### INDEX OF SHEETS

# STATE OF TEXAS DEPARTMENT OF TRANSPORTATION

FEDERAL AID PROJECT NO. STATE COUNTY CAMERON TEXAS 21 SECT. JOB HIGHWAY NO. N\A N\A N\A PR 100

DESCRIPTION

SHEET NO.

TITLE SHEET

IMPROVEME

SIDEWALK

AND

 $\leq$ 

MEDIAN, BOARDWAL SOUTH PADRE ISLAND)

 $\bigcirc$  P

10( CITY 6

NO.-

SHEET NO. 1

INDEX OF SHEETS SHEET NO. 2 PLANS OF PROPOSED

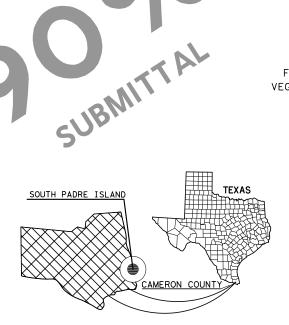
ROADWAY AND PEDESTRIAN FACILITIES IMPROVEMENT

TOTAL LENGTH OF PROJECT ROAD = 23,593 FT. - 4.47 MILES

CAMERON COUNTY

### PR 100 MEDIAN, BOARDWALK, AND SIDEWALK IMPROVEMENTS

LIMITS: FROM 100' SOUTH OF PALM ST TO THE SOUTH PADRE ISLAND EQUESTRIAN AND EVENTS CENTRE WITHIN THE CITY OF SOUTH PADRE ISLAND, TEXAS FOR THE CONSTRUCTION OF RAISED MEDIANS, FLUSH MEDIANS, BOARDWALK, SIDEWALK AND LANDSCAPE IMPROVEMENTS VEGETATION PLANTINGS WITH IRRIGATION, LIGHTING FIXTURES, PAVEMENT MARKINGS, SIGNING, AND A TRAFFIC SIGNAL.



### PROJECT DATA

POSTED SPEED:

PR 100 = VARIES SEE KEY MAP

ADT:

ADT 2016: 12,677 ADT 2036: 22,896

FUNCTIONAL CLASS: URBAN PRINCIPAL ARTERIAL

EXCEPTION:

NONE

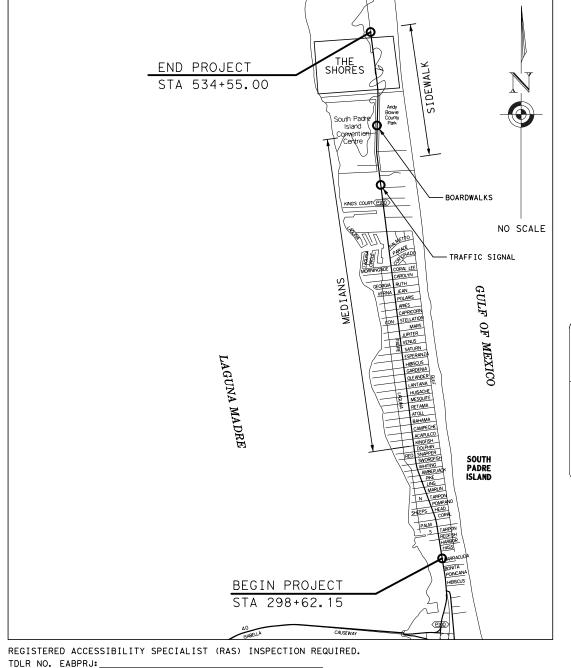
EQUATION:

NONE

RAILROAD CROSSING: NONE

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SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION ON NOVEMBER 1, 2014 AND SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS, SHALL GOVERN ON THIS PROJECT:





Know what's below. Call before you dig.

PRELIMINARY FOR REVIEW ONLY Kimley » Horn nineer THOMAS P. GRANT No. 100876 Date 11/6/2018

	CONSULTAN	T
KIMLEY-HORN AND ASS CONSULTANT DESIG		DATE :
NAME		TITLE

Kimley»Horn

FINAL PLAN DATA:
FINAL CONTRACT PRICE:
CONTRACTORS NAME:
CONTRACTORS ADDRESS:
LETTING DATE:
(LET BY CITY OF SOUTH PADRE ISLAND)
DATE WORK BEGAN:
DATE WORK COMPLETED:
DATE OF ACCEPTANCE:
CHANGE ORDERS & SUPP. AGREEMENTS:

DC:	Δ	Π.	T.	R.T	

WORK WAS COMPLETED ACCORDING TO THE PLANS AND CONTRACT.

CITY OF SOUTH PADRE ISLAND

		LOCAL	ENTITIES	
	OF SOUTH PAD CONCURRENCE	RE ISLAND	DATE :	
N.	AME			
Т	ITLE			
		200	eth dre	

<b>*</b>	TEXAS DEPARTMENT OF TRANSPORTATION
	APPROVED FOR LETTING :
	SAN BENITO AREA ENGINEER

### INDEX OF SHEETS

SHEET DESCRIPTION SHEET DESCRIPTION SHEET DESCRIPTION I. GENERAL IV. SIGNING AND MARKING VI. MISCELLANEOUS ITEMS 234-245 LIGHTING PLAN TITLE SHEET 1 166-168 SUMMARY OF SMALL SIGNS 246-247 SUMMARY OF CONDUIT CHARTS 2 INDEX OF SHEETS 169-184 SIGNING LAYOUT 248 SUMMARY OF LIGHTING QUANTITIES 3-4 CONTROL DATA AND PROJECT LAYOUT 185-201 PAVEMENT MARKINGS LAYOUT 249-251 LIGHTING DETAILS 5-9 202 KEY MAP PAVEMENT MARKING DETAILS 252-263 LANDSCAPE PLAN SHEETS 10-11 203 PEDESTRIAN CROSSING SIGN DETAIL EXISTING TYPICAL SECTIONS 264-265 LANDSCAPE AND HARDSCAPE DETAILS 204 FLASHING LED SIGN DETAIL 12-16 PROPOSED TYPICAL SECTIONS 266 PLANTING AND ESTABLISHMENT (PHR) 17-19 ITEM SUMMARIES 205 TSR(3) - 13\* 267-278 IRRIGATION LAYOUT TSR(4) - 13\* 206 20 PROJECT NOTES 279 IRRIGATION DETAILS 207 TSR(5) - 13\*280 IRRIGATION GENERAL NOTES II. TRAFFIC CONTROL PLAN 208 PM(1) - 12\*281 IRRIGATION SCHEDULE 209 PM(2) - 12\*21 TRAFFIC CONTROL PLAN NOTES (MOD) (PHR)\* 282-283 ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS (EPIC-PHR)\* 210 PM(3)-12\*22 SEQUENCE OF CONSTRUCTION TXDOT STORM WATER POLLUTION PREVENTION PLAN (SW3P)\* 284 211 SMD (GEN) -08\* 23-26 TRAFFIC CONTROL TYPICAL SECTION 285-286 EROSION CONTROL LAYOUT 212 SMD(SLIP-1)-08\* 27-38 BC(1)-14 TO BC(12)-14 \* 287 EC(1)-16\* 213 SMD(SLIP-2)-08\* TCP(2-1)-18\*39 TECL-17 (PHR)\* 288 214 SMD(SLIP-3)-08\* 40 TCP (2-4)-18\*289-307 REMOVAL PLAN \* THE STANDARD SHEETS SPECIFICALLY IDENTIFIED HAVE TCP (3-3)-14 \* V. TRAFFIC SIGNAL 41 BEEN SELECTED BY ME OR UNDER MY RESPONSIBLE WZ (BTS-1)-13 \* SUPERVISION AS BEING APPLICABLE TO THIS PROJECT. 42 TRAFFIC SIGNAL LAYOUT - CLAYTON'S/MARRIOTT 215-217 43 WZ (BTS-2)-13 \* 218 FD(1)-14 \* THOMAS P. GRANT, P.E. 219 ED(3)-14\*III. ROADWAY DETAILS ED(4)-14 \* 220 Revision ED(8)-14 \* 221 44 HORIZONTAL CONTROL DATA - PDR BASELINE 222 TS-FD-12 \* 45-61 HORIZONTAL CONTROL DATA - EAST SIDEWALK BASELINE 223-224 LD(1)-03 \* 62-75 HORIZONTAL CONTROL DATA - WEST SIDEWALK BASELINE PRELIMINARY 225 LUM-A-12 \* 76-92 MEDIAN PLAN FOR REVIEW ONLY 226-227 SP-100(1)-12\* 93-94 CONCRETE MEDIAN DETAILS Kimley » Horn 228 TS-CF-04\* 95 CONCRETE FLUME REPLACEMENT ngineer THOMAS P. GRANT 229 PEDESTRIAN SIGNAL HEAD IDENTIFICATION\* 96-114 PLAN AND PROFILE EAST SIDEWALK 230 TRAFFIC SIGNAL MISCELLANEOUS DETAILS (PHR)\* 115-129 PLAN AND PROFILE WEST SIDEWALK 231 TRAFFIC SIGNAL MISCELLANEOUS DETAILS (PHR)\* 130-135 EAST SIDEWALK CROSS-SECTIONS 232 TRAFFIC SIGNAL MISCELLANEOUS DETAILS (PHR)\* 136-138 SIDEWALK DETAILS 233 TRAFFIC SIGNAL MISCELLANEOUS DETAILS (PHR)\* 139-147 DRIVEWAY DETAILS AND SUMMARY 148 CURB RAMP DETAILS 149-152 PED-18\* ISLAND CCCG-12\* 153 \*\*Texas Department of Transportation 154 JS-14\* © 2018 PSET-SC 155 156-157 BOARDWALK LAYOUT EAST SIDEWALK PR 100 ROADWAY IMPROVEMENTS 158 BOARDWALK LAYOUT WEST SIDEWALK 159 BOARDWALK GENERAL NOTES

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11/6/2018

By Date

MEDIAN, BOARDWALK, AND SIDEWÁLK IMPROVEMENTS

SHEET 1 OF 1

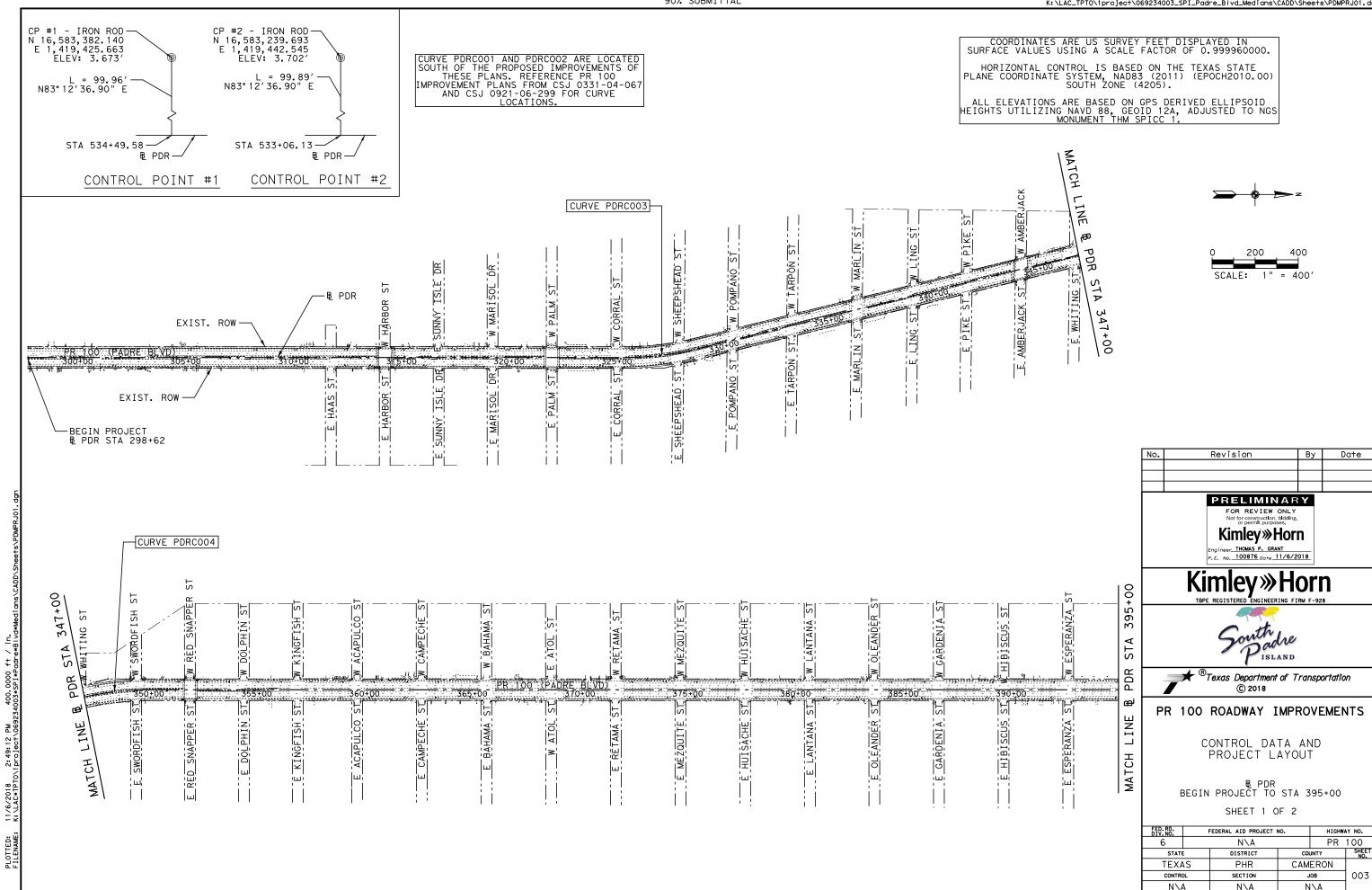
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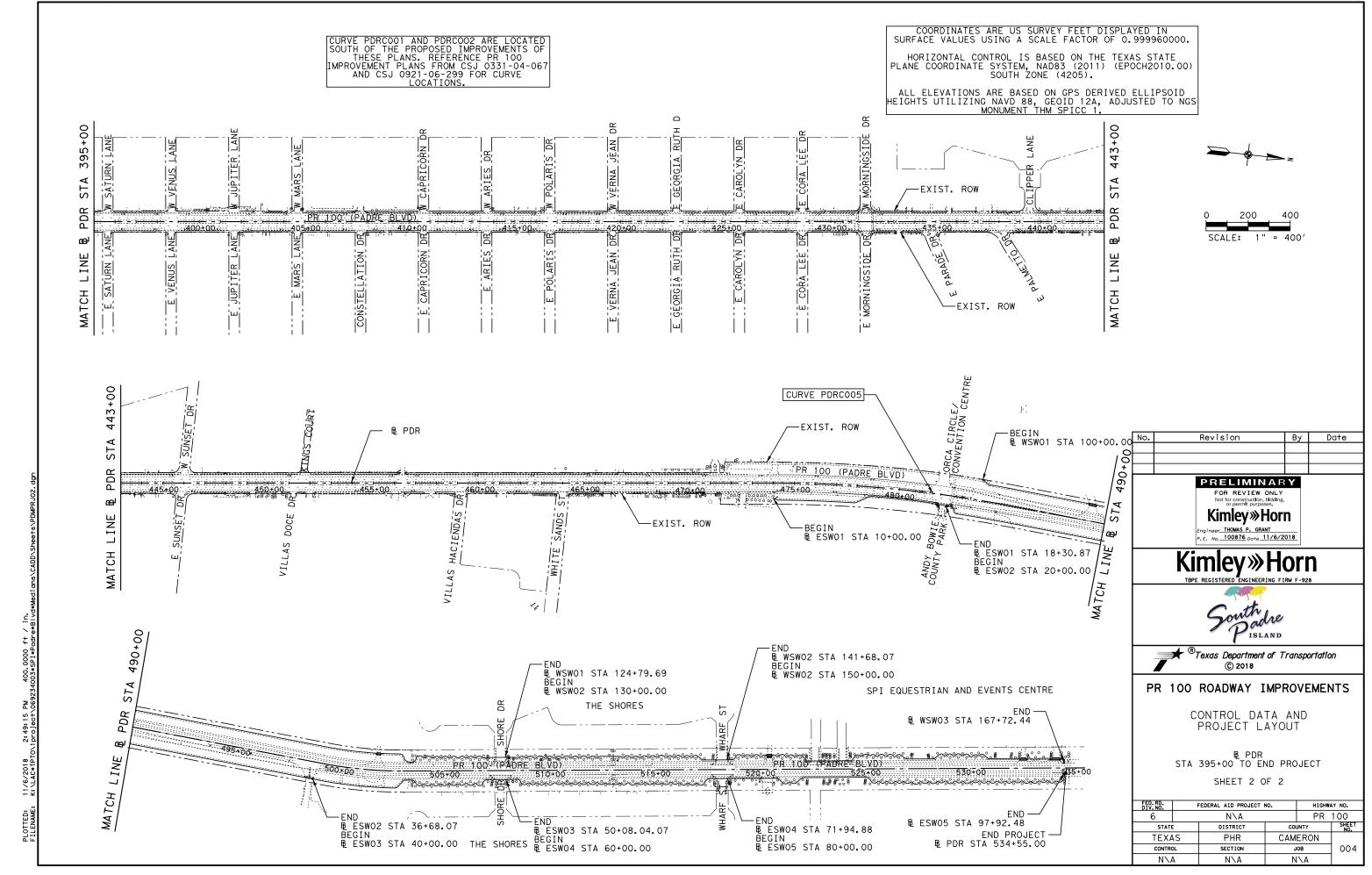
160-161

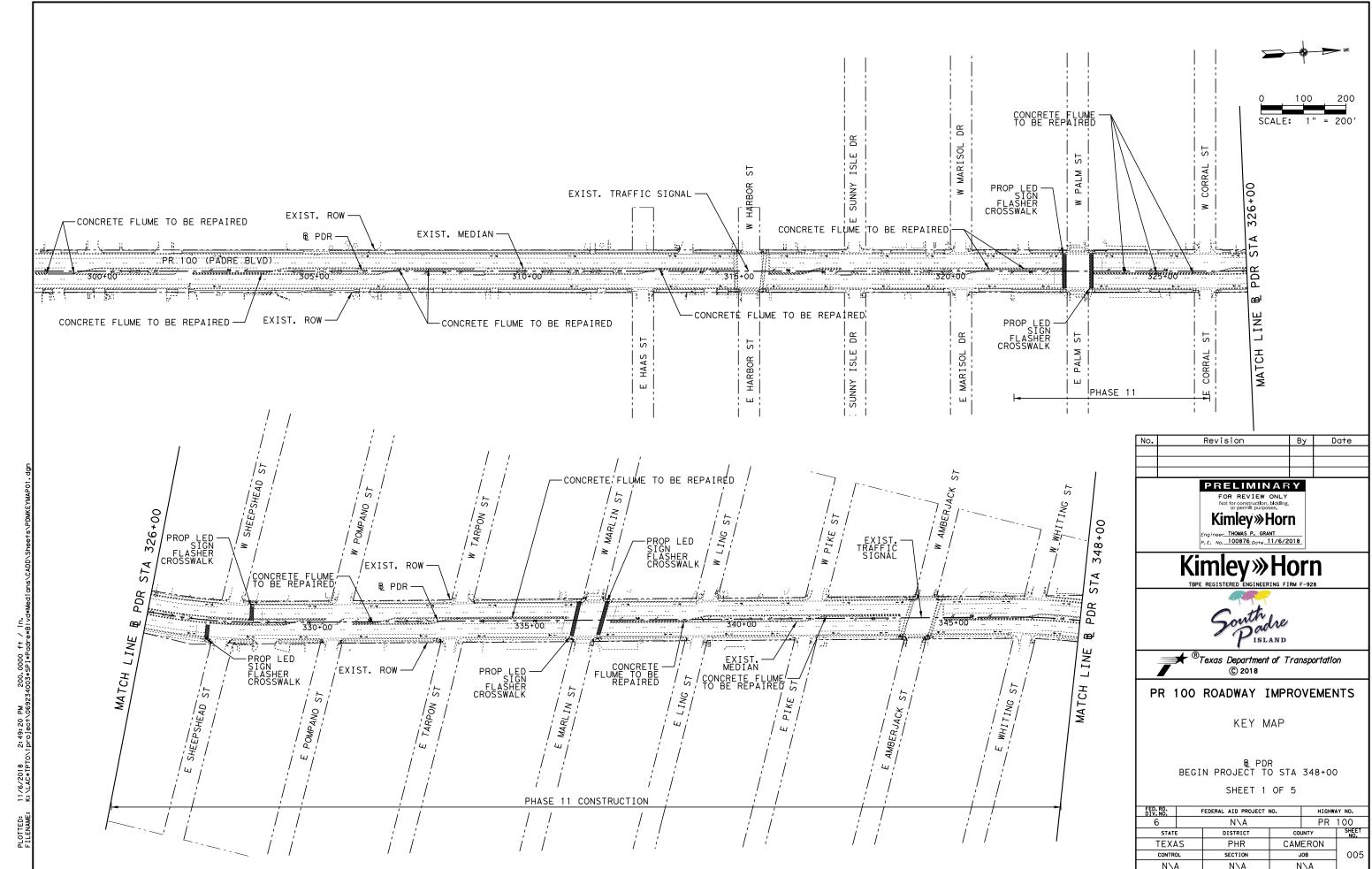
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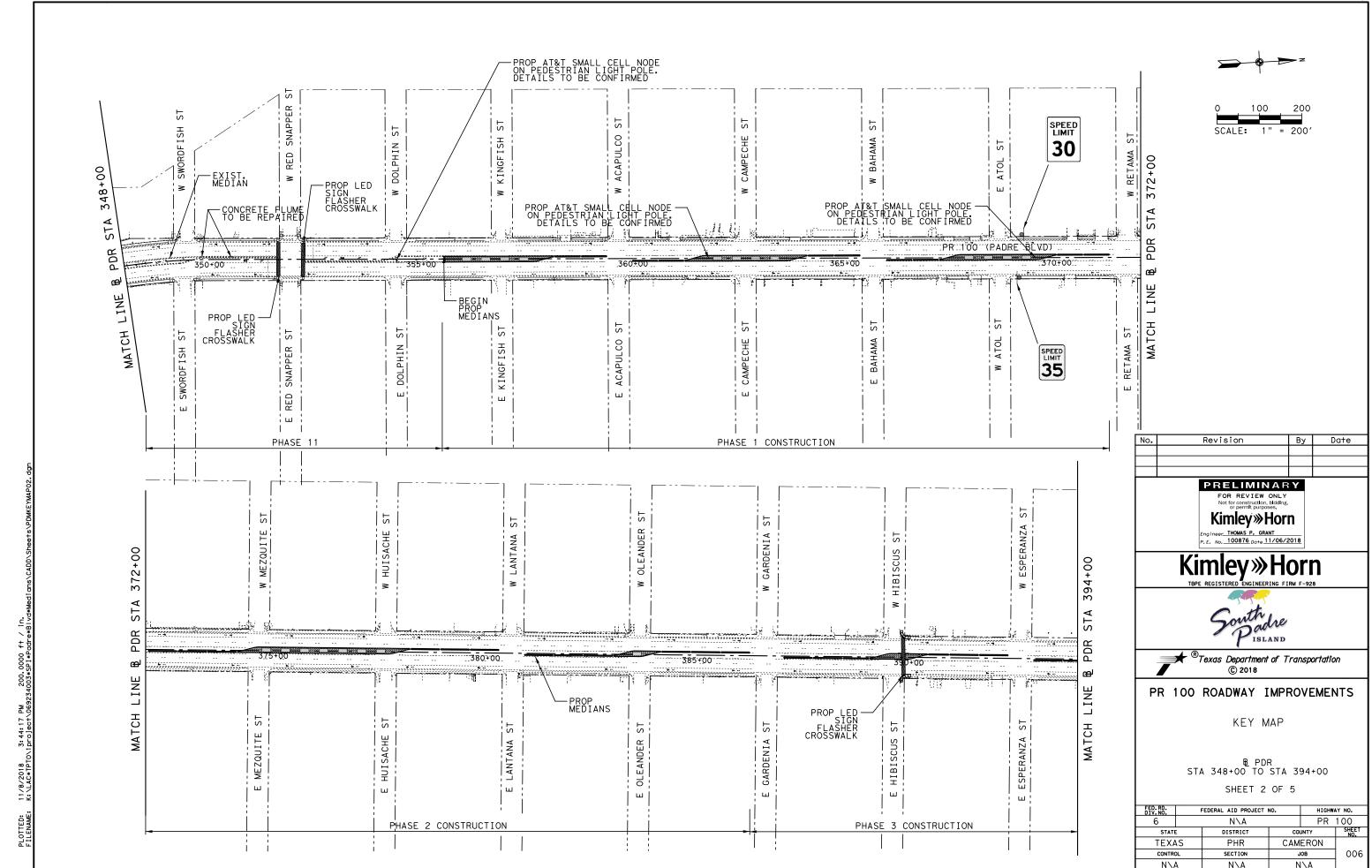
BOARDWALK DETAILS

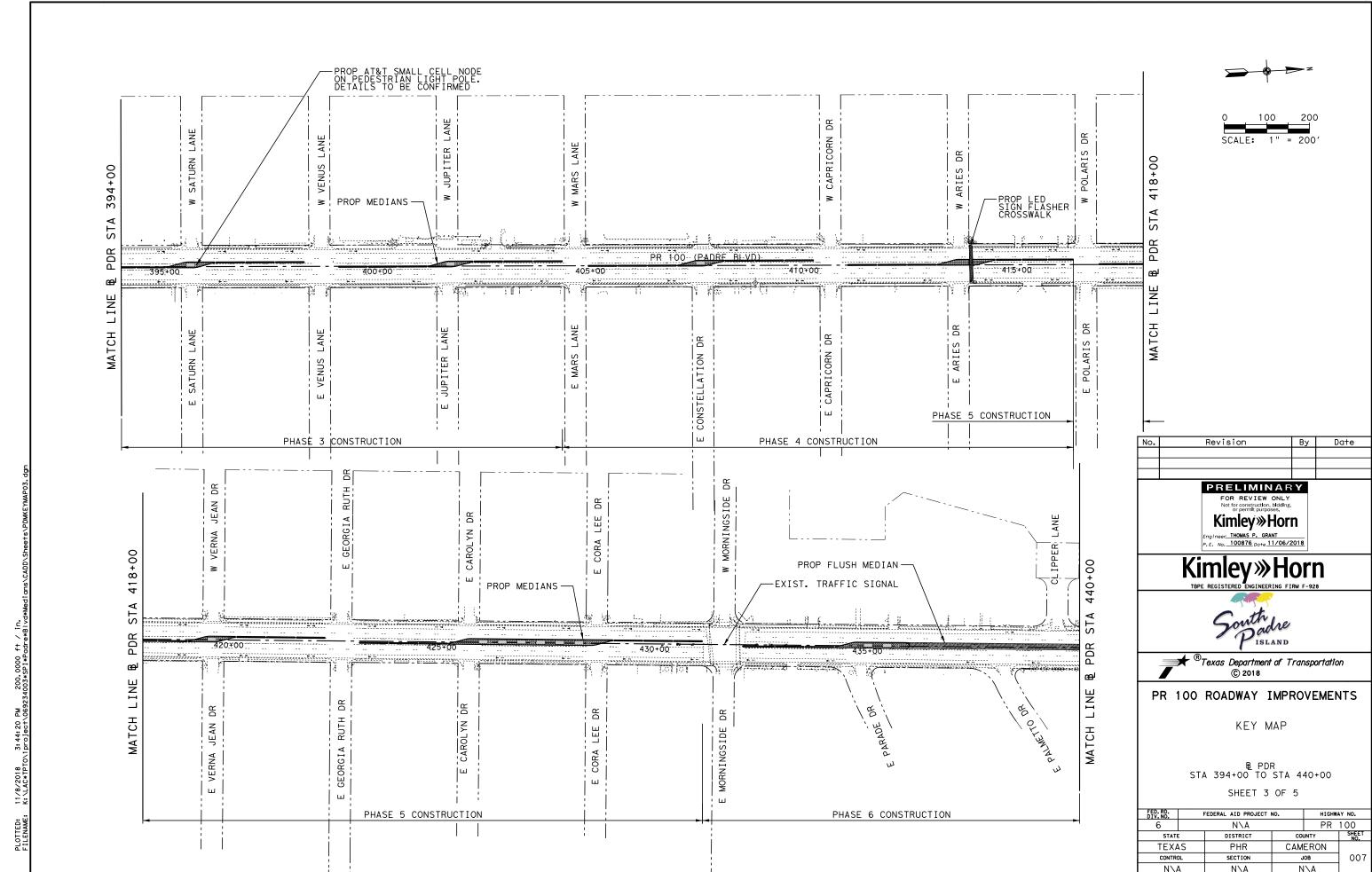
DRAINAGE AREA MAP

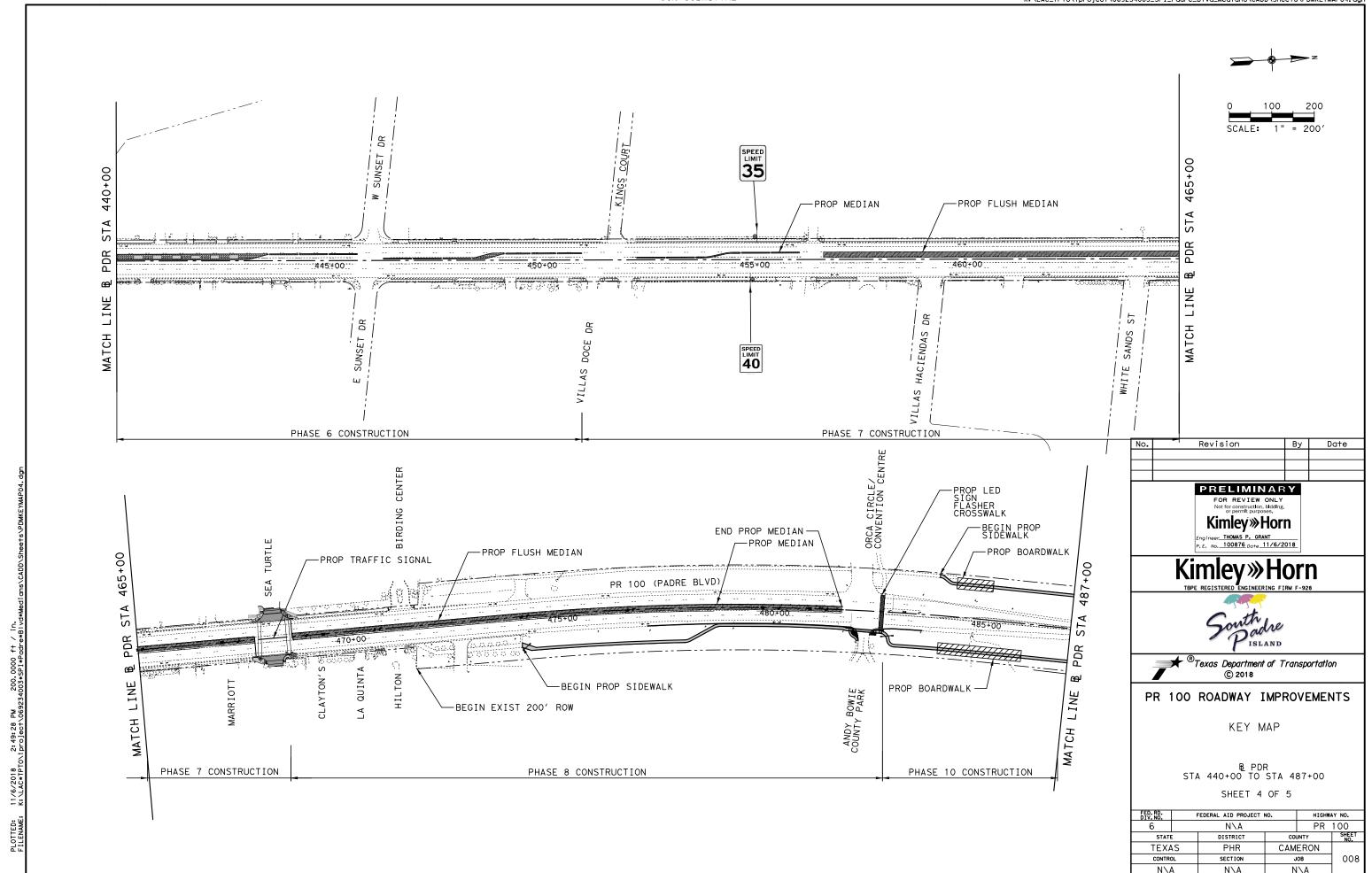


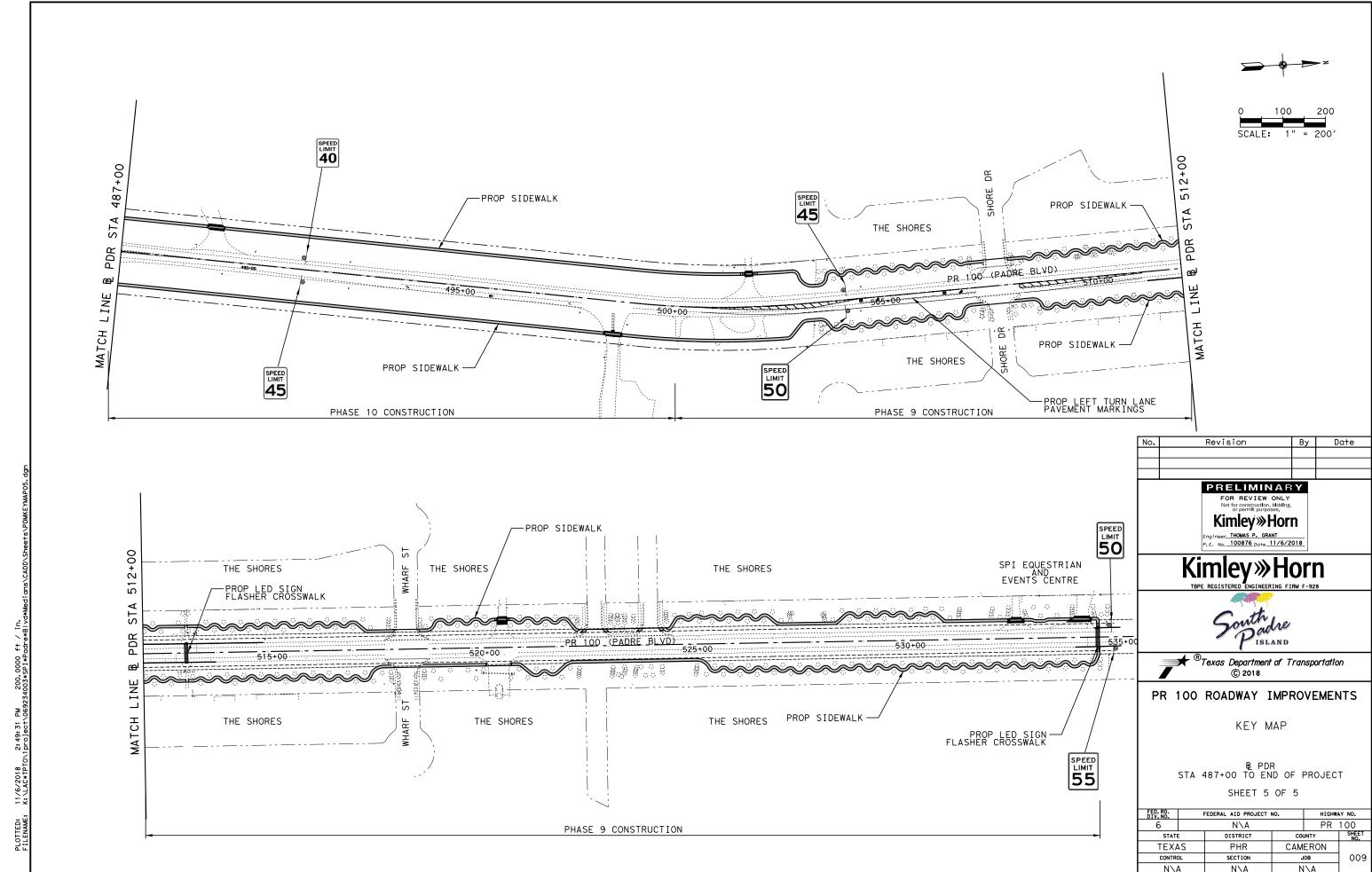


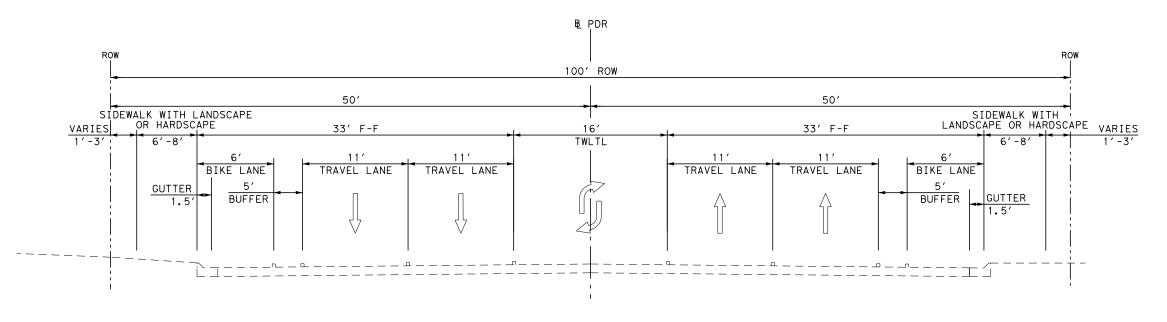












# EXISTING TYPICAL SECTION(1) 100' ROW, FOUR LANES WITH TWO WAY LEFT TURN LANE

B PDR STA 355+56 TO 471+65 (SCALE: N.T.S.)

