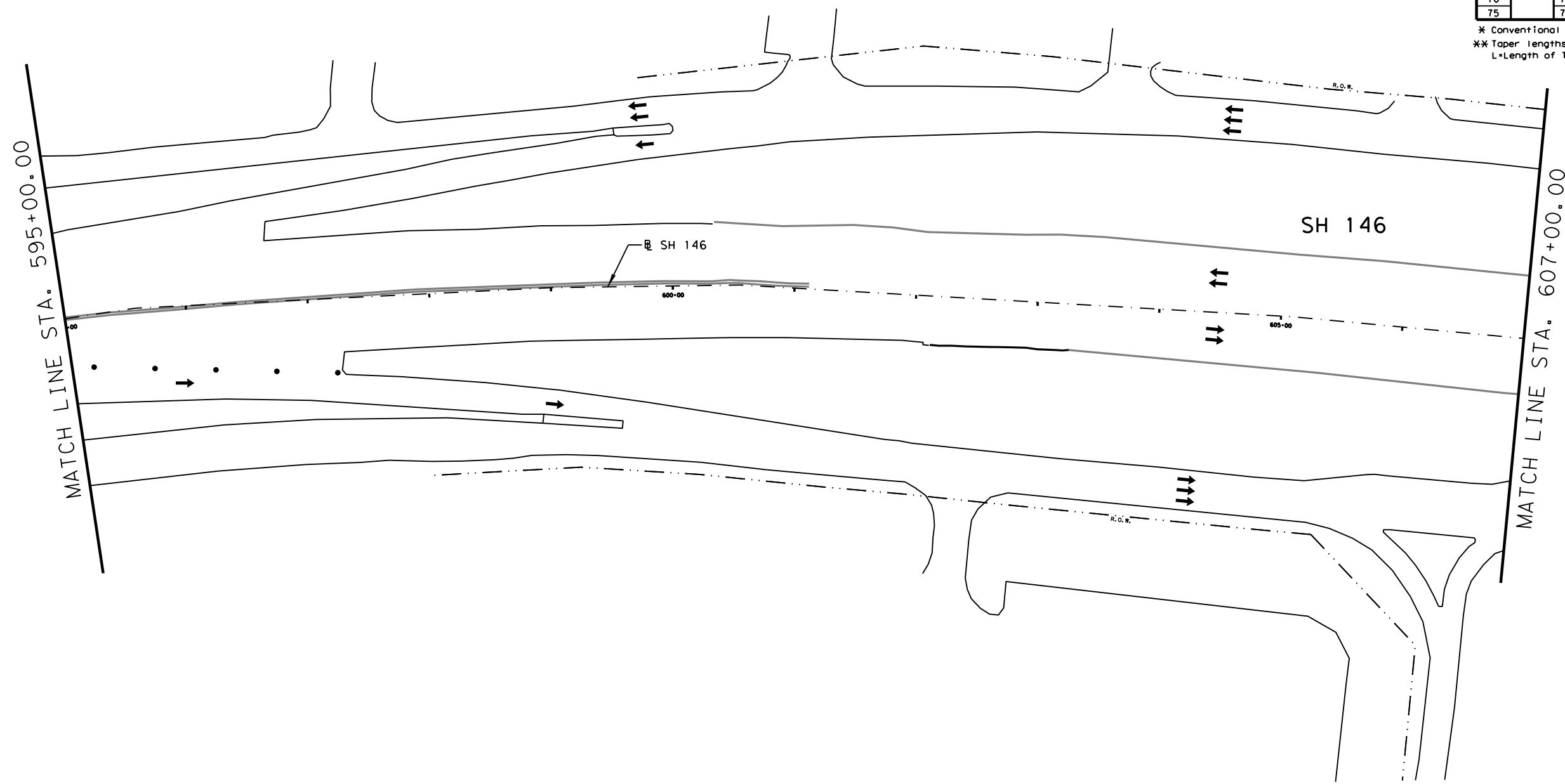
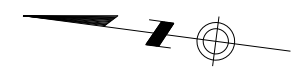
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		65

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

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

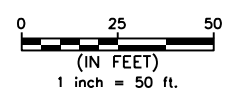
* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)



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 5/25/2024

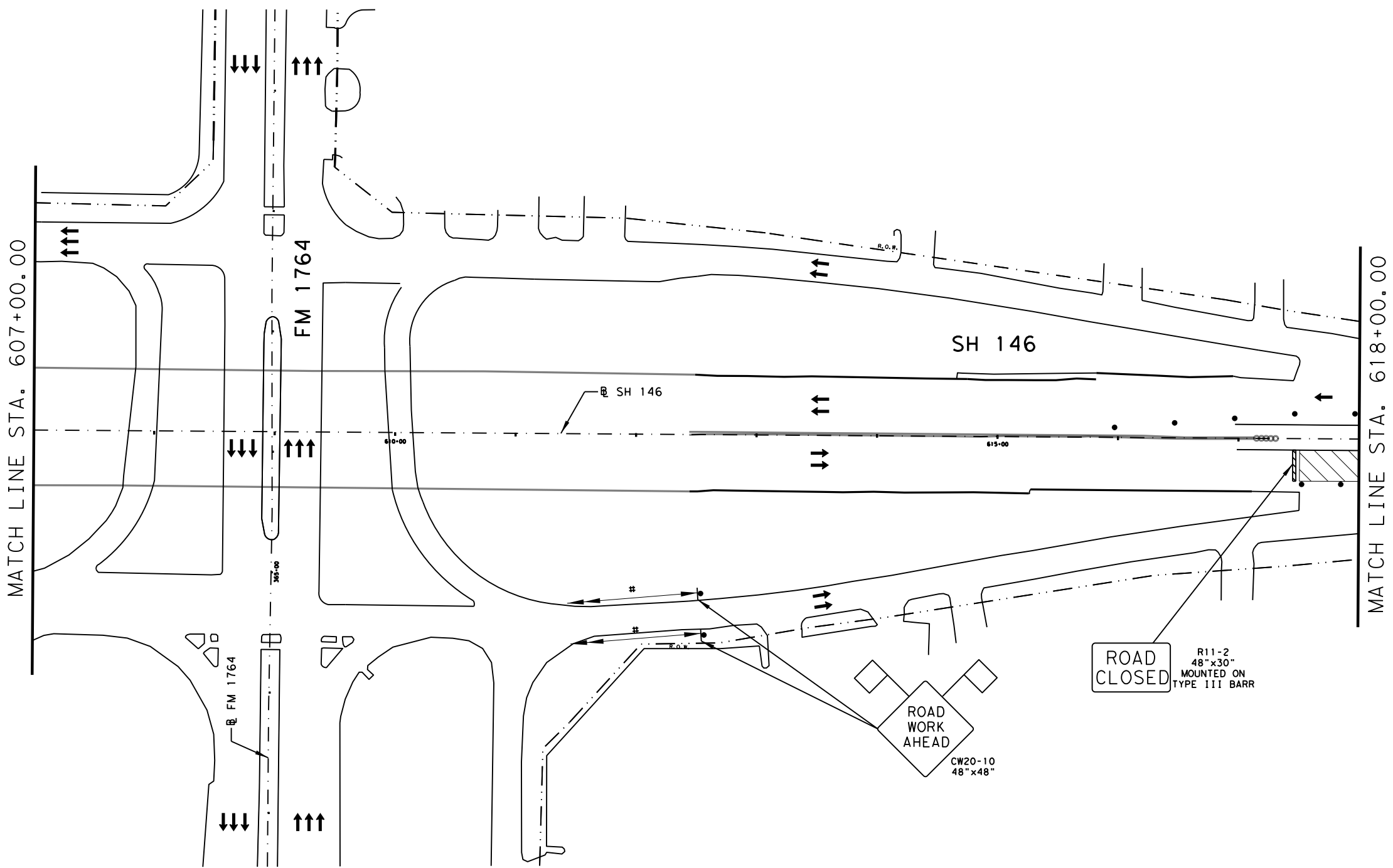
SH 146
TRAFFIC CONTROL
PLAN
PHASE 5 STEP 1

SHEET 2 OF 4



CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		66

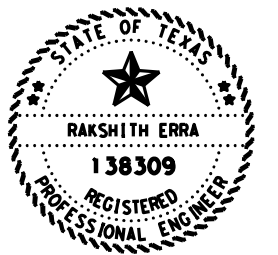
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LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

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

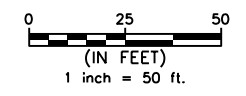
* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)
 # Contractor shall follow BC(2)-21 standard and install CSJ limit signing ahead of Road Work Ahead sign.



Rakshith
 5/25/2024

SH 146
 TRAFFIC CONTROL PLAN
 PHASE 5 SETP 1

SHEET 3 OF 4



CONT	SECT
1607	01
JOB	
057, ETC.	
HIGHWAY	
FM 1764	
DIST	COUNTY
HOU	Galveston
SHEET NO.	
67	

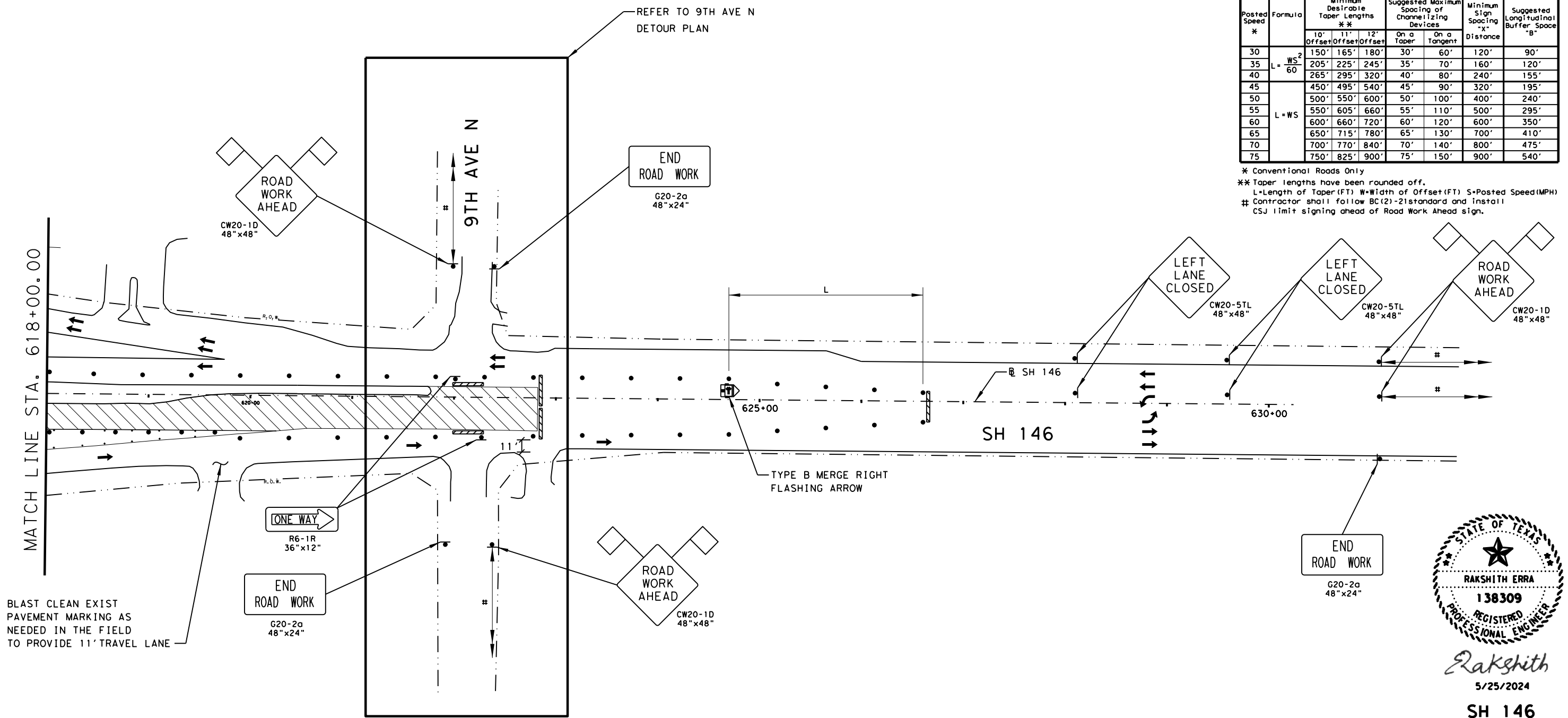
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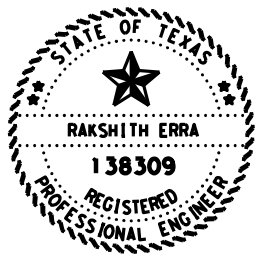
LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

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

* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)
 # Contractor shall follow BC(2)-21 standard and install CSJ limit signing ahead of Road Work Ahead sign.



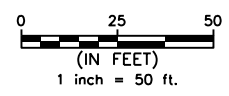
BLAST CLEAN EXIST PAVEMENT MARKING AS NEEDED IN THE FIELD TO PROVIDE 11' TRAVEL LANE



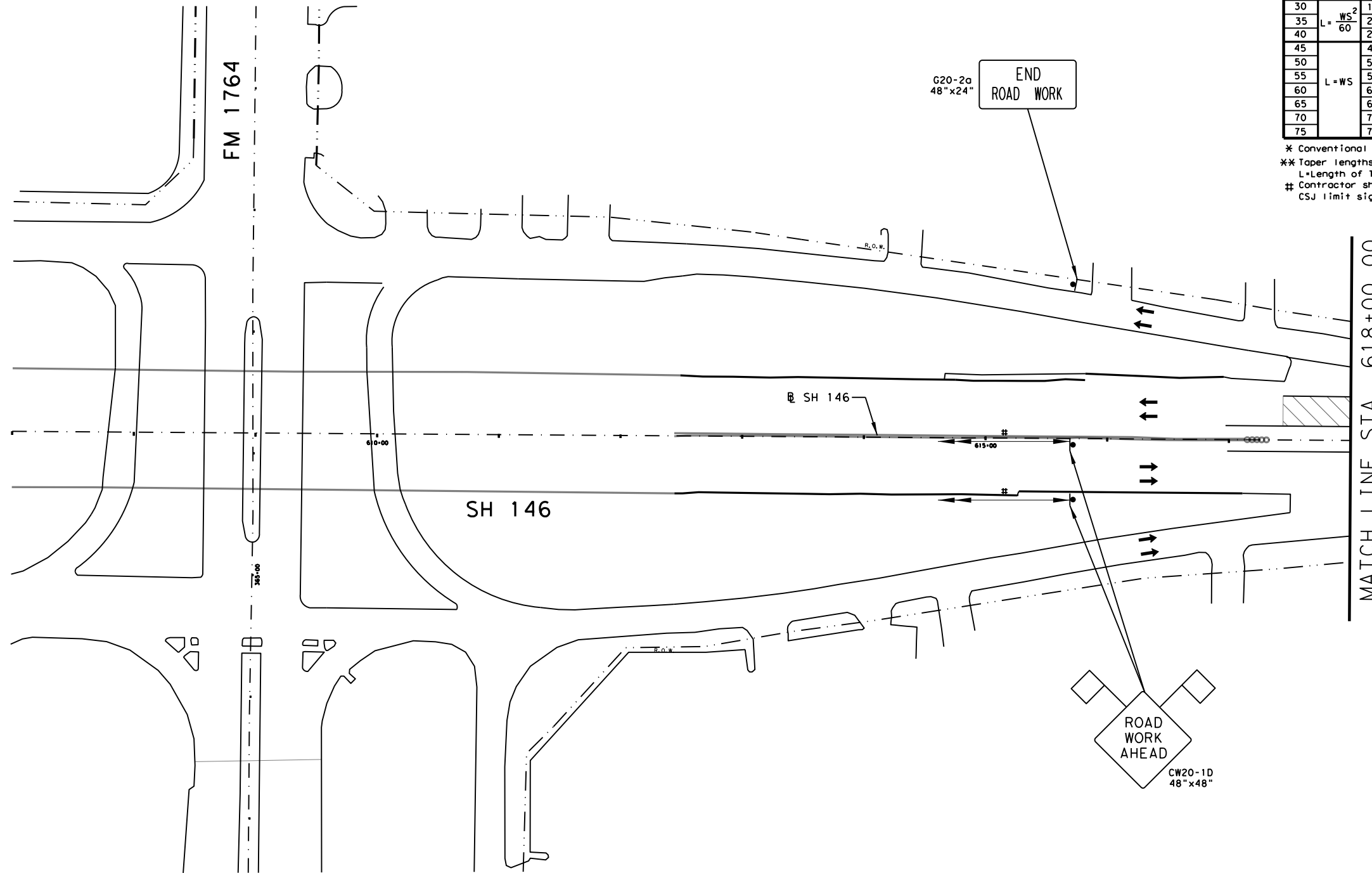
Rakshith
 5/25/2024

SH 146
TRAFFIC CONTROL PLAN
PHASE 5 STEP 1

SHEET 4 OF 4



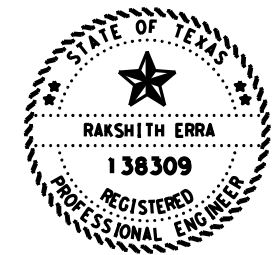
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		68



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

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

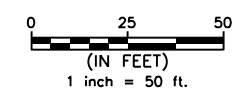
* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)
 # Contractor shall follow BC(2)-21 standard and install CSJ limit signing ahead of Road Work Ahead sign.



Rakshith
 5/25/2024

SH 146
TRAFFIC CONTROL
PLAN
PHASE 5 STEP 2

SHEET 1 OF 2



CONT	SECT
1607	01
JOB	
057, ETC.	
HIGHWAY	
FM 1764	
DIST	COUNTY
HOU	Galveston
SHEET NO.	
69	

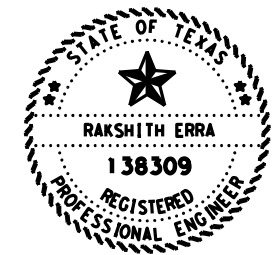
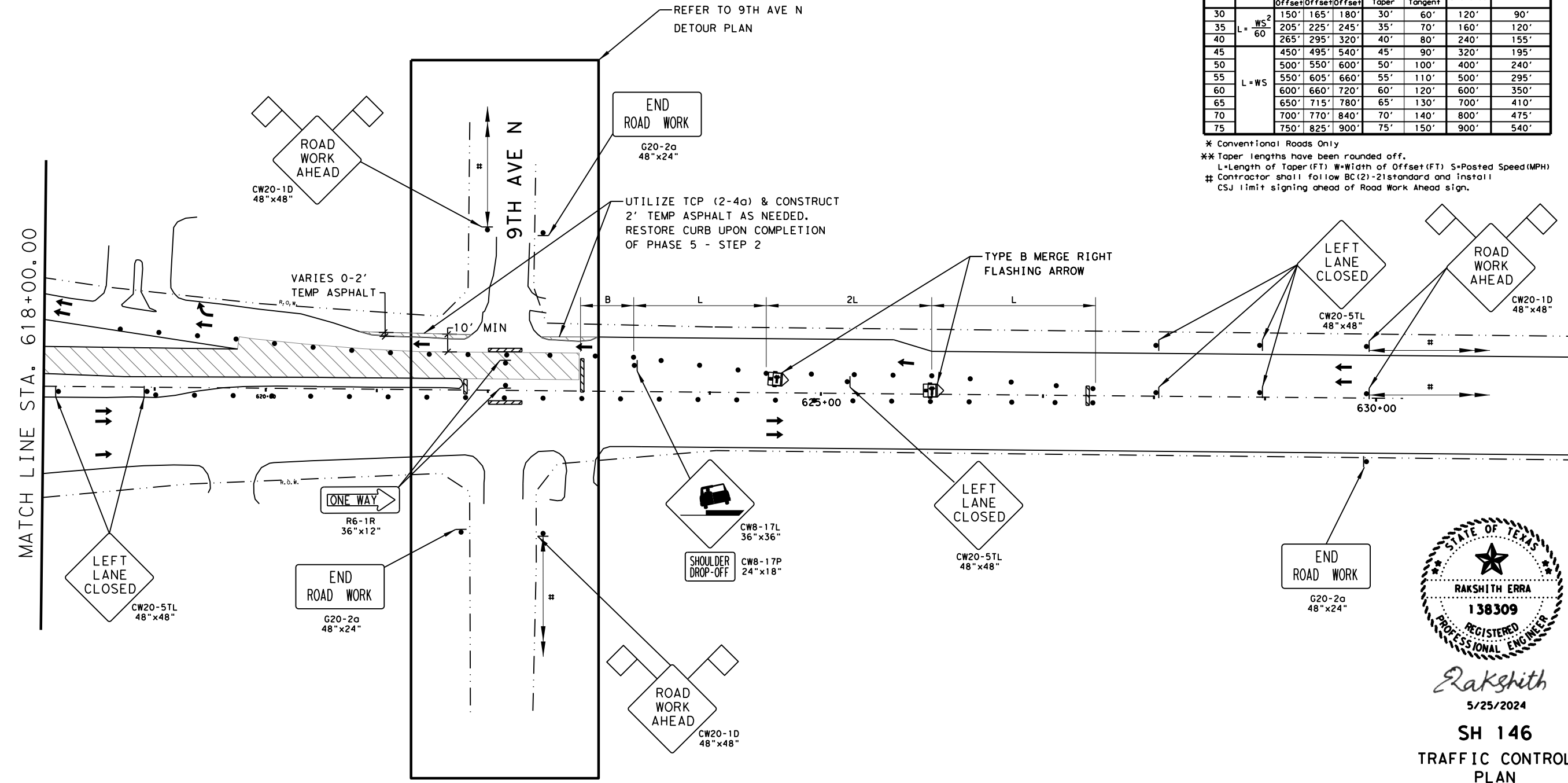
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 CK: _____
 DN: _____

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

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

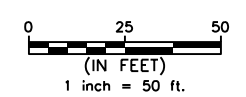
* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)
 # Contractor shall follow BC(2)-21 standard and install CSJ limit signing ahead of Road Work Ahead sign.



RAKSHITH
 5/25/2024

SH 146
TRAFFIC CONTROL PLAN
PHASE 5 STEP 2

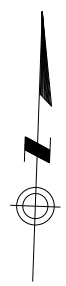
SHEET 2 OF 2



CONT	SECT
1607	01
JOB	
057, ETC.	
HIGHWAY	
FM 1764	
DIST	COUNTY
HOU	Galveston
SHEET NO.	
70	

CK: _____
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 CK: _____
 DN: _____

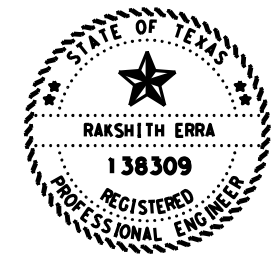
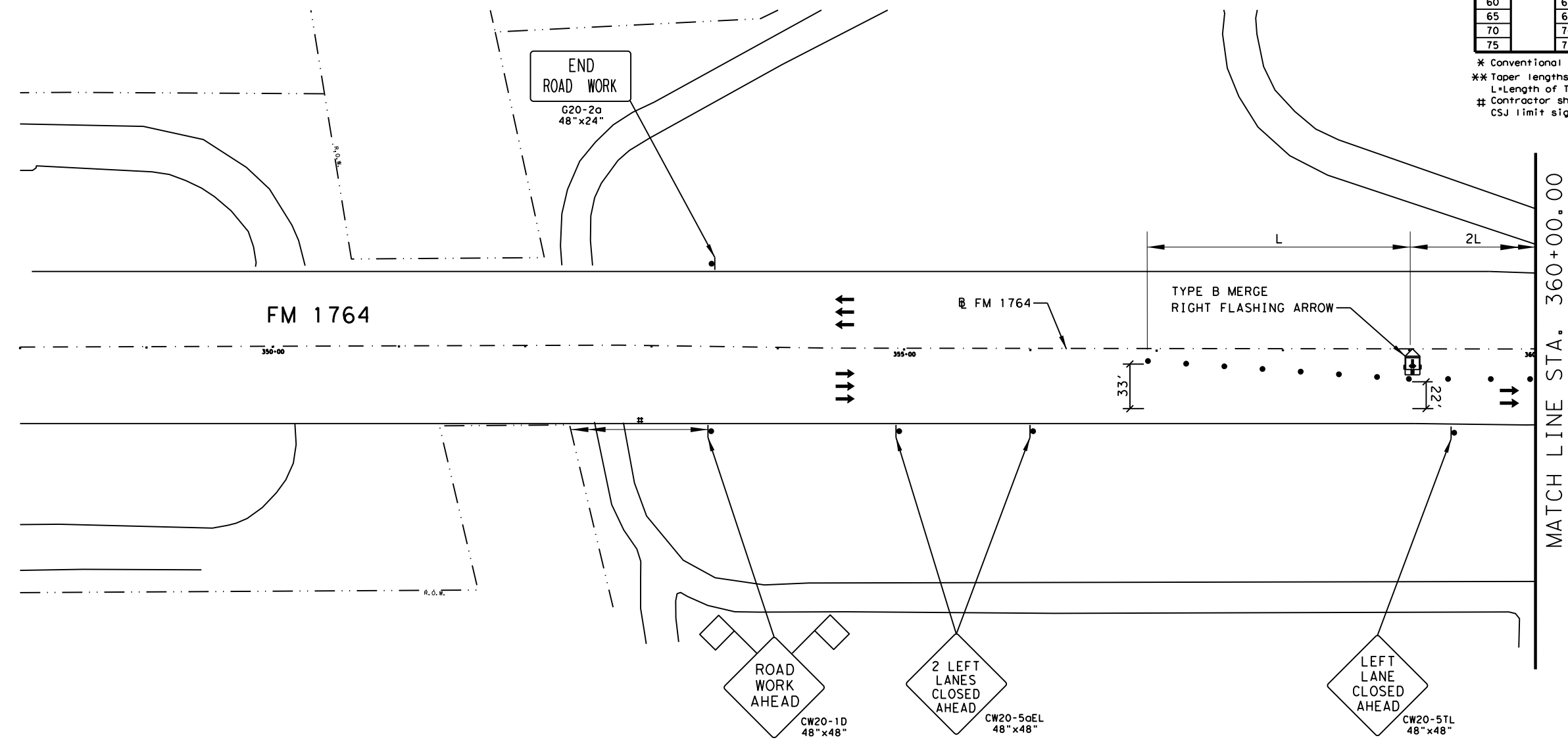
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LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

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

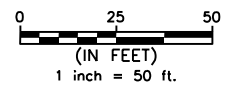
* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)
 † Contractor shall follow BC(2)-21 standard and install CSJ limit signing ahead of Road Work Ahead sign.



Rakshith
 5/25/2024

FM 1764
TRAFFIC CONTROL
PLAN
PHASE 6 STEP 1

SHEET 1 OF 3



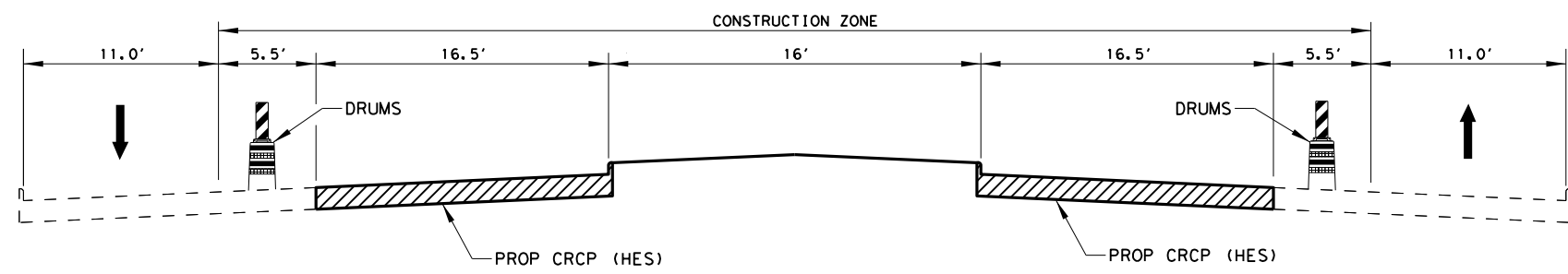
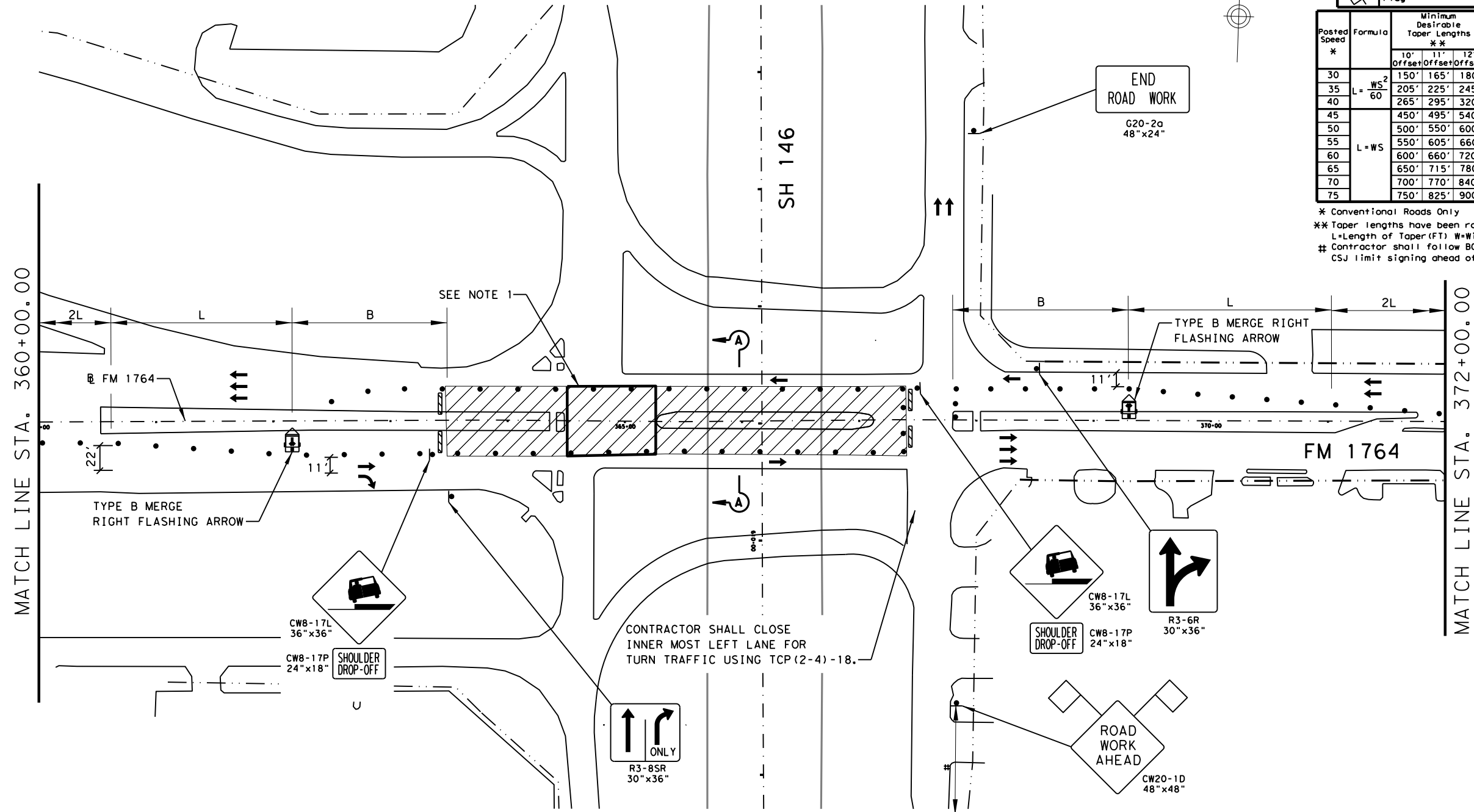
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		71

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

Posted Speed * S	Formula L = WS/60	Minimum Desirable Taper Lengths * L			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "x" Distance	Suggested Longitudinal Buffer Space "b"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30		150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45		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)
 # Contractor shall follow BC(2)-21 standard and install CSJ limit signing ahead of Road Work Ahead sign.



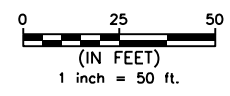
Note:
 Contractor shall utilize Detour Plan Phase 6 Step 1 concept in combination with TCP Phase 6 Step 1 to complete the construction of intersection. The construction of this area is allowed only on weekends and should be opened back to traffic by 5:00 am on Monday.



FM 1764
TRAFFIC CONTROL PLAN
PHASE 6 STEP 1

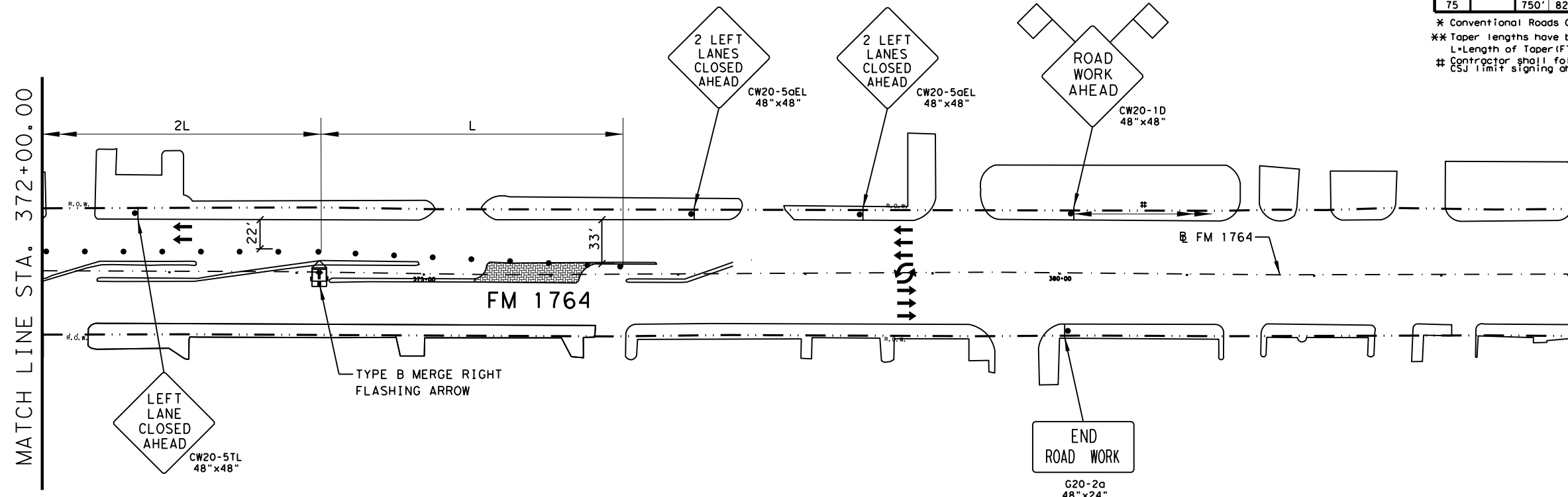
SHEET 2 OF 3

CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		72



DATE: 5/25/2024 1:13:33 PM
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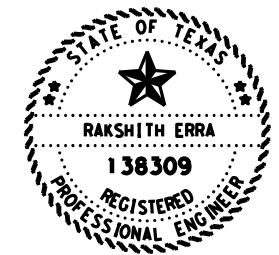
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LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

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

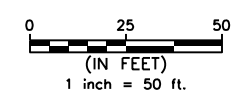
* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)
 # Contractor shall follow BC(2)-21 standard and install CSJ limit signing ahead of Road Work Ahead sign.



Rakshith
 5/25/2024

FM 1764
TRAFFIC CONTROL
PLAN
PHASE 6 STEP 1

SHEET 3 OF 3



CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		73

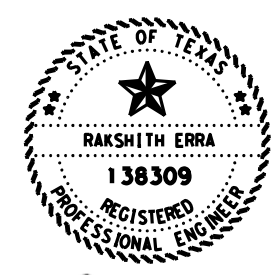
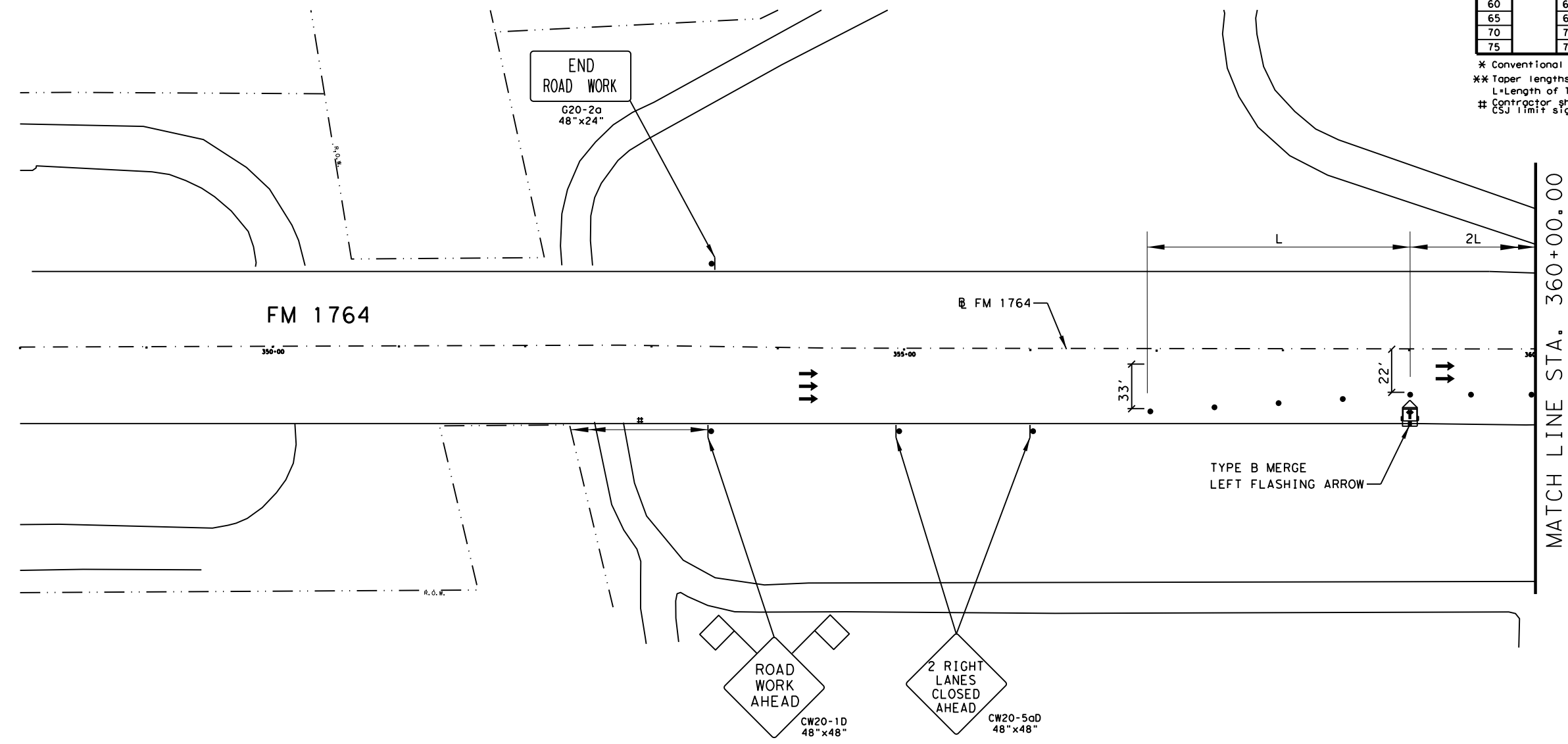
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LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

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

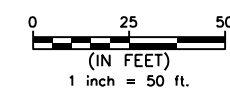
* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)
 # Contractor shall follow BC(2)-21 standard and install CSJ limit signing ahead of Road Work Ahead sign.



Rakshith
 5/25/2024

FM 1764
TRAFFIC CONTROL
PLAN
PHASE 6 STEP 2

SHEET 1 OF 3



CONT	SECT
1607	01
JOB	HIGHWAY
057, ETC.	FM 1764
DIST	COUNTY
HOU	Galveston
SHEET NO.	74

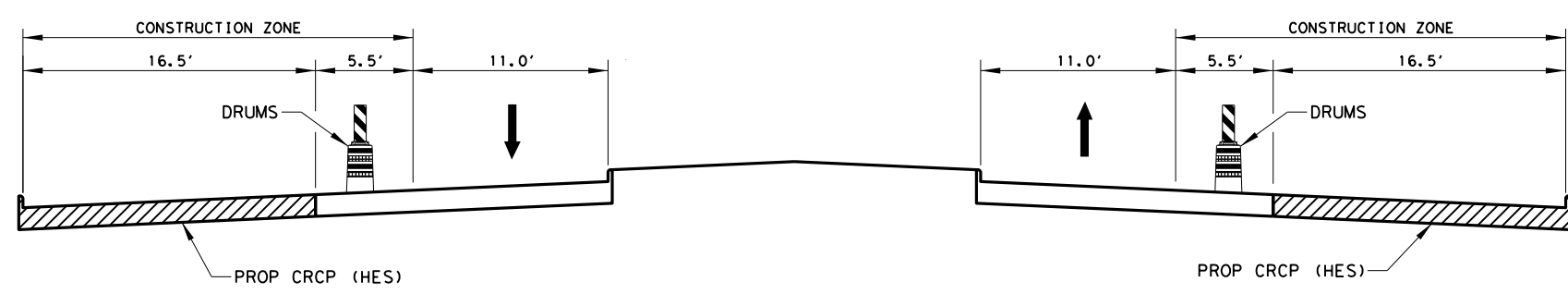
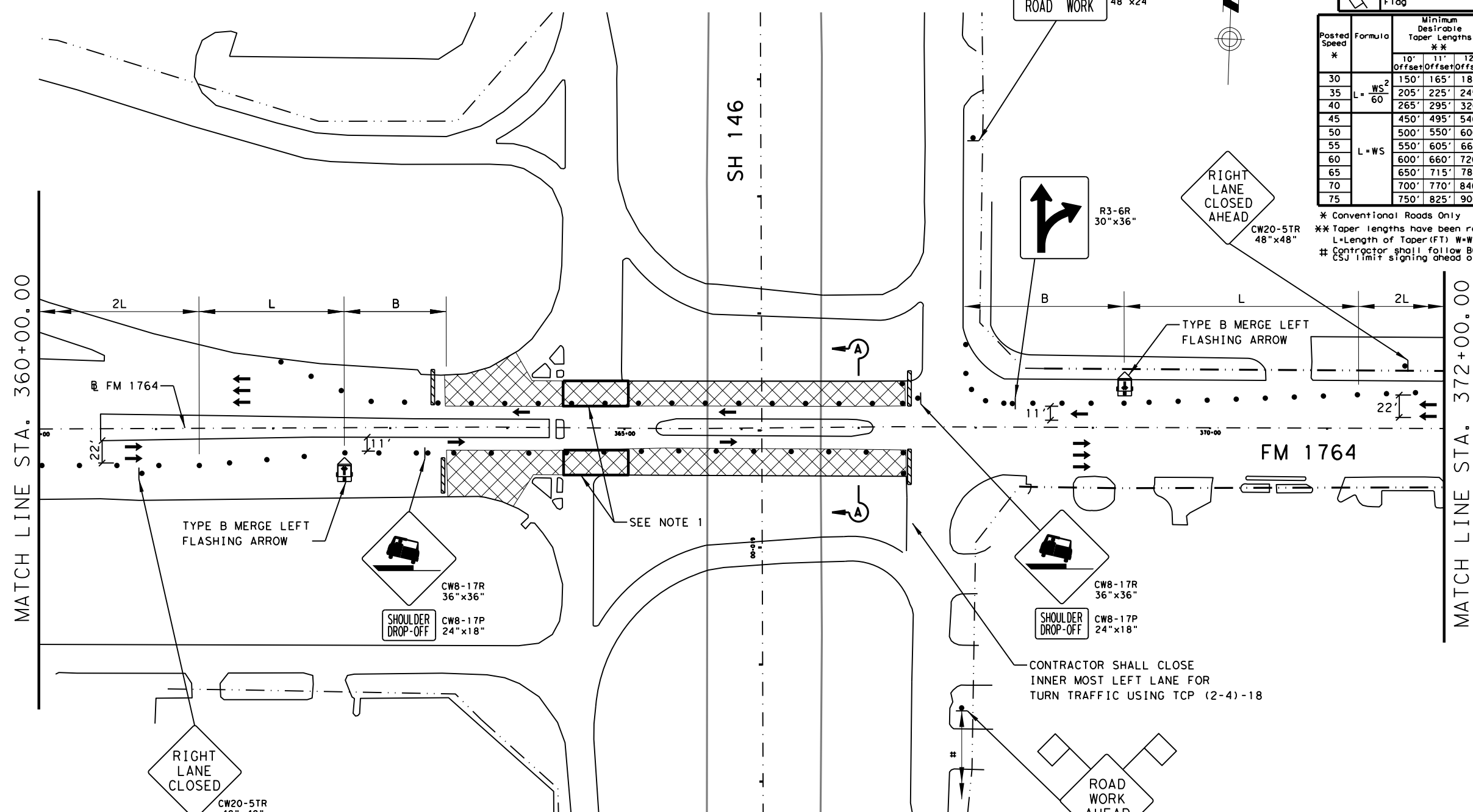
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LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

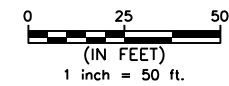
Posted Speed * *	Formula	Minimum Desirable Spacing of Taper Lengths * * *			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing * * Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45		450'	495'	540'	45'	90'	320'	195'
50		550'	550'	600'	50'	100'	400'	240'
55		605'	605'	660'	55'	110'	500'	295'
60		660'	660'	720'	60'	120'	600'	350'
65	L = WS	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)
 # Contractor shall follow BC(2)-21 standard and install CSJ limit signing ahead of Road Work Ahead sign.



SECTION A-A
 PHASE 6 & 7 STEP 2
 LOOKING WEST

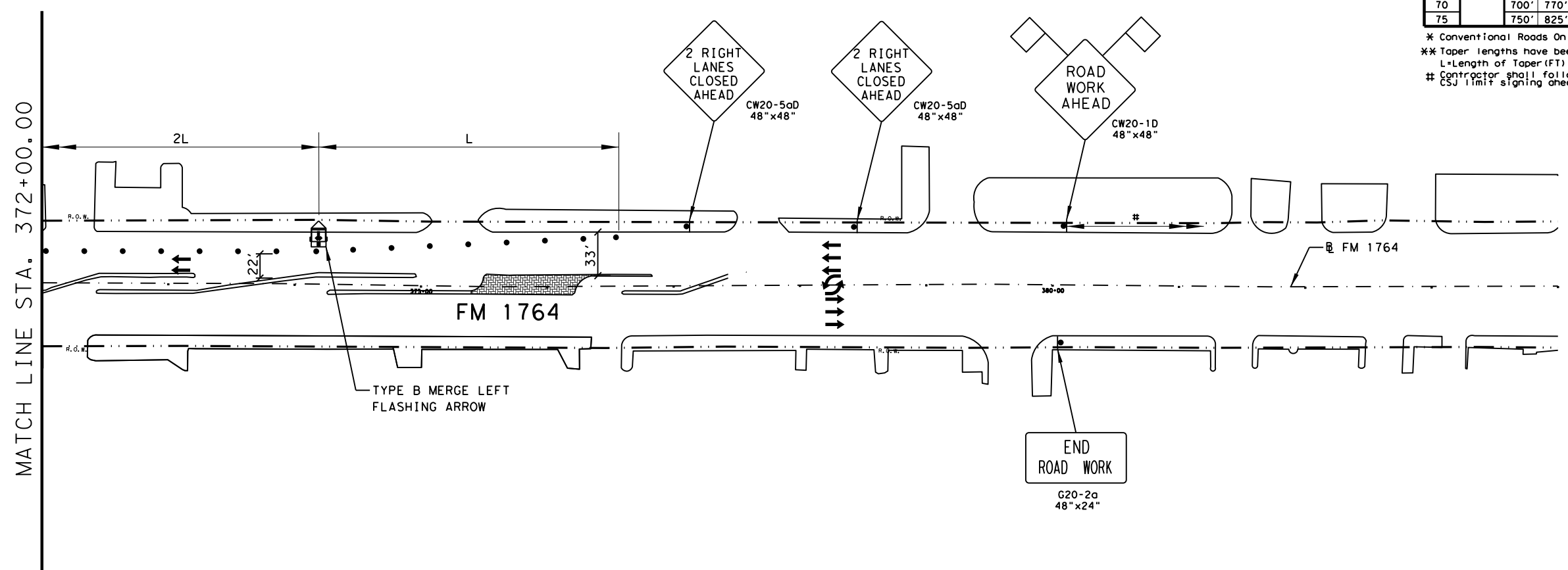
Note:
 Contractor shall utilize Detour Plan Phase 6 Step 2 concept in combination with TCP Phase 6 Step 1 to complete the construction of intersection. The construction of this area is allowed only on weekends and should be opened back to traffic by 5:00 am on Monday.



FM 1764
 TRAFFIC CONTROL PLAN
 PHASE 6 STEP 2

SHEET 2 OF 3

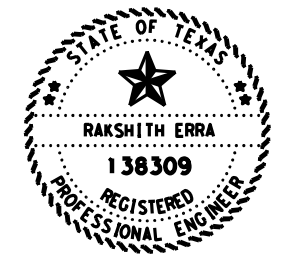
CONT	JOB
1607	057, ETC.
DIST	HIGHWAY
HOU	Galveston
SHEET NO.	
75	



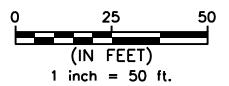
LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flagger		Flagger

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

* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)
 # Contractor shall follow BC(2)-21 standard and install CSJ limit signing ahead of Road Work Ahead sign.



Rakshith
 5/25/2024
FM 1764
TRAFFIC CONTROL PLAN
PHASE 6 STEP 2



CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		76

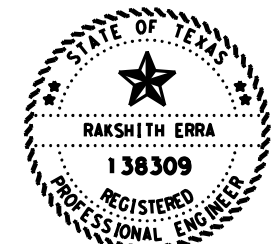
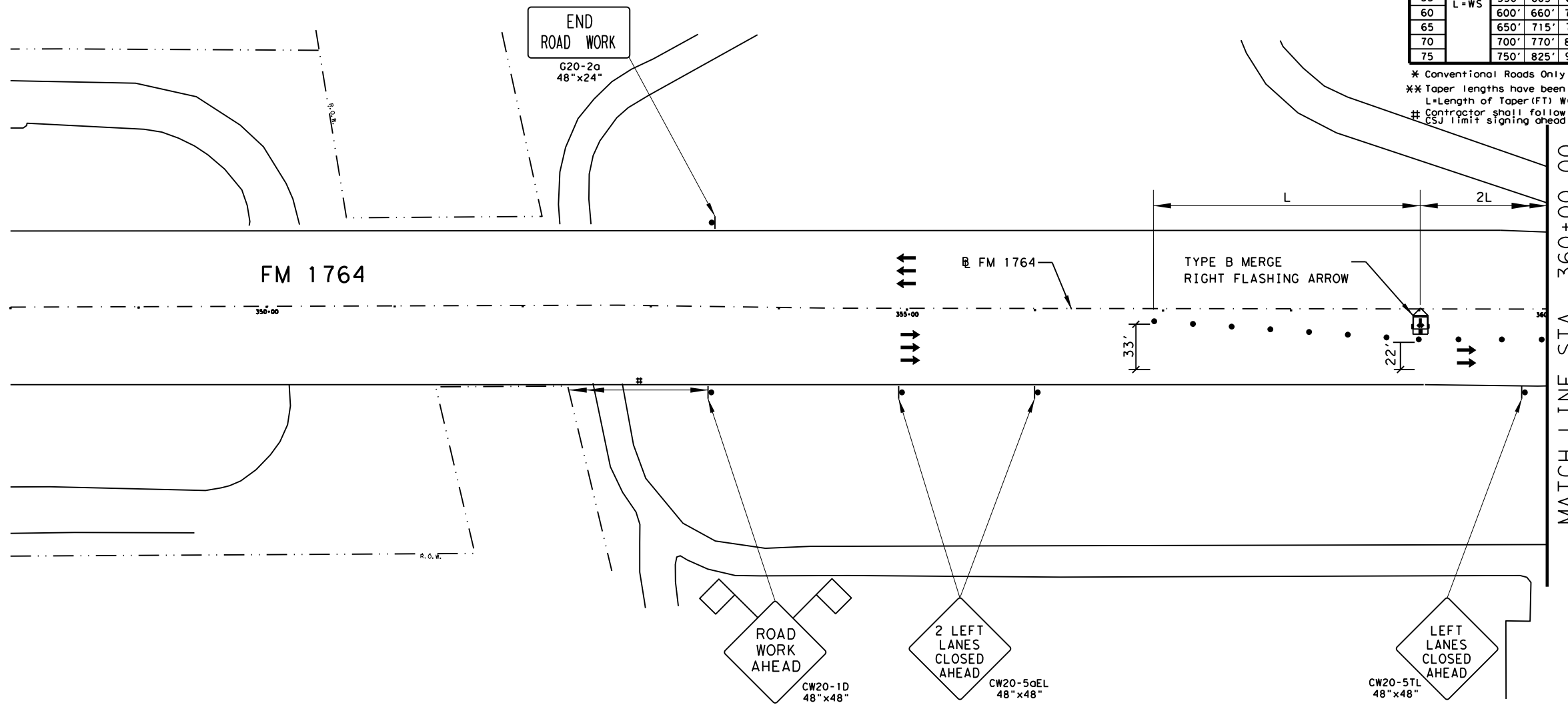
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LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

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

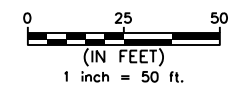
* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)
 # Contractor shall follow BC(2)-21 standard and install CSJ limit signing ahead of Road Work Ahead sign.



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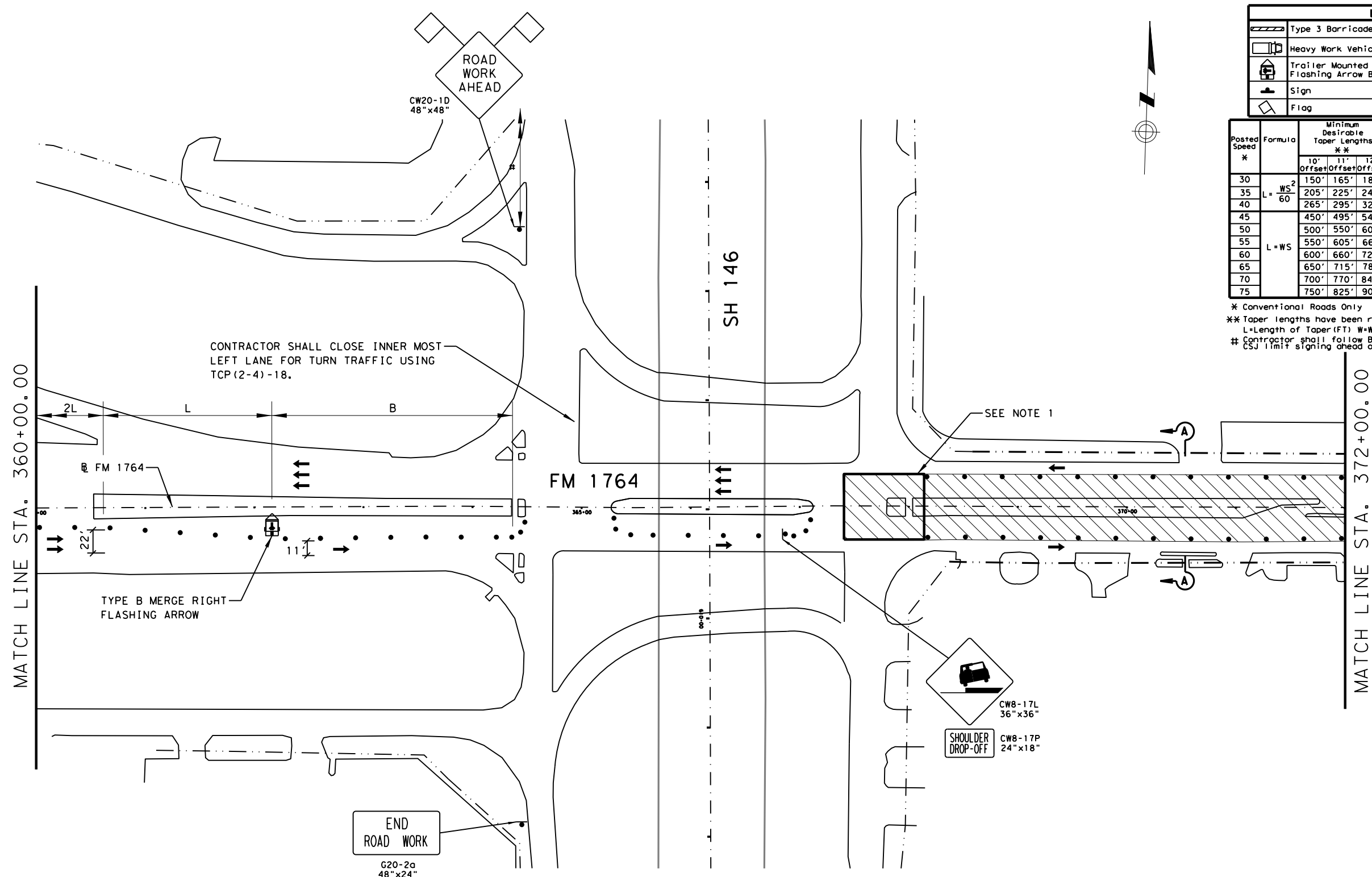
FM 1764
TRAFFIC CONTROL PLAN
PHASE 7 STEP 1

SHEET 1 OF 4



CONT	SECT
1607	01
JOB	
057, ETC.	
HIGHWAY	
FM 1764	
DIST	COUNTY
HOU	Galveston
SHEET NO.	
77	

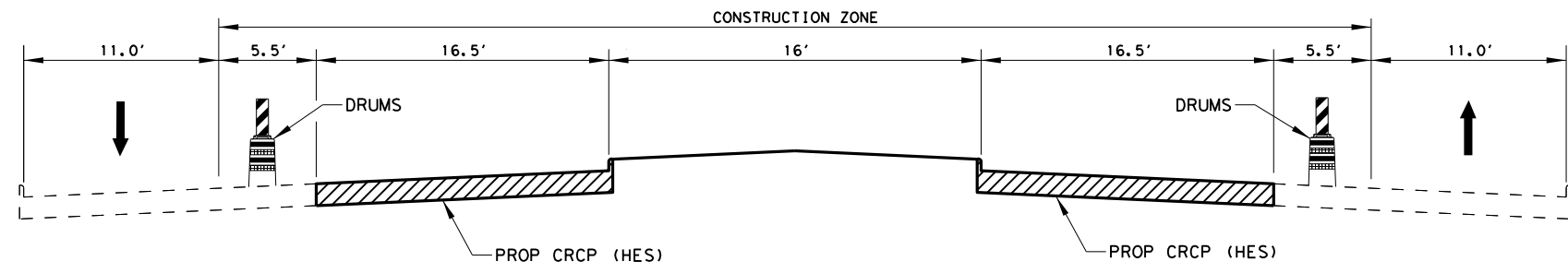
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LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

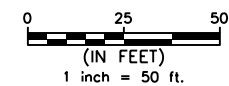
Posted Speed * *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing * Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'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

* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)
 # Contractor shall follow BC(2)-21 standard and install CSJ limit signing ahead of Road Work Ahead sign.



SECTION A-A
PHASE 6 & 7 STEP 1
 LOOKING WEST

Note:
 Contractor shall utilize Detour Plan Phase 7 Step 1 concept in combination with TCP Phase 6 Step 1 to complete the construction of intersection. The construction of this area is allowed only on weekends and should be opened back to traffic by 5:00 am on Monday.



FM 1764
TRAFFIC CONTROL
PLAN
PHASE 7 STEP 1

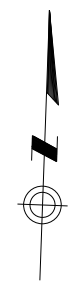
SHEET 2 OF 4

		CONT 1607	SECT 01	JOB 057, ETC.	HIGHWAY FM 1764
DIST Galveston		COUNTY Galveston		SHEET NO. 78	

CK: _____
 DW: _____
 CK: _____
 DN: _____

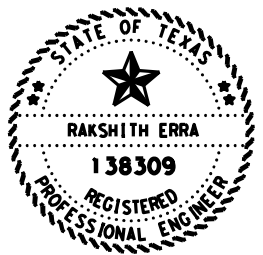
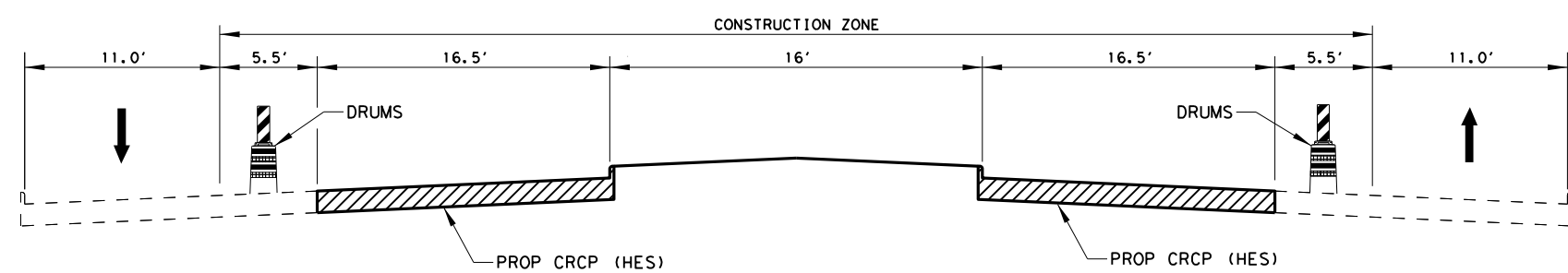
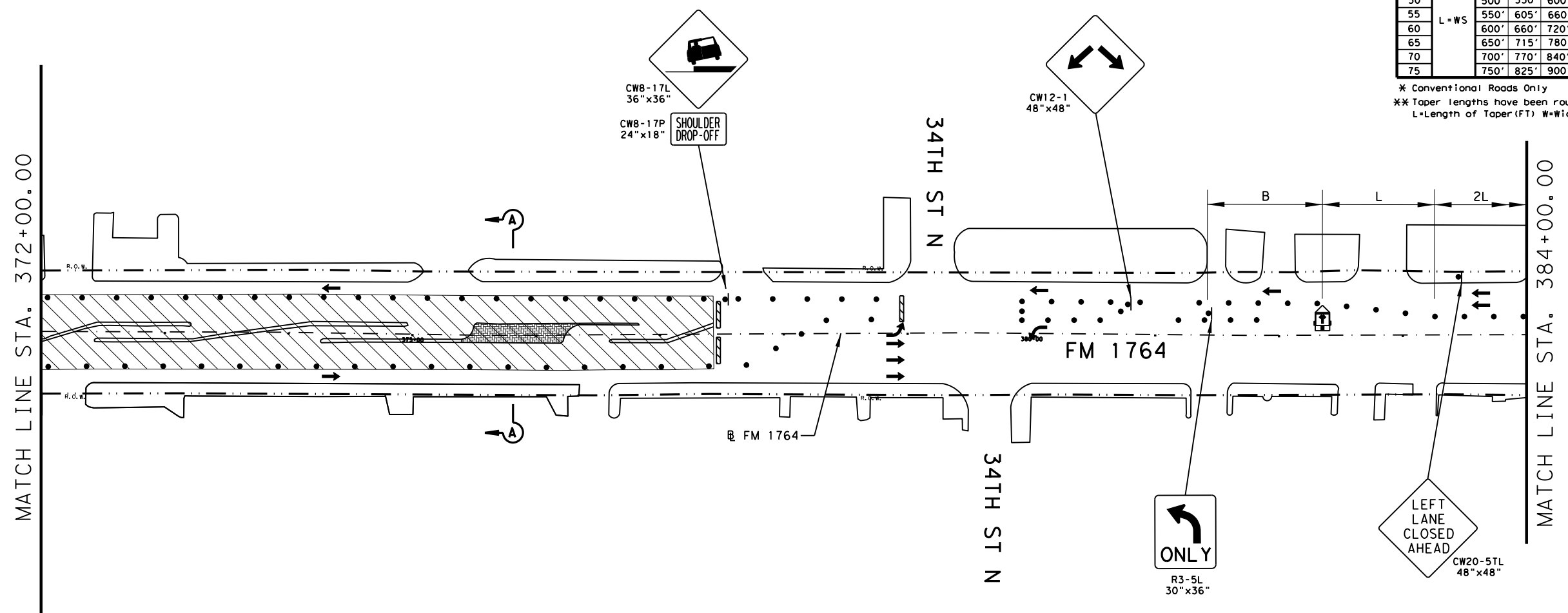
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LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger



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

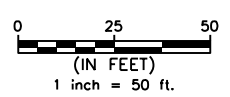
* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)



Rakshith
 5/25/2024

FM 1764
TRAFFIC CONTROL PLAN
PHASE 7 STEP 1

SHEET 3 OF 4

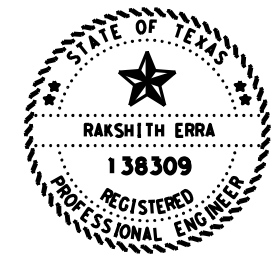
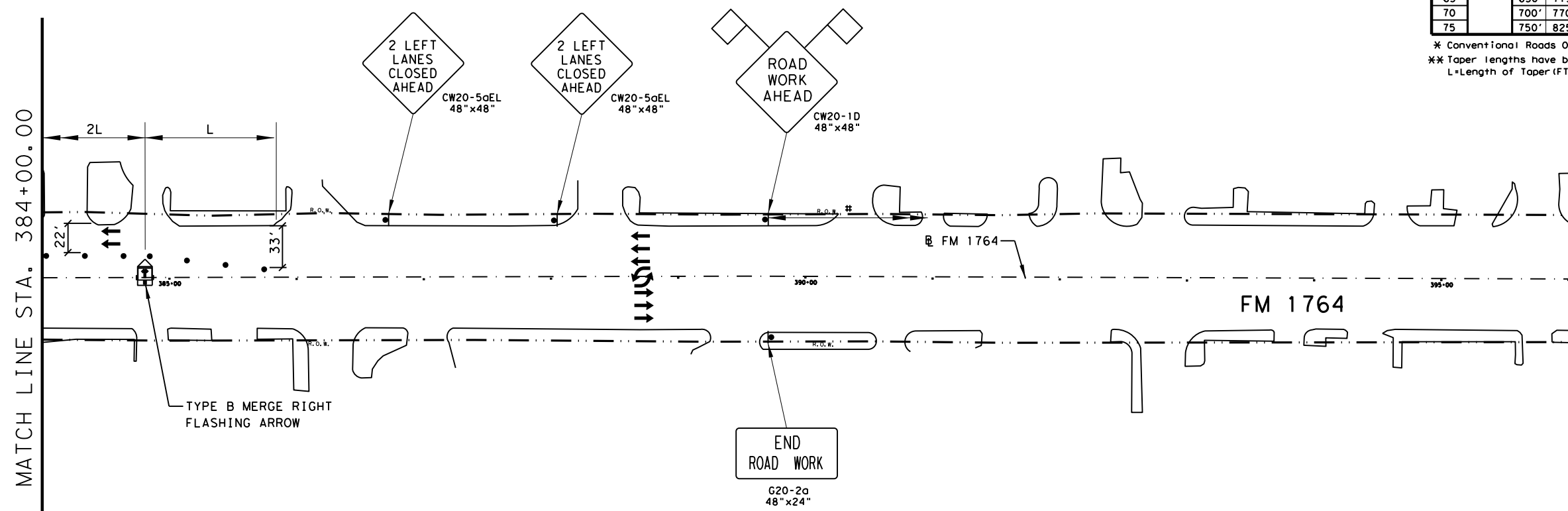


CONT	SECT
1607	01
JOB	
057, ETC.	
HIGHWAY	
FM 1764	
DIST	COUNTY
HOU	Galveston
SHEET NO.	
79	

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

Posted Speed * *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "x" Distance	Suggested Longitudinal Buffer Space "B"
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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'	

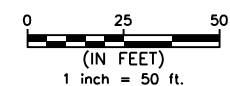
* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed(MPH)



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 5/25/2024

FM 1764
TRAFFIC CONTROL
PLAN
PHASE 7 STEP 1

SHEET 4 OF 4



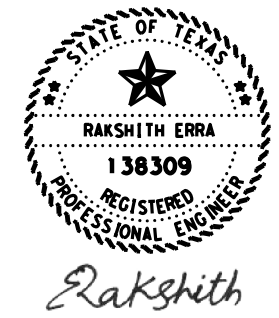
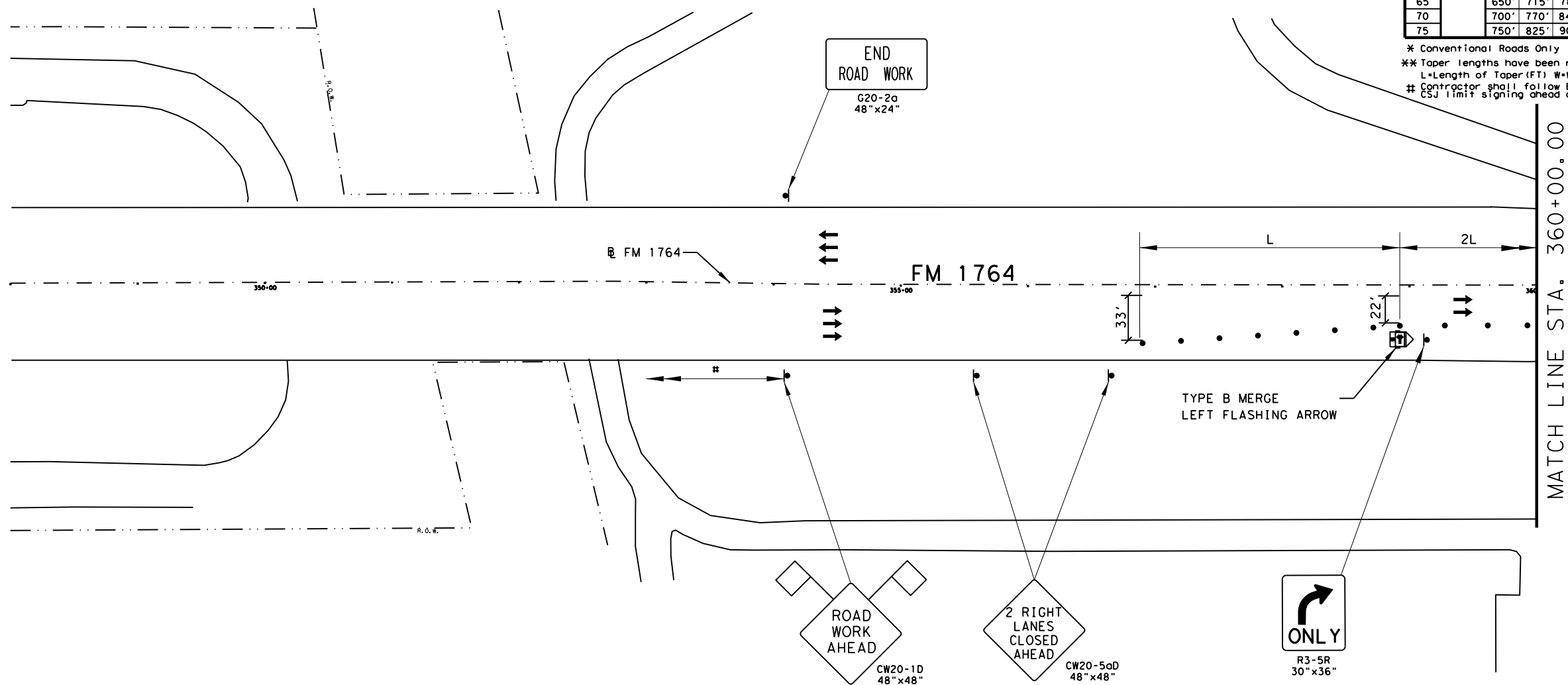
CONT	SECT
1607	01
JOB	
057, ETC.	
HIGHWAY	
FM 1764	
DIST	COUNTY
HOU	Galveston
SHEET NO.	
80	

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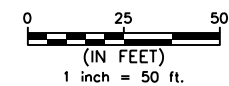
LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

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

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 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed(MPH)
 # Contractor shall follow BC(2)-21 standard and install CSJ limit signing ahead of Road Work Ahead sign.

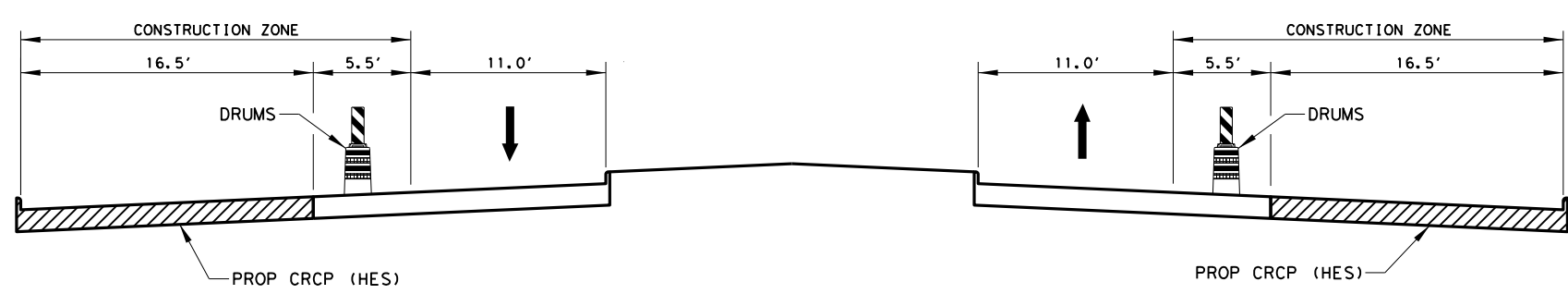
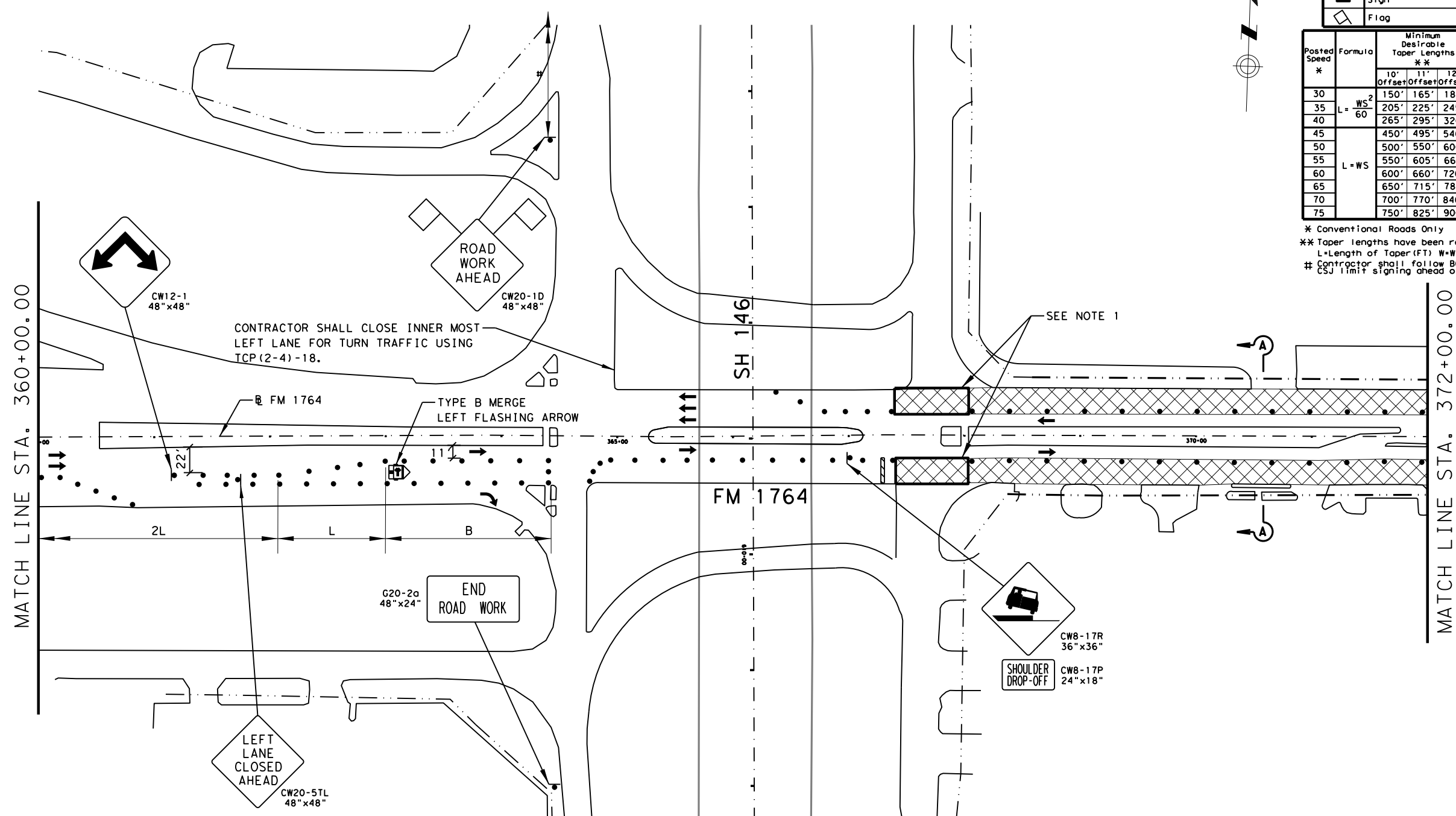


FM 1764
TRAFFIC CONTROL PLAN
PHASE 7 STEP 2



CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		81

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SECTION A-A
PHASE 6 & 7 STEP 2
 LOOKING WEST

Note:
 Contractor shall utilize Detour Plan Phase 7 Step 2 concept in combination with TCP Phase 6 Step 1 to complete the construction of intersection. The construction of this area is allowed only on weekends and should be opened back to traffic by 5:00 am on Monday.

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

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

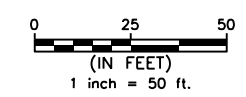
* Conventional Roads Only
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 # Contractor shall follow BC(2)-21 standard and install CSJ limit signing ahead of Road Work Ahead sign.



FM 1764
TRAFFIC CONTROL
PLAN
PHASE 7 STEP 2

SHEET 2 OF 4

CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		82



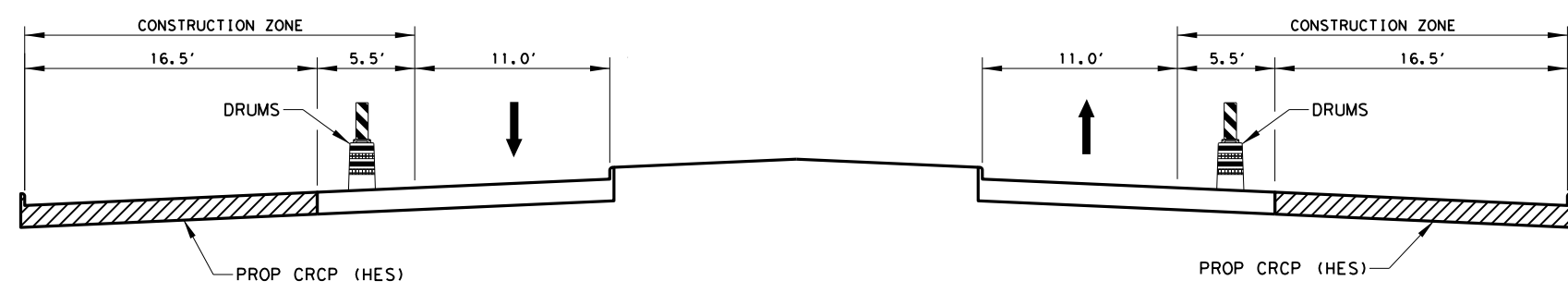
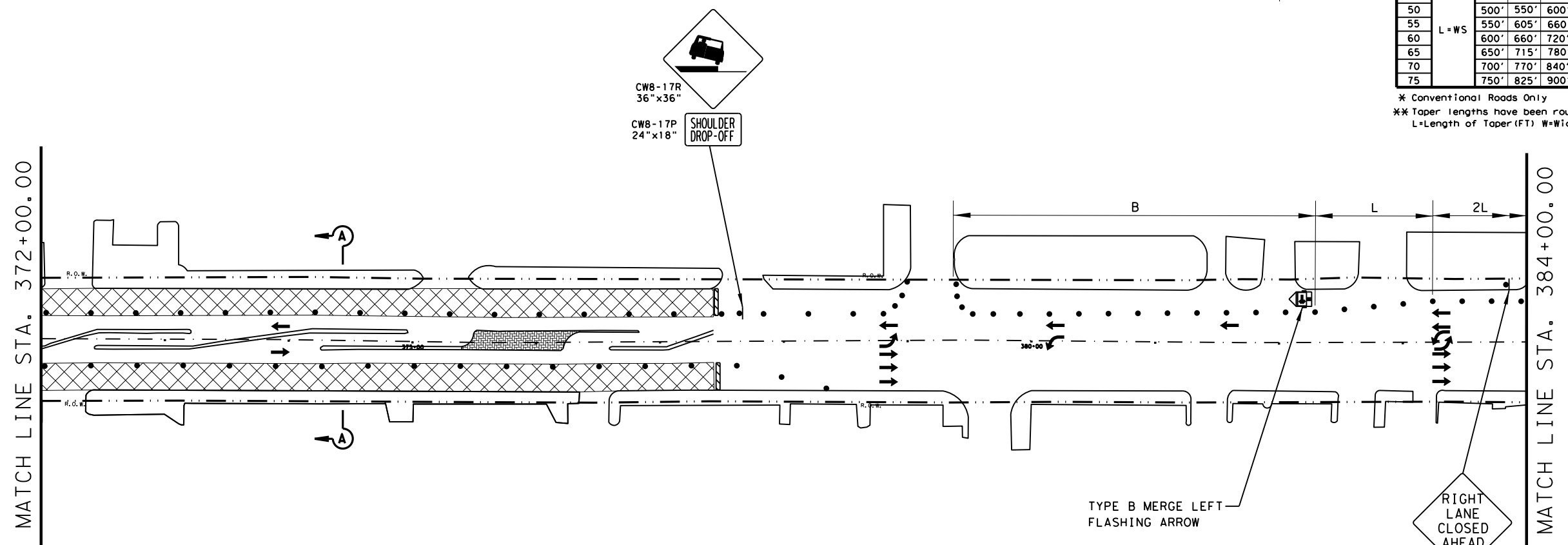
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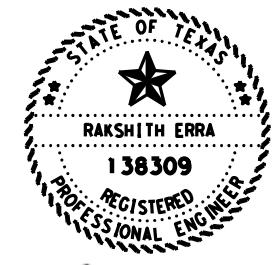
LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed * *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing * Distance	Suggested Longitudinal Buffer Space "B"
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50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60	L = WS	600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75	L = WS	750'	825'	900'	75'	150'	900'	540'
75		750'	825'	900'	75'	150'	900'	540'

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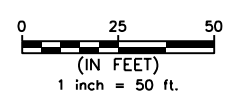
SECTION A-A
PHASE 6 & 7 STEP 2
 LOOKING WEST



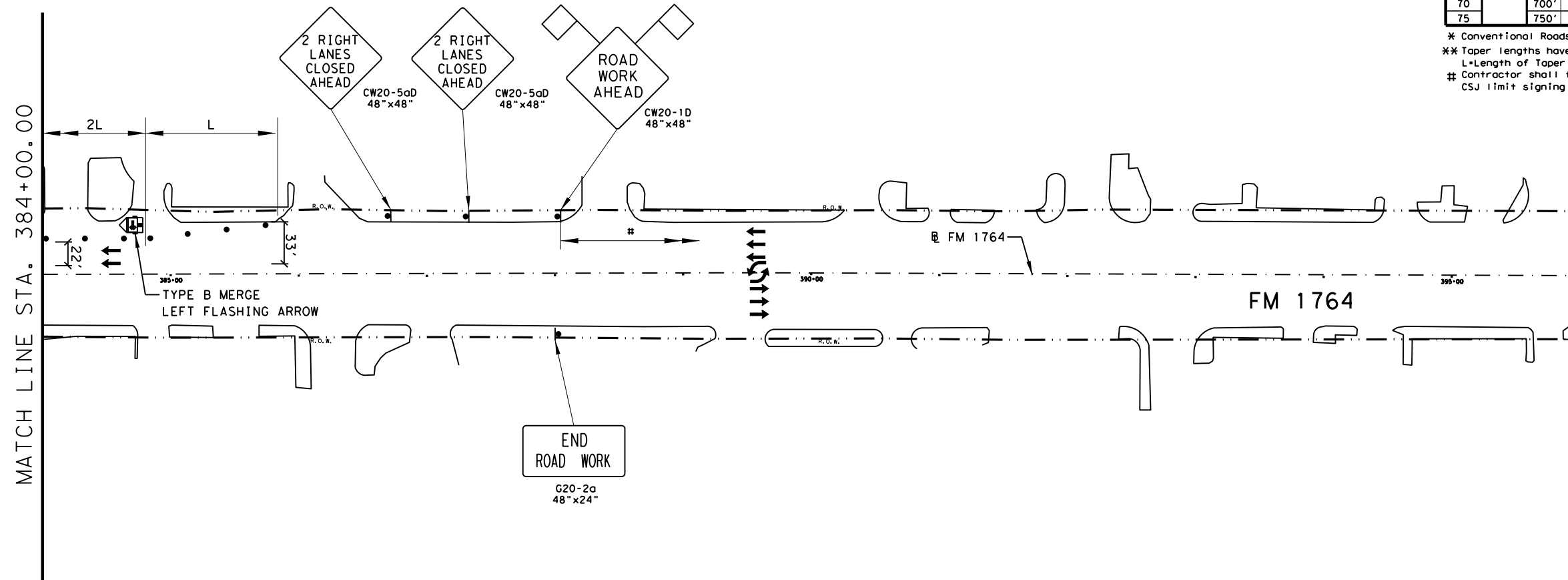
Rakshith
 5/25/2024

FM 1764
TRAFFIC CONTROL
PLAN
PHASE 7 STEP 2

SHEET 3 OF 4



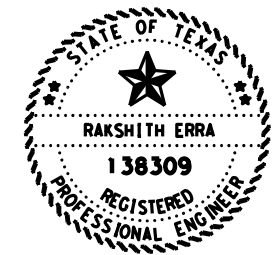
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		83



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

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
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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'

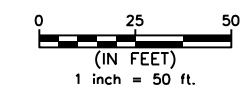
* Conventional Roads Only
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 # Contractor shall follow BC(2)-21 standard and install CSJ limit signing ahead of Road Work Ahead sign.



Rakshith
 5/25/2024

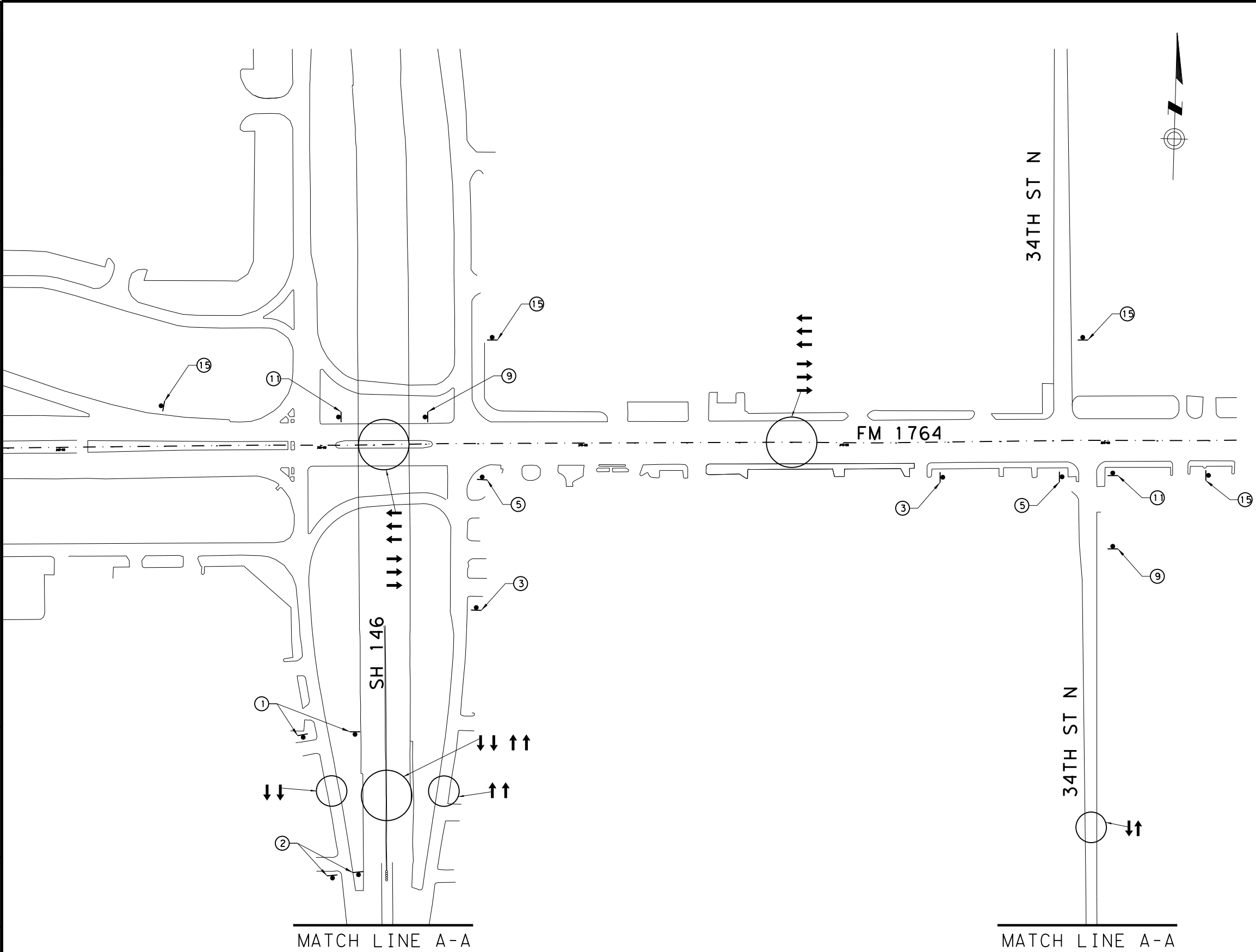
FM 1764
TRAFFIC CONTROL PLAN
PHASE 7 STEP 2

SHEET 4 OF 4



CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		84

DATE: 5/25/2024 12:21:07 PM
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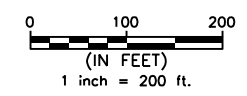
SIGN LEGEND:

- ① ROAD WORK AHEAD (48"x48") CW20-1D
- ② DETOUR (48"x36") 9th AVE N M4-12T M4-9S
- ③ DETOUR (48"x36") 9th AVE N M4-12T M4-9R
- ④ DETOUR (48"x36") 9th AVE N M4-12T M4-9TL
- ⑤ DETOUR (48"x36") 9th AVE N M4-12T M4-9R
- ⑥ DETOUR (48"x36") 9th AVE N M4-12T M4-9L
- ⑦ DETOUR (48"x36") SH 146 M4-12T M4-9S
- ⑧ DETOUR (48"x36") SH 146 M4-12T M4-9R
- ⑨ DETOUR (48"x36") SH 146 M4-12T M4-9L
- ⑩ DETOUR (48"x36") SH 146 M4-12T M4-9R
- ⑪ DETOUR (48"x36") SH 146 M4-12T M4-9L
- ⑫ ROAD CLOSED (48"x30") R11-2 MOUNTED ON TYPE III BARR
- ⑬ ROAD CLOSED TO THRU TRAFFIC (48"x30") R11-4 MOUNTED ON TYPE III BARR
- ⑭ LOCAL TRAFFIC ONLY (24"x24") R11-5 MOUNTED ON TYPE III BARR
- ⑮ END DETOUR (48"x36") M4----
- ⑯ R3-1 (24"x24")
- ⑰ R3-2 (24"x24")



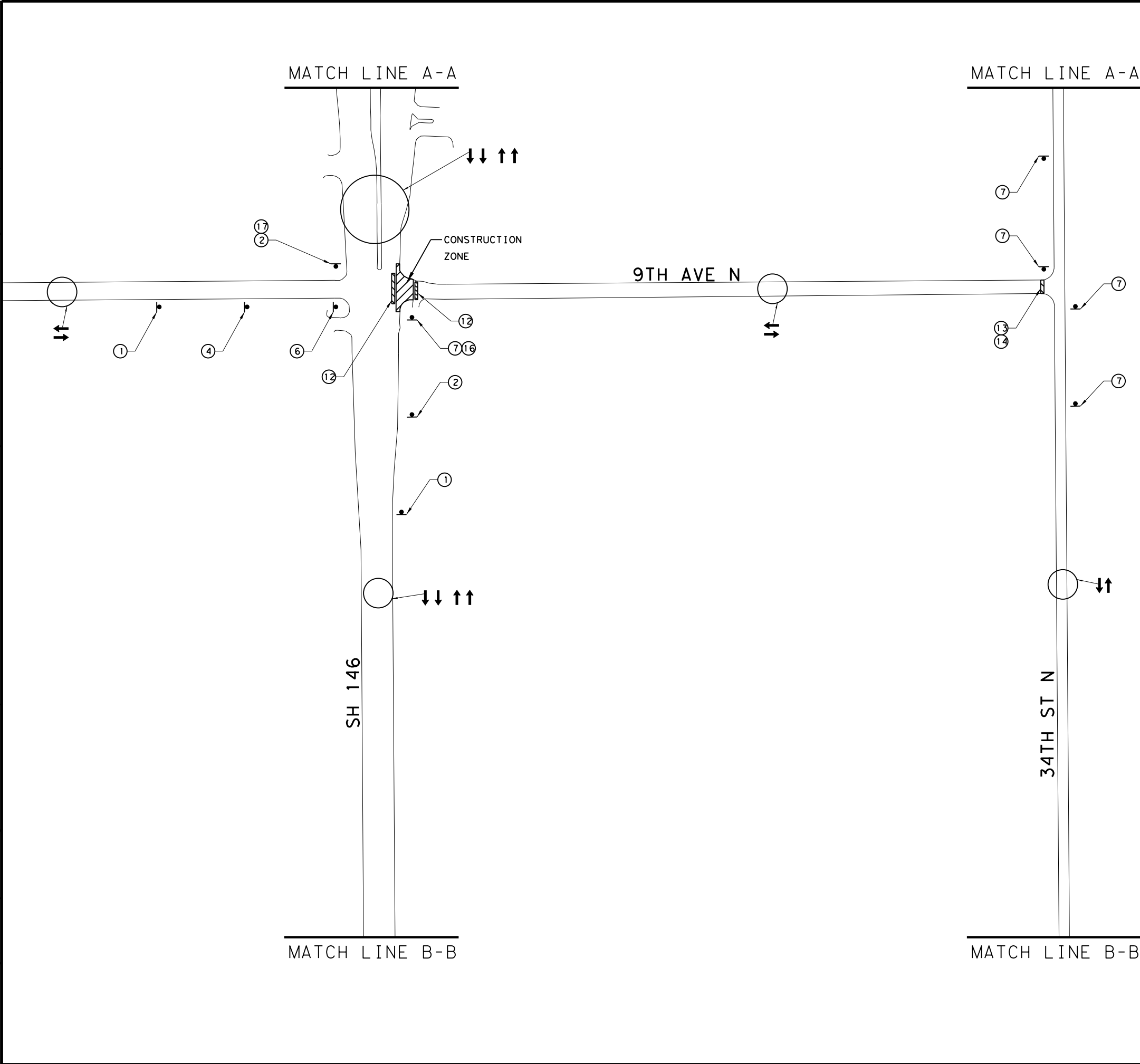
**9TH AVE N
 DETOUR PLAN
 PHASE 4 STEP 2**

SHEET 1 OF 3



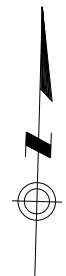
		CONT	SECT	JOB	HIGHWAY
		1607	01	057, ETC.	FM 1764
DIST		COUNTY		SHEET NO.	
HOU		Galveston		85	

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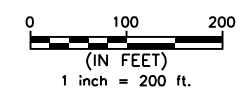
SIGN LEGEND:

① ROAD WORK AHEAD CW20-1D (48"x48")	② DETOUR ↑ M4-9S (48"x36") 9th AVE N M4-12T	③ DETOUR ↘ M4-9TR (48"x36") 9th AVE N M4-12T
④ DETOUR ↙ M4-9TL (48"x36") 9th AVE N M4-12T	⑤ DETOUR → M4-9R (48"x36") 9th AVE N M4-12T	⑥ DETOUR ← M4-9L (48"x36") 9th AVE N M4-12T
⑦ DETOUR ↑ M4-9S (48"x36") SH 146 M4-12T	⑧ DETOUR ↘ M4-9TR (48"x36") SH 146 M4-12T	⑨ DETOUR ↙ M4-9TL (48"x36") SH 146 M4-12T
⑩ DETOUR → M4-9R (48"x36") SH 146 M4-12T	⑪ DETOUR ← M4-9L (48"x36") SH 146 M4-12T	⑫ ROAD CLOSED R11-2 (48"x30") MOUNTED ON TYPE III BARR
⑬ ROAD CLOSED TO THRU TRAFFIC R11-4 (48"x30") MOUNTED ON TYPE III BARR	⑭ LOCAL TRAFFIC ONLY R11-5 (24"x24") MOUNTED ON TYPE III BARR	⑮ END DETOUR M4-___ (48"x36")
⑯ R3-1 (24"x24")	⑰ R3-2 (24"x24")	



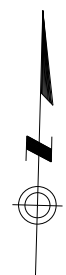
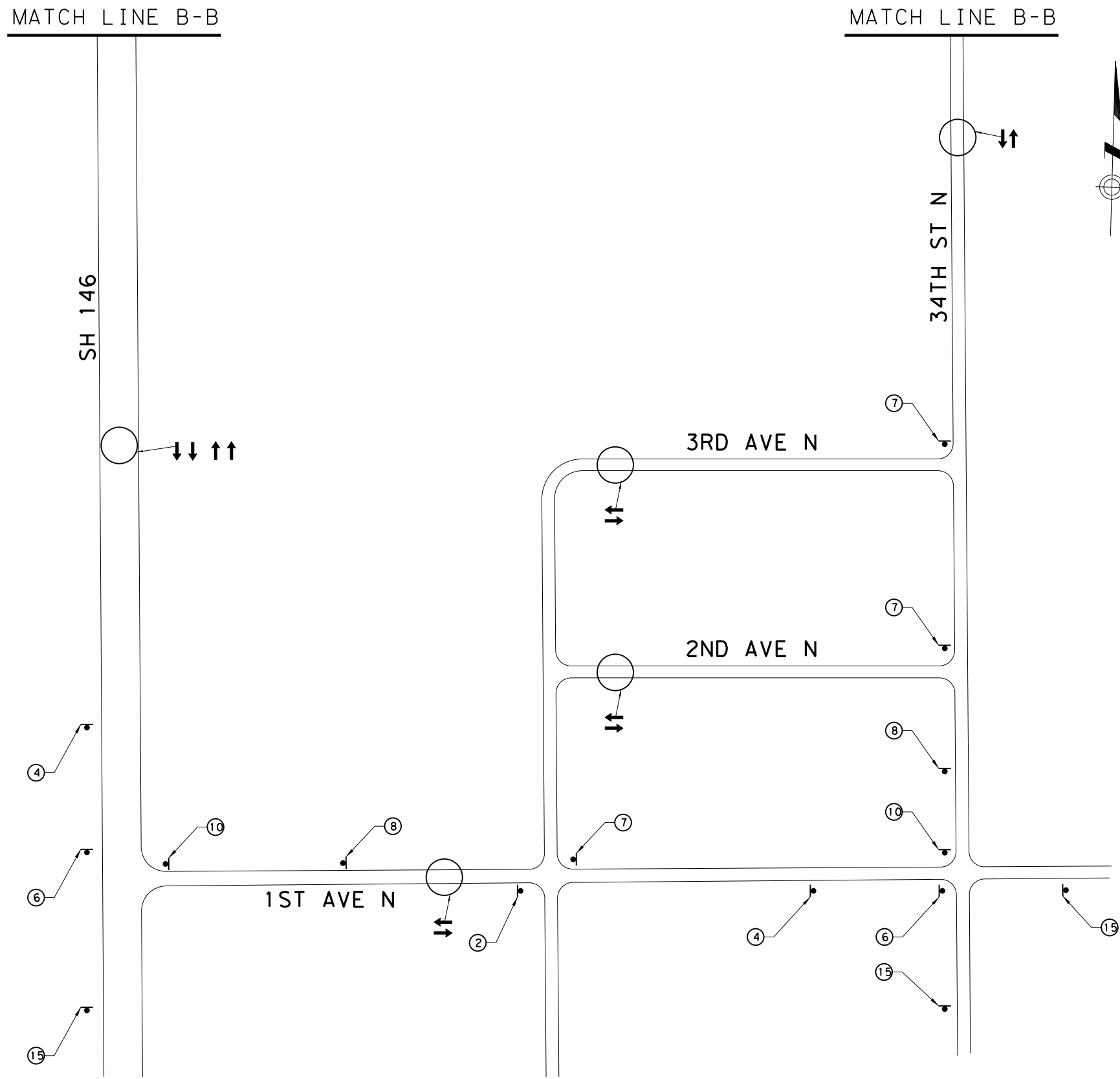
**9TH AVE N
 DETOUR PLAN
 PHASE 4 STEP 2**

SHEET 2 OF 3



CONT	SECT
1607	01
JOB: 057, ETC.	
HIGHWAY: FM 1764	
DIST	COUNTY
HOU	Galveston
SHEET NO.: 86	

DATE: 5/25/2024 12:21:07 PM
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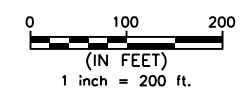
SIGN LEGEND:

- ① ROAD WORK AHEAD (48"x48") CW20-1D
- ② DETOUR 9th AVE N (48"x36") M4-9S
- ③ DETOUR 9th AVE N (48"x36") M4-9TR
- ④ DETOUR 9th AVE N (48"x36") M4-9TL
- ⑤ DETOUR 9th AVE N (48"x36") M4-9R
- ⑥ DETOUR 9th AVE N (48"x36") M4-9L
- ⑦ DETOUR SH 146 (48"x36") M4-9S
- ⑧ DETOUR SH 146 (48"x36") M4-9TR
- ⑨ DETOUR SH 146 (48"x36") M4-9TL
- ⑩ DETOUR SH 146 (48"x36") M4-9R
- ⑪ DETOUR SH 146 (48"x36") M4-9L
- ⑫ ROAD CLOSED (48"x30") R11-2 MOUNTED ON TYPE III BARR
- ⑬ ROAD CLOSED TO THRU TRAFFIC (48"x30") R11-4 MOUNTED ON TYPE III BARR
- ⑭ LOCAL TRAFFIC ONLY (24"x24") R11-5 MOUNTED ON TYPE III BARR
- ⑮ END DETOUR (48"x36") M4---
- ⑯ R3-1 (24"x24")
- ⑰ R3-2 (24"x24")



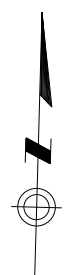
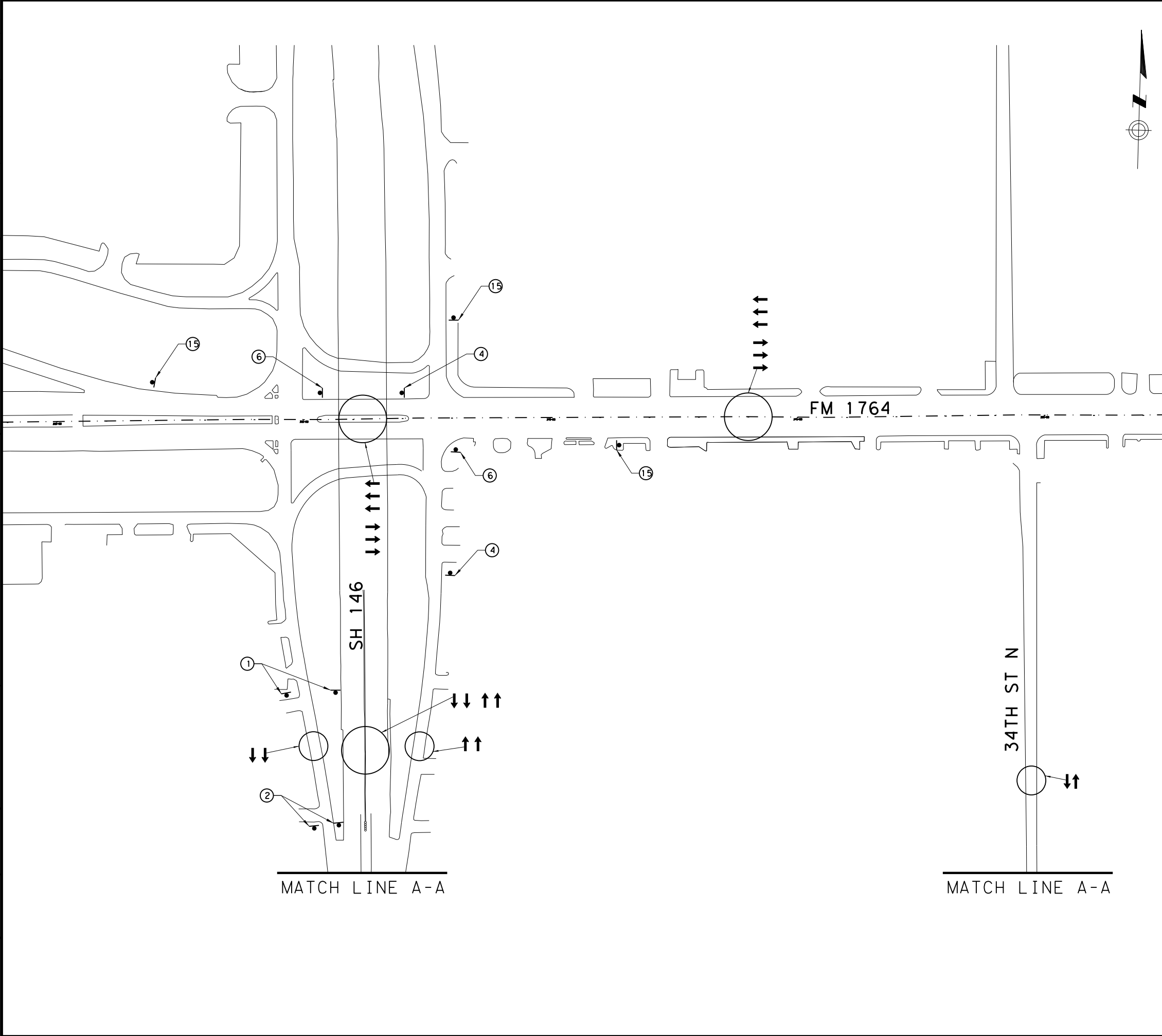
**9TH AVE N
 DETOUR PLAN
 PHASE 4 STEP 2**

SHEET 3 OF 3



		CONT	SECT	JOB	HIGHWAY
		1607	01	057, ETC.	FM 1764
		DIST	COUNTY		SHEET NO.
		HOU	Galveston		87

DATE: 5/25/2024 12:21:12 PM
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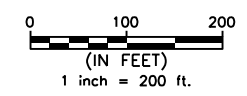
SIGN LEGEND:

- ① ROAD WORK AHEAD (CW20-1D (48"x48"))
- ② DETOUR (UP) (M4-9S (48"x36"))
- ③ DETOUR (RIGHT) (M4-9TR (48"x36"))
- ④ DETOUR (LEFT) (M4-9TL (48"x36"))
- ⑤ DETOUR (RIGHT) (M4-9R (48"x36"))
- ⑥ DETOUR (LEFT) (M4-9L (48"x36"))
- ⑦ DETOUR (UP) (M4-9S (48"x36"))
- ⑧ DETOUR (RIGHT) (M4-9TR (48"x36"))
- ⑨ DETOUR (LEFT) (M4-9L (48"x36"))
- ⑩ DETOUR (RIGHT) (M4-9R (48"x36"))
- ⑪ DETOUR (LEFT) (M4-9L (48"x36"))
- ⑫ ROAD CLOSED (R11-2 (48"x30") MOUNTED ON TYPE III BARR)
- ⑬ ROAD CLOSED TO THRU TRAFFIC (R11-4 (48"x30") MOUNTED ON TYPE III BARR)
- ⑭ LOCAL TRAFFIC ONLY (R11-5 (24"x24") MOUNTED ON TYPE III BARR)
- ⑮ END DETOUR (M4-... (48"x36"))
- ⑯ R3-1 (24"x24")
- ⑰ R3-2 (24"x24")

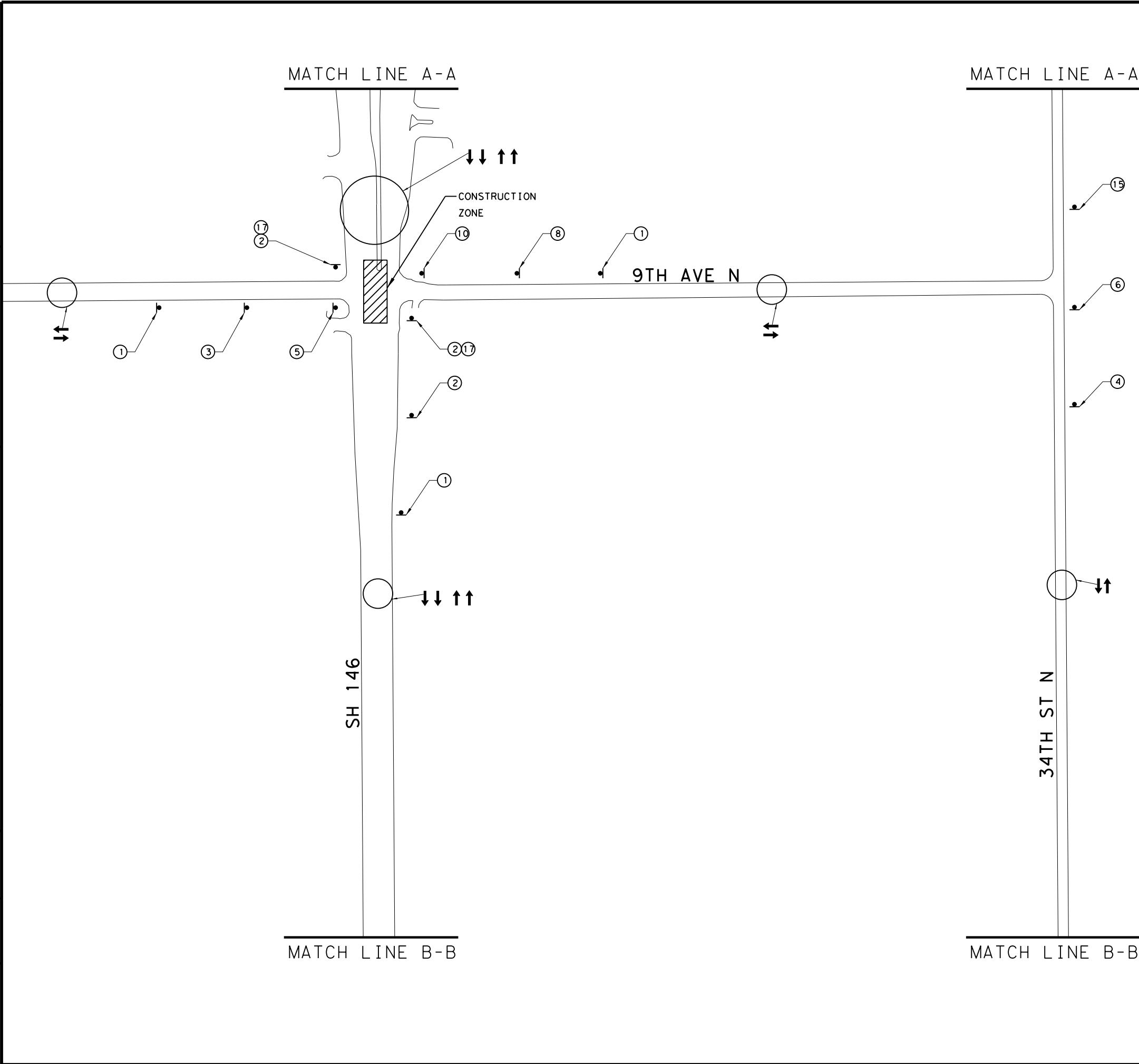


**9TH AVE N
 DETOUR PLAN
 PHASE 5**

SHEET 1 OF 3



		CONT	SECT	JOB	HIGHWAY
		1607	01	057, ETC.	FM 1764
DIST		COUNTY		SHEET NO.	
HOU		Galveston		88	



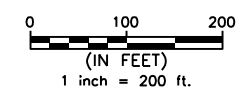
SIGN LEGEND:

- ① ROAD WORK AHEAD (CW20-1D (48"x48"))
- ② DETOUR (M4-9S (48"x36"))
- ③ DETOUR (M4-9TR (48"x36"))
- ④ DETOUR (M4-9TL (48"x36"))
- ⑤ DETOUR (M4-9R (48"x36"))
- ⑥ DETOUR (M4-9L (48"x36"))
- ⑦ DETOUR (M4-9S (48"x36"))
- ⑧ DETOUR (M4-9TR (48"x36"))
- ⑨ DETOUR (M4-9L (48"x36"))
- ⑩ DETOUR (M4-9R (48"x36"))
- ⑪ DETOUR (M4-9L (48"x36"))
- ⑫ ROAD CLOSED (R11-2 (48"x30") MOUNTED ON TYPE III BARR)
- ⑬ ROAD CLOSED TO THRU TRAFFIC (R11-4 (48"x30") MOUNTED ON TYPE III BARR)
- ⑭ LOCAL TRAFFIC ONLY (R11-5 (24"x24") MOUNTED ON TYPE III BARR)
- ⑮ END DETOUR (M4-___ (48"x36"))
- ⑯ R3-1 (24"x24")
- ⑰ R3-2 (24"x24")



**9TH AVE N
 DETOUR PLAN
 PHASE 5**

SHEET 2 OF 3

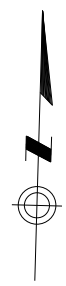
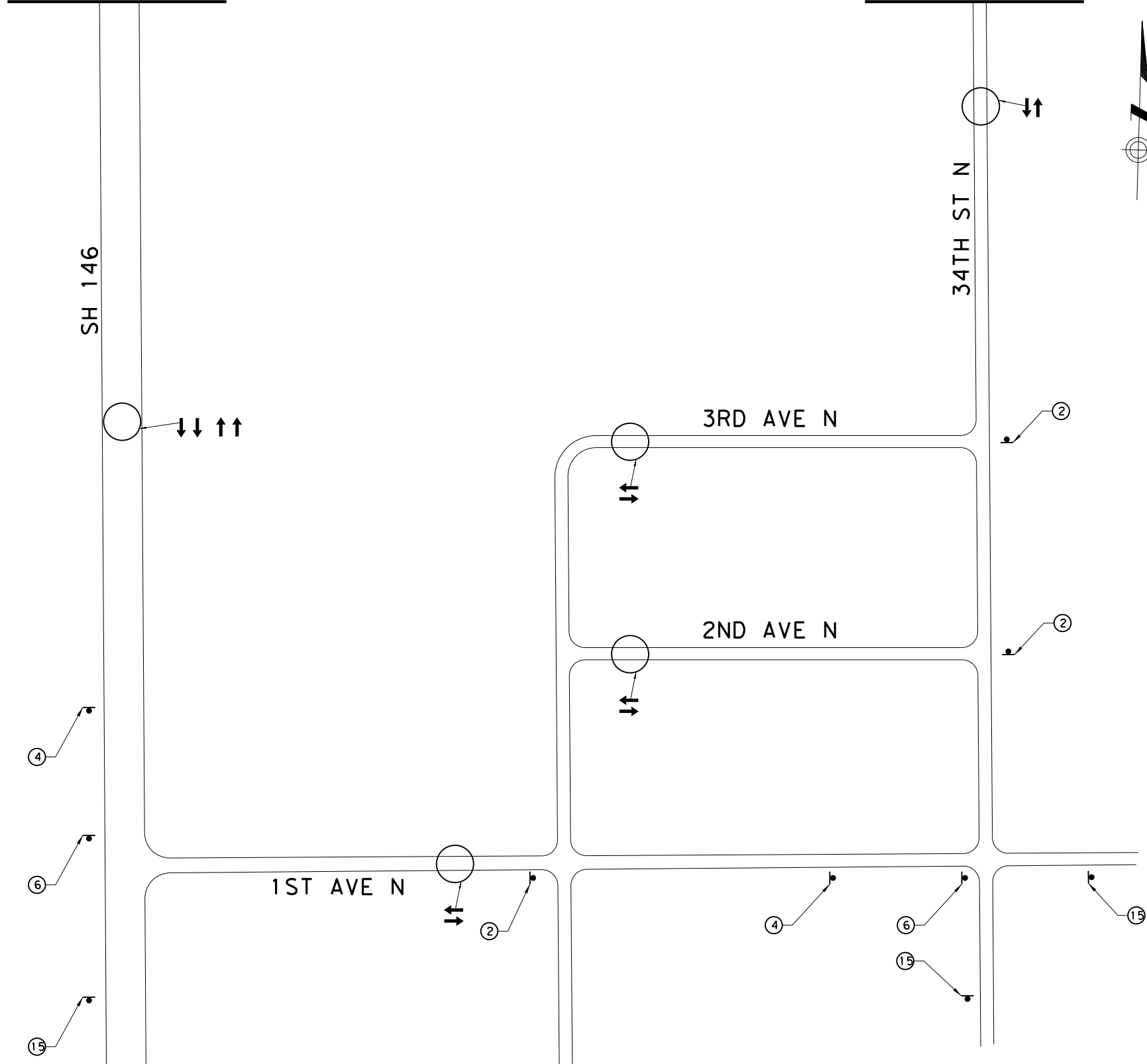


CONT	SECT
1607	01
JOB	HIGHWAY
057, ETC.	FM 1764
DIST	COUNTY
HOU	Galveston
SHEET NO.	
89	

DATE: 5/25/2024 12:21:13 PM
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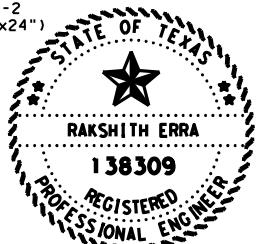
MATCH LINE B-B

MATCH LINE B-B



SIGN LEGEND:

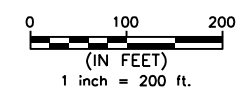
- ① ROAD WORK AHEAD (CW20-1D (48"x48"))
- ② DETOUR (M4-9S (48"x36"))
- ③ DETOUR (M4-9TR (48"x36"))
- ④ DETOUR (M4-9TL (48"x36"))
- ⑤ DETOUR (M4-9R (48"x36"))
- ⑥ DETOUR (M4-9L (48"x36"))
- ⑦ DETOUR (M4-9S (48"x36"))
- ⑧ DETOUR (M4-9TR (48"x36"))
- ⑨ DETOUR (M4-9L (48"x36"))
- ⑩ DETOUR (M4-9R (48"x36"))
- ⑪ DETOUR (M4-9L (48"x36"))
- ⑫ ROAD CLOSED (R11-2 (48"x30") MOUNTED ON TYPE III BARR)
- ⑬ ROAD CLOSED TO THRU TRAFFIC (R11-4 (48"x30") MOUNTED ON TYPE III BARR)
- ⑭ LOCAL TRAFFIC ONLY (R11-5 (24"x24") MOUNTED ON TYPE III BARR)
- ⑮ END DETOUR (M4-9 (48"x36"))
- ⑯ R3-1 (24"x24")
- ⑰ R3-2 (24"x24")



Rakshith
 5/25/2024

9TH AVE N
 DETOUR PLAN
 PHASE 5

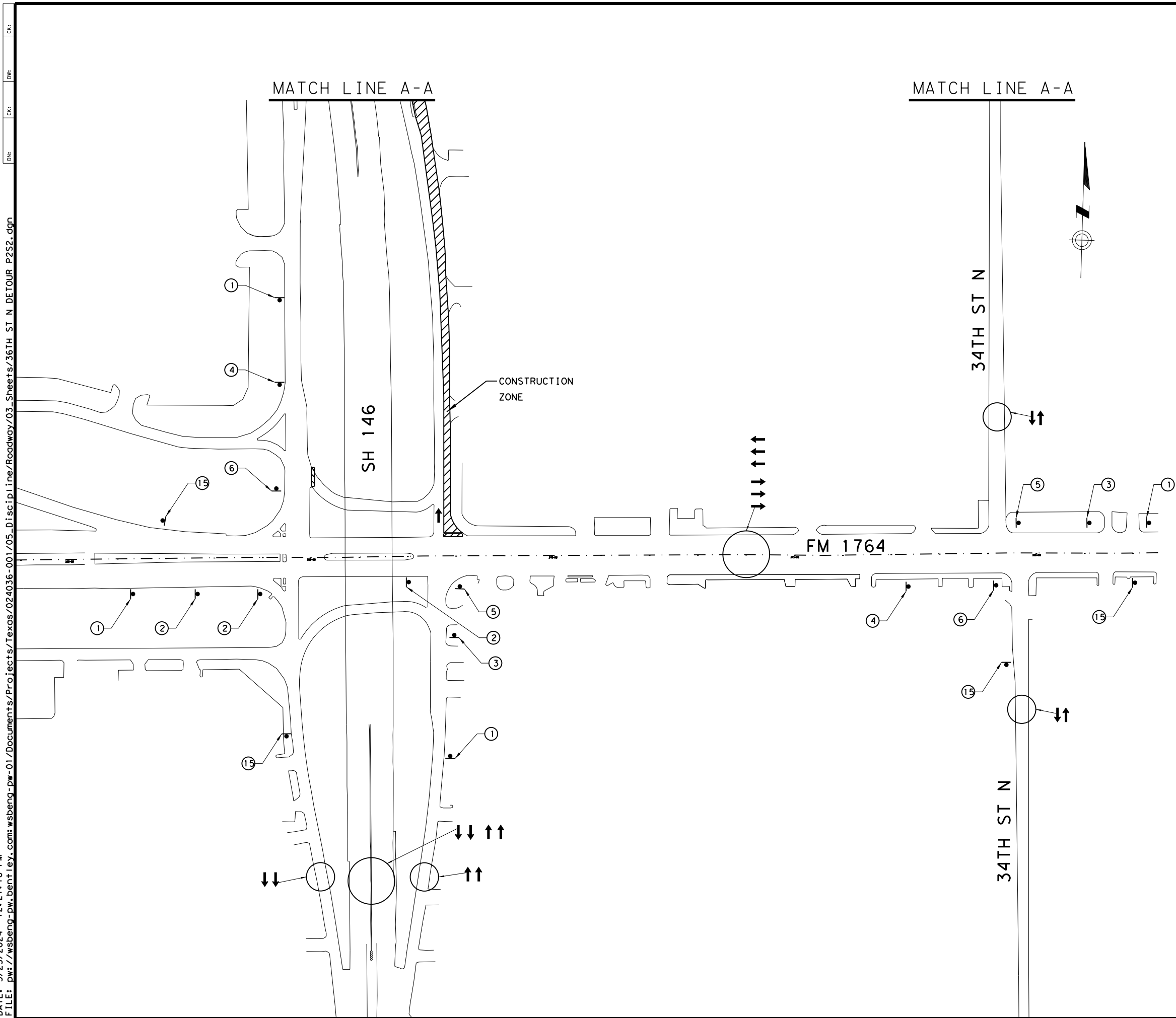
SHEET 3 OF 3



CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		90

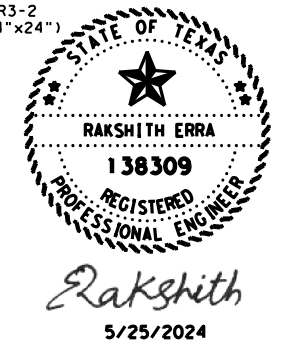
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CK:
 DW:
 CK:
 DN:



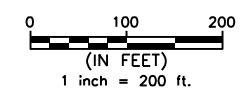
SIGN LEGEND:

- ① ROAD WORK AHEAD (CW20-1D (48"x48"))
- ② DETOUR (M4-9S (48"x36"))
- ③ DETOUR (M4-9TR (48"x36"))
- ④ DETOUR (M4-9TL (48"x36"))
- ⑤ DETOUR (M4-9R (48"x36"))
- ⑥ DETOUR (M4-9L (48"x36"))
- ⑦ DETOUR (M4-9S (48"x36"))
- ⑧ DETOUR (M4-9TR (48"x36"))
- ⑨ DETOUR (M4-9L (48"x36"))
- ⑩ DETOUR (M4-9R (48"x36"))
- ⑪ DETOUR (M4-9L (48"x36"))
- ⑫ ROAD CLOSED (R11-2 (48"x30") MOUNTED ON TYPE III BARR)
- ⑬ ROAD CLOSED TO THRU TRAFFIC (R11-4 (48"x30") MOUNTED ON TYPE III BARR)
- ⑭ LOCAL TRAFFIC ONLY (R11-5 (24"x24") MOUNTED ON TYPE III BARR)
- ⑮ END DETOUR (M4-9 (48"x36"))
- ⑯ R3-1 (24"x24")
- ⑰ R3-2 (24"x24")



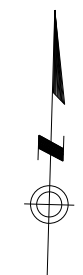
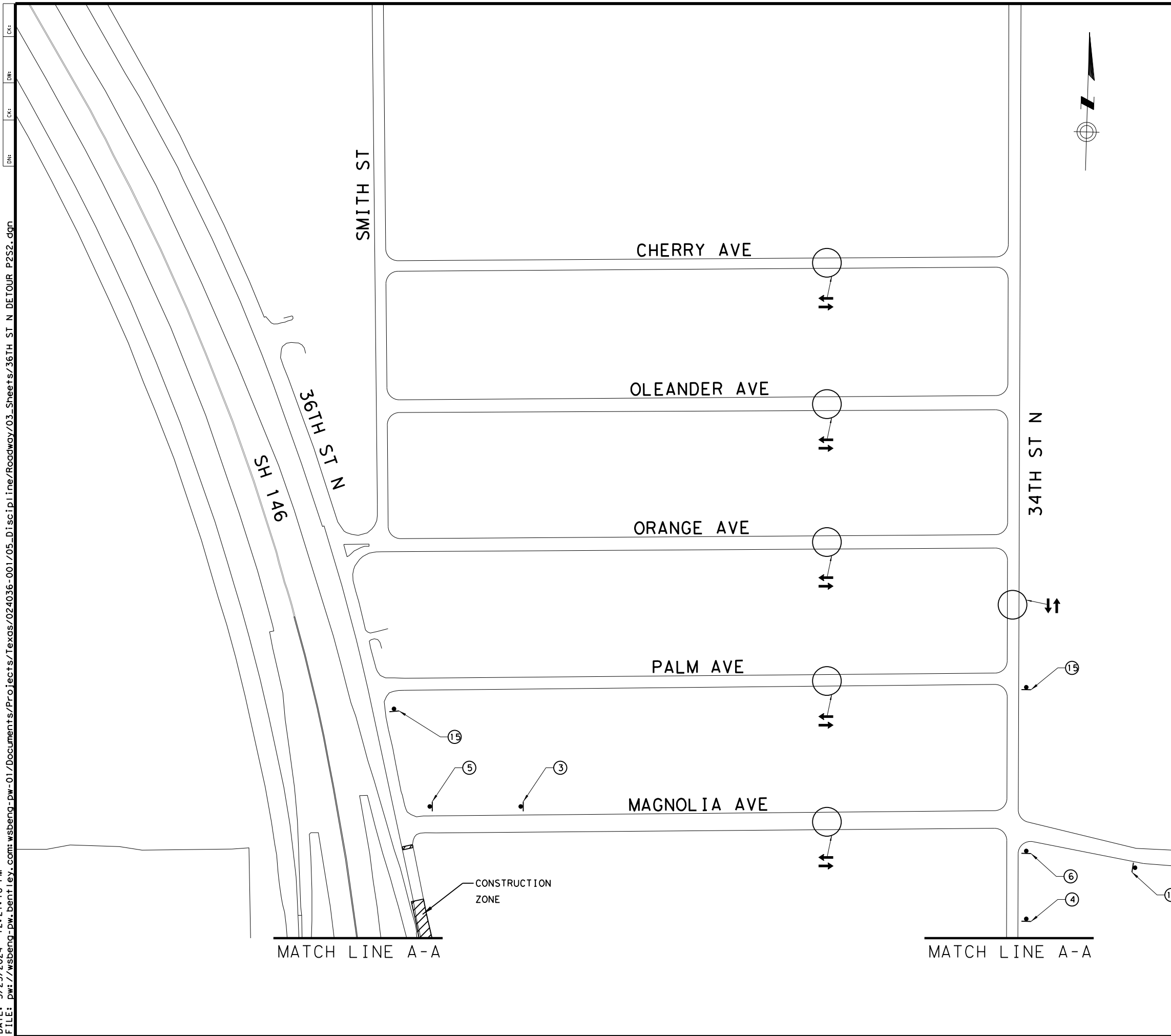
**36TH ST N
 DETOUR PLAN
 PHASE 2 STEP 2**

SHEET 1 OF 2



CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		91

DATE: 5/25/2024 12:21:18 PM
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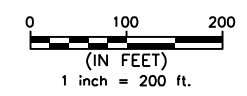
SIGN LEGEND:

- ① ROAD WORK AHEAD CW20-1D (48"x48")
- ② DETOUR M4-9S (48"x36") 36th ST N M4-12T
- ③ DETOUR M4-9TR (48"x36") 36th ST N M4-12T
- ④ DETOUR M4-9TL (48"x36") 36th ST N M4-12T
- ⑤ DETOUR M4-9R (48"x36") 36th ST N M4-12T
- ⑥ DETOUR M4-9L (48"x36") 36th ST N M4-12T
- ⑦ DETOUR M4-9S (48"x36") SH 146 M4-12T
- ⑧ DETOUR M4-9TR (48"x36") SH 146 M4-12T
- ⑨ DETOUR M4-9L (48"x36") SH 146 M4-12T
- ⑩ DETOUR M4-9R (48"x36") SH 146 M4-12T
- ⑪ DETOUR M4-9L (48"x36") SH 146 M4-12T
- ⑫ ROAD CLOSED R11-2 (48"x30") MOUNTED ON TYPE III BARR
- ⑬ ROAD CLOSED TO THRU TRAFFIC R11-4 (48"x30") MOUNTED ON TYPE III BARR
- ⑭ LOCAL TRAFFIC ONLY R11-5 (24"x24") MOUNTED ON TYPE III BARR
- ⑮ END DETOUR M4-___ (48"x36")
- ⑯ R3-1 (24"x24")
- ⑰ R3-2 (24"x24")

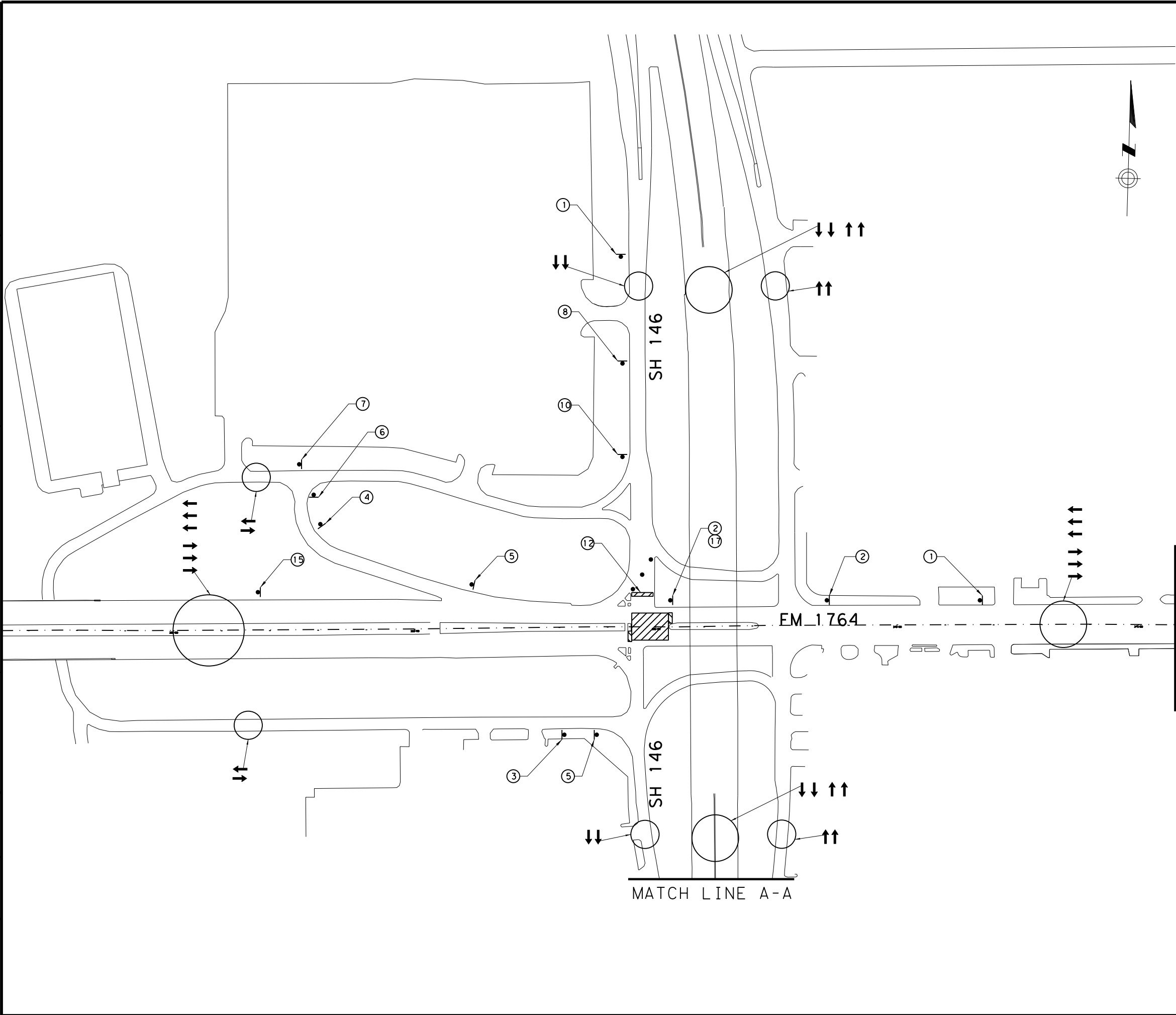


**36TH ST N
 DETOUR PLAN
 PHASE 2 STEP 2**

SHEET 2 OF 2



		CONT	SECT	JOB	HIGHWAY
		1607	01	057, ETC.	FM 1764
DIST		COUNTY		SHEET NO.	
HOU		Galveston		92	



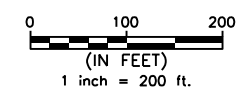
SIGN LEGEND:

- ① ROAD WORK AHEAD (48"x48") CW20-1D
- ② DETOUR (48"x36") SH 146 M4-9S M4-12T
- ③ DETOUR (48"x36") SH 146 M4-9R M4-12T
- ④ DETOUR (48"x36") SH 146 M4-9TL M4-12T
- ⑤ DETOUR (48"x36") SH 146 M4-9R M4-12T
- ⑥ DETOUR (48"x36") SH 146 M4-9L M4-12T
- ⑦ DETOUR (48"x36") FM 1764 M4-9S M4-12T
- ⑧ DETOUR (48"x36") FM 1764 M4-9R M4-12T
- ⑨ DETOUR (48"x36") FM 1764 M4-9L M4-12T
- ⑩ DETOUR (48"x36") FM 1764 M4-9R M4-12T
- ⑪ DETOUR (48"x36") FM 1764 M4-9L M4-12T
- ⑫ ROAD CLOSED (48"x30") MOUNTED ON TYPE III BARR R11-2
- ⑬ ROAD CLOSED TO THRU TRAFFIC (48"x30") MOUNTED ON TYPE III BARR R11-4
- ⑭ LOCAL TRAFFIC ONLY (24"x24") MOUNTED ON TYPE III BARR R11-5
- ⑮ END DETOUR (48"x36") M4----
- ⑯ R3-1 (24"x24")
- ⑰ R3-2 (24"x24")



**FM 1764
 DETOUR PLAN
 PHASE 6 STEP 1**

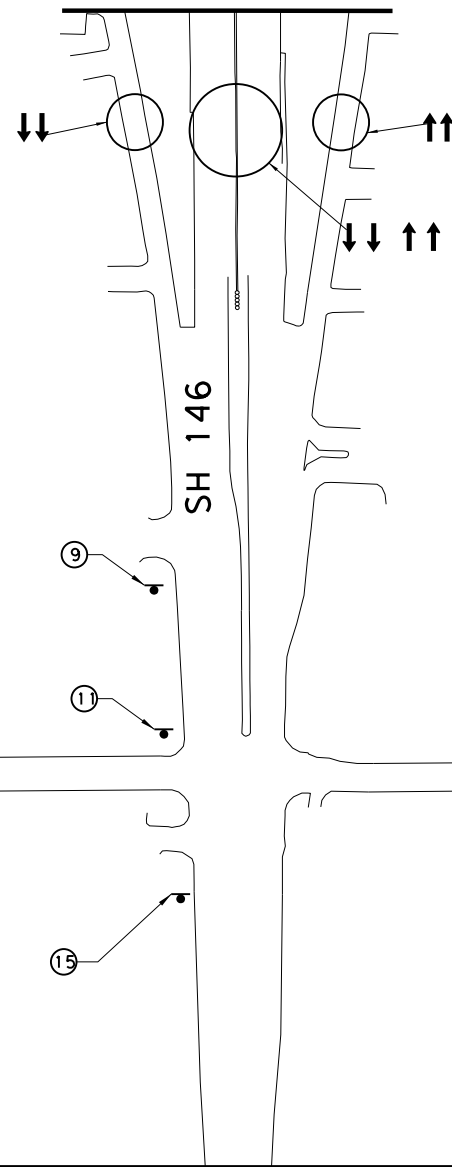
SHEET 1 OF 2



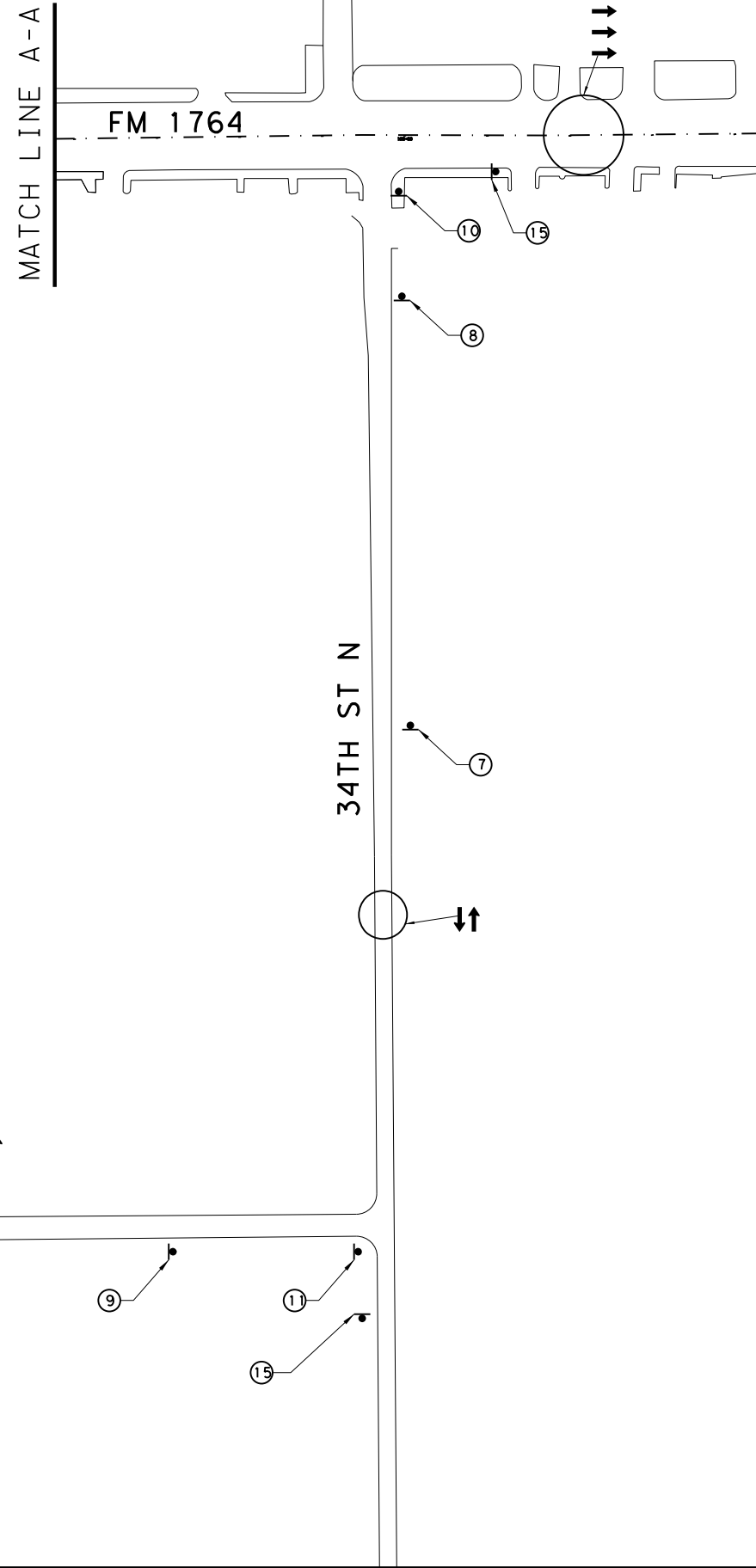
		CONT	SECT	JOB	HIGHWAY
		1607	01	057, ETC.	FM 1764
		DIST	COUNTY		SHEET NO.
		HOU	Galveston		92A



MATCH LINE A-A



MATCH LINE A-A



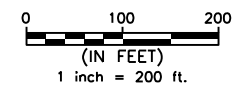
SIGN LEGEND:

- ① ROAD WORK AHEAD (48" x 48") CW20-1D
- ② DETOUR (48" x 36") SH 146 M4-12T
- ③ DETOUR (48" x 36") M4-9TR SH 146 M4-12T
- ④ DETOUR (48" x 36") M4-9TL SH 146 M4-12T
- ⑤ DETOUR (48" x 36") M4-9R SH 146 M4-12T
- ⑥ DETOUR (48" x 36") M4-9L SH 146 M4-12T
- ⑦ DETOUR (48" x 36") M4-9S FM 1764 M4-12T
- ⑧ DETOUR (48" x 36") M4-9TR FM 1764 M4-12T
- ⑨ DETOUR (48" x 36") M4-9L FM 1764 M4-12T
- ⑩ DETOUR (48" x 36") M4-9R FM 1764 M4-12T
- ⑪ DETOUR (48" x 36") M4-9L FM 1764 M4-12T
- ⑫ ROAD CLOSED (48" x 30") R11-2 MOUNTED ON TYPE III BARR
- ⑬ ROAD CLOSED TO THRU TRAFFIC (48" x 30") R11-4 MOUNTED ON TYPE III BARR
- ⑭ LOCAL TRAFFIC ONLY (24" x 24") R11-5 MOUNTED ON TYPE III BARR
- ⑮ END DETOUR (48" x 36") M4----
- ⑯ R3-1 (24" x 24")
- ⑰ R3-2 (24" x 24")

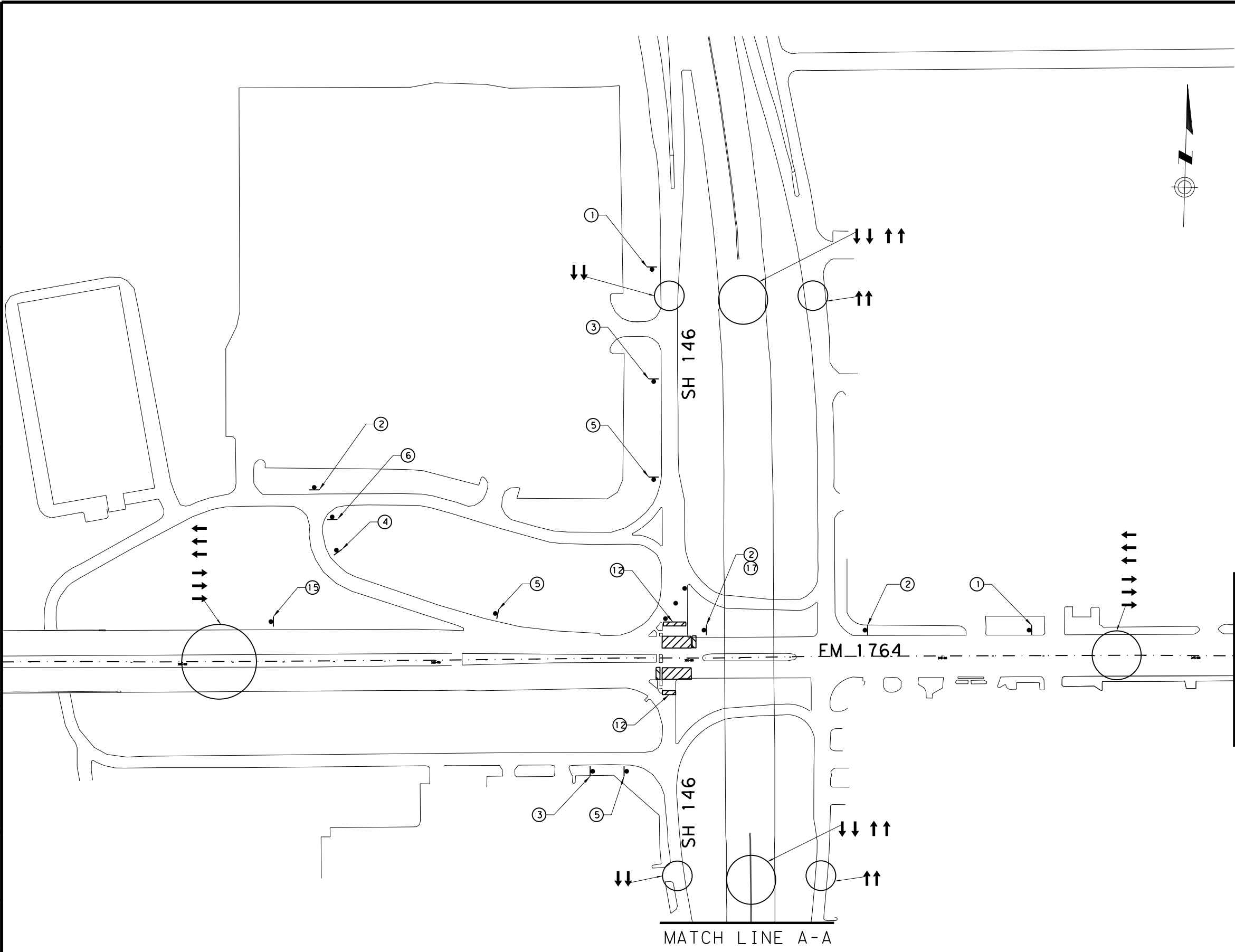


FM 1764
 DETOUR PLAN
 PHASE 6 STEP 1

SHEET 2 OF 2



		CONT 1607	SECT 01	JOB 057, ETC.	HIGHWAY FM 1764
DIST HOU		COUNTY Galveston		SHEET NO. 92B	



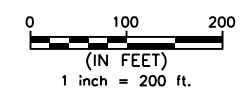
SIGN LEGEND:

- ① ROAD WORK AHEAD (48"x48") CW20-1D
- ② DETOUR (48"x36") SH 146 M4-12T
- ③ DETOUR (48"x36") M4-9TR SH 146 M4-12T
- ④ DETOUR (48"x36") M4-9TL SH 146 M4-12T
- ⑤ DETOUR (48"x36") M4-9R SH 146 M4-12T
- ⑥ DETOUR (48"x36") M4-9L SH 146 M4-12T
- ⑦ DETOUR (48"x36") M4-9S FM 1764 M4-12T
- ⑧ DETOUR (48"x36") M4-9TR FM 1764 M4-12T
- ⑨ DETOUR (48"x36") M4-9L FM 1764 M4-12T
- ⑩ DETOUR (48"x36") M4-9R FM 1764 M4-12T
- ⑪ DETOUR (48"x36") M4-9L FM 1764 M4-12T
- ⑫ ROAD CLOSED (48"x30") R11-2 MOUNTED ON TYPE III BARR
- ⑬ ROAD CLOSED TO THRU TRAFFIC (48"x30") R11-4 MOUNTED ON TYPE III BARR
- ⑭ LOCAL TRAFFIC ONLY (24"x24") R11-5 MOUNTED ON TYPE III BARR
- ⑮ END DETOUR (48"x36") M4-__
- ⑯ R3-1 (24"x24")
- ⑰ R3-2 (24"x24")

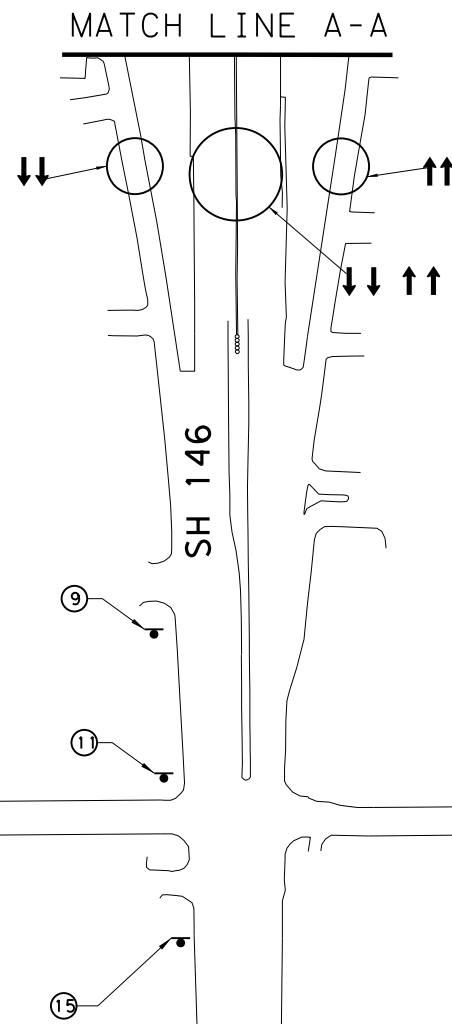


**FM 1764
 DETOUR PLAN
 PHASE 6 STEP 2**

SHEET 1 OF 2



		CONT	SECT	JOB	HIGHWAY
		1607	01	057, ETC.	FM 1764
		DIST	COUNTY		SHEET NO.
		HOU	Galveston		92C



MATCH LINE A-A

FM 1764

34TH ST N

9TH AVE N

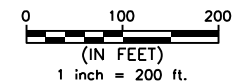
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- ② DETOUR (48" x 36") M4-9S SH 146 M4-12T
- ③ DETOUR (48" x 36") M4-9TR SH 146 M4-12T
- ④ DETOUR (48" x 36") M4-9TL SH 146 M4-12T
- ⑤ DETOUR (48" x 36") M4-9R SH 146 M4-12T
- ⑥ DETOUR (48" x 36") M4-9L SH 146 M4-12T
- ⑦ DETOUR (48" x 36") M4-9S FM 1764 M4-12T
- ⑧ DETOUR (48" x 36") M4-9TR FM 1764 M4-12T
- ⑨ DETOUR (48" x 36") M4-9L FM 1764 M4-12T
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- ⑪ DETOUR (48" x 36") M4-9L FM 1764 M4-12T
- ⑫ ROAD CLOSED (48" x 30") R11-2 MOUNTED ON TYPE III BARR
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- ⑭ LOCAL TRAFFIC ONLY (24" x 24") R11-5 MOUNTED ON TYPE III BARR
- ⑮ END DETOUR (48" x 36") M4-___
- ⑯ R3-1 (24" x 24")
- ⑰ R3-2 (24" x 24")



**FM 1764
 DETOUR PLAN
 PHASE 6 STEP 2**

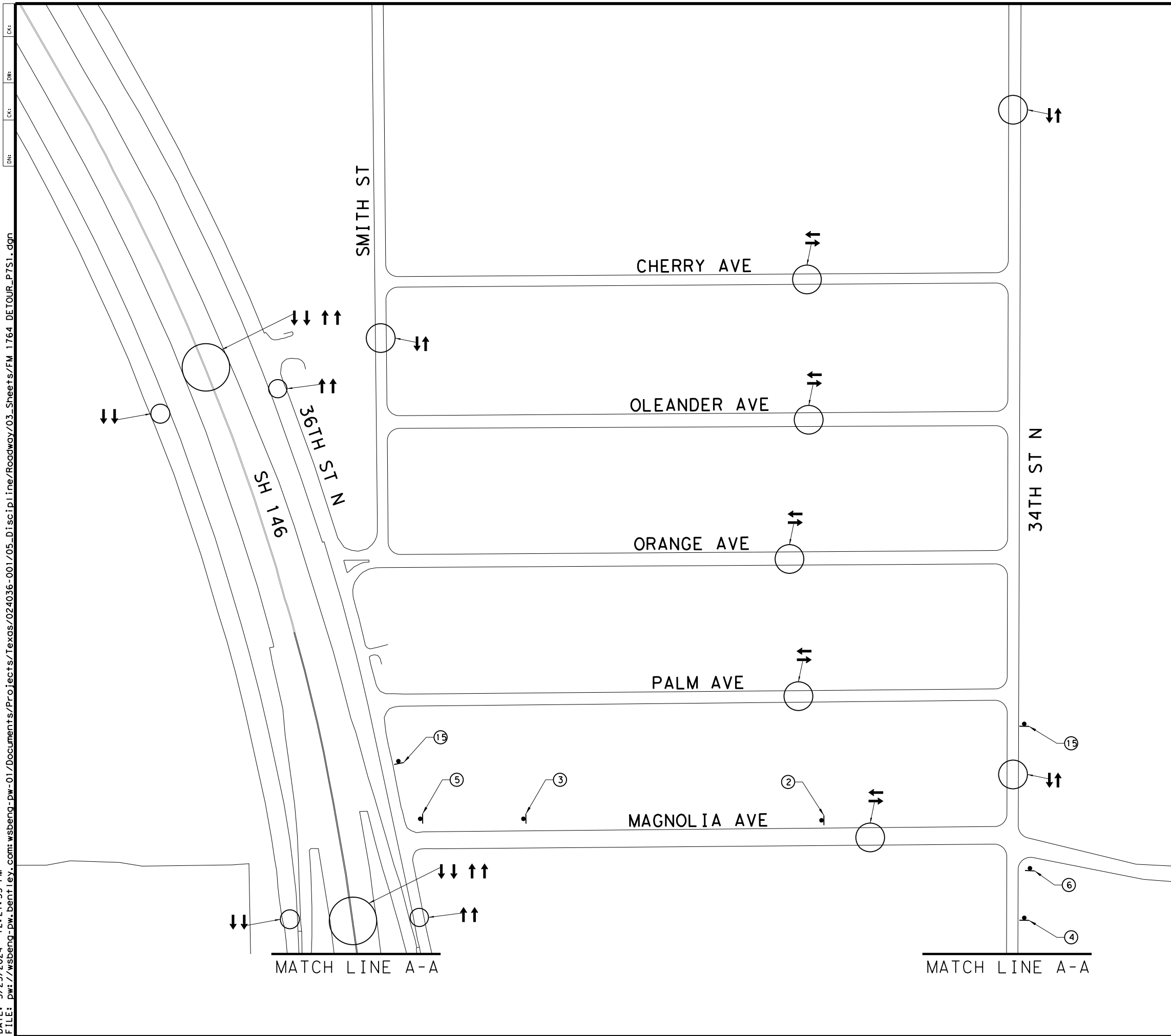
SHEET 2 OF 2



		CONT	SECT	JOB	HIGHWAY
		1607	01	057, ETC.	FM 1764
DIST		COUNTY		SHEET NO.	
HOU		Galveston		92D	

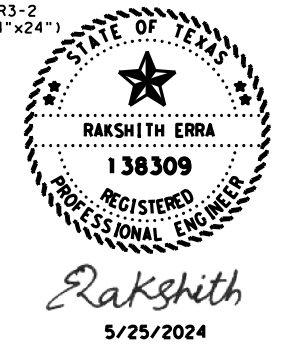
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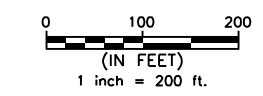
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- ④ DETOUR (48"x36") SH 146 M4-9TL M4-12T
- ⑤ DETOUR (48"x36") SH 146 M4-9R M4-12T
- ⑥ DETOUR (48"x36") SH 146 M4-9L M4-12T
- ⑦ DETOUR (48"x36") FM 1764 M4-9S M4-12T
- ⑧ DETOUR (48"x36") FM 1764 M4-9R M4-12T
- ⑨ DETOUR (48"x36") FM 1764 M4-9L M4-12T
- ⑩ DETOUR (48"x36") FM 1764 M4-9R M4-12T
- ⑪ DETOUR (48"x36") FM 1764 M4-9L M4-12T
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- ⑭ LOCAL TRAFFIC ONLY (24"x24") R11-5 MOUNTED ON TYPE III BARR
- ⑮ END DETOUR (48"x36") M4----
- ⑯ R3-1 (24"x24")
- ⑰ R3-2 (24"x24")



**FM 1764
 DETOUR PLAN
 PHASE 7 STEP 1**

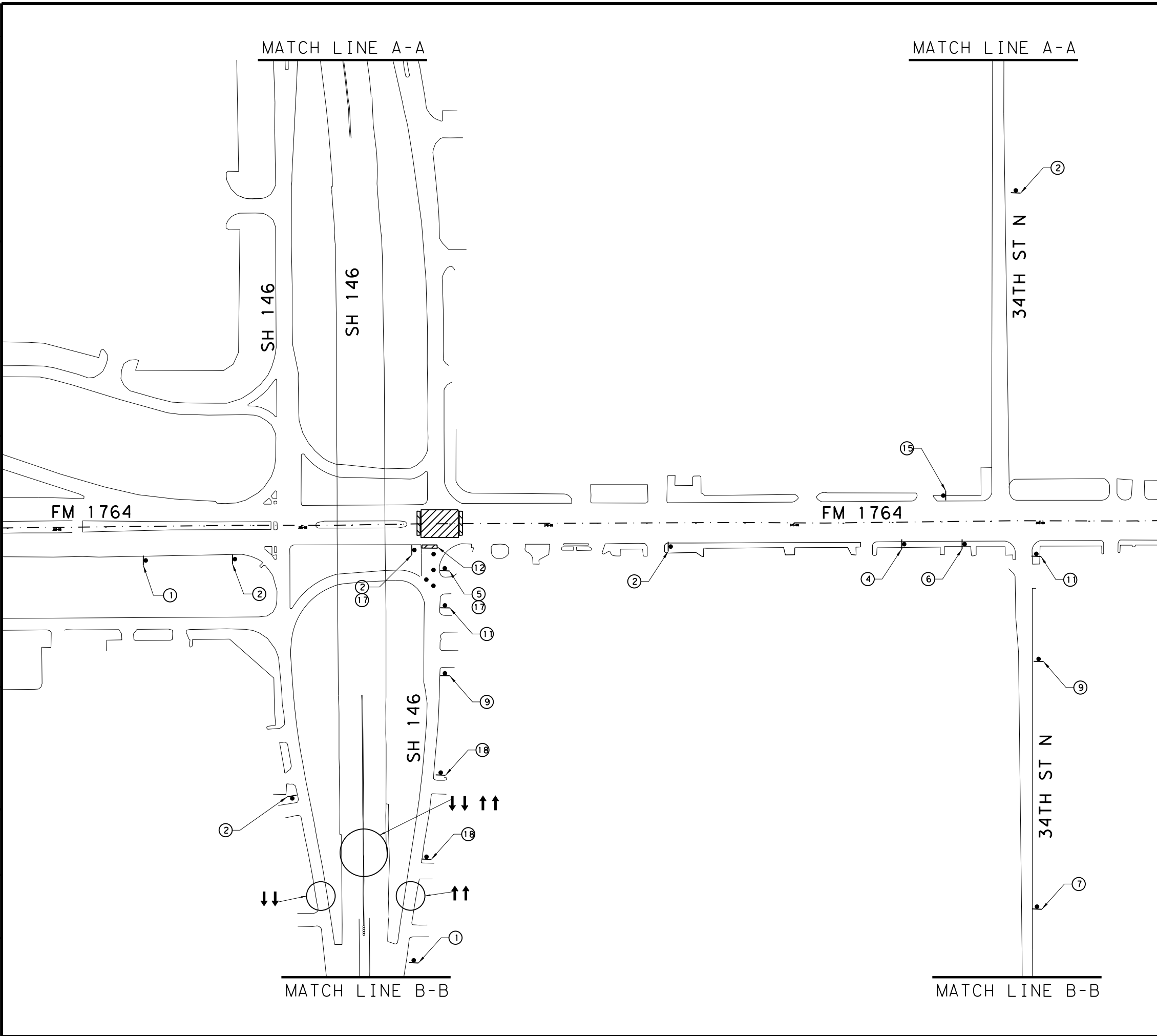
SHEET 1 OF 3



		CONT	SECT	JOB	HIGHWAY
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DIST		COUNTY		SHEET NO.	
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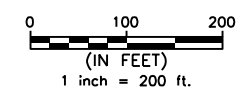
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- ④ DETOUR ↙ M4-9TL (48"x36") SH 146 M4-12T
- ⑤ DETOUR → M4-9R (48"x36") SH 146 M4-12T
- ⑥ DETOUR ← M4-9L (48"x36") SH 146 M4-12T
- ⑦ DETOUR ↑ M4-9S (48"x36") FM 1764 M4-12T
- ⑧ DETOUR ↗ M4-9TR (48"x36") FM 1764 M4-12T
- ⑨ DETOUR ↙ M4-9TL (48"x36") FM 1764 M4-12T
- ⑩ DETOUR → M4-9R (48"x36") FM 1764 M4-12T
- ⑪ DETOUR ← M4-9L (48"x36") FM 1764 M4-12T
- ⑫ ROAD CLOSED R11-2 (48"x30") MOUNTED ON TYPE III BARR
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- ⑭ LOCAL TRAFFIC ONLY R11-5 (24"x24") MOUNTED ON TYPE III BARR
- ⑮ END DETOUR M4-... (48"x36")
- ⑯ R3-1 (24"x24")
- ⑰ R3-2 (24"x24")
- ⑱ RIGHT LANE MUST TURN RIGHT R3-7R (30"x30")

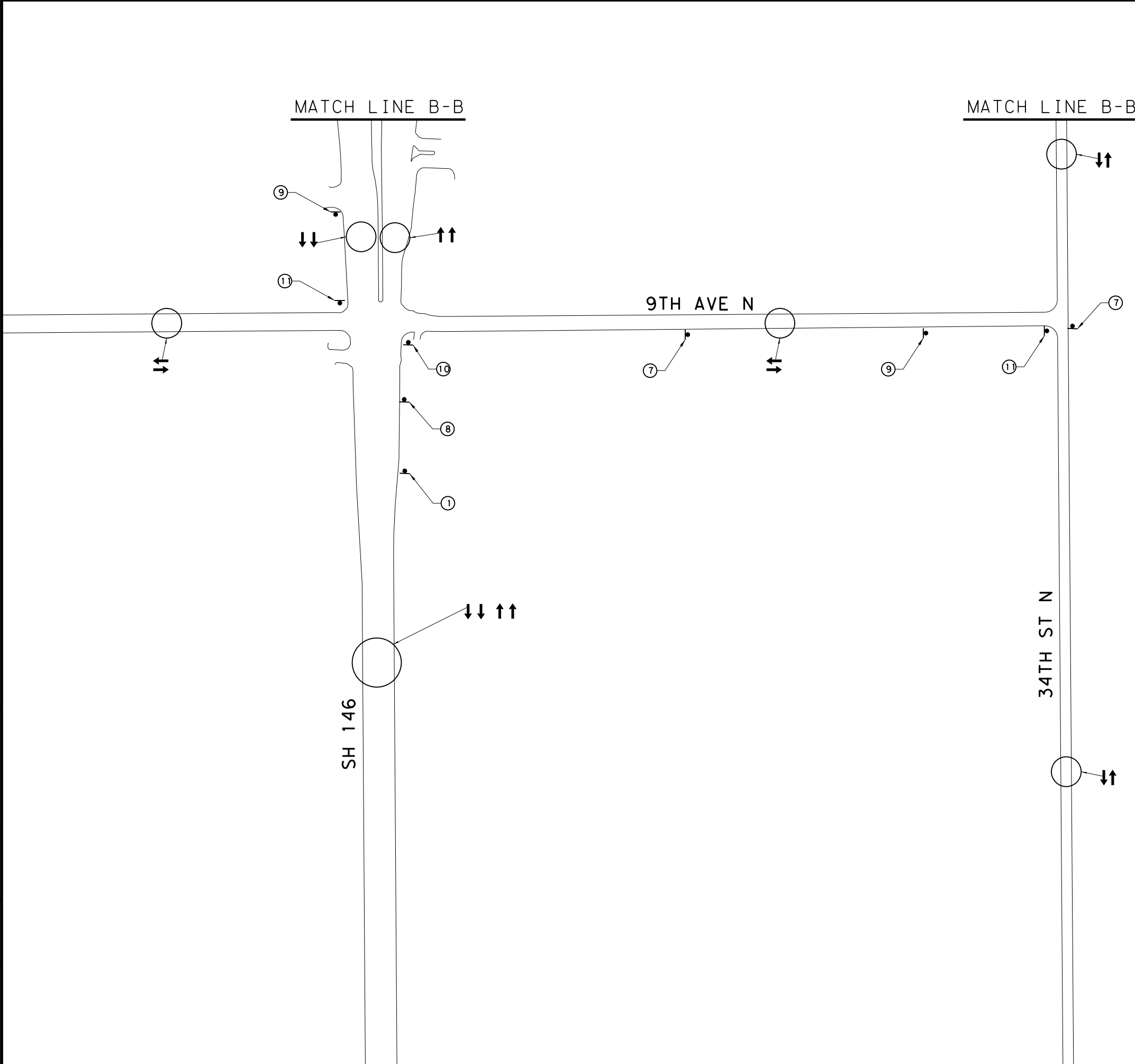


FM 1764
DETOUR PLAN
PHASE 7 STEP 1

SHEET 2 OF 3

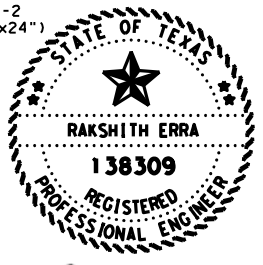


Texas Department of Transportation			
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		92F



SIGN LEGEND:

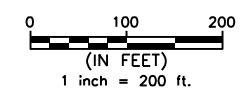
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- ④ DETOUR (48" x 36") SH 146 M4-9TL
- ⑤ DETOUR (48" x 36") SH 146 M4-9R
- ⑥ DETOUR (48" x 36") SH 146 M4-9L
- ⑦ DETOUR (48" x 36") FM 1764 M4-9S
- ⑧ DETOUR (48" x 36") FM 1764 M4-9TR
- ⑨ DETOUR (48" x 36") FM 1764 M4-9L
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- ⑯ R3-1 (24" x 24")
- ⑰ R3-2 (24" x 24")



Rakshith
5/25/2024

**FM 1764
 DETOUR PLAN
 PHASE 7 STEP 1**

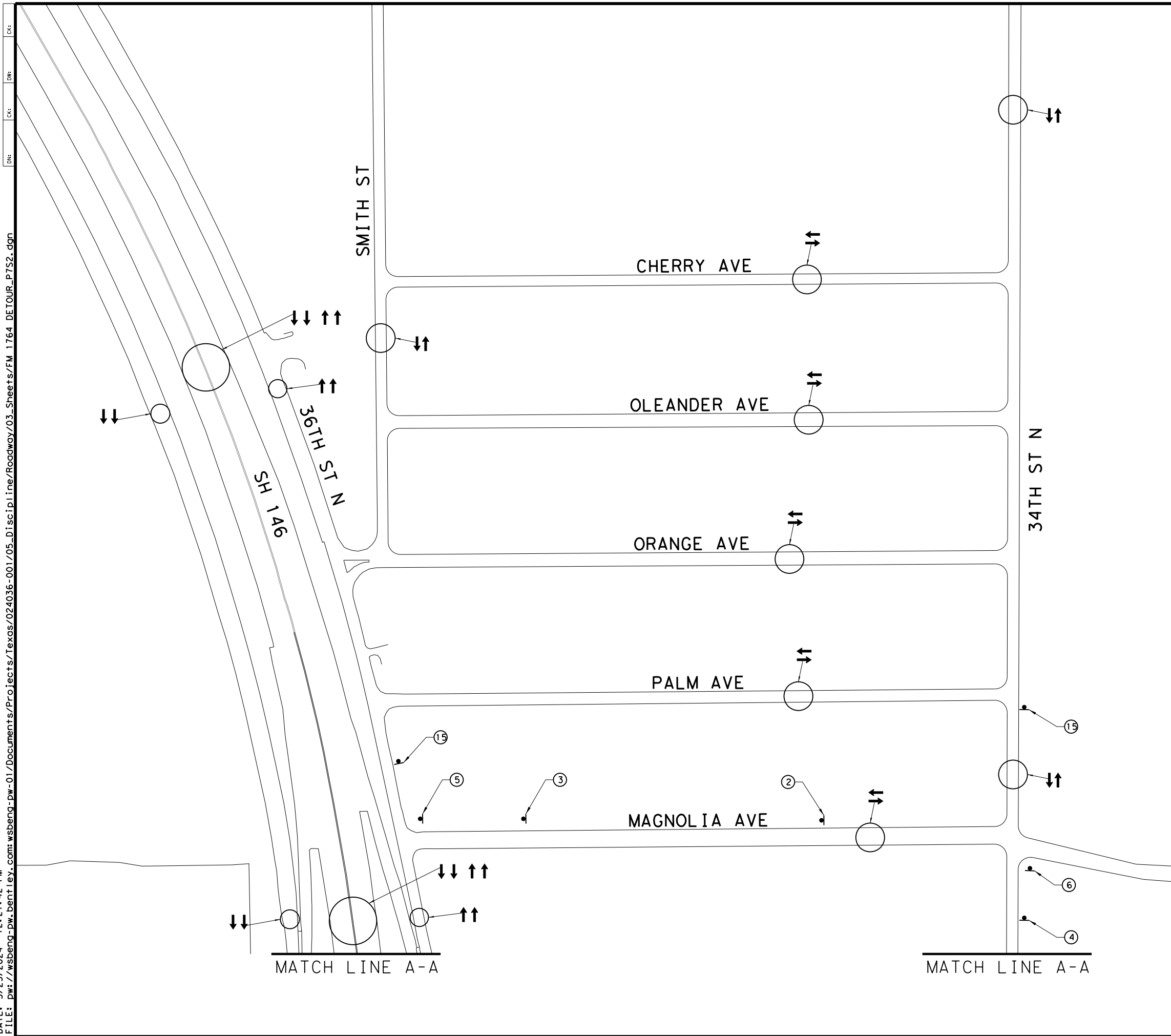
SHEET 3 OF 3



CONT	SECT
1607	01
JOB: 057, ETC.	
HIGHWAY: FM 1764	
DIST	COUNTY
HOU	Galveston
SHEET NO.: 92G	

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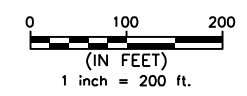
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- ② DETOUR (48"x36") SH 146 M4-9S
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- ④ DETOUR (48"x36") M4-9TL SH 146 M4-12T
- ⑤ DETOUR (48"x36") M4-9R SH 146 M4-12T
- ⑥ DETOUR (48"x36") M4-9L SH 146 M4-12T
- ⑦ DETOUR (48"x36") M4-9S FM 1764 M4-12T
- ⑧ DETOUR (48"x36") M4-9TR FM 1764 M4-12T
- ⑨ DETOUR (48"x36") M4-9L FM 1764 M4-12T
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- ⑭ LOCAL TRAFFIC ONLY (24"x24") R11-5 MOUNTED ON TYPE III BARR
- ⑮ END DETOUR (48"x36") M4----
- ⑯ R3-1 (24"x24")
- ⑰ R3-2 (24"x24")



**FM 1764
 DETOUR PLAN
 PHASE 7 STEP 2**

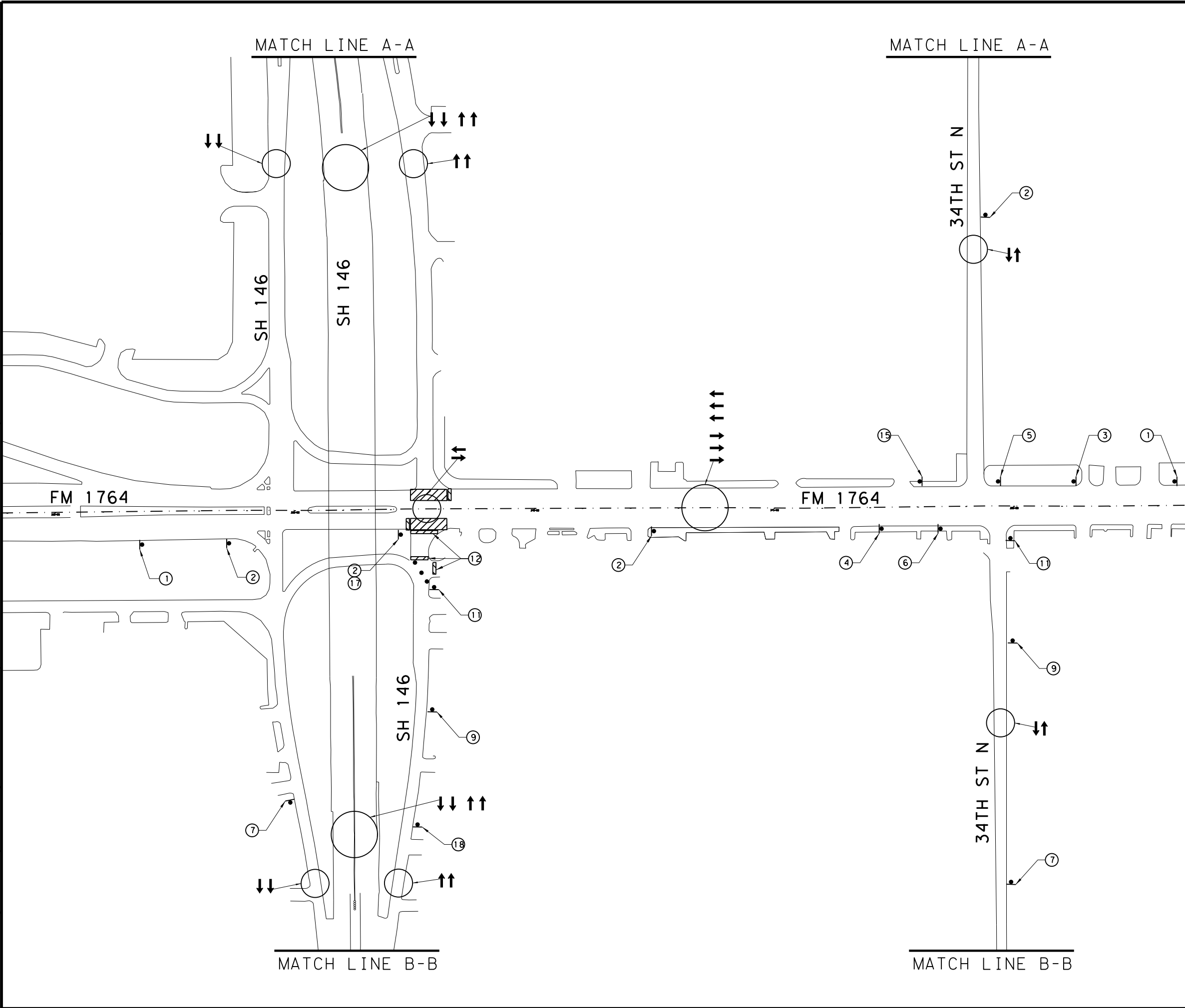
SHEET 1 OF 3



CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		92H

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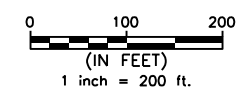
SIGN LEGEND:

- ① ROAD WORK AHEAD CW20-1D (48"x48")
- ② DETOUR ↑ M4-9S (48"x36") SH 146 M4-12T
- ③ DETOUR → M4-9TR (48"x36") SH 146 M4-12T
- ④ DETOUR ← M4-9TL (48"x36") SH 146 M4-12T
- ⑤ DETOUR → M4-9R (48"x36") SH 146 M4-12T
- ⑥ DETOUR ← M4-9L (48"x36") SH 146 M4-12T
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- ⑭ LOCAL TRAFFIC ONLY R11-5 (24"x24") MOUNTED ON TYPE III BARR
- ⑮ END DETOUR M4-... (48"x36")
- ⑯ R3-1 (24"x24")
- ⑰ R3-2 (24"x24")
- ⑱ ROAD CLOSED AHEAD W20-3 (36"x36")

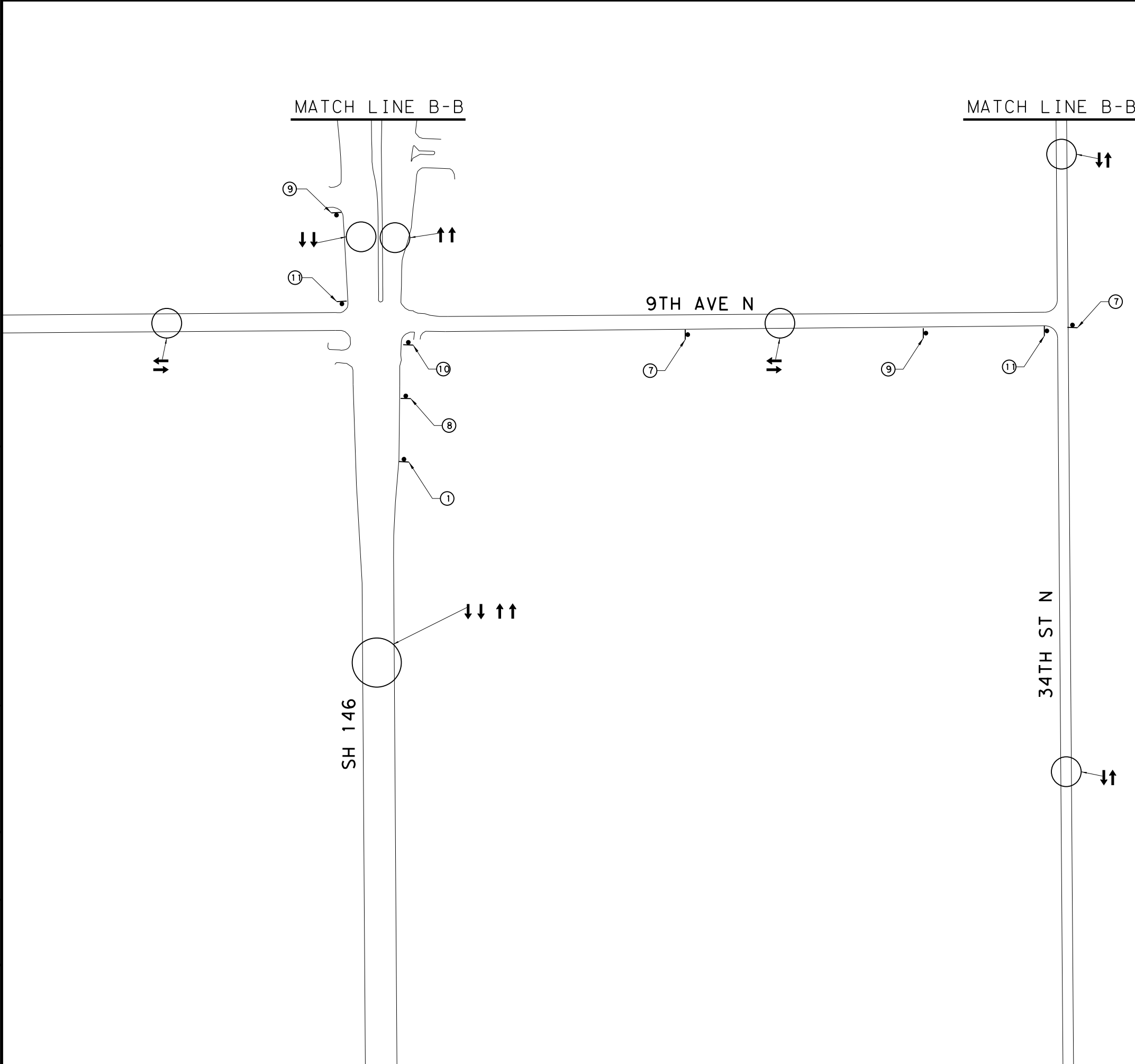


**FM 1764
 DETOUR PLAN
 PHASE 7 STEP 2**

SHEET 2 OF 3



		CONT	SECT	JOB	HIGHWAY
		1607	01	057, ETC.	FM 1764
DIST		COUNTY		SHEET NO.	
HOU		Galveston		921	



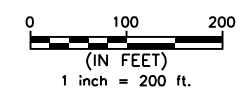
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- ④ DETOUR (48" x 36") M4-9TL
- ⑤ DETOUR (48" x 36") M4-9R
- ⑥ DETOUR (48" x 36") M4-9L
- ⑦ DETOUR (48" x 36") FM 1764 M4-9S
- ⑧ DETOUR (48" x 36") FM 1764 M4-9TR
- ⑨ DETOUR (48" x 36") FM 1764 M4-9L
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- ⑮ END DETOUR (48" x 36") M4----
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- ⑰ R3-2 (24" x 24")



**FM 1764
 DETOUR PLAN
 PHASE 7 STEP 2**

SHEET 3 OF 3



		CONT	SECT	JOB	HIGHWAY
		1607	01	057, ETC.	FM 1764
DIST		COUNTY		SHEET NO.	
HOU		Galveston		92J	

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BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

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

WORKER SAFETY NOTES:


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

COMPLIANT WORKZONE TRAFFIC CONTROL DEVICES

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

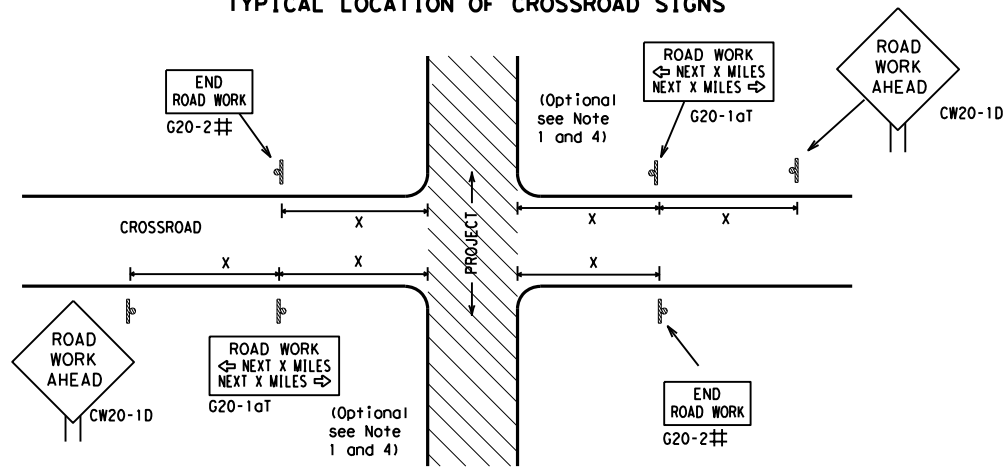
THE DOCUMENTS BELOW CAN BE FOUND ON-LINE AT http://www.txdot.gov
COMPLIANT WORK ZONE TRAFFIC CONTROL DEVICES LIST (CWZTCD)
DEPARTMENTAL MATERIAL SPECIFICATIONS (DMS)
MATERIAL PRODUCER LIST (MPL)
ROADWAY DESIGN MANUAL - SEE "MANUALS (ONLINE MANUALS)"
STANDARD HIGHWAY SIGN DESIGNS FOR TEXAS (SHSD)
TEXAS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

SHEET 1 OF 12

 Texas Department of Transportation		Traffic Safety Division Standard	
BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS			
BC (1) - 21			
FILE:	bc-21.dgn	DN:	TxDOT
© TxDOT	November 2002	CK:	TxDOT
		DW:	TxDOT
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REVISIONS	CONT	SECT	JOB
4-03 7-13	1607	01	057, ETC.
9-07 8-14	DIST	COUNTY	FM 1764
5-10 5-21	HOU	GALVESTON	SHEET NO.
			93

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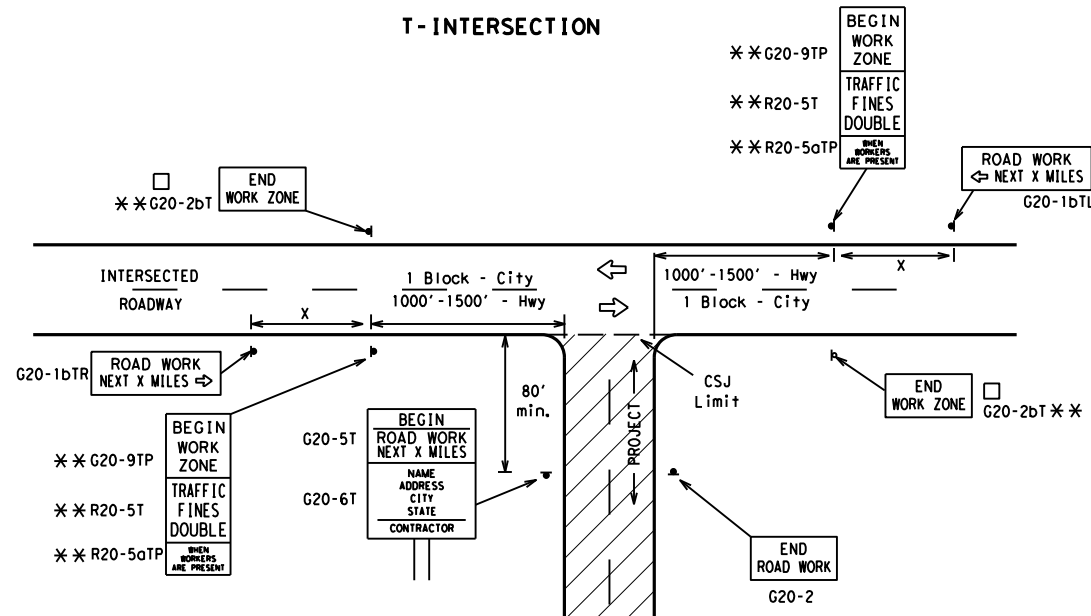
TYPICAL LOCATION OF CROSSROAD SIGNS



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

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

T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

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

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

Sign Number or Series	SIZE		SPACING	
	Conventional Road	Expressway/Freeway	Posted Speed MPH	Sign Δ Spacing "x" Feet (Apprx.)
CW20 ⁴	48" x 48"	48" x 48"	30	120
CW21			35	160
CW22			40	240
CW23			45	320
CW25			50	400
CW1, CW2, CW7, CW8, CW9, CW11, CW14	36" x 36"	48" x 48"	55	500 ²
CW3, CW4, CW5, CW6, CW8-3, CW10, CW12	48" x 48"	48" x 48"	60	600 ²
			65	700 ²
			70	800 ²
			75	900 ²
			80	1000 ²
			*	* ³

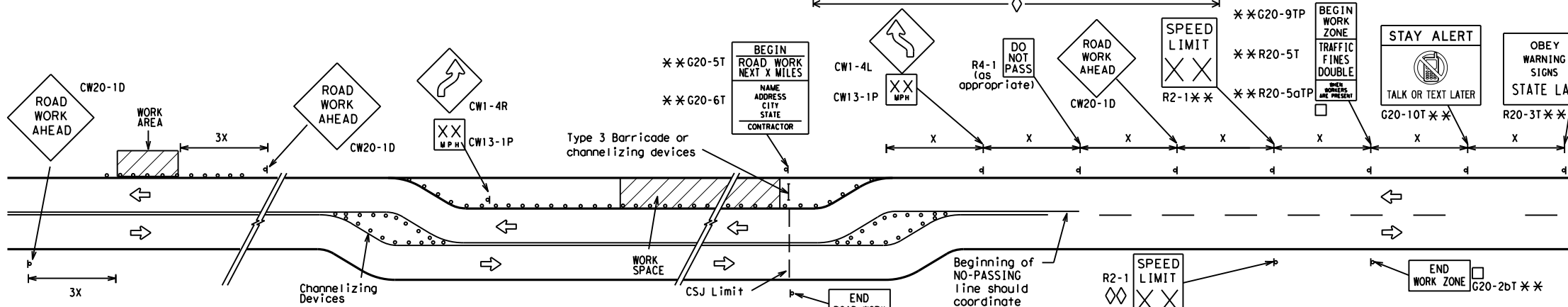
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

GENERAL NOTES

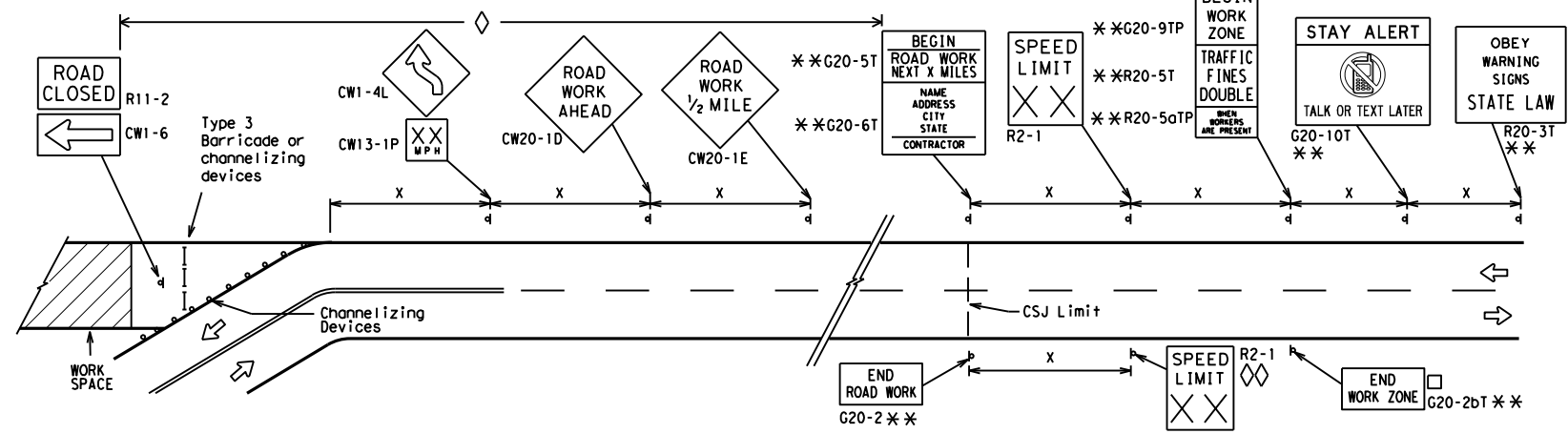
- Special or larger size signs may be used as necessary.
- Distance between signs should be increased as required to have 1500 feet advance warning.
- Distance between signs should be increased as required to have 1/2 mile or more advance warning.
- 36" x 36" "ROAD WORK AHEAD" (CW20-1D) signs may be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

WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS



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

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



NOTES

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

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

SHEET 2 OF 12



BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-21

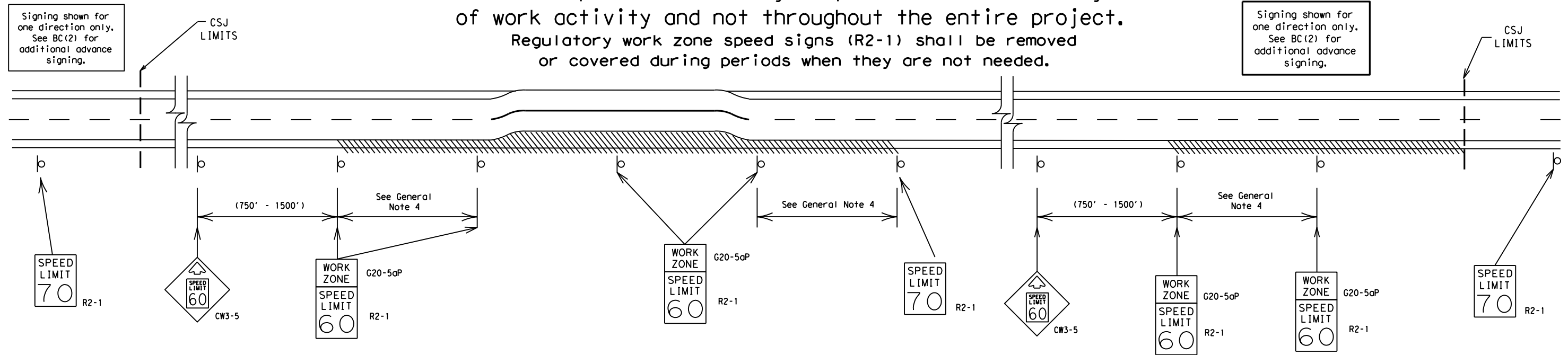
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TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

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

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



GUIDANCE FOR USE:

LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

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

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

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

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

SHORT TERM WORK ZONE SPEED LIMITS

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

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

GENERAL NOTES

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

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

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SHEET 3 OF 12



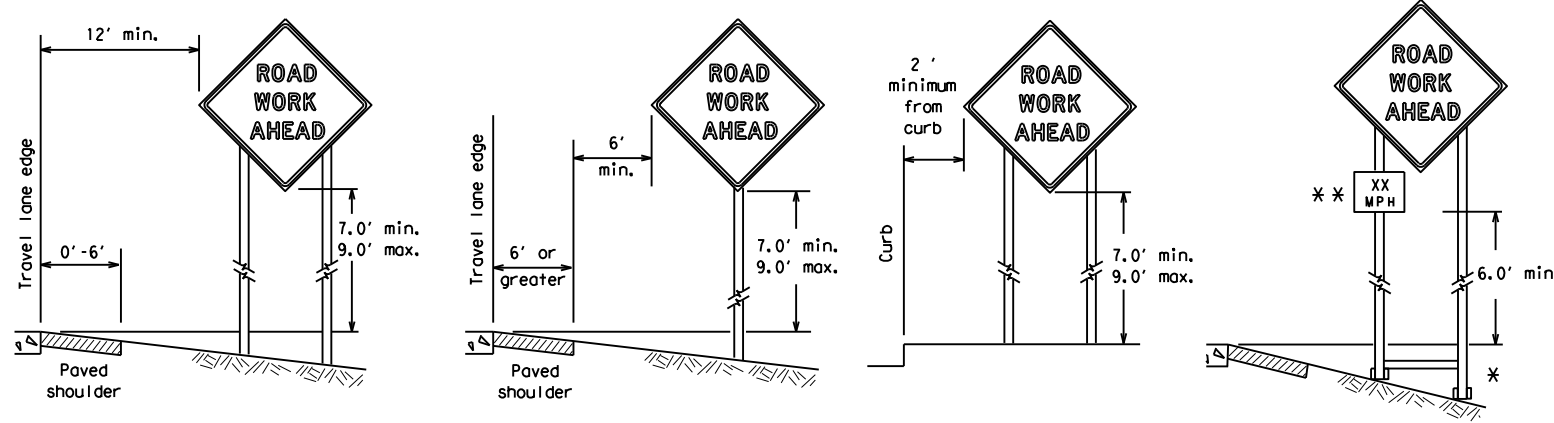
BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

BC(3) - 21

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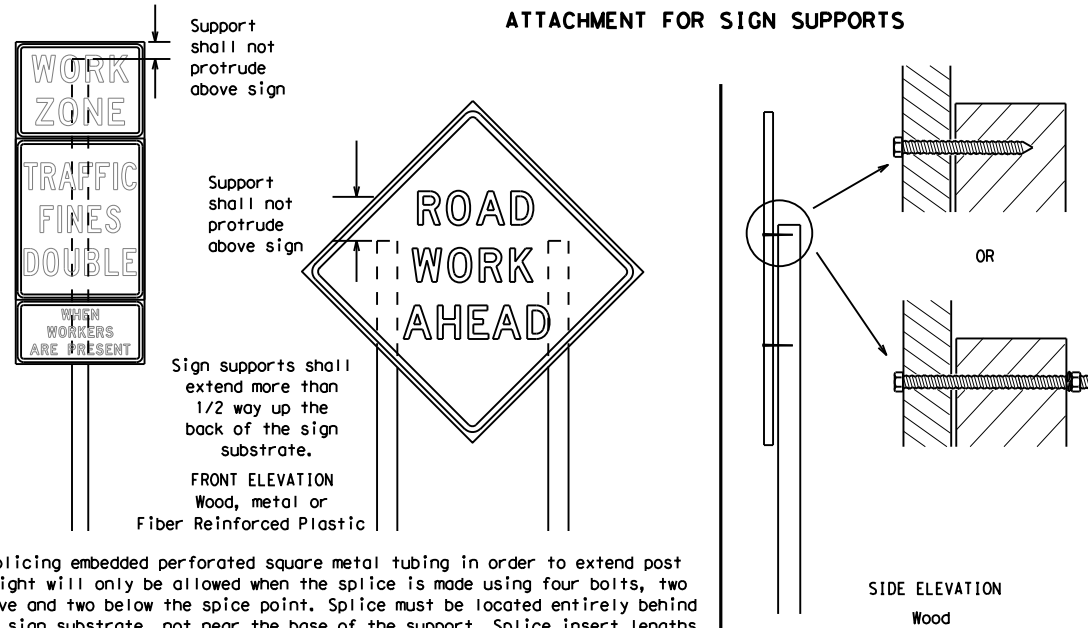
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



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

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

ATTACHMENT FOR SIGN SUPPORTS



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

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

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

GENERAL NOTES FOR WORK ZONE SIGNS

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

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

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

SIGN MOUNTING HEIGHT

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

SIZE OF SIGNS

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

SIGN SUBSTRATES

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

REFLECTIVE SHEETING

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

SIGN LETTERS

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

REMOVING OR COVERING

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

SIGN SUPPORT WEIGHTS

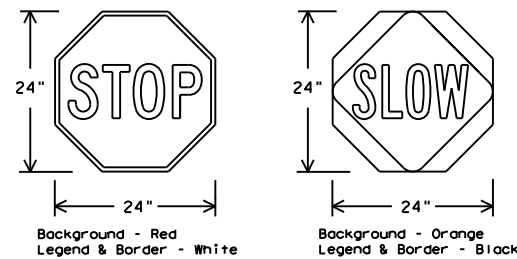
- Where sign supports require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand should be used.
- The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
- Rock, concrete, iron, steel or other solid objects shall not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

FLAGS ON SIGNS

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

STOP/SLOW PADDLES

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



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

CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

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

SHEET 4 OF 12



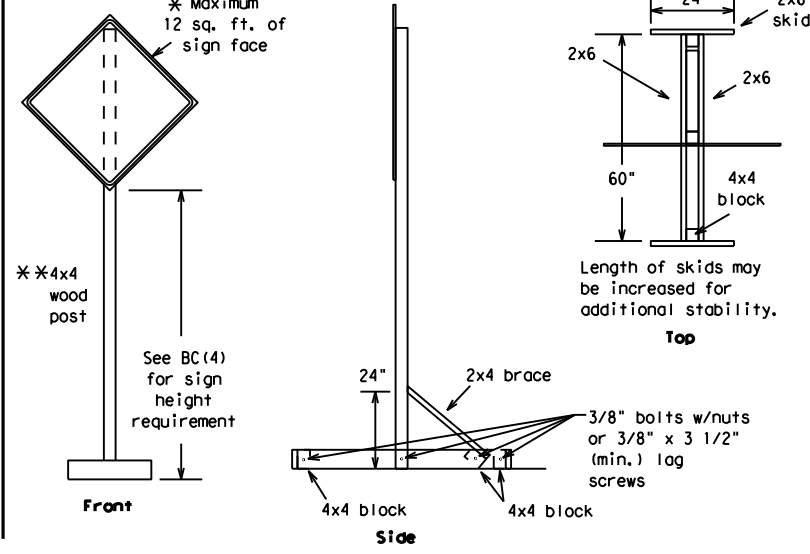
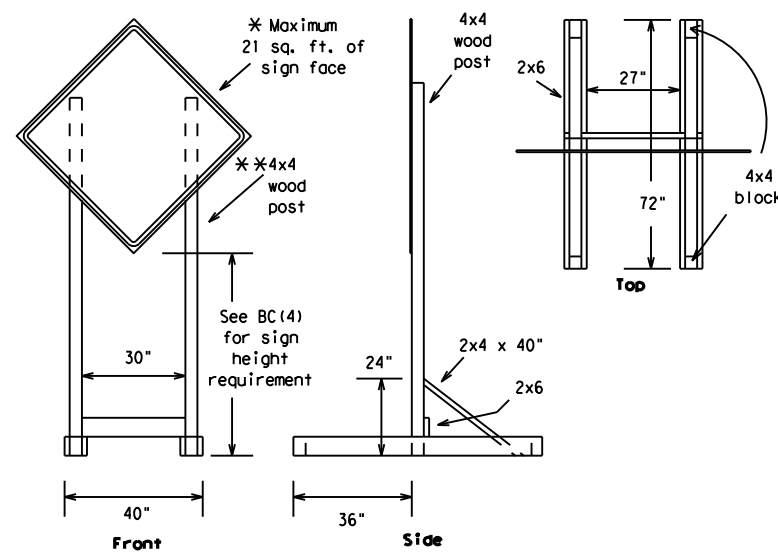
BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC (4) - 21

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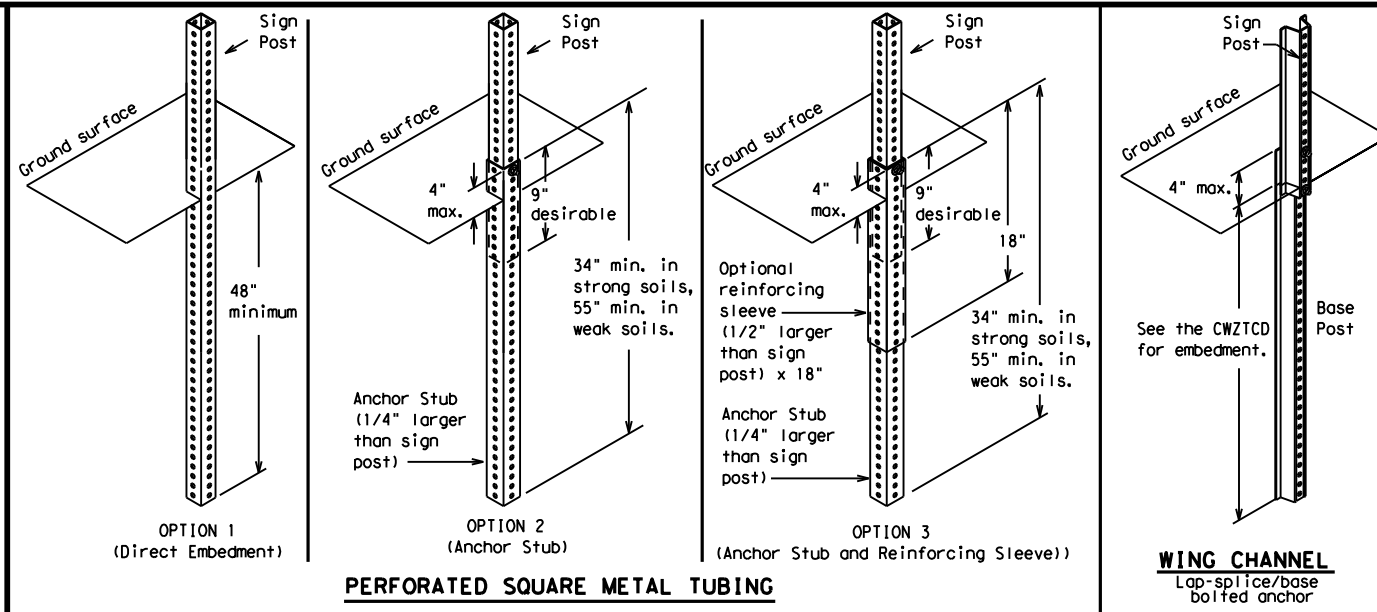
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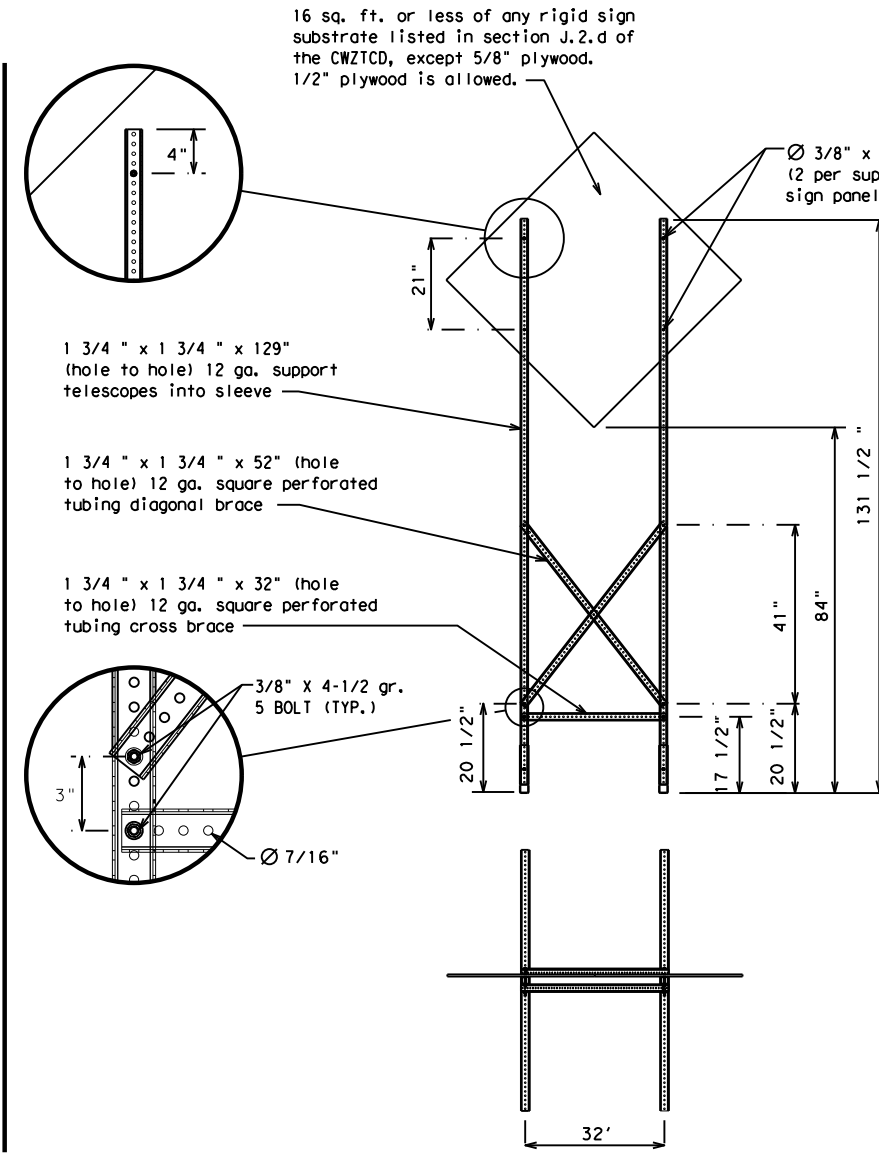
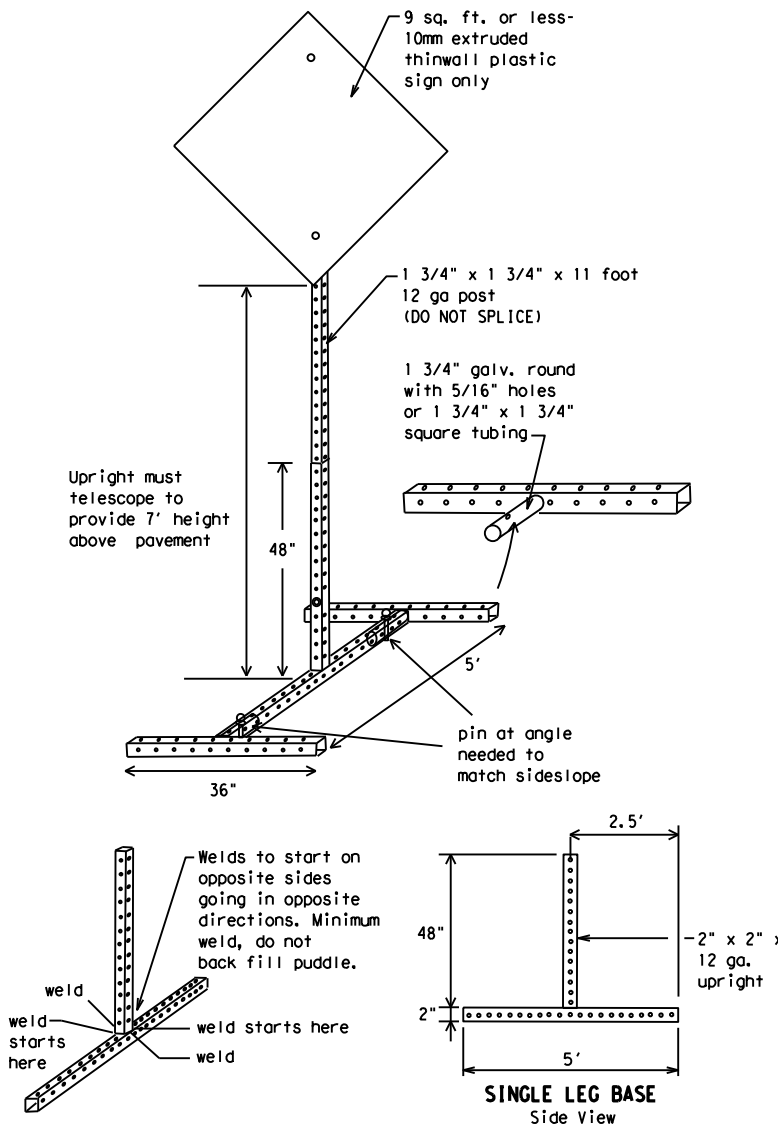
SKID MOUNTED WOOD SIGN SUPPORTS

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



GROUND MOUNTED SIGN SUPPORTS

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



SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

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

WEDGE ANCHORS

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

OTHER DESIGNS

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

GENERAL NOTES

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

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

SHEET 5 OF 12



BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5) - 21

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

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

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

PORTABLE CHANGEABLE MESSAGE SIGNS

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

Phase 1: Condition Lists

Road/Lane/Ramp Closure List

FREEWAY CLOSED X MILE	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
XXXXXXXXX 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
XXXXXXXXX TO XXXXXXXXX
US XXX TO FM XXXX

Warning List

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

** Advance Notice List

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

** See Application Guidelines Note 6.

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

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

APPLICATION GUIDELINES

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

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

FULL MATRIX PCMS SIGNS

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

WORDING ALTERNATIVES

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

SHEET 6 OF 12



BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

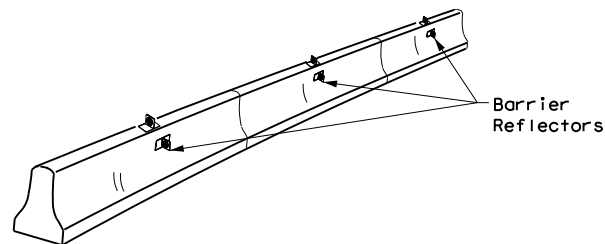
BC (6) - 21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CR: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
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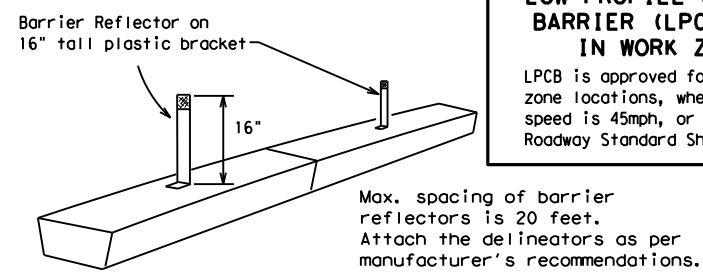
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- Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
- Color of Barrier Reflectors shall be as specified in the TMUTCD. The cost of the reflectors shall be considered subsidiary to Item 512.



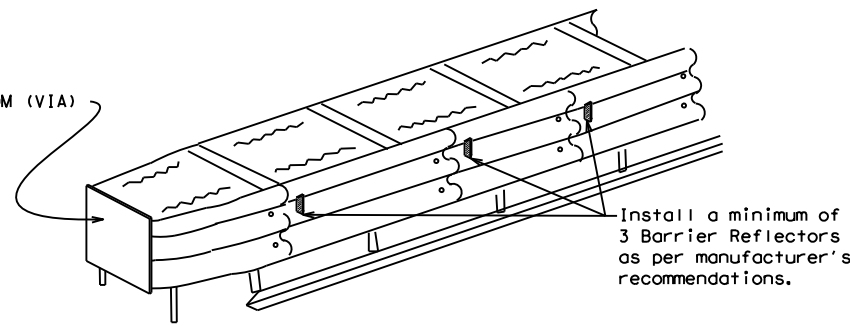
CONCRETE TRAFFIC BARRIER (CTB)

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



LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES
LPCB is approved for use in work zone locations, where the posted speed is 45mph, or less. See Roadway Standard Sheet LPCB.

LOW PROFILE CONCRETE BARRIER (LPCB)



DELINEATION OF END TREATMENTS

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

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS

WARNING LIGHTS

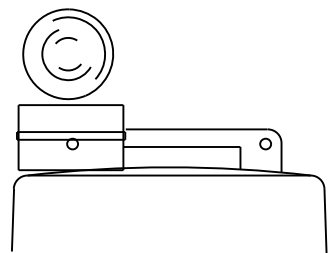
- Warning lights shall meet the requirements of the TMUTCD.
- Warning lights shall NOT be installed on barricades.
- Type A-Low Intensity Flashing Warning Lights are commonly used with drums. They are intended to warn of or mark a potentially hazardous area. Their use shall be as indicated on this sheet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

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

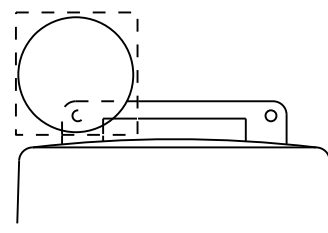
- Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
- Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
- A series of sequential flashing warning lights placed on channelizing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

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

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



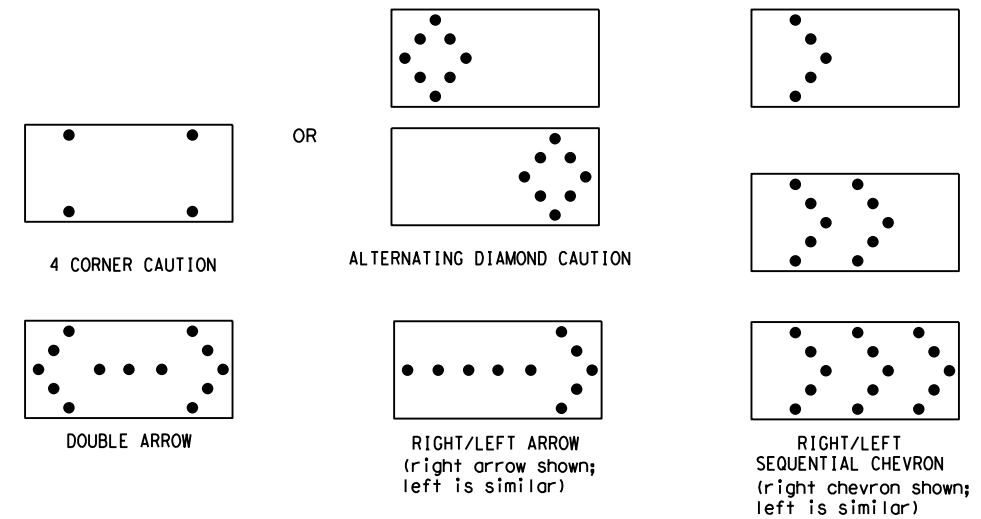
Type C Warning Light or approved substitute mounted on a drum adjacent to the travel way.



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

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

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



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

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

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

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

FLASHING ARROW BOARDS

SHEET 7 OF 12

TRUCK-MOUNTED ATTENUATORS

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

Texas Department of Transportation
Traffic Safety Division Standard

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

BC (7) -21

FILE: bc-21.dgn	DN: TxDOT	CR: TxDOT	OW: TxDOT	CK: TxDOT
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GENERAL NOTES

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

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

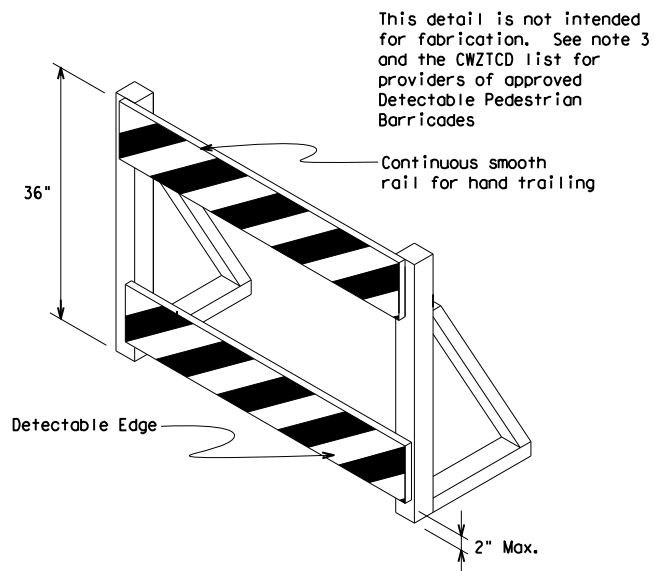
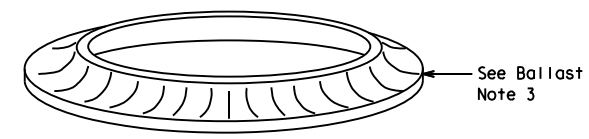
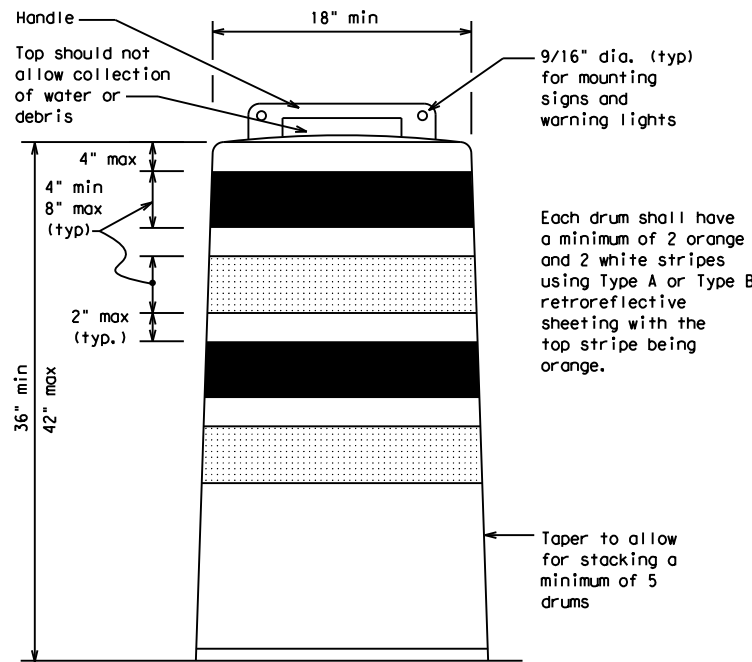
- Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
- The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents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

RETROREFLECTIVE SHEETING

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

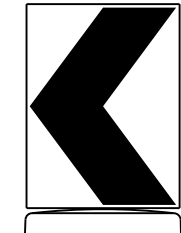
BALLAST

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

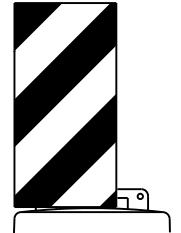


DETECTABLE PEDESTRIAN BARRICADES

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



18" x 24" Sign
(Maximum Sign Dimension)
Chevron 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

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

SHEET 8 OF 12



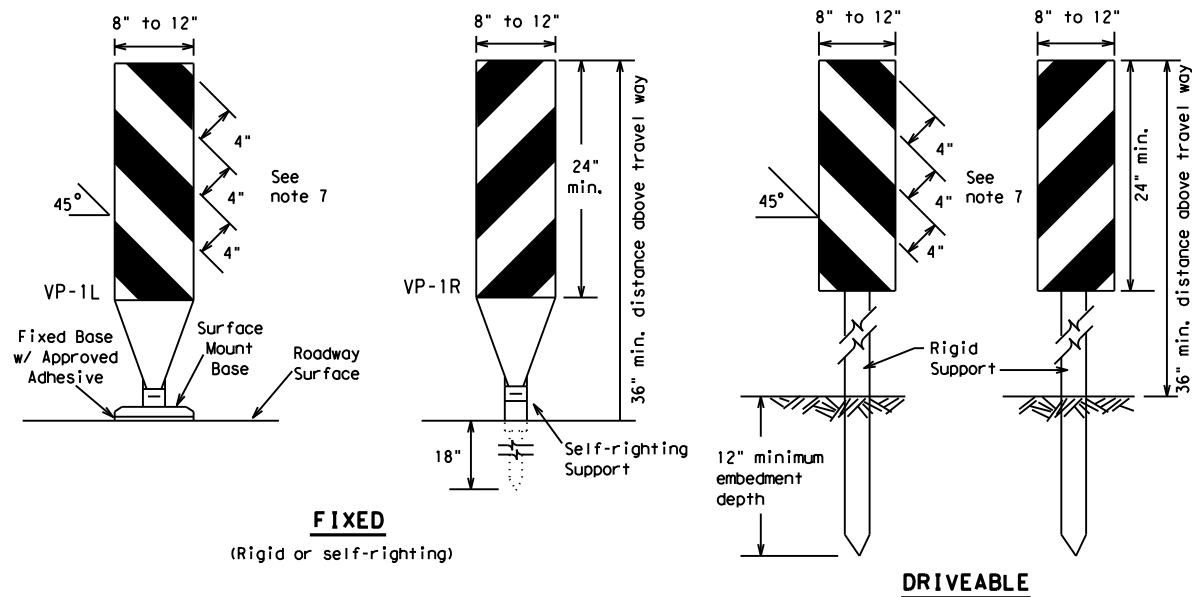
BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC (8) - 21

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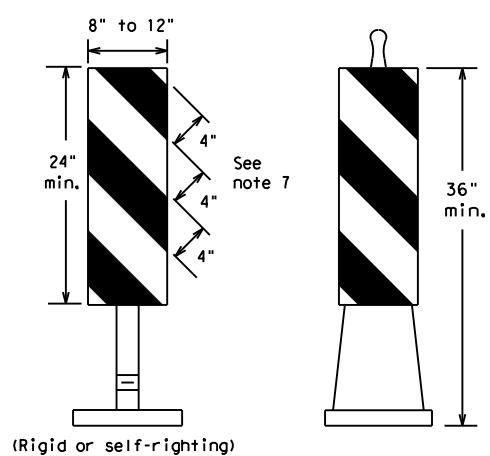
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FIXED
(Rigid or self-righting)

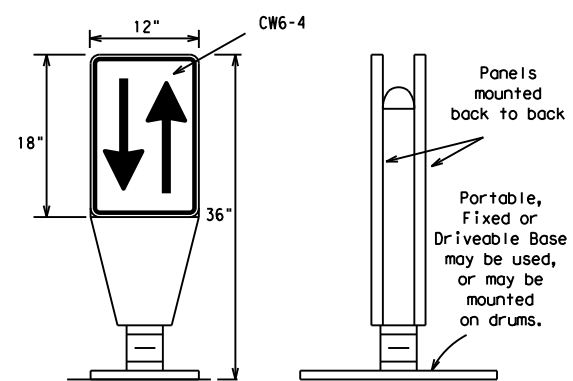
DRIVEABLE



PORTABLE

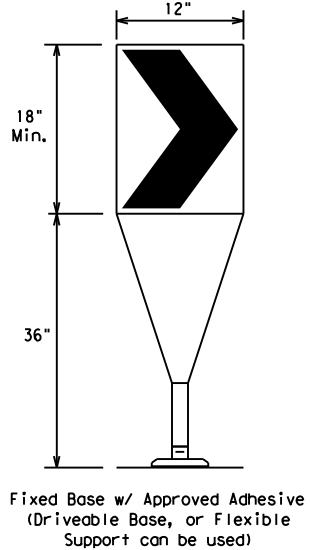
VERTICAL PANELS (VPs)

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



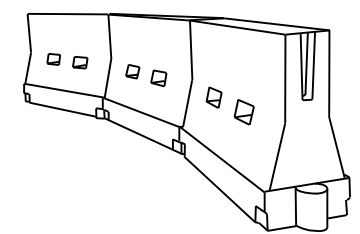
OPPOSING TRAFFIC LANE DIVIDERS (OTLD)

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



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

CHEVRONS



LONGITUDINAL CHANNELIZING DEVICES (LCD)

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

WATER BALLASTED SYSTEMS USED AS BARRIERS

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

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

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

GENERAL NOTES

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

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

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

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

SHEET 9 OF 12



BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC (9) - 21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CR: TxDOT
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REVISIONS	1607	01	057, ETC.	FM 1764
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TYPE 3 BARRICADES

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

Barricades shall NOT be used as a sign support.



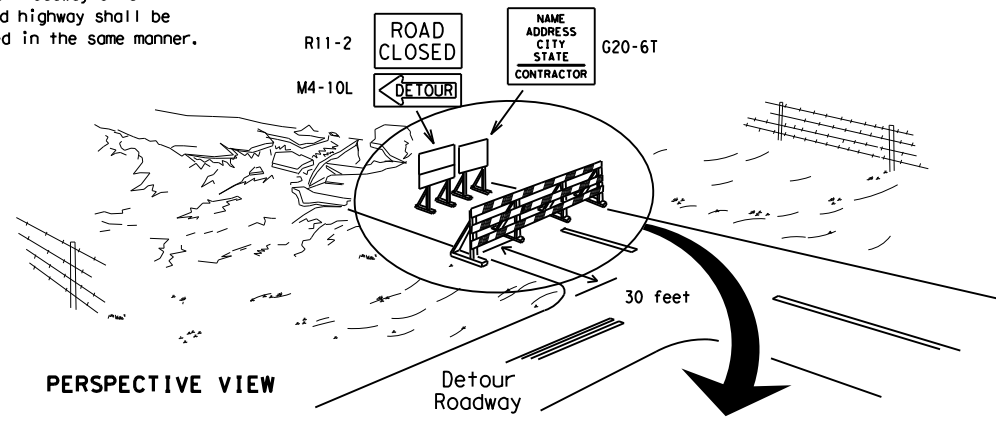
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

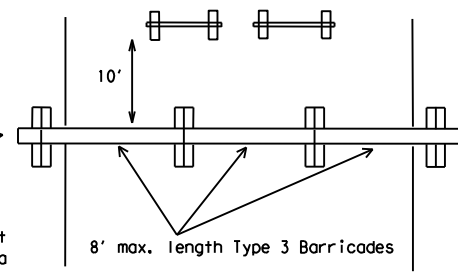
TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

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



PERSPECTIVE VIEW

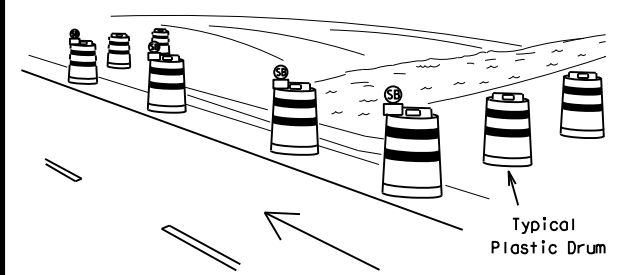
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic. Barricade striping should slant downward in the direction of detour.



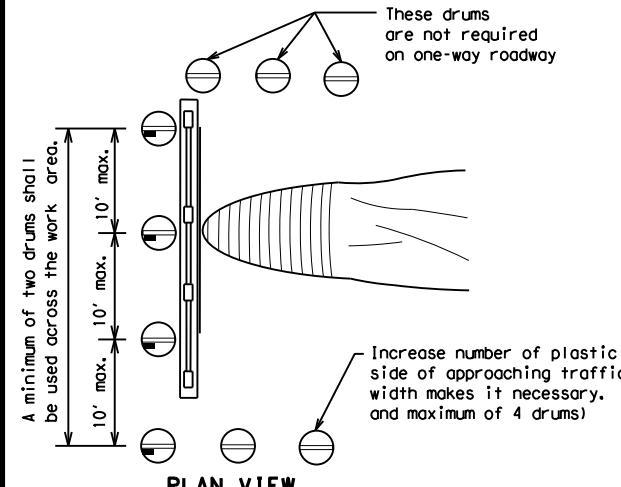
PLAN VIEW

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

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW



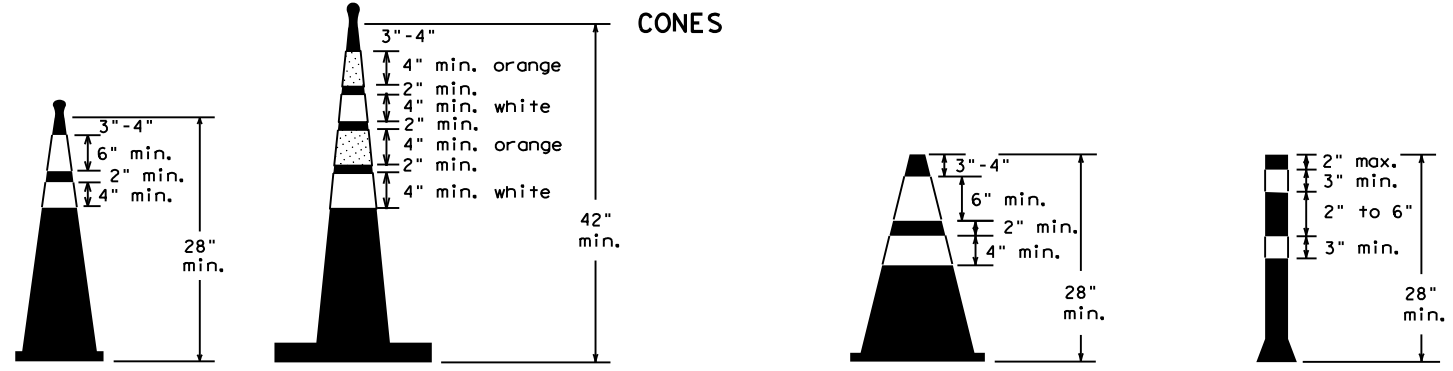
PLAN VIEW

CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS

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

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

Increase number of plastic drums on the side of approaching traffic if the crown width makes it necessary. (minimum of 2 and maximum of 4 drums)



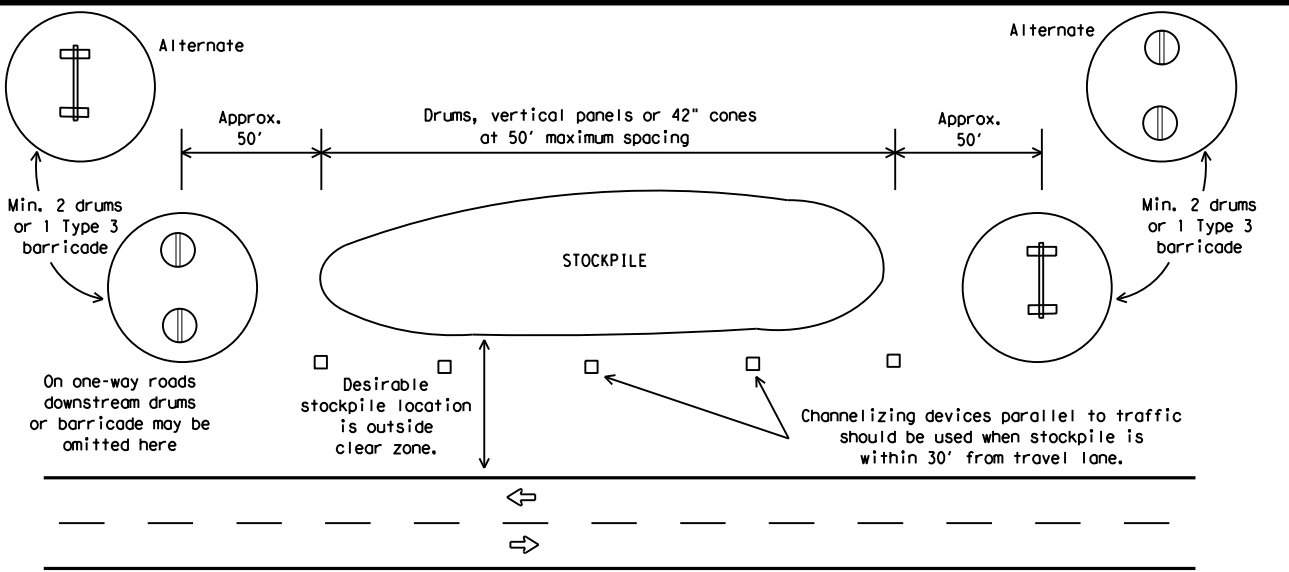
Two-Piece cones

One-Piece cones

Tubular Marker

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

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



TRAFFIC CONTROL FOR MATERIAL STOCKPILES



BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC (10) - 21

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WORK ZONE PAVEMENT MARKINGS

GENERAL

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

RAISED PAVEMENT MARKERS

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

PREFABRICATED PAVEMENT MARKINGS

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

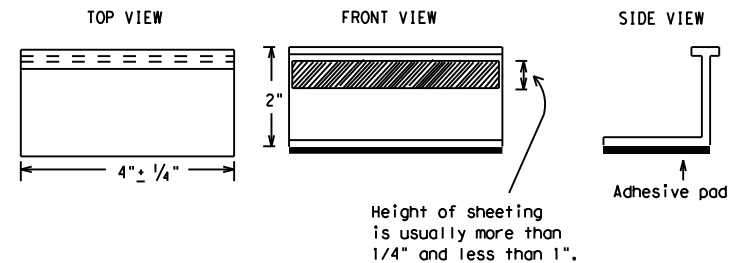
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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

REMOVAL OF PAVEMENT MARKINGS

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

Temporary Flexible-Reflective Roadway Marker Tabs



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

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

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

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

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

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

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

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SHEET 11 OF 12



BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

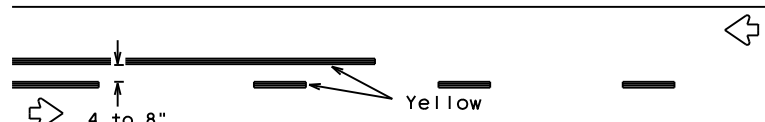
BC(11)-21

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© TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
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REVISIONS				
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11-02 8-14	HOU	GALVESTON	103	

PAVEMENT MARKING PATTERNS

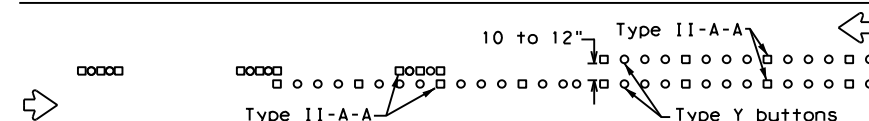


REFLECTORIZED PAVEMENT MARKINGS - PATTERN A

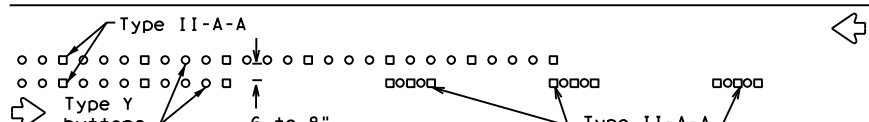


REFLECTORIZED PAVEMENT MARKINGS - PATTERN B

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



RAISED PAVEMENT MARKERS - PATTERN A



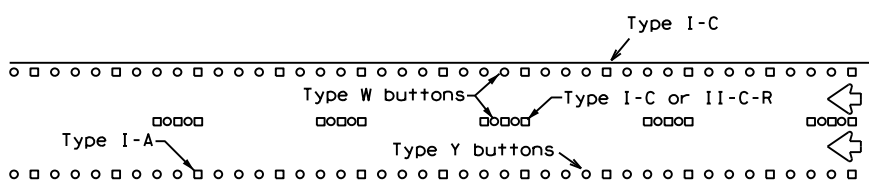
RAISED PAVEMENT MARKERS - PATTERN B

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



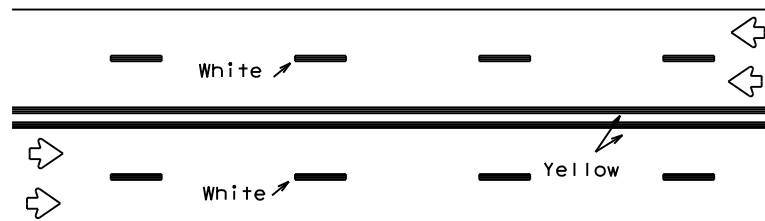
REFLECTORIZED PAVEMENT MARKINGS

Prefabricated markings may be substituted for reflectORIZED pavement markings.



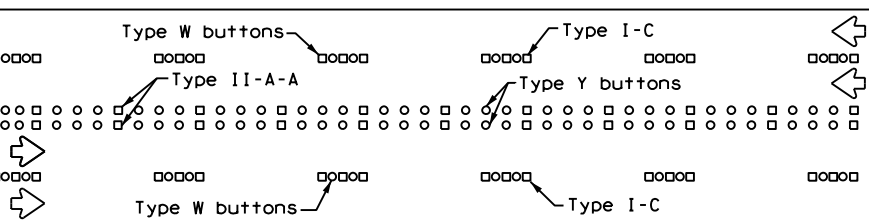
RAISED PAVEMENT MARKERS

EDGE & LANE LINES FOR DIVIDED HIGHWAY



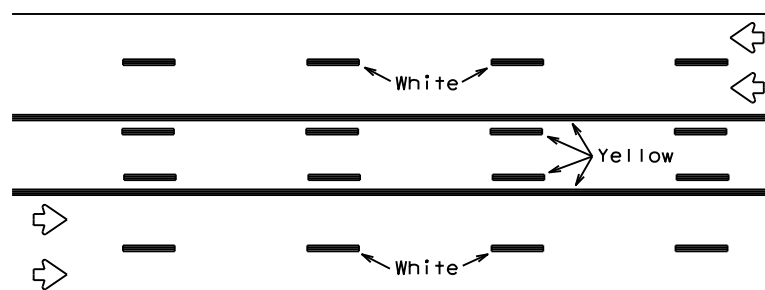
REFLECTORIZED PAVEMENT MARKINGS

Prefabricated markings may be substituted for reflectORIZED pavement markings.



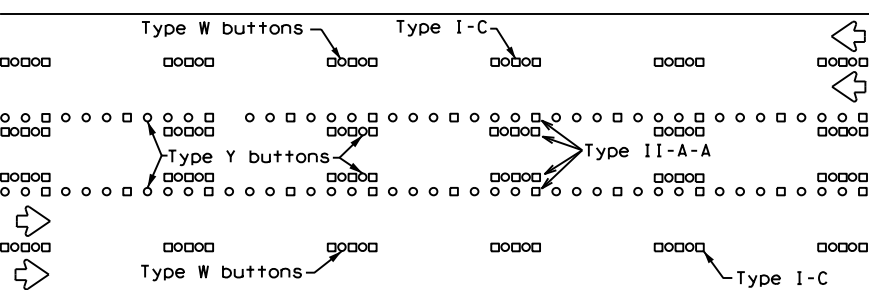
RAISED PAVEMENT MARKERS

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS

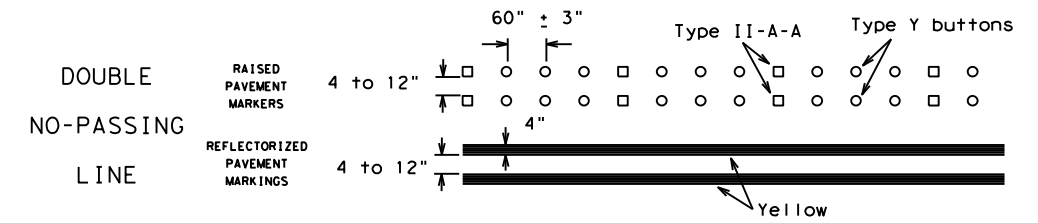
Prefabricated markings may be substituted for reflectORIZED pavement markings.



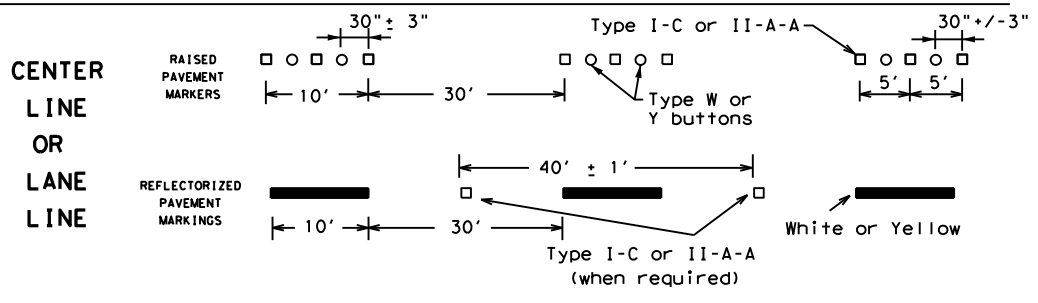
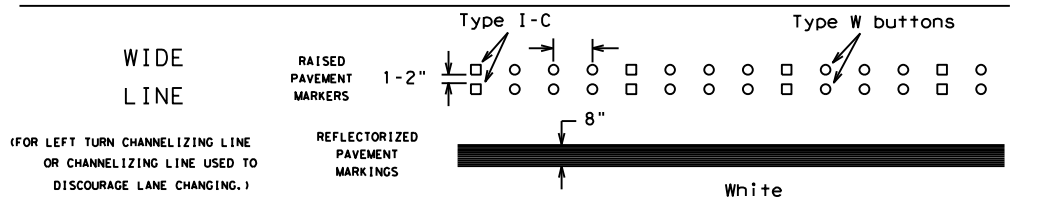
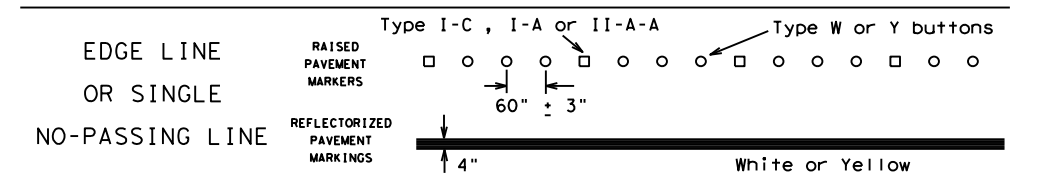
RAISED PAVEMENT MARKERS

TWO-WAY LEFT TURN LANE

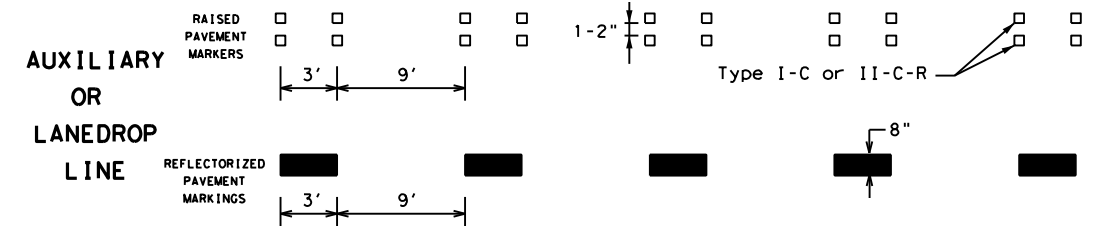
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS



SOLID LINES

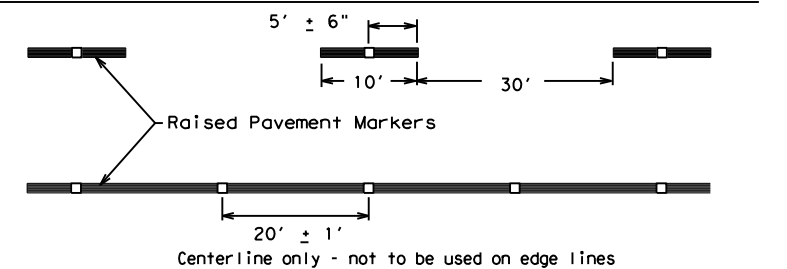


BROKEN LINES



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

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



SHEET 12 OF 12



BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

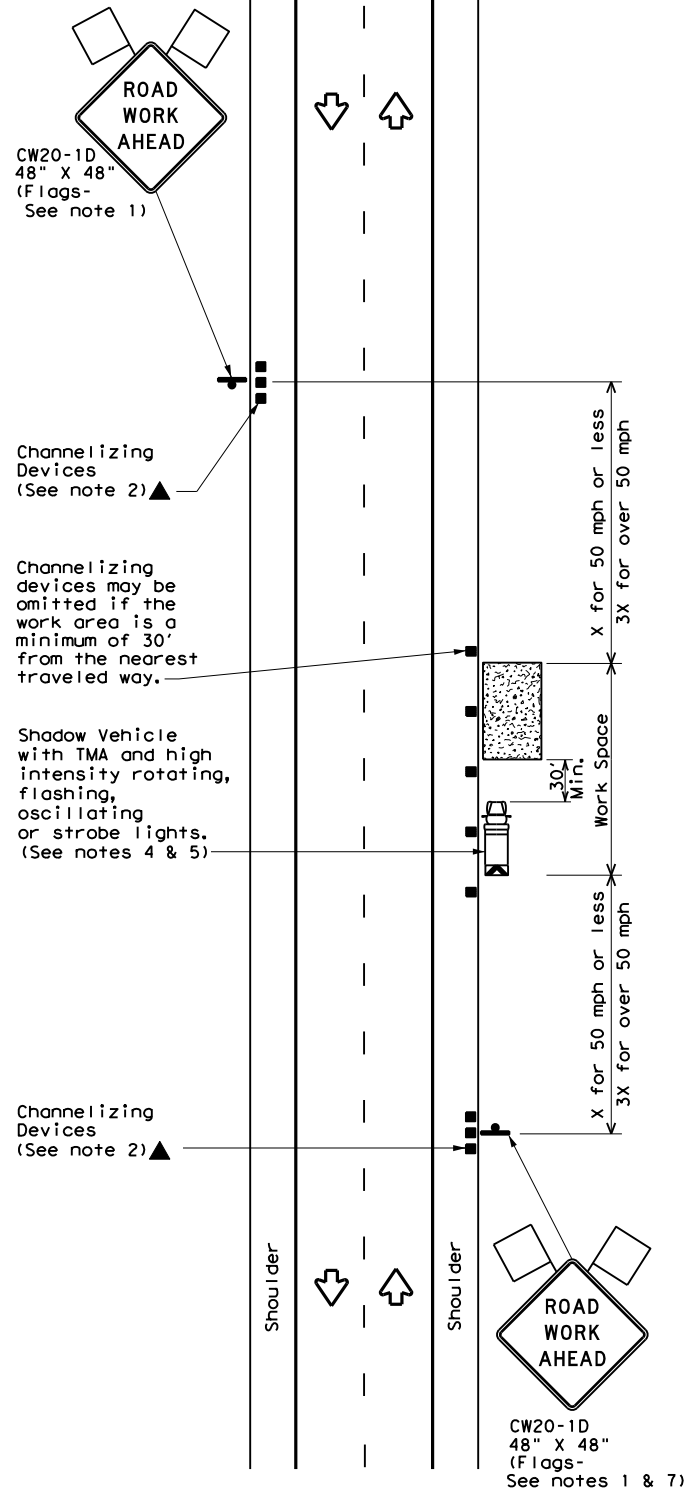
BC(12)-21

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11-02 8-14				

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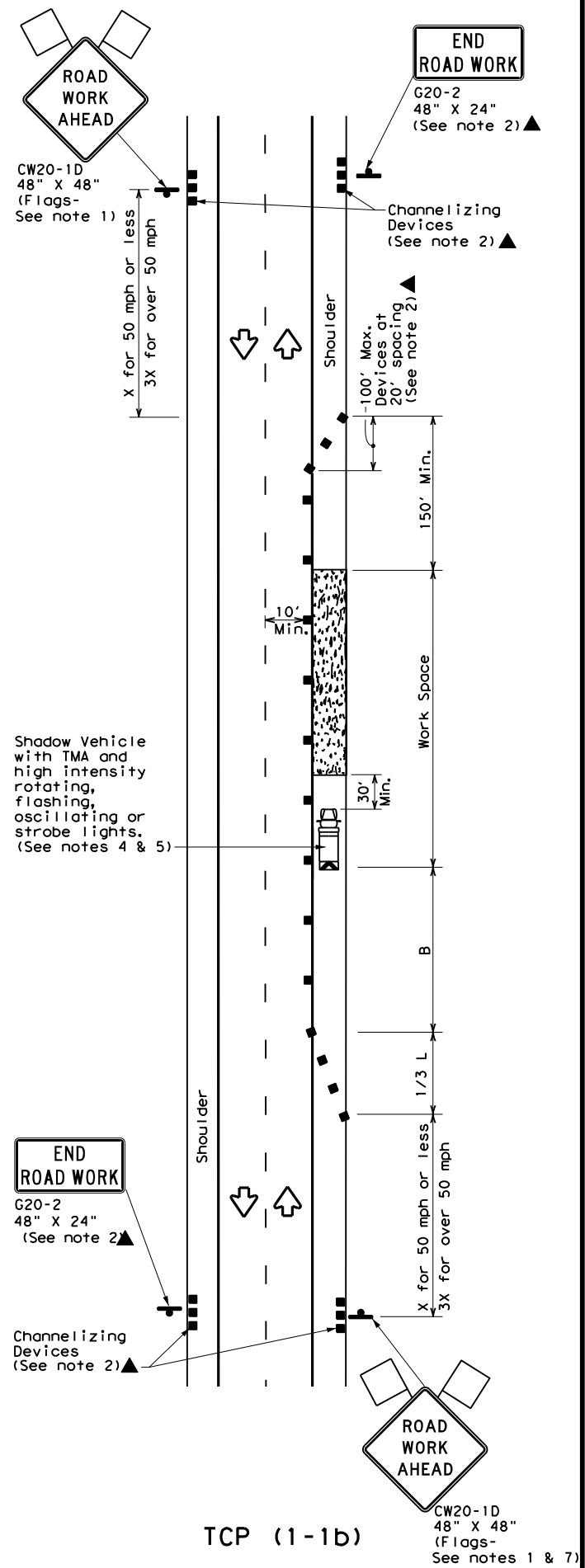
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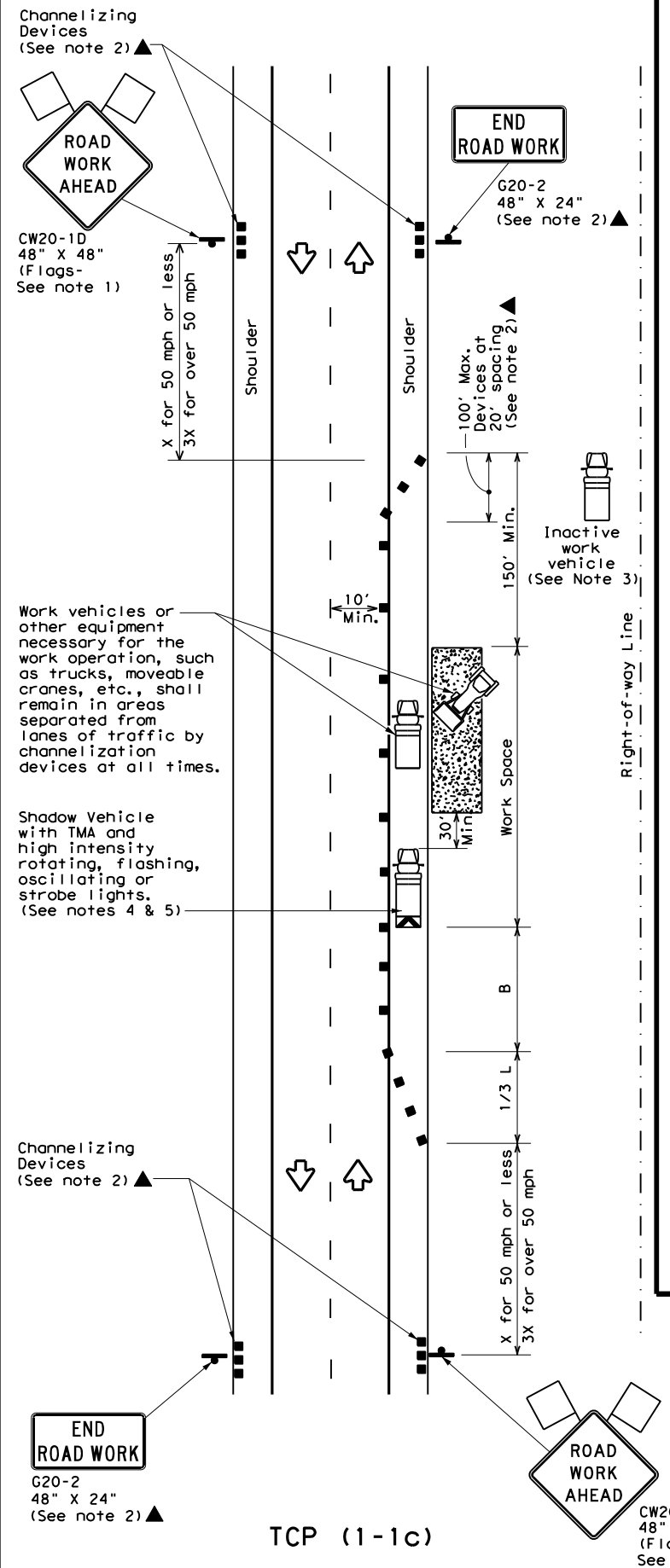
TCP (1-1a)

WORK SPACE NEAR SHOULDER
Conventional Roads



TCP (1-1b)

WORK SPACE ON SHOULDER
Conventional Roads



TCP (1-1c)

WORK VEHICLES ON SHOULDER
Conventional Roads

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

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

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

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

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

TRAFFIC CONTROL PLAN
CONVENTIONAL ROAD
SHOULDER WORK

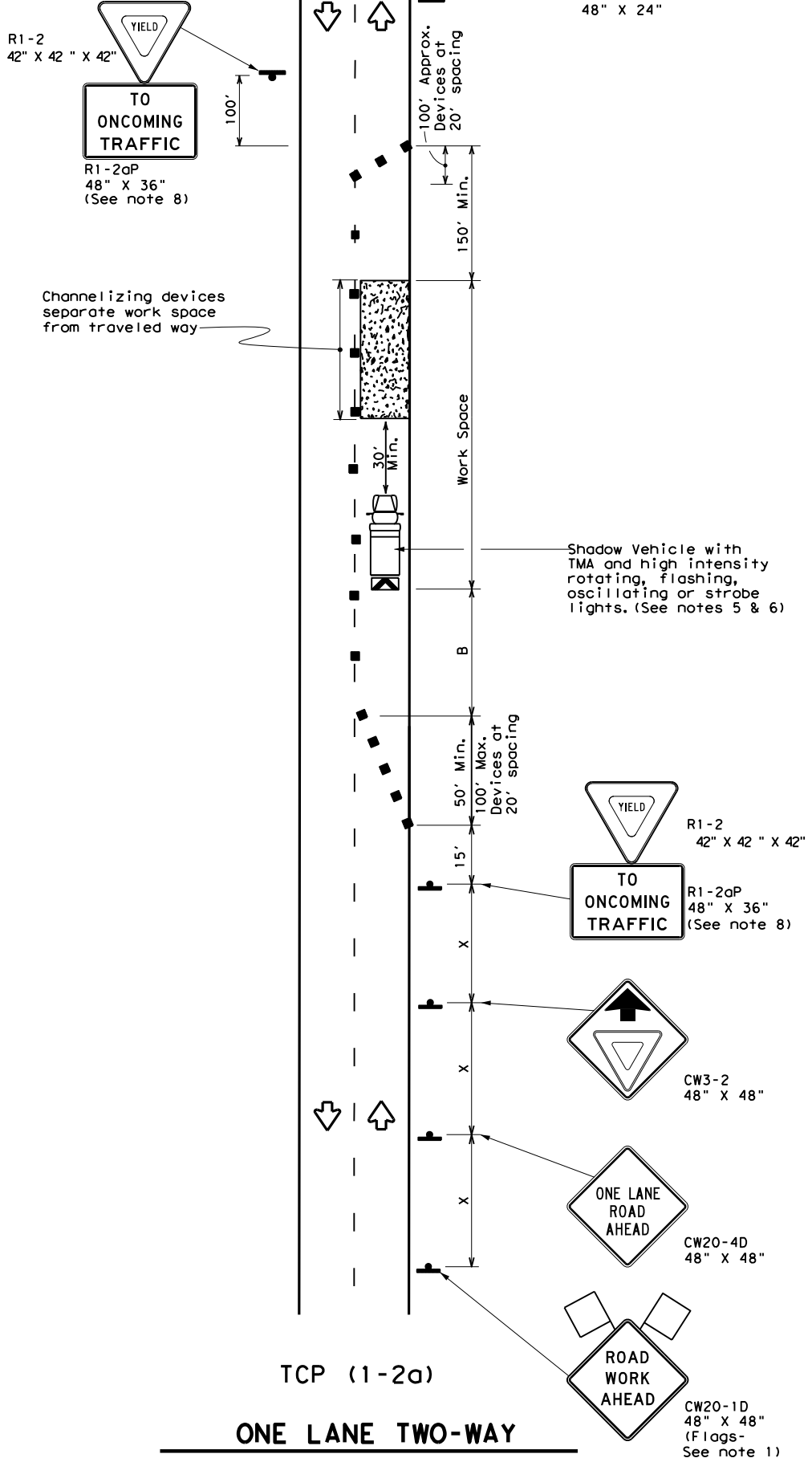
TCP (1-1) - 18

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© TxDOT December 1985	CON:	SECT:	JOB:	HIGHWAY:
REVISIONS	1607	01	057, ETC.	FM 1764
2-94 4-98	DIST:	COUNTY:	SHEET NO.:	
8-95 2-12	HOU:	GALVESTON	105	
1-97 2-18				

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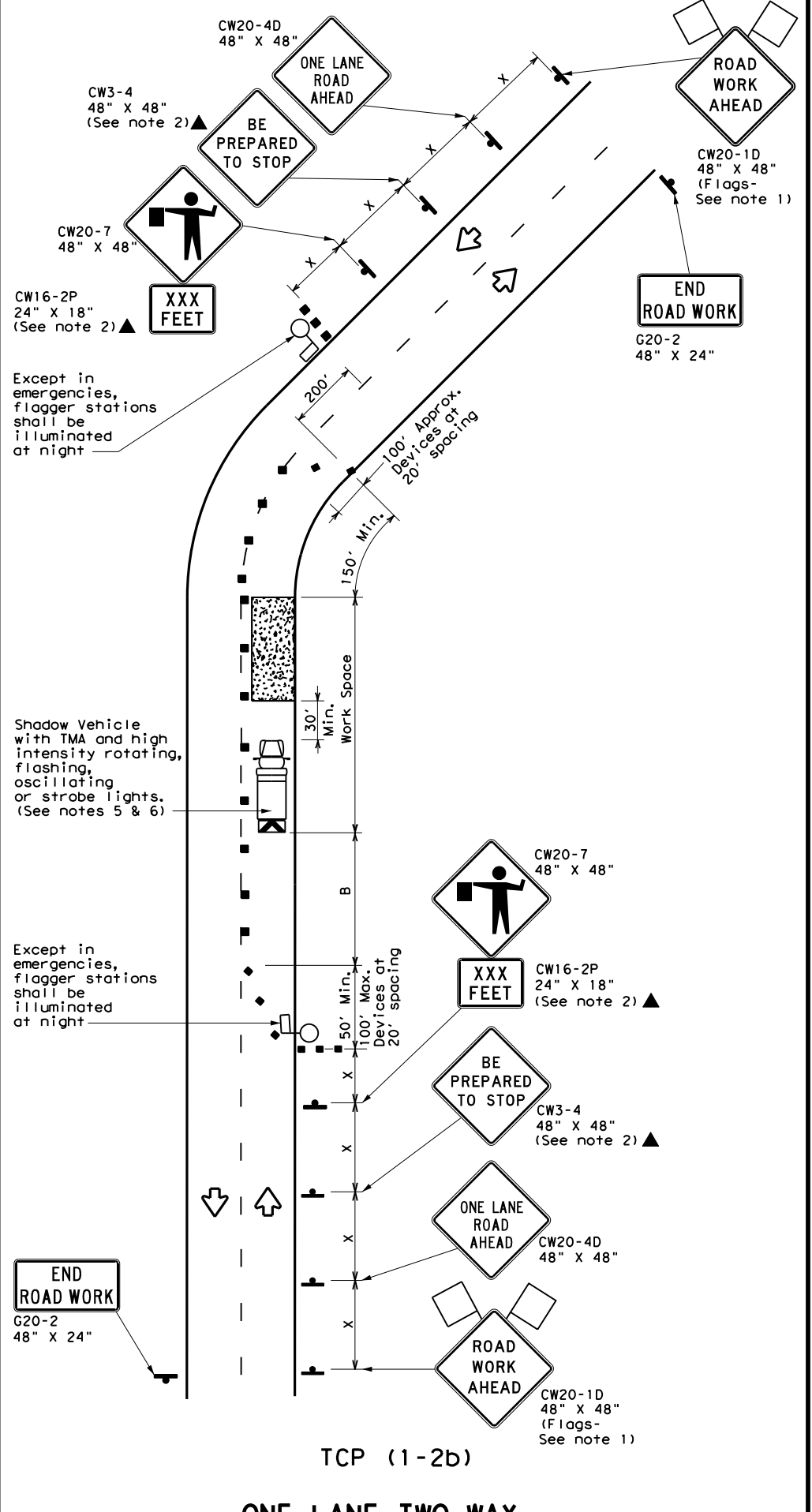
DATE: FILE:

Warning Sign Sequence in Opposite Direction Same as Below



TCP (1-2a)

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



TCP (1-2b)

ONE LANE TWO-WAY CONTROL WITH FLAGGERS

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

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

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

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

GENERAL NOTES

- Flags attached to signs where shown are REQUIRED.
- All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
- The CW3-4 "BE PREPARED TO STOP" sign may be installed after the CW20-4D "ONE LANE ROAD AHEAD" sign, but proper sign spacing shall be maintained.
- Sign spacing may be increased or an additional CW20-1D "ROAD WORK AHEAD" sign may be used if advance warning ahead of the flagger or R1-2 "YIELD" sign is less than 150 feet.
- A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
- Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.

TCP (1-2a)

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

TCP (1-2b)

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



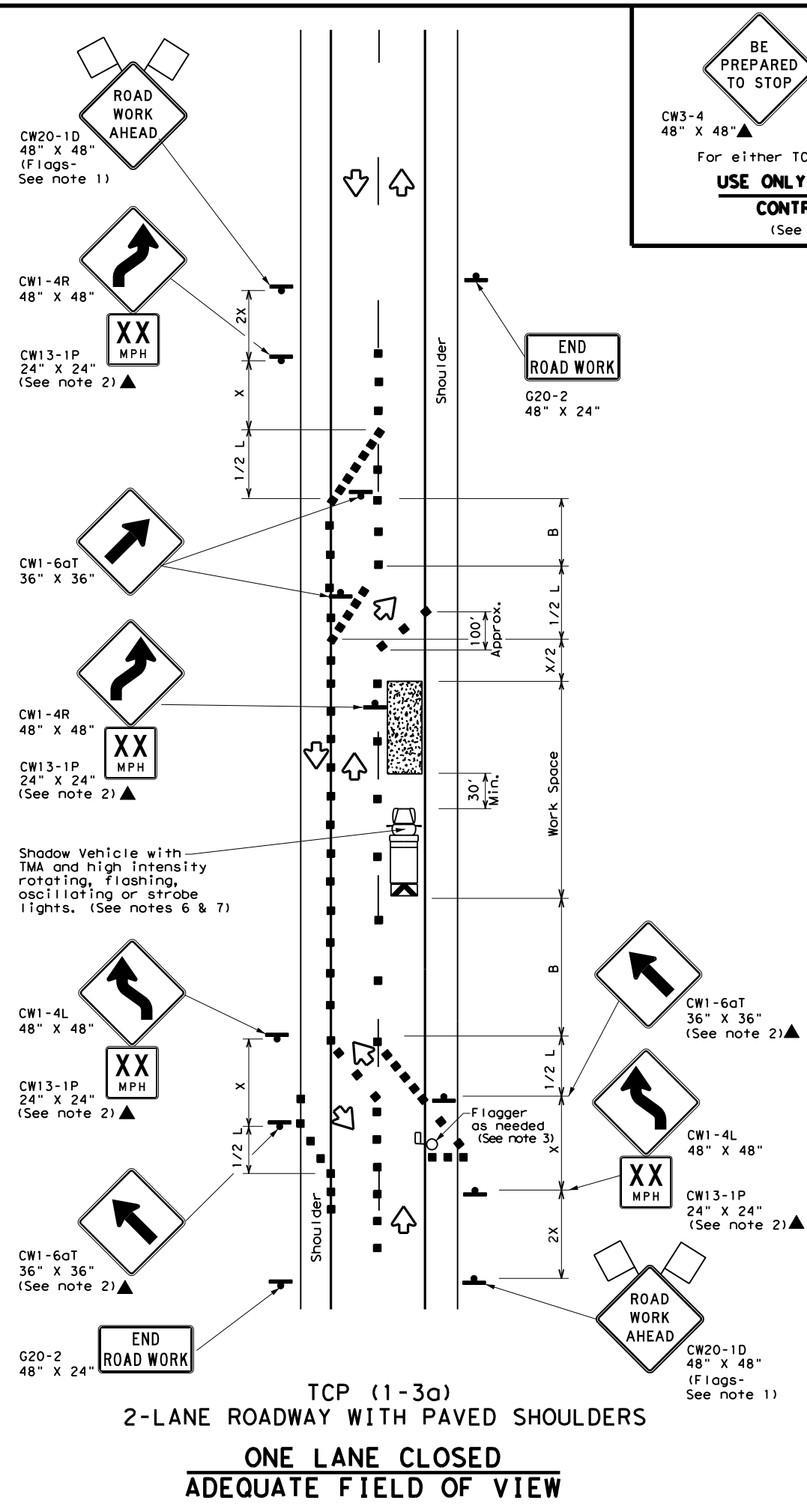
TRAFFIC CONTROL PLAN
ONE-LANE TWO-WAY
TRAFFIC CONTROL

TCP (1-2) - 18

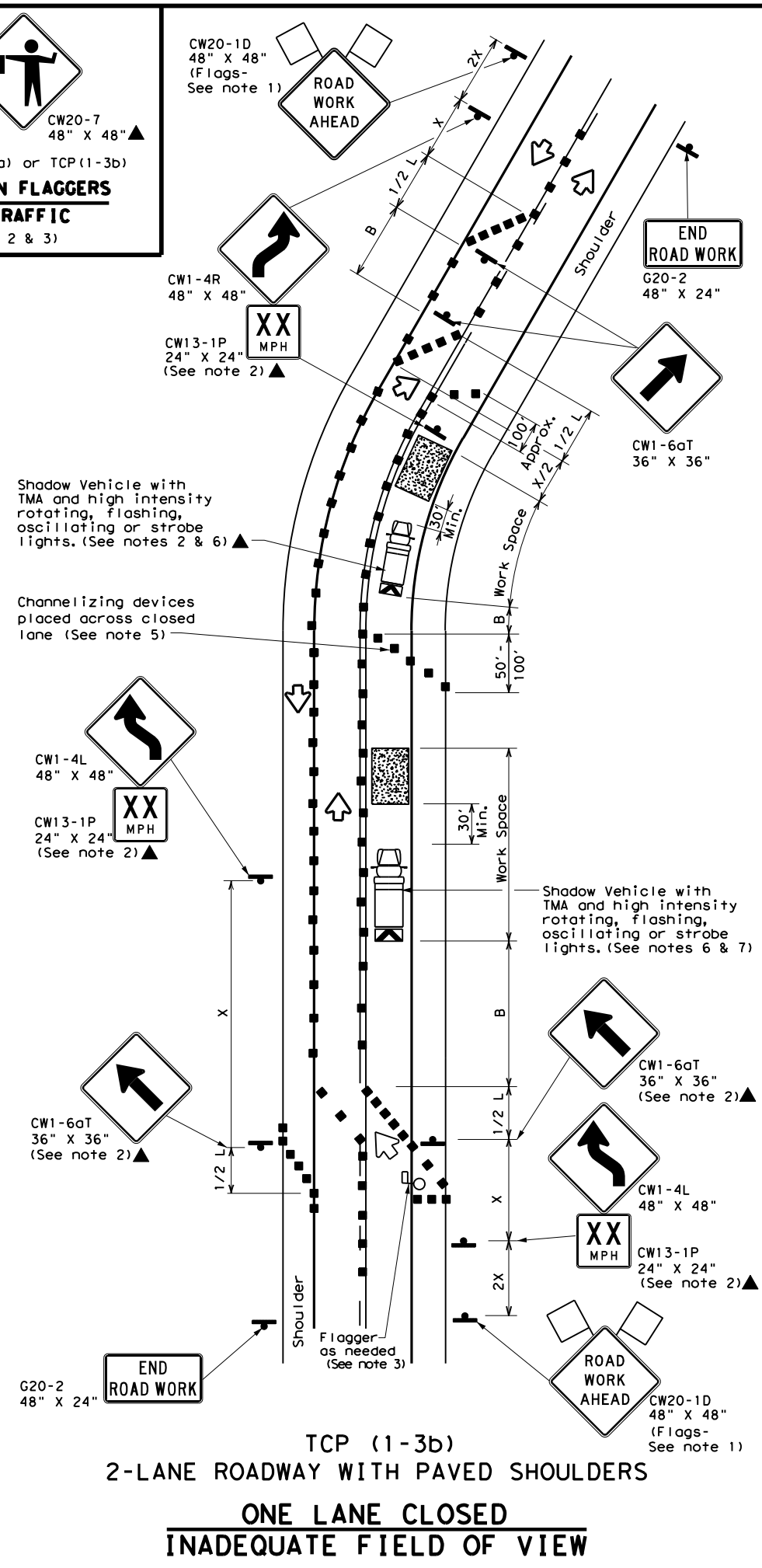
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© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607	01	057, ETC.	FM 1764
4-90 4-98	DIST	COUNTY	SHEET NO.	
2-94 2-12	HOU	GALVESTON	106	
1-97 2-18				

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DATE: FILE:



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)



LEGEND

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

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

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

TYPICAL USAGE

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

- GENERAL NOTES**
- Flags attached to signs where shown are REQUIRED.
 - All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
 - 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.
 - DO NOT PASS, PASS WITH CARE and construction regulatory speed zone signs may be installed downstream of the ROAD WORK AHEAD signs.
 - 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.
 - A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
 - Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.
 - Where traffic is directed over a yellow centerline, channelizing devices which separate two-way traffic should be spaced on tapers at 20', or 15' if posted speed are 35 mph or slower, and for tangent sections, at 1/2S where S is the speed in mph. This tighter device spacing is intended for the area of conflicting markings not the entire work zone.

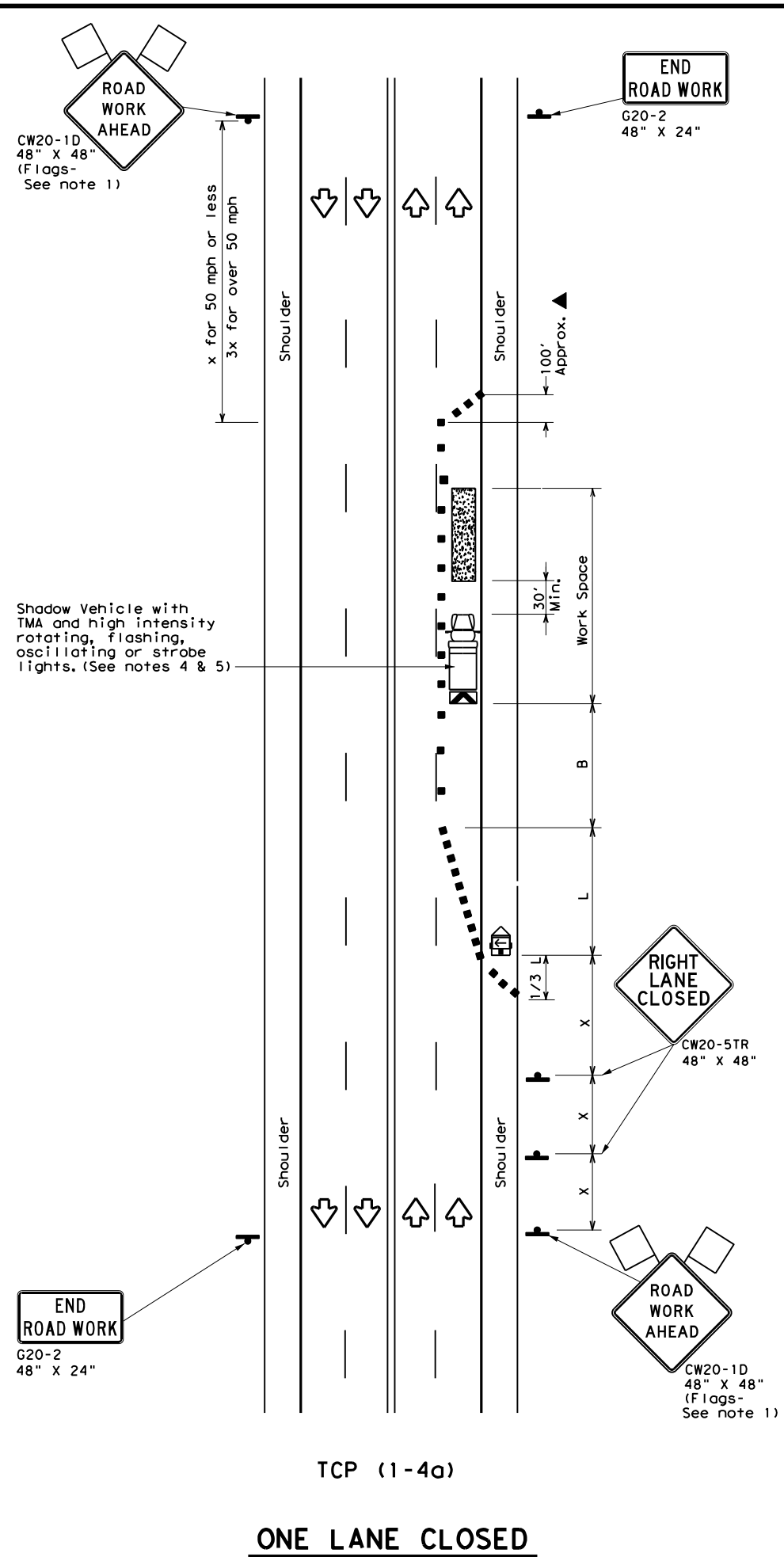
Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
TRAFFIC SHIFTS ON
TWO LANE ROADS
TCP(1-3)-18

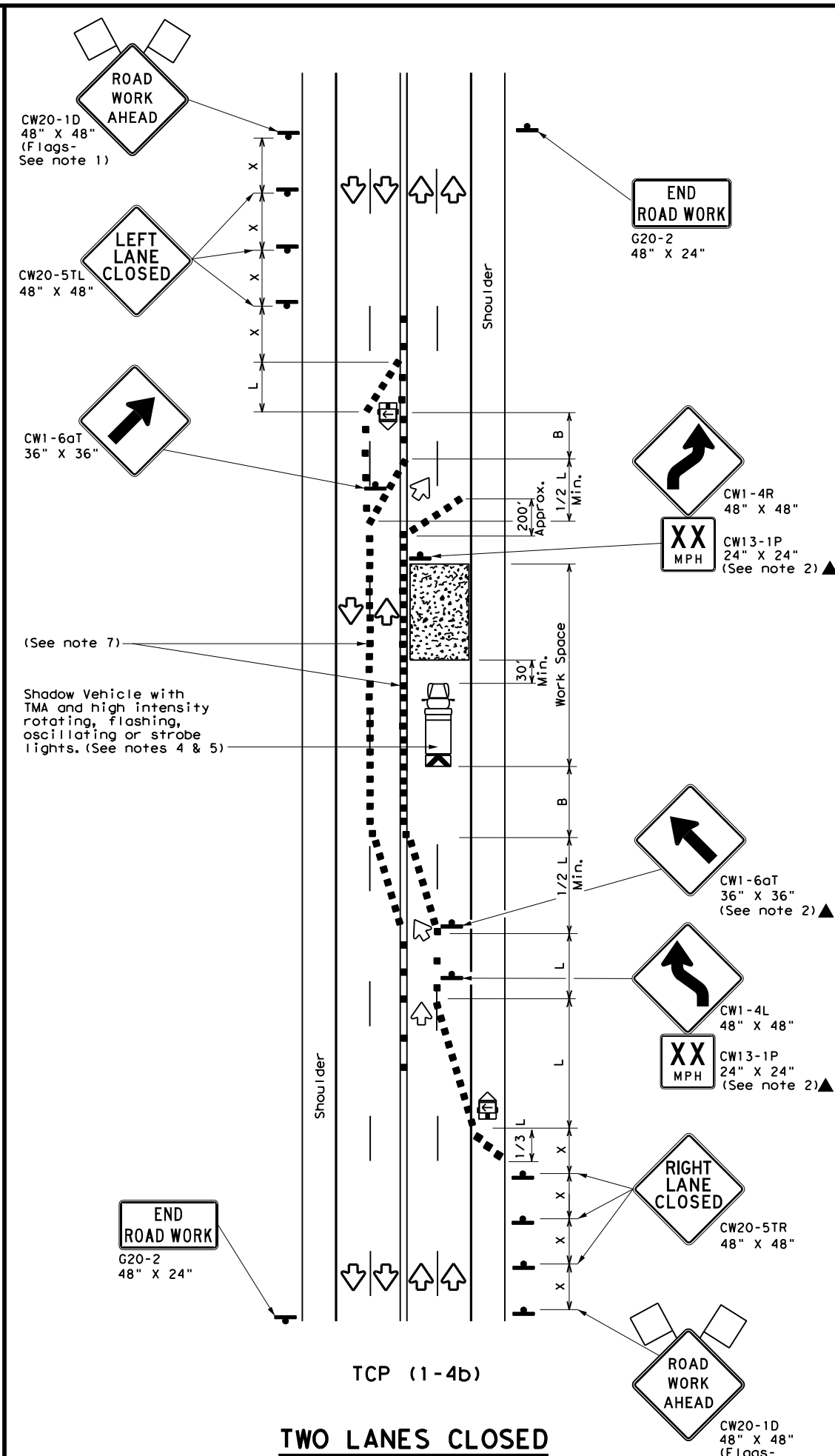
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© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607	01	057, ETC.	FM 1764
2-94 4-98	DIST	COUNTY	SHEET NO.	
8-95 2-12	HOU	GALVESTON	107	
1-97 2-18				

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TCP (1-4a)
ONE LANE CLOSED



TCP (1-4b)
TWO LANES CLOSED

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

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

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

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

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

TCP (1-4a)

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

TCP (1-4b)

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

Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS

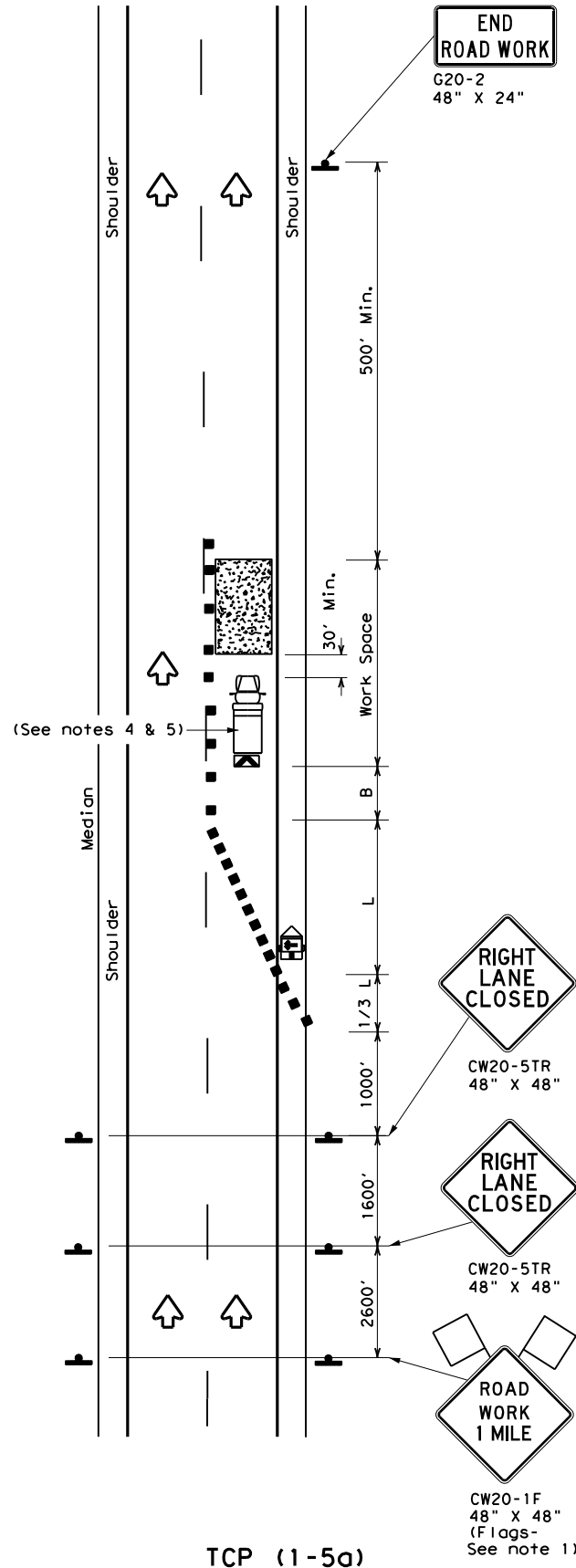
TCP (1-4) - 18

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© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
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2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 2-12	HOU	GALVESTON		108
1-97 2-18				

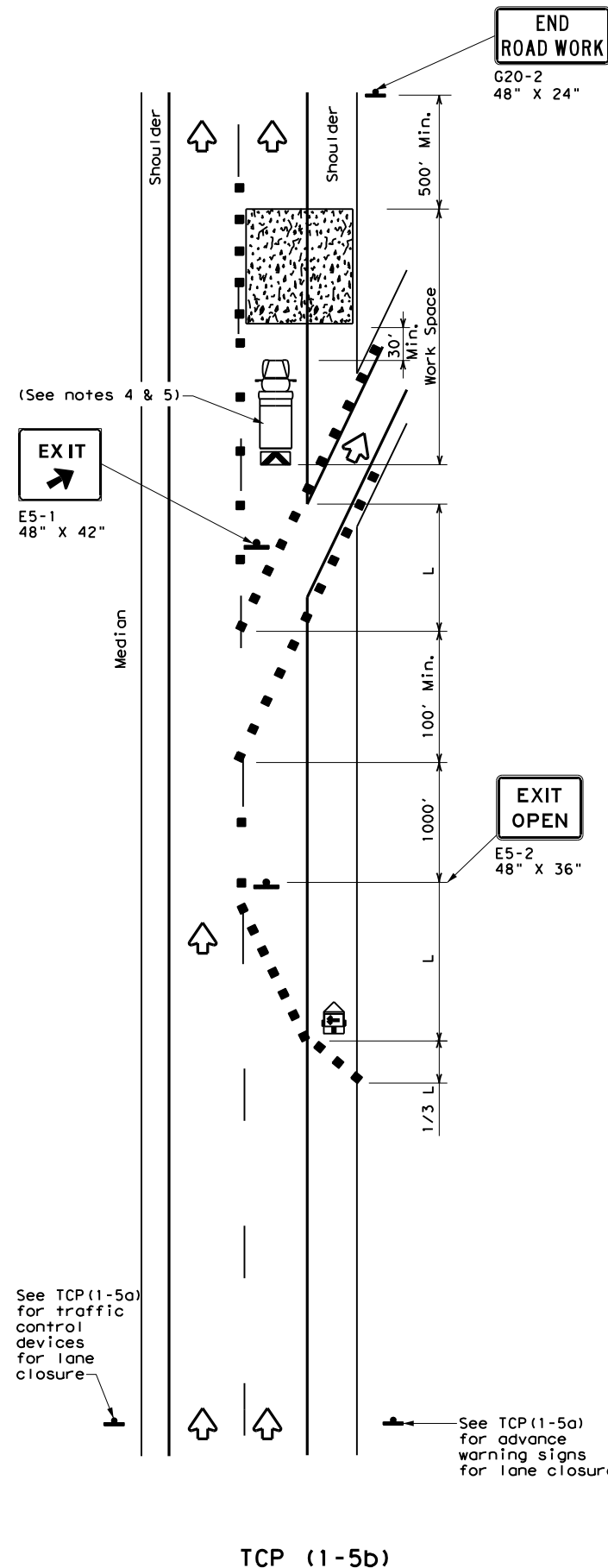
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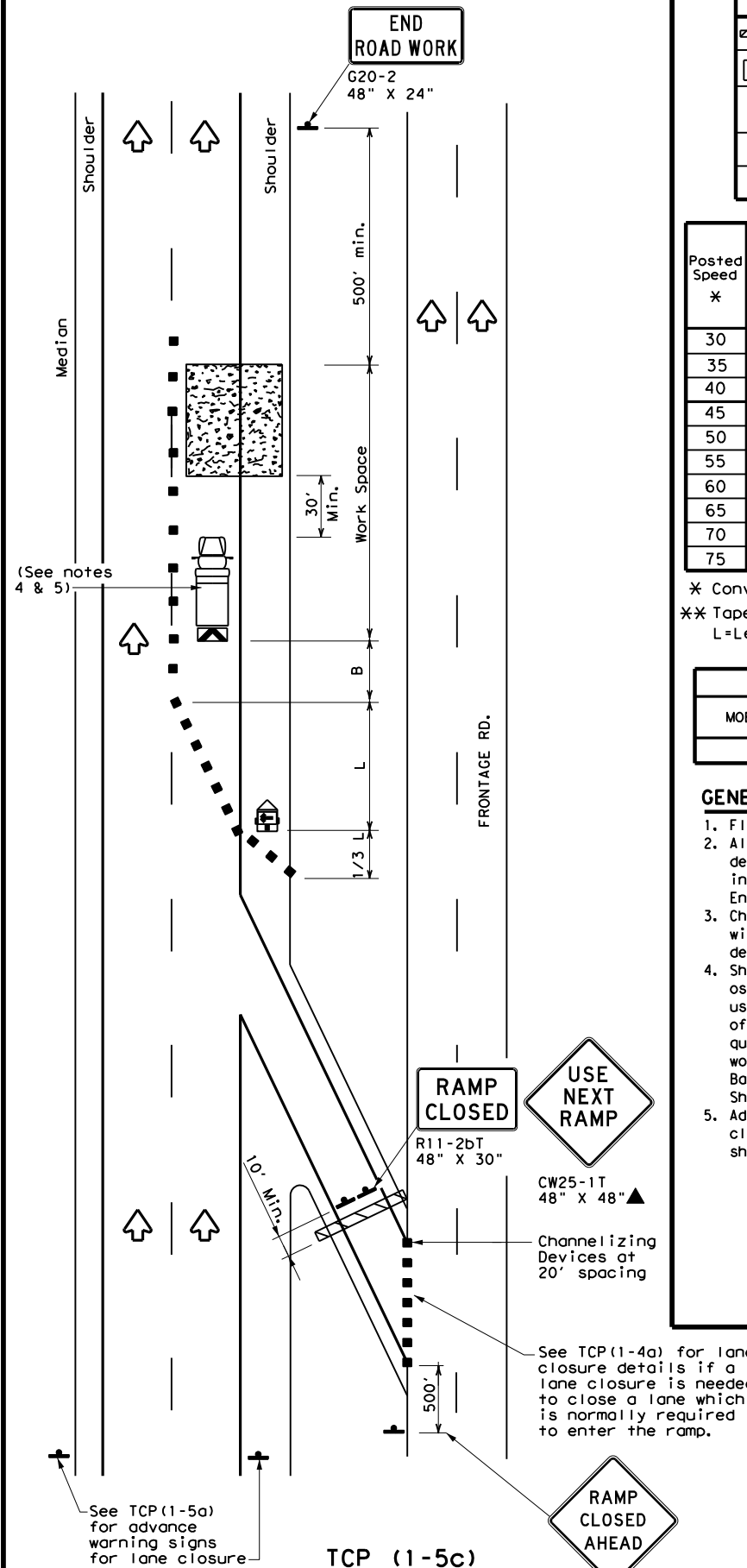
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ONE LANE CLOSURE



LANE CLOSURE NEAR EXIT RAMP



LANE CLOSURE NEAR ENTRANCE RAMP

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

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

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

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

GENERAL NOTES

- Flags attached to signs where shown, are REQUIRED.
- All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
- Channelizing devices used to close lanes may be supplemented with the Chevron Alignment Sign placed on every other channelizing device. Chevrons may be attached to plastic drums as per BC Standards.
- 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.
- Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.

Texas Department of Transportation
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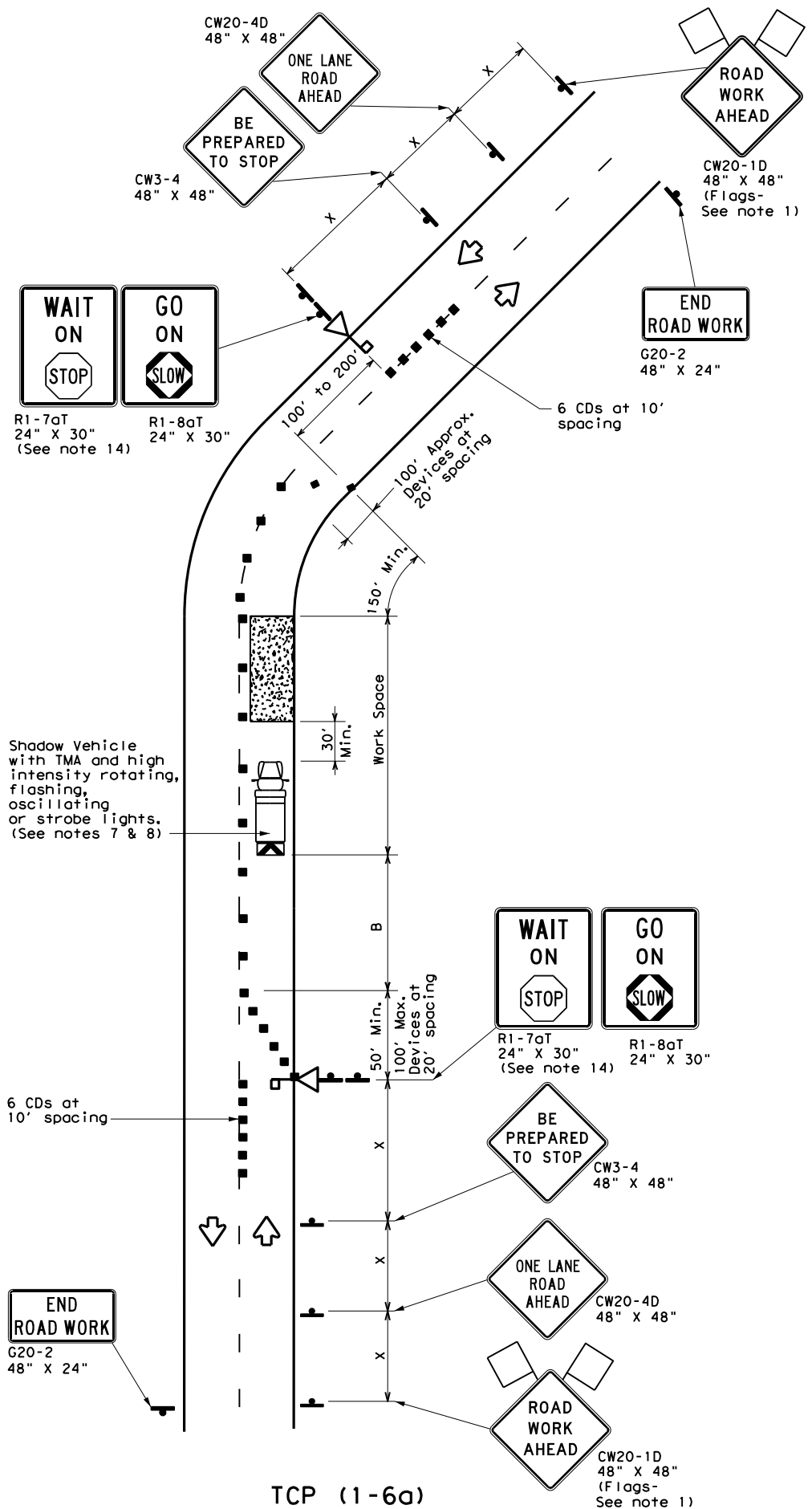
**TRAFFIC CONTROL PLAN
LANE CLOSURES FOR
DIVIDED HIGHWAYS**

TCP (1-5) - 18

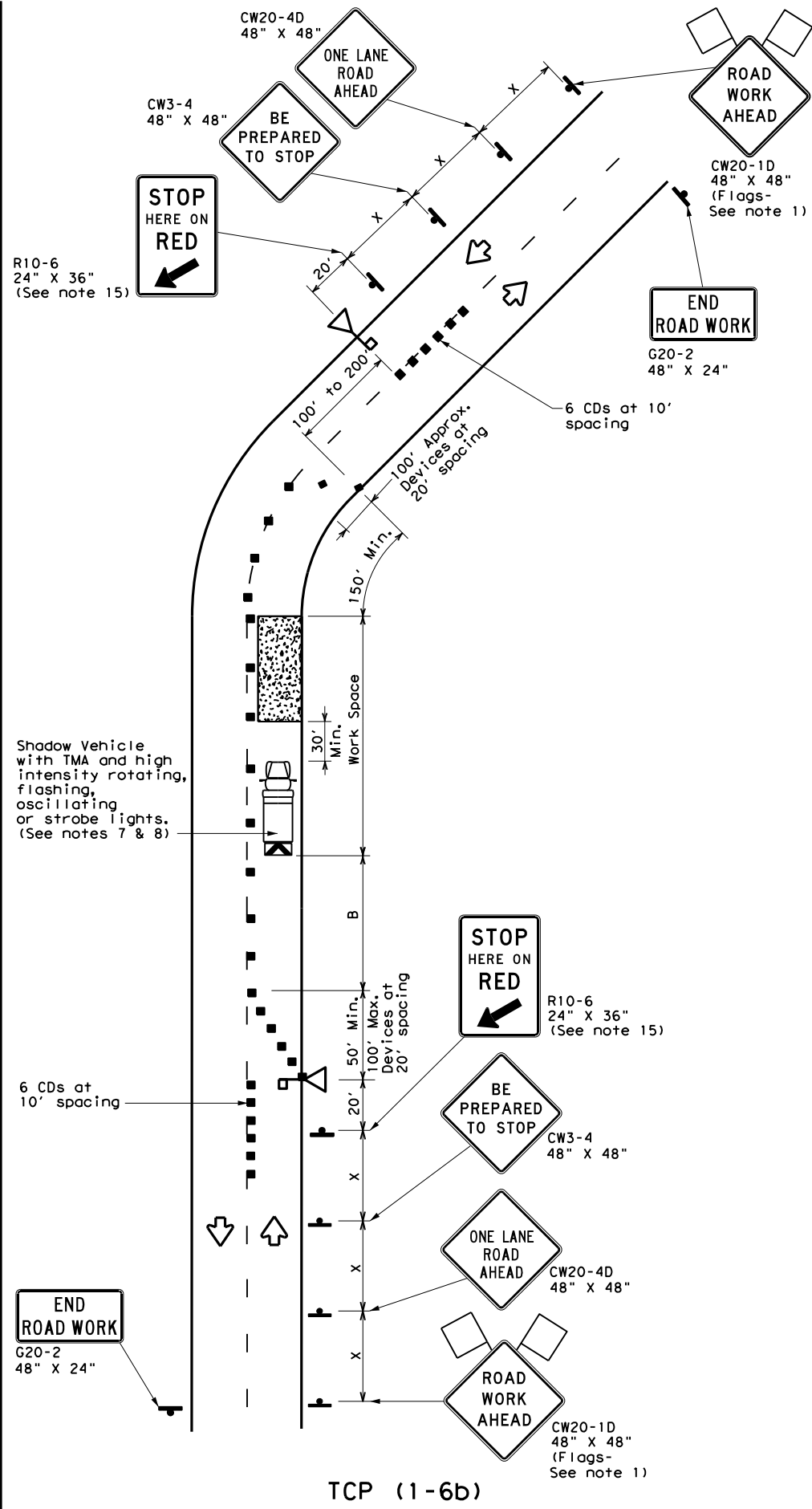
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© TxDOT February 2012	CONT	SECT	JOB	HIGHWAY
2-18	REVISIONS	1607 01	057, ETC.	FM 1764
	DIST	COUNTY	SHEET NO.	
	HOU	GALVESTON	109	

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TCP (1-6a)
ONE LANE TWO-WAY CONTROL WITH STOP/SLOW AFADs



TCP (1-6b)
ONE LANE TWO-WAY CONTROL WITH RED/YELLOW LENS AFADs

LEGEND			
	Type 3 Barricade		Channelizing Devices (CDs)
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Automated Flagger Assistance Device (AFAD)		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

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

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

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

GENERAL NOTES

- Flags attached to signs where shown are REQUIRED.
- AFADs shall only be used in situations where there is one lane of approaching traffic in the direction to be controlled.
- Adequate stopping sight distance must be provided to each AFAD location for approaching traffic. (See table above).
- Each AFAD shall be operated by a qualified/certified flagger. Flaggers operating AFADs shall not leave them unattended while they are in use.
- One flagger may operate two AFADs only when the flagger has an unobstructed view of both AFADs and of the approaching traffic in both directions.
- When pilot cars are used, a flagger controlling traffic shall be located on each approach. AFADs shall not be operated by the pilot car operator.
- All AFADs shall be equipped with gate arms with an orange or fluorescent red-orange flag attached to the end of the gate arm. The flag shall be a minimum of 16" square.
- A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
- Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.
- Flaggers should use two-way radios or other methods of communication to control traffic.
- Length of work space should be based on the ability of flaggers to communicate.
- If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain stopping sight distance to the AFAD.
- Channelizing devices on the center line may be omitted when a pilot car is leading traffic and approved by the Engineer.
- The R1-7aT "WAIT ON STOP" sign and the R1-8aT "GO ON SLOW" sign shall be installed at the AFAD location on separate supports or they may be fabricated as one 48" x 30" sign. They shall not obscure the face of the STOP/SLOW AFAD.
- The R10-6 "STOP HERE ON RED" arrow sign shall be offset so as not to obscure the lenses of the AFAD.

