

SUBJECT: PLANS AND PROPOSAL ADDENDUMS

PROJECT: F 2B24(273)

CONTROL: 3592-01-009

COUNTY: EL PASO

LETTING: 07/09/2024

REFERENCE NO: 0628

PROPOSAL ADDENDUMS

- PROPOSAL COVER
- X BID INSERTS (SH. NO.: 3 TO 37)
- GENERAL NOTES (SH. NO.:)
- X SPEC LIST (SH. NO.: SHEETS 3 TO 6)
- X SPECIAL PROVISIONS:)
- ADDED:

DELETED: SP000-039

- SPECIAL SPECIFICATIONS:
- ADDED:

DELETED:

X OTHER: PLAN SHEETS AND OTHER CHANGES

DESCRIPTION OF ABOVE CHANGES
(INCLUDING PLANS SHEET CHANGES)

***** PROPOSAL *****

***** BID INSERTS *****

REVISED QUANTITIES FOR THE FOLLOWING BID ITEMS: 360-6003, 416-6006,
432-6001, 432-6022, 450-6023, 529-6002, 540-6001, 650-6030, 650-6040,
1005-6001, 2005-6001, 7016-6061 AND 7016-6103

ADDED THE FOLLOWING BID ITEMS: 7016-6045

DELETED THE FOLLOWING BID ITEMS: 416-6007 AND 650-6023

***** GENERAL NOTES *****

***** SPECIFICATIONS LIST *****

REMOVE SP000-039: NOT APPLICABLE TO THIS PROJECT. SHEETS 3 TO 6 SHIFTED
FROM PAGE TO PAGE DUE TO THE DELETION OF SP000-039

DESCRIPTION OF ABOVE CHANGES
(INCLUDING PLANS SHEET CHANGES)

(CONTINUED)

***** PLAN SHEETS VOLUME I*****

PLAN SHEET 5 (INDEX OF SHEETS): ADDED DETAIL SHEET 1820A

PLAN SHEET 6 (INDEX OF SHEETS): REVISED SHEET NAMES TO MATCH AND ADDED D&OM (1)-20 STANDARD SHEET 1849A

PLAN SHEETS 10 TO 16 (TYPICAL SECTIONS): REVISED TO MATCH PAVEMENT BUBBLE WITH THE LEGEND BUBBLES. NOTE REVISED TO REFER TO BORE LAYOUT AND LOGS

PLAN SHEETS 36, 36A TO 36L (ESTIMATE & QUANTITY): REVISED AS NOTED ON THE BID INSERTS ABOVE. ITEMS SHIFTED FROM PAGE TO PAGE DUE TO REVISIONS

PLAN SHEETS 49 TO 56, 64, 66, 71 (QUANTITY SUMMARY): REVISED QUANTITIES ON THE BID ITEMS SHOWN IN THE BID INSERTS OF THE PROPOSAL ABOVE

PLAN SHEETS 282 TO 285: REVISED FOUNDATION PAD COLUMN

PLAN SHEET 445: REVISED ROADWAY QUANTITIES TABLE. REVISED LABEL 1 AND ADDED LABELS 8 AND 9

PLAN SHEET 490: REVISED TO ADD GENERAL NOTES

***** PLAN SHEETS VOLUME II*****

PLAN SHEET 535 (INDEX OF SHEETS): ADDED DETAIL SHEET 1820A

PLAN SHEET 536 (INDEX OF SHEETS): REVISED SHEET NAMES TO MATCH AND ADDED D&OM (1)-20 STANDARD SHEET 1849A

PLAN SHEET 608: REVISED TO REMOVED FLEX BASE GROUND IMPROVEMENTS

PLAN SHEETS 1052, 1054, AND 1055: REVISED SHEETS TO SHOW STONE RIPRAP AND FILTER FABRIC FOR POND. ADDED PROTECTION STONE DETAIL. REVISED QUANTITY ON ITEM 2005-6001 ON SHEET 1052

***** PLAN SHEETS VOLUME III*****

PLAN SHEET 1111 (INDEX OF SHEETS): ADDED DETAIL SHEET 1820A

PLAN SHEET 1112 (INDEX OF SHEETS): REVISED SHEET NAMES TO MATCH AND ADDED D&OM (1)-20 STANDARD SHEET 1849A

***** PLAN SHEETS VOLUME IV*****

PLAN SHEET 1644 (INDEX OF SHEETS): ADDED DETAIL SHEET 1820A

PLAN SHEET 1645 (INDEX OF SHEETS): REVISED SHEET NAMES TO MATCH AND ADDED D&OM (1)-20 STANDARD SHEET 1849A

DESCRIPTION OF ABOVE CHANGES
(INCLUDING PLANS SHEET CHANGES)

(CONTINUED)

PLAN SHEETS 1731, 1733, 1735 TO 1738, 1740 TO 1743, 1746, 1747, 1753, REVISED TO DELETED ITEM 416-6007 FROM SUMMARY TABLE AND REVISED QUANTITY FOR ITEM 416-6006. REVISED QUANTITY FOR ITEM 650-6040 ON SHEET 1742.

PLAN SHEETS: 1762, 1765 TO 1768, 1770, 1772 TO 1774, 1777 TO 1780, 1782, 1783, 1786, 1787, 1789, 1790, 1792 TO 1794, 1796, 1798, 1800, 1801: REVISED DRILLED SHAFT AND MONOTUBE DESIGN

PLAN SHEET 1820A: ADDED CUSTOM FOUNDATION DETAIL SHEET

PLAN SHEET 1849A: ADDED STANDARD D&OM (1)-20

PLAN SHEETS 1851 TO 1857: REPLACED MC-22 WITH MC-22 (MOD)

PLAN SHEET 2128: REVISED NOTE 47 TO SHOW CORRECT ASTM AND MINIMUM WALL THICKNESS.

PLAN SHEET 2129 (SUMMARY OF QUANTITIES): ADDED ITEM 7016-6045 AND QUANTITY

PLAN SHEETS 2131 AND 2135: REVISED WATER LINE DESIGN

PLAN SHEET 2132: ADDED 8 FIRE LINE

PLAN SHEET 2142: ADDED VALVE DETAIL

PLAN SHEET 2144: ADDED PIPE RESTRAINT LENGTH VALUES CHART

PLAN SHEET 2147 (QUANTITY SUMMARY): REVISED QUANTITIES FOR ITEM 7016-6061 AND 7016-6103. REVISED QUANTITY FOR SHEETS 2 AND 5 FOR ITEM 7016-6066

PLAN SHEET 2148: DELETED ITEM 7016-6103

PLAN SHEETS 2149 AND 2152: REVISED QUANTITIES FOR ITEMS 7016-6061, 7016-6066 AND ITEM 7016-6103

PLAN SHEET 2156: ADDED EXISTING WATER TABLE ELEVATION

PLAN SHEET 2157A: REVISED SHEET TO ADD LINE RECONNECTION DETAIL

VOLUME 3 - CONTINUED

Table with columns SHEETS and DESCRIPTION. Lists sheet numbers (e.g., 1390-1391) and descriptions (e.g., INTERIOR BENT NO. 23 DC IH-10 SB - SH 178 WB).

VOLUME 3 - CONTINUED

Table with columns SHEETS and DESCRIPTION. Lists sheet numbers (e.g., 1554-1555) and descriptions (e.g., FOUNDATION DETAILS TYPE C).

BRIDGE STANDARDS

Table with columns SHEETS and DESCRIPTION. Lists sheet numbers (e.g., 1594-1597) and descriptions (e.g., BD-1 (MOD), SGMD (MOD)).

VOLUME 4

VIII. ILLUMINATION

Table with columns SHEETS and DESCRIPTION. Lists sheet numbers (e.g., 1641-1645) and descriptions (e.g., INDEX OF SHEETS, ILLUMINATION LAYOUTS).

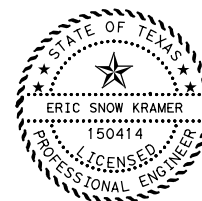
ILLUMINATION STANDARDS

Table with columns SHEETS and DESCRIPTION. Lists sheet numbers (e.g., 1677-1699) and descriptions (e.g., ED-14, RID-20, HMID-03).



THE STANDARD SHEETS SPECIFICALLY IDENTIFIED ABOVE HAVE BEEN SELECTED BY ME, OR UNDER MY RESPONSIBLE SUPERVISION, AS BEING APPLICABLE TO THIS PROJECT.

Alicia Licon-Lozano, P.E. 6/24/2024 DATE



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

Eric Snow Kramer, P.E. 6/24/2024 DATE

VOLUME 4 - CONTINUED

Table with columns SHEETS and DESCRIPTION. Lists sheet numbers (e.g., 1700-1714) and descriptions (e.g., PAVEMENT MARKINGS PLAN - SH 178 (ARTCRAFT RD)).

1820A MONOTUBE CUSTOM FOUNDATION DETAIL

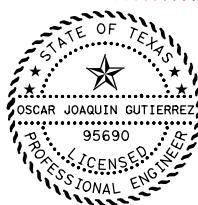
Project information block including HDR Engineering, Inc. logo, Texas Department of Transportation logo, project name (SH 178 (ARTCRAFT RD) GENERAL INDEX OF SHEETS), scale (N.T.S.), and sheet number (5).

ADDED, 06/24/2024

Plot driver: TXDOT_PDF_BW.plt; User: MOELEY; Date: 6/24/2024; File: dw:\pwr\tr\usceen\HDR_US_Central_LDN\Documents\4203\20000508\0333253\6_0_CAD_BIM\6_2_WIP\6_2_2_Contract_Files\Sheet_Files\General\ARCFPU05.dgn

VOLUME 4 - CONTINUED

Table with columns SHEETS and DESCRIPTION. Includes items 1821-1871 under 'SIGNING AND PAVEMENT MARKING STANDARDS' and 1872-1904 under 'TRAFFIC SIGNALS'.



THIS SHEET WAS ORIGINALLY SIGNED AND SEALED BY CHRISTOPHER PERET FLORES P.E. #86245 ON 05/21/2024 EMPLOYED BY OMEGA ENGINEERS, INC. FIRM #F-2147

+ + THE STANDARD SHEETS SPECIFICALLY IDENTIFIED ABOVE HAVE BEEN SELECTED BY ME, OR UNDER MY RESPONSIBLE SUPERVISION, AS BEING APPLICABLE TO THIS PROJECT.

Signature of Oscar Joaquin Gutierrez

OSCAR JOAQUIN GUTIERREZ, P.E. DATE 6/24/2024

1849A ++ D & OM(1)-20

Table with columns SHEETS and DESCRIPTION. Includes items 1850-1871 under 'TRAFFIC SIGNALS'.

VIII. TRAFFIC SIGNALS

Table with columns SHEETS and DESCRIPTION. Includes items 1872-1904 under 'TRAFFIC SIGNALS'.

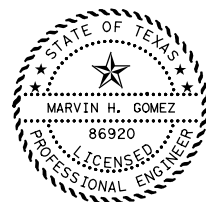
VOLUME 4 - CONTINUED

TRAFFIC SIGNALS STANDARDS

Table with columns SHEETS and DESCRIPTION. Includes items 1907-1930 under 'TRAFFIC SIGNALS STANDARDS' and 1932-1993 under 'ITS'.

ITS STANDARDS

Table with columns SHEETS and DESCRIPTION. Includes items 2003-2034 under 'ITS STANDARDS'.



Signature of Marvin H. Gomez

MARVIN H. GOMEZ, P.E. DATE 6/24/2024



Signature of Kyle A. Halligan

KYLE A. HALLIGAN, P.E. DATE 6/24/2024

VOLUME 4 - CONTINUED

X. ENVIRONMENTAL ISSUES

Table with columns SHEETS and DESCRIPTION. Includes items 2035-2114 under 'ENVIRONMENTAL ISSUES'.

ENVIRONMENTAL STANDARDS

Table with columns SHEETS and DESCRIPTION. Includes items 2116-2119 under 'ENVIRONMENTAL STANDARDS'.

XI. MISCELLANEOUS ITEMS

Table with columns SHEETS and DESCRIPTION. Includes items 2122-2159 under 'MISCELLANEOUS ITEMS'.

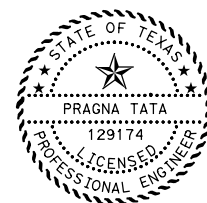
RAILROAD STANDARDS

Table with columns SHEETS and DESCRIPTION. Includes items 2160-2161 under 'RAILROAD STANDARDS'.



Signature of Preston K. Chan

PRESTON K. CHAN, P.E. DATE 6/24/2024



Signature of Pragna T. Pragna

PRAGNA TATA, P.E. DATE 6/24/2024

1 ADDED, 06/24/2024

1 REVISED, 06/24/2024

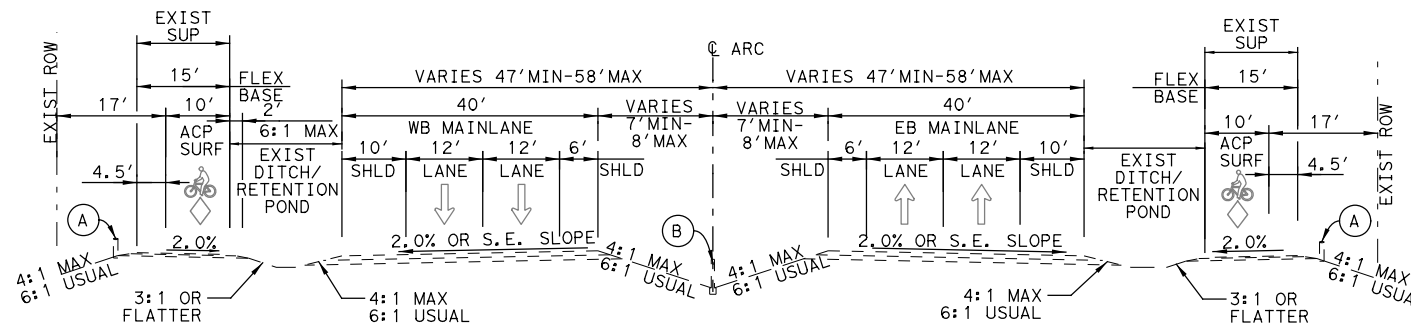
Revision table with columns NO., DATE, CHANGED STANDARDS, REVISION, APPROVED.

HDR Engineering, Inc. Firm Registration No. F-754, 17111 Preston Road, Suite 300, Dallas, Texas 75248, 972.960.4400

Texas Department of Transportation © 2024

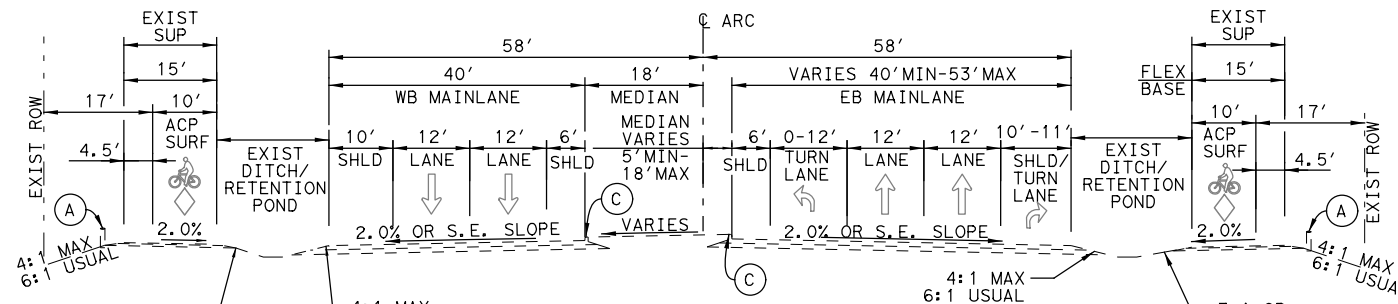
SH 178 (ARTCRAFT RD) GENERAL INDEX OF SHEETS

Scale and project information table including SCALE: N.T.S., SHEET 5 OF 5, FED. RD. DIV. NO., FEDERAL-AID PROJECT NO., HIGHWAY NO., STATE, DISTRICT, COUNTY, SHEET NO., CONTROL, SECTION, JOB, and SHEET NO. 6.



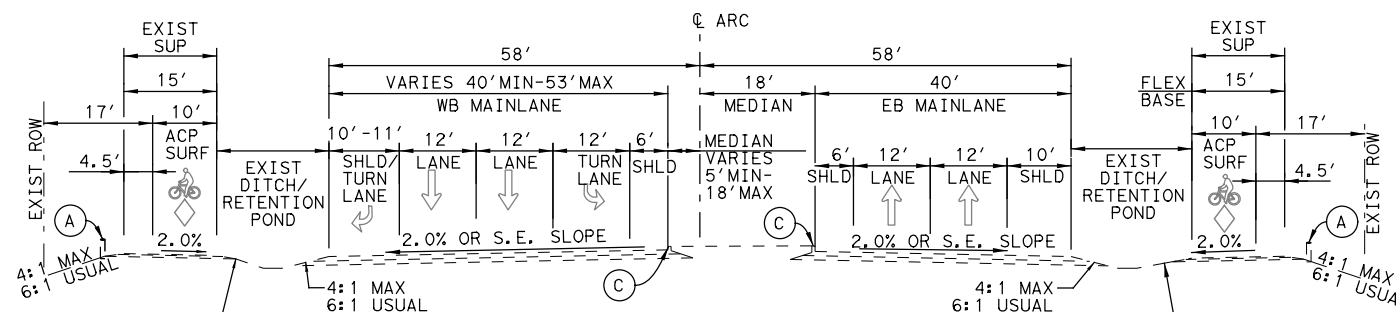
EXISTING SH 178 (ARTCRAFT RD.)

☉ ARC STA 110+00.00 TO STA 122+00.00
 ☉ ARC STA 132+65.00 TO STA 153+00.00



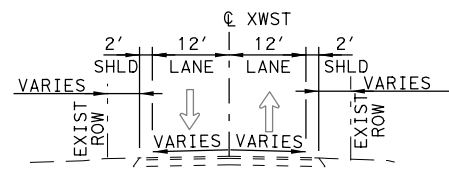
EXISTING SH 178 (ARTCRAFT RD.)

☉ ARC STA 122+00.00 TO STA 127+16.45



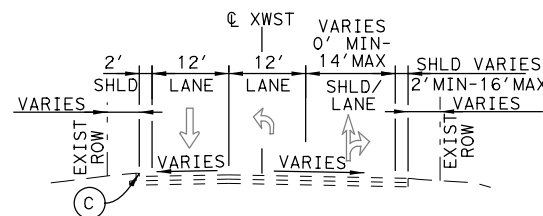
EXISTING SH 178 (ARTCRAFT RD.)

☉ ARC STA 127+16.45 TO STA 132+65.00



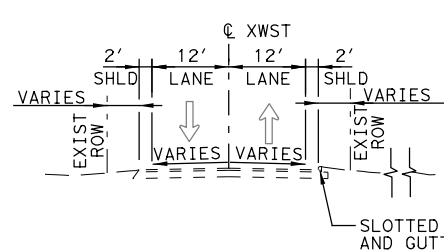
EXISTING WESTSIDE DR.

☉ XWST STA 10+00.00 TO STA 13+75.78



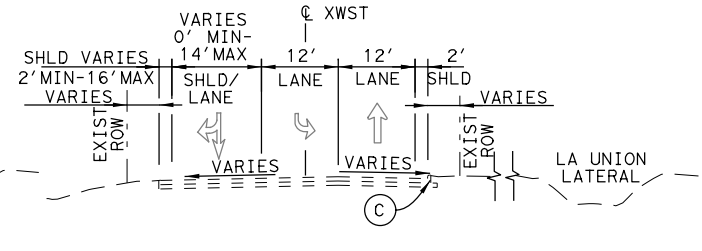
EXISTING WESTSIDE DR.

☉ XWST STA 13+75.78 TO STA 15+70.00



EXISTING WESTSIDE DR.

☉ XWST STA 19+72.87 TO STA 22+00.00



EXISTING WESTSIDE DR.

☉ XWST STA 18+00.00 TO STA 19+72.87

LEGEND

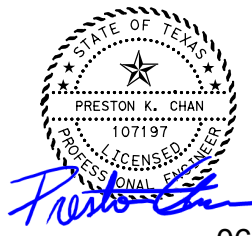
- (A) POST AND CABLE FENCE
- (B) CABLE BARRIER W/VARYING OFFSET
- (C) CONC CURB (TYPE A)
- (D) CONCRETE SIDEWALK

PAVEMENT NOTES:
 REFER TO BORING LAYOUTS AND BORING DRILLING LOGS FOR ADDITIONAL EXIST PAVEMENT INFORMATION.



NOTES:

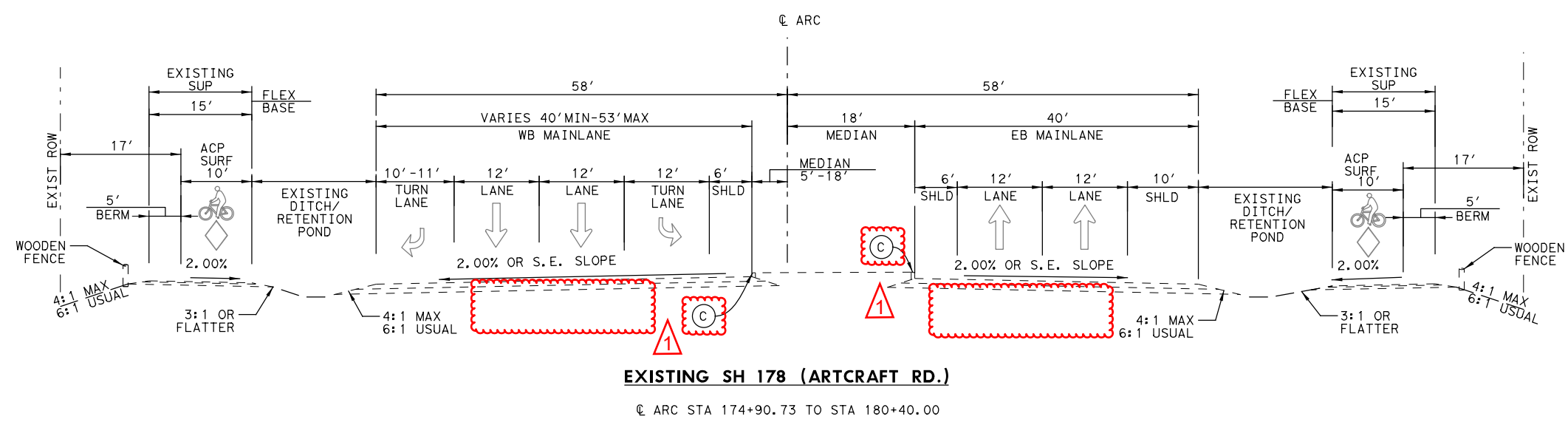
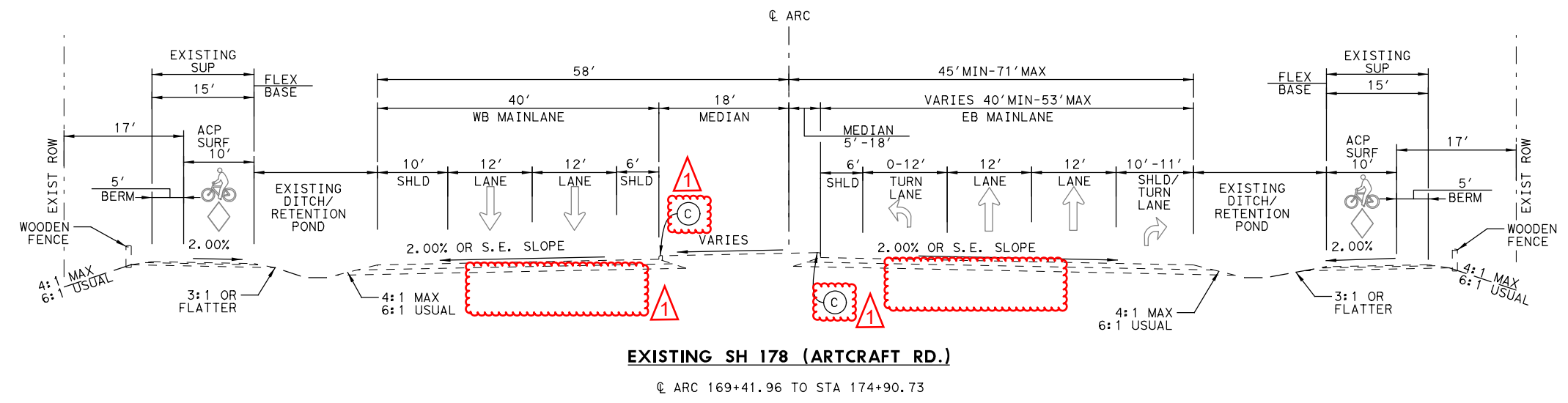
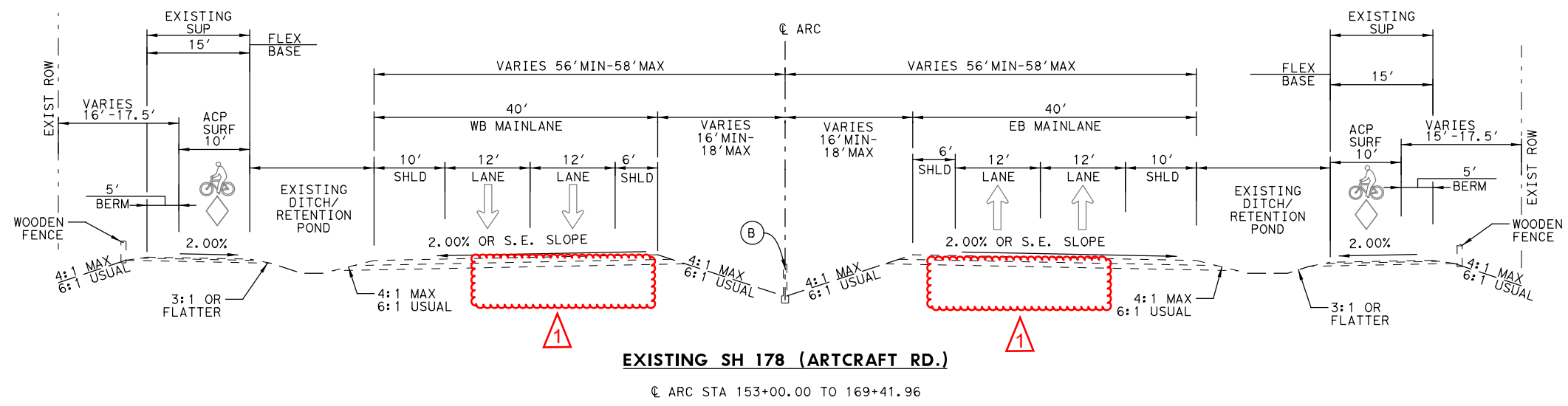
1. REFER TO DESIGN CROSS SECTIONS FOR ADDITIONAL INFORMATION REGARDING SELECT EMBANKMENT PLACEMENT.
2. REFER TO RETAINING WALL LAYOUTS AND RETAINING WALL TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
3. REFER TO LANDSCAPE PLANS FOR LIMITS OF TOPSOIL AND SEEDING.
4. REFER TO ROADWAY PLAN AND PROFILE SHEETS FOR CROSS SLOPE INFORMATION.
5. REFER TO ROADWAY PLAN AND PROFILE SHEETS FOR LIMITS OF BARRIERS.
6. REFER TO HARDSCAPE SHEETS FOR ADDITIONAL PAVER INFORMATION.
7. REFER TO BRIDGE LAYOUT SHEETS FOR BRIDGE TYPICAL SECTIONS.
8. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS NOTED OTHERWISE.



06/26/2024

NO.	DATE	REVISION	APPROVED
HDR Engineering, Inc. Firm Registration No. F-754 17111 Preston Road, Suite 300 Dallas, Texas 75248 972.960.4400			
SH 178 (ARTCRAFT RD) GENERAL EXISTING TYPICAL SECTIONS (ARTCRAFT RD)			
SCALE: N.T.S.		SHEET 1 OF 7	
FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.	
6	F 2B24 (273)	SH178, ETC	
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	10
CONTROL	SECTION	JOB	
3592	01	009	

1 REVISED, 06/26/2024



LEGEND

- (A) POST AND CABLE FENCE
- (B) CABLE BARRIER W/VARYING OFFSET
- (C) CONC CURB (TYPE A)
- (D) CONCRETE SIDEWALK

PAVEMENT NOTES:
 REFER TO BORING LAYOUTS AND BORING DRILLING LOGS FOR ADDITIONAL EXIST PAVEMENT INFORMATION.



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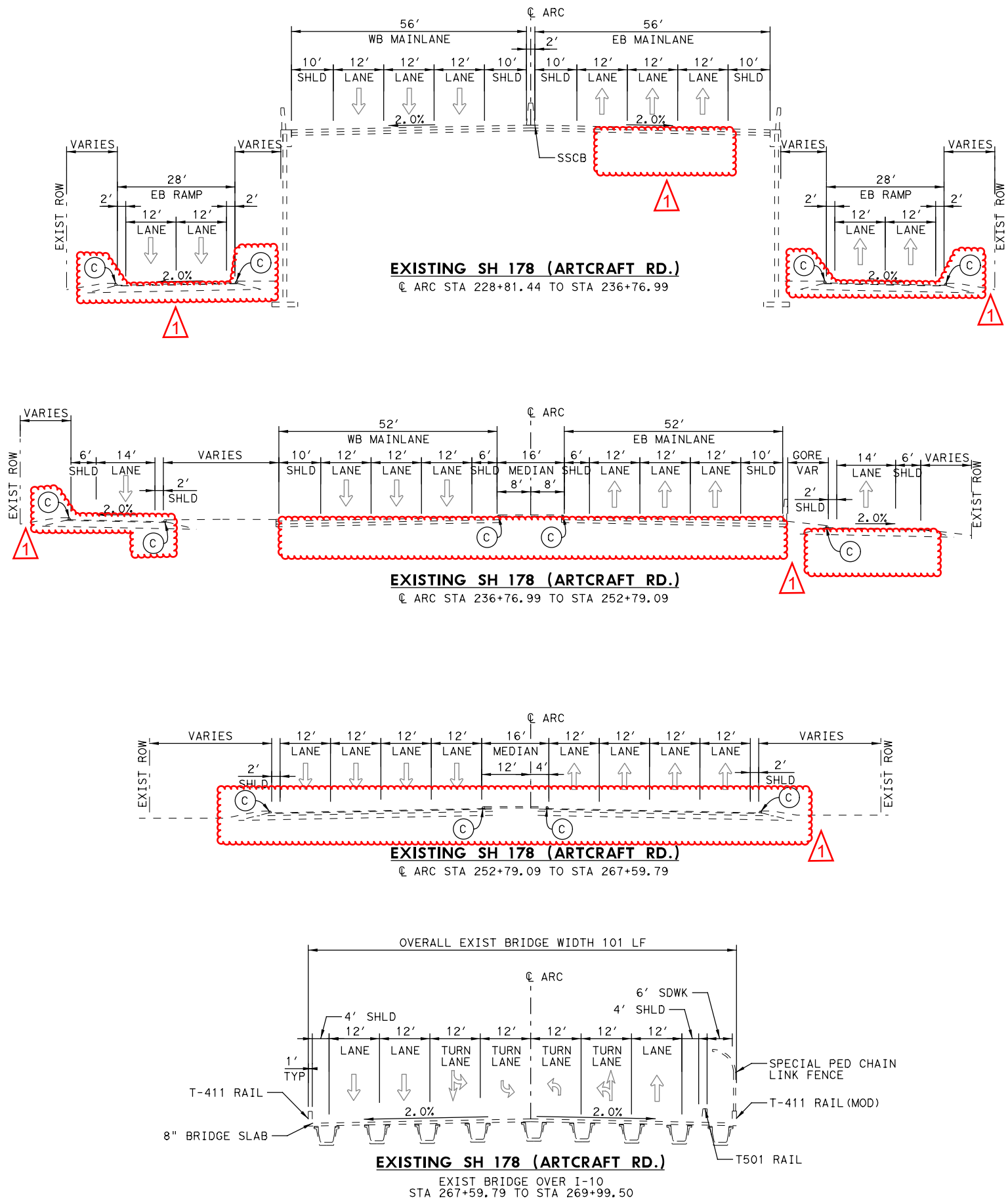
THIS SHEET WAS ORIGINALLY SIGNED AND SEALED BY CHRISTOPHER PERET FLORES P.E. #86245 ON 05/02/2024 EMPLOYED BY OMEGA ENGINEERS, INC. FIRM #F-2147



Oscar Joaquin Gutierrez
 06/25/2024

1	06/25/24	MODIFIED CALLOUTS	
NO.	DATE	REVISION	APPROVED
		OMEGA ENGINEERS, INC.	8200 N. MOPAC EXPRESSWAY, STE #280 AUSTIN, TEXAS 78759 OMEGAENGINEERS.COM TX PE Firm Reg. No. F-2147 P:512.575.2288 F:281.647.9184
		Texas Department of Transportation	© 2024
		SH 178 (ARTCRAFT RD) GENERAL EXISTING TYPICAL SECTIONS (ARTCRAFT RD)	
SCALE: N.T.S.		SHEET 2 OF 7	
FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.	
6	F 2B24 (273)	SH178, ETC	
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	11
CONTROL	SECTION	JOB	
3592	01	009	

REVISED, 06/25/2024



LEGEND

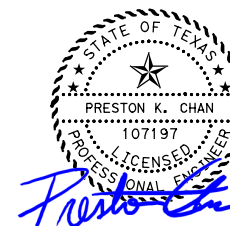
- (A) POST AND CABLE FENCE
- (B) CABLE BARRIER W/VARYING OFFSET
- (C) CONC CURB (TYPE A)
- (D) CONCRETE SIDEWALK

PAVEMENT NOTES:
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8. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS NOTED OTHERWISE.



Preston K. Chan

06/26/2024

NO.	DATE	MODIFIED CALLOUTS REVISION	APPROVED
1	06/25/24		

HDR Engineering, Inc
 Firm Registration No. F-754
 17111 Preston Road, Suite 300
 Dallas, Texas 75248
 972.960.4400

Texas Department of Transportation
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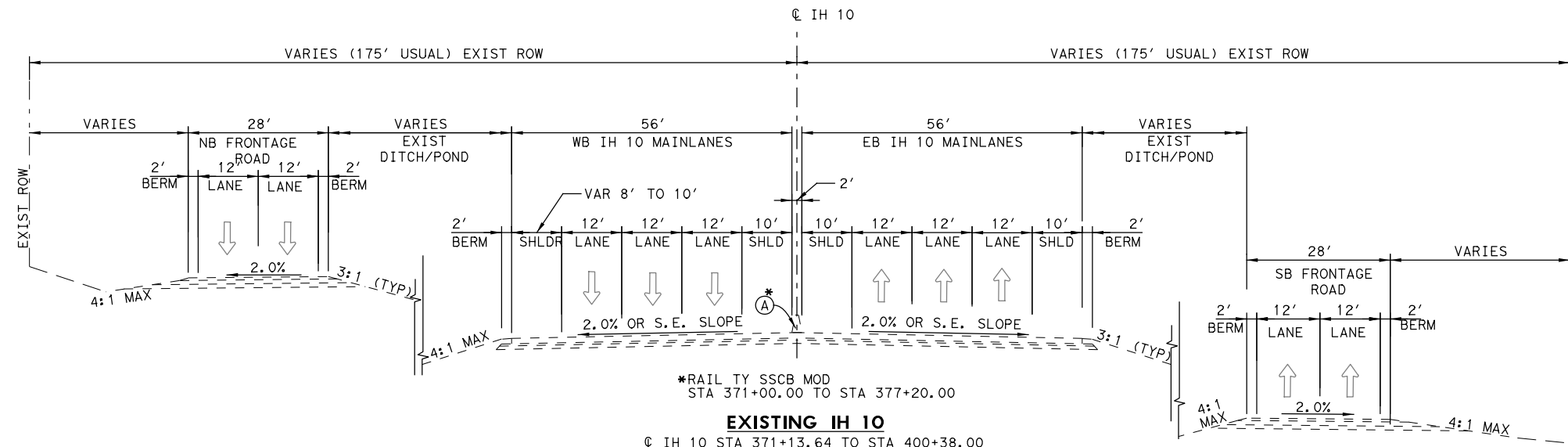
**SH 178 (ARTCRAFT RD)
 GENERAL
 EXISTING TYPICAL SECTIONS
 (ARTCRAFT RD)**

SCALE: N. T. S. SHEET 4 OF 7

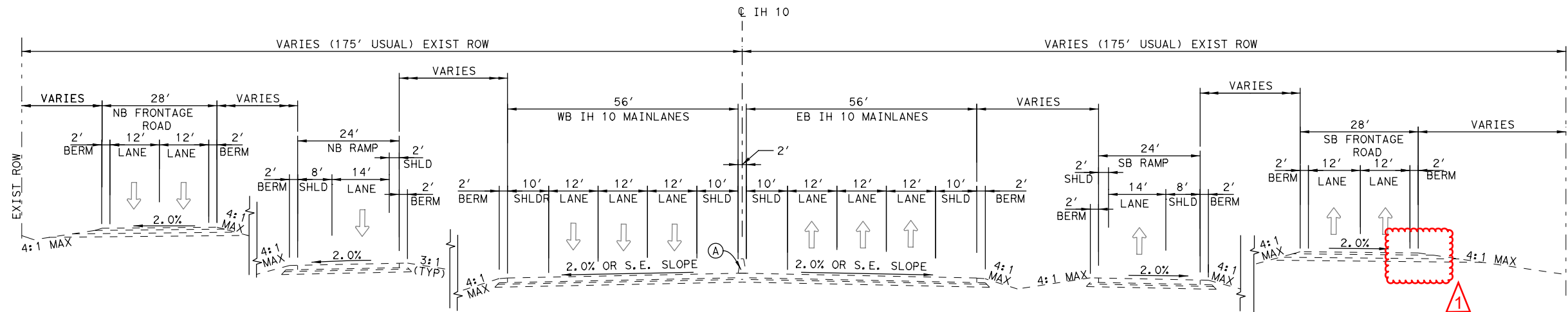
FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.
6	F 2B24 (273)	SH178, ETC
STATE	DISTRICT	COUNTY
TEXAS	ELP	EL PASO
CONTROL	SECTION	JOB
3592	01	009

13

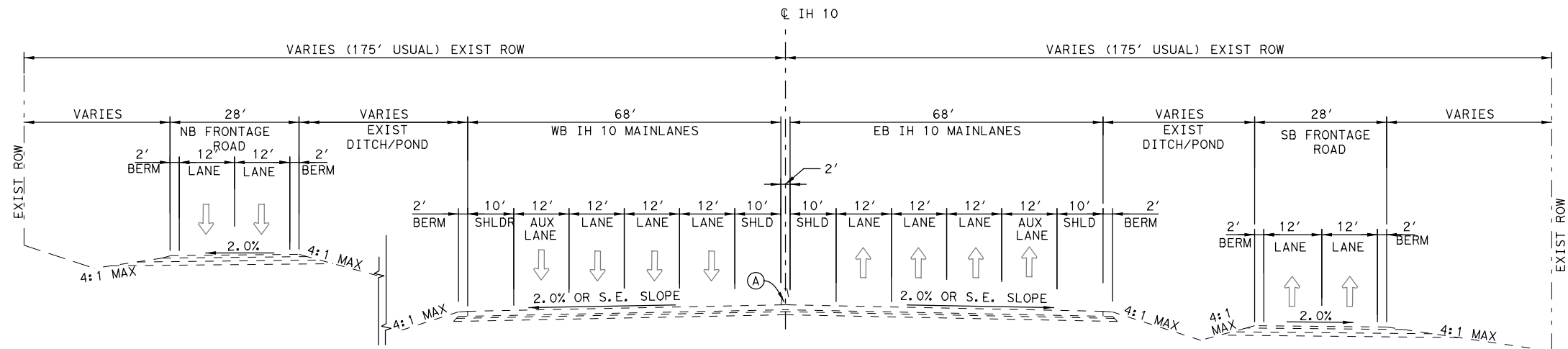
1 REVISED, 06/26/2024



EXISTING IH 10
 @ IH 10 STA 371+00.00 TO STA 377+20.00
 BRIDGE LIMITS @ IH 10 STA 397+15.00 TO STA 398+95.00



EXISTING IH 10
 @ IH 10 STA 400+38.00 TO STA. 404+19.00
 @ IH 10 STA 440+32.00 TO STA. 449+45.00



EXISTING IH 10
 @ IH 10 STA 404+19.00 TO STA. 420+37.00
 @ IH 10 STA 437+45.00 TO STA. 440+32.00
 BRIDGE LIMITS @ IH 10 STA 418+12.00 TO STA 420+37.00

LEGEND

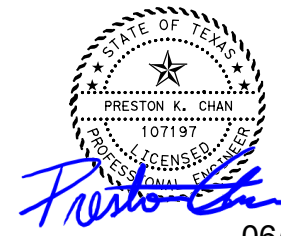
- (A) RAIL TY SSCB
- (C) RAIL TY SSTR
- (D) CONCRETE RIPRAP
- (E) TY II CURB & GUTTER

PAVEMENT NOTES:
 REFER TO BORING LAYOUTS AND BORING DRILLING LOGS FOR ADDITIONAL EXIST PAVEMENT INFORMATION.



NOTES:

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06/28/2024

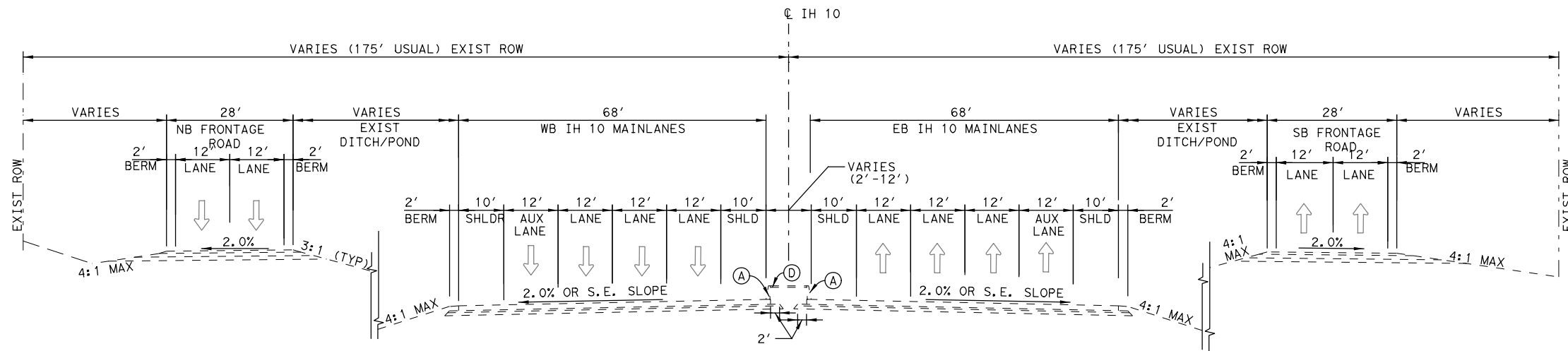
NO.	DATE	REVISION	APPROVED
			HDR
			HDR Engineering, Inc. Firm Registration No. F-754 17111 Preston Road, Suite 300 Dallas, Texas 75248 972.960.4400
Texas Department of Transportation © 2024			
SH 178 (ARTCRAFT RD) GENERAL EXISTING TYPICAL SECTIONS (IH 10)			
SCALE: N.T.S.		SHEET 6 OF 7	
FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.	
6	F 2B24 (273)	SH178, ETC	
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	15
CONTROL	SECTION	JOB	
3592	01	009	

REVIS 1 **REVISED, 06/28/2024**

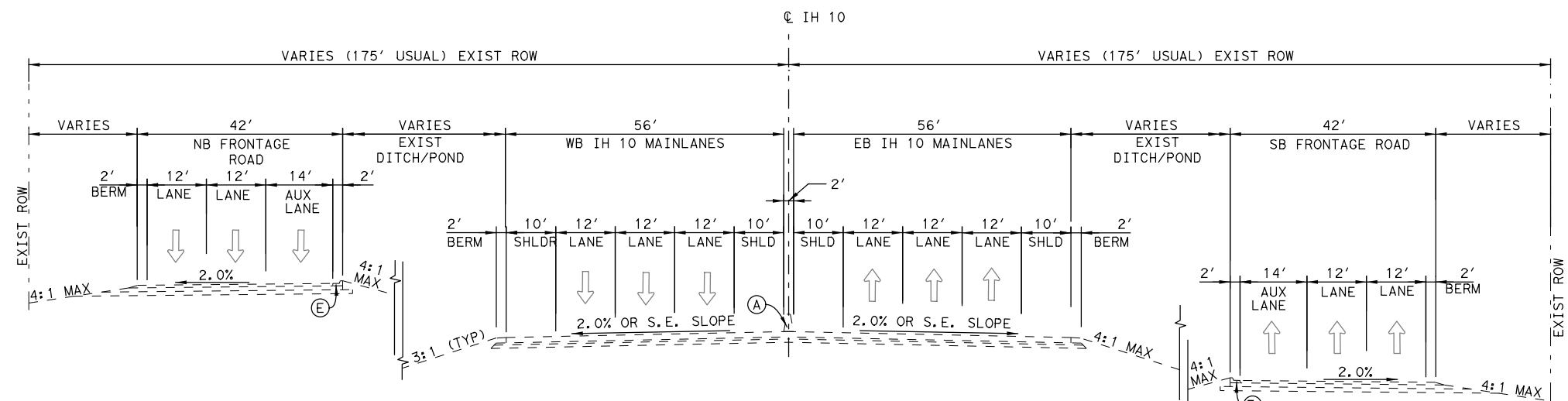
LEGEND

- (A) RAIL TY SSCB
- (C) RAIL TY SSTR
- (D) CONCRETE RIPRAP
- (E) TY II CURB & GUTTER

PAVEMENT NOTES:
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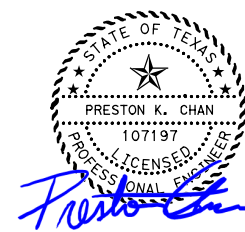


EXISTING IH 10
 ☉ IH 10 STA 420+37.00 TO STA. 437+45.00



EXISTING IH 10
 ☉ IH 10 STA 449+45.00 TO STA 468+11.63

- NOTES:**
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 3. REFER TO LANDSCAPE PLANS FOR LIMITS OF TOPSOIL AND SEEDING.
 4. REFER TO ROADWAY PLAN AND PROFILE SHEETS FOR CROSS SLOPE INFORMATION.
 5. REFER TO ROADWAY PLAN AND PROFILE SHEETS FOR LIMITS OF BARRIERS.
 6. REFER TO HARDSCAPE SHEETS FOR ADDITIONAL PAVER INFORMATION.
 7. REFER TO BRIDGE LAYOUT SHEETS FOR BRIDGE TYPICAL SECTIONS.
 8. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS NOTED OTHERWISE.



Preston Chan
 06/26/2024

NO.	DATE	REVISION	APPROVED
HDR Engineering, Inc. Firm Registration No. F-754 1711 Preston Road, Suite 300 Dallas, Texas 75248 972.960.4400			
Texas Department of Transportation © 2024			
SH 178 (ARTCRAFT RD) GENERAL EXISTING TYPICAL SECTIONS (IH 10)			
SCALE: N.T.S.		SHEET 7 OF 7	
FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.	
6	F 2B24 (273)	SH178, ETC	
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	16
CONTROL	SECTION	JOB	
3592	01	009	

1 REVISED, 06/26/2024



Estimate & Quantity Sheet

CONTROLLING PROJECT ID 3592-01-009

DISTRICT El Paso
HIGHWAY SH 178

COUNTY El Paso

CONTROL SECTION JOB				3592-01-009		3592-01-012		TOTAL EST.	TOTAL FINAL
PROJECT ID				A00061037		R00005569			
COUNTY				El Paso					
HIGHWAY				SH 178					
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL		
	100-6002	PREPARING ROW	STA	235.190				235.190	
	104-6001	REMOVING CONC (PAV)	SY	74,423.000				74,423.000	
	104-6009	REMOVING CONC (RIPRAP)	SY	181.000				181.000	
	104-6011	REMOVING CONC (MEDIANS)	SY	5,993.000				5,993.000	
	104-6013	REMOVING CONC (FOUNDATIONS)	SY	4,246.000				4,246.000	
	104-6017	REMOVING CONC (DRIVEWAYS)	SY	2,160.000				2,160.000	
	104-6023	REMOVING CONC (CTB)	LF	1,417.000				1,417.000	
	104-6024	REMOVING CONC (RETAINING WALLS)	SY	88.000				88.000	
	104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	9,581.000				9,581.000	
	104-6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	8,886.000				8,886.000	
	105-6037	REMOVING STAB BASE AND ASPH PAV(0"-16")	SY	107,183.000				107,183.000	
	110-6001	EXCAVATION (ROADWAY)	CY	65,257.000				65,257.000	
	110-6003	EXCAVATION (SPECIAL)	CY	25,473.000				25,473.000	
	132-6006	EMBANKMENT (FINAL)(DENS CONT)(TY C)	CY	306,980.000				306,980.000	
	216-6001	PROOF ROLLING	HR	100.000				100.000	
	247-6053	FL BS (CMP IN PLC)(TYD GR1-2)(FNAL POS)	CY	1,955.000				1,955.000	
	247-6381	FL BS (CMP IN PLC)(TY A GR 5)(4")	SY	7,636.000				7,636.000	
	247-6382	FL BS (CMP IN PLC)(TY A GR 5)(8")	SY	9,662.000				9,662.000	
	260-6002	LIME (HYDRATED LIME (SLURRY))	TON	10.000				10.000	
	260-6079	LIME TRT (SUBGRADE)(6")	SY	1,280.000				1,280.000	
	275-6001	CEMENT	TON	1,516.000				1,516.000	
	275-6019	CEMENT TREAT (SUBGRADE)(6")	SY	148,510.000				148,510.000	
	310-6001	PRIME COAT (MULTI OPTION)	GAL	24,841.000				24,841.000	
	354-6045	PLANE ASPH CONC PAV (2")	SY	12,718.000				12,718.000	
	360-6003	CONC PVMT (CONT REINF - CRCP) (9")	SY	24,323.000				24,323.000	
	360-6007	CONC PVMT (CONT REINF - CRCP) (13")	SY	74,655.000				74,655.000	
	400-6003	STRUCT EXCAV (PIPE)	CY	22,337.000				22,337.000	
	400-6005	CEM STABIL BKFL	CY	12,223.000				12,223.000	
	400-6006	CUT & RESTORING PAV	SY	1,370.000				1,370.000	
	400-6009	CEMENT STAB BACKFILL (INLET OR MH)	CY	2,747.000				2,747.000	
	401-6001	FLOWABLE BACKFILL	CY	197.000				197.000	
	402-6001	TRENCH EXCAVATION PROTECTION	LF	15,771.000		27,794.000		43,565.000	
	403-6001	TEMPORARY SPL SHORING	SF	14,385.000				14,385.000	
	416-6001	DRILL SHAFT (18 IN)	LF	274.000				274.000	
	416-6002	DRILL SHAFT (24 IN)	LF	32.000				32.000	
	416-6004	DRILL SHAFT (36 IN)	LF	4,357.000				4,357.000	
	416-6005	DRILL SHAFT (42 IN)	LF	84.000				84.000	

1 REVISED, 07/02/2024

DISTRICT	COUNTY	CCSJ	SHEET
El Paso	El Paso	3592-01-009	36



Estimate & Quantity Sheet

CONTROLLING PROJECT ID 3592-01-009

DISTRICT El Paso
HIGHWAY SH 178

COUNTY El Paso

CONTROL SECTION JOB				3592-01-009		3592-01-012		TOTAL EST.	TOTAL FINAL
PROJECT ID				A00061037		R00005569			
COUNTY				El Paso					
HIGHWAY				SH 178					
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL		
	416-6006	DRILL SHAFT (48 IN)	LF	3,788.000				3,788.000	
	416-6010	DRILL SHAFT (72 IN)	LF	1,390.000				1,390.000	
	416-6012	DRILL SHAFT (84 IN)	LF	100.000				100.000	
	416-6015	DRILL SHAFT (NON - REINFORCED) (12 IN)	LF	120.000				120.000	
	416-6026	DRILL SHAFT (HIGH MAST POLE) (60 IN)	LF	881.000				881.000	
	416-6031	DRILL SHAFT (TRF SIG POLE) (30 IN)	LF	12.000				12.000	
	416-6032	DRILL SHAFT (TRF SIG POLE) (36 IN)	LF	196.000				196.000	
	416-6034	DRILL SHAFT (TRF SIG POLE) (48 IN)	LF	220.000				220.000	
	416-6038	DRILL SHAFT (108 IN)	LF	275.000				275.000	
	416-6047	DRILL SHAFT (96 IN)	LF	4,285.000				4,285.000	
	416-6051	DRILL SHAFT (120 IN)	LF	420.000				420.000	
	420-6014	CL C CONC (ABUT)(HPC)	CY	467.600				467.600	
	420-6030	CL C CONC (CAP)(HPC)	CY	325.800				325.800	
	420-6038	CL C CONC (COLUMN)(HPC)	CY	244.700				244.700	
	420-6066	CL C CONC (RAIL FOUNDATION)	CY	8,772.000				8,772.000	
	420-6085	CL F CONC (CAP)(HPC)(MASS)	CY	3,363.900				3,363.900	
	420-6093	CL F CONC (COLUMN)(HPC)(MASS)	CY	4,460.800				4,460.800	
	420-6139	CL C CONC (VEH DEFL WALL)(HPC)	CY	26.000				26.000	
	420-6201	CL F CONC (CAP)(STRDL)(HPC)(MASS)	CY	1,195.200				1,195.200	
	422-6002	REINF CONC SLAB (HPC)	SF	531,531.000				531,531.000	
	422-6016	APPROACH SLAB (HPC)	CY	838.700				838.700	
	423-6001	RETAINING WALL (MSE)	SF	273,041.000				273,041.000	
	423-6008	RETAINING WALL (CAST - IN - PLACE)	SF	12,770.000				12,770.000	
	423-6039	RET WALL (CAST IN PLACE)(SOUND WALL)	SF	23,101.000				23,101.000	
	425-6037	PRESTR CONC GIRDER (TX40)	LF	2,220.950				2,220.950	
	425-6039	PRESTR CONC GIRDER (TX54)	LF	52,070.110				52,070.110	
	432-6001	RIPRAP (CONC)(4 IN)	CY	2,335.940				2,335.940	
	432-6004	RIPRAP CONC (8 IN)	CY	37.000				37.000	
	432-6022	RIPRAP (STONE COMMON)(DRY)(6 IN)	CY	8,099.000				8,099.000	
	432-6044	RIPRAP (CONC)(FLUME)	CY	31.000				31.000	
	434-6026	ELASTOMERIC BEARING (E7)	EA	14.000				14.000	
	434-6035	ELASTOMERIC BEARING (F7)	EA	27.000				27.000	
	434-6036	ELASTOMERIC BEARING (F8)	EA	5.000				5.000	
	434-6041	SLIDING ELASTOMERIC BEARING (ES 4)	EA	28.000				28.000	
	434-6043	SLIDING ELASTOMERIC BEARING (ES 6)	EA	36.000				36.000	
	438-6004	CLEANING AND SEALING EXIST JOINTS(CL7)	LF	987.000				987.000	
	442-6001	STR STEEL (PLATE GIRDER)	LB	7,760,200.000				7,760,200.000	

1 REVISED, 07/02/2024



Estimate & Quantity Sheet

CONTROLLING PROJECT ID 3592-01-009

DISTRICT El Paso
HIGHWAY SH 178

COUNTY El Paso

CONTROL SECTION JOB				3592-01-009		3592-01-012		TOTAL EST.	TOTAL FINAL
PROJECT ID				A00061037		R00005569			
COUNTY				El Paso					
HIGHWAY				SH 178					
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL		
	442-6007	STR STEEL (MISC NON - BRIDGE)	LB	392.000				392.000	
	450-6023	RAIL (TY SSTR)	LF	43,440.000				43,440.000	
	450-6024	RAIL (TY SSTR)(HPC)	LF	29,024.400				29,024.400	
	450-6027	RAIL (TY T80SS)	LF	4,913.900				4,913.900	
	450-6051	RAIL (HANDRAIL)(TY E)	LF	2,885.000				2,885.000	
	450-6052	RAIL (HANDRAIL)(TY F)	LF	203.000				203.000	
	450-6054	RAIL (TY SSTR) (W/DRAIN SLOTS)	LF	6,623.000				6,623.000	
	450-6065	RAIL (TY T80SS) W/DRAIN SLOTS	LF	2,124.000				2,124.000	
	450-6105	RAIL (TY PR22)(HPC)	LF	215.000				215.000	
	450-6122	RAIL (TY T80PP)	LF	2,497.000				2,497.000	
	450-6134	RAIL (TRAN SSTR TO T80PP)	LF	755.000				755.000	
	454-6018	SEALED EXPANSION JOINT (4 IN) (SEJ - M)	LF	1,804.000				1,804.000	
	454-6019	SEALED EXPANSION JOINT (5 IN) (SEJ - M)	LF	357.000				357.000	
	464-6003	RC PIPE (CL III)(18 IN)	LF	1,399.000				1,399.000	
	464-6005	RC PIPE (CL III)(24 IN)	LF	13,418.000				13,418.000	
	464-6007	RC PIPE (CL III)(30 IN)	LF	5,220.000				5,220.000	
	464-6008	RC PIPE (CL III)(36 IN)	LF	649.000				649.000	
	464-6014	RC PIPE (CL III)(72 IN)	LF	22.000				22.000	
	464-6018	RC PIPE (CL IV)(24 IN)	LF	913.000				913.000	
	464-6019	RC PIPE (CL IV)(30 IN)	LF	554.000				554.000	
	464-6030	RC PIPE (ARCH)(CL III)(DES 1)	LF	72.000				72.000	
	465-6015	INLET (COMPL)(PCO)(3FT)(RIGHT)	EA	2.000				2.000	
	465-6016	INLET (COMPL)(PCO)(3FT)(BOTH)	EA	1.000				1.000	
	465-6019	INLET (COMPL)(PCO)(4FT)(RIGHT)	EA	2.000				2.000	
	465-6020	INLET (COMPL)(PCO)(4FT)(BOTH)	EA	28.000				28.000	
	465-6030	INLET (COMPL)(PCU)(3FT)(LEFT)	EA	1.000				1.000	
	465-6032	INLET (COMPL)(PCU)(3FT)(BOTH)	EA	5.000				5.000	
	465-6045	INLET (COMPL)(PMBD)(4FT)	EA	20.000				20.000	
	465-6070	INLET (COMPL)(PSL)(RC)(3FTX3FT)	EA	2.000				2.000	
	465-6071	INLET (COMPL)(PSL)(RC)(4FTX4FT)	EA	81.000				81.000	
	465-6126	INLET (COMPL)(PSL)(FG)(3FTX3FT-3FTX3FT)	EA	5.000				5.000	
	465-6128	INLET (COMPL)(PSL)(FG)(4FTX4FT-4FTX4FT)	EA	8.000				8.000	
	465-6146	INLET(COMPL)(PSL)(SFG)(3FTX3FT-3FTX3FT)	EA	1.000				1.000	
	465-6147	INLET(COMPL)(PSL)(SFG)(4FTX4FT-4FTX4FT)	EA	12.000				12.000	
	465-6148	INLET(COMPL)(PSL)(SFG)(3FTX5FT-3FTX5FT)	EA	1.000				1.000	
	465-6152	INLET (COMPL)(PAZD)(RC)(3FTX3FT)	EA	1.000				1.000	
	465-6158	INLET(COMPL)(PAZD)(FG)(3FTX3FT-3FTX3FT)	EA	6.000				6.000	

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Estimate & Quantity Sheet

CONTROLLING PROJECT ID 3592-01-009

DISTRICT El Paso
HIGHWAY SH 178

COUNTY El Paso

CONTROL SECTION JOB				3592-01-009		3592-01-012		TOTAL EST.	TOTAL FINAL
PROJECT ID				A00061037		R00005569			
COUNTY				El Paso					
HIGHWAY				SH 178					
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL		
	465-6160	INLET(COMPL)(PAZD)(FG)(4FTX4FT-4FTX4FT)	EA	6.000				6.000	
	465-6178	INLET (COMPL)(TY MSE1)	EA	3.000				3.000	
	465-6179	INLET (COMPL)(TY MSE2)	EA	52.000				52.000	
	465-6236	INLET (COMPL)(RWI)(TY II)	EA	16.000				16.000	
	466-6232	WINGWALL (SPL)	EA	1.000				1.000	
	467-6362	SET (TY II) (18 IN) (RCP) (6: 1) (C)	EA	7.000				7.000	
	467-6387	SET (TY II) (24 IN) (RCP) (2: 1) (C)	EA	1.000				1.000	
	467-6388	SET (TY II) (24 IN) (RCP) (3: 1) (C)	EA	16.000				16.000	
	467-6390	SET (TY II) (24 IN) (RCP) (4: 1) (C)	EA	1.000				1.000	
	467-6394	SET (TY II) (24 IN) (RCP) (6: 1) (C)	EA	2.000				2.000	
	467-6395	SET (TY II) (24 IN) (RCP) (6: 1) (P)	EA	1.000				1.000	
	467-6417	SET (TY II) (30 IN) (RCP) (3: 1) (C)	EA	3.000				3.000	
	467-6423	SET (TY II) (30 IN) (RCP) (6: 1) (P)	EA	1.000				1.000	
	467-6514	SET (TY II) (DES 1) (RCP) (3: 1) (C)	EA	3.000				3.000	
	467-6516	SET (TY II) (DES 1) (RCP) (4: 1) (C)	EA	3.000				3.000	
	471-6007	GRATE AND FRAME (BRIDGE DRAIN)	EA	32.000				32.000	
	479-6001	ADJUSTING MANHOLES	EA	3.000				3.000	
	479-6002	ADJUSTING INLETS	EA	1.000				1.000	
	480-6001	CLEAN EXIST CULVERTS	EA	1.000				1.000	
	481-6013	PIPE (PVC) (SCH 40) (6 IN)	LF	1,884.000				1,884.000	
	496-6002	REMOV STR (INLET)	EA	29.000				29.000	
	496-6004	REMOV STR (SET)	EA	2.000				2.000	
	496-6007	REMOV STR (PIPE)	LF	3,566.000				3,566.000	
	496-6030	REMOVE STR (BOLLARD)	EA	62.000				62.000	
	496-6032	REMOV STR (ROCKWALL)	EA	4.000				4.000	
	496-6040	REMOV STR (RET WALL)	LF	114.000				114.000	
	496-6072	REMOVING ROCK RIPRAP	LF	10,957.000				10,957.000	
	500-6001	MOBILIZATION	LS	1.000				1.000	
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	60.000				60.000	
	506-6002	ROCK FILTER DAMS (INSTALL) (TY 2)	LF	830.000				830.000	
	506-6011	ROCK FILTER DAMS (REMOVE)	LF	830.000				830.000	
	506-6020	CONSTRUCTION EXITS (INSTALL) (TY 1)	SY	3,744.000				3,744.000	
	506-6024	CONSTRUCTION EXITS (REMOVE)	SY	3,744.000				3,744.000	
	506-6034	CONSTRUCTION PERIMETER FENCE	LF	2,000.000				2,000.000	
	506-6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	44,570.000				44,570.000	
	506-6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	44,570.000				44,570.000	
	506-6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	6,144.000				6,144.000	

1 REVISED, 07/02/2024



Estimate & Quantity Sheet

CONTROLLING PROJECT ID 3592-01-009

DISTRICT El Paso
HIGHWAY SH 178

COUNTY El Paso

CONTROL SECTION JOB				3592-01-009		3592-01-012		TOTAL EST.	TOTAL FINAL
PROJECT ID				A00061037		R00005569			
COUNTY				El Paso					
HIGHWAY				SH 178					
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL		
	506-6042	BIODEG EROSN CONT LOGS (INSTL) (18")	LF	3,240.000				3,240.000	
	506-6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	9,384.000				9,384.000	
	508-6001	CONSTRUCTING DETOURS	SY	14,450.000				14,450.000	
	512-6013	PORT CTB (DES SOURCE)(SGL SLP)(TY 1)	LF	51,030.000				51,030.000	
	512-6021	PORT CTB (DES SOURCE)(LOW PROF)(TY 1)	LF	7,840.000				7,840.000	
	512-6022	PORT CTB (DES SOURCE)(LOW PROF)(TY 2)	LF	340.000				340.000	
	512-6025	PORT CTB (MOVE)(SGL SLP)(TY 1)	LF	84,600.000				84,600.000	
	512-6033	PORT CTB (MOVE)(LOW PROF)(TY 1)	LF	17,380.000				17,380.000	
	512-6034	PORT CTB (MOVE)(LOW PROF)(TY 2)	LF	740.000				740.000	
	512-6037	PORT CTB (STKPL)(SGL SLP)(TY 1)	LF	51,030.000				51,030.000	
	512-6045	PORT CTB (STKPL)(LOW PROF)(TY 1)	LF	7,840.000				7,840.000	
	512-6046	PORT CTB (STKPL)(LOW PROF)(TY 2)	LF	340.000				340.000	
	514-6001	PERM CTB (SGL SLOPE) (TY 1) (42)	LF	41.000				41.000	
	514-6019	PERM CTB(SGL SLOPE)(TY 1)(42)(HPC)	LF	628.000				628.000	
	529-6002	CONC CURB (TY II)	LF	10,542.000				10,542.000	
	529-6008	CONC CURB & GUTTER (TY II)	LF	12,585.000				12,585.000	
	529-6018	CONC CURB (TY F3)	LF	349.000				349.000	
	530-6017	DRIVEWAYS (CONC) (HES)	SY	4,340.000				4,340.000	
	531-6001	CONC SIDEWALKS (4")	SY	13,250.000				13,250.000	
	531-6004	CURB RAMPS (TY 1)	EA	11.000				11.000	
	531-6005	CURB RAMPS (TY 2)	EA	6.000				6.000	
	531-6008	CURB RAMPS (TY 5)	EA	3.000				3.000	
	531-6010	CURB RAMPS (TY 7)	EA	14.000				14.000	
	531-6013	CURB RAMPS (TY 10)	EA	2.000				2.000	
	531-6016	CURB RAMPS (TY 21)	EA	3.000				3.000	
	531-6017	CURB RAMPS (TY 22)	EA	8.000				8.000	
	536-6002	CONC MEDIAN	SY	1,198.000				1,198.000	
	540-6001	MTL W-BEAM GD FEN (TIM POST)	LF	5,300.000				5,300.000	
	540-6006	MTL BEAM GD FEN TRANS (THRIE-BEAM)	EA	30.000				30.000	
	540-6016	DOWNSTREAM ANCHOR TERMINAL SECTION	EA	8.000				8.000	
	540-6018	MTL BM GD FEN TRANS (NON - SYM)	EA	8.000				8.000	
	542-6001	REMOVE METAL BEAM GUARD FENCE	LF	645.000				645.000	
	542-6002	REMOVE TERMINAL ANCHOR SECTION	EA	2.000				2.000	
	542-6003	REMOVE DOWNSTREAM ANCHOR TERMINAL	EA	3.000				3.000	
	543-6021	REMOVE CABLE BARRIER	LF	2,188.000				2,188.000	
	543-6022	REMOVE CABLE BARRIER TERMINAL SECTION	EA	4.000				4.000	
	544-6001	GUARDRAIL END TREATMENT (INSTALL)	EA	29.000				29.000	

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Estimate & Quantity Sheet

CONTROLLING PROJECT ID 3592-01-009

DISTRICT El Paso
HIGHWAY SH 178

COUNTY El Paso

CONTROL SECTION JOB				3592-01-009		3592-01-012		TOTAL EST.	TOTAL FINAL
PROJECT ID				A00061037		R00005569			
COUNTY				El Paso					
HIGHWAY				SH 178					
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL		
	544-6003	GUARDRAIL END TREATMENT (REMOVE)	EA	4.000				4.000	
	545-6003	CRASH CUSH ATTEN (MOVE & RESET)	EA	49.000				49.000	
	545-6004	CRASH CUSH ATTEN (STKPL)	EA	24.000				24.000	
	545-6005	CRASH CUSH ATTEN (REMOVE)	EA	8.000				8.000	
	545-6007	CRASH CUSH ATTEN (INSTL)(L)(N)(TL3)	EA	30.000				30.000	
	545-6010	CRASH CUSH ATTEN (INSTL)(L)(W)(TL3)	EA	13.000				13.000	
	550-6001	CHAIN LINK FENCE (INSTALL) (6')	LF	2,385.000				2,385.000	
	550-6003	CHAIN LINK FENCE (REMOVE)	LF	1,131.000				1,131.000	
	550-6012	CHAIN LINK FENCE GATE (INSTALL)(6'X16')	EA	5.000				5.000	
	610-6009	REMOVE RD IL ASM (TRANS-BASE)	EA	48.000				48.000	
	610-6010	REMOVE RD IL ASM (U/P)	EA	44.000				44.000	
	610-6104	IN RD IL (U/P) (TY 1) (150W EQ) LED	EA	26.000				26.000	
	613-6003	HI MST IL POLE (125 FT)(80 MPH)	EA	1.000				1.000	
	613-6005	HI MST IL POLE (150 FT)(80 MPH)	EA	23.000				23.000	
	614-6007	LED HI MST IL ASM (6 FIXT)(ASYM)(TY A)	EA	14.000				14.000	
	614-6014	LED HI MST IL AM(6 FIXT)ASYM(TY A)SHLD	EA	9.000				9.000	
	618-6023	CONDT (PVC) (SCH 40) (2")	LF	13,935.000				13,935.000	
	618-6024	CONDT (PVC) (SCH 40) (2") (BORE)	LF	9,705.000				9,705.000	
	618-6029	CONDT (PVC) (SCH 40) (3")	LF	12,327.000				12,327.000	
	618-6030	CONDT (PVC) (SCH 40) (3") (BORE)	LF	11,626.000				11,626.000	
	618-6033	CONDT (PVC) (SCH 40) (4")	LF	580.000				580.000	
	618-6034	CONDT (PVC) (SCH 40) (4") (BORE)	LF	2,360.000				2,360.000	
	618-6070	CONDT (RM) (2")	LF	605.000				605.000	
	618-6074	CONDT (RM) (3")	LF	490.000				490.000	
	620-6002	ELEC CONDR (NO.14) INSULATED	LF	21,075.000				21,075.000	
	620-6008	ELEC CONDR (NO.8) INSULATED	LF	58,745.000				58,745.000	
	620-6010	ELEC CONDR (NO.6) INSULATED	LF	19,949.000				19,949.000	
	620-6012	ELEC CONDR (NO.4) INSULATED	LF	1,610.000				1,610.000	
	620-6016	ELEC CONDR (NO.2) INSULATED	LF	10,735.000				10,735.000	
	620-6018	ELEC CONDR (NO.1) INSULATED	LF	2,364.000				2,364.000	
	624-6002	GROUND BOX TY A (122311)W/APRON	EA	112.000				112.000	
	624-6010	GROUND BOX TY D (162922)W/APRON	EA	44.000				44.000	
	624-6028	REMOVE GROUND BOX	EA	41.000				41.000	
	628-6002	REMOVE ELECTRICAL SERVICES	EA	7.000				7.000	
	628-6041	ELC SRV TY A 240/480 060(NS)SS(E)GC(O)	EA	5.000				5.000	
	628-6126	ELC SRV TY D 120/240 060(NS)GS(N)EX(O)	EA	1.000				1.000	
	628-6142	ELC SRV TY D 120/240 060(NS)SS(E)GC(O)	EA	3.000				3.000	

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Estimate & Quantity Sheet

CONTROLLING PROJECT ID 3592-01-009

DISTRICT El Paso
HIGHWAY SH 178

COUNTY El Paso

CONTROL SECTION JOB				3592-01-009		3592-01-012		TOTAL EST.	TOTAL FINAL
PROJECT ID				A00061037		R00005569			
COUNTY				El Paso					
HIGHWAY				SH 178					
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL		
	628-6143	ELC SRV TY D 120/240 060(NS)SS(E)GC(U)	EA	1.000				1.000	
	628-6225	ELC SRV TY D 120/240 100(NS)GS(N)GC(O)	EA	6.000				6.000	
	628-6226	ELC SRV TY D 120/240 100(NS)GS(N)GC(U)	EA	1.000				1.000	
	628-6259	ELC SRV TY D 120/240 125(NS)GS(N)GC(O)	EA	1.000				1.000	
	636-6002	ALUMINUM SIGNS (TY G)	SF	729.500				729.500	
	636-6003	ALUMINUM SIGNS (TY O)	SF	6,938.750				6,938.750	
	644-6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	65.000				65.000	
	644-6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	78.000				78.000	
	644-6027	IN SM RD SN SUP&AM TYS80(1)SA(P)	EA	8.000				8.000	
	644-6030	IN SM RD SN SUP&AM TYS80(1)SA(T)	EA	22.000				22.000	
	644-6033	IN SM RD SN SUP&AM TYS80(1)SA(U)	EA	24.000				24.000	
	644-6034	IN SM RD SN SUP&AM TYS80(1)SA(U-1EXT)	EA	4.000				4.000	
	644-6035	IN SM RD SN SUP&AM TYS80(1)SA(U-2EXT)	EA	2.000				2.000	
	644-6050	IN SM RD SN SUP&AM TYS80(2)SA(P)	EA	2.000				2.000	
	644-6064	IN BRIDGE MNT CLEARANCE SGN ASSM(TY N)	EA	16.000				16.000	
	644-6067	IN SM RD SN SUP&AM (INST SIGN ONLY)	EA	5.000				5.000	
	644-6070	RELOCATE SM RD SN SUP&AM TY S80	EA	1.000				1.000	
	644-6076	REMOVE SM RD SN SUP&AM	EA	180.000				180.000	
	644-6082	IN SRSS & AM (RAIL)(90 MPH)(P MOUNT)	EA	60.000				60.000	
	644-6084	IN SRSS & AM (RAIL)(90 MPH)(T MOUNT)	EA	16.000				16.000	
	647-6001	INSTALL LRSS (STRUCT STEEL)	LB	3,788.000				3,788.000	
	647-6002	RELOCATE LRSA	EA	8.000				8.000	
	647-6003	REMOVE LRSA	EA	5.000				5.000	
	650-6028	INS OH SN SUP(30 FT BAL TEE)	EA	6.000				6.000	
	650-6030	INS OH SN SUP(30 FT CANT)(CIRC TUBE)	EA	5.000				5.000	
	650-6040	INS OH SN SUP(35 FT CANT)(CIRC TUBE)	EA	16.000				16.000	
	650-6075	INS OH SN SUP(65 FT BRDG)(CIRC TUBE)	EA	3.000				3.000	
	650-6080	INS OH SN SUP(70 FT BRDG)(CIRC TUBE)	EA	2.000				2.000	
	650-6100	INS OH SN SUP(90 FT BRDG)(CIRC TUBE)	EA	1.000				1.000	
	650-6135	INS OH SN SUP(125 FT BRDG)(CIRC TUBE)	EA	1.000				1.000	
	650-6204	REMOVE OVERHD SIGN SUP	EA	7.000				7.000	
	650-6205	REMOVE OVERHD SIGN SUP (SIGN ONLY)	EA	2.000				2.000	
	658-6083	INSTL DEL ASSM (D-SW)SZ 1(WFLX)SRF	EA	112.000				112.000	
	662-6005	WK ZN PAV MRK NON-REMOV (W)6"(BRK)	LF	10,440.000				10,440.000	
	662-6006	WK ZN PAV MRK NON-REMOV (W)6"(DOT)	LF	762.000				762.000	
	662-6008	WK ZN PAV MRK NON-REMOV (W)6"(SLD)	LF	132,969.000				132,969.000	
	662-6012	WK ZN PAV MRK NON-REMOV (W)8"(SLD)	LF	1,009.000				1,009.000	

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CONTROLLING PROJECT ID 3592-01-009

DISTRICT El Paso
HIGHWAY SH 178

COUNTY El Paso

CONTROL SECTION JOB				3592-01-009		3592-01-012		TOTAL EST.	TOTAL FINAL
PROJECT ID				A00061037		R00005569			
COUNTY				El Paso					
HIGHWAY				SH 178					
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL		
	662-6016	WK ZN PAV MRK NON-REMOV (W)24"(SLD)	LF	2,237.000				2,237.000	
	662-6037	WK ZN PAV MRK NON-REMOV (Y)6"(SLD)	LF	96,817.000				96,817.000	
	666-6017	REFL PAV MRK TY I (W)6"(DOT)(090MIL)	LF	3,215.000				3,215.000	
	666-6035	REFL PAV MRK TY I (W)8"(SLD)(090MIL)	LF	25,861.000				25,861.000	
	666-6038	REFL PAV MRK TY I (W)12"(LNDP)(090MIL)	LF	2,067.000				2,067.000	
	666-6041	REFL PAV MRK TY I (W)12"(SLD)(090MIL)	LF	8,098.000				8,098.000	
	666-6047	REFL PAV MRK TY I (W)24"(SLD)(090MIL)	LF	3,590.000				3,590.000	
	666-6053	REFL PAV MRK TY I (W)(ARROW)(090MIL)	EA	111.000				111.000	
	666-6056	REFL PAV MRK TY I(W)(DBL ARROW)(090MIL)	EA	35.000				35.000	
	666-6062	REFL PAV MRK TY I(W)(UTURN ARW)(090MIL)	EA	5.000				5.000	
	666-6071	REFL PAV MRK TY I(W)(LNDP ARW)(090MIL)	EA	13.000				13.000	
	666-6077	REFL PAV MRK TY I (W)(WORD)(090MIL)	EA	75.000				75.000	
	666-6080	REFL PAV MRK TY I(W)(ENTR GORE)(090MIL)	EA	13.000				13.000	
	666-6083	REFL PAV MRK TY I(W)(EXIT GORE)(090MIL)	EA	15.000				15.000	
	666-6092	REFL PAV MRK TY I (W)(RR XING)(090MIL)	EA	3.000				3.000	
	666-6101	REF PAV MRK TY I(W)36"(YLD TRI)(090MIL)	EA	20.000				20.000	
	666-6171	REFL PAV MRK TY II (W) 6" (BRK)	LF	15,420.000				15,420.000	
	666-6172	REFL PAV MRK TY II (W) 6" (DOT)	LF	3,215.000				3,215.000	
	666-6174	REFL PAV MRK TY II (W) 6" (SLD)	LF	77,736.000				77,736.000	
	666-6178	REFL PAV MRK TY II (W) 8" (SLD)	LF	25,861.000				25,861.000	
	666-6179	REFL PAV MRK TY II (W) 12" (LNDP)	LF	2,067.000				2,067.000	
	666-6180	REFL PAV MRK TY II (W) 12" (SLD)	LF	8,098.000				8,098.000	
	666-6182	REFL PAV MRK TY II (W) 24" (SLD)	LF	3,590.000				3,590.000	
	666-6184	REFL PAV MRK TY II (W) (ARROW)	EA	111.000				111.000	
	666-6185	REFL PAV MRK TY II (W) (DBL ARROW)	EA	35.000				35.000	
	666-6187	REFL PAV MRK TY II (W) (UTURN ARROW)	EA	5.000				5.000	
	666-6190	REFL PAV MRK TY II (W) (LNDP ARW)	EA	13.000				13.000	
	666-6192	REFL PAV MRK TY II (W) (WORD)	EA	75.000				75.000	
	666-6193	REFL PAV MRK TY II (W) (ENTR GORE)	EA	13.000				13.000	
	666-6194	REFL PAV MRK TY II (W) (EXIT GORE)	EA	15.000				15.000	
	666-6196	REFL PAV MRK TY II (W) (RR XING)	EA	3.000				3.000	
	666-6199	REFL PAV MRK TY II (W) 36" (YLD TRI)	EA	20.000				20.000	
	666-6210	REFL PAV MRK TY II (Y) 6" (SLD)	LF	17,930.000				17,930.000	
	666-6305	RE PM W/RET REQ TY I (W)6"(BRK)(090MIL)	LF	15,420.000				15,420.000	
	666-6308	RE PM W/RET REQ TY I (W)6"(SLD)(090MIL)	LF	77,736.000				77,736.000	
	666-6320	RE PM W/RET REQ TY I (Y)6"(SLD)(090MIL)	LF	17,930.000				17,930.000	
	668-6002	PREFAB PAV MRK TY B (W)(4")(SLD)	LF	865.000				865.000	

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DISTRICT	COUNTY	CCSJ	SHEET
El Paso	El Paso	3592-01-009	36G