No.	Revision	Ву	Date



Kimley» Horn





### PR 100 ROADWAY IMPROVEMENTS

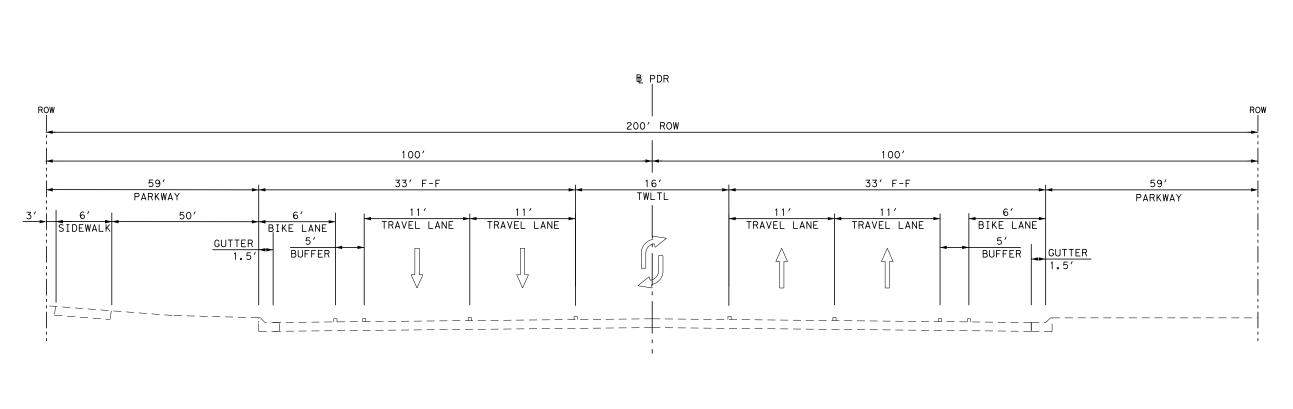
EXISTING TYPICAL SECTIONS

PR 100 (PADRE BLVD)

SHEET 1 OF 2

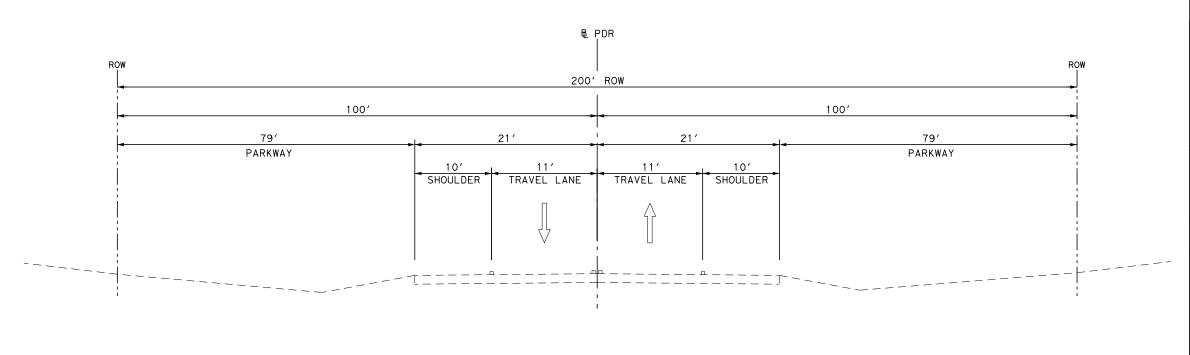
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FILENAME: K:\LAC\*TPTO\1project\069234003\*SPI\*Padre\*BIvd\*Medians\CADD\Sheets\Typical Sections\



# EXISTING TYPICAL SECTION(2) 200' ROW, FOUR LANE WITH TWO WAY LEFT TURN LANE

₽ PDR STA 471+65 TO 481+61 (SCALE: N.T.S.)



EXISTING TYPICAL SECTION (3)
200' ROW, TWO LANE UNDIVIDED ROADWAY

₽ PDR STA 481+61 TO END OF THE PROJECT (SCALE: N.T.S.)

No.	Revision	Ву	Date
	FOR REVIEW ONLY Not for construction, blidding or permit purposes. Kimley»Hor		
	Engineer_THOMAS P. GRANT P.E. No. 100876 Date 11/6/2		

Kimley»Horn



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PR 100 ROADWAY IMPROVEMENTS

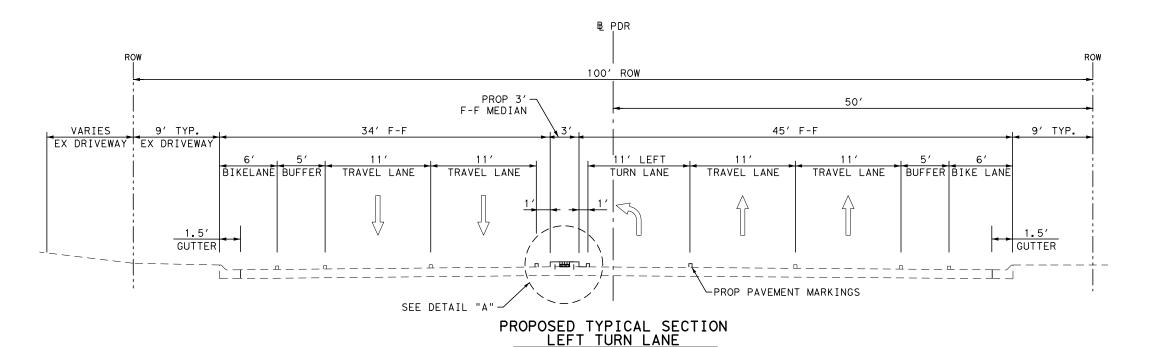
EXISTING TYPICAL SECTIONS

PR 100 (PADRE BLVD)

SHEET 2 OF 2

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO. HIGHWA			Y NO.	
6		N\A	PR	100	
STATI		DISTRICT	JNTY	SHEET NO.	
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(SCALE: N.T.S.)

STA. 358+17.00

PROP LANDSCAPE
PAVERS (SEE
LANDSCAPE DETAILS)
PROP PAVEMENT MARKINGS
PROP CURB TY A (SEE MEDIAN DETAILS)
PROP SAND CUSHION (SEE LANDSCAPE DETAILS)

DETAIL "A"
(SCALE: N.T.S.)

### STA. 360+00.00 TO STA. 361+21.50 TO STA. 365+38.00 STA. 364+15.00 STA. 366+00.00 TO STA. 367+23.00 STA. 370+03.00 TO STA. 371+26.00 STA. 372+04.00 TO STA. 374+14.00 STA. 378+26.00 TΟ STA. 380+34.00 STA. 380+94.00 ŤŎ STA. 383+02.00 TO STA. 386+26.00 STA. 384+18.00 STA. 387+06.00 TO STA. 389+06.50

STATION LIMITS OF

PROPOSED TYPICAL SECTION

TO

STA. 359+40.00

STA. 390+45.50 TO STA. 392+36.00 STA. 392+96.00 TO STA. 395+04.00 STA. 396+22.00 TO STA. 398+30.00 STA. 399+10.00 TO STA. 401+18.00 STA. 402+28.00 TO STA. 404+36.00 STA. 404+96.00 TO STA. 407+04.00 STA. 408+18.00 TΟ STA. 410+26.00 STA. 411+06.00 TO STA. 413+14.00 STA. 414+54.50 TO STA. 416+36.00 TO STA. 419+04.00 TO STA. 422+28.00 STA. 416+96.00 STA. 420+20.00 STA. 423+08.00 TΟ STA. 425+16.00 STA. 429+06.00 TO STA. 431+14.00 STA. 432+07.80 TO STA. 434+23.00 STA. 443+59.00 TO STA. 445+67.00

STA. 446+27.00 TO STA. 448+35.00 STA. 449+15.00 TO STA. 450+95.00

STA. 452+24.50 TO STA. 456+06.00

STATION LIMITS DO NOT INCLUDE TRANSITION.

NOTES:

1.PROPOSED MEDIAN SHALL HAVE CONC. FLUMES FOR POSITIVE DRAINAGE (SEE CONCRETE MEDIAN LAYOUT SHEETS FOR WIDTHS AND LOCATIONS).

2. SEE GEOTECHNICAL REPORT #88175108 BY TERRACON DATED 2/26/2018 FOR LOCATIONS AND DETAILS OF BORINGS. FOR ESTIMATED ROADWAY PAVEMENT THICKNESS FOR REMOVAL.

I V L IVI	OVAL.			
No.		Revision	Ву	Date
		PRELIMINAR	Y	
I		FOR REVIEW ONLY		









### PR 100 ROADWAY IMPROVEMENTS

PROPOSED TYPICAL SECTION LEFT TURN LANE

PR 100 (PADRE BLVD)

SHEET 1 OF 5

ED.RD.	FEDERAL AID PROJECT NO.			H I GHWA	Y NO.
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TEXA	\S	PHR	CAMERON		
CONTR	DL	SECTION	JOB		012
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### STATION LIMITS OF PROPOSED TYPICAL SECTION

(SCALE: N.T.S.)

STA. 355+56.32 TO STA. 357+63.50 STA. 361+75.00 TO STA. 363+61.50 STA. 367+76.50 TO STA. 369+49.50 STA. 374+67.50 TO STA. 377+72.50 STA. 383+55.50 TO STA. 383+64.50 STA. 389+60.60 TO STA. 389+82.10 STA. 395+57.50 TO STA. 395+68.50 STA. 401+71.50 TO STA. 401+74.50 STA. 407+57.50 TO STA. 407+64.50 STA. 413+67.50 TO STA. 413+89.00 STA. 419+57.50 TO STA. 419+66.50 STA. 425+69.50 TO STA. 428+52.50 STA. 434+76.50 TO STA. 435+92.72 STA. 440+07.28 TO STA. 443+05.50 STATION LIMITS DO NOT INCLUDE TRANSITION.

### NOTES:

- 1. ALL EXCAVATED MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR. NO STOCKPILING WILL BE PERMITTED. DISPOSAL TO BE DONE IN LEGAL MANNER AND OUTSIDE OF SOUTH PADRE ISLAND CITY LIMITS. HAULING & DISPOSING SHALL BE SUBSIDIARY TO ITEM 110.
- 2. CONTRACTOR TO LOCATE EXISTING UTILITIES AND COORDINATE WITH UTILITY COMPANIES AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF WORK.
- 3. SEE GEOTECHNICAL REPORT #88175108 BY TERRACON DATED 2/26/2018 FOR LOCATIONS AND DETAILS OF BORINGS. FOR ESTIMATED ROADWAY PAVEMENT THICKNESS FOR REMOVAL.
- 4. SEE MEDIAN LANDSCAPE AND HARDSCAPE DETAILS FOR ADDITIONAL INFORMATION.

No.	Revision	Ву	Date							
	PRELIMINARY									



Kimley > Horn
THE REGISTERED ENGINEERING FIRM F-928





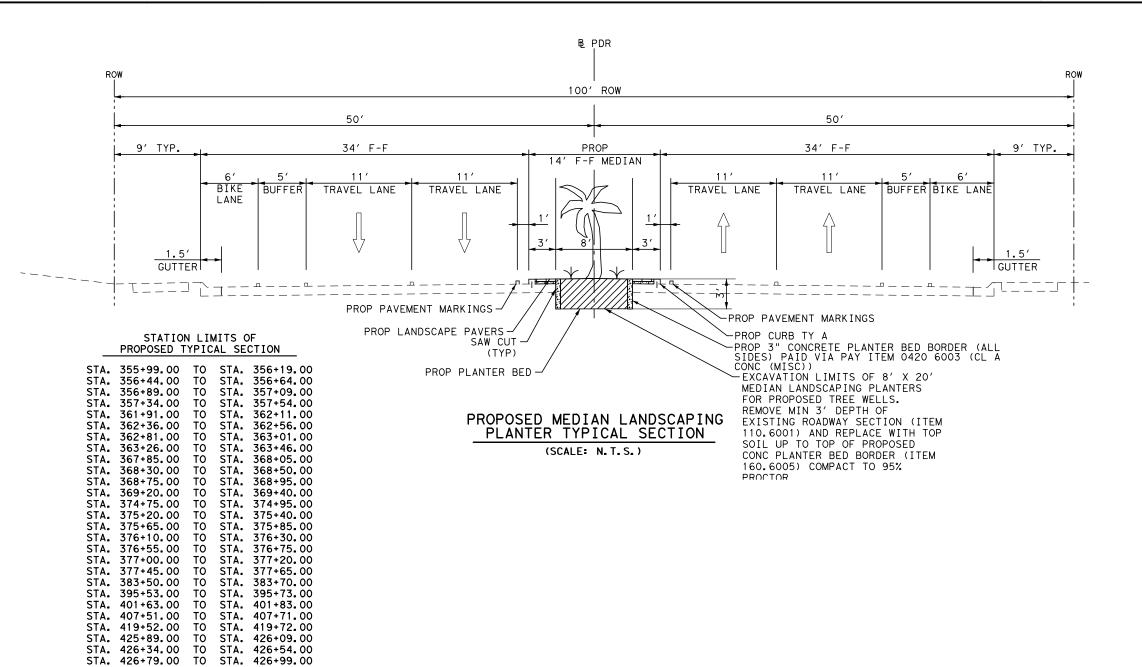
### PR 100 ROADWAY IMPROVEMENTS

PROPOSED
TYPICAL SECTION
FULL MEDIAN

PR 100 (PADRE BLVD)

SHEET 2 OF 5

ED.RD. DIV.NO.	- 1	AY NO.				
6		N\A	100			
STATE		DISTRICT	col	JNTY	SHEET NO.	
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CONTROL		SECTION	JOB		013	
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NOTES:

1. ALL EXCAVATED MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR. NO STOCKPILING WILL BE PERMITTED. DISPOSAL TO BE DONE IN LEGAL MANNER AND OUTSIDE OF SOUTH PADRE ISLAND CITY LIMITS. HAULING & DISPOSING SHALL BE SUBSIDIARY TO ITEM 110 SUBSIDIARY TO ITEM 110.

2. CONTRACTOR TO LOCATE EXISTING UTILITIES AND COORDINATE WITH UTILITY COMPANIES AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF

3. SEE GEOTECHNICAL REPORT #88175108 BY TERRACON DATED 2/26/2018 FOR LOCATIONS AND DETAILS OF BORINGS. FOR ESTIMATED ROADWAY PAVEMENT THICKNESS FOR

4. SEE MEDIAN LANDSCAPE AND HARDSCAPE DETAILS FOR ADDITIONAL INFORMATION.

No.	Revision	Ву	Date						
	PRELIMINARY								
	FOR REVIEW ONLY								

Kimley»Horn ngineer THOMAS P. GRANT P. E. No. 100876 Date 11/6/2018

Kimley » Horn TBPE REGISTERED ENGINEERING FIRM F-928





### PR 100 ROADWAY IMPROVEMENTS

PROPOSED TYPICAL SECTION FULL MEDIAN WITH PLANTER BED

PR 100 (PADRE BLVD)

SHEET 3 OF 5

ED.RD. DIV.NO.	ı	AY NO.				
6		N\A	PR	100		
STATE		DISTRICT COUNTY			SHEET NO.	
TEXA	\S	PHR	CAM	CAMERON		
CONTROL		SECTION	JOB		014	
N\	4	N\A	N	N\A		

TO STA. 426+99.00

TO STA, 427+89.00

TO STA. 428+34.00

TO STA. 435+13.00

TO STA. 435+58.00

TO STA. 440+61.00

TO STA. 441+06.00

TO STA. 441+51.00

STA. 427+44.00

ΤO

STA. 441+76.00 TO STA. 441+96.00 STA. 442+21.00 TO STA. 442+41.00

STA. 442+66.00 TO STA. 442+86.00

STA. 427+24.00

STA. 427+69.00

STA. 428+14.00

STA. 434+93.00

STA. 435+38.00

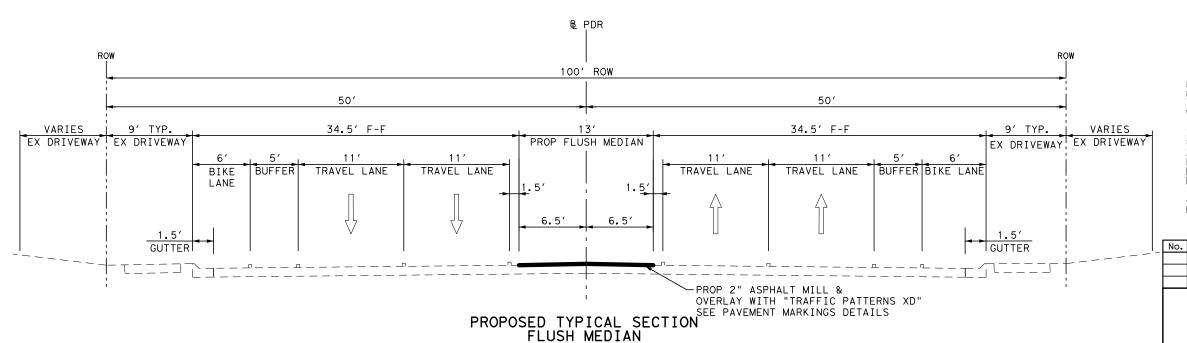
STA. 440+41.00

STA. 440+86.00

STA. 441+31.00

NOTES:

REMOVAL.



(SCALE: N.T.S.)

STATION LIMITS OF PROPOSED TYPICAL SECTION STA. 436+00.00 TO STA. 440+00.00 STA. 456+63.50 TO STA. 467+82.50 STA. 468+60.50 TO STA. 471+71.50

Kimley»Horn Engineer THOMAS P. GRANT
P.E. No. 100876 Date 11/6/2018

PRELIMINARY

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or permit purposes.

1. ALL EXCAVATED MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR. NO STOCKPILING WILL BE PERMITTED. DISPOSAL TO BE DONE IN LEGAL MANNER AND OUTSIDE OF SOUTH PADRE ISLAND CITY LIMITS. HAULING & DISPOSING SHALL BE SUBSIDIARY TO ITEM 110.

2. CONTRACTOR TO LOCATE EXISTING UTILITIES AND COORDINATE WITH UTILITY COMPANIES AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF WORK

3. SEE GEOTECHNICAL REPORT #88175108 BY TERRACON DATED 2/26/2018 FOR LOCATIONS AND DETAILS OF BORINGS. FOR ESTIMATED ROADWAY PAVEMENT THICKNESS FOR

4. SEE MEDIAN LANDSCAPE AND HARDSCAPE DETAILS FOR ADDITIONAL INFORMATION.

Ву

Date

Revision

**Kimley** » Horn

South Padre

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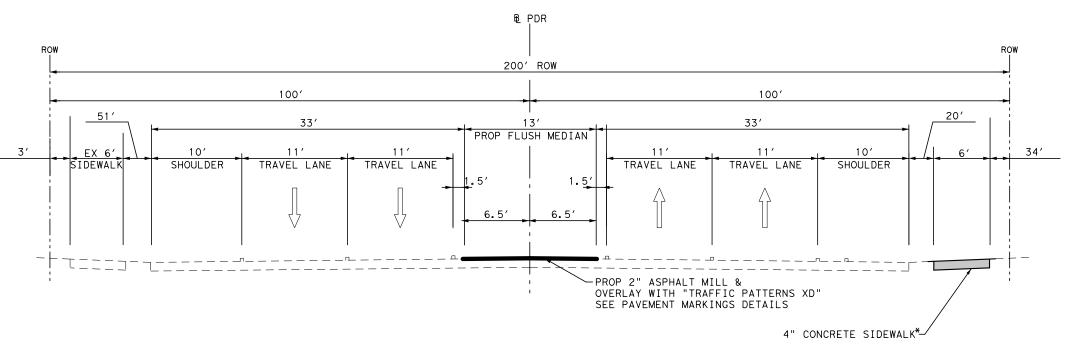
PR 100 ROADWAY IMPROVEMENTS

PROPOSED TYPICAL SECTION FLUSH MEDIAN

PR 100 (PADRE BLVD)

SHEET 4 OF 5

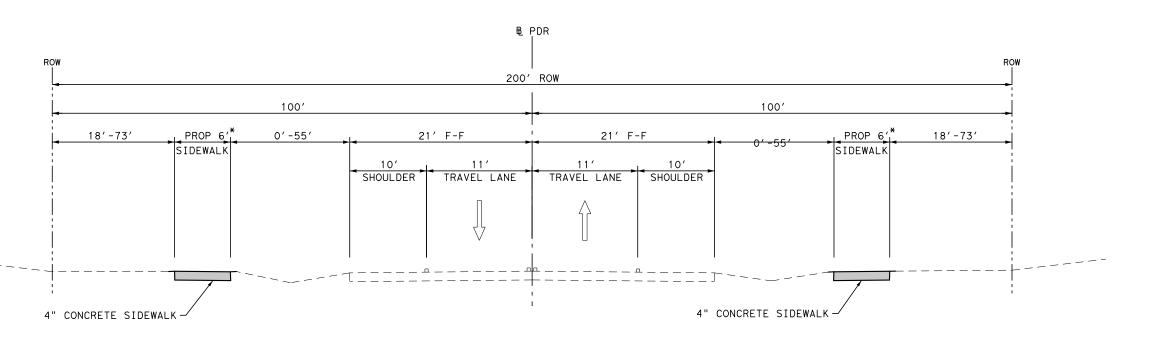
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PROPOSED TYPICAL SECTION 200' ROW FLUSH MEDIAN

B PDR STA. 471+71.50 TO STA. 482+50 (SCALE: N.T.S.)

\*SIDWALK BEGINS AT STA 474+00.00



# PROPOSED TYPICAL SECTION 2 LANE WITH SIDEWALK

R PDR STA 482+50 TO END OF THE PROJECT (SCALE: N.T.S.)

\* FROM STA 483+85 TO STA 485+90 FOR THE EAST SIDEWALK AND FROM STA 484+25 TO STA 485+10 FOR THE WEST SIDEWALK, PROPOSED BOARDWALK INSTEAD OF SIDEWALK. SEE BOARDWALK DETAILS FOR MORE INFORMATION.

### NOTES:

1. ALL EXCAVATED MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR. NO STOCKPILING WILL BE PERMITTED. DISPOSAL TO BE DONE IN LEGAL MANNER AND OUTSIDE OF SOUTH PADRE ISLAND CITY LIMITS. HAULING & DISPOSING SHALL BE SUBSIDIARY TO ITEM 110.

2. CONTRACTOR TO LOCATE EXISTING UTILITIES AND COORDINATE WITH UTILITY COMPANIES AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF WORK.

3. SEE GEOTECHNICAL REPORT #88175108 BY TERRACON DATED 2/26/2018 FOR LOCATIONS AND DETAILS OF BORINGS. FOR ESTIMATED ROADWAY PAVEMENT THICKNESS FOR REMOVAL.

4. SEE MEDIAN LANDSCAPE AND HARDSCAPE DETAILS FOR ADDITIONAL INFORMATION.

No.	Revision	Ву	Date
	PRELIMINAR	Υ	
	FOR REVIEW ONLY		

FOR REVIEW ONLY
Not for construction, bidding,
or permit purposes,
Kimley >>> Horn

Engineer\_ THOMAS P. GRANT
P. E. No. 100876 Date 11/6/2018

Kimley » Horn
THPE REGISTERED ENGINEERING FIRM F-928





### PR 100 ROADWAY IMPROVEMENTS

PROPOSED
TYPICAL SECTIONS
200' ROW

PR 100 (PADRE BLVD)

SHEET 5 OF 5

FED.RD.					
DIV. NO.		Y NO.			
6		PR	100		
STATI		DISTRICT	col	COUNTY	
TEXAS		PHR	CAMERON		
CONTROL		SECTION	JOB		016
N\	4	N\A	N	I\A	

### REMOVAL

SPEC ITEM#	0100 6002	0104 6017	0104 6021	0104 6036	0110 6001	0354 6045	0658 6060	0677 6001	0677 6003	0677 6007	0677 6008	0677 6012
ITEM DESCRIPTION	PREPARING ROW	T CONNE	REMOVING CONC (CURB)	REMOVING CONC (SIDEWALK OR RAMP)	EXCAVATION (ROADWAY)	PLANE ASPH CONC PAV (2")	REMOVE DELIN & OBJECT MARKER ASSMS	ELIM EXT PAV MRK & MRKS (4")	ELIM EXT PAV MRK & MRKS (8")	ELIM EXT PAV MRK & MRKS (24")	ELIM EXT PAV MRK & MRKS (ARROW)	ELIM EXT PAV MRK & MRKS (WORD)
	STA	SY	LF	SY	CY	SY	EA	LF	LF	LF	EA	EA
BID QUANTITY	75+00.00	499	42	75	1012	5994	14	26192	305	13	6	3
TOTAL	0	499	42	75	1012	5994	14	26192	305	13	6	3

### TRAFFIC CONTROL

0170 6001

IRRIGATION

SYSTEM

LS

1

0192 6013

MULCH

SY

680

680

SPEC ITEM#	0500 6001	0502 6001
ITEM DESCRIPTION	MOBILIZATION	BARRICADES, SIGNS AND TRAFFIC HANDLING
	LS	MO
BID QUANTITY	1	11
TOTAL	1	11

### ROADWAY

SPEC ITEM#	0110 6003	0134 6002	0247 6061	0275 6001	0275 6019	0340 6138	0420 6002	0420 6003	0529 6006	0529 6008	0529 6035	0530 6004	05316001	05316002	05316003
ITEM DESCRIPTION		BACKFILL (TY	`	CEMENT	CEMENT	D-GR	CL A CONC	CL A CONC	I .					CONC	CONC
	(SIDEWALK)	B)	NPLC)(TYA		TREAT	HMA(SQ)	(FLUMES)	(PLANTER	(MONO) (TY	& GUTTER	(MONO) (TY	(CONC)	SIDEWALKS	SIDEWALKS	SIDEWALKS
		(SIDEWALK)	GR1-2) (4")		(SUBGRADE)(	TY-D PG76-22		BED)	( A)	(TY II)	B)		(4")	(4")	(6")
					6")										
			2) (				2) (	2) (				0) (		2) (	2).(
	CY	STA	SY	TON	SY	TON	CY	CY	LF	LF	LF	SY	SY	SY	SY
BID QUANTITY	1292	295	4390	59	4390	74	43	80	15960	130	740	270	4987	2433	290
TOTAL	1292	295	4390	59	4390	74	43	80	15960	130	740	270	4987	2433	290
LIOTAL	1292	290	4590	<u> </u>	4390	14	43		15900	130	140	270	4501	2433	290

### ROADWAY CONTINUED

### LANDSCAPING & IRRIGATION

TOPSOIL (RURAL)   BL	SOIL TENTION
(SANDY)	ANKETS 1) (TY B)
EA EA EA EA EA CY SY LS	SY
BID QUANTITY         2         1         6         1         1         BID QUANTITY         798         6987         1	6987
TOTAL 2 1 6 1 1 TOTAL 798 6987 1	6987

### LANDSCAPING & IRRIGATION CONTINUED

SPEC ITEM#	0192 6016	0192 6030	0192 6049	0192 6050	0193 6001	0193 6007	0528 6004	0618 6034	1004 6001	SPI 001
ITEM DESCRIPTION	PLANT BED	PLANT	PLANT	PLANT	PLANT	IRRIGATION	LANDSCAPE	CONDT (PVC)		PALM TREE
	PREPARATIO	MATERIAL (3		MATERIAL	MAINTENANC	SYSTEM	PAVERS	(SCH 40) (4")	PROTECTION	RELOCATE
	N	GAL) (SHRUB)		(MIN 6' TRNK	E	OPER AND		(BORE)		
			HT) (PALM)	HT) (PALM)		MAINT				
	SY	EA	EA	EA	MO	MO	SY	LF	EA	EA
BID QUANTITY	680	759	76	76	12	12	3880	1645	403	6
TOTAL	680	759	76	76	12	12	3880	1645	403	6

NOTES

1. SPEC ITEM NUMBERS REFER TO TXDOT SPECS UNLESS PREFACED WITH "SPI". SPEC ITEM NUMBERS LABELED SPI # ARE NOT ASSOCIATED WITH TXDOT SPECIFICATIONS BUT SHALL REFER TO SPI SPECIFICATIONS.

2. EXCAVATION (ROADWAY) ITEM 110 6001 INCLUDES REMOVAL OF ALL ROADWAY EXCAVATION EXCEPT FOR ITEMS 104 6017, 104 6021, 104 6036, AND 354 6045. THIS ITEM ALSO INCLUDES GRAVEL AND ASPHALT DRIVEWAY REMOVALS.

3. VEGETATIVE WATERING ITEM NUMBER 168 6001 CALLS FOR A MEASUREMENT BY 1000 GALLONS OF WATER. THESE PLANS USE LUMP SUM MEASUREMENT INSTEAD.

- 4. IRRIGATION SYSTEM IS A LUMP SUM ITEM. SEE IRIGATION SCHEDULE FOR ADDITIONAL DETAILS.
- 5. SAND FOR CONCRETE PAVERS IS SUBSIDIARY TO LANDSCAPE PAVERS.
- 6. CUT/FILL QUANTITIES, EXCEPT FOR ESW CHAIN 01 AND ESW CHAIN 02, ARE SUBSIDIARY TO ITEM 0531 6001.

۱0.	Revision	Ву	Date
	PRELIMINAR FOR REVIEW ONLY		
	Not for construction, bidding, or permit purposes.		
	Kimley»Hor	n	
	Engineer THOMAS P. GRANT P. E. No. 100876 Date 11/6/2	018	
	7. E. NO		







### PR 100 ROADWAY IMPROVEMENTS

ITEM SUMMARIES

SHEET 1 OF 3

FED.RD. DIV.NO.	_	FEDERAL AID PROJECT NO. HIGHWA								
6		N\A PR								
STATE		DISTRICT	col	JNTY	SHEET NO.					
TEXA	\S	PHR	CAM	ERON						
CONTRO	DL	SECTION	ОВ	017						
N\A	N\A N\A N\A									

E: K:\LAC\*TPTO\1project\069234003\*SPI\*Padre\*Blvd\*Medians\CADD\Sheets\PDRISUMO1.dgn

PLOTTED: 11/6/2018 2:49:50 PM 100,0000 ft / in. FILENAME: K:\LAC\*TPTO\1pro!ect\069234003\*SPI\*Padre\*Blv

### TRAFFIC SIGNAL

SPEC ITEM#	0416 6030	0416 6032	0618 6016	0618 6023	0618 6024	0618 6033	0618 6034	0620 6007	06216005	0624 6007	0624 6008	0625 6002	0625 6004	0628 6151	0636 6001	0680 6002
ITEM DESCRIPTION										GROUND BOX				ELC SRV TY D		INSTALL HWY
	(TRF SIG	(TRF SIG	(SCH 40) (1")	(SCH 40) (2")		(SCH 40) (4")	(SCH 40) (4")	(NO.8) BARE		TY C (162911)		STL WIRE	STL WIRE	120/240	SIGNS (TY A)	TRF SIG
	POLE) (24 IN)	POLE) (36B IN)			(BORE)		(BORE)		AWG)		(162911)W/A	STRAND	STRAND	060(NS)SS(N)		(ISOLATED)
											PRON	(3/16")	(5/16")	PS(U)		
	LF	LF	LF	LF	LF	LF	LF	LF	LF	EA	EA	LF	LF	EA	SF	EA
BID QUANTITY	24	60	90	530	225	170	225	697	495	9	4	362	1028	1	30	1
TOTAL	24	60	90	530	225	170	225	697	495	9	4	362	1028	1	30	1

### TRAFFIC SIGNAL CONT.

SPEC ITEM#	0682 6001	0682 6002	0682 6003	0682 6004	0682 6005	0682 6006	0682 6018	0682 6035	0682 6036	0682 6037	0684 6007	0684 6028	0684 6062	0684 6064	0687 6001	0688 6001
ITEM DESCRIPTION	VEH SIG SEC	VEH SIG SEC	VEH SIG SEC	VEH SIG SEC	VEH SIG SEC	VEH SIG SEC	PED SIG SEC	BACK PLATE	BACK PLATE	BACK PLATE	TRF SIG CBL	TRF SIG CBL	TRF SIG CBL	TRF SIG CBL	PED POLE	PED DETECT
	(12")LED(GRN)	(12")LED(GRN	(12")LED(YEL)	(12")LED(YEL	(12")LED(RED)	(12")LED(RED	(LED)(COUN	(12")(3	(12")(4	(12")(5	(TY A)(12	(TY A)(14	(TY B)(12	(TY B)(12	ASSEMBLY	PUSH
		ARW)		ARW)		ARW)	TDOWN)	SEC)(VENTE	SEC)(VENTE	SEC)(VENTE	AWG)(2	AWG)(2	AWG)(5	AWG)(7		BUTTON (APS)
								D)ALUM	D)ALUM	D)ALUM	CONDR)	CONDR)	CONDR)	CONDR)		
	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	LF	LF	LF	LF	EA	EA
BID QUANTITY	9	5	9	4	9	1	8	6	1	3	940	1715	1521	685	4	8
											·					
TOTAL	9	5	9	4	9	1	8	6	1	3	940	1715	1521	685	4	8

### TRAFFIC SIGNAL CONT.

### PAVEMENT MARKINGS AND SIGNAGE

SPEC ITEM#	0688 6003	0688 6004	0688 6005	6119 6032	SPEC ITEM#	0644 6027	0644 6039	0644 6076	0666 6006	0666 6036	0666 6042	0666 6048
ITEM DESCRIPTION	PED DETECTOR CONTROLLER UNIT	VEH LP DETECT (SAWCUT)	VEH LP DETECT (SAWCUT)(14 AWG)(BLK)	LED RDWY LUMINAIRE (.25KW EQ)	ITEM DESCRIPTION	IN SM RD SN SUP&AM TYS80(1)SA(P)	IN SM RD SN SUP&AM TYS80(1)SB(P)	REMOVE SM RD SN SUP&AM	REFL PAV MRK TY I (W)4"(DOT)(1 00MIL)	REFL PAV MRK TY I (W)8"(SLD)(10 0MIL)	REFL PAV MRK TY I (W)12"(SLD)( 100MIL)	REFL PAV MRK TY I (W)24"(SLD)( 100MIL)
	EA	LF	LF	EA		EA	EA	EA	LF	LF	LF	LF
BID QUANTITY	1	1415	3010	2	BID QUANTITY	0	2	9	48	7067	2491	259
TOTAL	1	1415	3010	2	TOTAL	0	2	9	48	7067	2491	259

# PAVEMENT MARKINGS AND SIGNAGE (CONT.)

SPEC ITEM#	0666 6054	0666 6078	0666 6099	0666 6123	0666 6141	0666 6156	0666 6224	0666 6226	0666 6228	0666 6230	0666 6231	0666 6232	0666 6243
ITEM DESCRIPTION	REFL PAV		REF PAV MRK		REFL PAV	REFL PAV	PAVEMENT	PAVEMENT	PAVEMENT	PAVEMENT	PAVEMENT	PAVEMENT	PAVEMENT
	MRK TY I	MRK TY I	TY	MRK TY I	MRK TY I	MRK TY	SEALER 4"	SEALER 8"	SEALER 12"	SEALER 24"	SEALER	SEALER	SEALER (YLD
	(W)(ARROW)(	(W)(WORD)(1	I(W)18"(YLD	(Y)4"(DOT)(10		I(Y)(MED					(ARROW)	(WORD)	TRI)
	100MIL)	00MIL)	TRI)(100MIL)	OMIL)	00MIL)	NOSE)(100MIL							
						)							
	EA	EA	EA	LF	LF	EA	LF	LF	LF	LF	EA	EA	EA
BID QUANTITY	74	55	332	1100	165	28010	7067	2775	259	74	55	332	26862
·													
TOTAL	74	55	332	1100	165	28010	7067	2775	259	74	55	332	26862

No.	Revision	Ву	Date							
	PRELIMINARY									

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or permit purposes.