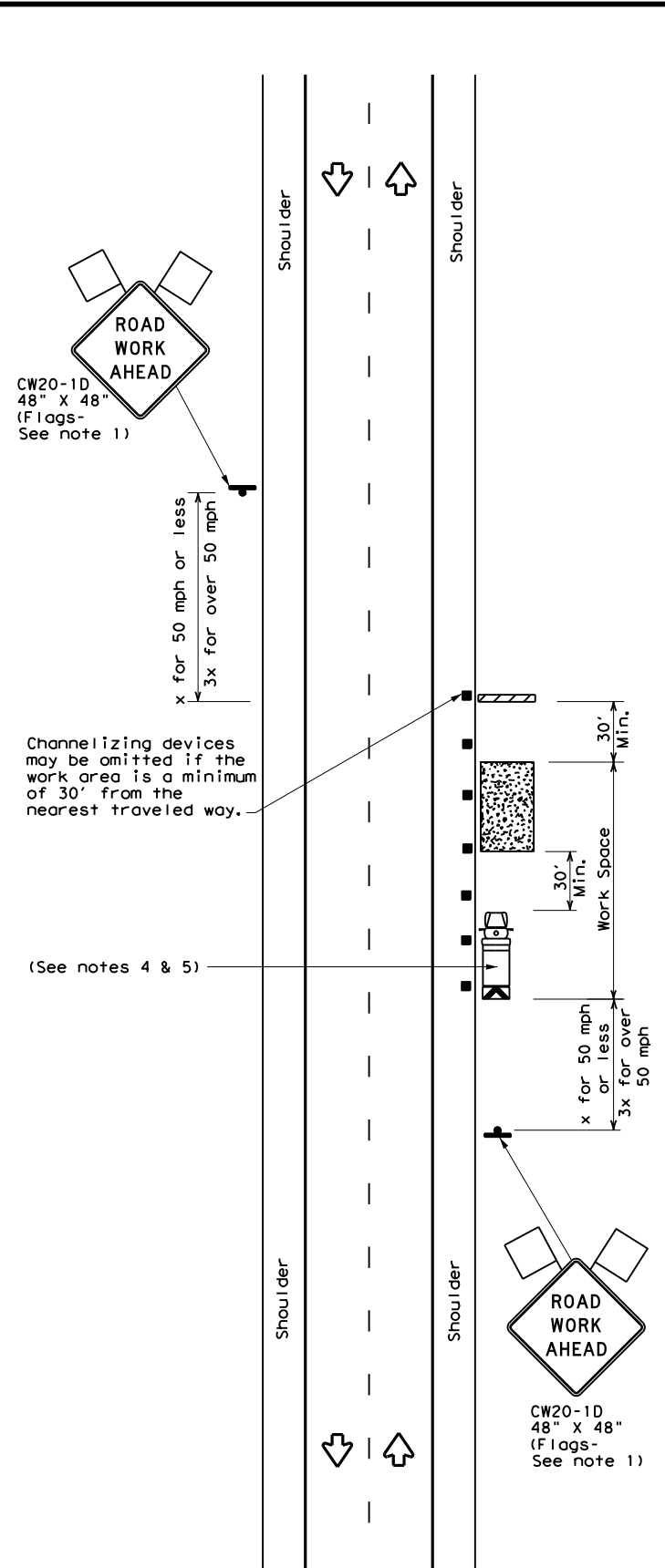
Texas Department of Transportation
 Traffic Operations Division Standard

**TRAFFIC CONTROL PLAN
 AUTOMATED FLAGGER ASSISTANCE DEVICES (AFADs)**

TCP (1-6)-18

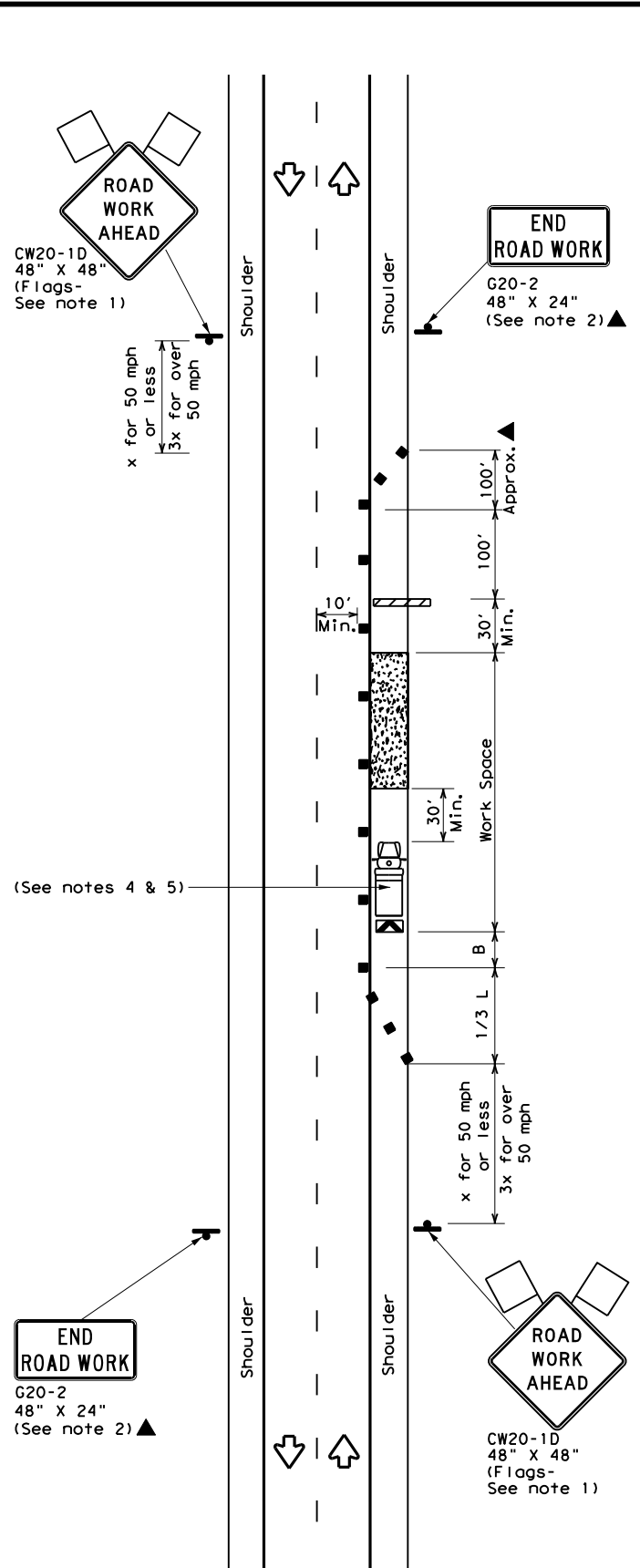
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© TxDOT February 2012	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607	01	057, ETC.	FM 1764
2-18	DIST	COUNTY	SHEET NO.	
	HOU	GALVESTON	110	

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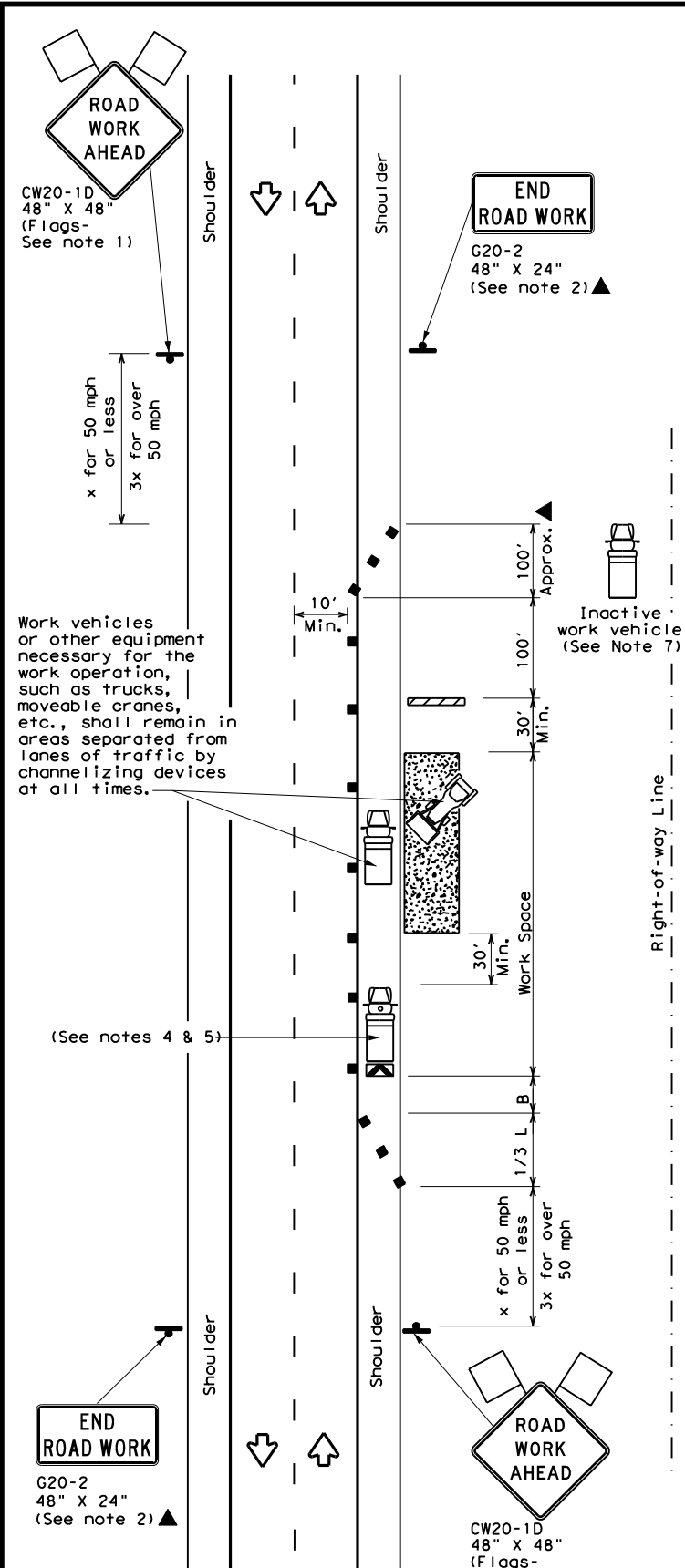
TCP (2-1a)

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

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

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

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

GENERAL NOTES

- Flags attached to signs where shown, are REQUIRED.
- All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated in the plans, or for routine maintenance work, when approved by the Engineer.
- Stockpiled material should be placed a minimum of 30 feet from nearest traveled way.
- 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.
- Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.
- See TCP(5-1) for shoulder work on divided highways, expressways and freeways.
- Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
- CW21-5 "SHOULDER WORK" signs may be used in place of CW20-1D "ROAD WORK AHEAD" signs for shoulder work on conventional roadways.



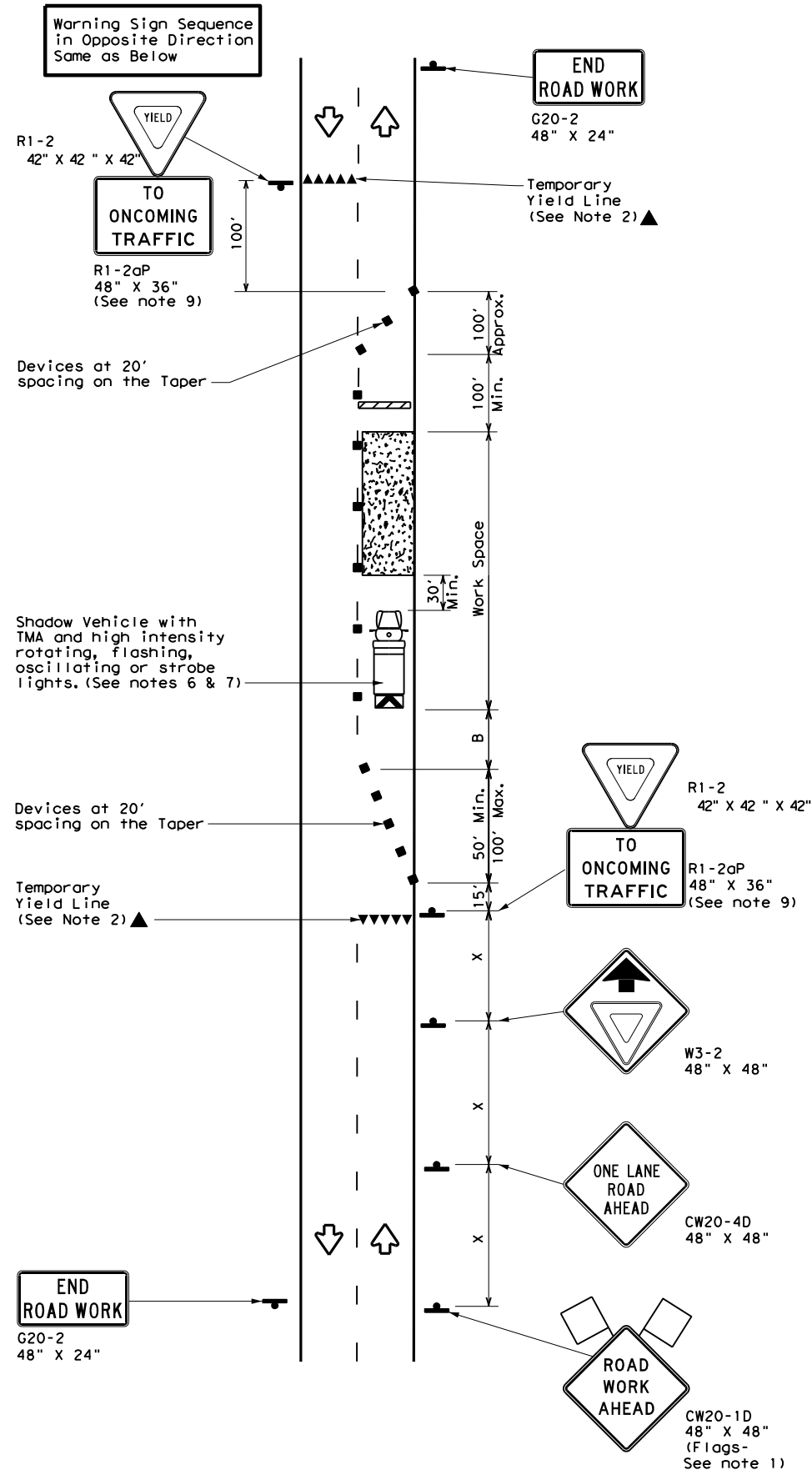
TRAFFIC CONTROL PLAN
CONVENTIONAL ROAD
SHOULDER WORK

TCP (2-1) - 18

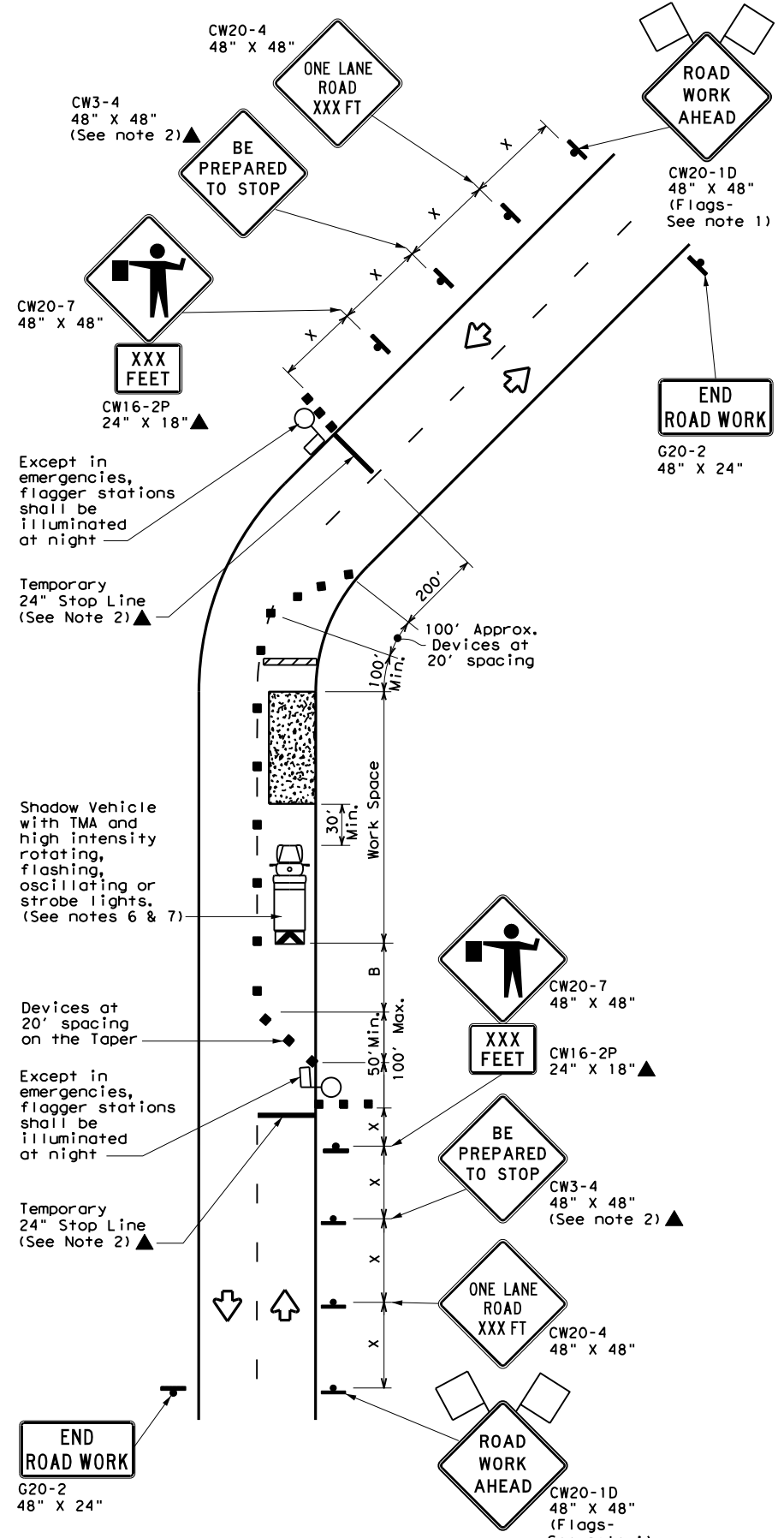
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© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607	01	057, ETC.	FM 1764
2-94 4-98	DIST	COUNTY	SHEET NO.	
8-95 2-12	HOU	GALVESTON	111	
1-97 2-18				

DATE:
FILE:

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



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

LEGEND

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

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

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

TYPICAL USAGE

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

GENERAL NOTES

- Flags attached to signs where shown, are REQUIRED.
 - All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
 - The CW3-4 "BE PREPARED TO STOP" sign may be installed after the CW20-4 "ONE LANE ROAD XXX FT" sign, but proper sign spacing shall be maintained.
 - Flaggers should use two-way radios or other methods of communication to control traffic.
 - Length of work space should be based on the ability of flaggers to communicate.
 - A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
 - Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.
- TCP (2-2a)**
- The R1-2 "YIELD" sign traffic control may be used on projects with approaches that have adequate sight distance. For projects in urban areas, work space should be no longer than one half city block. In rural areas, roadways with less than 2000 ADT, work space should be no longer than 400 feet.
 - The R1-2aP "YIELD TO ONCOMING TRAFFIC" sign shall be placed on a support at a 7 foot minimum mounting height.
- TCP (2-2b)**
- Channelizing devices on the center line may be omitted when a pilot car is leading traffic and approved by the Engineer.
 - If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain stopping sight distance to the flagger and a queue of stopped vehicles. (See table above).
 - Flaggers should use 24" STOP/SLOW paddles to control traffic. Flags should be limited to emergency situations.

Texas Department of Transportation Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
ONE-LANE TWO-WAY
TRAFFIC CONTROL

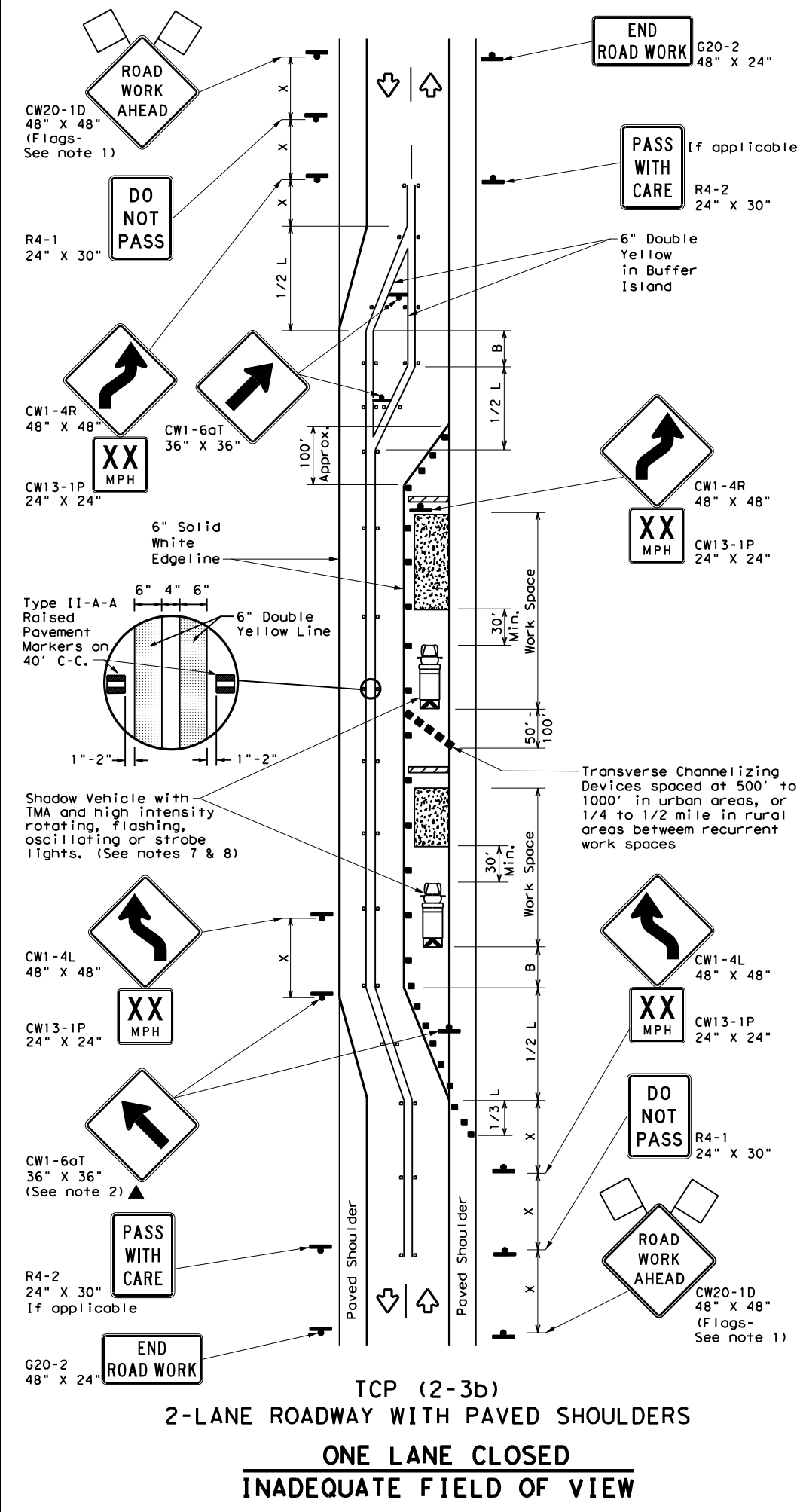
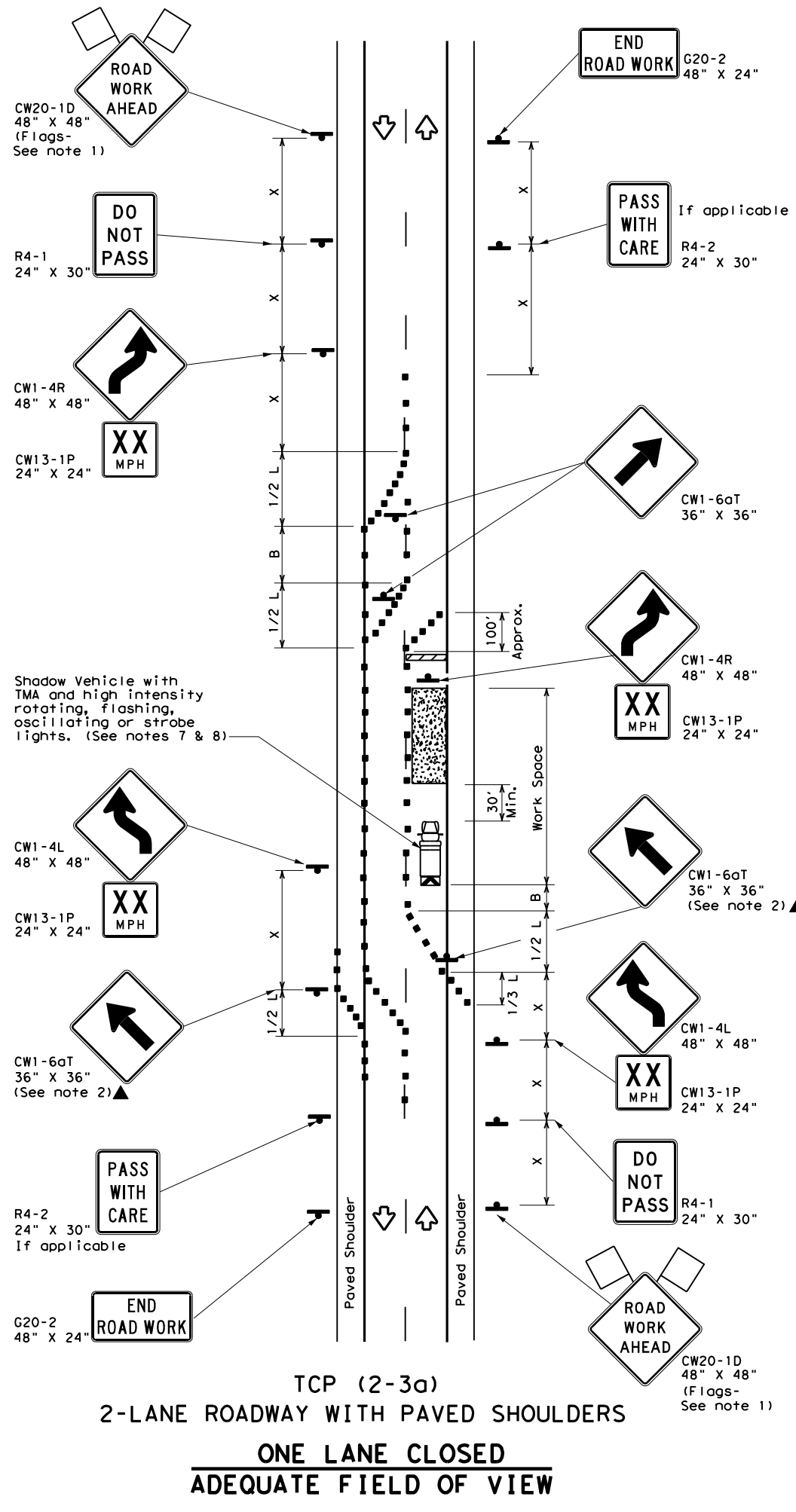
TCP (2-2) - 18

FILE: tcp2-2-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607	01	057, ETC.	FM 1764
8-95 3-03	DIST	COUNTY	SHEET NO.	
1-97 2-12	HOU	GALVESTON	112	
4-98 2-18				

DATE: FILE:

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DATE: FILE:



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

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

TYPICAL USAGE

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

TCP (2-3b) ONLY

- GENERAL NOTES**
- Flags attached to signs where shown, are REQUIRED.
 - All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
 - 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.
 - 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.
 - 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.
 - Conflicting pavement marking shall be removed for long term projects.
 - 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.
 - 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)**
- 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.



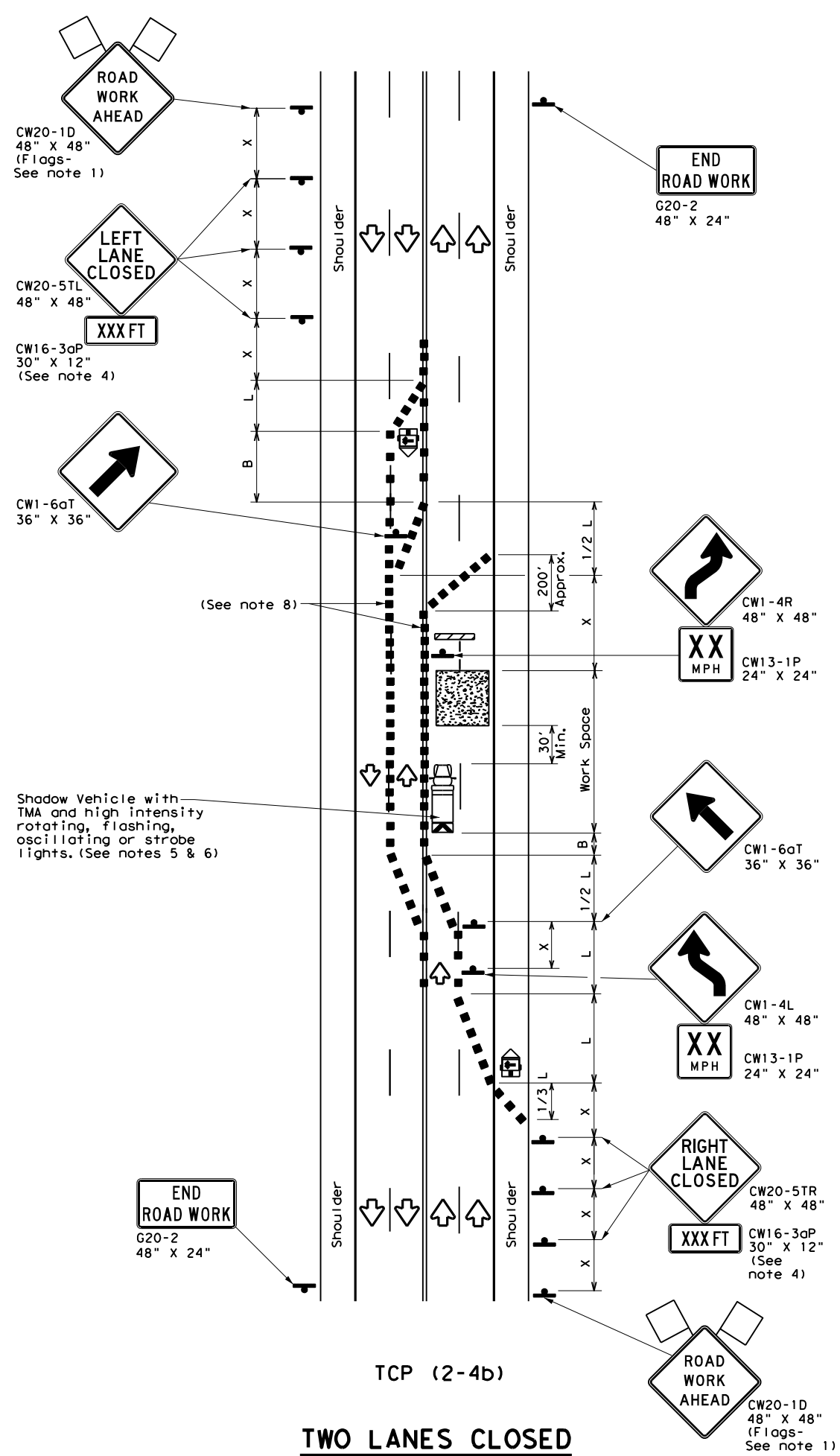
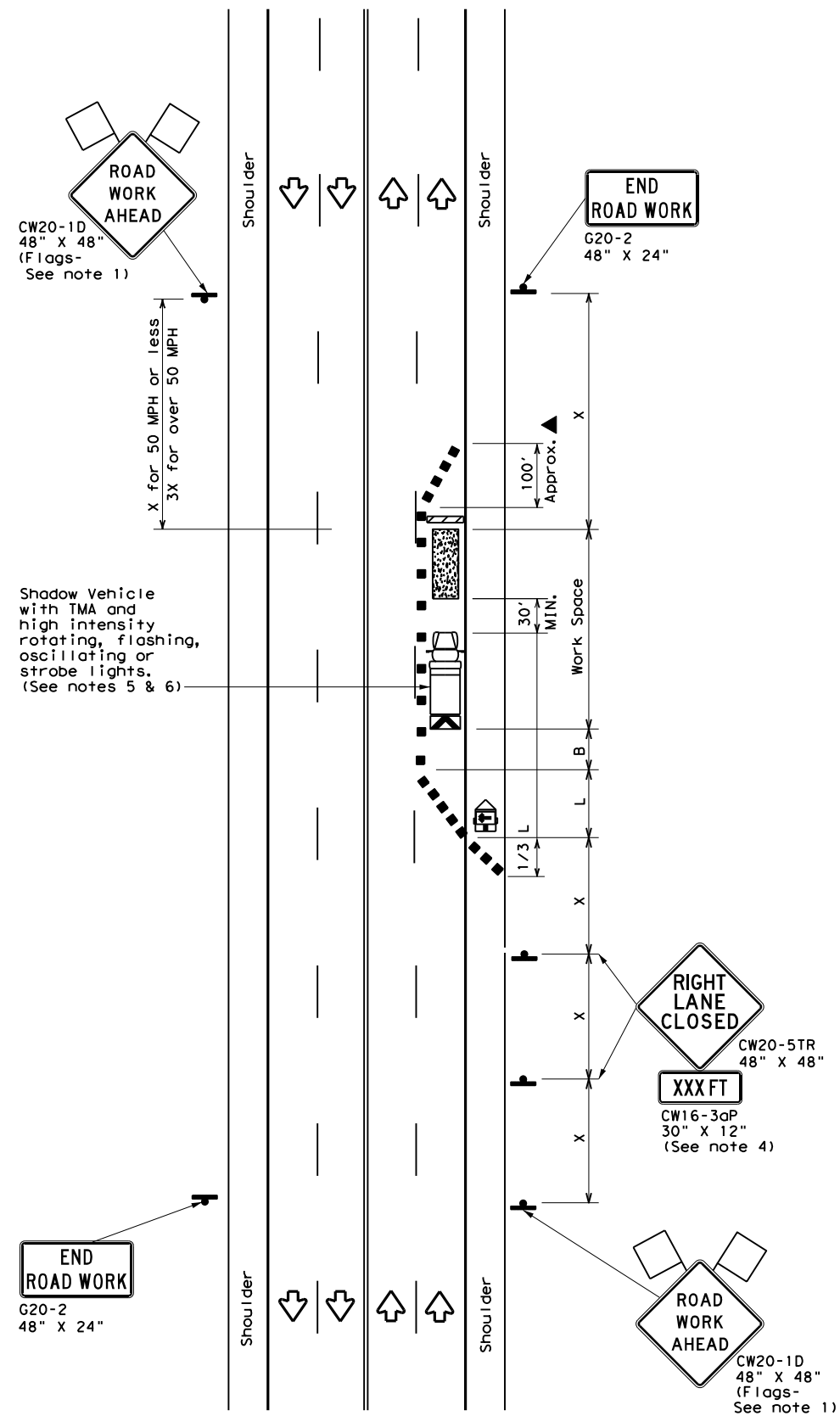
TRAFFIC CONTROL PLAN
TRAFFIC SHIFTS ON
TWO-LANE ROADS

TCP (2-3) - 23

FILE: tcp(2-3)-23.dgn	DN:	CK:	DW:	CK:
© TxDOT April 2023	CONT	SECT	JOB	HIGHWAY
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12-85 4-98 2-18	DIST	COUNTY	SHEET NO.	
8-95 3-03 4-23	HOU	GALVESTON	113	
1-97 2-12				

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DATE: FILE:



LEGEND

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

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

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

TYPICAL USAGE

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

GENERAL NOTES

- Flags attached to signs where shown, are REQUIRED.
- All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
- The downstream taper is optional. When used, it should be 100 feet minimum length per lane.
- 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.
- A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
- Additional Shadow Vehicles with TMAs may be positioned 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)

- 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)

- 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.



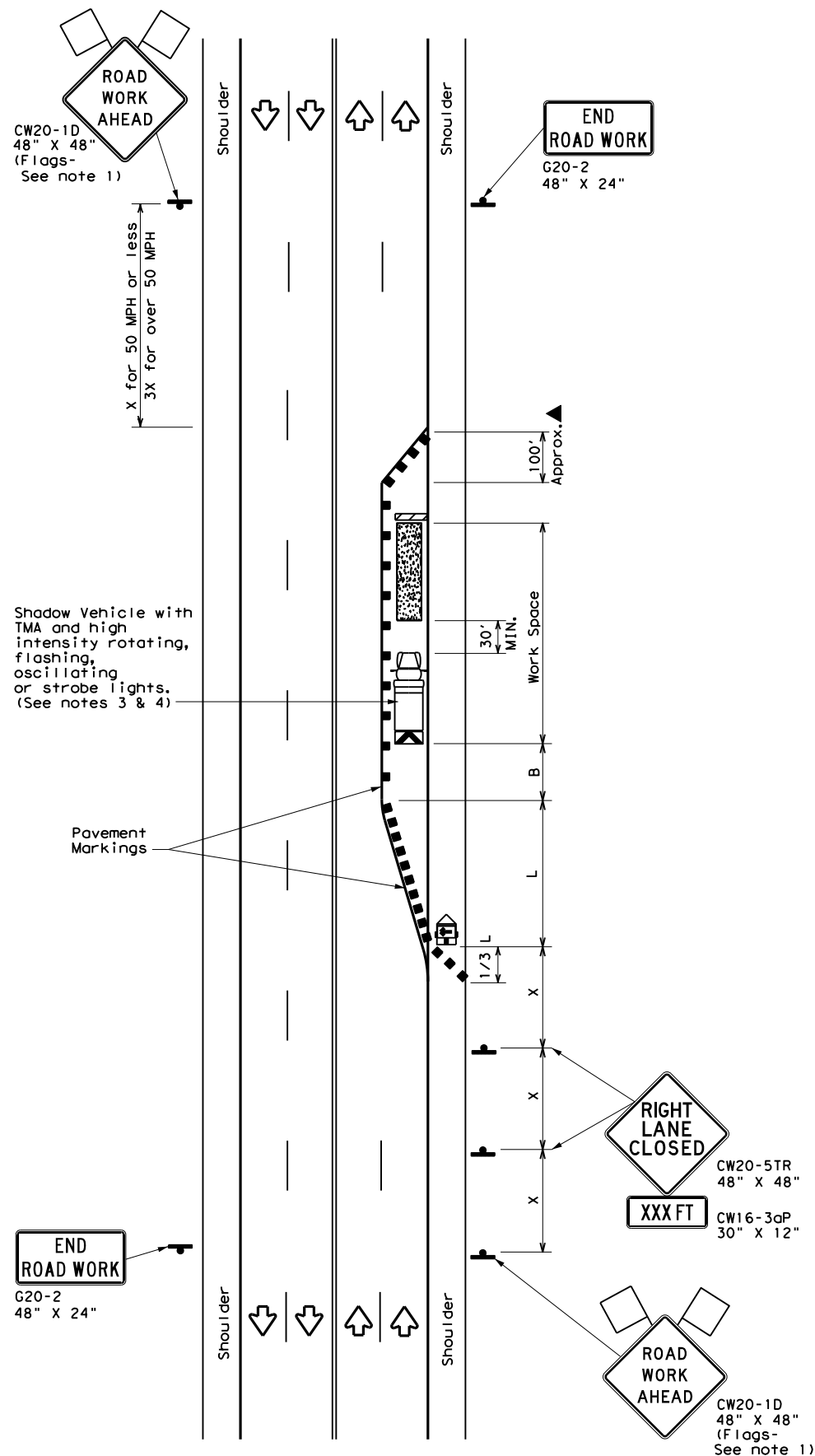
**TRAFFIC CONTROL PLAN
LANE CLOSURES ON MULTILANE
CONVENTIONAL ROADS**

TCP (2-4) - 18

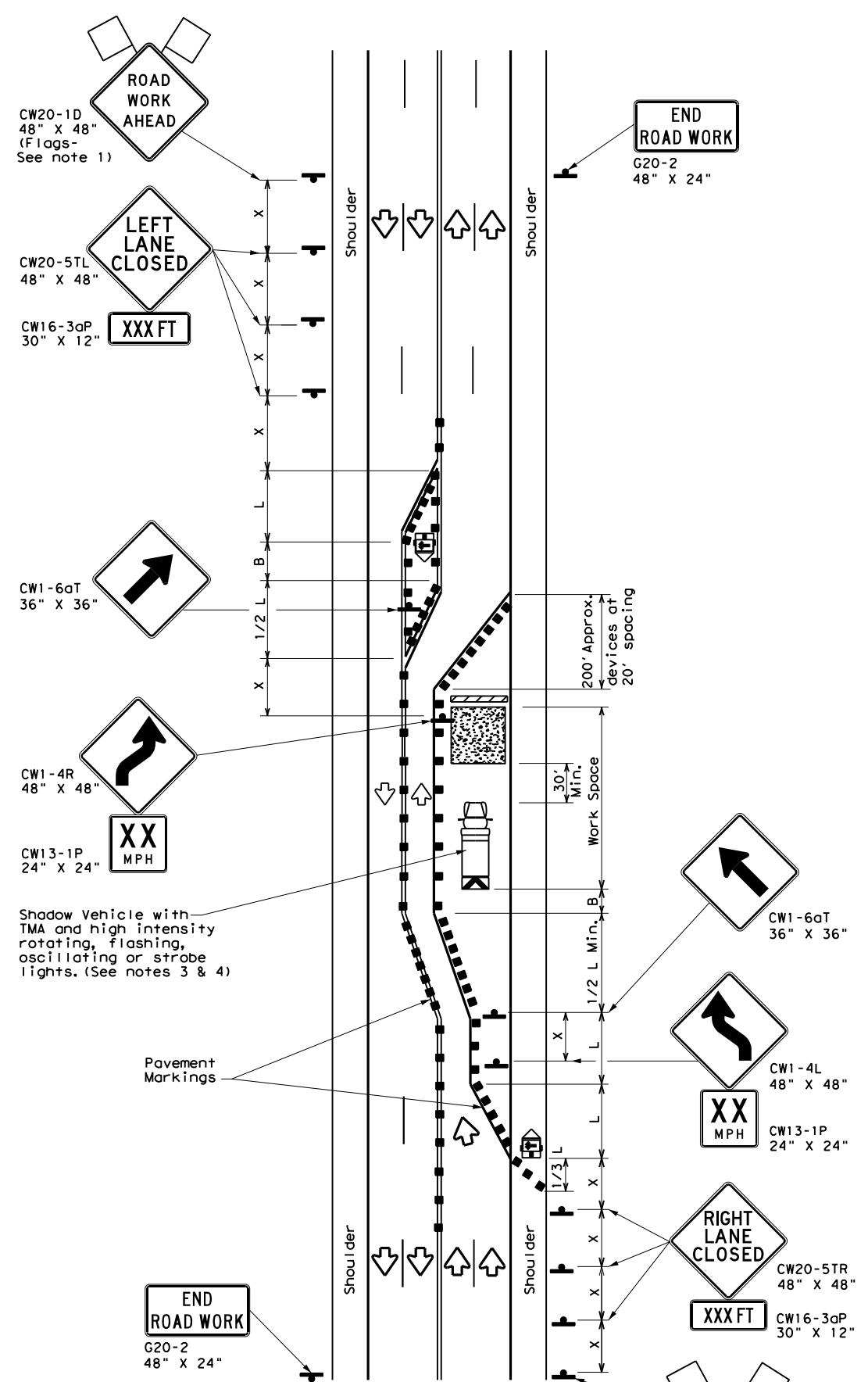
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© TxDOT December 1985	CON:	SECT:	JOB:	HIGHWAY:
REVISIONS	1607	01	057, ETC.	FM 1764
8-95 3-03	DIST:	COUNTY:	SHEET NO.:	
1-97 2-12	HOU:	GALVESTON	114	
4-98 2-18				

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DATE: FILE:



TCP (2-5a)
ONE LANE CLOSED



TCP (2-5b)
TWO LANES CLOSED

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

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

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

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

- GENERAL NOTES**
- Flags attached to signs where shown, are REQUIRED.
 - All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
 - A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
 - Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.
 - The downstream taper is optional. When used, it should be 100 feet approximately per lane, with channelizing devices spaced at 20 feet.

- TCP (2-5a)**
- 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 (2-5b)**
- Conflicting pavement markings shall be removed for long-term projects.

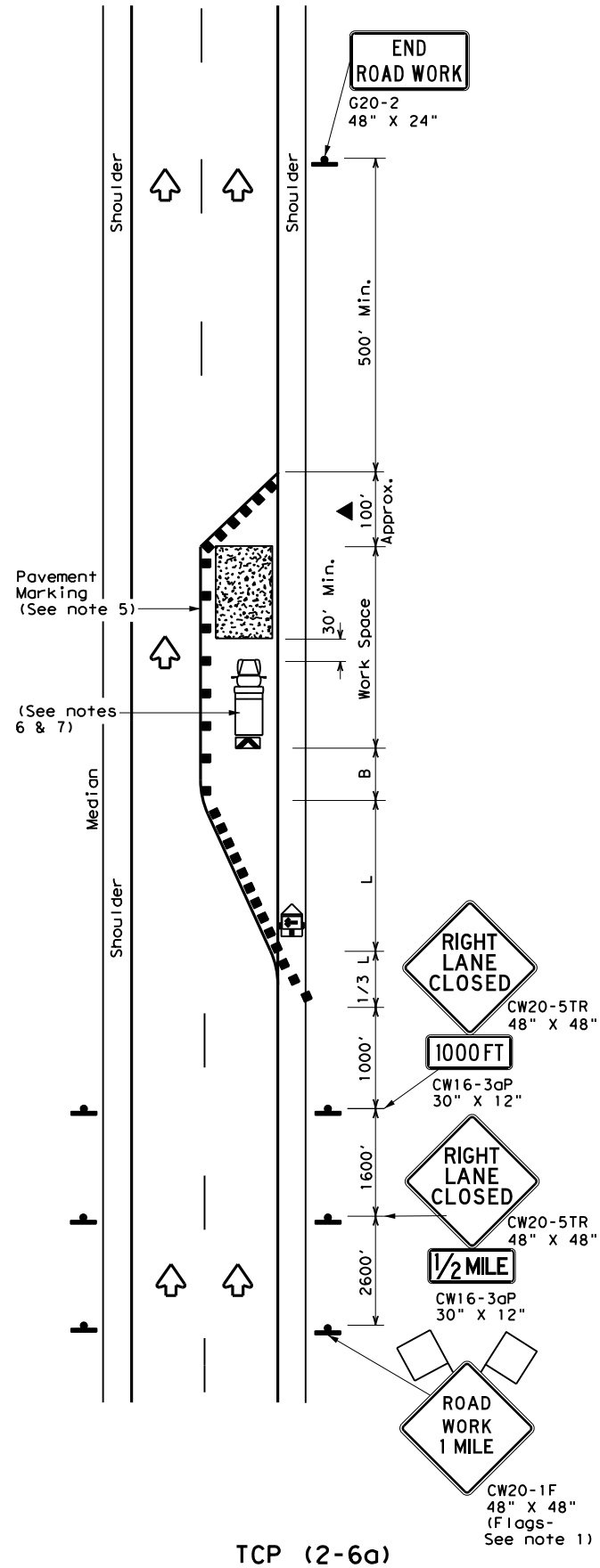
Texas Department of Transportation
 Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
LONG TERM LANE CLOSURES
MULTILANE CONVENTIONAL RDS.
TCP (2-5) - 18

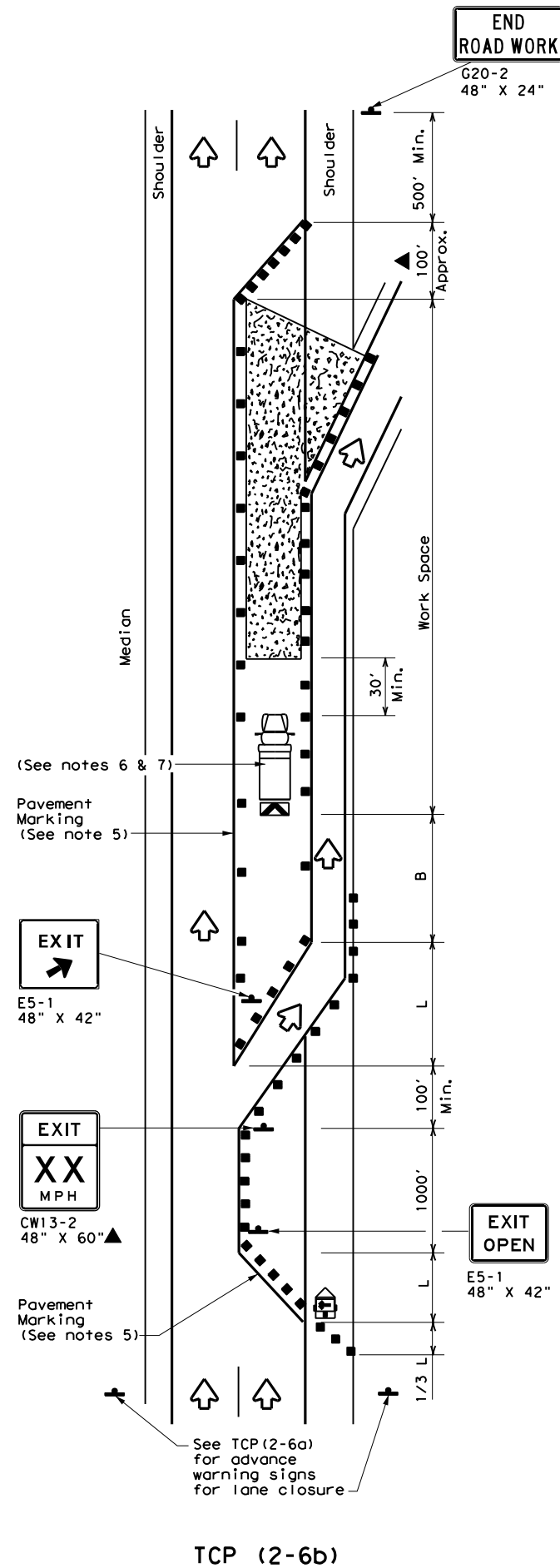
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© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607	01	057, ETC.	FM 1764
8-95 2-12	DIST	COUNTY		SHEET NO.
1-97 3-03	HOU	GALVESTON		115
4-98 2-18				

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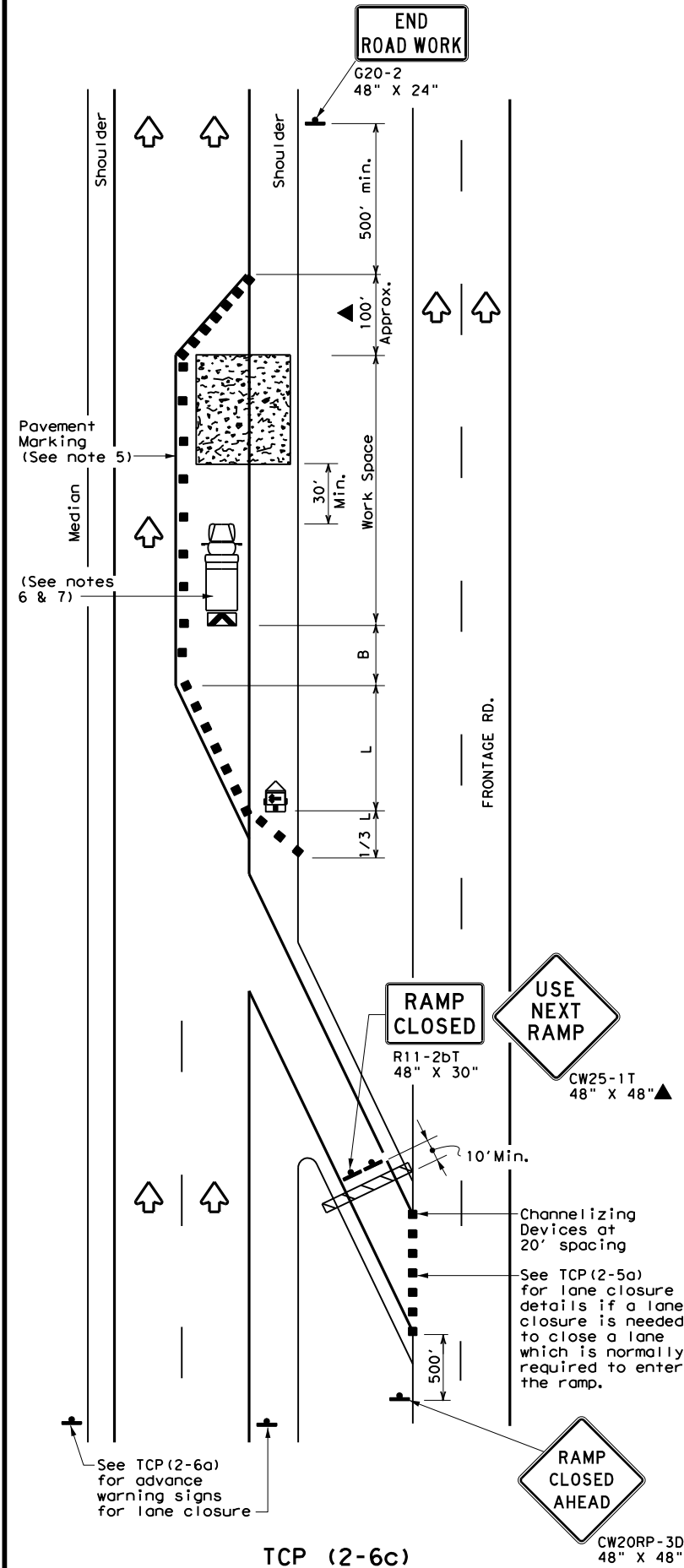
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TCP (2-6a)
ONE LANE CLOSURE



TCP (2-6b)
LANE CLOSURE NEAR EXIT RAMP



TCP (2-6c)
LANE CLOSURE NEAR ENTRANCE RAMP

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

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

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

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

- GENERAL NOTES**
- Flags attached to signs where shown, are REQUIRED.
 - All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
 - Channelizing devices used to close lanes may be supplemented with the Chevron Alignment Sign placed on every other channelizing device. Chevrons may be attached to plastic drums as per BC Standards.
 - Channelizing devices used along the work space or along tangent sections may be supplemented with vertical panels (VP) placed on every other channelizing device. If night time conditions make it difficult to see at least two VPs, the VPs may be placed on each channelizing device.
 - The placement of pavement markings may be omitted on intermediate-term stationary work zones with the approval of the Engineer.
 - 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.
 - Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.

Texas Department of Transportation
 Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES ON DIVIDED HIGHWAYS

TCP (2-6) - 18

FILE: tcp2-6-18.dgn	DW: _____	CK: _____	DW: _____	CK: _____
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607	01	057, ETC.	FM 1764
2-94 4-98	DIST	COUNTY	SHEET NO.	
8-95 2-12	HOU	GALVESTON	116	
1-97 2-18				

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DATE: FILE:

Traffic Control Devices shown for one direction

New pavement surface should extend to this point. (See note 2)

CW1-6 48" X 24" (See note 2) ▲

6" Solid White Edgeline

OM-3 Object Markers

Type II-A-A Raised Pavement Markers on 40' C-C.

6" Double Yellow Line

New pavement surface should extend to this point. (See note 5)

END ROAD WORK G20-2 48" X 24"

CW1-6 48" X 24" (See note 2) ▲

Warning Reflectors may be added on top of channelizing devices for additional conspicuity at night. Warning Reflectors, chevrons or steady-burn warning lights may be added if drums or longitudinal channelizing devices are used. (Both directions)

Barricades may be offset to permit workers and equipment to enter and exit work space.

CW1-4R 48" X 48" XX MPH CW13-1P 24" X 24"

ROAD CLOSED R11-2 48" X 30" CW1-6 48" X 24"

CW1-4L 48" X 48" XX MPH CW13-1P 24" X 24" (See note 2) ▲

ROAD WORK XXX FT CW20-1A, B, or C 48" X 48"

ROAD WORK AHEAD CW20-1D 48" X 48" (Flags- See note 1)

TCP (2-7a)

ROADWAY DIVERSION

Traffic Control Devices shown for one direction

END ROAD WORK G20-2 48" X 24"

PASS WITH CARE R4-2 24" X 30" If applicable

CTB with safety end treatment, or other barrier system as detailed elsewhere in the plans.

6" Solid White Edgeline

Type II-A-A Raised Pavement Markers on 40' C-C.

6" 4" 6" 1"-2" 1"-2" 6" Double Yellow Line

NARROW BRIDGE CW5-2 48" X 48" (See note 6)

DO NOT PASS R4-1 24" X 30"

ROAD WORK AHEAD CW20-1D 48" X 48" (Flags- See note 1)

TCP (2-7b)

BRIDGE WIDENING

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

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

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

- GENERAL NOTES**
- Flags attached to signs where shown are REQUIRED.
 - All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.

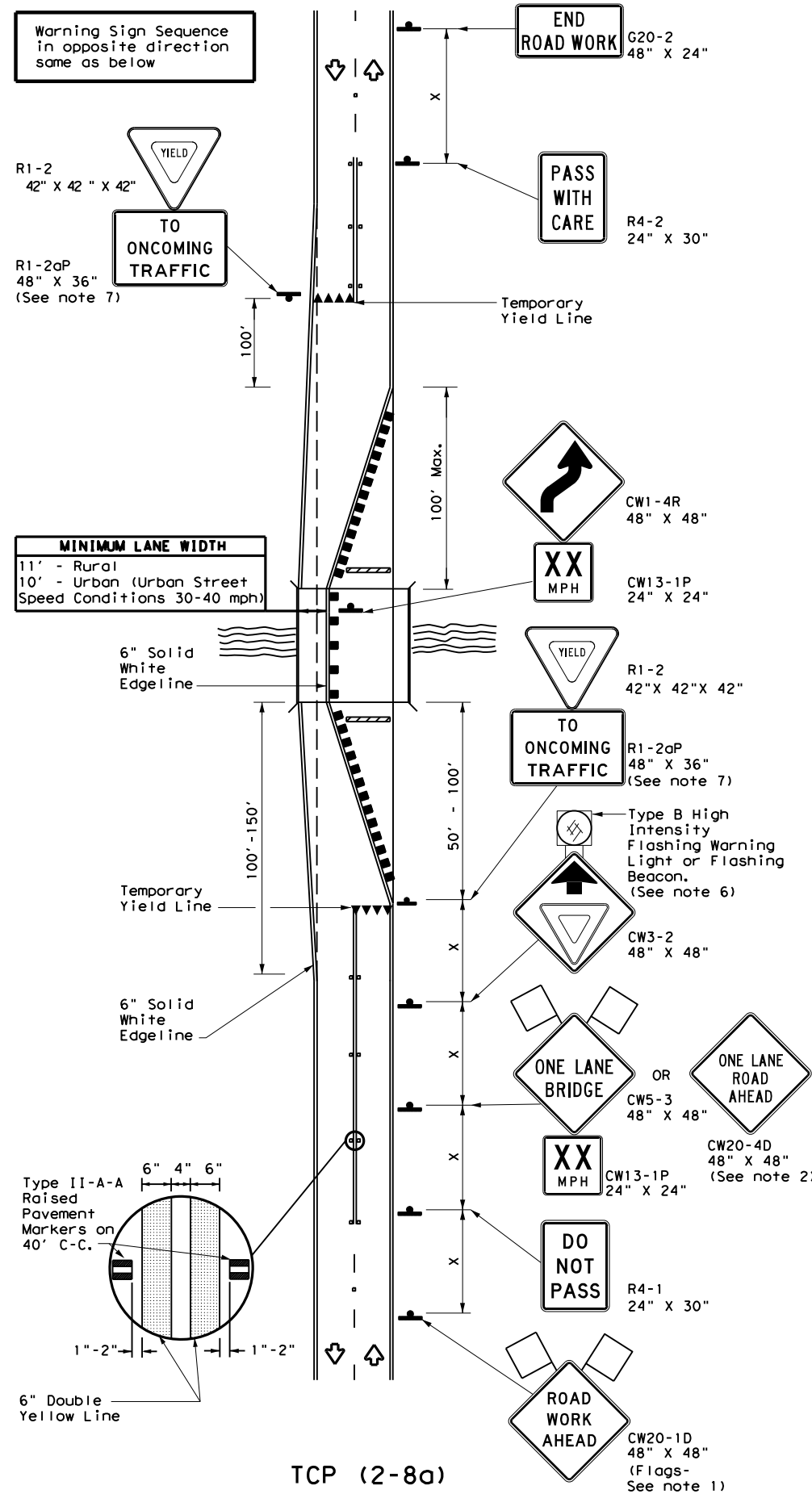
- TCP (2-7a)**
- Raised pavement markers shall be placed 40 feet c-c on centerline throughout project.
 - Roadway diversion design requirements should be based on posted speed limit or prevailing speed.
 - New pavement surface should be extended across existing roadway edge to a point where existing pavement markings left in place during project do not conflict with construction area pavement marking.
- TCP (2-7b)**
- The CW5-2 "Narrow Bridge" sign may be omitted if lane and shoulder widths are maintained.

TRAFFIC CONTROL PLAN DIVERSIONS AND NARROW BRIDGES

TCP (2-7) -23

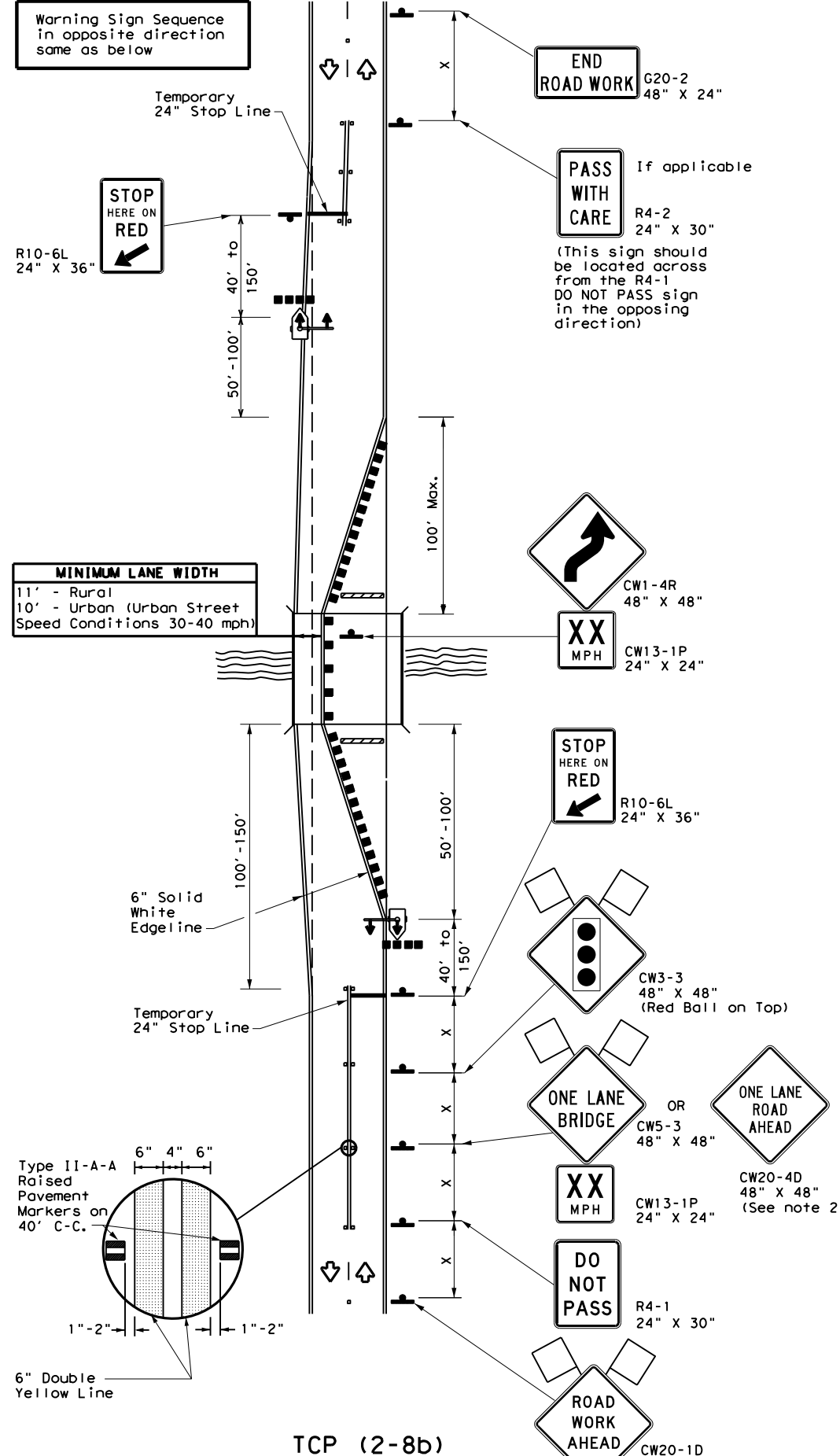
FILE: tcp2-7-23.dgn	DN:	CK:	DW:	CK:
© TxDOT April 2023	CONT	SECT	JOB	HIGHWAY
12-85 4-98 2-18	1607	01	057, ETC.	FM 1764
8-95 3-03 4-23	DIST	COUNTY	SHEET NO.	
1-97 2-12	HOU	GALVESTON	117	

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TCP (2-8a)

**ONE LANE TWO-WAY
TRAFFIC CONTROL WITH YIELD SIGNS**
(Less Than 2000 ADT-See Note 5)



TCP (2-8b)

**ONE LANE TWO-WAY
TRAFFIC CONTROL WITH TRAFFIC SIGNAL**

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Sign		Traffic Flow
	Flag		Flagger
	Raised Pavement Markers Ty II-AA		Temporary or Portable Traffic Signal

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

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

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

GENERAL NOTES

- Flags attached to signs where shown are REQUIRED.
- When this TCP is used at a location which does not involve a bridge, a 48" x 48" CW20-4D "ONE LANE ROAD AHEAD" signs should be used in lieu of the CW5-3 "ONE LANE BRIDGE" signs. The CW13-1P Advisory Speed Plaque is required with either warning sign.
- Raised pavement markers shall be placed 40 feet c-c on centerline between DO NOT PASS signs and stop or yield lines.
- For intermediate term situations, when it is not feasible to remove and restore pavement markings, the channelization must be made dominant by using a very close spacing. This is especially important in locations of conflicting information, such as where traffic is directed over a double yellow centerline. In such locations a maximum channelizing device spacing of 20 feet is recommended. The 20 foot channelizing device spacing recommendation is intended for the area of conflicting information and not the entire work zone.

TCP (2-8a)

- Traffic control by CW3-2 "YIELD AHEAD" symbol signs for one lane two-way traffic control operations should be limited to work spaces less than 400 feet long and roadways with less than 2000 ADT. Otherwise, portable traffic signals should be used.
- If power is available, a flashing beacon should be attached to the CW3-2 "YIELD AHEAD" symbol sign for emphasis.
- The R1-2 "YIELD" and R1-2aP "TO ONCOMING TRAFFIC" signs and other regulatory signs shall be installed at 7 foot minimum mounting height.

TCP (2-8b)

- A list of approved Portable Traffic Signals can be found in the "Compliant Work Zone Traffic Control Devices" list.
- Portable traffic signals should be located to provide adequate stopping sight distance for approaching motorist (See table above).

Texas Department of Transportation
Traffic Safety Division Standard

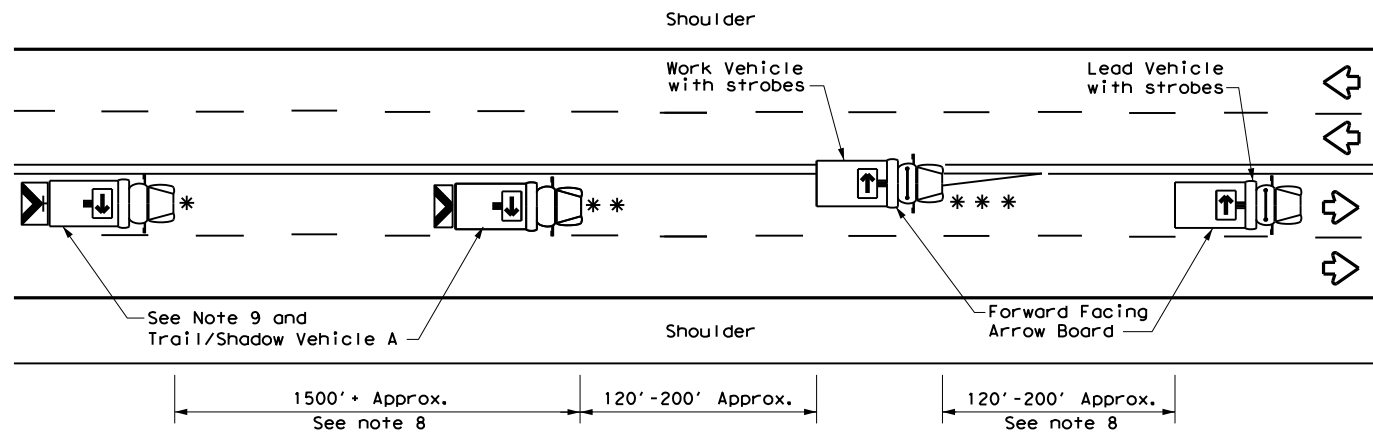
TRAFFIC CONTROL PLAN LONG TERM ONE-LANE TWO-WAY CONTROL

TCP (2-8) -23

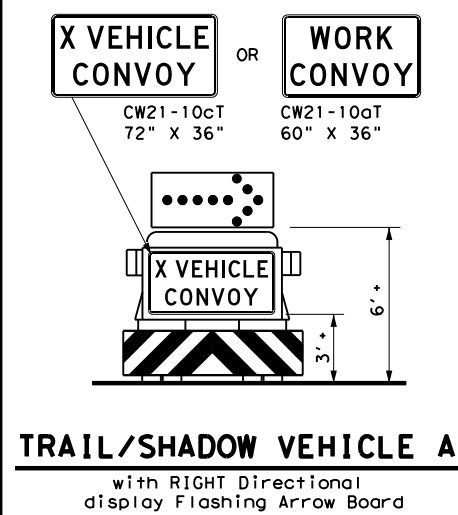
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© TxDOT April 2023	CONT	SECT	JOB	HIGHWAY
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12-85 4-98 2-18	DIST	COUNTY	SHEET NO.	
8-95 3-03 4-23	HOU	GALVESTON	118	
1-97 2-12				

DATE:
FILE:

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TCP (3-1a)
UNDIVIDED MULTILANE ROADWAY



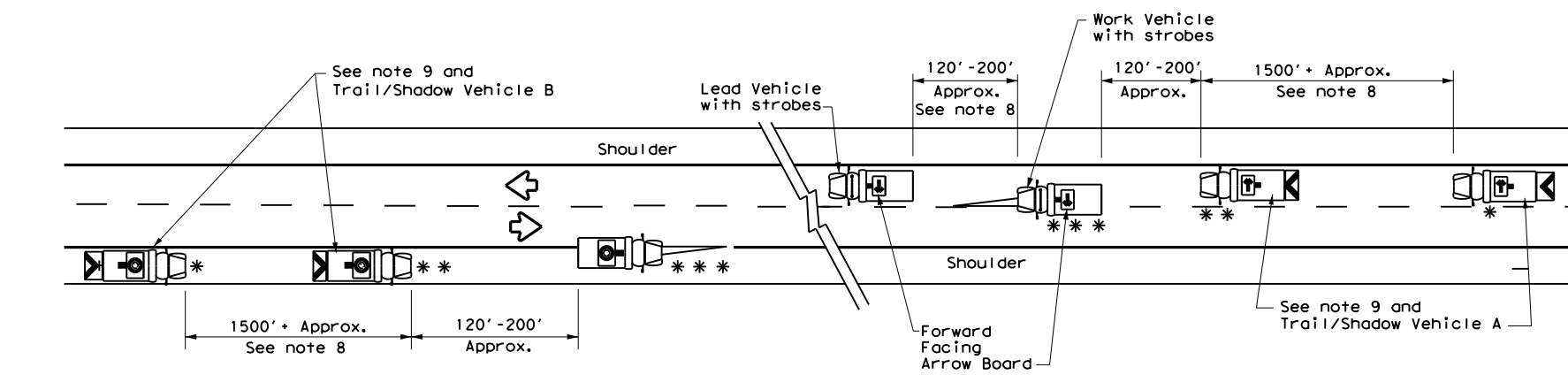
TRAIL/SHADOW VEHICLE A
with RIGHT Directional display Flashing Arrow Board

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

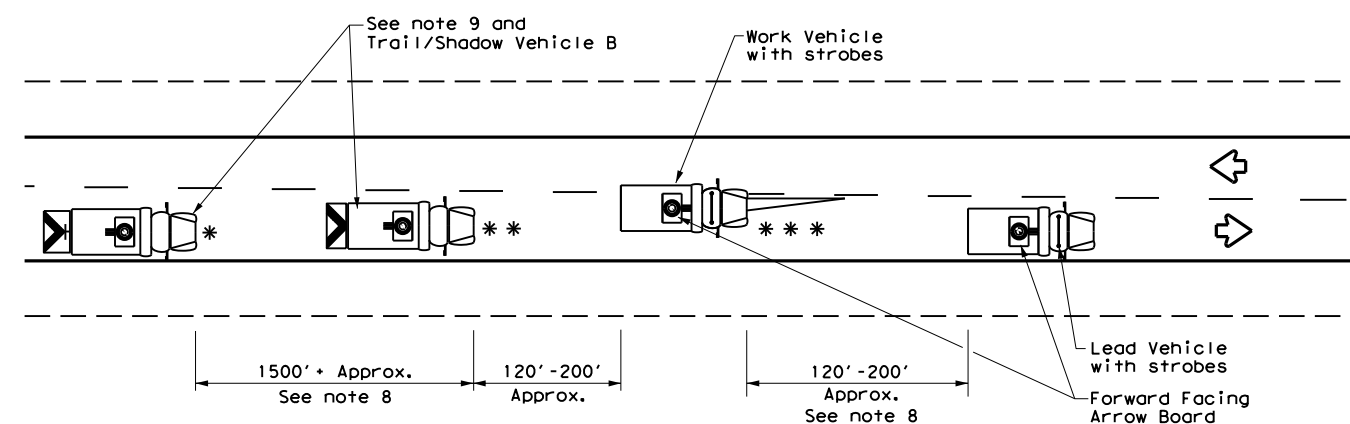
TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
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GENERAL NOTES

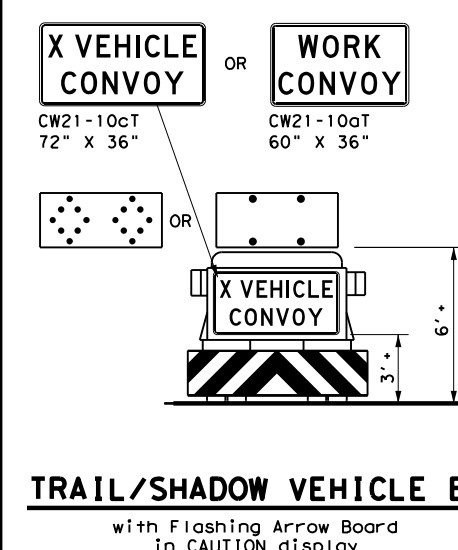
1. TRAIL, SHADOW, and LEAD vehicles shall be equipped with arrow boards as illustrated. When a LEAD vehicle is not used the WORK vehicle must be equipped with an arrow board. The Engineer will determine if the LEAD VEHICLE and/or TRAIL VEHICLE are required based on prevailing roadway conditions, traffic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



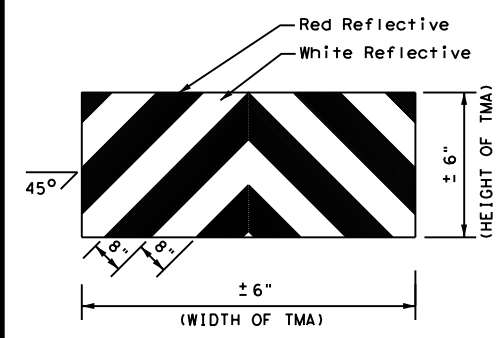
TCP (3-1b)
TWO-WAY ROADWAY WITH PAVED SHOULDERS



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



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



STRIPING FOR TMA



TRAFFIC CONTROL PLAN
MOBILE OPERATIONS
UNDIVIDED HIGHWAYS

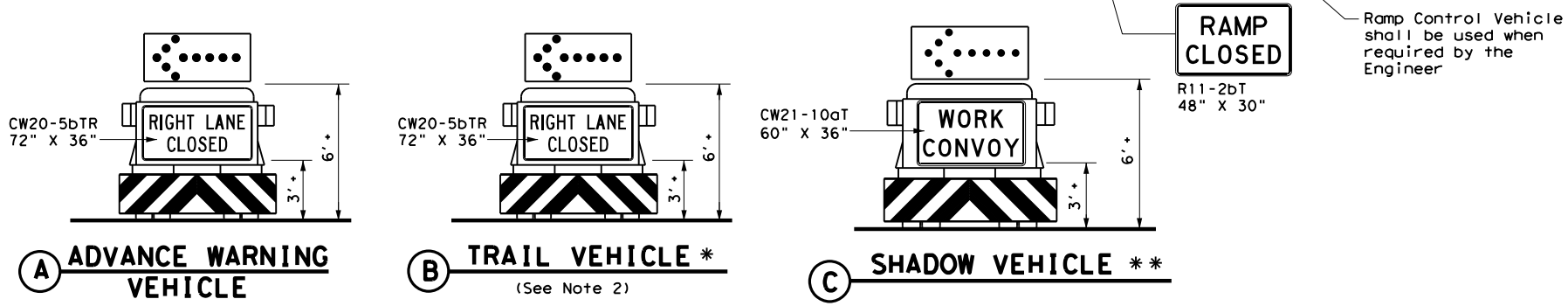
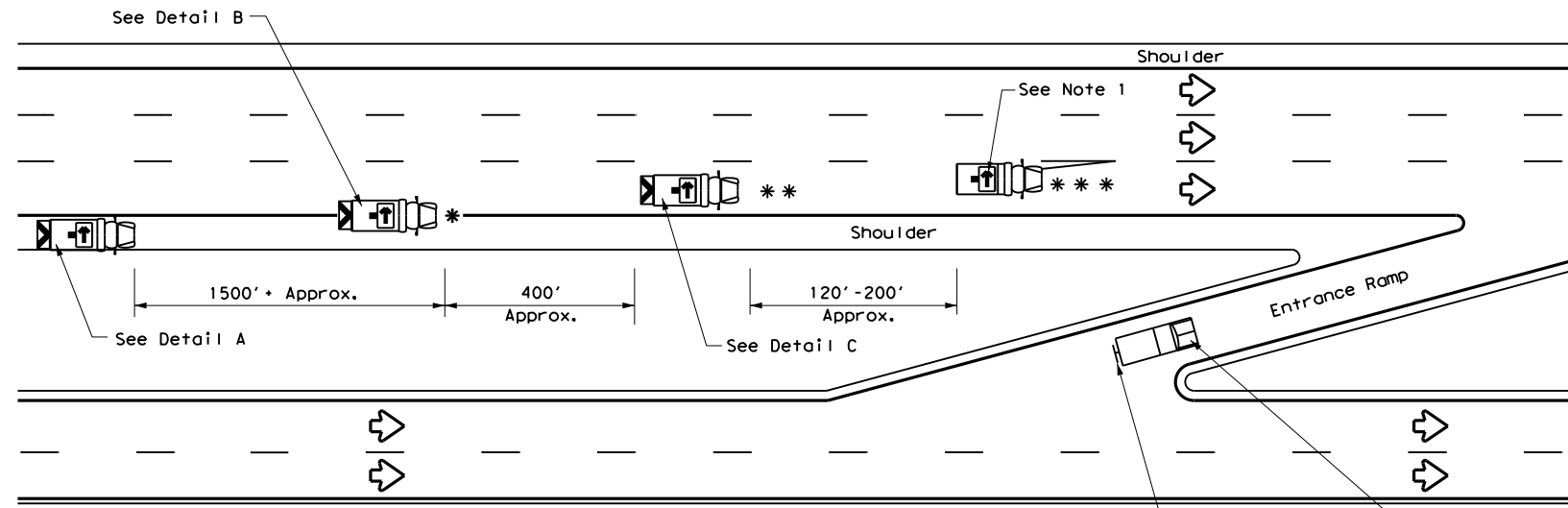
TCP (3-1) - 13

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© TxDOT	December 1985	CONT:	SECT	JOB:	HIGHWAY				
REVISIONS		1607	01	057, ETC.		FM 1764			
2-94	4-98					SHEET NO.			
8-95	7-13								
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		HOU:	GALVESTON						

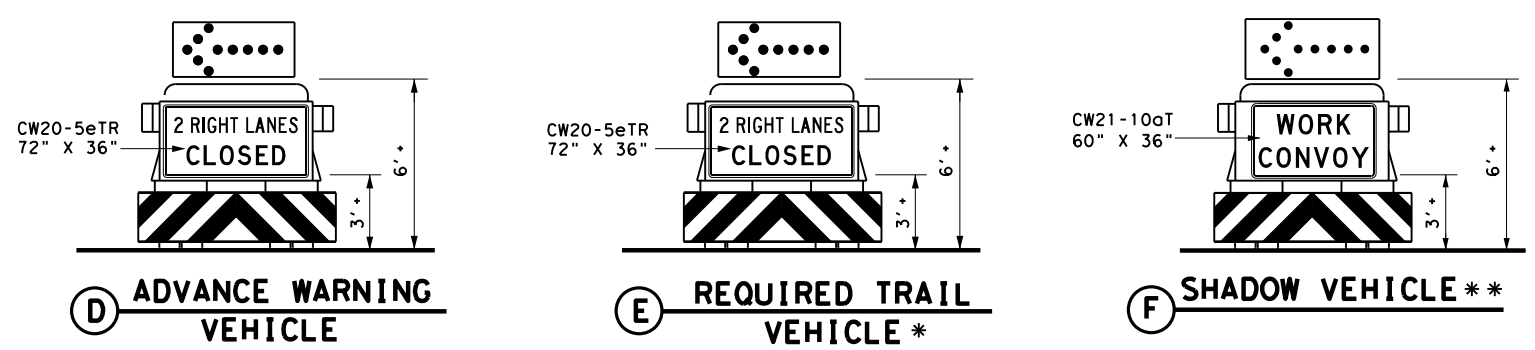
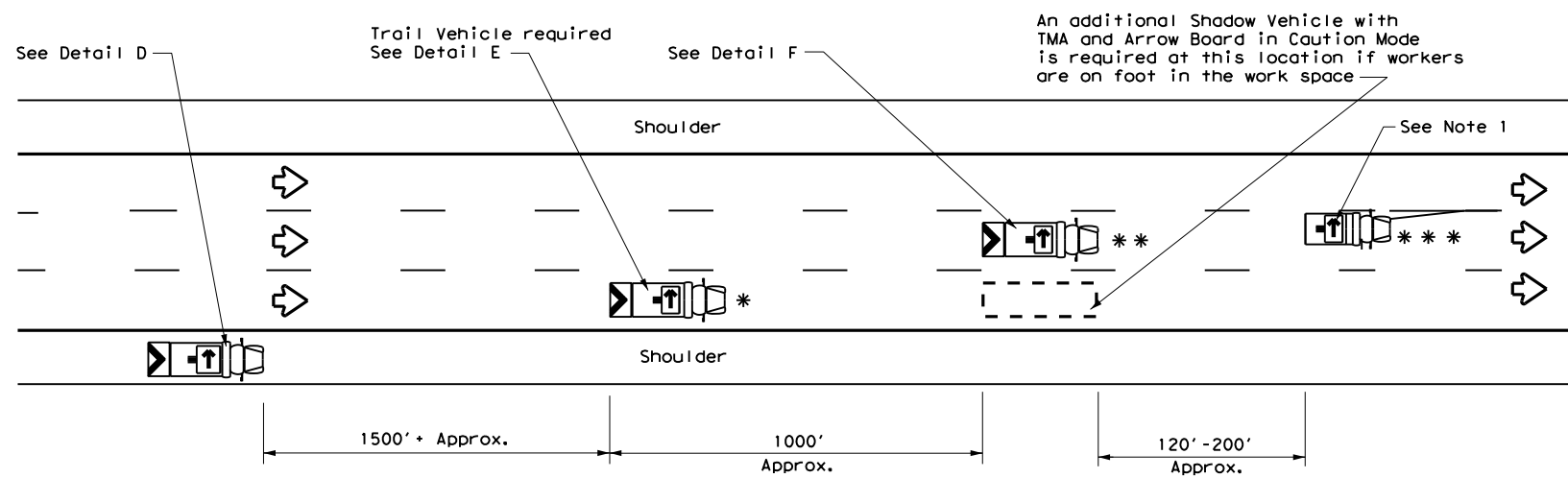
DATE:
FILE:

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DATE: FILE:



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



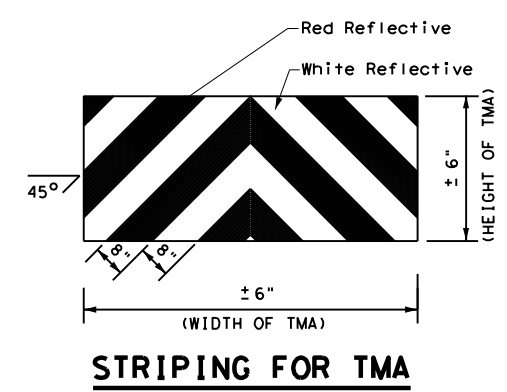
INTERIOR LANE CLOSURE ON MULTI-LANE DIVIDED HIGHWAY - TCP(3-2b)

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
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

GENERAL NOTES

- ADVANCE WARNING, TRAIL and SHADOW vehicles shall be equipped with Type B or Type C flashing arrow boards as per the Barricade and Construction (BC) standards. Arrow boards on WORK vehicles will be optional based on the type of work being performed. The arrow boards shall be operated from inside the vehicle.
- For TCP(3-2a) the Engineer will determine if the TRAIL VEHICLE is required based on prevailing roadway conditions, traffic volume, and sight distance restrictions. All other vehicles shown for both TCP(3-2a) and TCP(3-2b) are required.
- The use of amber high intensity rotating, flashing, oscillating, or strobe lights on vehicles are required. Blue high intensity rotating, flashing, oscillating or strobe lights when mounted on the driver's side of the vehicle may be operated simultaneously with the amber beacons or strobe lights.
- The use of truck mounted attenuators (TMA) on the ADVANCE WARNING, SHADOW, and TRAIL vehicles are required.
- Reflective sheeting on the rear of the TMA shall meet or exceed the reflectivity and color requirements of DMS 8300, Type A.
- Each vehicle shall have two-way radio communication capability.
- When work convoys must change lanes, the TRAIL VEHICLE should change lanes first to shadow the other convoy vehicles.
- Vehicle spacing between the TRAIL VEHICLE and the SHADOW VEHICLE will vary depending on sight distance restrictions. Motorists approaching the work convoy should be able to see the TRAIL VEHICLE in time to slow down and/or change lanes as they approach the TRAIL VEHICLE. Vehicle spacing between the WORK VEHICLE and SHADOW VEHICLE may vary according to terrain, work activity and other factors.
- Standard 48" X 48" diamond shaped warning signs with the same message as those shown may be used where adequate mounting space exists.
- The signs shown should be used on the Advance Warning Vehicle. As an option, a portable changeable message sign (PCMS) or a truck mounted changeable message sign (TMCMS) with a minimum character height of 12", and displaying the same legend may be substituted for these signs. An appropriate directional arrow display, simulating the size and legibility of the flashing arrow board, must be used in the second phase of the PCMS/TMCMS message. When this is done, the arrow board will not be required on the Advance Warning Vehicle.
- Standard diamond shape versions of the CW20-5 series signs may be used as an option if the rectangular signs shown are not available.
- The principles on this sheet may be used to close lanes from the left side of the roadway considering the number of lanes, shoulder width, sight distance, and ramp frequency.
- Signs and flashing arrow board modes shall be appropriately altered when implementing left lane closures or interior closures which close the left lanes.
- The Advance Warning Vehicle may straddle the edgeline when shoulder width makes it necessary.



STRIPING FOR TMA

Texas Department of Transportation
Traffic Operations Division Standard

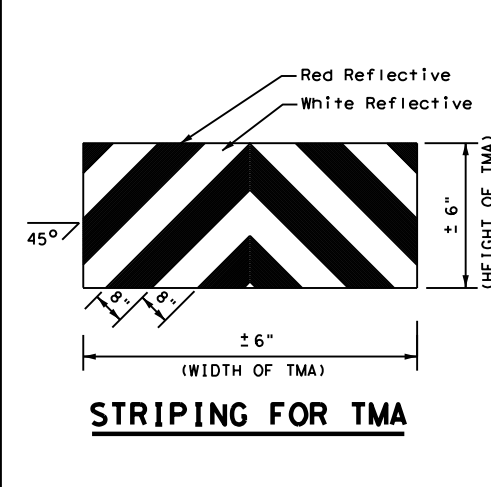
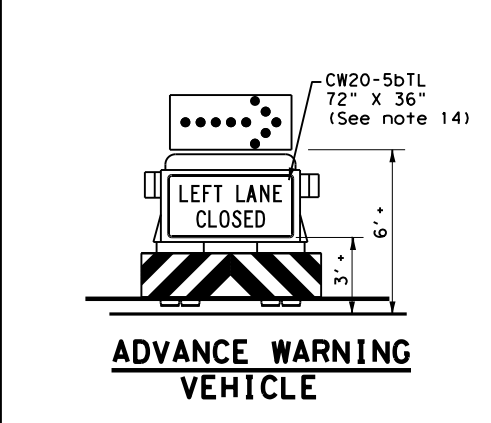
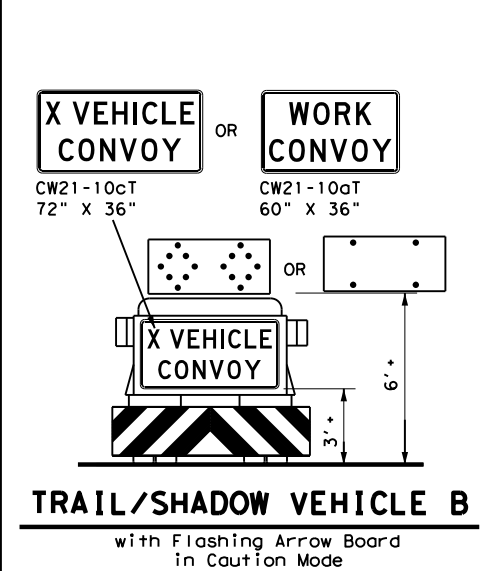
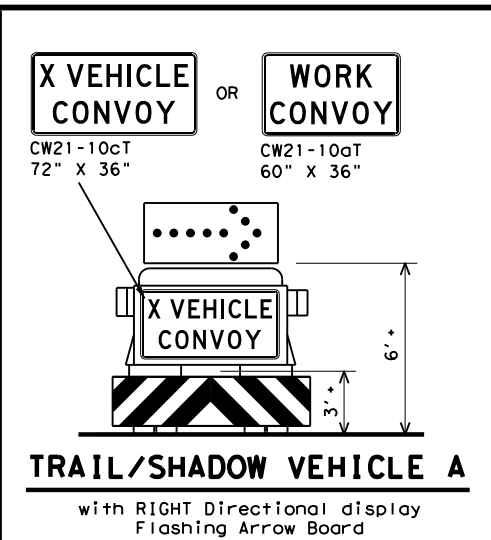
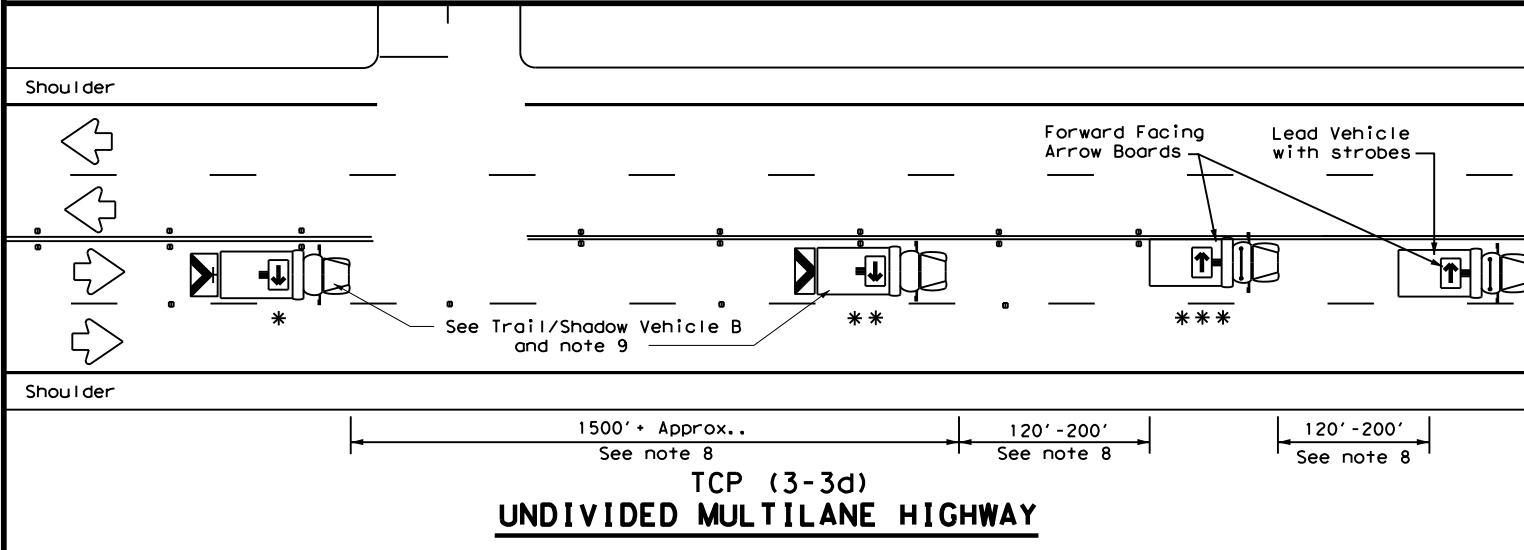
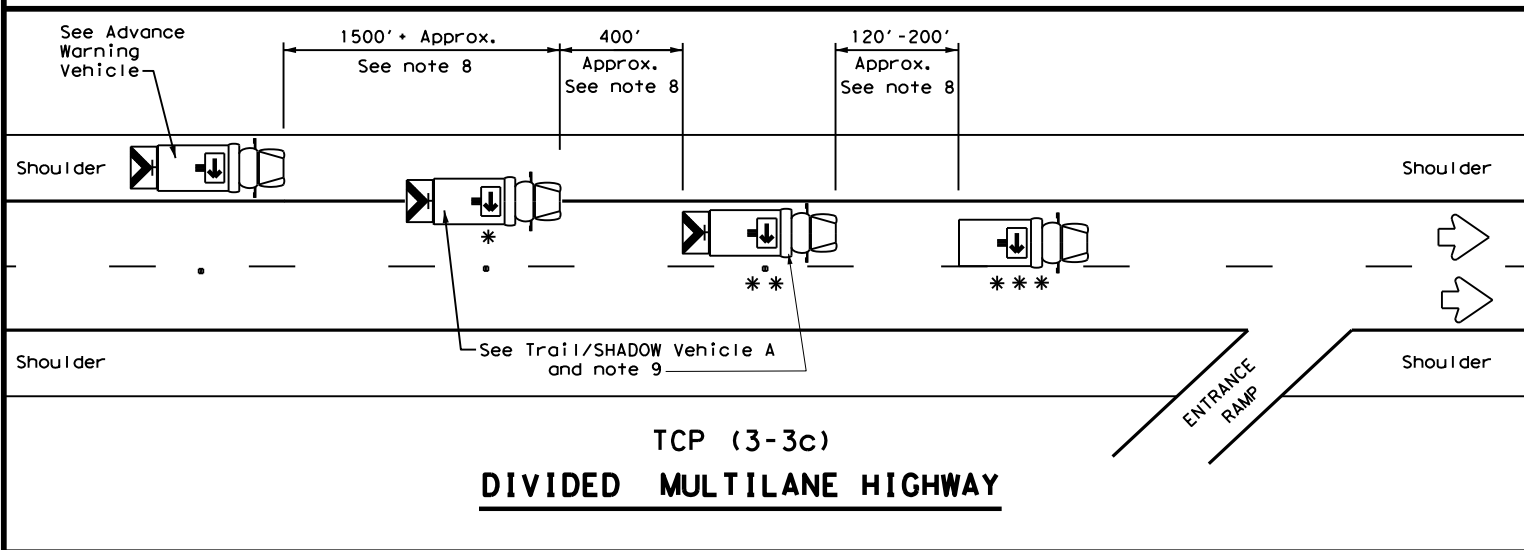
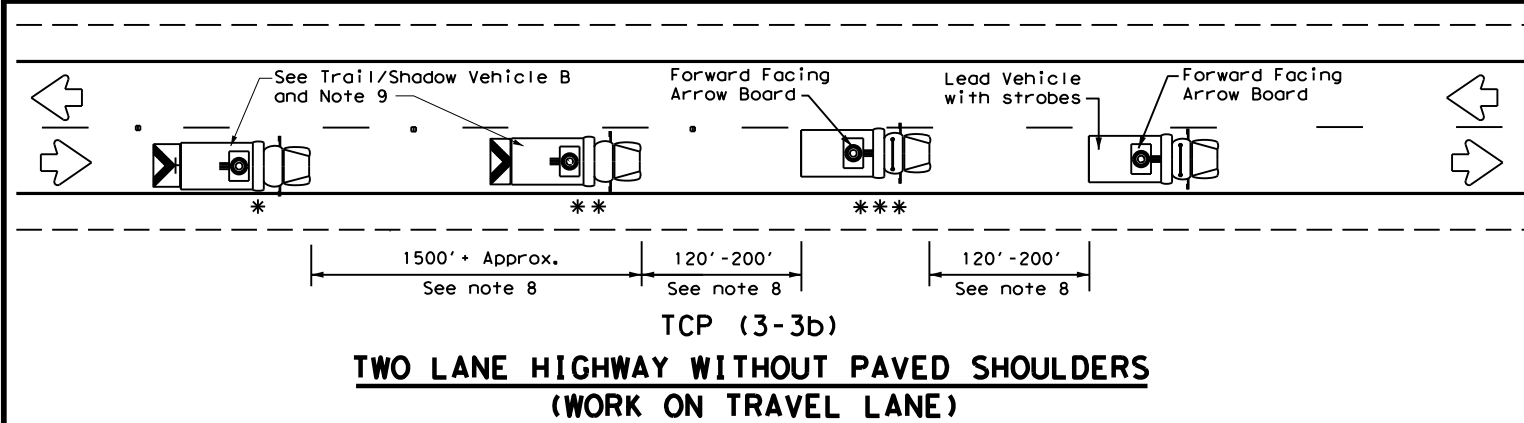
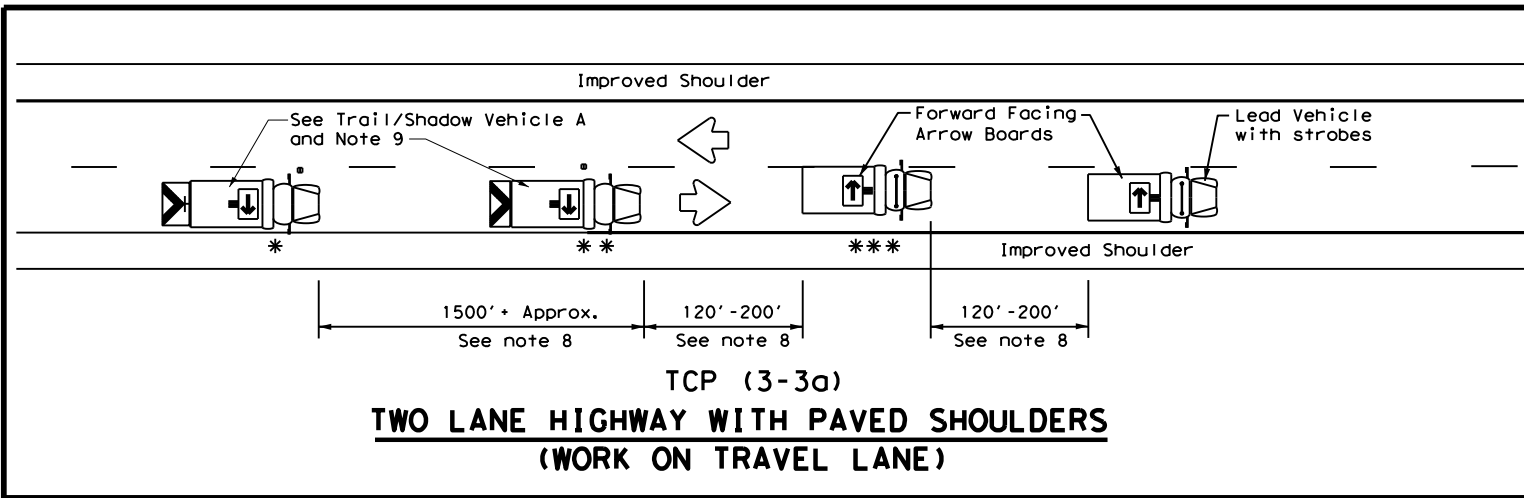
TRAFFIC CONTROL PLAN MOBILE OPERATIONS DIVIDED HIGHWAYS

TCP(3-2)-13

FILE: tcp3-2.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607	01	057, ETC.	FM 1764
2-94 4-98	DIST	COUNTY	SHEET NO.	
8-95 7-13	HOU	GALVESTON	120	
1-97				

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DATE: FILE:



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

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

Texas Department of Transportation

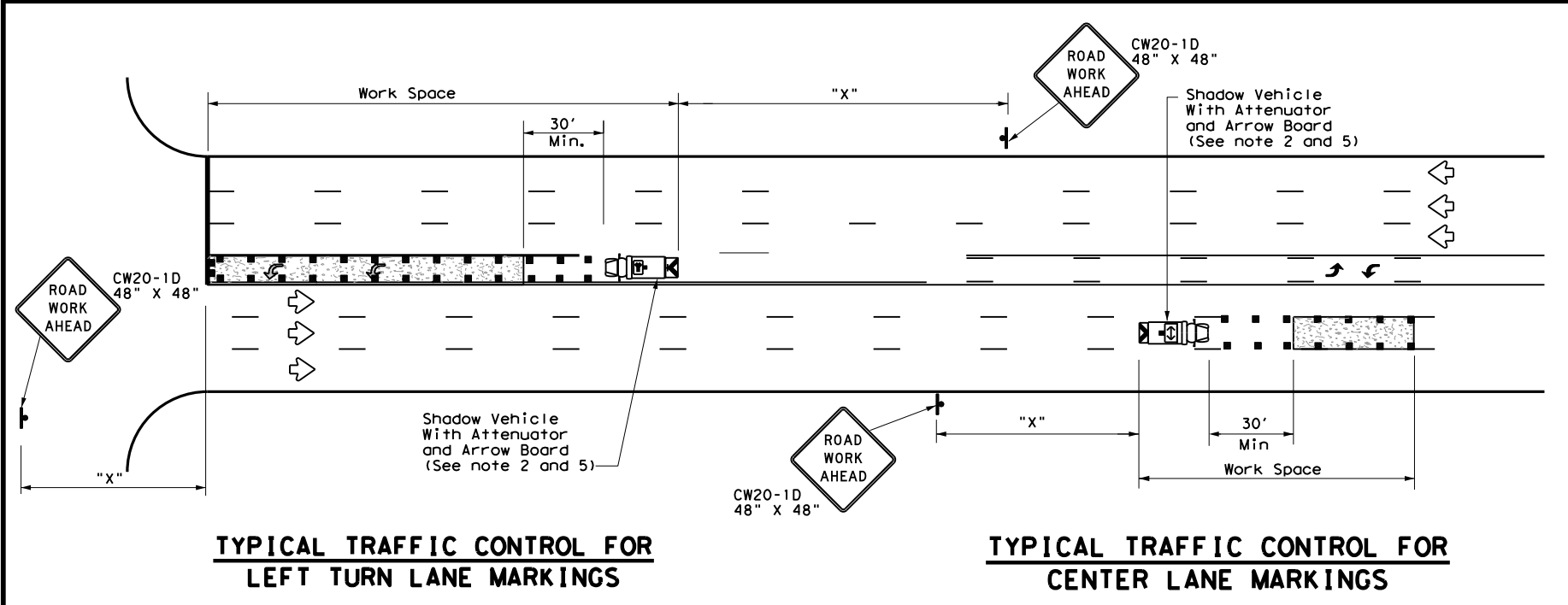
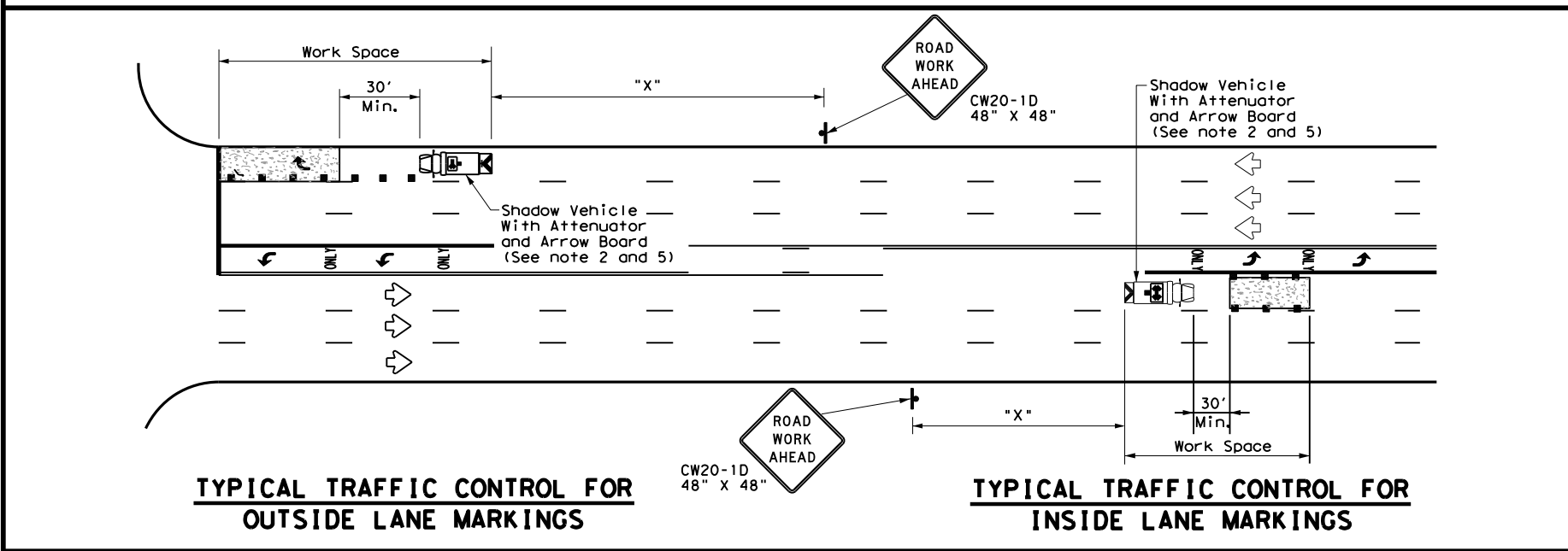
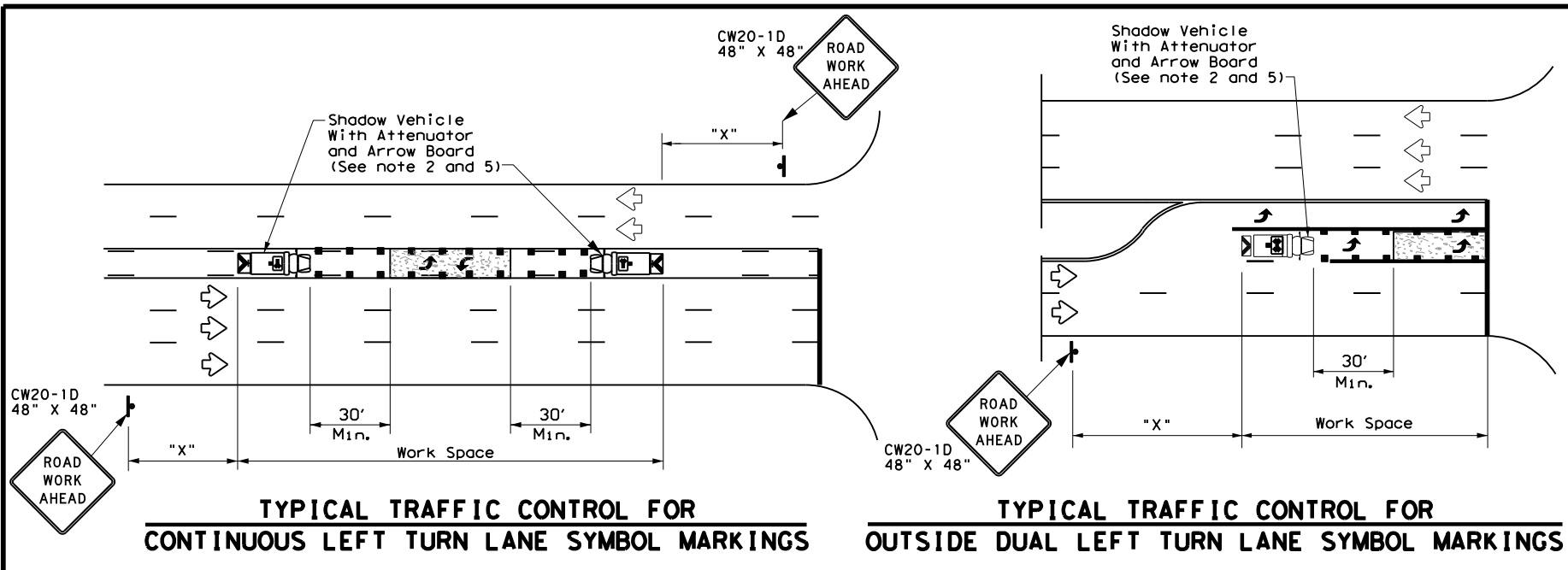
Traffic Operations Division Standard

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

FILE: tcp3-3.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT September 1987	CONT	SECT	JOB	HIGHWAY
	1607	01	057, ETC.	FM 1764
2-94 4-98				
8-95 7-13				
1-97 7-14				
	DIST	COUNTY	SHEET NO.	
	HOU	GALVESTON	121	

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DATE: FILE:



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

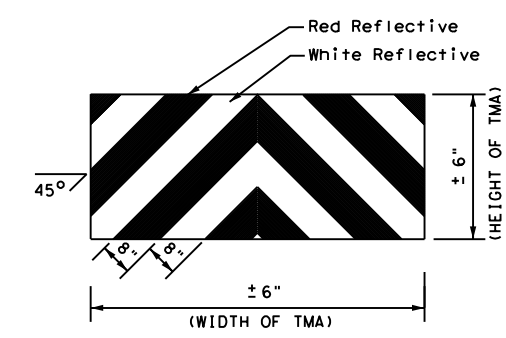
Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	L = WS ² / 60	150'	165'	180'	30'	60'	120'	90'
35		205'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

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

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

GENERAL NOTES

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



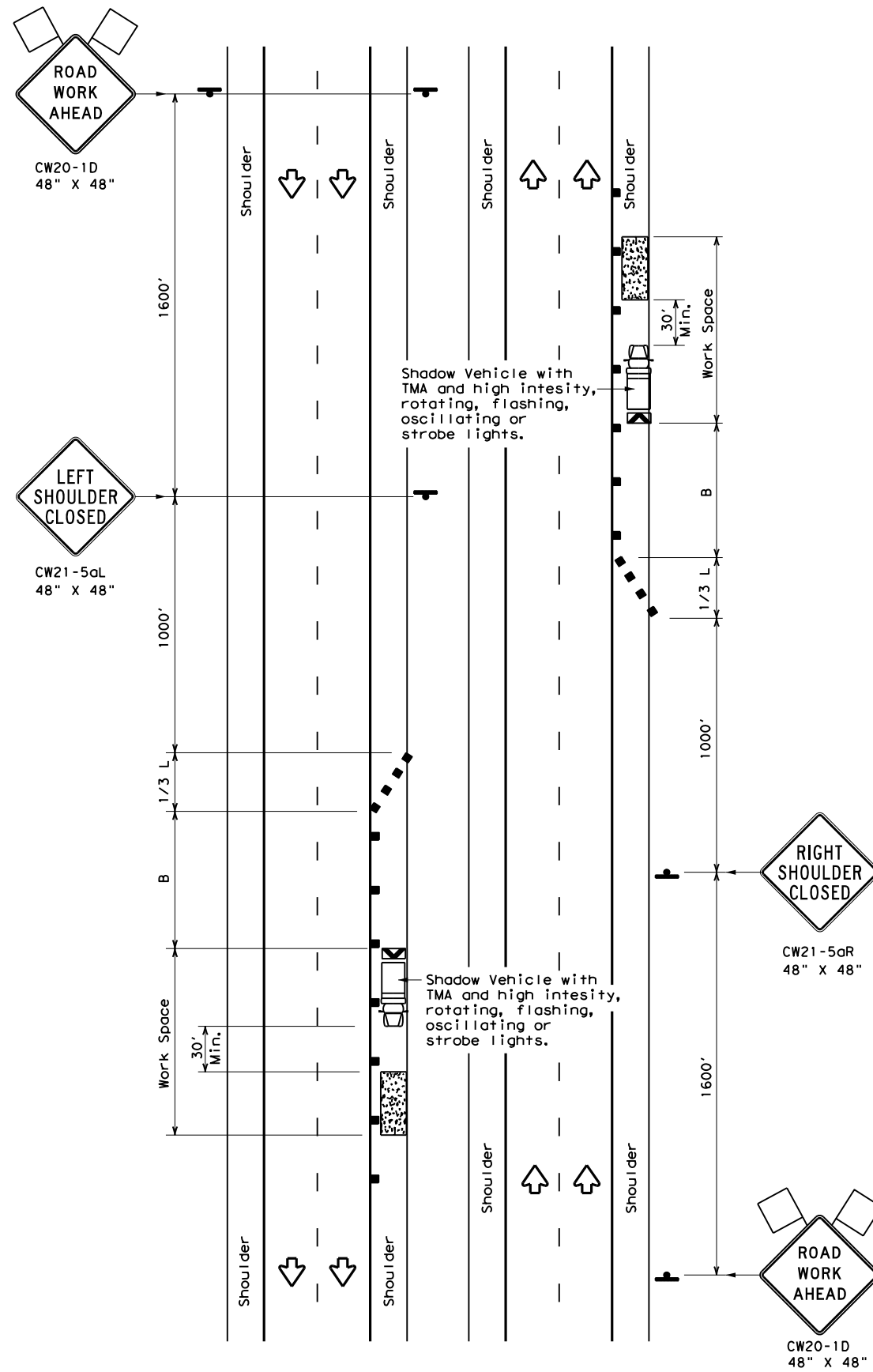
Texas Department of Transportation
 Traffic Operations Division Standard

**TRAFFIC CONTROL PLAN
 MOBILE OPERATIONS FOR
 ISOLATED WORK AREAS
 UNDIVIDED HIGHWAYS
 TCP(3-4)-13**

FILE: tcp3-4.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT July, 2013	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607	01	057, ETC.	FM 1764
	DIST	COUNTY	SHEET NO.	
	HOU	GALVESTON	122	

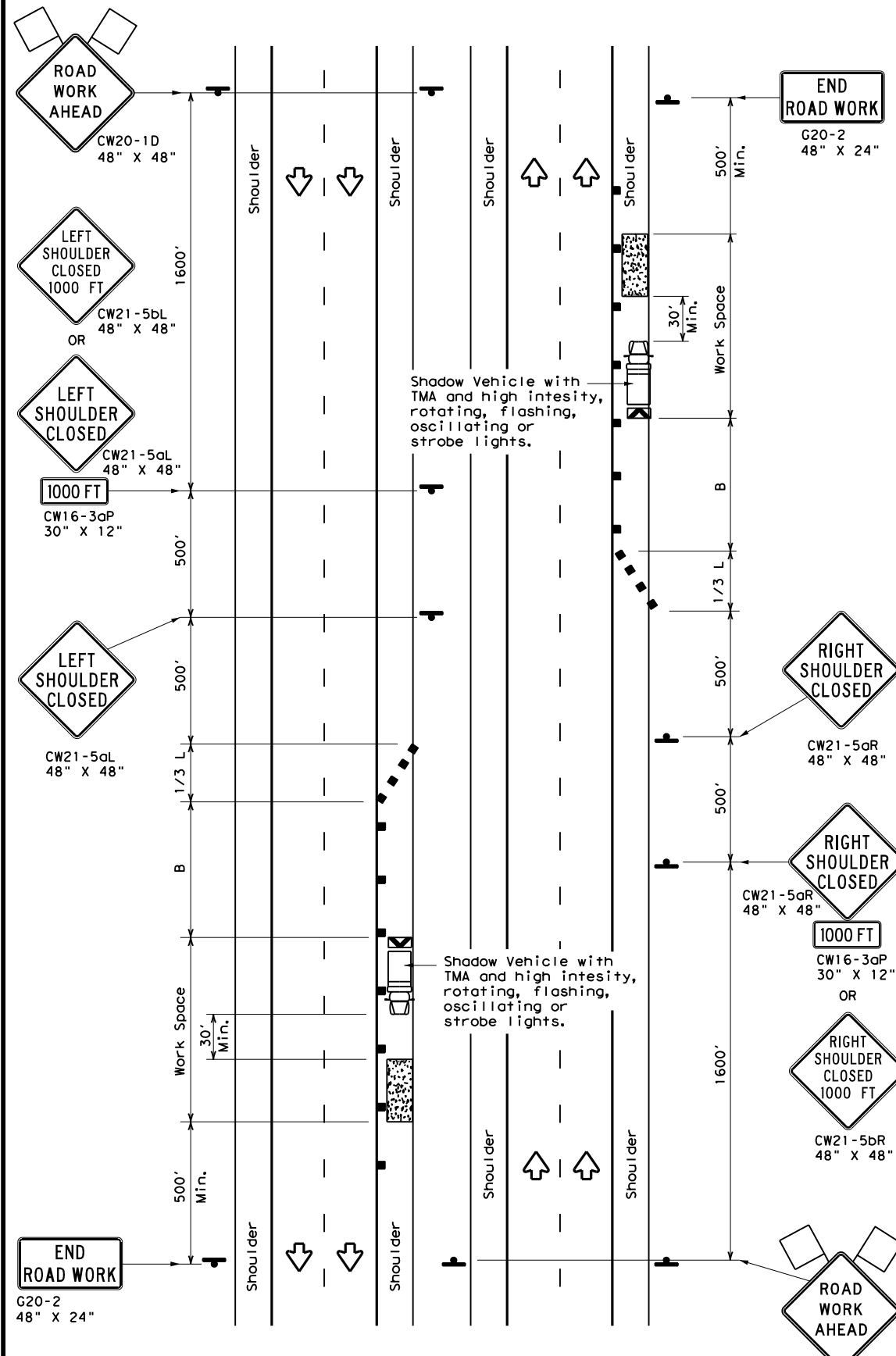
DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE:
FILE:



TCP (5-1a)

WORK AREA ON SHOULDER



TCP (5-1b)

WORK AREA ON SHOULDER

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

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

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

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

GENERAL NOTES

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



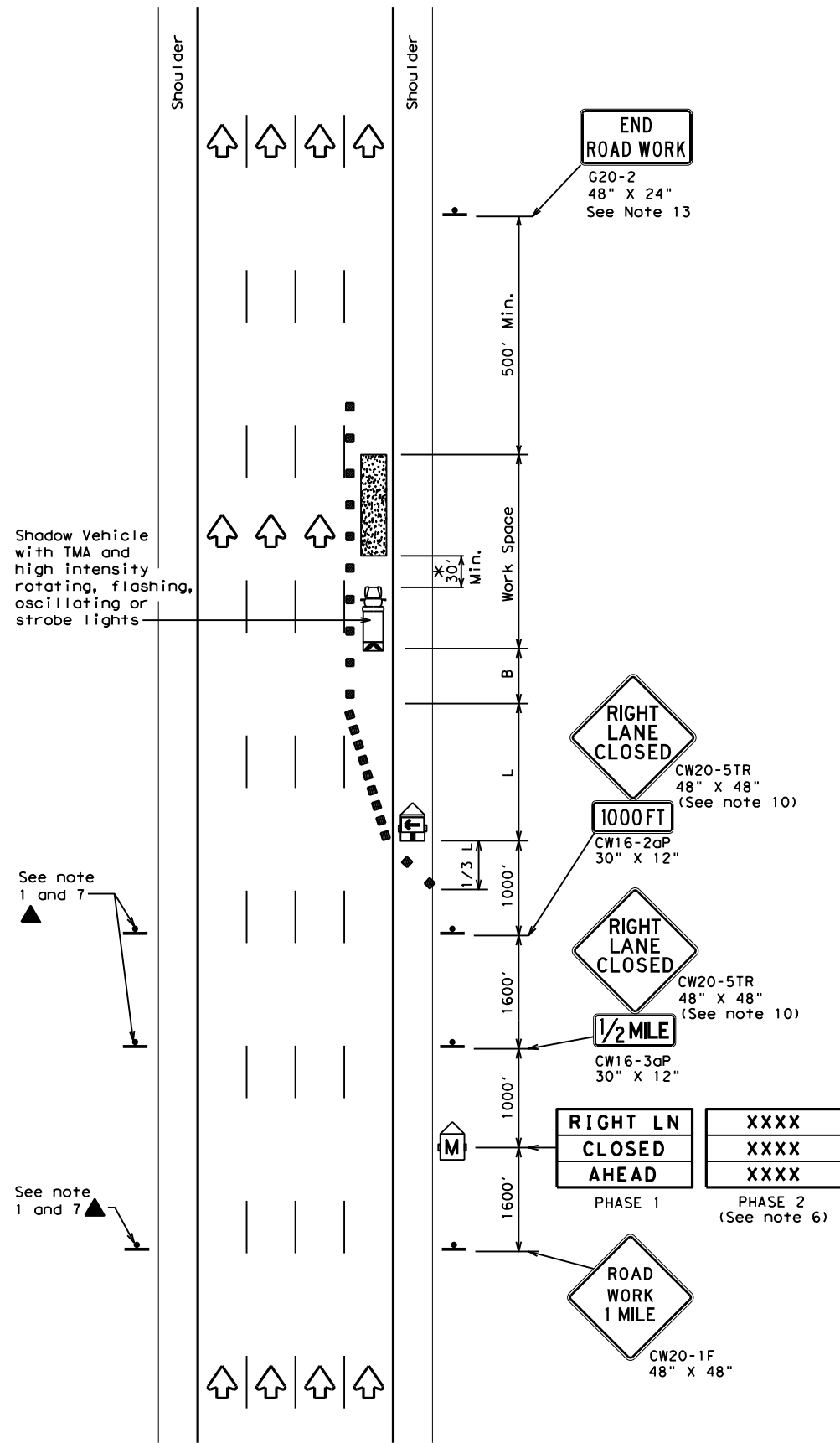
**TRAFFIC CONTROL PLAN
 SHOULDER WORK FOR
 FREEWAYS / EXPRESSWAYS**

TCP (5-1) - 18

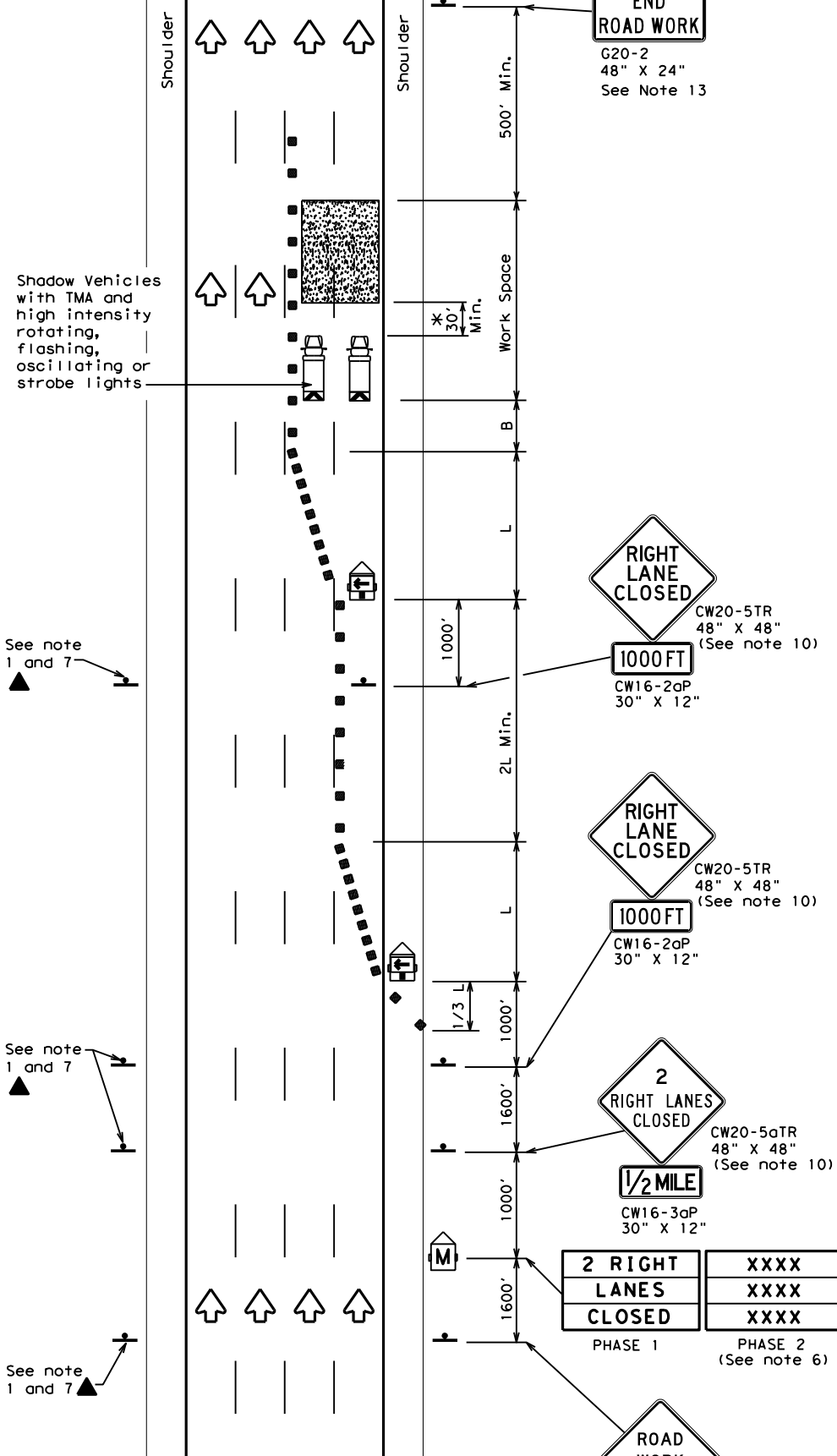
FILE: tcp5-1-18.dgn	DN:	CK:	DW:	CK:
© TxDOT February 2012	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607	01	057, ETC.	FM 1764
2-18	DIST	COUNTY	SHEET NO.	
	HOU	GALVESTON	123	

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DATE: FILE:



TCP (6-1a)
**TYPICAL FREEWAY
ONE LANE CLOSURE**



TCP (6-1b)
**TYPICAL FREEWAY
TWO LANE CLOSURE**

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

Posted Speed	Formula	Minimum Desirable Taper Lengths "L"			Suggested Maximum Spacing of Channelizing Devices		Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent	
45	L = WS	450'	495'	540'	45'	90'	195'
50		500'	550'	600'	50'	100'	240'
55		550'	605'	660'	55'	110'	295'
60		600'	660'	720'	60'	120'	350'
65		650'	715'	780'	65'	130'	410'
70		700'	770'	840'	70'	140'	475'
75		750'	825'	900'	75'	150'	540'
80	800'	880'	960'	80'	160'	615'	

** 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

- All traffic control devices illustrated are REQUIRED. Devices denoted with the triangle symbol may be omitted when stated elsewhere in the plans.
- Drums or 42" cones are the typical channelizing devices. For Intermediate Term Stationary work, drums shall be used on tapers with drums or 42" cones used on tangent sections. Other channelizing devices may be used as directed by the Engineer.
- All construction signs and barricades placed during any phase of work shall remain in place until removal is approved by the Engineer.
- The Engineer may direct the Contractor to furnish additional signs and barricades as required to maintain traffic flow, detours and motorist safety during construction.
- Static message boards or changeable message signs stating the date and duration of ramp or freeway lane closures shall be placed a minimum of seven (7) calendar days in advance of the actual closure.
- Phase 2 of the PCMS message should include appropriate information formatted as shown on BC(6), such as "MERGE LEFT," recommended advisory speed, delay information, or other specific warnings.
- Duplicate construction warning signs should be erected on the medians side of freeways where median width will permit and traffic volume justifies the signing.
- The number of closed lanes may be increased provided the spacing of traffic control devices, taper lengths and tangent lengths meet the requirements of the TMUTCD.
- Warning signs for intermediate term stationary work should be mounted at 7' to the bottom of the sign.
- Warning signs shown shall be appropriately altered for left lane closures. When signs are mounted at 1' height for short term stationary or short duration work, sign versions in the SHSD for Texas with distances on the sign face rather than mounted on a plaque below the sign may be used.
- When possible, PCMS units should be located in advance of the last available exit ramp prior to the lane closure to allow motorists an alternate route. They may also be relocated to improve advance warning in case of unanticipated queuing or congestion.
- For Intermediate Term Stationary work at night, floodlights should be used to illuminate the work area and equipment crossings. Floodlights shall not produce a disabling glare condition for road users or workers.
- The END ROAD WORK (G20-2) sign may be omitted when it conflicts with G20-2 signs already in place on the project.

* A shadow vehicle equipped with a Truck Mounted Attenuator is typically required. A shadow vehicle equipped with a TMA shall be used if it can be positioned 30' to 100' in advance of the area of crew exposure without adversely affecting the work performance.

Texas Department of Transportation
Traffic Operations Division Standard

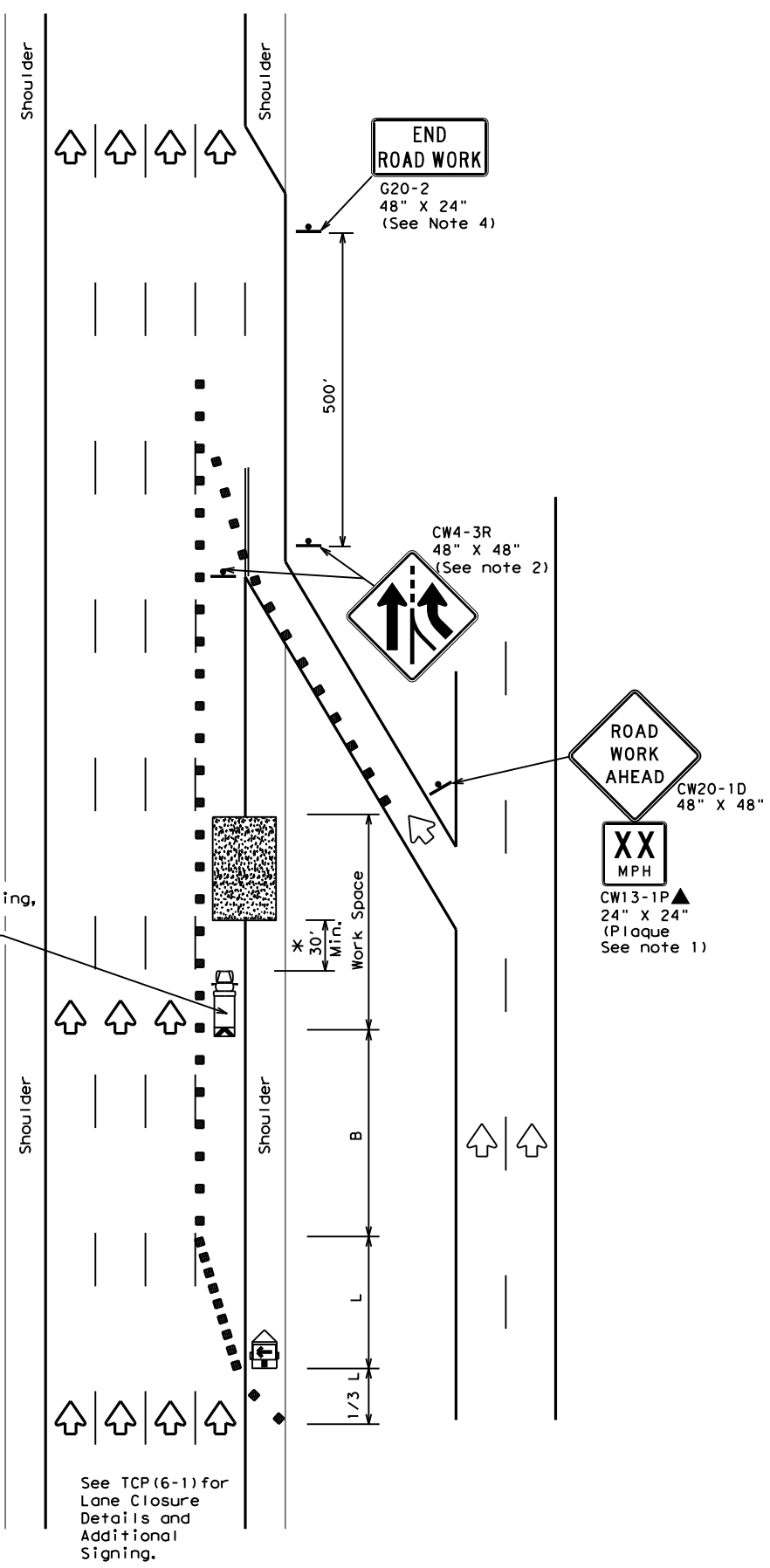
**TRAFFIC CONTROL PLAN
FREEWAY LANE CLOSURES**

TCP (6-1) - 12

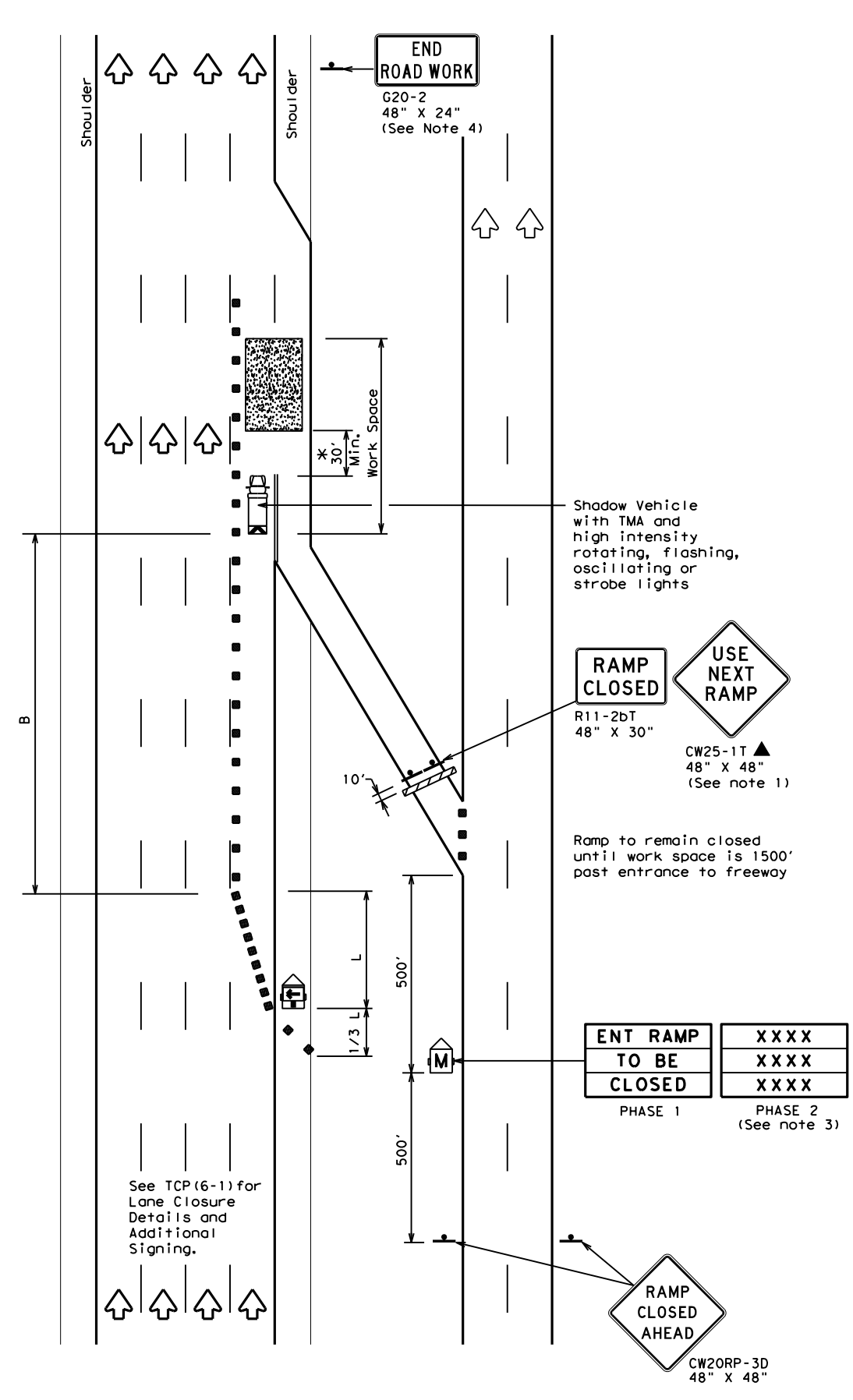
FILE: tcp6-1.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607 01		057, ETC.	FM 1764
8-12	DIST	COUNTY		SHEET NO.
	HOU	GALVESTON		124

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DATE: FILE:



TCP (6-2a)
ENTRANCE RAMP OPEN
WORK WITHIN 500' OF RAMP



TCP (6-2b)
ENTRANCE RAMP CLOSED

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

Posted Speed	Formula	Minimum Desirable Taper Lengths "L"			Suggested Maximum Spacing of Channelizing Devices		Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent	
45	L = WS	450'	495'	540'	45'	90'	195'
50		500'	550'	600'	50'	100'	240'
55		550'	605'	660'	55'	110'	295'
60		600'	660'	720'	60'	120'	350'
65		650'	715'	780'	65'	130'	410'
70		700'	770'	840'	70'	140'	475'
75		750'	825'	900'	75'	150'	540'
80		800'	880'	960'	80'	160'	615'

** 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

- All traffic control devices illustrated are REQUIRED. Devices denoted with the triangle symbol may be omitted when stated elsewhere in the plans.
- ADDED LANE Symbol (CW4-3) sign may be omitted when sign between ramp and mainline can be seen from both roadways.
- See "Advance Notice List" on BC(6) for recommended date and time formatting options for PCMS Phase 2 message.
- The END ROAD WORK (G20-2) sign may be omitted when it conflicts with G20-2 signs already in place on the project.

*A shadow vehicle equipped with a Truck Mounted Attenuator is typically required. A shadow vehicle equipped with a TMA shall be used if it can be positioned 30' to 100' in advance of the area of crew exposure without adversely affecting the work performance.

Additional requirements for lane closures and advance signing shall be as shown on TCP (6-1) or as directed by the Engineer.



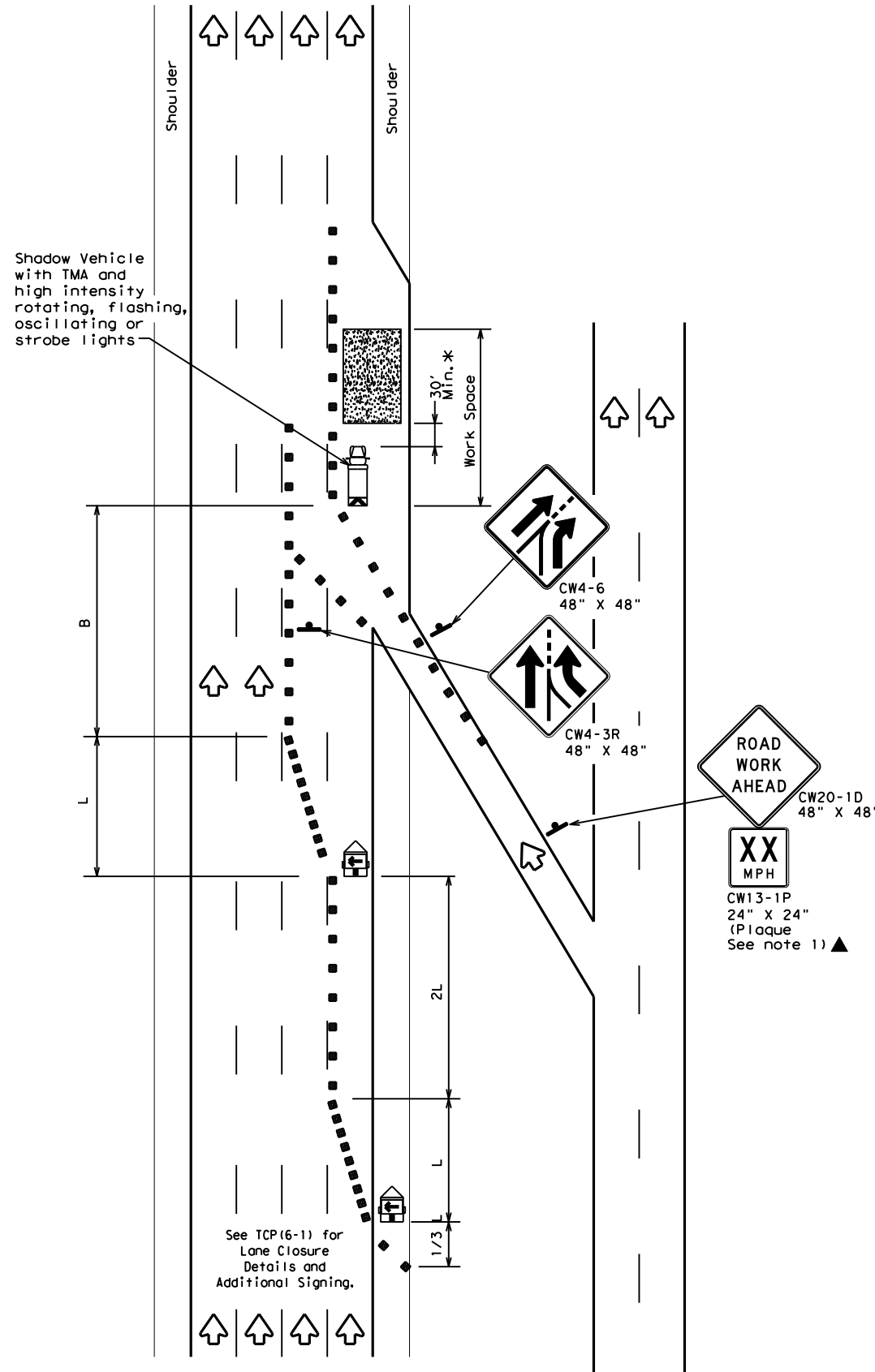
TRAFFIC CONTROL PLAN
WORK AREA NEAR RAMP

TCP (6-2) - 12

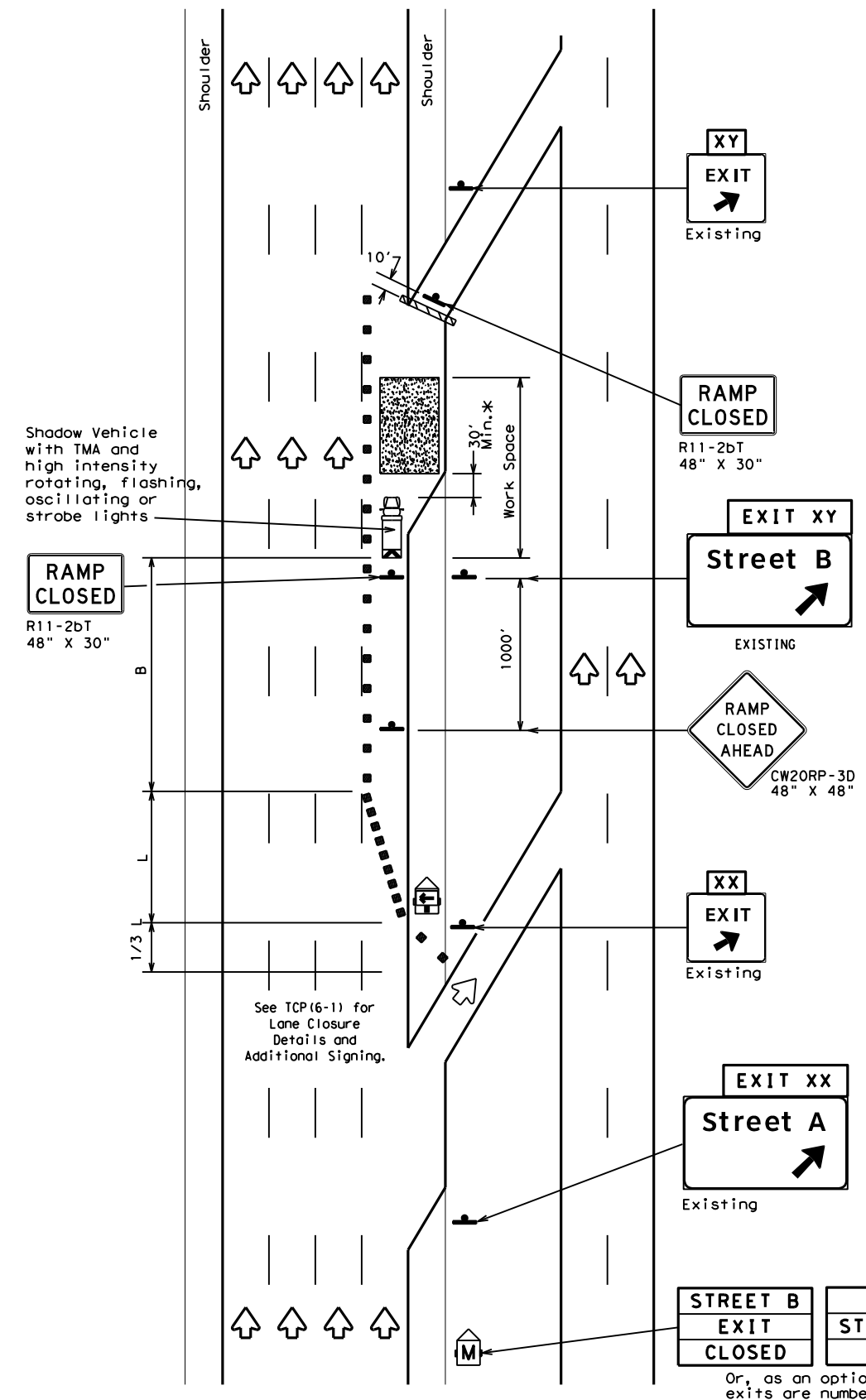
FILE:	tcp6-2.dgn	DN:	TxDOT	CK:	TxDOT	DW:	TxDOT	CK:	TxDOT
©TxDOT	February 1994	CONT	SECT	JOB	HIGHWAY				
REVISIONS		1607	01	057, ETC.	FM 1764				
1-97	8-98	DIST		COUNTY	SHEET NO.				
4-98	8-12	HOU		GALVESTON	125				

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DATE: FILE:



TCP (6-3a)
ENTRANCE RAMP OPEN



TCP (6-3b)
EXIT RAMP CLOSED
TRAFFIC EXITS PRIOR TO CLOSED RAMP

STREET B
EXIT
CLOSED

USE
STREET A
EXIT

Or, as an option when
exits are numbered

EXIT XY
CLOSED

USE
EXIT XX

Place 1 mile (approx.)
in advance of Street A
exit.

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

Posted Speed	Formula	Minimum Desirable Taper Lengths "L" **			Suggested Maximum Spacing of Channelizing Devices		Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent	
45	L = WS	450'	495'	540'	45'	90'	195'
50		500'	550'	600'	50'	100'	240'
55		550'	605'	660'	55'	110'	295'
60		600'	660'	720'	60'	120'	350'
65		650'	715'	780'	65'	130'	410'
70		700'	770'	840'	70'	140'	475'
75		750'	825'	900'	75'	150'	540'
80		800'	880'	960'	80'	160'	615'

** 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. All traffic control devices illustrated are REQUIRED. Devices denoted with the triangle symbol may be omitted when stated elsewhere in the plans.

*A shadow vehicle equipped with a Truck Mounted Attenuator is typically required. A shadow vehicle equipped with a TMA shall be used if it can be positioned 30' to 100' in advance of the area of crew exposure without adversely affecting the work performance.

Additional requirements for lane closures and advance signing shall be as shown on TCP (6-1) or as directed by the Engineer.

Texas Department of Transportation
Traffic Operations Division Standard

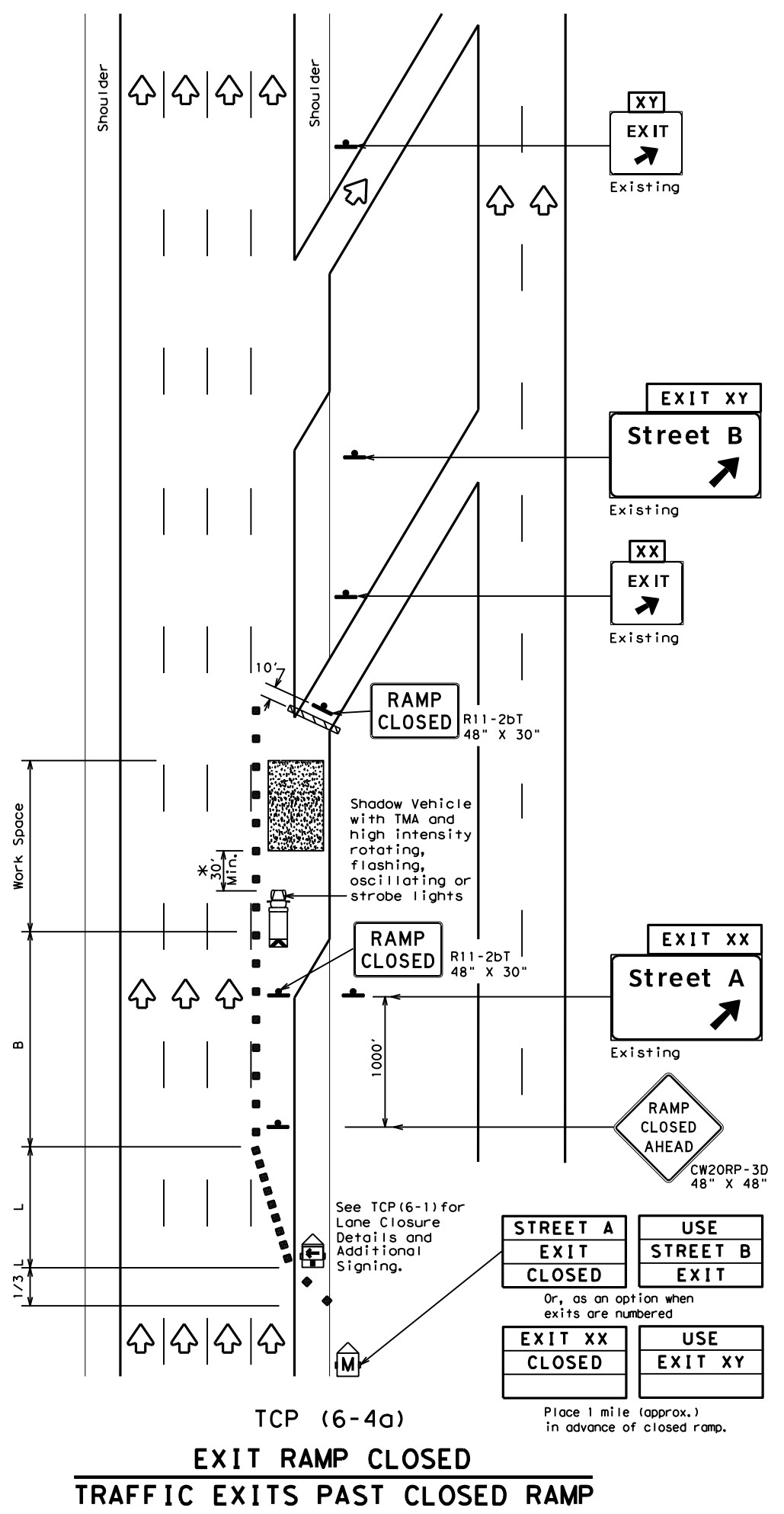
TRAFFIC CONTROL PLAN
WORK AREA BEYOND RAMP

TCP (6-3) - 12

FILE: tcp6-3.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CR: TxDOT
©TxDOT February 1994	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607 01	057, ETC.	FM 1764	
1-97 8-98	DIST	COUNTY	SHEET NO.	
4-98 8-12	HOU	GALVESTON	126	

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DATE:
FILE:

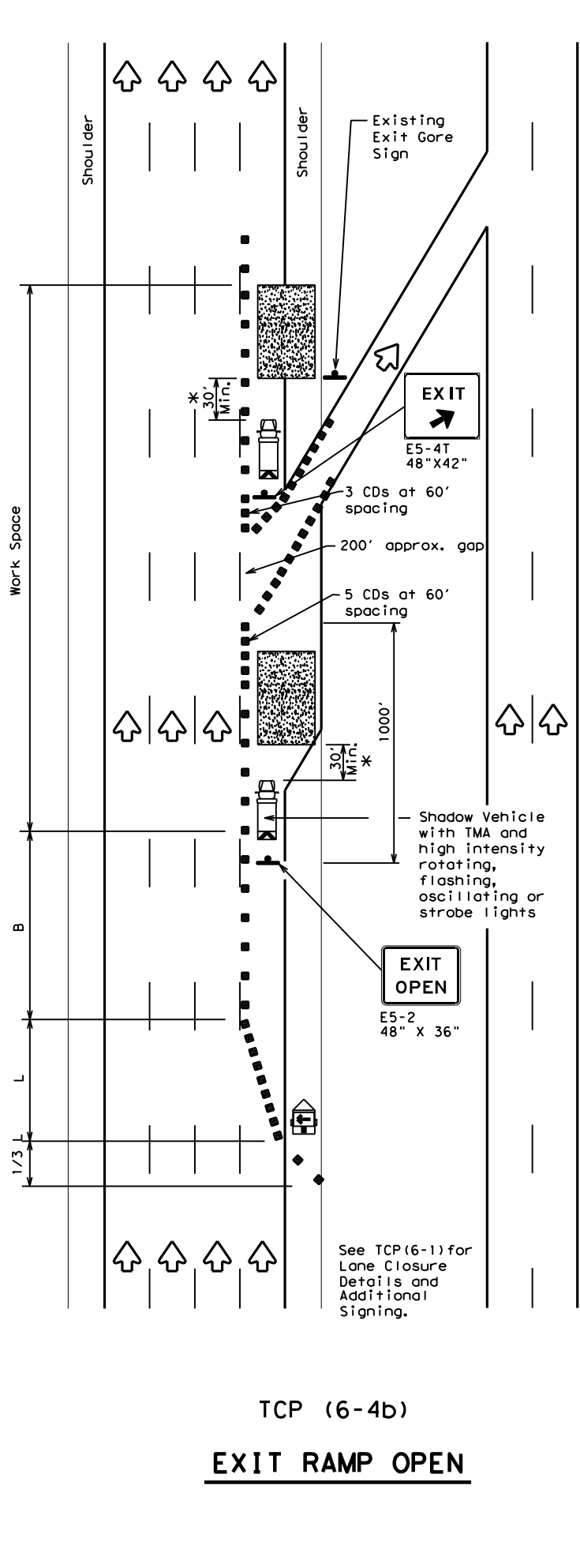


TCP (6-4a)
EXIT RAMP CLOSED
TRAFFIC EXITS PAST CLOSED RAMP

STREET A EXIT CLOSED	USE STREET B EXIT
EXIT XX CLOSED	USE EXIT XY

Or, as an option when exits are numbered

Place 1 mile (approx.) in advance of closed ramp.



TCP (6-4b)
EXIT RAMP OPEN

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

Posted Speed	Formula	Minimum Desirable Taper Lengths "L"			Suggested Maximum Spacing of Channelizing Devices		Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent	
45	L = WS	450'	495'	540'	45'	90'	195'
50		500'	550'	600'	50'	100'	240'
55		550'	605'	660'	55'	110'	295'
60		600'	660'	720'	60'	120'	350'
65		650'	715'	780'	65'	130'	410'
70		700'	770'	840'	70'	140'	475'
75		750'	825'	900'	75'	150'	540'
80		800'	880'	960'	80'	160'	615'

**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

- All traffic control devices illustrated are REQUIRED. Devices denoted with the triangle symbol may be omitted when stated elsewhere in the plans.
- See BC Standards for sign details.

*A shadow vehicle equipped with a Truck Mounted Attenuator is typically required. A shadow vehicle equipped with a TMA shall be used if it can be positioned 30' to 100' in advance of the area of crew exposure without adversely affecting the work performance.

Additional requirements for lane closures and advance signing shall be as shown on TCP (6-1) or as directed by the Engineer.



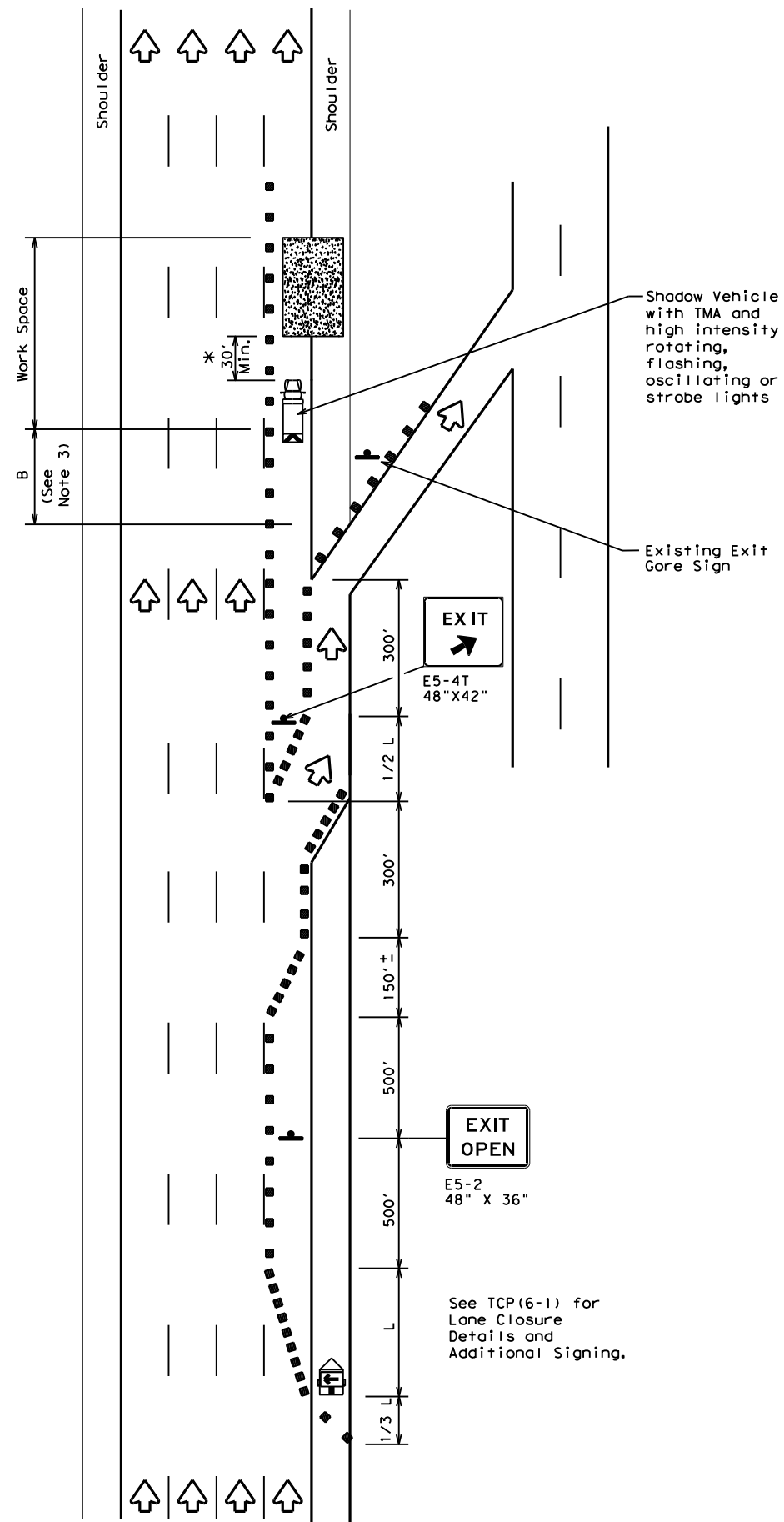
TRAFFIC CONTROL PLAN
WORK AREA AT EXIT RAMP

TCP (6-4) - 12

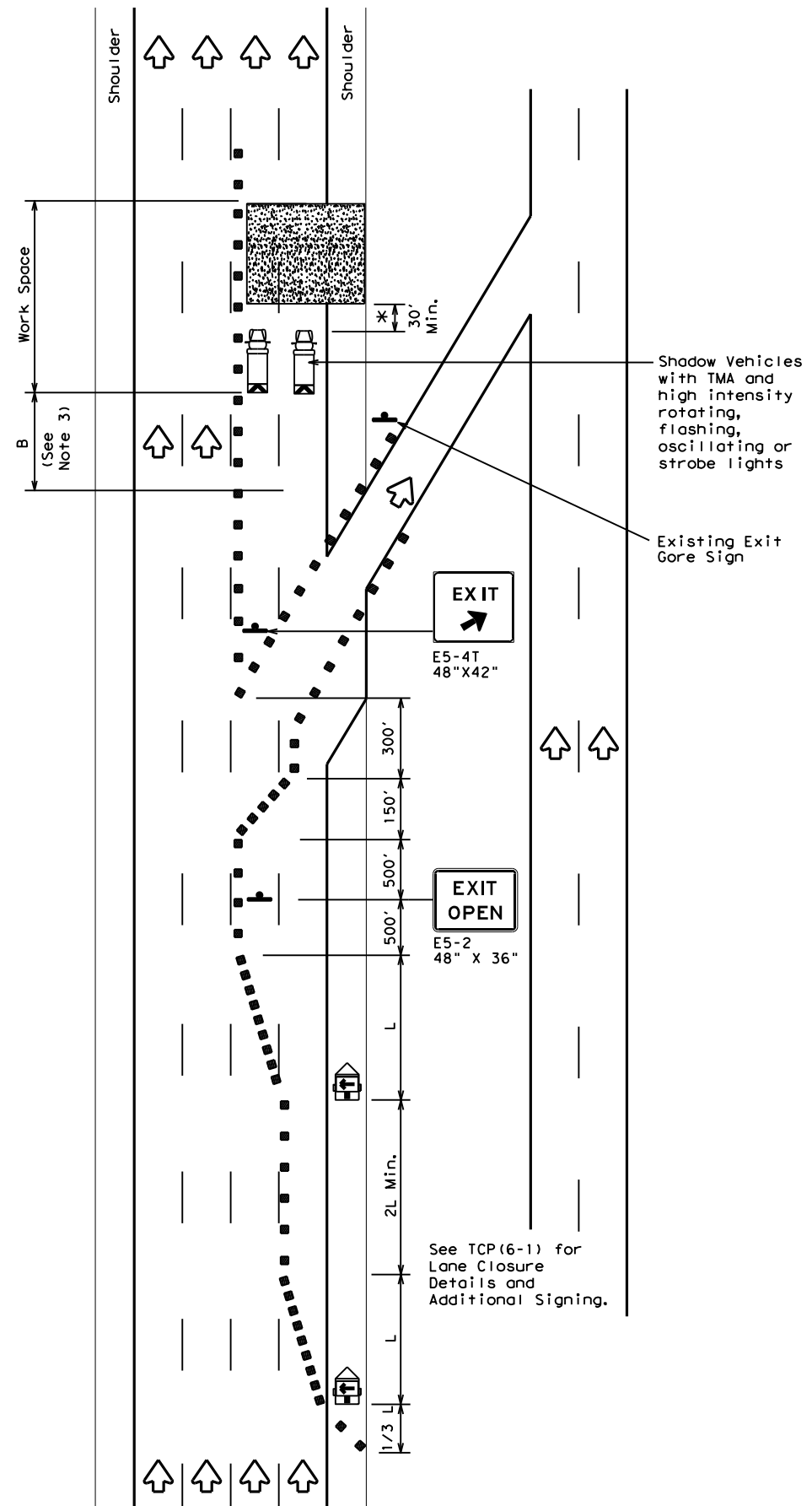
FILE: tcp6-4.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CR: TxDOT
©TxDOT February 1994	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607	01	057, ETC.	FM 1764
1-97 8-98	DIST	COUNTY	SHEET NO.	
4-98 8-12	HOU	GALVESTON	127	

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DATE: FILE:



TCP (6-5a)
EXIT RAMP OPEN



TCP (6-5b)
**EXIT RAMP OPEN
TWO LANE CLOSURE WITHIN
1500' PAST EXIT RAMP**

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

Posted Speed	Formula	Minimum Desirable Taper Lengths "L" * * *			Suggested Maximum Spacing of Channelizing Devices		Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent	
45	L = WS	450'	495'	540'	45'	90'	195'
50		500'	550'	600'	50'	100'	240'
55		550'	605'	660'	55'	110'	295'
60		600'	660'	720'	60'	120'	350'
65		650'	715'	780'	65'	130'	410'
70		700'	770'	840'	70'	140'	475'
75		750'	825'	900'	75'	150'	540'
80		800'	880'	960'	80'	160'	615'

* * * 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

- All traffic control devices illustrated are REQUIRED. Devices denoted with the triangle symbol may be omitted when stated elsewhere in the plans.
- See BC standards for sign details.
- If adequate longitudinal buffer length "B" does not exist between the work space and the exit ramp, consideration should be given to closing the ramp.

*A shadow vehicle equipped with a Truck Mounted Attenuator is typically required. A shadow vehicle equipped with a TMA shall be used if it can be positioned 30' to 100' in advance of the area of crew exposure without adversely affecting the work performance.

Additional requirements for lane closures and advance signing shall be as shown on TCP (6-1) or as directed by the Engineer.



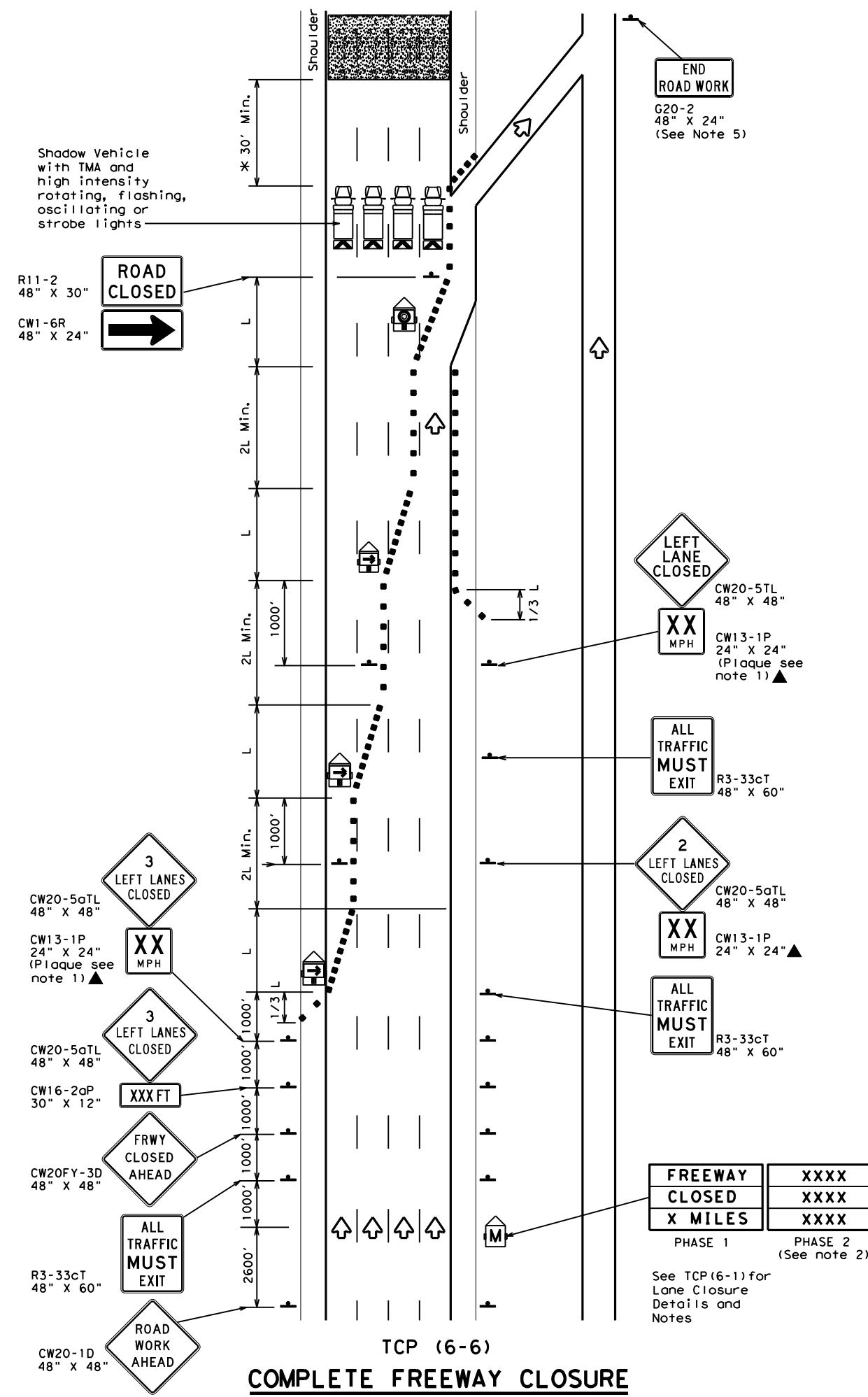
**TRAFFIC CONTROL PLAN
WORK AREA BEYOND EXIT RAMP**

TCP (6-5) - 12

FILE: tcp6-5.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CR: TxDOT
©TxDOT February 1998	CON: 1607	SECT: 01	JOB: 057, ETC.	HIGHWAY: FM 1764
1-97 8-98	DIST: COUNTY	SHEET NO.		
4-98 8-12	HOU: GALVESTON	SHEET NO.		128

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DATE: FILE:



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

Posted Speed	Formula	Minimum Desirable Taper Lengths "L"			Suggested Maximum Spacing of Channelizing Devices		Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent	
45	L = WS	450'	495'	540'	45'	90'	195'
50		500'	550'	600'	50'	100'	240'
55		550'	605'	660'	55'	110'	295'
60		600'	660'	720'	60'	120'	350'
65		650'	715'	780'	65'	130'	410'
70		700'	770'	840'	70'	140'	475'
75		750'	825'	900'	75'	150'	540'
80		800'	880'	960'	80'	160'	615'

** 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

- All traffic control devices illustrated are REQUIRED. Devices denoted with the triangle symbol may be omitted when stated elsewhere in the plans.
- Phase 2 of the PCMS message should include appropriate information formatted as shown on BC(6), such as "MERGE RIGHT," recommended speed, delay, exit information, or other specific warnings.
- Where queuing is anticipated beyond signing shown, additional PCMS signs, other warning signs, devices or Law Enforcement Officers should be available to warn approaching high speed traffic of the end of the queue, as directed by the Engineer.
- Entrance ramps located from the advance warning area to the exit ramp should be closed whenever possible.
- The END ROAD WORK (G20-2) sign may be omitted when it conflicts with G20-2 signs already in place on the project.

*A shadow vehicle equipped with a Truck Mounted Attenuator is typically required. A shadow vehicle equipped with a TMA shall be used if it can be positioned 30' to 100' in advance of the area of crew exposure without adversely affecting the work performance.

Additional requirements for lane closures and advance signing shall be as shown on TCP (6-1) or as directed by the Engineer.

Texas Department of Transportation
Traffic Operations Division Standard

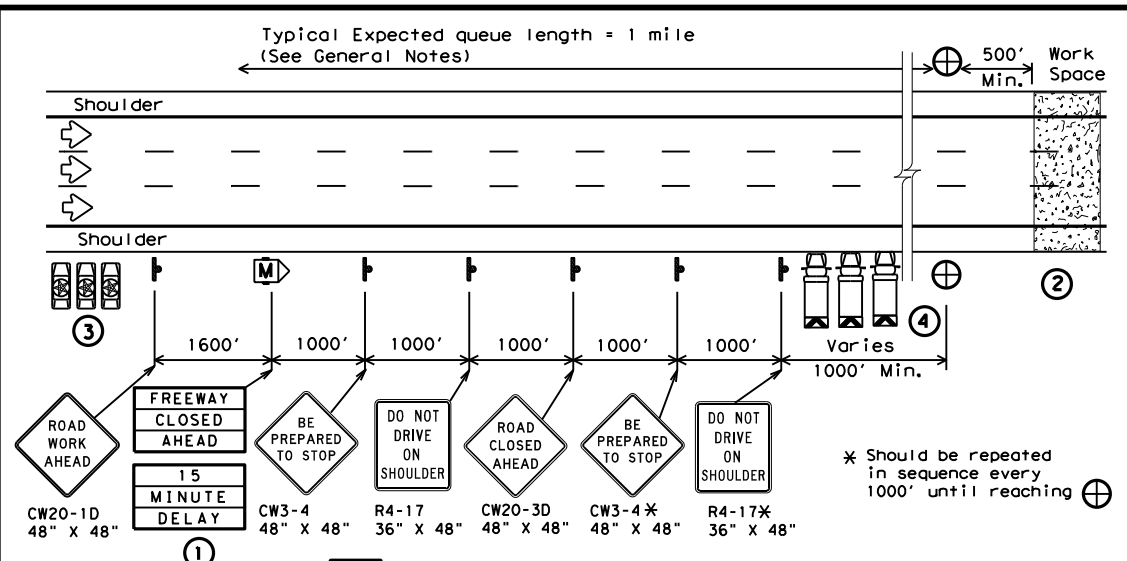
TRAFFIC CONTROL PLAN FREEWAY CLOSURE

TCP (6-6) - 12

FILE: tcp6-6.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 1994	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607	01	057, ETC.	FM 1764
1-97 8-98	DIST	COUNTY	SHEET NO.	
4-98 8-12	HOU	GALVESTON	129	

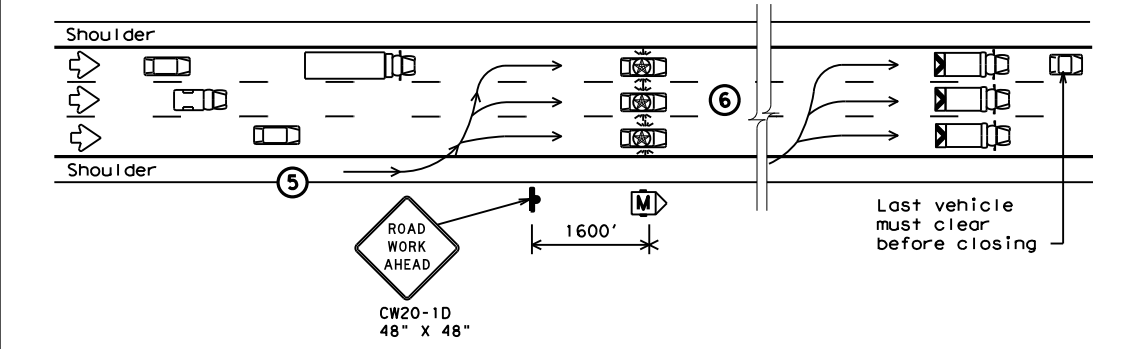
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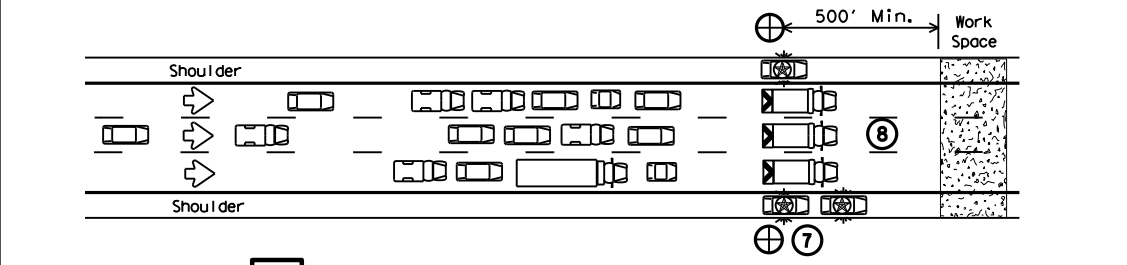
1 STARTING POSITION

- ① Traffic control devices should be installed or located near their intended position prior to beginning temporary roadway closure sequence. Duplicate signs should be erected on the median side of the roadway when median width permits. Warning signs should not be placed on the paved shoulders that will be used by the WARNING LEOV, or where movement of the LEOVs or barrier vehicles will be impeded.
- ② Prior to beginning the roadway closure sequence, all equipment, materials, personnel, and other items necessary to complete the work should be gathered near the work area. Entrance ramps located in the area where a queue is expected to build should be closed.
- ③ There should be one LEOV for every lane to be controlled, plus a minimum of one to warn traffic approaching a queue. An additional lead law enforcement officer is desirable to remain with the Engineer's or Contractor's point of contact (POC) during the operation in order to improve communication with all LEOVs involved.
- ④ One barrier vehicle with a Truck Mounted Attenuator and amber or blue and amber high intensity flashing/oscillating/strobe lighting shall be used for each lane to be closed.



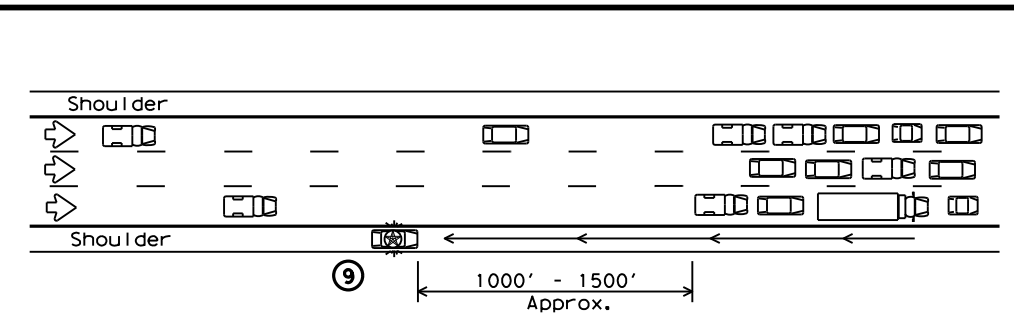
2 REDUCING SPEED OPERATION

- ⑤ Starting position of the LEOVs should be in advance of the most distant warning signs.
- ⑥ Once the LEOVs have achieved an abreast blocking formation while traveling toward the CP, emergency lights and headlights should be turned "ON". The LEOVs should maintain formation, not allow traffic to pass, and begin to decelerate. The LEOVs should continue to decelerate, giving the barrier vehicles opportunity to be staged upstream of the work space after traffic has cleared. The LEOVs should then continue to decelerate slowly until bringing traffic to a stop near the barrier vehicles.



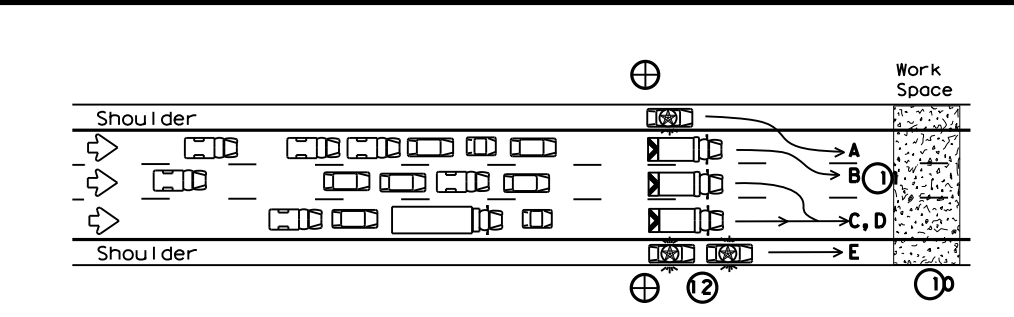
3 ALL TRAFFIC STOPPED AT CP

- ⑦ Once traffic is stopped the LEOVs should park on the shoulders with emergency lighting "ON" in order to provide law enforcement presence at the closure and keep shoulders blocked ahead of the work space. They should stay in radio contact with the WARNING LEOV.
- ⑧ The barrier vehicles should be parked, one in each lane, the parking brake set, with the high visibility flashing/oscillating/strobe lighting "ON," and the transmission in gear.



4 WARNING THE TRAFFIC QUEUE

- ⑨ The WARNING LEOV should proceed to the right shoulder of the roadway, with emergency lights on approximately 1000' in advance of the traffic queue (stopped traffic) as the queue develops. When determined that limited sight distance situations (crest of hills, sharp roadway curvature, etc.) may occur to motorists approaching the queue, the WARNING LEOV may proceed 1/4 mile or more in advance of the queue.



5 RELEASING STOPPED TRAFFIC

- ⑩ All equipment, materials, personnel, and other items should be removed from the roadway and maintain an adequate clear zone.
- ⑪ When the roadway is clear for traffic, the LEOV should proceed forward from the left shoulder followed by the barrier vehicles, from left to right, as shown alphabetically in the plan view.
- ⑫ The LEOV or LEOVs on the right shoulder may remain on the shoulder until satisfied that traffic is moving satisfactorily before merging or proceeding.
- ⑬ LEOVs and barrier vehicles should re-group at their respective starting positions if necessary.

LEGEND			
■	Channelizing Devices	⊕	Control Position (CP)
M	Portable Changeable Message Sign (PCMS)	⊠	Barrier Vehicle with Truck Mounted Attenuator
Ⓜ	Law Enforcement Officer's Vehicle (LEOV)	←	Traffic Flow

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

GENERAL NOTES

1. All traffic control devices shall conform with the latest edition of the Texas Manual on Uniform Traffic Control Devices (TMUTCD). Additional guidelines for traffic control devices may be found in the TMUTCD. Signs conflicting with the roadway closure sequence should be completely removed or covered. Additional traffic control devices may be required for closure of access roads, cross streets, exit and entrance ramps as directed by the Engineer.
2. Law enforcement officers and all workers involved should review and understand all procedures before the roadway closure sequence begins. Pre-work meetings may be held for this purpose. Local emergency services and media should have advance notification of roadway closure, expected dates and approximate times of closures.
3. Law enforcement officers shall be in uniform and have jurisdiction in the locale of the work area. An additional WARNING Law Enforcement Officer's Vehicle (LEOV) may be used on the median side of the roadway where median shoulder width permits (See sequence #9).
4. The roadway closure should be during off-peak hours, as shown in the plans, or as directed by the Engineer.
5. Work should be limited to approximately 15 minutes maximum duration unless otherwise directed by the Engineer based on existing roadway conditions. If the work is not complete within 15 minutes, or if the end of the traffic queue extends past the most distant advance warning signs, the work area should be cleared of all equipment, materials, personnel, and other items, and the roadway reopened. When the queue has dissipated and the traffic flow appears normal the roadway closure sequence may be repeated.
6. For traffic volumes greater than 1000 Passenger Cars Per Hour Per Lane (PCPHPL), or for roadway closures that exceed 15 minutes, see details elsewhere in the plan.
7. If traffic queues beyond the advance warning signs during one road closure sequence, the advance warning should be extended prior to repeating the road closure sequence. When possible, PCMS signs should be located in advance of the last available exit prior to the closure to allow motorists the choice of an alternate route.

THIS PLAN IS INTENDED TO BE USED AT LOCATIONS/TIMES WHEN TRAFFIC VOLUMES ARE LESS THAN 1000 PASSENGER CARS PER HOUR PER LANE.

Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN

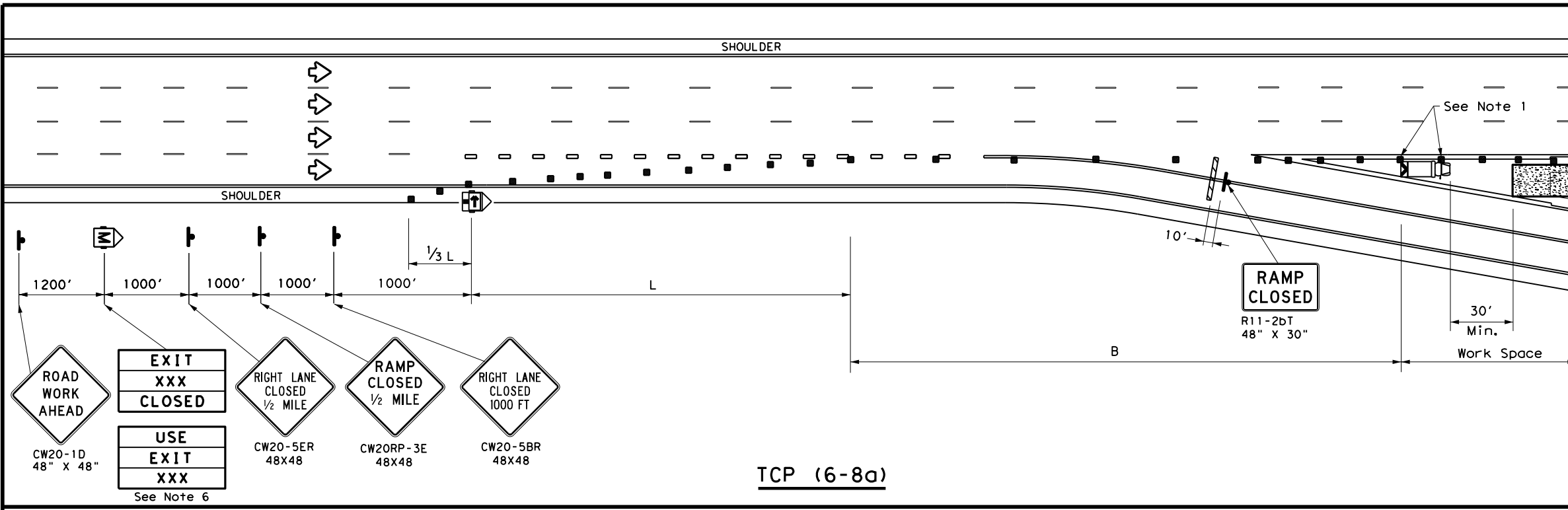
SHORT DURATION FREEWAY CLOSURE SEQUENCE

TCP (6-7) - 12

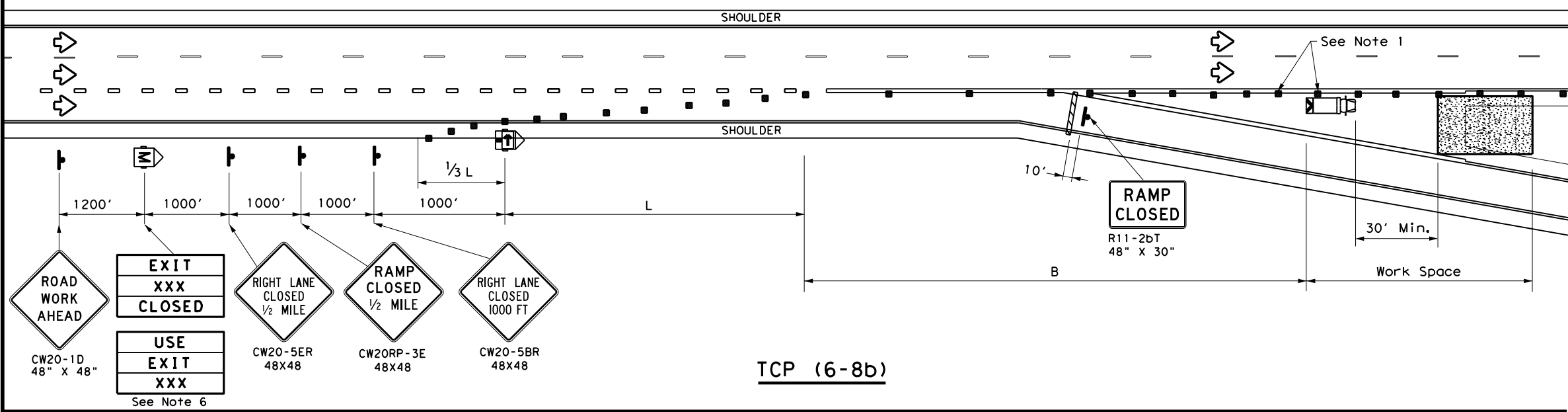
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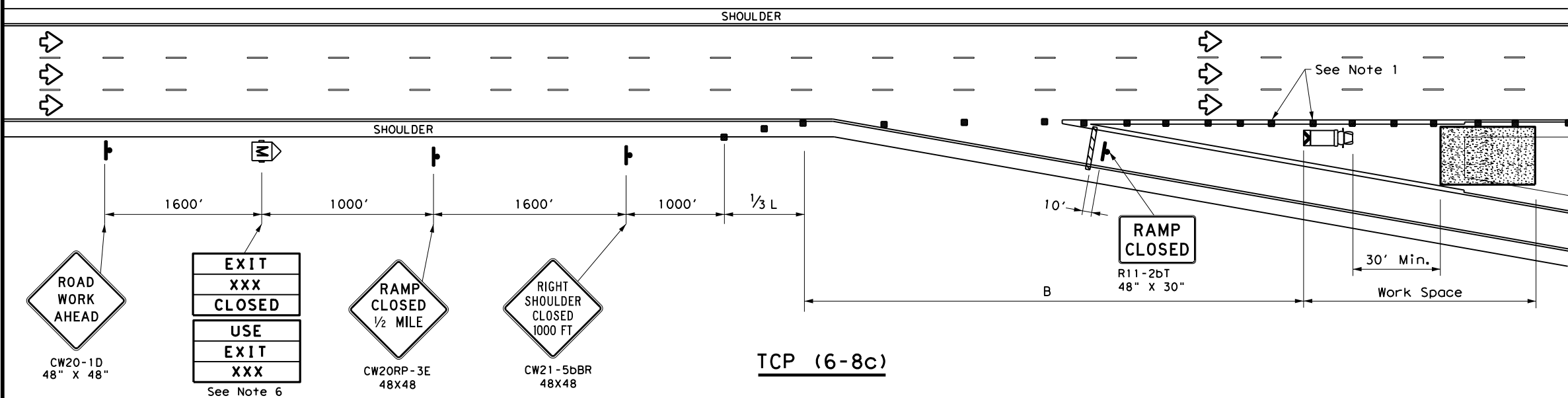
DATE: FILE:



TCP (6-8a)



TCP (6-8b)



TCP (6-8c)

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

Posted Speed	Formula	Minimum Desirable Taper Lengths "L" **			Suggested Maximum Spacing of Channelizing Devices		Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent	
45	L = WS	450'	495'	540'	45'	90'	195'
50		500'	550'	600'	50'	100'	240'
55		550'	605'	660'	55'	110'	295'
60		600'	660'	720'	60'	120'	350'
65		650'	715'	780'	65'	130'	410'
70		700'	770'	840'	70'	140'	475'
75		750'	825'	900'	75'	150'	540'
80		800'	880'	960'	80'	160'	615'

** 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**
- Place channelizing devices in the gore at 20' spacing.
 - See the Standard Highway Sign Design for Texas (SHSD) for sign details.
 - The PCMS may be omitted when a permanent DMS sign is available in an appropriate location to display a similar message as called for on the PCMS.
 - When it is determined that a through lane should be closed in addition to the exit ramp, refer to TCP(6-4) for traffic control details.
 - Truck mounted attenuator is required.
 - The PCMS may be omitted if replaced with a "RAMP CLOSED" AHEAD (CW20RP-3D) Sign.
 - Roadway ADT should be greater than 10,000.

Texas Department of Transportation
 Traffic Operations Division Standard

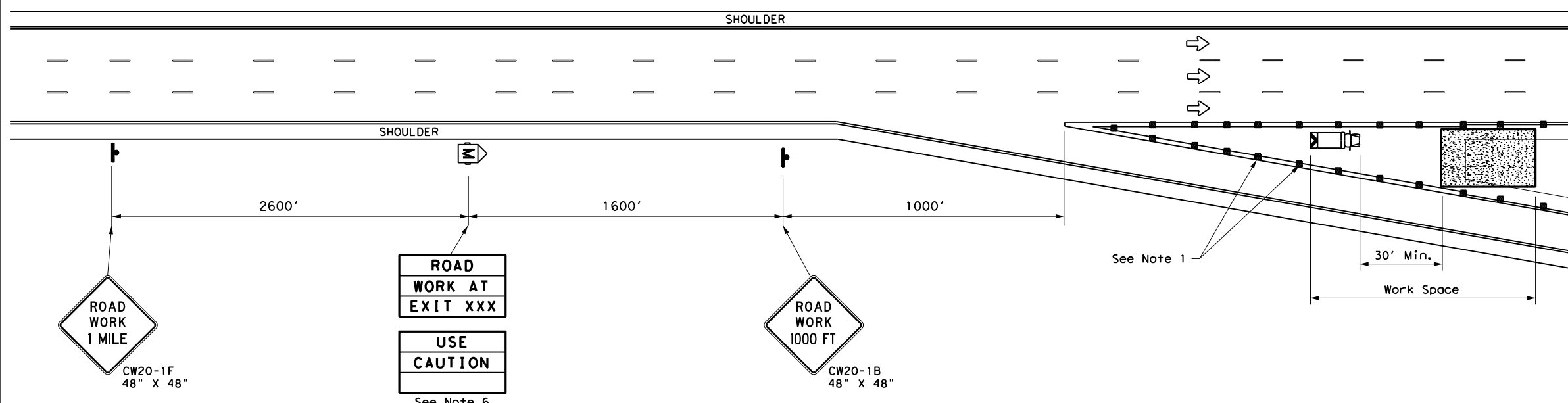
WORK IN EXIT GORE FOR ADT GREATER THAN 10,000

TCP (6-8) - 14

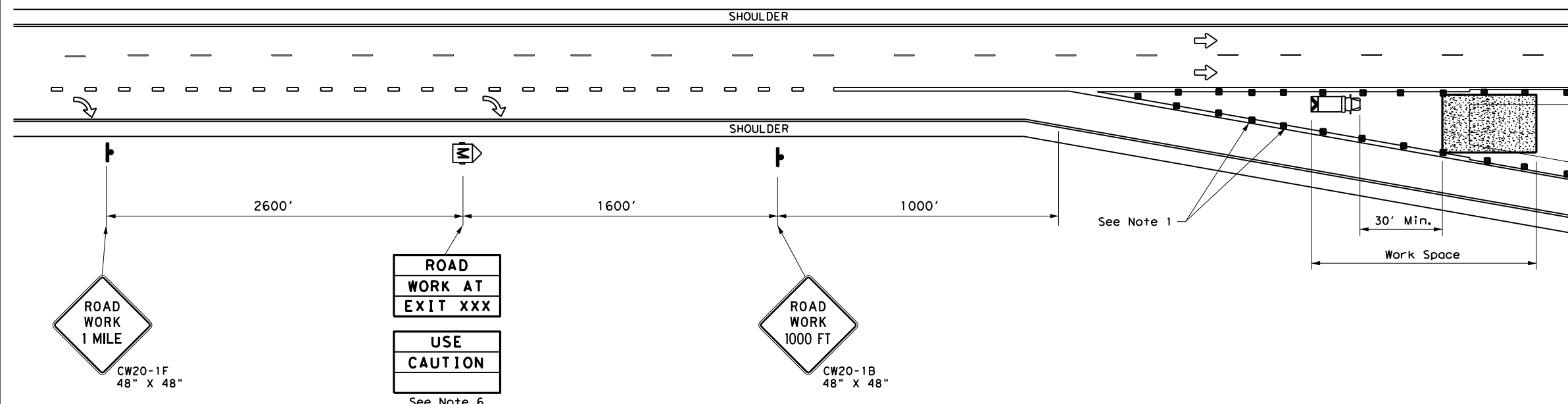
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TCP (6-9a)



TCP (6-9b)

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

Posted Speed	Formula	Minimum Desirable Taper Lengths "L" **			Suggested Maximum Spacing of Channelizing Devices		Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent	
45	L = WS	450'	495'	540'	45'	90'	195'
50		500'	550'	600'	50'	100'	240'
55		550'	605'	660'	55'	110'	295'
60		600'	660'	720'	60'	120'	350'
65		650'	715'	780'	65'	130'	410'
70		700'	770'	840'	70'	140'	475'
75		750'	825'	900'	75'	150'	540'
80		800'	880'	960'	80'	160'	615'

** 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**
- Place channelizing devices in the gore at 20' spacing.
 - See the Standard Highway Sign Design for Texas (SHSD) for sign details.
 - The PCMS may be omitted when a permanent DMS sign is available in an appropriate location to display a similar message as called for on the PCMS.
 - When it is determined that a through lane should be closed in addition to the exit ramp, refer to TCP (6-4) and TCP (6-8) for traffic control details.
 - Truck mounted attenuators are required.
 - The PCMS may be omitted if replaced with a "ROAD WORK 1/2 MILE" (CW20-1E).
 - Roadway ADT should be less than 10,000.



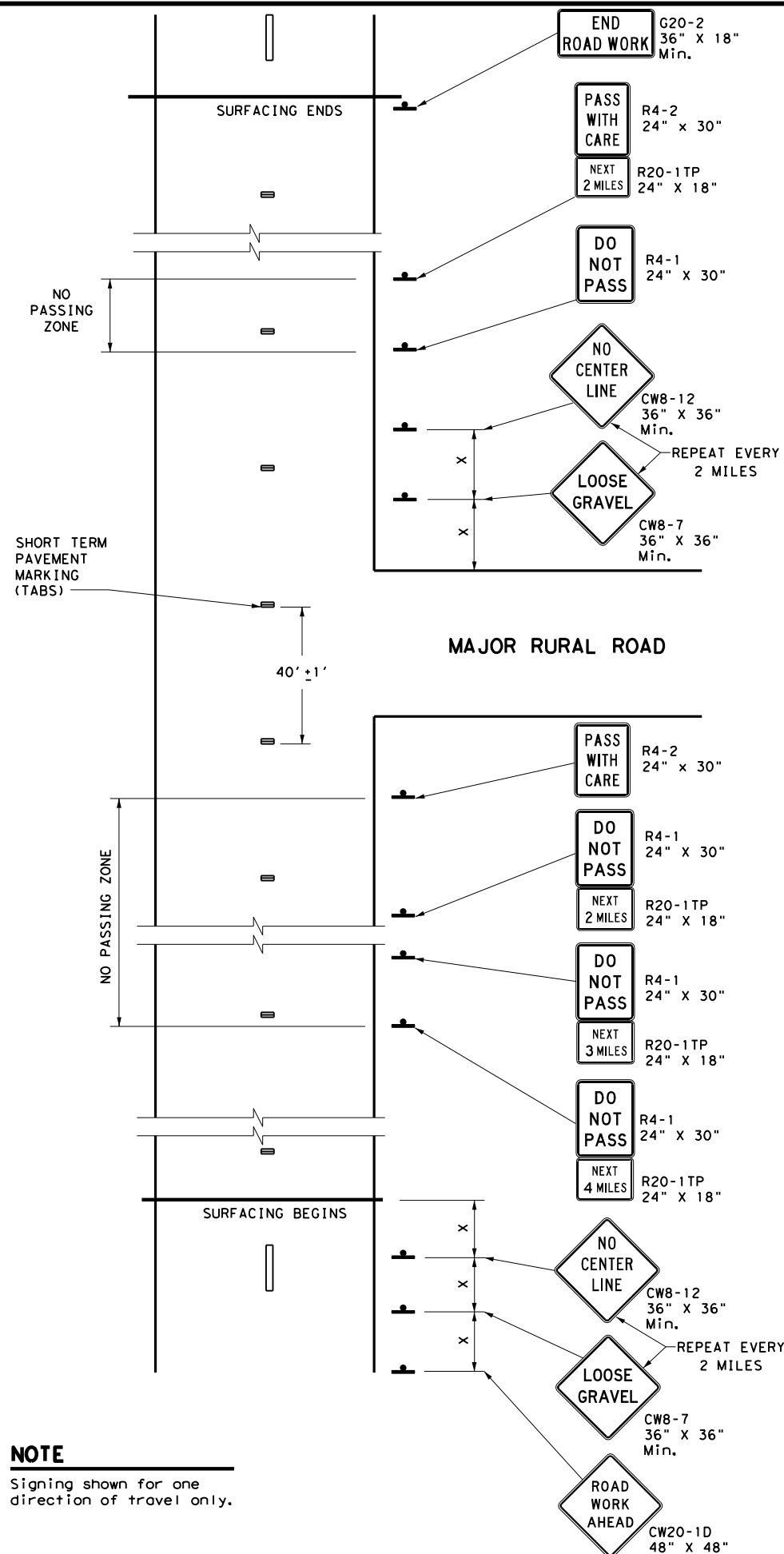
WORK IN EXIT GORE FOR ADT LESS THAN 10,000

TCP (6-9) - 14

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	HOU	GALVESTON		132

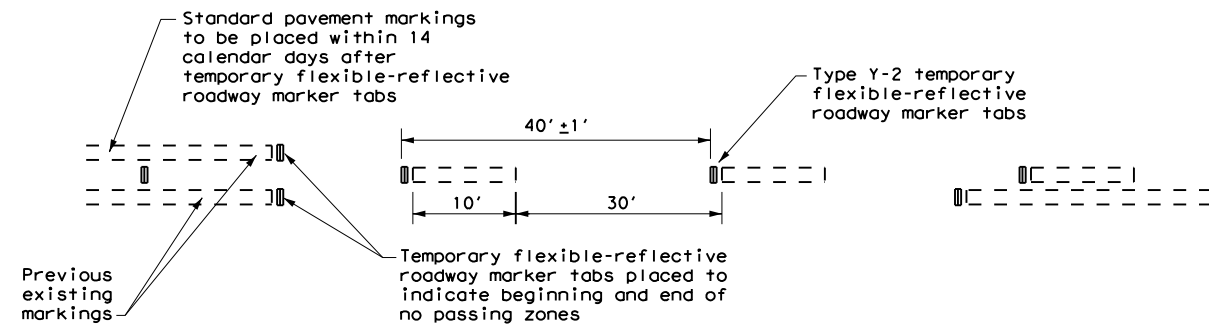
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NOTE
 Signing shown for one direction of travel only.

NO PASSING ZONES ON TWO-LANE TWO-WAY ROADS



TABS ON CENTERLINES OF TWO-LANE TWO-WAY ROADS
 For seal coat, micro-surface or similar operations

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

- A. Prior to the beginning of construction, all currently striped no-passing zones shall be signed with the DO NOT PASS (R4-1) signs and PASS WITH CARE (R4-2) signs placed at the beginning and end of each zone for each direction of travel except as otherwise provided herein. Signs marking these individual no-passing zones need not be covered prior to construction if the signs supplement the existing pavement markings.
- B. At the discretion of the Engineer, in areas of numerous no-passing zones, several zones may be combined as a single zone. If passing is to be prohibited over one or more lengthy sections, a DO NOT PASS sign and a NEXT XX MILES (R20-1TP) plaque may be used at the beginning of such zones. The DO NOT PASS sign and the NEXT XX MILES plaque should be repeated every mile to the end of the no-passing zone. In areas where there is considerable distance between no-passing zones, the end of the no-passing zone may be signed with a PASS WITH CARE sign and a NEXT XX MILES plaque.
- C. Depending on traffic volumes and length of sections, it may be desirable to prohibit passing throughout the project to prevent damage to windshield and lights. The DO NOT PASS sign and NEXT XX MILES plaque should be used and repeated as often as necessary for this purpose. Where several existing zones are to be combined into one individual no-passing zone, the sign at the beginning of the zone should be covered until the surfacing operation has passed this location so as not to have the DO NOT PASS sign conflict with the existing pavement markings. Also, unless one days operation completes the entire length of such combined zones, appropriate DO NOT PASS and PASS WITH CARE signs should be placed at the beginning and end of the no-passing zones where the surfacing operation has stopped for the day.
- D. R4-1 and R4-2 are to remain in place until standard pavement markings are installed.

"NO CENTER LINE" SIGN (CW8-12)

- A. Center line markings are yellow pavement markings that delineate the separation of travel lanes that have opposite directions of travel on a roadway. Divided highways do not typically have center line markings.
- B. At the time construction activity obliterates the existing center line markings (low volume roads may not have an existing centerline), a NO CENTER LINE (CW8-12) sign should be erected at the beginning of the work area, at approximately 2 mile intervals within the work area, beyond major intersections and other locations deemed necessary by the Engineer.
- C. The NO CENTER LINE signs are to remain in place until standard pavement markings are installed.

"LOOSE GRAVEL" SIGN (CW8-7)

- A. When construction begins, a LOOSE GRAVEL (CW8-7) sign should be erected at each end of the work area and repeated at intervals of approximately 2 miles in rural areas and closer in urban areas.
- B. The LOOSE GRAVEL signs are to remain in place until the condition no longer exists.

PAVEMENT MARKINGS

- A. Temporary markings for surfacing projects shall be Temporary Flexible-reflective Roadway Marker Tabs unless otherwise approved by the Engineer. Tabs are to be installed to provide true alignment for striping crews or as directed by the Engineer. Tabs will be placed at the spacing indicated. Tabs should be applied to the pavement no more than two (2) days before the surfacing is applied. After the surfacing is rolled and swept, the cover over the reflective strip shall be removed.
- B. Tabs shall not be used to simulate edge lines.
- C. Tab placement for overlay/inlay operations shall be as shown on the WZ(STPM) standard sheet.

COORDINATION OF SIGN LOCATIONS

- A. The location of warning signs at the beginning and end of a work area are to be coordinated with other signing typically shown on the Barricade and Construction Standards for project limits to ensure adequate sign spacing.
- B. Where possible the ROAD WORK AHEAD (CW20-1D), LOOSE GRAVEL (CW8-7), and NO CENTER LINE (CW8-12) signs should be placed in the sequence shown following the OBEY WARNING SIGNS STATE LAW (R20-3T) and the TRAFFIC FINES DOUBLE (R20-5T) sign, and one "X" sign spacing prior to the CONTRACTOR (G20-6T) sign typically located at or near the limits of surfacing. LOOSE GRAVEL and NO CENTER LINE signs will then be repeated as described above.

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

* Conventional Roads Only

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

GENERAL NOTES

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



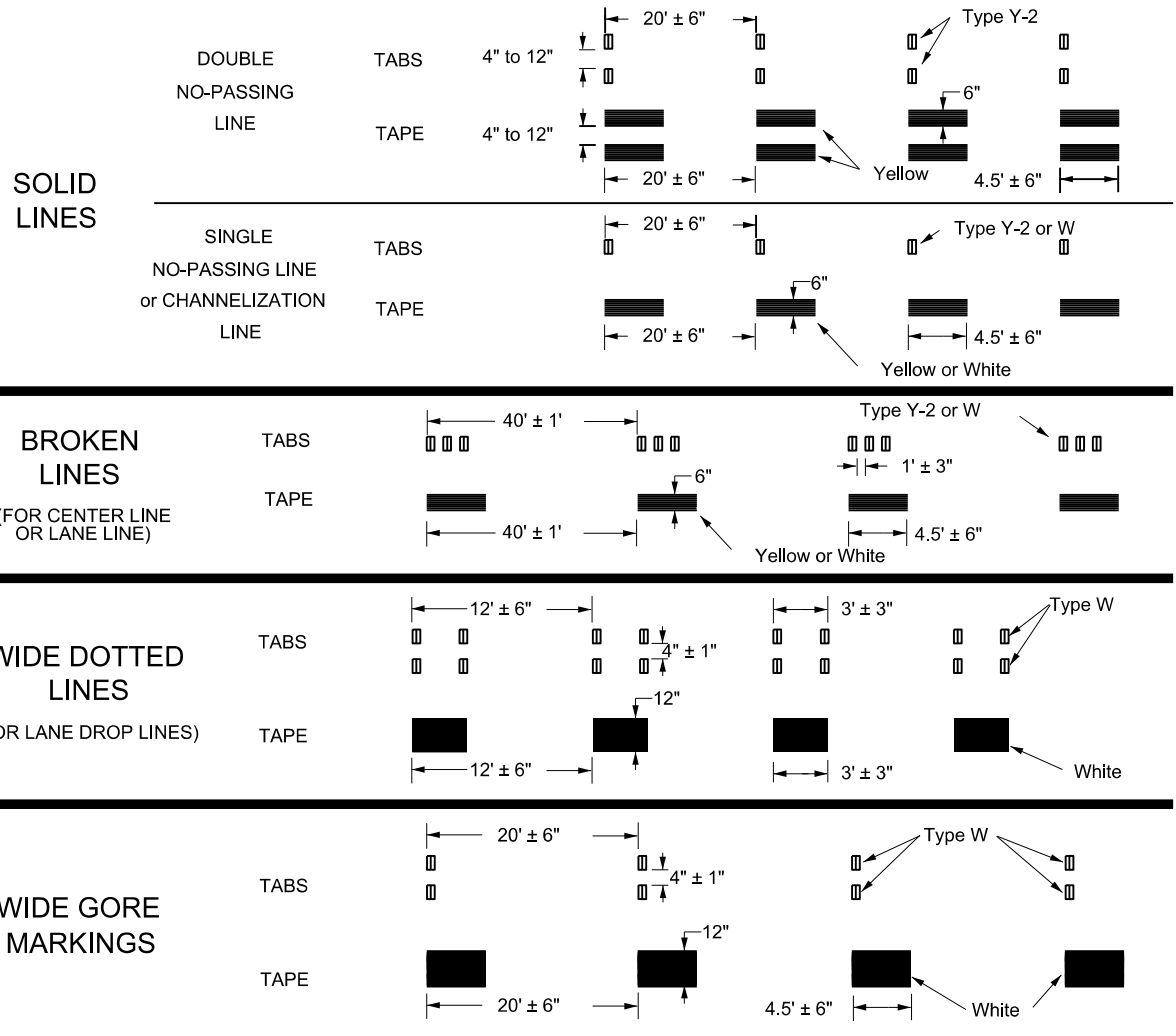
TRAFFIC CONTROL DETAILS FOR SURFACING OPERATIONS

TCP (7-1) - 13

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WORK ZONE SHORT TERM PAVEMENT MARKINGS DETAILS



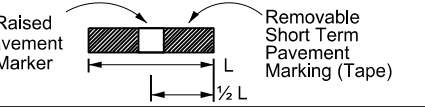
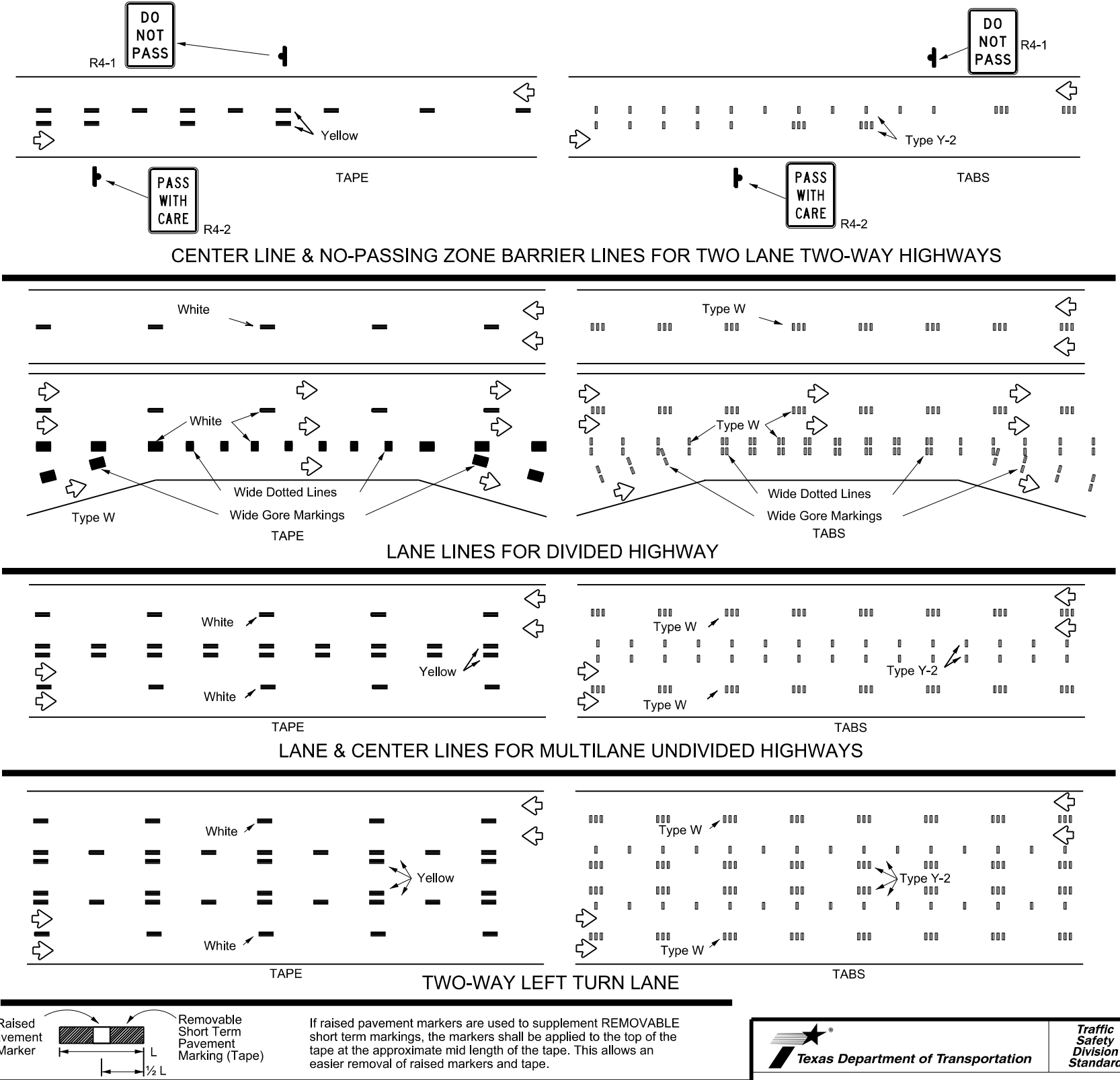
NOTES:

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

TEMPORARY FLEXIBLE, REFLECTIVE ROADWAY MARKER TABS (TABS)

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

WORK ZONE SHORT TERM PAVEMENT MARKINGS PATTERNS



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

PREFABRICATED PAVEMENT MARKINGS

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

RAISED PAVEMENT MARKERS

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

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

- DMSs referenced above can be found along with embedded links to their respective MPLs at the following website:

http://www.txdot.gov/business/contractors_consultants/material_specifications/default.htm



WORK ZONE SHORT TERM PAVEMENT MARKINGS

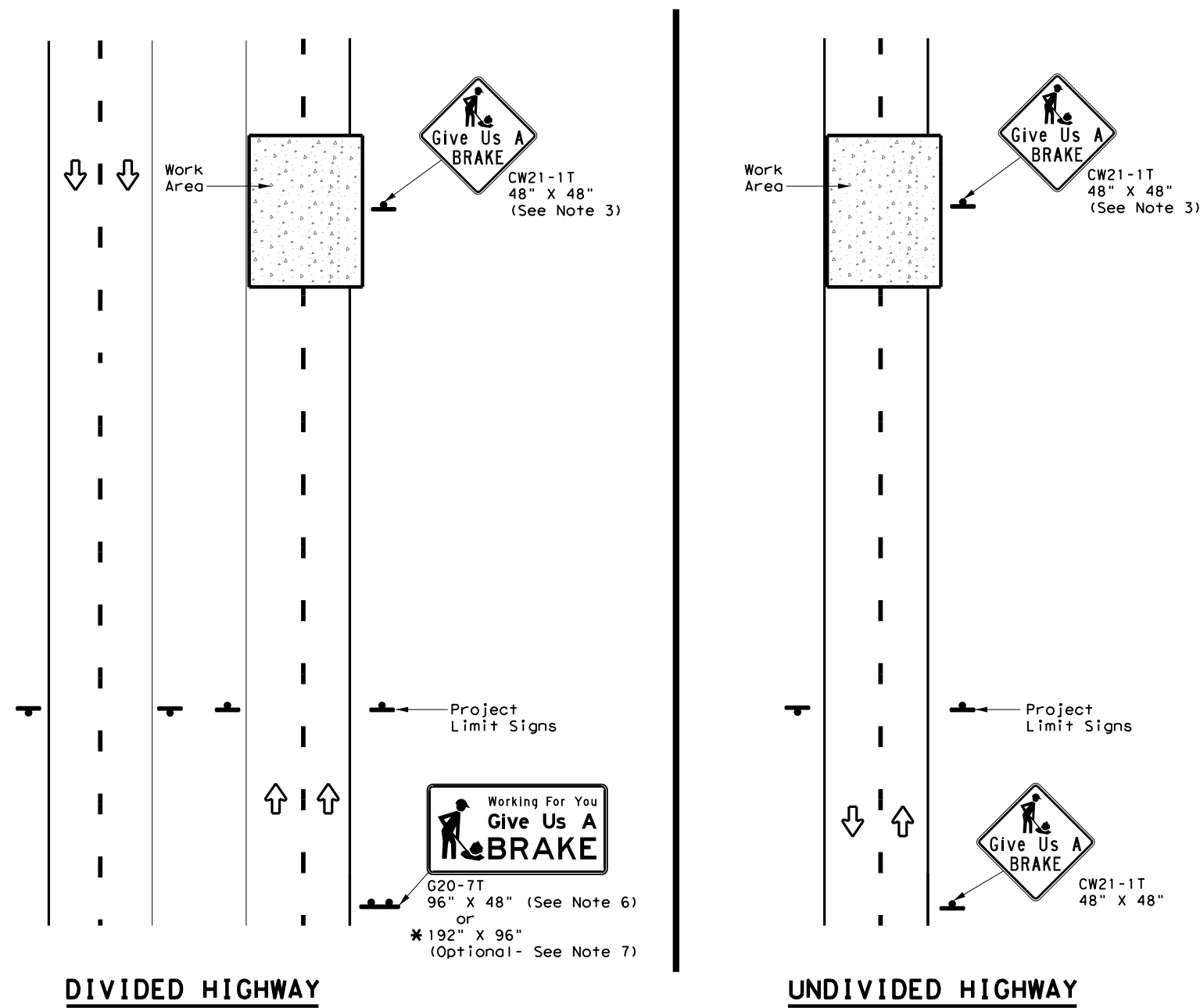
WZ(STPM)-23

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SIGNS ARE SHOWN FOR ONE DIRECTION OF TRAVEL

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

SUMMARY OF LARGE SIGNS

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

▲ See Note 6 Below

LEGEND

	Sign
	Large Sign
	Traffic Flow

DEPARTMENTAL MATERIAL SPECIFICATIONS

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

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

GENERAL NOTES

- See BC and SMD sheets for additional sign support details.
- Sign locations shall be approved by the Engineer.
- For projects more than two miles in length, Give Us a BRAKE signs should be repeated halfway through the project. The Give Us a Brake (CW21-1T) may be used for this purpose.
- Work zone speed limits are sometimes used in conjunction with GIVE US A BRAKE signing. See BC(3) for location and spacing of construction speed zone signing when required.
- Give Us a Brake (CW21-1T) signs and supports shall be considered subsidiary to Item 502, "Barricades, Signs and Traffic Handling."
- The 96" X 48" Working For You Give Us A BRAKE (G20-7T) may use a 1/2" or 5/8" plywood substrate or 0.125" aluminum sheeting substrate and may be supported by two 4" x 6" wood posts with drilled holes for breakaway as per BC(5) and will be subsidiary to Item 502.
- The Working For You Give Us A BRAKE (G20-7T) 192" X 96" sign shall be paid for under the following specification items:
 Item 636 - Aluminum Signs
 Item 647 - Large Roadside Sign Supports and Assemblies.
 Item 416 - Drilled Shaft Foundations
- All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition. Sign details not shown in this manual shall be shown in the plans or the Engineer shall provide a detail to the Contractor before the sign is manufactured.

Texas Department of Transportation
Traffic Operations Division Standard

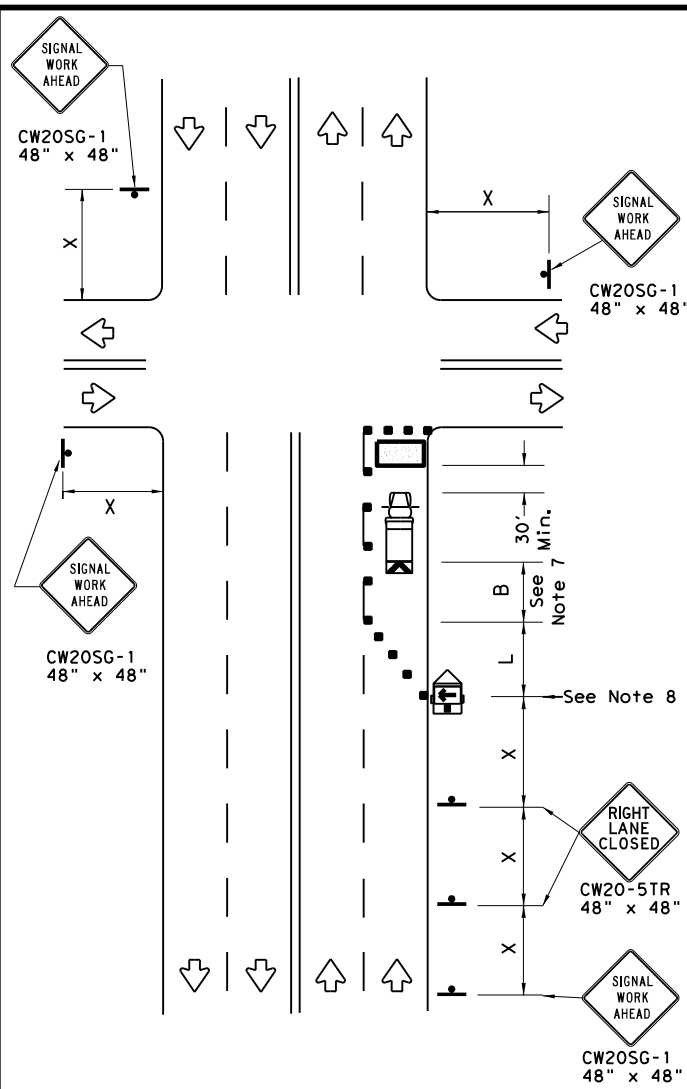
**WORK ZONE
"GIVE US A BRAKE"
SIGNS**

WZ (BRK) - 13

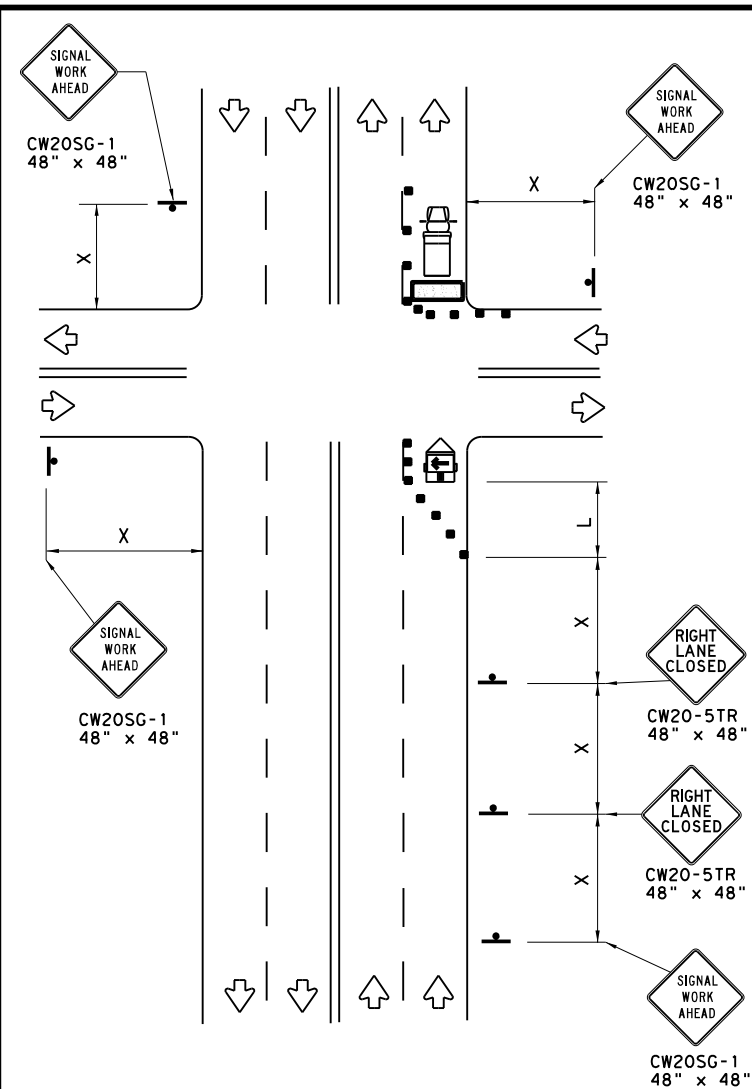
FILE: wzbrk-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CR: TxDOT
©TxDOT August 1995	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607	01	057, ETC.	FM 1764
6-96 5-98 7-13	DIST	COUNTY	SHEET NO.	
8-96 3-03	HOU	GALVESTON	135	

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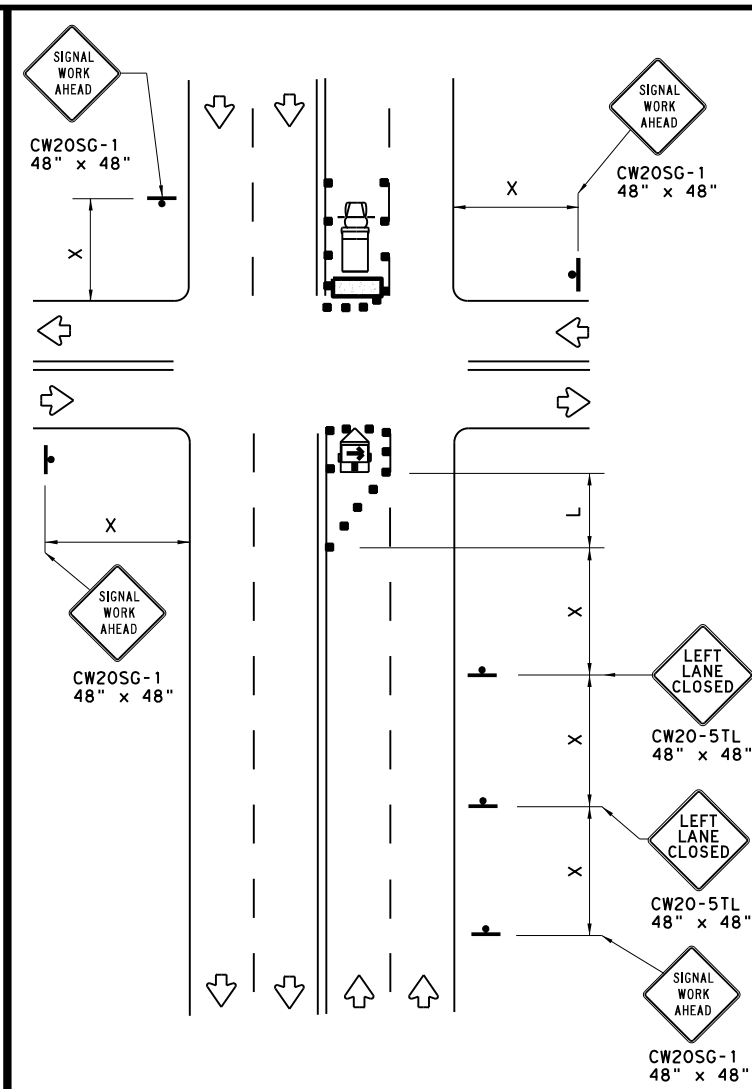
DATE: FILE:



NEAR SIDE LANE CLOSURE
SHORT DURATION OR SHORT TERM STATIONARY



FAR SIDE RIGHT LANE CLOSURE
SHORT DURATION OR SHORT TERM STATIONARY



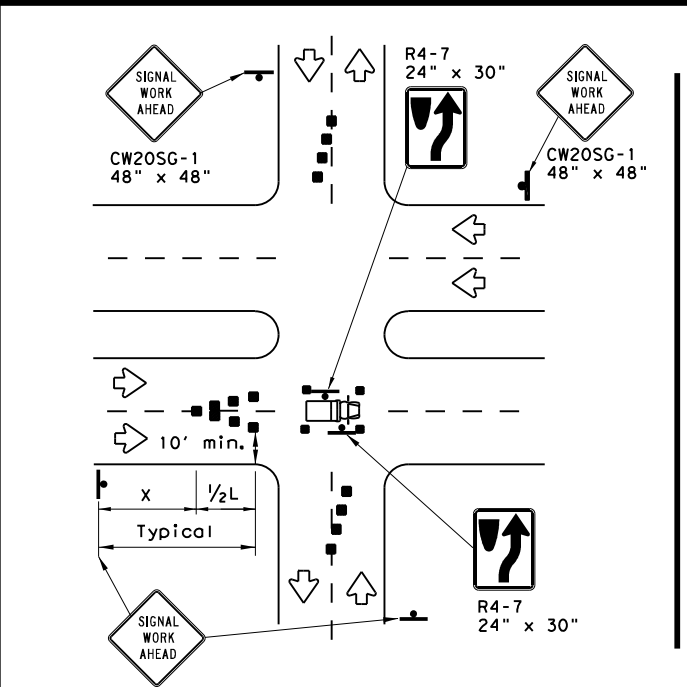
FAR SIDE LEFT LANE CLOSURE
SHORT DURATION OR SHORT TERM STATIONARY

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

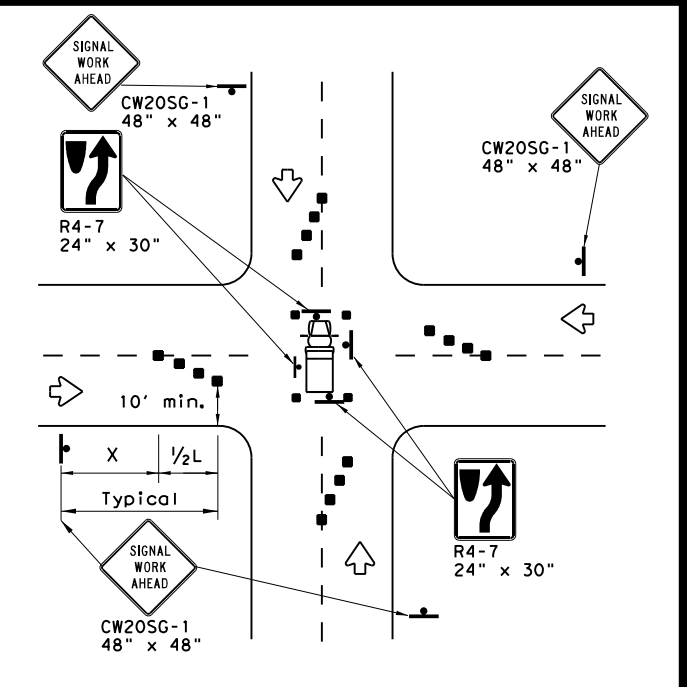
Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "x" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'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

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

WORKERS IN BUCKET TRUCKS SHALL NOT WORK ABOVE OPEN LANES OF TRAFFIC.



OPERATIONS IN THE INTERSECTION
SHORT DURATION



GENERAL NOTES

- The minimum size channelizing device is the 28" cone. 42" Two-piece cones, drums, vertical panels or barricades will be required when the device must be left unattended at night.
- Obstructions or hazards at the work area shall be clearly marked and delineated at all times.
- Flaggers and Flagger Symbol (CW20-7) signs may be required according to field conditions.
- Vehicles parked in roadway shall be equipped with at least two high intensity rotating, flashing, oscillating or strobe type lights.
- High level warning devices (flag trees) may be used at corners of the vehicle.
- When work operations are performed on existing signals, the signals may be placed in flashing red mode when approved by the engineer. If existing signals do not have power, All-Way Stop (R1-1 and R1-3P) signs may be implemented when approved by the engineer.
- For Short-Term Stationary work the buffer space "B" from the above table should be used if field conditions permit. For Short Duration (less than 1 hour) any buffer space provided will enhance the safety of the setup.
- The arrow board at this location may be omitted for Short Duration work if the work vehicle has an arrow board in operation. As an option, the arrow board may be placed at the end of the taper in the closed lane if space is not available at the beginning of the taper.
- Signs and devices for the NEAR SIDE LANE CLOSURE may be altered for a left lane closure by using a LEFT LANE CLOSED (CW20-5TL) and adding channelizing devices on the centerline to protect the work space from opposing traffic.



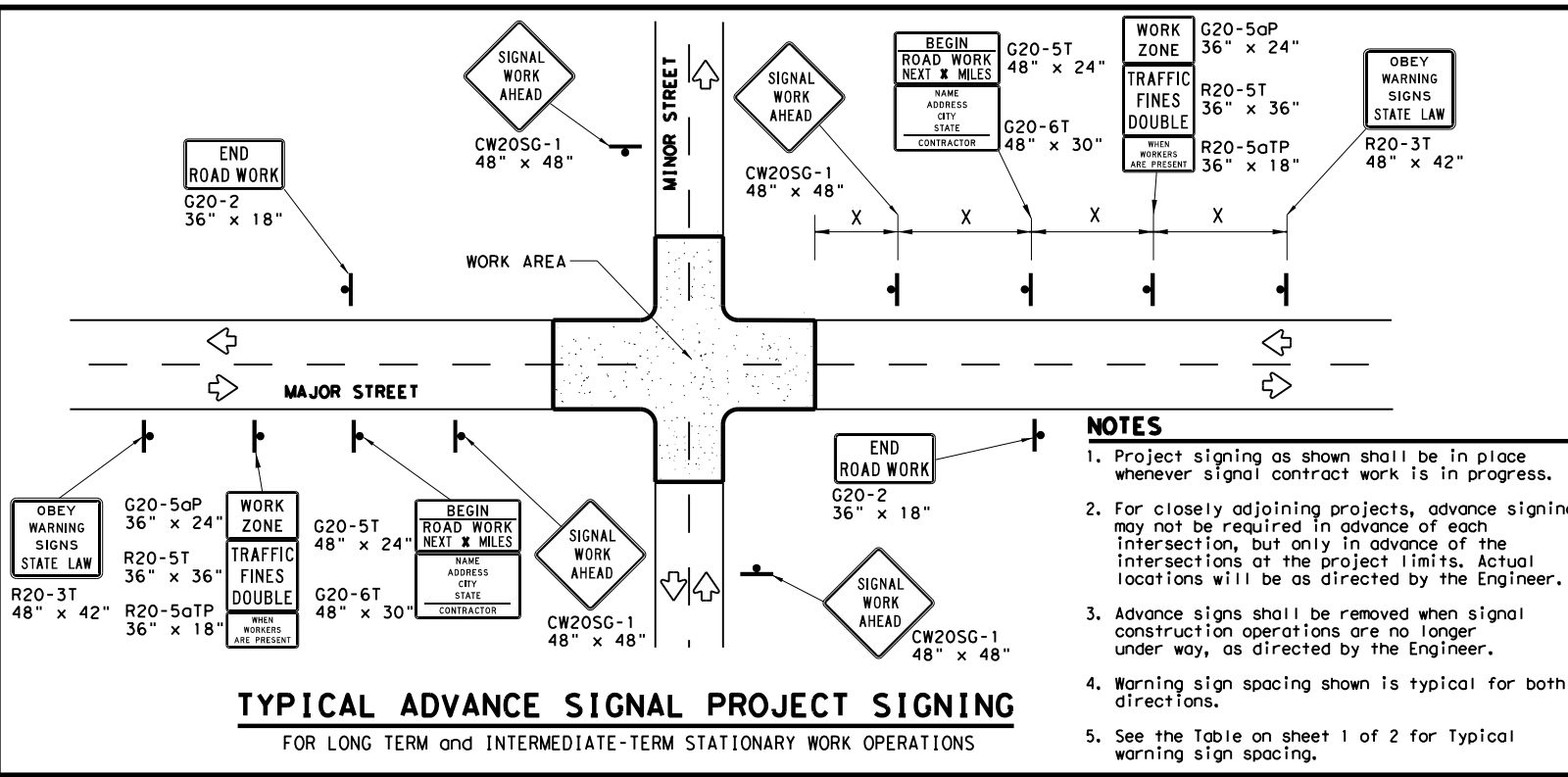
TRAFFIC SIGNAL WORK TYPICAL DETAILS

WZ (BTS-1) - 13

FILE: wzbts-13.dgn	DN: TxDOT	CR: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT April 1992	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607	01	057, ETC.	FM 1764
2-98 10-99 7-13	DIST	COUNTY	SHEET NO.	
4-98 3-03	HOU	GALVESTON	136	

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DATE: FILE:



TYPICAL ADVANCE SIGNAL PROJECT SIGNING
FOR LONG TERM and INTERMEDIATE-TERM STATIONARY WORK OPERATIONS

- NOTES**
1. Project signing as shown shall be in place whenever signal contract work is in progress.
 2. For closely adjoining projects, advance signing may not be required in advance of each intersection, but only in advance of the intersections at the project limits. Actual locations will be as directed by the Engineer.
 3. Advance signs shall be removed when signal construction operations are no longer under way, as directed by the Engineer.
 4. Warning sign spacing shown is typical for both directions.
 5. See the Table on sheet 1 of 2 for Typical warning sign spacing.

GENERAL NOTES FOR WORK ZONE SIGNS

1. Signs shall be installed and maintained in a straight and plumb condition.
2. Wooden sign posts shall be painted white.
3. Barricades shall NOT be used as sign supports.
4. Nails shall NOT be used to attach signs to any support.
5. All signs shall be installed in accordance with the plans or as directed by the Engineer.
6. The Contractor shall furnish the sign design shown in the plans or in the "Standard Highway Sign Designs for Texas" (SHSD).
7. The Contractor shall furnish sign supports and substrates listed in the "Compliant Work Zone Traffic Control Device List" (CWZTCD), installed as per the manufacturer's recommendations.
8. Temporary signs that have damaged or cracked substrates and/or damaged or marred reflective sheeting shall be replaced as directed by the Engineer.
9. 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".
10. Damaged wood posts shall be replaced. Splicing wood posts will not be allowed.

DURATION OF WORK

1. Work zone durations are defined in Part 6, Section 60.02 of the Texas Manual on Uniform Traffic Control Devices (TMUTCD).

SIGN MOUNTING HEIGHT

1. Sign height of Long-term/Intermediate-term warning signs shall be as shown on Figure 6F-1 of the TMUTCD.
2. Sign height of Short-term/Short Duration warning signs shall be as shown on Figure 6F-2 of the TMUTCD.
3. Regulatory signs shall be mounted at least 7 feet, but not more than 9 feet, above the paved surface regardless of work duration.

REMOVING OR COVERING

1. When sign messages may be confusing or do not apply, the signs shall be removed or completely covered, unless otherwise approved by the Engineer.
2. When signs are covered, the material used shall be opaque, such as heavy mil black plastic, or other materials which will cover the entire sign face and maintain their opaque properties under automobile headlights at night without damaging the sign sheeting. Burlap, or heavy materials such as plywood or aluminum shall not be used to cover signs.
3. Duct tape or other adhesive material shall NOT be affixed to a sign face.
4. Signs and anchor stubs shall be removed and holes back filled upon completion of the work.

REFLECTIVE SHEETING

1. All signs shall be retroreflective and constructed of sheeting meeting the requirements of the DMS and color usage table shown on this sheet.

SIGN SUPPORT WEIGHTS

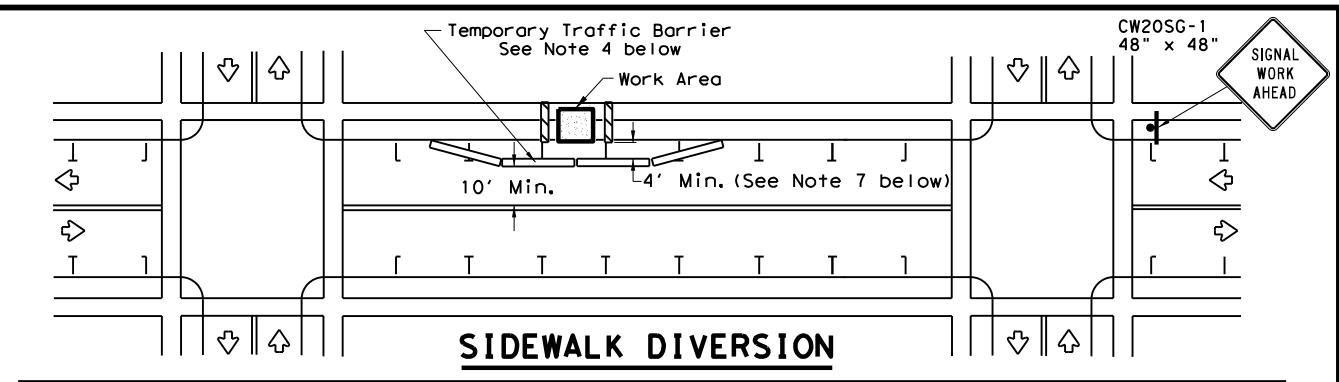
1. Weights used to keep signs from turning over should be sandbags filled with dry, cohesionless material.
2. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
3. Rock, concrete, iron, steel or other solid objects will not be permitted for use as sign support 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 fire 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.

LEGEND	
	Sign
	Channelizing Devices
	Type 3 Barricade

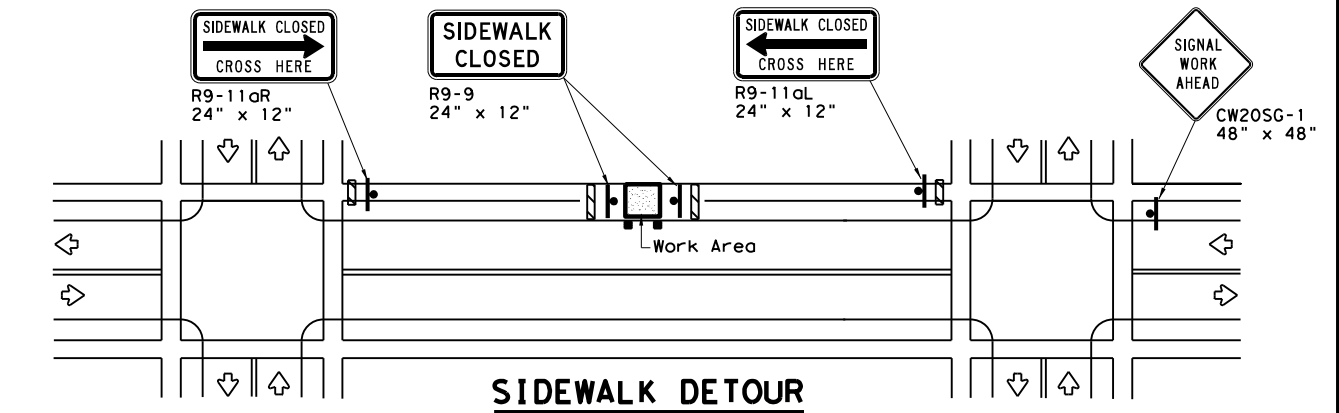
DEPARTMENTAL MATERIAL SPECIFICATIONS	
SIGN FACE MATERIALS	DMS-8300
FLEXIBLE ROLL-UP REFLECTIVE SIGNS	DMS-8310

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

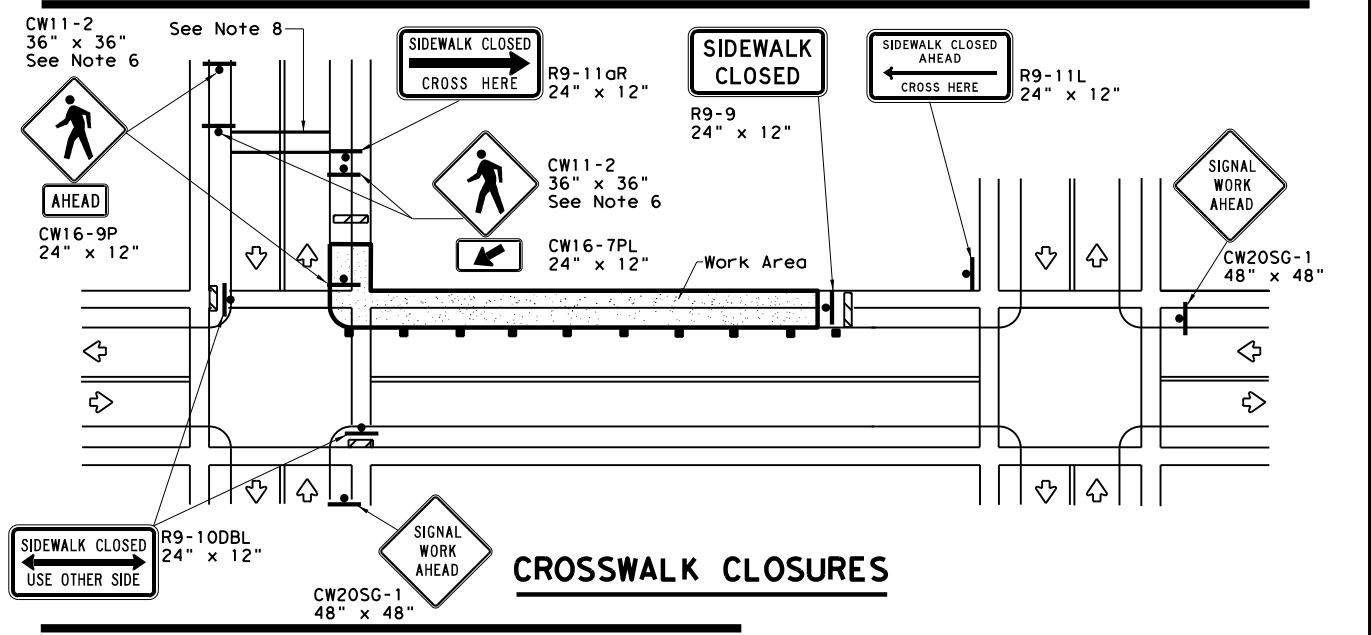
Only pre-qualified products shall be used. A copy of the "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be found at the following web address:
http://www.txdot.gov/txdot_library/publications/construction.htm



SIDEWALK DIVERSION



SIDEWALK DETOUR



CROSSWALK CLOSURES

PEDESTRIAN CONTROL

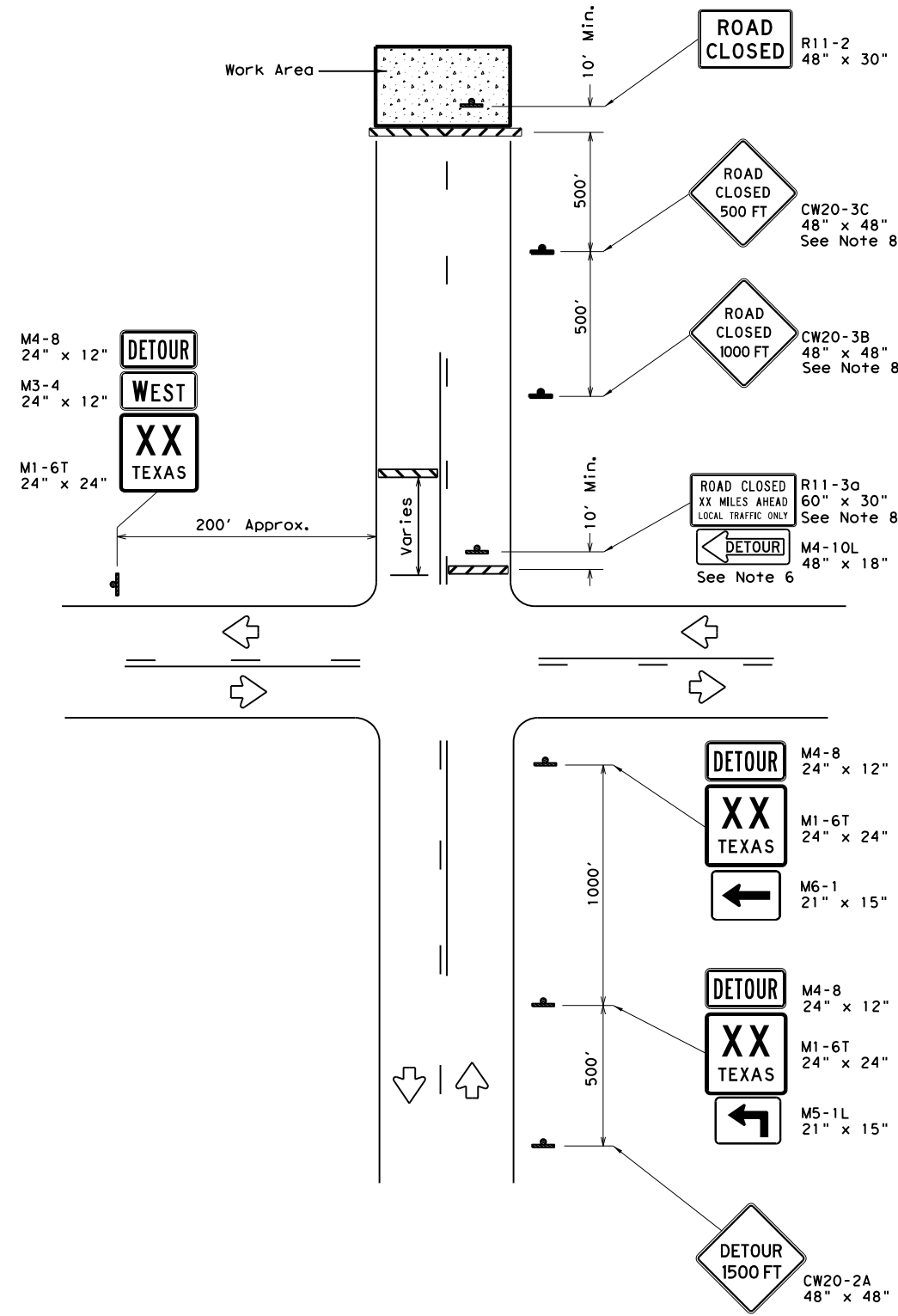
1. Holes, trenches or other hazards shall be adequately protected by covering, delineating or surrounding the hazard with orange plastic pedestrian fencing or longitudinal channelizing devices, or as directed by the Engineer.
2. "CROSSWALK CLOSURES" as detailed above will require the Engineer's approval prior to installation.
3. R9 series signs shown may be placed on supports detailed on the BC standards or CWZTCD list, or when fabricated from approved lightweight plastic substrates, they may be mounted on top of a plastic drum at or near the location shown.
4. For speeds less than 45 mph longitudinal channelizing devices may be used instead of traffic barriers when approved by the Engineer. Attenuation of blunt ends and installation of water filled devices shall be as per BC(9) and manufacturer's recommendations.
5. Location of devices are for general guidance. Actual device spacing and location must be field adjusted to meet actual conditions.
6. Where pedestrians with visual disabilities normally use the closed sidewalk Detectable Pedestrian Barricades should be used instead of the Type 3 Barricades shown.
7. The width of existing sidewalk should be maintained if practical.
8. Pavement markings for mid-block crosswalks shall be paid for under the appropriate bid items.
9. When crosswalks or other pedestrian facilities are closed or relocated, temporary facilities shall be detectable and shall include accessibility features consistent with the features present in the existing pedestrian facility.

SHEET 2 OF 2

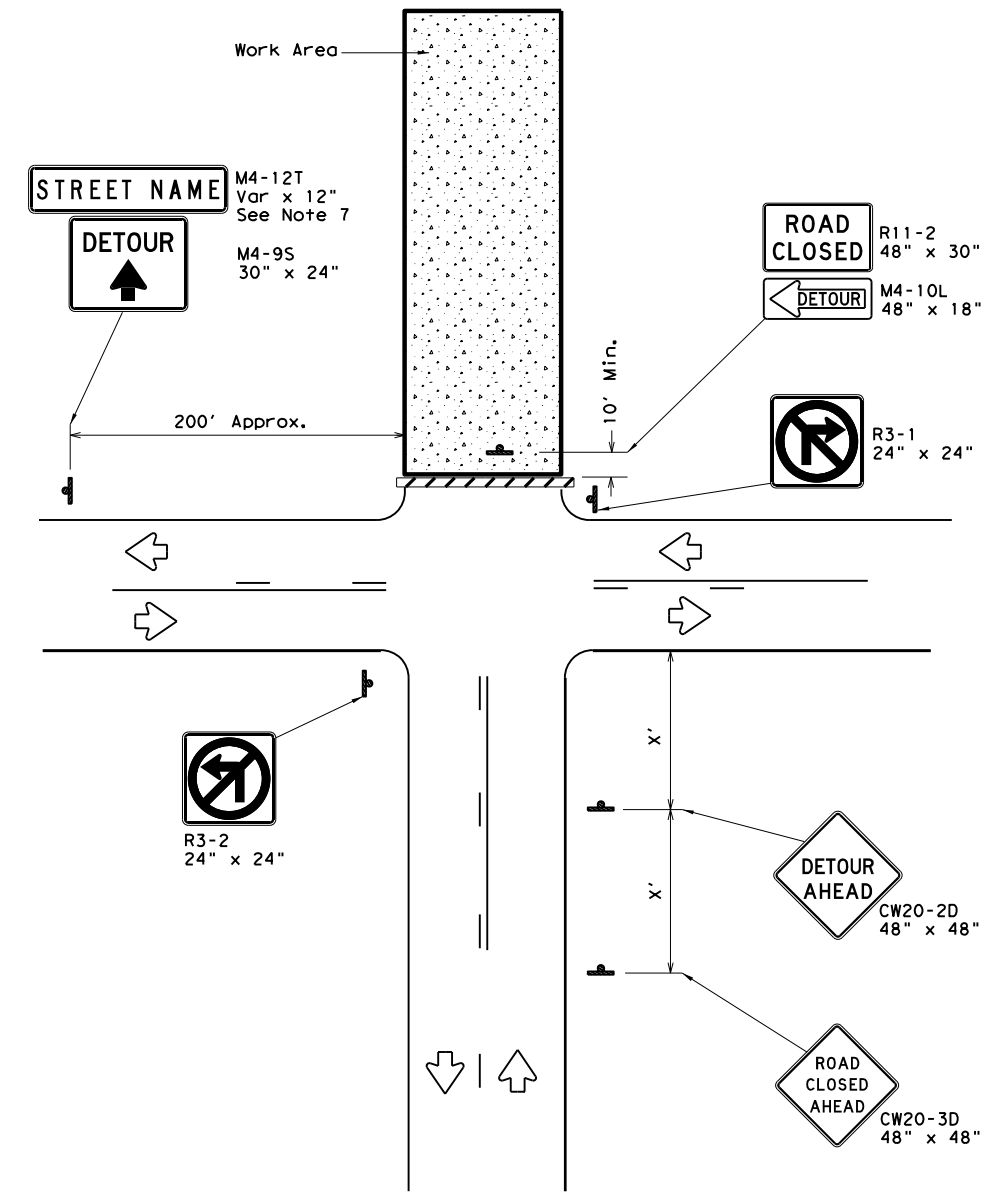
		Traffic Operations Division Standard	
<h2>TRAFFIC SIGNAL WORK BARRICADES AND SIGNS</h2>			
<h3>WZ (BTS-2) - 13</h3>			
FILE:	wzbtts-13.dgn	DN:	TxDOT
© TxDOT	April 1992	CONT:	SECT:
REVISIONS	1607 01	JOB:	057, ETC.
		DATE:	FM 1764
2-98	10-99	7-13	
4-98	3-03		
DIST:	COUNTY:	SHEET NO.	
HOU:	GALVESTON	137	

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DATE:
FILE:



ROAD CLOSURE BEYOND THE INTERSECTION
Signing for a Numbered Route with an Off-Site Detour



ROAD CLOSURE AT THE INTERSECTION
Signing for an Un-numbered Route with an Off-Site Detour

LEGEND	
	Type 3 Barricade
	Sign

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

* Conventional Roads Only

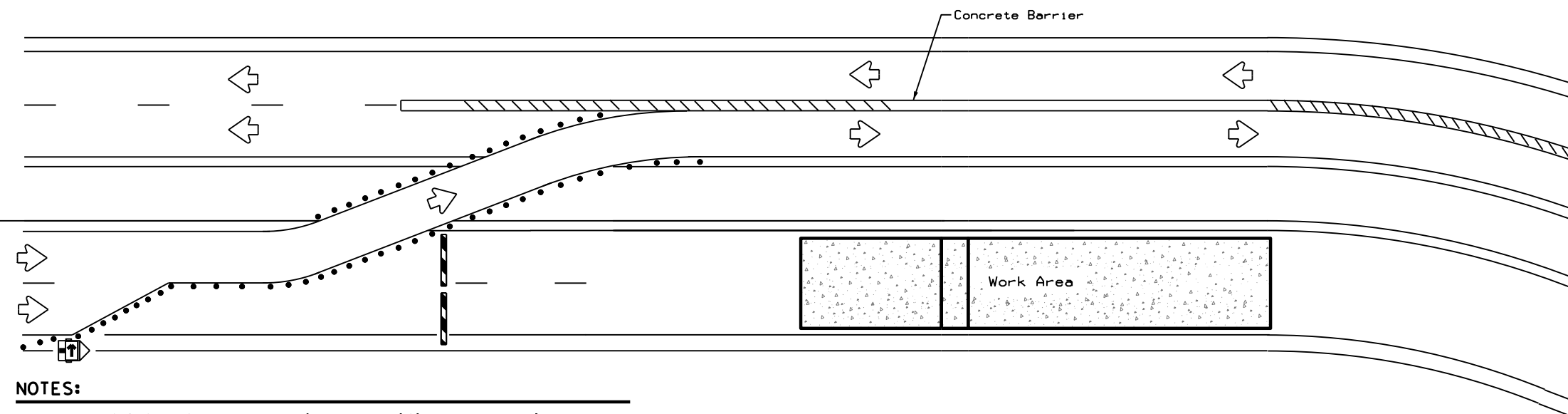
GENERAL NOTES

1. This sheet is intended to provide details for temporary work zone road closures. For permanent road closure details see the D&OM standards.
2. Barricades used shall meet the requirements shown on Barricade and Construction Standard BC(10) and listed on the Compliant Work Zone Traffic Control Devices list (CWZTCD).
3. Stockpiled materials shall not be placed on the traffic side of barricades.
4. Barricades at the road closure should extend from pavement edge to pavement edge.
5. Detour signing shown is intended to illustrate the type of signing that is appropriate for numbered routes or un-numbered routes as labeled. It does not indicate the full extent of detour signing required. Detour routes should be signed as shown elsewhere in the plans.
6. If the road is open for a significant distance beyond the intersection or there are significant origin/destination points beyond the intersection, the signs and barricades at this location should be located at the edge of the traveled way.
7. The Street Name (M4-12T) sign is to be placed above the DETOUR (M4-9S) sign.
8. For urban areas where there is a shorter distance between the intersection and the actual closure location, the ROAD CLOSED XX MILES AHEAD (R11-3a) sign may be replaced with a ROAD CLOSED TO THRU TRAFFIC (R11-4) sign. If adequate space does not exist between the intersection and the closure a single ROAD CLOSED AHEAD (CW20-3D) sign spaced as per the table above may replace the ROAD CLOSED 1000 FT (CW20-3B) and ROAD CLOSED 500 FT (CW20-3C) signs.
9. Signs and barricades shown shall be subsidiary to Item 502. Locations where these details will be required shall be as shown elsewhere in the plans.

		Traffic Operations Division Standard	
WORK ZONE ROAD CLOSURE DETAILS			
WZ (RCD) - 13			
FILE: wzrcd-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT
© TxDOT August 1995	CONT	SECT	HIGHWAY
REVISIONS	1607	01	057, ETC. FM 1764
1-97 4-98 7-13	DIST	COUNTY	SHEET NO.
2-98 3-03	HOU	GALVESTON	138

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LEGEND	
	Type 3 Barricade
	Channelizing Devices
	Trailer Mounted Flashing Arrow Board
	Sign
	Safety glare screen

DEPARTMENTAL MATERIAL SPECIFICATIONS	
SIGN FACE MATERIALS	DMS-8300
DELINEATORS AND OBJECT MARKERS	DMS-8600
MODULAR GLARE SCREENS FOR HEADLIGHT BARRIER	DMS-8610

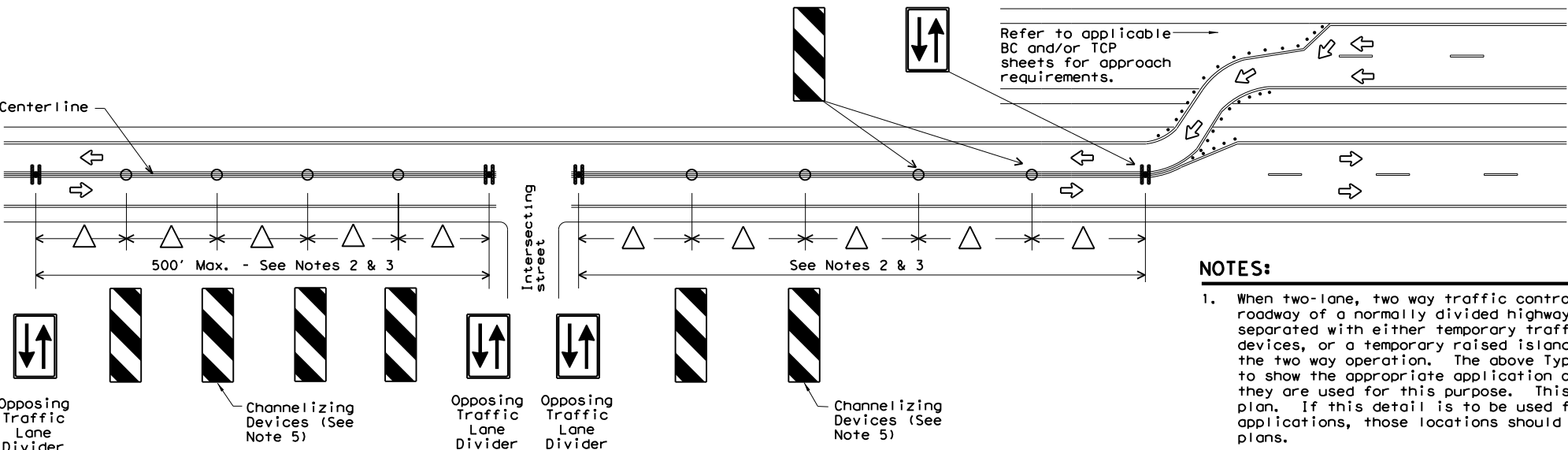
Only pre-qualified products shall be used. A copy of the Compliant Work Zone Traffic Control Devices List (CWZTCD) describes pre-qualified products and their sources and may be found at the following web address:

<http://www.txdot.gov/business/resources/producer-list.html>

NOTES:

- Length of Safety Glare screen will be specified elsewhere in the plans.
- The cumulative nominal length of the modular safety glare screen units shall equal the length of the individual sections of temporary concrete traffic barrier on which they are installed so the joint between barrier sections will not be spanned by any one safety glare screen unit.
- Screen Panel/blades will be designed such that reflective sheeting conforming with Departmental Material Specification DMS-8300, Sign Face Materials, Type B or C Yellow, minimum size of 2 inches by 12 inches can be attached to the edge of the panel/blade. The sheeting shall be attached to one glare screen panel/blade per section of concrete barrier not to exceed a spacing of 30 feet. Barrier reflectors are not necessary when panel/blades are installed with reflective sheeting as described.
- Payment for these devices will be under statewide Special Specification "Modular Glare Screens for Headlight Barrier."
- This detail is only intended to show types of locations where Glare Screens would be appropriate. Required signing and other devices shall be as shown elsewhere in the plans.

BARRIER DELINEATION WITH MODULAR GLARE SCREENS



NOTES:

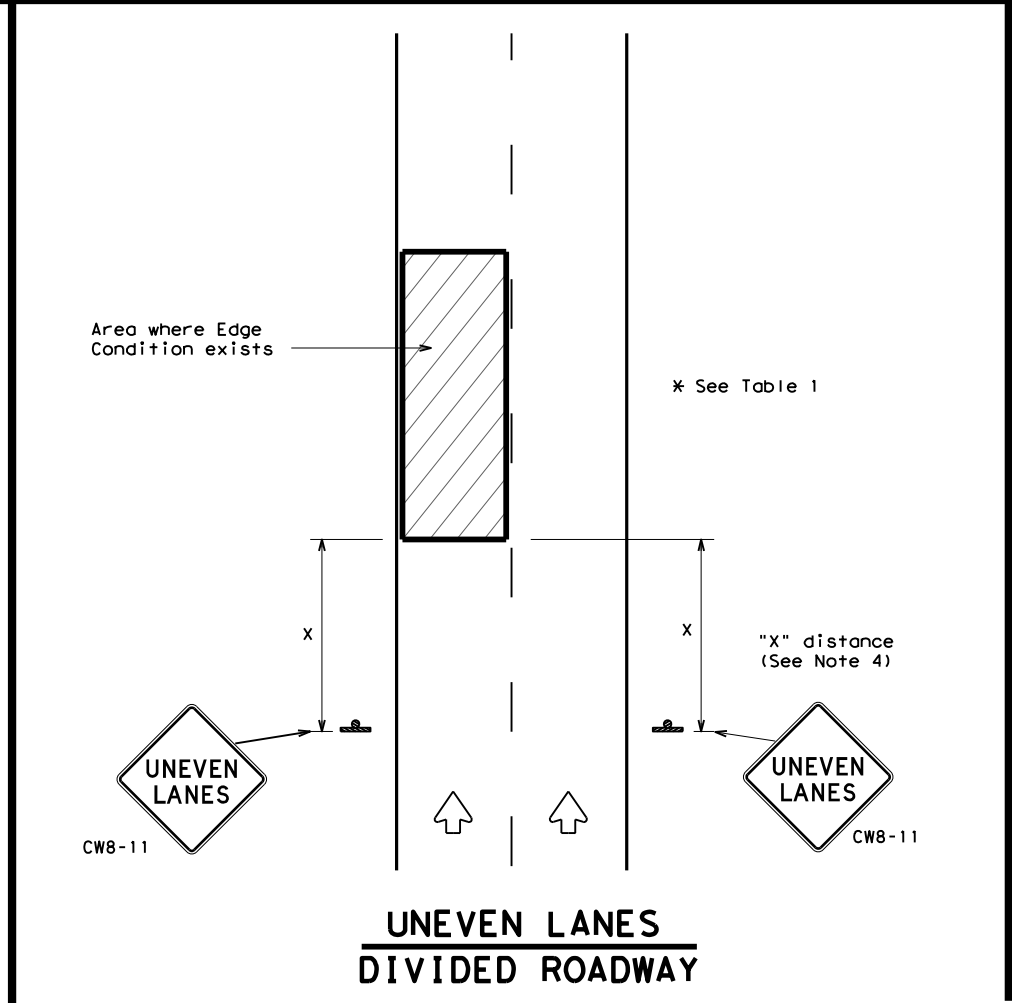
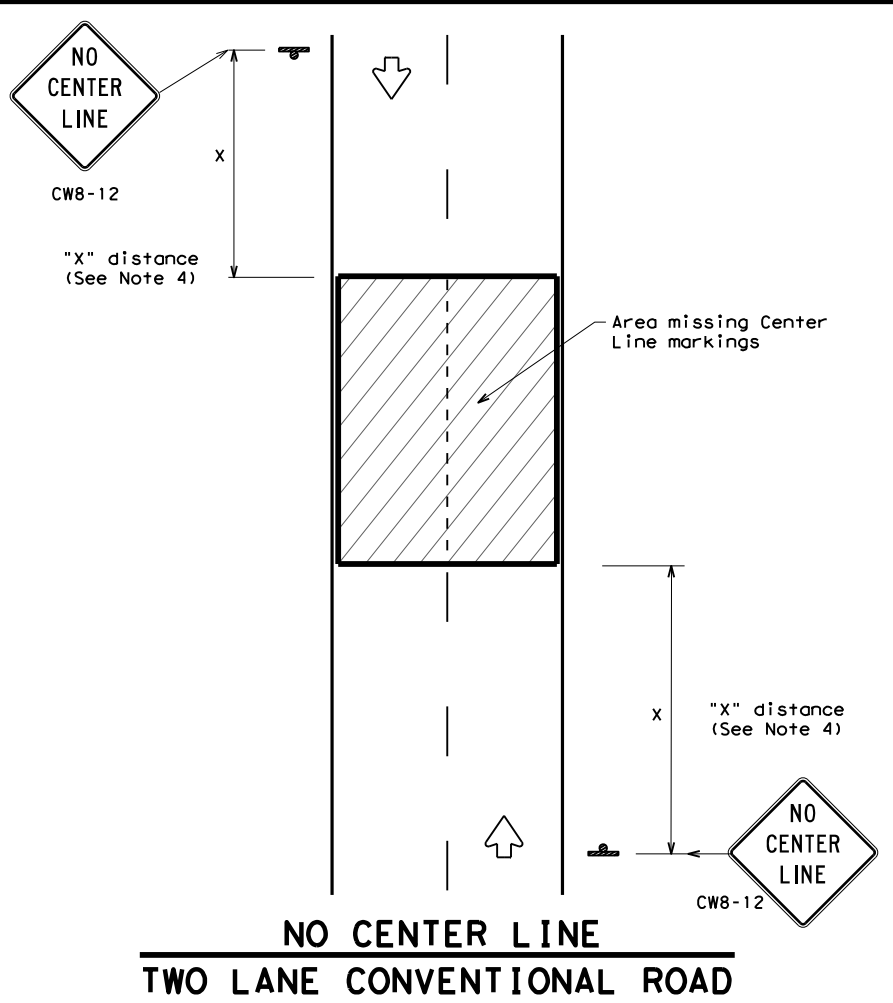
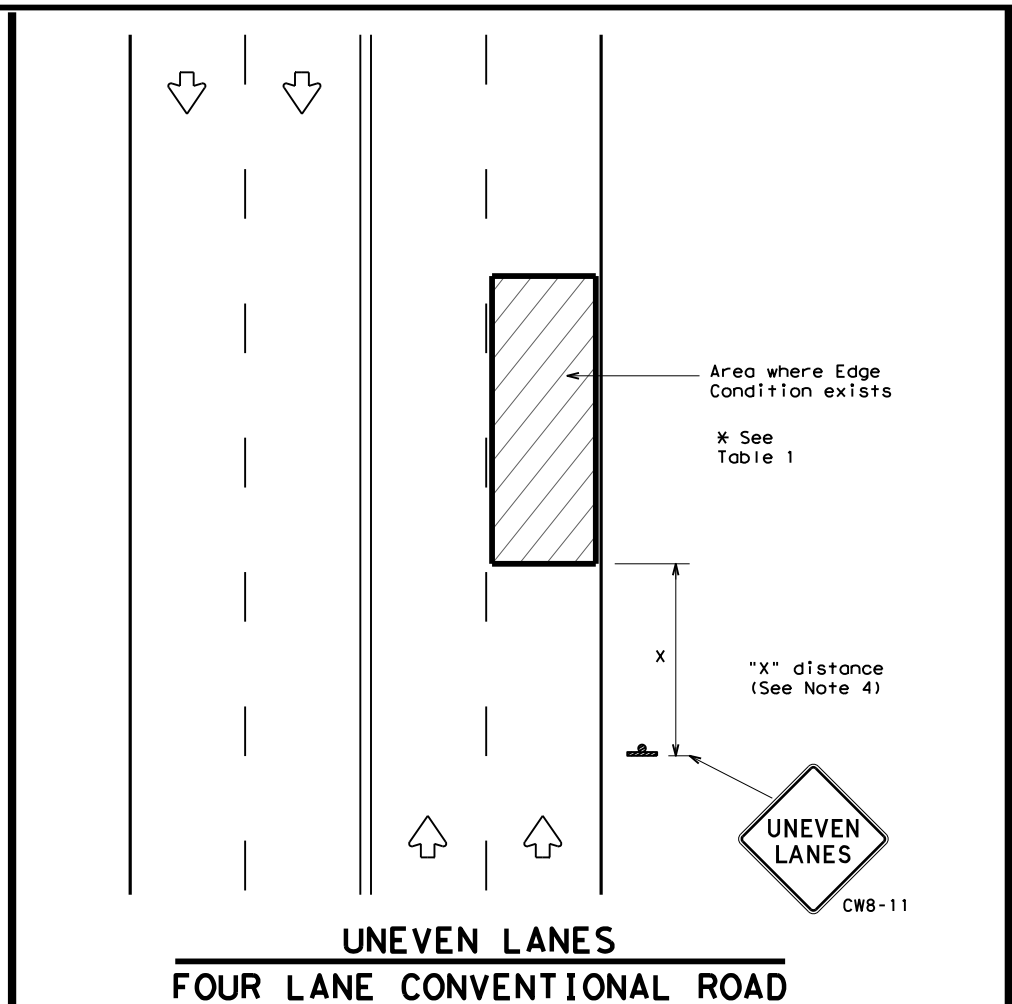
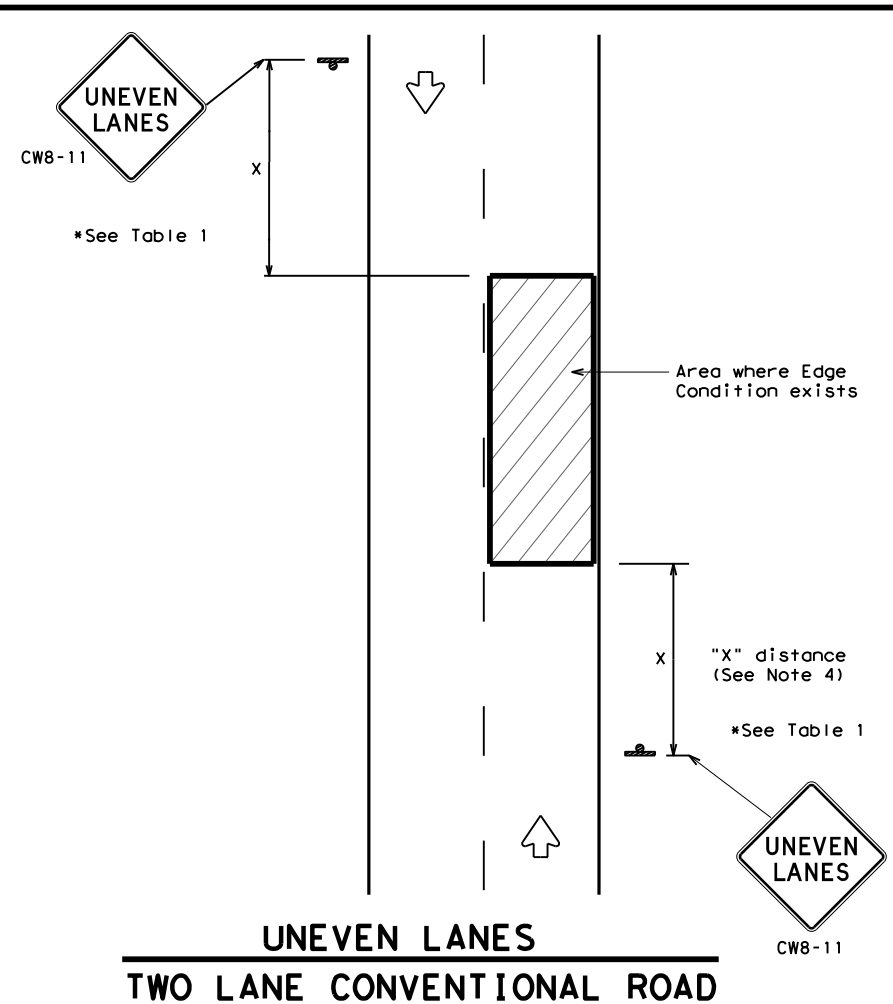
- When two-lane, two way traffic control must be maintained on one roadway of a normally divided highway, opposing traffic shall be separated with either temporary traffic barriers, channelizing devices, or a temporary raised island throughout the length of the two way operation. The above Typical Application is intended to show the appropriate application of channelizing devices when they are used for this purpose. This is not a traffic control plan. If this detail is to be used for other types of roads or applications, those locations should be stated elsewhere in the plans.
- Space devices according to the Tangent Spacing shown on the Device Spacing table on BC(9) but not exceeding 100'.
- Every fifth device should be an OTLD except when spaced closer to accommodate an intersection. An OTLD should be the first device on each side of intersecting streets or roads.
- Locations where surface mount bases with adhesives or self-righting devices will be required in order to maintain them in their proper position should be noted elsewhere in the plans.
- Channelizing devices are to be vertical panels, 42" cones or tubular markers that are at least 36" tall. Tubular markers used to separate traffic should have a rubber base weighing at least 30 pounds. Tubular markers that are 42" tall or more shall have four bands of reflective material as detailed for 42" cones on BC(10). Tubular markers less than 42" but at least 36" tall shall have three bands of 3" wide white reflective material spaced 2" apart. Reflective material shall meet DMS-8300, Type A.

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

		Traffic Operations Division Standard	
TRAFFIC CONTROL PLAN TYPICAL DETAILS			
WZ(TD) - 17			
FILE:	wz1d-17.dgn	DN:	TxDOT
© TxDOT	February 1998	CONT:	SECT
REVISIONS		JOB	HIGHWAY
4-98	2-17	1607 01	057, ETC.
3-03		DIST	COUNTY
7-13		HOU	GALVESTON
			SHEET NO.
			139

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

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

GENERAL NOTES

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

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

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

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



SIGNING FOR UNEVEN LANES

WZ (UL) - 13

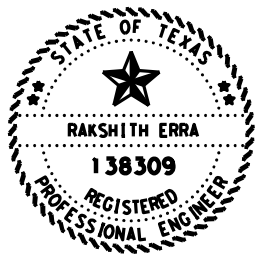
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© TxDOT April 1992	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607	01	057, ETC.	FM 1764
8-95 2-98 7-13	DIST	COUNTY	SHEET NO.	
1-97 3-03	HOU	GALVESTON	140	

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HORIZONTAL ALIGNMENT REPORT

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 Alignment description:
 Report Created: Wednesday, February 28, 2024
 Time: 11:09:14 AM

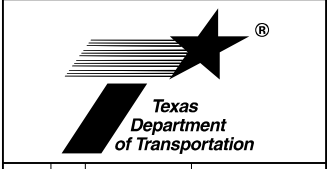
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Tangential Length:	197.863		
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PI	36387.010 R1	3257240.221	13713587.952
Tangential Direction:	N87.849?E		
Tangential Length:	189.148		
PI	36387.010 R1	3257240.221	13713587.952
PI	36549.478 R1	3257402.631	13713592.262
Tangential Direction:	N88.480?E		
Tangential Length:	162.468		
PI	36549.478 R1	3257402.631	13713592.262
PI	36731.073 R1	3257584.045	13713600.375
Tangential Direction:	N87.440?E		
Tangential Length:	181.595		
PI	36731.073 R1	3257584.045	13713600.375
PI	36845.668 R1	3257698.568	13713604.431
Tangential Direction:	N87.972?E		
Tangential Length:	114.595		
PI	36845.668 R1	3257698.568	13713604.431
PI	37002.333 R1	3257855.151	13713609.501
Tangential Direction:	N88.145?E		
Tangential Length:	156.665		
PI	37002.333 R1	3257855.151	13713609.501
PI	37177.240 R1	3258029.977	13713614.825
Tangential Direction:	N88.256?E		
Tangential Length:	174.907		
PI	37177.240 R1	3258029.977	13713614.825
PI	37393.980 R1	3258246.609	13713621.670
Tangential Direction:	N88.190?E		
Tangential Length:	216.740		
PI	37393.980 R1	3258246.609	13713621.670
PI	37562.002 R1	3258414.594	13713625.219
Tangential Direction:	N88.790?E		
Tangential Length:	168.022		
PI	37562.002 R1	3258414.594	13713625.219
PI	37737.236 R1	3258589.673	13713632.571
Tangential Direction:	N87.595?E		
Tangential Length:	175.233		
PI	37737.236 R1	3258589.673	13713632.571
PI	37947.953 R1	3258800.224	13713640.937
Tangential Direction:	N87.725?E		
Tangential Length:	210.717		



Rakshith
 5/25/2024

FM 1764
 HORIZONTAL
 ALIGNMENT DATA

SHEET 1 OF 2



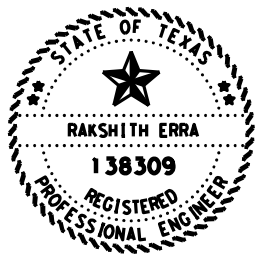
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		141

DATE: 5/25/2024 12:24:50 PM
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HORIZONTAL ALIGNMENT REPORT

Alignment name: BL CL-FM1764
 Alignment description:
 Report Created: Wednesday, February 28, 2024
 Time: 11:09:14 AM

	STATION	X	Y
PI	37947.953 R1	3258800.224	13713640.937
PI	38173.021 R1	3259025.217	13713646.768
Tangential Direction:	N88.515?E		
Tangential Length:	225.069		
PI	38173.021 R1	3259025.217	13713646.768
PI	38428.601 R1	3259280.614	13713656.401
Tangential Direction:	N87.840?E		
Tangential Length:	255.579		
PI	38428.601 R1	3259280.614	13713656.401
POT	38500.000 R1	3259351.973	13713658.803
Tangential Direction:	N88.073?E		
Tangential Length:	71.399		



Rakshith
 5/25/2024

FM 1764
 HORIZONTAL
 ALIGNMENT DATA

SHEET 2 OF 2



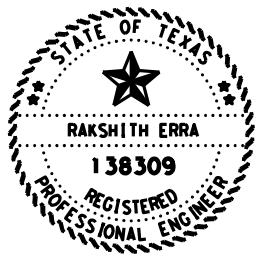
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		142

DATE: 5/25/2024 12:24:50 PM
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HORIZONTAL ALIGNMENT REPORT

Alignment name: BL CL-SH146NB
 Alignment description:
 Report Created: Wednesday, February 28, 2024
 Time: 11:03:01 AM

	STATION		X	Y
PC	20000.000 R1		3257525.099	13714608.504
PI	20291.438 R1		3257592.282	13714324.915
CC			3254627.305	13713922.013
PT	20581.026 R1		3257603.210	13714033.682
Radius:	2978.000			
Delta:	11.179?	Right		
Degree of Curvature(Arc):	1.924?			
Length:	581.026			
Tangent:	291.438			
Chord:	580.105			
Middle Ordinate:	14.159			
External:	14.227			
Tangent Back Direction:	S13.328?E			
Radial Direction:	S76.672?W			
Chord Direction:	S7.738?E			
Radial Direction:	S87.851?W			
Tangent Ahead Direction:	S2.149?E			
PT	20581.026 R1		3257603.210	13714033.682
PI	20864.884 R1		3257613.854	13713750.024
Tangential Direction:	S2.149?E			
Tangential Length:	283.858			
PI	20864.884 R1		3257613.854	13713750.024
PC	21281.715 R1		3257627.176	13713333.405
Tangential Direction:	S1.831?E			
Tangential Length:	416.832			
PC	21281.715 R1		3257627.176	13713333.405
PI	21433.872 R1		3257632.039	13713181.327
CC			3255640.191	13713269.869
PT	21585.435 R1		3257613.701	13713030.279
Radius:	1988.000			
Delta:	8.753?	Right		
Degree of Curvature(Arc):	2.882?			
Length:	303.720			
Tangent:	152.156			
Chord:	303.425			
Middle Ordinate:	5.797			
External:	5.814			
Tangent Back Direction:	S1.831?E			
Radial Direction:	S88.169?W			
Chord Direction:	S2.545?W			
Radial Direction:	N83.078?W			
Tangent Ahead Direction:	S6.922?W			
PT	21585.435 R1		3257613.701	13713030.279
PC	22000.300 R1		3257563.703	13712618.439
Tangential Direction:	S6.922?W			
Tangential Length:	414.864			



Rakshith
 5/25/2024

SH 146 NB
 HORIZONTAL
 ALIGNMENT DATA

SHEET 1 OF 2



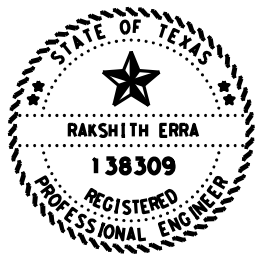
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		143

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HORIZONTAL ALIGNMENT REPORT

Alignment name: BL CL-SH146NB
 Alignment description:
 Report Created: Wednesday, February 28, 2024
 Time: 11:03:01 AM

	STATION	X	Y
PC	22000.300 R1	3257563.703	13712618.439
PI	22150.336 R1	3257545.621	13712469.496
CC		3259561.037	13712375.957
PT	22299.818 R1	3257549.829	13712319.519
Radius:	2012.000		
Delta:	8.529? Left		
Degree of Curvature(Arc):	2.848?		
Length:	299.518		
Tangent:	150.036		
Chord:	299.242		
Middle Ordinate:	5.571		
External:	5.586		
Tangent Back Direction:	S6.922?W		
Radial Direction:	N83.078?W		
Chord Direction:	S2.657?W		
Radial Direction:	S88.393?W		
Tangent Ahead Direction:	S1.607?E		
PT	22299.818 R1	3257549.829	13712319.519
POT	22504.654 R1	3257555.575	13712114.764
Tangential Direction:	S1.607?E		
Tangential Length:	204.836		



Rakshith
 5/25/2024

SH 146 NB
 HORIZONTAL
 ALIGNMENT DATA

SHEET 2 OF 2



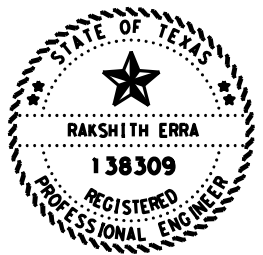
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		144

DATE: 5/25/2024 12:24:51 PM
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HORIZONTAL ALIGNMENT REPORT

Alignment name: BL CL-SH146SB
 Alignment description:
 Report Created: Wednesday, February 28, 2024
 Time: 11:07:58 AM

	STATION	X	Y
POT	10000.000 R1	3257274.383	13714615.680
PC	11303.106 R1	3257324.396	13713313.534
Tangential Direction:	S2.200?E		
Tangential Length:	1303.106		
PC	11303.106 R1	3257324.396	13713313.534
PI	11408.699 R1	3257333.504	13713208.334
CC		3259055.918	13713463.455
PT	11514.034 R1	3257355.282	13713105.010
Radius:	1738.000		
Delta:	6.954? Left		
Degree of Curvature(Arc):	3.297?		
Length:	210.928		
Tangent:	105.594		
Chord:	210.799		
Middle Ordinate:	3.199		
External:	3.205		
Tangent Back Direction:	S4.949?E		
Radial Direction:	S85.051?W		
Chord Direction:	S8.425?E		
Radial Direction:	S78.098?W		
Tangent Ahead Direction:	S11.902?E		
PT	11514.034 R1	3257355.282	13713105.010
PC	11778.348 R1	3257409.794	13712846.379
Tangential Direction:	S11.902?E		
Tangential Length:	264.314		
PC	11778.348 R1	3257409.794	13712846.379
PI	11905.878 R1	3257436.096	13712721.590
CC		3255441.049	13712431.424
PT	12033.067 R1	3257446.431	13712594.480
Radius:	2012.000		
Delta:	7.254? Right		
Degree of Curvature(Arc):	2.848?		
Length:	254.719		
Tangent:	127.530		
Chord:	254.549		
Middle Ordinate:	4.030		
External:	4.038		
Tangent Back Direction:	S11.902?E		
Radial Direction:	S78.098?W		
Chord Direction:	S8.275?E		
Radial Direction:	S85.352?W		
Tangent Ahead Direction:	S4.648?E		
PT	12033.067 R1	3257446.431	13712594.480
PI	12392.694 R1	3257475.576	13712236.036
Tangential Direction:	S4.648?E		
Tangential Length:	359.626		
PI	12392.694 R1	3257475.576	13712236.036
POT	12516.211 R1	3257475.576	13712112.519
Tangential Direction:	S0.000?W		
Tangential Length:	123.517		



Rakshith
 5/25/2024

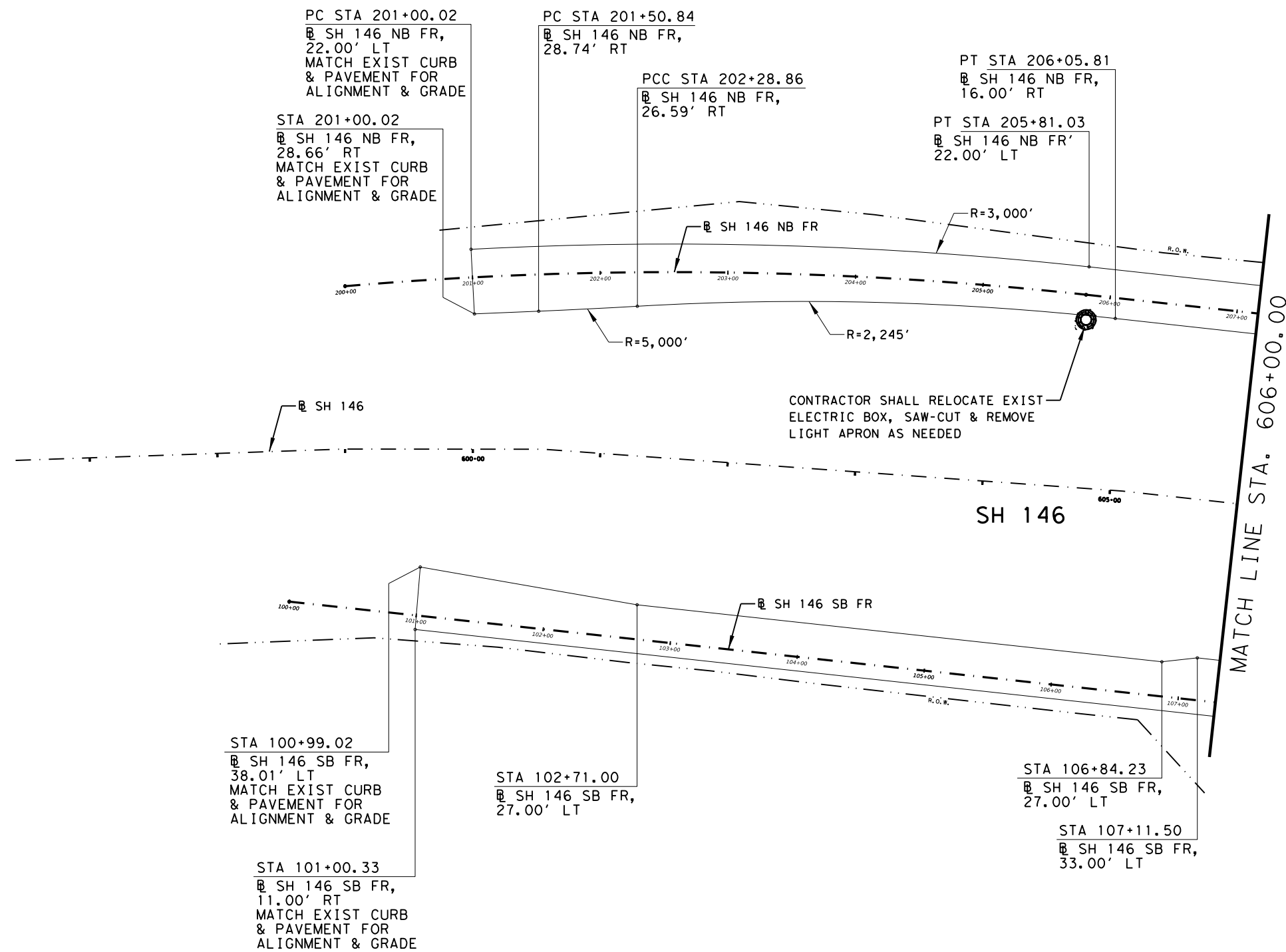
SH 146 SB
 HORIZONTAL
 ALIGNMENT DATA

SHEET 1 OF 1



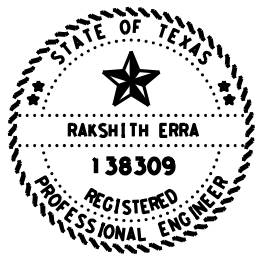
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		145

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Notes:

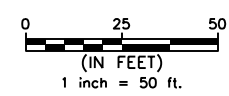
1. NO SURVEY AND HORIZONTAL OR VERTICAL POINTS WERE ESTABLISHED FOR THIS INTERSECTION RECONSTRUCTION. THE BASELINE IS ESTABLISHED ALONG THE CENTERLINE OF THE ROAD WITH THE END OF MEDIAN NOSE BEING AT STATION 364+46.60
2. BEFORE THE EXISTING CONCRETE PAVEMENT IS REMOVED, CONTRACTOR SHALL VERIFY THE HORIZONTAL GEOMETRY LAYOUT PROVIDED WITH THE EXISTING CONDITION AND NOTIFY TXDOT AREA OFFICE IN CASE OF ANY DISCREPANCIES. NOT A SEPERATE PAY ITEM; INCIDENTAL TO THE PROJECT COST.
3. BEFORE THE EXISTING CONCRETE PAVEMENT IS REMOVED CONTRACTOR SHALL GET ALL THE ELEVATION INFORMATION OF THE EXISTING PAVEMENT NEEDED FOR CONSTRUCTION OF PROPOSED PAVEMENT. THE PROPOSED CONCRETE PAVEMENT SHALL MATCH THE ELEVATIONS OF THE EXISTING CONCRETE PAVEMENT.



Rakshith
 5/25/2024

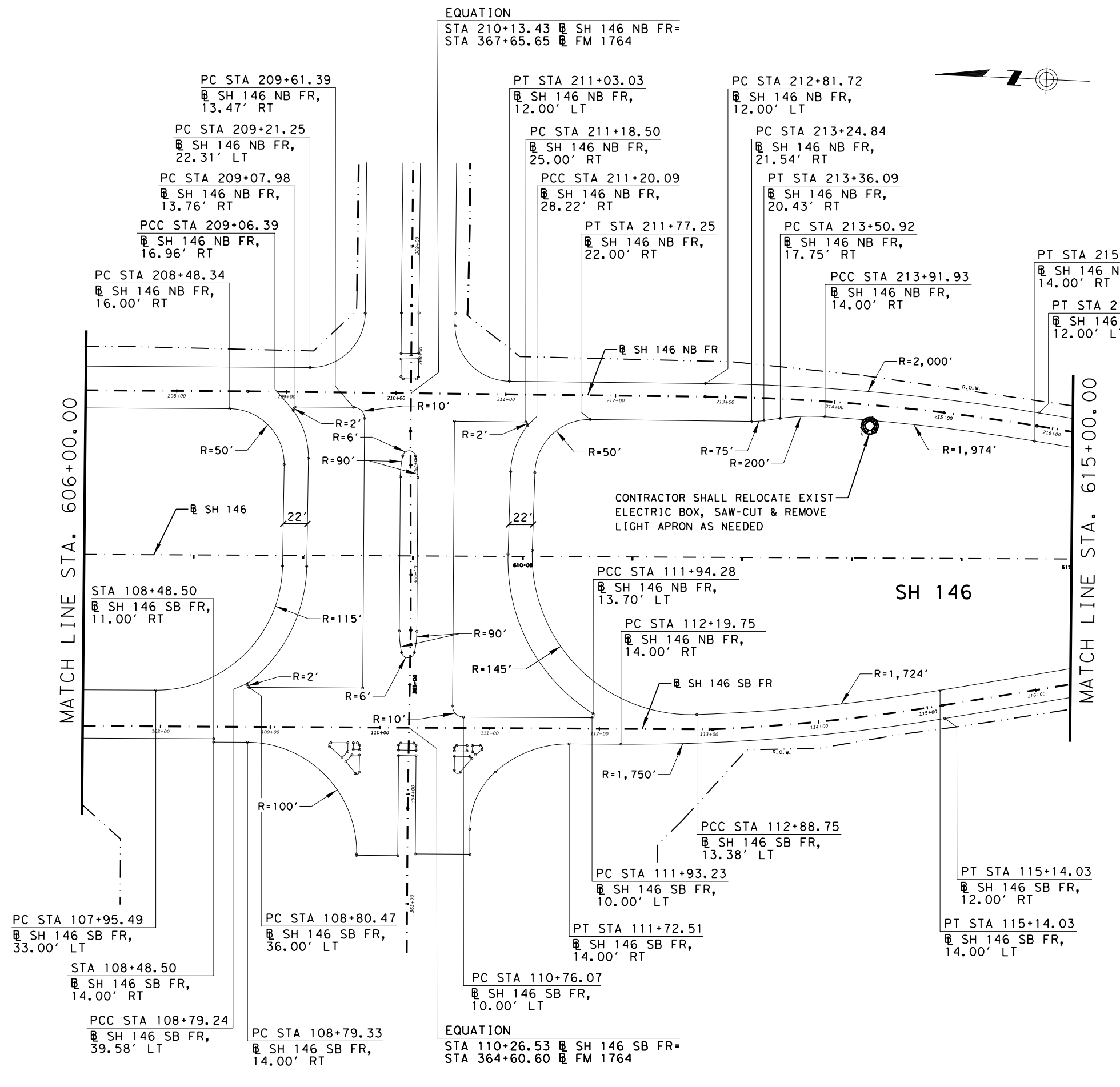
**SH 146
 HORIZONTAL
 GEOMETRY
 LAYOUT**

SHEET 1 OF 3



CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		146

DATE: 5/25/2024 12:25:00 PM
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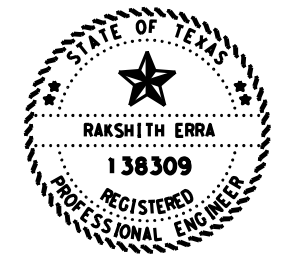
EQUATION
 STA 210+13.43 @ SH 146 NB FR=
 STA 367+65.65 @ FM 1764

EQUATION
 STA 110+26.53 @ SH 146 SB FR=
 STA 364+60.60 @ FM 1764

Notes:

1. NO SURVEY AND HORIZONTAL OR VERTICAL POINTS WERE ESTABLISHED FOR THIS INTERSECTION RECONSTRUCTION. THE BASELINE IS ESTABLISHED ALONG THE CENTERLINE OF THE ROAD WITH THE END OF MEDIAN NOSE BEING AT STATION 364+46.60
2. BEFORE THE EXISTING CONCRETE PAVEMENT IS REMOVED, CONTRACTOR SHALL VERIFY THE HORIZONTAL GEOMETRY LAYOUT PROVIDED WITH THE EXISTING CONDITION AND NOTIFY TXDOT AREA OFFICE IN CASE OF ANY DISCREPANCIES. NOT A SEPERATE PAY ITEM; INCIDENTAL TO THE PROJECT COST.
3. BEFORE THE EXISTING CONCRETE PAVEMENT IS REMOVED CONTRACTOR SHALL GET ALL THE ELEVATION INFORMATION OF THE EXISTING PAVEMENT NEEDED FOR CONSTRUCTION OF PROPOSED PAVEMENT. THE PROPOSED CONCRETE PAVEMENT SHALL MATCH THE ELEVATIONS OF THE EXISTING CONCRETE PAVEMENT.

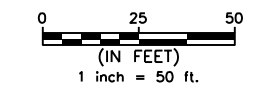
CONTRACTOR SHALL RELOCATE EXIST
 ELECTRIC BOX, SAW-CUT & REMOVE
 LIGHT APRON AS NEEDED



Rakshith
 5/25/2024

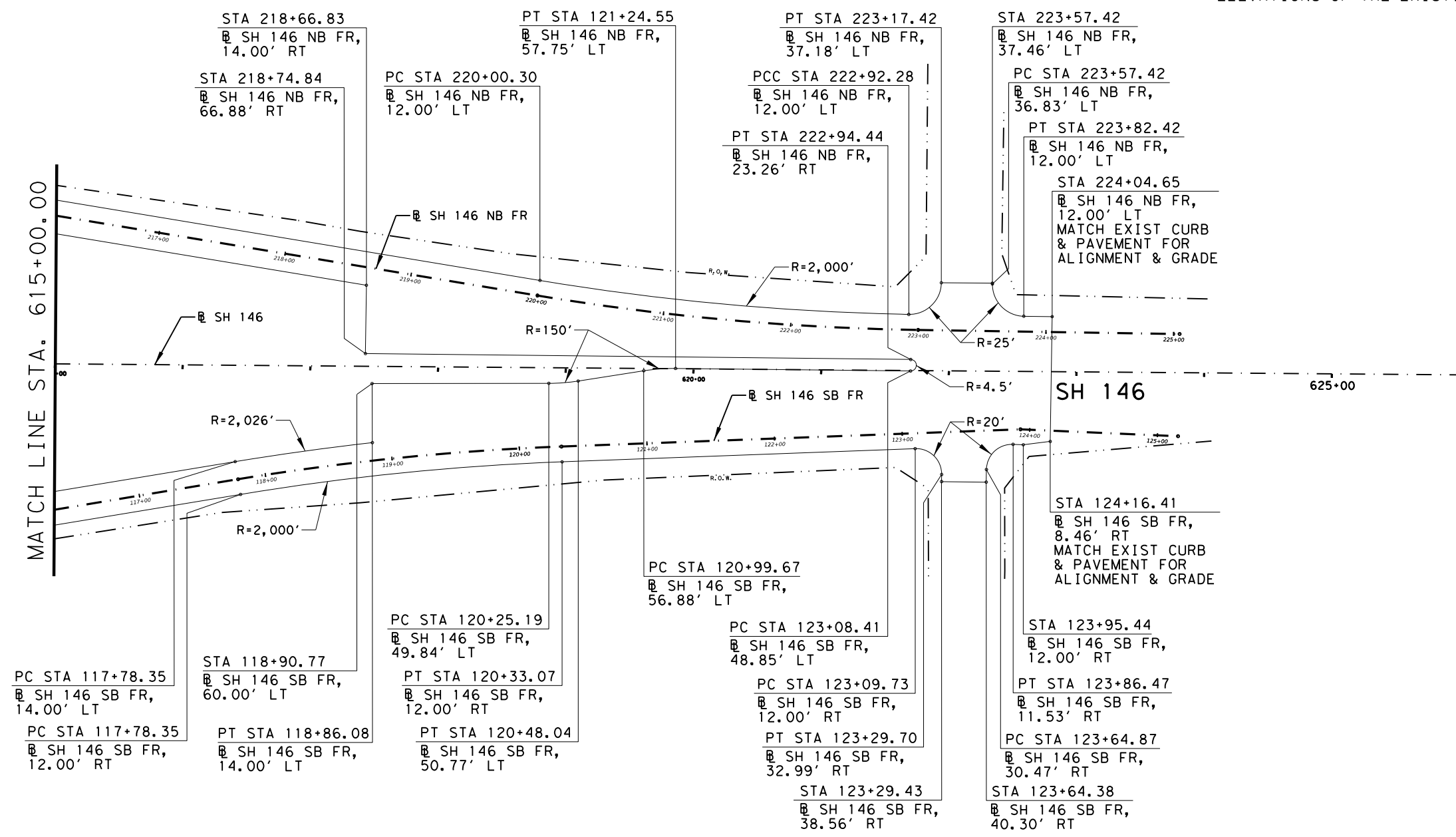
**SH 146
 HORIZONTAL
 GEOMETRY
 LAYOUT**

SHEET 2 OF 3



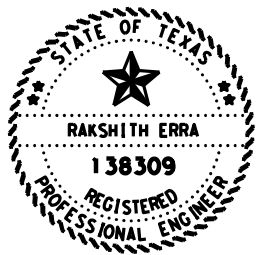
		CONT	SECT	JOB	HIGHWAY
		1607	01	057, ETC.	FM 1764
		DIST	COUNTY		SHEET NO.
		HOU	Galveston		147

DATE: 5/25/2024 12:25:00 PM
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Notes:

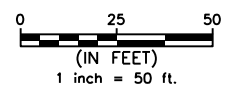
1. NO SURVEY AND HORIZONTAL OR VERTICAL POINTS WERE ESTABLISHED FOR THIS INTERSECTION RECONSTRUCTION. THE BASELINE IS ESTABLISHED ALONG THE CENTERLINE OF THE ROAD WITH THE END OF MEDIAN NOSE BEING AT STATION 364+46.60
2. BEFORE THE EXISTING CONCRETE PAVEMENT IS REMOVED, CONTRACTOR SHALL VERIFY THE HORIZONTAL GEOMETRY LAYOUT PROVIDED WITH THE EXISTING CONDITION AND NOTIFY TXDOT AREA OFFICE IN CASE OF ANY DISCREPANCIES. NOT A SEPERATE PAY ITEM; INCIDENTAL TO THE PROJECT COST.
3. BEFORE THE EXISTING CONCRETE PAVEMENT IS REMOVED CONTRACTOR SHALL GET ALL THE ELEVATION INFORMATION OF THE EXISTING PAVEMENT NEEDED FOR CONSTRUCTION OF PROPOSED PAVEMENT. THE PROPOSED CONCRETE PAVEMENT SHALL MATCH THE ELEVATIONS OF THE EXISTING CONCRETE PAVEMENT.