Estimate & Quantity Sheet

CONTROLLING PROJECT ID 3592-01-009

DISTRICT El Paso
HIGHWAY SH 178

COUNTY El Paso

CONTROL SECTION JOB				3592-01-009		3592-01-012		TOTAL EST.	TOTAL FINAL
PROJECT ID				A00061037		R00005569			
COUNTY				El Paso					
HIGHWAY				SH 178					
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL		
	668-6005	PREFAB PAV MRK TY B (W)(4")(BRK)CNTST	LF	217.000				217.000	
	668-6043	PREFAB PAV MRK TY B (Y)(4")(SLD)	LF	865.000				865.000	
	668-6059	PREFAB PAV MRK TY B (MULTI)(SHIELD)	EA	53.000				53.000	
	672-6009	REFL PAV MRKR TY II-A-A	EA	87.000				87.000	
	672-6010	REFL PAV MRKR TY II-C-R	EA	2,490.000				2,490.000	
	677-6001	ELIM EXT PAV MRK & MRKS (4")	LF	96,979.000				96,979.000	
	677-6002	ELIM EXT PAV MRK & MRKS (6")	LF	106,601.000				106,601.000	
	677-6003	ELIM EXT PAV MRK & MRKS (8")	LF	5,931.000				5,931.000	
	677-6005	ELIM EXT PAV MRK & MRKS (12")	LF	5,275.000				5,275.000	
	677-6007	ELIM EXT PAV MRK & MRKS (24")	LF	177.000				177.000	
	677-6008	ELIM EXT PAV MRK & MRKS (ARROW)	EA	56.000				56.000	
	677-6009	ELIM EXT PAV MRK & MRKS (DBL ARROW)	EA	20.000				20.000	
	677-6012	ELIM EXT PAV MRK & MRKS (WORD)	EA	27.000				27.000	
	678-6002	PAV SURF PREP FOR MRK (6")	LF	100,030.000				100,030.000	
	678-6004	PAV SURF PREP FOR MRK (8")	LF	25,861.000				25,861.000	
	678-6006	PAV SURF PREP FOR MRK (12")	LF	10,165.000				10,165.000	
	678-6008	PAV SURF PREP FOR MRK (24")	LF	3,590.000				3,590.000	
	678-6009	PAV SURF PREP FOR MRK (ARROW)	EA	111.000				111.000	
	678-6010	PAV SURF PREP FOR MRK (DBL ARROW)	EA	35.000				35.000	
	678-6012	PAV SURF PREP FOR MRK (UTURN ARR)	EA	5.000				5.000	
	678-6016	PAV SURF PREP FOR MRK (WORD)	EA	72.000				72.000	
	678-6017	PAV SURF PREP FOR MRK (ENTR GORE)	EA	12.000				12.000	
	678-6018	PAV SURF PREP FOR MRK (EXIT GORE)	EA	15.000				15.000	
	678-6020	PAV SURF PREP FOR MRK (RR XING)	EA	3.000				3.000	
	678-6023	PAV SURF PREP FOR MRK (36")(YLD TRI)	EA	20.000				20.000	
	678-6025	PAV SURF PREP FOR MRKS (SHIELD)	EA	53.000				53.000	
	678-6033	PAV SURF PREP FOR MRK (RPM)	EA	2,577.000				2,577.000	
	680-6003	INSTALL HWY TRF SIG (SYSTEM)	EA	4.000				4.000	
	680-6004	REMOVING TRAFFIC SIGNALS	EA	4.000				4.000	
	681-6001	TEMP TRAF SIGNALS	EA	3.000				3.000	
	682-6001	VEH SIG SEC (12")LED(GRN)	EA	49.000				49.000	
	682-6002	VEH SIG SEC (12")LED(GRN ARW)	EA	31.000				31.000	
	682-6003	VEH SIG SEC (12")LED(YEL)	EA	57.000				57.000	
	682-6004	VEH SIG SEC (12")LED(YEL ARW)	EA	17.000				17.000	
	682-6005	VEH SIG SEC (12")LED(RED)	EA	57.000				57.000	
	682-6006	VEH SIG SEC (12")LED(RED ARW)	EA	17.000				17.000	
	682-6018	PED SIG SEC (LED)(COUNTDOWN)	EA	54.000				54.000	

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DISTRICT	COUNTY	CCSJ	SHEET
El Paso	El Paso	3592-01-009	36H



Estimate & Quantity Sheet

CONTROLLING PROJECT ID 3592-01-009

DISTRICT El Paso
HIGHWAY SH 178

COUNTY El Paso

CONTROL SECTION JOB				3592-01-009		3592-01-012		TOTAL EST.	TOTAL FINAL
PROJECT ID				A00061037		R00005569			
COUNTY				El Paso					
HIGHWAY				SH 178					
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL		
	682-6047	LOUVER (12") (ADJUSTABLE)	EA	12.000				12.000	
	682-6054	BACKPLATE W/REF BRDR(3 SEC)(VENT)ALUM	EA	60.000				60.000	
	682-6055	BACKPLATE W/REF BRDR(4 SEC)(VENT)ALUM	EA	12.000				12.000	
	684-6028	TRF SIG CBL (TY A)(14 AWG)(2 CONDR)	LF	15,985.000				15,985.000	
	684-6031	TRF SIG CBL (TY A)(14 AWG)(5 CONDR)	LF	3,925.000				3,925.000	
	684-6033	TRF SIG CBL (TY A)(14 AWG)(7 CONDR)	LF	630.000				630.000	
	684-6036	TRF SIG CBL (TY A)(14 AWG)(10 CONDR)	LF	10,515.000				10,515.000	
	684-6042	TRF SIG CBL (TY A)(14 AWG)(16 CONDR)	LF	295.000				295.000	
	684-6046	TRF SIG CBL (TY A)(14 AWG)(20 CONDR)	LF	7,140.000				7,140.000	
	686-6021	INS TRF SIG PL AM (S)1 ARM(20')	EA	1.000				1.000	
	686-6039	INS TRF SIG PL AM(S)1 ARM(36')LUM	EA	3.000				3.000	
	686-6043	INS TRF SIG PL AM(S)1 ARM(40')LUM	EA	4.000				4.000	
	686-6047	INS TRF SIG PL AM(S)1 ARM(44')LUM	EA	4.000				4.000	
	686-6051	INS TRF SIG PL AM(S)1 ARM(48')LUM	EA	3.000				3.000	
	686-6055	INS TRF SIG PL AM(S)1 ARM(50')LUM	EA	5.000				5.000	
	686-6059	INS TRF SIG PL AM(S)1 ARM(55')LUM	EA	1.000				1.000	
	686-6063	INS TRF SIG PL AM(S)1 ARM(60')LUM	EA	2.000				2.000	
	686-6067	INS TRF SIG PL AM(S)1 ARM(65')LUM	EA	2.000				2.000	
	687-6001	PED POLE ASSEMBLY	EA	35.000				35.000	
	688-6001	PED DETECT PUSH BUTTON (APS)	EA	52.000				52.000	
	688-6003	PED DETECTOR CONTROLLER UNIT	EA	4.000				4.000	
	690-6038	REMOVAL OF CONTROL CABINET(GRND MNT)	EA	5.000				5.000	
	740-6004	ANTI - GRAFFITI COATING(PERMNET-TY II)	SF	324,814.000				324,814.000	
	772-6001	POST AND CABLE FENCE (REMOVAL)	LF	4,412.000				4,412.000	
	1005-6001	LOOSE AGGR FOR GROUND COVER (TYPE I)	CY	9,751.000				9,751.000	
	2005-6001	FILTER FABRIC (TY 2)	SY	5,514.000				5,514.000	
	3076-6001	D-GR HMA TY-B PG64-22	TON	39,560.000				39,560.000	
	3076-6035	D-GR HMA TY-D PG64-22	TON	653.000				653.000	
	3076-6066	TACK COAT	GAL	5,924.000				5,924.000	
	3077-6022	SP MIXES SP-C SAC-A PG70-22	TON	5,923.000				5,923.000	
	3077-6075	TACK COAT	GAL	8,285.000				8,285.000	
	4021-6001	TIP TESTING(DRILL SHAFT)	EA	120.000				120.000	
	6001-6002	PORTABLE CHANGEABLE MESSAGE SIGN	EA	12.000				12.000	
	6007-6027	FIBER OPTIC PATCH PANEL (144 POSITION)	EA	4.000				4.000	
	6007-6036	FO CBL (12 SMF)	LF	6,930.000				6,930.000	
	6007-6074	FO CBL (144 SMF)	LF	19,940.000				19,940.000	
	6007-6089	FO SPLICE ENCLOSURE (TYPE 2)	EA	13.000				13.000	

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Estimate & Quantity Sheet

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DISTRICT El Paso
HIGHWAY SH 178

COUNTY El Paso

CONTROL SECTION JOB				3592-01-009		3592-01-012		TOTAL EST.	TOTAL FINAL
PROJECT ID				A00061037		R00005569			
COUNTY				El Paso					
HIGHWAY				SH 178					
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL		
	6007-6094	FIBER OPTIC FUSION SPLICE	EA	972.000				972.000	
	6007-6096	FIBER OPTIC PATCH PANEL (12 POSITION)	EA	25.000				25.000	
	6010-6011	CCTV FIELD EQUIP (DIGITAL) (INSTL ONLY)	EA	15.000				15.000	
	6010-6013	REMOVE CCTV FIELD EQUIPMENT	EA	4.000				4.000	
	6016-6015	FIBER OPTIC CABLE ROAD MARKER	EA	29.000				29.000	
	6027-6003	CONDUIT (PREPARE)	LF	9,880.000				9,880.000	
	6027-6008	GROUND BOX (PREPARE)	EA	39.000				39.000	
	6028-6001	INSTALL DMS (POLE MTD CABINET)	EA	6.000				6.000	
	6062-6043	REMOVE ITS RADIO	EA	1.000				1.000	
	6064-6045	ITS POLE (50 FT)(REM)	EA	3.000				3.000	
	6064-6046	ITS POLE (55 FT)(90 MPH)	EA	3.000				3.000	
	6064-6054	ITS POLE (55 FT)(REM)	EA	3.000				3.000	
	6064-6063	ITS POLE (60 FT)(REM)	EA	10.000				10.000	
	6064-6084	ITS POLE MNT CAB (TY 2)(CONF 2)	EA	3.000				3.000	
	6064-6087	ITS POLE MNT CAB (TY 2)(CONF 2)(REM)	EA	4.000				4.000	
	6064-6092	ITS POLE MNT CAB (TY 3)(CONF 2)	EA	1.000				1.000	
	6134-6001	REMOVE DYNAMIC MESSAGE SIGN SYSTEM	EA	3.000				3.000	
	6137-6005	INSTALLATION OF FES (FIELD CABINET)	EA	19.000				19.000	
	6137-6006	INSTALLATION OF FES (HUB CABINET)	EA	2.000				2.000	
	6163-6001	REMOVE EXISTING CABLES (FIBER)	LF	16,985.000				16,985.000	
	6163-6002	REMOVE EXISTING CABLES (POWER)	LF	4,020.000				4,020.000	
	6185-6002	TMA (STATIONARY)	DAY	1,059.000				1,059.000	
	6185-6005	TMA (MOBILE OPERATION)	DAY	50.000				50.000	
	6186-6018	ITS GND BOX (POLY) TY 1 (243648)W/APRN	EA	28.000				28.000	
	6186-6024	ITS GND BOX (POLY) TY 2 (366048)W/APRN	EA	12.000				12.000	
	6186-6025	REMOVE ITS GROUND BOX	EA	27.000				27.000	
	6280-6001	HIGH MAST ASSEMBLY FOR ITS	EA	1.000				1.000	
	6304-6003	ITS RVSD (DC ONLY) (INSTALL ONLY)	EA	4.000				4.000	
	6304-6007	ITS RVSD (DC ONLY) (REMOVE)	EA	5.000				5.000	
	6306-6001	VIVDS PROSR SYS	EA	4.000				4.000	
	6306-6002	VIVDS CAM ASSY FXD LNS	EA	24.000				24.000	
	6306-6005	VIVDS CNTRL SOFTWARE	EA	4.000				4.000	
	6306-6007	VIVDS CABLING	LF	8,250.000				8,250.000	
	6339-6002	BLUETOOTH DETECTION SYSTEM (REMOVE)	EA	1.000				1.000	
	6377-6001	SYSTEM INTEGRATION	LS	1.000				1.000	
	6489-6002	BACKLIT W/ PERIMETER LED RDSG SGN	EA	16.000				16.000	
	7016-6005	WATER MAIN (PVC)(C-900)(12")	LF			6,332.000		6,332.000	

REVISION 1 REVISED, 07/02/2024



DISTRICT	COUNTY	CCSJ	SHEET
El Paso	El Paso	3592-01-009	36J



Estimate & Quantity Sheet

CONTROLLING PROJECT ID 3592-01-009

DISTRICT El Paso
HIGHWAY SH 178

COUNTY El Paso

CONTROL SECTION JOB				3592-01-009		3592-01-012		TOTAL EST.	TOTAL FINAL
PROJECT ID				A00061037		R00005569			
COUNTY				El Paso					
HIGHWAY				SH 178					
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL		
	7016-6011	WATER MAIN(DIP)(PC 350)(16")	LF			1,840.000		1,840.000	
	7016-6017	ABAND/FILL EXIST WATER PIPE (4")	LF			160.000		160.000	
	7016-6021	ABAND/FILL EXIST WATER PIPE (12")	LF			155.000		155.000	
	7016-6022	ABAND/FILL EXIST WATER PIPE (16")	LF			295.000		295.000	
	7016-6029	REMOVE EXIST WATER PIPE (8")	LF			650.000		650.000	
	7016-6031	REMOVE EXIST WATER PIPE (12")	LF			5,255.000		5,255.000	
	7016-6032	REMOVE EXIST WATER PIPE (16")	LF			1,416.000		1,416.000	
	7016-6033	ADDITIONAL FITTINGS	LB			8,000.000		8,000.000	
	7016-6034	WATER SERVICE RPL & RECON (3/4")	EA			6.000		6.000	
	7016-6035	WATER SERVICE RPL & RECON (1")	EA			1.000		1.000	
	7016-6036	WATER SERVICE RPL & RECON (1 1/2")	EA			2.000		2.000	
	7016-6037	WATER SERVICE RPL & RECON (2")	EA			4.000		4.000	
	7016-6044	WATER SERVICE(FIRE LINE)RPL&RECON (6")	EA			2.000		2.000	
	7016-6045	WATER SERVICE(FIRE LINE)RPL&RECON (8")	EA			1.000		1.000	
	7016-6047	FIRE HYDRANT (NEW)	EA			9.000		9.000	
	7016-6048	FIRE HYDRANT (REMOVE & SALVAGE)	EA			11.000		11.000	
	7016-6051	SAN SEWER PIPE (PVC)(SDR-35)(8")	LF			2,011.000		2,011.000	
	7016-6052	SAN SEWER PIPE (PVC)(SDR-35)(12")	LF			956.000		956.000	
	7016-6055	SAN SEWER PIPE (PVC) (C-900) (8")	LF			802.000		802.000	
	7016-6061	SAN SEWER MANHOLE (48 IN)(6 FT)	EA			20.000		20.000	
	7016-6063	SAN SEWER MANHOLE (48 IN)(EXTRA DEPTH)	LF			95.000		95.000	
	7016-6066	REMOVE EXISTING MANHOLE	EA			20.000		20.000	
	7016-6071	ABAND/FILL EXIST SAN SEWER PIPE (8")	LF			170.000		170.000	
	7016-6079	REMOVE EXIST SAN SEWER PIPE (8")	LF			4,335.000		4,335.000	
	7016-6081	REMOVE EXIST SAN SEWER PIPE (15")	LF			713.000		713.000	
	7016-6089	CASING (STEEL) (20 IN) (BORED)	LF			341.000		341.000	
	7016-6090	CASING (STEEL) (24 IN) (OPEN TRENCH)	LF			80.000		80.000	
	7016-6091	CASING (STEEL) (24 IN) (BORED)	LF			390.000		390.000	
	7016-6093	CASING (STEEL) (30 IN) (BORED)	LF			185.000		185.000	
	7016-6101	SAN SEWER PIPE (DIP) (8 IN)	LF			504.000		504.000	
	7016-6103	SEWER SERVICE RECONNECTION (6")	EA			8.000		8.000	
	7016-6167	16" GATE VALVE AND BOX	EA			4.000		4.000	
	7017-6017	SANITARY SEWER (8 IN) (PVC) (SDR 26)	LF			1,227.000		1,227.000	
	7017-6054	MANHOLES (SANITARY SEWER) DROP (4' DIA)	EA			2.000		2.000	
	7017-6088	AIR RELEASE VALVE (2 IN)	EA			1.000		1.000	
	7017-6093	SANITARY SEWER (15 IN) (PVC) (SDR 26)	LF			605.000		605.000	
	7017-6114	REMOVE EXIST SAN SWR PIPE (12")	LF			1,034.000		1,034.000	

ADDED, 07/02/2024

REVISED, 07/02/2024



Estimate & Quantity Sheet

CONTROLLING PROJECT ID 3592-01-009

DISTRICT El Paso
HIGHWAY SH 178

COUNTY El Paso

CONTROL SECTION JOB				3592-01-009		3592-01-012		TOTAL EST.	TOTAL FINAL
PROJECT ID				A00061037		R00005569			
COUNTY				El Paso					
HIGHWAY				SH 178					
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL	EST.	FINAL		
	7017-6128	REMOVE EXIST SAN SWR PIPE (6IN)	LF			1,009.000		1,009.000	
	7017-6163	ABAND/FILL EXIST SAN SWR PIPE (6IN)	LF			276.000		276.000	
	12	RAILROAD FLAGGING; RAILROAD FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000				1.000	
	16	MATERIAL FURNISHED BY THE STATE (PARTICIPATING)	LS	1.000				1.000	
	18	ELECTRICAL: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000				1.000	
		OTHER: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000				1.000	
		EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000				1.000	
		CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	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	

1 REVISED, 07/02/2024



DISTRICT	COUNTY	CCSJ	SHEET
El Paso	El Paso	3592-01-009	36L

ITEM					SUMMARY OF ROADWAY ITEMS CSJ 3592-01-009 (CONTINUED)									
					0360 6003	0360 6007	0416 6004	0420 6066	0420 6139	0432 6001	0432 6044	0450 6023	0450 6027	
					CONC PVMT (CONT REINF - CRCP) (9")	CONC PVMT (CONT REINF - CRCP) (13")	DRILL SHAFT (36 IN)	CL C CONC (RAIL FOUNDATION)	CL C CONC (VEH DEFL WALL) (HPC)	RIPRAP (CONC) (4 IN)	RIPRAP (CONC) (FLUM E)	RAIL (TY SSTR)	RAIL (TY T8OSS)	
SY	SY	LF	CY	CY	CY	CY	LF	LF						
SH 178 (ARTCRAFT RD) PLAN & PROFILE SH 178	SHEET	1	OF	8	524	1,809						300		
SH 178 (ARTCRAFT RD) PLAN & PROFILE SH 178	SHEET	2	OF	8		4,997						555		
SH 178 (ARTCRAFT RD) PLAN & PROFILE SH 178	SHEET	3	OF	8	249	2,861						335		
SH 178 (ARTCRAFT RD) PLAN & PROFILE SH 178	SHEET	4	OF	8	1,705		71					530		
SH 178 (ARTCRAFT RD) PLAN & PROFILE SH 178	SHEET	5	OF	8	712									
SH 178 (ARTCRAFT RD) PLAN & PROFILE SH 178	SHEET	6	OF	8	160	4,381						465		
SH 178 (ARTCRAFT RD) PLAN & PROFILE SH 178	SHEET	7	OF	8		2,671						283		
SH 178 (ARTCRAFT RD) PLAN & PROFILE SH 178	SHEET	8	OF	8	461		35							
SH 178 (ARTCRAFT RD) PLAN	SHEET	1	OF	3	974		60	225	13			1,812		
SH 178 (ARTCRAFT RD) PLAN	SHEET	2	OF	3	4,775		60	1,055	13	180		5,056		
SH 178 (ARTCRAFT RD) PLAN	SHEET	3	OF	3	2,033					27				
SH 178 (ARTCRAFT RD) PLAN & PROFILE EBML TRANSITION (1)	SHEET	1	OF	1		4,287						960		
SH 178 (ARTCRAFT RD) PLAN & PROFILE EBML TRANSITION (2)	SHEET	1	OF	1		3,346						206		
SH 178 (ARTCRAFT RD) PLAN & PROFILE EBML TRANSITION (3)	SHEET	1	OF	1		2,782						466		
SH 178 (ARTCRAFT RD) PLAN & PROFILE EBML TRANSITION (4)	SHEET	1	OF	1		4,665						55		
SH 178 (ARTCRAFT RD) PLAN & PROFILE RPEBEXTWS	SHEET	1	OF	1	463			55		38		410		
SH 178 (ARTCRAFT RD) PLAN & PROFILE RPEBENTWS	SHEET	1	OF	1	480			78		41		431		
SH 178 (ARTCRAFT RD) PLAN & PROFILE RPEBEXTUV	SHEET	1	OF	1	455			30				218		
SH 178 (ARTCRAFT RD) PLAN & PROFILE RPEBENTUV	SHEET	1	OF	1	564			9				61		
SH 178 (ARTCRAFT RD) PLAN & PROFILE WBML TRANSITION (1)	SHEET	1	OF	1		3,474						714		
SH 178 (ARTCRAFT RD) PLAN & PROFILE WBML TRANSITION (2)	SHEET	1	OF	1		4,017						466		
SH 178 (ARTCRAFT RD) PLAN & PROFILE WBML TRANSITION (3)	SHEET	1	OF	1		2,494						528		
SH 178 (ARTCRAFT RD) PLAN & PROFILE WBML TRANSITION (4)	SHEET	1	OF	1		4,225						453		
SH 178 (ARTCRAFT RD) PLAN & PROFILE RPWBENTWS	SHEET	1	OF	1	477			64		21		485		
SH 178 (ARTCRAFT RD) PLAN & PROFILE RPWBEXTWS	SHEET	1	OF	1	534			68		49		71		
SH 178 (ARTCRAFT RD) PLAN & PROFILE RPWBENTUV	SHEET	1	OF	1	454			10				408		
SH 178 (ARTCRAFT RD) PLAN & PROFILE RPWBEXTUV	SHEET	1	OF	1	630			56				80		
SH 178 (ARTCRAFT RD) PLAN & PROFILE RPWBENT1	SHEET	1	OF	1	273									
SH 178 (ARTCRAFT RD) PLAN IH 10	SHEET	1	OF	6		5,741		36		11				
SH 178 (ARTCRAFT RD) PLAN IH 10	SHEET	2	OF	6				1,693		81		1,581	398	
SH 178 (ARTCRAFT RD) PLAN IH 10	SHEET	3	OF	6				14				100		
SH 178 (ARTCRAFT RD) PLAN IH 10	SHEET	4	OF	6				449				101	546	
SH 178 (ARTCRAFT RD) PLAN IH 10	SHEET	5	OF	6		1,304		1,272		56		1,131	343	
SH 178 (ARTCRAFT RD) PLAN IH 10	SHEET	6	OF	6		1,472		21		6				
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCEN	SHEET	1	OF	6		2,126						706		
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCEN	SHEET	2	OF	6		3,202						401		
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCEN	SHEET	3	OF	6										
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCEN	SHEET	4	OF	6										
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCEN	SHEET	5	OF	6		567								
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCEN	SHEET	6	OF	6		1,009						80		
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCES	SHEET	1	OF	4		869								
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCES	SHEET	2	OF	4										
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCES	SHEET	3	OF	4		559								
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCES	SHEET	4	OF	4		1,482						103		
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCNW	SHEET	1	OF	7		1,061						346		
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCNW	SHEET	2	OF	7		5,100								
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCNW	SHEET	3	OF	7		177								
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCNW	SHEET	4	OF	7										
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCNW	SHEET	5	OF	7										
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCNW	SHEET	6	OF	7		2,331								
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCNW	SHEET	7	OF	7		294						95		
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCSW	SHEET	1	OF	5		676						101		
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCSW	SHEET	2	OF	5		676								
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCSW	SHEET	3	OF	5										
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCSW	SHEET	4	OF	5										
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCSW	SHEET	5	OF	5										
SH 178 (ARTCRAFT RD) PLAN & PROFILE U-TURNS (WESTSIDE DR)	SHEET	1	OF	2	501									
SH 178 (ARTCRAFT RD) PLAN & PROFILE U-TURNS (WESTSIDE DR)	SHEET	2	OF	2	512									
SH 178 (ARTCRAFT RD) PLAN & PROFILE U-TURNS (UPPER VALLEY RD)	SHEET	1	OF	2	647									
SH 178 (ARTCRAFT RD) PLAN & PROFILE U-TURNS (UPPER VALLEY RD)	SHEET	2	OF	2	652									
SH 178 (ARTCRAFT RD) PLAN & PROFILE U-TURNS (ARTCRAFT RD @ IH 10)	SHEET	1	OF	2	590		15					137		
SH 178 (ARTCRAFT RD) PLAN & PROFILE U-TURNS (ARTCRAFT RD @ IH 10)	SHEET	2	OF	2	515							119		
SH 178 (ARTCRAFT RD) PLAN & PROFILE EB FRONTAGE RD	SHEET	1	OF	4	143			49		16		496		
SH 178 (ARTCRAFT RD) PLAN & PROFILE EB FRONTAGE RD	SHEET	2	OF	4				124		9		884		
SH 178 (ARTCRAFT RD) PLAN & PROFILE EB FRONTAGE RD	SHEET	3	OF	4				48		6		338		
SH 178 (ARTCRAFT RD) PLAN & PROFILE EB FRONTAGE RD	SHEET	4	OF	4				22				157		
SH 178 (ARTCRAFT RD) PLAN & PROFILE WB FRONTAGE RD	SHEET	1	OF	3				1		1		5		
SH 178 (ARTCRAFT RD) PLAN & PROFILE WB FRONTAGE RD	SHEET	2	OF	3	1,274			139		6		989		
SH 178 (ARTCRAFT RD) PLAN & PROFILE WB FRONTAGE RD	SHEET	3	OF	3				320				510		

- NOTES:
- # THIS ITEM TO BE USED THROUGHOUT THE DURATION OF THE PROJECT AS DIRECTED BY THE ENGINEER.
 - ## THIS ITEM TO BE USED THROUGHOUT THE DURATION OF THE PROJECT IN THE EVENT CLAY IS FOUND IN SUBGRADE AS DIRECTED BY THE ENGINEER.
 - + RAIL (TY T8OPP) AND (TY T8OPP) (W/DRAIN SLOTS) ARE PAID FOR UNDER THIS ITEM.
 - ++ ONLY REACT M (NARROW) AND REACT 350 (WIDE) CRASH CUSHIONS MAY BE USED ACCORDING TO THE PLANS
 - +++ ALL RAIL TRANSITIONS ARE TO BE PAID UNDER ITEM 450 6134. SEE RAIL TRANSITION DETAILS

REVIS 06/21/2024

1	06/21/24	QTY CHANGE EBFR	
NO.	DATE	REVISION	APPROVED
		HDR Engineering, Inc Firm Registration No. F-754 17111 Preston Road, Suite 300 Dallas, Texas 75248 972.960.4400	
		Texas Department of Transportation © 2024	
SH 178 (ARTCRAFT RD) GENERAL ROADWAY QUANTITY SUMMARY			
SCALE: N. T. S.		SHEET 3 OF 12	
FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.	
6	F 2B24 (273)	SH178, ETC	
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	49
CONTROL	SECTION	JOB	
3592	01	009	

ITEM						SUMMARY OF ROADWAY ITEMS CSJ 3592-01-009 (CONTINUED)									
						0360 6003	0360 6007	0416 6004	0420 6066	0420 6139	0432 6001	0432 6044	0450 6023	0450 6027	
						CONC PVMT (CONT REINF - CRCP) (9")	CONC PVMT (CONT REINF - CRCP) (13")	DRILL SHAFT (36 IN)	CL C CONC (RAIL FOUNDATION)	CL C CONC (VEH DEFL WALL) (HPC)	RIPRAP (CONC) (4 IN)	RIPRAP (CONC) (FLUM E)	RAIL (TY SSTR)	RAIL (TY T8OSS)	
SY						SY	LF	CY	CY	CY	CY	LF	LF		
SH 178 (ARTCRAFT RD) PLAN & PROFILE SB FRONTAGE RD	SHEET	1	OF	1	1,081			95				591			
SH 178 (ARTCRAFT RD) PLAN & PROFILE NB FRONTAGE RD	SHEET	1	OF	2	957			40				400			
SH 178 (ARTCRAFT RD) PLAN & PROFILE NB FRONTAGE RD	SHEET	2	OF	2											
SH 178 (ARTCRAFT RD) PLAN & PROFILE WESTSIDE DR	SHEET	1	OF	1											
SH 178 (ARTCRAFT RD) PLAN UPPER VALLEY	SHEET	1	OF	1	1,063										
SH 178 (ARTCRAFT RD) PLAN & PROFILE DONIPHAN DR (SH 20)	SHEET	1	OF	1	351										
SH 178 (ARTCRAFT RD) PLAN & PROFILE SANTIAGO ST	SHEET	1	OF	1											
SH 178 (ARTCRAFT RD) PLAN & PROFILE BERRINGER ST	SHEET	1	OF	1	114										
SH 178 (ARTCRAFT RD) PLAN & PROFILE WESTSIDE DR SUP - SUPWS01	SHEET	1	OF	1							4				
SH 178 (ARTCRAFT RD) PLAN & PROFILE WESTSIDE DR SUP - SUPWS02	SHEET	1	OF	1							4				
SH 178 (ARTCRAFT RD) PLAN & PROFILE WESTSIDE DR SUP - SUPWS03	SHEET	1	OF	1											
SH178 (ARTCRAFT RD) SHARED USE PATH SUP-EBSW01	SHEET	1	OF	2											
SH178 (ARTCRAFT RD) SHARED USE PATH SUP-EBSW01	SHEET	2	OF	2											
SH178 (ARTCRAFT RD) SHARED USE PATH SUP-EBSW02	SHEET	1	OF	1											
SH178 (ARTCRAFT RD) SHARED USE PATH SUP-WBSW01	SHEET	1	OF	1											
SH178 (ARTCRAFT RD) SHARED USE PATH SUP-WBSW02	SHEET	1	OF	1											
CSJ 3592-01-009 TOTAL						24,323	74,655	120	6,094	26	548	8	24,253	1,287	



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- NOTES:
- # THIS ITEM TO BE USED THROUGHOUT THE DURATION OF THE PROJECT AS DIRECTED BY THE ENGINEER.
 - ## THIS ITEM TO BE USED THROUGHOUT THE DURATION OF THE PROJECT IN THE EVENT CLAY IS FOUND IN SUBGRADE AS DIRECTED BY THE ENGINEER.
 - + RAIL (TY T80PP) AND (TY T80PP) (W/DRAIN SLOTS) ARE PAID FOR UNDER THIS ITEM.
 - ++ ONLY REACT M (NARROW) AND REACT 350 (WIDE) CRASH CUSHIONS MAY BE USED ACCORDING TO THE PLANS
 - +++ ALL RAIL TRANSITIONS ARE TO BE PAID UNDER ITEM 450 6134. SEE RAIL TRANSITION DETAILS

1 REVISED, 06/24/2024

1	06/24/24	QTY CHANGE EBFR	
NO.	DATE	REVISION	APPROVED
		HDR Engineering, Inc Firm Registration No. F-754 17111 Preston Road, Suite 300 Dallas, Texas 75248 972.960.4400	
			
SH 178 (ARTCRAFT RD) GENERAL ROADWAY QUANTITY SUMMARY			
SCALE: N. T. S.		SHEET 4 OF 12	
FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.	
6	F 2B24 (273)	SH178, ETC	
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	50
CONTROL	SECTION	JOB	
3592	01	009	

ITEM					SUMMARY OF ROADWAY ITEMS CSJ 3592-01-009 (CONTINUED)										
					0450 6051	0450 6054	0450 6065	0450 6122 +	0450 6134+++	0514 6001	0529 6002	0529 6008	0530 6017		
					RAIL (HANDRAIL) (TY E)	RAIL (TY SSTR) (W/DRAIN SLOTS)	RAIL (TY T80SS) W/DRAIN SLOTS	RAIL (TY T80PP)	RAIL (TRAN SSTR TO T80PP)	PERM CTB (SGL SLOPE) (TY I) (42)	CONC CURB (TY II)	CONC CURB & GUTTER (TY II)	DRIVEWAYS (CONC) (HES)		
					LF	LF	LF	LF	LF	LF	LF	LF	LF	SY	
SH 178 (ARTCRAFT RD) PLAN & PROFILE SH 178	SHEET	1	OF	8		230									
SH 178 (ARTCRAFT RD) PLAN & PROFILE SH 178	SHEET	2	OF	8						41					
SH 178 (ARTCRAFT RD) PLAN & PROFILE SH 178	SHEET	3	OF	8	532	52									
SH 178 (ARTCRAFT RD) PLAN & PROFILE SH 178	SHEET	4	OF	8	276	622									
SH 178 (ARTCRAFT RD) PLAN & PROFILE SH 178	SHEET	5	OF	8		252	10		15						
SH 178 (ARTCRAFT RD) PLAN & PROFILE SH 178	SHEET	6	OF	8											
SH 178 (ARTCRAFT RD) PLAN & PROFILE SH 178	SHEET	7	OF	8											
SH 178 (ARTCRAFT RD) PLAN & PROFILE SH 178	SHEET	8	OF	8		255									
SH 178 (ARTCRAFT RD) PLAN	SHEET	1	OF	3					80						
SH 178 (ARTCRAFT RD) PLAN	SHEET	2	OF	3		834	341	353	205		482				
SH 178 (ARTCRAFT RD) PLAN	SHEET	3	OF	3							1,956	623			
SH 178 (ARTCRAFT RD) PLAN & PROFILE EBML TRANSITION (1)	SHEET	1	OF	1		93									
SH 178 (ARTCRAFT RD) PLAN & PROFILE EBML TRANSITION (2)	SHEET	1	OF	1											
SH 178 (ARTCRAFT RD) PLAN & PROFILE EBML TRANSITION (3)	SHEET	1	OF	1											
SH 178 (ARTCRAFT RD) PLAN & PROFILE EBML TRANSITION (4)	SHEET	1	OF	1											
SH 178 (ARTCRAFT RD) PLAN & PROFILE RPEBEXTWS	SHEET	1	OF	1							170	261			
SH 178 (ARTCRAFT RD) PLAN & PROFILE RPEBENTWS	SHEET	1	OF	1		125					213	836			
SH 178 (ARTCRAFT RD) PLAN & PROFILE RPEBEXTUV	SHEET	1	OF	1							179	555			
SH 178 (ARTCRAFT RD) PLAN & PROFILE RPEBENTUV	SHEET	1	OF	1							144	639			
SH 178 (ARTCRAFT RD) PLAN & PROFILE WBML TRANSITION (1)	SHEET	1	OF	1		71									
SH 178 (ARTCRAFT RD) PLAN & PROFILE WBML TRANSITION (2)	SHEET	1	OF	1		217									
SH 178 (ARTCRAFT RD) PLAN & PROFILE WBML TRANSITION (3)	SHEET	1	OF	1											
SH 178 (ARTCRAFT RD) PLAN & PROFILE WBML TRANSITION (4)	SHEET	1	OF	1		228									
SH 178 (ARTCRAFT RD) PLAN & PROFILE RPWBENTWS	SHEET	1	OF	1							211	180			
SH 178 (ARTCRAFT RD) PLAN & PROFILE RPWBEXTWS	SHEET	1	OF	1							213	231			
SH 178 (ARTCRAFT RD) PLAN & PROFILE RPWBENTUV	SHEET	1	OF	1							160	687			
SH 178 (ARTCRAFT RD) PLAN & PROFILE RPWBEXTUV	SHEET	1	OF	1	350						170	803			
SH 178 (ARTCRAFT RD) PLAN & PROFILE RPWBENT1	SHEET	1	OF	1							133				
SH 178 (ARTCRAFT RD) PLAN IH 10	SHEET	1	OF	6		276									
SH 178 (ARTCRAFT RD) PLAN IH 10	SHEET	2	OF	6		1,687	623	1,187	135						
SH 178 (ARTCRAFT RD) PLAN IH 10	SHEET	3	OF	6											
SH 178 (ARTCRAFT RD) PLAN IH 10	SHEET	4	OF	6			150	80	75						
SH 178 (ARTCRAFT RD) PLAN IH 10	SHEET	5	OF	6		933	1,000	413	120						
SH 178 (ARTCRAFT RD) PLAN IH 10	SHEET	6	OF	6		145									
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCEN	SHEET	1	OF	6					80						
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCEN	SHEET	2	OF	6											
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCEN	SHEET	3	OF	6											
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCEN	SHEET	4	OF	6											
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCEN	SHEET	5	OF	6											
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCEN	SHEET	6	OF	6		151									
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCES	SHEET	1	OF	4											
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCES	SHEET	2	OF	4											
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCES	SHEET	3	OF	4											
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCES	SHEET	4	OF	4											
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCNW	SHEET	1	OF	7											
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCNW	SHEET	2	OF	7											
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCNW	SHEET	3	OF	7											
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCNW	SHEET	4	OF	7											
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCNW	SHEET	5	OF	7											
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCNW	SHEET	6	OF	7		276									
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCNW	SHEET	7	OF	7											
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCSW	SHEET	1	OF	5											
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCSW	SHEET	2	OF	5											
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCSW	SHEET	3	OF	5											
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCSW	SHEET	4	OF	5											
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCSW	SHEET	5	OF	5											
SH 178 (ARTCRAFT RD) PLAN & PROFILE U-TURNS (WESTSIDE DR)	SHEET	1	OF	2							323				
SH 178 (ARTCRAFT RD) PLAN & PROFILE U-TURNS (WESTSIDE DR)	SHEET	2	OF	2							331				
SH 178 (ARTCRAFT RD) PLAN & PROFILE U-TURNS (UPPER VALLEY RD)	SHEET	1	OF	2							351				
SH 178 (ARTCRAFT RD) PLAN & PROFILE U-TURNS (UPPER VALLEY RD)	SHEET	2	OF	2							351				
SH 178 (ARTCRAFT RD) PLAN & PROFILE U-TURNS (ARTCRAFT RD @ IH 10)	SHEET	1	OF	2							238				
SH 178 (ARTCRAFT RD) PLAN & PROFILE U-TURNS (ARTCRAFT RD @ IH 10)	SHEET	2	OF	2							248				
SH 178 (ARTCRAFT RD) PLAN & PROFILE EB FRONTAGE RD	SHEET	1	OF	4							251	349	36		
SH 178 (ARTCRAFT RD) PLAN & PROFILE EB FRONTAGE RD	SHEET	2	OF	4	12						999	654	1,131		
SH 178 (ARTCRAFT RD) PLAN & PROFILE EB FRONTAGE RD	SHEET	3	OF	4							516	628	1,043		
SH 178 (ARTCRAFT RD) PLAN & PROFILE EB FRONTAGE RD	SHEET	4	OF	4							394	316	794		
SH 178 (ARTCRAFT RD) PLAN & PROFILE WB FRONTAGE RD	SHEET	1	OF	3							214	275	212		
SH 178 (ARTCRAFT RD) PLAN & PROFILE WB FRONTAGE RD	SHEET	2	OF	3	190						259	830	496		
SH 178 (ARTCRAFT RD) PLAN & PROFILE WB FRONTAGE RD	SHEET	3	OF	3							444	15	204	672	454

- NOTES:
- # THIS ITEM TO BE USED THROUGHOUT THE DURATION OF THE PROJECT AS DIRECTED BY THE ENGINEER.
 - ## THIS ITEM TO BE USED THROUGHOUT THE DURATION OF THE PROJECT IN THE EVENT CLAY IS FOUND IN SUBGRADE AS DIRECTED BY THE ENGINEER.
 - + RAIL (TY T80PP) AND (TY T80PP) (W/DRAIN SLOTS) ARE PAID FOR UNDER THIS ITEM.
 - ++ ONLY REACT M (NARROW) AND REACT 350 (WIDE) CRASH CUSHIONS MAY BE USED ACCORDING TO THE PLANS
 - +++ ALL RAIL TRANSITIONS ARE TO BE PAID UNDER ITEM 450 6134. SEE RAIL TRANSITION DETAILS

REVISION 1 REVISED, 06/24/2024

NO.	DATE	QTY CHANGE	EBFR	REVISION	APPROVED
1	06/24/24				

HDR HDR Engineering, Inc
 Firm Registration No. F-754
 17111 Preston Road, Suite 300
 Dallas, Texas 75248
 972.960.4400



**SH 178 (ARTCRAFT RD)
 GENERAL
 ROADWAY
 QUANTITY SUMMARY**

SCALE: N. T. S. SHEET 5 OF 12



FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
6	F 2B24 (273)		SH178, ETC
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	51
CONTROL	SECTION	JOB	
3592	01	009	

ITEM					SUMMARY OF ROADWAY ITEMS CSJ 3592-01-009 (CONTINUED)								
					0450 6051	0450 6054	0450 6065	0450 6122 +	0450 6134+++	0514 6001	0529 6002	0529 6008	0530 6017
DESCRIPTION					RAIL (HANDRAIL) (TY E)	RAIL (TY SSTR) (W/DRAIN SLOTS)	RAIL (TY T80SS) W/DRAIN SLOTS	RAIL (TY T80PP)	RAIL (TRAN SSTR TO T80PP)	PERM CTB (SGL SLOPE) (TY I) (42)	CONC CURB (TY II)	CONC CURB & GUTTER (TY II)	DRIVEWAYS (CONC) (HES)
					LF	LF	LF	LF	LF	LF	LF	LF	SY
SH 178 (ARTCRAFT RD) PLAN & PROFILE SB FRONTAGE RD	SHEET	1	OF	1		176					150	958	
SH 178 (ARTCRAFT RD) PLAN & PROFILE NB FRONTAGE RD	SHEET	1	OF	2							315	1,736	
SH 178 (ARTCRAFT RD) PLAN & PROFILE NB FRONTAGE RD	SHEET	2	OF	2								482	174
SH 178 (ARTCRAFT RD) PLAN & PROFILE WESTSIDE DR	SHEET	1	OF	1							254		
SH 178 (ARTCRAFT RD) PLAN UPPER VALLEY	SHEET	1	OF	1							883	532	
SH 178 (ARTCRAFT RD) PLAN & PROFILE DONIPHAN DR (SH 20)	SHEET	1	OF	1	112						230		
SH 178 (ARTCRAFT RD) PLAN & PROFILE SANTIAGO ST	SHEET	1	OF	1	107							172	
SH 178 (ARTCRAFT RD) PLAN & PROFILE BERRINGER ST	SHEET	1	OF	1								166	
SH 178 (ARTCRAFT RD) PLAN & PROFILE WESTSIDE DR SUP - SUPWS01	SHEET	1	OF	1									
SH 178 (ARTCRAFT RD) PLAN & PROFILE WESTSIDE DR SUP - SUPWS02	SHEET	1	OF	1									
SH 178 (ARTCRAFT RD) PLAN & PROFILE WESTSIDE DR SUP - SUPWS03	SHEET	1	OF	1									
SH178 (ARTCRAFT RD) SHARED USE PATH SUP-EBSW01	SHEET	1	OF	2									
SH178 (ARTCRAFT RD) SHARED USE PATH SUP-EBSW01	SHEET	2	OF	2									
SH178 (ARTCRAFT RD) SHARED USE PATH SUP-EBSW02	SHEET	1	OF	1	70								
SH178 (ARTCRAFT RD) SHARED USE PATH SUP-WBSW01	SHEET	1	OF	1									
SH178 (ARTCRAFT RD) SHARED USE PATH SUP-WBSW02	SHEET	1	OF	1	275								
CSJ 3592-01-009 TOTAL					1,924	6,623	2,124	2,477	725	41	10,542	12,585	4,340

1


- NOTES:
1. # THIS ITEM TO BE USED THROUGHOUT THE DURATION OF THE PROJECT AS DIRECTED BY THE ENGINEER.
 2. ## THIS ITEM TO BE USED THROUGHOUT THE DURATION OF THE PROJECT IN THE EVENT CLAY IS FOUND IN SUBGRADE AS DIRECTED BY THE ENGINEER.
 3. + RAIL (TY T80PP) AND (TY T80PP) (W/DRAIN SLOTS) ARE PAID FOR UNDER THIS ITEM.
 4. ++ ONLY REACT M (NARROW) AND REACT 350 (WIDE) CRASH CUSHIONS MAY BE USED ACCORDING TO THE PLANS
 5. +++ ALL RAIL TRANSITIONS ARE TO BE PAID UNDER ITEM 450 6134. SEE RAIL TRANSITION DETAILS



1 REVISED, 06/24/2024

1	06/24/24	QTY CHANGE EBFR	
NO.	DATE	REVISION	APPROVED
		HDR Engineering, Inc Firm Registration No. F-754 17111 Preston Road, Suite 300 Dallas, Texas 75248 972.960.4400	
 Texas Department of Transportation © 2024			
SH 178 (ARTCRAFT RD) GENERAL ROADWAY QUANTITY SUMMARY			
SCALE: N. T. S.		SHEET 6 OF 12	
FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.	
6	F 2B24 (273)	SH178, ETC	
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	52
CONTROL	SECTION	JOB	
3592	01	009	

ITEM						SUMMARY OF ROADWAY ITEMS CSJ 3592-01-009 (CONTINUED)											
						0531 6001	0531 6004	0531 6005	0531 6008	0531 6010	0531 6013	0531 6016	0531 6017	0536 6002	0540 6001	0540 6006	
						CONC SIDEWALKS (4")	CURB RAMPS (TY 1)	CURB RAMPS (TY 2)	CURB RAMPS (TY 5)	CURB RAMPS (TY 7)	CURB RAMPS (TY 10)	CURB RAMPS (TY 21)	CURB RAMPS (TY 22)	CONC MEDIAN	MTL W-BEAM GD FEN (TIM POST)	MTL BEAM GD FEN TRANS (THRIE-BEAM)	
DESCRIPTION						SY	EA	EA	EA	EA	EA	EA	EA	EA	SY	LF	EA
SH 178 (ARTCRAFT RD) PLAN & PROFILE SH 178	SHEET	1	OF	8												125	1
SH 178 (ARTCRAFT RD) PLAN & PROFILE SH 178	SHEET	2	OF	8													
SH 178 (ARTCRAFT RD) PLAN & PROFILE SH 178	SHEET	3	OF	8													1
SH 178 (ARTCRAFT RD) PLAN & PROFILE SH 178	SHEET	4	OF	8													
SH 178 (ARTCRAFT RD) PLAN & PROFILE SH 178	SHEET	5	OF	8													
SH 178 (ARTCRAFT RD) PLAN & PROFILE SH 178	SHEET	6	OF	8													
SH 178 (ARTCRAFT RD) PLAN & PROFILE SH 178	SHEET	7	OF	8													
SH 178 (ARTCRAFT RD) PLAN & PROFILE SH 178	SHEET	8	OF	8												100	1
SH 178 (ARTCRAFT RD) PLAN	SHEET	1	OF	3													
SH 178 (ARTCRAFT RD) PLAN	SHEET	2	OF	3	861												
SH 178 (ARTCRAFT RD) PLAN	SHEET	3	OF	3	1,072	3	4			2	4	348					1
SH 178 (ARTCRAFT RD) PLAN & PROFILE EBML TRANSITION (1)	SHEET	1	OF	1													1
SH 178 (ARTCRAFT RD) PLAN & PROFILE EBML TRANSITION (2)	SHEET	1	OF	1													
SH 178 (ARTCRAFT RD) PLAN & PROFILE EBML TRANSITION (3)	SHEET	1	OF	1									25				1
SH 178 (ARTCRAFT RD) PLAN & PROFILE EBML TRANSITION (4)	SHEET	1	OF	1													
SH 178 (ARTCRAFT RD) PLAN & PROFILE RPEBEXTWS	SHEET	1	OF	1					1								
SH 178 (ARTCRAFT RD) PLAN & PROFILE RPEBEXTWS	SHEET	1	OF	1					1				25				2
SH 178 (ARTCRAFT RD) PLAN & PROFILE RPEBEXTUV	SHEET	1	OF	1													
SH 178 (ARTCRAFT RD) PLAN & PROFILE RPEBEXTUV	SHEET	1	OF	1									25				1
SH 178 (ARTCRAFT RD) PLAN & PROFILE WBML TRANSITION (1)	SHEET	1	OF	1													
SH 178 (ARTCRAFT RD) PLAN & PROFILE WBML TRANSITION (2)	SHEET	1	OF	1													
SH 178 (ARTCRAFT RD) PLAN & PROFILE WBML TRANSITION (3)	SHEET	1	OF	1													
SH 178 (ARTCRAFT RD) PLAN & PROFILE WBML TRANSITION (4)	SHEET	1	OF	1													
SH 178 (ARTCRAFT RD) PLAN & PROFILE RPWBENTWS	SHEET	1	OF	1					1								2
SH 178 (ARTCRAFT RD) PLAN & PROFILE RPWBENTWS	SHEET	1	OF	1					1								
SH 178 (ARTCRAFT RD) PLAN & PROFILE RPWBENTUV	SHEET	1	OF	1									25				1
SH 178 (ARTCRAFT RD) PLAN & PROFILE RPWBENTUV	SHEET	1	OF	1													
SH 178 (ARTCRAFT RD) PLAN & PROFILE RPWBENT1	SHEET	1	OF	1													
SH 178 (ARTCRAFT RD) PLAN IH 10	SHEET	1	OF	6									1,519				1
SH 178 (ARTCRAFT RD) PLAN IH 10	SHEET	2	OF	6									231				3
SH 178 (ARTCRAFT RD) PLAN IH 10	SHEET	3	OF	6													
SH 178 (ARTCRAFT RD) PLAN IH 10	SHEET	4	OF	6													
SH 178 (ARTCRAFT RD) PLAN IH 10	SHEET	5	OF	6									1,708				7
SH 178 (ARTCRAFT RD) PLAN IH 10	SHEET	6	OF	6									1,228				
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCEN	SHEET	1	OF	6													
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCEN	SHEET	2	OF	6													
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCEN	SHEET	3	OF	6													
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCEN	SHEET	4	OF	6													
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCEN	SHEET	5	OF	6													
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCEN	SHEET	6	OF	6													
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCES	SHEET	1	OF	4													
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCES	SHEET	2	OF	4													
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCES	SHEET	3	OF	4													
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCES	SHEET	4	OF	4													
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCNW	SHEET	1	OF	7													
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCNW	SHEET	2	OF	7													
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCNW	SHEET	3	OF	7													
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCNW	SHEET	4	OF	7													
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCNW	SHEET	5	OF	7													
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCNW	SHEET	6	OF	7													
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCNW	SHEET	7	OF	7									29				1
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCSW	SHEET	1	OF	5									97				
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCSW	SHEET	2	OF	5													
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCSW	SHEET	3	OF	5													
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCSW	SHEET	4	OF	5													
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCSW	SHEET	5	OF	5													
SH 178 (ARTCRAFT RD) PLAN & PROFILE U-TURNS (WESTSIDE DR)	SHEET	1	OF	2	118	2											
SH 178 (ARTCRAFT RD) PLAN & PROFILE U-TURNS (WESTSIDE DR)	SHEET	2	OF	2	121	2											
SH 178 (ARTCRAFT RD) PLAN & PROFILE U-TURNS (UPPER VALLEY RD)	SHEET	1	OF	2									88				
SH 178 (ARTCRAFT RD) PLAN & PROFILE U-TURNS (UPPER VALLEY RD)	SHEET	2	OF	2													
SH 178 (ARTCRAFT RD) PLAN & PROFILE U-TURNS (ARTCRAFT RD @ IH 10)	SHEET	1	OF	2	198	2											
SH 178 (ARTCRAFT RD) PLAN & PROFILE U-TURNS (ARTCRAFT RD @ IH 10)	SHEET	2	OF	2													
SH 178 (ARTCRAFT RD) PLAN & PROFILE EB FRONTAGE RD	SHEET	1	OF	4	718												1
SH 178 (ARTCRAFT RD) PLAN & PROFILE EB FRONTAGE RD	SHEET	2	OF	4	1,252												1
SH 178 (ARTCRAFT RD) PLAN & PROFILE EB FRONTAGE RD	SHEET	3	OF	4	971												
SH 178 (ARTCRAFT RD) PLAN & PROFILE EB FRONTAGE RD	SHEET	4	OF	4	246												
SH 178 (ARTCRAFT RD) PLAN & PROFILE WB FRONTAGE RD	SHEET	1	OF	3	148				2								1
SH 178 (ARTCRAFT RD) PLAN & PROFILE WB FRONTAGE RD	SHEET	2	OF	3	490	1			1								
SH 178 (ARTCRAFT RD) PLAN & PROFILE WB FRONTAGE RD	SHEET	3	OF	3	623												

- NOTES:
- # THIS ITEM TO BE USED THROUGHOUT THE DURATION OF THE PROJECT AS DIRECTED BY THE ENGINEER.
 - ## THIS ITEM TO BE USED THROUGHOUT THE DURATION OF THE PROJECT IN THE EVENT CLAY IS FOUND IN SUBGRADE AS DIRECTED BY THE ENGINEER.
 - + RAIL (TY T80PP) AND (TY T80PP) (W/DRAIN SLOTS) ARE PAID FOR UNDER THIS ITEM.
 - ++ ONLY REACT M (NARROW) AND REACT 350 (WIDE) CRASH CUSHIONS MAY BE USED ACCORDING TO THE PLANS
 - +++ ALL RAIL TRANSITIONS ARE TO BE PAID UNDER ITEM 450 6134. SEE RAIL TRANSITION DETAILS

 **ADDED, 06/24/2024**

1	06/24/24	QTY CHANGE EBFR	
NO.	DATE	REVISION	APPROVED
		HDR Engineering, Inc Firm Registration No. F-754 17111 Preston Road, Suite 300 Dallas, Texas 75248 972.960.4400	
		Texas Department of Transportation © 2024	
SH 178 (ARTCRAFT RD) GENERAL ROADWAY QUANTITY SUMMARY			
SCALE: N. T. S.		SHEET 7 OF 12	
FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.	
6	F 2B24 (273)	SH178, ETC	
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	53
CONTROL	SECTION	JOB	
3592	01	009	

PLOT DRIVER: TXDOT_PDF_BW.pltcfgr
 PENTABLE: 10333253.tbl
 USER: MDEELEY DATE: 6/24/2024 TIME: 9:31:51 AM SCALE: 1:100
 FILE: p:\pwrtr\uscen\HDR_US_Central\ON\Documents\4203\20000508\10333253\6.0_CAD_BIM\6.2_WIP\6.2.2_Contract_Files\Sheets\Summaries\ARC0710.dgn

ITEM					SUMMARY OF ROADWAY ITEMS CSJ 3592-01-009 (CONTINUED)												
					0531 6001	0531 6004	0531 6005	0531 6008	0531 6010	0531 6013	0531 6016	0531 6017	0536 6002	0540 6001	0540 6006		
					CONC SIDEWALKS (4")	CURB RAMPS (TY 1)	CURB RAMPS (TY 2)	CURB RAMPS (TY 5)	CURB RAMPS (TY 7)	CURB RAMPS (TY 10)	CURB RAMPS (TY 21)	CURB RAMPS (TY 22)	CONC MEDIAN	MTL W-BEAM GD FEN (TIM POST)	MTL BEAM GD FEN TRANS (THRIE-BEAM)		
DESCRIPTION					SY	EA	EA	EA	EA	EA	EA	EA	EA	SY	LF	EA	
SH 178 (ARTCRAFT RD) PLAN & PROFILE SB FRONTAGE RD	SHEET	1	OF	1	761												2
SH 178 (ARTCRAFT RD) PLAN & PROFILE NB FRONTAGE RD	SHEET	1	OF	2	151												1
SH 178 (ARTCRAFT RD) PLAN & PROFILE NB FRONTAGE RD	SHEET	2	OF	2													
SH 178 (ARTCRAFT RD) PLAN & PROFILE WESTSIDE DR	SHEET	1	OF	1													
SH 178 (ARTCRAFT RD) PLAN UPPER VALLEY	SHEET	1	OF	1	335			2	7			1	62				
SH 178 (ARTCRAFT RD) PLAN & PROFILE DONIPHAN DR (SH 20)	SHEET	1	OF	1	4,985	2	1	1		2	1	3	26				
SH 178 (ARTCRAFT RD) PLAN & PROFILE SANTIAGO ST	SHEET	1	OF	1	84												
SH 178 (ARTCRAFT RD) PLAN & PROFILE BERRINGER ST	SHEET	1	OF	1	58												
SH 178 (ARTCRAFT RD) PLAN & PROFILE WESTSIDE DR SUP - SUPWS01	SHEET	1	OF	1													
SH 178 (ARTCRAFT RD) PLAN & PROFILE WESTSIDE DR SUP - SUPWS02	SHEET	1	OF	1													
SH 178 (ARTCRAFT RD) PLAN & PROFILE WESTSIDE DR SUP - SUPWS03	SHEET	1	OF	1													
SH178 (ARTCRAFT RD) SHARED USE PATH SUP-EBSW01	SHEET	1	OF	2													
SH178 (ARTCRAFT RD) SHARED USE PATH SUP-EBSW01	SHEET	2	OF	2													
SH178 (ARTCRAFT RD) SHARED USE PATH SUP-EBSW02	SHEET	1	OF	1	12												
SH178 (ARTCRAFT RD) SHARED USE PATH SUP-WBSW01	SHEET	1	OF	1													
SH178 (ARTCRAFT RD) SHARED USE PATH SUP-WBSW02	SHEET	1	OF	1	46												
CSJ 3592-01-009 TOTAL					13,250	11	6	3	14	2	3	8	436	5,300		30	

1

- NOTES:
1. # THIS ITEM TO BE USED THROUGHOUT THE DURATION OF THE PROJECT AS DIRECTED BY THE ENGINEER.
 2. ## THIS ITEM TO BE USED THROUGHOUT THE DURATION OF THE PROJECT IN THE EVENT CLAY IS FOUND IN SUBGRADE AS DIRECTED BY THE ENGINEER.
 3. + RAIL (TY T80PP) AND (TY T80PP) (W/DRAIN SLOTS) ARE PAID FOR UNDER THIS ITEM.
 4. ++ ONLY REACT M (NARROW) AND REACT 350 (WIDE) CRASH CUSHIONS MAY BE USED ACCORDING TO THE PLANS
 5. +++ ALL RAIL TRANSITIONS ARE TO BE PAID UNDER ITEM 450 6134. SEE RAIL TRANSITION DETAILS

1 REVISED, 06/24/2024

1	06/24/24	QTY CHANGE EBFR	
NO.	DATE	REVISION	APPROVED
		HDR Engineering, Inc Firm Registration No. F-754 17111 Preston Road, Suite 300 Dallas, Texas 75248 972.960.4400	
Texas Department of Transportation © 2024			
SH 178 (ARTCRAFT RD) GENERAL ROADWAY QUANTITY SUMMARY			
SCALE: N.T.S.		SHEET 8 OF 12	
FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.	
6	F 2B24 (273)	SH178, ETC	
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	54
CONTROL	SECTION	JOB	
3592	01	009	

ITEM						SUMMARY OF ROADWAY ITEMS CSJ 3592-01-009 (CONTINUED)									
						0540 6016	0540 6018	0544 6001	0545 6007 ++	0545 6010 ++	0658 6083	1005 6001	3076 6001	3076 6035	
						DOWNSTREAM ANCHOR TERMINAL SECTION	MTL BM GD FEN TRANS (NON - SYM)	GUARDRAIL END TREATMENT (INSTALL)	CRASH CUSH ATTEN (INSTL) (L) (N) (TL3)	CRASH CUSH ATTEN (INSTL) (L) (W) (TL3)	INSTL DEL ASSM (D-SW) SZ 1 (WFLX) SRF	LOOSE AGGR FOR GROUND COVER (TYPE I)	D-GR HMA TY-B PG64-22	D-GR HMA TY-D PG64-22	
DESCRIPTION						EA	EA	EA	EA	EA	EA	CY	TON	TON	
SH 178 (ARTCRAFT RD) PLAN & PROFILE SH 178	SHEET	1	OF	8	1		2					186	601		
SH 178 (ARTCRAFT RD) PLAN & PROFILE SH 178	SHEET	2	OF	8								180	1,287		
SH 178 (ARTCRAFT RD) PLAN & PROFILE SH 178	SHEET	3	OF	8			1					385	801	51	
SH 178 (ARTCRAFT RD) PLAN & PROFILE SH 178	SHEET	4	OF	8								50	376	22	
SH 178 (ARTCRAFT RD) PLAN & PROFILE SH 178	SHEET	5	OF	8									208		
SH 178 (ARTCRAFT RD) PLAN & PROFILE SH 178	SHEET	6	OF	8								256	1,017		
SH 178 (ARTCRAFT RD) PLAN & PROFILE SH 178	SHEET	7	OF	8								155	652		
SH 178 (ARTCRAFT RD) PLAN & PROFILE SH 178	SHEET	8	OF	8	1							977	150		
SH 178 (ARTCRAFT RD) PLAN	SHEET	1	OF	3									245		
SH 178 (ARTCRAFT RD) PLAN	SHEET	2	OF	3				1	1			496	1,197		
SH 178 (ARTCRAFT RD) PLAN	SHEET	3	OF	3			1		1			79	820		
SH 178 (ARTCRAFT RD) PLAN & PROFILE EBML TRANSITION (1)	SHEET	1	OF	1			1		1			217	1,104		
SH 178 (ARTCRAFT RD) PLAN & PROFILE EBML TRANSITION (2)	SHEET	1	OF	1									862		
SH 178 (ARTCRAFT RD) PLAN & PROFILE EBML TRANSITION (3)	SHEET	1	OF	1			1						612		
SH 178 (ARTCRAFT RD) PLAN & PROFILE EBML TRANSITION (4)	SHEET	1	OF	1									1,027		
SH 178 (ARTCRAFT RD) PLAN & PROFILE RPEBEXTWS	SHEET	1	OF	1								17	1,011		
SH 178 (ARTCRAFT RD) PLAN & PROFILE RPEBENTWS	SHEET	1	OF	1	1		2					112	1,452	4	
SH 178 (ARTCRAFT RD) PLAN & PROFILE RPEBEXTUV	SHEET	1	OF	1				1					1,216		
SH 178 (ARTCRAFT RD) PLAN & PROFILE RPEBENTUV	SHEET	1	OF	1			1	1					1,334		
SH 178 (ARTCRAFT RD) PLAN & PROFILE WBML TRANSITION (1)	SHEET	1	OF	1								21	895		
SH 178 (ARTCRAFT RD) PLAN & PROFILE WBML TRANSITION (2)	SHEET	1	OF	1					1				1,034		
SH 178 (ARTCRAFT RD) PLAN & PROFILE WBML TRANSITION (3)	SHEET	1	OF	1									549		
SH 178 (ARTCRAFT RD) PLAN & PROFILE WBML TRANSITION (4)	SHEET	1	OF	1				3					930		
SH 178 (ARTCRAFT RD) PLAN & PROFILE RPWBENTWS	SHEET	1	OF	1			2					50	982		
SH 178 (ARTCRAFT RD) PLAN & PROFILE RPWBEXTWS	SHEET	1	OF	1								35	1,154		
SH 178 (ARTCRAFT RD) PLAN & PROFILE RPWBENTUV	SHEET	1	OF	1			1						1,141		
SH 178 (ARTCRAFT RD) PLAN & PROFILE RPWBEXTUV	SHEET	1	OF	1									1,753		
SH 178 (ARTCRAFT RD) PLAN & PROFILE RPWBENT1	SHEET	1	OF	1					1			20	58		
SH 178 (ARTCRAFT RD) PLAN IH 10	SHEET	1	OF	6	2		4		1			1,704	1,478		
SH 178 (ARTCRAFT RD) PLAN IH 10	SHEET	2	OF	6	1	3	1		2			218			
SH 178 (ARTCRAFT RD) PLAN IH 10	SHEET	3	OF	6											
SH 178 (ARTCRAFT RD) PLAN IH 10	SHEET	4	OF	6		2									
SH 178 (ARTCRAFT RD) PLAN IH 10	SHEET	5	OF	6	1	3	3		1			913	336		
SH 178 (ARTCRAFT RD) PLAN IH 10	SHEET	6	OF	6	1		2		1			885	379		
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCEN	SHEET	1	OF	6				1	1				548		
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCEN	SHEET	2	OF	6					1				825		
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCEN	SHEET	3	OF	6											
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCEN	SHEET	4	OF	6											
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCEN	SHEET	5	OF	6								39	125		
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCEN	SHEET	6	OF	6								72	260		
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCES	SHEET	1	OF	4									192		
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCES	SHEET	2	OF	4											
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCES	SHEET	3	OF	4									123		
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCES	SHEET	4	OF	4									327		
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCNW	SHEET	1	OF	7									274		
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCNW	SHEET	2	OF	7									1,122		
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCNW	SHEET	3	OF	7									39		
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCNW	SHEET	4	OF	7											
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCNW	SHEET	5	OF	7											
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCNW	SHEET	6	OF	7									600		
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCNW	SHEET	7	OF	7									76		
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCSW	SHEET	1	OF	5									149		
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCSW	SHEET	2	OF	5									149		
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCSW	SHEET	3	OF	5											
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCSW	SHEET	4	OF	5											
SH 178 (ARTCRAFT RD) PLAN & PROFILE DCSW	SHEET	5	OF	5											
SH 178 (ARTCRAFT RD) PLAN & PROFILE U-TURNS (WESTSIDE DR)	SHEET	1	OF	2								91	129		
SH 178 (ARTCRAFT RD) PLAN & PROFILE U-TURNS (WESTSIDE DR)	SHEET	2	OF	2			1					92	132		
SH 178 (ARTCRAFT RD) PLAN & PROFILE U-TURNS (UPPER VALLEY RD)	SHEET	1	OF	2								95	167		
SH 178 (ARTCRAFT RD) PLAN & PROFILE U-TURNS (UPPER VALLEY RD)	SHEET	2	OF	2								94	169		
SH 178 (ARTCRAFT RD) PLAN & PROFILE U-TURNS (ARTCRAFT RD @ IH 10)	SHEET	1	OF	2									151		
SH 178 (ARTCRAFT RD) PLAN & PROFILE U-TURNS (ARTCRAFT RD @ IH 10)	SHEET	2	OF	2			1					39	129		
SH 178 (ARTCRAFT RD) PLAN & PROFILE EB FRONTAGE RD	SHEET	1	OF	4			1					109	369		
SH 178 (ARTCRAFT RD) PLAN & PROFILE EB FRONTAGE RD	SHEET	2	OF	4						62		251	663		
SH 178 (ARTCRAFT RD) PLAN & PROFILE EB FRONTAGE RD	SHEET	3	OF	4								198	811		
SH 178 (ARTCRAFT RD) PLAN & PROFILE EB FRONTAGE RD	SHEET	4	OF	4			1					80	232		
SH 178 (ARTCRAFT RD) PLAN & PROFILE WB FRONTAGE RD	SHEET	1	OF	3								20	189		
SH 178 (ARTCRAFT RD) PLAN & PROFILE WB FRONTAGE RD	SHEET	2	OF	3						50		137	1,038		
SH 178 (ARTCRAFT RD) PLAN & PROFILE WB FRONTAGE RD	SHEET	3	OF	3								150	716		

- NOTES:
- # THIS ITEM TO BE USED THROUGHOUT THE DURATION OF THE PROJECT AS DIRECTED BY THE ENGINEER.
 - ## THIS ITEM TO BE USED THROUGHOUT THE DURATION OF THE PROJECT IN THE EVENT CLAY IS FOUND IN SUBGRADE AS DIRECTED BY THE ENGINEER.
 - + RAIL (TY T80PP) AND (TY T80PP) (W/DRAIN SLOTS) ARE PAID FOR UNDER THIS ITEM.
 - ++ ONLY REACT M (NARROW) AND REACT 350 (WIDE) CRASH CUSHIONS MAY BE USED ACCORDING TO THE PLANS
 - +++ ALL RAIL TRANSITIONS ARE TO BE PAID UNDER ITEM 450 6134. SEE RAIL TRANSITION DETAILS

REVIS 06/24/2024

1	06/24/24	QTY CHANGE EBFR	
NO.	DATE	REVISION	APPROVED

HDR HDR Engineering, Inc
 Firm Registration No. F-754
 17111 Preston Road, Suite 300
 Dallas, Texas 75248
 972.960.4400

Texas Department of Transportation
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**SH 178 (ARTCRAFT RD)
 GENERAL
 ROADWAY
 QUANTITY SUMMARY**

SCALE: N. T. S. SHEET 9 OF 12

FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.
6	F 2B24 (273)	SH178, ETC
STATE	DISTRICT	COUNTY
TEXAS	ELP	EL PASO
CONTROL	SECTION	JOB
3592	01	009

ITEM					SUMMARY OF ROADWAY ITEMS CSJ 3592-01-009 (CONTINUED)									
					0540 6016	0540 6018	0544 6001	0545 6007 ++	0545 6010 ++	0658 6083	1005 6001	3076 6001	3076 6035	
DESCRIPTION					DOWNSTREAM ANCHOR TERMINAL SECTION	MTL BM GD FEN TRANS (NON - SYM)	GUARDRAIL END TREATMENT (INSTALL)	CRASH CUSH ATTN (INSLT) (L) (N) (TL3)	CRASH CUSH ATTN (INSLT) (L) (W) (TL3)	INSLT DEL ASSM (D-SW) SZ 1 (WFLX) SRF	LOOSE AGGR FOR GROUNDCOVER (TYPE I)	D-GR HMA TY-B PG64-22	D-GR HMA TY-D PG64-22	
					EA	EA	EA	EA	EA	EA	CY	TON	TON	
SH 178 (ARTCRAFT RD) PLAN & PROFILE SB FRONTAGE RD	SHEET	1	OF	1			2				121	873		
SH 178 (ARTCRAFT RD) PLAN & PROFILE NB FRONTAGE RD	SHEET	1	OF	2			1				211	1,441		
SH 178 (ARTCRAFT RD) PLAN & PROFILE NB FRONTAGE RD	SHEET	2	OF	2							60	425		
SH 178 (ARTCRAFT RD) PLAN & PROFILE WESTSIDE DR	SHEET	1	OF	1							17			
SH 178 (ARTCRAFT RD) PLAN UPPER VALLEY	SHEET	1	OF	1							90	234		
SH 178 (ARTCRAFT RD) PLAN & PROFILE DONIPHAN DR (SH 20)	SHEET	1	OF	1								91		
SH 178 (ARTCRAFT RD) PLAN & PROFILE SANTIAGO ST	SHEET	1	OF	1							15	101		
SH 178 (ARTCRAFT RD) PLAN & PROFILE BERRINGER ST	SHEET	1	OF	1								30		
SH 178 (ARTCRAFT RD) PLAN & PROFILE WESTSIDE DR SUP - SUPWS01	SHEET	1	OF	1							7		57	
SH 178 (ARTCRAFT RD) PLAN & PROFILE WESTSIDE DR SUP - SUPWS02	SHEET	1	OF	1									66	
SH 178 (ARTCRAFT RD) PLAN & PROFILE WESTSIDE DR SUP - SUPWS03	SHEET	1	OF	1									84	
SH178 (ARTCRAFT RD) SHARED USE PATH SUP-EBSW01	SHEET	1	OF	2							323		92	
SH178 (ARTCRAFT RD) SHARED USE PATH SUP-EBSW01	SHEET	2	OF	2							98		68	
SH178 (ARTCRAFT RD) SHARED USE PATH SUP-EBSW02	SHEET	1	OF	1							156		71	
SH178 (ARTCRAFT RD) SHARED USE PATH SUP-WBSW01	SHEET	1	OF	1							159		90	
SH178 (ARTCRAFT RD) SHARED USE PATH SUP-WBSW02	SHEET	1	OF	1							71		48	
CSJ 3592-01-009 TOTAL					8	8	29	8	11	112	9,751	39,560	653	

1

- NOTES:
1. # THIS ITEM TO BE USED THROUGHOUT THE DURATION OF THE PROJECT AS DIRECTED BY THE ENGINEER.
 2. ## THIS ITEM TO BE USED THROUGHOUT THE DURATION OF THE PROJECT IN THE EVENT CLAY IS FOUND IN SUBGRADE AS DIRECTED BY THE ENGINEER.
 3. + RAIL (TY T80PP) AND (TY T80PP) (W/DRAIN SLOTS) ARE PAID FOR UNDER THIS ITEM.
 4. ++ ONLY REACT M (NARROW) AND REACT 350 (WIDE) CRASH CUSHIONS MAY BE USED ACCORDING TO THE PLANS
 5. +++ ALL RAIL TRANSITIONS ARE TO BE PAID UNDER ITEM 450 6134. SEE RAIL TRANSITION DETAILS

1	06/24/24	QTY CHANGE EBFR	
NO.	DATE	REVISION	APPROVED
		HDR Engineering, Inc Firm Registration No. F-754 17111 Preston Road, Suite 300 Dallas, Texas 75248 972.960.4400	
Texas Department of Transportation © 2024			
SH 178 (ARTCRAFT RD) GENERAL ROADWAY QUANTITY SUMMARY			
SCALE: N. T. S.		SHEET 10 OF 12	
FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.	
6	F 2B24 (273)	SH178, ETC	
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	56
CONTROL	SECTION	JOB	
3592	01	009	

1 REVISED, 06/24/2024



LOCATION	SUMMARY OF DRAINAGE ITEMS																			
	110 6003	132 6006	400 6003	400 6005	400 6006	400 6009	401 6001	402 6001	432 6001	432 6004	432 6022	432 6044	450 6052	464 6003	464 6005	464 6007	464 6008	464 6014	464 6018	
	EXCAVATION (SPECIAL) CY	EMBANKMENT (FINAL) (DES CONT) (TY C) CY	STRUCT EXCAV (PIPE) CY	CEM STABIL BKFL CY	CUT & RESTORING PAV SY	CEMENT STAB BACKFILL (INLET OR MH) CY	FLOWABLE BACKFILL CY	TRENCH EXCAVATION PROTECTION LF	RIPRAP (CONC) (4 IN) CY	RIPRAP (CONC) (8 IN) CY	RIPRAP (STONE COMMON) (DRY) (6 IN) CY	RIPRAP (CONC) FLUME CY	RAIL (HANDRAIL) (TY F) LF	RC PIPE (CL III) (18 IN) LF	RC PIPE (CL III) (24 IN) LF	RC PIPE (CL III) (30 IN) LF	RC PIPE (CL III) (36 IN) LF	RC PIPE (CL III) (72 IN) LF	RC PIPE (CL IV) (24 IN) LF	
DRAINAGE P&P NBFR																				
SHEET 1 OF 2			907	438	45	25		916							916					
SHEET 2 OF 2			174	84		8		175							175					
DRAINAGE LATERAL PROFILES																				
SHEET 1 OF 4																				
SHEET 2 OF 4																				
SHEET 3 OF 4																				
SHEET 4 OF 4																				
DITCH P&P EASTBOUND																				
SHEET 1 OF 9			20	15					8											
SHEET 2 OF 9									36											
SHEET 3 OF 9									16											
SHEET 4 OF 9																				
SHEET 5 OF 9									55											
SHEET 6 OF 9									53											
SHEET 7 OF 9									39											
SHEET 8 OF 9									8											
SHEET 9 OF 9																				
DITCH P&P WESTBOUND																				
SHEET 1 OF 9			13	10					3											
SHEET 2 OF 9									65											
SHEET 3 OF 9			14	10					100											
SHEET 4 OF 9									51											
SHEET 5 OF 9									83											
SHEET 6 OF 9									22											
SHEET 7 OF 9									23											
SHEET 8 OF 9																				
SHEET 9 OF 9																				
CULVERT LAYOUT																				
SHEET 1 OF 1			79	46					37									22		
POND LAYOUT																				
SHEET 1 OF 24													434							
SHEET 2 OF 24	1,014	1,014											453							
SHEET 3 OF 24													671							
SHEET 4 OF 24	391	391							188											
SHEET 5 OF 24	792	792							233				118							
SHEET 6 OF 24													702							
SHEET 7 OF 24													230							
SHEET 8 OF 24													44							
SHEET 9 OF 24	127	127											382							
SHEET 10 OF 24	1024	1,024											437							
SHEET 11 OF 24	374	374											268							
SHEET 12 OF 24	398	398											312							
SHEET 13 OF 24													503							
SHEET 14 OF 24													810							
SHEET 15 OF 24	431	431											583							
SHEET 16 OF 24													410							
SHEET 17 OF 24	2,820	3							237					203						
SHEET 18 OF 24	12,815	20																		
SHEET 19 OF 24																				
SHEET 20 OF 24	3,513	2											459							
SHEET 21 OF 24	1,774	1											318							
SHEET 22 OF 24																				
SHEET 23 OF 24									102											
SHEET 24 OF 24									136											
SHEET SUBTOTAL	25,473	4,577	1,207	603	45	33	0	1,091	1,677	37	8,099	0	203	0	1,091	0	0	22	0	
PROJECT TOTALS	25,473	4,577	22,337	10,982	1,370	2,747	197	15,771	1,677	37	8,099	1	203	1,399	13,418	5,220	649	22	913	

1 REVISED 06/26/2024

NO.		DATE	REVISION	APPROVED
		HDR Engineering, Inc Firm Registration No. F-754 17111 Preston Road, Suite 300 Dallas, Texas 75248 972.960.4400		
SH 178 (ARTCRAFT RD) GENERAL DRAINAGE QUANTITY SUMMARY				
SCALE: N.T.S.			SHEET 4 OF 6	
FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.	
6	F 2B24 (273)		SH178, ETC	
STATE	DISTRICT	COUNTY	SHEET NO.	
TEXAS	ELP	EL PASO	64	
CONTROL	SECTION	JOB		
3592	01	009		

SUMMARY OF DRAINAGE ITEMS																						
LOCATION	465 6178	465 6179	465 6236	466 6232	467 6362	467 6387	467 6388	467 6390	467 6394	467 6395	467 6417	467 6423	467 6514	467 6516	479 6001	479 6002	480 6001	496 6002	496 6007	550 6001	550 6012	2005 6001
	INLET (COMPL) (TY MSE1)	INLET (COMPL) (TY MSE2)	INLET (COMPL) (RWI) (TY II)	WINGWALL (SPL)	SET (TY II) (18 IN) (RCP) (6:1) (C)	SET (TY II) (24 IN) (RCP) (2:1) (C)	SET (TY II) (24 IN) (RCP) (3:1) (C)	SET (TY II) (24 IN) (RCP) (4:1) (C)	SET (TY II) (24 IN) (RCP) (6:1) (C)	SET (TY II) (24 IN) (RCP) (6:1) (P)	SET (TY II) (30 IN) (RCP) (3:1) (C)	SET (TY II) (30 IN) (RCP) (6:1) (P)	SET (TY II) (30 IN) (DES 1) (RCP) (4:1) (C)	ADJUSTING MANHOLES	ADJUSTING INLET	CLEAN EXIST CULVERTS	REMOV STR (INLET)	REMOV STR (PIPE)	CHAIN LINK FENCE (INSTALL) (6')	CHAIN LINK FENCE GATE (INSTALL) (6'X16')	FILTER FABRIC (TY 2)	
	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	LF	LF	EA	SY
DRAINAGE P&P NBFR																						
SHEET 1 OF 2								1														
SHEET 2 OF 2																						
DRAINAGE LATERAL PROFILES																						
SHEET 1 OF 4																						
SHEET 2 OF 4																						
SHEET 3 OF 4																						
SHEET 4 OF 4																						
DITCH P&P EASTBOUND																						
SHEET 1 OF 9														2								
SHEET 2 OF 9																						
SHEET 3 OF 9																			68			
SHEET 4 OF 9															1							
SHEET 5 OF 9																						
SHEET 6 OF 9																						
SHEET 7 OF 9																						
SHEET 8 OF 9																						
SHEET 9 OF 9																						
DITCH P&P WESTBOUND																						
SHEET 1 OF 9													2									
SHEET 2 OF 9																						
SHEET 3 OF 9												1	1									
SHEET 4 OF 9																						
SHEET 5 OF 9																						
SHEET 6 OF 9																			46			
SHEET 7 OF 9																						
SHEET 8 OF 9																						
SHEET 9 OF 9																						
CULVERT LAYOUT																						
SHEET 1 OF 1				1																		
POND LAYOUT																						
SHEET 1 OF 24																						
SHEET 2 OF 24																						
SHEET 3 OF 24																						
SHEET 4 OF 24																						
SHEET 5 OF 24																						
SHEET 6 OF 24																						
SHEET 7 OF 24																						
SHEET 8 OF 24																						
SHEET 9 OF 24																						
SHEET 10 OF 24																						
SHEET 11 OF 24																						
SHEET 12 OF 24																						
SHEET 13 OF 24																						
SHEET 14 OF 24																						
SHEET 15 OF 24																						
SHEET 16 OF 24																						
SHEET 17 OF 24																					494	1
SHEET 18 OF 24																					897	2
SHEET 19 OF 24																						3039
SHEET 20 OF 24																						
SHEET 21 OF 24																					540	1
SHEET 22 OF 24																					454	1
SHEET 23 OF 24																						
SHEET 24 OF 24																						
SHEET SUBTOTAL	0	0	0	1	0	0	1	0	0	0	0	0	3	3	1	0	1	0	114	2,385	5	5,514
PROJECT TOTALS	3	52	16	1	7	1	16	1	2	1	3	1	3	3	3	1	1	29	3,450	2,385	5	5,514

1 REVISED 06/26/2024

NO.		DATE		REVISION		APPROVED	
		HDR Engineering, Inc Firm Registration No. F-754 17111 Preston Road, Suite 300 Dallas, Texas 75248 972.960.4400					
							
SH 178 (ARTCRAFT RD) GENERAL DRAINAGE QUANTITY SUMMARY							
SCALE: N. T. S.				SHEET 6 OF 6			
FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.			HIGHWAY NO.			
6	F 2B24 (273)			SH178, ETC			
STATE	DISTRICT	COUNTY		SHEET NO.			
TEXAS	ELP	EL PASO		66			
CONTROL	SECTION	JOB					
3592	01	009					