Kimley >>> Horn

Engineer\_THOMAS\_P, GRANT
P. E. No, 100876 Date 111/6/2018

Kimley » Horn

THPE REGISTERED ENGINEERING FIRM F-928



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PR 100 ROADWAY IMPROVEMENTS

ITEM SUMMARIES

SHEET 2 OF 3

D. RD. IV. NO.	_	FEDERAL AID PROJECT NO. HIGHWA								
6		N\A	100							
STAT		DISTRICT	col	COUNTY SHEET NO.						
TEXA	\S	PHR	R CAMERON							
CONTR	DL	SECTION	7	ОВ	018					
N\	4	N∖A	N	I\A						

# PAVEMENT MARKINGS AND SIGNAGE (CONT.)

SPEC ITEM#	0666 6315	0672 6009	0672 6010	0678 6001	0678 6004	0678 6006	0678 6008	0678 6009	0678 6016	0678 6022	SPI 002	SPI 003	SPI 004	SPI 005	SPI 006
ITEM DESCRIPTION	RE PM W/RET	REFL PAV	REFL PAV	PAV SURF	PAV SURF	DOUBLE	SINGLE SIDED		TRAFFIC	YIELD TO					
	REQ TY I	MRKR TY	MRKR TY	PREP FOR	PREP FOR	SIDED SOLAR	SOLAR		PATTERNS XD						
	(Y)4"(SLD)(10	II-A-A	II-C-R	MRK (4")	MRK (8")	MRK (12")	MRK (24")	MRK	MRK (WORD)	MRK (18")(YLD		POWERED		(CROSSWALK	
	OMIL)							(ARROW)		TRI)	LED	LED	MEDIAN)	)	ASSEMBLY
											WARNING	WARNING			
											SYSTEM	SYSTEM			
	LF	EA	EA	LF	LF	LF	LF	EA	EA	EA	EA	SF	SF	SF	EA
BID QUANTITY	525	230	525	28010	7067	2775	259	74	55	332	8	20	37364	7109	6
TOTAL	525	230	525	28010	7067	2775	259	74	55	332	8	20	37364	7109	6

### ILLUMINATION

ILLUMINATION	LUMINATION EROSION CONTROL															
SPEC ITEM#	0416 6002	0618 6013	0618 6023	0618 6024	0620 6007	0620 6008	0624 6002	0628 6008	SPI 007	SPI 008	SPI 009	SPEC ITEM#	0506 6038	0506 6039	0506 6041	0506 6043
ITEM DESCRIPTION		CONDT (PVC) (SCH 40) (1/2")					TY A	ELC SRV TY A 120/240 060(NS)SS(E) PS(U)	PEDESTRIAN LIGHTING ASSEMBLY	ABOVE GRADE LED LANDSCAPE SPOTLIGHT	WEATHERPR OOF OUTLET SYSTEM	ITEM DESCRIPTION	TEMP SEDMT CONT FENCE (INSTALL)	CONT FENCE	BIODEG EROSN CONT LOGS (INSTL) (12")	
	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA		LF	LF	LF	LF
BID QUANTITY	108	1990	1480	640	3980	14540	59	13	18	76	38	BID QUANTITY	10872	10872	657	657
TOTAL	108	1990	1480	640	3980	14540	59	13	18	76	38	TOTAL	10872	10872	657	657

### BOARDWALK

SPI 010	SPI 011
BOARDWALK DECKING	BOARDWALK HANDRAIL
SF	LF
2038	555
2038	555
	SF 2038

### ALTERNATE BID

# ADD ADD

ADD	
SPEC ITEM#	0528 6035
ITEM DESCRIPTION	LANDSCAPE PAVER SIDEWALK
	SY
BID QUANTITY	4,175
TOTAL	4,175

DEDUCT

DEDOCT	
SPEC ITEM#	05316001
ITEM DESCRIPTION	CONC SIDEWALKS (4")
	SY
BID QUANTITY	-4,175
TOTAL	-4,175

ALTERNATE BID STATIONS

ESW03 STA 44+73.56 TO STA 49+45.96	WSW01 STA 119+65.63 TO STA 124+23.90
ESW04 STA 60+00.00 TO STA 65+70.77 STA 65+76.55 TO STA 71+32.08	WSW02 STA 130+00.00 TO STA 135+62.82 STA 135+68.16 TO STA 141+14.85
ESW05 STA 80+00.00 TO STA 81+58.62 STA 82+09.21 TO STA 97+92.48	WSW03 STA 150+00.00 TO STA 152+16.53 STA 152+37.33 TO STA 154+40.47 STA 154+48.49 TO STA 154+56.47 STA 154+94.52 TO STA 155+02.58 STA 155+79.56 TO STA 155+87.49 STA 156+25.21 TO STA 156+33.67 STA 156+41.13 TO STA 165+38.96 STA 165+64.04 TO STA 166+87.19
NOTES:	STA 167+25.29 TO STA 167+68.71

1. SPEC ITEM NUMBERS REFER TO TXDOT SPECS UNLESS PREFACED WITH "SPI". SPEC ITEM NUMBERS LABELED SPI # ARE NOT ASSOCIATED WITH TXDOT SPECIFICATIONS BUT SHALL REFER TO SPI SPECIFICATIONS.

No.	Revision	Ву	Date
	PRELIMINAR	Υ	
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PR 100 ROADWAY IMPROVEMENTS

ITEM SUMMARIES

SHEET 3 OF 3

HIGHWAY NO.	FEDERAL AID PROJECT NO.			FED.RD. DIV.NO.
PR 100	N\A			6
COUNTY SHEET	col	DISTRICT	Ē.	STATE
MERON	CAM	PHR	\S	TEXA
ЈОВ О1	J	SECTION	DL	CONTRO
N\A	N	N∖A	4	N\A

- 2. ALL EXCAVATION IS UNCLASSIFIED AND SHALL INCLUDE ALL MATERIALS ENCOUNTERED. UNUSABLE EXCAVATED MATERIAL AND ALL WASTE RESULTING FROM SITE CLEARING AND GRUBBING SHALL BE DISPOSED OF AT A LEGAL DISPOSAL FACILITY OFF SITE BY THE CONTRACTOR AT HIS EXPENSE UNLESS OTHERWISE SPECIFIED OR AGREED TO BY THE OWNER.
- 3. BRACING OF UTILITY POLES MAY BE REQUIRED BY UTILITY COMPANIES WHEN TRENCHING OR EXCAVATION IS IN CLOSE PROXIMITY TO THE POLES. THE COST OF BRACING POLES WILL BE BORNE BY THE CONTRACTOR. THERE IS NO SEPARATE PAY ITEM FOR THIS WORK. THE COST SHALL BE CONSIDERED INCIDENTAL WORK INCLUDED IN THE CONTRACT UNIT PRICE BID FOR APPLICABLE PIPE OR STRUCTURE INSTALLATION.
- 4. THE LOCATIONS, ELEVATIONS AND DIMENSIONS OF ALL EXISTING UTILITIES SHOWN ON THE PLANS WERE OBTAINED FROM AVAILABLE UTILITY COMPANY RECORDS AND PLANS AND ARE CONSIDERED APPROXIMATE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH UTILITY COMPANIES TO VERIFY LOCATIONS, ELEVATIONS, AND DIMENSIONS OF ADJACENT AND/OR CONFLICTING UTILITIES SUFFICIENTLY IN ADVANCE OF CONSTRUCTION IN ORDER THAT ADJUSTMENTS CAN BE MADE TO PROVIDE ADEQUATE CLEARANCES. THE CONTRACTOR SHALL PRESERVE AND PROTECT PUBLIC UTILITIES AT ALL TIMES DURING CONSTRUCTION. ANY DAMAGE TO UTILITIES RESULTING FROM CONTRACTOR'S OPERATIONS SHALL BE RESTORED AT HIS EXPENSE. THE ENGINEER SHALL BE NOTIFIED WHEN PROPOSED FACILITY GRADES CONFLICT WITH EXISTING GRADES. UTILITY COMPANIES SHALL BE NOTIFIED AT LEAST TEN (10) DAYS IN ADVANCE OF CONSTRUCTION.
- 5. THE CONTRACTOR SHALL REMOVE ALL SURPLUS MATERIAL FROM THE PROJECT AREA. THIS WORK SHALL BE SUBSIDIARY TO THE CONTRACT AND IS NOT A SEPARATE PAY ITEM.
- 6. NO ONSITE MATERIALS SHALL BE USED AS TOPSOIL UNLESS THEY MEET TOPSOIL SPECIFICATION. ALL TOPSOIL SHALL BE IMPORTED FROM A COMMERCIAL SOURCE FOR TOPSOIL AND MUST MEET SPECIFICATIONS FOR IMPORTED TOPSOIL.
- 7. ALL PROPOSED SOD SHALL MATCH EXISTING SURROUNDING SOD.

### LANDSCAPE & HARDSCAPE NOTES:

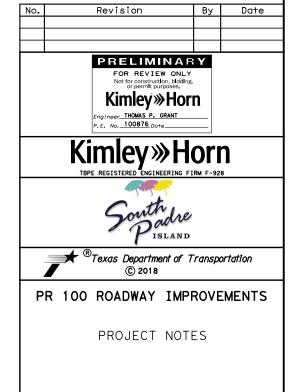
- 1. FULL DEPTH EXCAVATION REQUIRED AT PROPOSED MEDIAN PLANTING BEDS TO A MINIMUM OF 3'. EXISTING ASPHALT PAVEMENT AND BASE DEPTH VARIES. ALL EXISTING PAVEMENT AND BASE SHALL BE REMOVED WITHIN LIMITS OF PROPOSED MEDIAN PLANTING BEDS BEFORE BACKFILLING. SEE GEOTECHNICAL REPORT WHICH INCLUDES BORINGS TO HELP ESTIMATE REMOVAL QUANTITIES. SEE TYPICAL SECTION FOR MORE INFORMATION.
- 2. ADDITIONAL EXCAVATION SHALL BE BACKFILLED WITH EMBANKMENT (FINAL) (DENS CNTL) TY B OR APPROVED EQUAL.
- 3. EXCAVATE EST. 18CY PER TREE WELL AND REPLACE WITH EST. 21 CY OF TOP SOIL.
- 4. PROPOSED PLANTS ARE IDENTIFIED IN THE LANDSCAPE DETAIL SHEETS.
- 5. THE CONTRACTOR SHALL PROVIDE TOPSOIL, SOD AND FERTILIZER TO MATCH ADJACENT MATERIAL TO ALL VEGETATED AREAS DISTURBED BY CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE WHATEVER MEASURES ARE NEEDED, INCLUDING TEMPORARY IRRIGATION AND MOWING, TO ENSURE ESTABLISHMENT OF GRASS AND LANDSCAPE. ALL AREAS WHERE SOD IS PLACED SHALL RECEIVE FOUR (4) INCHES OF TOPSOIL. ALL GRASS SHALL BE FERTILIZED AT THE RATE OF 400 LBS. PER ACRE.
- 6. WATERING IS TO BE PROVIDED VIA WATER TRUCK FOR THE PROPOSED SOD AND LANDSCAPE PLANTS. THE PROPOSED IRRIGATION SYSTEM SHALL BE INSTALLED PRIOR TO THE LANDSCAPING PLANTS.
- 7. SEE IRRIGATION SCHEDULE AND IRRIGATION DETAIL SHEETS FOR IRRIGATION NOTES.

### PAVING NOTES:

- 1. ALL REINFORCING STEEL AND DOWEL BARS IN PAVEMENT SHALL BE SUPPORTED AND MAINTAINED AT THE CORRECT CLEARANCES BY THE USE OF BAR CHAIRS OR OTHER APPROVED SUPPORT.
- 2. CONTROL JOINTS SHALL BE SAWED IN THE PAVEMENT ON THIS PROJECT. ALL CONTROL JOINTS SHALL BE SAWED NO LATER THAN 12 HOURS AFTER THE PLACEMENT OF THE PAVEMENT, OR AS DIRECTED BY THE ENGINEER. SEE THE PAVING DETAILS FOR ADDITIONAL INFORMATION.PLACE CONTROL JOINTS EVERY 10' WITH EVERY THIRD CONTROL JOINT BEING AN EXPANSION JOINT.
- 3. WHERE APPLICABLE, THE CONTRACTOR SHALL PROTECT NEW AND EXISTING PAVEMENT BY PLACING RUBBER MATS OR EARTH ON THE PAVEMENT TO PROTECT IT FROM TRACK MARKS AND/OR CRACKING DURING CONSTRUCTION. THE COST OF FURNISHING OR PLACING SUCH MATERIALS SHALL BE INCIDENTAL TO THE UNIT COST OF THE VARIOUS PAY ITEMS FOR PAVING.
- 4. SEE DRAINAGE AREA MAP FOR MORE DETAILS ON DRAINAGE.
- 5. CONTRACTOR SHALL CLEAN AND PREPARE ALL SURFACES FOR TRAFFIC PATTERNS XD PER MANUFACTURERS RECOMMENDATIONS.

### TREE PROTECTION:

TREE PROTECTION SHALL BEGIN DURING THE PREPARE ROW PHASE AND CONTINUE UNTIL ALL
CONSTRUCTION IN THE AREA IS COMPLETE.



FEDERAL AID PROJECT NO. HIGHWAY NO. PR 100 N\A 6 STATE DISTRICT COUNTY **TEXAS** PHR CAMERON CONTROL SECTION JOB 020 N\A N\A N\Δ

SHEET 1 OF 1

### GENERAL NOTES AND SPECIFICATIONS DATA:

USE A POWER-BROOM WHEN CLEANING THE ROADWAY AS NEEDED.

REMOVE & DISPOSE ALL MATERIAL NOT DEEMED SALVAGEABLE BY THE ENGINEER, UNLESS OTHERWISE SHOWN ON THE PLANS.

ON EXISTING PAVEMENT THAT WILL REMAIN IN PLACE, SAND BLAST (NO WATERBLASTING) IN ORDER TO REMOVE EXISTING STRIPING.

DO NOT BLOCK DRAINAGE WHEN HANDLING & STOCKPILING EXCAVATED MATERIAL.

MAINTAIN ACCESS TO DRIVEWAYS AND INTERSECTIONS THROUGH ALL PHASES OF CONSTRUCTION.

MAINTAIN POSITIVE DRAINAGE DURING ALL PHASES OF CONSTRUCTION.

ALWAYS COMPLETE THE PROPOSED DRIVEWAYS DURING THEIR TCP PHASE BEFORE SWITCHING TRAFFIC TO A NEW PHASE UNLESS DIRECTED BY THE ENGINEER.

### TRAFFIC CONTROL DEVICES:

AT THE COMMENCEMENT OF THE PROJECT, ALL TRAFFIC CONTROL DEVICES SHALL BE IN ACCEPTABLE CONDITION, AND MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT, AS PER GUIDELINES FOR TEMPORARY TRAFFIC CONTROL DEVICES AND FEATURES.

CONTRACTOR SHALL NOTIFY THE CITY AND TXDOT AREA ENGINEER (AE) IN WRITING (E-MAIL IS ACCEPTABLE) AT LEAST 5 DAYS IN ADAVANCE OF PROPOSED TRAFFIC CONTROL PLANS (TCP) AND 2 DAYS IN ADVANCE OF INSTALLING ALL TRAFFIC CONTROL DEVICES PER PLANS ON THE PROJECT SO THAT TXDOT, CITY, AND CONTRACTOR CAN SCHEDULE AN INSPECTION ON THE SAID TCP AND TRAFFIC CONTROL DEVICES. COMMENCEMENT OF WORK WILL NOT BE AUTHORIZED NOR ALLOWED UNTIL CITY AND TXDOT NOTIFIES THE CONTRACTOR TO PROCEED WITH THE WORK.

CONTRACTOR SHALL HAVE A SUFFICIENT AMOUNT OF TRAFFIC CONTROL DEVICES IN ACCEPTABLE CONDITION TO REPLACE ANY DAMAGED TRAFFIC CONTROL DEVICE WITHIN 24 HOURS OF NOTIFICATION.

PROVIDE ADDITIONAL SIGNS AND BARRICADES AS NECESSARY TO ADDRESS FIELD CONSTRUCTIBILITY & VISIBILITY. THESE ADDITIONAL SIGNS WILL BE CONSIDERED SUBSIDIARY TO ITEM 502 6001.

REMOVE OR COMPLETELY COVER ALL EXISTING SIGNS WHICH ARE IN CONFLICT WITH THE TRAFFIC CONTROL PLAN.

ADJUST STOP SIGNS AS NEEDED ON INTERSECTING STREETS DURING THE VARIOUS CONSTRUCTION PHASES. DO NOT REMOVE ANY EXISTING STOP SIGNS UNTIL TEMPORARY SIGNS ARE IN PLACE.

COORDINATE THE TRAFFIC CONTROL PLAN AND THE VARIOUS SEQUENCES OF CONSTRUCTION WITH ADJACENT CONSTRUCTION PROJECTS IF APPLICABLE, TO ENSURE THE UNINTERRUPTED AND SAFE FLOW OF TRAFFIC.

NOTIFY THE CITY AND ENGINEER IN WRITING WHEN MAJOR TRAFFIC CHANGES ARE TO BE MADE. NOTIFICATIONS MUST BE GIVEN A MINIMUM OF THREE WORKING DAYS PRIOR TO THE CHANGE.

ALL WORK ZONE PAVEMENT MARKINGS FOR THIS PROJECT SHALL BE 0.100 INCHES (100 MIL) THICK THERMOPLASTIC.

### SAFETY:

PROTECT EXPOSED PITS THAT MUST REMAIN OPEN DURING NON-WORKING HOURS AS PER OSHA REQUIREMENTS.

### PROJECT SPECIFIC NOTES:

MAINTAIN ACCESS TO ALL PROPERTIES AT ALL TIMES. FOR PROPERTIES WITH A SINGLE DRIVE, DRIVEWAYS SHALL BE CONSTRUCTED SO THAT ONE HALF OF THE DRIVE IS OPEN AT ALL TIMES. FOR PROPERTIES WITH TWO DRIVES, DRIVEWAY CONSTRUCTION SHALL BE PHASED SO THAT ONE DRIVE IS OPEN AT ALL TIMES. FOR NARROW SINGLE DRIVES, IF CONSTRUCTING THE DRIVE IN TWO HALVES WILL NOT ALLOW ACCESS TO THE PROPERTY, TEMPORARY ALL-WEATHER ACCESS SHALL BE PROVIDED. NO PORTION OF ANY DRIVE SHALL BE CLOSED FOR A PERIOD LONGER THAN 14 CALENDAR DAYS. FOR PROPERTIES WITH PARKING ACCESSED DIRECTLY FROM PR 100 (PADRE BOULEVARD), CONSTRUCTION IN ACCESS AREA SHALL BE CONSTRUCTED SO THAT ONE HALF OF THE ACCESS AREA IS OPEN AT ALL TIMES. TEMPORARY, ALL-WEATHER DRIVE AND PARKING ACCESS IS ALLOWED. WORKING HOURS IS DEFINIED AS MONDAY-FRIDAY 8:00 AM-4:00PM EXCLUDING DAYS IDENTIFIED IN THE SEQUENCE OF CONSTRUCTION.

PR 100 (PADRE BLVD) SHALL BE OPEN TO ONE LANE OF TRAFFIC IN EACH DIRECTION AT ALL TIMES. WEEKDAY CLOSURES OF THE INSIDE TRAVELING LANE ARE ALLOWED DURING WORKING HOURS. NO LANE CLOSURES ARE ALLOWED OVERNIGHT. NO VEHICLE OR BICYCLE LANE CLOSURES ARE ALLOWED ON PR 100 (PADRE BOULEVARD) FROM FRIDAY AT 7:00PM THROUGH MONDAY AT 7:00AM. CONTRACTOR SHALL ENSURE A SAFE EDGE CONDITION ADJACENT TO THE ROADWAY AT ALL TIMES. ANY DEVIATION FROM THESE GUIDELINES SHALL REQUIRE WRITTEN APPROVAL FROM THE ENGINEER. WORKING HOURS IDENTIFIED AS MONDAY-FRIDAY 8:00AM-4:00PM EXCLUDING DAYS IDENTIFIED IN THE SEQUENCE OF CONSTRUCTION.

AT NO TIME SHALL EXISTING PEDESTRIAN ROUTES BE CLOSED IN BOTH THE NORTHBOUND AND SOUTHBOUND DIRECTION WITHIN A SINGLE PHASE OF WORK. ANY WORK THAT REQUIRES CLOSURE OF SIDEWALKS SHALL REQUIRE PEDESTRIAN DETOURS, WHICH MUST BE PROVIDED AT ALL TIMES UNLESS OTHERWISE NOTED.

CONTRACTOR SHALL SAWCUT AT PROPOSED IMPROVEMENT LOCATIONS ADJACENT TO EXISTING CONCRETE PAVED AREA TO PRESERVE THE EXISTING CONDITION. CONTRACTOR SHALL PROTECT ALL EXISTING IMPROVEMENTS ADJACENT TO THE WORK AREA. ALL SAWCUTS SHALL BE SUBSIDIARY TO ITEM 100 6002.

CONTRACTOR SHALL PROVIDE TEMPORARY FENCING TO PROTECT PEDESTRIANS FROM ANY ACTIVE WORK SITE AREA SUBSIDIARY TO ITEM 502 6001.

CONTRACTOR SHALL PROVIDE BARRICADES AND SIGNAGE TO PREVENT VEHICULAR TRAFFIC ON FROM ENTERING ANY ACTIVE WORK SITE AREA SUBSIDIARY TO ITEM 502 6001.

ALL BARRICADES, WARNING SIGNS, LIGHT DEVICES, ETC. FOR THE GUIDANCE AND PROTECTION OF TRAFFIC AND PEDESTRIANS MUST CONFORM TO THE INSTALLATION OF SAID DEVICES AS SHOWN IN THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, AS CURRENTLY AMENDED, AND AS PUBLISHED BY THE TEXAS DEPARTMENT OF TRANSPORTATION.

ALL TEMPORARY SIGNS, BARRICADES AND OTHER MISCELLANEOUS TRAFFIC CONTROL MEASURES SHALL BE REMOVED AT THE END OF THE CONTRACTOR'S CONSTRUCTION OPERATIONS.

ALL ADVANCE WARNING SIGNS SHALL BE PLACED IN ACCORDANCE WITH TXDOT STANDARD BC (2)-14.

PLACE TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH TXDOT STANDARD TCP (2-4)-18.

PAVEMENT MARKINGS ARE TO BE INSTALLED IN ACCORDANCE WITH TXDOT STANDARD BLPM-10 AND PM (1-3)-12.

TRAFFIC SIGNS TO BE CONSTRUCTED IN ACCORDANCE WITH TXDOT STANDARDS TSR(3)-13, TSR(4)-13, TSR (5)-13,

BLPM-10, PM(1)-12, PM(2)-12. PM(3)-12, SMD(GEN)-08, SMD(SLIP-1)-08, SMD(SLIP-2)-08 AND SMD(SLIP-3)-08.



# TRAFFIC CONTROL GENERAL NOTES (MOD)

SHEET I OF I SHEETS

PHARR DISTRICT STANDARD

Texas Department of Transportation ©T×DOT 2017 Rev 03/22/201 STATE FEDERAL AID PROJECT NO. TEXAS 6 021 DIST. COUNTY CONT. SECT. JOB HIGHWAY NO CAMERON N\A N\A PHR  $N \setminus A$ PR 100

# SUMMARY OF PHASE CONSTRUCTION

CONSTRUCTION PHASES CAN BE WORKED IN ANY ORDER. EXISTING PEDESTRIAN PATHS MUST BE MAINTAINED OR DETOURED AT ALL TIMES. CLOSURE OF INTERIOR LANES AND EXTERIOR LANES IN THE SAME PHASE IS NOT PERMITTED. TWO PHASES CAN BE WORKED ON AT THE SAME TIME AS LONG AS THE PHASES ARE NOT ADJACENT.

### CONSTRUCTION PHASE 1 PR 100 CL STA 355+51 TO STA 371+25 (DOLPHIN TO RETAMA) - RAISED MEDIANS

- 1. PLACE ADVANCED WARNING SIGNS AND EROSION CONTROL MEASURES.
- PLACE CONSTRUCTION WARNING SIGNS, CHANNELIZING DEVICES TO ACCOMMODATE MEDIAN CONSTRUCTION IN THIS PHASE. REFER TO TCP (2-1)-18 FOR ADDITIONAL INFORMATION.
- MAINTAIN ACCESS TO SIDE STREETS AND DRIVEWAYS AT ALL TIMES. U-TURNS ARE ACCEPTABLE FOR SIDE STREET ACCESS.
- 4. CONSTRUCT PROPOSED MEDIAN IMPROVEMENTS FROM DOLPHIN STREET TO RETAMA STREET.
- 5. INSTALL FINAL PAVEMENT MARKINGS WITHIN PROPOSED PHASE I CONSTRUCTION LIMITS. REFER TO TCP (3-3)-14 FOR PLACEMENT OF PAVEMENT MARKINGS.

### CONSTRUCTION PHASE 2 PR 100 CL STA 371+25 TO STA 386+25 (RETAMA TO GARDENIA - RAISED MEDIANS

- 1. PLACE ADVANCED WARNING SIGNS AND EROSION CONTROL MEASURES.
- 2. PLACE CONSTRUCTION WARNING SIGNS, CHANNELIZING DEVICES TO ACCOMMODATE MEDIAN CONSTRUCTION IN THIS PHASE. REFER TO TCP (2-1)-18 FOR ADDITIONAL INFORMATION.
- MAINTAIN ACCESS TO SIDE STREETS AND DRIVEWAYS AT ALL TIMES. U-TURNS ARE ACCEPTABLE FOR SIDE STREET ACCESS.
- 4. CONSTRUCT PROPOSED MEDIAN IMPROVEMENTS FROM RETAMA STREET TO GARDENIA STREET.
- INSTALL FINAL PAVEMENT MARKINGS WITHIN PROPOSED PHASE 2 CONSTRUCTION LIMITS. REFER
  TO TCP (3-3)-14 FOR PLACEMENT OF PAVEMENT MARKINGS.

### CONSTRUCTION PHASE 3 PR 100 CL STA 386+25 TO STA 404+35 (GARDENIA TO MARS) - RAISED

- 1. PLACE ADVANCED WARNING SIGNS AND EROSION CONTROL MEASURES.
- PLACE CONSTRUCTION WARNING SIGNS, CHANNELIZING DEVICES TO ACCOMMODATE MEDIAN CONSTRUCTION IN THIS PHASE. REFER TO TCP (2-1)-18 FOR ADDITIONAL INFORMATION.
- MAINTAIN ACCESS TO SIDE STREETS AND DRIVEWAYS AT ALL TIMES. U-TURNS ARE ACCEPTABLE FOR SIDE STREET ACCESS.
- 4. CONSTRUCT PROPOSED MEDIAN IMPROVEMENTS FROM GARDENIA STREET TO MARS LANE.
- 5. INSTALL FINAL PAVEMENT MARKINGS WITHIN PROPOSED PHASE 3 CONSTRUCTION LIMITS. REFER TO TCP (3-3)-14 FOR PLACEMENT OF PAVEMENT MARKINGS.
- 6. OPEN INTERIOR LANES TO TRAFFIC AND INSTALL/ADJUST WARNING SIGNS AND EROSION CONTROL MEASURES FOR PROPOSED CROSSWALK CONSTRUCTION FROM GARDENIA STREET TO MARS
- 7. CONSTRUCT PROPOSED CROSSWALK IMPROVEMENTS.

### CONSTRUCTION PHASE 4 PR 100 CL STA 404+35 TO STA 416+35 (MARS TO POLARIS) - RAISED

- 1. PLACE ADVANCED WARNING SIGNS AND EROSION CONTROL MEASURES.
- PLACE CONSTRUCTION WARNING SIGNS, CHANNELIZING DEVICES TO ACCOMMODATE MEDIAN CONSTRUCTION IN THIS PHASE. REFER TO TCP (2-1)-18 FOR ADDITIONAL INFORMATION.
- 3. MAINTAIN ACCESS TO SIDE STREETS AND DRIVEWAYS AT ALL TIMES. U-TURNS ARE ACCEPTABLE FOR SIDE STREET ACCESS.
- 4. CONSTRUCT PROPOSED MEDIAN IMPROVEMENTS FROM MARS LANE TO POLARIS DRIVE.
- 5. INSTALL FINAL PAVEMENT MARKINGS WITHIN PROPOSED PHASE 4 CONSTRUCTION LIMITS. REFER TO TCP (3-3)-14 FOR PLACEMENT OF PAVEMENT MARKINGS.
- 6. OPEN INTERIOR LANES TO TRAFFIC AND INSTALL/ADJUST WARNING SIGNS AND EROSION CONTROL MEASURES FOR PROPOSED CROSSWALK CONSTRUCTION FROM MARS LANE TO POLARIS DRIVE.
- 7. CONSTRUCT PROPOSED CROSSWALK IMPROVEMENTS.

### CONSTRUCTION PHASE 5 PR 100 CL STA 416+35 TO STA 431+13 (POLARIS TO MORNINGSIDE)

- 1. PLACE ADVANCED WARNING SIGNS AND EROSION CONTROL MEASURES.
- PLACE CONSTRUCTION WARNING SIGNS, CHANNELIZING DEVICES TO ACCOMMODATE MEDIAN CONSTRUCTION IN THIS PHASE. REFER TO TCP (2-1)-18 FOR ADDITIONAL INFORMATION.
- MAINTAIN ACCESS TO SIDE STREETS AND DRIVEWAYS AT ALL TIMES. U-TURNS ARE
  ACCEPTABLE FOR SIDE STREET ACCESS.
- 4. CONSTRUCT PROPOSED MEDIAN IMPROVEMENTS FROM POLARIS DRIVE TO MORNINGSIDE DRIVE.
- 5. INSTALL FINAL PAVEMENT MARKINGS WITHIN PROPOSED PHASE 5 CONSTRUCTION LIMITS. REFER TO TCP (3-3)-14 FOR PLACEMENT OF PAVEMENT MARKINGS.

### CONSTRUCTION PHASE 6 PR 100 CL STA 431+13 TO STA 450+94 (MORNINGSIDE TO KINGS COURT) - RAISED MEDIANS AND FLUSH MEDIANS

- . PLACE ADVANCED WARNING SIGNS AND EROSION CONTROL MEASURES.
- PLACE CONSTRUCTION WARNING SIGNS, CHANNELIZING DEVICES TO ACCOMMODATE MEDIAN CONSTRUCTION IN THIS PHASE. REFER TO TCP (2-1)-18 FOR ADDITIONAL INFORMATION.
- 3. MAINTAIN ACCESS TO SIDE STREETS AND DRIVEWAYS AT ALL TIMES. U-TURNS ARE ACCEPTABLE FOR SIDE STREET ACCESS.
- 4. CONSTRUCT PROPOSED MEDIAN IMPROVEMENTS FROM MORNINGSIDE DRIVE TO KINGS COURT.
- 5. INSTALL FINAL PAVEMENT MARKINGS WITHIN PROPOSED PHASE 6 CONSTRUCTION LIMITS. REFER TO TCP (3-3)-14 FOR PLACEMENT OF PAVEMENT MARKINGS.

# CONSTRUCTION PHASE 7 PR 100 CL STA 450+94 TO STA 468+60 (KINGS COURT TO SEA TURTLE) - RAISED MEDIANS, FLUSH MEDIANS, AND TRAFFIC SIGNAL

- 1. PLACE ADVANCED WARNING SIGNS AND EROSION CONTROL MEASURES.
- 2. PLACE CONSTRUCTION WARNING SIGNS, CHANNELIZING DEVICES TO ACCOMMODATE MEDIAN CONSTRUCTION IN THIS PHASE. REFER TO TCP (2-1)-18 FOR ADDITIONAL INFORMATION.
- . MAINTAIN ACCESS TO SIDE STREETS AND DRIVEWAYS AT ALL TIMES. U-TURNS ARE ACCEPTABLE FOR SIDE STREET ACCESS.
- 4. CONSTRUCT PROPOSED MEDIAN IMPROVEMENTS FROM KINGS COURT TO SEA TURTLE.
- 5. INSTALL FINAL PAVEMENT MARKINGS WITHIN PROPOSED PHASE 7 CONSTRUCTION LIMITS. REFER TO TCP (3-3)-14 FOR PLACEMENT OF PAVEMENT MARKINGS.
- 6. OPEN INTERIOR LANES TO TRAFFIC AND INSTALL/ADJUST WARNING SIGNS AND EROSION CONTROL MEASURES FOR PROPOSED PARKWAY IMPROVEMENTS FROM KINGS COURT TO SEA TURTLE.
- 7. CONSTRUCT PROPOSED PARKWAY IMPROVEMENTS.
- 8. CONSTRUCT PROPOSED TRAFFIC SIGNAL IMPROVEMENTS.

### CONSTRUCTION PHASE 8 PR 100 CL STA 468+60 TO 482+60 (SEA TURTLE TO ORCA CIRCLE) - FLUSH MEDIANS

- 1. PLACE ADVANCED WARNING SIGNS AND EROSION CONTROL MEASURES.
- 2. PLACE CONSTRUCTION WARNING SIGNS, CHANNELIZING DEVICES TO ACCOMMODATE MEDIAN CONSTRUCTION IN THIS PHASE. REFER TO TCP (2-1)-18 FOR ADDITIONAL INFORMATION.
- 3. MAINTAIN ACCESS TO SIDE STREETS AND DRIVEWAYS AT ALL TIMES. U-TURNS ARE ACCEPTABLE FOR SIDE STREET ACCESS.
- 4. CONSTRUCT PROPOSED MEDIAN IMPROVEMENTS FROM SEA TURTLE TO ORCA CIRCLE.
- 5. INSTALL FINAL PAVEMENT MARKINGS WITHIN PROPOSED PHASE 8 CONSTRUCTION LIMITS. REFER TO TCP (3-3)-14 FOR PLACEMENT OF PAVEMENT MARKINGS.
- 6. OPEN INTERIOR LANES TO TRAFFIC AND INSTALL/ADJUST WARNING SIGNS AND EROSION CONTROL MEASURES FOR PROPOSED SIDEWALK IMPROVEMENTS FROM SEA TURTLE TO ORCA CIRCLE.
- 7. CONSTRUCT PROPOSED CROSSWALK IMPROVEMENTS
- 8. CONSTRUCT PROPOSED SIDEWALK IMPROVEMENTS.

### CONSTRUCTION PHASE 9 PR 100 CL STA 500+00 TO NORTH END OF PROJECT - SIDEWALK THROUGH THE SHORES

- 1. PLACE ADVANCED WARNING SIGNS AND EROSION CONTROL MEASURES.
- 2. PLACE CONSTRUCTION WARNING SIGNS, CHANNELIZING DEVICES TO ACCOMMODATE CONSTRUCTION IN THIS PHASE. REFER TO TCP (2-1)-18 FOR ADDITIONAL INFORMATION.
- 3. MAINTAIN ACCESS TO SIDE STREETS AND DRIVEWAYS AT ALL TIMES.
- 4. CONSTRUCT PROPOSED SIDEWALK IMPROVEMENTS.
- 5. CONSTRUCT TURN LANE AND CROSSWALKS.

### CONSTRUCTION PHASE 10 PR 100 CL STA 482+60 TO STA 500+00 - SIDEWALKS AND BOARDWALKS

- 1. PLACE ADVANCED WARNING SIGNS AND EROSION CONTROL MEASURES.
- 2. PLACE CONSTRUCTION WARNING SIGNS, CHANNELIZING DEVICES TO ACCOMMODATE CONSTRUCTION IN THIS PHASE. REFER TO TCP (2-1)-18 FOR ADDITIONAL INFORMATION.
- 3. MAINTAIN ACCESS TO SIDE STREETS AND DRIVEWAYS AT ALL TIMES.
- 4. CONSTRUCT PROPOSED SIDEWALK AND BOARDWALK IMPROVEMENTS.
- . INSTALL/ADJUST WARNING SIGNS AND EROSION CONTROL MEASURES FOR PROPOSED TURN LANES AND CROSSWALKS.
- 6. INSTALL FINAL PAVEMENT MARKINGS WITHIN PHASE 10 CONSTRUCTION LIMITS.

### CONSTRUCTION PHASE 11 SOUTH END OF THE PROJECT TO PR 100 CL STA 355+51 - CROSSWALKS AND CONCRETE FLUMES NEAR ENTERTAINMENT DISTRICT

- . PLACE ADVANCED WARNING SIGNS.
- 2. PLACE CONSTRUCTION WARNING SIGNS, CHANNELIZING DEVICES TO ACCOMMODATE CONSTRUCTION IN THIS PHASE. REFER TO TCP (2-1)-18 FOR ADDITIONAL INFORMATION.
  - MAINTAIN ACCESS TO SIDE STREETS AND DRIVEWAYS AT ALL TIMES.
- . CONSTRUCT PROPOSED CROSSWALK IMPROVEMENTS AND EXISTING MEDIAN REPAIRS FROM THE SOUTH END OF THE PROJECT TO DOLPHIN STREET. CONTRACTOR SHALL NOT CLOSE ADJACENT SIDEWALKS AT THE SAME TIME.

### NOTES:

- A. ESTABLISH SEEDING IN DISTURBED AREAS PRIOR TO REMOVAL OF EROSION CONTROL MEASURES.
- CONTRACTOR, AT HIS OPTION, MAY SUBMIT ALTERNATE PHASING FOR CONSIDERATION. ALL ALTERNATE PHASING AND TEMPORARY TRAFFIC CONTROL SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER AND SHALL REQUIRE APPROVAL BY SAN BENITO AREA OFFICE ENGINEER AND CITY OF SOUTH PADRE ISLAND. ANY ALTERNATE PHASING AND TEMPORARY TRAFFIC CONTROL SHALL CONSIDER BOTH VEHICULAR AND PEDESTRIAN TRAFFIC. TEMPORARY CROSS WALKS ARE ACCEPTABLE.
- C. CONTRACTOR HAS THE OPTION TO WORK ON TWO PHASES AS DESCRIBED IN THIS NARRATIVE CONCURRENTLY PROVIDED THE PHASES ARE NOT ADJACENT ALONG THE LENGTH OF THE PROJECT. CONTRACTOR SHALL SUBMIT ANY COMPRESSING OF PHASING FOR REVIEW AND APPROVAL PRIOR TO BEGINNING WORK ON THE PROJECT.
- D. CONSTRUCTION SHALL NOT BE ALLOWED DURING THE TIME PERIODS OF:

MARCH 1ST - MARCH 31ST (ANY DAY)
APRIL 14TH - APRIL 21ST (ANY DAY)
JULY 1ST - JULY 31ST (ANY DAY)
MAY 31ST - JUNE 30TH (FRIDAY - SUNDAY)
AUGUST 1ST - AUGUST 31ST (FRIDAY-SUNDAY)
WITHOUT WRITTEN PERMISSION FROM CITY OF
SOUTH PADRE ISLAND DUE TO PEAK TOURIST
SEASON VEHICLE AND PEDESTRIAN ACTIVITY.

- E. THERE SHALL BE NO LANE CLOSURES FOR SIDEWALK AND BOARDWALK CONSTRUCTION DURING PHASES 9 AND 10. SHOULDER CLOSURES ARE PERMITTED DURING PHASES 9 AND 10.
- F. CONTRACTOR MAY REQUEST ADDITIONAL DAY LANE CLOSURES.