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5/25/2024

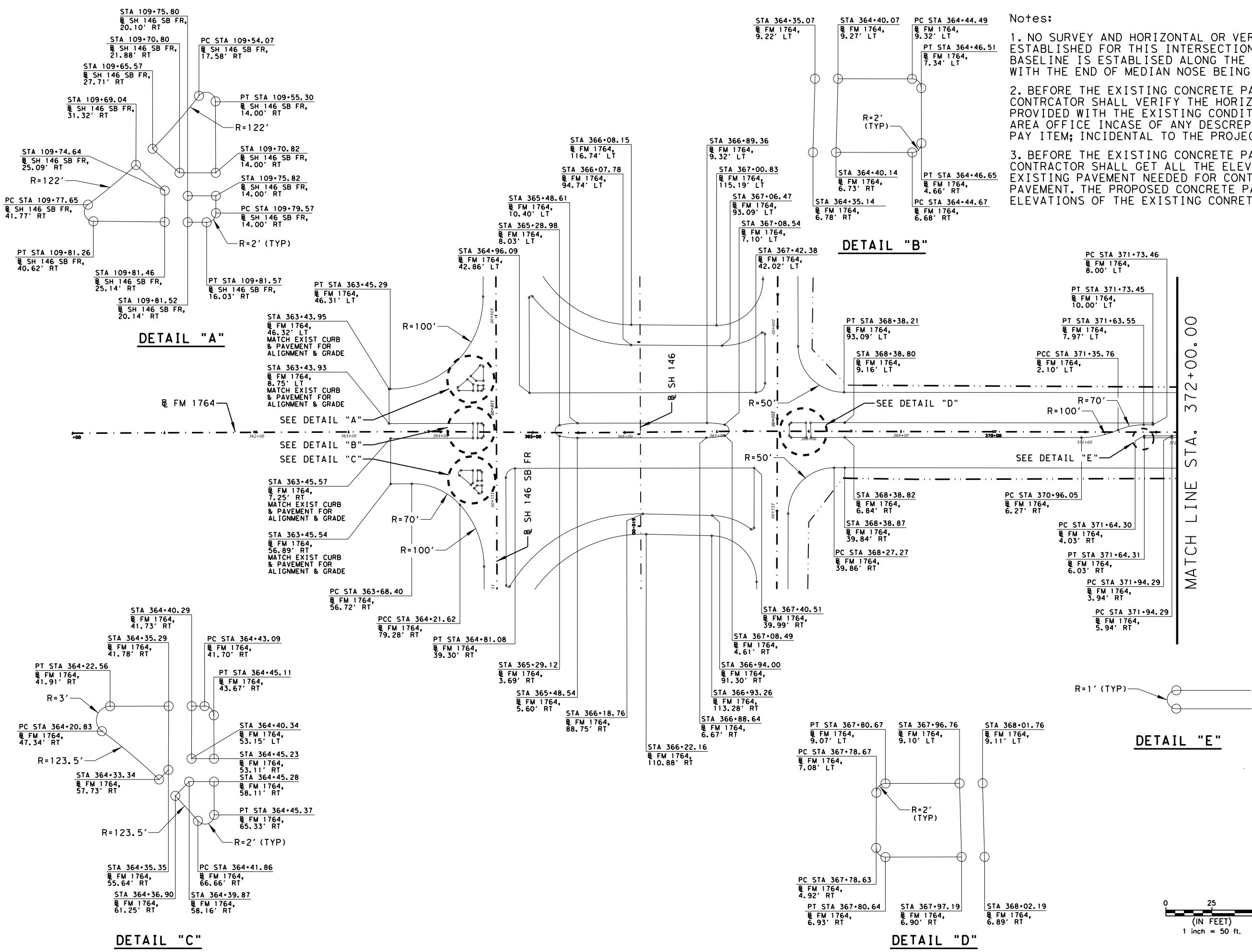
**SH 146
HORIZONTAL
GEOMETRY
LAYOUT**

SHEET 3 OF 3

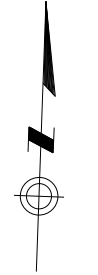


		CONT	SECT	JOB	HIGHWAY
		1607	01	057, ETC.	FM 1764
		DIST	COUNTY		SHEET NO.
		HOU	Galveston		148

DATE: 5/25/2024 12:25:06 PM
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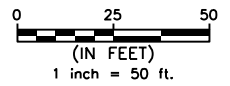


- Notes:
1. NO SURVEY AND HORIZONTAL OR VERTICAL POINTS WERE ESTABLISHED FOR THIS INTERSECTION RECONSTRUCTION. THE BASELINE IS ESTABLISHED ALONG THE CENTERLINE OF THE ROAD WITH THE END OF MEDIAN NOSE BEING AT STATION 364+46.60
 2. BEFORE THE EXISTING CONCRETE PAVEMENT IS REMOVED, CONTRACTOR SHALL VERIFY THE HORIZONTAL GEOMETRY PROVIDED WITH THE EXISTING CONDITION AND NOTIFY TXDOT AREA OFFICE IN CASE OF ANY DISCREPANCIES, NOT A SEPERATE PAY ITEM; INCIDENTAL TO THE PROJECT COST.
 3. BEFORE THE EXISTING CONCRETE PAVEMENT IS REMOVED CONTRACTOR SHALL GET ALL THE ELEVATION INFORMATION OF THE EXISTING PAVEMENT NEEDED FOR CONSTRUCTION OF PROPOSED PAVEMENT. THE PROPOSED CONCRETE PAVEMENT SHALL MATCH THE ELEVATIONS OF THE EXISTING CONCRETE PAVEMENT.



Rakshith
 5/25/2024

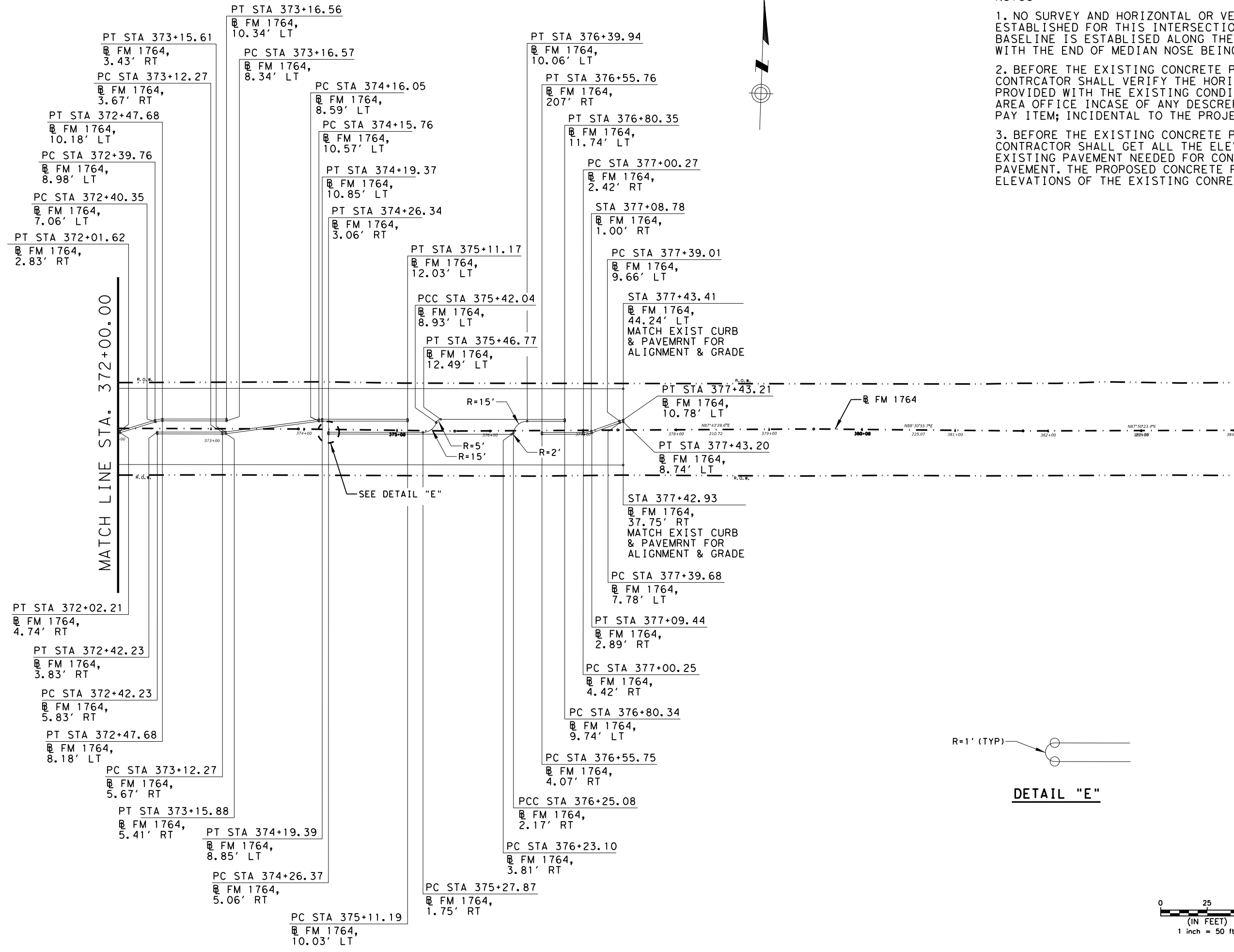
**FM 1764
 HORIZONTAL
 GEOMETRY
 LAYOUT**



SHEET 1 OF 2

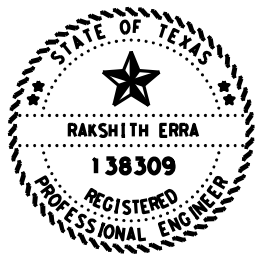
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC.	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		149

DATE: 5/25/2024 12:25:07 PM
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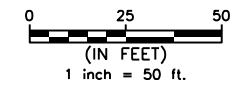
Notes:

1. NO SURVEY AND HORIZONTAL OR VERTICAL POINTS WERE ESTABLISHED FOR THIS INTERSECTION RECONSTRUCTION. THE BASELINE IS ESTABLISHED ALONG THE CENTERLINE OF THE ROAD WITH THE END OF MEDIAN NOSE BEING AT STATION 364+46.60
2. BEFORE THE EXISTING CONCRETE PAVEMENT IS REMOVED, CONTRACTOR SHALL VERIFY THE HORIZONTAL GEOMETRY LAYOUT PROVIDED WITH THE EXISTING CONDITION AND NOTIFY TXDOT AREA OFFICE IN CASE OF ANY DISCREPANCIES. NOT A SEPERATE PAY ITEM; INCIDENTAL TO THE PROJECT COST.
3. BEFORE THE EXISTING CONCRETE PAVEMENT IS REMOVED CONTRACTOR SHALL GET ALL THE ELEVATION INFORMATION OF THE EXISTING PAVEMENT NEEDED FOR CONSTRUCTION OF PROPOSED PAVEMENT. THE PROPOSED CONCRETE PAVEMENT SHALL MATCH THE ELEVATIONS OF THE EXISTING CONCRETE PAVEMENT.



Rakshith
5/25/2024

**FM 1764
HORIZONTAL
GEOMETRY
LAYOUT**

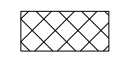



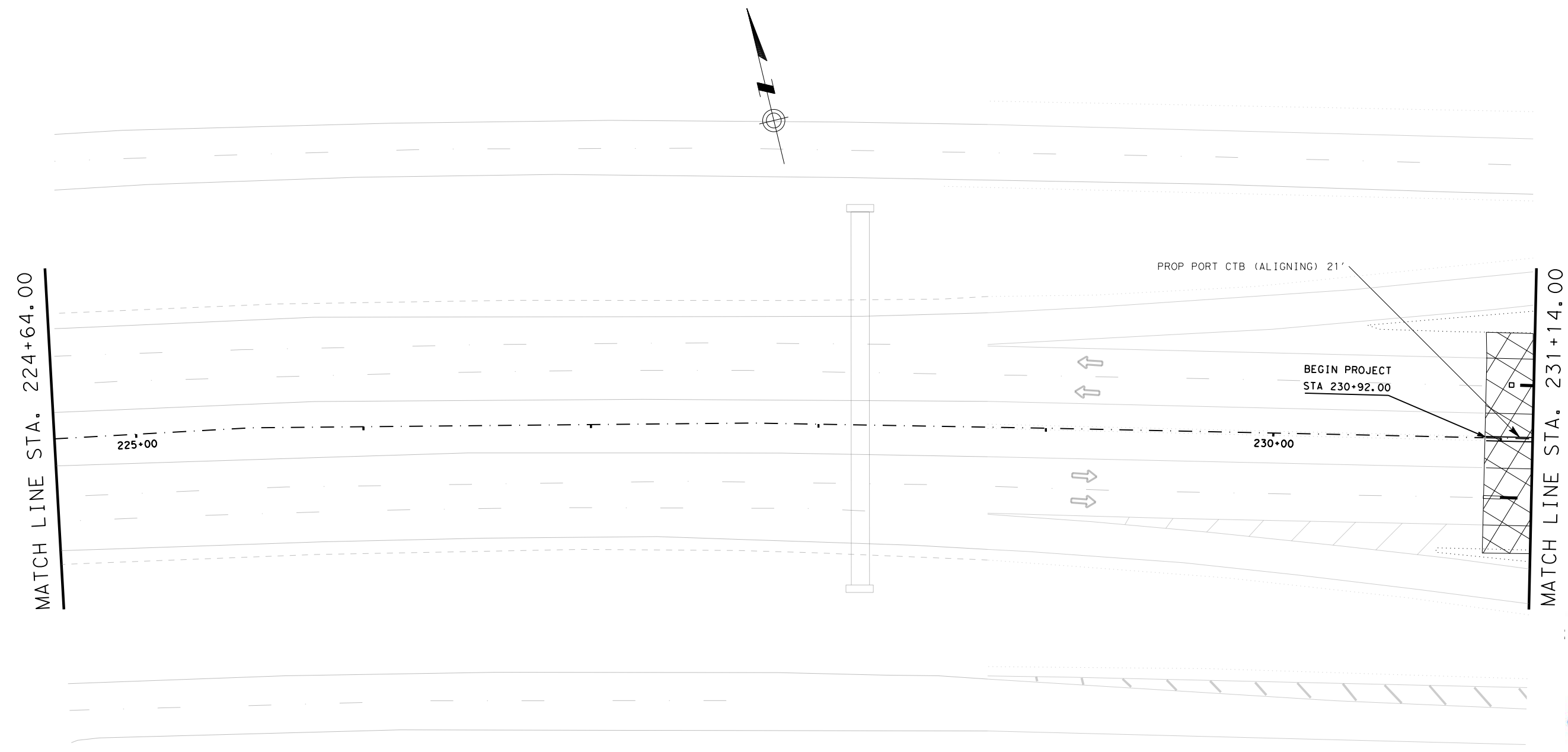
SHEET 2 OF 2

		CONT	SECT	JOB	HIGHWAY
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		DIST	COUNTY		SHEET NO.
		HOU	Galveston		150

DATE: DATE TIME
FILE: DOCUMENT NAME

LEGEND

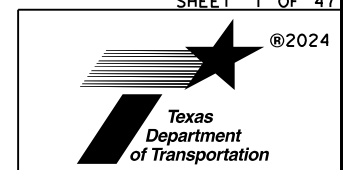
-  PROP 3" MILL & UNDERSEAL COURSE & 3" ACP OVERLAY
-  DIRECTIONAL TRAFFIC FLOW



Joel H. Clarke
May 21 2024

MILLING/ASPHALT
OVERLAY
FM 1764

SHEET 1 OF 47

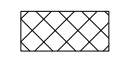



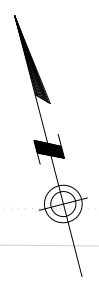
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		151



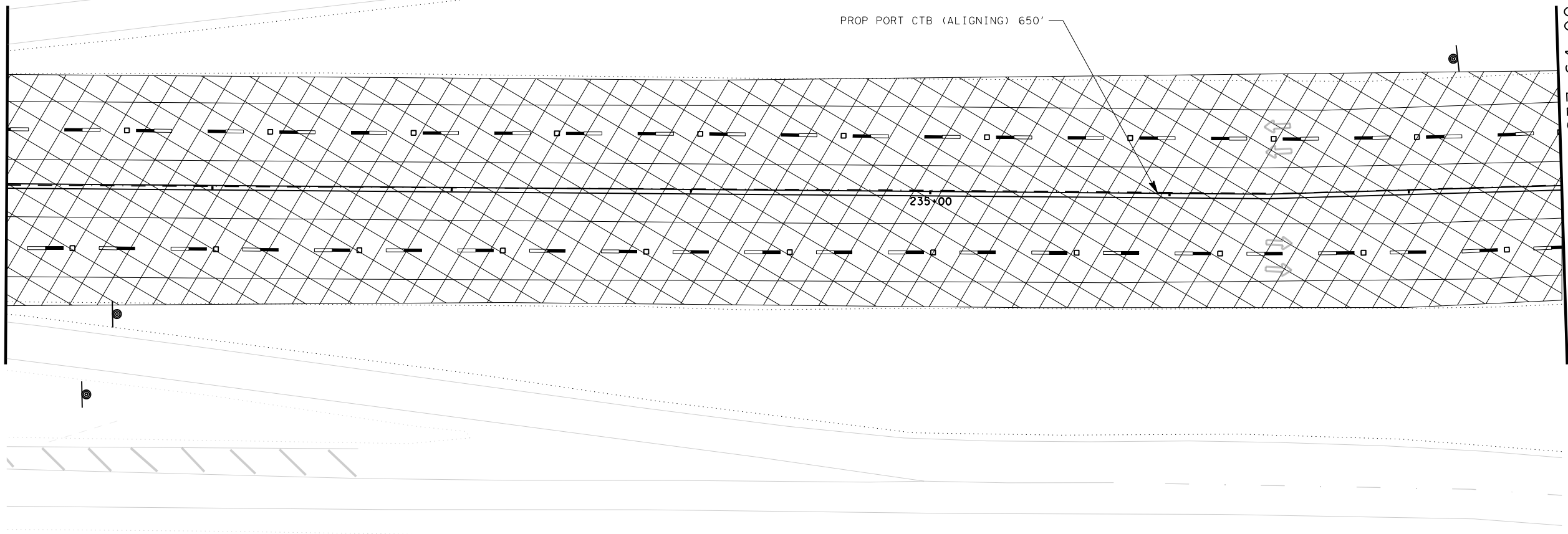
DATE: DATE TIME
FILE: DOCUMENT NAME

LEGEND

-  PROP 3" MILL & UNDERSEAL COURSE & 3" ACP OVERLAY
-  DIRECTIONAL TRAFFIC FLOW



MATCH LINE STA. 231+14.00



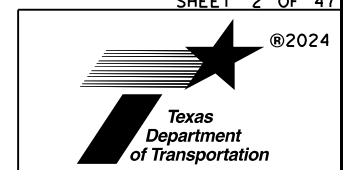
MATCH LINE STA. 237+64.00



Joel H. Clarke
May 21 2024

MILLING/ASPHALT
OVERLAY
FM 1764

SHEET 2 OF 47



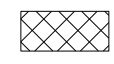

CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		152

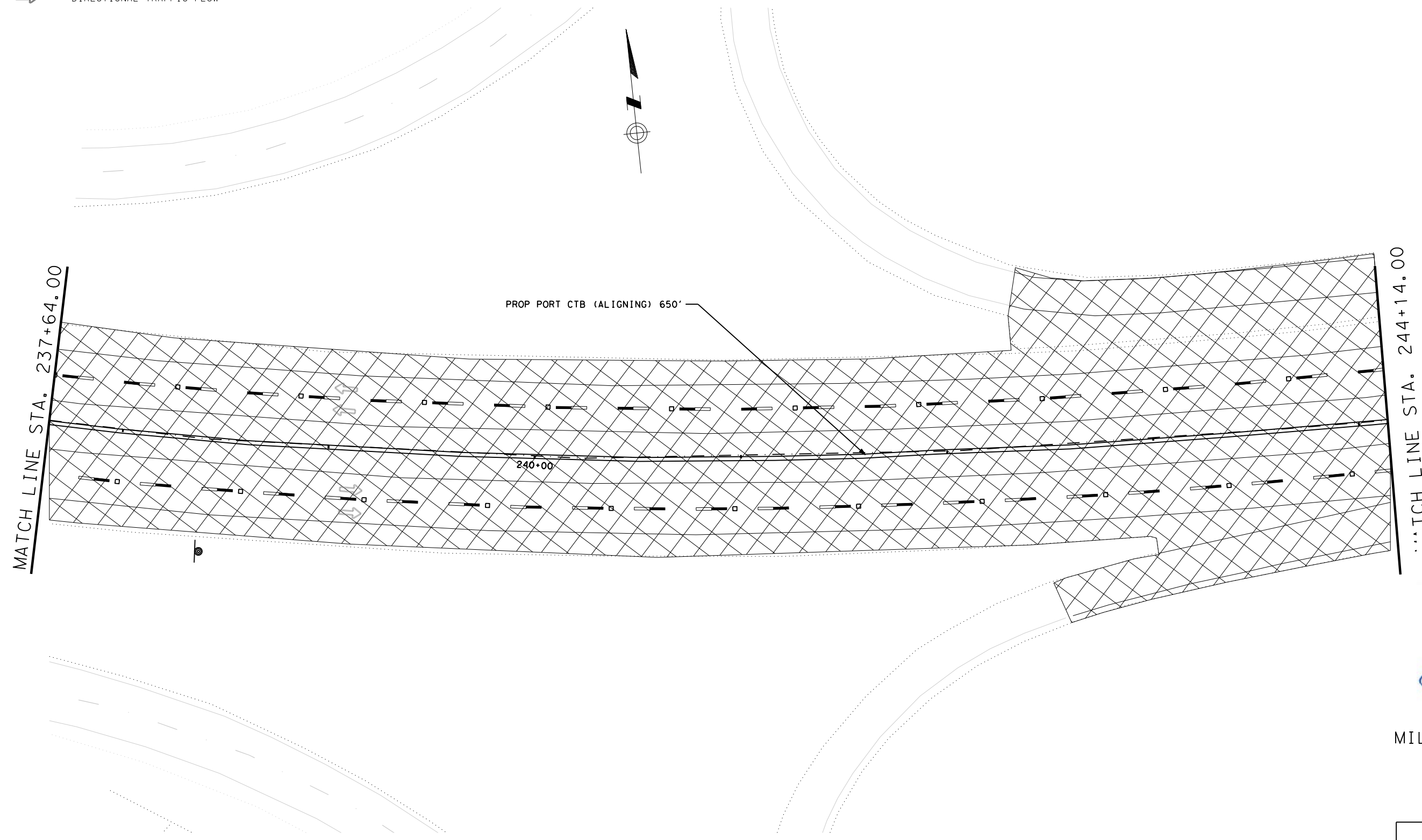


DATE: DATE TIME
FILE: DOCUMENT NAME

DN:
CK:
DN:
CK:

LEGEND

-  PROP 3" MILL & UNDERSEAL COURSE & 3" ACP OVERLAY
-  DIRECTIONAL TRAFFIC FLOW



Joel H. Clarke
May 21 2024

MILLING/ASPHALT
OVERLAY
FM 1764

SHEET 3 OF 47

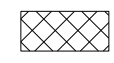



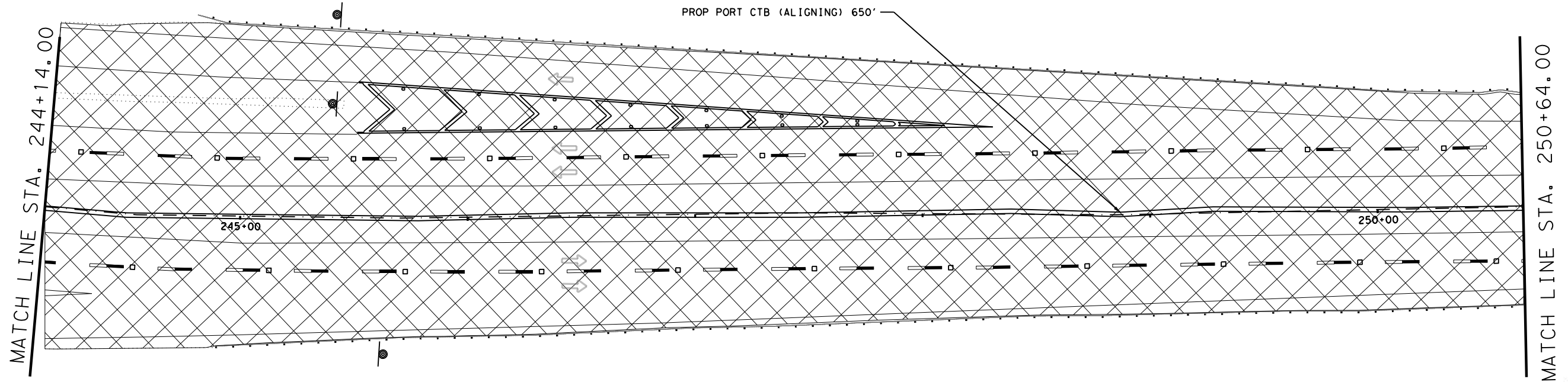
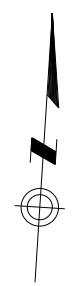
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		153



DATE: DATE TIME
FILE: DOCUMENT NAME

LEGEND

-  PROP 3" MILL & UNDERSEAL COURSE & 3" ACP OVERLAY
-  DIRECTIONAL TRAFFIC FLOW



MATCH LINE STA. 250+64.00



Joel H. Clarke
May 21 2024

MILLING/ASPHALT
OVERLAY
FM 1764

SHEET 4 OF 47

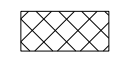


CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		154

DATE: DATE TIME
FILE: DOCUMENT NAME

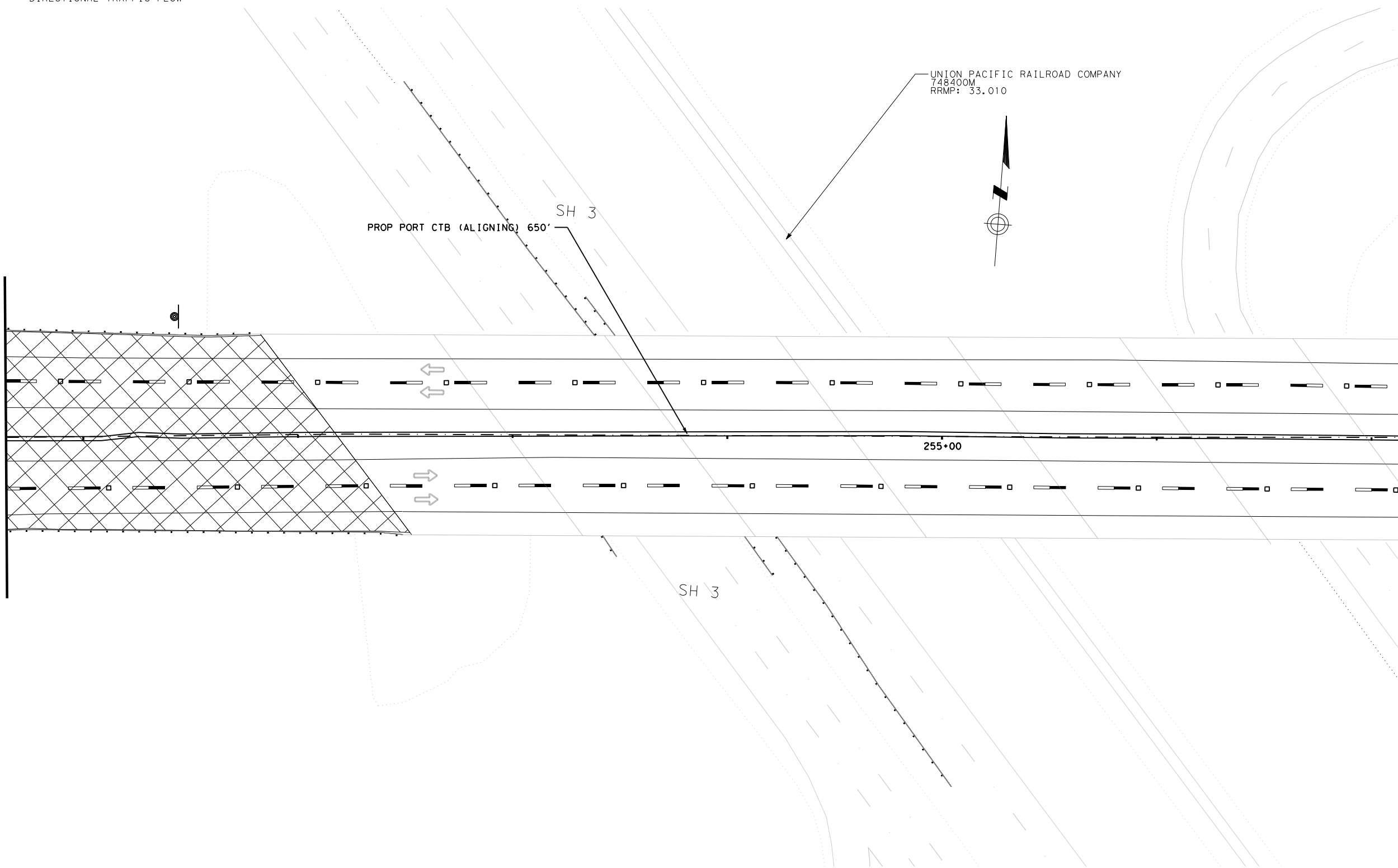
C&G:
DW:
C&G:
DW:

LEGEND

 PROP 3" MILL & UNDERSEAL COURSE
& 3" ACP OVERLAY

 DIRECTIONAL TRAFFIC FLOW

MATCH LINE STA. 250+64.00



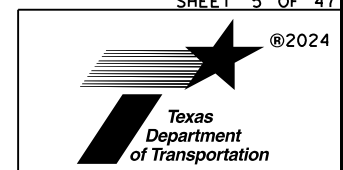
MATCH LINE STA. 257+14.00



Joel H. Clarke
May 21 2024

MILLING/ASPHALT
OVERLAY
FM 1764

SHEET 5 OF 47




CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		155



DATE: DATE TIME
FILE: DOCUMENT NAME

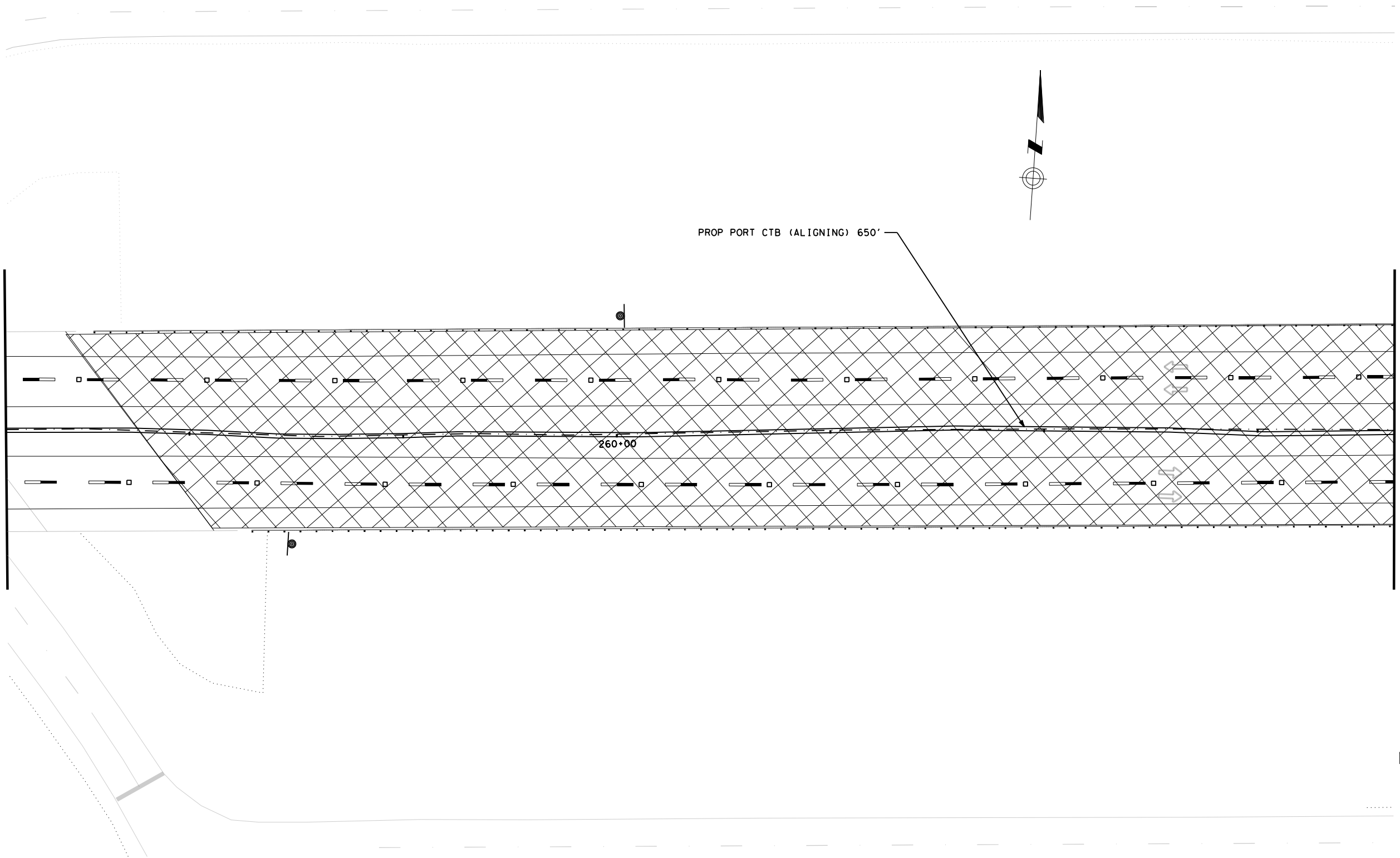
CHK:
DNF:
CHK:
DNF:

LEGEND

 PROP 3" MILL & UNDERSEAL COURSE
& 3" ACP OVERLAY

 DIRECTIONAL TRAFFIC FLOW

MATCH LINE STA. 257+14.00



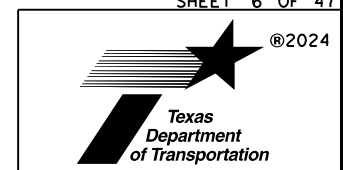
MATCH LINE STA. 263+64.00



Joel H. Clarke
May 21 2024

MILLING/ASPHALT
OVERLAY
FM 1764

SHEET 6 OF 47




CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		156

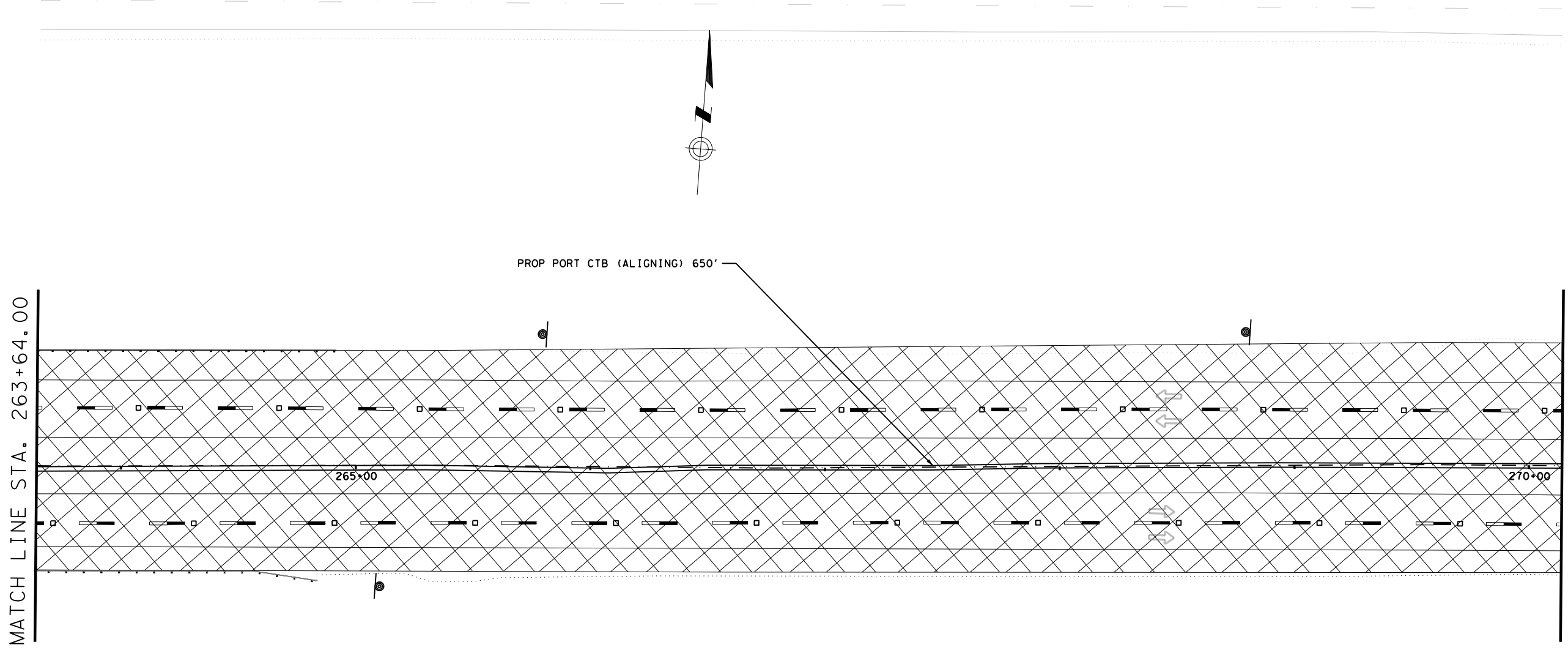
DATE: DATE TIME
FILE: DOCUMENT NAME

CHK:
DWF:
CHK:
DWF:

LEGEND

 PROP 3" MILL & UNDERSEAL COURSE
& 3" ACP OVERLAY

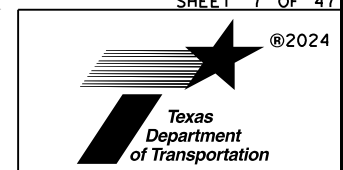
 DIRECTIONAL TRAFFIC FLOW



Joel H. Clarke
May 21 2024

MILLING/ASPHALT
OVERLAY
FM 1764

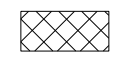

SHEET 7 OF 47

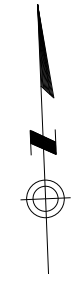


CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		157

DATE: DATE TIME
FILE: DOCUMENT NAME

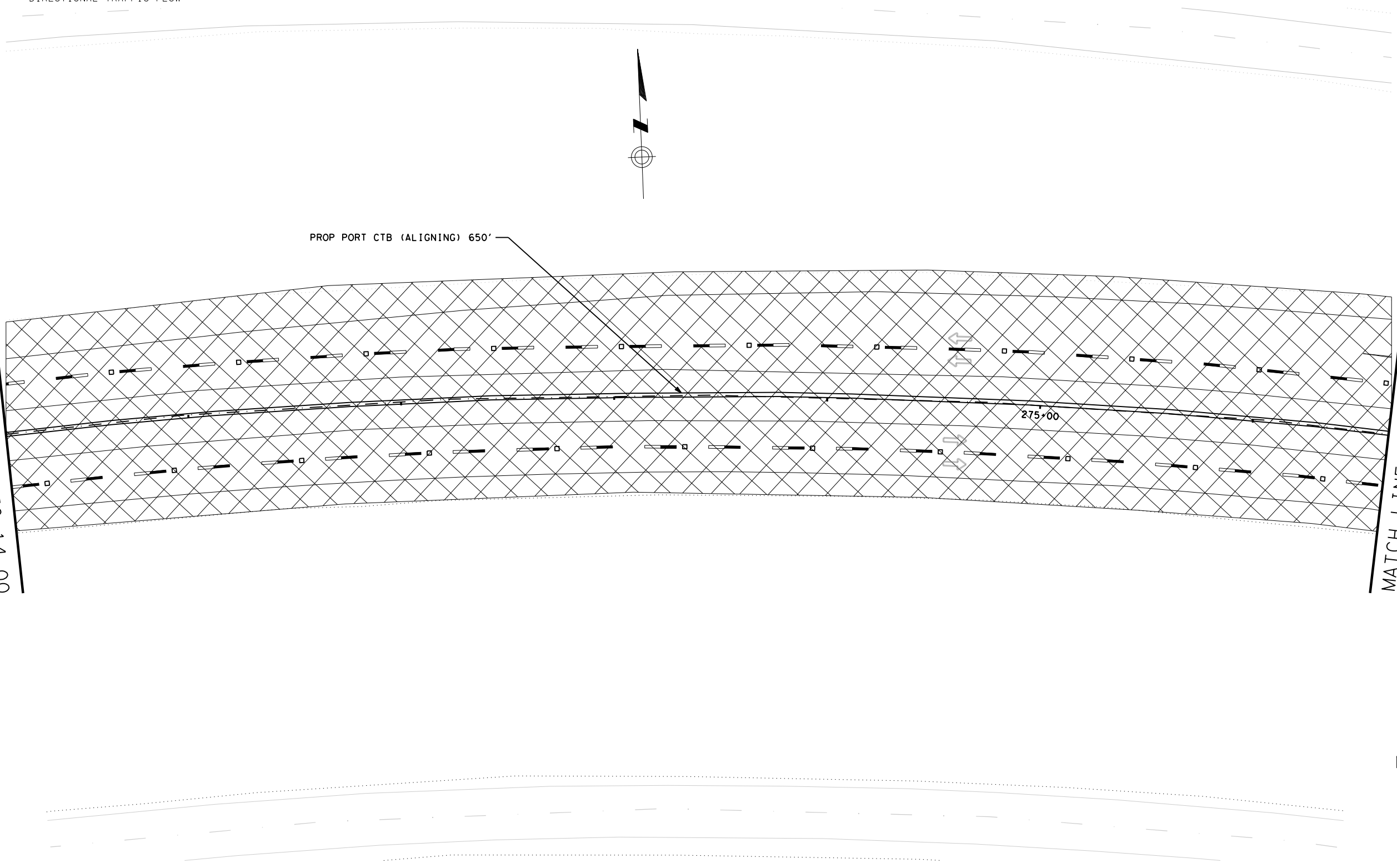
LEGEND

-  PROP 3" MILL & UNDERSEAL COURSE & 3" ACP OVERLAY
-  DIRECTIONAL TRAFFIC FLOW



PROP PORT CTB (ALIGNING) 650'

MATCH LINE STA. 270+14.00



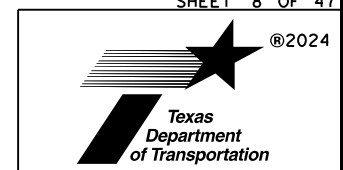
MATCH LINE STA. 276+64.00



Joel H. Clarke
May 21 2024

MILLING/ASPHALT
OVERLAY
FM 1764

SHEET 8 OF 47

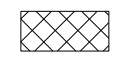


CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		158

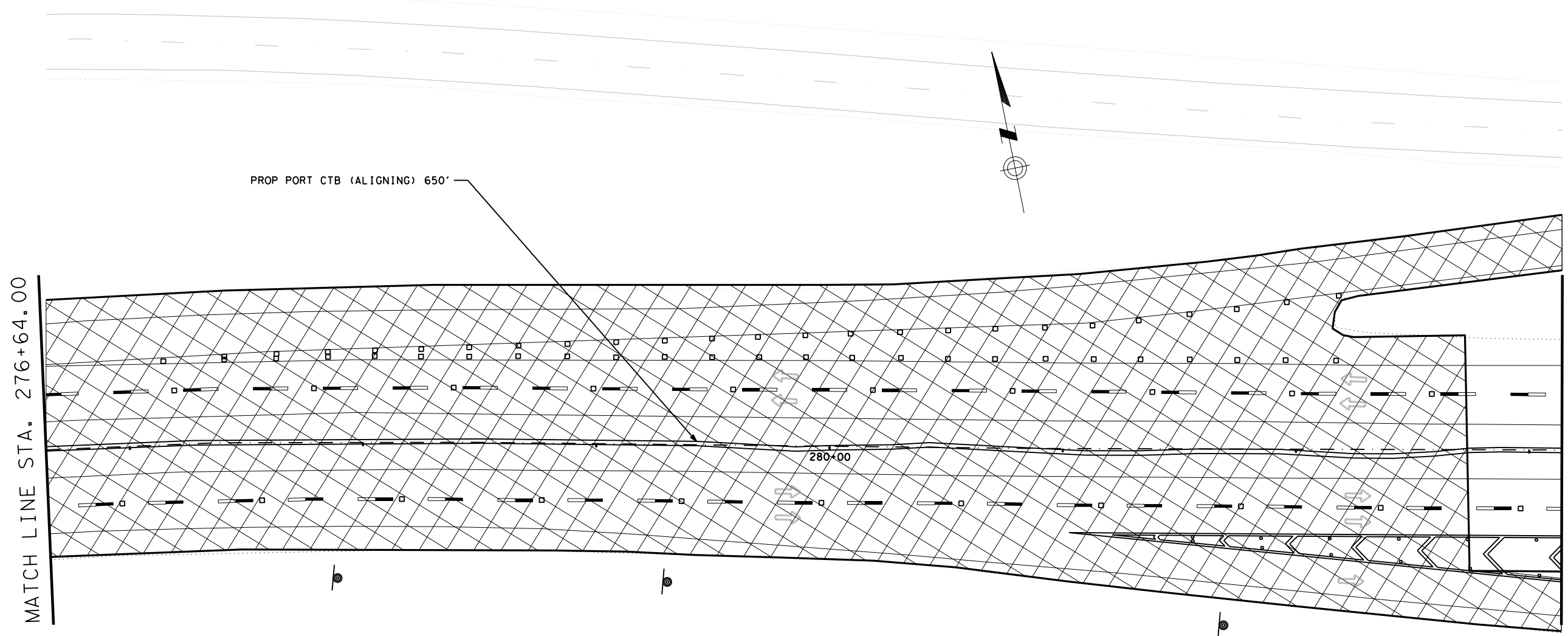
DATE: DATE TIME
FILE: DOCUMENT NAME

CHK: []
DWF: []
CHK: []
DWF: []

LEGEND

 PROP 3" MILL & UNDERSEAL COURSE
& 3" ACP OVERLAY

 DIRECTIONAL TRAFFIC FLOW



MATCH LINE STA. 283+14.00



Joel H. Clarke
May 21 2024

MILLING/ASPHALT
OVERLAY
FM 1764

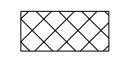

SHEET 9 OF 47

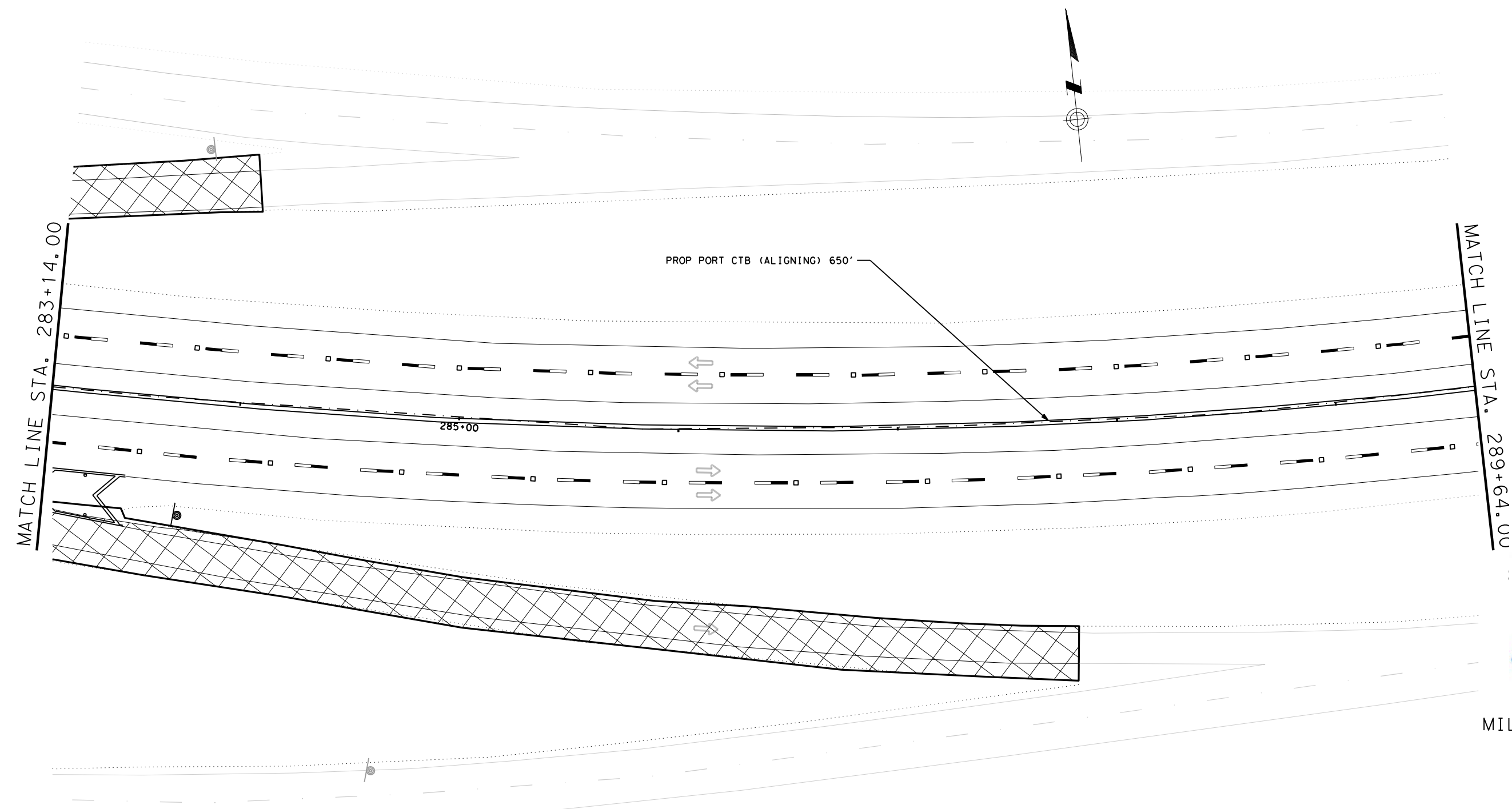


CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		159

DATE: DATE TIME
FILE: DOCUMENT NAME

LEGEND

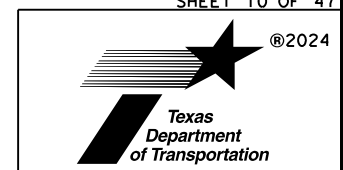
-  PROP 3" MILL & UNDERSEAL COURSE & 3" ACP OVERLAY
-  DIRECTIONAL TRAFFIC FLOW



Joel H. Clarke
May 21 2024

MILLING/ASPHALT
OVERLAY
FM 1764

SHEET 10 OF 47




CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY	SHEET NO.	
HOU	GALVESTON	160	

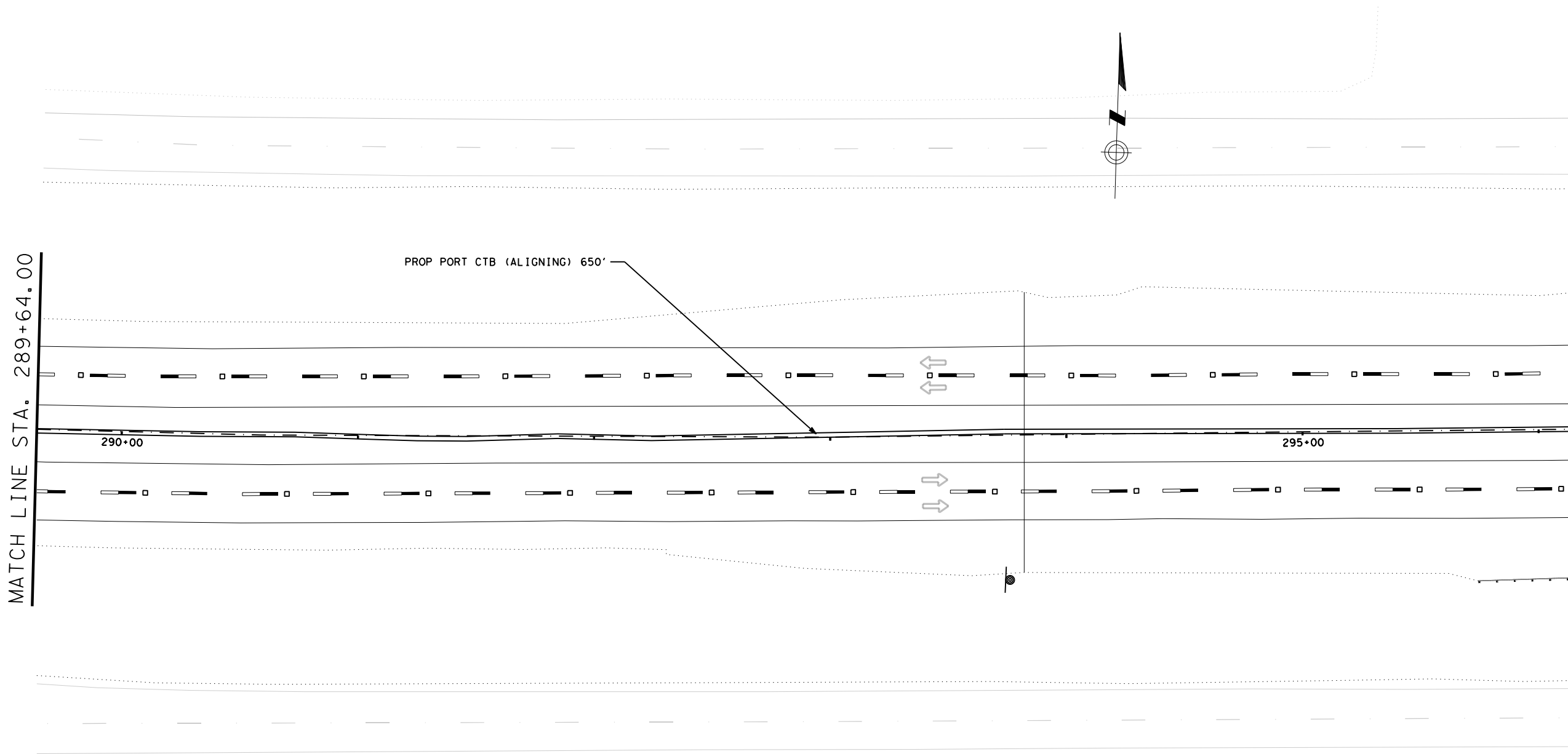
DATE: DATE TIME
FILE: DOCUMENT NAME

CHK:
DWF:
CHK:
DWF:

LEGEND

 PROP 3" MILL & UNDERSEAL COURSE
& 3" ACP OVERLAY

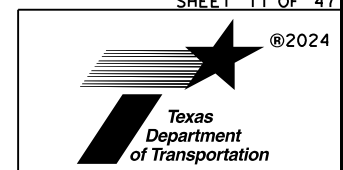
 DIRECTIONAL TRAFFIC FLOW



Joel H. Clarke
May 21 2024

MILLING/ASPHALT
OVERLAY
FM 1764

SHEET 11 OF 47




CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		161



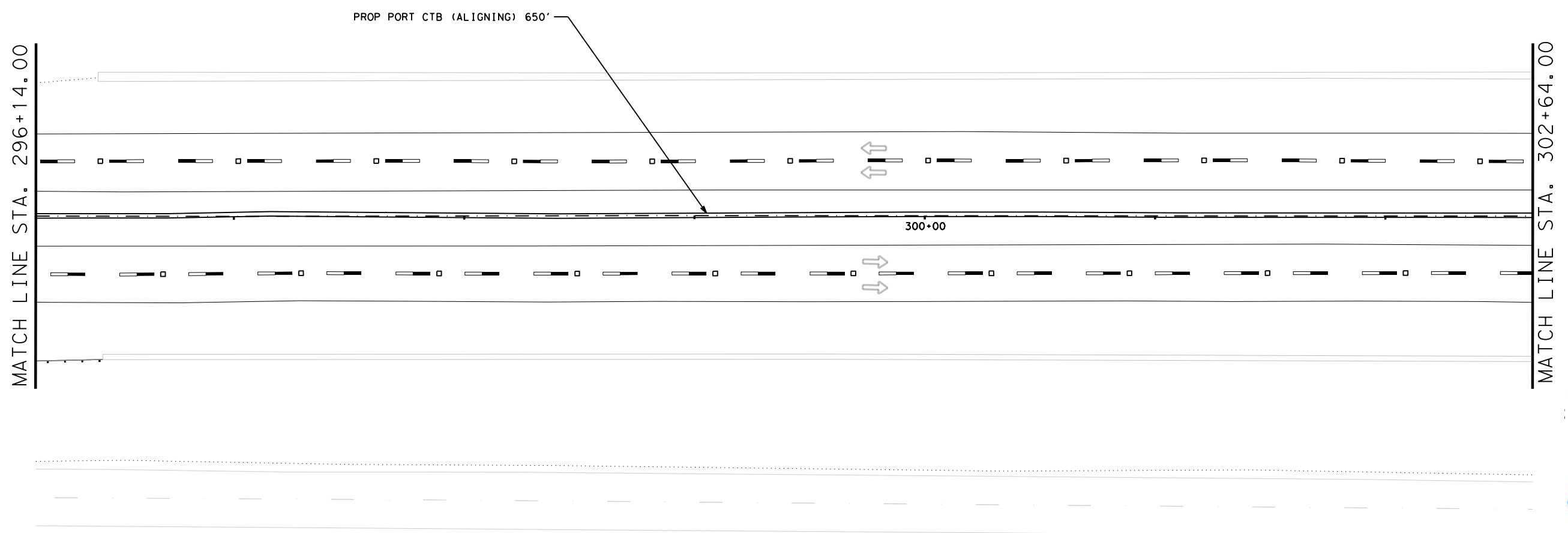
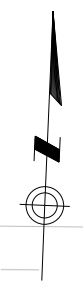
DATE: DATE TIME
FILE: DOCUMENT NAME

C/S:
D/W:
C/S:
D/W:

LEGEND

 PROP 3" MILL & UNDERSEAL COURSE
& 3" ACP OVERLAY

 DIRECTIONAL TRAFFIC FLOW



Joel H. Clarke
May 21 2024

MILLING/ASPHALT
OVERLAY
FM 1764

SHEET 12 OF 47

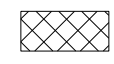



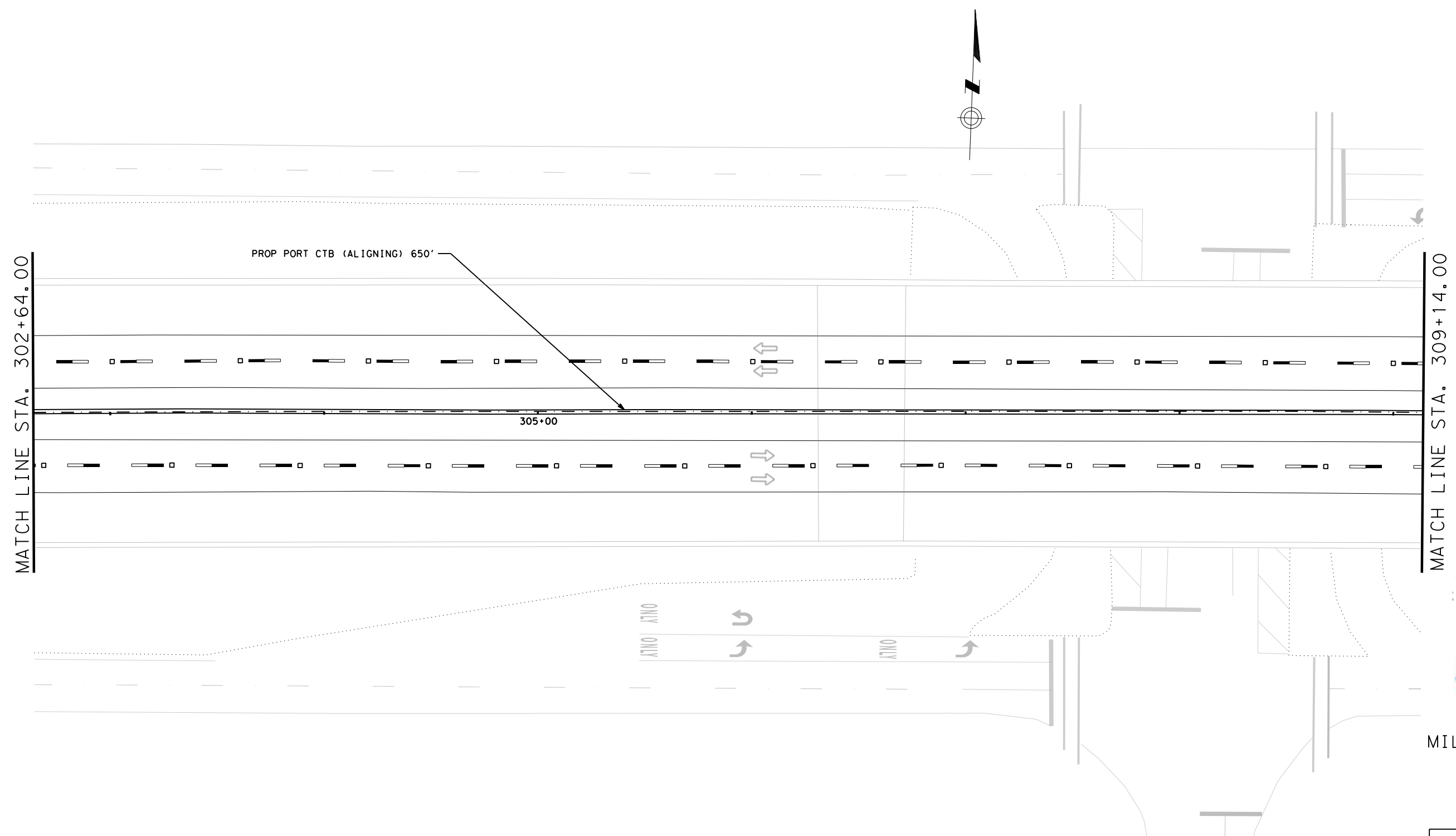
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		162

DATE: DATE TIME
FILE: DOCUMENT NAME

DN:
CK:
DN:

LEGEND

-  PROP 3" MILL & UNDERSEAL COURSE & 3" ACP OVERLAY
-  DIRECTIONAL TRAFFIC FLOW



MATCH LINE STA. 302+64.00

MATCH LINE STA. 309+14.00

PROP PORT CTB (ALIGNING) 650'

305+00



Joel H. Clarke
May 21 2024

MILLING/ASPHALT
OVERLAY
FM 1764

SHEET 13 OF 47




CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		163



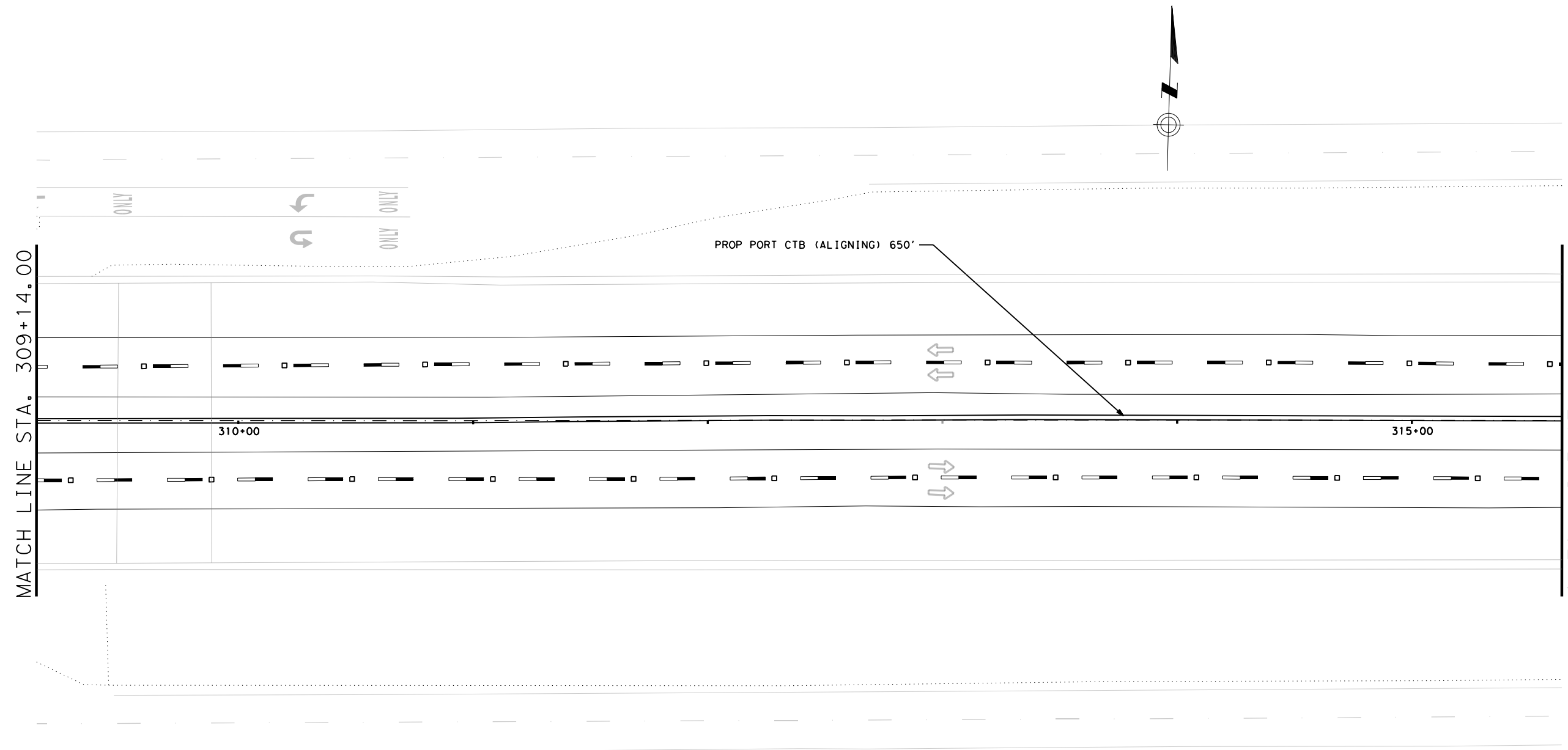
DATE: DATE TIME
FILE: DOCUMENT NAME

DN:
CK:
DN:
CK:

LEGEND

 PROP 3" MILL & UNDERSEAL COURSE
& 3" ACP OVERLAY

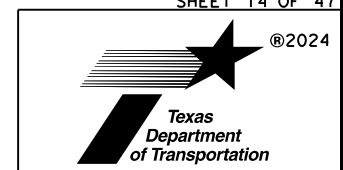
 DIRECTIONAL TRAFFIC FLOW



Joel H. Clarke
May 21 2024

MILLING/ASPHALT
OVERLAY
FM 1764

SHEET 14 OF 47




CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		164

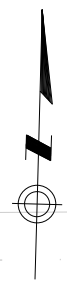
DATE: DATE TIME
FILE: DOCUMENT NAME

DN:
CK:
DN:
CK:

LEGEND

 PROP 3" MILL & UNDERSEAL COURSE
& 3" ACP OVERLAY

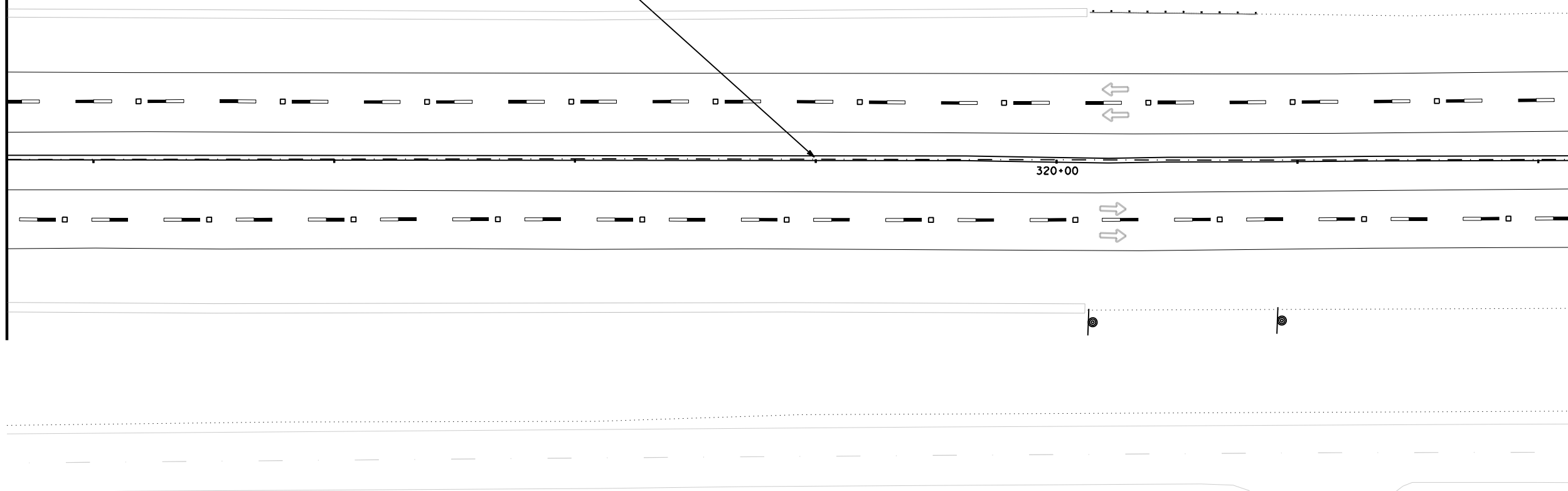
 DIRECTIONAL TRAFFIC FLOW



MATCH LINE STA. 315+64.00

PROP PORT CTB (ALIGNING) 650'

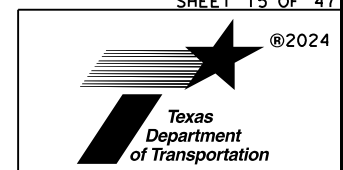
MATCH LINE STA. 322+14.00



Joel H. Clarke
May 21 2024

MILLING/ASPHALT
OVERLAY
FM 1764

SHEET 15 OF 47




CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		165

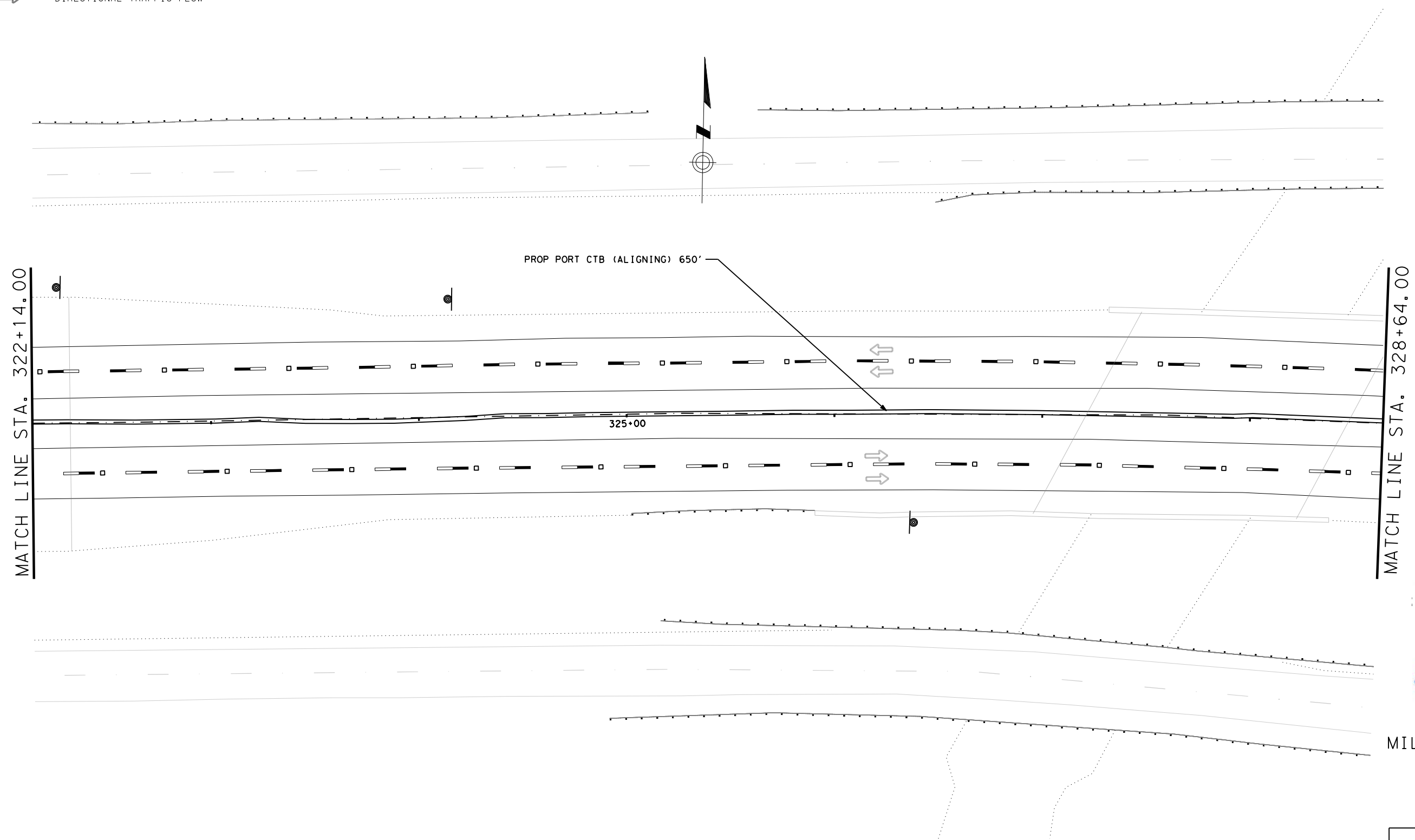
DATE: DATE TIME
FILE: DOCUMENT NAME

DN:
CK:
DN:
CK:

LEGEND

 PROP 3" MILL & UNDERSEAL COURSE
& 3" ACP OVERLAY

 DIRECTIONAL TRAFFIC FLOW



Joel H. Clarke
May 21 2024

MILLING/ASPHALT
OVERLAY
FM 1764

SHEET 16 OF 47



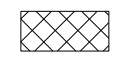
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		166



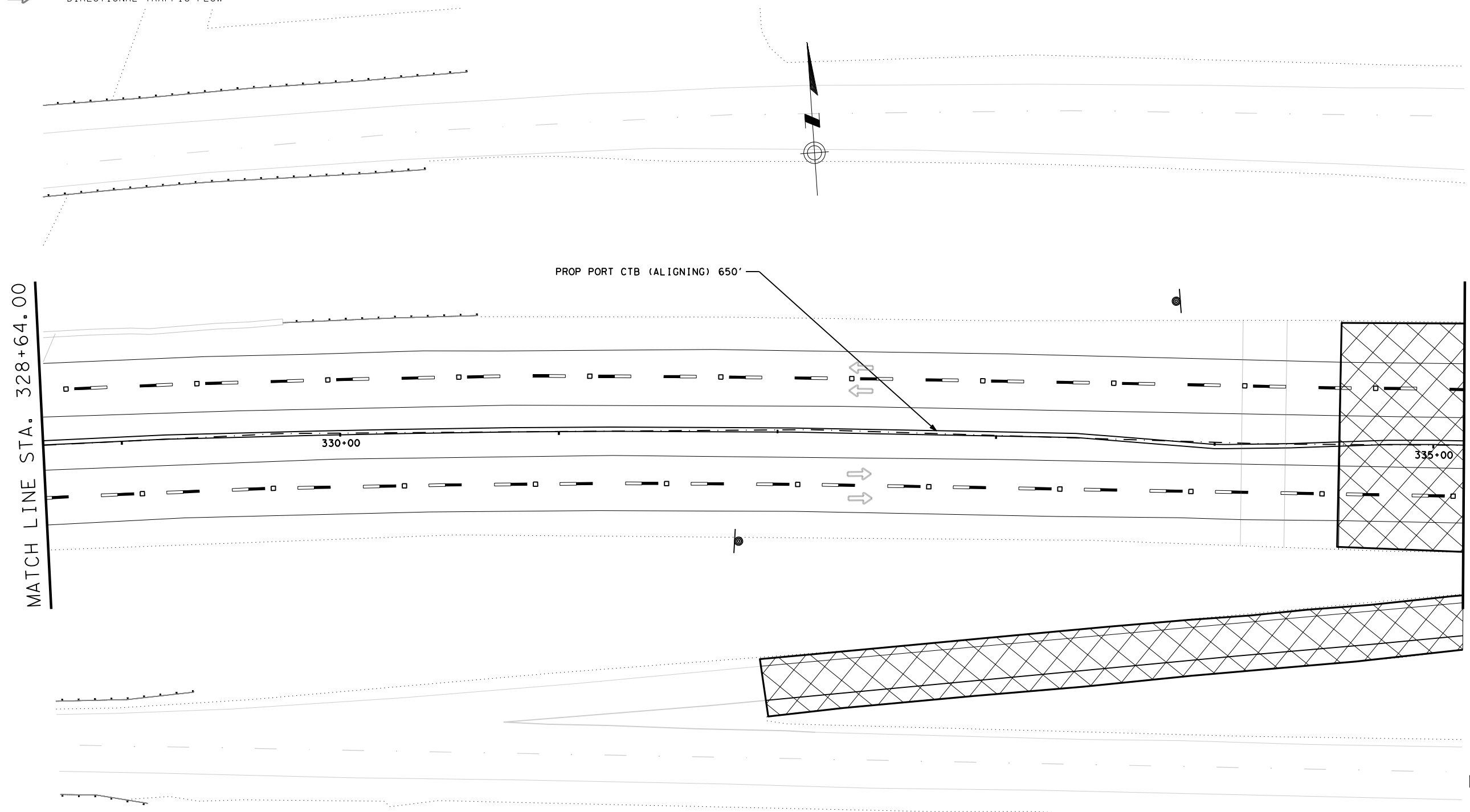
DATE: DATE TIME
FILE: DOCUMENT NAME

CHK:
DWF:
CHK:
DWF:

LEGEND

 PROP 3" MILL & UNDERSEAL COURSE
& 3" ACP OVERLAY

 DIRECTIONAL TRAFFIC FLOW



PROP PORT CTB (ALIGNING) 650'

MATCH LINE STA. 328+64.00

MATCH LINE STA. 335+14.00

330+00

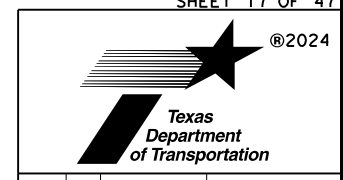
335+00



Joel H. Clarke
May 21 2024

MILLING/ASPHALT
OVERLAY
FM 1764

SHEET 17 OF 47

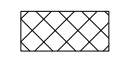



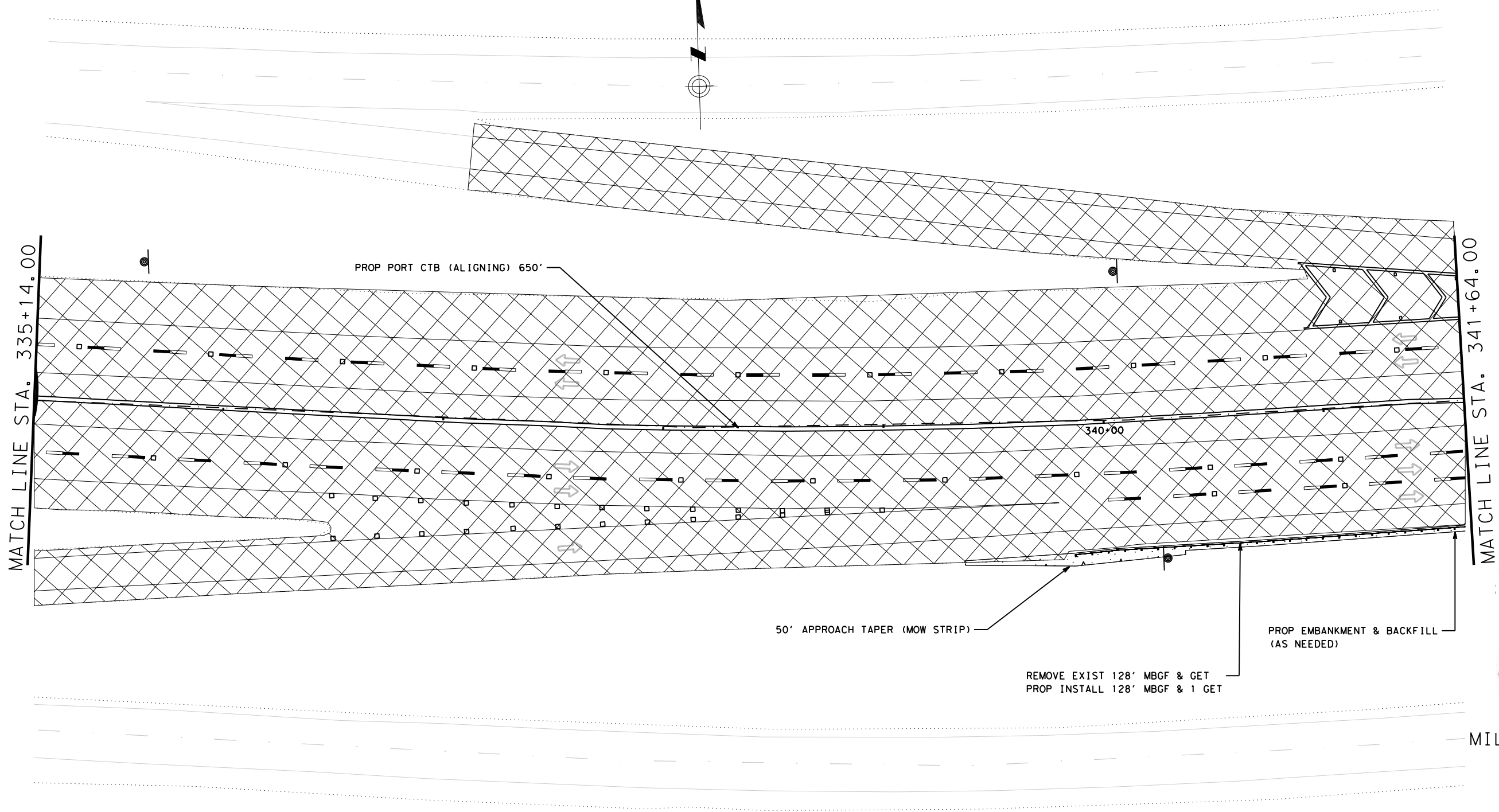
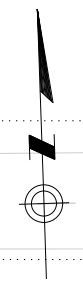
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		167



DATE: DATE TIME
FILE: DOCUMENT NAME

LEGEND

-  PROP 3" MILL & UNDERSEAL COURSE & 3" ACP OVERLAY
-  DIRECTIONAL TRAFFIC FLOW



Joel H. Clarke
May 21 2024

MILLING/ASPHALT
OVERLAY
FM 1764

SHEET 18 OF 47





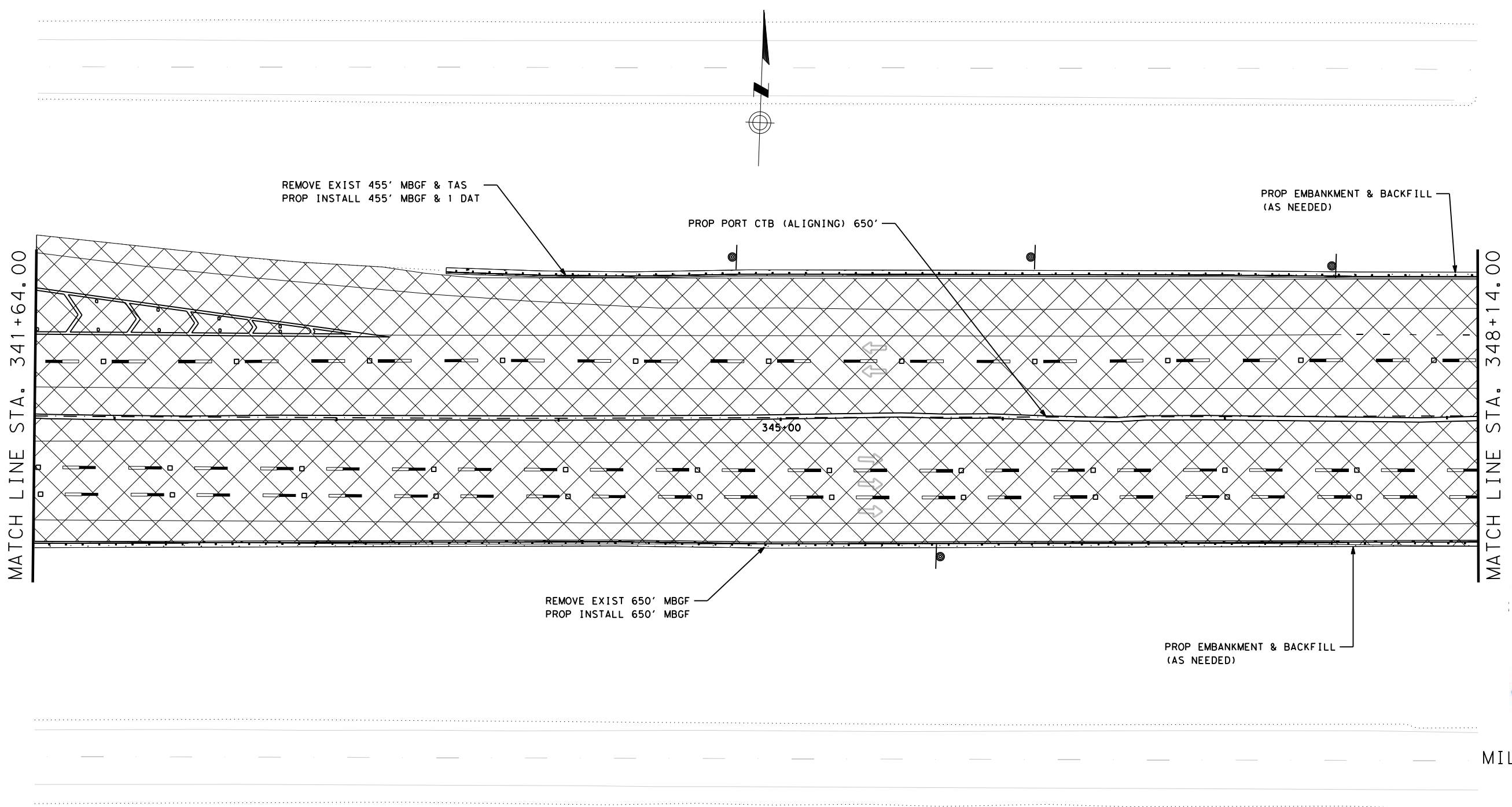
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		168



DWG:
 CHK:
 DWF:
 C&G:

LEGEND

-  PROP 3" MILL & UNDERSEAL COURSE & 3" ACP OVERLAY
-  DIRECTIONAL TRAFFIC FLOW



Joel H. Clarke
 May 21 2024

MILLING/ASPHALT
 OVERLAY
 FM 1764

SHEET 19 OF 47



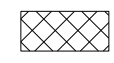

CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		169

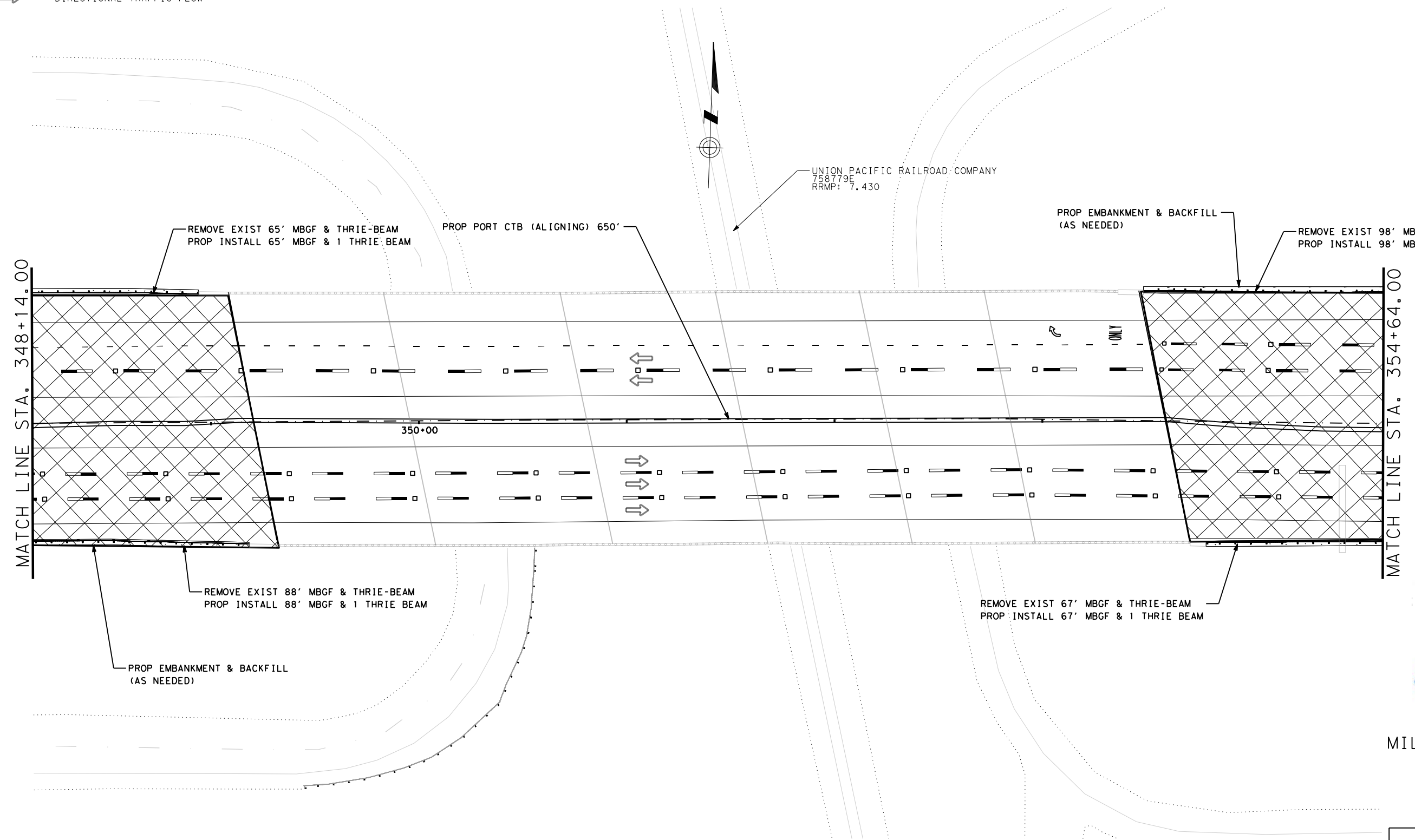


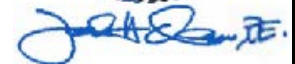
DATE: DATE TIME
 FILE: DOCUMENT NAME

C&G
 DWG
 C&G
 DWG

LEGEND

-  PROP 3" MILL & UNDERSEAL COURSE & 3" ACP OVERLAY
-  DIRECTIONAL TRAFFIC FLOW




 May 21 2024

MILLING/ASPHALT
 OVERLAY
 FM 1764

SHEET 20 OF 47

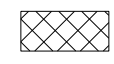



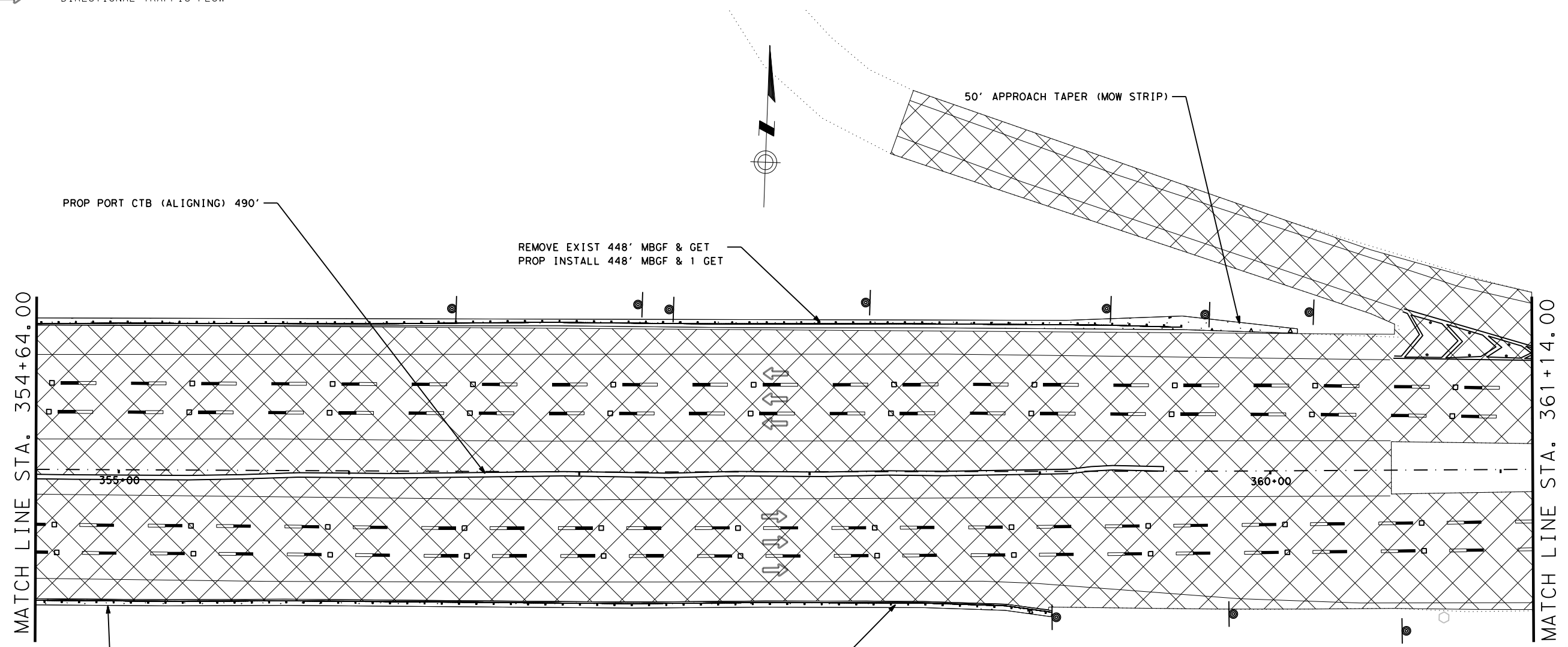
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		170

DATE: DATE TIME
 FILE: DOCUMENT NAME

CHK:
 DWF:
 C&G:
 DWG:

LEGEND

-  PROP 3" MILL & UNDERSEAL COURSE & 3" ACP OVERLAY
-  DIRECTIONAL TRAFFIC FLOW



MATCH LINE STA. 354+64.00

MATCH LINE STA. 361+14.00

PROP PORT CTB (ALIGNING) 490'

REMOVE EXIST 448' MBGF & GET
PROP INSTALL 448' MBGF & 1 GET

50' APPROACH TAPER (MOW STRIP)

REMOVE EXIST 432' MBGF & TAS
PROP INSTALL 432' MBGF & 1 DAT

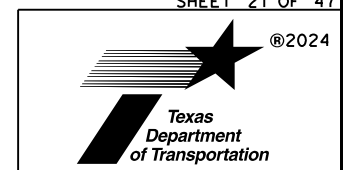
PROP EMBANKMENT & BACKFILL
(AS NEEDED)



Joel H. Clarke
 May 21 2024

MILLING/ASPHALT
 OVERLAY
 FM 1764

SHEET 21 OF 47



CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		171




DATE: DATE TIME
 FILE: DOCUMENT NAME

DATE: DATE TIME
FILE: DOCUMENT NAME

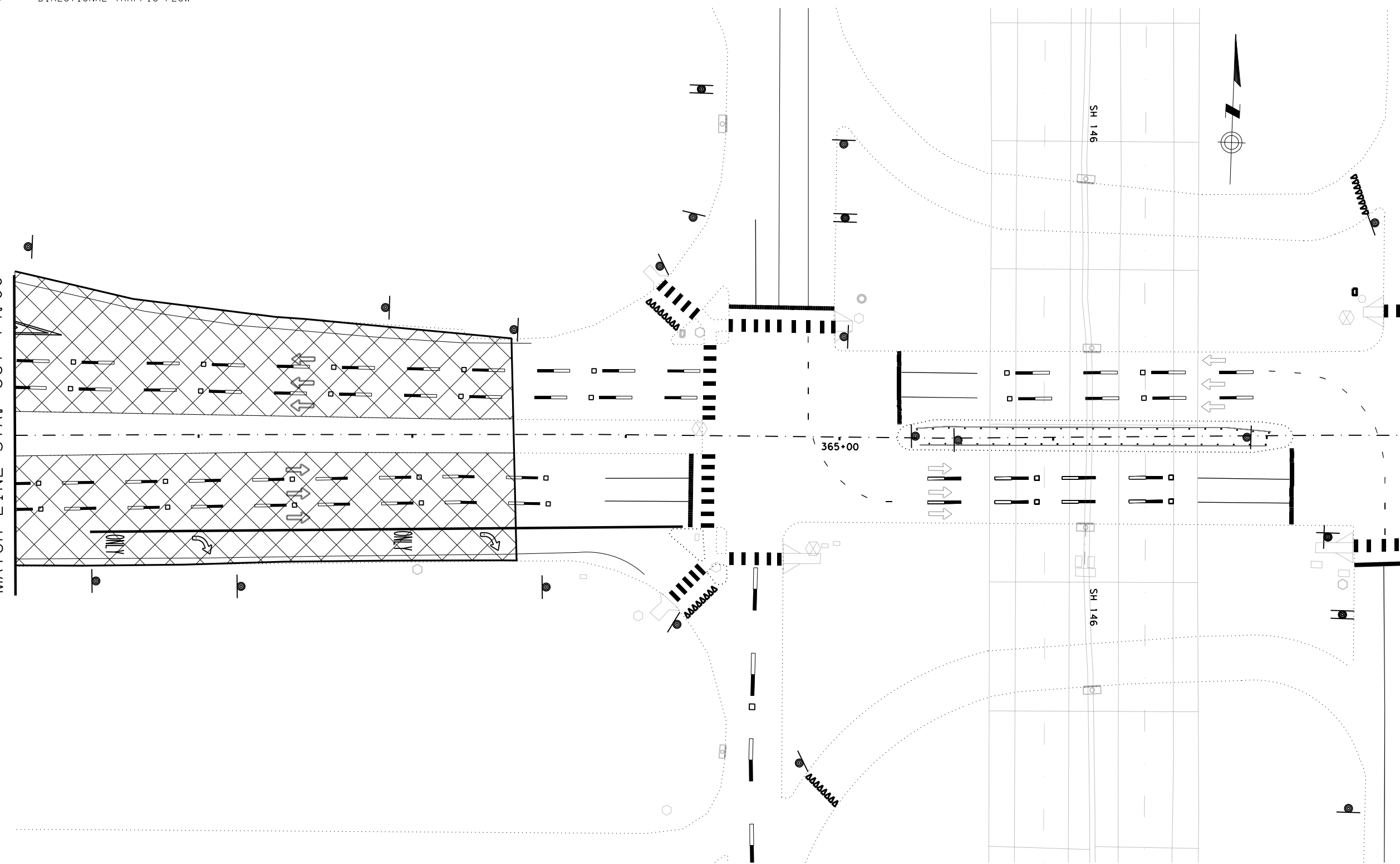
DWG: DWG
CHK: CHK
DWN: DWN

LEGEND

 PROP 3" MILL & UNDERSEAL COURSE
& 3" ACP OVERLAY

 DIRECTIONAL TRAFFIC FLOW

MATCH LINE STA. 361+14.00



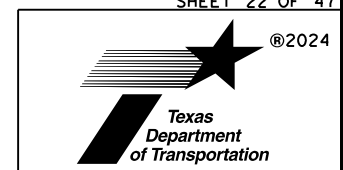
MATCH LINE STA. 367+64.00



May 21 2024

MILLING/ASPHALT
OVERLAY
FM 1764

SHEET 22 OF 47




CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		172



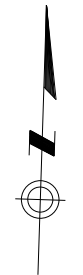
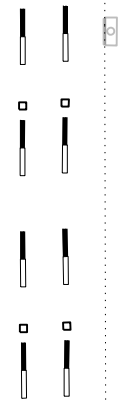
DATE: DATE TIME
FILE: DOCUMENT NAME

CHK: []
DWF: []
CHK: []
DWF: []

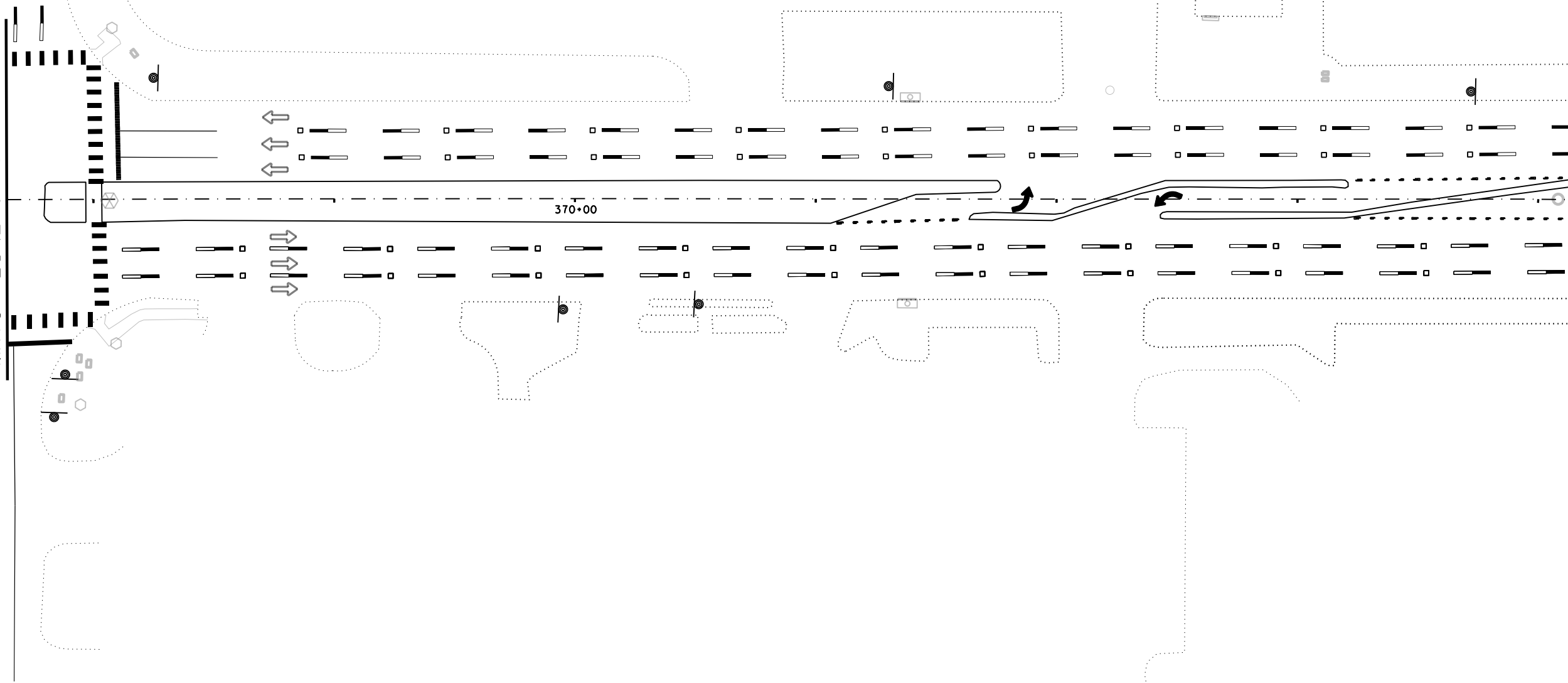
LEGEND

 PROP 3" MILL & UNDERSEAL COURSE
& 3" ACP OVERLAY

 DIRECTIONAL TRAFFIC FLOW



MATCH LINE STA. 367+64.00



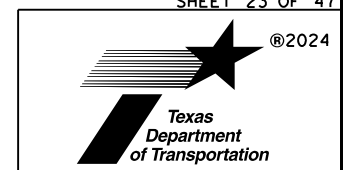
MATCH LINE STA. 374+14.00



Joel H. Clarke
May 21 2024

MILLING/ASPHALT
OVERLAY
FM 1764

SHEET 23 OF 47

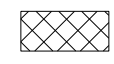



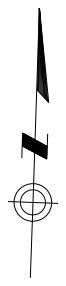
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		173

DATE: DATE TIME
FILE: DOCUMENT NAME

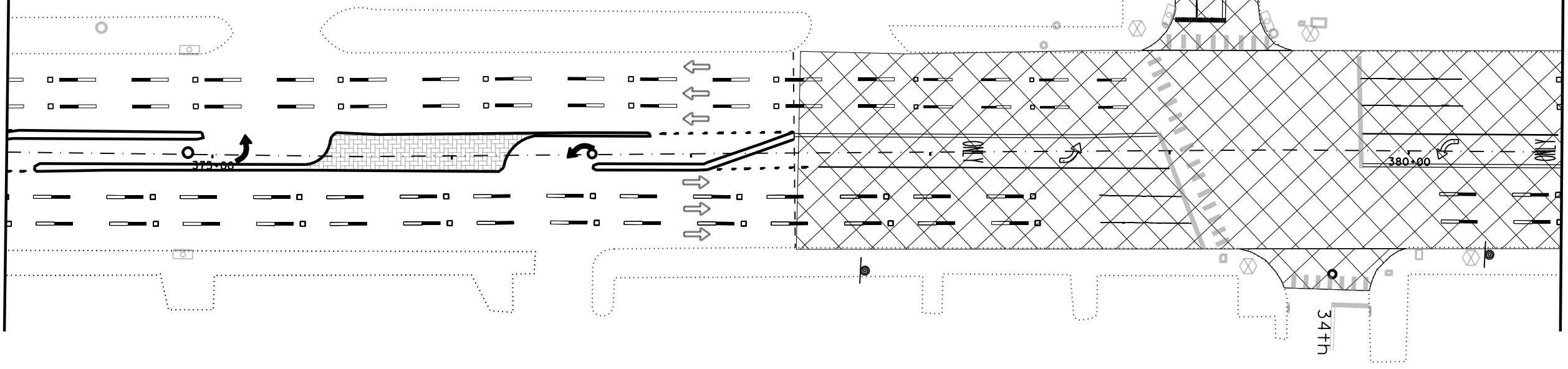
CHK: []
DWF: []
CHK: []
DWF: []

LEGEND

-  PROP 3" MILL & UNDERSEAL COURSE & 3" ACP OVERLAY
-  DIRECTIONAL TRAFFIC FLOW



MATCH LINE STA. 374+14.00



MATCH LINE STA. 380+64.00



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OVERLAY
FM 1764

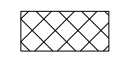

SHEET 24 OF 47

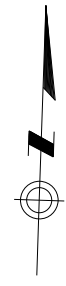


CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		174

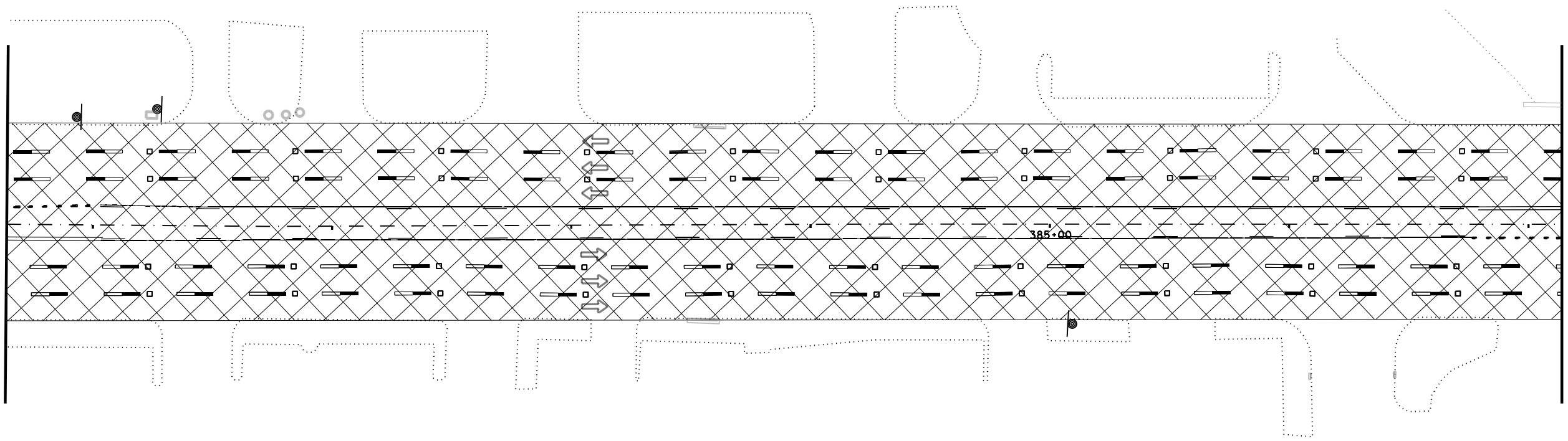
DATE: DATE TIME
FILE: DOCUMENT NAME

LEGEND

-  PROP 3" MILL & UNDERSEAL COURSE & 3" ACP OVERLAY
-  DIRECTIONAL TRAFFIC FLOW



MATCH LINE STA. 380+64.00



MATCH LINE STA. 387+14.00



Joel H. Clarke
May 21 2024

MILLING/ASPHALT
OVERLAY
FM 1764

SHEET 25 OF 47

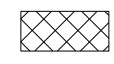



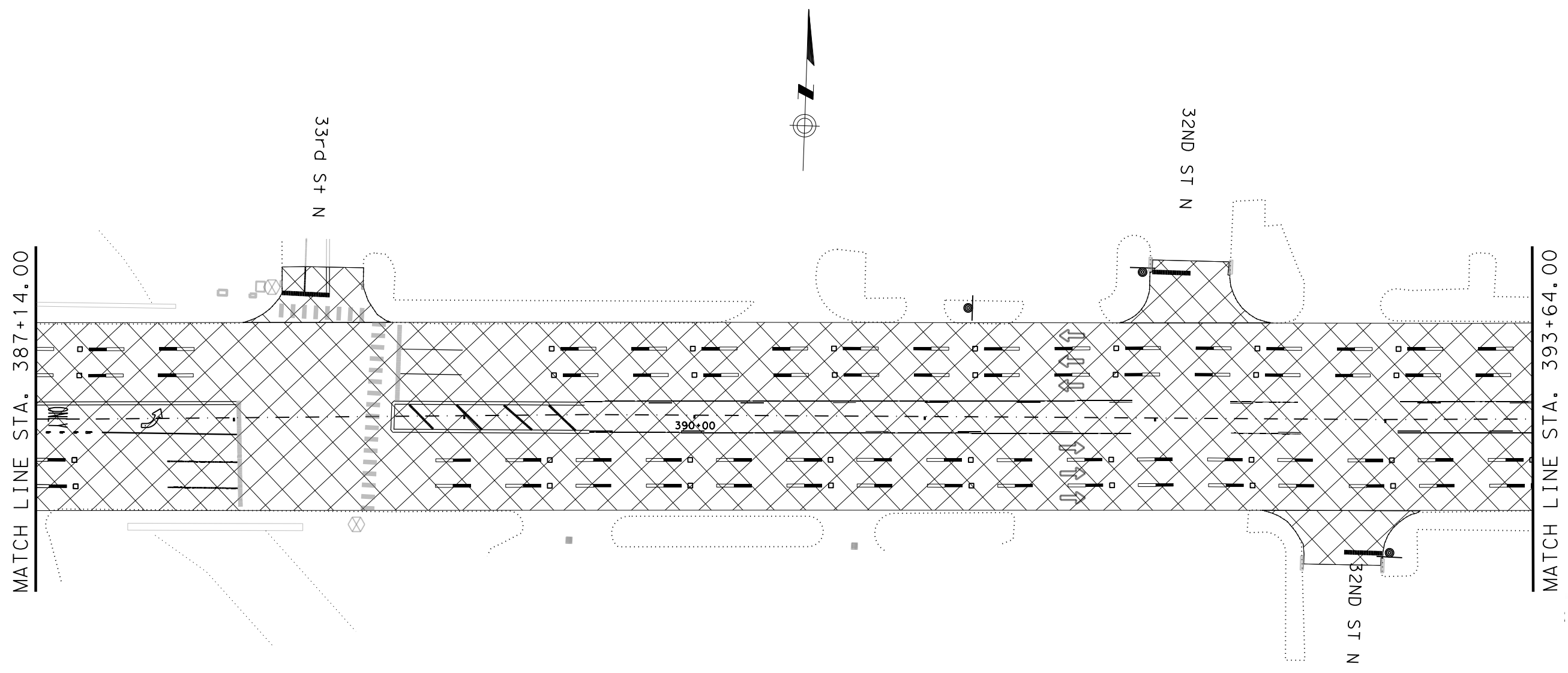
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		175

DATE: DATE TIME
FILE: DOCUMENT NAME

DWG: C&G: DWG: C&G: DWG: C&G:

LEGEND

-  PROP 3" MILL & UNDERSEAL COURSE & 3" ACP OVERLAY
-  DIRECTIONAL TRAFFIC FLOW



Joel H. Clarke
May 21 2024

MILLING/ASPHALT
OVERLAY
FM 1764

SHEET 26 OF 47



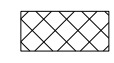

CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		176

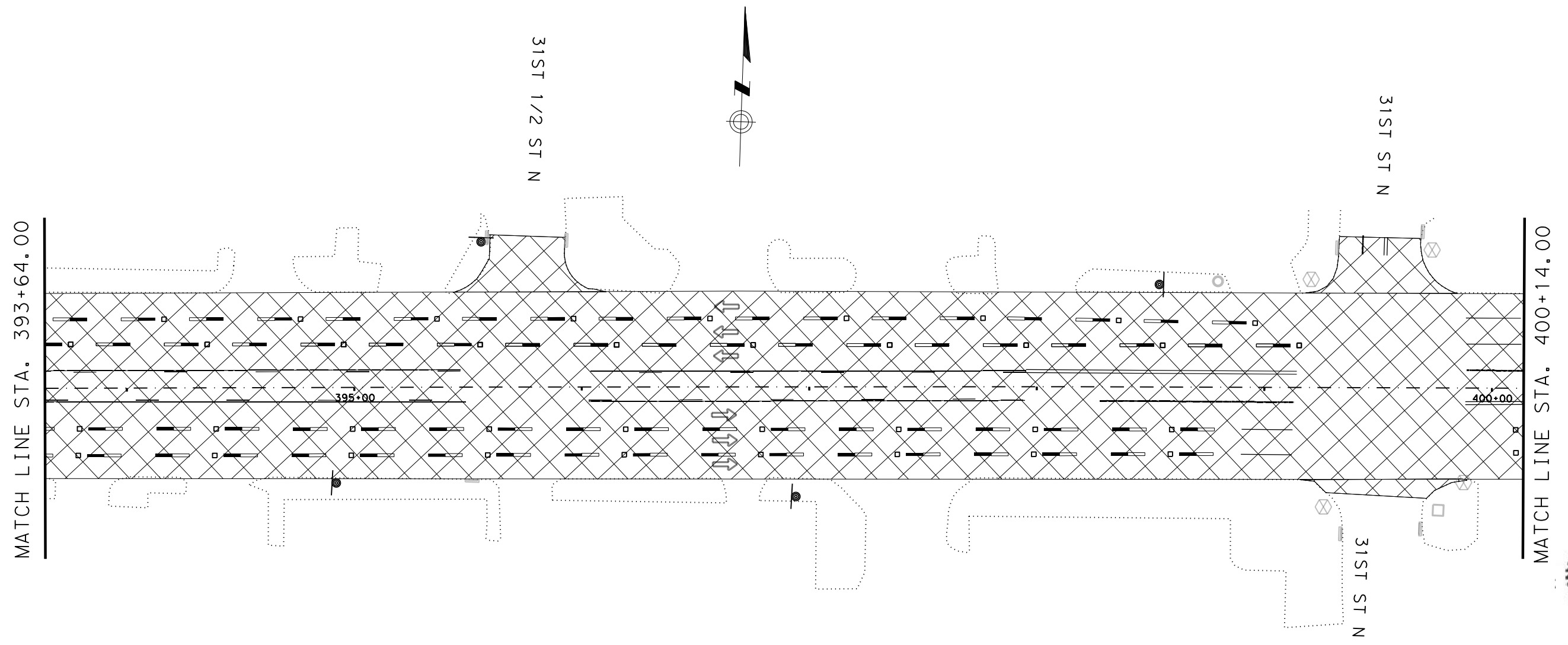


DATE: DATE TIME
FILE: DOCUMENT NAME

CHK: []
DWF: []
CHK: []
DWF: []

LEGEND

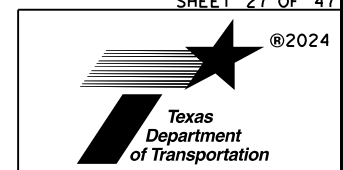
-  PROP 3" MILL & UNDERSEAL COURSE & 3" ACP OVERLAY
-  DIRECTIONAL TRAFFIC FLOW



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May 21 2024

MILLING/ASPHALT
OVERLAY
FM 1764

SHEET 27 OF 47




CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		177

DATE: DATE TIME
FILE: DOCUMENT NAME

CHK:
DWF:
CHK:
DWF:

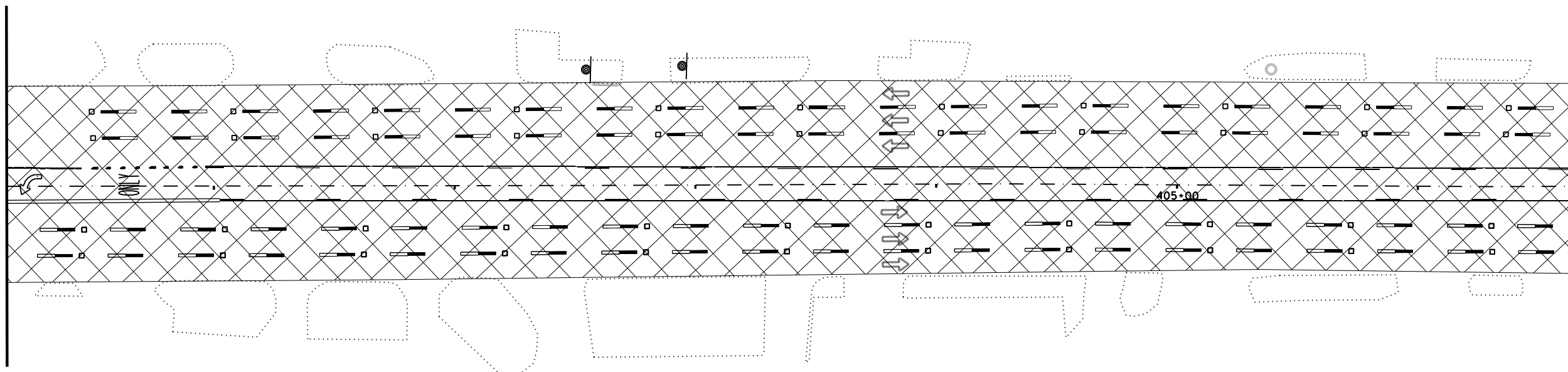
LEGEND

 PROP 3" MILL & UNDERSEAL COURSE
& 3" ACP OVERLAY

 DIRECTIONAL TRAFFIC FLOW



MATCH LINE STA. 400+14.00



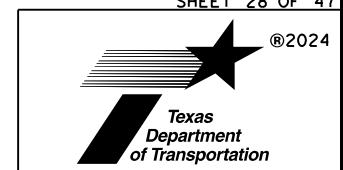
MATCH LINE STA. 406+64.00



Joel H. Clarke
May 21 2024

MILLING/ASPHALT
OVERLAY
FM 1764

SHEET 28 OF 47



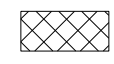

CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		178

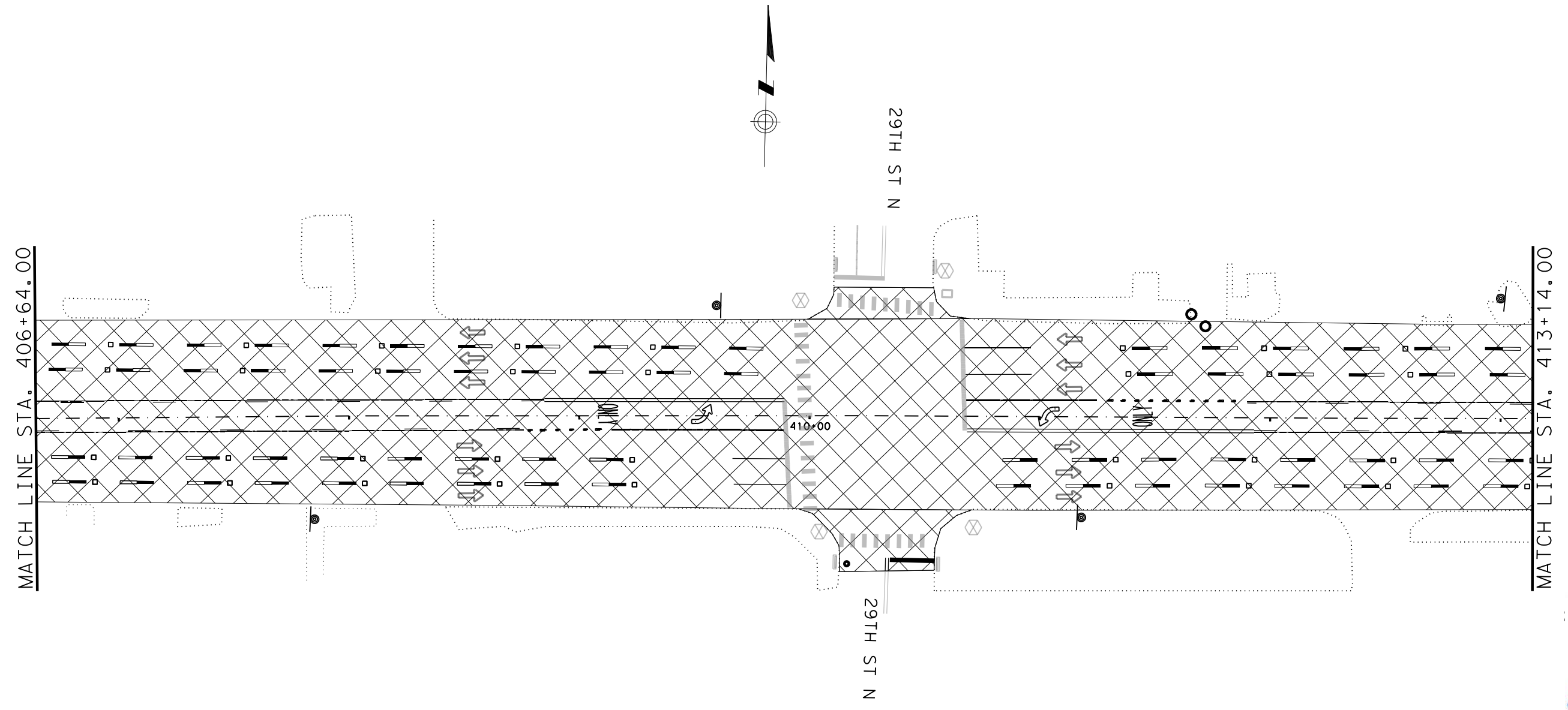


DATE: DATE TIME
FILE: DOCUMENT NAME

DWG: C&G: DWG: C&G: DWG: C&G:

LEGEND

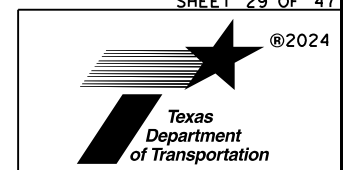
-  PROP 3" MILL & UNDERSEAL COURSE & 3" ACP OVERLAY
-  DIRECTIONAL TRAFFIC FLOW



May 21 2024

MILLING/ASPHALT
OVERLAY
FM 1764

SHEET 29 OF 47





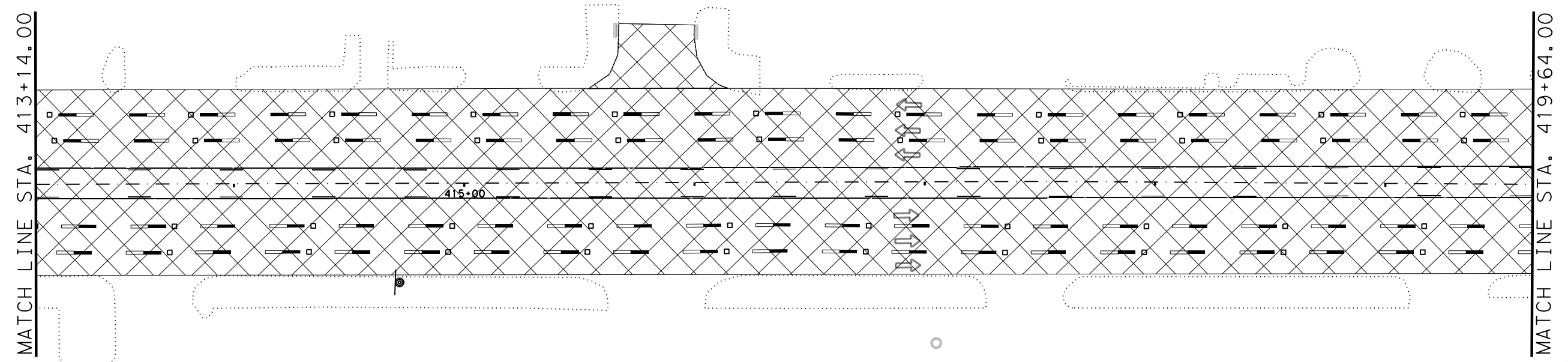
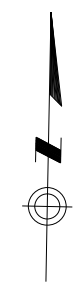
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY	SHEET NO.	
HOU	GALVESTON	179	

DATE: DATE TIME
FILE: DOCUMENT NAME

DWG: C&G: DWG: C&G: DWG: C&G:

LEGEND

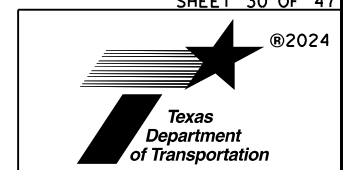
-  PROP 3" MILL & UNDERSEAL COURSE & 3" ACP OVERLAY
-  DIRECTIONAL TRAFFIC FLOW



Joel H. Clarke
May 21 2024

MILLING/ASPHALT
OVERLAY
FM 1764

SHEET 30 OF 47

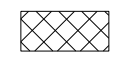



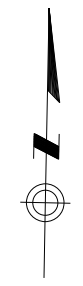
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		180

DATE: DATE TIME
FILE: DOCUMENT NAME

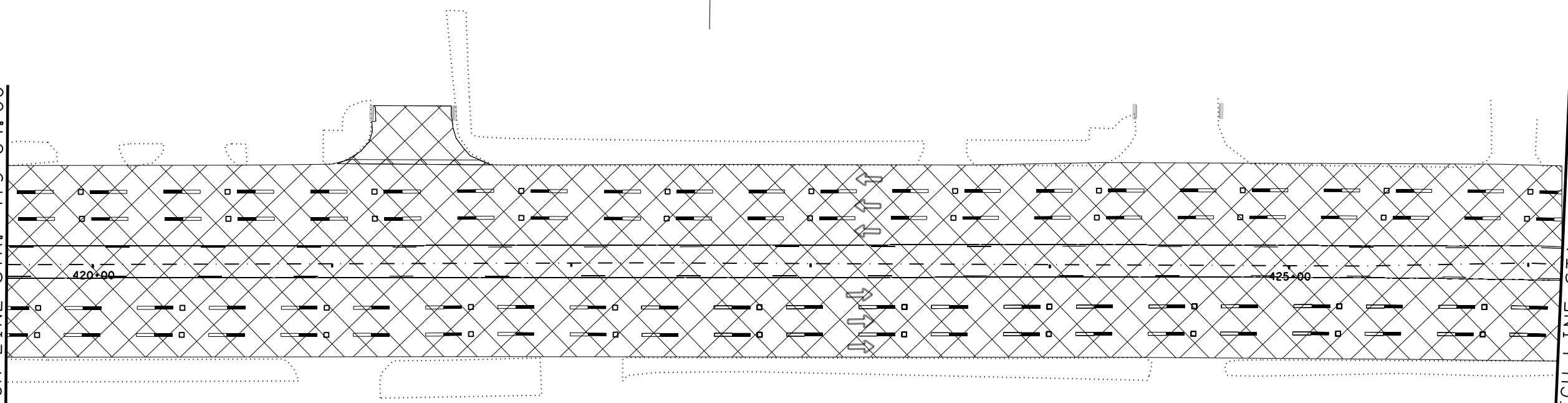
C&G
DWG
C&G
DWG

LEGEND

-  PROP 3" MILL & UNDERSEAL COURSE & 3" ACP OVERLAY
-  DIRECTIONAL TRAFFIC FLOW



MATCH LINE STA. 419+64.00



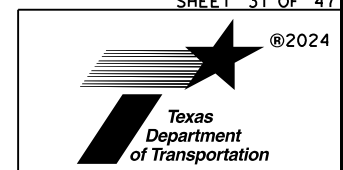
MATCH LINE STA. 426+14.00



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May 21 2024

MILLING/ASPHALT
OVERLAY
FM 1764

SHEET 31 OF 47

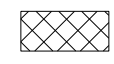



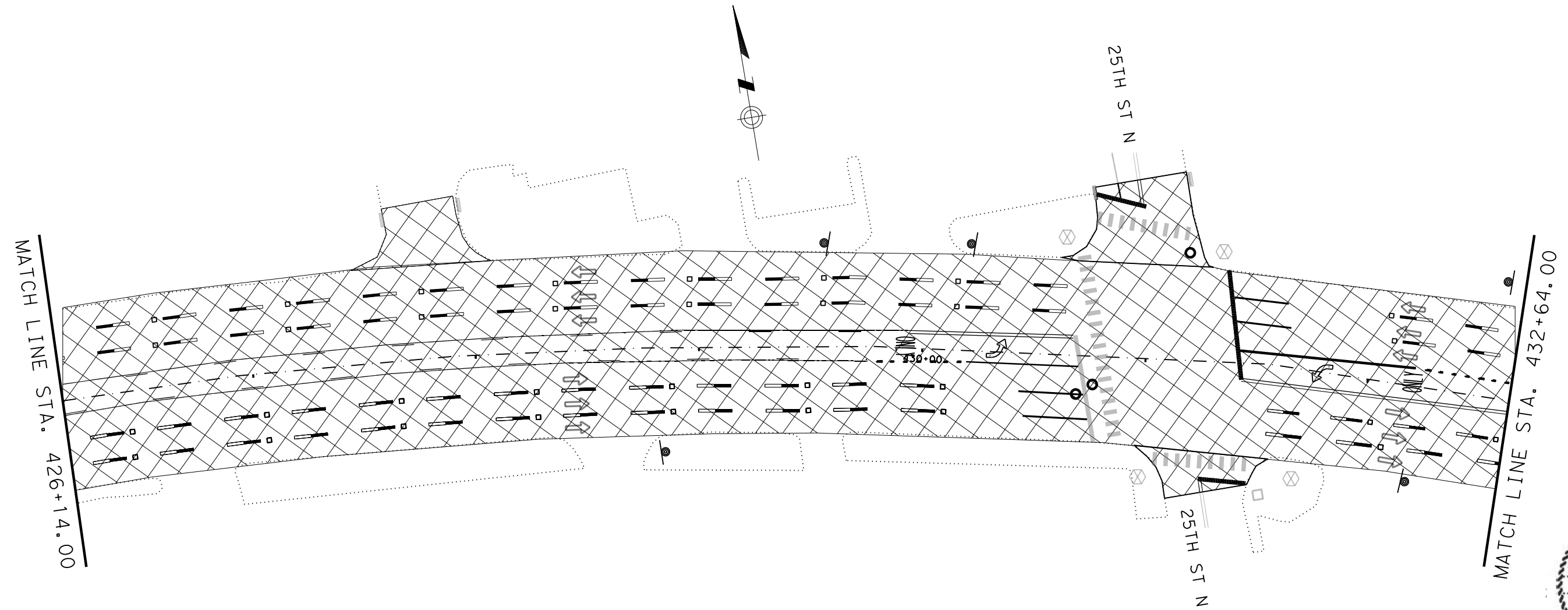
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		181

DATE: DATE TIME
FILE: DOCUMENT NAME

C&G:
DW:
C&G:
DW:

LEGEND

-  PROP 3" MILL & UNDERSEAL COURSE & 3" ACP OVERLAY
-  DIRECTIONAL TRAFFIC FLOW



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May 21 2024

MILLING/ASPHALT
OVERLAY
FM 1764

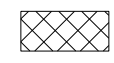

SHEET 32 OF 47

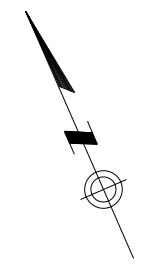


CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		182

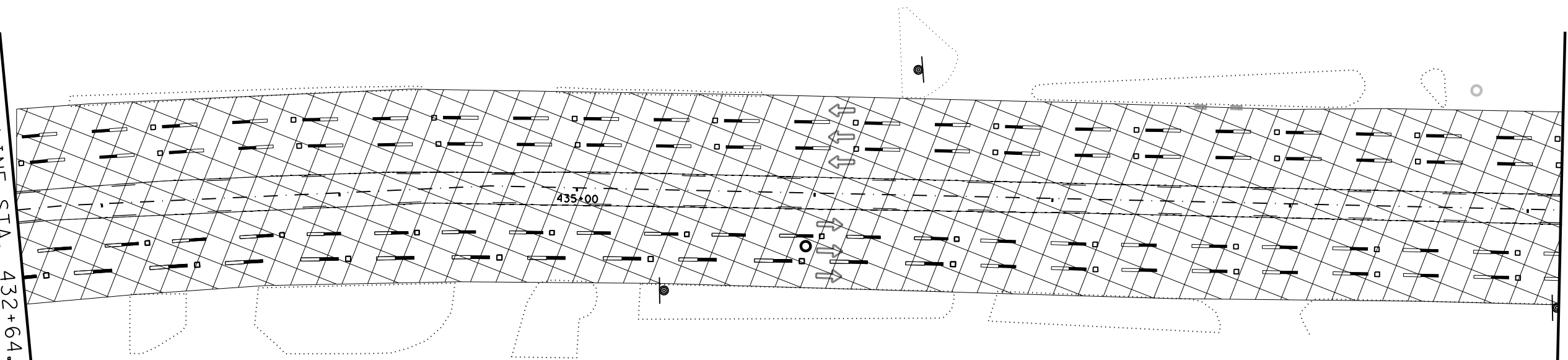
DATE: DATE TIME
FILE: DOCUMENT NAME

LEGEND

-  PROP 3" MILL & UNDERSEAL COURSE & 3" ACP OVERLAY
-  DIRECTIONAL TRAFFIC FLOW



MATCH LINE STA. 432+64.00



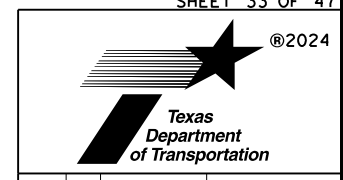
MATCH LINE STA. 439+14.00



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May 21 2024

MILLING/ASPHALT
OVERLAY
FM 1764

SHEET 33 OF 47

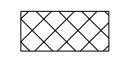



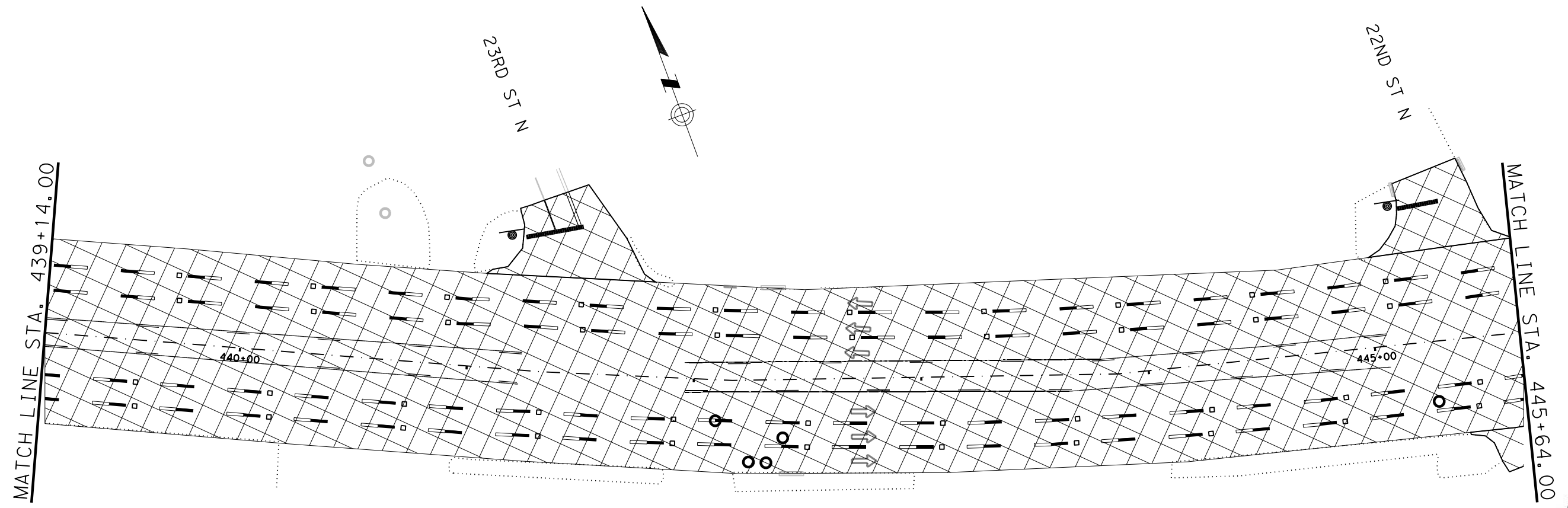
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		183



DATE: DATE TIME
FILE: DOCUMENT NAME

LEGEND

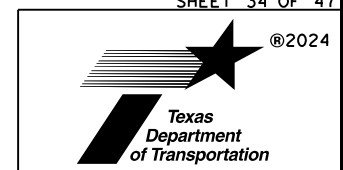
-  PROP 3" MILL & UNDERSEAL COURSE & 3" ACP OVERLAY
-  DIRECTIONAL TRAFFIC FLOW



Joel H. Clarke
May 21 2024

MILLING/ASPHALT
OVERLAY
FM 1764

SHEET 34 OF 47

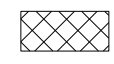



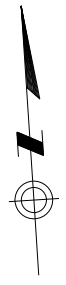
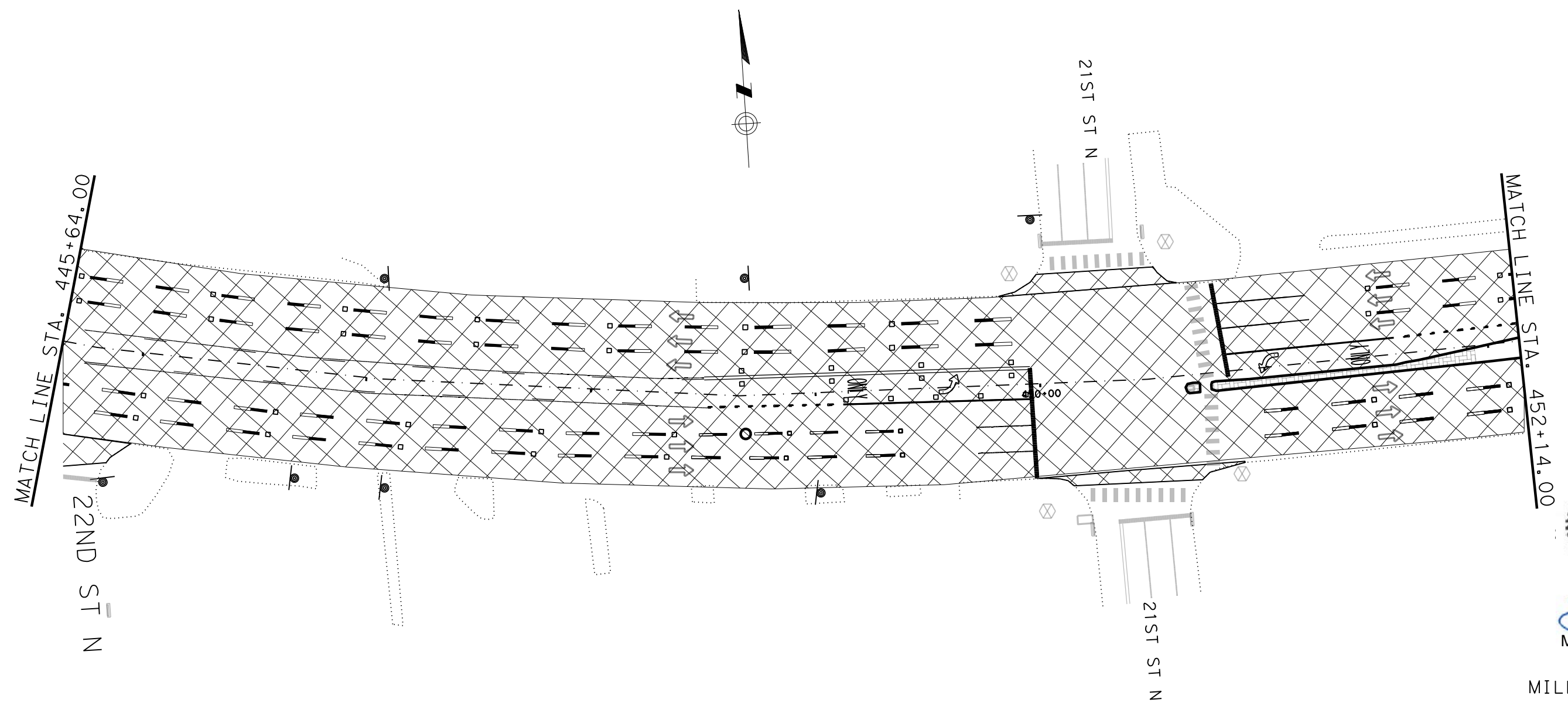
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		184



DATE: DATE TIME
FILE: DOCUMENT NAME

LEGEND

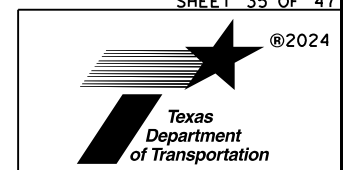
-  PROP 3" MILL & UNDERSEAL COURSE & 3" ACP OVERLAY
-  DIRECTIONAL TRAFFIC FLOW



May 21 2024

MILLING/ASPHALT
OVERLAY
FM 1764

SHEET 35 OF 47

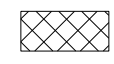



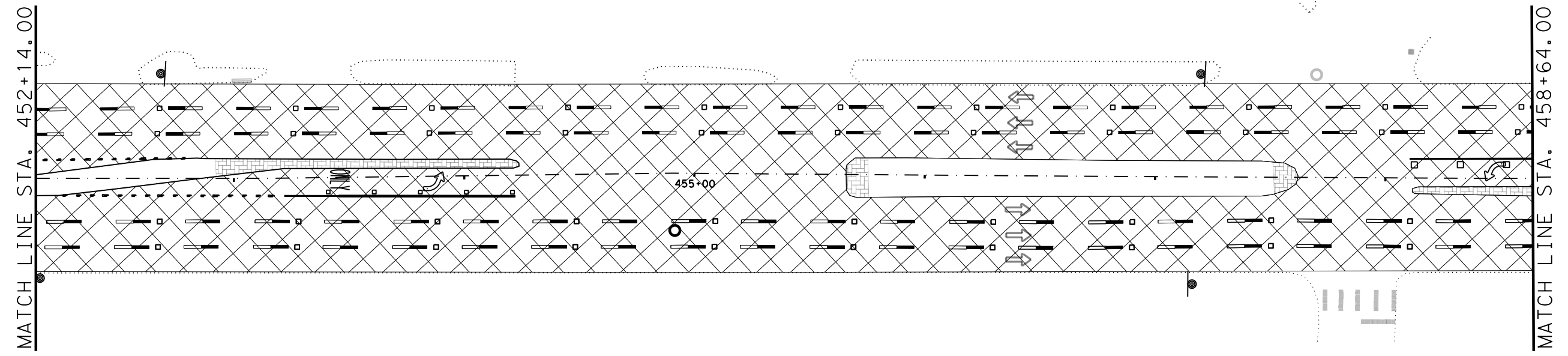
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY	SHEET NO.	
HOU	GALVESTON	185	

DATE: DATE TIME
FILE: DOCUMENT NAME

DN:
CK:
DN:
CK:

LEGEND

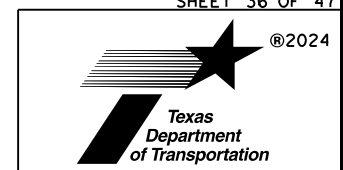
-  PROP 3" MILL & UNDERSEAL COURSE & 3" ACP OVERLAY
-  DIRECTIONAL TRAFFIC FLOW



Joel H. Clarke
May 21 2024

MILLING/ASPHALT
OVERLAY
FM 1764

SHEET 36 OF 47



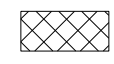

CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		186

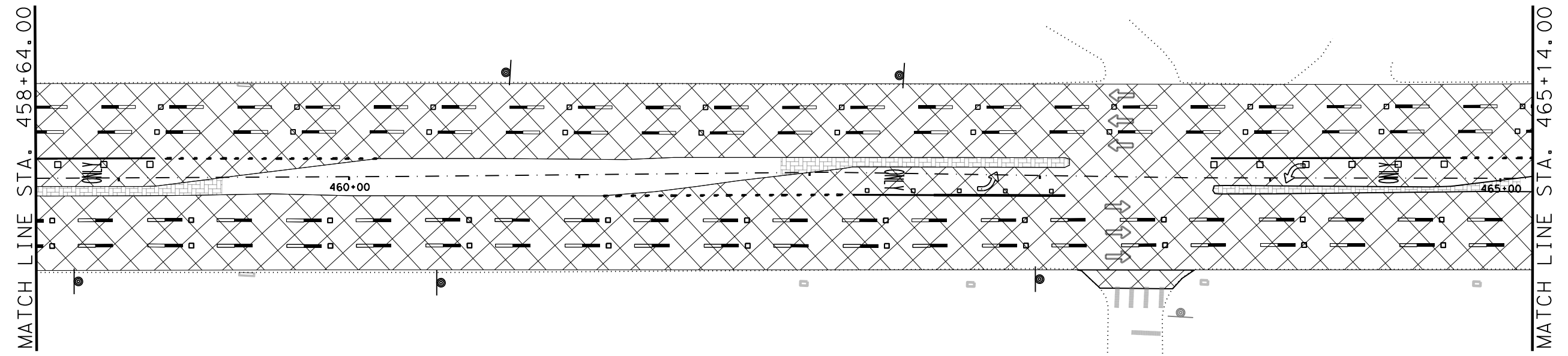
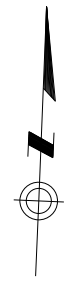


DATE: DATE TIME
FILE: DOCUMENT NAME

C&G:
DW:
C&G:
DW:

LEGEND

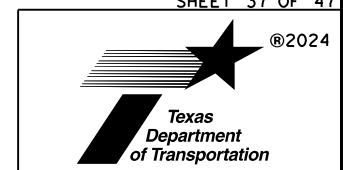
-  PROP 3" MILL & UNDERSEAL COURSE & 3" ACP OVERLAY
-  DIRECTIONAL TRAFFIC FLOW



Joel H. Clarke
May 21 2024

MILLING/ASPHALT
OVERLAY
FM 1764

SHEET 37 OF 47




CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		187

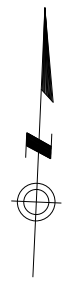
DATE: DATE TIME
FILE: DOCUMENT NAME

Cks:
Dns:
Cks:
Dns:

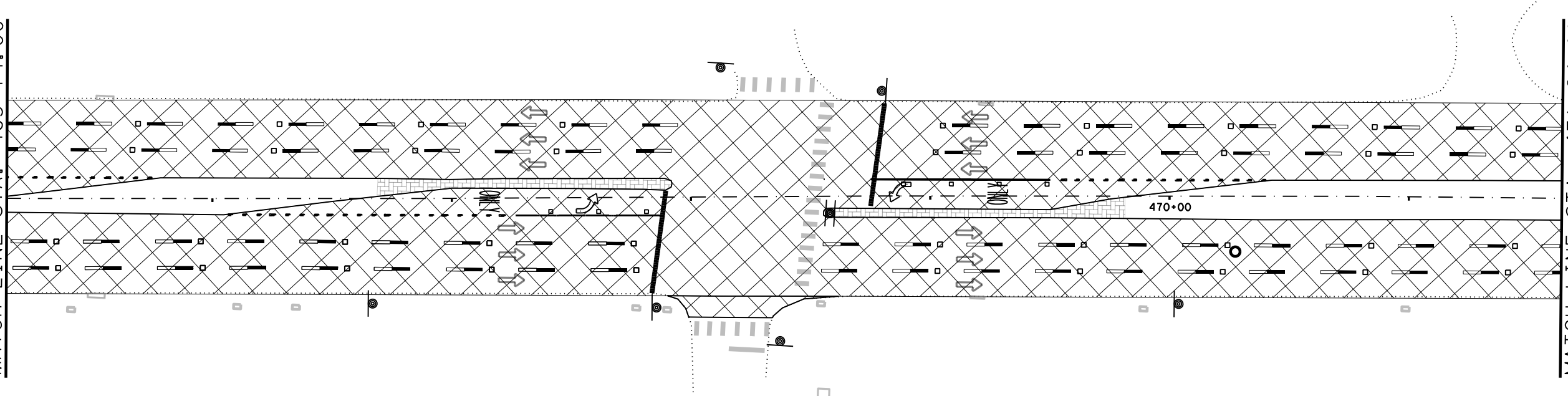
LEGEND

 PROP 3" MILL & UNDERSEAL COURSE
& 3" ACP OVERLAY

 DIRECTIONAL TRAFFIC FLOW



MATCH LINE STA. 465+14.00



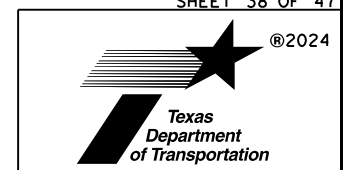
MATCH LINE STA. 471+64.00



Joel H. Clarke
May 21 2024

MILLING/ASPHALT
OVERLAY
FM 1764

SHEET 38 OF 47




CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		188



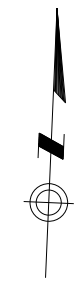
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DWF: []

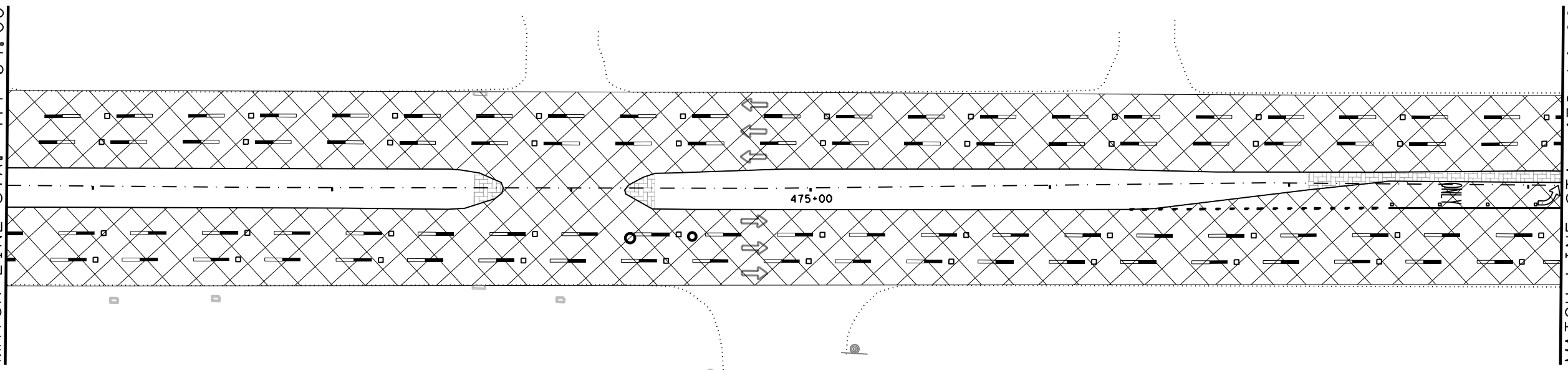
LEGEND

 PROP 3" MILL & UNDERSEAL COURSE
& 3" ACP OVERLAY

 DIRECTIONAL TRAFFIC FLOW



MATCH LINE STA. 471+64.00



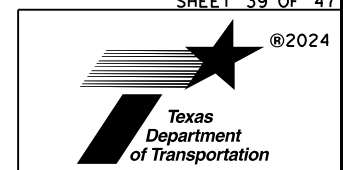
MATCH LINE STA. 478+14.00



Joel H. Clarke
May 21 2024

MILLING/ASPHALT
OVERLAY
FM 1764

SHEET 39 OF 47



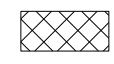
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		189



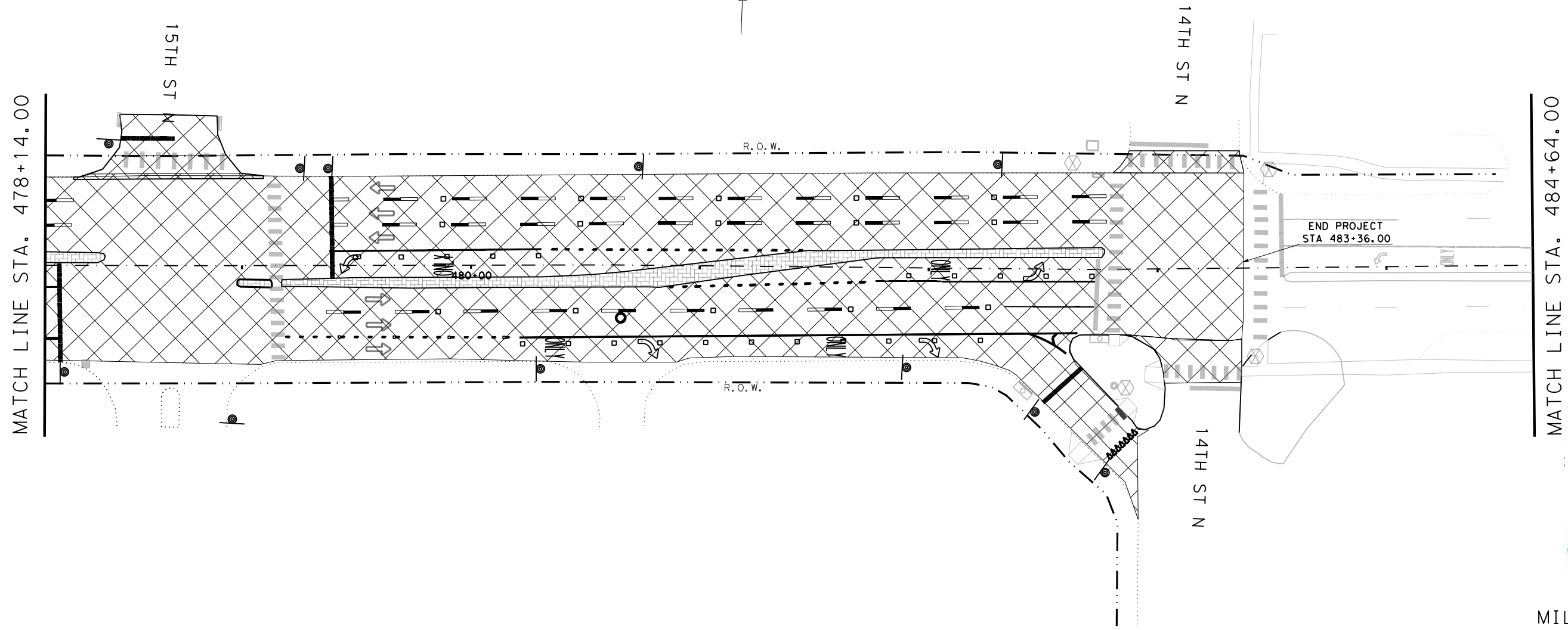
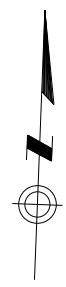
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FILE: DOCUMENT NAME

CHK:
DNF:
CHK:
DNF:

LEGEND

 PROP 3" MILL & UNDERSEAL COURSE & 3" ACP OVERLAY

 DIRECTIONAL TRAFFIC FLOW



Joel H. Clarke
May 21 2024

MILLING/ASPHALT
OVERLAY
FM 1764

SHEET 40 OF 47








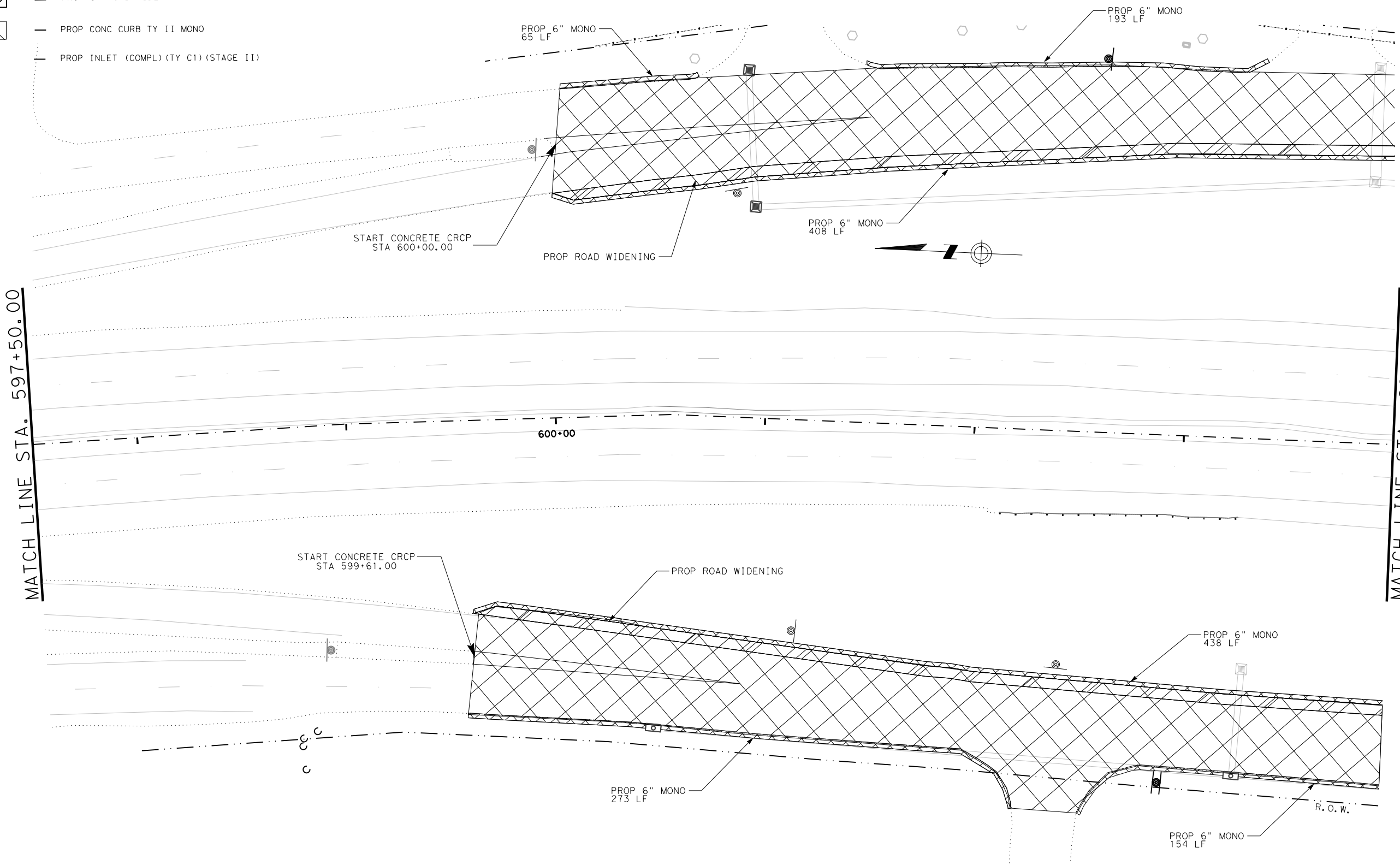
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		190



DATE: 5/19/2024 9:32:15 PM
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LEGEND ROADWAY

-  — CONC PVMT (CONT REINF-CRCP) (HES) (14")
-  — DIRECTIONAL TRAFFIC FLOW
-  — PROP 5' ROAD WIDENING
-  — PROP CONC CURB TY II MONO
-  — PROP INLET (COMPL) (TY C1) (STAGE II)



MATCH LINE STA. 597+50.00

MATCH LINE STA. 604+00.00



Joel H. Clarke

May 21 2024
 CONCRETE
 INTERSECTION
 LAYOUT
 SH 146

SHEET 41 OF 47








CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	SH 146
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		191

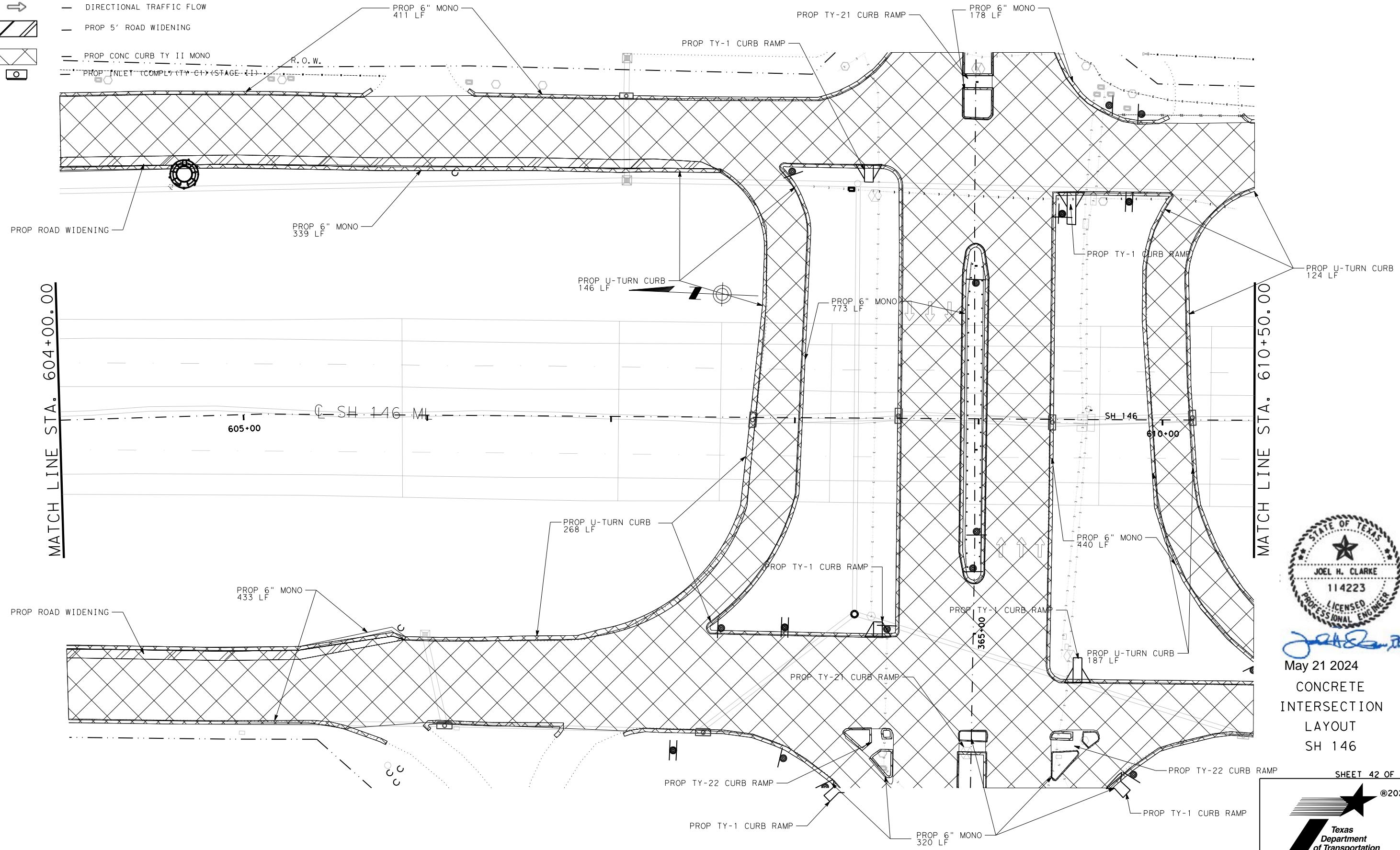
360-6056	CONC PVMT (CONT REINF-CRCP) (HES) (14")	4238	SY
529-6005	CONC CURB (MONO) (TY II)	1531	LF



DATE: 5/19/2024 9:32:18 PM
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LEGEND ROADWAY

-  — CONC PVMT (CONT REINF-CRCP) (HES) (14")
-  — DIRECTIONAL TRAFFIC FLOW
-  — PROP 5' ROAD WIDENING
-  — PROP CONC CURB TY II MONO
-  — PROP INLET (COMPL) (TY-G) (STAGE-1)



MATCH LINE STA. 604+00.00

MATCH LINE STA. 610+50.00

605+00

610+00

PROP 6" MONO
433 LF

PROP U-TURN CURB
268 LF

PROP TY-1 CURB RAMP

PROP 6" MONO
440 LF


PROP U-TURN CURB
187 LF

360-6056	CONC PVMT (CONT REINF-CRCP) (HES) (14")	10065	SY
529-6005	CONC CURB (MONO) (TY II)	2895	LF
529-6010	CONC CURB (U-TURN)	725	LF



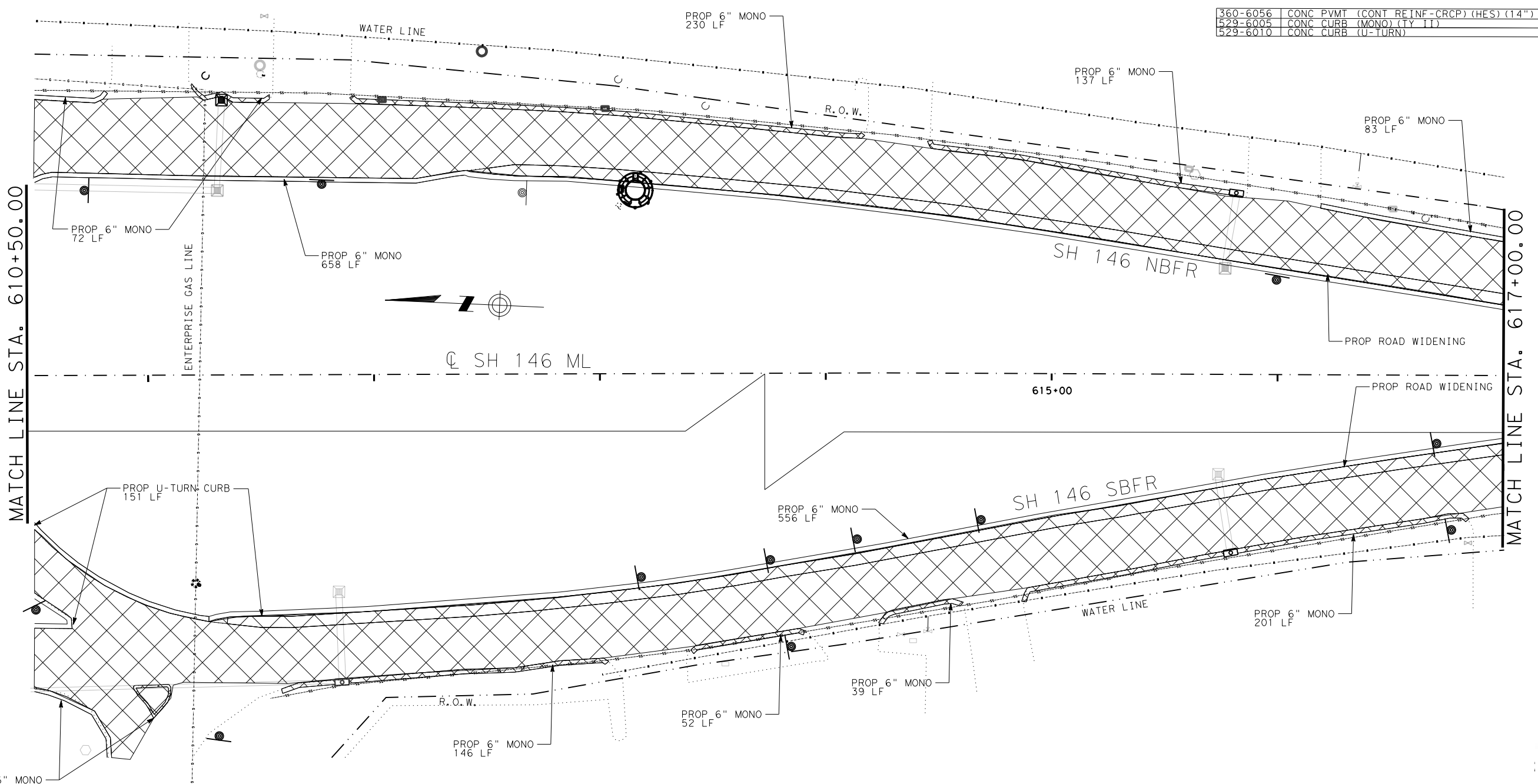
May 21 2024
 CONCRETE
 INTERSECTION
 LAYOUT
 SH 146

SHEET 42 OF 47

		CONT	SECT	JOB	HIGHWAY
		1607	01	057, ETC	SH 146
DIST		COUNTY		SHEET NO.	
HOU		GALVESTON		192	

CKE
DWF
CKE
DWF

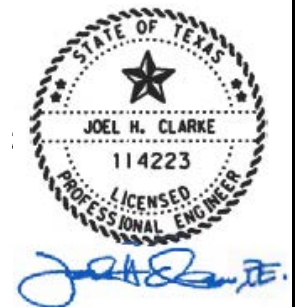
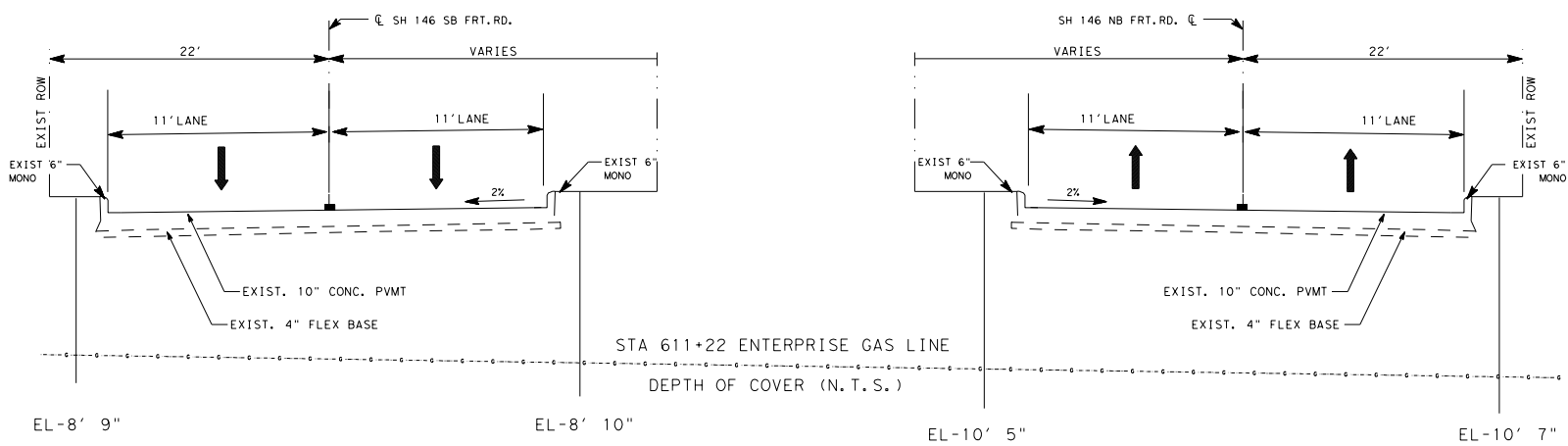
360-6056	CONC PVMT (CONT REINF-CRCP) (HES) (14")	4504.71 SY
529-6005	CONC CURB (MONO) (TY II)	2274.1 LF
529-6010	CONC CURB (U-TURN)	1511 LF



DATE: 5/19/2024 9:32:20 PM
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LEGEND ROADWAY

	CONC PVMT (CONT REINF-CRCP) (HES) (14")
	DIRECTIONAL TRAFFIC FLOW
	PROP 5' ROAD WIDENING
	PROP CONC CURB TY II MONO
	PROP INLET (COMPL) (TY C1) (STAGE II)



May 21 2024
 CONCRETE INTERSECTION LAYOUT
 SH 146








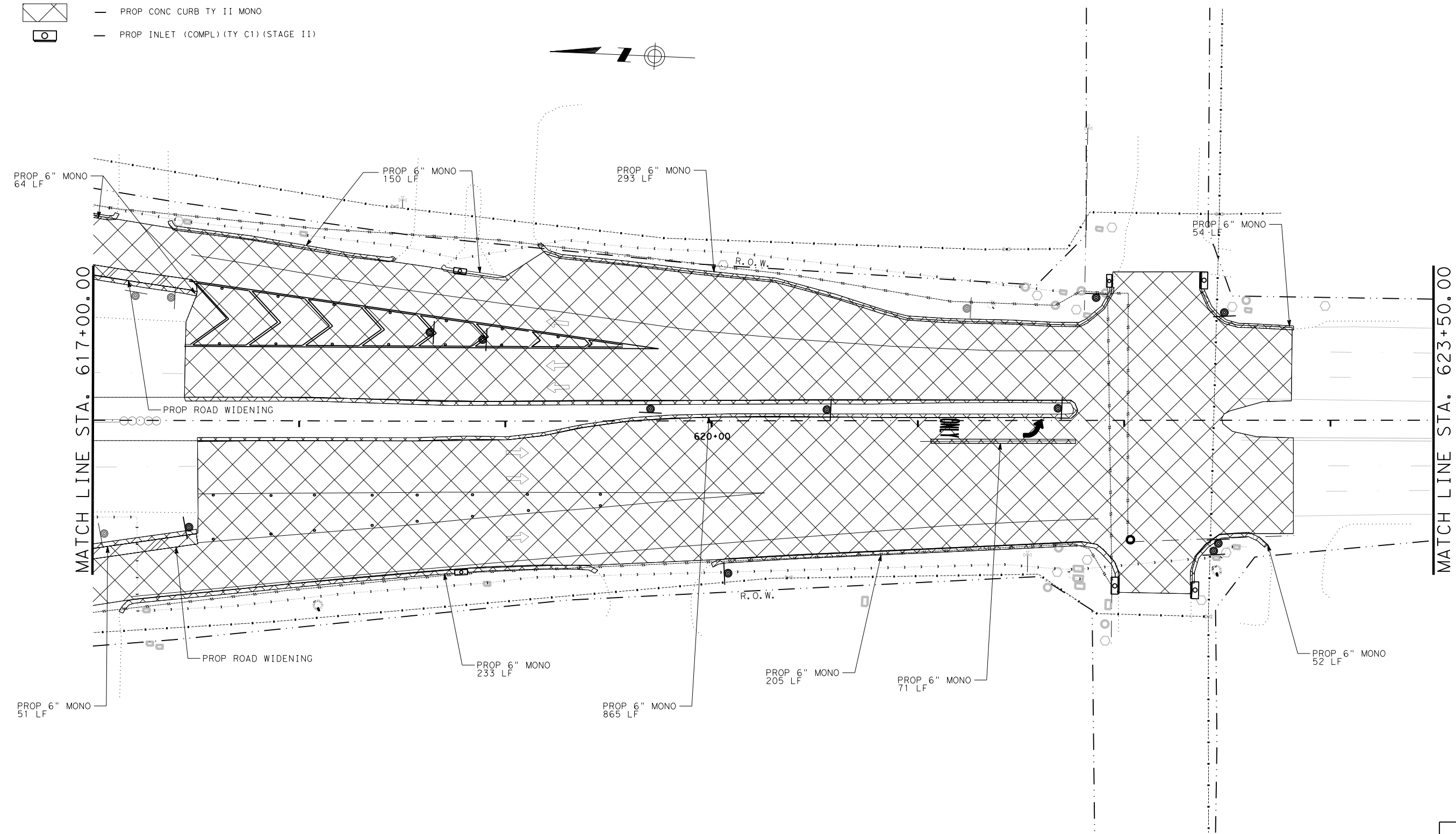
SHEET 43 OF 47

		@2024	
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	SH 146
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		193

CKE:
DWF:
CKE:
DWF:

LEGEND ROADWAY

-  — CONC PVMT (CONT REINF-CRCP) (HES) (14")
-  — DIRECTIONAL TRAFFIC FLOW
-  — PROP 5' ROAD WIDENING
-  — PROP CONC CURB TY II MONO
-  — PROP INLET (COMPL) (TY C1) (STAGE II)




360-6056	CONC PVMT (CONT REINF-CRCP) (HES) (14")	7667	SY
529-6005	CONC CURB (MONO) (TY II)	2038	LF



Joel H. Clarke

May 21 2024
 CONCRETE
 INTERSECTION
 LAYOUT
 SH 146

SHEET 44 OF 47








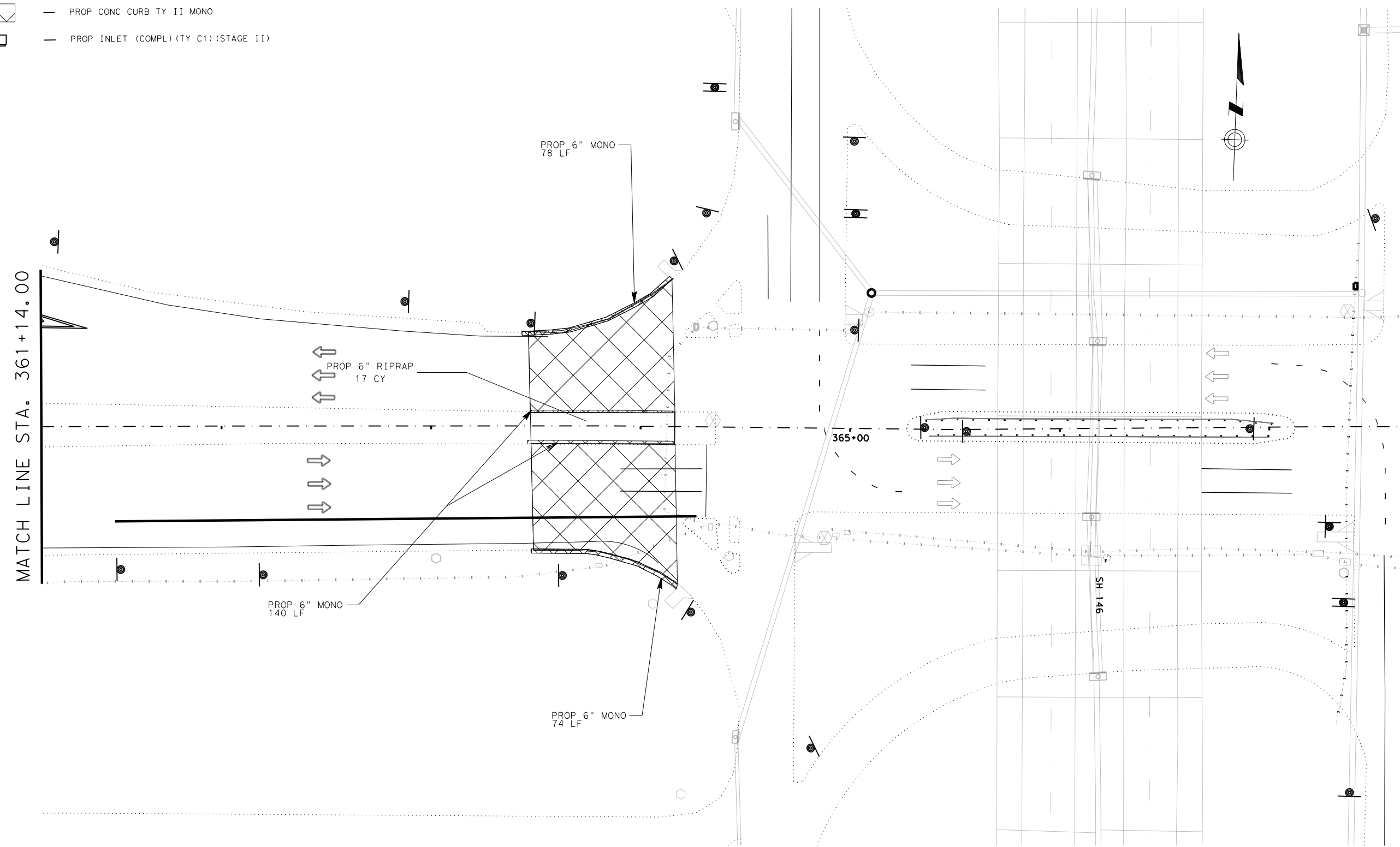
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	SH 146
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		194



CKE:
DWF:
CKE:
DWF:

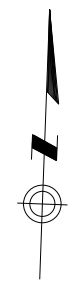
LEGEND ROADWAY

-  — CONC PVMT (CONT REINF-CRCP) (HES) (14")
-  — DIRECTIONAL TRAFFIC FLOW
-  — PROP 5' ROAD WIDENING
-  — PROP CONC CURB TY II MONO
-  — PROP INLET (COMPL) (TY C1) (STAGE II)



MATCH LINE STA. 361+14.00

MATCH LINE STA. 367+64.00



DATE: 5/19/2024 9:32:24 PM
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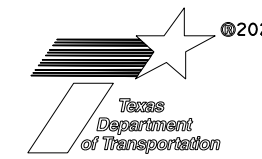
360-6056	CONC PVMT (CONT REINF-CRCP) (HES) (14")	774	SY
529-6005	CONC CURB (MONO) (TY II)	292	LF



May 21 2024
CONCRETE
INTERSECTION
LAYOUT
FM 1764








SHEET 45 OF 47

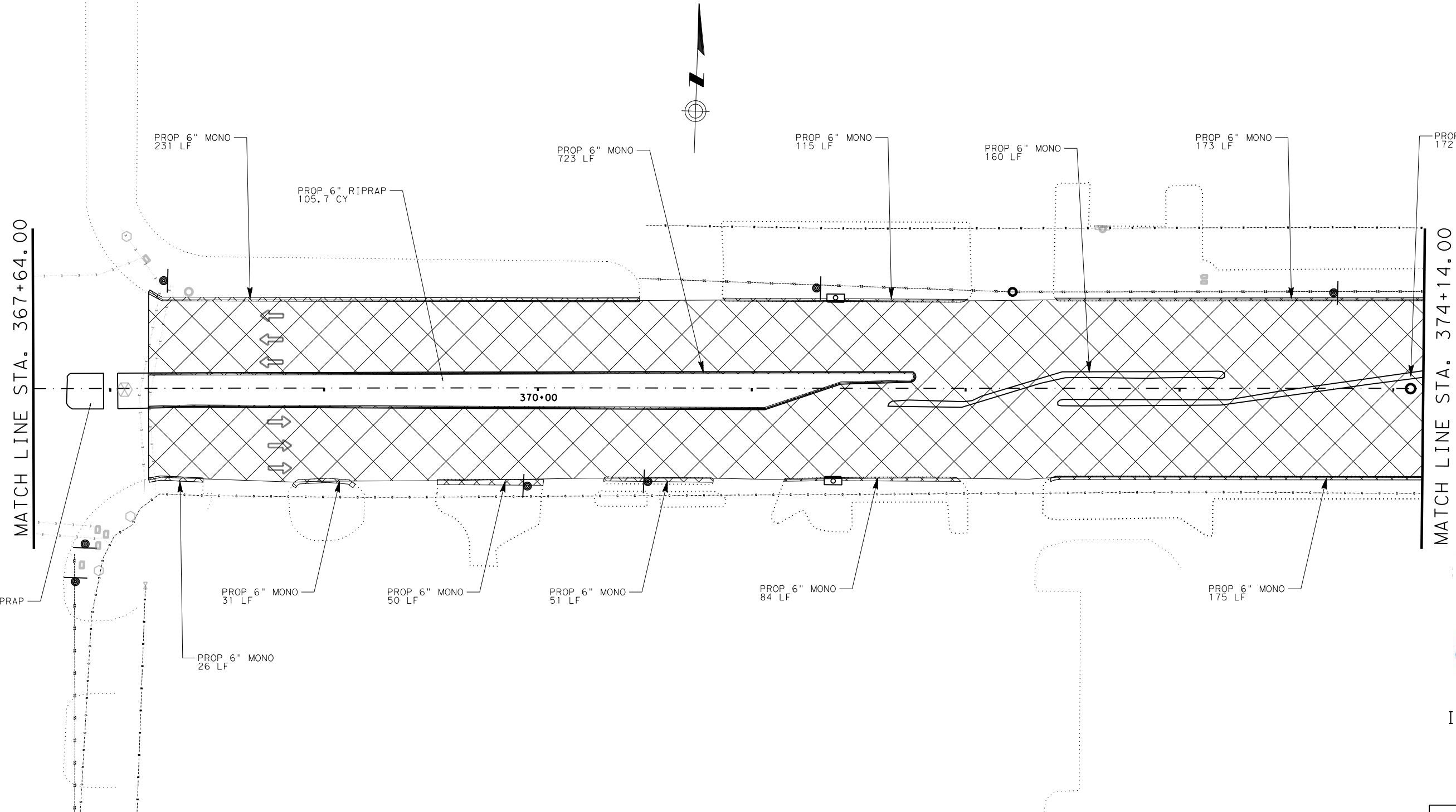


CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		195

CKE:
DWF:
CKE:
DWF:

LEGEND ROADWAY

-  — CONC PVMT (CONT REINF-CRCP) (HES) (14")
-  — DIRECTIONAL TRAFFIC FLOW
-  — PROP 5' ROAD WIDENING
-  — PROP CONC CURB TY II MONO
-  — PROP INLET (COMPL) (TY C1) (STAGE II)



DATE: 5/19/2024 9:32:28 PM
 FILE: T:\DESIGN\160701055\FM1764\GEOPAK\Concrete Intersection\FM 1764 Concrete 2.dgn

360-6056	CONC PVMT (CONT REINF-CRCP) (HES) (14")	4968	SY
529-6005	CONC CURB (MONO) (TY II)	1991	LF

MATCH LINE STA. 367+64.00

MATCH LINE STA. 374+14.00



Joel H. Clarke

May 21 2024
 CONCRETE
 INTERSECTION
 LAYOUT
 FM 1764






SHEET 46 OF 47

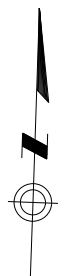
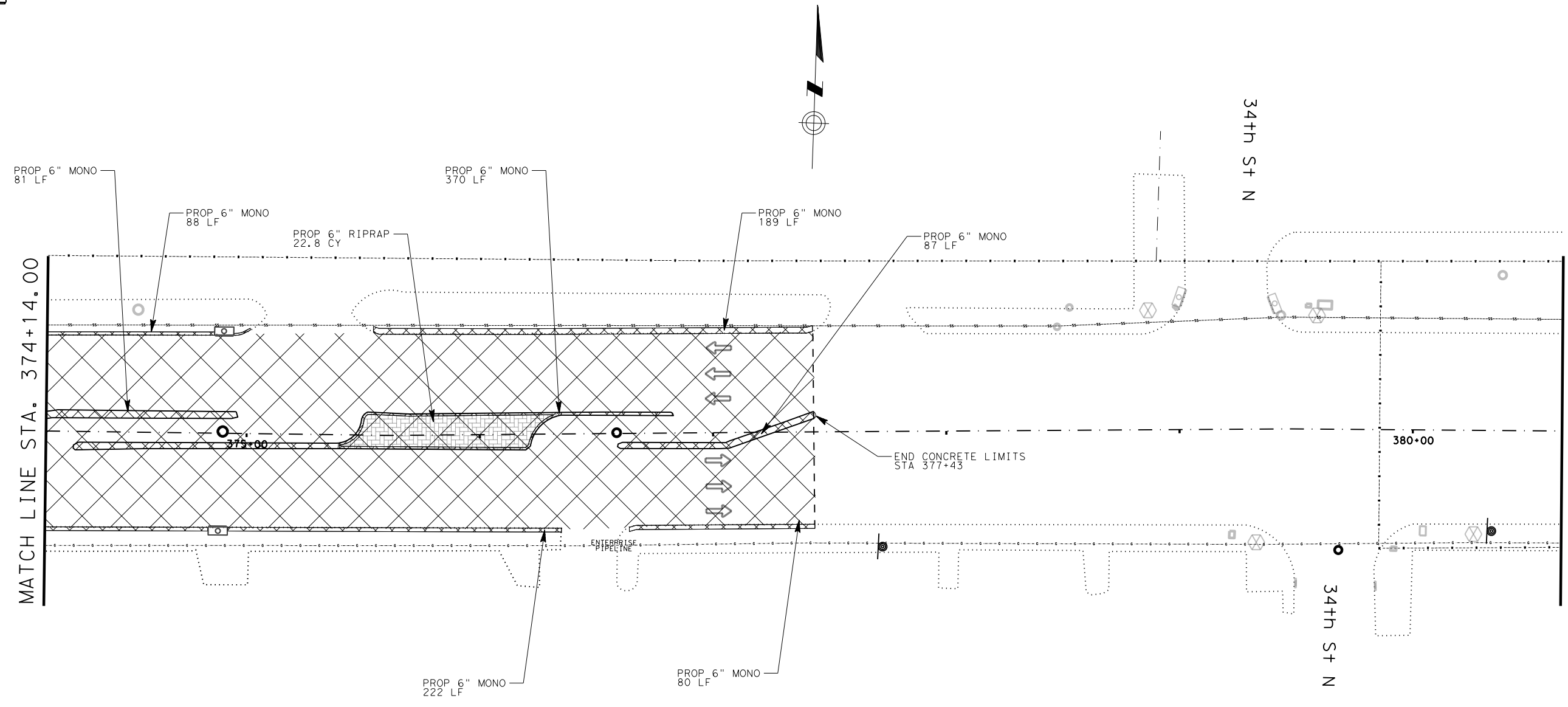


CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	Galveston		196

CKE:
DWF:
CKE:
DWF:

LEGEND ROADWAY

-  — CONC PVMT (CONT REINF-CRCP) (HES) (14")
-  — DIRECTIONAL TRAFFIC FLOW
-  — PROP 5' ROAD WIDENING
-  — PROP CONC CURB TY II MONO
-  — PROP INLET (COMPL) (TY C1) (STAGE II)



DATE: 5/19/2024 9:32:39 PM
FILE: T:\DESIGN\160701055Fm1764\GEOPAK\Concrete Intersection\FM 1764 Concrete 3.dgn

360-6056	CONC PVMT (CONT REINF-CRCP) (HES) (14")	3061	SY
529-6005	CONC CURB (MONO) (TY II)	1117	LF




Joel H. Clarke

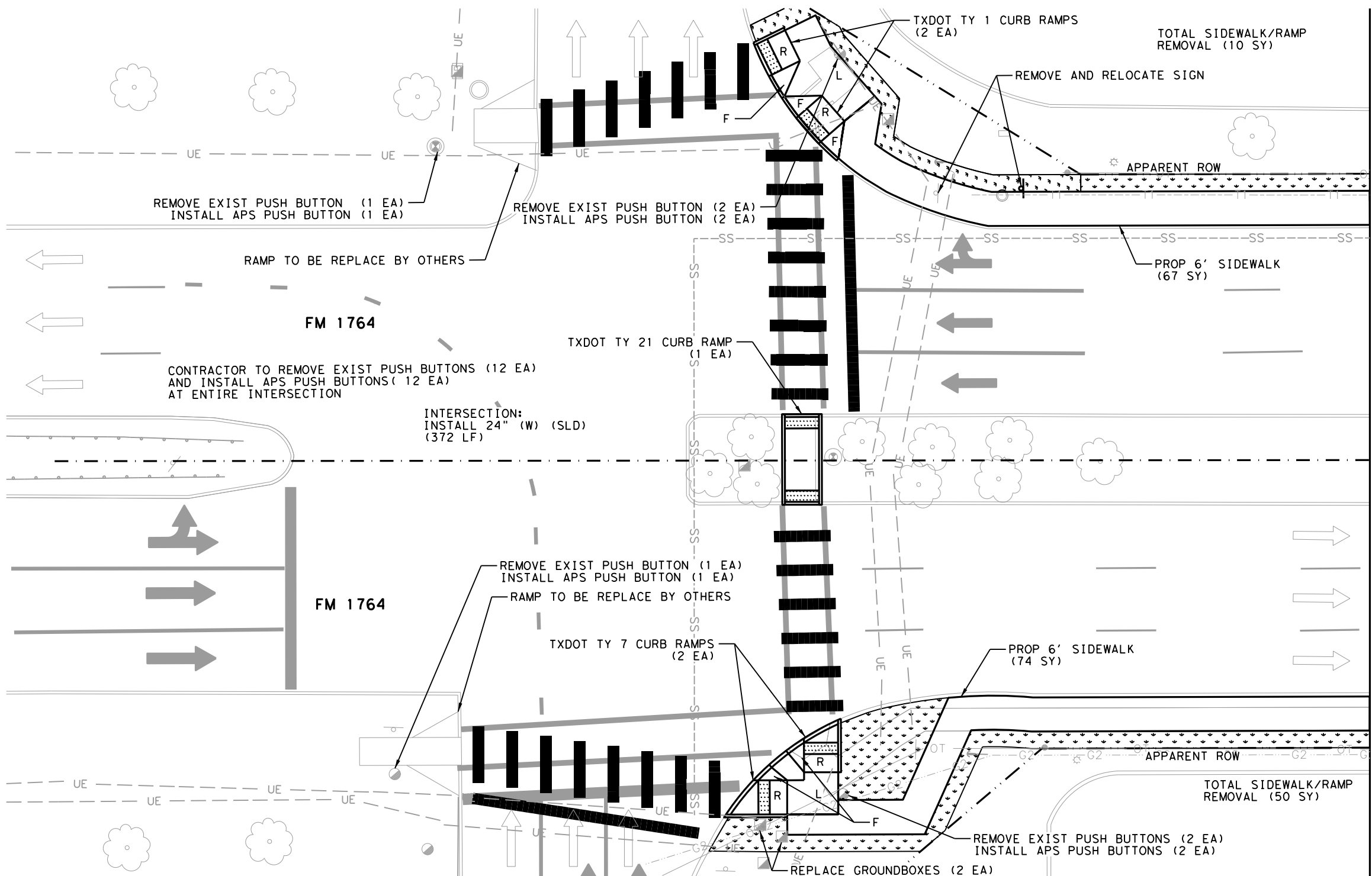
May 21 2024
CONCRETE
INTERSECTION
LAYOUT
FM 1764



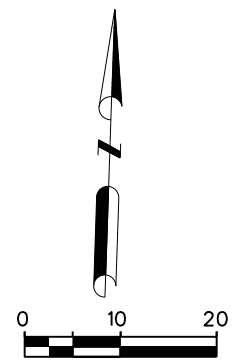
SHEET 47 OF 47
©2024



CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		197



SHEET #	ITEM	DESCRIPTION	UNIT	QTY
	0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	60
	0162 6002	BLOCK SODDING	SY	114
	0531 6001	CONC SIDEWALKS (4")	SY	141
	0531 6004	CURB RAMPS (TY 1)	EA	2
	0531 6010	CURB RAMPS (TY 7)	EA	2
	0531 6016	CURB RAMPS (TY 21)	EA	1
	0644 6068	RELOCATE SM RD SN SUP&M TY 10BWG	EA	1
	0666 6048	REFL PAV MRK TY 1 (W)24" (SLD) (100MIL)	LF	372
	0678 6008	PAV SURF PREP FOR MRK (24")	LF	372
	0684 6007	TRF SIG CBL (TY A) (12 AWG) (2 CONDR)	LF	2000
	0680 6011	INSTALL HWY TRF SIG (UPGRADE)	EA	1
	0688 6001	PED DETECT PUSH BUTTON (APS)	EA	12
	0688 6003	PED DETECTOR CONTROLLER UNIT	EA	1
	0690 6007	REPLACE OF GROUND BOXES	EA	2
	0690 6030	REMOVAL OF PEDESTRIAN PUSH BUTTONS	EA	12

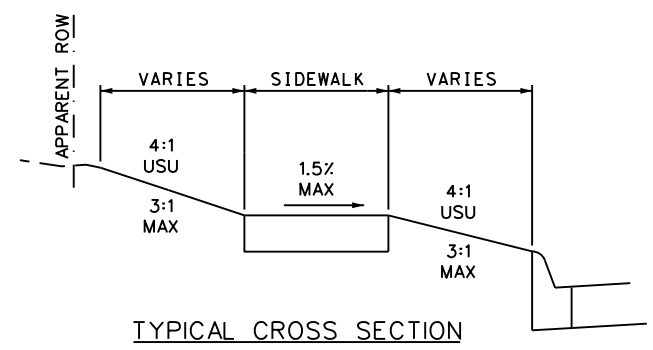


MATCH LINE
SEE SHEET 199

- NOTES:
- * FOR CONTRACTOR INFORMATION ONLY
 - 1. THE EXISTENCE AND LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES INDICATED IN THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
 - 2. UNLESS OTHERWISE SHOWN, PROPOSED SIGNAL CONDUCTOR SHALL RUN TO CONTROLLER IN EXISTING SIGNAL CONDUIT.

6/3/2024
Kimley Horn
 F-928
 Texas Department of Transportation
CURB RAMP PROGRAM

SPECIAL NOTES & DETAILS



- LEGEND**
- ~ DRAINAGE FLOW ARROW
 - x- FENCE
 - F FLARE
 - ⊙ FIRE HYDRANT
 - ⊗ GAS METER/VALVE
 - ▣ GROUND BOX
 - L LANDING
 - L1 LANDING (COMMON)
 - LS LEVEL SIDEWALK (2% MAX)
 - ← GUY WIRE
 - GUARD FENCE/RAIL
 - - - TEMPORARY CONSTRUCTION LICENSE
 - ☆ LIGHT POLE
 - MAIL BOX
 - ⊙ MANHOLE
 - ⊙ PEDESTAL SIGNAL POLE
 - POWER/UTILITY POLE
 - R RAMP
 - ▨ RIPRAP (CONC)
 - ⊙ SIGN
 - ▣ SODDING
 - T TRANSITION
 - MISCELLANEOUS STRUC
 - ▨ SIDEWALK/RAMP REMOVAL
 - SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%
 - TRAFFIC FLOW
 - ▣ TRAFFIC SIGNAL BOX
 - ▣ TRAFFIC SIGNAL CONTROLLER
 - ⊙ TRAFFIC SIGNAL POLE
 - ⊙ TREE/BUSHES
 - ⊙ WATER METER/VALVE
 - ⊙ GUTTER LINE PROJECTION
 - ▣ GRATE INLET
 - ⊙ PROPOSED PEDESTAL POLE
 - PROPOSED CONDUIT
 - - - EXISTING CONDUIT

**FM 1764
AT SH 146**

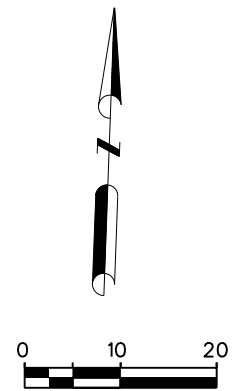
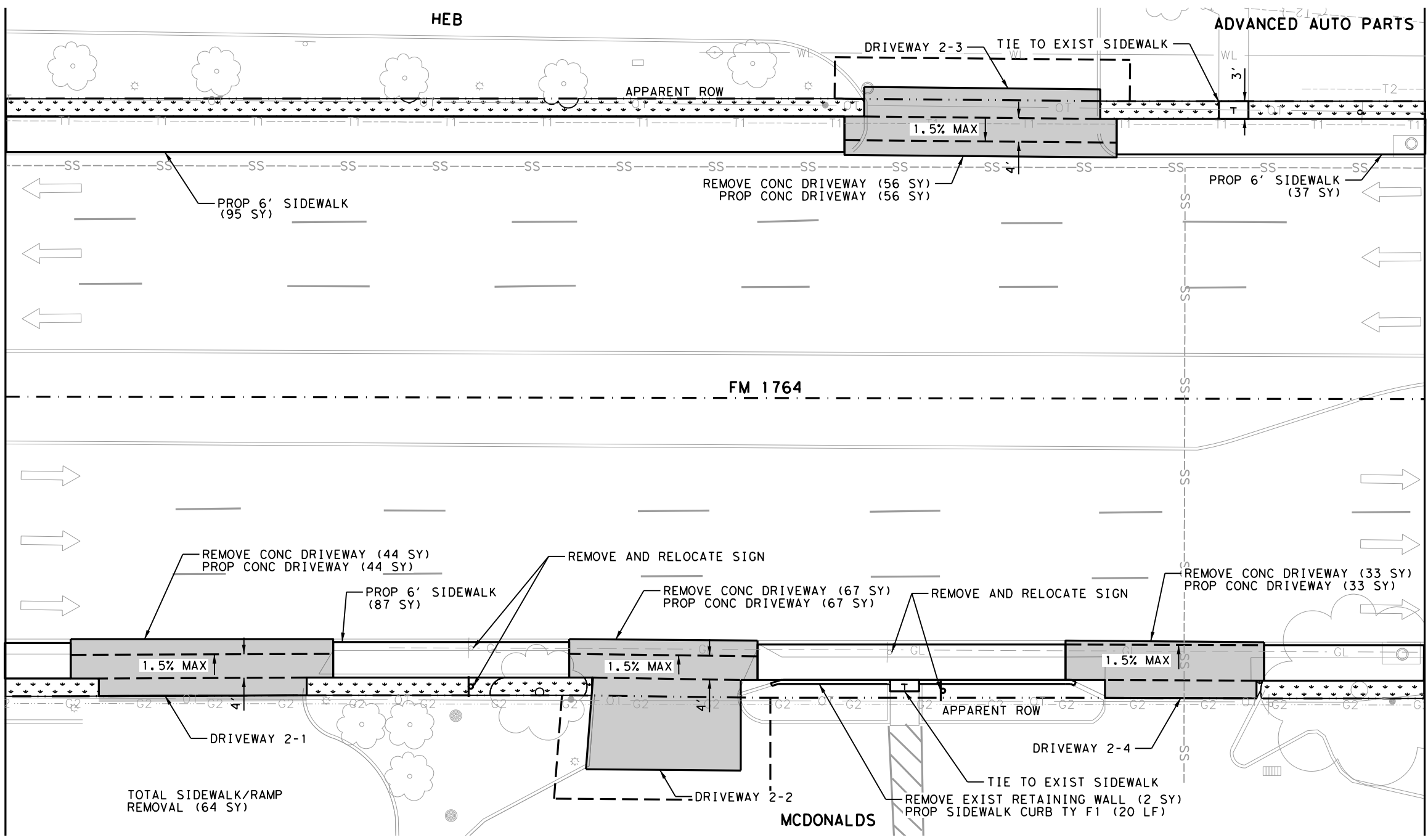
TEXAS CITY, TEXAS

 SHEET 1 OF 52

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
		FM 1764
STATE	DIST.	COUNTY
TEXAS	HOUSTON	GALVESTON
CONT.	SECT.	JOB
1607	01	057, ETC.

FILENAME: c:\pwworking\0231815\HOLL.RDW.01.dgn
 PLOTTED: 6/3/2024 7:38:41 PM

SHEET #	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	200
0104 6024	REMOVING CONC (RETAINING WALLS)	SY	2
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	64
0162 6002	BLOCK SODDING	SY	95
0529 6016	CONC CURB (TY F1)	LF	20
0530 6004	DRIVEWAYS (CONC)	SY	200
0531 6001	CONC SIDEWALKS (4")	SY	219
0644 6068	RELOCATE SM RD SN SUP&M TY 10BWG	EA	1



- NOTES:
- * FOR CONTRACTOR INFORMATION ONLY
 - 1. THE EXISTENCE AND LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES INDICATED IN THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
 - 2. UNLESS OTHERWISE SHOWN, PROPOSED SIGNAL CONDUCTOR SHALL RUN TO CONTROLLER IN EXISTING SIGNAL CONDUIT.

Signature: *ALD*
 6/3/2024
 STATE OF TEXAS
 SAMUEL J. LUNDQUIST
 122185
 LICENSED PROFESSIONAL ENGINEER

Kimley Horn
 F-928

Texas Department of Transportation

CURB RAMP PROGRAM

**FM 1764
 BETWEEN SH 146
 AND 34TH ST**

TEXAS CITY, TEXAS

SHEET 2 OF 52

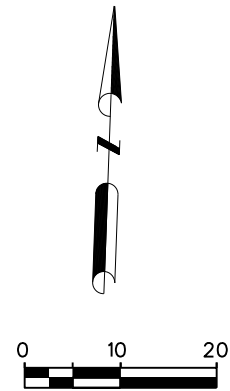
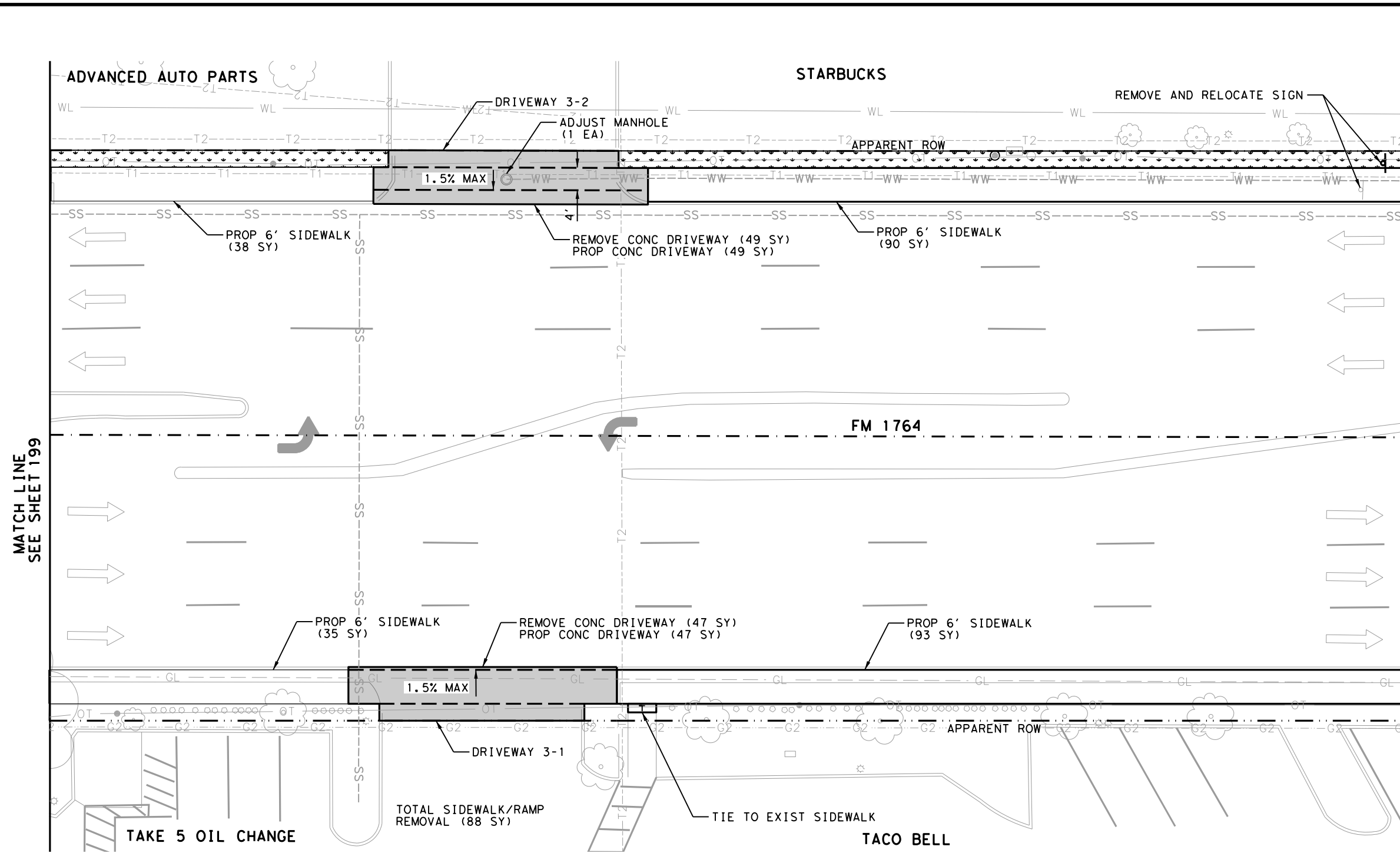
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	SHEET NO.
		FM 1764	
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	199
CONT.	SECT.	JOB	
1607	01	057, ETC.	

SPECIAL NOTES & DETAILS

- LEGEND**
- ~ DRAINAGE FLOW ARROW
 - x- FENCE
 - F FLARE
 - ⊕ FIRE HYDRANT
 - ⊗ GAS METER/VALVE
 - ▣ GROUND BOX
 - L LANDING
 - L1 LANDING (COMMON)
 - LS LEVEL SIDEWALK (2% MAX)
 - ← GUY WIRE
 - GUARD FENCE/RAIL
 - - - TEMPORARY CONSTRUCTION LICENSE
 - ⊙ LIGHT POLE
 - MAIL BOX
 - MANHOLE
 - PEDESTAL SIGNAL POLE
 - POWER/UTILITY POLE
 - R RAMP
 - ▨ RIPRAP (CONC)
 - ⊕ SIGN
 - ⊞ SODDING
 - T TRANSITION
 - MISCELLANEOUS STRUC
 - ▨ SIDEWALK/RAMP REMOVAL
 - SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%
 - TRAFFIC FLOW
 - ⊞ TRAFFIC SIGNAL BOX
 - ⊞ TRAFFIC SIGNAL CONTROLLER
 - ⊗ TRAFFIC SIGNAL POLE
 - TREE/BUSHES
 - ⊗ WATER METER/VALVE
 - ⊕ GUTTER LINE PROJECTION
 - ▨ GRATE INLET
 - PROPOSED PEDESTAL POLE
 - PROPOSED CONDUIT
 - - - EXISTING CONDUIT

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SHEET #	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	96
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	88
0162 6002	BLOCK SODDING	SY	67
0530 6004	DRIVEWAYS (CONC)	SY	96
0531 6001	CONC SIDEWALKS (4")	SY	256
0644 6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1



MATCH LINE SEE SHEET 199

MATCH LINE SEE SHEET 201

- NOTES:
- * FOR CONTRACTOR INFORMATION ONLY
 - 1. THE EXISTENCE AND LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES INDICATED IN THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
 - 2. UNLESS OTHERWISE SHOWN, PROPOSED SIGNAL CONDUCTOR SHALL RUN TO CONTROLLER IN EXISTING SIGNAL CONDUIT.

Signature: *ALD*
 6/3/2024

Kimley Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

**FM 1764
 BETWEEN SH 146
 AND 34TH ST**

TEXAS CITY, TEXAS

SHEET 3 OF 52

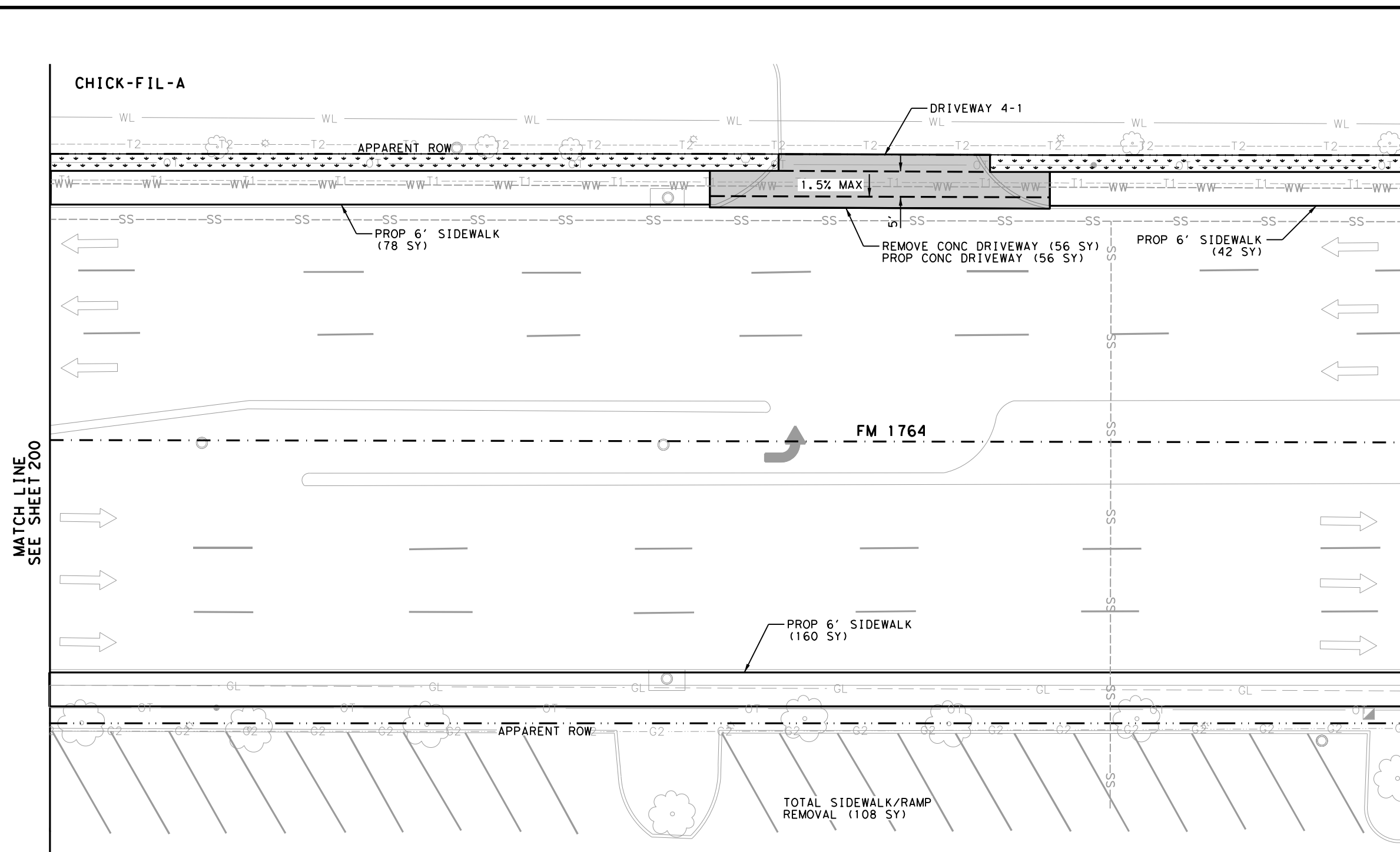
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		FM 1764	200
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	
CONT.	SECT.	JOB	
1607	01	057, ETC.	

SPECIAL NOTES & DETAILS

- LEGEND**
- ~ DRAINAGE FLOW ARROW
 - X - FENCE
 - F FLARE
 - ⊕ FIRE HYDRANT
 - ⊗ GAS METER/VALVE
 - ▣ GROUND BOX
 - L LANDING
 - L1 LANDING (COMMON)
 - LS LEVEL SIDEWALK (2% MAX)
 - ← GUY WIRE
 - GUARD FENCE/RAIL
 - - - TEMPORARY CONSTRUCTION LICENSE
 - ☆ LIGHT POLE
 - MAIL BOX
 - MANHOLE
 - PEDESTAL SIGNAL POLE
 - POWER/UTILITY POLE
 - R RAMP
 - ▨ RIPRAP (CONC)
 - ⊕ SIGN
 - ▣ SODDING
 - T TRANSITION
 - MISCELLANEOUS STRUC
 - ▨ SIDEWALK/RAMP REMOVAL
 - SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%
 - TRAFFIC FLOW
 - ▣ TRAFFIC SIGNAL BOX
 - ▣ TRAFFIC SIGNAL CONTROLLER
 - ⊗ TRAFFIC SIGNAL POLE
 - TREE/BUSHES
 - ⊕ WATER METER/VALVE
 - ⊕ GUTTER LINE PROJECTION
 - ▣ GRATE INLET
 - PROPOSED PEDESTAL POLE
 - PROPOSED CONDUIT
 - - - EXISTING CONDUIT

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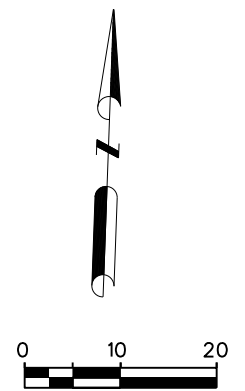
CHICK-FIL-A



MATCH LINE
SEE SHEET 200

MATCH LINE
SEE SHEET 202

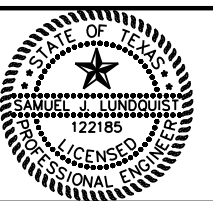
SHEET #	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	56
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	108
0162 6002	BLOCK SODDING	SY	68
0530 6004	DRIVEWAYS (CONC)	SY	56
0531 6001	CONC SIDEWALKS (4")	SY	280



NOTES:

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ALD
6/3/2024



Kimley»Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

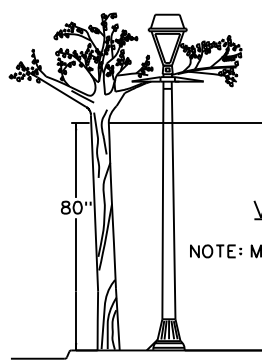
**FM 1764
BETWEEN SH 146
AND 34TH ST**

TEXAS CITY, TEXAS

SHEET 4 OF 52

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	SHEET NO.
		FM 1764	
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	201
CONT.	SECT.	JOB	
1607	01	057, ETC.	

SPECIAL NOTES & DETAILS



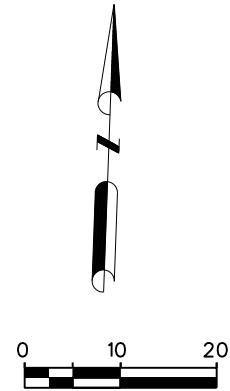
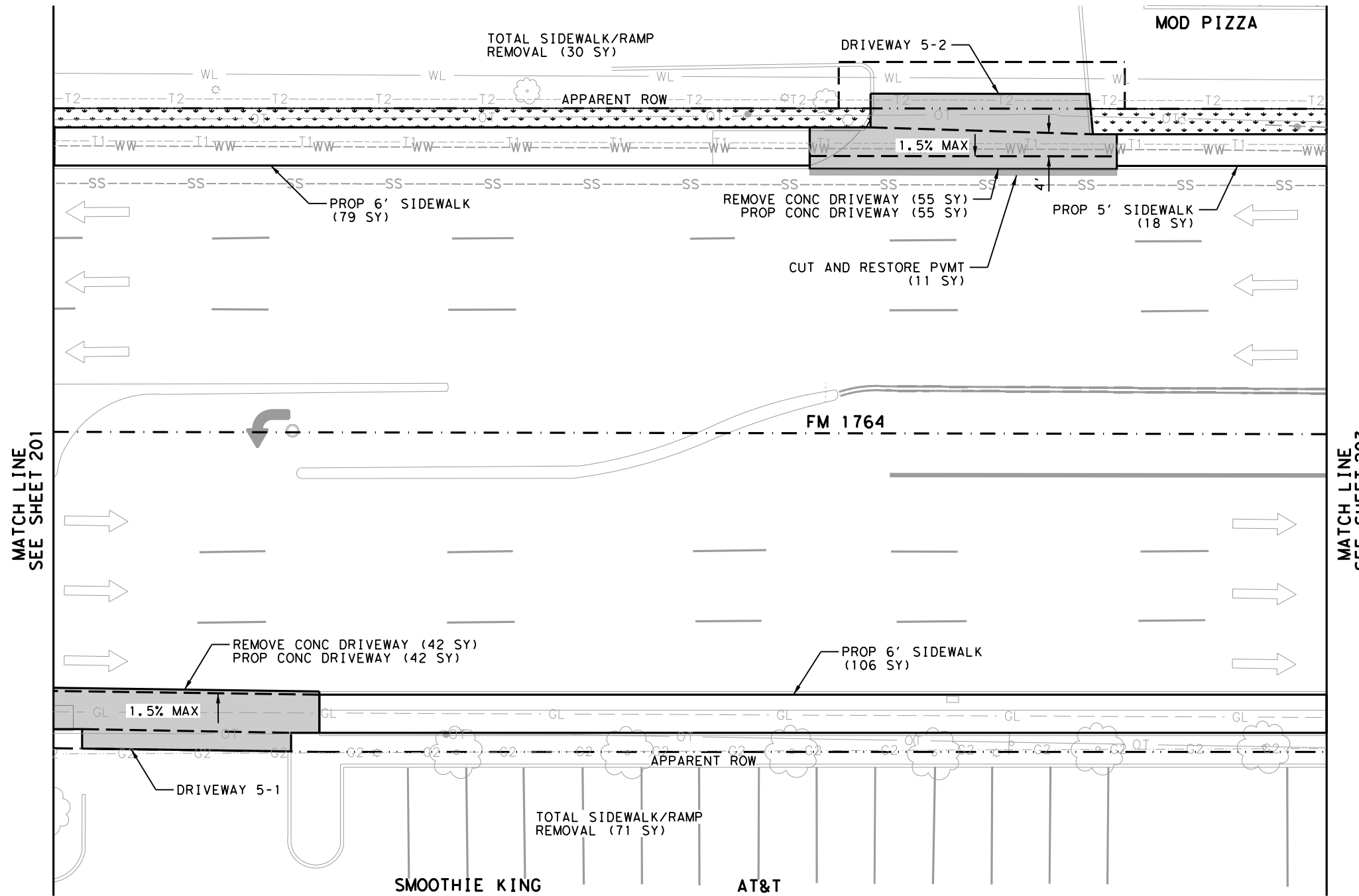
VERTICAL CLEARANCE

NOTE: MAINTAIN 80" VERTICAL CLEARANCE ABOVE PEDESTRIAN SURFACE

LEGEND	
~ DRAINAGE FLOW ARROW	* LIGHT POLE
- X - FENCE	□ MAIL BOX
F FLARE	○ MANHOLE
⊕ FIRE HYDRANT	● PEDESTAL SIGNAL POLE
⊗ GAS METER/VALVE	● POWER/UTILITY POLE
▣ GROUND BOX	R RAMP
L LANDING	▨ RIPRAP (CONC)
L1 LANDING (COMMON)	⊕ SIGN
LS LEVEL SIDEWALK (2% MAX)	⊞ SODDING
← GUY WIRE	T TRANSITION
— GUARD FENCE/RAIL	□ MISCELLANEOUS STRUC
- - - TEMPORARY CONSTRUCTION LICENSE	▨ SIDEWALK/RAMP REMOVAL
	SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%
	→ TRAFFIC FLOW
	⊞ TRAFFIC SIGNAL BOX
	⊞ TRAFFIC SIGNAL CONTROLLER
	⊗ TRAFFIC SIGNAL POLE
	○ TREE/BUSHES
	⊗ WATER METER/VALVE
	⊕ GUTTER LINE PROJECTION
	▨ GRATE INLET
	● PROPOSED PEDESTAL POLE
	— PROPOSED CONDUIT
	— EXISTING CONDUIT

FILENAME: c:\pwworking\10231815\HOU_RDL_04.dgn
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SHEET #	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	97
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	101
0162 6002	BLOCK SODDING	SY	60
0400 6008	CUT & RESTORE ASPH PAVING	SY	11
0530 6004	DRIVEWAYS (CONC)	SY	97
0531 6001	CONC SIDEWALKS (4")	SY	203



NOTES:

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Signature: *ALD*
 6/3/2024
 STATE OF TEXAS
 SAMUEL J. LUNDQUIST
 122185
 LICENSED PROFESSIONAL ENGINEER

Kimley»Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

**FM 1764
 BETWEEN SH 146
 AND 34TH ST**

TEXAS CITY, TEXAS

SHEET 5 OF 52

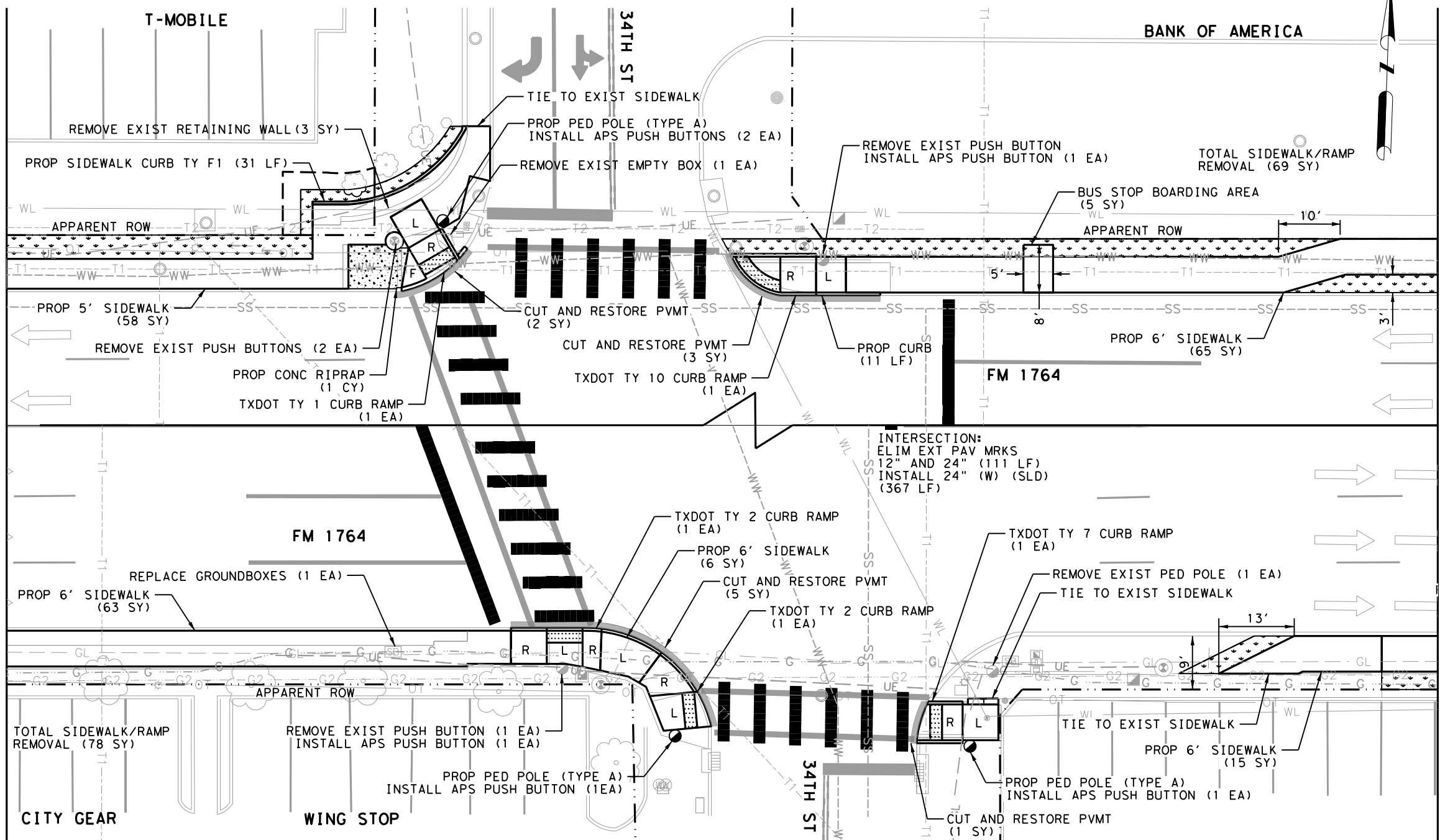
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		FM 1764	202
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	
CONT.	SECT.	JOB	
1607	01	057, ETC.	

SPECIAL NOTES & DETAILS

LEGEND		
~ DRAINAGE FLOW ARROW	☆ LIGHT POLE	SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%
-X- FENCE	□ MAIL BOX	→ TRAFFIC FLOW
F FLARE	○ MANHOLE	▣ TRAFFIC SIGNAL BOX
⊙ FIRE HYDRANT	⊙ PEDESTAL SIGNAL POLE	▣ TRAFFIC SIGNAL CONTROLLER
⊗ GAS METER/VALVE	● POWER/UTILITY POLE	⊗ TRAFFIC SIGNAL POLE
▣ GROUND BOX	R RAMP	○ TREE/BUSHES
L LANDING	▣ RIPRAP (CONC)	⊗ WATER METER/VALVE
L1 LANDING (COMMON)	⊙ SIGN	⊕ GUTTER LINE PROJECTION
LS LEVEL SIDEWALK (2% MAX)	⊙ SODDING	▣ GRATE INLET
← GUY WIRE	T TRANSITION	● PROPOSED PEDESTAL POLE
— GUARD FENCE/RAIL	□ MISCELLANEOUS STRUC	— PROPOSED CONDUIT
- - - TEMPORARY CONSTRUCTION LICENSE	▣ SIDEWALK/RAMP REMOVAL	— EXISTING CONDUIT

FILENAME: c:\pwworking\kimleyhorn\15\HOULRDWL05.dgn
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SHEET #	DESCRIPTION	UNIT	QTY
0104 6024	REMOVING CONC (RETAINING WALLS)	SY	3
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	147
0162 6002	BLOCK SODDING	SY	74
0400 6008	CUT & RESTORE ASPH PAVING	SY	11
0432 6001	RIPRAP (CONC) (4 IN)	CY	1
0529 6002	CONC CURB (TY II)	LF	11
0529 6016	CONC CURB (TY F1)	LF	31
0531 6001	CONC SIDEWALKS (4")	SY	209
0531 6004	CURB RAMPS (TY 1)	EA	1
0531 6005	CURB RAMPS (TY 2)	EA	2
0531 6010	CURB RAMPS (TY 7)	EA	1
0531 6013	CURB RAMPS (TY 10)	EA	1
0618 6023	CONDIT (PVC) (SCH 40) (2")	LF	100
0620 6007	ELEC CONDR (NO. 8) BARE	LF	100
0666 6048	REFL PAV MRK TY 1 (W) 24" (SLD) (100MIL)	LF	367
0677 6005	ELIM EXT PAV MRK & MRKS (12")	LF	111
0678 6008	PAV SURF PREP FOR MRK (24")	LF	367
0684 6007	TRF SIG CBL (TY A) (12 AWG) (2 CONDR)	LF	800
0687 6001	PED POLE ASSEMBLY	EA	3
0680 6011	INSTALL HWY TRF SIG (UPGRADE)	EA	1
0688 6001	PED DETECT PUSH BUTTON (APS)	EA	6
0688 6003	PED DETECTOR CONTROLLER UNIT	EA	1
0690 6007	REPLACE OF GROUND BOXES	EA	1
0690 6030	REMOVAL OF PEDESTRIAN PUSH BUTTONS	EA	6



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6/3/2024

Kimley»Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

FM 1764 AT 34TH ST

TEXAS CITY, TEXAS

SHEET 6 OF 52

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
		FM 1764
STATE	DIST.	COUNTY
TEXAS	HOUSTON	GALVESTON
CONT.	SECT.	JOB
1607	01	057, ETC.

SHEET NO. 203

SPECIAL NOTES & DETAILS

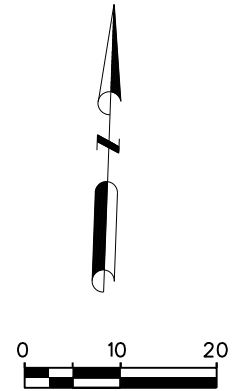
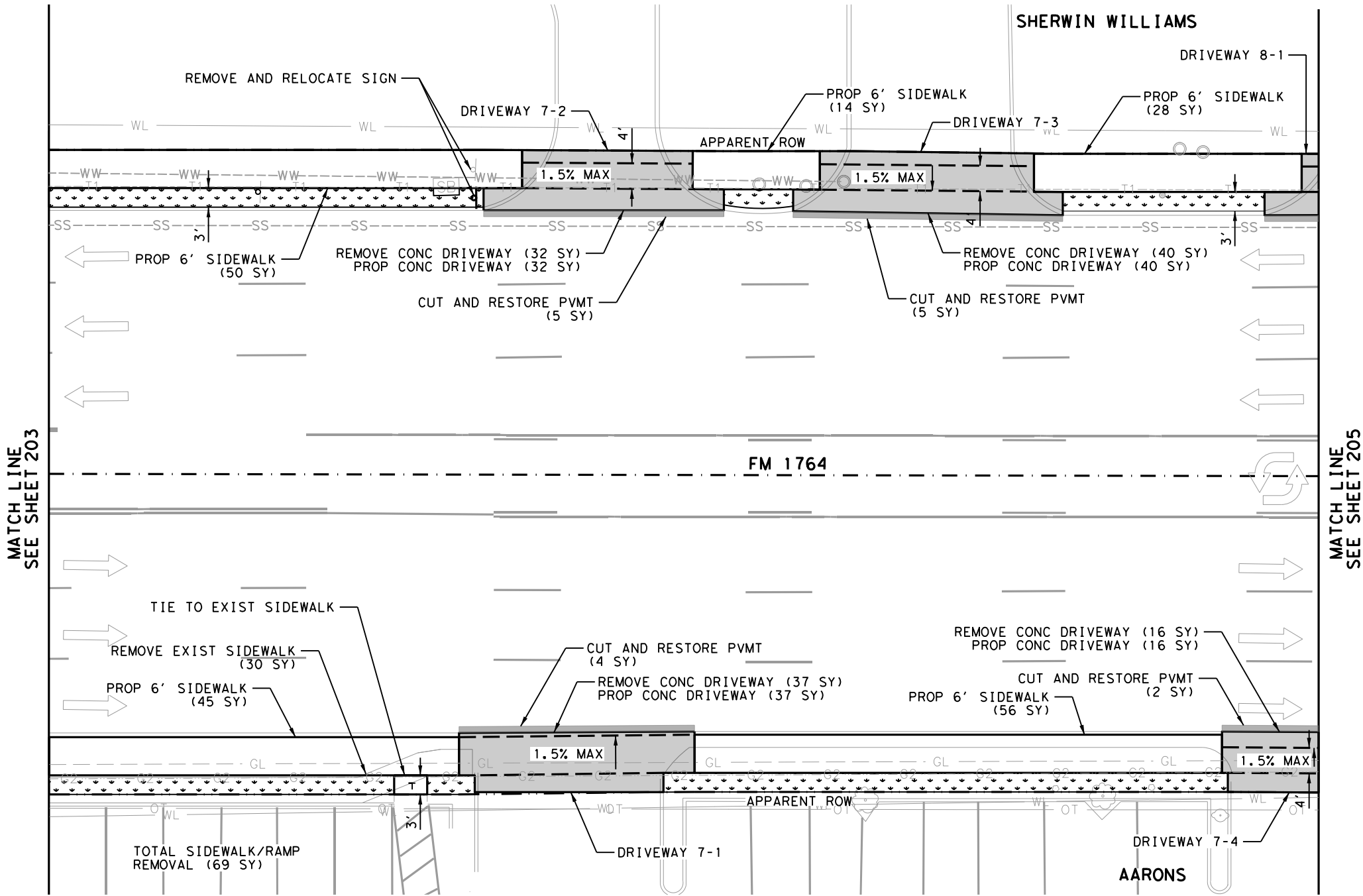
<p>~ DRAINAGE FLOW ARROW</p> <p>- X - FENCE</p> <p>F FLARE</p> <p>⊕ FIRE HYDRANT</p> <p>⊗ GAS METER/VALVE</p> <p>▣ GROUND BOX</p> <p>L LANDING</p> <p>L1 LANDING (COMMON)</p> <p>LS LEVEL SIDEWALK (2% MAX)</p> <p>← GUY WIRE</p> <p>— GUARD FENCE/RAIL</p> <p>- - - TEMPORARY CONSTRUCTION LICENSE</p>	<p>LEGEND</p> <p>⊙ LIGHT POLE</p> <p>□ MAIL BOX</p> <p>○ MANHOLE</p> <p>⊙ PEDESTAL SIGNAL POLE</p> <p>● POWER/UTILITY POLE</p> <p>R RAMP</p> <p>▣ RIPRAP (CONC)</p> <p>○ SIGN</p> <p>▣ SODDING</p> <p>T TRANSITION</p> <p>□ MISCELLANEOUS STRUC</p> <p>▨ SIDEWALK/RAMP REMOVAL</p>	<p>SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%.</p> <p>→ TRAFFIC FLOW</p> <p>▣ TRAFFIC SIGNAL BOX</p> <p>▣ TRAFFIC SIGNAL CONTROLLER</p> <p>⊙ TRAFFIC SIGNAL POLE</p> <p>○ TREE/BUSHES</p> <p>⊗ WATER METER/VALVE</p> <p>⊕ GUTTER LINE PROJECTION</p> <p>▣ GRATE INLET</p> <p>⊙ PROPOSED PEDESTAL POLE</p> <p>— PROPOSED CONDUIT</p> <p>- - - EXISTING CONDUIT</p>
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MATCH LINE
 SEE SHEET 202

MATCH LINE
 SEE SHEET 204

SHEET #	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	125
0162 6002	BLOCK SODDING	SY	87
0400 6008	CUT & RESTORE ASPH PAVING	SY	16
0530 6004	DRIVEWAYS (CONC)	SY	125
0531 6001	CONC SIDEWALKS (4")	SY	193
0644 6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1



NOTES:

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Signature: *ALD*
 6/3/2024
 STATE OF TEXAS
 SAMUEL J. LUNDQUIST
 122185
 LICENSED PROFESSIONAL ENGINEER

Kimley»Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

**FM 1764
 BETWEEN 34TH ST
 AND 33RD ST**

TEXAS CITY, TEXAS

SHEET 7 OF 52

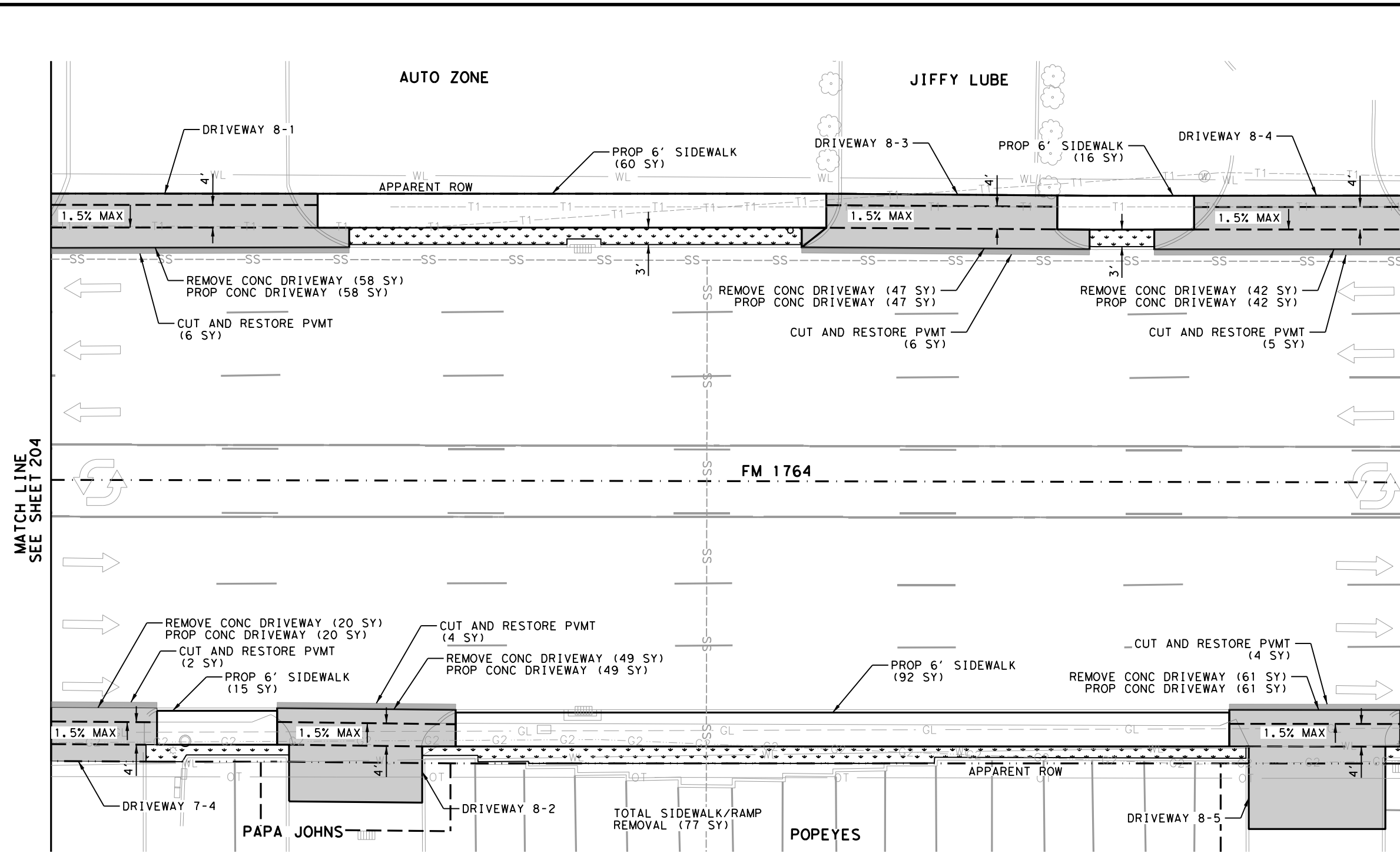
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		FM 1764	
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	204
CONT.	SECT.	JOB	
1607	01	057, ETC.	

SPECIAL NOTES & DETAILS

LEGEND	
~ DRAINAGE FLOW ARROW	* LIGHT POLE
-x- FENCE	□ MAIL BOX
F FLARE	○ MANHOLE
⊕ FIRE HYDRANT	● PEDESTAL SIGNAL POLE
⊗ GAS METER/VALVE	● POWER/UTILITY POLE
■ GROUND BOX	R RAMP
L LANDING	▨ RIPRAP (CONC)
L1 LANDING (COMMON)	▨ SODDING
LS LEVEL SIDEWALK (2% MAX)	T TRANSITION
← GUY WIRE	□ MISCELLANEOUS STRUC
— GUARD FENCE/RAIL	▨ SIDEWALK/RAMP REMOVAL
- - - TEMPORARY CONSTRUCTION LICENSE	
	SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%
	→ TRAFFIC FLOW
	⊠ TRAFFIC SIGNAL BOX
	⊠ TRAFFIC SIGNAL CONTROLLER
	⊗ TRAFFIC SIGNAL POLE
	○ TREE/BUSHES
	⊗ WATER METER/VALVE
	⊕ GUTTER LINE PROJECTION
	▨ GRATE INLET
	● PROPOSED PEDESTAL POLE
	— PROPOSED CONDUIT
	— EXISTING CONDUIT

FILENAME: c:\pwworking\0231815\HOLL.RDWL.07.dgn
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SHEET #	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	282
0162 6002	BLOCK SODDING	SY	77
0400 6008	CUT & RESTORE ASPH PAVING	SY	27
0530 6004	DRIVEWAYS (CONC)	SY	282
0531 6001	CONC SIDEWALKS (4")	SY	183



MATCH LINE
SEE SHEET 204

MATCH LINE
SEE SHEET 206

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 6/3/2024




Texas Department of Transportation

CURB RAMP PROGRAM

**FM 1764
BETWEEN 34TH ST
AND 33RD ST**

TEXAS CITY, TEXAS

SHEET 8 OF 52

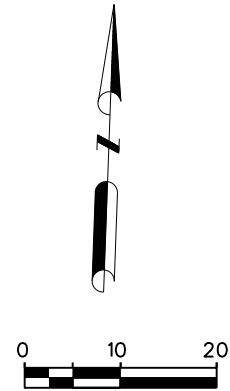
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
		FM 1764
STATE	DIST.	COUNTY
TEXAS	HOUSTON	GALVESTON
CONT.	SECT.	JOB
1607	01	057, ETC.
SHEET NO. 205		

SPECIAL NOTES & DETAILS

LEGEND		
DRAINAGE FLOW ARROW	LIGHT POLE	SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%
FENCE	MAIL BOX	TRAFFIC FLOW
F FLARE	MANHOLE	TRAFFIC SIGNAL BOX
FIRE HYDRANT	PEDESTAL SIGNAL POLE	TRAFFIC SIGNAL CONTROLLER
GAS METER/VALVE	POWER/UTILITY POLE	TRAFFIC SIGNAL POLE
GROUND BOX	R RAMP	TREE/BUSHES
L LANDING	RIPRAP (CONC)	WATER METER/VALVE
L1 LANDING (COMMON)	SIGN	GUTTER LINE PROJECTION
LS LEVEL SIDEWALK (2% MAX)	SODDING	GRATE INLET
GUY WIRE	T TRANSITION	PROPOSED PEDESTAL POLE
GUARD FENCE/RAIL	MISCELLANEOUS STRUC	PROPOSED CONDUIT
TEMPORARY CONSTRUCTION LICENSE	SIDEWALK/RAMP REMOVAL	EXISTING CONDUIT

FILENAME: c:\pwworking\15\HOLL.RDWL.08.dgn
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SHEET #	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	257
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	86
0162 6002	BLOCK SODDING	SY	60
0400 6008	CUT & RESTORE ASPH PAVING	SY	25
0450 6052	RAIL (HANDRAIL) (TY F)	LF	64
0496 6043	REMOV STR (SMALL FENCE)	LF	44
0529 6018	CONC CURB (TY F3)	LF	20
0530 6004	DRIVEWAYS (CONC)	SY	257
0531 6001	CONC SIDEWALKS (4")	SY	191



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6/3/2024

Kimley»Horn F-928

Texas Department of Transportation

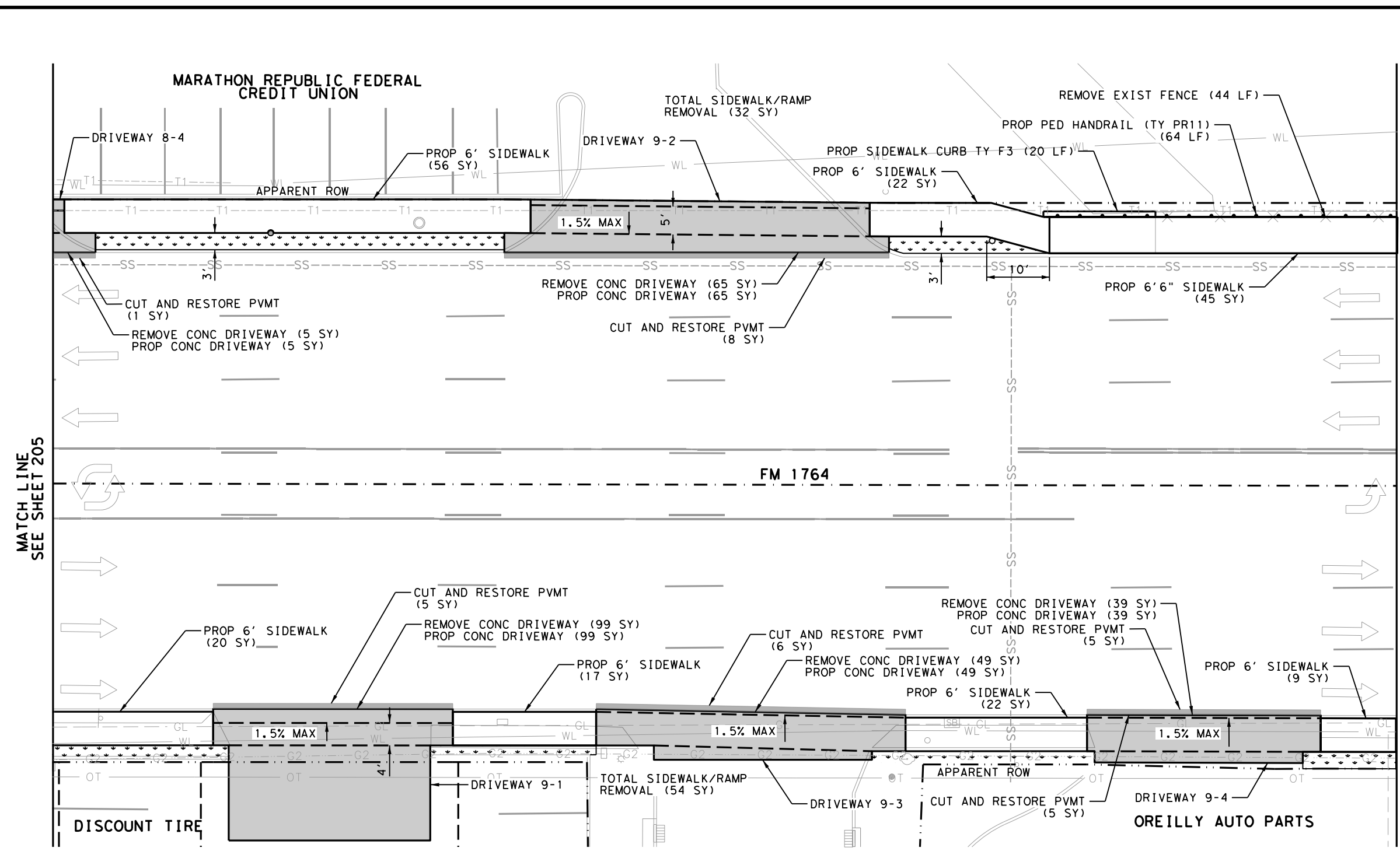
CURB RAMP PROGRAM

**FM 1764
BETWEEN 34TH ST
AND 33RD ST**

TEXAS CITY, TEXAS

SHEET 9 OF 52

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	SHEET NO.
		FM 1764	
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	206
CONT.	SECT.	JOB	
1607	01	057, ETC.	



SPECIAL NOTES & DETAILS

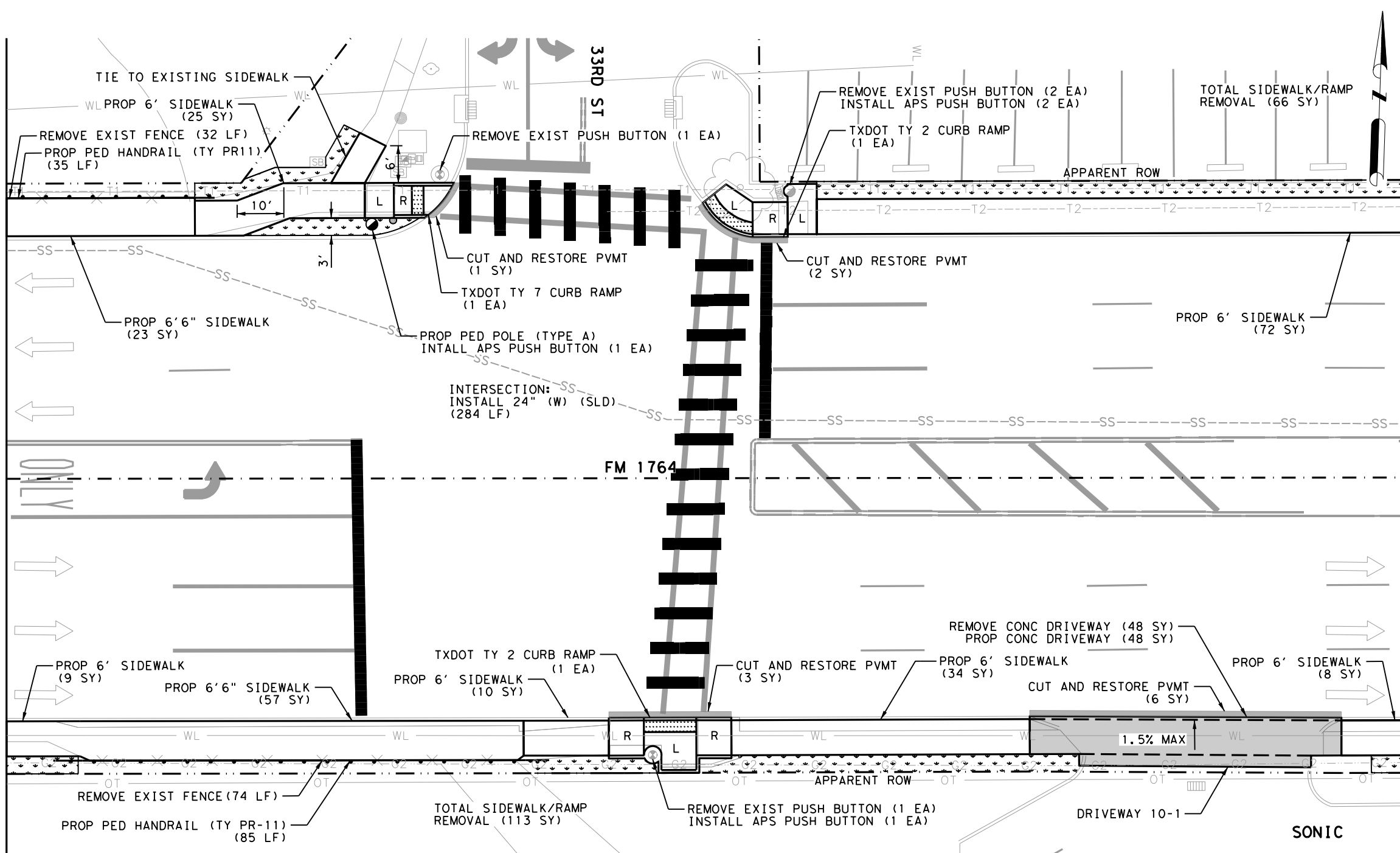
LEGEND	
~ DRAINAGE FLOW ARROW	☆ LIGHT POLE
- X - FENCE	□ MAIL BOX
F FLARE	○ MANHOLE
⊕ FIRE HYDRANT	● PEDESTAL SIGNAL POLE
⊗ GAS METER/VALVE	● POWER/UTILITY POLE
■ GROUND BOX	R RAMP
L LANDING	▨ RIPRAP (CONC)
L1 LANDING (COMMON)	○ SIGN
LS LEVEL SIDEWALK (2% MAX)	☐ SODDING
← GUY WIRE	T TRANSITION
— GUARD FENCE/RAIL	□ MISCELLANEOUS STRUC
- - - TEMPORARY CONSTRUCTION LICENSE	▨ SIDEWALK/RAMP REMOVAL
	SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%
	→ TRAFFIC FLOW
	⊠ TRAFFIC SIGNAL BOX
	⊠ TRAFFIC SIGNAL CONTROLLER
	⊗ TRAFFIC SIGNAL POLE
	○ TREE/BUSHES
	⊗ WATER METER/VALVE
	⊕ GUTTER LINE PROJECTION
	▨ GRATE INLET
	● PROPOSED PEDESTAL POLE
	— PROPOSED CONDUIT
	— EXISTING CONDUIT

FILENAME: c:\pwworking\15\HOLL.RDW.09.dgn
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MATCH LINE
SEE SHEET 205

MATCH LINE
SEE SHEET 207

SHEET #	ITEM	DESCRIPTION	UNIT	QTY	10
0104	6017	REMOVING CONC (DRIVEWAYS)	SY	48	
0104	6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	179	
0162	6002	BLOCK SODDING	SY	85	
0400	6008	CUT & RESTORE ASPH PAVING	SY	12	
0450	6052	RAIL (HANDRAIL) (TY F)	LF	120	
0496	6043	REMOVE STR (SMALL FENCE)	LF	106	
0530	6004	DRIVEWAYS (CONC)	SY	48	
0531	6001	CONC SIDEWALKS (4")	SY	238	
0531	6005	CURB RAMPS (TY 2)	EA	2	
0531	6010	CURB RAMPS (TY 7)	EA	1	
0618	6023	COND (PVC) (SCH 40) (2")	LF	100	
0620	6007	ELEC CONDR (NO. 8) BARE	LF	100	
0666	6048	REFL PAV MRK TY 1 (W)24" (SLD) (100MIL)	LF	284	
0678	6008	PAV SURF PREP FOR MRK (24")	LF	284	
0684	6007	TRF SIG CBL (TY A) (12 AWG) (2 CONDR)	LF	320	
0687	6001	PED POLE ASSEMBLY	EA	1	
0680	6011	INSTALL HWY TRF SIG (UPGRADE)	EA	1	
0688	6001	PED DETECT PUSH BUTTON (APS)	EA	4	
0688	6003	PED DETECTOR CONTROLLER UNIT	EA	1	
0690	6030	REMOVAL OF PEDESTRIAN PUSH BUTTONS	EA	4	



MATCH LINE SEE SHEET 206

MATCH LINE SEE SHEET 208



- NOTES:
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 - 2. UNLESS OTHERWISE SHOWN, PROPOSED SIGNAL CONDUCTOR SHALL RUN TO CONTROLLER IN EXISTING SIGNAL CONDUIT.

6/3/2024

Kimley»Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

FM 1764 AT 33RD ST

TEXAS CITY, TEXAS

SHEET 10 OF 52

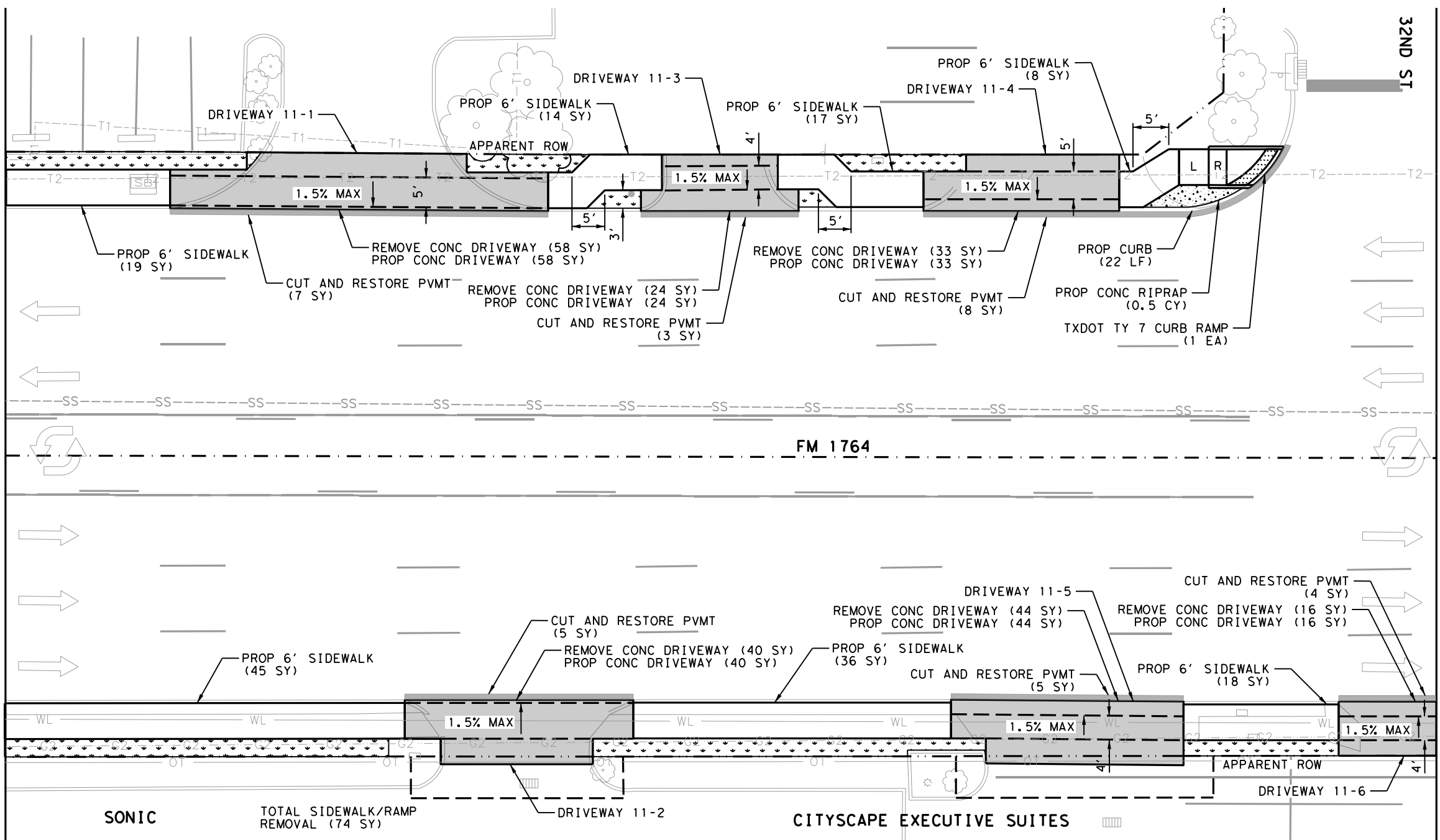
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	SHEET NO.
		FM 1764	
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	207
CONT.	SECT.	JOB	
1607	01	057, ETC.	

SPECIAL NOTES & DETAILS

LEGEND	
~ DRAINAGE FLOW ARROW	SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%
-x- FENCE	☉ LIGHT POLE
F FLARE	□ MAIL BOX
⊕ FIRE HYDRANT	⊙ MANHOLE
⊗ GAS METER/VALVE	⊙ PEDESTAL SIGNAL POLE
▣ GROUND BOX	⊙ POWER/UTILITY POLE
L LANDING	R RAMP
L1 LANDING (COMMON)	▣ RIPRAP (CONC)
LS LEVEL SIDEWALK (2% MAX)	⊙ SIGN
← GUY WIRE	☐ SODDING
— GUARD FENCE/RAIL	T TRANSITION
- - - TEMPORARY CONSTRUCTION LICENSE	☐ MISCELLANEOUS STRUC
	▣ SIDEWALK/RAMP REMOVAL
	— EXISTING CONDUIT

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SHEET #	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	215
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	74
0162 6002	BLOCK SODDING	SY	81
0400 6008	CUT & RESTORE ASPH PAVING	SY	32
0432 6001	RIPRAP (CONC) (4 IN)	CY	0.5
0529 6002	CONC CURB (TY II)	LF	22
0530 6004	DRIVEWAYS (CONC)	SY	215
0531 6001	CONC SIDEWALKS (4")	SY	157
0531 6010	CURB RAMPS (TY 7)	EA	1



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Signature: *ALD*
 6/3/2024

Kimley»Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

**FM 1764
 BETWEEN 33RD ST
 AND 32ND ST**

TEXAS CITY, TEXAS

SHEET 11 OF 52

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	SHEET NO.
		FM 1764	
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	208
CONT.	SECT.	JOB	
1607	01	057, ETC.	

SPECIAL NOTES & DETAILS

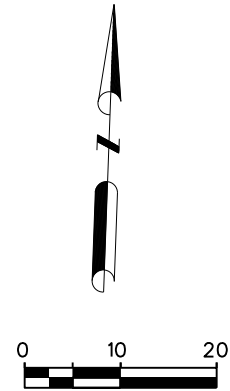
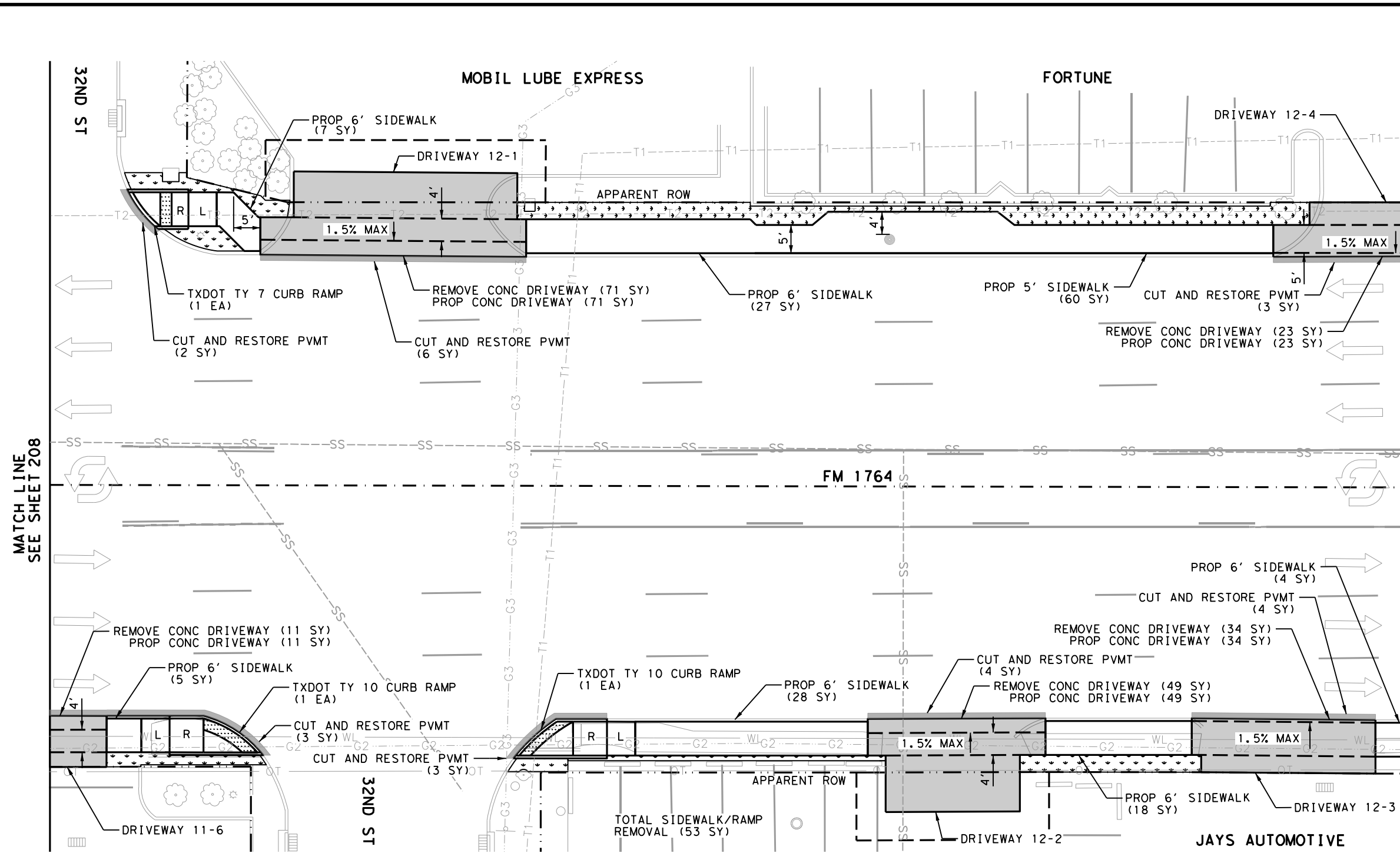
- LEGEND**
- ~ DRAINAGE FLOW ARROW
 - x- FENCE
 - F FLARE
 - ⊕ FIRE HYDRANT
 - ⊗ GAS METER/VALVE
 - ▣ GROUND BOX
 - L LANDING
 - L1 LANDING (COMMON)
 - LS LEVEL SIDEWALK (2% MAX)
 - ← GUY WIRE
 - GUARD FENCE/RAIL
 - - - TEMPORARY CONSTRUCTION LICENSE
 - ☆ LIGHT POLE
 - MAIL BOX
 - MANHOLE
 - PEDESTAL SIGNAL POLE
 - POWER/UTILITY POLE
 - R RAMP
 - ▨ RIPRAP (CONC)
 - SIGN
 - ▣ SODDING
 - T TRANSITION
 - MISCELLANEOUS STRUC
 - ▨ SIDEWALK/RAMP REMOVAL
 - SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%
 - TRAFFIC FLOW
 - ⊠ TRAFFIC SIGNAL BOX
 - ▣ TRAFFIC SIGNAL CONTROLLER
 - ⊗ TRAFFIC SIGNAL POLE
 - TREE/BUSHES
 - ⊗ WATER METER/VALVE
 - ⊕ GUTTER LINE PROJECTION
 - ▣ GRATE INLET
 - PROPOSED PEDESTAL POLE
 - PROPOSED CONDUIT
 - - - EXISTING CONDUIT

FILENAME: c:\pwworking\0231815\HOLL.RDW_11.dgn
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MATCH LINE
 SEE SHEET 207

MATCH LINE
 SEE SHEET 209

SHEET #	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	188
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	53
0162 6002	BLOCK SODDING	SY	79
0400 6008	CUT & RESTORE ASPH PAVING	SY	25
0530 6004	DRIVEWAYS (CONC)	SY	188
0531 6001	CONC SIDEWALKS (4")	SY	149
0531 6010	CURB RAMPS (TY 7)	EA	1
0531 6013	CURB RAMPS (TY 10)	EA	2



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6/3/2024

Kimley»Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

**FM 1764
BETWEEN 32ND ST
AND 31ST 1/2 ST**

TEXAS CITY, TEXAS

SHEET 12 OF 52

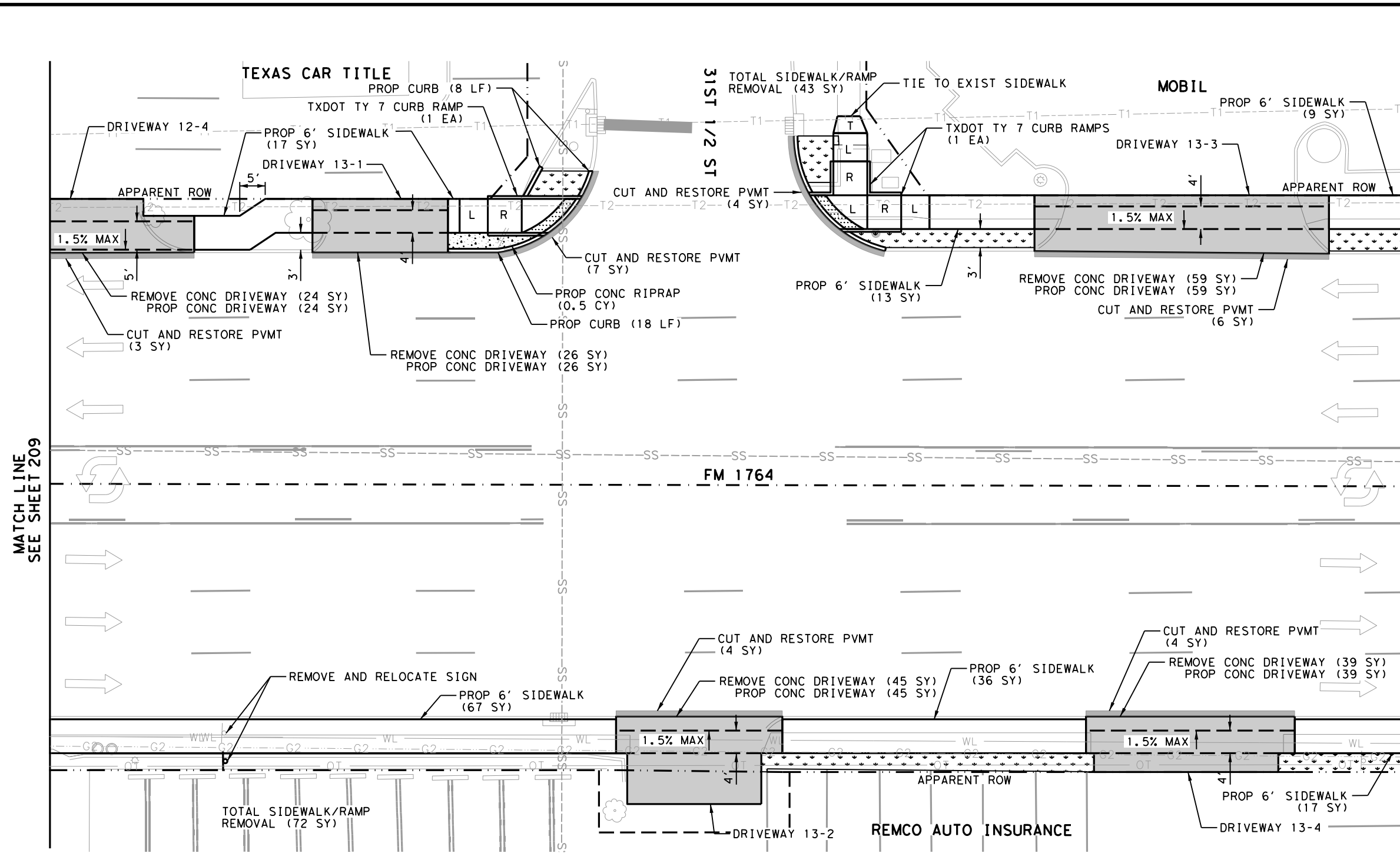
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	SHEET NO.
		FM 1764	
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	209
CONT.	SECT.	JOB	
1607	01	057, ETC.	

SPECIAL NOTES & DETAILS

- LEGEND**
- ~ DRAINAGE FLOW ARROW
 - X - FENCE
 - F FLARE
 - ⊕ FIRE HYDRANT
 - ⊗ GAS METER/VALVE
 - ▣ GROUND BOX
 - L LANDING
 - L1 LANDING (COMMON)
 - LS LEVEL SIDEWALK (2% MAX)
 - ← GUY WIRE
 - GUARD FENCE/RAIL
 - - - TEMPORARY CONSTRUCTION LICENSE
 - ☆ LIGHT POLE
 - MAIL BOX
 - MANHOLE
 - PEDESTAL SIGNAL POLE
 - POWER/UTILITY POLE
 - R RAMP
 - ▨ RIPRAP (CONC)
 - SIGN
 - ▣ SODDING
 - T TRANSITION
 - MISCELLANEOUS STRUC
 - ▨ SIDEWALK/RAMP REMOVAL
 - SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%
 - TRAFFIC FLOW
 - ▣ TRAFFIC SIGNAL BOX
 - ▣ TRAFFIC SIGNAL CONTROLLER
 - ⊗ TRAFFIC SIGNAL POLE
 - TREE/BUSHES
 - ⊗ WATER METER/VALVE
 - ⊕ GUTTER LINE PROJECTION
 - ▣ GRATE INLET
 - PROPOSED PEDESTAL POLE
 - PROPOSED CONDUIT
 - - - EXISTING CONDUIT

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SHEET #	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	193
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	115
0162 6002	BLOCK SODDING	SY	63
0400 6008	CUT & RESTORE ASPH PAVING	SY	28
0432 6001	RIPRAP (CONC) (4 IN)	CY	0.5
0529 6002	CONC CURB (TY II)	LF	18
0530 6004	DRIVEWAYS (CONC)	SY	193
0531 6001	CONC SIDEWALKS (4")	SY	152
0531 6010	CURB RAMPS (TY 7)	EA	2
0644 6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1



MATCH LINE
SEE SHEET 209

MATCH LINE
SEE SHEET 211

NOTES:

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6/3/2024

F-928

Texas Department of Transportation

CURB RAMP PROGRAM

**FM 1764
AT 31ST 1/2 ST**

TEXAS CITY, TEXAS

SHEET 13 OF 52

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	SHEET NO.
		FM 1764	
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	210
CONT.	SECT.	JOB	
1607	01	057, ETC.	

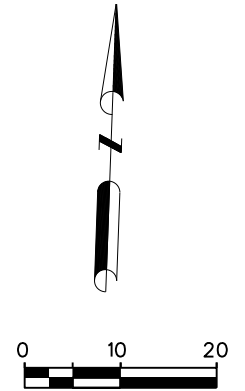
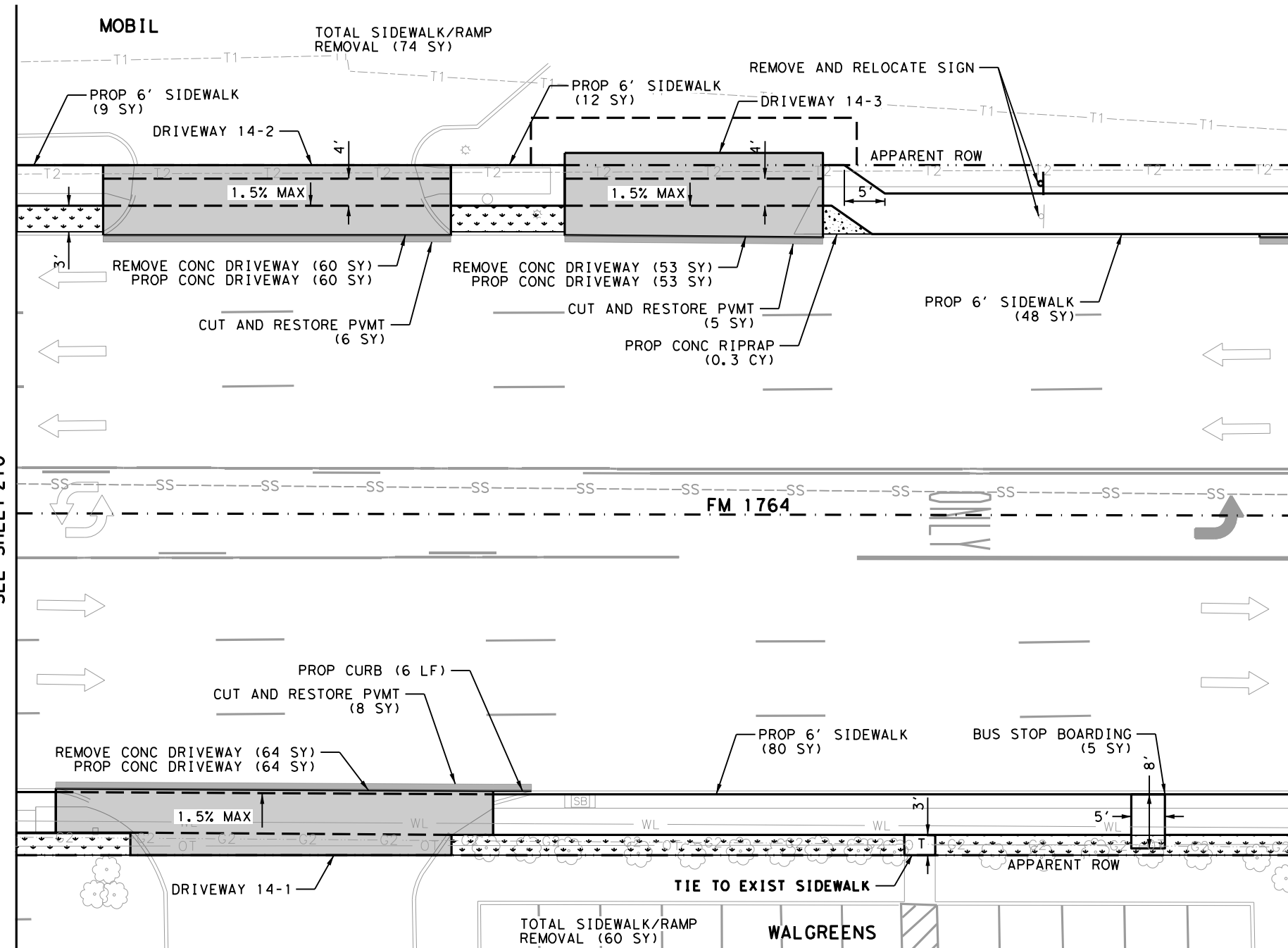
SPECIAL NOTES & DETAILS

LEGEND

<ul style="list-style-type: none"> ~ DRAINAGE FLOW ARROW -x- FENCE F FLARE ⊕ FIRE HYDRANT ⊗ GAS METER/VALVE ▣ GROUND BOX L LANDING L1 LANDING (COMMON) LS LEVEL SIDEWALK (2% MAX) ← GUY WIRE — GUARD FENCE/RAIL - - - TEMPORARY CONSTRUCTION LICENSE 	<ul style="list-style-type: none"> ⊙ LIGHT POLE □ MAIL BOX ⊙ MANHOLE ⊙ PEDESTAL SIGNAL POLE ⊙ POWER/UTILITY POLE R RAMP ▣ RIPRAP (CONC) ⊙ SIGN ▣ SODDING T TRANSITION □ MISCELLANEOUS STRUC ▣ SIDEWALK/RAMP REMOVAL 	<ul style="list-style-type: none"> SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2% → TRAFFIC FLOW ⊙ TRAFFIC SIGNAL BOX ▣ TRAFFIC SIGNAL CONTROLLER ⊙ TRAFFIC SIGNAL POLE ⊙ TREE/BUSHES ⊙ WATER METER/VALVE ⊙ GUTTER LINE PROJECTION ▣ GRATE INLET ⊙ PROPOSED PEDESTAL POLE — PROPOSED CONDUIT — EXISTING CONDUIT
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SHEET #	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	177
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	134
0162 6002	BLOCK SODDING	SY	59
0400 6008	CUT & RESTORE ASPH PAVING	SY	19
0432 6001	RIPRAP (CONC) (4 IN)	CY	0.3
0529 6002	CONC CURB (TY II)	LF	6
0530 6004	DRIVEWAYS (CONC)	SY	177
0531 6001	CONC SIDEWALKS (4")	SY	154
0644 6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1



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Signature: *ALD*
 6/3/2024
 STATE OF TEXAS
 SAMUEL J. LUNDQUIST
 122185
 LICENSED PROFESSIONAL ENGINEER

Kimley»Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

**FM 1764
 BETWEEN 31ST 1/2 ST
 AND 31ST ST**

TEXAS CITY, TEXAS

SHEET 14 OF 52

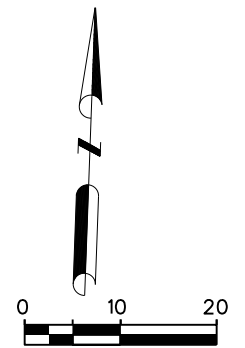
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		FM 1764	
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	211
CONT.	SECT.	JOB	
1607	01	057, ETC.	

SPECIAL NOTES & DETAILS

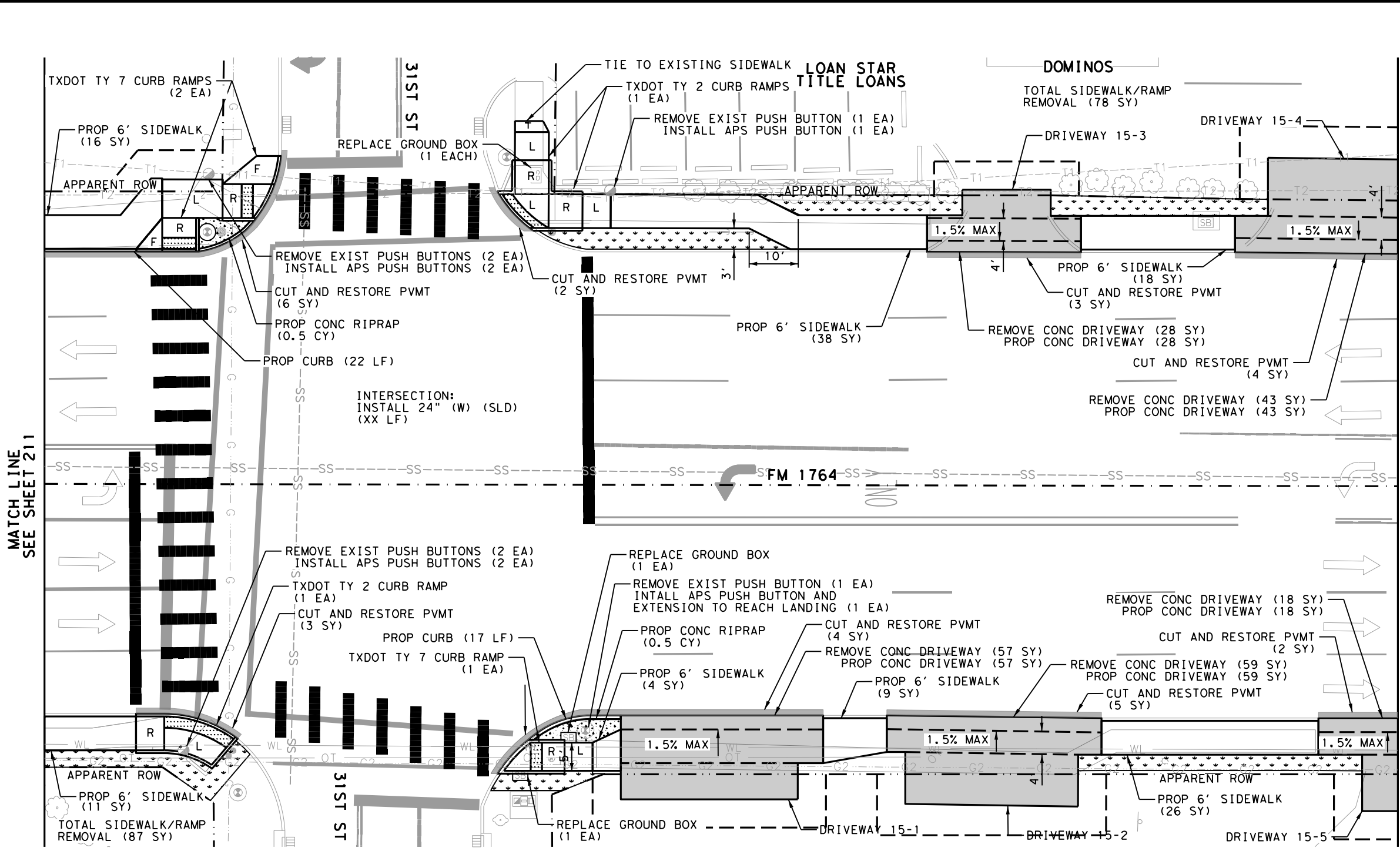
- LEGEND**
- ~ DRAINAGE FLOW ARROW
 - x- FENCE
 - F FLARE
 - ⊕ FIRE HYDRANT
 - ⊗ GAS METER/VALVE
 - ▣ GROUND BOX
 - L LANDING
 - L1 LANDING (COMMON)
 - LS LEVEL SIDEWALK (2% MAX)
 - ← GUY WIRE
 - GUARD FENCE/RAIL
 - - - TEMPORARY CONSTRUCTION LICENSE
 - ☆ LIGHT POLE
 - MAIL BOX
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 - PEDESTAL SIGNAL POLE
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 - R RAMP
 - ▨ RIPRAP (CONC)
 - SIGN
 - ▣ SODDING
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 - MISCELLANEOUS STRUC
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 - ▣ TRAFFIC SIGNAL BOX
 - ▣ TRAFFIC SIGNAL CONTROLLER
 - ⊗ TRAFFIC SIGNAL POLE
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 - ⊗ WATER METER/VALVE
 - ⊕ GUTTER LINE PROJECTION
 - ▣ GRATE INLET
 - PROPOSED PEDESTAL POLE
 - PROPOSED CONDUIT
 - - - EXISTING CONDUIT

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SHEET #	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	205
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	165
0162 6002	BLOCK SODDING	SY	78
0400 6008	CUT & RESTORE ASPH PAVING	SY	28
0432 6001	RIPRAP (CONC) (4 IN)	CY	1
0529 6002	CONC CURB (TY 1)	LF	39
0530 6004	DRIVEWAYS (CONC)	SY	205
0531 6001	CONC SIDEWALKS (4")	SY	122
0531 6005	CURB RAMPS (TY 7)	EA	1
0531 6010	CURB RAMPS (TY 2)	EA	4
0666 6048	REFL PAV MRK TY 1 (W) 24" (SLD) (100MIL)	LF	353
0678 6008	PAV SURF PREP FOR MRK (24")	LF	353
0684 6007	TRF SIG CBL (TY A) (12 AWG) (2 CONDR)	LF	700
0680 6011	INSTALL HWY TRF SIG (UPGRADE)	EA	1
0688 6001	PED DETECT PUSH BUTTON (APS)	EA	6
0688 6003	PED DETECTOR CONTROLLER UNIT	EA	1
0690 6007	REPLACE OF GROUND BOXES	EA	3
0690 6030	REMOVAL OF PEDESTRIAN PUSH BUTTONS	EA	6



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MATCH LINE SEE SHEET 211

MATCH LINE SEE SHEET 213

SPECIAL NOTES & DETAILS

- | | | |
|--|--|---|
| <ul style="list-style-type: none"> ~ DRAINAGE FLOW ARROW - X - FENCE F FLARE ⊕ FIRE HYDRANT ⊗ GAS METER/VALVE ▣ GROUND BOX L LANDING L1 LANDING (COMMON) LS LEVEL SIDEWALK (2% MAX) ← GUY WIRE — GUARD FENCE/RAIL - - - TEMPORARY CONSTRUCTION LICENSE | <p>LEGEND</p> <ul style="list-style-type: none"> ⊙ LIGHT POLE □ MAIL BOX ⊙ MANHOLE ⊙ PEDESTAL SIGNAL POLE ⊙ POWER/UTILITY POLE R RAMP ▣ RIPRAP (CONC) ⊙ SIGN ▣ SODDING T TRANSITION □ MISCELLANEOUS STRUC ▣ SIDEWALK/RAMP REMOVAL | <ul style="list-style-type: none"> SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2% → TRAFFIC FLOW ⊙ TRAFFIC SIGNAL BOX ▣ TRAFFIC SIGNAL CONTROLLER ⊙ TRAFFIC SIGNAL POLE ⊙ TREE/BUSHES ⊙ WATER METER/VALVE ⊙ GUTTER LINE PROJECTION ▣ GRATE INLET ⊙ PROPOSED PEDESTAL POLE — PROPOSED CONDUIT — EXISTING CONDUIT |
|--|--|---|

6/3/2024

Kimley Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

FM 1764 AT 31ST ST

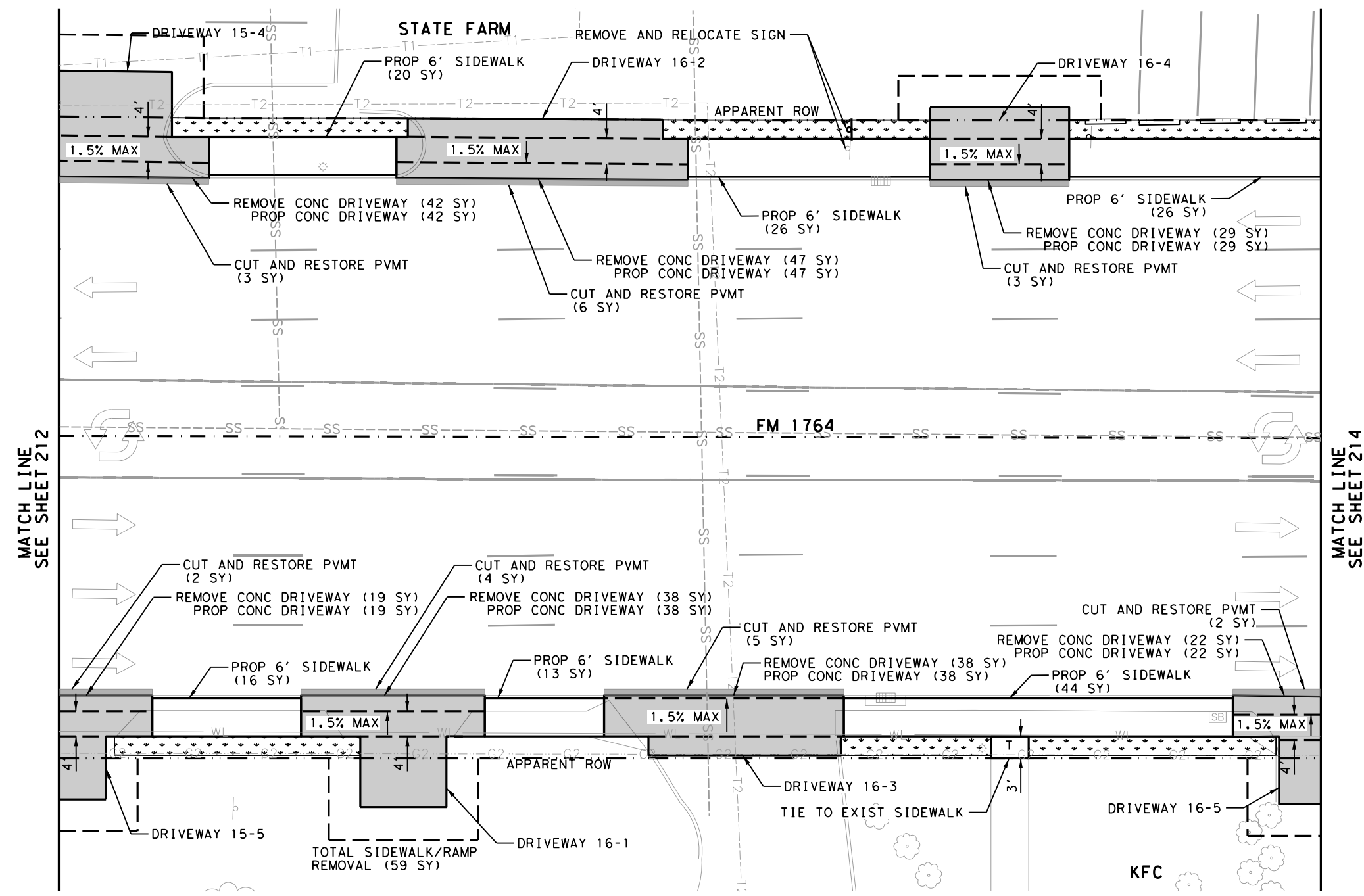
TEXAS CITY, TEXAS

SHEET 15 OF 52

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	SHEET NO.
		FM 1764	212
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	
CONT.	SECT.	JOB	
1607	01	057, ETC.	

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SHEET #	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	235
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	59
0162 6002	BLOCK SODDING	SY	73
0400 6008	CUT & RESTORE ASPH PAVING	SY	25
0530 6004	DRIVEWAYS (CONC)	SY	235
0531 6001	CONC SIDEWALKS (4")	SY	145
0644 6068	RELOCATE SM RD SN SUP&M TY 10BWG	EA	1



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6/3/2024

SAMUEL J. LUNDQUIST
122185
LICENSED PROFESSIONAL ENGINEER

Kimley»Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

**FM 1764
BETWEEN 31ST ST
AND 29TH ST**

TEXAS CITY, TEXAS

SHEET 16 OF 52

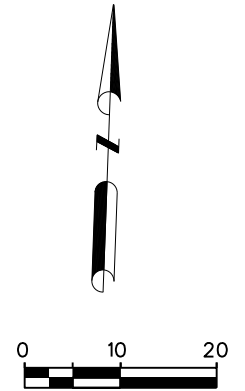
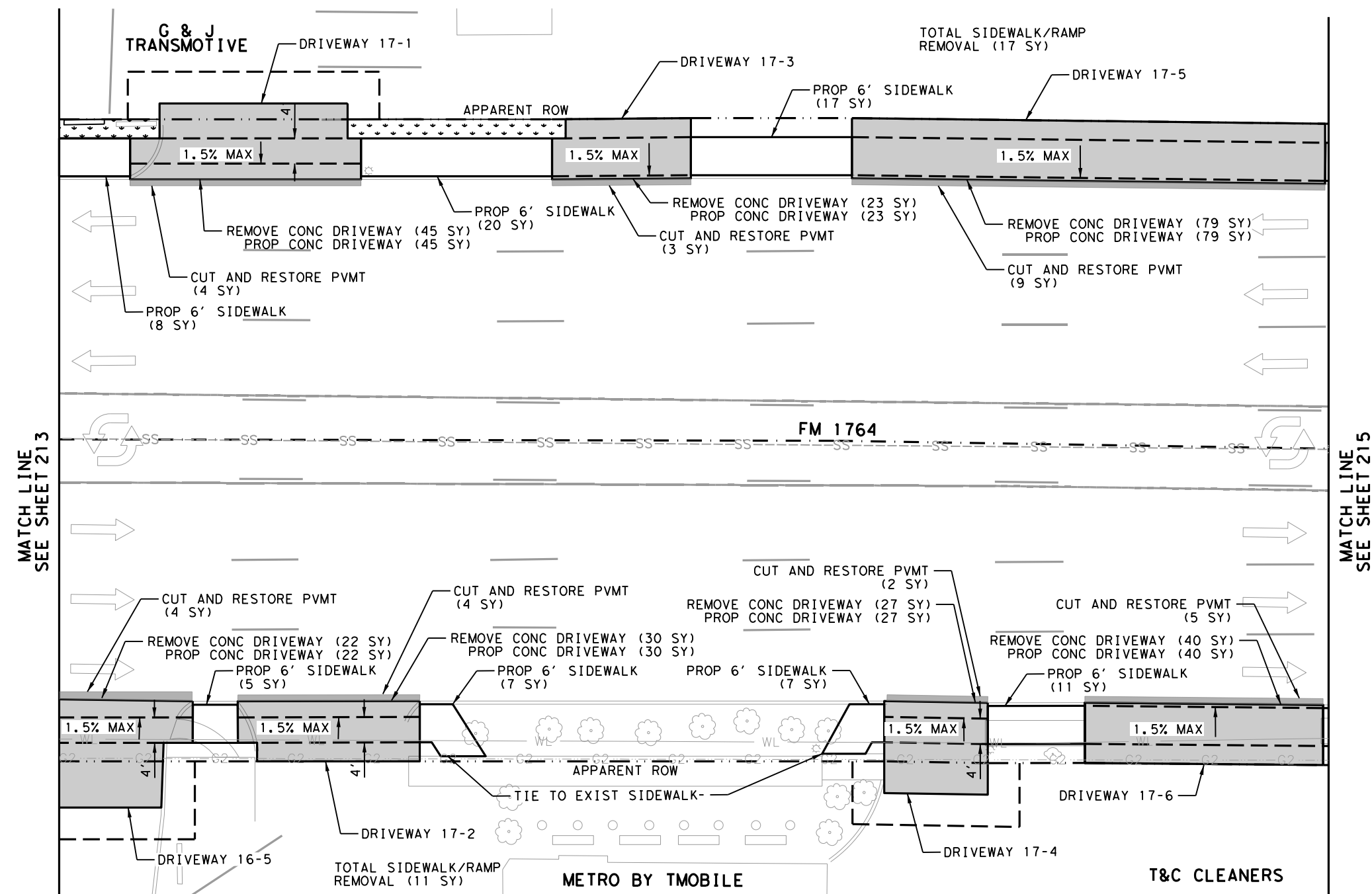
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	SHEET NO.
		FM 1764	
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	213
CONT.	SECT.	JOB	
1607	01	057, ETC.	