SHEET		SUMMARY OF SIGNING ITEMS																						
		416 6002	416 6006	416 6015	545 6003	636 6002	636 6003	644 6001	644 6004	644 6027	644 6030	644 6033	644 6034	644 6035	644 6050	644 6064	644 6067	644 6070	644 6082	644 6084	647 6001	647 6002	650 6030	650 6040
		DRILL SHAFT (24 IN)	DRILL SHAFT (48 IN)	DRILL SHAFT (NON-REINFORCED) (12 IN)	CRASH ATTEN (MOVE & RESET)	ALUMINUM SIGNS (TY G)	ALUMINUM SIGNS (TY O)	IN SM RD SN SUP&AM TY1(SA (P))	IN SM RD SN SUP&AM TY1(SA (T))	IN SM RD SN SUP&AM TY80(1)SA (P)	IN SM RD SN SUP&AM TY80(1)SA (T)	IN SM RD SN SUP&AM TY80(1)SA (U)	IN SM RD SN SUP&AM TY80(1)SA (A(U-TEXT))	IN SM RD SN SUP&AM TY80(1)SA (A(U-2EXT))	IN SM RD SN SUP&AM TY80(2)SA (P)	IN BRIDGE MNT CLEARANCE SGN ASSM(TY N)	IN SM RD SN SUP&AM (INST SIGN ONLY)	RELOCATE SM RD SN SUP&AM TY S80	IN SRSS & AM (RAIL) (90 MPH) (P MOUNT)	IN SRSS & AM (RAIL) (90 MPH) (T MOUNT)	INSTALL LRSS (STRUCT STEEL)	RELOCATE LRSA	INS OH SN SUP (30 FT CANT) (CIRC TUBE)	INS OH SN SUP (35 FT CANT) (CIRC TUBE)
LF	LF	LF	EA	SF	SF	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	
ARTCRAFT ROAD	Sheet 1	32																						
	Sheet 2		33	12		158.5																		
	Sheet 3			12		37.5	111.75																	
	Sheet 4		109				506.25																	
	Sheet 5							2	2															
	Sheet 6		77	12		37.5	226																	
	Sheet 7		45	12		37.5	204.5	8	2	1								3	1		325		2	
	Sheet 8		71				225	1																
	Sheet 9		84				460																	
	Sheet 10		28	12	1	37.5	161.5																	
	Sheet 11		145	12		37.5	571.5	7	9															
	Sheet 12		87				594.25	1																
	Sheet 13		199	12		37.5	1081.25		1															
	Sheet 14		128	12		37.5	695.75	4	5	1	2	3												
	Sheet 15							4	1															
	Sheet 16		84				98		1															
	Sheet 17		28				236.25																	
	Sheet 18		28	12		37.5	84																	
	Sheet 19																							
	Sheet 20							2																
	Sheet 21							9	27	2														
	Sheet 22																							
	Sheet 23																							
	Sheet 24		90	12		135.5	937.5																	
X STREETS	Sheet 1							4	8															
	Sheet 2							5	7															
	Sheet 3							7	6															
CONSTRUCTORS	Sheet 1																							
	Sheet 2																							
	Sheet 3																							
	TOTALS	32	1236	120	1	729.5	6938.75	65	78	8	22	16	4	2	2	16	5	1	60	16	3788	8	5	



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SHEET		SUMMARY OF SIGNING ITEMS				
		650 6075	650 6080	650 6100	650 6135	6489 6002
		INS OH SN SUP (65 FT BRDG) (CIRC TUBE)	INS OH SN SUP (70 FT BRDG) (CIRC TUBE)	INS OH SN SUP (90 FT BRDG) (CIRC TUBE)	INS OH SN SUP (125 FT BRDG) (CIRC TUBE)	BACKLIT W/PERIMETER LED RDSN SGN
		EA	EA	EA	EA	EA
ARTCRAFT ROAD	Sheet 1					
	Sheet 2					2
	Sheet 3					2
	Sheet 4		1			
	Sheet 5					
	Sheet 6					2
	Sheet 7					2
	Sheet 8					
	Sheet 9	1				
	Sheet 10					
	Sheet 11	1				
	Sheet 12					
	Sheet 13			1	1	
	Sheet 14	1	1			
	Sheet 15					
	Sheet 16					
	Sheet 17					
	Sheet 18					
	Sheet 19					
	Sheet 20					
	Sheet 21					
	Sheet 22					
	Sheet 23					
	Sheet 24					
X STREETS	Sheet 1					
	Sheet 2					
	Sheet 3					
CONSTRUCTORS	Sheet 1					
	Sheet 2					
	Sheet 3					
	TOTALS	3	2	1	1	8

1 REVISED 06/26/2024

NO.	DATE	REVISION	APPROVED
			
<small>8200 N. MOPAC EXPRESSWAY, STE #280 AUSTIN, TEXAS 78759 OMEGAENGINEERS.COM TX PE Firm Reg. No. F-2147 P:512.575.2288 F:281.647.9184</small>			
			
SH 178 (ARTCRAFT RD) GENERAL SIGNING QUANTITY SUMMARY			
SCALE: N.T.S.		SHEET 1 OF 1	
FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.	
6	F 2B24 (273)	SH178, ETC	
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	71
CONTROL	SECTION	JOB	
3592	01	009	

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LOC NO.	TCP PHASE	PLAN SHEET NUMBER	LOCATION	STA	TEST LEVEL	DIRECTION OF TRAFFIC (UNI/BI)	FOUNDATION PAD		BACKUP SUPPORT			AVAILABLE SITE LENGTH	CRASH CUSHION											
							PROPOSED MATERIAL	PROPOSED THICKNESS	DESCRIPTION	WIDTH	HEIGHT		INSTALL	REMOVE	MOVE / RESET		L	L	R	R	S	S		
															MOVE/RESET	FROM LOC. #	N	W	N	W	N	W		
TCP-CC-01	P0	113	EB ARTCRAFT RD	105+70.00	TL-3	UNI	CONC	8"	1	SSCB	2'	36'	>50'	X				X						
TCP-CC-02	P0	115	WB ARTCRAFT RD	126+50.00	TL-3	UNI	CONC	8"		SSCB	2'	36'	>50'	X				X						
TCP-CC-03	P0	115	EB ARTCRAFT RD	132+30.00	TL-3	UNI	CONC	8"		SSCB	2'	36'	>50'	X				X						
TCP-CC-04	P0	116	WB ARTCRAFT RD	147+20.00	TL-3	UNI	CONC	8"		SSCB	2'	36'	>50'	X				X						
TCP-CC-05	P0	117	EB ARTCRAFT RD	158+90.00	TL-3	UNI	CONC	8"		SSCB	2'	36'	>50'	X				X						
TCP-CC-06	P0	118	WB ARTCRAFT RD	171+50.00	TL-3	UNI	CONC	8"		SSCB	2'	36'	>50'	X				X						
TCP-CC-07	P1S1	123	EB ARTCRAFT RD	106+52.11	TL-3	UNI	CONC	8"		SSCB	2'	36'	>50'			X	TCP-CC-01	X						
TCP-CC-08	P1S1	123	EB ARTCRAFT RD	108+71.90	TL-3	UNI	CONC	8"		SSCB	2'	36'	>50'	X				X						
TCP-CC-09	P1S1	125	EB ARTCRAFT RD	128+57.43	TL-3	UNI	CONC	8"	1	SSCB	2'	36'	>50'	X				X						
TCP-CC-10	P1S1	125	EB ARTCRAFT RD	133+00.00	TL-3	UNI	CONC	8"		SSCB	2'	36'	>50'			X	TCP-CC-03	X						
TCP-CC-11	P1S1	127	EB ARTCRAFT RD	158+03.00	TL-3	UNI	CONC	8"		SSCB	2'	36'	>50'			X	TCP-CC-05	X						
TCP-CC-12	P1S1	127	EB ARTCRAFT RD	160+26.03	TL-3	UNI	CONC	8"		SSCB	2'	36'	>50'	X				X						
TCP-CC-13	P1S1	129	EB ARTCRAFT RD	176+04.17	TL-3	UNI	CONC	8"		SSCB	2'	36'	>50'	X				X						
TEMP STORE	P1S2 KEEP FROM PO	N/A	WB ARTCRAFT RD	126+50.00	TL-3	UNI	N/A	N/A		SSCB	2'	36'	>50'			X	TCP-CC-02	X						
TEMP STORE	P1S2 KEEP FROM PO	N/A	TEMPORARY LOCATION	N/A	TL-3	UNI	N/A	N/A		SSCB	2'	36'	>50'			X	TCP-CC-04	X						
TEMP STORE	P1S2 KEEP FROM PO	N/A	TEMPORARY LOCATION	N/A	TL-3	UNI	N/A	N/A		SSCB	2'	36'	>50'			X	TCP-CC-06	X						
TEMP STORE	P1S2	N/A	TEMPORARY LOCATION	N/A	TL-3	UNI	N/A	N/A		SSCB	2'	36'	>50'			X	TCP-CC-07	X						
TEMP STORE	P1S2	N/A	TEMPORARY LOCATION	N/A	TL-3	UNI	N/A	N/A		SSCB	2'	36'	>50'			X	TCP-CC-10	X						
TCP-CC-14	P1S2	132	EB ARTCRAFT RD	108+86.13	TL-3	UNI	CONC	8"		SSCB	2'	36'	>50'			X	TCP-CC-08	X						
TCP-CC-15	P1S2	134	WB ARTCRAFT RD	126+93.75	TL-3	UNI	CONC	8"	1	SSCB	2'	36'	>50'			X	TCP-CC-09	X						
TCP-CC-16	P1S2	136	EB ARTCRAFT RD	161+40.00	TL-3	UNI	CONC	8"		SSCB	2'	36'	>50'			X	TCP-CC-11	X						
TCP-CC-17	P1S2	138	WB ARTCRAFT RD	173+79.00	TL-3	UNI	CONC	8"		SSCB	2'	36'	>50'			X	TCP-CC-12	X						
TCP-CC-18	P1S2	139	WB ARTCRAFT RD	191+10.00	TL-3	UNI	CONC	8"		SSCB	2'	36'	>50'			X	TCP-CC-13	X						
TOTALS													10	0	13			10	0	0	0	0	0	

LEGEND:
 L=LOW MAINTENANCE
 R=REUSABLE
 S=SACRIFICIAL
 N=NARROW
 W=WIDE

FOR DEFINITIONS SEE THE "CRASH CUSHION CATEGORIZATION CHART.PDF" AT THE DESIGN DIVISION (ROADWAY STANDARDS) WEBSITE. USE QUICK LINKS TO ACCESS ATTENUATORS / CRASH CUSHIONS SECTION.
<http://www.dot.state.tx.us/insdot/orgchart/cmd/cserve/standard/rdwylse.htm>

CRASH CUSHION SUMMARY SHEET

FILE: ccss.dgn	DN: TxDOT	CK:	CK:
© TxDOT	CONT	SECT	JOB
REVISIONS	3592	01	009
	DIST	COUNTY	
	ELP	EL PASO	
	FEDERAL AID PROJECT		SHEET NO.
			282

REVISED, 06/28/2024

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LOC NO.	TCP PHASE	PLAN SHEET NUMBER	LOCATION	STA	TEST LEVEL	DIRECTION OF TRAFFIC (UNI/BI)	FOUNDATION PAD		BACKUP SUPPORT			AVAILABLE SITE LENGTH	CRASH CUSHION											
							PROPOSED MATERIAL	PROPOSED THICKNESS	DESCRIPTION	WIDTH	HEIGHT		INSTALL	REMOVE	MOVE / RESET		L	L	R	R	S	S		
															MOVE/RESET	FROM LOC. #	N	W	N	W	N	W		
TCP-CC-25	P3S1	162	EB I-10	420+49.20	TL-3	UNI	CONC	8"	1	SSCB	2'	36'	>50'	X				X						
TCP-CC-26	P3S1	162	EB I-10	420+96.77	TL-3	UNI	CONC	8"		SSCB	2'	36'	>50'	X				X						
TCP-CC-27	P3S1	164	WB I-10	438+78.96	TL-3	UNI	CONC	8"		SSCB	2'	36'	>50'	X				X						
TCP-CC-28	P3S1	164	WB I-10	439+18.87	TL-3	UNI	CONC	8"		SSCB	2'	36'	>50'	X				X						
TCP-CC-29	P3S2	167	EB I-10	371+00.00	TL-3	UNI	CONC	13"		SSCB	2'	36'	>50'	X				X						
TCP-CC-30	P3S2	169	I-10 (S DESERT BLVD)	389+19.57	TL-3	UNI	CONC	8"	1	SSCB	2'	36'	>50'	X				X						
TCP-CC-31	P3S2	170	I-10 (S DESERT BLVD ON RAMP)	399+08.43	TL-3	UNI	CONC	8"	1	SSCB	2'	36'	>50'	X				X						
TCP-CC-32	P3S2	170	WB I-10	405+69.30	TL-3	UNI	CONC	13"		SSCB	4'	36'	>50'	X	X				X					
TCP-CC-33	P3S2	173	EB I-10	439+32.95	TL-3	UNI	CONC	13"		SSCB	4'	36'	>50'	X	X				X					
TCP-CC-34	P3S2	174	I-10 (N DESERT BLVD)	449+44.69	TL-3	UNI	CONC	8"	1	SSCB	2'	36'	>50'	X				X						
TCP-CC-35	P3S2	176	WB I-10	473+50.00	TL-3	UNI	CONC	13"		SSCB	2'	36'	>50'	X				X						
TCP-CC-36	P4S1	179	EB ARTCRAFT RD	238+00.00	TL-3	UNI	CONC	8"		SSCB	2'	36'	>50'	X				X						
TCP-CC-37	P4S1	181	EB ARTCRAFT RD	260+60.00	TL-3	UNI	CONC	8"		SSCB	2'	36'	>50'	X				X						
TCP-CC-37A	P4S1	181	EB ARTCRAFT RD	265+89.51	TL-3	UNI	CONC	8"		SSCB	2'	36'	>50'	X				X						
TEMP STORE	P4S2 FROM P3S2	N/A	TEMPORARY LOCATION	N/A	TL-3	UNI	N/A	N/A		SSCB	2'	36'	>50'				X	TCP-CC-29	X					
TEMP STORE	P4S2 FROM P3S2	N/A	TEMPORARY LOCATION	N/A	TL-3	UNI	N/A	N/A		SSCB	2'	36'	>50'				X	TCP-CC-30	X					
TEMP STORE	P4S2 FROM P3S2	N/A	TEMPORARY LOCATION	N/A	TL-3	UNI	N/A	N/A		SSCB	2'	36'	>50'				X	TCP-CC-31	X					
TEMP STORE	P4S2 FROM P3S1	N/A	TEMPORARY LOCATION	N/A	TL-3	UNI	N/A	N/A		SSCB	2'	36'	>50'				X	TCP-CC-34	X					
TCP-CC-38	P4S2	189	EB ARTCRAFT RD	239+22.12	TL-3	UNI	CONC	8"		SSCB	2'	36'	>50'				X	TCP-CC-36	X					
TCP-CC-39	P4S2	190	EB ARTCRAFT RD	243+98.64	TL-3	UNI	CONC	8"		SSCB	2'	36'	>50'				X	TCP-CC-35	X					
TCP-CC-40	P4S2	191	WB ARTCRAFT RD	264+26.94	TL-3	UNI	CONC	8"		SSCB	2'	36'	>50'				X	TCP-CC-37A	X					
TEMP STORE	P4S3 FROM P3S1	N/A	TEMPORARY LOCATION	N/A	TL-3	UNI	N/A	N/A		SSCB	2'	36'	>50'				X	TCP-CC-25	X					
TEMP STORE	P4S3 FROM P3S1	N/A	TEMPORARY LOCATION	N/A	TL-3	UNI	N/A	N/A		SSCB	2'	36'	>50'				X	TCP-CC-26	X					
TEMP STORE	P4S3 FROM P3S1	N/A	TEMPORARY LOCATION	N/A	TL-3	UNI	N/A	N/A		SSCB	2'	36'	>50'				X	TCP-CC-27	X					
TEMP STORE	P4S3 FROM P3S1	N/A	TEMPORARY LOCATION	N/A	TL-3	UNI	N/A	N/A		SSCB	2'	36'	>50'				X	TCP-CC-28	X					
TCP-CC-41	P4S3	200	EB ARTCRAFT RD	244+50.38	TL-3	UNI	CONC	8"		SSCB	2'	36'	>50'				X	TCP-CC-38	X					
TCP-CC-42	P4S3	201	WB ARTCRAFT RD	264+68.95	TL-3	BI	CONC	8"		SSCB	2'	36'	>50'				X	TCP-CC-39	X					
TCP-CC-43	P4S3	201	WB ARTCRAFT RD	265+65.55	TL-3	UNI	CONC	8"	1	SSCB	2'	36'	>50'				X	TCP-CC-40	X					
TOTALS													14	2	14		14	2	0	0	0	0		

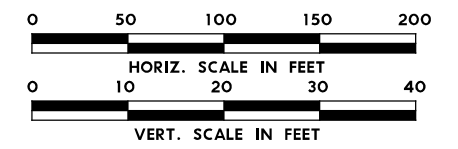
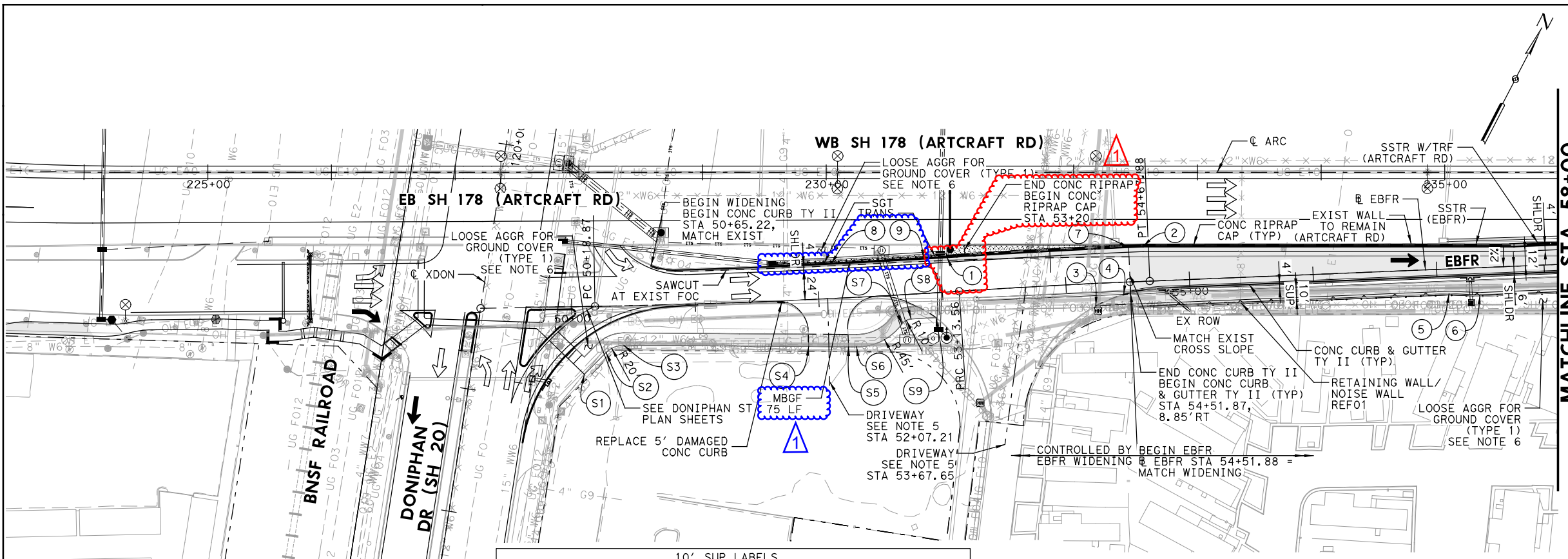
LEGEND:
 L=LOW MAINTENANCE
 R=REUSABLE
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FOR DEFINITIONS SEE THE "CRASH CUSHION CATEGORIZATION CHART.PDF" AT THE DESIGN DIVISION (ROADWAY STANDARDS) WEBSITE. USE QUICK LINKS TO ACCESS ATTENUATORS / CRASH CUSHIONS SECTION.
<http://www.dot.state.tx.us/insdot/orgchart/cmd/cserve/standard/rdwylse.htm>

CRASH CUSHION SUMMARY SHEET

FILE: CCSS.dgn	DN: TxDOT	CK:	CK:
© TxDOT	CONT	SECT	JOB
REVISIONS	3592	01	009
	DIST	COUNTY	
	ELP	EL PASO	
	FEDERAL AID PROJECT		SHEET NO.
			284

1 REVISED, 06/28/2024



- LEGEND**
- ➔ PROPOSED TRAFFIC FLOW
 - ➔ EXISTING TRAFFIC FLOW
 - - - EXIST ROW
 - - - PROP ROW
 - - - TEMPORARY CONSTRUCTION EASEMENT (TCE)
 - - - TEMPORARY CONSTRUCTION LICENSE (TCL)
 - ▬ BARRIER/SEE PLANS FOR TYPE
 - MBBG/TRANS/SGT
 - ▬ RETAINING WALL
 - HIGH MAST LIGHTING
 - - - DITCH CENTERLINES
 - OVERHEAD SIGN STRUCTURES
 - ▬ CONC RIPRAP
 - ▬ PROP PAVEMENT/MEDIAN
 - ▬ PROP BRIDGE/APPROACH SLAB
 - ▬ PROP LOOSE AGGREGATE GROUND COVER (TYPE 1)

- NOTES:**
- SEE MISC PAVING DETAILS AND GEOMETRIC LAYOUT SHEETS FOR ADDITIONAL INFORMATION.
 - REFER TO NEAREST P&P SHEET OR SUP P&P SHEETS FOR SIDEWALK AND SUP INFORMATION.
 - SEE UTILITY SHEETS FOR ADDITIONAL INFORMATION ON EXISTING AND PROP RELOCATIONS.
 - ALL DIMENSIONS ARE TO FACE OF CURB OR FACE OF RAIL UNLESS OTHERWISE NOTED.
 - SEE DRIVEWAY DETAILS SHEETS FOR ADDITIONAL INFORMATION.
 - LOOSE AGGR FOR GROUND COVER (TYPE 1) TO BE PLACED IN ALL DISTURBED AREAS.

10' SUP LABELS

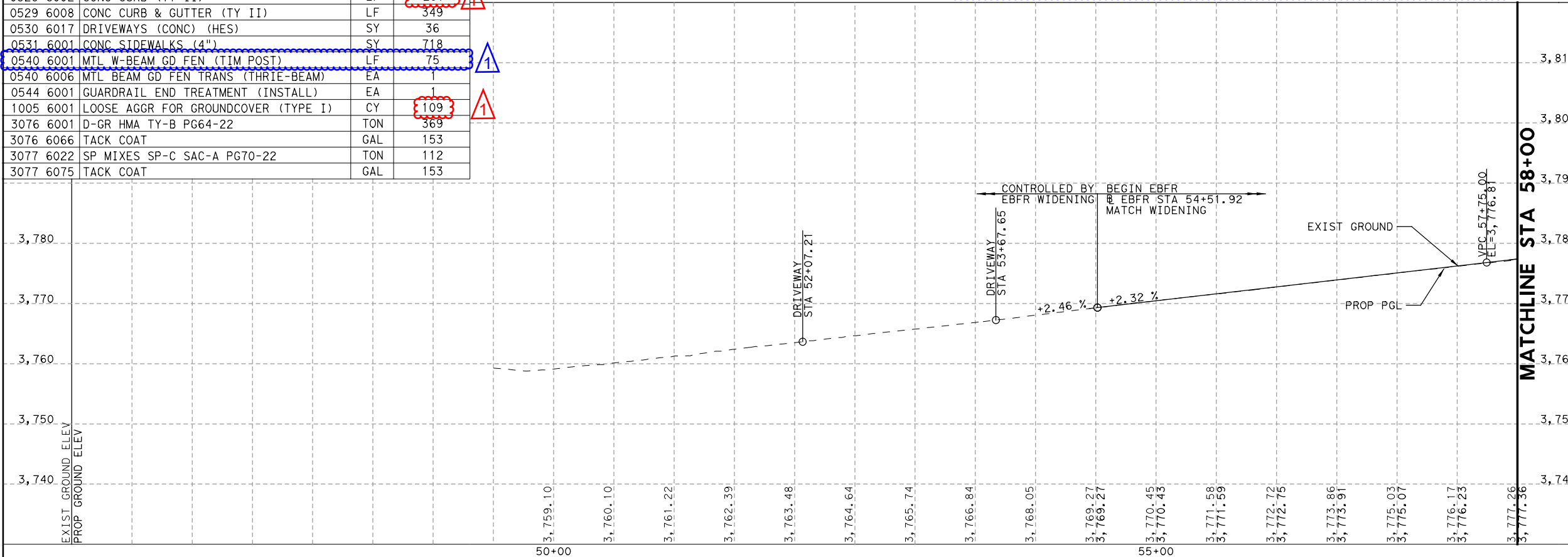
LABEL #	STATION	OFFSET	DESCRIPTION
S1	50+09.41	54.72' RT	SUP PI
S2	50+27.22	37.46' RT	SUP PC
S3	50+41.53	31.88' RT	SUP PT
S4	51+89.98	37.83' RT	SUP PI MATCH DRIVEWAY
S5	52+22.05	39.61' RT	SUP PI MATCH DRIVEWAY
S6	52+28.47	39.98' RT	SUP PC
S7	52+65.83	23.62' RT	SUP PCC
S8	52+73.48	20.00' RT	SUP PT
S9	52+93.62	20.00' RT	SUP PI MATCH DRIVEWAY

LABEL #	STATION	OFFSET	DESCRIPTION
1	53+05.46	28.00' LT	END CONC CURB TY II, BEGIN SSTR, BEGIN CONC RIPRAP
2	54+63.59	28.00' LT	SSTR W/TRF & EOP PI
3	54+23.43	18.00' RT	BEGIN SAWCUT
4	54+46.34	10.00' RT	BEGIN CONC CURB TY II
5	57+09.26	20.00' RT	SUP BEGIN TAPER
6	57+34.18	22.00' RT	SUP END TAPER
7	54+51.92	28.00' LT	END SSTR BEGIN SSTR W/TRF
8	52+11.26	28.00' LT	END SGT, BEGIN MBBG
9	52+86.62	28.00' LT	END MBBG, BEGIN TRANS

ROADWAY QUANTITIES

ITEM	DESCRIPTION	UNIT	QUANTITY
0275 6001	CEMENT	TON	14
0275 6019	CEMENT TREAT (SUBGRADE) (6")	SY	1338
0310 6001	PRIME COAT (MULTI OPTION)	GAL	201
0360 6003	CONC PVMT (CONT REINF - CRCP) (9")	SY	143
0420 6066	CL C CONC (RAIL FOUNDATION)	CY	49
0432 6001	RIPRAP (CONC) (4 IN)	CY	16
0450 6023	RAIL (TY SSTR)	LF	496
0529 6002	CONC CURB (TY II)	LF	251
0529 6008	CONC CURB & GUTTER (TY II)	LF	349
0530 6017	DRIVEWAYS (CONC) (HES)	SY	36
0531 6001	CONC SIDEWALKS (4")	SY	718
0540 6001	MTL W-BEAM GD FEN (TIM POST)	LF	75
0540 6006	MTL BEAM GD FEN TRANS (THRIE-BEAM)	EA	1
0544 6001	GUARDRAIL END TREATMENT (INSTALL)	EA	1
1005 6001	LOOSE AGGR FOR GROUND COVER (TYPE I)	CY	109
3076 6001	D-GR HMA TY-B PG64-22	TON	369
3076 6066	TACK COAT	GAL	153
3077 6022	SP MIXES SP-C SAC-A PG70-22	TON	112
3077 6075	TACK COAT	GAL	153

▲ REVISED, 06/21/2024
 ▲ ADDED, 06/21/2024



06/21/2024

NO.	DATE	DESCRIPTION	APPROVED
1	06/21/24	OHS ADJUSTED MODIFIED ROADWAY ITEMS	

HDR Engineering, Inc.
 Firm Registration No. F-754
 17111 Preston Road, Suite 300
 Dallas, Texas 75248
 972.960.4400

Texas Department of Transportation
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**SH 178 (ARTCRAFT RD)
 PLAN & PROFILE
 EB FRONTAGE RD (ARTCRAFT RD)
 BEGIN TO STA 58+00**

SCALE: 1" = 100'-H
 1" = 20'-V

SHEET 1 OF 4

FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.
6	F 2B24 (273)	SH178, ETC

STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	445

CONTROL	SECTION	JOB
3592	01	009

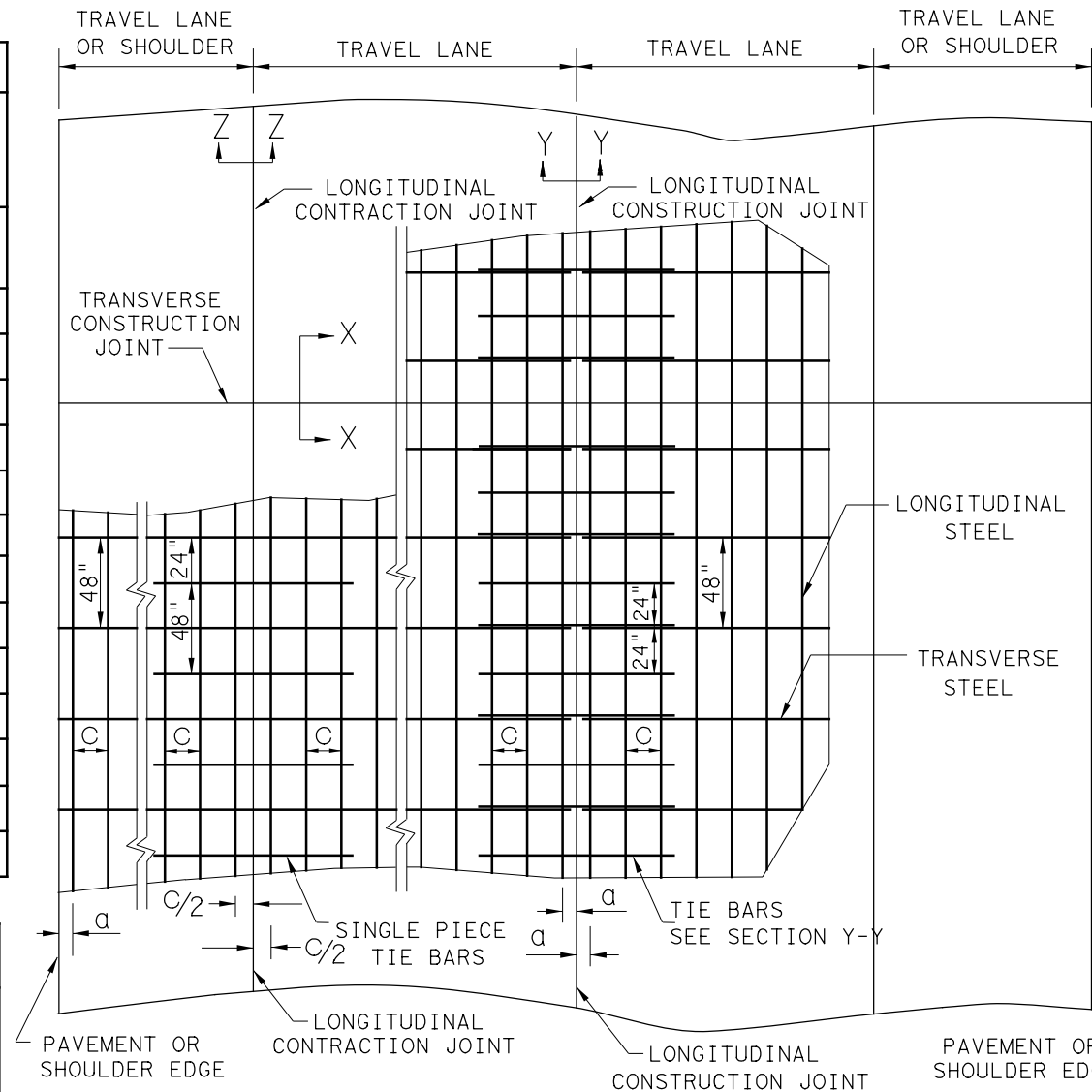
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DATE: 6/20/2024 6:06:19 AM
 FILE: c:\pwworking\centra101\d3818360\arcp123.dgn

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

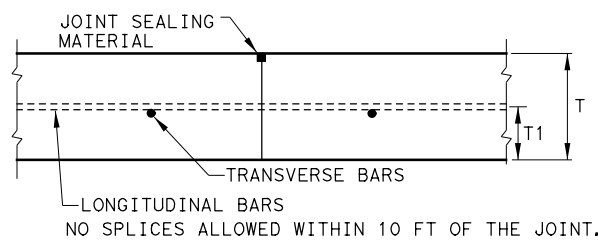
TABLE NO. 2 TRANSVERSE STEEL AND TIE BARS						
SLAB THICKNESS (IN.)	TRANSVERSE STEEL		TIE BARS AT LONGITUDINAL CONTRACTION JOINT (SECTION Z-Z)		TIE BARS AT LONGITUDINAL CONTRACTION JOINT (SECTION Y-Y)	
	BAR SIZE	SPACING (IN.)	BAR SIZE	SPACING (IN.)	BAR SIZE	SPACING (IN.)
7.0 - 7.5	#5*	48	#5*	48	#5*	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

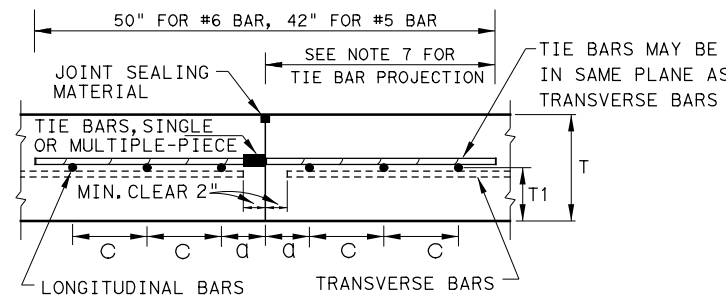


TYPICAL PAVEMENT LAYOUT
 PLAN VIEW (NOT TO SCALE)

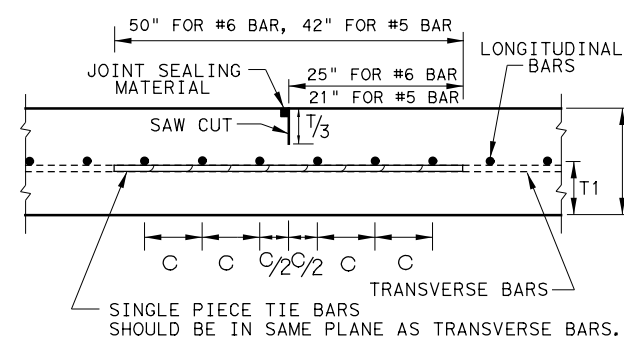
- GENERAL NOTES**
1. DETAILS FOR PAVEMENT WIDTH, PAVEMENT THICKNESS AND THE CROWN CROSS-SLOPE SHALL BE SHOWN ELSEWHERE IN THE PLANS. FOR PAVEMENTS WIDER THAN 100 FT. WITHOUT A FREE LONGITUDINAL JOINT, ADDITIONAL DETAIL MAY BE SHOWN ELSEWHERE IN THE PLANS.
 2. USE COARSE AGGREGATES WITH A RATED COEFFICIENT 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) 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 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	3592	01	009
REVISED LONG. STEEL VERTICAL LOCATION	DIST	COUNTY	SHEET NO.
REVISED FROM JOINTS	ELP	EL PASO	490

REVIS
 REVISED, 06/21/2024

VOLUME 3 - CONTINUED

Table with columns SHEETS and DESCRIPTION. Lists sheet numbers (e.g., 1390-1401, 1402-1403) and descriptions of prestressed concrete girder units, framing plans, and foundation details.

VOLUME 3 - CONTINUED

Table with columns SHEETS and DESCRIPTION. Lists sheet numbers (e.g., 1554-1559, 1560-1569) and descriptions of foundation details, column details, and bridge deck drain details.

BRIDGE STANDARDS

Table listing bridge standards such as BD-1 (MOD), SGMD (MOD), BAS-C, BL, BMCS, BRSM, BS-EJCP, CRR, CSAB, FD, IGD, IGEB, IGMS, IGTS, MEBR (C), NBIS, PCP, PCP-FAB, PMDF, RAP, SEJ-M, SGEB, SGMS, SGTS, TYPE PR22, and TYPE SSTR.

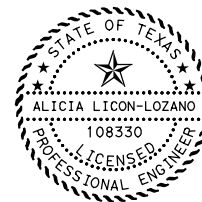
VOLUME 4

VIII. ILLUMINATION

Table listing illumination sheets (e.g., 1641-1645, 1646-1660, 1661-1669, 1670-1673, 1674-1676) and descriptions of index of sheets, illumination layouts, and underpass layout details.

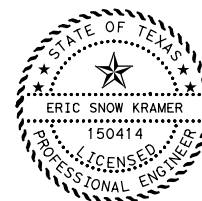
ILLUMINATION STANDARDS

Table listing illumination standards: ED-14, RID-20, HMID-03, HMIP-16, HMIF-98, and WV & IZ-14.



THE STANDARD SHEETS SPECIFICALLY IDENTIFIED ABOVE HAVE BEEN SELECTED BY ME, OR UNDER MY RESPONSIBLE SUPERVISION, AS BEING APPLICABLE TO THIS PROJECT.

Alicia Licon-Lozano, P.E. 6/24/2024 DATE



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

Eric Snow Kramer, P.E. 6/24/2024 DATE

VOLUME 4 - CONTINUED

Table with columns SHEETS and DESCRIPTION. Lists sheet numbers (e.g., 1700-1714, 1715-1723, 1724-1726) and descriptions of pavement markings and signing plans. Includes a callout for sheet 1820A: MONOTUBE CUSTOM FOUNDATION DETAIL.

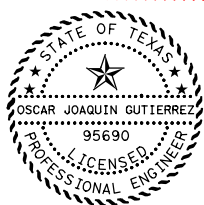
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Project information block including: HDR Engineering, Inc. Firm Registration No. F-754; Texas Department of Transportation logo; Project name: SH 178 (ARTCRAFT RD); Index of Sheets; Scale: N.T.S.; Sheet 4 of 5; Federal-Aid Project No. F 2B24 (273); State: TEXAS; District: ELP; County: EL PASO; Section: 01; Job: 009; Sheet No. 535.

ADDED, 06/24/2024

VOLUME 4 - CONTINUED

Table with columns SHEETS and DESCRIPTION. Includes items 1821-1871 under SIGNING AND PAVEMENT MARKING STANDARDS and 1872-1904 under TRAFFIC SIGNALS.



THIS SHEET WAS ORIGINALLY SIGNED AND SEALED BY CHRISTOPHER PERET FLORES P.E. #86245 ON 05/21/2024 EMPLOYED BY OMEGA ENGINEERS, INC. FIRM #F-2147

+ + THE STANDARD SHEETS SPECIFICALLY IDENTIFIED ABOVE HAVE BEEN SELECTED BY ME, OR UNDER MY RESPONSIBLE SUPERVISION, AS BEING APPLICABLE TO THIS PROJECT.

Signature of Oscar Joaquin Gutierrez

OSCAR JOAQUIN GUTIERREZ, P.E. DATE 6/24/2024

1849A ++ D & OM(1)-20

Table with columns SHEETS and DESCRIPTION. Includes items 1850-1871 under TRAFFIC SIGNALS.

VIII. TRAFFIC SIGNALS

Table with columns SHEETS and DESCRIPTION. Includes items 1872-1904 under TRAFFIC SIGNALS.

VOLUME 4 - CONTINUED

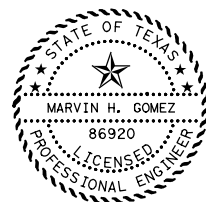
TRAFFIC SIGNALS STANDARDS

Table with columns SHEETS and DESCRIPTION. Includes items 1907-1930 under TRAFFIC SIGNALS STANDARDS and 1930-1993 under ITS.

VIII. ITS

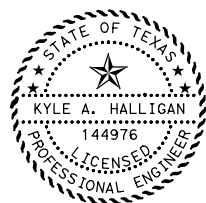
ITS STANDARDS

Table with columns SHEETS and DESCRIPTION. Includes items 2003-2034 under ITS STANDARDS.



Signature of Marvin H. Gomez

MARVIN H. GOMEZ, P.E. DATE 6/24/2024



Signature of Kyle A. Halligan

KYLE A. HALLIGAN, P.E. DATE 6/24/2024

VOLUME 4 - CONTINUED

X. ENVIRONMENTAL ISSUES

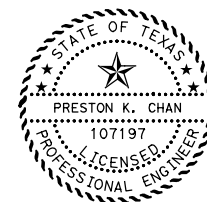
Table with columns SHEETS and DESCRIPTION. Includes items 2035-2119 under ENVIRONMENTAL ISSUES and 2122-2159 under MISCELLANEOUS ITEMS.

ENVIRONMENTAL STANDARDS

XI. MISCELLANEOUS ITEMS

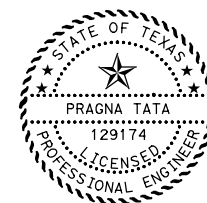
RAILROAD STANDARDS

Table with columns SHEETS and DESCRIPTION. Includes items 2160-2161 under RAILROAD STANDARDS.



Signature of Preston K. Chan

PRESTON K. CHAN, P.E. DATE 6/24/2024



Signature of Pragna T. Pragna

PRAGNA TATA, P.E. DATE 6/24/2024

1 ADDED, 06/24/2024

1 REVISED, 06/24/2024

Table with columns NO., DATE, CHANGED STANDARDS, REVISION, APPROVED.

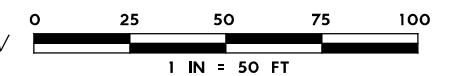
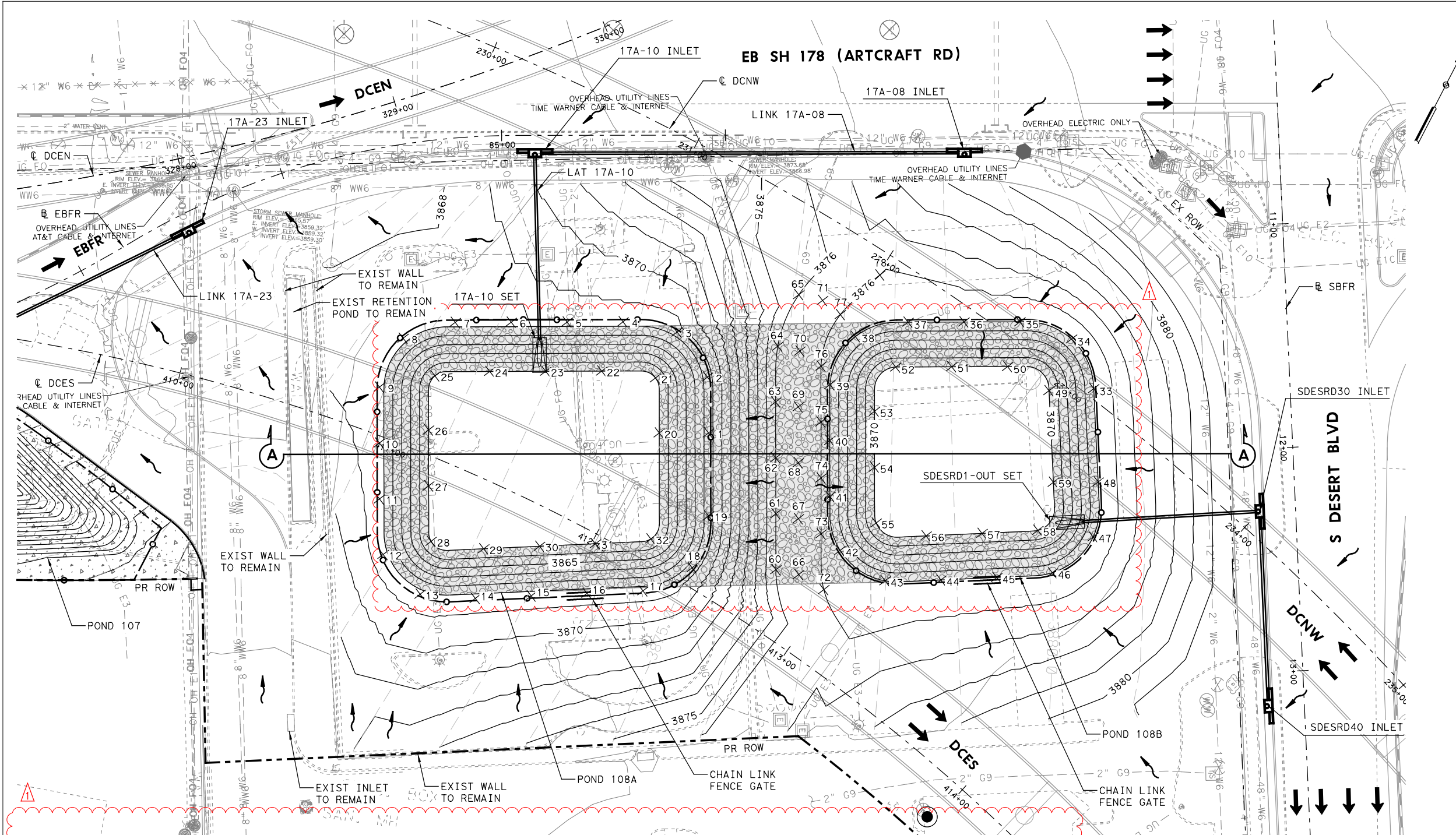
HDR Engineering, Inc. Firm Registration No. F-754, 17111 Preston Road, Suite 300, Dallas, Texas 75248, 972.960.4400

Texas Department of Transportation © 2024

SH 178 (ARTCRAFT RD)

INDEX OF SHEETS

Table with columns FED. RD. DIV. NO., FEDERAL-AID PROJECT NO., HIGHWAY NO., STATE, DISTRICT, COUNTY, SHEET NO., CONTROL, SECTION, JOB, SHEET NO.

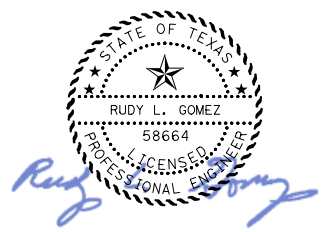


LEGEND

- DIRECTION OF FLOW
- PROP STORMSEWER
- PROP CONTOURS, 1'
- EXIST CONTOURS, 1' (REGRADED PARKING LOT)
- PROP ROW
- EXIST ROW
- PROP EDGE OF PAVEMENT
- EXIST SURVEY
- PROP CHAIN LINK
- PROP CHAIN LINK GATE
- PROP CONCRETE RIPRAP
- PROP STONE RIPRAP WITH FILTER FABRIC

NOTES:

1. CONTRACTOR MUST FIELD VERIFY LOCATION OF ALL EXISTING UTILITIES BEFORE ANY EXCAVATION TAKES PLACE.
2. REFER TO DRAINAGE PLAN AND PROFILE SHEETS FOR ADDITIONAL INFORMATION.
3. RETENTION PONDS WERE SIZED TO CAPTURE THE 100-YEAR 24-HOUR DESIGN STORM IN ACCORDANCE WITH THE CITY OF EL PASO DRAINAGE DESIGN MANUAL (JUNE 2008).
4. REFER TO DRAINAGE AREA CALCULATIONS SHEETS FOR HYDROLOGIC DATA USED TO CALCULATE POND INFLOW VOLUME.
5. ATLAS 14 RAINFALL DEPTH OF 4.53 INCHES WAS USED FOR POND CALCULATIONS AND SOURCED FROM THE NOAA PRECIPITATION FREQUENCY DATA SERVER (PFDS) (PARTIAL DURATION SERIES).
6. REFER TO REMOVAL LAYOUT SHEETS FOR ADDITIONAL INFORMATION.

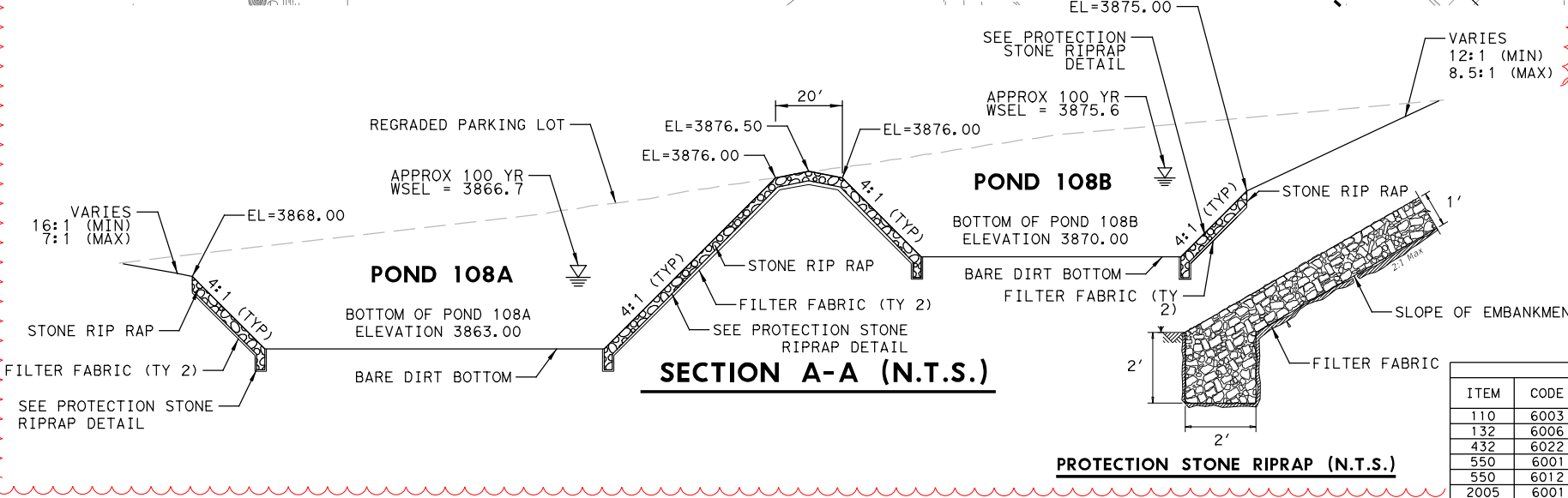


6/24/24

POND NO.	INFLOW VOLUME (AC-FT)	PROVIDED VOLUME (AC-FT)
108A, 108B	1.78	3.00

ELEVATION (FT)	STORAGE (AC-FT)
3863.0	0.00
3864.0	0.20
3865.0	0.43
3866.0	0.71
3867.0	1.02
3868.0	1.37
3869.0	1.37
3870.0	1.37
3871.0	1.51
3872.0	1.69
3873.0	1.90
3874.0	2.14
3875.0	2.42
3876.0	2.77
3876.5	3.00

REVISD 06/24/24



ITEM	CODE	DESCRIPTION	UNIT	QTY
110	6003	EXCAVATION (SPECIAL)	CY	12815
132	6006	EMBANKMENT (FINAL) (DES CONT) (TY C)	CY	20
432	6022	RIPRAP (STONE COMMON) (DRY) (6 IN)	CY	965
550	6001	CHAIN LINK FENCE (INSTALL) (6')	LF	897
550	6012	CHAIN LINK FENCE GATE (INSTALL) (6' X 16')	EA	2
2005	6001	FILTER FABRIC (TY 2)	SY	3039

NO.	DATE	REVISION	APPROVED

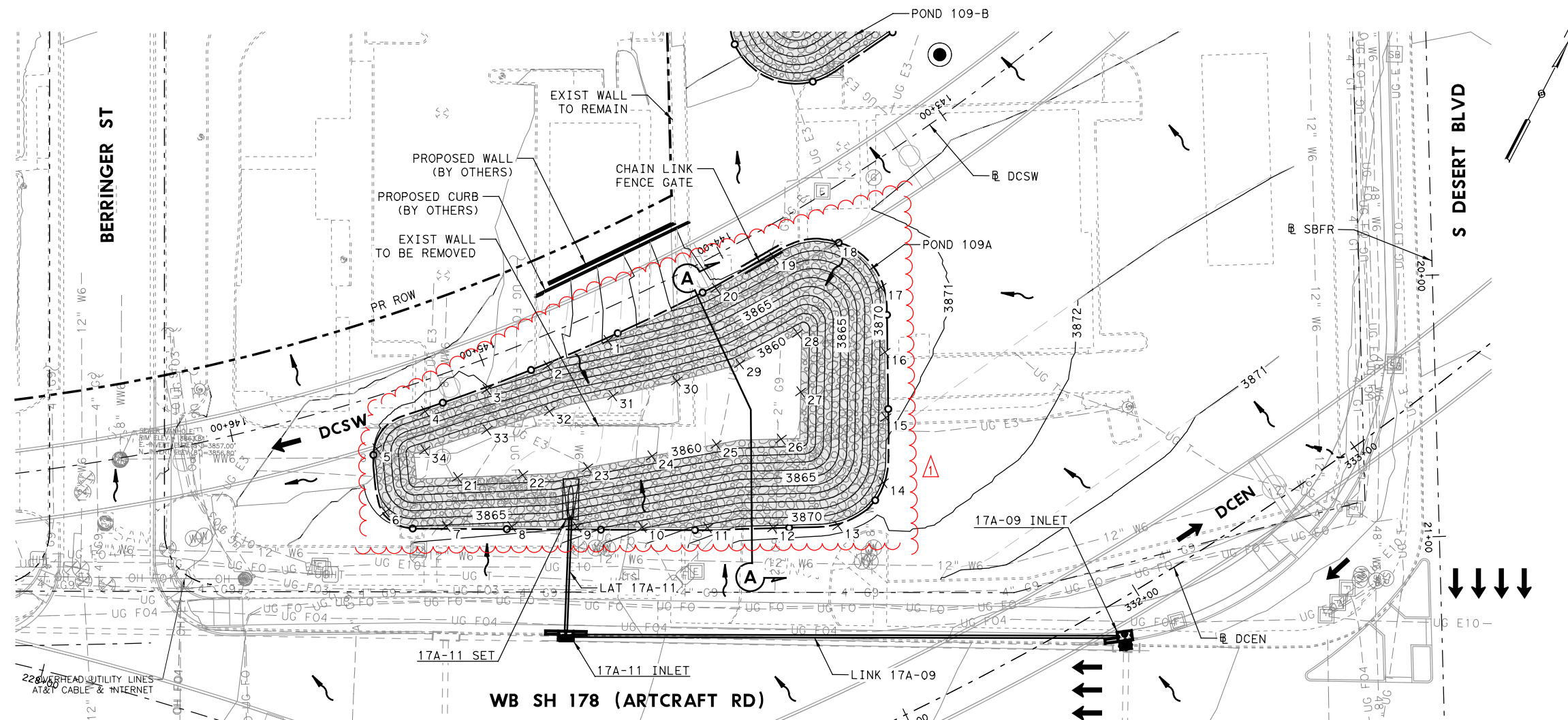
OMEGA ENGINEERS, INC.
 8200 N. MOPAC EXPRESSWAY, STE #280
 AUSTIN, TEXAS 78759
 OMEGAENGINEERS.COM
 TX PE Firm Reg. No. F-2147
 P: 512 575 2288 F: 281 647 9184

Texas Department of Transportation
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**SH 178 (ARTCRAFT RD)
 POND LAYOUT
 (RETENTION POND 108)**

SCALE: 1" = 50' - H SHEET 18 OF 24

FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.	
6	F 2B24 (273)	SH178, ETC	
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	1052
CONTROL	SECTION	JOB	
3592	01	009	

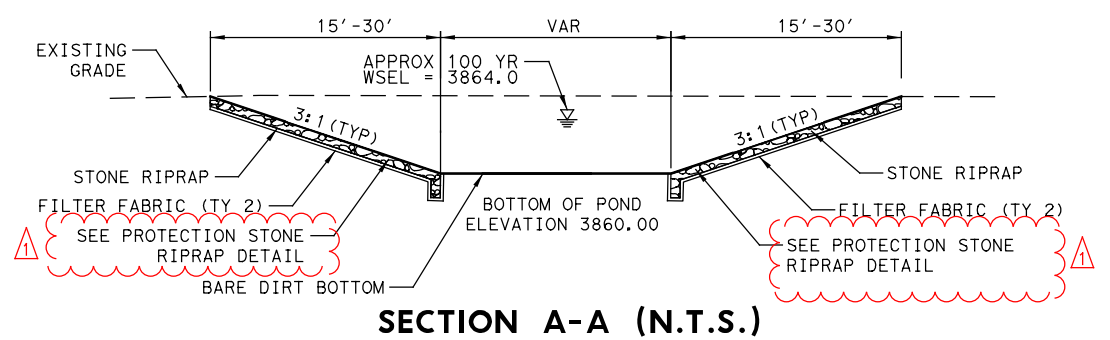


0 25 50 75 100
 1 IN = 50 FT

LEGEND

- DIRECTION OF FLOW
- PROP STORMSEWER
- PROP CONTOURS, 1'
- EXIST CONTOURS, 1' (REGRADED PARKING LOT)
- PROP ROW
- EXIST ROW
- PROP EDGE OF PAVEMENT
- EXIST SURVEY
- PROP CHAIN LINK
- PROP CHAIN LINK GATE
- PROP CONCRETE RIPRAP
- PROP STONE RIPRAP WITH FILTER FABRIC

- NOTES:**
- CONTRACTOR MUST FIELD VERIFY LOCATION OF ALL EXISTING UTILITIES BEFORE ANY EXCAVATION TAKES PLACE.
 - REFER TO DRAINAGE PLAN AND PROFILE SHEETS FOR ADDITIONAL INFORMATION.
 - RETENTION PONDS WERE SIZED TO CAPTURE THE 100-YEAR 24-HOUR DESIGN STORM IN ACCORDANCE WITH THE CITY OF EL PASO DRAINAGE DESIGN MANUAL (JUNE 2008).
 - REFER TO DRAINAGE AREA CALCULATIONS SHEETS FOR HYDROLOGIC DATA USED TO CALCULATE POND INFLOW VOLUME.
 - ATLAS 14 RAINFALL DEPTH OF 4.53 INCHES WAS USED FOR POND CALCULATIONS AND SOURCED FROM THE NOAA PRECIPITATION FREQUENCY DATA SERVER (PFDS) (PARTIAL DURATION SERIES).
 - REFER TO REMOVAL LAYOUT SHEETS FOR ADDITIONAL INFORMATION.



POND NO.	INFLOW VOLUME (AC-FT)	PROVIDED VOLUME (AC-FT)
109A	0.55	0.75

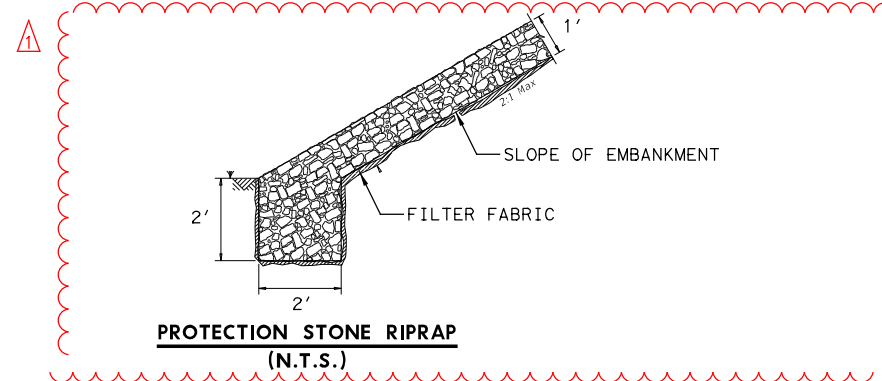
ELEVATION (FT)	STORAGE (AC-FT)
3860.0	0.00
3861.0	0.10
3862.0	0.22
3863.0	0.36
3864.0	0.54
3865.0	0.75

PT	EASTING	NORTHING	ELEV	DESC
1	357485.42	10705691.35	3867.17	Tie-In
2	357464.18	10705678.25	3865.56	Tie-In
3	357442.50	10705665.82	3864.97	Tie-In
4	357420.43	10705654.08	3864.72	Tie-In
5	357404.24	10705637.13	3864.82	Tie-In
6	357411.07	10705613.76	3865.56	Tie-In
7	357435.00	10705611.88	3866.16	Tie-In
8	357459.74	10705615.49	3866.54	Tie-In
9	357484.46	10705619.09	3867.32	Tie-In
10	357509.15	10705622.70	3868.87	Tie-In
11	357533.84	10705626.30	3870.41	Tie-In
12	357558.55	10705629.91	3871.31	Tie-In
13	357583.07	10705634.42	3871.54	Tie-In
14	357597.69	10705653.38	3871.17	Tie-In
15	357594.93	10705678.11	3870.91	Tie-In
16	357590.85	10705702.78	3870.65	Tie-In
17	357585.67	10705727.14	3870.37	Tie-In

PT	EASTING	NORTHING	ELEV	DESC
18	357566.02	10705740.83	3870.04	Tie-In
19	357543.42	10705732.20	3869.96	Tie-In
20	357523.42	10705717.20	3869.93	Tie-In
21	357436.36	10705630.93	3860.00	Bottom
22	357460.91	10705635.67	3860.00	Bottom
23	357485.01	10705642.10	3860.00	Bottom
24	357508.67	10705650.17	3860.00	Bottom
25	357532.33	10705658.23	3860.00	Bottom
26	357556.59	10705663.99	3860.00	Bottom
27	357561.29	10705682.93	3860.00	Bottom
28	357556.77	10705704.82	3860.00	Bottom
29	357536.59	10705690.07	3860.00	Bottom
30	357513.76	10705679.94	3860.00	Bottom
31	357490.51	10705670.75	3860.00	Bottom
32	357467.42	10705661.26	3860.00	Bottom
33	357444.84	10705650.54	3860.00	Bottom
34	357422.50	10705639.33	3860.00	Bottom

ESTIMATED QUANTITIES

ITEM	CODE	DESCRIPTION	UNIT	QTY
110	6003	EXCAVATION (SPECIAL)	CY	3513
132	6006	EMBANKMENT (FINAL) (DES CONT) (TY C)	CY	2
432	6022	RIPRAP (STONE COMMON) (DRY) (6 IN)	CY	459
550	6001	CHAIN LINK FENCE (INSTALL) (6')	LF	540
550	6012	CHAIN LINK FENCE GATE (INSTALL) (6' X 16')	EA	1
2005	6001	FILTER FABRIC (TY 2)	SY	1458



REVISD 06/24/24

6/24/24

NO.	DATE	REVISION	APPROVED

8200 N. MOPAC EXPRESSWAY, STE #280
 AUSTIN, TEXAS 78759
 OMEGAENGINEERS.COM
 TX PE Firm Reg. No. F-2147
 P:512 575 2288 F:281 647 9184

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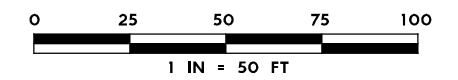
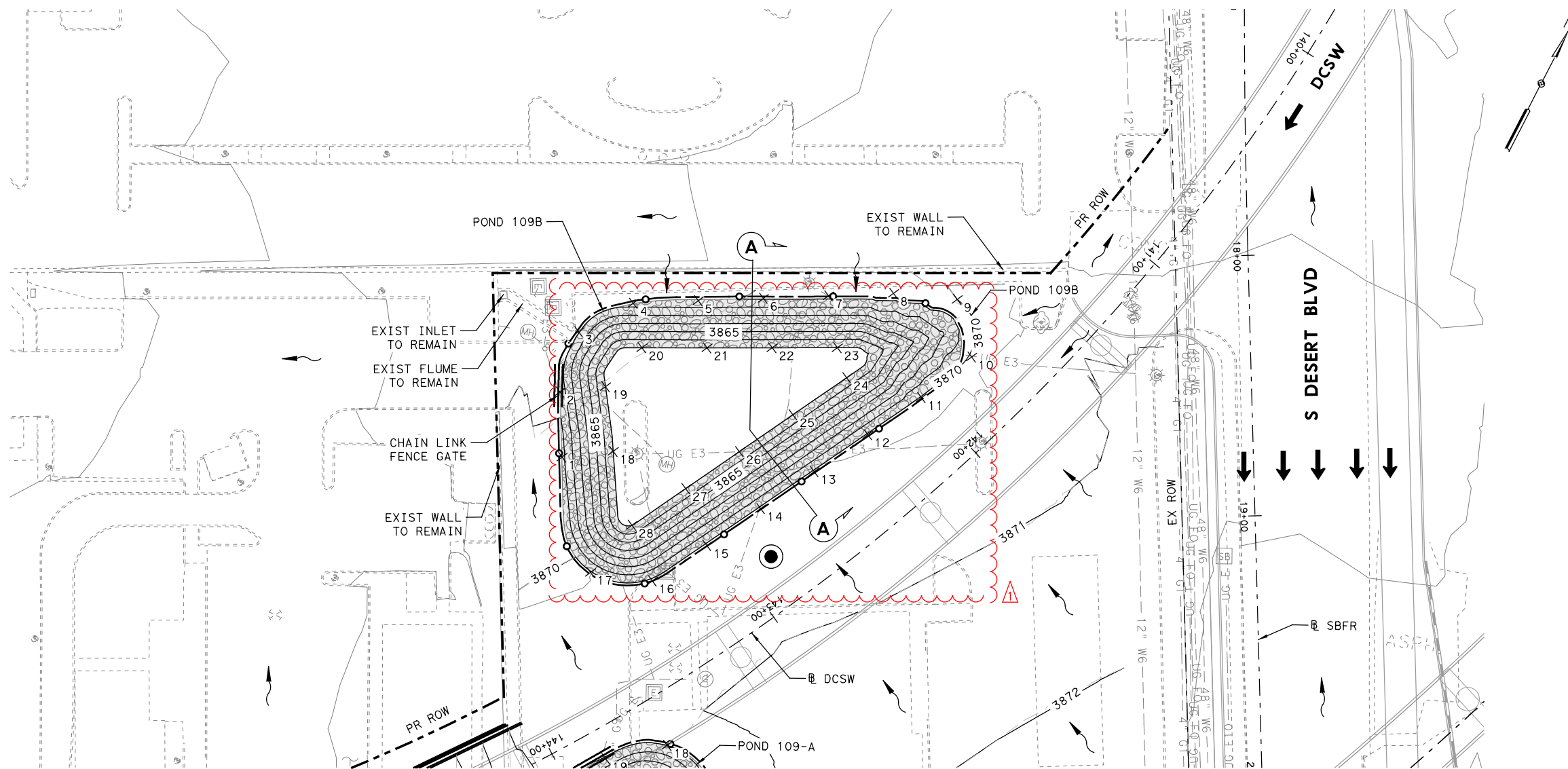
**SH 178 (ARTCRAFT RD)
 POND LAYOUT
 (RETENTION POND 109A)**

SCALE: 1" = 50' - H SHEET 20 OF 24

FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.
6	F 2B24 (273)	SH178, ETC

STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	1054

CONTROL	SECTION	JOB
3592	01	009

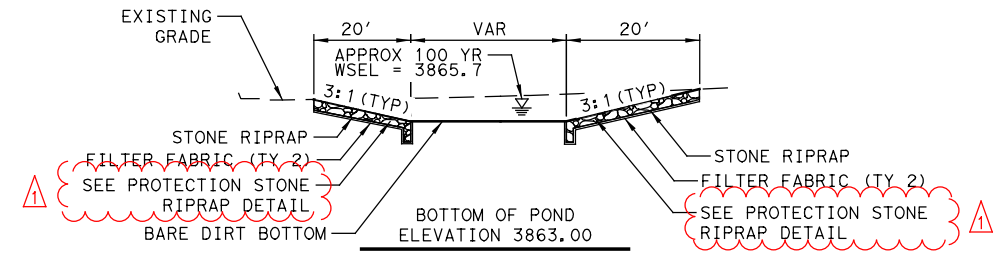


LEGEND

- DIRECTION OF FLOW
- PROP STORMSEWER
- PROP CONTOURS, 1'
- EXIST CONTOURS, 1' (REGRADED PARKING LOT)
- PROP ROW
- EXIST ROW
- PROP EDGE OF PAVEMENT
- EXIST SURVEY
- PROP CHAIN LINK
- PROP CHAIN LINK GATE
- PROP CONCRETE RIPRAP
- PROP STONE RIPRAP WITH FILTER FABRIC

NOTES:

1. CONTRACTOR MUST FIELD VERIFY LOCATION OF ALL EXISTING UTILITIES BEFORE ANY EXCAVATION TAKES PLACE.
2. RETENTION PONDS WERE SIZED TO CAPTURE THE 100-YEAR 24-HOUR DESIGN STORM IN ACCORDANCE WITH THE CITY OF EL PASO DRAINAGE DESIGN MANUAL (JUNE 2008).
3. REFER TO DRAINAGE AREA CALCULATIONS SHEETS FOR HYDROLOGIC DATA USED TO CALCULATE POND INFLOW VOLUME.
4. ATLAS 14 RAINFALL DEPTH OF 4.53 INCHES WAS USED FOR POND CALCULATIONS AND SOURCED FROM THE NOAA PRECIPITATION FREQUENCY DATA SERVER (PFDS) (PARTIAL DURATION SERIES).
5. REFER TO REMOVAL LAYOUT SHEETS FOR ADDITIONAL INFORMATION.



SECTION A-A (N.T.S.)

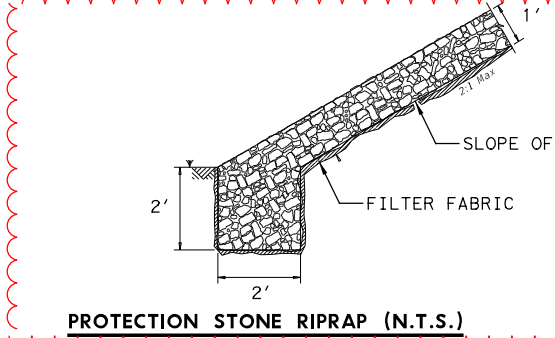
PT	EASTING	NORTHING	ELEV	DESC
1	357509.56	10705844.19	3869.32	Tie-In
2	357505.02	10705868.77	3868.66	Tie-In
3	357508.60	10705892.70	3868.13	Tie-In
4	357527.71	10705906.64	3868.47	Tie-In
5	357552.27	10705911.31	3868.86	Tie-In
6	357576.83	10705915.99	3869.11	Tie-In
7	357601.39	10705920.67	3869.39	Tie-In
8	357625.95	10705925.34	3869.70	Tie-In
9	357650.44	10705926.70	3870.00	Tie-In
10	357659.22	10705905.64	3870.19	Tie-In
11	357642.51	10705887.35	3870.12	Tie-In
12	357624.29	10705870.24	3870.15	Tie-In
13	357606.06	10705853.13	3870.19	Tie-In
14	357587.84	10705836.01	3870.24	Tie-In

PT	EASTING	NORTHING	ELEV	DESC
15	357569.62	10705818.90	3870.28	Tie-In
16	357550.94	10705802.35	3870.31	Tie-In
17	357526.96	10705802.06	3870.11	Tie-In
18	357528.65	10705849.28	3863.00	Bottom
19	357522.02	10705873.38	3863.00	Bottom
20	357533.58	10705890.23	3863.00	Bottom
21	357558.30	10705893.95	3863.00	Bottom
22	357583.01	10705897.71	3863.00	Bottom
23	357607.73	10705901.48	3863.00	Bottom
24	357612.96	10705890.62	3863.00	Bottom
25	357594.73	10705873.51	3863.00	Bottom
26	357576.51	10705856.40	3863.00	Bottom
27	357558.28	10705839.29	3863.00	Bottom
28	357539.96	10705822.30	3863.00	Bottom

POND NO.	INFLOW VOLUME (AC-FT)	PROVIDED VOLUME (AC-FT)
109B	0.32	0.73

ELEVATION (FT)	STORAGE (AC-FT)
3863.0	0.00
3864.0	0.10
3865.0	0.22
3866.0	0.36
3867.0	0.53
3868.0	0.73

ESTIMATED QUANTITIES				
ITEM	CODE	DESCRIPTION	UNIT	QTY
110	6003	EXCAVATION (SPECIAL)	CY	1774
132	6006	EMBANKMENT (FINAL) (DES CONT) (TY C)	CY	1
432	6022	RIPRAP (STONE COMMON) (DRY) (6 IN)	CY	318
550	6001	CHAIN LINK FENCE (INSTALL) (6')	LF	454
550	6012	CHAIN LINK FENCE GATE (INSTALL) (6' X 16')	EA	1
2005	6001	FILTER FABRIC (TY 2)	SY	1017



PROTECTION STONE RIPRAP (N.T.S.)

6/24/24

OMEGA ENGINEERS, INC.
 8200 N. MOPAC EXPRESSWAY, STE #280
 AUSTIN, TEXAS 78759
 OMEGAENGINEERS.COM
 TX PE Firm Reg. No. F-2147
 P: 512 575 2288 F: 281 647 9184

Texas Department of Transportation
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SH 178 (ARTCRAFT RD) POND LAYOUT (RETENTION POND 109B)

SCALE: 1" = 50' - H SHEET 21 OF 24

FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.	
6	F 2B24 (273)	SH178, ETC	
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	1055
CONTROL	SECTION	JOB	
3592	01	009	

VOLUME 3 - CONTINUED

Table with columns SHEETS and DESCRIPTION. Lists sheet numbers (e.g., 1390-1401) and descriptions (e.g., INTERIOR BENT NO. 23 DC IH-10 SB - SH 178 WB).

VOLUME 3 - CONTINUED

Table with columns SHEETS and DESCRIPTION. Lists sheet numbers (e.g., 1554-1593) and descriptions (e.g., FOUNDATION DETAILS TYPE C).

BRIDGE STANDARDS

Table with columns SHEETS and DESCRIPTION. Lists sheet numbers (e.g., 1594-1639) and descriptions (e.g., BD-1 (MOD), SGMD (MOD)).

VOLUME 4

VIII. ILLUMINATION

Table with columns SHEETS and DESCRIPTION. Lists sheet numbers (e.g., 1641-1674) and descriptions (e.g., INDEX OF SHEETS, ILLUMINATION LAYOUTS).

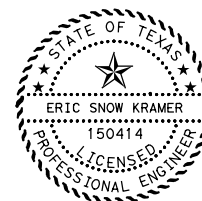
ILLUMINATION STANDARDS

Table with columns SHEETS and DESCRIPTION. Lists sheet numbers (e.g., 1677-1699) and descriptions (e.g., **ED-14, **RID-20).



THE STANDARD SHEETS SPECIFICALLY IDENTIFIED ABOVE HAVE BEEN SELECTED BY ME, OR UNDER MY RESPONSIBLE SUPERVISION, AS BEING APPLICABLE TO THIS PROJECT.

Alicia Licon-Lozano, P.E. 6/24/2024 DATE



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

Eric Snow Kramer, P.E. 6/24/2024 DATE

VOLUME 4 - CONTINUED

Table with columns SHEETS and DESCRIPTION. Lists sheet numbers (e.g., 1700-1820) and descriptions (e.g., PAVEMENT MARKINGS PLAN, SIGNING AND PAVEMENT MARKING).

1820A MONOTUBE CUSTOM FOUNDATION DETAIL

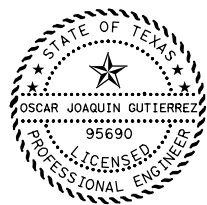
Plot Driver: TXDOT_PDF_BW.plt Date: 6/24/2024 Time: 1:36:14 PM Scale: 1:1

Project information block including HDR Engineering, Inc. logo, Texas Department of Transportation logo, project name (SH 178 ARTCRAFT RD), and sheet index (INDEX OF SHEETS).

ADDED, 06/24/2024

VOLUME 4 - CONTINUED

Table with columns SHEETS and DESCRIPTION. Includes items 1821-1871 under 'SIGNING AND PAVEMENT MARKING STANDARDS' and 'VIII. TRAFFIC SIGNALS'.



THIS SHEET WAS ORIGINALLY SIGNED AND SEALED BY CHRISTOPHER PERET FLORES P.E. #86245 ON 05/21/2024 EMPLOYED BY OMEGA ENGINEERS, INC. FIRM #F-2147

+ + THE STANDARD SHEETS SPECIFICALLY IDENTIFIED ABOVE HAVE BEEN SELECTED BY ME, OR UNDER MY RESPONSIBLE SUPERVISION, AS BEING APPLICABLE TO THIS PROJECT.

Oscar Joaquin Gutierrez signature

OSCAR JOAQUIN GUTIERREZ, P. E. DATE 6/24/2024

Table with items 1849A-1864, including 'D & OM' and 'MC' series.

VIII. TRAFFIC SIGNALS

Table with columns SHEETS and DESCRIPTION. Includes items 1872-1904 under 'TRAFFIC SIGNAL GENERAL NOTES'.

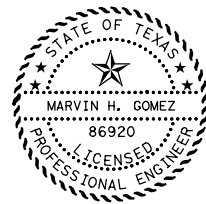
VOLUME 4 - CONTINUED

TRAFFIC SIGNALS STANDARDS

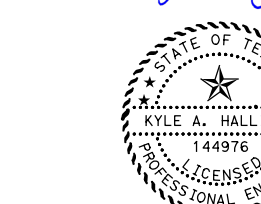
Table with columns SHEETS and DESCRIPTION. Includes items 1907-1930 and 'VIII. ITS'.

ITS STANDARDS

Table with columns SHEETS and DESCRIPTION. Includes items 2003-2034 under 'ITS STANDARDS'.



Marvin H. Gomez signature



Kyle A. Halligan signature

VOLUME 4 - CONTINUED

X. ENVIRONMENTAL ISSUES

Table with columns SHEETS and DESCRIPTION. Includes items 2035-2114 under 'ENVIRONMENTAL ISSUES'.

ENVIRONMENTAL STANDARDS

Table with columns SHEETS and DESCRIPTION. Includes items 2116-2119 under 'ENVIRONMENTAL STANDARDS'.

XI. MISCELLANEOUS ITEMS

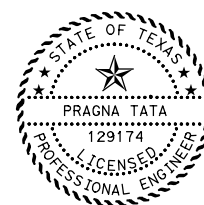
Table with columns SHEETS and DESCRIPTION. Includes items 2122-2159 under 'MISCELLANEOUS ITEMS'.

RAILROAD STANDARDS

Table with columns SHEETS and DESCRIPTION. Includes items 2160-2161 under 'RAILROAD STANDARDS'.



Preston K. Chan signature



Pragna T. Pragna signature

ADDED, 06/24/2024

REVISED, 06/24/2024

Revision table with columns NO., DATE, CHANGED STANDARDS, REVISION, APPROVED.

HDR Engineering, Inc. Firm Registration No. F-754, 17111 Preston Road, Suite 300, Dallas, Texas 75248, 972.960.4400

Texas Department of Transportation © 2024

SH 178 (ARTCRAFT RD)

INDEX OF SHEETS

Table with columns FED. RD. DIV. NO., FEDERAL-AID PROJECT NO., HIGHWAY NO., STATE, DISTRICT, COUNTY, SHEET NO., CONTROL, SECTION, JOB.

VOLUME 3 - CONTINUED

Table with columns SHEETS and DESCRIPTION. Lists sheet numbers (e.g., 1390-1391) and descriptions (e.g., INTERIOR BENT NO. 23 DC IH-10 SB - SH 178 WB).

VOLUME 3 - CONTINUED

Table with columns SHEETS and DESCRIPTION. Lists sheet numbers (e.g., 1554-1555) and descriptions (e.g., FOUNDATION DETAILS TYPE C).

BRIDGE STANDARDS

Table with columns SHEETS and DESCRIPTION. Lists sheet numbers (e.g., 1594-1597) and descriptions (e.g., BD-1 (MOD), SGMD (MOD)).

VOLUME 4

VIII. ILLUMINATION

Table with columns SHEETS and DESCRIPTION. Lists sheet numbers (e.g., 1641-1645) and descriptions (e.g., INDEX OF SHEETS, ILLUMINATION LAYOUTS).

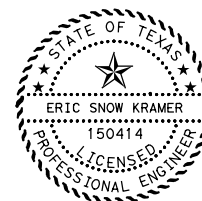
ILLUMINATION STANDARDS

Table with columns SHEETS and DESCRIPTION. Lists sheet numbers (e.g., 1677-1699) and descriptions (e.g., **ED-14, **RID-20).



THE STANDARD SHEETS SPECIFICALLY IDENTIFIED ABOVE HAVE BEEN SELECTED BY ME, OR UNDER MY RESPONSIBLE SUPERVISION, AS BEING APPLICABLE TO THIS PROJECT.

Alicia Licon-Lozano, P.E. 6/24/2024 DATE



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

Eric Snow Kramer, P.E. 6/24/2024 DATE

VOLUME 4 - CONTINUED

Table with columns SHEETS and DESCRIPTION. Lists sheet numbers (e.g., 1700-1714) and descriptions (e.g., PAVEMENT MARKINGS PLAN - SH 178 (ARTCRAFT RD)).

1820A MONOTUBE CUSTOM FOUNDATION DETAIL

Revision table with columns NO., DATE, REVISION, APPROVED.



SH 178 (ARTCRAFT RD) INDEX OF SHEETS

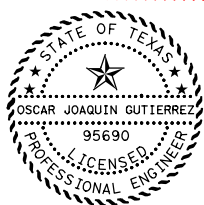
SCALE: N.T.S. SHEET 4 OF 5

Table with columns FED. RD. DIV. NO., FEDERAL-AID PROJECT NO., HIGHWAY NO., STATE, DISTRICT, COUNTY, SHEET NO., CONTROL, SECTION, JOB.