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	Engineer THOMAS P. GRANT		



P.E. No. 100876 Date 11/6/2018





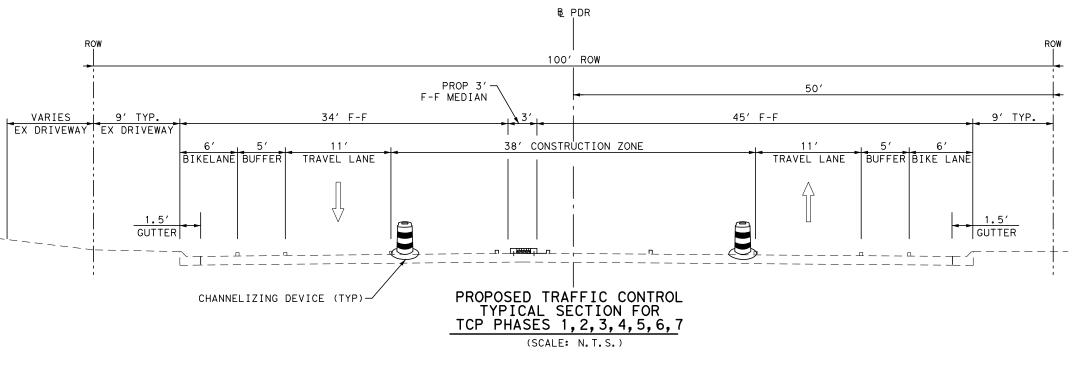
### PR 100 ROADWAY IMPROVEMENTS

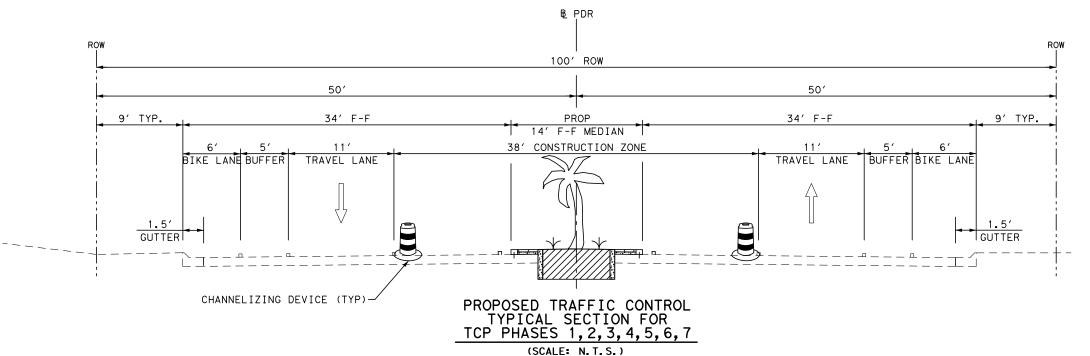
SEQUENCE OF CONSTRUCTION

SHEET 1 OF 1

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NOTES:

1. CONTRACTOR SHALL FOLLOW ALL TCP REQUIREMENTS AS WRITTEN IN THESE PLANS AND ASSOCIATED DETAILS AND SPECIFICATIONS (INCLUDING THE LATEST VERSION OF THE TMUTCD).

2. SEE ALL NOTES ON SEQUENCE OF CONSTRUCTION.

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or permit purposes.

Kimley >>> Horn

Engineer\_ THOMAS P. GRANT
P. E. No. 100876 Date 11/6/2018

Kimley » Horn
THPE REGISTERED ENGINEERING FIRM F-928





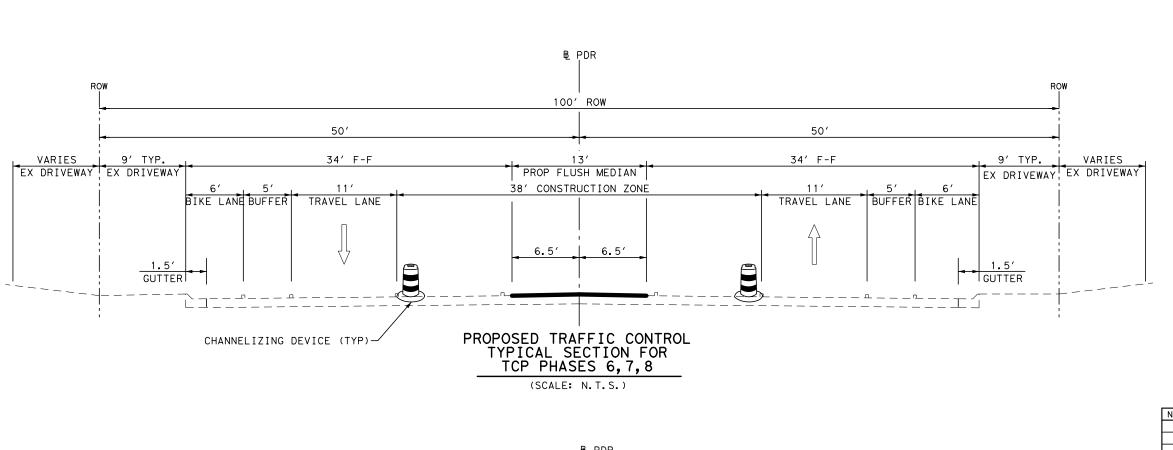
### PR 100 ROADWAY IMPROVEMENTS

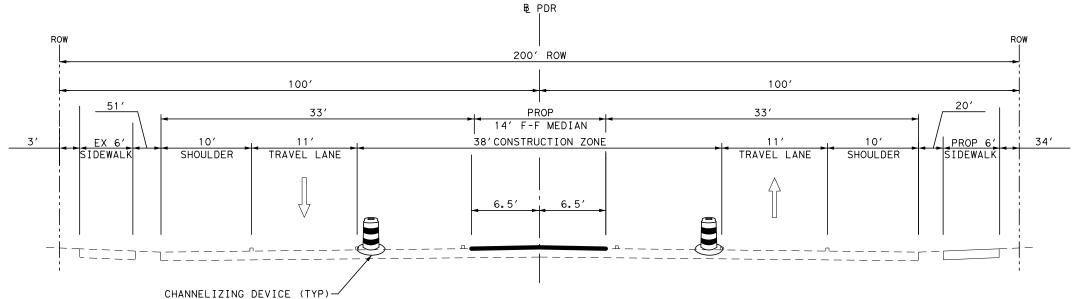
PROPOSED TRAFFIC CONTROL TYPICAL SECTION

PR 100 (PADRE BLVD)

SHEET 1 OF 4

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PROPOSED TRAFFIC CONTROL
TYPICAL SECTION FOR
TCP PHASES 8

(SCALE: N.T.S.)

NOTES:

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2. SEE ALL NOTES ON SEQUENCE OF CONSTRUCTION.

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	Engineer THOMAS P. GRANT P. E. No. 100876 Pate 11/6/20	018	

# **Kimley** »Horn





### PR 100 ROADWAY IMPROVEMENTS

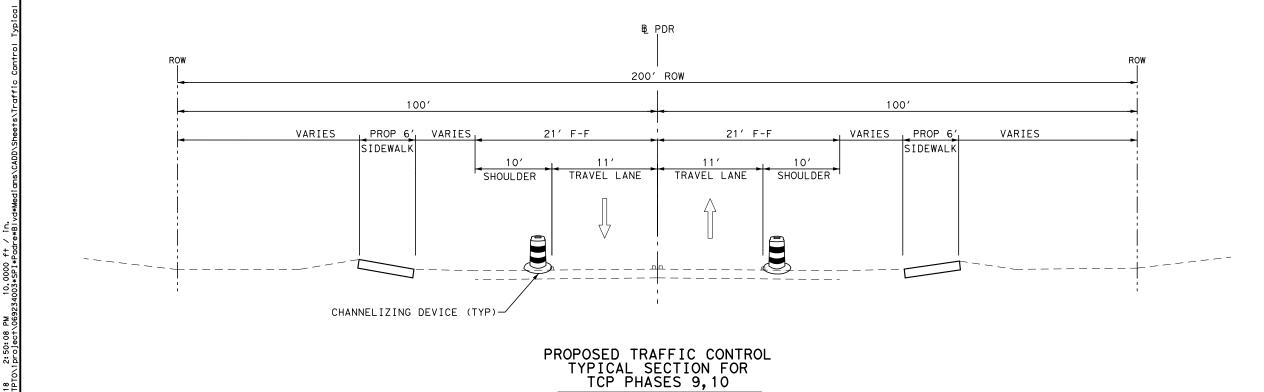
PROPOSED
TRAFFIC CONTROL
TYPICAL SECTIONS

PR 100 (PADRE BLVD)

SHEET 2 OF 4

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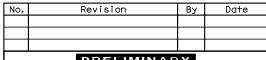


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### NOTES:

1. CONTRACTOR SHALL FOLLOW ALL TCP REQUIREMENTS AS WRITTEN IN THESE PLANS AND ASSOCIATED DETAILS AND SPECIFICATIONS (INCLUDING THE LATEST VERSION OF THE TMUTCD).

2. SEE ALL NOTES ON SEQUENCE OF CONSTRUCTION.



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# Kimley » Horn THPE REGISTERED ENGINEERING FIRM F-928





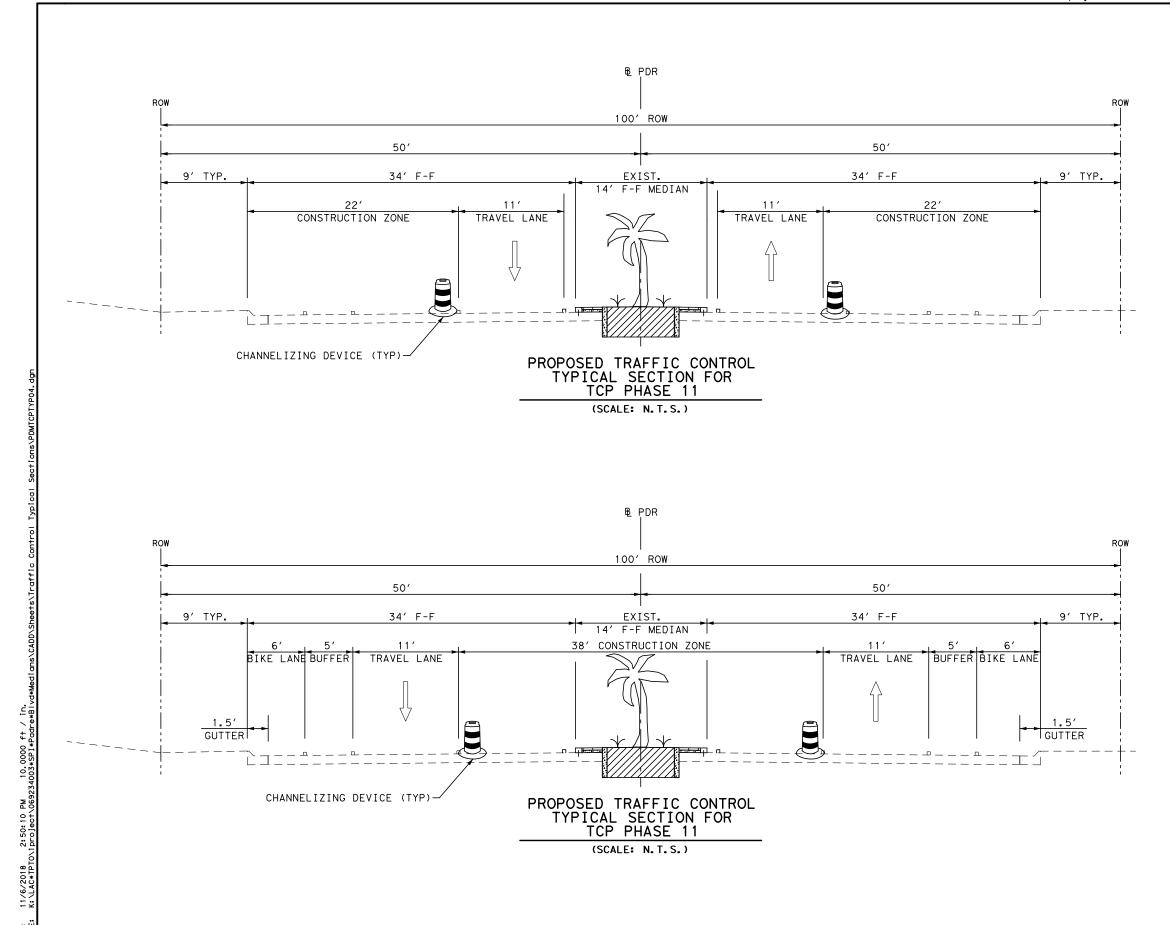
### PR 100 ROADWAY IMPROVEMENTS

PROPOSED
TRAFFIC CONTROL
TYPICAL SECTIONS

PR 100 (PADRE BLVD)

SHEET 3 OF 4

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NOTES:

1. CONTRACTOR SHALL FOLLOW ALL TCP REQUIREMENTS AS WRITTEN IN THESE PLANS AND ASSOCIATED DETAILS AND SPECIFICATIONS (INCLUDING THE LATEST VERSION OF THE TMUTCD).

2. SEE ALL NOTES ON SEQUENCE OF CONSTRUCTION.

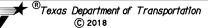
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P. E. No. 100876\_pare\_11/6/2018

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### PR 100 ROADWAY IMPROVEMENTS

PROPOSED
TRAFFIC CONTROL
TYPICAL SECTIONS

PR 100 (PADRE BLVD)

SHEET 4 OF 4

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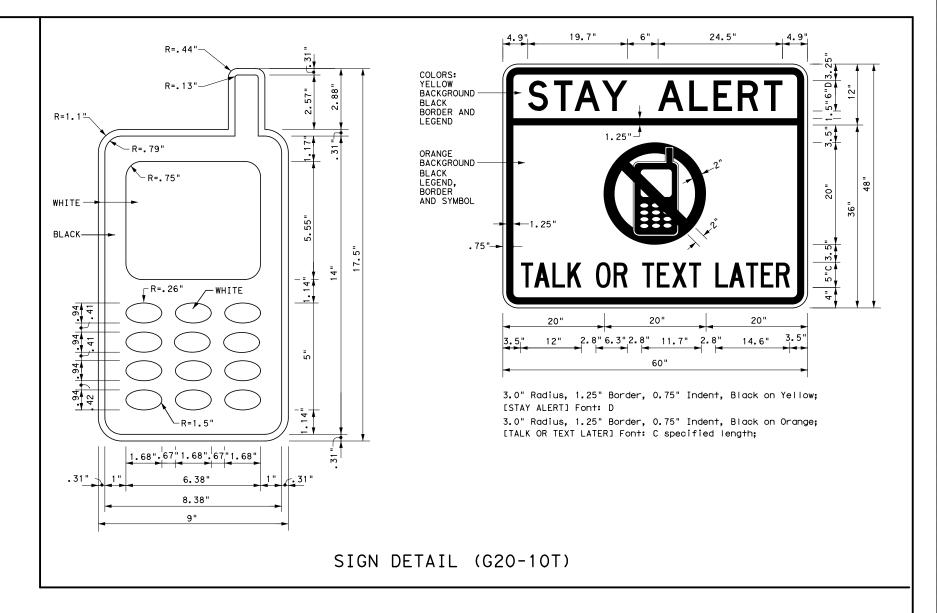
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### BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

- 1. The Barricade and Construction Standard Sheets (BC sheets) are intended to show typical examples for placement of temporary traffic control devices, construction pavement markings, and typical work zone signs. The information contained in these sheets meet or exceed the requirements shown in the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
- 2. The development and design of the Traffic Control Plan (TCP) is the responsibility of the Engineer.
- 3. The Contractor may propose changes to the TCP that are signed and sealed by a licensed professional engineer for approval. The Engineer may develop, sign and seal Contractor proposed changes.
- 4. The Contractor is responsible for installing and maintaining the traffic control devices as shown in the plans. The Contractor may not move or change the approximate location of any device without the approval of the Engineer.
- 5. Geometric design of lane shifts and detours should, when possible, meet the applicable design criteria contained in manuals such as the American Association of State Highway and Transportation Officials (AASHTO), "A Policy on Geometric Design of Highways and Streets," the TxDOT "Roadway Design Manual" or engineering judgment.
- 6. When projects abut, the Engineer(s) may omit the END ROAD WORK, TRAFFIC FINES DOUBLE, and other advance warning signs if the signing would be redundant and the work areas appear continuous to the motorists. If the adjacent project is completed first, the Contractor shall erect the necessary warning signs as shown on these sheets, the TCP sheets or as directed by the Engineer. The BEGIN ROAD WORK NEXT X MILES sign shall be revised to show appropriate work zone distance.
- 7. The Engineer may require duplicate warning signs on the median side of divided highways where median width will permit and traffic volumes justify the signing.
- 8. All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition. Sign details not shown in this manual shall be shown in the plans or the Engineer shall provide a detail to the Contractor before the sign is manufactured.
- 9. The temporary traffic control devices shown in the illustrations of the BC sheets are examples. As necessary, the Engineer will determine the most appropriate traffic control devices to be used.
- 10. As shown on BC(2), the OBEY WARNING SIGNS STATE LAW sign, STAY ALERT TALK OR TEXT LATER (see Sign Detail G20-10T) and the WORK ZONE TRAFFIC FINES DOUBLE sign with plaque shall be erected in advance of the CSJ limits. However, the TRAFFIC FINES DOUBLE sign will not be required on projects consisting solely of mobile operation work, such as striping or milling edgeline rumble strips. The BEGIN ROAD WORK NEXT X MILES, CONTRACTOR and END ROAD WORK signs shall be erected at or near the CSJ limits.
- 11. Except for devices required by Note 10, traffic control devices should be in place only while work is actually in progress or a definite need exists.
- 12. The Engineer has the final decision on the location of all traffic control devices.
- 13. Inactive equipment and work vehicles, including workers' private vehicles must be parked away from travel lanes. They should be as close to the right-of-way line as possible, or located behind a barrier or guardrail, or as approved by the Engineer.

### WORKER SAFETY APPAREL NOTES:

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



Only pre-qualified products shall be used. The "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be found on-line at the web address given below or by contacting:

Texas Department of Transportation Traffic Operations Division - TE Phone (512) 416-3118

# THE DOCUMENTS BELOW CAN BE FOUND ON-LINE AT http://www.txdot.gov

COMPLIANT WORK ZONE TRAFFIC CONTROL DEVICES LIST (CWZTCD)

DEPARTMENTAL MATERIAL SPECIFICATIONS (DMS)

MATERIAL PRODUCER LIST (MPL)

ROADWAY DESIGN MANUAL - SEE "MANUALS (ONLINE MANUALS)"

STANDARD HIGHWAY SIGN DESIGNS FOR TEXAS (SHSD)

TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD)

TRAFFIC ENGINEERING STANDARD SHEETS

SHEET 1 OF 12

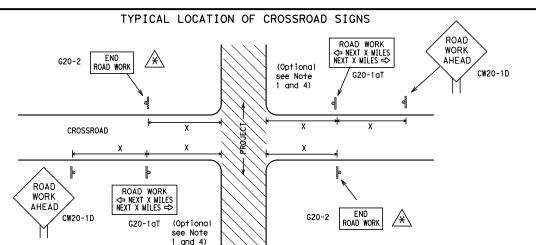


Traffic Operations Division Standard

# BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

BC(1) - 14

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

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

### T-INTERSECTION ROAD WORK <→ NEXT X MILES ROAD WORK G20-1bT NEXT X MILES ➪ 1000'-1500' - Hwy INTERSECTED 1 Block - City 1000'-1500' - Hwy 1 Block - City ROADWAY $\Rightarrow$ WORK G20-5aP WORK Limit G20-5aP ZONE TRAFFI TRAFFI G20-5T R20-5T FINES R20-5T FINES DOUBLE DOUBLE R20-5aTP WHEN WORKERS ARE PRESENT G20-6T R20-5aTP WHEN WORKERS ARE PRESENT END ROAD WORK G20-2

### CSJ LIMITS AT T-INTERSECTION

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

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS

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

### SIZE

### Sign onventional Expressway/ Number Freeway or Series CW201 CW21 48" × 48' CW22 48" x 48" CW23 CW25 CW1, CW2, CW7. CW8. 36" x 36" 48" x 48' CW9, CW11 CW14 CW3, CW4, CW5, CW6, 48" x 48" 48" × 48" CW8-3, CW10, CW12

### SPACING

Posted Speed	Sign <sup>A</sup> Spacing "X"
MPH	Feet (Apprx.)
30	120
35	160
40	240
45	320
50	400
55	500 <sup>2</sup>
60	600²
65	700 <sup>2</sup>
70	800 <sup>2</sup>
75	900 <sup>2</sup>
80	1000 <sup>2</sup>
*	* 3

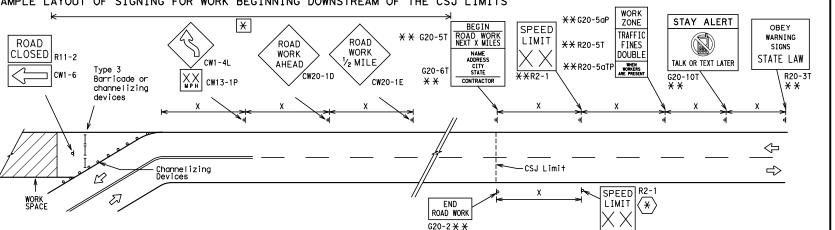
- st For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.
- $\Delta$  Minimum distance from work area to first Advance Warning sign nearest the work area and/or distance between each additional sign.

### GENERAL NOTES

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

### WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS G20-9TP X X SPEED STAY ALERT R4-1 PASS appropriate ROAD LIMIT OBEY TRAFFIC R20-5TX X WORK FINES WARNING \* \* G20-5T ROAD WORK CW1-4L AHEAD Doubi F STGNS CW20-1D R20-5aTPX X MICHES ARE PRESENT ROAD STATE LAW TALK OR TEXT LATER X X R2-CW13-1P ROAD \* \*G20-6 WORK R20-3T\* WORK G20-10T\* \* AHEAD CONTRACTOR lхх AHEAD Type 3 Barricade or MPH CW13-1P CW20-1D channelizina devices $\Diamond$ $\Diamond$ $\langle \neg$ $\Diamond$ $\Rightarrow$ $\Rightarrow$ Beginning of NO-PASSING $\Rightarrow$ $\Rightarrow$ SPEED END (\*) WORK ZONE G20-2bT \* \* R2-1 LIMIT line should 3X $\langle * \rangle | \times \times$ FND coordinate ROAD WORK When extended distances occur between minimal work spaces, the Engineer/Inspector should ensure additional with sign 'ROAD WORK AHEAD"(CW20-1D)signs are placed in advance of these work areas to remind drivers they are still location **NOTES** G20-2 X X within the project limits. See the applicable TCP sheets for exact location and spacing of signs and channelizing devices.

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



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

- The "BEGIN WORK ZONE" (G20-9TP) and "END WORK ZONE" (G20-2b) shall be used as shown on the sample layout when advance signs are required outside the CSJ Limits. They inform the motorist of entering or leaving a part of the work zone lying outside the CSJ Limits where traffic fines may double workers are present.
- Required CSJ Limit signing. See Note 10 on BC(1). TRAFFIC FINES DOUBLE signs will not be required on projects consisting solely of mobile operations work.
- Area for placement of "ROAD WORK AHEAD" (CW20-1D) sign and other signs or devices as called for on the Traffic
- Contractor will install a regulatory speed limit sign at the end of the work zoon the end of the work zone.

LEGEND						
Ι	Type 3 Barricade					
000 Channelizing Devices						
<b>•</b>	Sign					
Х	See Typical Construction Warning Sign Size and Spacing chart or the TMUTCD for sign spacing requirements.					

SHEET 2 OF 12



Operation Division Standard

### BARRICADE AND CONSTRUCTION PROJECT LIMIT

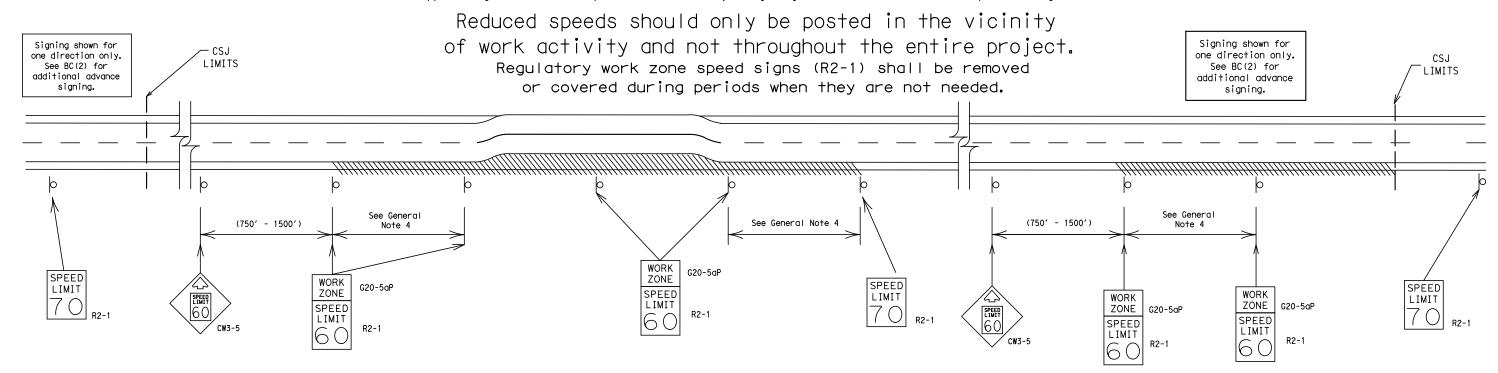
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### TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

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



### GUIDANCE FOR USE:

### LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

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

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

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

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

### SHORT TERM WORK ZONE SPEED LIMITS

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

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

### GENERAL NOTES

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

40 mph and greater 0.2 to 2 miles

35 mph and less 0.2 to 1 mile

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

SHEET 3 OF 12



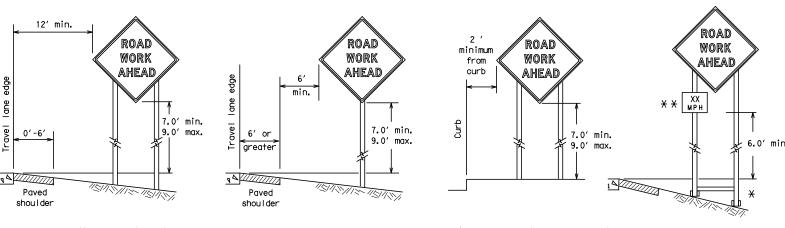
Operations Division Standard

# BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

BC(3)-14

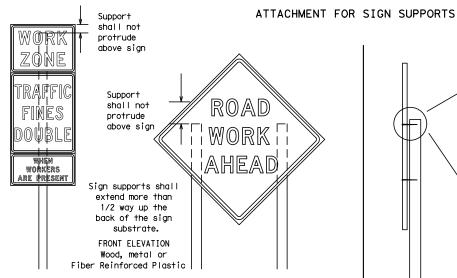
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### TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



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

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



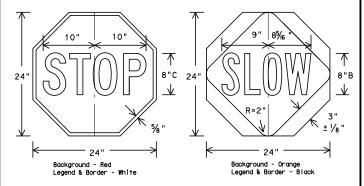
Splicing embedded perforated square metal tubing in order to extend post height will only be allowed when the splice is made using four bolts, two above and two below the spice point. Splice must be located entirely behind the sign substrate, not near the base of the support. Splice insert lengths should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

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

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

### STOP/SLOW PADDLES

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



### CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

SIDE ELEVATION

Wood

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

### GENERAL NOTES FOR WORK ZONE SIGNS

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

### <u>DURATION OF WORK (as defined by the "Texas Manual on Uniform Traffic Control Devices" Part 6)</u>

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

### SIGN MOUNTING HEIGHT

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

### SIZE OF SIGNS

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

### SIGN SUBSTRATES

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

### REFLECTIVE SHEETING

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

### SIGN LETTERS

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

### REMOVING OR COVERING

- When sign messages may be confusing or do not apply, the signs shall be removed or completely covered.

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

### SIGN SUPPORT WEIGHTS

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

### FLAGS ON SIGNS

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

SHEET 4 OF 12



### BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

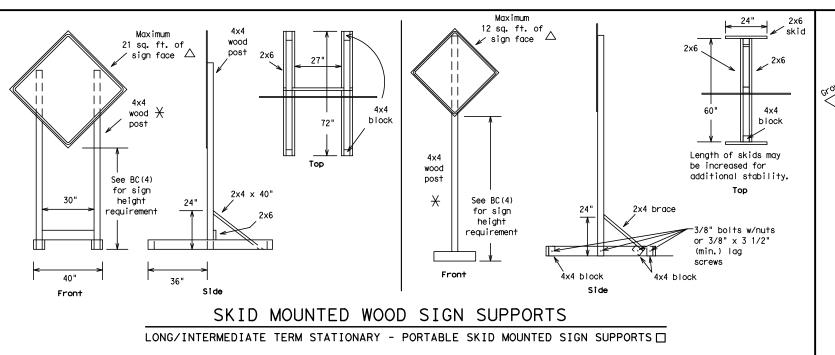
Operation Division Standard

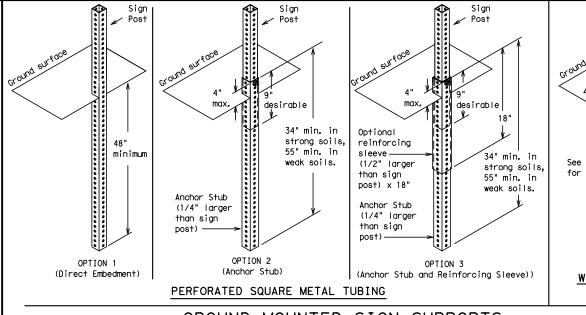
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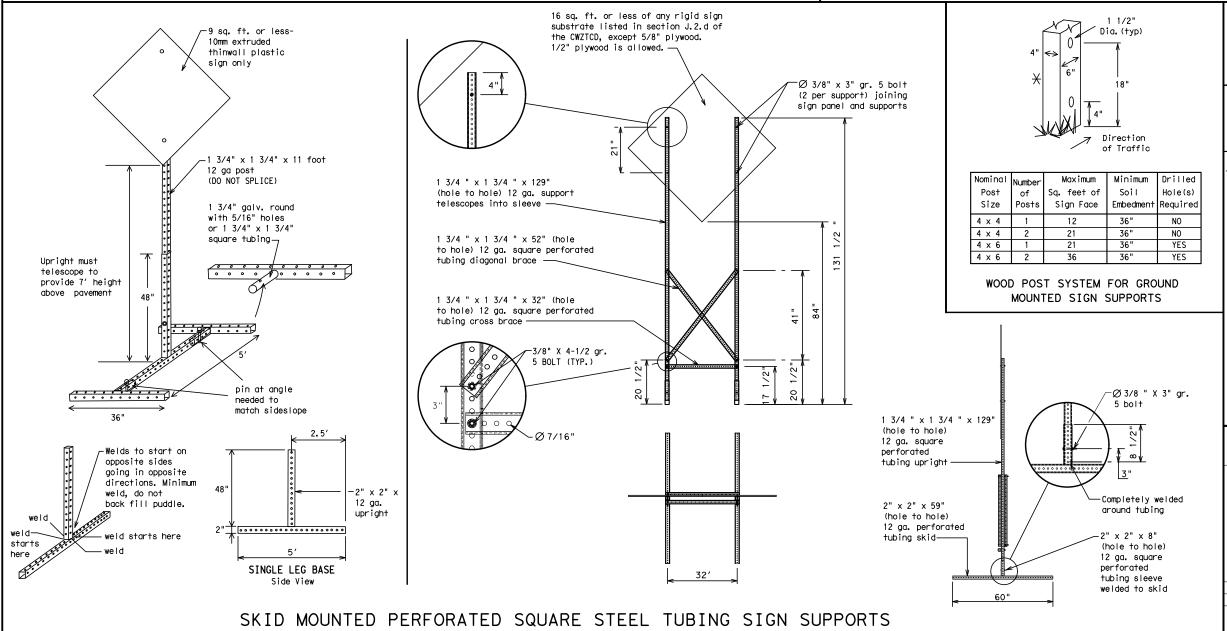
# Post Post A" max. Base Post For embedment. WING CHANNEL Lap-splice/base bolfed anchor

### GROUND MOUNTED SIGN SUPPORTS

Refer to the CWZTCD and the manufacturer's installation procedure for each type sign support.

The maximum sign square footage shall adhere to the manufacturer's recommendation.

Two post installations can be used for larger signs.



### WEDGE ANCHORS

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

### OTHER DESIGNS

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

### GENERAL NOTES

- Nails may be used in the assembly of wooden sign supports, but 3/8" bolts with nuts or 3/8" x 3 1/2" lag screws must be used on every joint for final connection.
- No more than 2 sign posts shall be placed within a 7 ft. circle, except for specific materials noted on the CWZTCD List.
- 3. When project is completed, all sign supports and foundations shall be removed from the project site. This will be considered subsidiary to Item 502.
  - ☐ See BC(4) for definition of "Work Duration."
  - X Wood sign posts MUST be one piece. Splicing will NOT be allowed. Posts shall be painted white.
  - $\triangle$  See the CWZTCD for the type of sign substrate that can be used for each approved sign support.

### SHEET 5 OF 12



ation Division Standard

Traffic Operation

# BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

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

### PORTABLE CHANGEABLE MESSAGE SIGNS

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

WORD OR PHRASE	ABBREVIATION	WORD OR PHRASE	ABBREVIATION
Access Road	ACCS RD	Major	MAJ
Alternate	ALT	Miles	MI
Avenue	AVE	Miles Per Hour	MPH
Best Route	BEST RTE	Minor	MNR
Boulevard	BLVD	Monday	MON
Bridge	BRDG	Normal	NORM
Cannot	CANT	North	N
Center	CTR	Northbound	(route) N
Construction Ahead	CONST AHD	Parking	PKING
	W7110	Road	RD
CROSSING	XING	Right Lane	RT LN
Detour Route	DETOUR RTE	Saturday	SAT
Do Not	DONT	Service Road	SERV RD
East	E	Shoulder	SHLDR
Eastbound	(route) E	Slippery	SLIP
Emergency	EMER	South	S
Emergency Vehicle	EMER VEH	Southbound	(route) S
Entrance, Enter	ENT	Speed	SPD
Express Lane	EXP LN	Street	ST
Expressway	EXPWY	Sunday	SUN
XXXX Feet	XXXX FT	Telephone	PHONE
Fog Ahead	FOG AHD	Temporary	TEMP
Freeway	FRWY, FWY	Thursday	THURS
Freeway Blocked	FWY BLKD	To Downtown	TO DWNTN
Friday	FRI	Traffic	TRAF
Hazardous Driving		Travelers	TRVLRS
Hazardous Material		Tuesday	TUES
High-Occupancy	HOV	Time Minutes	TIME MIN
Vehicle	HWY I	Upper Level	UPR LEVEL
Highway		Vehicles (s)	VEH, VEHS
Hour(s)	HR, HRS	Warning	WARN
Information	INFO	Wednesday	WED
It Is	ITS	Weight Limit	WT LIMIT
Junction	JCT	West	W
Left	LFT	Westbound	(route) W
Left Lane	LFT LN	Wet Pavement	WET PVMT
Lane Closed	LN CLOSED	Will Not	WONT
Lower Level	LWR LEVEL		1

Maintenance

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

MATNT

### RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

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

### Phase 1: Condition Lists

Road/Lane/Ramp	o Closure List	Other Cond	lition List
FREEWAY CLOSED X MILE	FRONTAGE ROAD CLOSED	ROADWORK XXX FT	ROAD REPAIRS XXXX FT
ROAD CLOSED AT SH XXX	SHOULDER CLOSED XXX FT	FLAGGER XXXX FT	LANE NARROWS XXXX FT
ROAD CLSD AT FM XXXX	RIGHT LN CLOSED XXX FT	RIGHT LN NARROWS XXXX FT	TWO-WAY TRAFFIC XX MILE
RIGHT X LANES CLOSED	RIGHT X LANES OPEN	MERGING TRAFFIC XXXX FT	CONST TRAFFIC XXX FT
CENTER LANE CLOSED	DAYTIME LANE CLOSURES	LOOSE GRAVEL XXXX FT	UNEVEN LANES XXXX FT
NIGHT LANE CLOSURES	I-XX SOUTH EXIT CLOSED	DETOUR X MILE	ROUGH ROAD XXXX FT
VARIOUS LANES CLOSED	EXIT XXX CLOSED X MILE	ROADWORK PAST SH XXXX	ROADWORK NEXT FRI-SUN
EXIT CLOSED	RIGHT LN TO BE CLOSED	BUMP XXXX FT	US XXX EXIT X MILES
MALL DRIVEWAY CLOSED	X LANES CLOSED TUE - FRI	TRAFFIC SIGNAL XXXX FT	LANES SHIFT
XXXXXXXX			

### APPLICATION GUIDELINES

- 1. Only 1 or 2 phases are to be used on a PCMS.
- 2. The 1st phase (or both) should be selected from the "Road/Lane/Ramp Closure List" and the "Other Condition List".