SPECIAL NOTES & DETAILS

- LEGEND**
- ~ DRAINAGE FLOW ARROW
 - X - FENCE
 - F FLARE
 - ⊕ FIRE HYDRANT
 - ⊗ GAS METER/VALVE
 - ▣ GROUND BOX
 - L LANDING
 - L1 LANDING (COMMON)
 - LS LEVEL SIDEWALK (2% MAX)
 - ← GUY WIRE
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 - ▣ TRAFFIC SIGNAL CONTROLLER
 - ⊙ TRAFFIC SIGNAL POLE
 - ⊙ TREE/BUSHES
 - ⊙ WATER METER/VALVE
 - ⊙ GUTTER LINE PROJECTION
 - ▨ GRATE INLET
 - ⊙ PROPOSED PEDESTAL POLE
 - PROPOSED CONDUIT
 - - - EXISTING CONDUIT

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SHEET #	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	266
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	28
0162 6002	BLOCK SODDING	SY	17
0400 6008	CUT & RESTORE ASPH PAVING	SY	31
0530 6004	DRIVEWAYS (CONC)	SY	266
0531 6001	CONC SIDEWALKS (4")	SY	75



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 6/3/2024
 STATE OF TEXAS
 SAMUEL J. LUNDQUIST
 122185
 LICENSED PROFESSIONAL ENGINEER

Kimley Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

**FM 1764
 BETWEEN 31ST ST
 AND 29TH ST**

TEXAS CITY, TEXAS

SHEET 17 OF 52

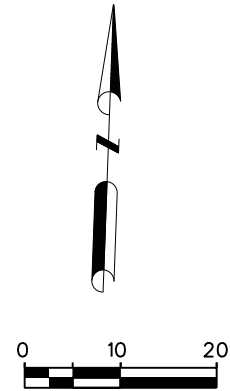
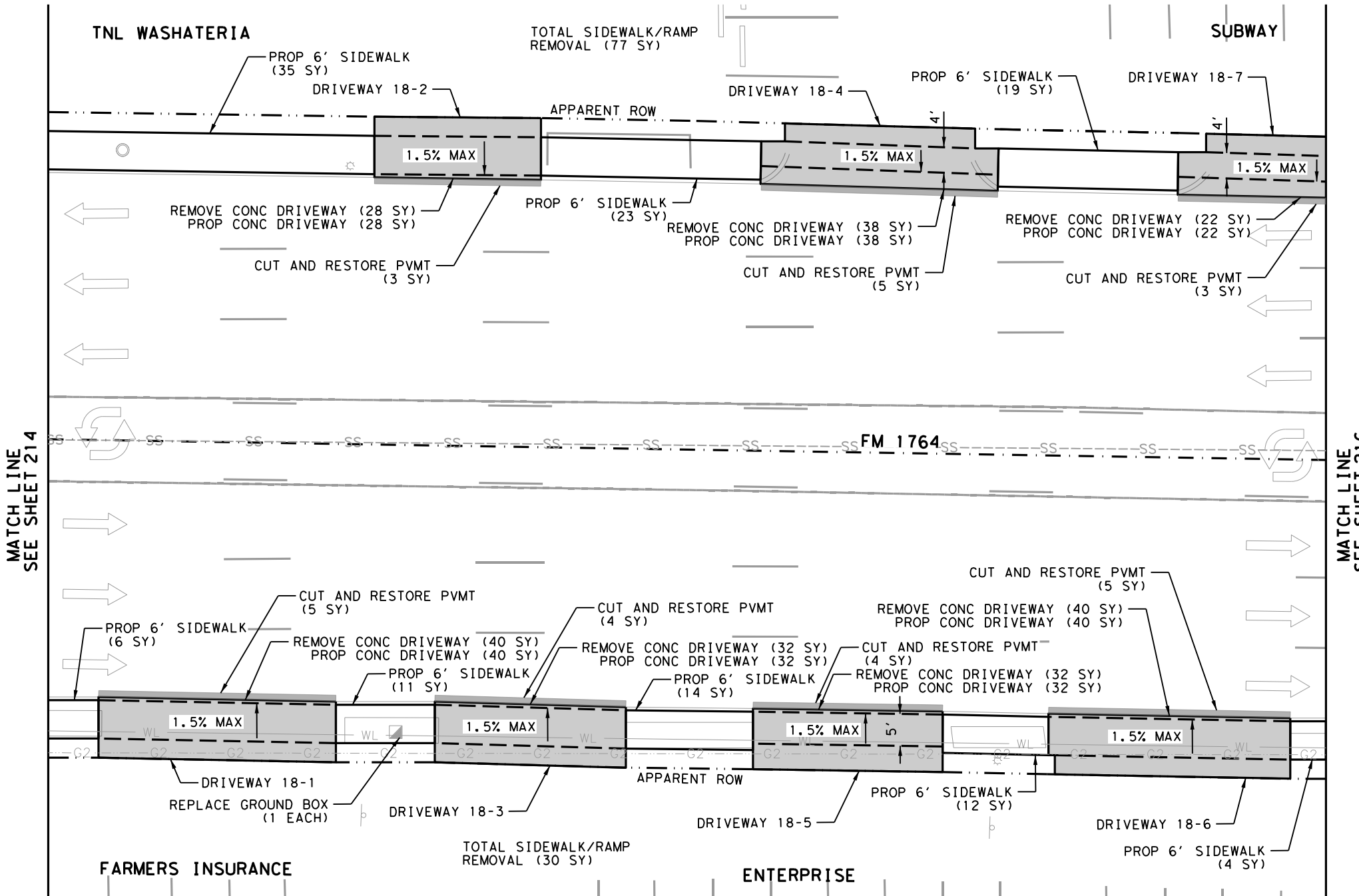
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	SHEET NO.
		FM 1764	
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	214
CONT.	SECT.	JOB	
1607	01	057, ETC.	

SPECIAL NOTES & DETAILS

- LEGEND**
- ~ DRAINAGE FLOW ARROW
 - x- FENCE
 - F FLARE
 - ⊕ FIRE HYDRANT
 - ⊗ GAS METER/VALVE
 - ▣ GROUND BOX
 - L LANDING
 - L1 LANDING (COMMON)
 - LS LEVEL SIDEWALK (2% MAX)
 - ← GUY WIRE
 - GUARD FENCE/RAIL
 - - - TEMPORARY CONSTRUCTION LICENSE
 - ☆ LIGHT POLE
 - MAIL BOX
 - MANHOLE
 - PEDESTAL SIGNAL POLE
 - POWER/UTILITY POLE
 - R RAMP
 - ▨ RIPRAP (CONC)
 - SIGN
 - ▣ SODDING
 - T TRANSITION
 - MISCELLANEOUS STRUC
 - ▨ SIDEWALK/RAMP REMOVAL
 - SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%
 - TRAFFIC FLOW
 - ▣ TRAFFIC SIGNAL BOX
 - ▣ TRAFFIC SIGNAL CONTROLLER
 - ⊗ TRAFFIC SIGNAL POLE
 - TREE/BUSHES
 - ⊗ WATER METER/VALVE
 - ⊕ GUTTER LINE PROJECTION
 - ▣ GRATE INLET
 - PROPOSED PEDESTAL POLE
 - PROPOSED CONDUIT
 - - - EXISTING CONDUIT

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SHEET #	DESCRIPTION	UNIT	QTY	18
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	232	
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	107	
0400 6008	CUT & RESTORE ASPH PAVING	SY	29	
0530 6004	DRIVEWAYS (CONC)	SY	232	
0531 6001	CONC SIDEWALKS (4")	SY	124	



NOTES:

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- 2. UNLESS OTHERWISE SHOWN, PROPOSED SIGNAL CONDUCTOR SHALL RUN TO CONTROLLER IN EXISTING SIGNAL CONDUIT.

Signature: *ALD*
 6/3/2024

Kimley»Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

**FM 1764
 BETWEEN 31ST ST
 AND 29TH ST**

TEXAS CITY, TEXAS

SHEET 18 OF 52

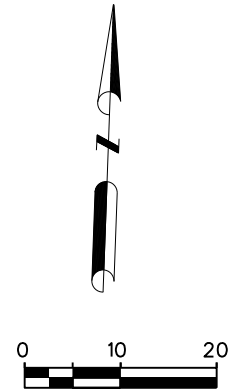
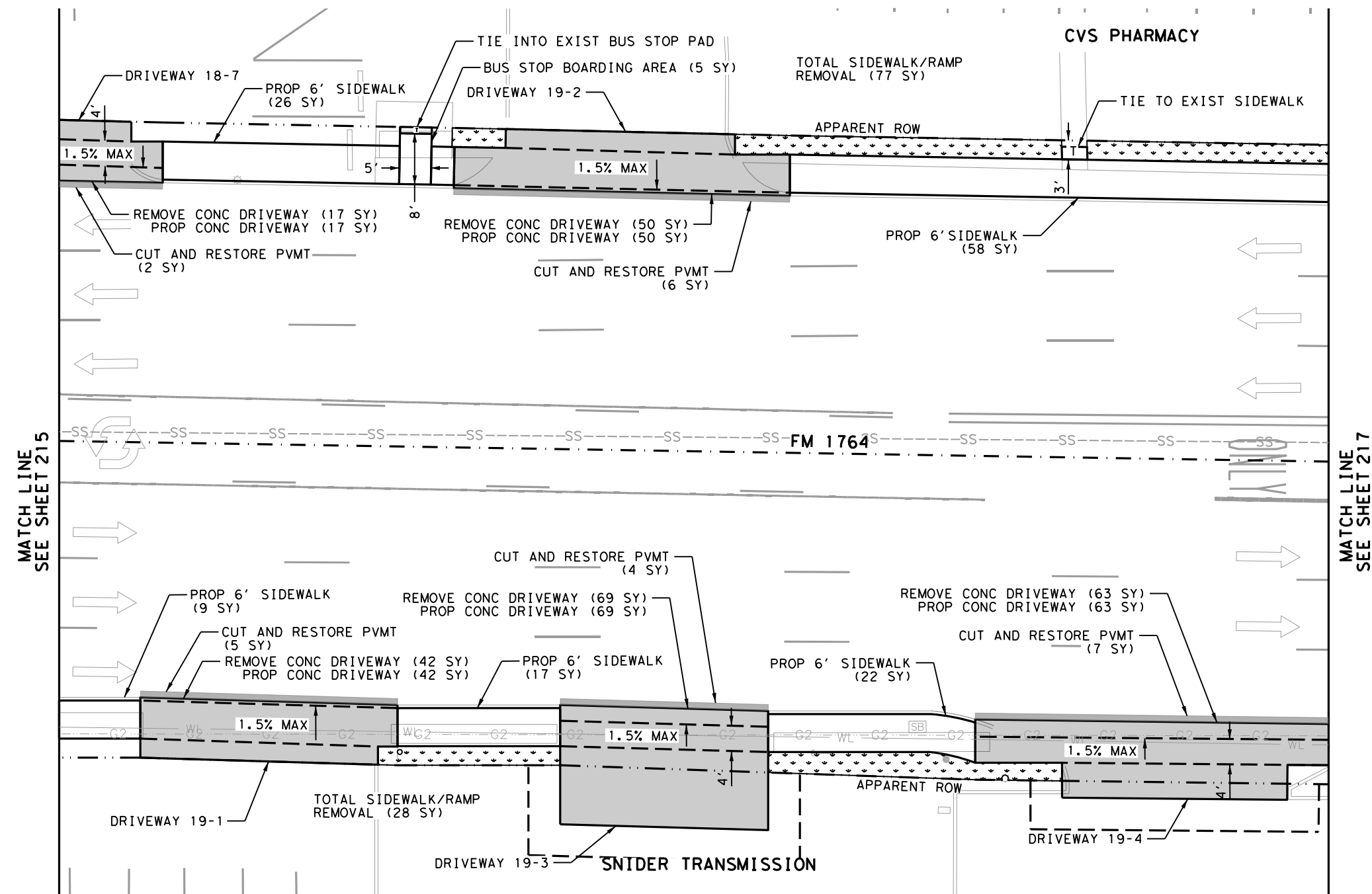
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		FM 1764	
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	215
CONT.	SECT.	JOB	
1607	01	057, ETC.	

SPECIAL NOTES & DETAILS

LEGEND	
~ DRAINAGE FLOW ARROW	☆ LIGHT POLE
-x- FENCE	□ MAIL BOX
F FLARE	○ MANHOLE
⊕ FIRE HYDRANT	● PEDESTAL SIGNAL POLE
⊗ GAS METER/VALVE	● POWER/UTILITY POLE
▣ GROUND BOX	R RAMP
L LANDING	▨ RIPRAP (CONC)
L1 LANDING (COMMON)	○ SIGN
LS LEVEL SIDEWALK (2% MAX)	▣ SODDING
← GUY WIRE	T TRANSITION
— GUARD FENCE/RAIL	□ MISCELLANEOUS STRUC
- - - TEMPORARY CONSTRUCTION LICENSE	▨ SIDEWALK/RAMP REMOVAL
	SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%
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	▣ TRAFFIC SIGNAL BOX
	▣ TRAFFIC SIGNAL CONTROLLER
	⊗ TRAFFIC SIGNAL POLE
	○ TREE/BUSHES
	⊗ WATER METER/VALVE
	⊕ GUTTER LINE PROJECTION
	▣ GRATE INLET
	● PROPOSED PEDESTAL POLE
	— PROPOSED CONDUIT
	— EXISTING CONDUIT

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SHEET #	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	241
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	105
0162 6002	BLOCK SODDING	SY	60
0400 6008	CUT & RESTORE ASPH PAVING	SY	24
0530 6004	DRIVEWAYS (CONC)	SY	241
0531 6001	CONC SIDEWALKS (4")	SY	137



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Signature: *ALD*
 6/3/2024
 STATE OF TEXAS
 SAMUEL J. LUNDQUIST
 122185
 LICENSED PROFESSIONAL ENGINEER

Kimley»Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

**FM 1764
 BETWEEN 31ST ST
 AND 29TH ST**

TEXAS CITY, TEXAS

SHEET 19 OF 52

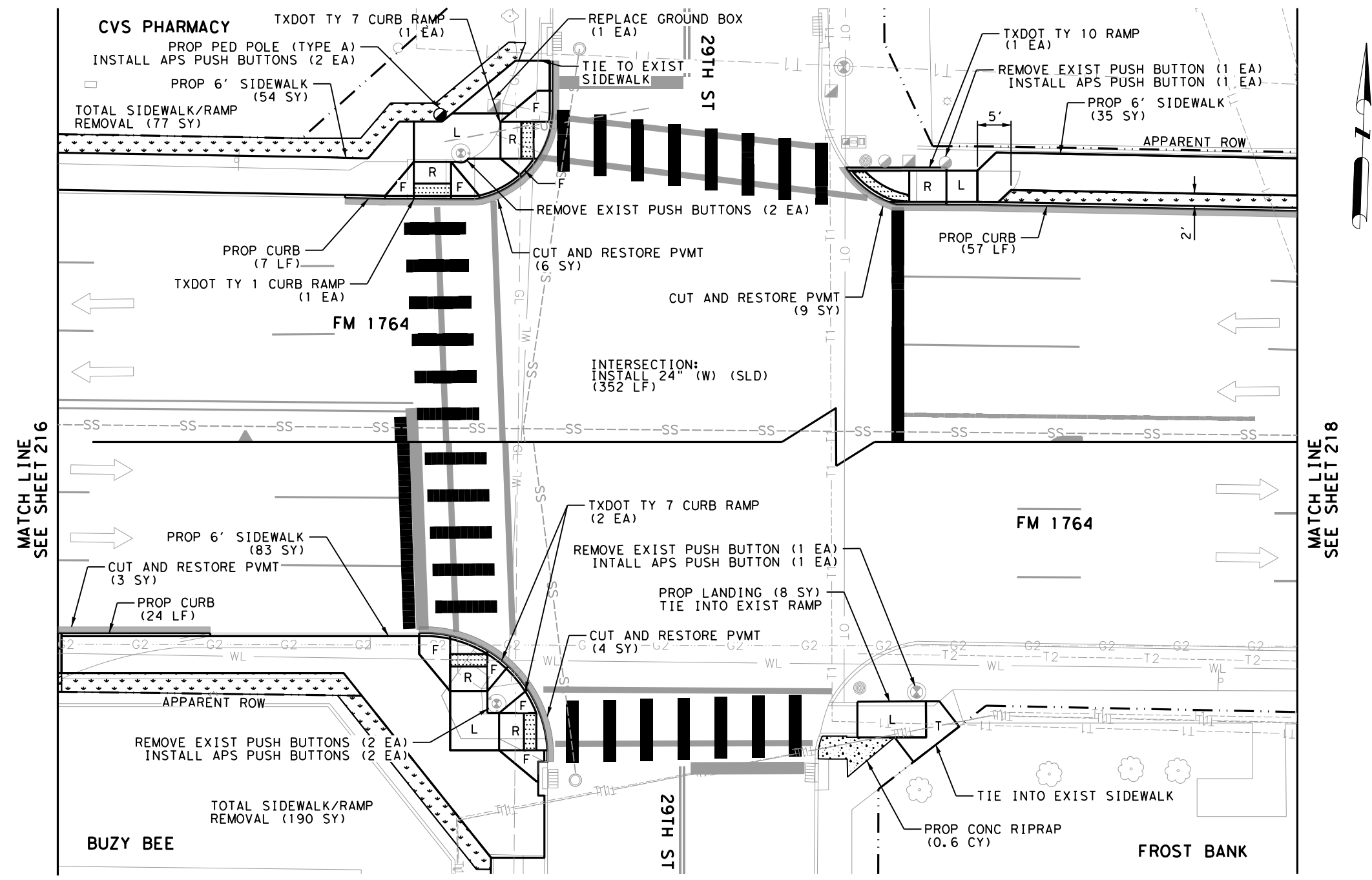
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		FM 1764
STATE	DIST.	COUNTY
TEXAS	HOUSTON	GALVESTON
CONT.	SECT.	JOB
1607	01	057, ETC.

SPECIAL NOTES & DETAILS

- LEGEND**
- ~ DRAINAGE FLOW ARROW
 - X- FENCE
 - F FLARE
 - ⊕ FIRE HYDRANT
 - ⊗ GAS METER/VALVE
 - ▣ GROUND BOX
 - L LANDING
 - L1 LANDING (COMMON)
 - LS LEVEL SIDEWALK (2% MAX)
 - ← GUY WIRE
 - GUARD FENCE/RAIL
 - - - TEMPORARY CONSTRUCTION LICENSE
 - ☆ LIGHT POLE
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 - R RAMP
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 - ⊙ WATER METER/VALVE
 - ⊕ GUTTER LINE PROJECTION
 - ▨ GRATE INLET
 - ⊙ PROPOSED PEDESTAL POLE
 - PROPOSED CONDUIT
 - - - EXISTING CONDUIT

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SHEET #	DESCRIPTION	UNIT	QTY
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	267
0162 6002	BLOCK SODDING	SY	67
0400 6008	CUT & RESTORE ASPH PAVING	SY	22
0529 6002	CONC CURB (TY II)	LF	90
0531 6001	CONC SIDEWALKS (4")	SY	180
0531 6004	CURB RAMPS (TY 1)	EA	1
0531 6010	CURB RAMPS (TY 7)	EA	3
0531 6013	CURB RAMPS (TY 10)	EA	1
0618 6023	CONDT (PVC) (SCH 40) (2")	LF	65
0620 6007	ELEC CONDR (NO.8) BARE	LF	65
0666 6048	REFL PAV MRK TY I (W) 24" (SLD) (100MIL)	LF	352
0678 6008	PAV SURF PREP FOR MRK (24")	LF	352
0684 6007	TRF SIG CBL (TY A) (12 AWG) (2 CONDR)	LF	600
0687 6001	PED POLE ASSEMBLY	EA	1
0680 6011	INSTALL HWY TRF SIG (UPGRADE)	EA	1
0688 6001	PED DETECT PUSH BUTTON (APS)	EA	6
0688 6003	PED DETECTOR CONTROLLER UNIT	EA	1
0690 6007	REPLACE OF GROUND BOXES	EA	1
0690 6030	REMOVAL OF PEDESTRIAN PUSH BUTTONS	EA	6



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6/3/2024

Kimley Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

FM 1764 AT 29TH ST

TEXAS CITY, TEXAS

SHEET 20 OF 52

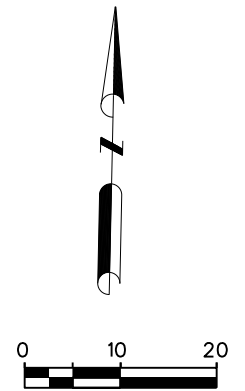
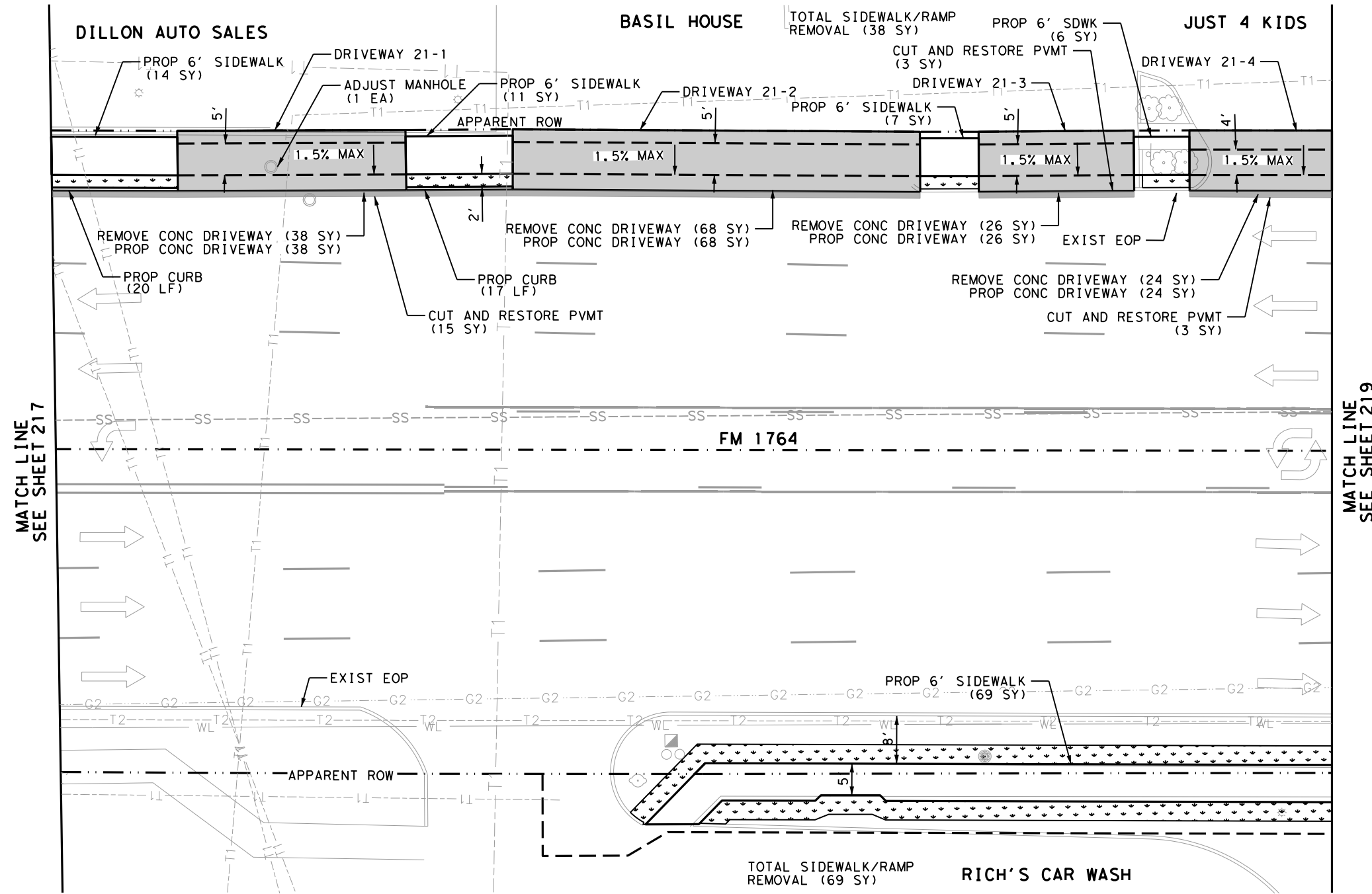
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		FM 1764	217
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	
CONT.	SECT.	JOB	
1607	01	057, ETC.	

SPECIAL NOTES & DETAILS

- LEGEND**
- ~ DRAINAGE FLOW ARROW
 - X- FENCE
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 - ⊙ TRAFFIC SIGNAL POLE
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 - ⊙ WATER METER/VALVE
 - ⊕ GUTTER LINE PROJECTION
 - ▣ GRATE INLET
 - ⊙ PROPOSED PEDESTAL POLE
 - PROPOSED CONDUIT
 - - - EXISTING CONDUIT

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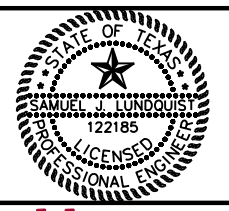
SHEET #	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	156
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	107
0162 6002	BLOCK SODDING	SY	83
0400 6008	CUT & RESTORE ASPH PAVING	SY	21
0529 6002	CONC CURB (TY II)	LF	37
0530 6004	DRIVEWAYS (CONC)	SY	156
0531 6001	CONC SIDEWALKS (4")	SY	107



NOTES:

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6/3/2024



Kimley»Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

**FM 1764
BETWEEN 29TH ST
AND 27TH ST**

TEXAS CITY, TEXAS

SHEET 21 OF 52

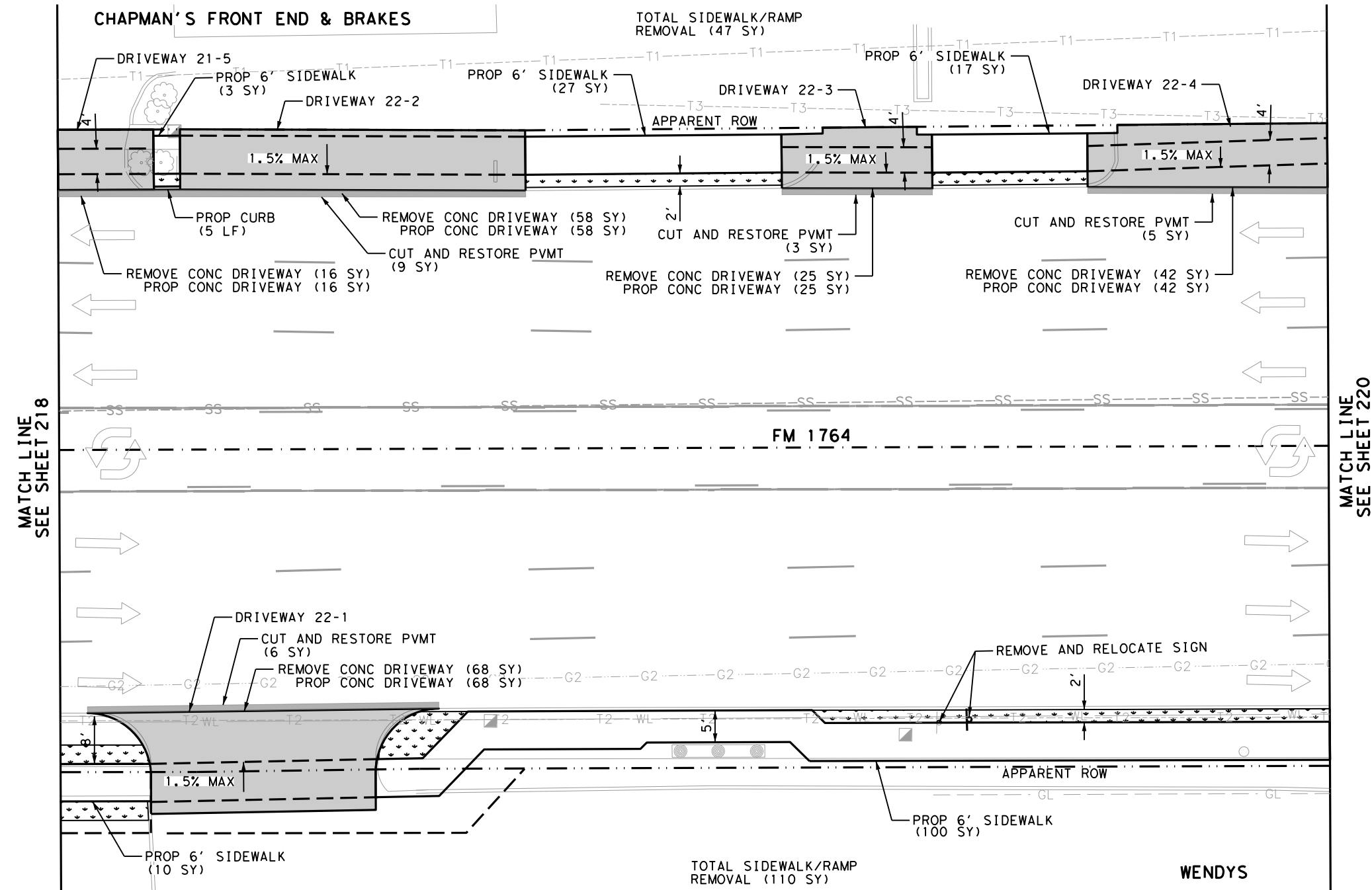
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		FM 1764	
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	218
CONT.	SECT.	JOB	
1607	01	057, ETC.	

SPECIAL NOTES & DETAILS

LEGEND	
~ DRAINAGE FLOW ARROW	☆ LIGHT POLE
-x- FENCE	□ MAIL BOX
F FLARE	○ MANHOLE
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▣ GROUND BOX	R RAMP
L LANDING	▨ RIPRAP (CONC)
L1 LANDING (COMMON)	⊖ SIGN
LS LEVEL SIDEWALK (2% MAX)	⊞ SODDING
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— GUARD FENCE/RAIL	□ MISCELLANEOUS STRUC
- - - TEMPORARY CONSTRUCTION LICENSE	▨ SIDEWALK/RAMP REMOVAL
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	⊗ WATER METER/VALVE
	⊕ GUTTER LINE PROJECTION
	▨ GRATE INLET
	⊙ PROPOSED PEDESTAL POLE
	— PROPOSED CONDUIT
	— EXISTING CONDUIT

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SHEET #	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	209
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	157
0162 6002	BLOCK SODDING	SY	50
0400 6008	CUT & RESTORE ASPH PAVING	SY	23
0529 6002	CONC CURB (TY II)	LF	5
0530 6004	DRIVEWAYS (CONC)	SY	209
0531 6001	CONC SIDEWALKS (4")	SY	157
0644 6068	RELOCATE SM RD SN SUP&M TY 10BWC	EA	1



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 6/3/2024


Kimley»Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

**FM 1764
BETWEEN 29TH ST
AND 27TH ST**

TEXAS CITY, TEXAS

SHEET 22 OF 52

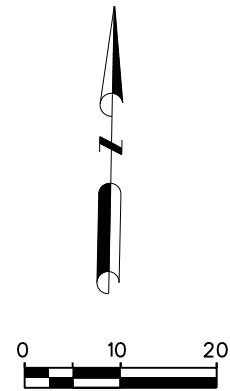
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		FM 1764	
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	219
CONT.	SECT.	JOB	
1607	01	057, ETC.	

SPECIAL NOTES & DETAILS

- LEGEND**
- ~ DRAINAGE FLOW ARROW
 - x- FENCE
 - F FLARE
 - ⊕ FIRE HYDRANT
 - ⊗ GAS METER/VALVE
 - ▣ GROUND BOX
 - L LANDING
 - L1 LANDING (COMMON)
 - LS LEVEL SIDEWALK (2% MAX)
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 - ⊙ PROPOSED PEDESTAL POLE
 - PROPOSED CONDUIT
 - - - EXISTING CONDUIT

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SHEET #	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	214
0104 6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	15
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	143
0105 6037	REMOVING STAB BASE & ASPH PAV(0"-16")	SY	35
0162 6002	BLOCK SODDING	SY	51
0400 6008	CUT & RESTORE ASPH PAVING	SY	35
0432 6001	RIPRAP (CONC) (4 IN)	CY	0.2
0529 6002	CONC CURB (TY II)	LF	15
0530 6004	DRIVEWAYS (CONC)	SY	249
0531 6001	CONC SIDEWALKS (4")	SY	116
0531 6010	CURB RAMPS (TY 7)	EA	2



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6/3/2024

Kimley»Horn F-928

Texas Department of Transportation

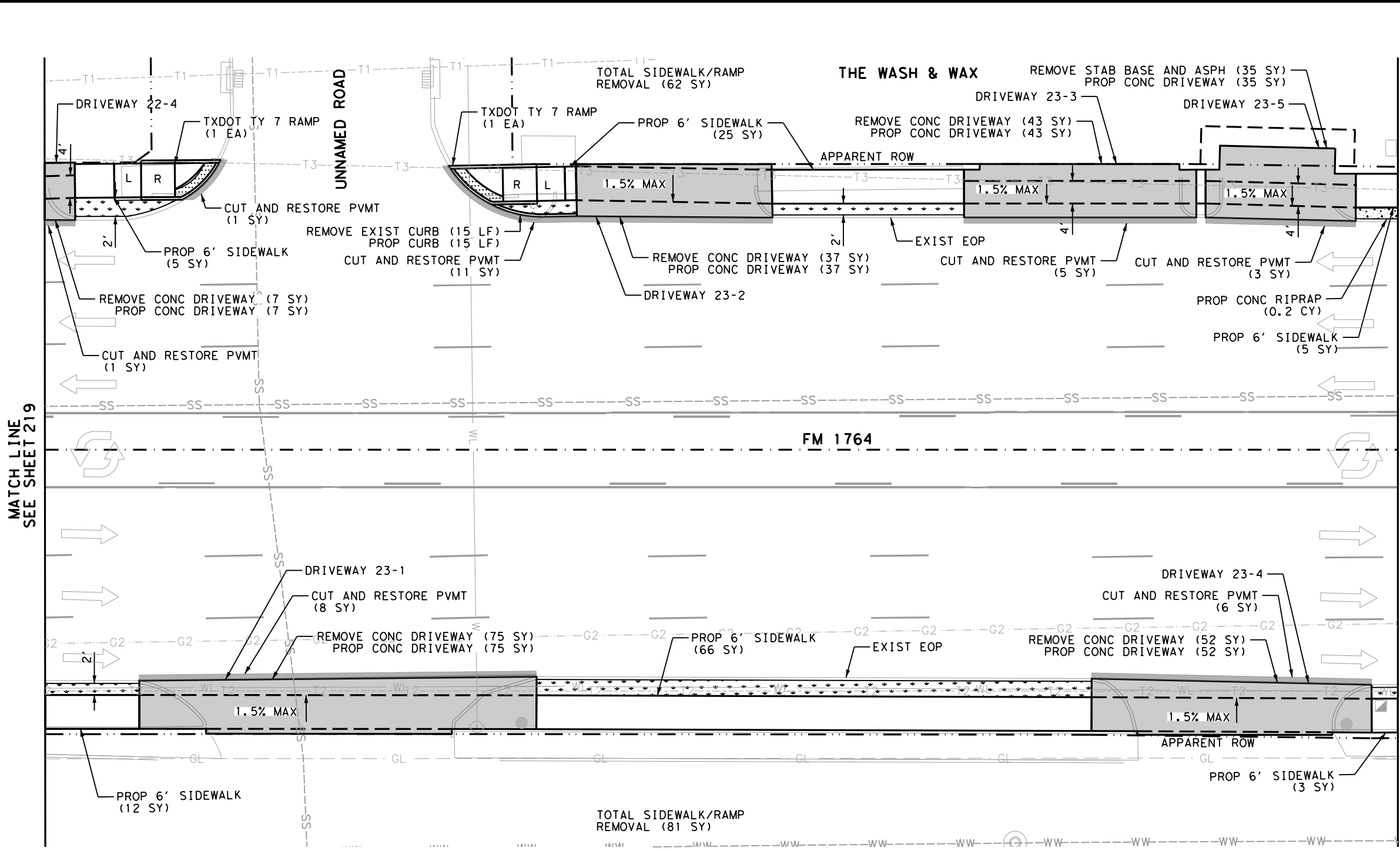
CURB RAMP PROGRAM

**FM 1764
BETWEEN 29TH ST
AND 27TH ST**

TEXAS CITY, TEXAS

SHEET 23 OF 52

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	SHEET NO.
		FM 1764	
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	220
CONT.	SECT.	JOB	
1607	01	057, ETC.	

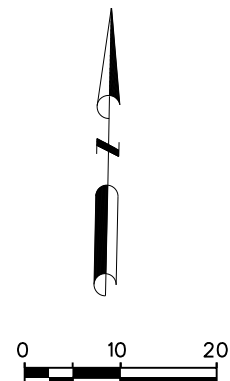
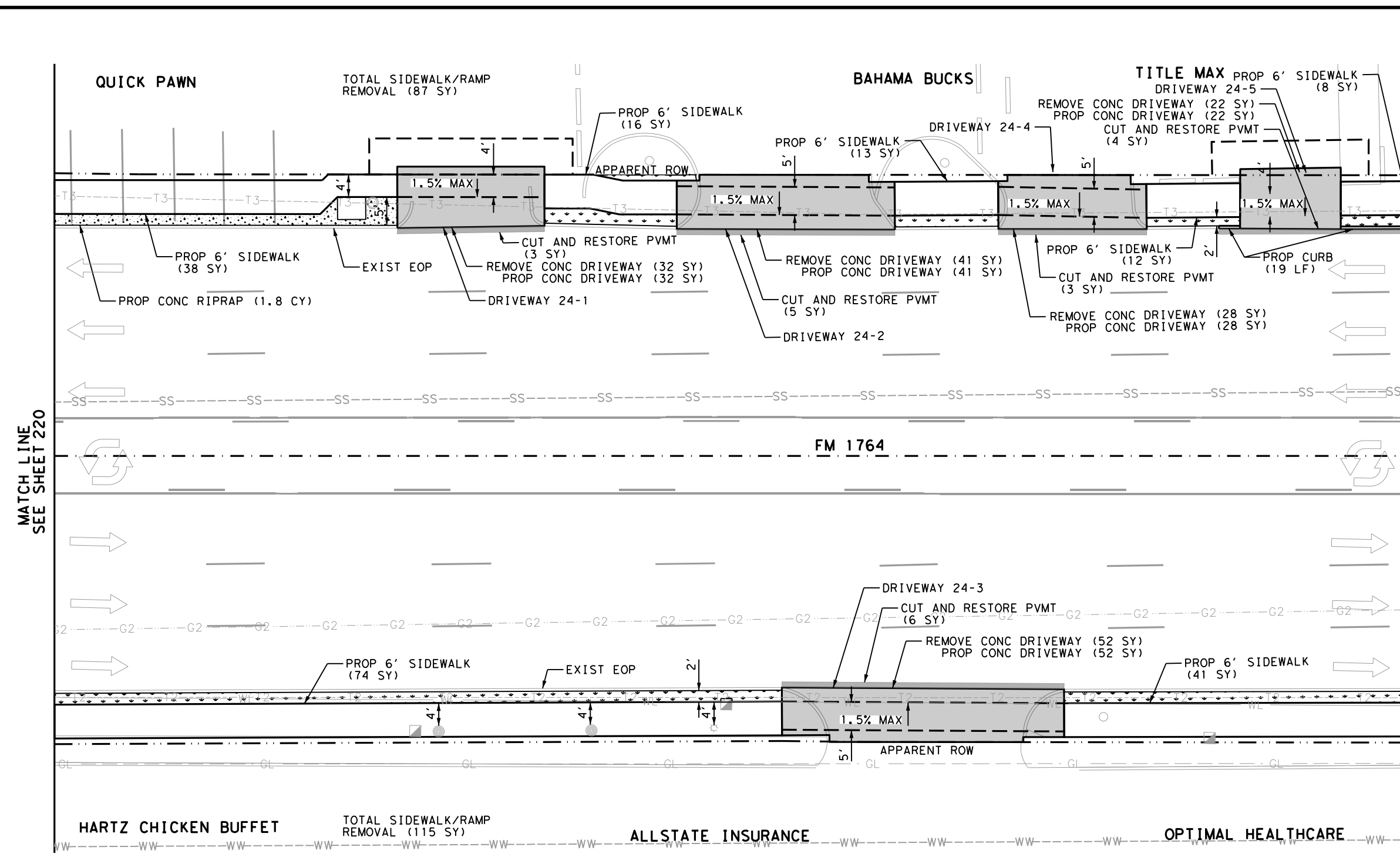


SPECIAL NOTES & DETAILS

LEGEND	
~ DRAINAGE FLOW ARROW	☆ LIGHT POLE
-x- FENCE	□ MAIL BOX
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■ GROUND BOX	R RAMP
L LANDING	▨ RIPRAP (CONC)
L1 LANDING (COMMON)	○ SIGN
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← GUY WIRE	T TRANSITION
— GUARD FENCE/RAIL	□ MISCELLANEOUS STRUC
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	⊗ TRAFFIC SIGNAL POLE
	○ TREE/BUSHES
	⊗ WATER METER/VALVE
	⊕ GUTTER LINE PROJECTION
	▨ GRATE INLET
	● PROPOSED PEDESTAL POLE
	— PROPOSED CONDUIT
	— EXISTING CONDUIT

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SHEET #	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	175
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	202
0162 6002	BLOCK SODDING	SY	60
0400 6008	CUT & RESTORE ASPH PAVING	SY	21
0432 6001	RIPRAP (CONC) (4 IN)	CY	1.8
0529 6002	CONC CURB (TY II)	LF	19
0530 6004	DRIVEWAYS (CONC)	SY	175
0531 6001	CONC SIDEWALKS (4")	SY	202



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Signature: *ALD*
 6/3/2024
 STATE OF TEXAS
 SAMUEL J. LUNDQUIST
 122185
 LICENSED PROFESSIONAL ENGINEER

Kimley»Horn
 F-928

Texas Department of Transportation

CURB RAMP PROGRAM

**FM 1764
 BETWEEN 29TH ST
 AND 27TH ST**

TEXAS CITY, TEXAS

SHEET 24 OF 52

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
		FM 1764
STATE	DIST.	COUNTY
TEXAS	HOUSTON	GALVESTON
CONT.	SECT.	JOB
1607	01	057, ETC.

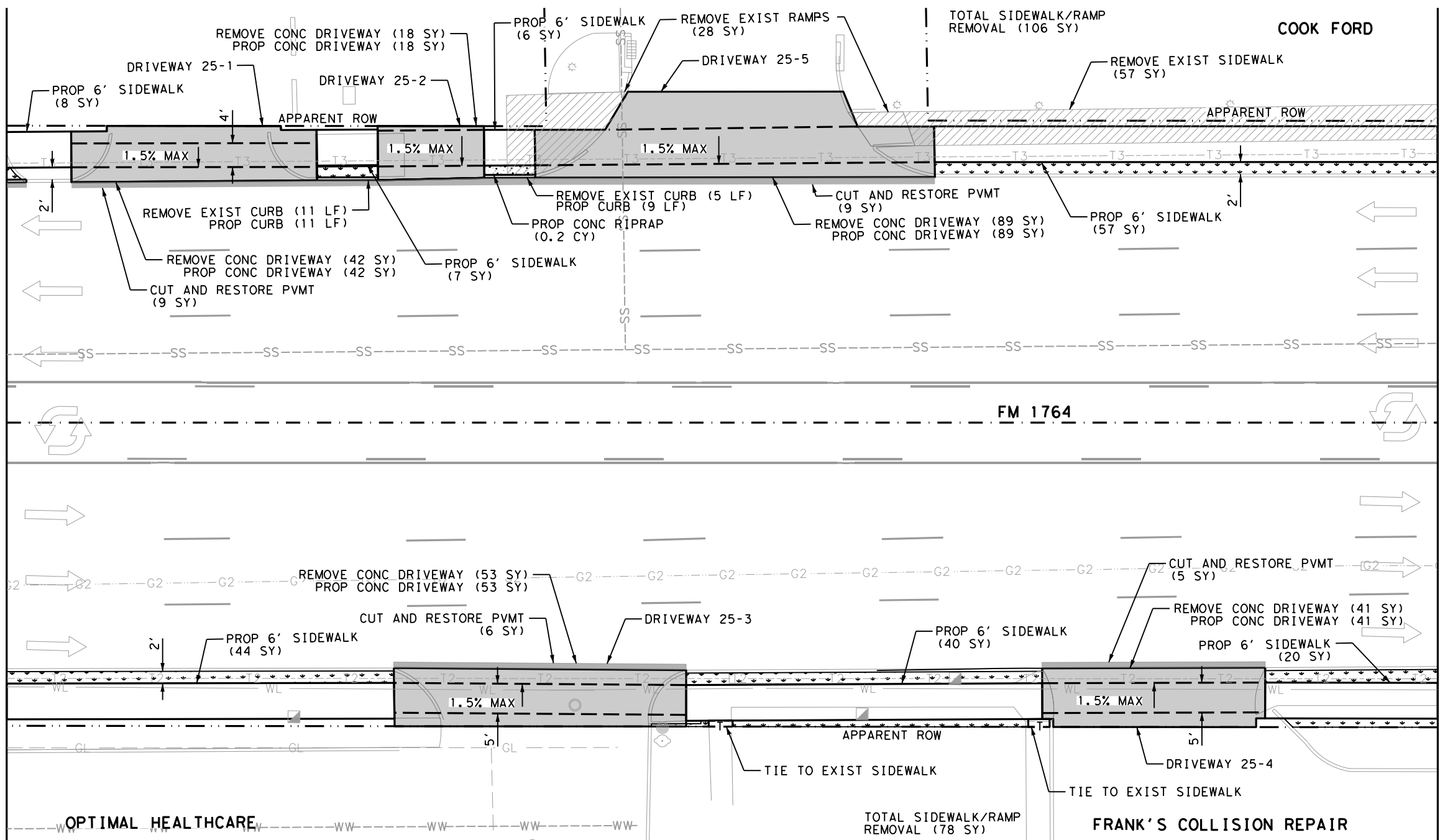
SHEET NO. 221

SPECIAL NOTES & DETAILS

- LEGEND**
- ~ DRAINAGE FLOW ARROW
 - X - FENCE
 - F FLARE
 - ⊕ FIRE HYDRANT
 - ⊗ GAS METER/VALVE
 - ▣ GROUND BOX
 - L LANDING
 - L1 LANDING (COMMON)
 - LS LEVEL SIDEWALK (2% MAX)
 - ← GUY WIRE
 - GUARD FENCE/RAIL
 - - - TEMPORARY CONSTRUCTION LICENSE
 - ☆ LIGHT POLE
 - MAIL BOX
 - MANHOLE
 - PEDESTAL SIGNAL POLE
 - POWER/UTILITY POLE
 - R RAMP
 - ▨ RIPRAP (CONC)
 - SIGN
 - ▣ SODDING
 - T TRANSITION
 - MISCELLANEOUS STRUC
 - ▨ SIDEWALK/RAMP REMOVAL
 - SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%
 - TRAFFIC FLOW
 - ▣ TRAFFIC SIGNAL BOX
 - ▣ TRAFFIC SIGNAL CONTROLLER
 - ⊗ TRAFFIC SIGNAL POLE
 - TREE/BUSHES
 - ⊗ WATER METER/VALVE
 - ⊕ GUTTER LINE PROJECTION
 - ▣ GRATE INLET
 - PROPOSED PEDESTAL POLE
 - PROPOSED CONDUIT
 - EXISTING CONDUIT

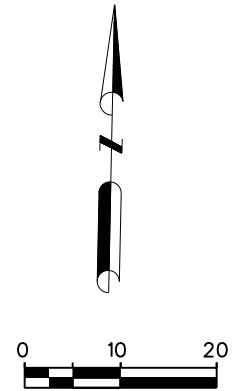
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SHEET #	ITEM	DESCRIPTION	UNIT	QTY	25
0104	6017	REMOVING CONC (DRIVEWAYS)	SY	243	
0104	6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	16	
0104	6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	184	
0162	6002	BLOCK SODDING	SY	138	
0400	6008	CUT & RESTORE ASPH PAVING	SY	29	
0432	6001	RIPRAP (CONC) (4 IN)	CY	0.2	
0529	6002	CONC CURB (TY II)	LF	20	
0530	6004	DRIVEWAYS (CONC)	SY	243	
0531	6001	CONC SIDEWALKS (4")	SY	182	



MATCH LINE SEE SHEET 221

MATCH LINE SEE SHEET 223



- NOTES:
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6/3/2024

Kimley»Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

FM 1764 AT 27TH ST

TEXAS CITY, TEXAS

SHEET 25 OF 52

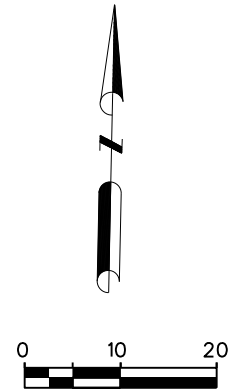
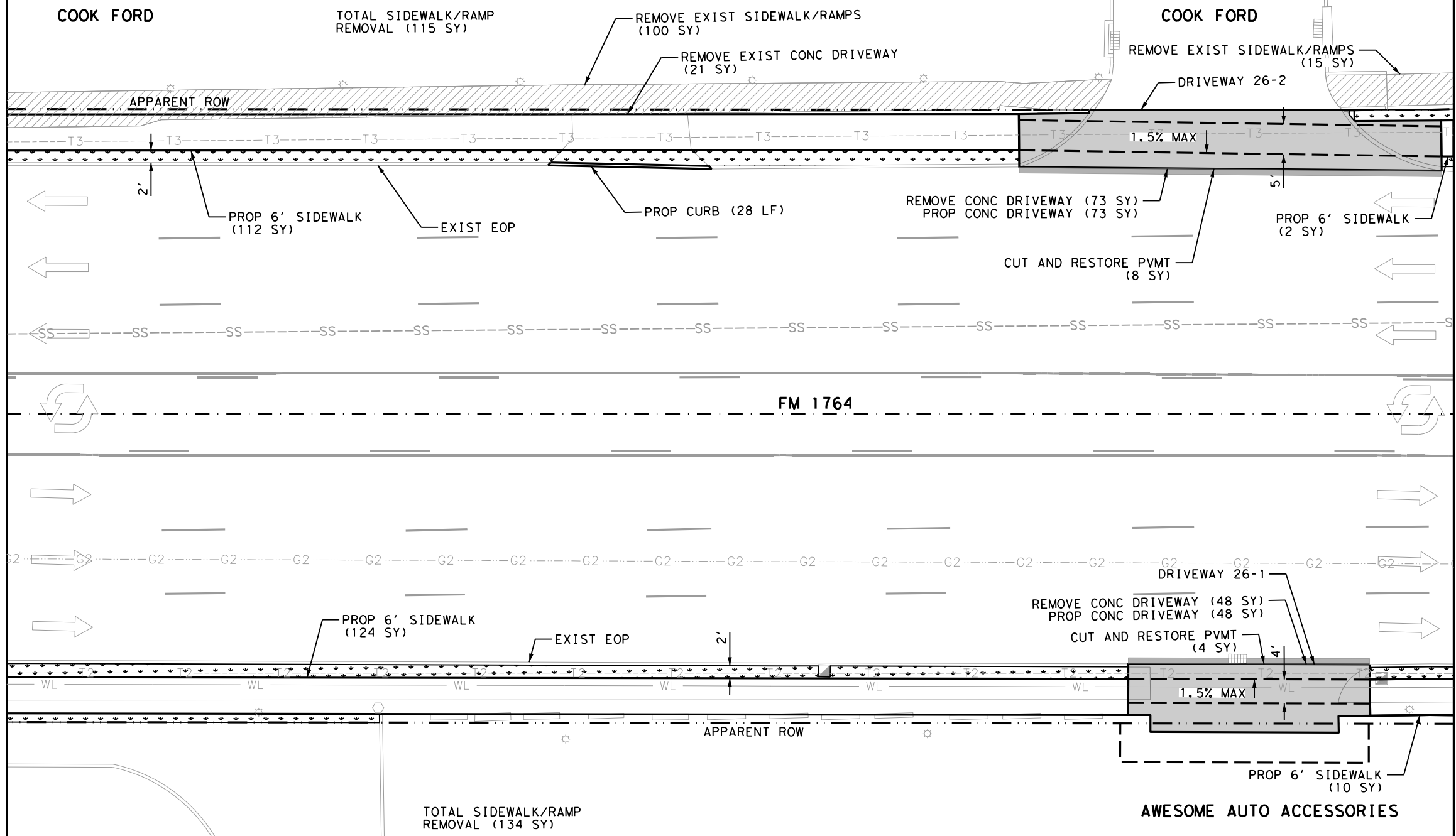
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		FM 1764	222
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	
CONT.	SECT.	JOB	
1607	01	057, ETC.	

SPECIAL NOTES & DETAILS

- LEGEND**
- ~ DRAINAGE FLOW ARROW
 - X- FENCE
 - F FLARE
 - ⊕ FIRE HYDRANT
 - ⊗ GAS METER/VALVE
 - ▣ GROUND BOX
 - L LANDING
 - L1 LANDING (COMMON)
 - LS LEVEL SIDEWALK (2% MAX)
 - ← GUY WIRE
 - GUARD FENCE/RAIL
 - - - TEMPORARY CONSTRUCTION LICENSE
 - ☆ LIGHT POLE
 - MAIL BOX
 - MANHOLE
 - ⊙ PEDESTAL SIGNAL POLE
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 - R RAMP
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 - ⊗ TRAFFIC SIGNAL POLE
 - TREE/BUSHES
 - ⊙ WATER METER/VALVE
 - ⊕ GUTTER LINE PROJECTION
 - ▣ GRATE INLET
 - ⊙ PROPOSED PEDESTAL POLE
 - PROPOSED CONDUIT
 - EXISTING CONDUIT

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SHEET #	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	142
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	249
0162 6002	BLOCK SODDING	SY	211
0400 6008	CUT & RESTORE ASPH PAVING	SY	12
0529 6002	CONC CURB (TY II)	LF	28
0530 6004	DRIVEWAYS (CONC)	SY	121
0531 6001	CONC SIDEWALKS (4")	SY	248



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Signature: *ALD*
 6/3/2024
 STATE OF TEXAS
 SAMUEL J. LUNDQUIST
 122185
 LICENSED PROFESSIONAL ENGINEER

Kimley»Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

**FM 1764
 BETWEEN 27TH ST
 AND 25TH ST**

TEXAS CITY, TEXAS

SHEET 26 OF 52

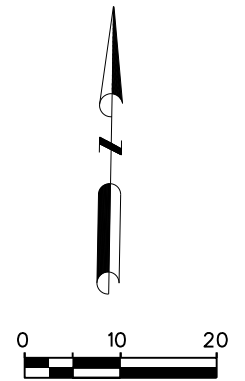
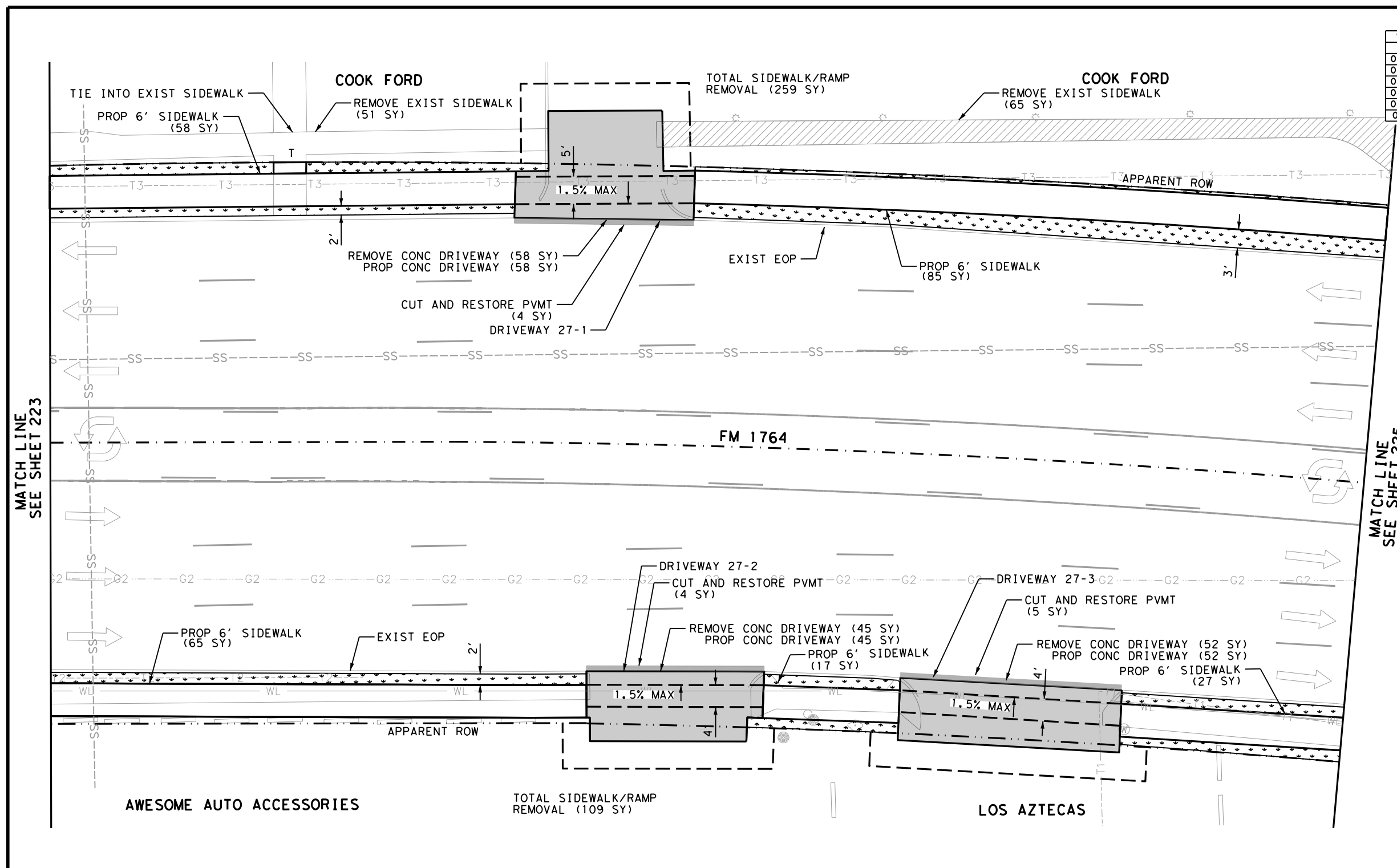
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	SHEET NO.
		FM 1764	
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	223
CONT.	SECT.	JOB	
1607	01	057, ETC.	

SPECIAL NOTES & DETAILS



- LEGEND**
- ~ DRAINAGE FLOW ARROW
 - X - FENCE
 - F FLARE
 - ⊕ FIRE HYDRANT
 - ⊗ GAS METER/VALVE
 - ▣ GROUND BOX
 - L LANDING
 - L1 LANDING (COMMON)
 - LS LEVEL SIDEWALK (2% MAX)
 - ← GUY WIRE
 - GUARD FENCE/RAIL
 - - - TEMPORARY CONSTRUCTION LICENSE
 - ☆ LIGHT POLE
 - MAIL BOX
 - MANHOLE
 - PEDESTAL SIGNAL POLE
 - POWER/UTILITY POLE
 - R RAMP
 - ▨ RIPRAP (CONC)
 - SIGN
 - ▣ SODDING
 - T TRANSITION
 - MISCELLANEOUS STRUC
 - ▨ SIDEWALK/RAMP REMOVAL
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 - ▣ TRAFFIC SIGNAL CONTROLLER
 - ⊗ TRAFFIC SIGNAL POLE
 - TREE/BUSHES
 - ⊗ WATER METER/VALVE
 - ⊕ GUTTER LINE PROJECTION
 - ▣ GRATE INLET
 - PROPOSED PEDESTAL POLE
 - PROPOSED CONDUIT
 - - - EXISTING CONDUIT

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SHEET #	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	155
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	368
0162 6002	BLOCK SODDING	SY	241
0400 6008	CUT & RESTORE ASPH PAVING	SY	13
0530 6004	DRIVEWAYS (CONC)	SY	155
0531 6001	CONC SIDEWALKS (4")	SY	252



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 6/3/2024


Kimley»Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

**FM 1764
BETWEEN 27TH ST
AND 25TH ST**

TEXAS CITY, TEXAS

SHEET 27 OF 52

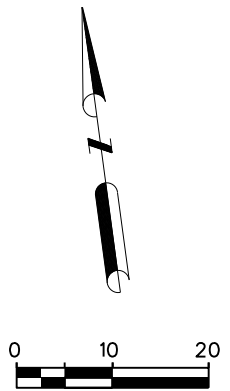
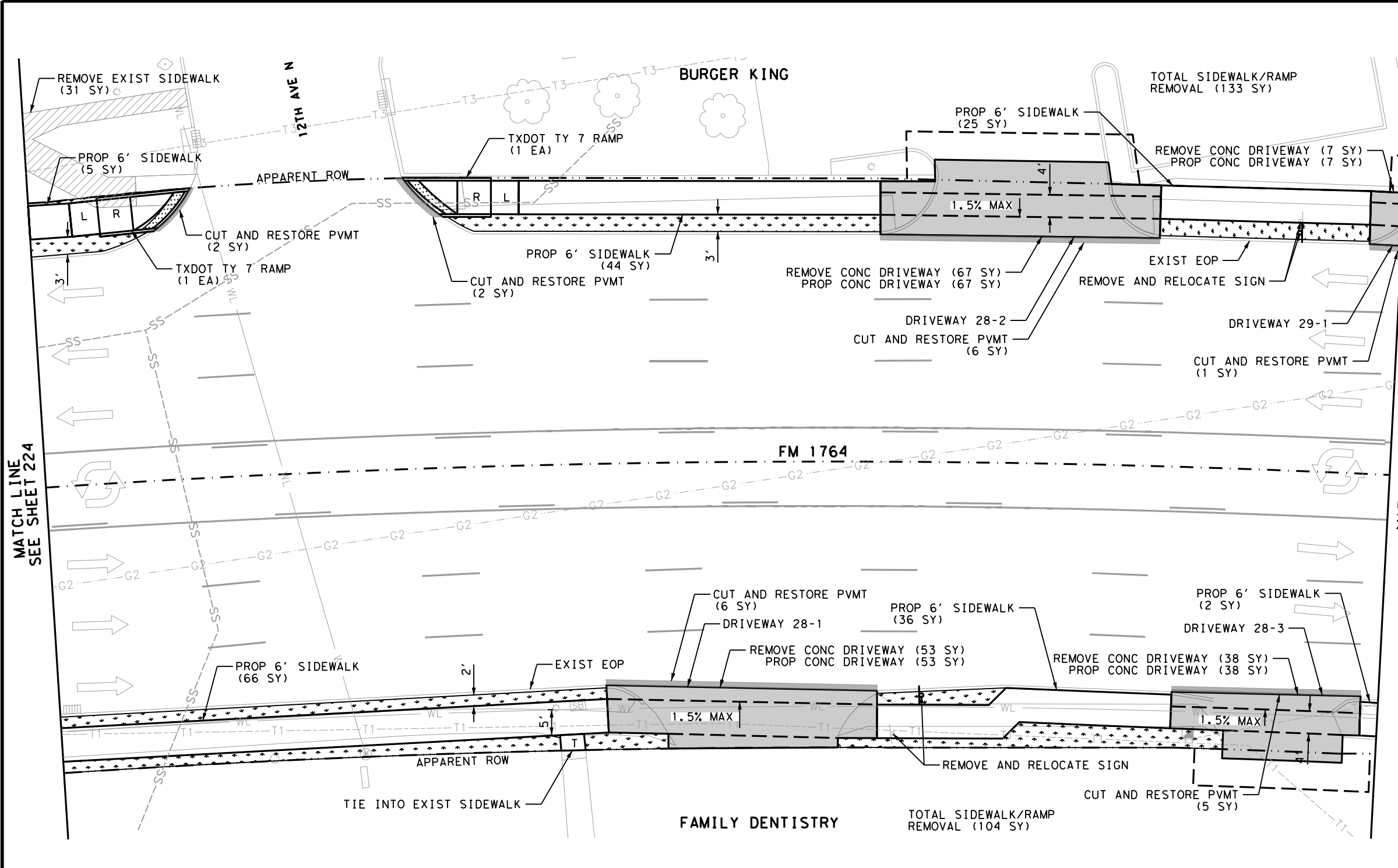
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		FM 1764	
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	224
CONT.	SECT.	JOB	
1607	01	057, ETC.	

SPECIAL NOTES & DETAILS

- LEGEND**
- ~ DRAINAGE FLOW ARROW
 - x- FENCE
 - F FLARE
 - ⊕ FIRE HYDRANT
 - ⊗ GAS METER/VALVE
 - ▣ GROUND BOX
 - L LANDING
 - L1 LANDING (COMMON)
 - LS LEVEL SIDEWALK (2% MAX)
 - ← GUY WIRE
 - GUARD FENCE/RAIL
 - - - TEMPORARY CONSTRUCTION LICENSE
 - ☆ LIGHT POLE
 - MAIL BOX
 - MANHOLE
 - PEDESTAL SIGNAL POLE
 - POWER/UTILITY POLE
 - R RAMP
 - ▨ RIPRAP (CONC)
 - SIGN
 - ▣ SODDING
 - T TRANSITION
 - MISCELLANEOUS STRUC
 - ▨ SIDEWALK/RAMP REMOVAL
 - SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%
 - TRAFFIC FLOW
 - ▣ TRAFFIC SIGNAL BOX
 - ▣ TRAFFIC SIGNAL CONTROLLER
 - ⊗ TRAFFIC SIGNAL POLE
 - TREE/BUSHES
 - ⊗ WATER METER/VALVE
 - ⊕ GUTTER LINE PROJECTION
 - ▣ GRATE INLET
 - PROPOSED PEDESTAL POLE
 - PROPOSED CONDUIT
 - - - EXISTING CONDUIT

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SHEET #	DESCRIPTION	UNIT	QTY	28
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	165	
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	237	
0162 6002	BLOCK SODDING	SY	147	
0400 6008	CUT & RESTORE ASPH PAVING	SY	22	
0530 6004	DRIVEWAYS (CONC)	SY	165	
0531 6001	CONC SIDEWALKS (4")	SY	178	
0531 6010	CURB RAMPS (TY 7)	EA	2	
0644 6068	RELOCATE SM RD SN SUP&M TY 10BWG	EA	2	



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6/3/2024



Kimley»Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

**FM 1764
BETWEEN 12TH AVE
AND 25TH ST**

TEXAS CITY, TEXAS

SHEET 28 OF 52

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	SHEET NO.
		FM 1764	
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	225
CONT.	SECT.	JOB	
1607	01	057, ETC.	

SPECIAL NOTES & DETAILS

LEGEND	
~> DRAINAGE FLOW ARROW	⊛ LIGHT POLE
-X- FENCE	□ MAIL BOX
F FLARE	○ MANHOLE
⊙ FIRE HYDRANT	⊙ PEDESTAL SIGNAL POLE
⊕ GAS METER/VALVE	● POWER/UTILITY POLE
▣ GROUND BOX	R RAMP
L LANDING	▣ RIPRAP (CONC)
L1 LANDING (COMMON)	⊙ SIGN
LS LEVEL SIDEWALK (2% MAX)	⊙ SODDING
← GUY WIRE	T TRANSITION
— GUARD FENCE/RAIL	□ MISCELLANEOUS STRUC
- - - TEMPORARY CONSTRUCTION LICENSE	▨ SIDEWALK/RAMP REMOVAL
	SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%
	⇒ TRAFFIC FLOW
	⊠ TRAFFIC SIGNAL BOX
	⊠ TRAFFIC SIGNAL CONTROLLER
	⊙ TRAFFIC SIGNAL POLE
	○ TREE/BUSHES
	⊕ WATER METER/VALVE
	⊕ GUTTER LINE PROJECTION
	▣ GRATE INLET
	⊙ PROPOSED PEDESTAL POLE
	— PROPOSED CONDUIT
	— EXISTING CONDUIT

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SHEET #	ITEM	DESCRIPTION	UNIT	QTY	29
0104	6017	REMOVING CONC (DRIVEWAYS)	SY	49	
0104	6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	16	
0104	6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	275	
0162	6002	BLOCK SODDING	SY	103	
0400	6008	CUT & RESTORE ASPH PAVING	SY	17	
0529	6002	CONC CURB (TY II)	LF	16	
0530	6004	DRIVEWAYS (CONC)	SY	55	
0531	6001	CONC SIDEWALKS (4")	SY	193	
0531	6005	CURB RAMPS (TY 2)	EA	1	
0531	6006	CURB RAMPS (TY 3)	EA	2	
0531	6010	CURB RAMPS (TY 7)	EA	2	
0531	6013	CURB RAMPS (TY 10)	EA	1	
0618	6023	CONDT (PVC) (SCH 40) (2")	LF	30	
0620	6007	ELEC CONDR (NO. 8) BARE	LF	30	
0684	6007	TRF SIG CBL (TY A) (12 AWG) (2 CONDR)	LF	700	
0687	6001	PED POLE ASSEMBLY	EA	2	
0680	6011	INSTALL HWY TRF SIG (UPGRADE)	EA	1	
0688	6001	PED DETECT PUSH BUTTON (APS)	EA	6	
0688	6003	PED DETECTOR CONTROLLER UNIT	EA	1	
0690	6007	REPLACE OF GROUND BOXES	EA	3	
0690	6030	REMOVAL OF PEDESTRIAN PUSH BUTTONS	EA	6	

MATCH LINE SEE SHEET 227



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6/3/2024

Kimley»Horn F-928

Texas Department of Transportation

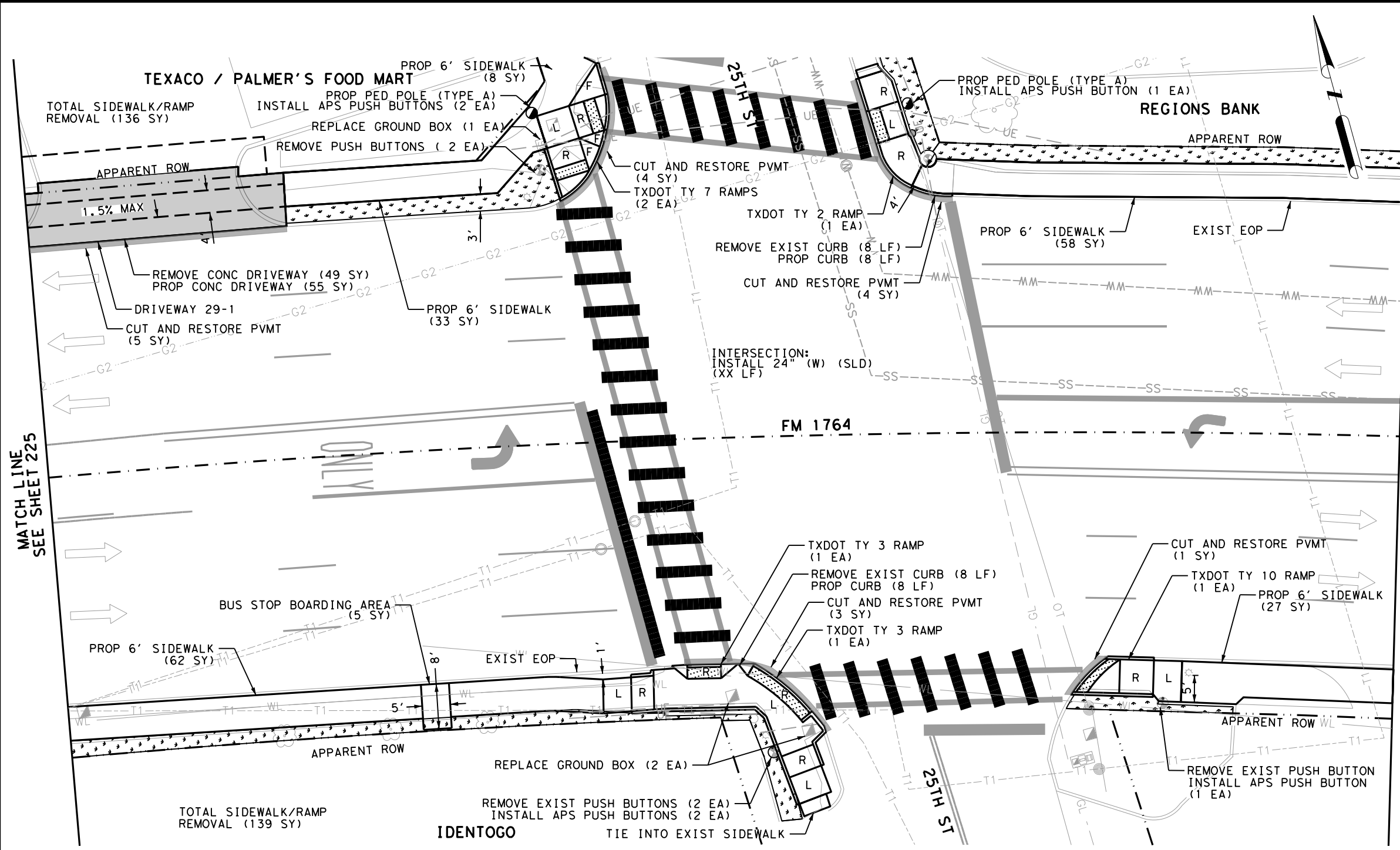
CURB RAMP PROGRAM

FM 1764 AT 25TH ST

TEXAS CITY, TEXAS

SHEET 29 OF 52

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	SHEET NO.
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STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	226
CONT.	SECT.	JOB	
1607	01	057, ETC.	

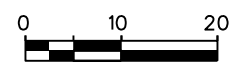
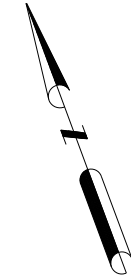
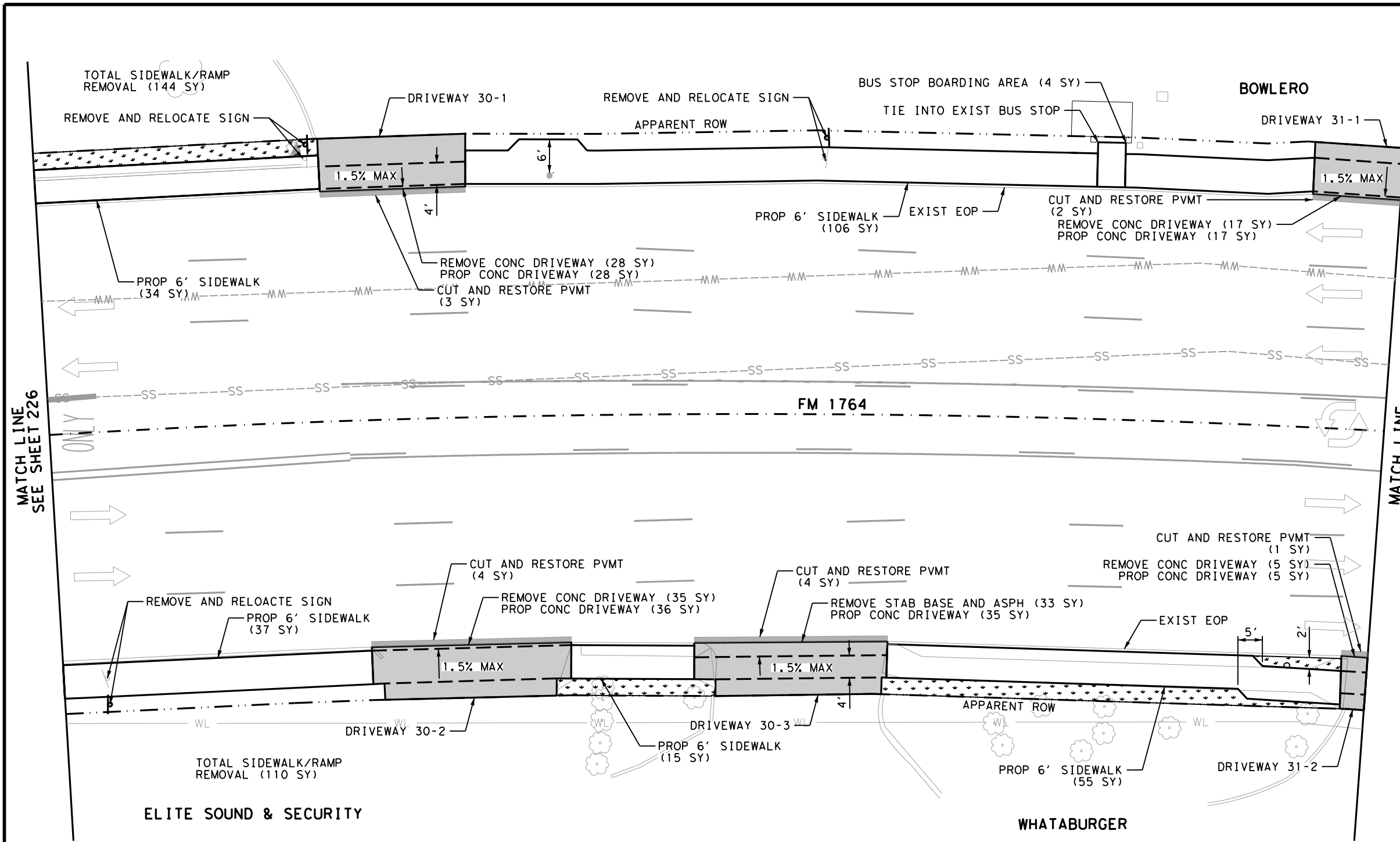


SPECIAL NOTES & DETAILS

LEGEND	
~ DRAINAGE FLOW ARROW	SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%
-X- FENCE	☉ LIGHT POLE
F FLARE	☐ MAIL BOX
⊕ FIRE HYDRANT	⊙ MANHOLE
⊗ GAS METER/VALVE	⊙ PEDESTAL SIGNAL POLE
▣ GROUND BOX	⊙ POWER/UTILITY POLE
L LANDING	R RAMP
L1 LANDING (COMMON)	▣ RIPRAP (CONC)
LS LEVEL SIDEWALK (2% MAX)	⊙ SIGN
← GUY WIRE	☐ SODDING
— GUARD FENCE/RAIL	T TRANSITION
- - - TEMPORARY CONSTRUCTION LICENSE	☐ MISCELLANEOUS STRUC
	▨ SIDEWALK/RAMP REMOVAL
	— PROPOSED CONDUIT
	— EXISTING CONDUIT

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SHEET #	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	85
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	254
0105 6037	REMOVING STAB BASE & ASPH PAV(0"-16")	SY	33
0162 6002	BLOCK SODDING	SY	51
0400 6008	CUT & RESTORE ASPH PAVING	SY	14
0530 6004	DRIVEWAYS (CONC)	SY	121
0531 6001	CONC SIDEWALKS (4")	SY	251
0644 6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	3

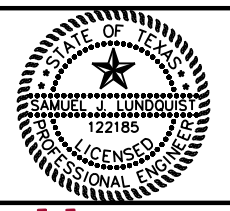


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Signature

6/3/2024



Kimley»Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

**FM 1764
BETWEEN 25TH ST
AND 23RD ST**

TEXAS CITY, TEXAS

SHEET 30 OF 52

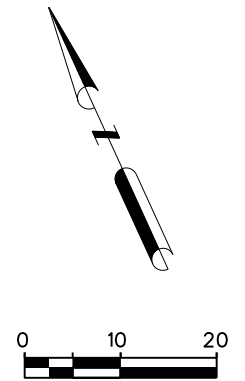
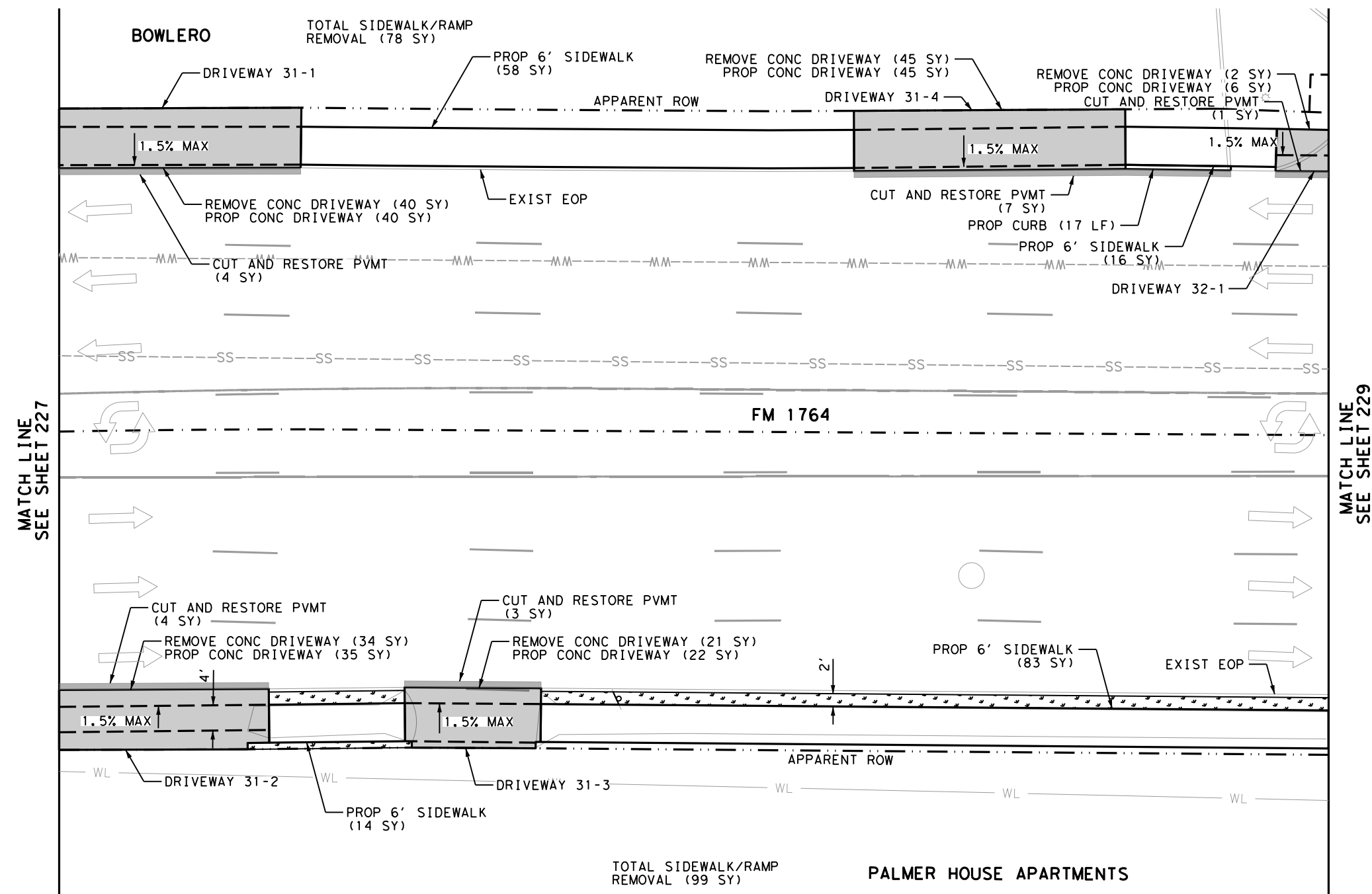
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		FM 1764	227
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	
CONT.	SECT.	JOB	
1607	01	057, ETC.	

SPECIAL NOTES & DETAILS

<ul style="list-style-type: none"> —X— FENCE F FLARE ⊕ FIRE HYDRANT ⊗ GAS METER/VALVE ▣ GROUND BOX L LANDING L1 LANDING (COMMON) LS LEVEL SIDEWALK (2% MAX) ← GUY WIRE — GUARD FENCE/RAIL - - - TEMPORARY CONSTRUCTION LICENSE 	<ul style="list-style-type: none"> — DRAINAGE FLOW ARROW ⊙ LIGHT POLE □ MAIL BOX ○ MANHOLE ⊙ PEDESTAL SIGNAL POLE ● POWER/UTILITY POLE R RAMP ▨ RIPRAP (CONC) — SIGN ☐ SODDING T TRANSITION □ MISCELLANEOUS STRUC ▨ SIDEWALK/RAMP REMOVAL 	<ul style="list-style-type: none"> SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2% → TRAFFIC FLOW ☐ TRAFFIC SIGNAL BOX ☐ TRAFFIC SIGNAL CONTROLLER ⊗ TRAFFIC SIGNAL POLE ○ TREE/BUSHES ⊙ WATER METER/VALVE ⊕ GUTTER LINE PROJECTION ▨ GRATE INLET ⊙ PROPOSED PEDESTAL POLE — PROPOSED CONDUIT — EXISTING CONDUIT
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SHEET #	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	142
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	177
0162 6002	BLOCK SODDING	SY	36
0400 6008	CUT & RESTORE ASPH PAVING	SY	19
0529 6002	CONC CURB (TY II)	LF	17
0530 6004	DRIVEWAYS (CONC)	SY	148
0531 6001	CONC SIDEWALKS (4")	SY	171



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Signature: *ALD*
 6/3/2024
 STATE OF TEXAS
 SAMUEL J. LUNDQUIST
 122185
 LICENSED PROFESSIONAL ENGINEER

Kimley»Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

**FM 1764
 BETWEEN 25TH ST
 AND 23RD ST**

TEXAS CITY, TEXAS

SHEET 31 OF 52

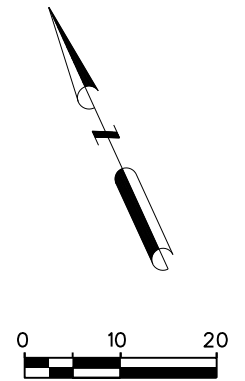
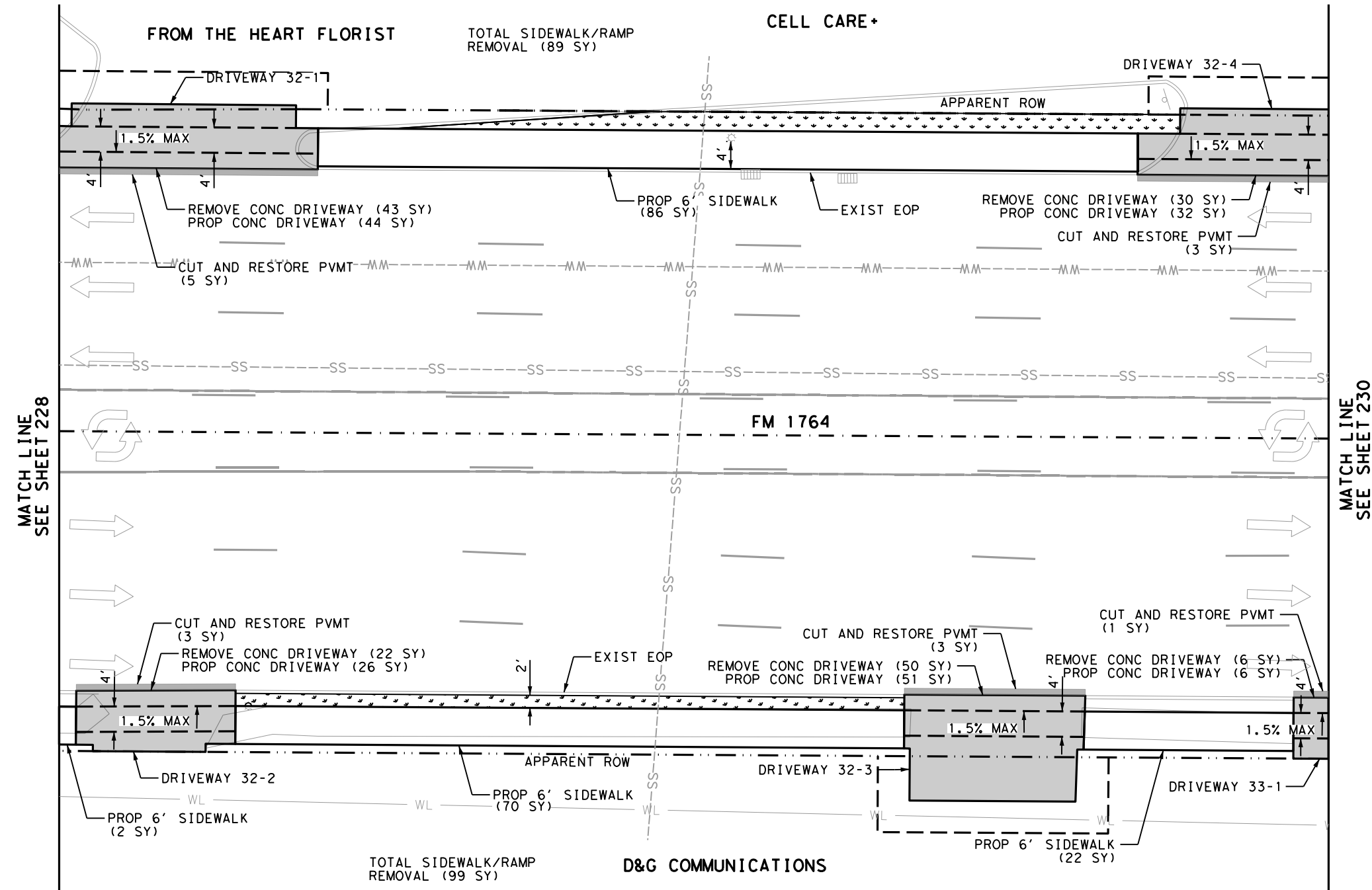
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	SHEET NO.
		FM 1764	
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	228
CONT.	SECT.	JOB	
1607	01	057, ETC.	

SPECIAL NOTES & DETAILS

- LEGEND**
- ~ DRAINAGE FLOW ARROW
 - X - FENCE
 - F FLARE
 - ⊕ FIRE HYDRANT
 - ⊗ GAS METER/VALVE
 - ▣ GROUND BOX
 - L LANDING
 - L1 LANDING (COMMON)
 - LS LEVEL SIDEWALK (2% MAX)
 - ← GUY WIRE
 - GUARD FENCE/RAIL
 - - - TEMPORARY CONSTRUCTION LICENSE
 - ☆ LIGHT POLE
 - MAIL BOX
 - MANHOLE
 - PEDESTAL SIGNAL POLE
 - POWER/UTILITY POLE
 - R RAMP
 - ▨ RIPRAP (CONC)
 - SIGN
 - ▣ SODDING
 - T TRANSITION
 - MISCELLANEOUS STRUC
 - ▨ SIDEWALK/RAMP REMOVAL
 - SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%
 - TRAFFIC FLOW
 - ▣ TRAFFIC SIGNAL BOX
 - ▣ TRAFFIC SIGNAL CONTROLLER
 - ⊗ TRAFFIC SIGNAL POLE
 - TREE/BUSHES
 - ⊗ WATER METER/VALVE
 - ⊕ GUTTER LINE PROJECTION
 - ▣ GRATE INLET
 - PROPOSED PEDESTAL POLE
 - PROPOSED CONDUIT
 - - - EXISTING CONDUIT

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SHEET #	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	151
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	188
0162 6002	BLOCK SODDING	SY	58
0400 6008	CUT & RESTORE ASPH PAVING	SY	15
0530 6004	DRIVEWAYS (CONC)	SY	159
0531 6001	CONC SIDEWALKS (4")	SY	180



- NOTES:
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 - 2. UNLESS OTHERWISE SHOWN, PROPOSED SIGNAL CONDUCTOR SHALL RUN TO CONTROLLER IN EXISTING SIGNAL CONDUIT.

Signature: *ALD*
 6/3/2024
 STATE OF TEXAS
 SAMUEL J. LUNDQUIST
 122185
 LICENSED PROFESSIONAL ENGINEER

Kimley»Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

FM 1764
 BETWEEN 25TH ST
 AND 23RD ST

TEXAS CITY, TEXAS

SHEET 32 OF 52

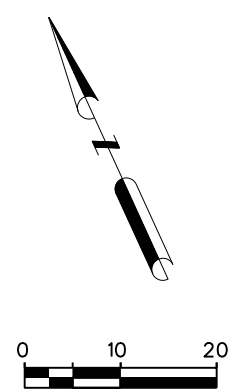
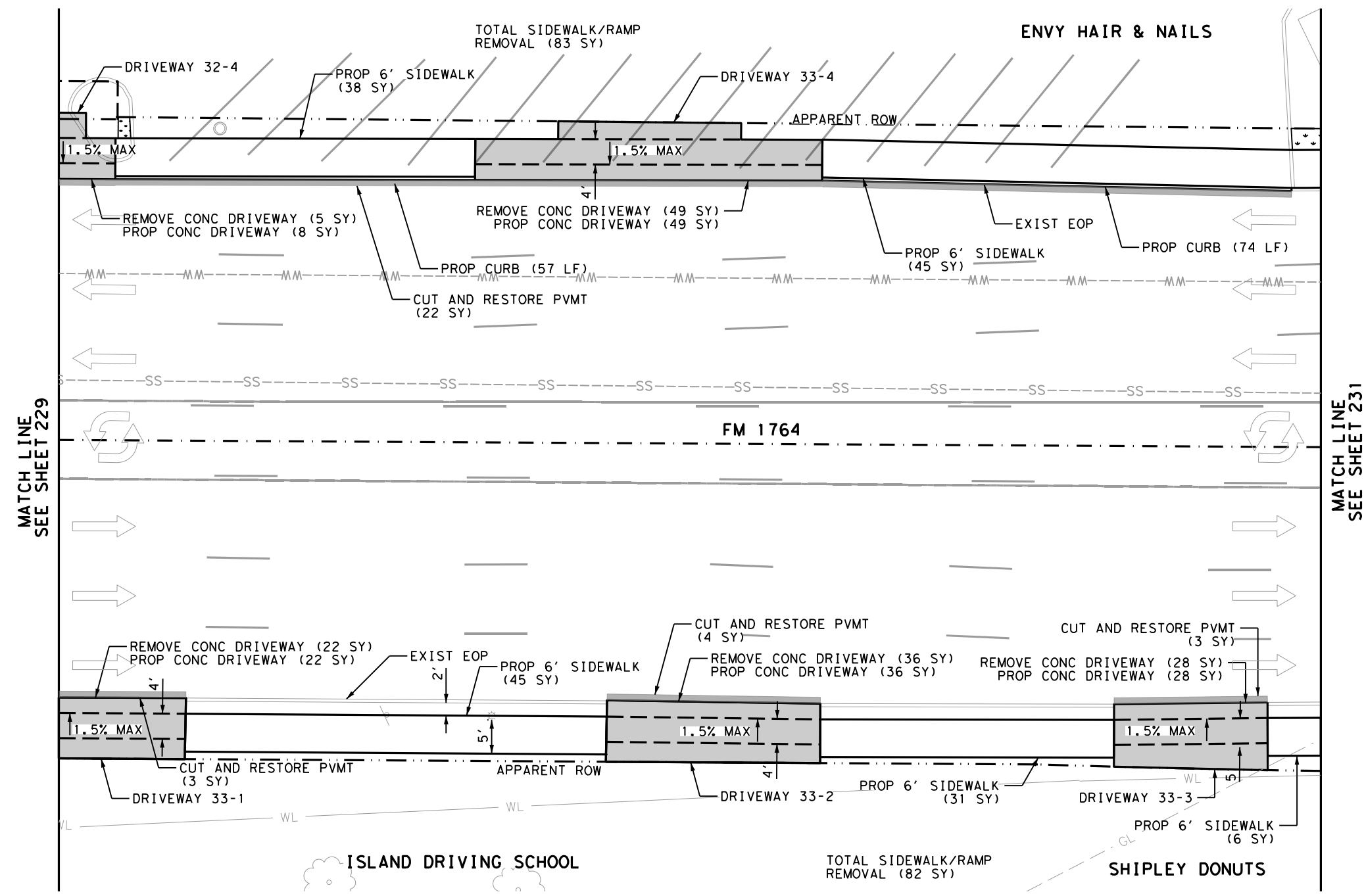
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	SHEET NO.
		FM 1764	
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	229
CONT.	SECT.	JOB	
1607	01	057, ETC.	

SPECIAL NOTES & DETAILS

- LEGEND**
- ~ DRAINAGE FLOW ARROW
 - X - FENCE
 - F FLARE
 - ⊕ FIRE HYDRANT
 - ⊗ GAS METER/VALVE
 - ▣ GROUND BOX
 - L LANDING
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 - LS LEVEL SIDEWALK (2% MAX)
 - ← GUY WIRE
 - GUARD FENCE/RAIL
 - - - TEMPORARY CONSTRUCTION LICENSE
 - ☆ LIGHT POLE
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 - MANHOLE
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 - POWER/UTILITY POLE
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 - ⊗ WATER METER/VALVE
 - ⊕ GUTTER LINE PROJECTION
 - ▣ GRATE INLET
 - PROPOSED PEDESTAL POLE
 - PROPOSED CONDUIT
 - - - EXISTING CONDUIT

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SHEET #	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	140
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	165
0162 6002	BLOCK SODDING	SY	5
0400 6008	CUT & RESTORE ASPH PAVING	SY	32
0529 6002	CONC CURB (TY II)	LF	131
0530 6004	DRIVEWAYS (CONC)	SY	143
0531 6001	CONC SIDEWALKS (4")	SY	165



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 6/3/2024
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 122185
 LICENSED PROFESSIONAL ENGINEER

Kimley»Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

**FM 1764
 BETWEEN 25TH ST
 AND 23RD ST**

TEXAS CITY, TEXAS

SHEET 33 OF 52

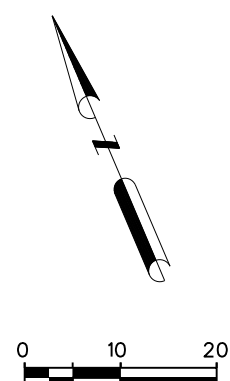
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	FM 1764		230
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	
CONT.	SECT.	JOB	
1607	01	057, ETC.	

SPECIAL NOTES & DETAILS

- LEGEND**
- ~ DRAINAGE FLOW ARROW
 - X - FENCE
 - F FLARE
 - ⊕ FIRE HYDRANT
 - ⊗ GAS METER/VALVE
 - ▣ GROUND BOX
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 - ← GUY WIRE
 - GUARD FENCE/RAIL
 - - - TEMPORARY CONSTRUCTION LICENSE
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 - POWER/UTILITY POLE
 - R RAMP
 - ▨ RIPRAP (CONC)
 - SIGN
 - ☐ SODDING
 - T TRANSITION
 - MISCELLANEOUS STRUC
 - ▨ SIDEWALK/RAMP REMOVAL
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 - ☐ TRAFFIC SIGNAL CONTROLLER
 - ⊗ TRAFFIC SIGNAL POLE
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 - ⊗ WATER METER/VALVE
 - ⊕ GUTTER LINE PROJECTION
 - ▨ GRATE INLET
 - PROPOSED PEDESTAL POLE
 - PROPOSED CONDUIT
 - - - EXISTING CONDUIT

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SHEET #	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	48
0104 6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	20
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	191
0105 6037	REMOVING STAB BASE & ASPH PAV(0"-16")	SY	154
0162 6002	BLOCK SODDING	SY	21
0400 6008	CUT & RESTORE ASPH PAVING	SY	23
0432 6001	RIPRAP (CONC) (4 IN)	CY	0.6
0529 6002	CONC CURB (TY I)	LF	20
0530 6004	DRIVEWAYS (CONC)	SY	207
0531 6001	CONC SIDEWALKS (4")	SY	160
0531 6005	CURB RAMPS (TY 2)	EA	1
0531 6010	CURB RAMPS (TY 7)	EA	1



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Signature: *ALD*
 6/3/2024

Kimley»Horn F-928

Texas Department of Transportation

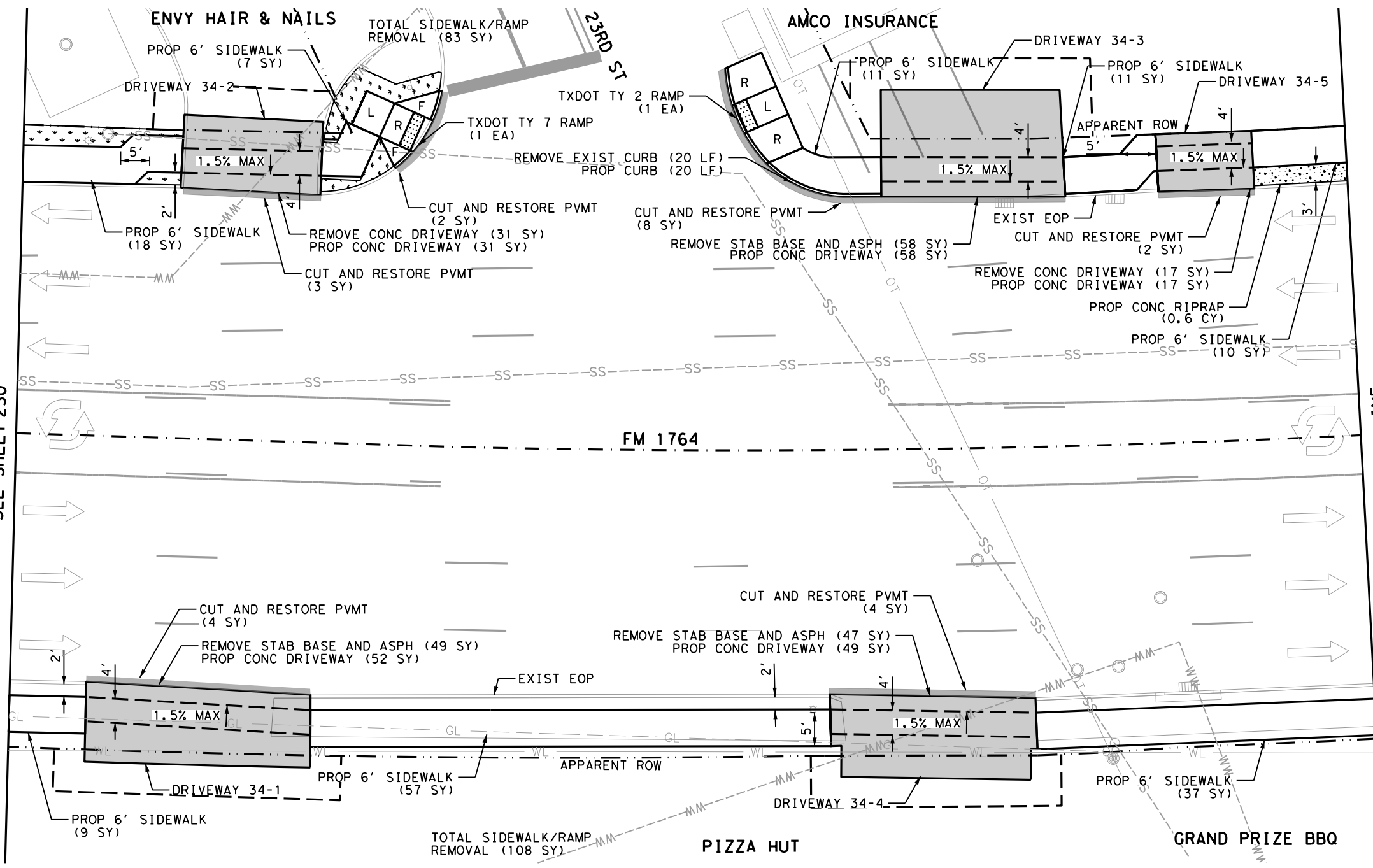
CURB RAMP PROGRAM

**FM 1764
AT 23RD ST**

TEXAS CITY, TEXAS

SHEET 34 OF 52

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
		FM 1764
STATE	DIST.	COUNTY
TEXAS	HOUSTON	GALVESTON
CONT.	SECT.	JOB
1607	01	057, ETC.
SHEET NO. 231		

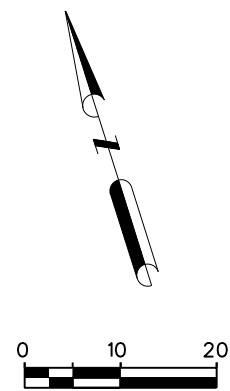
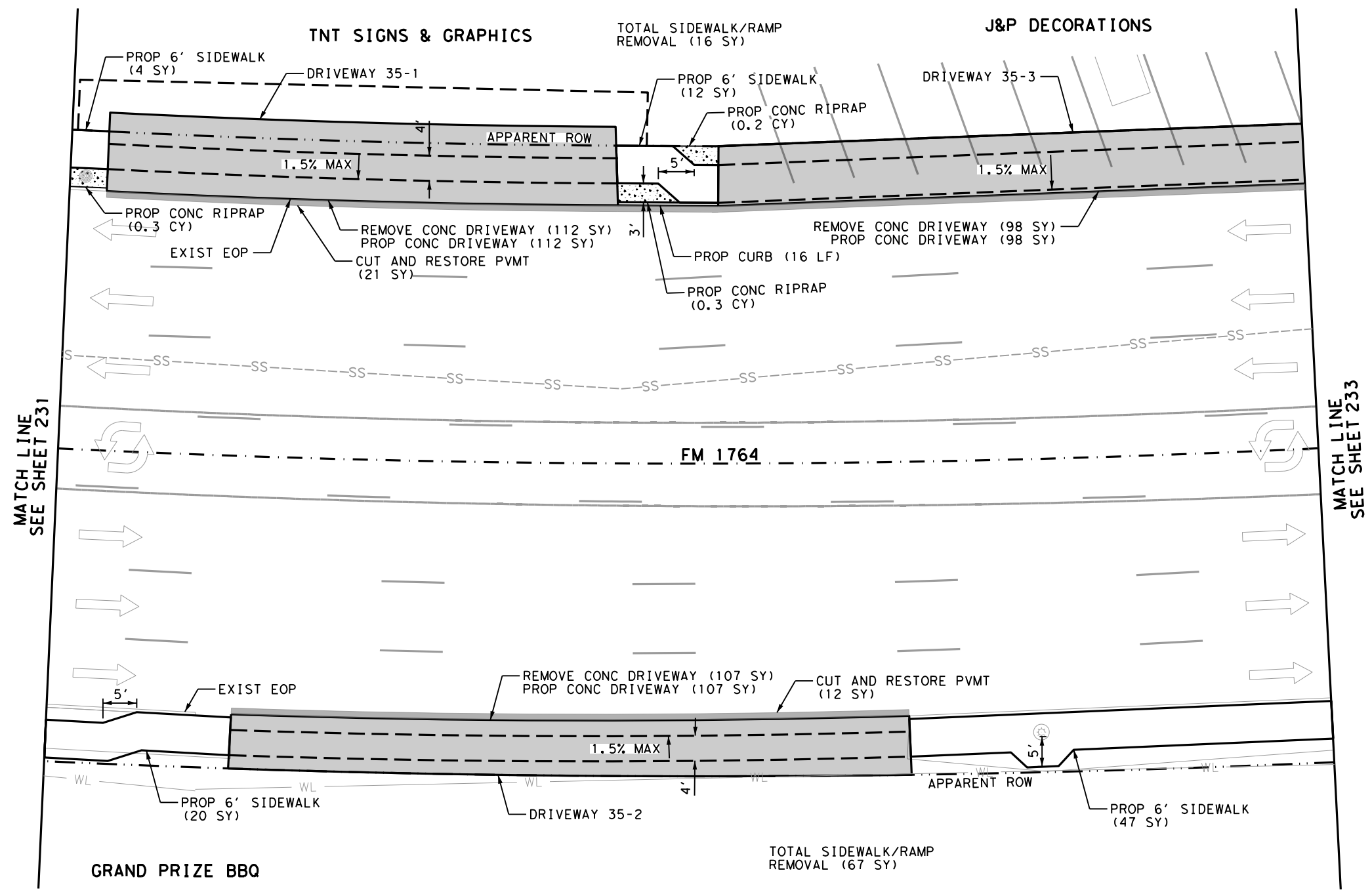


SPECIAL NOTES & DETAILS

- LEGEND**
- ~ DRAINAGE FLOW ARROW
 - X- FENCE
 - F FLARE
 - ⊕ FIRE HYDRANT
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 - - - TEMPORARY CONSTRUCTION LICENSE
 - ⊙ LIGHT POLE
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 - ⊙ TRAFFIC SIGNAL POLE
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 - ⊙ WATER METER/VALVE
 - ⊙ GUTTER LINE PROJECTION
 - ▨ GRATE INLET
 - ⊙ PROPOSED PEDESTAL POLE
 - PROPOSED CONDUIT
 - EXISTING CONDUIT

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SHEET #	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	317
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	83
0400 6008	CUT & RESTORE ASPH PAVING	SY	33
0432 6001	RIPRAP (CONC) (4 IN)	CY	0.8
0529 6002	CONC CURB (TY II)	LF	16
0530 6004	DRIVEWAYS (CONC)	SY	317
0531 6001	CONC SIDEWALKS (4")	SY	83



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Signature: *ALD*
 6/3/2024
 STATE OF TEXAS
 SAMUEL J. LUNDQUIST
 122185
 LICENSED PROFESSIONAL ENGINEER

Kimley»Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

**FM 1764
 BETWEEN 23RD ST
 AND 22ND ST**

TEXAS CITY, TEXAS

SHEET 35 OF 52

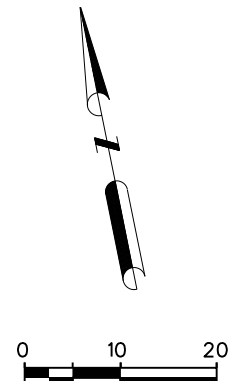
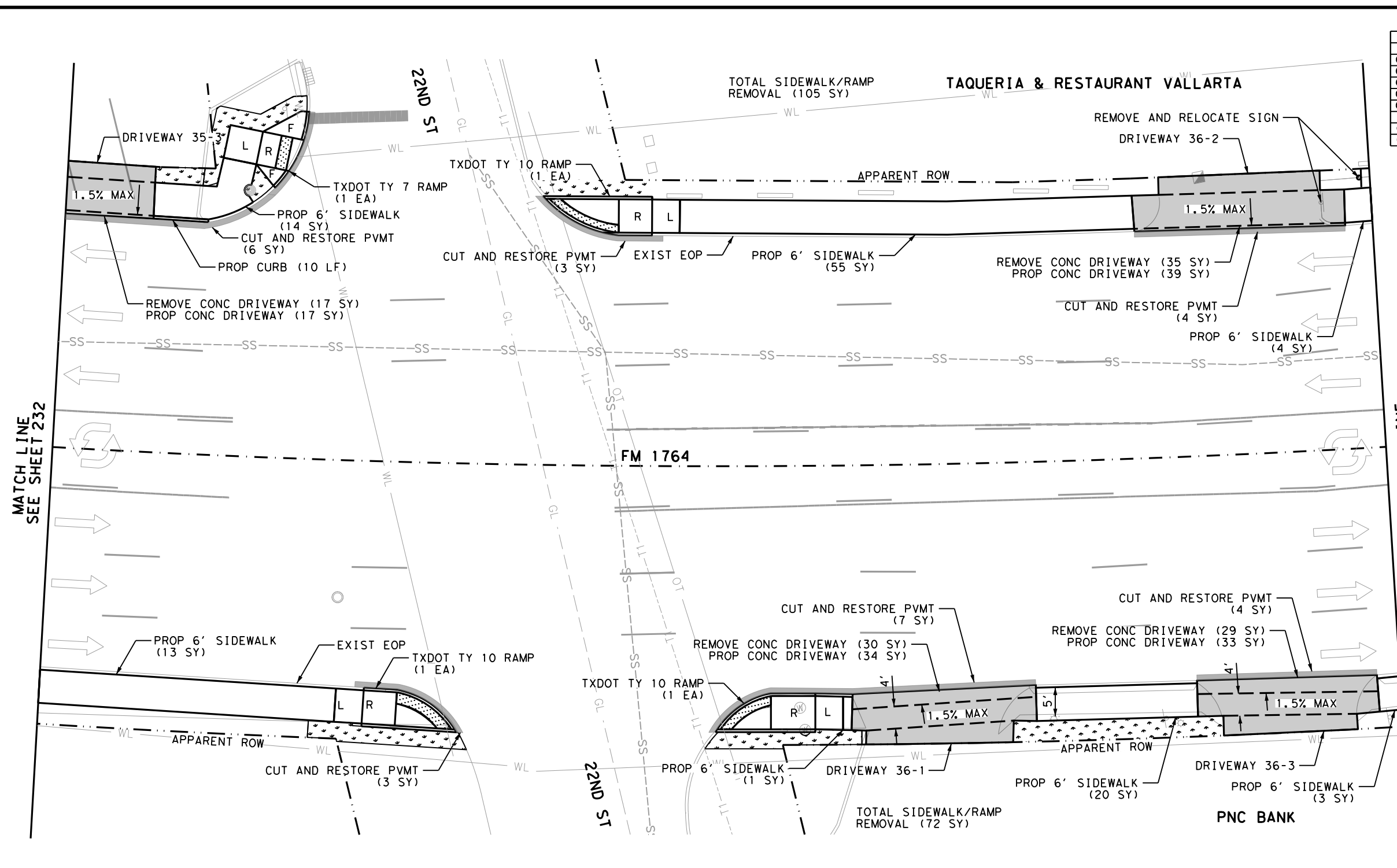
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	SHEET NO.
		FM 1764	
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	232
CONT.	SECT.	JOB	
1607	01	057, ETC.	

SPECIAL NOTES & DETAILS

- LEGEND**
- ~ DRAINAGE FLOW ARROW
 - x- FENCE
 - F FLARE
 - ⊕ FIRE HYDRANT
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 - ▣ GROUND BOX
 - L LANDING
 - L1 LANDING (COMMON)
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 - GUARD FENCE/RAIL
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 - ▣ TRAFFIC SIGNAL BOX
 - ▣ TRAFFIC SIGNAL CONTROLLER
 - ⊗ TRAFFIC SIGNAL POLE
 - TREE/BUSHES
 - ⊗ WATER METER/VALVE
 - ⊕ GUTTER LINE PROJECTION
 - ▣ GRATE INLET
 - PROPOSED PEDESTAL POLE
 - PROPOSED CONDUIT
 - - - EXISTING CONDUIT

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SHEET #	DESCRIPTION	UNIT	QTY	36
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	111	
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	177	
0162 6002	BLOCK SODDING	SY	51	
0400 6008	CUT & RESTORE ASPH PAVING	SY	27	
0530 6004	DRIVEWAYS (CONC)	SY	123	
0531 6001	CONC SIDEWALKS (4")	SY	110	
0531 6010	CURB RAMPS (TY 7)	EA	1	
0531 6013	CURB RAMPS (TY 10)	EA	3	



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6/3/2024

Samuel J. Lundquist

STATE OF TEXAS
 SAMUEL J. LUNDQUIST
 122185
 LICENSED PROFESSIONAL ENGINEER

Kimley»Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

**FM 1764
 AT 22ND ST**

TEXAS CITY, TEXAS

SHEET 36 OF 52

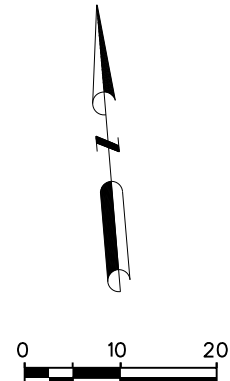
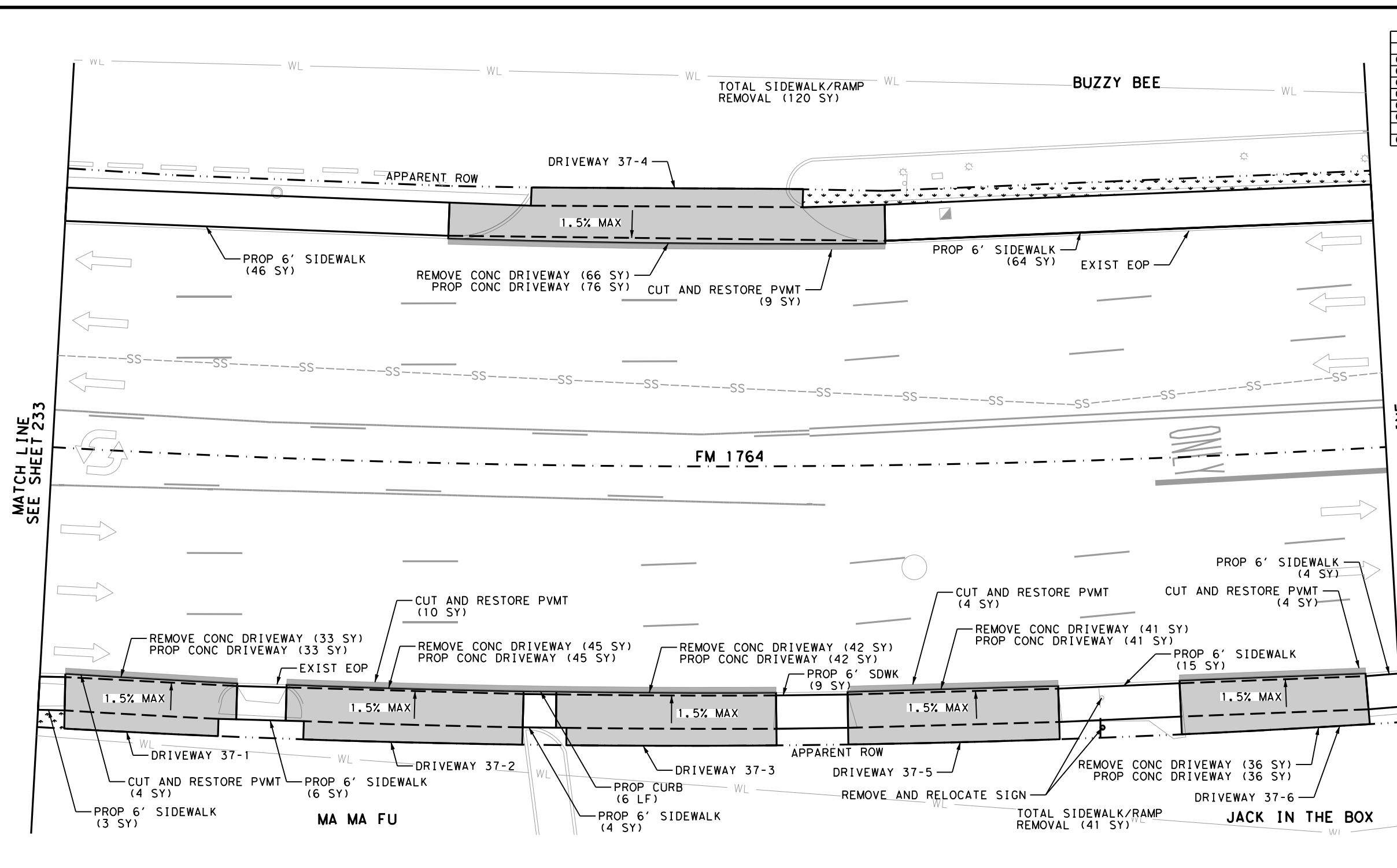
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	SHEET NO.
		FM 1764	
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	233
CONT.	SECT.	JOB	
1607	01	057, ETC.	

SPECIAL NOTES & DETAILS

<ul style="list-style-type: none"> ~ DRAINAGE FLOW ARROW -X- FENCE F FLARE ⊕ FIRE HYDRANT ⊗ GAS METER/VALVE ▣ GROUND BOX L LANDING L1 LANDING (COMMON) LS LEVEL SIDEWALK (2% MAX) ← GUY WIRE — GUARD FENCE/RAIL - - - TEMPORARY CONSTRUCTION LICENSE 	<p>LEGEND</p> <ul style="list-style-type: none"> ⊛ LIGHT POLE □ MAIL BOX ○ MANHOLE ⊙ PEDESTAL SIGNAL POLE ● POWER/UTILITY POLE R RAMP ▨ RIPRAP (CONC) ⊖ SIGN ▣ SODDING T TRANSITION □ MISCELLANEOUS STRUC ▨ SIDEWALK/RAMP REMOVAL 	<ul style="list-style-type: none"> SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2% → TRAFFIC FLOW ⊠ TRAFFIC SIGNAL BOX ⊠ TRAFFIC SIGNAL CONTROLLER ⊗ TRAFFIC SIGNAL POLE ○ TREE/BUSHES ⊙ WATER METER/VALVE ⊕ GUTTER LINE PROJECTION ▨ GRATE INLET ⊙ PROPOSED PEDESTAL POLE — PROPOSED CONDUIT - - - EXISTING CONDUIT
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SHEET #	ITEM	DESCRIPTION	UNIT	QTY	37
0104	6017	REMOVING CONC (DRIVEWAYS)	SY	263	
0104	6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	161	
0162	6002	BLOCK SODDING	SY	30	
0400	6008	CUT & RESTORE ASPH PAVING	SY	31	
0529	6002	CONC CURB (TY II)	LF	6	
0530	6004	DRIVEWAYS (CONC)	SY	273	
0531	6001	CONC SIDEWALKS (4")	SY	151	
0644	6068	RELOCATE SM RD SN SUP&M TY 10BWG	EA	1	



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6/3/2024

Kimley»Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

**FM 1764
BETWEEN 22ND ST
AND 21ST ST**

TEXAS CITY, TEXAS

SHEET 37 OF 52

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	SHEET NO.
		FM 1764	234
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	
CONT.	SECT.	JOB	
1607	01	057, ETC.	

SPECIAL NOTES & DETAILS

- LEGEND**
- ~ DRAINAGE FLOW ARROW
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 - ▨ GRATE INLET
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 - PROPOSED CONDUIT
 - EXISTING CONDUIT

FILENAME: c:\pwworking\0231815\HOLL.RDW_37.dgn
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SHEET #	ITEM	DESCRIPTION	UNIT	QTY	38
0104	6011	REMOVING CONC (MEDIANS)	SY	2	
0104	6017	REMOVING CONC (DRIVEWAYS)	SY	37	
0104	6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	24	
0104	6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	283	
0162	6002	BLOCK SODDING	SY	11	
0400	6008	CUT & RESTORE ASPH PAVING	SY	17	
0529	6002	CONC CURB (TY II)	LF	34	
0530	6004	DRIVEWAYS (CONC)	SY	40	
0531	6001	CONC SIDEWALKS (4")	SY	195	
0531	6006	CURB RAMPS (TY 3)	EA	2	
0531	6010	CURB RAMPS (TY 7)	EA	4	
0618	6023	COND (PVC) (SCH 40) (2")	LF	30	
0620	6007	ELEC CONDR (NO. 8) BARE	LF	30	
0684	6007	TRF SIG CBL (TY A) (12 AWG) (2 CONDR)	LF	650	
0687	6001	PED POLE ASSEMBLY	EA	3	
0680	6011	INSTALL HWY TRF SIG (UPGRADE)	EA	1	
0688	6001	PED DETECT PUSH BUTTON (APS)	EA	6	
0688	6003	PED DETECTOR CONTROLLER UNIT	EA	1	
0690	6030	REMOVAL OF PEDESTRIAN PUSH BUTTONS	EA	6	



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6/3/2024

Kimley»Horn F-928

Texas Department of Transportation

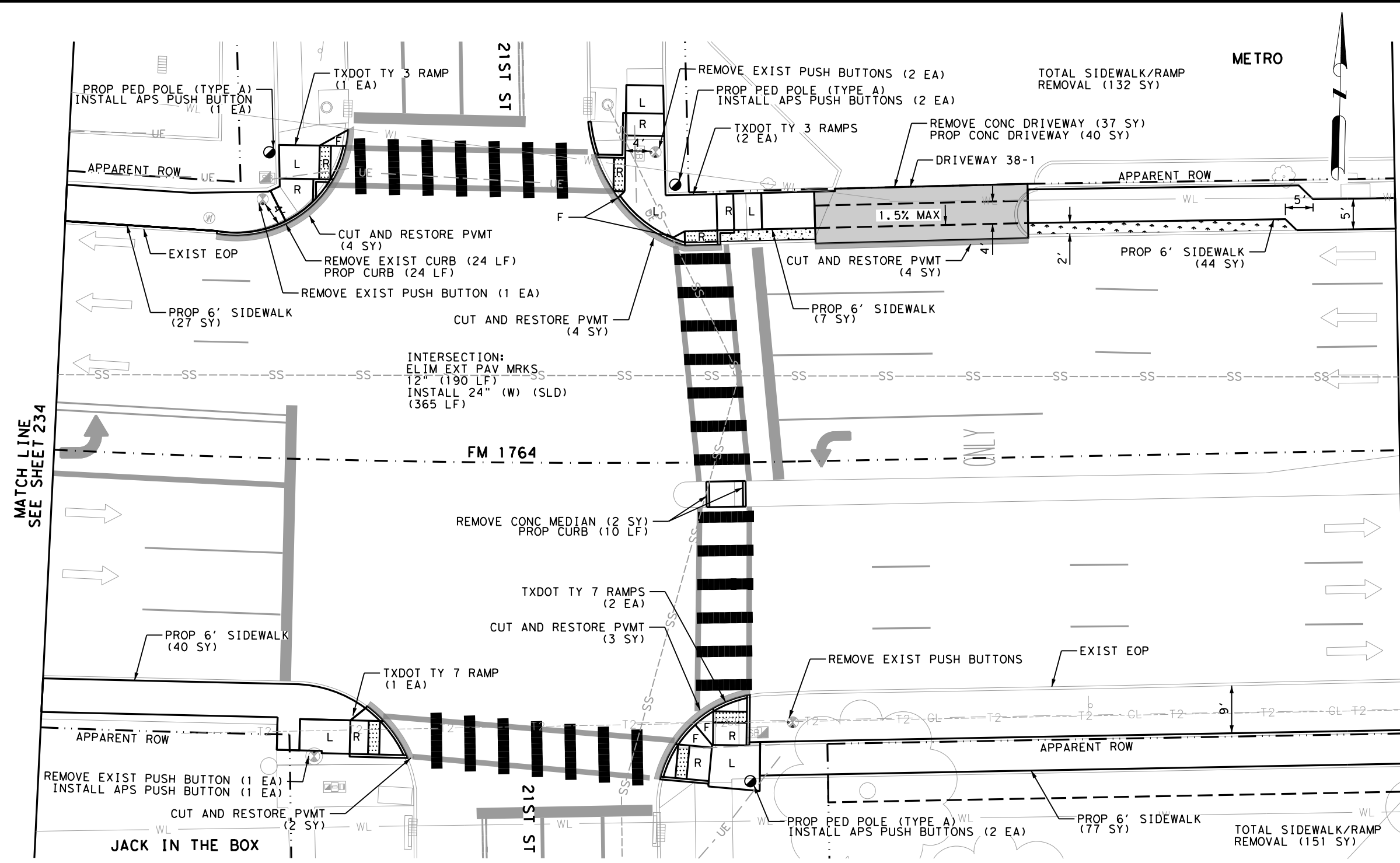
CURB RAMP PROGRAM

FM 1764 AT 21ST ST

TEXAS CITY, TEXAS

SHEET 38 OF 52

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	SHEET NO.
		FM 1764	
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	235
CONT.	SECT.	JOB	
1607	01	057, ETC.	

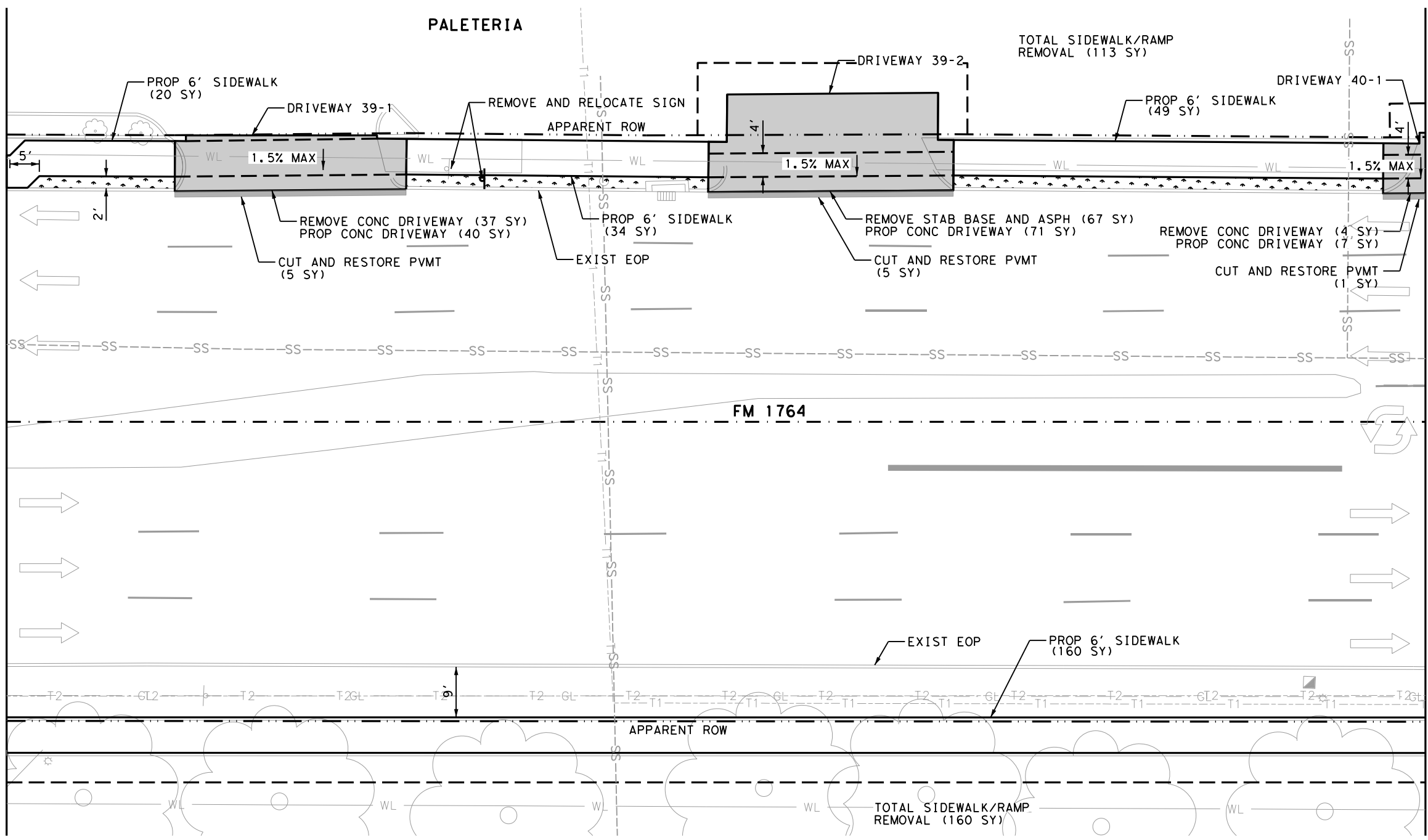


SPECIAL NOTES & DETAILS

LEGEND	
~ DRAINAGE FLOW ARROW	☆ LIGHT POLE
-x- FENCE	□ MAIL BOX
F FLARE	○ MANHOLE
⊕ FIRE HYDRANT	⊙ PEDESTAL SIGNAL POLE
⊗ GAS METER/VALVE	● POWER/UTILITY POLE
■ GROUND BOX	R RAMP
L LANDING	▨ RIPRAP (CONC)
L1 LANDING (COMMON)	○ TREE/BUSHES
LS LEVEL SIDEWALK (2% MAX)	⊗ WATER METER/VALVE
← GUY WIRE	⊕ GUTTER LINE PROJECTION
— GUARD FENCE/RAIL	▨ GRATE INLET
- - - TEMPORARY CONSTRUCTION LICENSE	● PROPOSED PEDESTAL POLE
	— PROPOSED CONDUIT
	— EXISTING CONDUIT

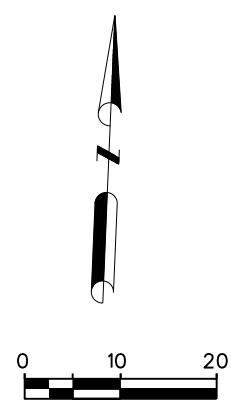
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SHEET #	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	41
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	273
0105 6037	REMOVING STAB BASE & ASPH PAV (0"-16")	SY	67
0162 6002	BLOCK SODDING	SY	32
0400 6008	CUT & RESTORE ASPH PAVING	SY	11
0530 6004	DRIVEWAYS (CONC)	SY	118
0531 6001	CONC SIDEWALKS (4")	SY	263
0644 6068	RELOCATE SM RD SN SUP&M TY 10BWG	EA	1



MATCH LINE SEE SHEET 235

MATCH LINE SEE SHEET 237



- NOTES:
- * FOR CONTRACTOR INFORMATION ONLY
 - 1. THE EXISTENCE AND LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES INDICATED IN THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
 - 2. UNLESS OTHERWISE SHOWN, PROPOSED SIGNAL CONDUCTOR SHALL RUN TO CONTROLLER IN EXISTING SIGNAL CONDUIT.

6/3/2024

Kimley»Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

FM 1764 BETWEEN 21ST ST AND 20TH ST

TEXAS CITY, TEXAS

SHEET 39 OF 52			
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	
		FM 1764	
STATE	DIST.	COUNTY	SHEET NO.
TEXAS	HOUSTON	GALVESTON	236
CONT.	SECT.	JOB	
1607	01	057, ETC.	

SPECIAL NOTES & DETAILS

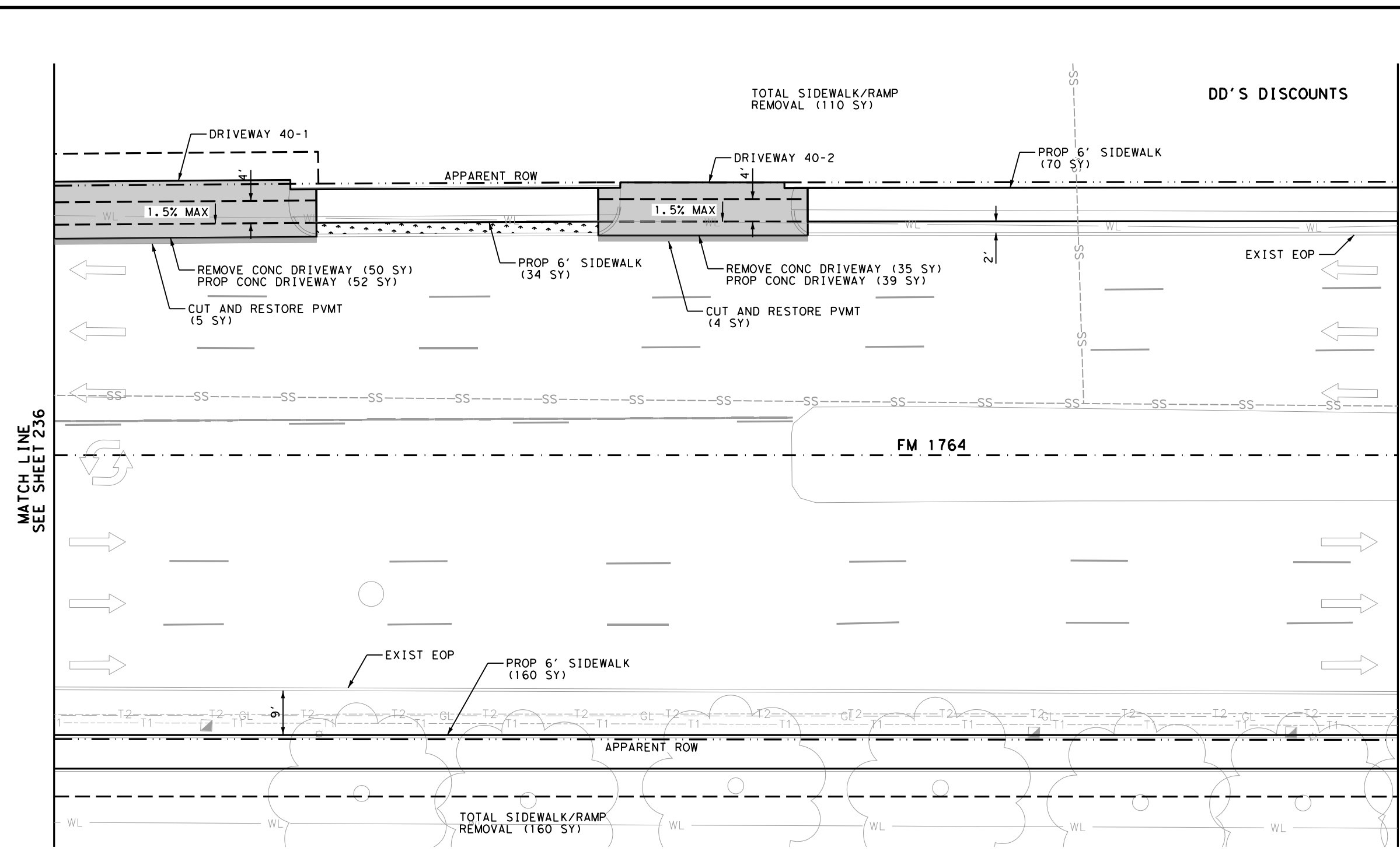
- LEGEND**
- ~ DRAINAGE FLOW ARROW
 - x- FENCE
 - F FLARE
 - ⊕ FIRE HYDRANT
 - ⊗ GAS METER/VALVE
 - ▣ GROUND BOX
 - L LANDING
 - L1 LANDING (COMMON)
 - LS LEVEL SIDEWALK (2% MAX)
 - ← GUY WIRE
 - GUARD FENCE/RAIL
 - - - TEMPORARY CONSTRUCTION LICENSE
 - ☆ LIGHT POLE
 - MAIL BOX
 - MANHOLE
 - ⊙ PEDESTAL SIGNAL POLE
 - POWER/UTILITY POLE
 - R RAMP
 - ▨ RIPRAP (CONC)
 - ⊕ SIGN
 - ▣ SODDING
 - T TRANSITION
 - MISCELLANEOUS STRUC
 - ▨ SIDEWALK/RAMP REMOVAL
 - SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%
 - TRAFFIC FLOW
 - ▣ TRAFFIC SIGNAL BOX
 - ▣ TRAFFIC SIGNAL CONTROLLER
 - ⊗ TRAFFIC SIGNAL POLE
 - TREE/BUSHES
 - ⊙ WATER METER/VALVE
 - ⊕ GUTTER LINE PROJECTION
 - ▣ GRATE INLET
 - ⊙ PROPOSED PEDESTAL POLE
 - PROPOSED CONDUIT
 - - - EXISTING CONDUIT

FILENAME: c:\pwworking\0231815\HOLL.RDW-39.dgn PLOTTED: 6/3/2024 7:47:07 PM

SHEET #	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	85
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	270
0162 6002	BLOCK SODDING	SY	12
0400 6008	CUT & RESTORE ASPH PAVING	SY	9
0530 6004	DRIVEWAYS (CONC)	SY	91
0531 6001	CONC SIDEWALKS (4")	SY	264

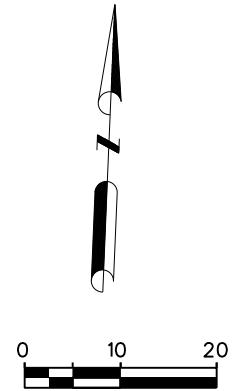
DD'S DISCOUNTS

TOTAL SIDEWALK/RAMP
REMOVAL (110 SY)



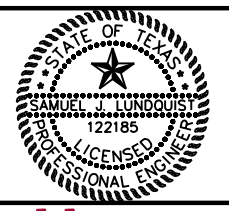
MATCH LINE
SEE SHEET 236

MATCH LINE
SEE SHEET 238



- NOTES:
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ASD
6/3/2024



Kimley»Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

**FM 1764
BETWEEN 21ST ST
AND 20TH ST**

TEXAS CITY, TEXAS

SHEET 40 OF 52

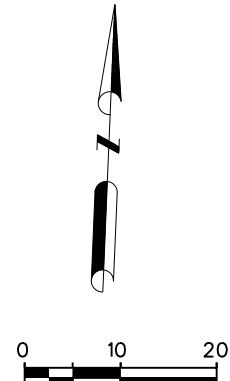
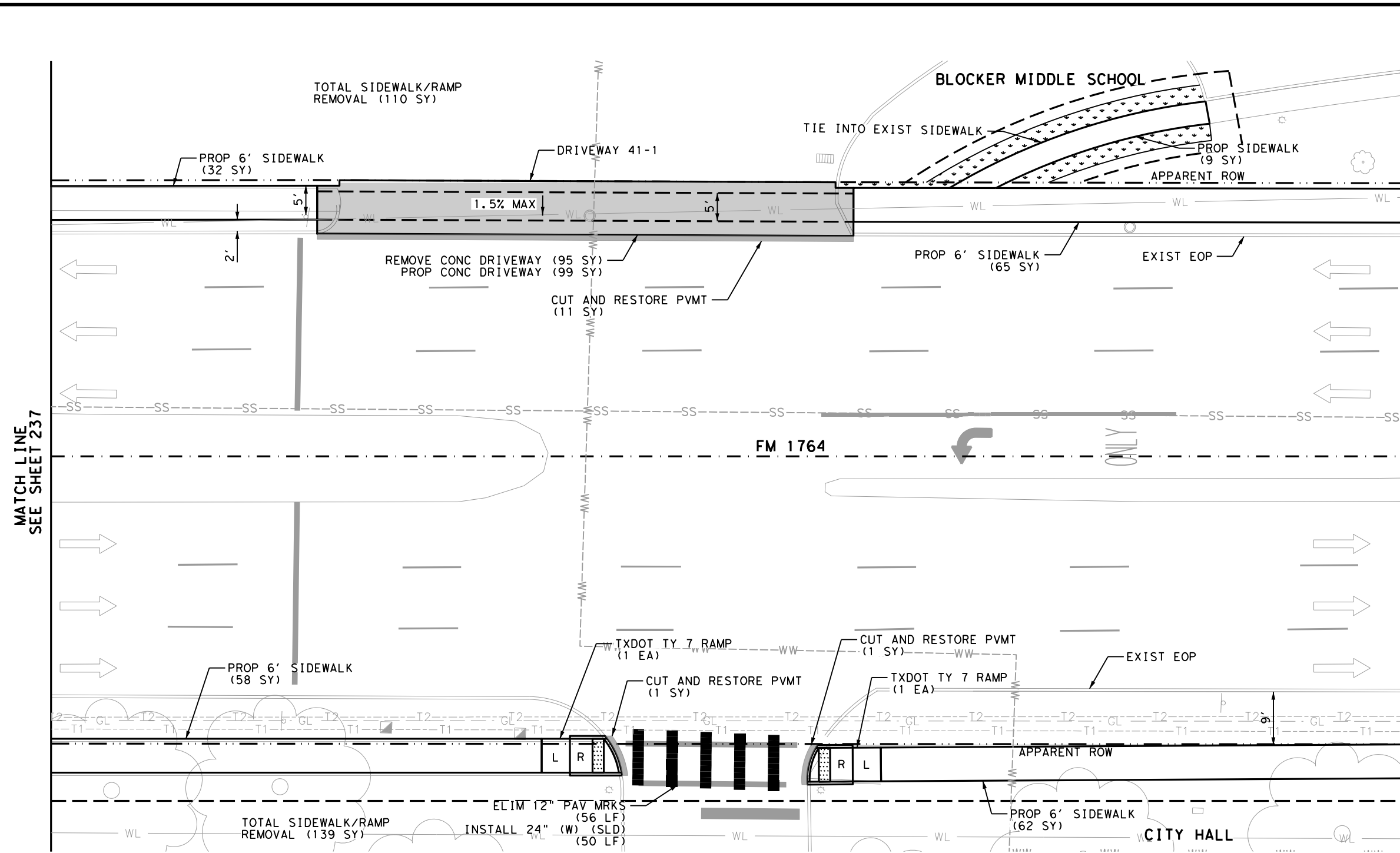
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	SHEET NO.
		FM 1764	237
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	
CONT.	SECT.	JOB	
1607	01	057, ETC.	

SPECIAL NOTES & DETAILS

- LEGEND**
- ~ DRAINAGE FLOW ARROW
 - x- FENCE
 - F FLARE
 - ⊕ FIRE HYDRANT
 - ⊗ GAS METER/VALVE
 - GROUND BOX
 - L LANDING
 - L1 LANDING (COMMON)
 - LS LEVEL SIDEWALK (2% MAX)
 - ← GUY WIRE
 - GUARD FENCE/RAIL
 - - - TEMPORARY CONSTRUCTION LICENSE
 - ☆ LIGHT POLE
 - MAIL BOX
 - MANHOLE
 - PEDESTAL SIGNAL POLE
 - POWER/UTILITY POLE
 - R RAMP
 - ▨ RIPRAP (CONC)
 - ⊕ SIGN
 - SODDING
 - T TRANSITION
 - MISCELLANEOUS STRUC
 - ▨ SIDEWALK/RAMP REMOVAL
 - SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%
 - TRAFFIC FLOW
 - ▭ TRAFFIC SIGNAL BOX
 - ▭ TRAFFIC SIGNAL CONTROLLER
 - ⊗ TRAFFIC SIGNAL POLE
 - TREE/BUSHES
 - ⊗ WATER METER/VALVE
 - ⊕ GUTTER LINE PROJECTION
 - ▨ GRATE INLET
 - PROPOSED PEDESTAL POLE
 - PROPOSED CONDUIT
 - - - EXISTING CONDUIT

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SHEET #	ITEM	DESCRIPTION	UNIT	QTY	41
0104	6017	REMOVING CONC (DRIVEWAYS)	SY	95	
0104	6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	249	
0162	6002	BLOCK SODDING	SY	49	
0400	6008	CUT & RESTORE ASPH PAVING	SY	13	
0530	6004	DRIVEWAYS (CONC)	SY	99	
0531	6001	CONC SIDEWALKS (4")	SY	226	
0666	6048	REFL PAV MRK TY 1 (W)24" (SLD) (100MIL)	LF	50	
0677	6005	ELIM EXT PAV MRK & MRKS (12")	LF	56	
0678	6008	PAV SURF PREP FOR MRK (24")	LF	50	



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Signature: *ALD*
 6/3/2024
 STATE OF TEXAS
 SAMUEL J. LUNDQUIST
 122185
 LICENSED PROFESSIONAL ENGINEER

Kimley Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

**FM 1764
 BETWEEN 20TH ST
 AND PHOENIX LN**

TEXAS CITY, TEXAS

SHEET 41 OF 52

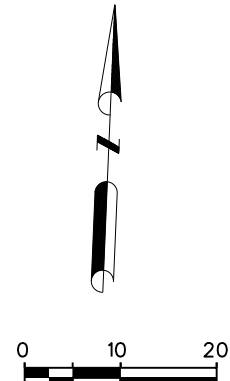
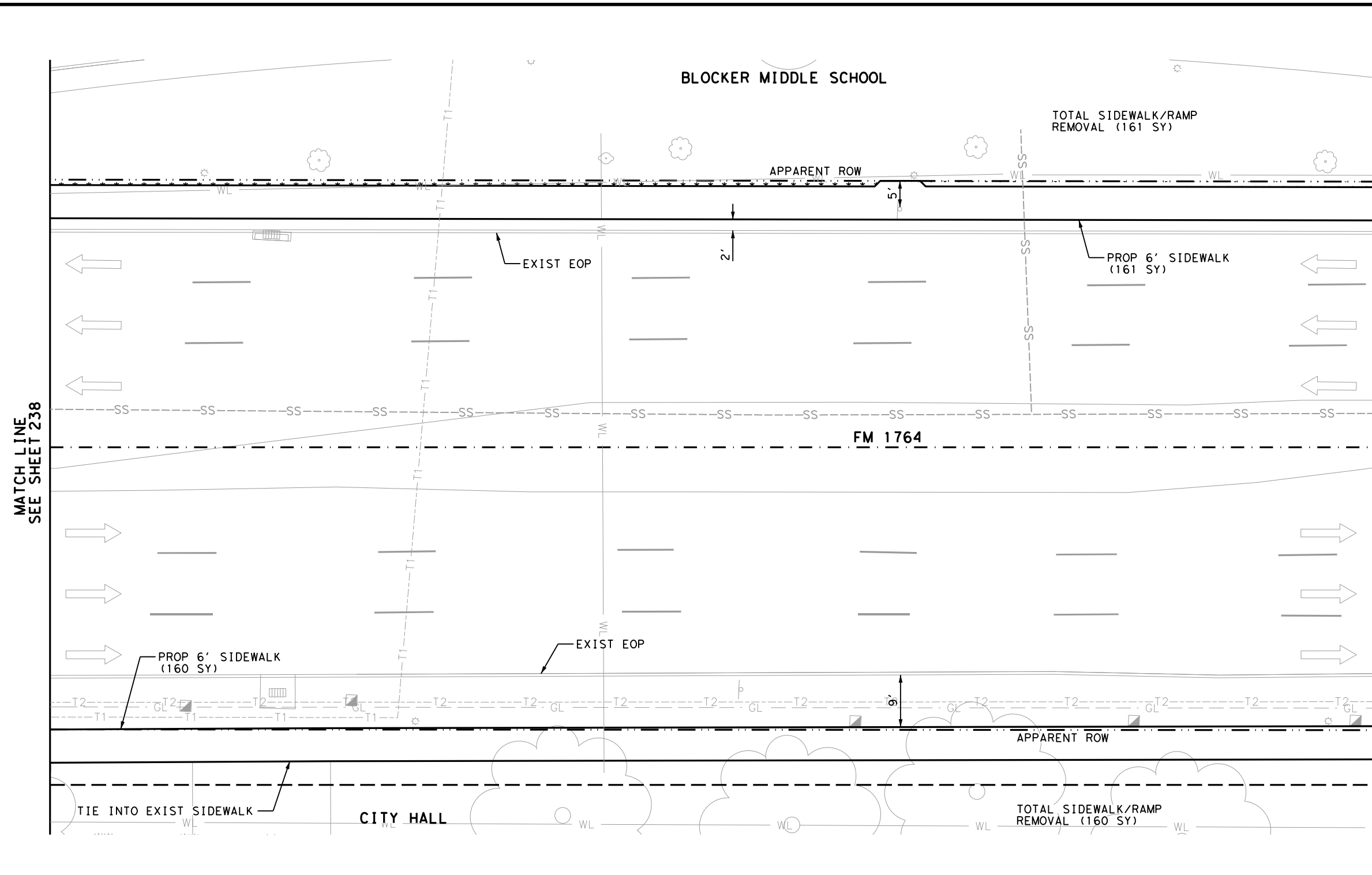
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		FM 1764	
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	238
CONT.	SECT.	JOB	
1607	01	057, ETC.	

SPECIAL NOTES & DETAILS

LEGEND	
~ DRAINAGE FLOW ARROW	* LIGHT POLE
-x- FENCE	□ MAIL BOX
F FLARE	○ MANHOLE
⊕ FIRE HYDRANT	● PEDESTAL SIGNAL POLE
⊕ GAS METER/VALVE	● POWER/UTILITY POLE
■ GROUND BOX	R RAMP
L LANDING	▨ RIPRAP (CONC)
L1 LANDING (COMMON)	⊙ SODDING
LS LEVEL SIDEWALK (2% MAX)	T TRANSITION
← GUY WIRE	□ MISCELLANEOUS STRUC
— GUARD FENCE/RAIL	▨ SIDEWALK/RAMP REMOVAL
- - - TEMPORARY CONSTRUCTION LICENSE	— PROPOSED CONDUIT
	— EXISTING CONDUIT

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SHEET #	DESCRIPTION	UNIT	QTY
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	321
0162 6002	BLOCK SODDING	SY	26
0531 6001	CONC SIDEWALKS (4")	SY	321



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 6/3/2024


Kimley»Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

**FM 1764
BETWEEN 20TH ST
AND PHOENIX LN**

TEXAS CITY, TEXAS

SHEET 42 OF 52

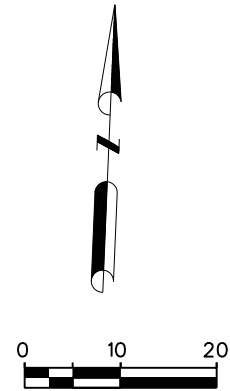
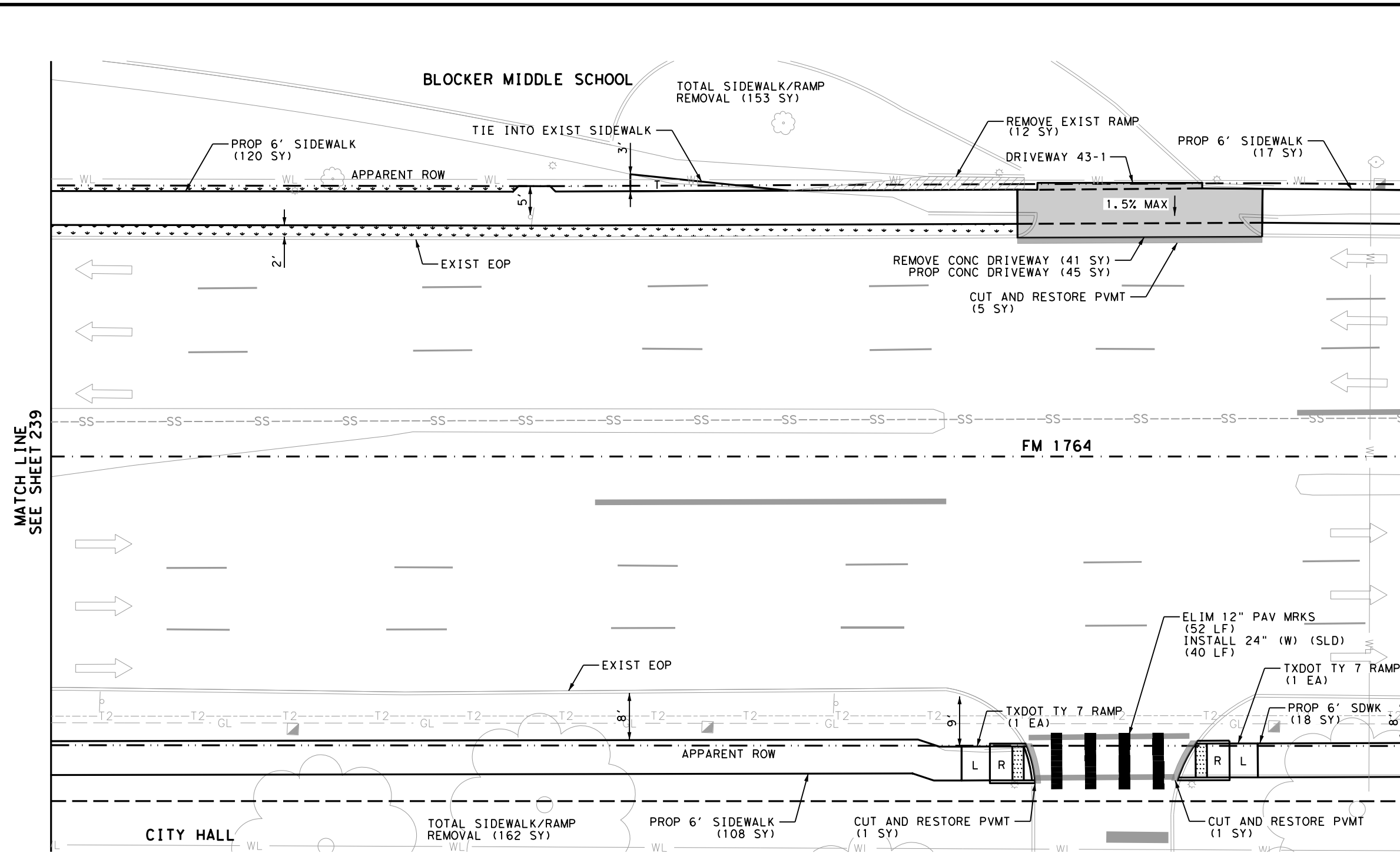
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
		FM 1764
STATE	DIST.	COUNTY
TEXAS	HOUSTON	GALVESTON
CONT.	SECT.	JOB
1607	01	057, ETC.
		SHEET NO.
		239

SPECIAL NOTES & DETAILS

LEGEND		
DRAINAGE FLOW ARROW	LIGHT POLE	SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%
FENCE	MAIL BOX	TRAFFIC FLOW
F FLARE	MANHOLE	TRAFFIC SIGNAL BOX
FIRE HYDRANT	PEDESTAL SIGNAL POLE	TRAFFIC SIGNAL CONTROLLER
GAS METER/VALVE	POWER/UTILITY POLE	TRAFFIC SIGNAL POLE
GROUND BOX	R RAMP	TREE/BUSHES
L LANDING	RIPRAP (CONC)	WATER METER/VALVE
L1 LANDING (COMMON)	SIGN	GUTTER LINE PROJECTION
LS LEVEL SIDEWALK (2% MAX)	SODDING	GRATE INLET
GUY WIRE	T TRANSITION	PROPOSED PEDESTAL POLE
GUARD FENCE/RAIL	MISCELLANEOUS STRUC	PROPOSED CONDUIT
TEMPORARY CONSTRUCTION LICENSE	SIDEWALK/RAMP REMOVAL	EXISTING CONDUIT

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SHEET #	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	41
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	315
0162 6002	BLOCK SODDING	SY	50
0400 6008	CUT & RESTORE ASPH PAVING	SY	7
0530 6004	DRIVEWAYS (CONC)	SY	45
0531 6001	CONC SIDEWALKS (4")	SY	263
0531 6010	CURB RAMP (TY 7)	EA	2
0666 6048	REFL PAV MRK TY 1 (W) 24" (SLD) (100MIL)	LF	40
0677 6005	ELIM EXT PAV MRK & MRKS (12")	LF	52
0678 6008	PAV SURF PREP FOR MRK (24")	LF	40



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6/3/2024

Kimley Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

FM 1764 AT PHOENIX LN

TEXAS CITY, TEXAS

SHEET 43 OF 52

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	SHEET NO.
		FM 1764	
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	240
CONT.	SECT.	JOB	
1607	01	057, ETC.	

SPECIAL NOTES & DETAILS

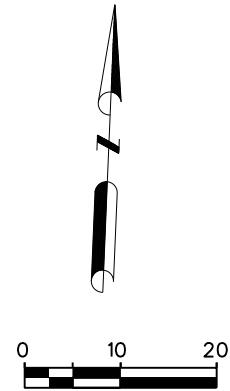
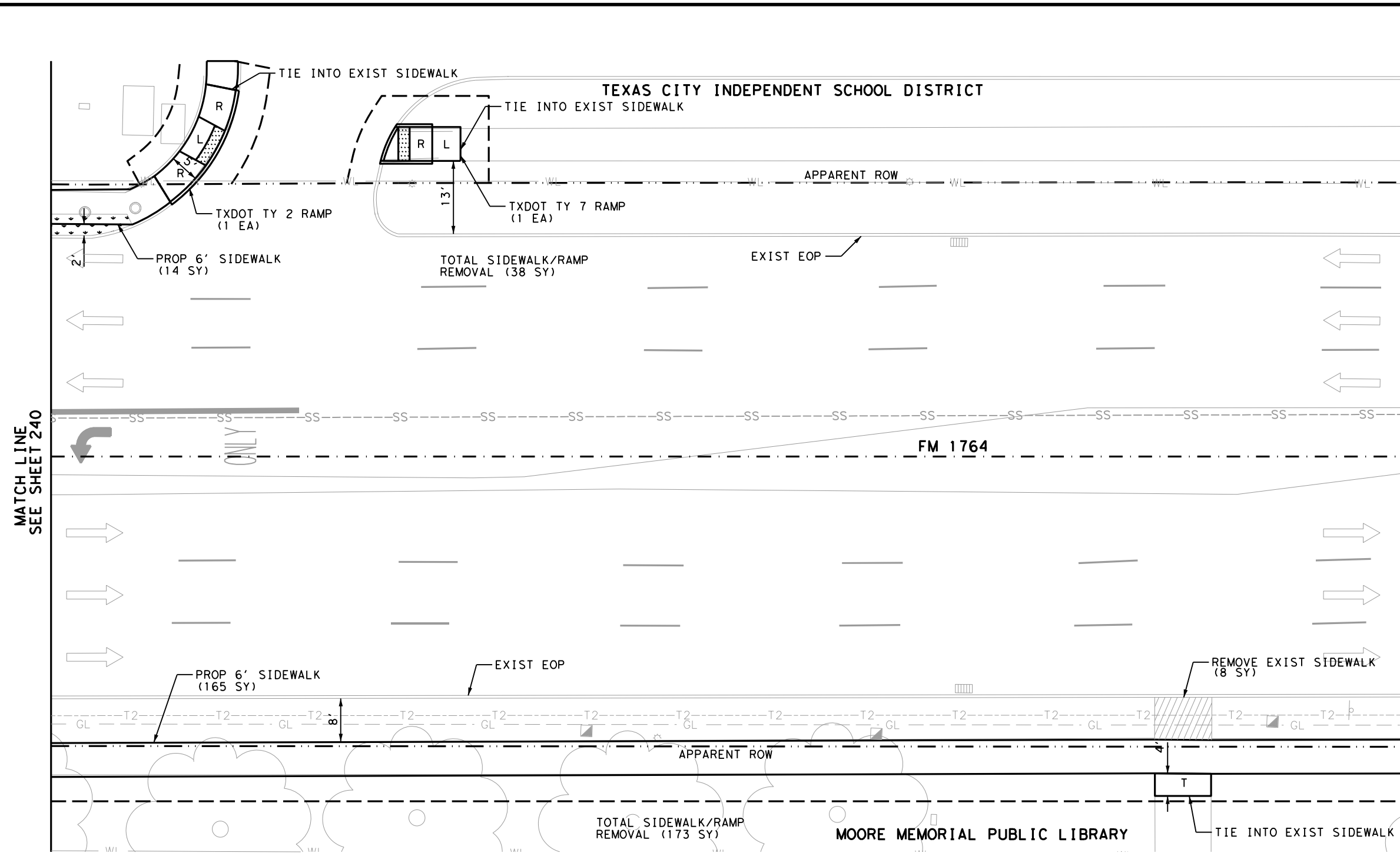
- LEGEND**
- ~ DRAINAGE FLOW ARROW
 - X - FENCE
 - F FLARE
 - ⊕ FIRE HYDRANT
 - ⊗ GAS METER/VALVE
 - ▣ GROUND BOX
 - L LANDING
 - L1 LANDING (COMMON)
 - LS LEVEL SIDEWALK (2% MAX)
 - ← GUY WIRE
 - GUARD FENCE/RAIL
 - - - TEMPORARY CONSTRUCTION LICENSE
 - ☆ LIGHT POLE
 - MAIL BOX
 - MANHOLE
 - PEDESTAL SIGNAL POLE
 - POWER/UTILITY POLE
 - R RAMP
 - ▨ RIPRAP (CONC)
 - ⊕ SIGN
 - ⊞ SODDING
 - T TRANSITION
 - MISCELLANEOUS STRUC
 - ▨ SIDEWALK/RAMP REMOVAL
 - SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%
 - TRAFFIC FLOW
 - ⊞ TRAFFIC SIGNAL BOX
 - ⊞ TRAFFIC SIGNAL CONTROLLER
 - ⊗ TRAFFIC SIGNAL POLE
 - TREE/BUSHES
 - ⊗ WATER METER/VALVE
 - ⊕ GUTTER LINE PROJECTION
 - ▨ GRATE INLET
 - PROPOSED PEDESTAL POLE
 - PROPOSED CONDUIT
 - - - EXISTING CONDUIT

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MATCH LINE SEE SHEET 239

MATCH LINE SEE SHEET 241

SHEET #	ITEM	DESCRIPTION	UNIT	QTY	44
0104	6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	211	
0162	6002	BLOCK SODDING	SY	2	
0531	6001	CONC SIDEWALKS (4")	SY	179	
0531	6005	CURB RAMPS (TY 2)	EA	1	
0531	6010	CURB RAMPS (TY 7)	EA	1	



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Signature: *ALD*
 6/3/2024
 STATE OF TEXAS
 SAMUEL J. LUNDQUIST
 122185
 LICENSED PROFESSIONAL ENGINEER

Kimley»Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

**FM 1764
 BETWEEN PHOENIX LN
 AND 15TH ST**

TEXAS CITY, TEXAS

SHEET 44 OF 52

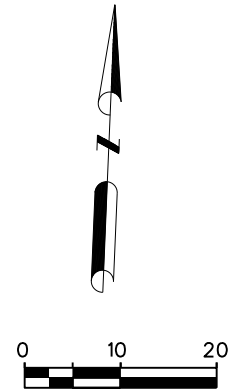
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		FM 1764	241
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	
CONT.	SECT.	JOB	
1607	01	057, ETC.	

SPECIAL NOTES & DETAILS

- LEGEND**
- ~ DRAINAGE FLOW ARROW
 - x- FENCE
 - F FLARE
 - ⊕ FIRE HYDRANT
 - ⊗ GAS METER/VALVE
 - ▣ GROUND BOX
 - L LANDING
 - L1 LANDING (COMMON)
 - LS LEVEL SIDEWALK (2% MAX)
 - ← GUY WIRE
 - GUARD FENCE/RAIL
 - - - TEMPORARY CONSTRUCTION LICENSE
 - ☆ LIGHT POLE
 - MAIL BOX
 - MANHOLE
 - ⊙ PEDESTAL SIGNAL POLE
 - POWER/UTILITY POLE
 - R RAMP
 - ▨ RIPRAP (CONC)
 - ⊠ SIGN
 - ⊞ SODDING
 - T TRANSITION
 - MISCELLANEOUS STRUC
 - ▨ SIDEWALK/RAMP REMOVAL
 - SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%
 - TRAFFIC FLOW
 - ⊞ TRAFFIC SIGNAL BOX
 - ⊞ TRAFFIC SIGNAL CONTROLLER
 - ⊗ TRAFFIC SIGNAL POLE
 - TREE/BUSHES
 - ⊗ WATER METER/VALVE
 - ⊕ GUTTER LINE PROJECTION
 - ▨ GRATE INLET
 - ⊙ PROPOSED PEDESTAL POLE
 - PROPOSED CONDUIT
 - - - EXISTING CONDUIT

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SHEET #	ITEM	DESCRIPTION	UNIT	QTY	45
0104	6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	241	
0162	6002	BLOCK SODDING	SY	37	
0400	6008	CUT & RESTORE ASPH PAVING	SY	4	
0531	6001	CONC SIDEWALKS (4")	SY	180	
0531	6010	CURB RAMPS (TY 7)	EA	5	
0644	6001	IN SM RD SN SUP&M TY10BWG(1)SA(P)	EA	1	
0666	6048	REFL PAV MRK TY 1 (W)24" (SLD) (100MIL)	LF	240	
0677	6005	ELIM EXT PAV MRK & MRKS (12")	LF	60	
0677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	64	
0678	6008	PAV SURF PREP FOR MRK (24")	LF	240	
0690	6007	REPLACE OF GROUND BOXES	EA	1	
5033	6005	REMOVE BOLLARD	EA	1	



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6/3/2024

Kimley Horn F-928

Texas Department of Transportation

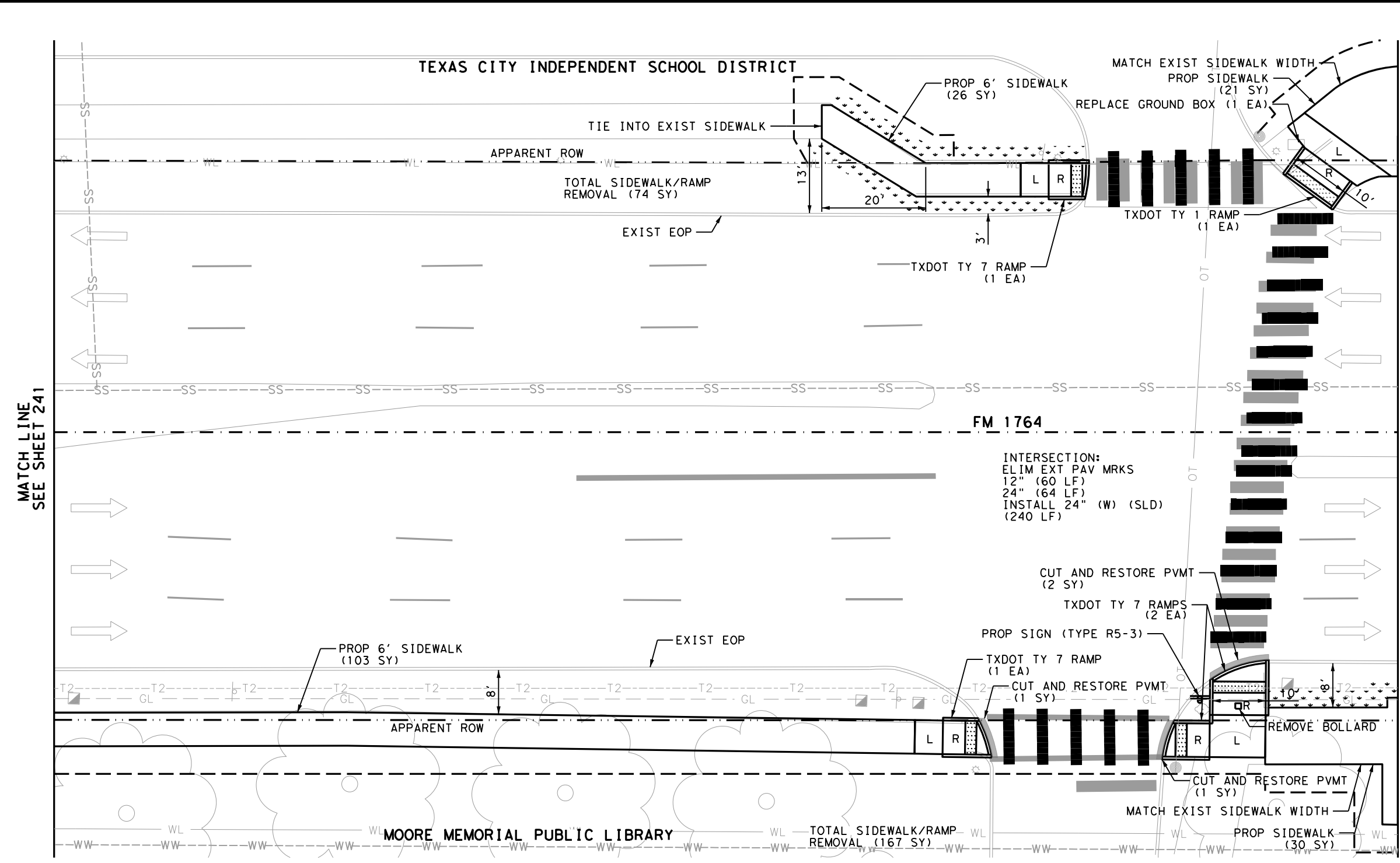
CURB RAMP PROGRAM

**FM 1764
BETWEEN PHOENIX LN
AND 15TH ST**

TEXAS CITY, TEXAS

SHEET 45 OF 52

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	SHEET NO.
		FM 1764	242
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	
CONT.	SECT.	JOB	
1607	01	057, ETC.	



MATCH LINE
SEE SHEET 241

MATCH LINE
SEE SHEET 243

SPECIAL NOTES & DETAILS

LEGEND	
~ DRAINAGE FLOW ARROW	☆ LIGHT POLE
-x- FENCE	□ MAIL BOX
F FLARE	○ MANHOLE
⊕ FIRE HYDRANT	● PEDESTAL SIGNAL POLE
⊗ GAS METER/VALVE	● POWER/UTILITY POLE
■ GROUND BOX	R RAMP
L LANDING	▨ RIPRAP (CONC)
L1 LANDING (COMMON)	○ SIGN
LS LEVEL SIDEWALK (2% MAX)	▣ SODDING
← GUY WIRE	T TRANSITION
— GUARD FENCE/RAIL	□ MISCELLANEOUS STRUC
- - - TEMPORARY CONSTRUCTION LICENSE	▨ SIDEWALK/RAMP REMOVAL
	SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%
	→ TRAFFIC FLOW
	⊠ TRAFFIC SIGNAL BOX
	⊠ TRAFFIC SIGNAL CONTROLLER
	⊗ TRAFFIC SIGNAL POLE
	○ TREE/BUSHES
	⊗ WATER METER/VALVE
	⊕ GUTTER LINE PROJECTION
	▨ GRATE INLET
	● PROPOSED PEDESTAL POLE
	— PROPOSED CONDUIT
	— EXISTING CONDUIT

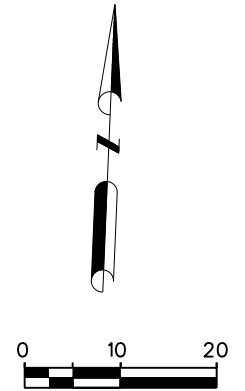
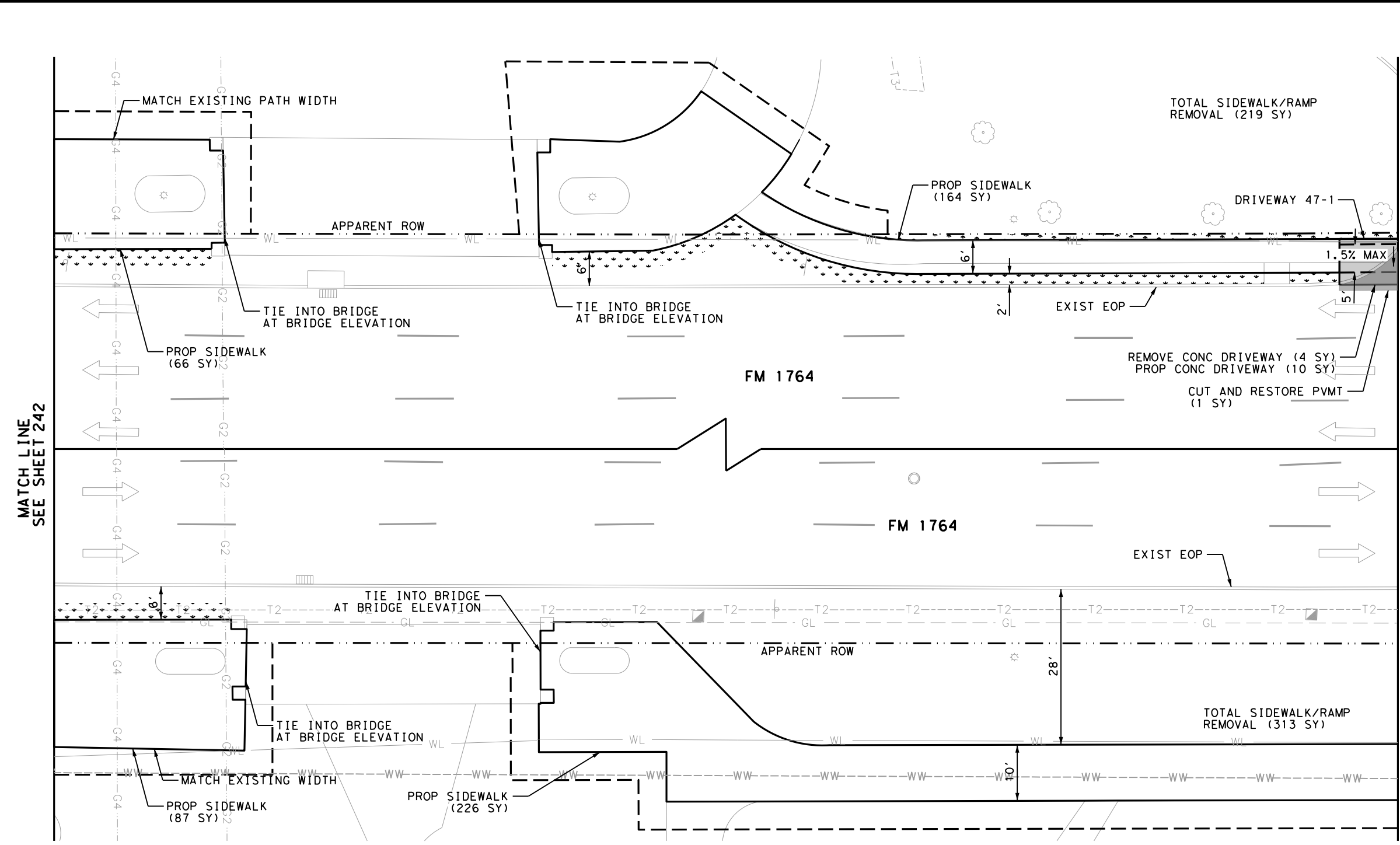
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SHEET #	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	4
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	532
0162 6002	BLOCK SODDING	SY	67
0400 6008	CUT & RESTORE ASPH PAVING	SY	1
0530 6004	DRIVEWAYS (CONC)	SY	10
0531 6001	CONC SIDEWALKS (4")	SY	543

TOTAL SIDEWALK/RAMP REMOVAL (219 SY)

REMOVE CONC DRIVEWAY (4 SY)
PROP CONC DRIVEWAY (10 SY)
CUT AND RESTORE PVMT (1 SY)

TOTAL SIDEWALK/RAMP REMOVAL (313 SY)



NOTES:

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- 2. UNLESS OTHERWISE SHOWN, PROPOSED SIGNAL CONDUCTOR SHALL RUN TO CONTROLLER IN EXISTING SIGNAL CONDUIT.

Signature
6/3/2024



Kimley»Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

**FM 1764
BETWEEN PHOENIX LN
AND 15TH ST**

TEXAS CITY, TEXAS

SHEET 46 OF 52

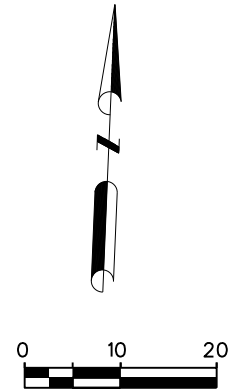
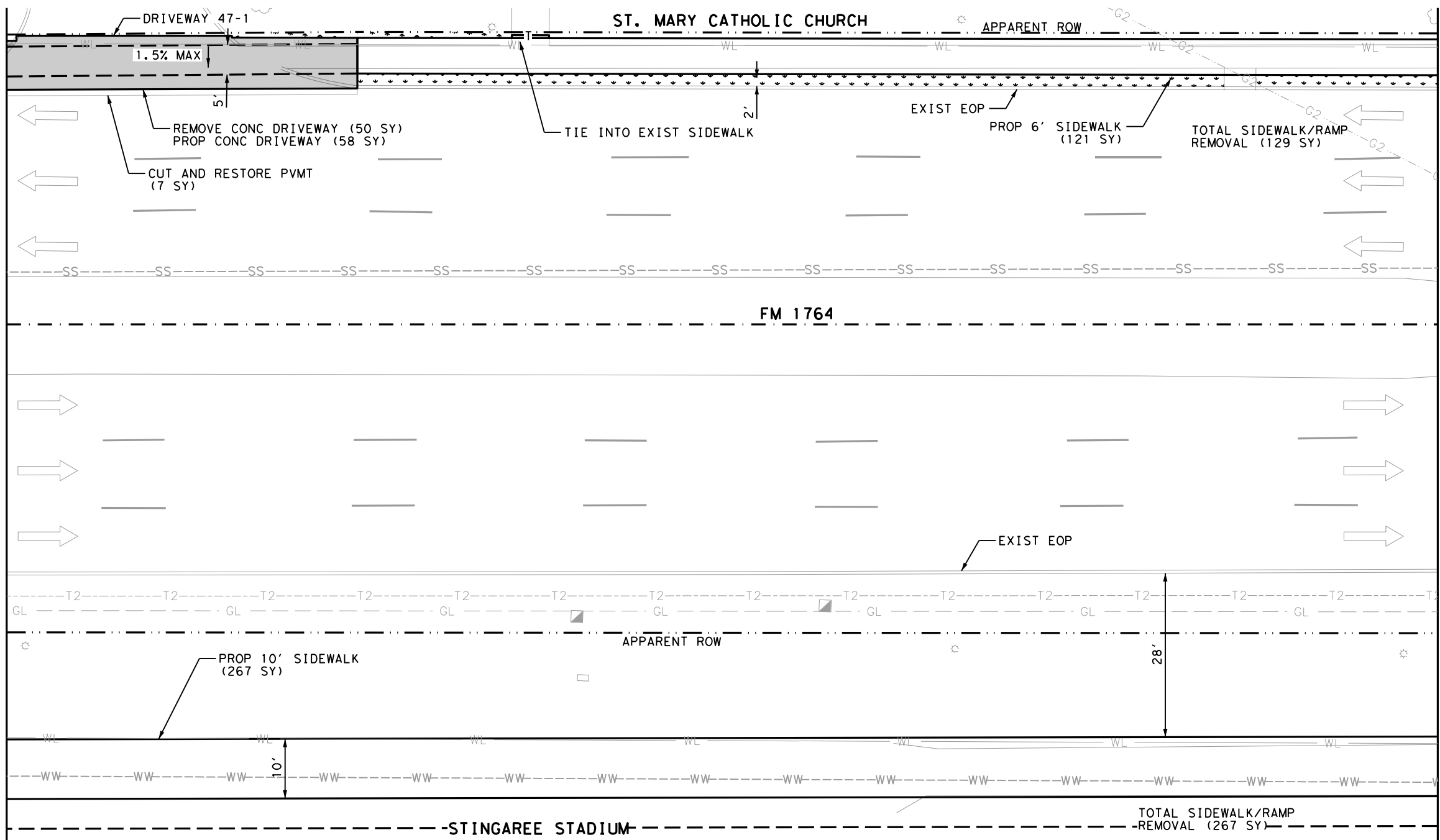
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	SHEET NO.
		FM 1764	243
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	
CONT.	SECT.	JOB	
1607	01	057, ETC.	

SPECIAL NOTES & DETAILS

<ul style="list-style-type: none"> ~ DRAINAGE FLOW ARROW - X - FENCE F FLARE ⊕ FIRE HYDRANT ⊗ GAS METER/VALVE ▣ GROUND BOX L LANDING L1 LANDING (COMMON) LS LEVEL SIDEWALK (2% MAX) ← GUY WIRE — GUARD FENCE/RAIL - - - TEMPORARY CONSTRUCTION LICENSE 	<p>LEGEND</p> <ul style="list-style-type: none"> ⊙ LIGHT POLE □ MAIL BOX ○ MANHOLE ⊙ PEDESTAL SIGNAL POLE ● POWER/UTILITY POLE R RAMP ▨ RIPRAP (CONC) ⊙ SIGN ⊙ SODDING T TRANSITION □ MISCELLANEOUS STRUC ▨ SIDEWALK/RAMP REMOVAL 	<ul style="list-style-type: none"> SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2% → TRAFFIC FLOW ⊙ TRAFFIC SIGNAL BOX ⊙ TRAFFIC SIGNAL CONTROLLER ⊙ TRAFFIC SIGNAL POLE ○ TREE/BUSHES ⊙ WATER METER/VALVE ⊙ GUTTER LINE PROJECTION ▨ GRATE INLET ⊙ PROPOSED PEDESTAL POLE — PROPOSED CONDUIT - - - EXISTING CONDUIT
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SHEET #	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	50
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	396
0162 6002	BLOCK SODDING	SY	77
0400 6008	CUT & RESTORE ASPH PAVING	SY	7
0531 6001	CONC SIDEWALKS (4")	SY	388



- NOTES:
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 - 2. UNLESS OTHERWISE SHOWN, PROPOSED SIGNAL CONDUCTOR SHALL RUN TO CONTROLLER IN EXISTING SIGNAL CONDUIT.

Signature: *ALD*
 6/3/2024
 STATE OF TEXAS
 SAMUEL J. LUNDQUIST
 122185
 LICENSED PROFESSIONAL ENGINEER

Kimley»Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

**FM 1764
 BETWEEN PHOENIX LN
 AND 15TH ST**

TEXAS CITY, TEXAS

SHEET 47 OF 52

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	SHEET NO.
		FM 1764	
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	244
CONT.	SECT.	JOB	
1607	01	057, ETC.	

SPECIAL NOTES & DETAILS

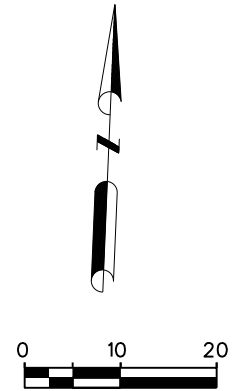
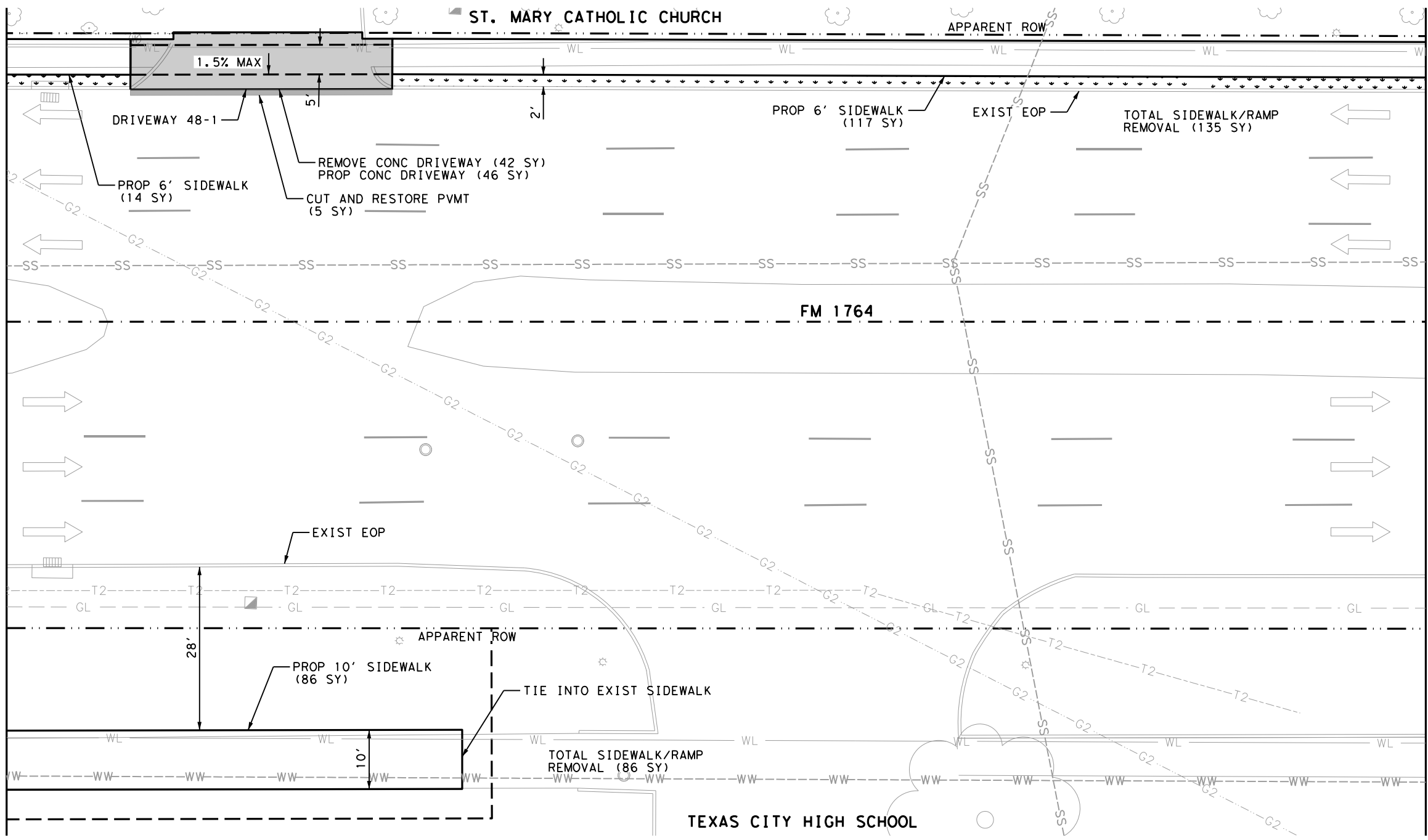
- LEGEND**
- ~ DRAINAGE FLOW ARROW
 - X - FENCE
 - F FLARE
 - ⊕ FIRE HYDRANT
 - ⊗ GAS METER/VALVE
 - ▣ GROUND BOX
 - L LANDING
 - L1 LANDING (COMMON)
 - LS LEVEL SIDEWALK (2% MAX)
 - ← GUY WIRE
 - GUARD FENCE/RAIL
 - - - TEMPORARY CONSTRUCTION LICENSE
 - ☆ LIGHT POLE
 - MAIL BOX
 - MANHOLE
 - ⊙ PEDESTAL SIGNAL POLE
 - POWER/UTILITY POLE
 - R RAMP
 - ▨ RIPRAP (CONC)
 - ⊕ SIGN
 - ⊞ SODDING
 - T TRANSITION
 - MISCELLANEOUS STRUC
 - ▨ SIDEWALK/RAMP REMOVAL
 - SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%
 - TRAFFIC FLOW
 - ⊞ TRAFFIC SIGNAL BOX
 - ⊞ TRAFFIC SIGNAL CONTROLLER
 - ⊗ TRAFFIC SIGNAL POLE
 - TREE/BUSHES
 - ⊗ WATER METER/VALVE
 - ⊕ GUTTER LINE PROJECTION
 - ▨ GRATE INLET
 - ⊙ PROPOSED PEDESTAL POLE
 - PROPOSED CONDUIT
 - - - EXISTING CONDUIT

FILENAME: c:\pwworking\1\0231815\HOLL_RDL_47.dgn
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MATCH LINE
SEE SHEET 243

MATCH LINE
SEE SHEET 245

SHEET #	ITEM	DESCRIPTION	UNIT	QTY	48
0104	6017	REMOVING CONC (DRIVEWAYS)	SY	42	
0104	6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	221	
0162	6002	BLOCK SODDING	SY	66	
0400	6008	CUT & RESTORE ASPH PAVING	SY	5	
0530	6004	DRIVEWAYS (CONC)	SY	46	
0531	6001	CONC SIDEWALKS (4")	SY	217	



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Signature: *ALD*
 6/3/2024
 STATE OF TEXAS
 SAMUEL J. LUNDQUIST
 122185
 LICENSED PROFESSIONAL ENGINEER

Kimley»Horn F-928

Texas Department of Transportation
CURB RAMP PROGRAM

**FM 1764
 BETWEEN PHOENIX LN
 AND 15TH ST**

TEXAS CITY, TEXAS
 SHEET 48 OF 52

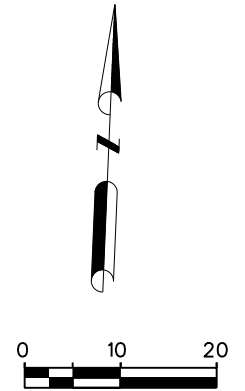
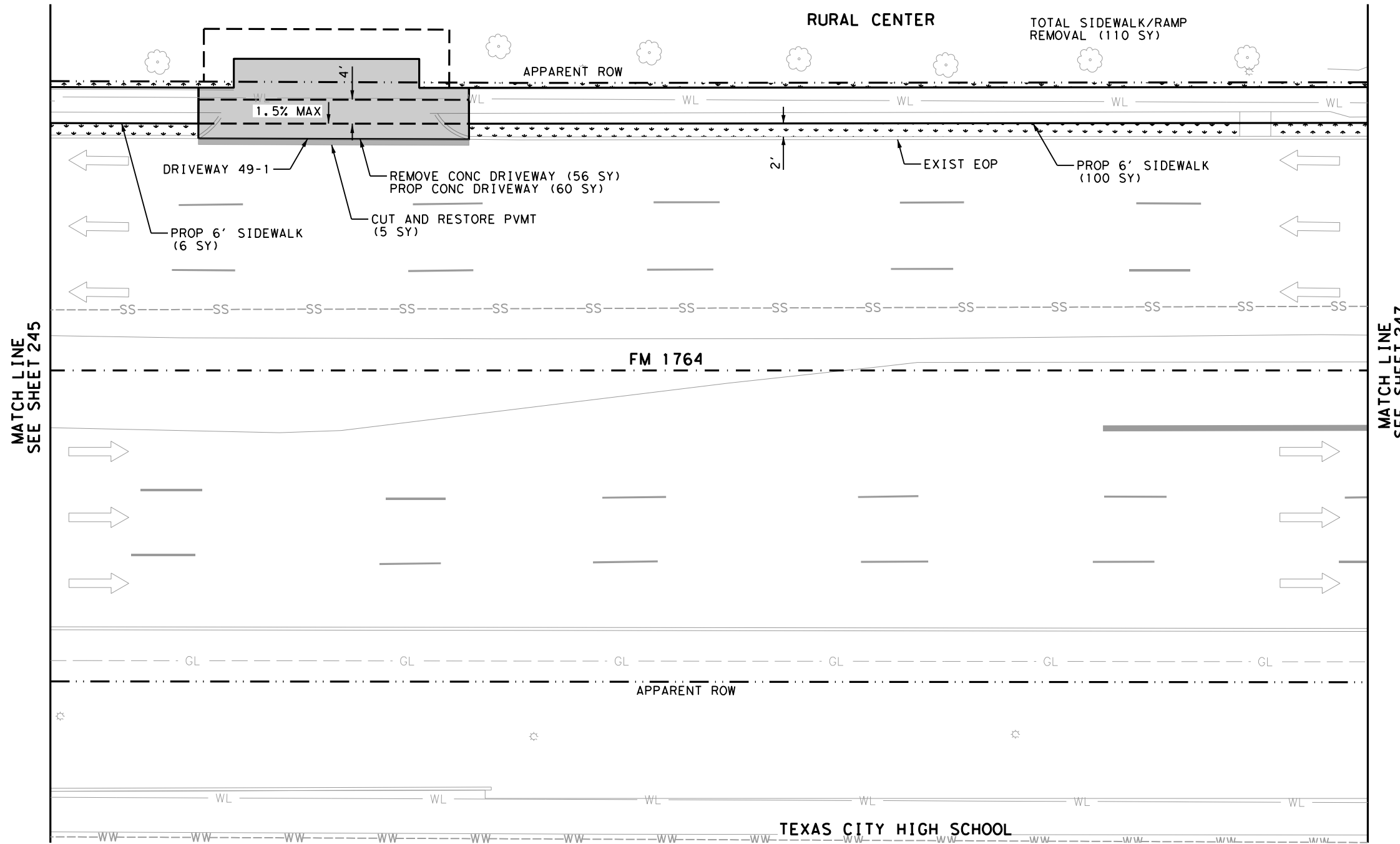
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	SHEET NO.
		FM 1764	
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	245
CONT.	SECT.	JOB	
1607	01	057, ETC.	

SPECIAL NOTES & DETAILS

- LEGEND**
- ~ DRAINAGE FLOW ARROW
 - x- FENCE
 - F FLARE
 - ⊕ FIRE HYDRANT
 - ⊗ GAS METER/VALVE
 - ▣ GROUND BOX
 - L LANDING
 - L1 LANDING (COMMON)
 - LS LEVEL SIDEWALK (2% MAX)
 - ← GUY WIRE
 - GUARD FENCE/RAIL
 - - - TEMPORARY CONSTRUCTION LICENSE
 - ☆ LIGHT POLE
 - MAIL BOX
 - ⊙ MANHOLE
 - ⊙ PEDESTAL SIGNAL POLE
 - POWER/UTILITY POLE
 - R RAMP
 - ▨ RIPRAP (CONC)
 - ⊕ SIGN
 - ▣ SODDING
 - T TRANSITION
 - MISCELLANEOUS STRUC
 - ▨ SIDEWALK/RAMP REMOVAL
 - SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%
 - TRAFFIC FLOW
 - ▣ TRAFFIC SIGNAL BOX
 - ▣ TRAFFIC SIGNAL CONTROLLER
 - ⊗ TRAFFIC SIGNAL POLE
 - TREE/BUSHES
 - ⊗ WATER METER/VALVE
 - ⊕ GUTTER LINE PROJECTION
 - ▣ GRATE INLET
 - ⊙ PROPOSED PEDESTAL POLE
 - PROPOSED CONDUIT
 - - - EXISTING CONDUIT

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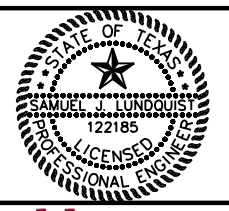
SHEET #	DESCRIPTION	UNIT	QTY
0104 6017	REMOVING CONC (DRIVEWAYS)	SY	56
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	110
0162 6002	BLOCK SODDING	SY	58
0400 6008	CUT & RESTORE ASPH PAVING	SY	5
0530 6004	DRIVEWAYS (CONC)	SY	60
0531 6001	CONC SIDEWALKS (4")	SY	106



NOTES:

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Signature
6/3/2024



Kimley»Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

**FM 1764
BETWEEN PHOENIX LN
AND 15TH ST**

TEXAS CITY, TEXAS

SHEET 49 OF 52

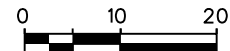
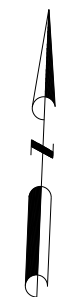
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	SHEET NO.
		FM 1764	
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	246
CONT.	SECT.	JOB	
1607	01	057, ETC.	

SPECIAL NOTES & DETAILS

LEGEND		
~ DRAINAGE FLOW ARROW	* LIGHT POLE	SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%
- X - FENCE	□ MAIL BOX	→ TRAFFIC FLOW
F FLARE	○ MANHOLE	▣ TRAFFIC SIGNAL BOX
⊕ FIRE HYDRANT	● PEDESTAL SIGNAL POLE	▣ TRAFFIC SIGNAL CONTROLLER
⊗ GAS METER/VALVE	● POWER/UTILITY POLE	⊗ TRAFFIC SIGNAL POLE
▣ GROUND BOX	R RAMP	○ TREE/BUSHES
L LANDING	▣ RIPRAP (CONC)	⊗ WATER METER/VALVE
L1 LANDING (COMMON)	○ SIGN	⊕ GUTTER LINE PROJECTION
LS LEVEL SIDEWALK (2% MAX)	▣ SODDING	▣ GRATE INLET
← GUY WIRE	T TRANSITION	● PROPOSED PEDESTAL POLE
— GUARD FENCE/RAIL	□ MISCELLANEOUS STRUC	— PROPOSED CONDUIT
- - - TEMPORARY CONSTRUCTION LICENSE	▣ SIDEWALK/RAMP REMOVAL	— EXISTING CONDUIT

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SHEET #	ITEM	DESCRIPTION	UNIT	QTY	50
0104	6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	161	
0162	6002	BLOCK SODDING	SY	42	
0400	6008	CUT & RESTORE ASPH PAVING	SY	8	
0531	6001	CONC SIDEWALKS (4")	SY	90	
0531	6006	CURB RAMPS (TY 3)	EA	4	
0531	6010	CURB RAMPS (TY 7)	EA	1	
0644	6068	RELOCATE SM RD SN SUP&M TY 10BWG	EA	1	
0666	6048	REFL PAV MRK TY I (W) 24" (SLD) (100MIL)	LF	220	
0678	6008	PAV SURF PREP FOR MRK (24")	LF	220	



NOTES:

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6/3/2024

Kimley»Horn F-928

Texas Department of Transportation

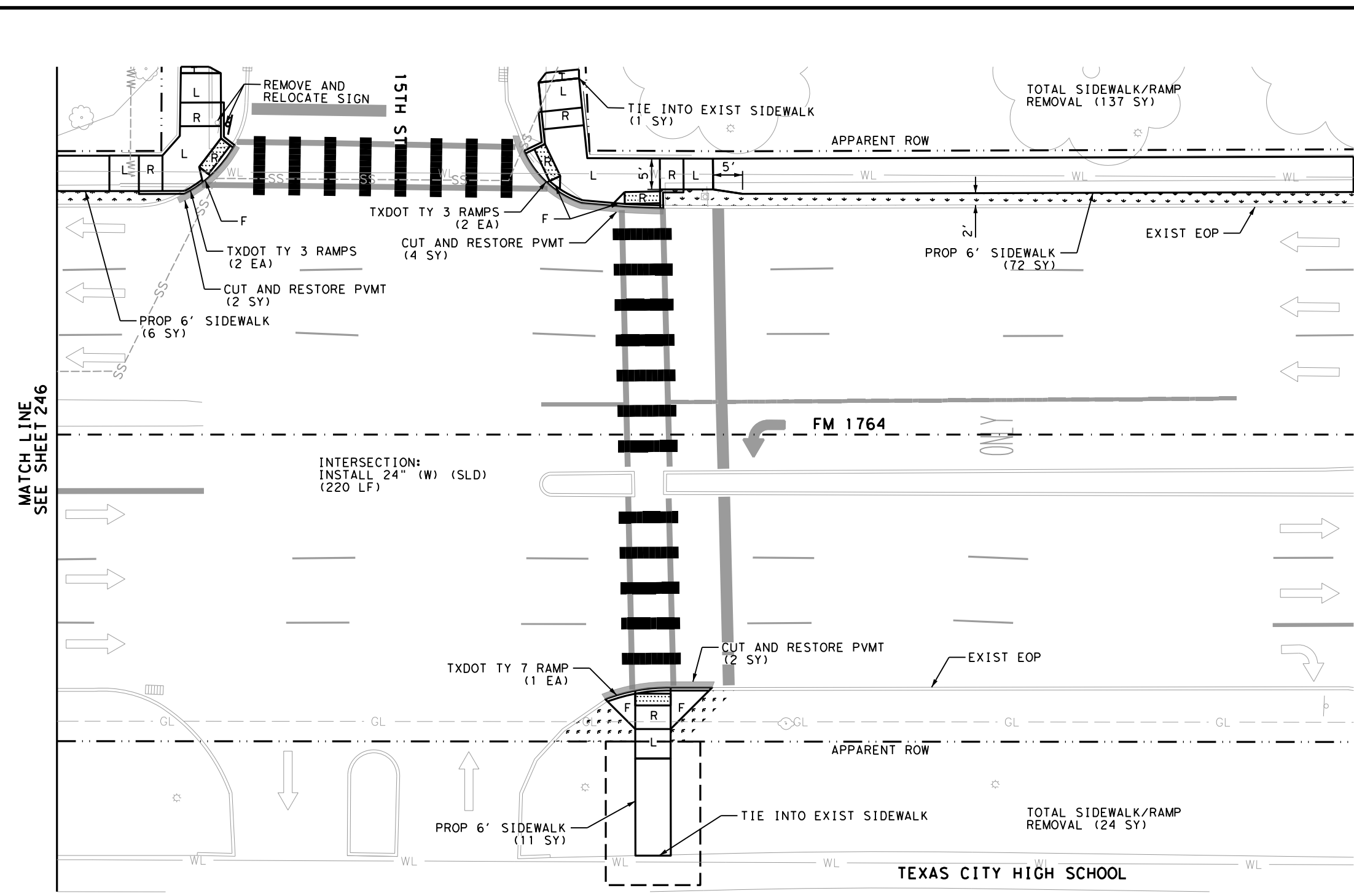
CURB RAMP PROGRAM

**FM 1764
AT 15TH ST**

TEXAS CITY, TEXAS

SHEET 50 OF 52

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	SHEET NO.
		FM 1764	247
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	
CONT.	SECT.	JOB	
1607	01	057, ETC.	



MATCH LINE SEE SHEET 246

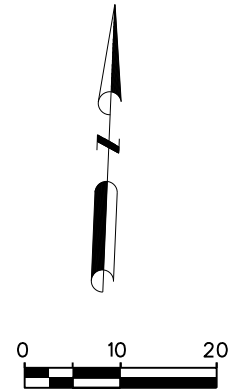
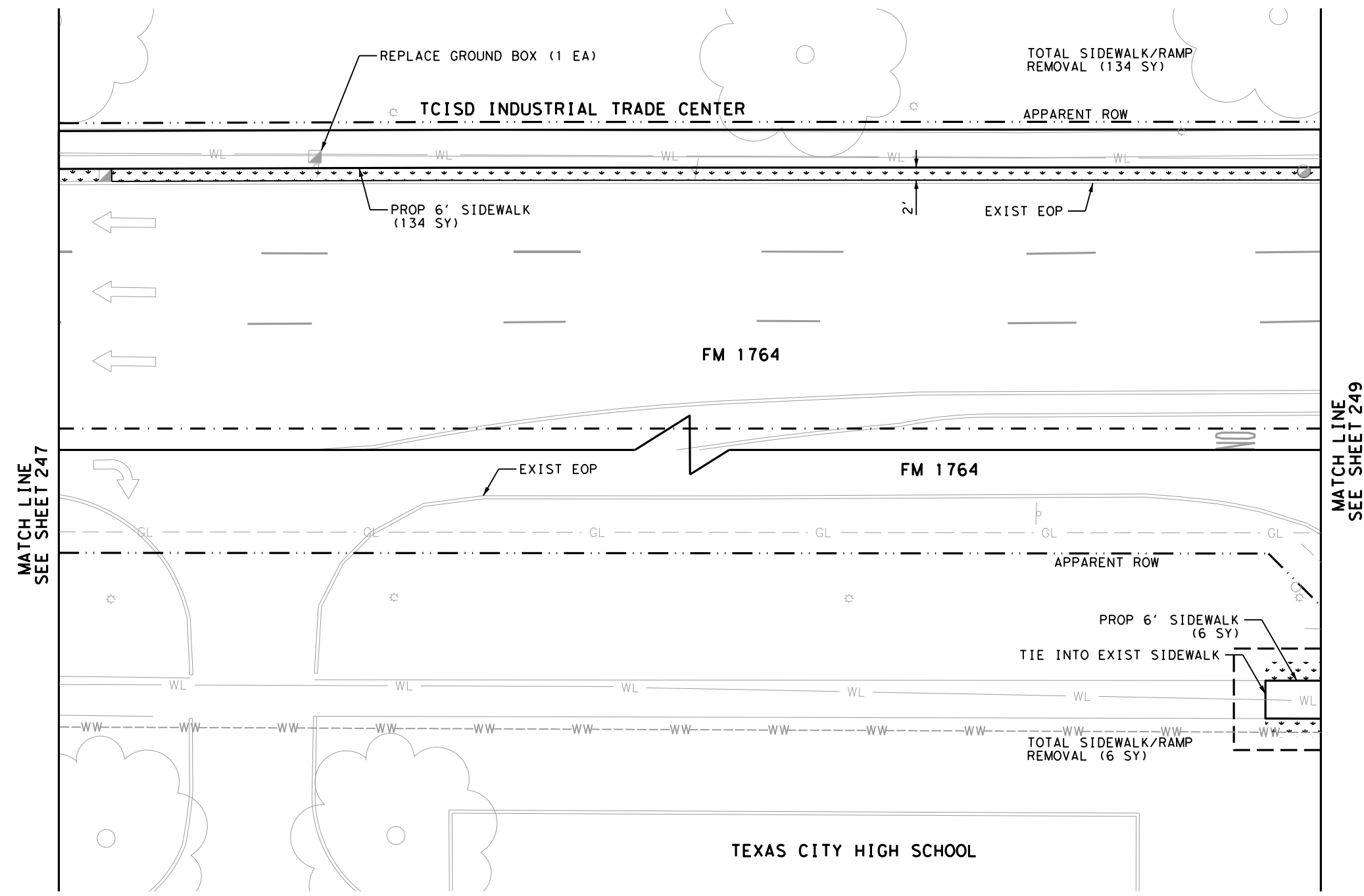
MATCH LINE SEE SHEET 248

SPECIAL NOTES & DETAILS

<ul style="list-style-type: none"> ~ DRAINAGE FLOW ARROW - X - FENCE F FLARE ⊕ FIRE HYDRANT ⊗ GAS METER/VALVE ▣ GROUND BOX L LANDING L1 LANDING (COMMON) LS LEVEL SIDEWALK (2% MAX) ← GUY WIRE — GUARD FENCE/RAIL - - - TEMPORARY CONSTRUCTION LICENSE 	<p>LEGEND</p> <ul style="list-style-type: none"> ⊙ LIGHT POLE □ MAIL BOX ⊙ MANHOLE ⊙ PEDESTAL SIGNAL POLE ⊙ POWER/UTILITY POLE R RAMP ▨ RIPRAP (CONC) ⊙ SIGN ▣ SODDING T TRANSITION □ MISCELLANEOUS STRUC ▨ SIDEWALK/RAMP REMOVAL 	<ul style="list-style-type: none"> SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2% → TRAFFIC FLOW ⊙ TRAFFIC SIGNAL BOX ▣ TRAFFIC SIGNAL CONTROLLER ⊙ TRAFFIC SIGNAL POLE ⊙ TREE/BUSHES ⊙ WATER METER/VALVE ⊙ GUTTER LINE PROJECTION ▣ GRATE INLET ⊙ PROPOSED PEDESTAL POLE — PROPOSED CONDUIT — EXISTING CONDUIT
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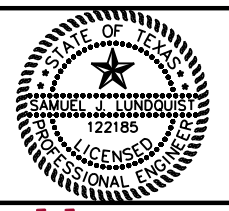
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SHEET #	DESCRIPTION	UNIT	QTY
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	140
0162 6002	BLOCK SODDING	SY	48
0531 6001	CONC SIDEWALKS (4")	SY	140
0690 6007	REPLACE OF GROUND BOXES	EA	1



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ALD
6/3/2024



Kimley»Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

**FM 1764
AT 14TH ST**

TEXAS CITY, TEXAS

SHEET 51 OF 52

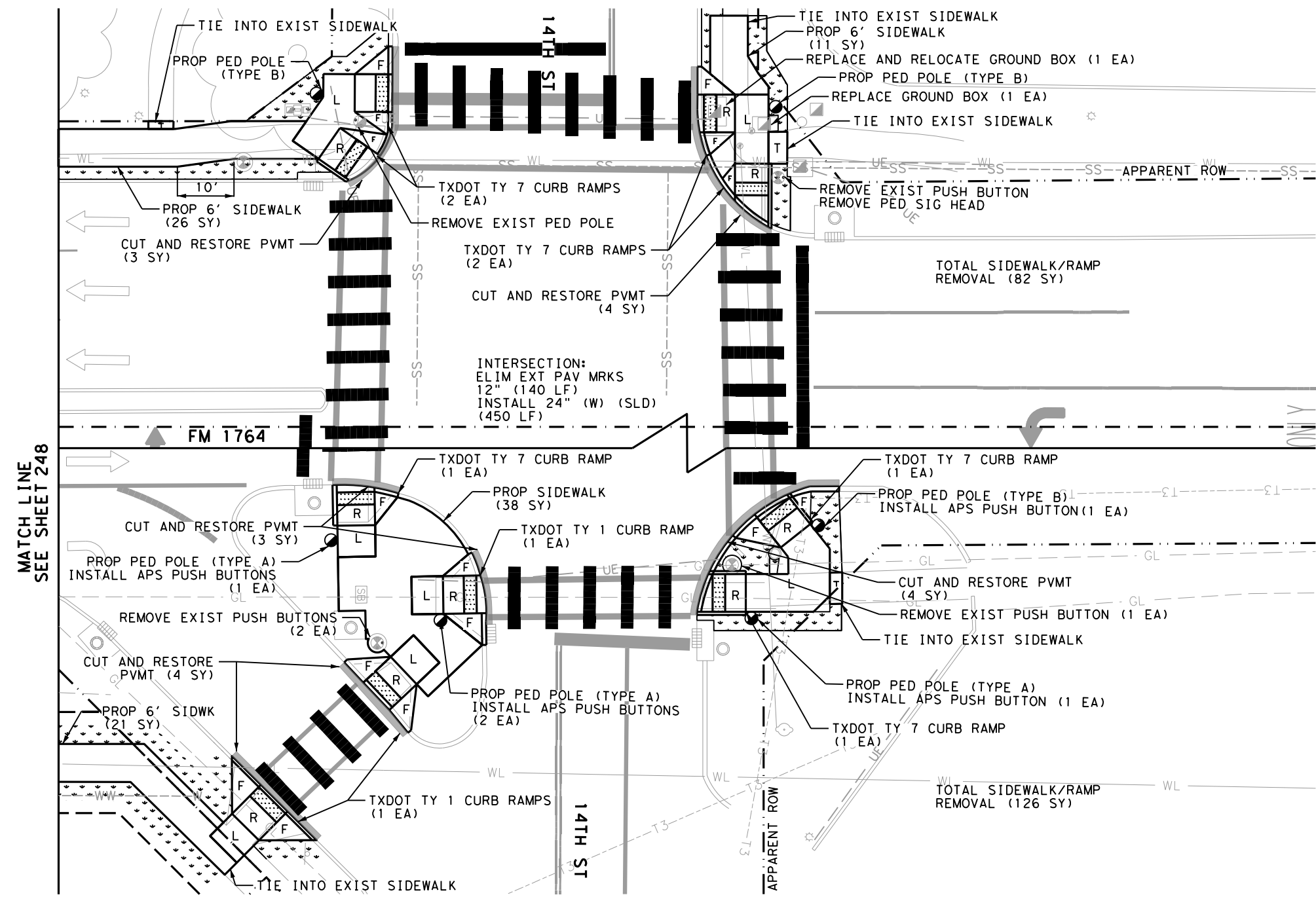
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	SHEET NO.
		FM 1764	248
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	
CONT.	SECT.	JOB	
1607	01	057, ETC.	

SPECIAL NOTES & DETAILS

<ul style="list-style-type: none"> ~ DRAINAGE FLOW ARROW - X - FENCE F FLARE ⊕ FIRE HYDRANT ⊗ GAS METER/VALVE ▣ GROUND BOX L LANDING L1 LANDING (COMMON) LS LEVEL SIDEWALK (2% MAX) ← GUY WIRE — GUARD FENCE/RAIL - - - TEMPORARY CONSTRUCTION LICENSE 	<p>LEGEND</p> <ul style="list-style-type: none"> ⊙ LIGHT POLE □ MAIL BOX ○ MANHOLE ⊙ PEDESTAL SIGNAL POLE ● POWER/UTILITY POLE R RAMP ▣ RIPRAP (CONC) ⊙ SIGN ▣ SODDING T TRANSITION □ MISCELLANEOUS STRUC ▣ SIDEWALK/RAMP REMOVAL 	<ul style="list-style-type: none"> SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2% → TRAFFIC FLOW ▣ TRAFFIC SIGNAL BOX ▣ TRAFFIC SIGNAL CONTROLLER ⊙ TRAFFIC SIGNAL POLE ○ TREE/BUSHES ⊙ WATER METER/VALVE ⊕ GUTTER LINE PROJECTION ▣ GRATE INLET ⊙ PROPOSED PEDESTAL POLE — PROPOSED CONDUIT - - - EXISTING CONDUIT
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SHEET #	DESCRIPTION	UNIT	QTY
0104 6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	208
0162 6002	BLOCK SODDING	SY	48
0400 6008	CUT & RESTORE ASPH PAVING	SY	18
0531 6001	CONC SIDEWALKS (4")	SY	96
0531 6004	CURB RAMPS (TY 1)	EA	1
0531 6010	CURB RAMPS (TY 7)	EA	6
0531 6017	CURB RAMPS (TY 22)	EA	1
0618 6023	COND (PVC) (SCH 40) (2")	LF	100
0620 6007	ELEC CONDR (NO. 8) BARE	LF	100
0666 6048	REFL PAV MRK TY I (W) 24" (SLD) (100MIL)	LF	450
0677 6005	ELIM EXT PAV MRK & MRKS (12")	LF	140
0678 6008	PAV SURF PREP FOR MRK (24")	LF	450
0684 6007	TRF SIG CBL (TY A) (12 AWG) (2 CONDR)	LF	750
0687 6001	PED POLE ASSEMBLY	EA	6
0680 6011	INSTALL HWY TRF SIG (UPGRADE)	EA	1
0682 6018	PED SIG SEC (LED) (COUNTDOWN)	EA	4
0684 6031	TRF SIG CBL (TY A) (14 AWG) (5 CONDR)	LF	100
0688 6001	PED DETECT PUSH BUTTON (APS)	EA	8
0688 6003	PED DETECTOR CONTROLLER UNIT	EA	1
0690 6007	REPLACE OF GROUND BOXES	EA	2
0690 6030	REMOVAL OF PEDESTRIAN PUSH BUTTONS	EA	6



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6/3/2024

Kimley»Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

SPECIAL NOTES & DETAILS

LEGEND	
~ DRAINAGE FLOW ARROW	☆ LIGHT POLE
-X- FENCE	□ MAIL BOX
F FLARE	○ MANHOLE
⊕ FIRE HYDRANT	● PEDESTAL SIGNAL POLE
⊗ GAS METER/VALVE	● POWER/UTILITY POLE
■ GROUND BOX	R RAMP
L LANDING	▨ RIPRAP (CONC)
L1 LANDING (COMMON)	⊖ SIGN
LS LEVEL SIDEWALK (2% MAX)	☐ SODDING
← GUY WIRE	T TRANSITION
— GUARD FENCE/RAIL	□ MISCELLANEOUS STRUC
- - - TEMPORARY CONSTRUCTION LICENSE	▨ SIDEWALK/RAMP REMOVAL
	SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%
	→ TRAFFIC FLOW
	⊠ TRAFFIC SIGNAL BOX
	⊠ TRAFFIC SIGNAL CONTROLLER
	⊗ TRAFFIC SIGNAL POLE
	○ TREE/BUSHES
	⊗ WATER METER/VALVE
	⊕ GUTTER LINE PROJECTION
	▨ GRATE INLET
	● PROPOSED PEDESTAL POLE
	— PROPOSED CONDUIT
	— EXISTING CONDUIT

**FM 1764
AT 14TH ST**

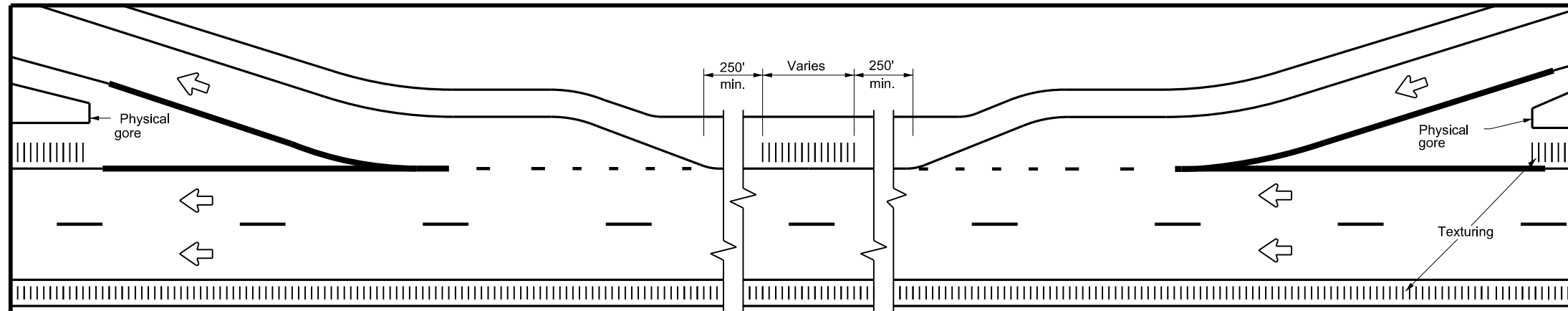
TEXAS CITY, TEXAS

SHEET 52 OF 52

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	SHEET NO.
		FM 1764	
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	249
CONT.	SECT.	JOB	
1607	01	057, ETC.	

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TYPICAL RUMBLE STRIP PLACEMENT AT EXIT AND ENTRANCE RAMP

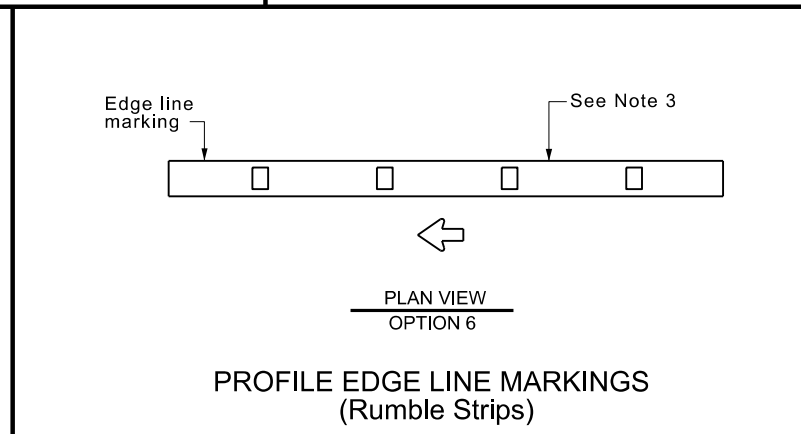
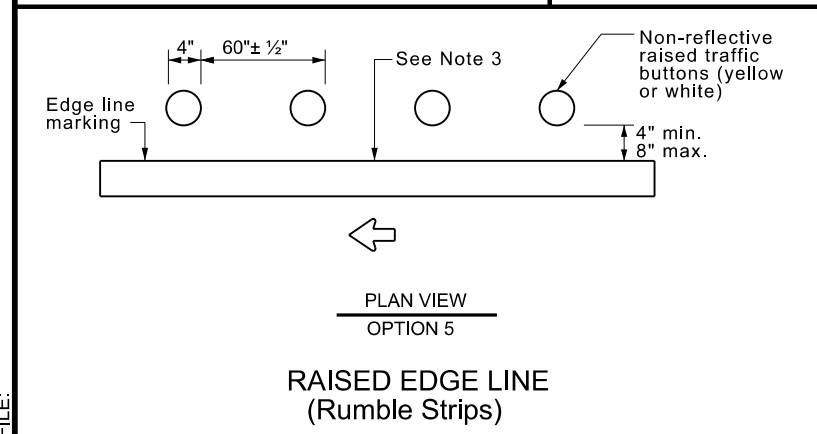
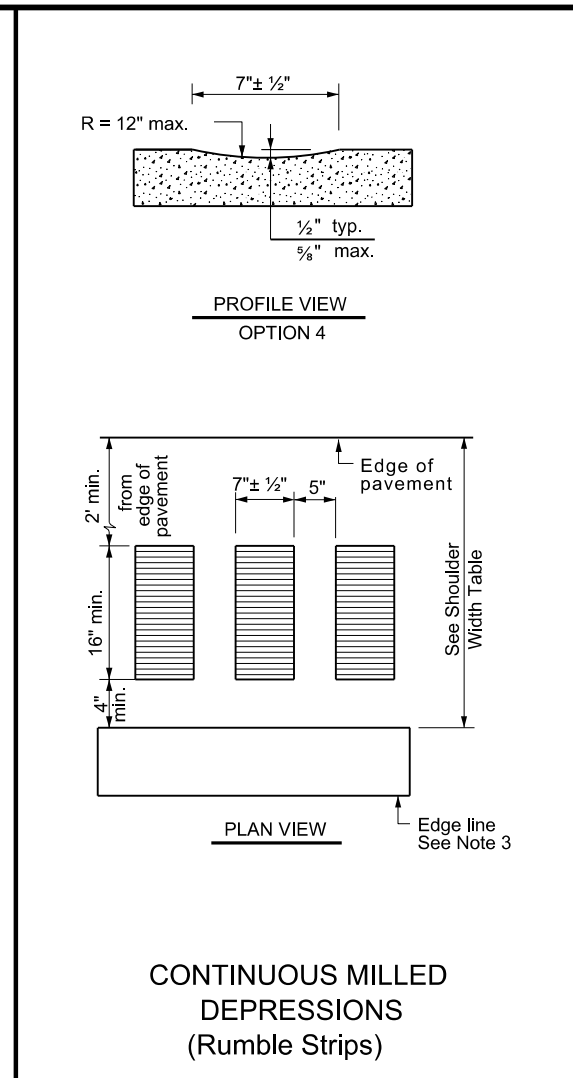
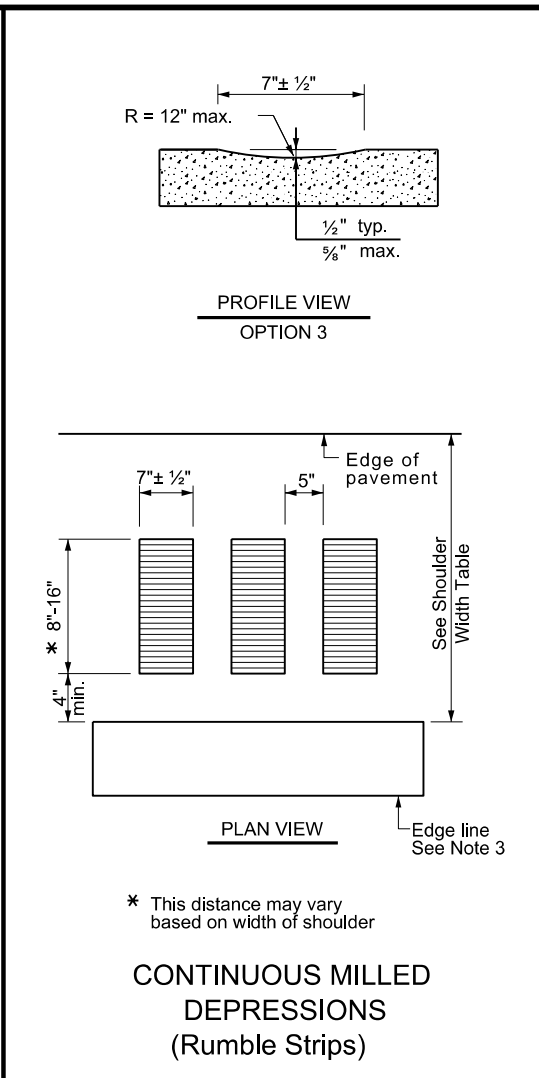
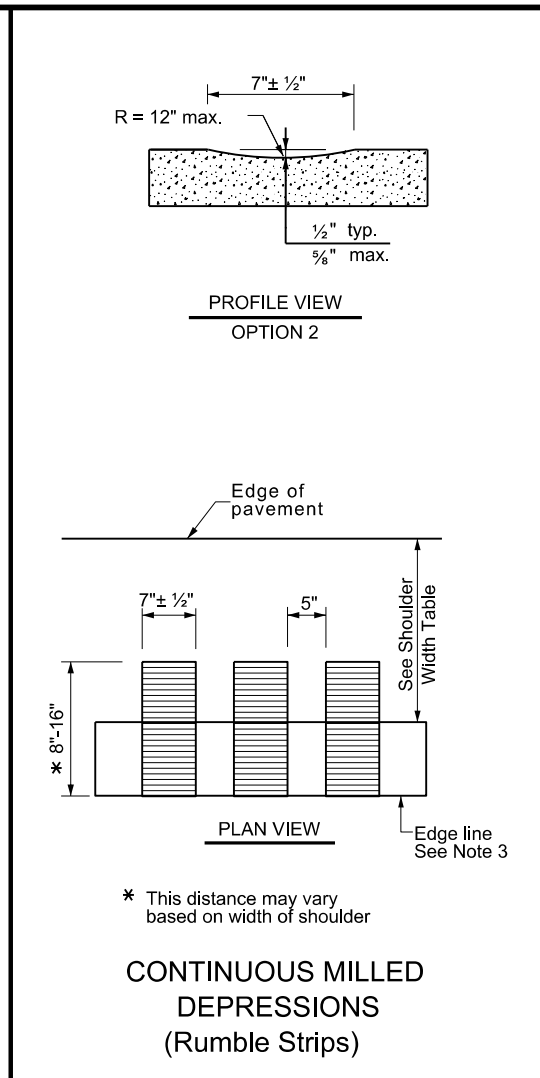
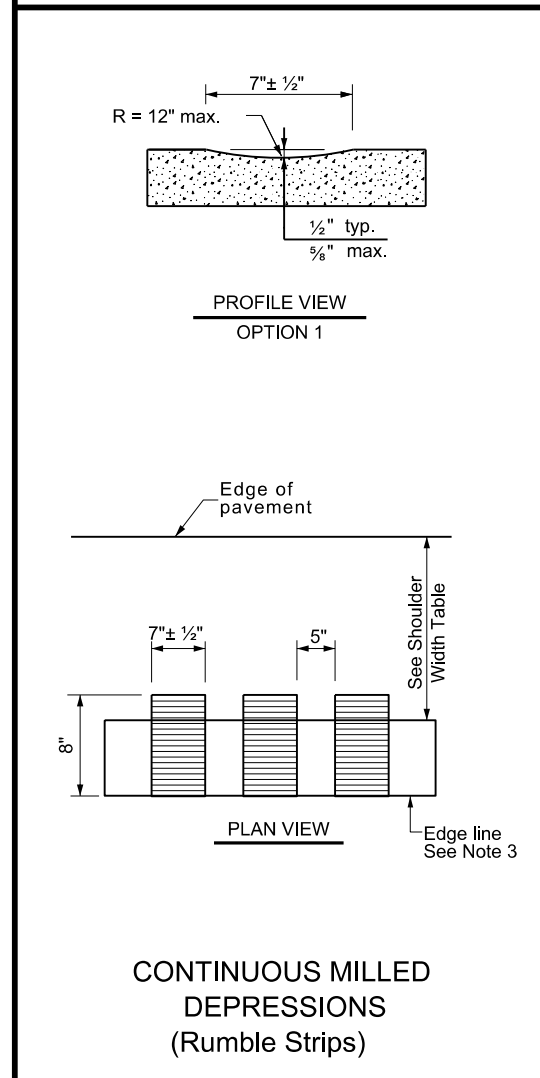
- GENERAL NOTES**
- Rumble strips and profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.
 - Milled rumble strips are preferred when adequate pavement depth is available. If pavement thickness is less than 2 inches, milled rumble strips shall not be used. Rumble strips shall not be milled or depressed into bridge decks.
 - Use standard sheets PM(2) and FPM(1) for positioning, dimensioning, and spacing of all reflective raised pavement markers, pavement markings, and profile markings.
 - See the Shoulder Width Table below for determining what options may be used for edge line rumble strips.
 - Breaks in edge line rumble strips shall occur at least 50 feet and no more than 150 feet in advance of bridges, railroad crossings, intersections, or driveways with high usage of large trucks when installed on conventional highways.
 - Rumble strips shall not be placed across exit or entrance ramps, acceleration or deceleration lanes, crossovers, gore areas, or intersections with other roadways.
 - Consideration should be given to noise levels when edge line rumble strips are to be installed near residential areas, schools, churches, etc. A 3/8 inch deep (minimum) milled rumble strip may be considered in these areas.
 - Consideration shall be given to bicyclists. See RS(6).

WHEN INSTALLING MILLED DEPRESSION EDGE LINE RUMBLE STRIPS:

- See dimensions for milled rumble strips. Other shapes and dimensions may be used if approved by the Traffic Safety Division.
- Pavement markings can be applied over milled shoulder rumble strips to create an edge line rumble stripe.

WHEN INSTALLING RAISED OR PROFILE EDGE LINE RUMBLE STRIPS:

- Raised rumble strips consisting of non-reflective raised traffic buttons may be used. Non-reflective raised traffic buttons can be affixed to asphalt or concrete with bitumen or adhesives, as per the manufacturer's recommendations.
- Non-reflective traffic buttons shall be placed adjacent to the pavement marking delineating the edge line when used as a rumble strip. The color of the button should match the color of the adjacent edge line marking (white or yellow). The buttons will be paid for under Item 672, "Raised Pavement Markers." Non-reflective traffic buttons must meet the requirements of DMS-4300.
- Non-reflective traffic buttons shall not be placed across exit or entrance ramps, acceleration and deceleration lanes, crossovers, gore areas or intersections with other roadways.
- The minimum distance between the edge line and the buttons should be used if the shoulder is less than 8 feet in width.
- Raised profile thermoplastic markings used as edge lines may substitute for buttons.



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

Texas Department of Transportation

Traffic Safety Division Standard

EDGE LINE RUMBLE STRIPS ON FREEWAYS AND DIVIDED HIGHWAYS

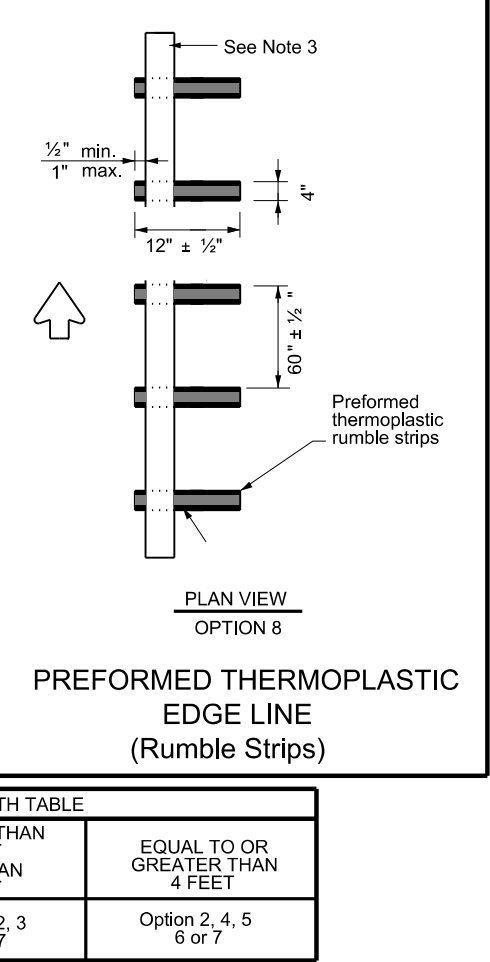
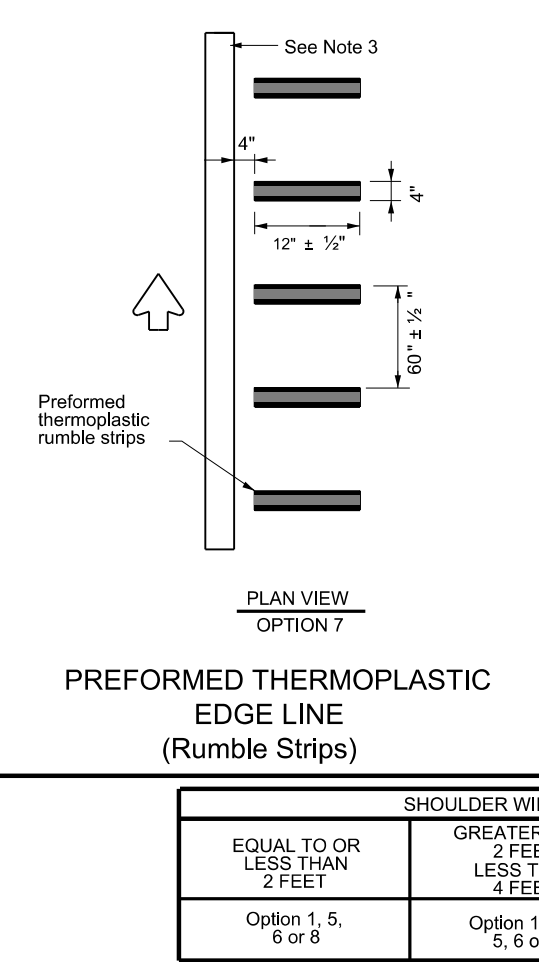
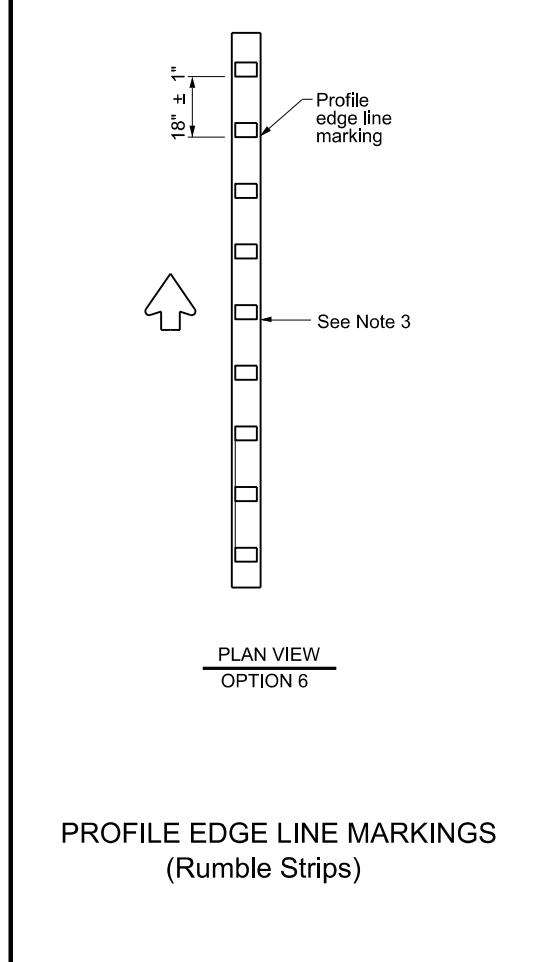
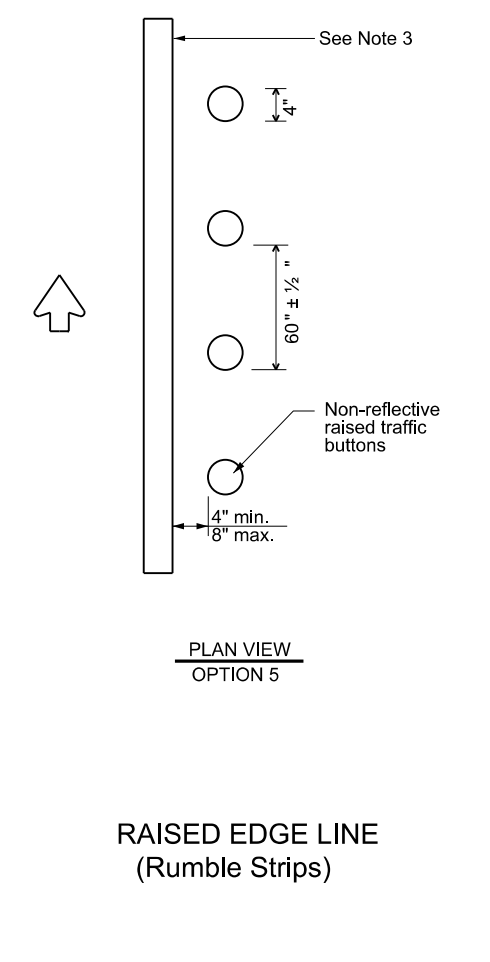
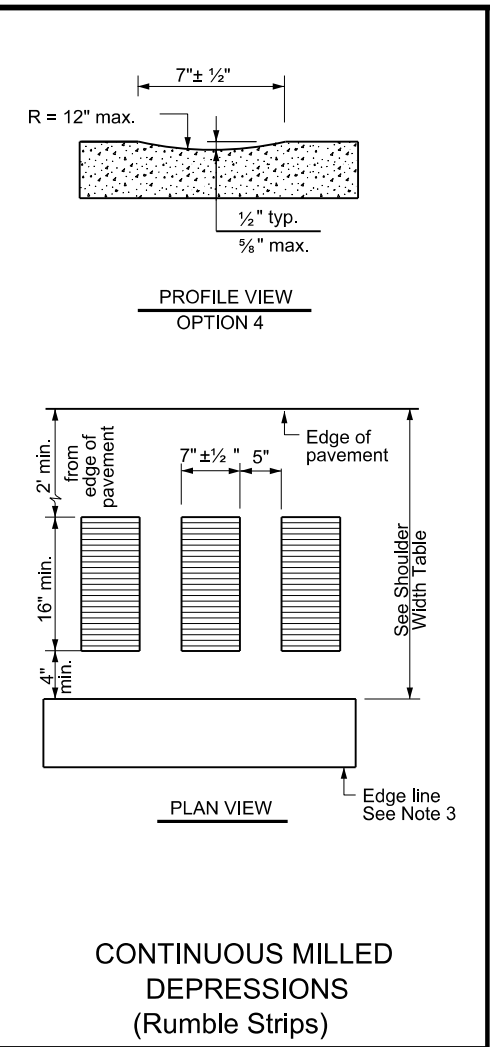
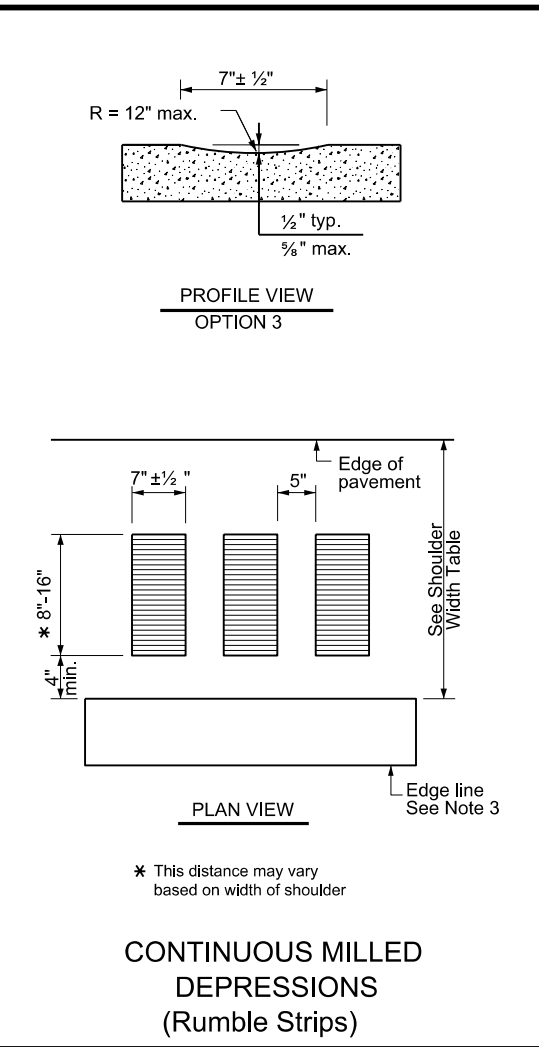
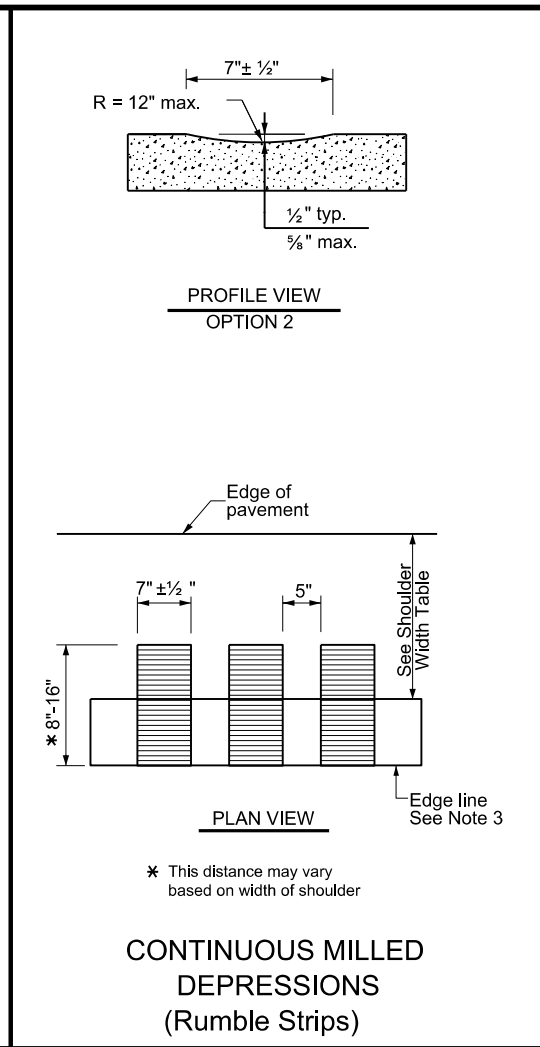
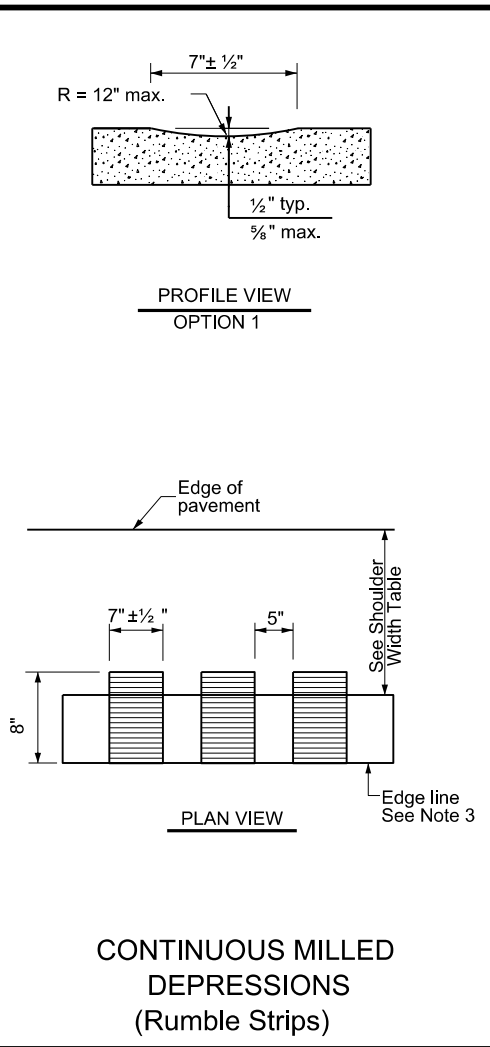
RS(1)-23

FILE: rs(1)-23.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT	January 2023	CONT	SECT	JOB
		1607	01	057, ETC.
4-06	1-23	DIST	COUNTY	SHEET NO.
2-10		HOU	GALVESTON	250
10-13				

DATE: FILE:

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SHOULDER WIDTH TABLE		
EQUAL TO OR LESS THAN 2 FEET	GREATER THAN 2 FEET LESS THAN 4 FEET	EQUAL TO OR GREATER THAN 4 FEET
Option 1, 5, 6 or 8	Option 1, 2, 3 5, 6 or 7	Option 2, 4, 5 6 or 7

GENERAL NOTES

1. Rumble strips and profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.
2. Milled rumble strips are preferred when adequate pavement depth is available. If pavement thickness is less than 2 inches, milled rumble strips shall not be used. Rumble strips shall not be milled or depressed into bridge decks.
3. Use Standard Sheet PM(2) and FPM(1) for positioning, dimensioning, and spacing of all reflective raised pavement markers, pavement markings, and profile markings.
4. See the Shoulder Width Table below for determining what options may be used for edge line rumble strips.
5. Breaks in edge line rumble strips shall occur at least 50 feet and no more than 150 feet in advance of bridges, railroad crossings, intersections, or driveways with high usage of large trucks when installed on conventional highways.
6. Rumble strips shall not be placed across exit or entrance ramps, acceleration or deceleration lanes, crossovers, gore areas, or intersections with other roadways.
7. Consideration should be given to noise levels when edgeline rumble strips are to be installed near residential areas, schools, churches, etc. A 3/8 inch deep (minimum) milled rumble strip may be considered in these areas.
8. Consideration shall be given to bicyclists. See RS(6).

WHEN INSTALLING MILLED DEPRESSION EDGE LINE RUMBLE STRIPS:

9. See dimensions for milled rumble strips. Other shapes and dimensions may be used if approved by the Traffic Safety Division.
10. Pavement markings can be applied over milled shoulder rumble strips to create an edge line rumble strip.

WHEN INSTALLING RAISED OR PROFILE EDGE LINE RUMBLE STRIPS:

11. Raised rumble strips consisting of non-reflective raised traffic buttons may be used. Non-reflective raised traffic buttons can be affixed to asphalt or concrete with bitumen or adhesives, as per the manufacturer's recommendations.
12. Non-reflective traffic buttons shall be placed adjacent to the pavement marking delineating the edge line when used as a rumble strip. The color of the button should match the color of the adjacent edge line marking (white or yellow). The buttons will be paid for under Item 672, "Raised Pavement Markers." Non-reflective traffic buttons must meet the requirements of DMS-4300.
13. Non-reflective traffic buttons shall not be placed across exit or entrance ramps, acceleration and deceleration lanes, crossovers, gore areas or intersections with other roadways.
14. The minimum distance between the edge line and the buttons should be used if the shoulder is less than 8 feet in width.
15. Raised profile thermoplastic markings used as edge lines may substitute for buttons.

Traffic Safety Division Standard

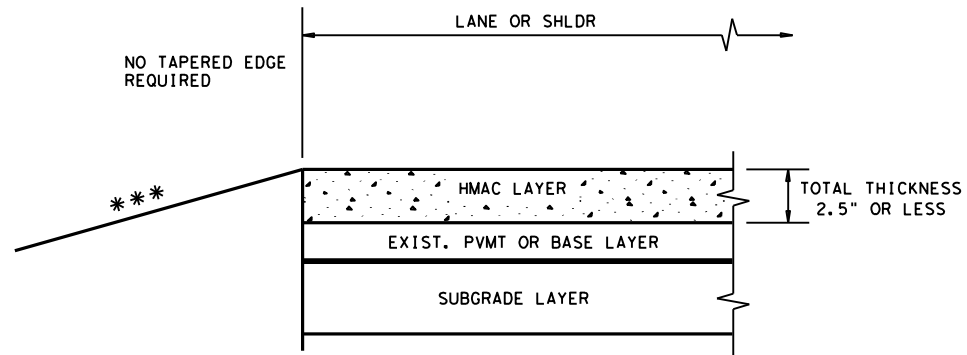
EDGE LINE RUMBLE STRIPS ON UNDIVIDED OR TWO LANE HIGHWAYS

RS(2)-23

FILE: rs(2)-23.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT	January 2023	CONT	SECT	JOB
		1607	01	057, ETC.
10-13	REVISIONS	DIST	COUNTY	SHEET NO.
1-23		HOU	GALVESTON	251

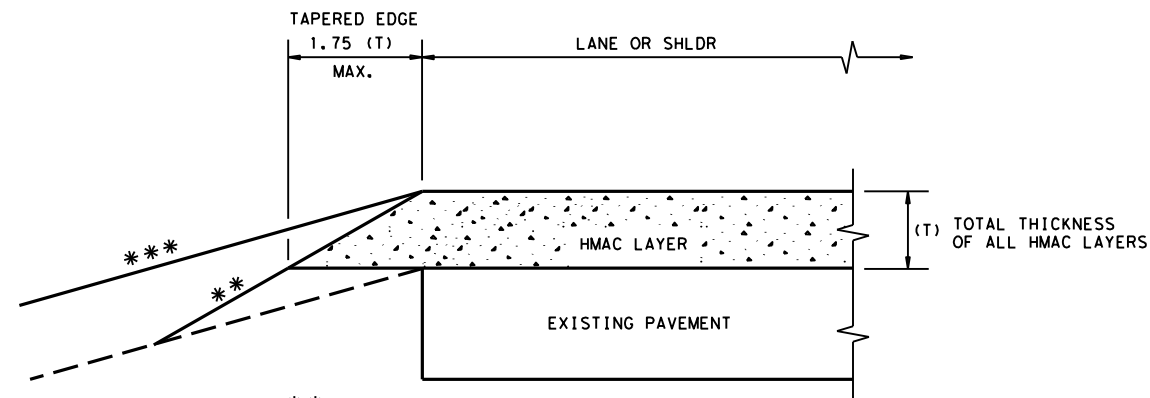
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*** SEE TYPICAL SECTION FOR ROADSIDE DETAILS

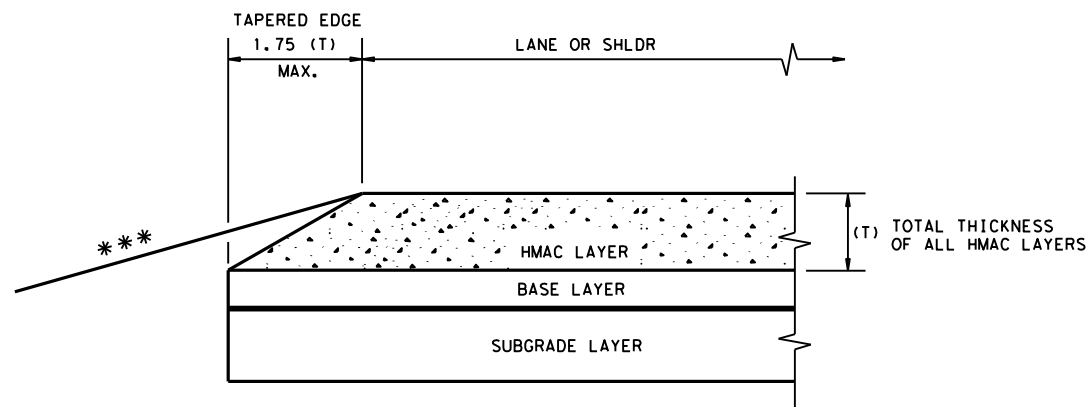
CONDITION - 1
THIN HMAC SURFACES OR HMAC OVERLAY
WITH THICKNESS OF 2.5" OR LESS



** EXISTING ROADSIDE EMBANKMENT TO BE GRADED TO PRODUCE A SMOOTH LEVEL SURFACE FOR PLACEMENT OF TAPERED EDGE. THIS WORK IS SUBSIDIARY TO THE VARIOUS BID ITEMS.

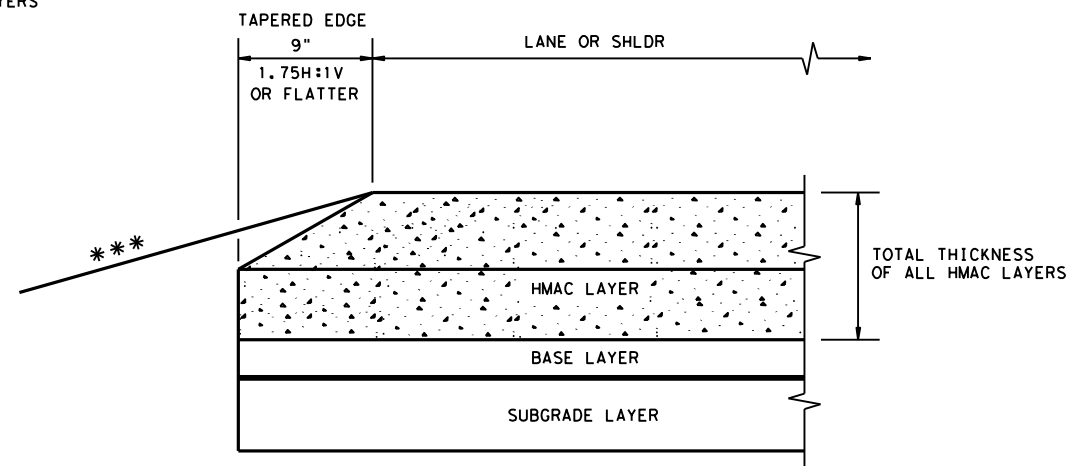
*** SEE TYPICAL SECTION FOR ROADSIDE DETAILS

CONDITION - 2
OVERLAY OF EXISTING PAVEMENT
HMAC THICKNESS 2.5" TO 5"



*** SEE TYPICAL SECTION FOR ROADSIDE DETAILS

CONDITION - 3
NEW OR RECONSTRUCTED PAVEMENT
HMAC THICKNESS 2.5" TO 5"



*** SEE TYPICAL SECTION FOR ROADSIDE DETAILS

CONDITION - 4
NEW OR RECONSTRUCTED PAVEMENT
HMAC THICKNESS 5" OR GREATER

GENERAL NOTES

1. UNLESS OTHERWISE SHOWN IN THE PLANS, A VERTICAL EDGE IS PERMISSIBLE FOR HMAC PLACED GREATER THAN 5" BELOW THE EDGE OF PAVEMENT AND FOR THICKNESS OF HMAC LESS THAN 2.5".
2. FOR FURTHER INFORMATION REGARDING THE ROADSIDE AND PAVEMENT DETAILS, SEE TYPICAL SECTIONS.
3. PAYMENT FOR TAPERED EDGE WILL BE IN ACCORDANCE WITH APPLICABLE ITEMS IN THE CONTRACT.
4. THE SLOPE OF THE TAPERED EDGE SHALL BE 1.75H:1V OR FLATTER.
5. THE TAPERED EDGE SHALL BE PRODUCED BY USE OF A SCREED ATTACHMENT CAPABLE OF PRODUCING A SMOOTH COMPACTED SURFACE. ADDITIONAL COMPACTING EFFORT BEHIND THE SCREED IS NOT REQUIRED.

(NOT TO SCALE)

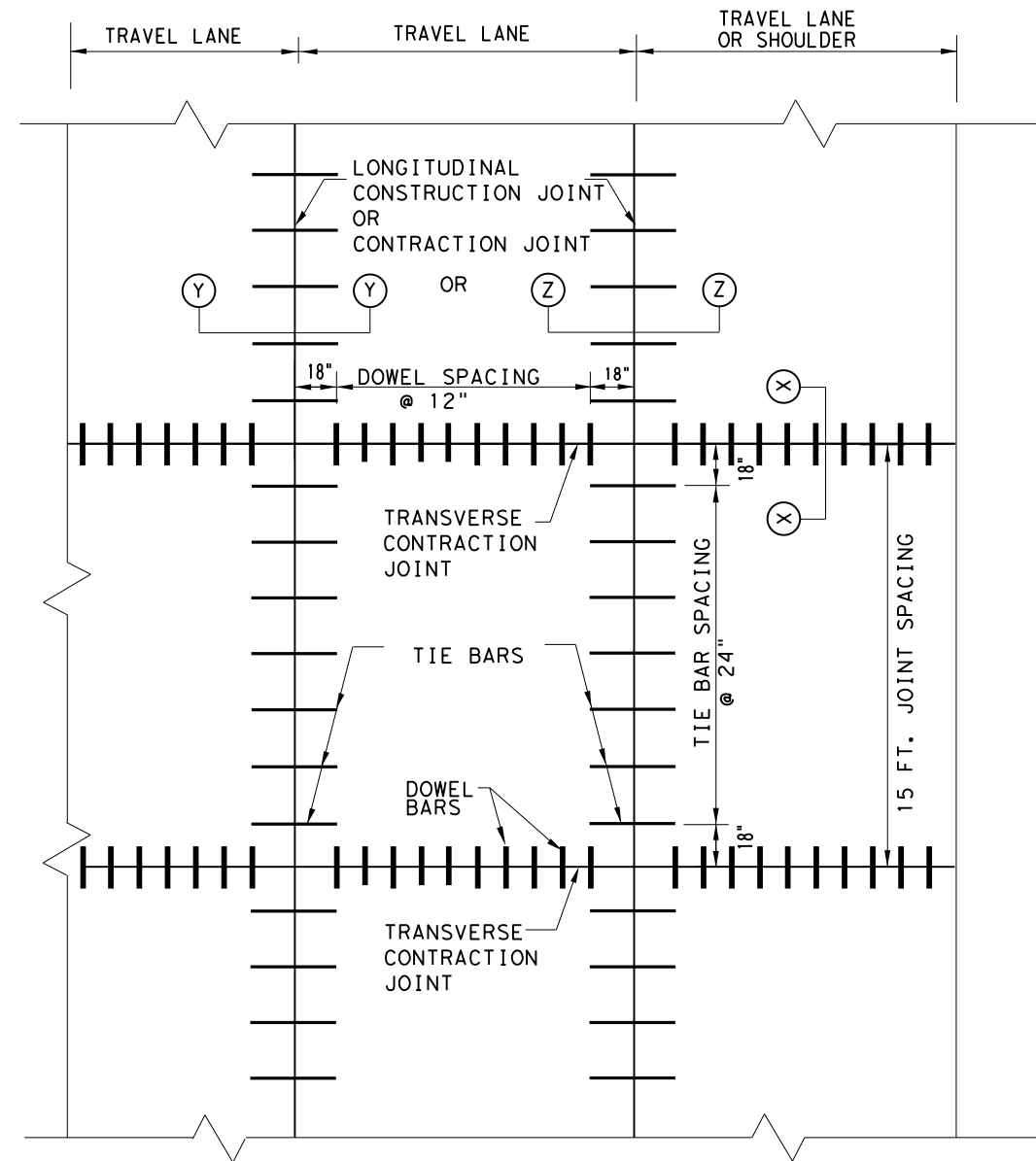
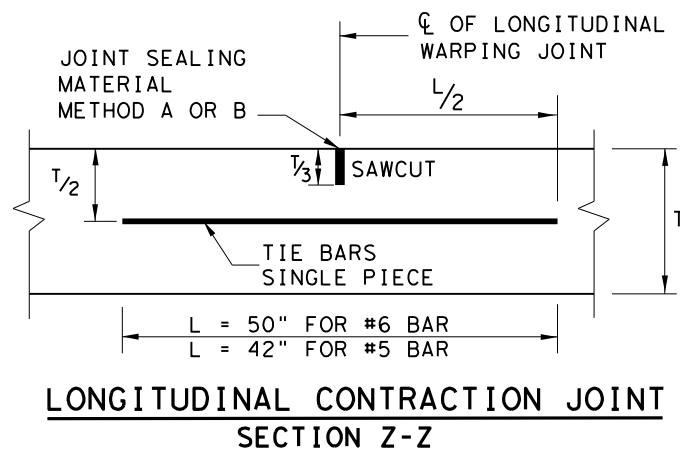
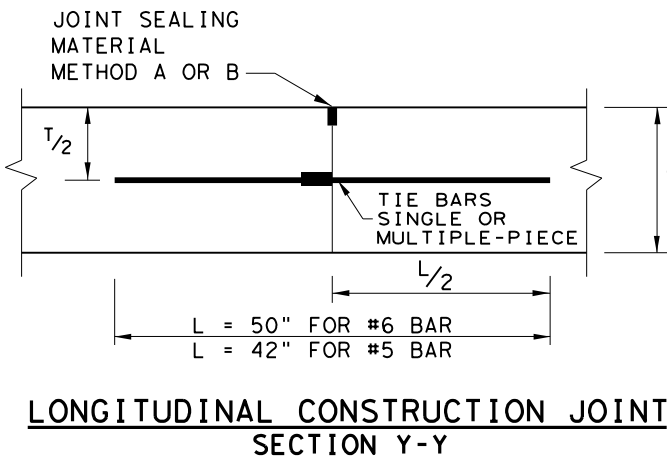
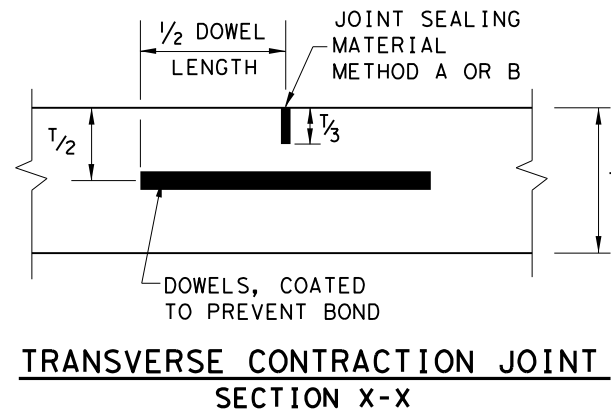
				Design Division Standard	
TAPERED EDGE DETAILS HMAC PAVEMENT					
TE (HMAC) - 11					
FILE: tehmac11.dgn	DN: TxDOT	CK: RL	DW: KB	CK:	
© TxDOT January 2011	CONT	SECT	JOB	HIGHWAY	
REVISIONS	1607	01	057, ETC.	FM 1764	
	DIST	COUNTY		SHEET NO.	
	HOU	GALVESTON		252	

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DATE:
FILE:

GENERAL NOTES

1. DETAILS FOR PAVEMENT WIDTH, PAVEMENT THICKNESS AND THE CROWN CROSS-SLOPE SHALL BE SHOWN ELSEWHERE IN THE PLANS. PAVEMENTS WIDER THAN 100 FT. WITHOUT A FREE LONGITUDINAL JOINT ARE NOT COVERED BY THIS STANDARD.
2. FOR FURTHER INFORMATION REGARDING THE PLACEMENT OF CONCRETE AND LOAD TRANSFER DEVICES REFER TO THE GOVERNING SPECIFICATION FOR "CONCRETE PAVEMENT".
3. THE SPACING BETWEEN TRANSVERSE CONTRACTION JOINTS SHALL BE 15 FT. UNLESS OTHERWISE SHOWN IN THE PLANS.
4. TRANSVERSE CONSTRUCTION JOINTS MAY BE FORMED BY USE OF METAL OR WOOD FORMS EQUAL IN DEPTH TO THE DEPTH OF PAVEMENT, OR BY METHODS APPROVED BY THE ENGINEER.
5. USE HAND-OPERATED IMMERSION VIBRATORS TO CONSOLIDATE THE CONCRETE ADJACENT TO ALL THE FORMED JOINTS.
6. PAVEMENT WIDTHS OF MORE THAN 15 FT. SHALL HAVE A LONGITUDINAL JOINT (SECTION Z-Z OR SECTION Y-Y). THESE JOINTS SHALL BE LOCATED WITHIN 6 IN. OF THE LANE LINE UNLESS THE JOINT LOCATION IS SHOWN ELSEWHERE ON THE PLANS.
7. THE JOINT BETWEEN OUTSIDE LANE AND SHOULDER SHALL BE A LONGITUDINAL CONTRACTION JOINT (SECTION Z-Z) UNLESS OTHERWISE SHOWN IN THE PLANS. THE SAW CUT DEPTH FOR THE LONGITUDINAL CONTRACTION JOINT (SECTION Z-Z) SHALL BE ONE THIRD OF THE SLAB THICKNESS (T/3).
8. WHEN TYING CONCRETE GUTTER AT A LONGITUDINAL JOINT, THE TIE BAR LENGTH OR POSITION MAY BE ADJUSTED. PROVIDE 3 IN. OF CONCRETE COVER FROM THE BACK OF GUTTER TO THE END OF TIE BAR.
9. REPLACE MISSING OR DAMAGED TIE BARS WITHOUT ADDITIONAL COMPENSATION BY DRILLING MIN. 10 IN. DEEP AND GROUTING TIE BARS WITH TYPE III, CLASS C EPOXY. MEET THE PULL-OUT TEST REQUIREMENTS IN ITEM 361.
10. WHEN AN MONOLITHIC CURB IS SPECIFIED, THE JOINT IN THE CURB SHALL COINCIDE WITH PAVEMENT JOINTS AND MAY BE FORMED BY ANY MEANS APPROVED BY THE ENGINEER.
11. DOWEL BAR PLACEMENT TOLERANCE SHALL BE +/- 1/4 IN. HORIZONTALLY AND VERTICALLY UNLESS OTHERWISE SPECIFIED. WHERE DOWEL BAR BASKETS ARE USED, REMOVE THE SHIPPING WIRES.
12. THE DETAIL FOR JOINT SEALANT AND RESERVOIR IS SHOWN ON STANDARD SHEET "CONCRETE PAVING DETAILS, JOINT SEALS."



TYPICAL PAVEMENT LAYOUT
PLAN VIEW (NOT TO SCALE)

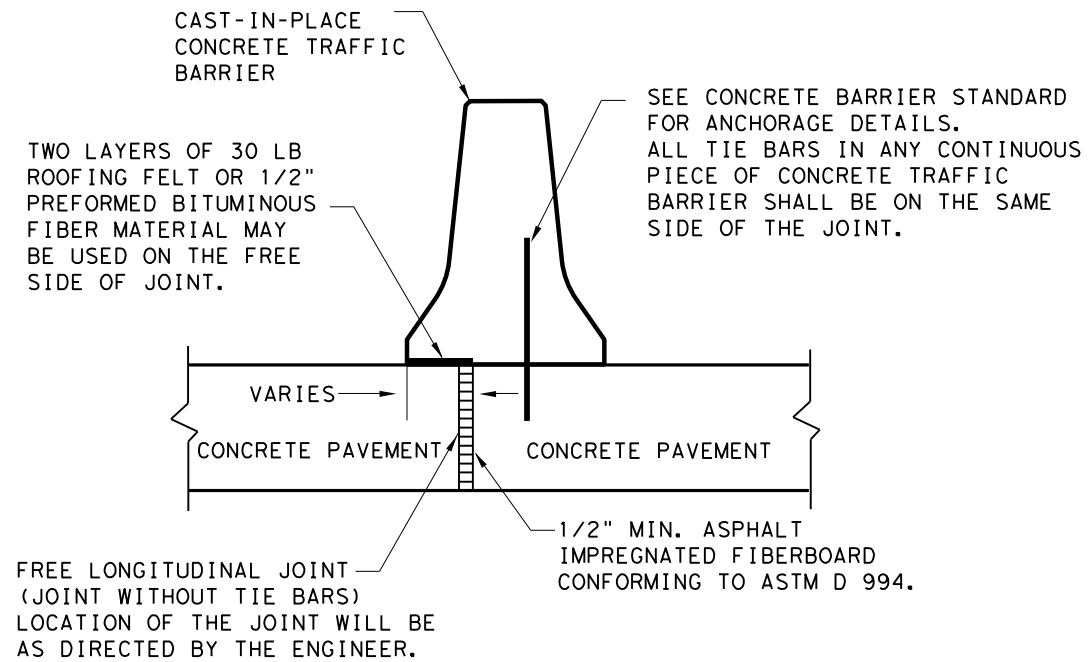
SLAB THICKNESS T (IN.)	BAR DIA. AND LENGTH	AVERAGE SPACING (IN.)
6 to 7.5	1" X 18"	12
8 to 10	1 1/4" X 18"	12
>= 10.5	1 1/2" X 18"	12

SLAB THICKNESS T (IN.)	BAR SIZE	AVERAGE SPACING (IN.)
6 to 7.5	#5	24
>= 8	#6	24

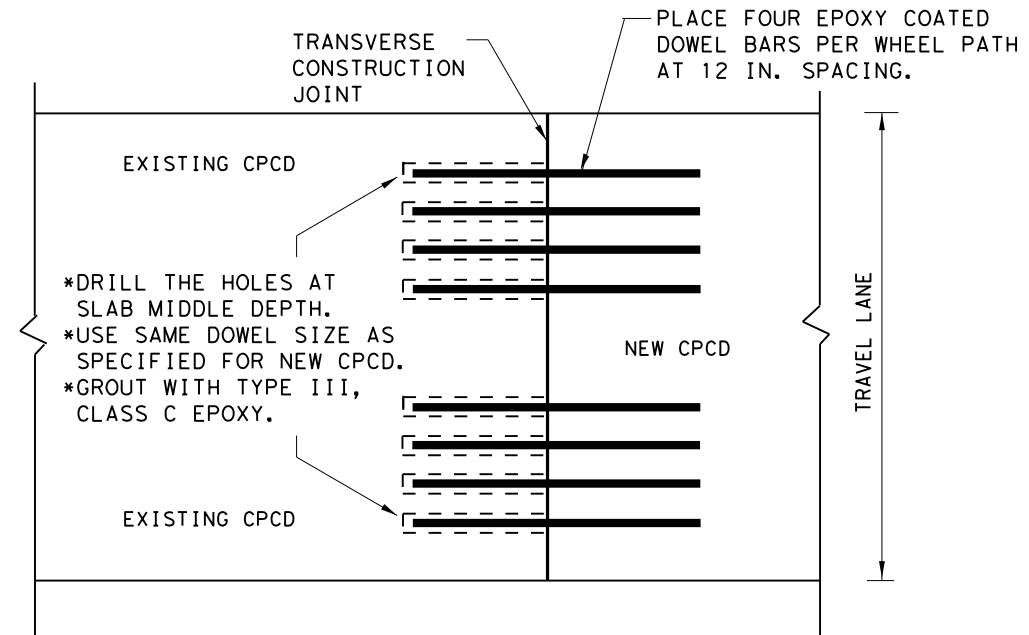
SHEET 1 OF 2

		<i>Design Division Standard</i>	
CONCRETE PAVEMENT DETAILS CONTRACTION DESIGN T-6 to 12 INCHES CPCD-14			
FILE: cpcd14.dgn	DN: TxDOT	DN: HC	CK: AN
© TxDOT: DECEMBER 2014	CONT	SECT	HIGHWAY
REVISIONS	1607	01	057, ETC.
	DIST	COUNTY	SHEET NO.
	HOU	GALVESTON	253

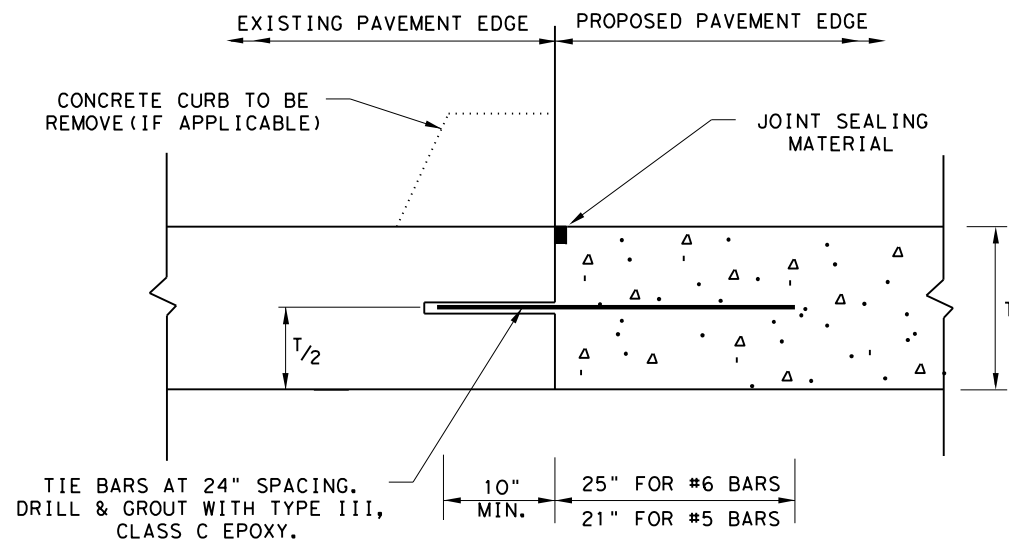
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FREE LONGITUDINAL JOINT DETAIL

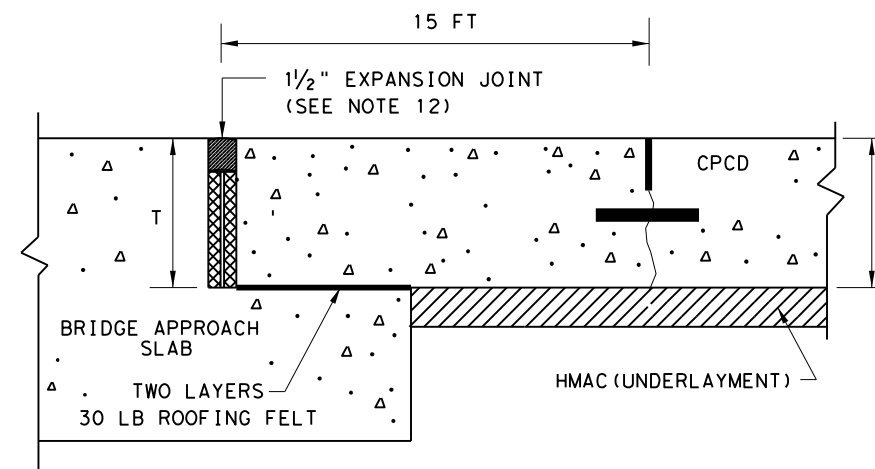


**TRANSVERSE JOINT DETAIL
EXISTING CPCD TO NEW CPCD
PLAN VIEW (NOT TO SCALE)**



1. BEFORE WIDENING WORK, DEMONSTRATE THAT THE BOND STRENGTH OF THE EPOXY-GROUTED TIE BARS MEETS THE REQUIREMENTS OF PULL-OUT TEST SPECIFIED IN ITEM 361.
2. SPACE TIE BARS AT 24" SPACING. USE #6 BARS FOR 8" AND THICKER SLABS, USE #5 BARS FOR LESS THAN 8" THICK SLABS.
3. THE TRANSVERSE JOINTS OF PROPOSED PAVEMENT SHALL COINCIDE WITH EXISTING PAVEMENT JOINTS UNLESS OTHERWISE SHOWN ON THE PLANS.

LONGITUDINAL WIDENING JOINT DETAIL



**TRANSVERSE EXPANSION JOINT DETAIL
AT BRIDGE APPROACH**

SHEET 2 OF 2



**CONCRETE PAVEMENT DETAILS
CONTRACTION DESIGN
T-6 to 12 INCHES**

CPCD-14

FILE: cpcd14.dgn	DN: TxDOT	DN: HC	DW: HC	CK: AN
© TxDOT: DECEMBER 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607	01	057, ETC.	FM 1764
	DIST	COUNTY		SHEET NO.
	HOU	GALVESTON		254

DATE:
FILE:

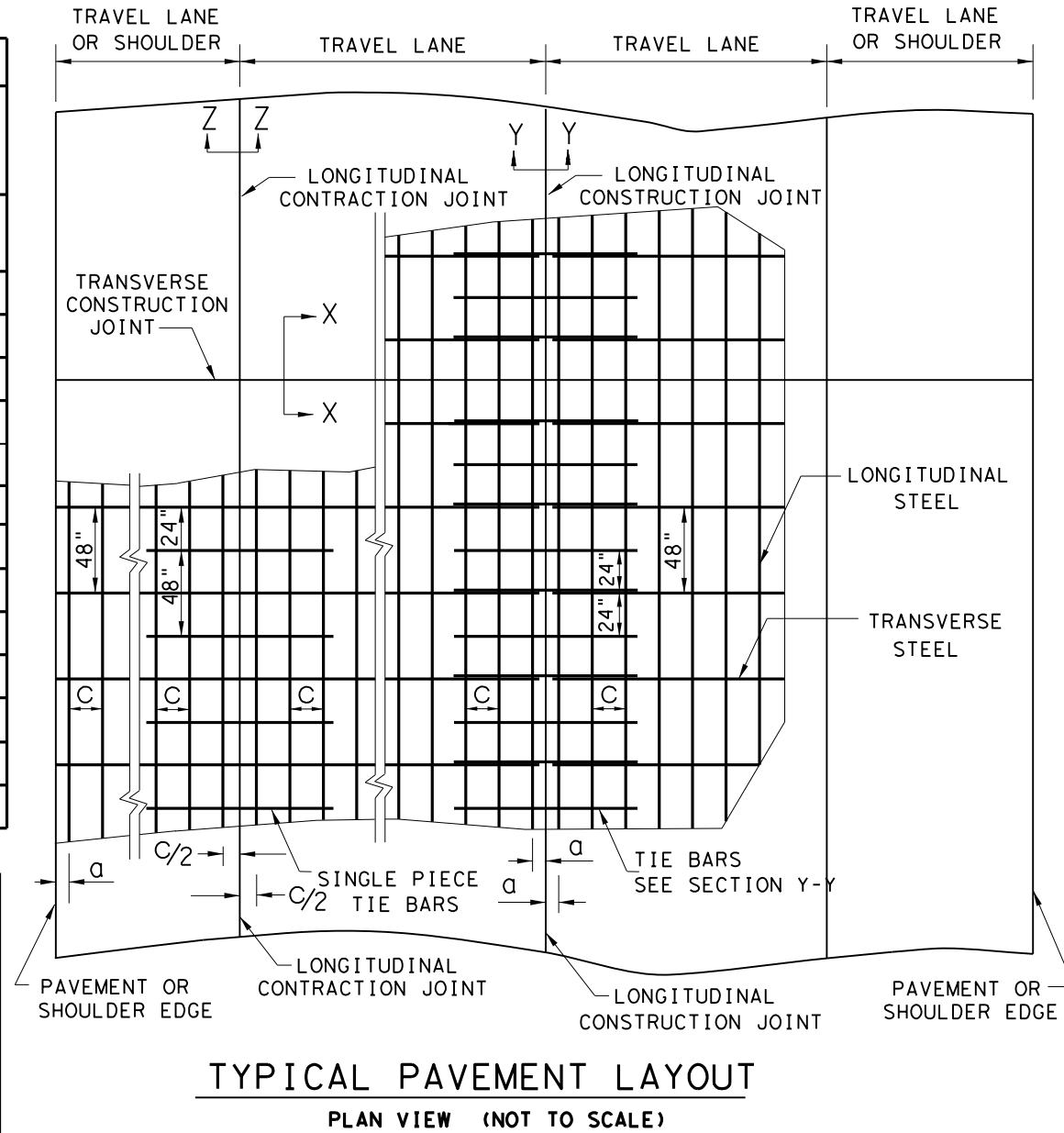
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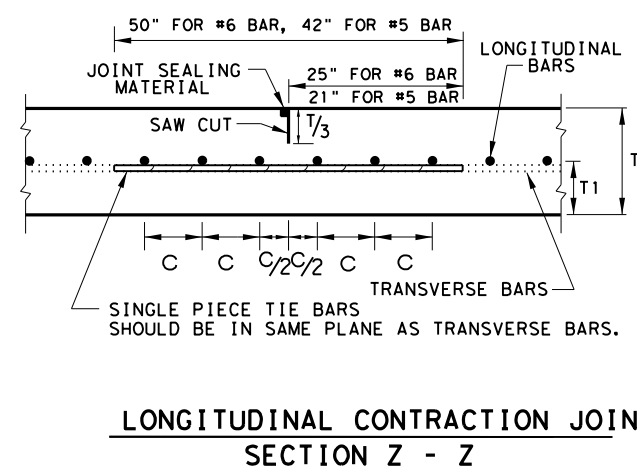
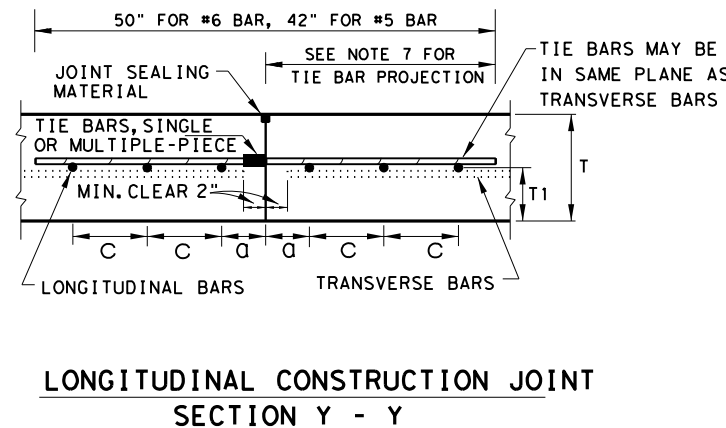
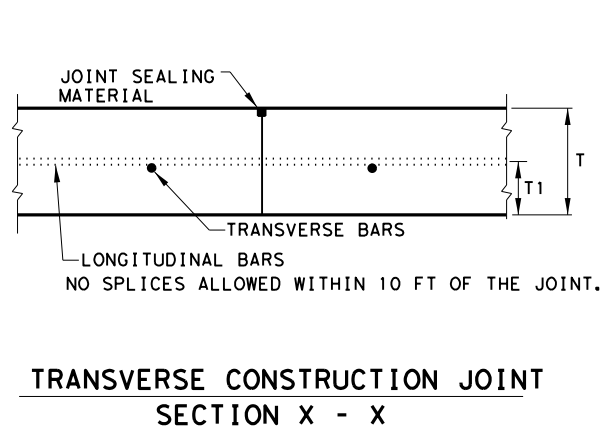
TABLE NO. 1 LONGITUDINAL STEEL				
SLAB THICKNESS AND BAR SIZE		LONGITUDINAL STEEL BARS	FIRST SPACING AT EDGE OR JOINT	LONG. STEEL VERTICAL POSITION FROM BOTTOM OF PAVEMENT
T (IN.)	BAR SIZE	SPACING C (IN.)	SPACING a (IN.)	T1 (IN.)
7.0	#5	6.5	3 TO 4	3.5
7.5	#5	6.0	3 TO 4	3.75
8.0	#6	9.0	3 TO 4	4.0
8.5	#6	8.5	3 TO 4	4.25
9.0	#6	8.0	3 TO 4	4.5
9.5	#6	7.5	3 TO 4	4.75
10.0	#6	7.0	3 TO 4	5.0
10.5	#6	6.75	3 TO 4	5.5
11.0	#6	6.5	3 TO 4	6.0
11.5	#6	6.25	3 TO 4	6.5
12.0	#6	6.0	3 TO 4	7.0
12.5	#6	5.75	3 TO 4	7.5
13.0	#6	5.5	3 TO 4	8.0

TABLE NO. 2 TRANSVERSE STEEL AND TIE BARS						
SLAB THICKNESS (IN.)	TRANSVERSE STEEL		TIE BARS AT LONGITUDINAL CONTRACTION JOINT (SECTION Z-Z)		TIE BARS AT LONGITUDINAL CONTRACTION JOINT (SECTION Y-Y)	
	BAR SIZE	SPACING (IN.)	BAR SIZE	SPACING (IN.)	BAR SIZE	SPACING (IN.)
7.0 - 7.5	#5	48	#5	48	#5	24
8.0 - 13.0	#5	48	#6	48	#6	24

*CONTRACTOR MAY USE #6 REINFORCING STEEL INSTEAD OF #5 REINFORCING STEEL OR COMBINATION OF EACH SIZE



- ### GENERAL NOTES
1. DETAILS FOR PAVEMENT WIDTH, PAVEMENT THICKNESS AND THE CROWN CROSS-SLOPE SHALL BE SHOWN ELSEWHERE IN THE PLANS. FOR PAVEMENTS WIDER THAN 100 FT. WITHOUT A FREE LONGITUDINAL JOINT, ADDITIONAL DETAIL MAY BE SHOWN ELSEWHERE IN THE PLANS.
 2. USE COARSE AGGREGATES WITH A RATED COEFFICIENT OF THERMAL EXPANSION (COTE) OF NOT MORE THAN 5.5×10^{-6} IN/IN/°F AS LISTED IN THE CONCRETE RATED SOURCE QUALITY CATALOG (CRSQC).
 3. ALL THE REINFORCING STEEL AND TIE BARS SHALL BE DEFORMED STEEL BARS CONFORMING TO ASTM A 615 (GRADE 60) OR ASTM A 996 (GRADE 60) OR ABOVE. STEEL BAR SIZES AND SPACINGS SHALL CONFORM TO TABLE NO.1 AND TABLE NO.2.
 4. STEEL BAR PLACEMENT TOLERANCE SHALL BE +/- 1 IN. HORIZONTALLY AND +/- 0.5 IN. VERTICALLY. CALCULATED AVERAGE BAR SPACING (CONCRETE PLACEMENT WIDTH / NUMBER OF LONGITUDINAL BARS) SHALL CONFORM TO TABLE NO.1.
 5. ADJUST REINFORCING STEEL VERTICALLY USING SHIMS OR OTHER METHODS, AS APPROVED, TO MEET VERTICAL TOLERANCES PRIOR TO CONCRETE PLACEMENT.
 6. PAVEMENT WIDTHS OF MORE THAN 15 FT. SHALL HAVE A LONGITUDINAL JOINT (SECTION Z-Z OR SECTION Y-Y). THESE JOINTS SHALL BE LOCATED WITHIN 6 IN. OF THE LANE LINE UNLESS THE JOINT LOCATION IS SHOWN ELSEWHERE ON THE PLANS.
 7. THE MINIMUM PROJECTION OF TIE BARS INTO THE ADJACENT PLACEMENT IS 22.5 IN. FOR #6 BARS AND 18.5 IN. FOR #5 BARS.
 8. SEE STANDARD SHEET "CONCRETE CURB AND CURB AND GUTTER," FOR DETAILS WHEN TYING CONCRETE CURB OR CURB GUTTER AT A LONGITUDINAL JOINT.
 9. REPLACE MISSING OR DAMAGED TIE BARS WITHOUT ADDITIONAL COMPENSATION BY DRILLING MIN.10 IN. DEEP AND GROUTING TIE BARS WITH TYPE III, CLASS C EPOXY. MEET THE PULL-OUT TEST REQUIREMENTS IN ITEM 361.
 10. OMIT TIE BARS LOCATED WITHIN 18-IN. OF THE TRANSVERSE CONSTRUCTION JOINTS (SECTION X-X). USE HAND-OPERATED IMMERSION VIBRATORS TO CONSOLIDATE THE CONCRETE ADJACENT TO ALL FORMED JOINTS.
 11. THE DETAIL FOR THE JOINT SEALANT AND RESERVOIR IS SHOWN ON STANDARD SHEET "CONCRETE PAVING DETAILS, JOINT SEALS."

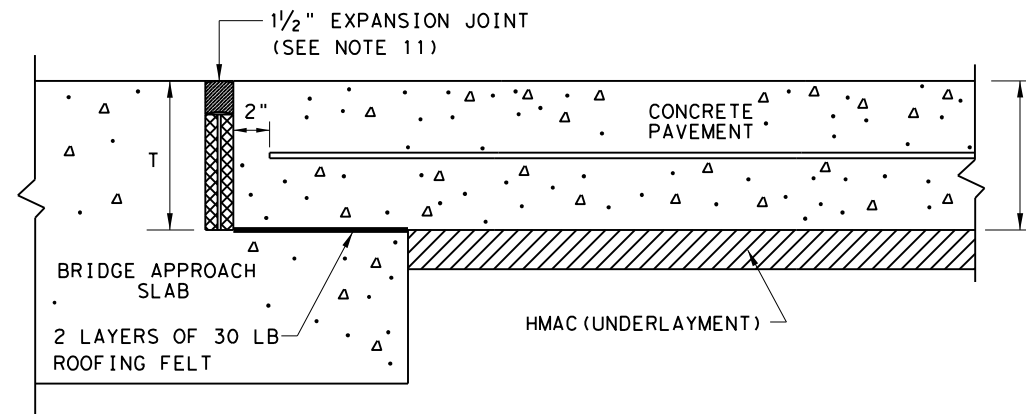


SHEET 1 OF 2

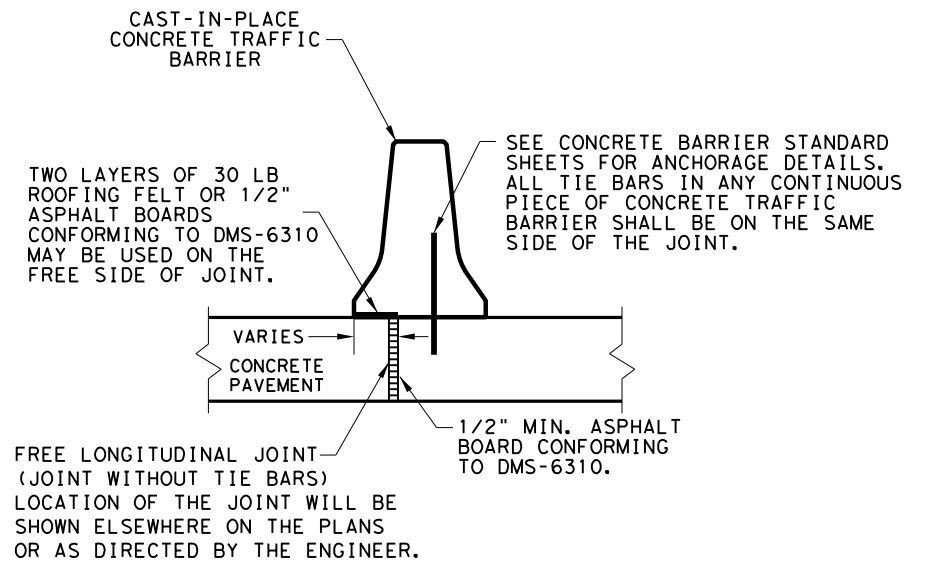
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CONTINUOUSLY REINFORCED CONCRETE PAVEMENT			
ONE LAYER STEEL BAR PLACEMENT			
T - 7 TO 13 INCHES			
CRCP(1)-23			
FILE: crcp123.dgn	DN: TxDOT	CK: KM	DW: CES
© TxDOT: APRIL 2023	CONT	SECT	JOB
APRIL 2023	1607	01	057, ETC.
REVISOR: LONG. STEEL VERTICAL LOCATION	DIST	COUNTY	HIGHWAY
REVISOR: TIE BAR AT TRANSVERSE	HOU	GALVESTON	FM 1764
			SHEET NO.
			255

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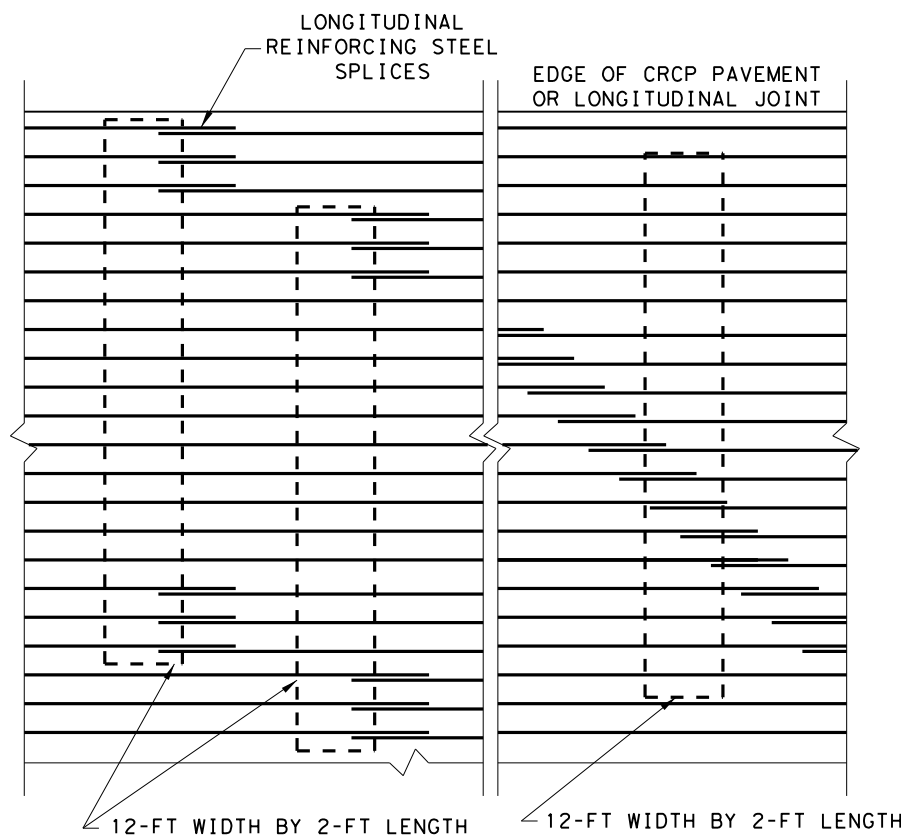
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**TRANSVERSE EXPANSION JOINT DETAIL
AT BRIDGE APPROACH**

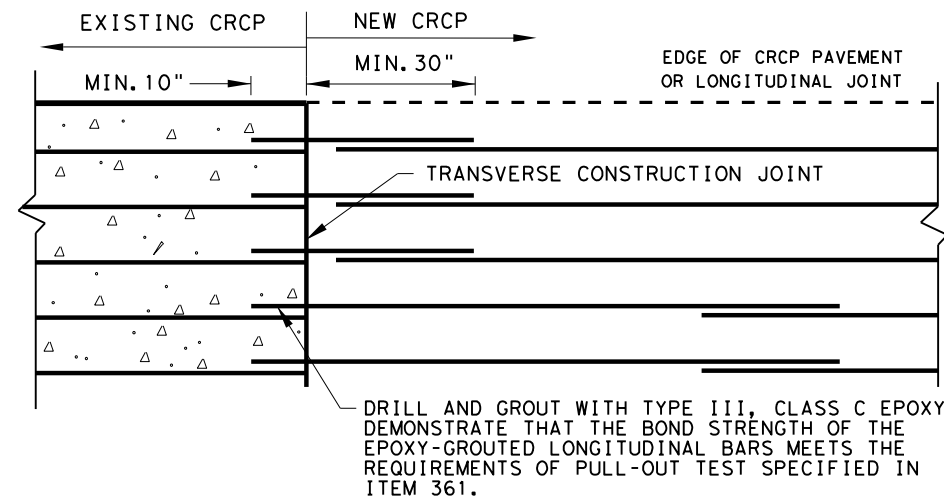


CENTERLINE FREE LONGITUDINAL JOINT DETAIL

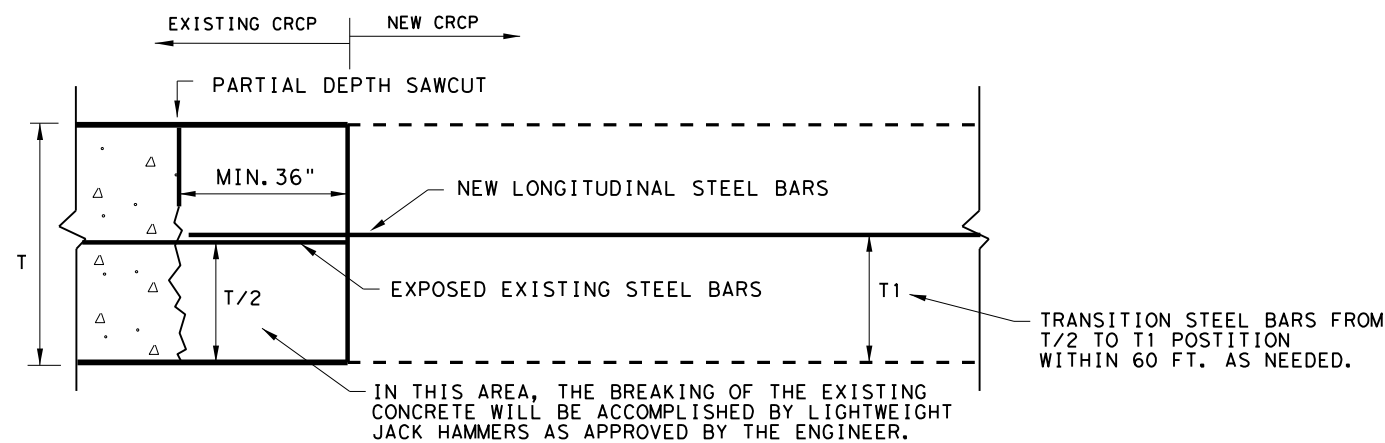


STAGGER THE LAP LOCATIONS SO THAT NO MORE THAN 1/3 OF THE LONGITUDINAL STEEL IS SPLICED IN ANY GIVEN 12-FT. WIDTH AND 2-FT. LENGTH OF THE PAVEMENT. ANY OTHER LAP CONFIGURATION MEETING THIS REQUIREMENT WILL BE ALLOWED.

**EXAMPLES OF LAP CONFIGURATION
PLAN VIEW (NOT TO SCALE)**

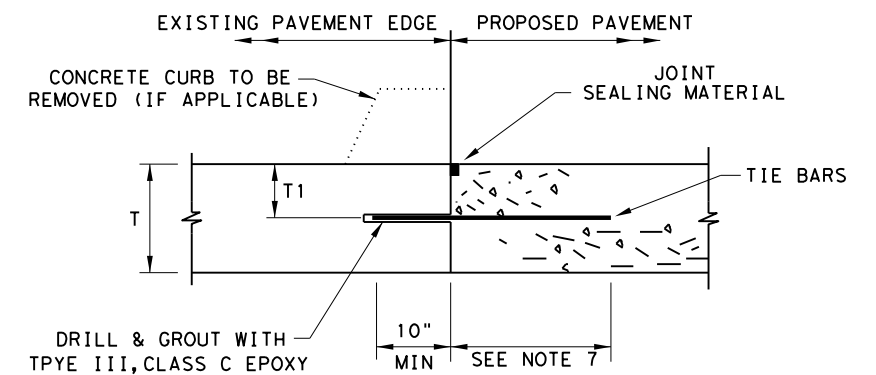


**OPTION A: DRILL AND EPOXY
PLAN VIEW (NOT TO SCALE)**



OPTION B: BREAKBACK AND LAP

**TRANSVERSE TIE JOINT DETAIL
NEW CRCP TO EXISTING CRCP**



- BEFORE CONCRETE PLACEMENT, PERFORM PULL-OUT TESTS ON EPOXY-GROUTED TIE BARS IN ACCORDANCE WITH ITEM 360.
- SPACE TIE BARS AT 24" SPACING. USE #6 TIE BARS FOR 8" AND THICKER PAVEMENTS, USE #5 TIE BARS FOR LESS THAN 8" THICK PAVEMENTS.