ADDED, 06/24/2024

VOLUME 4 - CONTINUED

Table with columns SHEETS and DESCRIPTION. Includes items like 1821 ++ D & OM(3)-20, 1822 ++ PM(1)-22, 1823 ++ PM(2)-22, etc.



THIS SHEET WAS ORIGINALLY SIGNED AND SEALED BY CHRISTOPHER PERET FLORES P.E. #86245 ON 05/21/2024 EMPLOYED BY OMEGA ENGINEERS, INC. FIRM #F-2147

++ THE STANDARD SHEETS SPECIFICALLY IDENTIFIED ABOVE HAVE BEEN SELECTED BY ME, OR UNDER MY RESPONSIBLE SUPERVISION, AS BEING APPLICABLE TO THIS PROJECT.

Oscar Joaquin Gutierrez signature

OSCAR JOAQUIN GUTIERREZ, P.E. DATE 6/24/2024

1849A ++ D & OM(1)-20

Table with columns SHEETS and DESCRIPTION. Includes items like 1850 ++ D & OM(2)-20, 1851 MC(1)-22 (MOD), 1852 MC(2)-22 (MOD), etc.

VIII. TRAFFIC SIGNALS

Table with columns SHEETS and DESCRIPTION. Includes items like 1872 TRAFFIC SIGNAL GENERAL NOTES, 1873 EXISTING SIGNAL LAYOUT ARTCRAFT RD & WESTSIDE DR, etc.

VOLUME 4 - CONTINUED

TRAFFIC SIGNALS STANDARDS

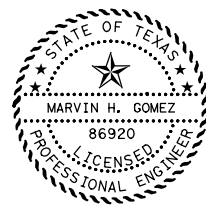
Table with columns SHEETS and DESCRIPTION. Includes items like 1907 <-> TS-FD-12, 1908 <-> SMA-80(1)-12, 1909 <-> SMA-80(2)-12, etc.

VIII. ITS

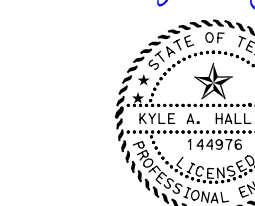
Table with columns SHEETS and DESCRIPTION. Includes items like 1930 SH 178 (ARTCRAFT RD) ITS KEY MAP, 1931 I-10 ITS KEY MAP, 1932 - 1947 ITS LAYOUT - SH 178 (ARTCRAFT RD), etc.

ITS STANDARDS

Table with columns SHEETS and DESCRIPTION. Includes items like 2003 <*> DMS(TM-1)-16, 2004 <*> DMS(TM-2)-16, 2005 <*> DMS(TM-3)-16, etc.



Marvin H. Gomez signature



Kyle A. Halligan signature

VOLUME 4 - CONTINUED

X. ENVIRONMENTAL ISSUES

Table with columns SHEETS and DESCRIPTION. Includes items like 2035 SWP3 PHASE LAYOUT, 2036 EPIC SHEET, 2037 - 2044 SWP3 PLAN PHASE 1 STAGE 1 - SH 178 (ARTCRAFT RD), etc.

ENVIRONMENTAL STANDARDS

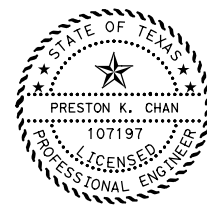
Table with columns SHEETS and DESCRIPTION. Includes items like 2116 <*> EC(1)-16, 2117 <*> EC(2)-16, 2118 <*> EC(3)-16, 2119 - 2121 <*> EC(9)-16

XI. MISCELLANEOUS ITEMS

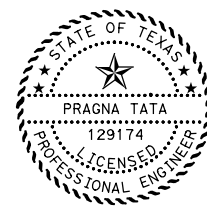
Table with columns SHEETS and DESCRIPTION. Includes items like 2122 WATER MAIN RELOCATION - VICINITY MAP, 2123 - 2125 WATER MAIN RELOCATION - GENERAL NOTES, 2126 - 2128 WATER MAIN RELOCATION - CONSTRUCTION NOTES, etc.

RAILROAD STANDARDS

Table with columns SHEETS and DESCRIPTION. Includes items like 2160 + RCD(1)-22, 2161 + RCD(2)-22



Preston K. Chan signature



Pragna T. Pragna signature

1 ADDED, 06/24/2024

1 REVISED, 06/24/2024

Revision table with columns NO., DATE, REPLACED STANDARDS REVISION, APPROVED

HDR Engineering, Inc. Firm Registration No. F-754, 17111 Preston Road, Suite 300, Dallas, Texas 75248, 972.960.4400

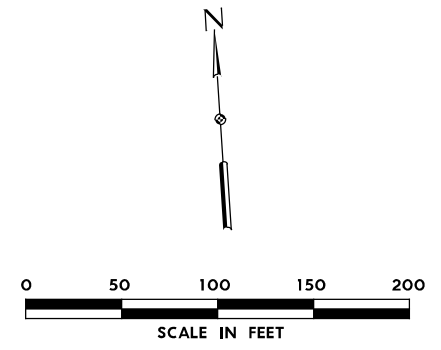
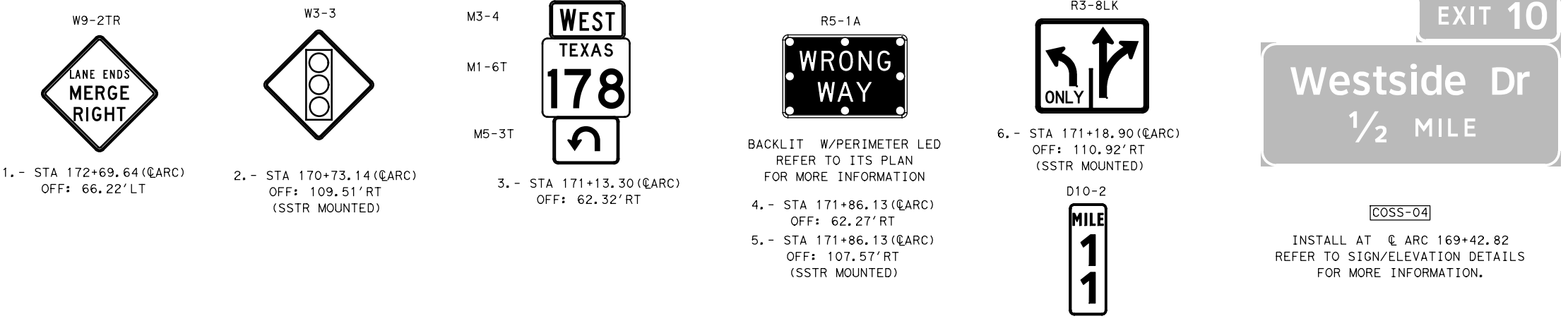
Texas Department of Transportation © 2024

SH 178 (ARTCRAFT RD)

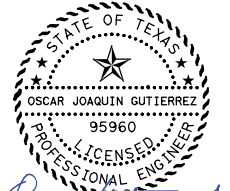
INDEX OF SHEETS

Scale and sheet information table. Includes SCALE: N.T.S., SHEET 5 OF 5, FED. RD. DIV. NO., FEDERAL-AID PROJECT NO., HIGHWAY NO., STATE, DISTRICT, COUNTY, SHEET NO., CONTROL, SECTION, JOB, and SHEET NO. 1645.

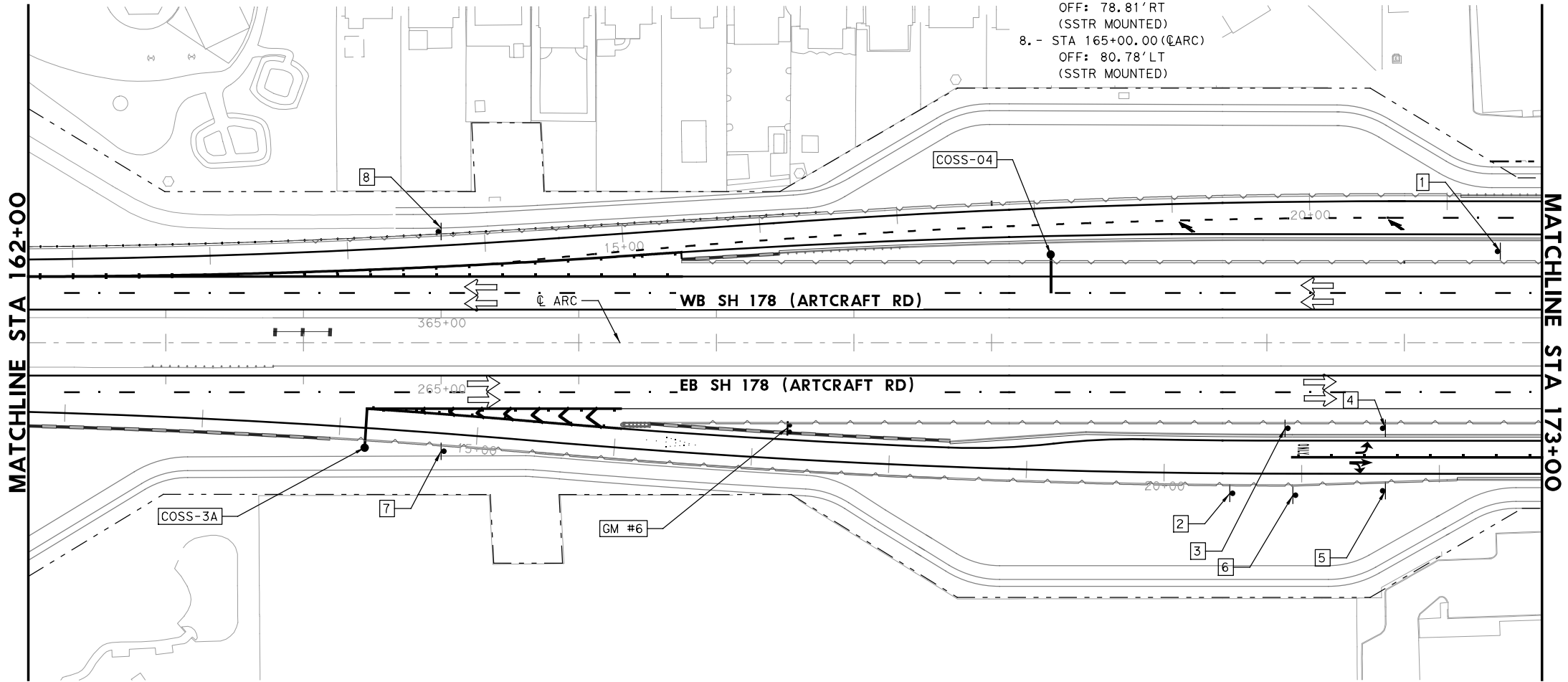
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 DATE: 6/25/2024
 TIME: 5:45:07 PM
 SCALE: 1/8"=1'-0"
 FILE: p:\v\p\tr\uscen\04\HDR_US_Central_ON\Documents\TXDOT_EI_Paso_District\SH_178_-_Artcraft_Rd_-_PS_ET\DOT_Artcraft_Rd_PS_ET\DOT_Artcraft_Rd_PS_ET\WIP\6.2.2.2_Contract_Files\Sheet_Files\Signing\Omega\SH178-ST_Signing\SH178-ST_Signing\SH178-ST_Signing - Artcraft.Rd



- LEGEND**
- ▣ PROP SMALL SIGN
 - ⊕ EXIST SIGN TO REMAIN
 - PROP CANTILEVER OVERHEAD SIGN
 - PROP OVERHEAD SIGN BRIDGE
 - GROUND MOUNTED LARGE SIGN
 - * SIGN PREVIOUSLY CONSTRUCTED ON CSJ 2121-01-094 (110-WIDENING PROJECT)



REVISOR: Oscar Gutierrez
 1 REVISED 06/26/2024



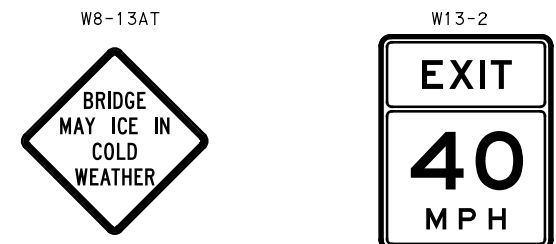
- NOTES:**
- SIGN LOCATION SHOWN ARE APPROXIMATE. COORDINATE FINAL LOCATION WITH THE AREA ENGINEER.
 - REFER TO SUMMARY OF SMALL/LARGE SIGNS FOR ADDITIONAL INFORMATION.
 - REFER TO STANDARD HIGHWAY SIGN DESIGN FOR TEXAS (SHSD) FOR ADDITIONAL INFORMATION.
 - REFER TO TXDOT STATEWIDE STANDARDS FOR ADDITIONAL DETAILS.
 - REFER TO MUTCD SECTION 2A.21 (POST AND MOUNTINGS) FOR WRONG WAY AND DO NOT ENTER SIGNS ADDITIONAL INFORMATION.

ITEM	CODE	DESCRIPTION	UNIT	QTY
416	6006	DRILL SHAFT (48 IN)	LF	77
416	6015	DRILL SHAFT (NON REINFORCED) (12 IN)	LF	12
636	6002	ALUMINUM SIGNS (TY G)	SF	37.5
636	6003	ALUMINUM SIGNS (TY O)	SF	226
644	6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	1
644	6027	IN SM RD SN SUP&AM TYS80(1)SA(P)	EA	1
644	6082	IN SRSS & AM (RAIL) (90 MPH) (P MOUNT)	EA	3
644	6084	IN SRSS & AM (RAIL) (90 MPH) (T MOUNT)	EA	1
647	6001	INSTALL LRSS (STRUCT STEEL)	LB	325
650	6040	INS OH SN SUP(35 FT CANT) (CIRC TUBE)	EA	2
6489	6002	BACKLIT W/PERIMETER LED RDSN SGN	EA	2



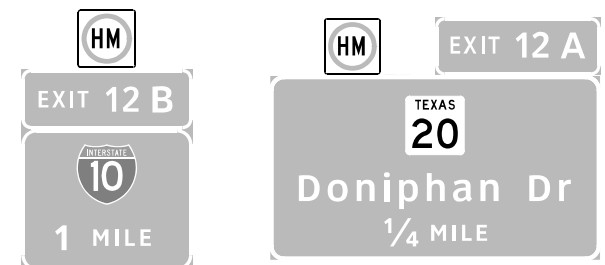
COSS-3A
 INSTALL AT C ARC 164+46.26
 REFER TO SIGN/ELEVATION DETAILS
 FOR MORE INFORMATION.
GM #6
 INSTALL AT C ARC 167+51.75
 REFER TO SIGN/ELEVATION DETAILS
 FOR MORE INFORMATION.

NO.	DATE	REVISION	APPROVED
OMEGA ENGINEERS, INC. 8200 N. MOPAC EXPRESSWAY, STE #280 AUSTIN, TEXAS 78759 OMEGAENGINEERS.COM TX PE Firm Reg. No. F-2147 P: 512.575.2288 F: 281.647.9184			
Texas Department of Transportation © 2024			
SH 178 (ARTCRAFT RD) SIGNING PLAN STA 162+00 TO STA 173+00			
SCALE: 1"=100'		SHEET 6 OF 24	
FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.	
6	F 2B24 (273)	SH178, ETC	
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	1735
CONTROL	SECTION	JOB	
3592	01	009	

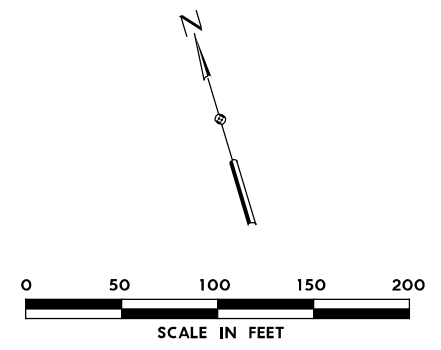


1. - STA 196+29.81 (C ARC)
 OFF: 64.80' LT
 (SSTR MOUNTED)

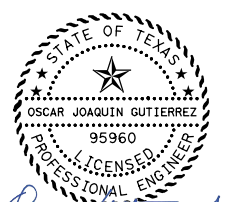
2. - STA 207+94.12 (C ARC)
 OFF: 77.50' RT
 REPLACE SIGN ONLY
 (SSTR MOUNTED)



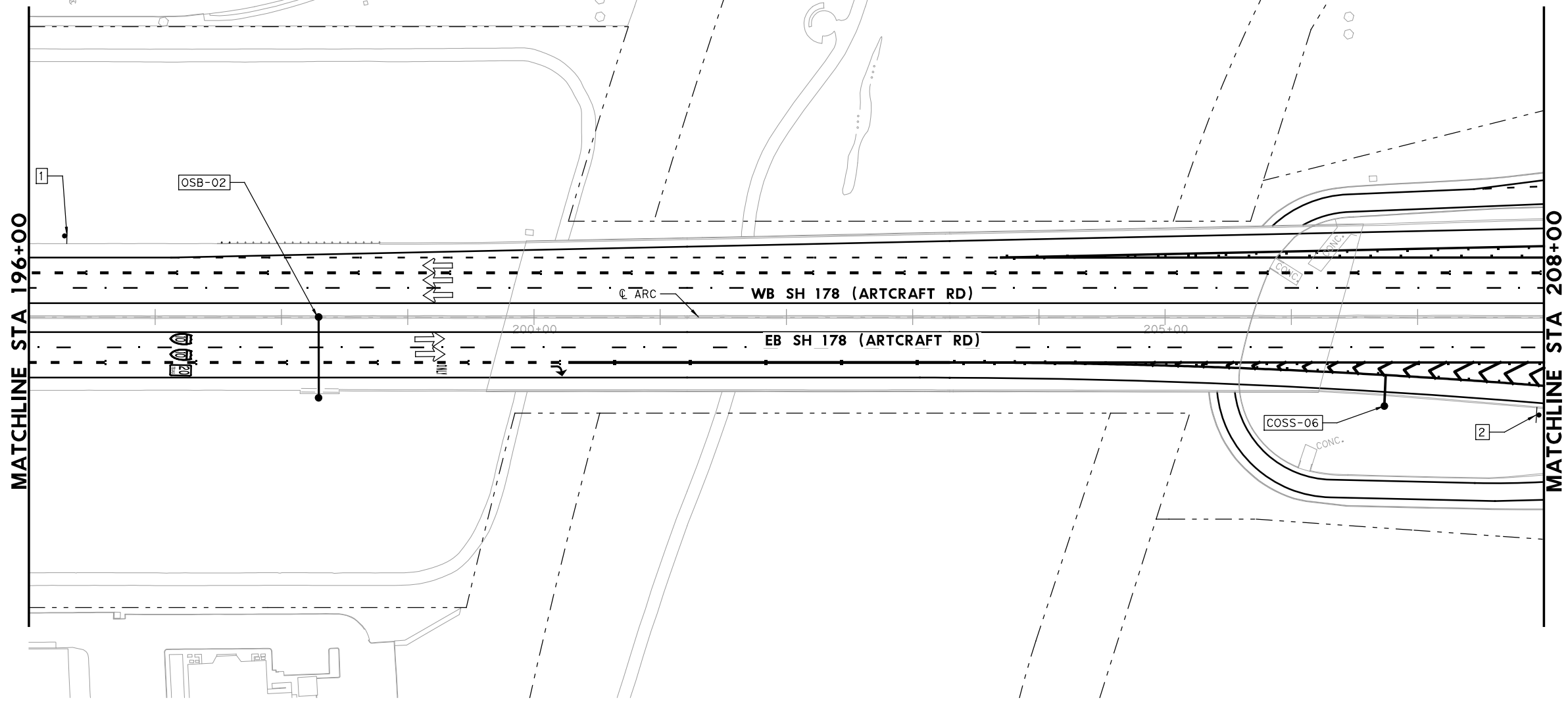
OSB-02
 INSTALL AT C ARC 198+29.46
 REFER TO SIGN/ELEVATION DETAILS
 FOR MORE INFORMATION.



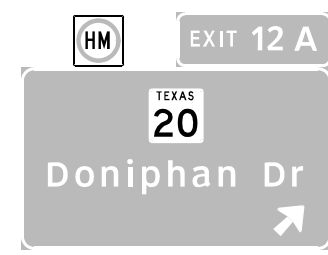
- LEGEND**
- # PROP SMALL SIGN
 - ⊕ EXIST SIGN TO REMAIN
 - PROP CANTILEVER OVERHEAD SIGN
 - PROP OVERHEAD SIGN BRIDGE
 - GROUND MOUNTED LARGE SIGN
 - * SIGN PREVIOUSLY CONSTRUCTED ON CSJ 2121-01-094 (110-WIDENING PROJECT)



REVISOR: Oscar Gutierrez
 REVISED 06/26/2024



- NOTES:**
- SIGN LOCATION SHOWN ARE APPROXIMATE. COORDINATE FINAL LOCATION WITH THE AREA ENGINEER.
 - REFER TO SUMMARY OF SMALL/LARGE SIGNS FOR ADDITIONAL INFORMATION.
 - REFER TO STANDARD HIGHWAY SIGN DESIGN FOR TEXAS (SHSD) FOR ADDITIONAL INFORMATION.
 - REFER TO TXDOT STATEWIDE STANDARDS FOR ADDITIONAL DETAILS.
 - REFER TO MUTCD SECTION 2A.21 (POST AND MOUNTINGS) FOR WRONG WAY AND DO NOT ENTER SIGNS ADDITIONAL INFORMATION.



COSS-06
 INSTALL AT C ARC 206+74.90
 REFER TO SIGN/ELEVATION DETAILS
 FOR MORE INFORMATION.
 MOUNTED ON EXISTING STRUCTURE

ITEM	CODE	DESCRIPTION	UNIT	QTY
416	6006	DRILL SHAFT (48 IN)	LF	84
636	6003	ALUMINUM SIGNS (TY O)	SF	460
644	6067	IN SM RD SN SUP&AM (INST SIGN ONLY)	EA	1
644	6084	IN SRSS & AM (RAIL) (90 MPH) (T MOUNT)	EA	1
650	6075	INS OH SN SUP (65 FT BRDG) (CIRC TUBE)	EA	1

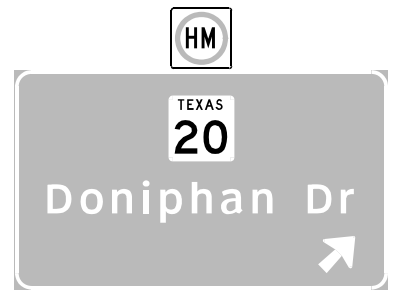
NO.	DATE	REVISION	APPROVED
 8200 N. MOPAC EXPRESSWAY, STE #280 AUSTIN, TEXAS 78759 OMEGAENGINEERS.COM TX PE Firm Reg. No. F-2147 P: 512.575.2288 F: 281.647.9184			
 © 2024			
SH 178 (ARTCRAFT RD) SIGNING PLAN STA 196+00 TO STA 208+00			
SCALE: 1"=100'		SHEET 9 OF 24	
FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.	
6	F 2B24 (273)	SH 178, ETC	
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	1738
CONTROL	SECTION	JOB	
3592	01	009	

FINAL PLANS SUBMITTAL
 PLOT DRIVER: TXDOT_PDF_BW.plt
 USER: malmada
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COSS-09

INSTALL AT @ 237+92.52
REFER TO SIGN/ELEVATION DETAILS FOR MORE INFORMATION.



COSS-9A

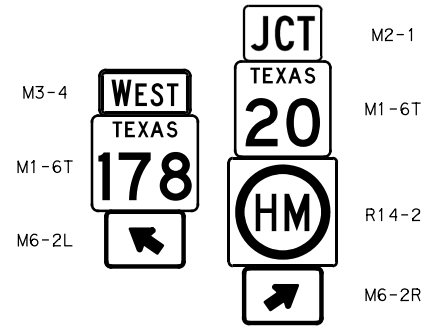
INSTALL AT @ 237+92.52
REFER TO SIGN/ELEVATION DETAILS FOR MORE INFORMATION.



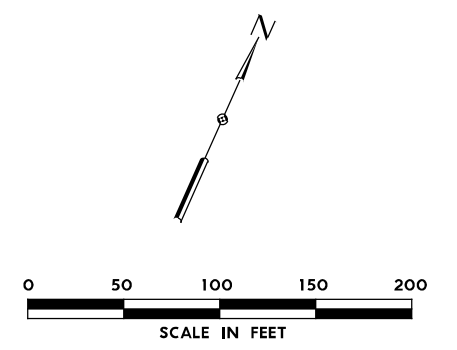
1. - EXISTING SIGN TO REMAIN (SSTR MOUNTED)



2. - STA 234+97.33 (C ARC) OFF: 58.44' LT (SSTR MOUNTED)

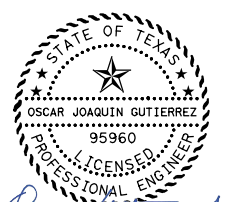


3. - STA 238+14.55 (C ARC) OFF: 64.96' LT

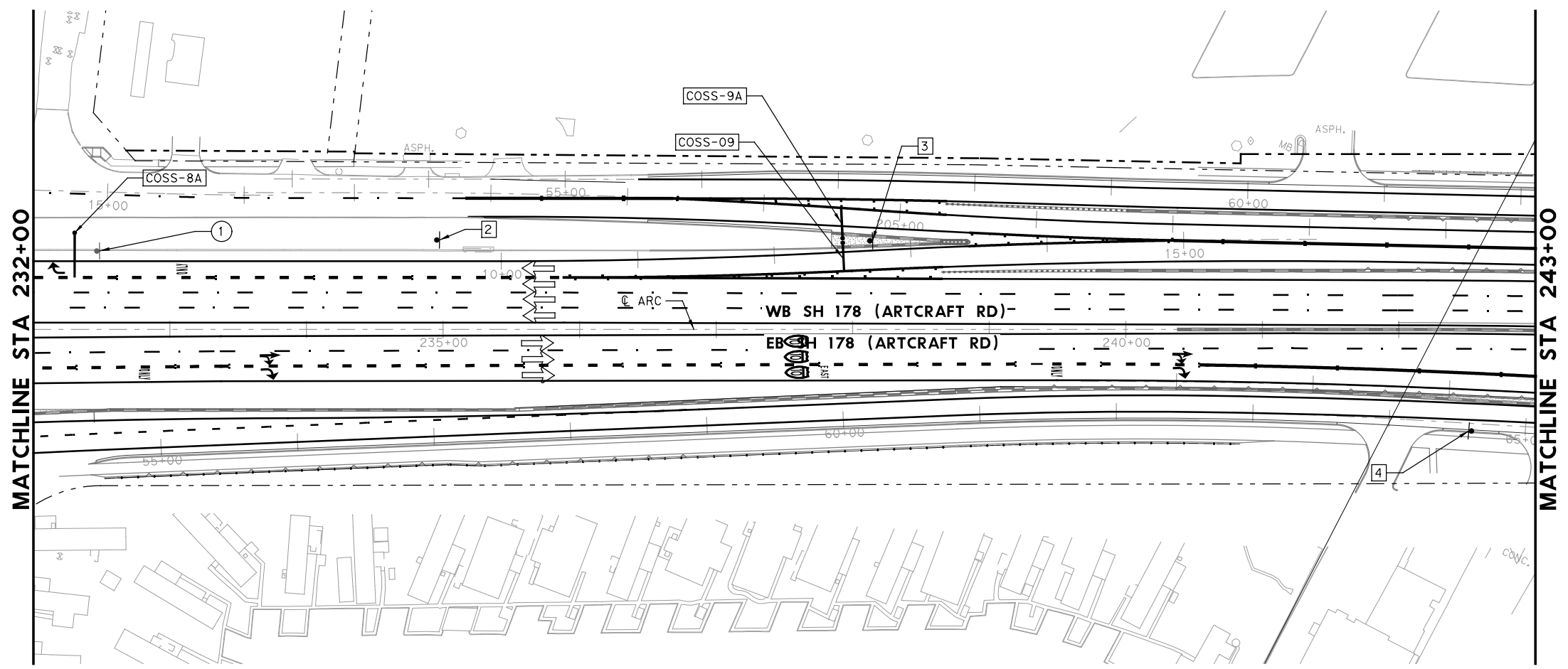


LEGEND

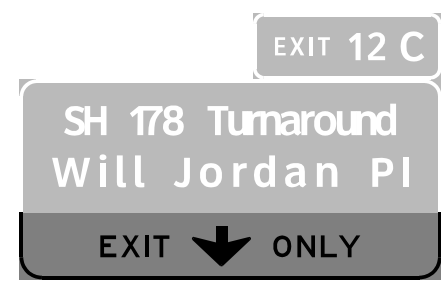
- ⊠ PROP SMALL SIGN
- ⊕ EXIST SIGN TO REMAIN
- PROP CANTILEVER OVERHEAD SIGN
- PROP OVERHEAD SIGN BRIDGE
- GROUND MOUNTED LARGE SIGN
- * SIGN PREVIOUSLY CONSTRUCTED ON CSJ 2121-01-094 (110-WIDENING PROJECT)



REVISOR: Oscar Gutierrez
REVISION: 1 REVISED 06/26/2024



- NOTES:**
- SIGN LOCATION SHOWN ARE APPROXIMATE. COORDINATE FINAL LOCATION WITH THE AREA ENGINEER.
 - REFER TO SUMMARY OF SMALL/LARGE SIGNS FOR ADDITIONAL INFORMATION.
 - REFER TO STANDARD HIGHWAY SIGN DESIGN FOR TEXAS (SHSD) FOR ADDITIONAL INFORMATION.
 - REFER TO TXDOT STATEWIDE STANDARDS FOR ADDITIONAL DETAILS.
 - REFER TO MUTCD SECTION 2A.21 (POST AND MOUNTINGS) FOR WRONG WAY AND DO NOT ENTER SIGNS ADDITIONAL INFORMATION.



COSS-8A

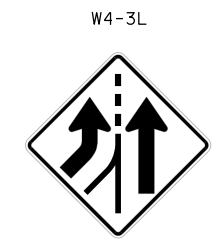
INSTALL AT @ 232+30.00
REFER TO SIGN/ELEVATION DETAILS FOR MORE INFORMATION.



4. - STA 242+53.13 (C ARC) OFF: 72.45' RT

ITEM	CODE	DESCRIPTION	UNIT	QTY
416	6006	DRILL SHAFT (48 IN)	LF	87
636	6003	ALUMINUM SIGNS (TY O)	SF	594.25
644	6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	1
644	6034	IN SM RD SN SUP&AM TYS80(1)SA(U-1EXT)	EA	1
644	6084	IN SRSS & AM (RAIL) (90 MPH) (T MOUNT)	EA	1
650	6030	INS OH SN SUP (30 FT CANT) (CIRC TUBE)	EA	3

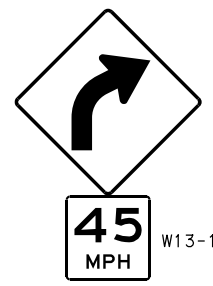
NO.	DATE	REVISION	APPROVED
8200 N. MOPAC EXPRESSWAY, STE #280 AUSTIN, TEXAS 78759 OMEGAENGINEERS.COM TX PE Firm Reg. No. F-2147 P: 512.575.2288 F: 281.647.9184			
SH 178 (ARTCRAFT RD) SIGNING PLAN STA 232+00 TO STA 243+00			
SCALE: 1"=100'		SHEET 12 OF 24	
FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.	
6	F 2B24 (273)	SH178, ETC	
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	1741
CONTROL	SECTION	JOB	
3592	01	009	



1. - STA 243+79.26 (C ARC)
 OFF: 78.59' LT
 (SSTR MOUNTED)



2. - STA 253+80.88 (C ARC)
 OFF: 59.95' RT
 (SSTR MOUNTED)



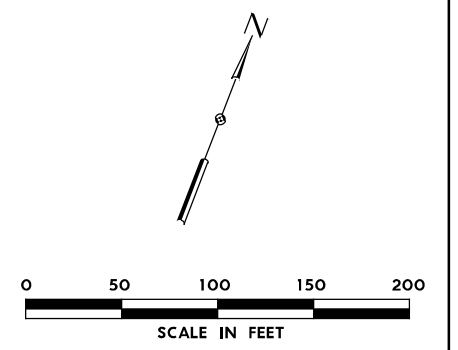
3. - STA 254+65.71 (C ARC)
 OFF: 119.21' RT
 (SSTR MOUNTED)



4. - STA 244+91.84 (C ARC)
 OFF: 87.46' RT

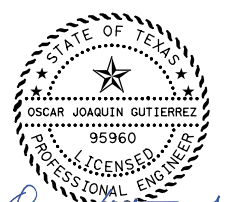


OSB-05
 INSTALL AT @ 244+90.00
 REFER TO SIGN/ELEVATION DETAILS
 FOR MORE INFORMATION.

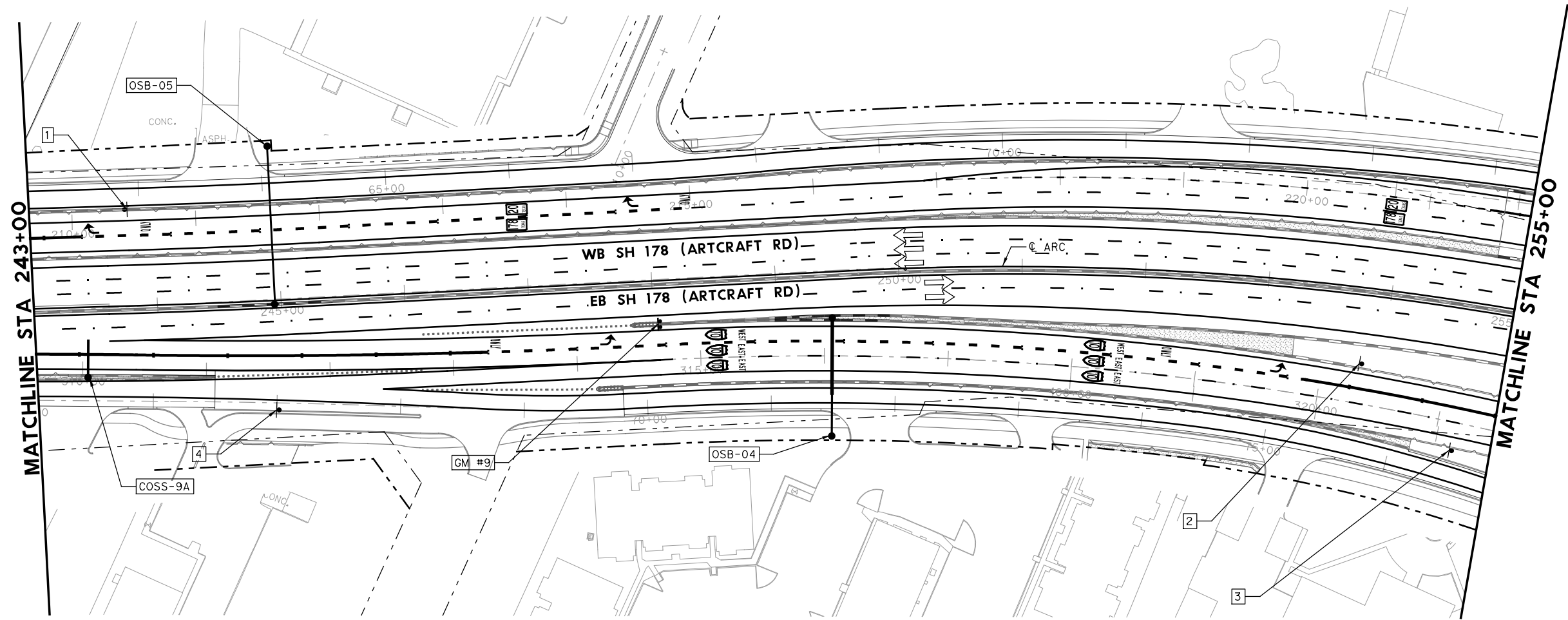


LEGEND

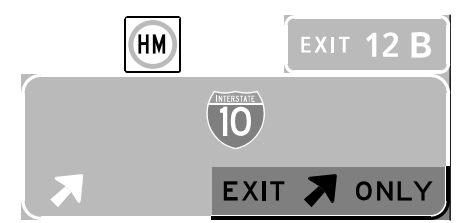
- ⊠ PROP SMALL SIGN
- ⊕ EXIST SIGN TO REMAIN
- PROP CANTILEVER OVERHEAD SIGN
- PROP OVERHEAD SIGN BRIDGE
- GROUND MOUNTED LARGE SIGN
- * SIGN PREVIOUSLY CONSTRUCTED ON CSJ 2121-01-094 (110-WIDENING PROJECT)



REVISOR: Oscar Gutierrez
 REVISION: 06/26/2024



- NOTES:
- SIGN LOCATION SHOWN ARE APPROXIMATE. COORDINATE FINAL LOCATION WITH THE AREA ENGINEER.
 - REFER TO SUMMARY OF SMALL/LARGE SIGNS FOR ADDITIONAL INFORMATION.
 - REFER TO STANDARD HIGHWAY SIGN DESIGN FOR TEXAS (SHSD) FOR ADDITIONAL INFORMATION.
 - REFER TO TXDOT STATEWIDE STANDARDS FOR ADDITIONAL DETAILS.
 - REFER TO MUTCD SECTION 2A.21 (POST AND MOUNTINGS) FOR WRONG WAY AND DO NOT ENTER SIGNS ADDITIONAL INFORMATION.



COSS-9B
 INSTALL AT @ 243+42.35
 REFER TO SIGN/ELEVATION DETAILS
 FOR MORE INFORMATION.



GM #9
 INSTALL AT @ 248+03.54
 REFER TO SIGN/ELEVATION DETAILS
 FOR MORE INFORMATION.

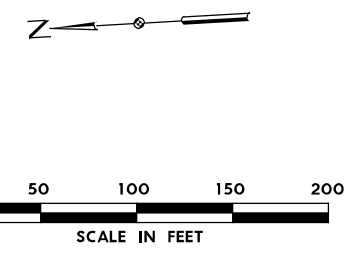
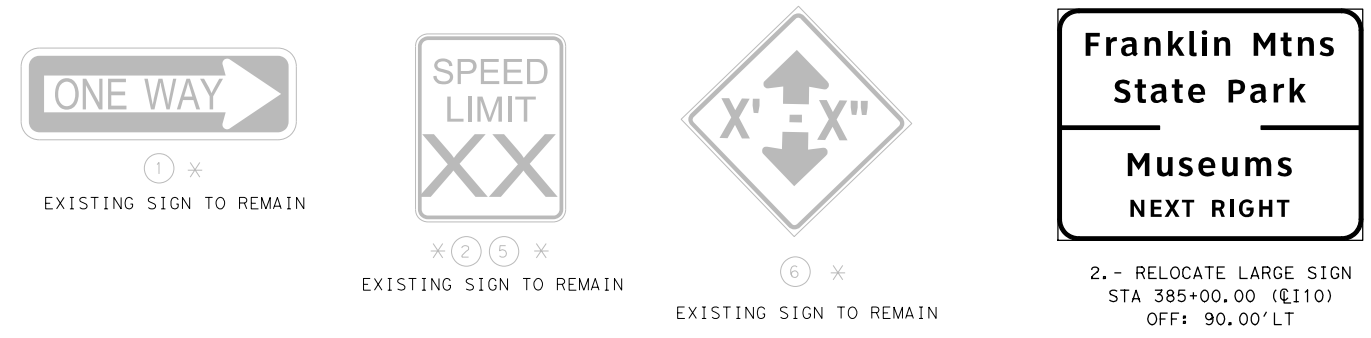


OSB-04
 INSTALL AT @ 249+45.17
 REFER TO SIGN/ELEVATION DETAILS
 FOR MORE INFORMATION.

ITEM	CODE	DESCRIPTION	UNIT	QTY
416	6006	DRILL SHAFT (48 IN)	LF	199
416	6015	DRILL SHAFT (NON REINFORCED) (12 IN)	LF	12
636	6002	ALUMINUM SIGNS (TY G)	SF	37.5
636	6003	ALUMINUM SIGNS (TY O)	SF	1081.25
644	6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	1
644	6084	IN SRSS & AM (RAIL) (90 MPH) (T MOUNT)	EA	3
647	6001	INSTALL LRSS (STRUCT STEEL)	LB	256
650	6040	INS OH SN SUP (35 FT CANT) (CIRC TUBE)	EA	1
650	6100	INS OH SM SUP (90 FT BRDG) (CIRC TUBE)	EA	1
650	6135	INS OH SN SUP (125 FT BRDG) (CIRC TUBE)	EA	1

NO.	DATE	REVISION	APPROVED
8200 N. MOPAC EXPRESSWAY, STE #280 AUSTIN, TEXAS 78759 OMEGAENGINEERS.COM TX PE Firm Reg. No. F-2147 P:512 575 2288 F:281 647 9184			
SH 178 (ARTCRAFT RD) SIGNING PLAN STA 243+00 TO STA 255+00			
SCALE: 1"=100'		SHEET 13 OF 24	
FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.	
6	F 2B24 (273)	SH178, ETC	
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	1742
CONTROL	SECTION	JOB	
3592	01	009	

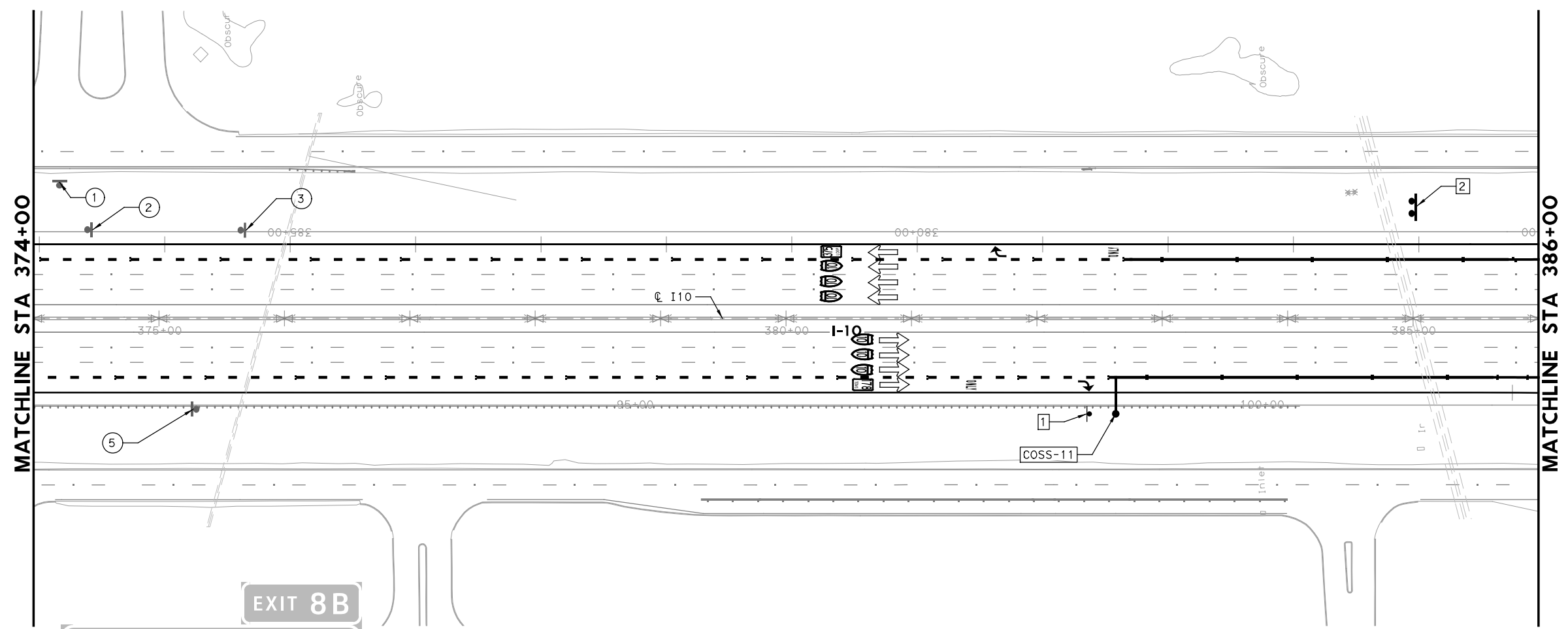
FINAL PLANS SUBMITTAL
 PLOT DRIVER: TXDOT_PDF_BW.pltcfgr
 USER: malmada DATE: 6/25/2024 TIME: 5:45:46 PM SCALE: 1/80
 FILE: p:\p\h\tr\uscer\h\DR_US_Central_ON\Documents\TXDOT_EI_Paso_District\SH_178_-_Arctcraft_Rd_PS_ET\DOT_Arctcraft_Rd_PS_E_WAG.0_CAD_BIM\6.2.2_WIP\6.2.2_Contract_Files\Sheet_Files\Signing\Omega\Omega\Omega\SH178_Signing\Omega\Omega\Omega\SH178_Signing\Omega\Omega\Omega\SH178_Signing\Omega\Omega\Omega\SH178_Signing - I-10



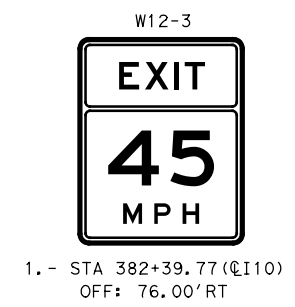
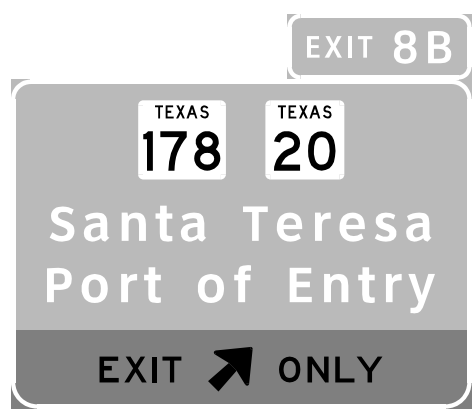
- LEGEND**
- PROP SMALL SIGN
 - ⊕ EXIST SIGN TO REMAIN
 - PROP CANTILEVER OVERHEAD SIGN
 - PROP OVERHEAD SIGN BRIDGE
 - GROUND MOUNTED LARGE SIGN
 - * SIGN PREVIOUSLY CONSTRUCTED ON CSJ 2121-01-094 (I10-WIDENING PROJECT)



REVISOR: Oscar Gutierrez
 1. REVISED 06/26/2024



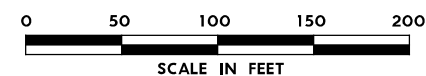
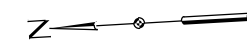
- NOTES:**
- SIGN LOCATION SHOWN ARE APPROXIMATE. COORDINATE FINAL LOCATION WITH THE AREA ENGINEER.
 - REFER TO SUMMARY OF SMALL/LARGE SIGNS FOR ADDITIONAL INFORMATION.
 - REFER TO STANDARD HIGHWAY SIGN DESIGN FOR TEXAS (SHSD) FOR ADDITIONAL INFORMATION.
 - REFER TO TXDOT STATEWIDE STANDARDS FOR ADDITIONAL DETAILS.
 - REFER TO MUTCD SECTION 2A.21 (POST AND MOUNTINGS) FOR WRONG WAY AND DO NOT ENTER SIGNS ADDITIONAL INFORMATION.



ITEM	CODE	DESCRIPTION	UNIT	QTY
416	6006	DRILL SHAFT (48 IN)	LF	28
636	6003	ALUMINUM SIGNS (TY 0)	SF	236.25
644	6030	IN SM RD SN SUP&AM TYS80(1) SA(T)	EA	1
647	6002	RELOCATE LRSA	EA	1
650	6040	INS OH SN SUP(35 FT CANT) (CIRC TUBE)	EA	1

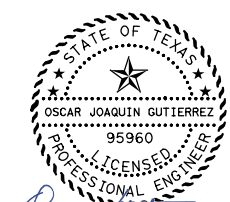
COSS-11
 INSTALL AT Q 110 382+62.92
 REFER TO SIGN/ELEVATION DETAILS FOR MORE INFORMATION.

NO.	DATE	REVISION	APPROVED
 8200 N. MOPAC EXPRESSWAY, STE #280 AUSTIN, TEXAS 78759 OMEGAENGINEERS.COM TX PE Firm Reg. No. F-2147 P: 512.575.2288 F: 281.647.9184			
 © 2024			
I-10 SIGNING PLAN STA 374+00 TO STA 386+00			
SCALE: 1"=100'		SHEET 17 OF 24	
FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.	
6	F 2B24 (273)	SH178, ETC	
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	1746
CONTROL	SECTION	JOB	
3592	01	009	



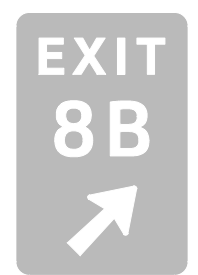
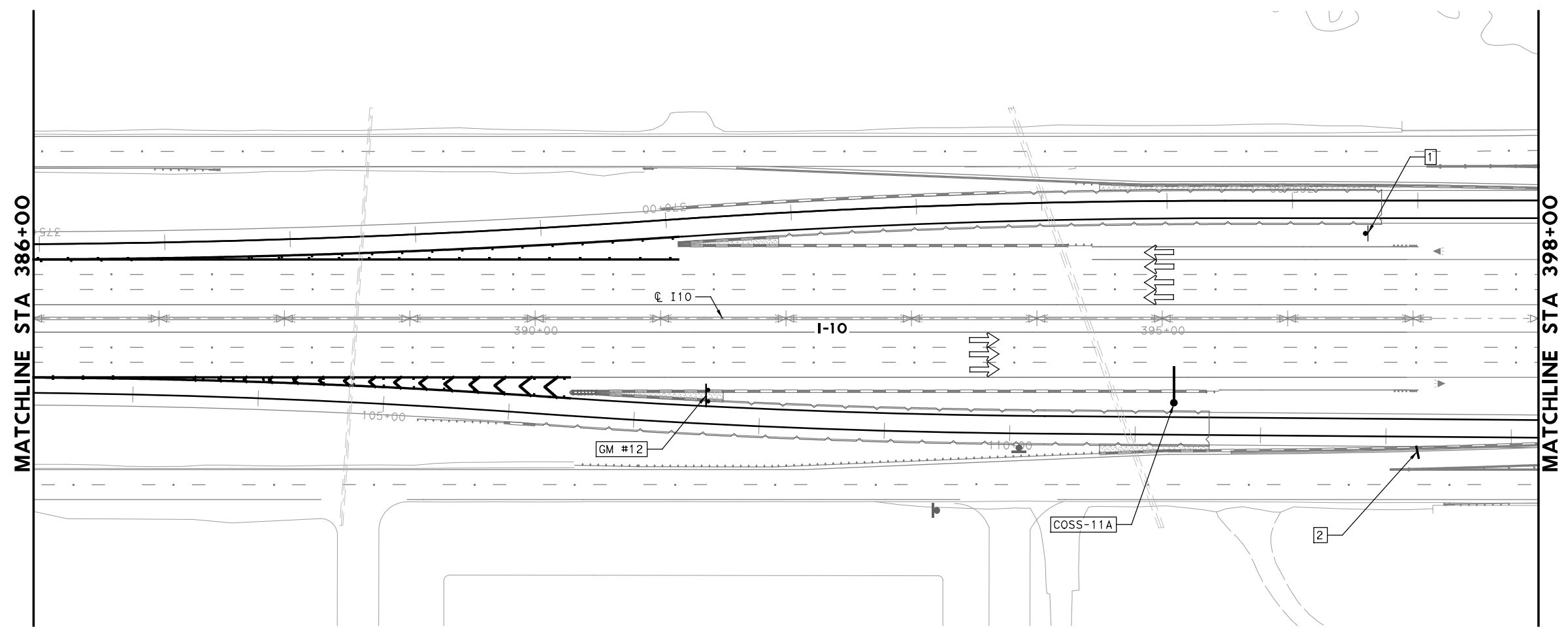
LEGEND

- # PROP SMALL SIGN
- ⊕ EXIST SIGN TO REMAIN
- PROP CANTILEVER OVERHEAD SIGN
- PROP OVERHEAD SIGN BRIDGE
- GROUND MOUNTED LARGE SIGN
- * SIGN PREVIOUSLY CONTRACTED ON CSJ 2121-01-094 (I10-WIDENING PROJECT)



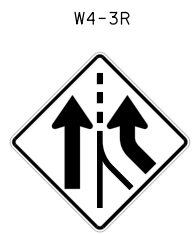
Oscar Gutierrez
 1 REVISED 06/26/2024

- NOTES:
- SIGN LOCATION SHOWN ARE APPROXIMATE. COORDINATE FINAL LOCATION WITH THE AREA ENGINEER.
 - REFER TO SUMMARY OF SMALL/LARGE SIGNS FOR ADDITIONAL INFORMATION.
 - REFER TO STANDARD HIGHWAY SIGN DESIGN FOR TEXAS (SHSD) FOR ADDITIONAL INFORMATION.
 - REFER TO TXDOT STATEWIDE STANDARDS FOR ADDITIONAL DETAILS.
 - REFER TO MUTCD SECTION 2A.21 (POST AND MOUNTINGS) FOR WRONG WAY AND DO NOT ENTER SIGNS ADDITIONAL INFORMATION.



GM # 12

INSTALL AT C I10 391+36.25
 REFER TO SIGN/ELEVATION DETAILS FOR MORE INFORMATION.

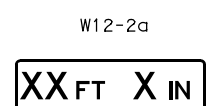


1. - STA 396+64.00 (C I10)
 OFF: 67.75' LT



COSS-11A

INSTALL AT C I10 395+09.00
 REFER TO SIGN/ELEVATION DETAILS FOR MORE INFORMATION.
 NOTE: REDD RD 1 MILE SIGN FROM I10 WIDENING PROJECT HAS BEEN REMOVED AND QUANTIFIED UNDER REMOVALS.



2. - STA 397+03.46 (C I10)
 BRIDGE MOUNTED



ITEM	CODE	DESCRIPTION	UNIT	QTY
416	6006	DRILL SHAFT (48 IN)	LF	28
416	6015	DRILL SHAFT (NON-REINFORCED) (12 IN)	LF	12
636	6002	ALUMINUM SIGNS (TY G)	SF	37.5
636	6003	ALUMINUM SIGNS (TY O)	SF	84
644	6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	1
644	6064	IN BRIDGE MNT CLEARANCE SGN ASSM(TY N)	EA	1
647	6001	INSTALL LRSS (STRUCT STEEL)	LB	302
650	6030	INS OH SN SUP(30 FT CANT)(CIRC TUBE)	EA	1

NO.	DATE	REVISION	APPROVED
 8200 N. MOPAC EXPRESSWAY, STE #280 AUSTIN, TEXAS 78759 OMEGAENGINEERS.COM TX PE Firm Reg. No. F-2147 P: 512 575 2288 F: 281 647 9184			
 © 2024			
I-10 SIGNING PLAN STA 386+00 TO STA 398+00			
SCALE: 1"=100'		SHEET 18 OF 24	
FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.	
6	F 2B24 (273)	SH178, ETC	
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	1747
CONTROL	SECTION	JOB	
3592	01	009	

FINAL PLANS SUBMITTAL
 PLOT DRIVER: TXDOT_PDF_BW.pltcfgr
 USER: malimada DATE: 6/26/2024 TIME: 10:33:46 AM SCALE: 1:100
 FILE: p:\p\p\h\tr\uscen\04\FDR_US_Central\ON\Documents\TXDOT_EI_Paso_District\SH_178_-_Artcraft_Rd_PS_ET\DOT_Artcraft_Rd_PS_ET\DOT_Artcraft_Rd_PS_ET_WANG_O_CAD_BIM\6.2.WIP\6.2.2.Contract_Files\Sheet_Files\Signing\Omega\Large Sign Elevation Detail

DESIGN DATA

DESIGN WIND SPEED 90 MPH
 SPAN LENGTH 35 LF
 POST HEIGHT 29 LF
 DESIGN HEIGHT 30 LF
 TOTAL SIGN AREA 111.75 SF

DESIGN LOADS

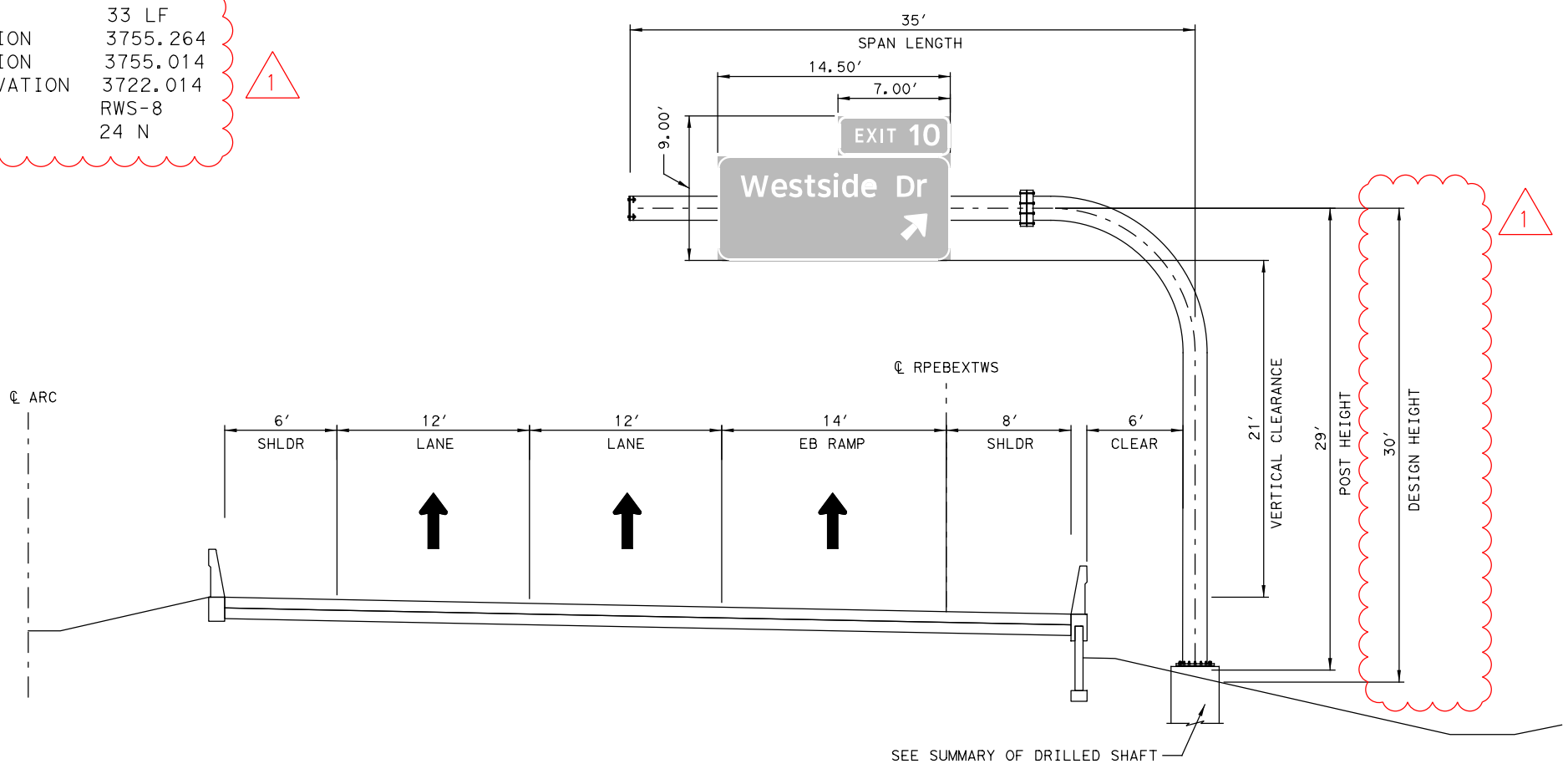
MOMENT 401 K-FT
 TORSION 223 K-FT

STRUCTURE DATA

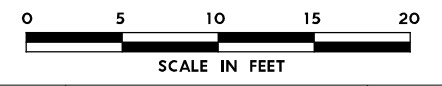
STRUCTURE CODE MC - 22 (MOD)
 MONOTUBE SIZE 24" DIA

SUMMARY OF DRILLED SHAFT

48" DIA DRILLED SHAFT 33 LF
 BOTTOM BASE PLATE ELEVATION 3755.264
 TOP DRILLED SHAFT ELEVATION 3755.014
 BOTTOM DRILLED SHAFT ELEVATION 3722.014
 NEAREST BOREHOLE RWS-8
 PENETROMETER VALUE (N) 24 N



1 REVISED 06/26/2024
 Oscar Gutierrez



COSS-01
 (EASTBOUND)
 Q ARC 117+06.32

NO.	DATE	REVISION	APPROVED
OMEGA ENGINEERS, INC. <small>8200 N. MOPAC EXPRESSWAY, STE #280 AUSTIN, TEXAS 78759 OMEGAENGINEERS.COM TX PE Firm Reg. No. F-2147 P: 512 575 2288 F: 281 647 9184</small>			
SH 178 (ARTCRAFT RD) LARGE SIGNS ELEVATION DETAILS			
SCALE: 1" = 10'		SHEET 3 OF 42	
FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.	
6	F 2B24 (273)	SH178, ETC	
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	1762
CONTROL	SECTION	JOB	
3592	01	009	

FINAL PLANS SUBMITTAL
 PLOT DRIVER: TXDOT_PDF_BW.pltcfgr
 USER: malimada
 FILE: p:\p\h\tr\uscen\04\FDR_US_Central\ON\Documents\TXDOT_EI_Paso_District\SH_178_-_Artcraft_Rd_PS_ET\DOT_Artcraft_Rd_PS_ET\PS_ET\DOT_Artcraft_Rd_PS_ET\WANG.O_CAD_BIM\6.2.WIP\6.2.2.Contract_Files\Sheet_Files\Signing\Omega\Large Signs Elevation Details

DESIGN DATA

DESIGN WIND SPEED 90 MPH
 SPAN LENGTH 35 LF
 POST HEIGHT 27 LF
 DESIGN HEIGHT 29 LF 1
 TOTAL SIGN AREA 111.75 SF

DESIGN LOADS

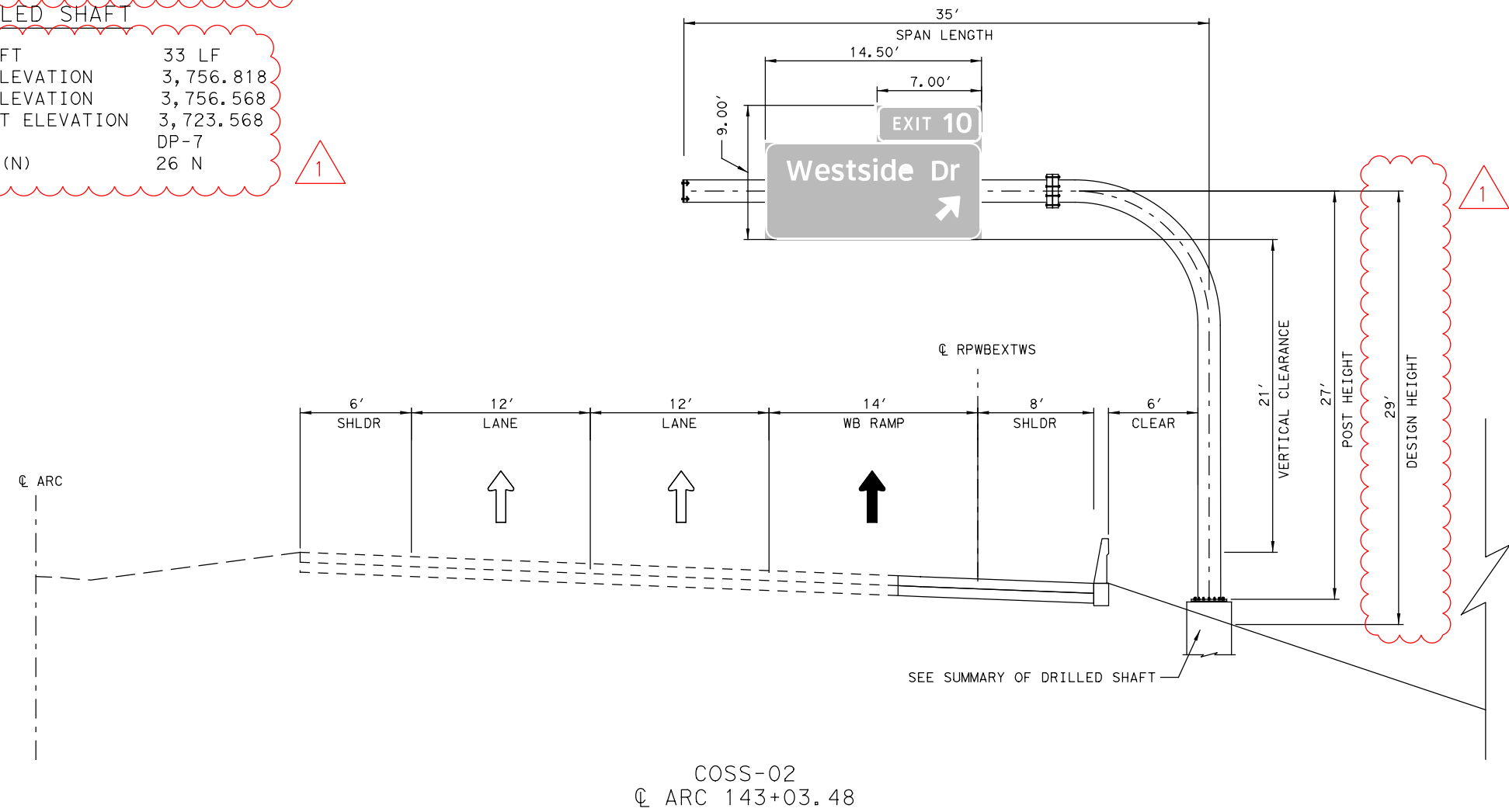
MOMENT 401 K-FT
 TORSION 223 K-FT 1

STRUCTURE DATA

STRUCTURE CODE MC - 22 (MOD) 1
 MONOTUBE SIZE 24" DIA

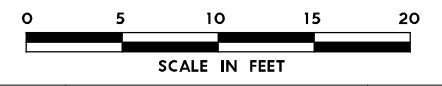
SUMMARY OF DRILLED SHAFT

48" DIA DRILLED SHAFT 33 LF 1
 BOTTOM BASE PLATE ELEVATION 3,756.818
 TOP DRILLED SHAFT ELEVATION 3,756.568
 BOTTOM DRILLED SHAFT ELEVATION 3,723.568
 NEAREST BOREHOLE DP-7
 PENETROMETER VALUE (N) 26 N



COSS-02
 CL ARC 143+03.48

1 REVISED 06/26/2024



NO.	DATE	REVISION	APPROVED
 8200 N. MOPAC EXPRESSWAY, STE #280 AUSTIN, TEXAS 78759 OMEGAENGINEERS.COM TX PE Firm Reg. No. F-2147 P: 512 575 2288 F: 281 647 9184			
 SH 178 (ARTCRAFT RD) LARGE SIGNS ELEVATION DETAILS			
SCALE: 1"=10'		SHEET 6 OF 42	
FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
6	F 2B24 (273)		SH178, ETC
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	1765
CONTROL	SECTION	JOB	
3592	01	009	

FINAL PLANS SUBMITTAL
 PLOT DRIVER: TXDOT_PDF_BW.pltcfgr
 USER: malimada DATE: 6/26/2024 TIME: 10:40:07 AM SCALE: 1:100
 FILE: p:\p\h\tr\uscen\0\HFD\US_Central\0\Documents\TXDOT_EI_Paso_District\SH_178_-_Artcraft_Rd_PS_ENT\DOT_Artcraft_Rd_PS_E_WANG_O_CAD_BIM\6.2.WIP\6.2.2.Contract_Files\Sheet_Files\Signing\Omega\Large Signs Elevation_Details

DESIGN DATA

DESIGN WIND SPEED 90 MPH
 SPAN LENGTH 35 LF
 POST HEIGHT 29 LF
 DESIGN HEIGHT 29 LF
 TOTAL SIGN AREA 121.5 SF

DESIGN LOADS

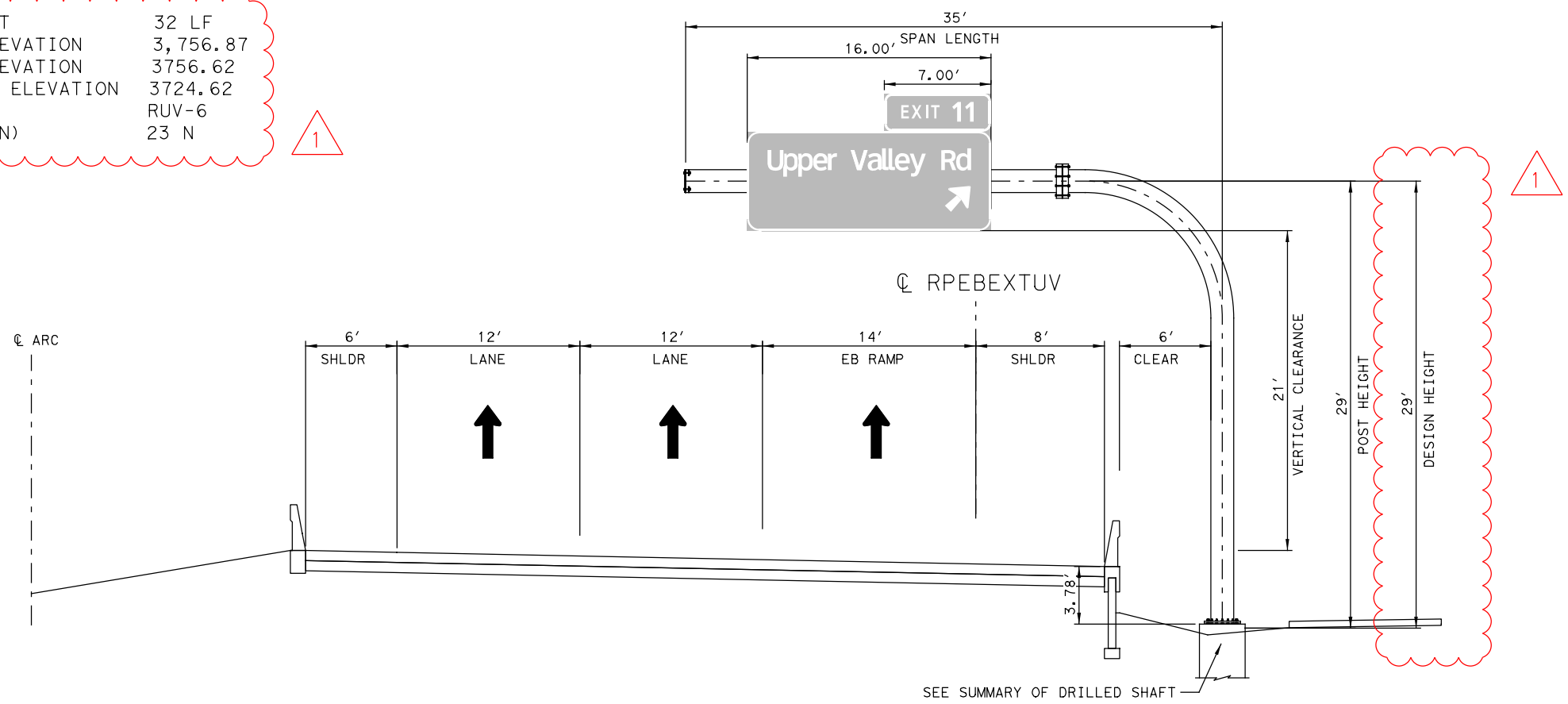
MOMENT 401 K-FT
 TORSION 223 K-FT

STRUCTURE DATA

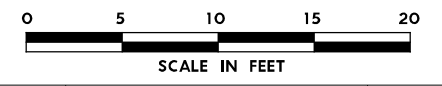
STRUCTURE CODE MC - 22 (MOD)
 MONOTUBE SIZE 24" DIA

SUMMARY OF DRILLED SHAFT

48" DIA DRILLED SHAFT 32 LF
 BOTTOM BASE PLATE ELEVATION 3,756.87
 TOP DRILLED SHAFT ELEVATION 3756.62
 BOTTOM DRILLED SHAFT ELEVATION 3724.62
 NEAREST BOREHOLE RUV-6
 PENETROMETER VALUE (N) 23 N



Oscar Joaquin Gutierrez
 LICENSED PROFESSIONAL ENGINEER
 1 REVISED 06/26/2024



COSS-3A
 Q ARC 164+46.26

NO.	DATE	REVISION	APPROVED
 8200 N. MOPAC EXPRESSWAY, STE #280 AUSTIN, TEXAS 78759 OMEGAENGINEERS.COM TX PE Firm Reg. No. F-2147 P: 512 575 2288 F: 281 647 9184			
 SH 178 (ARTCRAFT RD) LARGE SIGNS ELEVATION DETAILS			
SCALE: 1"=10'		SHEET 8 OF 42	
FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
6	F 2B24 (273)		SH178, ETC
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	1767
CONTROL	SECTION	JOB	
3592	01	009	

PLOT DRIVER: TXDOT_PDF_BW.pltcfgr
 USER: malimada
 FILE: p:\pwr\tr\uscen\04\FDR_US_Central_04\Documents\TXDOT_EI_Paso_District\SH_178_-_Artcraft_Rd_PS_ET\DOT_Artcraft_Rd_PS_ET\WIP\6.2.22\Contract_Files\Signing\Omega\Large Signs Elevation Details

DESIGN DATA

DESIGN WIND SPEED 90 MPH
 SPAN LENGTH 35 LF
 POST HEIGHT 30 LF
 DESIGN HEIGHT 33 LF
 TOTAL SIGN AREA 113.5 SF

DESIGN LOADS

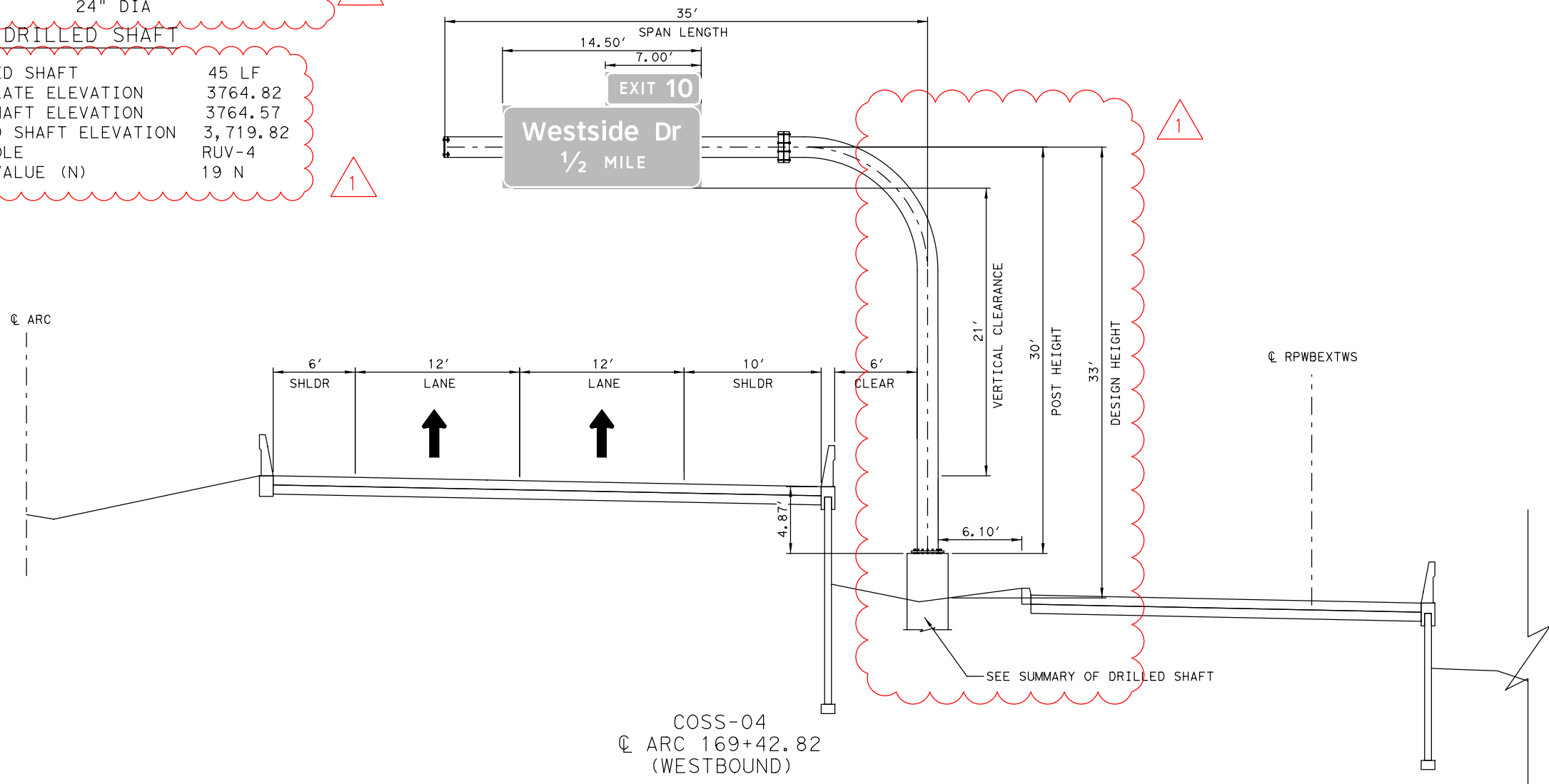
MOMENT 401 K-FT
 TORSION 223 K-FT

STRUCTURE DATA

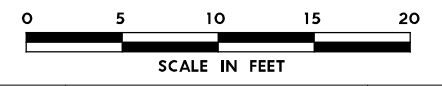
STRUCTURE CODE MC - 22 (MOD)
 MONOTUBE SIZE 24" DIA

SUMMARY OF DRILLED SHAFT

48" DIA DRILLED SHAFT 45 LF
 BOTTOM BASE PLATE ELEVATION 3764.82
 TOP DRILLED SHAFT ELEVATION 3764.57
 BOTTOM DRILLED SHAFT ELEVATION 3,719.82
 NEAREST BOREHOLE RUV-4
 PENETROMETER VALUE (N) 19 N



1 REVISED 06/26/2024



NO.	DATE	REVISION	APPROVED

OMEGA ENGINEERS, INC.
 8200 N. MOPAC EXPRESSWAY, STE #280
 AUSTIN, TEXAS 78759
 OMEGAENGINEERS.COM
 TX PE Firm Reg. No. F-2147
 P: 512 575 2288 F: 281 647 9184



SH 178 (ARTCRAFT RD)

LARGE SIGNS
ELEVATION DETAILS

SCALE: 1"=10' SHEET 9 OF 42

FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.
6	F 2B24 (273)	SH178, ETC
STATE	DISTRICT	COUNTY
TEXAS	ELP	EL PASO
CONTROL	SECTION	JOB
3592	01	009

1768

PLOT DRIVER: TXDOT_PDF_BW.pltcfgr
 USER: malimada DATE: 6/26/2024 TIME: 10:42:11 AM SCALE: 1:100
 PENTABLE: Artcraft Rd PROJECT PENTABLE
 FILE: p:\v\h\tr\uscen\0\H\DR_US_Central\ON\Documents\TXDOT_EI_Paso\District\SH_178_-_Artcraft_Rd_PS_EI\DOT_Artcraft_Rd_PS_EI\CAD_BIM\6.2.WIP\6.2.2_Contract_Files\Sheet_Files\Signing\Omega\Large Signs Elevation Details