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

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

### Phase 2: Possible Component Lists

	Æffect on Travel ist	Location List	Warning List	** Advance Notice List
MERGE RIGHT	FORM X LINES RIGHT	AT FM XXXX	SPEED LIMIT XX MPH	TUE-FRI XX AM- X PM
DETOUR NEXT X EXITS	USE XXXXX RD EXIT	BEFORE RAILROAD CROSSING	MAXIMUM SPEED XX MPH	APR XX- XX X PM-X AM
USE EXIT XXX	USE EXIT I-XX NORTH	NEXT X MILES	MINIMUM SPEED XX MPH	BEGINS MONDAY
STAY ON US XXX SOUTH	USE I-XX E TO I-XX N	PAST US XXX EXIT	ADVISORY SPEED XX MPH	BEGINS MAY XX
TRUCKS USE US XXX N	WATCH FOR TRUCKS	XXXXXXX TO XXXXXXX	RIGHT LANE EXIT	MAY X-X XX PM - XX AM
WATCH FOR TRUCKS	EXPECT DELAYS	US XXX TO FM XXXX	USE CAUTION	NEXT FRI-SUN
EXPECT DELAYS	PREPARE TO STOP		DRIVE SAFELY	XX AM TO XX PM
REDUCE SPEED XXX FT	END SHOULDER USE		DRIVE WITH CARE	NEXT TUE AUG XX
USE OTHER ROUTES	WATCH FOR WORKERS			TONIGHT XX PM- XX AM
STAY IN LANE	*	<b>*</b> * Se	e Application Guidelines N	ote 6.

### WORDING ALTERNATIVES

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

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

### FULL MATRIX PCMS SIGNS

BLVD

CLOSED

- 1. When Full Matrix PCMS signs are used, the character height and legibility/visibility requirements shall be maintained as listed in Note 15 under "PORTABLE CHANGEABLE MESSAGE SIGNS" above.
- 2. When symbol signs, such as the "Flagger Symbol"(CW20-7) are represented graphically on the Full Matrix PCMS sign and, with the approval of the Engineer, it shall maintain the legibility/visibility requirement listed above
- 3. When symbol signs are represented graphically on the Full Matrix PCMS, they shall only supplement the use of the static sign represented, and shall not substitute for, or replace that sign.

4. A full matrix PCMS may be used to simulate a flashing arrow board provided it meets the visibility, flash rate and dimming requirements on BC(7), for the same size arrow.

### SHEET 6 OF 12



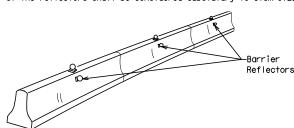
### BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

Division Standard

BC(6)-14

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© TxD0T	November 2002	CONT	SECT	JOB			HIGHWAY
	REVISIONS	N\A	N\A	N\A		Р	R 100
9-07	8-14	DIST		COUNTY			SHEET NO.
7-13		PHR		CAMERO	N		032

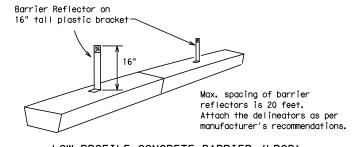
- 1. Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
- 2. Color of Barrier Reflectors shall be as specified in the TMUTCD. The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

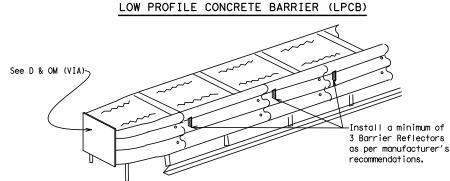


### CONCRETE TRAFFIC BARRIER (CTB)

- Where traffic is on one side of the CTB, two (2) Barrier Reflectors shall be mounted in approximately the midsection of each section of CTB. An alternate mounting location is uniformly spaced at one end of each CTB. This will allow for attachment of a barrier grapple without damaging the reflector. The Barrier Reflector mounted on the side of the CTB shall be located directly below the reflector mounted on top of
- the barrier, as shown in the detail above.

  4. Where CTB separates two-way traffic, three barrier reflectors shall be mounted on each section of CTB. The reflector unit on top shall have two yellow reflective faces (Bi-Directional) while the reflectors on each side of the barrier shall have one yellow reflective face, as shown in the detail above.
- 5. When CTB separates traffic traveling in the same direction, no barrier reflectors will be required on top of the CTB.
- 6. Barrier Reflector units shall be yellow or white in color to match the edgeline being supplemented.
- 7. Maximum spacing of Barrier Reflectors is forty (40) feet.
- 8. Pavement markers or temporary flexible-reflective roadway marker tabs shall NOT be used as CTB delineation.
- 9. Attachment of Barrier Reflectors to CTB shall be per manufacturer's recommendations.
- 10. Missing or damaged Barrier Reflectors shall be replaced as directed by the Engineer.
- 11. Single slope barriers shall be delineated as shown on the above detail.





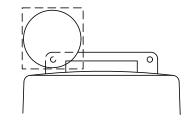
### DELINEATION OF END TREATMENTS

### END TREATMENTS FOR CTB'S USED IN WORK ZONES

End treatments used on CTB's in work zones shall meet crashworthy standards as defined in the National Cooperative Highway Research Report 350. Refer to the CWZTCD List for approved end treatments and manufacturers.

### BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS

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



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

### WARNING LIGHTS

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

### WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

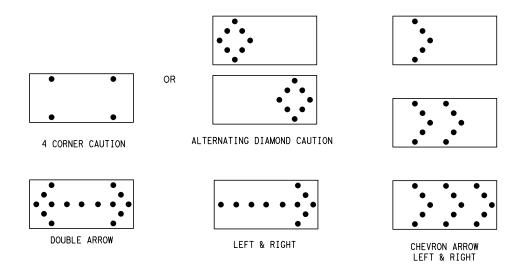
- 1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
- 2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
- 3. A series of sequential flashing warning lights placed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

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

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

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

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



- 5. The "CAUTION" display consists of four corner lamps flashing simultaneously, or the Alternating Diamond Caution mode as shown.
- The straight line caution display is NOT ALLOWED.
- The Flashing Arrow Board shall be capable of minimum 50 percent dimming from rated lamp voltage. The flashing rate of the lamps shall not be less than 25 nor more than 40 flashes per minute.
- Minimum lamp "on time" shall be approximately 50 percent for the flashing arrow and equal intervals of 25 percent for each sequential phase of the flashing chevron.
- 9. The sequential arrow display is NOT ALLOWED.

  10. The flashing arrow display is the TxDOT standard; however, the sequential Chevron display may be used during daylight operations.

- 11. The Flashing Arrow Board shall be mounted on a vehicle, trailer or other suitable support.
  12. A Flashing Arrow Board SHALL NOT BE USED to laterally shift traffic.
  13. A full matrix PCMS may be used to simulate a Flashing Arrow Board provided it meets visibility, flash rate and dimming requirements on this sheet for the same size arrow.
- 14. Minimum mounting height of trailer mounted Arrow Boards should be 7 feet from roadway to bottom of panel.

REQUIREMENTS									
TYPE	MINIMUM SIZE	MINIMUM NUMBER OF PANEL LAMPS	MINIMUM VISIBILITY DISTANCE						
В	30 × 60	13	3/4 mile						
С	48 × 96	15	1 mile						

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

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

### FLASHING ARROW BOARDS

SHEET 7 OF 12

### TRUCK-MOUNTED ATTENUATORS

- 1. Truck-mounted attenuators (TMA) used on TxDOT facilities must meet the requirements outlined in the National Cooperative Highway Research Report No. 350 (NCHRP 350) or the Manual for Assessing Safety Hardware (MASH).
- Refer to the CWZTCD for the requirements of Level 2 or Level 3 TMAs.
- 3. Refer to the CWZTCD for a list of approved TMAs.
- 4. TMAs are required on freeways unless otherwise noted in the plans.

  5. A TMA should be used anytime that it can be positioned
- 30 to 100 feet in advance of the area of crew exposure without adversely affecting the work performance.
- 6. The only reason a TMA should not be required is when a work area is spread down the roadway and the work crew is an extended distance from the TMA.



Traffic Operation Division Standard

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

BC(7)-14

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- 1. For long term stationary work zones on freeways, drums shall be used as the primary channelizing device.
- 2. For intermediate term stationary work zones on freeways, drums should be used as the primary channelizing device but may be replaced in tangent sections by vertical panels, or 42" two-piece cones. In tangent sections one-piece cones may be used with the approval of the Engineer but only if personnel are present on the project at all times to maintain the cones in proper position and location.
- 3. For short term stationary work zones on freeways, drums are the preferred channelizing device but may be replaced in tapers, transitions and tangent sections by vertical panels, two-piece cones or one-piece cones as approved by the Engineer.
- 4. Drums and all related items shall comply with the requirements of the current version of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) and the "Compliant Work Zone Traffic Control Devices List" (CW7TCD).
- 5. Drums, bases, and related materials shall exhibit good workmanship and shall be free from objectionable marks or defects that would adversely affect their appearance or serviceability.
- 6. The Contractor shall have a maximum of 24 hours to replace any plastic drums identified for replacement by the Engineer/Inspector. The replacement device must be an approved device.

### GENERAL DESIGN REQUIREMENTS

GENERAL NOTES

Pre-qualified plastic drums shall meet the following requirements:

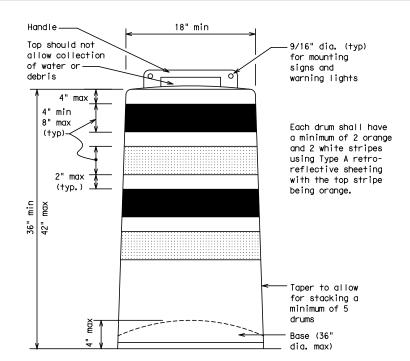
- 1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
- 2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but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

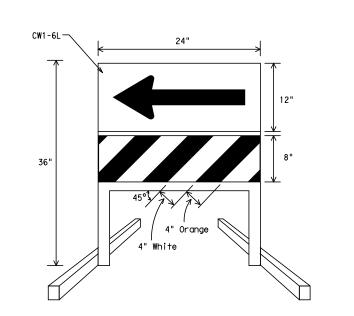
### RETROREFLECTIVE SHEETING

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

### BALLAST

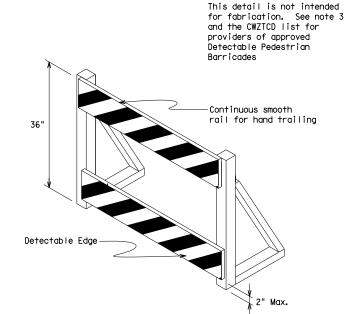
- 1. Unballasted bases shall be large enough to hold up to 50 lbs. of sand. This base, when filled with the ballast material, should weigh between 35 lbs (minimum) and 50 lbs (maximum). The ballast may be sand in one to three sandbags separate from the base, sand in a sand-filled plastic base, or other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





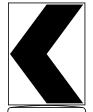
### DIRECTION INDICATOR BARRICADE

- 1. The Direction Indicator Barricade may be used in tapers, transitions, and other areas where specific directional
- guidance to drivers is necessary. If used, the Direction Indicator Barricade should be used in series to direct the driver through the transition and into the intended travel lane.
- 3. The Direction Indicator Barricade shall consist of One-Direction Large Arrow (CW1-6) sign in the size shown with a black arrow on a background of Type  $B_{FL}$  or Type  $C_{FL}$  Orange retroreflective sheeting above a rail with Type A retroreflective sheeting in alternating 4" white and orange stripes sloping downward at an angle of 45 degrees in the direction road users are to pass. Sheeting types shall be as per DMS 8300.
- Double arrows on the Direction Indicator Barricade will not be allowed.
- 5. Approved manufacturers are shown on the CWZTCD List. Ballast shall be as approved by the manufacturers instructions.



### DETECTABLE PEDESTRIAN BARRICADES

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



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



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

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

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

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

SHEET 8 OF 12

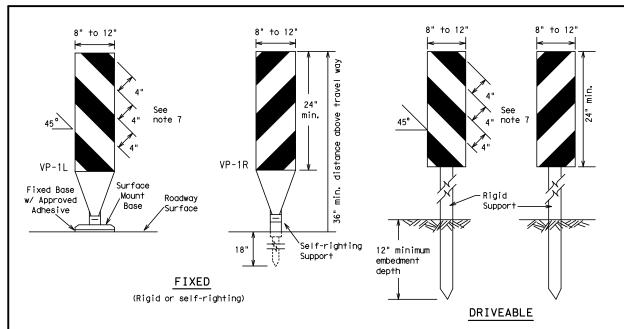


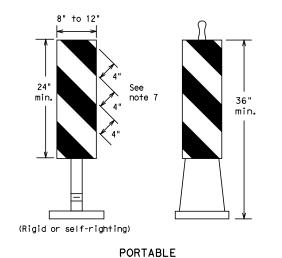
Operation Division Standard

### BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(8)-14

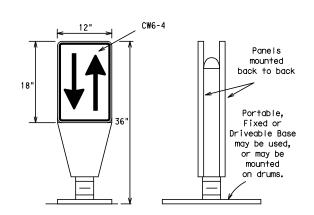
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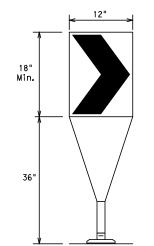
- 1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
- 2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation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

### VERTICAL PANELS (VPs)



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

OPPOSING TRAFFIC LANE DIVIDERS (OTLD)



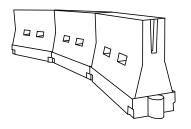
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

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

### **CHEVRONS**

### **GENERAL NOTES**

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



### LONGITUDINAL CHANNELIZING DEVICES (LCD)

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

### WATER BALLASTED SYSTEMS USED AS BARRIERS

- 1. Water ballasted systems used as barriers shall not be used solely to channelize road users, but also to protect the work space per the appropriate NCHRP 350 crashworthiness requirements based on roadway speed and barrier application.
- 2. Water ballasted systems used to channelize vehicular traffic shall be supplemented with retroreflective delineation or channelizing devices to improve daytime/nighttime visibility. They may also be supplemented with pavement markings. 3. Water ballasted systems used as barriers shall be placed in accordance to application and installation requirements
- specific to the device, and used only when shown on the CWZTCD list. 4. Water ballasted systems used as barriers should not be used for a mergina taper except in low speed (less than 45 MPH) urban areas. When used on a taper in a low speed urban area, the taper shall be delineated and the taper length
- should be designed to optimize road user operations considering the available geometric conditions. When water ballasted systems used as barriers have blunt ends exposed to traffic, they should be attenuated as per manufacturer recommendations or flared to a point outside the clear zone.

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

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

Posted Speed	Formula	D	esirab er Lend <del>X X</del>	le	Suggested Maximum Spacing of Channelizing Devices			
<del>*</del>		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	2	150′	165′	180′	30′	60′		
35	$L = \frac{WS^2}{60}$	205′	225′	245′	35′	70′		
40	80	265′	295′	320′	40′	80′		
45		450′	495′	540′	45′	90′		
50		500′	550′	600′	50′	100′		
55	L=WS	550′	605′	660′	55′	110′		
60	L 113	600′	660′	720′	60′	120′		
65		650′	715′	780′	65′	130′		
70		700′	770′	840′	70′	140′		
75		750′	825′	900′	75′	150′		
80		800′	880′	960′	80′	160′		

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

### SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

SHEET 9 OF 12



Texas Department of Transportation

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

Traffic Operation

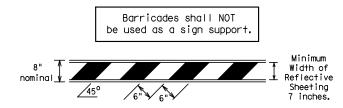
Division Standard

BC(9)-14

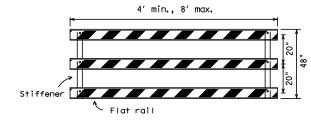
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C TxDOT	November 2002	CONT	SECT	JOB		HIGHWAY	
REVISIONS		N\A	N\A	N\A		PR	100
9-07	8-14	DIST	COUNTY				SHEET NO.
7-13		PHR		CAMERO	N		035

### TYPE 3 BARRICADES

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

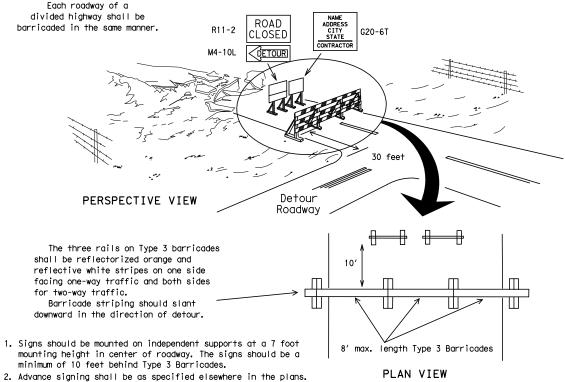


### TYPICAL STRIPING DETAIL FOR BARRICADE RAIL

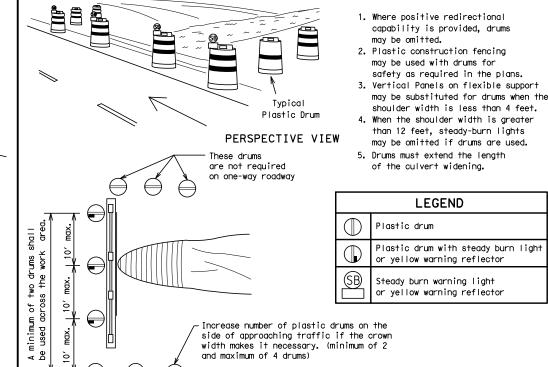


Stiffener may be inside or outside of support, but no more than 2 stiffeners shall be allowed on one barricade.

### TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

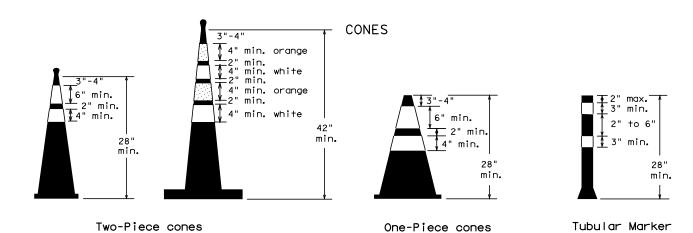


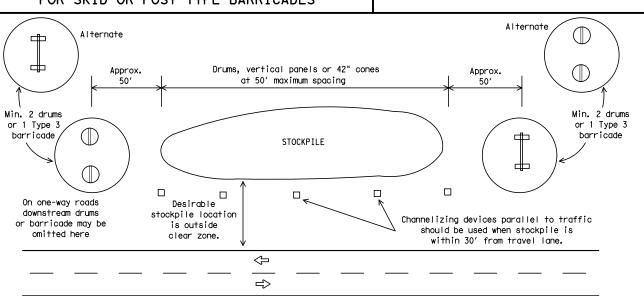
TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS

PLAN VIEW



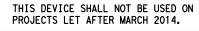


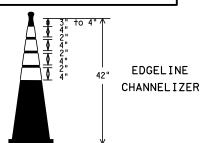
TRAFFIC CONTROL FOR MATERIAL STOCKPILES

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

30 lbs. including base.

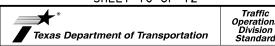
- 1. Traffic cones and tubular markers shall be predominantly orange, and meet the height and weight requirements shown above.
- 2. One-piece cones have the body and base of the cone molded in one consolidated unit. Two-piece cones have a cone shaped body and a separate rubber base, or ballast, that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





- 1. This device is intended only for use in place of a vertical panel to channelize traffic by indicating the edge of the travel lane. It is not intended to be used in transitions or tapers.
- 2. This device shall not be used to separate lanes of traffic (opposing or otherwise) or warn of objects.
- 3. This device is based on a 42 inch. two-piece cone with an alternate striping pattern: four 4 inch retroreflective bands, with an approximate 2 inch gap between bands. The color of the band should correspond to the color of the edgeline (yellow for left edgeline, white for right edgeline) for which the device is substituted or for which it supplements. The reflectorized bands shall be retroreflective Type A conforming to Departmental Material Specification DMS-8300, unless otherwise noted.
- 4. The base must weigh a minimum of 30 lbs.

### SHEET 10 OF 12



### BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

### BC(10)-14

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### WORK ZONE PAVEMENT MARKINGS

#### **GENERAL**

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

## RAISED PAVEMENT MARKERS

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

#### PREFABRICATED PAVEMENT MARKINGS

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

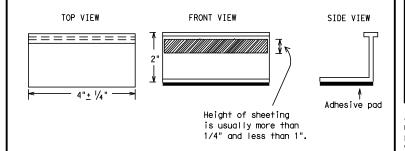
#### MAINTAINING WORK ZONE PAVEMENT MARKINGS

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

#### REMOVAL OF PAVEMENT MARKINGS

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

# Temporary Flexible-Reflective Roadway Marker Tabs



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

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

#### RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

- 1. Raised pavement markers used as guidemarks shall be from the approved product list, and meet the requirements of DMS-4200.
- 2. All temporary construction raised pavement markers provided on a project shall be of the same manufacturer.
- 3. Adhesive for guidemarks shall be bituminous material hot applied or butyl rubber pad for all surfaces, or thermoplastic for concrete surfaces.
- Guidemarks shall be designated as: YELLOW - (two amber reflective surfaces with yellow body). WHITE - (one silver reflective surface with white body).

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

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

SHEET 11 OF 12



Operation Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

BC(11)-14

FILE: bc-14.dgn	DN: TxDOT		ck: TxDOT	DW:	TxDOT	ck: TxDOT			
© TxDOT February 1998	CONT	SECT	JOB		HIGHWAY				
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2-98 9-07 1-02 7-13	DIST		COUNTY			SHEET NO.			
11-02 8-14	PHR		CAMERO	N		037			

\$TIME\$

`Yellow

4 to 8"

4>

#### Type I-C Prefabricated markings may be substituted for reflectorized pavement markings. EDGE & LANE LINES FOR DIVIDED HIGHWAY $\triangleleft$ 000 000 000 White / Type II-A-A Type Y buttons 0000000 5> ₹> 000 000 REFLECTORIZED PAVEMENT MARKINGS RAISED PAVEMENT MARKERS Prefabricated markings may be substituted for reflectorized pavement markings. LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS Type I-C-Type Y 000 Type I-C REFLECTORIZED PAVEMENT MARKINGS RAISED PAVEMENT MARKERS Prefabricated markings may be substituted for reflectorized pavement markings. TWO-WAY LEFT TURN LANE

PAVEMENT MARKING PATTERNS

10 to 12"

REFLECTORIZED PAVEMENT MARKINGS - PATTERN A

REFLECTORIZED PAVEMENT MARKINGS - PATTERN B

Yellow

Yellow

REFLECTORIZED PAVEMENT MARKINGS

White

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

Type II-A-A

Type II-A

Type II-A-A

00000000000

Type Y buttons

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

000

₹>

10 to 12" Type II-A-A

Type II-A-A-

Type I-C

000

Type I-C or II-C-R

Type I-C or II-C-R

Type Y buttons

RAISED PAVEMENT MARKERS - PATTERN A

RAISED PAVEMENT MARKERS - PATTERN B

RAISED PAVEMENT MARKERS

Type Y buttons 

Type Y buttons/

0004000,0000100000000000000000

Type W buttons

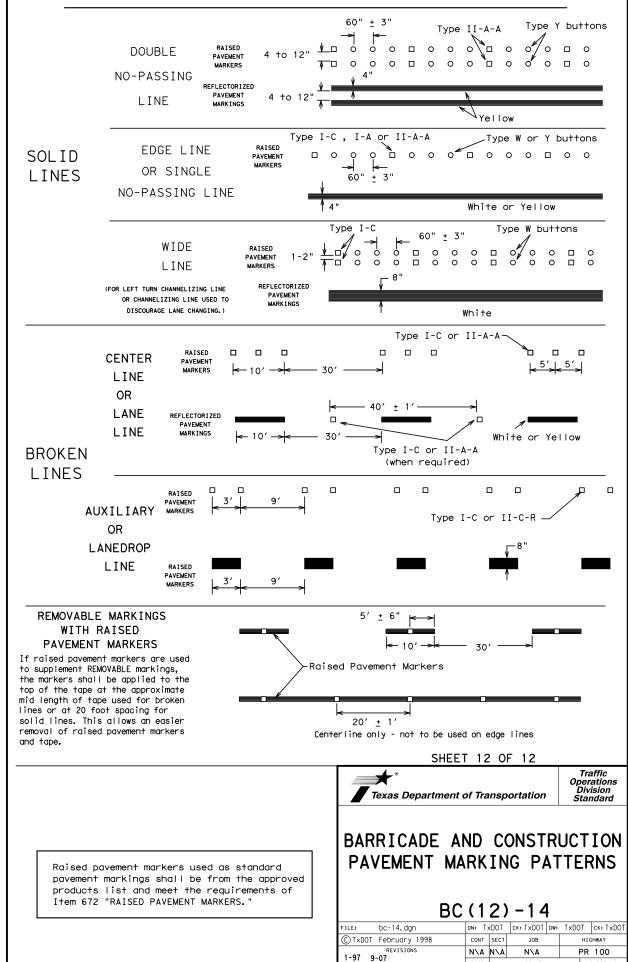
Type W buttons-

000

000

Type I-A

Type I-A



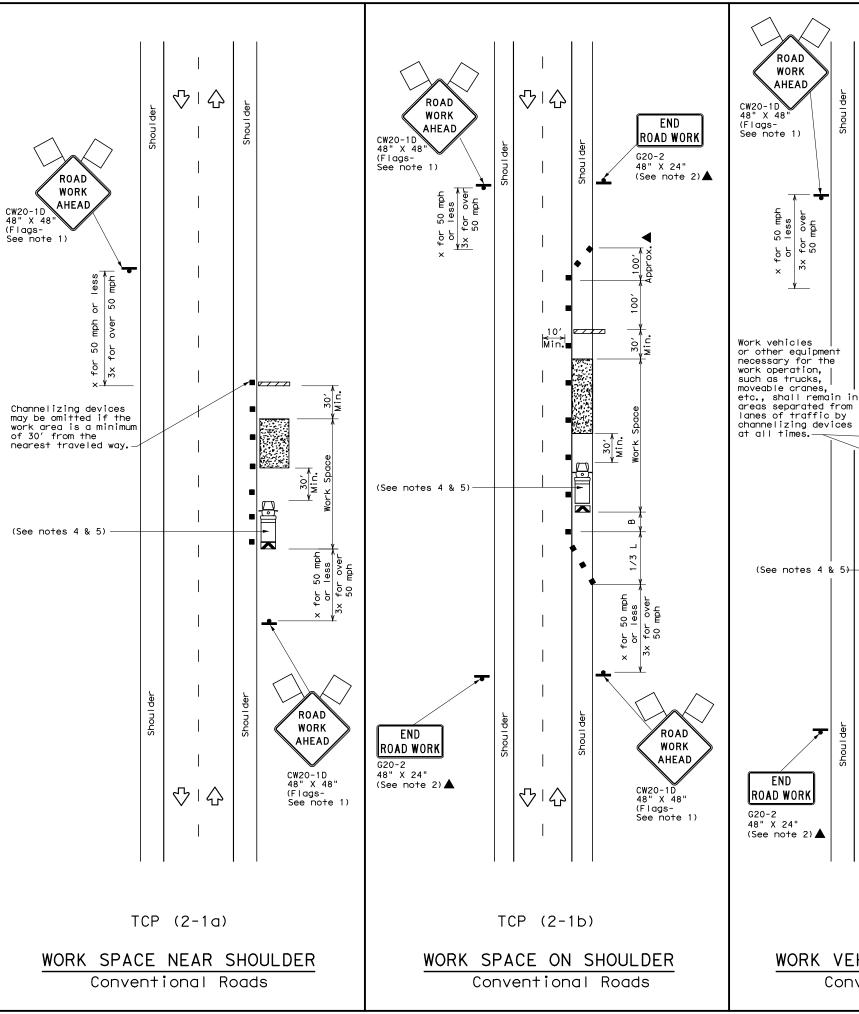
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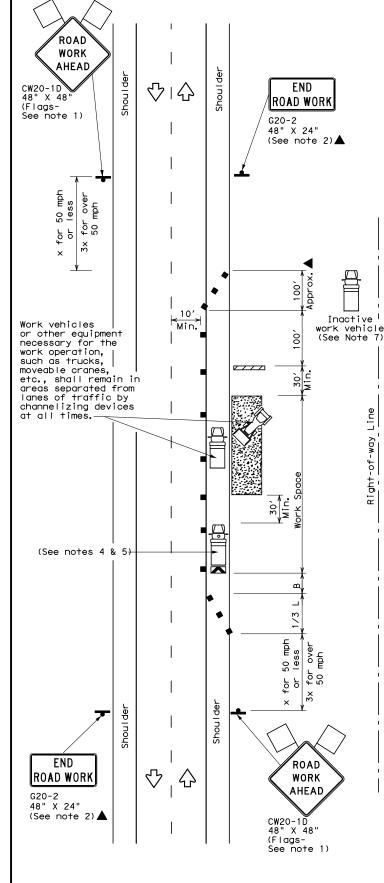
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038

STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS







TCP (2-1c)