LONGITUDINAL WIDENING JOINT DETAIL

SHEET 2 OF 2

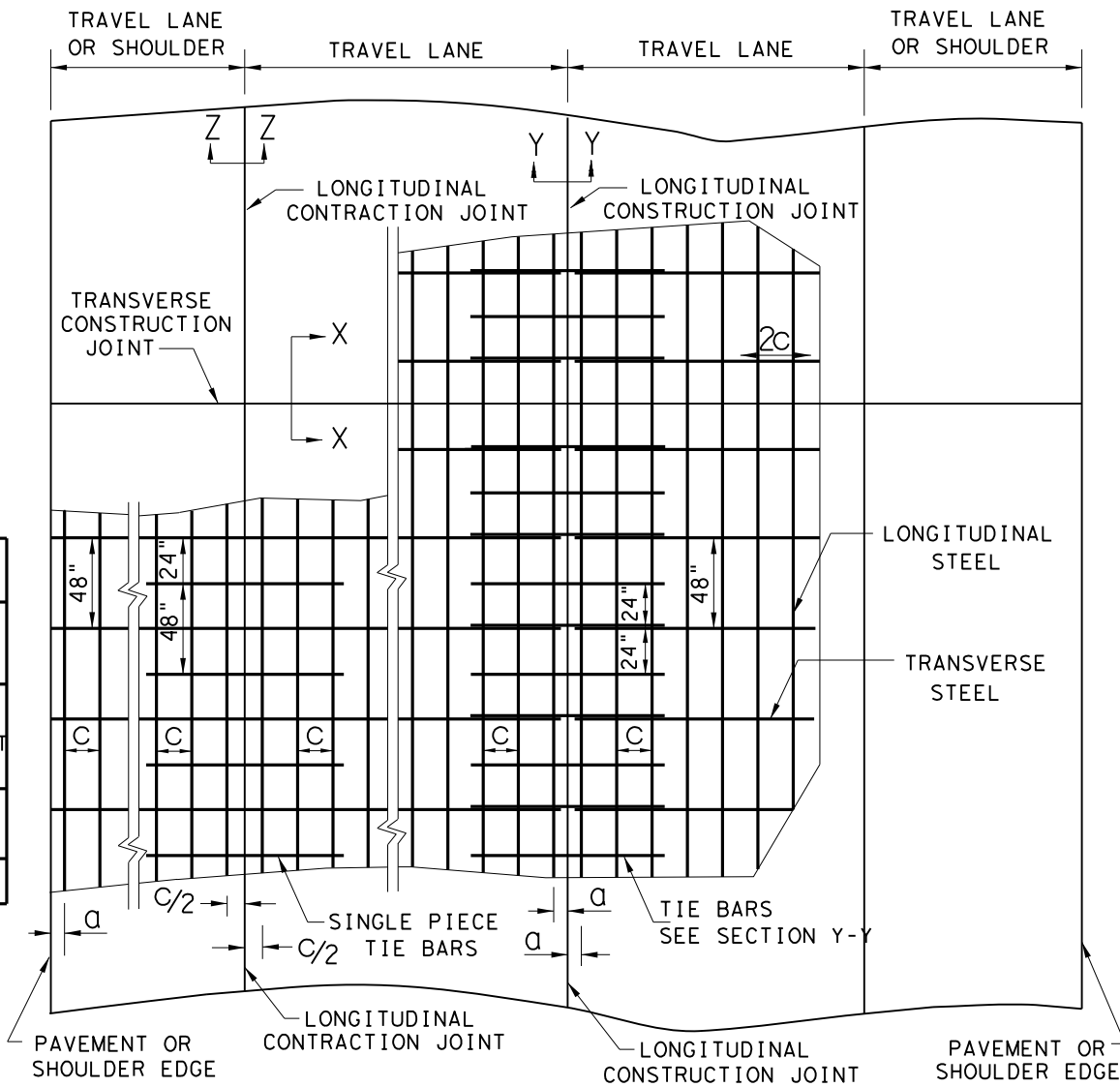
		Design Division Standard	
CONTINUOUSLY REINFORCED CONCRETE PAVEMENT			
ONE LAYER STEEL BAR PLACEMENT			
T - 7 to 13 INCHES			
CRCP (1) - 23			
FILE: crcp123.dgn	DN: TxDOT	CK: KM	DW: CES
© TxDOT: APRIL 2023	CONT	SECT	JOB
REVISIONS	1607	01	057, ETC.
APRIL 2023: MODIFIED EXPANSION JOINT DETAIL AT BRIDGE APPROACH	DIST	COUNTY	SHEET NO.
	HOU	GALVESTON	256

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TABLE NO. 1 LONGITUDINAL STEEL					
SLAB THICKNESS AND BAR SIZE		FOR BOTH STEEL MATS		LOWER STEEL MAT HEIGHT	TOP STEEL MAT HEIGHT
		LONGITUDINAL STEEL BARS	FIRST SPACING AT EDGE OR JOINT		
T (IN.)	BAR SIZE	SPACING C (IN.)	SPACING a (IN.)	T1 (IN.)	T2 (IN.)
14	#6	9.5	3 TO 4	4.5	8.0
15	#6	8.5	3 TO 4	5.0	8.5

TABLE NO. 2 TRANSVERSE STEEL AND TIE BARS						
SLAB THICKNESS T (IN.)	FOR BOTH STEEL MATS		FOR LOWER STEEL MAT ONLY		FOR BOTH STEEL MATS	
	TRANSVERSE STEEL		TIE BARS AT LONGITUDINAL CONTRACTION JOINT (SECTION Z-Z)		TIE BARS AT LONGITUDINAL CONTRACTION JOINT (SECTION Y-Y)	
	BAR SIZE*	SPACING (IN.)	BAR SIZE	SPACING (IN.)	BAR SIZE	SPACING (IN.)
14 - 15	#5	48	#6	48	#6	24

*CONTRACTOR MAY USE #6 REINFORCING STEEL INSTEAD OF #5 REINFORCING STEEL OR COMBINATION OF EACH SIZE

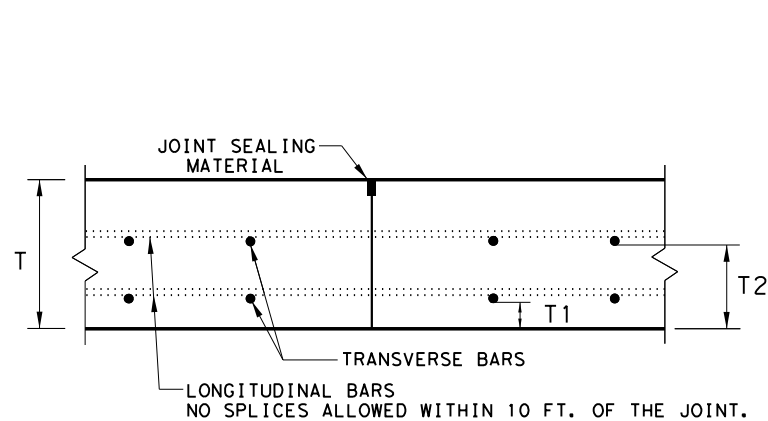


TYPICAL PAVEMENT LAYOUT

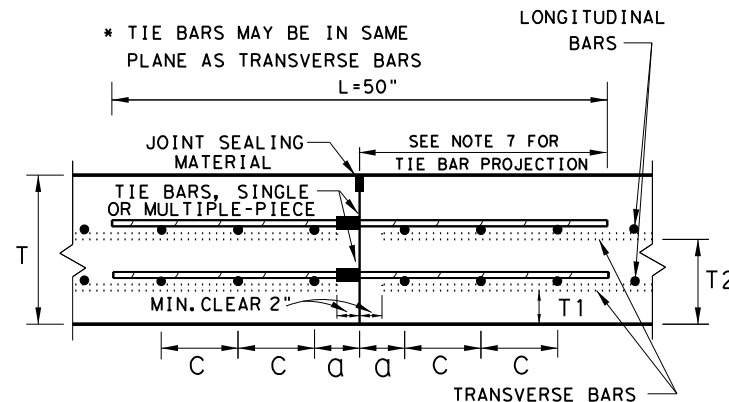
PLAN VIEW (NOT TO SCALE)

GENERAL NOTES

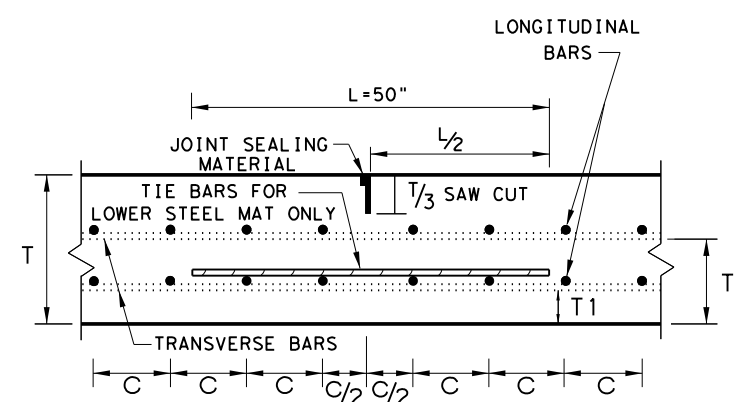
1. DETAILS FOR PAVEMENT WIDTH, PAVEMENT THICKNESS AND THE CROWN CROSS-SLOPE SHALL BE SHOWN ELSEWHERE IN THE PLANS. FOR PAVEMENTS WIDER THAN 100 FT. WITHOUT A FREE LONGITUDINAL JOINT, ADDITIONAL DETAIL MAY BE SHOWN ELSEWHERE IN THE PLANS.
2. USE COARSE AGGREGATES WITH A RATED COEFFICIENT OF THERMAL EXPANSION (CoTE) OF NOT MORE THAN 5.5×10^{-6} IN/IN/°F AS LISTED IN THE CONCRETE RATED SOURCE QUALITY CATALOG (CRSQC).
3. ALL THE REINFORCING STEEL AND TIE BARS SHALL BE DEFORMED STEEL BARS CONFORMING TO ASTM A 615 (GRADE 60) OR ASTM A 996 (GRADE 60) OR ABOVE. STEEL BAR SIZES AND SPACINGS SHALL CONFORM TO TABLE NO.1 AND TABLE NO.2.
4. STEEL BAR PLACEMENT TOLERANCE SHALL BE +/- 1 IN. HORIZONTALLY AND +/- 0.5 IN. VERTICALLY. CALCULATED AVERAGE BAR SPACING (CONCRETE PLACEMENT WIDTH / NUMBER OF LONGITUDINAL BARS IN A SINGLE LAYER) SHALL CONFORM TO TABLE NO.1.
5. ADJUST REINFORCING STEEL VERTICALLY USING SHIMS OR OTHER METHODS, AS APPROVED, TO MEET VERTICAL TOLERANCES PRIOR TO CONCRETE PLACEMENT.
6. PAVEMENT WIDTHS OF MORE THAN 15 FT. SHALL HAVE A LONGITUDINAL JOINT (SECTION Z-Z OR SECTION Y-Y). THESE JOINTS SHALL BE LOCATED WITHIN 6 IN. OF THE LANE LINE UNLESS THE JOINT LOCATION IS SHOWN ELSEWHERE ON THE PLANS.
7. THE MINIMUM PROJECTION OF TIE BARS INTO THE ADJACENT PLACEMENT IS 22.5 IN. FOR #6 BARS AND 18.5 IN. FOR #5 BARS.
8. SEE STANDARD SHEET "CONCRETE CURB AND CURB AND GUTTER," FOR DETAILS WHEN TYING CONCRETE CURB OR CURB GUTTER AT A LONGITUDINAL JOINT.
9. REPLACE MISSING OR DAMAGED TIE BARS WITHOUT ADDITIONAL COMPENSATION BY DRILLING MIN. 10 IN. DEEP AND GROUTING TIE BARS WITH TYPE III, CLASS C EPOXY. MEET THE PULL-OUT TEST REQUIREMENTS IN ITEM 361.
10. OMIT TIE BARS LOCATED WITHIN 18-IN. OF THE TRANSVERSE CONSTRUCTION JOINTS (SECTION X-X). USE HAND-OPERATED IMMERSION VIBRATORS TO CONSOLIDATE THE CONCRETE ADJACENT TO ALL FORMED JOINTS.
11. THE DETAIL FOR THE JOINT SEALANT AND RESERVOIR IS SHOWN ON STANDARD SHEET "CONCRETE PAVING DETAILS, JOINT SEALS."



TRANSVERSE CONSTRUCTION JOINT
SECTION X - X



LONGITUDINAL CONSTRUCTION JOINT
SECTION Y - Y



LONGITUDINAL CONTRACTION JOINT
SECTION Z - Z

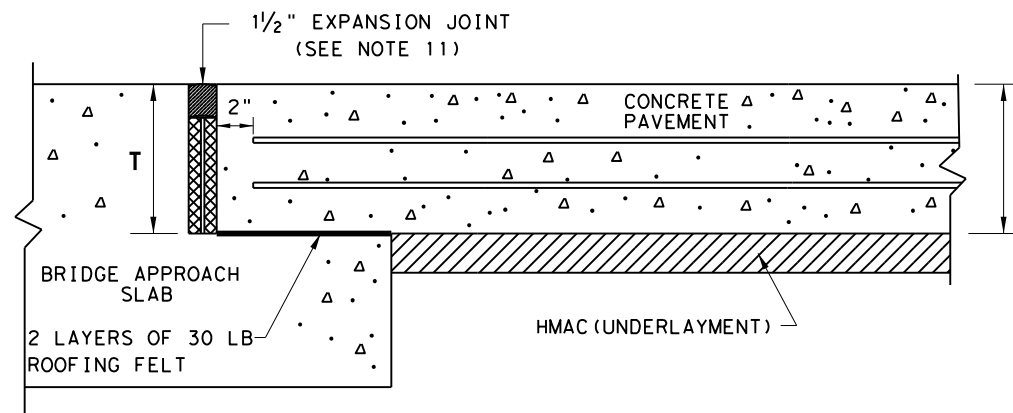
SHEET 1 OF 2

		Design Division Standard	
CONTINUOUSLY REINFORCED CONCRETE PAVEMENT TWO LAYER STEEL BAR PLACEMENT T - 14 & 15 INCHES CRCP (2) - 23			
FILE: crcp223.dgn	DN: TxDOT	CK: KM	DW: CES
© TxDOT: APRIL 2023	CONT	SECT	JOB
APRIL 2023	1607	01	057, ETC.
REVISIONS	DIST		COUNTY
REMOVED ADDITIONAL TIEBAR AT TRANSVERSE CONSTRUCTION JOINTS	HOU		GALVESTON
			FM 1764
			SHEET NO.
			257

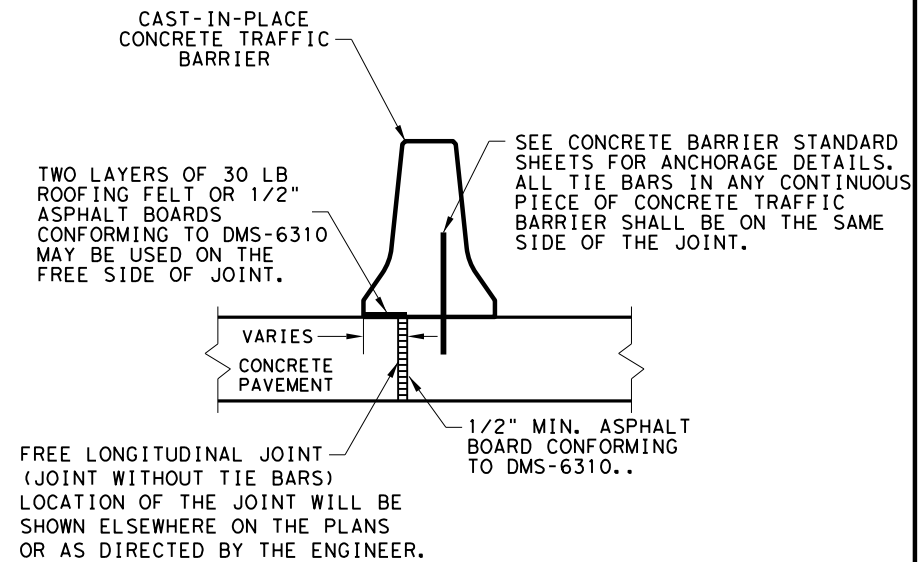
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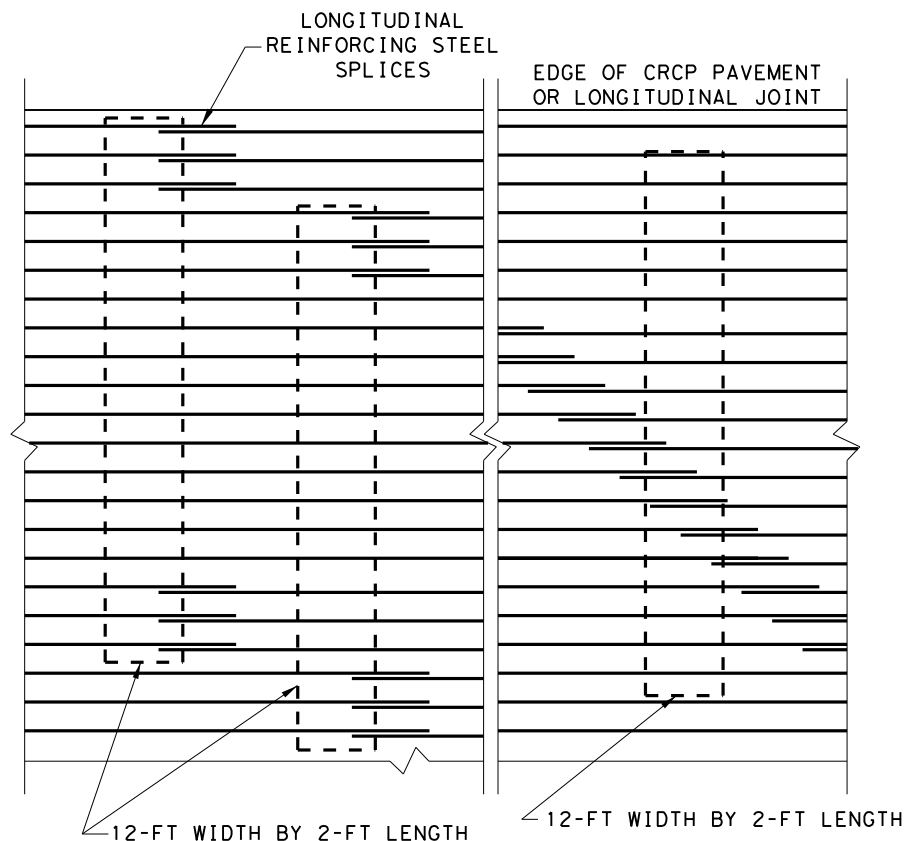
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**TRANSVERSE EXPANSION JOINT DETAIL
AT BRIDGE APPROACH**

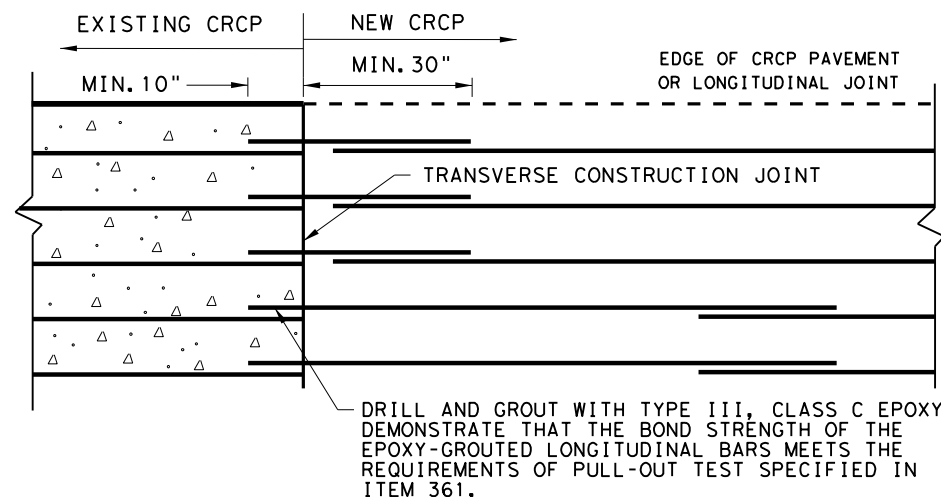


CENTERLINE FREE LONGITUDINAL JOINT DETAIL

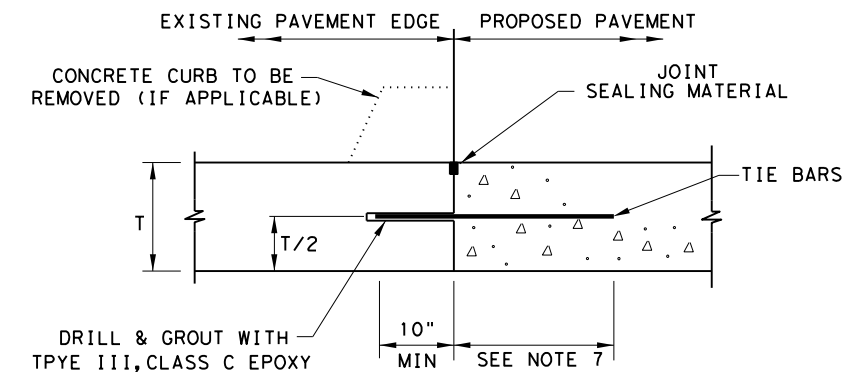


STAGGER THE LAP LOCATIONS SO THAT NO MORE THAN 1/3 OF THE LONGITUDINAL STEEL IS SPLICED IN ANY GIVEN 12-FT. WIDTH AND 2-FT. LENGTH OF THE PAVEMENT. ANY OTHER LAP CONFIGURATION MEETING THIS REQUIREMENT WILL BE ALLOWED.

**EXAMPLES OF LAP CONFIGURATION
PLAN VIEW (NOT TO SCALE)**

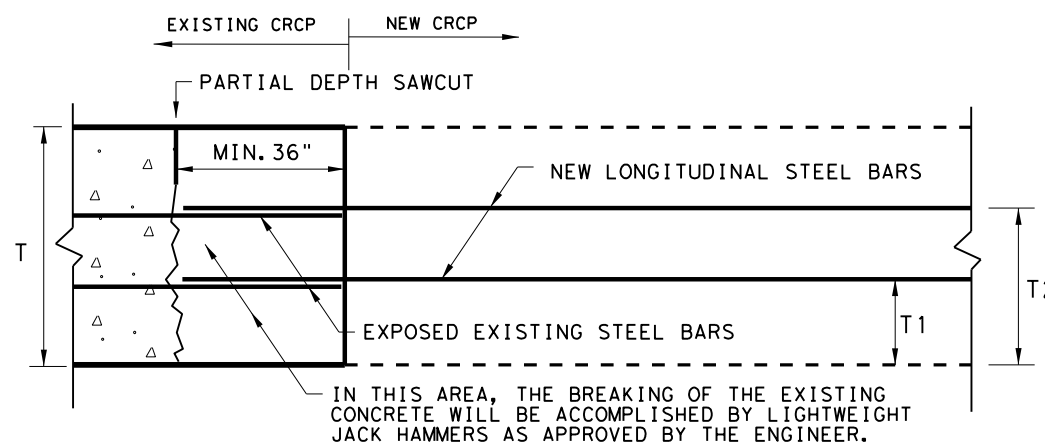


**OPTION A: DRILL AND EPOXY
PLAN VIEW (NOT TO SCALE)**



1. BEFORE CONCRETE PLACEMENT, PERFORM PULL-OUT TESTS ON EPOXY-GROUTED TIE BARS IN ACCORDANCE WITH ITEM 360.
2. SPACE TIE BARS AT 24" SPACING.

LONGITUDINAL WIDENING JOINT DETAIL



OPTION B: BREAKBACK AND LAP

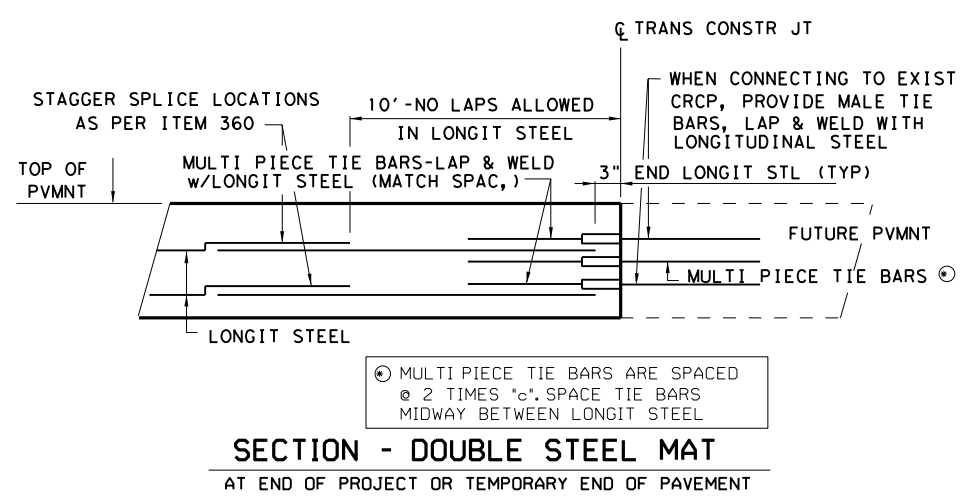
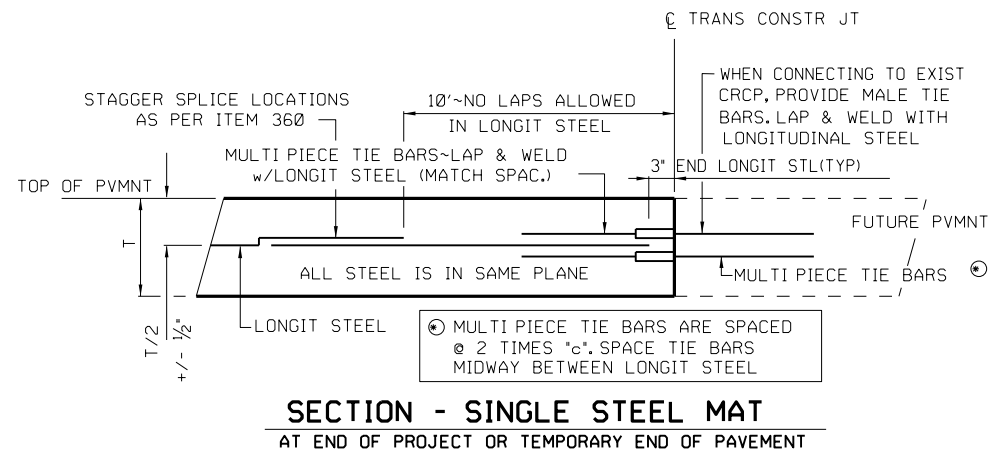
**TRANSVERSE TIE JOINT DETAIL
NEW CRCP TO EXISTING CRCP**

SHEET 2 OF 2



**CONTINUOUSLY REINFORCED
CONCRETE PAVEMENT
TWO LAYER STEEL BAR PLACEMENT
T - 14 & 15 INCHES
CRCP (2) - 23**

FILE: crcp223.dgn	DN: TxDOT	CK: KM	DW: CES	CK:
© TxDOT: APRIL 2023	CONT	SECT	JOB	HIGHWAY
APRIL 2023: REVISIONS	1607	01	057, ETC.	FM 1764
MODIFIED EXPANSION JOINT DETAIL AT BRIDGE APPROACH SLAB	DIST	COUNTY	SHEET NO.	
	HOU	GALVESTON	258	

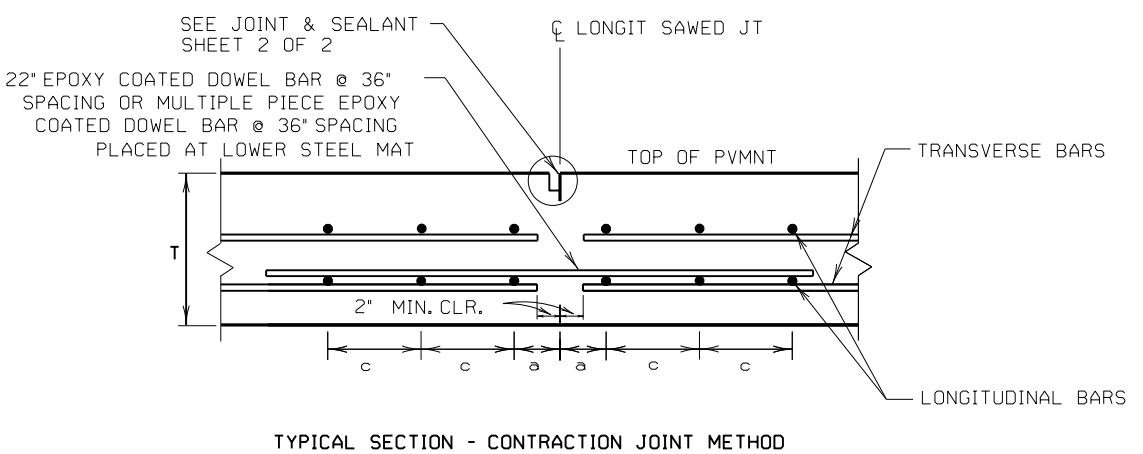
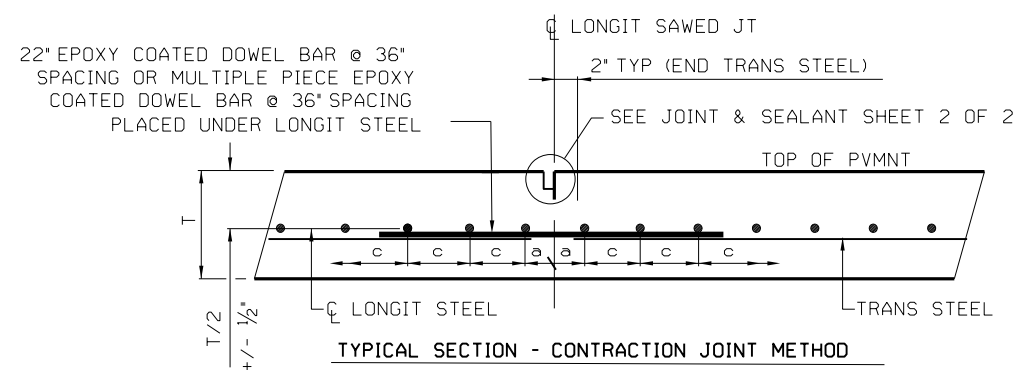
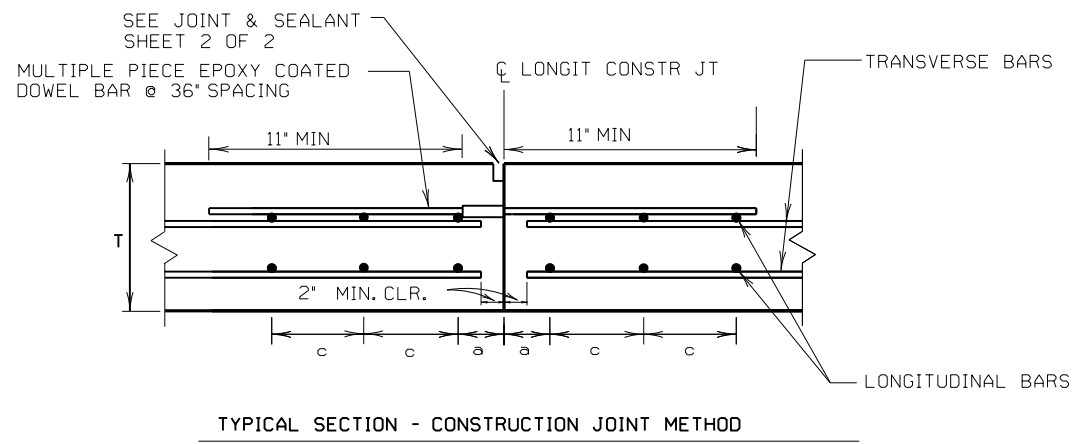
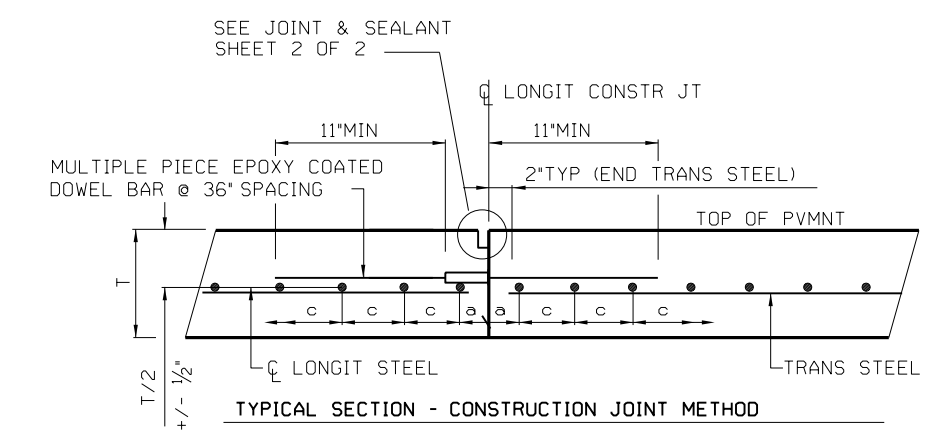


LONGITUDINAL DOWEL JOINT DETAILS

LOCATE WHERE SHOWN IN THE PLANS OR AS APPROVED. CONTRACTOR MAY USE EITHER METHOD

SINGLE STEEL MAT

DOUBLE STEEL MAT



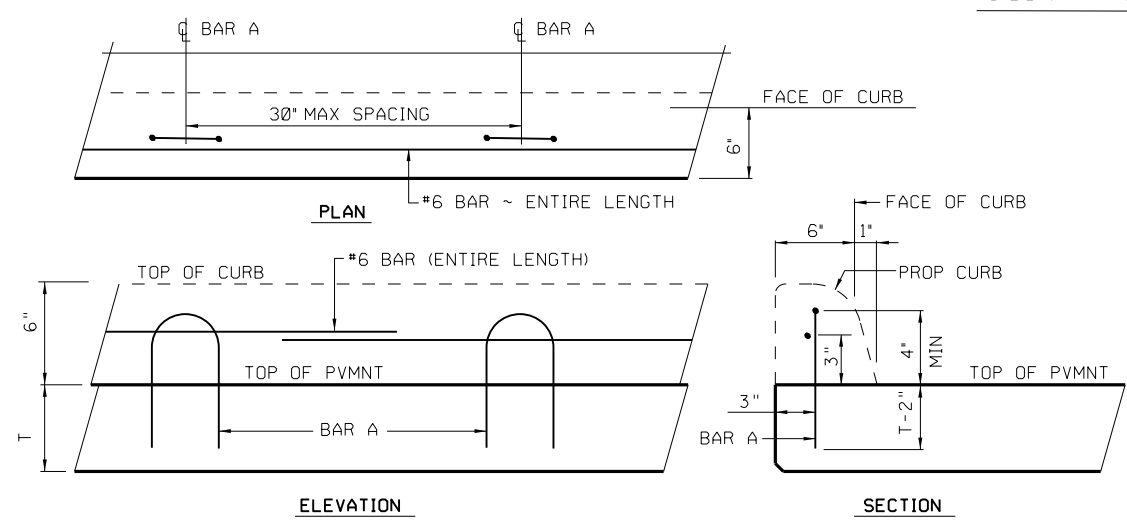
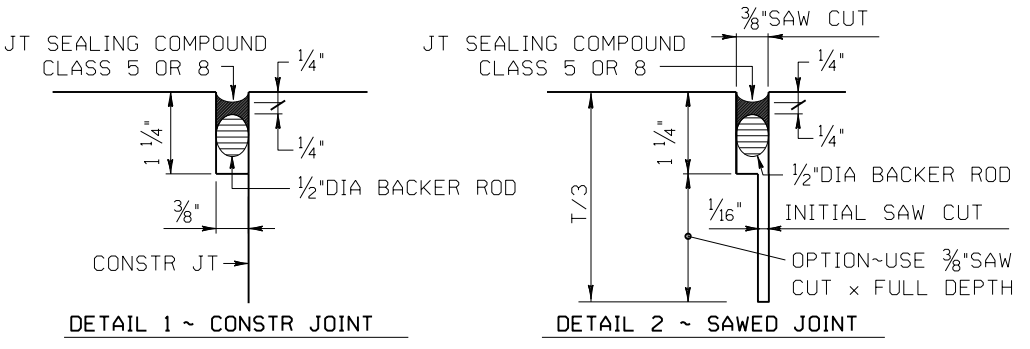
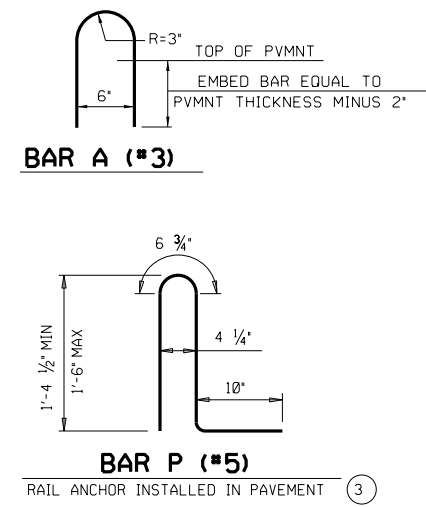
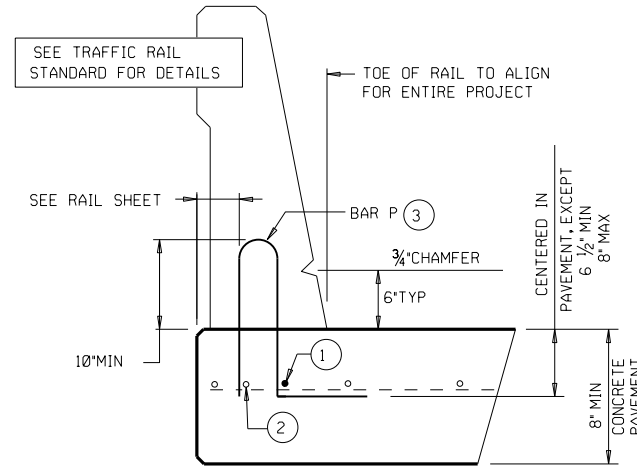
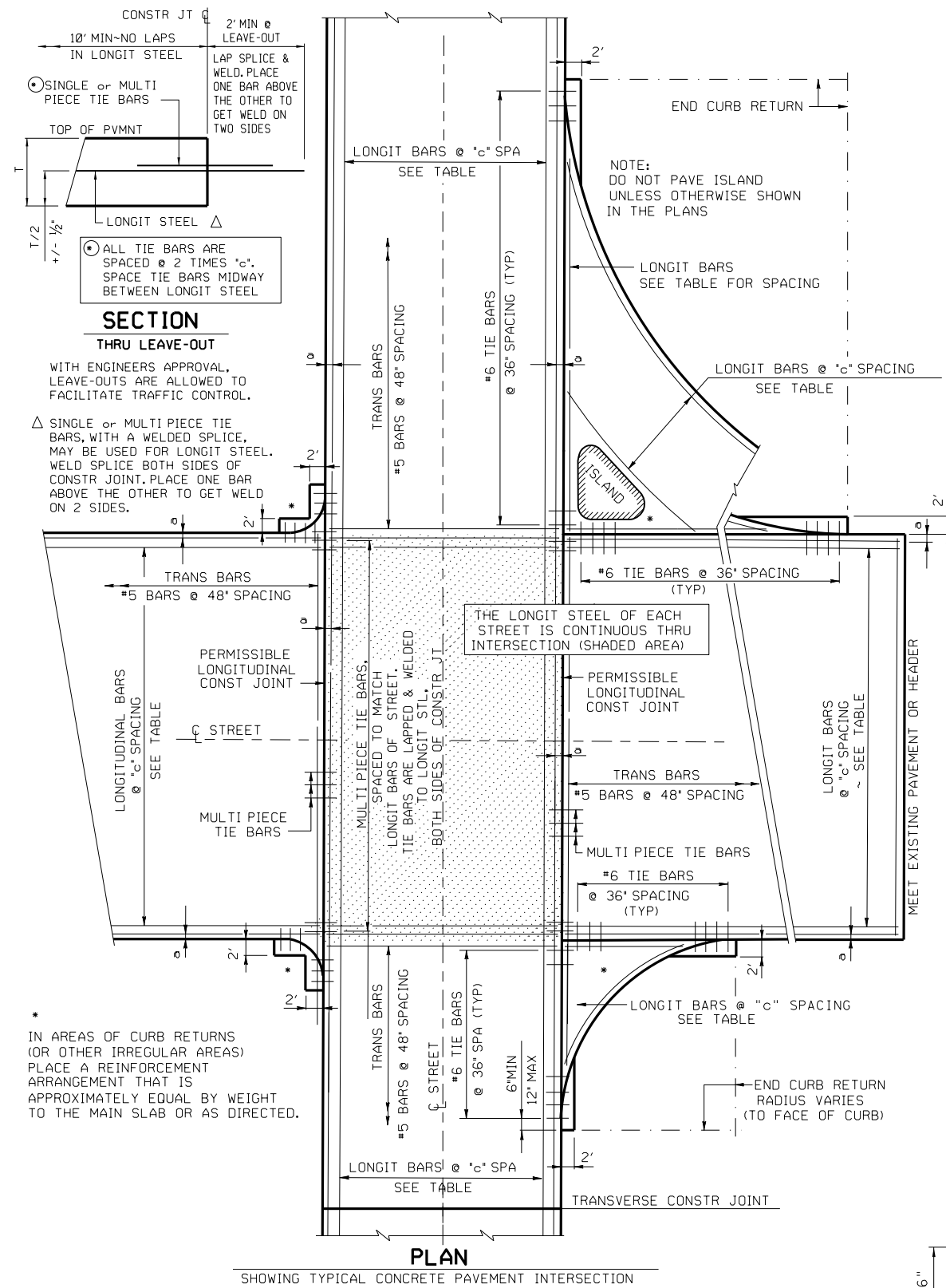
GENERAL NOTES

1. DETAILS FOR 7.0 IN. TO 13.0 IN. THICK CONCRETE PAVEMENT ARE SHOWN ON STANDARD CRCP(1)-17. DETAILS FOR 14 IN. TO 15 IN. THICK CONCRETE PAVEMENT ARE SHOWN ON STANDARD CRCP(2)-17.
2. DOWELS AND TIE BARS - DOWELS ARE ONE INCH MINIMUM DIAMETER. ENSURE DOWELS ARE FREE OF GREASE AND ARE EPOXY COATED. DO NOT SHEAR CUT DOWELS DURING FABRICATION. PROVIDE TIE BARS PER ITEM 360. FURNISH MULTI PIECE TIE BARS AND DOWELS WITH STOP COUPLINGS AND WITH THREADS ON THE BARS.
3. USE CHAIRS OF SUFFICIENT STRUCTURAL QUALITY AND NUMBER TO SUPPORT THE MAT TO THE VERTICAL TOLERANCES. CHAIRS WILL BE APPROVED BY THE ENGINEER AND DO NOT REQUIRE GALVANIZING.
4. MECHANICALLY PLACING REINFORCING STEEL IS NOT ALLOWED. NO BARS, DOWELS OR TIE BARS MAY BE VIBRATED INTO POSITION.
5. WHERE DIFFERENT THICKNESS PAVEMENTS MEET, TRANSITION THE THINNER SECTION TO THE THICKER SECTION OVER A DISTANCE OF 20 FT. PLACE REINFORCING STEEL WITHIN THE TRANSITION THE SAME AS IN THE THICKER PAVEMENT.
6. PERFORM WELDING PER ITEM 448. FURNISH WELDABLE REBAR PER ITEM 440.

Texas Department of Transportation
Houston District

**CONTINUOUSLY REINFORCED
CONCRETE PAVEMENT
HOUSTON SUPPLEMENT
CRCP-HS**

© TxDOT APR. 2012	Dist-	Ck-	Dir-	Ck-	Project No.	Sheet
REVISIONS 4/12 CHANGED CTE FROM 6.0 TO 5.0 8/14 UPDATE TO REFERENCE CRCP-13 STD. 2/15 REVISED GENERAL NOTES, MINOR CORRECTIONS. 4/17 REVISED NOTE #3 OF GENERAL NOTES, MINOR CORRECTIONS.	HOUSTON					259
	COUNTY	CONTROL SECTION	JOB	HIGHWAY		
	GALVESTON	1607 01		FM1764		



- AS AN AID IN SUPPORTING REINFORCEMENT, ADDITIONAL LONGITUDINAL BARS MAY BE USED IN THE SLAB WITH THE APPROVAL OF THE ENGINEER. FURNISH SUCH BARS AT NO EXPENSE TO THE DEPARTMENT.
- LONGITUDINAL SLAB BAR MAY BE ADJUSTED LATERALLY 3" +/- TO TIE REINFORCING.
- ANCHORAGE BAR SHOWN IS FOR AN SSTR OR T551 RAIL. SEE RAILING DETAIL SHEET FOR SPACING OF BAR P. FOR OTHER RAIL TYPES SEE RAILING DETAIL SHEET.

Texas Department of Transportation
Houston District

CONTINUOUSLY REINFORCED CONCRETE PAVEMENT HOUSTON SUPPLEMENT CRCP-HS

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REVISIONS 4/12 CHANGED CTE FROM 6.0 TO 5.0 (ON SHEET 1) 2/15 MINOR CORRECTIONS.	PROJECT NO.			
HOU	260			
COUNTY	CONTROL	SECTION	JOB	HIGHWAY
GALVESTON	1607 01			

STD-B1B

1. DEFINITION OF TERMS

T_{FS} - FAST TRACK CONCRETE PAVING DEPTH AT INTERSECTIONS AND LEAVE OUTS.
 T - NOMINAL CONCRETE PAVING DEPTH AS SHOWN IN THE PLANS.
 DETERMINE FAST TRACK CONCRETE PAVING DEPTH USING TABLE 1 AND THE NOMINAL CONCRETE PAVING DEPTH " T " SHOWN IN THE PLANS.

2. AT INTERSECTIONS AND LEAVE-OUT LOCATIONS USE THE SAME LONGITUDINAL AND TRANSVERSE BAR SPACING FOR THE FAST TRACK PAVING AREA AS THAT USED FOR THE ADJACENT CONCRETE PAVING DEPTH " T " (EXCEPT BAR SIZE SHALL BE #7 ON SINGLE MAT). FOR SINGLE MAT FAST TRACK PAVING, PLACE THE LONGITUDINAL AND TRANSVERSE BARS FOR THE FAST TRACK PAVING AREA AT THE HORIZONTAL PLANE ELEVATION THAT IS TWO TIE-BAR DIAMETERS LOWER THAN THAT USED FOR THE ADJACENT CONCRETE PAVING DEPTH " T ", AS SHOWN IN FIGURE 1. USE SINGLE MAT STEEL IN FAST TRACK PAVING AREAS ADJACENT TO PAVEMENT SLABS WITH SINGLE MAT REINFORCING. USE DOUBLE MAT STEEL IN FAST TRACK PAVING AREAS ADJACENT TO PAVEMENT SLABS WITH DOUBLE MAT REINFORCING.

3. THE REQUIRED FAST TRACK PAVING AREAS WILL BE SHOWN ON THE PLANS. THE CONTRACTOR HAS THE OPTION TO UTILIZE FAST TRACK CONCRETE PAVING AT U-TURNS, AT INTERSECTIONS, AT MINOR STREETS, AND AT DRIVEWAYS WITH FRONTAGE ROAD LEAVE-OUT AREAS THAT ARE NOT SHOWN ON THE PLANS, WITH PRIOR WRITTEN APPROVAL FROM THE ENGINEER. TYPICAL PAVING PLANS FOR THE INTERSECTION OF A MAJOR STREET WITH THE FRONTAGE ROAD ARE SHOWN AS FIGURE 2, AND FOR THE INTERSECTION OF A MINOR STREET OR DRIVEWAY WITH THE FRONTAGE ROAD AS FIGURE 3. FAST TRACK PAVE THE FRONTAGE ROAD FOR THE FULL FRONTAGE ROAD WIDTH AND PLACE IN STAGES AS REQUIRED.

4. USE ADDITIONAL #6 REINFORCING STEEL BARS (MINIMUM 42 INCHES LONG) AND SPACE THEM MIDWAY BETWEEN ALTERNATE LONGITUDINAL BARS ALONG THE TRANSVERSE CONSTRUCTION JOINT FORMED AT THE FAST TRACK PAVING INTERFACE (T_{FS}) WITH THE ADJACENT PAVEMENT SLAB (T).

5. SPLICE LENGTH IS A MINIMUM OF 33 TIMES THE NOMINAL STEEL DIAMETER.

6. PLACE THE CONCRETE AT A UNIFORM DEPTH THROUGHOUT THE FAST TRACK CONCRETE PAVING AREA.

7. FOR CONTINUOUS SECTIONS OF ROADWAY WHERE FAST TRACK PAVING IS THE PRIMARY PAVEMENT TYPE, USE THE BAR SIZE AND SPACING FROM THE CRCP STANDARDS THAT CORRESPONDS TO THE FAST TRACK SLAB THICKNESS.

8. USE LONGITUDINAL TIE-BARS OF THE SAME SIZE DIAMETER AND SPACING AS THE LONGITUDINAL BAR. A SINGLE PIECE TIE-BAR MAY BE USED IF THE 33 TIMES DIAMETER TIE-BAR PROJECTION DOES NOT INTERFERE WITH THE SAFE HANDLING OF TRAFFIC.

9. BASE THE DEPTH OF SAW CUTS FOR SAWED JOINTS ON THE FAST TRACK CONCRETE PAVEMENT THICKNESS.

10. THIS STANDARD IS NOT INTENDED TO REPLACE OTHER STANDARDS EXCEPT WHERE SPECIFICALLY STATED HEREIN. FOR PAVING DETAILS NOT SHOWN ON THIS DRAWING, REFER TO THE STANDARD SHEETS FOR CONTINUOUSLY REINFORCED CONCRETE PAVEMENT SHOWN ELSEWHERE IN THE PLANS.

TABLE 1

EQUIVALENT PAVEMENT THICKNESS	
T * (IN.)	T_{FS} ** (IN.)
$\leq 12"$	$T + 3"$
$> 12"$	15"

* WITH BASE STRUCTURE OF:
 1" ASPHALT STABILIZED BASE
 6" PORTLAND CEMENT TREATED BASE
 6" LIME TREATED SUBGRADE

** ON AS CUT SUBGRADE

*** SEE JOINT SEALING DETAILS ON CRCP STANDARDS

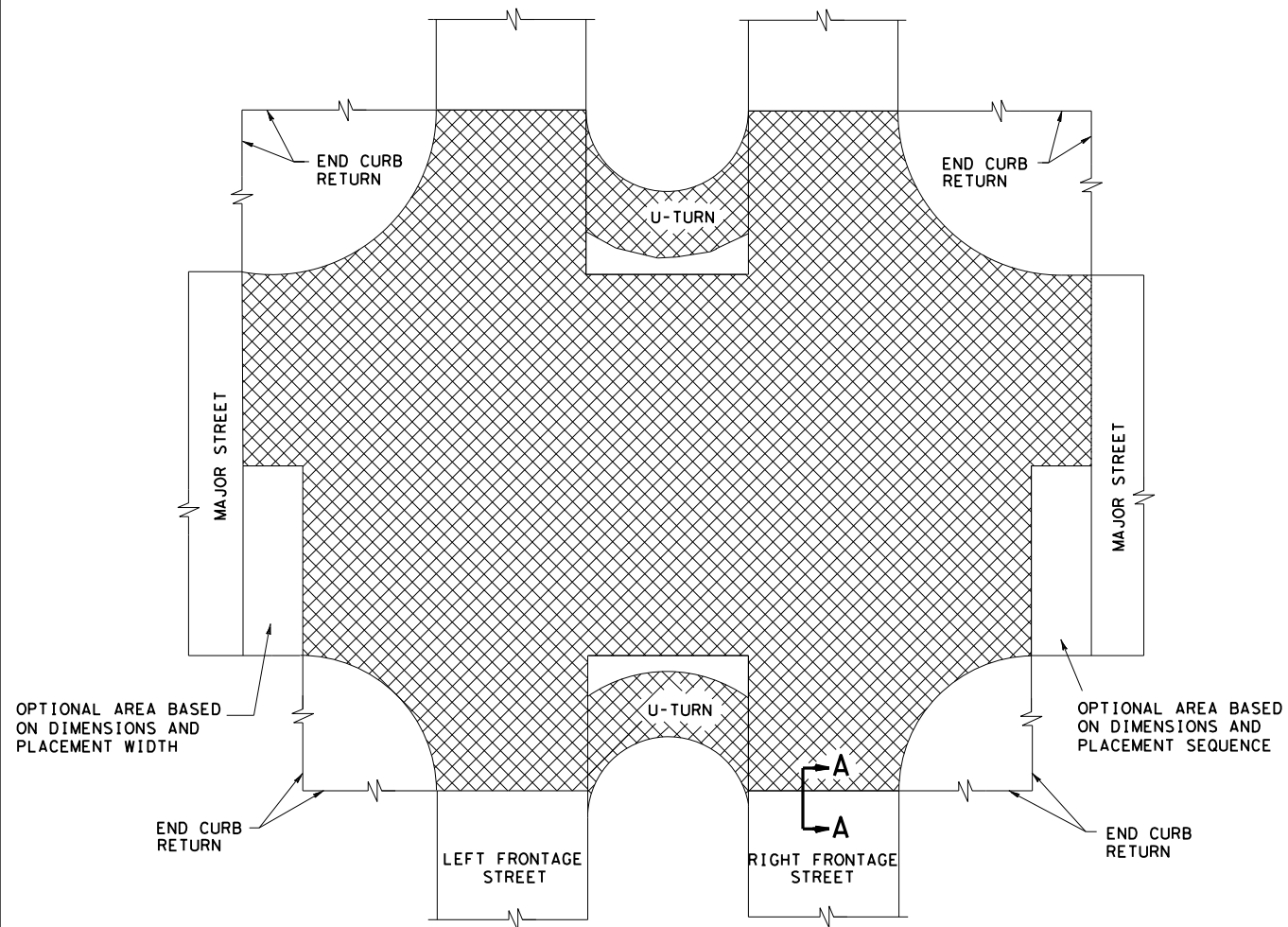


FIGURE 2

INTERSECTION OF MAJOR STREET WITH FRONTAGE STREET

FAST TRACK PAVING AREA

TYPICAL PAVING PLANS

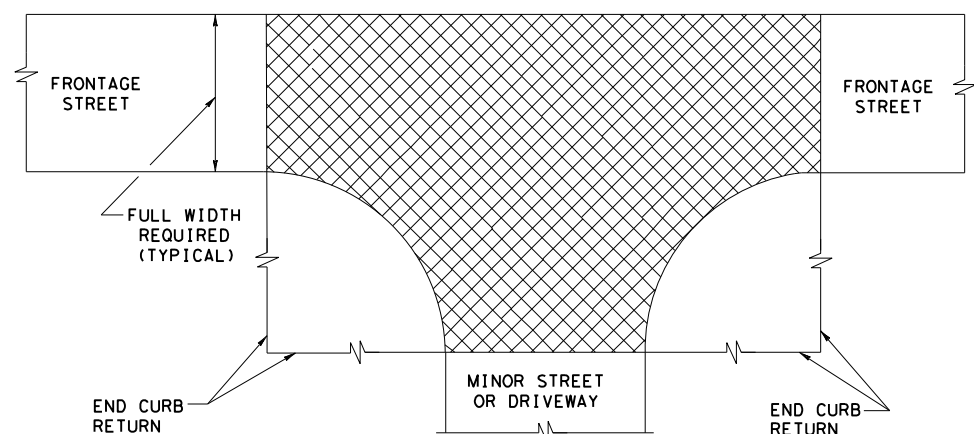
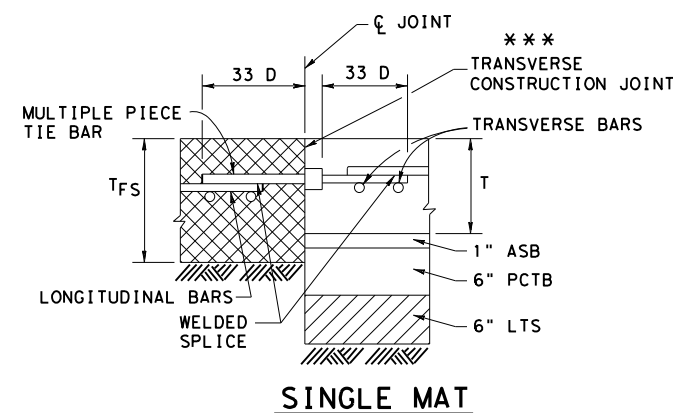


FIGURE 3

INTERSECTION OF MINOR STREET OR DRIVEWAY WITH FRONTAGE STREET



SECTION A - A

TRANSVERSE CONSTRUCTION JOINTS

FIGURE 1

LEGEND

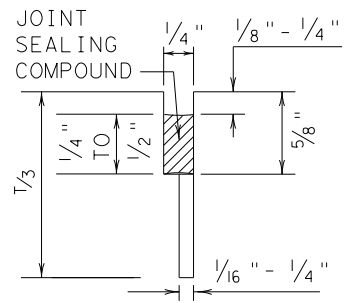
- ASB - ASPHALT STABILIZED BASE
- CRCP - CONTINUOUSLY REINFORCED CONCRETE PAVEMENT
- D - DIAMETER
- LTS - LIME TREATED SUBGRADE
- PCTB - PORTLAND CEMENT TREATED BASE

FAST TRACK CONTINUOUSLY REINFORCED CONCRETE PAVEMENT DETAILS CRCP-FT

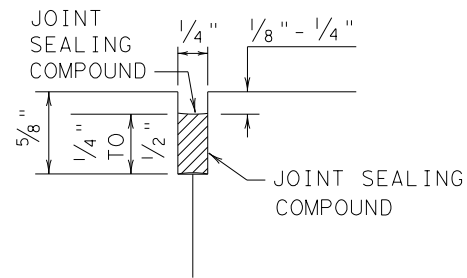
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© TxDOT DEC. 2009	DIST	FED REG	PROJECT NO.	SHEET
REVISIONS 5/05 2004 SPECS 2/15 2014 SPECS	HOU	6		261
COUNTY	CONTROL	SECT	JOB	HIGHWAY
GALVESTON	1607	01	097, etc	FM 1764

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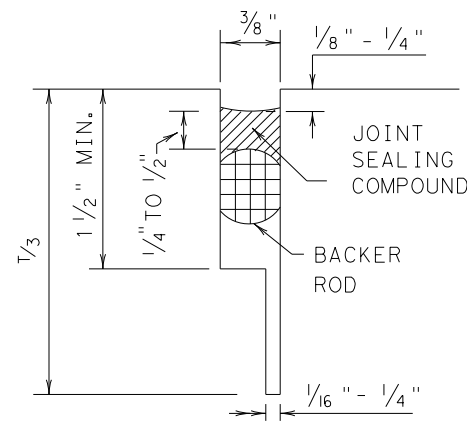
METHOD B: JOINT SEALING COMPOUND



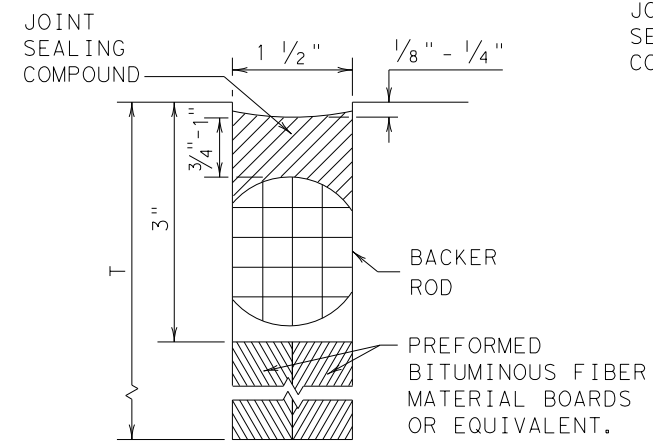
LONGITUDINAL SAWED CONTRACTION JOINT



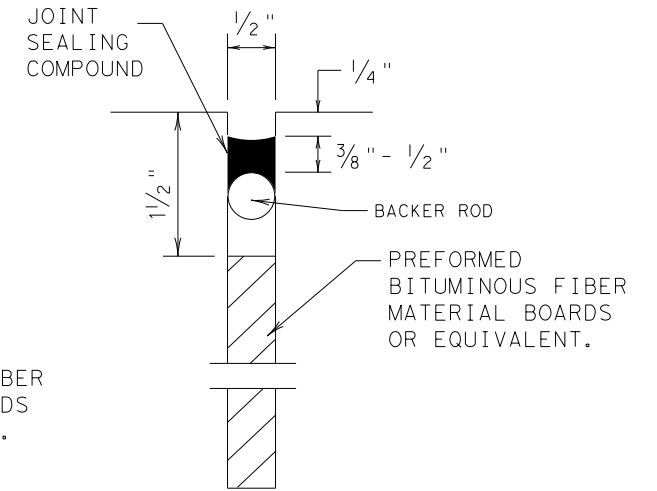
LONGITUDINAL OR TRANSVERSE CONSTRUCTION JOINT



TRANSVERSE SAWED CONTRACTION JOINT

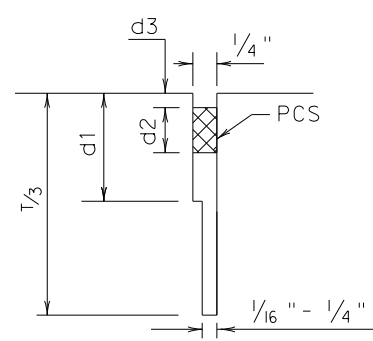


TRANSVERSE FORMED EXPANSION JOINT

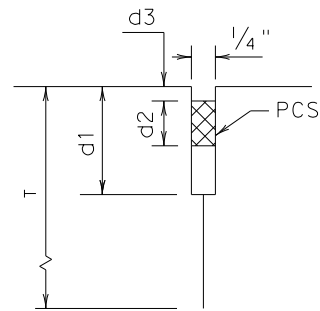


FORMED ISOLATION JOINT

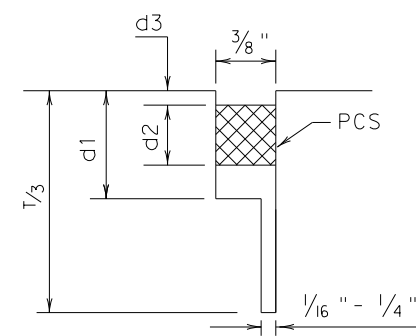
METHOD A: PREFORMED COMPRESSION SEALS (PCS) (DMS-6310 CLASS 6)



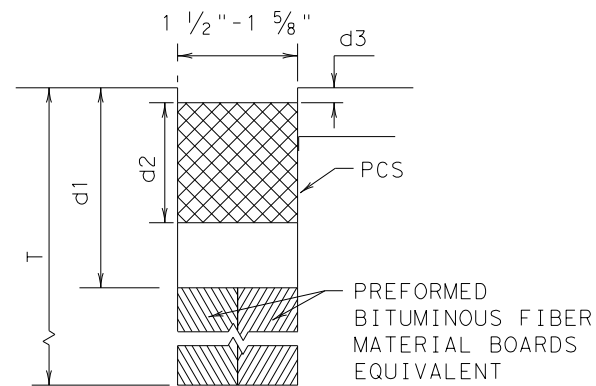
LONGITUDINAL SAWED CONTRACTION JOINT



LONGITUDINAL CONSTRUCTION JOINT



TRANSVERSE SAWED CONTRACTION JOINT



TRANSVERSE FORMED EXPANSION JOINT

GENERAL NOTES

1. UNLESS OTHERWISE SHOWN IN THE PLANS, EITHER METHOD "A" OR METHOD "B" MAY BE USED.
2. THE LOCATION OF JOINTS SHALL BE AS SHOWN ELSEWHERE IN THE PLANS.
3. THE JOINT RESERVOIR FOR SEALANT OR PCS SHALL BE SAWED UNLESS OTHERWISE SHOWN ON THE PLANS FOR THE LONGITUDINAL AND TRANSVERSE CONSTRUCTION JOINTS AND THE SAWED JOINTS.
4. DIMENSIONS d1, d2, AND d3 SHOWN IN METHOD A SHALL BE IN ACCORDANCE WITH THE PREFORMED COMPRESSION SEAL MANUFACTURER'S RECOMMENDATION.
5. REFER TO DMS-6310 "JOINT SEALANTS AND FILLERS" FOR THE CLASSIFICATIONS.
6. FOR SAWED LONGITUDINAL JOINT, LONGITUDINAL OR TRANSVERSE CONSTRUCTION JOINT, USE JOINT SEALANT CLASS 5 OR 8 UNLESS OTHERWISE SHOWN ON THE PLAN OR APPROVED.
7. FOR TRANSVERSE SAWED CONTRACTION, TRANSVERSE FORMED EXPANSION JOINT, AND ISOLATION JOINT USE JOINT SEALANT CLASS 5 OR 8 AT NEW JOINTS. USE JOINT SEALANT CLASS 4, 5, 7, OR 8 FOR MAINTAINING EXISTING JOINTS.
8. THE JOINTS SHALL BE CLEANED IN ACCORDANCE WITH THE ITEM 438 "CLEANING AND SEALING JOINTS" OR ITEM 713 "CLEANING AND SEALING JOINTS AND CRACKS (CONCRETE PAVEMENT)".
9. ISOLATION JOINTS ACCOMMODATE HORIZONTAL AND VERTICAL MOVEMENTS THAT OCCUR BETWEEN A PAVEMENT AND A STRUCTURE. ISOLATION JOINTS MAY BE USED FOR BRIDGE ABUTMENTS, INTERSECTIONS, CURB AND GUTTER, OLD AND NEW PAVEMENTS, OR AROUND DRAINAGE INLETS, MANHOLES, FOOTINGS AND LIGHTING STRUCTURES.

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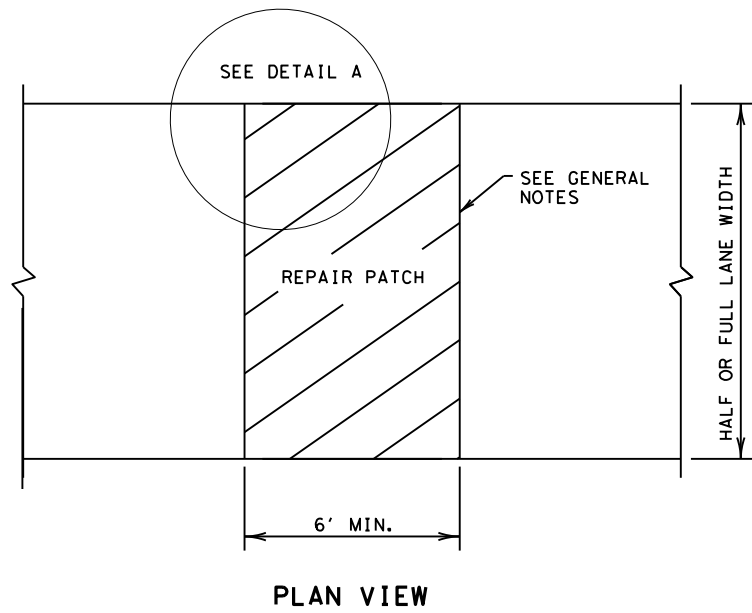
		Design Division Standard	
CONCRETE PAVING DETAILS JOINT SEALS JS-14			
FILE: js14.dgn	DN: TxDOT	DN: HC	CK: AN
© TxDOT: DECEMBER 2014	CONT	SECT	HIGHWAY
REVISIONS	1607	01	057, ETC.
	DIST	COUNTY	SHEET NO.
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TABLE NO.1 STEEL BAR SIZE AND SPACING						
TYPE PAVEMENT	SLAB THICKNESS AND BAR SIZE		LONGITUDINAL*		TRANSVERSE*	
			REGULAR BARS	TIEBARS	BARS	TIEBARS
	T (IN.)	BAR SIZE	SPACING (IN.)	SPACING (IN.)	SPACING (IN.)	SPACING (IN.)
CRCP	6.0	#5	7.5	7.5	24	24
	6.5		7.0	7.0		
	7.0		6.5	6.5		
	7.5		6.0	6.0		
	8.0	#6	9.0	9.0	24	24
	8.5		8.5	8.5		
	9.0		8.0	8.0		
	9.5		7.5	7.5		
	10.0		7.0	7.0		
	10.5		6.75	6.75		
	11.0	6.5	6.5			
	11.5	6.25	6.25			
	≥12.0	6.0	6.0			
JRCP	<8.0	#5	24.0	12.0	24	24
	≥8.0	#6	24.0	12.0	24	24
CPCD	<8.0	#5	NONE	12.0	NONE	24
	≥8.0	#6	NONE	12.0	NONE	24

* USE 12" SPACING AS FIRST AND LAST SPACING AT END OR SIDE FOR ALL BARS.

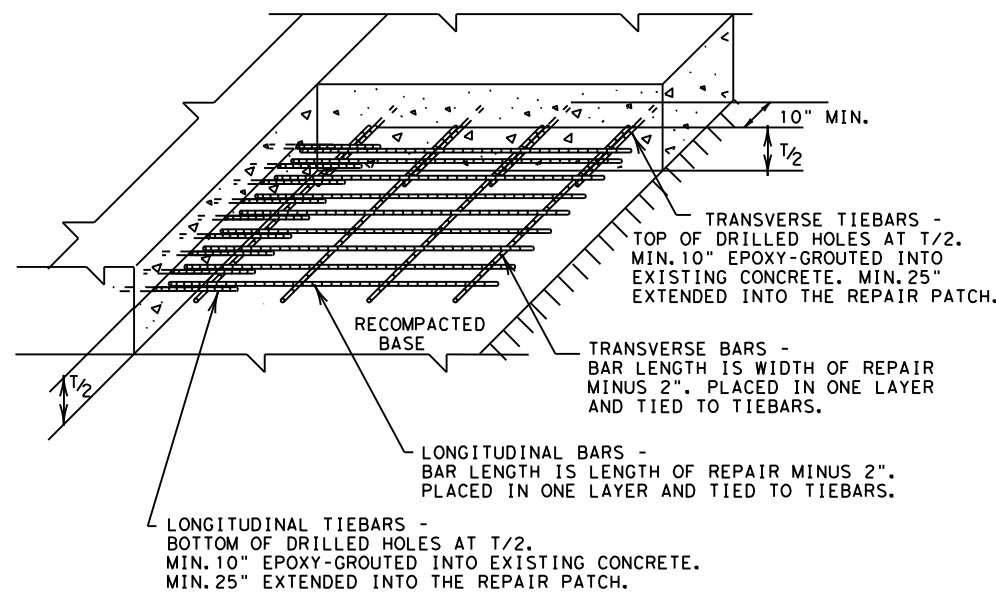


PLAN VIEW

FULL-DEPTH REPAIR OF CRCP, JRCP, AND CPCD

GENERAL NOTES

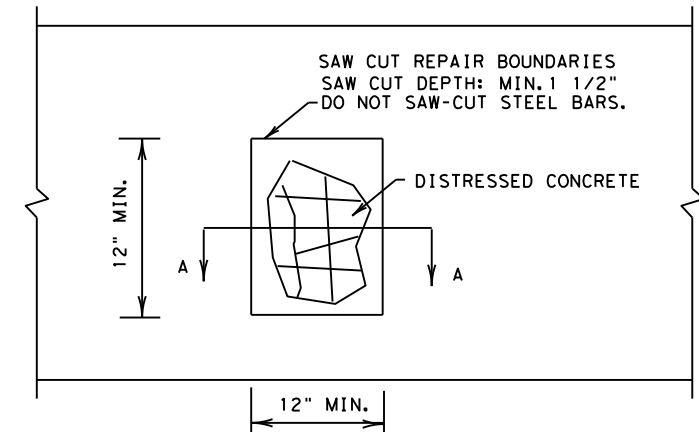
- ITEM 361, "REPAIR OF CONCRETE PAVEMENT" SHALL GOVERN FOR THIS WORK.
- MULTIPLE PIECE TIEBARS SHALL BE USED WHEN THE REPAIR AREA MUST BE PLACED IN TWO STAGES DUE TO SEQUENCE OF CONSTRUCTION.
- FULL DEPTH SAW CUTS SHALL BE MADE AROUND THE PERIMETER OF THE AREA TO BE REPAIRED. THE CUT SHALL BE MADE AT A RIGHT ANGLE TO THE PAVEMENT EDGE AND TO THE CENTER LINE OF THE PAVEMENT.
- AT LEAST ONE LONGITUDINAL FULL DEPTH SAW CUT SHALL BE AT AN EXISTING LONGITUDINAL JOINT.
- ADDITIONAL SAW CUTS MAY BE REQUIRED WITHIN THE AREA OF THE REPAIR TO FACILITATE REMOVAL OF THE CONCRETE OR TO ALLEVIATE BINDING OF THE FULL DEPTH SAW CUT AT THE REPAIR EDGE.
- THE SAW CUTS WHICH EXTEND OUTSIDE THE AREA OF THE REPAIR WILL BE CLEANED AND FILLED WITH A CEMENTITIOUS GROUT APPROVED BY THE ENGINEER.
- EXISTING LONGITUDINAL AND TRANSVERSE JOINTS REMOVED DUE TO REPAIR OPERATION SHOULD BE RESTORED IN ACCORDANCE WITH STANDARD SHEET "CONCRETE PAVING DETAILS, JOINT SEALS."



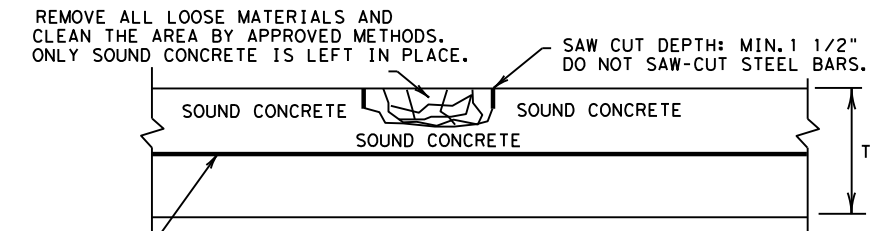
DETAIL A
GROUTED TIEBARS & REINFORCEMENT

GENERAL NOTES

- ITEM 361, "REPAIR OF CONCRETE PAVEMENT" SHALL GOVERN FOR THIS WORK.
- THE SAW CUTS WHICH EXTEND OUTSIDE THE AREA OF THE REPAIR WILL BE CLEANED AND FILLED WITH A CEMENTITIOUS GROUT APPROVED BY THE ENGINEER.
- EXISTING LONGITUDINAL AND TRANSVERSE JOINTS REMOVED DUE TO REPAIR OPERATION SHOULD BE RESTORED IN ACCORDANCE WITH STANDARD SHEET "CONCRETE PAVING DETAILS, JOINT SEALS."



PLAN VIEW



LONGITUDINAL STEEL BARS:

*REPAIR AREAS MAY BE ADJUSTED AFTER REMOVING DISTRESSED CONCRETE. SWITCH THE HALF-DEPTH REPAIR TO FULL-DEPTH REPAIR IF EXPOSED EXISTING LONGITUDINAL BARS ARE DEFICIENT, AS APPROVED. COMPENSATION WILL BE MADE FOR UNEXPECTED VOLUMES OF REPAIR AREAS OR CHANGES IN SCOPE OF WORK.

*INCREASE THE REPAIR AREA AND PERFORM A FULL-DEPTH REPAIR AS DIRECTED IF LONGITUDINAL STEEL BARS WERE DAMAGED BY THE REMOVAL OPERATIONS. NO ADDITIONAL COMPENSATION WILL BE MADE.

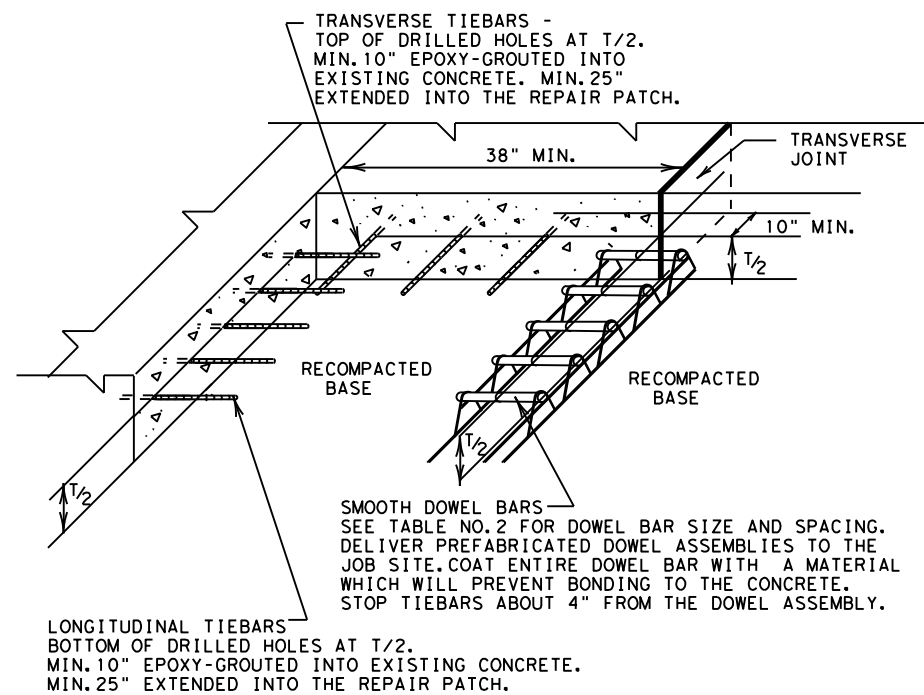
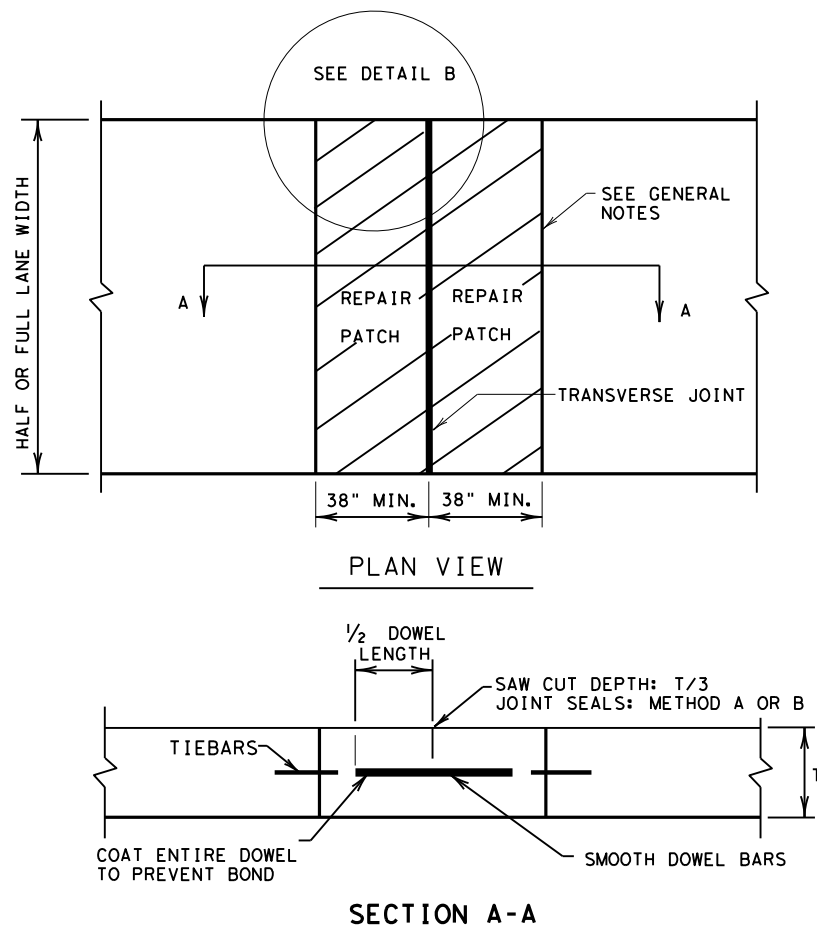
SECTION A-A
HALF-DEPTH REPAIR

SHEET 1 OF 2

				Design Division Standard	
REPAIR OF CONCRETE PAVEMENT					
REPCP-14					
FILE: repcp14.dgn	DN: TxDOT	DN: HC	DW: HC	CK: AN	
© TxDOT: DECEMBER 2014	CONT	SECT	JOB	HIGHWAY	
REVISIONS	1607	01	057, ETC.	FM 1764	
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DETAIL B
GROUTED TIEBARS & DOWELS

REPAIR OF TRANSVERSE JOINT OF CPCD

GENERAL NOTES

1. ITEM 361, "REPAIR OF CONCRETE PAVEMENT" SHALL GOVERN FOR THIS WORK.
2. MULTIPLE PIECE TIEBARS SHALL BE USED WHEN THE REPAIR AREA MUST BE PLACED IN TWO STAGES DUE TO SEQUENCE OF CONSTRUCTION.
3. FULL DEPTH SAW CUTS SHALL BE MADE AROUND THE PERIMETER OF THE AREA TO BE REPAIRED. THE CUT SHALL BE MADE AT A RIGHT ANGLE TO THE PAVEMENT EDGE AND TO THE CENTER LINE OF THE PAVEMENT.
4. AT LEAST ONE LONGITUDINAL FULL DEPTH SAW CUT SHALL BE AT AN EXISTING LONGITUDINAL JOINT.
5. ADDITIONAL SAW CUTS MAY BE REQUIRED WITHIN THE AREA OF THE REPAIR TO FACILITATE REMOVAL OF THE CONCRETE OR TO ALLEVIATE BINDING OF THE FULL DEPTH SAW CUT AT THE REPAIR EDGE.
6. THE SAW CUTS WHICH EXTEND OUTSIDE THE AREA OF THE REPAIR WILL BE CLEANED AND FILLED WITH A CEMENTITIOUS GROUT APPROVED BY THE ENGINEER.
7. EXISTING LONGITUDINAL AND TRANSVERSE JOINTS REMOVED DUE TO REPAIR OPERATION SHOULD BE RESTORED IN ACCORDANCE WITH STANDARD SHEET "CONCRETE PAVING DETAILS, JOINT SEALS."
8. DOWEL BAR PLACEMENT TOLERANCE SHALL BE +/- 1/4 IN. HORIZONTALLY AND VERTICALLY UNLESS OTHERWISE SPECIFIED. WHERE DOWEL BAR BASKETS ARE USED, REMOVE THE SHIPPING WIRES.

PAVEMENT THICKNESS (INCHES)	SIZE AND DIA.	LENGTH (IN.)	SPACING (IN.)
<10	#8 (1 IN.)	18.0	12.0
≥10	#10 (1 1/4 IN.)		

SHEET 2 OF 2



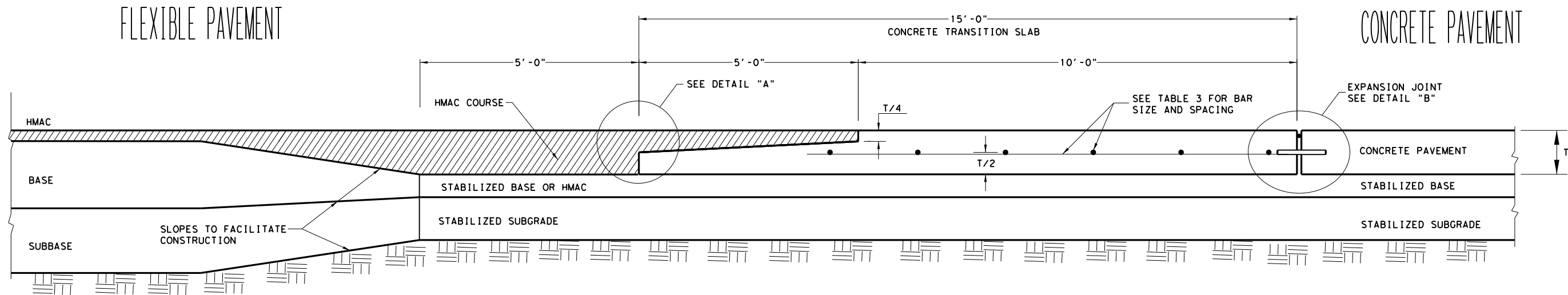
REPAIR OF CONCRETE PAVEMENT

REPCP-14

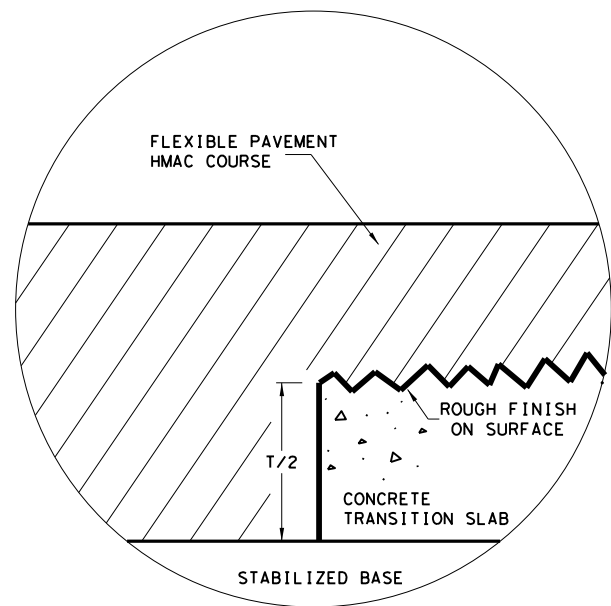
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© TxDOT: DECEMBER 2014	CONT	SECT	JOB	HIGHWAY
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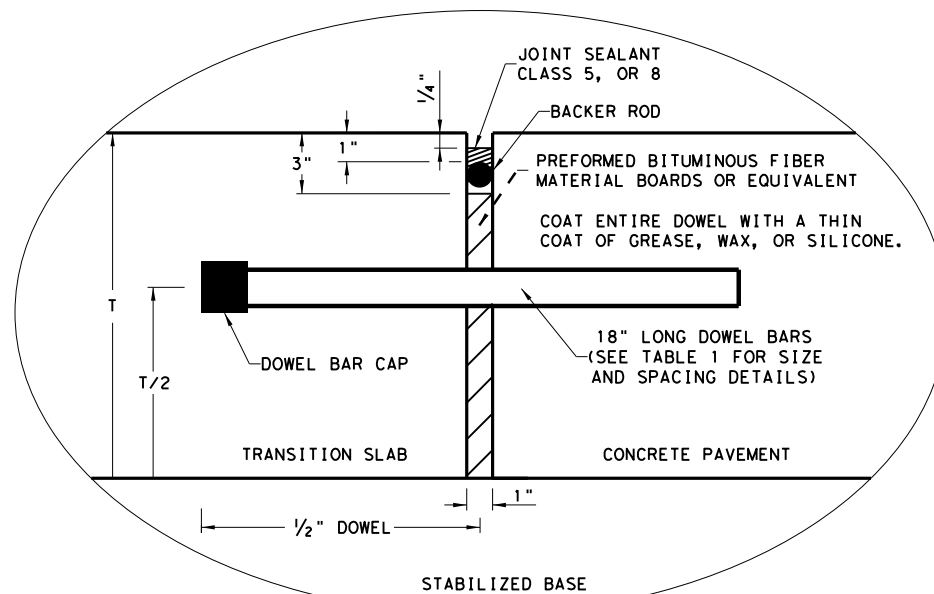
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TYPICAL JUNCTION OF CONCRETE PAVEMENT WITH FLEXIBLE PAVEMENT
(NOT TO SCALE)



DETAIL "A"



DETAIL "B"

GENERAL NOTES

1. FOR FURTHER INFORMATION REGARDING THE PLACEMENT OF CONCRETE AND LOAD TRANSFER DEVICES REFER TO THE GOVERNING SPECIFICATIONS FOR "CONCRETE PAVEMENT" AND "REINFORCING STEEL."
2. DETAILS FOR PAVEMENT WIDTH AND THE CROWN CROSS-SLOPE SHALL BE SHOWN ELSEWHERE IN THE PLANS.
3. MATCH THE LONGITUDINAL JOINTS OF THE CONCRETE TRANSITION SLAB WITH ADJOINING CONCRETE PAVEMENT. PROVIDE EQUIVALENT TIEBARS OR TRANSVERSE BARS AT THESE LONGITUDINAL JOINTS, SEE TABLE NO. 2.
4. REFER TO DMS-6310, "JOINT SEALANTS AND FILLERS" FOR THE CLASSIFICATIONS.
5. TRANSITION SLABS WILL BE PAID UNDER ITEM 360, "CONCRETE PAVEMENTS."

SLAB THICKNESS T (IN.)	BAR DIA. AND LENGTH	SPACING (IN.)
7 TO 7.5	1" X 18"	12
8 TO 10	1 1/4" X 18"	12
10 TO 13	1 1/2" X 18"	12

SLAB THICKNESS T (IN.)	BAR SIZE	SPACING (IN.)
7 TO 7.5	#5	24
8 TO 13	#6	24

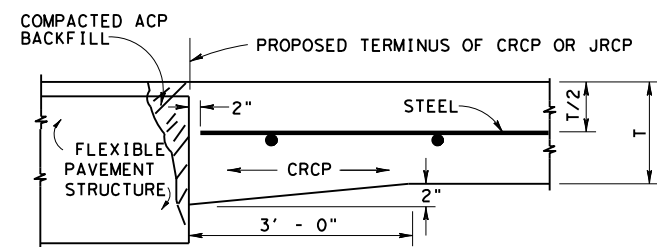
SLAB THICKNESS T (IN.)	BAR SIZE	SPACING (IN.) TRANSVERSE DIRECTION	SPACING (IN.) LONGITUDINAL DIRECTION
7 TO 7.5	#5	24	12
8 TO 13	#6	24	12

ADJUST SPACING OF LONGITUDINAL BARS AS NEEDED TO ACCOMMODATE DOWEL BAR SPACING.

				Design Division Standard	
CONCRETE PAVEMENT DETAILS TRANSITION SLAB T-7 to 13 INCHES					
TRANS-20					
FILE: transitslab20.dgn	DN: TxDOT	DN: TxDOT	DW: AN	CK: KM	
© TxDOT: NOVEMBER 2020	CONT	SECT	JOB	HIGHWAY	
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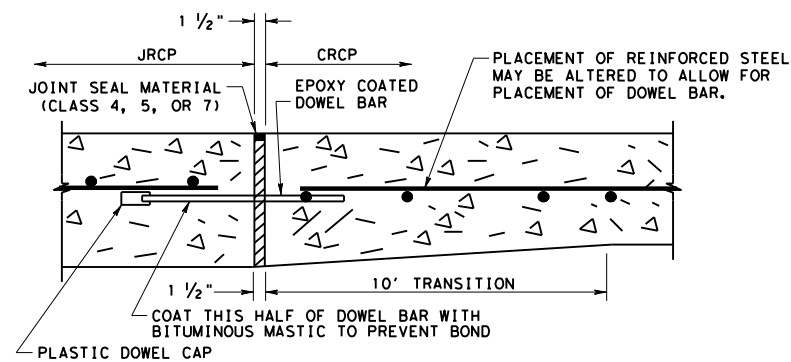
GENERAL NOTES

- FOR FURTHER INFORMATION REGARDING PLACING CONCRETE AND REINFORCEMENT, REFER TO THE GOVERNING SPECIFICATION FOR CONCRETE PAVEMENT.
- THE DESIGN REQUIREMENTS FOR THE PAVEMENT STRUCTURE, I.E. BAR SPACING, BAR SIZE LAP REQUIREMENTS, ETC., ARE SHOWN ON THE APPROPRIATE PAVEMENT DESIGN DETAIL.
- SLEEPER SLAB AND ADDITIONAL REINFORCING REQUIRED ON THIS DRAWING ARE INCIDENTAL TO THE VARIOUS BID ITEMS.
- USE THE SIZE, SPACING, AND LENGTH OF DOWEL BARS SHOWN IN TABLE "A".
- WHERE THERE WILL BE A JUNCTURE AND ADDITIONAL JRCP PAVING WILL BE PLACED AT A FUTURE DATE, MULTIPLE PIECE DOWEL BARS WILL BE PERMITTED AT THE JUNCTURE. PROVIDE MULTIPLE PIECE DOWEL BAR ASSEMBLIES WITH A MINIMUM ULTIMATE TENSILE STRENGTH OF 60.0 KIPS AND THAT HAVE SMOOTH EPOXY COATED BARS. ENSURE THE MULTIPLE PIECE DOWEL BAR ASSEMBLIES HAVE STOP TYPE COUPLINGS AND HAVE ROLLED THREADS ON THE BARS. DISMANTLE THE BAR AND FIT THE COUPLING PORTION USED IN CONSTRUCTION, WITH A PLASTIC CAP. FURNISH THE REMAINING PORTION OF THE BAR TO THE ENGINEER.
- WHERE THE PAVING IS CRCP AND A RAMP COMPOSED OF A FLEXIBLE PAVEMENT WILL BE USED AT THE JUNCTURE UNTIL FUTURE PAVING IS CONSTRUCTED, MULTIPLE PIECE TIE BARS MAY BE USED IF PERMITTED BY THE ENGINEER. IF USED, ENSURE THE MULTIPLE PIECE TIE BAR ASSEMBLIES HAVE STOP TYPE COUPLINGS AND ROLLED THREADS ON THE BARS. FURNISH MULTIPLE PIECE TIE BAR ASSEMBLIES THAT DEVELOP A MINIMUM ULTIMATE TENSILE STRENGTH EQUAL TO 1.25 TIMES THE YIELD STRENGTH OF THE TRANSVERSE BARS BEING JOINED. FOR TIE BARS, USE DEFORMED REINFORCING BARS. TIE BAR ASSEMBLIES MADE FROM STEELS OTHER THAN ASTM GRADE 60 AND WITH DEFORMATIONS OTHER THAN ASTM STD. MAY BE USED PROVIDED THEY PROVE SATISFACTORY TO THE ENGINEER AND ARE IN EVERY RESPECT THE EQUAL TO THE ASSEMBLIES SPECIFIED. LABORATORY TESTING OF THE PROPOSED ASSEMBLIES, AT THE CONTRACTOR'S EXPENSE, MAY BE REQUIRED. LAP AND WELD ONE PORTION OF THE TIE BAR ASSEMBLY TO EACH LONGITUDINAL BAR IN ACCORDANCE WITH THE ITEM "STRUCTURAL FIELD WELDING" AND THE OTHER PORTION INTO THE COUPLING PRIOR TO PAVING. ENSURE MULTIPLE PIECE TIE BAR LENGTHS CONFORM TO THE TIE BAR LENGTHS SHOWN ELSEWHERE IN THE PLANS. ADDITIONAL "SHEAR STEEL" WILL ALSO BE REQUIRED AND MAY BE USED WITH MULTIPLE PIECE ASSEMBLIES AS PREVIOUSLY DESCRIBED. USE ADDITIONAL STEEL BARS OF EQUAL DIAMETER AT A SPACING DOUBLE THAT OF THE LONGITUDINAL STEEL AND ENSURE THE LENGTH IS 66 TIMES THE TIE BAR DIAMETER.
- DO NOT SHEAR CUT DOWEL BARS.
- ENSURE DOWEL BAR EPOXY COATING CONFORMS TO ARTICLE 440.2.7., "EPOXY COATING".
- REPLACE ANY BENT LONGITUDINAL REINFORCING. IF THERE IS NOT SUFFICIENT EXPOSED REINFORCING TO PROVIDE A MINIMUM OF A 33 TIMES BAR DIAMETER LAP, REMOVE THE EXISTING PAVEMENT AND SUFFICIENTLY EXPOSE THE EXISTING REINFORCING TO PROVIDE A 33 TIMES BAR DIAMETER LAP. REPLACE ANY SHEAR BARS THAT ARE DISTURBED, BY DRILLING AND GROUTING AS REQUIRED BY NOTE 12 BELOW. PERFORM THIS CORRECTIVE ACTION AT NO EXPENSE TO THE DEPARTMENT.
- TIE BARS AND DOWEL BARS OMITTED, LOST, OR DAMAGED SHALL BE REPAIRED BY DRILLING AND EPOXY GROUTING AT NO EXPENSE TO THE DEPARTMENT.
- JUNCTURES A & B ARE ONLY SUITABLE FOR MINOR STREETS WITH LOW TRAFFIC VOLUMES.
- FURNISH ADDITIONAL SHEAR BARS (DIAMETER "D") OF THE SAME SIZE AS LONGITUDINAL BARS AND SPACE THEM MIDWAY BETWEEN ALTERNATE LONGITUDINAL BARS ALONG THE TRANSVERSE CONSTRUCTION JOINT FORMED AT THE LEAVE-OUT.



NOTE:
ADDITIONAL CONCRETE FOR THICKENED EDGE IS SUBSIDIARY TO VARIOUS BID ITEMS. BACKFILL DISTURBED MATERIAL IN THE FLEXIBLE PAVEMENT WITH ACP. THIS ACP IS SUBSIDIARY TO VARIOUS BID ITEMS.

JUNCTURE A & B - CRCP OR JRCP WITH FLEXIBLE TYPE PAVEMENT STRUCTURE

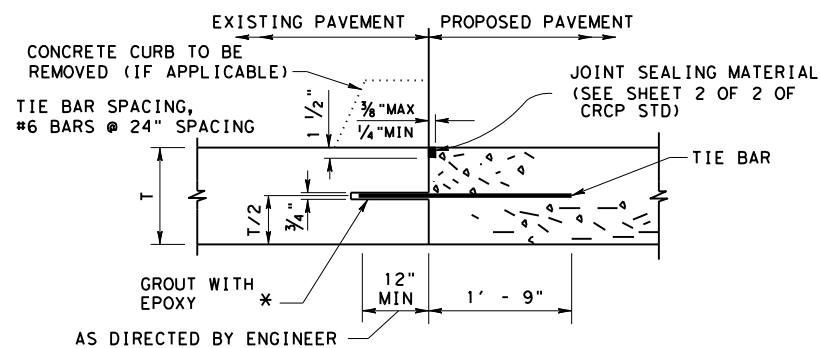


FOR DETAILS NOT SHOWN, SEE TRANSVERSE EXPANSION JOINT DETAILS ELSEWHERE IN PLANS.

DETAIL "B" - DOWEL ASSEMBLY AT EXPANSION JOINT

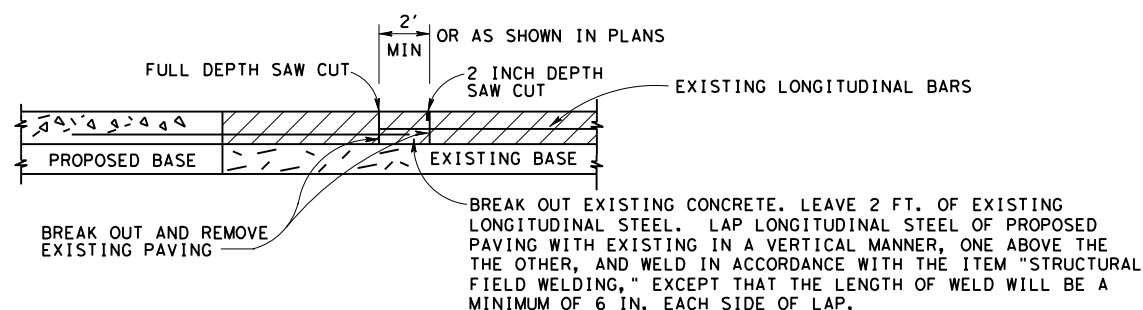
DOWEL BAR DATA			
SLAB THICKNESS (T)	6"-7.5"	8"-10"	10.5"-15"
DOWEL SIZE	1"	1 1/4"	1 1/2"
DOWEL LENGTH	18"	20"	22"
DOWEL BAR SPACING	12"	12"	12"

TABLE A - DOWEL BAR DATA



JUNCTURE D - TYPICAL CONNECTION TO EXISTING CONCRETE

*FOR EPOXY TYPE SEE ITEM 361.



JUNCTURE F - "BREAK BACK" CONCRETE CRCP WITH CRCP OR JRCP WITH JRCP

LEGEND

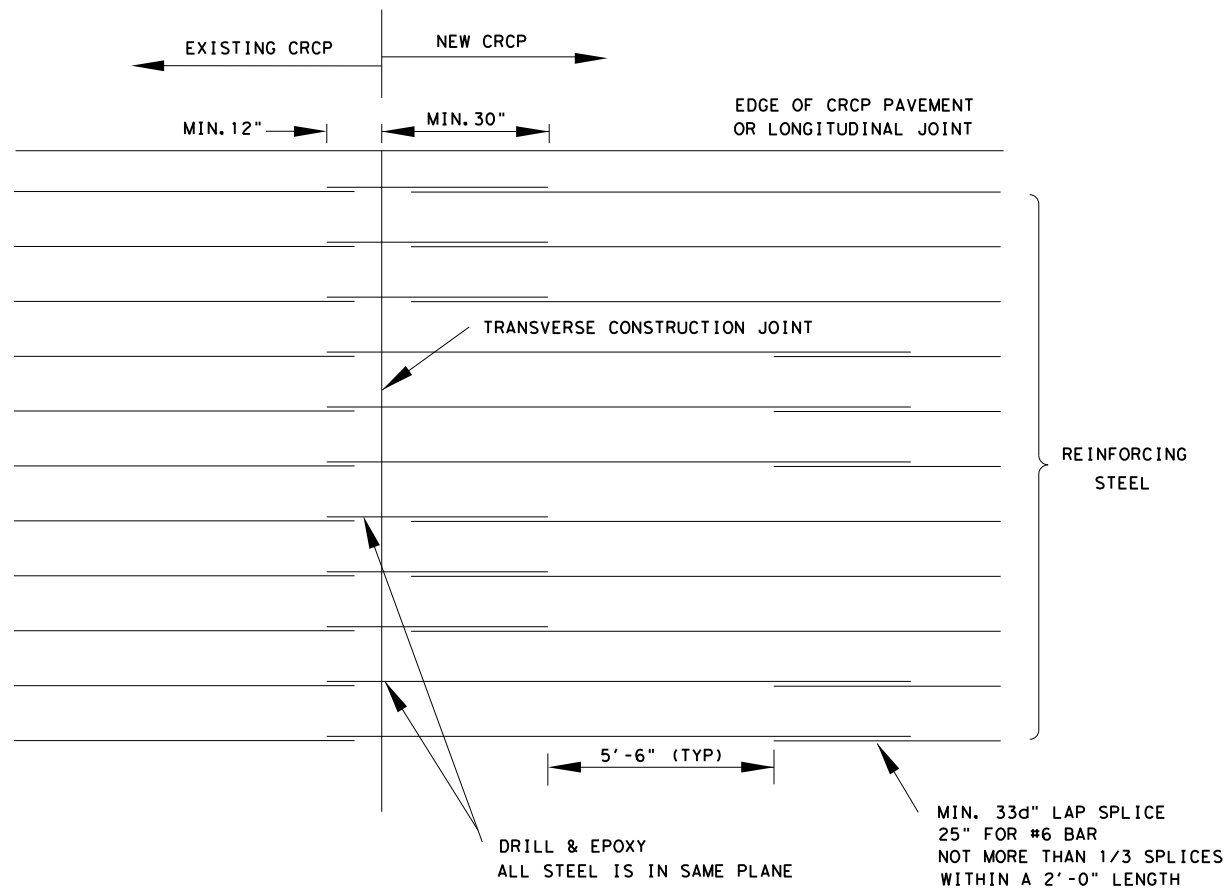
- ACP - ASPHALT CONCRETE PAVEMENT
- CRCP - CONTINUOUSLY REINFORCED CONCRETE PAVEMENT
- JRCP - JOINTED REINFORCED CONCRETE PAVEMENT
- T - THICKNESS

Texas Department of Transportation
Houston District

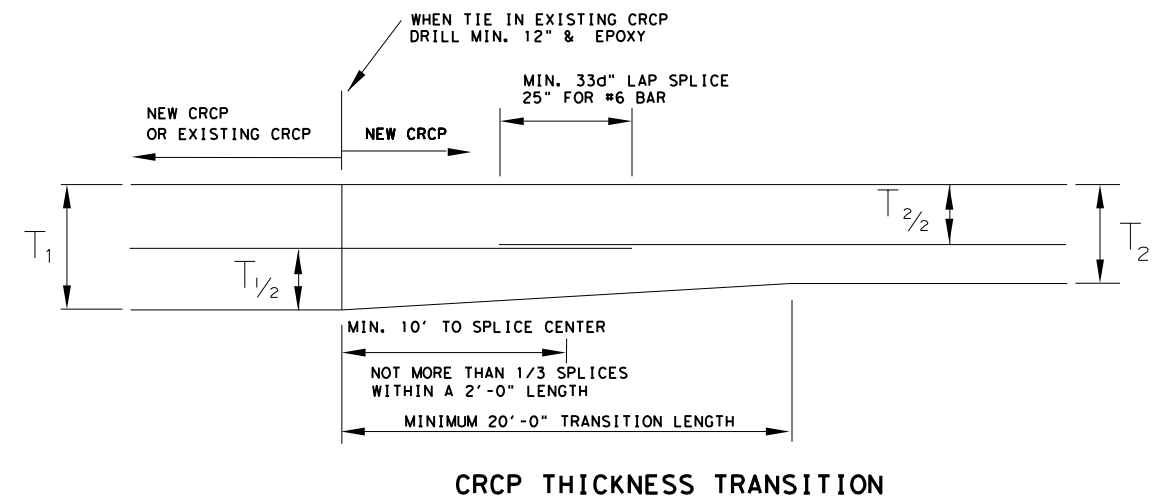
CONCRETE PAVEMENT JUNCTURES

CPJ

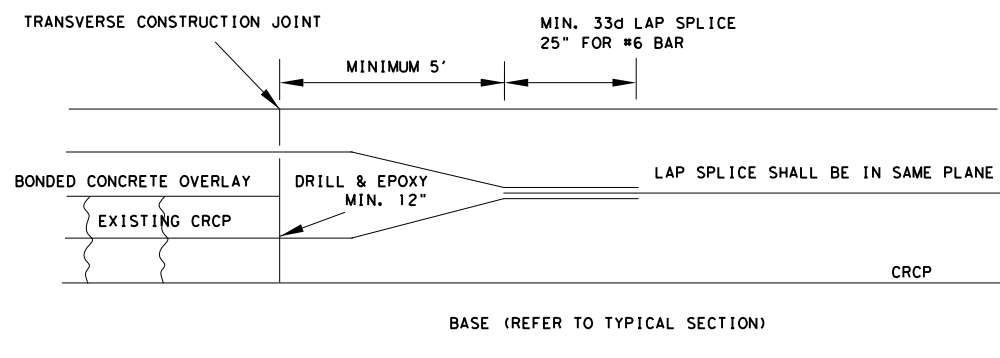
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	COUNTY	CONTROL	SECT	JOB
	GALVESTON	1607	01	057, ETC
				FM 1764



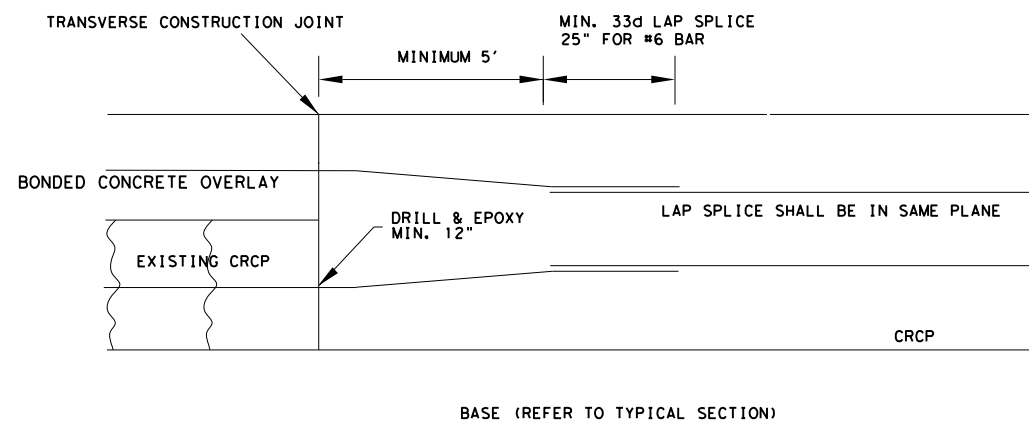
EXISTING CRCP TO NEW CRCP



CRCP THICKNESS TRANSITION



**CRCP BONDED OVERLAY TO CRCP TRANSITION
(ONE LAYER STEEL)**



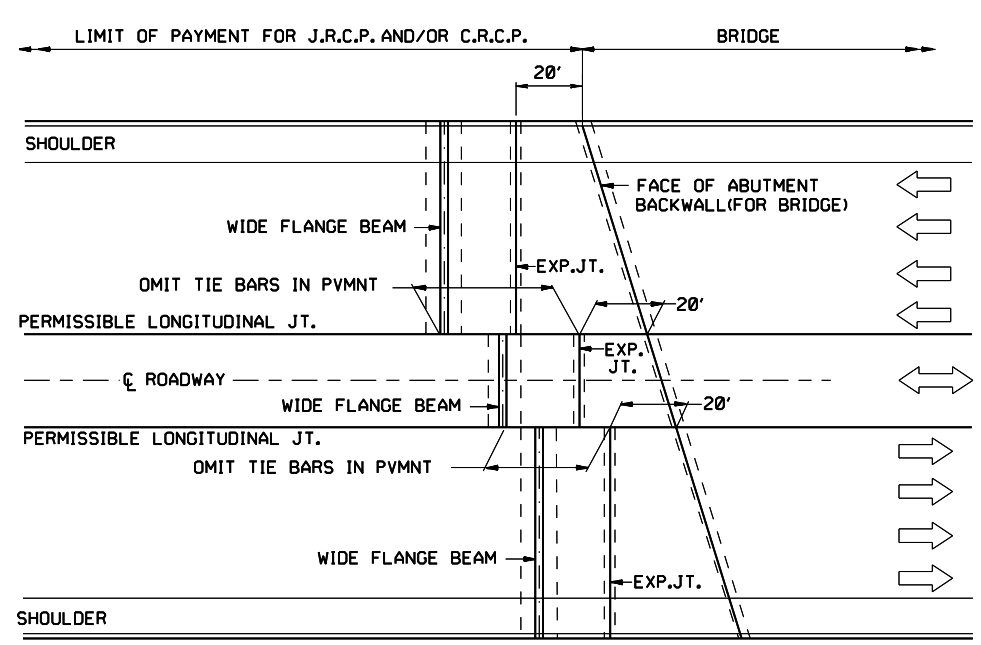
**CRCP BONDED OVERLAY TO CRCP TRANSITION
(TWO LAYER STEEL)**



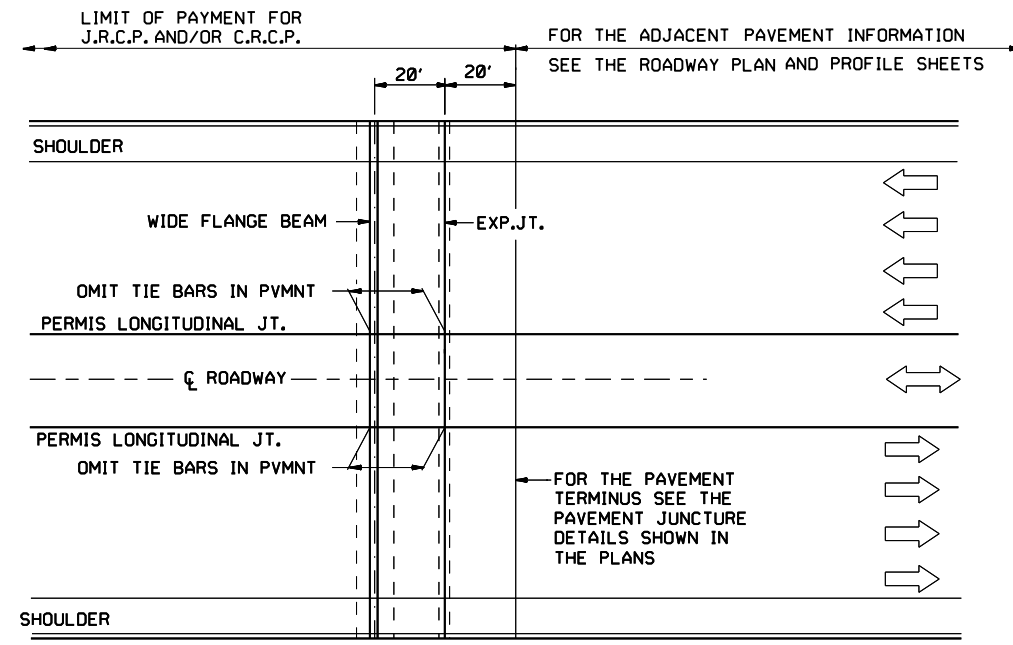
**CONCRETE PAVEMENT
JUNCTURES**

CPJ

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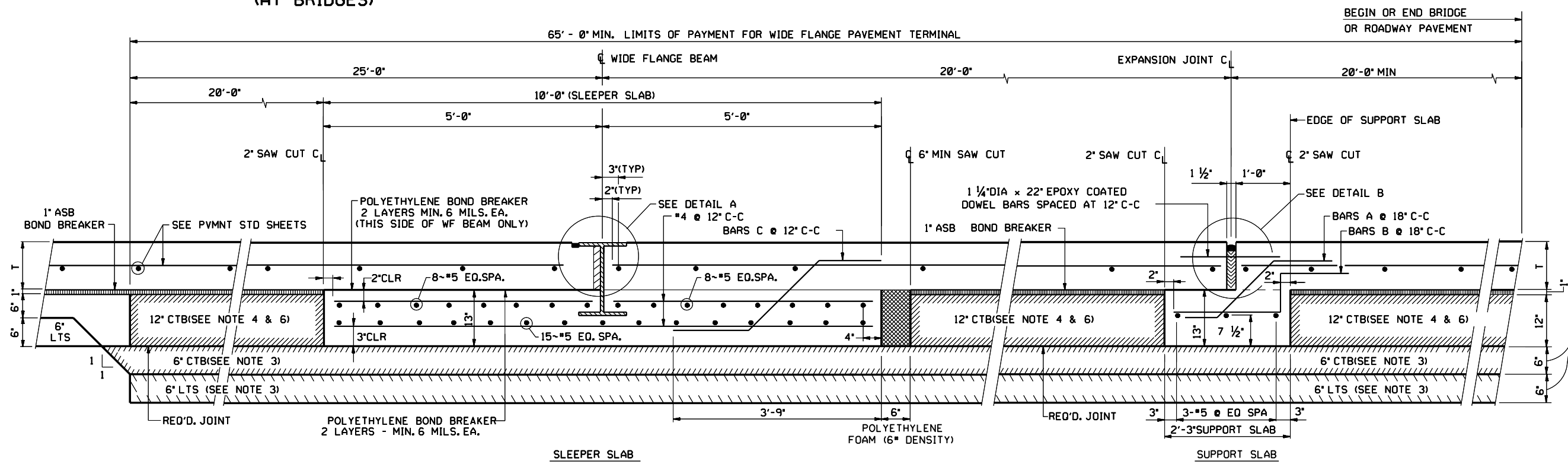


**TYPICAL ROADWAY LAYOUT
CONCRETE MEDIAN AND SHOULDERS
(AT BRIDGES)**

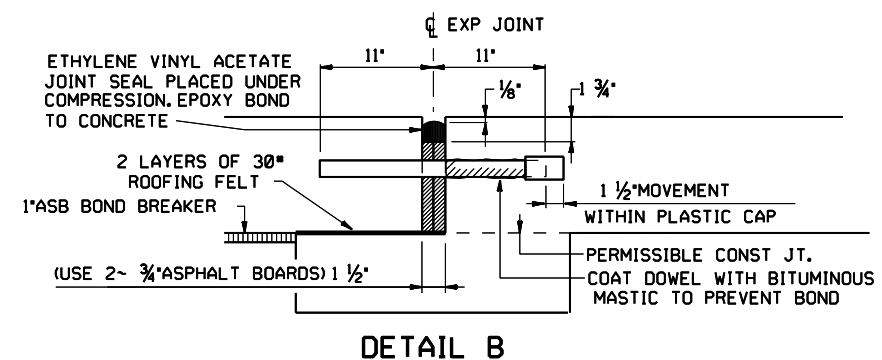
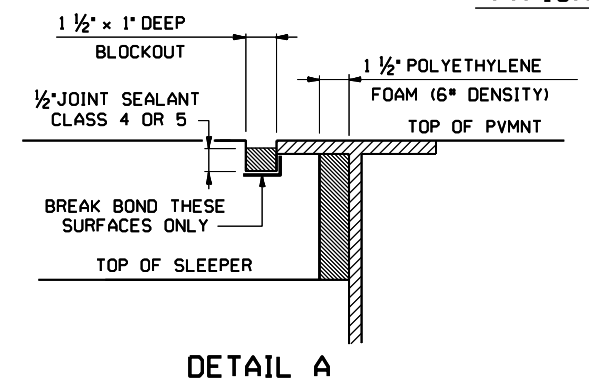


**TYPICAL ROADWAY LAYOUT
CONCRETE MEDIAN AND SHOULDERS**

- NOTES**
1. BLOCK-OUT REQUIRED AT EACH END OF WIDE FLANGE BEAM ADJACENT TO 3/8" END PLATE WHERE BLOCK-OUT IS PLACED ABUTTING CONCRETE PAVEMENT, RIPRAP OR STABILIZED BASE. THE BLOCKED OUT AREA WILL BE FILLED WITH POLYETHYLENE FOAM (6 POUND DENSITY). SEE SHEET 3 OF 3 FOR BLOCK-OUT DETAIL.
 2. FOR ADDITIONAL DETAILS ON REINFORCEMENT MEMBER QUANTITIES AND THE WIDE FLANGE BEAM SEE SHEET 2 OF 3.
 3. REPLACE 6 INCH LIME TREATMENT AND 6 INCH CEMENT TREATMENT WITH CEMENT STABILIZED BACK-FILL AT STRUCTURES WITH CEMENT STABILIZED BACKFILL EMBANKMENT. SEE "CEMENT STABILIZED BACKFILL EMBANKMENT" STANDARD SHEET FOR DETAILS.
 4. 12 INCH CEMENT STABILIZED BACKFILL MAY BE SUBSTITUTED FOR 12 INCH CTB, AT CONTRACTOR'S OPTION, ON APPLICABLE STRUCTURES WITH CEMENT STABILIZED BACKFILL EMBANKMENT.
- CTB - CEMENT TREATED BASE
 LTS - LIME TREATED SUBGRADE
 CRCP - CONTINUOUSLY REINFORCED CONCRETE PAVEMENT
 JRCP - JOINTED REINFORCED CONCRETE PAVEMENT
 ASB - ASPHALT STABILIZED BASE
 T - PAVEMENT THICKNESS



TYPICAL SECTION THRU TERMINAL ANCHORAGE @ SLEEPER SLAB & SUPPORT SLAB



FOR MORE DETAILS AND LIMITS OF PAY FOR CTB & LTS SEE ABUTMENT BACKFILL DIAGRAM DETAIL ON SHEET 2 OF 3 OR THE PAVEMENT JUNCTURE DETAILS AS SHOWN IN PLANS.

SHEET 1 OF 3

Texas Department of Transportation
Houston District

WIDE FLANGE PAVEMENT TERMINALS

FOR CONTINUOUSLY & JOINTED REINFORCED CONCRETE PAVEMENT DETAILS (FOR USE AT BRIDGE END OR PAVEMENT TERMINUS)

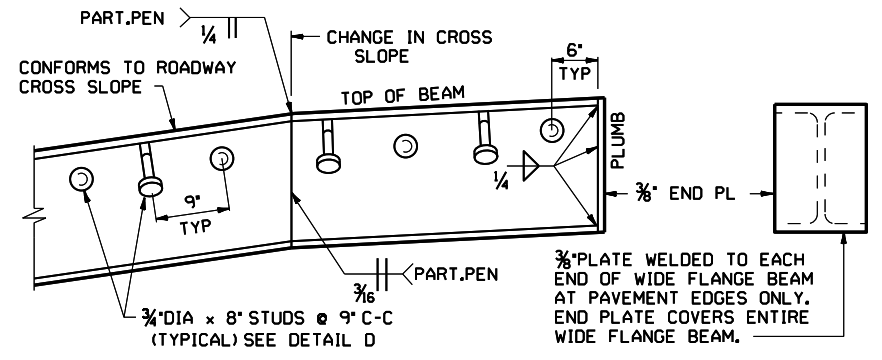
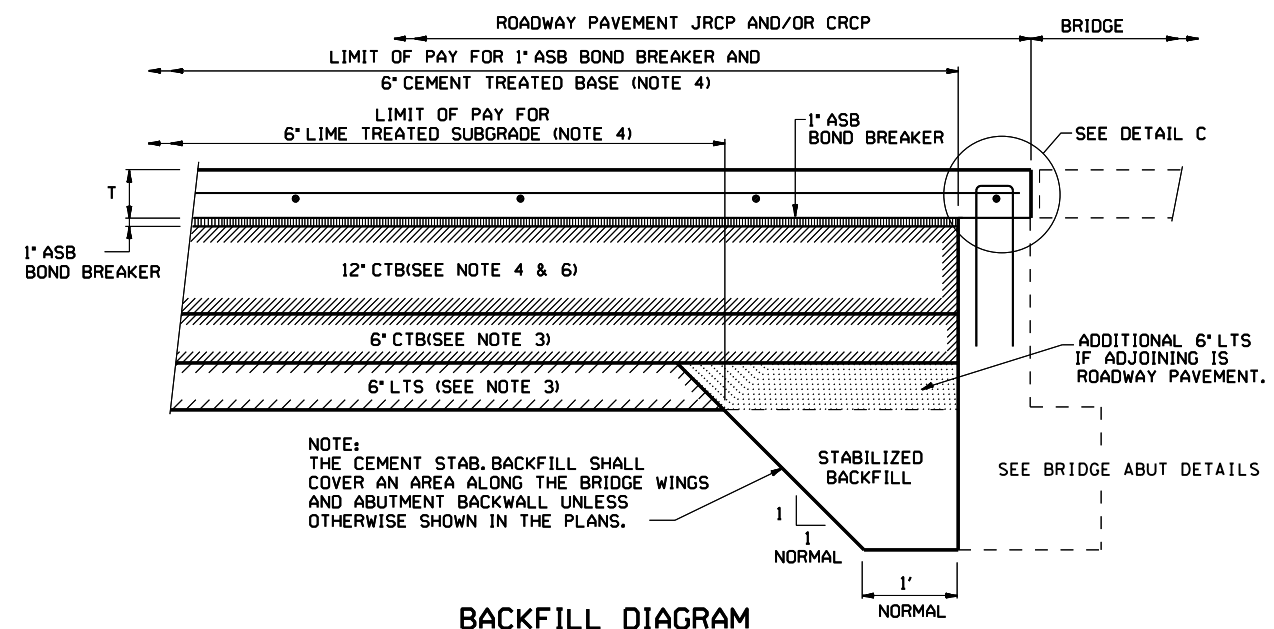
WFPT

FILE#	STDB-3.DGN	DN#	TxDOT	CK#	TxDOT	DW#	TxDOT	CK#	TxDOT
©	TxDOT	2014	DISTRICT	FED REG	PROJECT NO.	SHEET			
REVISIONS	02/15 2014 SPECS		HOU	6	268				
COUNTY	GALVESTON		CONTROL	SECT	JOB	HIGHWAY			
			1607	01	991.ETC.FM 1764				

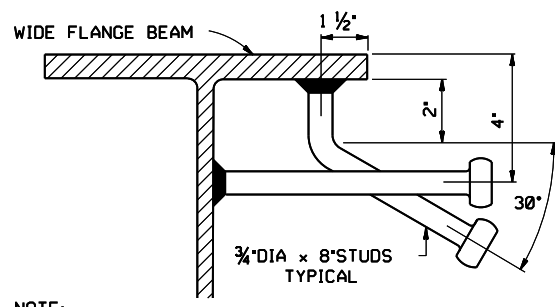
STDB-3

NOTES: (CONT)

5. THIS STANDARD WILL BE USED WITH SPECIAL SPECIFICATION "CONCRETE PAVEMENT TERMINALS". THIS ITEM WILL BE MEASURED BY THE LINEAR FOOT OF WIDE FLANGE BEAM COMPLETE IN PLACE.
 6. WIDE FLANGE BEAM, SUPPORT SLAB, SLEEPER SLAB, 12 INCHES OF CEMENT TREATED BASE, POLYETHYLENE BONDBREAKER AND ANY EXCAVATION NECESSARY WILL NOT BE PAID FOR DIRECTLY, BUT WILL BE CONSIDERED SUBSIDIARY TO SPECIAL SPECIFICATION ITEM, "CONCRETE PAVEMENT WIDE FLANGE TERMINALS".
 7. POLYETHYLENE FOAM (6 POUND DENSITY), SAW CUTS, EXPANSION JOINTS, EPOXY COATED DOWEL AND EXPANSION JOINT MATERIALS WILL NOT BE PAID FOR DIRECTLY BUT SHALL BE CONSIDERED INCIDENTAL TO THE ITEM 360.
 8. THE CONCRETE PAVEMENT, 1 INCH ASB BONDBREAKER, 6 INCH PORTLAND CEMENT TREATED BASE AND 6 INCH LIME TREATED SUBGRADE WILL BE PAID FOR UNDER THE APPROPRIATE BID ITEMS.
 9. SHEAR CUTTING OF DOWEL BARS IS PROHIBITED.
 10. EPOXY COATING OF DOWEL BARS PER SPECIFICATION ITEM 440.
 11. CEMENT STABILIZED BACKFILL IS REQUIRED AT ALL ABUTMENTS.
- CTB - CEMENT TREATED BASE
 LTS - LIME TREATED SUBGRADE
 CRCP - CONTINUOUSLY REINFORCED CONCRETE PAVEMENT
 JRCP - JOINTED REINFORCED CONCRETE PAVEMENT
 ASB - ASPHALT STABILIZED BASE
 T - PAVEMENT THICKNESS

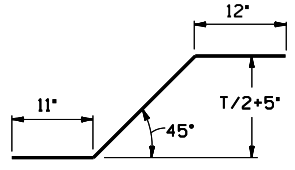


WIDE FLANGE DETAIL

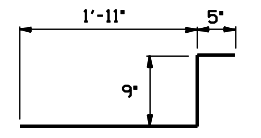


NOTE: STUDS SHALL BE ELECTRIC ARC END WELDED WITH COMPLETE FUSION. ANY STUD WHICH IS DISLODGED IN SHIPPING OR CAN BE DISLODGED BY HAMMER SHALL BE REPLACED.

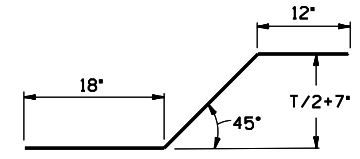
DETAIL D



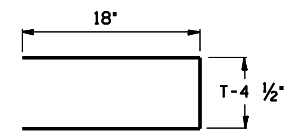
BARS A (#4)



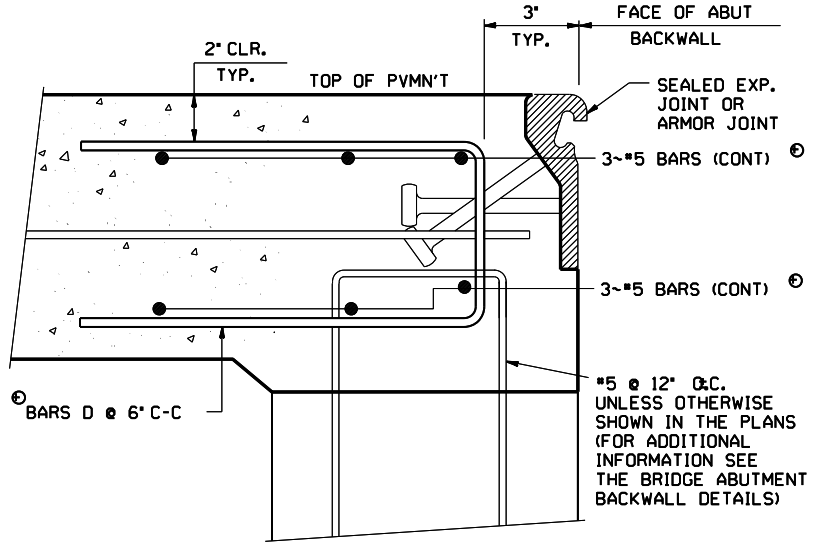
BARS B (#4)



BARS C (#4)



BARS D (#5)



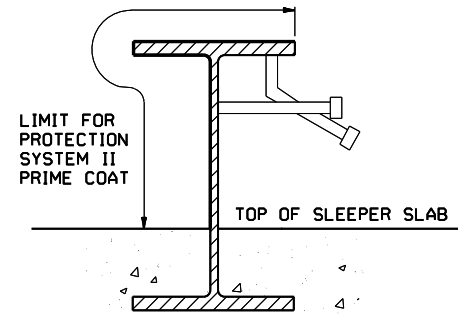
DETAIL C

(SHOWING ADDITIONAL REINFORCEMENT FOR ROADWAY PAVEMENT WITH SEALED EXPANSION JOINTS OR ARMOR JOINTS AT ABUTMENTS.)

⊕ THE ADDITIONAL STEEL REQUIRED BY THE ABOVE DETAIL "C" SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED INCIDENTAL TO THE ITEM, "CONCRETE PAVEMENT".

TABLE OF BEAM SIZES

PAVEMENT THICKNESS	WIDE FLANGE BEAM DESIGNATION
8"-9 1/2"	W14 X 68
10"-11 1/2"	W16 X 89
12"-13"	W18 X 97
14" & 15"	W21 X111



SEE "TABLE OF BEAM SIZES"

ESTIMATED QUANTITIES (FOR CONTRACTOR'S INFORMATION ONLY)

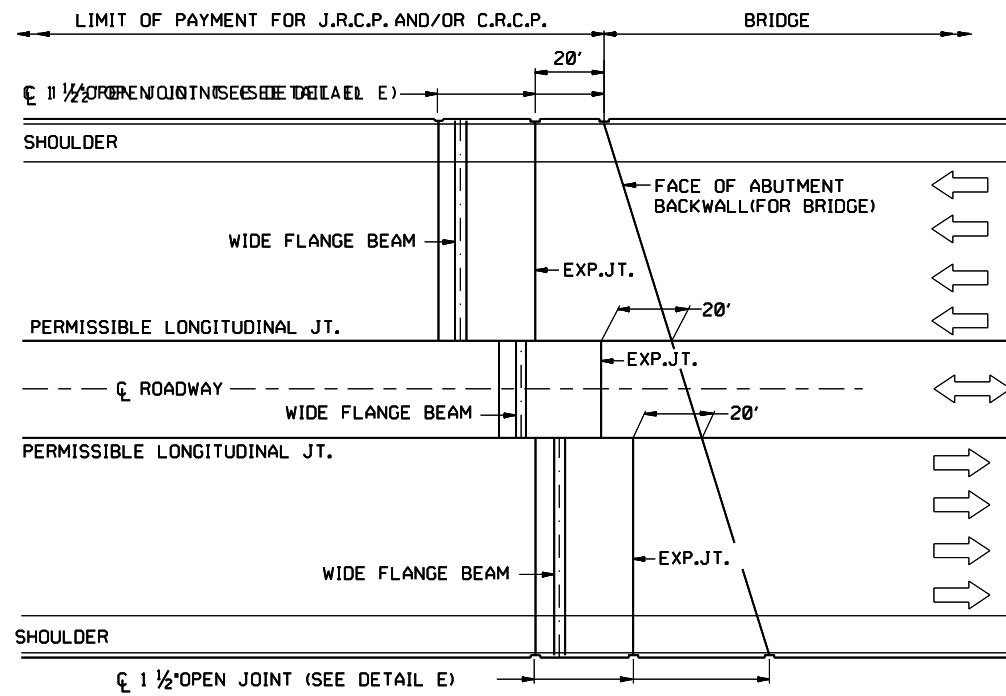
ITEM	PAVEMENT THICKNESS					
	8" THRU 10"	10 1/2" THRU 12"	12 1/2" THRU 13"	14"	15"	
SLEEPER SLAB	CONCRETE	0.40 CY/LF	0.40 CY/LF	0.40 CY/LF	0.40 CY/LF	0.40 CY/LF
SLAB	REINFORCING STEEL	49.1 LBS/LF	49.3 LBS/LF	49.6 LBS/LF	49.7 LBS/LF	49.8 LBS/LF
SUPPORT SLAB	CONCRETE	0.09 CY/LF	0.09 CY/LF	0.09 CY/LF	0.09 CY/LF	0.09 CY/LF
SLAB	REINFORCING STEEL	6.3 LBS/LF	6.4 LBS/LF	6.5 LBS/LF	6.6 LBS/LF	6.6 LBS/LF
12" CEMENT TREATED BASE		1.95 CY/LF (BASED ON JOINTS BEING NORMAL TO THE PAVEMENT CENTERLINE)				

WIDE FLANGE PAVEMENT TERMINALS

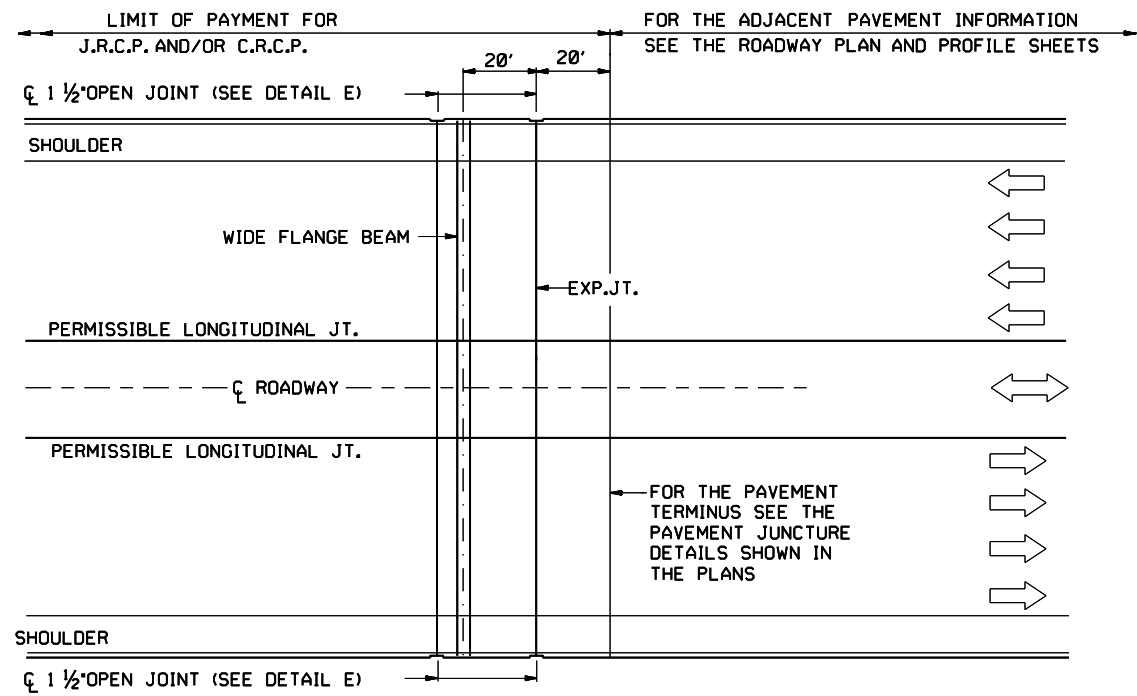
FOR CONTINUOUSLY & JOINTED REINFORCED CONCRETE PAVEMENT DETAILS (FOR USE AT BRIDGE END OR PAVEMENT TERMINUS)

WFPT

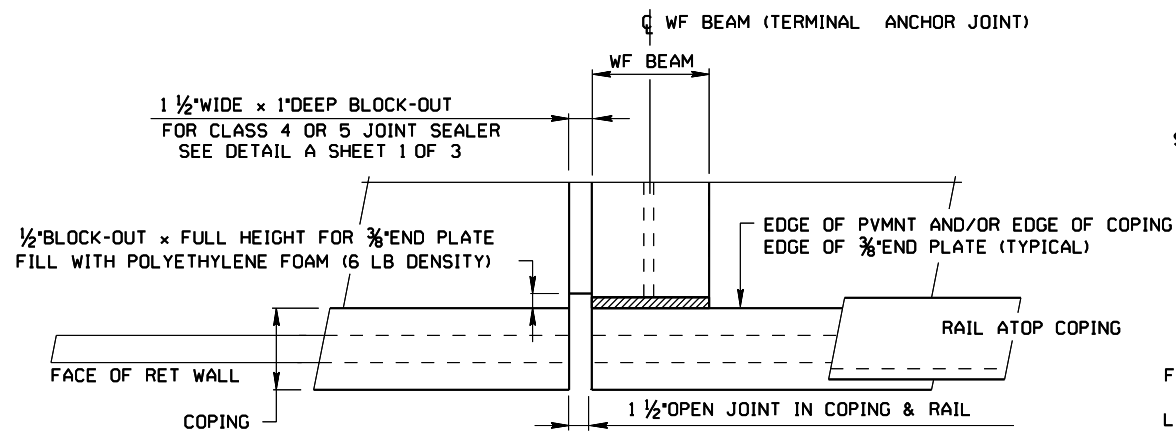
FILE: STDB-3, DGN	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT 2014	DISTRICT FED REG	PROJECT NO.	SHEET 269	
REVISIONS	HOU	6	02/15 2014 SPECS	
COUNTY	CONTROL	SECT	JOB	HIGHWAY
GALVESTON	1607	01	051, E10 FM 1764	



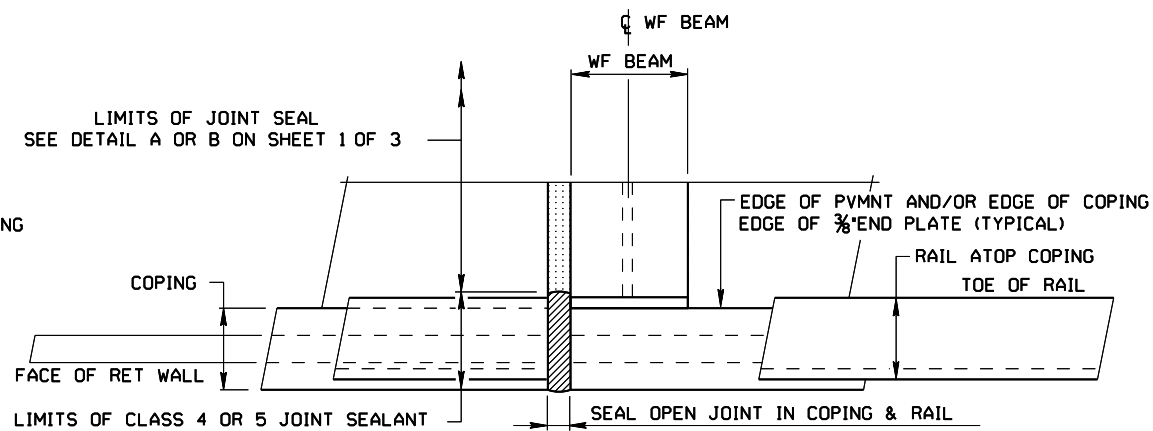
PLAN
SHOWING OPEN JOINT LAYOUT



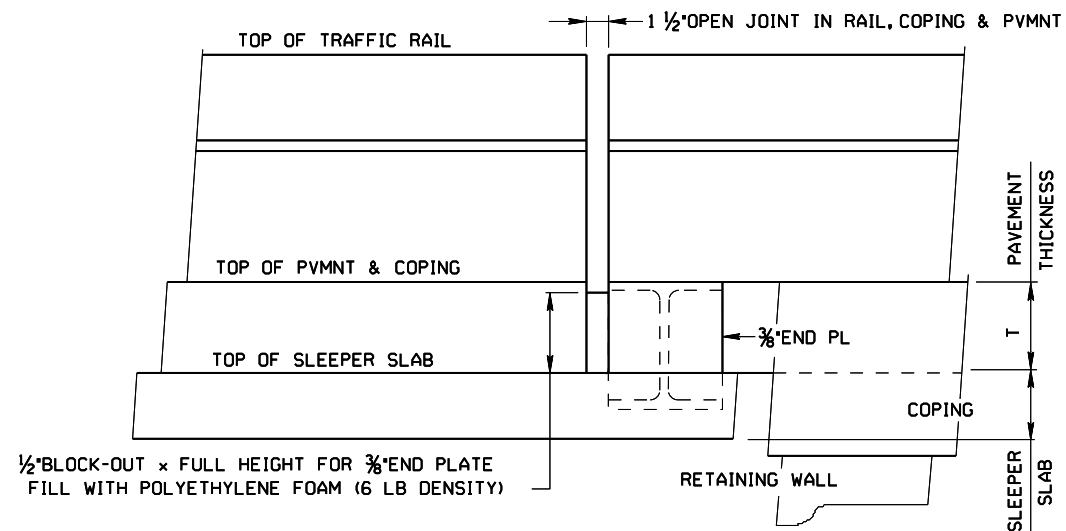
PLAN
SHOWING OPEN JOINT LAYOUT



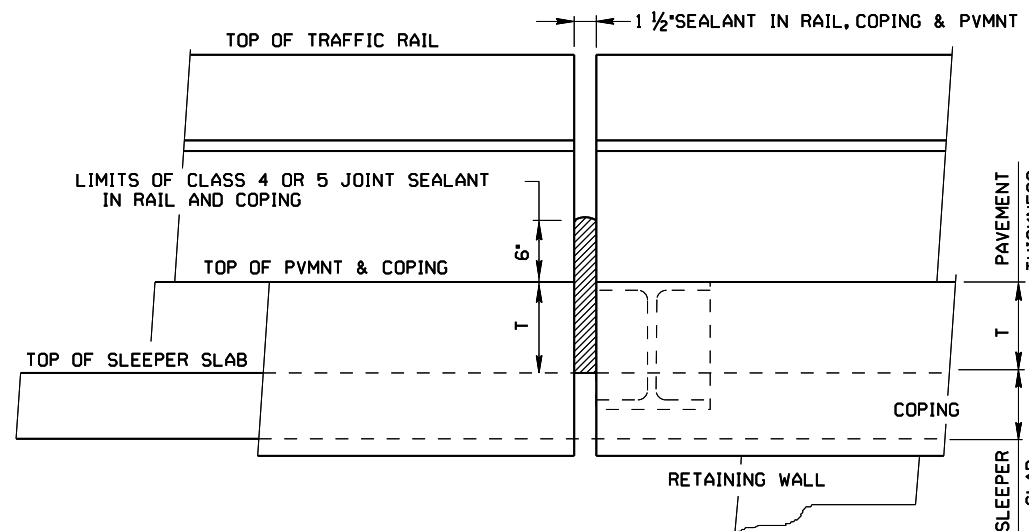
PLAN SHOWING OPEN JOINTS & BLOCK-OUT



PLAN SHOWING JOINT SEALANT



ELEVATION SHOWING OPEN JOINTS & BLOCK-OUT



ELEVATION SHOWING JOINT SEALANT

DETAIL E

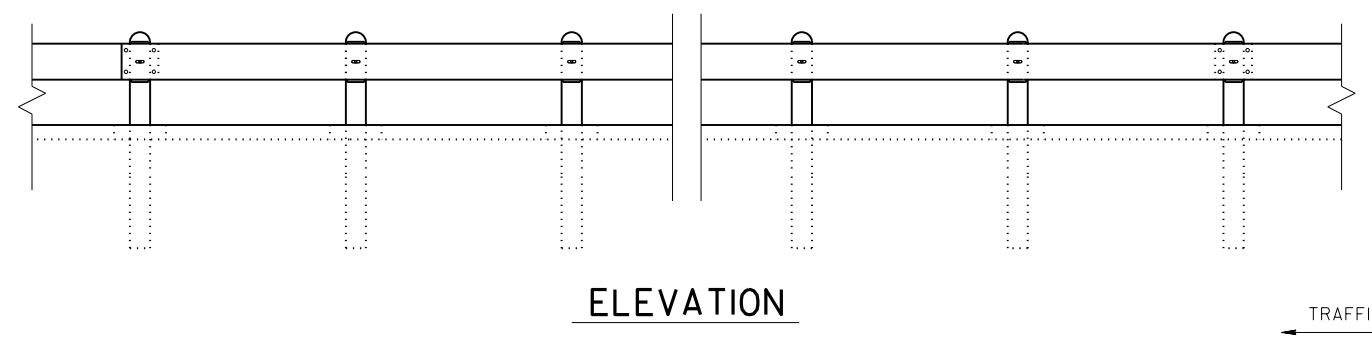
SHOWN @ WIDE FLANGE ~ ALL OTHER JOINTS SIMILAR

WIDE FLANGE PAVEMENT TERMINALS

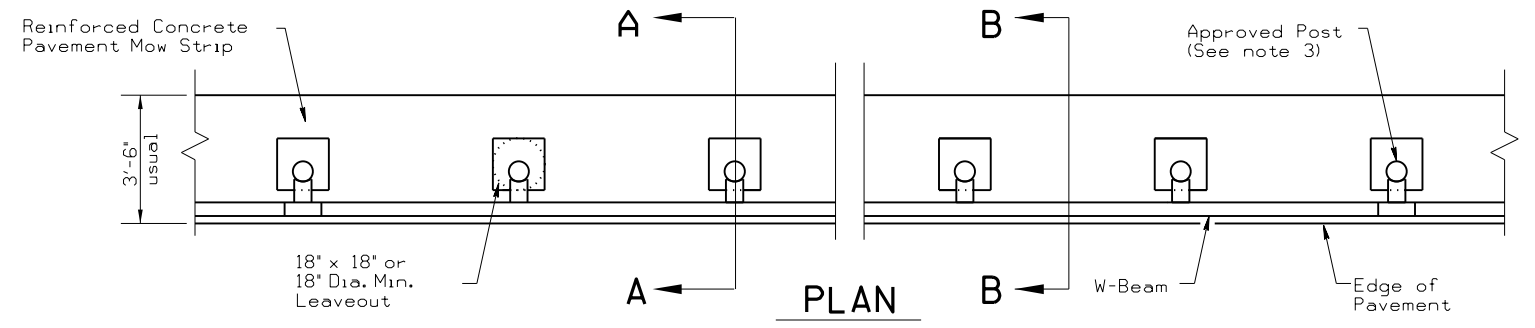
FOR CONTINUOUSLY & JOINTED REINFORCED CONCRETE PAVEMENT DETAILS (FOR USE AT RETAINING WALLS)

WFPT

FILE: STDB-3, DGN	DN: TxDOT	CK: TxDOT	DW: TxDOT	CR: TxDOT
©TXDOT 2014	DISTRICT	FED REG	PROJECT NO.	SHEET
REVISIONS	HOU	6		270
02/15 2014 SPECS	COUNTY	CONTROL	SECT	JOB
	GALVESTON	1607	01	097,ETC FM 1764



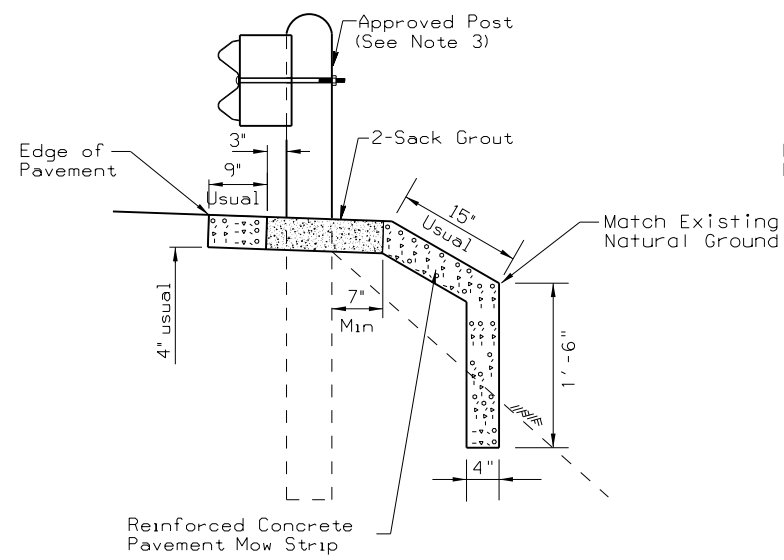
ELEVATION



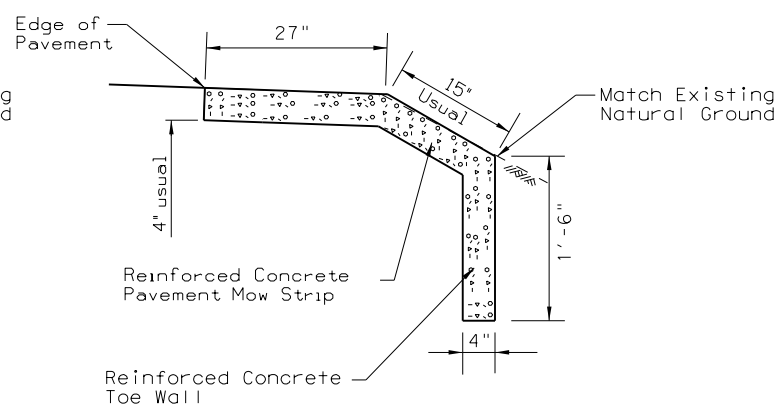
PLAN

GENERAL NOTES

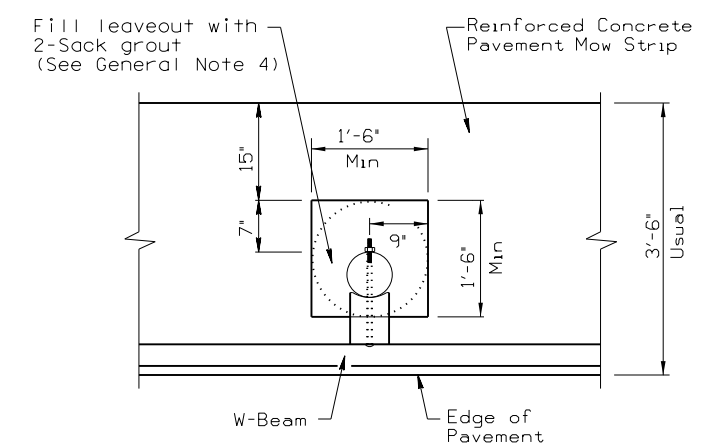
1. Place concrete riprap mow strips at all Metal Beam Guard Fence locations, and in accordance with Item 432, "Riprap". Use Class B Concrete, reinforced with No. 3 bars spaced at 18 in. centers each direction and 2 in. below the surface in Mow Strip and toe wall.
2. Provide a minimum of 7 in. leave out behind the post. Do not place concrete in the leave out.
3. The type of approved post is shown elsewhere on the plans. See the applicable standard sheets for additional details and information.
4. Fill the leave outs with no more than a 2-sack grout mixture and place in accordance with Section 421.2(F), "Mortar and Grout." Payment for furnishing and placing the grout mixture is subsidiary to the Item 432, "RIPRAP."
5. Place the mow strip the entire length of the guard fence plus any Terminal Anchor Section (TAS) or Single Guardrail Terminal (SGT) to 2 ft. beyond the face of the object marker at the end of the SGT. Do not allow concrete to adhere to the ground line strut shown on the SGT standard sheet.



SECTION A-A
Typical



SECTION B-B
Typical



MOW STRIP DETAIL

Reinforced Concrete Pavement Mow Strip with 18" x 18" or 18" dia. minimum leaveout.



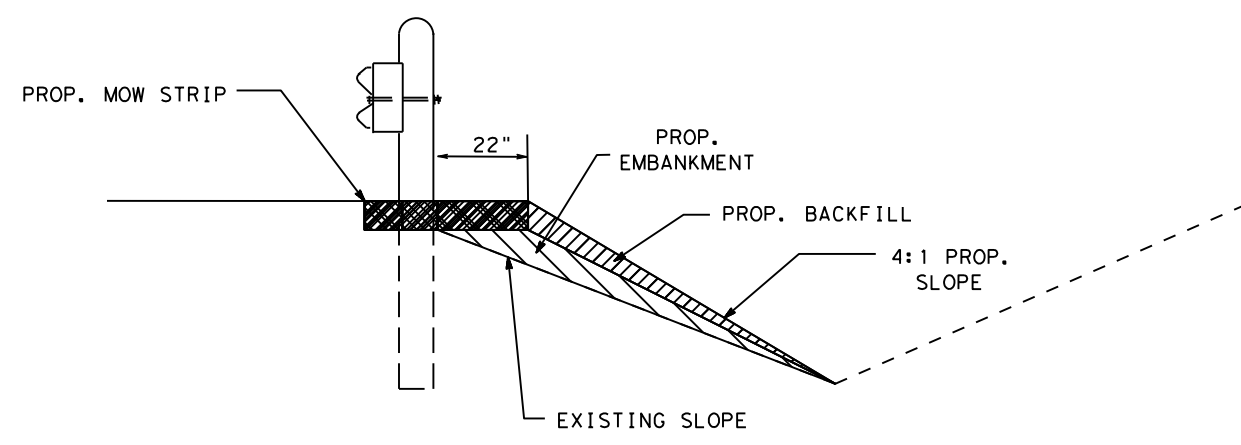
Joel H. Clarke
May 21 2024

Texas Department of Transportation
Galveston Area Office

**MOW STRIP
MS (MOD)**

FILE:	DN:	CK:	DW:	CK:
© TxDOT MAY 2011	DIST	FED REG	PROJECT NO.	SHEET
REV. 9/2012 REMOVED DIMENSIONS FROM POST TO ROWY.	HOUSTON	6		271
REV. 3/2013 MODIFIED NOTES 1&5 GENERAL NOTES.	COUNTY	CONTROL	SECT	JOB
	GALVESTON	1607	01	057 FM 176

DWG:
 CHK:
 DWG:
 CHK:



BACKFILL AND EMBANKMENT
DETAIL (USE WHERE NEEDED)

NOTES:

- 1) THIS DETAIL IS TO BE USED WHERE THE MOW STRIP AND MBGF CANNOT BE INSTALLED DIRECTLY ON EXISTING GRADE DUE TO SLOPE CONDITIONS.
- 2) THE TABLE BELOW GIVES ESTIMATED EMBANKMENT QUANTITIES FOR VARIOUS SLOPE CONDITIONS PER LF OR 25' OF MBGF.
- 3) BACKFILL QUANTITIES ARE AS PER ITEM 134.

SLOPE RATIO (HOR./VERT.)	% SLOPE	CY OF EMBANKMENT PER LF OF MBGF	CY OF EMBANKMENT PER 25' MBGF SECTION	FT.	CY NEEDED
7:1	15%	0.034	0.851	300.000	10.208
5:1	20%	0.045	1.134	300.000	13.611
4:1	25%	0.057	1.418	300.000	17.014
3:1	30%-49%	0.085	2.125	300.000	25.500
2:1	50%-75%	0.147	3.675	300.000	44.100
1:1	75%-100%	0.204	5.100	300.000	61.200



Joel H. Clarke
May 21 2024

DATE: 5/9/2024 3:43:01 PM
 FILE: T:\DESIGN\160701055Fm\764\Standards\47_sgt\tdi\chdet\ai11.dgn

Texas Department of Transportation
Galveston Area Office

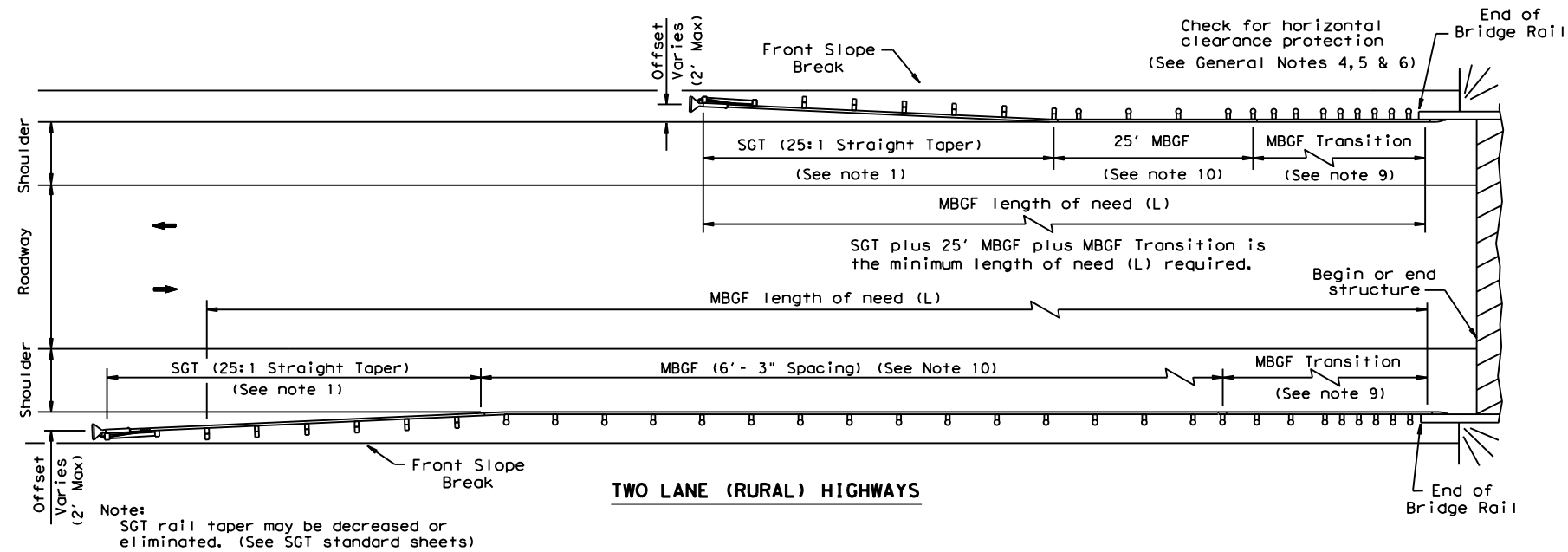
**EMBANKMENT/BACKFILL
DETAIL**

SCALE: NOT TO SCALE

© TxDOT 2018	CONT	SECT	JOB	HIGHWAY
	1607	01	057, ETC.	FM 1764
	DIST FEDERAL AID PROJECT NUMBER			
	HOU			
	COUNTY			SHEET NO.
	GALVESTON			272

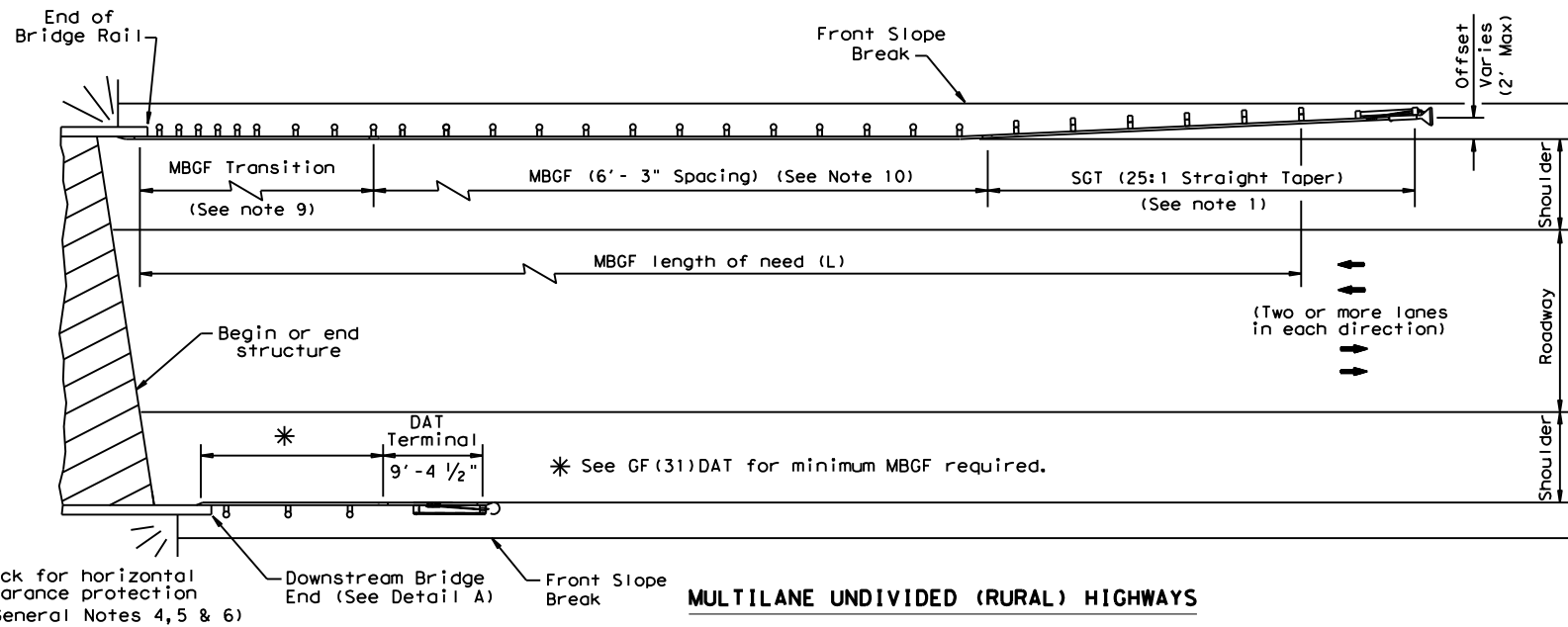
DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE:
FILE:

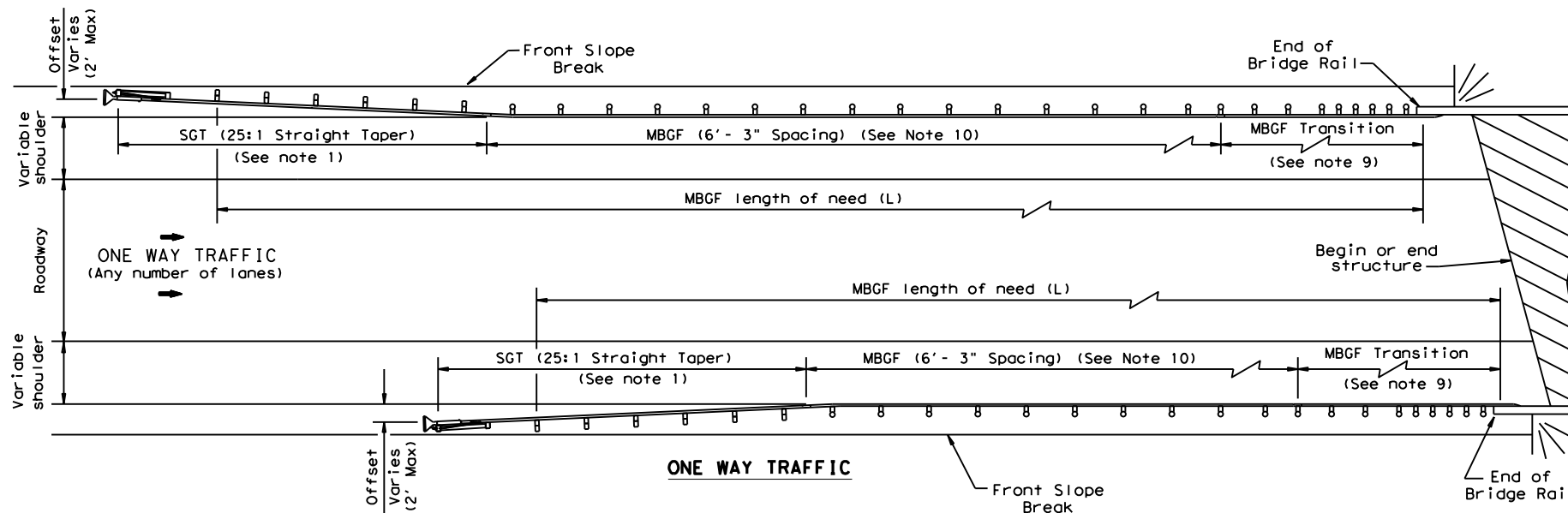


TWO LANE (RURAL) HIGHWAYS

Note:
SGT rail taper may be decreased or eliminated. (See SGT standard sheets)



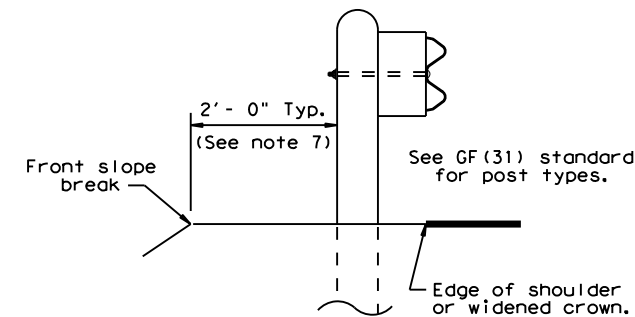
MULTILANE UNDIVIDED (RURAL) HIGHWAYS



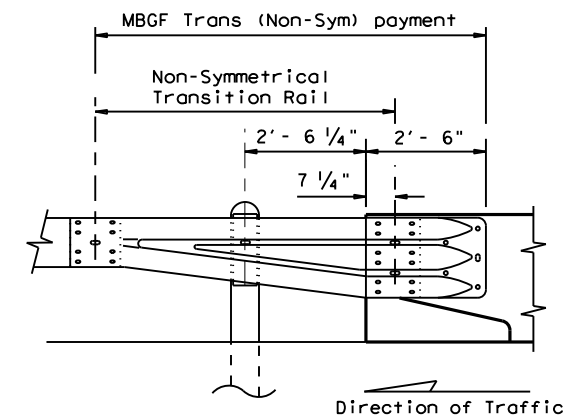
ONE WAY TRAFFIC

GENERAL NOTES

1. For more detail: See GF(31), SGT()31, GF(31)TR, and GF(31)TL2 standard sheets.
2. Quantities of metal beam guard fence (MBSG) at individual bridge ends are as shown in the plans.
3. Use average daily traffic (ADT) for the current year to determine MBSG length of need in accordance with the Roadway Design Manual unless otherwise specified. Where significant traffic volume growth is anticipated on low volume (0-750 ADT) highways, use length determinations for the higher volume category.
4. MBSG may not be required to shield departure end of bridge unless other obstacles within the horizontal clearance limits or opposing traffic indicate a MBSG consideration.
5. Downstream anchor terminals (DAT) are only for downstream end anchorage use, outside the horizontal clearance area of opposing traffic.
6. Direct connection of MBSG to concrete rails are only for downstream rail connections outside the horizontal clearance area of opposing traffic. (This requires a minimum of three standard line posts plus the DAT terminal, See Detail A)
7. The crown shall be widened to accommodate MBSG. Typically the "front slope" break should be 2'-0" from the back of the MBSG post. This applies to new construction on new alignment or where existing roadway cross section is to be widened to increase roadway width. This does not apply to rehabilitation work where existing roadway crown width is to be retained (See Typical Cross Section at MBSG).
8. For restrictive bridge widths: The MBSG should be properly transitioned from the existing bridge rail to the adjoining MBSG (See MBSG Transition Standards). Metal beam guard fence at these bridge location(s) shall be flared at the rate of 25:1 or flatter, and be of the length necessary to locate the terminal end at the 2 ft. "maximum" offset from the shoulder edge in the approach direction.
9. Transition length and post spacing will vary depending on the transition type. Transition type will be shown elsewhere in the plans.
10. A minimum 25' length of MBSG will be required.



TYPICAL CROSS SECTION AT MBSG



Note:
All rail elements shall be lapped in the direction of adjacent traffic.

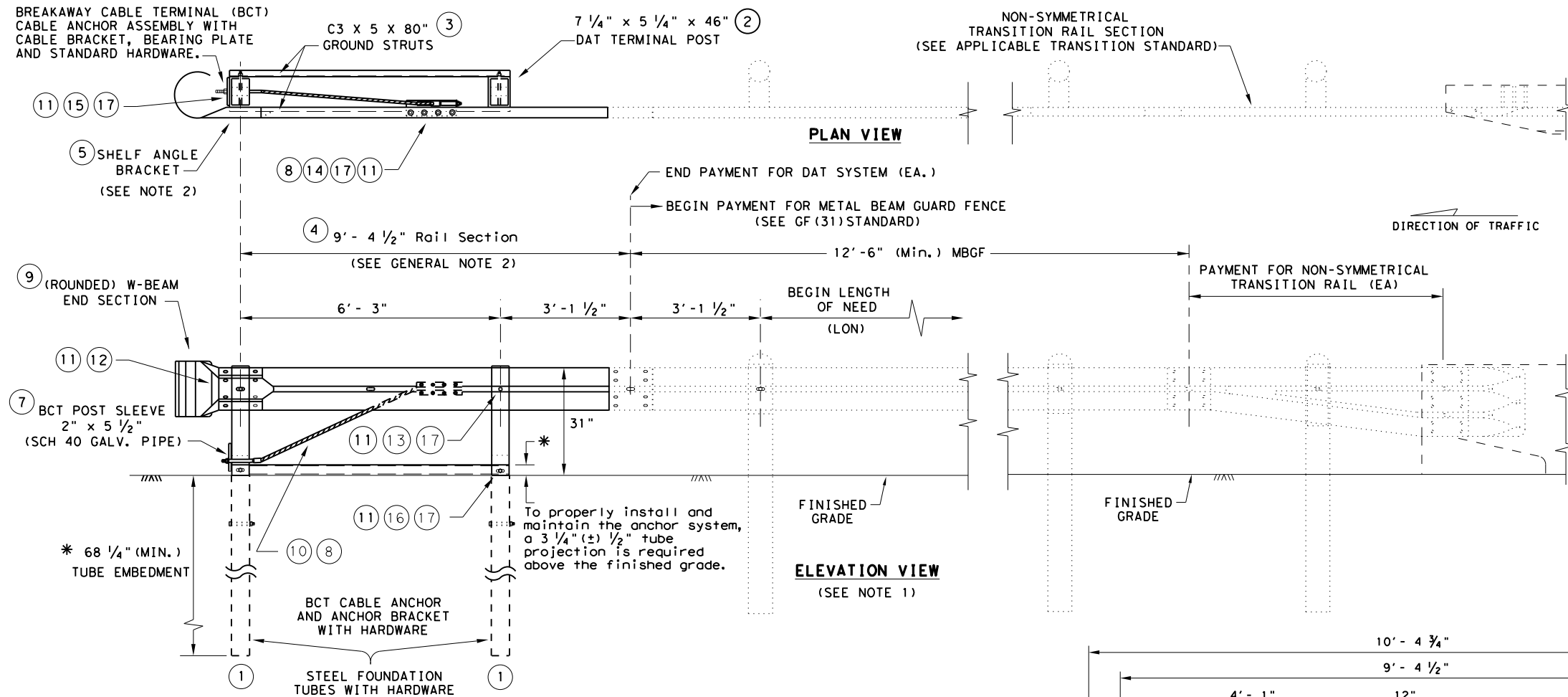
DETAIL A

Showing Downstream Rail Attachment

		Design Division Standard	
BRIDGE END DETAILS (METAL BEAM GUARD FENCE APPLICATIONS TO RIGID RAILS)			
BED-14			
FILE: bed14.dgn	DN: TxDOT	CK: AM	DW: BD/VP
© TxDOT: December 2011	CONT	SECT	JOB
REVISIONS	1607	01	057, ETC.
REVISED APRIL 2014	DIST	COUNTY	FM 1764
SEE (MEMO 0414)	HOU	GALVESTON	SHEET NO. 273

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DATE: FILE:



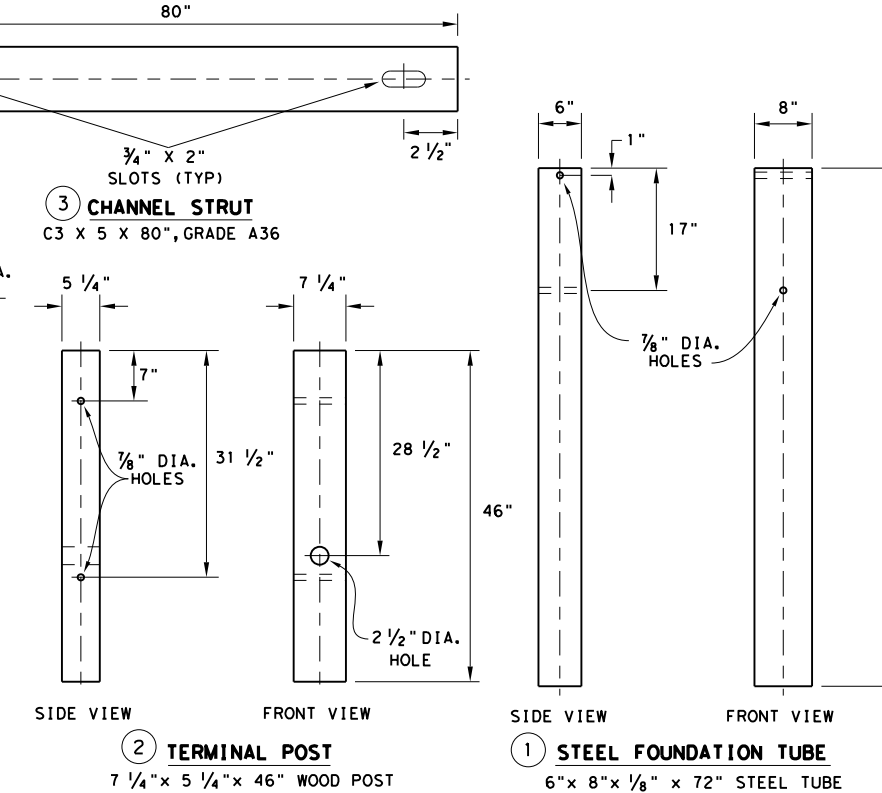
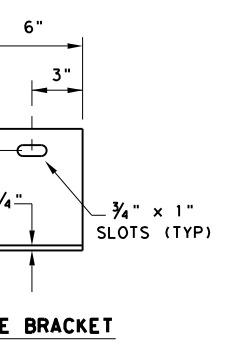
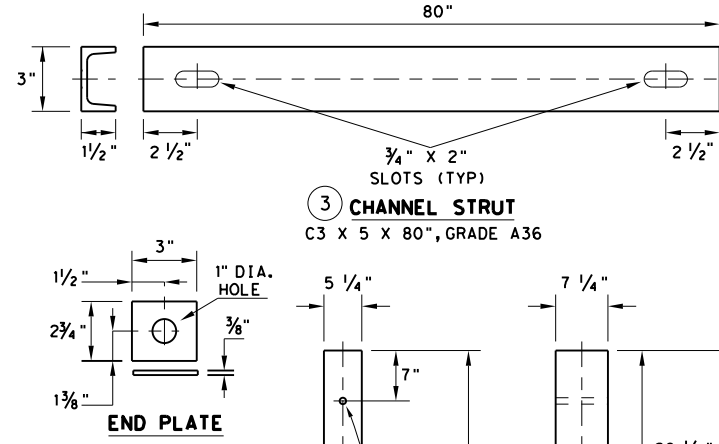
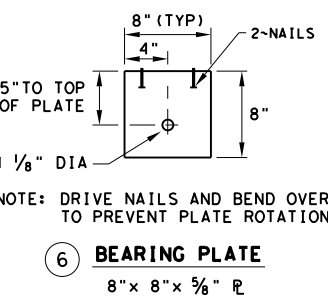
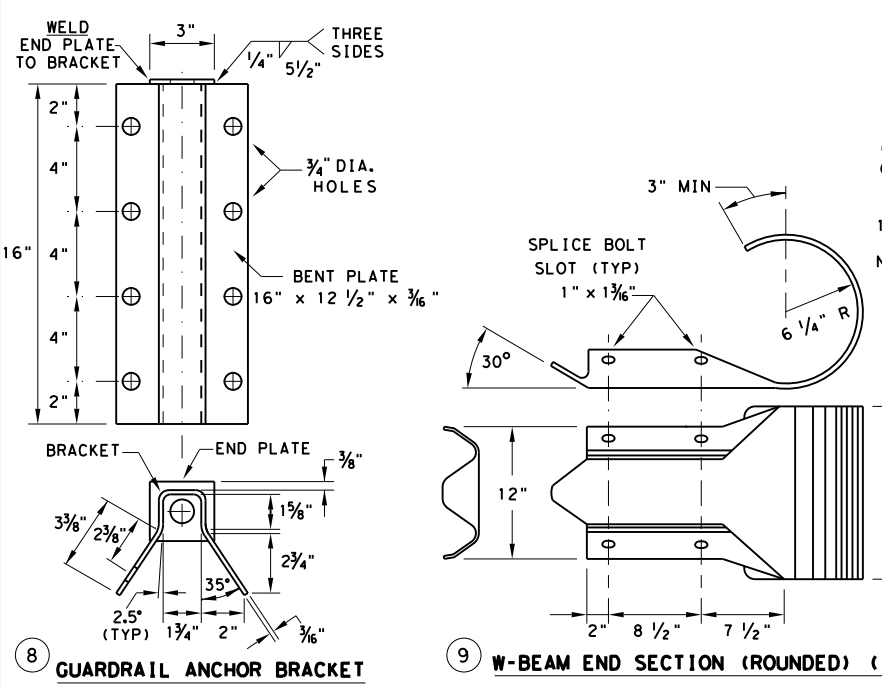
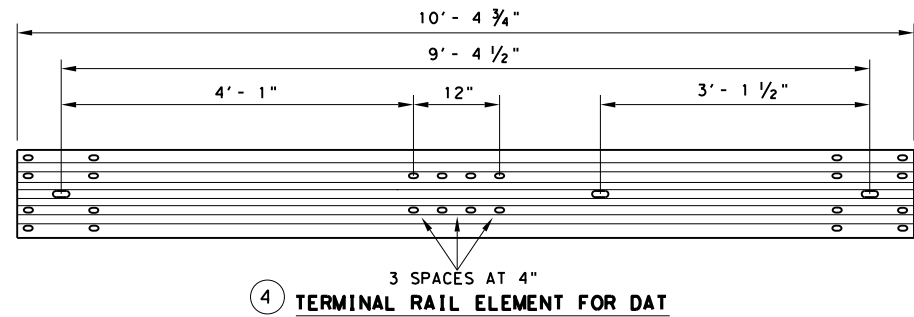
DOWNSTREAM ANCHOR TERMINAL (DAT)

NOTE: ONLY FOR DOWNSTREAM USE, WHEN LOCATED OUTSIDE THE HORIZONTAL CLEARANCE AREA OF OPPOSING TRAFFIC.

- GENERAL NOTES**
1. THE DETAIL SHOWN IS THE MINIMUM LENGTH OF NEED (LON) FOR A DOWNSTREAM ANCHOR TERMINAL (DAT) CONNECTED TO A CONCRETE RAIL.
 2. THE RAIL SECTION AT THE END POST IS SUPPORTED BY THE SHELF ANGLE BRACKET. THE RAIL ELEMENT IS NOT ATTACHED TO THE END POST.
 3. THE FOUNDATION TUBES SHALL NOT PROJECT MORE THAN 3 3/4" ABOVE THE FINISHED GRADE.
 4. ALL HARDWARE FOR DAT SHALL BE ASTM A307 UNLESS OTHERWISE SHOWN.
 5. REFER TO GF(31) SHEET FOR TERMINAL CONNECTION DETAILS.

MOW STRIP INSTALLATION
 IF A MOW STRIP IS REQUIRED WITH THE DAT INSTALLATION THE LEAVE-OUT AREA AROUND THE STEEL FOUNDATION TUBES AND THE TWO CHANNEL STRUTS MAY BE OMITTED. THIS WILL REQUIRE A FULL POUR AT THE FOUNDATION TUBES.

#	(DAT) PARTS LIST	QTY
1	STEEL FOUNDATION TUBE	2
2	DAT TERMINAL POST	2
3	CHANNEL STRUT	2
4	TERMINAL RAIL ELEMENT	1
5	SHELF ANGLE BRACKET	1
6	BCT BEARING PLATE	1
7	BCT POST SLEEVE	1
8	GUARDRAIL ANCHOR BRACKET	1
9	(ROUNDED) W-BEAM END SECTION	1
10	BCT CABLE ANCHOR	1
11	RECESSED NUT, GUARDRAIL	20
12	1 1/4" BUTTON HEAD BOLT	4
13	10" BUTTON HEAD BOLT	2
14	5/8" X 2" HEX HEAD BOLT	8
15	5/8" X 8" HEX HEAD BOLT	4
16	5/8" X 10" HEX HEAD BOLT	2
17	5/8" FLAT WASHER	18



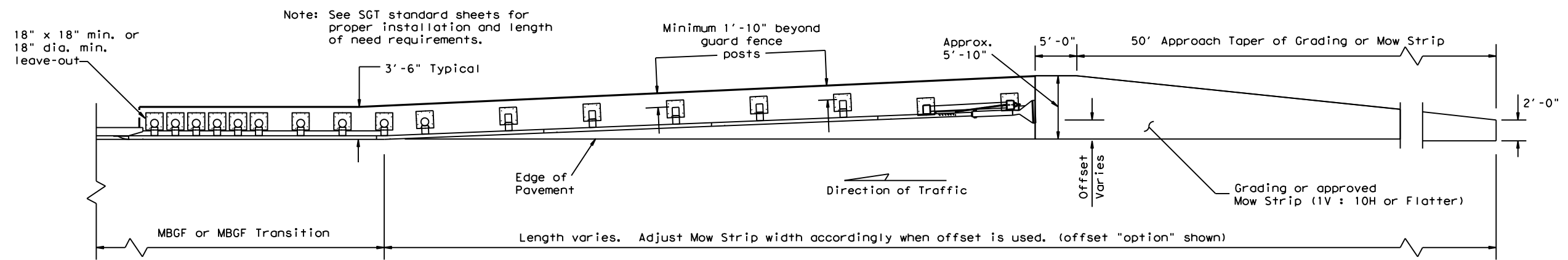
Design Division Standard

**METAL BEAM GUARD FENCE
(DOWNSTREAM ANCHOR TERMINAL)
TL-3 MASH COMPLIANT
GF(31)DAT-19**

FILE: gf31dat19.dgn	DN: TXDOT	CK: KM	DW: VP	CK: CGL/AG
© TXDOT: NOVEMBER 2019 REVISIONS	CONT: 1607	SECT: 01	JOB: 057, ETC.	HIGHWAY: FM 1764
	DIST: HOU	COUNTY: GALVESTON	SHEET NO. 274	

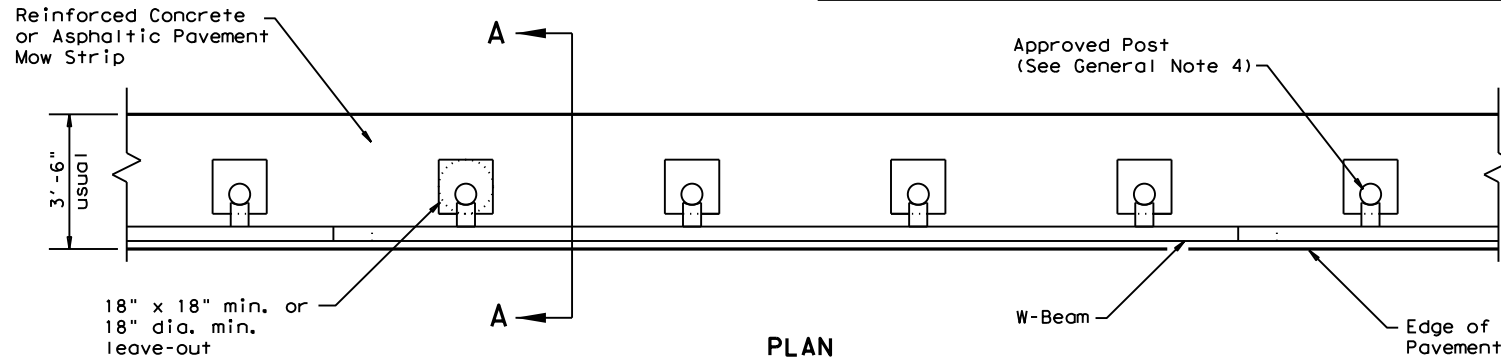
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DATE:
FILE:



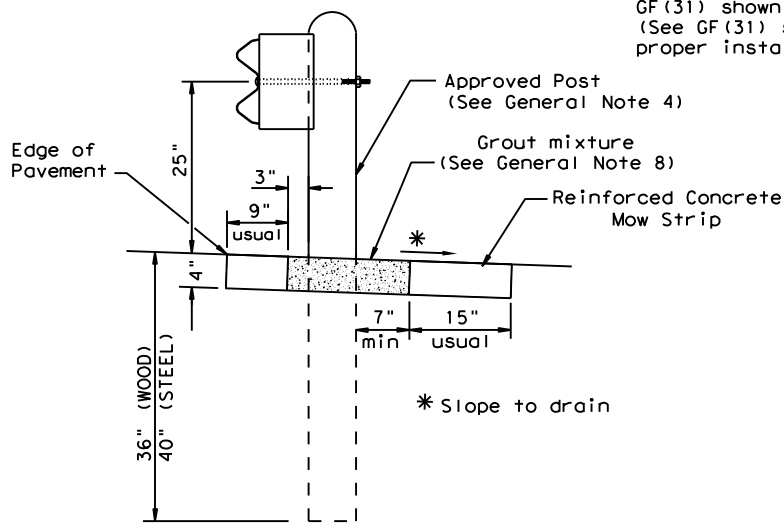
GRADING AND MOW STRIP AT GUARDRAIL END TREATMENTS

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



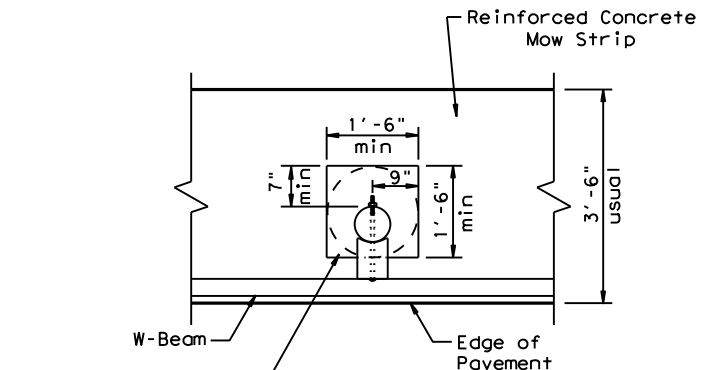
PLAN

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



SECTION A-A

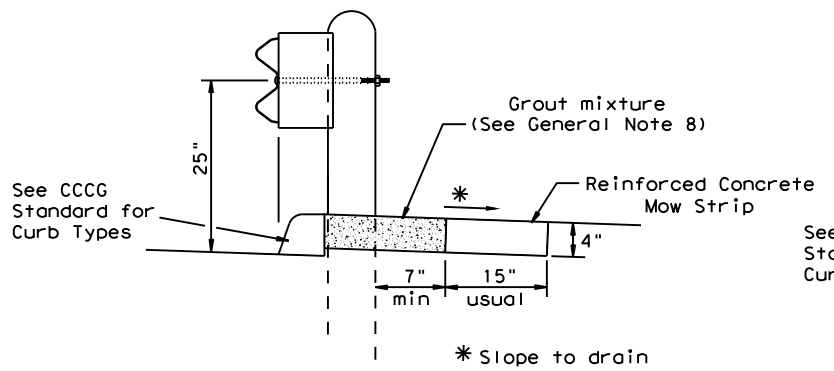
Typical



MOW STRIP DETAIL

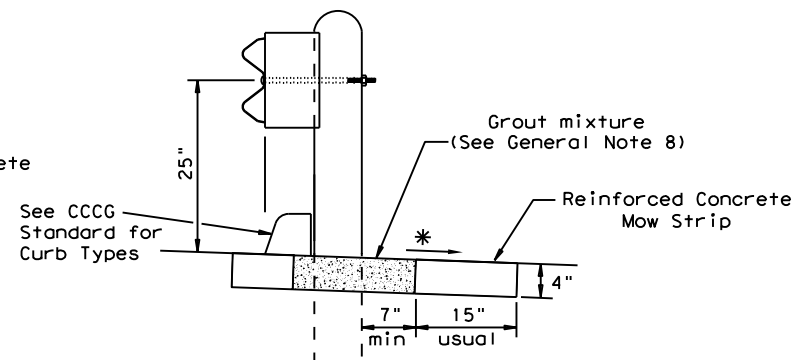
Reinforced Concrete Mow Strip with 18\"/>

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



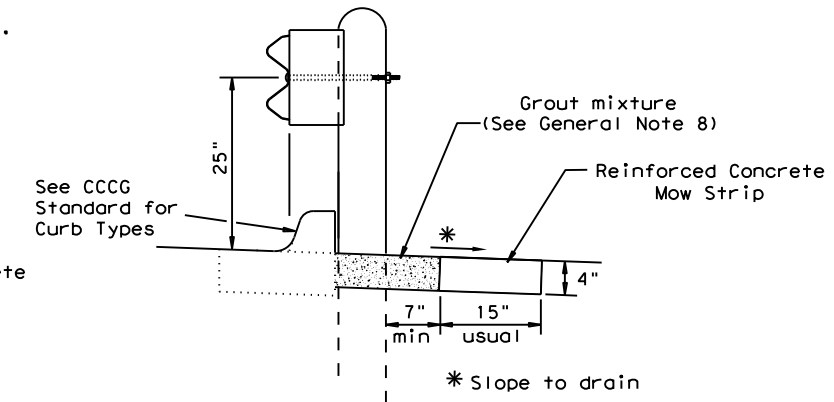
CURB OPTION (1)

This option will increase the post embedment throughout the system.



CURB OPTION (2)

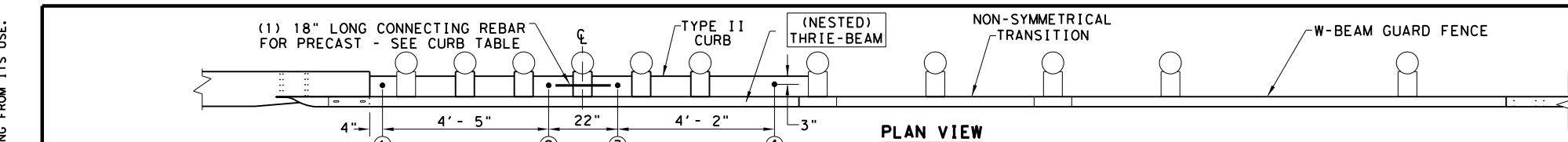
Curb shown on top of mow strip



CURB OPTION (3)

		Design Division Standard	
METAL BEAM GUARD FENCE (MOW STRIP) TL-3 MASH COMPLIANT GF(31)MS-19			
FILE: gf31ms19.dgn	DN:TxDOT	CK:KM	DW:VP
©TXDOT: NOVEMBER 2019	CONT	SECT	JOB
REVISIONS	1607	01	057, ETC.
	DIST	COUNTY	SHEET NO.
	HOU	GALVESTON	275

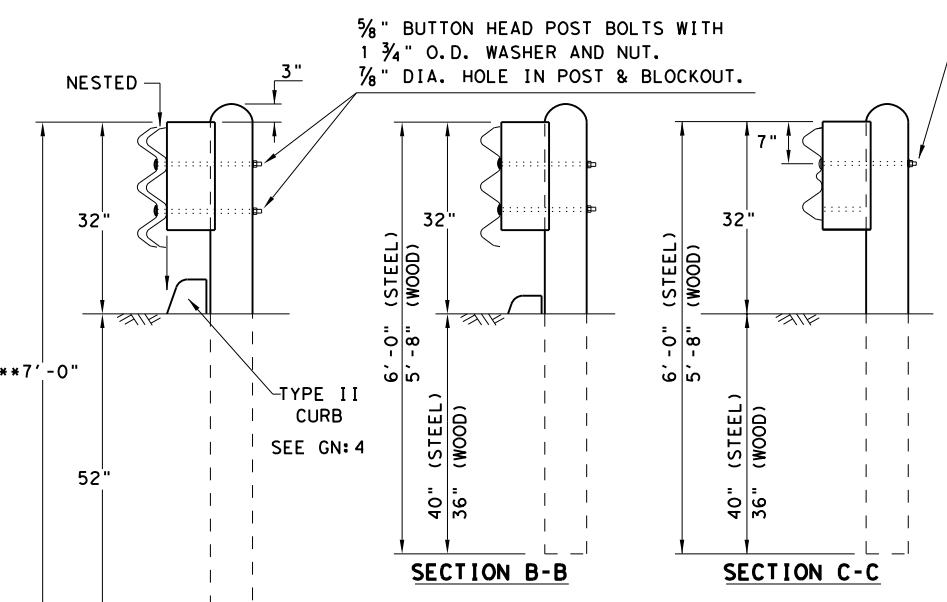
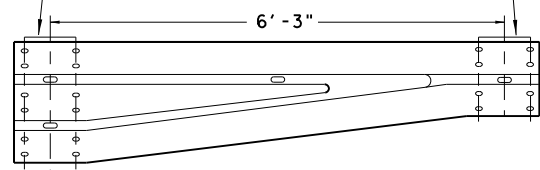
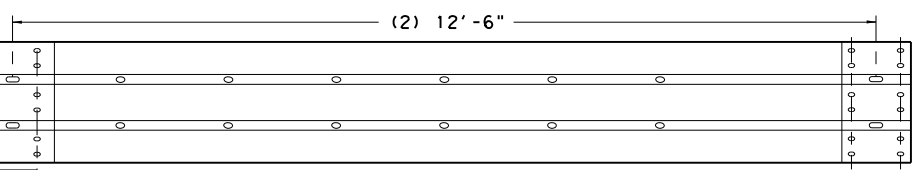
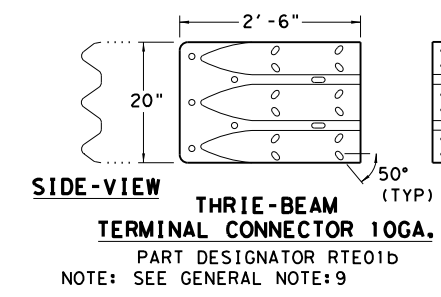
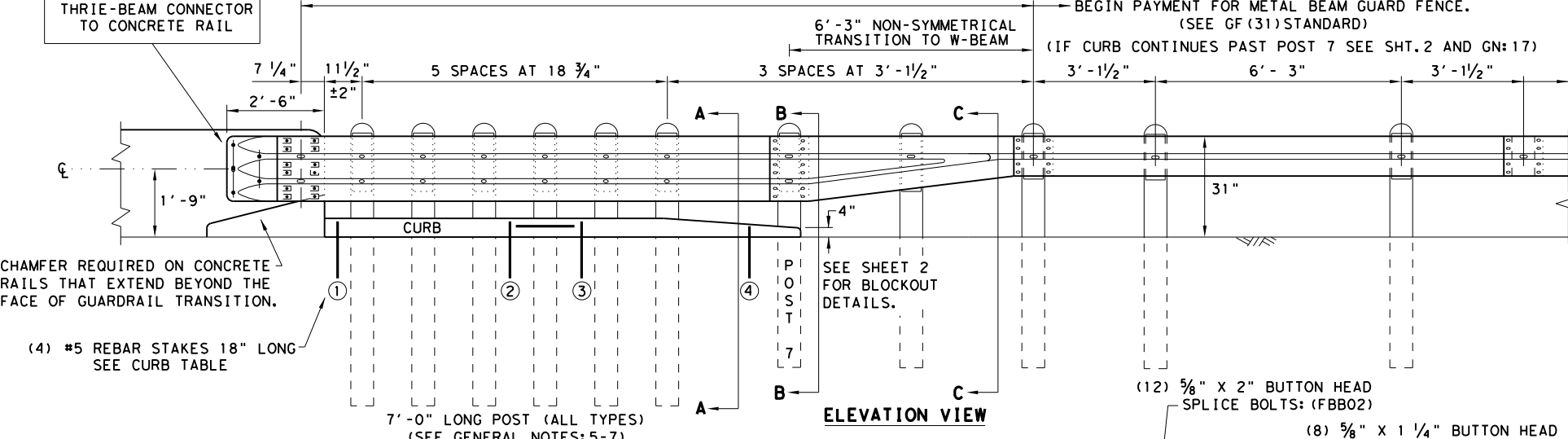
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- (5) 1" DIA. HOLES.
- (5) 7/8" DIA. HEAVY HEX HEAD BOLTS (FACING TRAFFIC SIDE) (ASTM F3125 GR A325 OR A449).
- (10) 1 3/4" O.D. WASHER UNDER EACH HEX BOLT HEAD AND NUT.
- (5) 7/8" DIA. HEAVY HEX NUTS (ASTM A194 OR A563).

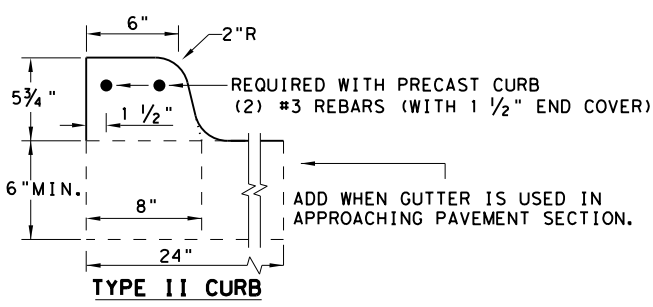
NOTE:
HEAVY HEX BOLT LENGTH WILL VARY DEPENDING ON WIDTH CONCRETE RAIL, LEAVE 1" OF BOLT LENGTH PAST THE 7/8" HEX NUT. TRIM AS REQUIRED.

NOTE:
CURB IS A REQUIRED COMPONENT FOR THE TRANSITION TO FUNCTION PROPERLY. SEE GENERAL NOTES: 2-4 AND 16-17.



THRIE-BEAM TERMINAL - CURB TABLE	
PRECAST CURB FULL LENGTH EQUALS 12'- 2"	
THE PRECAST CURB MAY BE FORMED INTO TWO SECTIONS.	
CURB (1) LENGTH	5'- 8"
CURB (2) LENGTH	6'- 6"
TAPER CURB (2) TO A HEIGHT OF 4" AT POST 7	
CONNECTING PRECAST CURB SECTIONS (1) & (2):	
FORM OR CORE	1" DIA. HOLE 9" LONG INTO EACH CURB END.
USE	(1) #5 GR.60 REBAR 18" LONG TO CONNECT BOTH CURBS.
SECURING PRECAST OR CAST-IN-PLACE TO FINISHED GRADE *:	
FORM OR CORE	(4) 1" DIA. HOLES, SEE PLAN AND ELEVATION VIEWS FOR HOLE LOCATIONS. DRIVE (4) #5 GR.60 REBAR STAKES 18" LONG INTO THE GROUND AND 1/2" BELOW TOP OF CURB.
FILL HOLES WITH APPROVED GROUT MIXTURE.	

* NOTES: NOT NEEDED FOR CAST-IN-PLACE. SEE TYPE II CURB DETAIL FOR REBAR AND COVER REQUIREMENTS. PERCUSSION DRILLING IS NOT PERMITTED WITH: TYPE II CURB, BRIDGE RAIL OR CONCRETE TRAFFIC RAIL.



NOTE: OPTIONS FOR TYPE II CURB:
1. PRECAST
2. CAST-IN-PLACE

GENERAL NOTES

1. CONTACT THE DESIGN DIVISION FOR DRAINAGE CUT OUT OPTIONS NEEDED WITHIN THE CURB SECTION OF THE THRIE-BEAM TRANSITION. (512) 416-2678
2. CONCRETE CURB MAY BE CAST-IN-PLACE OR PRECAST AS SHOWN ON THIS SHEET. WHEN USED IN CONJUNCTION WITH THE THRIE-BEAM TRANSITIONS, CURB SHALL BE TYPE II (5- 3/4" HEIGHT); SEE CURRENT CCGG STANDARD SHEET FOR FURTHER DETAILS. IF OTHER CURB HEIGHTS ARE SHOWN IN THE PLANS IN CONJUNCTION WITH THE TRANSITION, THE CURB HEIGHT MAY BE FROM 4" TO 8" WITH A RELATIVELY VERTICAL FACE. CONCRETE CURB SHALL BE CONTINUOUS TO THE SEVENTH POST UNLESS OTHERWISE SHOWN IN THE PLANS. SEE GENERAL NOTE:17 FOR CIRCUMSTANCES WHERE CURB CONTINUES PAST POST 7.
3. CONCRETE CURB TYPE II SUBSIDIARY TO "METAL BEAM GUARD FENCE TRANSITION". IF NO ADDITIONAL CURB IS INDICATED BEYOND THE TRANSITION, THEN ANY CURB HEIGHT GREATER THAN 4" WILL BE TAPERED DOWN BEGINNING AT THE LAST 7 FT. POST TO A MAXIMUM HEIGHT OF 4" AT POST 7. IF SHOWN ELSEWHERE IN THE PLANS, ADDITIONAL CURB UNDERNEATH GUARDRAIL WILL BE PAID FOR BY THE LINEAR FOOT.
4. UNLESS OTHERWISE SHOWN IN THE PLANS, TRANSITIONS SHALL BE PLACED WITH THE BLOCKOUT FACE IN FRONT OF OR DIRECTLY ABOVE THE CURB FACE. SEE SECTION A-A.
5. FOR ROUND WOOD POST SYSTEMS, ALL ROUND WOOD POSTS SHALL BE 7 1/2" DIA. MINIMUM THROUGHOUT THE THRIE-BEAM TRANSITION.
6. THE TYPE OF POST (ROUND WOOD POST, RECTANGULAR WOOD POST OR STEEL POST) WILL BE AS SHOWN IN THE PLANS. REFER TO GF (31) STANDARD SHEET.
7. THE POST LENGTH SHALL BE MARKED ON ALL 7'- 0" LONG POSTS BY THE MANUFACTURER. THE MARK SHALL BE LOCATED WITHIN THE TOP 1 FT. REGION OF THE POST, AT LEAST 5/8" IN HEIGHT, AND VISIBLE AFTER INSTALLATION. WOODEN POSTS SHALL BE MARKED WITH A BRAND, AND STEEL POSTS WITH A STENCIL BEFORE GALVANIZING.
8. POSTS SHALL NOT BE SET IN CONCRETE, OF ANY DEPTH.
9. RAIL ELEMENTS SHALL MEET THE REQUIREMENTS OF ITEM 540, "METAL BEAM GUARD FENCE" EXCEPT AS MODIFIED ON THE PLANS. THE THRIE-BEAM TERMINAL CONNECTOR AND THE THRIE-BEAM TRANSITION TO W-BEAM SHALL BE OF THE SAME MATERIAL, BUT SHALL NOT BE LESS THAN 10 GAUGE. CONTRACTOR SHALL VERIFY THAT THE LOCATIONS OF BOLT HOLES MATCH THOSE IN THE THRIE-BEAM TERMINAL CONNECTOR PRIOR TO ORDERING MATERIALS.
10. BUTTON HEAD "POST BOLTS & NUTS" SHALL MEET THE REQUIREMENTS OF (ASTM A307), AND SHALL BE OF SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND 5/8" WASHER (FWC16a) AND NOT MORE THAN 1" BEYOND IT. TRIM REMAINING BOLT LENGTH TO MEET REQUIRED LENGTH.
11. FITTINGS (BOLTS, NUTS, AND WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING". FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
12. CROWN SHALL BE WIDENED TO ACCOMMODATE TRANSITIONS.
13. WHERE SOLID ROCK IS ENCOUNTERED, CONTACT THE DESIGN DIVISION FOR ADDITIONAL GUIDANCE. (512) 416-2678
14. UNLESS OTHERWISE SHOWN IN THE PLANS, A COMPOSITE MATERIAL BLOCK THAT MEETS THE REQUIREMENTS OF DMS-7210, "COMPOSITE MATERIAL POSTS AND BLOCKS FOR METAL BEAM GUARD FENCE" MAY BE SUBSTITUTED FOR BLOCKS OF SIMILAR DIMENSIONS. TxDOT'S MATERIALS AND TESTS DIVISION MAINTAINS A MATERIAL PRODUCER LIST (MPL) FOR PRODUCERS OF MATERIALS CONFORMING TO DMS-7210. ONLY PRODUCERS ON THE MPL CAN FURNISH COMPOSITE MATERIAL BLOCKS.
15. REFER TO GF (31) STANDARD SHEET & BRIDGE RAILING DETAILS FOR ADDITIONAL DETAILS.
16. THE INSTALLATION OF THE TYPE II CURB IS CRITICAL FOR THE PERFORMANCE OF THE THRIE-BEAM TRANSITION SYSTEM. THE CURB PREVENTS (VEHICLE WHEEL SNAGGING) AT THE CONCRETE RAIL AND IS REQUIRED TO MEET MASH CRASH TEST CRITERIA.
17. IF CURB EXTENDS BEYOND POST 7, 25' OF NESTED W-BEAM GUARDRAIL SHALL BE INSTALLED BEYOND THE PAY LIMITS OF THRIE-BEAM TRANSITION SECTION, (SEE SHT.2). PAYMENT FOR THIS 25' SECTION WILL BE BY LINEAR FOOT, PAY ITEM "0540 6XXX MTL W-BEAM GD FEN (NESTED) (TIM POST)" OR "540 6XXX MTL W-BEAM GD FEN (NESTED) (STEEL POST)" AS APPLICABLE FOR POST TYPE. SEE SHT.2 FOR ADDITIONAL INFORMATION.

**HIGH-SPEED TRANSITION
SHEET 1 OF 2**

		Design Division Standard	
METAL BEAM GUARD FENCE THRIE-BEAM TRANSITION TL-3 MASH COMPLIANT GF (31) TR TL3-20			
FILE: gf31tr+1320.dgn	DN: TxDOT	CK: KM	DW: VP
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REVISIONS	1607	01	057, ETC.
	DIST	COUNTY	SHEET NO.
	HOU	GALVESTON	276

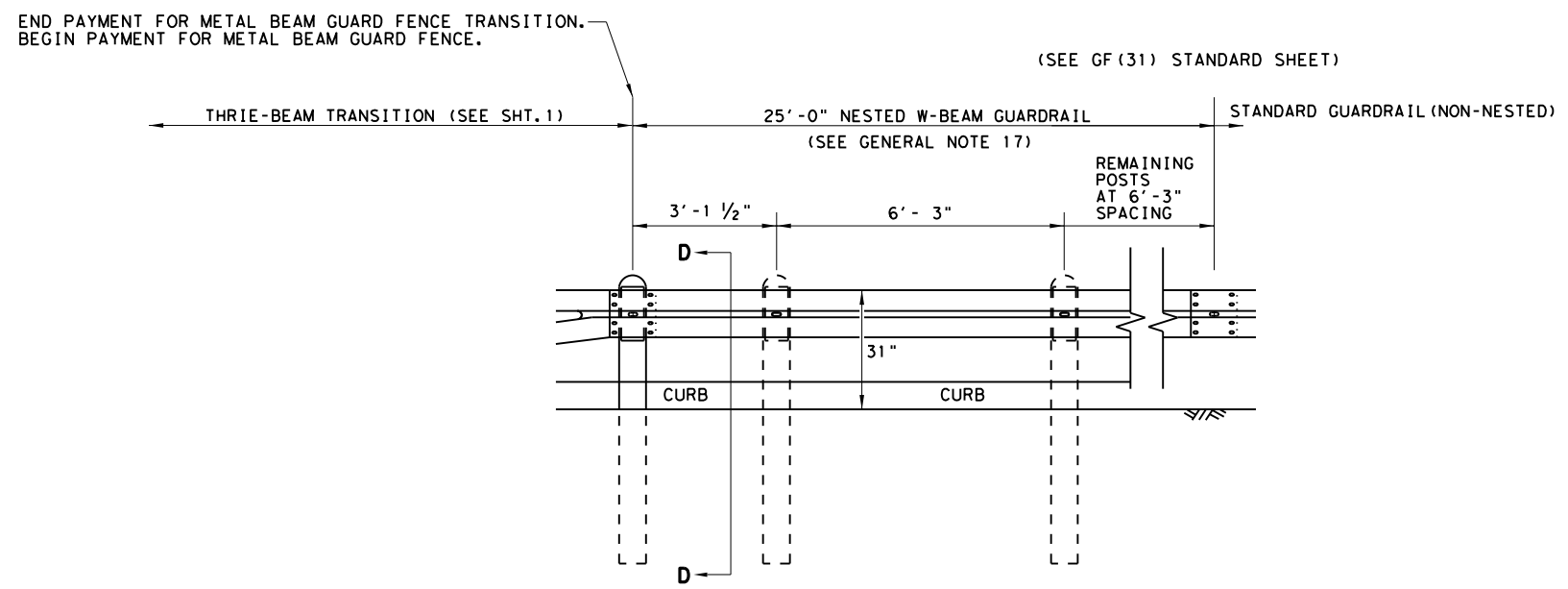
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NOTE: ** "WOOD" INDICATES DIMENSIONS FOR BOTH ROUND AND RECTANGULAR WOOD POST SYSTEMS.

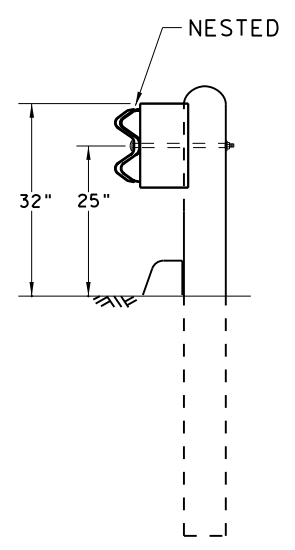
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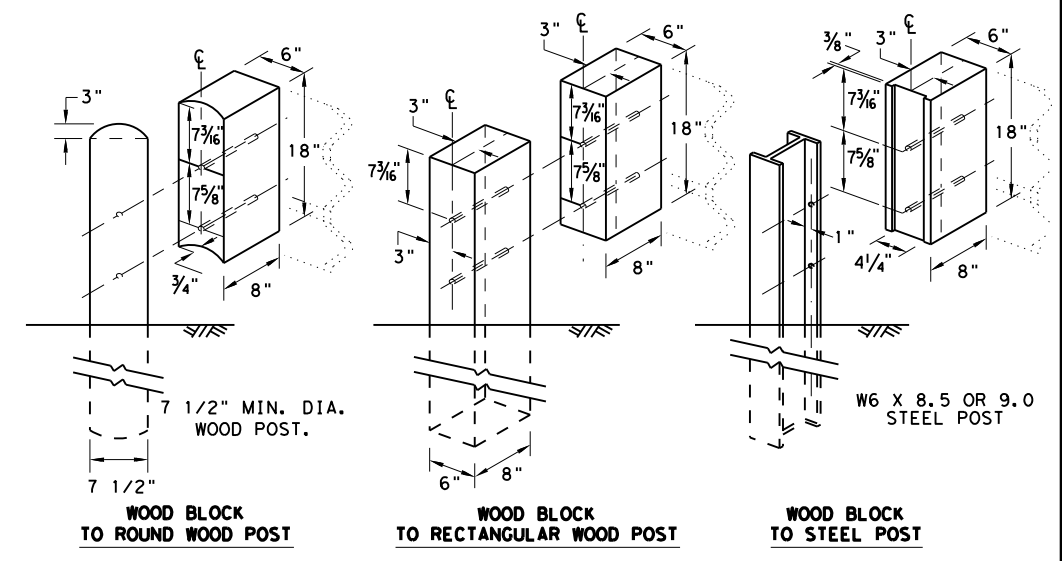
REQUIRED ALTERNATIVE FOR CONTINUOUS CURB EXTENDING PAST POST 7 (SEE SHT. 1 GENERAL NOTE 17)



ELEVATION VIEW



SECTION D-D



THRIE BEAM TRANSITION BLOCKOUT DETAILS

HIGH-SPEED TRANSITION

SHEET 2 OF 2

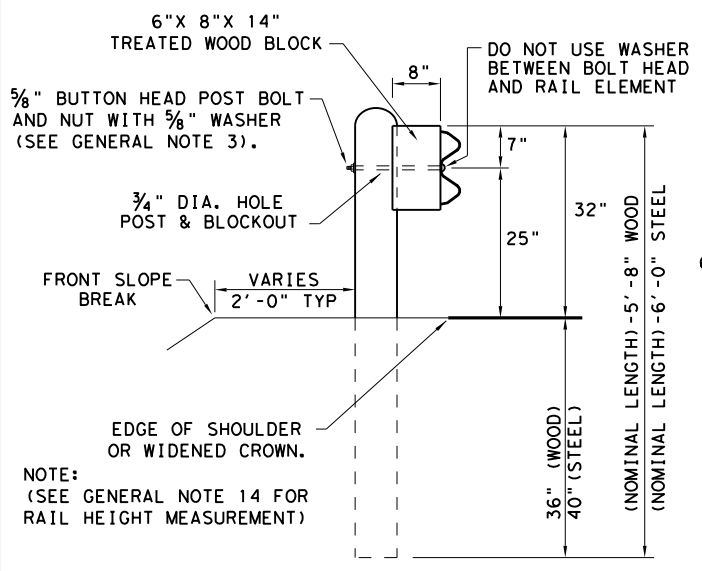


METAL BEAM GUARD FENCE
THRIE-BEAM TRANSITION
TL-3 MASH COMPLIANT
GF (31) TR TL3-20

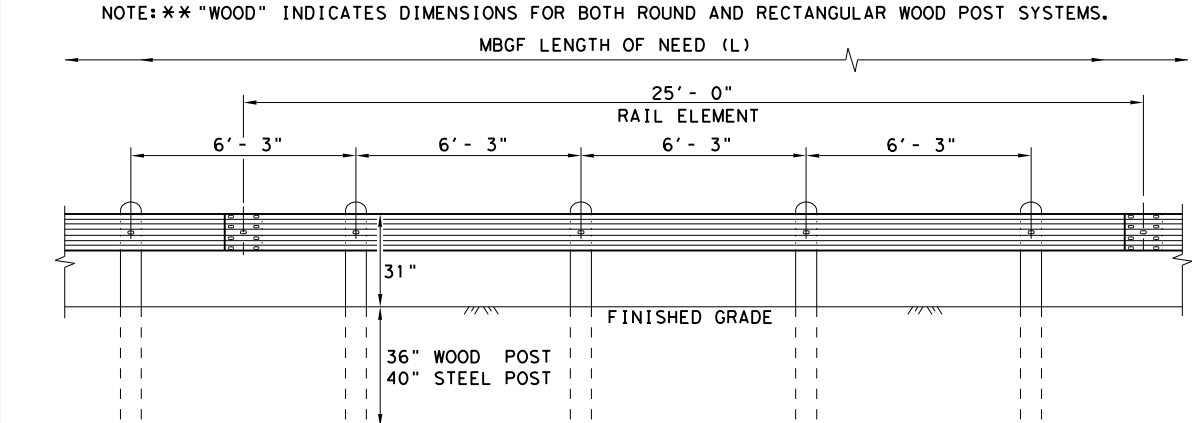
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REVISIONS	1607	01	057, ETC.	FM 1764
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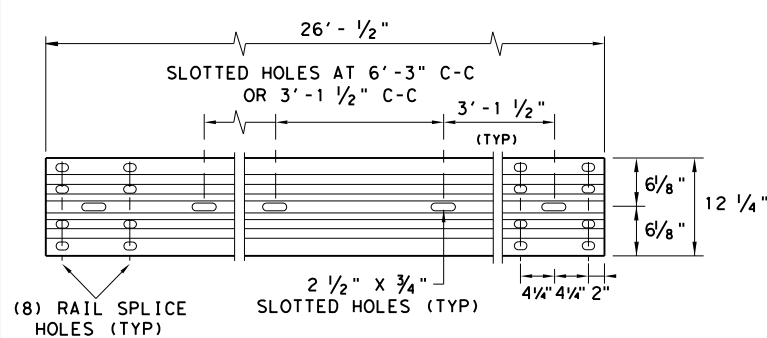


TYPICAL POST PLACEMENT



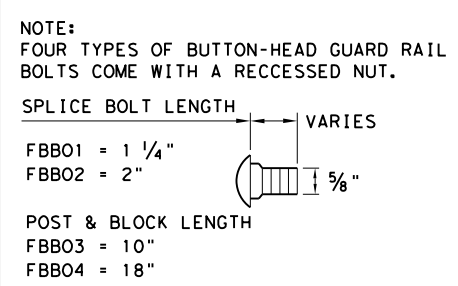
ELEVATION MID-SPAN RAIL SPLICE

SHOWING A 25'-0" SECTION OF W-BEAM RAIL. (SEE GENERAL NOTE 2)



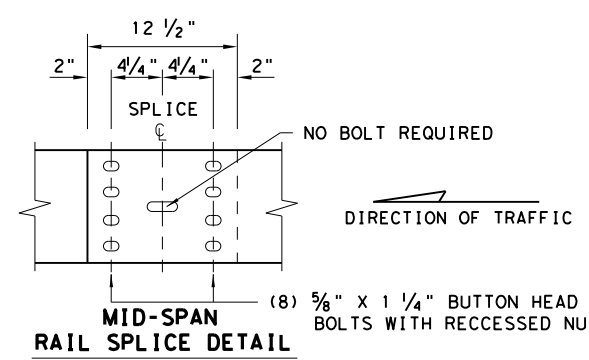
ELEVATION 25'-0" (NOM.) W-BEAM SECTION

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



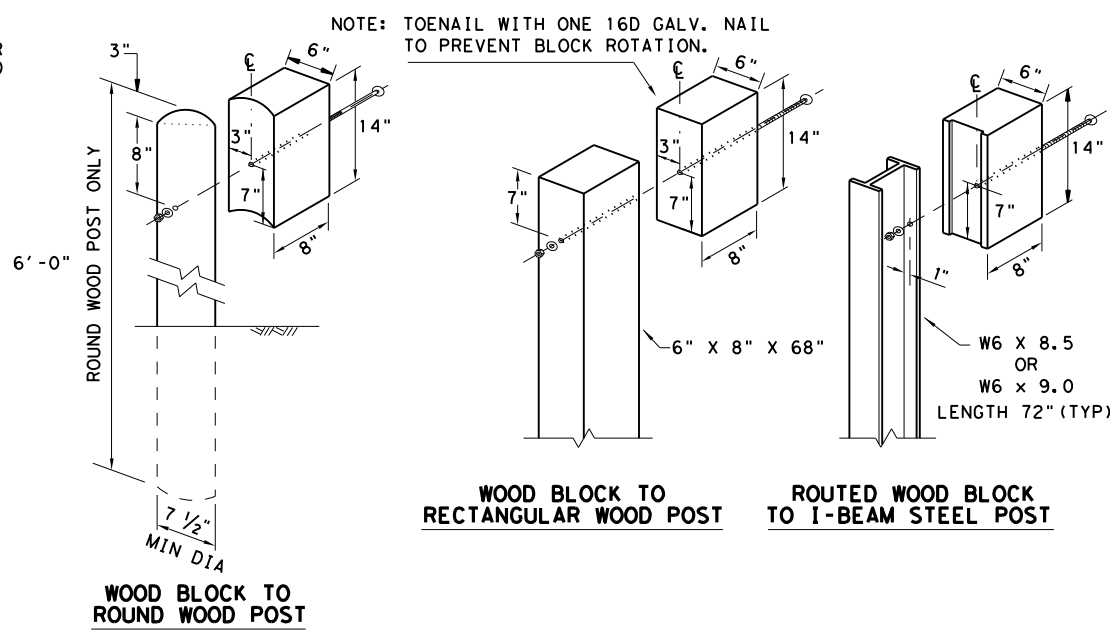
BUTTON HEAD BOLT

NOTE: SEE GENERAL NOTE 3 FOR SPLICE & POST BOLT DETAILS.



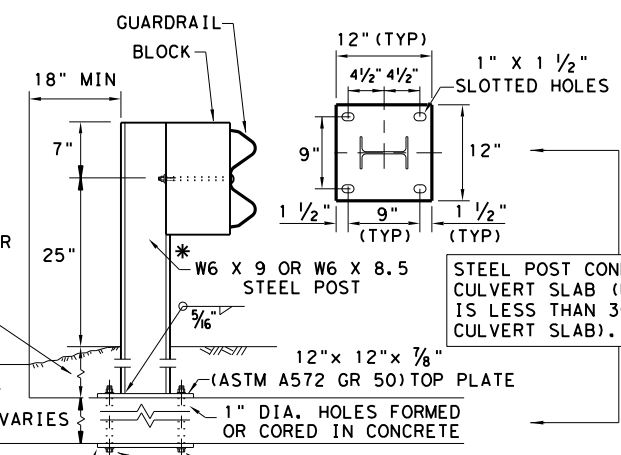
MID-SPAN RAIL SPLICE DETAIL

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



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

NOTE: TOENAIL WITH ONE 16D GALV. NAIL TO PREVENT BLOCK ROTATION.



LOW FILL CULVERT POST

12" x 12" x 1/4" (ASTM A36) STEEL BOTTOM PLATE WITH 1" DIA. HOLES REQUIRED WITH BOLT-THROUGH INSTALLATION.

NOTE: TWO INSTALLATION OPTIONS.

- BOLT-THROUGH OPTION:** REQUIRES A 6" MIN. SLAB THICKNESS. 7/8" DIA (ASTM A449) HEAVY HEX BOLTS WITH TWO HARDENED WASHER EACH AND HEAVY HEX NUTS. NOTE: BOLT LENGTH = SLAB PLUS 2 1/4" MIN.
- EPOXY ANCHOR OPTION:** THIS OPTION MAY ONLY BE USED IF THE CULVERT SLAB IS 9" MIN. THICK. THREADED ANCHOR RODS MUST BE 7/8" DIA. ASTM A449 OR A193 GRADE B7 WITH HEAVY HEX NUT, AND ONE HARDENED WASHER EACH. EMBED ANCHOR RODS 6" WITH HILTI HIT RE 500 EPOXY ADHESIVE. OTHER TYPE III CLASS C EPOXY ADHESIVES MEETING THE REQUIREMENTS OF DMS-6100, "EPOXIES AND ADHESIVES", MAY BE USED IF IT CAN BE DEMONSTRATED THAT THEY MEET OR EXCEED THE STRENGTH OF HILTI HIT RE 500 WITH THE SAME EMBEDMENT DEPTH AND THREADED ROD DIA. FOLLOW THE MANUFACTURER'S REQUIREMENTS FOR INSTALLING EPOXIED THREADED RODS. EXTEND RODS 1/4" MIN. BEYOND NUT.

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

GENERAL NOTES

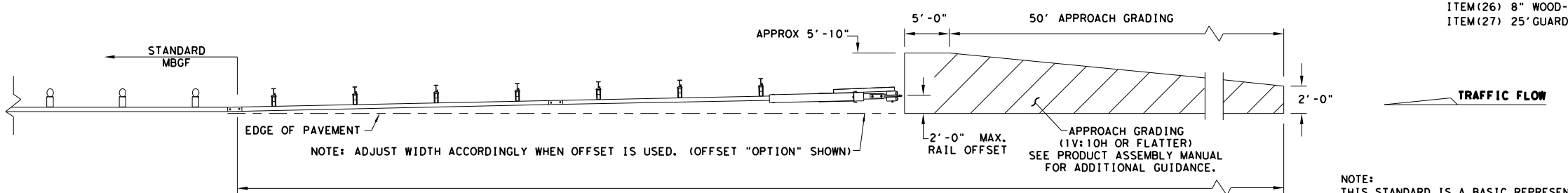
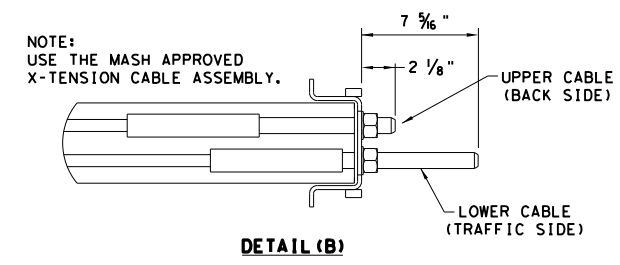
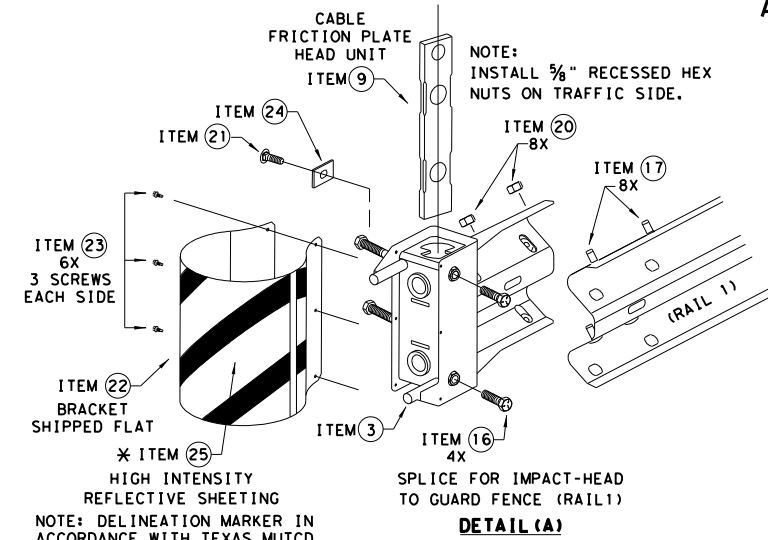
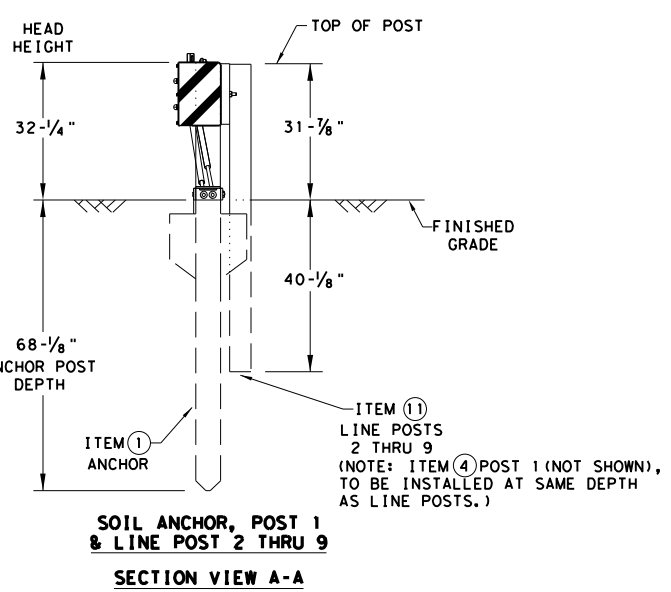
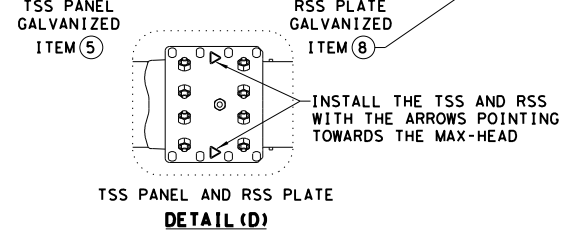
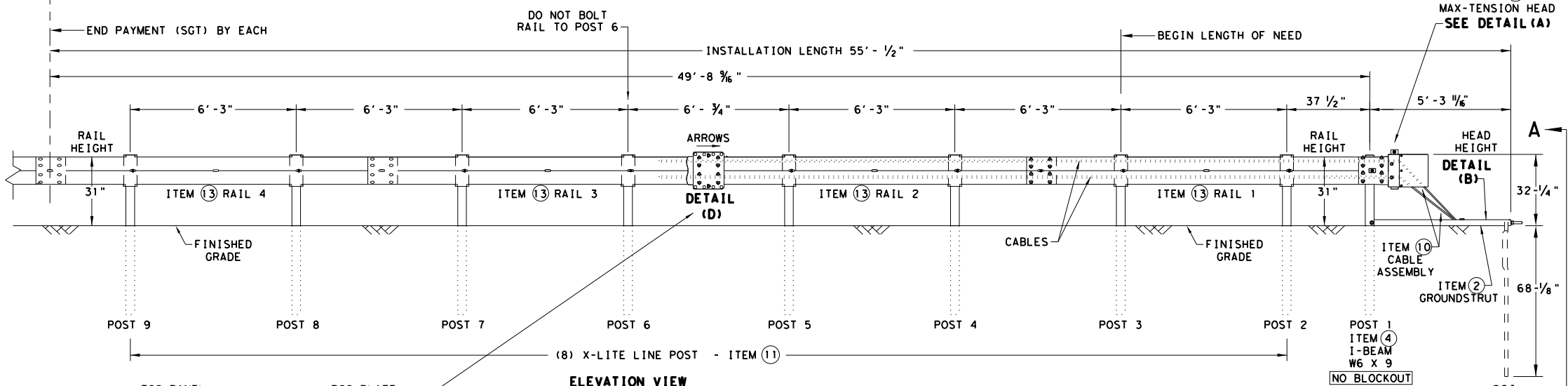
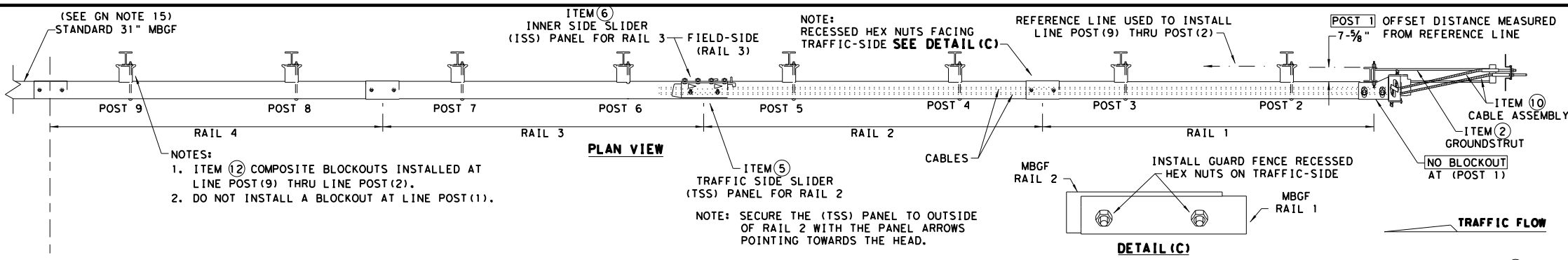
- THE TYPE OF POST (ROUND WOOD POST, RECTANGULAR WOOD POST, OR STEEL POST) WILL BE AS SHOWN IN THE PLANS. THE EXACT POSITION OF MBGF SHALL BE SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER. STEEL POSTS TO BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING."
- RAIL ELEMENTS SHALL MEET THE REQUIREMENTS OF ITEM 540, "METAL BEAM GUARD FENCE" EXCEPT AS MODIFIED IN THE PLANS. THE CONTRACTOR MAY FURNISH RAIL ELEMENTS OF 25'-0", OR 12'-6" (NOM.) LENGTHS. RAIL ELEMENTS MAY HAVE SLOTTED HOLES AT 3'-1 1/2" C-C OR 6'-3" C-C. A SPECIAL LENGTH OF RAIL MAY BE MANUFACTURED TO ACCOMMODATE THE DOWNSTREAM ANCHOR TERMINAL (DAT) AND THE TRANSITION SECTIONS OF GUARDRAIL.
- BUTTON HEAD "POST BOLTS & NUTS" SHALL MEET THE REQUIREMENTS OF (ASTM A307), AND SHALL BE OF SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND 3/8" WASHER (FWC16G) AND NOT MORE THAN 1" BEYOND IT. TRIM REMAINING BOLT LENGTH TO MEET REQUIRED LENGTH.
- FITTINGS (BOLTS, NUTS, AND WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING." FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
- CROWN SHALL BE WIDENED TO ACCOMMODATE THE METAL BEAM GUARD FENCE.
- THE LATERAL APPROACH TO THE GUARD FENCE, SHALL HAVE A MAXIMUM SLOPE OF 1V:10H.
- IF SHOWN ELSEWHERE IN THE PLANS OR AS DIRECTED BY THE ENGINEER, THE GUARD FENCE MAY BE FLARED AT A RATE OF 25:1 OR FLATTER.
- UNLESS OTHERWISE SHOWN IN THE PLANS, GUARD FENCE PLACED IN THE VICINITY OF CURBS SHALL BE POSITIONED SO THAT THE FACE OF CURB IS LOCATED DIRECTLY BELOW OR BEHIND THE FACE OF THE RAIL. RAIL PLACED OVER CURBS SHALL BE INSTALLED SO THAT THE POST BOLT IS LOCATED APPROXIMATELY 25 INCHES ABOVE THE GUTTER PAN OR EDGE OF SHOULDER.
- APPLICATIONS IN SOLID ROCK ARE ONLY ALLOWED WITH STEEL POSTS. IF SOLID ROCK IS ENCOUNTERED WITHIN 0 TO 18" OF THE FINISHED GRADE, DRILL A 24" DIA. HOLE, 24" INTO THE ROCK. IF SOLID ROCK IS ENCOUNTERED BELOW 18", DRILL A 12" DIA. HOLE, 12" INTO THE ROCK OR TO THE STANDARD EMBEDMENT DEPTH, WHICHEVER MAYBE LESS. ANY EXCESS POST LENGTH, AFTER MEETING THESE DEPTHS, MAY BE FIELD CUT TO ENSURE PROPER GUARDRAIL MOUNTING HEIGHT. BACKFILL WITH COARSE AGGREGATE MATERIAL.
- POSTS SHALL NOT BE SET IN CONCRETE, OF ANY DEPTH.
- SPECIAL FABRICATION WILL BE REQUIRED AT INSTALLATION LOCATIONS HAVING A CURVATURE OF LESS THAN 150 FT. RADIUS.
- UNLESS OTHERWISE SHOWN IN THE PLANS, A COMPOSITE MATERIAL BLOCK THAT MEETS THE REQUIREMENTS OF DMS-7210, "COMPOSITE MATERIAL POSTS AND BLOCKS FOR METAL BEAM GUARD FENCE" MAY BE SUBSTITUTED FOR BLOCKS OF SIMILAR DIMENSIONS. THE CONSTRUCTION DIVISION, TXDOT MAINTAINS A MATERIAL PRODUCER LIST (MPL) FOR PRODUCERS OF MATERIALS CONFORMING TO DMS-7210 ONLY PRODUCERS ON THE MPL MAY FURNISH COMPOSITE MATERIAL BLOCKS.
- FOR THE LOW FILL CULVERT OPTION, POSTS LOCATED PARTIALLY OR WHOLLY BETWEEN PRECAST BOX CULVERT UNITS, THE USE OF A CAST-IN-PLACE CONCRETE CLOSURE BETWEEN BOXES IS REQUIRED. THE LENGTH OF THE CAST-IN-PLACE CONCRETE CLOSURE SHALL ACCOMMODATE THE PLACEMENT OF THE LOW FILL CULVERT OPTION. SEE CONCRETE CLOSURE DETAILS ON BRIDGE STANDARD SCP-MD.
- GUARDRAIL HEIGHT MEASUREMENT: WHEN THE GUARDRAIL IS LOCATED ABOVE PAVEMENT, MEASURE THE HEIGHT FROM THE PAVEMENT TO THE TOP OF THE W-BEAM RAIL. WHEN THE GUARDRAIL IS LOCATED UP TO 2 FT. OFF OF THE EDGE OF PAVEMENT OR FOR A PAVEMENT OVERLAY, USE A 10-FOOT STRAIGHTEDGE TO EXTEND THE PAVEMENT/SHOULDER SLOPE TO THE BACK OF RAIL, MEASURE FROM THE BOTTOM OF STRAIGHTEDGE TO THE TOP OF RAIL. FOR GUARDRAIL LOCATED DOWN A 10:1 SLOPE, MEASURE FROM THE NOMINAL TERRAIN.

NOTE: TRANSITIONS TO BRIDGE RAILS OR TRAFFIC BARRIERS. SEE GF(31)TL3 TR STANDARD FOR HIGH-SPEED TL-3 TRANSITIONS. SEE GF(31)TL2 TR STANDARD FOR LOW-SPEED TL-2 TRANSITIONS.

				Design Division Standard
METAL BEAM GUARD FENCE TL-3 MASH COMPLIANT GF(31)-19				
FILE: gf3119.dgn	DN: TxDOT	CK: KM	DW: VP	CK: CGL/AG
© TXDOT: NOVEMBER 2019	CONT	SECT	JOB	HIGHWAY
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DATE: FILE:



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

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

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

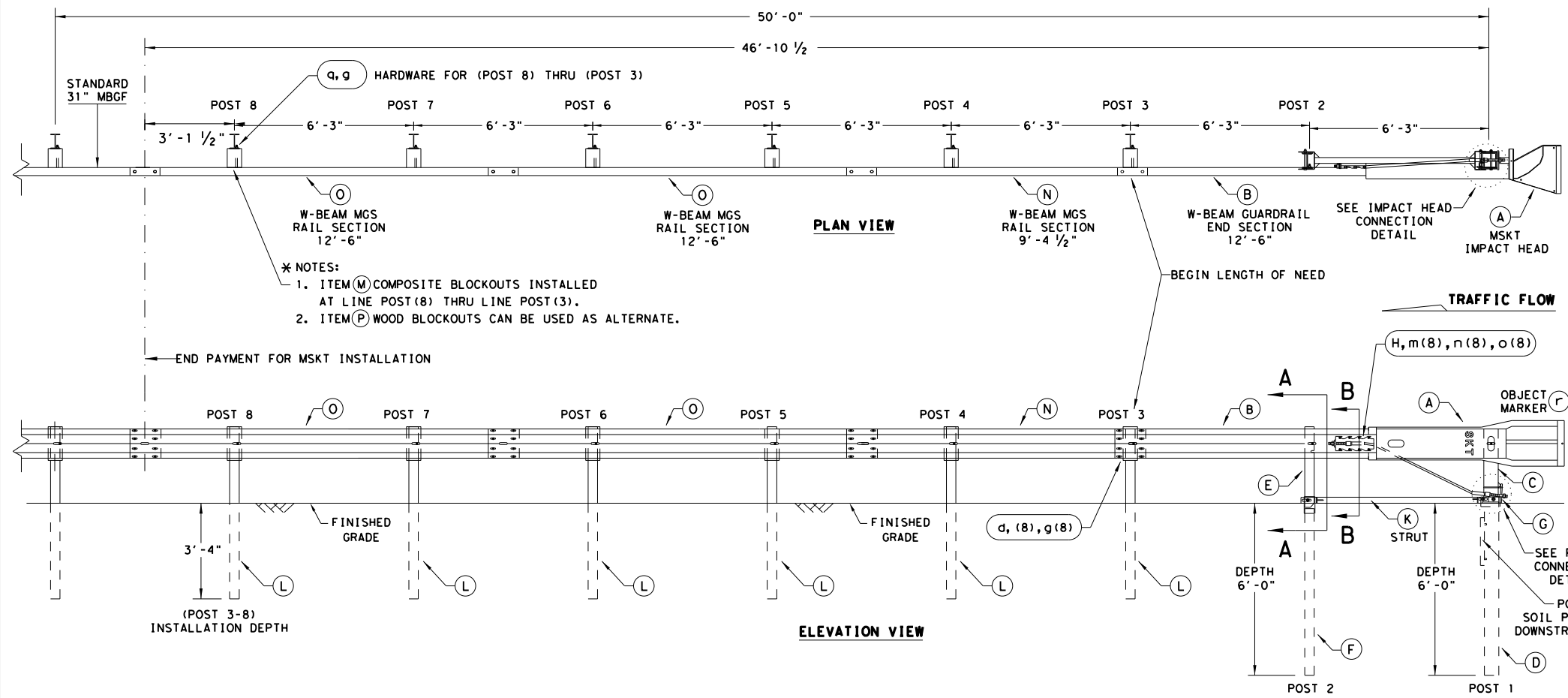
Texas Department of Transportation
Design Division Standard

**MAX-TENSION END TERMINAL
MASH - TL-3
SGT (11S) 31-18**

FILE: sg11s3118.dgn DN: TxDOT CK: KM DW: TxDOT CK: CL
© TxDOT: FEBRUARY 2018 CONT SECT JOB HIGHWAY
REVISIONS 1607 01 057, ETC. FM 1764
DIST COUNTY SHEET NO.
HOU GALVESTON 280

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

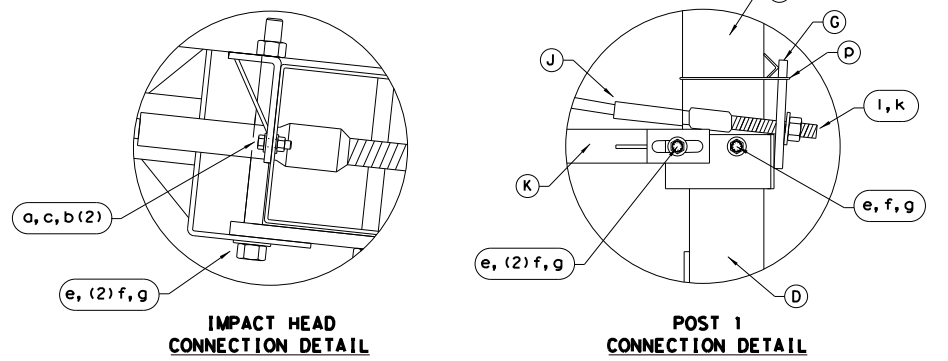
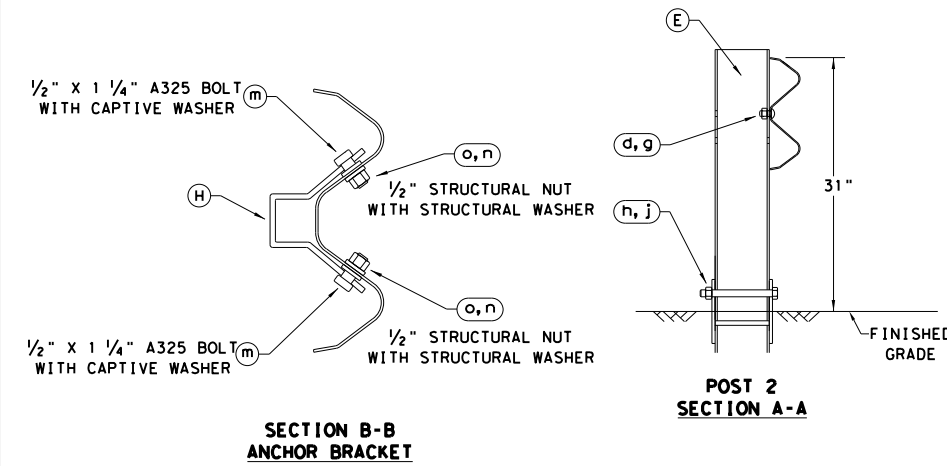
DISCLAIMER: THIS STANDARD IS GOVERNED BY THE "TEXAS ENGINEERING PRACTICE ACT". NO WARRANTY OF ANY KIND IS MADE BY TxDOT FOR ANY PURPOSE WHATSOEVER. THE USE OF THIS STANDARD FOR THE CONVERSION OF THIS STANDARD TO OTHER FORMATS OR FOR INCORRECT RESULTS OR DAMAGES RESULTING FROM ITS USE. TxDOT ASSUMES NO RESPONSIBILITY FOR THE CONVERSION OF THIS STANDARD TO OTHER FORMATS OR FOR INCORRECT RESULTS OR DAMAGES RESULTING FROM ITS USE.



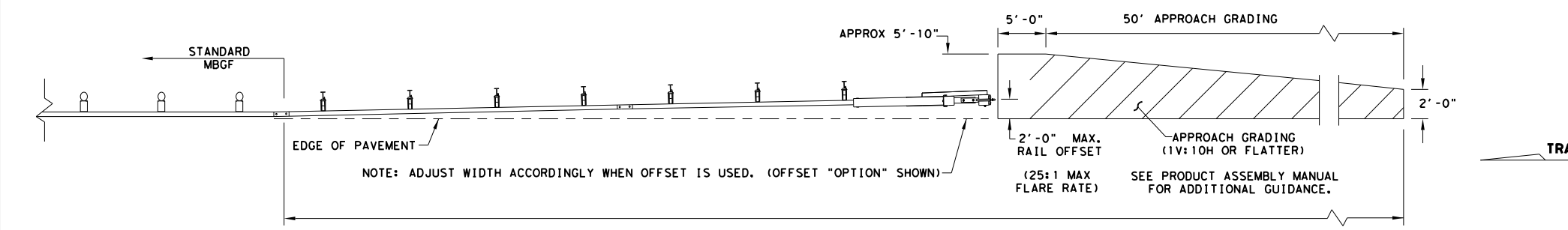
- * NOTES:**
- ITEM (M) COMPOSITE BLOCKOUTS INSTALLED AT LINE POST (8) THRU LINE POST (3).
 - ITEM (P) WOOD BLOCKOUTS CAN BE USED AS ALTERNATE.

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

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



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



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

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

Design Division Standard

SINGLE GUARDRAIL TERMINAL

MSKT-MASH-TL-3

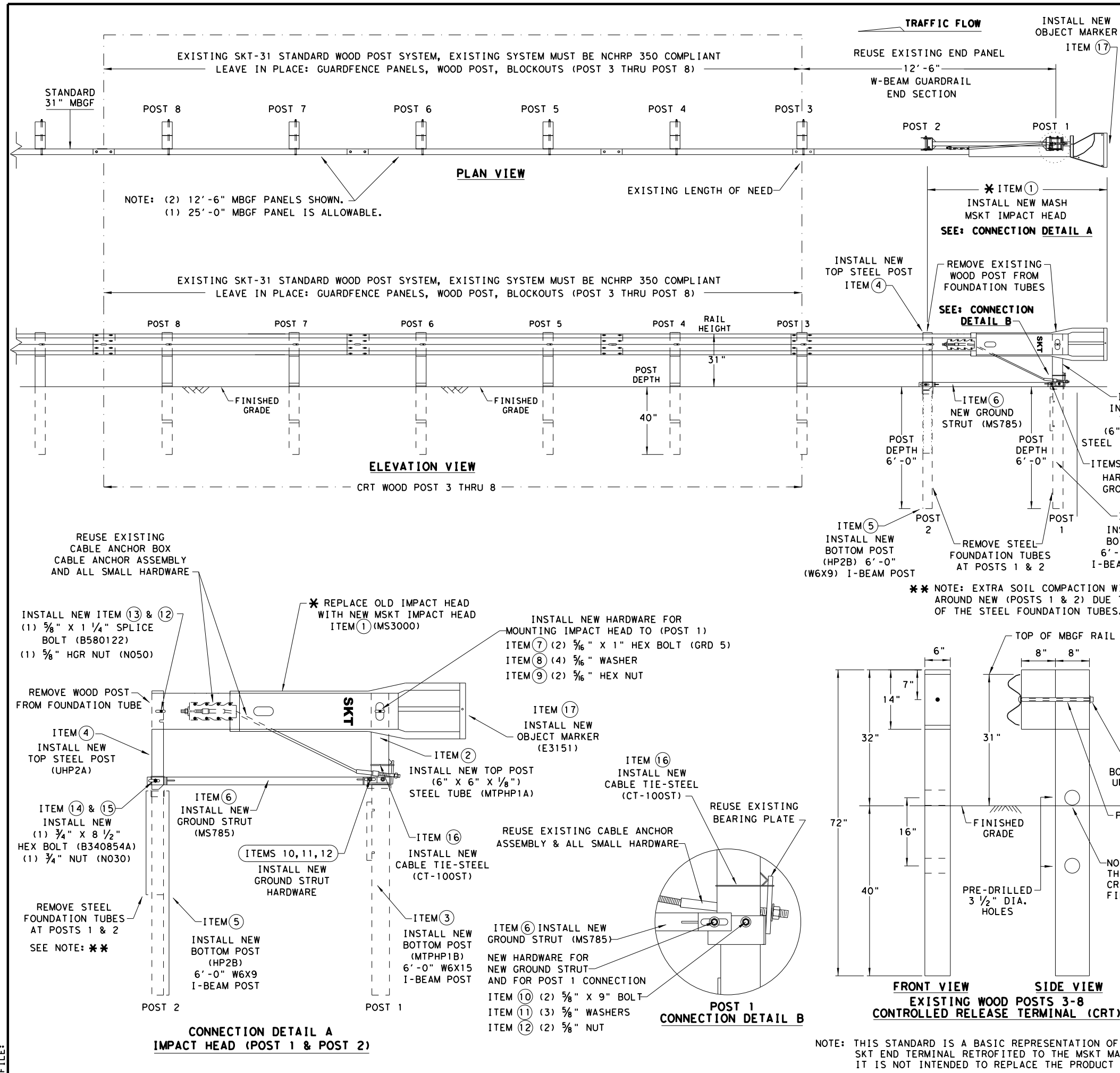
SGT (12S) 31-18

FILE: sgt12s3118.dgn	DN: TxDOT	CK: KM	DW: VP	CK: CL
© TxDOT: APRIL 2018	CONT SECT	JOB	HIGHWAY	
REVISIONS	1607 01	057, ETC.	FM 1764	
	DIST	COUNTY	SHEET NO.	
	HOU	GALVESTON	281	

DATE: FILE:

DISCLAIMER: THE USE OF THIS STANDARD IS GOVERNED BY THE "TEXAS ENGINEERING PRACTICE ACT". NO WARRANTY OF ANY KIND IS MADE BY TXDOT FOR ANY PURPOSE WHATSOEVER. TXDOT ASSUMES NO RESPONSIBILITY FOR THE CONVERSION OF THIS STANDARD TO OTHER FORMATS OR FOR INCORRECT RESULTS OR DAMAGES RESULTING FROM ITS USE.

DATE: FILE:

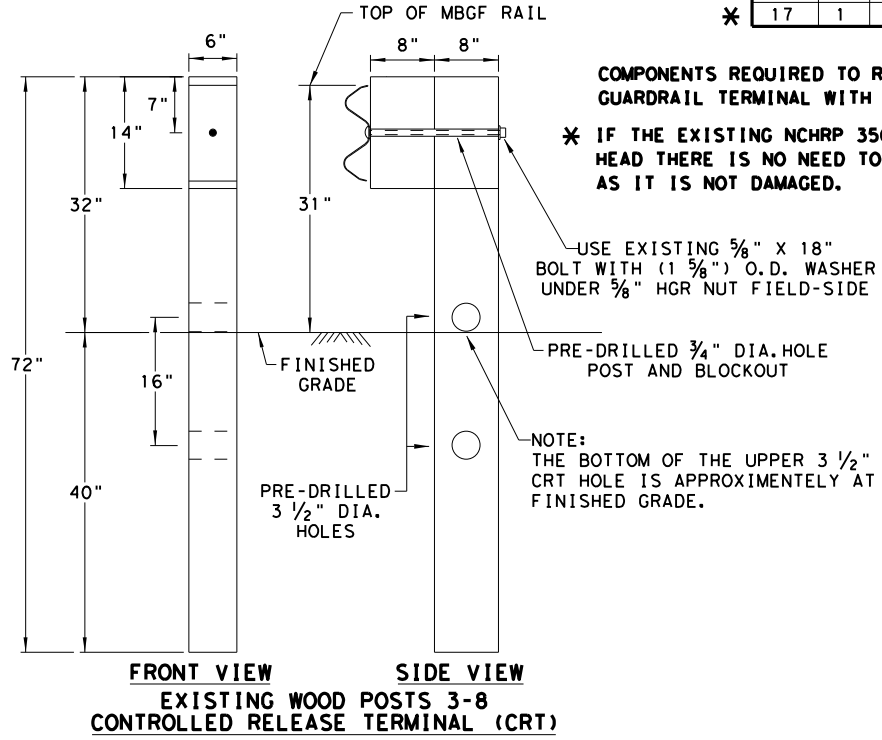


GENERAL NOTES

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- HARDWARE (BOLTS, NUTS, & WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING". FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
- IF SOLID ROCK IS ENCOUNTERED IN THE AREA OF (POST 1) AND / OR (POST 2) CONTACT THE MANUFACTURER, AND REFER TO THE LATEST ROADWAY MBGF STANDARD FOR INSTALLATION GUIDANCE.
- POSTS SHALL NOT BE SET IN CONCRETE.
- THE EXISTING SKT 31" STANDARD WOOD POST SYSTEM MUST BE THOROUGHLY INSPECTED, AND DETERMINED TO BE INTACT, AND FREE OF ANY DAMAGE OR DEFECTS BEFORE RETROFITTING. THIS INSPECTION INCLUDES COMPLETING THE MSKT RETROFIT INSPECTION CHECKLIST FOR THE EXISTING SKT 31" WOOD POST NCHRP 350 SYSTEM. ALL EXISTING, AND REUSABLE PARTS MUST BE FREE OF ANY DAMAGE FOR A MASH COMPLIANT RETROFIT.
- UNDER NO CIRCUMSTANCES SHALL THE GUARDRAIL WITHIN THE MSKT SYSTEM BE CURVED.
- A FLARE RATE OF UP TO 25:1 MAY BE USED TO PREVENT THE TERMINAL HEAD FROM ENCRANCHING ON THE SHOULDER. THE FLARE MAY BE DECREASED OR ELIMINATED FOR SPECIFIC INSTALLATIONS, IF DIRECTED BY THE ENGINEER.
- SPECIAL DRIVING CAP TO BE USED WHEN DRIVING (LOWER POSTS 1 & 2) TO PREVENT DAMAGE TO THE WELDED PLATES.

ITEMS	QTY	MAIN SYSTEM COMPONENTS	PART NUMBERS
1	1	MSKT IMPACT HEAD	MS3000
2	1	POST 1 - TOP (6" X 6" X 1/8" TUBE)	MTPHP1A
3	1	POST 1 - BOTTOM (6' W6X15)	MTPHP1B
4	1	POST 2 - ASSEMBLY TOP	UHP2A
5	1	POST 2 - ASSEMBLY BOTTOM (6' W6X9)	HP2B
6	1	GROUND STRUT	MS785
7	2	5/16" X 1" HEX BOLT (GRD 5)	B516014A
8	4	5/16" WASHERS	W0516
9	2	5/8" HEX NUT	N0516
10	2	5/8" X 9" HEX BOLT (GRD A449)	B580904A
11	3	5/8" WASHERS	W050
12	3	5/8" H.G.R NUT	N050
13	1	5/8" X 1 1/4" SPLICE BOLT	B580122
14	1	3/4" X 8 1/2" HEX BOLT (GRD 5)	B340854A
15	1	3/4" HEX NUT	N030
16	1	CABLE TIE-STEEL	CT-100ST
17	1	OBJECT MARKER 18" X 18"	E3151

COMPONENTS REQUIRED TO RETROFIT: EXISTING 31" WOOD POST (NCHRP 350 SKT) GUARDRAIL TERMINAL WITH THE NEW 31" (MASH COMPLIANT MSKT IMPACT HEAD).
 * IF THE EXISTING NCHRP 350 (31" WOOD POST SKT) ALREADY HAS THE MSKT IMPACT HEAD THERE IS NO NEED TO REPLACE THE IMPACT HEAD OR OBJECT MARKER AS LONG AS IT IS NOT DAMAGED.



Texas Department of Transportation
RETROFIT STANDARD
SKT 31" WOOD POST SYSTEM
TO MASH MSKT
SGT (14W) 31-18

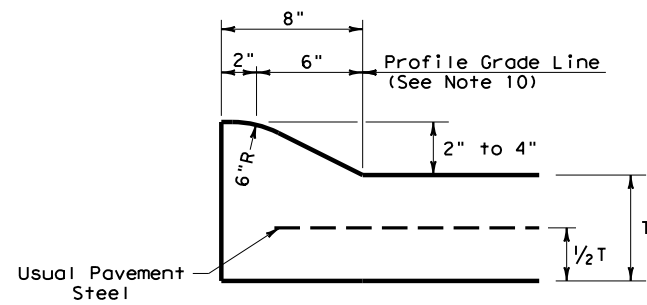
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© TXDOT: APRIL 2018	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607	01	05T, ETC	FM 1764
	DIST	COUNTY	SHEET NO.	
	HOU	GALVESTON	282	

Design Division Standard

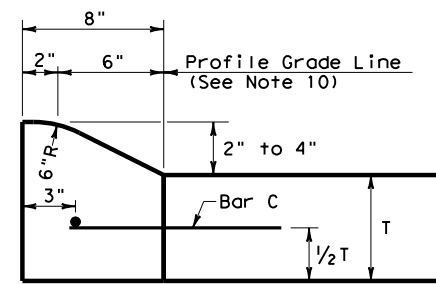
NOTE: THIS STANDARD IS A BASIC REPRESENTATION OF THE EXISTING; SKT END TERMINAL RETROFITTED TO THE MSKT MASH COMPLIANT TERMINAL, IT IS NOT INTENDED TO REPLACE THE PRODUCT DESCRIPTION ASSEMBLY MANUAL.

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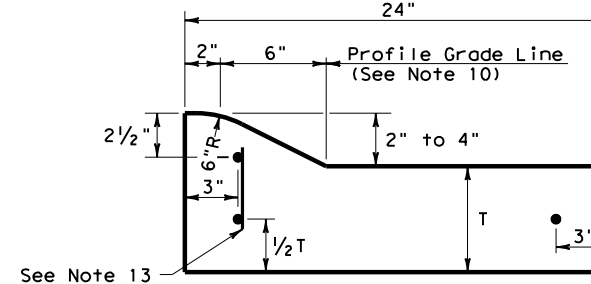
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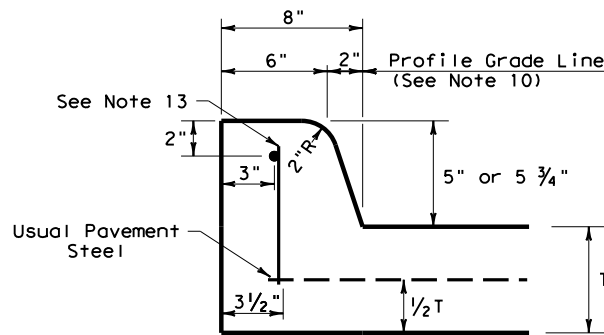
**TYPE I CURB (MONOLITHIC)
2" - 4" HEIGHT**



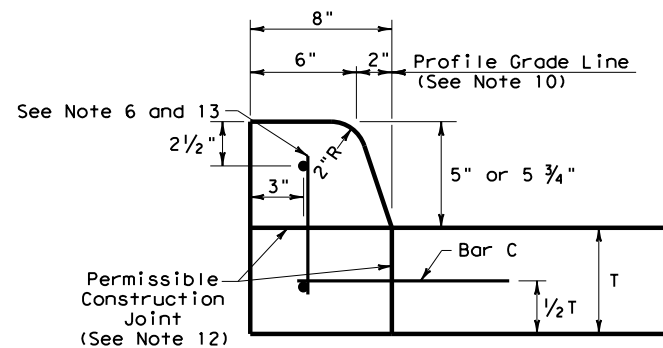
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2" - 4" HEIGHT**



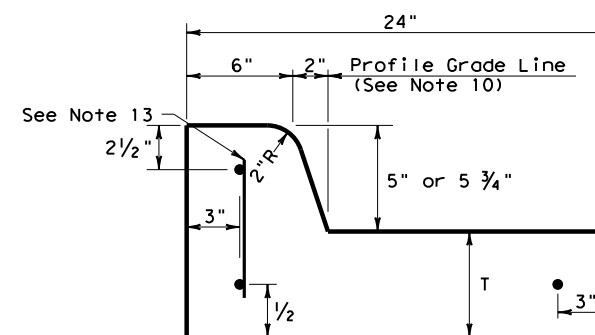
**TYPE I CURB AND GUTTER
2" - 4" HEIGHT**



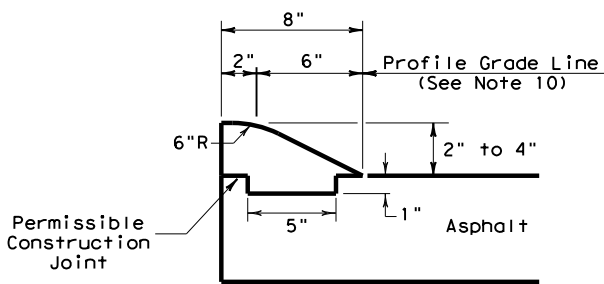
**TYPE II CURB (MONOLITHIC)
5" - 5 3/4" HEIGHT**



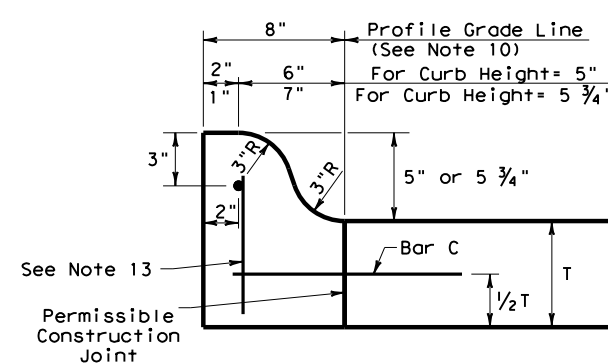
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5" - 5 3/4" HEIGHT**



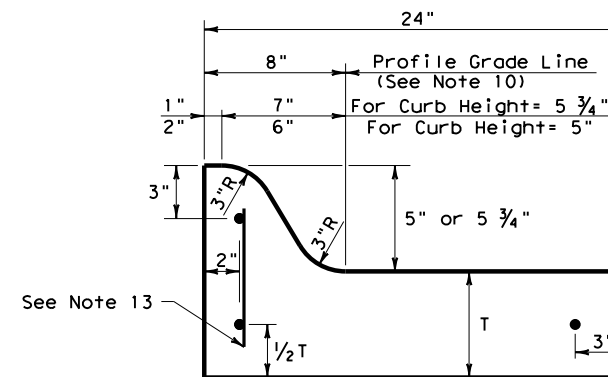
**TYPE II CURB AND GUTTER
5" - 5 3/4" HEIGHT**



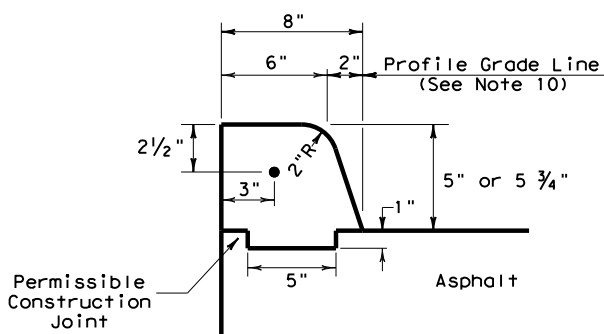
**TYPE III CURB (KEYED)
2" - 4" HEIGHT**



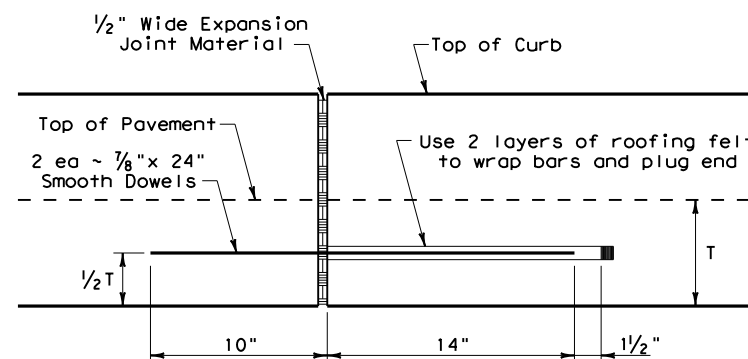
**TYPE IIa CURB
5" - 5 3/4" HEIGHT**



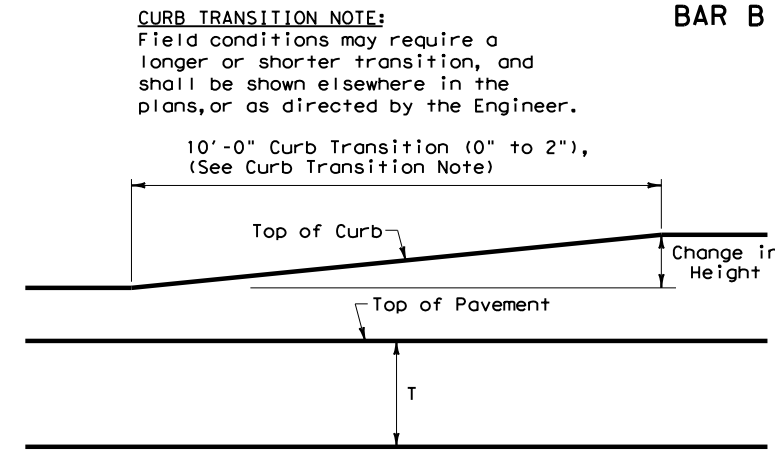
**TYPE IIa CURB AND GUTTER
5" - 5 3/4" HEIGHT**



**TYPE IV CURB (KEYED)
5" - 5 3/4" HEIGHT**



EXPANSION JOINT DETAIL

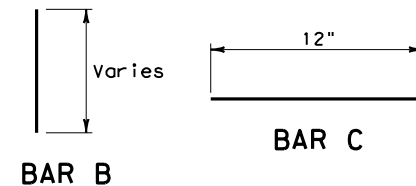


CURB TRANSITION

Note: To be paid for as Highest Curb

GENERAL NOTES

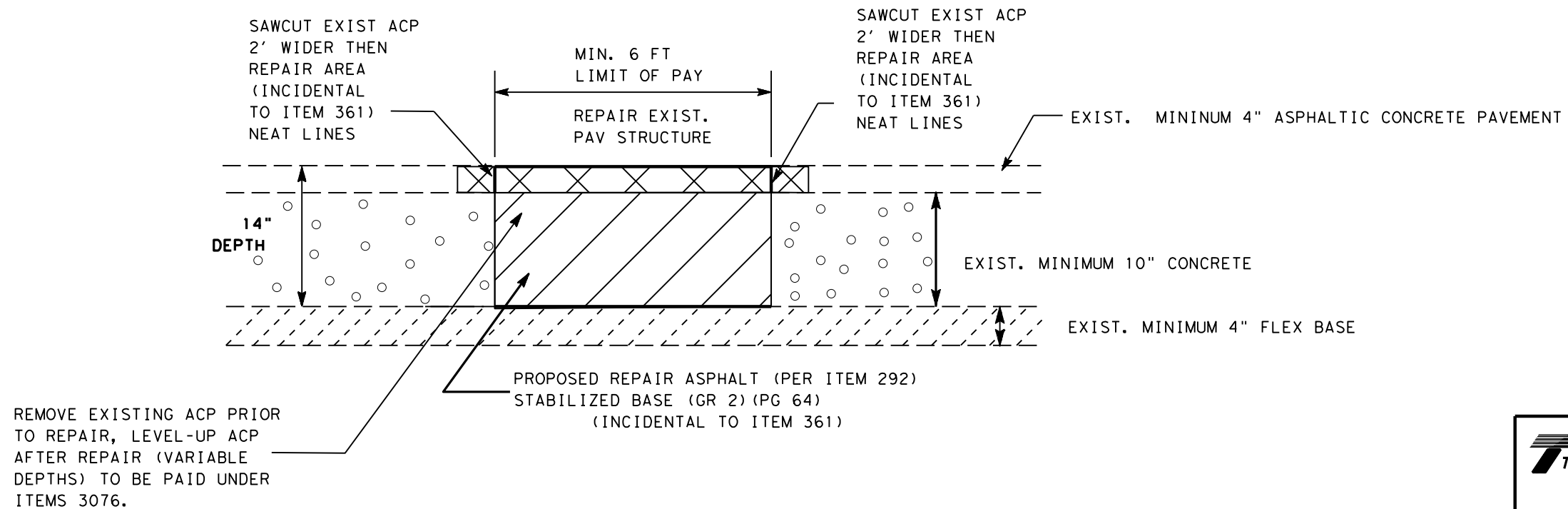
1. All materials and construction shall be in accordance with Item 529, "Concrete Curb, Gutter, and Combined Curb and Gutter."
2. Concrete shall be Class A.
3. When reinforcing bars are used, they shall be No.4 unless otherwise shown. The use of fiber reinforced concrete in lieu of reinforcing steel is acceptable. Use fibers meeting the requirements of DMS 4550, "Fibers for Concrete," and dose fibers in accordance with Material Producers List (MPL) "Fibers for Class A and B Concrete Applications."
4. Round exposed sharp edges with a rounding tool, to a minimum radius of 1/4 inch.
5. All existing curbs and driveways to be removed shall be sawed or removed at existing joints.
6. Where concrete curb is to be placed on existing concrete pavement, Bar B may be drilled and grouted in place, or may be inserted into fresh concrete.
7. Expansion and contraction joints shall be constructed to match pavement joints in all curbs and curb and gutter adjacent to jointed concrete pavement. Where placement of curb or curb and gutter is not adjacent to concrete pavement, expansion joints shall be provided at structures, curb returns at streets, and at locations directed by The Engineer.
8. Vertical and horizontal dowel bars and transverse reinforcing bars shall be placed at four feet C-C.
9. Dimension 'T' shown is the thickness of concrete pavement. When curb is installed adjacent to flexible pavement dimension 'T' is 8" maximum.
10. Usual profile grade line. Refer to typical sections and plan-profile sheets for exact locations.
11. One-half inch expansion joint material shall be provided where curb or curb and gutter is adjacent to sidewalk or riprap.
12. When horizontal permissible construction joints are used, the longitudinal pavement steel shall be placed in accordance with pavement details shown elsewhere in the plans. Reinforcing steel for curb section shall then conform to that required for concrete curb.
13. Bar B placement as needed (typically at four ft. C-C) to support curb reinforcing steel during concrete placement.



CURB TRANSITION NOTE:
Field conditions may require a longer or shorter transition, and shall be shown elsewhere in the plans, or as directed by the Engineer.

		Design Division Standard	
CONCRETE CURB AND GUTTER			
CCCG-22			
FILE: cccg21.dgn	DN: TxDOT	CK: AN	DW: CS
© TxDOT: JUNE 2022	CONT: 1607	SECT: 01	JOB: 057, ETC.
REVISIONS	DIST: COUNTY		HIGHWAY: FM 1764
	HOU: GALVESTON		SHEET NO.: 283

- NOTES:
1. THE LOCATION OF ALL REPAIRS SHOWN VARY THROUGHOUT THE TRAVEL LANES AND SHOULDERS. THE ENGINEER SHALL MARK AND VERIFY ALL AREAS TO BE REPAIRED PRIOR TO THE COMMENCEMENT OF WORK.
 2. ALL BASE REPAIR SHALL BE PERFORMED IN ACCORDANCE WITH ITEM 361.
 3. ASPHALT STABILIZED BASE SHALL MEET THE REQUIREMENT OF ITEM 292, "ASPHALT TREATMENT (PLANT MIX), " OR ITEM 340, "HOT MIX ASPHALT, " TO ACHIEVE REQUIRED SECTION.
 4. SAWCUTS SHALL BE INCIDENTAL TO ITEM 361.
 5. ON ALL BASE REPAIR LOCATIONS, THE SIDES SHALL BE CUT VERTICAL, THEN CLEANED OF ALL LOOSE MATERIAL AND TACKED PRIOR TO ANY PLACEMENT OF ASPHALT STABILIZED BASE.
 6. THE CONTRACTOR SHALL REPLACE EXISTING STRIPING ACCORDING TO TxDOT STANDARDS.
 7. ALL MATERIAL REMOVED FROM THE REPAIR AREAS SHALL BECOME THE PROPERTY OF THE CONTRACTOR. THIS WORK WILL BE INCIDENTAL TO ITEM 361.



Joel H. Clarke

May 21 2024

BASE REPAIR DETAILS

N. T. S.

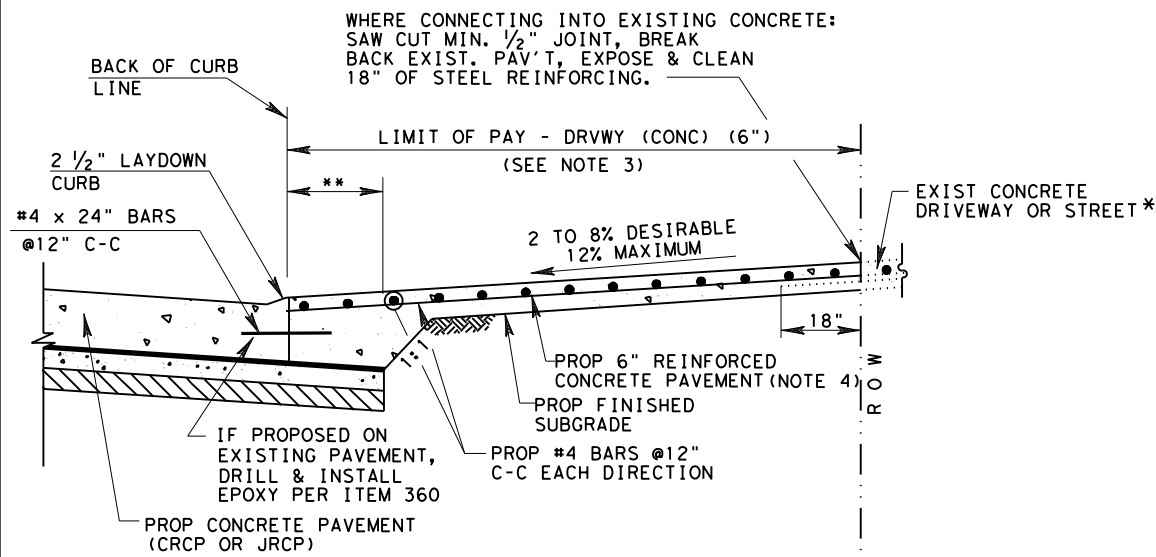


BASE REPAIR DETAIL

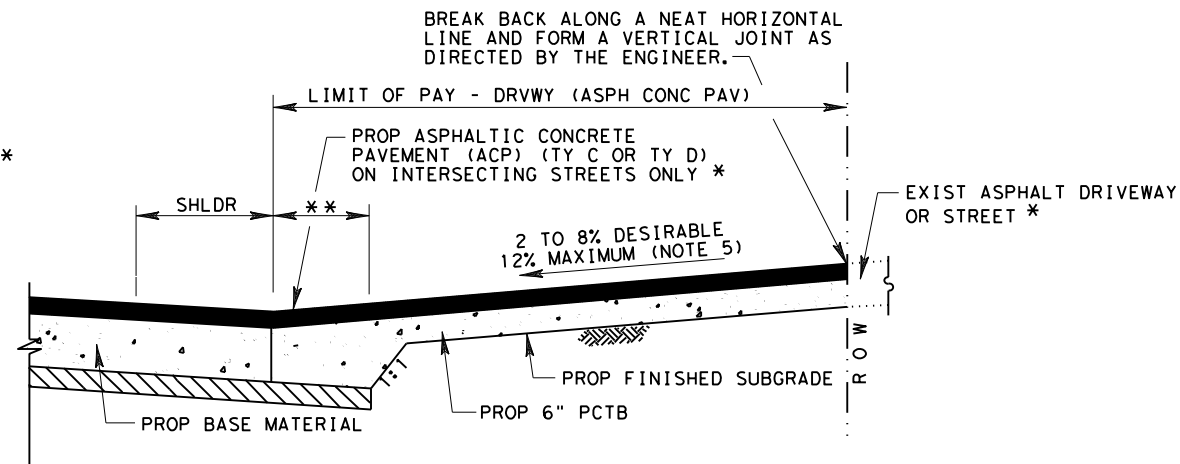
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DATE:	ORIGINAL DATE OF DRAWING:	FED. DIST. NO.:	STATE:	PROJECT NO.:	HIGHWAY NO.:
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CK. TR:		HOU	GALVESTON	1607 01	057, 284

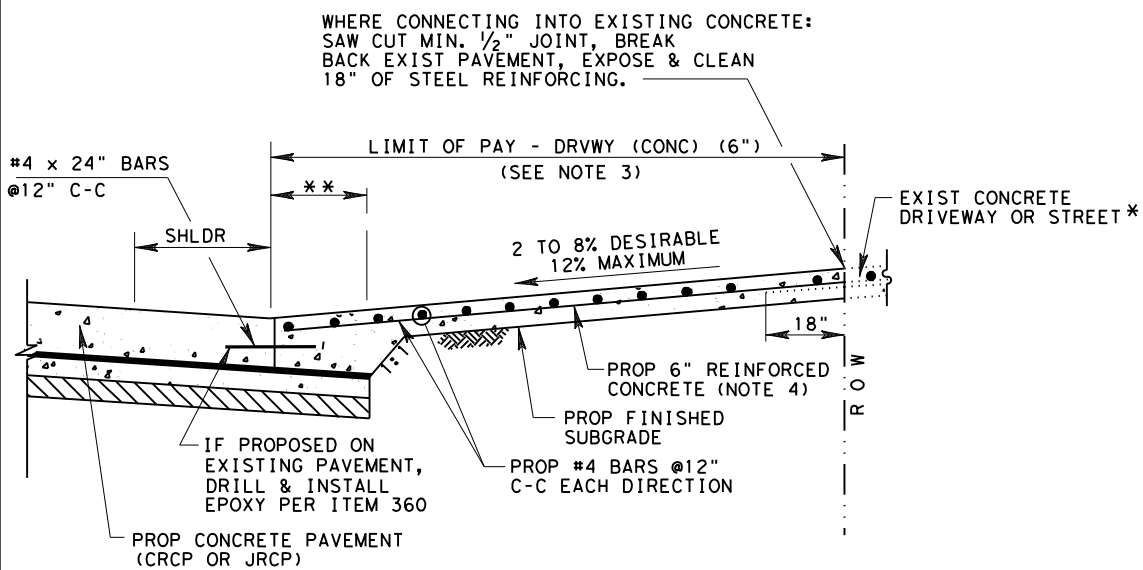
ETC.



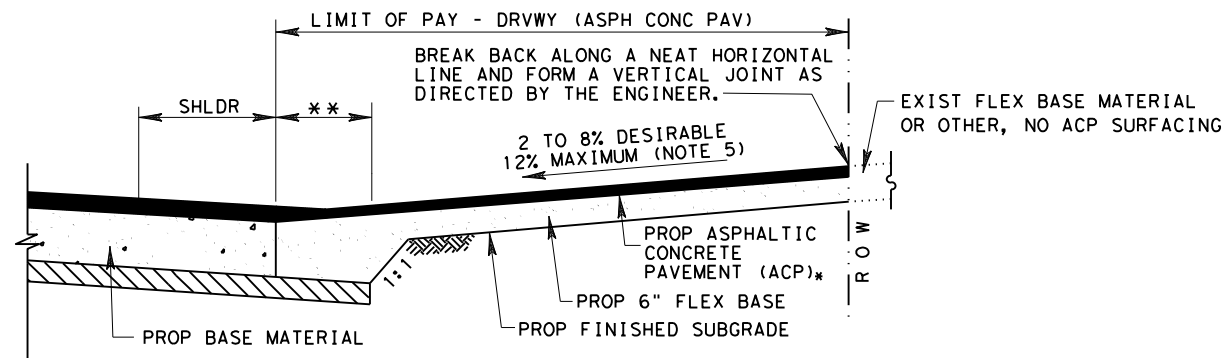
**PROPOSED DRIVEWAY DETAIL
REINFORCED CONCRETE AT CONCRETE
CURB AND GUTTER ROADWAY**



**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.

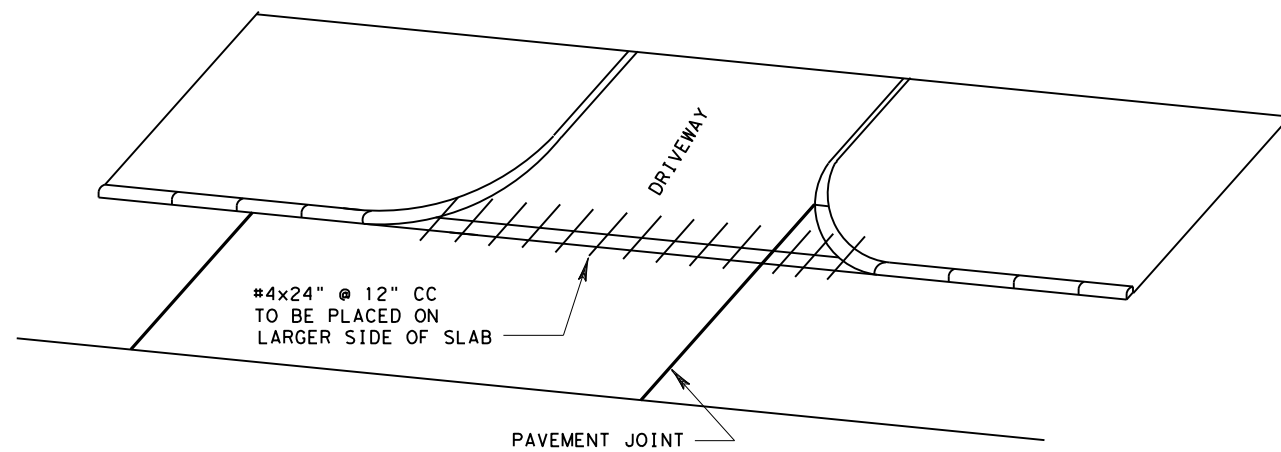
** PROPOSED LIMIT OF ROADWAY BASE AND/OR SUBGRADE



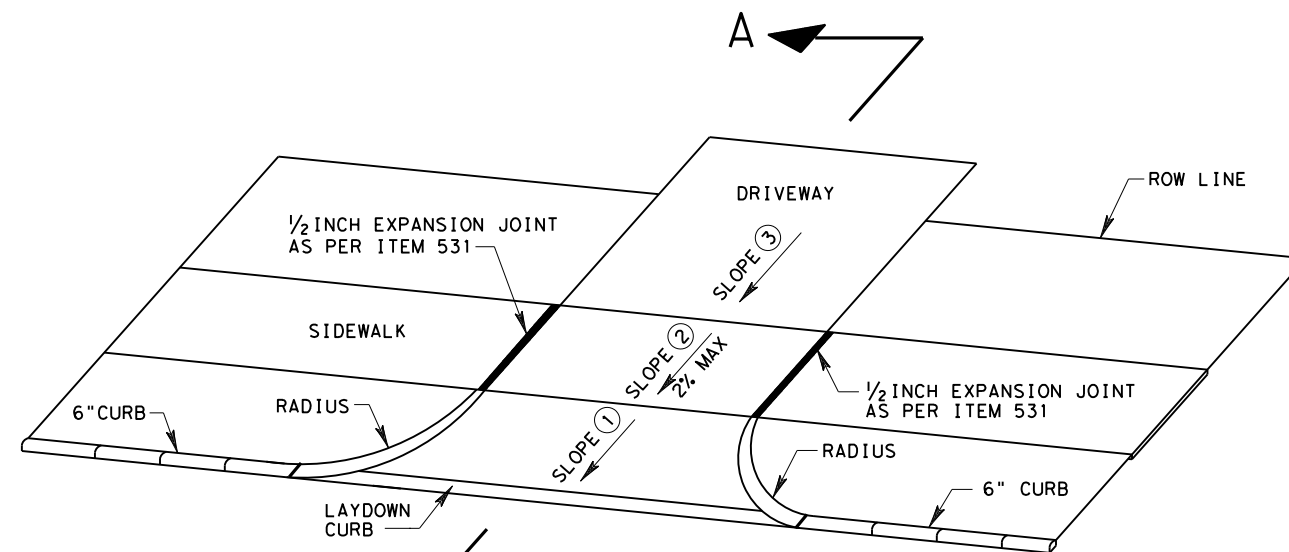
DRIVEWAY DETAILS

DD

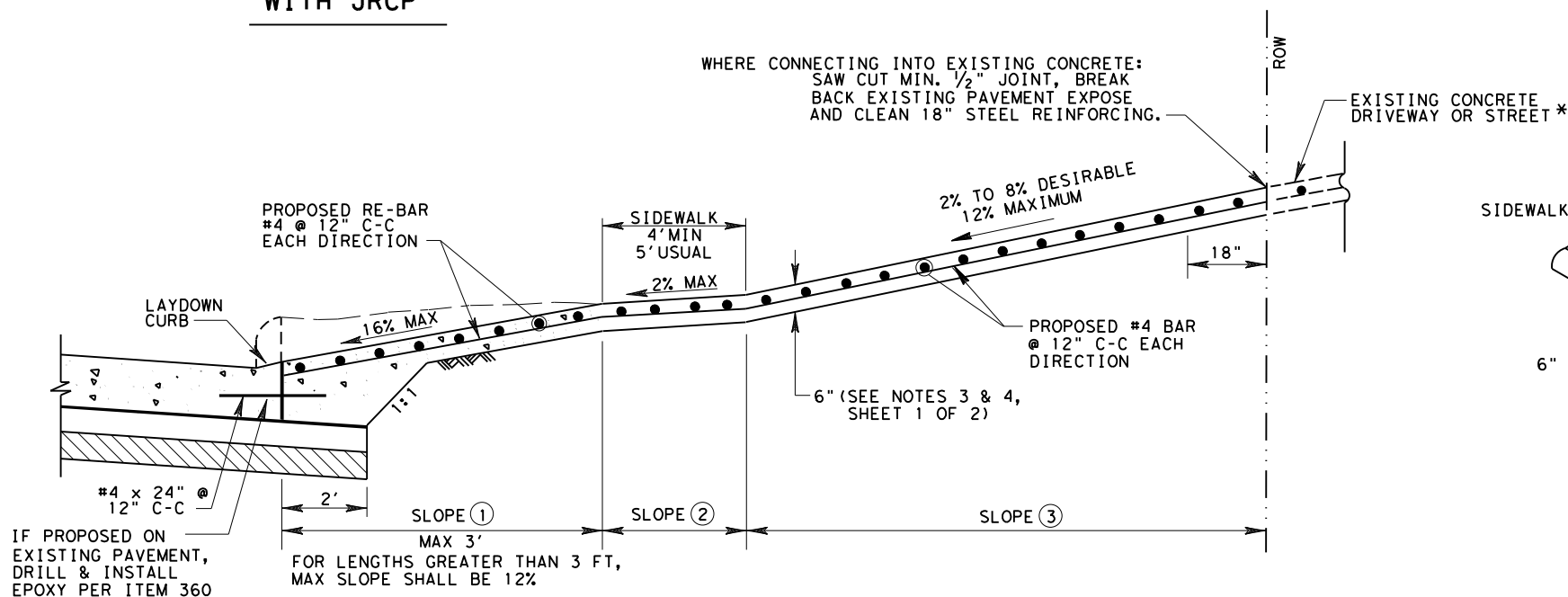
FILE: STDB-8a.dgn	DN:	CK:	DW:	CK:
© TxDOT SEPT. 2004	DIST	FED REG	PROJECT NO.	SHEET
REVISIONS	HOU	6		285
11/15 ADDED NOTE FOR PCTB	COUNTY	CONTROL	SECT	JOB
3/17 MODIFIED PAVEMENT SLOPES	GALVESTON	1607	01	057, FM 1764



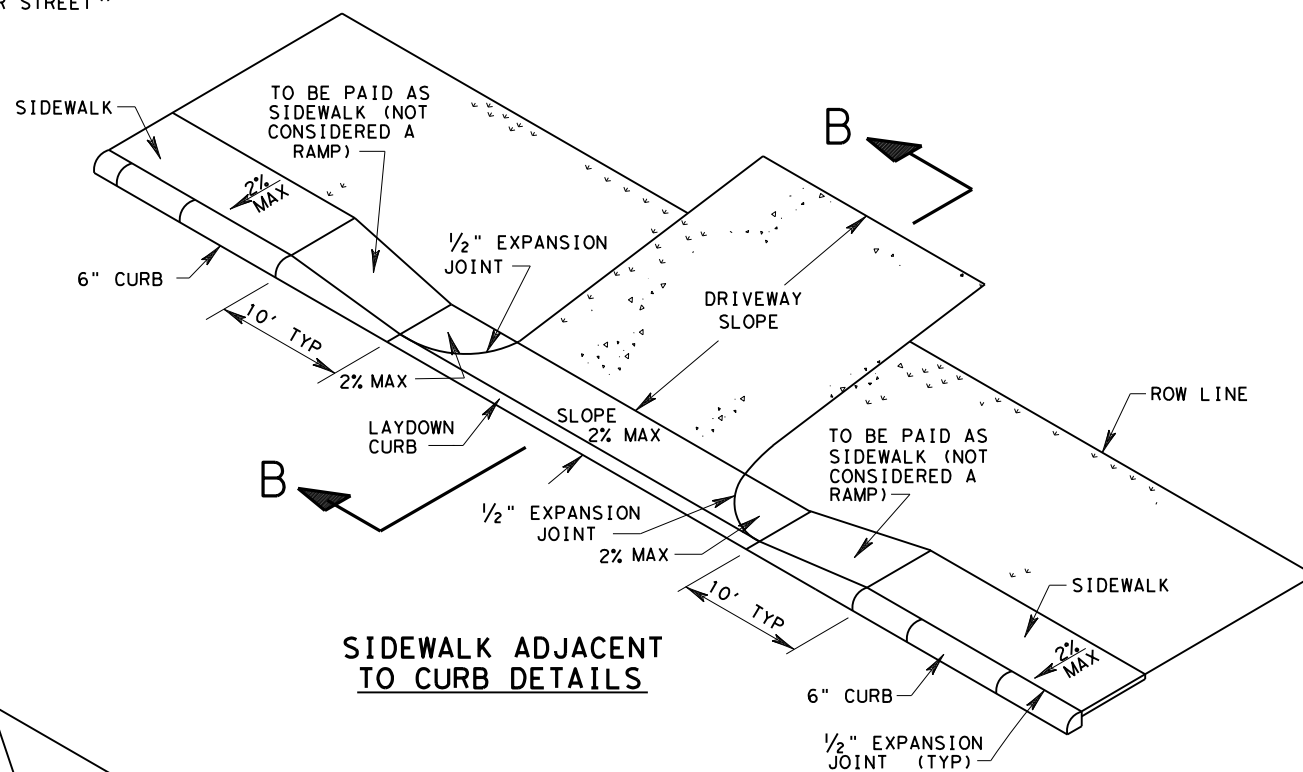
TIE BAR PLACEMENT WITH JRCP



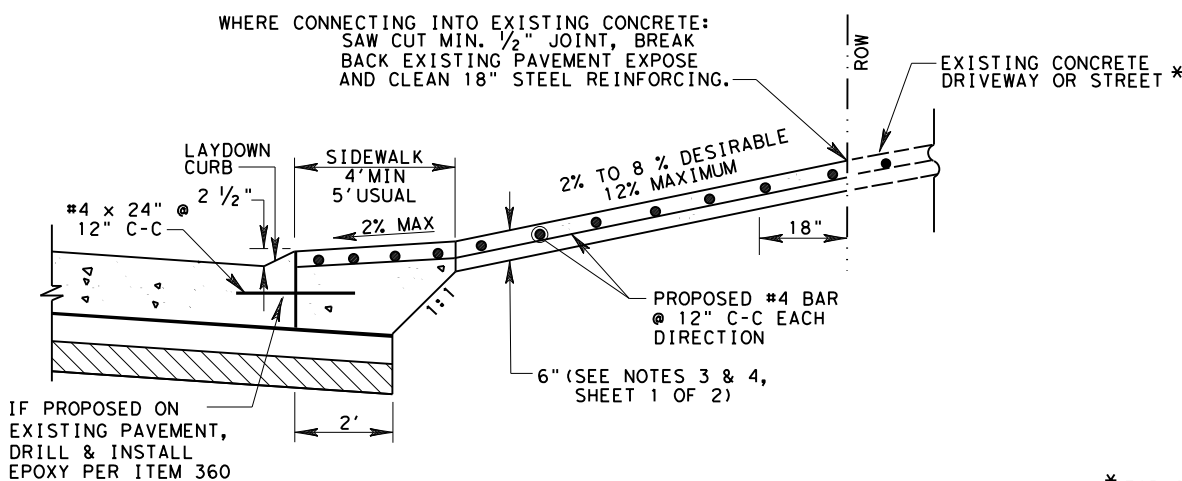
SIDEWALK OFFSET FROM CURB DETAILS



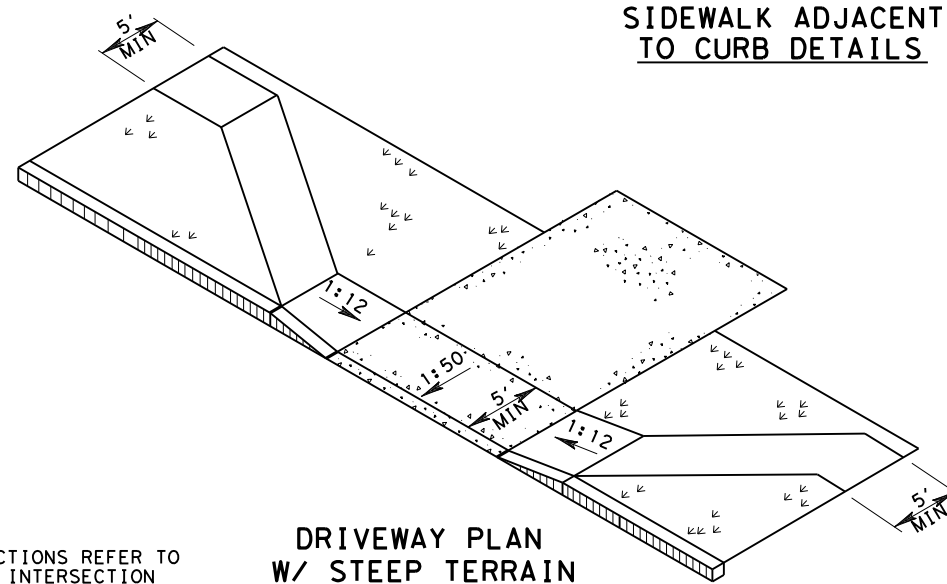
SLOPES W/ SIDEWALKS OFFSET FROM CURB (SECTION A-A)



SIDEWALK ADJACENT TO CURB DETAILS



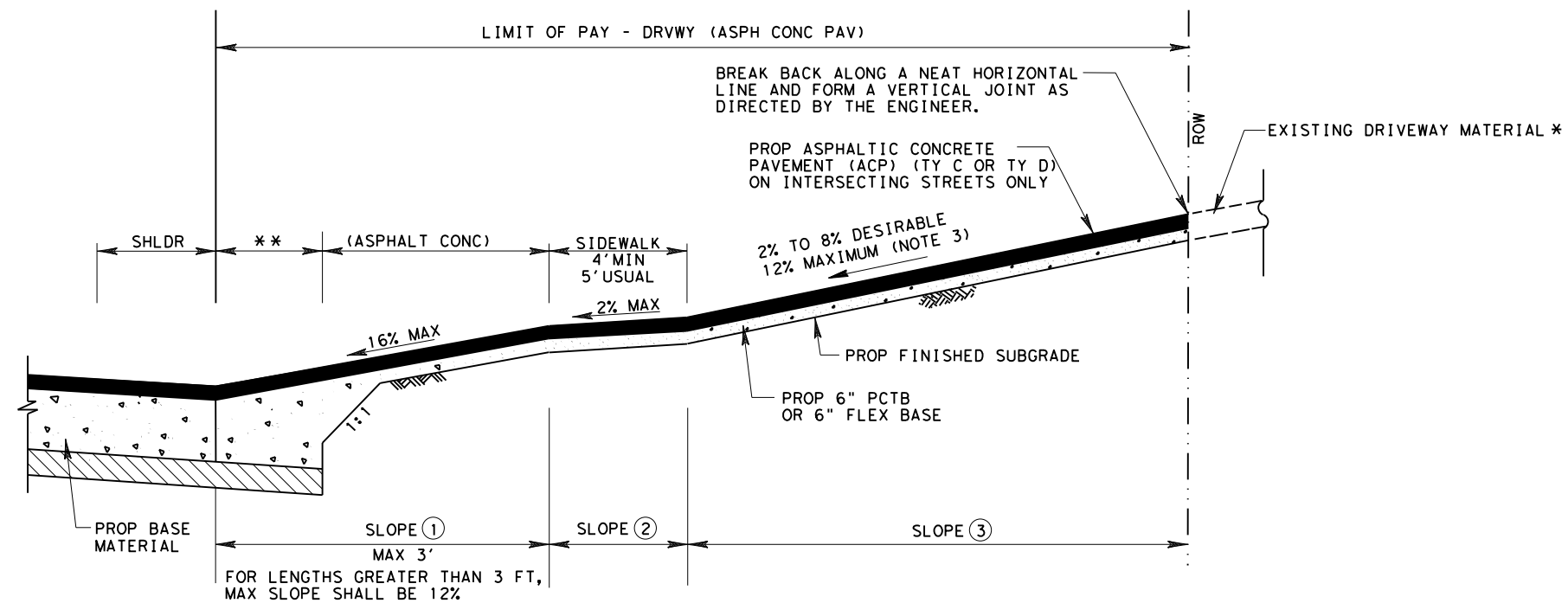
DRIVEWAY SLOPES W/ SIDEWALKS ADJACENT TO CURB (SECTION B-B)



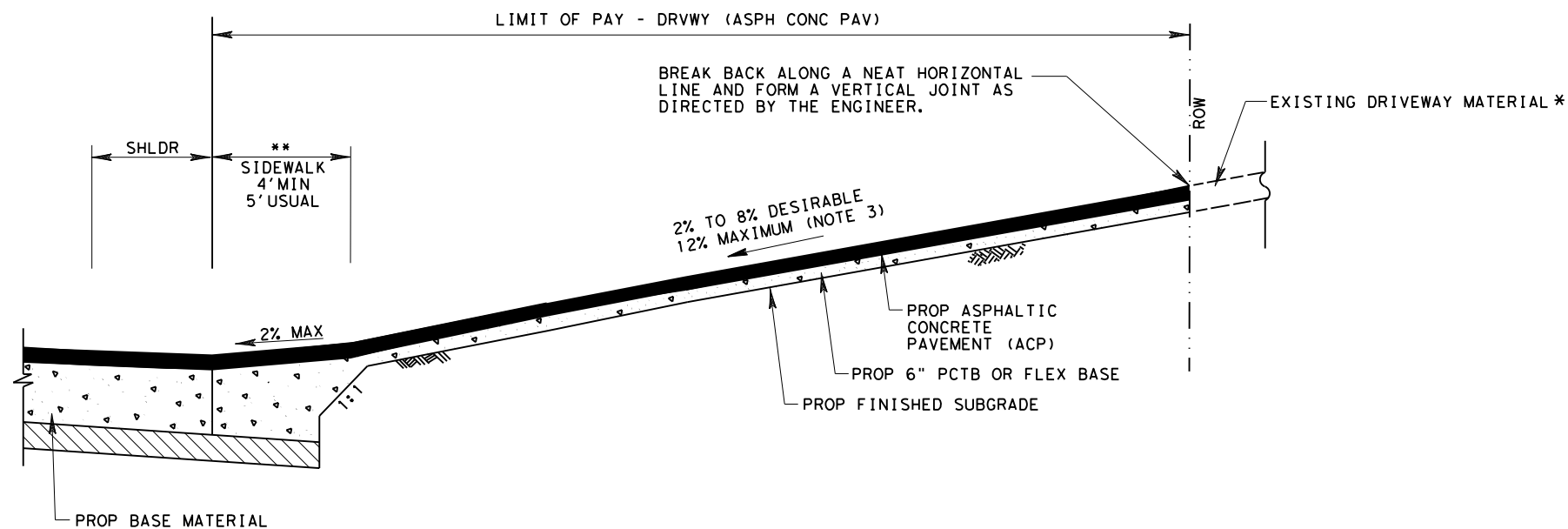
DRIVEWAY PLAN W/ STEEP TERRAIN

* FOR STREET INTERSECTIONS REFER TO PAVING DETAILS AND INTERSECTION DETAILS FOR REINFORCING STEEL AND SECTION REQUIREMENTS.

DRIVEWAY DETAILS					
DD					
FILE: STDB-8b.dgn	DN:	CK:	DW:	CK:	
© TXDOT SEPT. 2004	DIST	FED REG	PROJECT NO.	SHEET	
REVISIONS	HOU	6		286	
9/09 ADDED NOTE FOR ITEM 360.	COUNTY	CONTROL	SECT	JOB	HIGHWAY
11/15 ADDED NOTE FOR PCTB	GALVESTON	1607	01	057, FM	1764



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.