DESIGN DATA

DESIGN WIND SPEED 90 MPH
 SPAN LENGTH 55 LF
 POST HEIGHT 30 LF
 DESIGN HEIGHT 33 LF
 TOTAL SIGN AREA 302 SF

SUMMARY OF DRILLED SHAFT

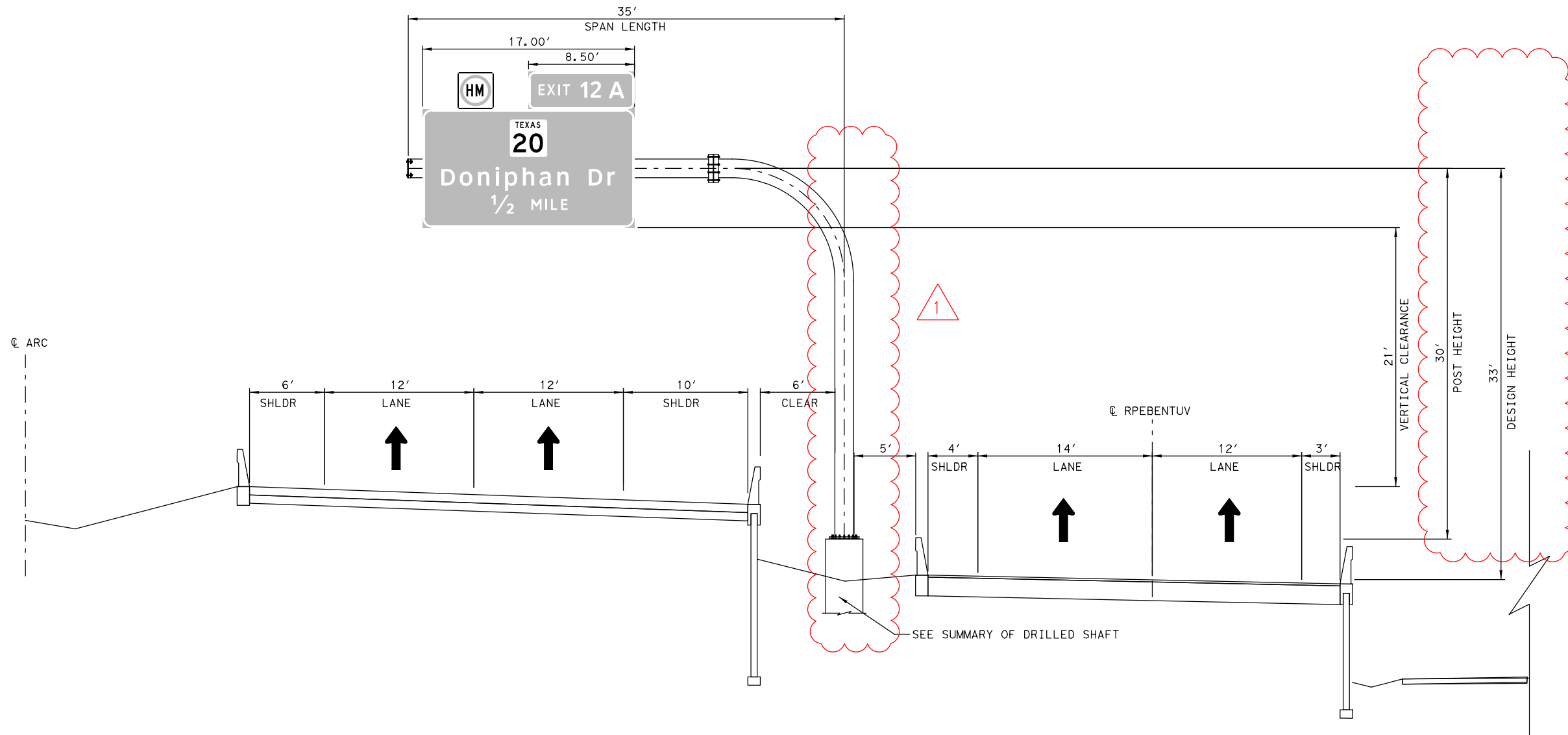
48" DIA DRILLED SHAFT 45 LF
 BOTTOM BASE PLATE ELEVATION 3,768.11
 TOP DRILLED SHAFT ELEVATION 3,767.86
 BOTTOM DRILLED SHAFT ELEVATION 3,722.86
 NEAREST BOREHOLE RUV-19
 PENETROMETER VALUE (N) 14 N

DESIGN LOADS

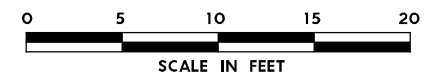
MOMENT 401 K-FT
 TORSION 223 K-FT

STRUCTURE DATA

STRUCTURE CODE MC - 22 (MOD)
 MONOTUBE SIZE 24" DIA



REVISED 06/26/2024



NO.	DATE	REVISION	APPROVED
OMEGA ENGINEERS, INC. 8200 N. MOPAC EXPRESSWAY, STE #280 AUSTIN, TEXAS 78759 OMEGAENGINEERS.COM TX PE Firm Reg. No. F-2147 P: 512 575 2288 F: 281 647 9184			
 Texas Department of Transportation © 2024			
SH 178 (ARTCRAFT RD) LARGE SIGNS ELEVATION DETAILS			
SCALE: 1"=10'		SHEET 11 OF 42	
FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.	
6	F 2B24 (273)	SH 178, ETC	
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	1770
CONTROL	SECTION	JOB	
3592	01	009	

FINAL PLANS SUBMITTAL
 PLOT DRIVER: TXDOT_PDF_BW.pltcfgr
 USER: malimada DATE: 6/26/2024 TIME: 10:43:11 AM SCALE: 1/8"=1'-0"
 PENTABLE: Artcraft Rd PROJECT PENTABLE
 FILE: p:\p\h\tr\uscen\04\FDR_US_Central\ON\Documents\TXDOT_EI_Paso\District\SH_178_-_Artcraft_Rd_PS_ET\DOT_Artcraft_Rd_PS_ET\CAD_BIM\6.2.WIP\6.2.2.Contract_Files\Sheet_Files\Signing\Omega\Large Signs Elevation Details

DESIGN DATA

DESIGN WIND SPEED 90 MPH
 SPAN LENGTH 30 LF
 POST HEIGHT 27 LF
 DESIGN HEIGHT 28 LF
 TOTAL SIGN AREA 121.5 SF

DESIGN LOADS

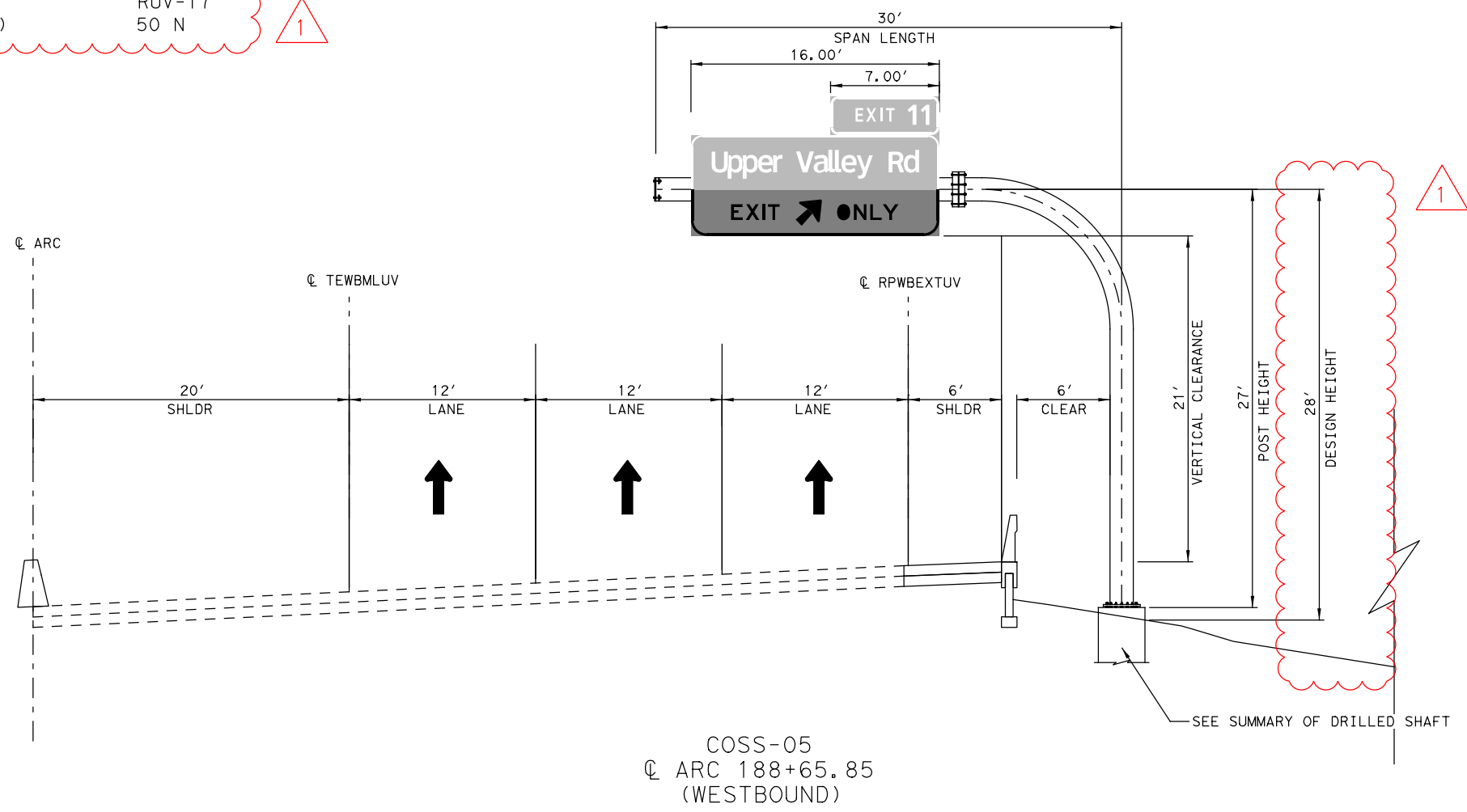
MOMENT 320 K-FT
 TORSION 167 K-FT

STRUCTURE DATA

STRUCTURE CODE MC - 22 (MOD)
 MONOTUBE SIZE 24" DIA

SUMMARY OF DRILLED SHAFT

48" DIA DRILLED SHAFT 28 LF
 BOTTOM BASE PLATE ELEVATION 3,776.45
 TOP DRILLED SHAFT ELEVATION 3,776.2
 BOTTOM DRILLED SHAFT ELEVATION 3,748.2
 NEAREST BOREHOLE RUV-17
 PENETROMETER VALUE (N) 50 N



Oscar Joaquin Gutierrez
 LICENSED PROFESSIONAL ENGINEER
 Oscar Joaquin Gutierrez
 REVISED 06/26/2024
 0 5 10 15 20
 SCALE IN FEET

NO.	DATE	REVISION	APPROVED
 8200 N. MOPAC EXPRESSWAY, STE #280 AUSTIN, TEXAS 78759 OMEGAENGINEERS.COM TX PE Firm Reg. No. F-2147 P: 512.575.2288 F: 281.647.9184			
 SH 178 (ARTCRAFT RD) LARGE SIGNS ELEVATION DETAILS SCALE: 1"=10' SHEET 13 OF 42			
FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
6	F 2B24 (273)		SH178, ETC
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	1772
CONTROL	SECTION	JOB	
3592	01	009	

PLOT DRIVER: TXDOT_PDF_BW.pltcfgr
 USER: malimada DATE: 6/26/2024 TIME: 10:44:35 AM SCALE: 1/8"=1'-0"
 FILE: p:\p\h\tr\uscen\04\FDR_US_Central\ON\Documents\TXDOT_EI_Paso\Dist\SH_178_-_Artcraft_Rd_Plane\DOT_Artcraft_Rd_Plane\PS_ENT\DOT_Artcraft_Rd_Plane\PS_E_WANG\O_CAD_BIM\6.2.WIP\6.2.2.Contract_Files\Sheet_Files\Signing\Omega\Large Signs Elevation Details

DESIGN DATA

DESIGN WIND SPEED 90 MPH
 SPAN LENGTH 35 LF
 POST HEIGHT 26 LF
 DESIGN HEIGHT 27 LF
 TOTAL SIGN AREA 105 SF

DESIGN LOADS

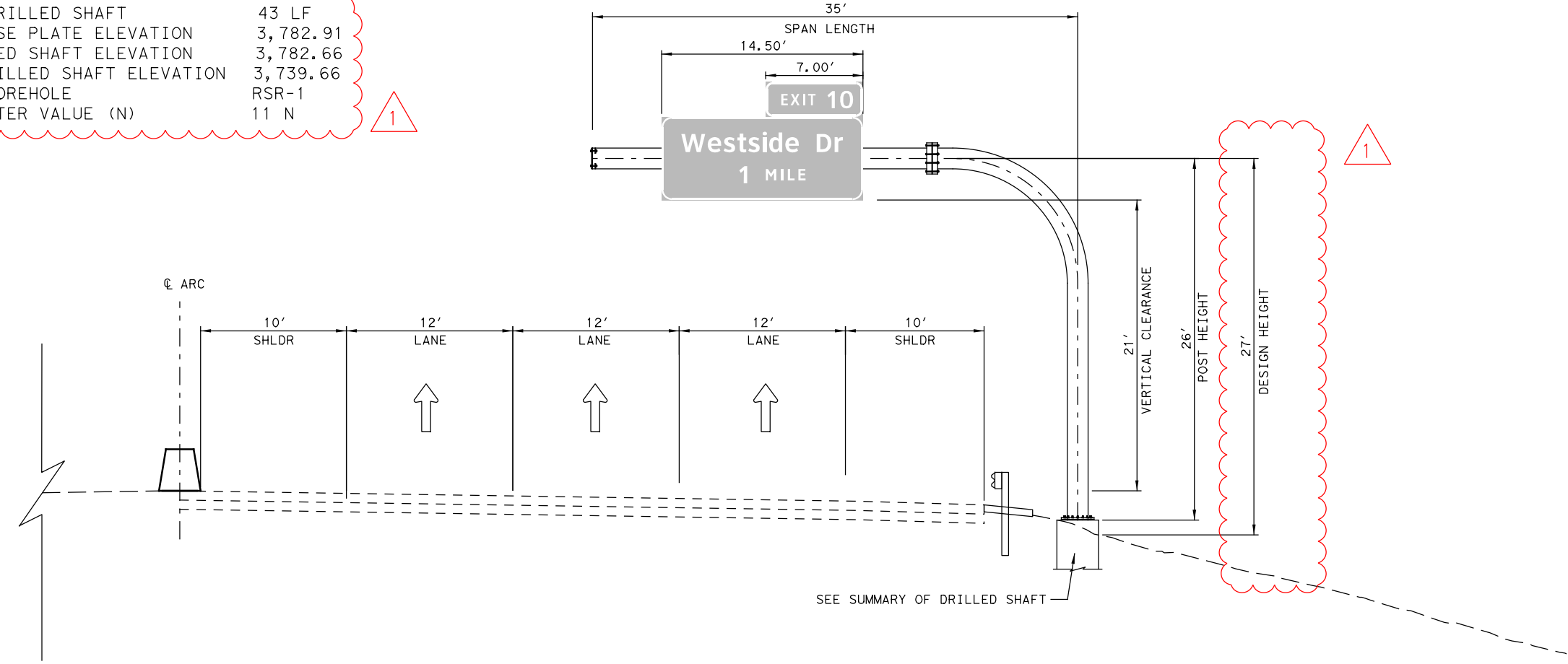
MOMENT 401 K-FT
 TORSION 223 K-FT

STRUCTURE DATA

STRUCTURE CODE MC - 22 (MOD)
 MONOTUBE SIZE 24" DIA

SUMMARY OF DRILLED SHAFT

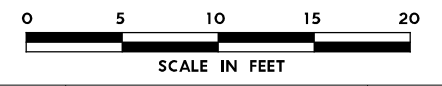
48" DIA DRILLED SHAFT 43 LF
 BOTTOM BASE PLATE ELEVATION 3,782.91
 TOP DRILLED SHAFT ELEVATION 3,782.66
 BOTTOM DRILLED SHAFT ELEVATION 3,739.66
 NEAREST BOREHOLE RSR-1
 PENETROMETER VALUE (N) 11 N



COSS-5A
 CL ARC 195+50.00
 WESTBOUND



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OMEGA ENGINEERS, INC.
 8200 N. MOPAC EXPRESSWAY, STE #280
 AUSTIN, TEXAS 78759
 OMEGAENGINEERS.COM
 TX PE Firm Reg. No. F-2147
 P: 512 575 2288 F: 281 647 9184



SH 178 (ARTCRAFT RD)

LARGE SIGNS
 ELEVATION DETAILS

SCALE: 1"=10' SHEET 14 OF 42

FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.
6	F 2B24 (273)	SH178, ETC
STATE	DISTRICT	COUNTY
TEXAS	ELP	EL PASO
CONTROL	SECTION	JOB
3592	01	009

1773

FINAL PLANS SUBMITTAL
 PLOT DRIVER: TXDOT_PDF_BW.pltcfgr
 USER: malimada
 DATE: 6/26/2024
 TIME: 10:45:54 AM
 SCALE: 1/8"=10'
 FILE: p:\p\h\tr\uscen\04\FDR_US_Central\ON\Documents\TXDOT_EI_Paso_District\SH_178_-_Artcraft_Rd_PS_ET\DOT_Artcraft_Rd_PS_ET\CAD_BIM\6.2.WIP\6.2.2.Contract_Files\Sheet_Files\Signing\Omega\Large Signs Elevation Details

DESIGN DATA

DESIGN WIND SPEED 90 MPH
 SPAN LENGTH 35 LF
 POST HEIGHT 47 LF
 DESIGN HEIGHT 47 LF
 TOTAL SIGN AREA 161.50 SF

DESIGN LOADS

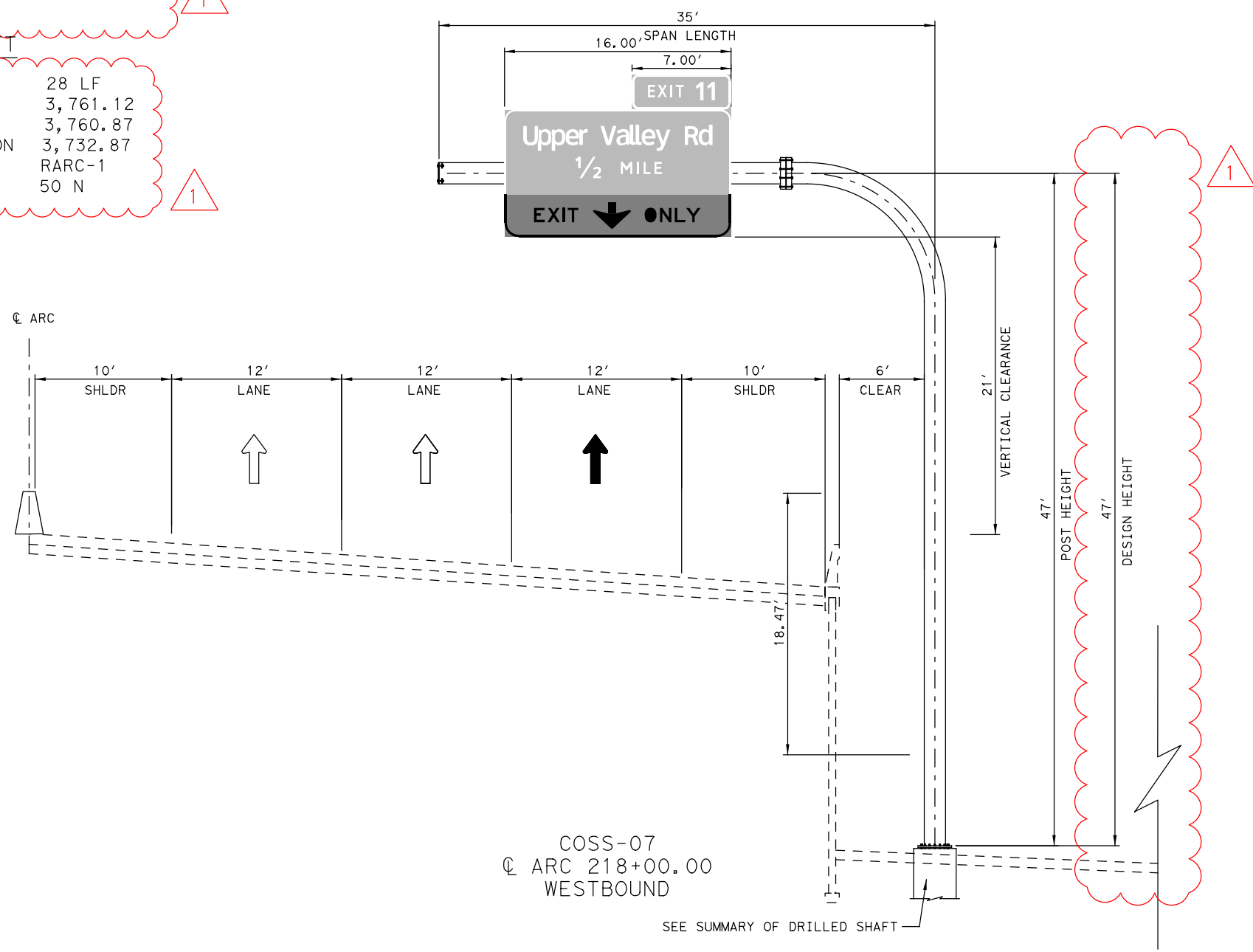
MOMENT 614 K-FT
 TORSION 223 K-FT

STRUCTURE DATA

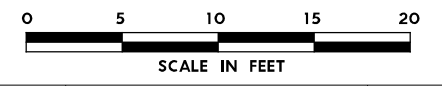
STRUCTURE CODE MC - 22 (MOD)
 MONOTUBE SIZE 24" DIA

SUMMARY OF DRILLED SHAFT

48" DIA DRILLED SHAFT 28 LF
 BOTTOM BASE PLATE ELEVATION 3,761.12
 TOP DRILLED SHAFT ELEVATION 3,760.87
 BOTTOM DRILLED SHAFT ELEVATION 3,732.87
 NEAREST BOREHOLE RARC-1
 PENETROMETER VALUE (N) 50 N



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 8200 N. MOPAC EXPRESSWAY, STE #280 AUSTIN, TEXAS 78759 OMEGAENGINEERS.COM TX PE Firm Reg. No. F-2147 P: 512 575 2288 F: 281 647 9184			

Texas Department of Transportation
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SH 178 (ARTCRAFT RD)

LARGE SIGNS
ELEVATION DETAILS

SCALE: 1"=10' SHEET 18 OF 42

FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.
6	F 2B24 (273)	SH178, ETC
STATE	DISTRICT	COUNTY
TEXAS	ELP	EL PASO
CONTROL	SECTION	JOB
3592	01	009

1777

PLOT DRIVER: TXDOT_PDF_BW.pltcfgr
 USER: malimada DATE: 6/26/2024 TIME: 10:44:58 AM SCALE: 1/80
 FILE: p:\p\p\h\tr\uscen\04\FDR_US_Central\ON\Documents\TXDOT_EI_Paso_District\SH_178_-_Artcraft_Rd_PS_ENT\DOT_Artcraft_Rd_PS_E_WAG.0_CAD_BIM\6.2_WIP\6.2.2_Contract_Files\Sheet_Files\Signing\Omega\Large Signs Elevation_Details
 FINAL PLANS SUBMITTAL

DESIGN DATA

DESIGN WIND SPEED 90 MPH
 SPAN LENGTH 35 LF
 POST HEIGHT 50 LF
 DESIGN HEIGHT 56 LF
 TOTAL SIGN AREA 196.5 SF



DESIGN LOADS

MOMENT 614 K-FT
 TORSION 223 K-FT



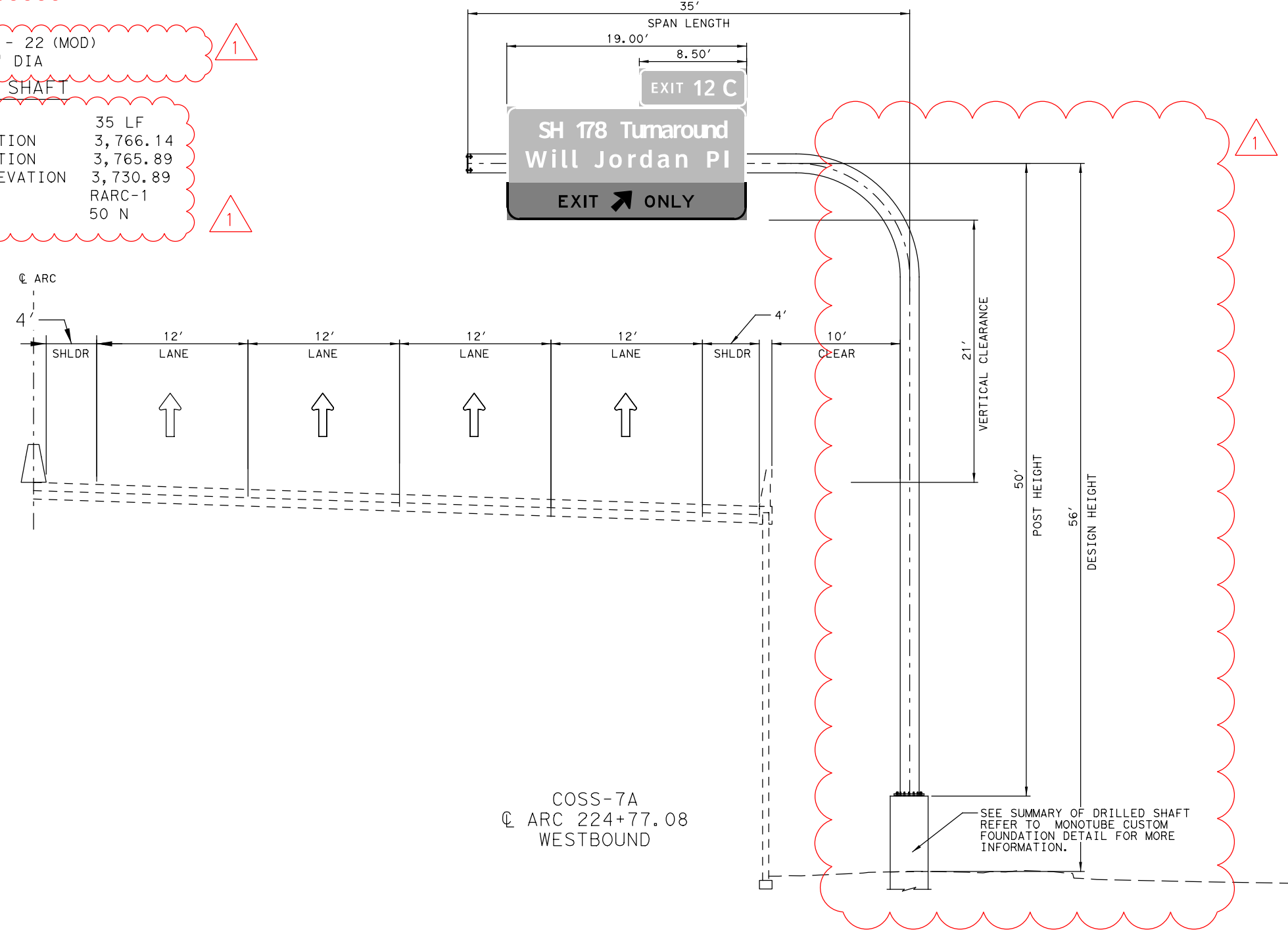
STRUCTURE DATA

STRUCTURE CODE MC - 22 (MOD)
 MONOTUBE SIZE 24" DIA



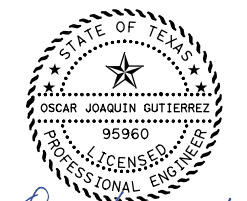
SUMMARY OF DRILLED SHAFT

48" DIA DRILLED SHAFT 35 LF
 BOTTOM BASE PLATE ELEVATION 3,766.14
 TOP DRILLED SHAFT ELEVATION 3,765.89
 BOTTOM DRILLED SHAFT ELEVATION 3,730.89
 NEAREST BOREHOLE RARC-1
 PENETROMETER VALUE (N) 50 N

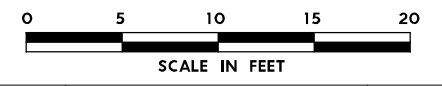


COSS-7A
 @ ARC 224+77.08
 WESTBOUND

SEE SUMMARY OF DRILLED SHAFT
 REFER TO MONOTUBE CUSTOM
 FOUNDATION DETAIL FOR MORE
 INFORMATION.



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 AUSTIN, TEXAS 78759
 OMEGAENGINEERS.COM
 TX PE Firm Reg. No. F-2147
 P: 512.575.2288 F: 281.647.9184



SH 178 (ARTCRAFT RD)

LARGE SIGNS
 ELEVATION DETAILS

SCALE: 1"=10' SHEET 19 OF 42

FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.
6	F 2B24 (273)	SH178, ETC
STATE	DISTRICT	COUNTY
TEXAS	ELP	EL PASO
CONTROL	SECTION	JOB
3592	01	009

1778

PLOT DRIVER: TXDOT_PDF_BW.pltcfgr
 USER: malimada DATE: 6/26/2024
 PENTABLE: Artcraft Rd PROJECT PENTABLE
 SCALE: 1/8"=10'
 TIME: 10:50:03 AM
 FILE: p:\p\h\tr\uscen\04\HDR_US_Central_ON\Documents\TXDOT_EI_Paso_District\SH_178_-_Artcraft_Rd_PS_ENT\DOT_Artcraft_Rd_PS_E_WANG_0_CAD_BIM\6.2.WIP\6.2.2_Contract_Files\Sheet_Files\Signing\Omega\Large Signs Elevation Details

DESIGN DATA

DESIGN WIND SPEED 90 MPH
 SPAN LENGTH 63 LF
 POST HEIGHT 24 LF, 24 LF
 DESIGN HEIGHT 45 LF
 TOTAL SIGN AREA 375 SF

DESIGN LOADS

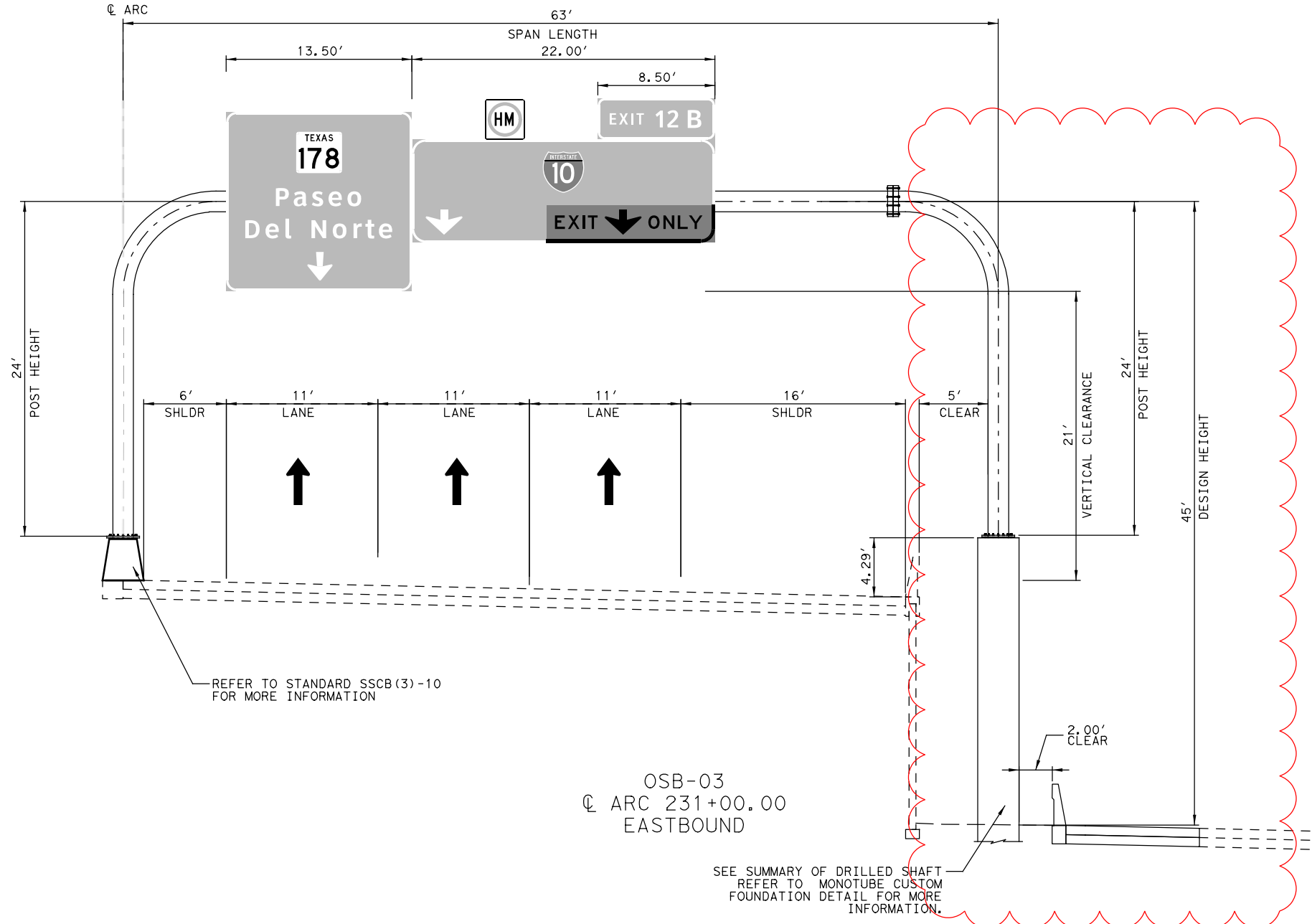
MOMENT 348 K-FT
 TORSION 108 K-FT

STRUCTURE DATA

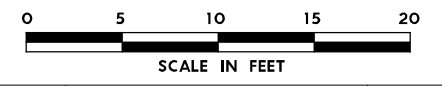
STRUCTURE CODE MS - 22
 MONOTUBE SIZE 24" DIA

SUMMARY OF DRILLED SHAFT

48" DIA DRILLED SHAFT 55 LF, 55 LF
 BOTTOM BASE PLATE ELEVATION 3,788.07, 3,788.07
 TOP DRILLED SHAFT ELEVATION 3,787.82, 3,787.82
 BOTTOM DRILLED SHAFT ELEVATION 3,732.82, 3,732.82
 NEAREST BOREHOLE RARC-1
 PENETROMETER VALUE (N) 50 N



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 Oscar Gutierrez



NO.	DATE	REVISION	APPROVED
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SH 178 (ARTCRAFT RD)			
LARGE SIGNS ELEVATION DETAILS			
SCALE: 1"=10'		SHEET 20 OF 42	
FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.	
6	F 2B24 (273)	SH178, ETC	
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	1779
CONTROL	SECTION	JOB	
3592	01	009	

FINAL PLANS SUBMITTAL
 PLOT DRIVER: TXDOT_PDF_BW.pltcfgr
 USER: malimada
 FILE: p:\p\p\h\tr\uscen\04\HDR_US_Central_04\Documents\TXDOT_EI_Paso_District\SH_178_-_Artcraft_Rd_Plane_Elevation\Sheet_Files\Signing\Omega\Large Signs Elevation Details

DESIGN DATA

DESIGN WIND SPEED 90 MPH
 SPAN LENGTH 30 LF
 POST HEIGHT 36 LF
 DESIGN HEIGHT 37 LF
 TOTAL SIGN AREA 196.5 SF

DESIGN LOADS

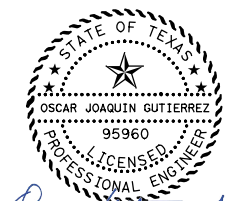
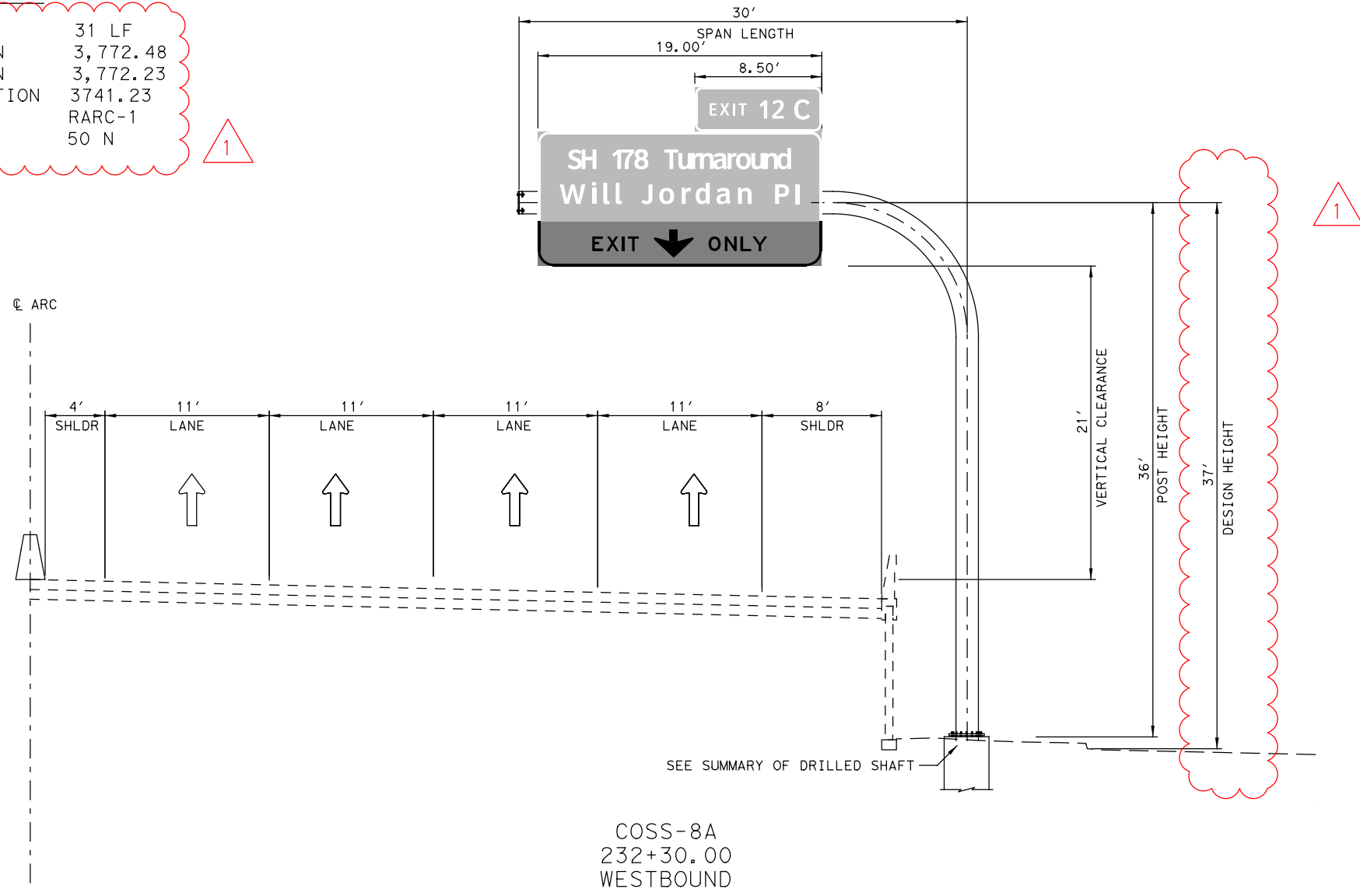
MOMENT 413 K-FT
 TORSION 167 K-FT

STRUCTURE DATA

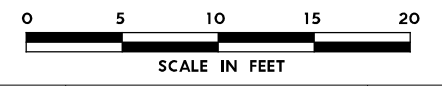
STRUCTURE CODE MC - 22 (MOD)
 MONOTUBE SIZE 24" DIA

SUMMARY OF DRILLED SHAFT

48" DIA DRILLED SHAFT 31 LF
 BOTTOM BASE PLATE ELEVATION 3,772.48
 TOP DRILLED SHAFT ELEVATION 3,772.23
 BOTTOM DRILLED SHAFT ELEVATION 3741.23
 NEAREST BOREHOLE RARC-1
 PENETROMETER VALUE (N) 50 N



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Oscar Gutierrez



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 8200 N. MOPAC EXPRESSWAY, STE #280
 AUSTIN, TEXAS 78759
 OMEGAENGINEERS.COM
 TX PE Firm Reg. No. F-2147
 P: 512 575 2288 F: 281 647 9184



SH 178 (ARTCRAFT RD)

LARGE SIGNS
ELEVATION DETAILS

SCALE: 1"=10' SHEET 21 OF 42

FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
6	F 2B24 (273)		SH 178, ETC
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	1780
CONTROL	SECTION	JOB	
3592	01	009	

FINAL PLANS SUBMITTAL
 PLOT DRIVER: TXDOT_PDF_BW.pltcfgr
 USER: malimada DATE: 6/26/2024
 FILE: p:\v\h\tr\uscen\04\FDR_US_Central\04\Documents\TXDOT_EI_Paso_District\SH_178_-_Artcraft_Rd_PS_ET\DOT_Artcraft_Rd_PS_ET\DOT_Artcraft_Rd_PS_ET_WANG_O_CAD_BIM\6.2.WIP\6.2.2.Contract_Files\Sheet_Files\Signing\Omega\Large Signs Elevation Details

DESIGN DATA

COSS-09
 DESIGN WIND SPEED 90 MPH
 SPAN LENGTH 30 LF
 POST HEIGHT 25 LF
 DESIGN HEIGHT 26 LF
 TOTAL SIGN AREA 218.75 SF

DESIGN LOADS

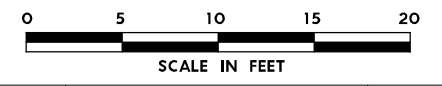
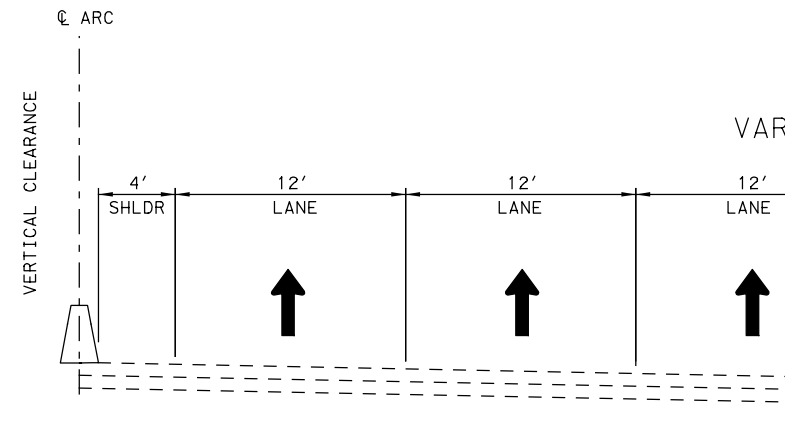
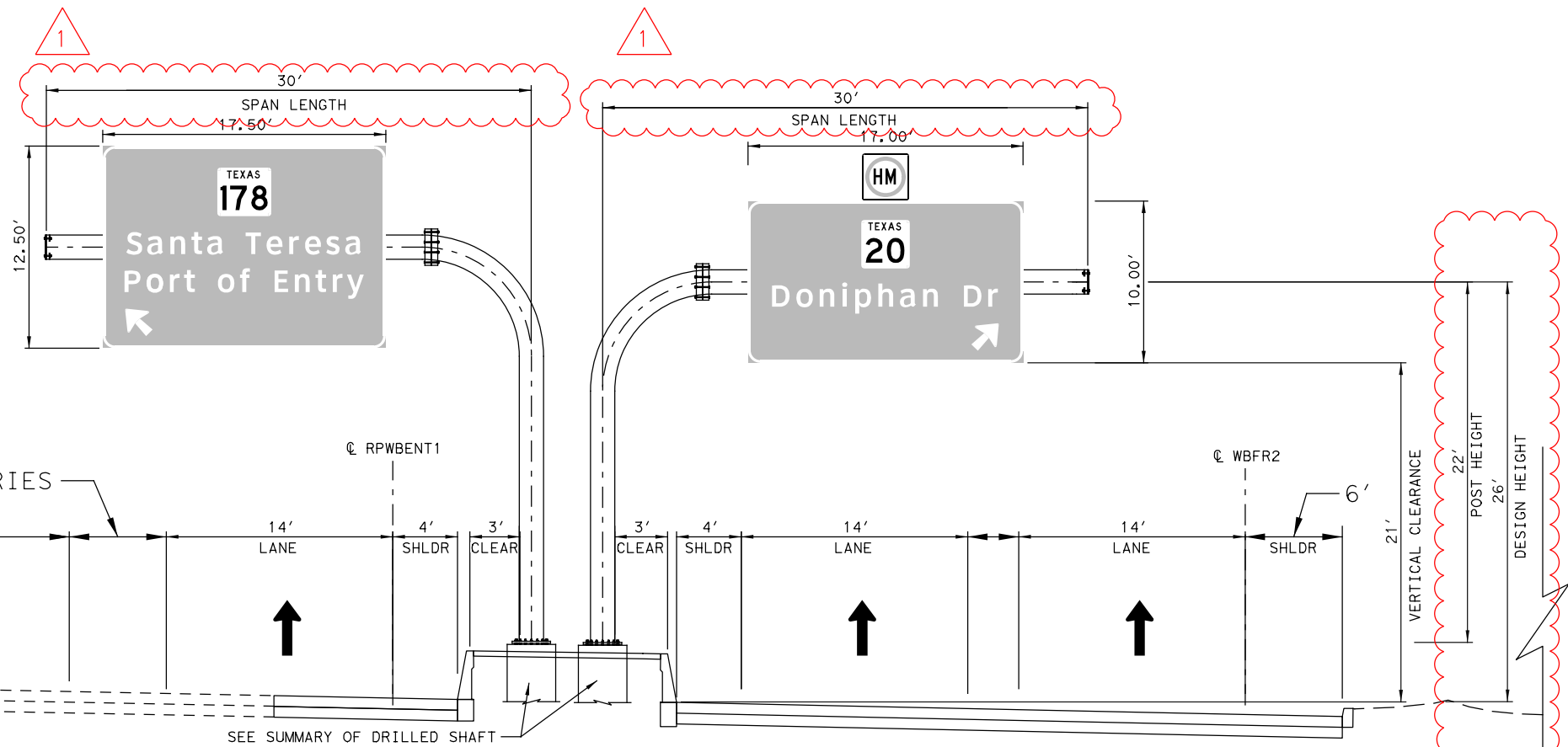
MOMENT 320 K-FT
 TORSION 167 K-FT

STRUCTURE DATA

STRUCTURE CODE MC - 22 (MOD)
 MONOTUBE SIZE 24" DIA

SUMMARY OF DRILLED SHAFT

48" DIA DRILLED SHAFT 28 LF
 BOTTOM BASE PLATE ELEVATION 3,784.63
 TOP DRILLED SHAFT ELEVATION 3,784.38
 BOTTOM DRILLED SHAFT ELEVATION 3,756.38
 NEAREST BOREHOLE RARC-6
 PENETROMETER VALUE (N) 45 N



COSS-9A
 DESIGN WIND SPEED 90 MPH
 SPAN LENGTH 30 LF
 POST HEIGHT 22 LF
 DESIGN HEIGHT 26 LF
 TOTAL SIGN AREA 170 SF

DESIGN LOADS

MOMENT 320 K-FT
 TORSION 167 K-FT

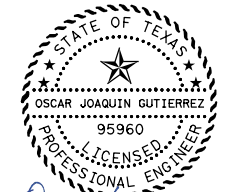
STRUCTURE DATA

STRUCTURE CODE MC - 22 (MOD)
 MONOTUBE SIZE 24" DIA

SUMMARY OF DRILLED SHAFT

48" DIA DRILLED SHAFT 28 LF
 BOTTOM BASE PLATE ELEVATION 3,784.63
 TOP DRILLED SHAFT ELEVATION 3,784.38
 BOTTOM DRILLED SHAFT ELEVATION 3,756.38
 NEAREST BOREHOLE RARC-6
 PENETROMETER VALUE (N) 45 N

COSS-09/COSS-9A
 Q ARC 237+92.52
 WESTBOUND



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NO.	DATE	REVISION	APPROVED
OMEGA ENGINEERS, INC. <small>8200 N. MOPAC EXPRESSWAY, STE #280 AUSTIN, TEXAS 78759 OMEGAENGINEERS.COM TX PE Firm Reg. No. F-2147 P: 512.575.2288 F: 281.647.9184</small>			
Texas Department of Transportation <small>© 2024</small>			
SH 178 (ARTCRAFT RD)			
LARGE SIGNS ELEVATION DETAILS			
SCALE: 1"=10'		SHEET 23 OF 42	
FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.	
6	F 2B24 (273)	SH178, ETC	
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	1782
CONTROL	SECTION	JOB	
3592	01	009	

FINAL PLANS SUBMITTAL
 PLOT DRIVER: TXDOT_PDF_BW.pltcfgr
 USER: malimada
 DATE: 6/26/2024
 TIME: 10:52:22 AM
 SCALE: 1/8"=1'-0"
 PENTABLE: Artcraft Rd PROJECT PENTABLE
 FILE: p:\p\h\tr\uscen\04\FDR_US_Central_ON\Documents\TXDOT_EI_Paso_District\SH_178_-_Artcraft_Rd_PS_ET\DOT_Artcraft_Rd_PS_ET\WIP\6.2.2_Contract_Files\Sheet_Files\Signing\Omega\Large Signs Elevation Details

DESIGN DATA

COSS-9B
 DESIGN WIND SPEED 90 MPH
 SPAN LENGTH 35 LF
 POST HEIGHT 23 LF
 DESIGN HEIGHT 23 LF
 TOTAL SIGN AREA 107.5 SF

DESIGN LOADS

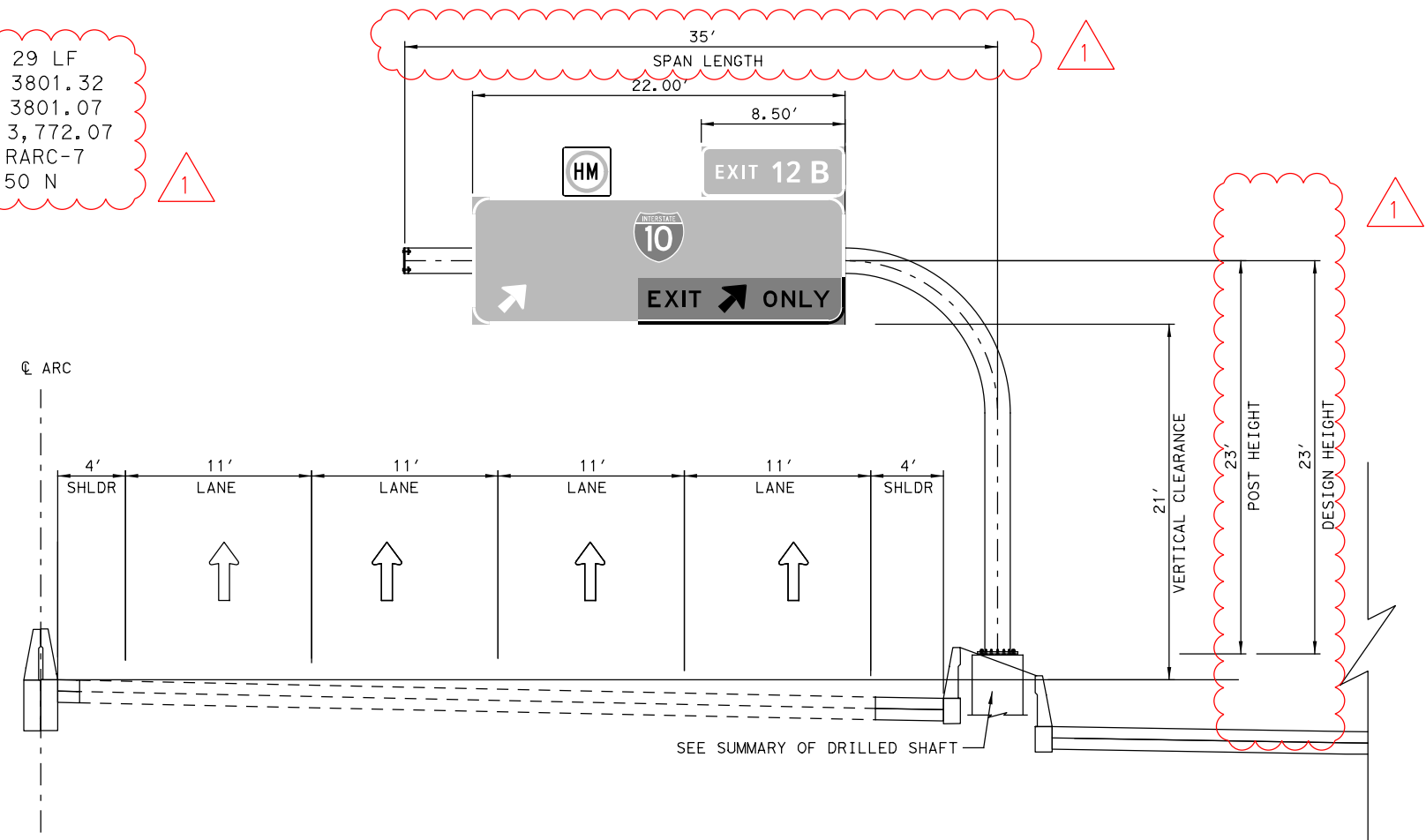
MOMENT 401 K-FT
 TORSION 223 K-FT

STRUCTURE DATA

STRUCTURE CODE MC - 22 (MOD)
 MONOTUBE SIZE 24" DIA

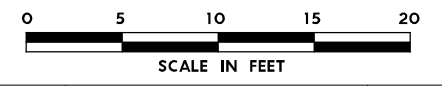
SUMMARY OF DRILLED SHAFT

48" DIA DRILLED SHAFT 29 LF
 BOTTOM BASE PLATE ELEVATION 3801.32
 TOP DRILLED SHAFT ELEVATION 3801.07
 BOTTOM DRILLED SHAFT ELEVATION 3,772.07
 NEAREST BOREHOLE RARC-7
 PENETROMETER VALUE (N) 50 N



COSS-9B
 @ ARC 243+42.354
 EASTBOUND

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NO.	DATE	REVISION	APPROVED
 8200 N. MOPAC EXPRESSWAY, STE #280 AUSTIN, TEXAS 78759 OMEGAENGINEERS.COM TX PE Firm Reg. No. F-2147 P: 512 575 2288 F: 281 647 9184			
 SH 178 (ARTCRAFT RD) LARGE SIGNS ELEVATION DETAILS SCALE: 1"=10' SHEET 24 OF 42			
FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
6	F 2B24 (273)		SH178, ETC
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	1783
CONTROL	SECTION	JOB	
3592	01	009	

PLOT DRIVER: TXDOT_PDF_BW.pltcfgr
 USER: malimada DATE: 6/26/2024
 PENTABLE: Artcraft Rd PROJECT PENTABLE
 TIME: 10:55:36 AM SCALE: 1:100
 FILE: p:\pwr\tr\uscen\04\FDR_US_Central\ON\Documents\TXDOT_EI_Paso_District\SH_178_-_Artcraft_Rd_PS_ENT\DOT_Artcraft_Rd_PS_E_WANG_0_CAD_BIM\6.2.WIP\6.2.2.Contract_Files\Sheet_Files\Signing\Omega\Large Signs Elevation Details

DESIGN DATA

DESIGN WIND SPEED 90 MPH
 SPAN LENGTH 90 LF
 POST HEIGHT 23 LF, 23 LF
 DESIGN HEIGHT 27 LF
 TOTAL SIGN AREA 379.50 SF

DESIGN LOADS

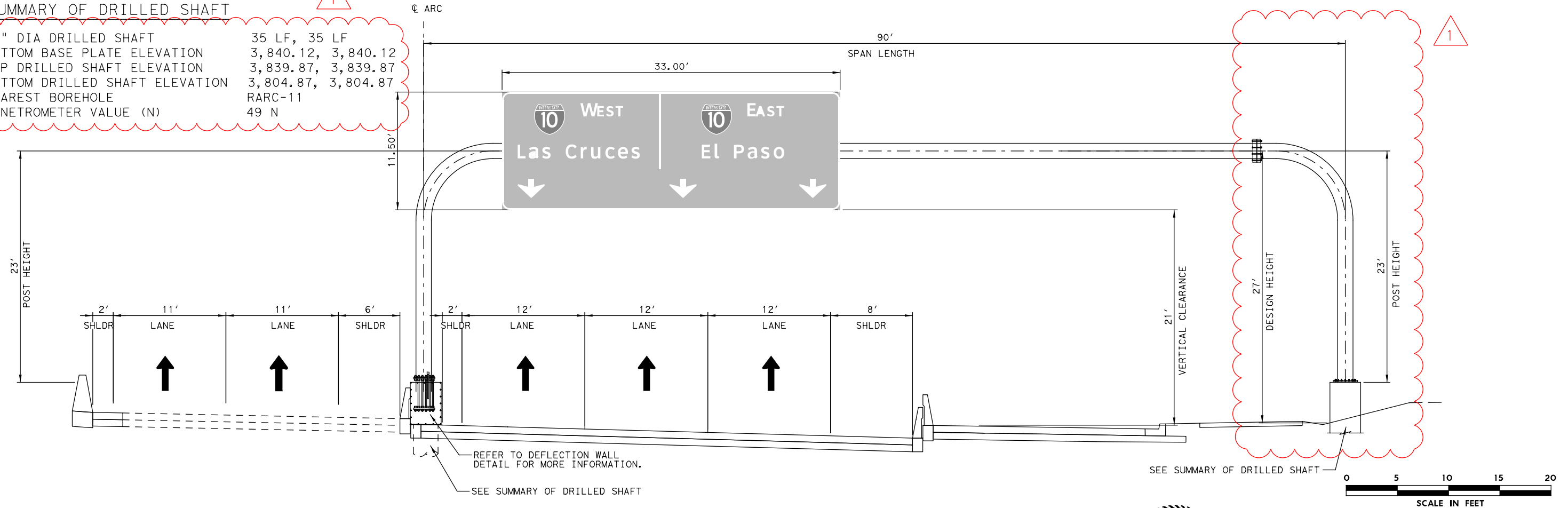
MOMENT 442 K-FT
 TORSION 142 K-FT

STRUCTURE DATA

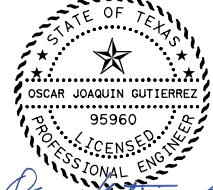
STRUCTURE CODE MS - 22
 MONOTUBE SIZE 24" DIA



SUMMARY OF DRILLED SHAFT

48" DIA DRILLED SHAFT 35 LF, 35 LF
 BOTTOM BASE PLATE ELEVATION 3,840.12, 3,840.12
 TOP DRILLED SHAFT ELEVATION 3,839.87, 3,839.87
 BOTTOM DRILLED SHAFT ELEVATION 3,804.87, 3,804.87
 NEAREST BOREHOLE RARC-11
 PENETROMETER VALUE (N) 49 N



OSB-04
 @ ARC 249+40.28
 EASTBOUND


 REVISION 06/26/2024

NO.	DATE	REVISION	APPROVED
 8200 N. MOPAC EXPRESSWAY, STE #280 AUSTIN, TEXAS 78759 OMEGAENGINEERS.COM TX PE Firm Reg. No. F-2147 P: 512.575.2288 F: 281.647.9184			
 © 2024			
SH 178 (ARTCRAFT RD) LARGE SIGNS ELEVATION DETAILS			
SCALE: 1"=10'		SHEET 27 OF 42	
FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.	
6	F 2B24 (273)	SH 178, ETC	
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	1786
CONTROL	SECTION	JOB	
3592	01	009	

PLOT DRIVER: TXDOT_PDF_BW.pltcfgr
 USER: malimada DATE: 6/26/2024 TIME: 10:53:37 AM SCALE: 1/8"=10'
 FILE: p:\p\h\tr\uscen\04\FDR_US_Central_04\Documents\TXDOT_EI_Paso_District\SH_178_-_Artcraft_Rd_PS_ET\DOT_Artcraft_Rd_PS_ET\CAD_BIM\6.2.WIP\6.2.2_Contract_Files\Sheet_Files\Signing\Omega\Large Signs Elevation Details

DESIGN DATA

DESIGN WIND SPEED 90 MPH
 SPAN LENGTH 65 LF
 POST HEIGHT 36 LF, 36 LF
 DESIGN HEIGHT 37 LF
 TOTAL SIGN AREA 388.50 SF

DESIGN LOADS

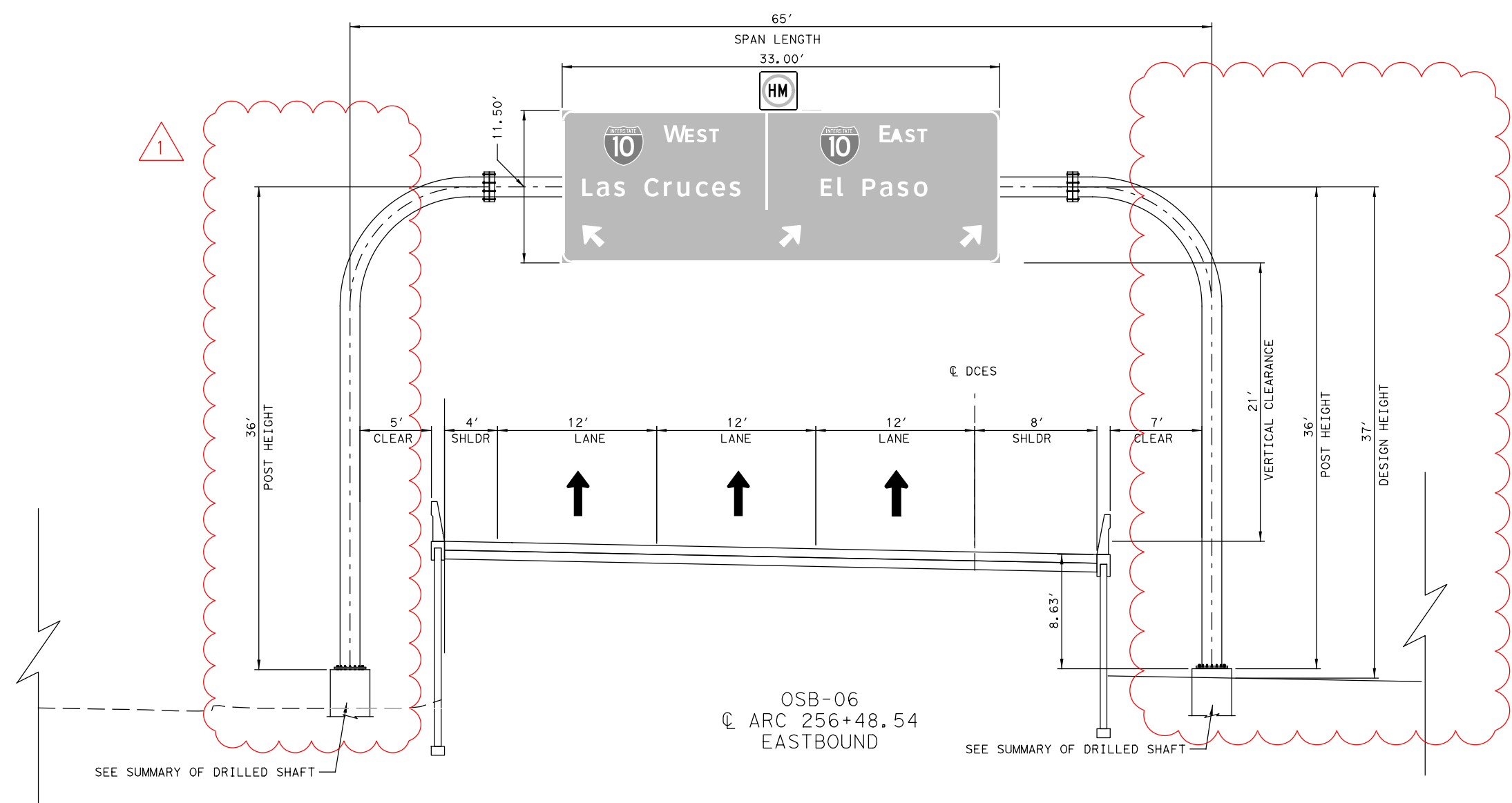
MOMENT 438 K-FT
 TORSION 73 K-FT

STRUCTURE DATA

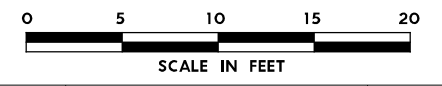
STRUCTURE CODE MS - 22
 MONOTUBE SIZE 24" DIA

SUMMARY OF DRILLED SHAFT

48" DIA DRILLED SHAFT 34 LF, 31 LF
 BOTTOM BASE PLATE ELEVATION 3861.4, 3861.4
 TOP DRILLED SHAFT ELEVATION 3861.15, 3861.15
 BOTTOM DRILLED SHAFT ELEVATION 3,827.15, 3,830.15
 NEAREST BOREHOLE RARC-15
 PENETROMETER VALUE (N) 50 N



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OMEGA ENGINEERS, INC. <small>8200 N. MOPAC EXPRESSWAY, STE #280 AUSTIN, TEXAS 78759 OMEGAENGINEERS.COM TX PE Firm Reg. No. F-2147 P: 512.575.2288 F: 281.647.9184</small>			



SH 178 (ARTCRAFT RD)

**LARGE SIGNS
 ELEVATION DETAILS**

SCALE: 1"=10' SHEET 28 OF 42

FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.
6	F 2B24 (273)	SH178, ETC
STATE	DISTRICT	COUNTY
TEXAS	ELP	EL PASO
CONTROL	SECTION	JOB
3592	01	009

1787

PLOT DRIVER: TXDOT_PDF_BW.pltcfgr
 USER: malimada
 FILE: p:\pwr\tr\uscen\04\FDR_US_Central\ON\Documents\TXDOT_EI_Paso_District\SH_178_-_Arctcraft_Rd_PS_ENT\DOT_Arctcraft_Rd_PS_E_WANG.O_CAD_BIM\6.2.WIP\6.2.2_Contract_Files\Sheet_Files\Signing\Omega\Large Signs Elevation_Details
 PENTABLE: Arctcraft Rd PROJECT PENTABLE
 TIME: 10:55:39 AM SCALE: 1:100
 FINAL PLANS SUBMITTAL

DESIGN DATA

DESIGN WIND SPEED 90 MPH
 SPAN LENGTH 70 LF
 POST HEIGHT 26 LF, 26 LF
 DESIGN HEIGHT 28 LF
 TOTAL SIGN AREA 484.50 SF

DESIGN LOADS

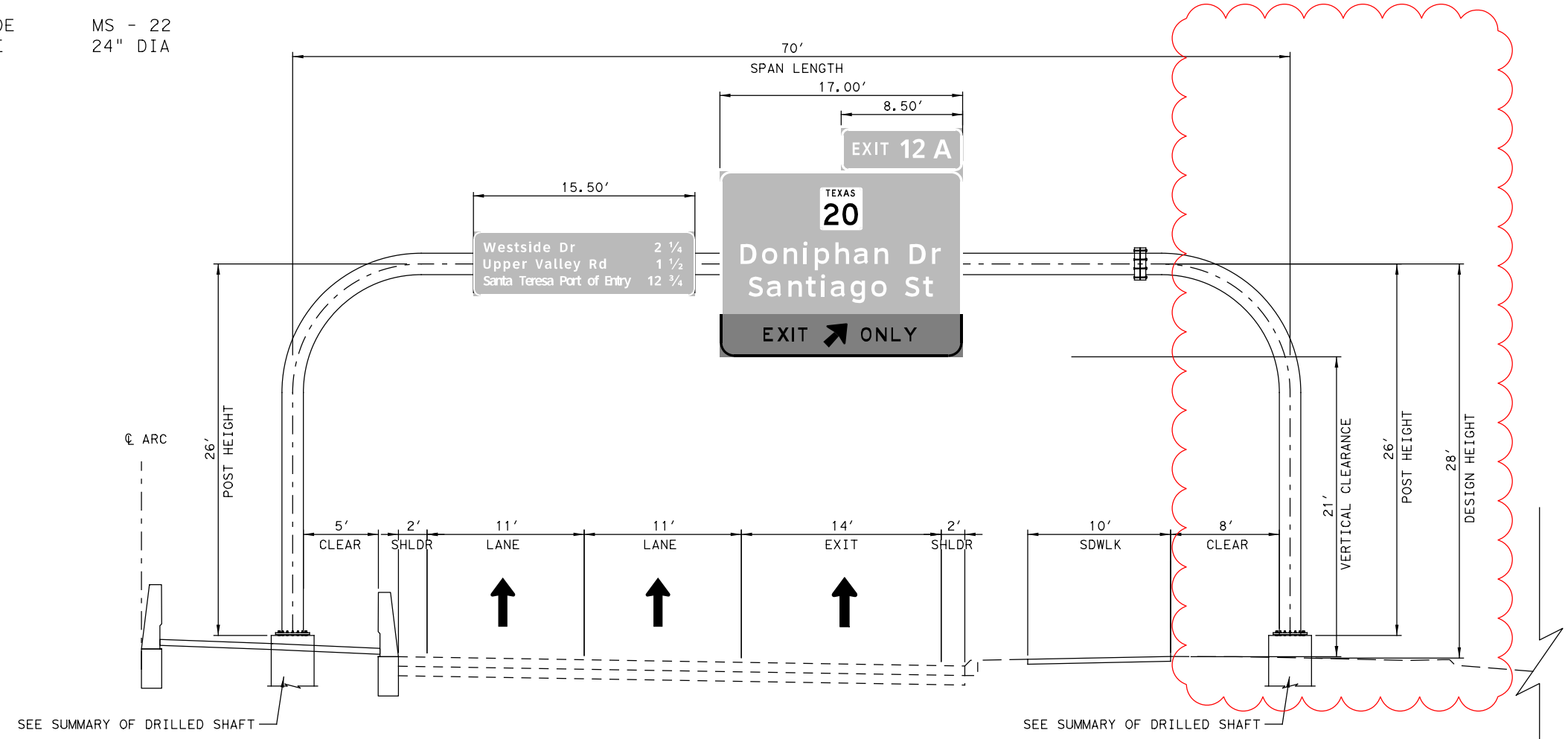
MOMENT 348 K-FT
 TORSION 108 K-FT

STRUCTURE DATA

STRUCTURE CODE MS - 22
 MONOTUBE SIZE 24" DIA

SUMMARY OF DRILLED SHAFT

48" DIA DRILLED SHAFT 31 LF, 32 LF
 BOTTOM BASE PLATE ELEVATION 3869.33, 3869.33
 TOP DRILLED SHAFT ELEVATION 3,869.08, 3,869.08
 BOTTOM DRILLED SHAFT ELEVATION 3838.08, 3837.08
 NEAREST BOREHOLE BARC-28
 PENETROMETER VALUE (N) 50 N

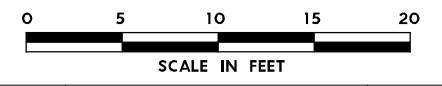


SEE SUMMARY OF DRILLED SHAFT

SEE SUMMARY OF DRILLED SHAFT

OSB-07
 Q ARC 262+82.81
 WESTBOUND

Oscar Joaquin Gutierrez
 LICENSED PROFESSIONAL ENGINEER
 1 REVISED 06/26/2024



NO.	DATE	REVISION	APPROVED
 OMEGA ENGINEERS, INC. 8200 N. MOPAC EXPRESSWAY, STE #280 AUSTIN, TEXAS 78759 OMEGAENGINEERS.COM TX PE Firm Reg. No. F-2147 P: 512.575.2288 F: 281.647.9184			
 Texas Department of Transportation © 2024			
SH 178 (ARTCRAFT RD) LARGE SIGNS ELEVATION DETAILS			
SCALE: 1"=10'		SHEET 30 OF 42	
FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.	
6	F 2B24 (273)	SH178, ETC	
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	1789
CONTROL	SECTION	JOB	
3592	01	009	

PLOT DRIVER: TXDOT_PDF_BW.pltcfgr
 USER: malimada
 FILE: p:\pwr\htr\uscen\04\FDR_US_Central\ON\Documents\TXDOT_EI_Paso_District\SH_178_-_Artcraft_Rd_PS_ET\DOT_Artcraft_Rd_PS_E_WANG_0_CAD_BIM\6.2_WIP\6.2.2_Contract_Files\Sheet_Files\Signing\Omega\Large_Signs_Elevation_Details
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 SCALE: 1/8"=1'-0"
 TIME: 10:15:41 AM
 DATE: 6/26/2024

DESIGN DATA

DESIGN WIND SPEED 90 MPH
 SPAN LENGTH 35 LF
 POST HEIGHT 30 LF
 DESIGN HEIGHT 31 LF
 TOTAL SIGN AREA 227.50 SF

SUMMARY OF DRILLED SHAFT

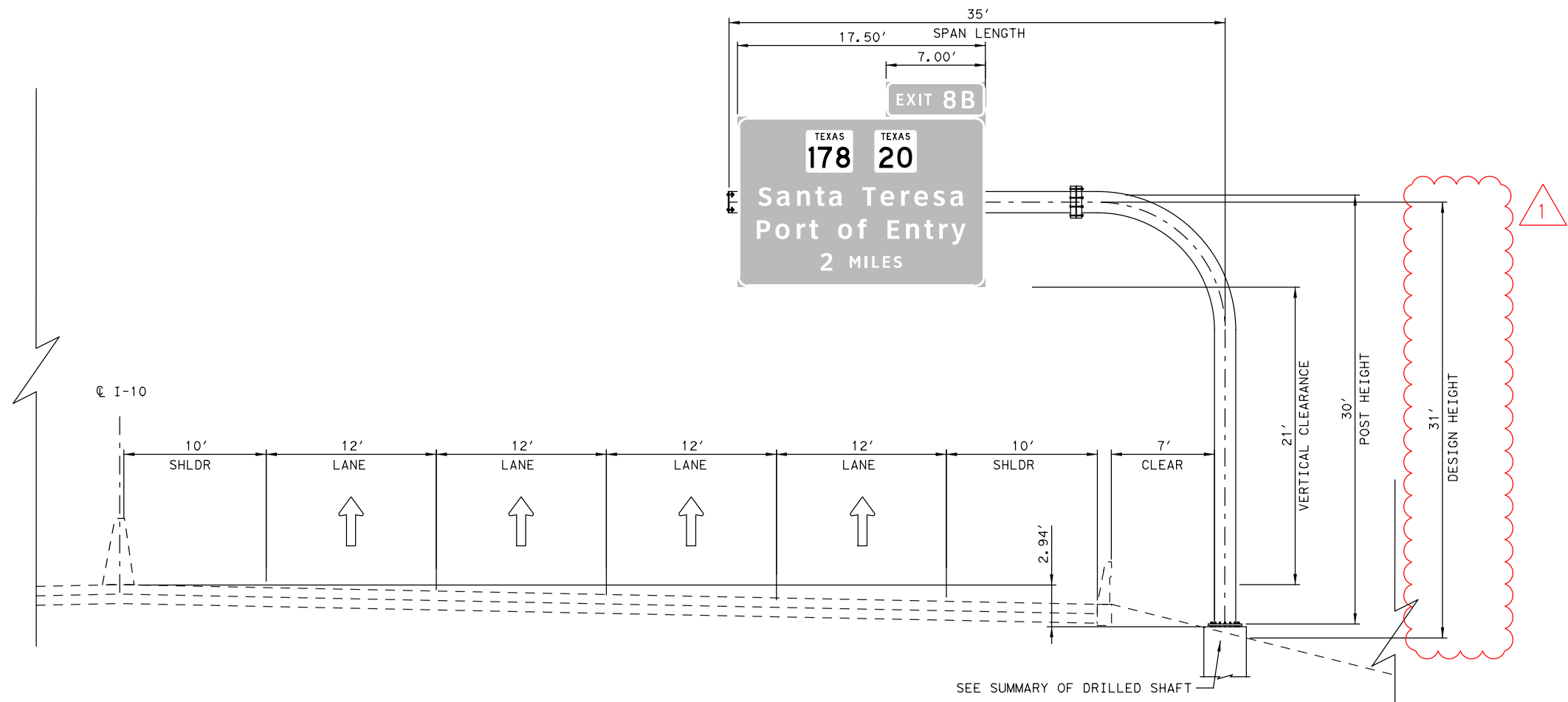
48" DIA DRILLED SHAFT 28 LF
 BOTTOM BASE PLATE ELEVATION 3,923.13
 TOP DRILLED SHAFT ELEVATION 3,922.88
 BOTTOM DRILLED SHAFT ELEVATION 3,894.88
 NEAREST BOREHOLE TH NO B-14 (I10 WIDENING PROJECT)
 PENETROMETER VALUE (N) 50 N

DESIGN LOADS

MOMENT 401 K-FT
 TORSION 223 K-FT

STRUCTURE DATA

STRUCTURE CODE MC - 22 (MOD)
 MONOTUBE SIZE 24" DIA



COSS-10B
 I10 275+00.00
 EASTBOUND

1 REVISED 06/26/2024
 0 5 10 15 20
 SCALE IN FEET

NO.	DATE	REVISION	APPROVED
OMEGA ENGINEERS, INC. <small>8200 N. MOPAC EXPRESSWAY, STE #280 AUSTIN, TEXAS 78759 OMEGAENGINEERS.COM TX PE Firm Reg. No. F-2147 P: 512 575 2288 F: 281 647 9184</small>			
 Texas Department of Transportation © 2024			
SH 178 (ARTCRAFT RD) LARGE SIGNS ELEVATION DETAILS			
SCALE: 1"=10'		SHEET 31 OF 42	
FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.	
6	F 2B24 (273)	SH178, ETC	
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	1790
CONTROL	SECTION	JOB	
3592	01	009	

FINAL PLANS SUBMITTAL
 PLOT DRIVER: TXDOT_PDF_BW.pltcfgr
 USER: malimada DATE: 6/26/2024
 PENTABLE: Artcraft Rd PROJECT PENTABLE
 TIME: 10:15:43 AM SCALE: 1/8"=1'-0"
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DESIGN DATA

DESIGN WIND SPEED 90 MPH
 SPAN LENGTH 35 LF
 POST HEIGHT 29 LF
 DESIGN HEIGHT 30 LF
 TOTAL SIGN AREA 227.50 SF

SUMMARY OF DRILLED SHAFT

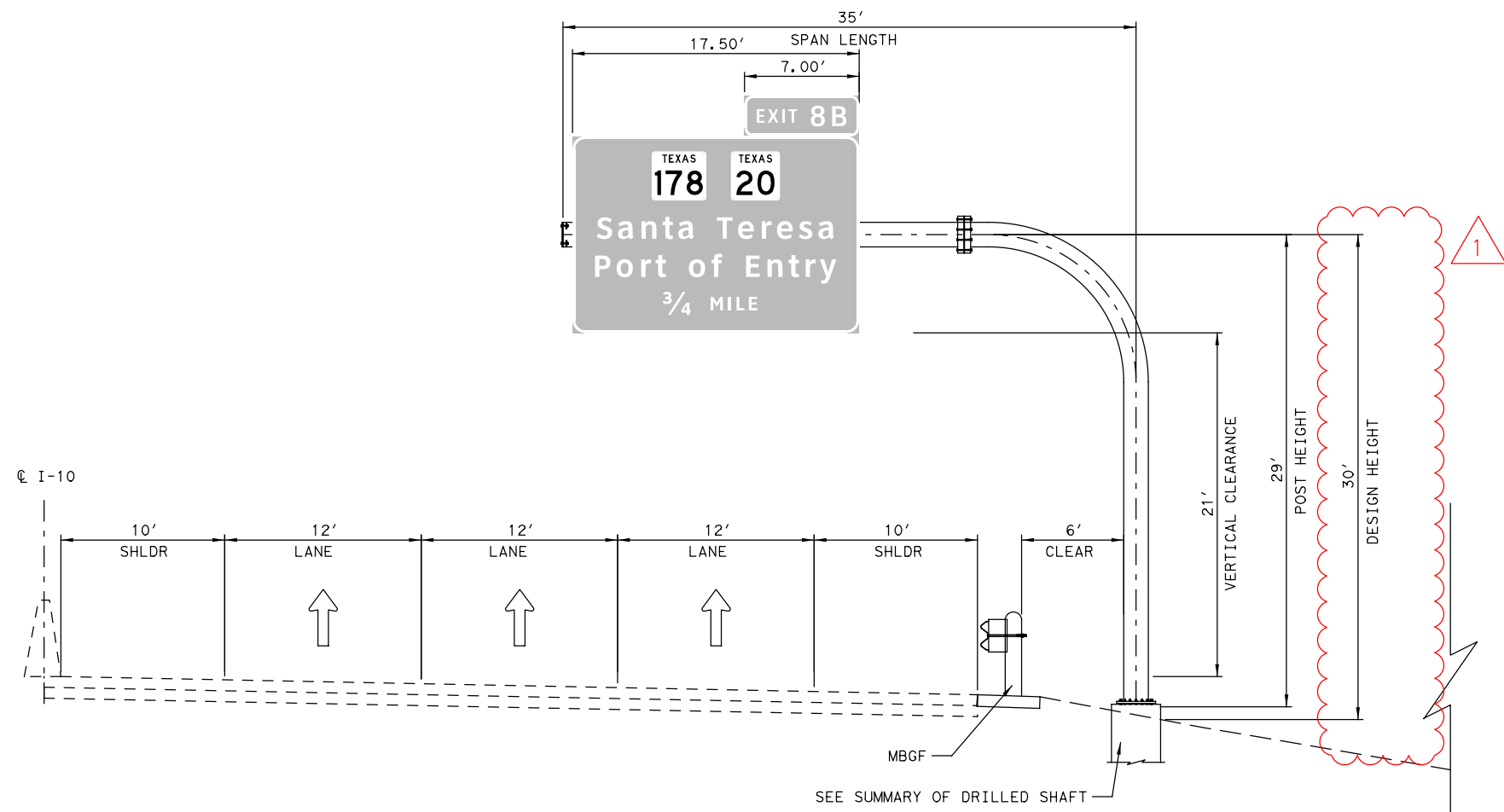
48" DIA DRILLED SHAFT 28 LF
 BOTTOM BASE PLATE ELEVATION 3,882.19
 TOP DRILLED SHAFT ELEVATION 3881.94
 BOTTOM DRILLED SHAFT ELEVATION 3853.94
 NEAREST BOREHOLE TH NO B-19 (I10 WIDENING PROJECT)
 PENETROMETER VALUE (N) 50 N

DESIGN LOADS

MOMENT 401 K-FT
 TORSION 223 K-FT

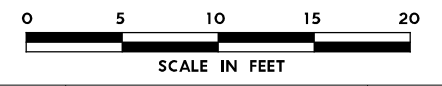
STRUCTURE DATA

STRUCTURE CODE MC - 22 (MOD)
 MONOTUBE SIZE 24" DIA



COSS-10
 I10 348+00.00
 (EASTBOUND)

Oscar Joaquin Gutierrez
 LICENSED PROFESSIONAL ENGINEER
 1 REVISED 06/26/2024



NO.	DATE	REVISION	APPROVED

OMEGA ENGINEERS, INC.
 8200 N. MOPAC EXPRESSWAY, STE #280
 AUSTIN, TEXAS 78759
 OMEGAENGINEERS.COM
 TX PE Firm Reg. No. F-2147
 P: 512.575.2288 F: 281.647.9184