WORK VEHICLES ON SHOULDER Conventional Roads

	LEGEND								
~~~	Type 3 Barricade		Channelizing Devices						
□坤	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)						
	Trailer Mounted Flashing Arrow Board	M	Portable Changeable Message Sign (PCMS)						
-	Sign	♡	Traffic Flow						
$\Diamond$	Flag		Flagger						

Posted Speed	Formula	D	Minimur esirab er Len <del>X X</del>	le	Spacir Channe		Minimum Sign Spacing "X"	Suggested Longitudinal Buffer Space
*		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent	Distance	"B"
30	WS <sup>2</sup>	150′	165′	180′	30′	60′	120′	90′
35	$L = \frac{WS}{60}$	205′	225′	245′	35′	70′	160′	120′
40	80	265′	295′	320′	40′	80′	240′	155′
45		450′	495′	540′	45′	90′	320′	195′
50		500′	550′	600′	50′	100′	400′	240′
55	L=WS	550′	605′	660′	55′	110′	500′	295′
60	- " 5	600′	660′	720′	60′	120′	600′	350′
65		650′	715′	780′	65′	130′	700′	410′
70		700′	770′	840′	70′	140′	800′	475′
75		750′	825′	900′	75′	150′	900′	540′

X Conventional Roads Only

XX Taper lengths have been rounded off.

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

TYPICAL USAGE									
MOBILE	MOBILE SHORT SHORT TERM INTERMEDIATE LONG TERM DURATION STATIONARY TERM STATIONARY STATIONARY								
	1	1	1	<b>√</b>					

#### GENERAL NOTES

- 1. Flags attached to signs where shown, are REQUIRED.
- 2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated in the plans, or for routine maintenance work, when approved by the Engineer.

  3. Stockpiled material should be placed a minimum of 30 feet from
- nearest traveled way.

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

Texas Department of Transportation

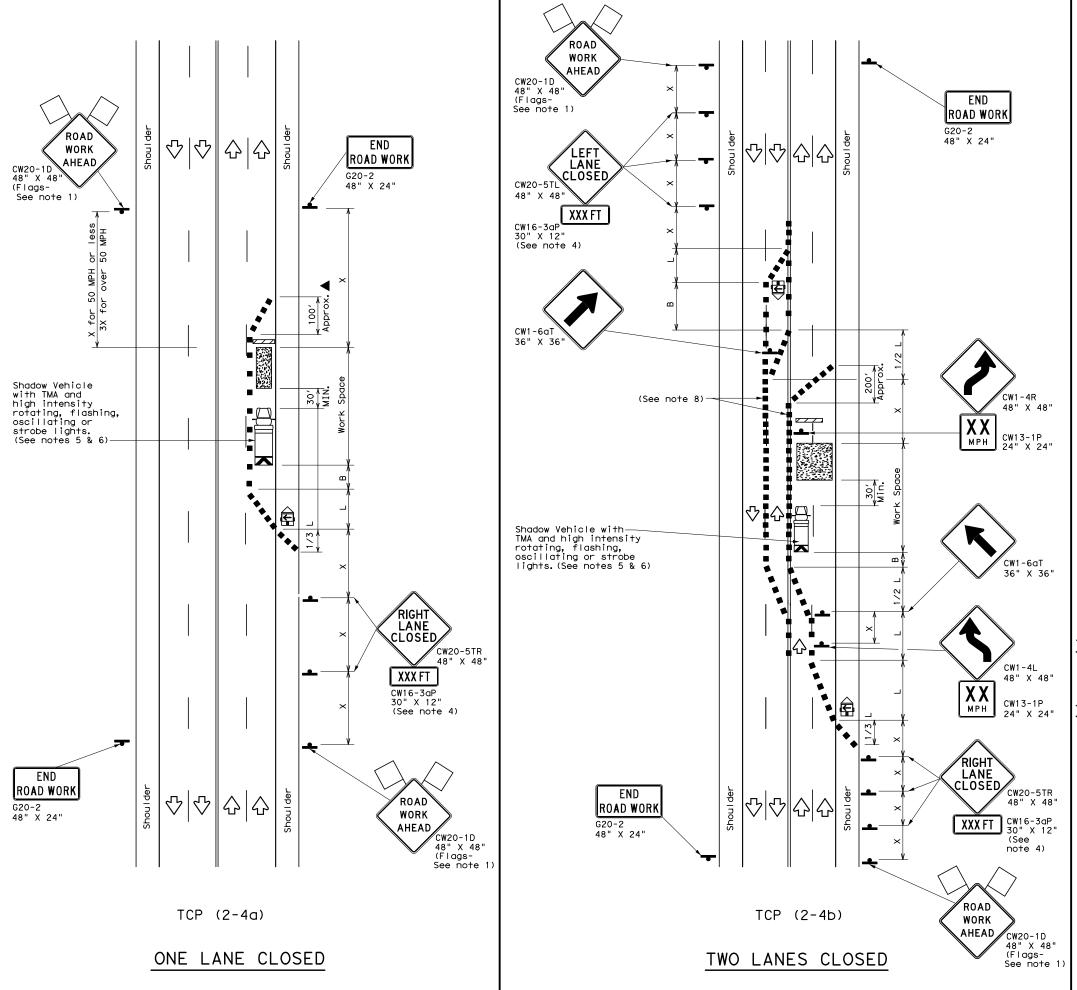
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN CONVENTIONAL ROAD SHOULDER WORK

TCP(2-1)-18

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-97 2-18	PHR		CAMER	NC		039





	LEGEND								
	Type 3 Barricade		Channelizing Devices						
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)						
	Trailer Mounted Flashing Arrow Board	M	Portable Changeable Message Sign (PCMS)						
-	Sign	₹ <del>\</del>	Traffic Flow						
$\Diamond$	Flag	LO	Flagger						

	V \							
Posted Speed	Formula	Minimum Desirable Taper Lengths **			Spacii Channe		Minimum Sign Spacing "X"	Suggested Longitudinal Buffer Space
<del>  *</del>		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent	Distance	"B"
30	WS <sup>2</sup>	150′	165′	180′	30′	60′	120′	90′
35	L= WS	205′	225′	245′	35′	70′	160′	120′
40	60	265′	295′	320′	40′	80′	240′	155′
45		450′	495′	540′	45′	90′	320′	195′
50		500′	550′	600′	50′	100′	400′	240′
55	L=WS	550′	605′	660′	55′	110′	500′	295′
60	L - 11 3	600′	660′	720′	60′	120′	600′	350′
65		650′	715′	780′	65′	130′	700′	410′
70		700′	770′	840′	70′	140′	800′	475′
75		750′	825′	900′	75′	150′	900′	540′

\* Conventional Roads Only

\*\* Taper lengths have been rounded off.

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

	TYPICAL USAGE									
MOBILE SHORT SHORT TERM INTERMEDIATE LONG TERM STATIONARY STATIONARY STATIONARY										
		✓	1							

# GENERAL NOTES

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

# TCP (2-4a)

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

# TCP (2-4b)

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



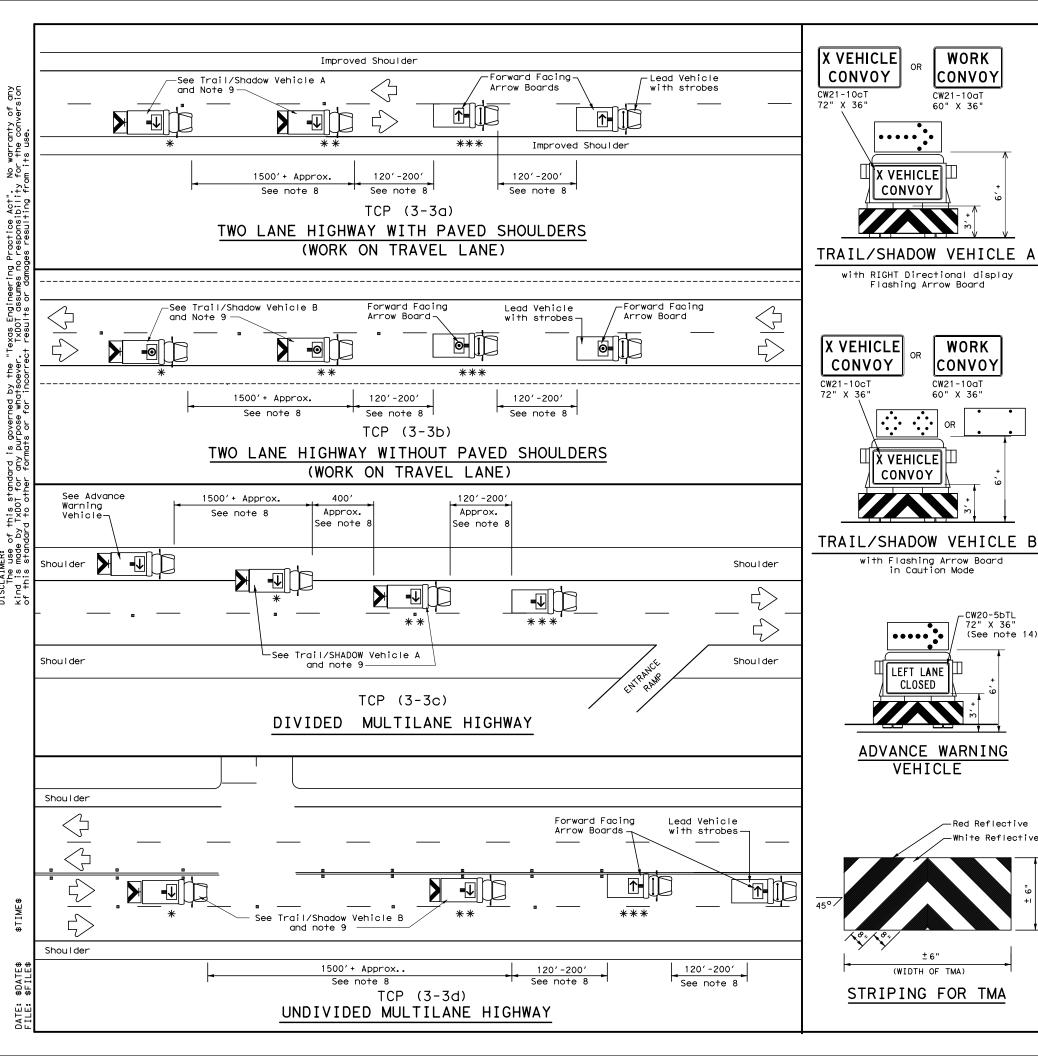
Traffic Operations Division Standard

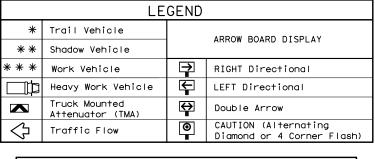
TRAFFIC CONTROL PLAN LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS

TCP (2-4) -18

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© TxDOT December 1985	CONT	SECT	JOB		нг	CHWAY
8-95 3-03 REVISIONS	N\A	N\A	N\A		PR	100
1-97 2-12	DIST		COUNTY			SHEET NO.
4-98 2-18	PHR		CAMER	NC		040

164





TYPICAL USAGE									
MOBILE SHORT SHORT TERM INTERMEDIATE LONG TERM DURATION STATIONARY TERM STATIONARY STATIONARY									
1									

# GENERAL NOTES

WORK

CONVOY

WORK

CONVOY

CW21-10aT

OR

X VEHICLE]

in Caution Mode

LEFT LANE

CLOSED

VEHICLE

(WIDTH OF TMA)

CW20-5bTL 72" X 36' (See note 14)

-Red Reflective

CONVOY

CW21-10aT

60" X 36"

X VEHICLE

CONVOY

- 1. TRAIL, SHADOW, and LEAD vehicles shall be equipped with arrow boards as illustrated. When a LEAD vehicle is not used on two way roads the WORK vehicle must have an arrow board. For divided roadways, the arrow board on the WORK vehicle is optional based on the type of work being performed. The Engineer
- will determine if the LEAD vehicle and/or TRAIL vehicle are required based on prevailing roadway conditions, traffic volume, and sight distance restrictions. The use of amber high intensity rotating, flashing, oscillating, or strobe lights on vehicles are required. Blue high intensity rotating, flashing, oscillating, or strobe lights when mounted on the driver's side of the vehicle may be operated simultaneously with the amber beacons or strobe lights.
- The use of truck mounted attenuators (TMA) on the SHADOW VEHICLE, ADVANCE WARNING and TRAIL VEHICLE are required.
- 4. Reflective sheeting on the rear of the TMA shall meet or exceed the reflectivity and color requirements of DEPARTMENTAL MATERIAL SPECIFICATION DMS 8300, Type A.
- Flashing arrow boards shall be Type B or Type C as per the Barricade and Construction (BC) standards. The board shall be controlled from inside the

- Each vehicle shall have two-way radio communication capability.
  When work convoys must change lanes, the TRAIL VEHICLE should change lanes first to shadow the other convoy vehicles.
  Vehicle spacing between the TRAIL VEHICLE and the SHADOW VEHICLE will vary depending on sight distance restrictions. Motorists approaching the convoy should be able to see the TRAIL VEHICLE in time to slow down and/or change lanes as they approach the TRAIL VEHICLE. Vehicle spacing between the WORK
- VEHICLE and SHADOW VEHICLE and vehicle spacing between WORK VEHICLE and LEAD VEHICLE may vary according to terrain, work activity and other factors. X VEHICLE CONVOY (CW21-102T) or WORK CONVOY (CW21-103T) or signs shall be used on TRAIL VEHICLES and SHADOW VEHICLES as shown. As an option 48" x 48" diamond shaped WORK CONVOY (CW21-10T) or X VEHICLE CONVOY (CW21-10DT) signs may be used where adequate mounting space exists. When used, the X VEHICLE CONVOY sign shall have the number of the convoy vehicles displayed on the sign in the number designation "X" location. The X VEHICLE CONVOY sign shall not be used on the SHADOW VEHICLE if a TRAIL VEHICLE is used.
- 10. For divided highways with two or three lanes in one direction, the appropriate LEFT LANE CLOSED (CW20-5bTL), RIGHT LANE CLOSED (CW20-5bTR), or CENTER LANE CLOSED (CW20-5dT) sign should be used on the Advance Warning Vehicle. As an option, a portable changeable message sign (PCMS) or truck mounted changeable message sign (TMCMS) with a minimum character height of 12", and displaying the same legend may be substituted for these signs. An appropriate directional arrow display, simulating the size and legibility of the flashing arrow board may be used in the second phase of the PCMS/TMCMS message. When this is done, the arrow board will not be required on the Advance Warning Vehicle.
- 11.A double arrow shall not be displayed on the arrow board on the Advance Warning
- 12. For divided highways with three or four lanes in each direction, use TCP(3-2).
- 13. Standard diamond shape versions of the CW20-5 series signs may be used as an option if the rectangular signs shown are not available.
- 14. The Advance Warning Vehicle may straddle the edgeline when Shoulder width makes it necessary.
- 15. On two-lane two-way roadways, the work and protection vehicles should pull over periodically to allow motor vehicle traffic to pass. If motorists are not allowed to pass the work convoy, a DO NOT PASS (R4-1) sign should be placed on the back of the rearmost protection vehicle.

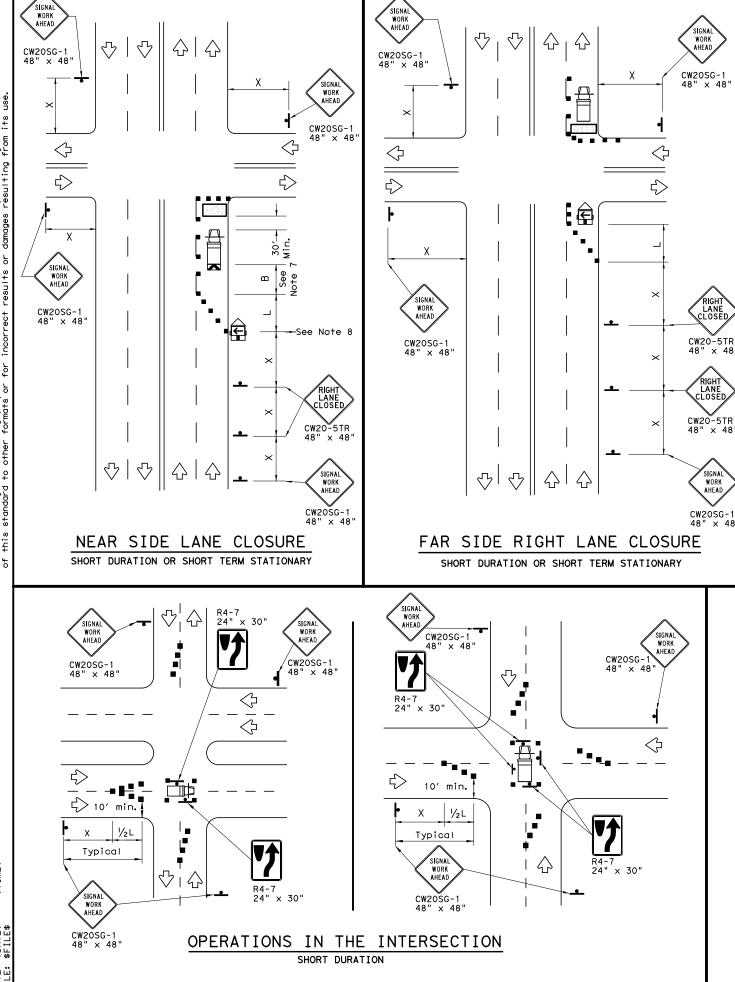


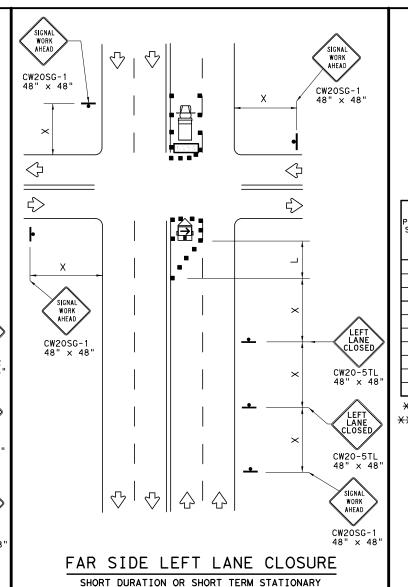
Traffic Operation Division Standard

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

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©TxDOT September 1987	CONT	SECT	JOB		ніс	CHWAY
REVISIONS 2-94 4-98	N\A	N\A	N\A		PR	100
8-95 7-13	DIST	COUNTY			SHEET NO.	
1-97 7-14	PHR		CAMERO	N		041







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

Posted Speed <del>X</del>	Formula	D	Minimur esirab er Leng <del>XX</del>	le gths	Spacir Channe		Minimum Sign Spacing Spacing "X" Suggested Longitudinal Buffer Space	
*		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent	Distance	"В"
30	, ws²	150′	165′	180′	30′	60′	120′	90′
35	$L = \frac{WS}{60}$	205′	225′	245′	35′	70′	160′	120′
40	80	265′	295′	320′	40′	80′	240′	155′
45		450′	495′	540′	45′	90′	320′	195′
50		500′	550′	600′	50′	100′	400′	240′
55	L=WS	550′	605′	660′	55′	110′	500′	295′
60	L 113	600′	660′	720′	60′	120′	600′	350′
65		650′	715′	780′	65′	130′	700′	410′
70		700′	770′	840′	70′	140′	800′	475′
75		750′	825′	900′	75′	150′	900′	540′

X Conventional Roads Only

XX Taper lengths have been rounded off.

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

WORKERS IN BUCKET TRUCKS SHALL NOT WORK ABOVE OPEN LANES OF TRAFFIC.

### **GENERAL NOTES**

- 1. The minimum size channelizing device is the 28" cone. 42" Two-piece cones, drums, vertical panels or barricades will be required when the device must be left unattended at night.
- 2. Obstructions or hazards at the work area shall be clearly marked and delineated at all times.
- 3. Flaggers and Flagger Symbol (CW20-7) signs may be required according to field conditions.
- 4. Vehicles parked in roadway shall be equipped with at least two high intensity rotating, flashing, oscillating or strobe type lights.
- 5. High level warning devices (flag trees) may be used at corners of the vehicle.
- 6. When work operations are performed on existing signals, the signals may be placed in flashing red mode when approved by the engineer. If existing signals do not have power, All-Way Stop (R1-1 and R1-3P) signs may be implemented when approved by the engineer.
- 7. For Short-Term Stationary work the buffer space "B" from the above table should be used if field conditions permit. For Short Duration (less than 1 hour) any buffer space provided will enhance the safety of the setup.
- 8. The arrow board at this location may be omitted for Short Duration work if the work vehicle has an arrow board in operation. As an option, the arrow board may be placed at the end of the taper in the closed lane if space is not available at the beginning of the taper.
- 9. Signs and devices for the NEAR SIDE LANE CLOSURE may be altered for a left lane closure by using a LEFT LANE CLOSED (CW20-5TL) and adding channelizing devices on the centerline to protect the work space from opposing traffic.

SHEET 1 OF 2



Traffic Operation Division Standard

# TRAFFIC SIGNAL WORK TYPICAL DETAILS

WZ (BTS-1)-13

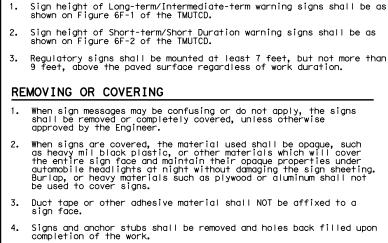
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TxDOT April 1992	CONT	SECT	JOB		нІ	GHWAY
REVISIONS	N\A	N\A	N∖A		PR	100
98 10-99 7-13	DIST		COUNTY			SHEET NO.
98 3-03	PHR		CAMERO	ON		042

OBEY WARNING

SIGNS

STATE LAV

R20-3T



# REFLECTIVE SHEETING

CW20SG-

END

ROAD WORK

G20-2 36" x 18"

SIGNAL

WORK

AHEAD

1. All signs shall be retroreflective and constructed of sheeting meeting the requirements of the DMS and color usage table shown on this sheet.

warning sign spacing.

ZONE 36" x 24"

R20-5T

36" x 36"

R20-5aTP

 $\Diamond$ <>

1. Project signing as shown shall be in place

whenever signal contract work is in progress.

2. For closely adjoining projects, advance signing may not be required in advance of each

intersection, but only in advance of the intersections at the project limits. Actual

4. Warning sign spacing shown is typical for both

3. Advance signs shall be removed when signal

under way, as directed by the Engineer.

5. See the Table on sheet 1 of 2 for Typical

construction operations are no longer

locations will be as directed by the Engineer.

TRAFFI

FINES

DOUBLE

**NOTES** 

48" x 24

30"

G20-6T

XT X MILES

SIGNAL

WORK

AHFAD

CW20SG-1

48" x 48'

WORK

AHEAD

CW20SG-1

48" x 48

WORK AREA

SIGNAL

WORK

CW2OSG-

TYPICAL ADVANCE SIGNAL PROJECT SIGNING

FOR LONG TERM and INTERMEDIATE-TERM STATIONARY WORK OPERATIONS

AHEAD

END

ROAD WORK

G20-2 36" x 18'

 $\triangleleft$ 

₹>

ZONE

TRAFFI

FINES

DOUBLE

GENERAL NOTES FOR WORK ZONE SIGNS

Wooden sign posts shall be painted white.

Barricades shall NOT be used as sign supports.

4. Nails shall NOT be used to attach signs to any support.

36" × 24'

R20-5T 36" × 36'

48" x 42" R20-5aTP

DURATION OF WORK

SIGN MOUNTING HEIGHT

MAJOR STREET

G20-5T

G20-6T

48" x 30'

Signs shall be installed and maintained in a straight and plumb condition.

All signs shall be installed in accordance with the plans or as

Temporary signs that have damaged or cracked substrates and/or damaged or marred reflective sheeting shall be replaced as

Damaged wood posts shall be replaced. Splicing wood posts will not be allowed.

The Contractor shall furnish the sign design shown in the plans or in the "Standard Highway Sign Designs for Texas" (SHSD).

The Contractor shall furnish sign supports and substrates listed in the "Compliant Work Zone Traffic Control Device List" (CWZTCD), installed as per the manufacturer's recommendations.

Identification markings may be shown only on the back of the sign substrate. The maximum height of letters and/or company logos used for identification shall be 1".

Work zone durations are defined in Part 6, Section 6G.02 of the Texas Manual on Uniform Traffic Control Devices (TMUTCD).

48" x 24

OBEY

WARNING

SIGNS

R20-3T

STATE LAW

48" × 42"

#### SIGN SUPPORT WEIGHTS

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

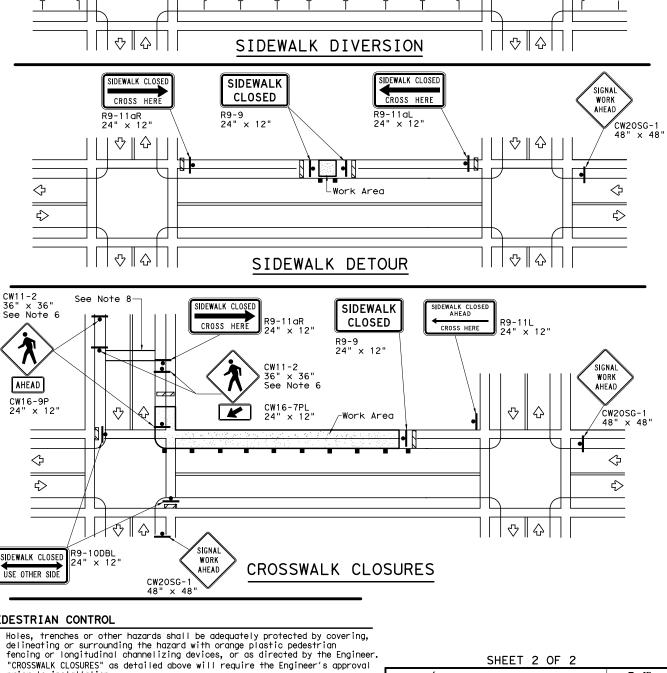
٧,	or to prac	ca on oropes:
		LEGEND
	+	Sign
		Channelizing Devices
		Type 3 Barricade

DEPARTMENTAL MATERIAL	SPECIFICATIONS
SIGN FACE MATERIALS	DMS-8300
FLEXIBLE ROLL-UP REFLECTIVE SIGNS	DMS-8310

COLOR	USAGE	SHEETING MATERIAL
ORANGE	BACKGROUND	TYPE B <sub>FL</sub> OR TYPE C <sub>FL</sub> SHEETING
WHITE	BACKGROUND	TYPE A SHEETING
BLACK	LEGEND & BORDERS	ACRYLIC NON-REFLECTIVE SHEETING

Only pre-qualified products shall be used. A copy of the "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be found at the following web address:

http://www.txdot.gov/txdot\_library/publications/construction.htm



Temporary Traffic Barrier

See Note 4 below

10' Min.

-4' Min. (See Note 7 below

♡ || ☆

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#### PEDESTRIAN CONTROL

- prior to installation. R9 series signs shown may be placed on supports detailed on the BC standards or CWZTCD list, or when fabricated from approved lightweight plastic substrates, they may be mounted on top of a plastic drum at or near the
- location shown. For speeds less than 45 mph longitudinal channelizing devices may be used instead of traffic barriers when approved by the Engineer. Attenuation of blunt ends and installation of water filled devices shall be as per BC(9) and manufacturer's recommendations.
- Location of devices are for general guidance. Actual device spacing and location must be field adjusted to meet actual conditions.
- Where pedestrians with visual disabilities normally use the closed sidewalk Detectable Pedestrian Barricades should be used instead of the Type 3 Barricades shown.
- The width of existing sidewalk should be maintained if practical.
- Pavement markings for mid-block crosswalks shall be paid for under the appropriate bid items.
- When crosswalks or other pedestrian facilities are closed or relocated. temporary facilities shall be detectable and shall include accessibility features consistent with the features present in the existing pedestrian facility.



TRAFFIC SIGNAL WORK BARRICADES AND SIGNS

WZ(BTS-2)-13

Operation Division Standard

CW20SG-

SIGNA

WORK

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© TxD0T	April 1992	CONT	SECT	JOB	HIGHWAY		GHWAY
	REVISIONS	N\A	N\A	N\A		PR	100
2-98 10-99 7-13		DIST	COUNTY				SHEET NO.
4-98 3-	03	PHR CAMER		ON		043	

115

Point PDR001 N 16,554,428.9813 E 1,423,061.9282 Sta 239+00.00

Course from PDR001 to PC PDRC001 N 38° 59′ 17.43" W Dist 966.1132

		Curve *			
Curve PDRC001 P.I. Station Delta = Degree =	254+58.34 44° 26′ 00.83" 3° 57′ 05.16"	N (RT)	16,555,640.2435	E	1,422,081.4812
Tangent = Length = Radius = External = Long Chord = Mid. Ord. = P.C. Station P.T. Station C.C. Back = N Ahead = N Chord Bear = N	592.2295 1,124.4924 1,450.0000 116.2809 1,096.5247 107.6482 248+66.11 259+90.61 38° 59′ 17.43" W 5° 26′ 43.39" E 16° 46′ 17.02" W	N N N	16,555,179.9178 16,556,229.8003 16,556,092.1998	E E E	1,422,454.0884 1,422,137.6820 1,423,581.1383

Course from PT PDRC001 to PC PDRC002 N 5° 26′ 43.39" E Dist 3,244.4420

	Curve *			
Delta = 13° 00′ Degree = 4° 24′	3+83.25 N 26.44" (LT) 26.52" 48.2007	16,559,607.1324	E	1,422,459.6333
Length = 2: Radius = 1,3: External = 2: Long Chord = 2: Mid. Ord. = 29: P. C. Station 29: P. T. Station 29: C. C. Back = N 5° 26′ 4. Ahead = N 7° 33′ 4.	95.1273 00.0000 8.4202 94.4939 8.3660 2+35.05 N 5+30.17 N N 3.39" E 3.39" E 9.83" W	16,559,459.6005 16,559,754.0442 16,559,582.9665	E E E	1, 422, 445. 5695 1, 422, 440. 1304 1, 421, 151. 4363

Course from PT PDRC002 to PC PDRC003 N 7° 33′ 43.05" W Dist 3,008.1068

			Data *		
	327+11.83 3° 48′ 59.95" 3° 59′ 59.84" 173.5519 345.4201 1,432.4100 10.4755	N (LT)	16,562,908.0324	E	1,422,021.4298
Long Chord = Mid. Ord. = P.C. Station P.T. Station C.C. Back = N 7° Ahead = N 21° Chord Bear = N 14°	344.5838 10.3995 325+38.28 328+83.70 33' 43.05" W 22' 43.00" W 28' 13.02" W	N N N	16,562,735.9899 16,563,069.6425 16,562,547.4873	E E E	1,422,044.2689 1,421,958.1650 1,420,624.3164

Course from PT PDRC003 to PC PDRC004 N 21° 22′ 43.00" W Dist 1,753.1514

			e Data *		
Curve PDRC004 P.I. Station Delta = Degree =	348+23.52 14° 51′ 00.02" 4° 00′ 00.05"	N (RT)	16,564,875.9892	E	1,421,251.0433
Tangent = Length = Radius = External = Long Chord = Mid. Ord. = P.C. Station P.T. Station	186.6706 371.2490 1,432.3900 12.1123 370.2107 12.0108 346+36.85 350+08.10	N N	16,564,702.1630 16,565,061.4493	E E	1,421,319.0902 1,421,229.8190
C.C. Back = N Ahead = N Chord Bear = N	21° 22′ 43.00" W 6° 31′ 42.98" W 13° 57′ 12.99" W	N	16, 565, 224. 3110	E	1, 422, 652. 9202

Course from PT PDRC004 to PC PDRC005 N 6° 31′ 42.98" W Dist 12,388.7135

С	u	r	٧	е		D	а	+	а	
<del>*</del> -	-	_	_	_	_	_	_	_	- 3	×

Curve PDRC005 P.I. Station Delta = Degree = Tangent =	10°		N (RT)	16,577,931.9866	E	1,419,756.8967
Length =		1,128.2696				
Radius =		5,950.0000				
External =		26.8441				
Long Chord =		1,126.5799				
Mid. Ord. =		26.7235				
P.C. Station		473+96 <b>.</b> 82	N	16,577,369.8246	E	1,419,821.2313
P.T. Station	l .	485+25.09	N	16,578,496.1984	E E E	1,419,799.6777
C. C.			N	16,578,046.3353	Ε	1,425,732,6468
Back =	N 6° 3	31′ 42.98" W		, ,		,,
Ahead =		20' 10.01" E				
Chord Bear =		05′ 46.49" W				
orior a boar	., .					

Course from PT PDRC005 to PC PDRC006 N 4° 20′ 10.01" E Dist 1,392.6916

Curve	Data
cur ve	рата
V	v

		*	<del>*</del>		
Curve PDRC006					
P.I. Station	501+11.60	N	16,580,078.1703	E	1,419,919.6295
Delta =	11° 07′ 33.11"	(LT)			
Degree =	2° 52′ 45.07"				
Tangent =	193.8215				
Length =	386.4241				
Radius =	1,990.0000				
External =	9.4166				
Long Chord =	385.8173				
Mid. Ord. =	9.3723				
P.C. Station	499+17.78	N	16,579,884.9036	Ε	1,419,904.9752
P.T. Station	503+04.20	N	16,580,270.6325	E	1,419,896.7147
C. C.		N	16,580,035.3620	E	1,417,920.6712
Back = N	4° 20′ 10.01" E		, ,		, ,
Ahead = N	6° 47′ 23.11" W				
Chord Bear = N	1° 13′ 36.55" W				

Course from PT PDRC006 to PDR014 N 6° 47′ 23.10" W Dist 3,257.3024

Point PDR014 N 16,583,505.0903 E 1,419,511.6157 Sta 535+61.50

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Ending chain PDR description

No.	Revision	Ву	Date



**Kimley** »Horn





PR 100 ROADWAY IMPROVEMENTS

HORIZONTAL CONTROL DATA

PR 100 (PADRE BLVD)

BL PDR

SHEET 1 OF 1

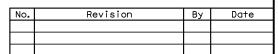
ED. RD. IV. NO.	FEDERAL AID PROJECT NO.			HIGHWAY NO.		
6	N\A			PR	100	
STATE	E DISTRICT COU		JNTY	SHEET NO.		
TEXA	\S	PHR	CAMERON			
CONTRO	DL	SECTION	JOB		044	
N\A	4	N∖A	N	<b>\</b> A		

Beginning chain ESW01 desc				Curve ESW004
	16,577,382.2013	•	ta 10+00.00	P.I. Station Delta = Degree =
Course from ESW001 to ESW0				Tangent = Length =
Point ESW002 N		E 1,419,898.8816 St	ta 10+22 <b>.</b> 98	Radius = External =
		e Data *		Long Chord = Mid. Ord. =
Delta = 3° 31' Degree = 0° 58' Tangent = Length = 5,8' Radius = 5,8' External = Long Chord =	12+03.50 N ' 24.56" (RT) ' 34.48" 180.5183 360.9228 869.0000 2.7755 360.8659	16,577,583.6293 E	1,419,879.1307	P.C. Station P.T. Station C.C. Back = N Ahead = N Chord Bear = N
P.T. Station C.C. Back = N 6° 16′ 5 Abead = N 2° 45′ 5	2.7742 10+22.98 N 13+83.90 N 53.17" W 28.61" W 10.89" W	16,577,404.1948 E 16,577,763.9385 E 16,578,046.3353 E	1,419,898.8816 1,419,870.4448 1,425,732.6468	Curve ESW005 P.I. Station Delta = Degree = Tangent = Length = Radius = External =
Curve ESW002	*	*		Long Chord = Mid. Ord. =
P.I. Station Delta = 27° 21°	13+91.20 N ' 19.63" (LT) ' 09.35" 7.3009 14.3233 30.0000 0.8756	16,577,771.2309 E	1,419,870.0935	P.C. Station P.T. Station C.C. Back = N Ahead = N Chord Bear = N Course from PT 1
Long Chord = Mid. Ord. =	14.1876 _0.8508			Point ESW014
P.T. Station	13+83.90 N 13+98.22 N	16,577,763.9385 E 16,577,777.5464 E	1,419,870.4448 1,419,866.4305	Course from ESW
C.C. Back = N 2° 45′/ Ahead = N 30° 06′/ Chord Bear = N 16° 26′/	N 28.61" W 48.25" W 08.43" W	16,577,762.4950 Ē	1,419,840.4795	Equation: Sta 18
Course from PT ESW002 to R	PC ESW003 N 30°	06′ 48.25" W Dist 64.	. 2338	Point ESW015
		: Data *		=======================================
Delta = 28° 38°	14+70.12 N ' 52.40" (RT) ' 09.35" 7.6603 15.0000 30.0000		1,419,830.3603	Ending chain ESN  <* 2 Dev  Chain ESW02 con- ESW015 CUR ESW0
External = Long Chord =	0.9626 14.8442			Beginning chain
	0.9326 14+62.46 N	16,577,833.1108 E	1,419,834.2036	Point ESW015
C. C.	14+77.46 N N	16,577,847.3949 E 16,577,848.1622 E	1,419,830.1644 1,419,860.1546	Course from ESW
Back = N 30° 06′ 4 Ahead = N 1° 27′ 5 Chord Bear = N 15° 47′ 2	48.25 W 55.84" W 22.05" W			
Course from PT ESW003 to 8		55 84" W Dis+ 107 687	76	Curve ESW006
	16,577,955.0474	E 1,419,827.4103 St		P.I. Station Delta = Degree = Tangent =
		E 1,419,826.9315 St	ta 16+37.54	Length = Radius =
Course from ESW008 to ESW			.0.01.07	External = Long Chord =
		E 1,419,827.6334 St	ta 17+04.99	Mid. Ord. = P.C. Station P.T. Station
Course from ESW009 to ESW				C. C.
		E 1,419,828.9229 St	ta 17+50 <b>.</b> 07	Back = N Ahead = N
	, ,	,, 020.0220 01		Chord Bear = N

Course from ESW010 to PC ESW004 N 2° 27′ 18.18" E Dist 12.8682

Degree = 318° 18′ 35.59" Tangent = 3.0426 Length = 6.0282 Radius = 18.0000 External = 0.2553	N (RT)	16,578,135.8472	E	1,419,829.6044
Long Chord = 6.0000 Mid. Ord. = 0.2518 P.C. Station 17+62.94 P.T. Station 17+68.97 C.C. Back = N 2° 27′ 18.18" E Ahead = N 21° 38′ 35.81" E Chord Bear = N 12° 02′ 56.99" E	N N N	16,578,132.8074 16,578,138.6752 16,578,132.0364	E E E	1,419,829.4741 1,419,830.7266 1,419,847.4576
	Curve	Da†a *		
Delta = 19° 06′ 18.37" Degree = 318° 18′ 35.59" Tangent = 3.0291 Length = 6.0020 Radius = 18.0000 External = 0.2531	N (LT)	16,578,141.4908	E	1,419,831.8438
Long Chord = 5.9743 Mid. Ord. = 0.2496 P.C. Station 17+68.97 P.T. Station 17+74.97 C.C. Back = N 21° 38′ 35.80″ E Ahead = N 2° 32′ 17.43″ E Chord Bear = N 12° 05′ 26.62″ E	N N N	16,578,138.6752 16,578,144.5170 16,578,145.3141	E E	1,419,830.7266 1,419,831.9780 1,419,813.9956
Course from PT ESW005 to ESW014 N 2	2° 27′	18.18" E Dist 21	. 9335	
Point ESW014 N 16,578,166	6.4303	E 1,419,832.91	75 Sta	17+96.91
Course from ESW014 to ESW015 N 3° 2	20′ 17.	89" F Dist 33,96	91	
Equation: Sta 18+30.87 (BK) = Sta 2			End	d Region 1
	20+00.0		End  Bed	gin Region 2
	20+00.0 0.3418	00 (AH) E 1,419,834.89	End  Bed 56 Sta	gin Region 2 20+00.00
Point ESW015 N 16,578,200	20+00.0 0.3418	00 (AH) E 1,419,834.89	End  Bed 56 Sta	gin Region 2 20+00.00
Point ESW015 N 16,578,200 Ending chain ESW01 description	20+00.0 0.3418 ======	00 (AH) E 1,419,834.89	End  Beg 56 Sta 	gin Region 2 20+00.00
Point ESW015 N 16,578,200  Ending chain ESW01 description  (* 2 Describe Chain ESW02  Chain ESW02 contains: ESW015 CUR ESW006 CUR ESW007 CUR ESW0015	20+00.0 0.3418 ======	E 1,419,834.89	End Beg 56 Sta ======	gin Region 2 20+00.00
Point ESW015 N 16,578,200 Ending chain ESW01 description  (* 2 Describe Chain ESW02 Chain ESW02 contains: ESW015 CUR ESW006 CUR ESW007 CUR E Beginning chain ESW02 description	20+00.0 0.3418 ====== ESW008	E 1,419,834.89	Enc Beg 56 Sta ======	gin Region 2 20+00.00
Point ESW015 N 16,578,200  Ending chain ESW01 description  (* 2 Describe Chain ESW02  Chain ESW02 contains: ESW015 CUR ESW006 CUR ESW007 CUR ESW015 CUR ESW006 CUR ESW007 CUR ESW015 CUR ES	20+00.0 0.3418 ====== ESW008 ======	ESW020 ESW021 ESE 1,419,834.89	Enc Beg 56 Sta ====== W022 ====== 56 Sta	gin Region 2 20+00.00
Point ESW015 N 16,578,200 Ending chain ESW01 description  (* 2 Describe Chain ESW02 Chain ESW02 contains:     ESW015 CUR ESW006 CUR ESW007 CUR ESW0015 CUR ESW005  Point ESW015 N 16,578,200 Course from ESW015 to PC ESW006 N 2	20+00.0 0.3418 ====== ESW008 ======	ESWO20 ESWO21 ES  E 1,419,834.89  ESW020 ESW021 ES  E 1,419,834.89  18.18" E Dist 21	Enc Beg 56 Sta ====== W022 ====== 56 Sta	gin Region 2 20+00.00
Point ESW015 N 16,578,200  Ending chain ESW01 description  (* 2 Describe Chain ESW02  Chain ESW02 contains:     ESW015 CUR ESW006 CUR ESW007 CUR ESW0015  Beginning chain ESW02 description  Point ESW015 N 16,578,200  Course from ESW015 to PC ESW006 N 2  Curve ESW006 P.I. Station 20+36.67	20+00.0 0.3418 ====== ESW008 ====== 0.3418 2° 27' Curve	E 1,419,834.89  ESW020 ESW021 ES  E 1,419,834.89  18.18" E Dist 21  Data	Enc Beg 56 Sta ====== W022 ====== 56 Sta	gin Region 2 20+00.00

Curve Data \*----\*





Kimley » Horn
THPE REGISTERED ENGINEERING FIRM F-928





PR 100 ROADWAY IMPROVEMENTS

HORIZONTAL CONTROL DATA

EAST SIDEWALK BASELINE

SHEET 1 OF 17

ED.RD. IV.NO.	FEDERAL AID PROJECT NO.			H I GHWA	NY NO.
6	N\A			PR	100
STATE	E DISTRICT C		col	JNTY SHEET	