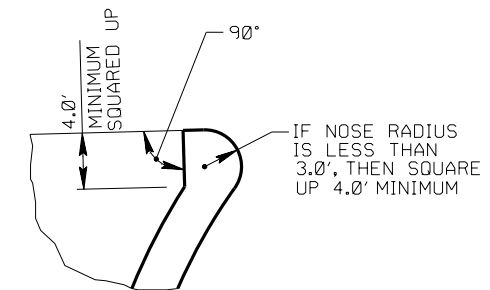
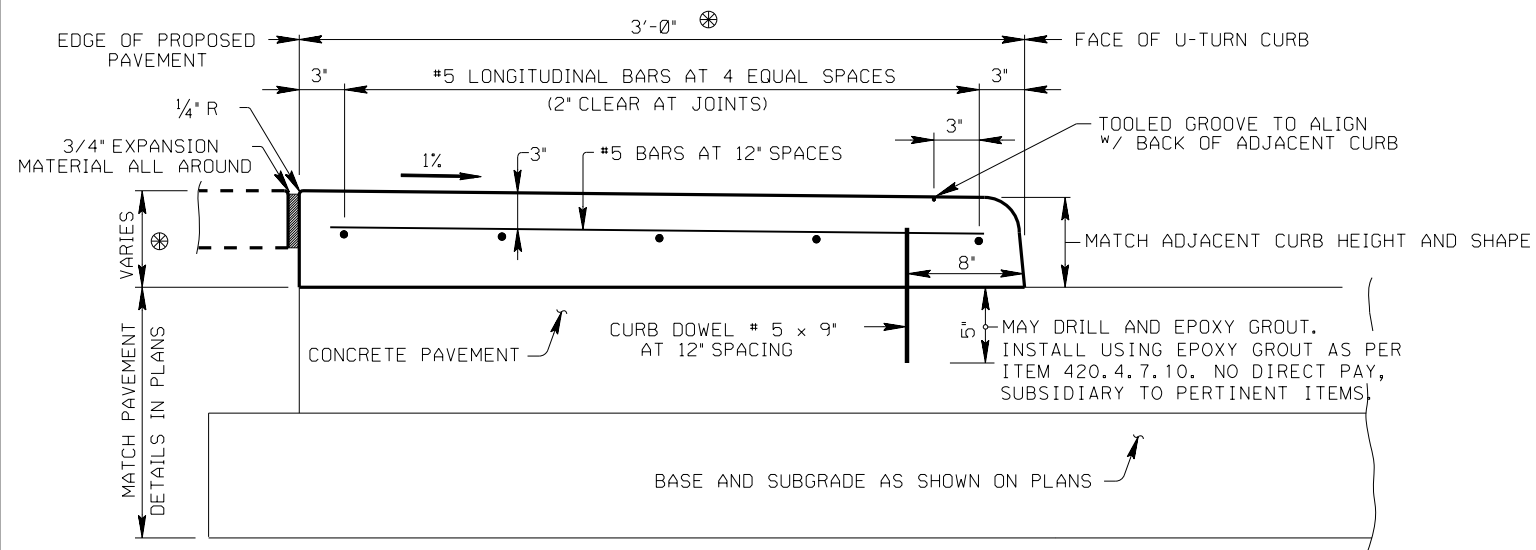
** PROPOSED LIMIT OF ROADWAY BASE AND/OR SUBGRADE



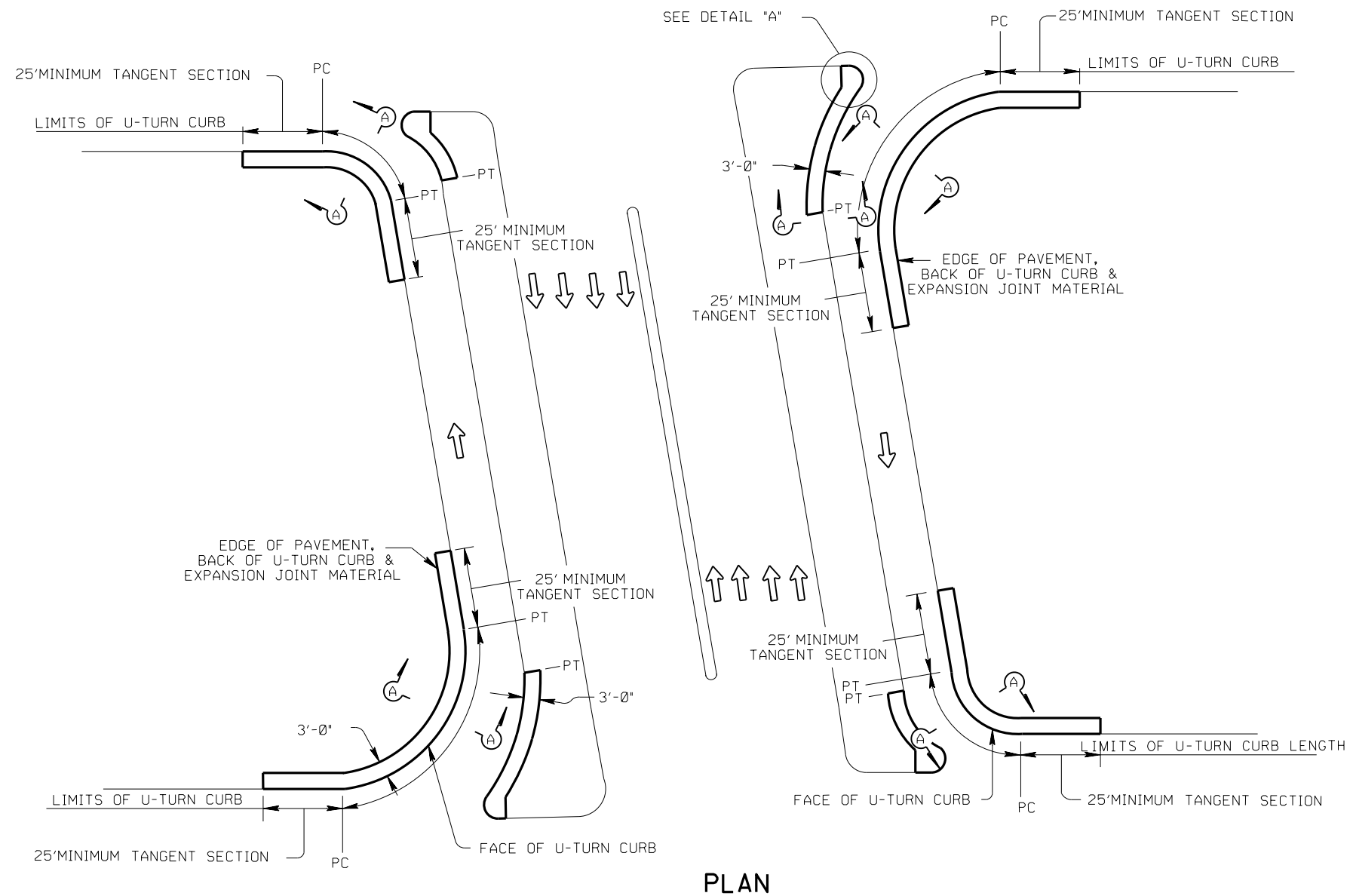
DRIVEWAY DETAILS

DD

FILE: STDB-8c.dgn	DN:	CK:	DW:	CK:
© TxDOT SEPT. 2004	DIST	FED REG	PROJECT NO.	
REVISIONS	HOU	6	287	
11/15 ADDED NOTE FOR PCTB	COUNTY	CONTROL	SECT	JOB
3/17 MODIFIED PAVEMENT SLOPES	GALVESTON	1607	01	057, FM 1764



**SECTION A-A
NEW CONSTRUCTION
ITEM 529 - CONC CURB (U-TURN)**



- NOTE:
1. U-TURN CURB MEASURED BY THE FOOT ALONG THE FACE OF THE CURB.
- LEGEND:
R = RADIUS
⊗ = LIMITS OF PAY FOR U-TURN CURB WIDTH

Texas Department of Transportation
Houston District

**U-TURN CURB DETAIL
NEW CONSTRUCTION**

HOU-U-CURB

FILE: UCURBNEW.DGN	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT 2014	DIST	FED REG	PROJECT NO.	SHEET
REVISIONS	HOU	6		288
	COUNTY	CONTROL	SECT	JOB
	GALVESTON	1607	01	057, FM 1764

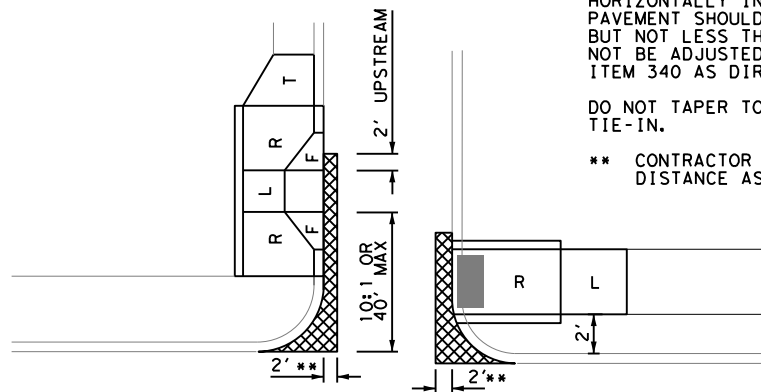
ASPHALT/SEALCOAT
ROADWAY



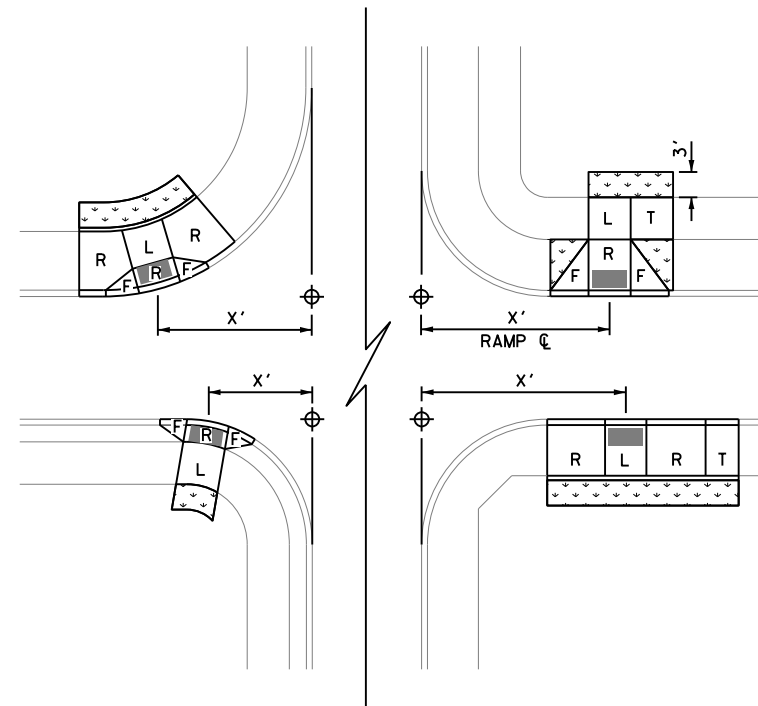
IN AREAS OF ROADWAY CROSS SLOPES EXCEEDING 50:1 LONGITUDINAL SLOPE, EXCAVATE 2' OF PAVEMENT IN FRONT OF RAMP AND TRANSITION THE RAMP LANDING INTO THE EXISTING PAVEMENT. THE PAVEMENT SHOULD THEN BE TRANSITIONED HORIZONTALLY INTO THE EXISTING PAVEMENT AT 10:1. PAVEMENT SHOULD MATCH EXISTING PAVEMENT DEPTH BUT NOT LESS THAN 2" MINIMUM. GUTTERLINES SHOULD NOT BE ADJUSTED DOWNWARD. ASPHALT TO CONFORM TO ITEM 340 AS DIRECTED BY THE ENGINEER.

DO NOT TAPER TO ZERO. MINIMUM 1-1/2" DEPTH @ TIE-IN.

** CONTRACTOR MAY EXCEED CROSS SLOPE TRANSITION DISTANCE AS APPROVED BY THE ENGINEER.



HORIZONTAL RAMP CONTROL



NOTES

1. FLARE (F), RAMP (R), AND LANDING (L), DIRECTLY IN CONTACT WITH THE CURB RAMP ARE PAID FOR UNDER ITEM 531 "CURB RAMPS".
2. LEVEL SIDEWALK (LS) AND RIPRAP (RR) PAID FOR UNDER ITEM 531 "SIDEWALK".
3. ALL CURB RAMPS ARE TO BE 6" IN THICKNESS UNLESS OTHERWISE SHOWN.

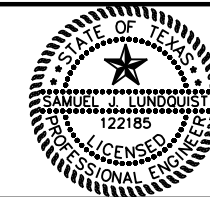
- X = LENGTH MEASURED FROM PI POINT
- F = FLARE (10:1 OR LESS)
- R = RAMP (CROSS SLOPE NOT TO EXCEED 50:1, LONGITUDINAL NOT TO EXCEED 12:1)
- L = LANDING (SHALL NOT EXCEED 50:1 SLOPE IN ANY DIRECTION)
- L1 = SHARED LANDING (SHALL NOT EXCEED 50:1 SLOPE IN ANY DIRECTION)
- LS = LEVEL SIDEWALK (SHALL NOT EXCEED 50:1 SLOPE IN ANY DIRECTION) (PAID AS SIDEWALK)
- SL = SLOPED SIDEWALK (LONGITUDINAL SLOPES MAY NOT EXCEED 20:1, CROSS SLOPES MAY NOT EXCEED 48:1)
- T = TRANSITION (PAID FOR UNDER CONC SIDEWALKS)
- TOC = TOP OF CURB
- BOC = BACK OF CURB
- EOP = EDGE OF PAVEMENT
- ⊕ = PI POINT MEASURED FROM TANGENTIAL BACK OF CURB OR EDGE OF PAVEMENT INTERSECTION

SEQUENCE OF WORK NARRATIVE

1. ESTABLISH AND MAINTAIN TRAFFIC CONTROL AND SW3P FEATURES PER THE VARIOUS STANDARDS INCLUDED IN THIS PLAN SET OR AS DIRECTED. CONTRACTOR TO PHASE CONSTRUCT SIDEWALK AND RAMPS TO ENSURE BICYCLE ROUTES REMAIN OPEN AT ALL TIMES.
2. REMOVE EXISTING CONCRETE, ASPHALT, FOUNDATIONS, OR OTHER FEATURES WHERE INDICATED IN THE PLANS WITHIN THE AREA OF PROPOSED WORK
3. EXCAVATE OR BACKFILL AS NECESSARY TO ACHIEVE PROPOSED GRADES. PLACE BEDDING MATERIALS
4. FORM PROPOSED CONCRETE FEATURES
5. PLACE CONCRETE OR ASPHALT, REMOVE AND INSTALL PAVEMENT MARKINGS, AND RELOCATE SIGNS WHERE INDICATED
6. REMOVE FORMWORK AND BACKFILL DISTURBED AREAS FOR SMOOTH FINISHED GRADE. GRADE TO DRAIN AS NECESSARY
7. PLACE AND IRRIGATE BLOCK SODDING WHERE INDICATED AND AS SPECIFIED.
8. REMOVE ANY DEBRIS, TRAFFIC CONTROL, AND SW3P FEATURES AT THE COMPLETION OF CONSTRUCTION

Signature

5/16/2024



Kimley»Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

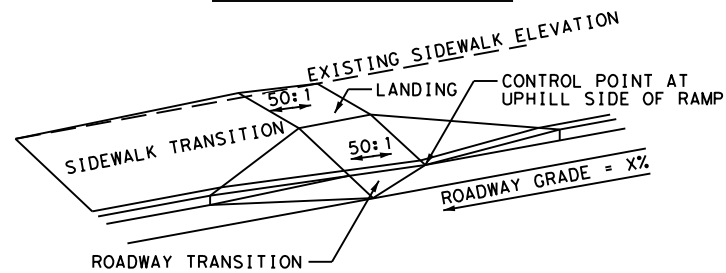
MISCELLANEOUS DETAILS

TEXAS CITY, TEXAS

SHEET 1 OF 9

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
		FM 1764
STATE	DIST.	COUNTY
TEXAS	HOUSTON	GALVESTON
CONT.	SECT.	JOB
1607	01	057, ETC.
SHEET NO.		289

ROADWAY TRANSITION



NOTES:

1. UTILIZE ROADWAY TRANSITION TO TIE CROSS SLOPE OF NEWLY CONSTRUCTED CURB RAMP TO THE EXISTING ROADWAY GRADE. ROADWAY TRANSITIONS SHOULD NOT EXTEND MORE THAN 4 FEET INTO ROADWAY.
2. FOR CURB SECTION, REMOVE A 1 FOOT WIDE (MIN.) BY 2 INCH DEEP SECTION OF PAVEMENT THE LENGTH OF THE TRANSITION PRIOR TO CONSTRUCTION.
3. FOR CURB AND GUTTER SECTION, REMOVE CURB, GUTTER AND IF NECESSARY A SECTION OF PAVEMENT (24 INCHES MIN.) BEYOND THE GUTTER BY 6 INCHES DEEP. CONSTRUCT TRANSITION IN THE GUTTER SECTION AS SHOWN.
4. CONSTRUCT FULL HEIGHT CURB AND CURB RAMP FLARES (IF REQUIRED) BASED ON NEW GUTTER LINE ELEVATIONS.
5. CONSTRUCT TRANSITION FROM BOTTOM OF CURB RAMP TO ROADWAY WITH HOT-MIX ASPHALT CONCRETE AS PER PLANS AND SPECIFICATION OR AS DIRECTED.
6. TRAFFIC SIGNAL LOOP DETECTORS MAY EXIST WITHIN THE ROADWAY CONSTRUCTION TRANSITION ZONE. MAINTAIN OPERATION OF LOOP DETECTORS THROUGHOUT CONSTRUCTION. REPAIR OR REPLACE ANY LOOP DETECTORS DAMAGED DURING CONSTRUCTION OPERATIONS.

CURB ELEVATION

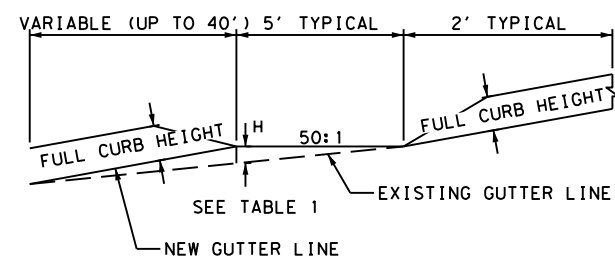
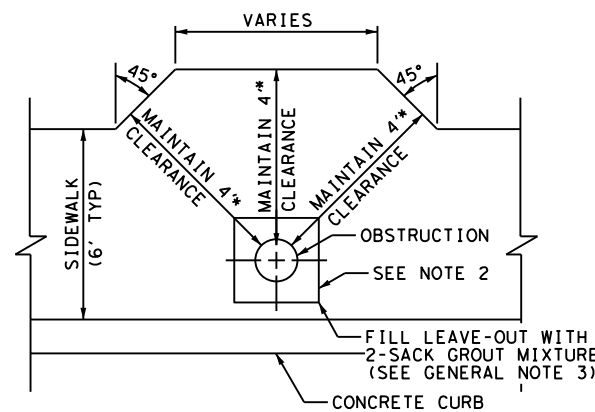
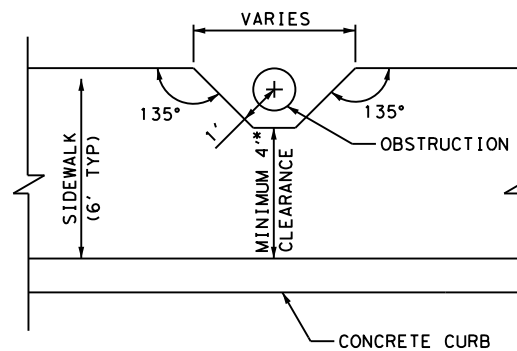


TABLE 1		
DIFFERENTIAL BETWEEN RAMP AND ROADWAY LONGITUDINAL SLOPE	H	
1%	0.04'	0.50"
2%	0.08'	1.00"
3%	0.12'	1.50"
4%	0.16'	2.00"
5%	0.20'	2.40"
6%	0.24'	2.90"

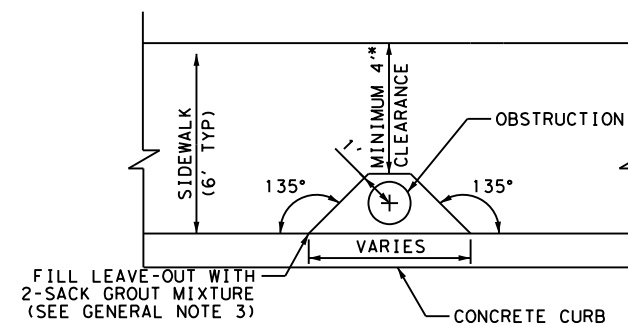
OBSTRUCTION CONFLICT



OBSTRUCTION IN SIDEWALK
* UNLESS OTHERWISE SPECIFIED



OBSTRUCTION IN SIDEWALK
* UNLESS OTHERWISE SPECIFIED



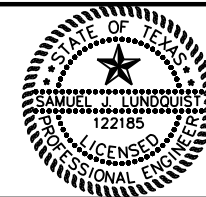
OBSTRUCTION IN SIDEWALK
* UNLESS OTHERWISE SPECIFIED

NOTES:

1. UTILIZE DETAIL AT OBSTRUCTION ENCROACHMENTS INTO THE PEDESTRIAN ACCESS ROUTE. A MINIMUM UNOBSTRUCTED CLEARANCE OF 4', UNLESS OTHERWISE SPECIFIED, SHOULD BE MAINTAINED AROUND THE OBSTRUCTION MEASURED FROM THE MOST RESTRICTIVE LOCATION OR AS APPROVED BY THE ENGINEER.
2. IF OBSTRUCTION IS LOCATED WITHIN THE SIDEWALK, CONSTRUCT 2' SQUARE CONSTRUCTION JOINT CENTERED ON OBSTRUCTION TO FACILITATE FUTURE MAINTENANCE WITHOUT FULL SIDEWALK PANEL REMOVAL/REPLACEMENT.
3. THE LEAVE-OUTS SHALL BE FILLED WITH NO MORE THAN A 2-SACK GROUT MIXTURE AND PLACED IN ACCORDANCE WITH SECTION 421.2.F, "MORTAR AND GROUT." PAYMENT FOR FURNISHING AND PLACING THE GROUT MIXTURE WILL BE SUBSIDIARY TO THE PAY ITEM OF CONCRETE SIDEWALKS.

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5/16/2024



Kimley Horn F-928

Texas Department of Transportation

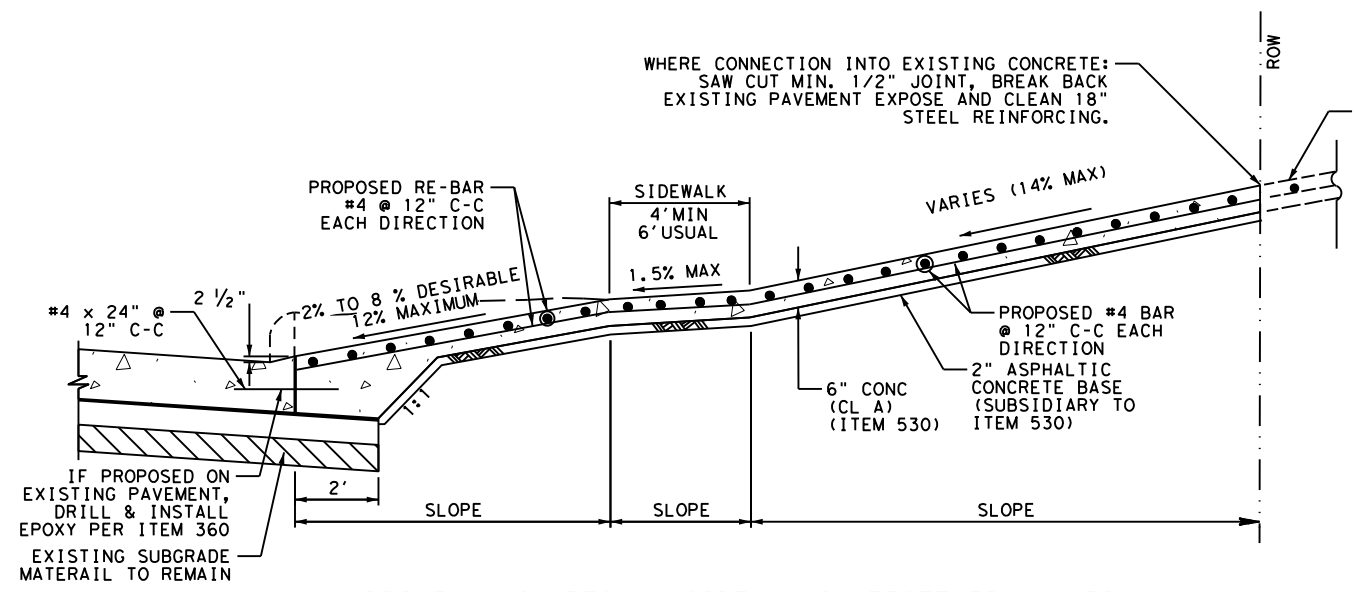
CURB RAMP PROGRAM

MISCELLANEOUS DETAILS

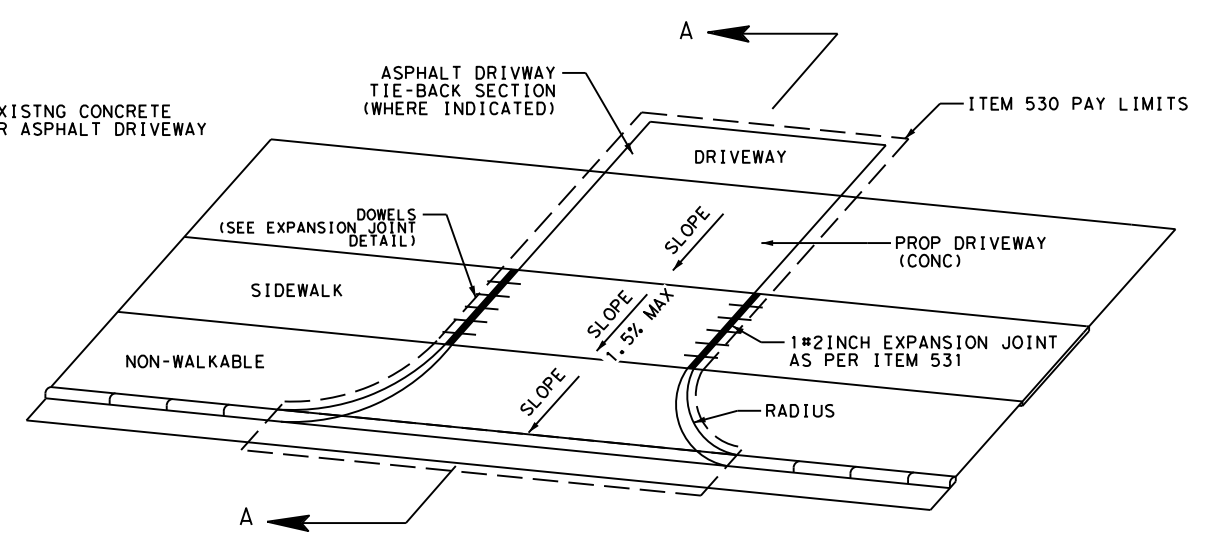
TEXAS CITY, TEXAS

SHEET 2 OF 9

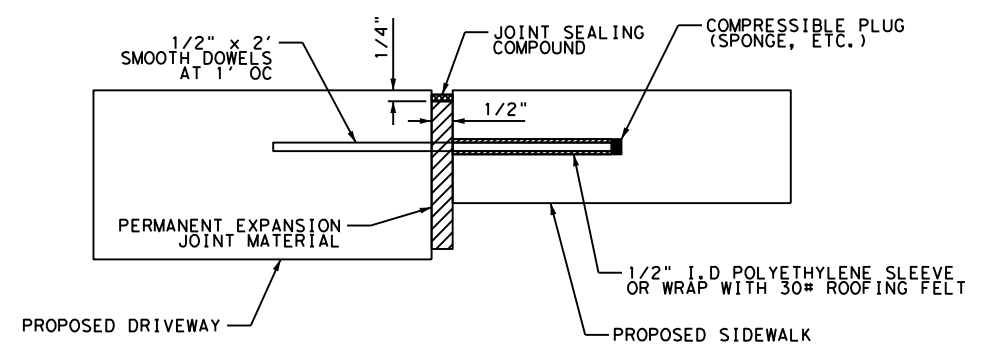
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		FM 1764	
STATE	DIST.	COUNTY	SHEET NO.
TEXAS	HOUSTON	GALVESTON	290
CONT.	SECT.	JOB	
1607	01	057, ETC.	



DRIVEWAY SLOPES W/ SIDEWALKS OFFSET FROM CURB
(SECTION A-A)

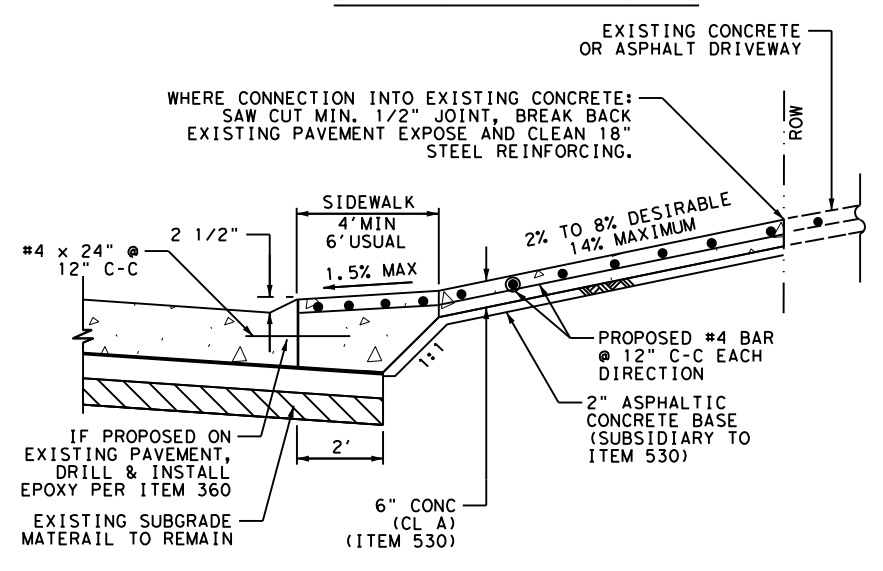


SIDEWALK OFFSET FROM CURB DETAILS

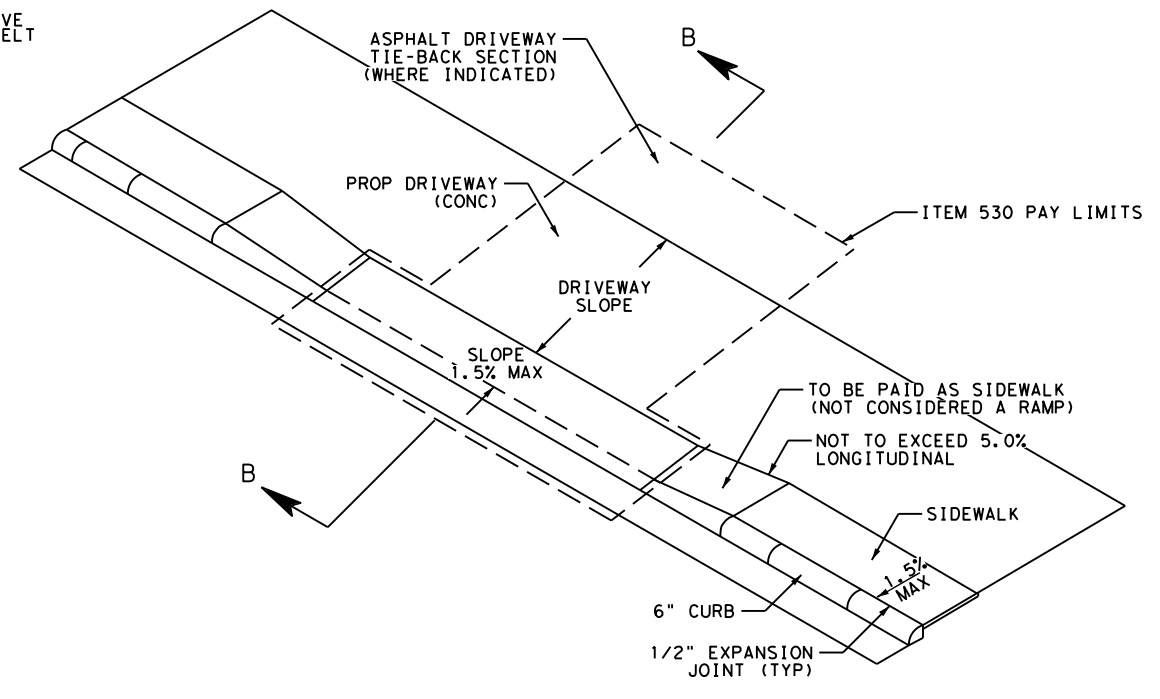


EXPANSION JOINT DETAIL

- NOTES:
1. ACP DRIVEWAYS WILL CONSIST 6" HMA TY D PAID FOR UNDER ITEM 530.
 2. BASE DRIVEWAYS WILL CONSIST OF 6" OF ASPHALTIC CONCRETE BASE OR 6" OF CEMENT TREATED BASE PAID FOR UNDER ITEM 530.
 3. SEE FOR ASPHALT DRIVEWAY TIE IN DETAILS.



DRIVEWAY SLOPES W/ SIDEWALKS ADJACENT TO CURB
(SECTION B-B)



SIDEWALK ADJACENT TO CURB DETAILS

5/16/2024

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Texas Department of Transportation
CURB RAMP PROGRAM

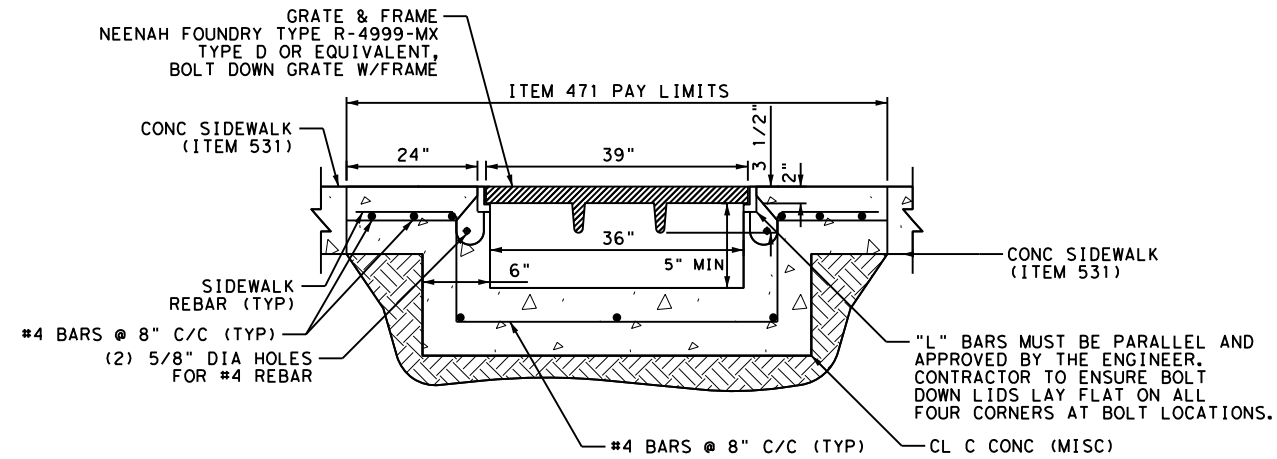
MISCELLANEOUS DETAILS

TEXAS CITY, TEXAS

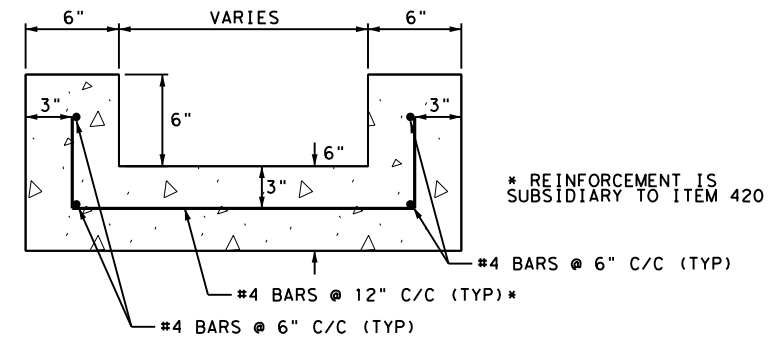
SHEET 3 OF 9

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
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TEXAS	HOUSTON	GALVESTON
CONT.	SECT.	JOB
1607	01	057, ETC.
		SHEET NO. 291

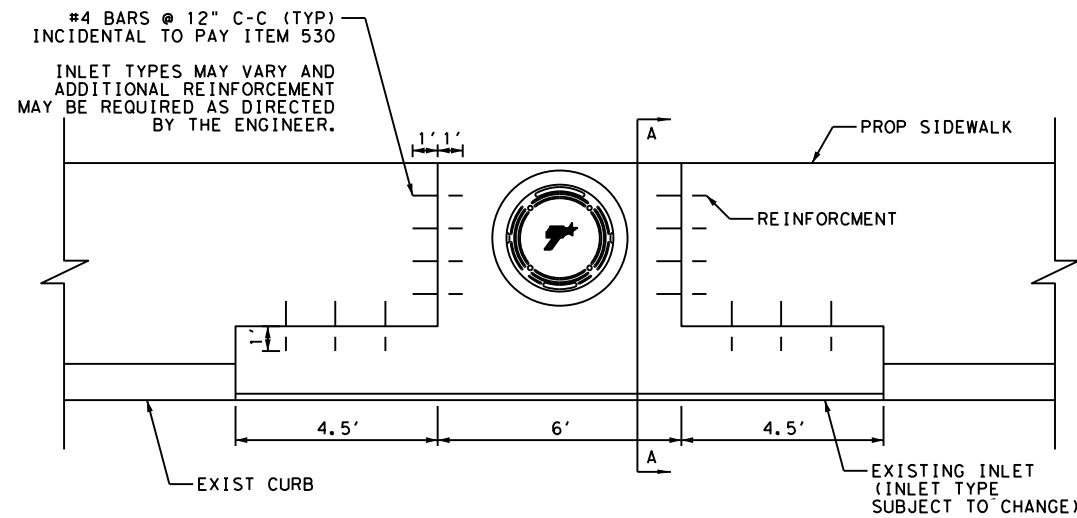
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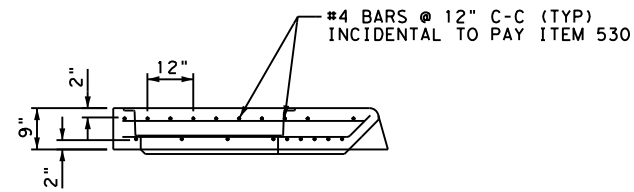
GRATE & FRAME DETAIL
N. T. S.



CONCRETE FLUME DETAIL
N. T. S.



INLET DOWELING DETAIL
N. T. S.



SECTION A-A

NOTE:

- CONTRACTOR RESPONSIBLE TO REPAIR AND/OR REPLACE ANY DAMAGE TO EXISTING INLET AS REQUIRED BY THE ENGINEER

ALD

5/16/2024



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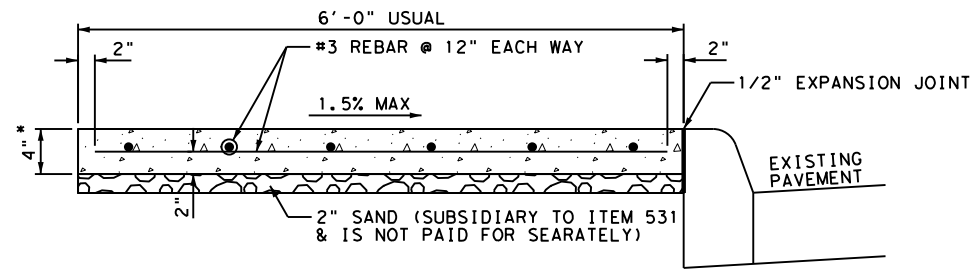
CURB RAMP PROGRAM

MISCELLANEOUS DETAILS

TEXAS CITY, TEXAS

SHEET 4 OF 9

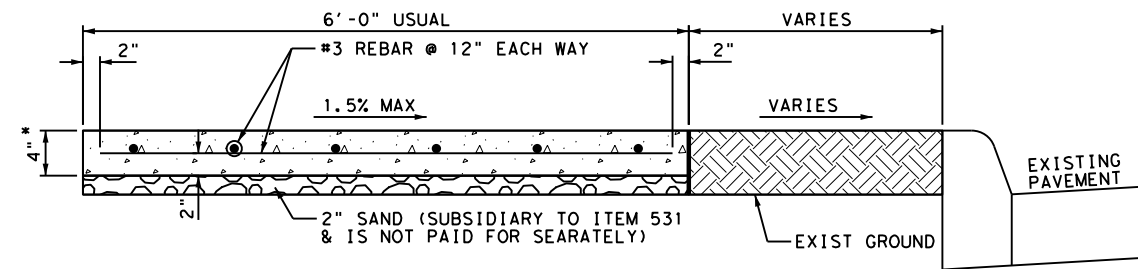
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	
		FM 1764	
STATE	DIST.	COUNTY	SHEET NO.
TEXAS	HOUSTON	GALVESTON	292
CONT.	SECT.	JOB	
1607	01	057, ETC.	



PLACE GROOVED JOINTS IN THE SIDEWALK AT A MAX SPACING OF 10 FT
 PLACE 3/4" EXPANSION JOINTS AT A MAX SPACING OF 40 FT TO COINCIDE
 WITH THE CURB EXPANSION JOINTS.

* UNLESS OTHERWISE SHOWN

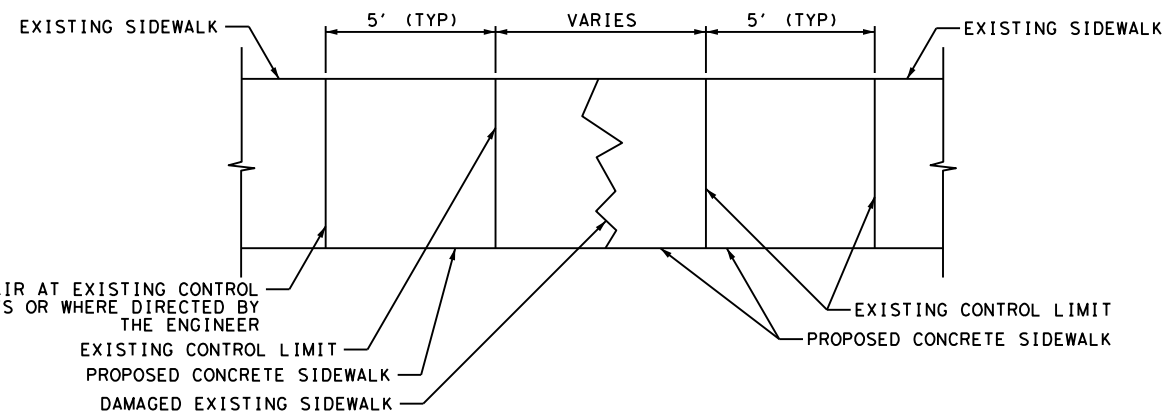
SIDEWALK DETAIL WITHOUT BUFFER



PLACE GROOVED JOINTS IN THE SIDEWALK AT A MAX SPACING OF 10 FT
 PLACE 3/4" EXPANSION JOINTS AT A MAX SPACING OF 40 FT TO COINCIDE
 WITH THE CURB EXPANSION JOINTS.

* UNLESS OTHERWISE SHOWN

SIDEWALK DETAIL WITH BUFFER



TERMINATE SPOT REPAIR AT EXISTING CONTROL
 OR EXPANSION JOINTS OR WHERE DIRECTED BY
 THE ENGINEER

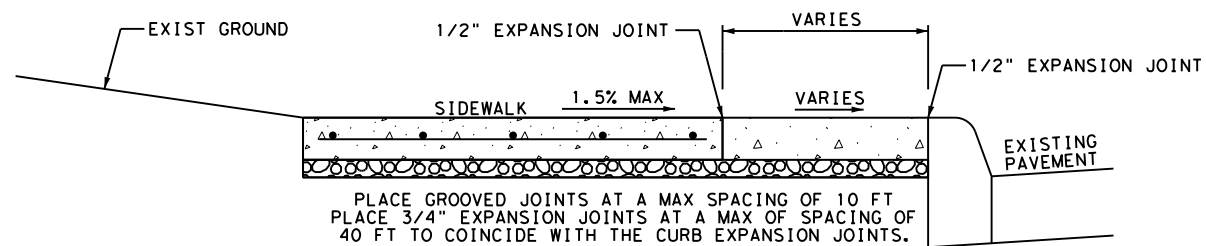
NOTE:
 PAYMENT FOR SPOT REPAIR QUANTITIES ARE INCLUDED UNDER ITEM 0531 6001.
 SEE LOCATIONS ON PLAN SHEETS.

SPOT REPAIR DETAIL

NOTES:

1. LONGITUDINAL SLOPE OF SIDEWALKS SHALL NOT EXCEED 5% EXCEPT IN CASES WHERE THE ADJACENT ROADWAY SLOPE EXCEEDS 5%. IF ROADWAY SLOPE EXCEEDS 5%, LONGITUDINAL SLOPE OF SIDEWALK MAY MATCH THAT OF ROADWAY.

2. IF SIDEWALK WIDTH IS LESS THAN 5', PROVIDE 5' x 5' PASSING AREAS AT INTERVALS NOT TO EXCEED 200' SPACING.



PLACE GROOVED JOINTS AT A MAX SPACING OF 10 FT
 PLACE 3/4" EXPANSION JOINTS AT A MAX OF SPACING OF
 40 FT TO COINCIDE WITH THE CURB EXPANSION JOINTS.

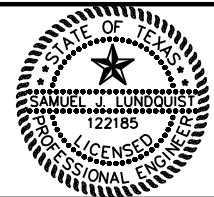
** CONTRACTOR TO USE NO. 4 REINFORCING BARS
 AS SPECIFIED IN ITEM 432. CONTRACTOR MAY USE
 HIGHER STRENGTH CLASS A CONCRETE IN LIEU OF CLASS B.

RIPRAP DETAIL

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Signature

5/16/2024



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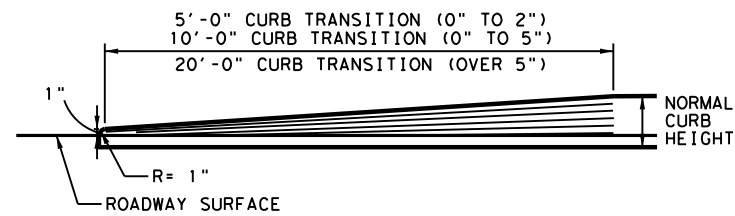
CURB RAMP PROGRAM

MISCELLANEOUS DETAILS

TEXAS CITY, TEXAS

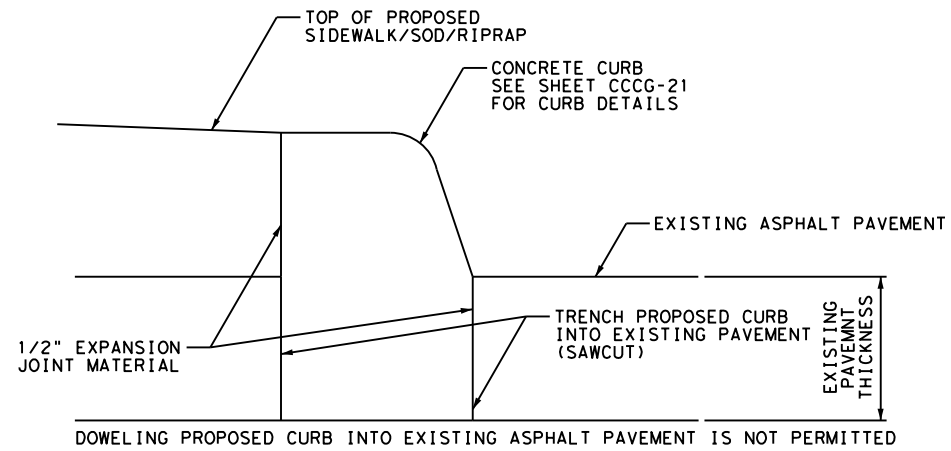
SHEET 5 OF 9

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
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STATE	DIST.	COUNTY
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CONT.	SECT.	JOB
1607	01	057, ETC.
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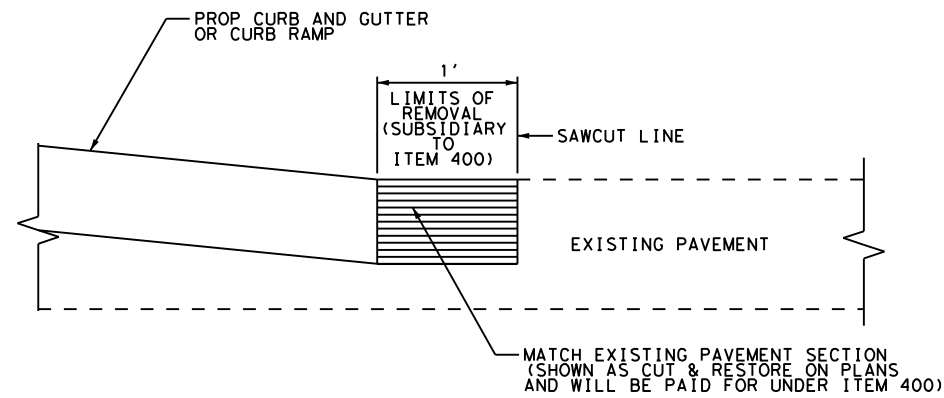


NOTE:
TRANSITIONS FOR CONCRETE CURB ENDS WILL NOT BE PAID FOR DIRECTLY BUT SHALL BE CONSIDERED SUBSIDIARY TO ITEM 529.

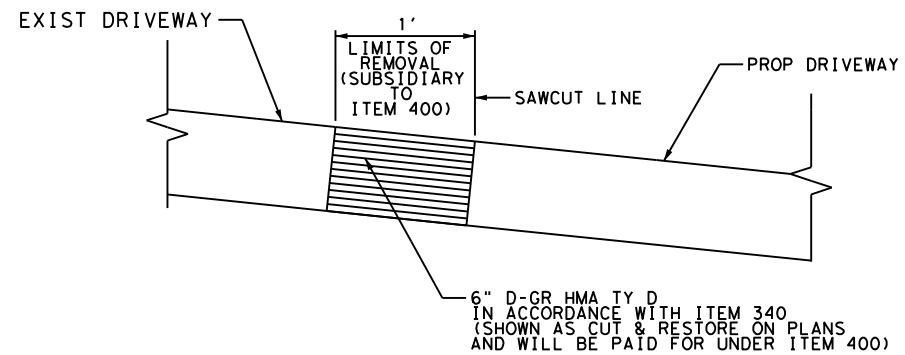
TYPICAL TRANSITION FOR CONCRETE CURB ENDS



CURB TRENCH DETAIL



PAVEMENT CUT & RESTORE DETAIL



PROPOSED DRIVEWAY ASPHALT DRIVEWAY TIE IN DETAIL

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5/16/2024



Kimley»Horn F-928

Texas Department of Transportation

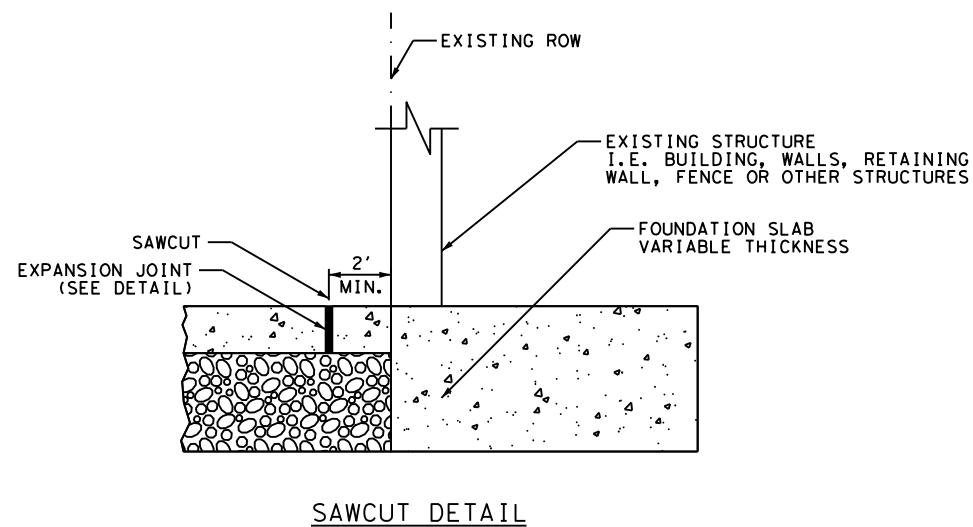
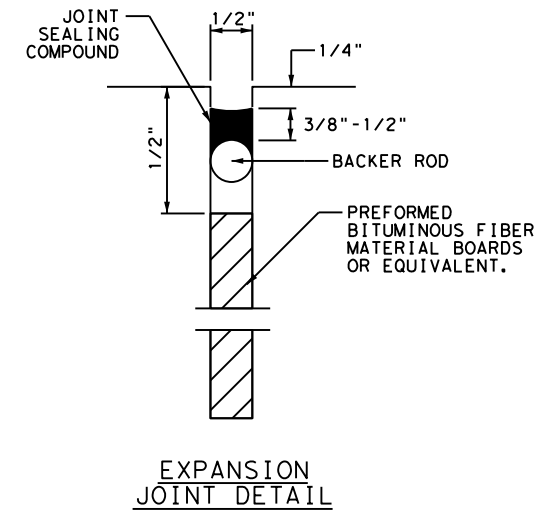
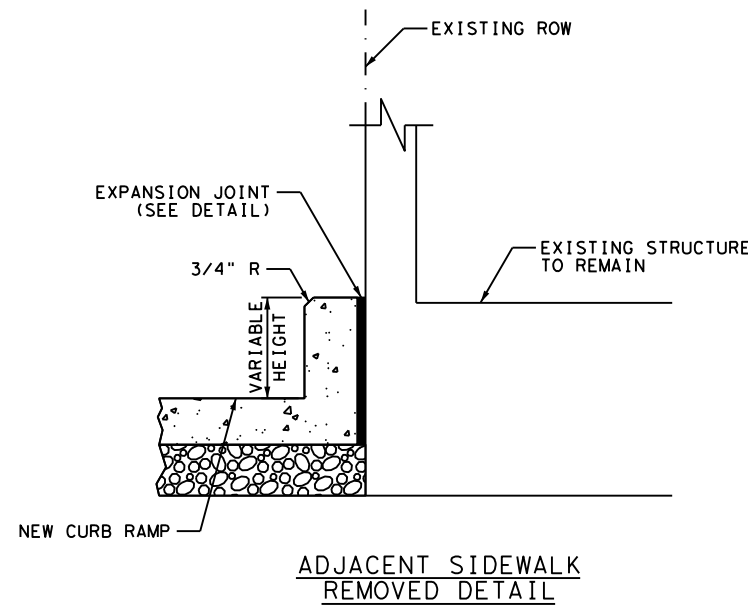
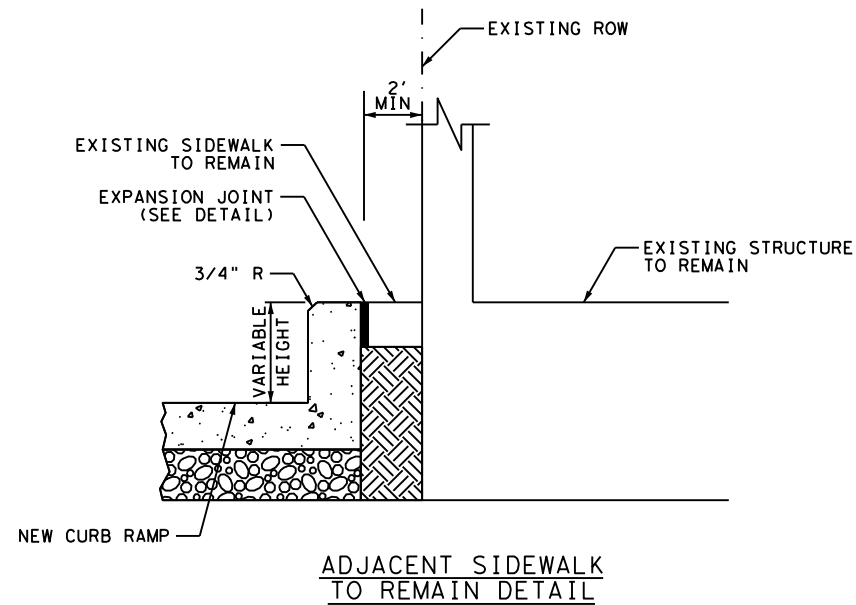
CURB RAMP PROGRAM

MISCELLANEOUS DETAILS

TEXAS CITY, TEXAS

SHEET 6 OF 9

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	
		FM 1764	
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	
CONT.	SECT.	JOB	
1607	01	057, ETC.	
			SHEET NO.
			294



SAWCUT DETAIL
PAVING OPTION @ BUILDING FACE
N. T. S.

GENERAL PROTECTION NOTES FOR BUILDINGS AND HISTORIC STRUCTURES:

1. SAW CUT EXISTING SIDEWALK 6 TO 8 INCHES AWAY FROM PROTECTED BUILDING/STRUCTURE TO MINIMIZE POTENTIAL DAMAGE, PRIOR TO DEMOLITION OF WALK.
2. CONTRACTOR IS RESPONSIBLE FOR PREVENTING DAMAGE TO ALL BUILDINGS AND STRUCTURES DURING THE ENTIRE CONSTRUCTION PROJECT. IF DIRECTED BY ENGINEER TO HAND REMOVE EXISTING PAVING ADJACENT TO HISTORIC STRUCTURES. PROTECT FOUNDATION, MATERIALS, ELEVATION AND ENTRYWAYS. DO NOT REMOVE EXISTING MATERIALS IF FACADE (BRICK/STONE, ETC.) UTILIZES THE MATERIALS TO BE REMOVED AS A FOOTING, FOUNDATION OR SUPPORT. IF THIS CONDITION IS OBSERVED, IMMEDIATELY CONTACT ENGINEER AND DO NOT EXCAVATE FURTHER. SEPARATE PAYMENT WILL NOT BE MADE FOR HAND REMOVAL.
3. REPAIR OR REPLACE IN KIND, AT NO EXPENSE TO THE DEPARTMENT, ANY DAMAGE TO HISTORIC OR NON-HISTORIC MATERIAL THAT RESULTS FROM AN ACT OF OMISSION ON THE PART OF OR ON BEHALF OF THE CONTRACTOR. CONTRACTOR IS RESPONSIBLE FOR LOCATING A REPLACEMENT SOURCE FOR HISTORIC AND NON-HISTORIC MATERIALS DAMAGED IN THE PROCESS OF CONSTRUCTION. INFORM TXDOT ENVIRONMENTAL AFFAIRS DIVISION (ENV) OF PROPOSED REPAIRS AND/OR DAMAGED AREAS IN ORDER TO FACILITATE CONSULTATION WITH TEXAS HISTORICAL COMMISSION. MATERIAL AND SOURCE SHALL BE APPROVED BY TXDOT ENV PRIOR TO REPLACEMENT.
4. PROTECT BUILDINGS AND STRUCTURE FROM CONCRETE SPLASH UTILIZING A MATERIAL APPROVED BY THE ENGINEER. ANY CONCRETE SPLASH AS A RESULT OF CONSTRUCTION ACTIVITIES MUST BE REMOVED FROM THE BUILDING OR STRUCTURE AT CONTRACTORS EXPENSE. NO PAYMENT WILL BE MADE FOR BUILDING PROTECTION.

ASJ
5/16/2024



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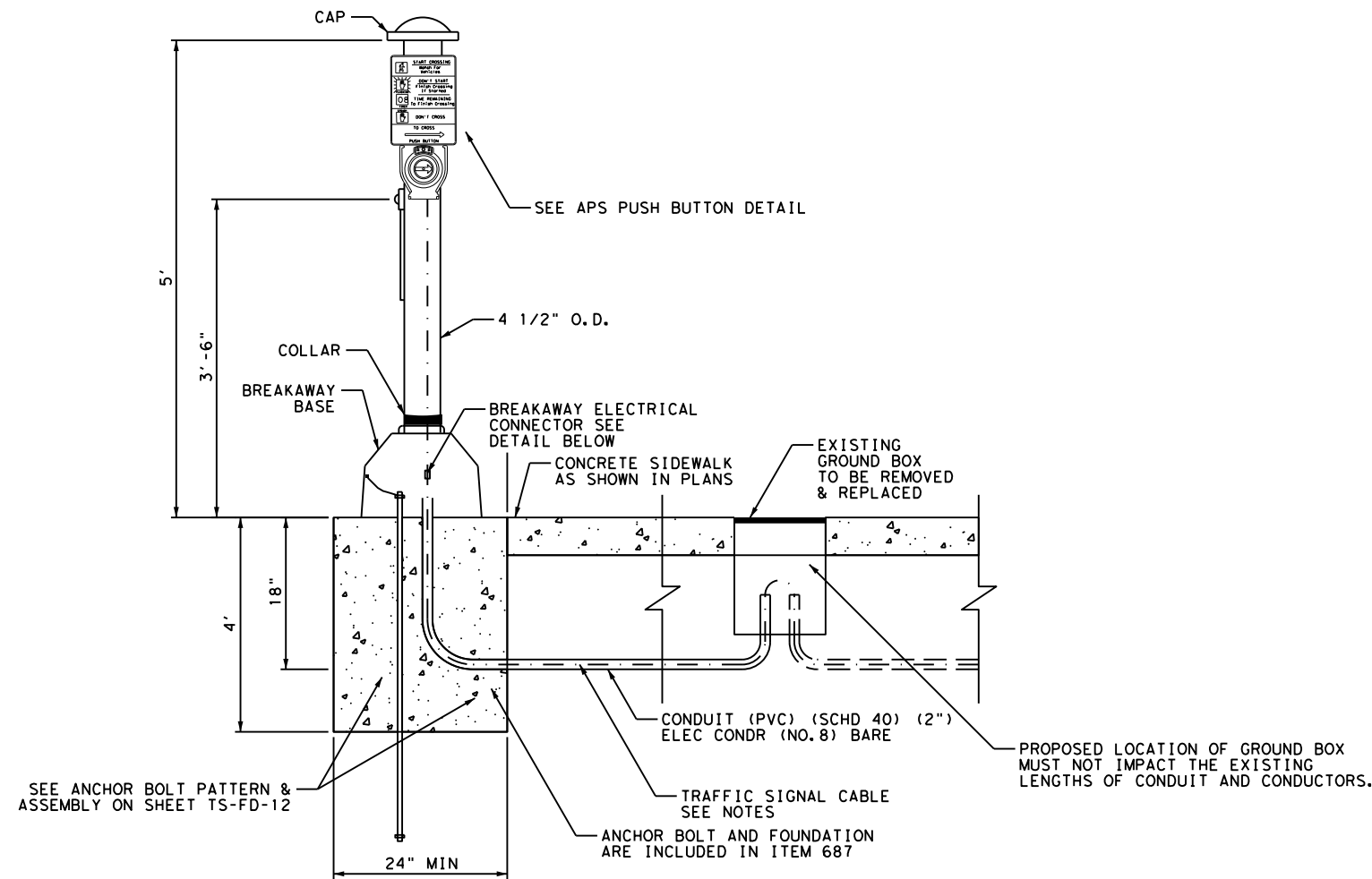
CURB RAMP PROGRAM

MISCELLANEOUS DETAILS

TEXAS CITY, TEXAS

SHEET 7 OF 9

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
		FM 1764
STATE	DIST.	COUNTY
TEXAS	HOUSTON	GALVESTON
CONT.	SECT.	JOB
1607	01	057, ETC.
		SHEET NO.
		295



PEDESTRIAN POLE DETAIL
TY A

USE DETAIL TY A FOR INSTALLATION OF NEW POLE.

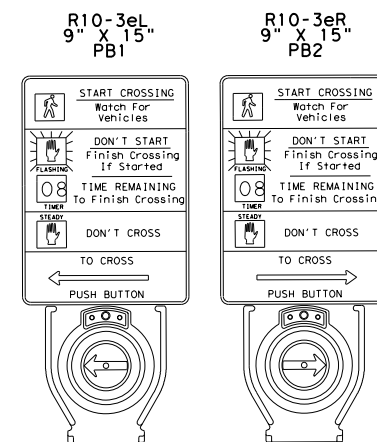
NOTE:

- GROUND ROD, FOUNDATION, BREAKAWAY BASE ARE INCLUSIVE TO PEDESTRIAN POLE ITEM 0687-6001.
- PUSH BUTTONS TO BE PAID FOR AS ITEM 0688-6001. ITEM 0688-6001 INCLUDES INSTALLATION OF NEW PUSH BUTTON STATION ASSEMBLY (PELCO SE-2023 OR SE-2019 WITH PUSH BUTTON MEETING REQUIREMENTS OF TMUTCD 4E.08 THROUGH 4E.13 AND R403 OF THE U.S. ACCESS BOARD PROWAG. PUSH BUTTON SHOULD BE NO LESS THAN 2" OF UNOBSTRUCTED SURFACE AREA) AND ALL INCIDENTAL CONSTRUCTION INCLUDING BUT NOT LIMITED TO PLUGGING EXISTING HOLES.
- SPLICES OF PUSH BUTTON CABLE AT GROUND BOXES ARE NOT ALLOWED.
- FOUNDATION TO BE FLUSH WITH SIDEWALK.
- BREAKAWAY ELECTRIC CONNECTORS ARE REQUIRED.
- PUSH BUTTON AND PEDESTRIAN SIGNAL HEAD ADJUSTMENTS ARE TO UTILIZE EXISTING CONDUCTORS.
- PROPOSED PUSH BUTTONS SHALL BE PLACED ADJACENT TO A LEVEL LANDING AREA (2% MAX. SLOPE IN ANY DIRECTION). IF THE DISTANCE FROM THE PUSH BUTTON TO THE EDGE OF THE ACCESSIBLE PATHS EXCEEDS 10", THE CONTRACTOR SHALL FURNISH AND INSTALL A PUSH BUTTON EXTENDER TO MAKE THE REACH 10" OR LESS. MEASUREMENT AND PAYMENT SHALL BE CONSIDERED SUBSIDIARY TO ITEM 680.

TRAFFIC SIGNAL CABLE NOTES:

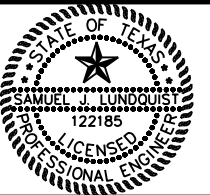
FOR PUSH BUTTONS USE: TY A (12 AWG) (2 CONDR) (ITEM 0684-6007)

LENGTH OF PAY: FROM PED POLE TO EXISTING SIGNAL CABINET.



APS PUSH BUTTON DETAIL

5/16/2024



Kimley Horn F-928

Texas Department of Transportation
CURB RAMP PROGRAM

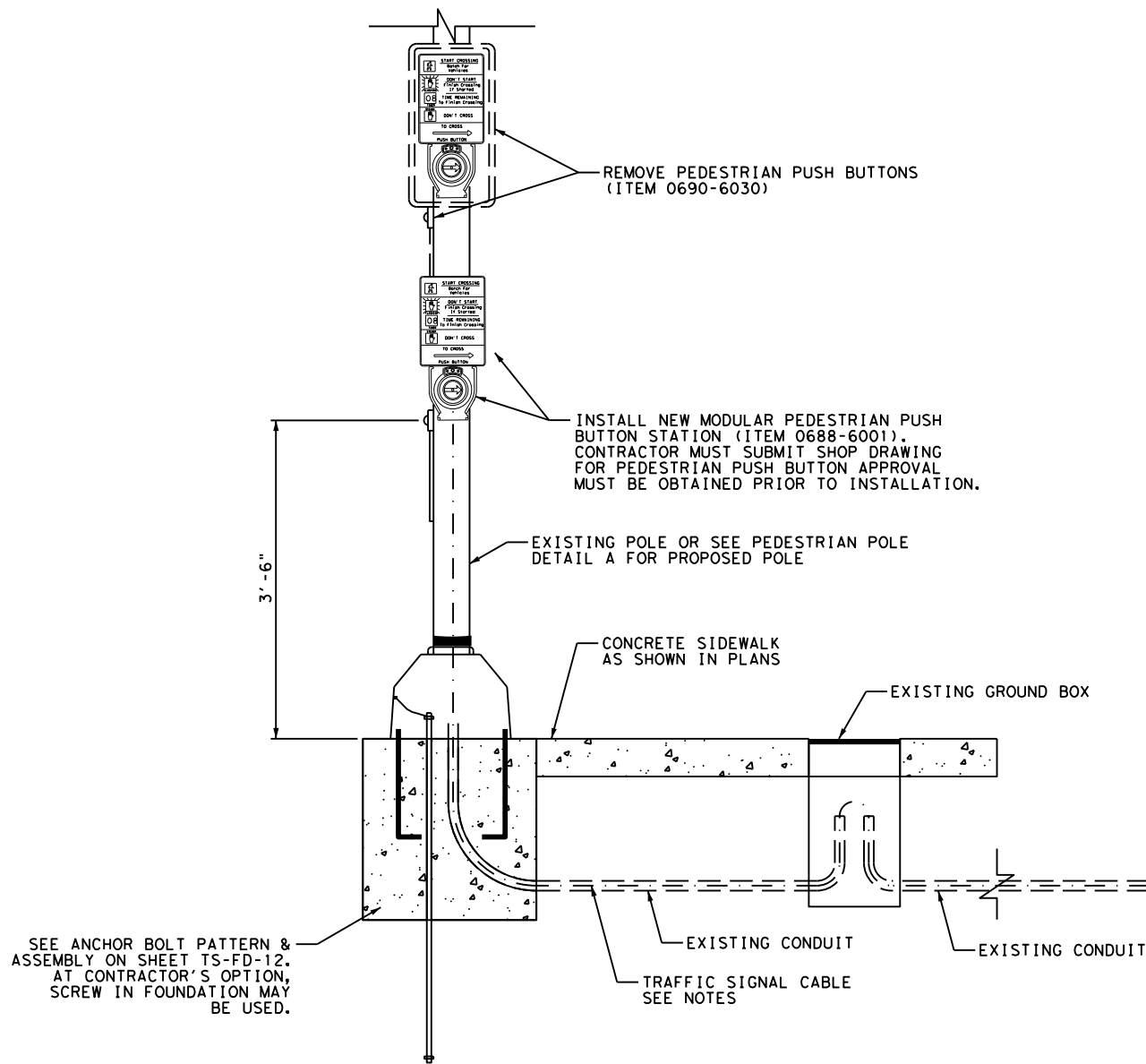
MISCELLANEOUS DETAILS

TEXAS CITY, TEXAS

SHEET 8 OF 9

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	
		FM 1764	
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	GALVESTON	
CONT.	SECT.	JOB	
1607	01	057, ETC.	
			SHEET NO.
			296

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PEDESTRIAN POLE DETAIL
TY B

USE DETAIL TY B WHEN ADJUSTING PEDESTRIAN PUSH BUTTONS ON SAME POLE.

NOTE:

- GROUND ROD, FOUNDATION, BREAKAWAY BASE ARE INCLUSIVE TO PEDESTRIAN POLE ITEM 0687-6001.
- PUSH BUTTONS TO BE PAID FOR AS ITEM 0688-6001. ITEM 0688-6001 INCLUDES INSTALLATION OF NEW PUSH BUTTON STATION ASSEMBLY (PELCO SE-2023 OR SE-2019 WITH PUSH BUTTON MEETING REQUIREMENTS OF TMUTCD 4E.08 THROUGH 4E.13 AND R403 OF THE U.S. ACCESS BOARD PROWAG. PUSH BUTTON SHOULD BE NO LESS THAN 2" OF UNOBSTRUCTED SURFACE AREA) AND ALL INCIDENTAL CONSTRUCTION INCLUDING BUT NOT LIMITED TO PLUGGING EXISTING HOLES.
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- BREAKAWAY ELECTRIC CONNECTORS ARE REQUIRED.
- PUSH BUTTON AND PEDESTRIAN SIGNAL HEAD ADJUSTMENTS ARE TO UTILIZE EXISTING CONDUCTORS.
- PROPOSED PUSH BUTTONS SHALL BE PLACED ADJACENT TO A LEVEL LANDING AREA (2% MAX. SLOPE IN ANY DIRECTION). IF THE DISTANCE FROM THE PUSH BUTTON TO THE EDGE OF THE ACCESSIBLE PATHS EXCEEDS 10", THE CONTRACTOR SHALL FURNISH AND INSTALL A PUSH BUTTON EXTENDER TO MAKE THE REACH 10" OR LESS. MEASUREMENT AND PAYMENT SHALL BE CONSIDERED SUBSIDIARY TO ITEM 680.

TRAFFIC SIGNAL CABLE NOTES:

FOR PUSH BUTTONS USE: TY A (12 AWG) (2 CONDR)
(ITEM 0684-6007)

FOR PEDESTRIAN SIGNAL HEADS USE: TY A (14 AWG)
(5 CONDR)
(ITEM 0684-6031)

LENGTH OF PAY: FROM PED POLE TO EXISTING SIGNAL CABINET.

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ASJ
5/16/2024



Kimley»Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

MISCELLANEOUS DETAILS

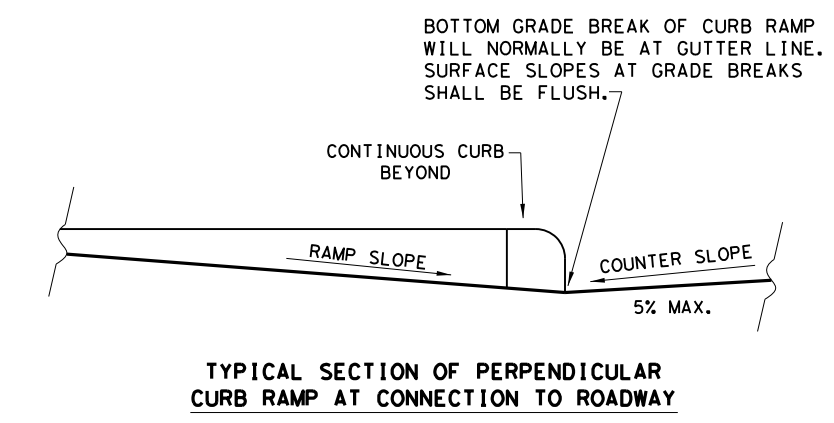
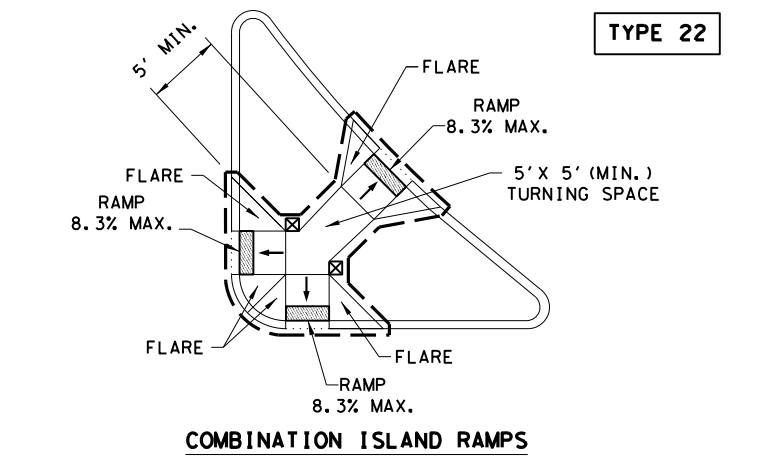
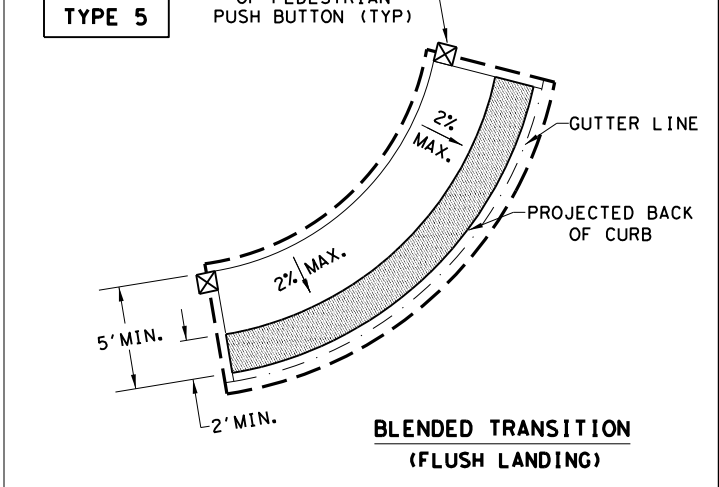
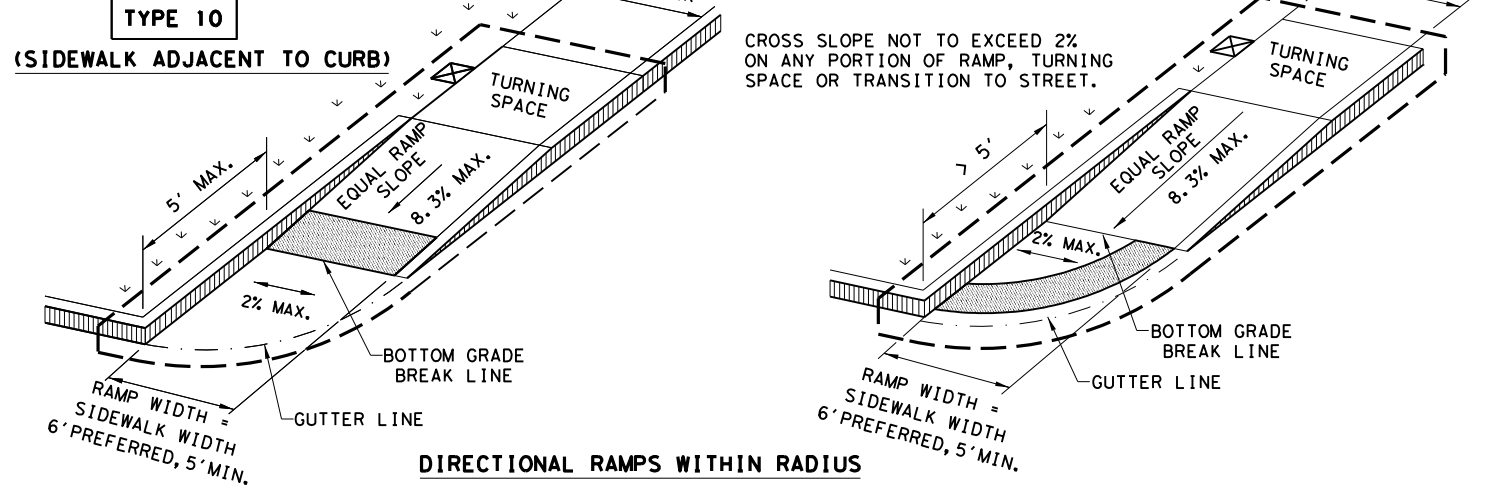
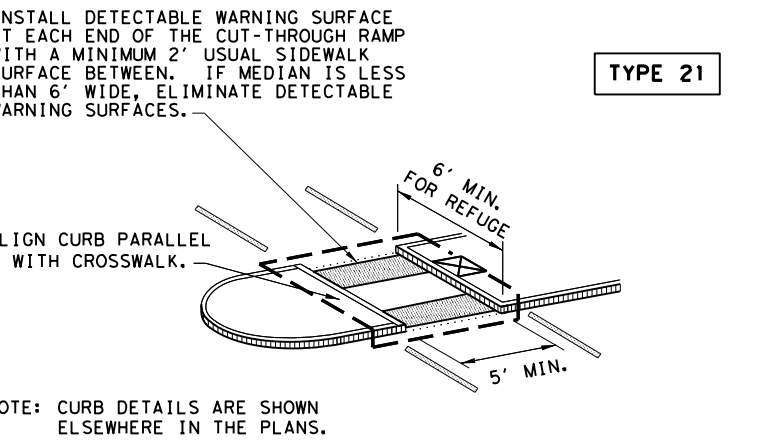
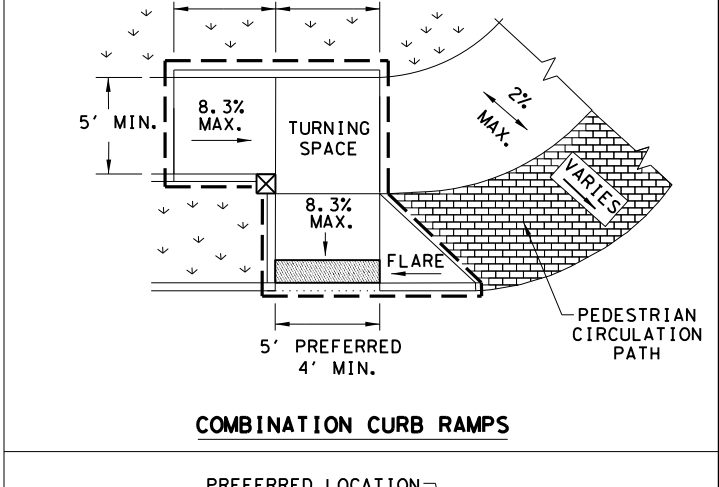
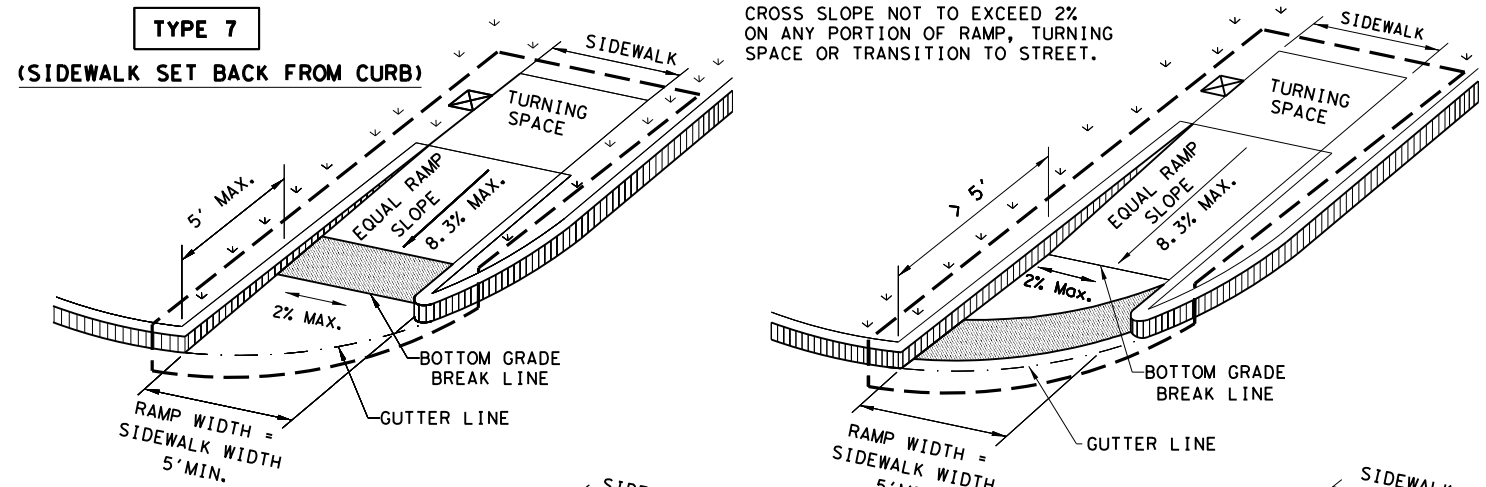
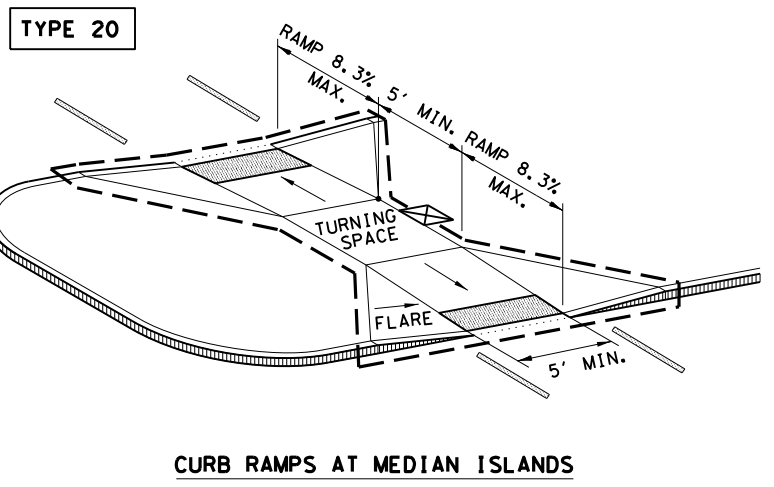
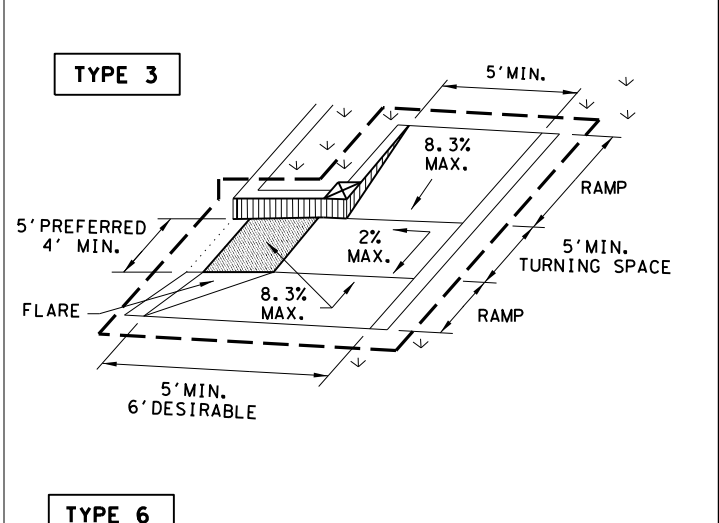
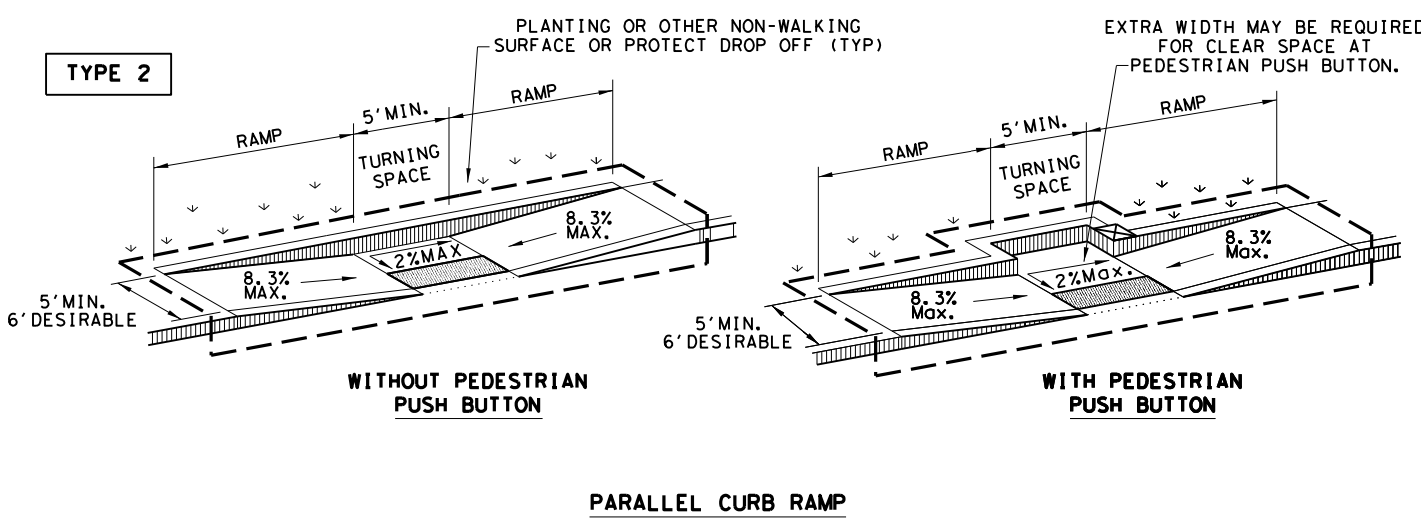
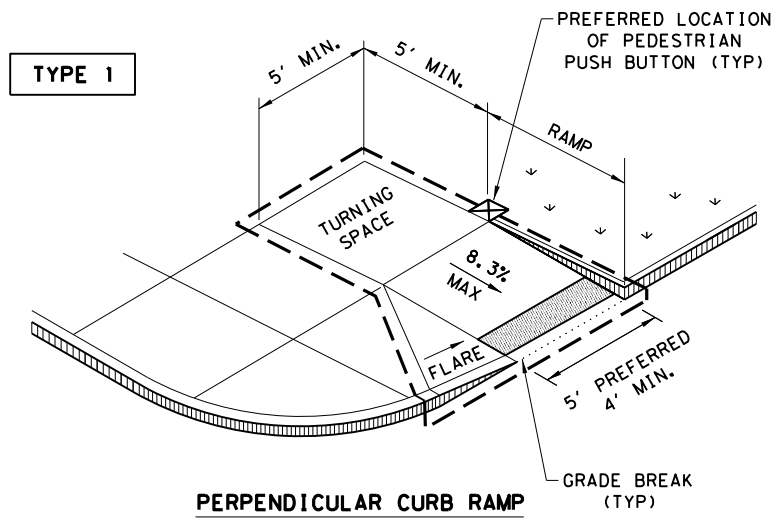
TEXAS CITY, TEXAS

SHEET 9 OF 9

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	
		FM 1764	
STATE	DIST.	COUNTY	SHEET NO.
TEXAS	HOUSTON	GALVESTON	297
CONT.	SECT.	JOB	
1607	01	057, ETC.	

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DATE: 5/16/2024
FILE: c:\pwwork\kh1\00346635\ped18.dgn



NOTES / LEGEND:

SEE GENERAL NOTES ON SHEET 2 OF 4 FOR MORE INFORMATION.

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH.

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON IF APPLICABLE.

GUTTER LINE

GRADE BREAK

RAMP LIMITS OF PAYMENT

SHEET 1 OF 4

Texas Department of Transportation
Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607	01	057, ETC.	FM 1764
REVISED 08, 2009	DIST	COUNTY		SHEET NO.
REVISED 06, 2012	HOU	GALVESTON		298
REVISED 01, 2018				

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DATE: 5/16/2024
 FILE: c:\pwwork\kh1\0346635\ped18.dgn

GENERAL NOTES

CURB RAMP

1. Install a curb ramp or blended transition at each pedestrian street crossing.
2. All slopes shown are maximum allowable. Cross slopes of 1.5% and lesser running should be used. Adjust curb ramp length or grade of approach sidewalks as directed.
3. Maximum allowable cross slope on sidewalk and curb ramp surfaces is 2%.
4. The minimum sidewalk width is 5'. Where the sidewalk is adjacent to the back of curb, a 6' sidewalk width is desirable. Where a 5' sidewalk cannot be provided due to site constraints, sidewalk width may be reduced to 4' for short distances. 5' x 5' passing areas at intervals not to exceed 200' are required.
5. Turning Spaces shall be 5' x 5' minimum. Cross slope shall be maximum 2%.
6. Clear space at the bottom of curb ramps shall be a minimum of 4' x 4' wholly contained within the crosswalk and wholly outside the parallel vehicular travel path.
7. Provide flared sides where the pedestrian circulation path crosses the curb ramp. Flared sides shall be sloped at 10% maximum, measured parallel to the curb. Returned curbs may be used only where pedestrians would not normally walk across the ramp, either because the adjacent surface is planted, substantially obstructed, or otherwise protected.
8. Additional information on curb ramp location, design, light reflective value and texture may be found in the latest draft of the Proposed Guidelines for Pedestrian Facilities in the Public Right of Way (PROWAG) as published by the U.S. Architectural and Transportation Barriers Compliance Board (Access Board).
9. To serve as a pedestrian refuge area, the median should be a minimum of 6' wide, measured from back of curbs. Medians should be designed to provide accessible passage over or through them.
10. Small channelization islands, which do not provide a minimum 5' x 5' landing at the top of curb ramps, shall be cut through level with the surface of the street.
11. Crosswalk dimensions, crosswalk markings and stop bar locations shall be as shown elsewhere in the plans. At intersections where crosswalk markings are not required, curb ramps shall align with theoretical crosswalks unless otherwise directed.
12. Provide curb ramps to connect the pedestrian access route at each pedestrian street crossing. Handrails are not required on curb ramps.
13. Curb ramps and landings shall be constructed and paid for in accordance with Item 531 "Sidewalks".
14. Place concrete at a minimum depth of 5" for ramps, flares and landings, unless otherwise directed.
15. Furnish and install No. 3 reinforcing steel bars at 18" o.c. both ways, unless otherwise directed.
16. Provide a smooth transition where the curb ramps connect to the street.
17. Curbs shown on sheet 1 within the limits of payment are considered part of the curb ramp for payment, whether it is concrete curb, gutter, or combined curb and gutter.
18. Existing features that comply with applicable standards may remain in place unless otherwise shown on the plans.

DETECTABLE WARNING MATERIAL

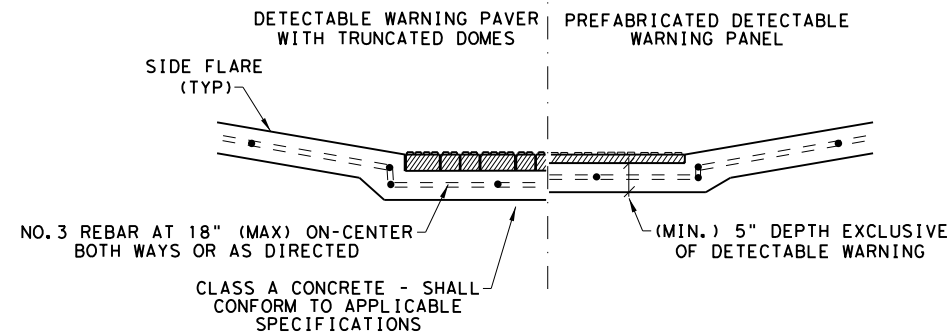
19. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with PROWAG. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install an approved cast-in-place dark brown or dark red detectable warning surface material adjacent to uncolored concrete, unless specified elsewhere in the plans.
20. Detectable Warning Materials must meet TxDOT Departmental Materials Specification DMS 4350 and be listed on the Material Producer List. Install products in accordance with manufacturer's specifications.
21. Detectable warning surfaces must be firm, stable and slip resistant.
22. Detectable warning surfaces shall be a minimum of 24 inches in depth in the direction of pedestrian travel, and extend the full width of the curb ramp or landing where the pedestrian access route enters the street.
23. Detectable warning surfaces shall be located so that the edge nearest the curb line is at the back of curb and neither end of that edge is greater than 5 feet from the back of curb. Detectable warning surfaces may be curved along the corner radius.
24. Shaded areas on Sheet 1 of 4 indicate the approximate location for the detectable warning surface for each curb ramp type.

DETECTABLE WARNING PAVERS (IF USED)

25. Furnish detectable warning paver units meeting all requirements of ASTM C-936, C-33. Lay in a two by two unit basket weave pattern or as directed.
26. Lay full-size units first followed by closure units consisting of at least 25 percent (25%) of a full unit. Cut detectable warning paver units using a power saw.

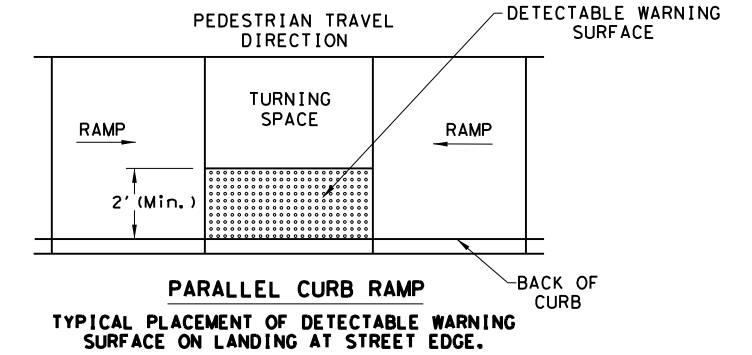
SIDEWALKS

27. Provide clear ground space at operable parts, including pedestrian push buttons. Operable parts shall be placed within unobstructed reach range specified in PROWAG section R406.
28. Place traffic signal or illumination poles, ground boxes, controller boxes, signs, drainage facilities and other items so as not to obstruct the pedestrian access route or clear ground space.
29. Street grades and cross slopes shall be as shown elsewhere in the plans.
30. Changes in level greater than 1/4 inch are not permitted.
31. The least possible grade should be used to maximize accessibility. The running slope of sidewalks and crosswalks within the public right of way may follow the grade of the parallel roadway. Where a continuous grade greater than five percent (5%) must be provided, handrails may be desirable to improve accessibility. Handrails may also be needed to protect pedestrians from potentially hazardous conditions. If provided, handrails shall comply with PROWAG R409.
32. Handrail extensions shall not protrude into the usable landing area or into intersecting pedestrian routes.
33. Driveways and turnouts shall be constructed and paid for in accordance with Item "Intersections, Driveways and Turnouts". Sidewalks shall be constructed and paid for in accordance with Item, "Sidewalks".
34. Sidewalk details are shown elsewhere in the plans.

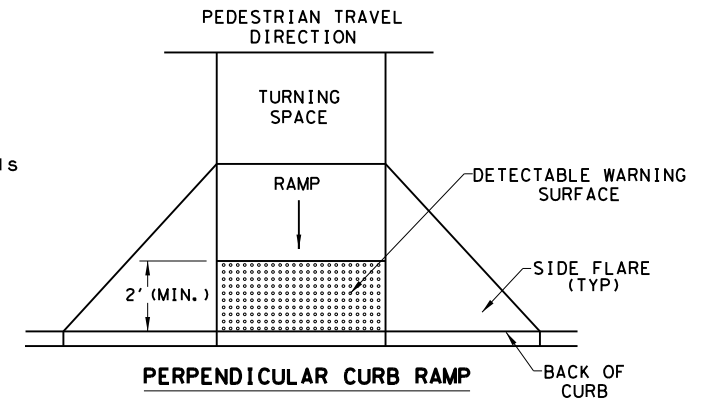


SECTION VIEW DETAIL
CURB RAMP AT DETECTIBLE WARNINGS

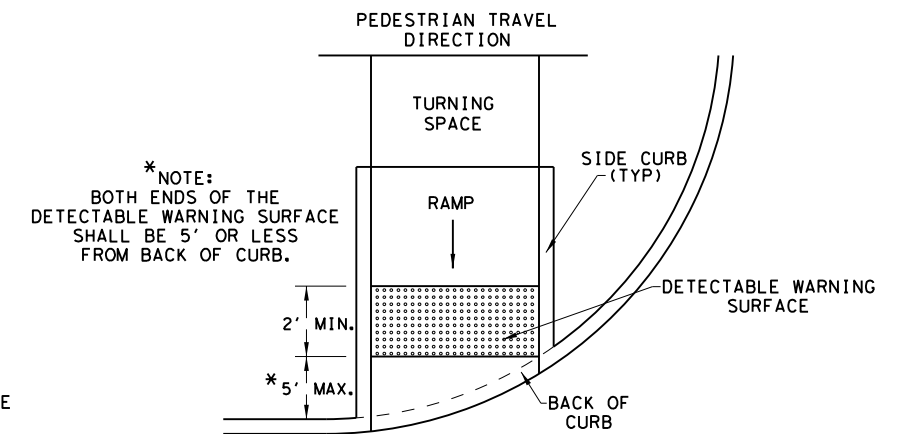
DETECTABLE WARNING SURFACE DETAILS



PARALLEL CURB RAMP
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON LANDING AT STREET EDGE.



PERPENDICULAR CURB RAMP
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.



* NOTE:
 BOTH ENDS OF THE
 DETECTABLE WARNING SURFACE
 SHALL BE 5' OR LESS
 FROM BACK OF CURB.

DIRECTIONAL CURB RAMP
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.

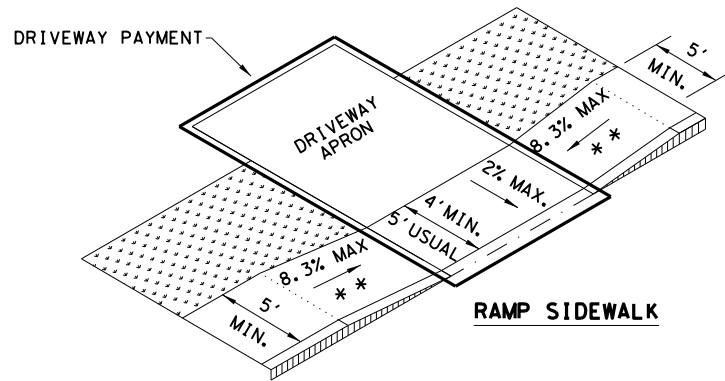
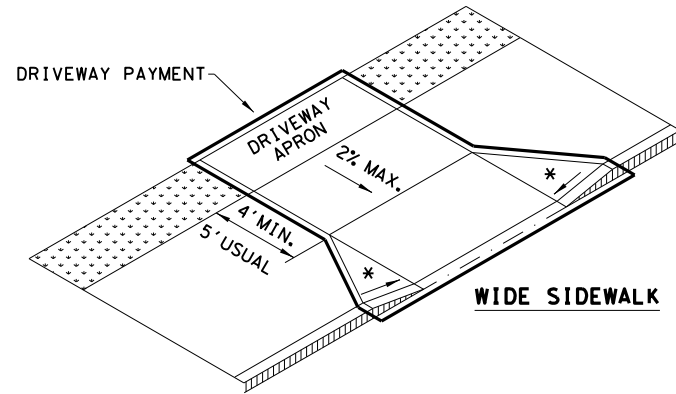
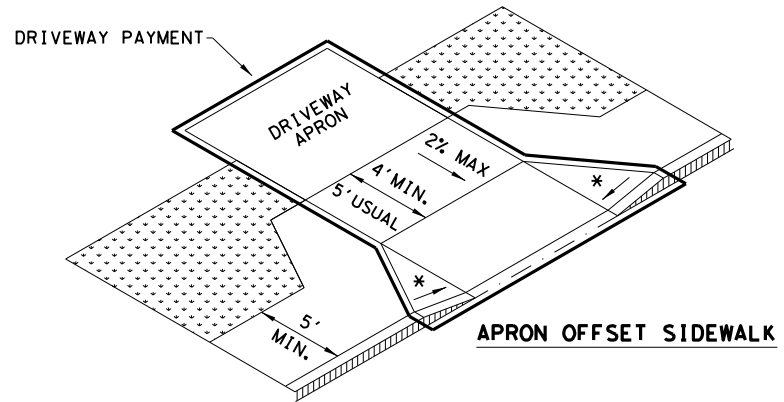
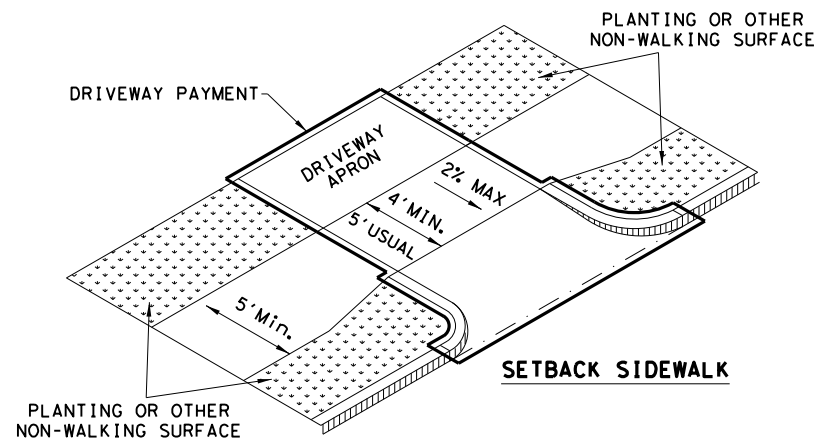
SHEET 2 OF 4

		Design Division Standard	
PEDESTRIAN FACILITIES CURB RAMP			
PED-18			
FILE: ped18	DN: TxDOT	DW: VP	CK: KM
© TxDOT: MARCH, 2002	CONT	SECT	JOB
REVISIONS	1607	01	057, ETC.
REVISOR: 08, 2009	DIST	COUNTY	SHEET NO.
REVISOR: 06, 2012	HOU	GALVESTON	299
REVISOR: 01, 2018			

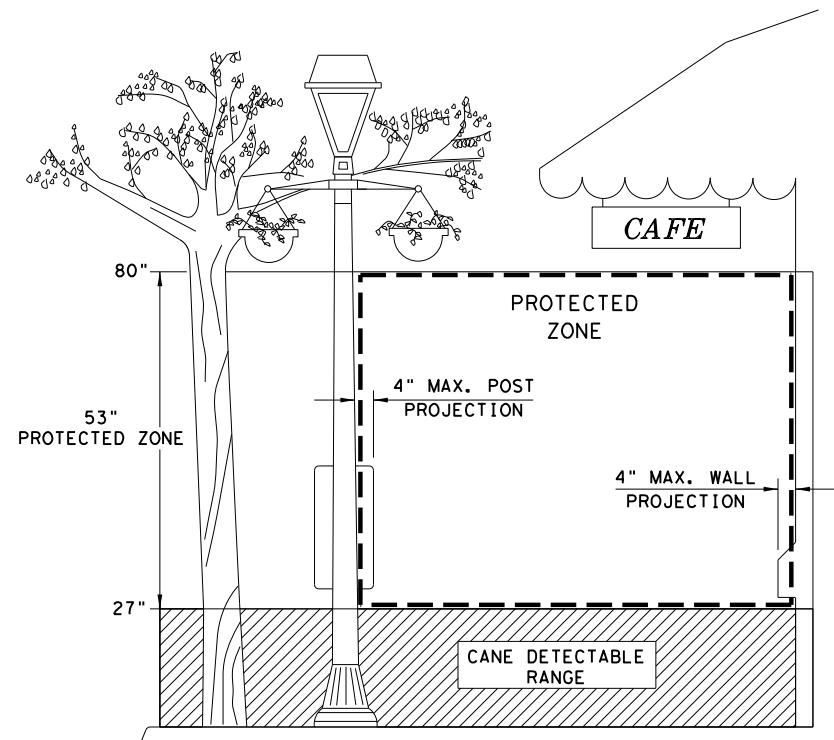
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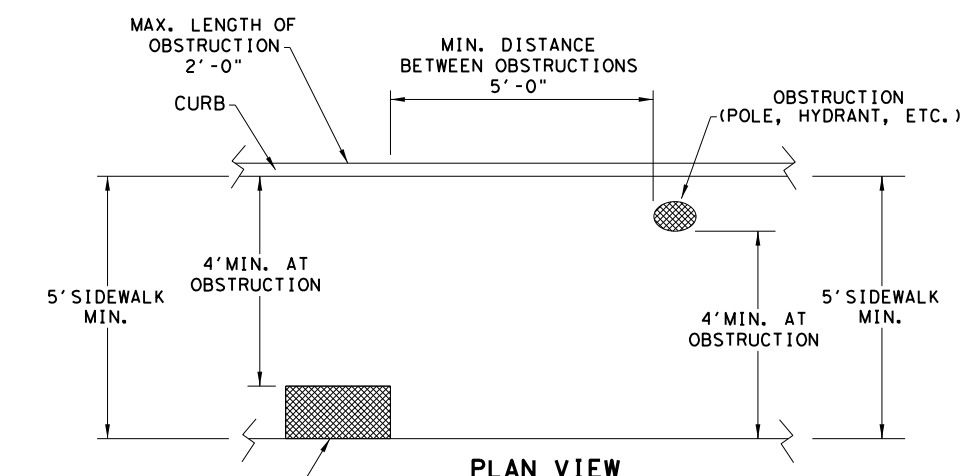
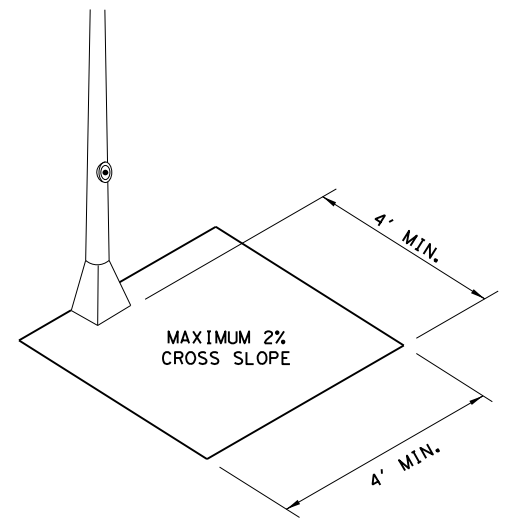
SIDEWALK TREATMENT AT DRIVEWAYS



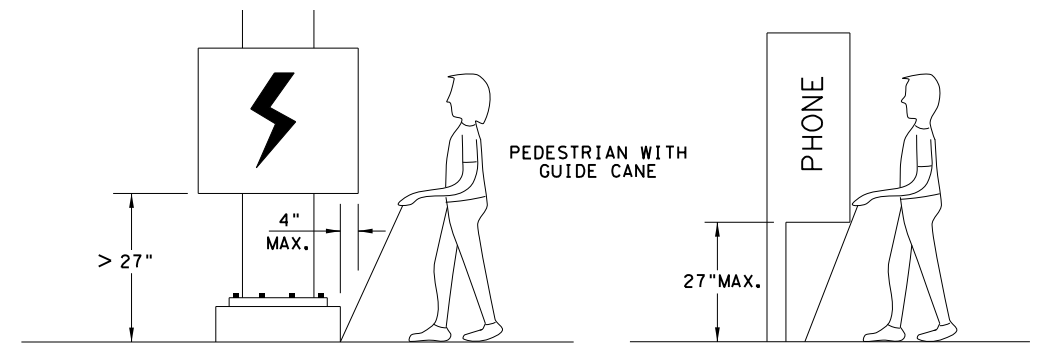
NOTES:
 * WHERE DRIVEWAYS CROSS THE PEDESTRIAN ROUTE, SIDES SHALL BE FLARED AT 10% MAX SLOPE.
 * * IF CURB HEIGHT IS GREATER THAN 6 INCHES, USE GRADE LESS THAN OR EQUAL TO 5%. HANDRAIL AND DETECTABLE WARNING ARE NOT REQUIRED.



NOTE: IN PEDESTRIAN CIRCULATION AREA, MAXIMUM 4" PROJECTION FOR POST OR WALL MOUNTED OBJECTS BETWEEN 27" AND 80" ABOVE THE SURFACE.



NOTE: ITEMS NOT INTENDED FOR PUBLIC USE. MINIMUM 4' X 4' CLEAR GROUND SPACE REQUIRED AT PUBLIC USE FIXTURES.



WHEN AN OBSTRUCTION OF A HEIGHT GREATER THAN 27" FROM THE SURFACE WOULD CREATE A PROTRUSION OF MORE THAN 4" INTO THE PEDESTRIAN CIRCULATION AREA, CONSTRUCT ADDITIONAL CURB OR FOUNDATION AT THE BOTTOM TO PROVIDE A MAXIMUM 4" OVERHANG.

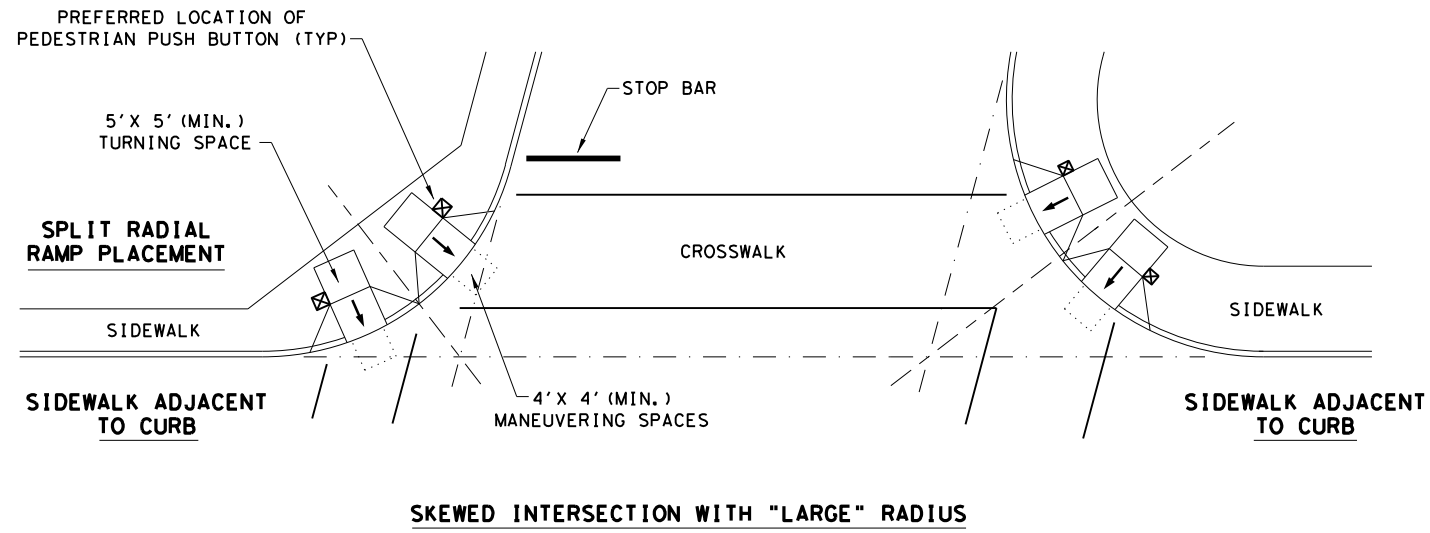
PROTRUDING OBJECTS OF A HEIGHT ≤ 27" ARE DETECTABLE BY CANE AND DO NOT REQUIRE ADDITIONAL TREATMENT.

SHEET 3 OF 4

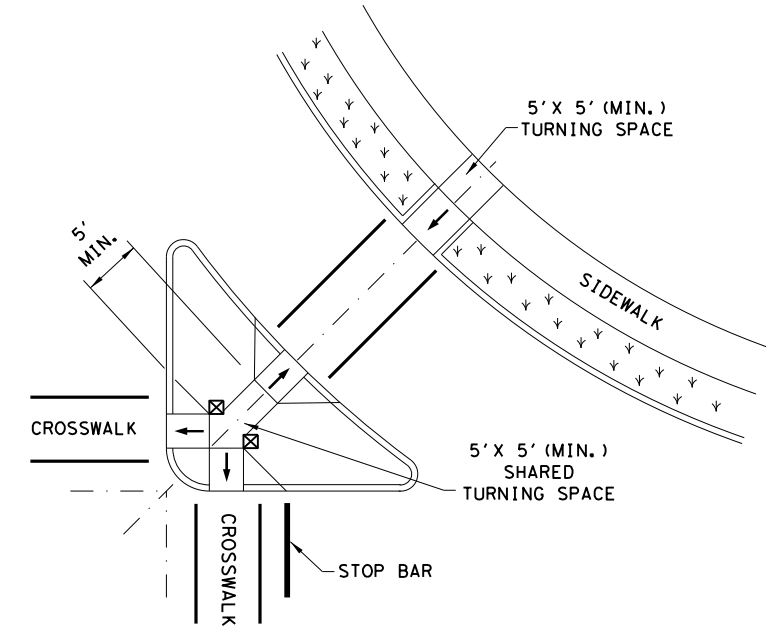
		Design Division Standard	
<h1>PEDESTRIAN FACILITIES</h1> <h2>CURB RAMPS</h2> <h3>PED-18</h3>			
FILE: ped18	DW: TxDOT	DW: VP	CK: KM
© TxDOT: MARCH, 2002	CONT	SECT	JOB
REVISIONS	1607	01	057, ETC.
REVISOR	DIST	COUNTY	SHEET NO.
REVISOR	HOU	GALVESTON	300

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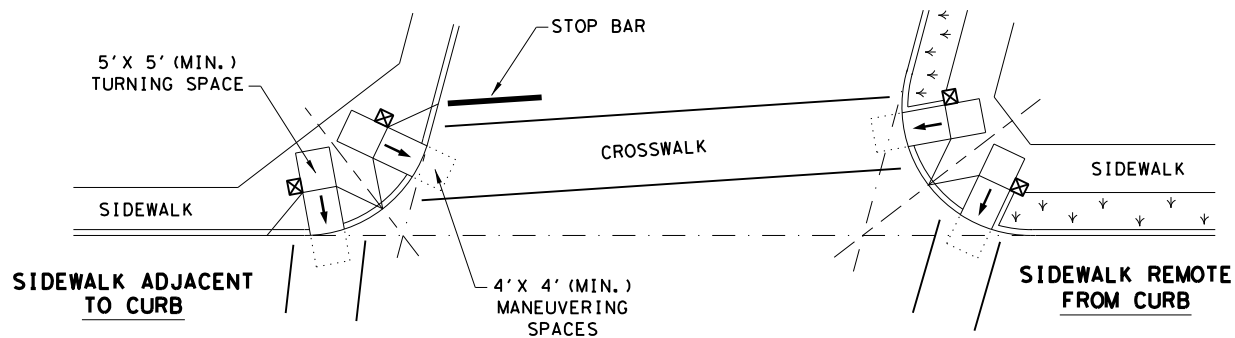
TYPICAL CROSSING LAYOUTS
SEE SHEET 1 OF 4 FOR DETAILS AND DIMENSIONS



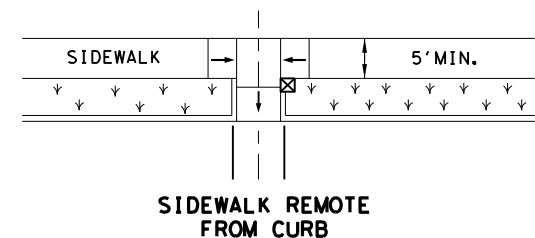
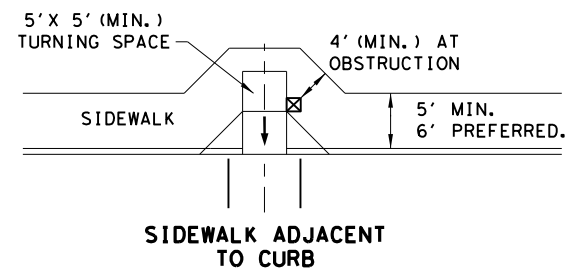
SKewed INTERSECTION WITH "LARGE" RADIUS



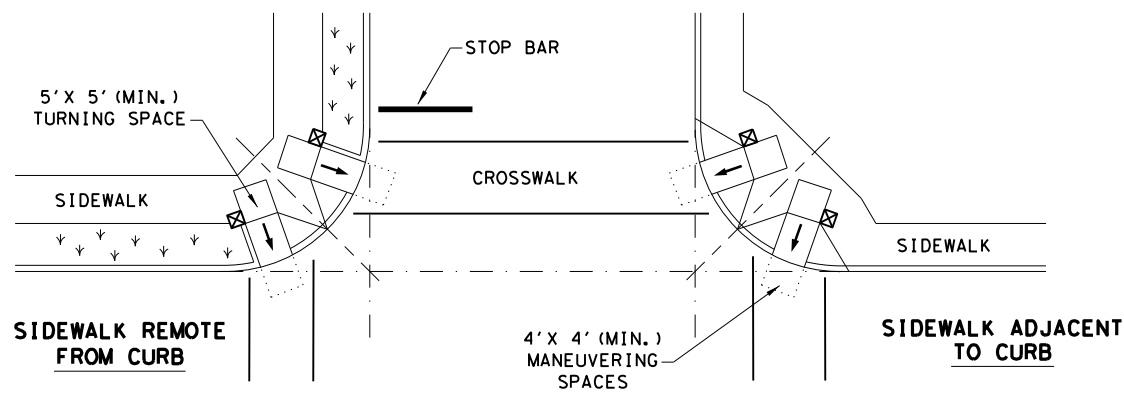
AT INTERSECTION
W/FREE RIGHT TURN & ISLAND



SKewed INTERSECTION WITH "SMALL" RADIUS



MID-BLOCK PLACEMENT
PERPENDICULAR RAMPS



NORMAL INTERSECTION WITH "SMALL" RADIUS

LEGEND:

- SHOWS DOWNWARD SLOPE. →
- DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON (IF APPLICABLE). ☒
- DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH. ↙ ↘ ↖ ↗

SHEET 4 OF 4



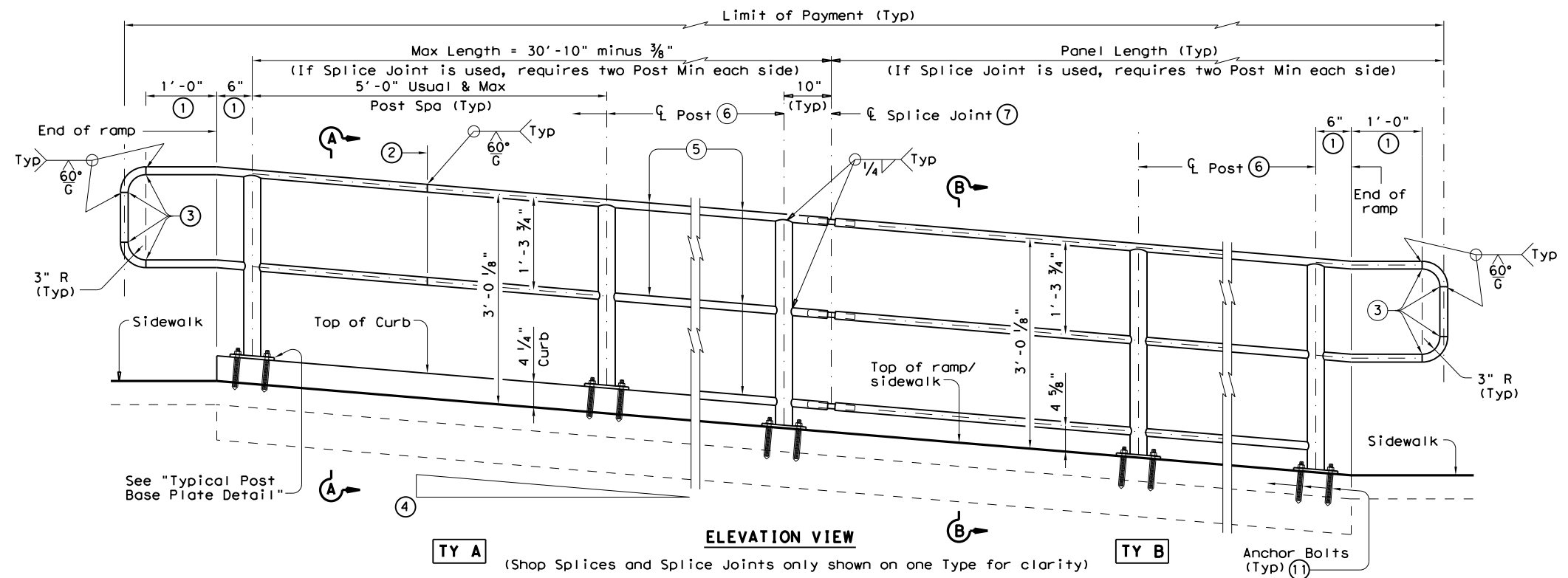
PEDESTRIAN FACILITIES
CURB RAMPS
PED-18

FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607	01	057, ETC.	FM 1764
REVISED 08, 2005	DIST	COUNTY	SHEET NO.	
REVISED 06, 2012	HOU	GALVESTON	301	
REVISED 01, 2018				

DATE: 5/16/2024
FILE: c:\pwworking\dot346635\ped18.dgn

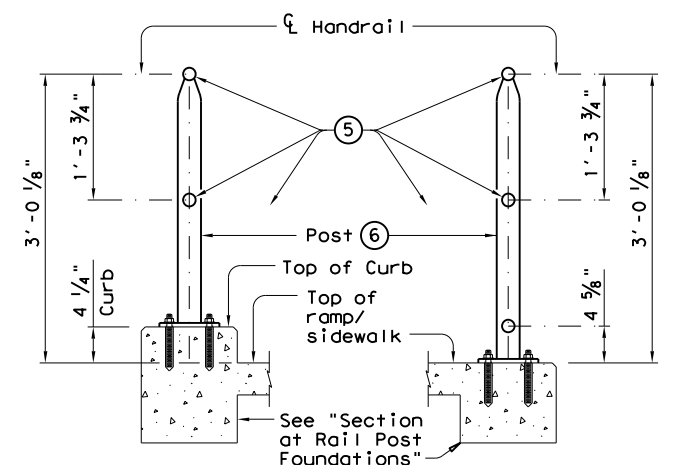
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DATE: 5/16/2024
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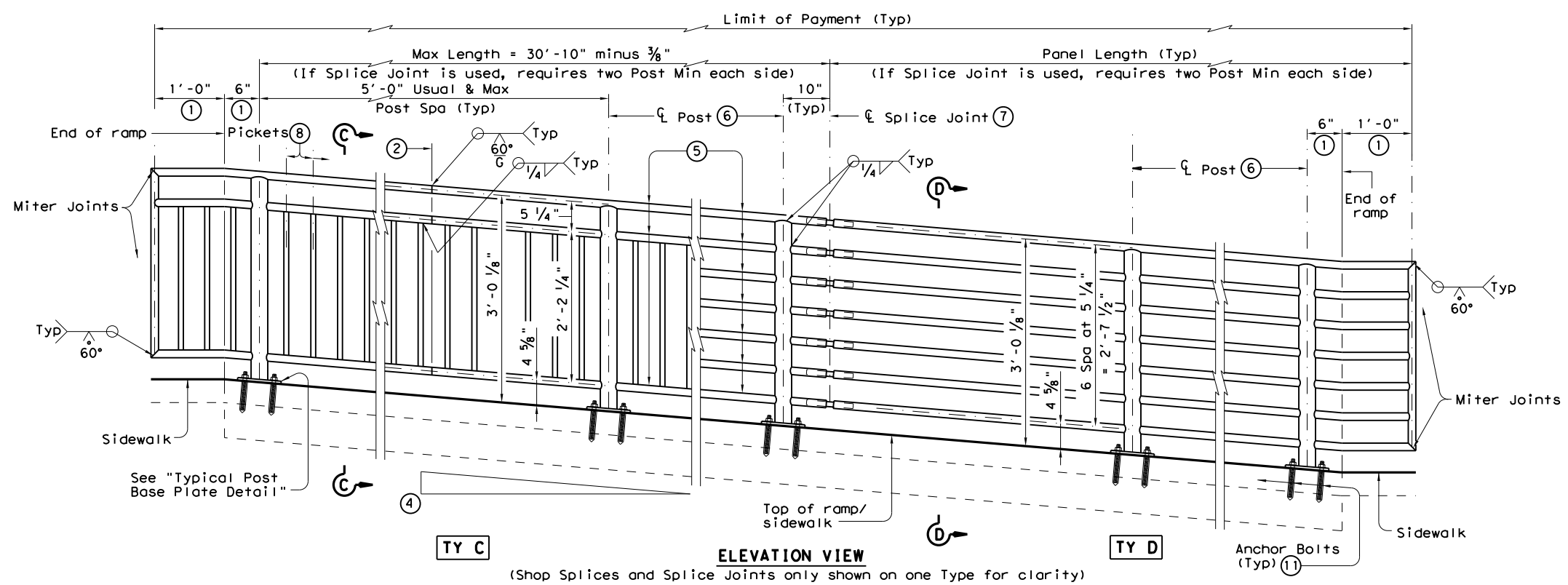


TY A (Shop Splices and Splice Joints only shown on one Type for clarity) **TY B**

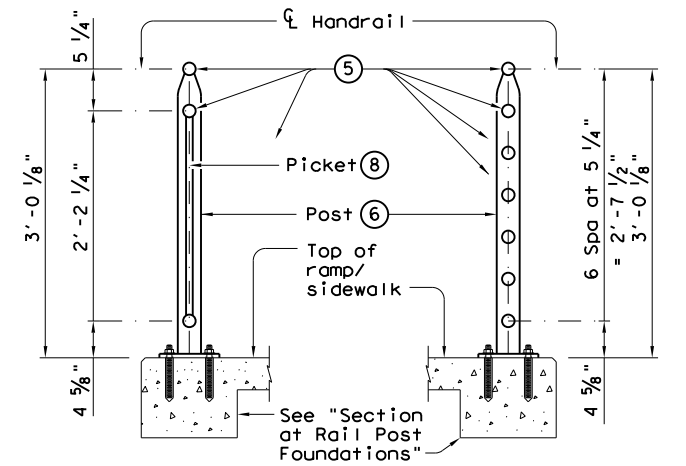
RECOMMENDED USAGE (9) (10)	
Dropoff Height/Condition	Recommended Rail Options
< 30" dropoff	TY A, TY B, TY C, or TY D
≥ 30" dropoff, or along Bike Path	TY E or TY F



SECTION A-A (Showing Handrail TY A) **SECTION B-B** (Showing Handrail TY B)



TY C (Shop Splices and Splice Joints only shown on one Type for clarity) **TY D**

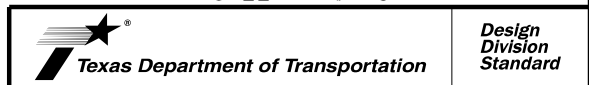


SECTION C-C (Showing Handrail TY C) **SECTION D-D** (Showing Handrail TY D)

- ① Parallel to ground.
- ② One shop splice per panel is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.
- ③ Shop splice is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.
- ④ See Ramp Details located elsewhere in plans for ramp slope and dimensions. Maximum ramp slope will not exceed 8.3 percent. Level landing required for each 30" rise if grade exceeds 5 percent.
- ⑤ 1 1/2" Dia. Standard Pipe (1.900" O.D., 0.145" wall thickness). Parallel to ramp / sidewalk. Provide holes as needed in 1 1/2" Dia. pipe for galvanizing drainage and venting.

- ⑥ 2 1/2" Dia. Standard Pipe (2.875" O.D., 0.203" wall thickness). See "Post Mount Detail" for crimping and trimming post to fit Dia. of top rail. Provide holes as needed in post for galvanizing drainage and venting. Plumb all posts.
- ⑦ See "Handrail Fabrication Details" for Splice Joints.
- ⑧ 5/8" Dia. Round Bar equal spacing at 4 1/2" Max. Plumb all pickets.
- ⑨ When needed for accessibility (grade > 5 percent) or as needed for pedestrian safety.
- ⑩ Not to be used on bridges.
- ⑪ See "General Notes" for anchor bolt information.

SHEET 1 OF 3



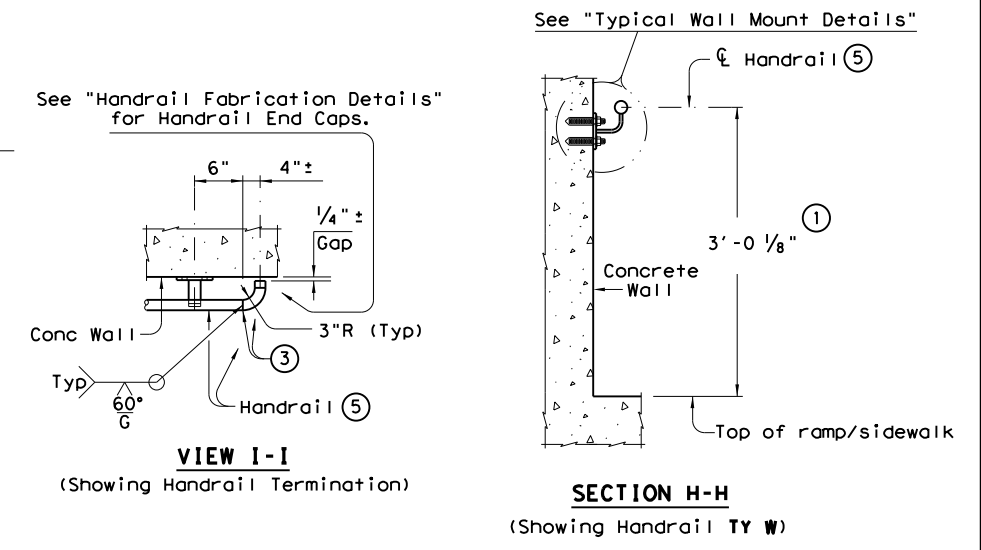
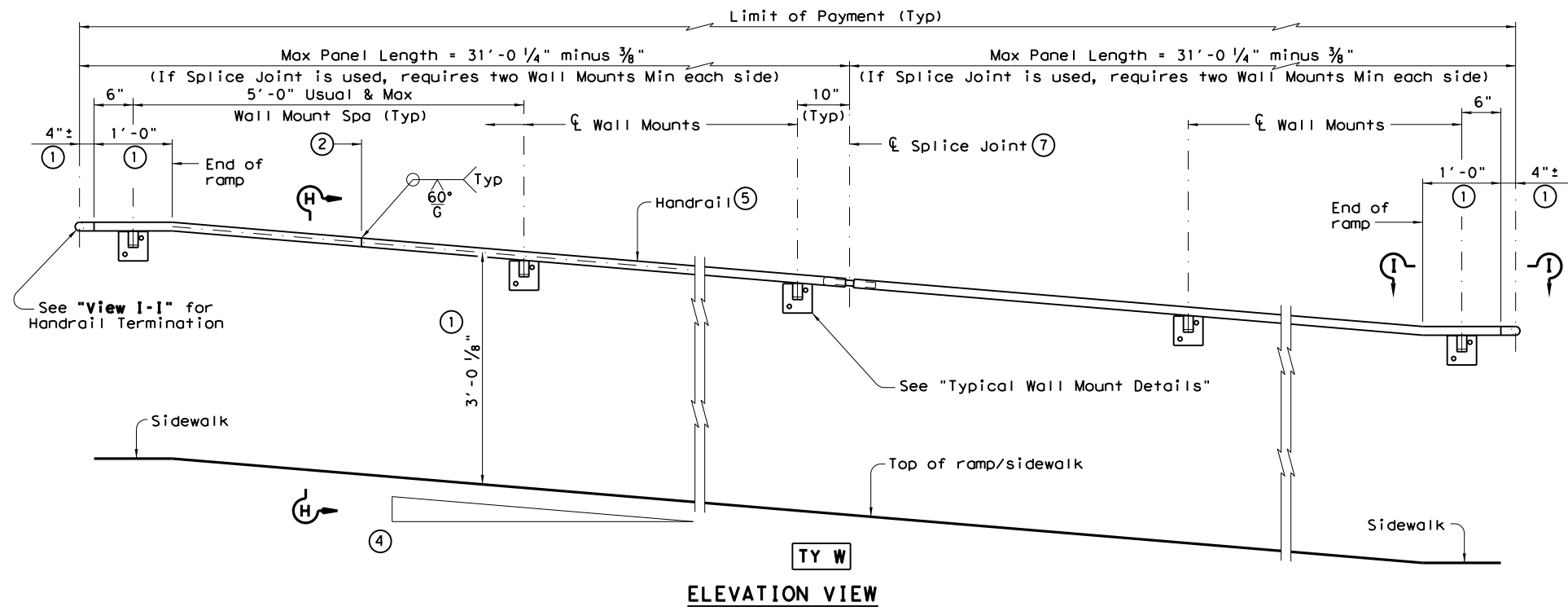
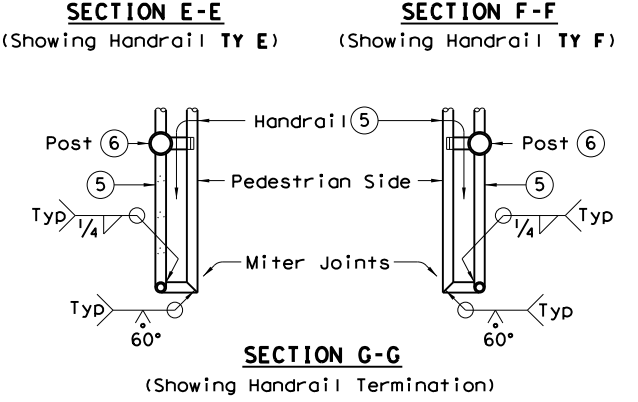
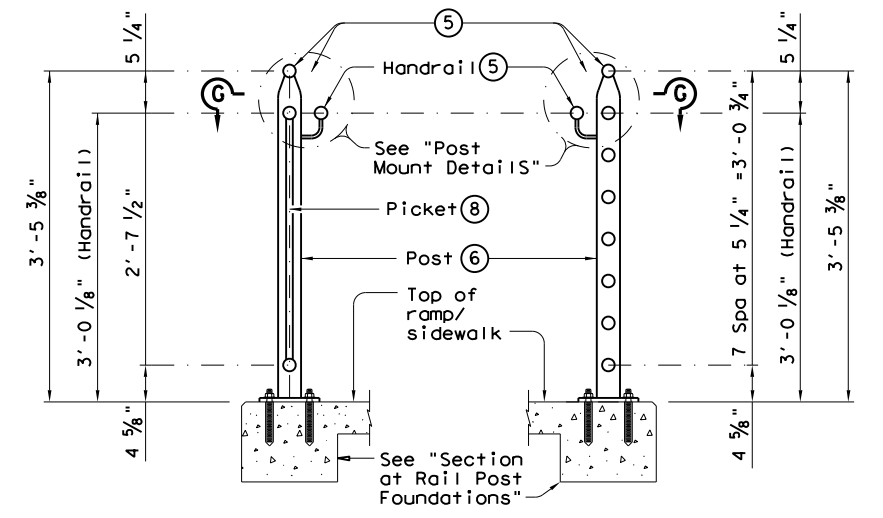
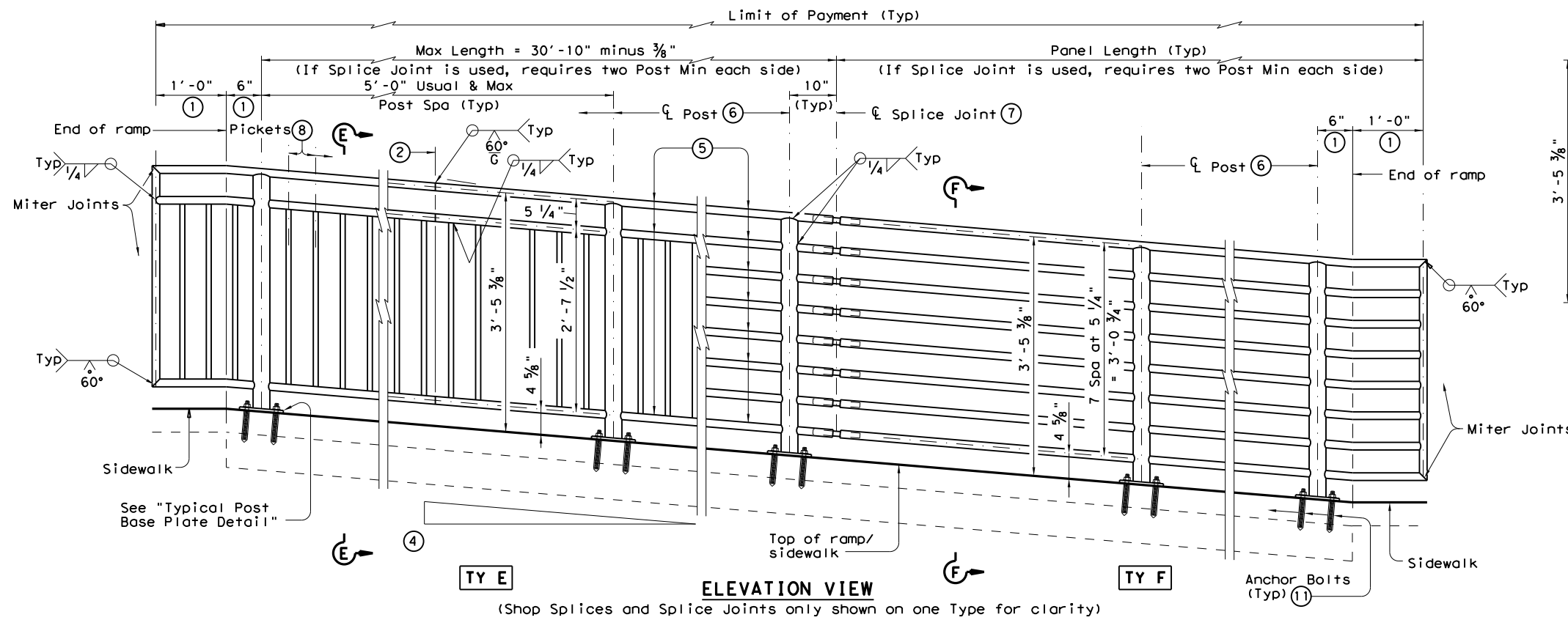
PEDESTRIAN HANDRAIL DETAILS

PRD-13

FILE: prd13.dgn	DN: TxDOT	CK: AM	DW: JTR	CK: CGL
© TxDOT December 2006	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607	01	057, ETC.	FM 1764
REVISED MAY, 2013 (VP)	DIST	COUNTY	SHEET NO.	
	HOU	GALVESTON	302	

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DATE: 5/16/2024
 FILE: c:\pwworking\kh1\00346635\pr-d13 (1).dgn



- ① Parallel to ground.
- ② One shop splice per panel is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.
- ③ Shop splice is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.
- ④ See Ramp Details located elsewhere in plans for ramp slope and dimensions. Maximum ramp slope will not exceed 8.3 percent. Level landing required for each 30" rise if grade exceeds 5 percent.
- ⑤ 1 1/2" Dia. Standard Pipe (1.900" O.D., 0.145" wall thickness). Parallel to ramp / sidewalk. Provide holes as needed in 1 1/2" Dia. pipe for galvanizing drainage and venting.
- ⑥ 2 1/2" Dia. Standard Pipe (2.875" O.D., 0.203" wall thickness). See "Post Mount Detail" for crimping and trimming post to fit Dia. of top rail. Provide holes as needed in post for galvanizing drainage and venting. Plumb all posts.
- ⑦ See "Handrail Fabrication Details" for Splice Joints.
- ⑧ 1/2" Dia. Round Bar equal spacing at 4 1/2" Max. Plumb all pickets.
- ⑪ See "General Notes" for anchor bolt information.

SHEET 2 OF 3

Texas Department of Transportation
 Design Division Standard

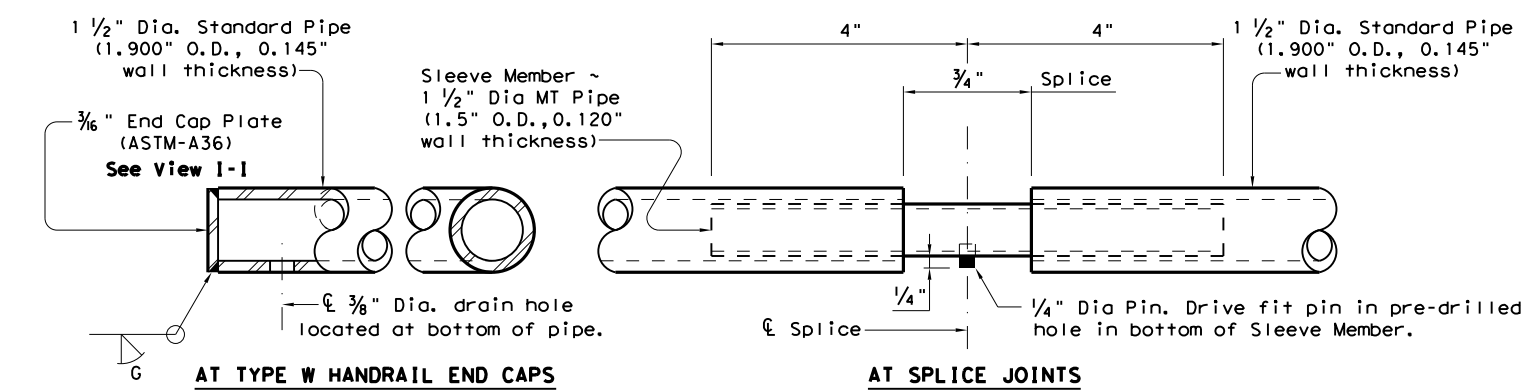
PEDESTRIAN HANDRAIL DETAILS

PRD-13

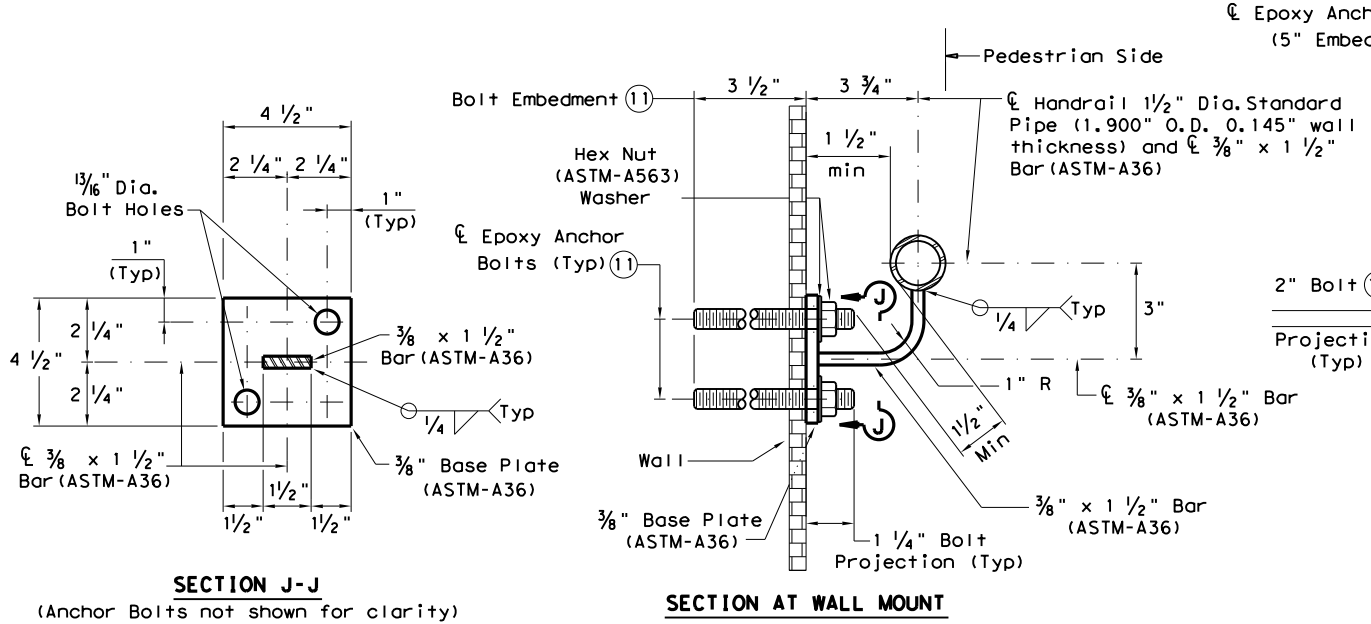
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© TxDOT December 2006	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607	01	057, ETC.	FM 1764
REVISED MAY, 2013 (VP)	DIST	COUNTY	SHEET NO.	
	HOU	GALVESTON	303	

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DATE: 5/16/2024
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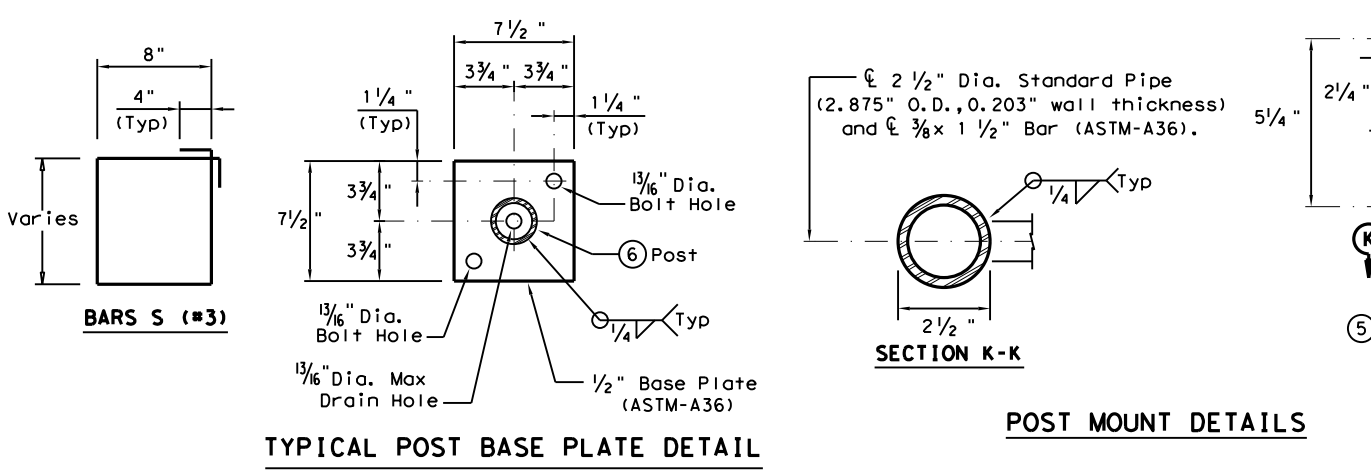


HANDRAIL FABRICATION DETAILS

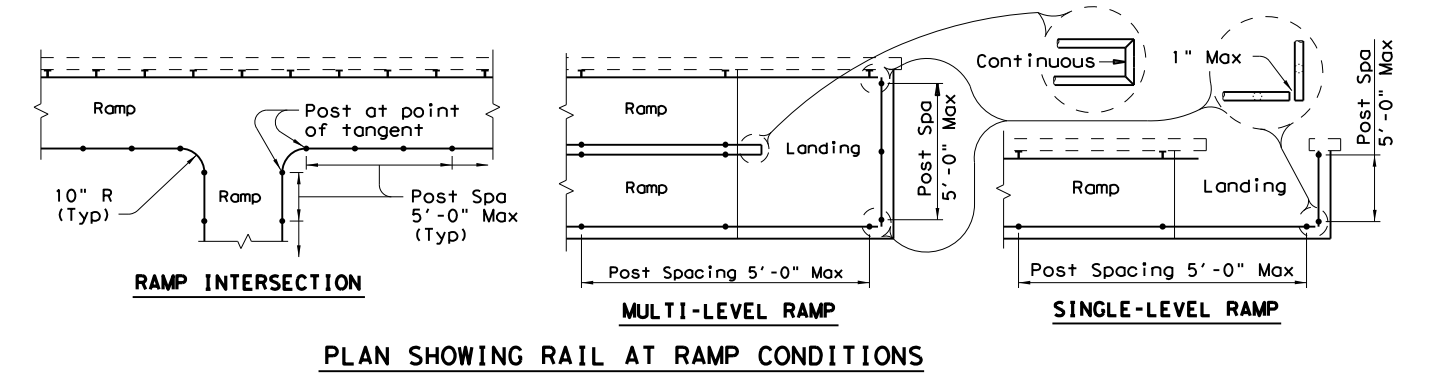


TYPICAL WALL MOUNT DETAILS

- (5) 1 1/2" Dia. Standard Pipe (1.900" O.D., 0.145" wall thickness). Parallel to ramp/sidewalk. Provide holes as needed in 1 1/2" Dia. pipe for galvanizing drainage and venting.
- (6) 2 1/2" Dia. Standard Pipe (2.875" O.D., 0.203" wall thickness). Plumb all posts. See "Post Mount Detail" for crimping and trimming post to fit the diameter of top rail. Provide holes as needed in post for galvanizing drainage and venting.
- (11) See "General Notes" for anchor bolt information.
- (12) Bars S(#3) spaced at 12" Max (Spaced 3" from outside edge of overall length of Ramp/Sidewalk).
- (13) Provide 1 1/2" end cover to Bars D(#4) from outside edge of overall length of Ramp/Sidewalk.



POST MOUNT DETAILS



PLAN SHOWING RAIL AT RAMP CONDITIONS

GENERAL NOTES

Designed according to ADAAG, Texas Accessibility Standards, Uniform Building Code, and AASHTO LRFD Specifications.

Handrail anchorage details shown on this standard may require modification for select structure types. See appropriate details elsewhere in plans for these modifications.

Pipe will conform to ASTM-A53 Grade B or A500 Grade B. Steel plates and steel bars will conform to ASTM-A36. Mechanical tubing (MT) will conform to ASTM A513 Grade 1015 or higher. Galvanize all steel components except reinforcing steel unless noted otherwise.

Concrete for foundations will be in accordance with Item 531 "Sidewalks". All reinforcing steel must be Grade 60. Bar laps, where required, will be as follows: Uncoated ~ #4 = 1'-5" Epoxy coated ~ #4 = 2'-1"

When the plans require painted steel, follow the requirements for painting galvanized steel in Item 446, "Cleaning and Painting Steel". Sleeve Members will receive galvanization and only get field painted after installation unless directed otherwise by Engineer.

Epoxy Anchor bolts for wall mount and post base plate will be 5/8" Dia. ASTM A36 threaded rods with one hex nut and one hardened steel washer at each bolt. 5/8" Dia. threaded rod embedment depth for wall mounts is 3 1/2" and embedment depth for post base plate is 5".

Embed threaded rods into concrete with a Type III (Class C) epoxy meeting the requirements of DMS-6100, "Epoxyes and Adhesives". Mix and dispense adhesive with the manufacturer's static mixing nozzle/dual cartridge system. Core drill holes (percussion drilling not permitted).

At the contractor's option the post base plate anchor bolts may be cast with the Ramp/Sidewalk (See Cast-in-Place Anchor Bolt Options).

Optional cast-in-place anchor bolts will be 5/8" Dia ASTM A307 Grade A bolts (or A36 threaded rods with one tack welded hex nut each) with one hex nut and one hardened steel washer at each bolt. Embedment depth of cast-in-place bolt will be 8" for post base plate.

Handrails and any wall or other surface adjacent to them will be free of any sharp or abrasive elements.

Submit shop drawings to the Engineer unless otherwise noted. For curved handrail applications, fabricate the handrail to the curve if radius is less than 600 ft. Shop drawings are required when rail is fabricated to the curve.

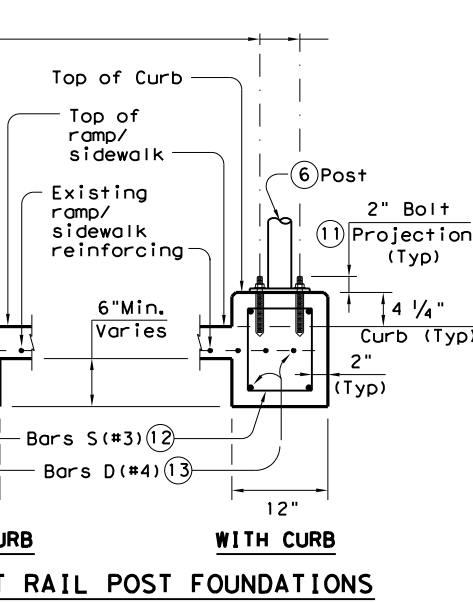
For all handrails, erection drawings will be submitted to the Engineer for approval to ensure proper installation.

Drawings will show handrail mount locations with bolts setting, spacing, ramp slope, and/or splice joint locations, and handrail lengths with identification showing where each handrail goes on the layout.

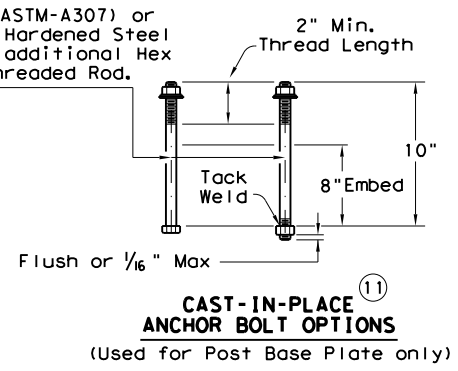
Payment for concrete sidewalks or curb ramps will be paid for in accordance with Item 531 "Sidewalks".

Payment for all items shown is to be included in unit price bid in accordance with Item 450 "Railing" of the type specified.

All exposed edges will be rounded or chamfered to approximately 1/8" by grinding.



SECTION AT RAIL POST FOUNDATIONS



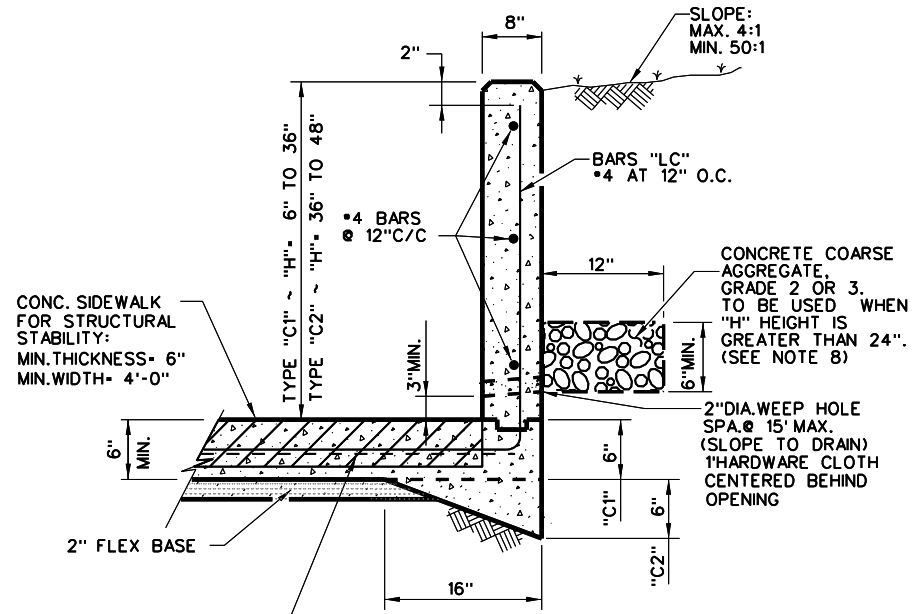
CAST-IN-PLACE ANCHOR BOLT OPTIONS
 (Used for Post Base Plate only)

		Design Division Standard	
<h2>PEDESTRIAN HANDRAIL DETAILS</h2> <h3>PRD-13</h3>			
FILE: prd13.dgn	DN: TxDOT	CK: AM	DW: JTR
© TxDOT December 2006	CONT	SECT	JOB
REVISIONS	1607 01	057, ETC.	FM 1764
REVISED MAY, 2013 (VP)	DIST	COUNTY	SHEET NO.
	HOU	GALVESTON	304

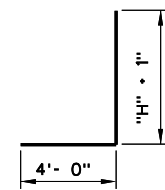
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5/16/2024

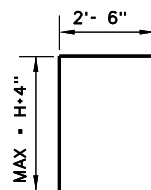
ct:\p\k\h\1\02346635\misc\curbdetails.dgn



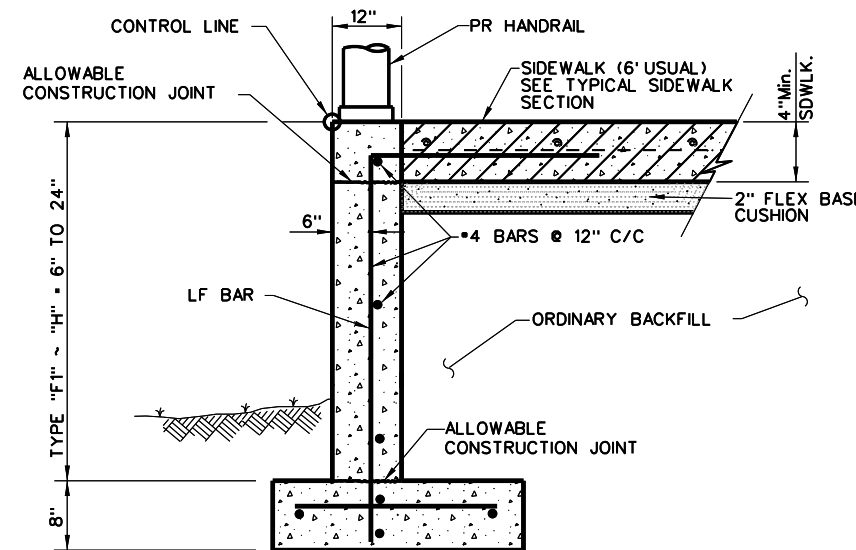
6" X 6" (*6) WELDED WIRE FLAT SHEETS
OR *3 REBARS AT 18" O.C. BOTH WAYS
TYPE "C1" & "C2" CURB



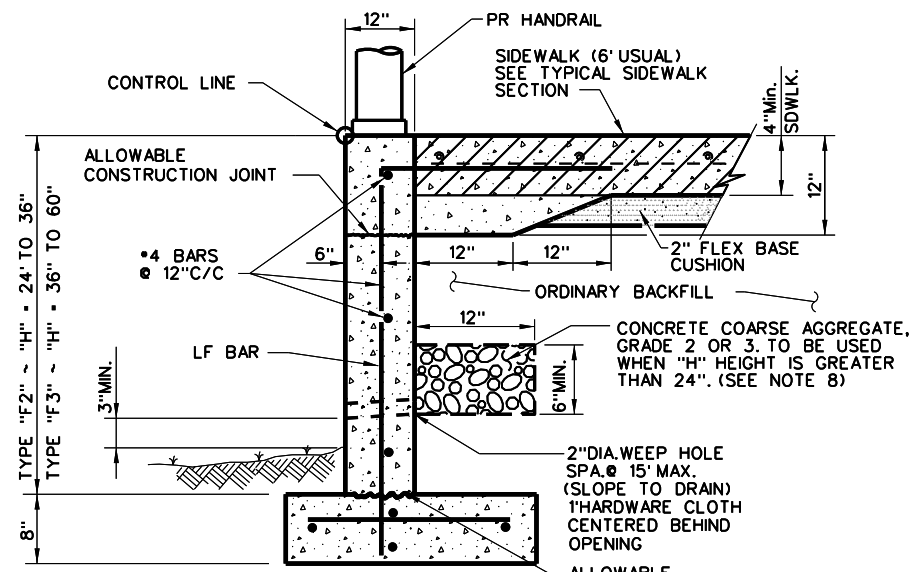
BAR "LC"



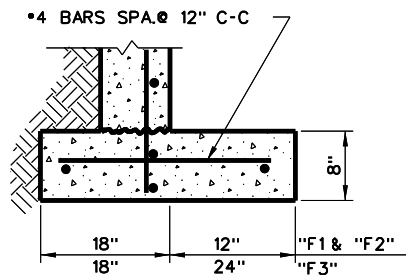
BAR "LF"



TYPE "F1" CURB



TYPE "F2" & "F3" CURB



FOOTING DETAIL

GENERAL NOTES:

1. CONCRETE FOR CURB TYPE F AND C SHOWN SHALL MEET THE MINIMUM SPECIFICATION REQUIREMENTS OF CLASS "C" CONCRETE PER ITEM 421
2. ALL REINFORCING STEEL SHALL BE GRADE 60
3. EXPANSION AND CONTRACTION JOINTS SHALL BE CONSTRUCTED TO MATCH PAVEMENT JOINTS IN ALL CURBS AND CURB AND GUTTER ADJACENT TO JOINTED CONCRETE PAVEMENT. WHERE PLACEMENT OF CURB OR CURB AND GUTTER IS NOT ADJACENT TO CONCRETE PAVEMENT, EXPANSION JOINTS SHALL BE PROVIDED AT STRUCTURES, CURB RETURNS AT STREETS, AND AT LOCATIONS DIRECTED BY THE ENGINEER.
4. VERTICAL AND HORIZONTAL DOWEL BARS AND TRANSVERSE REINFORCING BARS SHALL BE PLACED AT 4 FEET C-C, UNLESS OTHERWISE SHOWN.
5. UNTIL THE SIDEWALK IS COMPLETE, LATERAL SUPPORT FOR THE "F" CURBS WILL BE REQUIRED.
6. IF AGGREGATE IS REQUIRED PER THE DETAIL, IT IS PAID AS SUBSIDIARY TO THE CURB, ITEM 529.

DESIGN SOIL PARAMETERS:

Soil Unit Wt. - 120 pcf
 Phi - 30 Degrees
 Cohesion - 50 psf
 Min. PI - 15
 Max. PI - 30
SURCHARGE:
 TYPE F CURB q = 2' Adjacent to sidewalk
 Max. slope behind TYPE C Curb = 4:1
 Min. Factor of Safety against sliding is 1.5.
 Designed in accordance with current AASHTO Standards and Interim Specifications.



5/16/2024

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San Antonio District

**MISCELLANEOUS CURB
AND SIDEWALK DETAILS**
San Antonio District Standard
Sheet (2 of 2)

T:\Engdata\Standards\MiscCurbdetails.dgn		PREPARED BY AND FOR USE OF TxDOT.			
ORIGINAL DRAWING DATE:	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET	
09-01-08		6		305	
10-10-17 sidewalk width equals 6' usual		COUNTY	CONTROL SECTION	JOB	HIGHWAY
07-22-20 9" curb + curb + conc pvmt det.		GALVESTON	1607	01	057 FM 1764

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DATE: 5/17/2024 9:02:01 AM
 FILE: c:\pwworking\03472301s-fd.dgn

FOUNDATION DESIGN TABLE

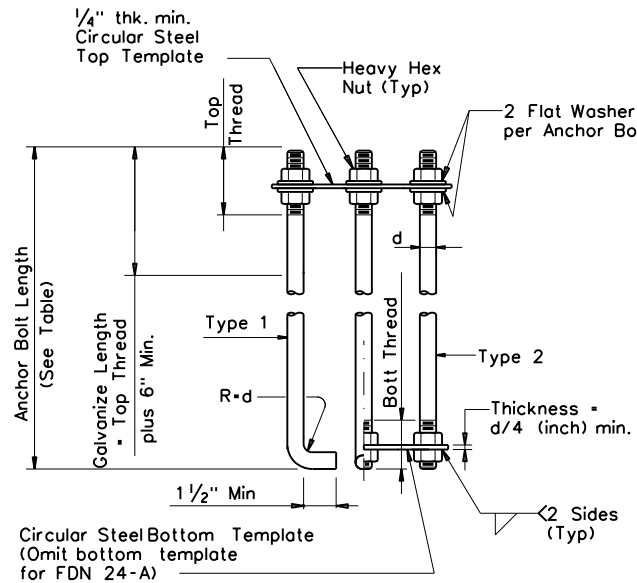
FDN TYPE	DRILLED SHAFT DIA	REINFORCING STEEL		EMBEDDED DRILLED SHAFT LENGTH-ft ④ ⑤ ⑥			ANCHOR BOLT DESIGN ①				FOUNDATION DESIGN LOAD ②		TYPICAL APPLICATION
		VERT BARS	SPIRAL & PITCH	TEXAS CONE PENETROMETER N blows/ft			ANCHOR BOLT DIA	F _y (ksi)	BOLT CIR DIA	ANCHOR TYPE	MOMENT K-ft	SHEAR Kips	
				10	15	40							
24-A	24"	4- #5	#2 at 12"	5.7	5.3	4.5	¾"	36	12 ¾"	1	10	1	Pedestal pole, pedestal mounted controller.
30-A	30"	8- #9	#3 at 6"	11.3	10.3	8.0	1½"	55	17"	2	87	3	Mast arm assembly. (see Selection Table)
36-A	36"	10- #9	#3 at 6"	13.2	12.0	9.4	1¾"	55	19"	2	131	5	Mast arm assembly. (see Selection Table) 30' strain pole with or without luminaire.
36-B	36"	12- #9	#3 at 6"	15.2	13.6	10.4	2"	55	21"	2	190	7	Mast arm assembly. (see Selection Table) Strain pole taller than 30' & strain pole with mast arm
42-A	42"	14- #9	#3 at 6"	17.4	15.6	11.9	2 ¼"	55	23"	2	271	9	Mast arm assembly. (see Selection Table)

FOUNDATION SELECTION TABLE FOR STANDARD MAST ARM PLUS ILSN SUPPORT ASSEMBLIES (ft)

WIND SPEED	MAX SINGLE ARM LENGTH	FDN 30-A	FDN 36-A	FDN 36-B	FDN 42-A
		80 MPH DESIGN	32'	48'	
80 MPH DESIGN	MAXIMUM DOUBLE ARM LENGTH COMBINATIONS	24' X 24'			
		28' X 28'			
		32' X 28'	32' X 32'		
		40' X 36'			
		44' X 28'	44' X 36'		
100 MPH DESIGN	MAXIMUM DOUBLE ARM LENGTH COMBINATIONS	24' X 24'			
		28' X 28'			
		32' X 24'	32' X 32'		
			36' X 36'		
			40' X 24'	40' X 36'	44' X 36'

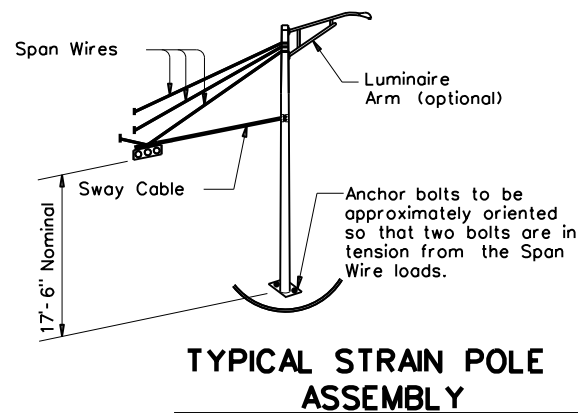
EXAMPLE:

- For 80mph design wind speed, foundation 30-A can support up to a 32' arm with another arm up to 28'
- For 100mph design wind speed, foundation 36-A can support a single 36' mast arm.

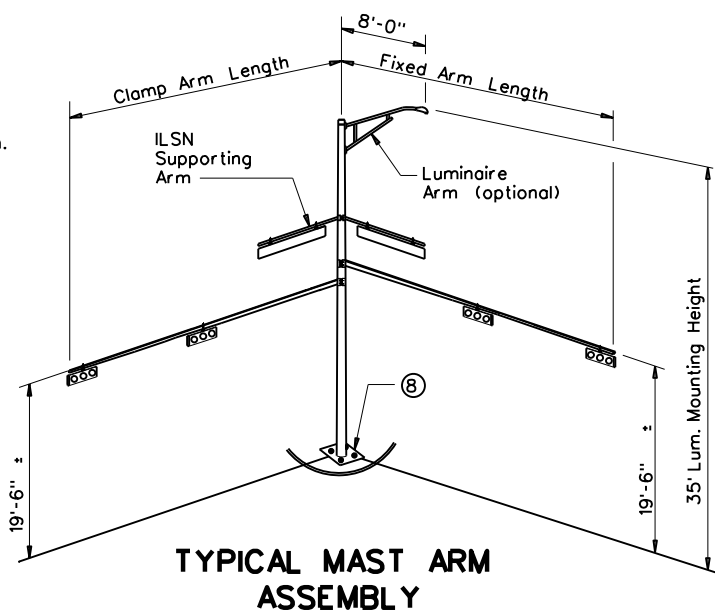


HOOKED ANCHOR (TYPE 1) NUT ANCHOR (TYPE 2) ANCHOR BOLT ASSEMBLY

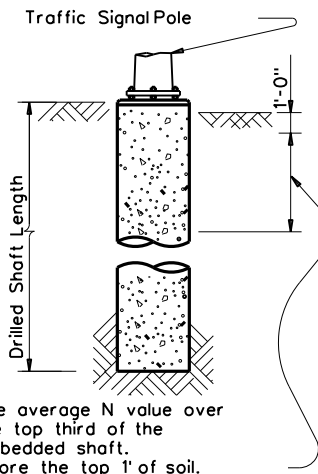
⑧ Orient anchor bolts orthogonal with the fixed arm direction to ensure that two bolts are in tension under dead load.



TYPICAL STRAIN POLE ASSEMBLY



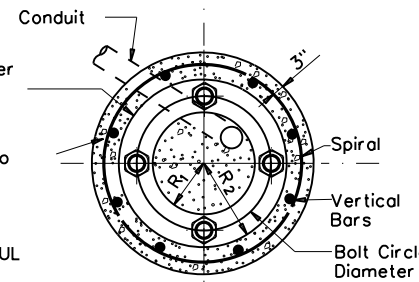
TYPICAL MAST ARM ASSEMBLY



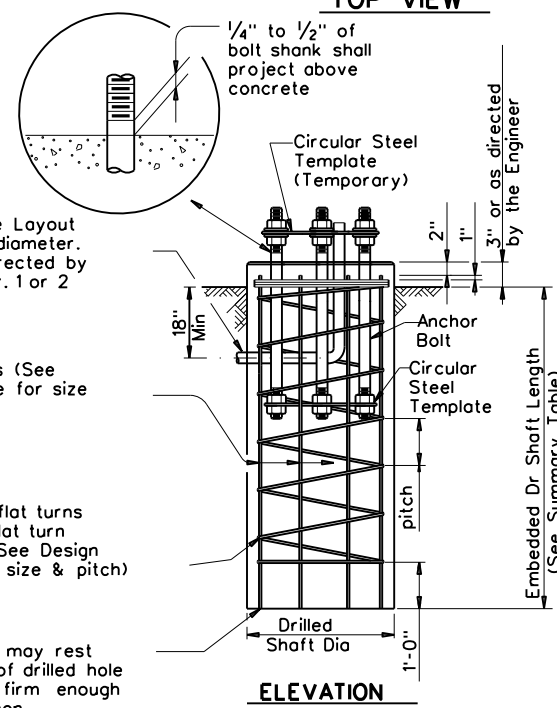
Use average N value over the top third of the embedded shaft. Ignore the top 1' of soil.

ANCHOR BOLT & TEMPLATE SIZES						
BOLT DIA IN.	⑦ BOLT LENGTH	TOP THREAD	BOTTOM THREAD	BOLT CIRCLE	R ₂	R ₁
¾"	1'-6"	3"	—	12 ¾"	7 ⅛"	5 ⅝"
1 ½"	3'-4"	6"	4"	17"	10"	7"
1 ¾"	3'-10"	7"	4 ½"	19"	11 ¼"	7 ¾"
2"	4'-3"	8"	5"	21"	12 ½"	8 ½"
2 ¼"	4'-9"	9"	5 ½"	23"	13 ¾"	9 ¼"

⑦ Min dimensions given, longer bolts are acceptable.



TOP VIEW



ELEVATION

FOUNDATION DETAILS

NOTES:

- Anchor bolt design develops the foundation capacity given under Foundation Design Loads.
- Foundation Design Loads are the allowable moments and shears at the base of the structure.
- Foundations may be listed separately or grouped according to similarity of location and type. Quantities are for the Contractor's information only.
- Field Penetrometer readings at a depth of approximately 3 to 5 feet may be used to adjust shaft lengths.
- If rock is encountered, the Drilled Shaft shall extend a minimum of two diameters into solid rock.
- Decimal lengths in Design Table are to allow interpolation for other penetrometer values. Round to nearest foot for entry into Summary Table.

FOUNDATION SUMMARY TABLE ③

LOCATION IDENTIFICATION	AVG. N BLOW /ft.	FDN TYPE	NO. EA	DRILLED SHAFT LENGTH (FEET) ⑥				
				24-A	30-A	36-A	36-B	42-A
34TH ST		24-A	3	18				
33RD ST		24-A	1	6				
29TH ST		24-A	1	6				
25TH ST		24-A	2	12				
21ST ST		24-A	3	18				
14TH ST		24-A	6	36				
TOTAL DRILLED SHAFT LENGTHS				96				

GENERAL NOTES:

Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals and interim revisions thereto.

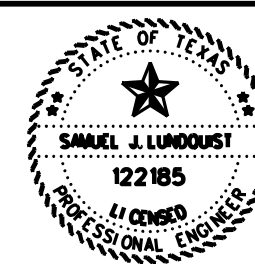
Reinforcing steel shall conform to Item 440, "Reinforcing Steel".

Concrete shall be Class "C".

Threads for anchor bolts and nuts shall be rolled or cut threads of 8UN series up to 2" in diameter or UNC series for all sizes. Bolts and nuts shall have Class 2A and 2B fit tolerances. Galvanized nuts shall be tapped after galvanizing.

Anchor bolts that are larger than 1" in diameter shall conform to "alloy steel" or "medium-strength mild steel" per Item 449, "Anchor Bolts". Anchor bolts that are 1" in diameter or less shall conform to ASTM A36. Galvanize a minimum of the top end thread length plus 6" for all anchor bolts unless otherwise noted. Exposed washers and exposed nuts shall be galvanized. All galvanizing shall be in accordance with Item 445, "Galvanizing".

Templates and embedded nuts need not be galvanized. Lubricate and tighten anchor bolts when erecting the structure in accordance with Item 449, "Anchor Bolts".



5/17/2024



TRAFFIC SIGNAL POLE FOUNDATION

TS-FD-12

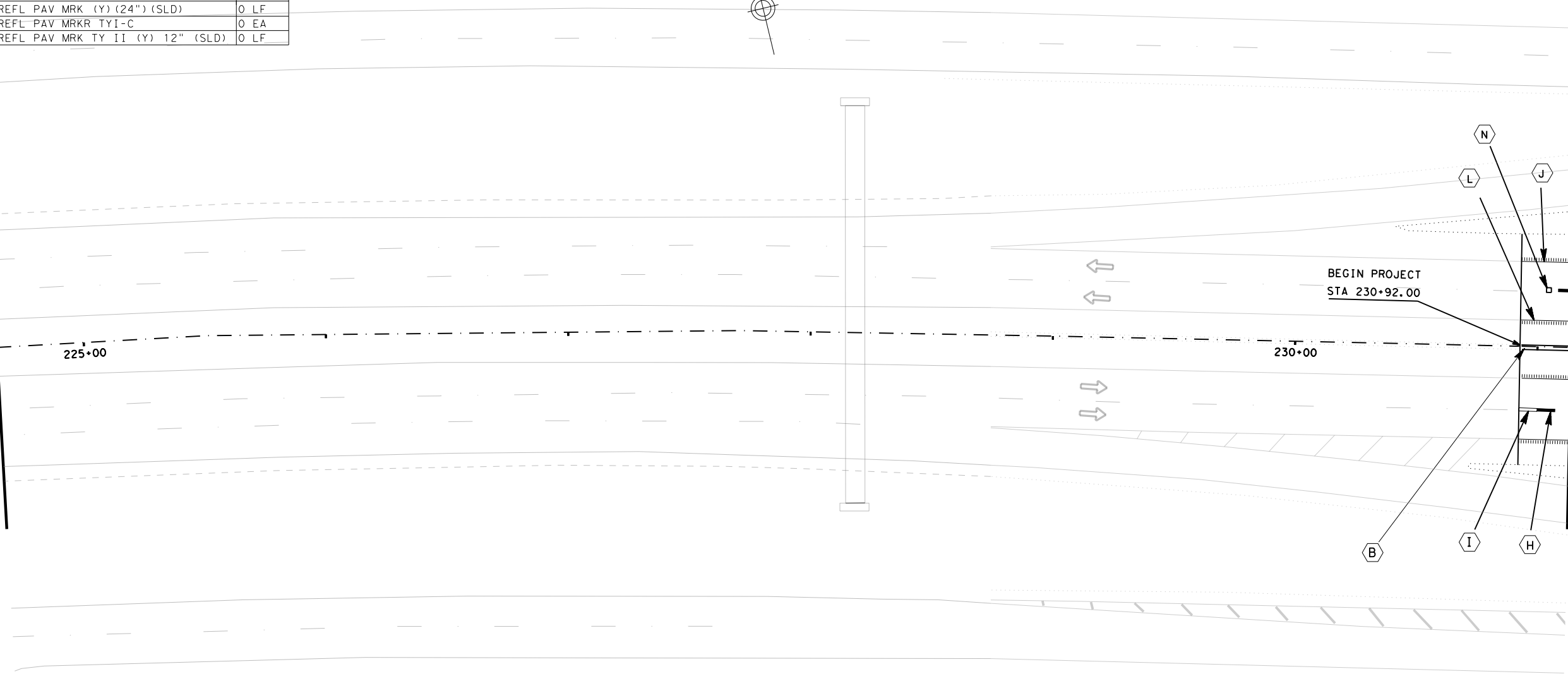
© TxDOT August 1995		DN: MS	CK: JSY	DW: MAO/MMF	CK: JSY/TEB
REVISIONS	CONT	SECT	JOB	HIGHWAY	
	1607	01	057, ETC.	FM 1764	
	DIST	COUNTY		SHEET NO.	
	HOU	GALVESTON		306	

DATE: 5/9/2024 1:10:13 PM
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LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSTL DEL ASSM (D-SW)SZ (BRF)CTB	0 EA
(B)	658 6071	INSTL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	1 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	0 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	0 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	0 EA
ONLY	666 6078	REFL PAV MRK (W) (WORD)	0 EA
(G)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	0 EA
(H)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	0 EA
(I)	666 6162	RE PV MRK TY I (BLACK) (6") (SHADOW)	20 LF
(J)	666 6306	REFL PAV MRK (W) (BRK) (6")	20 LF
(K)	666 6309	REFL PAV MRK (W) (SLD) (6")	42 LF
(L)	666 6318	REFL PAV MRK (Y) (BRK) (6")	0 LF
(M)	666 6321	REFL PAV MRK (Y) (SLD) (6")	42 LF
(N)	672 6009	REFL PAV MRKR TYII-A-A	0 EA
(O)	672 6010	REFL PAV MRKR TYII-C-R	2 EA
(P)	666 6147	REFL PAV MRK (Y) (24") (SLD)	0 LF
(Q)	672 6007	REFL PAV MRKR TYI-C	0 EA
(R)	666 6212	REFL PAV MRK TY II (Y) 12" (SLD)	0 LF

- PROPOSED SMALL SIGN
- (X-) REMOVE SM RD SN SUP & AM
- (R-) REPLACE SM RD SN SUP & AM
- PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- (X-) REMOVE LARGE SIGN OR OVHD SIGN PANEL
- ||||| PROPOSED RUMBLE STRIP
- ▨ EXIST SIGN TO REMAIN
- DIRECTIONAL TRAFFIC FLOW

MATCH LINE STA. 224+64.00



MATCH LINE STA. 231+14.00

STATE OF TEXAS
 JOEL H. CLARKE
 114223
 LICENSED PROFESSIONAL ENGINEER
 May 21 2024

SIGNING & PAVEMENT
 MARKING LAYOUT
 FM 1764



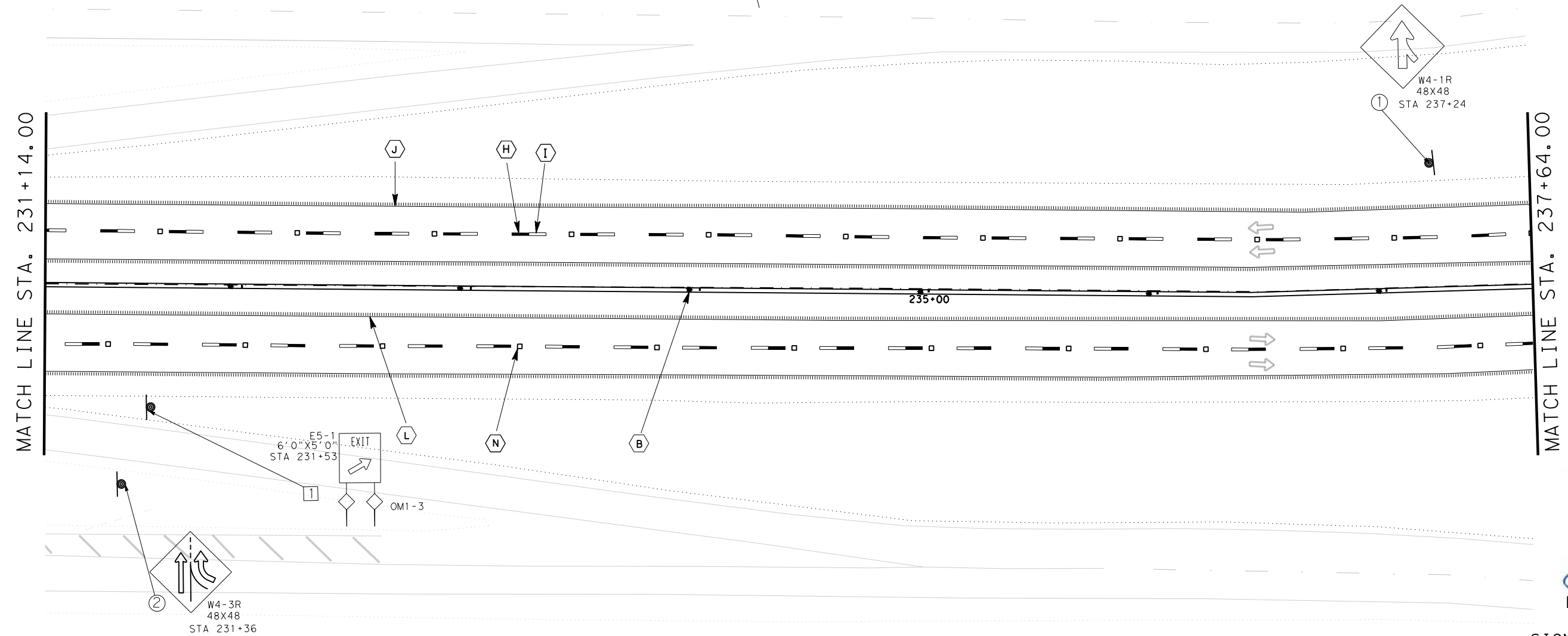
SHEET 1 OF 44
 @2024
 Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		307

DATE: DATE TIME
 FILE: DOCUMENT NAME

LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSTL DEL ASSM (D-SW)SZ (BRF)CTB	0 EA
(B)	658 6071	INSTL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	7 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	0 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	0 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	0 EA
(G)	666 6078	REFL PAV MRK (W) (WORD)	0 EA
(H)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	0 EA
(I)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	0 EA
(J)	666 6162	RE PV MRK TY I (BLACK) (6") (SHADOW)	330 LF
(K)	666 6306	REFL PAV MRK (W) (BRK) (6")	330 LF
(L)	666 6309	REFL PAV MRK (W) (SLD) (6")	1304 LF
(M)	666 6318	REFL PAV MRK (Y) (BRK) (6")	0 LF
(N)	666 6321	REFL PAV MRK (Y) (SLD) (6")	1301 LF
(O)	672 6009	REFL PAV MRKR TYII-A-A	0 EA
(P)	672 6010	REFL PAV MRKR TYII-C-R	16 EA
(Q)	666 6147	REFL PAV MRK (Y) (24") (SLD)	0 LF
(R)	672 6007	REFL PAV MRKR TYI-C	0 EA
(S)	666 6212	REFL PAV MRK TY II (Y) 12" (SLD)	0 LF

- PROPOSED SMALL SIGN
- (X-) REMOVE SM RD SN SUP & AM
- (R-) REPLACE SM RD SN SUP & AM
- PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- (X-) REMOVE LARGE SIGN OR OVHD SIGN PANEL
- ||||| PROPOSED RUMBLE STRIP
- ▨ EXIST SIGN TO REMAIN
- ➔ DIRECTIONAL TRAFFIC FLOW



STATE OF TEXAS
 JOEL H. CLARKE
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 May 21 2024

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SHEET 2 OF 44

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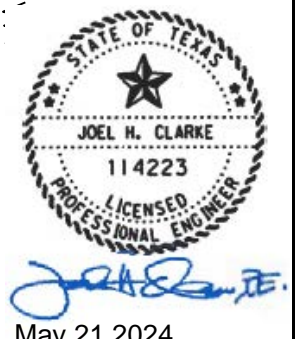
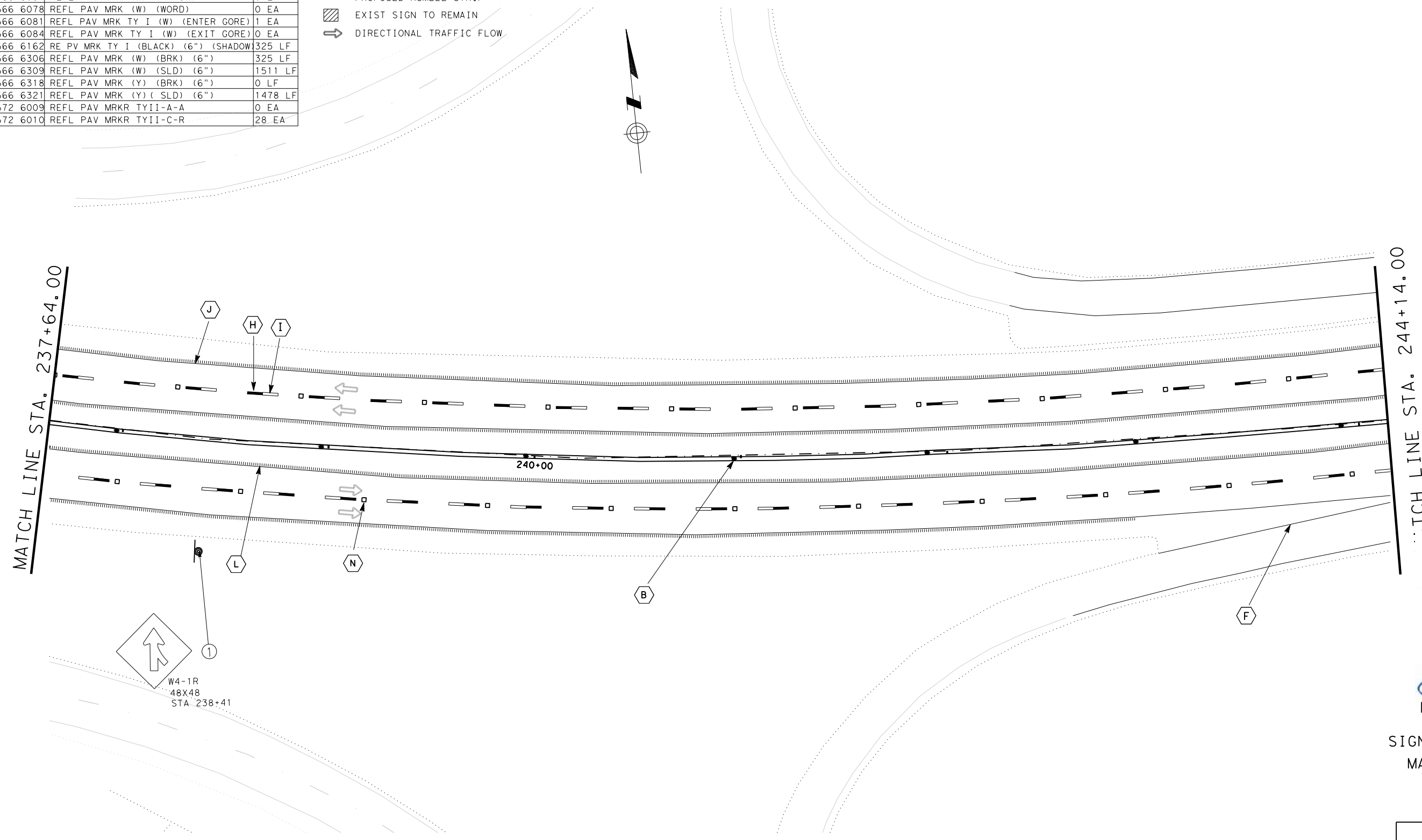
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		308



DATE: DATE TIME
 FILE: DOCUMENT NAME
 CKS: CKS
 DNR: DNR
 DNR: DNR

LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSTL DEL ASSM (D-SW)SZ (BRF)CTB	0 EA
(B)	658 6071	INSTL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	7 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	0 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	0 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	0 EA
(G)	666 6078	REFL PAV MRK (W) (WORD)	0 EA
(H)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	1 EA
(I)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	0 EA
(J)	666 6162	RE PV MRK TY I (BLACK) (6") (SHADOW)	325 LF
(K)	666 6306	REFL PAV MRK (W) (BRK) (6")	325 LF
(L)	666 6309	REFL PAV MRK (W) (SLD) (6")	1511 LF
(M)	666 6318	REFL PAV MRK (Y) (BRK) (6")	0 LF
(N)	666 6321	REFL PAV MRK (Y) (SLD) (6")	1478 LF
(O)	672 6009	REFL PAV MRKR TYII-A-A	0 EA
(P)	672 6010	REFL PAV MRKR TYII-C-R	28 EA

- PROPOSED SMALL SIGN
- ⊖ REMOVE SM RD SN SUP & AM
- ⊕ REPLACE SM RD SN SUP & AM
- PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- ⊖⊕ REMOVE LARGE SIGN OR OVHD SIGN PANEL
- ||||| PROPOSED RUMBLE STRIP
- ▨ EXIST SIGN TO REMAIN
- ➔ DIRECTIONAL TRAFFIC FLOW



May 21 2024

SIGNING & PAVEMENT
MARKING LAYOUT
FM 1764

SHEET 3 OF 44



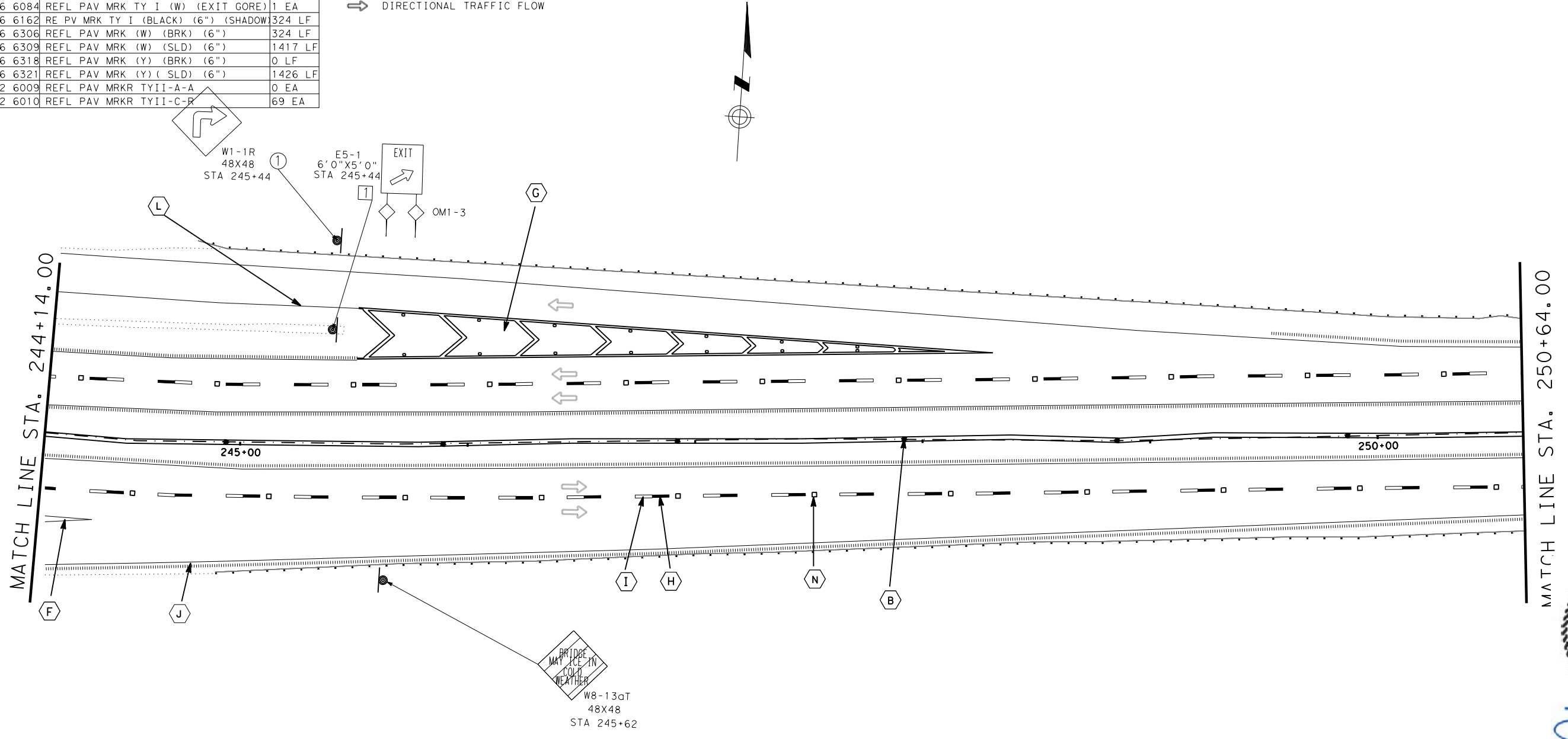
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		309



DATE: DATE TIME
 FILE: DOCUMENT NAME

LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSL DEL ASSM (D-SW)SZ (BRF)CTB	0 EA
(B)	658 6071	INSL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	7 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	0 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	0 LF
	666 6054	REFL PAV MRK (W) (ARROW)	0 EA
ONLY	666 6078	REFL PAV MRK (W) (WORD)	0 EA
(F)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	0 EA
(G)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	1 EA
(H)	666 6162	RE PV MRK TY I (BLACK) (6") (SHADOW)	324 LF
(I)	666 6306	REFL PAV MRK (W) (BRK) (6")	324 LF
(J)	666 6309	REFL PAV MRK (W) (SLD) (6")	1417 LF
(K)	666 6318	REFL PAV MRK (Y) (BRK) (6")	0 LF
(L)	666 6321	REFL PAV MRK (Y) (SLD) (6")	1426 LF
(M)	672 6009	REFL PAV MRKR TYII-A-A	0 EA
(N)	672 6010	REFL PAV MRKR TYII-C-B	69 EA

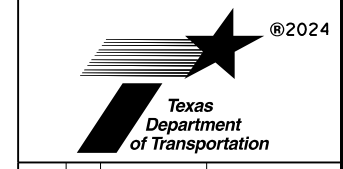
- PROPOSED SMALL SIGN
- ⊖ REMOVE SM RD SN SUP & AM
- ⊕ REPLACE SM RD SN SUP & AM
- PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- ⊗ REMOVE LARGE SIGN OR OVHD SIGN PANEL
- ||||| PROPOSED RUMBLE STRIP
- ▨ EXIST SIGN TO REMAIN
- ➔ DIRECTIONAL TRAFFIC FLOW



May 21 2024
 JOEL H. CLARKE

SIGNING & PAVEMENT
 MARKING LAYOUT
 FM 1764

SHEET 4 OF 44



CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		310

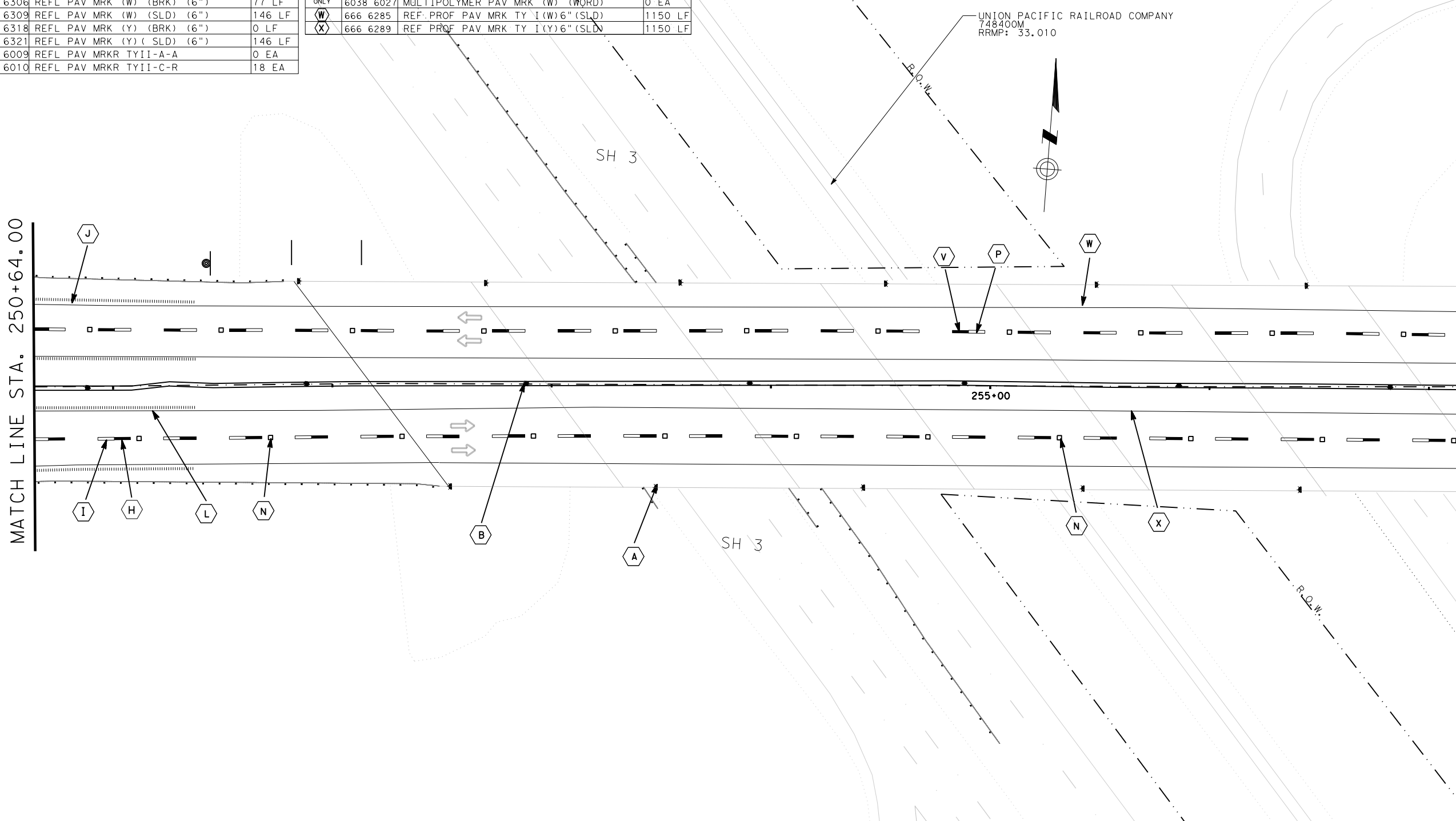


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LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSTL DEL ASSM (D-SW)SZ (BRF)CTB	11 EA
(B)	658 6071	INSTL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	7 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	0 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	0 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	0 EA
(G)	666 6078	REFL PAV MRK (W) (WORD)	0 EA
(H)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	0 EA
(I)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	0 EA
(J)	666 6162	RE PV MRK TY I (BLACK) (6") (SHADOW)	77 LF
(K)	666 6306	REFL PAV MRK (W) (BRK) (6")	77 LF
(L)	666 6309	REFL PAV MRK (W) (SLD) (6")	146 LF
(M)	666 6318	REFL PAV MRK (Y) (BRK) (6")	0 LF
(N)	666 6321	REFL PAV MRK (Y) (SLD) (6")	146 LF
(O)	672 6009	REFL PAV MRKR TYII-A-A	0 EA
(P)	672 6010	REFL PAV MRKR TYII-C-R	18 EA

SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(Q)	6038 6004	MULTIPOLYMER PAV MRK (W) (6") (SLD)	0 LF
(R)	6038 6005	MULTIPOLYMER PAV MRK (W) (6") (BRK)	278 LF
(S)	6038 6006	MULTIPOLYMER PAV MRK (W) (6") (DOT)	0 LF
(T)	6038 6007	MULTIPOLYMER PAV MRK (W) (8") (SLD)	0 LF
(U)	6038 6012	MULTIPOLYMER PAV MRK (W) (12") (LNDP)	0 LF
(V)	6038 6013	MULTIPOLYMER PAV MRK (W) (24") (SLD)	0 LF
(W)	6038 6017	MULTIPOLYMER PAV MRK (Y) (6") (SLD)	0 LF
(X)	6038 6024	MULTIPOLYMER PAV MRK (BLK) (6") (BRK)	278 LF
(Y)	6038 6025	MULTIPOLYMER PAV MRK (W) (ARROW)	0 EA
(Z)	6038 6026	MULTIPOLYMER PAV MRK (W) (DBL ARROW)	0 EA
(AA)	6038 6027	MULTIPOLYMER PAV MRK (W) (WORD)	0 EA
(AB)	666 6285	REF. PROF PAV MRK TY I (W) 6" (SLD)	1150 LF
(AC)	666 6289	REF. PROF PAV MRK TY I (Y) 6" (SLD)	1150 LF

- (O) PROPOSED SMALL SIGN
- (X-) REMOVE SM RD SN SUP & AM
- (R-) REPLACE SM RD SN SUP & AM
- (□) PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- (X-□) REMOVE LARGE SIGN OR OVHD SIGN PANEL
- (|||||) PROPOSED RUMBLE STRIP
- (▨) EXIST SIGN TO REMAIN
- (→) DIRECTIONAL TRAFFIC FLOW



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 MARKING LAYOUT
 FM 1764



SHEET 5 OF 44

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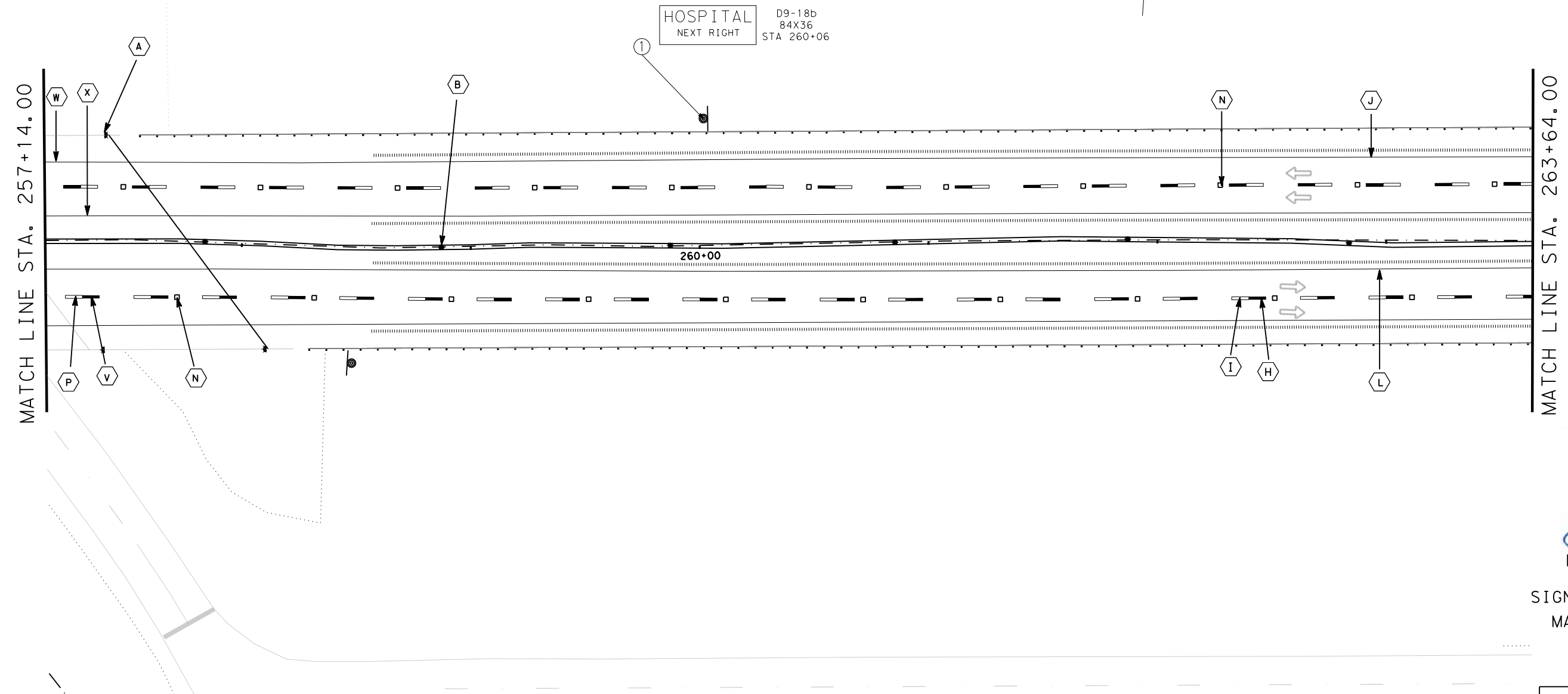
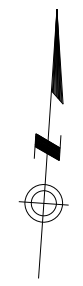
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		311

DATE: DATE TIME
 FILE: DOCUMENT NAME

LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSTL DEL ASSM (D-SW)SZ (BRF)CTB	3 EA
(B)	658 6071	INSTL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	7 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	0 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	0 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	0 EA
(G)	666 6078	REFL PAV MRK (W) (WORD)	0 EA
(H)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	0 EA
(I)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	0 EA
(J)	666 6162	REFL PAV MRK TY I (BLACK) (6") (SHADOW)	293 LF
(K)	666 6306	REFL PAV MRK (W) (BRK) (6")	293 LF
(L)	666 6309	REFL PAV MRK (W) (SLD) (6")	1012 LF
(M)	666 6318	REFL PAV MRK (Y) (BRK) (6")	0 LF
(N)	666 6321	REFL PAV MRK (Y) (SLD) (6")	1012 LF
(O)	672 6009	REFL PAV MRKR TYII-A-A	0 EA
(P)	672 6010	REFL PAV MRKR TYII-C-R	16 EA

SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(Q)	6038 6004	MULTIPOLYMER PAV MRK (W) (6") (SLD)	0 LF
(R)	6038 6005	MULTIPOLYMER PAV MRK (W) (6") (BRK)	30 LF
(S)	6038 6006	MULTIPOLYMER PAV MRK (W) (6") (DOT)	0 LF
(T)	6038 6007	MULTIPOLYMER PAV MRK (W) (8") (SLD)	0 LF
(U)	6038 6012	MULTIPOLYMER PAV MRK (W) (12") (LNDP)	0 LF
(V)	6038 6013	MULTIPOLYMER PAV MRK (W) (24") (SLD)	0 LF
(W)	6038 6017	MULTIPOLYMER PAV MRK (Y) (6") (SLD)	0 LF
(X)	6038 6024	MULTIPOLYMER PAV MRK (BLK) (6") (BRK)	30 LF
(Y)	6038 6025	MULTIPOLYMER PAV MRK (W) (ARROW)	0 EA
(Z)	6038 6026	MULTIPOLYMER PAV MRK (W) (DBL ARROW)	0 EA
(AA)	6038 6027	MULTIPOLYMER PAV MRK (W) (WORD)	0 EA
(AB)	666 6285	REF PROF PAV MRK TY I(W)6" (SLD)	286 LF
(AC)	666 6289	REF PROF PAV MRK TY I(Y)6" (SLD)	286 LF

- (O) PROPOSED SMALL SIGN
- (X-) REMOVE SM RD SN SUP & AM
- (R-) REPLACE SM RD SN SUP & AM
- (□) PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- (X-) REMOVE LARGE SIGN OR OVHD SIGN PANEL
- (|||||) PROPOSED RUMBLE STRIP
- (▨) EXIST SIGN TO REMAIN
- (→) DIRECTIONAL TRAFFIC FLOW



May 21 2024
 SIGNING & PAVEMENT
 MARKING LAYOUT
 FM 1764



SHEET 6 OF 44

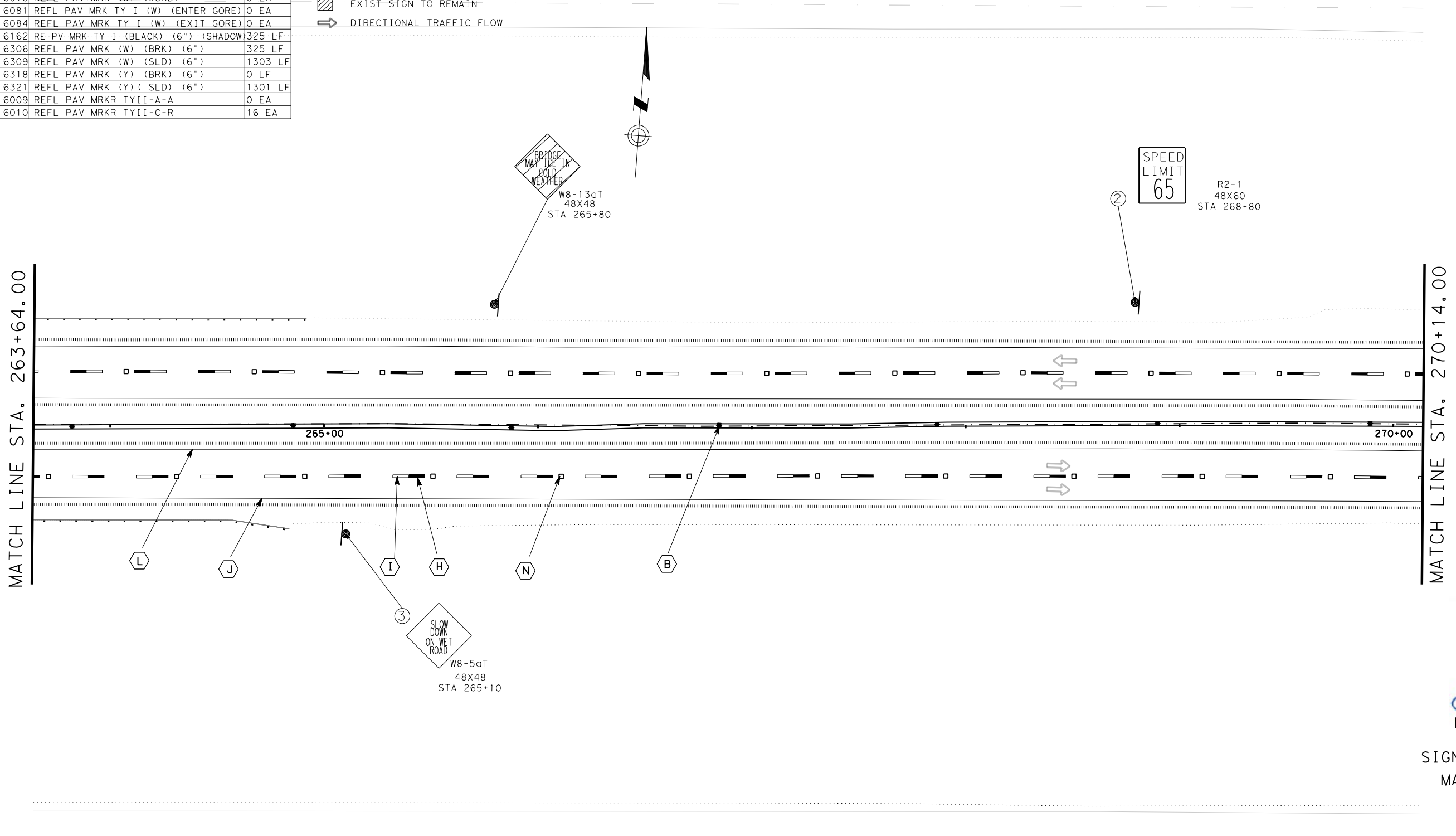
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CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		312

DATE: DATE TIME
 FILE: DOCUMENT NAME
 CK: DNR: CKS: DNR:

LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSTL DEL ASSM (D-SW)SZ (BRF)CTB	0 EA
(B)	658 6071	INSTL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	7 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	0 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	0 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	0 EA
ONLY	666 6078	REFL PAV MRK (W) (WORD)	0 EA
(G)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	0 EA
(H)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	0 EA
(I)	666 6162	RE PV MRK TY I (BLACK) (6") (SHADOW)	325 LF
(J)	666 6306	REFL PAV MRK (W) (BRK) (6")	325 LF
(K)	666 6309	REFL PAV MRK (W) (SLD) (6")	1303 LF
(L)	666 6318	REFL PAV MRK (Y) (BRK) (6")	0 LF
(M)	666 6321	REFL PAV MRK (Y) (SLD) (6")	1301 LF
(N)	672 6009	REFL PAV MRKR TYII-A-A	0 EA
(N)	672 6010	REFL PAV MRKR TYII-C-R	16 EA

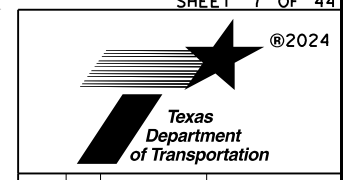
- PROPOSED SMALL SIGN
- ⊖ REMOVE SM RD SN SUP & AM
- ⊕ REPLACE SM RD SN SUP & AM
- PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- ⊖⊕ REMOVE LARGE SIGN OR OVHD SIGN PANEL
- ||||| PROPOSED RUMBLE STRIP
- ▨ EXIST SIGN TO REMAIN
- ➔ DIRECTIONAL TRAFFIC FLOW



May 21 2024

SIGNING & PAVEMENT
 MARKING LAYOUT
 FM 1764

SHEET 7 OF 44



CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		313



CHK: _____
 DWF: _____
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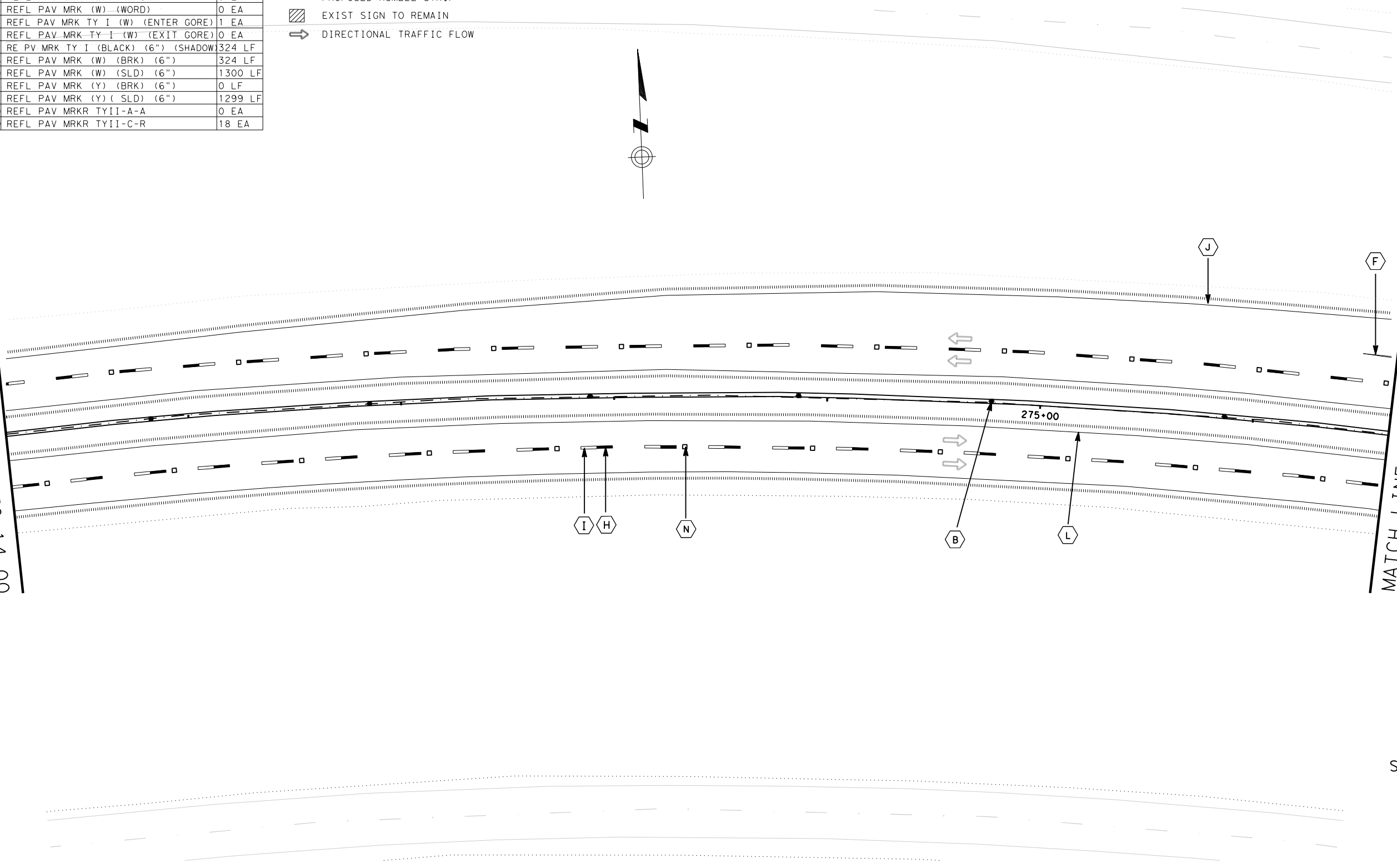
LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSTL DEL ASSM (D-SW)SZ (BRF)CTB	0 EA
(B)	658 6071	INSTL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	7 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	0 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	0 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	0 EA
ONLY	666 6078	REFL PAV MRK (W) (WORD)	0 EA
(G)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	1 EA
(H)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	0 EA
(I)	666 6162	RE PV MRK TY I (BLACK) (6") (SHADOW)	324 LF
(J)	666 6306	REFL PAV MRK (W) (BRK) (6")	324 LF
(K)	666 6309	REFL PAV MRK (W) (SLD) (6")	1300 LF
(L)	666 6318	REFL PAV MRK (Y) (BRK) (6")	0 LF
(M)	666 6321	REFL PAV MRK (Y) (SLD) (6")	1299 LF
(N)	672 6009	REFL PAV MRKR TYII-A-A	0 EA
(O)	672 6010	REFL PAV MRKR TYII-C-R	18 EA

- PROPOSED SMALL SIGN
- ⊖ REMOVE SM RD SN SUP & AM
- ⊕ REPLACE SM RD SN SUP & AM
- PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- ⊗ REMOVE LARGE SIGN OR OVHD SIGN PANEL
- ||||| PROPOSED RUMBLE STRIP
- ▨ EXIST SIGN TO REMAIN
- ➔ DIRECTIONAL TRAFFIC FLOW



MATCH LINE STA. 270+14.00

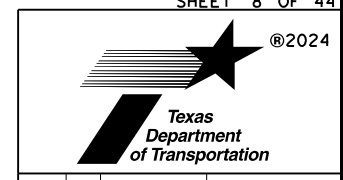
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Joel H. Clarke
 May 21 2024

SIGNING & PAVEMENT
 MARKING LAYOUT
 FM 1764

SHEET 8 OF 44



CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		314



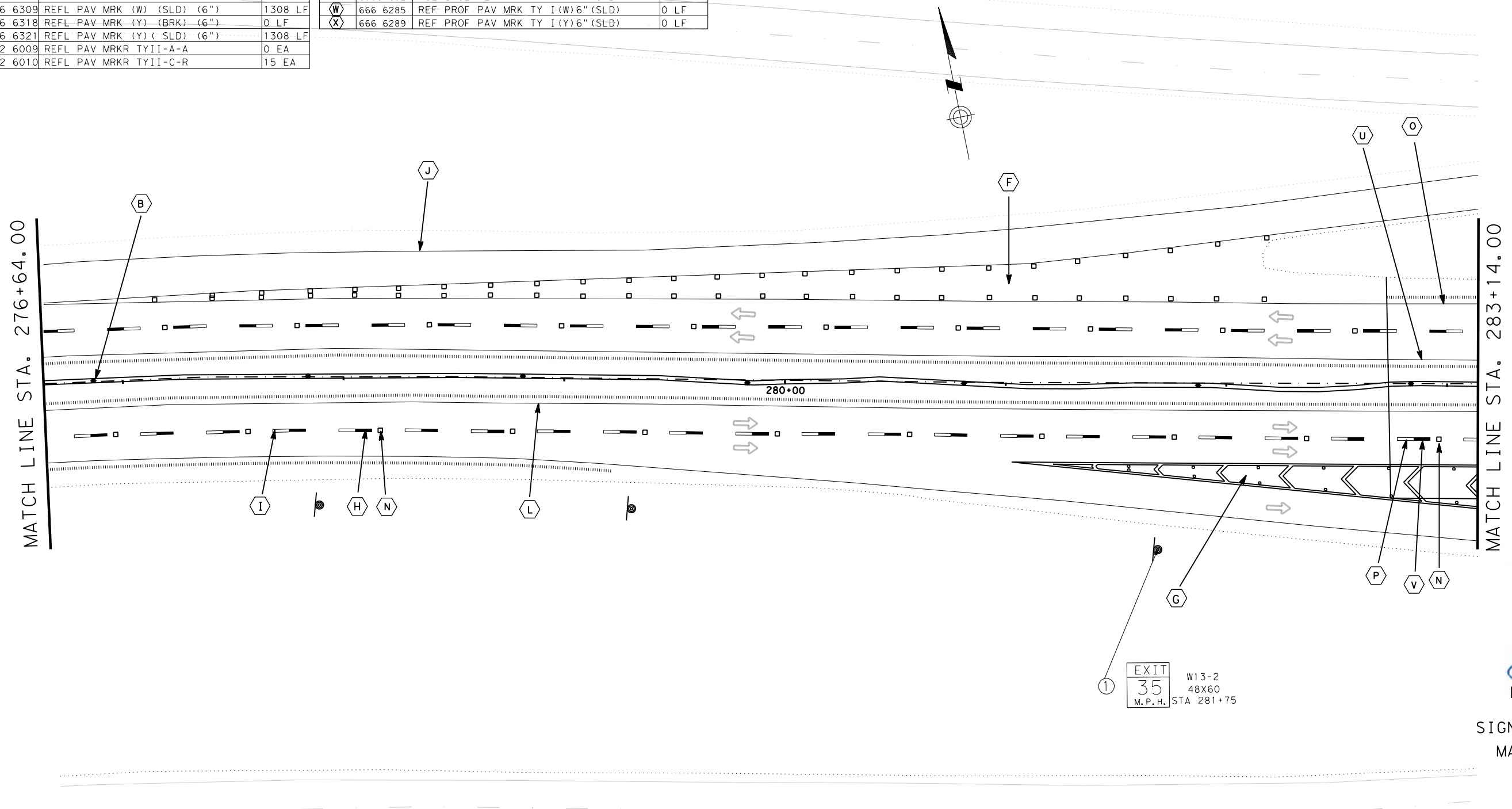
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LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSTL DEL ASSM (D-SW)SZ (BRF)CTB	0 EA
(B)	658 6071	INSTL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	7 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	0 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	0 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	0 EA
(G)	666 6078	REFL PAV MRK (W) (WORD)	0 EA
(H)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	1 EA
(I)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	1 EA
(J)	666 6162	RE PV MRK TY I (BLACK) (6") (SHADOW)	304 LF
(K)	666 6306	REFL PAV MRK (W) (BRK) (6")	304 LF
(L)	666 6309	REFL PAV MRK (W) (SLD) (6")	1308 LF
(M)	666 6318	REFL PAV MRK (Y) (BRK) (6")	0 LF
(N)	666 6321	REFL PAV MRK (Y) (SLD) (6")	1308 LF
(O)	672 6009	REFL PAV MRKR TYII-A-A	0 EA
(P)	672 6010	REFL PAV MRKR TYII-C-R	15 EA

SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(Q)	6038 6004	MULTIPOLYMER PAV MRK (W) (6") (SLD)	41 LF
(R)	6038 6005	MULTIPOLYMER PAV MRK (W) (6") (BRK)	20 LF
(S)	6038 6006	MULTIPOLYMER PAV MRK (W) (6") (DOT)	0 LF
(T)	6038 6007	MULTIPOLYMER PAV MRK (W) (8") (SLD)	0 LF
(U)	6038 6012	MULTIPOLYMER PAV MRK (W) (12") (LNDP)	0 LF
(V)	6038 6013	MULTIPOLYMER PAV MRK (W) (24") (SLD)	0 LF
(W)	6038 6017	MULTIPOLYMER PAV MRK (Y) (6") (SLD)	81 LF
(X)	6038 6024	MULTIPOLYMER PAV MRK (BLK) (6") (BRK)	20 LF
(Y)	6038 6025	MULTIPOLYMER PAV MRK (W) (ARROW)	0 EA
(Z)	6038 6026	MULTIPOLYMER PAV MRK (W) (DBL ARROW)	0 EA
(AA)	6038 6027	MULTIPOLYMER PAV MRK (W) (WORD)	0 EA
(AB)	666 6285	REF PROF PAV MRK TY I(W)6" (SLD)	0 LF
(AC)	666 6289	REF PROF PAV MRK TY I(Y)6" (SLD)	0 LF

- (O) PROPOSED SMALL SIGN
- (X-) REMOVE SM RD SN SUP & AM
- (R-) REPLACE SM RD SN SUP & AM
- (□) PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- (X-) REMOVE LARGE SIGN OR OVHD SIGN PANEL
- ||||| PROPOSED RUMBLE STRIP
- (▨) EXIST SIGN TO REMAIN
- (→) DIRECTIONAL TRAFFIC FLOW



May 21 2024
 SIGNING & PAVEMENT MARKING LAYOUT
 FM 1764

SHEET 9 OF 44
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 Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		315

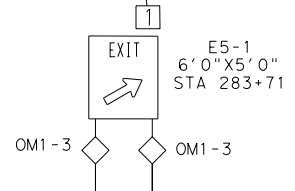
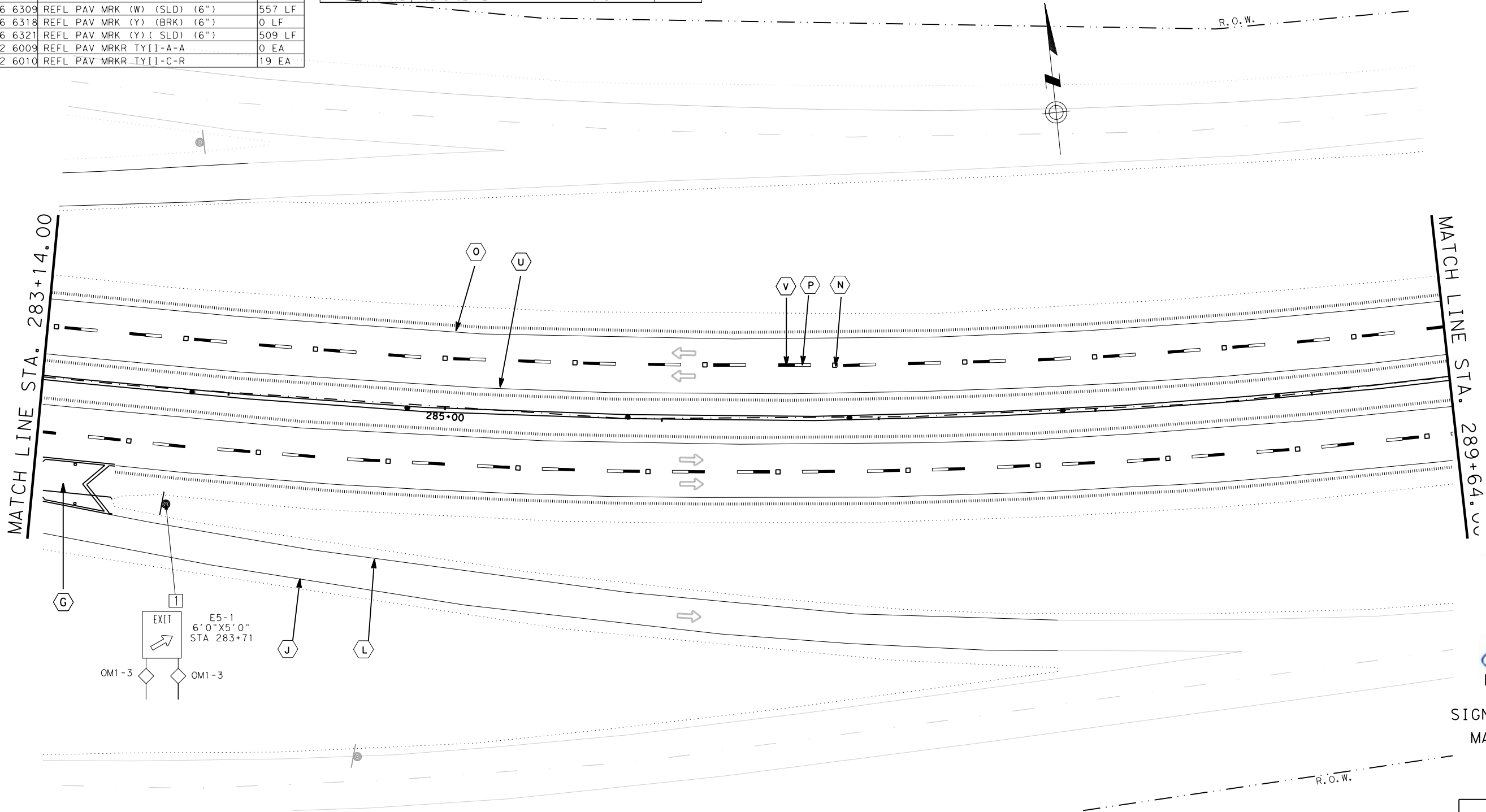


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LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSTL DEL ASSM (D-SW)SZ (BRF)CTB	0 EA
(B)	658 6071	INSTL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	7 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	0 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	0 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	0 EA
(G)	666 6078	REFL PAV MRK (W) (WORD)	0 EA
(H)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	0 EA
(I)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	1 EA
(J)	666 6162	RE PV MRK TY I (BLACK) (6") (SHADOW)	0 LF
(K)	666 6306	REFL PAV MRK (W) (BRK) (6")	0 LF
(L)	666 6309	REFL PAV MRK (W) (SLD) (6")	557 LF
(M)	666 6318	REFL PAV MRK (Y) (BRK) (6")	0 LF
(N)	666 6321	REFL PAV MRK (Y) (SLD) (6")	509 LF
(O)	672 6009	REFL PAV MRKR TYII-A-A	0 EA
(P)	672 6010	REFL PAV MRKR TYII-C-R	19 EA

SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(O)	6038 6004	MULTIPOLYMER PAV MRK (W) (6") (SLD)	1292 LF
(P)	6038 6005	MULTIPOLYMER PAV MRK (W) (6") (BRK)	324 LF
(Q)	6038 6006	MULTIPOLYMER PAV MRK (W) (6") (DOT)	0 LF
(R)	6038 6007	MULTIPOLYMER PAV MRK (W) (8") (SLD)	0 LF
(S)	6038 6012	MULTIPOLYMER PAV MRK (W) (12") (LNDP)	0 LF
(T)	6038 6013	MULTIPOLYMER PAV MRK (W) (24") (SLD)	0 LF
(U)	6038 6017	MULTIPOLYMER PAV MRK (Y) (6") (SLD)	1297 LF
(V)	6038 6024	MULTIPOLYMER PAV MRK (BLK) (6") (BRK)	324 LF
(W)	6038 6025	MULTIPOLYMER PAV MRK (W) (ARROW)	0 EA
(X)	6038 6026	MULTIPOLYMER PAV MRK (W) (DBL ARROW)	0 EA
(Y)	6038 6027	MULTIPOLYMER PAV MRK (W) (WORD)	0 EA

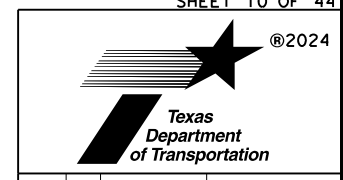
- PROPOSED SMALL SIGN
- ⊗ REMOVE SM RD SN SUP & AM
- ⊖ REPLACE SM RD SN SUP & AM
- PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- ⊗ REMOVE LARGE SIGN OR OVHD SIGN PANEL
- ||||| PROPOSED RUMBLE STRIP
- ▨ EXIST SIGN TO REMAIN
- ➔ DIRECTIONAL TRAFFIC FLOW



May 21 2024
 JOEL H. CLARKE
 LICENSED PROFESSIONAL ENGINEER

SIGNING & PAVEMENT
 MARKING LAYOUT
 FM 1764

SHEET 10 OF 44



CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		316

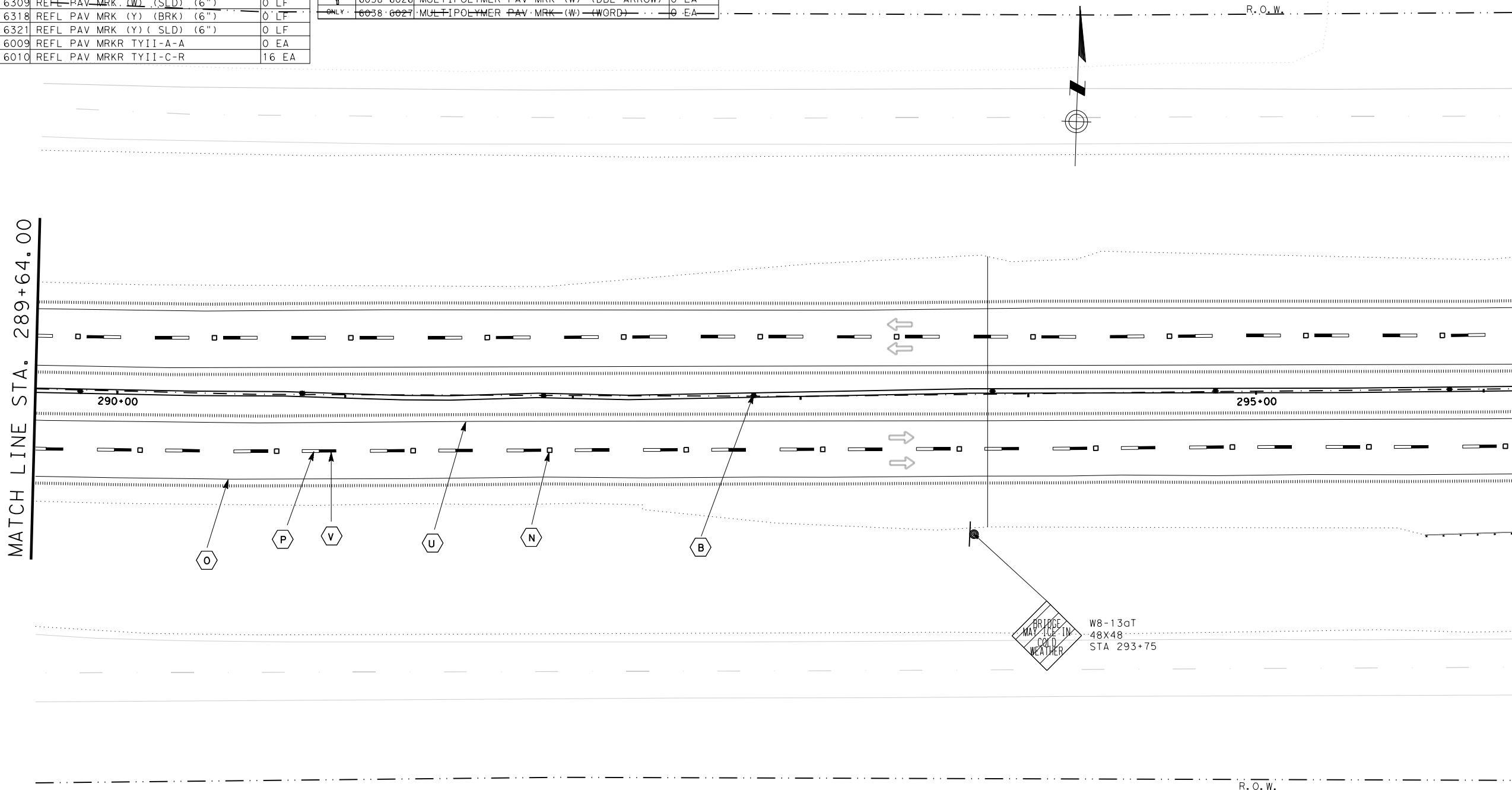


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LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSTL DEL ASSM (D-SW)SZ (BRF)CTB	0 EA
(B)	658 6071	INSTL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	7 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	0 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	0 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	0 EA
(G)	666 6078	REFL PAV MRK (W) (WORD)	0 EA
(H)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	0 EA
(I)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	0 EA
(J)	666 6162	RE PV MRK TY I (BLACK) (6") (SHADOW)	0 LF
(K)	666 6306	REFL PAV MRK (W) (BRK) (6")	0 LF
(L)	666 6309	REFL PAV MRK (W) (SLD) (6")	0 LF
(M)	666 6318	REFL PAV MRK (Y) (BRK) (6")	0 LF
(N)	666 6321	REFL PAV MRK (Y) (SLD) (6")	0 LF
(O)	672 6009	REFL PAV MRKR TYII-A-A	0 EA
(P)	672 6010	REFL PAV MRKR TYII-C-R	16 EA

LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(O)	6038 6004	MULTIPOLYMER PAV MRK (W) (6") (SLD)	1300 LF
(P)	6038 6005	MULTIPOLYMER PAV MRK (W) (6") (BRK)	325 LF
(Q)	6038 6006	MULTIPOLYMER PAV MRK (W) (6") (DOT)	0 LF
(R)	6038 6007	MULTIPOLYMER PAV MRK (W) (8") (SLD)	0 LF
(S)	6038 6012	MULTIPOLYMER PAV MRK (W) (12") (LNDR)	0 LF
(T)	6038 6013	MULTIPOLYMER PAV MRK (W) (24") (SLD)	0 LF
(U)	6038 6017	MULTIPOLYMER PAV MRK (Y) (6") (SLD)	1300 LF
(V)	6038 6024	MULTIPOLYMER PAV MRK (BLK) (6") (BRK)	325 LF
(W)	6038 6025	MULTIPOLYMER PAV MRK (W) (ARROW)	0 EA
(X)	6038 6026	MULTIPOLYMER PAV MRK (W) (DBL ARROW)	0 EA
(Y)	6038 6027	MULTIPOLYMER PAV MRK (W) (WORD)	0 EA

- PROPOSED SMALL SIGN
- ⊗ REMOVE SM RD SN SUP & AM
- ⊖ REPLACE SM RD SN SUP & AM
- PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- ⊗ REMOVE LARGE SIGN OR OVHD SIGN PANEL
- ||||| PROPOSED RUMBLE STRIP
- ▨ EXIST SIGN TO REMAIN
- ➔ DIRECTIONAL TRAFFIC FLOW



May 21 2024
 SIGNING & PAVEMENT
 MARKING LAYOUT
 FM 1764



SHEET 11 OF 44

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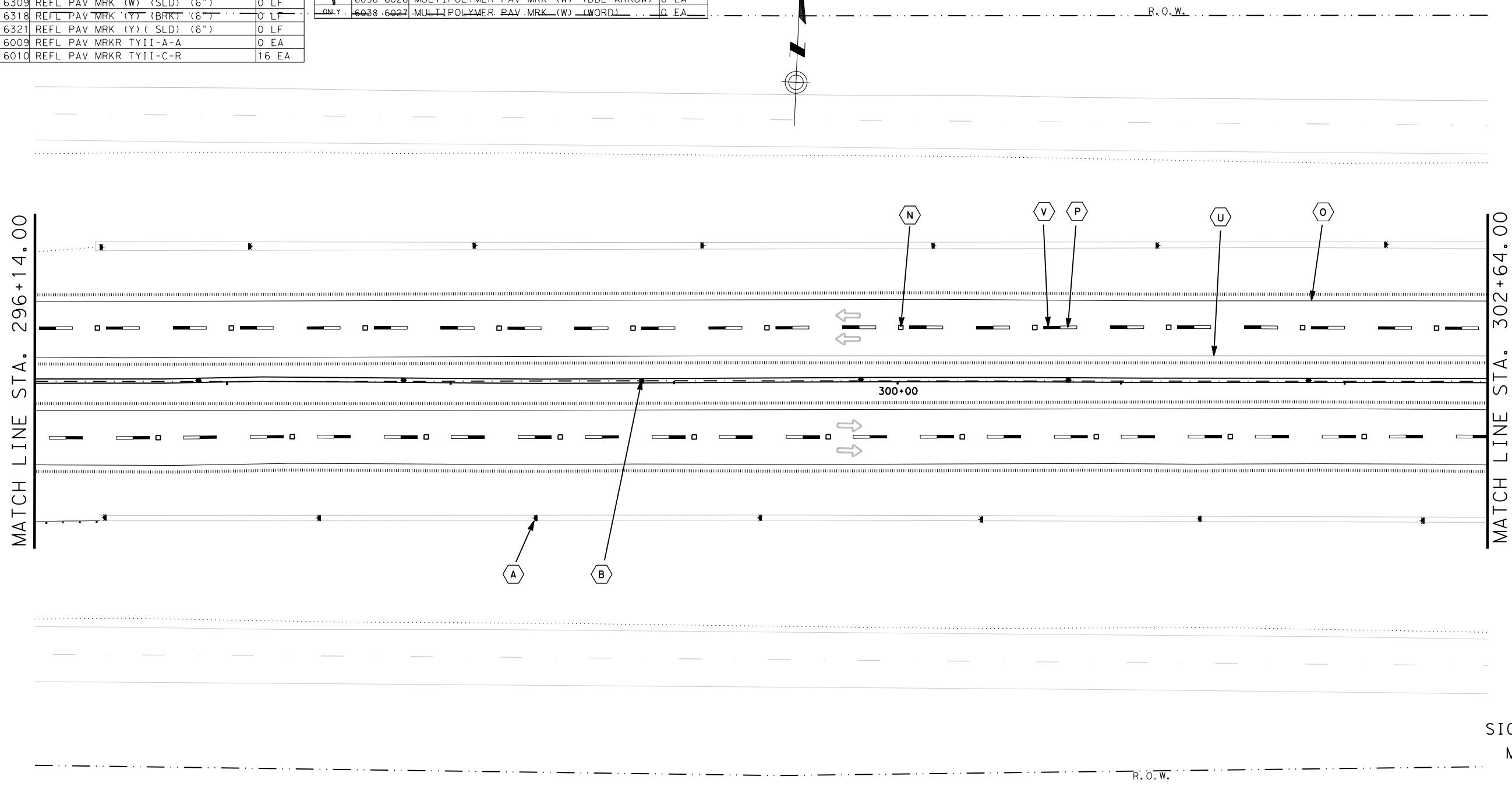
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		317

DATE: DATE TIME
 FILE: DOCUMENT NAME

LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSTL DEL ASSM (D-SW)SZ (BRF)CTB	14 EA
(B)	658 6071	INSTL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	7 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	0 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	0 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	0 EA
(G)	666 6078	REFL PAV MRK (W) (WORD)	0 EA
(H)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	0 EA
(I)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	0 EA
(J)	666 6162	RE PV MRK TY I (BLACK) (6") (SHADOW)	0 LF
(K)	666 6306	REFL PAV MRK (W) (BRK) (6")	0 LF
(L)	666 6309	REFL PAV MRK (W) (SLD) (6")	0 LF
(M)	666 6318	REFL PAV MRK (Y) (BRK) (6")	0 LF
(N)	666 6321	REFL PAV MRK (Y) (SLD) (6")	0 LF
(O)	672 6009	REFL PAV MRKR TYII-A-A	0 EA
(P)	672 6010	REFL PAV MRKR TYII-C-R	16 EA

LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(Q)	6038 6004	MULTIPOLYMER PAV MRK (W) (6") (SLD)	1300 LF
(R)	6038 6005	MULTIPOLYMER PAV MRK (W) (6") (BRK)	325 LF
(S)	6038 6006	MULTIPOLYMER PAV MRK (W) (6") (DOT)	0 LF
(T)	6038 6007	MULTIPOLYMER PAV MRK (W) (8") (SLD)	0 LF
(U)	6038 6012	MULTIPOLYMER PAV MRK (W) (12") (LNDP)	0 LF
(V)	6038 6013	MULTIPOLYMER PAV MRK (W) (24") (SLD)	0 LF
(W)	6038 6017	MULTIPOLYMER PAV MRK (Y) (6") (SLD)	1300 LF
(X)	6038 6024	MULTIPOLYMER PAV MRK (BLK) (6") (BRK)	325 LF
(Y)	6038 6025	MULTIPOLYMER PAV MRK (W) (ARROW)	0 EA
(Z)	6038 6026	MULTIPOLYMER PAV MRK (W) (DBL ARROW)	0 EA
(AA)	6038 6027	MULTIPOLYMER PAV MRK (W) (WORD)	0 EA

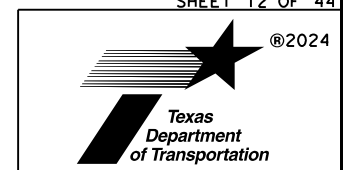
- PROPOSED SMALL SIGN
- (X-) REMOVE SM RD SN SUP & AM
- (R-) REPLACE SM RD SN SUP & AM
- PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- (X-) REMOVE LARGE SIGN OR OVHD SIGN PANEL
- ||||| PROPOSED RUMBLE STRIP
- ▨ EXIST SIGN TO REMAIN
- ➔ DIRECTIONAL TRAFFIC FLOW



May 21 2024

SIGNING & PAVEMENT
MARKING LAYOUT
FM 1764

SHEET 12 OF 44



CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		318

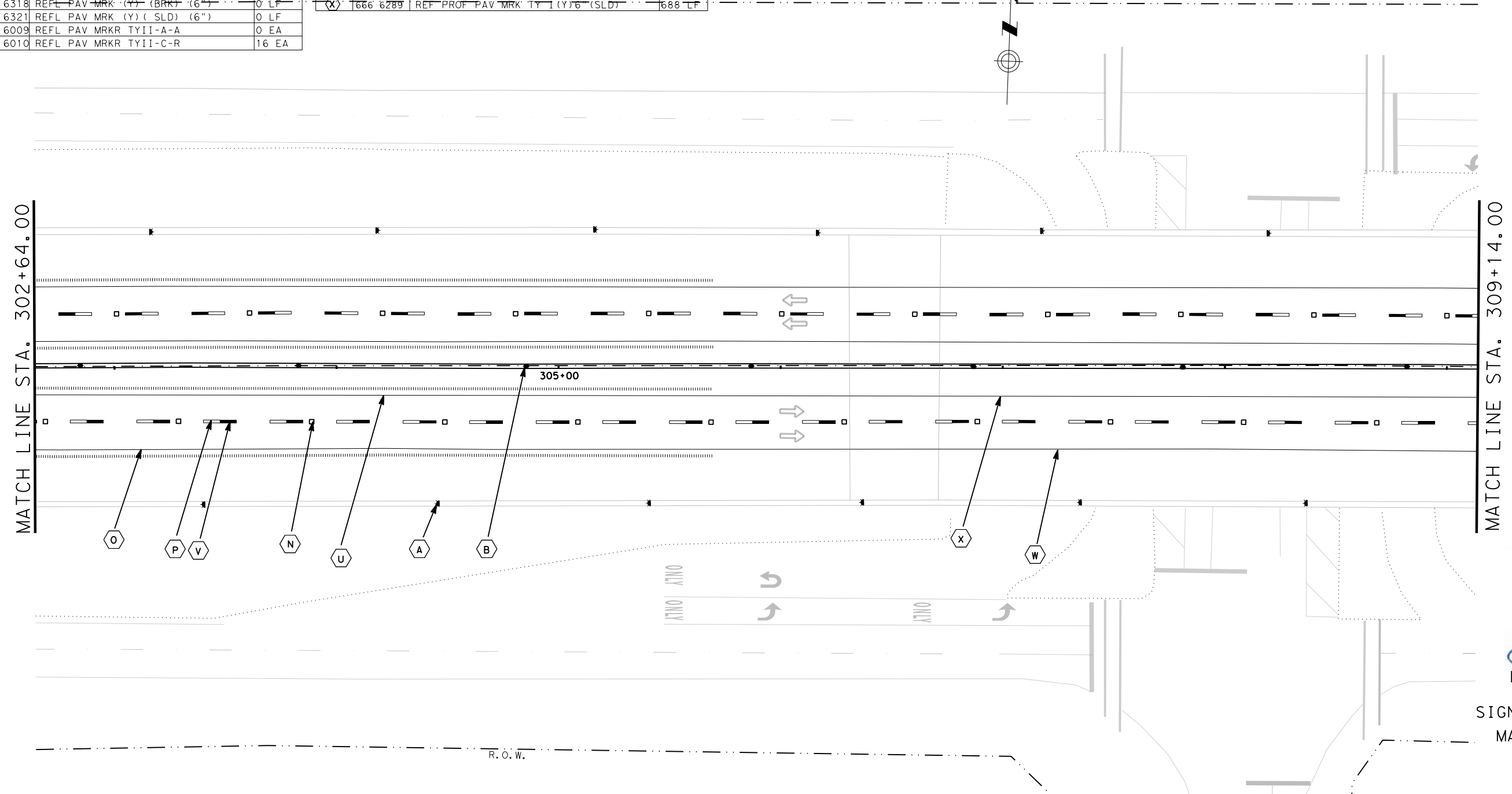


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LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSTL DEL ASSM (D-SW)SZ (BRF)CTB	12 EA
(B)	658 6071	INSTL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	7 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	0 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	0 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	0 EA
(G)	666 6078	REFL PAV MRK (W) (WORD)	0 EA
(H)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	0 EA
(I)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	0 EA
(J)	666 6162	RE PV MRK TY I (BLACK) (6") (SHADOW)	0 LF
(K)	666 6306	REFL PAV MRK (W) (BRK) (6")	0 LF
(L)	666 6309	REFL PAV MRK (W) (SLD) (6")	0 LF
(M)	666 6318	REFL PAV MRK (Y) (BRK) (6")	0 LF
(N)	666 6321	REFL PAV MRK (Y) (SLD) (6")	0 LF
(O)	672 6009	REFL PAV MRKR TYII-A-A	0 EA
(P)	672 6010	REFL PAV MRKR TYII-C-R	16 EA

SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(O)	6038 6004	MULTIPOLYMER PAV MRK (W) (6") (SLD)	612 LF
(P)	6038 6005	MULTIPOLYMER PAV MRK (W) (6") (BRK)	325 LF
(Q)	6038 6006	MULTIPOLYMER PAV MRK (W) (6") (DOT)	0 LF
(R)	6038 6007	MULTIPOLYMER PAV MRK (W) (8") (SLD)	0 LF
(S)	6038 6012	MULTIPOLYMER PAV MRK (W) (12") (LNDP)	0 LF
(T)	6038 6013	MULTIPOLYMER PAV MRK (W) (24") (SLD)	0 LF
(U)	6038 6017	MULTIPOLYMER PAV MRK (Y) (6") (SLD)	612 LF
(V)	6038 6024	MULTIPOLYMER PAV MRK (BLK) (6") (BRK)	325 LF
(W)	6038 6025	MULTIPOLYMER PAV MRK (W) (ARROW)	0 EA
(X)	6038 6026	MULTIPOLYMER PAV MRK (W) (DBL ARROW)	0 EA
(Y)	6038 6027	MULTIPOLYMER PAV MRK (W) (WORD)	0 EA
(Z)	666 6285	REF PROF PAV MRK TY I (W) 6" (SLD)	688 LF
(AA)	666 6289	REF PROF PAV MRK TY I (Y) 6" (SLD)	688 LF

- (O) PROPOSED SMALL SIGN
- (X) REMOVE SM RD SN SUP & AM
- (R) REPLACE SM RD SN SUP & AM
- () PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- (X) REMOVE LARGE SIGN OR OVHD SIGN PANEL
- ||||| PROPOSED RUMBLE STRIP
- ▨ EXIST SIGN TO REMAIN
- DIRECTIONAL TRAFFIC FLOW



May 21 2024
 [Signature]

SIGNING & PAVEMENT
 MARKING LAYOUT
 FM 1764

SHEET 13 OF 44

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 CONT SECT JOB HIGHWAY
 1607 01 057, ETC FM 1764
 DIST COUNTY SHEET NO.
 HOU GALVESTON 319

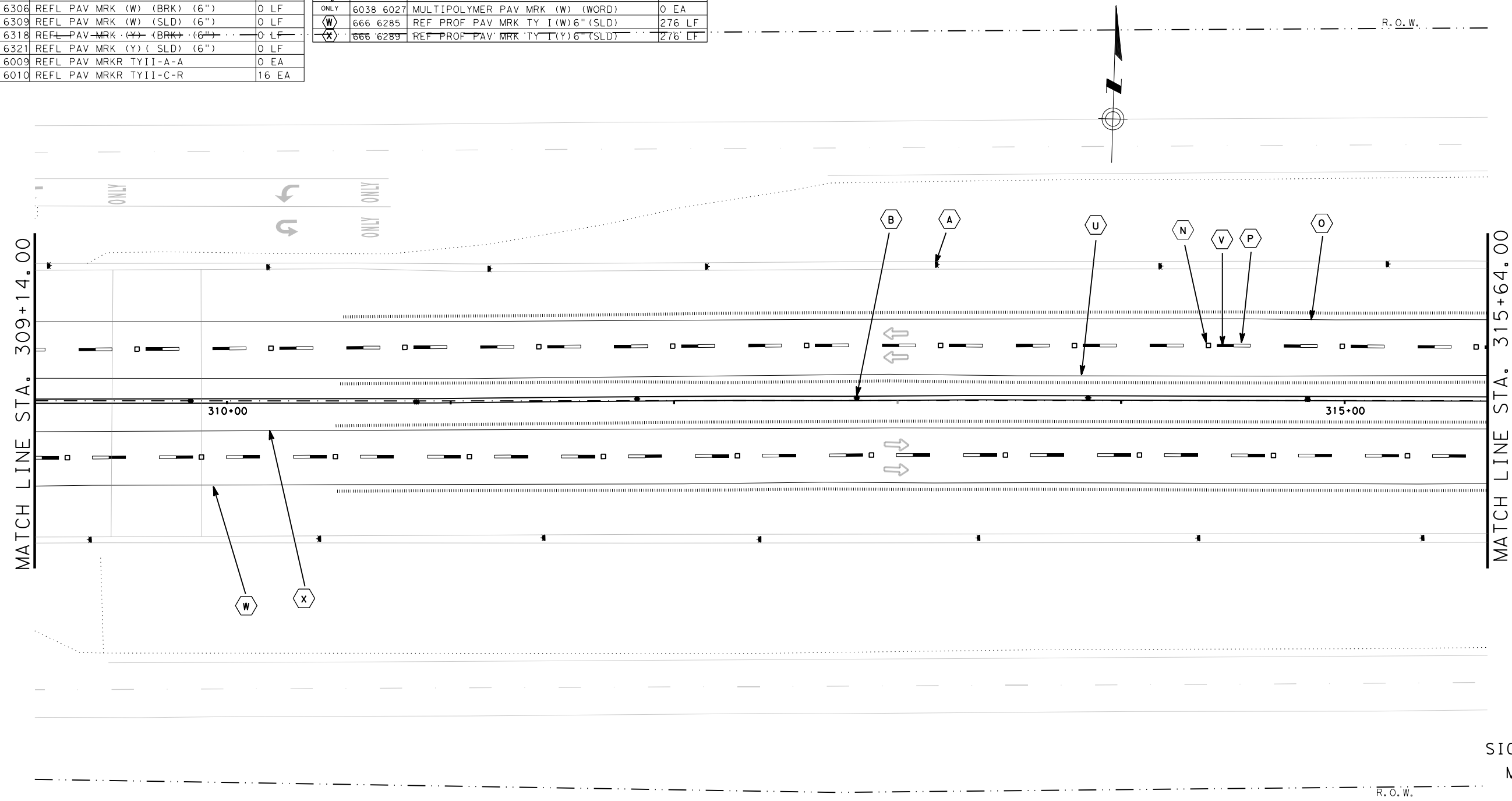


DATE: DATE TIME
 FILE: DOCUMENT NAME

LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSTL DEL ASSM (D-SW)SZ (BRF)CTB	13 EA
(B)	658 6071	INSTL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	7 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	0 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	0 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	0 EA
(G)	666 6078	REFL PAV MRK (W) (WORD)	0 EA
(H)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	0 EA
(I)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	0 EA
(J)	666 6162	RE PV MRK TY I (BLACK) (6") (SHADOW)	0 LF
(K)	666 6306	REFL PAV MRK (W) (BRK) (6")	0 LF
(L)	666 6309	REFL PAV MRK (W) (SLD) (6")	0 LF
(M)	666 6318	REFL PAV MRK (Y) (BRK) (6")	0 LF
(N)	666 6321	REFL PAV MRK (Y) (SLD) (6")	0 LF
(O)	672 6009	REFL PAV MRKR TYII-A-A	0 EA
(P)	672 6010	REFL PAV MRKR TYII-C-R	16 EA

SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(Q)	6038 6004	MULTIPOLYMER PAV MRK (W) (6") (SLD)	1022 LF
(R)	6038 6005	MULTIPOLYMER PAV MRK (W) (6") (BRK)	325 LF
(S)	6038 6006	MULTIPOLYMER PAV MRK (W) (6") (DOT)	0 LF
(T)	6038 6007	MULTIPOLYMER PAV MRK (W) (8") (SLD)	0 LF
(U)	6038 6012	MULTIPOLYMER PAV MRK (W) (12") (LNDP)	0 LF
(V)	6038 6013	MULTIPOLYMER PAV MRK (W) (24") (SLD)	0 LF
(W)	6038 6017	MULTIPOLYMER PAV MRK (Y) (6") (SLD)	1022 LF
(X)	6038 6024	MULTIPOLYMER PAV MRK (BLK) (6") (BRK)	325 LF
(Y)	6038 6025	MULTIPOLYMER PAV MRK (W) (ARROW)	0 EA
(Z)	6038 6026	MULTIPOLYMER PAV MRK (W) (DBL ARROW)	0 EA
(AA)	6038 6027	MULTIPOLYMER PAV MRK (W) (WORD)	0 EA
(AB)	666 6285	REF PROF PAV MRK TY I (W) 6" (SLD)	276 LF
(AC)	666 6289	REF PROF PAV MRK TY I (Y) 6" (SLD)	276 LF

- (○) PROPOSED SMALL SIGN
- (X) REMOVE SM RD SN SUP & AM
- (R) REPLACE SM RD SN SUP & AM
- (□) PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- (X) REMOVE LARGE SIGN OR OVHD SIGN PANEL
- (|||||) PROPOSED RUMBLE STRIP
- (▨) EXIST SIGN TO REMAIN
- (→) DIRECTIONAL TRAFFIC FLOW



May 21 2024
 SIGNING & PAVEMENT MARKING LAYOUT
 FM 1764



SHEET 14 OF 44

		@2024	
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		320

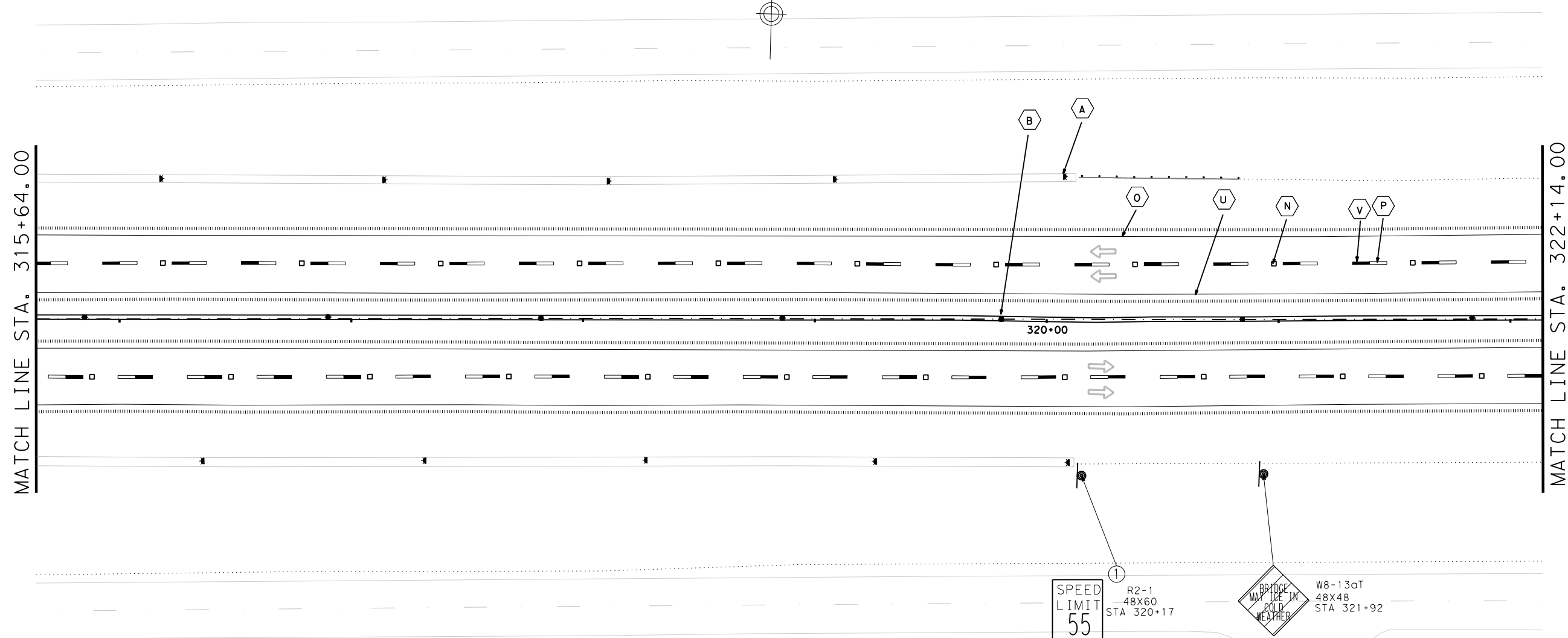
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CHK: DWF: CKS: DWS:

LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSTL DEL ASSM (D-SW)SZ (BRF)CTB	10 EA
(B)	658 6071	INSTL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	7 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	0 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	0 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	0 EA
(G)	666 6078	REFL PAV MRK (W) (WORD)	0 EA
(H)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	0 EA
(I)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	0 EA
(J)	666 6162	RE PV MRK TY I (BLACK) (6") (SHADOW)	0 LF
(K)	666 6306	REFL PAV MRK (W) (BRK) (6")	0 LF
(L)	666 6309	REFL PAV MRK (W) (SLD) (6")	0 LF
(M)	666 6318	REFL PAV MRK (Y) (BRK) (6")	0 LF
(N)	666 6321	REFL PAV MRK (Y) (SLD) (6")	0 LF
(O)	672 6009	REFL PAV MRKR TYII-A-A	0 EA
(P)	672 6010	REFL PAV MRKR TYII-C-R	16 EA

SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(Q)	6038 6004	MULTIPOLYMER PAV MRK (W) (6") (SLD)	1300 LF
(R)	6038 6005	MULTIPOLYMER PAV MRK (W) (6") (BRK)	325 LF
(S)	6038 6006	MULTIPOLYMER PAV MRK (W) (6") (DOT)	0 LF
(T)	6038 6007	MULTIPOLYMER PAV MRK (W) (8") (SLD)	0 LF
(U)	6038 6012	MULTIPOLYMER PAV MRK (W) (12") (LNDP)	0 LF
(V)	6038 6013	MULTIPOLYMER PAV MRK (W) (24") (SLD)	0 LF
(W)	6038 6017	MULTIPOLYMER PAV MRK (Y) (6") (SLD)	1300 LF
(X)	6038 6024	MULTIPOLYMER PAV MRK (BLK) (6") (BRK)	325 LF
(Y)	6038 6025	MULTIPOLYMER PAV MRK (W) (ARROW)	0 EA
(Z)	6038 6026	MULTIPOLYMER PAV MRK (W) (DBL ARROW)	0 EA
(AA)	6038 6027	MULTIPOLYMER PAV MRK (W) (WORD)	0 EA

- PROPOSED SMALL SIGN
- ⊗ REMOVE SM RD SN SUP & AM
- ⊕ REPLACE SM RD SN SUP & AM
- PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- ⊗ REMOVE LARGE SIGN OR OVHD SIGN PANEL
- ||||| PROPOSED RUMBLE STRIP
- ▨ EXIST SIGN TO REMAIN
- ➔ DIRECTIONAL TRAFFIC FLOW



STATE OF TEXAS
 JOEL H. CLARKE
 114223
 LICENSED PROFESSIONAL ENGINEER
 May 21 2024

SIGNING & PAVEMENT
 MARKING LAYOUT
 FM 1764



SHEET 15 OF 44

TEXAS Department of Transportation

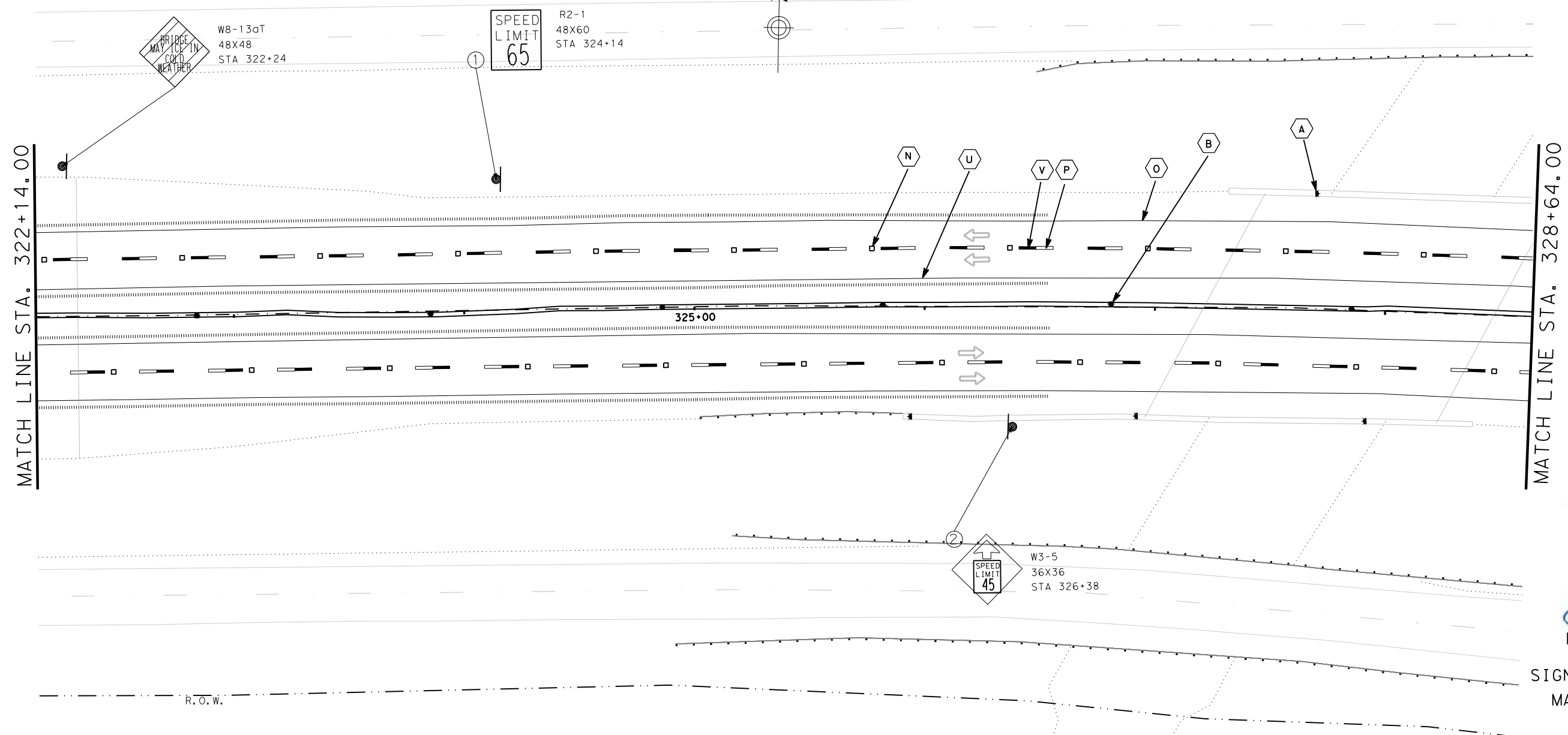
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		321

DATE: DATE TIME
 FILE: DOCUMENT NAME

LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSTL DEL ASSM (D-SW)SZ (BRF)CTB	4 EA
(B)	658 6071	INSTL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	7 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	0 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	0 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	0 EA
(G)	666 6078	REFL PAV MRK (W) (WORD)	0 EA
(H)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	0 EA
(I)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	0 EA
(J)	666 6162	REFL PAV MRK TY I (BLACK) (6") (SHADOW)	0 LF
(K)	666 6306	REFL PAV MRK (W) (BRK) (6")	0 LF
(L)	666 6309	REFL PAV MRK (W) (SLD) (6")	0 LF
(M)	666 6318	REFL PAV MRK (Y) (BRK) (6")	0 LF
(N)	666 6321	REFL PAV MRK (Y) (SLD) (6")	0 LF
(O)	672 6009	REFL PAV MRKR TYII-A-A	0 EA
(P)	672 6010	REFL PAV MRKR TYII-C-R	16 EA

SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(Q)	6038 6004	MULTIPOLYMER PAV MRK (W) (6") (SLD)	884 LF
(R)	6038 6005	MULTIPOLYMER PAV MRK (W) (6") (BRK)	325 LF
(S)	6038 6006	MULTIPOLYMER PAV MRK (W) (6") (DOT)	0 LF
(T)	6038 6007	MULTIPOLYMER PAV MRK (W) (8") (SLD)	0 LF
(U)	6038 6012	MULTIPOLYMER PAV MRK (W) (12") (LNDR)	0 LF
(V)	6038 6013	MULTIPOLYMER PAV MRK (W) (24") (SLD)	0 LF
(W)	6038 6017	MULTIPOLYMER PAV MRK (Y) (6") (SLD)	884 LF
(X)	6038 6024	MULTIPOLYMER PAV MRK (BLK) (6") (BRK)	325 LF
(Y)	6038 6025	MULTIPOLYMER PAV MRK (W) (ARROW)	0 EA
(Z)	6038 6026	MULTIPOLYMER PAV MRK (W) (DBL ARROW)	0 EA
(AA)	6038 6027	MULTIPOLYMER PAV MRK (W) (WORD)	0 EA
(AB)	666 6285	REF PROF PAV MRK TY I (W) 6" (SLD)	420 LF
(AC)	666 6289	REF PROF PAV MRK TY I (Y) 6" (SLD)	420 LF

- (O) PROPOSED SMALL SIGN
- (X) REMOVE SM RD SN SUP & AM
- (R) REPLACE SM RD SN SUP & AM
- (□) PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- (X-□) REMOVE LARGE SIGN OR OVHD SIGN PANEL
- (|||||) PROPOSED RUMBLE STRIP
- (▨) EXIST SIGN TO REMAIN
- (→) DIRECTIONAL TRAFFIC FLOW



May 21 2024
 SIGNING & PAVEMENT MARKING LAYOUT
 FM 1764

SHEET 16 OF 44
 @2024

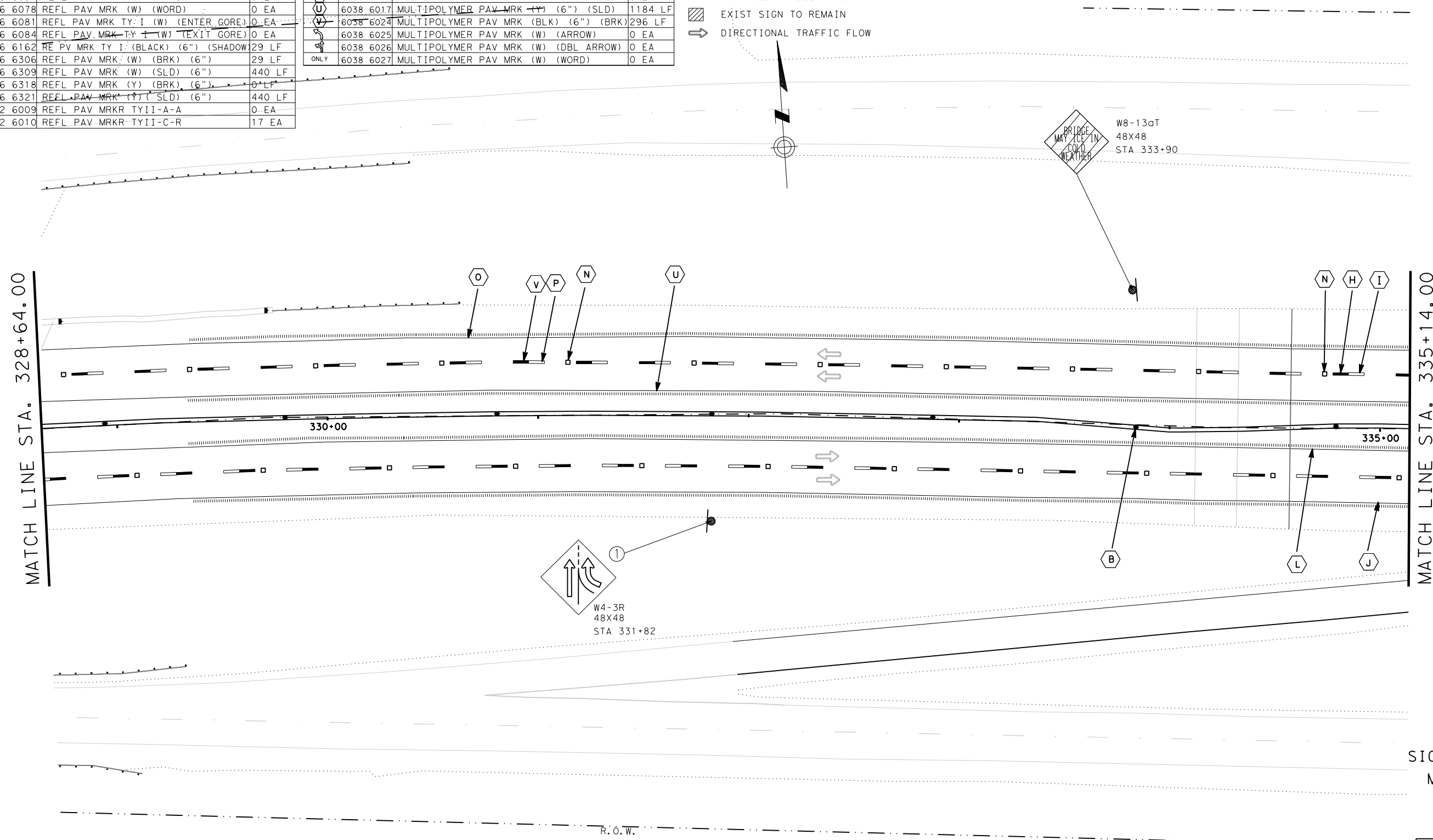
Texas Department of Transportation		SCALE IN FEET	
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		1607	01
		JOB	HIGHWAY
		057, ETC	FM 1764
		DIST	COUNTY
		HOU	GALVESTON
		SHEET NO.	322

DATE: DATE TIME
FILE: DOCUMENT NAME

LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSTL DEL ASSM (D-SW)SZ (BRF)CTB	0 EA
(B)	658 6071	INSTL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	7 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	0 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	0 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	0 EA
(G)	666 6078	REFL PAV MRK (W) (WORD)	0 EA
(H)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	0 EA
(I)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	0 EA
(J)	666 6162	REFL PAV MRK TY I (BLACK) (6") (SHADOW)	29 LF
(K)	666 6306	REFL PAV MRK (W) (BRK) (6")	29 LF
(L)	666 6309	REFL PAV MRK (W) (SLD) (6")	440 LF
(M)	666 6318	REFL PAV MRK (Y) (BRK) (6")	0 LF
(N)	666 6321	REFL PAV MRK (Y) (SLD) (6")	440 LF
(O)	672 6009	REFL PAV MRKR TYII-A-A	0 EA
(P)	672 6010	REFL PAV MRKR TYII-C-R	17 EA

SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(Q)	6038 6004	MULTIPOLYMER PAV MRK (W) (6") (SLD)	1182 LF
(R)	6038 6005	MULTIPOLYMER PAV MRK (W) (6") (BRK)	296 LF
(S)	6038 6006	MULTIPOLYMER PAV MRK (W) (6") (DOT)	0 LF
(T)	6038 6007	MULTIPOLYMER PAV MRK (W) (8") (SLD)	0 LF
(U)	6038 6012	MULTIPOLYMER PAV MRK (W) (12") (LNDP)	0 LF
(V)	6038 6013	MULTIPOLYMER PAV MRK (W) (24") (SLD)	0 LF
(W)	6038 6017	MULTIPOLYMER PAV MRK (W) (6") (SLD)	1184 LF
(X)	6038 6024	MULTIPOLYMER PAV MRK (BLK) (6") (BRK)	296 LF
(Y)	6038 6025	MULTIPOLYMER PAV MRK (W) (ARROW)	0 EA
(Z)	6038 6026	MULTIPOLYMER PAV MRK (W) (DBL ARROW)	0 EA
(AA)	6038 6027	MULTIPOLYMER PAV MRK (W) (WORD)	0 EA

- (O) PROPOSED SMALL SIGN
- (X) REMOVE SM RD SN SUP & AM
- (R) REPLACE SM RD SN SUP & AM
- (□) PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- (X-□) REMOVE LARGE SIGN OR OVHD SIGN PANEL
- ||||| PROPOSED RUMBLE STRIP
- (▨) EXIST SIGN TO REMAIN
- (→) DIRECTIONAL TRAFFIC FLOW



STATE OF TEXAS

 JOEL H. CLARKE
 114223
 LICENSED PROFESSIONAL ENGINEER
 May 21 2024

SIGNING & PAVEMENT
 MARKING LAYOUT
 FM 1764

SHEET 17 OF 44

Texas Department of Transportation
 @2024

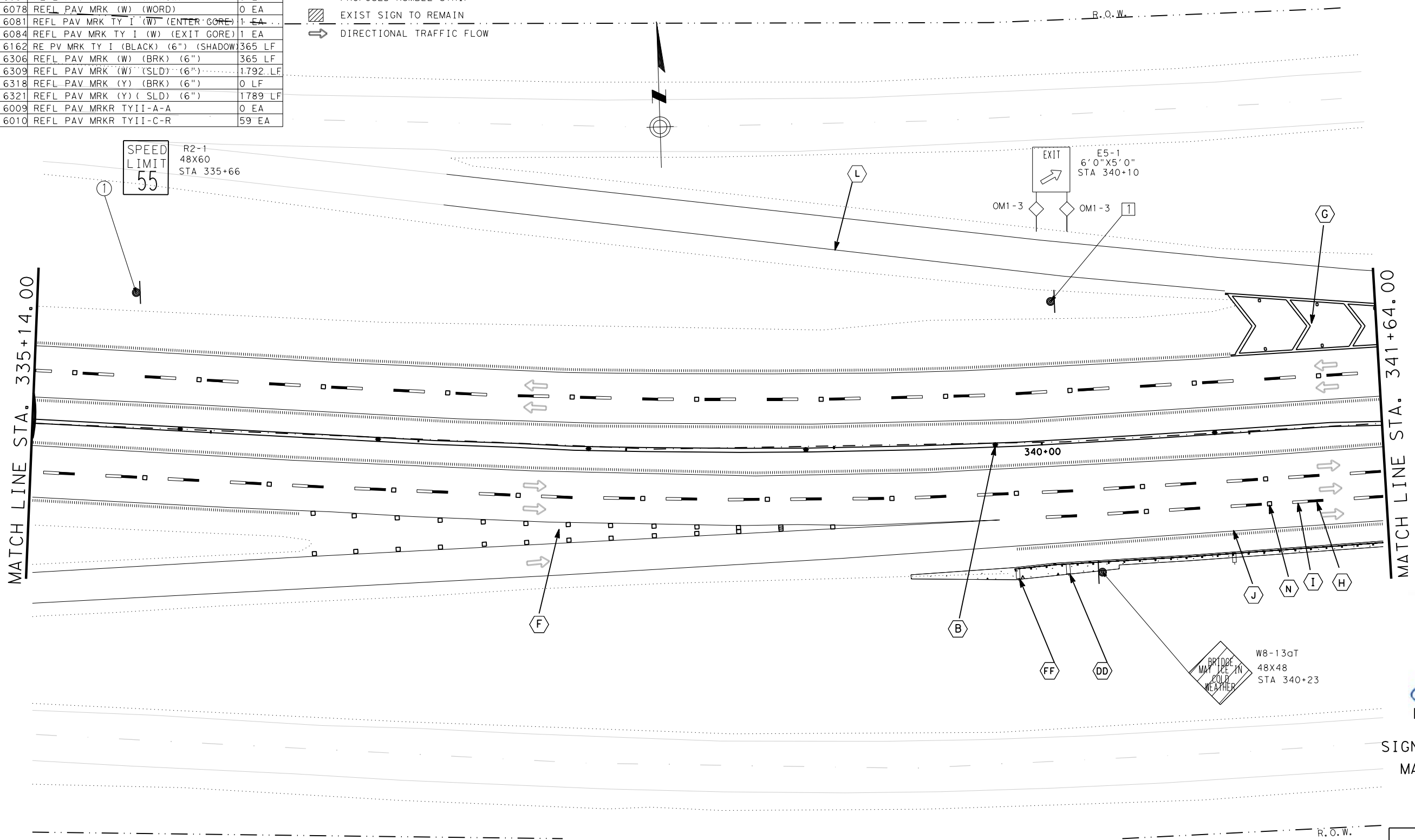
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		323



DATE: DATE TIME
 FILE: DOCUMENT NAME

LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSTL DEL ASSM (D-SW)SZ (BRF)CTB	0 EA
(B)	658 6071	INSTL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	7 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	0 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	0 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	0 EA
(G)	666 6078	REFL PAV MRK (W) (WORD)	0 EA
(H)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	1 EA
(I)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	1 EA
(J)	666 6162	RE PV MRK TY I (BLACK) (6") (SHADOW)	365 LF
(K)	666 6306	REFL PAV MRK (W) (BRK) (6")	365 LF
(L)	666 6309	REFL PAV MRK (W) (SLD) (6")	1792 LF
(M)	666 6318	REFL PAV MRK (Y) (BRK) (6")	0 LF
(N)	666 6321	REFL PAV MRK (Y) (SLD) (6")	1789 LF
(O)	672 6009	REFL PAV MRKR TYII-A-A	0 EA
(P)	672 6010	REFL PAV MRKR TYII-C-R	59 EA

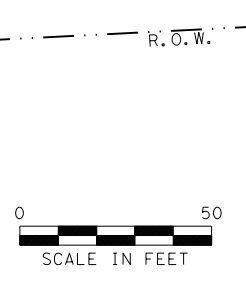
- (O) PROPOSED SMALL SIGN
- (X-) REMOVE SM RD SN SUP & AM
- (R-) REPLACE SM RD SN SUP & AM
- (□) PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- (X-□) REMOVE LARGE SIGN OR OVHD SIGN PANEL
- (|||||) PROPOSED RUMBLE STRIP
- (▨) EXIST SIGN TO REMAIN
- (→) DIRECTIONAL TRAFFIC FLOW
- (DD) 658 6010 INSTL DEL ASSM (D-SW)SZ 2(WC)GND 2 EA
- (FF) 658 6047 INSTL OM ASSM (OM-2Y) (WC)GND 1 EA



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 FM 1764



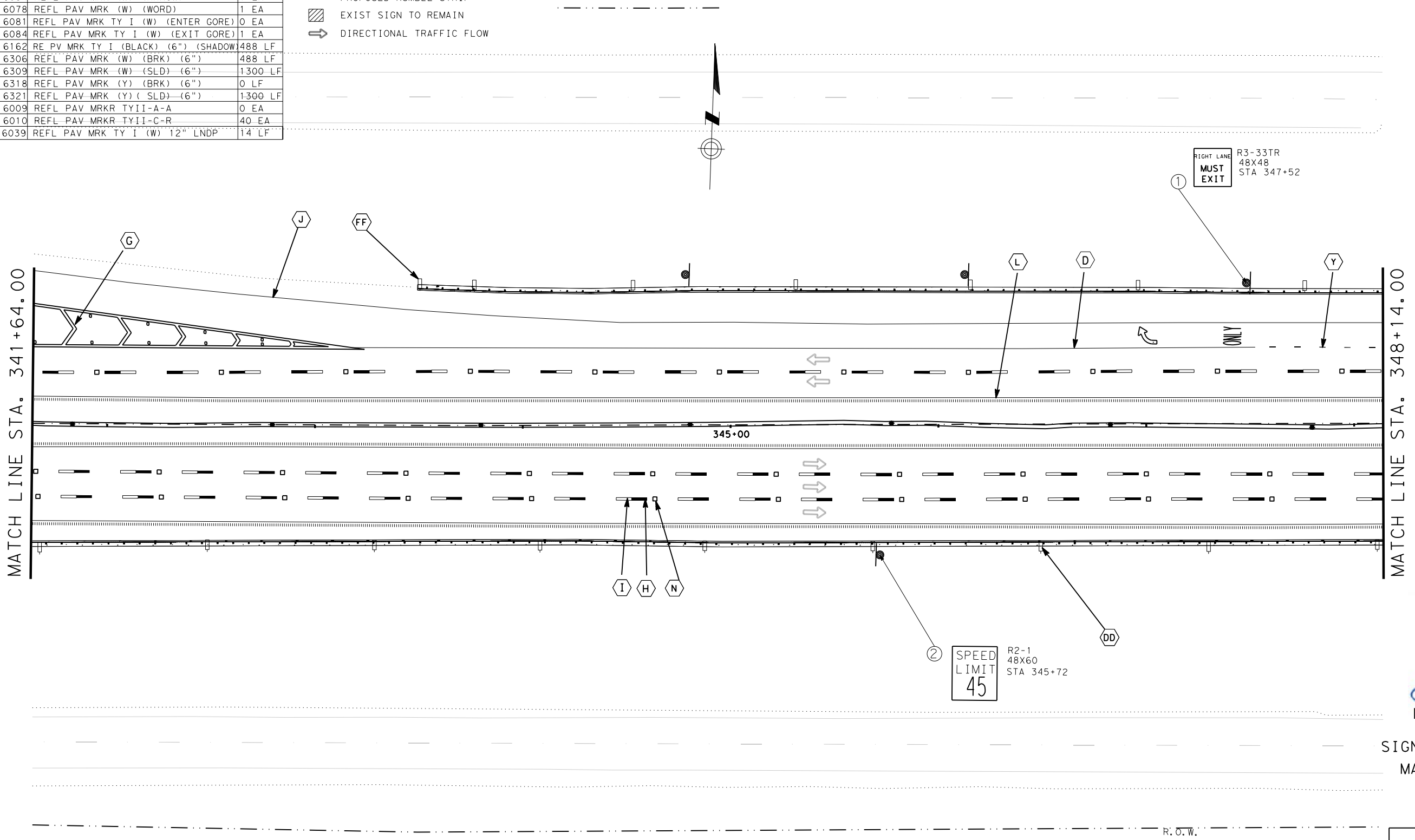
SHEET 18 OF 44

		CONT	SECT	JOB	HIGHWAY
		1607	01	057, ETC	FM 1764
		DIST	COUNTY		SHEET NO.
		HOU	GALVESTON		324

DATE: DATE TIME
 FILE: DOCUMENT NAME

LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSTL DEL ASSM (D-SW)SZ (BRF)CTB	0 EA
(B)	658 6071	INSTL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	7 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	0 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	423 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	0 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	1 EA
(G)	666 6078	REFL PAV MRK (W) (WORD)	1 EA
(H)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	0 EA
(I)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	1 EA
(J)	666 6162	RE PV MRK TY I (BLACK) (6") (SHADOW)	488 LF
(K)	666 6306	REFL PAV MRK (W) (BRK) (6")	488 LF
(L)	666 6309	REFL PAV MRK (W) (SLD) (6")	1300 LF
(M)	666 6318	REFL PAV MRK (Y) (BRK) (6")	0 LF
(N)	666 6321	REFL PAV MRK (Y) (SLD) (6")	1300 LF
(O)	672 6009	REFL PAV MRKR TYII-A-A	0 EA
(P)	672 6010	REFL PAV MRKR TYII-C-R	40 EA
(Q)	666 6039	REFL PAV MRK TY I (W) 12" LNDP	14 LF

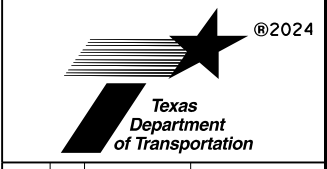
- (O) PROPOSED SMALL SIGN
- (X-) REMOVE SM RD SN SUP & AM
- (R-) REPLACE SM RD SN SUP & AM
- (□) PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- (X-□) REMOVE LARGE SIGN OR OVHD SIGN PANEL
- (|||||) PROPOSED RUMBLE STRIP
- (▨) EXIST SIGN TO REMAIN
- (→) DIRECTIONAL TRAFFIC FLOW
- (DD) 658 6010 INSTL DEL ASSM (D-SW)SZ 2(WC)GND 15 EA
- (FF) 658 6047 INSTL OM ASSM (OM-2Y) (WC)GND 1 EA



May 21 2024

SIGNING & PAVEMENT
MARKING LAYOUT
FM 1764

SHEET 19 OF 44



CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		325

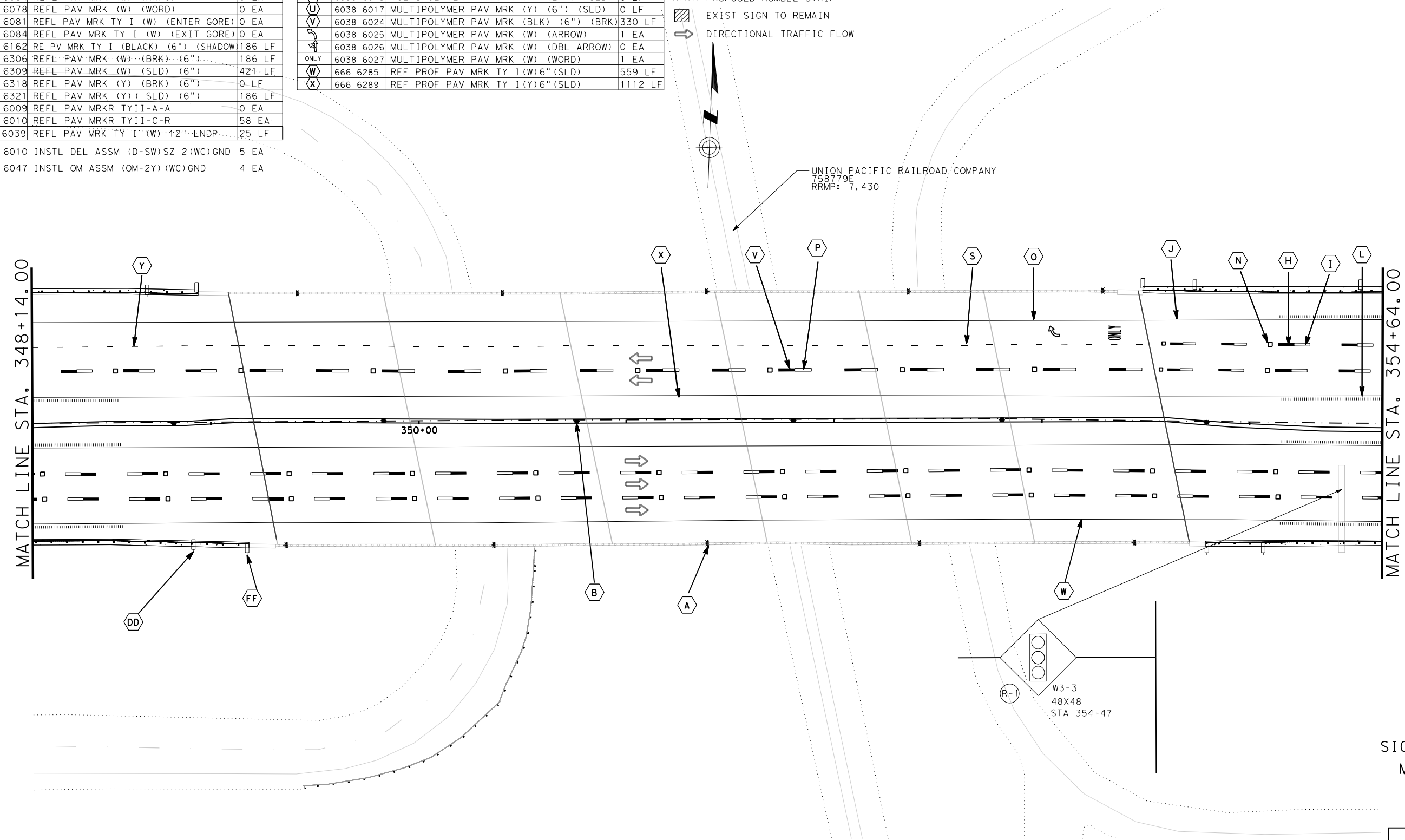


DATE: DATE TIME
 FILE: DOCUMENT NAME

LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSTR DEL ASSM (D-SW)SZ (BRF)CTB	10 EA
(B)	658 6071	INSTR DEL ASSM (D-SY)SZ (BRF)CTB (BI)	7 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	0 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	0 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	0 EA
(G)	666 6078	REFL PAV MRK (W) (WORD)	0 EA
(H)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	0 EA
(I)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	0 EA
(J)	666 6162	REFL PAV MRK TY I (BLACK) (6") (SHADOW)	186 LF
(K)	666 6306	REFL PAV MRK (W) (BRK) (6")	186 LF
(L)	666 6309	REFL PAV MRK (W) (SLD) (6")	421 LF
(M)	666 6318	REFL PAV MRK (Y) (BRK) (6")	0 LF
(N)	666 6321	REFL PAV MRK (Y) (SLD) (6")	186 LF
(O)	672 6009	REFL PAV MRKR TYII-A-A	0 EA
(P)	672 6010	REFL PAV MRKR TYII-C-R	58 EA
(Q)	666 6039	REFL PAV MRK TY I (W) 12" LNDP	25 LF
(R)	658 6010	INSTR DEL ASSM (D-SW)SZ 2(WC)GND	5 EA
(S)	658 6047	INSTR OM ASSM (OM-2Y) (WC)GND	4 EA

SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(O)	6038 6004	MULTIPOLYMER PAV MRK (W) (6") (SLD)	559 LF
(P)	6038 6005	MULTIPOLYMER PAV MRK (W) (6") (BRK)	330 LF
(Q)	6038 6006	MULTIPOLYMER PAV MRK (Y) (6") (DOT)	0 LF
(R)	6038 6007	MULTIPOLYMER PAV MRK (W) (8") (SLD)	0 LF
(S)	6038 6012	MULTIPOLYMER PAV MRK (W) (12") (LNDP)	109 LF
(T)	6038 6013	MULTIPOLYMER PAV MRK (W) (24") (SLD)	0 LF
(U)	6038 6017	MULTIPOLYMER PAV MRK (Y) (6") (SLD)	0 LF
(V)	6038 6024	MULTIPOLYMER PAV MRK (BLK) (6") (BRK)	330 LF
(W)	6038 6025	MULTIPOLYMER PAV MRK (W) (ARROW)	1 EA
(X)	6038 6026	MULTIPOLYMER PAV MRK (W) (DBL ARROW)	0 EA
(Y)	6038 6027	MULTIPOLYMER PAV MRK (W) (WORD)	1 EA
(Z)	666 6285	REF PROF PAV MRK TY I (W) 6" (SLD)	559 LF
(AA)	666 6289	REF PROF PAV MRK TY I (Y) 6" (SLD)	1112 LF

- (O) PROPOSED SMALL SIGN
- (X-) REMOVE SM RD SN SUP & AM
- (R-) REPLACE SM RD SN SUP & AM
- () PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- (X-) REMOVE LARGE SIGN OR OVHD SIGN PANEL
- ||||| PROPOSED RUMBLE STRIP
- () EXIST SIGN TO REMAIN
- () DIRECTIONAL TRAFFIC FLOW



STATE OF TEXAS
 JOEL H. CLARKE
 114223
 LICENSED PROFESSIONAL ENGINEER

 May 21 2024

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 FM 1764

SHEET 20 OF 44

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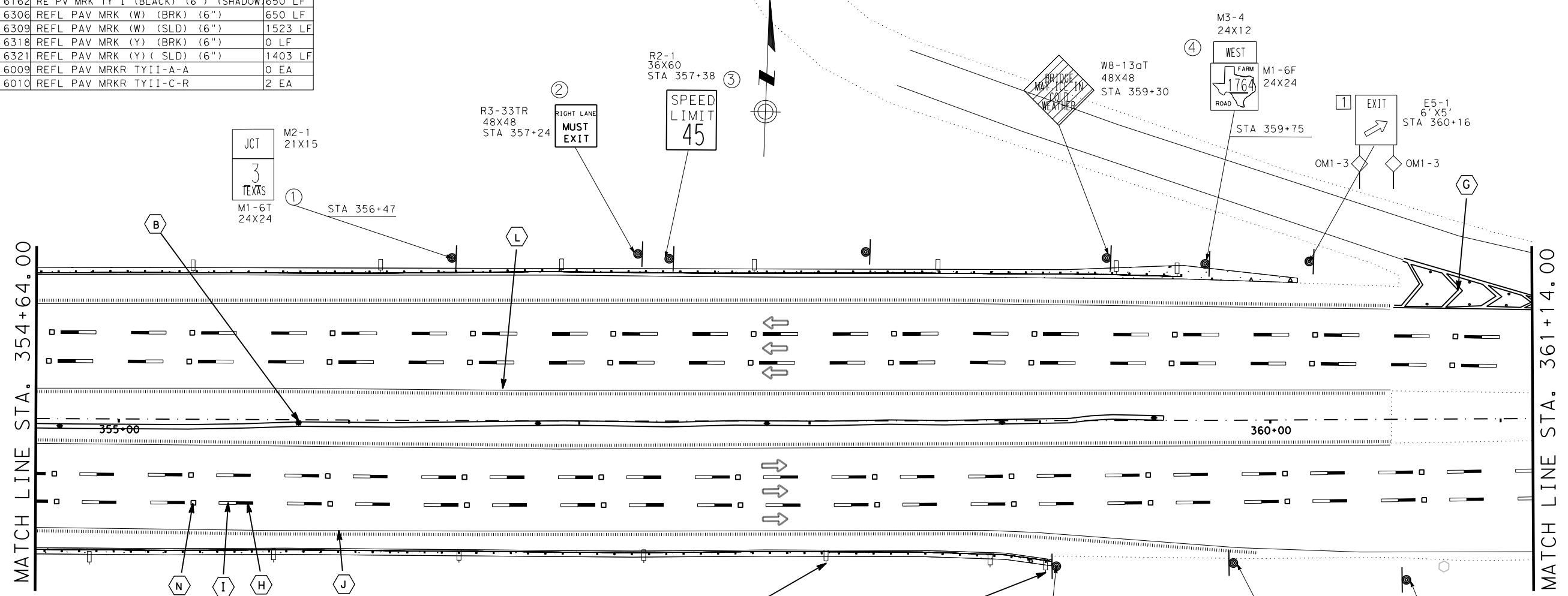
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		326



DATE: DATE TIME
 FILE: DOCUMENT NAME

LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSTR DEL ASSM (D-SW)SZ (BRF)CTB	0 EA
(B)	658 6071	INSTR DEL ASSM (D-SY)SZ (BRF)CTB (BI)	6 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	0 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	0 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	0 EA
(G)	666 6078	REFL PAV MRK (W) (WORD)	0 EA
(H)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	0 EA
(I)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	1 EA
(J)	666 6162	RE PV MRK TY I (BLACK) (6") (SHADOW)	650 LF
(K)	666 6306	REFL PAV MRK (W) (BRK) (6")	650 LF
(L)	666 6309	REFL PAV MRK (W) (SLD) (6")	1523 LF
(M)	666 6318	REFL PAV MRK (Y) (BRK) (6")	0 LF
(N)	666 6321	REFL PAV MRK (Y) (SLD) (6")	1403 LF
(O)	672 6009	REFL PAV MRKR TYII-A-A	0 EA
(P)	672 6010	REFL PAV MRKR TYII-C-R	2 EA

- (O) PROPOSED SMALL SIGN
- (X-) REMOVE SM RD SN SUP & AM
- (R-) REPLACE SM RD SN SUP & AM
- (□) PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- (X-□) REMOVE LARGE SIGN OR OVHD SIGN PANEL
- (|||||) PROPOSED RUMBLE STRIP
- (▨) EXIST SIGN TO REMAIN
- (→) DIRECTIONAL TRAFFIC FLOW
- (DD) 658 6010 INSTR DEL ASSM (D-SW)SZ 2(WC)GND 12 EA
- (FF) 658 6047 INSTR OM ASSM (OM-2Y) (WC)GND 2 EA



May 21 2024
 SIGNING & PAVEMENT
 MARKING LAYOUT
 FM 1764

SHEET 21 OF 44
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CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		327

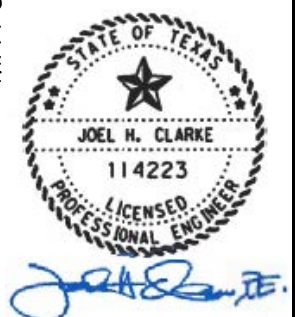
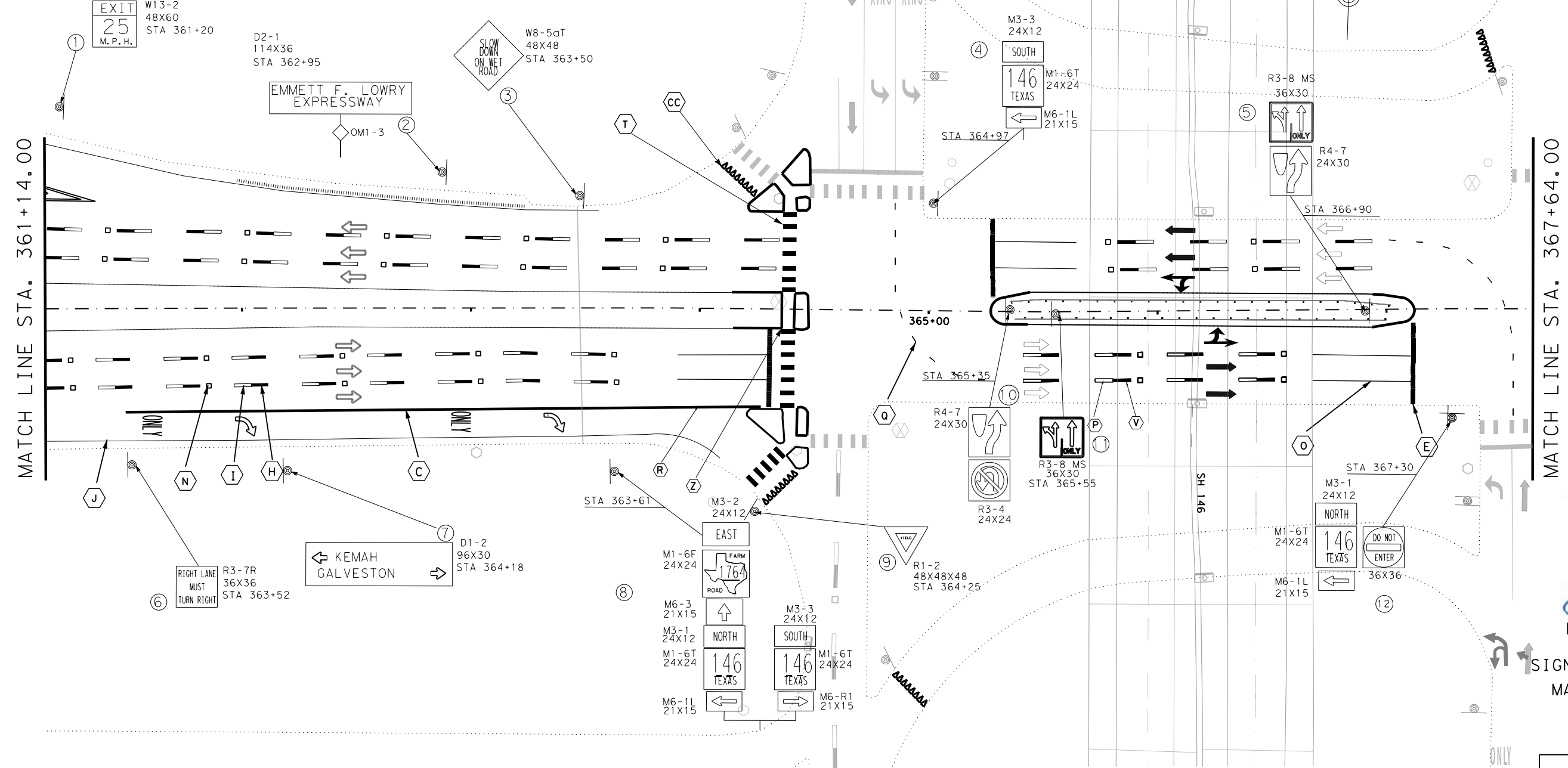