Texas Department of Transportation
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SH 178 (ARTCRAFT RD)

LARGE SIGNS
 ELEVATION DETAILS

SCALE: 1"=10' SHEET 33 OF 42

FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.
6	F 2B24 (273)	SH178, ETC
STATE	DISTRICT	COUNTY
TEXAS	ELP	EL PASO
CONTROL	SECTION	JOB
3592	01	009

1792

PLOT DRIVER: TXDOT_PDF_BW.pltcfgr
 USER: malmada DATE: 6/26/2024 TIME: 10:15:45 AM SCALE: 1:100
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DESIGN DATA

DESIGN WIND SPEED 90 MPH
 SPAN LENGTH 85 LF
 POST HEIGHT 30 LF
 DESIGN HEIGHT 31 LF
 TOTAL SIGN AREA 236.25 SF

SUMMARY OF DRILLED SHAFT

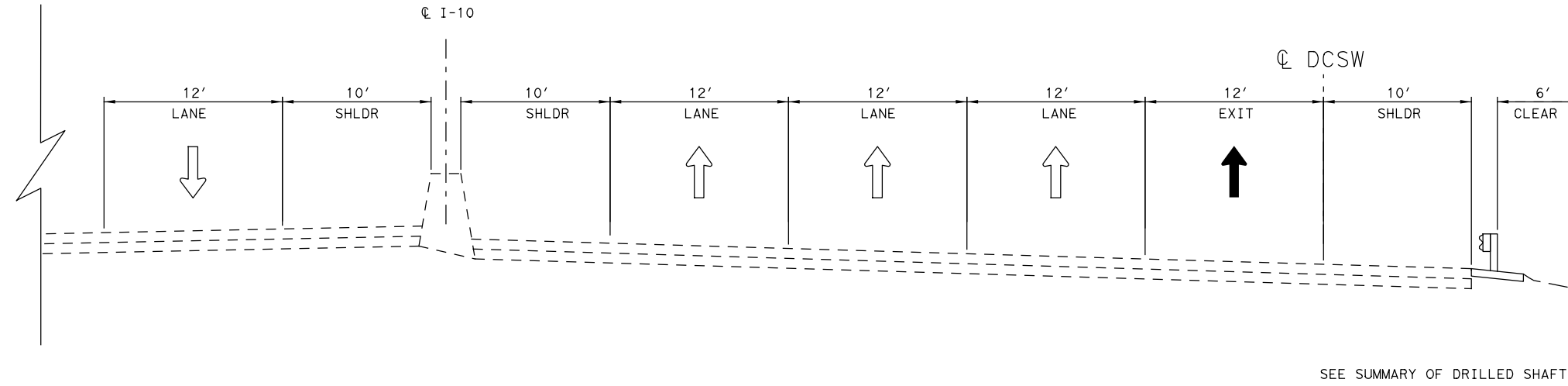
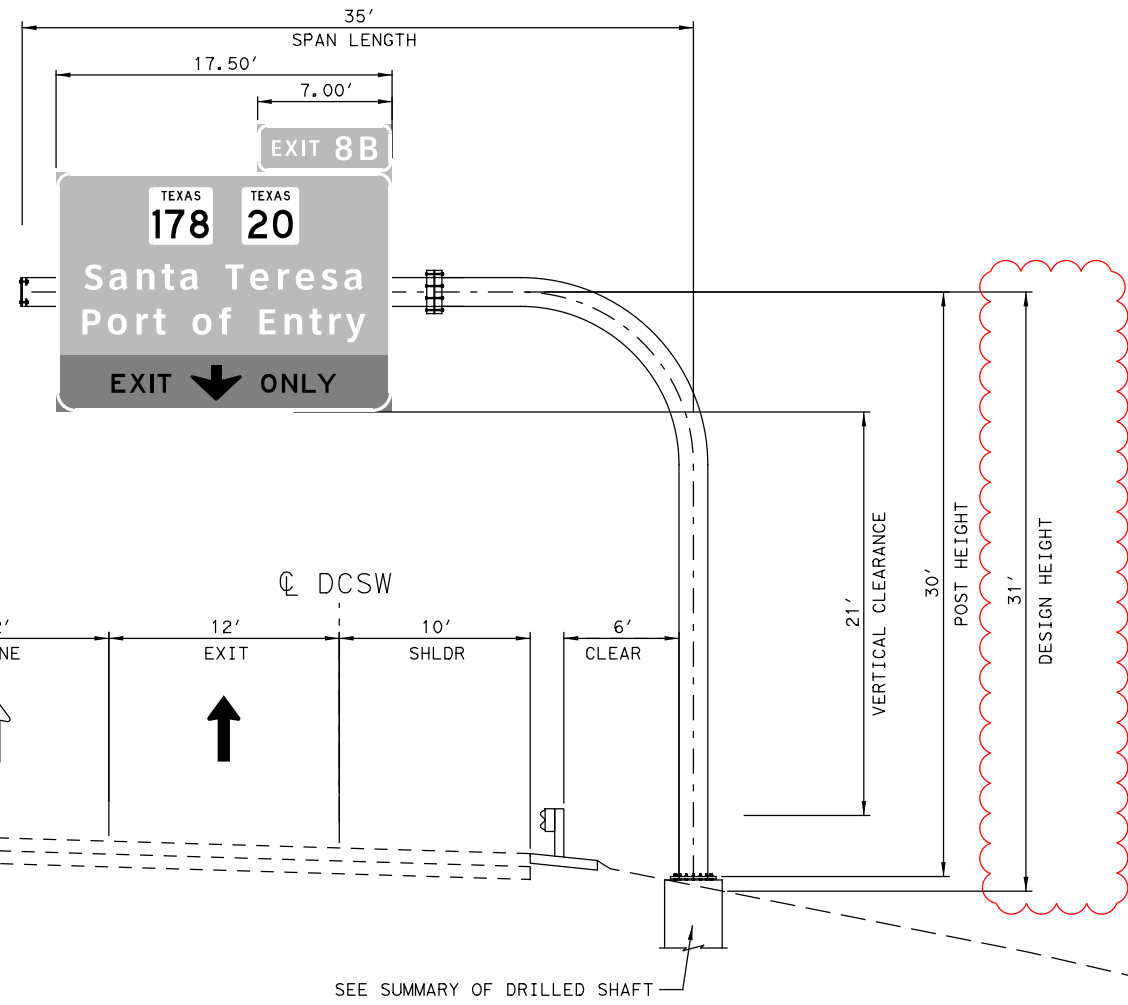
48" DIA DRILLED SHAFT 28 LF
 BOTTOM BASE PLATE ELEVATION 3869.88
 TOP DRILLED SHAFT ELEVATION 3869.63
 BOTTOM DRILLED SHAFT ELEVATION 3841.94
 NEAREST BOREHOLE DP-28
 PENETROMETER VALUE (N) 50 N

DESIGN LOADS

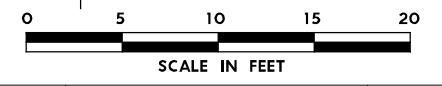
MOMENT 401 K-FT
 TORSION 223 K-FT

STRUCTURE DATA

STRUCTURE CODE MC - 22 (MOD)
 MONOTUBE SIZE 24" DIA



COSS-10C
 @ I10 372+04.59
 EASTBOUND



1 REVISED 06/26/2024

NO.	DATE	REVISION	APPROVED
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Texas Department of Transportation © 2024			
SH 178 (ARTCRAFT RD)			
LARGE SIGNS ELEVATION DETAILS			
SCALE: 1"=10'		SHEET 34 OF 42	
FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.	
6	F 2B24 (273)	SH178, ETC	
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	1793
CONTROL	SECTION	JOB	
3592	01	009	

FINAL PLANS SUBMITTAL
 PLOT DRIVER: TXDOT_PDF_BW.pltcfgr
 USER: malimada DATE: 6/26/2024
 PENTABLE: Artcraft Rd PROJECT PENTABLE
 TIME: 10:15:46 AM SCALE: 1:100
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DESIGN DATA

DESIGN WIND SPEED 90 MPH
 SPAN LENGTH 35 LF
 POST HEIGHT 30 LF
 DESIGN HEIGHT 31 LF
 TOTAL SIGN AREA 236.25 SF

SUMMARY OF DRILLED SHAFT

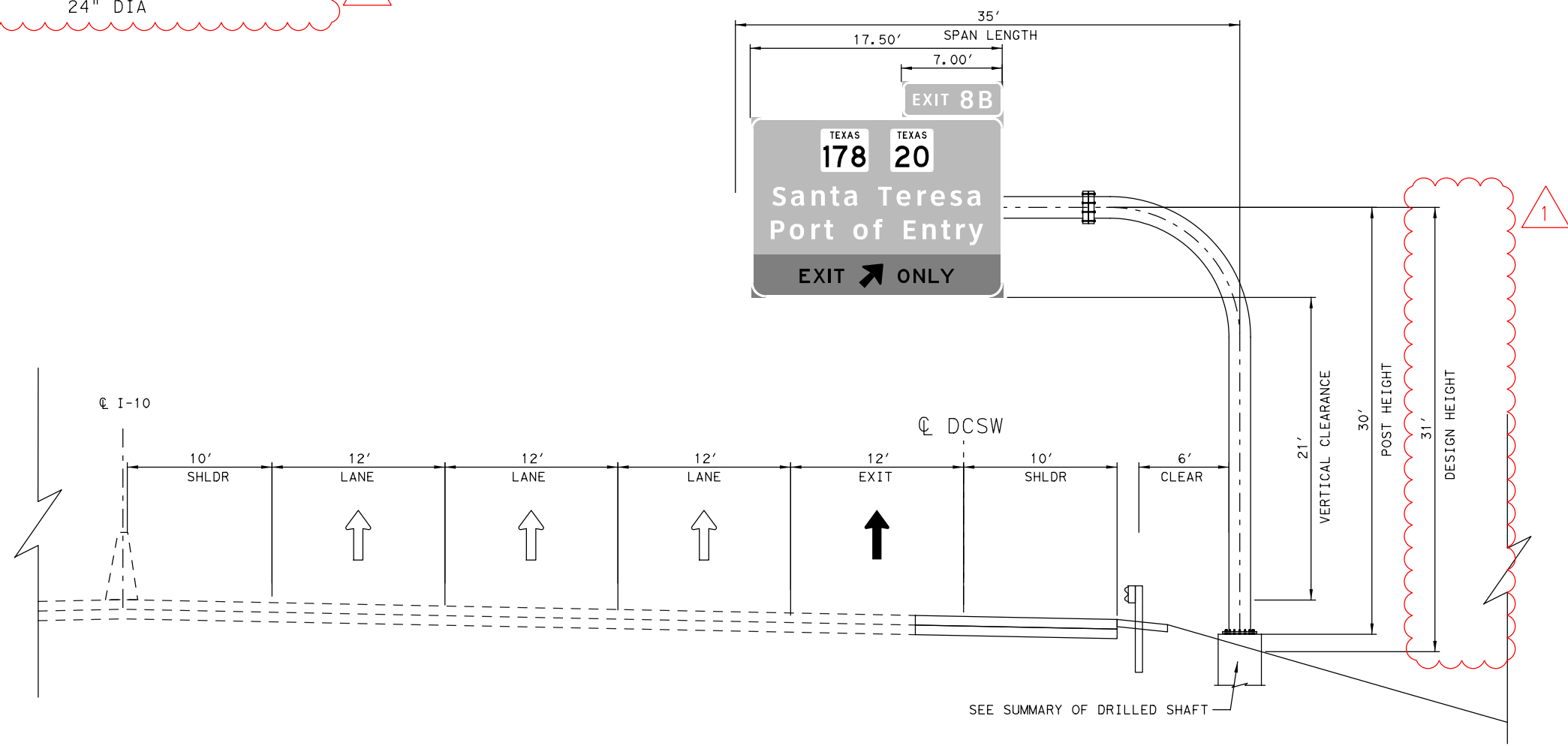
48" DIA DRILLED SHAFT 28 LF
 BOTTOM BASE PLATE ELEVATION 3860.32
 TOP DRILLED SHAFT ELEVATION 3,860.07
 BOTTOM DRILLED SHAFT ELEVATION 3832.07
 NEAREST BOREHOLE DP-28
 PENETROMETER VALUE (N) 50 N

DESIGN LOADS

MOMENT 401 K-FT
 TORSION 223 K-FT

STRUCTURE DATA

STRUCTURE CODE MC - 22 (MOD)
 MONOTUBE SIZE 24" DIA



COSS-11
 I 10 382+62.92
 EASTBOUND

Oscar Joaquin Gutierrez
 LICENSED PROFESSIONAL ENGINEER
 1 REVISED 06/26/2024

 SCALE IN FEET

NO.	DATE	REVISION	APPROVED
OMEGA ENGINEERS, INC. <small>8200 N. MOPAC EXPRESSWAY, STE #280 AUSTIN, TEXAS 78759 OMEGAENGINEERS.COM TX PE Firm Reg. No. F-2147 P: 512 575 2288 F: 281 647 9184</small>			
 Texas Department of Transportation © 2024			
SH 178 (ARTCRAFT RD) LARGE SIGNS ELEVATION DETAILS			
SCALE: 1"=10'		SHEET 35 OF 42	
FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.	
6	F 2B24 (273)	SH178, ETC	
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	1794
CONTROL	SECTION	JOB	
3592	01	009	

PLOT DRIVER: TXDOT_PDF_BW.pltcfgr
 USER: malimada DATE: 6/26/2024 TIME: 10:15:49 AM SCALE: 1:100
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 FINAL PLANS SUBMITTAL

DESIGN DATA

DESIGN WIND SPEED 90 MPH
 SPAN LENGTH 30 LF
 POST HEIGHT 26 LF
 DESIGN HEIGHT 26 LF
 TOTAL SIGN AREA 84 SF

SUMMARY OF DRILLED SHAFT

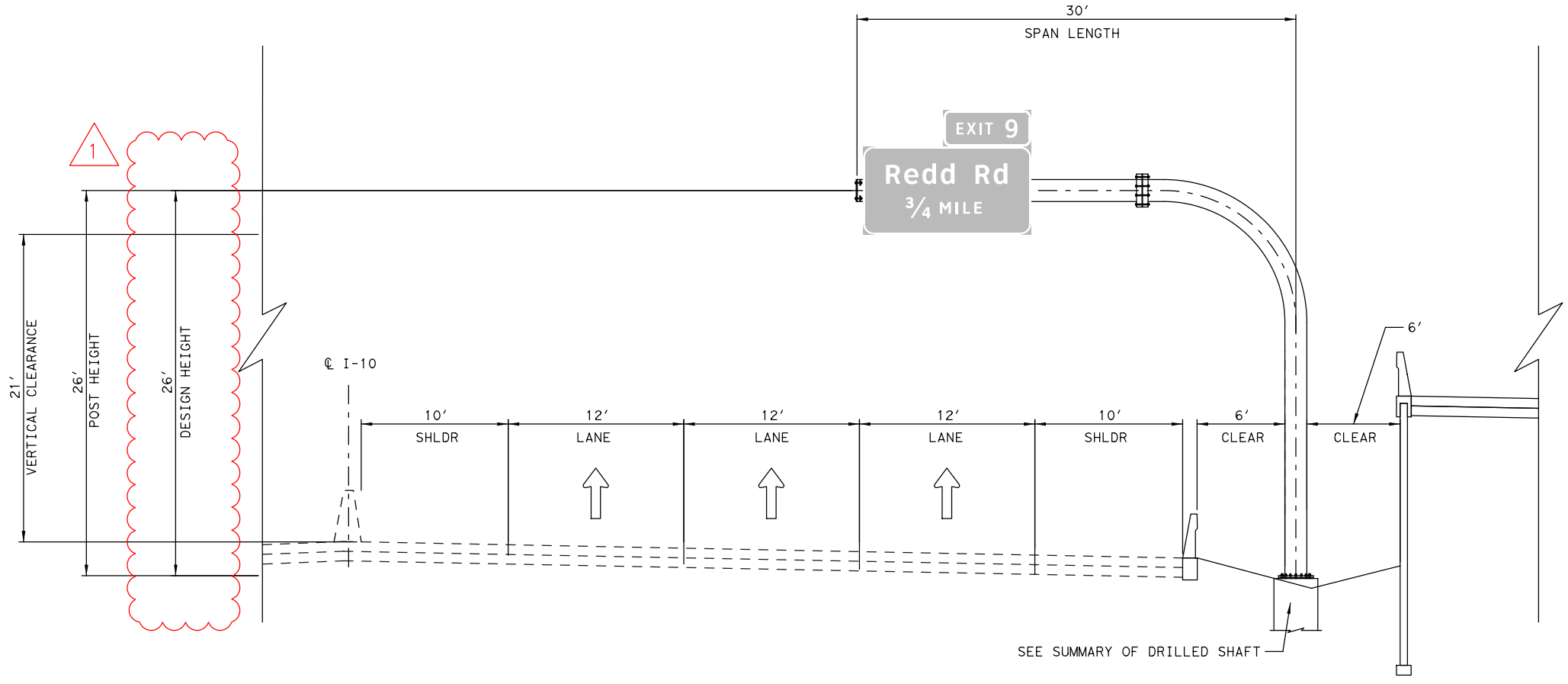
48" DIA DRILLED SHAFT 28 LF
 BOTTOM BASE PLATE ELEVATION 3,844.78
 TOP DRILLED SHAFT ELEVATION 3,844.53
 BOTTOM DRILLED SHAFT ELEVATION 3,816.53
 NEAREST BOREHOLE BARC-23
 PENETROMETER VALUE (N) 50 N

DESIGN LOADS

MOMENT 320 K-FT
 TORSION 167 K-FT

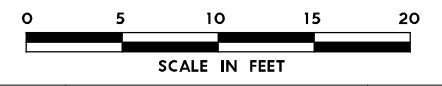
STRUCTURE DATA

STRUCTURE CODE MC - 22 (MOD)
 MONOTUBE SIZE 24" DIA



COSS-11A
 @ I 10 395+09.00
 (EASTBOUND)

1 REVISED 06/26/2024



NO.	DATE	REVISION	APPROVED
 8200 N. MOPAC EXPRESSWAY, STE #280 AUSTIN, TEXAS 78759 OMEGAENGINEERS.COM TX PE Firm Reg. No. F-2147 P: 512.575.2288 F: 281.647.9184			
 SH 178 (ARTCRAFT RD) LARGE SIGNS ELEVATION DETAILS SCALE: 1"=10' SHEET 37 OF 42			
FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.		HIGHWAY NO.
6	F 2B24 (273)		SH 178, ETC
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	1796
CONTROL	SECTION	JOB	
3592	01	009	

FINAL PLANS SUBMITTAL
 PLOT DRIVER: TXDOT_PDF_BW.pltcfgr
 USER: malimada
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DESIGN DATA

DESIGN WIND SPEED 90 MPH
 SPAN LENGTH 35 LF
 POST HEIGHT 30 LF
 DESIGN HEIGHT 30 LF
 TOTAL SIGN AREA 227.50 SF

DESIGN LOADS

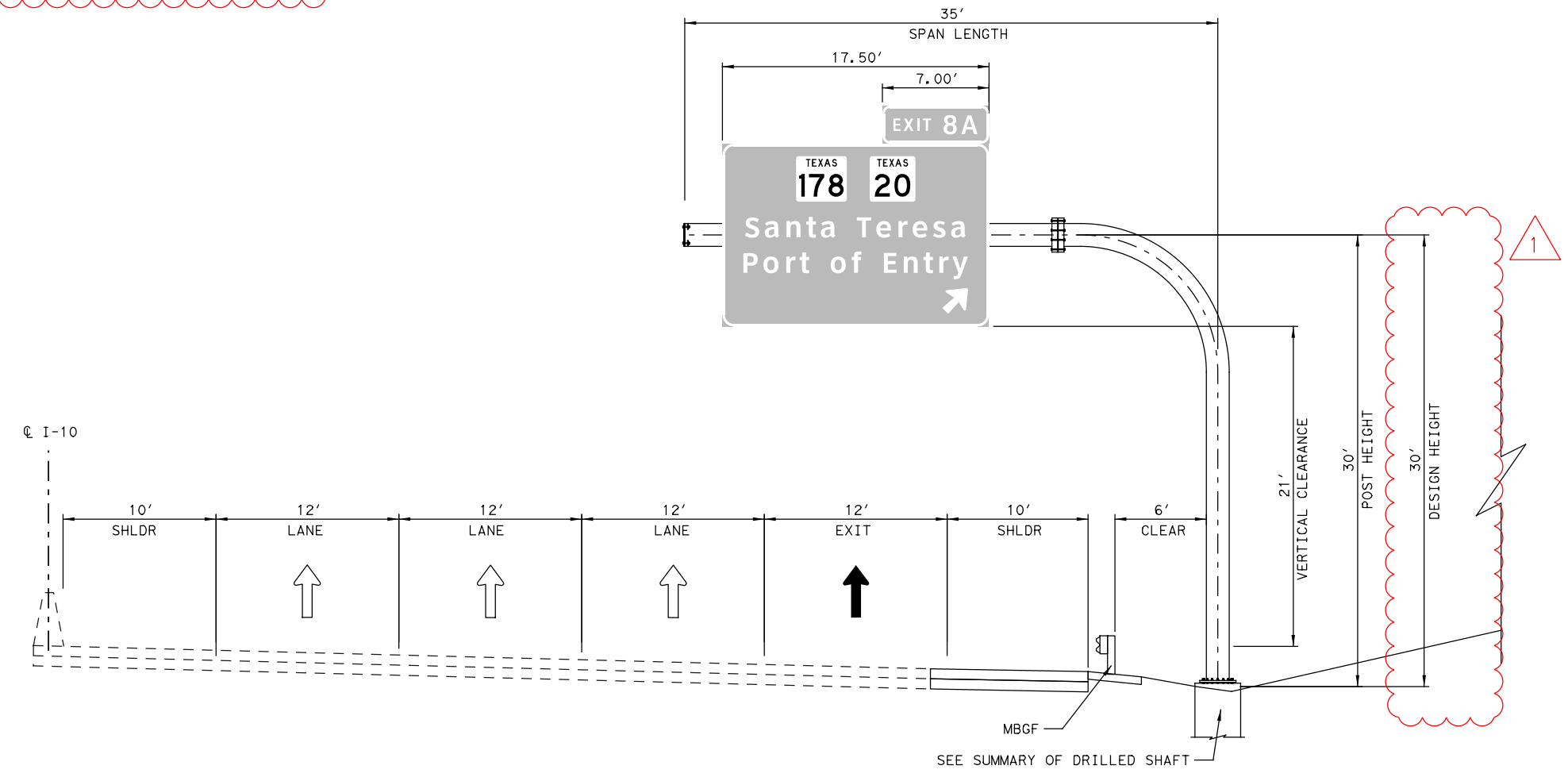
MOMENT 401 K-FT
 TORSION 223 K-FT

STRUCTURE DATA

STRUCTURE CODE MC - 22 (MOD)
 MONOTUBE SIZE 24" DIA

SUMMARY OF DRILLED SHAFT

48" DIA DRILLED SHAFT 28 LF
 BOTTOM BASE PLATE ELEVATION 3,872.67
 TOP DRILLED SHAFT ELEVATION 3872.42
 BOTTOM DRILLED SHAFT ELEVATION 3,844.42
 NEAREST BOREHOLE RARC-23
 PENETROMETER VALUE (N) 50 N



COSS-12
 I 10 464+17.03
 WESTBOUND

Oscar Joaquin Gutierrez
 LICENSED PROFESSIONAL ENGINEER
 REVISED 06/26/2024

0 5 10 15 20
 SCALE IN FEET

NO.	DATE	REVISION	APPROVED
OMEGA ENGINEERS, INC. <small>8200 N. MOPAC EXPRESSWAY, STE #280 AUSTIN, TEXAS 78759 OMEGAENGINEERS.COM TX PE Firm Reg. No. F-2147 P: 512.575.2288 F: 281.647.9184</small>			
 Texas Department of Transportation © 2024			
SH 178 (ARTCRAFT RD) LARGE SIGNS ELEVATION DETAILS			
SCALE: 1"=10'		SHEET 39 OF 42	
FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.	
6	F 2B24 (273)	SH178, ETC	
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	1798
CONTROL	SECTION	JOB	
3592	01	009	

PLOT DRIVER: TXDOT_PDF_BW.pltcfgr
 USER: malimada DATE: 6/26/2024 TIME: 10:55:54 AM SCALE: 1/8"=10'
 PENTABLE: Artcraft Rd PROJECT PENTABLE
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DESIGN DATA

DESIGN WIND SPEED 90 MPH
 SPAN LENGTH 35 LF
 POST HEIGHT 30 LF
 DESIGN HEIGHT 33 LF
 TOTAL SIGN AREA 227.50 SF

DESIGN LOADS

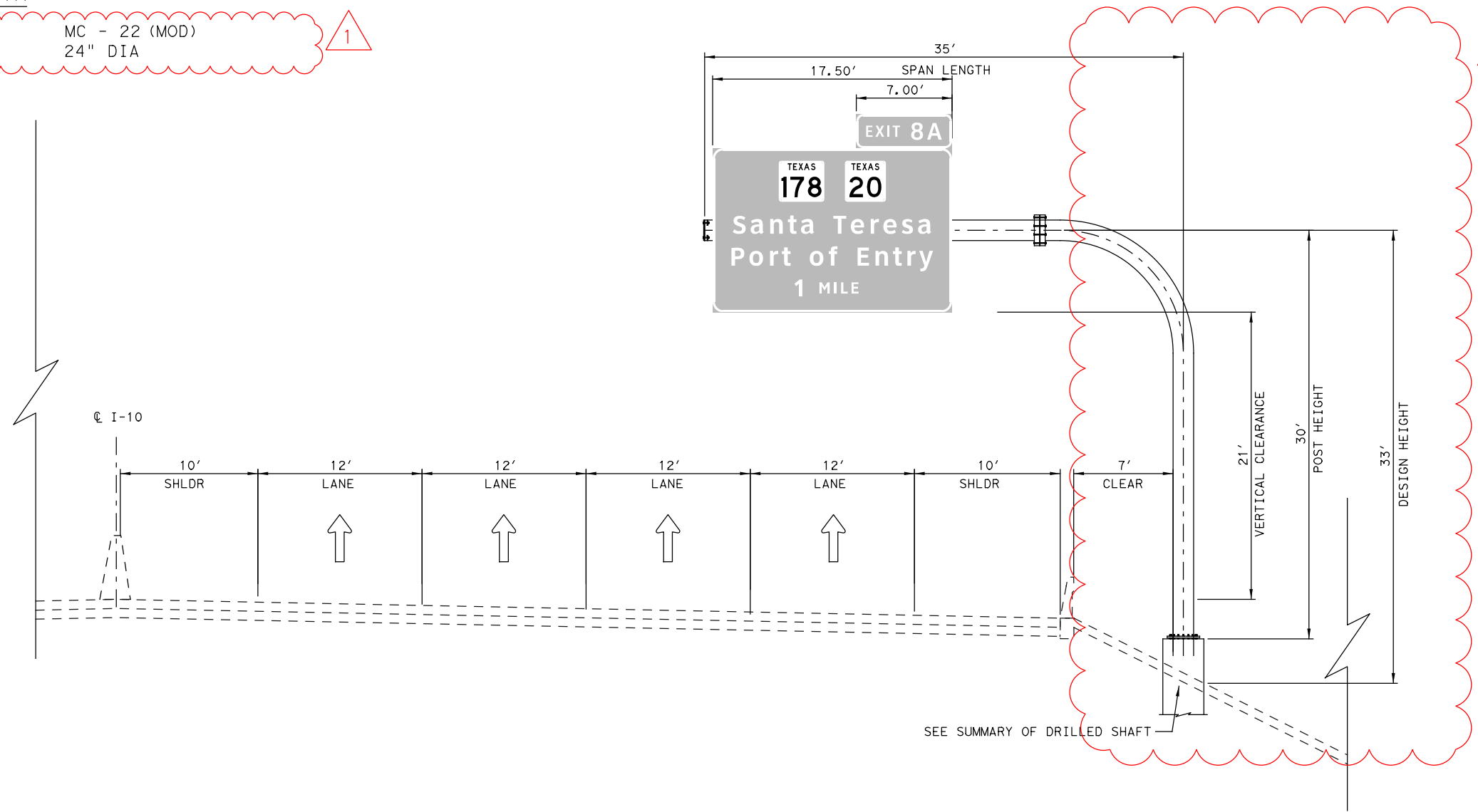
MOMENT 401 K-FT
 TORSION 223 K-FT

STRUCTURE DATA

STRUCTURE CODE MC - 22 (MOD)
 MONOTUBE SIZE 24" DIA

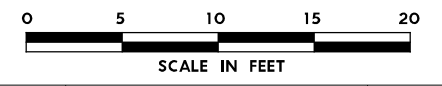
SUMMARY OF DRILLED SHAFT

48" DIA DRILLED SHAFT 31 LF
 BOTTOM BASE PLATE ELEVATION 3851.22
 TOP DRILLED SHAFT ELEVATION 3,850.97
 BOTTOM DRILLED SHAFT ELEVATION 3,819.97
 NEAREST BOREHOLE TH NO. B-28 (I10 WIDENING PROJECT)
 PENETROMETER VALUE (N) 40 N



COSS 14
 Q I10 STA 523+00.00
 (WESTBOUND)

1 REVISED 06/26/2024



NO.	DATE	REVISION	APPROVED
 8200 N. MOPAC EXPRESSWAY, STE #280 AUSTIN, TEXAS 78759 OMEGAENGINEERS.COM TX PE Firm Reg. No. F-2147 P: 512 575 2288 F: 281 647 9184			
 SH 178 (ARTCRAFT RD) LARGE SIGNS ELEVATION DETAILS			
SCALE: 1"=10'		SHEET 41 OF 42	
FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.	
6	F 2B24 (273)	SH178, ETC	
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	1800
CONTROL	SECTION	JOB	
3592	01	009	

FINAL PLANS SUBMITTAL
 PLOT DRIVER: TXDOT_PDF_BW.pltcfgr
 USER: malimada DATE: 6/26/2024
 PENTABLE: Artcraft Rd PROJECT PENTABLE
 TIME: 10:58:09 AM SCALE: 1:100
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DESIGN DATA

DESIGN WIND SPEED 90 MPH
 SPAN LENGTH 35 LF
 POST HEIGHT 30 LF
 DESIGN HEIGHT 33 LF
 TOTAL SIGN AREA 227.50 SF

SUMMARY OF DRILLED SHAFT

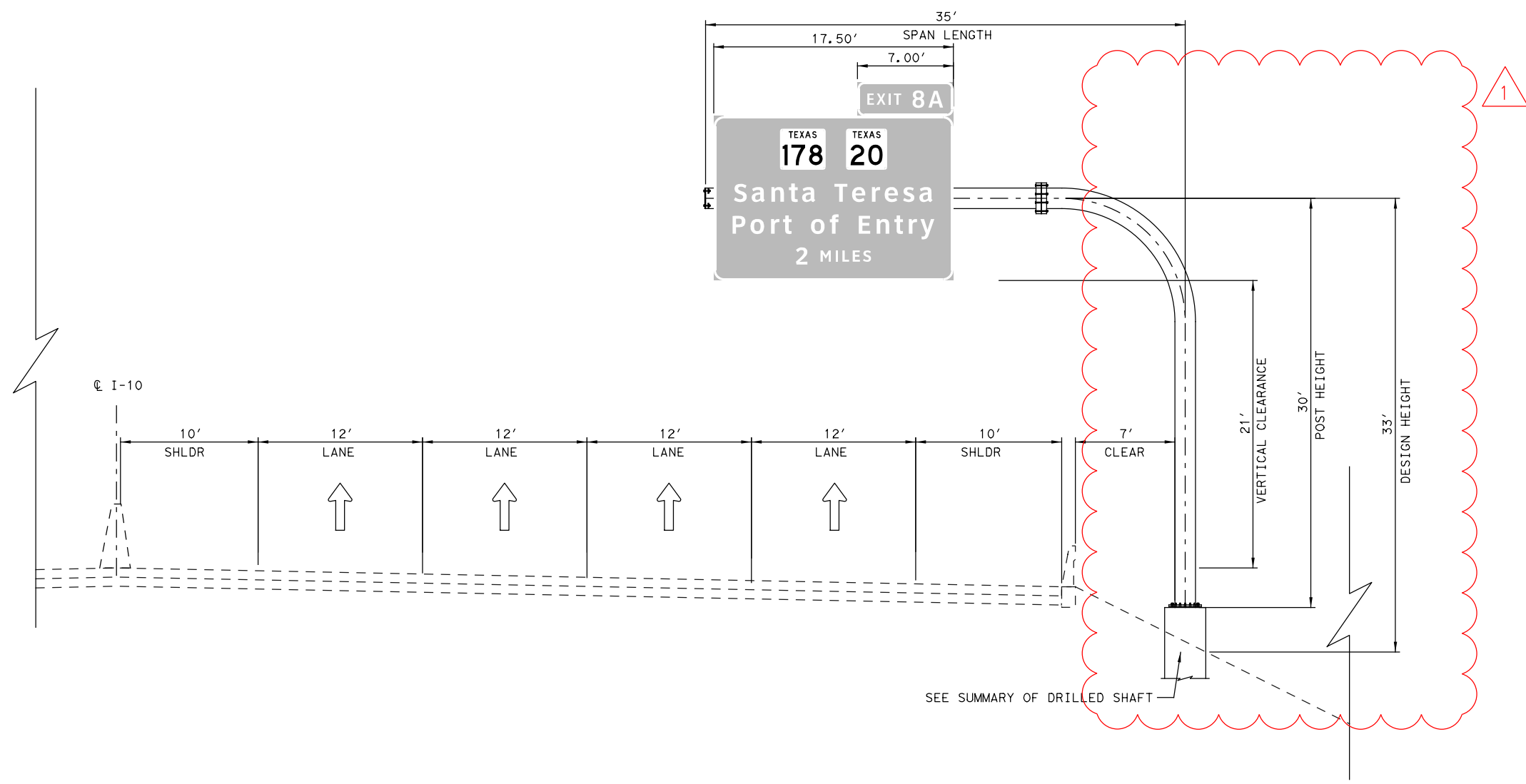
48" DIA DRILLED SHAFT 31 LF
 BOTTOM BASE PLATE ELEVATION 3813.09
 TOP DRILLED SHAFT ELEVATION 3812.84
 BOTTOM DRILLED SHAFT ELEVATION 3781.84
 NEAREST BOREHOLE TH NO. B-32 (I10 WIDENING PROJECT)
 PENETROMETER VALUE (N) 50 N

DESIGN LOADS

MOMENT 401 K-FT
 TORSION 223 K-FT

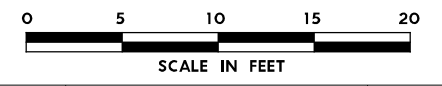
STRUCTURE DATA

STRUCTURE CODE MC - 22 (MOD)
 MONOTUBE SIZE 24" DIA

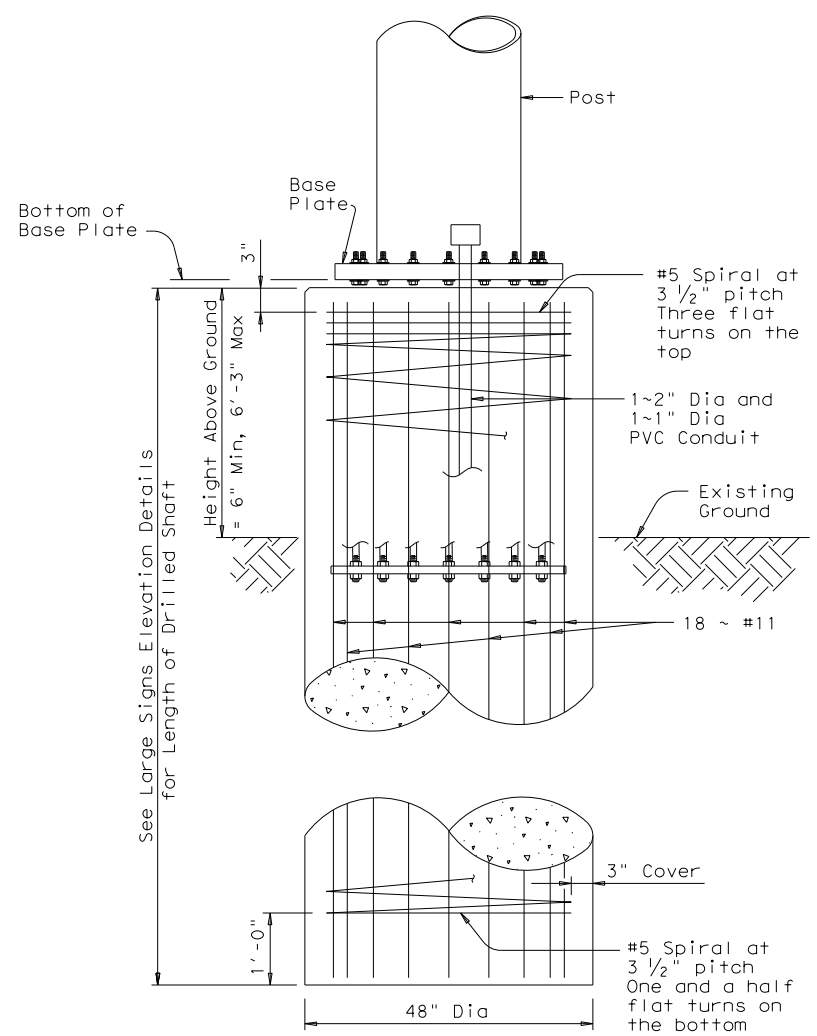


COSS 15
 CL I10 STA 561+00.00
 (WESTBOUND)

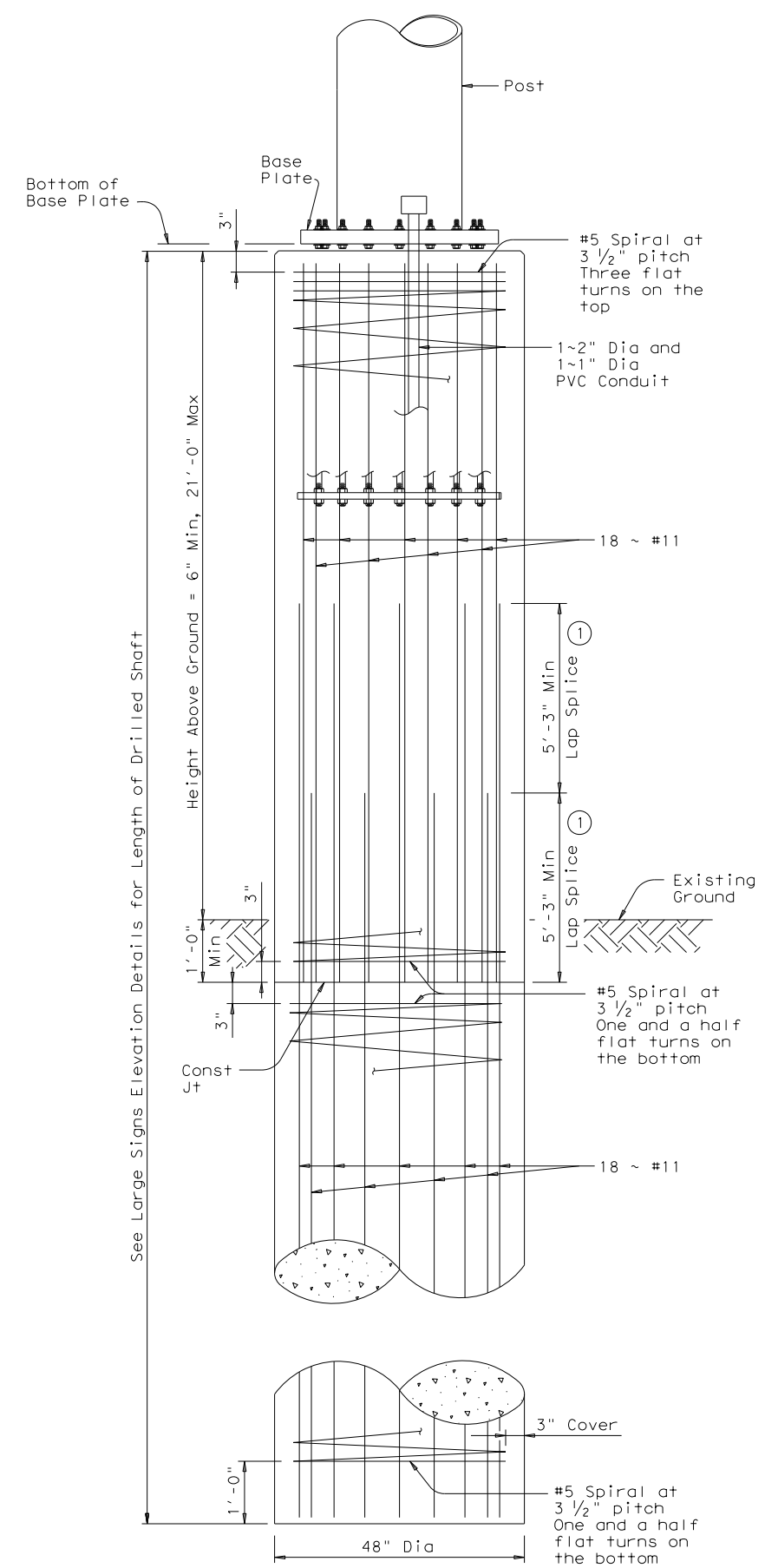
Oscar Joaquin Gutierrez
 LICENSED PROFESSIONAL ENGINEER
 1 REVISED 06/26/2024



NO.	DATE	REVISION	APPROVED
 8200 N. MOPAC EXPRESSWAY, STE #280 AUSTIN, TEXAS 78759 OMEGAENGINEERS.COM TX PE Firm Reg. No. F-2147 P: 512.575.2288 F: 281.647.9184			
 © 2024 SH 178 (ARTCRAFT RD) LARGE SIGNS ELEVATION DETAILS			
SCALE: 1"=10'		SHEET 42 OF 42	
FED. RD. DIV. NO.	FEDERAL-AID PROJECT NO.	HIGHWAY NO.	
6	F 2B24 (273)	SH178, ETC	
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	1801
CONTROL	SECTION	JOB	
3592	01	009	



COSS-7A AND OSB-02
DRILLED SHAFT

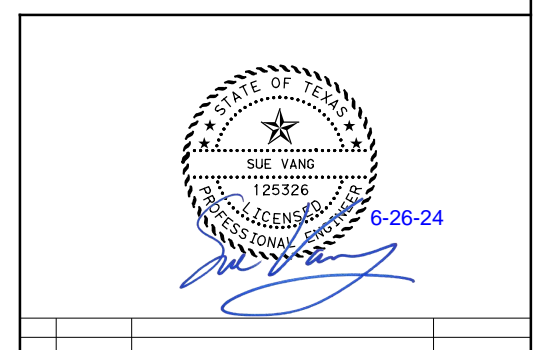


OSB-03 DRILLED SHAFT

GENERAL NOTES:
 See appropriate monotube standard for all drilled shaft and base plate connection details and notes not shown.
 Exposed drilled shaft shall match the existing adjacent retaining wall arch, coping, and trim/framing elements color (Sherwin Williams Exterior Oak Creek Tan - SW 2176) or equivalent.

① Contractor may choose to extend the vertical bars the full length of the drilled shaft without a splice. If splice is chosen, stagger the splice for every other bar.

① ADDED 06/26/2024



NO.	DATE	REVISION	APPROVED

OMEGA ENGINEERS, INC.
 8200 N. MOPAC EXPRESSWAY, STE #280
 AUSTIN, TEXAS 78759
 OMEGAENGINEERS.COM
 TX PE Firm Reg. No. F-2147
 P: 512.575.2288 F: 281.647.9184

Texas Department of Transportation
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SH 178 (ARTCRAFT RD)
 MONOTUBE CUSTOM
 FOUNDATION DETAIL

SHEET 1 OF 1			
FED. RD. DIV. NO. 6	FEDERAL-AID PROJECT NO. F 2B24 (273)		HIGHWAY NO. SH178, ETC
STATE TEXAS	DISTRICT ELP	COUNTY EL PASO	SHEET NO.
CONTROL 3592	SECTION 01	JOB 009	1820A

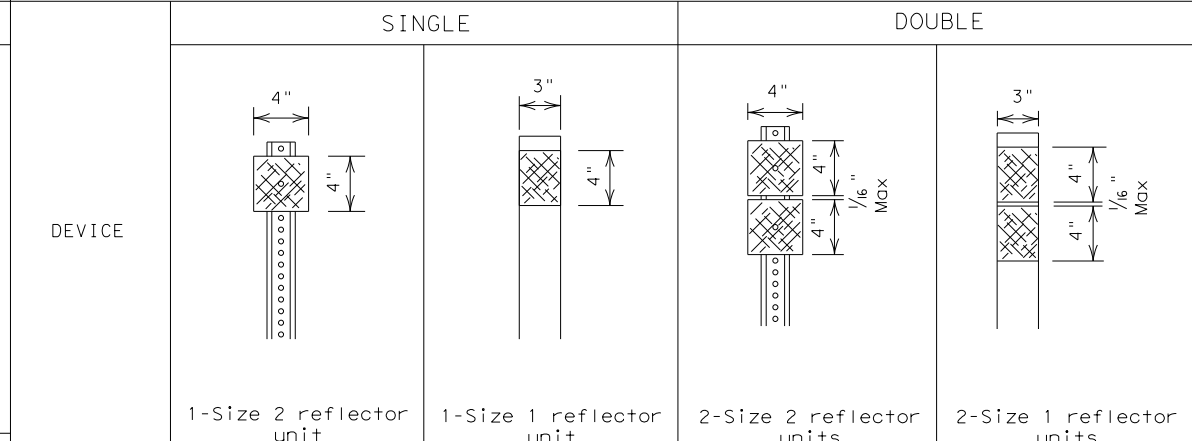
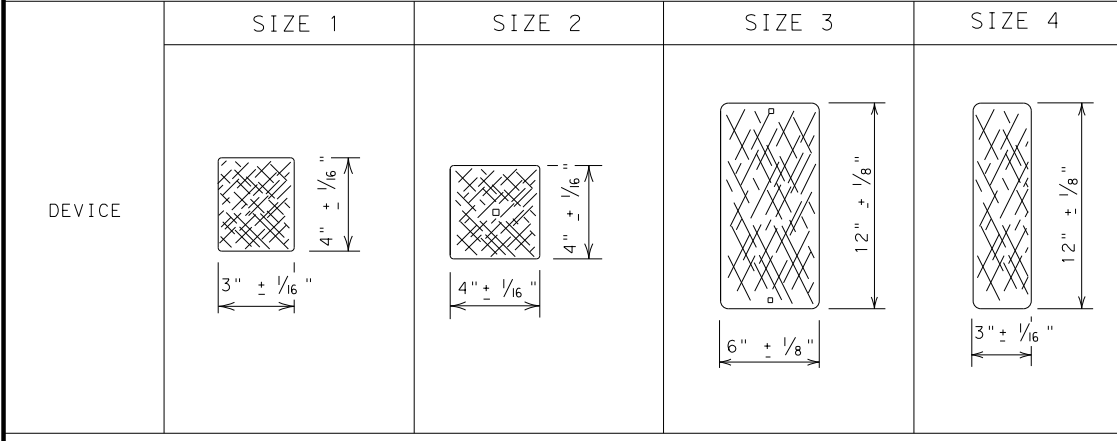
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DATE: 6/26/2024 8:16:32 AM
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REFLECTOR UNIT SIZES FOR DELINEATORS AND OBJECT MARKERS

DELINEATORS

D & OM DESCRIPTIVE CODES



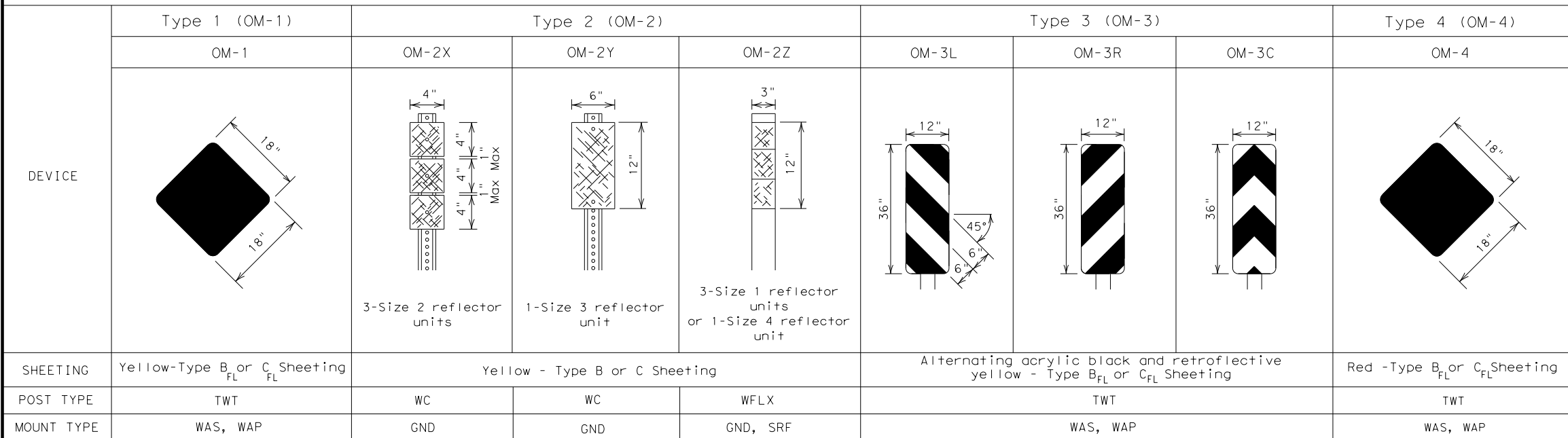
INSTL DEL ASSM (D-XX)SZ X (XXXX)XXX (XX)
 NUMBER OF REFLECTORS
 S = Single
 D = Double
 COLOR OF REFLECTORS
 W = White
 Y = Yellow
 R = Red
 REFLECTOR UNIT SIZE
 1 or 2
 TYPE OF POST OR DELINEATOR
 WC = Wing Channel Post
 YFLX = Yellow Flexible Post
 WFLX = White Flexible Post
 BRF = Barrier Reflector
 TYPE OF MOUNT
 GND = Embedded (drivable or set in concrete)
 CTB = Concrete Barrier Mount
 GF1 or GF2 = Guard Fence Attachment
 SRF = Surface Mount

SHEETING Yellow, White or Red Type B or C reflective sheeting
NOTE
 1. Size 1 and 4 - Direct applied reflective sheeting for use on flexible post (flx).
 2. Size 2 and 3 - For use on wing channel (wc) post only. Use approved metal, plastic or fiberglass backplate with 17/64" mounting holes.

SHEETING Yellow, White or Red Type B or C Reflective Sheeting
POST TYPE WC, YFLX, WFLX
MOUNT TYPE GND, GND, SRF, GND, SRF

DIRECTION
 If Required
 BI = Bi-Directional
 BR = Bi-Directional with red on back
INSTL OM ASSM (OM-XX) (XXXX)XXX (XX)

OBJECT MARKERS



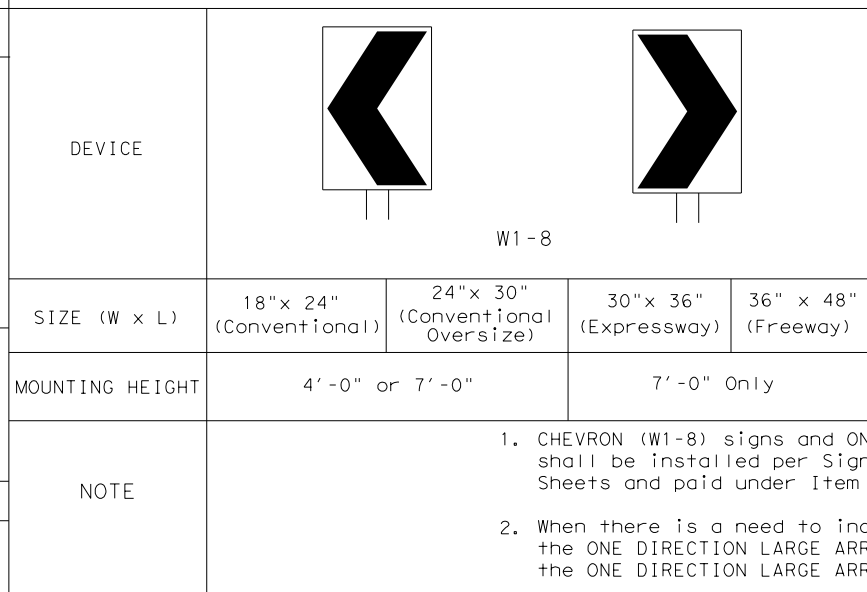
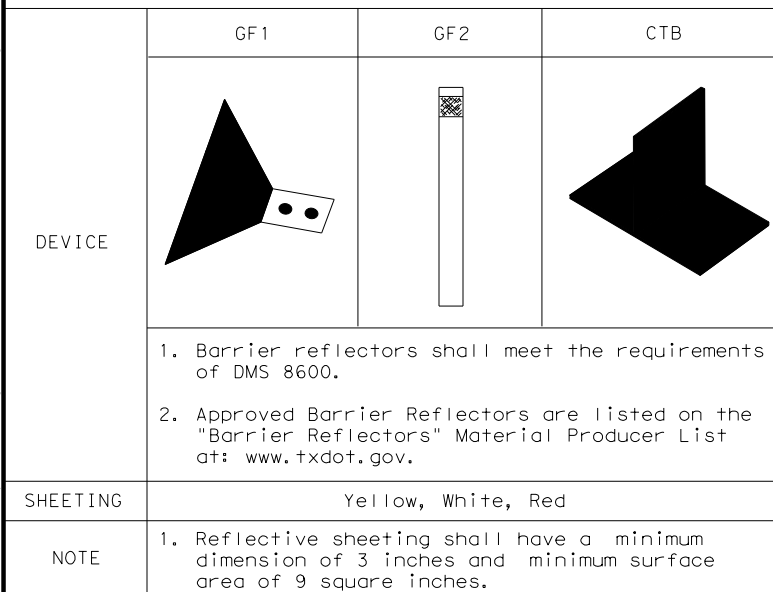
TYPE OF OBJECT MARKER
 1, 2, 3, or 4
NUMBER OF REFLECTORS OR DIRECTION
 X = 3-Size 2 reflector unit (Type 2 only)
 Y = 1-Size 3 reflector unit (Type 2 only)
 Z = 3-Size 1 or 1-Size 4 reflector unit(s) (Type 2 only)
 L = Left Side (Type 3 Object Marker only)
 R = Right Side (Type 3 Object Marker only)
 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

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.

Texas Department of Transportation
 Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER MATERIAL DESCRIPTION

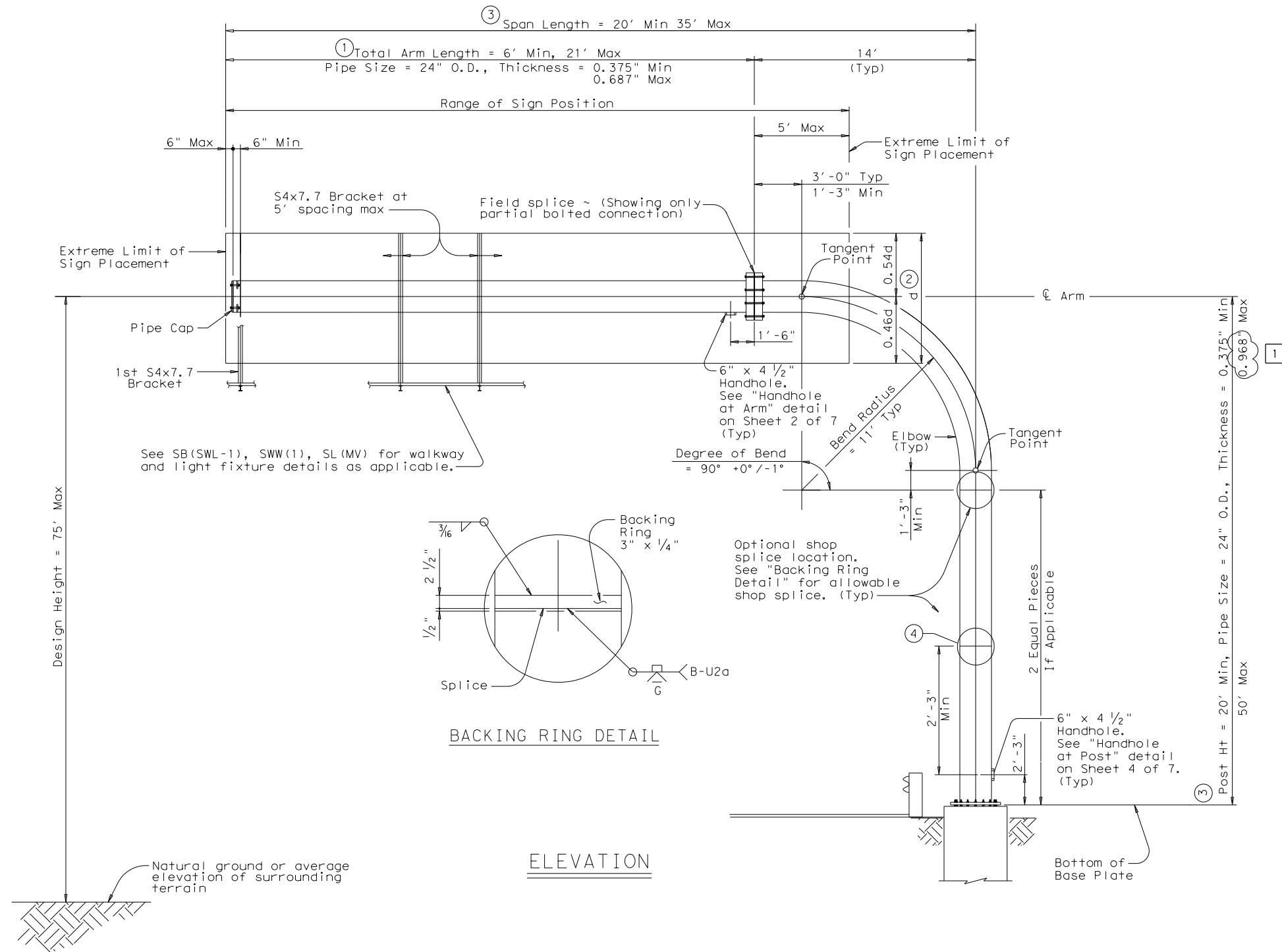
D & OM(1)-20

FILE: dom1-20.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
© TXDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS	3592	01	009	SH178, ETC
10-09 3-15	DIST	COUNTY	SHEET NO.	
4-10 7-20	ELP	EL PASO	1849A	

A ADDED, 06/25/2024

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 FILE: c:\pwworking\centra101\42724869\mc-22.dgn



- ① Adjust arm length to accommodate the span length shown on the structural layout sheet.
- ② When signs of different depths are used, aligning the bottom edges of all signs is permissible. Where this is done, position all signs so that the bottom edges are 0.46 of the depth of the deepest sign below the centerline of mast arm.
- ③ See Monotube Design Tables on Sheets 5 & 6 of 7 for specific design details such as post height, pipe wall thicknesses, and weld sizes for various span lengths.
- ④ Extra optional shop splice at mid height of straight portion of post. This splice is only applicable on certain post heights and thicknesses. See Sheets 5 & 6 of 7 for applicable designs.

MATERIAL DATA		
COMPONENT	ASTM DESIGNATION	MIN. YIELD (ksi)
Arm & Post Pipe	A53 Gr. B, Type E or S or A106 Grade B	35
Base Plate and Handhole Frame Ground Sleeve, Backing Ring	A572 Gr. 50, A36 or A588	36
Connection Bolts	A325	92
Anchor Bolts	F1554 Gr 55, A193-B7	55
U Rods	A307	
Anchor Bolt Templates	A36	36
Heavy Hex (H.H.) Nuts	A563, or A194 Gr 2H	
Hardened Washers	F436	

GENERAL NOTES:

Designed according to 2013 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals.

Determine the minimum design pipe thickness for both post and arm members from Sheets 5 and 6 of 7. Select applicable pipe thickness in accordance with specified connection - type (socket or ground sleeve) between posts and base plate. Missing specified span length and post height from Tables on Sheets 5 and 6 of 7 indicate those designs are not available.

For span lengths and post heights falling between those shown in the Design Tables on Sheets 5 & 6 of 7, use the design information for the longer span and/or taller post height.

Design wind speeds are 90 mph and 130 mph (3-second gust wind speed). Design height is up to 75 ft.

Each structure is designed to support signs of equivalent area to a 10 ft deep sign panel over 80 percent of the span length.

The analyses are based on locating an equivalent area within the range of sign position as necessary to produce maximum stress. Place sign panel such that the overlap onto elbow does not exceed 5 ft from field splice. Design includes 3 lbs per square ft for sign panel, 20 lbs per ft for lane control signal (LCS) and 50 lbs per ft for walkway, all placed as specified for the design sign panel. Dynamic message sign (DMS) is NOT considered in the design. Engineer approval is required to use DMS as part of the sign panel.

Form elbow for tubular frame by hot bending methods which do not crimp or buckle the interior radius of pipe bend, and do not change the physical characteristics of the material. For each seam-welded pipe, locate a longitudinal seam weld at the neutral axis during the bending process. Bend elbow in accordance with TPA-IBS-98 "Recommended Standards for Induction Bending of Pipe and Tube."

Arm consists of only one section.

Obtain Engineer's approval for the locations of drilled holes that accommodate 1/2 inch threaded couplings and CGB connectors for cord and cable fitting on arm.

Fabricate and weld in accordance with Item 441, "Steel Structures", AWS D1.1 Structural Welding Code, and the details shown on the plans. Galvanize all steel parts in accordance with Item 445, "Galvanizing" after fabrication unless noted elsewhere. During galvanizing process, drain acid to prevent acid entrapment under backing ring.

Construct foundations in accordance with Item 416, "Drilled Shaft Foundations". Use Class C concrete. Use Grade 60 reinforcing steel.

Shop assemble post and arm in accordance with Item 441. During shop assembly, first bring the field splice to a snug tight condition with the required bolts in all holes through each ply in the connection. Then verify camber and span length prior to disassembly. Demonstrate to the Engineer that the preassembled span length of the frame in the no load condition is within 2 inch (+/-) of the design span length.

If the tubular frame is erected as one unit, adequately suspend the frame to avoid distortions. Support the structure by the crane during the anchor bolts tightening process.

ADDED 06/26/2024



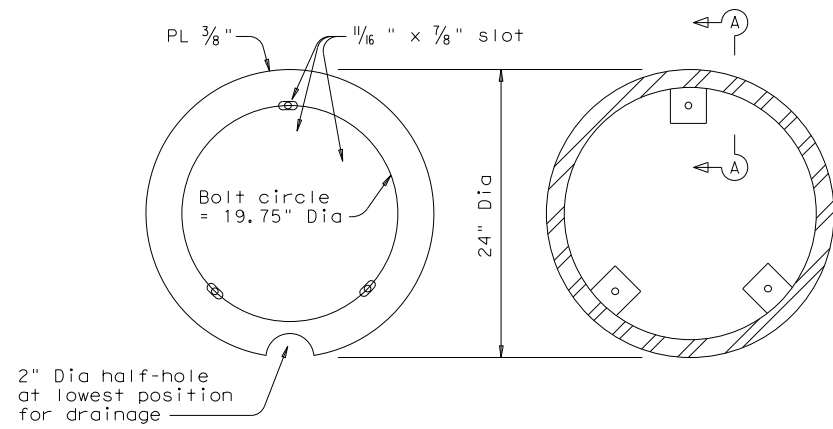
① 06-24: Added 0.968" designs.

SHEET 1 OF 7

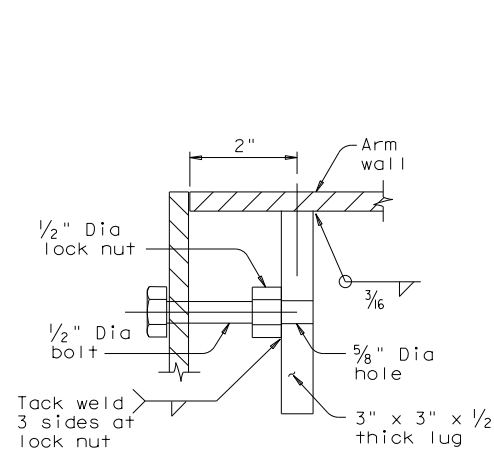
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© TxDOT October 2022	CONT SECT	JOB	HIGHWAY
REVISIONS	3592 01	009	SH178, ETC
03-15 10-22: Removed 0.968" designs.	DIST	COUNTY	SHEET NO.
	ELP	EL PASO	1851

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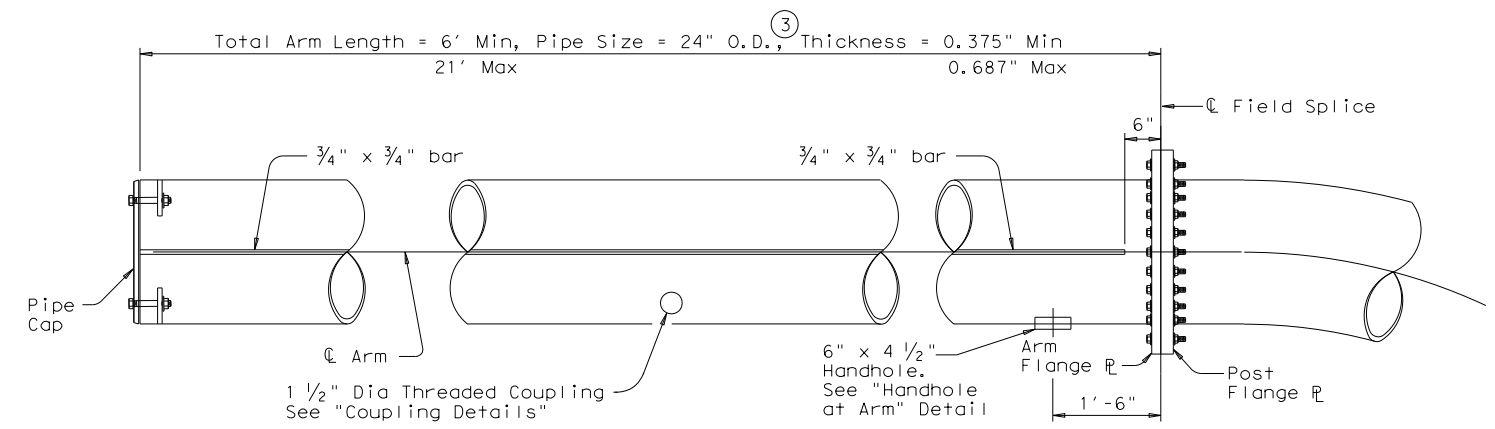
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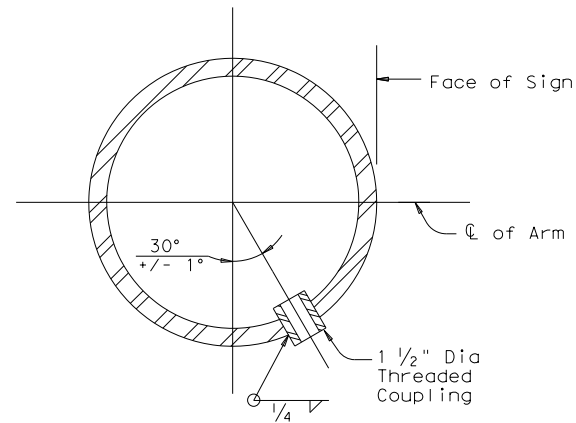
CAP AND ATTACHMENT



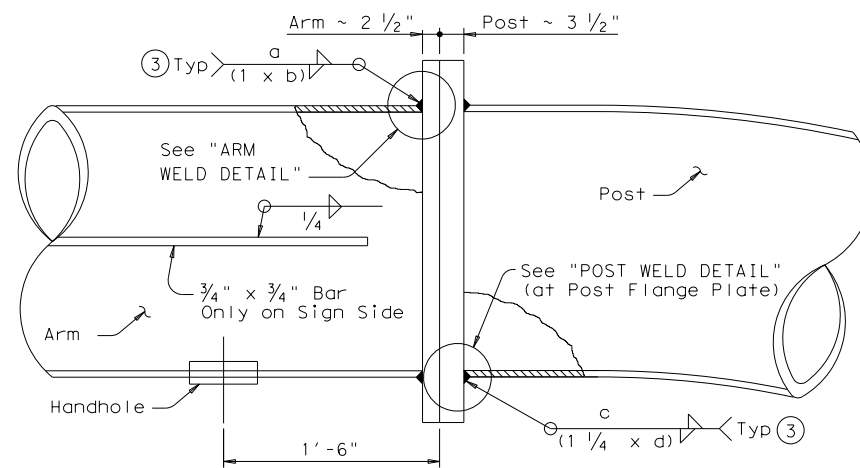
SECTION A-A



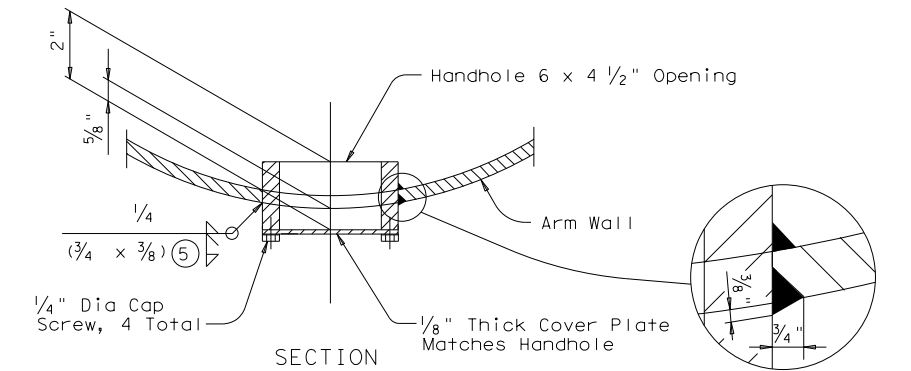
ELEVATION



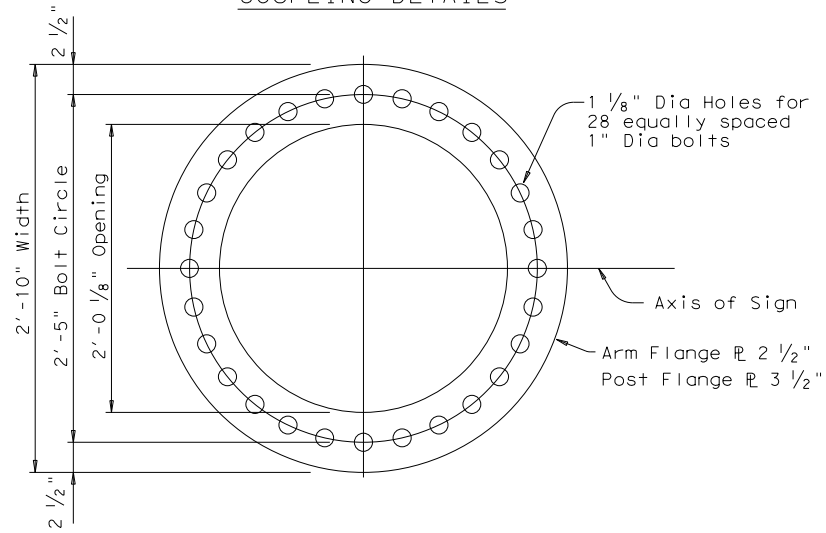
COUPLING DETAILS



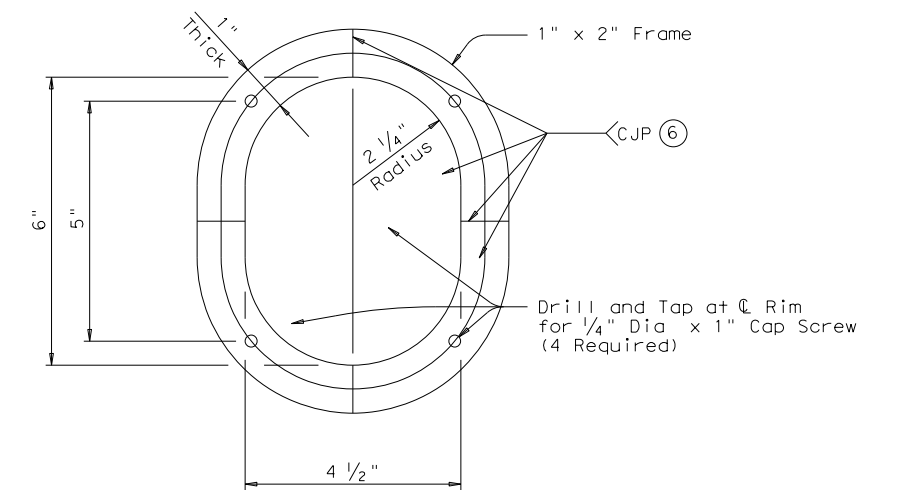
FIELD SPLICE ELEVATION



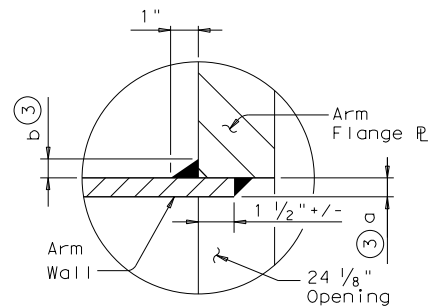
SECTION



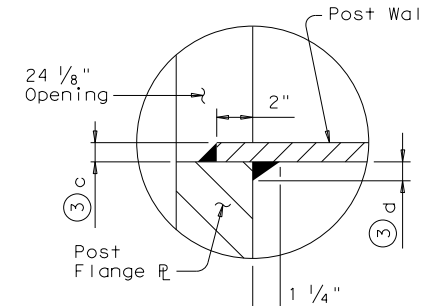
FLANGE PLATE DETAIL



PLAN VIEW
HANDHOLE AT ARM



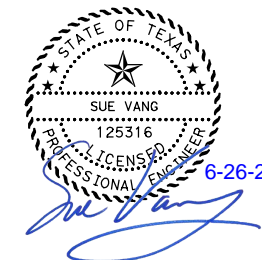
ARM WELD DETAIL
(Socket Type Connection)



POST WELD DETAIL
(at Post Flange Plate)
(Socket Type Connection)

SHEET 2 OF 7

ADDED 06/26/2024



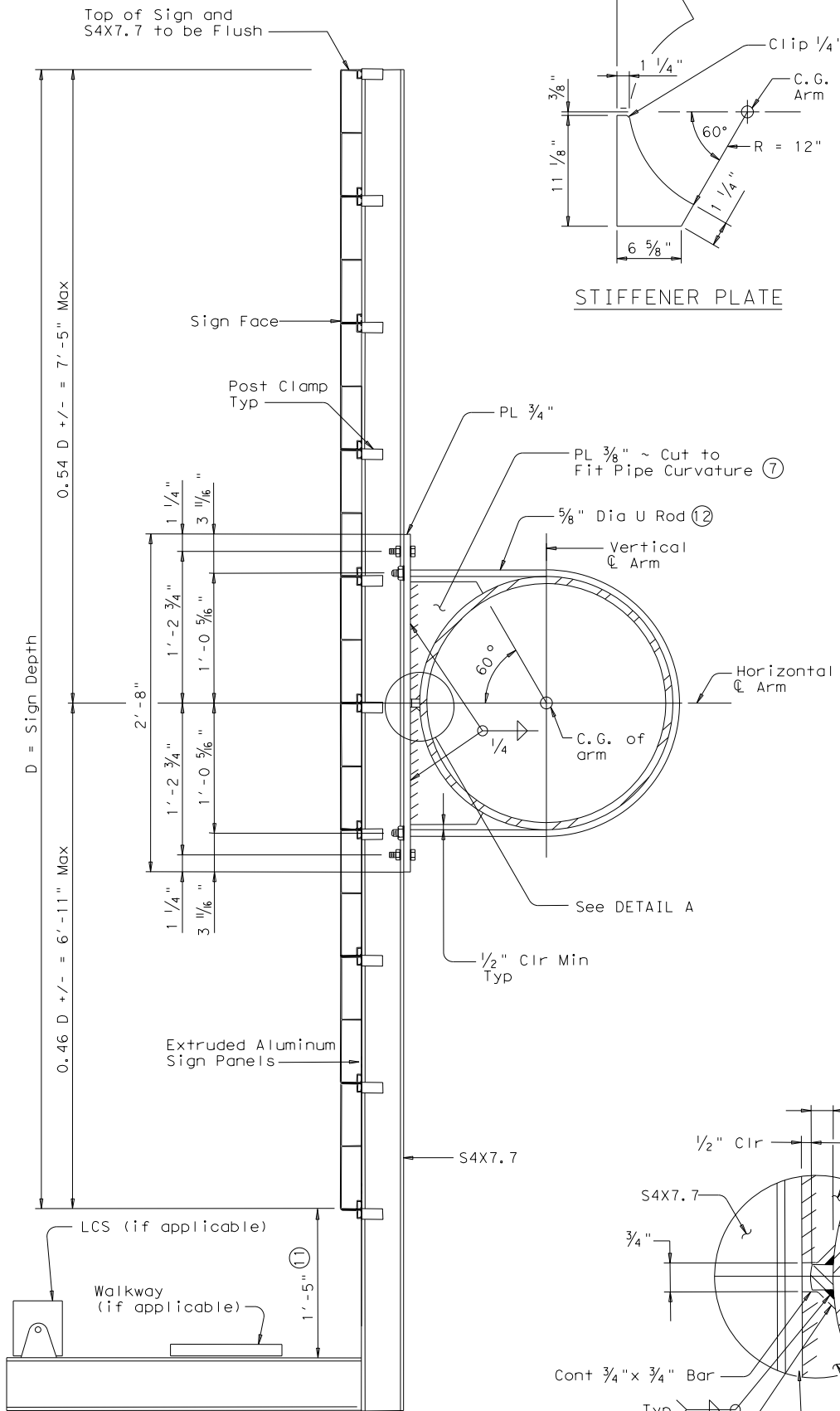
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MONOTUBE SIGN STRUCTURE (CANTILEVER) (SIGN SUPPORT DETAILS) MC (2) - 22 (MOD)			
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© TxDOT October 2022	CONT SECT	JOB	HIGHWAY
REVISIONS	3592 01	009	SH178, ETC
03-15	DIST	COUNTY	SHEET NO.
10-22: Removed 0.968" designs.	ELP	EL PASO	1852

06-24: Added 0.968" designs.