TEXA	TEXAS PHR CAMERO		ERON		
CONTRO	CONTROL SECTION JOB		ОВ	045	
N\A	4	N∖A	N	<b>\</b> A	

Curve Da+a **
Curve ESW007 P.I. Station Delta = 80° 56′ 52.36" (LT) Degree = 318° 18′ 35.59" Tangent = 15.3593 Length = 25.4305 Radius = 18.0000
External = 5.6624 Long Chord = 23.3677 Mid. Ord. = 4.3074 P.C. Station 20+46.73 N 16,578,238.8399 E 1,419,851.6018 P.T. Station 20+72.16 N 16,578,256.0623 E 1,419,867.3953 C.C. N 16,578,256.7055 E 1,419,849.4068 Back = N 82° 59′ 44.74″ E Ahead = N 2° 02′ 52.38″ E Chord Bear = N 42° 31′ 18.56″ E
Curve Data **
Curve ESW008 P.I. Station
Long Chord = 113.9364 Mid. Ord. = 0.2765 P.C. Station 20+72.16 N 16,578,256.0623 E 1,419,867.3953 P.T. Station 21+86.09 N 16,578,369.8811 E 1,419,872.5718 C.C. Back = N 2° 02′ 52.38" E Ahead = N 3° 09′ 36.72" E
Chord Bear = N 2° 36′ 14.55″ E
Course from PT ESW008 to ESW020 N 3° 55′ 40.29" E Dist 173.4675
Point ESW020 N 16,578,542.9412 E 1,419,884.4544 Sta 23+59.56
Course from ESW020 to ESW021 N 4° 20′ 10.01" E Dist 1,272.9966
Point ESW021 N 16,579,812.2940 E 1,419,980.7022 Sta 36+32.56  Course from ESW021 to ESW022 N 4° 20′ 10.01″ E Dist 35.5159
Equation: Sta 36+68.07 (BK) = Sta 40+00.00 (AH)  Equation 2  End Region 1
Point ESW022 N 16,579,847.7083 E 1,419,983.3874 Sta 40+00.00
Ending chain ESW02 description
3 Describe Chain ESW03
Chain ESW03 contains: ESW022 CUR ESW009 CUR ESW010 CUR ESW011 CUR ESW012 CUR ESW013 CUR ESW014 CUR E-SW015 CUR ESW016 CUR ESW017 CUR ESW018 CUR ESW019 CUR ESW020 CUR ESW021 CUR ESW-022 CUR ESW023 CUR ESW024 CUR ESW025 CUR ESW026 CUR ESW027 CUR ESW028 ESW047 ES-W048
Beginning chain ESW03 description
Point ESW022 N 16,579,847.7083 E 1,419,983.3874 Sta 40+00.00
Course from ESW022 to PC ESW009 N 4° 20′ 10.01" E Dist 31.1603

	*	<del>*</del>		
Curve ESW009 P.I. Station Delta = 10° 00′ 06.48" Degree = 2° 45′ 59.67" Tangent = 181.2218 Length = 361.5227 Radius = 2,071.0000 External = 7.9137	N (LT)	16,580,059.4825	E	1,419,999.4450
Long Chord = 361.0639 Mid. Ord. = 7.8836 P.C. Station 40+31.16 P.T. Station 43+92.68 C.C. Back = N 4° 20′ 10.01" E Ahead = N 5° 39′ 56.47" W Chord Bear = N 0° 39′ 53.23" W	N N N	16,579,878.7794 16,580,239.8190 16,580,035.3620	E E E	1,419,985.7434 1,419,981.5541 1,417,920.6712
		Data_		
Curve ESW010 P.I. Station Delta = 47° 06′ 18.11" Degree = 318° 18′ 35.59" Tangent = 7.8462 Length = 14.7985		* 16,580,247.6213	E	1,419,980.7244
Radius = 18.0000 External = 1.6358 Long Chord = 14.3852 Mid. Ord. = 1.4995 P.C. Station 43+92.68 P.T. Station 44+07.48 C.C.	N N N	16,580,239.8190 16,580,252.3240 16,580,237.9155	E E E	1, 419, 981. 5541 1, 419, 974. 4437 1, 419, 963. 6551
Back = N 6° 04′ 13.33″ W Ahead = N 53° 10′ 31.44″ W Chord Bear = N 29° 37′ 22.38″ W		,,		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Course from PT ESW010 to PC ESW011	N 53°	10' 31.43" W Dis	† 35.745	52
	Curve			
Curve ESW011 P.I. Station Delta = 47° 06′ 18.11" Degree = 318° 18′ 35.59" Tangent = 7.8462 Length = 14.7985	* N (RT)	16,580,278.4513	E	1,419,939.5499
Length = 14.7985 Radius = 18.0000 External = 1.6358 Long Chord = 14.3852 Mid. Ord. = 1.4995 P.C. Station 44+43.23 P.T. Station 44+58.03 C.C. Back = N 53° 10′ 31.44″ W Ahead = N 6° 04′ 13.33″ W Chord Bear = N 29° 37′ 22.39″ W	N N N	16,580,273.7485 16,580,286.2536 16,580,288.1571	E E	1,419,945.8306 1,419,938.7201 1,419,956.6192
Course from PT ESW011 to PC ESW012	2 N 6° (	04′ 13.33" W Dist	29.8638	3
	Curve			
Curve ESW012 P.I. Station Delta = 55° 43′ 30.87" Degree = 318° 18′ 35.59" Tangent = 9.5155 Length = 17.5066 Radius = 18.0000 External = 2.3604	* N (RT)		E	1,419,934.5558
Long Chord = 16.8247 Mid. Ord. = 2.0867 P.C. Station 44+87.89 P.T. Station 45+05.40 C.C. Back = N 6° 04′ 13.33" W Ahead = N 49° 39′ 17.54" E Chord Bear = N 21° 47′ 32.10" E	N N N	16,580,315.9499 16,580,331.5722 16,580,317.8534	EEE	1,419,935.5621 1,419,941.8081 1,419,953.4611
Course from PT ESW012 to PC ESW013	3 N 49°	39′ 17.54" E Dis	† 13.597	78

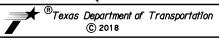
Curve Data \*----\*

No.	Revision	Ву	Date



Kimley»Horn





PR 100 ROADWAY IMPROVEMENTS

HORIZONTAL CONTROL DATA

EAST SIDEWALK BASELINE

SHEET 2 OF 17

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.			HIGHWA	NO.
6	N\A			PR	100
STATE	E DISTRICT C		col	JNTY	SHEET NO.
TEXA	TEXAS PHR CAMERO		ERON		
CONTRO	CONTROL SECTION JO		ЮВ	046	
N\A	4	N∖A	N	I\A	

Curve Data \*----\*

	.urve Data *			**	
Curve ESW013 P.I. Station Delta = 102° 50′ 35.24" (L Degree = 318° 18′ 35.59" Tangent = 22.5656 Length = 32.3091 Radius = 18.0000		1,419,969.3704	Curve ESW017 P.I. Station Delta = 101° 29′ 45.92" Degree = 318° 18′ 35.59" Tangent = 22.0294 Length = 31.8859 Radius = 18.0000 External = 10.4481	N 16,580,435.47 (LT)	'94 E 1,419,960.134'
External = 10.8653 Long Chord = 28.1432 Mid. Ord. = 6.7755 P.C. Station 45+18.99 N P.T. Station 45+51.30 N C.C. Back = N 49° 39′ 17.54″ E Ahead = N 53° 11′ 17.70″ W Chord Bear = N 1° 46′ 00.08″ W	16,580,368.5051 E	1,419,952.1718 1,419,951.3042 1,419,940.5188	External = 10.4481 Long Chord = 27.8774 Mid. Ord. = 6.6108 P.C. Station 46+08.70 P.T. Station 46+0.59 C.C. Back = N 41° 33′ 12.14″ E Ahead = N 59° 56′ 33.78″ W Chord Bear = N 9° 11′ 40.82″ W	N 16,580,418.99 N 16,580,446.51 N 16,580,430.93	140 E 1,419,945.5223 32 E 1,419,941.067 37 E 1,419,932.052
	Curve Data			Curve Data	
Curve ESW014 P.I. Station 45+59.92 N Delta = 94° 14′ 43.13" (R Degree = 716° 11′ 50.08" Tangent = 8.6159		1,419,944.4062	Curve ESW018 P.I. Station Delta = 103° 55′ 08.33" Degree = 716° 11′ 50.08" Tangent = 10.2246 Length = 14.5098 Radius = 8.0000 External = 4.9824	** N 16,580,451.63 (RT)	1,419,932.218
Radius = 8.0000 External = 3.7573 Long Chord = 11.7250 Mid. Ord. = 2.5566 P.C. Station 45+51.30 N P.T. Station 45+64.46 N C.C. Back = N 53° 11′ 17.70" W Ahead = N 41° 03′ 25.43" E Chord Bear = N 6° 03′ 56.14" W	16,580,380.1645 E	1,419,951.3042 1,419,950.0652 1,419,956.0977	External = 4.9824 Long Chord = 12.6012 Mid. Ord. = 3.0703 P.C. Station 46+40.59 P.T. Station 46+55.10 C.C. Back = N 59° 56′ 33.78" W Ahead = N 43° 58′ 34.55" E Chord Bear = N 7° 58′ 59.62" W	N 16,580,446.51 N 16,580,458.99 N 16,580,453.43	32 E 1,419,941.067 23 E 1,419,939.317 74 E 1,419,945.074
	Curve Data			Curve Data	
Curve ESW015 P.I. Station Delta = 97° 43′ 43.09" (L Degree = 318° 18′ 35.59" Tangent = 20.6079 Length = 30.7024	16,580,395.4051 E	1,419,963.9363	Degree = 318° 18′ 35.59" Tangent = 22.7837 Length = 32.4777	N 16,580,475.38	81 E 1,419,955.137
Radius = 18.0000 External = 9.3621 Long Chord = 27.1135 Mid. Ord. = 6.1588 P.C. Station 45+64.46 N P.T. Station 45+95.16 N C.C. Back = N 42° 18′ 23.65" E Ahead = N 55° 25′ 19.44" W Chord Bear = N 6° 33′ 27.90" W		1,419,950.0652 1,419,946.9687 1,419,936.7532	Radius = 18.0000 External = 11.0362 Long Chord = 28.2480 Mid. Ord. = 6.8415 P.C. Station 46+55.10 P.T. Station 46+87.58 C.C. Back = N 43° 58′ 34.53″ E Ahead = N 59° 24′ 13.01″ W Chord Bear = N 7° 42′ 49.24″ W	N 16,580,458.99 N 16,580,486.98 N 16,580,471.49	023 E 1,419,939.317 147 E 1,419,935.526 107 E 1,419,926.364
	Curve Data			Curve Data	
Curve ESW016 P.I. Station Delta = 96° 58′ 31.56" (R Degree = 716° 11′ 50.08" Tangent = 9.0384 Length = 13.5403	16,580,412.2302 E	1,419,939.5269	Curve ESW020 P.I. Station Delta = 103° 42′ 50.25" Degree = 572° 57′ 28.06" Tangent = 12.7338 Length = 18.1015 Radius = 10.0000	N 16,580,493.46	60 E 1,419,924.5652
Radius = 8.0000 External = 4.0704 Long Chord = 11.9810 Mid. Ord. = 2.6978 P.C. Station 45+95.16 N P.T. Station 46+08.70 N C.C. Back = N 55° 25′ 19.44″ W Ahead = N 41° 33′ 12.13″ E Chord Bear = N 6° 56′ 03.65″ W	16,580,418.9940 E	1,419,946.9687 1,419,945.5222 1,419,951.5089	External = 6.1910 Long Chord = 6.7294 Mid. Ord. = 3.8237 P.C. Station 46+87.58 C.C. Back = N 59° 24′ 13.02″ W Ahead = N 44° 18′ 37.23″ E Chord Bear = N 7° 32′ 47.90″ W	N 16,580,486.98 N 16,580,502.57 N 16,580,495.59	1,419,935.526 79 E 1,419,933.460 24 E 1,419,940.6160

Curve Data \*----\*

	PRELIMINAR		<u> </u>
No.	Revision	Ву	Date

FOR REVIEW ONLY
Not for construction, bldding,
or permit purposes.







PR 100 ROADWAY IMPROVEMENTS

HORIZONTAL CONTROL DATA

EAST SIDEWALK BASELINE

SHEET 3 OF 17

D. RD. IV. NO.	FEDERAL AID PROJECT NO.		H I GHWA	Y NO.	
6	N∖A			PR	100
STATE		DISTRICT COU		JNTY	SHEET NO.
TEXA	\S	PHR	CAMERON		
CONTRO	DL	SECTION	JOB		047
N\A	4	N∖A	N	<b> </b> \A	

20.0000 TT / In.	: K:\LAC*TPTO\1projec+\069234003*SPI*Padre*Blvd*Med!ans\CADD\Shee+s\PDMGE005.dgn	
	\1projec+\069234	
ED:   /6/20 8 2:50:58 PM	K: \LAC*TPTO\	
E.	ENAME:	

	**
Curve Da+a **	Curve ESW025 P.I. Station
Curve ESW021 P.I. Station 47+27.17 N 16,580,517.9548 E 1,419,948.4714 Delta = 100° 05′ 55.37" (LT) Degree = 318° 18′ 35.59" Tangent = 21.4891 Length = 31.4469 Radius = 18.0000 External = 10.0318 Long Chord = 27.5975 Mid. Ord. = 6.4417	External = 12.9143 Long Chord = 29.2682 Mid. Ord. = 7.5194 P.C. Station 47+96.06 N 16,580,581.3001 E 1,419,923.4350 P.T. Station 48+30.24 N 16,580,610.3759 E 1,419,920.0844 C.C. N 16,580,594.6382 E 1,419,911.3480 Back = N 47° 49′ 02.18" E Ahead = N 60° 57′ 50.65" W Chord Bear = N 6° 34′ 24.24" W
Mid. 07d. –	_Curve Data_
P.C. Station 47+05.68 N 16,580,502.5779 E 1,419,933.4603 P.T. Station 47+37.13 N 16,580,530.0371 E 1,419,930.7006 N 16,580,515.1517 E 1,419,920.5801 Back = N 44° 18′ 37.22" E Ahead = N 55° 47′ 18.15" W Chord Bear = N 5° 44′ 20.47" W Curve Data	Curve ESW026 P.I. Station 48+41.72 N 16,580,615.9520 E 1,419,910.0398 Delta = 110° 17′ 50.66" (RT) Degree = 716° 11′ 50.08" Tangent = 11.4885 Length = 15.4004
Curve ESW022 P.I. Station	Radius = 8.0000 External = 5.9995 Long Chord = 13.1302 Mid. Ord. = 3.4284 P.C. Station 48+30.24 N 16,580,610.3759 E 1,419,920.0844 P.T. Station 48+45.64 N 16,580,623.4385 E 1,419,918.7541 C.C. N 16,580,617.3704 E 1,419,923.9673 Back = N 60° 57′ 50.67" W Ahead = N 49° 20′ 00.00" E
Mid. Ord. = 2.6172	
P.C. Station 47+37.13 N 16,580,530.0371 E 1,419,930.7006 P.T. Station 47+50.45 N 16,580,541.7556 E 1,419,929.0342 C.C. N 16,580,536.6542 E 1,419,935.1966	Curve Data **
Back = N 55° 48' 21.56" W Ahead = N 39° 37' 09.39" E Chord Bear = N 8° 05' 36.09" W  Curve Data	Curve ESW027 P.I. Station
Curve ESW023 P.I. Station	Delta = 134° 11′ 59.37" (LT) Degree = 318° 18′ 35.59" Tangent = 42.6118 Length = 42.1601 Radius = 18.0000 External = 28.2576 Long Chord = 33.1627 Mid. Ord. = 10.9957 P.C. Station 48+45.64 N 16,580,623.4385 E 1,419,918.7541 P.T. Station 48+87.80 N 16,580,655.0196 E 1,419,908.6348 C.C. Back = N 49° 19′ 59.98" E Ahead = N 84° 51′ 59.39" W Chord Bear = N 17° 45′ 59.70" W
Mid. Ord. = 6.1898 P.C. Station 47+50.45 N 16,580,541.7556 E 1,419,929.0342 P.T. Station 47+81.23 N 16,580,568.5608 E 1,419,924.6110	Curve Data
C.C.  Back = N 39° 37′ 30.23" E  Ahead = N 58° 21′ 56.03" W  Chord Bear = N 9° 22′ 12.90" W  Curve Data	Curve ESW028 P.I. Station 49+02.39 N 16,580,656.3256 E 1,419,894.0973 Delta = 78°04'36.28" (RT) Degree = 318°18'35.59" Tangent = 14.5961 Length = 24.5285
** Curve ESW024	Length = 24.5285 Radius = 18.0000 External = 5.1742
P.I. Station 47+91.89 N 16,580,574.1475 E 1,419,915.5420  Delta = 106° 10′ 58.24" (RT)  Degree = 716° 11′ 50.08"  Tangent = 10.6517  Length = 14.8259  Radius = 8.0000  External = 5.3213	Long Chord = 22.6743 Mid. Ord. = 4.0190 P.C. Station 48+87.80 N 16,580,655.0196 E 1,419,908.6348 P.T. Station 49+12.32 N 16,580,670.8193 E 1,419,892.3716 C.C. N 16,580,672.9474 E 1,419,910.2454 Back = N 84° 51′ 59.39" W Ahead = N 6° 47′ 23.11" W
Long Chord = 12.7935 Mid. Ord. = 3.1957 P.C. Station 47+81.23 N 16,580,568.5608 E 1,419,924.6110 P.T. Station 47+96.06 N 16,580,581.3001 E 1,419,923.4350	Chord Bear = N 45° 49′ 41.25" W Course from PT ESW028 to ESW047 N 6° 47′ 23.11" W Dist 33.6394
C.C. N 16,580,575.3721 E 1,419,928.8069  Back = N 58° 21′ 56.05" W	Point ESW047 N 16,580,704.2228 E 1,419,888.3946 Sta 49+45.96
Ahead = N 47° 49′ 02.19" Ë Chord Bear = N 5° 16′ 26.93" W	Course from ESW047 to ESW048 N 6° 47′ 23.10" W Dist 62.0777
	Equation: Sta 50+08.04 (BK) = Sta 60+00.00 (AH)  End Region 1  Begin Region 2
	Point ESW048 N 16,580,765.8652 E 1,419,881.0553 Sta 60+00.00
	Ending chain ESW03 description

No.	Revision	Ву	Date



Kimley > Horn
THE REGISTERED ENGINEERING FIRM F-928





PR 100 ROADWAY IMPROVEMENTS

HORIZONTAL CONTROL DATA

EAST SIDEWALK BASELINE

SHEET 4 OF 17

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		H I GHWA	NY NO.	
6	N∖A		PR	100	
STATE		DISTRICT COU		JNTY	SHEET NO.
TEXA	4S	PHR	CAMERON		
CONTRO	DL	SECTION	JOB		048
N\A	4	N\A	N\A		

Chain ESW04 contains:
 ESW048 CUR ESW029 CUR ESW030 CUR ESW031 CUR ESW032 CUR ESW033 CUR ESW034 CUR ESW035 CUR ESW036 CUR ESW037 CUR ESW038 CUR ESW039 CUR ESW040 CUR ESW041 CUR ESW042 CUR ESW043 CUR ESW044 CUR ESW045 CUR ESW046 CUR ESW047 CUR ESW048 CUR ESW049 CUR ESW050 ESW072 ESW073 CUR ESW051 CUR ESW052 CUR ESW053 CUR ESW054 CUR ESW055 CUR ESW056 CUR ESW057 CUR ESW058 CUR ESW059 CUR ESW060 CUR ESW061 CUR ESW062CUR ESW063 CUR ESW064 CUR ESW065 CUR ESW066 CUR ESW067 CUR ESW068 CUR ESW069 CUR ESW070 CUR ESW071 CUR ESW072 ESW097 ESW098

Beginning chain ESW04 description

Point ESW048 N 16,580,765.8652 E 1,419,881.0553 Sta 60+00.00

Course from ESW048 to	PC ESW029	N 6° 47′	23.10"	W Dist	48.0015
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Codi 90 11 0iii 25#040 10 10 1	L311023 N 0 41	23.10 11 0131 40	. 0013	
	Curve *			
Curve ESW029 P.I. Station Delta = 72° 39' Degree = 318° 18' Tangent = Length = Radius = External =	60+61.24 N ' 14.01" (RT)	16,580,826.6725	E	1,419,873.8155
Long Chord = Mid. Ord. = P.C. Station P.T. Station C.C. Back = N 6° 47′ 2 Ahead = N 65° 51′ 5	21.3261 3.4983 60+48.00 N 60+70.83 N N 23.10" W 50.90" E	16,580,813.5300 16,580,832.0845 16,580,815.6580	E	1,419,875.3803 1,419,885.8938 1,419,893.2541
oner a boar in 23 32	Curve	Data		
Curve ESW030	*			
P.I. Station Delta = 122° 24' Degree = 318° 18' Tangent =	61+03.57 N '12.68" (LT) '35.59" 32.7443	16,580,845.4731	E	1,419,915.7758
Radius = External = Long Chord = Mid. Ord. = P.C. Station P.T. Station C.C. Back = N 65° 51′ 5 Ahead = N 56° 32′ 1	38.4542 18.0000 19.3656 31.5476 9.3289 60+70.83 N 61+09.28 N N 54.41" E 18.26" W 48.08" E	16,580,832.0845 16,580,863.5276 16,580,848.5110	EEE	1,419,885.8938 1,419,888.4587 1,419,878.5339
	Curve *			
Delta = 99° 27′ Degree = 716° 11′ Tangent = Length =	61+18.72 N ' 48.84" (RT) ' 50.08" 9.4439 13.8877	16,580,868.7350	E	1,419,880.5802
P.T. Station C.C. Back = N 56° 32′ 1 Ahead = N 42° 55′ 3	8.0000 4.3769 12.2084 2.8291 61+09.28 N 61+23.17 N N 12.53" W 36.31" E 18.11" W	16,580,863.5276 16,580,875.6500 16,580,870.2015	E	1,419,888.4587 1,419,887.0121 1,419,892.8699

			: Data		
Curve ESW032 P.I. Station Delta = Degree = Tangent = Length = Radius = External = Long Chord =	61+44.71 100° 14′ 56.99" 318° 18′ 35.59" 21.5465 31.4942 18.0000 10.0758 27.6279	N (LT)	16,580,891.4269	E	1,419,901.6866
Mid. Ord. = P.C. Station P.T. Station C.C. Back = N Ahead = N Chord Bear = N	6. 4598 61+23.17 61+54.66 42° 55′ 36.33" E 57° 19′ 20.67" W 7° 11′ 52.17" W	N N N	16,580,875.6500 16,580,903.0601 16,580,887.9091	E E E	1, 419, 887. 0121 1, 419, 883. 5504 1, 419, 873. 8320
Curve ESW033			: Data :*		
P.I. Station Delta = Degree = Tangent = Length = Radius = External = Long Chord = Mid. Ord. =	61+64.95 104° 17′ 01.95" 716° 11′ 50.08" 10.2920 14.5608 8.0000 5.0355 12.6325 3.0903	N (RT)	16,580,908.6169	E	1,419,874.8875
P.C. Station P.T. Station C.C. Back = N Ahead = N Chord Bear = N	61+54.66 61+69.22 57° 19' 19.75" W 46° 57' 42.20" E 5° 10' 48.77" W	N N N	16,580,903.0601 16,580,915.6411 16,580,909.7939	E E E	1,419,883.5504 1,419,882.4099 1,419,887.8698
Curve ESW034			: Da†a *		
P.I. Station Delta = Degree = Tangent = Length = Radius = External = Long Chord =	61+93.70 107° 20′ 47.22″ 318° 18′ 35.59″ 24.4800 33.7239 18.0000 12.3854 29.0035	N (LT)	16,580,932.3484	E	1,419,900.3023
Mid. Ord. = P.C. Station P.T. Station C.C. Back = N Ahead = N Chord Bear = N	7.3370 61+69.22 62+02.95 46° 57′ 42.21" E 60° 23′ 05.01" W 6° 42′ 41.40" W	N N N	16,580,915.6411 16,580,944.4458 16,580,928.7972	E E E	1,419,882.4099 1,419,879.0202 1,419,870.1251
		Curve *	: Data		
Curve ESW035 P.I. Station Delta = Degree = Tangent = Length = Radius = External = Long Chord =	62+13.82 107° 19' 47.72" 716° 11' 50.08" 10.8767 14.9861 8.0000 5.5020 12.8891	N (RT)	16,580,949.8208	E	1,419,869.5644
Mid. Ord. = P.C. Station P.T. Station C.C. Back = N Ahead = N Chord Bear = N	3.2600 62+02.95 62+17.93 60° 23′ 05.01" W 46° 56′ 42.71" E 6° 43′ 11.15" W	N N N	16,580,944.4458 16,580,957.2463 16,580,951.4007	E E E	1,419,879.0202 1,419,877.5120 1,419,882.9736

No.	Revision	Ву	Date



Kimley » Horn





PR 100 ROADWAY IMPROVEMENTS

HORIZONTAL CONTROL DATA

EAST SIDEWALK BASELINE

SHEET 5 OF 17

FED.RD. DIV.NO.	-	FEDERAL AID PROJECT NO.		HIGHWA	AY NO.
6		N\A		PR	100
STATE		DISTRICT COU		JNTY	SHEET NO.
TEXA	4S	PHR	CAMERON		
CONTRO	DL	SECTION	JOB		049
N\A	4	N∖A	N	I\A	

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Curve ESW036 P.I. Station Delta Degree = Tangent = Length = Radius = External =	= = = =	108° 4	18' 35.59" 25.0811 34.1391 18.0000 12.8717	N (LT)	16,580,974.3691	E	1,419,895.8389	Curve ESW040 P.I. Station Delta = Degree = Tangent = Length = Radius = External =	63+32.15 96° 26′ 29.83″ 318° 18′ 35.59″ 20.1466 30.2980 18.0000 9.0164		16,581,052.9390 E	1,419,881.6213
Ahead =	=    -   N	46° 56′ 61° 43′ 7° 23′	29.2475 7.5050 62+17.93 62+52.07 42.71" E 22.87" W	N N N N	16,580,957.2463 16,580,986.2509 16,580,970.3989	E E E	1,419,877.5120 1,419,873.7507 1,419,865.2235	Long Chord = Mid. Ord. = P.C. Station P.T. Station C.C. Back = N	26.8458 6.0073 63+12.00 63+42.30 43° 38′ 06.31" E 52° 48′ 23.52" W 4° 35′ 08.60" W	N N N	16,581,038.3579 E 16,581,065.1178 E 16,581,050.7790 E	1,419,867.7189 1,419,865.5725 1,419,854.6914
				Curve	Data					Curve		
Curve ESW037 P.I. Station Delta Degree = Tangent = Length = Radius = External =	= = = = =	102° (716°	62+61.97 77' 19.06" 11' 50.08" 9.9007 14.2589 8.0000 4.7289 12.4450	N (RT)	16,580,991.4914	E	1,419,865.3506	Curve ESW041 P.I. Station Delta = Degree = Tangent = Length = Radius = External =	91° 37′ 55.07″ 716° 11′ 50.08″ 8.2312 12.7942 8.0000 3.4783	* N (RT)	* 16,581,070.0909 E	1,419,859.0135
Ahead =	= n n = N	58° 02° 44° 04° 6° 58°	2.9721 62+52.07 62+66.33	N N N	16,580,986.2509 16,580,998.6037 16,580,993.0384	E	1,419,873.7507 1,419,872.2382 1,419,877.9851	Long Chord = Mid. Ord. = P.C. Station P.T. Station C.C. Back = N Ahead = N Chord Bear = N	11.4737 2.4243 63+42.30 63+55.09 52° 49′ 49.96" W 38° 48′ 05.11" E 7° 00′ 52.42" W	N N N N N N N N N N N N N N N N N N N	16,581,065.1178 E 16,581,076.5056 E 16,581,071.4926 E	1,419,865.5725 1,419,864.1714 1,419,870.4059
				Curve	Data *					Curve *		
Curve ESW038 P.I. Station Delta Degree = Tangent = Length Radius =	= = = =	100° 3	18' 35.59" 21.6640 31.5905 18.0000	N (LT)	16,581,014.4809	E	1,419,886.9775	Curve ESW042 P.I. Station Delta = Degree = Tangent = Length = Radius =	95° 36′ 10.21" 318° 18′ 35.59" 19.8522 30.0345 18.0000		16,581,091.9756 E	1,419,876.6129
Ahead =	= = n n = N :	42° 52° 57° 41° 7° 24°	10.1661 27.6895 6.4968 62+66.33 62+97.92 7 17.18" E 02.88" W	N N N	16,580,998.6037 16,581,026.0622 16,581,010.8501	E E	1,419,872.2382 1,419,868.6689 1,419,859.0464	External = Long Chord = Mid. Ord. = P.C. Station P.T. Station C.C. Back = N Ahead = N Chord Bear = N	8.7976 26.6696 5.9094 63+55.09	N N N N N N N N N N N N N N N N N N N	16,581,076.5056 E 16,581,102.8473 E 16,581,087.7863 E	1,419,864.1714 1,419,860.0021 1,419,850.1448
				Curve *	Data *					Curve		
Curve ESW039 P.I. Station Delta Degree = Tangent = Length Radius =	= = = =	100° 5 716°	63+07.60 50′ 47.57" 11′ 50.08" 9.6783 14.0808 8.0000	N (RT)	16,581,031.6354	E	1,419,860.7563	Curve ESW043 P.I. Station Delta = Degree = Tangent = Length = Radius =	101° 35′ 59.27" 716° 11′ 50.08" 9.8089 14.1860 8.0000	N (RT)	16,581,108.2191 E	1,419,851.7949
External = Long Chord = Mid. Ord. = P.C. Station P.T. Station C.C. Back = Ahead =	= = n n	54° 50° 46° 00° 4° 25°	4.5567 12.3324 2.9031 62+97.92 63+12.00	N N N N	16,581,026.0622 16,581,038.3579 16,581,032.6027	E	1,419,868.6689 1,419,867.7189 1,419,873.2756	External = Long Chord = Mid. Ord. = P.C. Station P.T. Station C.C. Back = N	4.6576 12.3991 2.9438 63+85.13 63+99.32 56° 47′ 40.45" W 44° 48′ 18.82" E 5° 59′ 40.81" W	N N N N N N N N N N N N N N N N N N N	16,581,102.8473 E 16,581,115.1786 E 16,581,109.5410 E	1,419,860.0021 1,419,858.7072 1,419,864.3833

Curve Data

No.	Revision	Ву	Date
	PRELIMINAR	Υ	
1	FOR REVIEW ONLY		

Kimley Horn
Engineer\_RYAN DELMOTTE
P.E. No. 114242 Date 11/6/2018

Kimley > Horn

TBPE REGISTERED ENGINEERING FIRM F-928





PR 100 ROADWAY IMPROVEMENTS

HORIZONTAL CONTROL DATA

EAST SIDEWALK BASELINE

SHEET 6 OF 17

ED. RD. IV. NO.		NY NO.			
6		N\A	PR	100	
STATI		DISTRICT	col	JNTY	SHEET NO.
TEXA	\S	PHR	CAMERON		
CONTR	DL	SECTION	JOB		050
N\	4	N\A	N∖A		

1,419,863.6295

1,419,848.5874 1,419,847.4140 1,419,836.2074

1,419,841.3365

1,419,847.4140 1,419,845.9894 1,419,852.3947

1,419,850.3295

1,419,845.9894 1,419,849.4418 1,419,831.5775

65+70.77

65+76.55

	Curve Data **			Curve Data
Curve ESW044 P.I. Station 64+22.70 Delta = 104° 49′ 12.55" Degree = 318° 18′ 35.59" Tangent = 23.3820 Length = 32.9302 Radius = 18.0000	N 16,581,131.7682	E	1,419,875.1845	Curve ESW048 P.I. Station 65+17.56 N 16,581,212.6428 E Delta = 98° 02′ 25.46" (LT) Degree = 318° 18′ 35.59" Tangent = 20.7214
External = 11.5079 Long Chord = 28.5263 Mid. Ord. = 7.0199 P.C. Station 63+99.32 P.T. Station 64+32.25 C.C. Back = N 44° 48′ 19.41" E Abead = N 60° 00′ 53 14" W	N 16,581,143.4539	E E E	1,419,858.7072 1,419,854.9321 1,419,845.9361	Radius = 18.0000 External = 9.4477 Long Chord = 27.1779 Mid. Ord. = 6.1957 P.C. Station 64+96.83 N 16,581,198.3911 E P.T. Station 65+27.63 N 16,581,225.5437 E C.C. N 16,581,211.4578 E Back = N 46° 32′ 44.60″ E
Chord Bear = N 7° 36′ 16.87" W	Curve Data			Ahead = N 51° 29′ 40.85" W Chord Bear = N 2° 28′ 28.13" W
Curve ESW045	**			Curve Data **
P.I. Station 64+43.31 Delta = 108° 14' 35.84" Degree = 716° 11' 50.08" Tangent = 11.0604 Length = 15.1136 Radius = 8.0000 External = 5.6503	N 16,581,148.9818 (RT)	E	1,419,845.3522	Curve ESW049 P.I. Station 65+35.40 N 16,581,230.3788 E Delta = 88° 18' 04.37" (RT) Degree = 716° 11' 50.08" Tangent = 7.7663 Length = 12.3292 Radius = 8.0000
Long Chord = 12.9642 Mid. Ord. = 3.3115 P.C. Station 64+32.25 P.T. Station 64+47.36 C.C. Back = N 60° 00′ 50.94" W	N 16, 581, 150, 3831	E E	1, 419, 854. 9321 1, 419, 853. 6012 1, 419, 858. 9304	External = 3.1496 Long Chord = 11.1447 Mid. Ord. = 2.2599 P.C. Station 65+27.63 N 16,581,225.5437 E P.T. Station 65+39.96 N 16,581,236.5970 E C.C. N 16,581,231.8041 E Back = N 51° 29′ 40.87″ W
Ahead = N 48° 13′ 44.90″ E Chord Bear = N 5° 53′ 33.02″ W				Ahead = N 36° 48′ 23.50" E Chord Bear = N 7° 20′ 38.68" W
	Curve Data **			Curve Data
Curve ESW046 P.I. Station Delta = 109° 32′ 44.82" Degree = 318° 18′ 35.59" Tangent = 25.4910 Length = 34.4148 Radius = 18.0000	N 16,581,173.3306 (LT)	E	1,419,872.6128	Curve ESW050 P.I. Station 65+47.21 N 16,581,242.3971 E Delta = 43° 50′ 41.50" (LT) Degree = 318° 18′ 35.59" Tangent = 7.2441 Length = 13.7743
External = 13.2056 Long Chord = 29.4074 Mid. Ord. = 7.6173 P.C. Station 64+47.36 P.T. Station 64+81.77 C.C. Back = N 48° 13′ 44.88" E	N 16,581,156.3497 N 16,581,185.5655 N 16,581,169,7743	E E	1,419,853.6012 1,419,850.2499 1,419,841.6104	Radius = 18.0000 External = 1.4030 Long Chord = 13.4406 Mid. Ord. = 1.3016 P.C. Station 65+39.96 N 16,581,236.5970 E P.T. Station 65+53.74 N 16,581,249.5867 E C.C. N 16.581,247.3811 E
Ähead = N 61° 18′ 59.94" W Chord Bear = N 6° 32′ 37.53" W				BOCK = N 36° 48° 23.49° E Abead = N 7° 02′ 18.02° W
	Curve Data			Chord Bear = N 14° 53′ 02.74″ Ë  Course from PT ESW050 to ESW072 N 6° 55′ 06.05″ W Dist 17.0282
Curve ESW047 P.I. Station 64+92.76	^	F	1,419,840.6144	Point ESW072 N 16,581,266.4909 E 1,419,847.3907 Sta
Delta = 107° 51′ 44.54" Degree = 716° 11′ 50.08"	(RT)	_	1, 413, 040. 0144	Course from ESW072 to ESW073 N 6° 56′ 02.21" W Dist 5.7869
Tangent = 10.9833 Length = 15.0604				Point ESW073 N 16,581,272.2355 E 1,419,846.6921 Sta
Lengin - 15,000+				
Radius = 8.0000 External = 5.5880				Course from ESW073 to PC ESW051 N 6° 57′ 12.23" W Dist 12.2395
Radius = 8.0000 External = 5.5880 Long Chord = 12.9330 Mid. Ord. = 3.2899	N 16 501 105 5655	E	1 410 850 2400	Course from ESW073 to PC ESW051 N 6° 57′ 12.23" W Dist 12.2395
Radius = 8.0000 External = 5.5880 Long Chord = 12.9330	N 16,581,185.5655 N 16,581,198.3911 N 16,581,192.5838	E E E	1,419,850.2499 1,419,848.5874 1,419,854.0896	Course from ESW073 to PC ESW051 N 6° 57′ 12.23" W Dist 12.2395

No.	Revision	Ву	Date
	PRELIMINAR	Υ	
	FOR REVIEW ONLY  Not for construction, bidding, or permit purposes.		

Kimley » Horn

Engineer\_RYAN\_DELMOTTE
P.E. No. \_114242\_Date \_11/6/2018





PR 100 ROADWAY IMPROVEMENTS

HORIZONTAL CONTROL DATA

EAST SIDEWALK BASELINE

SHEET 7 OF 17

ED. RD. IV. NO.	ı	NY NO.			
6		N\A	PR	100	
STATE		DISTRICT	col	JNTY	SHEET NO.
TEXA	\S	PHR	CAMERON		
CONTRO	DL	SECTION	JOB		051
N\A	4	N∖A	N∖A		

		Curve Data				Curve	Data		
Curve ESW051 P.I. Station Delta = Degree = Tangent = Length = Radius = External =	318° 18′ 35.59" 6.6714 12.7778 18.0000	N 16,58	1,291.0192 E	1,419,844.5073	Curve ESW054 P.I. Station Delta = 104° 20′ 58.34" Degree = 716° 11′ 50.08" Tangent = 10.3042 Length = 14.5699 Radius = 8.0000 External = 5.0451		16,581,338.7521	E	1,419,826.2631
Long Chord = Mid. Ord. = P.C. Station P.T. Station C.C.	12.5111 1.1220 65+88.79 66+01.57 6° 02' 56.01" W 46° 43' 18.30" W 26° 23' 07.15" W	N 16,58 N 16,58 N 16,58	1,284.3850 E 1,295.5928 E 1,282.4882 E	1,419,845.2103 1,419,839.6503 1,419,827.3105	External = 5.0451 Long Chord = 12.6382 Mid. Ord. = 3.0940 P.C. Station 66+44.07 P.T. Station 66+58.64 C.C. Back = N 57° 06′ 47.54" W Ahead = N 47° 14′ 10.81" E Chord Bear = N 4° 56′ 18.37" W	N N N	16,581,333.1571 16,581,345.7484 16,581,339.8751	E E E	1,419,834.9160 1,419,833.8280 1,419,839.2598
		Curve Data			oner a boar in the second of t	Curve			
Curve ESW052 P.I. Station Delta = Degree = Tangent = Length = Radius =	66+09.09 86° 28′ 36.60″ 716° 11′ 50.08″ 7.5226 12.0744 8.0000	N 16,58	1,300.7489 E	1,419,834.1727	Curve ESW055 P.I. Station Delta = 106° 43′ 53.66" Degree = 318° 18′ 35.59" Tangent = 24.2068 Length = 33.5307 Radius = 18.0000		16,581,362.1842	E	1,419,851.5997