DATE: DATE TIME
 FILE: DOCUMENT NAME

LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSTL DEL ASSM (D-SW)SZ (BRF)CTB	0 EA
(B)	658 6071	INSTL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	0 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	200 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	0 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	0 EA
(G)	666 6078	REFL PAV MRK (W) (WORD)	0 EA
(H)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	0 EA
(I)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	0 EA
(J)	666 6162	RE PV MRK TY I (BLACK) (6") (SHADOW)	232 LF
(K)	666 6306	REFL PAV MRK (W) (BRK) (6")	232 LF
(L)	666 6309	REFL PAV MRK (W) (SLD) (6")	468 LF
(M)	666 6318	REFL PAV MRK (Y) (BRK) (6")	0 LF
(N)	666 6321	REFL PAV MRK (Y) (SLD) (6")	0 LF
(O)	672 6009	REFL PAV MRKR TYII-A-A	0 EA
(P)	672 6010	REFL PAV MRKR TYII-C-R	34 EA
(Q)	666 6212	REFL PAV MRK TY II (Y) 12" (SLD)	418 LF

SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(R)	6038 6004	MULTIPOLYMER PAV MRK (W) (6") (SLD)	297 LF
(S)	6038 6005	MULTIPOLYMER PAV MRK (W) (6") (BRK)	240 LF
(T)	6038 6006	MULTIPOLYMER PAV MRK (W) (6") (DOT)	36 LF
(U)	6038 6007	MULTIPOLYMER PAV MRK (W) (8") (SLD)	78 LF
(V)	6038 6012	MULTIPOLYMER PAV MRK (W) (12") (LNDR)	0 LF
(W)	6038 6013	MULTIPOLYMER PAV MRK (W) (24") (SLD)	218 LF
(X)	6038 6017	MULTIPOLYMER PAV MRK (Y) (6") (SLD)	0 LF
(Y)	6038 6024	MULTIPOLYMER PAV MRK (BLK) (6") (BRK)	240 LF
(Z)	6038 6025	MULTIPOLYMER PAV MRK (W) (ARROW)	4 EA
(AA)	6038 6026	MULTIPOLYMER PAV MRK (W) (DBL ARROW)	2 EA
(AB)	6038 6027	MULTIPOLYMER PAV MRK (W) (WORD)	0 EA
(AC)	6038 6028	MULTIPOLYMER PAV MRK (W) 36" YLD TRI	32 EA

- PROPOSED SMALL SIGN
- ⊗ REMOVE SM RD SN SUP & AM
- ⊖ REPLACE SM RD SN SUP & AM
- PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- ⊗ REMOVE LARGE SIGN OR OVHD SIGN PANEL
- ||||| PROPOSED RUMBLE STRIP
- ▨ EXIST SIGN TO REMAIN
- ➔ DIRECTIONAL TRAFFIC FLOW



May 21 2024

SIGNING & PAVEMENT
MARKING LAYOUT
FM 1764

SHEET 22 OF 44

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 CONT SECT JOB HIGHWAY
 1607 01 057, ETC FM 1764
 DIST COUNTY SHEET NO.
 HOU GALVESTON 328

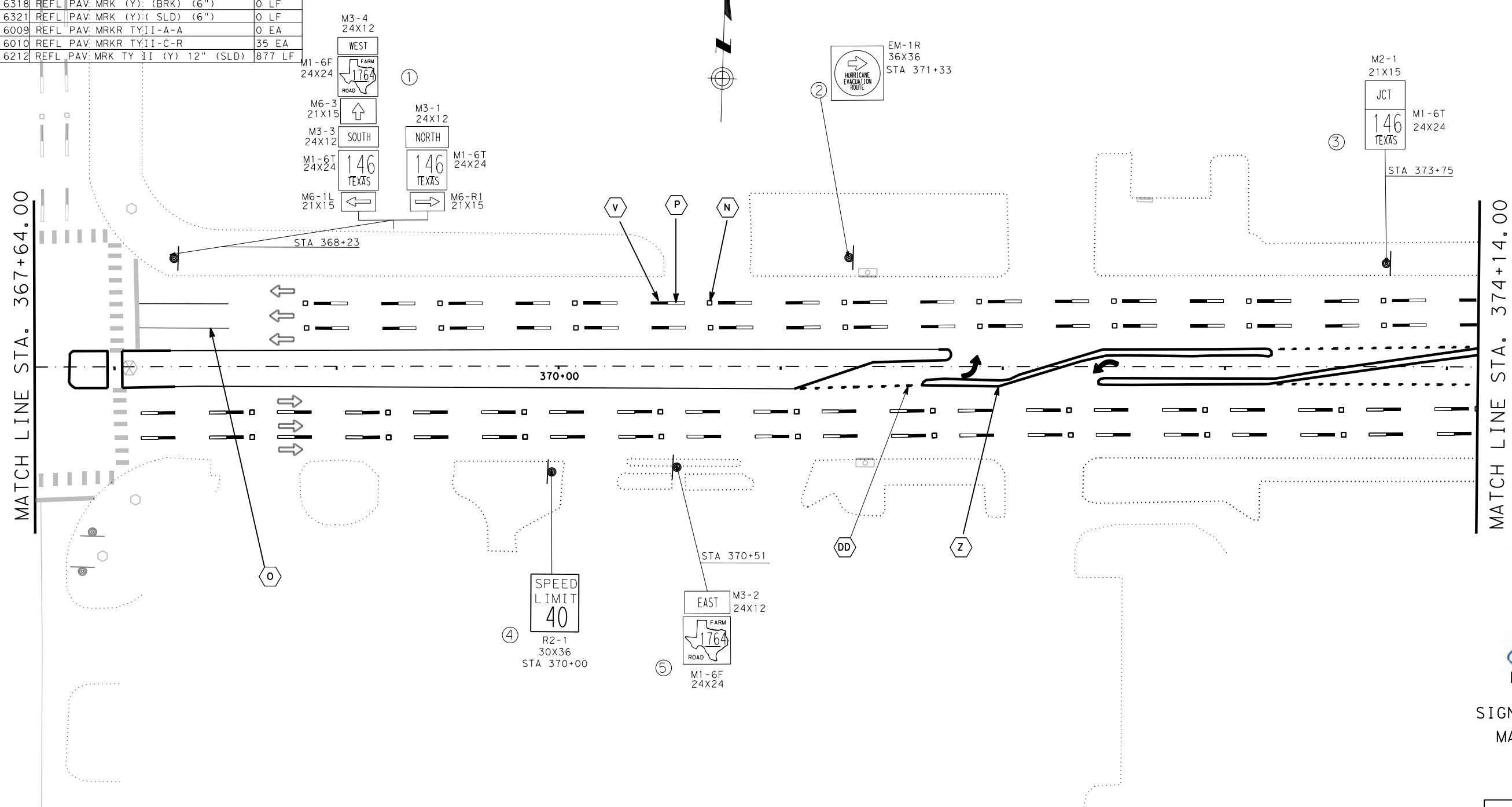


DATE: DATE TIME
FILE: DOCUMENT NAME

LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSTL DEL ASSM (D-SW)SZ (BRF)CTB	0 EA
(B)	658 6071	INSTL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	0 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	0 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	0 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	0 EA
(G)	666 6078	REFL PAV MRK (W) (WORD)	0 EA
(H)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	0 EA
(I)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	0 EA
(J)	666 6162	REFL PAV MRK TY I (BLACK) (6") (SHADOW)	0 LF
(K)	666 6306	REFL PAV MRK (W): (BRK) (6")	0 LF
(L)	666 6309	REFL PAV MRK (W): (SLD) (6")	0 LF
(M)	666 6318	REFL PAV MRK (Y): (BRK) (6")	0 LF
(N)	666 6321	REFL PAV MRK (Y): (SLD) (6")	0 LF
(O)	672 6009	REFL PAV MRKR TYII-A-A	0 EA
(P)	672 6010	REFL PAV MRKR TYII-C-R	35 EA
(Q)	666 6212	REFL PAV MRK TY II (Y) 12" (SLD)	877 LF

SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(O)	6038 6004	MULTIPOLYMER PAV MRK (W) (6") (SLD)	81 LF
(P)	6038 6005	MULTIPOLYMER PAV MRK (W) (6") (BRK)	566 LF
(Q)	6038 6006	MULTIPOLYMER PAV MRK (W) (6") (DOT)	0 LF
(R)	6038 6007	MULTIPOLYMER PAV MRK (W) (8") (SLD)	0 LF
(S)	6038 6012	MULTIPOLYMER PAV MRK (W) (12") (LNDR)	0 LF
(T)	6038 6013	MULTIPOLYMER PAV MRK (W) (24") (SLD)	0 LF
(U)	6038 6017	MULTIPOLYMER PAV MRK (Y) (6") (SLD)	0 LF
(V)	6038 6024	MULTIPOLYMER PAV MRK (BLK) (6") (BRK)	566 LF
(W)	6038 6025	MULTIPOLYMER PAV MRK (W) (ARROW)	2 EA
(X)	6038 6026	MULTIPOLYMER PAV MRK (W) (DBL ARROW)	0 EA
(Y)	6038 6027	MULTIPOLYMER PAV MRK (W) (WORD)	0 EA
(Z)	6038 6009	MULTIPOLYMER PAV MRK (W) (8") (DOT)	61 LF

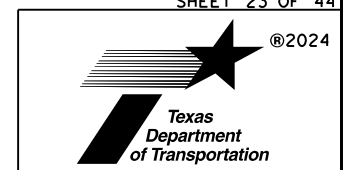
- (O) PROPOSED SMALL SIGN
- (X-) REMOVE SM RD SN SUP & AM
- (R-) REPLACE SM RD SN SUP & AM
- () PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- (X-) REMOVE LARGE SIGN OR OVHD SIGN PANEL
- ||||| PROPOSED RUMBLE STRIP
- () EXIST SIGN TO REMAIN
- () DIRECTIONAL TRAFFIC FLOW



Joel H. Clarke
May 21 2024

SIGNING & PAVEMENT
MARKING LAYOUT
FM 1764

SHEET 23 OF 44



CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		329

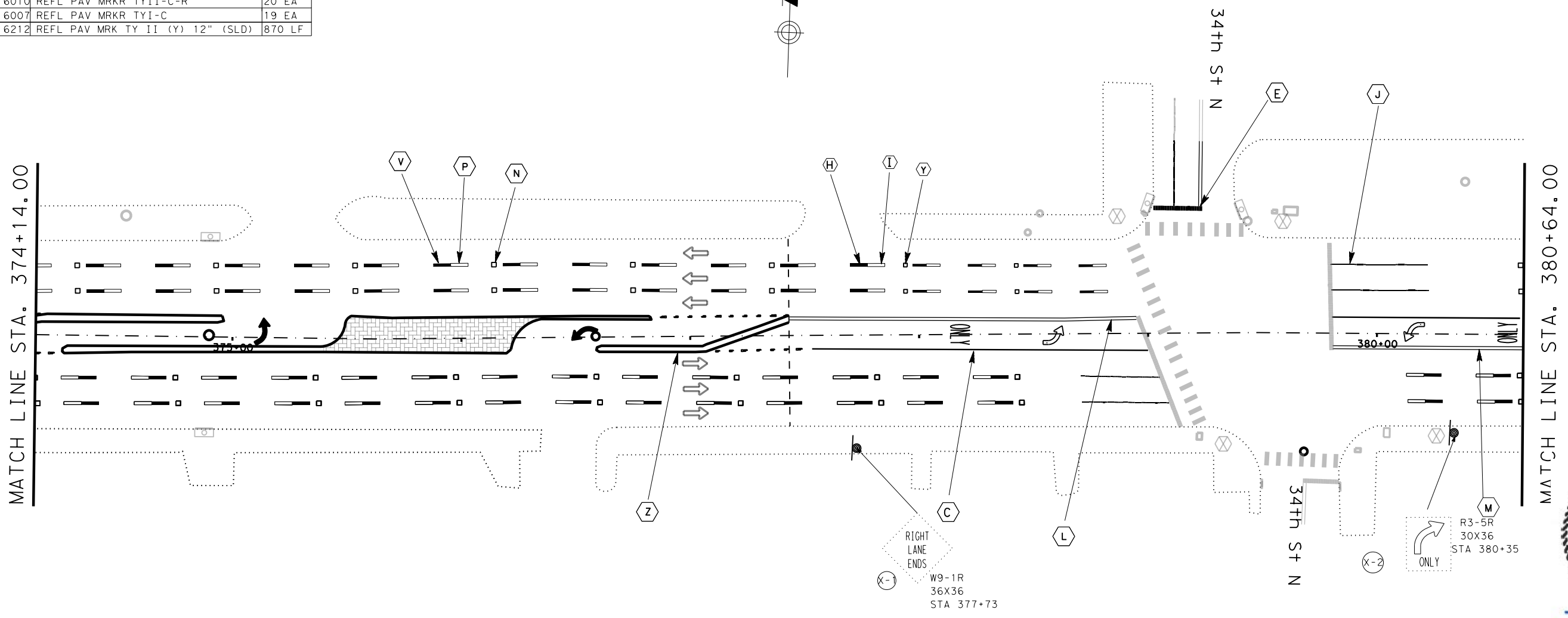



DATE: DATE TIME
 FILE: DOCUMENT NAME

LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSTL DEL ASSM (D-SW)SZ (BRF)CTB	0 EA
(B)	658 6071	INSTL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	0 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	228 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	21 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	2 EA
(G)	666 6078	REFL PAV MRK (W) (WORD)	2 EA
(H)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	0 EA
(I)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	0 EA
(J)	666 6162	RE PV MRK TY I (BLACK) (6") (SHADOW)	145 LF
(K)	666 6306	REFL PAV MRK (W) (BRK) (6")	145 LF
(L)	666 6309	REFL PAV MRK (W) (SLD) (6")	85 LF
(M)	666 6318	REFL PAV MRK (Y) (BRK) (6")	0 LF
(N)	666 6321	REFL PAV MRK (Y) (SLD) (6")	470 LF
(O)	672 6009	REFL PAV MRKR TYII-A-A	24 EA
(P)	672 6010	REFL PAV MRKR TYII-C-R	20 EA
(Q)	672 6007	REFL PAV MRKR TYI-C	19 EA
(R)	666 6212	REFL PAV MRK TY II (Y) 12" (SLD)	870 LF

SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(O)	6038 6004	MULTIPOLYMER PAV MRK (W) (6") (SLD)	0 LF
(P)	6038 6005	MULTIPOLYMER PAV MRK (W) (6") (BRK)	329 LF
(Q)	6038 6006	MULTIPOLYMER PAV MRK (W) (6") (DOT)	0 LF
(R)	6038 6007	MULTIPOLYMER PAV MRK (W) (8") (SLD)	0 LF
(S)	6038 6012	MULTIPOLYMER PAV MRK (W) (12") (LNDR)	0 LF
(T)	6038 6013	MULTIPOLYMER PAV MRK (W) (24") (SLD)	0 LF
(U)	6038 6017	MULTIPOLYMER PAV MRK (Y) (6") (SLD)	0 LF
(V)	6038 6024	MULTIPOLYMER PAV MRK (BLK) (6") (BRK)	329 LF
(W)	6038 6025	MULTIPOLYMER PAV MRK (W) (ARROW)	2 EA
(X)	6038 6026	MULTIPOLYMER PAV MRK (W) (DBL ARROW)	0 EA
(Y)	6038 6027	MULTIPOLYMER PAV MRK (W) (WORD)	0 EA
(Z)	6038 6009	MULTIPOLYMER PAV MRK (W) (8") (DOT)	29 LF

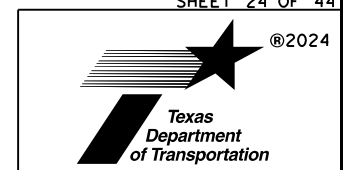
- (O) PROPOSED SMALL SIGN
- (X-1) REMOVE SM RD SN SUP & AM
- (R-1) REPLACE SM RD SN SUP & AM
- (O) PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- (X-2) REMOVE LARGE SIGN OR OVHD SIGN PANEL
- ||||| PROPOSED RUMBLE STRIP
- ▨ EXIST SIGN TO REMAIN
- DIRECTIONAL TRAFFIC FLOW




 May 21 2024

SIGNING & PAVEMENT
 MARKING LAYOUT
 FM 1764

SHEET 24 OF 44



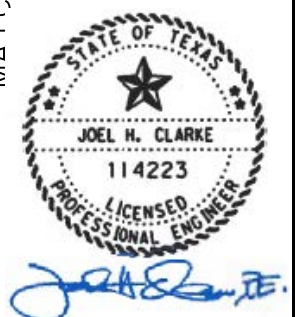
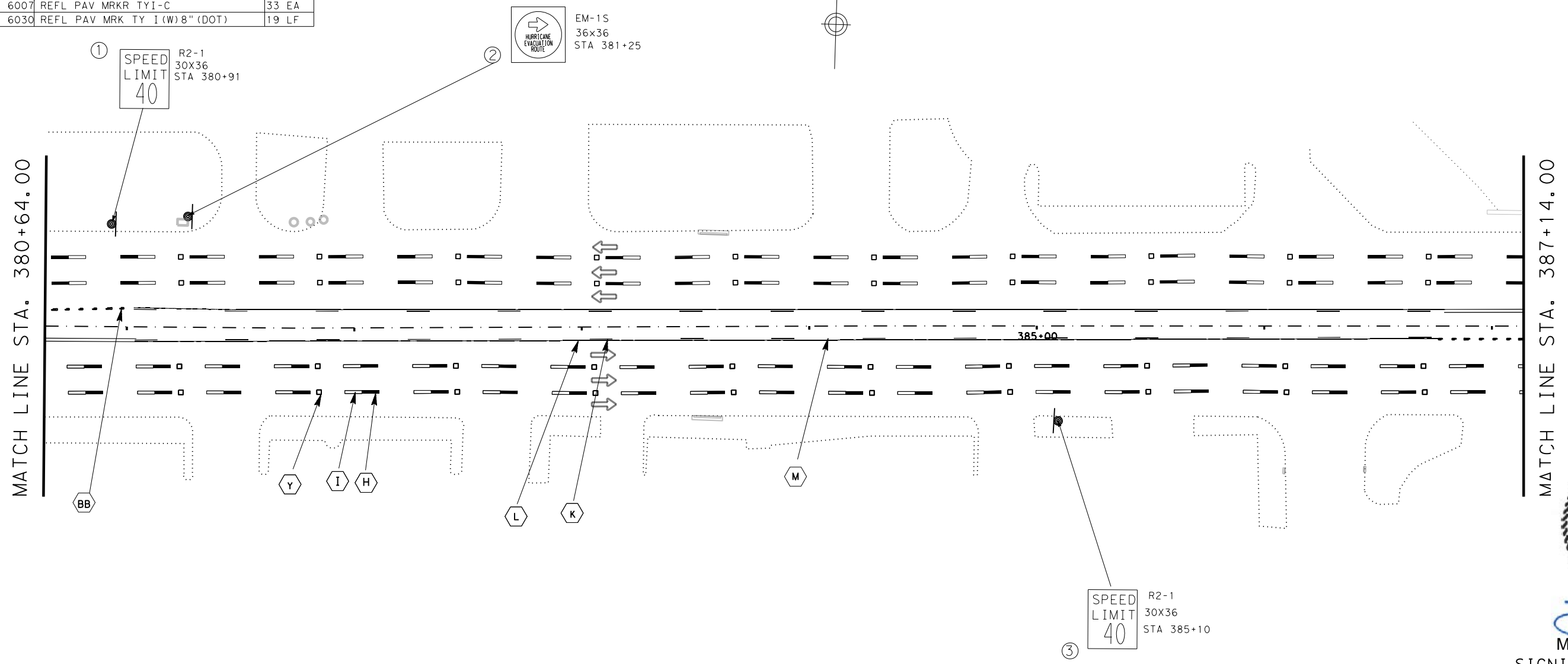
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST		COUNTY	SHEET NO.
HOU		GALVESTON	330



DATE: DATE TIME
FILE: DOCUMENT NAME

LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSL DEL ASSM (D-SW)SZ (BRF)CTB	0 EA
(B)	658 6071	INSL DEL ASSM (D-SY)SZ (BRF)CTB (B1)	0 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	0 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	0 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	0 EA
(G)	666 6078	REFL PAV MRK (W) (WORD)	0 EA
(H)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	0 EA
(I)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	0 EA
(J)	666 6162	RE PV MRK TY I (BLACK) (6") (SHADOW)	650 LF
(K)	666 6306	REFL PAV MRK (W) (BRK) (6")	650 LF
(L)	666 6309	REFL PAV MRK (W) (SLD) (6")	0 LF
(M)	666 6318	REFL PAV MRK (Y) (BRK) (6")	286 LF
(N)	666 6321	REFL PAV MRK (Y) (SLD) (6")	1300 LF
(O)	672 6009	REFL PAV MRKR TYII-A-A	65 EA
(P)	672 6010	REFL PAV MRKR TYII-C-R	0 EA
(Q)	672 6007	REFL PAV MRKR TYI-C	33 EA
(R)	666 6030	REFL PAV MRK TY I (W) 8" (DOT)	19 LF

- (○) PROPOSED SMALL SIGN
- (X-○) REMOVE SM RD SN SUP & AM
- (R-○) REPLACE SM RD SN SUP & AM
- (□) PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- (X-□) REMOVE LARGE SIGN OR OVHD SIGN PANEL
- (|||||) PROPOSED RUMBLE STRIP
- (▨) EXIST SIGN TO REMAIN
- (→) DIRECTIONAL TRAFFIC FLOW



May 21 2024
SIGNING & PAVEMENT
MARKING LAYOUT
FM 1764



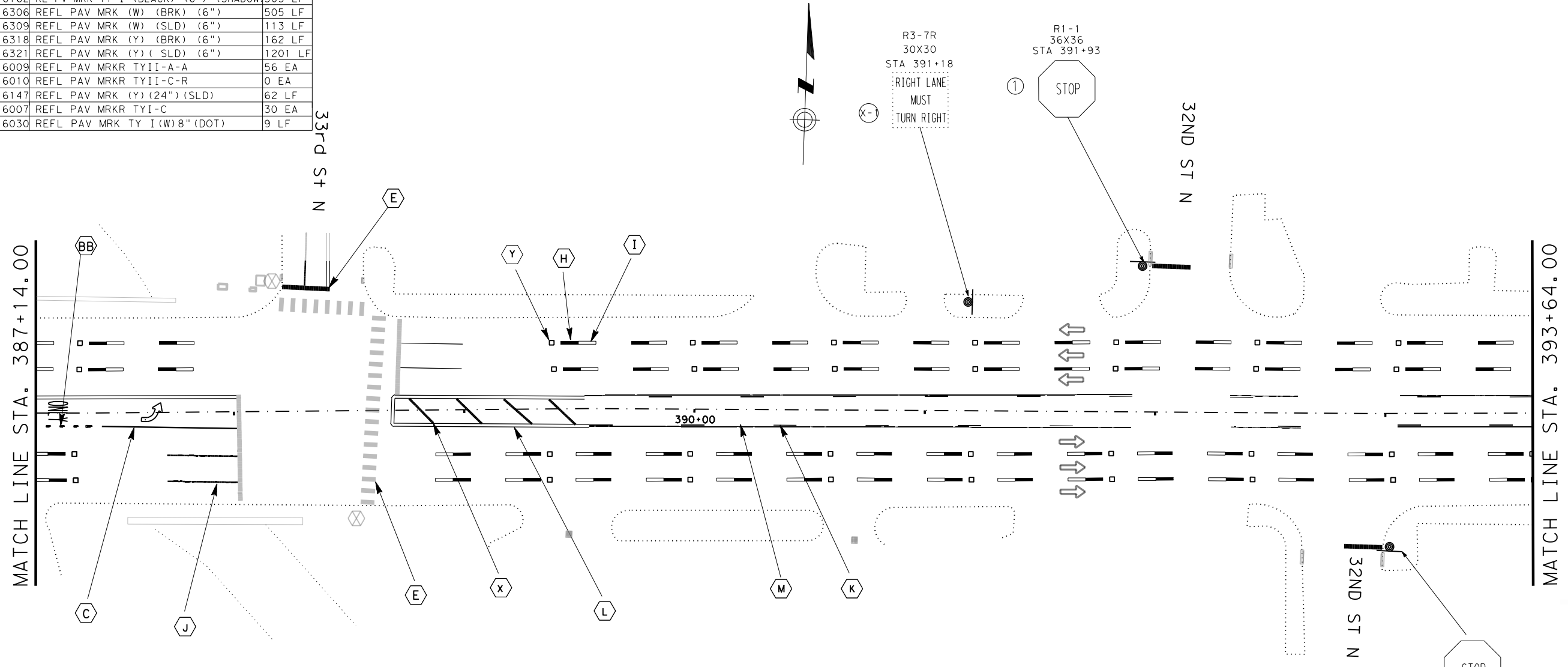
SHEET 25 OF 44
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		CONT	SECT	JOB	HIGHWAY
		1607	01	057, ETC	FM 1764
		DIST	COUNTY		SHEET NO.
		HOU	GALVESTON		331

DATE: DATE TIME
 FILE: DOCUMENT NAME

LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSL DEL ASSM (D-SW)SZ (BRF)CTB	0 EA
(B)	658 6071	INSL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	0 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	70 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	21 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	1 EA
(G)	666 6078	REFL PAV MRK (W) (WORD)	1 EA
(H)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	0 EA
(I)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	0 EA
(J)	666 6162	RE PV MRK TY I (BLACK) (6") (SHADOW)	505 LF
(K)	666 6306	REFL PAV MRK (W) (BRK) (6")	505 LF
(L)	666 6309	REFL PAV MRK (W) (SLD) (6")	113 LF
(M)	666 6318	REFL PAV MRK (Y) (BRK) (6")	162 LF
(N)	666 6321	REFL PAV MRK (Y) (SLD) (6")	1201 LF
(O)	672 6009	REFL PAV MRKR TYII-A-A	56 EA
(P)	672 6010	REFL PAV MRKR TYII-C-R	0 EA
(Q)	666 6147	REFL PAV MRK (Y) (24") (SLD)	62 LF
(R)	672 6007	REFL PAV MRKR TYI-C	30 EA
(S)	666 6030	REFL PAV MRK TY I (W) 8" (DOT)	9 LF

- PROPOSED SMALL SIGN
- (X-) REMOVE SM RD SN SUP & AM
- (R-) REPLACE SM RD SN SUP & AM
- PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- (X-) REMOVE LARGE SIGN OR OVHD SIGN PANEL
- ||||| PROPOSED RUMBLE STRIP
- ▨ EXIST SIGN TO REMAIN
- ➔ DIRECTIONAL TRAFFIC FLOW



May 21 2024
 SIGNING & PAVEMENT
 MARKING LAYOUT
 FM 1764



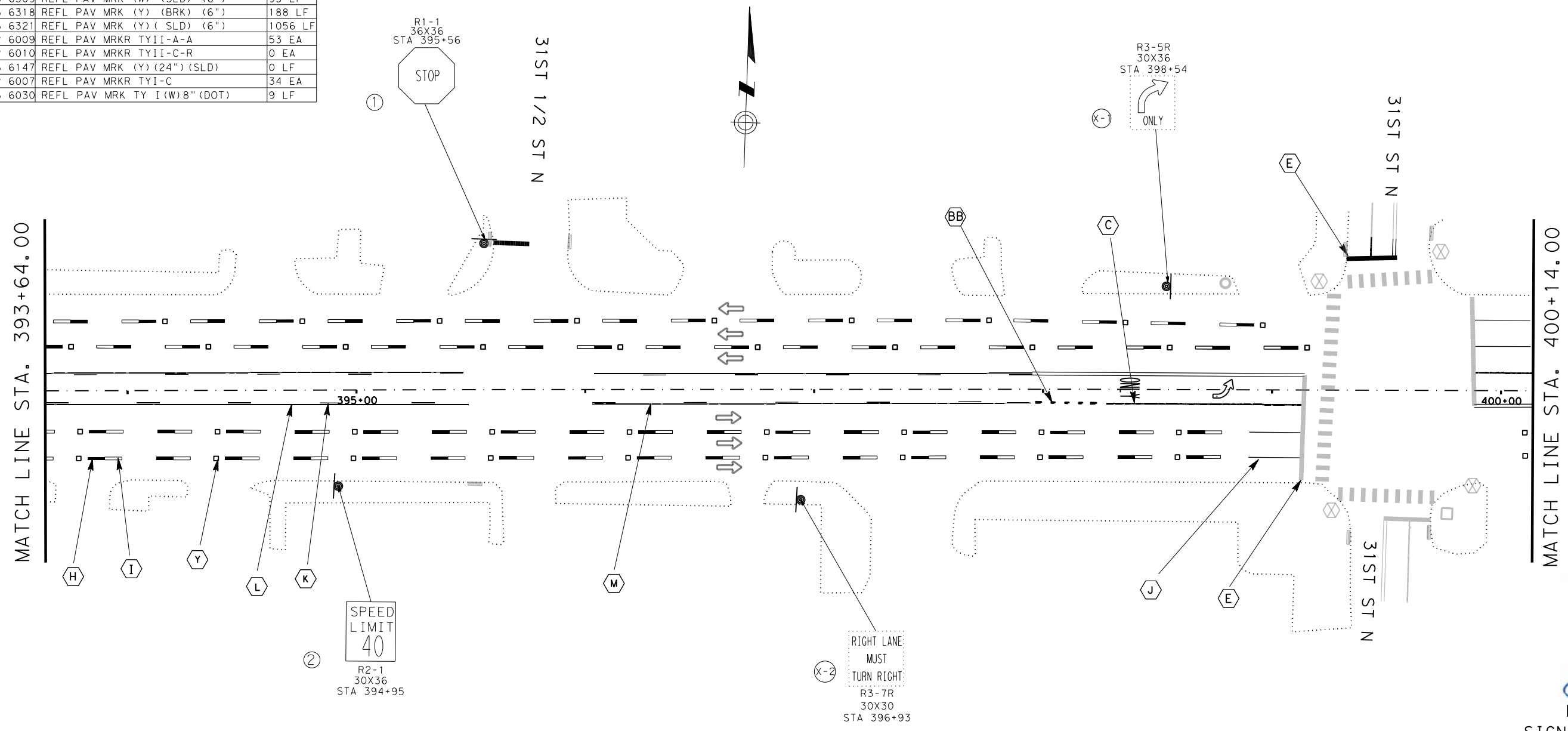
SHEET 26 OF 44

		CONT	SECT	JOB	HIGHWAY
		1607	01	057, ETC	FM 1764
		DIST	COUNTY		SHEET NO.
		HOU	GALVESTON		332

DATE: DATE TIME
 FILE: DOCUMENT NAME

LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSL DEL ASSM (D-SW)SZ (BRF)CTB	0 EA
(B)	658 6071	INSL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	0 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	119 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	38 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	2 EA
(G)	666 6078	REFL PAV MRK (W) (WORD)	1 EA
(H)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	0 EA
(I)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	0 EA
(J)	666 6162	RE PV MRK TY I (BLACK) (6") (SHADOW)	528 LF
(K)	666 6306	REFL PAV MRK (W) (BRK) (6")	528 LF
(L)	666 6309	REFL PAV MRK (W) (SLD) (6")	93 LF
(M)	666 6318	REFL PAV MRK (Y) (BRK) (6")	188 LF
(N)	666 6321	REFL PAV MRK (Y) (SLD) (6")	1056 LF
(O)	672 6009	REFL PAV MRKR TYII-A-A	53 EA
(P)	672 6010	REFL PAV MRKR TYII-C-R	0 EA
(Q)	666 6147	REFL PAV MRK (Y) (24") (SLD)	0 LF
(R)	672 6007	REFL PAV MRKR TYI-C	34 EA
(S)	666 6030	REFL PAV MRK TY I (W) 8" (DOT)	9 LF

- PROPOSED SMALL SIGN
- (X-) REMOVE SM RD SN SUP & AM
- (R-) REPLACE SM RD SN SUP & AM
- PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- (X-) REMOVE LARGE SIGN OR OVHD SIGN PANEL
- ||||| PROPOSED RUMBLE STRIP
- ▨ EXIST SIGN TO REMAIN
- ➔ DIRECTIONAL TRAFFIC FLOW



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May 21 2024
 SIGNING & PAVEMENT
 MARKING LAYOUT
 FM 1764



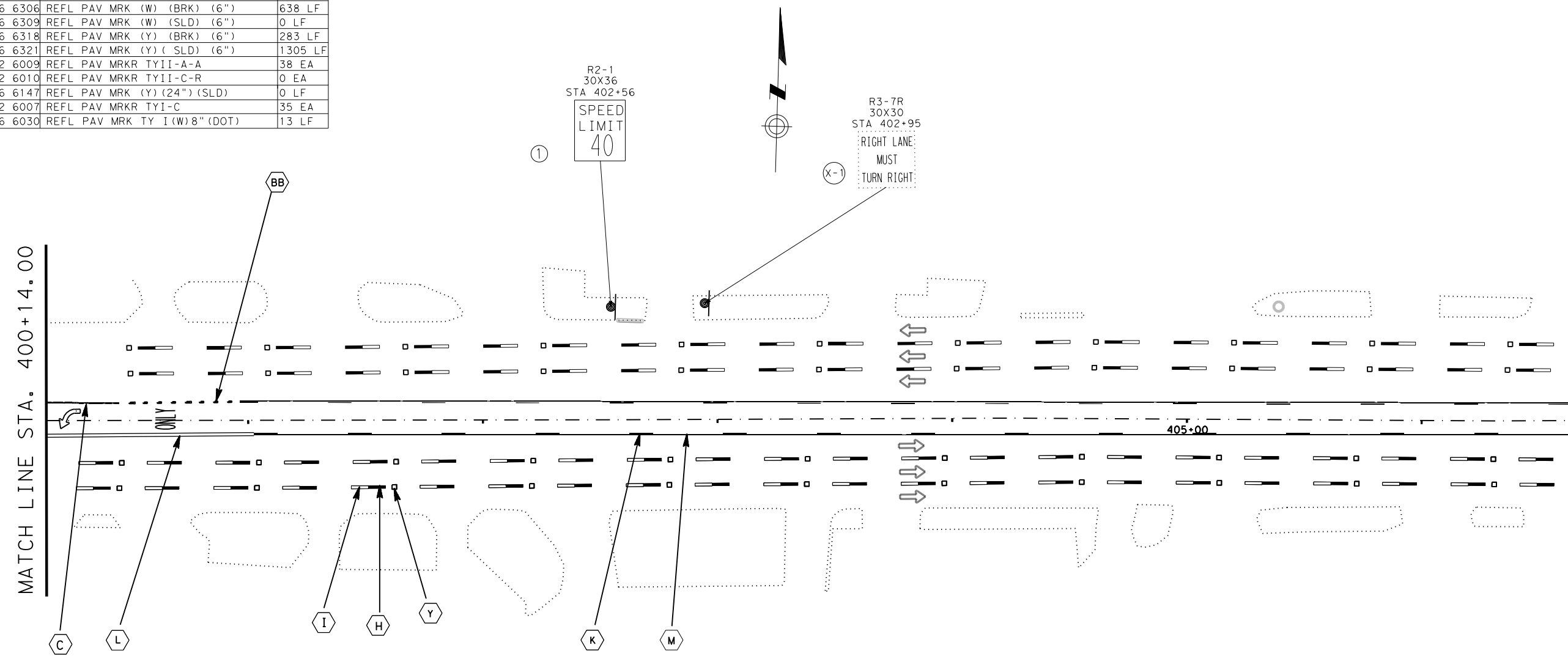
SHEET 27 OF 44

		CONT	SECT	JOB	HIGHWAY
		1607	01	057, ETC	FM 1764
		DIST	COUNTY		SHEET NO.
		HOU	GALVESTON		333

DATE: DATE TIME
 FILE: DOCUMENT NAME
 CHK: DMR: CKS: DNR:

LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSTL DEL ASSM (D-SW)SZ (BRF)CTB	0 EA
(B)	658 6071	INSTL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	0 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	31 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	0 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	0 EA
(G)	666 6078	REFL PAV MRK (W) (WORD)	1 EA
(H)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	0 EA
(I)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	0 EA
(J)	666 6162	RE PV MRK TY I (BLACK) (6") (SHADOW)	638 LF
(K)	666 6306	REFL PAV MRK (W) (BRK) (6")	638 LF
(L)	666 6309	REFL PAV MRK (W) (SLD) (6")	0 LF
(M)	666 6318	REFL PAV MRK (Y) (BRK) (6")	283 LF
(N)	666 6321	REFL PAV MRK (Y) (SLD) (6")	1305 LF
(O)	672 6009	REFL PAV MRKR TYII-A-A	38 EA
(P)	672 6010	REFL PAV MRKR TYII-C-R	0 EA
(Q)	666 6147	REFL PAV MRK (Y) (24") (SLD)	0 LF
(R)	672 6007	REFL PAV MRKR TYI-C	35 EA
(S)	666 6030	REFL PAV MRK TY I (W) 8" (DOT)	13 LF

- PROPOSED SMALL SIGN
- (X-) REMOVE SM RD SN SUP & AM
- (R-) REPLACE SM RD SN SUP & AM
- PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- (X-) REMOVE LARGE SIGN OR OVHD SIGN PANEL
- ||||| PROPOSED RUMBLE STRIP
- ▨ EXIST SIGN TO REMAIN
- ➔ DIRECTIONAL TRAFFIC FLOW



Joel H. Clarke

May 21 2024
 SIGNING & PAVEMENT
 MARKING LAYOUT
 FM 1764



SHEET 28 OF 44

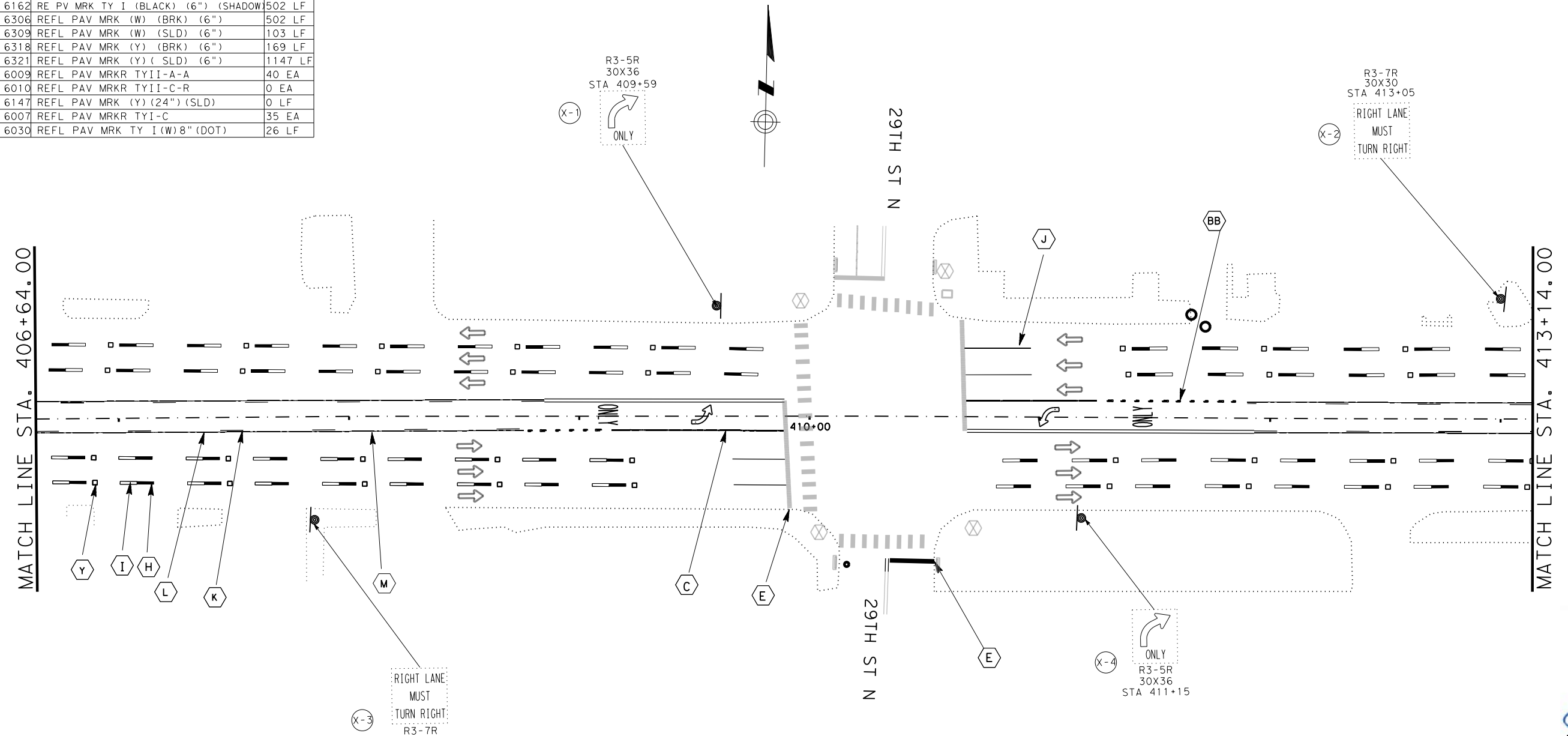
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CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		334

DATE: DATE TIME
 FILE: DOCUMENT NAME
 CKS: CKS
 DWF: DWF
 DWS: DWS

LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSTL DEL ASSM (D-SW)SZ (BRF)CTB	0 EA
(B)	658 6071	INSTL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	0 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	132 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	21 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	2 EA
(G)	666 6078	REFL PAV MRK (W) (WORD)	2 EA
(H)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	0 EA
(I)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	0 EA
(J)	666 6162	RE PV MRK TY I (BLACK) (6") (SHADOW)	502 LF
(K)	666 6306	REFL PAV MRK (W) (BRK) (6")	502 LF
(L)	666 6309	REFL PAV MRK (W) (SLD) (6")	103 LF
(M)	666 6318	REFL PAV MRK (Y) (BRK) (6")	169 LF
(N)	666 6321	REFL PAV MRK (Y) (SLD) (6")	1147 LF
(O)	672 6009	REFL PAV MRKR TYII-A-A	40 EA
(P)	672 6010	REFL PAV MRKR TYII-C-R	0 EA
(Q)	666 6147	REFL PAV MRK (Y) (24") (SLD)	0 LF
(R)	672 6007	REFL PAV MRKR TYI-C	35 EA
(S)	666 6030	REFL PAV MRK TY I(W)8" (DOT)	26 LF

- PROPOSED SMALL SIGN
- (X-) REMOVE SM RD SN SUP & AM
- (R-) REPLACE SM RD SN SUP & AM
- PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- (X-) REMOVE LARGE SIGN OR OVHD SIGN PANEL
- ||||| PROPOSED RUMBLE STRIP
- ▨ EXIST SIGN TO REMAIN
- ➔ DIRECTIONAL TRAFFIC FLOW



May 21 2024

SIGNING & PAVEMENT
MARKING LAYOUT
FM 1764

SHEET 29 OF 44



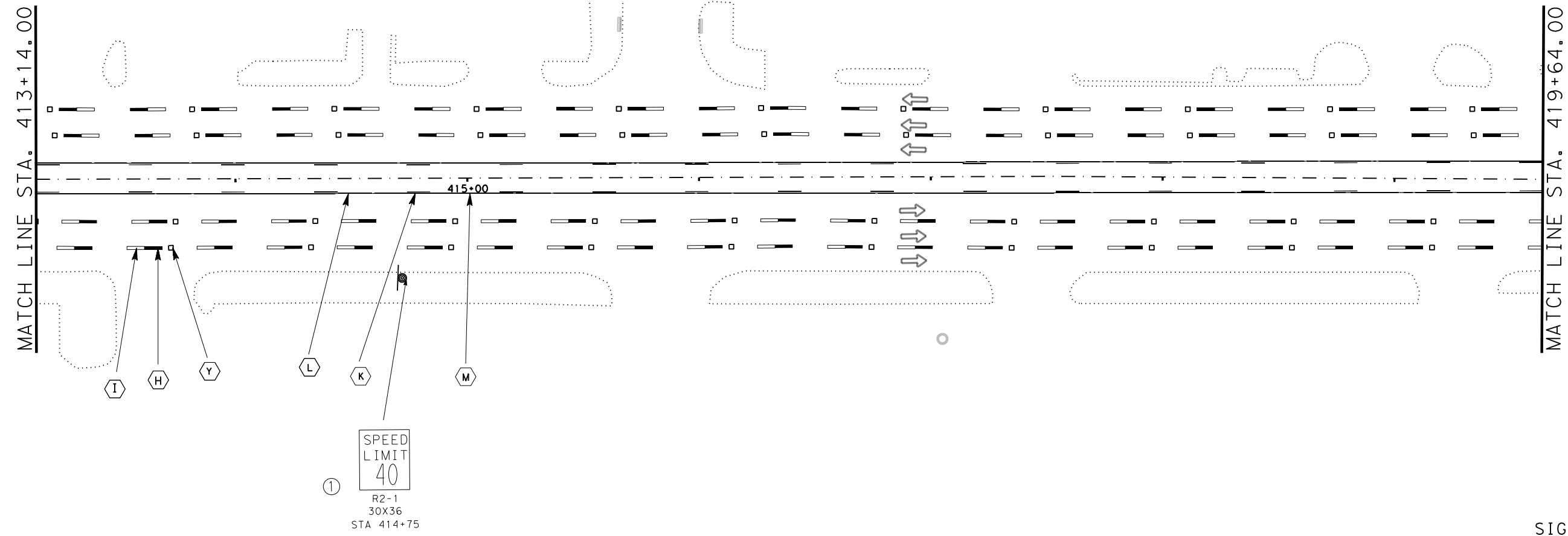
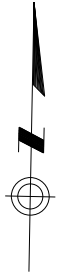
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		335



DATE: DATE TIME
 FILE: DOCUMENT NAME
 CKS: CKS
 DWF: DWF
 DWS: DWS

LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSTL DEL ASSM (D-SW)SZ (BRF)CTB	0 EA
(B)	658 6071	INSTL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	0 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	0 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	0 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	0 EA
ONLY	666 6078	REFL PAV MRK (W) (WORD)	0 EA
(F)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	0 EA
(G)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	0 EA
(H)	666 6162	RE PV MRK TY I (BLACK) (6") (SHADOW)	650 LF
(I)	666 6306	REFL PAV MRK (W) (BRK) (6")	650 LF
(J)	666 6309	REFL PAV MRK (W) (SLD) (6")	0 LF
(K)	666 6318	REFL PAV MRK (Y) (BRK) (6")	325 LF
(L)	666 6321	REFL PAV MRK (Y) (SLD) (6")	1300 LF
(M)	672 6009	REFL PAV MRKR TYII-A-A	33 EA
(N)	672 6010	REFL PAV MRKR TYII-C-R	0 EA
(X)	666 6147	REFL PAV MRK (Y) (24") (SLD)	0 LF
(Y)	672 6007	REFL PAV MRKR TYI-C	33 EA

- PROPOSED SMALL SIGN
- (X-) REMOVE SM RD SN SUP & AM
- (R-) REPLACE SM RD SN SUP & AM
- PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- (X-) REMOVE LARGE SIGN OR OVHD SIGN PANEL
- ||||| PROPOSED RUMBLE STRIP
- ▨ EXIST SIGN TO REMAIN
- ➔ DIRECTIONAL TRAFFIC FLOW



May 21 2024
 SIGNING & PAVEMENT
 MARKING LAYOUT
 FM 1764



SHEET 30 OF 44

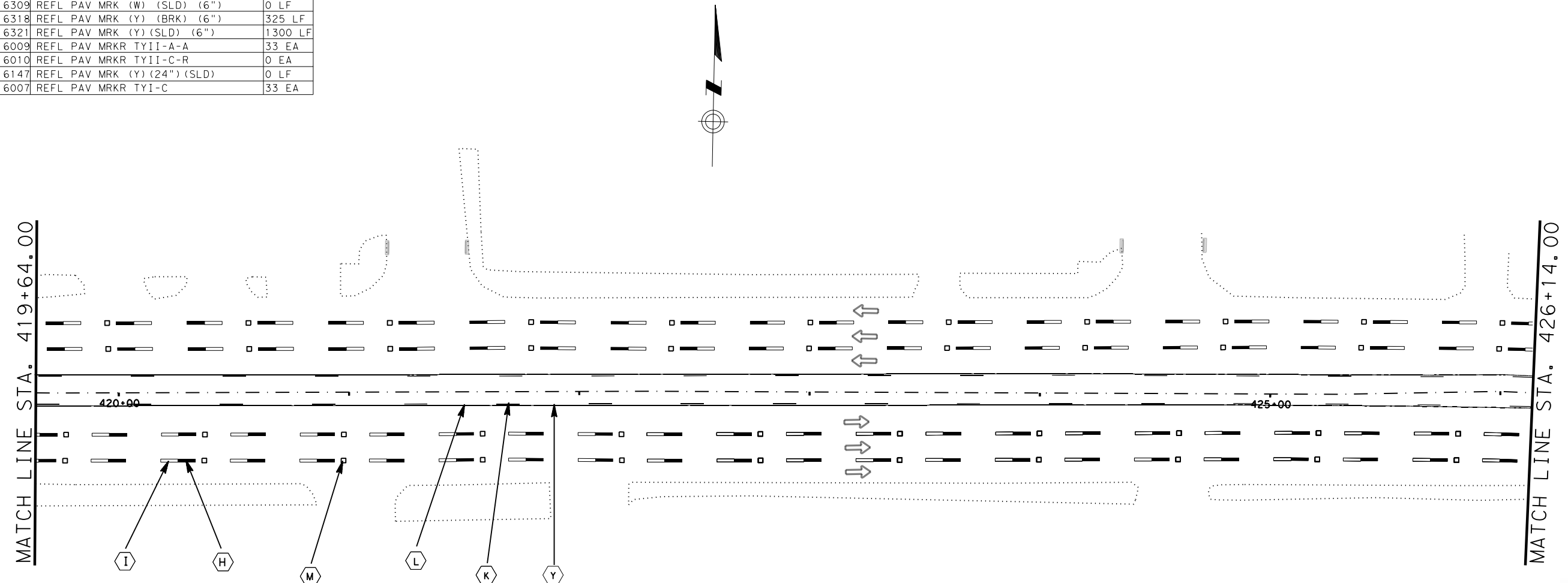
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		CONT	SECT	JOB	HIGHWAY
		1607	01	057, ETC	FM 1764
		DIST	COUNTY		SHEET NO.
		HOU	GALVESTON		336

DATE: DATE TIME
 FILE: DOCUMENT NAME
 CHK: DWF: CDS: DWS:

LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSTL DEL ASSM (D-SW)SZ (BRF)CTB	0 EA
(B)	658 6071	INSTL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	0 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	0 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	0 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	0 EA
(G)	666 6078	REFL PAV MRK (W) (WORD)	0 EA
(H)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	0 EA
(I)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	0 EA
(J)	666 6162	RE PV MRK TY I (BLACK) (6") (SHADOW)	650 LF
(K)	666 6306	REFL PAV MRK (W) (BRK) (6")	650 LF
(L)	666 6309	REFL PAV MRK (W) (SLD) (6")	0 LF
(M)	666 6318	REFL PAV MRK (Y) (BRK) (6")	325 LF
(N)	666 6321	REFL PAV MRK (Y) (SLD) (6")	1300 LF
(O)	672 6009	REFL PAV MRKR TYII-A-A	33 EA
(P)	672 6010	REFL PAV MRKR TYII-C-R	0 EA
(Q)	666 6147	REFL PAV MRK (Y) (24") (SLD)	0 LF
(R)	672 6007	REFL PAV MRKR TYI-C	33 EA

- PROPOSED SMALL SIGN
- (X-) REMOVE SM RD SN SUP & AM
- (R-) REPLACE SM RD SN SUP & AM
- PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- (X-) REMOVE LARGE SIGN OR OVHD SIGN PANEL
- ||||| PROPOSED RUMBLE STRIP
- ▨ EXIST SIGN TO REMAIN
- ➔ DIRECTIONAL TRAFFIC FLOW



May 21 2024
 SIGNING & PAVEMENT
 MARKING LAYOUT
 FM 1764



SHEET 31 OF 44

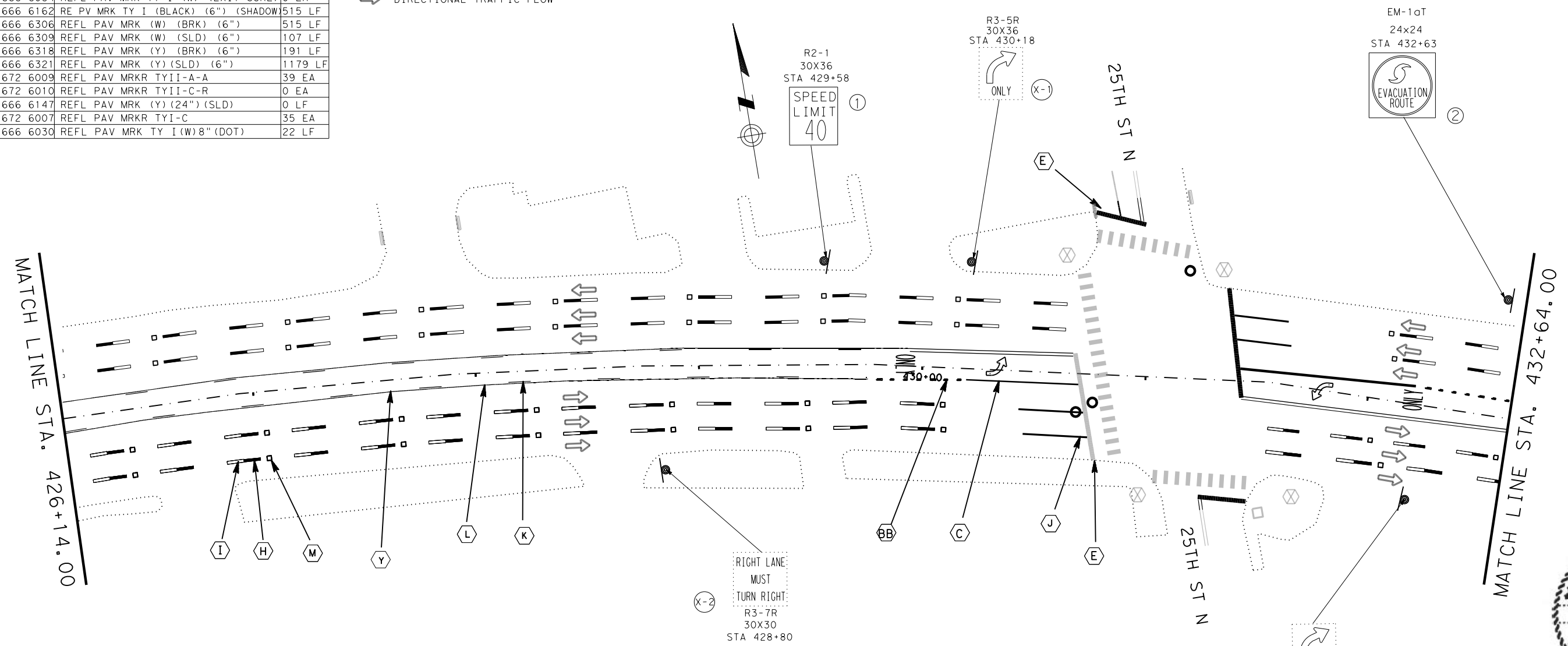
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CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		337

DATE: DATE TIME
 FILE: DOCUMENT NAME

LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSTL DEL ASSM (D-SW)SZ (BRF)CTB	0 EA
(B)	658 6071	INSTL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	0 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	136 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	45 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	2 EA
(G)	666 6078	REFL PAV MRK (W) (WORD)	2 EA
(H)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	0 EA
(I)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	0 EA
(J)	666 6162	RE PV MRK TY I (BLACK) (6") (SHADOW)	515 LF
(K)	666 6306	REFL PAV MRK (W) (BRK) (6")	515 LF
(L)	666 6309	REFL PAV MRK (W) (SLD) (6")	107 LF
(M)	666 6318	REFL PAV MRK (Y) (BRK) (6")	191 LF
(N)	666 6321	REFL PAV MRK (Y) (SLD) (6")	1179 LF
(O)	672 6009	REFL PAV MRKR TYII-A-A	39 EA
(P)	672 6010	REFL PAV MRKR TYII-C-R	0 EA
(Q)	666 6147	REFL PAV MRK (Y) (24") (SLD)	0 LF
(R)	672 6007	REFL PAV MRKR TYI-C	35 EA
(S)	666 6030	REFL PAV MRK TY I (W) 8" (DOT)	22 LF

- (O) PROPOSED SMALL SIGN
- (X-) REMOVE SM RD SN SUP & AM
- (R-) REPLACE SM RD SN SUP & AM
- (□) PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- (X-□) REMOVE LARGE SIGN OR OVHD SIGN PANEL
- (|||||) PROPOSED RUMBLE STRIP
- (▨) EXIST SIGN TO REMAIN
- (→) DIRECTIONAL TRAFFIC FLOW



May 21 2024
 SIGNING & PAVEMENT
 MARKING LAYOUT
 FM 1764



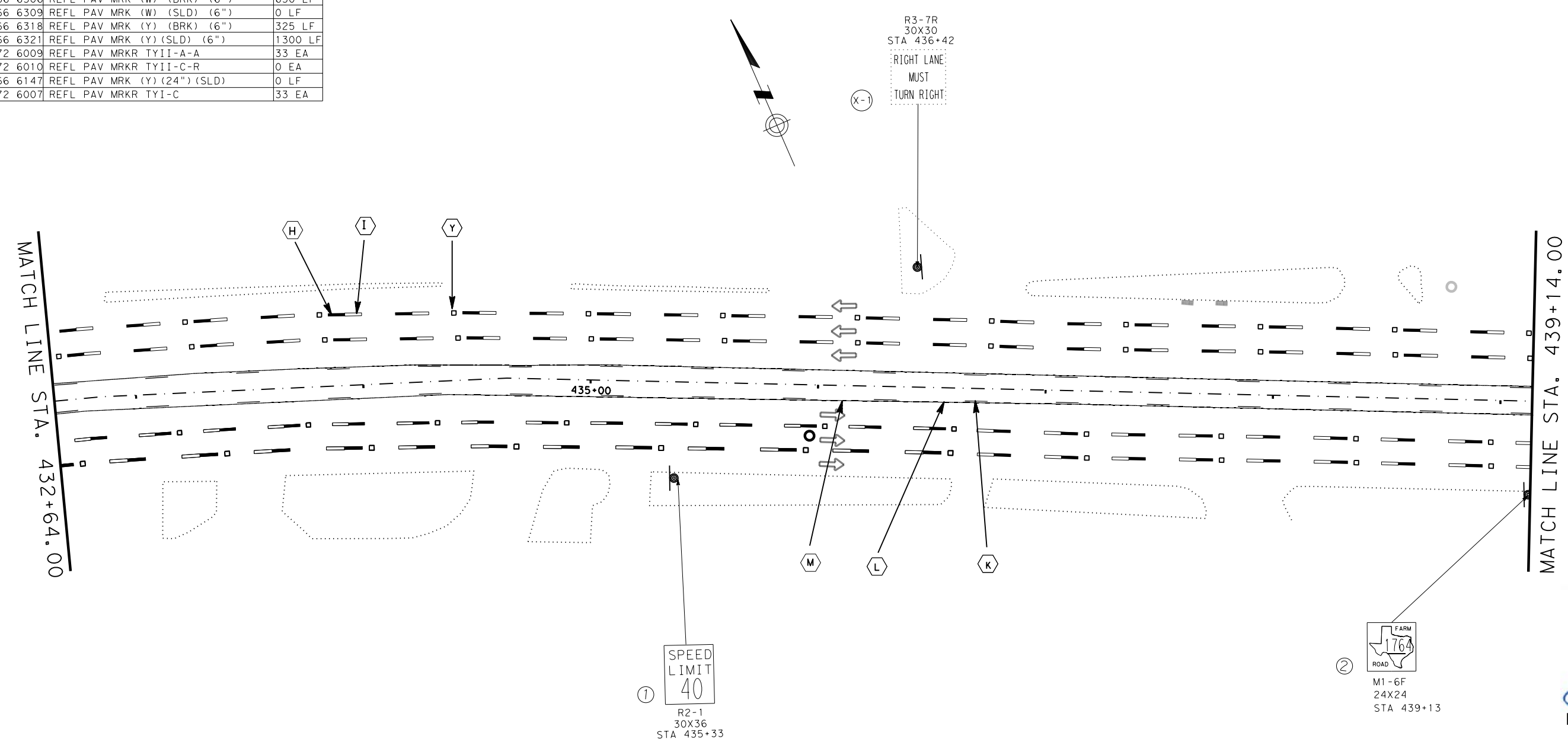
SHEET 32 OF 44

		CONT	SECT	JOB	HIGHWAY
		1607	01	057, ETC	FM 1764
		DIST	COUNTY		SHEET NO.
		HOU	GALVESTON		338

DATE: DATE TIME FILE: DOCUMENT NAME

LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSTL DEL ASSM (D-SW)SZ (BRF)CTB	0 EA
(B)	658 6071	INSTL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	0 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	0 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	0 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	0 EA
(G)	666 6078	REFL PAV MRK (W) (WORD)	0 EA
(H)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	0 EA
(I)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	0 EA
(J)	666 6162	RE PV MRK TY I (BLACK) (6") (SHADOW)	650 LF
(K)	666 6306	REFL PAV MRK (W) (BRK) (6")	650 LF
(L)	666 6309	REFL PAV MRK (W) (SLD) (6")	0 LF
(M)	666 6318	REFL PAV MRK (Y) (BRK) (6")	325 LF
(N)	666 6321	REFL PAV MRK (Y) (SLD) (6")	1300 LF
(O)	672 6009	REFL PAV MRKR TYII-A-A	33 EA
(P)	672 6010	REFL PAV MRKR TYII-C-R	0 EA
(Q)	666 6147	REFL PAV MRK (Y) (24") (SLD)	0 LF
(R)	672 6007	REFL PAV MRKR TYI-C	33 EA

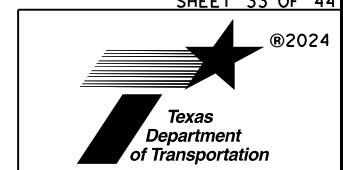
- PROPOSED SMALL SIGN
- (X-) REMOVE SM RD SN SUP & AM
- (R-) REPLACE SM RD SN SUP & AM
- PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- (X-) REMOVE LARGE SIGN OR OVHD SIGN PANEL
- ||||| PROPOSED RUMBLE STRIP
- ▨ EXIST SIGN TO REMAIN
- ➔ DIRECTIONAL TRAFFIC FLOW



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 May 21 2024

SIGNING & PAVEMENT MARKING LAYOUT
 FM 1764

SHEET 33 OF 44



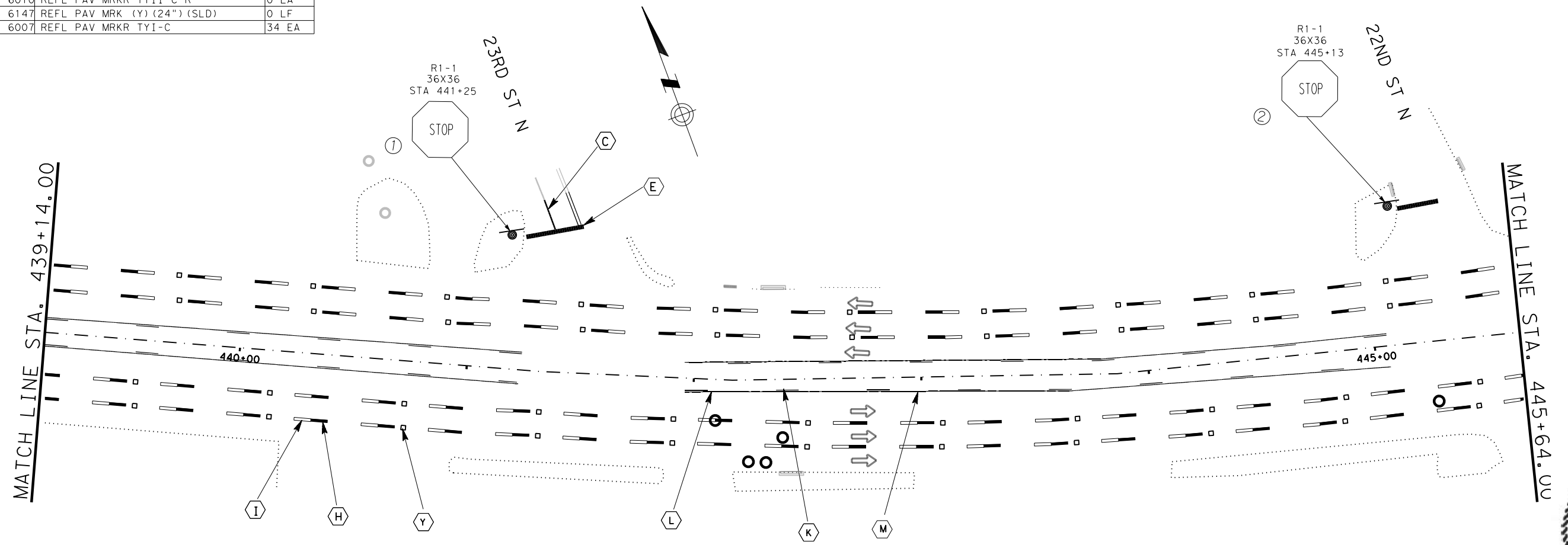
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		339



DATE: DATE TIME
 FILE: DOCUMENT NAME

LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSL DEL ASSM (D-SW)SZ (BRF)CTB	0 EA
(B)	658 6071	INSL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	0 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	14 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	44 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	0 EA
(G)	666 6078	REFL PAV MRK (W) (WORD)	0 EA
(H)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	0 EA
(I)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	0 EA
(J)	666 6162	RE PV MRK TY I (BLACK) (6") (SHADOW)	1651 LF
(K)	666 6306	REFL PAV MRK (W) (BRK) (6")	651 LF
(L)	666 6309	REFL PAV MRK (W) (SLD) (6")	0 LF
(M)	666 6318	REFL PAV MRK (Y) (BRK) (6")	259 LF
(N)	666 6321	REFL PAV MRK (Y) (SLD) (6")	1068 LF
(O)	672 6009	REFL PAV MRKR TYII-A-A	27 EA
(P)	672 6010	REFL PAV MRKR TYII-C-R	0 EA
(Q)	666 6147	REFL PAV MRK (Y) (24") (SLD)	0 LF
(R)	672 6007	REFL PAV MRKR TYI-C	34 EA

- PROPOSED SMALL SIGN
- ⊖ REMOVE SM RD SN SUP & AM
- Ⓡ REPLACE SM RD SN SUP & AM
- PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- ⊗ REMOVE LARGE SIGN OR OVHD SIGN PANEL
- ||||| PROPOSED RUMBLE STRIP
- ▨ EXIST SIGN TO REMAIN
- ➔ DIRECTIONAL TRAFFIC FLOW



May 21 2024
 SIGNING & PAVEMENT
 MARKING LAYOUT
 FM 1764



SHEET 34 OF 44

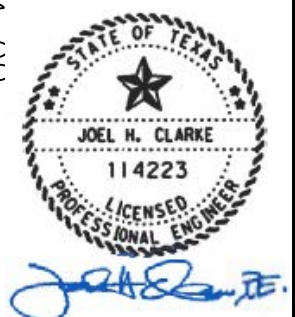
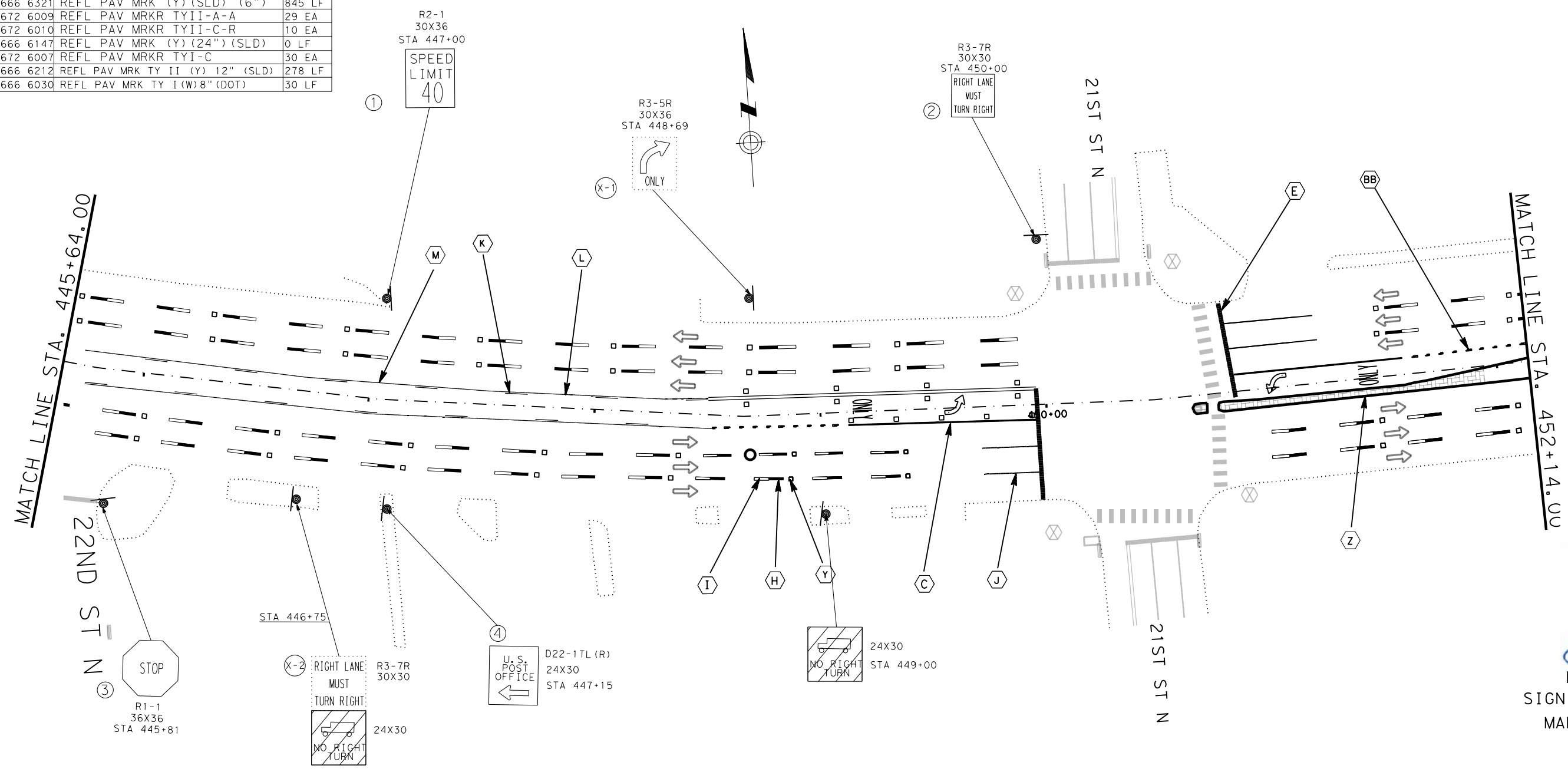
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CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		340

DATE: DATE TIME
 FILE: DOCUMENT NAME

SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSTR DEL ASSM (D-SW)SZ (BRF)CTB	0 EA
(B)	658 6071	INSTR DEL ASSM (D-SY)SZ (BRF)CTB (B1)	0 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	130 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	93 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	2 EA
(G)	666 6078	REFL PAV MRK (W) (WORD)	2 EA
(H)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	0 EA
(I)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	0 EA
(J)	666 6162	REFL PAV MRK TY I (BLACK) (6") (SHADOW)	498 LF
(K)	666 6306	REFL PAV MRK (W) (BRK) (6")	498 LF
(L)	666 6309	REFL PAV MRK (W) (SLD) (6")	108 LF
(M)	666 6318	REFL PAV MRK (Y) (BRK) (6")	139 LF
(N)	666 6321	REFL PAV MRK (Y) (SLD) (6")	845 LF
(O)	672 6009	REFL PAV MRKR TYII-A-A	29 EA
(P)	672 6010	REFL PAV MRKR TYII-C-R	10 EA
(Q)	666 6147	REFL PAV MRK (Y) (24") (SLD)	0 LF
(R)	672 6007	REFL PAV MRKR TYI-C	30 EA
(S)	666 6212	REFL PAV MRK TY II (Y) 12" (SLD)	278 LF
(T)	666 6030	REFL PAV MRK TY I (W) 8" (DOT)	30 LF

- PROPOSED SMALL SIGN
- (X-) REMOVE SM RD SN SUP & AM
- (R-) REPLACE SM RD SN SUP & AM
- PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- (X-□) REMOVE LARGE SIGN OR OVHD SIGN PANEL
- ||||| PROPOSED RUMBLE STRIP
- ▨ EXIST SIGN TO REMAIN
- ➔ DIRECTIONAL TRAFFIC FLOW



May 21 2024
 SIGNING & PAVEMENT
 MARKING LAYOUT
 FM 1764



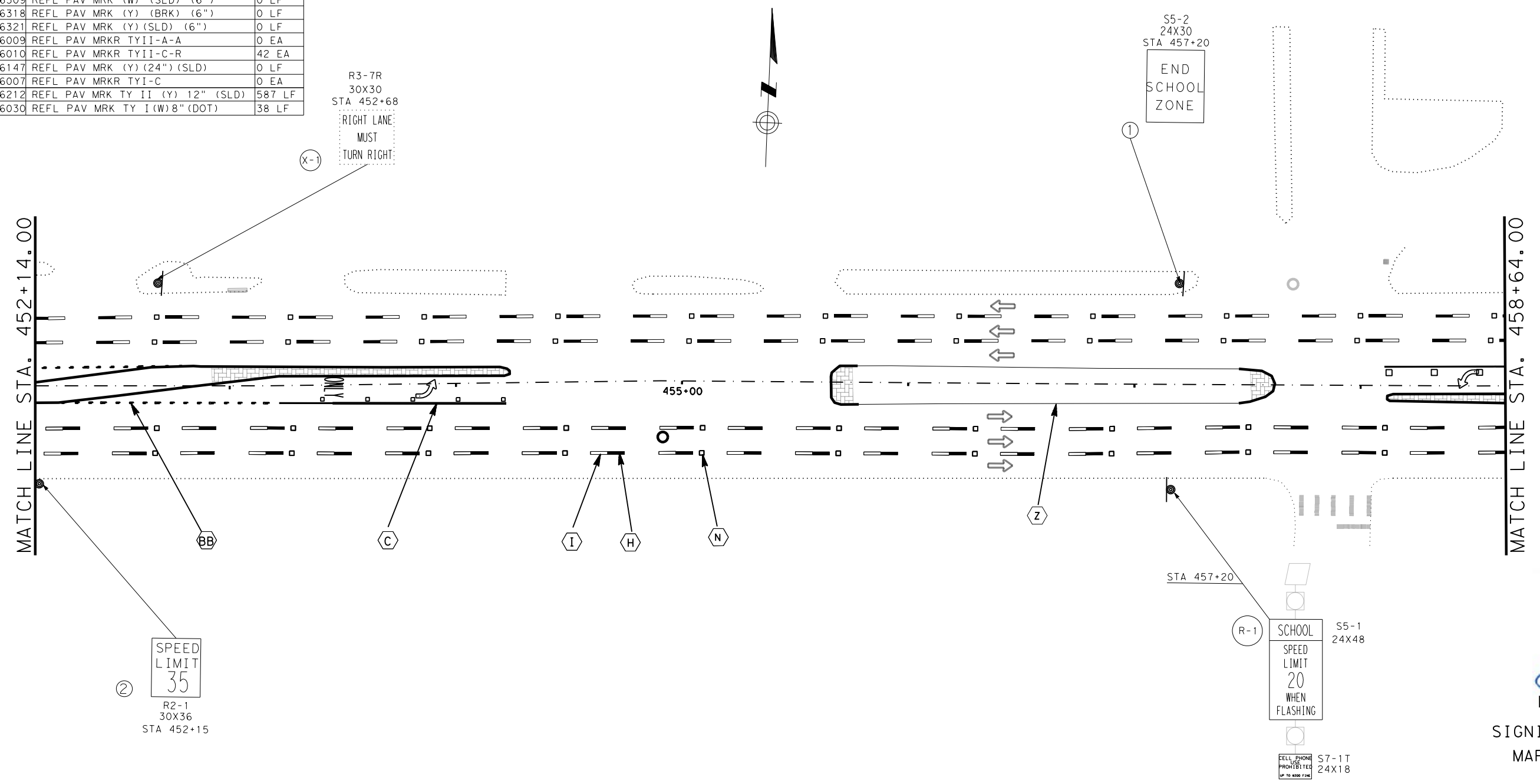
SHEET 35 OF 44

		CONT	SECT	JOB	HIGHWAY
		1607	01	057, ETC	FM 1764
		DIST	COUNTY		SHEET NO.
		HOU	GALVESTON		341

DATE: DATE TIME FILE: DOCUMENT NAME

LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSTL DEL ASSM (D-SW)SZ (BRF)CTB	0 EA
(B)	658 6071	INSTL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	0 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	130 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	0 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	2 EA
(G)	666 6078	REFL PAV MRK (W) (WORD)	2 EA
(H)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	0 EA
(I)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	0 EA
(J)	666 6162	RE PV MRK TY I (BLACK) (6") (SHADOW)	650 LF
(K)	666 6306	REFL PAV MRK (W) (BRK) (6")	650 LF
(L)	666 6309	REFL PAV MRK (W) (SLD) (6")	0 LF
(M)	666 6318	REFL PAV MRK (Y) (BRK) (6")	0 LF
(N)	666 6321	REFL PAV MRK (Y) (SLD) (6")	0 LF
(O)	672 6009	REFL PAV MRKR TYII-A-A	0 EA
(P)	672 6010	REFL PAV MRKR TYII-C-R	42 EA
(Q)	666 6147	REFL PAV MRK (Y) (24") (SLD)	0 LF
(R)	672 6007	REFL PAV MRKR TYI-C	0 EA
(S)	666 6212	REFL PAV MRK TY II (Y) 12" (SLD)	587 LF
(T)	666 6030	REFL PAV MRK TY I (W) 8" (DOT)	38 LF

- PROPOSED SMALL SIGN
- (X-) REMOVE SM RD SN SUP & AM
- (R-) REPLACE SM RD SN SUP & AM
- PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- (X-) REMOVE LARGE SIGN OR OVHD SIGN PANEL
- ||||| PROPOSED RUMBLE STRIP
- ▨ EXIST SIGN TO REMAIN
- ➔ DIRECTIONAL TRAFFIC FLOW



Joel H. Clarke
 May 21 2024

SIGNING & PAVEMENT MARKING LAYOUT
 FM 1764



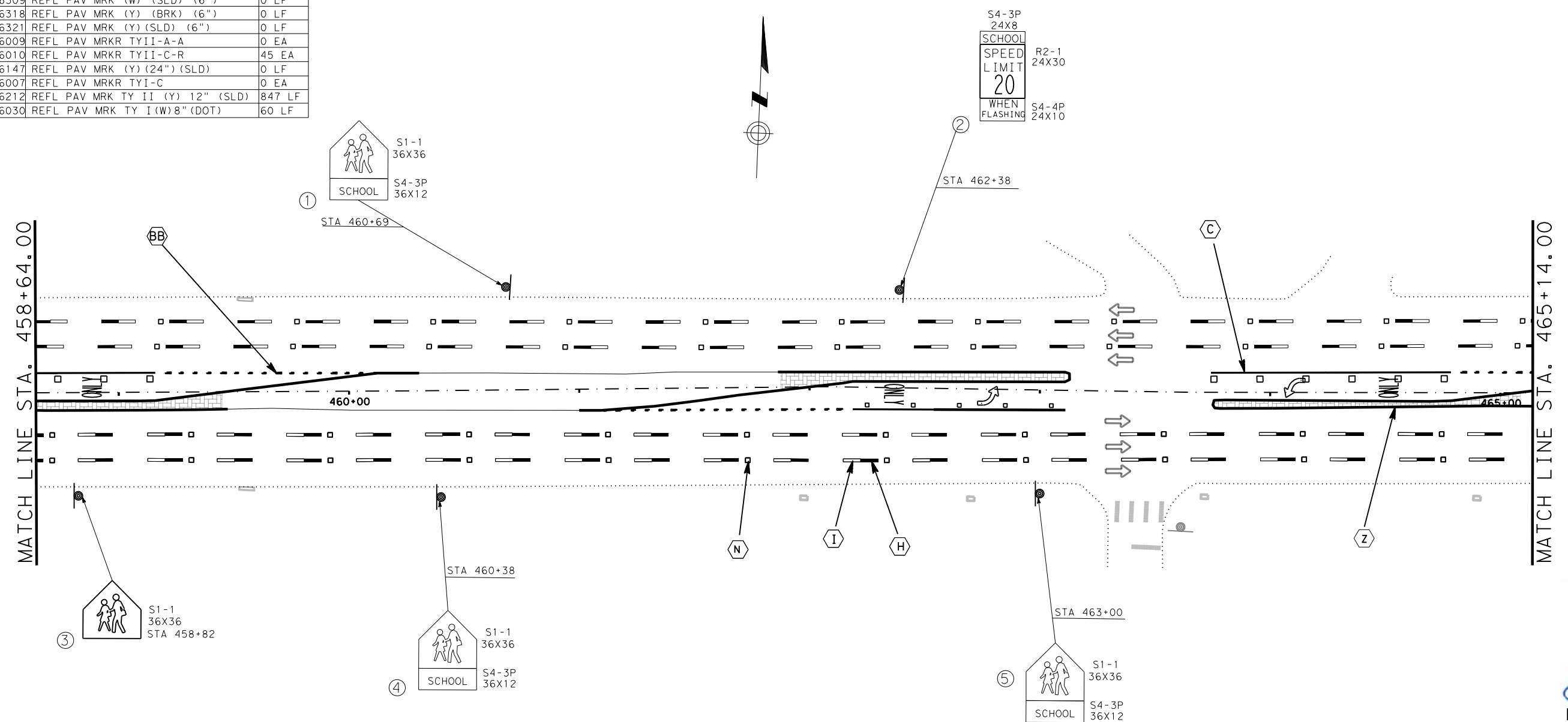
SHEET 36 OF 44
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CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		342

DATE: DATE TIME
 FILE: DOCUMENT NAME

LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSL DEL ASSM (D-SW)SZ (BRF)CTB	0 EA
(B)	658 6071	INSL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	0 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	131 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	0 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	2 EA
(G)	666 6078	REFL PAV MRK (W) (WORD)	2 EA
(H)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	0 EA
(I)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	0 EA
(J)	666 6162	RE PV MRK TY I (BLACK) (6") (SHADOW)	650 LF
(K)	666 6306	REFL PAV MRK (W) (BRK) (6")	650 LF
(L)	666 6309	REFL PAV MRK (W) (SLD) (6")	0 LF
(M)	666 6318	REFL PAV MRK (Y) (BRK) (6")	0 LF
(N)	666 6321	REFL PAV MRK (Y) (SLD) (6")	0 LF
(O)	672 6009	REFL PAV MRKR TYII-A-A	0 EA
(P)	672 6010	REFL PAV MRKR TYII-C-R	45 EA
(Q)	666 6147	REFL PAV MRK (Y) (24") (SLD)	0 LF
(R)	672 6007	REFL PAV MRKR TYI-C	0 EA
(S)	666 6212	REFL PAV MRK TY II (Y) 12" (SLD)	847 LF
(T)	666 6030	REFL PAV MRK TY I (W) 8" (DOT)	60 LF

- (○) PROPOSED SMALL SIGN
- (X-) REMOVE SM RD SN SUP & AM
- (R-) REPLACE SM RD SN SUP & AM
- (□) PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- (X-□) REMOVE LARGE SIGN OR OVHD SIGN PANEL
- (|||||) PROPOSED RUMBLE STRIP
- (▨) EXIST SIGN TO REMAIN
- (→) DIRECTIONAL TRAFFIC FLOW



May 21 2024
 SIGNING & PAVEMENT
 MARKING LAYOUT
 FM 1764

SHEET 37 OF 44
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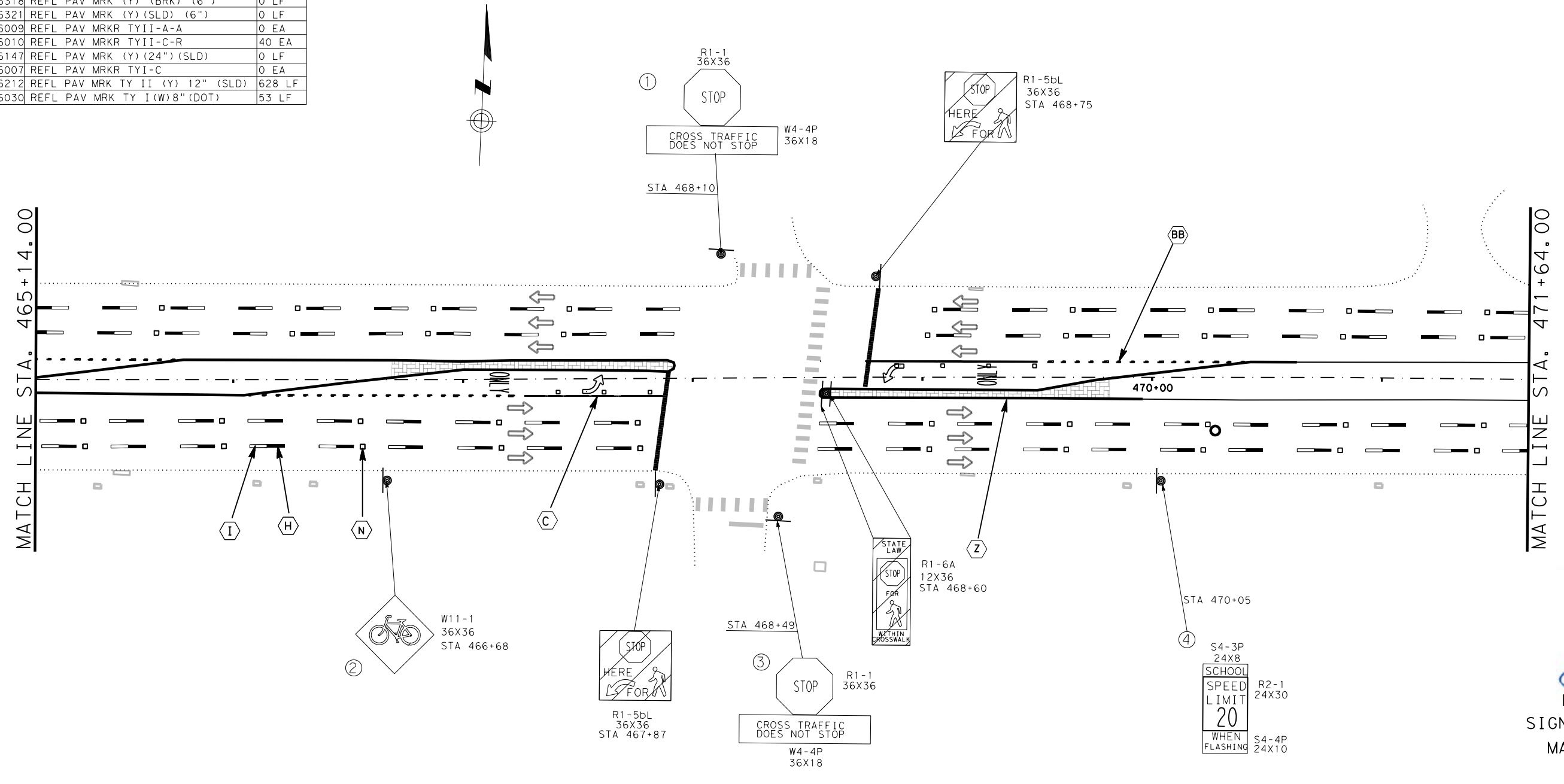


CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST		COUNTY	SHEET NO.
HOU		GALVESTON	343

DATE: DATE TIME
 FILE: DOCUMENT NAME

LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSL DEL ASSM (D-SW)SZ (BRF)CTB	0 EA
(B)	658 6071	INSL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	0 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	133 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	88 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	2 EA
(G)	666 6078	REFL PAV MRK (W) (WORD)	2 EA
(H)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	0 EA
(I)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	0 EA
(J)	666 6162	RE PV MRK TY I (BLACK) (6") (SHADOW)	567 LF
(K)	666 6306	REFL PAV MRK (W) (BRK) (6")	567 LF
(L)	666 6309	REFL PAV MRK (W) (SLD) (6")	0 LF
(M)	666 6318	REFL PAV MRK (Y) (BRK) (6")	0 LF
(N)	666 6321	REFL PAV MRK (Y) (SLD) (6")	0 LF
(O)	672 6009	REFL PAV MRKR TYII-A-A	0 EA
(P)	672 6010	REFL PAV MRKR TYII-C-R	40 EA
(Q)	666 6147	REFL PAV MRK (Y) (24") (SLD)	0 LF
(R)	672 6007	REFL PAV MRKR TYI-C	0 EA
(S)	666 6212	REFL PAV MRK TY II (Y) 12" (SLD)	628 LF
(T)	666 6030	REFL PAV MRK TY I (W) 8" (DOT)	53 LF

- PROPOSED SMALL SIGN
- ⊗ REMOVE SM RD SN SUP & AM
- ⊙ REPLACE SM RD SN SUP & AM
- PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- ⊗ REMOVE LARGE SIGN OR OVHD SIGN PANEL
- ||||| PROPOSED RUMBLE STRIP
- ▨ EXIST SIGN TO REMAIN
- ➔ DIRECTIONAL TRAFFIC FLOW



May 21 2024
 SIGNING & PAVEMENT
 MARKING LAYOUT
 FM 1764

SHEET 38 OF 44

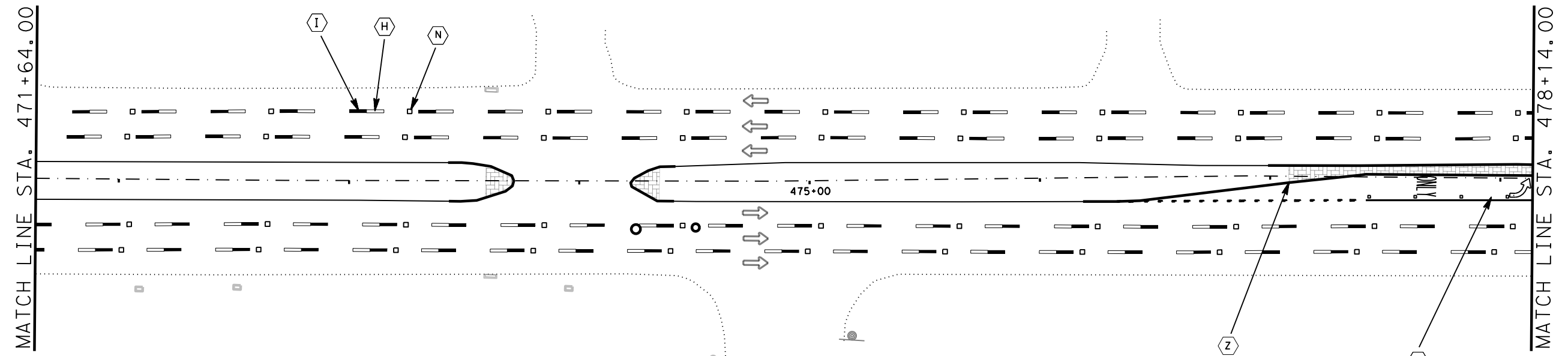
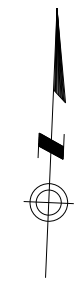
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CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		344

CHK:
 DWF:
 CDS:
 DWS:

LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSTL DEL ASSM (D-SW)SZ (BRF)CTB	0 EA
(B)	658 6071	INSTL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	0 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	43 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	0 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	1 EA
(G)	666 6078	REFL PAV MRK (W) (WORD)	1 EA
(H)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	0 EA
(I)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	0 EA
(J)	666 6162	RE PV MRK TY I (BLACK) (6") (SHADOW)	650 LF
(K)	666 6306	REFL PAV MRK (W) (BRK) (6")	650 LF
(L)	666 6309	REFL PAV MRK (W) (SLD) (6")	0 LF
(M)	666 6318	REFL PAV MRK (Y) (BRK) (6")	0 LF
(N)	666 6321	REFL PAV MRK (Y) (SLD) (6")	0 LF
(O)	672 6009	REFL PAV MRKR TYII-A-A	0 EA
(P)	672 6010	REFL PAV MRKR TYII-C-R	35 EA
(Q)	666 6147	REFL PAV MRK (Y) (24") (SLD)	0 LF
(R)	672 6007	REFL PAV MRKR TYI-C	0 EA
(S)	666 6212	REFL PAV MRK TY II (Y) 12" (SLD)	389 LF

- PROPOSED SMALL SIGN
- ⊗ REMOVE SM RD SN SUP & AM
- ⊖ REPLACE SM RD SN SUP & AM
- PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- ⊗ REMOVE LARGE SIGN OR OVHD SIGN PANEL
- ||||| PROPOSED RUMBLE STRIP
- ▨ EXIST SIGN TO REMAIN
- ➔ DIRECTIONAL TRAFFIC FLOW

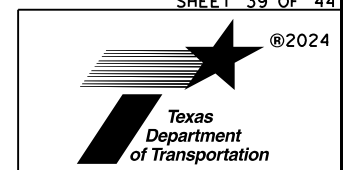


Joel H. Clarke

May 21 2024

SIGNING & PAVEMENT
MARKING LAYOUT
FM 1764

SHEET 39 OF 44



CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		345

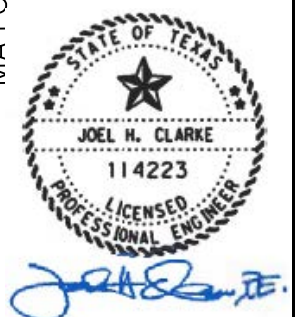
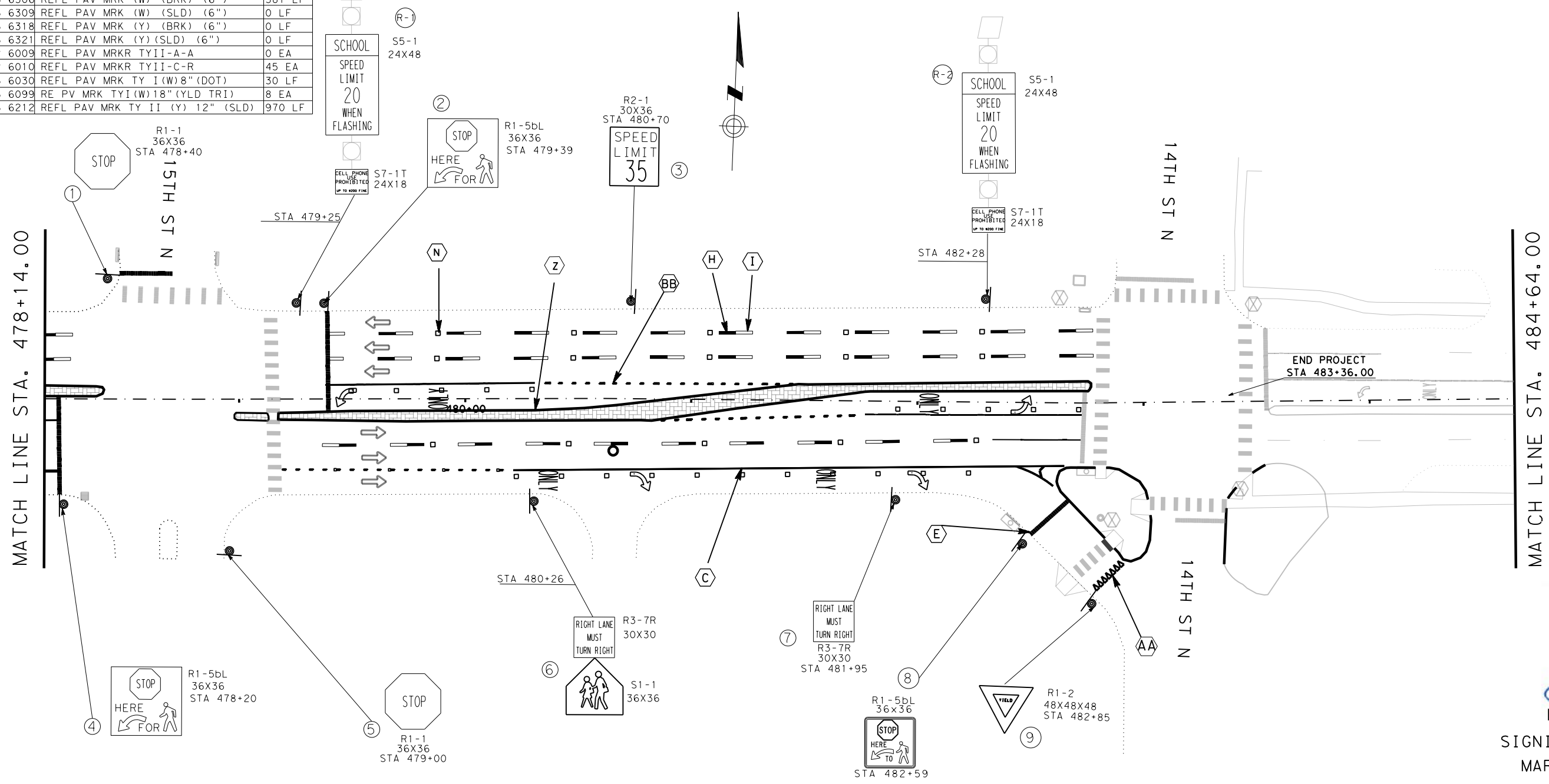


DATE: DATE TIME
 FILE: DOCUMENT NAME

DATE: DATE TIME
FILE: DOCUMENT NAME

SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSTR DEL ASSM (D-SW)SZ (BRF)CTB	0 EA
(B)	658 6071	INSTR DEL ASSM (D-SY)SZ (BRF)CTB (BI)	0 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	448 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	135 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	2 EA
(G)	666 6078	REFL PAV MRK (W) (WORD)	2 EA
(H)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	0 EA
(I)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	0 EA
(J)	666 6162	RE PV MRK TY I (BLACK) (6") (SHADOW)	381 LF
(K)	666 6306	REFL PAV MRK (W) (BRK) (6")	381 LF
(L)	666 6309	REFL PAV MRK (W) (SLD) (6")	0 LF
(M)	666 6318	REFL PAV MRK (Y) (BRK) (6")	0 LF
(N)	666 6321	REFL PAV MRK (Y) (SLD) (6")	0 LF
(O)	672 6009	REFL PAV MRKR TYII-A-A	0 EA
(P)	672 6010	REFL PAV MRKR TYII-C-R	45 EA
(Q)	666 6030	REFL PAV MRK TY I(W) 8" (DOT)	30 LF
(R)	666 6099	RE PV MRK TYI(W) 18" (YLD TRI)	8 EA
(S)	666 6212	REFL PAV MRK TY II (Y) 12" (SLD)	970 LF

- PROPOSED SMALL SIGN
- ⊖ REMOVE SM RD SN SUP & AM
- ⊕ REPLACE SM RD SN SUP & AM
- PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- ⊖⊕ REMOVE LARGE SIGN OR OVHD SIGN PANEL
- ||||| PROPOSED RUMBLE STRIP
- ▨ EXIST SIGN TO REMAIN
- ➔ DIRECTIONAL TRAFFIC FLOW



May 21 2024

SIGNING & PAVEMENT
MARKING LAYOUT
FM 1764



SHEET 40 OF 44
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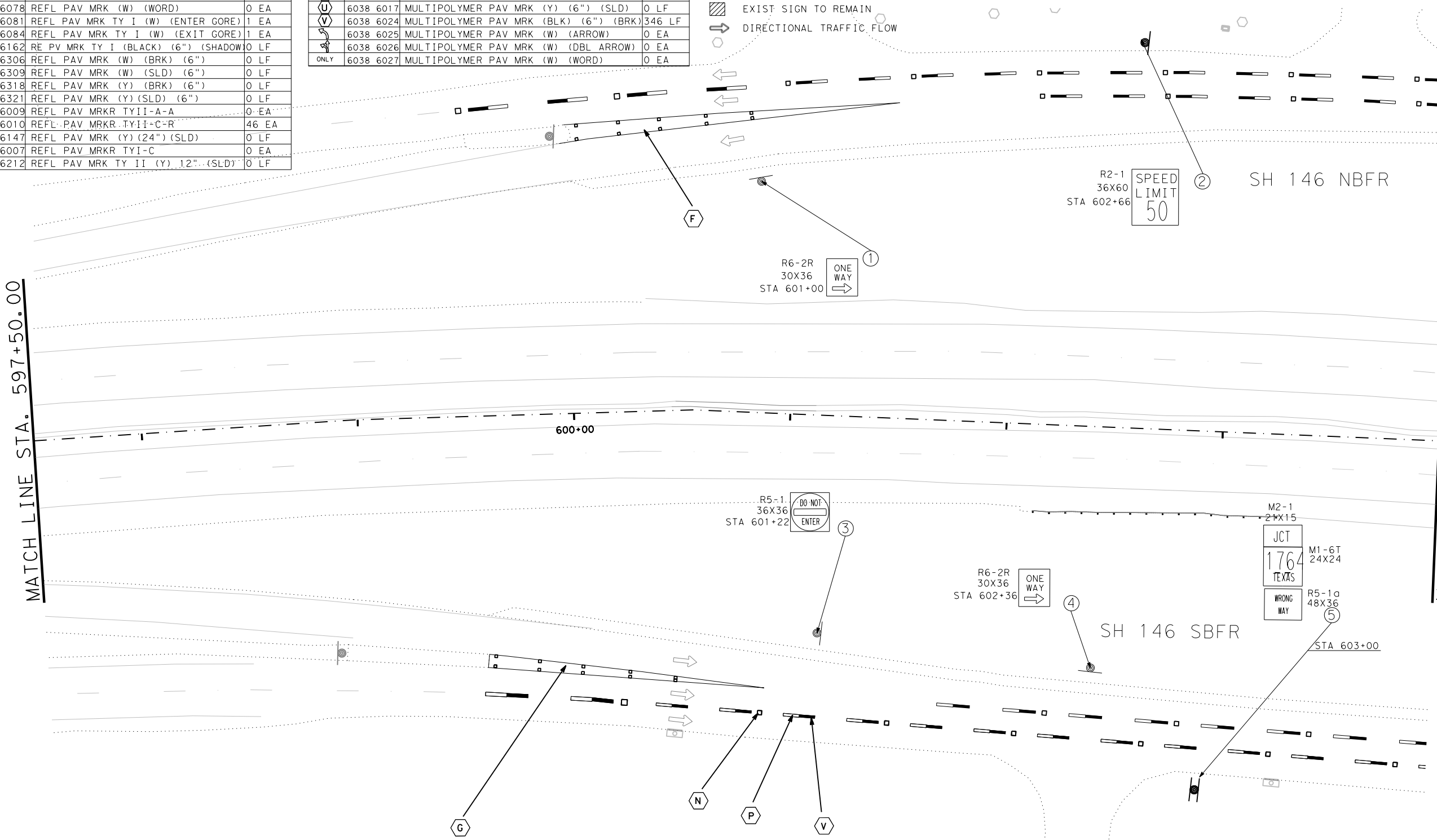
Texas Department of Transportation	
CONT	SECT
1607	01
JOB	HIGHWAY
057, ETC	FM 1764
DIST	SHEET NO.
HOU	346

DATE: DATE TIME
 FILE: DOCUMENT NAME

SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(A)	658 6013	INSTL DEL ASSM (D-SW)SZ (BRF)CTB	0 EA
(B)	658 6071	INSTL DEL ASSM (D-SY)SZ (BRF)CTB (BI)	0 EA
(C)	666 6036	REFL PAV MRK (W) (SLD) (8")	0 LF
(D)	666 6042	REFL PAV MRK (W) (SLD) (12")	0 LF
(E)	666 6048	REFL PAV MRK (W) (SLD) (24")	0 LF
(F)	666 6054	REFL PAV MRK (W) (ARROW)	0 EA
(G)	666 6078	REFL PAV MRK (W) (WORD)	0 EA
(H)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	1 EA
(I)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	1 EA
(J)	666 6162	RE PV MRK TY I (BLACK) (6") (SHADOW)	0 LF
(K)	666 6306	REFL PAV MRK (W) (BRK) (6")	0 LF
(L)	666 6309	REFL PAV MRK (W) (SLD) (6")	0 LF
(M)	666 6318	REFL PAV MRK (Y) (BRK) (6")	0 LF
(N)	666 6321	REFL PAV MRK (Y) (SLD) (6")	0 LF
(O)	672 6009	REFL PAV MRKR TYII-A-A	0 EA
(P)	672 6010	REFL PAV MRKR TYII-C-R	46 EA
(Q)	666 6147	REFL PAV MRK (Y) (24") (SLD)	0 LF
(R)	672 6007	REFL PAV MRKR TYI-C	0 EA
(S)	666 6212	REFL PAV MRK TY II (Y) 12" (SLD)	0 LF

SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(O)	6038 6004	MULTIPOLYMER PAV MRK (W) (6") (SLD)	0 LF
(P)	6038 6005	MULTIPOLYMER PAV MRK (W) (6") (BRK)	346 LF
(Q)	6038 6006	MULTIPOLYMER PAV MRK (W) (6") (DOT)	0 LF
(R)	6038 6007	MULTIPOLYMER PAV MRK (W) (8") (SLD)	0 LF
(S)	6038 6012	MULTIPOLYMER PAV MRK (W) (12") (LNDR)	0 LF
(T)	6038 6013	MULTIPOLYMER PAV MRK (W) (24") (SLD)	0 LF
(U)	6038 6017	MULTIPOLYMER PAV MRK (Y) (6") (SLD)	0 LF
(V)	6038 6024	MULTIPOLYMER PAV MRK (BLK) (6") (BRK)	346 LF
(W)	6038 6025	MULTIPOLYMER PAV MRK (W) (ARROW)	0 EA
(X)	6038 6026	MULTIPOLYMER PAV MRK (W) (DBL ARROW)	0 EA
(Y)	6038 6027	MULTIPOLYMER PAV MRK (W) (WORD)	0 EA

- PROPOSED SMALL SIGN
- ⊗ REMOVE SM RD SN SUP & AM
- ⊖ REPLACE SM RD SN SUP & AM
- PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- ⊗ REMOVE LARGE SIGN OR OVHD SIGN PANEL
- ||||| PROPOSED RUMBLE STRIP
- ▨ EXIST SIGN TO REMAIN
- ➔ DIRECTIONAL TRAFFIC FLOW



May 21 2024
 SIGNING & PAVEMENT MARKING LAYOUT
 SH 146



SHEET 41 OF 44

		@2024	
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	SH 146
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		347

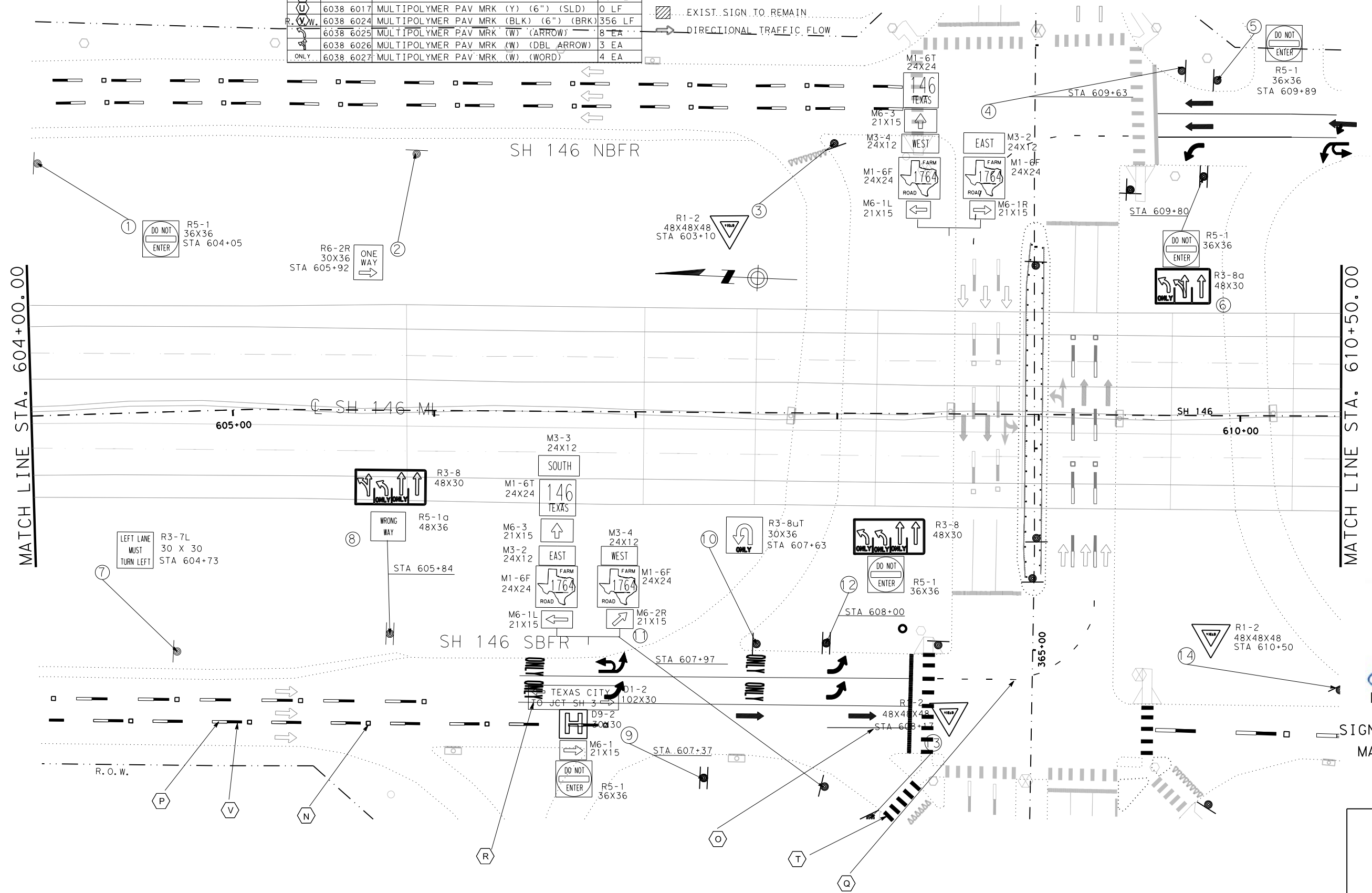
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LEGEND

SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(N)	672 6010	REFL PAV MRKR TYII-C-R	61 EA

SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(O)	6038 6004	MULTIPOLYMER PAV MRK (W) (6") (SLD)	40 LF
(P)	6038 6005	MULTIPOLYMER PAV MRK (W) (6") (BRK)	356 LF
(Q)	6038 6006	MULTIPOLYMER PAV MRK (W) (6") (DOT)	71 LF
(R)	6038 6007	MULTIPOLYMER PAV MRK (W) (8") (SLD)	570 LF
(S)	6038 6012	MULTIPOLYMER PAV MRK (W) (12") (LNDP)	0 LF
(T)	6038 6013	MULTIPOLYMER PAV MRK (W) (24") (SLD)	164 LF
(U)	6038 6017	MULTIPOLYMER PAV MRK (Y) (6") (SLD)	0 LF
(V)	6038 6024	MULTIPOLYMER PAV MRK (BLK) (6") (BRK)	356 LF
(W)	6038 6025	MULTIPOLYMER PAV MRK (W) (ARROW)	8 EA
(X)	6038 6026	MULTIPOLYMER PAV MRK (W) (DBL ARROW)	3 EA
(Y)	6038 6027	MULTIPOLYMER PAV MRK (W) (WORD)	4 EA

- (O) PROPOSED SMALL SIGN
- (X-) REMOVE SM RD SN SUP & AM
- (R-) REPLACE SM RD SN SUP & AM
- (□) PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- (X-) REMOVE LARGE SIGN OR OVHD SIGN PANEL
- ||||| PROPOSED RUMBLE STRIP
- ▨ EXIST. SIGN TO REMAIN
- DIRECTIONAL TRAFFIC FLOW



May 21 2024

SIGNING & PAVEMENT MARKING LAYOUT
SH 146



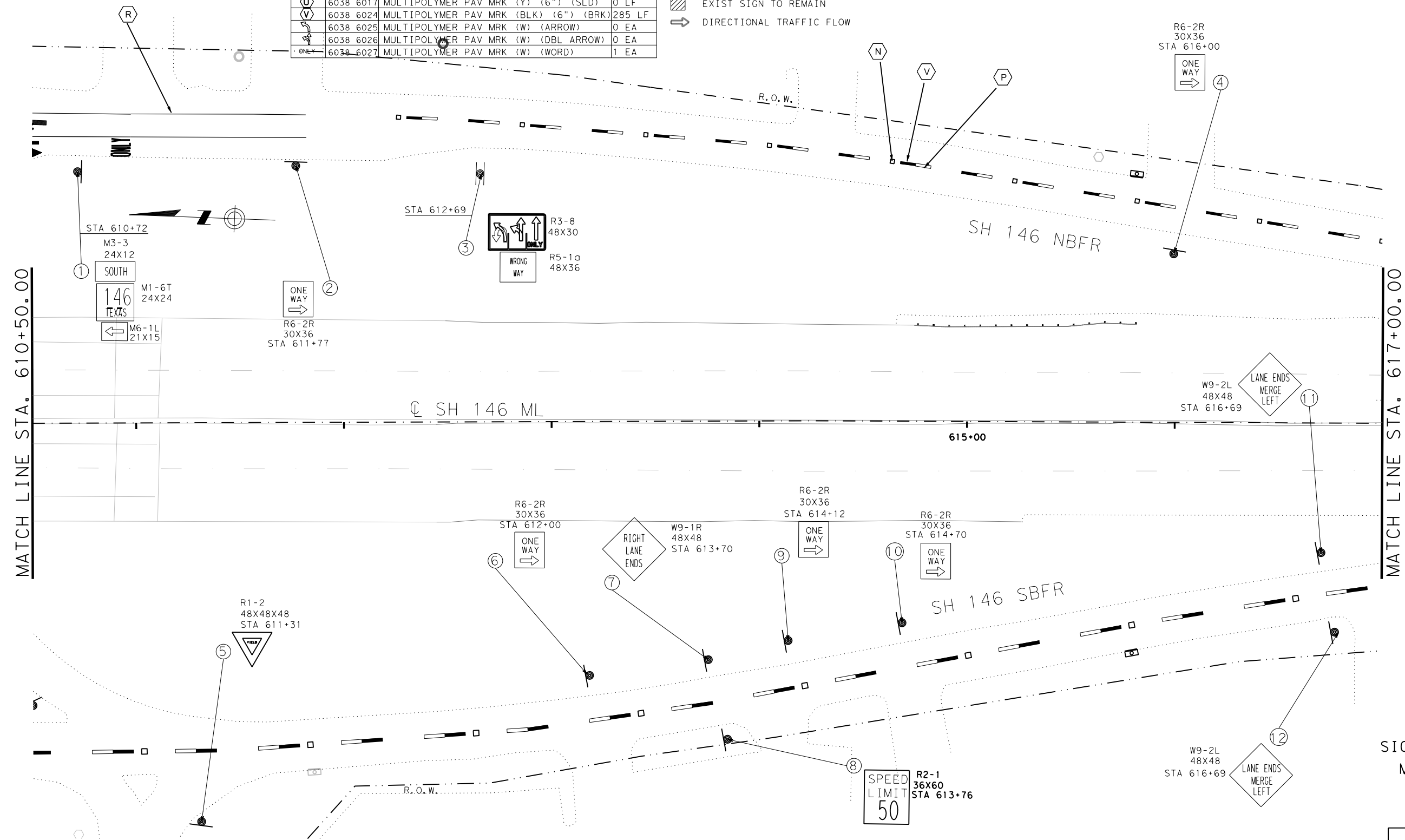
SHEET 42 OF 44

		@2024	
CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	SH 146
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		348

LEGEND			
SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(N)	672 6010	REFL PAV MRKR TYII-C-R	35 EA

SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(O)	6038 6004	MULTIPOLYMER PAV MRK (W) (6") (SLD)	0 LF
(P)	6038 6005	MULTIPOLYMER PAV MRK (W) (6") (BRK)	285 LF
(Q)	6038 6006	MULTIPOLYMER PAV MRK (W) (6") (DOT)	0 LF
(R)	6038 6007	MULTIPOLYMER PAV MRK (W) (8") (SLD)	264 LF
(S)	6038 6012	MULTIPOLYMER PAV MRK (W) (12") (LNDR)	0 LF
(T)	6038 6013	MULTIPOLYMER PAV MRK (W) (24") (SLD)	0 LF
(U)	6038 6017	MULTIPOLYMER PAV MRK (Y) (6") (SLD)	0 LF
(V)	6038 6024	MULTIPOLYMER PAV MRK (BLK) (6") (BRK)	285 LF
(W)	6038 6025	MULTIPOLYMER PAV MRK (W) (ARROW)	0 EA
(X)	6038 6026	MULTIPOLYMER PAV MRK (W) (DBL ARROW)	0 EA
(Y)	6038 6027	MULTIPOLYMER PAV MRK (W) (WORD)	1 EA

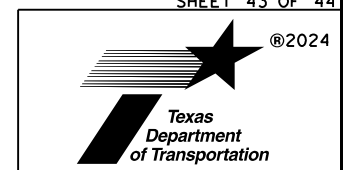
- (O) PROPOSED SMALL SIGN
- (X) REMOVE SM RD SN SUP & AM
- (R) REPLACE SM RD SN SUP & AM
- (□) PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- (X-□) REMOVE LARGE SIGN OR OVHD SIGN PANEL
- ||||| PROPOSED RUMBLE STRIP
- (▨) EXIST SIGN TO REMAIN
- (→) DIRECTIONAL TRAFFIC FLOW



May 21 2024

SIGNING & PAVEMENT MARKING LAYOUT
SH 146

SHEET 43 OF 44



CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	SH 146
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		349



DATE: DATE TIME
FILE: DOCUMENT NAME

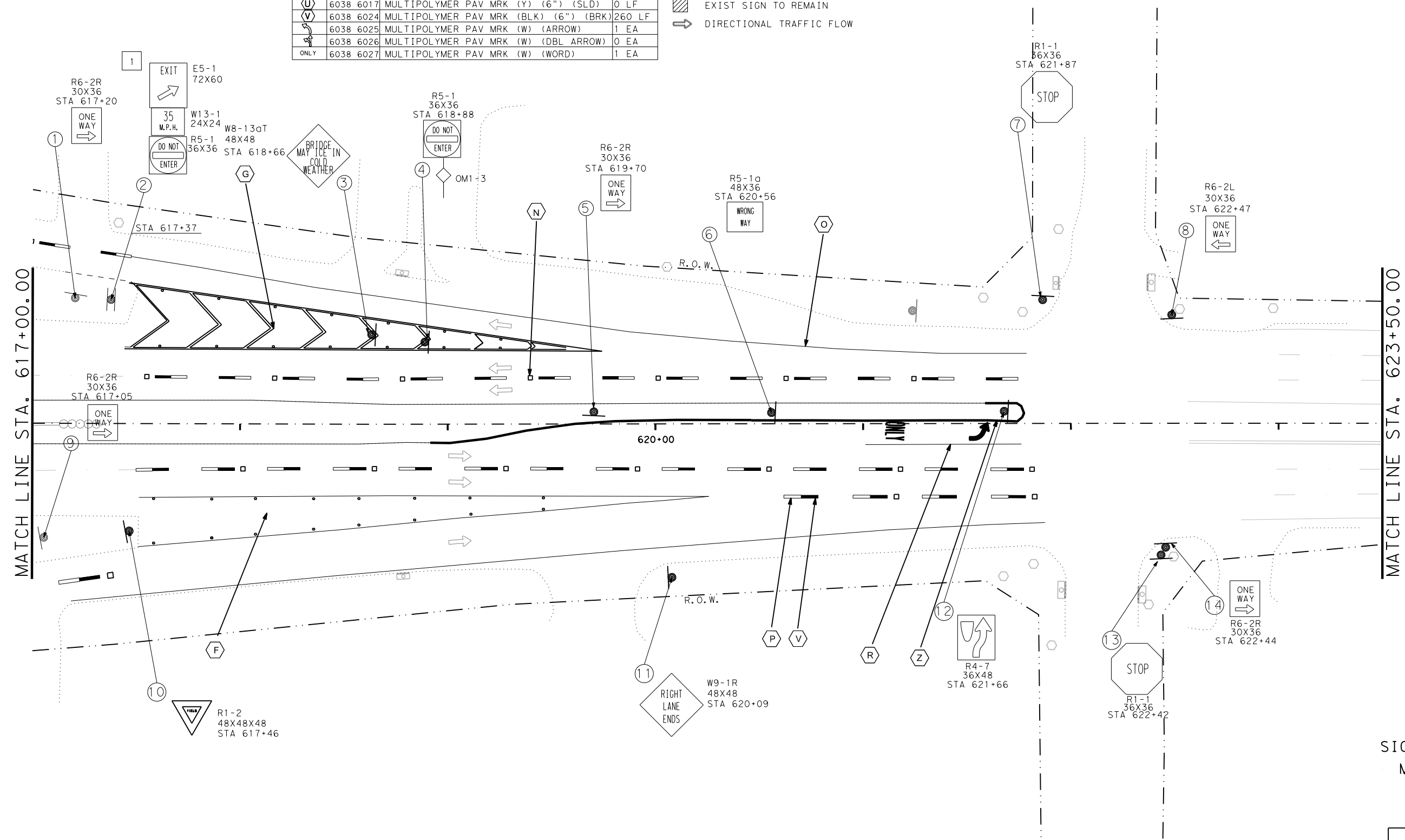
DATE: DATE TIME
FILE: DOCUMENT NAME

LEGEND

SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(F)	666 6081	REFL PAV MRK TY I (W) (ENTER GORE)	1 EA
(G)	666 6084	REFL PAV MRK TY I (W) (EXIT GORE)	1 EA
(N)	672 6010	REFL PAV MRKR TYII-C-R	65 EA
(Z)	666 6212	REFL PAV MRK TY II (Y) 12" (SLD)	320 LF

SYMBOL	ITEM NO.	DESCRIPTION	QUANTITY
(O)	6038 6004	MULTIPOLYMER PAV MRK (W) (6") (SLD)	904 LF
(P)	6038 6005	MULTIPOLYMER PAV MRK (W) (6") (BRK)	260 LF
(Q)	6038 6006	MULTIPOLYMER PAV MRK (W) (6") (DOT)	0 LF
(R)	6038 6007	MULTIPOLYMER PAV MRK (W) (8") (SLD)	75 LF
(S)	6038 6012	MULTIPOLYMER PAV MRK (W) (12") (LNDP)	0 LF
(T)	6038 6013	MULTIPOLYMER PAV MRK (W) (24") (SLD)	0 LF
(U)	6038 6017	MULTIPOLYMER PAV MRK (Y) (6") (SLD)	0 LF
(V)	6038 6024	MULTIPOLYMER PAV MRK (BLK) (6") (BRK)	260 LF
(W)	6038 6025	MULTIPOLYMER PAV MRK (W) (ARROW)	1 EA
(X)	6038 6026	MULTIPOLYMER PAV MRK (W) (DBL ARROW)	0 EA
(Y)	6038 6027	MULTIPOLYMER PAV MRK (W) (WORD)	1 EA

- PROPOSED SMALL SIGN
- (X-) REMOVE SM RD SN SUP & AM
- (R-) REPLACE SM RD SN SUP & AM
- PROPOSED LARGE SIGN OR OVHD SIGN PANEL
- (X-) REMOVE LARGE SIGN OR OVHD SIGN PANEL
- ||||| PROPOSED RUMBLE STRIP
- ▨ EXIST SIGN TO REMAIN
- ➔ DIRECTIONAL TRAFFIC FLOW



May 21 2024

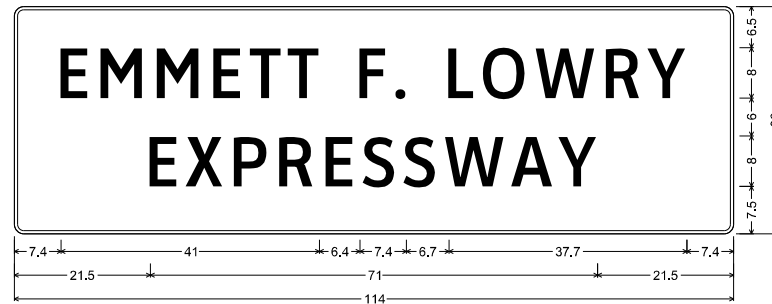
SIGNING & PAVEMENT MARKING LAYOUT
SH 146

SHEET 44 OF 44

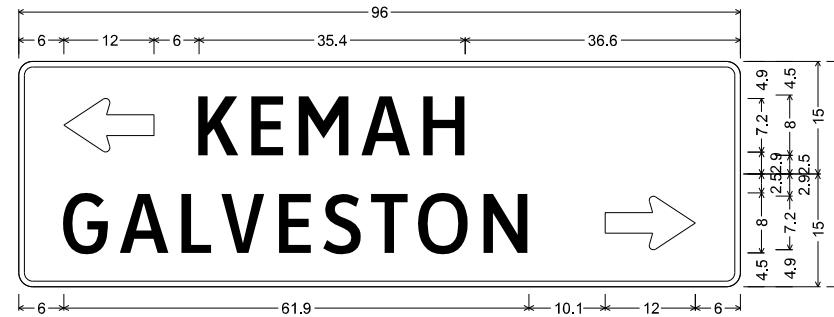


CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	SH 146
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		350

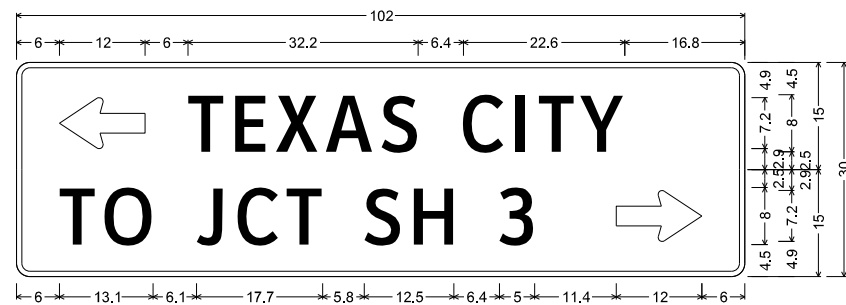




D2-1 8in;
 1.5" Radius, 0.5" Border, White on Green;
 "EMMETT F. LOWRY", ClearviewHwy-3-W; "EXPRESSWAY", ClearviewHwy-3-W;
LAYOUT 22 OF 40: SIGN NO: 2-FM 1764 ML_STA 362+95 GROUND MOUNTED



D1-2 8in LT-RT;
 1.9" Radius, 0.8" Border, White on Green;
 Standard Arrow Custom 12.0" X 7.1" 180"; "KEMAH", ClearviewHwy-3-W;
 1.9" Radius, 0.8" Border, White on Green;
 "GALVESTON", ClearviewHwy-3-W; Standard Arrow Custom 12.0" X 7.1" 0";
LAYOUT 22 OF 40: SIGN NO: 7-FM 1764 ML_STA 364+18 GROUND MOUNTED



D1-2 8in LT-RT;
 1.9" Radius, 0.8" Border, White on Green;
 Standard Arrow Custom 12.0" X 7.1" 180"; "TEXAS CITY", ClearviewHwy-3-W;
 1.9" Radius, 0.8" Border, White on Green;
 "TO JCT SH 3", ClearviewHwy-3-W; Standard Arrow Custom 12.0" X 7.1" 0";
LAYOUT 2 OF 4: SIGN NO: 9-SH 146 ML_STA 607+37 GROUND MOUNTED



May 21 2024

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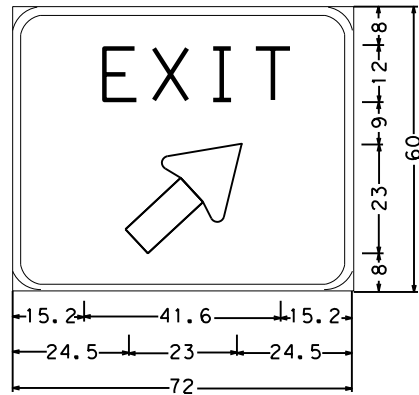
TEXAS DEPARTMENT OF TRANSPORTATION

FM 1764
 SMALL GUIDE SIGN DETAIL

SCALE: NTS SHEET 1 OF 1

DN: 0	ORIGINAL DATE OF	REV. NO.	STATE	PROJECT NO.	HIGHWAY NO.
CK DN: 0	DRAWING: FEBRUARY 2024	6	TEXAS		FM 1764
DW: 0	REVISIONS:				
CK DW: 0		STATE DIST. NO.	COUNTY	CONTR. NO.	SECTION NO.
TR: 0		HOU	GALVESTON	1607	01 057
CK TR: 0					351

ETC.



E5-1_72X60;
 6.0" RADIUS, 1.5" BORDER, WHITE ON GREEN;
 [EXIT] CLEARVIEWHWY-6-W;
 ARROW A-2 - 29.3" 45°

LAYOUT 2 OF 44: SIGN No:1-SB ML_STA 231+53 GROUND MOUNTED
 LAYOUT 4 OF 44: SIGN No:1-NB ML_STA 245+44 GROUND MOUNTED
 LAYOUT 10 OF 44: SIGN No:1-SB ML_STA 283+71 GROUND MOUNTED
 LAYOUT 18 OF 44: SIGN No:1-NB ML_STA 340+10 GROUND MOUNTED
 LAYOUT 21 OF 44: SIGN No:1-NB ML_STA 360+16 GROUND MOUNTED
 LAYOUT 44 OF 44: SIGN No:1-NB ML_STA 618+66 GROUND MOUNTED

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 DATE: 5/16/2024 10:05:19 AM



Joel H. Clarke
 May 21 2024

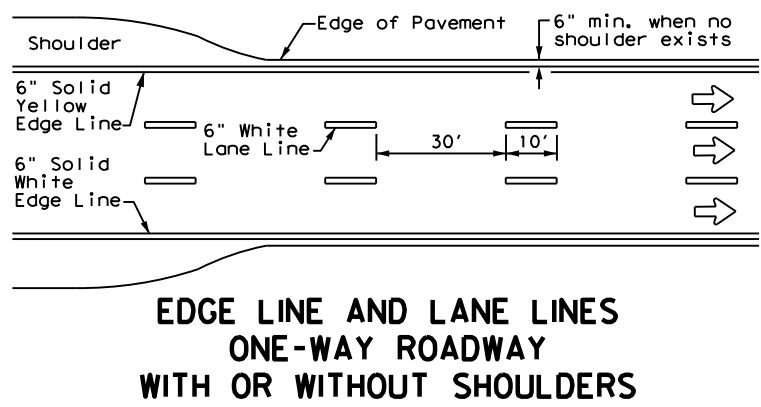


FM 1764
 LARGE GUIDE SIGN DETAIL

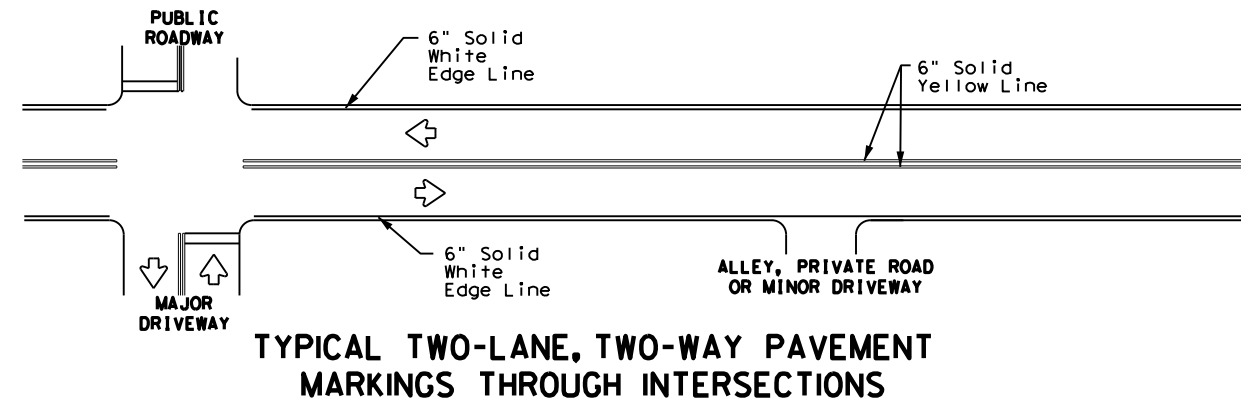
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DN: 0	ORIGINAL DATE OF	REV. NO.	STATE	PROJECT NO.	HIGHWAY NO.		
CK DN: 0	DRAWING: FEBRUARY 2024	6	TEXAS	FM 1764	FM 1764		
DW: 0	REVISIONS:						
CK DW: 0		STATE	COUNTY	CONTR. NO.	SECTION NO.	JOB NO.	
TR: 0		DIST. NO.					
CK TR: 0		HOU	GALVESTON	1607	01 057	352	

ETC.

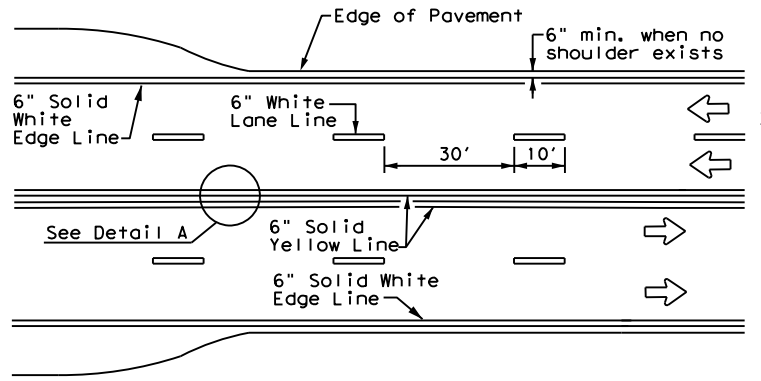
DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.



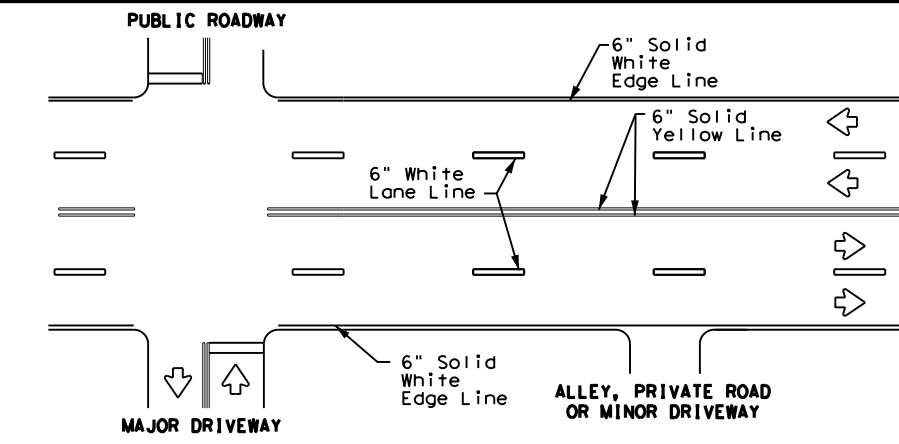
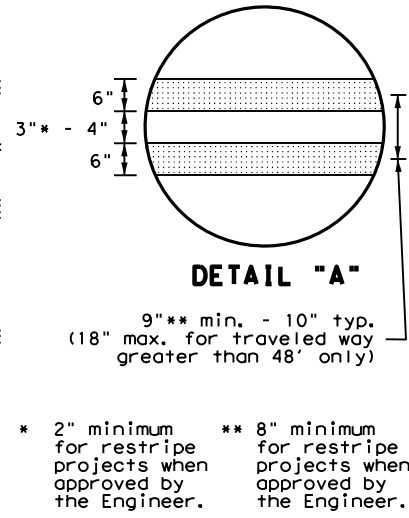
**EDGE LINE AND LANE LINES
ONE-WAY ROADWAY
WITH OR WITHOUT SHOULDERS**



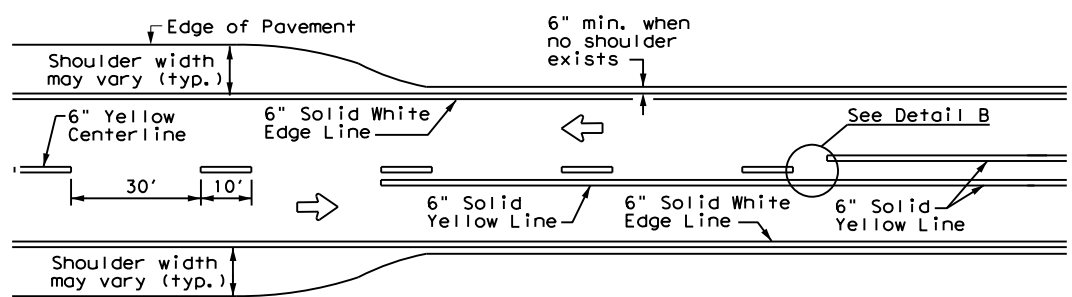
**TYPICAL TWO-LANE, TWO-WAY PAVEMENT
MARKINGS THROUGH INTERSECTIONS**



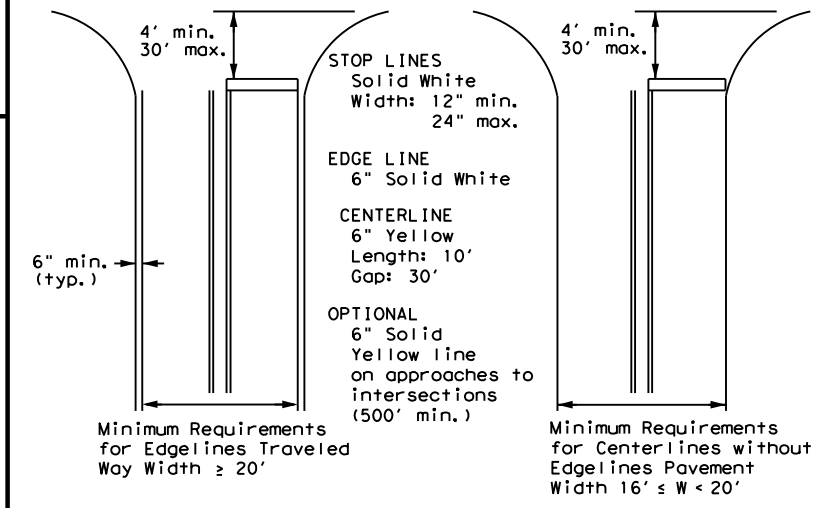
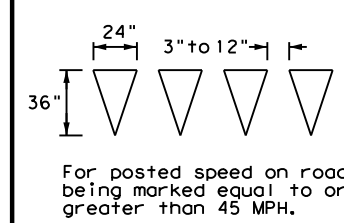
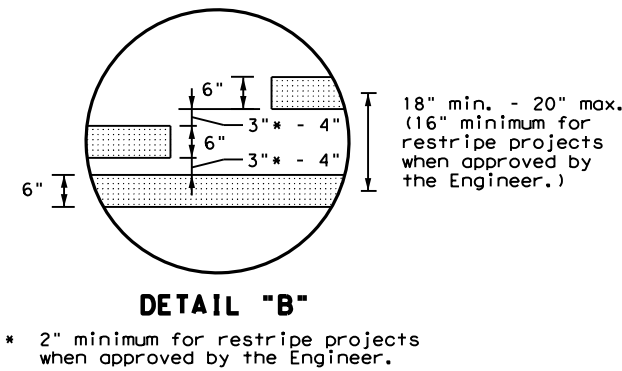
**CENTERLINE AND LANE LINES
FOUR LANE TWO-WAY ROADWAY
WITH OR WITHOUT SHOULDERS**



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



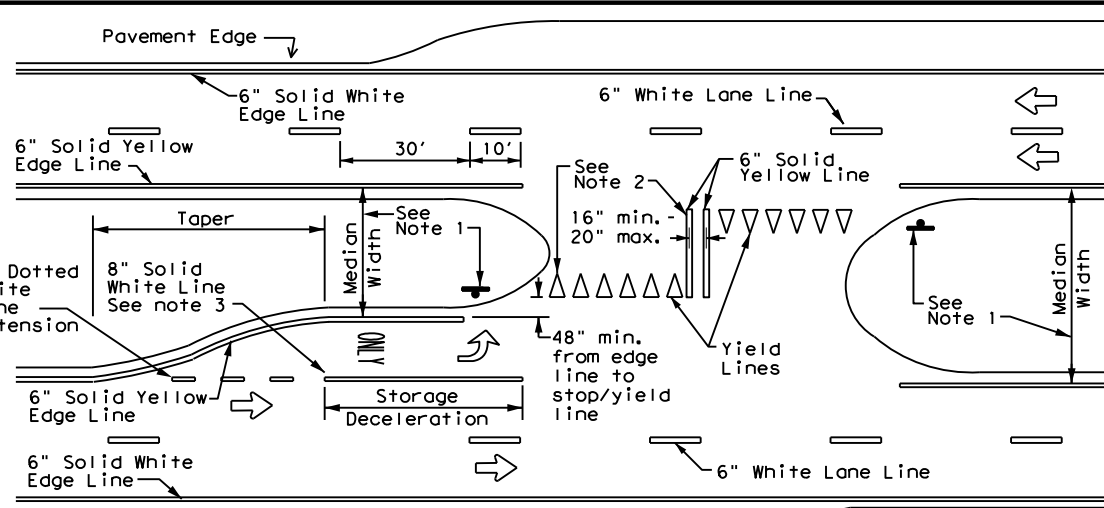
**TWO LANE TWO-WAY ROADWAY
WITH OR WITHOUT SHOULDERS**



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

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

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



FOUR LANE DIVIDED ROADWAY CROSSOVERS

NOTES

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



**TYPICAL STANDARD
PAVEMENT MARKINGS**

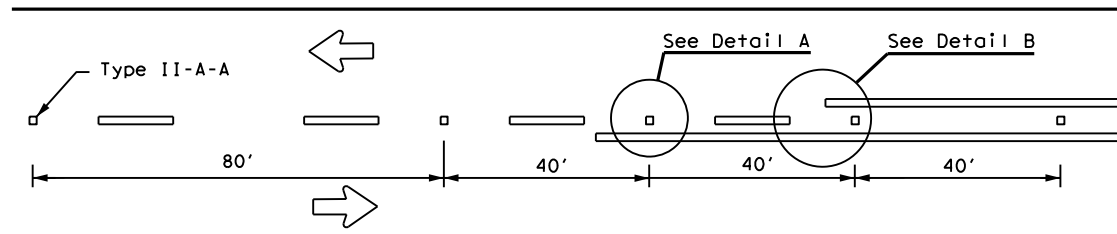
PM(1)-22

FILE: pm1-22.dgn	DN: _____	CK: _____	DW: _____	CK: _____
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REVISIONS	1607	01	057, ETC.	FM 1764
11-78 8-00 6-20	DIST	COUNTY	SHEET NO.	
8-95 3-03 12-22	HOU	GALVESTON	353	
5-00 2-12				

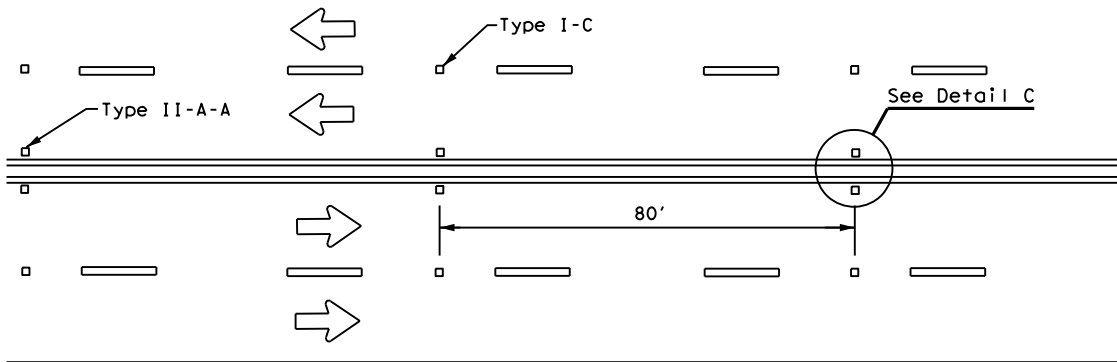
DATE: _____
FILE: _____

REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE

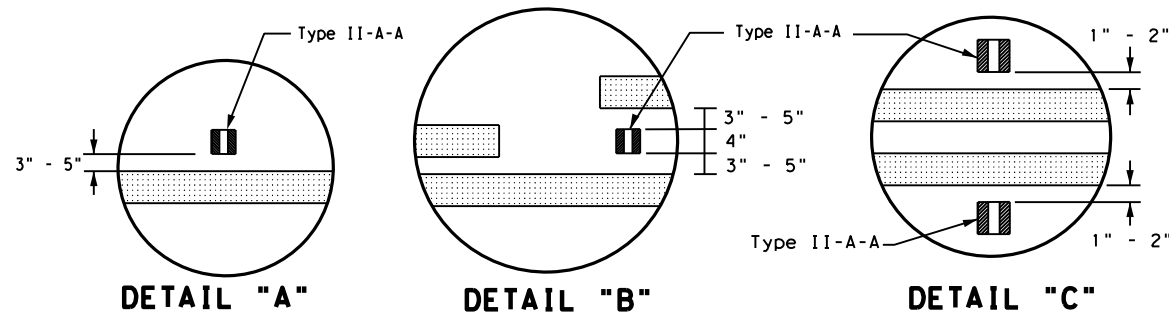
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CENTERLINE FOR ALL TWO LANE TWO-WAY ROADWAYS



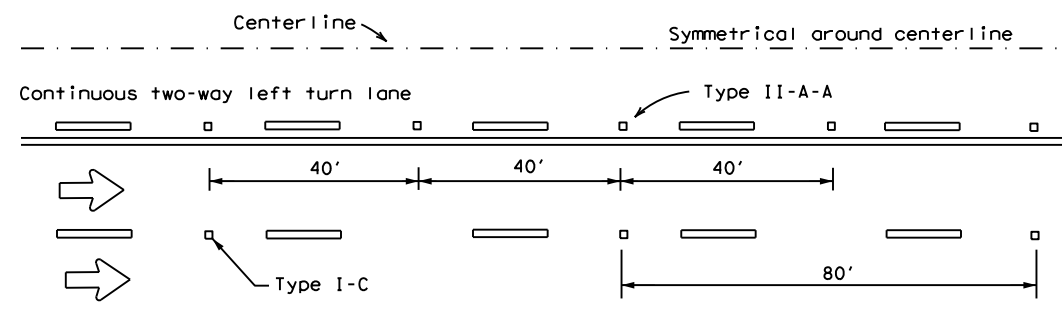
**CENTERLINE & LANE LINES
FOR FOUR LANE TWO-WAY ROADWAYS**



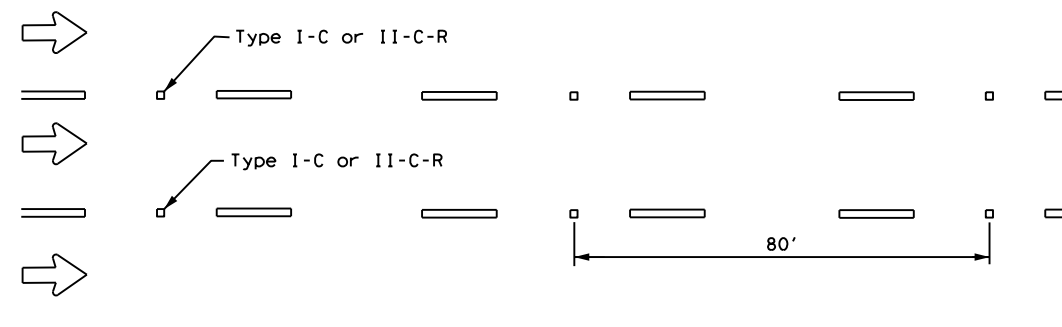
DETAIL "A"

DETAIL "B"

DETAIL "C"

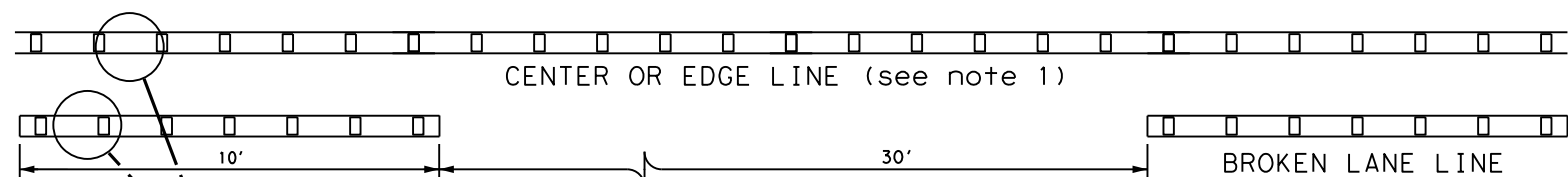


CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



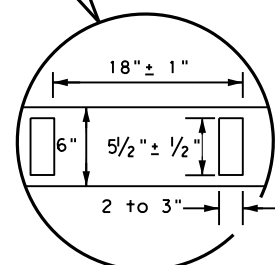
LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

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



CENTER OR EDGE LINE (see note 1)

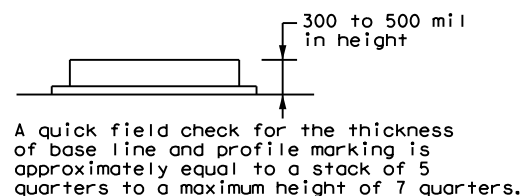
BROKEN LANE LINE



**REFLECTORIZED PROFILE
PATTERN DETAIL**

USING REFLECTIVE PROFILE PAVEMENT MARKINGS

6" EDGE LINE, 6" CENTERLINE
OR 6" 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.

NOTES

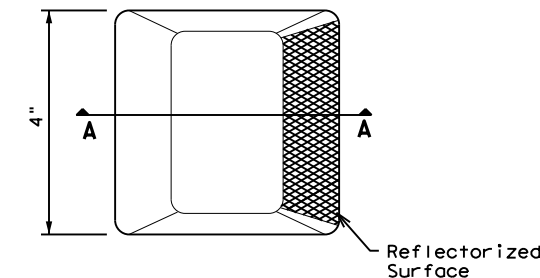
1. Edge lines should typically be 6" wide and the materials shall be specified in the plans.
2. Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

GENERAL NOTES

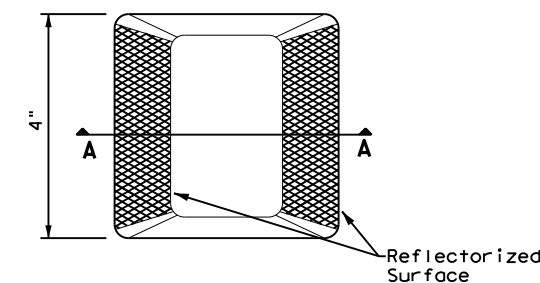
1. All raised pavement markers placed along broken lines shall be placed in line with and midway between the stripes.
2. On concrete pavements, the raised pavement markers should be placed to one side of the longitudinal joints.
3. Use raised pavement marker Type I-C with undivided roadways, flush medians,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

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

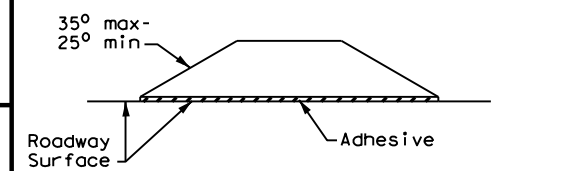
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)



Type II (Top View)



SECTION A

RAISED PAVEMENT MARKERS



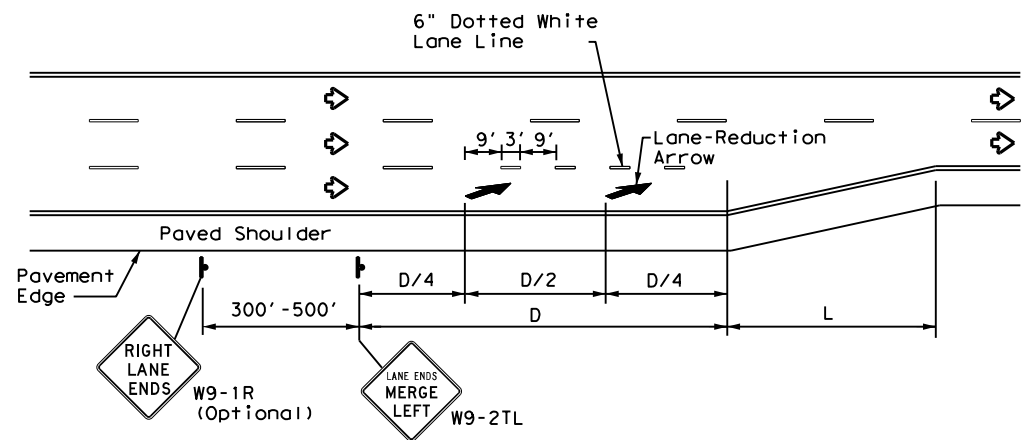
**POSITION GUIDANCE USING
RAISED MARKERS
REFLECTORIZED PROFILE
MARKINGS
PM(2) - 22**

FILE: pm2-22.dgn	DN:	CK:	DW:	CK:
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REVISIONS	1607	01	057, ETC.	FM 1764
4-77 8-00 6-20	DIST	COUNTY	SHEET NO.	
4-92 2-10 12-22	HOU	GALVESTON	354	
5-00 2-12				

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LANE REDUCTION

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 RIGHT LANE ENDS (W9-1R) sign may be installed in the median aligned with the W9-1R sign on the right side of the highway.
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.

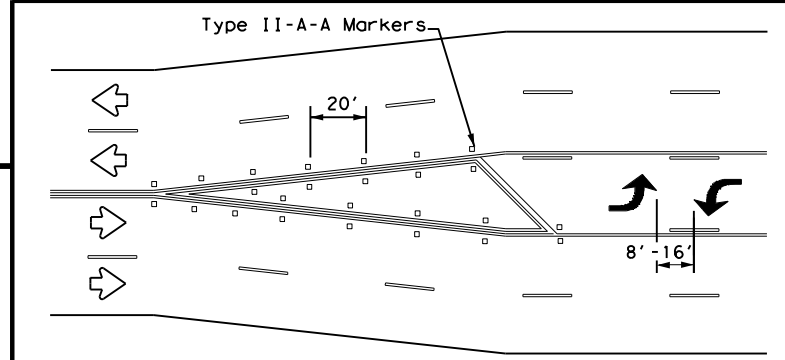
ADVANCED WARNING SIGN DISTANCE (D)		
Posted Speed	D (ft)	L (ft)
30 MPH	460	$L = \frac{WS^2}{60}$
35 MPH	565	
40 MPH	670	
45 MPH	775	L=WS
50 MPH	885	
55 MPH	990	
60 MPH	1,100	
65 MPH	1,200	
70 MPH	1,250	
75 MPH	1,350	

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. See Chapter 3 of the Roadway Design Manual for additional information on turning lanes or storage lengths.

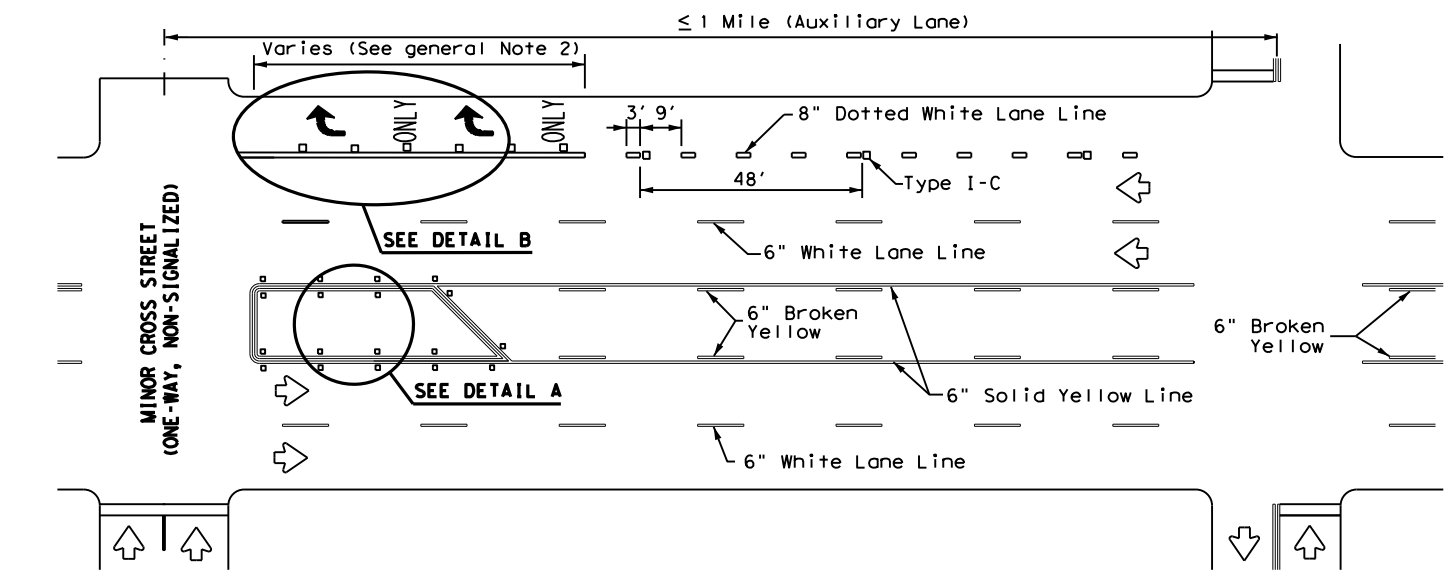
MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

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

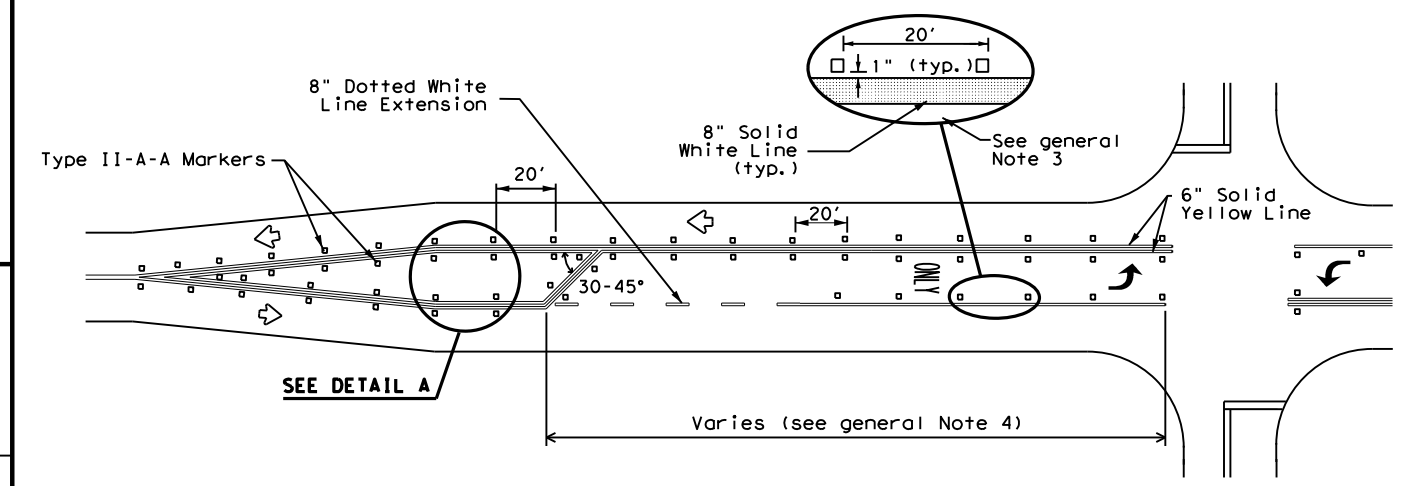


A two-way left-turn (TWLTL) lane-use arrow pavement marking should be used at or just downstream from the beginning of a two-way left-turn lane within a corridor. Repeating the marking after each intersection or dedicated turn bay is not required unless stated elsewhere in the plans.

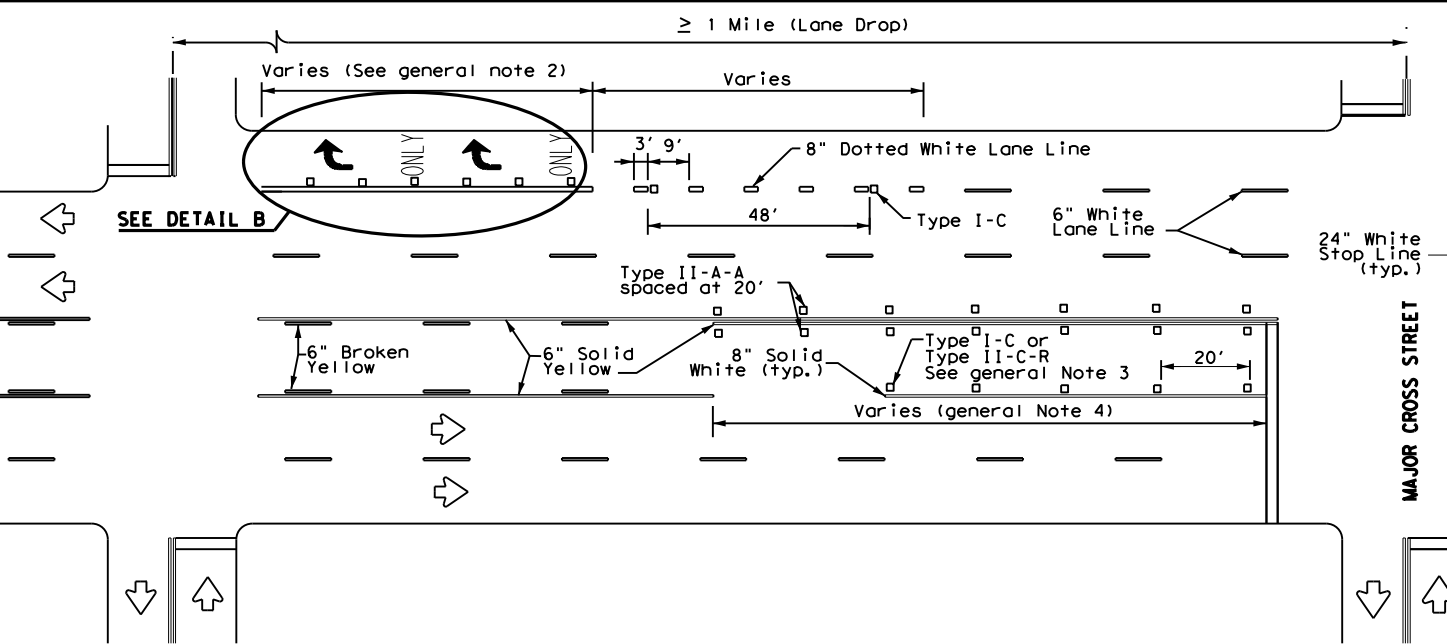
TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY



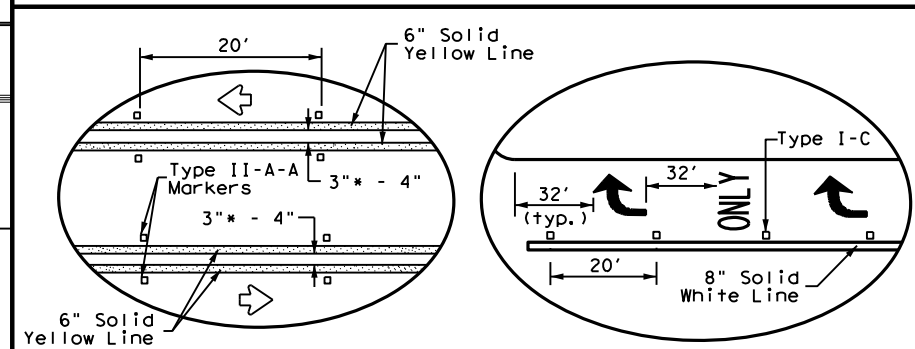
TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE



TYPICAL TWO-LANE ROADWAY INTERSECTION WITH LEFT TURN BAYS



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



DETAIL A

DETAIL B

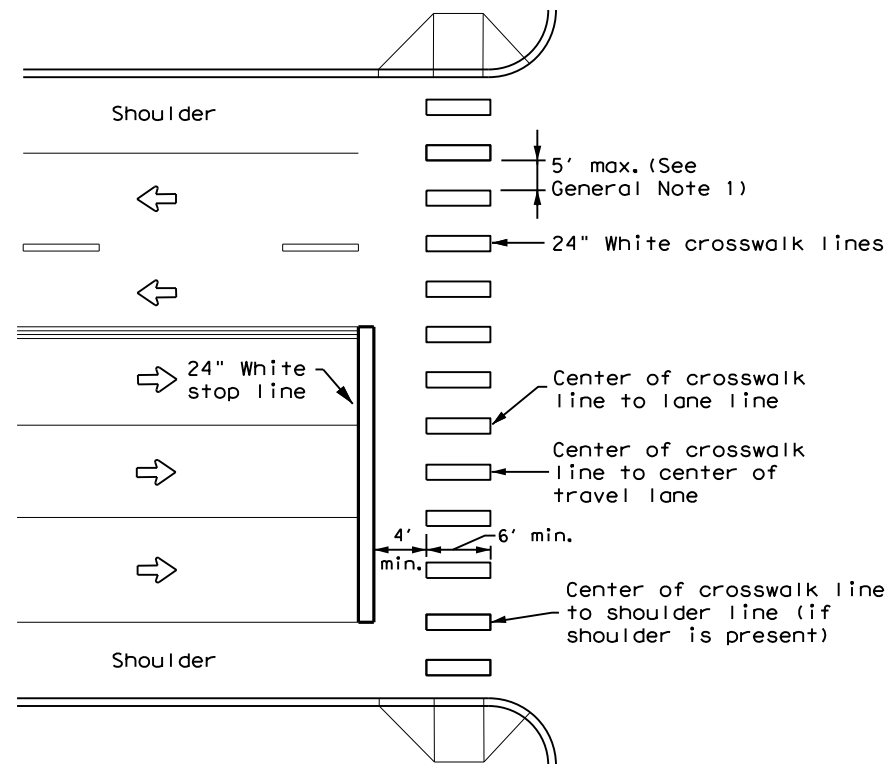
* 2" minimum allowed for restripe projects when approved by the Engineer.

Texas Department of Transportation
Traffic Safety Division Standard

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

FILE: pm3-22.dgn	DN:	CK:	DW:	CK:
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REVISIONS	1607	01	057, ETC.	FM 1764
4-98 3-03 6-20	DIST	COUNTY	SHEET NO.	
5-00 2-10 12-22	HOU	GALVESTON	355	
8-00 2-12				

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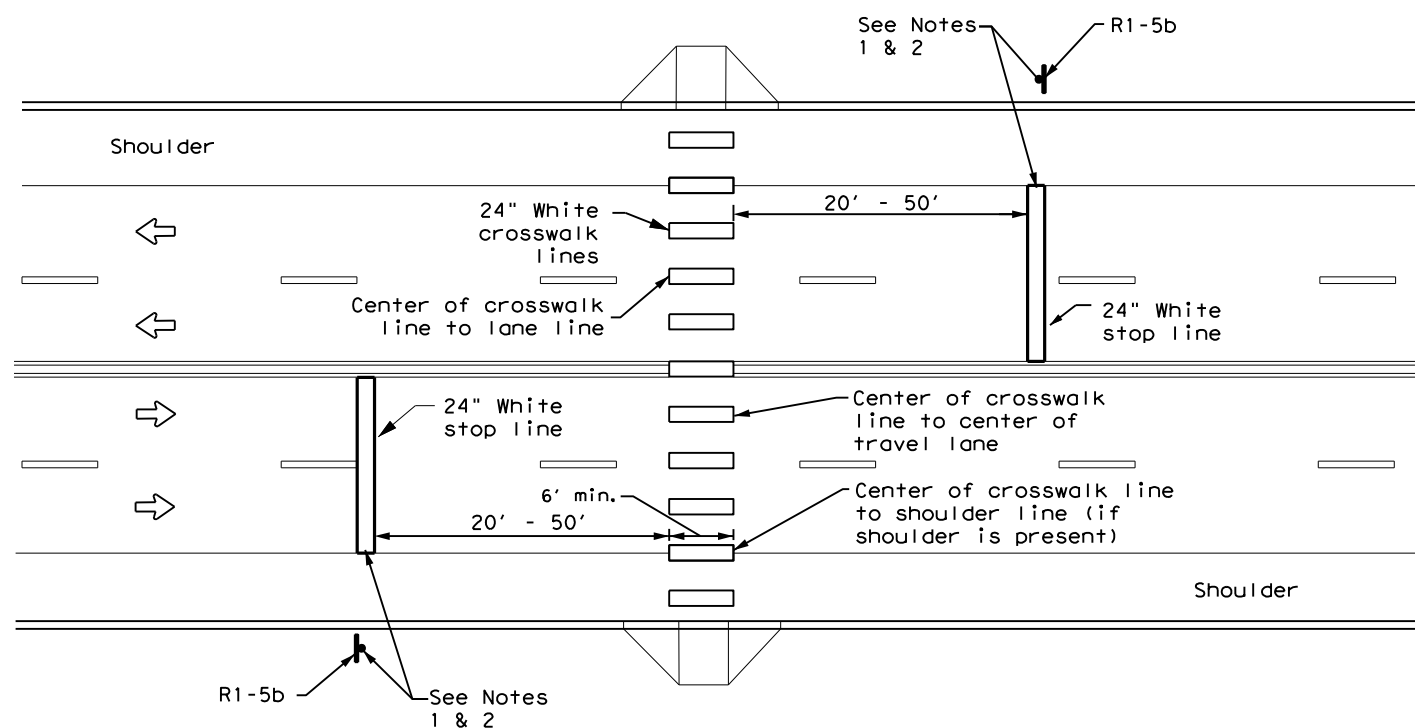
HIGH-VISIBILITY LONGITUDINAL CROSSWALK AT CONTROLLED APPROACH

GENERAL NOTES

1. Longitudinal crosswalk lines should not be placed in the wheel path of vehicles. Center the crosswalk lines on travel lanes, lane lines, and shoulder lines (if present).
2. A minimum 6" clear distance shall be provided to the curb face. If the last crosswalk line falls into this distance it must be omitted.
3. For divided roadways, adjustments in spacing of the crosswalk lines should be made in the median so that the crosswalk lines are maintained in their proper location across the travel portion of the roadway.
4. At skewed crosswalks, the crosswalk lines are to remain parallel to the lane lines.
5. Each crosswalk shall be a minimum of 6' wide.
6. The High-Visibility Longitudinal Crosswalk is the preferred crosswalk pattern on State Highways. Other crosswalk patterns as shown in the "Texas Manual on Uniform Traffic Control Devices" may be used. All crosswalk designs and dimension shall comply with the "Texas Manual on Uniform Traffic Control Devices."
7. Final placement of Stop Bar and Crosswalk shall be approved by the Engineer in the field.

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

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



UNSIGNALIZED MIDBLOCK HIGH-VISIBILITY LONGITUDINAL CROSSWALK

NOTES:

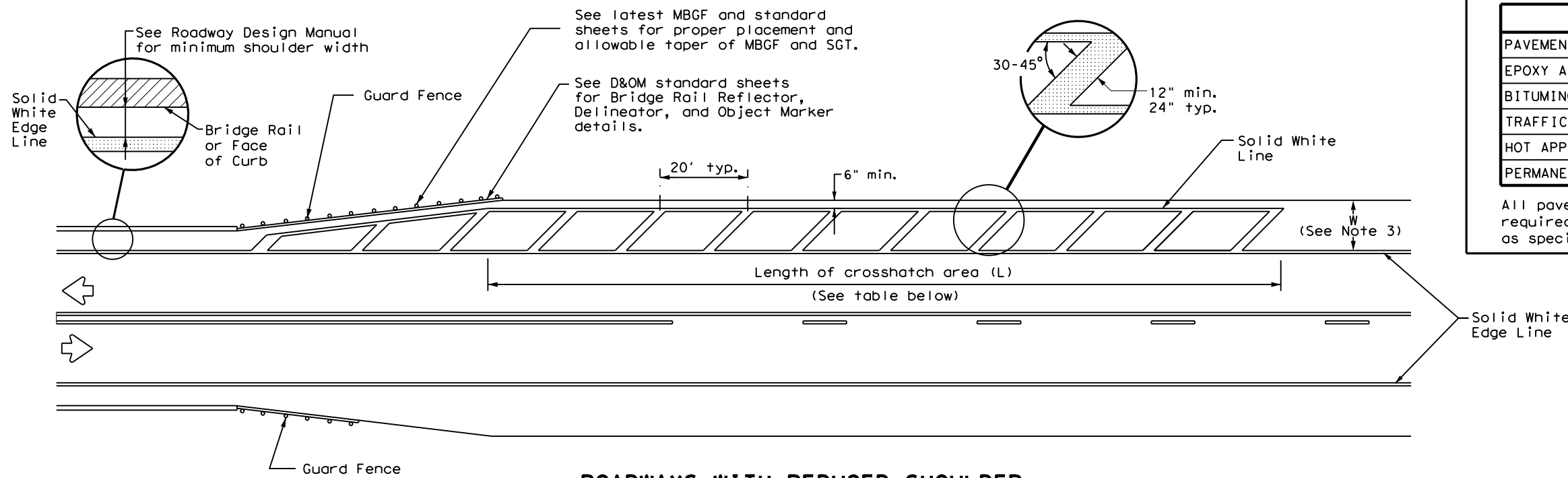
1. Use stop bars with Stop Here For Pedestrians (R1-5b) signs at unsignalized midblock crosswalks.
2. Use stop bars with STOP HERE ON RED (R10-6 or R10-6a) signs at mid block crosswalks controlled by traffic signals or pedestrian hybrid beacons.

		Traffic Safety Division Standard	
<h2>CROSSWALK PAVEMENT MARKINGS</h2>			
<h3>PM(4) - 22A</h3>			
FILE: pm4-22a.dgn	DN: _____	CK: _____	DW: _____
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6-20	DIST	COUNTY	SHEET NO.
6-22	HOU	GALVESTON	356
12-22			

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ROADWAYS WITH REDUCED SHOULDER WIDTHS ACROSS BRIDGE OR CULVERT

CROSSHATCH LENGTH (L)	
Posted Speed (MPH)	L (ft)
30	300 ft
35	
40	
45	
50	500 ft
55	
60	
65	
70	
75	

NOTES

1. Edge line striping shall be as shown in the plans or as directed by the Engineer. The edge line should not be placed less than 4 inches from the bridge rail or face of curb or 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other conditions.
2. No-passing zone on bridge approach is optional. If used, the no-passing zone shall be a minimum 500 feet long from the beginning of the bridge.
3. The crosshatching should be required if the shoulder width in advance of the bridge is 4 feet or wider and a reduction of at least 3 feet in shoulder width across the bridge occurs.
4. On divided highways, review both the right and left shoulder widths for the need for narrow bridge pavement markings.

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.

Texas Department of Transportation
Traffic Safety Division Standard

PAVEMENT MARKINGS FOR ROADWAYS WITH REDUCED SHOULDER WIDTHS ACROSS BRIDGE OR CULVERT

PM(5) - 22

FILE: pm5-22.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CR: TxDOT
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REVISIONS	1607	01	057, ETC.	FM 1764
	DIST	COUNTY		SHEET NO.
	HOU	GALVESTON		357

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

OBJECT MARKERS										
DEVICE	Type 1 (OM-1)		Type 2 (OM-2)			Type 3 (OM-3)			Type 4 (OM-4)	
	OM-1	OM-2X	OM-2Y	OM-2Z	OM-3L	OM-3R	OM-3C	OM-4		
	Yellow-Type B _{FL} or C _{FL} Sheeting		Yellow - Type B or C Sheeting			Alternating acrylic black and retroreflective yellow - Type B _{FL} or C _{FL} Sheeting			Red -Type B _{FL} or C _{FL} Sheeting	
SHEETING	TWT		WC	WC	WFLX	TWT			TWT	
POST TYPE	WAS, WAP		GND	GND	GND, SRF	WAS, WAP			WAS, WAP	
MOUNT TYPE										

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

BARRIER REFLECTORS (BRF)			CHEVRONS				ONE DIRECTION LARGE ARROW		NOTE: Delineator and object marker substrates and sign substrates shall be 0.080" Aluminum sign blank to conform to ASTM B-209 Alloy 6061-T6 or approved alternative.
DEVICE	GF1	GF2	CTB	W1-8		W1-6			
	18" x 24" (Conventional)		24" x 30" (Conventional Oversize)	30" x 36" (Expressway)	36" x 48" (Freeway)	48" x 24" (Conventional)		60" x 30" (Expressway & Freeway)	
SHEETING	Yellow, White, Red			4'-0" or 7'-0"		7'-0" Only		7'-0"	
NOTE	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.			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).					

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	CR: TXDOT
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REVISIONS	1607	01	057, ETC.	FM 1764
10-09 3-15	DIST	COUNTY		SHEET NO.
4-10 7-20	HOU	GALVESTON		358

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POST TYPE AND SUPPORT FOUNDATION DETAILS				TYPE OF BARRIER MOUNTS	
WING CHANNEL (WC)	FLEXIBLE POSTS (YFLX, WFLX)		WEDGE ANCHOR SYSTEMS		GUARD FENCE ATTACHMENT
GND	GND	SRF	WAS	WAP	GF 1
<p style="text-align: center;">2'-0" Usual</p>	<p style="text-align: center;">Reflective material</p> <p style="text-align: center;">Post</p> <p style="text-align: center;">Stub</p>	<p style="text-align: center;">Reflective material</p> <p style="text-align: center;">Post</p> <p style="text-align: center;">Base</p>	<p style="text-align: center;">12" Dia.</p> <p style="text-align: center;">27" 30"</p>	<p style="text-align: center;">3" (Approx.)</p> <p style="text-align: center;">15" 17" 20"</p> <p style="text-align: center;">12" Dia.</p> <p style="text-align: center;">3.5" 17" 30° 2" 1"</p>	<p style="text-align: center;">Centerline of MBGF rail element</p>
	EMBEDDED	SURFACE MOUNT	STEEL	PLASTIC	GF 2
<p>NOTES</p> <ol style="list-style-type: none"> 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. 	<p>NOTES</p> <ol style="list-style-type: none"> 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. 		<p>NOTE</p> <ol style="list-style-type: none"> 1. Install per manufacturer's recommendations. 		<p style="text-align: center;">Attached to post or block</p> <p style="text-align: center;">2'-6" Min. 4" Min. 4'-0"</p>

TYPE OF BARRIER MOUNTS	
GUARD FENCE ATTACHMENT	
GF 1	GF 2
<p style="text-align: center;">Centerline of MBGF rail element</p>	<p style="text-align: center;">Attached to post or block</p> <p style="text-align: center;">2'-6" Min. 4" Min. 4'-0"</p>
<p>CONCRETE TRAFFIC BARRIER (CTB)</p> <p style="text-align: center;">Place Barrier Reflector on top or on side(s) of CTB.</p>	
<p>GENERAL NOTES</p> <ol style="list-style-type: none"> 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

4'-0"

Pavement surface

Ground Line

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

7'-0"

Pavement surface

Ground Line

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

Approximately 4'-0"

Pavement surface

Ground Line

2'-0" to 8'-0" or in front of object being marked

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	CR: TxDOT
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REVISIONS	1607	01	057, ETC.	FM 1764
10-09 3-15	DIST	COUNTY	SHEET NO.	
4-10 7-20	HOU	GALVESTON	359	

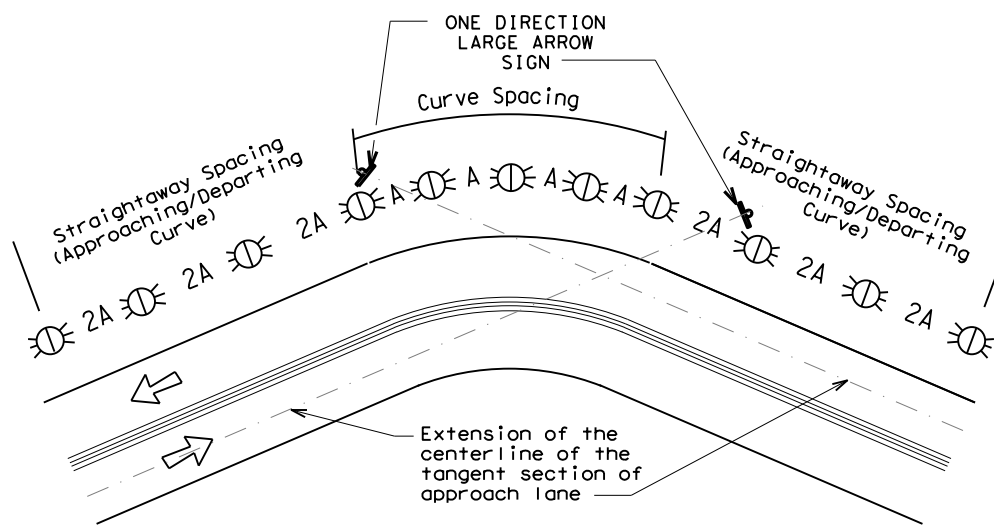
DATE: FILE:

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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

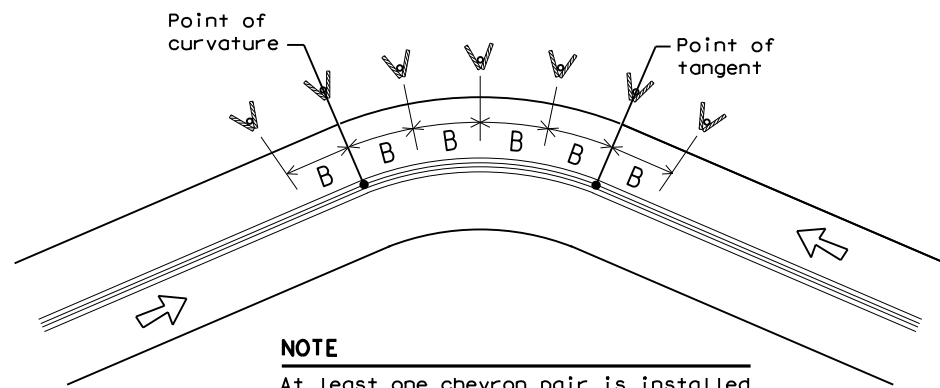
SUGGESTED SPACING FOR DELINEATORS ON HORIZONTAL CURVES



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

- 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.
- Barrier reflectors may be used to replace required delineators.
- 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

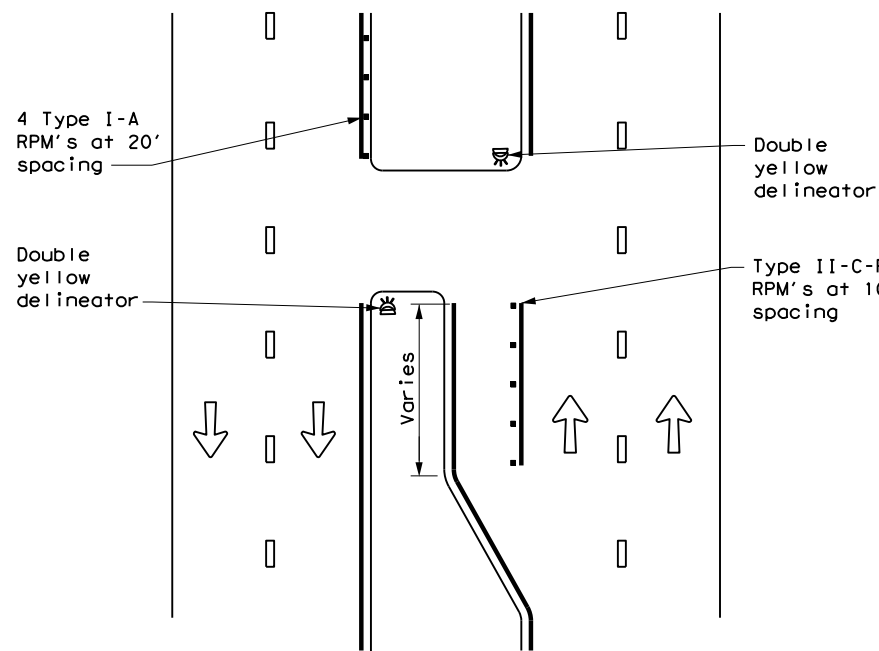
D & OM(3)-20

FILE: dom3-20.dgn	DN: TxDOT	CK: TxDOT	OW: TxDOT	CR: TxDOT
© TxDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607	01	057, ETC.	FM 1764
3-15 8-15	DIST	COUNTY	SHEET NO.	
8-15 7-20	HOU	GALVESTON	360	

DATE:
FILE:

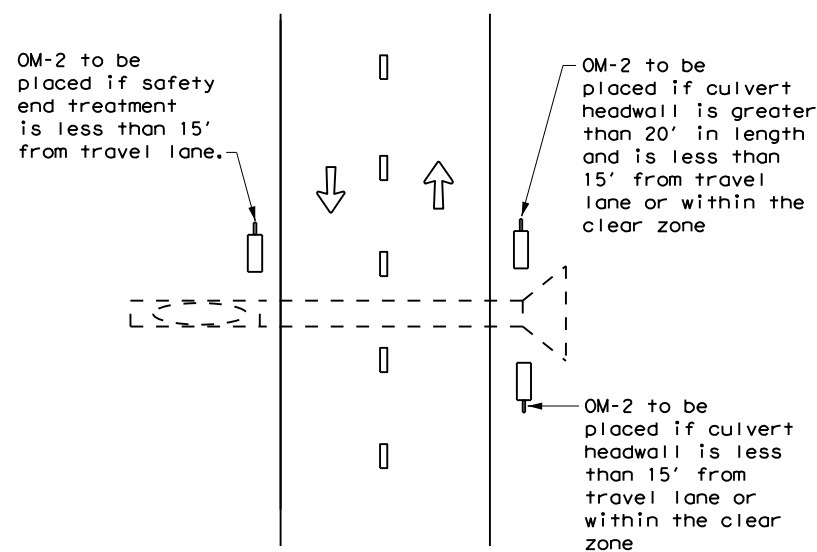
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CROSSOVERS



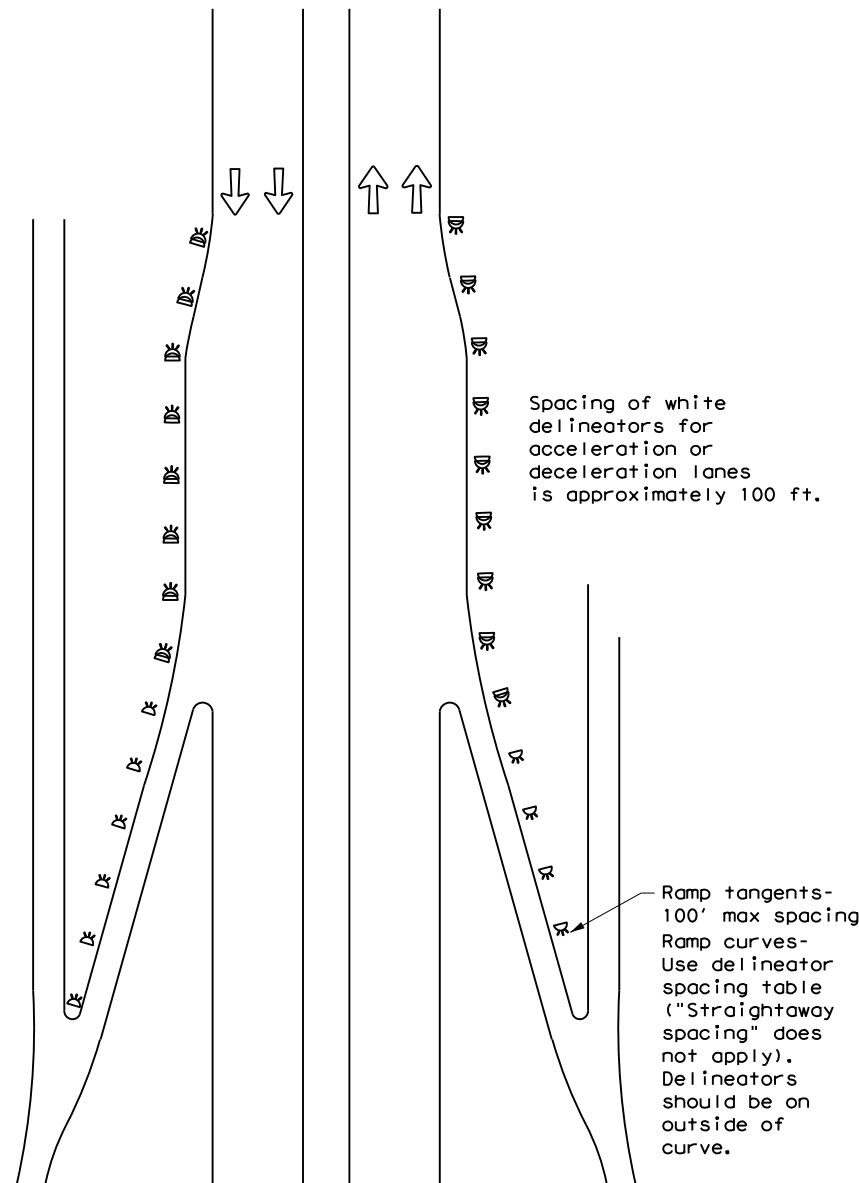
DETAIL 1

FOR CULVERTS WITHOUT MBGF



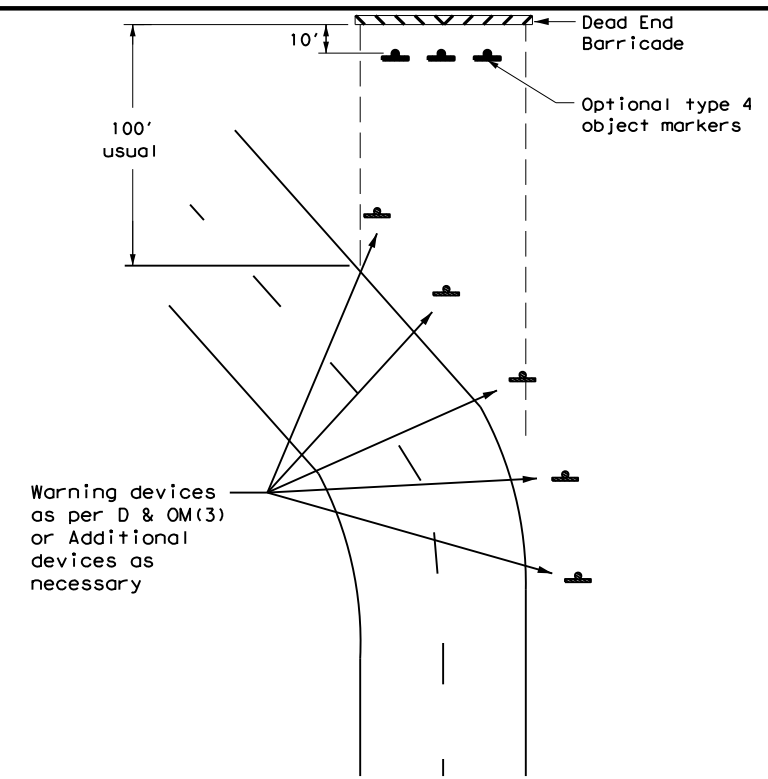
DETAIL 2

FREEWAY DELINEATION FOR RAMPS AND ACCELERATION/DECELERATION LANES



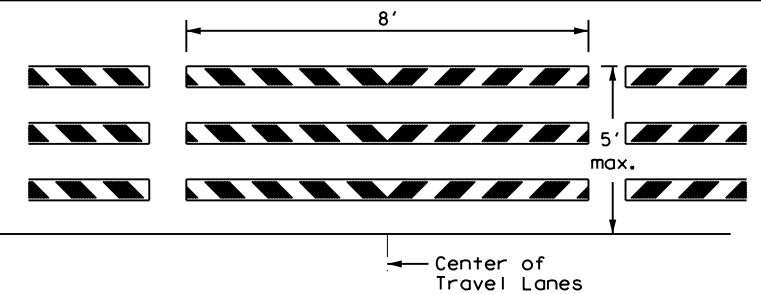
DETAIL 3

TYPICAL APPLICATION OF DEAD END BARRICADE



DETAIL 4

TYPICAL DEAD END BARRICADE INSTALLATION



NOTES

- Barricade striping shall be red and white reflective sheeting for all permanent road closures.
- Barricade striping is red and white sloping toward the center of the roadway.
- 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



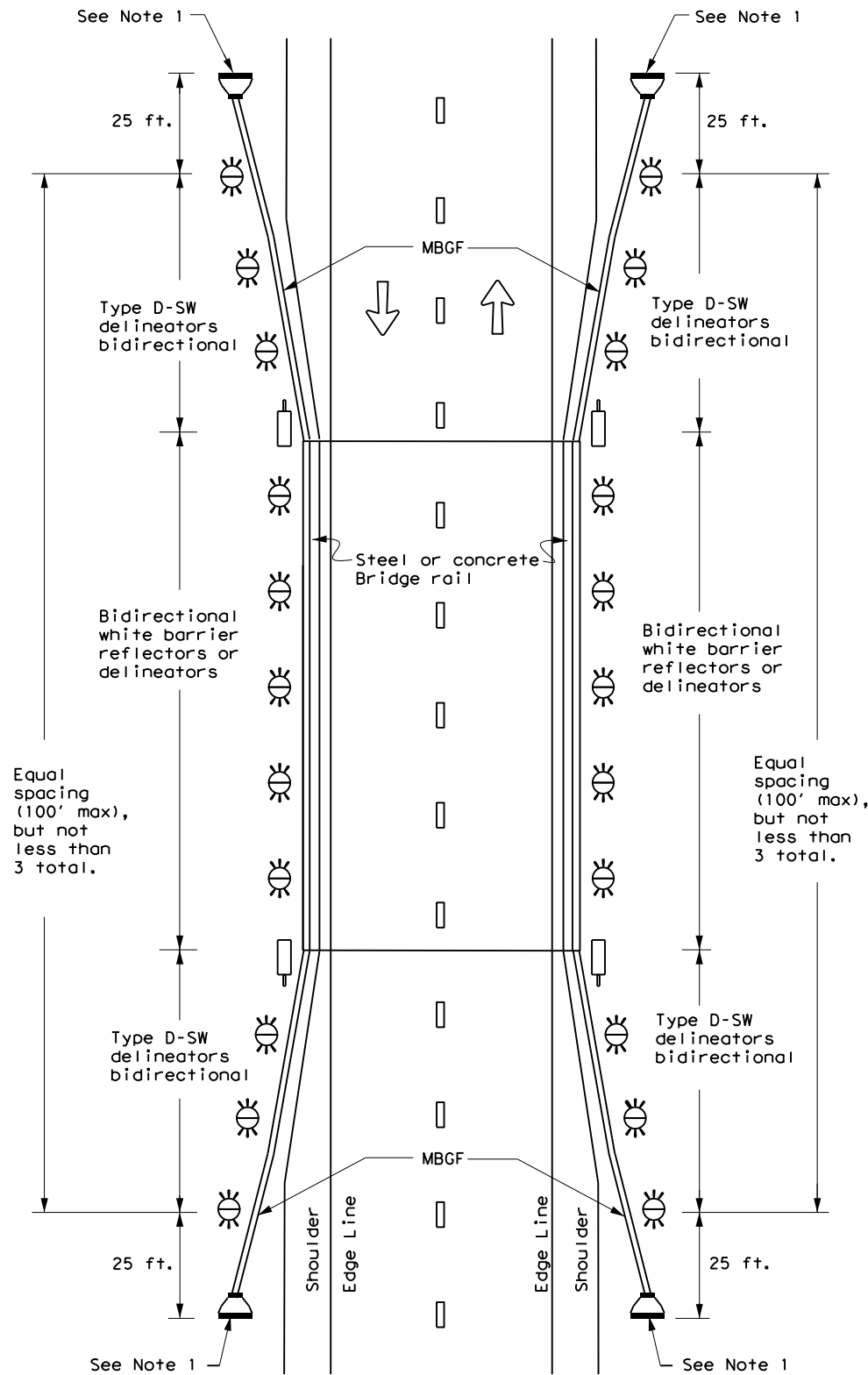
DELINEATOR & OBJECT MARKER PLACEMENT DETAILS

D & OM(4) -20

FILE: dom4-20.dgn	DN: TXDOT	CK: TXDOT	OW: TXDOT	CR: TXDOT
© TXDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607	01	057, ETC.	FM 1764
3-15	DIST	COUNTY	SHEET NO.	
7-20	HOU	GALVESTON	361	

DATE:
FILE:

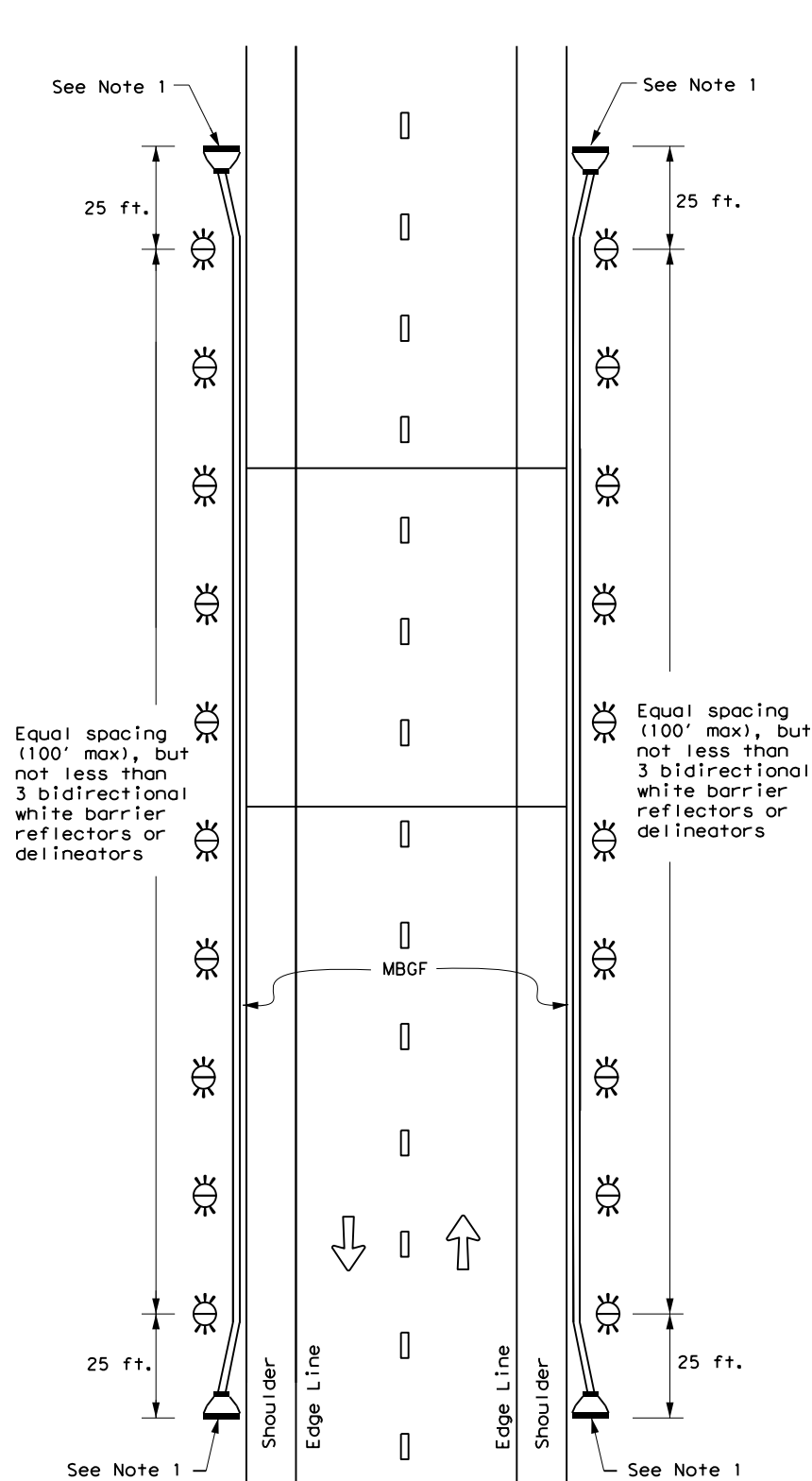
**TWO-WAY, TWO LANE ROADWAY
WITH REDUCED WIDTH APPROACH RAIL**



NOTE:

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

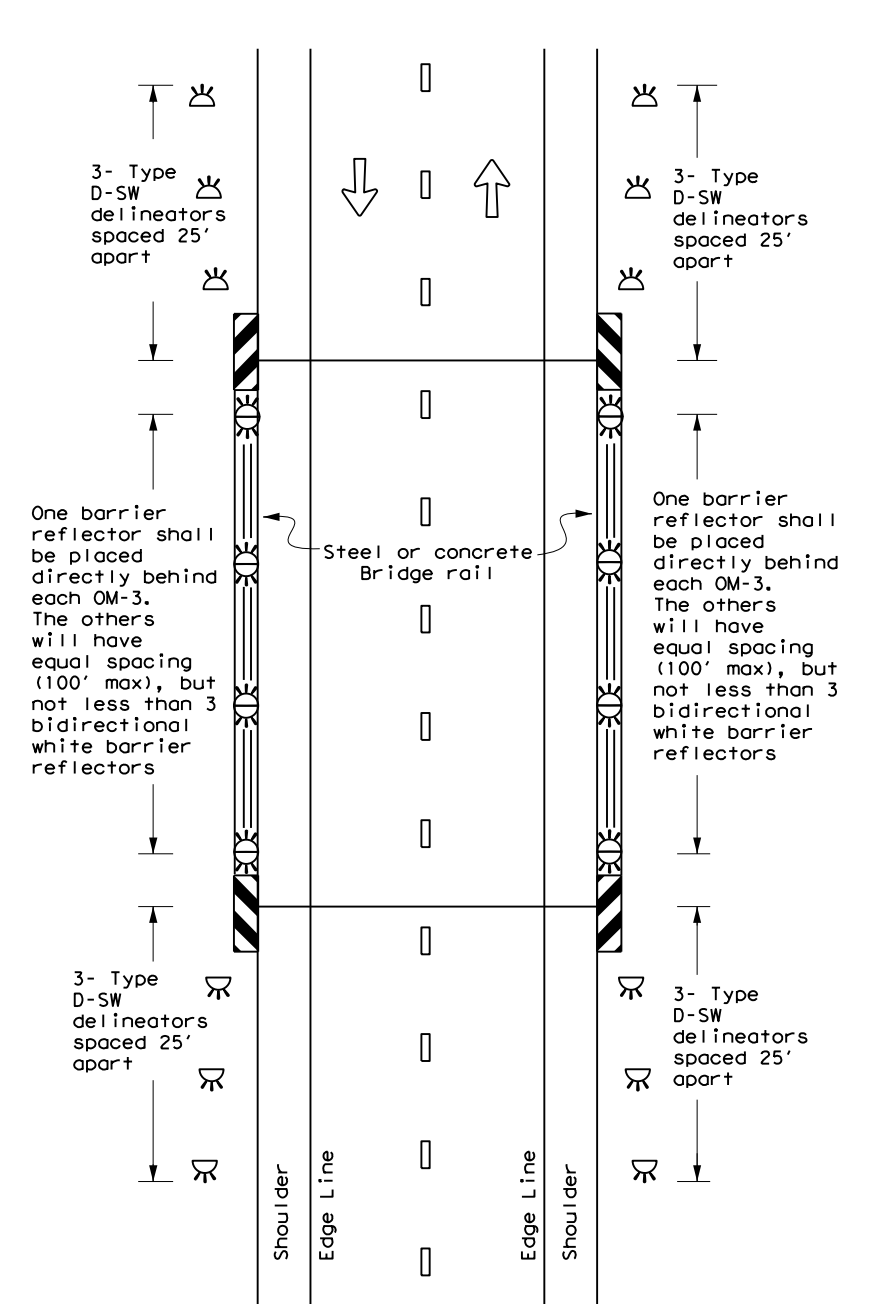
**TWO-WAY, TWO LANE ROADWAY
WITH METAL BEAM GUARD FENCE (MBGF)**



NOTE:

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

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



LEGEND

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



**DELINEATOR &
OBJECT MARKER
PLACEMENT DETAILS**

D & OM(5)-20

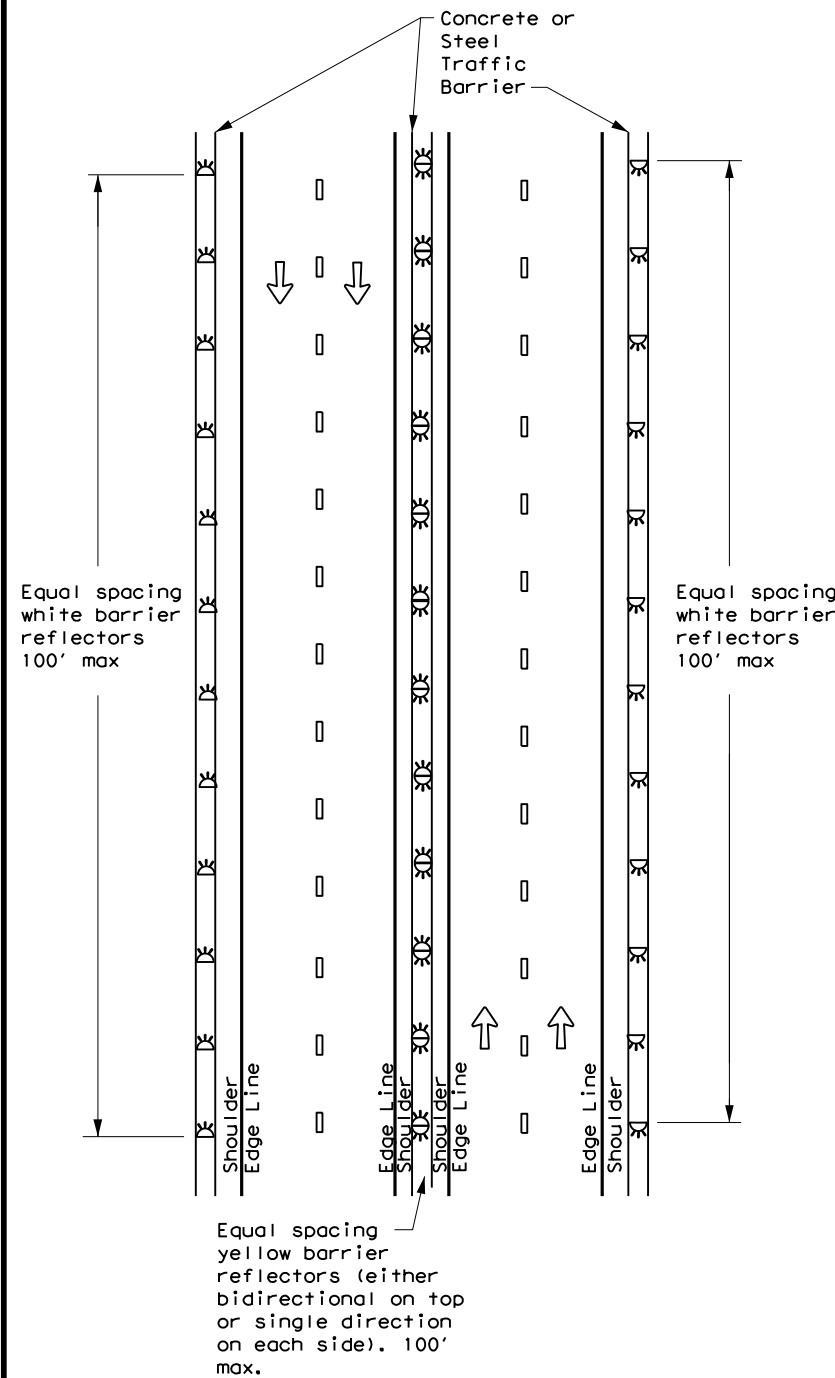
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©TxDOT August 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607	01	057, ETC.	FM 1764
7-20	DIST	COUNTY	SHEET NO.	
	HOU	GALVESTON	362	

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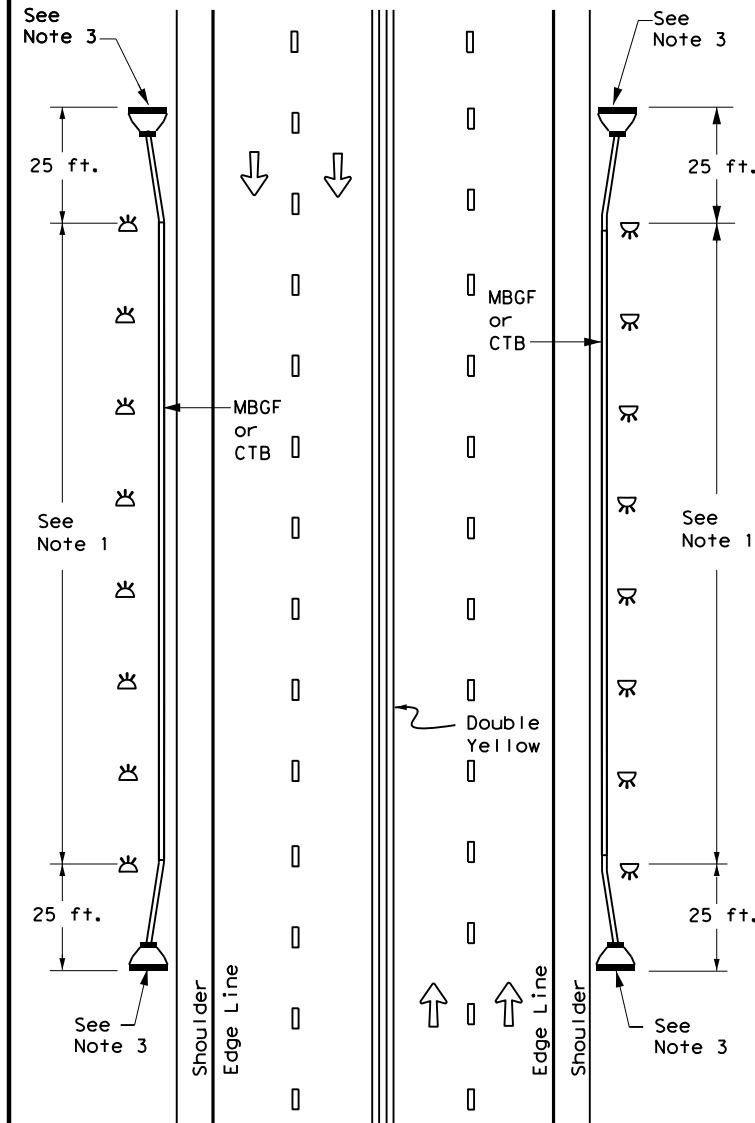
DATE: FILE:

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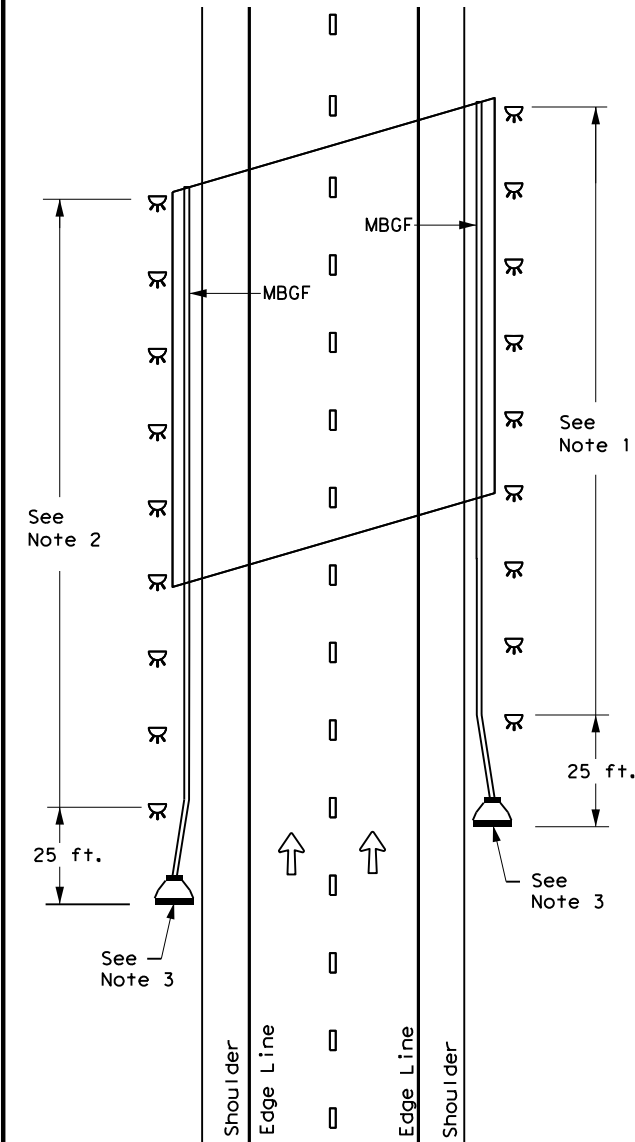
CONTINUOUS CONCRETE OR STEEL BARRIER



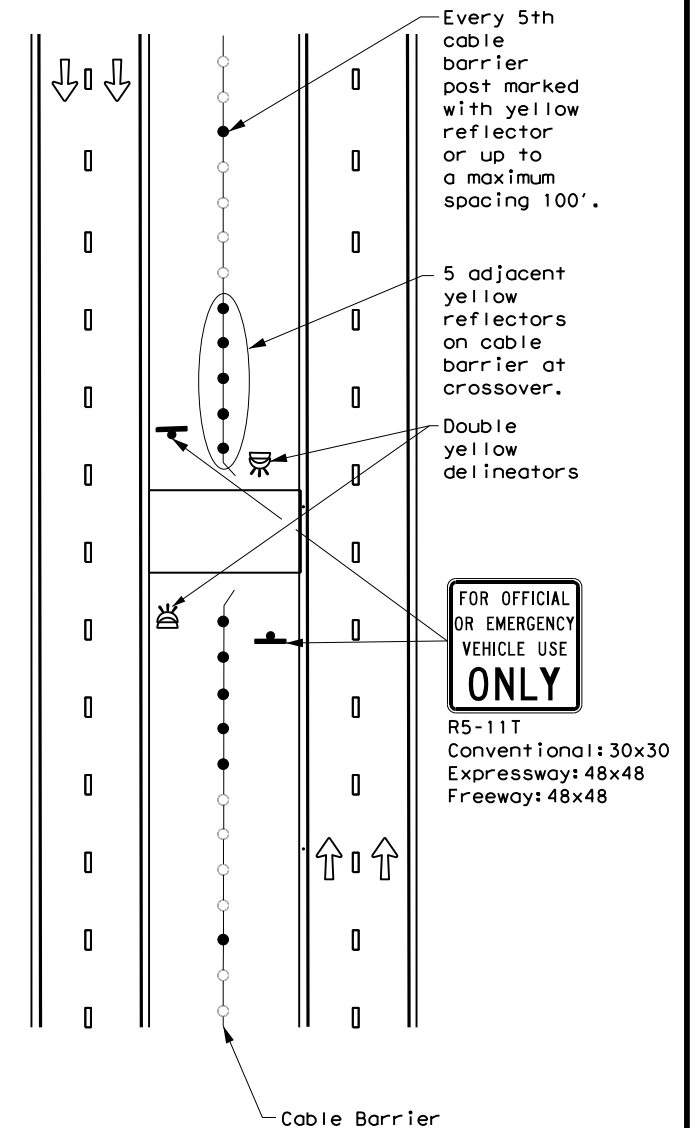
MULTI-LANE UNDIVIDED, TWO-WAY ROADWAY WITH METAL BEAM GUARD FENCE (MBGF)



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 Continuous 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



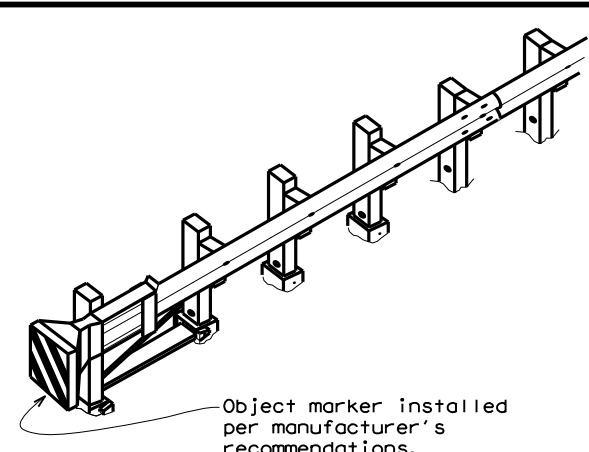
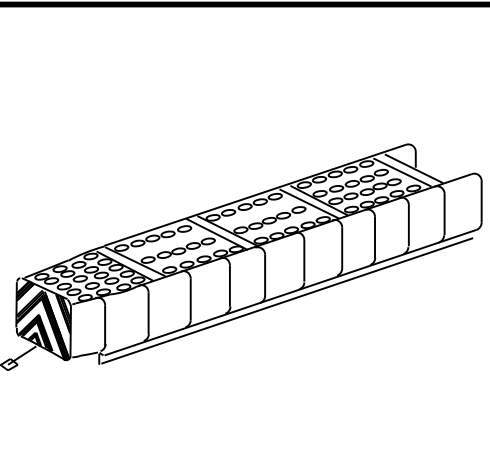
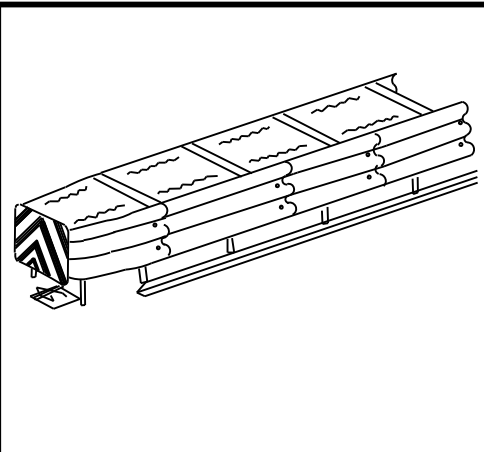
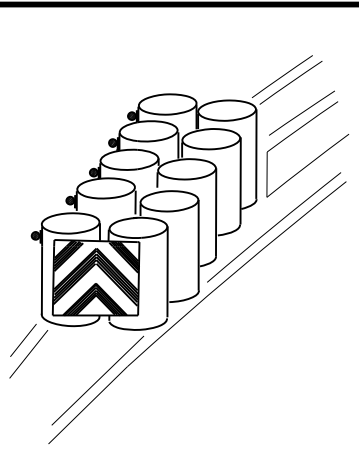
DELINEATOR & OBJECT MARKER PLACEMENT DETAILS

D & OM(6)-20

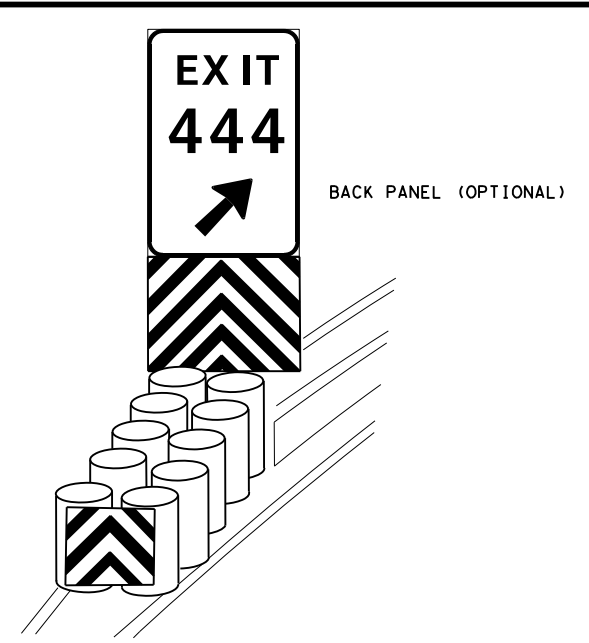
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©TxDOT August 2015	CONT	SECT	JOB	HIGHWAY
7-20	REVISIONS	1607 01	057, ETC.	FM 1764
	DIST	COUNTY	SHEET NO.	
	HOU	GALVESTON	363	

DATE:
FILE:

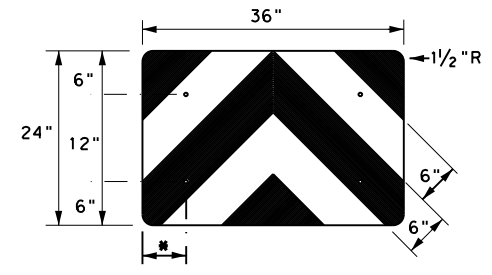
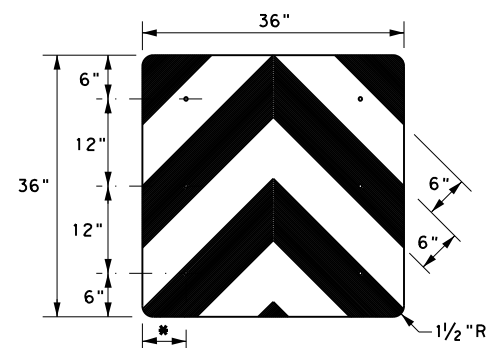
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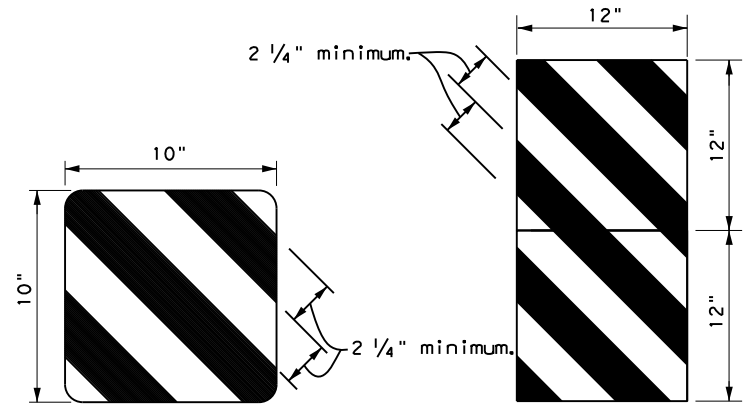
Object marker installed per manufacturer's recommendations.



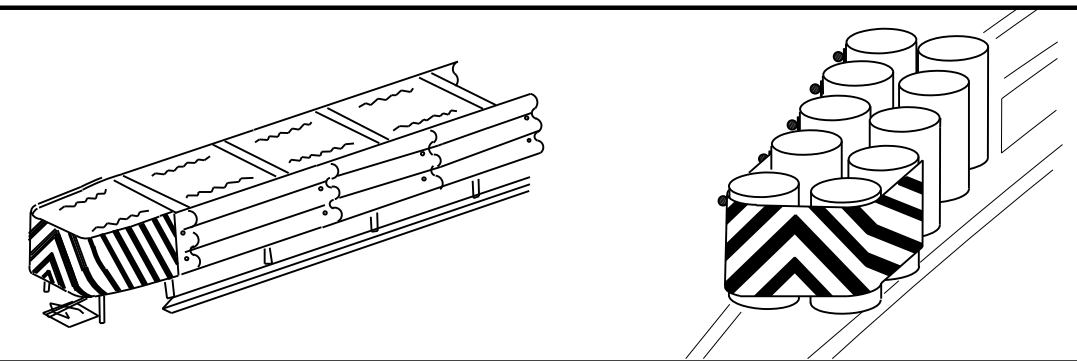
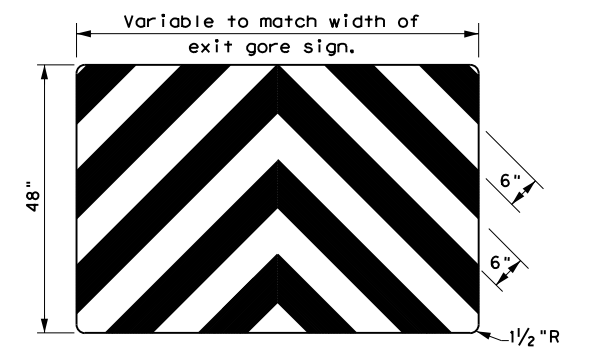
BACK PANEL (OPTIONAL)



* Adjust to fit attenuator per manufacturer's recommendation, or as directed by the Engineer

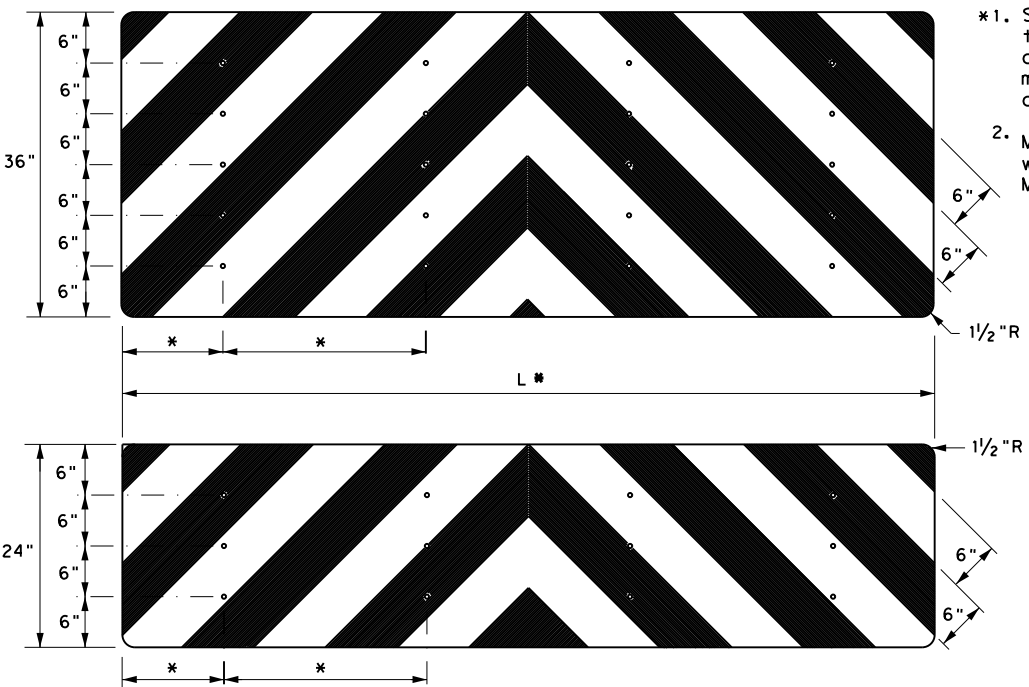


OBJECT MARKERS SMALLER THAN 3 FT²



NOTES

- *1. Spacing should be adjusted to attach through centerline of drum, per attenuator manufacturer's recommendation, or as directed by the Engineer.
- 2. Mounting should be flush with top of attenuator. Minimum size 96" x 24".



NOTES

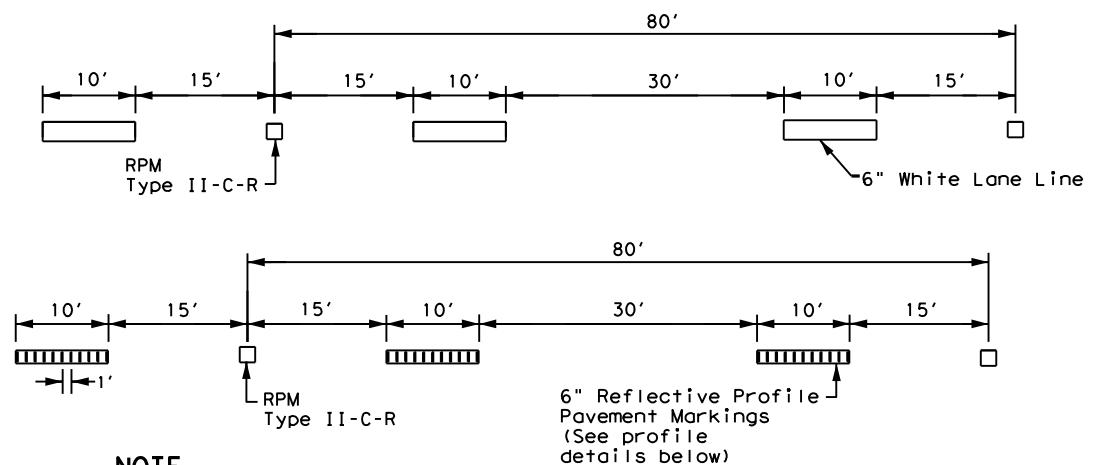
1. Object Markers shall conform to the Texas MUTCD and meet the color and reflectivity requirement of Department Material Specification DMS 8300. Background shall be yellow reflective sheeting (Type B or C) and Chevron shall be black.
2. Object Markers may be fabricated from adhesive backed reflective 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 1/4".
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.

		Traffic Safety Division Standard	
DELINEATOR & OBJECT MARKER FOR VEHICLE IMPACT ATTENUATORS D & OM(VIA) -20			
FILE: <u>domvia20.dgn</u> © TxDOT December 1989	DN: TxDOT 1607 01 4-92 8-04 8-95 3-15 4-98 7-20	CK: TxDOT SECT 057, ETC. COUNTY GALVESTON	DW: TxDOT JOB FM 1764 SHEET NO. 364
20G			

DATE:
FILE:

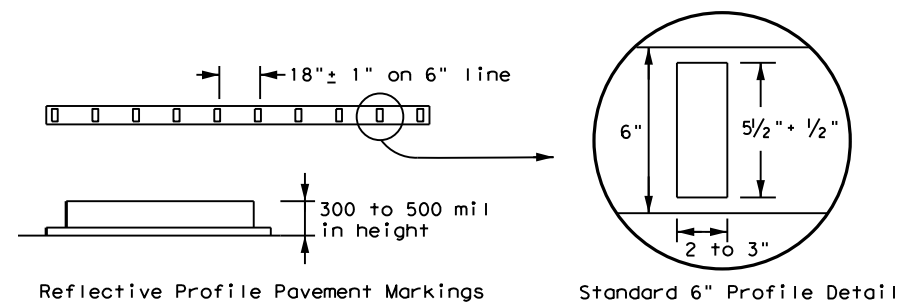
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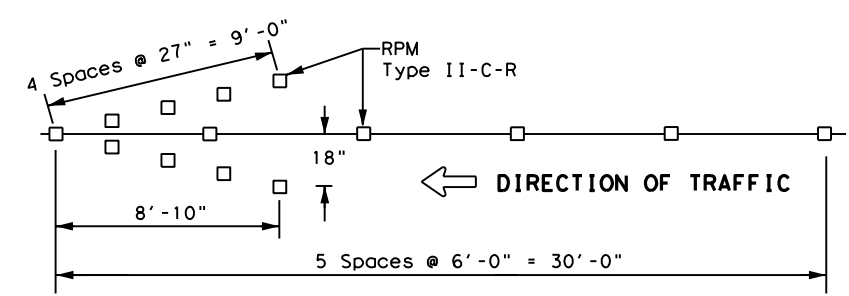
NOTE
 ReflectORIZED raised pavement markers Type II-C-R shall be spaced on 80' centers with the clear face toward normal traffic and the red face toward wrong way traffic. All raised pavement markers placed along broken lines shall be placed in line with and midway between the stripes.

TRAFFIC LANE LINES PAVEMENT MARKING



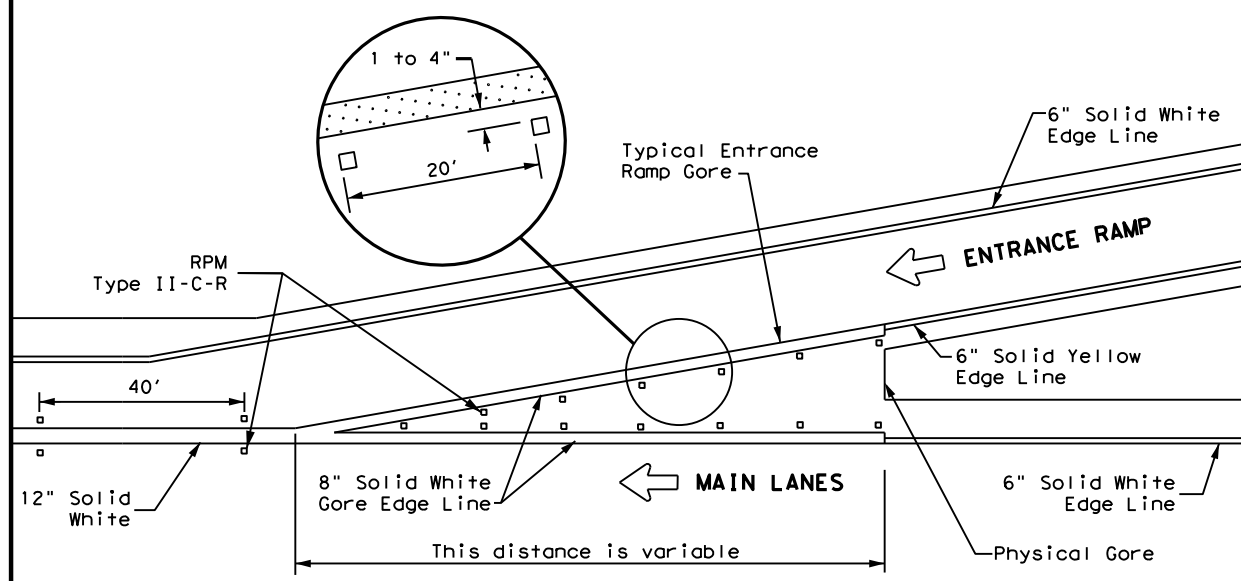
NOTE
 Edge lines should typically be 6" wide and the materials shall be as specified in the plans. See details above if reflective profile pavement markings are to be used.

EDGE LINE PAVEMENT MARKINGS

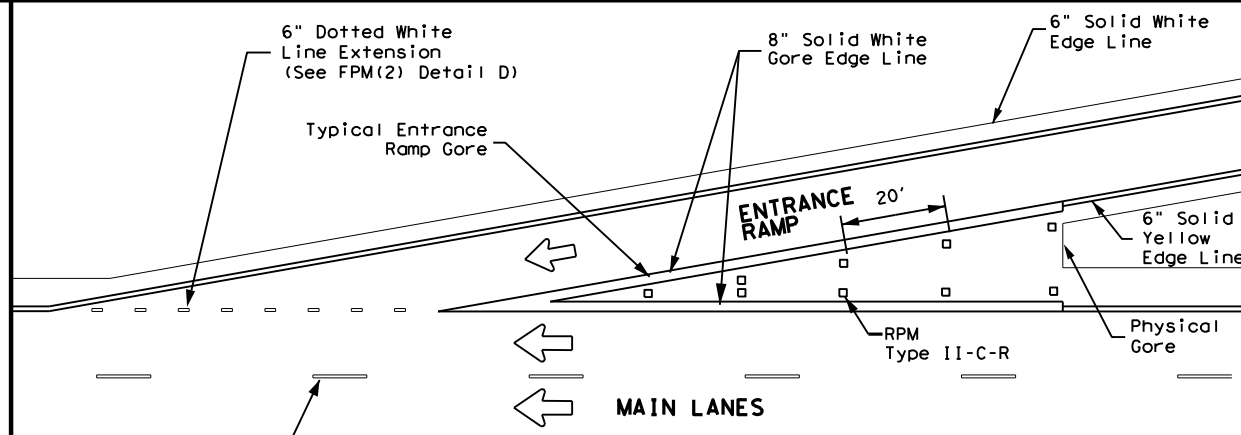


NOTES
 1. ReflectORIZED raised pavement markers Type-II-C-R in the wrong way arrow shall have the clear face toward normal traffic and the red face toward the wrong way traffic.
 2. Red reflectORIZED wrong way arrows, not to exceed two, may be placed on exit ramps. Locations of the arrows shall be as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

WRONG WAY ARROW

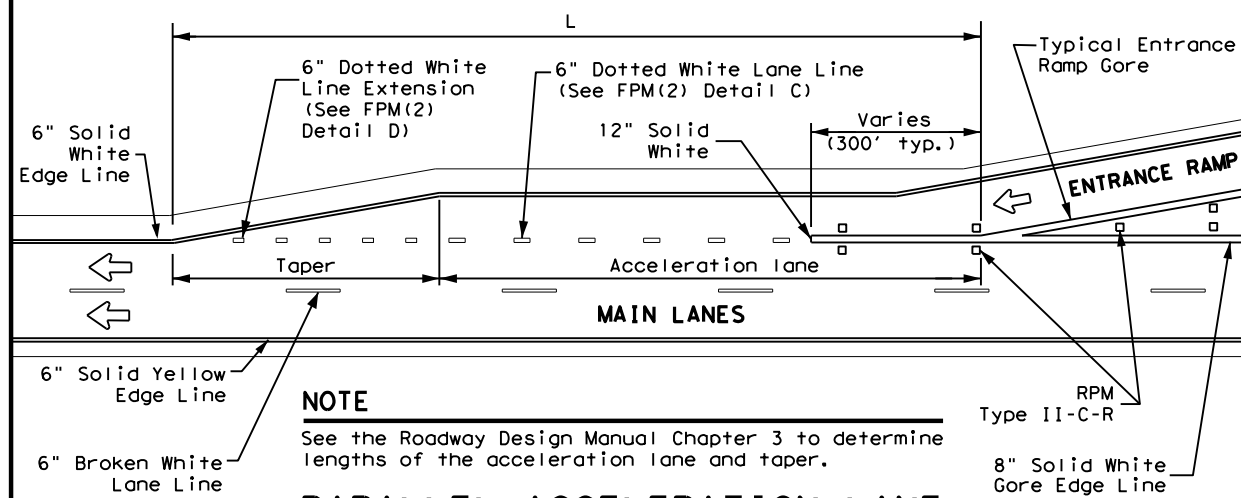


TYPICAL ENTRANCE RAMP GORE MARKING



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

TAPERED ACCELERATION LANE



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

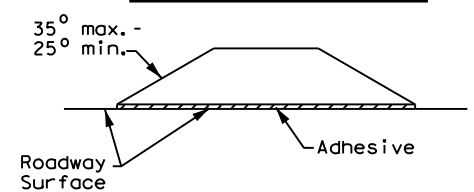
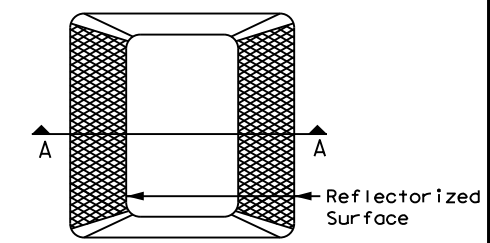
PARALLEL ACCELERATION LANE

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

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

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

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



SECTION A REFLECTORIZED RAISED PAVEMENT MARKER (RPM)

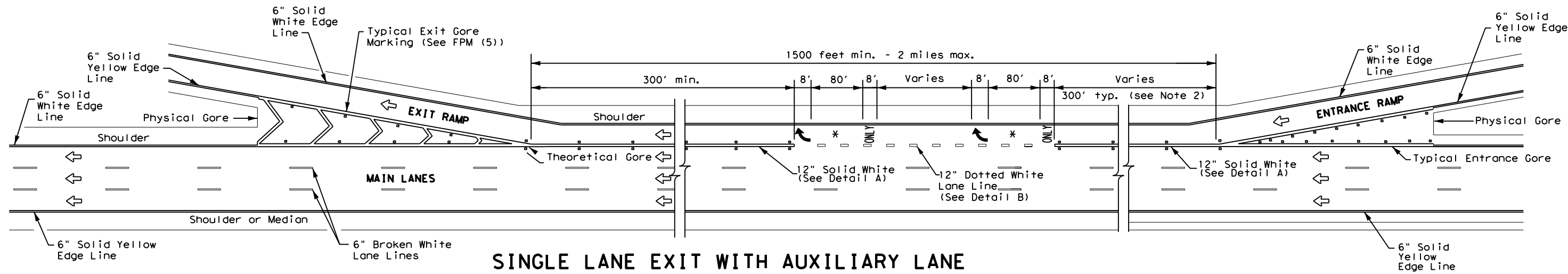
Texas Department of Transportation Traffic Safety Division Standard

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

FILE: fpm(1)-22.dgn	DN:	CK:	DW:	CK:
©TxDOT October 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607	01	057, ETC.	FM 1764
5-74	8-00	2-12		
4-92	2-08	10-22		
5-00	2-10			
	DIST	COUNTY		SHEET NO.
	HOU	GALVESTON		365

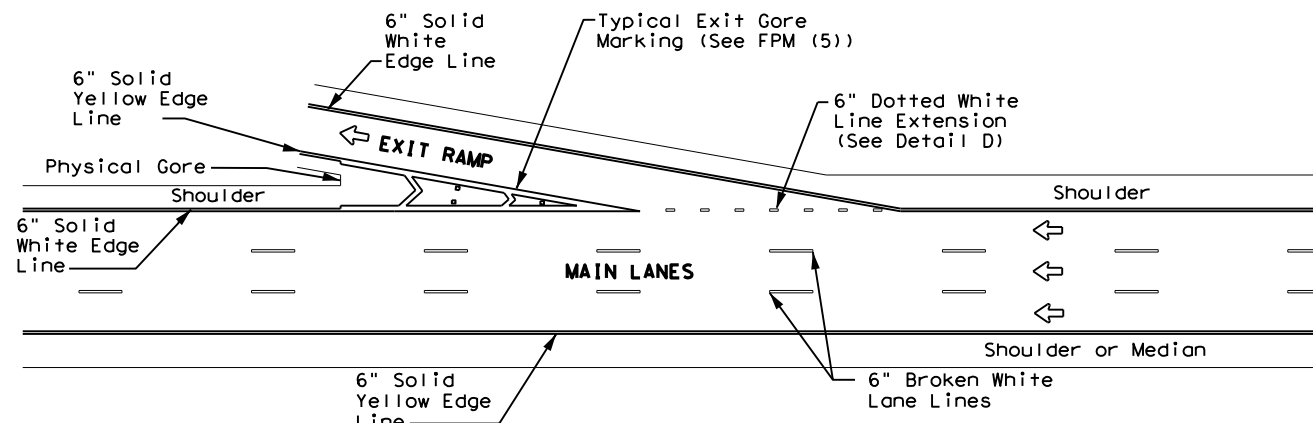
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DATE:
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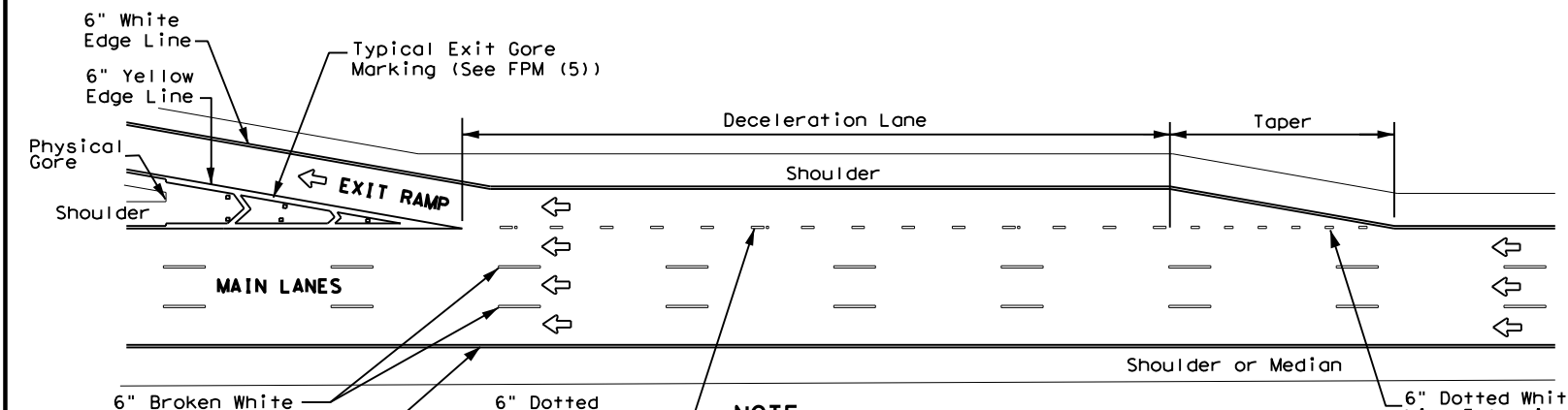
SINGLE LANE EXIT WITH AUXILIARY LANE

(See Note 2)



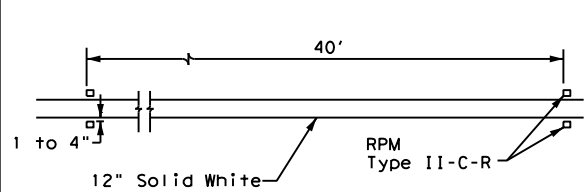
TAPERED DECELERATION LANE

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

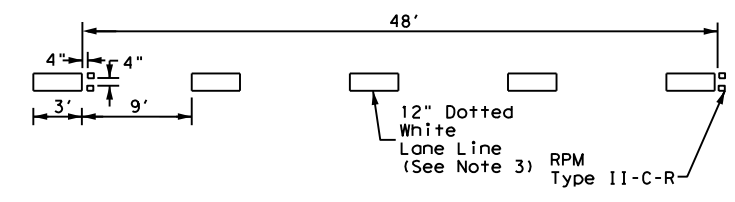


PARALLEL DECELERATION LANE

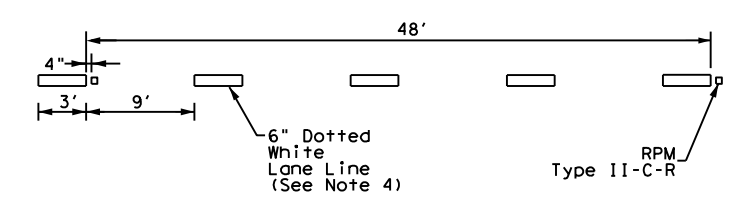
NOTE
Reference Roadway Design Manual Chapter 3 to determine length of deceleration lane and taper.



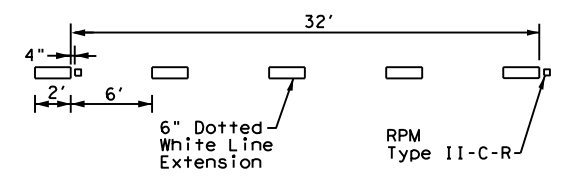
DETAIL A



DETAIL B



DETAIL C



DETAIL D

GENERAL NOTES

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

LEGEND

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

MATERIAL SPECIFICATIONS

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

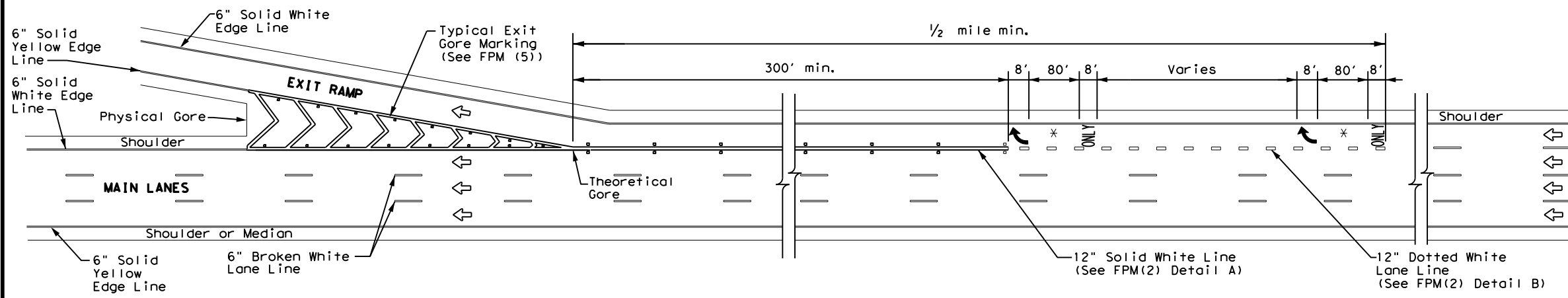
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



TYPICAL STANDARD FREEWAY PAVEMENT MARKINGS ENTRANCE AND EXIT RAMP

FPM(2) - 22

FILE: fpm(2) - 22.dgn	DN:	CK:	DW:	CK:
© TxDOT October 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607	01	057, ETC.	FM 1764
2-77 5-00 2-12	DIST	COUNTY		SHEET NO.
4-92 8-00 10-22	HOU	GALVESTON		366
8-95 2-10				

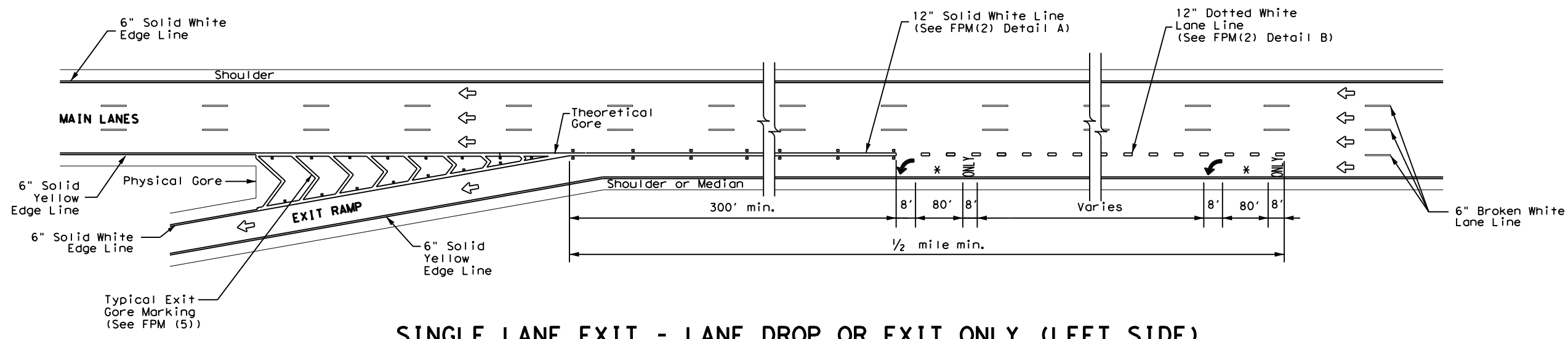


SINGLE LANE EXIT - LANE DROP OR EXIT ONLY

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

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

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



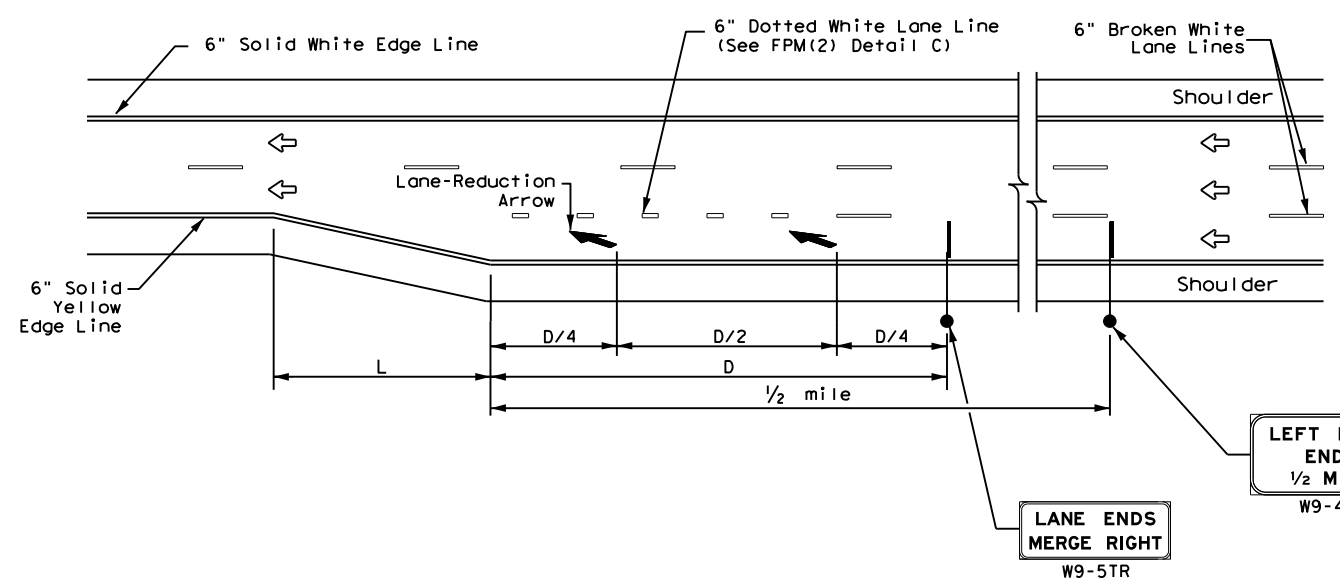
SINGLE LANE EXIT - LANE DROP OR EXIT ONLY (LEFT SIDE)

GENERAL NOTES

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

NOTES

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



FREEWAY LANE REDUCTION

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

LEFT LANE ENDS 1/2 MILE W9-4TL

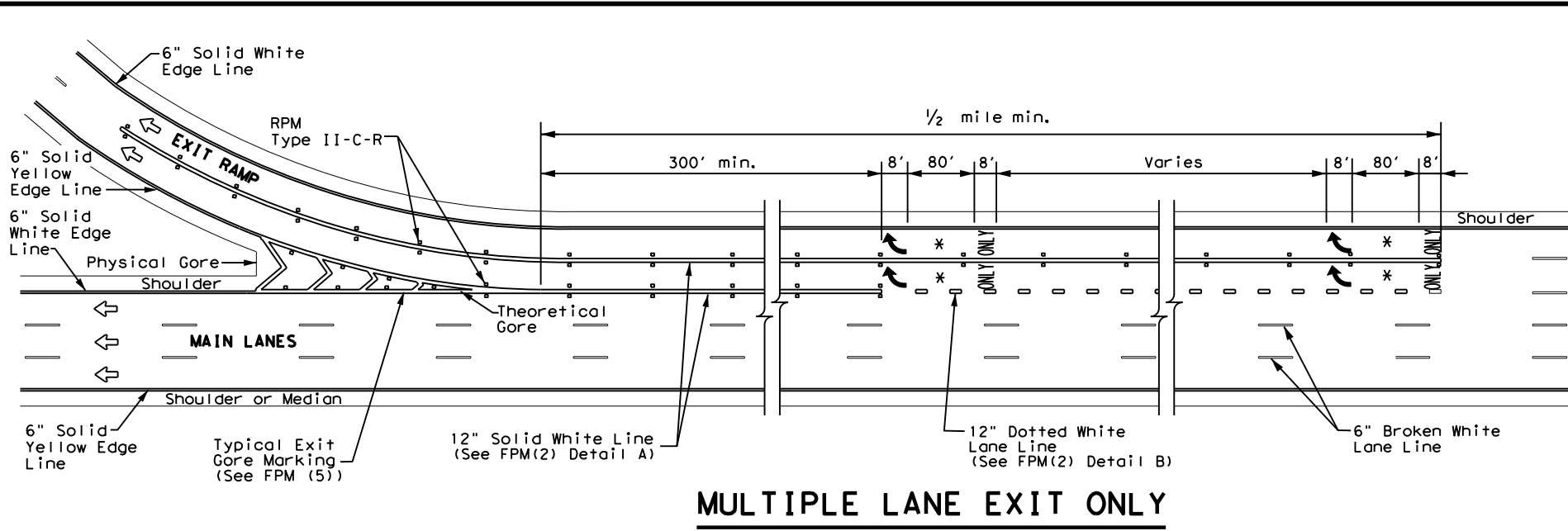
LANE ENDS MERGE RIGHT W9-5TR



TYPICAL STANDARD FREEWAY PAVEMENT MARKINGS SINGLE LANE DROP (EXIT ONLY) AND LANE REDUCTION DETAILS FPM(3) - 22

FILE: fpm(3)-22.dgn	DN:	CK:	DW:	CK:
© TxDOT October 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607	01	057, ETC.	FM 1764
4-92 2-10	DIST	COUNTY	SHEET NO.	
5-00 2-12	HOU	GALVESTON	367	
8-00 10-22				

DATE: FILE:



MULTIPLE LANE EXIT ONLY

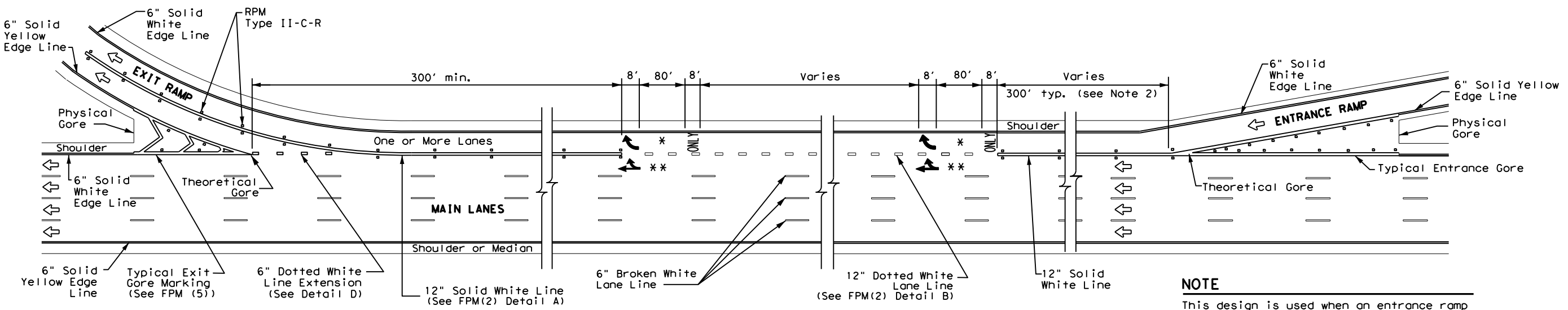
LEGEND	
↔	Traffic Flow
◻	Reflectorized Raised Markers (RPM) Type II-C-R
↔	Pavement marking arrow (white)
*	Arrow markings are optional, however "ONLY" is required if arrow is used
**	Arrow markings are optional

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

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

GENERAL NOTES

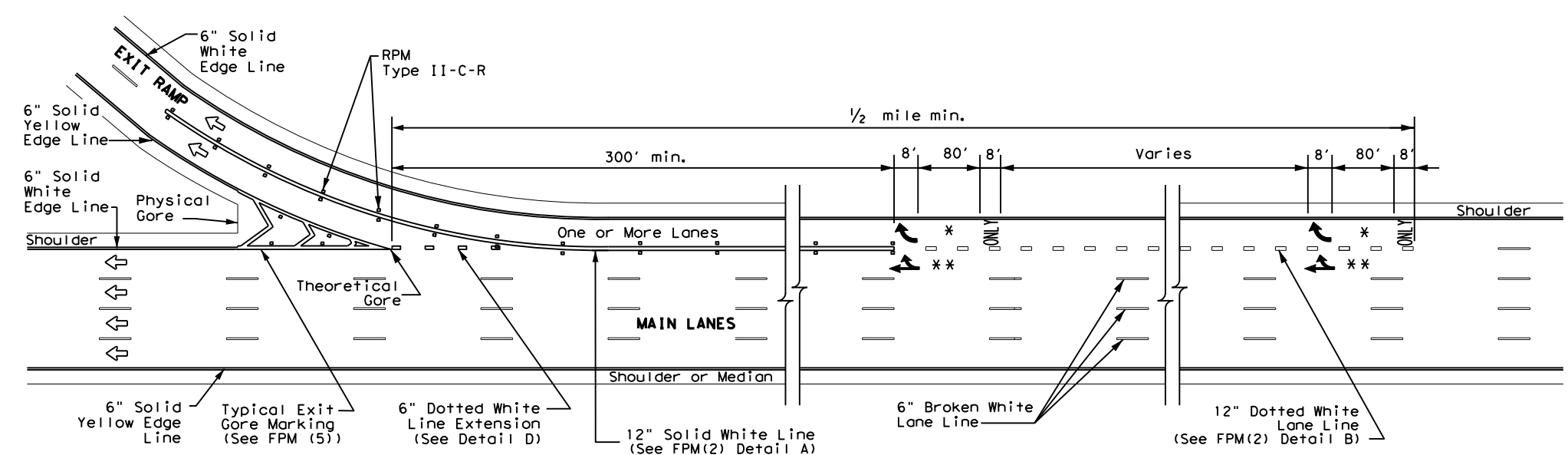
1. Pavement markings shall be white except as otherwise noted.
2. Length of 12" white line may vary depending on location.
3. Wide (12") dotted lane line (see FPM(2) Detail B) is used to separate a through lane that continues beyond the interchange from an adjacent mandatory exit lane.
4. Edge lines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



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

NOTE

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



MULTIPLE LANE EXIT - EXIT ONLY WITH OPTION LANE

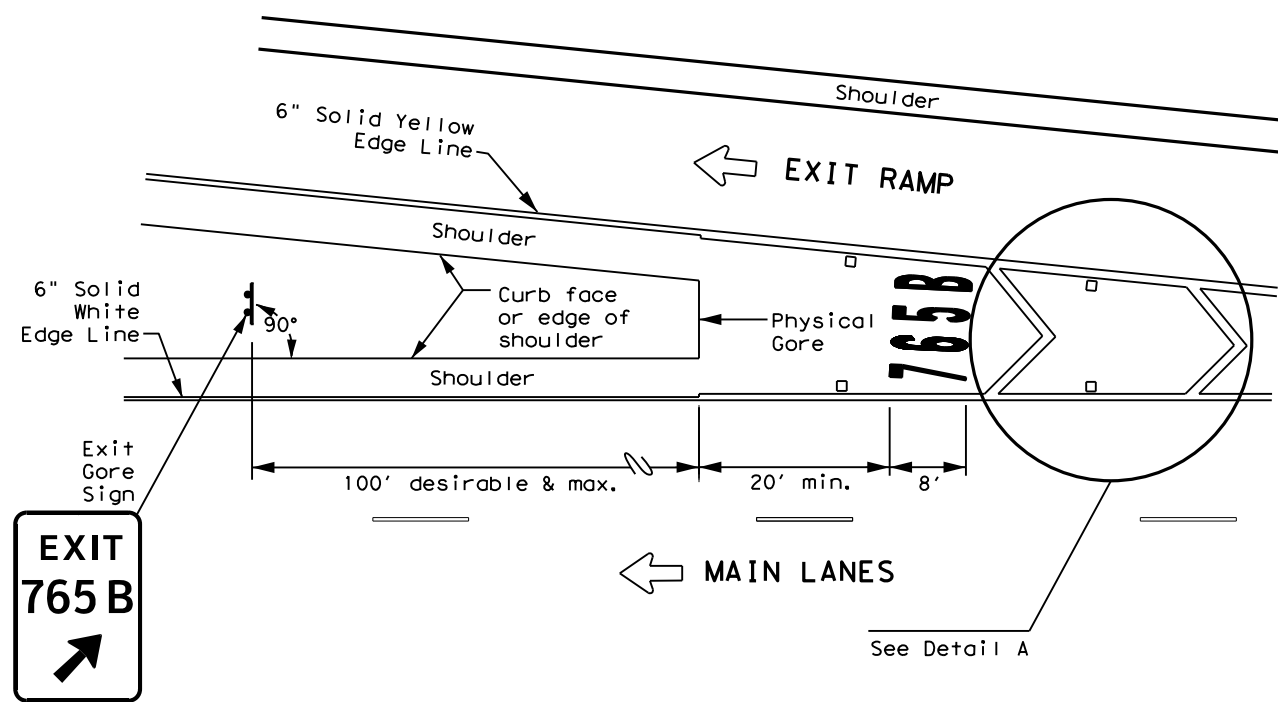
DATE:
FILE:

		Traffic Safety Division Standard	
TYPICAL STANDARD FREEWAY PAVEMENT MARKINGS MULTIPLE LANE DROP (EXIT) DETAILS FPM(4)-22			
FILE: fpm(4)-22.dgn	DN:	CK:	DW:
© TxDOT October 2022	CONT	SECT	JOB
REVISIONS	1607	01	057, ETC.
2-77	2-10		FM 1764
5-00	2-12		
8-00	10-22		
DIST	COUNTY	SHEET NO.	
HOU	GALVESTON	368	

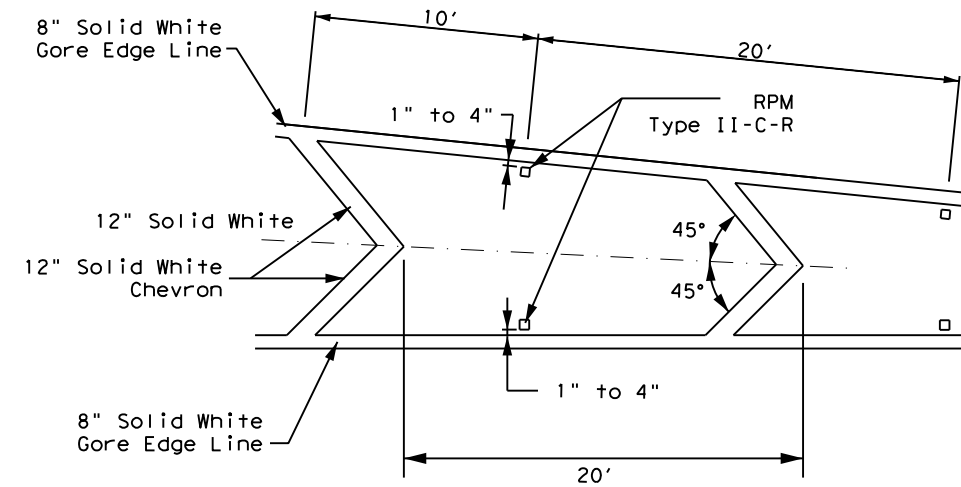
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EXIT NUMBER PAVEMENT MARKING NOTES

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



MARKINGS WITH EXIT NUMBER



NOTES

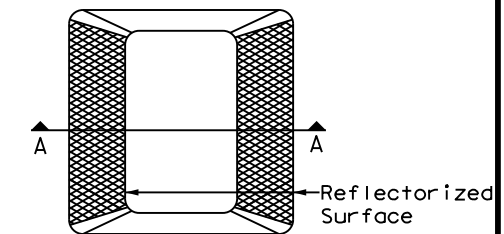
1. Raised pavement markers shall be centered between each chevron or neutral area line.
2. For more information, see ReflectORIZED Raised Pavement Marker Detail.

DETAIL A

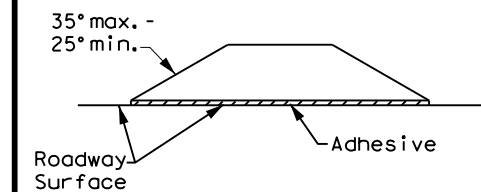
MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

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

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

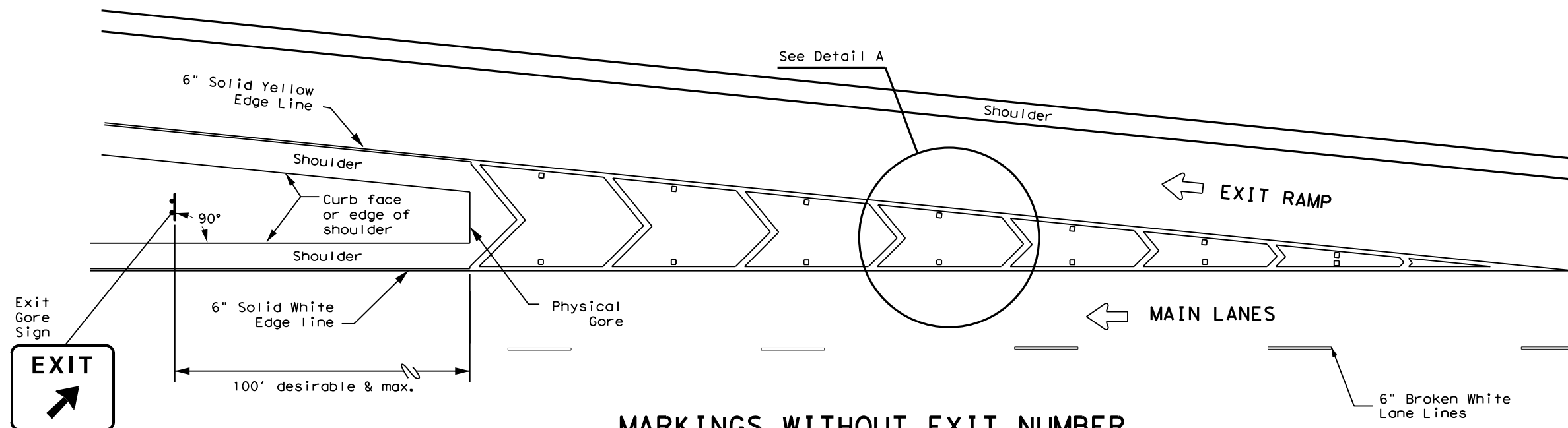


Type II (Top View)



SECTION A

REFLECTORIZED RAISED PAVEMENT MARKER (RPM)



MARKINGS WITHOUT EXIT NUMBER



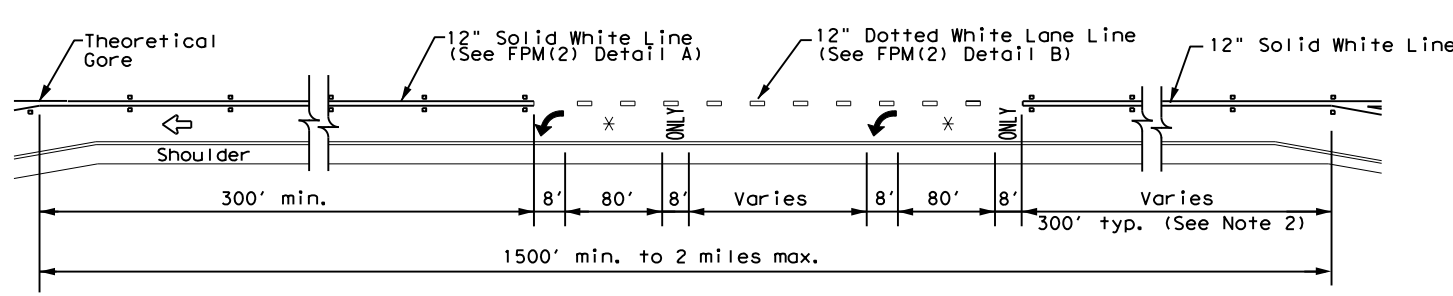
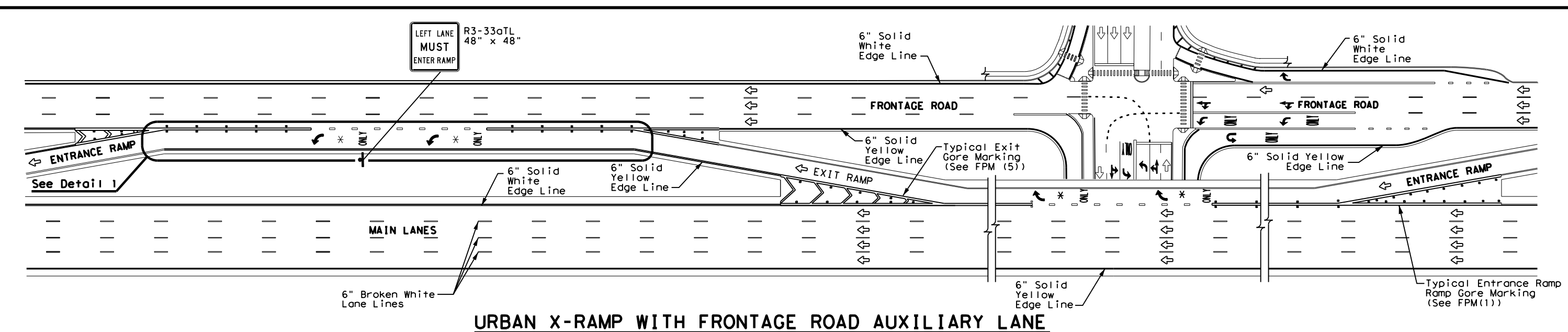
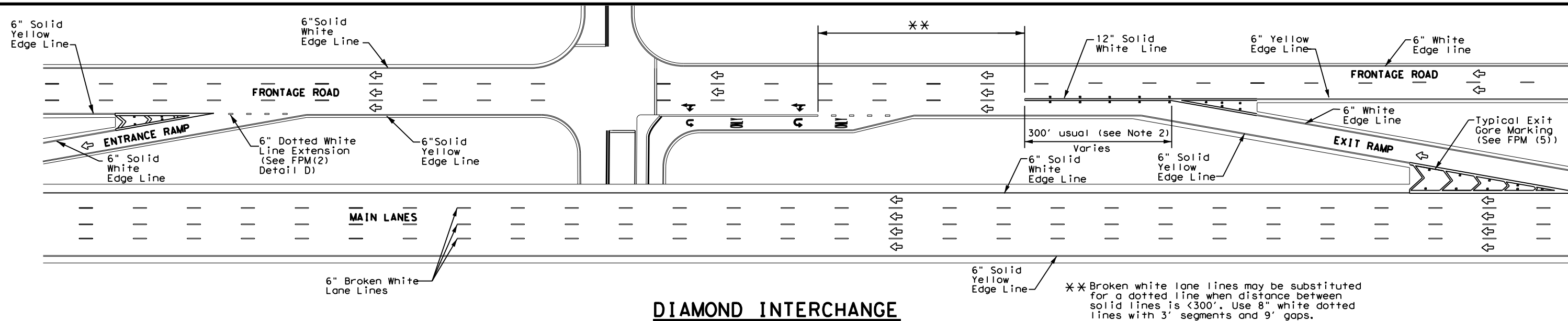
EXIT GORE PAVEMENT MARKINGS

FPM(5) - 22

FILE: fpm(5)-22.dgn	DN: 1607	CK: 01	DW: 057, ETC.	CK: FM 1764
© TxDOT October 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607	01	057, ETC.	FM 1764
9-19	DIST	COUNTY		SHEET NO.
10-22	HOU	GALVESTON		369

DATE: FILE:

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

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

GENERAL NOTES

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

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



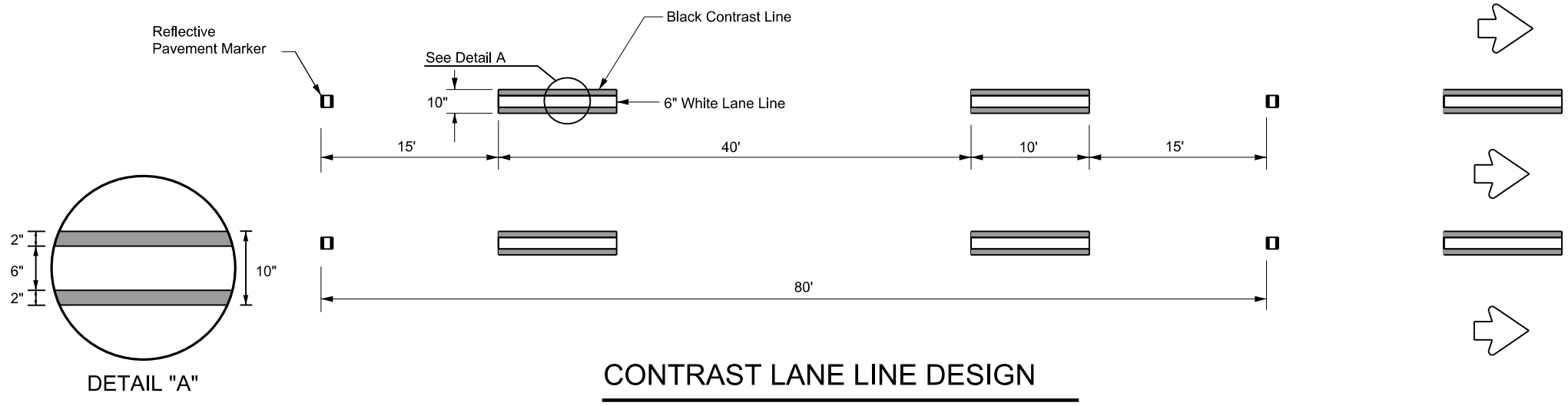
**TYPICAL STANDARD
FREEWAY AND FRONTAGE
ROAD PAVEMENT MARKINGS**

FPM(6) -22

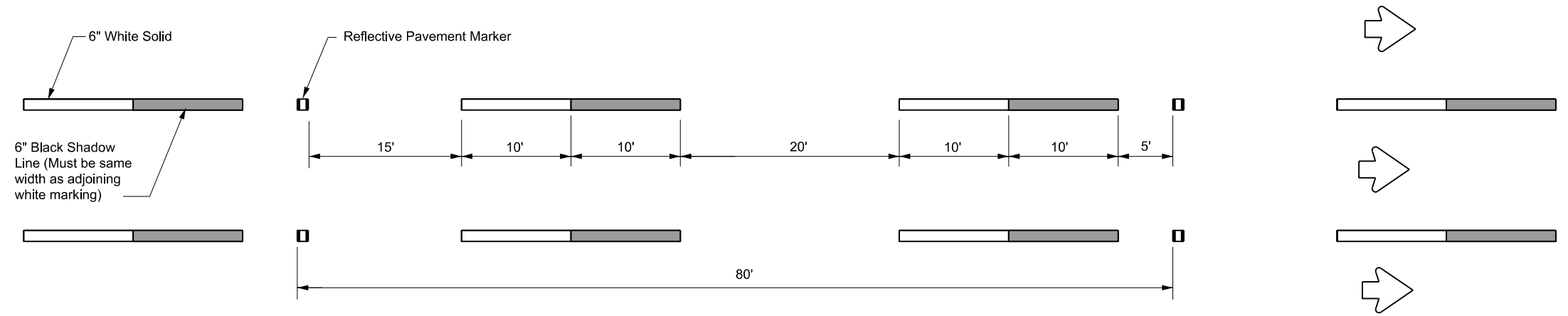
FILE: fpm(6)-22.dgn	DN:	CK:	DW:	CK:
© TxDOT October 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607	01	057, ETC.	FM 1764
10-22	DIST	COUNTY	SHEET NO.	
	HOU	GALVESTON	370	

DATE:
FILE:

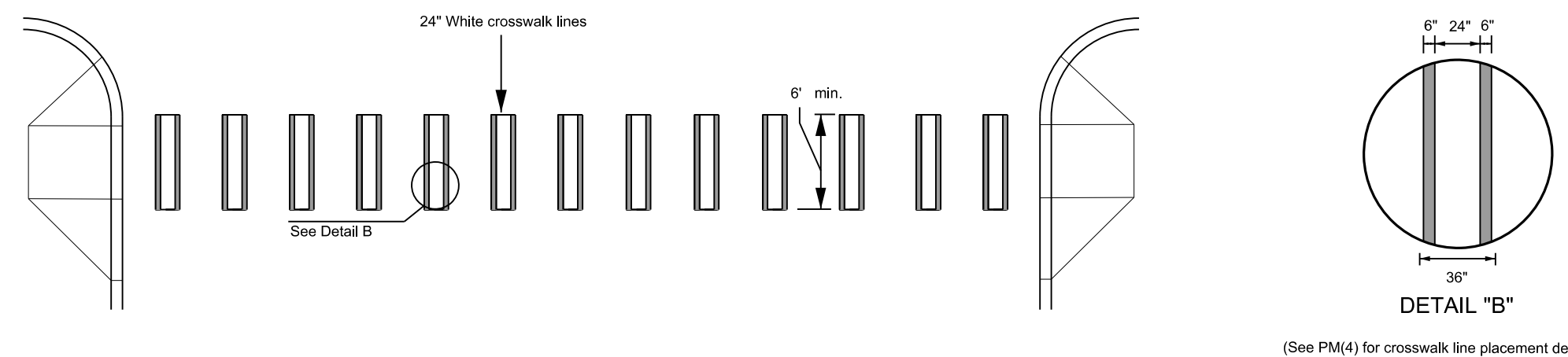
DISCLAIMER:
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CONTRAST LANE LINE DESIGN



SHADOW LANE LINE DESIGN



CONTRAST CROSSWALK DESIGN

(See PM(4) for crosswalk line placement details)

- GENERAL NOTES**
1. Contrast and Shadow markings may only be used on concrete pavements.
 2. Contrast and Shadow markings shall not be used on edge lines.
 3. Contrast lane lines shall be permanent prefabricated pavement markings meeting DMS 8240.
 4. Shadow lane line designs shall be a liquid markings system approved by TxDOT.
 5. All raised reflective pavement markers placed in broken lines shall be placed in line with and midway between the white stripes.
 6. See PM(2) for raised reflective pavement markings installation details.

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.



CONTRAST AND SHADOW PAVEMENT MARKINGS

CPM(1)-23

FILE: CPM(1)-23.dgn	DN:	CK:	DW:	CK:
© TxDOT February 2023	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607	01	057, ETC.	FM 1764
5-14	DIST	COUNTY		SHEET NO.
2-23	HOU	GALVESTON		371

DATE:
FILE:

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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)

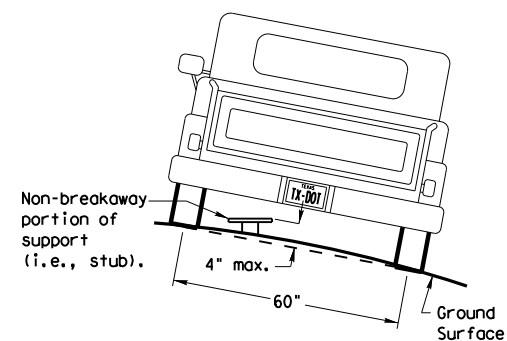
Anchor Type

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-3))

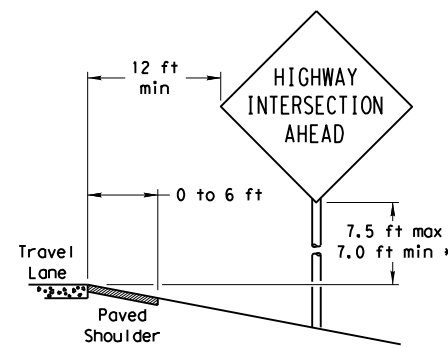
REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



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).

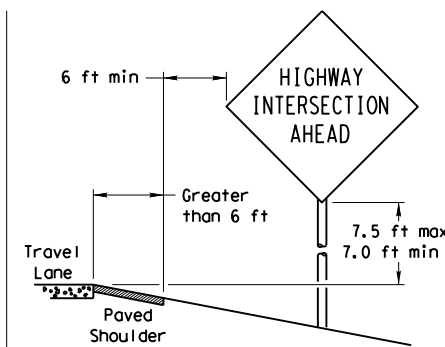
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

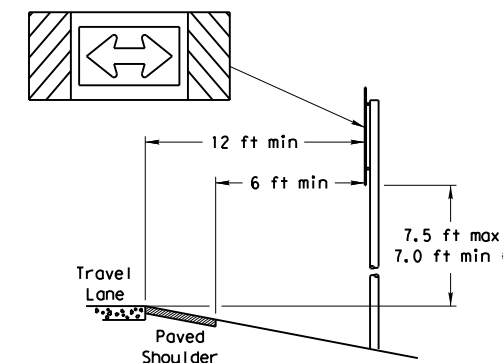
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.



GREATER THAN 6 FT. WIDE

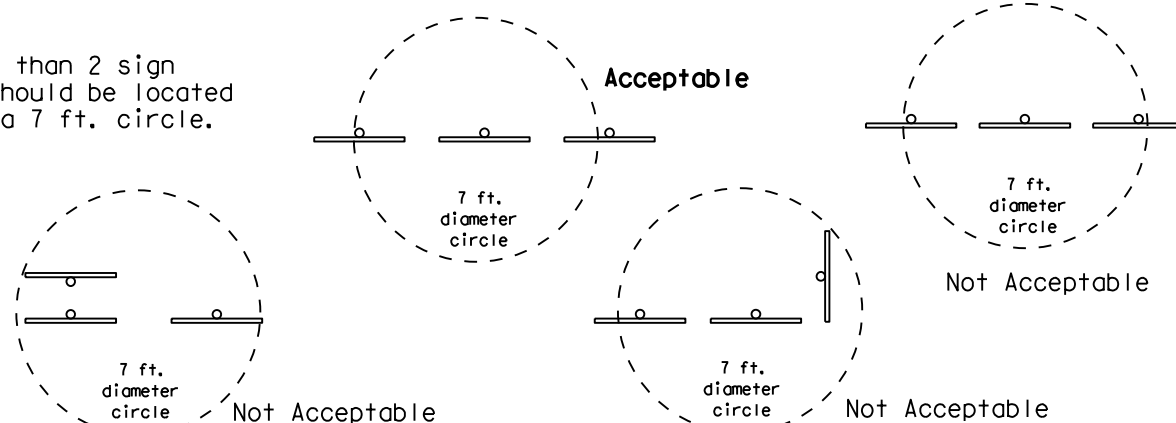
When the shoulder is greater than 6 ft. in width, the sign must be placed at least 6 ft. from the edge of the shoulder.

T-INTERSECTION

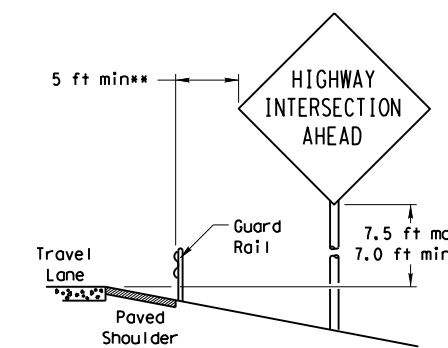


When this sign is needed at the end of a two-lane, two way roadway, the right edge of the sign should be in line with the centerline of the roadway. Place as close to ROW as practical.

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

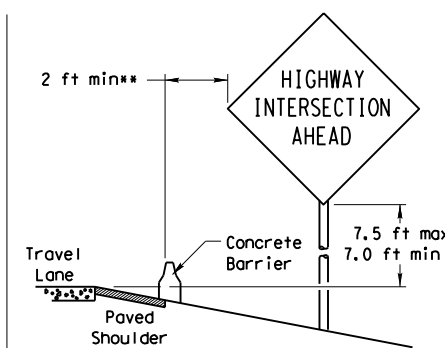


BEHIND BARRIER

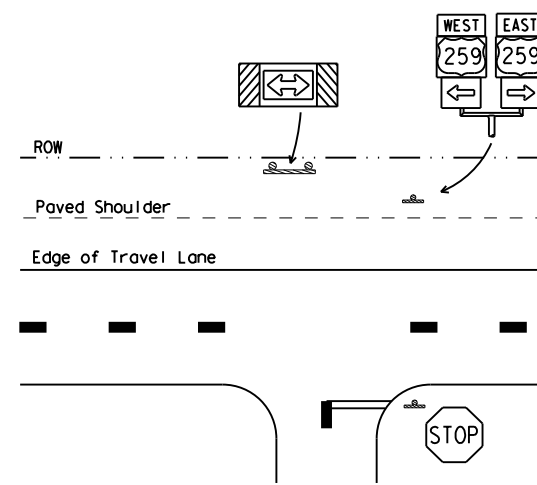


BEHIND GUARDRAIL

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



BEHIND CONCRETE BARRIER



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

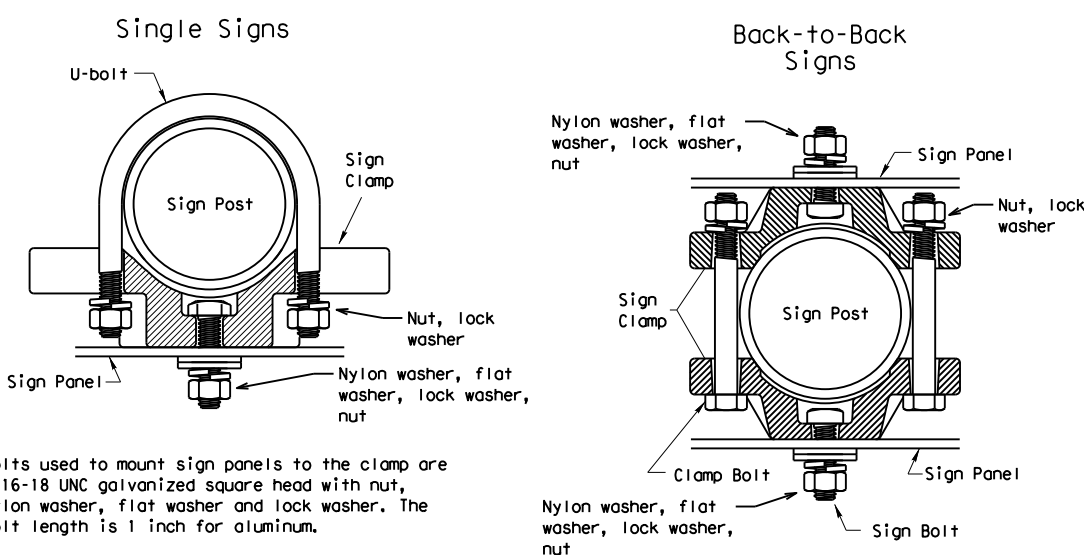
- (1) a minimum of 7 to a maximum of 7.5 feet above the edge of the travel lane or
- (2) a minimum of 7 to a maximum of 7.5 feet above the grade at the base of the support when sign is installed on the backslope.

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

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

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

TYPICAL SIGN ATTACHMENT DETAIL



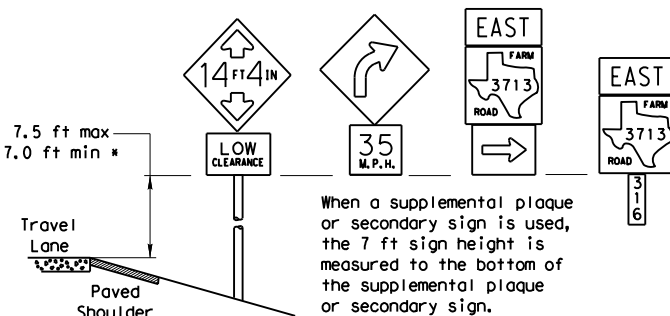
Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

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

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

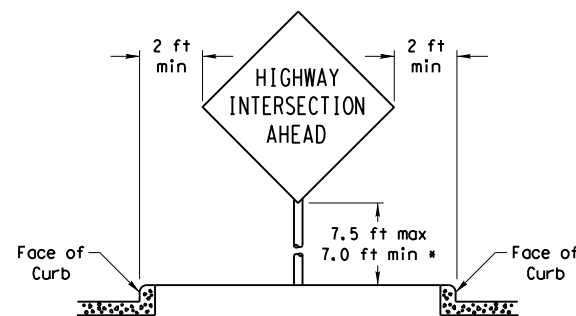
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES

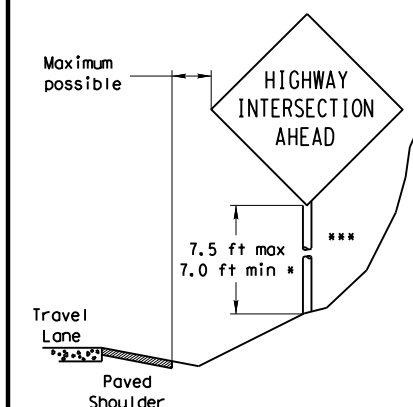


When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

CURB & GUTTER OR RAISED ISLAND



RESTRICTED RIGHT-OF-WAY (When 6 ft min. is not possible.)



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

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

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

Texas Department of Transportation
 Traffic Operations Division

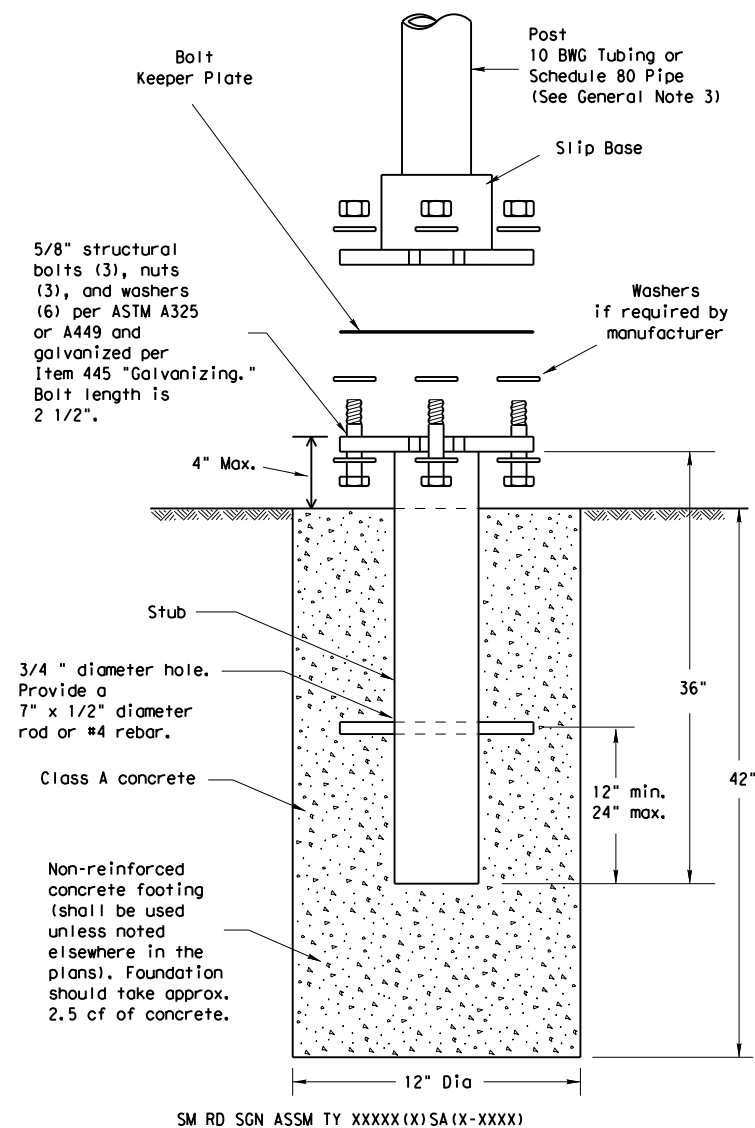
SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

SMD(GEN)-08

© TxDOT July 2002	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
9-08	REVISIONS	CONTRACT	SECTION	JOB
		1607	01	057, ETC.
		DIST	COUNTY	FM 1764
		HOU	GALVESTON	SHEET NO.
				372

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TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS



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:

- 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.
- 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
- 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>
- Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.

ASSEMBLY PROCEDURE

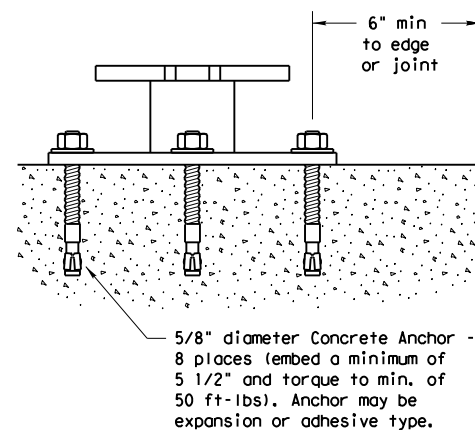
Foundation

- 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.
- 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.
- 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.
- Plumb the stub. Allow a minimum of 4 days to set, unless otherwise directed by the Engineer.
- The triangular slipbase system is multidirectional and is designed to release when struck from any direction.