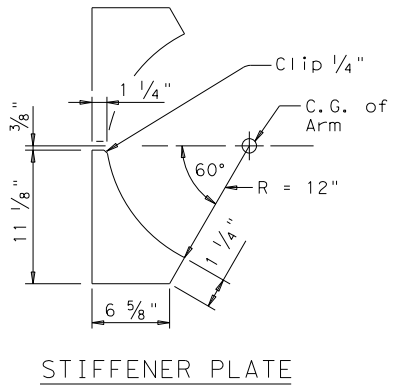
56B

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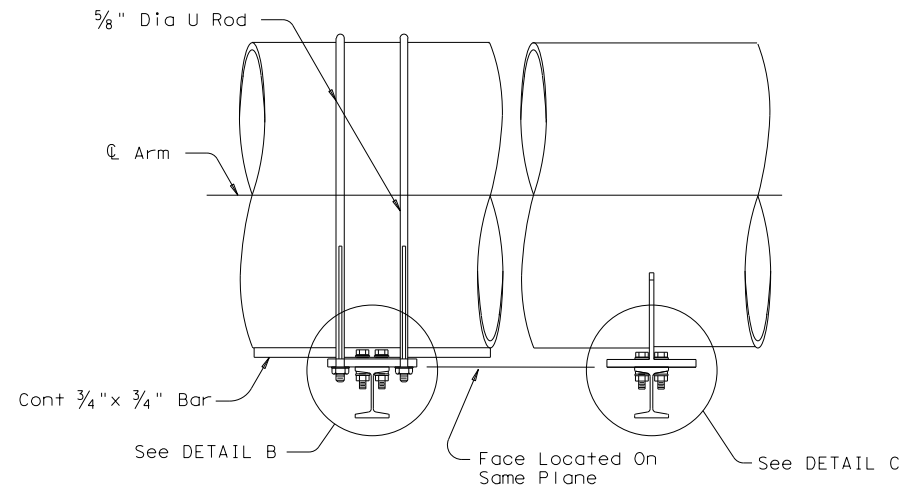
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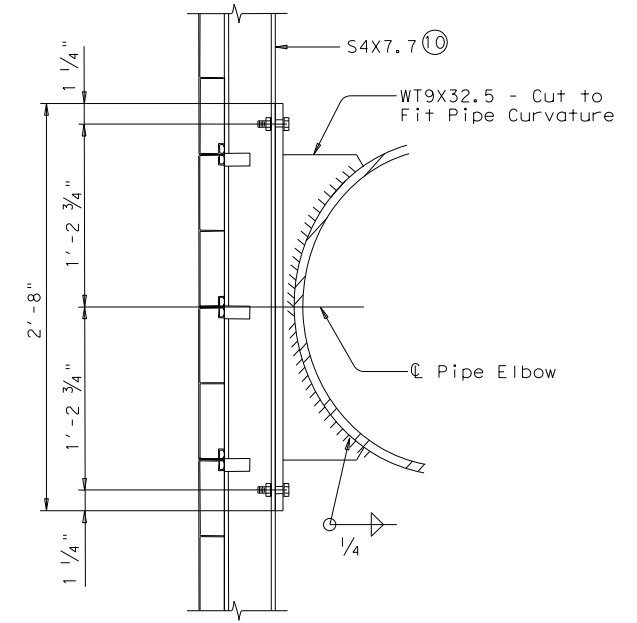
ELEVATION VIEW
SIGN MOUNTING BRACKET
(On Horizontal Portion of Post and Arm)



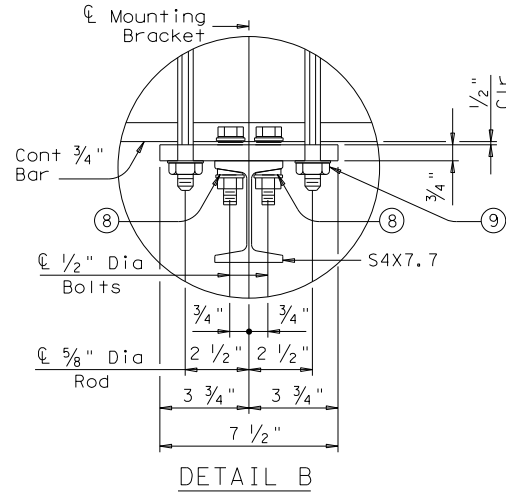
STIFFENER PLATE



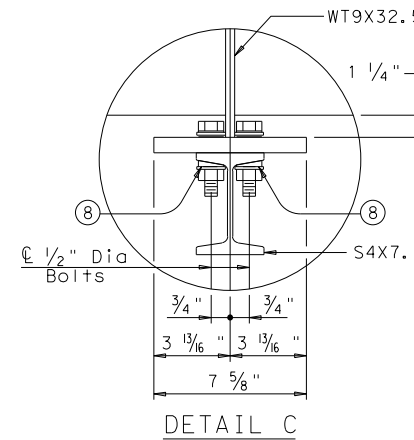
PLAN VIEW
SIGN MOUNTING BRACKET
(Along Horizontal Portion of Post and Arm) (Along Curvature of Elbow)



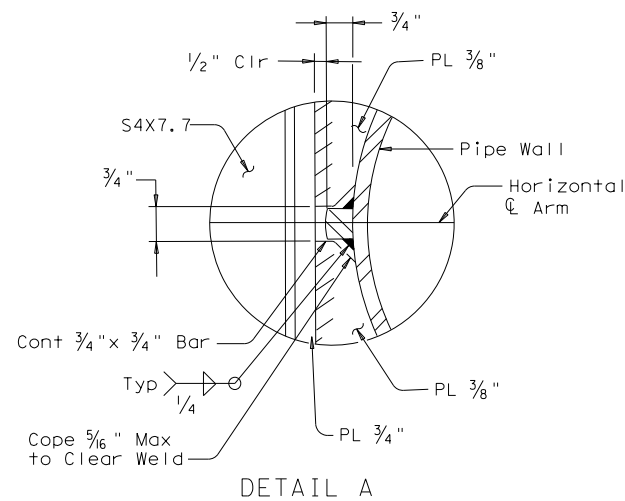
ELEVATION VIEW
SIGN MOUNTING BRACKET
(At Curvature of Elbow)



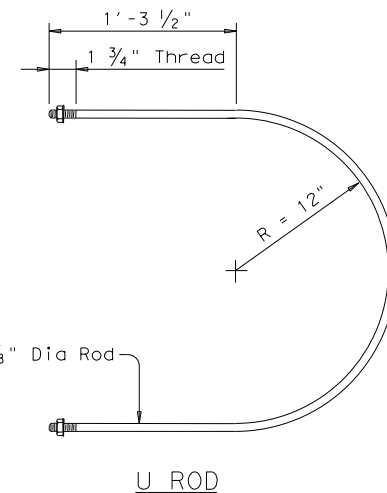
DETAIL B



DETAIL C

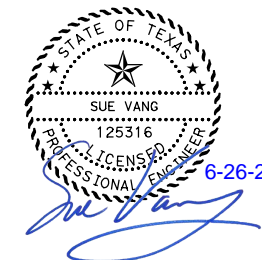


DETAIL A



U ROD

ADDED 06/26/2024



06-24: Added 0.968" designs.

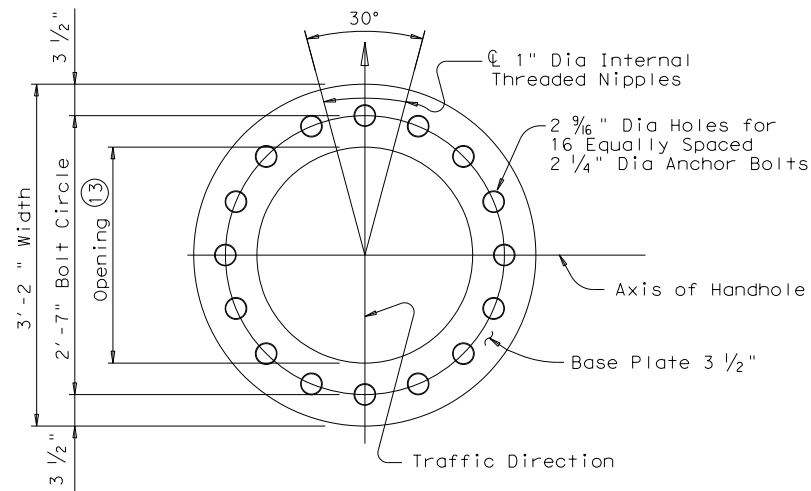
SHEET 3 OF 7

MONOTUBE SIGN STRUCTURE (CANTILEVER) (SIGN SUPPORT DETAILS) MC (3) - 22 (MOD)			
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© TxDOT October 2022	CONT	SECT	JOB
REVISIONS	3592	01	009
03-15	DIST	COUNTY	SHEET NO.
	ELP	EL PASO	1853

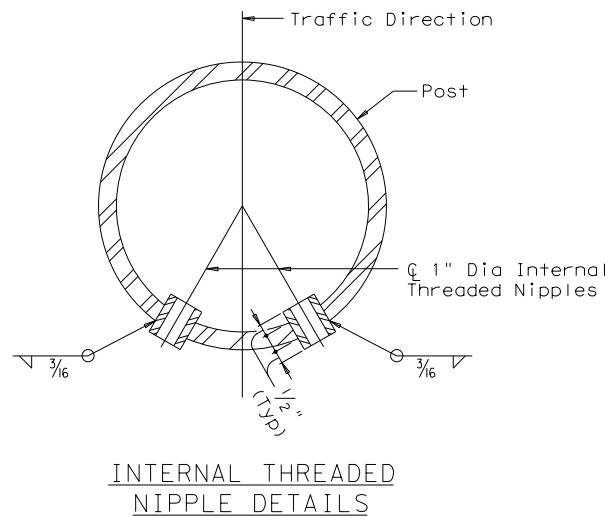
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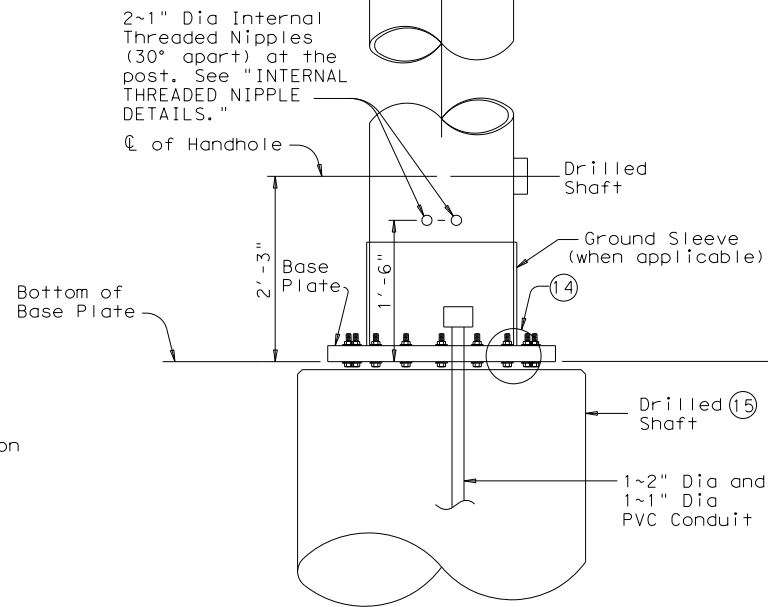
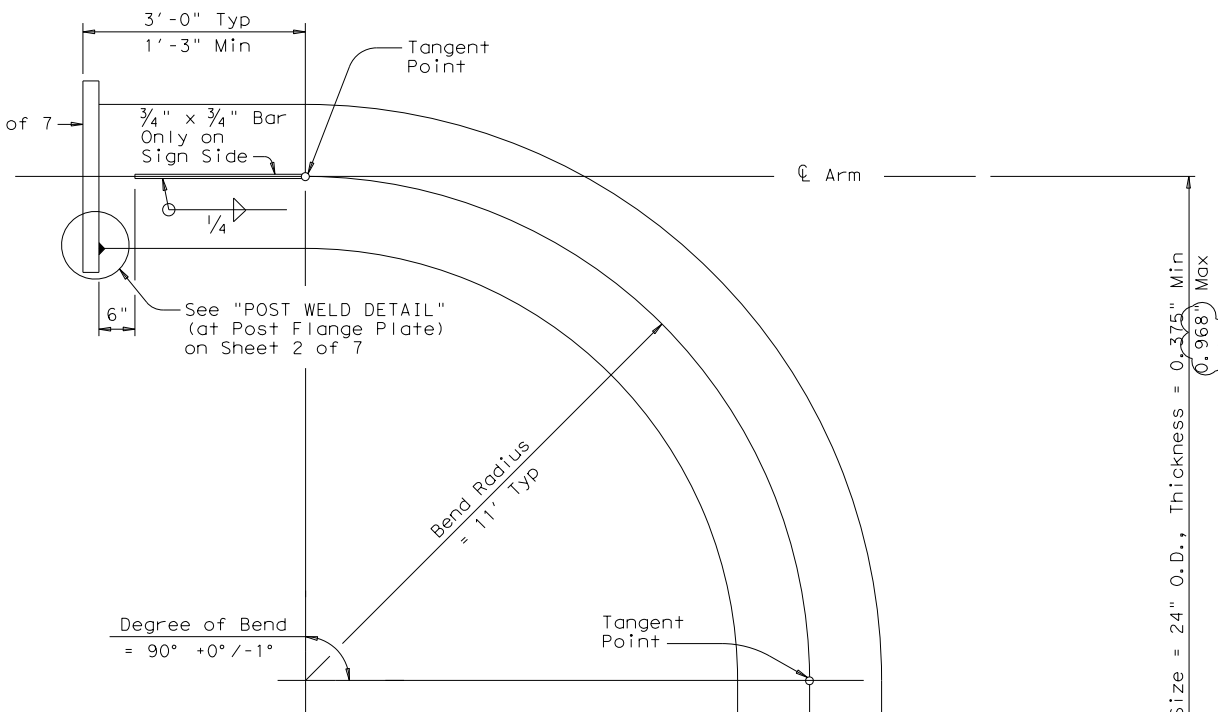
- ③ See Monotube Design Tables on Sheets 5 & 6 of 7 for specific design details such as post height, pipe wall thicknesses, and weld sizes for various span lengths.
- ⑤ 85% Minimum penetration
- ⑥ A welded handhole frame is permissible. Maximum of two (2) splices is allowed. Splice located at either position as indicated is acceptable.
- ⑬ See Sheets 5 & 6 of 7 for the opening dimension in base plate.
- ⑭ See Sheets 5 & 6 of 7 for post to base plate connection details.
- ⑮ See Sheet 7 of 7 for foundation details.



BASE PLATE DETAIL



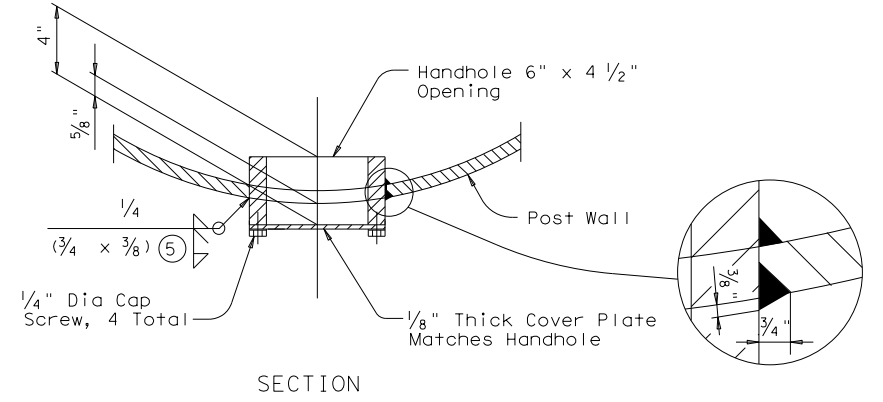
INTERNAL THREADED NIPPLE DETAILS



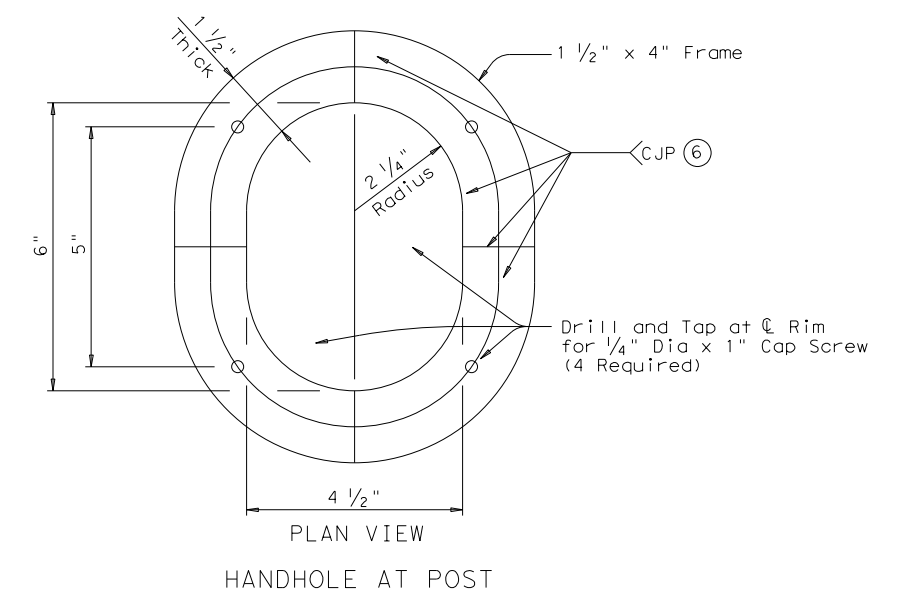
POST ELEVATION

①

Post Ht = 20' Min, 50' Max
 Pipe Size = 24" O.D., Thickness = 0.375" Min, 0.968" Max



SECTION



HANDHOLE AT POST

SHEET 4 OF 7

ADDED 06/26/2024

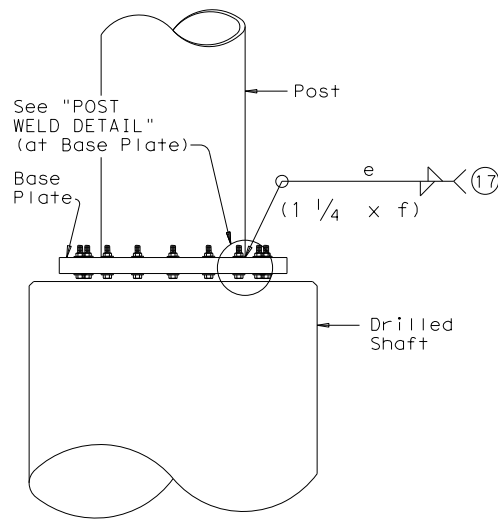


		Traffic Safety Division Standard	
MONOTUBE SIGN STRUCTURE (CANTILEVER) (POST DETAILS) MC (4) - 22 (MOD)			
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© TxDOT October 2022	CONT SECT	JOB	HIGHWAY
REVISIONS	3592 01	009	SH178, ETC
03-15	DIST	COUNTY	SHEET NO.
10-22: Removed 0.968" designs.	ELP	EL PASO	1854

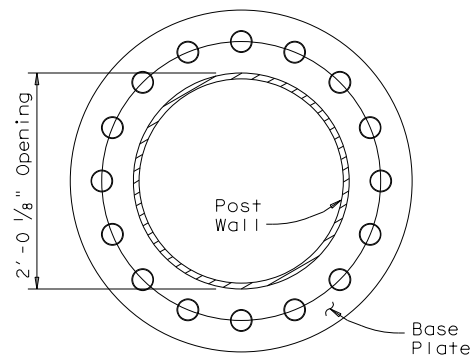
① 06-24: Added 0.968" designs.

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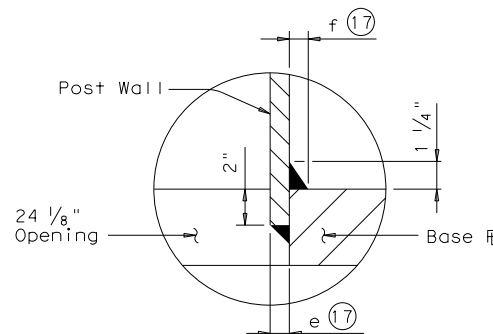
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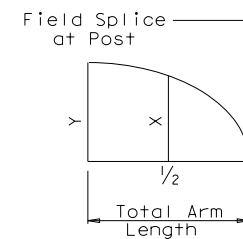
POST ELEVATION



BASE PLATE DETAIL (18)
(Socket Type Connection)



POST WELD DETAIL
(at Base Plate)
(Socket Type Connection)



DEAD LOAD CAMBER DIAGRAM
 Note: X and Y values shown in table are minimum required.

MONOTUBE DESIGN TABLE 1A (SOCKET CONNECTIONS ONLY)											
130 MPH WIND SPEED											
Span Length	Post Height	Pipe to Plate Connections									
		24" Dia Pipe Wall Thck		Socket						Min Required Camber (in) (16)	
		Arm	Post & Elbow	Arm Weld Sizes		Post Weld Sizes (Post Flange Plate)		Post Weld Sizes (Base Plate)		X	Y
				a	b	c	d	e	f		
20'	20'	0.375"	0.562"	5/16"	5/16"	1/2"	1/2"	1/2"	1/2"	1/4"	3/8"
	25'	0.375"	0.562"	5/16"	5/16"	1/2"	1/2"	1/2"	1/2"	1/4"	7/16"
	30'	0.375"	0.562"	5/16"	5/16"	1/2"	1/2"	1/2"	1/2"	1/4"	7/16"
	40'	0.375"	0.687"	5/16"	5/16"	1/2"	1/2"	1/2"	1/2"	1/4"	1/2"
25'	20' (20)										
	25' (20)										
	30' (20)										
30'	20' (20)										
	25' (20)										
	30' (20)										
35'	20' (20)										

MONOTUBE DESIGN TABLE 1B (SOCKET CONNECTIONS ONLY)											
90 MPH WIND SPEED											
Span Length	Post Height	Pipe to Plate Connections									
		24" Dia Pipe Wall Thck		Socket						Min Required Camber (in) (16)	
		Arm	Post & Elbow	Arm Weld Sizes		Post Weld Sizes (Post Flange Plate)		Post Weld Sizes (Base Plate)		X	Y
				a	b	c	d	e	f		
20'	20'	0.375"	0.562"	5/16"	5/16"	1/2"	1/2"	1/2"	1/2"	1/4"	5/16"
	25'	0.375"	0.562"	5/16"	5/16"	1/2"	1/2"	1/2"	1/2"	1/4"	3/8"
	30'	0.375"	0.562"	5/16"	5/16"	1/2"	1/2"	1/2"	1/2"	1/4"	3/8"
	40'	0.375"	0.687"	5/16"	5/16"	1/2"	1/2"	1/2"	1/2"	1/4"	7/16"
25'	20' (20)										
	25' (20)										
	30' (20)										
	40' (20)										
30'	20' (20)										
	25' (20)										
	30' (20)										
	40' (20)										
35'	20' (20)										
	25' (20)										
	30' (20)										
	40' (20)										
40'	20' (20)										
	25' (20)										
	30' (20)										
	40' (20)										

- (16) See Dead Load Camber Diagram.
- (17) See Monotube Design Tables 1A & 1B (Socket Connections Only) for weld sizes of the various spans and post heights.
- (18) Showing Base Plate opening dimension only. See Sheet 4 of 7 for all other base plate details.
- (19) An extra optional splice in the straight portion of the post is permissible. Splice the post at mid height creating two equal pieces spliced together.
- (20) See Monotube Design Tables 2A & 2B (Socket/Ground Sleeve Connections) on Sheet 6 of 7 for design details.

ADDED 06/26/2024



06-24: Added 0.968" designs.

SHEET 5 OF 7

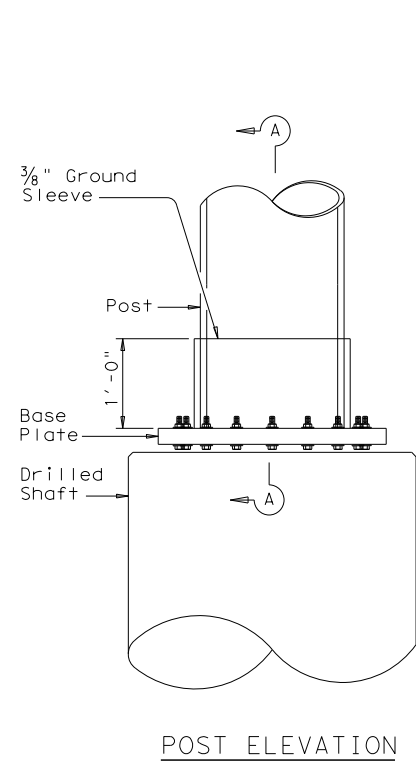
Texas Department of Transportation
 Traffic Safety Division Standard

MONOTUBE SIGN STRUCTURE (CANTILEVER) (SOCKET/SOCKET CONNECTION DESIGN DETAILS) MC (5) - 22 (MOD)

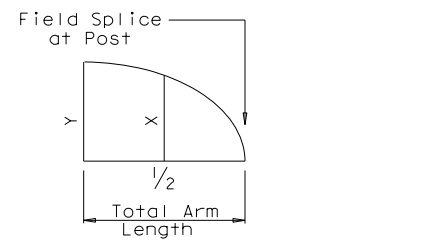
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© TxDOT October 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	3592	01	009	SH178, ETC
03-15	DIST	COUNTY	SHEET NO.	
10-22: Removed 0.968" designs.	ELP	EL PASO	1855	

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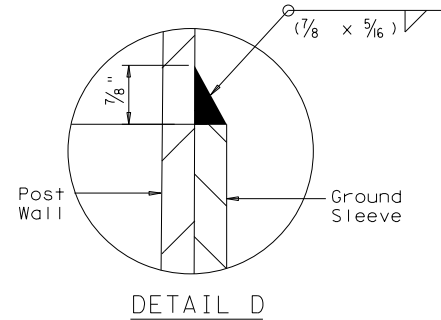
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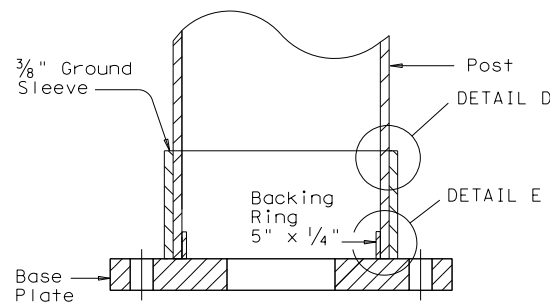
POST ELEVATION



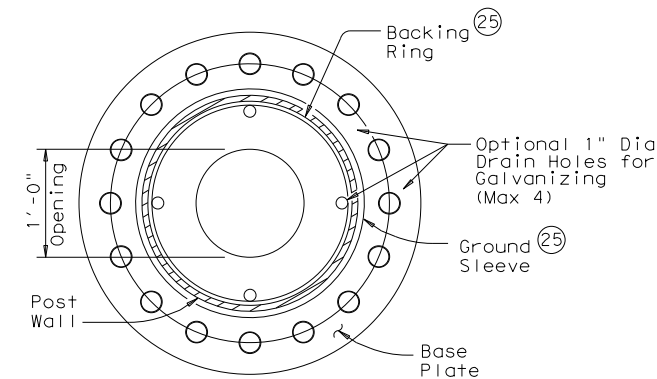
DEAD LOAD CAMBER DIAGRAM
 Note: X and Y values shown in table are minimum required.



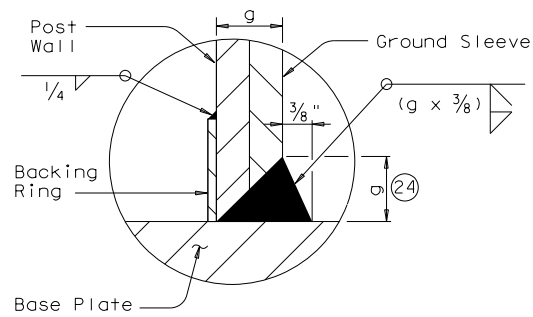
DETAIL D



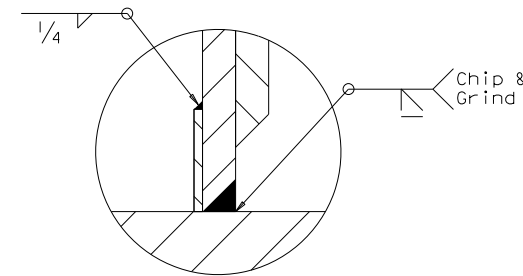
SECTION A-A (Ground Sleeve Connection)



BASE PLATE DETAIL (Ground Sleeve Connection)

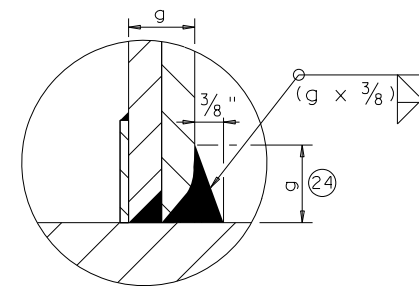


DETAIL E STANDARD WELD



STEP 1

(a) Weld backing ring to post.
 (b) Prepare post and ground sleeve.
 (c) Weld post to base plate, chip and grind flush (1/8" max radius.)



STEP 2
 (d) Position ground sleeve.
 (e) Weld to base plate with tapered reinforcement.

DETAIL E OPTIONAL WELD

MONOTUBE DESIGN TABLE 2A (SOCKET/GROUND SLEEVE CONN.)

130 MPH WIND SPEED

Span Length	Post Height	24" Dia Pipe Wall Thck		Arm Weld Sizes				Post Weld Size (Post Flange Plate)	Post Weld Size (Base Plate)	Min Required Camber (in)	
		Arm	Post & Elbow	a	b	c	d	g	X	Y	
											Socket
20'	20'	0.375"	0.500"	5/16"	5/16"	7/16"	7/16"	7/8"	3/8"	5/16"	
	25'	0.375"	0.500"	5/16"	5/16"	7/16"	7/16"	7/8"	1/4"	3/8"	
	40'	0.375"	0.500"	5/16"	5/16"	7/16"	7/16"	7/8"	1/4"	3/8"	
25'	20'	0.375"	0.687"	5/16"	5/16"	1/2"	1/2"	1 1/16"	3/8"	5/8"	
	25'	0.375"	0.687"	5/16"	5/16"	1/2"	1/2"	1 1/16"	3/8"	5/8"	
	30'	0.375"	0.687"	5/16"	5/16"	1/2"	1/2"	1 1/16"	3/8"	5/8"	
30'	20'	0.375"	0.687"	5/16"	5/16"	1/2"	1/2"	1 1/16"	3/8"	5/8"	
	25'	0.375"	0.687"	5/16"	5/16"	1/2"	1/2"	1 1/16"	3/8"	5/8"	
	30'	0.375"	0.687"	5/16"	5/16"	1/2"	1/2"	1 1/16"	3/8"	5/8"	
35'	20'	0.375"	0.687"	5/16"	5/16"	1/2"	1/2"	1 1/16"	3/8"	5/8"	
	25'	0.375"	0.687"	5/16"	5/16"	1/2"	1/2"	1 1/16"	3/8"	5/8"	
	30'	0.375"	0.687"	5/16"	5/16"	1/2"	1/2"	1 1/16"	3/8"	5/8"	

MONOTUBE DESIGN TABLE 2B (SOCKET/GROUND SLEEVE CONN.)

90 MPH WIND SPEED

Span Length	Post Height	24" Dia Pipe Wall Thck		Arm Weld Sizes				Post Weld Size (Post Flange Plate)	Post Weld Size (Base Plate)	Min Required Camber (in)	
		Arm	Post & Elbow	a	b	c	d	g	X	Y	
											Socket
20'	20'	0.375"	0.375"	5/16"	5/16"	5/16"	5/16"	3/4"	1/4"	3/8"	
	25'	0.375"	0.375"	5/16"	5/16"	5/16"	5/16"	3/4"	1/4"	7/16"	
	30'	0.375"	0.375"	5/16"	5/16"	5/16"	5/16"	3/4"	5/16"	1/2"	
	40'	0.375"	0.500"	5/16"	5/16"	7/16"	7/16"	7/8"	5/16"	1/2"	
	50'	0.375"	0.500"	5/16"	5/16"	7/16"	7/16"	7/8"	3/8"	5/8"	
25'	20'	0.375"	0.375"	5/16"	5/16"	5/16"	5/16"	3/4"	1/2"	7/8"	
	25'	0.375"	0.375"	5/16"	5/16"	5/16"	5/16"	3/4"	9/16"	1"	
	30'	0.375"	0.500"	5/16"	5/16"	7/16"	7/16"	7/8"	9/16"	1"	
	40'	0.375"	0.562"	5/16"	5/16"	1/2"	1/2"	15/16"	5/8"	1 1/8"	
	50'	0.375"	0.687"	5/16"	5/16"	1/2"	1/2"	1 1/16"	5/8"	1 3/16"	
30'	20'	0.500"	0.500"	7/16"	7/16"	7/16"	7/16"	7/8"	13/16"	1 1/2"	
	25'	0.500"	0.500"	7/16"	7/16"	7/16"	7/16"	7/8"	15/16"	1 13/16"	
	30'	0.500"	0.500"	7/16"	7/16"	7/16"	7/16"	7/8"	1 1/16"	2 1/16"	
	40'	0.500"	0.687"	7/16"	7/16"	1/2"	1/2"	1 1/16"	1 1/16"	2 1/16"	
	50'	0.500"	0.687"	7/16"	7/16"	1/2"	1/2"	1 1/16"	1 1/16"	2 1/16"	
35'	20'	0.687"	0.687"	1/2"	1/2"	1/2"	1/2"	1 1/16"	1 1/4"	2 7/16"	
	25'	0.687"	0.687"	1/2"	1/2"	1/2"	1/2"	1 1/16"	1 1/2"	2 13/16"	
	30'	0.687"	0.687"	1/2"	1/2"	1/2"	1/2"	1 1/16"	1 11/16"	3 1/4"	
	40'	0.687"	0.968"	1/2"	1/2"	1/2"	1/2"	1 1/32"	1 1/16"	3 3/16"	
	50'	0.687"	0.968"	1/2"	1/2"	1/2"	1/2"	1 1/32"	2"	3 13/16"	
40'	20'	0.687"	0.968"	1/2"	1/2"	1/2"	1/2"	1 1/32"	2"	3 13/16"	
	25'	0.687"	0.968"	1/2"	1/2"	1/2"	1/2"	1 1/32"	2"	3 13/16"	
	30'	0.687"	0.968"	1/2"	1/2"	1/2"	1/2"	1 1/32"	2"	3 13/16"	
	40'	0.687"	0.968"	1/2"	1/2"	1/2"	1/2"	1 1/32"	2"	3 13/16"	

- (16) See Dead Load Camber Diagram.
- (19) An extra optional splice in the straight portion of the post is permissible. Splice the post at mid height creating two equal pieces spliced together.
- (21) Optional 4 ~ 1" dia vent holes placed in pipe and backing ring to release pressure during galvanizing is permissible. Stagger holes vertically in pipe to ensure all 4 holes are not in one cross-section.
- (22) Showing Base Plate opening dimension and drain hole details. See Sheet 4 of 7 for all other base plate details.
- (23) See Monotube Design Tables 1A & 1B (Socket Connections Only) on Sheet 5 of 7 for design details.
- (24) See Monotube Design Tables 2A & 2B for value of "g".
- (25) Maximum of 2 splices allowed at backing ring and ground sleeve with 100% longitudinal seam weld
- (26) Due to lack of material availability, standard designs are no longer provided for these heights and span combinations.

ADDED 06/26/2024



SHEET 6 OF 7

Texas Department of Transportation
 Traffic Safety Division Standard

MONOTUBE SIGN STRUCTURE (CANTILEVER) (SOCKET/GROUND SLEEVE CONNECTION DESIGN DETAILS) MC (6) - 22 (MOD)

FILE: mc-22.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT October 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	3592	01	009	SH178, ETC
03-15	DIST	COUNTY	SHEET NO.	
10-22: Removed 0.968" designs.	ELP	EL PASO	1856	

1 06-24: Added 0.968" designs.

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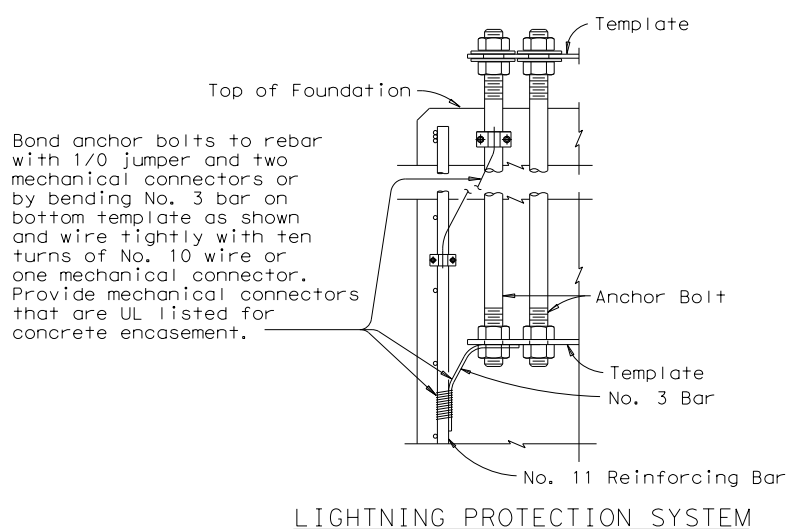
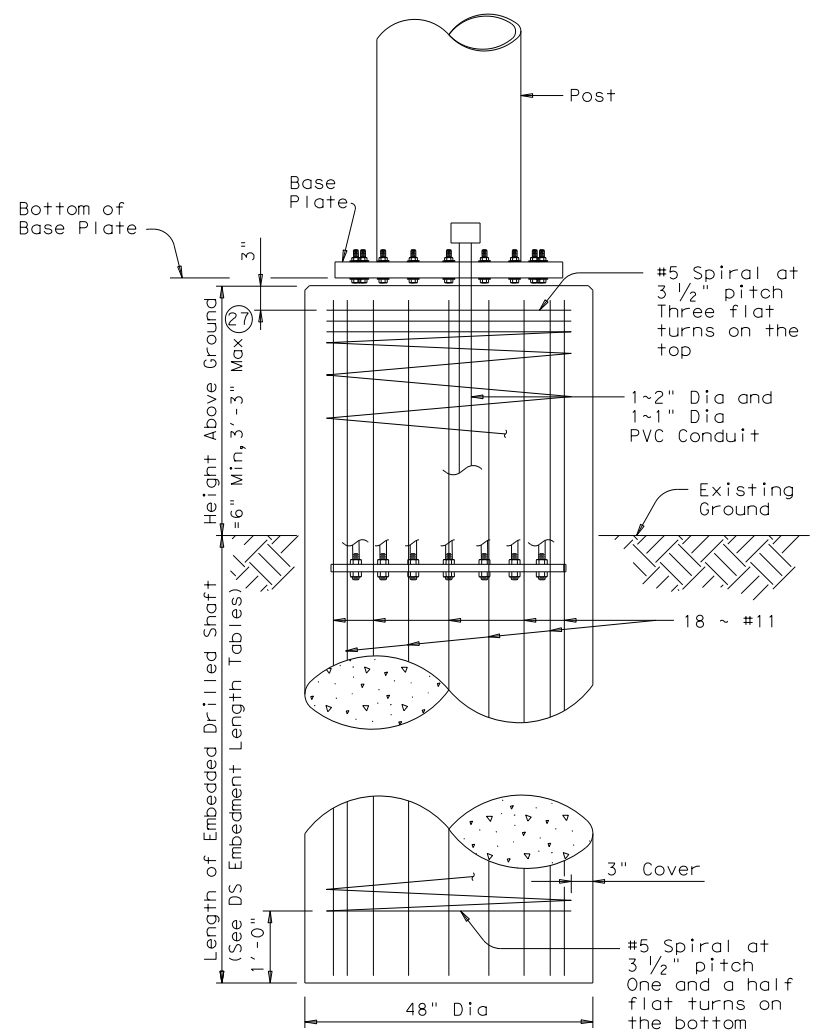
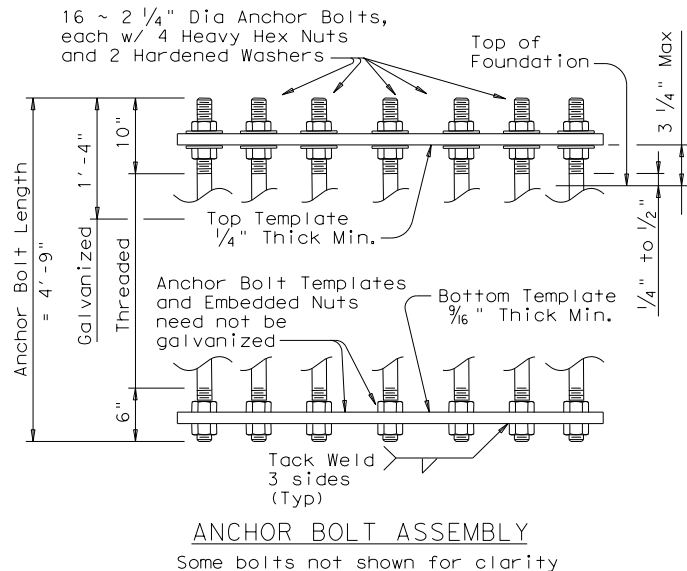
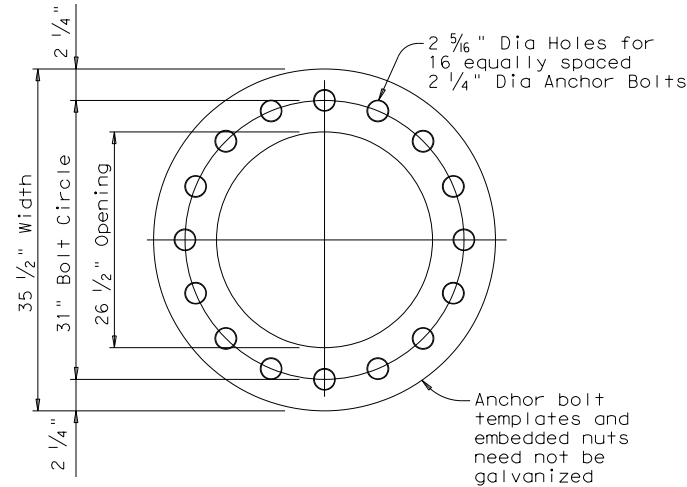
TOP OF DRILLED SHAFT DESIGN LOADS					
90 MPH WIND SPEED					
Span Length	Post Height	Axial (kips)	Moment (k-ft)	Torsion (k-ft)	Shear (kips)
20'	20'	9	138	77	6
	25'	9	166	77	6
	30'	10	195	77	7
	40'	13	256	77	7
	50'	19	321	77	7
25'	20'	13	189	121	8
	25'	14	225	121	8
	30'	15	262	121	8
	40'	18	340	121	9
	50'	16	418	121	8
30'	20'	11	234	167	9
	25'	12	277	167	9
	30'	12	320	167	9
	40'	16	413	167	10
	50'	(26)			
35'	20'	15	305	223	11
	25'	16	352	223	11
	30'	17	401	223	11
	40'	22	506	223	11
	50'	24	614	223	11
20'	(26)				
25'	(26)				
30'	(26)				
40'	(26)				

DRILLED SHAFT EMBEDMENT LENGTHS					
90 MPH WIND SPEED					
Span Length	Post Height	TCP 10 bl/ft (ft)	TCP 20 bl/ft (ft)	TCP 30 bl/ft (ft)	TCP 40+bl/ft (ft)
20'	20'	35	31	29	27
	25'	36	31	29	27
	30'	37	31	29	27
	40'	38	31	29	27
	50'	40	31	29	27
25'	20'	37	31	29	27
	25'	38	31	29	27
	30'	39	31	29	27
	40'	41	31	29	27
	50'	42	31	29	27
30'	20'	38	31	29	27
	25'	39	31	29	27
	30'	40	31	29	27
	40'	42	31	29	27
	50'	(26)			
35'	20'	41	31	29	27
	25'	41	31	29	27
	30'	42	31	29	27
	40'	43	32	29	27
	50'	44	34	29	27
20'	(26)				
25'	(26)				
30'	(26)				
40'	(26)				

TOP OF DRILLED SHAFT DESIGN LOADS					
130 MPH WIND SPEED					
Span Length	Post Height	Axial (kips)	Moment (k-ft)	Torsion (k-ft)	Shear (kips)
20'	20'	8	257	162	12
	25'	8	317	162	12
	30'	9	294	121	10
	40'	11	395	121	11
25'	20'	10	344	253	16
30'	25'	(26)			
	30'	(26)			
	40'	(26)			
35'	20'	(26)			
	30'	(26)			

DRILLED SHAFT EMBEDMENT LENGTHS					
130 MPH WIND SPEED					
Span Length	Post Height	TCP 10 bl/ft (ft)	TCP 20 bl/ft (ft)	TCP 30 bl/ft (ft)	TCP 40+bl/ft (ft)
20'	20'	41	32	30	28
	25'	42	32	30	28
	30'	41	32	30	28
	40'	43	32	30	28
25'	20'	46	32	30	28
30'	25'	(26)			
	30'	(26)			
	40'	(26)			
35'	20'	(26)			
	30'	(26)			

- (26) Due to lack of material availability, standard designs are no longer provided for these heights and span combinations.
- (27) When the elevation is more than 3'-3" above finished grade, a special foundation design is required.



FOUNDATION NOTES:

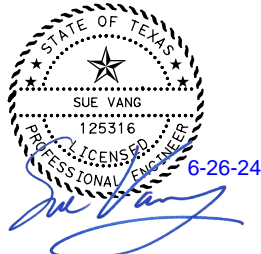
After the structure has been aligned in its final position and anchor bolts have been tightened, tack weld anchor bolt nuts to washer in two (2) places and tack weld washers to base plate in two (2) places. Repair galvanizing damage in accordance with Item 445, "Galvanizing".

Determine foundation embedment length based on the blow counts in the upper 20 ft of soil.

Terminate shafts encountering rock with a minimum rock penetration of 13 ft, while maintaining a minimum shaft embedment length of 25 ft.

For Texas Cone Penetrometer (TCP) blow count data that falls between two of the listed values in the tables, it is permissible to use linear interpolation between the two nearest blow count values to determine foundation embedment length.

ADDED 06/26/2024



06-24: Added 0.968" designs.

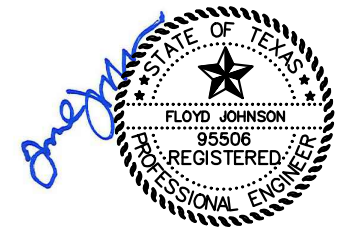
SHEET 7 OF 7

Texas Department of Transportation		Traffic Safety Division Standard	
MONOTUBE SIGN STRUCTURE (CANTILEVER) (FOUNDATION DETAILS) MC (7) - 22 (MOD)			
FILE: mc-22.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT
© TxDOT October 2022	CONT	SECT	JOB
REVISIONS	3592	01	009
03-15	DIST	COUNTY	SHEET NO.
10-22: Removed 0.968" designs.	ELP	EL PASO	1857

CONSTRUCTION NOTES FOR WATER SYSTEMS

1. THE CONTRACTOR IS RESPONSIBLE FOR POTHOLING AND VERIFYING THE LOCATION OF ALL EXISTING UTILITIES AND SUBSTRUCTURES, REGARDLESS OF WHETHER THEY ARE INDICATED ON THE DRAWINGS. ANY DISCREPANCIES SHOULD BE PROMPTLY REPORTED TO THE ENGINEER, WITH AT LEAST FOURTEEN (14) DAYS' NOTICE TO ALLOW FOR NECESSARY ADJUSTMENTS. EXPLORATORY EXCAVATIONS SHOULD BE SCHEDULED SUFFICIENTLY AHEAD OF CONSTRUCTION TO ALLOW DESIGN REVISIONS IF NEEDED.
2. POTHOLE ON PAVED AREAS MUST BE BACKFILLED WITH 2-SACK FLOWABLE FILL MATERIAL, EXTENDING TO THE SURFACE OF THE POTHOLE. NEAT CORING OR SAW CUTTING OF THE POTHOLE SURFACE IS REQUIRED; HAND TOOL OR JACKHAMMER CUTS ARE NOT PERMITTED.
3. WHILE EFFORTS HAVE BEEN MADE TO INDICATE EXISTING UTILITIES ON THE PLANS USING AVAILABLE AS-BUILT DRAWINGS, IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND PROTECT ALL UTILITIES.
4. EXCAVATION PROTECTION MUST BE PROVIDED IN ACCORDANCE WITH TXDOT LINE ITEM 402, INCLUDING VERTICAL OR SLOPED CUTS, BENCHES, SHIELDS, OR SUPPORT SYSTEMS, MEETING OSHA STANDARDS.
5. THE CONTRACTOR MUST COORDINATE WITH RELEVANT UTILITY COMPANIES FOR THE RELOCATION OR PROTECTION OF EXISTING LINES OR CABLES AS REQUIRED BY CONSTRUCTION ACTIVITIES, ENSURING ALL EXISTING UTILITIES REMAIN IN SERVICE THROUGHOUT CONSTRUCTION.
6. RESTORATION OF ALL DAMAGED OR AFFECTED STRUCTURES BY CONSTRUCTION ACTIVITIES, INCLUDING PAVEMENT, DRIVEWAYS, CURBS, GUTTERS, SIDEWALKS, MONUMENTS, FENCES, AND LANDSCAPING, MUST BE COMPLETED TO THE SATISFACTION OF REGULATORY AGENCIES, EITHER TXDOT OR THE CITY OF EL PASO, AND IN COMPLIANCE WITH ADA/TAS REQUIREMENTS.
7. THE CONTRACTOR IS RESPONSIBLE FOR ASCERTAINING COLLATERAL WORK DONE BY OTHER TRADES AND COORDINATING WITH CONCURRENT WORK IN THE AREA TO AVOID OR MINIMIZE DAMAGE OR DELAYS, MOBILIZING WORKFORCES TO OTHER AREAS, IF NECESSARY, AT NO ADDITIONAL COST TO THE OWNER.
8. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN AS-BUILT RECORDS OF ALL MODIFICATIONS INSTALLED UNDER THE CONTRACT AND PROVIDE THEM TO THE ENGINEER UPON COMPLETION.
9. NO EQUIPMENT, MATERIALS, OR DEBRIS MAY BE STORED ON ANY PORTION OF THE CITY OR TXDOT RIGHT-OF-WAY WITHOUT WRITTEN AUTHORIZATION. THE CONTRACTOR MUST PROTECT ALL ROADWAY INFRASTRUCTURE COMPONENTS DURING CONSTRUCTION AND REPAIR ANY DAMAGE AT NO ADDITIONAL COST TO THE OWNER.
10. THE CONTRACTOR MUST IMPLEMENT A WASTE CONTAINMENT POLICY FOR ALL EXCAVATION, BORING, AND POTHOLING OPERATIONS, ENSURING COMPLIANCE WITH WASTE DISPOSAL REGULATIONS.
11. A PROJECT SCHEDULE MUST BE SUBMITTED FOR REVIEW BY THE ENGINEER PRIOR TO CONSTRUCTION, AND ANY DEVIATIONS FROM APPROVED CONSTRUCTION PLANS MUST BE REVIEWED AND APPROVED BY THE ENGINEER AND EPWATER.
12. BUSINESS OWNERS AND RESIDENTS AFFECTED BY CONSTRUCTION ACTIVITIES MUST BE NOTIFIED AT LEAST FOURTEEN DAYS PRIOR TO THE START OF CONSTRUCTION, WITH CONTINUOUS ACCESS PROVIDED THROUGHOUT THE PROJECT.
13. PAVEMENT MARKINGS MUST BE RESTORED TO THEIR ORIGINAL OR BETTER CONDITION, SATISFYING REGULATORY AGENCIES.
14. ANY PAVEMENT OUTSIDE THE WORK AREA DAMAGED DURING CONSTRUCTION MUST BE REPLACED AT NO ADDITIONAL COST TO THE OWNER, MEETING CITY AND/OR TXDOT STANDARDS.
15. CONSTRUCTION EFFORTS MUST ALIGN WITH THE PHASING OF THE SH 178 (ARTCRAFT RD) PROJECT, REQUIRING CLOSE COORDINATION WITH ALL STAKEHOLDERS INVOLVED, INCLUDING EPWATER.
16. THE CONTRACTOR SHALL ENSURE PROPER COORDINATION WITH EPWATER OFFICIALS FOR WATER SYSTEM SHUT-OFFS, WITH A 4-HOUR LIMIT FOR NON-WORKING HOUR TIE-INS, REQUIRING THE PRESENCE OF A MASTER PLUMBER.
17. ALL IMPROVEMENTS MUST ADHERE TO STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION AND AMERICAN WATER WORKS ASSOCIATION STANDARDS, WITH COPIES AVAILABLE AT THE JOB SITE.
18. SURFACE MATERIALS MUST BE REPLACED AND DISTURBED SURFACES RESTORED TO THEIR ORIGINAL CONDITION, SATISFYING CITY, TXDOT, AND/OR PROPERTY OWNER WHEN APPLICABLE. THIS INCLUDES LANDSCAPE AND PAVEMENT, EITHER CONCRETE OR ASPHALT, FOR PARKING LOT AREAS DISTURBED WITHIN PRIVATE PROPERTY AS A RESULT OF CONSTRUCTION ACTIVITIES. THIS WORK IS SUBSIDIARY TO THE INSTALATION OF MAIN LINES AND SHALL NO BE PAID SEPARATELY.
19. CHANGES TO APPROVED CONSTRUCTION PLANS MUST BE REVIEWED BY THE ENGINEER AND EPWATER BEFORE INSTALLATION, WITH ALL THE CHANGES RECORDED IN AS-BUILT DRAWINGS.
20. SHOP DRAWING SUBMITTALS MUST BE PROVIDED TO THE ENGINEER WITHIN 14 DAYS OF THE NOTICE TO PROCEED. APPROVED COPIES MUST BE KEPT ON-SITE THROUGHOUT CONSTRUCTION. REFER TO PROJECT-SPECIFIC REGULATIONS AND MATERIAL REQUIREMENTS.
21. THE TEXAS EXCAVATION SAFETY SYSTEM MUST BE CONTACTED AT LEAST 48 HOURS PRIOR TO ANY CONSTRUCTION.
22. EXCAVATION WITHIN 10 FEET OF EXISTING OVERHEAD ELECTRIC POLES MUST BE COORDINATED WITH EPEC AND ADHERE TO SAFETY REQUIREMENTS.
23. CONSTRUCTION MAY ONLY BEGIN UPON RECEIPT OF A WRITTEN NOTICE TO PROCEED.
24. DRAINAGE INFRASTRUCTURE MUST BE PROTECTED FROM DEBRIS AND SPOIL, WITH BEST MANAGEMENT PRACTICES IMPLEMENTED. REFER TO APPROVED SWPPP PLANS.
25. THE CONTRACTOR MUST NOTIFY THE ENGINEER IF SUBSURFACE CONTAMINATION IS ENCOUNTERED, CEASING OPERATIONS UNTIL FURTHER NOTICE.
26. CONTRACTORS SHOULD ANTICIPATE THE POTENTIAL NEED FOR TUNNELING METHODS DUE TO SUBSURFACE CONDITIONS.
27. UTILITY CROSSING, INCLUDING SANITARY SEWER MAINS MUST MEET THE REQUIREMENTS OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY.
28. PLANS MUST BE COORDINATED WITH OTHER CONSTRUCTION DRAWINGS, OBTAINING PERMITS AS REQUIRED FROM TXDOT OR THE CITY OF EL PASO ENGINEERING DEPARTMENT.
29. HEAVY EQUIPMENT MAY BE REQUIRED FOR EXCAVATION, WITH SCREENING OF ON-SITE SOILS POTENTIALLY NECESSARY TO MEET BACKFILL REQUIREMENTS.
30. NEW WATER SYSTEMS MUST BE COMPLETED AND ACCEPTED PER EPWATER-PSB DETAILS AND IN ACCORDANCE WITH TXDOT SPECIAL SPECIFICATIONS 7016, BEFORE EXISTING LINES ARE ABANDONED OR REMOVED. OTHER REGULATORY CODES AND STANDARDS MAY APPLY.
31. THE WORK PERFORMED FOW NEW WATER MAINS SHALL BE IN CCORDANCE WITH TXDOT ITEM "WATER MAIN" (PVC OR DIP) OF THE SIZE SPECIFIED IN THE DRAWINGS. THIS PRICE IS FULL COMPENSATION FOR FURNISHING ALL REQUIRED MATERIALS, INCLUDING ALL PIPE, VALVES, FITTINGS AND ACCESSORIES; MECHANICAL JOINT RESTRAINTS; AND ALL APPURTENANCES DEFINED HEREIN TO INCLUDE, BUT NOT LIMITED TO THE FOLLOWING ITEMS: NON-RISING STEM DOUBLE DISC GATE VALVES (NRS), OUTSIDE SCREW AND YOKE (OS&Y) GATE VALVES, TAPPING SLEEVES AND VALVES, NON-RISING STEM (NRS) RESILIENT-SEATED GATE VALVES, BUTTERFLY VALVES WITH MANHOLES, AIR/VACUUM RELEASE VALVES, SWING CHECK VALVES, PRESSURE REDUCING VALVES, BLOW-OFF VALVE ASSEMBLIES, BONNET BOXES, VALVE VAULTS, VALVE/ACCESS MANHOLES, CONCRETE COLLARS, END PLUGS, BENDS, TEES, COUPLINGS, REDUCERS, MARKING TAPE, CONCRETE THRUST BLOCKS, THRUST RESTRAINT DEVICES AND ALL OTHER ITEMS FOR THE PROJECT NOT INDICATED AS BEING COVERED UNDER THE OTHER SPECIFIC BID ITEMS SHOWN ON THE PROPOSAL; FURNISHING ALL REQUIRED LABOR, INCLUDING COORDINATION, TRAFFIC CONTROL (FOR THE PROJECT), POTHOLING, EXCAVATION, INCLUDING HAND-DIGGING, IF NEEDED; EMBEDMENT AND BACKFILLING; COMPACTION AND COMPACTION TESTING; ALL ABOVE GROUND APPURTENANCES NEEDED, ADJUST VALVES TO FINISHED ROAD ELEVATIONS; DISINFECTION, PRESSURE TESTING, DEWATERING OF GROUNDWATER, WHERE REQUIRED; CUTTING, CAPPING, AND CONNECTION OF NEW WATER MAIN TO EXISTING WATER LINES.
32. PROVIDE ADEQUATE CONCRETE THRUST BLOCKING AT THE FOLLOWING: TAPPING SLEEVES, TEE, BENDS, PLUGS, AND ALL FITTINGS.
33. CONTRACTOR MUST INSTALL MECHANICAL JOINT RESTRAINT DEVICES AT ALL FITTINGS AND VALVES PER MANUFACTURERS SPECIFICATIONS.
34. ALL PIPE ON THIS PLAN SHALL BE ENCASED WITH SELECT BEDDING MATERIAL. THIS IS SUBSIDIARY TO THE WATER MAIN ITEM.
35. ALL VALVES ON WATER MAINS SHALL BE ANCHORED IN CONCRETE, AS PER DETAILS AND SPECIFICATIONS.
36. INSTALL NEW WATER LINE WITH MIN. 5 FEET OF COVER UNDER PROPOSED FINISHED GRADE, OR AT DEPTH SHOWN ON PLANS WHICH EVER IS GRATER.
37. THE WORK PERFORMED FOR EXISTING WATER MAINS TO BE REMOVED SHALL BE IN ACCORDANCE WITH TXDOT ITEM "REMOVE EXIST WATER PIPE". THIS INCLUDES THE REMOVAL OF THE EXISTING AC WATER LINES TO DO.
38. THE WORK PERFORMED FOR EXISTING WATER MAINS TO BE ABANDONED IN PLACE SHALL BE IN ACCORDANCE WITH TXDOT ITEM "ABAND/FILL EXIST WATER PIPE". THIS INCLUDES EXISTING AC WATER LINES DESIGNATED TO BE ABANDONED IN PLACE. AC PIPES SHALL BE COMPLETELY DEWATERED (DRAINED) BEFORE THEY ARE CUT AND CAPPED AT ALL OPENINGS. REMOVAL OF ANY AC MATERIAL SCHEDULED TO BE ABANDONED IS PROHIBITED. (SEE NOTE BELOW REGARDING CUTTING AC PIPE). ANY PIPE THAT REQUIRES REMOVAL SHALL BE HANDLED AND DISPOSED IN ACCORDANCE WITH STATE REQUIREMENTS & SPECIFICATIONS.
39. LOCATION OF EXISTING WATER SERVICES IS APPROXIMATE. CONTRACTOR SHALL VERIFY EXACT LOCATION OF SERVICES, AT AND WITH RESPECT TO THE NEW RIGHT-OF-WAY, PRIOR TO CONSTRUCTION. RECONNECTION OF SERVICES SHALL BE IN ACCORDANCE WITH EPWATER-PSB DETAILS AND TXDOT ITEM "WATER SRVICE RPL & RECON".
40. CONTRACTOR SHALL REMOVE ANY MATERIAL SCHEDULED TO BE SALVAGED OR DEEMED SALVAGEABLE BY THE ENGINEER AND DELIVER TO THE OWNER.
41. CONTRACTOR RESPONSIBLE FOR REMOVAL OR ABANDONMENT IN PLACE OF ALL VALVES CONNECTED TO WATER LINES SCHEDULED FOR ABANDONMENT IN PLACE. THIS CONSISTS OF REMOVAL OF BONNET BOX AND FILL WITH CEMENT STABILIZED BACKFILL (2 SACK OF CEMENT PER CUBIC YARD OF SOIL) TO BOTTOM OF PROPOSED SUBGRADE. WHERE IN CONFLICT WITH PROPOSED LINES OR INDICATED BY ENGINEER, VALVE IS TO BE REMOVED. ABANDONMENT IN PLACE OF EXISTING WATER LINES AND VALVES, INCLUDING CSB UTILIZED FOR THEIR ABANDONMENT, WILL NOT BE MEASURED SEPARATELY FOR PAYMENT BUT SHALL BE CONSIDERED SUBSIDIARY TO THE ABAND/FILL BID ITEM.
42. CUTTING, REMOVAL, AND RECONNECTION OF EXISTING WATER MAINS AND/OR SERVICES SHALL BE SUBSIDIARY TO THE WATER SYSTEM CONSTRUCTION. LOCATION OF SERVICE RECONNECTIONS TO BE DETERMINED IN THE FIELD.
43. BYPASS OF EXISTING WATER MAINS AND/OR SERVICES TO ASSIST IN CONSTRUCTION ACTIVITIES SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND SUBSIDIARY TO THE PROPOSED WATER LINES.
44. ALL PRESSURIZED PVC PIPE SHALL BE MARKED WITH DUAL INDICATOR LINES AT THE SPIGOT END INDICATING PROPER PENETRATION WHEN JOINT IS ASSEMBLED. IN LIEU OF DUAL LINES, A BELL PROTECTION SYSTEM AT EACH JOINT TO PREVENT OVER INSERTION MAY BE USED.
45. CONTRACTOR IS RESPONSIBLE FOR ANY COORDINATION WITH EPWU OFFICIALS WHEN REQUESTING WATER SYSTEM SHUT-OFFS FOR WATER MAIN TIE-INS WHICH MAY BE PERFORMED AT NIGHT, WITH A 4 HOUR LIMIT, AND ENSURE A PROPER SHUT-OFF PLAN IS DEVELOPED WHICH SHALL INCLUDE AND PROVIDE THE FOLLOWING: SCHEDULE SITE MEETING 72 HOURS PRIOR TO SHUT-OFF DATE TO DISCUSS PROPOSED SHUT-OFF PLAN, APPROVED AND INSTALLED TRAFFIC CONTROL PLAN, MATERIALS TO BE ON SITE, TIE-IN LOCATION TO BE POT-HOLED OR EXPOSED BEFORE PERFORMING THE TIE-IN TO VERIFY SIZE & TYPE OF EXISTING PIPE, AND PROVIDE A 48 HOUR ADVANCE NOTICE ALONG WITH 3 GALLONS OF WATER PER EACH SERVICE BEING IMPACT BY THE SHUT-OFF.
46. INSTALLATION OF NEW FIRE HYDRANTS SHALL BE IN ACCORDANCE WITH TXDOT ITEM "FIRE HYDRANT (NEW)". THE LOCATION OF NEW FIRE HYDRANTS AS SHOWN ON PLANS ARE APPROXIMATE, FINAL PLACEMENT TO BE DETERMINED IN THE FIELD AT AND WITH RESPECT TO THE NEW RIGHT-OF-WAY. NEW FIRE HYDRANT SHALL INCLUDE A DAVIDSON ANTI-TERRORISM VALVE INSIDE PRIOR TO SHIPPING TO PROJECT SITE. THE REMOVAL AND DISPOSAL OF EXISTING FIRE HYDRANTS SHALL BE SUBSIDIARY TO THIS LINE ITEM. RETURN REMOVED FIRE HYDRANTS TO OWNER.
47. STEEL CASING PIPE SHALL HAVE A MINIMUM YIELD STRENGTH OF 36,000 PSI. CASING SHALL MEET ASTM A-53, OR APPROVED EQUAL PER TXDOT REQUIREMENTS. PIPE SHALL BE COATED AND LINED IN ACCORDANCE WITH AWWA C-210 OR APPROVED EQUAL. PIPE JOINTS SHALL BE WELDED IN ACCORDANCE WITH AWWA C-206. AFTER PIPE IS WELDED, COATING AND LINING SHALL BE REPAIRED. UNLESS SPECIFIED OTHERWISE, THE MINIMUM WALL THICKNESS OF STEEL CASING PIPE SHALL BE 5/16 INCHES.
48. WATER MAINS MUST ADHERE TO STRICT STANDRDS, INCLUDING BEING MANUFACTURED IN THE U.S., BRAND NEW, AND EXHIBITING A BLUE COLORATION AS PER INDUSTRY NORMS. THE MATERIALS FOR WATER MAINS AS SPECIFIED ON THE PLANS SHALL INCLUDE C900 PVC, PRESSURE CLASS 305PSI (DR 14) AND MUST MEET THE REQUIREMENTS OF AWWA C-900 FOR 4" THROUGH 12" SIZES, AND AWWA C-905 FOR 14" THROUGH 36" PIPE. DUCTILE IRON PIPE (DIP) SHALL MEET THE REQUIREMENTS OF THE AWWA C-151 AND CONFORM TO ASTM SPECIFICATION A-536 WITH PHYSICAL PROPERTIES OF GRADE 60-40-18 WITH A MINIMUM PRESSURE CLASS RATING OF 350 PSI. FITTINGS MUST ALIGN WITH THE PROPOSED MAIN PRESSURE CLASS FOR OPTIMAL PERFORMANCE.
49. ALL ADDITIONAL FITTINGS INSTALLED, AS DEEMED NECESSARY, NOT ORIGINALLY SHOWN ON THE PLANS OR DETAILS, SHALL BE COMPLETELY IN PLACE IN ACCORDANCE WITH SPECIFICATION 7016. THIS ITEM WILL BE MEASURED IN PLACE BY THE POUND OF ADDITIONAL FITTINGS INSTALLED. THE ACTUAL AMOUNT OF ADDITIONAL FITTINGS MAY BE LESS THAN, BUT MAY NOT EXCEED THE TOTAL QUANTITIES ON THE PLANS WITHOUT APPROVAL.
50. NOTES FOR CUTTING AC PIPE: CUT AND REMOVE A 2FT SECTION OF AC PIPELINE BUT LEAVE ALL CUTTINGS AND PIPE WASTE MATERIALS IN THE EXISTING TRENCH AND BACKFILL, AS PER 40 CFR 61.154. DO NOT REMOVE ANY AC DEBRIS. WHEN CUTTING AC PIPE MATERIAL FOLLOW THESE REQUIREMENTS:
 - A. ALWAYS USE WATER AS WETTING AGENTS WHILE CUTTING AND DISJOINING OPERATIONS OF THE AC PIPELINE TO PREVENT DUST.
 - B. IMPACT AND REMOVE AS LITTLE AMOUNT OF AC PIPE AS POSSIBLE, ONLY WHEN ABSOLUTELY NECESSARY. IT IS SUGGESTED ONLY A 2' SECTION OF AC PIPE BE CUT OUT.
 - C. LEAK-TIGHT WRAPPING TO CONTAIN ALL REGULATED ASBESTOS CONTAINING MATERIAL (RACM-AC PIPE) PRIOR TO CUTTING OR DISMANTLEMENT.
 - D. WHEN CUTTING AC PIPE, CONTRACTOR SHALL WEAR PROTECTIVE MASK TO PREVENT INHALATION OF AIR BORN DUST FROM CUTTINGS OF AC PIPE.
 - E. CONTACT MS. KIMBERLY ENRIQUEZ, ASBESTOS COORDINATOR (737.218.7710) AT THE TX DEPT. OF HEALTH AND HUMAN SERVICES IF ANY QUESTIONS.
 - F. ALL LABOR AND MATERIALS REQUIRED TO ABANDON AC PIPE SUBSIDIARY TO PROPOSED 12-INCH WATER LINE.

DRAWN BY: 04/25/2024 8:58AM H:\PROJ\014683.01 - EPWATER ON-CALL TO 01 WATER LINE REDUC TO 10 CMB & BVA\01 - HUITZOLLARS-WATER GENERAL NOTES.DWG



5/3/2024

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 (915) 594-5500



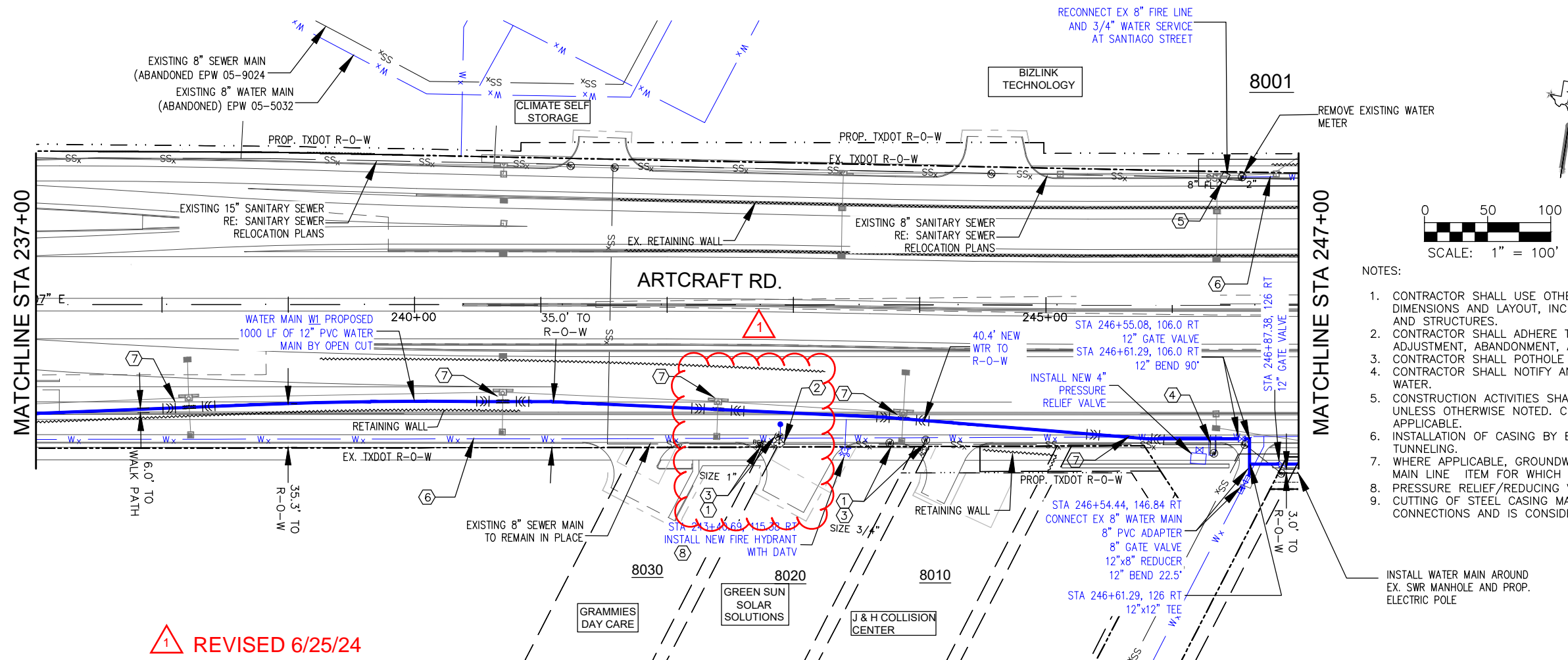
SH 178 (ARTCRAFT ROAD)
 WATER MAIN RELOCATION
 CONSTRUCTION NOTES 03

SHEET 3 OF 3

FED.RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY
6	SEE TITLE SHEET		SH-178
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	2128
CONTROL	SECTION	JOB	
3592	01	009	

1 REVISED 6/25/24



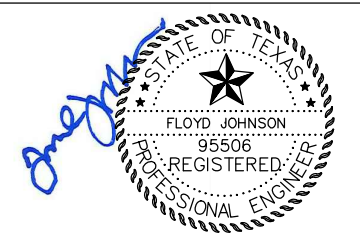


- KEY NOTES:**
- ① REPLACE EXISTING WATER SERVICES. METER LOCATION TO BE DETERMINED IN THE FIELD.
 - ② REMOVE EXISTING FIRE HYDRANT AND RETURN TO OWNER.
 - ③ RECONNECT EXISTING BACKFLOW PREVENTER
 - ④ RECONNECT EXISTING PRESSURE RELIEF VALVE
 - ⑤ RECONNECT EXISTING FIRE LINES
 - ⑥ EXISTING WATER MAIN TO BE REMOVED AND DISPOSED
 - ⑦ UTILITY CROSSING (TYPICAL)
 - ⑧ INSTALL NEW FIRE HYDRANT, LOCATION TO BE DETERMINED IN THE FIELD.

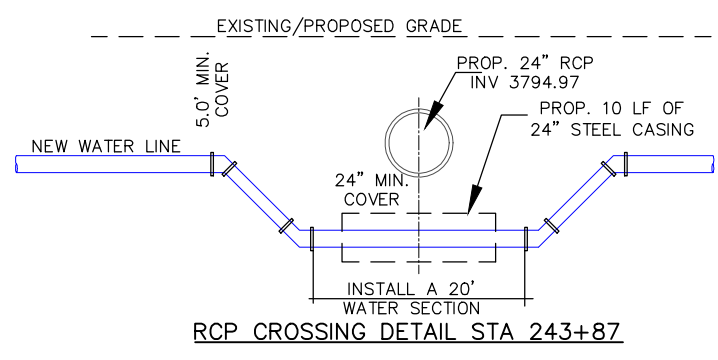
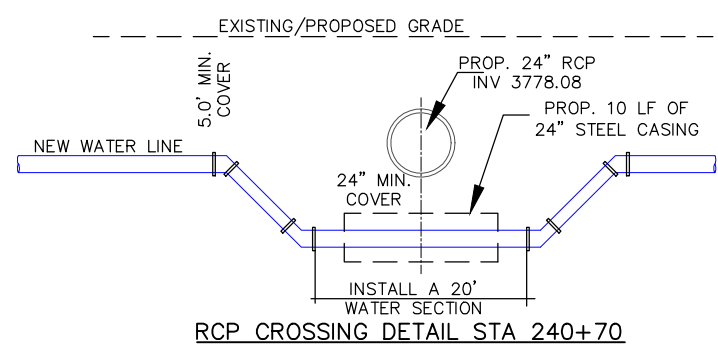
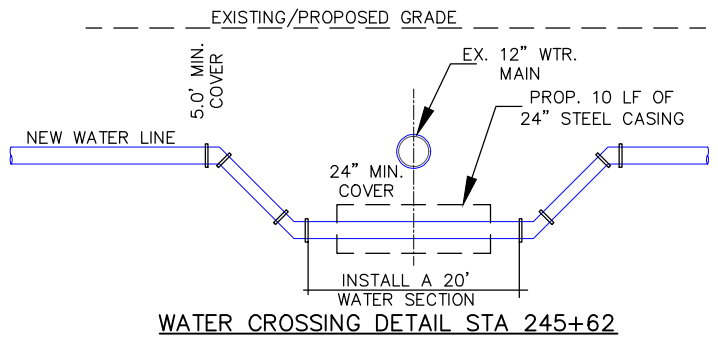
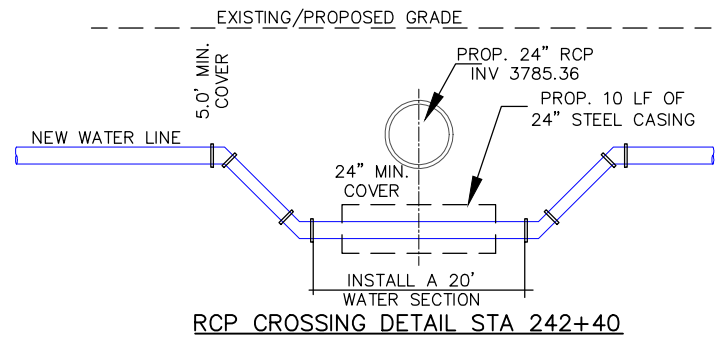
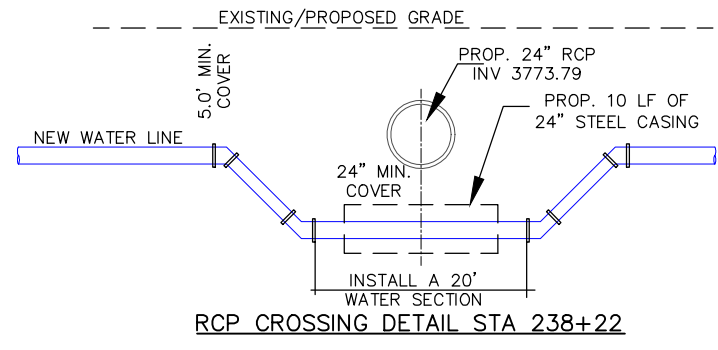


- NOTES:**
1. CONTRACTOR SHALL USE OTHER APPLICABLE DRAWINGS IN THIS PROJECT TO COORDINATE DIMENSIONS AND LAYOUT, INCLUDING CONFLICTS WITH OTHER EXISTING OR PROPOSED UTILITIES AND STRUCTURES.
 2. CONTRACTOR SHALL ADHERE TO EP WATER, TX DOT UAR, AND TECQ REQUIREMENTS FOR ADJUSTMENT, ABANDONMENT, AND REMOVAL OF UTILITIES.
 3. CONTRACTOR SHALL POTHOLE EXISTING LINES SHOWN TO VERIFY LOCATION AND DEPTH.
 4. CONTRACTOR SHALL NOTIFY AND COORDINATE BYPASSING AND TIE-IN ACTIVITIES WITH EP WATER.
 5. CONSTRUCTION ACTIVITIES SHALL BE PERFORMED WITHIN EXISTING EASEMENTS AND/OR ROW UNLESS OTHERWISE NOTED. CONTRACTOR IS RESPONSIBLE FOR OBTAINING PERMITS WHEN APPLICABLE.
 6. INSTALLATION OF CASING BY BORE METHODS SHALL BE EITHER BY JACKING, BORING, OR TUNNELING.
 7. WHERE APPLICABLE, GROUNDWATER DEWATERING WORK REQUIRED WILL BE SUBSIDIARY TO THE MAIN LINE ITEM FOR WHICH WORK IS BEING PERFORMED.
 8. PRESSURE RELIEF/REDUCING VALVE SUBSIDIARY TO MAIN LINE ITEM.
 9. CUTTING OF STEEL CASING MAY BE NECESSARY TO COMPLETE TIE-INS FOR WATER CONNECTIONS AND IS CONSIDERED SUBSIDIARY TO THE MAIN LINE ITEM.

1 REVISED 6/25/24



5/3/2024



WATER SHEET 2 STATION 237 +00 - 247 +00			
ITEM	DESCRIPTION	UNIT	QTY
4026001	TRENCH EXCAVATION PROTECTION	LF	2,110
70166005	WATER MAIN (PVC)(C-900)(12")	LF	1,060
70166031	REMOVE EXIST WATER PIPE (12")	LF	1,050
70166033	ADDITIONAL FITTINGS	LB	1,000
70166034	WATER SERVICE RPL & RECON (3/4")	EA	2
70166035	WATER SERVICE RPL & RECON (1")	EA	1
70166047	FIRE HYDRANT (NEW)	EA	1
70166048	FIRE HYDRANT REMOVE & SALVAGE	EA	1
70166090	CASING (STEEL) (24 IN) (TRENCH)	LF	50

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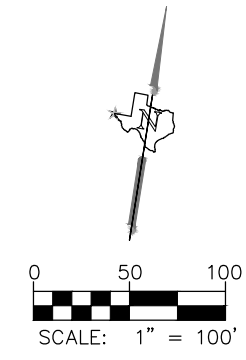
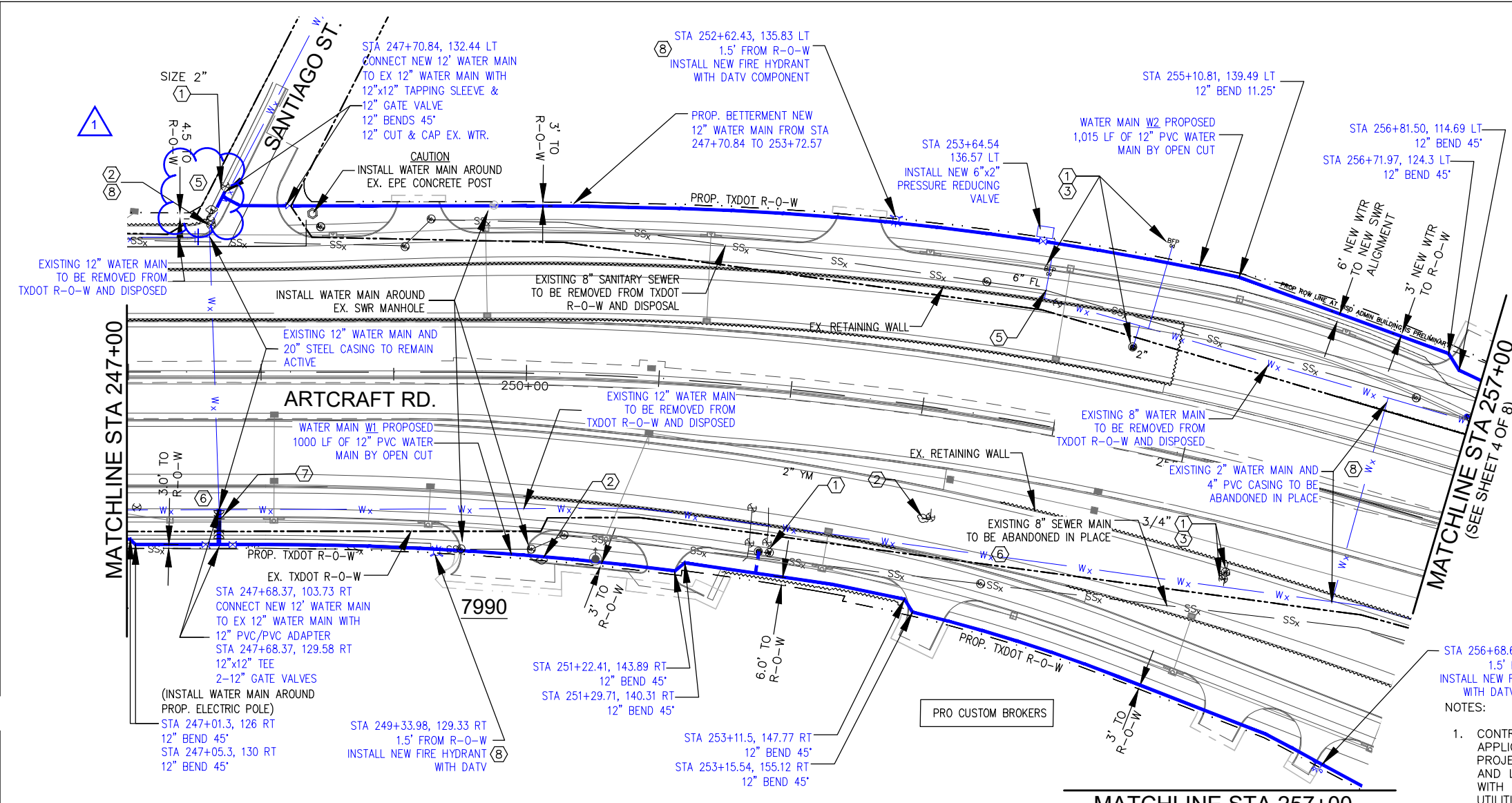


SH 178 (ARTCRAFT ROAD)
 WATER MAIN RELOCATION
 STA 237+00 TO STA 247+00
 12" WATER LINE (W1)

SHEET 2 OF 8

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY	
6	SEE TITLE SHEET	SH-178	
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	2131
CONTROL	SECTION	JOB	
3592	01	009	

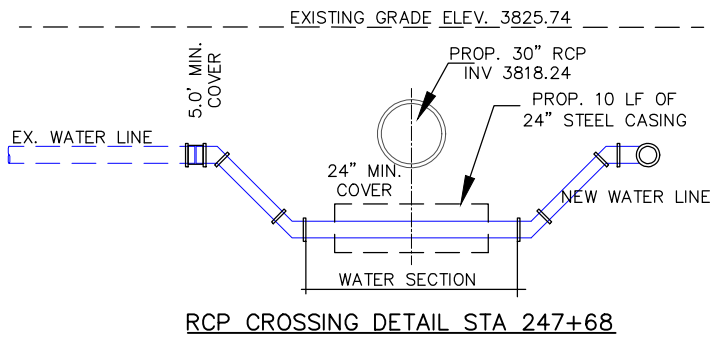
ENCLOSURE 06/25/2024 BUBAN H:\PROJ\21463301 - EP WATER ON-CALL TO 01 WATER LINE RELOC TO ROAD & BWA\01 - AUTOCAD\DWG\21463301 ARTCRAFT PR.DWG



- KEY NOTES:**
- ① REPLACE EXISTING WATER SERVICES. METER LOCATION TO BE DETERMINED IN THE FIELD.
 - ② REMOVE EXISTING FIRE HYDRANT AND RETURN TO OWNER.
 - ③ RECONNECT EXISTING BACKFLOW PREVENTER
 - ④ RECONNECT EXISTING PRESSURE RELIEF VALVE
 - ⑤ RECONNECT EXISTING FIRE LINES
 - ⑥ EXISTING WATER MAIN TO BE REMOVED AND DISPOSED
 - ⑦ UTILITY CROSSING (TYPICAL)
 - ⑧ INSTALL NEW FIRE HYDRANT, LOCATION TO BE DETERMINED IN THE FIELD.

STA 256+68.65, 190.19 RT
1.5' FROM R-O-W
INSTALL NEW FIRE HYDRANT
WITH DATV COMPONENT
NOTES:

1. CONTRACTOR SHALL USE OTHER APPLICABLE DRAWINGS IN THIS PROJECT TO COORDINATE DIMENSIONS AND LAYOUT, INCLUDING CONFLICTS WITH OTHER EXISTING OR PROPOSED UTILITIES AND STRUCTURES.
2. CONTRACTOR SHALL ADHERE TO EP WATER, TX DOT UAR, AND TECQ REQUIREMENTS FOR ADJUSTMENT, ABANDONMENT, AND REMOVAL OF UTILITIES.
3. CONTRACTOR SHALL POTHOLE EXISTING LINES SHOWN TO VERIFY LOCATION AND DEPTH.
4. CONTRACTOR SHALL NOTIFY AND COORDINATE BYPASSING AND TIE-IN ACTIVITIES WITH EP WATER.
5. CONSTRUCTION ACTIVITIES SHALL BE PERFORMED WITHIN EXISTING EASEMENTS AND OR/ ROW UNLESS OTHERWISE NOTED. CONTRACTOR IS RESPONSIBLE FOR OBTAINING PERMITS WHEN APPLICABLE.
6. INSTALLATION OF CASING BY BORE METHODS SHALL BE EITHER BY JACKING, BORING, OR TUNNELING.
7. WHERE APPLICABLE, GROUNDWATER DEWATERING WORK REQUIRED WILL BE SUBSIDIARY TO THE MAIN LINE ITEM FOR WHICH WORK IS BEING PERFORMED.
8. PRESSURE RELIEF/REDUCING VALVE SUBSIDIARY TO MAIN LINE ITEM. CUTTING OF STEEL CASING MAY BE NECESSARY TO COMPLETE TIE-INS FOR WATER CONNECTIONS AND IS CONSIDERED SUBSIDIARY TO THE MAIN LINE ITEM.



WATER SHEET 3 STATION 247 +00 - 257 + 00			
ITEM	DESCRIPTION	UNIT	QTY
4026001	TRENCH EXCAVATION PROTECTION	LF	3,250
70166005	WATER MAIN (PVC)(C-900)(12")	LF	1,950
70166017	ABAND/FILL EXIST WATER PIPE (4")	LF	160
70166029	REMOVE EXIST WATER PIPE (8")	LF	300
70166031	REMOVE EXIST WATER PIPE (12")	LF	1,000
70166033	ADDITIONAL FITTINGS	LB	1,000
70166034	WATER SERVICE RPL & RECON (3/4")	EA	1
70166037	WATER SERVICE RPL & RECON (2")	EA	2
70166044	WATER SERVICE(FIRE LINE)RPL&RECON (6")	EA	1
70166045	WATER SERVICE(FIRE LINE)RPL&RECON (8")	EA	1
70166047	FIRE HYDRANT (NEW)	EA	3
70166048	FIRE HYDRANT REMOVE & SALVAGE	EA	3
70166090	CASING (STEEL) (24 IN) (TRENCH)	LF	10

① ADDED 6/25/24



5/3/2024

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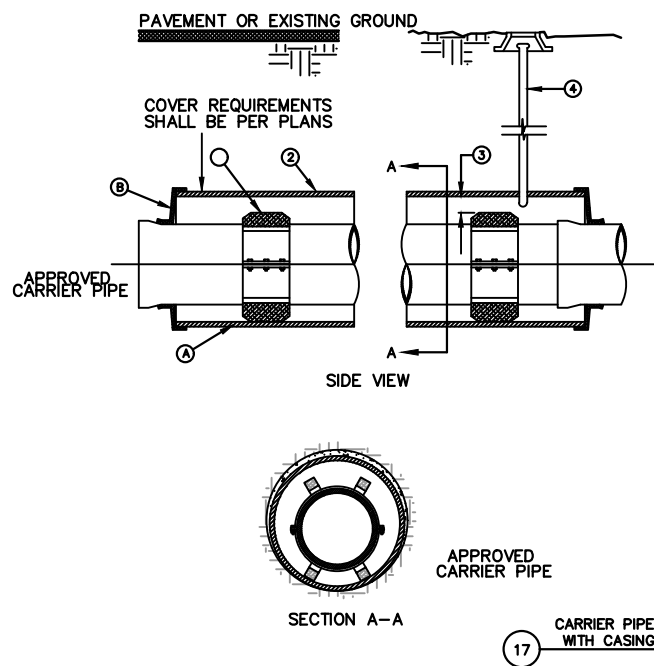
SH 178 (ARTCRAFT ROAD)
WATER MAIN RELOCATION
STA 247+00 TO STA 257+00

12" WATER LINE (W1)
12" WATER LINE (W2)

SHEET 3 OF 8

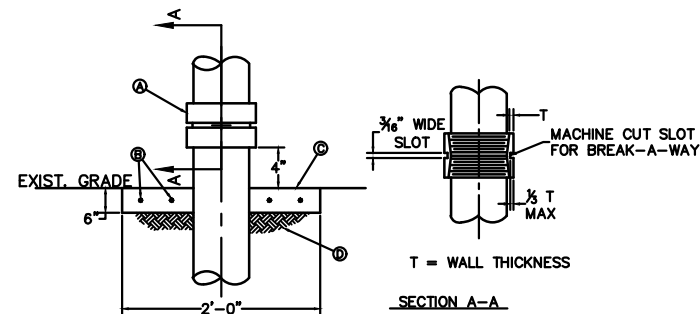
FED.RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY	
6	SEE TITLE SHEET	SH-178	
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	2132
CONTROL	SECTION	JOB	
3592	01	009	

PURCHASED 06/25/2024 15:29PM H:\PROJ\851463301 - EPMWTR ON-CALL TO CI WATER LINE RELOC TO CADD & BVA\10 - AUTOCAD\DWG\851463301 ARTCRAFT PP.ZWG



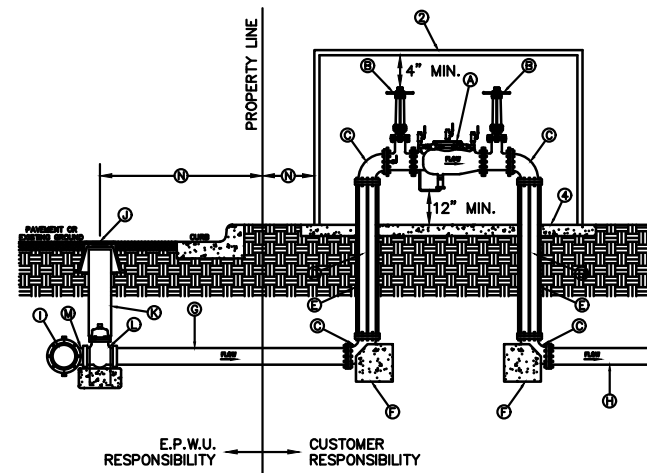
- GENERAL NOTES:**
- CASING INSULATORS, SPACING AND LOCATION PER MANUFACTURERS RECOMMENDATIONS. INSULATORS SHALL FIT SNUG OVER THE CARRIER PIPE.
 - STEEL CASING MINIMUM YIELD 36000 PSI, SIZE AND LENGTH AS SPECIFIED.
 - POSITION CARRIER PIPE APPROXIMATELY IN CENTER OF CASING. MINIMUM SPACING BETWEEN INSULATOR AND CARRIER PIPE SHALL BE 1", MAXIMUM SPACING SHALL BE 2".
 - PRECAUTIONARY OUTLET (6") WITH BONNET BOX AND COVER SHALL BE USED WHEN REQUIRED BY OTHER GOVERNING AGENCIES.

- CONSTRUCTION KEY NOTES:**
- CASING SHALL BE INSTALLED USING EITHER JACKING, BORING OR TUNNELING METHODS FROM THE END WHICH CREATES A MINIMUM OF ACCESS AND RELOCATION PROBLEMS.
 - END SHALL BE SEALED WITH BULKHEAD AND GROUT OR WITH SYNTHETIC RUBBER SEAL, AS SPECIFIED.
 - ANNULAR SPACE SHALL BE LEFT OPEN FOR CATHODICALLY PROTECTED SYSTEM WHERE BOTH CASING AND CARRIER PIPE ARE METALLIC MATERIAL, OR AS OTHERWISE SPECIFIED.
 - PRESSURE GROUT ANNULAR SPACE OUTSIDE CASING AFTER CASING IS INSTALLED.

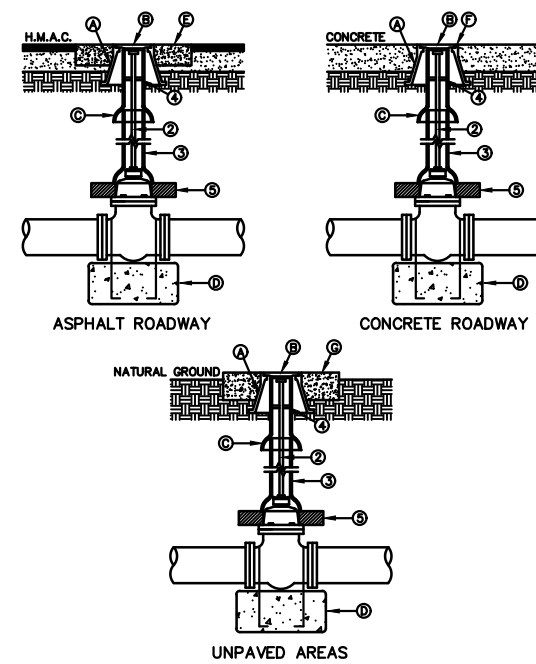


- CONSTRUCTION KEY NOTES:**
- SCHEDULE 40 THREADED STEEL COUPLING
 - 2 - No. 4 REBAR CONTINUOUS, EACH WAY.
 - MINIMUM 3500psi CONCRETE 2'x2' SQUARE COLLAR.
 - 12" SUBGRADE @ 95% PER ASTM D-1557.

20 BREAK-A-WAY COUPLING N.T.S.



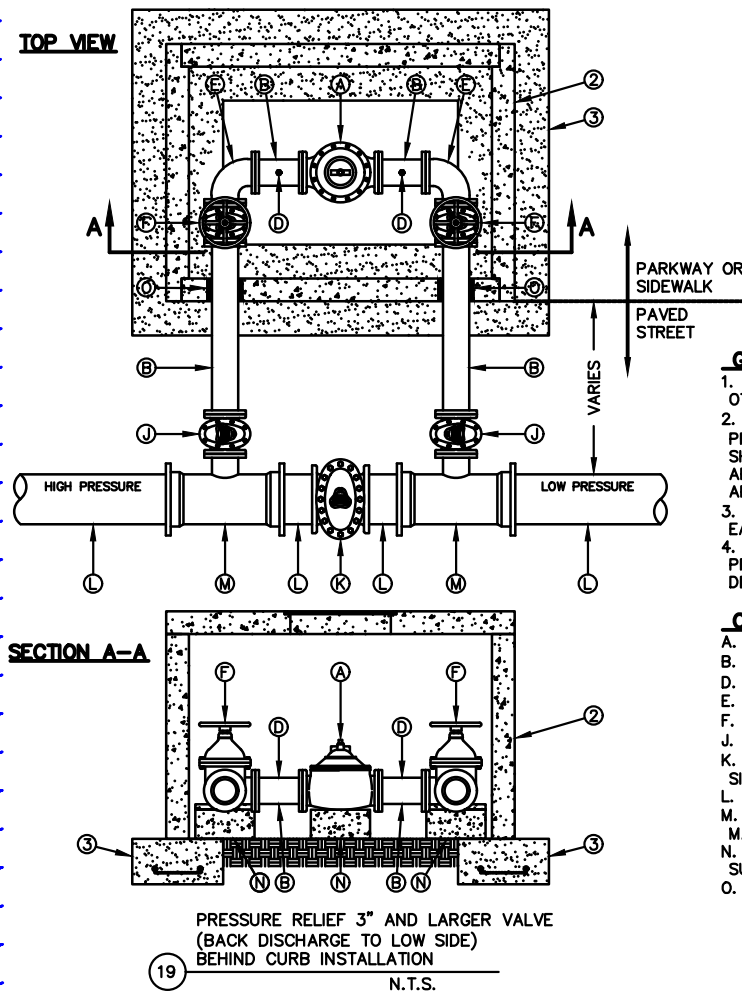
21 FIRE LINE SERVICE INSTALLATION N.T.S.



- GENERAL NOTES:**
- VALVE TYPE AND VALVE ENDS SHALL BE AS SHOWN ON THE PLANS.
 - ALL BURIED VALVES 5' AND DEEPER SHALL BE PROVIDED WITH SOLID STEEL EXTENSION STEM OPERATOR WITH 2" SQUARE AWWA NUT WITHIN 36" OF VALVE BOX COVER. NUT IS TO INDICATE DIRECTION OF ROTATION TO OPEN VALVE.
 - 8" DIA. MINIMUM VITRIFIED CLAY OR SDR 35 P.V.C. PIPE, PIPE SHALL NOT REST ON VALVE BODY.
 - 1/4" THICK STEEL TRASH RING VALVE BOX INSIDE DIAMETER MINUS 1/8".
 - MINIMUM 2 1/2" CONCRETE OR BRICK ALL AROUND.
 - CLEAN BONNET BOX OF ALL DEBRIS AND SOIL.
 - COAT BURIED PIPE AND BONNET BOX PER SPECIFICATIONS, VALVE SHALL BE WRAPPED IN POLYETHYLENE IN ACCORDANCE WITH SPECIFICATIONS.

- CONSTRUCTION KEY NOTES:**
- BONNET BOX (SEE EPW DETAIL 268).
 - BONNET BOX COVER (SEE EPW DETAIL 269-2)
 - FINAL EXTENSION TO BONNET BOX SHALL BE WITH BELL AND SPIGOT ENDS (CLAY OR SDR 35 P.V.C. SPOOL).
 - CONCRETE VALVE ANCHOR (SEE EPW DETAIL 271).
 - CONCRETE COLLAR (SEE EPW DETAIL 184-1) FLUSH WITH TOP OF H.M.A.C.
 - BONNET BOX FLUSH WITH TOP OF CONCRETE, CONCRETE COLLAR NOT NEEDED.
 - CONCRETE APRON (SEE EPW DETAIL 184-2) FLUSH WITH BONNET BOX AND 2" ABOVE NATURAL GROUND.

18 GATE VALVE INSTALLATION N.T.S.



- GENERAL NOTES:**
- INSTALLATION SHOWN FOR A 6" VALVE. INSTALLATION OF OTHER SIZED VALVES IS SIMILAR.
 - VALVE VAULT SHALL BE TYPE "E", SEE DETAIL 295-1. FOR PRESSURE RELIEF VALVES LARGER THAN 6", VAULT SIZE SHALL BE INCREASED TO ACCOMMODATE LARGER APPURTENANCES. LARGER VAULT DIMENSIONS MUST BE APPROVED BY THE EPWU.
 - 12"x24" FOOTING WITH No.5 REBAR AT 12" ON CENTER EACH WAY IS REQUIRED.
 - TEST OUTLETS TO BE PLACED BEFORE AND AFTER PRESSURE RELIEF. SEE DETAIL 264-5 FOR TEST OUTLET DETAIL.

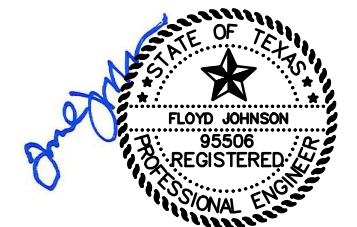
- CONSTRUCTION KEY NOTES:**
- 6" FLANGED PRESSURE RELIEF VALVE.
 - 6" FLANGED DUCTILE IRON SPOOL.
 - 3/4" TEST OUTLET WITH CORPORATION STOP
 - 6" FLANGED 90° BEND.
 - 6" FLANGED GATE VALVE WITH HANDWHEEL
 - 6" GATE VALVE WITH VALVE BONNET BOX AND COVER.
 - GATE VALVE (NORMALLY CLOSED) AND BONNET BOX, SIZE AS SPECIFIED.
 - MAINLINE, SIZE AS SPECIFIED.
 - MECHANICAL JOINT TEE WITH A 6" FLANGED BRANCH, MAINLINE SIZE AS SPECIFIED.
 - VALVES INSTALLED ON NATURAL GROUND WITH CONCRETE SUPPORTS AS REQUIRED.
 - WALL SLEEVES AND/OR GROUT.

1

1 ADDED 6/25/24

- GENERAL NOTES:**
- DETAIL IS FOR 4", 6", & 8" FIRE METER SERVICES.
 - INSULATED ENCLOSURE WITH A MINIMUM "R" VALUE OF 18 (HOT BOX OR APPROVED EQUAL) TO HAVE LOCKING LID. A FORM-FITTING ALUMINUM CLAD INSULATING SHROUD WITH AN EQUIVALENT "R" VALUE MAY BE USED IN PLACE OF AN INSULATED ENCLOSURE PROVIDED PRECAUTIONS ARE TAKEN TO PREVENT BLOCKAGE OF RELIEF VALVE OPENING (IF PRESENT) AND ACCESS TO COMPONENTS. THE INSULATION MUST BE EASY TO REMOVE IN ORDER TO FACILITATE TESTING AND REPAIR. A THERMOSTATICALLY CONTROLLED ELECTRIC HEATING SYSTEM IS MANDATORY (ELECTRICAL HEATING TAPE) AND SHALL BE USED IN CONJUNCTION WITH, AND NOT IN PLACE OF, THE INSULATED ENCLOSURE OR SHROUD.
 - 4" THICK (MIN.) CONCRETE SLAB, SIZE VARIES TO ACCOMMODATE ENCLOSURE.
 - THE PSB SHALL PROVIDE SERVICE EXTENDED ONLY UP TO THE PROPERTY LINE, BACKFLOW PREVENTER, ENCLOSURE, & ALL ASSOCIATED PIPING SHALL BE THE RESPONSIBILITY OF THE OWNER.

- CONSTRUCTION KEY NOTES:**
- AMES 5000SS (OR APPROVED EQUAL) REDUCED PRESSURE BACKFLOW WITH METER.
 - FLANGED GATE VALVE.
 - 90° FLANGED BEND DUCTILE IRON.
 - DUCTILE IRON PIPE.
 - THRUST RESTRAINT RODS (PER NFPTA 24).
 - CONCRETE THRUST BLOCK.
 - BLUE BRUTE C.P.V.C.
 - C-900 P.V.C.
 - WATER MAIN.
 - BONNET BOX AND COVER (SEE DETAILS 268 & 269-2) SET FRAME AND COVER FLUSH WITH ROADWAY SURFACE OR FINISHED GRADE (SEE DETAIL 260).
 - 8" PIPE RISER.
 - GATE VALVE WITH CONCRETE ANCHOR (SEE DETAIL 271).
 - TAPPING SLEEVE OR TEE @ MAIN LINE.
 - DISTANCES VARY.



5/3/2024

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SH 178 (ARTCRAFT ROAD)
WATER MAIN RELOCATION

WATER DETAILS 05

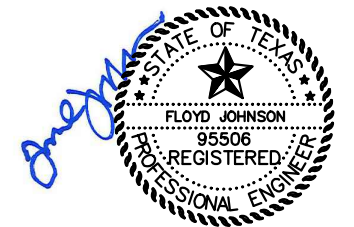
SHEET 5 OF 7

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY	
6	SEE TITLE SHEET	SH-178	
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	2142
CONTROL	SECTION	JOB	
3592	01	009	

SEWER SUMMARY SHEET

BID CODE	4026001	70166051	70166052	70166055	70166061	70166066	70166071	70166079	70166081	70166089	70166101	70166103	70176017	70176054	70176093	70176114	70166063	70176128	70176163	
DESCRIPTION	TRENCH EXCAVATION PROTECTION	SAN SEWER PIPE(PVC) (SDR-35)(8")	SAN SEWER PIPE(PVC) (SDR-35)(12")	SAN SEWER PIPE (PVC) (C-900)(8")	SAN SEWER MAN HOLE (48 IN)(6FT)	REMOVE EXISTING MANHOLE	ABAND/FILL EXIST SAN SWR PIPE (8IN)	REMOVE EXIST SAN SEWER PIPE (8")	REMOVE EXIST SAN SEWER PIPE (15")	CASING (STEEL)(20 IN) (BORED)	SAN SEWER PIPE(DIP) (8IN)	SEWER SERVICE RECONNECTIO N (6")	SANITARY SEWER (8IN) (PVC) (SDR26)	MANHOLES (SANITARY SEWER) DROP (4' DIA)	SAN SEWER PIPE (15") (PVC) (SDR-26)	REMOVE EXIST SAN SWR PIPE (12")	SAN SEWER MH (48 IN) (EXTRA DEPTH)	REMOVE EXIST SAN SWR PIPE (6IN)	ABAND/FILL EXIST SAN SWR PIPE (6IN)	
SHEET NO.	SHEET NAME	LF	LF	LF	EA	EA	LF	LF	LF	LF	LF	EA	LF	EA	LF	LF	LF	LF	LF	
1	STATION 227+00 - 237+00	305	0	0	0	2	0	0	0	153	0	0	0	0	152	0	8	0	0	
2	STATION 237+00 - 247+00	2,088	0	0	0	2	3	0	460	560	0	0	2	615	1	453	0	21	0	
3	STATION 247+00 - 257+00	2,036	0	0	0	4	4	0	988	0	0	436	0	612	0	0	13	0	0	
4	STATION 257+00 - 267+00	575	507	0	0	3	2	0	0	0	0	68	4	0	0	0	9	0	0	
5	STATION 246+00 - 256+50	1,946	964	0	0	4	5	0	982	0	0	2	0	1	0	0	20	0	0	
6	STATION 256+50 - 266+50	1,438	540	0	0	2	3	0	898	0	0	0	0	0	0	0	6	0	0	
7	STATION 426+00 - 433+50	443	0	0	0	0	0	170	443	0	0	0	0	0	0	0	0	0	0	
8	STATION 433+50 - 444+50	2,030	0	956	0	3	3	0	0	0	0	0	0	0	0	1,034	18	0	0	
FORCE MAIN	STATION 170+00 - 180+00	2,034	0	0	802	0	0	0	564	0	341	0	0	0	0	0	0	1,009	276	
	TOTAL	12,895	2,011	956	802	20	20	170	4,335	713	341	504	8	1,227	2	605	1,034	95	1,009	276

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SH 178 (ARTCRAFT ROAD)
SANITARY SEWER RELOCATION
SUMMARY OF QUANTITIES

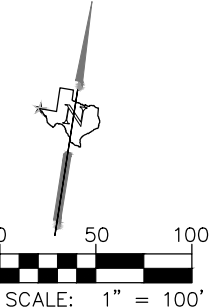
SHEET 1 OF 1

FED.RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY	
6	SEE TITLE SHEET	SH-178	
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	2147
CONTROL	SECTION	JOB	
3592	01	009	

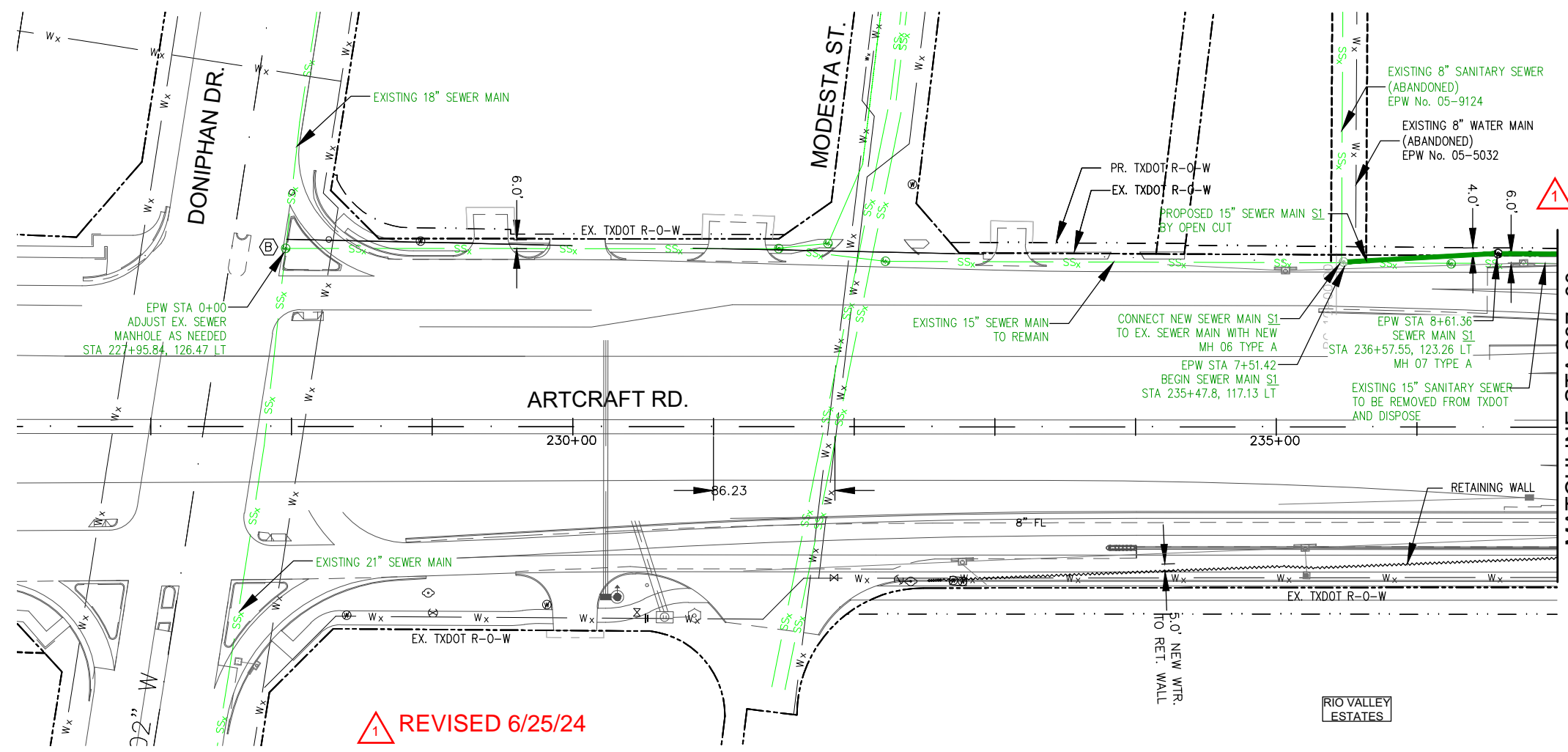
DRAWN: 06/25/2024 8:58AM H:\PROJ\24\1483\01 - EPWATER LINE RELOC TO 01 WATER ON-CALL TO 01 WATER LINE RELOC\10 CAD & BVA\01 AUTOCAD\03-SUMMARY SHEET INSD-SERIES.DWG

SEWER SHEET 1 STATION 227+00 - 237+00			
ITEM	DESCRIPTION	UNIT	QTY
4026001	TRENCH EXCAVATION PROTECTION	LF	305
70166061	SAN SEWER MAN HOLE (48 IN)(6FT)	EA	2
70166081	REMOVE EXIST SAN SEWER PIPE (15")	LF	153
70176093	SANITARY SEWER (15 IN) (PVC) (SDR 26)	LF	152
70166063	SAN SEWER MH (48 IN) (EXTRA DEPTH)	LF	8
70166103	SEWER SERVICE RECONNECTION (6")	EA	0

- NOTES:
1. CONTRACTOR SHALL USE OTHER APPLICABLE DRAWINGS IN THIS PROJECT TO COORDINATE DIMENSIONS AND LAYOUT.
 2. CONTRACTOR SHALL ADHERE TO EP WATER, TX DOT UAR, AND TECQ REQUIREMENTS FOR ADJUSTMENT, ABANDONMENT, AND REMOVAL OF UTILITIES.
 3. CONTRACTOR SHALL POTHOLE EXISTING LINES SHOWN TO VERIFY LOCATION AND DEPTH.
 4. CONTRACTOR SHALL NOTIFY AND COORDINATE TIE-IN ACTIVITIES WITH EP WATER.
 5. CONSTRUCTION ACTIVITIES SHALL BE PERFORMED WITHIN W/EXISTING EASEMENTS AND OR/ ROW UNLESS OTHERWISE NOTED. CONTRACTOR IS RESPONSIBLE FOR OBTAINING PERMITS WHEN APPLICABLE.
 6. INSTALLATION OF CASING BY BORE METHODS SHALL BE EITHER BY JACKING, BORING, OR TUNNELING.
 7. WHERE APPLICABLE, GROUNDWATER DEWATERING WORK REQUIRED WILL BE SUBSIDIARY TO THE LINE ITEM FOR WHICH WORK IS BEING PERFORMED.
 8. CUTTING OF STEEL CASING MAY BE NECESSARY TO COMPLETE TIE-INS FOR SEWER CONNECTIONS AND IS CONSIDERED SUBSIDIARY TO THE MAIN LINE ITEM.
 9. EXACT LOCATION OF SEWER TO BE RECONNECTED SHALL BE VERIFIED IN THE FIELD.



5/3/2024

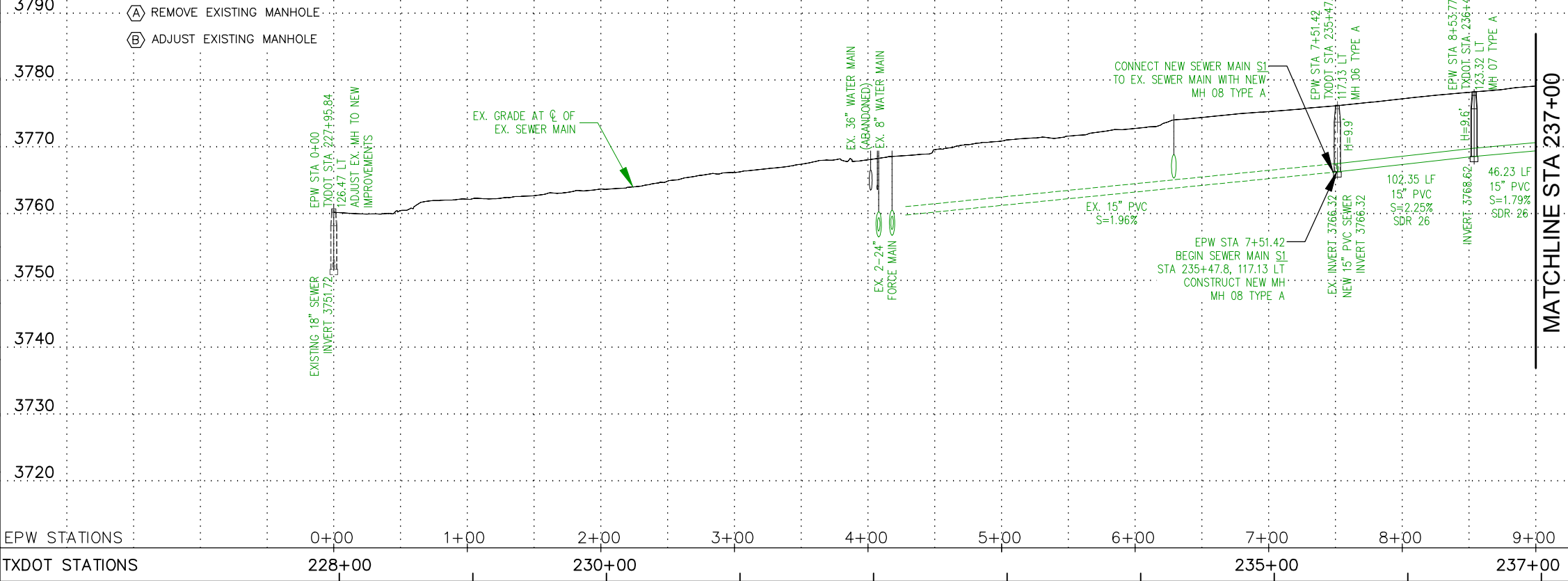


REVISI 6/25/24

MATCHLINE STA 237+00

KEY NOTES:

- (A) REMOVE EXISTING MANHOLE
- (B) ADJUST EXISTING MANHOLE



MATCHLINE STA 237+00

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SH 178 (ARTCRAFT ROAD)
 SANITARY SEWER RELOCATION
 STA 227+00 TO STA 237+00

15" SEWER LINE (S1)
 PLAN & PROFILE

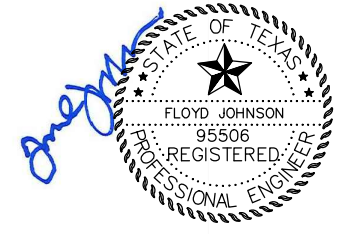
SHEET 1 OF 8

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY
6	SEE TITLE SHEET	SH-178
STATE	DISTRICT	COUNTY
TEXAS	ELP	EL PASO
CONTROL	SECTION	JOB
3592	01	009
SHEET NO. 2148		

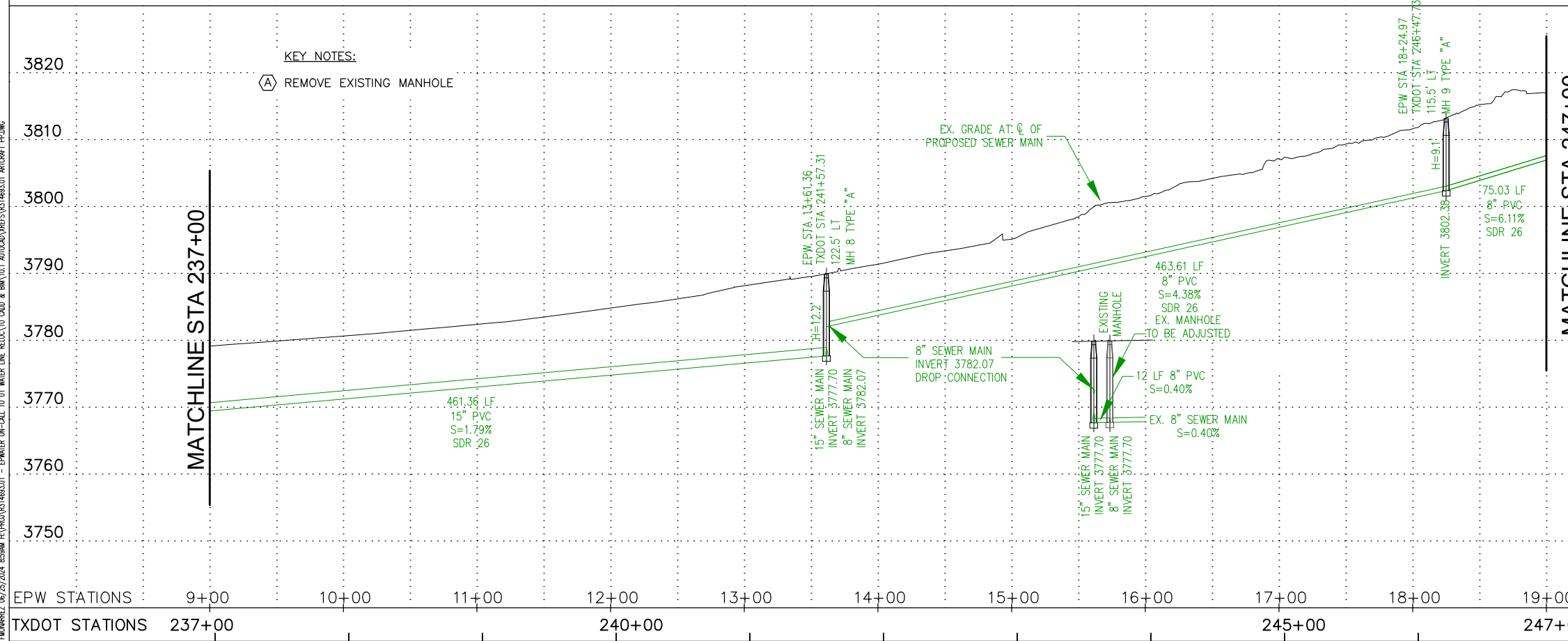
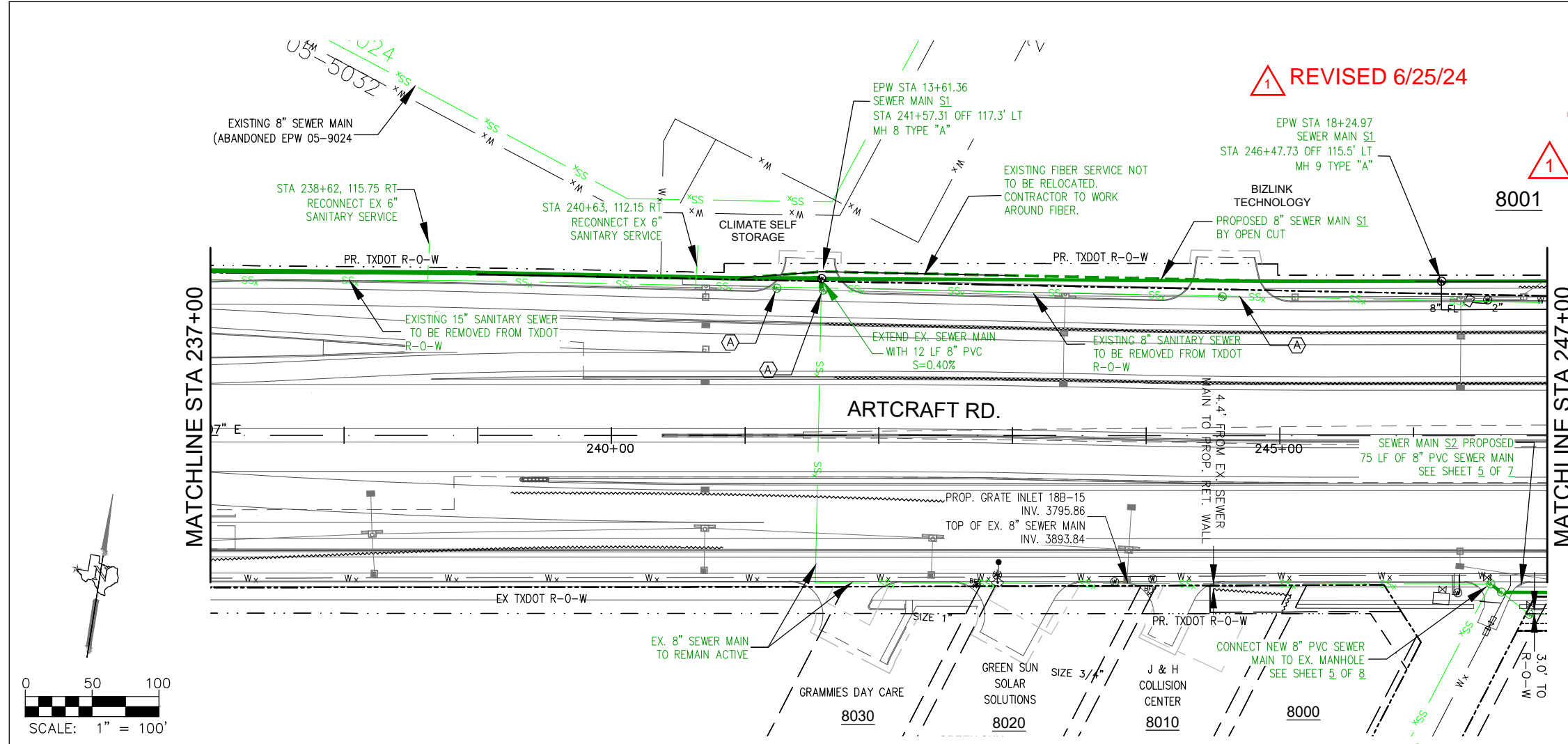
ENCLOSURE 06/25/2024 B232M H:\PROJECTS\181463201 - EPWATER ON-CALL TO 01 WATER LINE RELOC TO CAD & BVA\101 AUTOCAD\DWG\181463201 ARTCRAFT PR.PING

SEWER SHEET 2 STATION 237+00 - 247+00			
ITEM	DESCRIPTION	UNIT	QTY
70166001	FRENCH EXCAVATION PROTECTION	LF	2,088
70166061	SAN SEWER MAN HOLE (48 IN)(6FT)	EA	2
70166066	REMOVE EXISTING MANHOLE	EA	3
70166079	REMOVE EXIST SAN SEWER PIPE (8")	LF	460
70166081	REMOVE EXIST SAN SEWER PIPE (15")	LF	560
70166103	SEWER SERVICE RECONNECTION (6")	EA	2
70176017	SANITARY SEWER (8 IN) (PVC) (SDR 26)	LF	615
70176054	MANHOLES (SANITARY SEWER) DROP (4' DIA)	EA	1
70176093	SANITARY SEWER (15 IN) (PVC) (SDR 26)	LF	453
70166063	SAN SEWER MH (48 IN) (EXTRA DEPTH)	LF	21

- NOTES:
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 - CONTRACTOR SHALL ADHERE TO EP WATER, TX DOT UAR, AND TECQ REQUIREMENTS FOR ADJUSTMENT, ABANDONMENT, AND REMOVAL OF UTILITIES.
 - CONTRACTOR SHALL PATCH EXISTING LINES SHOWN TO VERIFY LOCATION AND DEPTH.
 - CONTRACTOR SHALL NOTIFY AND COORDINATE TIE-IN ACTIVITIES WITH EP WATER.
 - CONSTRUCTION ACTIVITIES SHALL BE PERFORMED WITHIN W\EXISTING EASEMENTS AND OR/ ROW UNLESS OTHERWISE NOTED. CONTRACTOR IS RESPONSIBLE FOR OBTAINING PERMITS WHEN APPLICABLE.
 - INSTALLATION OF CASING BY BORE METHODS SHALL BE EITHER BY JACKING, BORING, OR TUNNELING.
 - WHERE APPLICABLE, GROUNDWATER DEWATERING WORK REQUIRED WILL BE SUBSIDIARY TO THE LINE ITEM FOR WHICH WORK IS BEING PERFORMED.
 - CUTTING OF STEEL CASING MAY BE NECESSARY TO COMPLETE TIE-INS FOR SEWER CONNECTIONS AND IS CONSIDERED SUBSIDIARY TO THE MAIN LINE ITEM.



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SH 178 (ARTCRAFT ROAD)
 SANITARY SEWER RELOCATION
 STA 237+00 TO STA 247+00
 15" SEWER LINE (S1)
 8" SEWER LINE (S1)
 PLAN & PROFILE SHEET 2 OF 8

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY
6	SEE TITLE SHEET	SH-178
STATE	DISTRICT	COUNTY
TEXAS	ELP	EL PASO
CONTROL	SECTION	JOB
3592	01	009
SHEET NO. 2149		

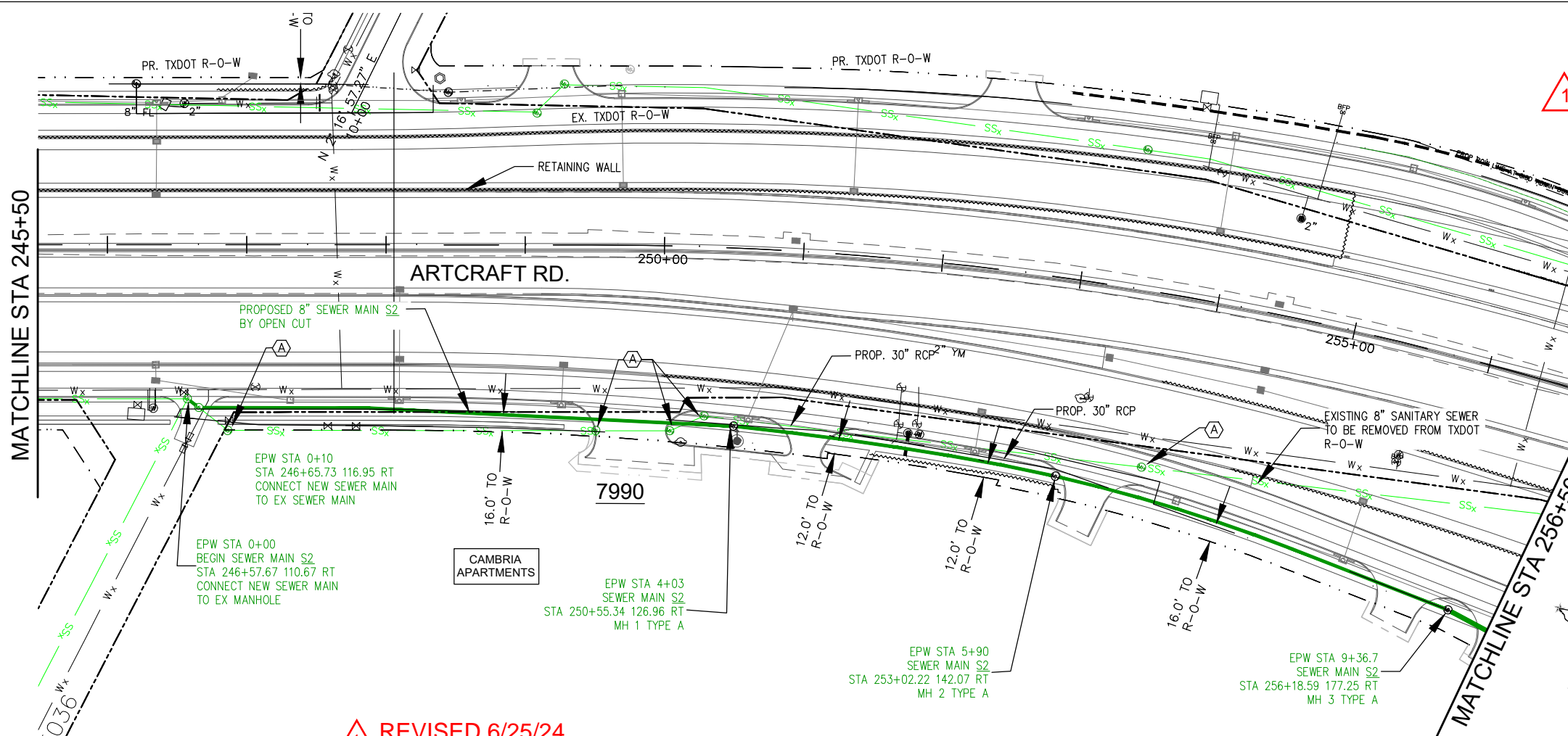
P:\DWG\16/05/2024 8:55AM H:\PROJ\241483\101 - EPWATER ON-CALL TO CI WATER LINE RELOC TO CAD & BNA\101 AUTOCAD\DWG\241483\101 ARTCRAFT PP.DWG

SEWER SHEET 5 STATION 246+00 - 256+50

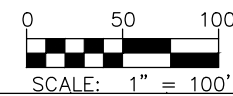
ITEM	DESCRIPTION	UNIT	QTY
4026001	TRENCH EXCAVATION PROTECTION	LF	1,946
70166051	SAN SEWER PIPE (PVC) (SDR 35) (8")	LF	964
70166061	SAN SEWER MAN HOLE (48 IN)(6FT)	EA	4
70166066	REMOVE EXISTING MANHOLE	EA	5
70166079	REMOVE EXIST SAN SEWER PIPE (8")	LF	992
70166103	SEWER SERVICE RECONNECTION (6")	EA	2
70176054	MANHOLES (SANITARY SEWER) DROP (4' DIA)	EA	1
70166063	SAN SEWER MH (48 IN) (EXTRA DEPTH)	LF	20

NOTES:

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- CONTRACTOR SHALL POTHOLE EXISTING LINES SHOWN TO VERIFY LOCATION AND DEPTH.
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- EXACT LOCATION OF SEWER TO BE RECONNECTED SHALL BE VERIFIED IN THE FIELD.



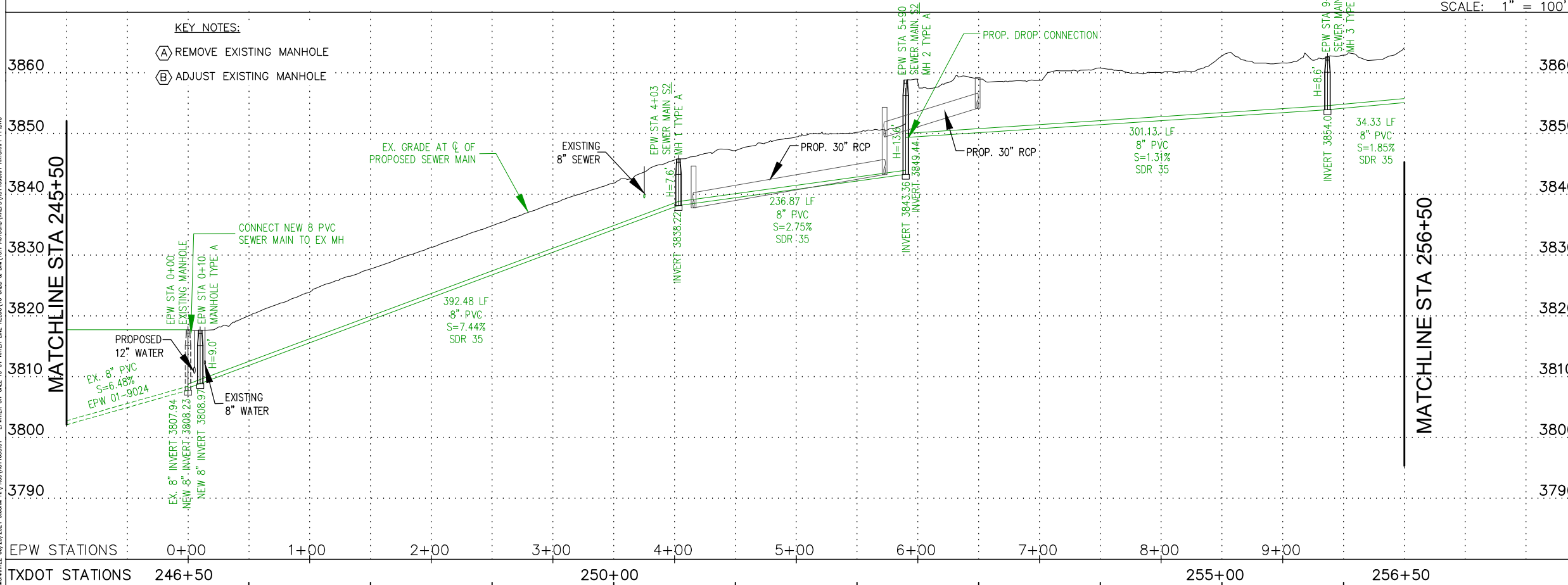
REVISION 1 REVISED 6/25/24



5/3/2024

KEY NOTES:

- (A) REMOVE EXISTING MANHOLE
- (B) ADJUST EXISTING MANHOLE



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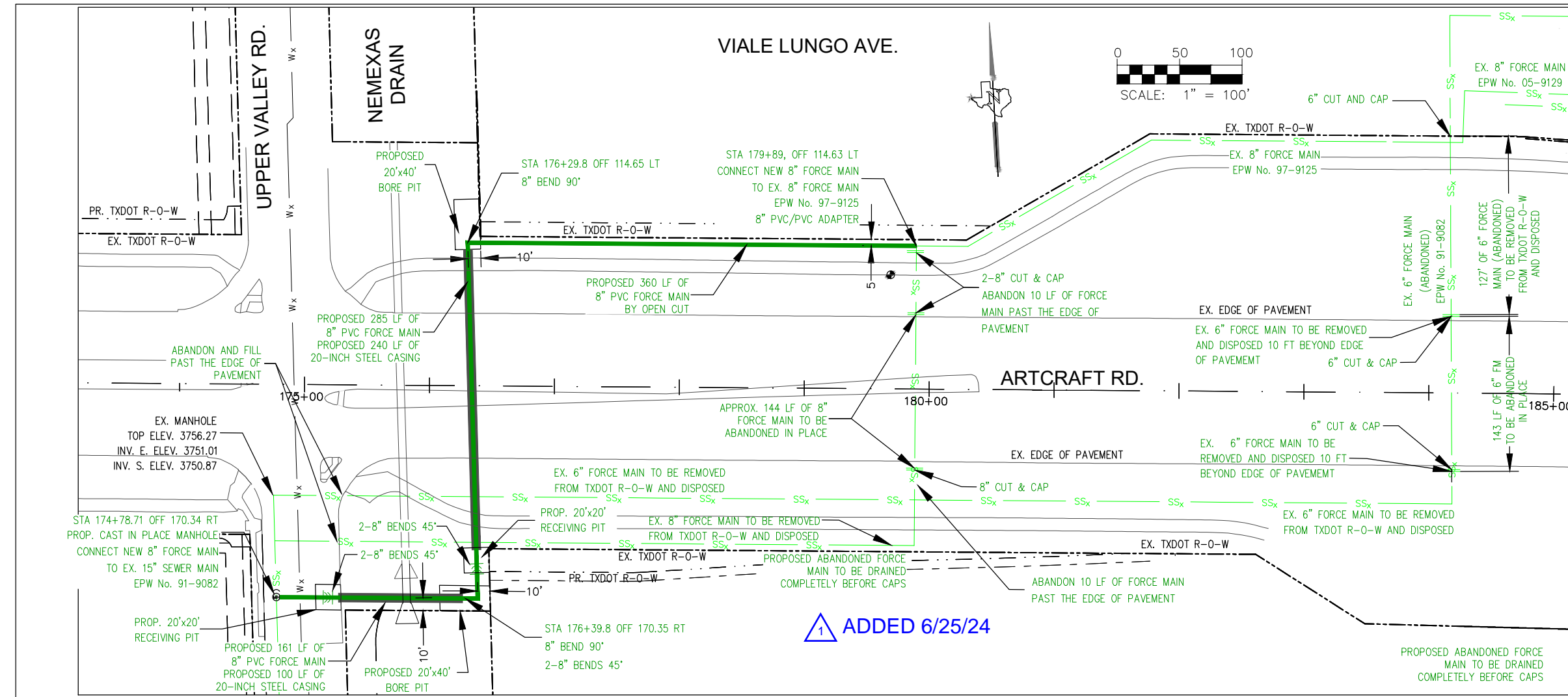
SH 178 (ARTCRAFT ROAD)
 SANITARY SEWER RELOCATION
 STA 246+00 TO STA 256+50

8" SEWER LINE (S2)
 PLAN & PROFILE

SHEET 5 OF 8

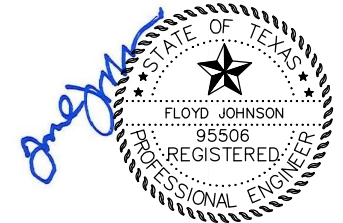
FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY
6	SEE TITLE SHEET	SH-178
STATE	DISTRICT	COUNTY
TEXAS	ELP	EL PASO
CONTROL	SECTION	JOB
3592	01	009

ENCLOSURE 06/25/2024 9:20AM H:\PROJ\251463201 - EPWATER ON-CALL TO 01 WATER LINE RELOC TO CAD & BVA\01 AUTOCAD\DWG\251463201 ARTCRAFT PRJ.DWG

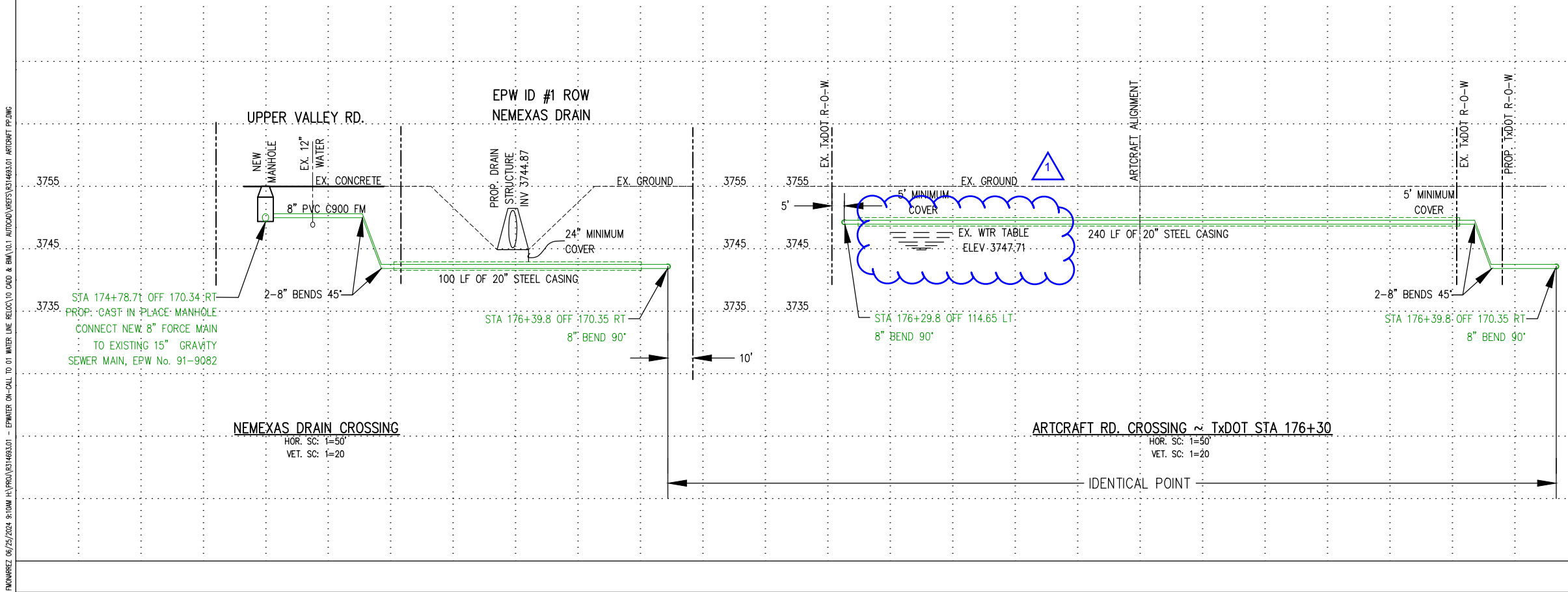


- NOTES:
1. CONTRACTOR SHALL USE OTHER APPLICABLE DRAWINGS IN THIS PROJECT TO COORDINATE DIMENSIONS AND LAYOUT.
 2. CONTRACTOR SHALL ADHERE TO EP WATER, TX DOT UAR, AND TECQ REQUIREMENTS FOR ADJUSTMENT, ABANDONMENT, AND REMOVAL OF UTILITIES.
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 6. INSTALLATION OF CASING BY BORE METHODS SHALL BE EITHER BY JACKING, BORING, OR TUNNELING.
 7. WHERE APPLICABLE, GROUNDWATER DEWATERING WORK REQUIRED WILL BE SUBSIDIARY TO THE LINE ITEM FOR WHICH WORK IS BEING PERFORMED.
 8. UPPER VALLEY RD. TO REMAIN OPEN FOR TRAFFIC AT ALL TIMES.
 9. THE CONTRACTOR MUST ADHERE TO THE REQUIREMENTS AND ENSURE THE SAFE GUARDING OF EPWID#1 CHANNEL THROUGHOUT THE CONSTRUCTION PROCESS.

UPPER VALLEY STATION 170+00 - 180+00			
ITEM	DESCRIPTION	UNIT	QTY
4026001	TRENCH EXCAVATION PROTECTION	LF	2,034
70166055	SAN SEWER PIPE (PVC) (C-900) (8")	LF	802
70166079	REMOVE EXIST SAN SEWER PIPE (8")	LF	564
70166089	CASING (STEEL)(20 IN)(BORED)	LF	341
70176128	REMOVE EXIST SAN SWR PIPE (6IN)	LF	1,009
70176163	ABAND/FILL EXIST SAN SWR PIPE (6IN)	LF	276



5/3/2024



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SH 178 (ARTCRAFT ROAD)
 FORCE MAIN RELOCATION
 STA 170+00 TO STA 180+00

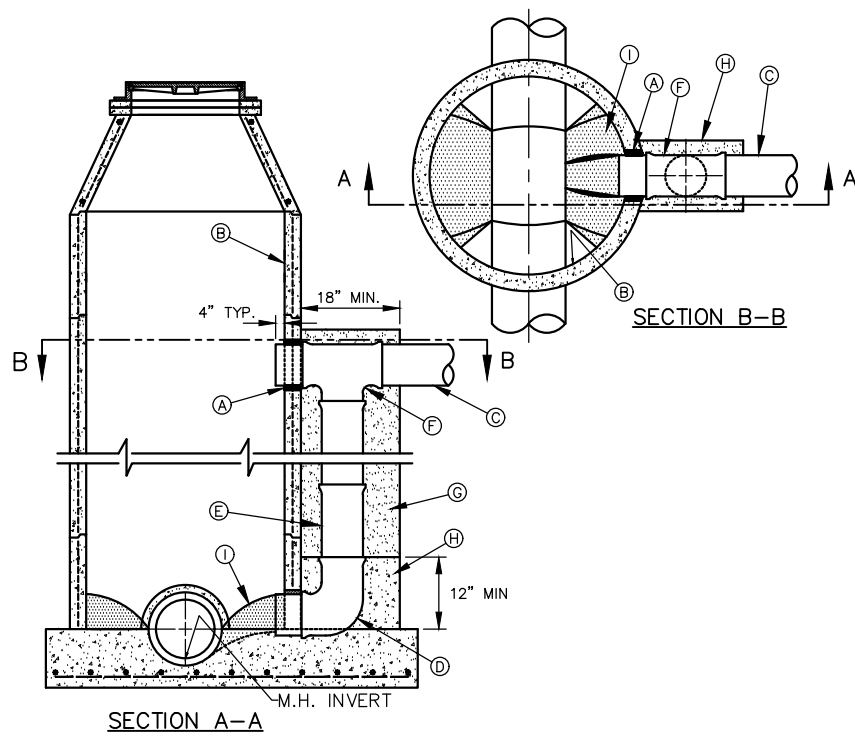
8" FORCE MAIN
 CROSS SECTIONS

SHEET 1 OF 1

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY	
6	SEE TITLE SHEET	SH-178	
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ELP	EL PASO	2156
CONTROL	SECTION	JOB	
3592	01	009	

ENCLOSURE 06/25/2024 9:10AM H:\PROJ\151463301 - EPWATER ON-CALL TO 01 WATER LINE RELOC TO CADD & BINA\101 AUTOCAD\DWG\151463301 ARTCRAFT PP.DWG

1 ADDED 6/25/24



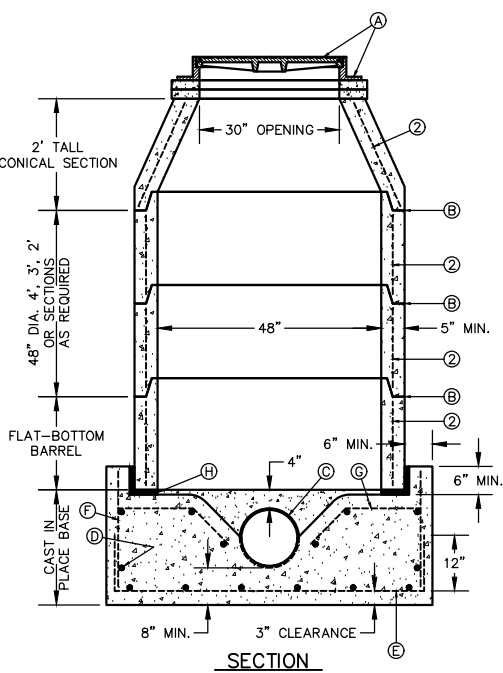
CONSTRUCTION KEY NOTES:

- A. PIPE OPENINGS IN MANHOLE RISERS SHALL HAVE COMPRESSION TYPE FLEXIBLE PIPE TO MANHOLE CONNECTORS (A.S.T.M. - C923) "KOR-N-SEAL" OR APPROVED EQUAL.
- B. MANHOLE WALL
- C. INFLUENT SEWER PIPE.
- D. 90° BEND (P.V.C.)
- E. P.V.C. PIPE (SDR. 35)
- F. P.V.C. TEE
- G. CONCRETE FLOWABLE FILL
- H. 2500 PSI CONCRETE
- I. USE GROUT TO FORM A SMOOTH CHANNEL TO MANHOLE INVERT

GENERAL NOTES:

1. DROP CONNECTION SHOWN MAY BE USED ON ALL MANHOLE TYPES (NOT RECOMMENDED IN GROUND WATER CONDITIONS).
2. DROP CONNECTION TO BE CONSTRUCTED WHEN INVERT ELEVATION OF INFLUENT PIPE IS 2 FEET (OR GREATER) ABOVE THE MANHOLE INVERT.

REF 5 NTS
DROP CONNECTION - EXTERNAL MANHOLE INSTALLATION



SECTION

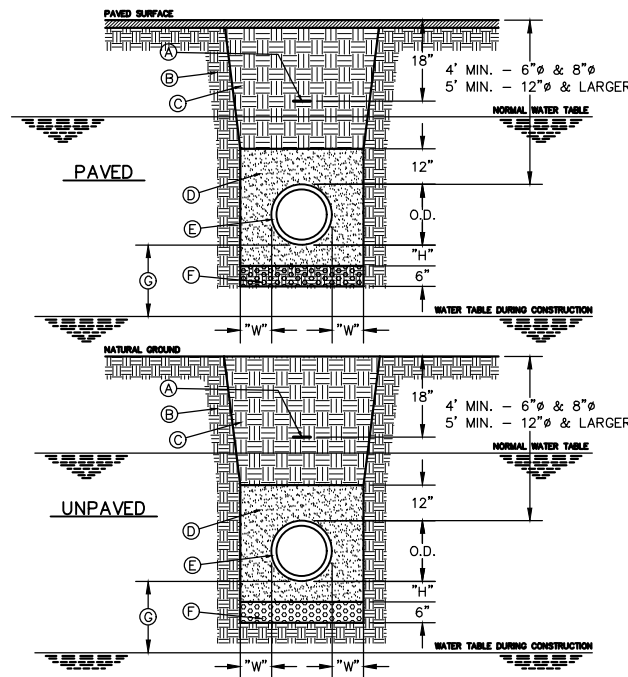
REF 8 NTS
CAST IN PLACE MANHOLE

GENERAL NOTES:

1. MANHOLE TYPE "A2" SHALL BE USED FOR LINES 21" AND SMALLER, WHEN SPECIAL SOIL CONDITIONS REQUIRE FOUNDATION TO BE STABILIZED.
2. PRE-CAST MANHOLE SECTIONS SHALL BE OF REINFORCED CONCRETE CONFORMING TO ASTM C-478 AND SHALL MEET HS-20 LOADING. PROVIDE REINFORCEMENT WITHIN 3" @ OPENINGS OR KNOCKOUTS, OPENINGS (UP TO 8") MADE IN FIELD SHALL BE CORE DRILLED.
3. CEMENT SHALL BE TYPE I-II, PER ASTM C-150, AND MUST CONTAIN A MINIMUM OF 4% FLY ASH OF THE TOTAL MANHOLE WEIGHT.
4. THE BASE SHALL BE CAST IN PLACE CONCRETE (MINIMUM 28 DAY COMPRESSIVE STRENGTH 4000 PSI.) POURED ON UNDISTURBED OR THOROUGHLY COMPACTED SUB-BASE.
5. MANUFACTURER TO PROVIDE LIFTERS OF ADEQUATE SIZE AS NEEDED.
6. THE SUBGRADE UNDER THE BASE SHALL BE COMPACTED TO 95% DENSITY IN ACCORDANCE WITH ASTM D-1557.
7. MANHOLES BELOW GROUNDWATER TO BE EXTERNALLY AND INTERNALLY COATED WITH BITUMINOUS COATING.
8. DEPTHS OVER 14' SHALL HAVE STRENGTHENED WALLS (REFER TO CONTRACT DRAWINGS OR SPECIFICATIONS).

CONSTRUCTION KEY NOTES:

- A. MANHOLE RING AND COVER (SEE EPW DETAILS 377 & 378). SET FRAME AND COVER FLUSH WITH ROADWAY SURFACE OR FINISHED GRADE (SEE EPW DETAIL 185).
- B. ALL JOINTS TO BE TONGUE, GROOVE AND SEALED WITH RAM-NEK OR APPROVED EQUAL.
- C. ON MAINLINE, PIPE IS TO BE LAID THRU AND UPPER HALF CUT OUT.
- D. No. 4 AT 12" ON CENTER CIRCUMFERENTIAL BAR, LAP END 12".
- E. No. 4 AT 12" ON CENTER EACH WAY, TYPICAL.
- F. No. 4 AT 2" ON CENTER VERTICAL.
- G. No. 4 AT 12" ON CENTER.
- H. 1" TO 2" GROUT SPACING.



REF 6 NTS
EMBEDMENT CLASS "B" FOR PRESSURE PIPE WET CONDITIONS

GENERAL NOTES:

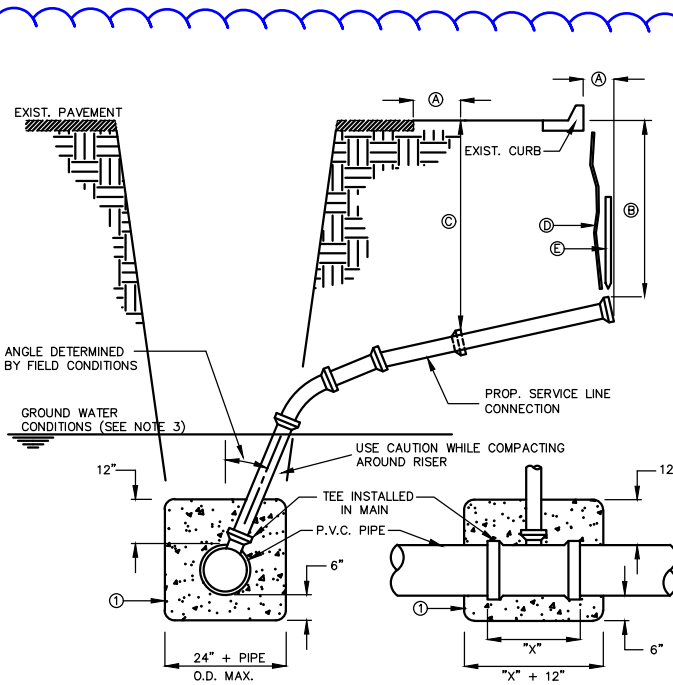
1. BEDDING FOR PRESSURE PIPE IN WET CONDITIONS.
2. PROVIDE TRENCH SAFETY SYSTEM FOR TRENCH DEPTHS GREATER THAN 5 FEET.
3. A DRY TRENCH MUST BE MAINTAINED WHILE PLACING BEDDING.
4. IF THE NATIVE MATERIAL EXCAVATED FROM THE TRENCH IS UNSUITABLE AS BACKFILL MATERIAL, OR THE REQUIRED COMPACTION IS UNATTAINABLE, THE CONTRACTOR SHALL, AT HIS EXPENSE, IMPORT SELECT MATERIAL TO BE MIXED WITH OR USED IN PLACE OF THE NATIVE MATERIAL. SELECT MATERIAL MUST BE APPROVED BY EPW. SUBSTITUTE SOIL CEMENT SLURRY (1-SACK) IF REQUIRED IN SPECS.

CONSTRUCTION KEY NOTES:

- A. APPROVED MARKING TAPE.
- B. UNDISTURBED STABLE MATERIAL.
- C. NATIVE MATERIAL BACKFILL.
PAVED CONDITION: COMPACT TO 90% DENSITY PER ASTM D-1557 MODIFIED PROCTOR.
UNPAVED CONDITION: COMPACT TO 85% DENSITY PER ASTM D-1557 MODIFIED PROCTOR. (*SEE NOTE #4 IF THESE PREVIOUS CONDITIONS CANNOT BE MET.)
- D. USE CLASS II OR CLASS III SAND PER ASTM D-2487. NATIVE MATERIAL OR IMPORTED SELECT MATERIAL MEETING OR EXCEEDING THIS REQUIREMENT MAY BE USED. COMPACT TO 85% DENSITY PER ASTM D-1557 MODIFIED PROCTOR (OR 90% D-698 STANDARD PROCTOR).
- E. APPROVED PIPE (WRAP DUCTILE IRON OR STEEL PIPE IN APPROVED POLYETHYLENE SHEETING, MINIMUM 6 MIL THICKNESS).
- F. USE CLASS I GRAVEL PER ASTM D-2321 AND D-2487. NO COMPACTION REQUIRED. USE MINIMAL TAMPING, RODDING OR HAUNCH SLICING CAREFULLY IN THE EMBEDMENT ZONE. IF REQUIRED BY THE ENGINEER, TEST PER ASTM D-4254 PERCENT OF RELATIVE DENSITY.
- G. 18" MINIMUM UNLESS OTHERWISE SPECIFIED.
- H. TRENCH DIMENSIONS AS FOLLOWS:

PIPE DIAMETER	"H"
6" - 30"	4"
GREATER THAN 30"	6"
PIPE DIAMETER	"W"
6" - 30"	8"
GREATER THAN 30"	12"

1 ADDED 6/25/24



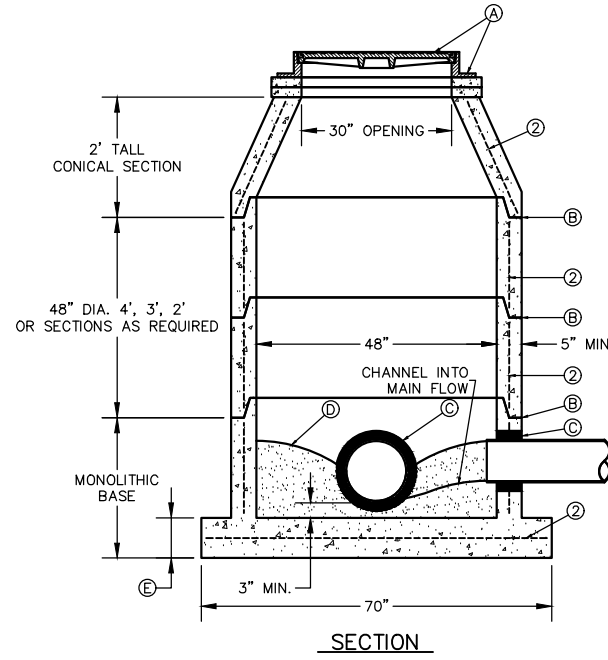
REF 9 NTS
SEWER SERVICE RISER AND SERVICE LINE RECONNECTION

GENERAL NOTES:

1. IN GROUNDWATER CONDITIONS ONLY, P.V.C. SADDLES OR TEES ARE TO BE ENCASED WITH CLASS B CONCRETE.
2. UNDER CERTAIN CONDITIONS FIELD INVESTIGATIONS WILL BE REQUIRED TO DETERMINE THE ADEQUACY OF THE DEPTH ON THE LATERAL.
3. WHEN GROUND WATER IS ENCOUNTERED SERVICE RISER SHALL BE EXTENDED ABOVE ANTICIPATED WATER TABLE LEVEL.

CONSTRUCTION KEY NOTES:

- A. CONTRACTOR TO INSTALL SEWER SERVICE LINE FROM THE MAIN TO A LOCATION 6" BEHIND THE CURB OR 18" BEYOND THE EDGE OF PAYMENT, UNLESS CONDITIONS REQUIRE OTHERWISE.
- B. 18" FOR STANDARD SUBDIVISION, 3.5' FOR SUBDIVISIONS WITH ON-SITE PONDING OR FLAT TERRAIN.
- C. RISERS OR LATERALS EXTENDING BEYOND EXISTING PAVING SHALL BE INSTALLED TO 3.5' MINIMUM TOP OF GROUND OR PAVEMENT, UNLESS CONDITIONS REQUIRE OTHERWISE.
- D. PLASTIC METALLIC MARKING TAPE RISING TO WITHIN 6" OF GROUND SURFACE OR METALLIC DISK.
- E. WOODEN STAKE (1"x2"x36") VERTICALLY PLACED AT PLUGGED END OF PROPOSED SERVICE LINE.



SECTION

REF 7 NTS
MANHOLE TYPE "A1"

GENERAL NOTES:

1. MANHOLE TYPE "A" SHALL BE USED FOR LINES 21" AND SMALLER.
2. PRE-CAST MANHOLE SECTIONS SHALL BE OF REINFORCED CONCRETE CONFORMING TO ASTM C-478 AND SHALL MEET HS-20 LOADING. PROVIDE REINFORCEMENT WITHIN 3" @ OPENINGS OR KNOCKOUTS, OPENINGS (UP TO 8") MADE IN FIELD SHALL BE CORE DRILLED.
3. CEMENT SHALL BE TYPE I-II, PER ASTM C-150, AND MUST CONTAIN A MINIMUM OF 4% FLY ASH OF THE TOTAL MANHOLE WEIGHT.
4. THE BASE & RISER SHALL BE INTEGRALLY CAST. CONCRETE SHALL BE MIN. 28 DAY COMPRESSIVE STRENGTH 4000psi.
5. MANUFACTURER TO PROVIDE LIFTERS OF ADEQUATE SIZE AS NEEDED.
6. THE SUBGRADE UNDER THE BASE SHALL BE COMPACTED TO 95% DENSITY IN ACCORDANCE WITH ASTM D-1557.
7. MANHOLES BELOW GROUNDWATER TO BE EXTERNALLY AND INTERNALLY COATED WITH BITUMINOUS COATING.

CONSTRUCTION KEY NOTES:

- A. MANHOLE RING AND COVER (SEE DETAILS 377 & 378). SET FRAME AND COVER FLUSH WITH ROADWAY SURFACE OR FINISHED GRADE (SEE DETAIL 185).
- B. ALL JOINTS TO BE TONGUE, GROOVE AND SEALED WITH RAM-NEK OR APPROVED EQUAL.
- C. PIPE OPENINGS/KNOCKOUTS AS REQUIRED TO FIT PIPE SIZE AND SHALL HAVE FLEXIBLE PIPE TO MANHOLE CONNECTORS (COMPRESSION TYPE ASTM-923), "KOR-N-SEAL" OR APPROVED EQUAL. D. GROUT AS REQUIRED.
- E. CONCRETE BASE SHALL BE 8" FOR MH's UP TO 12' DEEP AND 12" FOR DEPTHS GREATER THAN 12'.



5/3/2024

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SH 178 (ARTCRAFT ROAD)
SANITARY SEWER RELOCATION

SEWER DETAILS 02

SHEET 2 OF 2

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY
6	SEE TITLE SHEET	SH-178
STATE	DISTRICT	COUNTY
TEXAS	ELP	EL PASO
CONTROL	SECTION	JOB
3592	01	009
		2157A

DWGDATE: 06/25/24 3:04PM I:\PROJ\014683-01 - EPWATER LINE RELOC TO 01 WATER LINE REDUC TO 10 CMB & BMA\101_AIRPOD\SEWER DETAILS 2.DWG