Support

- 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.
- 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



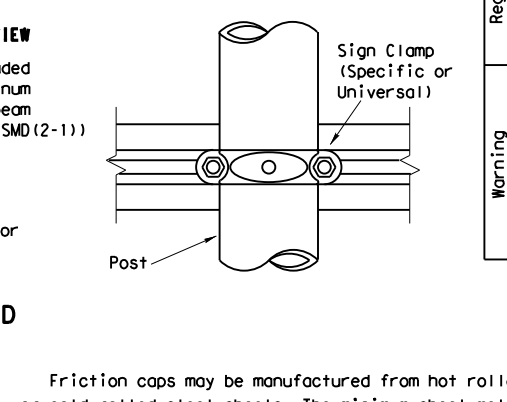
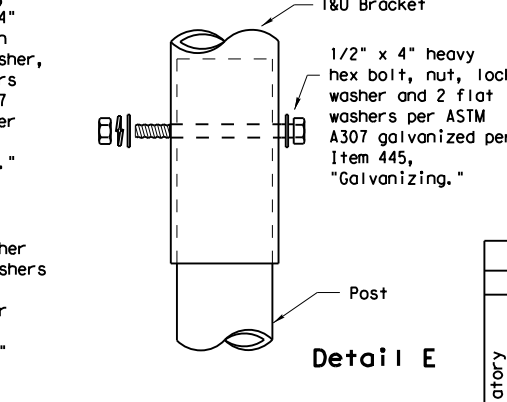
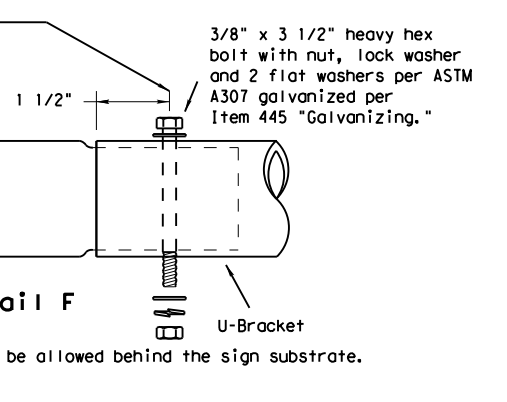
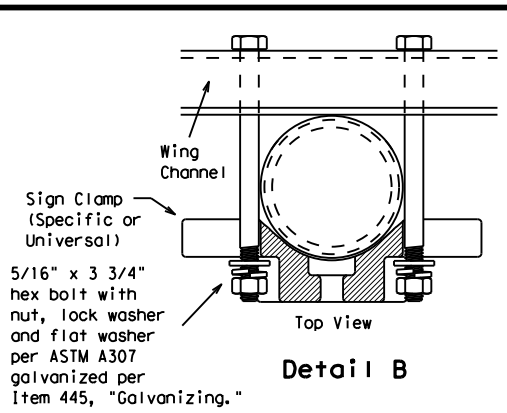
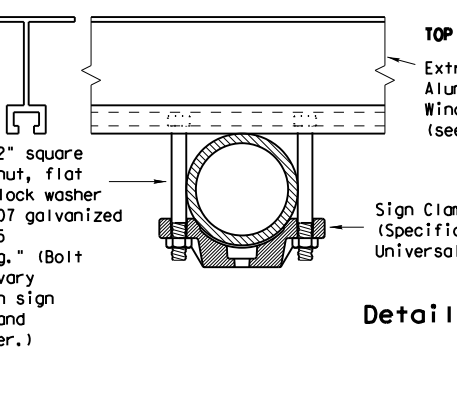
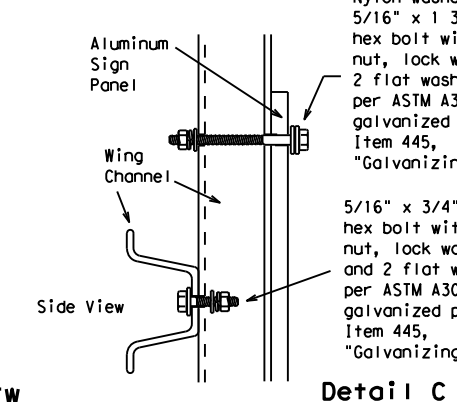
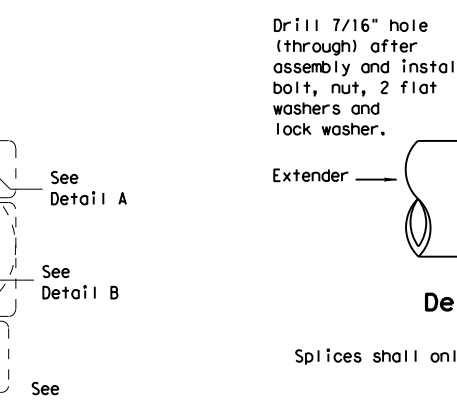
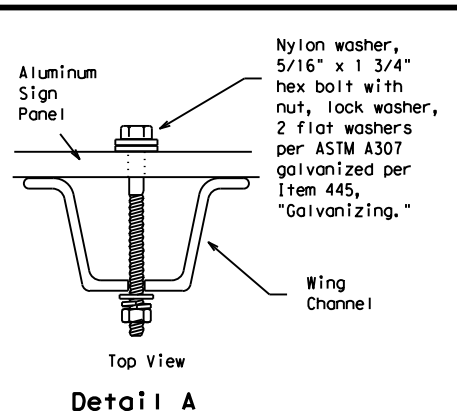
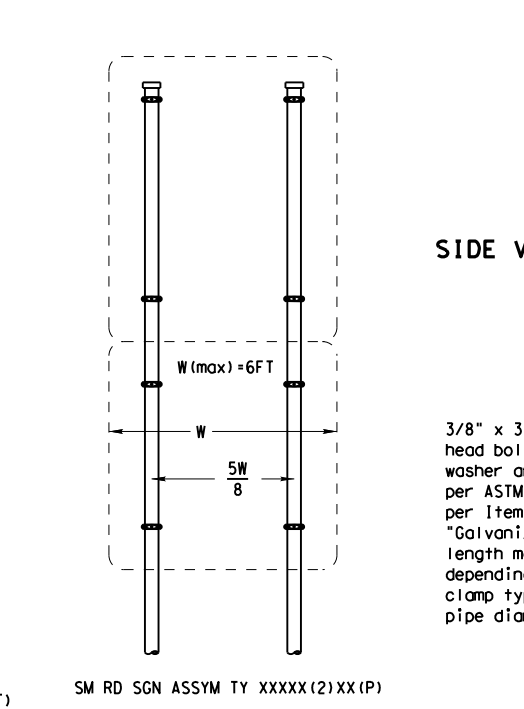
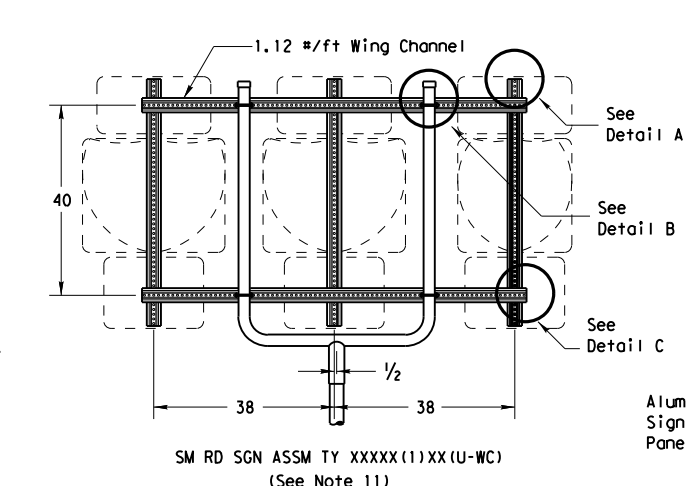
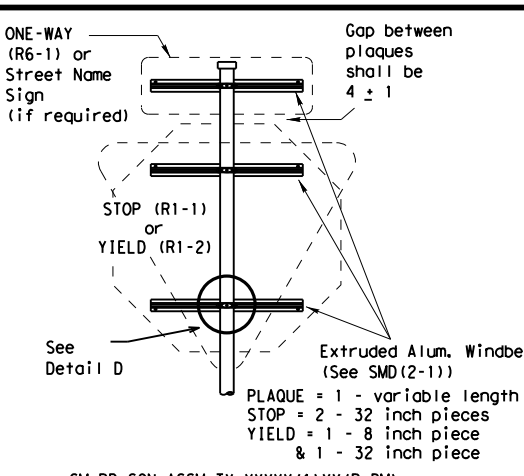
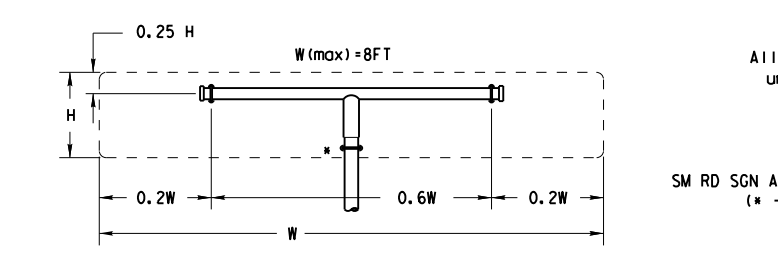
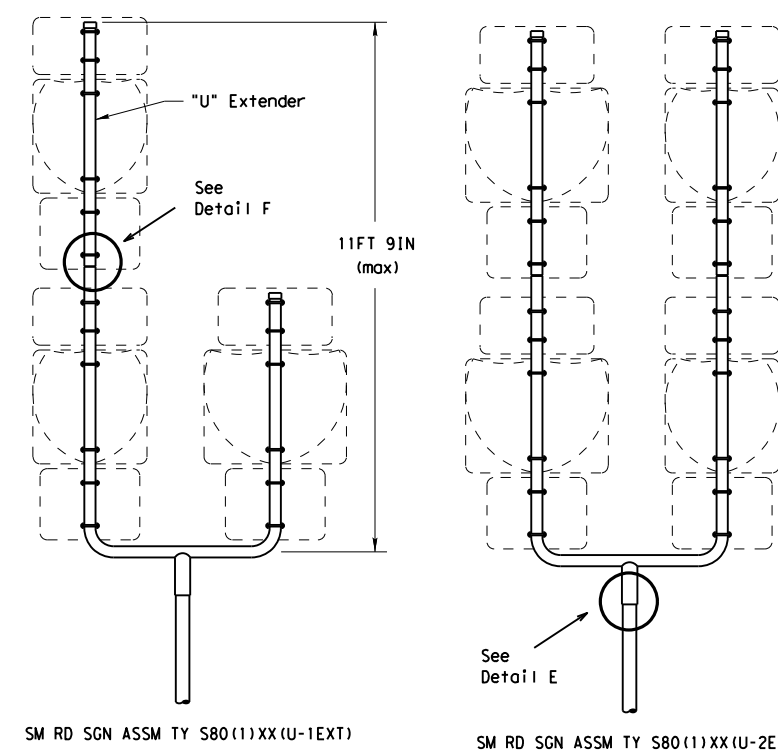
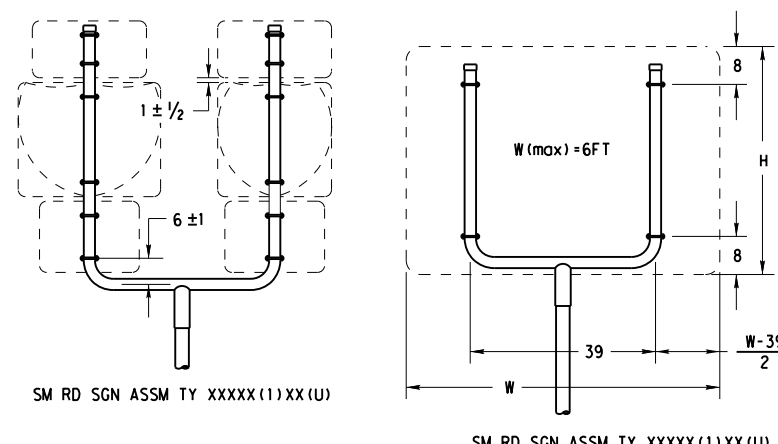
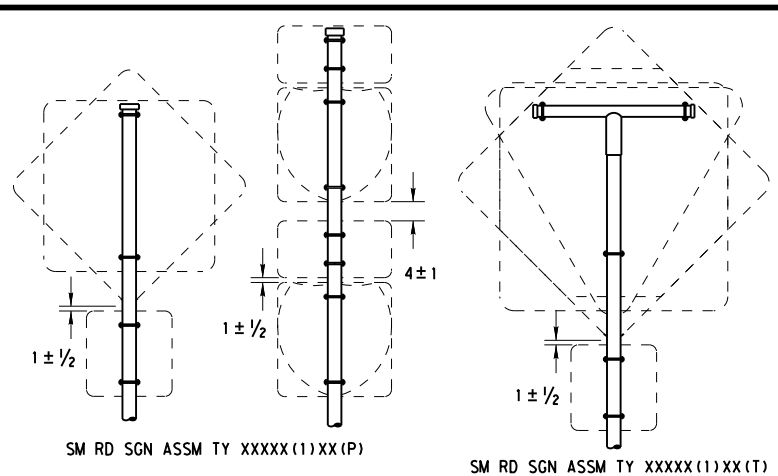
Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. Heavy hex nut per ASTM A563, and hardened washer per ASTM F436. The stud bolt shall have a minimum yield and ultimate tensile strength of 50 and 75 KSI, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxyes 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

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9-08	REVISIONS	CONT	SECT	JOB	HIGHWAY
		1607	01	057, ETC.	FM 1764
		DIST		COUNTY	SHEET NO.
		HOU		GALVESTON	373

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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

- 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.
- Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
- 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.
- Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
- 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.
- 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.
- Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
- 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."
- Additional route markers may be added vertically, provided the total sign area does not exceed the maximum allowable amount per Note 1.
- 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.
- Post open ends shall be fitted with Friction Caps.
- Sign blanks shall be the sizes and shapes shown on the plans.

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

Texas Department of Transportation
Traffic Operations Division

**SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
TRIANGULAR SLIPBASE SYSTEM
SMD(SLIP-2)-08**

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.

Rolled Crimp to engage pipe O.D.

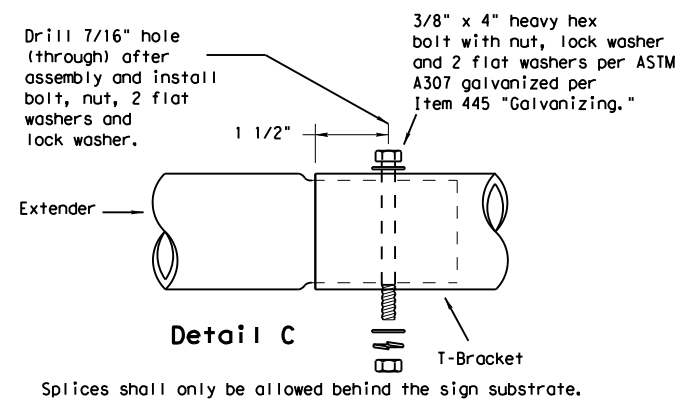
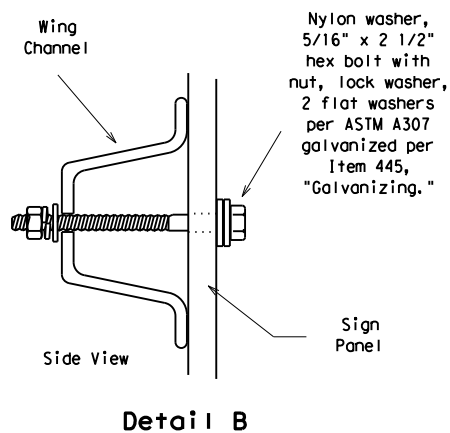
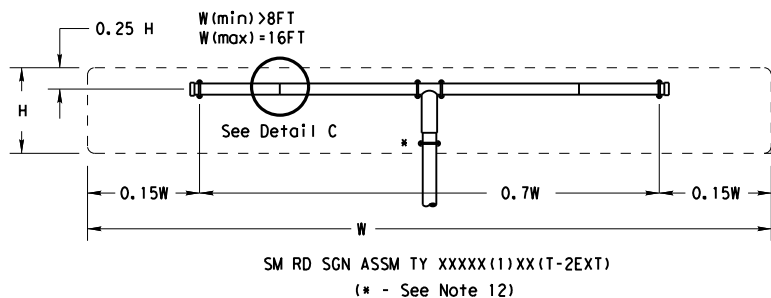
SM RD SGN ASSM TY XXXXX(1)XX(T)
(* - See Note 12)

All dimensions are in english unless detailed otherwise.

DATE:
FILE:

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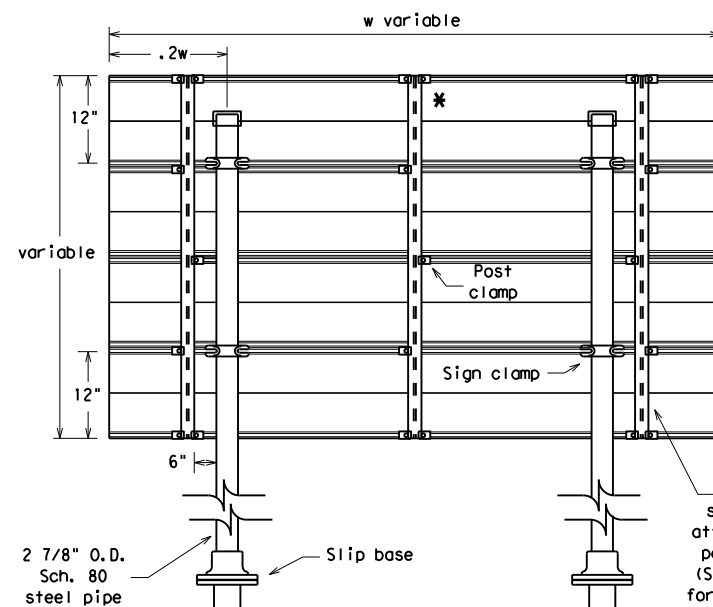
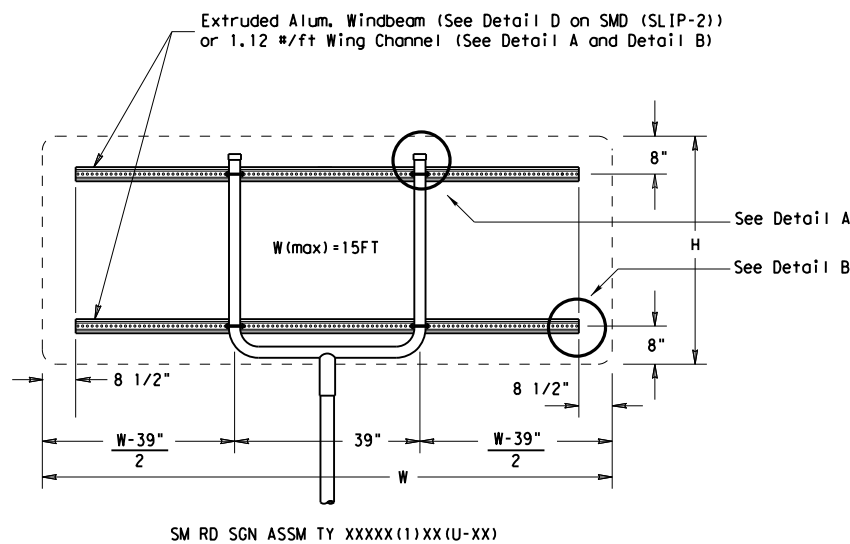
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FILE:



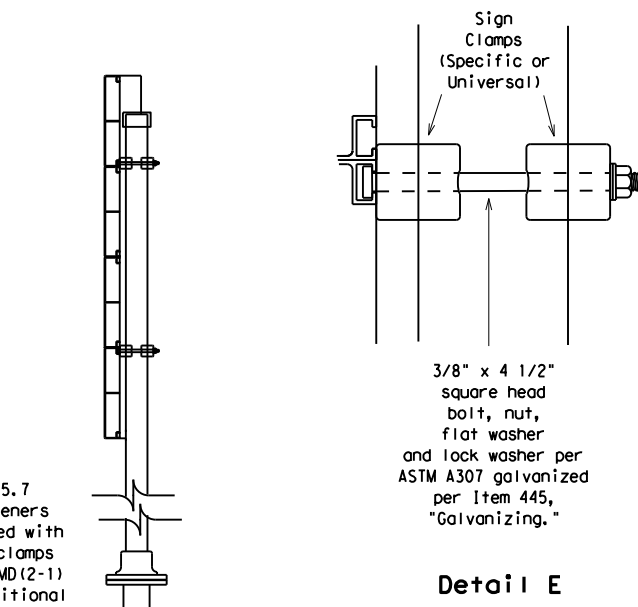
Splices shall only be allowed behind the sign substrate.

GENERAL NOTES:

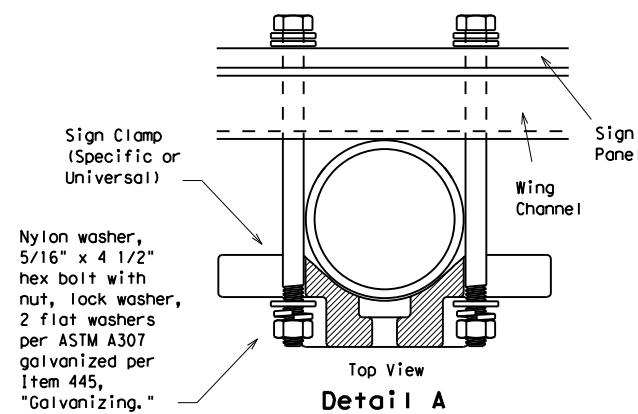
- | SIGN SUPPORT | # OF POSTS | MAX. SIGN AREA |
|--------------|------------|----------------|
| 10 BWG | 1 | 16 SF |
| 10 BWG | 2 | 32 SF |
| Sch 80 | 1 | 32 SF |
| Sch 80 | 2 | 64 SF |
- The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
- Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
- 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.
- Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
- 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.
- 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.
- Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
- 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."
- Sign blanks shall be the sizes and shapes shown on the plans.
- 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.
- Post open ends shall be fitted with Friction Caps.



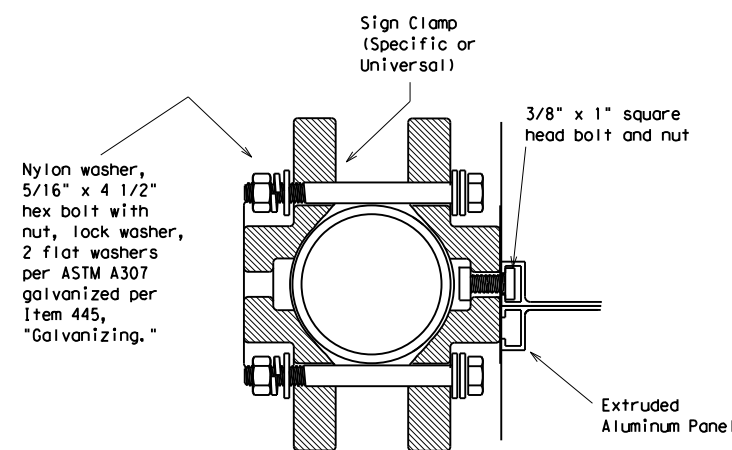
Typical Sign Mount
SM RD SGN ASSM TY S80(2)XX(IP-EXAL)
* Additional stiffener placed at approximate center of signs when sign width is greater than 10'.



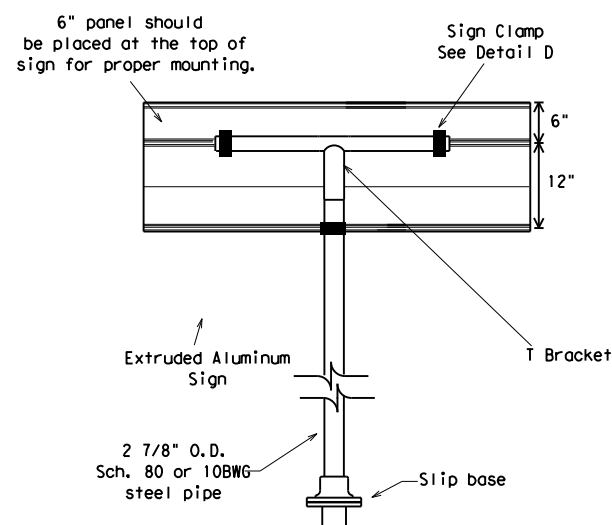
Detail E



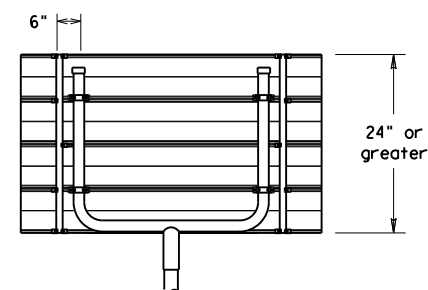
Detail A



Detail D
EXTRUDED ALUMINUM SIGN WITH T BRACKET



Extruded Aluminum Sign With T Bracket



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

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)

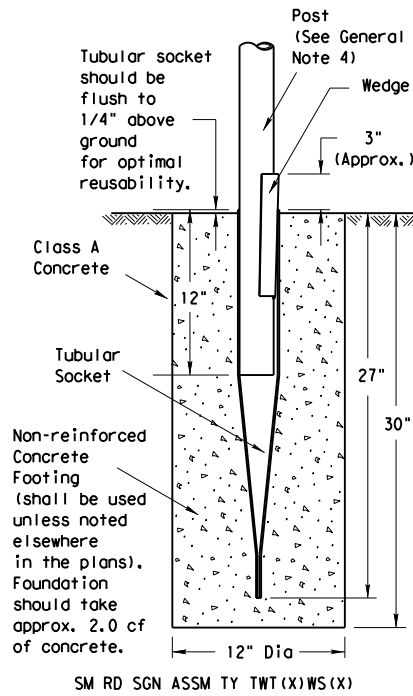
Texas Department of Transportation
Traffic Operations Division

**SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
TRIANGULAR SLIPBASE SYSTEM
SMD (SLIP-3) -08**

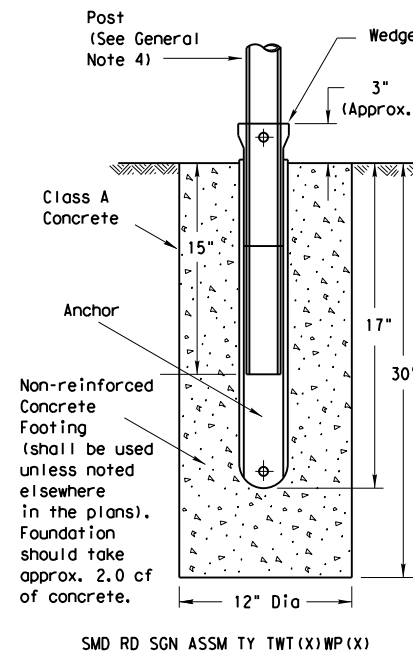
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9-08	REVISIONS	CONT	SECT	JOB	HIGHWAY
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		DIST	COUNTY		SHEET NO.
		HOU	GALVESTON		375

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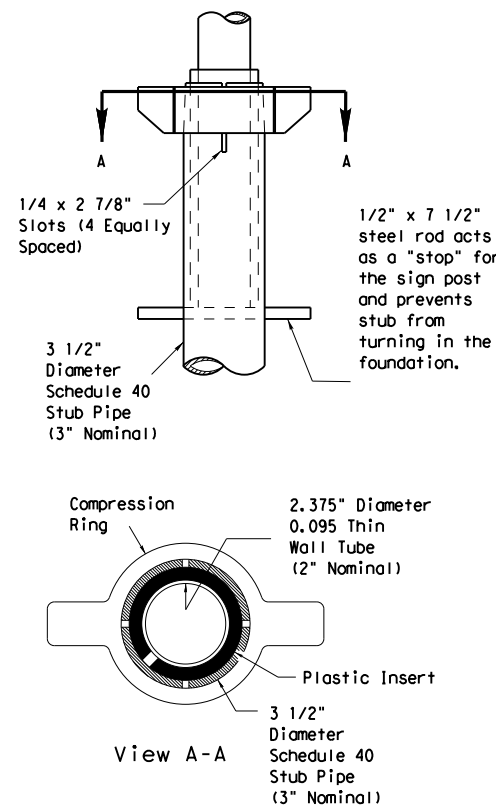
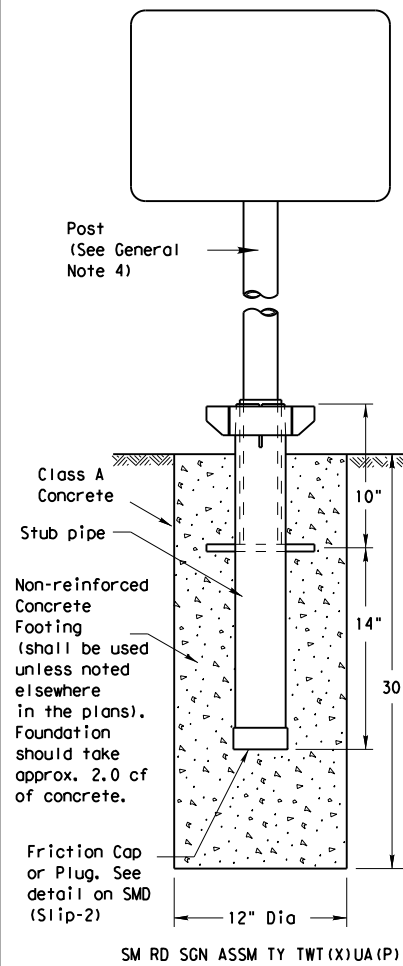
Wedge Anchor Steel System



Wedge Anchor High Density Polyethylene (HDPE) System

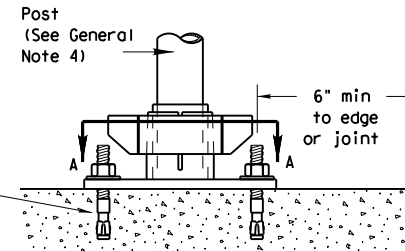


Universal Anchor System with Thin-Walled Tubing Post

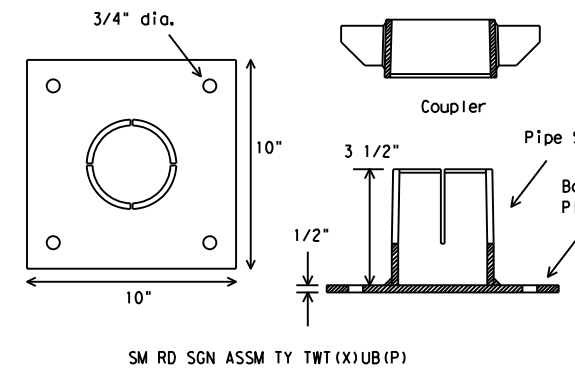


Plastic insert must be used when using the TWT with either the Universal Anchor System or the Bolt Down Universal Anchor System. The insert should be approx. 10" long and cover the tubing from just above the top of the stub pipe to the bottom of the sign post when using the Universal Anchor System. The insert should be cut to approx. 4 1/2" when used with the Bolt Down Universal Anchor System.

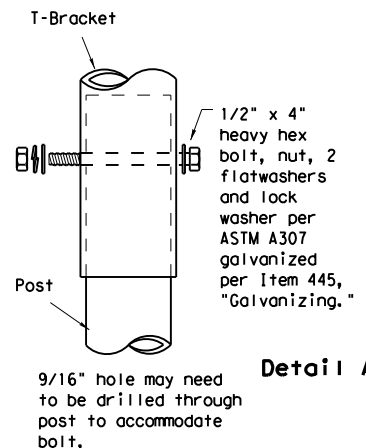
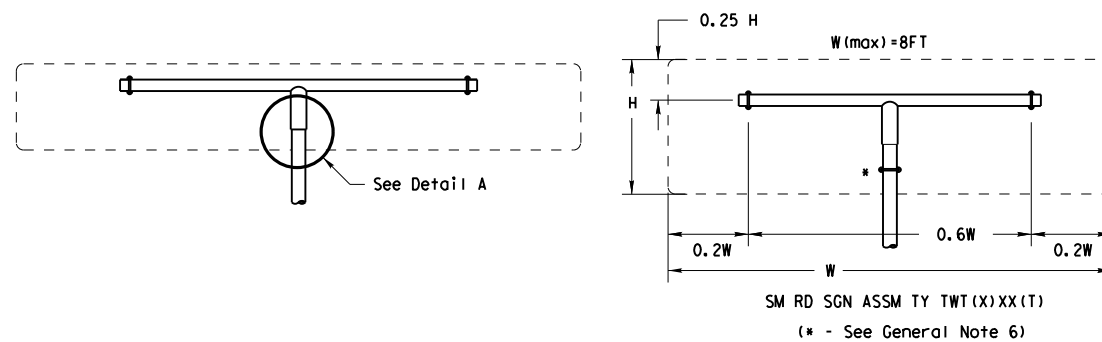
5/8" diameter Concrete Anchor - 4 places (embed a min. of 3 3/8" and torque to min. of 50 ft-lbs). Anchor may be expansion or adhesive type.



Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. A heavy hex nut per ASTM A563 and hardened washer per ASTM F436. The stud bolt shall have minimum yield and ultimate tensile strengths of 50 and 75 ksi, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Top of bolt shall extend at least flush with top of nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 3 3/8" minimum embedment, shall have a minimum allowable tension and shear of 2450 and 1525 psi, respectively. Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxy and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations.



Sign Installation Using a Prefabricated T-Bracket for Thin-Wall Tubing Post



NOTE
The devices shall be installed per manufacturer's recommendations. Installation procedures shall be provided to the Engineer by Contractor.

GENERAL NOTES:

- The Wedge Anchor System and the Universal Anchor System with thin wall tubing post may be used to support up to 10 square feet of sign area.
- The tubular socket, wedge and prefabricated T-bracket shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to the approval of the TxDOT Traffic Standards Engineer.
- Except for posts (13 BWG Tubing), clamps, nuts and bolts, all components shall be prequalified. A list of prequalified vendors may be obtained from the Material Producer List web page. The website address is: http://www.txdot.gov/business/producer_list.htm
- Material used as post with this system shall conform to the following specifications:
13 BWG Tubing (2.375" outside diameter) (TWT)
0.095" nominal wall thickness
Seamless or electric-resistance welded steel tubing
Steel shall be HSLA Gr 55 per ASTM A1011 or ASTM A1008
Other steels may be used if they meet the following:
55,000 PSI minimum yield strength
70,000 PSI minimum tensile strength
18% minimum elongation in 2"
Wall thickness (uncoated) shall be within the range of .083" to .099"
Outside diameter (uncoated) shall be within the range of 2.369" to 2.381"
Galvanization per ASTM 123 or ASTM A653 G210. For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.
- Sign blanks shall be the sizes and shapes shown on the plans.
- Additional sign clamp required on the "T-bracket" post for 24" high signs. Place clamp at least 3" above bottom of sign when possible.
- Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
- See the Traffic Operations Division website for detailed drawings of sign clamps and Wedge Anchor System components. The website address is: <http://www.txdot.gov/publications/traffic.htm>

WEDGE ANCHOR SYSTEM INSTALLATION PROCEDURE

- Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(GEN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
- The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Place concrete into hole until it is approximately flush with the ground. Concrete shall be Class A.
- Insert tubular socket into concrete until top of socket is approximately 1/4" above the concrete footing.
- Plumb the socket. Allow a minimum 4 days for concrete to set, unless otherwise directed by Engineer.
- Attach the sign to the sign post.
- Insert the sign post into socket and align sign face with roadway.
- Drive the wedge into the socket to secure post. This will leave approximately 3 inches of the wedge exposed.

UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURE

- Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(GEN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
- Insert base post in hole to depths shown and backfill hole with concrete.
- Level and plumb the base post using a torpedo level and allow concrete adequate time to set. The bottom of the slots provided in the stub pipe shall remain above the top of the concrete foundation.
- Attach the sign to the sign post.
- Install plastic insert around bottom of post.
- Insert sign post into base post. Lower until the post comes to rest on steel rod.
- Seat compression ring using a hammer. Typically, the top of compression ring will be approximately level with top of stub post when optimally installed.
- Check sign post by hand to ensure it is unable to turn. If loose, increase the tightening of the compression ring.

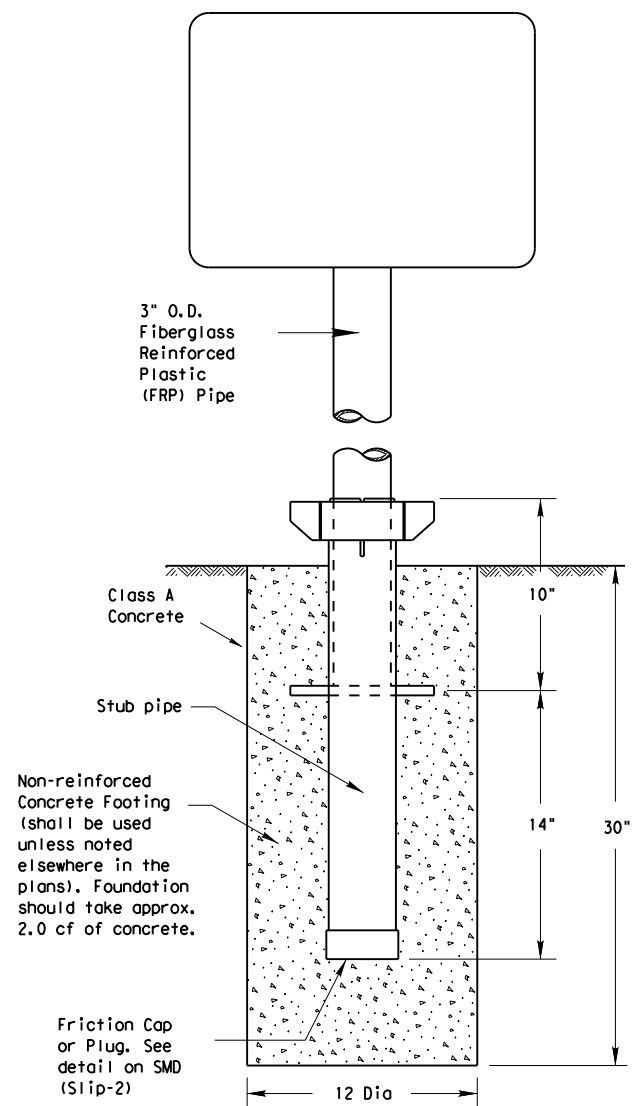
Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS WEDGE & UNIVERSAL ANCHOR WITH THIN WALL TUBING POST SMD(TWT) - 08

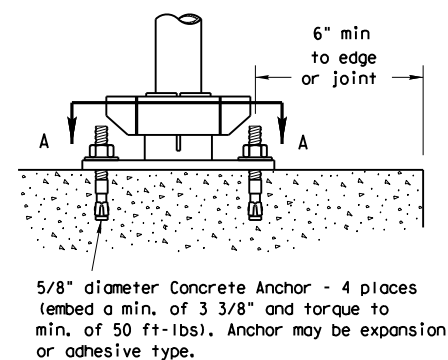
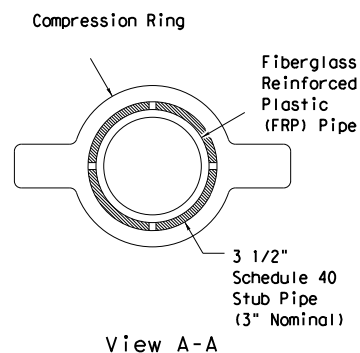
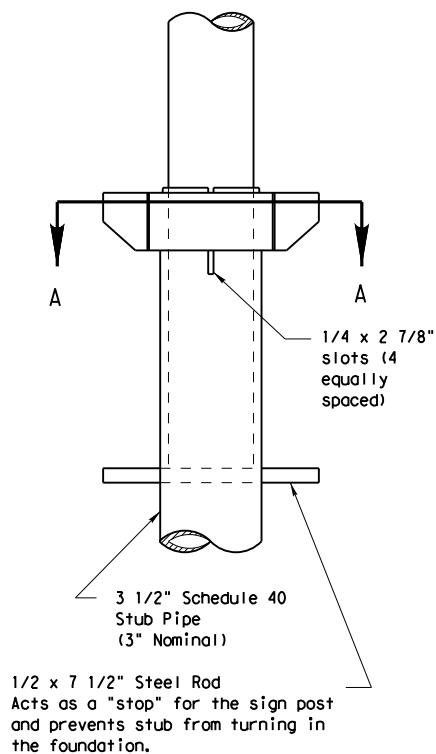
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9-08	REVISIONS	CONT	SECT	JOB	HIGHWAY
		1607	01	057, ETC.	FM 1764
		DIST	COUNTY		SHEET NO.
		HOU	GALVESTON		376

Universal Anchor System with Fiberglass Reinforced Plastic (FRP) Post

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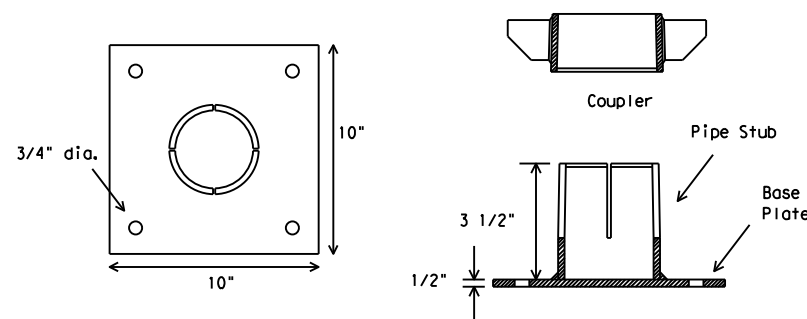


SM RD SGN ASSM TY FRP(X)UA(P)



Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. A heavy hex nut per ASTM A563 and hardened washer per ASTM F436. The stud bolt shall have minimum yield and ultimate tensile strengths of 50 and 75 ksi, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Top of bolt shall extend at least flush with top of nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 3 3/8" minimum embedment, shall have a minimum allowable tension and shear of 2450 and 1525 psi, respectively. Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxyes and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations.

BOLT-DOWN DETAILS



SM RD SGN ASSM TY FRP(X)UB(P)

GENERAL NOTES:

- FRP sign supports for a single type sign support may be used for signs up to and including 16 square feet. Dual post installation may be used for signs up to and including 32 square feet.
- All nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing."
- See the Traffic Operations Division website for detailed drawings of sign clamps. The website address is: <http://www.txdot.gov/publications/traffic.htm>

FRP POST REQUIREMENTS

- Materials shall conform to the requirements of Departmental Material Specification DMS-4410 and will be furnished in a yellow or gray color as specified elsewhere in the plans.
- Thickness of FRP sign support is 0.125" + 0.031", - 0.0".
- FRP sign supports are prequalified by the Traffic Operations Division. Prequalification procedures are obtained by writing:
Texas Department of Transportation
Traffic Operations Division
125 East 11th Street
Austin, Texas 78701-2483

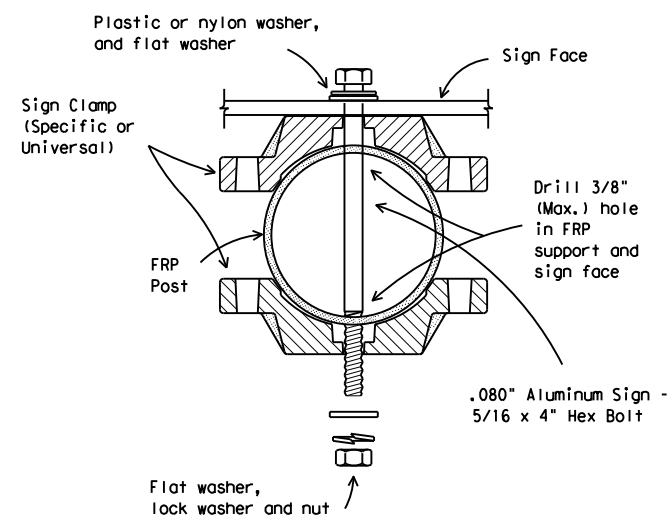
UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURES

- Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(GEN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
- 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.
- Insert base post in foundation hole to depths shown and fill hole with concrete. Cut base post from bottom and ensure a minimum of 18" embedment if installed in solid rock.
- Level and plumb the base post with coupler using a torpedo level and let concrete set a minimum of 4 days, unless otherwise directed by Engineer. Bottom of base post slots shall be above the concrete footing.
- Attach sign to FRP post.
- Insert sign post into base post. Lower until the post comes to rest on the steel rod.
- Use hammer to ensure the coupler is firmly seated. Top of coupler should be level with top of base post in most instances.
- Check sign to ensure there is no twist. If loose, increase the tightening of coupler.

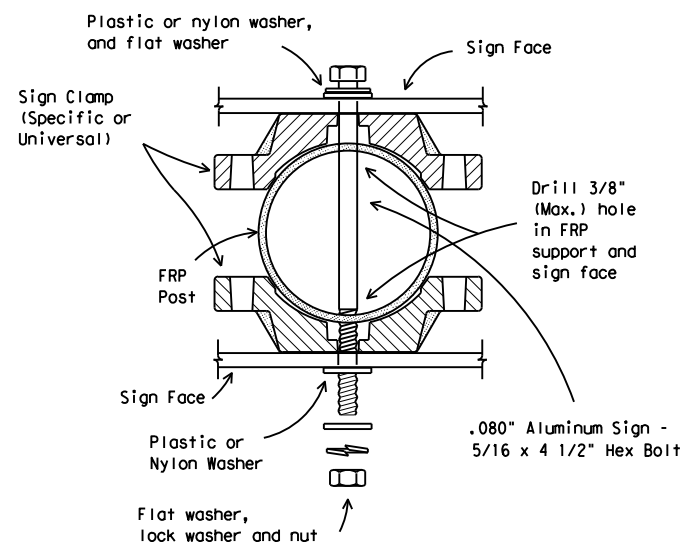
BOLT DOWN SIGN SUPPORT

- Position base plate with coupler on existing concrete.
- Drill holes into concrete and insert the 5/8" diameter bolts with wedge anchors, and tighten nuts.
- Attach sign to FRP post.
- Insert bottom of sign post into pipe stub.
- Use hammer to ensure the coupler is firmly seated. Top of coupler should be level with top of base post in most instances.
- Check sign to ensure there is no twist. If loose, increase the tightening of coupler.

Typical Sign Mounting Detail for FRP Support with Single Sign



Typical Sign Mounting Detail for FRP Support with Back-to-Back Signs



Texas Department of Transportation
Traffic Operations Division

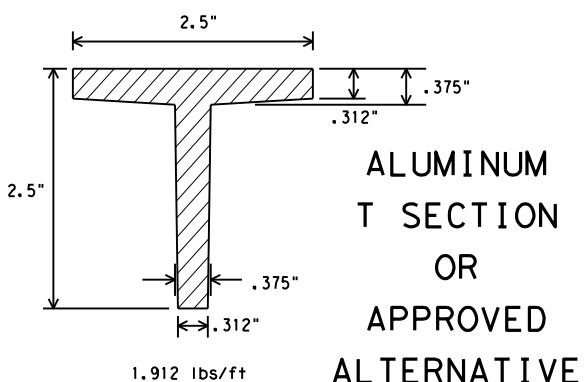
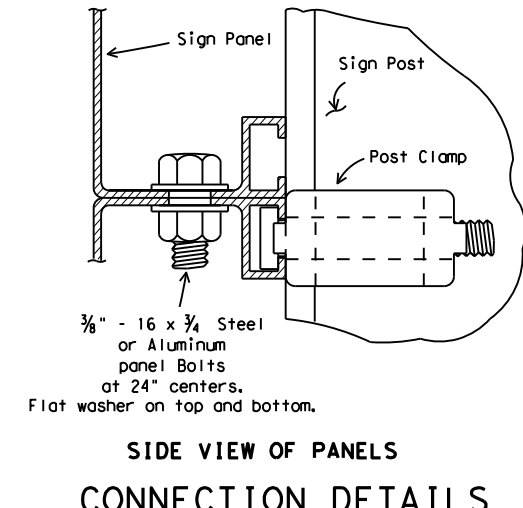
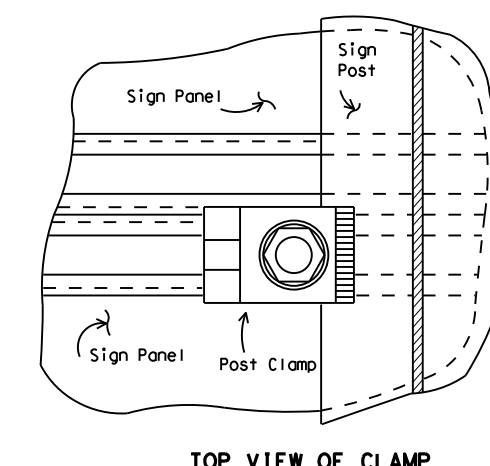
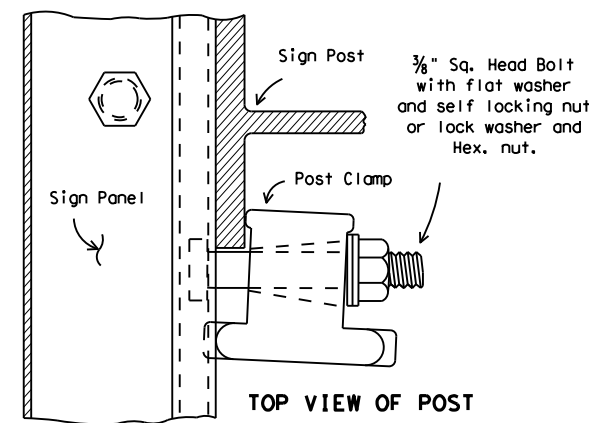
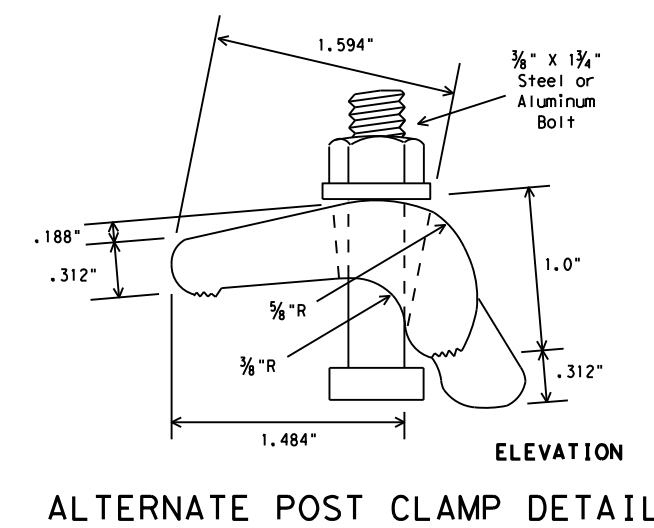
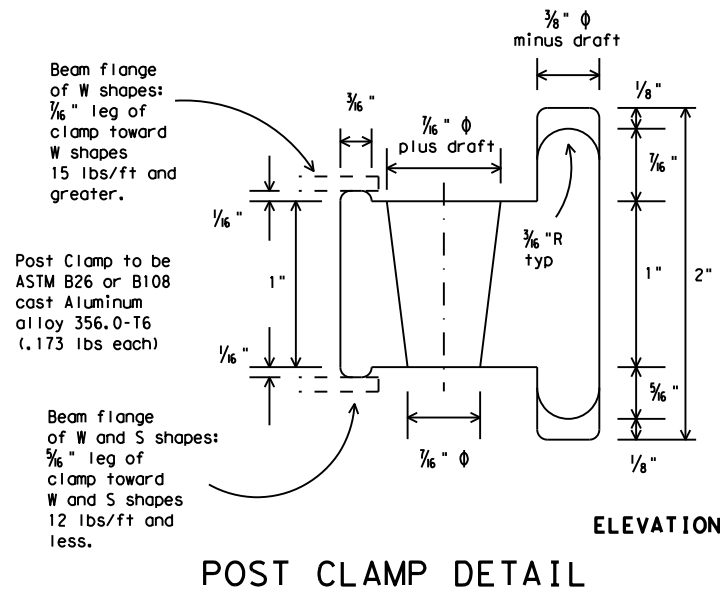
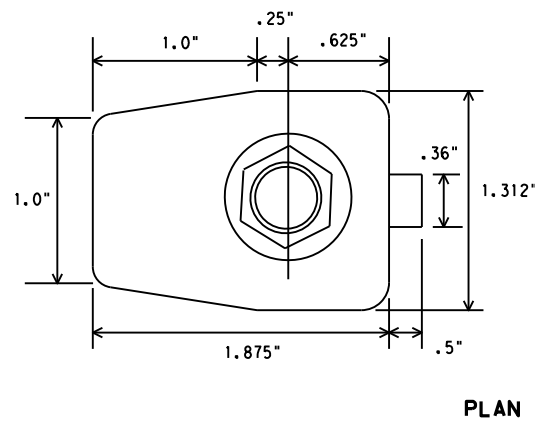
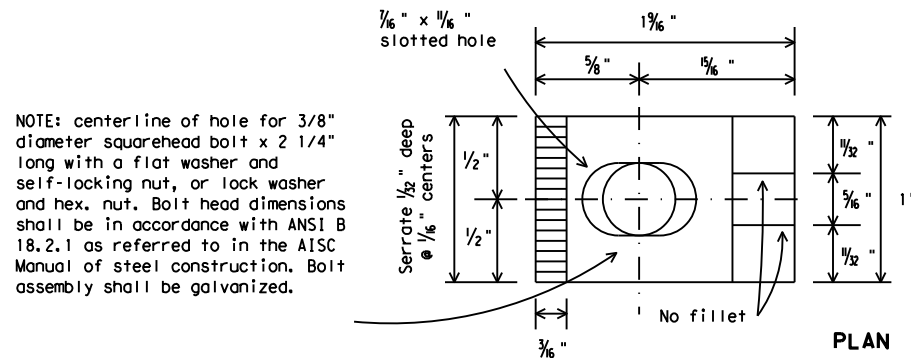
SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS UNIVERSAL ANCHOR SYSTEM WITH FRP POST

SMD (FRP) -08

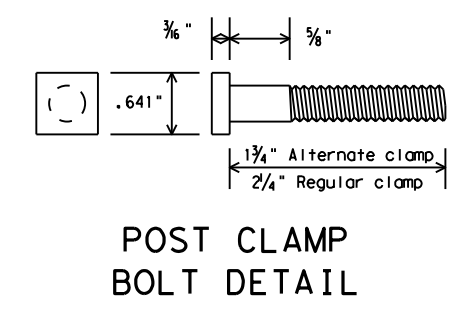
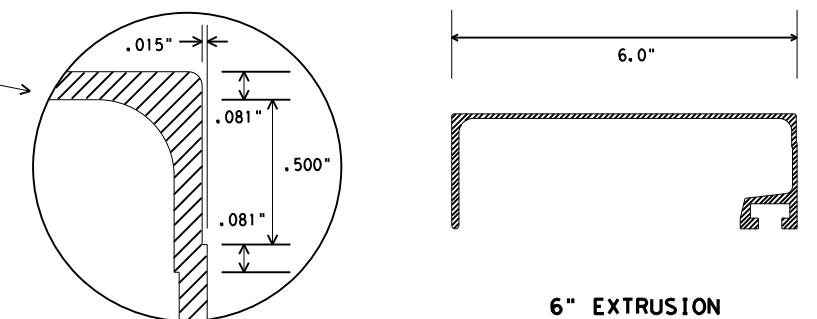
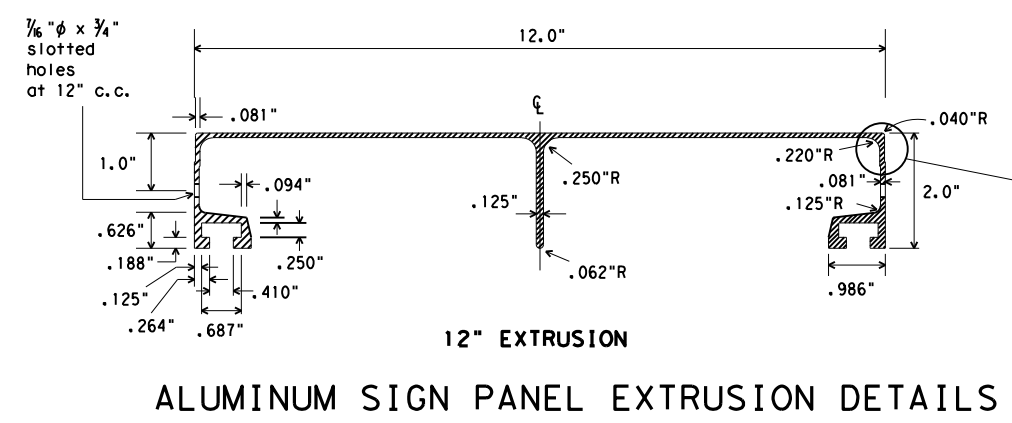
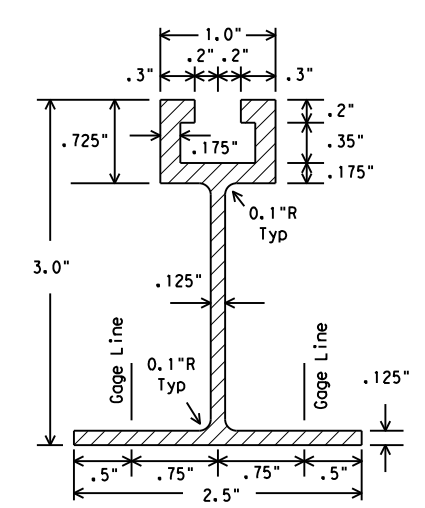
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DATE: FILE:



WINDBEAM CROSS SECTION
Windbeam to be extruded aluminum (1.175 lbs/ft) or approved alternative



DEPARTMENTAL MATERIAL SPECIFICATIONS	
SIGN HARDWARE	DMS-7120

- GENERAL NOTES:
- Design conforms with AASHTO Specifications for the design and construction of structural supports for highway signs.
 - Materials and fabrication shall conform to the requirements of the Department material specifications.
 - Structural steel shall be "low-alloy steel" for non-bridge structures per Item 442, "Metal For Structures."
 - For fiberglass substrate connection details, see manufacturer's recommendations.

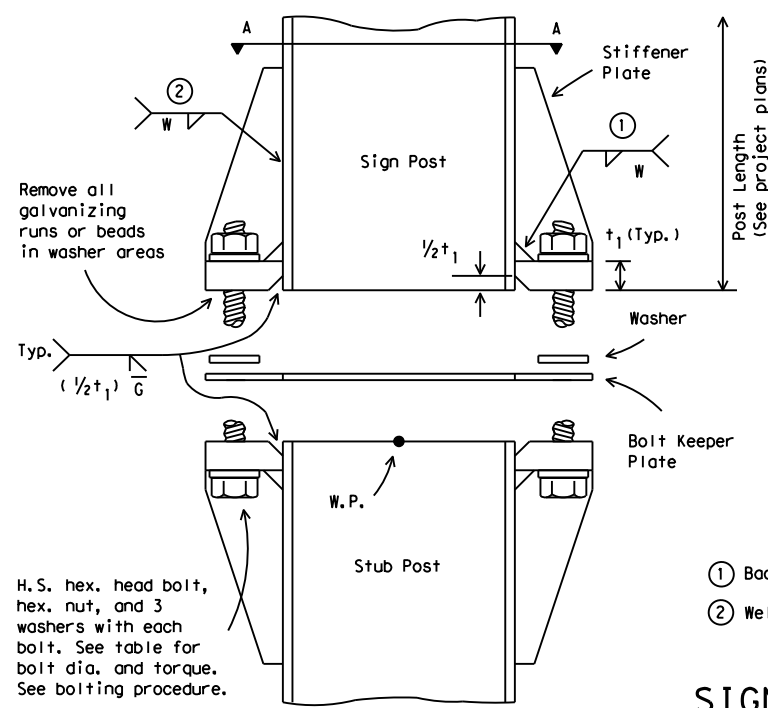
Texas Department of Transportation
Traffic Operations Division

**SIGN MOUNTING DETAILS-
EXTRUDED ALUMINUM
SIGN PANELS & HARDWARE**

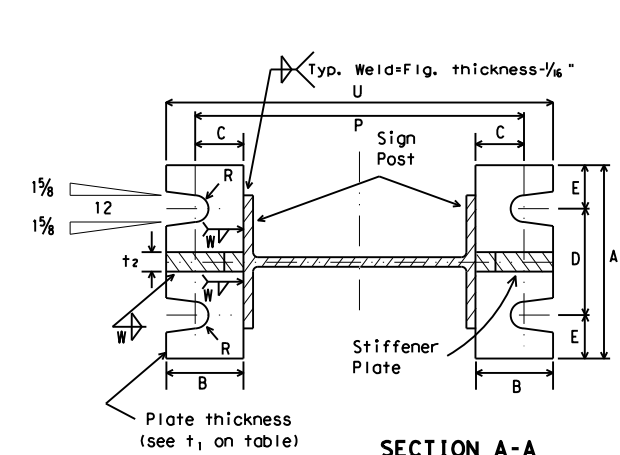
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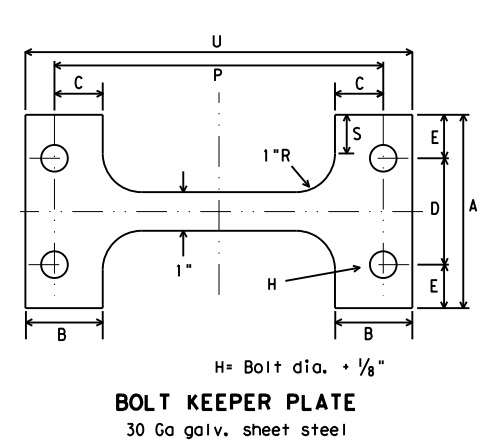
ELEVATION



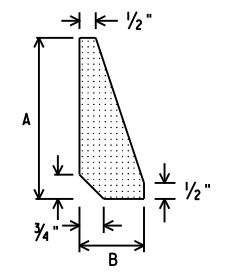
SECTION A-A

- ① Back up weld to be made before installing stiffener plate
- ② Weld W may be continued across clips to seal joint

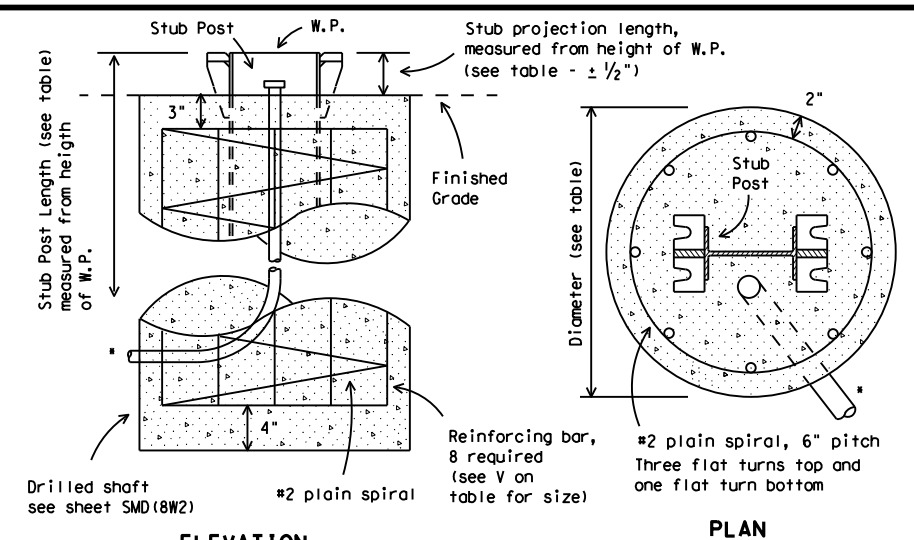
SIGN POST AND STUB POST
(For W Shapes)



BOLT KEEPER PLATE
30 Ga galv. sheet steel

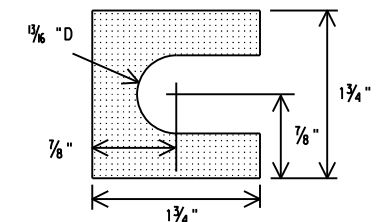


STIFFENER PLATE
DETAIL



FOUNDATION DETAIL

*Note: For signs with electrical apparatus, see ED(10) for conduit required in foundation.



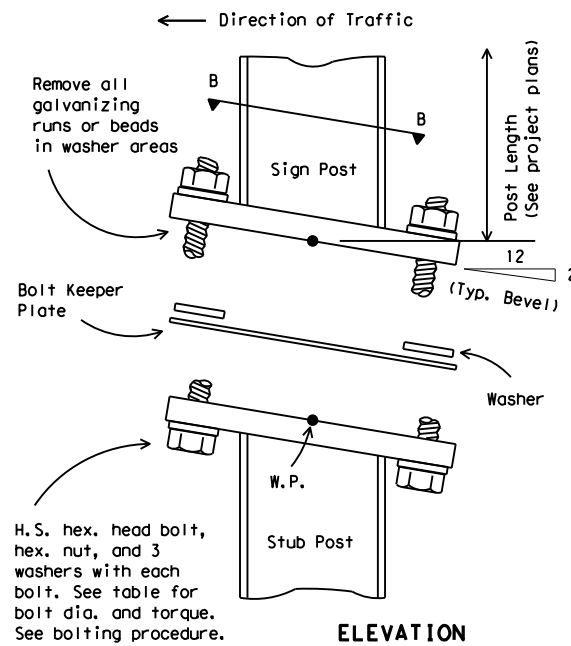
SHIM DETAIL

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.

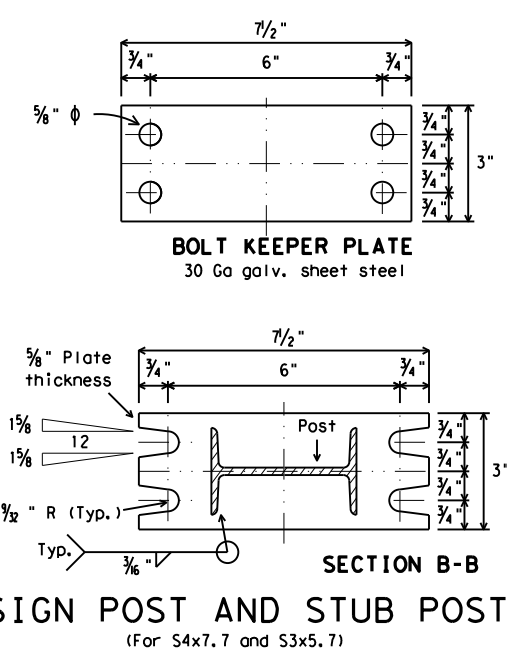
- BOLTING PROCEDURE FOR ASSEMBLY OF BASE CONNECTION:**
1. Assemble sign post, BOLT KEEPER PLATE and stub post with bolts and three flat washers per bolt as shown.
 2. Shim as required to plumb post.
 3. Tighten all bolts the maximum possible with a 12 to 15 inch wrench to clean bolt threads and to bed washers and shims.
 4. Loosen each bolt in sequence and retighten bolts in a systematic order to the prescribed torque. Do not over-tighten.
 5. To prevent nut loosening, burr threads of bolt at junction with nut using a center punch.

Dimensions Post Size	Base Connection Data Table										Perforated Fuse Plate Data Table							Bolt Keeper Data			Foundation Data								
	Bolt Size & Torque	A	B	C	D	E	t ₁	t ₂	W	R	F	G	J	K	M	d ₁	d ₂	t ₃	Bolt Dia.	Wt. (ea.) (lbs.)	Bolt length	P	S	U	Stub length	Stub projection	Dr. Shaft diameter	Bar V Size	
W6x9	5/8" φ × 2 3/4"										4 1/4"	2"	4"	2 1/4"	1"	9/16"	3/4"	1/4"	1/2"	1.01	1 1/2"	8 3/8"		9 7/8"	2'-0"	3"			#5
W6x12	440-450 inch pounds	5"	2"	1 1/4"	2 3/4"	1 1/8"	3/4"	1/2"	1/4"	1/32"	5"	2 1/2"	6"	3 1/2"	1 1/2"	1/16"	1/4"	3/8"	5/8"	2.51	2 1/4"	8 1/2"	1"	10"	2'-0"	3"			#5
W6x15	36-38 foot pounds										5"	2 1/2"	5 1/4"	2 3/4"	1 1/4"	1/16"	1/16"	3/8"	5/8"	2.26	2 1/4"	10 5/8"		10"	2'-6"	3"			#6
W8x18											5 1/2"	2 1/2"	5 1/4"	2 3/4"	1 1/4"	13/16"	1"	1/2"	3/4"	3.35	2 1/4"	11"		12 3/8"	2'-6"	3"			#7
W8x21	3/4" φ × 3 1/2"										5 1/2"	2 1/2"	5 1/4"	2 3/4"	1 1/4"	13/16"	1"	1/2"	3/4"	3.35	2 1/4"	11"		12 3/4"	3'-0"	2 1/2"			#8
W10x22	740-750 inch pounds	6"	2 1/4"	1 3/8"	3 1/2"	1 1/4"	1"	3/4"	5/16"	13/32"	6"	3"	5 3/4"	2 3/4"	1 3/8"	13/16"	1 1/8"	1/2"	3/4"	4.03	2 1/4"	12 7/8"	1 1/2"	14 5/8"	3'-0"	2 1/2"			#9
W10x26	62-63 foot pounds										6"	3"	6 1/2"	3 1/2"	1 5/8"	13/16"	1 5/16"	1/2"	3/4"	4.47	2 1/4"	13 3/8"	1 1/2"	14 7/8"	3'-0"	2 1/2"			#10
W12x26											6"	3"	6 1/2"	3 1/2"	1 5/8"	13/16"	1 5/16"	1/2"	3/4"	4.47	2 1/4"	15"		16 3/4"	3'-0"	2 1/2"			#11
S3x5.7	1/2" φ × 2 1/2"	See Detail Below										3 3/4"	1 1/2"	2 5/8"	1 1/2"	5/8"	9/16"	3/8"	1/4"	1/2"	0.60	1 1/2"	See Detail Below			3'-3 1/2"	3/2"	12"	Non-reinforced
S4x7.7	440-450 inch pounds	See Detail Below										3 3/4"	1 1/2"	2 5/8"	1 1/2"	5/8"	9/16"	3/8"	1/4"	1/2"	0.60	1 1/2"	See Detail Below			3'-3 1/2"	3/2"	12"	Non-reinforced

③ Foundation design shall be Type G Mount, see SMD (TY G).

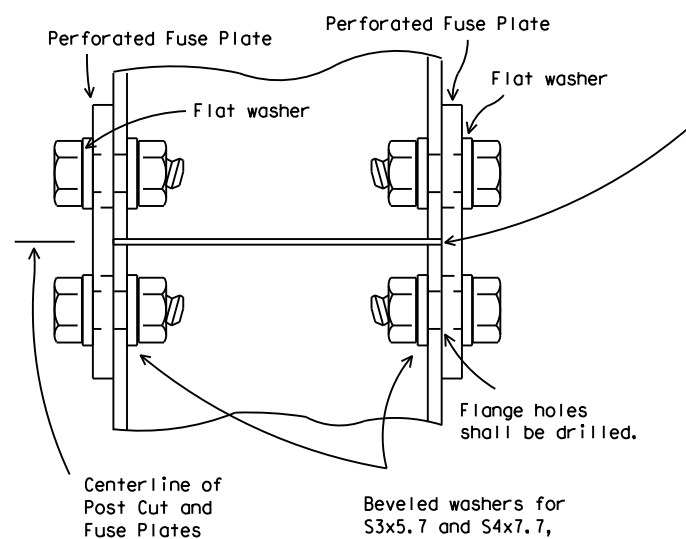


ELEVATION



SECTION B-B

SIGN POST AND STUB POST
(For S4x7.7 and S3x5.7)



DETAIL "A"

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.

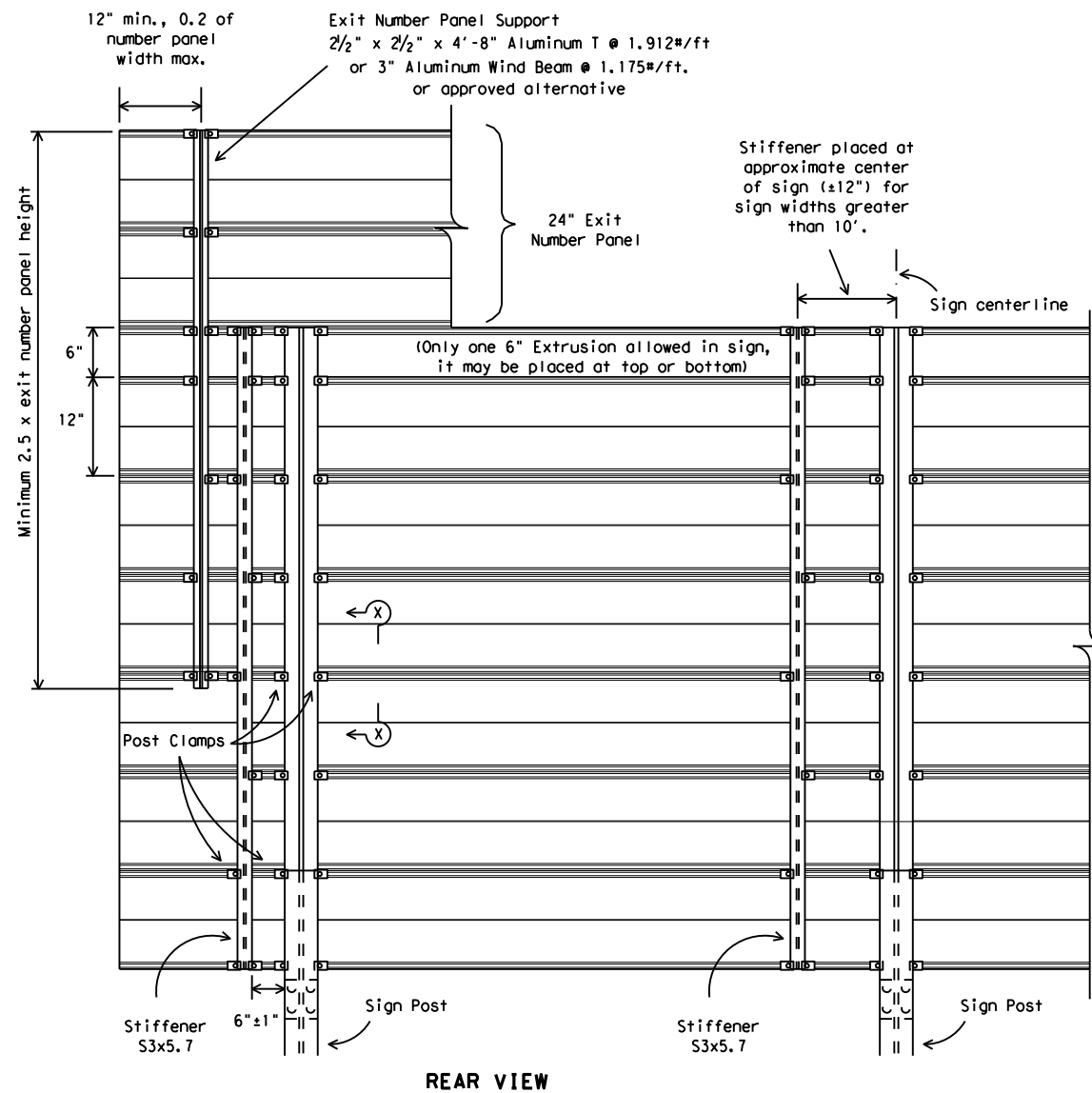
Texas Department of Transportation
Traffic Operations Division

**SIGN MOUNTING DETAILS-
LARGE ROADSIDE SIGNS
FOUNDATION & STUB**

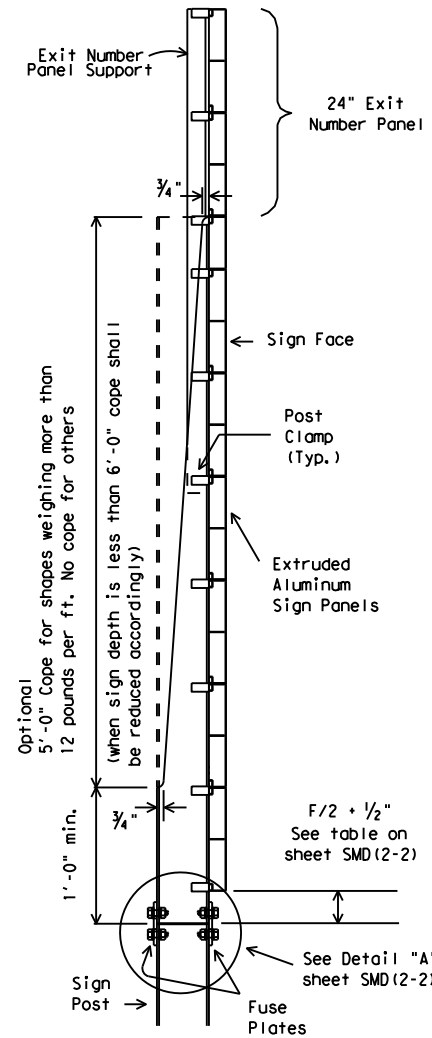
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		DIST	COUNTY	SHEET NO.	
		HOU	GALVESTON	379	

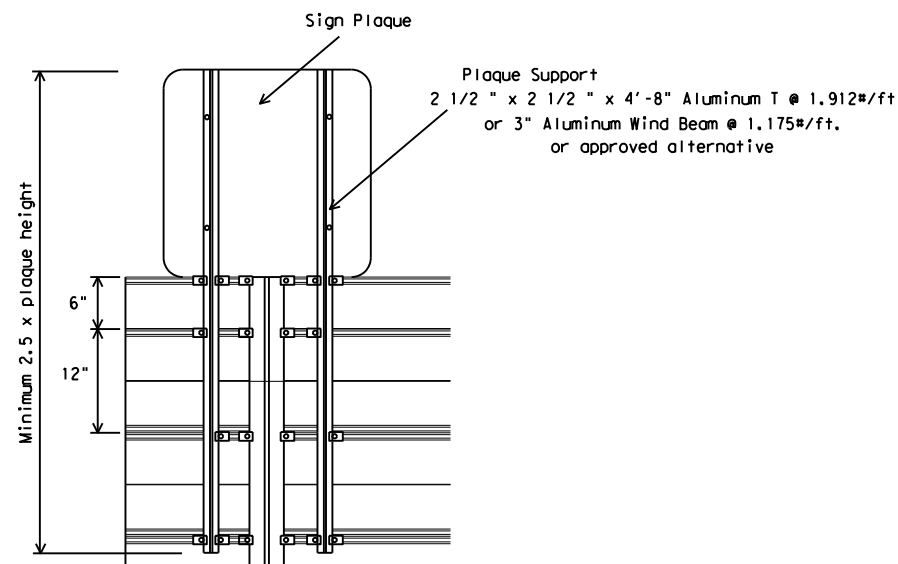
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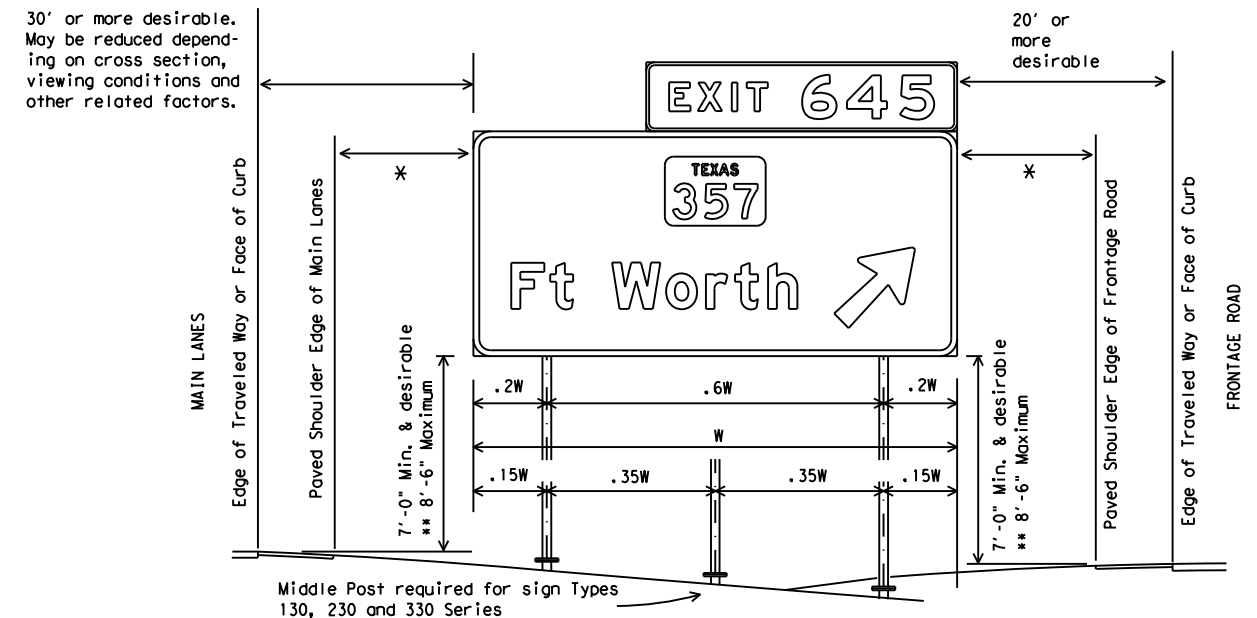
REAR VIEW
ALUMINUM PARENT SIGN & EXIT NUMBER PANEL MOUNTING DETAILS



SIDE VIEW



SIGN PLAQUE MOUNTING DETAIL TO ALUMINUM PARENT SIGN



TYPICAL SIGN INSTALLATION AND LOCATION

LATERAL CLEARANCE NOTES:

Lateral clearances of signs mounted on median side of main lanes are the same as shown above where space will permit.

Where a sign is to be located behind guardrail, an allowable minimum clearance of five feet may be used, measured from the face of the guardrail to the near edge of sign.

* - 6' minimum and desirable may be used only in areas of limited lateral clearance and when approved by the Engineer.

POST SPACING NOTES:

Post spacing on a two post sign may vary a maximum of plus or minus 10% of total sign width to fit field conditions.

Post spacing on a three post sign may vary a maximum of plus or minus 5% of total sign width to fit field conditions.

SIGN HEIGHT NOTES:

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

DEPARTMENTAL MATERIAL SPECIFICATIONS

ALUMINUM SIGN BLANKS	DMS-7110
SIGN HARDWARE	DMS-7120

GENERAL NOTES:

- Exit number panel shall be mounted to the right hand side of the parent sign for right exits and to the left hand side for left exits. The number panel shall be mounted with two uprights so its right edge is even with the right edge of the parent sign or vice-versa for left hand exits.
- Exit number panel support shall be symmetrical about number panel centerline.
- Exit number panel support shall be ASTM A36 structural steel galvanized after fabrication, or ASTM B221 aluminum alloy 6061-T6 or approved alternative.
- All bolts, nuts and washers shall be galvanized per ASTM Designation: B695 Class 50, or A153 Class C or D.
- Posts, parent sign panels, and exit number panels shall comply with notes on sheets SMD(2-1) and SMD(2-2).
- Signs (such as exit number panels) attached above a parent sign shall be made of the same type material as the parent sign. General Service and Routing signs may be fabricated from flat sheet aluminum.
- Exit number panel support and other connection hardware required to fasten exit number panel to parent sign shall be subsidiary to "Aluminum Signs" or "Fiberglass Signs."
- For fiberglass sign installation details, see manufacturer's recommendations.



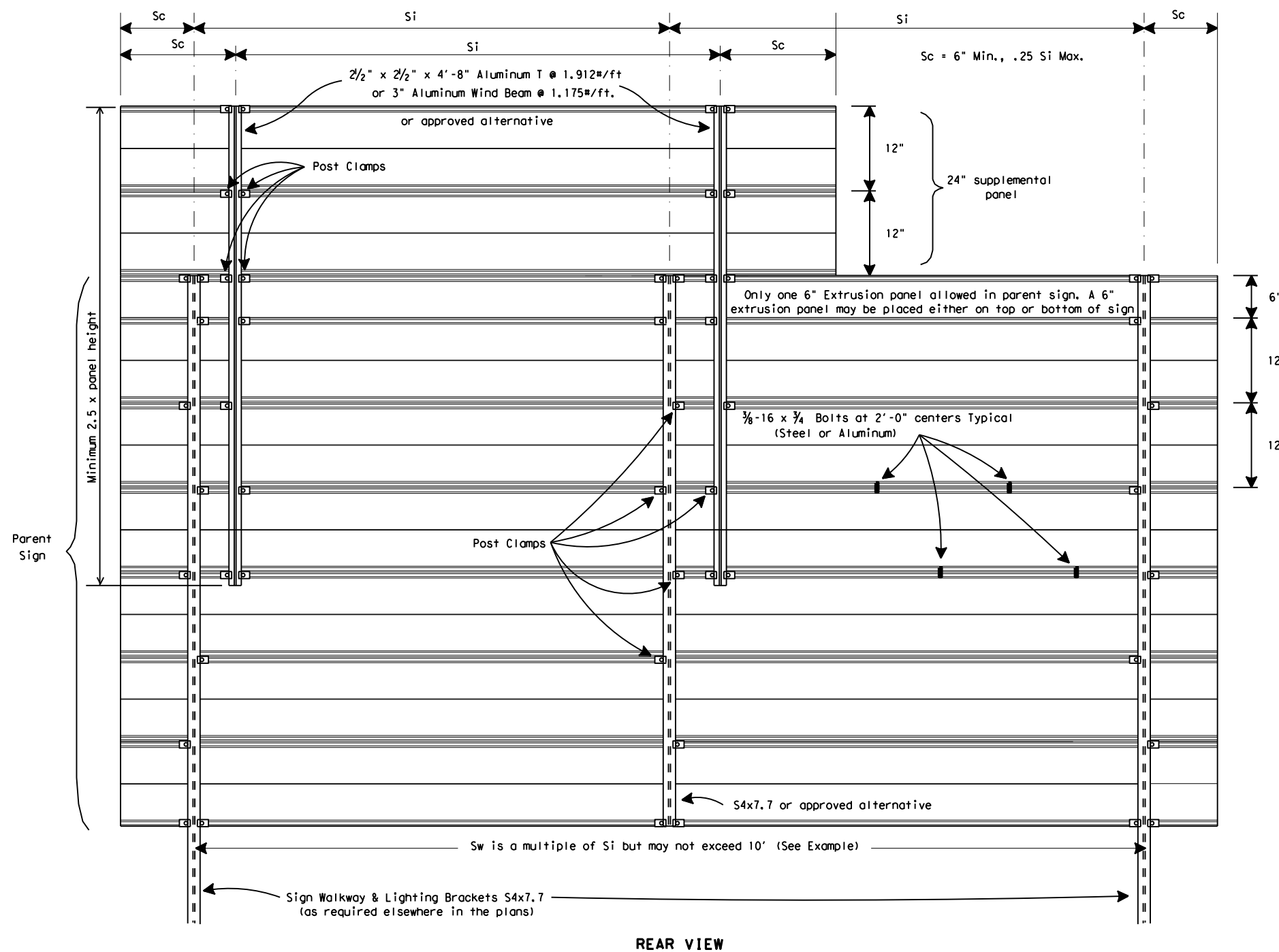
SIGN MOUNTING DETAILS-
LARGE ROADSIDE SIGNS

SMD(2-3)-08

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	DIST: HOU	COUNTY: GALVESTON	SHEET NO.:	380

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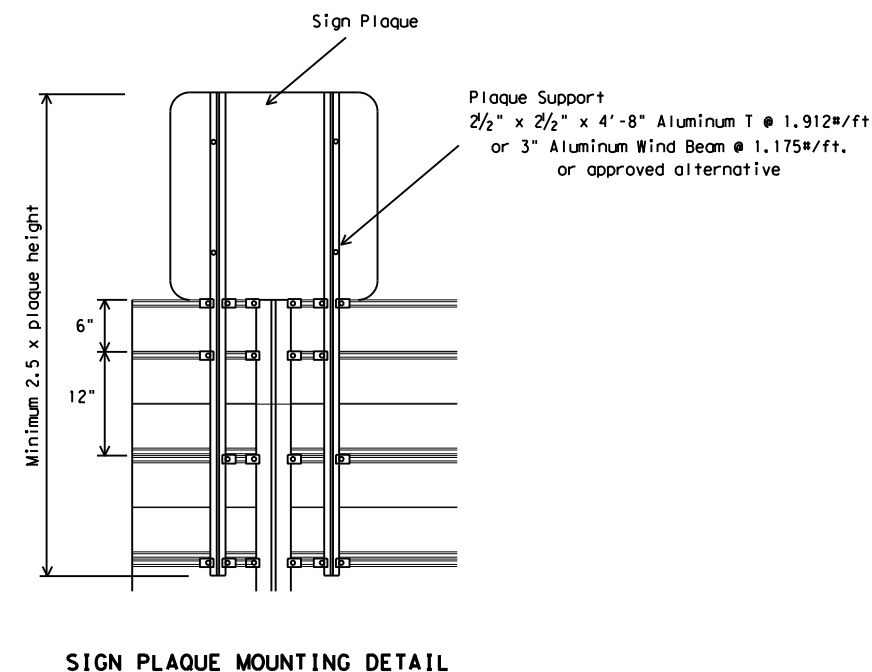
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EXAMPLES (FOR DETERMINING Si and Sw)

NO.	ZONE	"d"	EXIT PANEL	WALKWAY	Si	Sw	COMMENT
1	1	15.0	YES	YES	4.5	9.0	Sw=2x(Si)
2	2	14.0	YES	NO	7.5	7.5	Sw = Si
3	1	15.0	NO	NO	8.5	8.5	Sw = Si
4	3	14.0	NO	YES	10.0	10.0	Sw = Si

Values shown for Si are maximum values. Si may be varied for different sign lengths and Truss mounting conditions. Sw should not exceed two times Si (Max.) or 10 feet.



"d"	MAXIMUM SIGN SUPPORT SPACING "Si" (FEET)															
	EXTRUDED ALUMINUM SIGN PANELS															
	WITH EXIT NUMBER PANELS								WITHOUT EXIT NUMBER PANELS							
	WITH WALKWAYS				WITHOUT WALKWAYS				WITH WALKWAYS				WITHOUT WALKWAYS			
Deepest Sign in Group (Ft.)	WIND ZONE				WIND ZONE				WIND ZONE				WIND ZONE			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
15	4.5	7	8	10	5	7	8	10	7	8	9	10	8.5	10	10	10
14	6	7.5	9.5	10	6	7.5	9.5	10	8	9	10	10	10	10	10	10
13	7.5	9	10	10	7.5	9	10	10	9	10	10	10	10	10	10	10
12	8.5	10	10	10	8.5	10	10	10	10	10	10	10	10	10	10	10
11 or less	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10

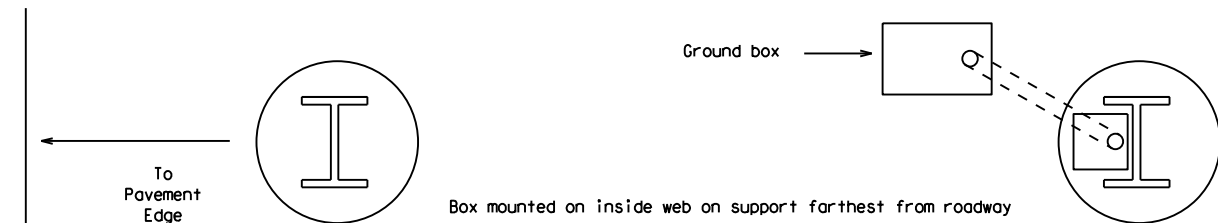
For fiberglass sign installations, see manufacturer's recommendations.

SIGN MOUNTING DETAILS-
OVERHEAD SIGNS
EXTRUDED ALUMINUM
SMD (2-4) -08

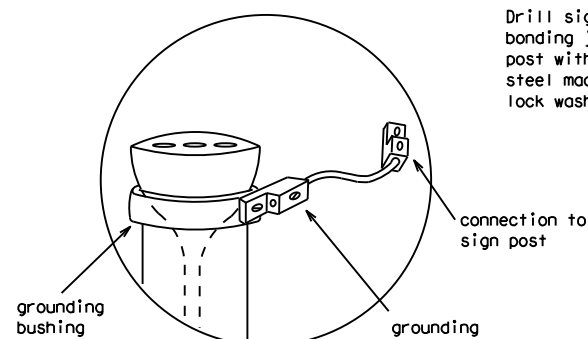
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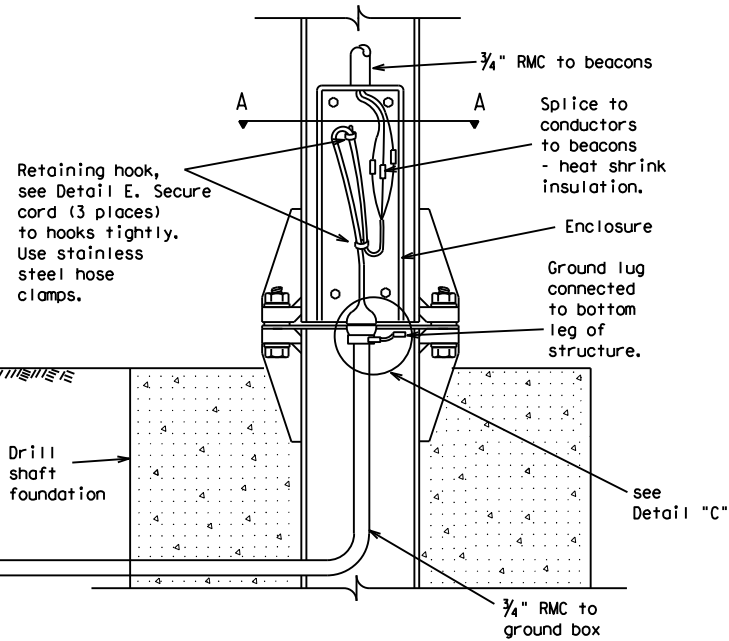
PLAN VIEW



DETAIL C

⚠ Pull connector down tight against conduit then clamp in ground box. See Detail "D"

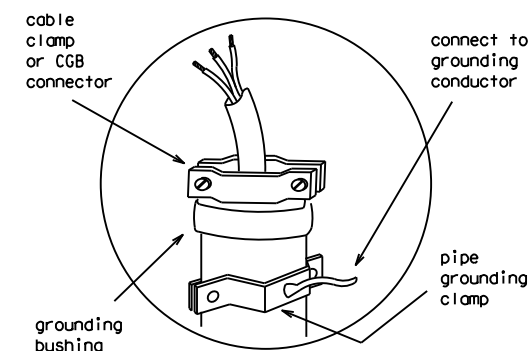
Drill sign post - structure leg, terminate bonding jumper with listed connector to post with a 10-24 (3/16") min. stainless steel machine screw, nut, flat washer and lock washer made wrench tight.



ELECTRICAL CONNECTION DETAIL

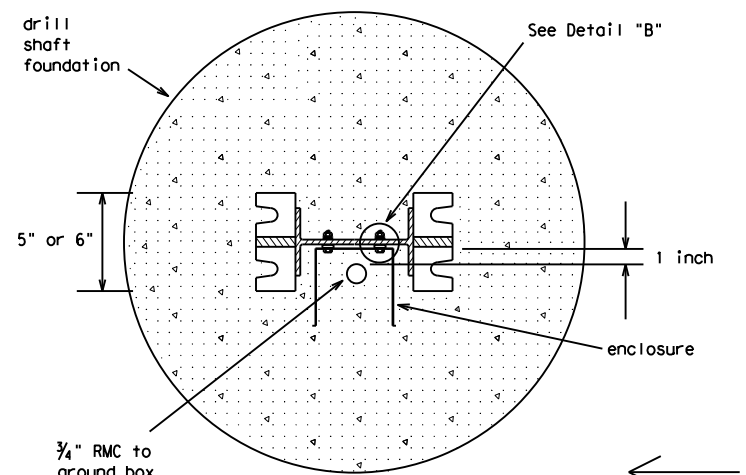
Enclosure cover not shown for clarity
Detail shows channel greater than 4 inches.
Less than 4 inches similar, see Detail A.

Use RMC E11s, provide grounding bushings. Terminate bonding jumper to ground rod and equipment grounding conductors.



DETAIL D

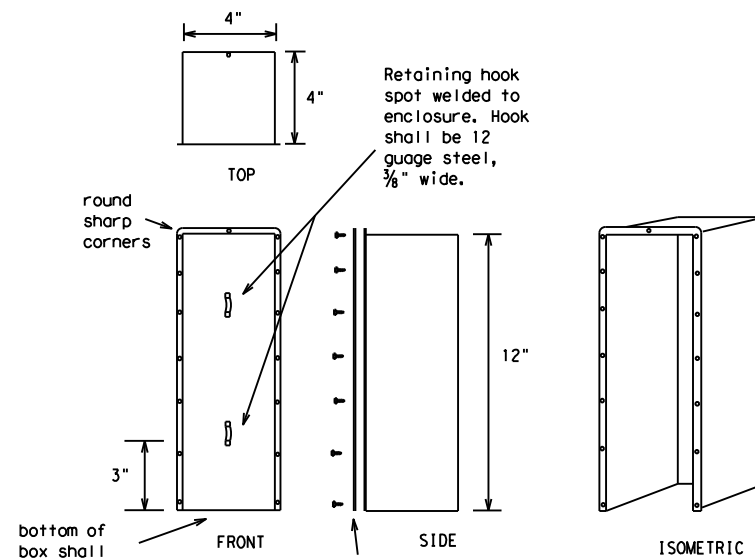
Pull cable so opposite end connector is tight against conduit end, clamp cable at top of conduit as shown.



SECTION A-A

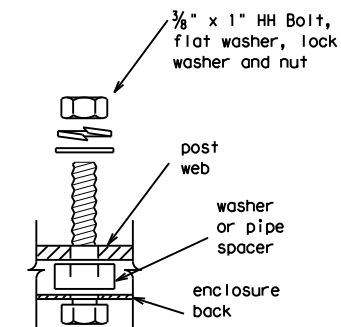
Stub-post connection
conduit, bolts and enclosure
(cover not shown)

direction of traffic



ENCLOSURE

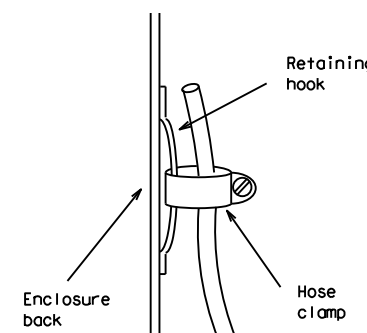
make from 12 gauge galvanized sheet metal



DETAIL B

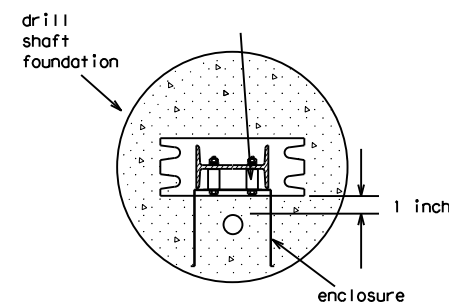
enclosure connection
(4 places)

(use 2 inch bolt for
3 and 4 inch channels)



DETAIL E

steel pipe spacer
(1" for 3" channel,
1/4" for 4" channel)
See detail B



DETAIL A

Stub-post connection
conduit, bolts and enclosure
for 3 and 4 inch channel
(cover not shown)

direction of traffic

NOTES:

- Breakaway connector shall be rated for 300 VAC, 30 amps and shall be waterproof. Connector shall be a three pole (two line conductors and neutral) polarized elastomer connector made from thermosetting synthetic polymer which remains flexible over the temperature range of -40 degrees C to 90 degrees C. The pins on the connector shall be overmolded 1/4" from the face of the connector toward the tips of the pins with the same material used in the construction of the connector body. This overmolding of the pins shall provide a non-conductive double taper which prevents the intrusion of water into the connection when the connectors are fully engaged. The pin receptors shall have current carrying barrels recessed 1/2" from the face of the connector and surrounded by beryllium copper spring sleeves. The plug/receptacle combination shall be listed by an approved testing facility (UL or Factory Mutual) as suitable for outdoor use and shall have passed a rain test and a watertight (immersion) test as approved by the Engineer.
- The female connector shall be integrally molded to a 13' length of type 50 cord containing three number 10 or number 8 AWG conductors. The male connector shall be integrally molded to a 20' length of Type 50 cord containing three number 10 or number 8 AWG conductors. Cord conductors shall have colored insulation, two black and one white, or shall be taped or painted to be two black and one white. Tape or paint marking shall cover entire exposed length. The contractor shall make a brochure submittal on cord connectors. Breakaway connector and cord shall not be paid for separately, but shall be subsidiary to the various items.
- The contractor shall install in-line waterproof fuseholders for each line conductor in the ground box. Fuses shall be fast-acting 5 amp (Bussman KTK5, Gould ATM5, Littelfuse KLK5 or equal).
- ⚠ Conduit shall convert to 3/4" liquidtight flexible metallic conduit below the fuse plate or knee joint and shall revert to 3/4" RMC above the fuse plate or knee joint. The length of liquidtight flexible metal conduit shall not exceed 6".
- Ground rod clamp shall be Blackburn GG 5/8H, Weaver W5.8 or equal.
- Ground rod to be driven to a depth to leave between 2 to 4 inches of rod above the gravel placed under the ground box. See ED(2) standard sheet for ground box details.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS-
LARGE ROADSIDE SIGNS
ELECTRICAL CONNECTION

SMD(2-6)-01

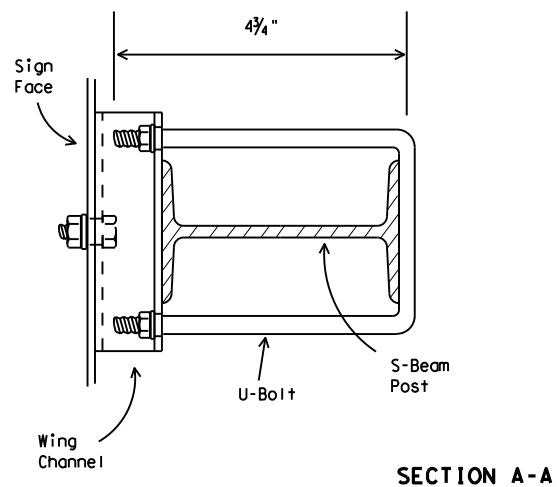
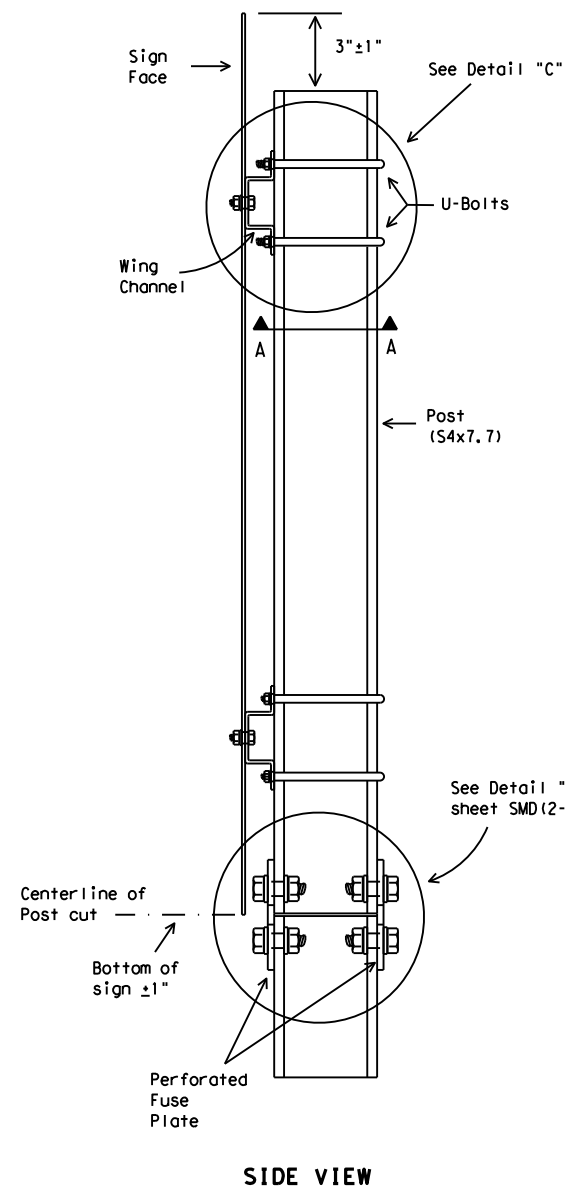
11-01 Revision

- ⚠ Liquidtight conduit size corrected.
- ⚠ Editing of minor notes.

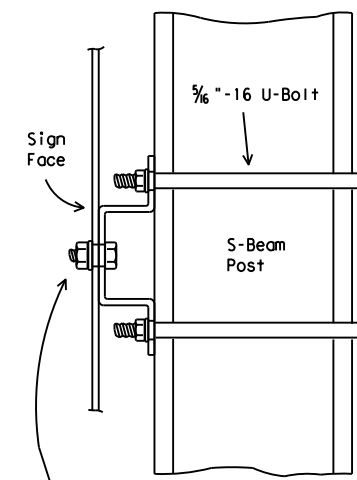
© TxDOT April 1998		DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
11-98	REVISIONS	CONT	SECT	JOB	HIGHWAY
11-01		1607	01	057, ETC.	FM 1764
		DIST	COUNTY		SHEET NO.
		HOU	GALVESTON		382

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WING CHANNEL CLAMP DETAIL FOR TYPE G MOUNT

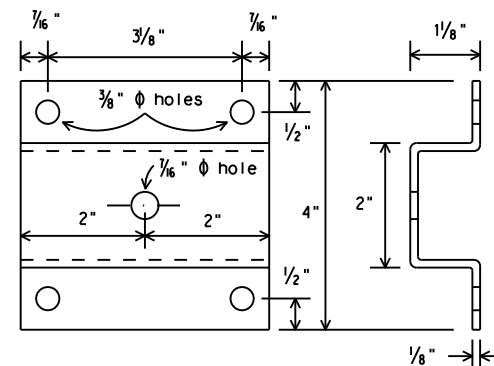


SECTION A-A



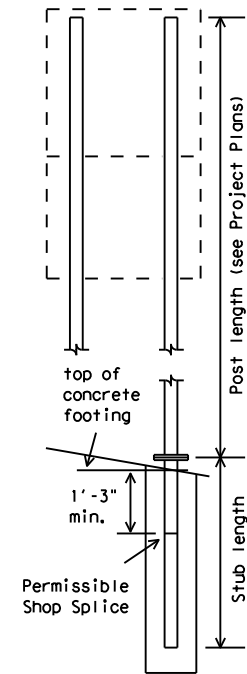
DETAIL "C"

Galvanized steel or aluminum self-locking hex. head nut. 3/8" - 16 x 3/4" hex. head bolt for sheet metal. 3/8" - 16 x 1 1/4" hex. head bolt for plywood. 3/8" galvanized medium washer.



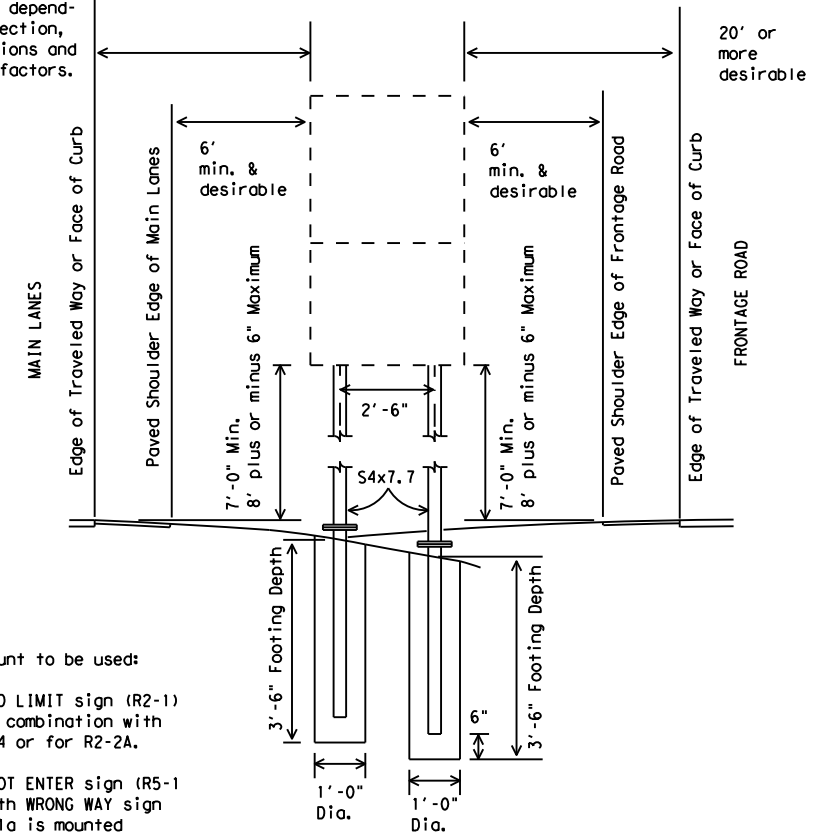
WING CHANNEL

Wing channel, 4" width x 1/8" depth x 1/8" thickness, shall be aluminum (ASTM B221 6061-T6 or B308 6061-T6), galvanized steel (ASTM A36) or stainless steel (ASTM A167 type 304, No. 2B finish).



The weight of one S4x7.7 post is equal to 112.2 lbs. plus 7.7 lbs./ft x (post length in feet minus 10 ft). The weight of 112.2 lbs. includes 10 feet of post length, post foundation stub, related connection plates, friction fuse plate, and all high strength bolts, nuts and washers.

30' or more desirable. May be reduced depending on cross section, viewing conditions and other related factors.



This type mount to be used:

- (1) For SPEED LIMIT sign (R2-1) when used in combination with R2-2 and R2-4 or for R2-2A.
- (2) For DO NOT ENTER sign (R5-1) when used with WRONG WAY sign (R5-1a). R5-1a is mounted above R5-1.

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. 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." (Cut surface will not be treated until plate is installed and all bolts fully tightened.)



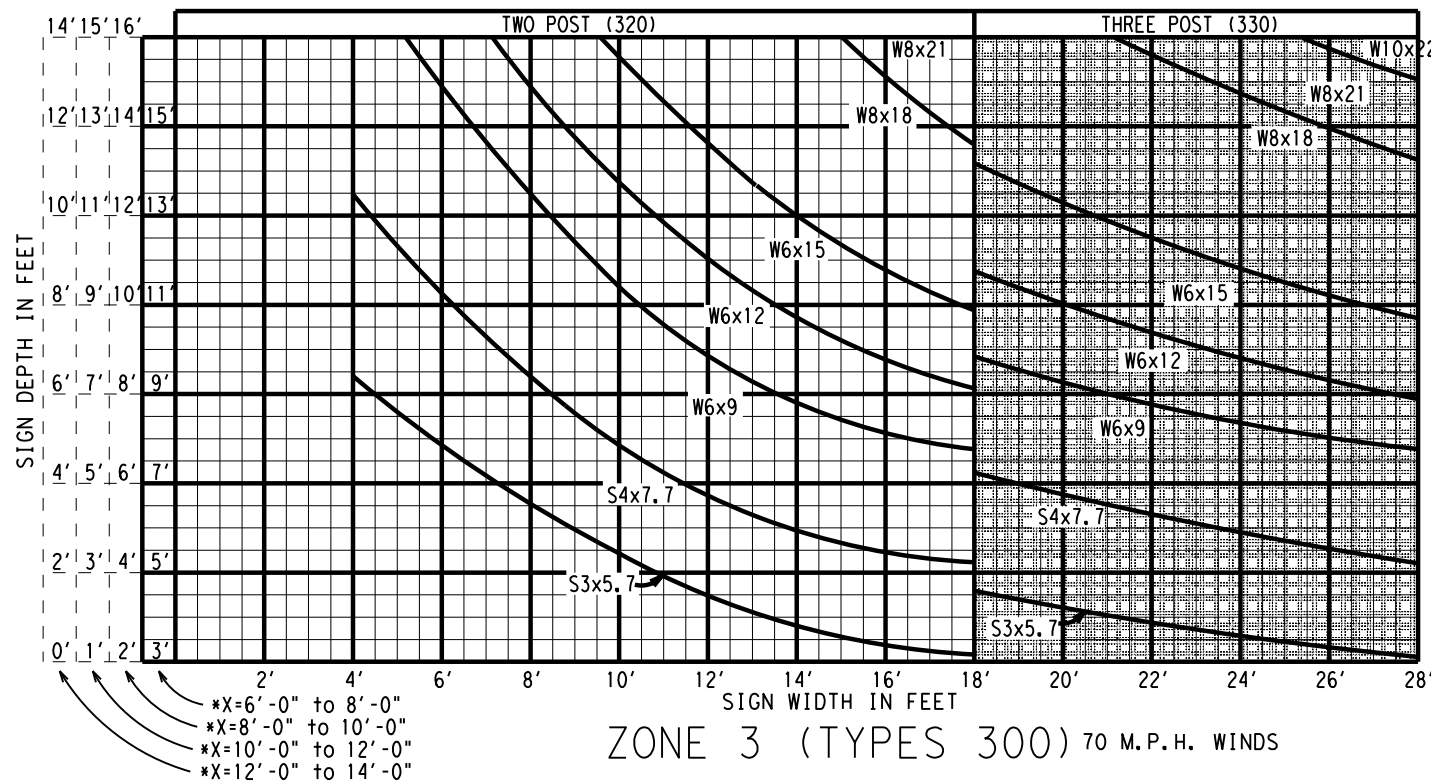
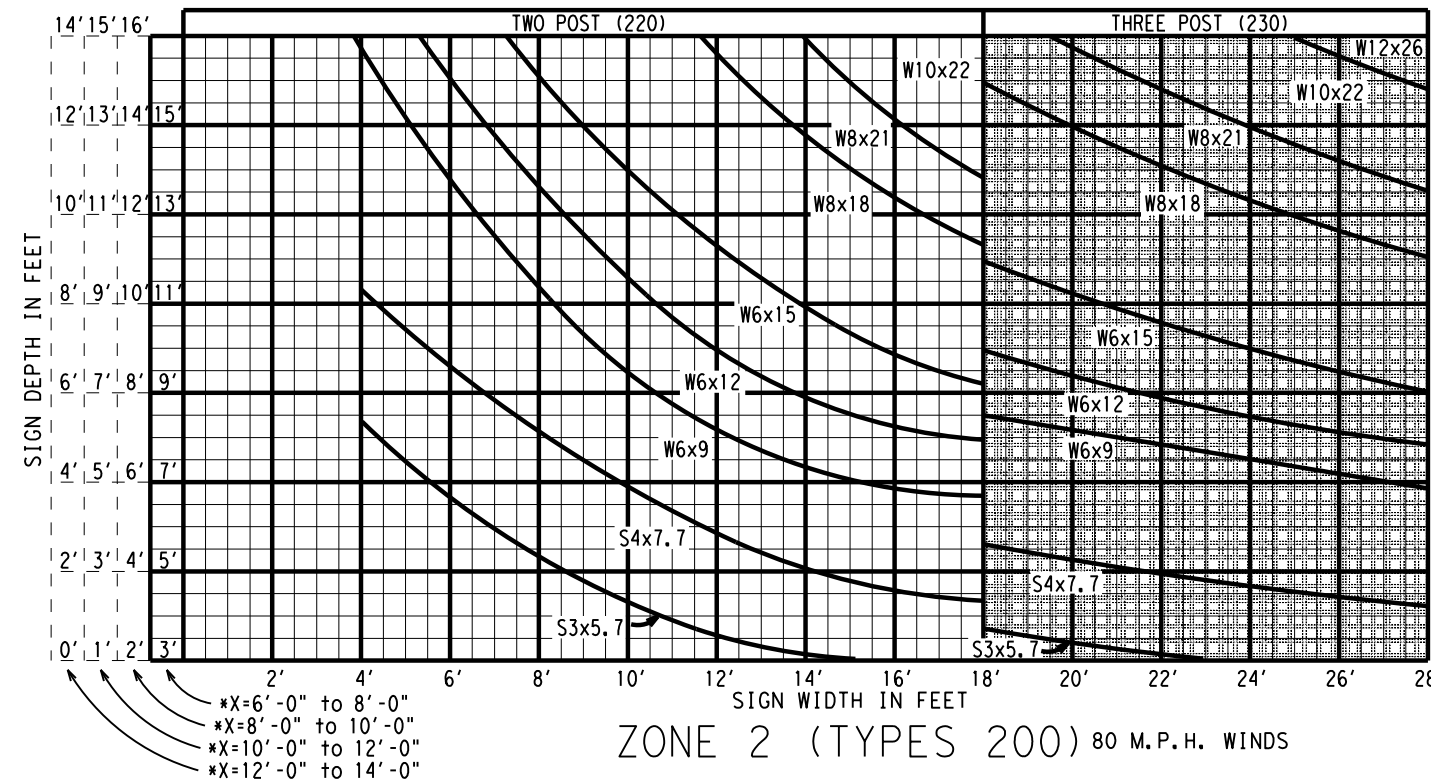
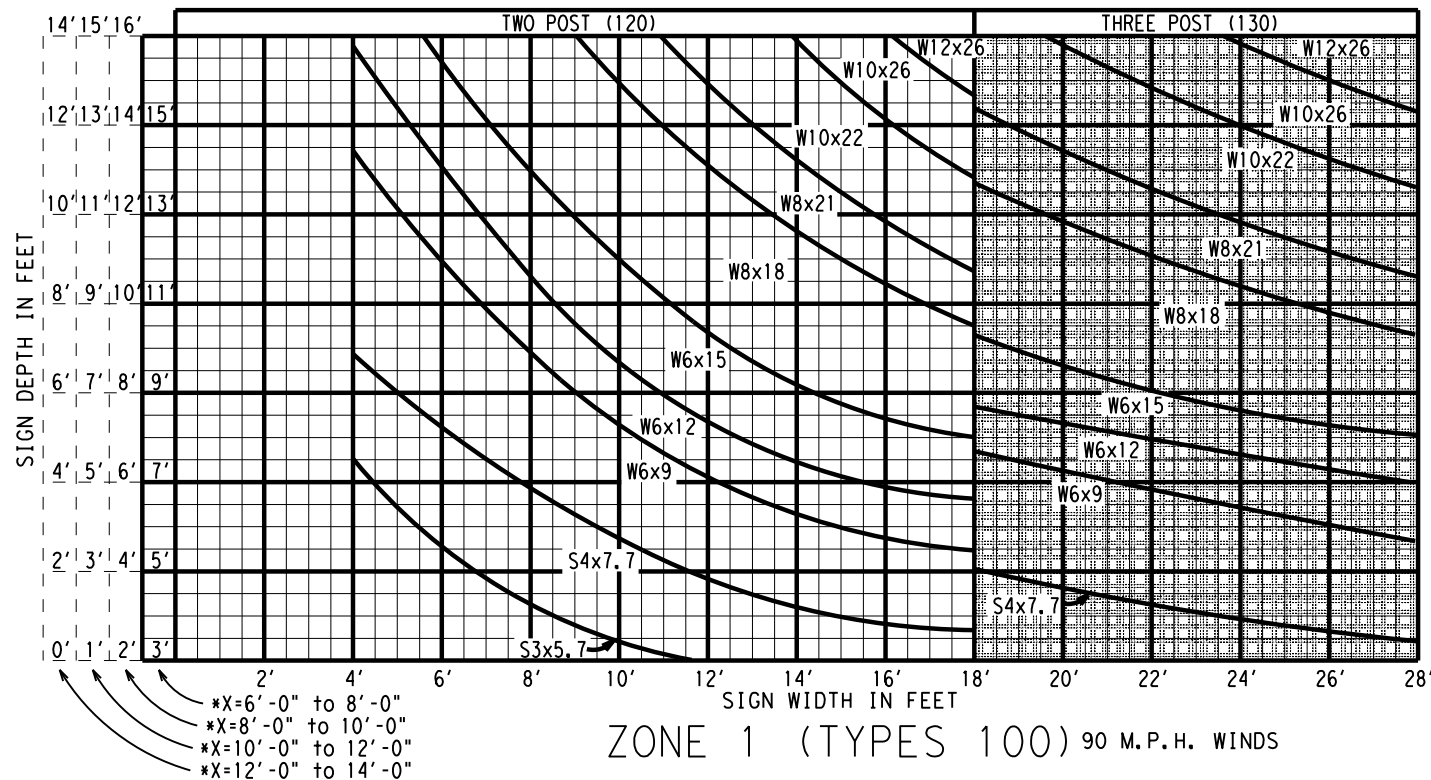
SIGN MOUNTING DETAILS, TYPE G SUPPORT

SMD(TY G)-08

© TxDOT August 1995		DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
1-97	REVISIONS	CONT	SECT	JOB	HIGHWAY
9-08		1607	01	057, ETC.	FM 1764
		DIST	COUNTY		SHEET NO.
		HOU	GALVESTON		383

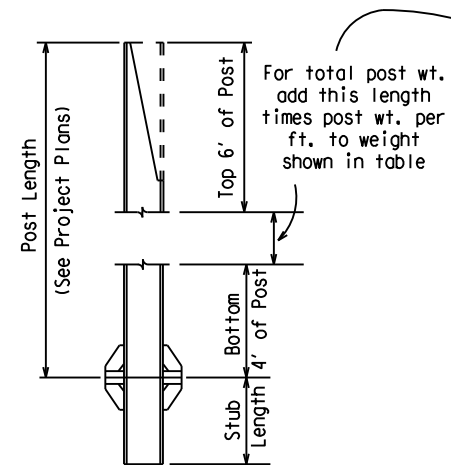
DATE:
FILE:

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* NOTE: "X" EQUALS THE AVERAGE HEIGHT FROM THE GROUND LINE TO THE BOTTOM EDGE OF THE SIGN.

SHADED AREA DENOTES 3 POST SUPPORTS

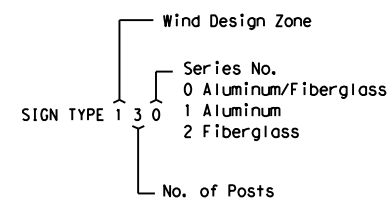


POST WEIGHT DATA			
POST SIZE	WEIGHT OF ONE POST (#)	WEIGHT OF TWO POSTS (#)	WEIGHT OF THREE POSTS (#)
W6x9*	123.2	246.4	369.6
W6x12*	160.3	320.6	480.9
W6x15*	167.8	335.6	503.4
W8x18*	201.8	403.6	605.4
W8x21*	254.7	509.4	764.1
W10x22*	266.0	532.0	798.0
W10x26*	308.0	616.0	924.0
W12x26*	308.6	617.2	925.8
S3x5.7*	85.9	171.8	257.7
S4x7.7*	112.2	224.4	336.6

*LAST FIGURES=POST WT. PER FT.

Weight Data is the weight of items shown for one, two or three posts - (includes top 6' of post, bottom 4' of post, post foundation stub, related base connection plates and stiffeners, friction fuse plate and all high strength bolts, nuts and washers).

SIGN TYPE



Note: Footings for S3x5.7 and S4x7.7 post sizes shall be non-reinforced with Class A concrete, while footing for all other post sizes shall be reinforced with Class C concrete.

Texas Department of Transportation
 Traffic Operations Division

**LARGE ROADSIDE SIGN SUPPORTS
 POST SELECTION
 WORKSHEET**

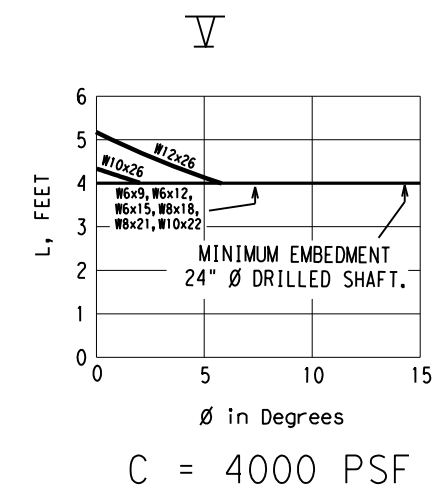
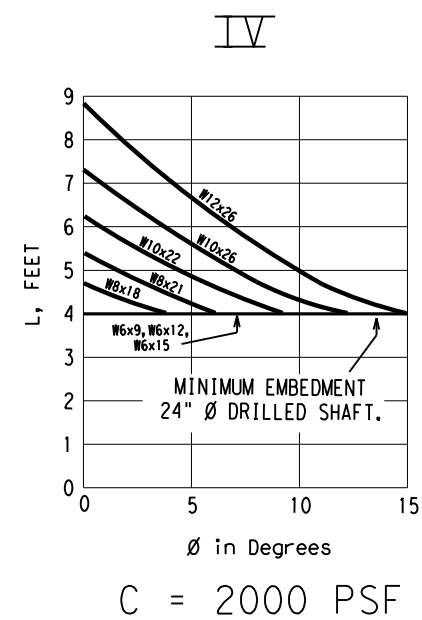
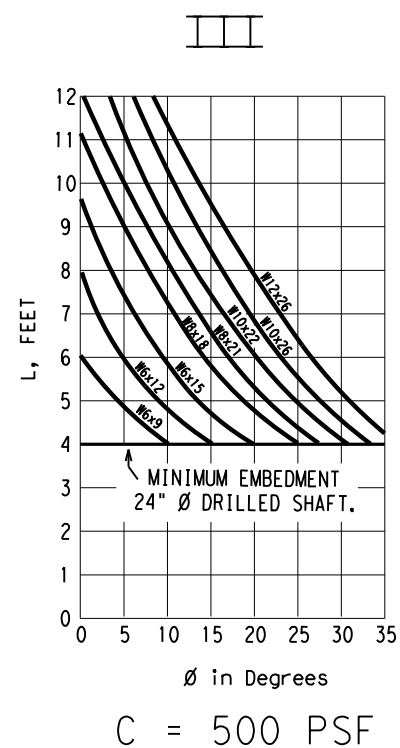
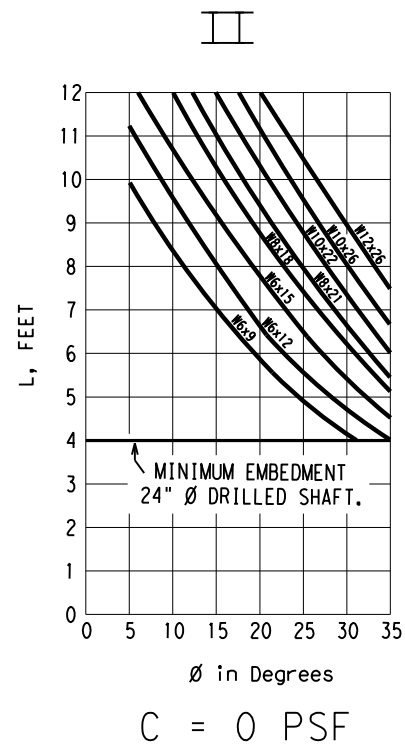
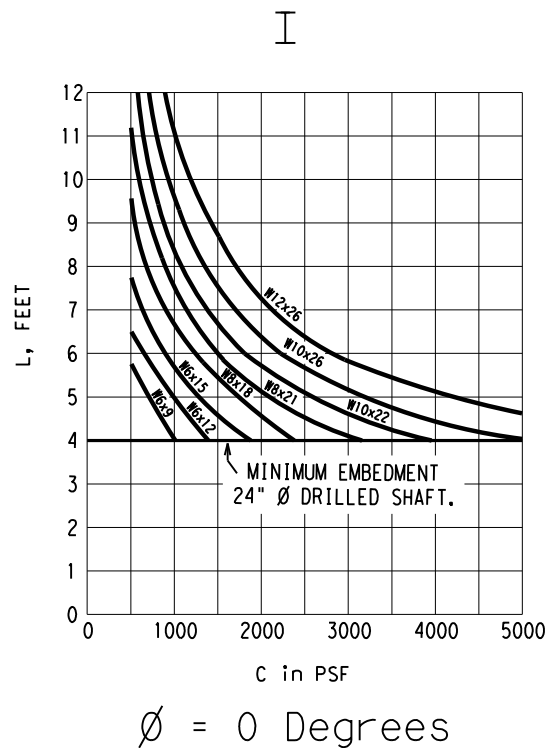
SMD (8W1) - 08

© TxDOT July 1978		DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
1-82	REVISIONS	CON: 1607	SECT: 01	JOB: 057, ETC.	HIGHWAY: FM 1764
5-01		DIST: HOU	COUNTY: GALVESTON	SHEET NO. 384	
9-08					

DATE:
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DATE:
FILE:



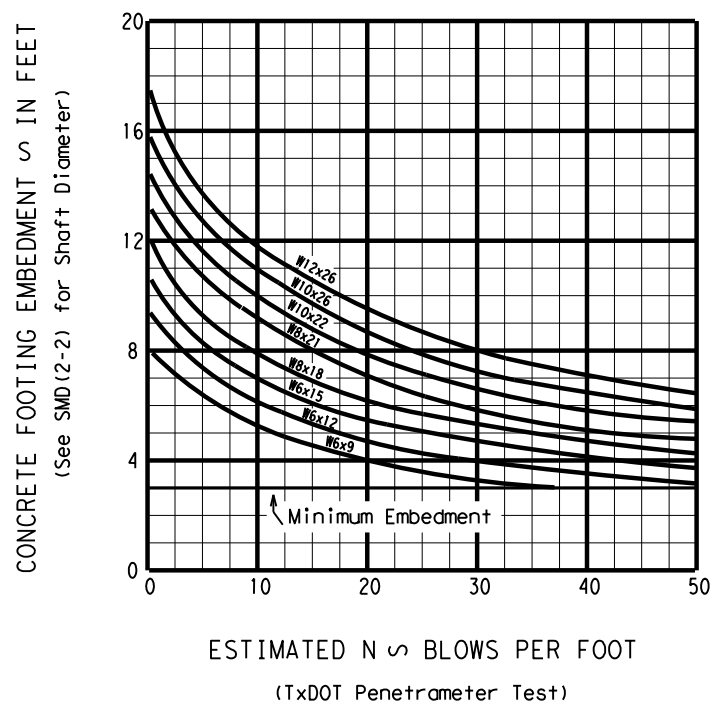
DRILLED CONCRETE FOOTING DEPTH CHART (COHFRIC DESIGN)

NOTE: THESE CHARTS MAY BE USED AS AN ALTERNATE TO THE CHART BELOW, PROVIDED THAT SOIL COHESION AND INTERNAL FRICTION (COHFRIC) DATA ARE AVAILABLE.

LEGEND:

L = Required embedment of concrete drilled shaft, in feet
 C = Cohesive shear strength of soil, in psf
 phi = Angle of internal friction of soil, in degrees

For values of C and phi which are intermediate to those on the charts, embedments may be determined by straight-line interpolation.



DRILLED CONCRETE FOOTING DEPTH CHART (TXDOT PENETROMETER DESIGN)

NOTE: ESTIMATED N SHOULD BE BASED AT APPROXIMATELY THE UPPER ONE-THIRD POINT OF THE DRILLED CONCRETE FOOTING BELOW THE GROUND LINE

Note:
 1. Curves shown on this sheet are applicable for reinforced concrete footings only.

Texas Department of Transportation
 Traffic Operations Division

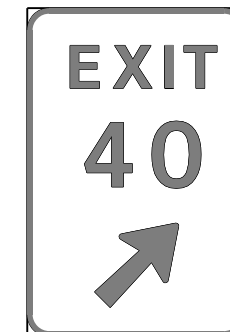
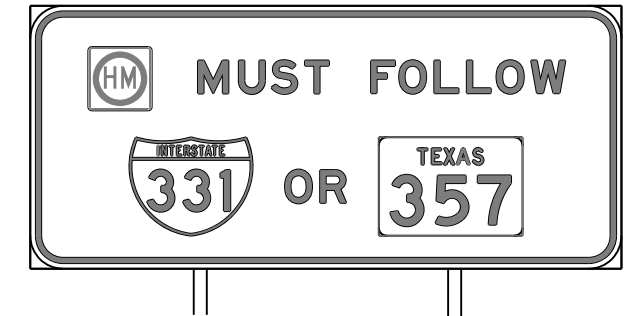
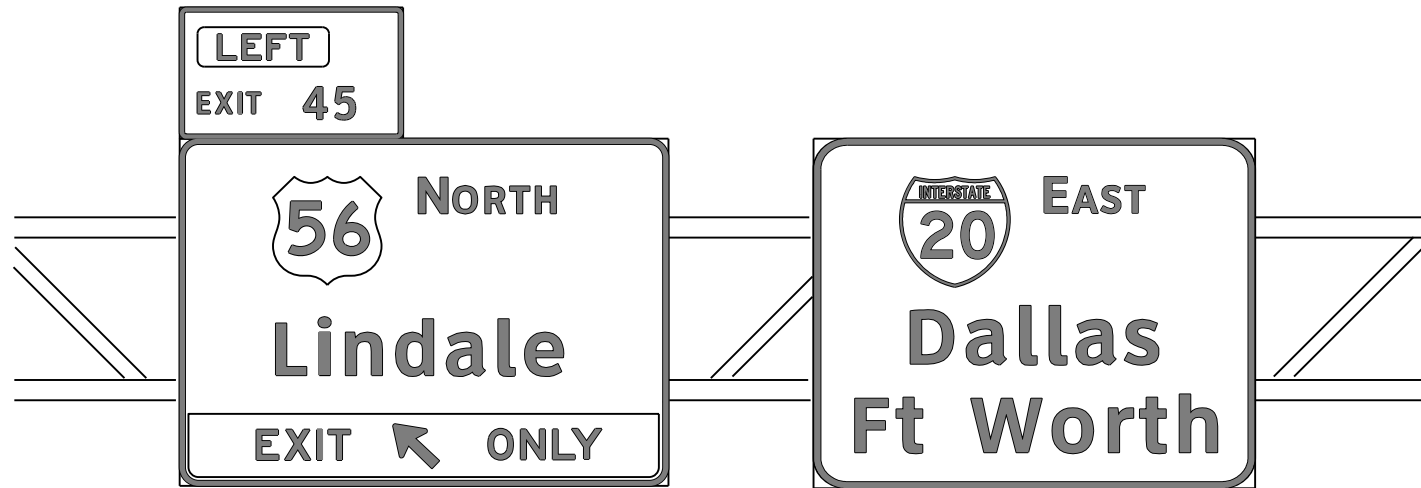
**LARGE ROADSIDE SIGN SUPPORTS
 FOUNDATION
 WORKSHEET**

SMD (8W2) - 08

© TxDOT July 1972		DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
5-74	REVISIONS	CONT	SECT	HIGHWAY	
4-78		1607	01	057, ETC. FM 1764	
9-08		DIST		COUNTY	SHEET NO.
		HOU		GALVESTON	385

REQUIREMENTS FOR OVERHEAD AND LARGE GROUND-MOUNTED SIGNS

TYPICAL EXAMPLES



GENERAL NOTES

1. Signs to be furnished shall be as detailed elsewhere in the plans and/or as shown on sign summary sheet. Standard sign designs and arrow dimensions can be found in the "Standard Highway Sign Designs for Texas" (SHSD).
2. Black legend shall use the Federal Highway Administration (FHWA) Standard Highway Alphabets (B, C, D, E, Emod, or F). White legend shall use the Clearview Alphabet. The following Clearview fonts shall be used to replace the existing white FHWA lettering, when not specified in the SHSD or in the plans.

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

3. Lateral spacing between letters and numerals shall conform with the SHSD, and any approved changes thereto. Lateral spacing of legend shall provide a balanced appearance when spacing is not shown.
4. Black legend shall be applied by screening process or cut-out acrylic non-reflective black film to background sheeting, or combination thereof.
5. White legend and borders shall be cut-out white sheeting applied to colored background sheeting.
6. Information regarding borders and radii for signs is found in the "Standard Highway Sign Designs for Texas". Dimensions shown and described for borders and corner radii on parent sign are nominal. Borders may vary in width as much as 1/2 inch. Corner radii above 3 inches may vary in width as much as 1 inch. Borders and corner radii within a parent sign must be of matching widths. The sign area outside the corner radius need not be trimmed or rounded if fabricated from an extruded material.
7. Sign substrate for ground-mounted signs shall be any material that meets the Departmental Material Specification requirements of DMS-7110 or approved alternative. Sign substrate for overhead signs shall be any material that meets DMS-7110. Exit Number Panels attached above the parent sign shall be made with the same substrate and sheeting as the parent sign.
8. Mounting details of attachments to parent sign face are shown on Standard Plan Sheet TSR(5). Mounting details of exit number panels above parent sign are shown in the "SMD series" Standard Plan Sheets.
9. Background sheeting shall be applied to the substrate per sheeting manufacturer's recommendations. Sheeting will not be allowed to bridge the horizontal gap between panels.
10. Cut all legend, symbols, borders, and direct applied sign attachments at panel joints.

DEPARTMENTAL MATERIAL SPECIFICATIONS

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

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

<http://www.txdot.gov/>

SHEETING REQUIREMENTS

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

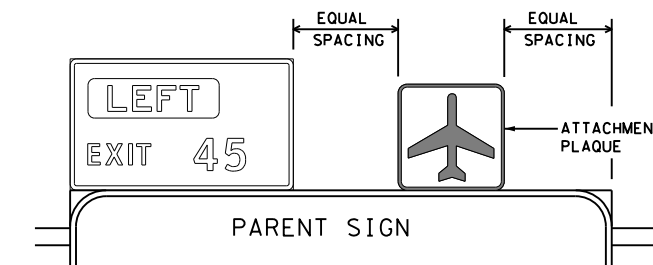
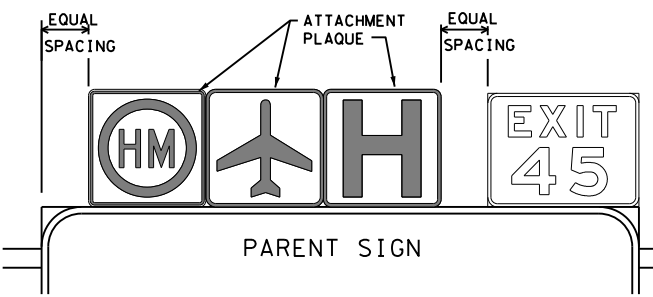
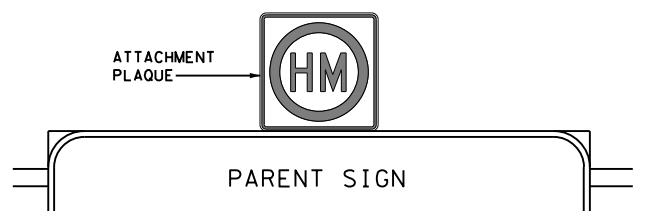
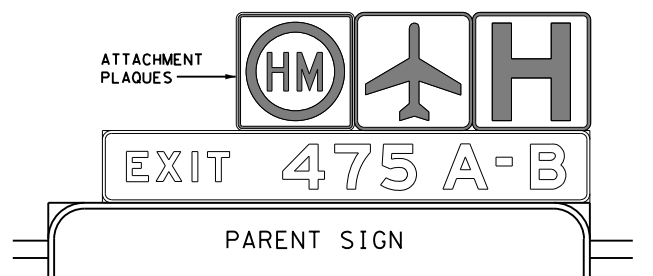
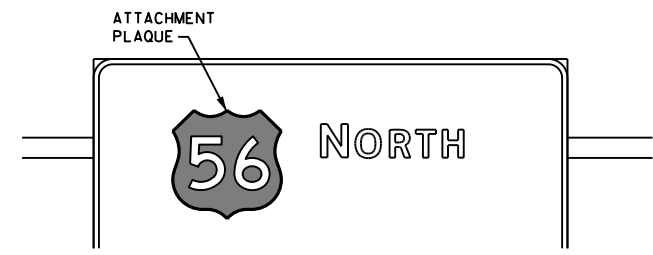
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DATE: FILE:

		Traffic Operations Division Standard	
<h2>TYPICAL SIGN REQUIREMENTS</h2> <h3>TSR(1) - 13</h3>			
FILE: fsr1-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT
© TxDOT October 2003	CONT	SECT	JOB
REVISIONS	1607 01	057, ETC.	FM 1764
12-03 7-13	DIST	COUNTY	SHEET NO.
9-08	HOU	GALVESTON	386

REQUIREMENTS FOR ATTACHMENTS TO OVERHEAD AND LARGE GROUND MOUNTED SIGNS

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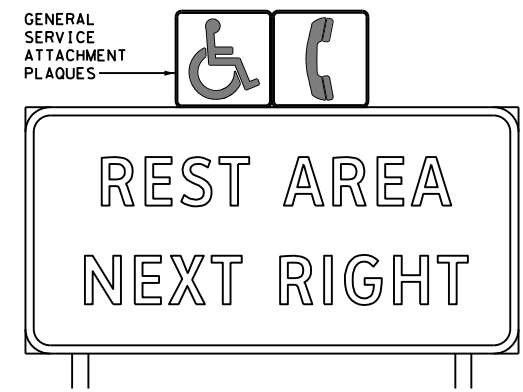
TYPICAL EXAMPLES

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

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

GENERAL NOTES

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



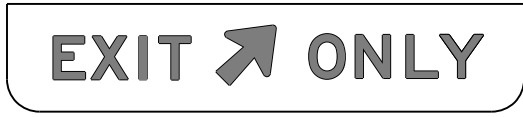
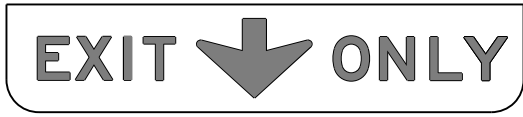
REQUIREMENTS FOR EXIT ONLY AND LEFT EXIT PANELS

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

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

GENERAL NOTES

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



TYPICAL EXAMPLES

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website:
<http://www.txdot.gov/>

TYPICAL SIGN REQUIREMENTS

TSR(2) - 13

FILE: tsr2-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2003	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607	01	057, ETC.	FM 1764
12-03 7-13	DIST	COUNTY	SHEET NO.	
9-08	HOU	GALVESTON	387	

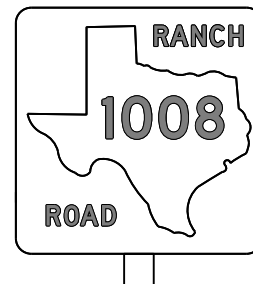
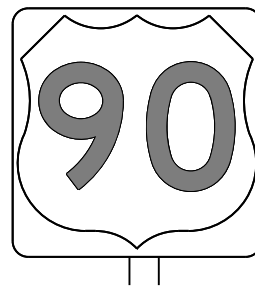
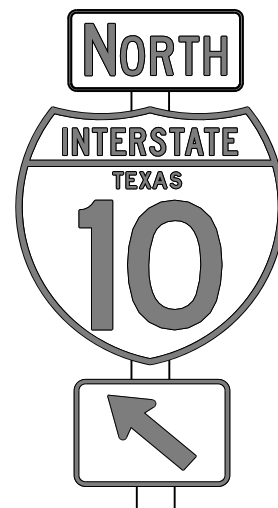
DATE:
FILE:

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REQUIREMENTS FOR INDEPENDENT MOUNTED ROUTE SIGNS

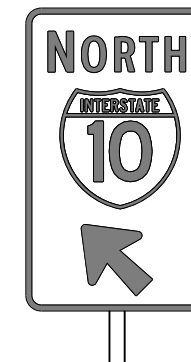
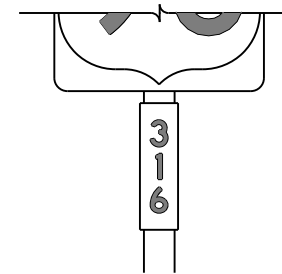
SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	WHITE	TYPE A SHEETING
BACKGROUND	ALL OTHERS	TYPE B OR C SHEETING
LEGEND & BORDERS	WHITE	TYPE A SHEETING
LEGEND & BORDERS	BLACK	ACRYLIC NON-REFLECTIVE FILM
LEGEND & BORDERS	ALL OTHERS	TYPE B or C SHEETING



TYPICAL EXAMPLES

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

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



TYPICAL EXAMPLES

GENERAL NOTES

- Signs to be furnished shall be as detailed elsewhere in the plans and/or as shown on sign tabulation sheet. Standard sign designs and arrow dimensions can be found in the "Standard Highway Sign Designs for Texas" (SHSD).
- White legend shall use the Clearview Alphabet. The following Clearview fonts shall be used to replace the existing white Federal Highway Administration (FHWA) Standard Highway Alphabets, when not specified in the SHSD, or in the plans.

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

- Route sign legend (ie. IH, US, SH and FM shields) shall use the Federal Highway Administration (FHWA) Standard Highway Alphabets B, C, D, E, Emod or F).
- Lateral spacing between letters and numerals shall conform with the SHSD, and any approved changes thereto. Lateral spacing of legend shall provide a balanced appearance when spacing is not shown.
- Independent mounted route sign with white or colored legend and borders shall be applied by screening process with transparent color ink, transparent colored overlay film to white background sheeting or cut-out white sheeting to colored background sheeting, or combination thereof. White legend, symbols and borders on all other signs shall be cut-out white sheeting applied to colored background sheeting.
- Information regarding borders and radii for signs is found in the "Standard Highway Sign Designs for Texas". Dimensions shown and described for borders and corner radii on parent sign are nominal. Borders may vary in width as much as 1/2 inch. Corner radii above 3 inches may vary in width as much as 1 inch. Borders and corner radii within a parent sign must be of matching widths. The sign area outside the corner radius should be trimmed or rounded.
- Sign substrate shall be any material that meets the Departmental Material Specification requirements of DMS-7110 or approved alternative.
- Mounting details of roadside signs are shown in the "SMD series" Standard Plan Sheets.

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

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

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

<http://www.txdot.gov/>

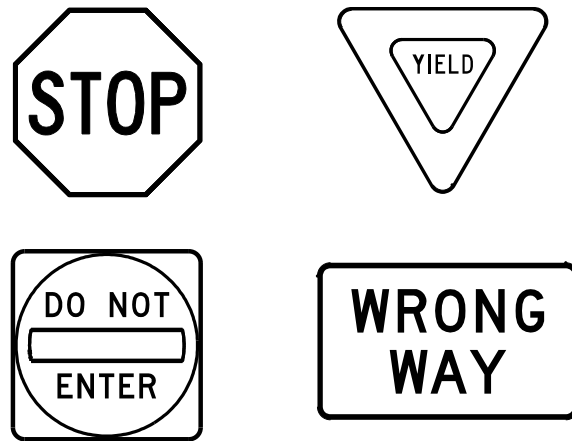
		<i>Traffic Operations Division Standard</i>		
<h2 style="margin: 0;">TYPICAL SIGN REQUIREMENTS</h2>				
<h3 style="margin: 0;">TSR(3) - 13</h3>				
FILE: tsr3-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CR: TxDOT
© TxDOT October 2003		CONT	SECT	JOB
REVISIONS		1607 01	057, ETC. FM 1764	
12-03 7-13	DIST		COUNTY	SHEET NO.
9-08	HOU		GALVESTON	388

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DATE: FILE:

REQUIREMENTS FOR RED BACKGROUND REGULATORY SIGNS

(STOP, YIELD, DO NOT ENTER AND WRONG WAY SIGNS)



REQUIREMENTS FOR FOUR SPECIFIC SIGNS ONLY

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	RED	TYPE B OR C SHEETING
BACKGROUND	WHITE	TYPE B OR C SHEETING
LEGEND & BORDERS	WHITE	TYPE B OR C SHEETING
LEGEND	RED	TYPE B OR C SHEETING

REQUIREMENTS FOR WHITE BACKGROUND REGULATORY SIGNS

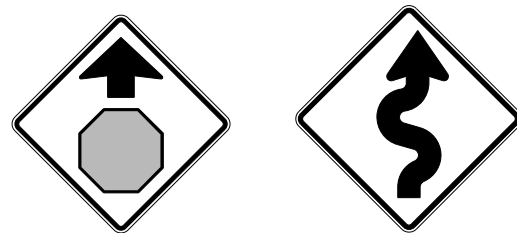
(EXCLUDING STOP, YIELD, DO NOT ENTER AND WRONG WAY SIGNS)



TYPICAL EXAMPLES

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

REQUIREMENTS FOR WARNING SIGNS



TYPICAL EXAMPLES

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	FLOURESCENT YELLOW	TYPE B _{FL} OR C _{FL} SHEETING
LEGEND & BORDERS	BLACK	ACRYLIC NON-REFLECTIVE FILM
LEGEND & SYMBOLS	ALL OTHER	TYPE B OR C SHEETING

REQUIREMENTS FOR SCHOOL SIGNS



TYPICAL EXAMPLES

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	WHITE	TYPE A SHEETING
BACKGROUND	FLOURESCENT YELLOW GREEN	TYPE B _{FL} OR C _{FL} SHEETING
LEGEND, BORDERS AND SYMBOLS	BLACK	ACRYLIC NON-REFLECTIVE FILM
SYMBOLS	RED	TYPE B OR C SHEETING

GENERAL NOTES

- Signs to be furnished shall be as detailed elsewhere in the plans and/or as shown on sign tabulation sheet. Standard sign designs and arrow dimensions can be found in the "Standard Highway Sign Designs for Texas" (SHSD).
- Sign legend shall use the Federal Highway Administration (FHWA) Standard Highway Alphabets (B, C, D, E, Emod or F).
- Lateral spacing between letters and numerals shall conform with the SHSD, and any approved changes thereto. Lateral spacing of legend shall provide a balanced appearance when spacing is not shown.
- Black legend and borders shall be applied by screening process or cut-out acrylic non-reflective black film to background sheeting, or combination thereof.
- White legend and borders shall be applied by screening process with transparent colored ink, transparent colored overlay film to white background sheeting or cut-out white sheeting to colored background sheeting, or combination thereof.
- Colored legend shall be applied by screening process with transparent colored ink, transparent colored overlay film or colored sheeting to background sheeting, or combination thereof.
- Sign substrate shall be any material that meets the Departmental Material Specification requirements of DMS-7110 or approved alternative.
- Mounting details for roadside mounted signs are shown in the "SMD series" Standard Plan Sheets.

ALUMINUM SIGN BLANKS THICKNESS

Square Feet	Minimum Thickness
Less than 7.5	0.080
7.5 to 15	0.100
Greater than 15	0.125

DEPARTMENTAL MATERIAL SPECIFICATIONS

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

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

<http://www.txdot.gov/>



TYPICAL SIGN REQUIREMENTS

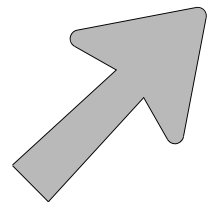
TSR(4) - 13

FILE:	tsr4-13.dgn	DN:	TxDOT	CK:	TxDOT	DW:	TxDOT	CK:	TxDOT
©TxDOT	October 2003	CONT	SECT	JOB	HIGHWAY				
REVISIONS	1607	01	057, ETC.	FM 1764					
12-03	7-13	DIST	COUNTY	SHEET NO.					
9-08		HOU	GALVESTON	389					

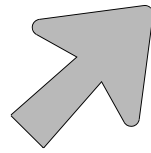
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ARROW DETAILS

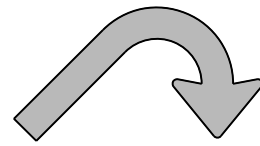
for Large Ground-Mounted and Overhead Guide Signs



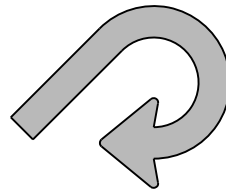
Type A



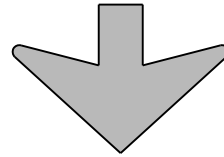
Type B



E-3



E-4



Down Arrow

TYPE	LETTER SIZE	USE
A-1	10.67" U/L and 10" Caps	Single Lane Exits
A-2	13.33" U/L and 12" Caps	
A-3	16" & 20" U/L	
B-1	10.67" U/L and 10" Caps	Multiple Lane Exits
B-2	13.33" U/L and 12" Caps	
B-3	16" & 20" U/L	

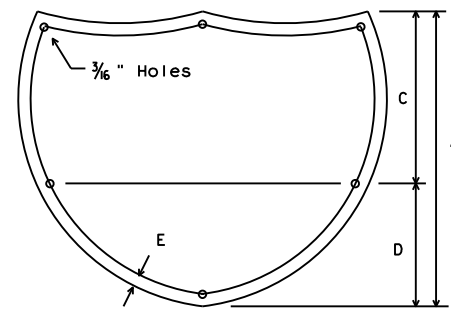
CODE	USED ON SIGN NO.
E-3	E5-1aT
E-4	E5-1bT

NOTE

Arrow dimensions are shown in the "Standard Highway Sign Designs for Texas" manual.

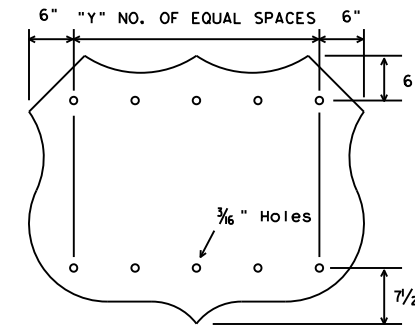
The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website:
<http://www.txdot.gov/>

SIGN BLANK PUNCHING DETAILS FOR ATTACHMENTS WHEN SPECIFIED TO BE TYPE A ALUMINUM SIGNS (FOR MOUNTING TO GUIDE SIGN FACE)



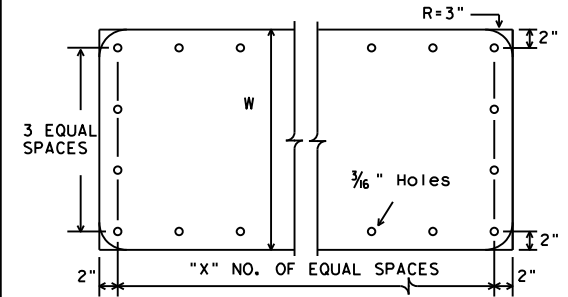
INTERSTATE ROUTE MARKERS

A	C	D	E
36	21	15	1 1/2
48	28	20	1 3/4



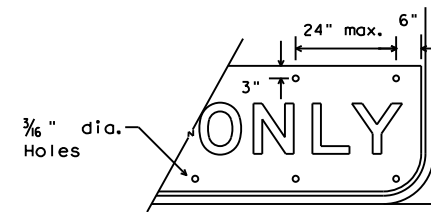
U.S. ROUTE MARKERS

Sign Size	"Y"
24x24	2
30x24	3
36x36	3
45x36	4
48x48	4
60x48	5



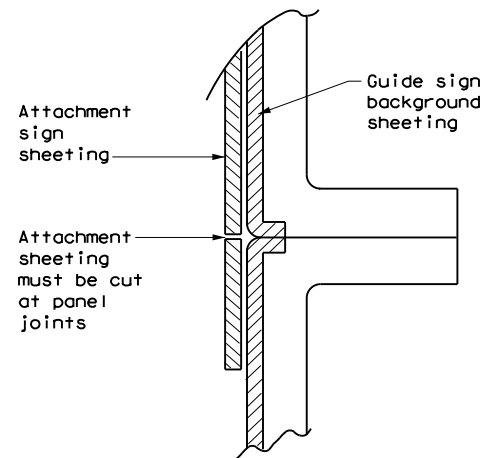
STATE ROUTE MARKERS

No. of Digits	W	X
4	24	4
4	36	5
4	48	6
3	24	3
3	36	4
3	48	5



EXIT ONLY PANEL

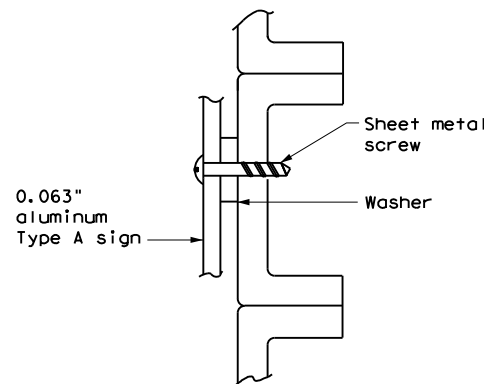
MOUNTING DETAILS OF ATTACHMENTS TO GUIDE SIGN FACE ("EXIT ONLY" AND "LEFT EXIT" PANELS, ROUTE MARKERS AND OTHER ATTACHMENTS)



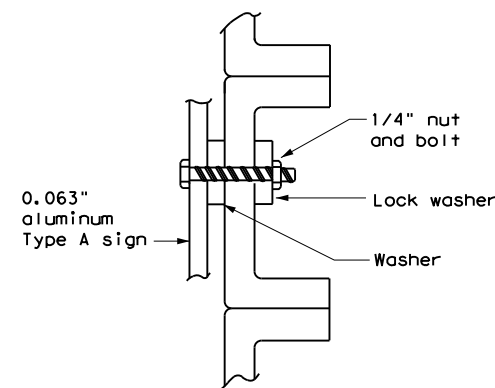
DIRECT APPLIED ATTACHMENT

NOTE:

- Sheeting for legend, symbols, and borders must be cut at panel joints.
- Direct applied attachment signs will be subsidiary to "Aluminum Signs" or "Fiberglass Signs".



SCREW ATTACHMENT

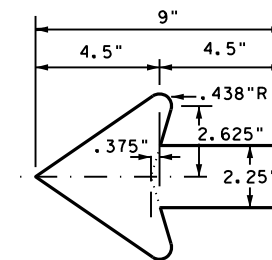


NUT/BOLT ATTACHMENT

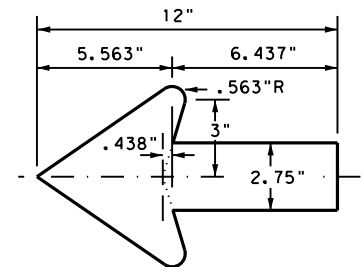
NOTE:

Furnish Type A aluminum sign attachments only when specified in the plans. These signs will be paid for under "Aluminum Signs".

ARROW DETAILS for Destination Signs (Type D)



Standard arrow to be used with 6 inch letters.



Standard arrow to be used with 8 inch letters.



TYPICAL SIGN REQUIREMENTS

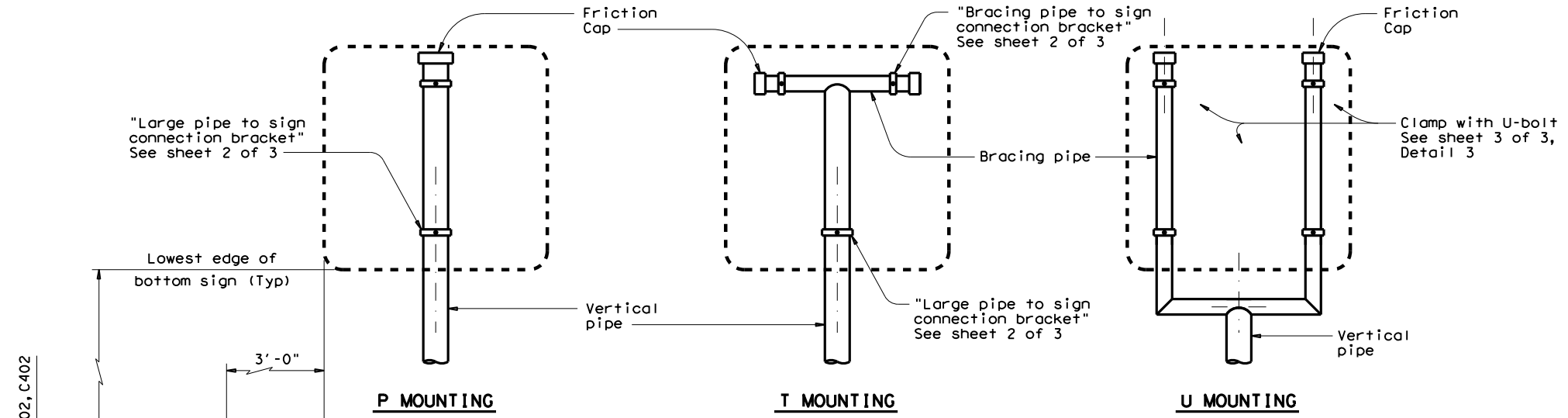
TSR (5) - 13

FILE: tsr5-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2003	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607	01	057, ETC.	FM 1764
12-03 7-13	DIST	COUNTY		SHEET NO.
9-08	HOU	GALVESTON		390

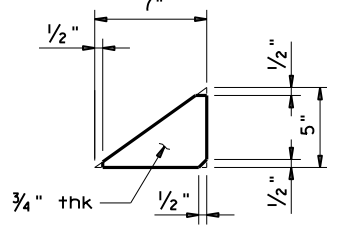
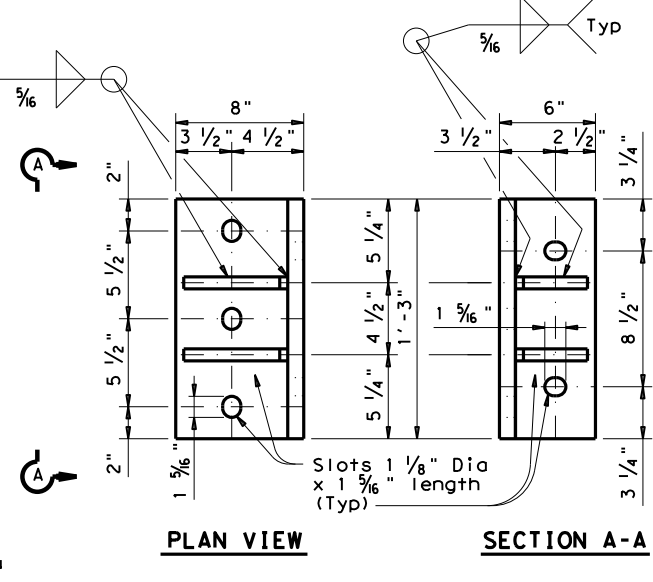
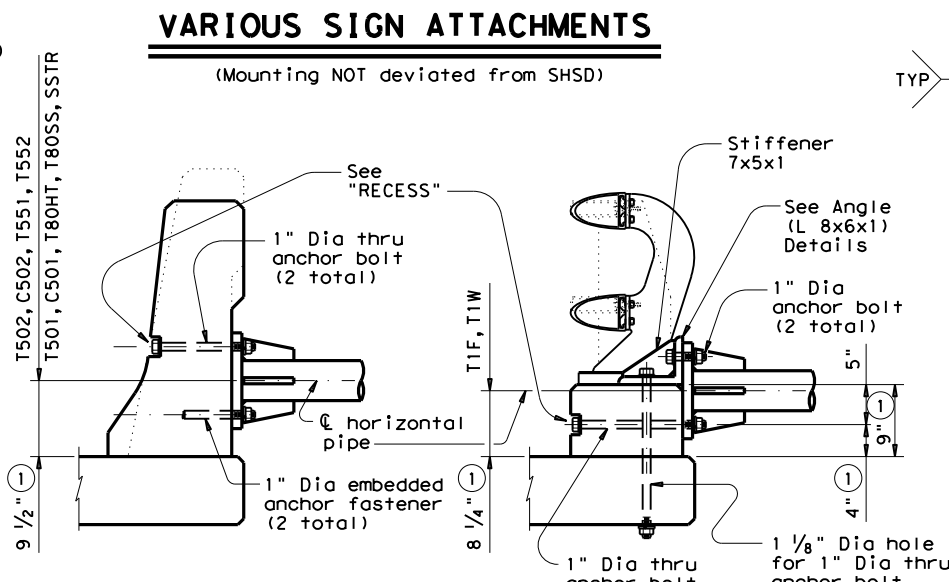
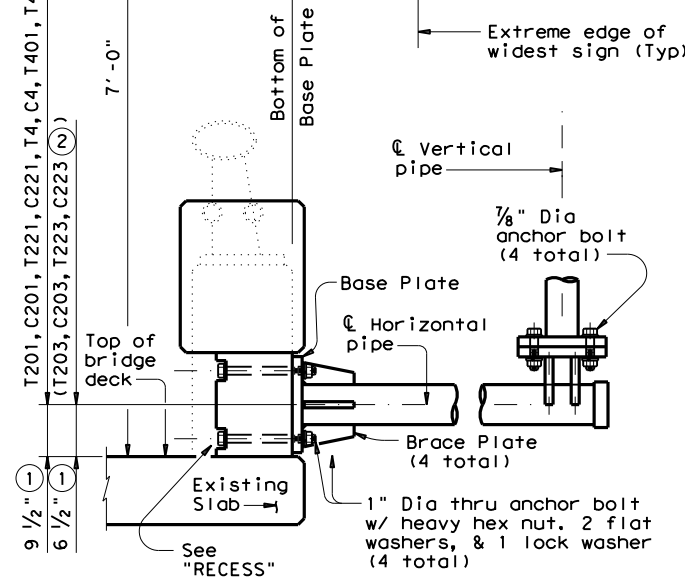
DATE:
FILE:

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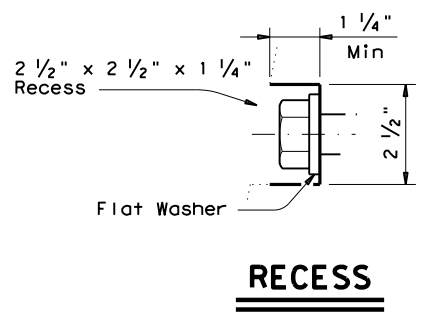


VARIOUS SIGN ATTACHMENTS
(Mounting NOT deviated from SHSD)



ANGLE (L 8x6x1) DETAILS

LONGITUDINAL SECTION THROUGH RAILING & SIGN MOUNT



- ① Increase 2" for structure with overlay.
- ② Attached at center post.

PIPE SIZE AND THICKNESS			
Pipe Placement Design Wind Speed	Horizontal	Vertical	Bracing
90 mph	5" X-Strong (.375")	4" X-Strong (.337")	2 1/2" Standard (.203")
130 mph	6" X-Strong (.432")	5" X-Strong (.375")	3" X-Strong (.300")

GENERAL NOTES:
Design conforms to 2013 AASHTO Standard Specifications for Highway Signs, Luminaires, and Traffic Signals and Interim Specifications thereto. Design 3-second gust wind speeds of 90 mph and 130 mph with a 1.14 gust factor, and a wind importance factor of 1.0 (50-year mean recurrence interval) for the supporting structures. For mounting connection between sign panel and pipe, wind importance factors of 0.71 and 0.54, for 90 mph and 130 mph winds, respectively, are applied to adjust the wind speeds to a 10-year mean recurrence interval.

See standard sheet WV & IZ (LTS2013) for the boundaries of each design wind zone. All mounting shall be based on 130 mph wind speed design except when located in 90 mph wind zone. Maximum panel area is 30 sq. ft. Maximum design height is 50 ft, with design height defined as the distance between natural ground (average elevation of surrounding terrain) and the center of sign(s) at the mounting location.

Material for pipe shall be ASTM A53 Grade B, or A501. Structural steel plates shall be ASTM A36, A572 Grade 50, or A588. Bolts used to connect pipe and mounting bracket, and wind beam to sign panel shall be ASTM A307. Anchor bolts shall be ASTM A325 or A193 B7. Each anchor bolt shall be provided with 2 flat washers, 1 lock washer, and 1 heavy hex nut. All parts shall be galvanized in accordance with Standard Specifications Item 445, "Galvanizing".

Attach horizontal pipe at least 2'-0" from the edge of any nearby drain slot.

Contractor shall verify applicable field dimensions before fabrication. Holes drilled through the railing parapet wall shall be drilled with rotary (coring or masonry drill) type equipment. Percussion (star) drilling shall not be allowed. Anchorage for pipe attached to rail shall be placed using an anchoring system approved by the engineer. Installation of anchor fasteners including hole depth, diameter and material shall be in accordance with the manufacturers' recommendation.

Each embedded anchor fastener shall resist an allowable design loading (after applying the reduction factors of bolt spacing and bolt edge distance) of:

	130 mph	90 mph
Tension	12.5 kips	7.5 kips
Shear	9.0 kips	5.0 kips

Each anchoring system shall provide a capacity to resist the required tension and shear acting simultaneously.

For sign connection to mounting, shop drill holes on sign blank in accordance with the current Standard Highway Sign Designs for Texas (SHSD). Additional hole(s) needed to meet a stipulated-type mounting may be field drilled. For multi-sign or back-to-back signs mounting, the engineer shall determine the proper type which ensures each individual mounting meets requirements.

Refer to Standard sheets SMD(GEN), SMD(SLIP-2 and SMD(2-1) for details not covered here.

SHEET 1 OF 3

Texas Department of Transportation Traffic Operations Division Standard

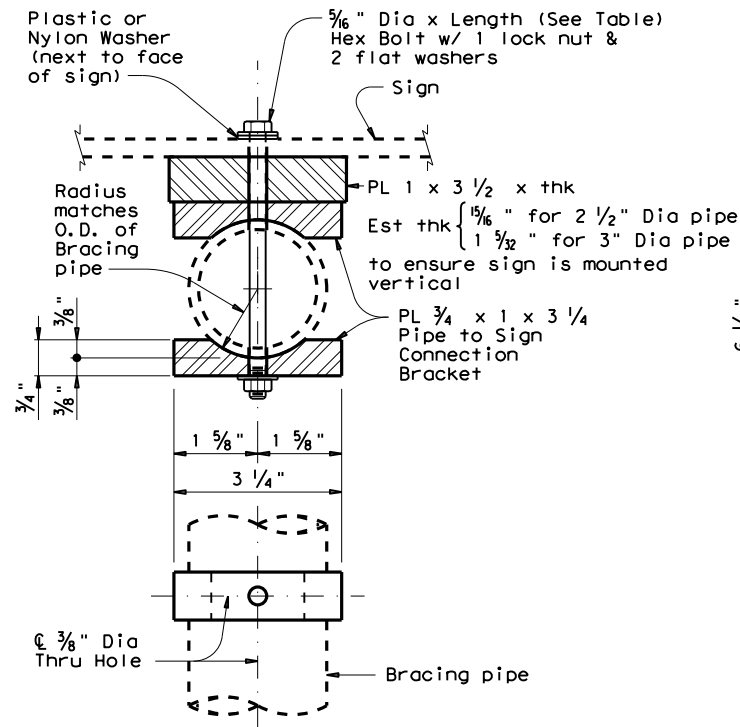
BRIDGE RAILING SIGN MOUNT DETAILS

SMD (BR-1) - 14

FILE: smdbr-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT August 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607	01	057, ETC.	FM 1764
	DIST	COUNTY	SHEET NO.	
	HOU	GALVESTON	391	

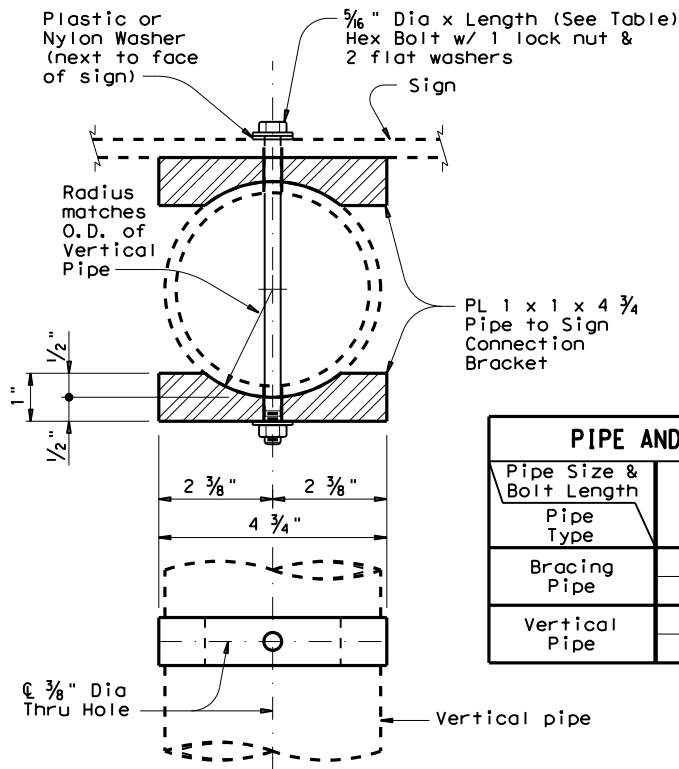
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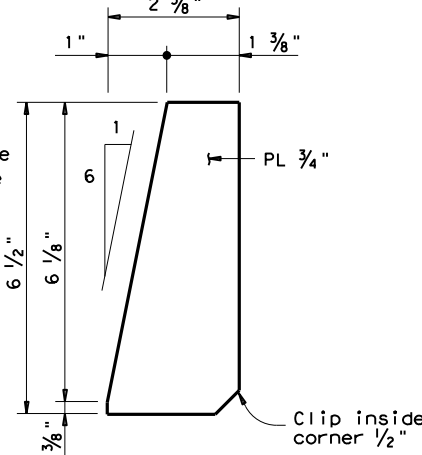
BRACING PIPE TO SIGN CONNECTION BRACKET DETAILS

(Showing T Mounting)

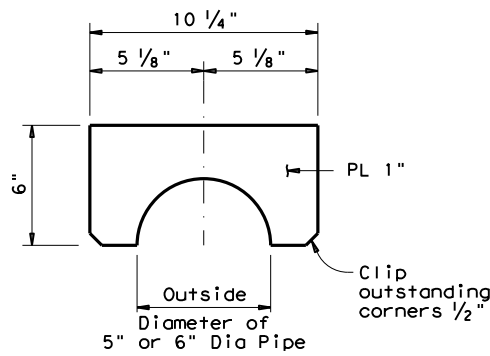


LARGE PIPE TO SIGN CONNECTION BRACKET DETAILS

(Showing P or T Mounting)

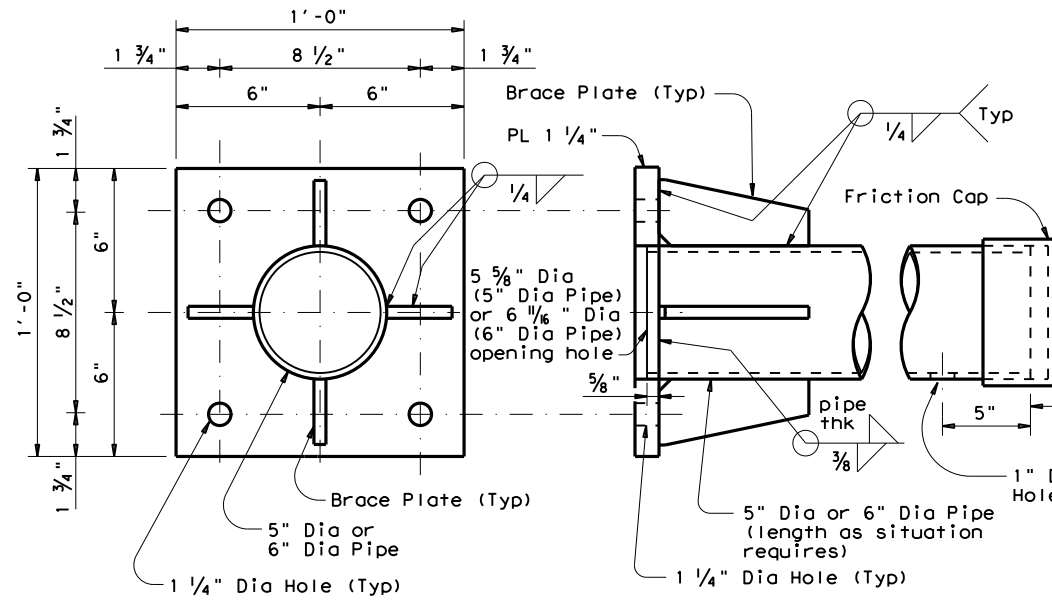


BRACE PLATE DETAILS

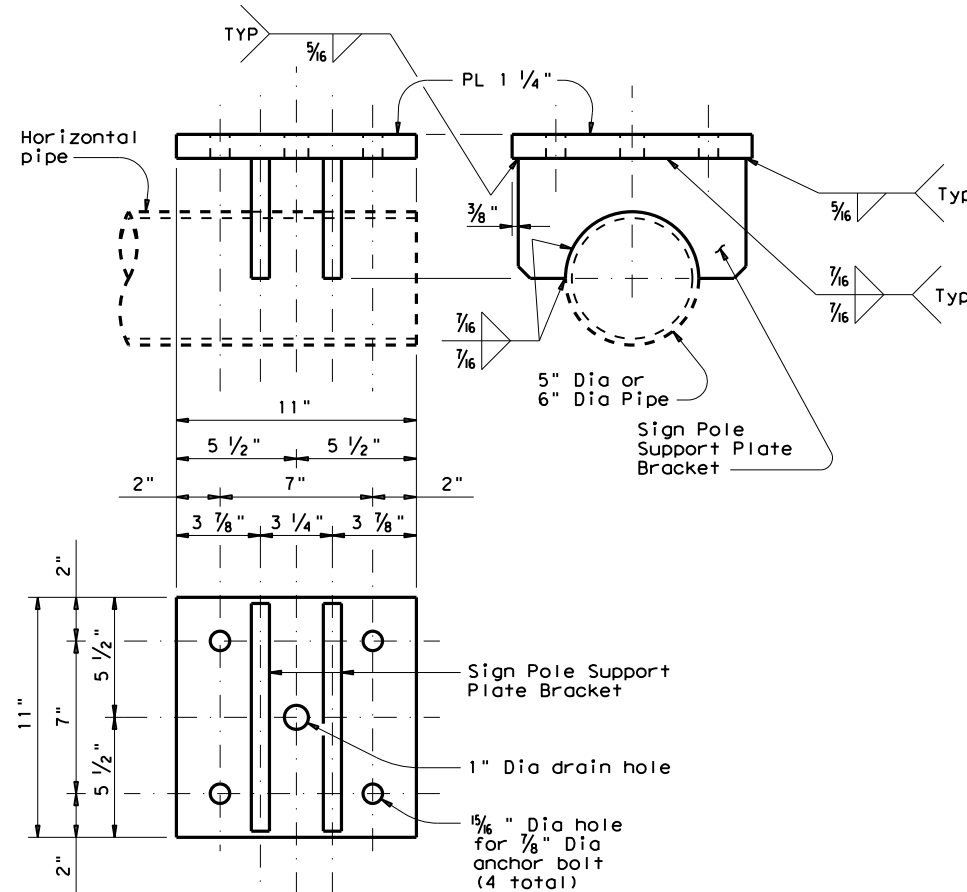


SIGN POLE SUPPORT PLATE BRACKET DETAILS

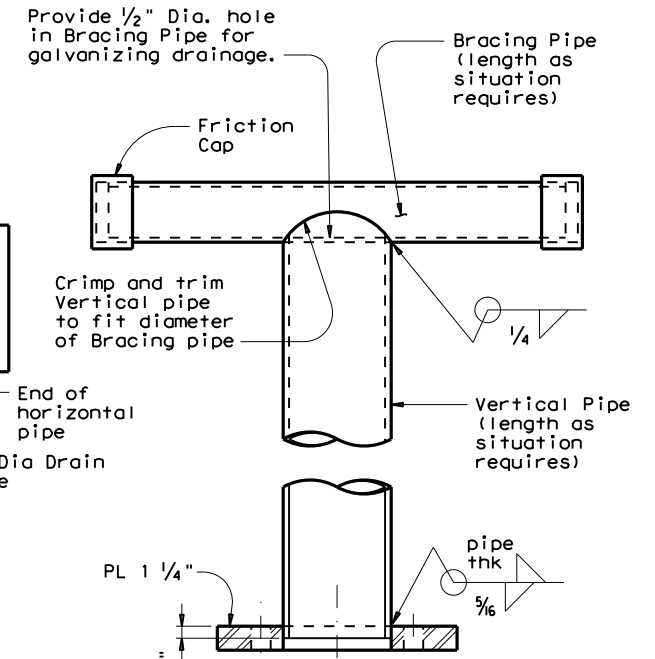
PIPE AND BOLT SPECIFICATIONS		
Pipe Size & Bolt Length	Nominal Pipe Dia (in.)	Bolt Length (in.)
Bracing Pipe	2 1/2	6
Vertical Pipe	3	7
Vertical Pipe	4	7
Vertical Pipe	5	8



BASE PLATE DETAILS



SIGN POLE SUPPORT PLATE DETAILS



SIGN POLE & POLE BASE PLATE DETAILS

(Showing only T Mounting)

SHEET 2 OF 3



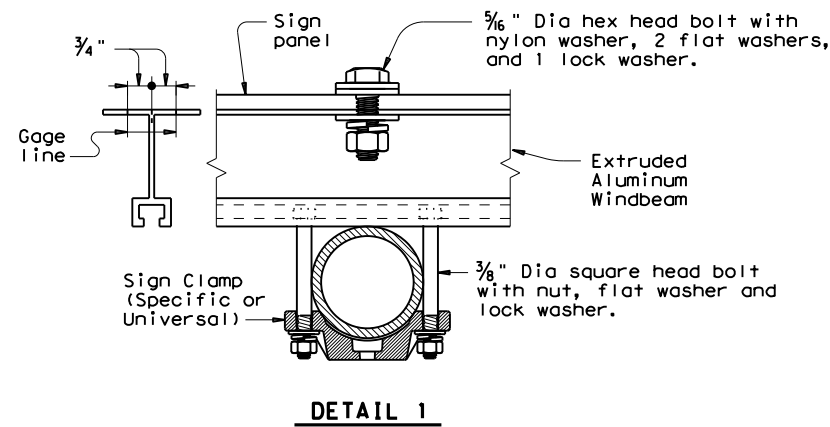
BRIDGE RAILING SIGN MOUNT DETAILS

SMD (BR-2) - 14

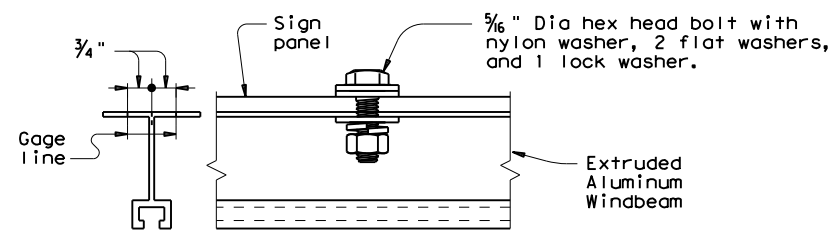
FILE: smdbr-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT August 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607	01	057, ETC.	FM 1764
	DIST	COUNTY	SHEET NO.	
	HOU	GALVESTON	392	

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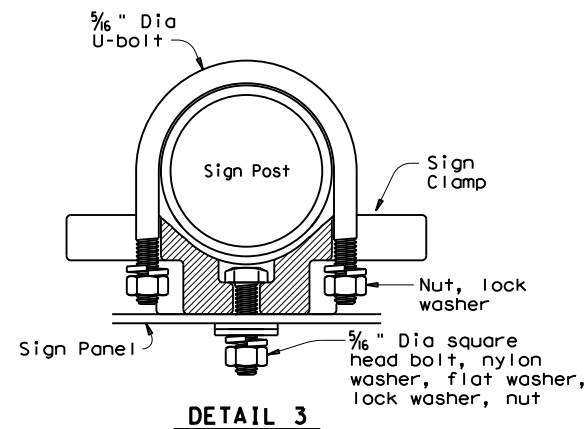
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DETAIL 1



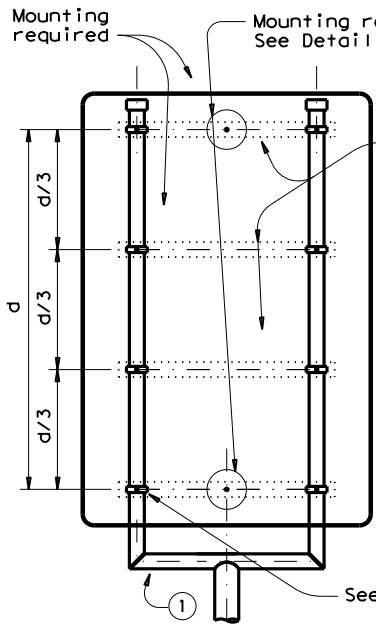
DETAIL 2



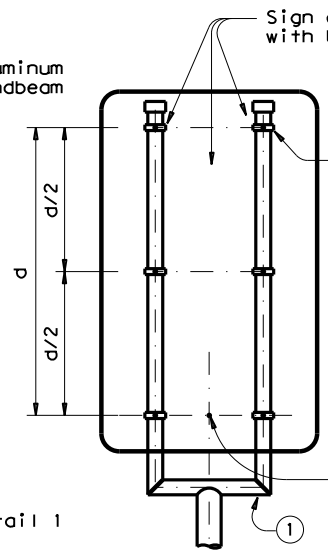
DETAIL 3

SIGN SHAPE	SQUARE			HORIZONTAL RECTANGLE			VERTICAL RECTANGLE			DIAMOND			OCTAGON			EQUILATERAL TRIANGLE			INTERSTATE SHIELD	PENTAGON (SCHOOL)		
	P	T	U	P	T	U	P	T	U	P	T	U	P	T	U	P	T	U	P	P	T	
Type of Sign Mounting on SHSD																						
Design Wind Speed																						
90 mph					(Type 23) 60"x48"			(Type 3) 72"x36" 78"x36"			(Type 2) 36"x48" (Type 32) 36"x60" 36"x72" 42"x60" 48"x54" 48"x60" 48"x72"			(Type 3) 60"x60"						(Type Special) 45"x36"		
130 mph	(Type 1) 30"x30" 36"x36"	(Type 3) 48"x48"		(Type 1) 36"x24" 36"x30"	(Type 23) 48"x42" 54"x42" 60"x30" 66"x36" 84"x24"		(Type 3) 72"x36" 78"x36"	(Type 1) 30"x36" 30"x42"		(Type 3) 36"x48" 36"x60" 36"x72" 42"x60" 48"x54" 48"x60"	(Type 3) 48"x60"	(Type 1) 36"x36"	(Type 3) 48"x48" 60"x60"			(Type 1) 48"x48"			(Type Special) 36"x36" 45"x36"			

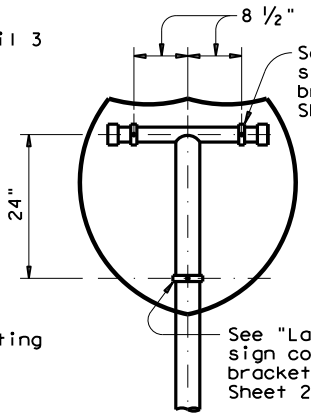
Notes: 1. Drill holes in addition to the hole pattern of the Standard Highway Sign Designs for Texas (SHSD) at specified locations to meet a stipulated-type mounting indicated in the parenthesis ().
 2. "Blank" in the above table indicates all other signs excluded from stipulated mounting shall be mounted in accordance with SHSD.
 3. In lieu of welding, the Fabricator may bend bracing pipe elbows if the following conditions are met:
 a. Spacing between vertical bracing pipes is equal to or greater than 2'-6".
 b. Bending radius is 12".
 c. The distance between the lowest clamp and centerline of horizontal bent pipe is 13" max.



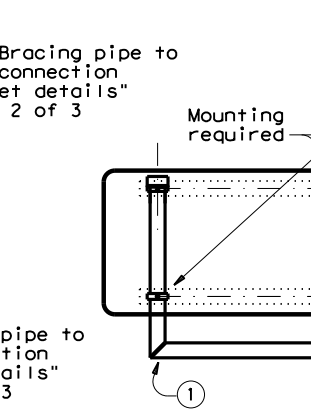
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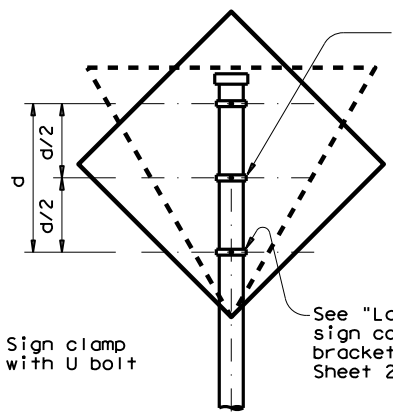
TYPE 32



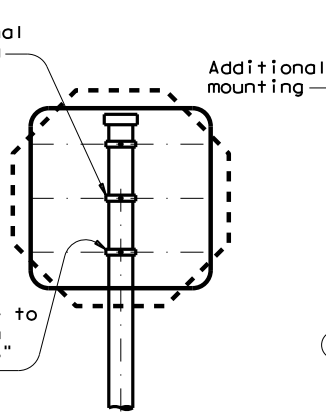
TYPE SPECIAL



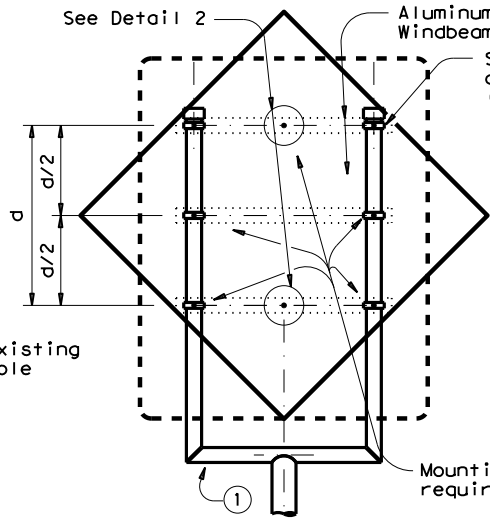
TYPE 23



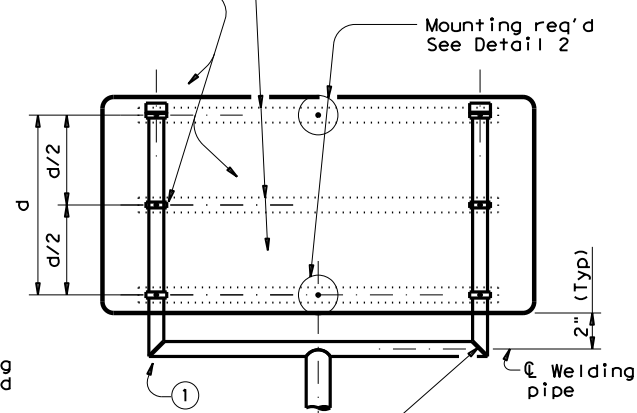
TYPE 1



TYPE 2



TYPE 3



TYPE 3

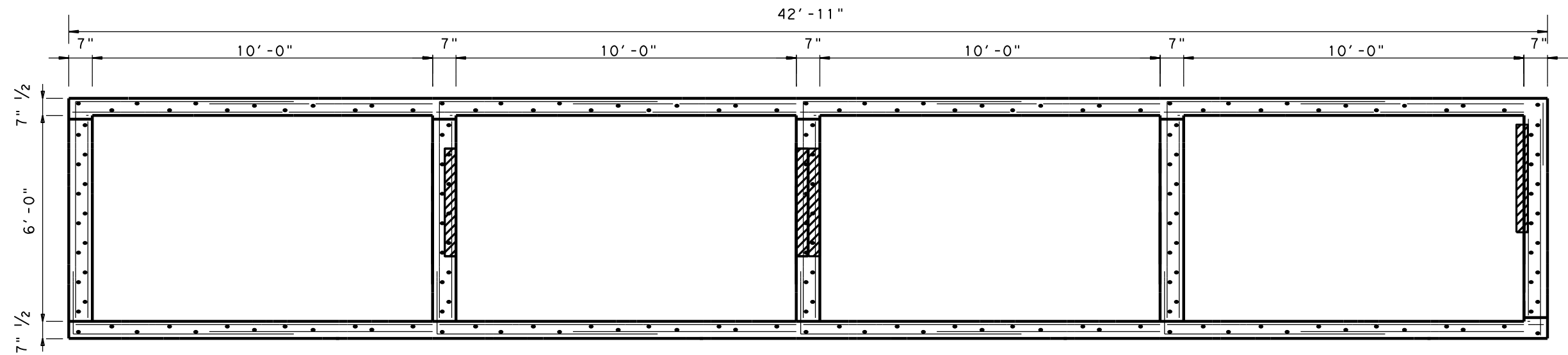
SHEET 3 OF 3

Texas Department of Transportation
Traffic Operations Division Standard

BRIDGE RAILING SIGN MOUNT DETAILS

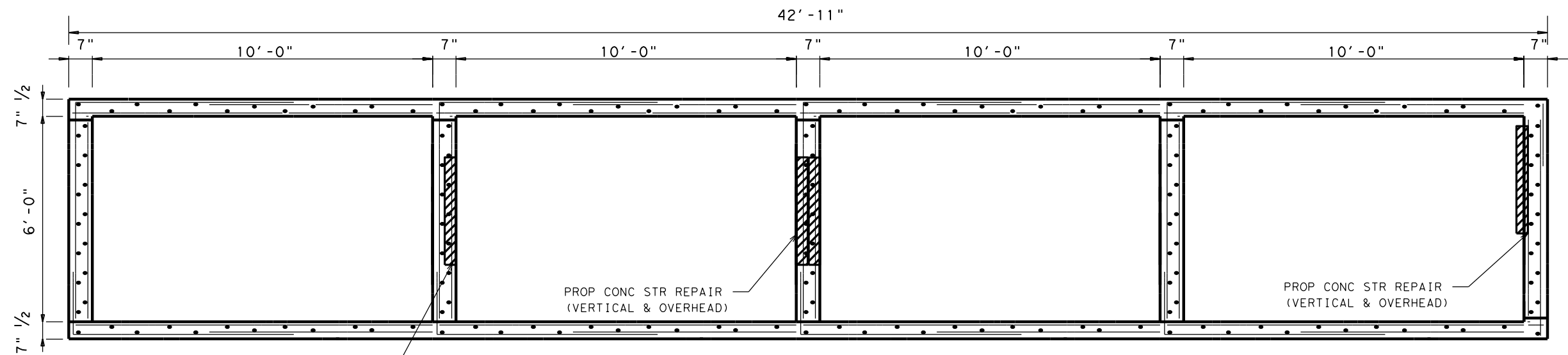
SMD (BR-3) - 14

FILE: smdbr-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CR: TxDOT
© TxDOT August 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607	01	057, ETC	FM 1764
	DIST	COUNTY	SHEET NO.	
	HOU	GALVESTON	393	



EXIST DRAINAGE DITCH
TYPICAL SECTION

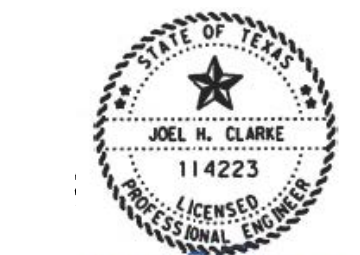
STA. 387+00.00 TO STA. 388+31.00



PROP DRAINAGE DITCH
TYPICAL SECTION

STA. 387+00.00 TO STA. 388+31.00

PROP CONC STR REPAIR
(VERTICAL & OVERHEAD)



May 21 2024

N. T. S.

**FM 1764
DRAINAGE DITCH
TYPICAL SECTION**

12-085-1607-01-004

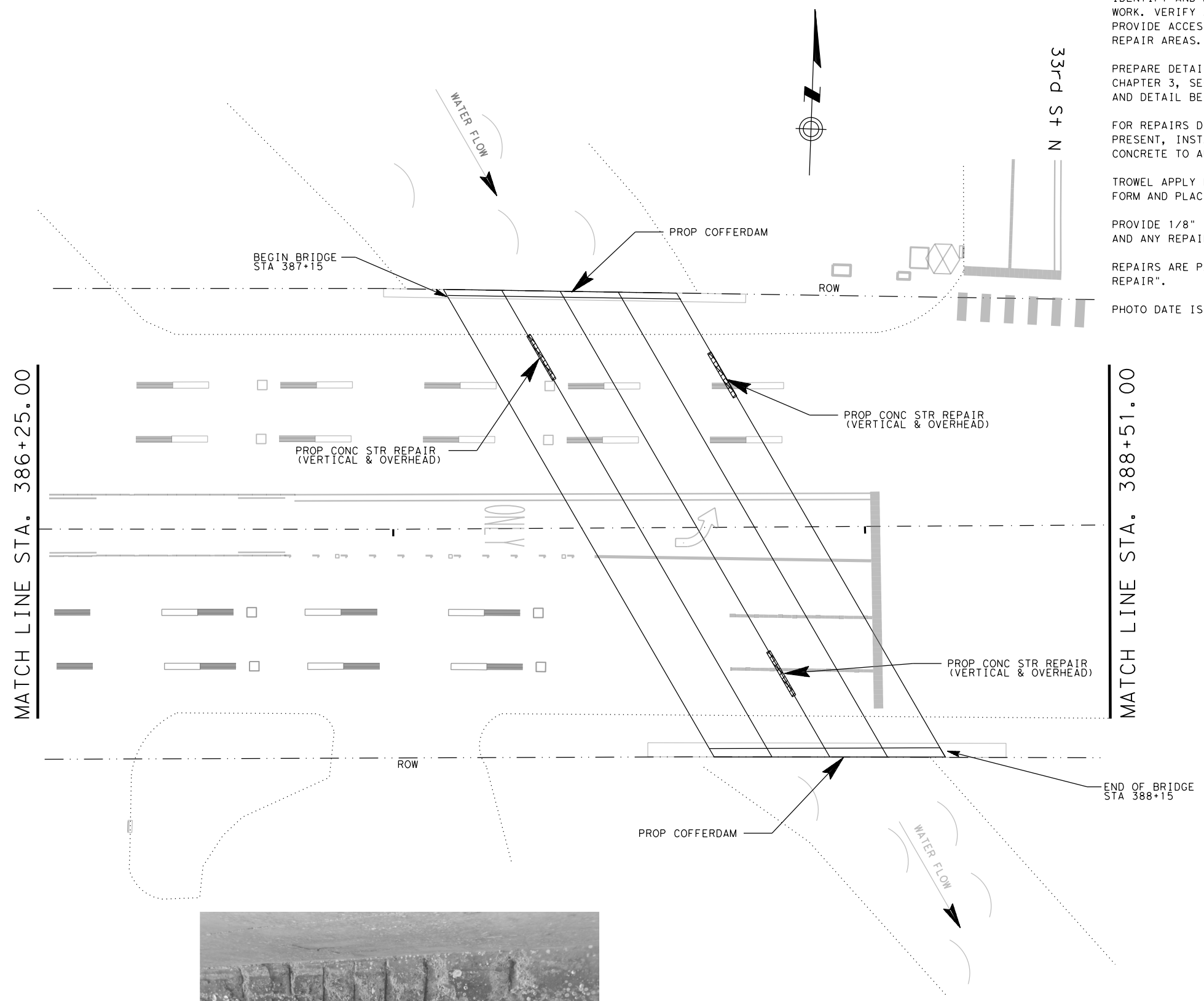
Texas Department of Transportation

SHEET 1 OF 1

FHWA TEXAS DIVISION		FEDERAL AID PROJECT NO.		SHEET NO.	
				394	
STATE	DISTRICT	COUNTY			
TEXAS	HOU	GALVESTON			
CONTROL	SECTION	JOB	HIGHWAY NO.		
1607	01	057	FM 1764		

DN: Ck: DM: Ck: DN:

GENERAL NOTES:
 IDENTIFY AND MARK ALL REPAIR LOCATIONS PRIOR TO BEGINNING WORK. VERIFY AREAS AND QUANTITIES WITH THE ENGINEER. PROVIDE ACCESS FOR THE ENGINEER TO INSPECT AND VERIFY REPAIR AREAS.
 PREPARE DETAILED REPAIR PROCEDURE IN ACCORDANCE WITH CHAPTER 3, SECTION 2 OF THE TXDOT CONCRETE REPAIR MANUAL AND DETAIL BELOW.
 FOR REPAIRS DEEPER THEN 2" WITH NO OTHER MILD REINFORCING PRESENT, INSTALL STAINLESS STEEL PINS IN EXISTING CONCRETE TO ANCHOR REPAIR MATERIAL.
 TROWEL APPLY REPAIR MATERIALS TO A MAXIMUM DEPTH OF 6". FORM AND PLACE MATERIAL IF REPAIR DEPTH EXCEEDS 6".
 PROVIDE 1/8" BITUMINOUS FIBER MATERIAL BETWEEN TOP OF CAP AND ANY REPAIR MATERIAL.
 REPAIRS ARE PAID FOR AS ITEM 429. "CONCRETE STRUCTURE REPAIR".
 PHOTO DATE IS TAKEN 8/17/2020.



Joel H. Clarke
 May 21 2024

DRAINAGE DITCH
 REPAIR DETAILS

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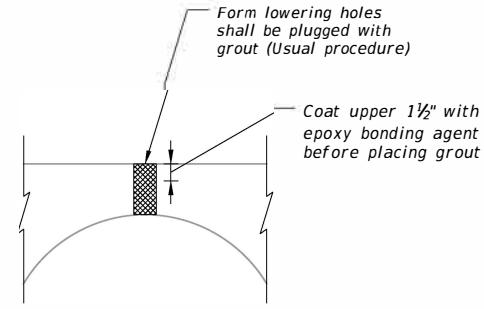
ITEM 429-6007 CONC STR REPAIR (VERTICAL & OVERHEAD) 266 SF



SHEET 1 OF 1
 ©2024

CONT	SECT	JOB	HIGHWAY
1607	01	057, ETC	FM 1764
DIST	COUNTY		SHEET NO.
HOU	GALVESTON		395

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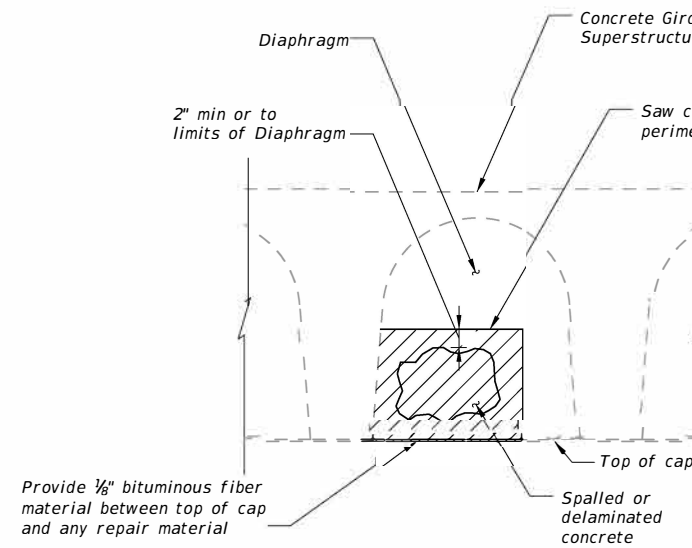


FORM LOWERING HOLE TREATMENT

Scale: N.T.S.

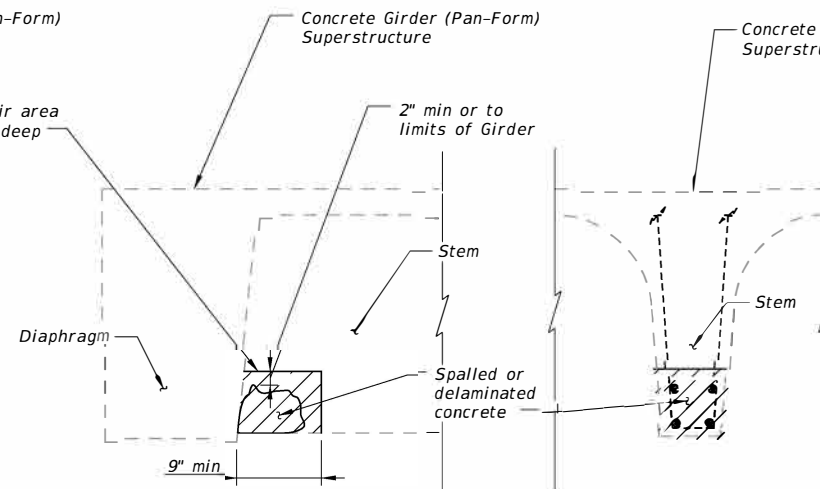
FORM LOWERING HOLE TREATMENT NOTES:

- Clean hole to remove oil and other contaminants.
- Provide Type V epoxy per DMS-6100, "Epoxies and Adhesives".
- Repair as full-depth bridge deck repair per TxDOT Concrete Repair Manual Chapter 3, Section 4. Saw-cutting is not required.
- Repairs are paid for as Item 429, "Concrete Structure Repair".



TYPICAL DIAPHRAGM REPAIR

Scale: 1/2" = 1'-0"



ELEVATION

SECTION

TYPICAL GIRDER STEM REPAIR

Scale: 1/2" = 1'-0"

CONCRETE REPAIR NOTES:

- Damage locations and quantities are based on 0811712020 Condition Assessment. Immediately notify TxDOT if any discrepancies are noted between the plans and actual conditions.
- Submit detailed repair procedures, including proposed proprietary materials, for approval prior to commencing work. Repairs are considered "Intermediate Spalls" and shall be repaired following Chapter 3, Section 2 of the TxDOT Concrete Repair Manual.
- Some repair areas indicated do not exhibit visible spalling and will need to be identified by sounding the concrete with hammers to determine the location and limits of repairs.
- Sound all surfaces to identify and mark all delaminated areas for review and approval by the Engineer. Confirm square footage of repair areas prior to commencing removal and notify Engineer of any discrepancies. Provide access to Engineer for verification.
- Notify Engineer once existing concrete is removed and repair areas for each span have been prepared. Provide access to the Engineer for verification of prepared repair areas.
- Repairs are paid for as Item 429, "Concrete Structure Repair".

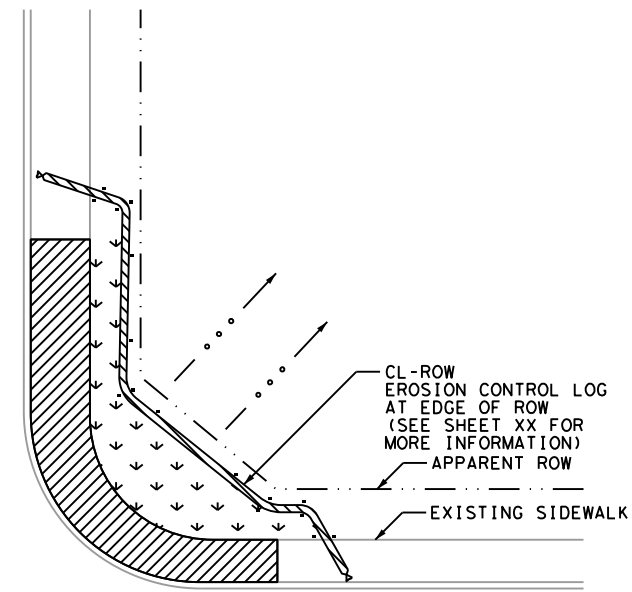
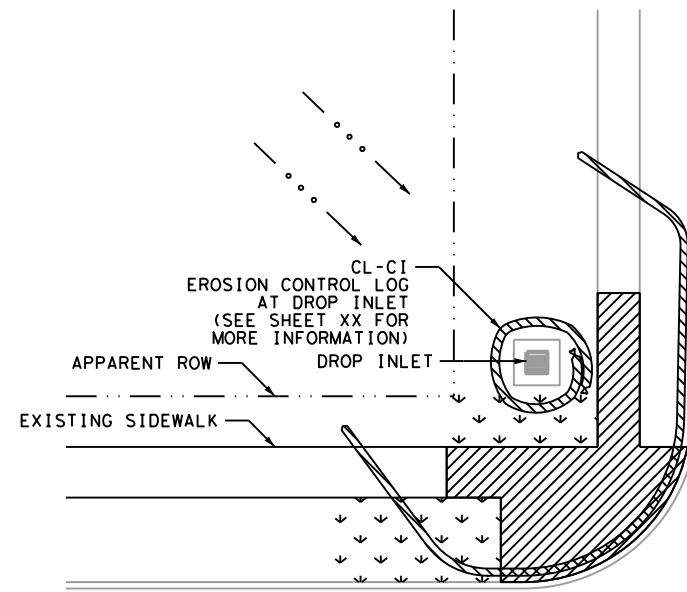


Joel H. Clarke

May 21 2024

		Bridge Division	
CONCRETE SUPERSTRUCTURE REPAIR DETAILS			
NBI: 12-085-1607-01-004			
FILE: XX.dgn	DN: XX	CK: XX	DW: XX
CONT: June 2020	SECT:	JOB: 057,ETC	HIGHWAY: FM 1764
REVISIONS:	DIST: HOU	COUNTY: GALVESTON	SHEET NO.: 396

DATE:
FILE:



NOTES:

REFERENCE ENVIRONMENTAL PERMITS, ISSUES, AND COMMITMENTS (EPIC) AND STORM WATER POLLUTION PREVENTION PLAN (SW3P) SHEETS FOR SPECIFIC CONSTRUCTION CONSIDERATIONS OR REQUIREMENTS.

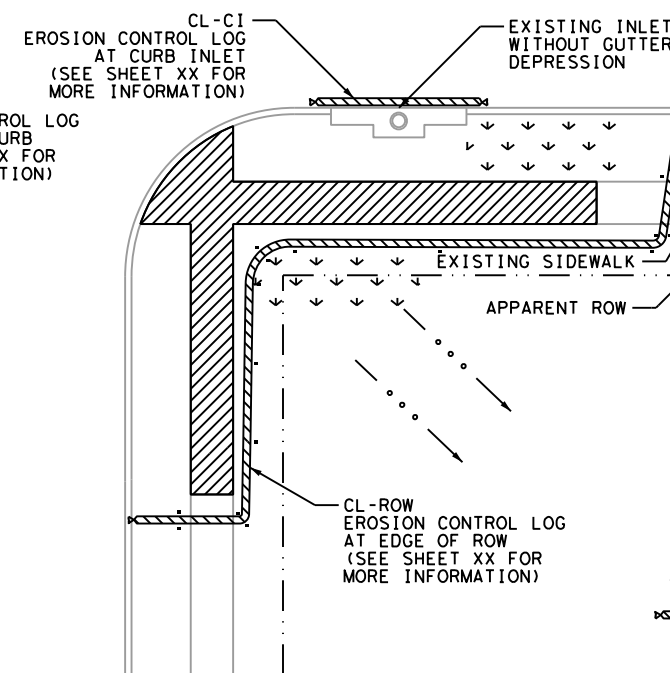
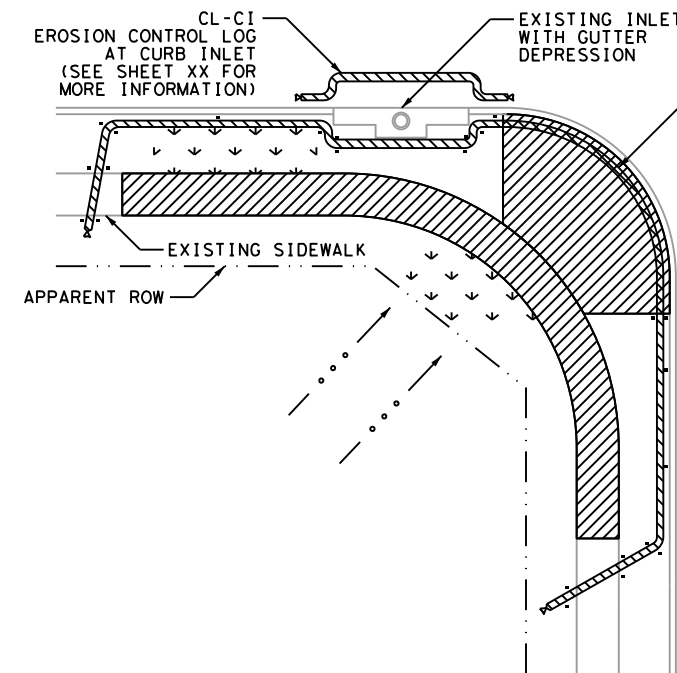
EXAMPLES SHOWN ON THE SHEET ARE FOR GENERAL GUIDANCE AND MAY BE MODIFIED AS DIRECTED BY THE ENGINEER.

TEMPORARY SEDIMENT CONTROL FENCE MAY BE USED IN LIEU OF EROSION CONTROL LOGS WHERE APPROVED BY THE ENGINEER.

SITE CONDITIONS MAY DICTATE ADDITIONAL COUNTERMEASURES AS DIRECTED BY THE ENGINEER.

USE ADDITIONAL STAKES AS NEEDED TO HOLD IN PLACE (NSPI).

INSTALLATION OF COUNTERMEASURES MUST BE APPROVED BY THE ENGINEER PRIOR TO PLACEMENT.



LEGEND

- SODDING
- FLOW DIRECTION
- EROSION CONTROL LOG
- WOOD OR METAL STAKES (AS APPROVED BY THE ENGINEER)
- EXISTING FEATURES
- PROPOSED WORK AREA

ALD
5/16/2024



Kimley»Horn F-928

Texas Department of Transportation

CURB RAMP PROGRAM

SW3P SIDEWALK GENERAL LAYOUT

TEXAS CITY, TEXAS

SHEET 1 OF 1

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	
		FM 1764	
STATE	DIST.	COUNTY	SHEET NO.
TEXAS	HOUSTON	GALVESTON	397
CONT.	SECT.	JOB	
1607	01	057, ETC.	

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STORMWATER POLLUTION PREVENTION PLAN (SWP3):

This SWP3 has been developed in accordance with the TPDES Construction General Permit TXR150000 (CGP). The Texas Department of Transportation (TxDOT) ensures that project specifications include adequate best management practices (BMPs) for this project.

For all projects with soil disturbing activity and for projects that have Environmental, Permits, Issues, and Commitments (EPICs) dependent on stormwater controls and water quality measures TxDOT will maintain a SWP3 with all pertinent records, correspondence, environmental documents, etc. at the project field office, Area Office, or electronically.

This SWP3 is consistent with requirements specified in applicable stormwater plans and the projects environmental permits, issues, and commitments (EPICs). A copy of the CGP is included in Attachment 2.12 of the SWP3 binder.

1.0 SITE/PROJECT DESCRIPTION

1.1 PROJECT CONTROL SECTION JOB (CSJ):
1607-01-057, 1607-01-055

1.2 PROJECT LIMITS:
From: W OF SH 3

To: 14TH STREET

1.3 PROJECT COORDINATES:

BEGIN: (Lat) 29°23'50.0"N, (Long) 94°59'39.1"W

END: (Lat) 29°23'36.0"N, (Long) 94°54'52.8"W

1.4 TOTAL PROJECT AREA (Acres): 3.698

1.5 TOTAL AREA TO BE DISTURBED (Acres): 3.698

1.6 NATURE OF CONSTRUCTION ACTIVITY:

INSTALL SIDEWALKS, REMOVE AND REPLACE CONCRETE INTERSECTION, MILL AND OVERLAY, STRIPES, SIGNS AND CULVERT REPAIR

1.7 MAJOR SOIL TYPES:

Soil Type	Description

1.8 PROJECT SPECIFIC LOCATIONS (PSLs):

PSLs must be depicted on the Environmental Layout Sheets in Attachment 1.2 of this SWP3. PSLs may be identified during preconstruction meetings or during the construction process. Please choose from the options below:

- PSLs determined during preconstruction meeting
- PSLs determined during construction
- No PSLs planned for construction

Type	Sheet #s

All off-ROW PSLs required by the Contractor are the Contractor's responsibility. The Contractor shall secure all permits required by local, state, federal laws for off-ROW PSLs. The contractor shall provide diagrams, areas of disturbance, acreage, and BMPs for all off-ROW PSLs within one mile of the project.

1.9 CONSTRUCTION ACTIVITIES:

(Use the following list as a starting point when developing the Construction Activity Schedule and Ceasing Record in Attachment 2.5.)

- Mobilization
- Install sediment and erosion controls
 - Blade existing topsoil into windrows, prep ROW, clear and grub
- Remove existing pavement
- Grading operations, excavation, and embankment
 - Excavate and prepare subgrade for proposed pavement widening
 - Remove existing culverts, safety end treatments (SETs)
- Remove existing metal beam guard fence (MBGF), bridge rail
- Install proposed pavement per plans
 - Install culverts, culvert extensions, SETs
- Install mow strip, MBGF, bridge rail
 - Place flex base
 - Rework slopes, grade ditches
 - Blade windrowed material back across slopes
- Revegetation of unpaved areas
- Achieve site stabilization and remove sediment and erosion control measures
 - Other: _____
 - Other: _____
 - Other: _____

1.10 POTENTIAL POLLUTANTS AND SOURCES:

- Sediment laden stormwater from stormwater conveyance over disturbed area
- Fuels, oils, and lubricants from construction vehicles, equipment, and storage
- Solvents, paints, adhesives, etc. from various construction activities
- Transported soils from offsite vehicle tracking
- Construction debris and waste from various construction activities
- Contaminated water from excavation or dewatering pump-out water
- Sanitary waste from onsite restroom facilities
- Trash from various construction activities/receptacles
- Long-term stockpiles of material and waste
- Discharges from concrete washout activities, runoff from concrete cutting activities, and other concrete related activities.

- Other: _____
- Other: _____
- Other: _____

1.11 RECEIVING WATERS:

Receiving waters must be depicted on the Environmental Layout Sheets in Attachment 1.2 of this SWP3. Include Segment # for receiving waters.

Tributaries	Classified Waterbody
MOSES LAKE	MOSES LAKE(2341C);

* Add (*) for impaired waterbodies with pollutant in ().

1.12 ROLES AND RESPONSIBILITIES: TxDOT

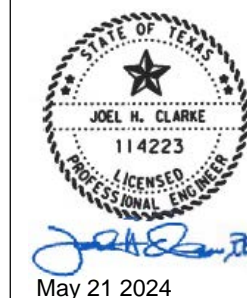
- Development of plans and specifications
- Submit Notice of Intent (NOI) to TCEQ (≥5 acres)
- Post Construction Site Notice
- Submit NOI/CSN to local MS4
- Perform SWP3 inspections
- Maintain SWP3 records and update to reflect daily operations
- Complete and submit Notice of Termination to TCEQ
- Maintain SWP3 records for 3 years
- Other: _____
- Other: _____
- Other: _____

1.13 ROLES AND RESPONSIBILITIES: CONTRACTOR

- Day To Day Operational Control
- Submit Notice of Intent (NOI) to TCEQ (≥5 acres)
- Post Construction Site Notice
- Submit NOI/CSN to local MS4
- Maintain schedule of major construction activities
- Install, maintain and modify BMPs
- Complete and submit Notice of Termination to TCEQ
- Maintain SWP3 records for 3 years
- Other: _____
- Other: _____
- Other: _____

1.14 LOCAL MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) OPERATOR COORDINATION:

MS4 Entity
TEXAS CITY



STORMWATER POLLUTION PREVENTION PLAN (SWP3)

© 2023 July 2023 Sheet 1 of 2

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
			398
STATE	STATE DIST.	COUNTY	
TEXAS	HOU	GALVESTON	
CONT.	SECT.	JOB	HIGHWAY NO.
1607	01	057, ETC	FM 1764

STORMWATER POLLUTION PREVENTION PLAN (SWP3):

2.0 BEST MANAGEMENT PRACTICES (BMPs) AND CONTROLS, INSPECTION, AND MAINTENANCE

The Contractor shall be the responsible party for implementing the BMPs described herein and for complying with the SWP3 for control of erosion and sedimentation during day-to-day operations. The Contractor shall implement changes to this SWP3 approved by TxDOT within the times specified in this SWP3 or the CGP.

2.1 EROSION CONTROL AND SOIL STABILIZATION BMPs:

T / P

- Protection of Existing Vegetation
- Vegetated Buffer Zones
- Soil Retention Blankets
- Geotextiles
- Mulching/ Hydromulching
- Soil Surface Treatments
- Temporary Seeding
- Permanent Planting, Sodding or Seeding
- Biodegradable Erosion Control Logs
- Rock Filter Dams/ Rock Check Dams
- Vertical Tracking
- Interceptor Swale
- Riprap
- Diversion Dike
- Temporary Pipe Slope Drain
- Embankment for Erosion Control
- Paved Flumes
- Other: _____
- Other: _____
- Other: _____
- Other: _____

2.2 SEDIMENT CONTROL BMPs:

T / P

- Biodegradable Erosion Control Logs
- Dewatering Controls
- Inlet Protection
- Rock Filter Dams/ Rock Check Dams
- Sandbag Berms
- Sediment Control Fence
- Stabilized Construction Exit
- Floating Turbidity Barrier
- Vegetated Buffer Zones
- Vegetated Filter Strips
- Other: _____
- Other: _____
- Other: _____
- Other: _____

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

Sediment control BMPs requiring design capacity calculations (See SWP3 Attachment 1.3.):

T / P

- Sediment Trap
 - Calculated volume runoff from 2-year, 24-hour storm for each acre of disturbed area
 - 3,600 cubic feet of storage per acre drained
- Sedimentation Basin
 - Not required (<10 acres disturbed)
 - Required (>10 acres) and implemented.
 - Calculated volume runoff from 2-year, 24-hour storm for each acre of disturbed area
 - 3,600 cubic feet of storage per acre drained
 - Required (>10 acres), but not feasible due to:
 - Available area/Site geometry
 - Site slope/Drainage patterns
 - Site soils/Geotechnical factors
 - Public safety
 - Other: _____

2.3 PERMANENT CONTROLS:

(Coordinate post-construction BMPs with appropriate TxDOT maintenance sections.)

BMPs To Be Left In Place Post Construction:

Type	Stationing	
	From	To
PERMANENT SODDING	STA 368+00	STA 483+36

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

2.4 OFFSITE VEHICLE TRACKING CONTROLS:

- Excess dirt/mud on road removed daily
- Haul roads dampened for dust control
- Loaded haul trucks to be covered with tarpaulin
- Stabilized construction exit
- Daily street sweeping

- Other: _____
- Other: _____
- Other: _____
- Other: _____

2.5 POLLUTION PREVENTION MEASURES:

- Chemical Management
- Concrete and Materials Waste Management
- Debris and Trash Management
- Dust Control
- Sanitary Facilities

- Other: _____
- Other: _____
- Other: _____
- Other: _____

2.6 VEGETATED BUFFER ZONES:

Natural vegetated buffers shall be maintained as feasible to protect adjacent surface waters. If vegetated natural buffer zones are not feasible due to site geometry, the appropriate additional sediment control measures have been incorporated into this SWP3.

Type	Stationing	
	From	To

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

2.7 ALLOWABLE NON-STORMWATER DISCHARGES:

- Fire hydrant flushings
- Irrigation drainage
- Pavement washwater (where spills or leaks have not occurred, and detergents are not used)
- Potable water sources
- Springs
- Uncontaminated groundwater
- Water used to wash vehicles or control dust
- Other allowable non-stormwater discharges as allowed by TPDES GP TXR150000.

2.8 DEWATERING:

Dewatering discharges of accumulated stormwater, groundwater, and surface water including discharges from dewatering of trenches, excavations, foundations, vaults, and other points of accumulation are prohibited unless managed by appropriate controls to prevent and minimize the offsite discharge of sediment and other pollutants.

2.9 INSPECTIONS:

All disturbed areas and erosion and sediment control devices shall be inspected at least once every seven (7) days. Inspections shall be performed by TxDOT as indicated on the Field Inspection and Maintenance Report Form 2118 and retained in Attachment 2.5 of this SWP3.

When dewatering activities are present, a daily inspection will be conducted once per day during those activities and documented in accordance with CGP and TxDOT requirements.

2.10 MAINTENANCE:

Control measures shall be properly installed according to specifications. If it is determined that a BMP or control measure is not operating effectively, maintenance must be accomplished as soon as possible and before the next anticipated rain event, but in no case later than 7 calendar days after being able to access the site. Maintenance shall be performed by the Contractor as indicated on the Field Inspection and Maintenance Report Form 2118 and retained in Attachment 2.5 of this SWP3.



May 21 2024

STORMWATER POLLUTION PREVENTION PLAN (SWP3)

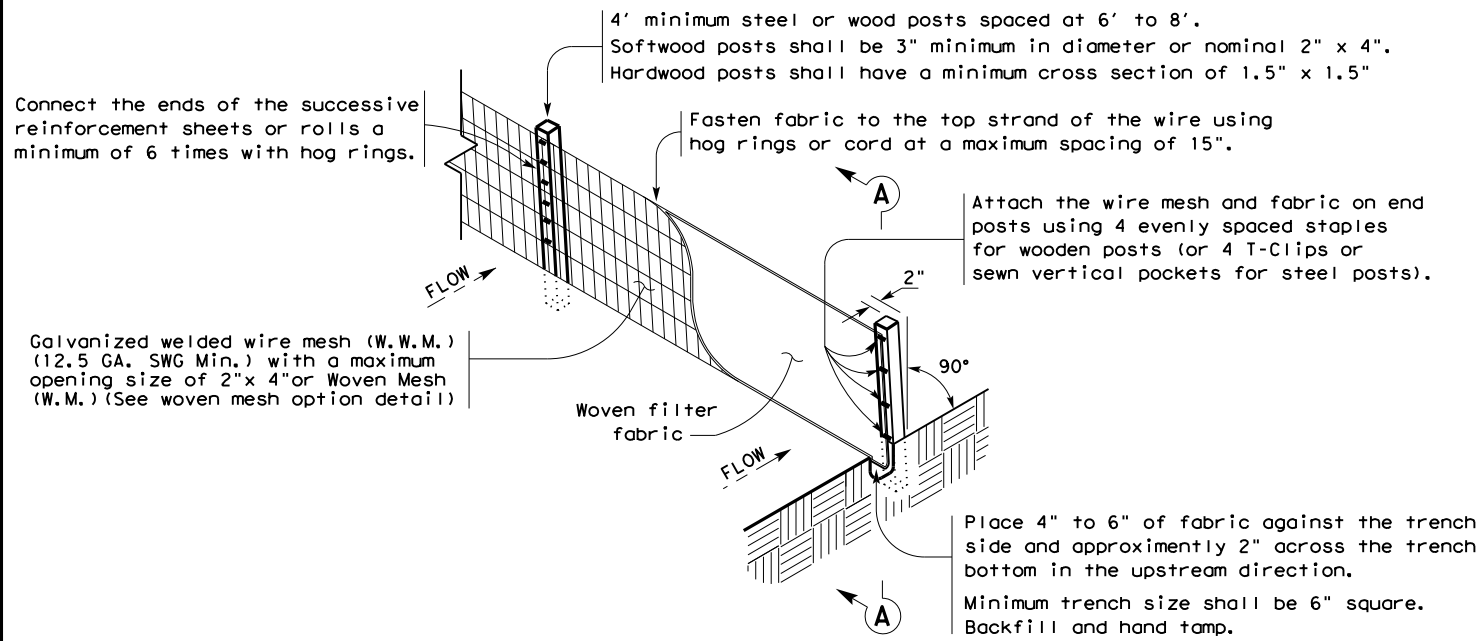
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Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
			399
STATE	STATE DIST.	COUNTY	
TEXAS	HOU	GALVESTON	
CONT.	SECT.	JOB	HIGHWAY NO.
1607	01	057, ETC	FM 1764

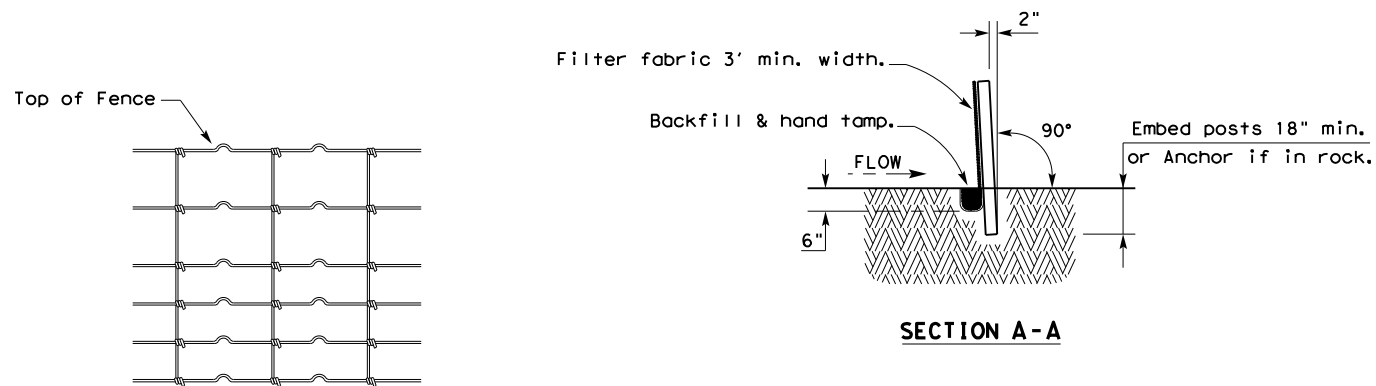
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DATE
FILE



TEMPORARY SEDIMENT CONTROL FENCE

SCF



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/FT². Sediment control fence is not recommended to control erosion from a drainage area larger than 2 acres.

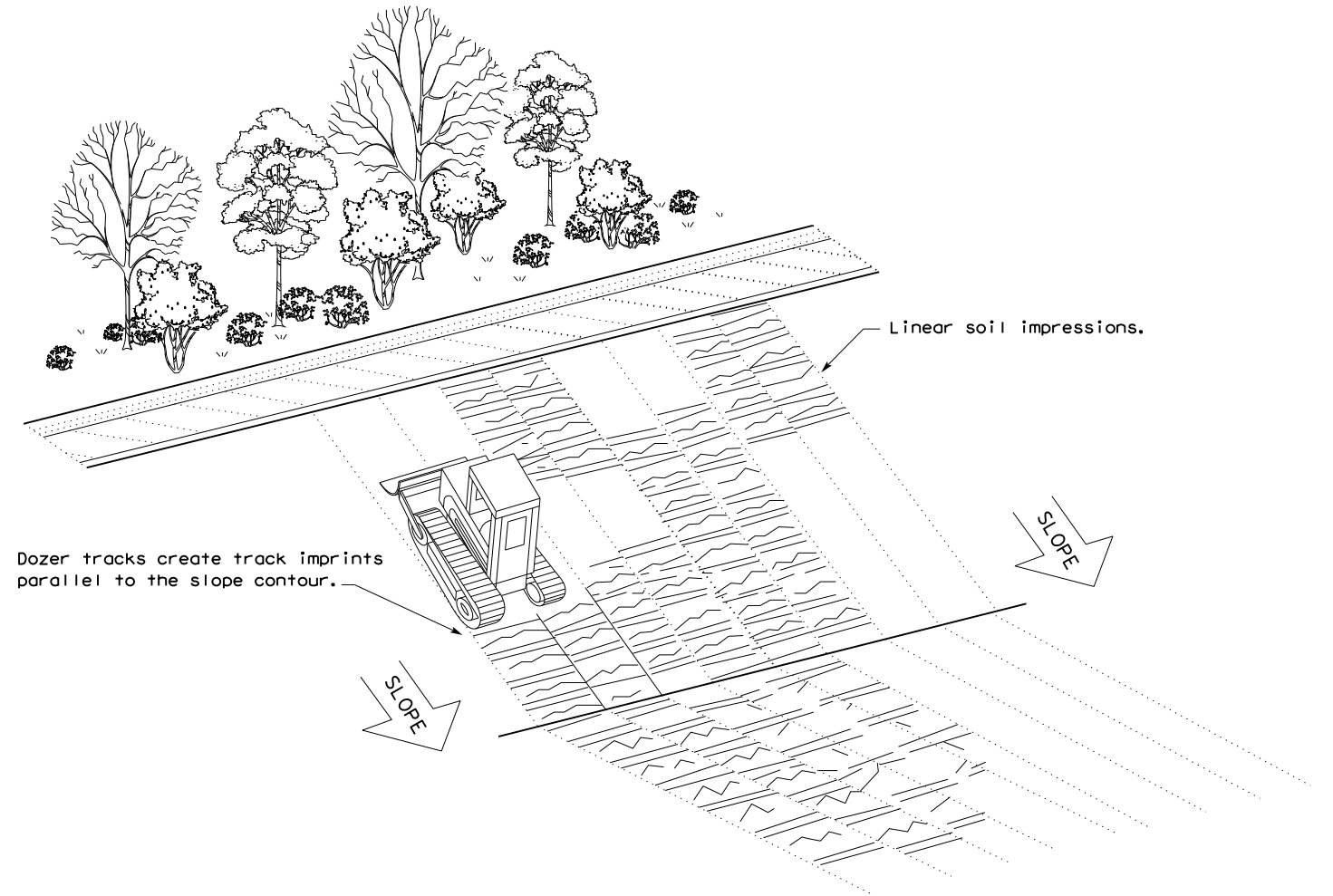
LEGEND

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 continuous linear track impressions where the minimum 12" length impressions are perpendicular to the slope or direction of water flow.

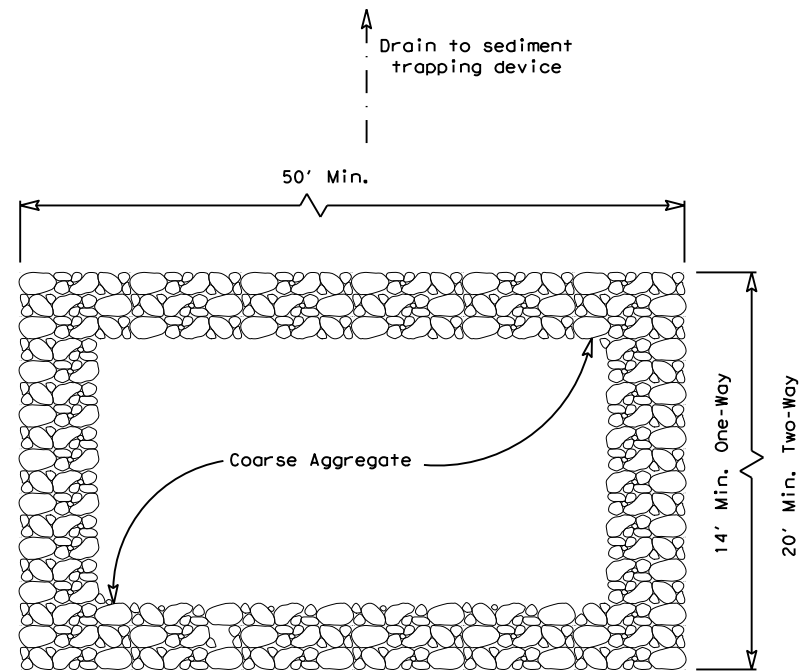


VERTICAL TRACKING

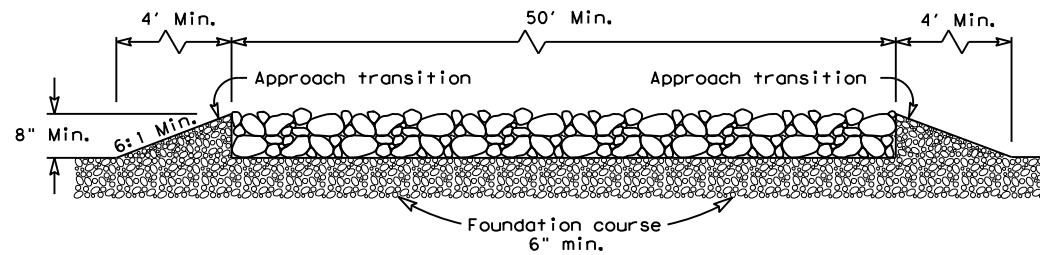
				Design Division Standard	
TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES FENCE & VERTICAL TRACKING EC(1)-16					
FILE: ec116	DN: TxDOT	CK: KM	DW: VP	DN/CK: LS	
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY	
REVISIONS	1607	01	057, ETC.	FM 1764	
	DIST	COUNTY		SHEET NO.	
	HOU	GALVESTON		400	

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DATE:
 FILE:



PLAN VIEW

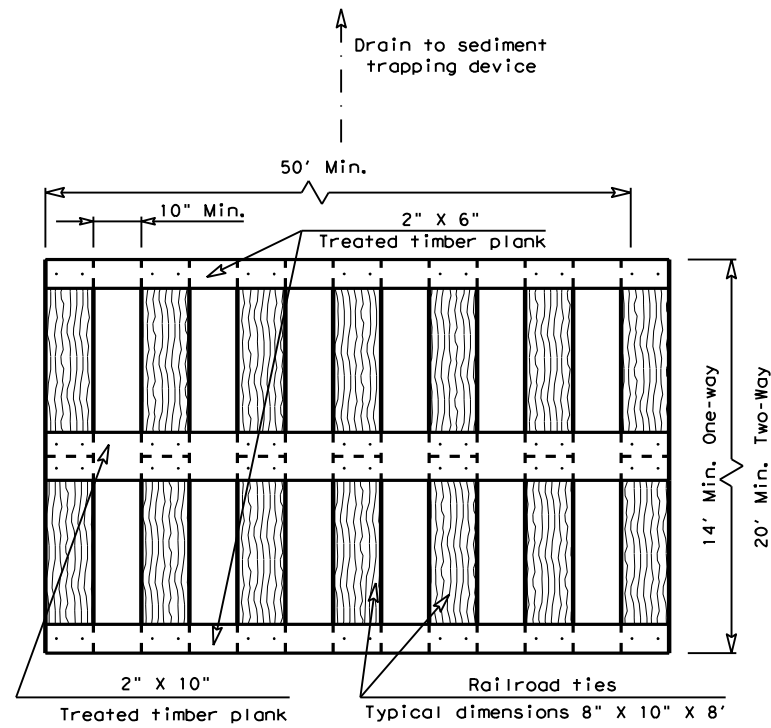


ELEVATION VIEW

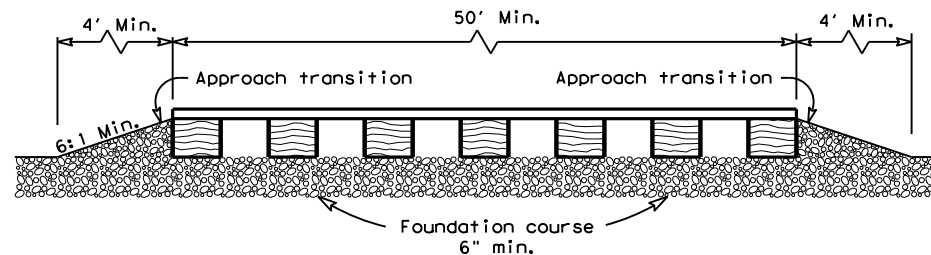
**CONSTRUCTION EXIT (TYPE 1)
 ROCK CONSTRUCTION (LONG TERM)**

GENERAL NOTES (TYPE 1)

1. The length of the type 1 construction exit shall be as indicated on the plans, but not less than 50'.
2. The coarse aggregate should be open graded with a size of 4" to 8".
3. The approach transitions should be no steeper than 6:1 and constructed as directed by the Engineer.
4. The construction exit foundation course shall be flexible base, bituminous concrete, portland cement concrete or other materials approved by the Engineer.
5. The construction exit shall be graded to allow drainage to a sediment trapping device.
6. The guidelines shown hereon are suggestions only and may be modified by the Engineer.
7. Construct exits with a width of at least 14 ft. for one-way and 20 ft. for two-way traffic for the full width of the exit, or as directed by the engineer.



PLAN VIEW

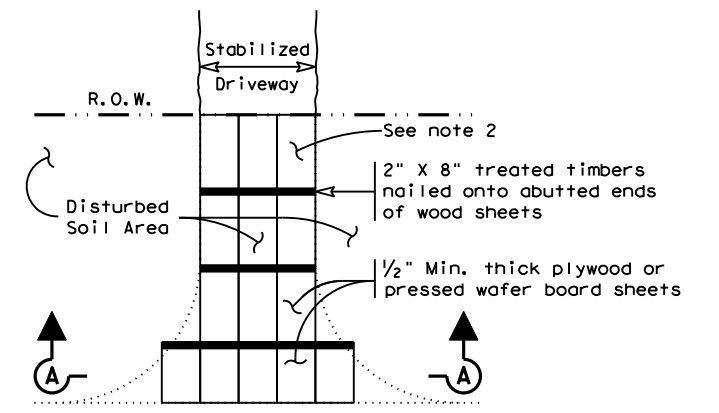


ELEVATION VIEW

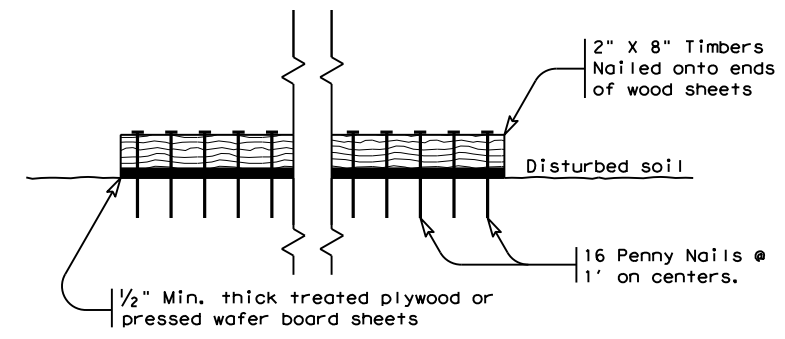
**CONSTRUCTION EXIT (TYPE 2)
 TIMBER CONSTRUCTION (LONG TERM)**

GENERAL NOTES (TYPE 2)

1. The length of the type 2 construction exit shall be as indicated on the plans, but not less than 50'.
2. The treated timber planks shall be attached to the railroad ties with 1/2" x 6" min. lag bolts. Other fasteners may be used as approved by the Engineer.
3. The treated timber planks shall be #2 grade min., and should be free from large and loose knots.
4. The approach transitions shall be no steeper than 6:1 and constructed as directed by the Engineer.
5. The construction exit foundation course shall be flexible base, bituminous concrete, portland cement concrete or other material as approved by the Engineer.
6. The construction exit should be graded to allow drainage to a sediment trapping device.
7. The guidelines shown hereon are suggestions only and may be modified by the Engineer.
8. Construct exits with a width of at least 14 ft. for one-way and 20 ft. for two-way traffic for the full width of the exit, or as directed by the engineer.



PLAN VIEW



**SECTION A-A
 CONSTRUCTION EXIT (TYPE 3)
 SHORT TERM**

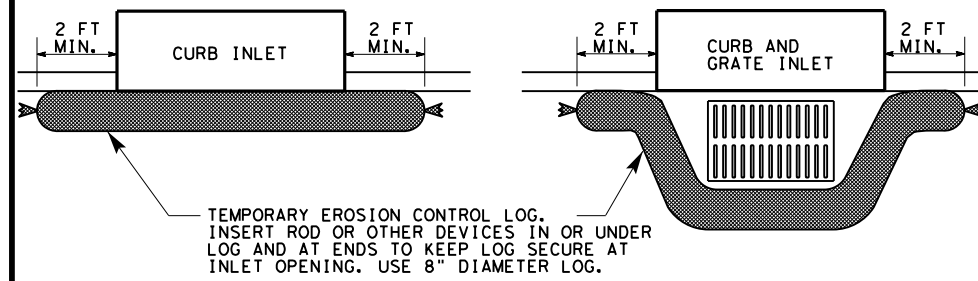
GENERAL NOTES (TYPE 3)

1. The length of the type 3 construction exit shall be as shown on the plans, or as directed by the Engineer.
2. The type 3 construction exit may be constructed from open graded crushed stone with a size of two to four inches spread a min. of 4" thick to the limits shown on the plans.
3. The treated timber planks shall be #2 grade min., and should be free from large and loose knots.
4. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

		<i>Design Division Standard</i>	
TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES CONSTRUCTION EXITS EC(3)-16			
FILE: ec316	DN: TxDOT	CK: KM	DW: VP
© TxDOT: JULY 2016	CONT	SECT	JOB
REVISIONS	1607	01	057, ETC.
	DIST	COUNTY	SHEET NO.
	HOU	GALVESTON	401

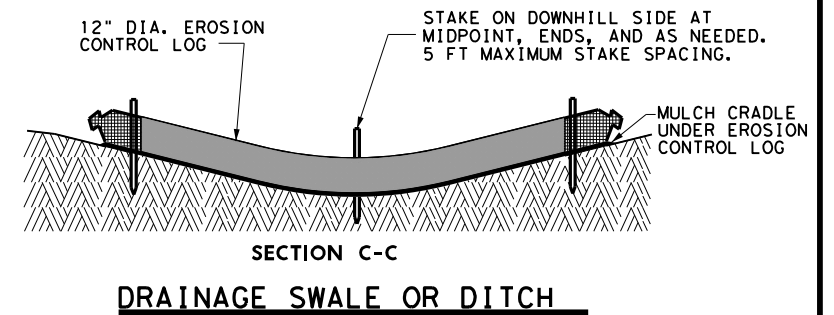
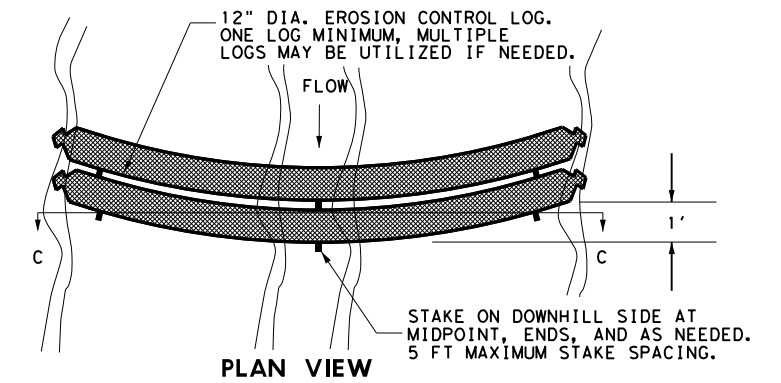
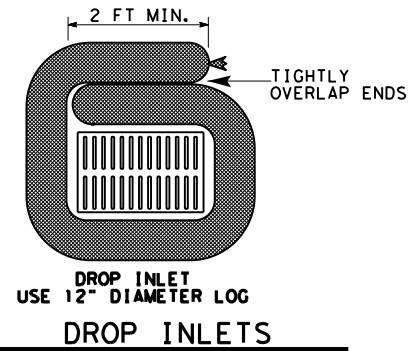
CURB INLETS 8" DIAMETER LOGS

ITEM 506-6040 BIODEG EROSN CONT LOGS (INSTL) (8")



DROP INLETS AND OTHER LOCATIONS 12" DIAMETER LOGS

ITEM 506-6041 BIODEG EROSN CONT LOGS (INSTL) (12")



MATERIAL REQUIREMENTS

FILL:

Use 100% shredded mulch or other non-compost biodegradable material as fill for logs. No compost or fines.

DO NOT USE MATERIAL WHICH PROHIBITS WATER INFILTRATION.

LOG MESH:

Use mesh with 1/4" openings or larger. Mesh must allow water infiltration but also hold fill material in place.

SEDIMENT BASIN & TRAP USAGE GUIDELINES

A sediment trap (erosion control log) may be used to filter sediment out of runoff draining from an unstabilized area.

Traps: The drainage area for a sediment trap should not exceed 5 acres. The trap capacity should be 1800 CF/Acre (0.5" over the drainage area).

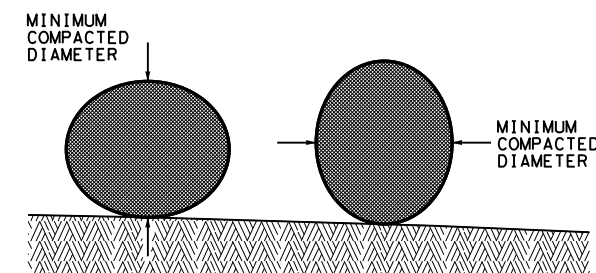
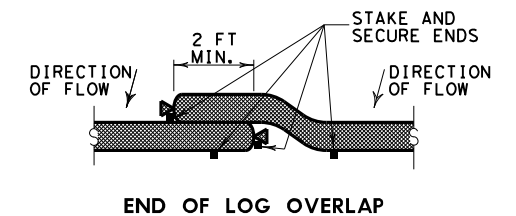
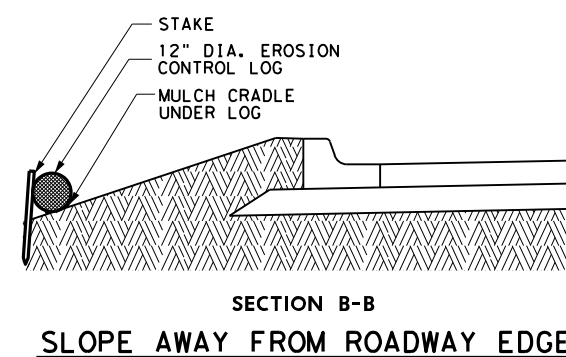
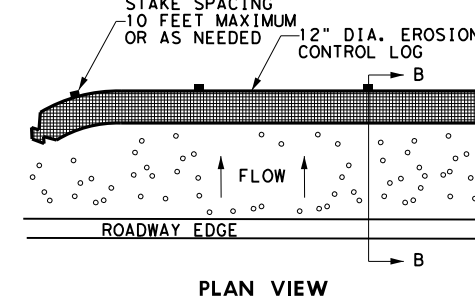
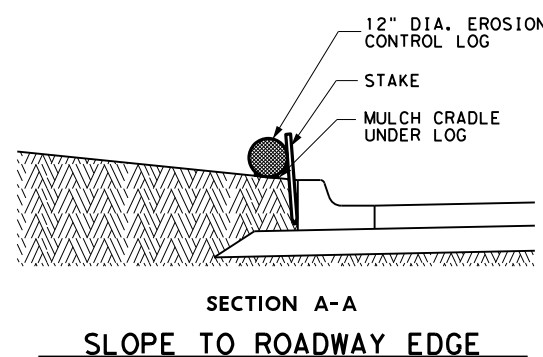
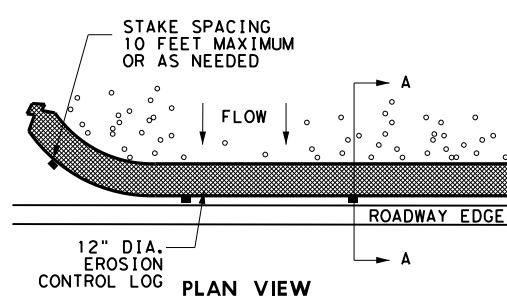
Sediment traps should be placed in the following locations:

1. Within drainage ditches spaced as needed or min. 500' on center
2. Immediately preceding ditch inlets
3. Just before the drainage enters a water course
4. Just before the drainage leaves the right of way

The trap should be cleaned when the capacity has been reduced by 1/2 or the sediment has accumulated to a depth of 1', whichever is less.

REQUIRED ITEMS:

- ITEM 506-6040 BIODEG EROSN CONT LOGS (INSTL) (8") LF
- ITEM 506-6041 BIODEG EROSN CONT LOGS (INSTL) (12") LF
- ITEM 506-6043 BIODEG EROSN CONT LOGS (REMOVE) LF



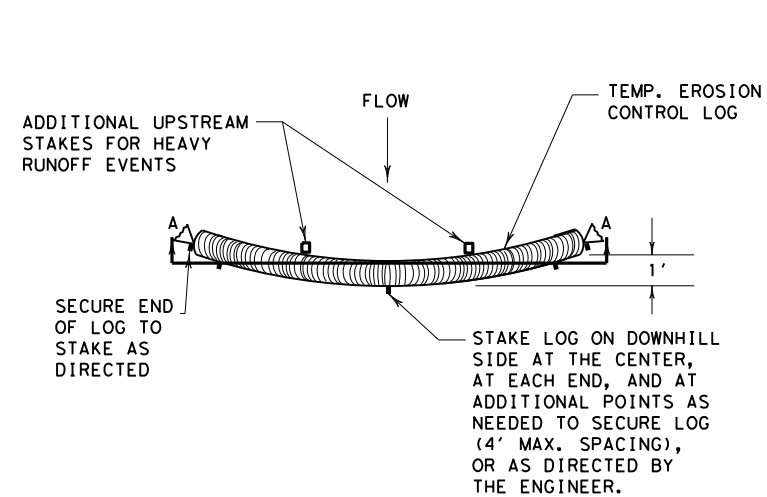
DIAMETER MEASUREMENTS OF EROSION CONTROL LOGS SPECIFIED IN PLANS

EROSION CONTROL LOG

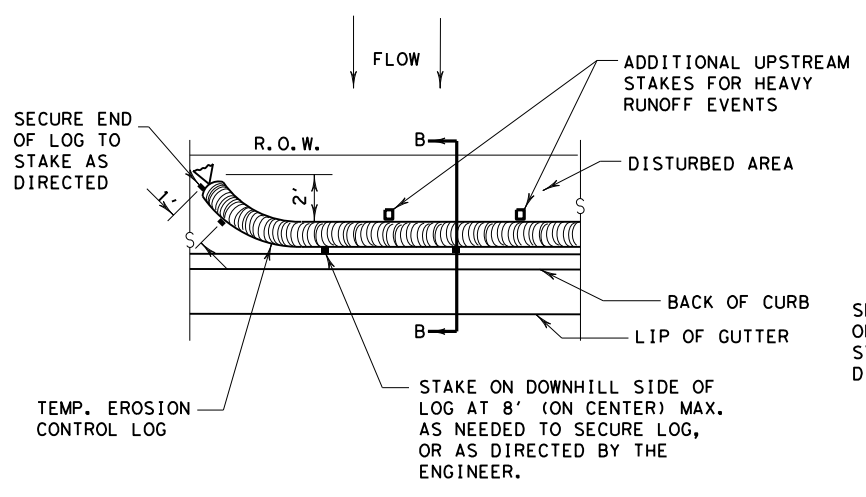
ECL-12

FILE: STDG4a.DGN	DN: TxDot	CK: TxDot	OW: TxDot	CK: TxDot
©TXDOT 2014	DISTRICT	FED REG	PROJECT NUMBER	SHEET
REVISIONS	HOU	6		402
3/15 MINOR CORRECTIONS	COUNTY	CONTROL	SECT	JOB
	GALVESTON	1607	01	1607-01-FM176-4

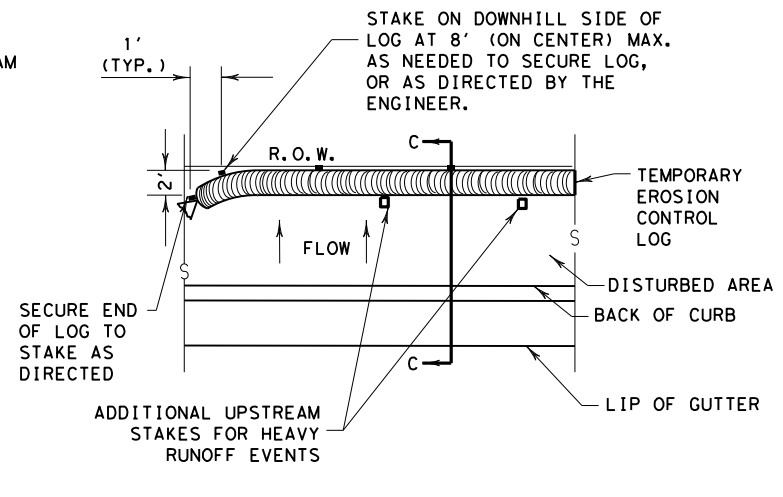
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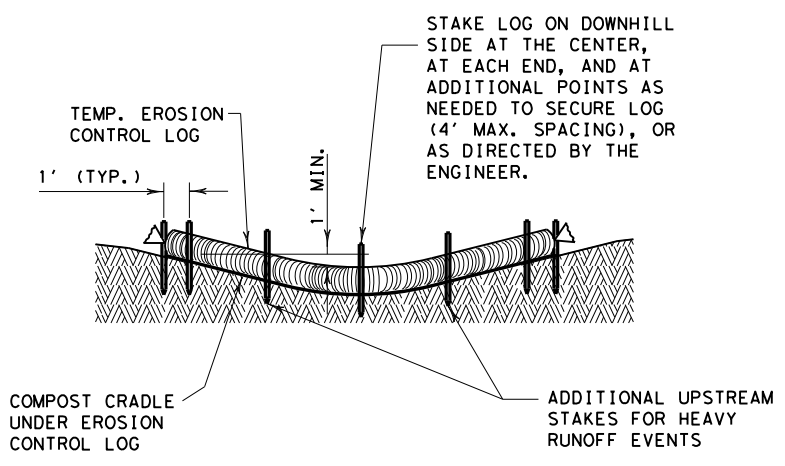
PLAN VIEW



PLAN VIEW



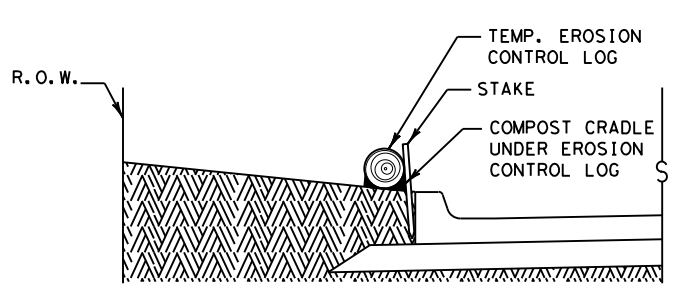
PLAN VIEW



SECTION A-A

EROSION CONTROL LOG DAM

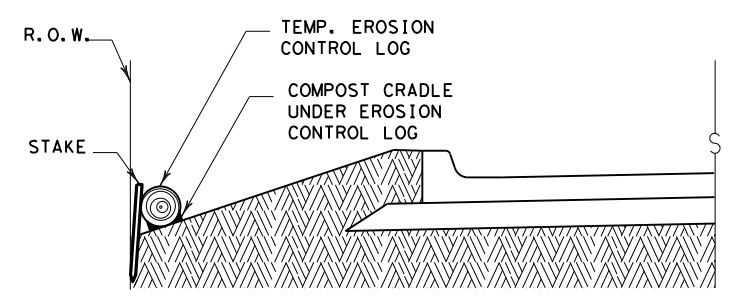
CL-D



SECTION B-B

EROSION CONTROL LOG AT BACK OF CURB

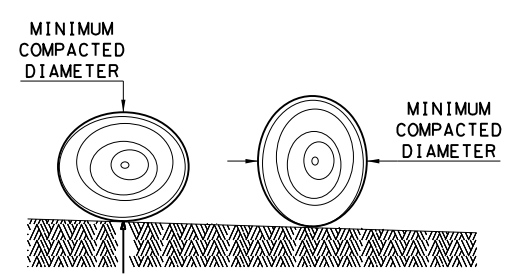
CL-BOC



SECTION C-C

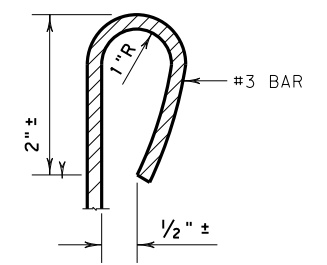
EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY

CL-ROW



DIAMETER MEASUREMENTS OF EROSION CONTROL LOGS SPECIFIED IN PLANS

- LEGEND**
- CL-D EROSION CONTROL LOG DAM
 - CL-BOC EROSION CONTROL LOG AT BACK OF CURB
 - CL-ROW EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY
 - CL-SST EROSION CONTROL LOGS ON SLOPES STAKE AND TRENCHING ANCHORING
 - CL-SSL EROSION CONTROL LOGS ON SLOPES STAKE AND LASHING ANCHORING
 - CL-DI EROSION CONTROL LOG AT DROP INLET
 - CL-CI EROSION CONTROL LOG AT CURB INLET
 - CL-GI EROSION CONTROL LOG AT CURB & GRATE INLET



REBAR STAKE DETAIL

SEDIMENT BASIN & TRAP USAGE GUIDELINES

An erosion control log sediment trap may be used to filter sediment out of runoff draining from an unstabilized area.

Log Traps: The drainage area for a sediment trap should not exceed 5 acres. The trap capacity should be 1800 CF/Acre (0.5" over the drainage area).

Control logs should be placed in the following locations:

1. Within drainage ditches spaced as needed or min. 500' on center
2. Immediately preceding ditch inlets or drain inlets
3. Just before the drainage enters a water course
4. Just before the drainage leaves the right of way
5. Just before the drainage leaves the construction limits where drainage flows away from the project.

The logs should be cleaned when the sediment has accumulated to a depth of 1/2 the log diameter.

Cleaning and removal of accumulated sediment deposits is incidental and will not be paid for separately.

GENERAL NOTES:

1. EROSION CONTROL LOGS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, OR AS DIRECTED BY THE ENGINEER.
2. LENGTHS OF EROSION CONTROL LOGS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND AS REQUIRED FOR THE PURPOSE INTENDED.
3. UNLESS OTHERWISE DIRECTED, USE BIODEGRADABLE OR PHOTODEGRADABLE CONTAINMENT MESH ONLY WHERE LOG WILL REMAIN IN PLACE AS PART OF A VEGETATIVE SYSTEM. FOR TEMPORARY INSTALLATIONS, USE RECYCLABLE CONTAINMENT MESH.
4. FILL LOGS WITH SUFFICIENT FILTER MATERIAL TO ACHIEVE THE MINIMUM COMPACTED DIAMETER SPECIFIED IN THE PLANS WITHOUT EXCESSIVE DEFORMATION.
5. STAKES SHALL BE 2" X 2" WOOD OR #3 REBAR, 2'-4' LONG, EMBEDDED SUCH THAT 2" PROTRUDES ABOVE LOG, OR AS DIRECTED BY THE ENGINEER.
6. DO NOT PLACE STAKES THROUGH CONTAINMENT MESH.
7. COMPOST CRADLE MATERIAL IS INCIDENTAL & WILL NOT BE PAID FOR SEPARATELY.
8. SANDBAGS USED AS ANCHORS SHALL BE PLACED ON TOP OF LOGS & SHALL BE OF SUFFICIENT SIZE TO HOLD LOGS IN PLACE.
9. TURN THE ENDS OF EACH ROW OF LOGS UPSLOPE TO PREVENT RUNOFF FROM FLOWING AROUND THE LOG.
10. FOR HEAVY RUNOFF EVENTS, ADDITIONAL UPSTREAM STAKES MAY BE NECESSARY TO KEEP LOG FROM FOLDING IN ON ITSELF.

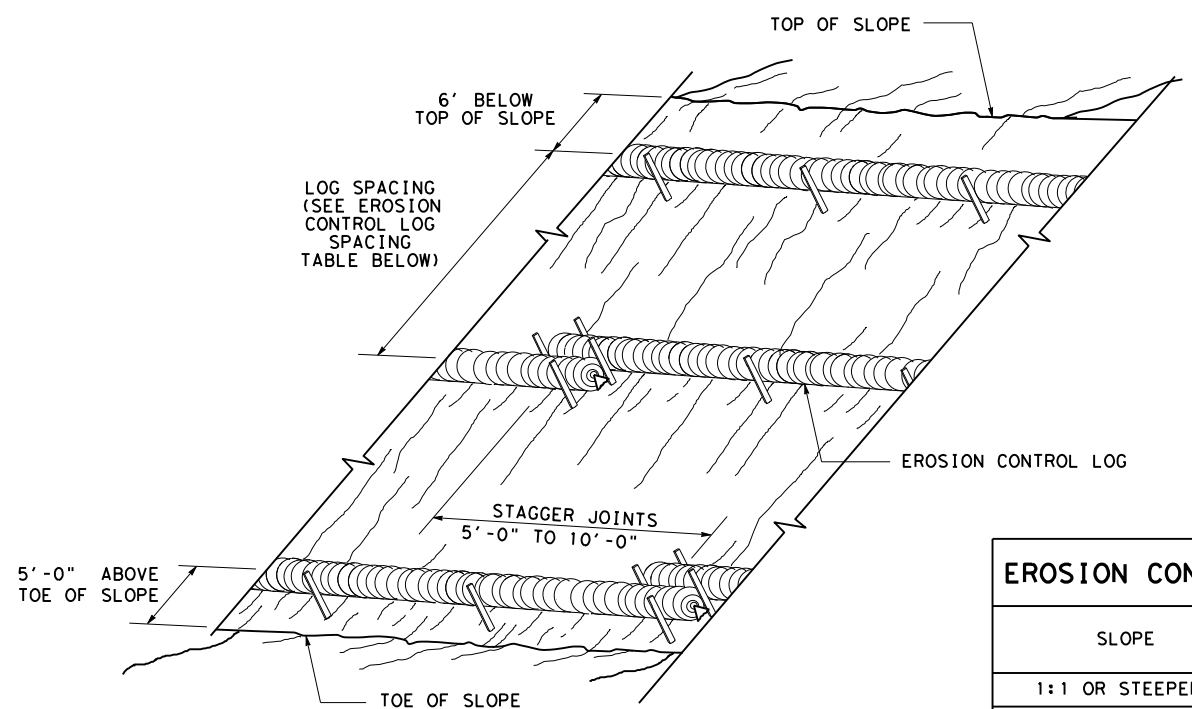
SHEET 1 OF 3

		Design Division Standard	
TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES			
EROSION CONTROL LOG			
EC (9) - 16			
FILE: ec916	DN: TxDOT	CK: KM	DW: LS/PT
© TxDOT: JULY 2016	CONT: 1607	SECT: 01	JOB: 057, ETC.
REVISIONS			FM 1764
	DIST: HOU	COUNTY: GALVESTON	SHEET NO: 403

DATE: FILE:

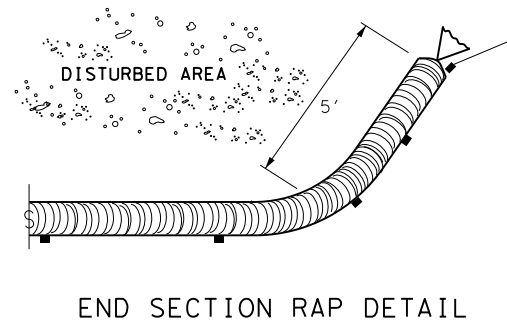
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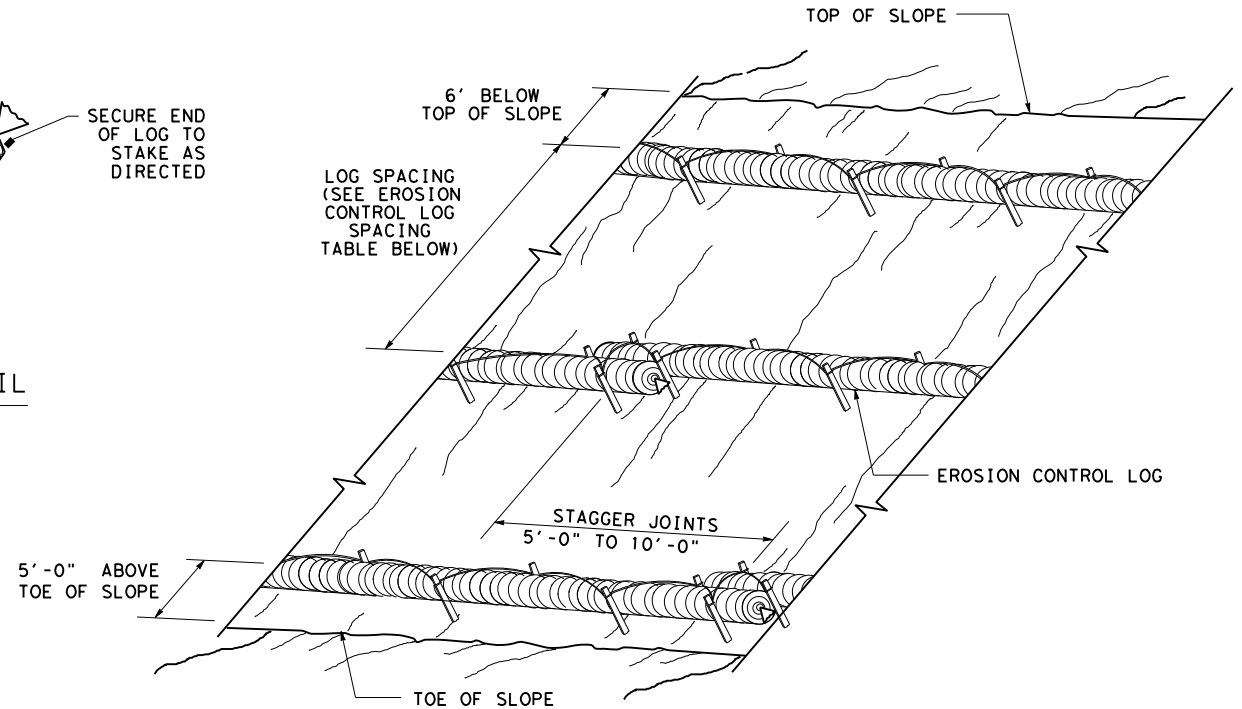
**EROSION CONTROL LOGS ON SLOPES
STAKE AND TRENCHING ANCHORING**

CL-SST



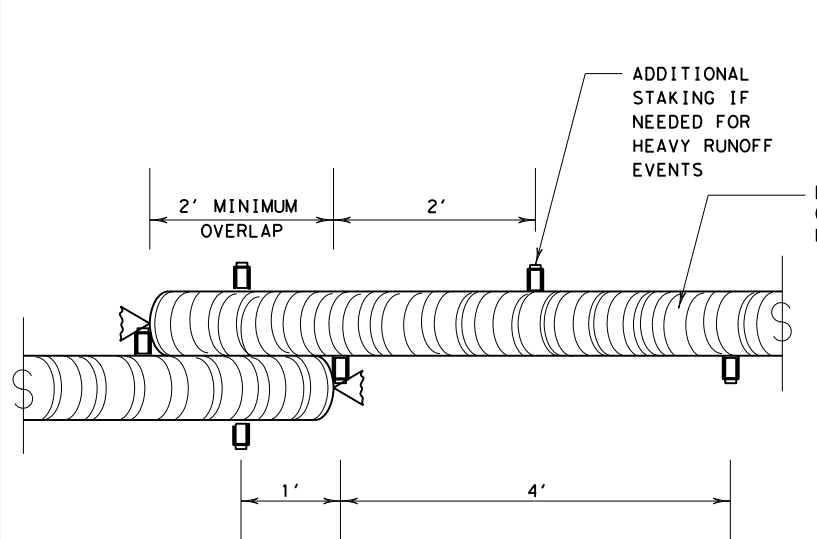
SLOPE	LOG DIAMETER			
	6"	8"	12"	18"
1:1 OR STEEPER	5'	10'	15'	20'
2:1	10'	20'	30'	40'
3:1	15'	30'	45'	60'
4:1 OR FLATTER	20'	40'	60'	80'

* ADJUSTMENTS CAN BE MADE FOR SOIL TYPE:
SOFT, LOAMY SOILS-ADJUST ROWS CLOSER TOGETHER;
HARD, ROCKY SOILS- ADJUST ROWS FARTHER APART



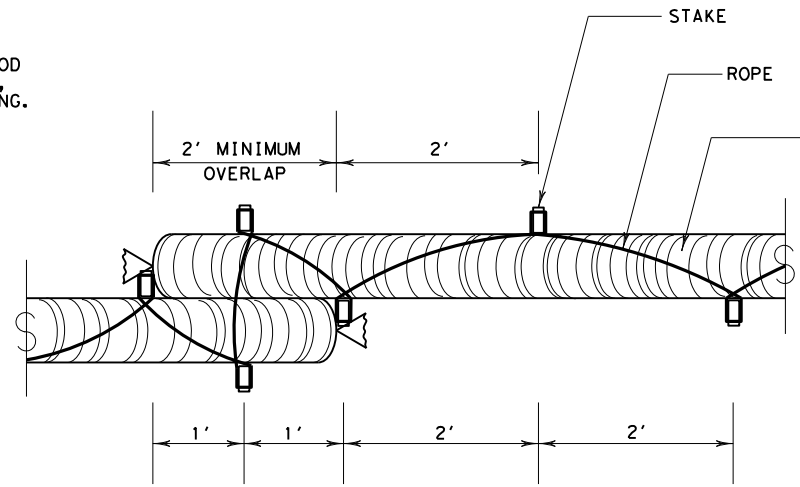
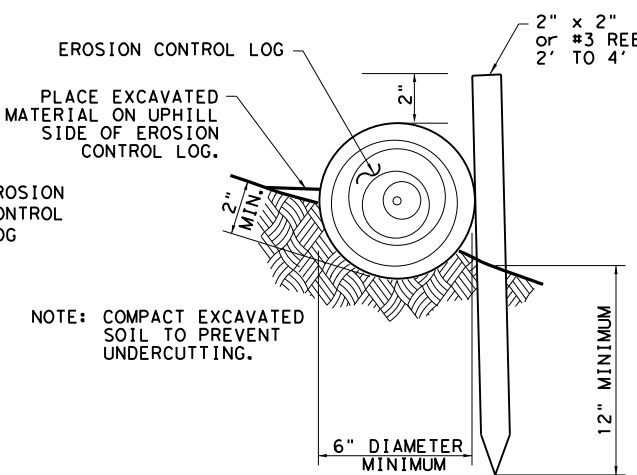
**EROSION CONTROL LOGS ON SLOPES
STAKE AND LASHING ANCHORING**

CL-SSL



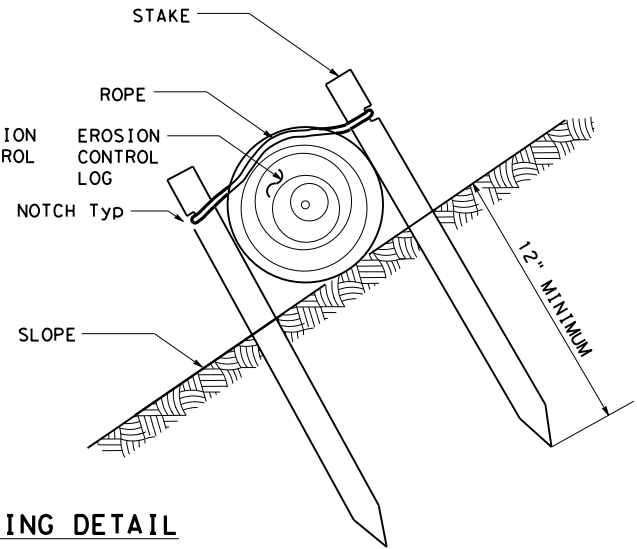
STAKE AND TRENCHING ANCHORING DETAIL

CL-SST

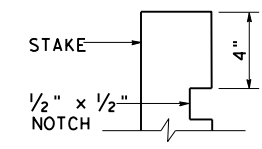


STAKE AND LASHING ANCHORING DETAIL

CL-SSL



LOG DIAMETER	DEPTH
6"	2"
8"	3"
12"	4"
18"	5"



STAKE NOTCH DETAIL

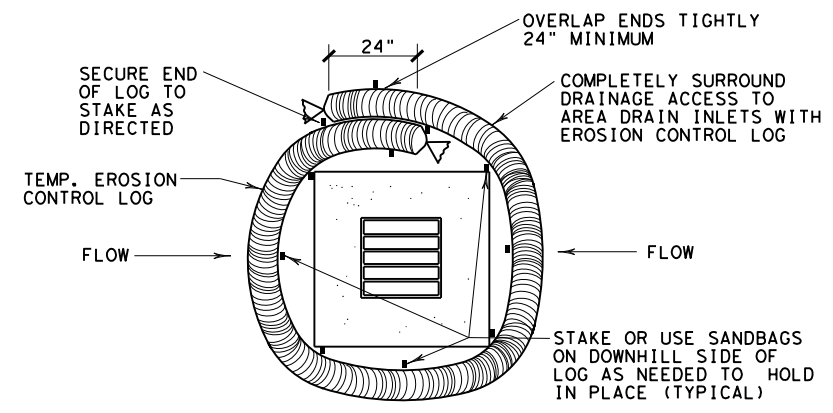
SHEET 2 OF 3

Texas Department of Transportation
Design Division Standard

**TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES
EROSION CONTROL LOG
EC (9) - 16**

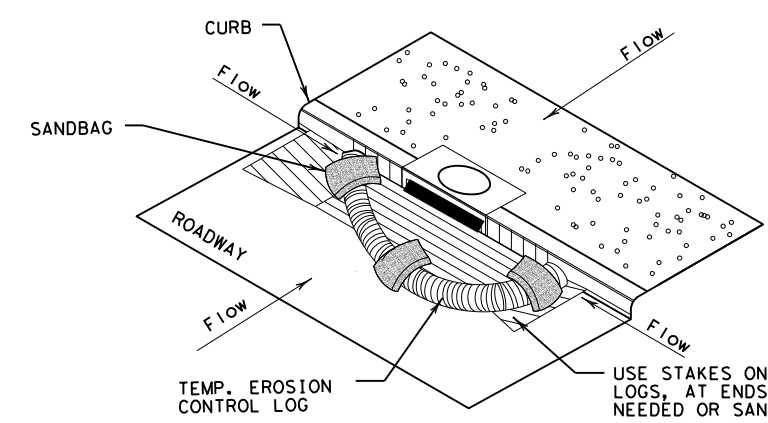
FILE: ec116	DN: TxDOT	CK: KM	DW: LS/PT	CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	1607	01	057, ETC.	FM 1764
	DIST	COUNTY		SHEET NO.
	HOU	GALVESTON		404

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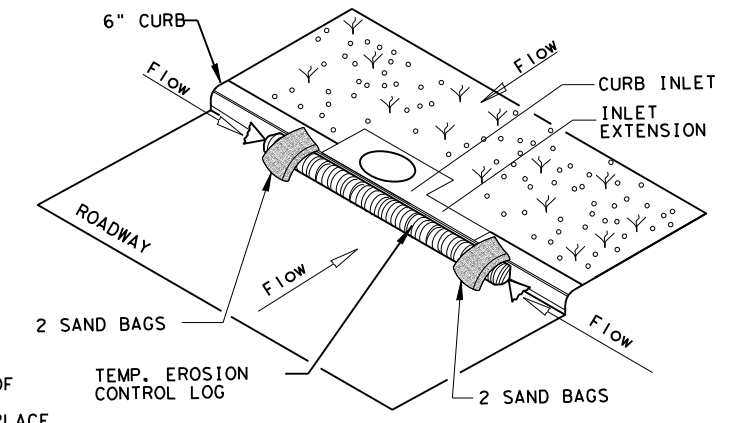
EROSION CONTROL LOG AT DROP INLET

CL-DI



EROSION CONTROL LOG AT CURB INLET

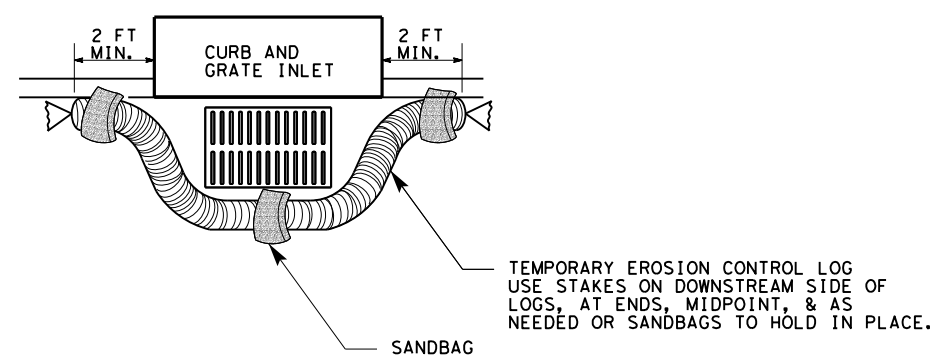
CL-CI



EROSION CONTROL LOG AT CURB INLET

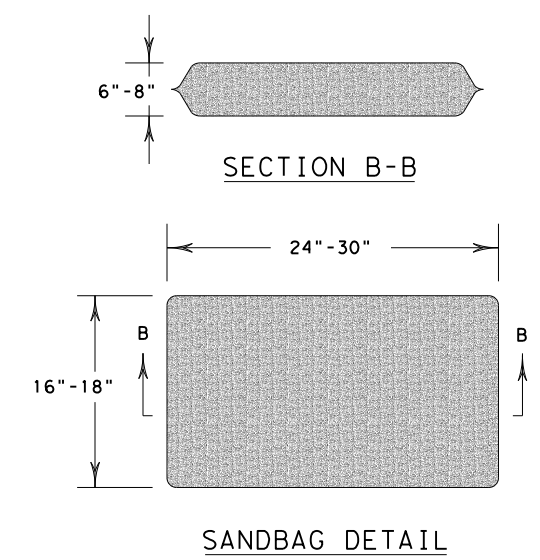
CL-CI

NOTE:
EROSION CONTROL LOGS USED AT CURB INLETS SHOULD ONLY BE USED IF THEY WILL NOT IMPEDE TRAFFIC OR FLOOD THE ROADWAY OR WHEN THE STORM SEWER SYSTEM IS NOT FULLY FUNCTIONAL.



EROSION CONTROL LOG AT CURB & GRADE INLET

CL-GI



SANDBAG DETAIL


SHEET 3 OF 3

		<i>Design Division Standard</i>	
TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES EROSION CONTROL LOG EC (9) - 16			
FILE: ec916	DN: TxDOT	CK: KM	DW: LS/PT
© TxDOT: JULY 2016	CONT	SECT	JOB
REVISIONS	1607	01	057, ETC.
	DIST	COUNTY	SHEET NO.
	HOU	GALVESTON	405

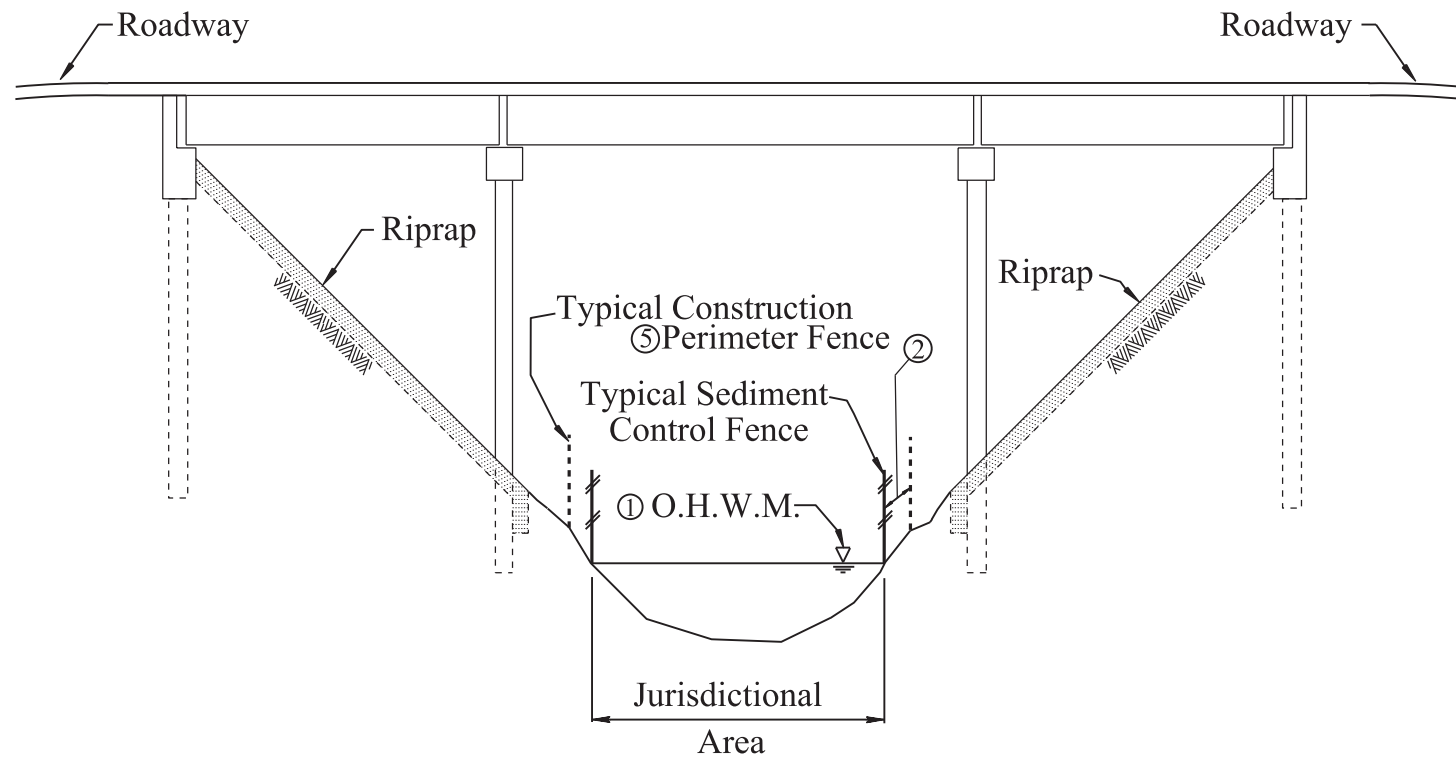
DATE:
FILE:

<p>I. STORMWATER POLLUTION PREVENTION</p> <p>Texas Pollutant Discharge Elimination System (TPDES) TXR 150000: Stormwater Discharge Permit or Construction General Permit is required for projects with 1 or more acres disturbed soil. Projects with any disturbed soil must protect for erosion and sedimentation in accordance with Item 506. Refer to the TxDOT SWP3 Summary Sheets, SWP3 Binder Template, and Form 2118.</p> <p>No Additional Comments</p>	<p>III. CULTURAL RESOURCES</p> <p>Refer to TxDOT Standard Specifications in the event historical issues or archeological artifacts are found during construction. Upon discovery of archeological artifacts (bones, burnt rock, flint, pottery, etc.) cease work in the area and contact the Engineer immediately.</p> <p>No Additional Comments</p>	<p>VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES</p> <p>Refer to TxDOT Standard Specifications in the event potentially contaminated materials are observed, such as dead or distressed vegetation, trash disposal areas, drums, canisters, barrels, leaching or seepage of substances, unusual smells or odors, or stained soil, cease work in the area and contact the Engineer immediately.</p> <p>No Additional Comments</p>
<p>II. WORK IN OR NEAR STREAMS, WATERBODIES AND WETLANDS</p>	<p>IV. VEGETATION RESOURCES</p>	<p>VII. OTHER ENVIRONMENTAL ISSUES</p>
<p>United States Army Corps of Engineers (USACE) Permit is required for filling, dredging, excavating or other work in water bodies, rivers, creeks, streams, wetlands or wet areas. The Contractor must adhere to all of the terms and general conditions associated with the following permit(s). If additional work not represented in the plans is required, contact the Engineer immediately.</p> <p><input type="checkbox"/> No United States Army Corps (USACE) Permit Required</p> <p><input type="checkbox"/> Work is authorized by the United States Army Corps of Engineers (USACE) under a Nationwide Permit (NWP) without a Pre-Construction Notification (PCN). Project specific permit was not issued by USACE, therefore is not in the plan set. The USACE general conditions are in the "General Notes."</p> <p><input type="checkbox"/> Work is authorized by the United States Army Corps of Engineers (USACE) under a Nationwide Permit (NWP) with a Pre-Construction Notification (PCN). The project specific permit issued by the United States Army Corps of Engineers (USACE) is included in the plan set. The USACE general conditions are in the "General Notes."</p> <p><input type="checkbox"/> Work is authorized by the United States Army Corps of Engineers (USACE) under a Individual Permit (IP). The project specific permit issued by the United States Army Corps of Engineers (USACE) is included in the plan set.</p> <p><input checked="" type="checkbox"/> Work would be authorized by the United States Army Corps of Engineers (USACE) permit. The project specific permit issued by the USACE will be provided to the contractor.</p> <p>United States Coast Guard (USCG) Permit is required for projects that involve the construction or modification (including changes to lighting) of a bridge or causeway across a water body determined to be navigable by the United States Coast Guard (USCG) under Section 9 of the Rivers and Harbors Act. If additional work not represented in the plans is required, contact the Engineer immediately.</p> <p><input checked="" type="checkbox"/> No United States Coast Guard (USCG) Coordination Required</p> <p><input type="checkbox"/> United States Coast Guard (USCG) Permit</p> <p><input type="checkbox"/> United States Coast Guard (USCG) Exemption</p> <p>Additional Comments</p> <p>This project would be authorized under a Nationwide Permit 14 with Preconstruction Notification for spall repair at the unnamed tidal stream tributary of Moses Lake crossing FM 1764 between 34th and 33rd Street. If impacts below the mean high tide line of this stream exceed 0.08 acre, please contact the environmental project manager (PM).</p> <p>Once the Nationwide Permit (NWP) has been issued, the AO and TxDOT Engineer would be notified when activities permitted under the United States Army Corps of Engineers (USACE) would be authorized to proceed.</p>	<p>Preserve native vegetation to the extent practical. Refer to TxDOT Standard Specifications in order to comply with requirements for invasive species, beneficial landscaping and tree/brush removal.</p> <p>No Additional Comments</p> <p>V. FEDERAL LISTED, PROPOSED THREATENED, ENDANGERED SPECIES, CRITICAL HABITAT, STATE LISTED SPECIES, CANDIDATE SPECIES AND MIGRATORY BIRDS</p> <p>If any of the listed species below are observed, cease work in the area, do not disturb species or habitat and contact the Engineer immediately.</p> <p>The work may not remove active nests (from bridges, structures, or vegetation adjacent to the roadway, etc.) during nesting season (February 15 to October 1). If removal of structures or vegetation is necessary during the nesting season, the Contractor shall conduct a bird survey no more than 3 days in advance of the clearing/demolish start date. All bird surveys shall be conducted by a Field Biologist and adhere to the guidance document "Avoiding Migratory Birds and Handling Potential Violations" found in the TxDOT Environmental Compliance Toolkits at the time of the survey. (See below for Field Biologist and Ornithologist qualifications)</p> <p>Additional Comments</p> <p>The project proposes spall repair at the unnamed tidal stream tributary of Moses Lake crossing FM 1764 between 34th and 33rd Street. Because this stream is a Group 5 stream per the Texas Freshwater Mussel Survey Protocol, TxDOT will conduct mussel survey before construction. This survey must be completed before work within this stream.</p> <p>In addition, the following best management practices (BMPs) apply to this project:</p> <p>Water Quality BMP: In addition to BMP required for a TCEQ Storm Water Pollution Prevention Plan and/or 401 Water Quality Certification:</p> <ul style="list-style-type: none"> Minimize the use of equipment in streams and riparian areas during construction. <p>When possible, equipment access should be from banks, bridge decks, or barges. (continued under VII. OTHER ENVIRONMENTAL ISSUES)</p> <p>Field Biologist, Ornithologist – a field biologist is defined as an individual qualified to perform field investigations, presence/absence surveys and habitat surveys for protected avian species or species of concern. A mandatory bachelor's degree in biology or a related science is required. At a minimum, the Field Biologist, Ornithologist, shall have completed and reported a minimum of three presence/absence and habitat surveys for protected avian species in the past five years. A minimum of three projects must have been conducted in Texas. Surveys shall have been performed for documentation of species in accordance with a protocol approved by USFWS or TPWD, or following generally accepted methodologies.</p>	<p>Comments:</p> <p>(from V. FEDERAL LISTED, PROPOSED THREATENED, ENDANGERED SPECIES...)</p> <ul style="list-style-type: none"> When temporary stream crossings are unavoidable, remove stream crossings once they are no longer needed and stabilize banks and soils around the crossing. Rubbish found near bridges on TxDOT ROW should be removed and disposed of properly to minimize the risk of pollution. Rubbish does not include brush piles or snags. <p>Dewatering BMP:</p> <ul style="list-style-type: none"> If the preconstruction mussel survey determines that a construction-phase aquatic resources relocation plan (ARRP) is necessary, follow the most recent TPWD Aquatic Resources Relocation Plan Guidelines (PWD LF T3200-1956). Impact avoidance measures for aquatic organisms, including all native fish and freshwater mussel species, regardless of state-listing status, should be considered during project planning and construction activities.

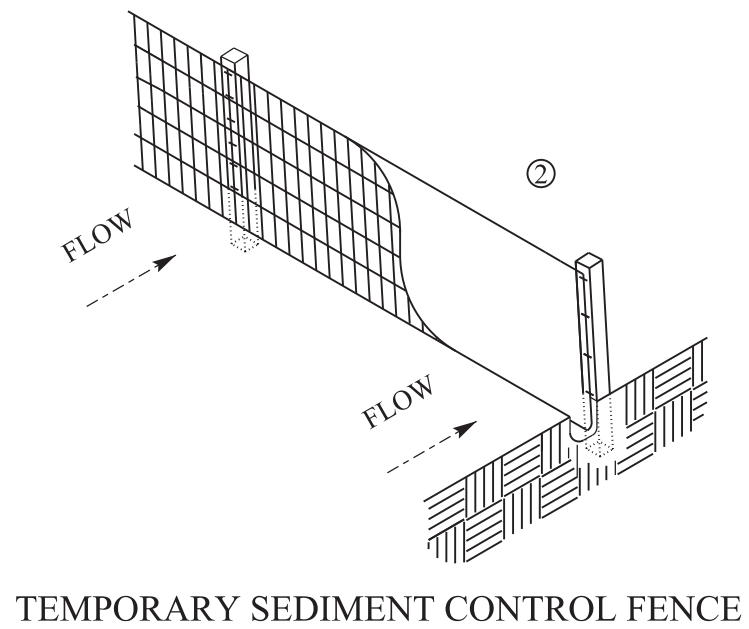
DATE: Jun 19, 2024
FILE:

				TxDOT Houston District	
<p>ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS</p> <p>EPIC</p>					
FILE:	EPIC Sheet.dgn	DN:	CK:	DW:	CK:
© TxDOT:	March 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS		1607	01	057, etc.	FM 1764
UPDATED section V, text and added definition (10/17)		DIST	COUNTY		SHEET NO.
ADDED USCG and USACE notes in Section VII (04/18)		HOU	Galveston		406

Version 2.2



TYPICAL RELATIONSHIP OF
O.H.W.M., SEDIMENT CONTROL & CONSTRUCTION FENCING,
PILING/DRILL SHAFT & RIPRAP TOE WALLS
N.T.S.



TEMPORARY SEDIMENT CONTROL FENCE



1.50" Radius, 0.50" Border, Black on White;
[WETLAND AREA] C; [DO NOT ENTER] C;
CIRCLE, DIAG LINE, RED

GENERAL DESIGN CONSIDERATIONS

1. Ordinary high water mark (elevation) (O.H.W.M.) is determined by the Environmental Project Manager and elevation is set by a Surveyor.
2. All non-permitted jurisdictional wetlands and waters within or adjacent to the project area shall be avoided and protected by signage and fencing, including both sediment control and construction fencing (see note 5). Construction equipment, materials/sediment are not allowed in the non-permitted wetlands/waters.
3. Any wetlands permitted for impacts/fill and non-permitted wetlands are shown elsewhere on plans or United States Army Corps of Engineers (USACE) permit.
4. The Contractor will be required to obtain the appropriate permits if she/he alters the construction method or deviates from the permit.
5. See item 506 for temporary sediment control fence and for construction perimeter fence. See item 502 for signs.

				TxDOT Houston District	
ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS					
EPIC					
FILE: Wetland EPIC Sheet.dgn	DN:	CK:	DW:	CK:	
© TxDOT: March 2017	CONT	SECT	JOB	HIGHWAY	
ADDED construction fencing (06/17)	1607	01	057, etc.	FM 1764	
UPDATED typical relationship diagram (09/17)	DIST	COUNTY	SHEET NO.		
UPDATED notes 2 and 5 (09/17)	HOU	Galveston	406A		
UPDATED note 5 (05/18)					

TYPE OF WORK

ITEMS AND REQUIREMENTS FOR EACH TYPE OF WORK

SODDING	PERMANENT SEEDING	TEMPORARY SEEDING	Reference Item 161, 162, 164, 166, 168 of the Texas Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges 2014 for specifications, dimensions, volumes and measurements that are not shown. Use latest Houston District, Special Provisions for those items indicated.		
	✓		161-6017 COMPOST MANUF TOPSOIL (BIP) (4") SY	APPLICATION RATE Item 161.2.1. Compost Manufactured Topsoil (CMT)	Item 161.2. Materials. Submit quality control (QC) documentation to the Engineer. Compost producer's STA certification must be dated to meet STA requirements (certification must be within 30 or 90 days per STA requirements). Lab analysis performed by an STA-certified lab must be dated within 30 days before delivery of the compost.
✓			162-6002 BLOCK SODDING SY	GRASS SPECIES Item 162.2. Materials. Common Bermuda (Cynodon Dactylon)	Item 162.2.1. Block Sod. Use block palletized or roll type sod. REMOVE PLASTIC BACKING FROM ROLL TYPE SOD. Place sod within 48 hours of delivery to site. No exceptions. Place sod with joints alternating on each row to prevent continuous joint lines. Peg sod as needed with wood pegs to hold sod in place. Pegging sod is subsidiary to Item 162.
	✓		164-6066 DRILL SEEDING (PERM) (WARM OR COOL) SY Item 164.1. Description Provide and install seeding as shown on District Standard	PLANTING MONTH SEED MIX March, April, May, June, July, August, September, October Hulled - Bermudagrass (Cynodon dactylon) - 40.0 lbs PLS/acre Foxtail Millet (Setaria italica) - 34.0 lbs PLS/acre Green Sprangletop (Leptochloa dubia) - 4.0 lbs PLS/acre Sideoats Grama (Bouteloua curtipendula) - 3.2 lbs PLS/acre Little Bluestem (Schizachyrium scoparium) - 1.4 lbs PLS/acre	PLS (Pure Live Seed) Provide documentation of PLS requirements per Item 164.2.1. CONSTRUCTION. Cultivate the area to a depth of 4 inches before placing the seed unless otherwise directed. When performing permanent seeding after an established temporary seeding, cultivate the seedbed to a depth of 4 inches or mow the area before placement of the permanent seed. Plant the seed and place the straw or hay mulch after the area has been completed to lines and grades as shown on the plans.
	✓		164-6052 BROADCAST SEED (PERM) (SPECIAL MIX) SY Item 164.1. Description Provide and install seeding as shown on District Standard	November, December, January, February Unhulled - Bermudagrass (Cynodon dactylon) - 40.0 lbs PLS/acre Oats (Avena sativa) - 72.0 lbs PLS/acre Green Sprangletop (Leptochloa dubia) - 4.0 lbs PLS/acre Sideoats Grama (Bouteloua curtipendula) - 3.2 lbs PLS/acre Little Bluestem (Schizachyrium scoparium) - 1.4 lbs PLS/acre	Drill Seeding. Plant seed or seed mixture uniformly over the area shown on the plans at a depth of 1/4 to 1/3 inch using a cultipacker (turfgrass) type seeder. Plant seed along the contour of the slopes.
		✓	164-6051 DRILL SEED (TEMP) (WARM OR COOL) SY Item 164.1. Description Provide and install seeding as shown on District Standard	PLANTING MONTH SEED MIX March, April, May, June, July, August, September, October Foxtail Millet (Setaria italica) - 34.0 lbs PLS/acre	Use broadcast seeding method where site conditions prevent drill seeding method.
		✓	164-6009 BROADCAST SEED (TEMP) (WARM) SY Item 164.1. Description Provide and install seeding as shown on District Standard	November, December, January, February Oats (Avena sativa) - 72.0 lbs PLS/acre	Broadcast Seeding. Distribute the dry seed or dry seed mixture uniformly over the areas shown on the plans using hand or mechanical distribution on top of soil.
	✓	✓	162-6003 STRAW OR HAY MULCH SY	APPLICATION RATE Immediately after planting the seed or seed mixture, apply straw or hay mulch uniformly over the seeded area. Apply straw or hay mulch at 2 tons per acre. Use tacking agent with straw or hay mulch as described on this sheet.	Use straw or hay mulch in conformance with Article 162.2.5, "Mulch." Use biodegradable tacking agents only applied at a rate in accordance with manufacturer's recommendations. Use the following products or an approved equal (see note this sheet): Conweb/Contac Guar Gum, Profile Products Corporation, (307) 655-9565, Ramtec/Procol/Viscol Guar Gum, Ramtec Corporation, (800) 366-1180
✓	✓	✓	166-6001 FERTILIZER AC Item 166.2. Materials Use fertilizer as shown on District Standard	APPLICATION RATE Deliver and evenly distribute fertilizer at a rate of 4000 lbs/acre.	Use a NON-CHEMICAL fertilizer which meets all the following criteria: (1) BRAND NAME must be registered with the Texas State Chemist as a commercial fertilizer. (2) Meets USEPA guidelines for unrestricted use. (3) Derived from biological sources such as, but not limited to: sewage sludge, manures, vegetation, etc. (4) In granular form and essentially dust free. Submit proof of registration and nutrient source to Engineer. Use the following products or an approved equal (see note this sheet): Sigma, SIGMA AgriScience, 281-851-6749 Sustanite-standard grade, Automation Nation, Inc., 713-675-4999 Milorganite, MMSD, 800-287-9645 Agricultural Organic P/L, Ag Org, INC., 713-523-4396
✓	✓	✓	168-6001 VEGETATIVE WATERING MG	APPLICATION RATE Item 168.3 Construction. 6000 gallons/acre x 20 consecutive working days = 120,000 gallons total/acre	Begin watering immediately after installation of seed or sod. Replace, fertilize, and water any seed or sod in poor condition due to the failure to apply the specified amount of water within the time allowed at no expense to the Department.

SEQUENCE OF WORK

BLOCK SOD	PERMANENT SEEDING	TEMPORARY SEEDING
1. FERTILIZER 2. CULTIVATE SOIL (ITEM 162.3) 3. SOD 4. VEGETATIVE WATERING	1. FERTILIZER 2. COMPOST MANUFACTURED TOPSOIL 3. CULTIVATE SOIL (ITEMS 164.3 AND 161.3.1) 4. PERMANENT SEEDING 5. STRAW OR HAY MULCH 6. VEGETATIVE WATERING	1. FERTILIZER 2. CULTIVATE SOIL (PER ITEM 164.3) 3. TEMPORARY SEEDING 4. STRAW OR HAY MULCH 5. VEGETATIVE WATERING



FERTILIZER, SEED, SOD, STRAW, COMPOST, AND WATER

FSSCW-15

REVISIONS		FILE:	FED	STATE	PROJECT NUMBER			SHEET
10/2014	UPDATED TO 2014 SPECS	OCT 2014	6	TEXAS				407
3/2015	MINOR CORRECTIONS							
3/2023	ADDED SHEET ABBREVIATION							
ORIGINAL:		DIS	COUNTY	CONTROL	SECT	JOB	HIGHWAY	
		12	GALVESTON	1607	01	057, ETC.	FM 1764	

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

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

This project is adjacent or parallel work, not within RR ROW:
 DOT No.: 748400M
 Crossing Type: RR Under
 RR Company Operating Track at Crossing: Union Pacific Railroad
 RR Company Owning Track at Crossing: Union Pacific Railroad
 RR MP: 33.010
 RR Subdivision: Galveston
 City: Texas City
 County: Galveston
 CSJ at this Crossing: 1607-01-055
 Latitude: 29.3963195
 Longitude: -94.9859220

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

Striping being performed on overpass bridge above RR.

Scope of Work to be performed by Railroad Company:

N/A

II. FLAGGING & INSPECTION

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

Flagging services will be provided by:

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

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

Contact Information for Flagging:

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

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

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

OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

Not Required
 Required. Contact Information for Construction Inspection:

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

Required.
 Not Required
 Railroad Point of Contact: _____

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

IV. RAILROAD INSURANCE REQUIREMENTS

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

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

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

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

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

V. CONTRACTOR'S RIGHT OF ENTRY (CROE)

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

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

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

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

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

VI. RAILROAD COORDINATION MEETING

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

VII. RAILROAD SAFETY ORIENTATION

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

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

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

VIII. SUBCONTRACTORS

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

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency
 Call: Union Pacific Railroad
 Railroad Emergency Line at: 1-888-877-7267
 Location: DOT 748400M
 RR Milepost: 33.010
 Subdivision: Galveston

RRD Review Only
 Initials: [Signature]
 Date: 5-27-2024

Rail Division

RAILROAD SCOPE OF WORK
PROJECT SPECIFIC DETAILS

FILE: rr-scope-of-work.pdf	DN: TxDOT	CK:	DW:	CK:
© TxDOT June 2014	CONT	SECT	JOB	HIGHWAY
6/2023	1607	01	057.ETC	FM 1764
REVISIONS	DIST	COUNTY		SHEET NO.
	HOU	GALVESTON		408

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

This project is adjacent or parallel work, not within RR ROW:
 DOT No.: 758779E
 Crossing Type: RR Under
 RR Company Operating Track at Crossing: Union Pacific Railroad
 RR Company Owning Track at Crossing: Union Pacific Railroad
 RR MP: 7.430
 RR Subdivision: Texas City IND
 City: Texas City
 County: Galveston
 CSJ at this Crossing: 1607-01-055
 Latitude: 29.3953856
 Longitude: -94.9556408

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

Striping being performed on overpass bridge above RR.

Scope of Work to be performed by Railroad Company:

N/A

II. FLAGGING & INSPECTION

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

Flagging services will be provided by:

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

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Contact Information for Flagging:

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 Call Center 877-315-0513, Select #1 for flagging
 UP.request@nrssinc.net
 Call Center 877-984-6777
 BNSF BNSFinfo@railprosfs.com
 Call Center 877-315-0513, Select #1 for flagging
 CPKCR KCS.info@railpros.com
 Call Center 877-315-0513, Select #1 for flagging
 Bottom Line On-Track Safety Services
 bottomline076@aol.com, 903-767-7630

OTHERS:

Contractor must incorporate railroad construction inspection into anticipated construction schedule.

Not Required
 Required. Contact Information for Construction Inspection:

III. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

Required.
 Not Required
 Railroad Point of Contact: _____

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

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Escalated Limits	
Type of Insurance	Amount of Coverage (Minimum)
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Business Automobile	\$2,000,000

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

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 Required: TxDOT to assist in obtaining the UPRR CROE
 Required: Contractor to obtain

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

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 Location: DOT 758779E
 RR Milepost: 7.430
 Subdivision: Texas City IND

RRD Review Only
 Initials: _____
 Date: 5-27-2024

Rail Division

RAILROAD SCOPE OF WORK

PROJECT SPECIFIC DETAILS

FILE: rr-scope-of-work.pdf	DN: TxDOT	CK:	DW:	CK:
© TxDOT June 2014	CONT	SECT	JOB	HIGHWAY
6/2023	1607	01	057.ETC	FM 1764
	DIST	COUNTY		SHEET NO.
	HOU	Galveston		409