External = Long Chord = Mid. Ord. = P.C. Station P.T. Station C.C. Back = N Ahead = N Chord Bear = N	2.9813 10.9606 2.1719 66+01.57 66+13.65 46° 43′ 54.24" W 39° 44′ 42.36" E 3° 29′ 35.94" W	N 16,58 N 16,58 N 16,58	1,295.5928 E 1,306.5330 E 1,301.4180 E	1,419,839.6503 1,419,838.9825 1,419,845.1336	Radius = 18.0000 External = 12.1657 Long Chord = 28.8886 Mid. Ord. = 7.2593 P.C. Station 66+58.64 P.T. Station 66+92.17 C.C. Back = N 47° 14′ 10.79" E Ahead = N 59° 29′ 42.87" W Chord Bear = N 6° 07′ 46.04" W	N N	16,581,345.7484 16,581,374.4718 16,581,358.9632	EEE	1,419,833.8280 1,419,830.7434 1,419,821.6064
		Curve Data				Curve			
Curve ESW053 P.I. Station Delta = Degree = Tangent = Length = Radius =	66+33.94 96° 51′ 29.88″ 318° 18′ 35.59″ 20.2947 30.4289 18.0000 9.1270	N 16,58 (LT)	1,322.1375 E	1,419,851.9583	Curve ESW056 P.I. Station Delta = 98° 38′ 14.27" Degree = 716° 11′ 50.08" Tangent = 9.3070 Length = 13.7724 Radius = 8.0000	(RT)	16,581,379.1961	E	1,419,822.7246
External = Long Chord = Mid. Ord. = P.C. Station P.T. Station C.C. Back = N Ahead = N Chord Bear = N	9.1270 26.9329 6.0562 66+13.65 66+44.07 39° 44′ 42.35" E 57° 06′ 47.52" W 8° 41′ 02.59" W	N 16,58 N 16,58 N 16,58	1,306.5330 E 1,333.1571 E 1,318.0417 E	1,419,838.9825 1,419,834.9160 1,419,825.1423	External = 4.2727 Long Chord = 12.1335 Mid. Ord. = 2.7852 P.C. Station 66+92.17 P.T. Station 67+05.95 C.C. Back = N 59° 29′ 42.87″ W Ahead = N 39° 08′ 31.39″ E Chord Bear = N 10° 10′ 35.74″ W		16,581,374.4718 16,581,386.4145 16,581,381.3645	EEE	1,419,830.7434 1,419,828.5996 1,419,834.8043
						Curve *			
					Curve ESW057 P.I. Station Delta = 97° 25′ 38.30" Degree = 318° 18′ 35.59" Tangent = 20.4988 Length = 30.6077 Radius = 18.0000	N (LT)	16,581,402.3130	E	1,419,841.5394
					External = 9.2801 Long Chord = 27.0512 Mid. Ord. = 6.1232 P.C. Station 67+05.95 P.T. Station 67+36.55 C.C. Back = N 39° 08′ 31.38″ E Ahead = N 58° 17′ 06.92″ W Chord Bear = N 9° 34′ 17.77″ W	N N N	16,581,386.4145 16,581,413.0890 16,581,397.7769	E E E	1,419,828.5996 1,419,824.1016 1,419,814.6391

No.	Revision	Ву	Date

PRELIMINARY

FOR REVIEW ONLY

Not for construction, bidding, or permit purposes. Kimley >>> Horn

Engineer\_RYAN\_DELMOTTE
P. E. No. \_114242\_Date \_11/6/2018





PR 100 ROADWAY IMPROVEMENTS

HORIZONTAL CONTROL DATA

EAST SIDEWALK BASELINE

SHEET 8 OF 17

6         N\A         PR 100           STATE         DISTRICT         COUNTY         SHEET NO.           TEXAS         PHR         CAMERON           CONTROL         SECTION         JOB         052           N\A         N\A         N\A	. NO.	FEDERAL AID PROJECT NO.			HIGHWA	AY NO.	
TEXAS PHR CAMERON  CONTROL SECTION JOB 052	9)		N∖A	PR			
CONTROL SECTION JOB 052	STATE		DISTRICT	col	JNTY		
	TEXA	\S	PHR	CAMERON			
N\A N\A N\A	CONTRO	DL	SECTION	JOB		052	
	N\A	4	N\A	N∖A			

Current   Control   Current   Curr		**		**
Mid Order to Cartering Control of 1,000 per control	P.I. Station 67+47.09 Delta = 105° 33′ 47.15" Degree = 716° 11′ 50.08" Tangent = 10.5326 Length = 14.7394 Radius = 8.0000	N 16,581,418.6259 E 1,419,	Delta = 95° 37′ 37.95" Degree = 716° 11′ 50.08" Tangent = 8.8270 Length = 13.3521 Radius = 8.0000 External = 3.9128	N 16,581,498.1926 E 1,419,808.8497 (RT)
Curve Excess   Curve Data   Curve Excess   Curve Data   Curve Excess   Curve Ex	Mid. Ord. = 3.1612 P.C. Station 67+36.55 P.T. Station 67+51.29 C.C.	N 16,581,413.0890 E 1,419, N 16,581,425.7717 E 1,419, N 16,581,419.8945 E 1,419,	Long Chord = 11.8554 Mid. Ord. = 2.6276 824.1016 P.C. Station 68+28.16 822.8795 P.T. Station 68+41.52 828.3071 C.C. Back = N 52° 04′ 15.20" W Ahead = N 43° 33′ 22.74" E	N 16,581,492.7668 E 1,419,815.8122 N 16,581,504.5895 E 1,419,814.9321 N 16,581,499.0770 E 1,419,820.7297
Curve EXMOS P.1. Station 106: 05 739.01   16,581,442.0053 E 1,419,840.4581   14,419,840.4581   16,581,542.8379 E 1,419,832.2833   16,581   16,581,542.8379 E 1,419,832.2833   16,581,542.8379 E 1,419,832.333   16,581,542.8379 E 1,419,832.2833   16,581,542.8379 E 1,419,832.333   16,581,542.8379 E 1,419,832.333   16,581,542.8379 E 1,419,83				
External   11,9422   11,9422   11,9422   12,957	P.I. Station 67+75.22 Delta = 106° 05′ 39.01" Degree = 318° 18′ 35.59" Tangent = 23.9277 Length = 33.3305 Radius = 18.0000	N 16,581,442.0053 E 1,419.	840.4581 P.I. Station 68+66.70 Delta = 108° 52′ 59.67" Degree = 318° 18′ 35.59" Tangent = 25.1808 Length = 34.2067 Radius = 18.0000	N 16,581,522.8379 E 1,419,832.2833
Curve ESW66 P.1. Station	External = 11.9422 Long Chord = 28.7687 Mid. Ord. = 7.1791 P.C. Station 67+51.29 P.T. Station 67+84.62 C.C. Back = N 47° 16′ 40.22″ E Abead = N 58° 48′ 58.78″ W	N 16,581,425.7717 E 1,419, N 16,581,454.3946 E 1,419, N 16,581,438.9954 E 1,419,	External = 12.9527 Long Chord = 29.2868 Mid. Ord. = 7.5324 P.C. Station 68+41.52 819.9877 P.T. Station 68+75.72 C.C. Back = N 43° 33′ 22.73″ E Ahead = N 65° 19′ 36.94″ W	N 16,581,504.5895 E 1,419,814.9321 N 16,581,533.3494 E 1,419,809.4015 N 16,581,516.9927 E 1,419,801.8875
Curve ESW060 P.1. Startion F. 1. Sta	Chord Bear = N 5° 46′ 09.28" W	Curve Data	Chord Bear = N 10° 53′ 07.10" W	Curvo Data
Delfa = 100° 37′ 92.88" (RT) Degree = 716° 11′ 50.08 Tangent = 716° 11′	Curve FSW060		Curve FSW064	
External =	P.I. Station 67+94.26 Delta = 100° 37′ 02.36" Degree = 716° 11′ 50.08" Tangent = 9.6390 Length = 14.0488	N 16,581,459.3855 E 1,419, (RT)	Delta = 112° 41′ 12.54″ Degree = 716° 11′ 50.08″ Tangent = 12.0152 Length = 15.7340	N 16,581,538.3650 E 1,419,798.4832 (RT)
Back = N 58* 48' 58.79" W Ahead = N 41* 48' 03:57" E Chord Bear = N 8* 30' 27.61" W   Curve Data  ***  Curve ESW061 P.I. Station Degree = 318* 18' 35:59" Tangent = 19.2594 Length = 12.294907 Radius = 18.0000 External = 29.4907 Radius = 18.0000 External = 8.3614 Long Chord = 26.3013 Mid. Ord. = 26.3013 Mid. Ord. = 26.3013 Mid. Ord. = 5.7093 P.I. Station 68+28.16 N 16,581,466.5711 E 1,419,818.1662 P.I. Station 68+28.16 N 16,581,546.5040 E 1,419,807.3219 P.T. Station 68+28.16 N 16,581,573.9075 E 1,419,807.3219 P.T. Station 68+28.16 N 16,581,573.5975 E 1,419,807.3219 P.T. Station 69+22.64 N 16,581,573.5975 E 1,419,807.3288	External = 4.5264 Long Chord = 12.3119 Mid. Ord. = 2.8908 P.C. Station 67+84.62 P.T. Station 67+98.67	N 16,581,454.3946 E 1,419, N 16,581,466.5711 E 1,419, N 16,581,461.2387 F 1,419	External = 6.4349 Long Chord = 13.3180 Mid. Ord. = 3.5663 819.9877 P.C. Station 68+75.72 818.1662 P.T. Station 68+91.46	N 16,581,533.3494 E 1,419,809.4015 N 16,581,546.5040 E 1,419,807.3219
Curve ESW061 P.I. Station Delta = 93° 52′ 18.75" (LT) Degree = 318° 18′ 35.59" Tangent = 19.2594 Length = 29.4907 Radius = 18.0000 External = 8.3614 Long Chord = 26.3013 Mid. Ord. = 5.7093 P.C. Station 68+28.16 N 16,581,466.5711 E 1,419,818.1662 P.C. Station 68+91.46 N 16,581,573.9075 E 1,419,807.3219 P.T. Station 68+28.16 N 16,581,478.5689 F 1,419,807.4788  *** Curve ESW065 P.I. Station 69+12.62 N 16,581,560.8426 E 1,419,822.8930 Delta = 99° 14′ 47.41" (LT) Delta = 99	Back = N 58° 48′ 58.79" W Abead = N 41° 48′ 03.57" F		Back = N 65° 19′ 36.94″ W Ahead = N 47° 21′ 35.60″ E	1, 413, 612.1416
P.I. Station 68+17.93 N 16,581,480.9283 E 1,419,831.0035 P.I. Station Delta = 93° 52′ 18.75" (LT)  Degree = 318° 18′ 35.59"  Tangent = 19.2594  Length = 29.4907  Radius = 18.0000  External = 8.3614  Long Chord = 26.3013  Mid. Ord. = 5.7093  P.C. Station 67+98.67 N 16,581,466.5711 E 1,419,818.1662 P.C. Station 68+91.46 N 16,581,546.5040 E 1,419,807.3219  P.I. Station 68+28.16 N 16,581,478.5689 F 1,419,815.8122 P.T. Station 69+12.62 N 16,581,560.8426 E 1,419,807.3219  P.I. Station 69+12.62 N 16,581,560.8426 E 1,419,822.8930  Delta = 99° 14′ 47.41" (LT)  Degree = 318° 18′ 35.59"  Delta = 99° 14′ 47.41" (LT)  Degree = 318° 18′ 35.59"  Degree = 318° 18′ 36.50"  Degree = 318° 18′ 36.50"  Degree = 318° 18′ 36″  Degree				
Long Chord = 26.3013	P.I. Station 68+17.93 Delta = 93° 52′ 18.75″ Degree = 318° 18′ 35.59″ Tangent = 19.2594	N 16,581,480.9283 E 1,419,	831.0035 P.I. Station 69+12.62 Delta = 99° 14′ 47.41" Degree = 318° 18′ 35.59" Tangent = 21.1673 Length = 31.1792 Radius = 18.0000	
	Long Chord = 26.3013 Mid. Ord. = 5.7093 P.C. Station 67+98.67 P.T. Station 68+28.16	N 16,581,466.5711 E 1,419, N 16,581,492.7668 E 1,419, N 16,581,478.5689 E 1,419,	Long Chord = 27.4248 Mid. Ord. = 6.3394 P.C. Station 68+91.46 815.8122 P.T. Station 69+22.64 C.C. Back = N 47° 21′ 35 59" F	N 16,581,546.5040 E 1,419,807.3219 N 16,581,573.9075 E 1,419,806.2388 N 16,581,559.7452 E 1,419,795.1288

Curve Data

No.	Revision	Ву	Date



**Kimley** »Horn





PR 100 ROADWAY IMPROVEMENTS

HORIZONTAL CONTROL DATA

EAST SIDEWALK BASELINE

SHEET 9 OF 17

ED.RD. IV.NO.	FEDERAL AID PROJECT NO.			H I GHWA	AY NO.
6	N\A			PR	100
STATE		DISTRICT CO		JNTY	SHEET NO.
TEXA	TEXAS PHR CAMERON		ERON		
CONTROL		SECTION	JOB		053
N\A		N∖A	N∖A		

	Curve Data		
Curve ESW066 P.I. Station 69+32.23	N 16,581,579.8318 E	1,419,798.6868	Curve Data **
Delta = 100° 22′ 46.19" Degree = 716° 11′ 50.08" Tangent = 9.5984 Length = 14.0156 Radius = 8.0000 External = 4.4952 Long Chord = 12.2907 Mid. Ord. = 2.8780 P.C. Station 69+22.64 P.T. Station 69+36.65			Curve ESW070 P.I. Station Delta = 103° 11′ 40.88" (RT) Degree = 716° 11′ 50.08" Tangent = 10.0925 Length = 14.4087 Radius = 8.0000
P.C. Station 69+22.64 P.T. Station 69+36.65 C.C. Back = N 51° 53′ 11.82" W Ahead = N 48° 29′ 34.37" E Chord Bear = N 1° 41′ 48.73" W	N 16-581-580-7018 F	1,419,806.2388 1,419,805.8748 1,419,811.1765	External = 4.8786 Long Chord = 12.5386 Mid. Ord. = 3.0305 P.C. Station 70+17.95 N 16,581,656.1201 E 1,419,799.5430 P.T. Station 70+32.36 N 16,581,668.6037 E 1,419,798.3697 C.C. N 16,581,662.8269 E 1,419,803.9040 Back = N 56° 57′ 59.78" W Ahead = N 46° 13′ 41.10" E Chord Bear = N 5° 22′ 09.34" W
Curve ESW067 P.I. Station 69+61.15	**		
Deita = 107° 23° 25.73° Degree = 318° 18′ 35.59" Tangent = 24.4998 Length = 33.7377 Radius = 18 0000		1,419,824.2220	Curve Data ** Curve ESW071 P.I. Station 70+65.72 N 16,581,691.6799 E 1,419,822.4568 Delta = 123° 17′ 46.02" (LT) Degree = 318° 18′ 35.59"
External = 12.4013 Long Chord = 29.0116 Mid. Ord. = 7.3426 P.C. Station 69+36.65 P.T. Station 69+70.39	N 16,581,586.1928 E N 16,581,615.0849 E N 16,581,599,6725 F	1,419,805.8748 1,419,803.2442 1,419,793.9460	Tangent = 33.3571 Length = 38.7346 Radius = 18.0000 External = 19.9038 Long Chord = 31.6817 Mid. Ord. = 9.4520
Back = N 48° 29′ 34.38″ E Ahead = N 58° 53′ 51.35″ W Chord Bear = N 5° 12′ 08.48″ W	Curve Data **		P.C. Station 70+32.36 N 16,581,668.6037 E 1,419,798.3697 P.T. Station 70+71.10 N 16,581,699.1450 E 1,419,789.9458 C.C. N 16,581,681.6015 E 1,419,785.9175 Back = N 46° 13′ 41.10" E Ahead = N 77° 04′ 04.92" W Chord Bear = N 15° 25′ 11.91" W
Curve ESW068 P.I. Station 69+81.04	N 16,581,620.5845 E	1,419,794.1283	Curve Data **
Delta = 106° 09′ 20.46″ Degree = 716° 11′ 50.08″ Tangent = 10.6464 Length = 14.8221 Radius = 8.0000 External = 5.3171 Long Chord = 12.7912 Mid. Ord. = 3.1942 P.C. Station 69+70.39		1 419 803 2442	Curve ESW072 P.I. Station 70+92.21 N 16,581,703.8704 E 1,419,769.3663 Delta = 70° 16′ 41.81" (RT) Degree = 190° 59′ 09.35" Taggont - 21.1150
P.T. Station 69+85.21 C.C. Back = N 58° 53′ 51.33" W Ahead = N 47° 15′ 29.13" E Chord Bear = N 5° 49′ 11.10" W	N 16,581,627.8102 E N 16,581,621.9349 E	1,419,803.2442 1,419,801.9472 1,419,807.3768	Long Chord = 34.5338 Mid. Ord. = 5.4673 P.C. Station 70+71.10 N 16,581,699.1450 E 1,419,789.9458 P.T. Station 71+07.90 N 16,581,724.8373 E 1,419,766.8700 C.C. N 16.581.728.3841 F 1.419.796.6596
	Curve Data		Back = N 77° 04′ 04.92" W Ahead = N 6° 47′ 23.10" W Chord Bear = N 41° 55′ 44.01" W
Curve ESW069 P.I. Station 70+08.34	** N 16,581,643.5101 E	1,419,818.9360	Course from PT ESW072 to ESW097 N 6° 47′ 23.10" W Dist 24.1805
Delta = 104° 13′ 28.94" Degree = 318° 18′ 35.59"	(LT)	.,,	Point ESW097 N 16,581,748.8481 E 1,419,764.0112 Sta 71+32.08
Tangent = 23.1323 Length = 32.7432 Radius = 18.0000			Course from ESW097 to ESW098 N 6° 46′ 54.31" W Dist 62.8082
External = 11.3105 Long Chord = 28.4118			End Region 1 Equation: Sta 71+94.88 (BK) = Sta 80+00.00 (AH)
Mid. Ord. = 6.9459 P.C. Station 69+85.21 P.T. Station 70+17.95	N 16,581,627.8102 E N 16,581,656.1201 E N 16,581,641.0298 F	1,419,801.9472 1,419,799.5430 1,419,789.7307	Begin Region 2 Point ESW098 N 16,581,811.2169 E 1,419,756.5943 Sta 80+00.00
Back = N 47° 15′ 29.15" E Ahead = N 56° 57′ 59.79" W Chord Bear = N 4° 51′ 15.32" W			Ending chain ESW04 description

No. Revision By Date

Kimley»Horn





PR 100 ROADWAY IMPROVEMENTS

HORIZONTAL CONTROL DATA

EAST SIDEWALK BASELINE

SHEET 10 OF 17

ED.RD. DIV.NO.	FEDERAL AID PROJECT NO.			H I GHWA	NY NO.
6	N\A		PR 100		
STATE		DISTRICT		JNTY	SHEET NO.
TEXAS		PHR	CAMERON		
CONTROL		SECTION	JOB		054
N\A		N∖A	N∖A		

C.C. Back

Back = N Ahead = N Chord Bear = N

# < **\*** 5 Describe Chain ESW05 Chain ESW05 contains: ESW098 ESW099 ESW100 CUR ESW073 CUR ESW074 CUR ESW075 CUR ESW076 CUR ESW077 CUR ESW078 CUR ESW079 CUR ESW080 CUR ESW081 CUR ESW082 CUR ESW083 CUR ESW084 CUR ESW085 CUR ESW086 CUR ESW087 CUR ESW088 CUR ESW089 CUR ESW090 CUR ESW091 CUR ESW092 CUR ESW093 CUR ESW094 CUR ESW095 CUR ESW096 CUR ESW097 CUR ESW098 99 CUR ESW100 CUR ESW101 CUR ESW102 CUR ESW103 CUR ESW104 CUR ESW105 CUR ESW106 CUR ESW107 CUR ESW108 CUR ESW109 CUR ESW110 CUR ESW111 CUR ESW112 CUR ESW113 CUR ESW114 CUR ESW115 CUR ESW116 CUR ESW117 CUR ESW118 CUR ESW119 CUR ESW120 CURESW121 CUR ESW122 CUR ESW123 CUR ESW124 ESW158 Beginning chain ESW05 description Point ESW098 N 16,581,811.2169 E 1,419,756.5943 Sta 80+00.00 Course from ESW098 to ESW099 N 6° 47′ 23.11" W Dist 158.6202 Point ESW099 N 16,581,968.7246 E 1,419,737.8412 Sta 81+58.62 Course from ESW099 to ESW100 N 6° 47′ 23.10" W Dist 50.5907 Point ESW100 N 16,582,018.9605 E 1,419,731.8601 Sta 82+09.21 Course from ESW100 to PC ESW073 N 6° 47′ 23.10" W Dist 20.1249 Curve Data Curve ESW073 82+32.27 N 40° 19′ 21.06" (RT) 716° 11′ 50.08" 2.9373 5.6301 P.I. Station Delta = 16,582,041.8609 E 1,419,729.1335 Degree Tangent Length Radius 8.0000 0.5222 5.5146 0.4902 82+29.34 External Long Chord = Mid. Ord. = P.C. Station P.T. Station

Course from PT ESW073 to PC ESW074 N 33° 31′ 57.95" E Dist 31.9035

6° 47′ 23.11" W 33° 31′ 57.95" E 13° 22′ 17.42" E

# Curve Data

16,582,038.9443 16,582,044.3094 16,582,039.8901

1,419,729.4808 1,419,730.7561 1,419,737.4247

			*		
Curve ESW074 P.I. Station Delta = Degree = Tangent = Length =	82+85.45 91° 49′ 04.87" 318° 18′ 35.59" 18.5804 28.8455	N (LT)	16,582,086.3912	E	1,419,758.6441
Radius = External = Long Chord = Mid. Ord. = P.C. Station P.T. Station C.C.	18.0000 7.8695 25.8556 5.4756 82+66.87 82+95.71	N N N	16,582,070.9032 16,582,096.1588 16,582,080.8466	E E	1,419,748.3801 1,419,742.8382 1,419,733.3758
Back = N Ahead = N Chord Bear = N	33° 31′ 57.95" E 58° 17′ 06.92" W 12° 22′ 34.48" W	.,	10, 302, 0001 0 100	_	1, 113, 133, 133
		Curve *	Data		
Curve ESW075 P.I. Station Delta = Degree = Tangent =	83+05.13 99° 18′ 59.51" 716° 11′ 50.08" 9.4194	N (RT)	16,582,101.1104	E	1,419,734.8254
Length = Radius = External = Long Chord = Mid. Ord. = P.C. Station P.T. Station	13.8672 8.0000 4.3582 12.1952 2.8212 82+95.71 83+09.58	N N	16,582,096.1588 16,582,108.2159	E E	1,419,742.8382 1,419,741.0089
C.C. Back = N Ahead = N Chord Bear = N	58° 17′ 06.92" W 41° 01′ 52.59" E 8° 37′ 37.16" W	N	16, 582, 102. 9642	E	1, 419, 747. 0437

Curve ESW076 P.I. Station	83+27 <b>.</b> 21	N 16,582,121.5	5128 E	1,419,752.5805
Delta =		LT) ´ ´		
Degree =	318° 18′ 35.59"			
Tangent = Lenath =	17.6269 27.8974			
Radius =	18.0000			
External =	7.1934			
Long Chord =	25.1879			
Mid. Ord. = P.C. Station	5.1395 83+09.58 I	N 16,582,108.2	2159 F	1,419,741.0089
P.T. Station		N 16,582,133.3		1,419,739.5288
C. C.		N 16,582,120.C		1,419,727.4306
Back = N	41° 01′ 52.59" E			
Ahead = N Chord Bear = N	47° 46′ 07.55" W 3° 22′ 07.48" W			
	3 22 01. 40 H			

Curve Data \*----\*

Course from PT ESW076 to PC ESW077 N 47° 46′ 07.54" W Dist 25.6008

# Curve Data

Curve ESW077					
P.I. Station	83+74.29	N	16,582,158.1019	Ε	1,419,712.2725
Delta =	40° 58′ 44.44"	(RT)	, – ,		, , , , , , , , , , , , , , , , , , , ,
Degree =	190° 59′ 09.35"				
Tangent =	11.2103				
Length =	21.4566				
Radius =	30.0000				
External =	2.0261				
Long Chord =	21.0021				
Mid. Ord. =	1.8979				
P.C. Station	83+63.08	N	16,582,150.5672	E	1,419,720.5731
P.T. Station	83+84.54	N	16,582,169.2336	Ε	1,419,710.9472
C. C.		N	16,582,172.7804	E	1,419,740.7368
Back = N	47° 46′ 07.55" W				
Ahead = N	6° 47′ 23.11" W				
Chord Bear = N	27° 16′ 45.33" W				

Course from PT ESW077 to PC ESW078 N 6° 47′ 23.10" W Dist 287.3567

#### Curve Data

		*	<del>*</del>		
Curve ESW078 P.I. Station Delta = Degree = Tangent = Length = Radius = External = Long Chord =	86+91.13 65° 20′ 10.90″ 190° 59′ 09.35″ 19.2361 34.2100 30.0000 5.6375 32.3864	N (RT)	16,582,473.6762	E	1,419,674.6998
Mid. Ord. = P.C. Station P.T. Station C.C. Back = N Ahead = N Chord Bear = N	4.7457 86+71.89 87+06.10 6° 47′ 23.11" W 58° 32′ 47.79" E 25° 52′ 42.34" E	N N N	16,582,454.5749 16,582,483.7137 16,582,458.1217	E E E	1, 419, 676. 9740 1, 419, 691. 1095 1, 419, 706. 7636
		Curve	Data J		
Curve ESW079 P.I. Station Delta = Degree = Tangent = Length =	87+33.77 113° 54′ 38.61" 318° 18′ 35.59" 27.6704 35.7861	N (LT)	16,582,498.1518	E	1,419,714.7144
Radius = External = Long Chord = Mid. Ord. = P.C. Station P.T. Station C.C. Back = N Ahead = N Chord Bear = N	18.0000 15.0098 30.1769 8.1847 87+06.10 87+41.89 58° 32′ 51.74″ E 55° 21′ 46.87″ W 1° 35′ 32.44″ E	N N N	16,582,483.7137 16,582,513.8789 16,582,499.0690	E E E	1, 419, 691. 1095 1, 419, 691. 9481 1, 419, 681. 7173

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	PRELIMINAR	Υ	







PR 100 ROADWAY IMPROVEMENTS

HORIZONTAL CONTROL DATA

EAST SIDEWALK BASELINE

SHEET 11 OF 17

ED. RD. IV. NO.	FEDERAL AID PROJECT NO.			H I GHWA	NO.	
6	N\A			PR	100	
STATI		DISTRICT		JNTY	SHEET NO.	
TEXA	AS PHR		CAMERON			
CONTR	OL SECTION		7	ЮВ	055	
N\A	\A N\A		N	<b> \A</b>		

	Curve Data		Curve Data **
Curve ESW080 P.I. Station Delta = 99° 34′ 33.79" Degree = 716° 11′ 50.08" Tangent = 9.4627 Length = 13.9034 Radius = 8.0000 External = 4.3912	N 16,582,519.2573 E (RT)	1,419,684.1624	Curve ESW084 P.I. Station Delta = 99° 33′ 02.76" (RT) Degree = 716° 11′ 50.08" Tangent = 9.4585 Length = 13.8999 Radius = 8.0000 External = 4.3880
Long Chord = 12.2186 Mid. Ord. = 2.8351 P.C. Station 87+51.89 P.T. Station 87+55.79 C.C. Back = N 55° 21′ 46.86″ W Ahead = N 44° 12′ 46.93″ E Chord Bear = N 5° 34′ 29.97″ W	N 16,582,526.0397 E N 16,582,520.4610 E	1,419,691.9481 1,419,690.7610 1,419,696.4951	Long Chord = 12.2163 Mid. Ord. = 2.8337 P.C. Station 88+34.03 N 16,582,594.0107 E 1,419,684.0536 P.T. Station 88+47.93 N 16,582,606.0673 E 1,419,682.0845 C.C. Back = N 59° 03′ 05.47" W Ahead = N 40° 29′ 57.29" E Chord Bear = N 9° 16′ 34.09" W
	Curve Data **		Curve Data **
Curve ESW081 P.I. Station Delta = 99° 02′ 57.26" Degree = 318° 18′ 35.59" Tangent = 21.0936 Length = 31.1172 Radius = 18.0000 External = 9.7298 Long Chord = 27.3847	N 16,582,541.1586 E (LT)	1,419,705.4702	Curve ESW085 P.I. Station
Mid. Ord. = 6.3158 P.C. Station 87+55.79 P.T. Station 87+86.91 C.C. Back = N 44° 12′ 46.95" E Ahead = N 54° 50′ 10.31" W Chord Bear = N 5° 18′ 41.68" W	N 16,582,526.0397 E N 16,582,553.3067 E N 16,582,538.5916 E	1,419,690.7610 1,419,688.2260 1,419,677.8595	Long Chord = 26.1932 Mid. Ord. = 5.6518 P.C. Station 88+47.93 N 16,582,606.0673 E 1,419,682.0845 P.T. Station 88+77.26 N 16,582,632.1080 E 1,419,679.2623 C.C. Back = N 40° 29′ 57.30" E Ahead = N 52° 52′ 12.02" W Chord Bear = N 6° 11′ 07.36" W
	Curve Data **		Curve Da†a **
Curve ESW082 P.I. Station Delta = 100° 54′ 41.64" Degree = 716° 11′ 50.08" Tangent = 9.6895 Length = 14.0899 Radius = 8.0000	N 16,582,558.8871 E (RT)	1,419,680.3047	Curve ESW086 P.I. Station  Delta = 96° 36′ 17.35" (RT)  Degree = 716° 11′ 50.08"  Tangent = 8.9798 Length = 13.4886 Radius = 8.0000 External = 4.0265
External = 4.5653 Long Chord = 12.3381 Mid. Ord. = 2.9066 P.C. Station 87+86.91 P.T. Station 88+01.00 C.C. Back = N 54° 50′ 10.32" W Ahead = N 46° 04′ 31.33" E Chord Bear = N 4° 22′ 49.49" W	N 16 592 550 9469 E	1,419,688.2260 1,419,687.2836 1,419,692.8333	Long Chord = 11.9467 Mid. Ord. = 2.6784 P.C. Station 88+77.26 N 16,582,632.1080 E 1,419,679.2623 P.T. Station 88+90.75 N 16,582,644.0167 E 1,419,678.3109 C.C. Back = N 52° 52′ 12.01" W Ahead = N 43° 44′ 05.34" E Chord Bear = N 4° 34′ 03.34" W
	Curve Data		Curve Data **
Curve ESW083 P.I. Station 88+24.51 Delta = 105° 07′ 36.79" Degree = 318° 18′ 35.59" Tangent = 23.5119 Length = 33.0266	N 16,582,581.9193 E	1,419,704.2182	Curve ESW087 P.I. Station 89+09.99 N 16,582,657.9212 E 1,419,691.6145 Delta = 93° 49′ 30.85" (LT) Degree = 318° 18′ 35.59"
Radius = 18.0000 External = 11.6110			Tangent = 19.2437 Length = 29.4761 Radius = 18.0000 External = 8.3500 Long Chord = 26.2913

No.	Revision	Ву	Date

PRELIMINARY

FOR REVIEW ONLY

Not for construction, bidding, or permit purposes. Kimley >>> Horn
Engineer\_RYAN\_DELMOTTE
P.E. No. \_114242\_Date \_11/6/2018





PR 100 ROADWAY IMPROVEMENTS

HORIZONTAL CONTROL DATA

EAST SIDEWALK BASELINE

SHEET 12 OF 17

ED. RD. IV. NO.	FEDERAL AID PROJECT NO.			H I GHWA	Y NO.
6	N∖A		PR 100		
STATE	TATE DISTRICT COU		JNTY	SHEET NO.	
TEXAS		PHR	CAMERON		
CONTROL		SECTION	JOB		056
N\A		N∖A	N\A		

	Curve Data				Curve *			
Degree = 716° 11′ 50.08″ Tangent = 9.3185 Length = 13.7822 Radius = 8.0000	N 16,582,6 (RT)	676.2461 E	1,419,669.7056	Curve ESW092 P.I. Station Delta = 102° 02′ 47.81" Degree = 716° 11′ 50.08" Tangent = 9.8874 Length = 14.2484 Radius = 8.0000		16,582,757.7547	E 1,419,658	8.1919
External = 4.2815 Long Chord = 12.1399 Mid. Ord. = 2.7889 P. C. Station 89+20.22 P. T. Station 89+34.01 C. C. Back = N 50° 05′ 25.51" W Ahead = N 48° 37′ 01.51" E Chord Bear = N 0° 44′ 12.00" W	N 16,582,6 N 16,582,6 N 16,582,6	670.2675 E 682.4065 E 676.4040 E	1,419,676.8534 1,419,676.6973 1,419,681.9861	External = 4.7185 Long Chord = 12.4384 Mid. Ord. = 2.9680 P.C. Station 90+16.29 P.T. Station 90+30.54 C.C. Back = N 56° 42′ 35.33" W Ahead = N 45° 20′ 12.48" E Chord Bear = N 5° 41′ 11.42" W	N N N N	16,582,752.3277 16,582,764.7050 16,582,759.0149	E 1,419,666 E 1,419,665 E 1,419,670	6.4568 5.2243 0.8478
Cursus ESWARA	Curve Data **				Curve *			
Delta = 114° 03′ 43.65″ Degree = 318° 18′ 35.59″ Tangent = 27.7505 Length = 35.8337 Radius = 18.0000 External = 15.0770	N 16,582, (LT)	700.7520 E	1,419,697.5188	Curve ESW093 P.I. Station Delta = 104° 42′ 26.39" Degree = 318° 18′ 35.59" Tangent = 23.3344 Length = 32.8948 Radius = 18.0000 External = 11.4702	N (LT)	16,582,781.1076	E 1,419,681	1.8209
Long Chord = 30.2028 Mid. Ord = 8.2047 P.C. Station 89+34.01 P.T. Station 89+69.84 C.C. Back = N 48° 37′ 01.50" E Ahead = N 65° 26′ 42.15" W Chord Bear = N 8° 24′ 50.33" W	N 16,582,9 N 16,582,9 N 16,582,9	682.4065 E 712.2841 E 695.9120 E	1,419,676.6973 1,419,672.2779 1,419,664.7978	External = 11.4702 Long Chord = 28.5047 Mid. Ord. = 7.0059 P.C. Station 90+30.54 P.T. Station 90+63.43 C.C. Back = N 45° 20′ 12.50" E Ahead = N 59° 22′ 13.90" W Chord Bear = N 7° 01′ 00.70" W	N N N	16,582,764.7050 16,582,792.9961 16,582,777.5075	E 1,419,665 E 1,419,661 E 1,419,652	5.2243 1.7421 2.5714
	Curve Data **				Curve			
Delta = 108° 24′ 41.85" Degree = 716° 11′ 50.08" Tangent = 11.0946 Length = 15.1371 Radius = 8.0000	N 16,582, (RT)	716.8947 E	1,419,662.1867	Curve ESW094 P.I. Station Delta = 94° 39′ 47.34" Degree = 716° 11′ 50.08" Tangent = 8.6791 Length = 13.2175 Radius = 8.0000	N (RT)	16,582,797.4180	E 1,419,654	4.2739
External = 5.6781 Long Chord = 12.9780 Mid. Ord = 3.3210 P.C. Station 89+69.84 P.T. Station 89+84.98 C.C. Back = N 65° 26′ 42.16″ W Ahead = N 42° 57′ 59.69″ E Chord Bear = N 11° 14′ 21.23″ W	N 16,582, N 16,582, N 16,582,	712.2841 E 725.0132 E 719.5606 E	1,419,672.2779 1,419,669.7485 1,419,675.6025	External = 3.8037 Long Chord = 11.7646 Mid. Ord. = 2.5780 P.C. Station 90+63.43 P.T. Station 90+76.65 C.C. Back = N 59° 22′ 13.89" W Ahead = N 35° 17′ 33.45" E Chord Bear = N 12° 02′ 20.22" W	N N N	16,582,792.9961 16,582,804.5020 16,582,799.8800	E 1,419,661 E 1,419,659 E 1,419,665	1.7421 9.2883 5.8180
Chord Bear = N 11° 14′ 21.23" W	Curve Data			Chord Bear = N 12° 02′ 20.22" W	Cursia	Data		
Curve ESW091	**	7.40 6007 5	4 440 604 6057	Curve ESW095	Curve *			
Degree = 318° 18′ 35.59" Tangent = 21.3290 Length = 31.3143 Radius = 18.0000 External = 9.9092	N 16,582, (LT)	740.6207 E	1,419,684.2857	P.I. Station 90+95.21 Delta = 91° 45′ 49.06" Degree = 318° 18′ 35.59" Tangent = 18.5628 Length = 28.8284 Radius = 18.0000	N (LT)	16,582,819.6531	E 1,419,670	0.0130
Long Chord = 27.5121 Mid. Ord = 6.3909 P.C. Station 89+84.98 P.T. Station 90+16.29 C.C. Back = N 42° 57′ 59.68" E Ahead = N 56° 42′ 35.34" W Chord Bear = N 6° 52′ 17.83" W	N 16,582, N 16,582, N 16,582,	725.0132 E 752.3277 E 737.2815 E	1,419,669.7485 1,419,666.4568 1,419,656.5769	External = 7.8568 Long Chord = 25.8446 Mid. Ord. = 5.4695 P.C. Station 90+76.65 P.T. Station 91+05.48 C.C. Back = N 35° 17′ 33.45" E Ahead = N 56° 28′ 15.61" W Chord Bear = N 10° 35′ 21.08" W	N	16,582,804.5020 16,582,829.9064 16,582,814.9015	E 1,419,659 E 1,419,654 E 1,419,644	9.2883 4.5390 4.5965

No.	Revision	Ву	Date

PRELIMINARY

FOR REVIEW ONLY

Not for construction, bidding, or permit purposes. Kimley >>> Horn
Engineer\_RYAN\_DELMOTTE
P.E. No. \_114242\_Date \_11/6/2018





PR 100 ROADWAY IMPROVEMENTS

HORIZONTAL CONTROL DATA

EAST SIDEWALK BASELINE

SHEET 13 OF 17

ED.RD. DIV.NO.	FEDERAL AID PROJECT NO.			H I GHWA	Y NO.
6		N\A			100
STATE	Ē	DISTRICT	col	JNTY	SHEET NO.
TEXA	4S	PHR CAMERON			
CONTR	OL	SECTION	JOB		057
N\	Д	N\A	N\A		

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<u>.</u> .	*BIvd*Me
20,0000 ft /	1*Padre
20.00	4003*SF
O PM	+\06923
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TED: 11/6/2018 2:51:20 PM 20.0000 f+ /	K: \LAC*TPTO\
Ë	NAME:

Curv	e Da†a *			Curve Data **	
Curve ESW096 P. I. Station Delta = 110° 09′ 08.58" (RT) Degree = 716° 11′ 50.08" Tangent = 11.4576 Length = 15.3802 Radius = 8.0000	16,582,836.2351 E	1,419,644.9878	Curve ESW100 P.I. Station Delta = 95° 13′ 55.75" Degree = 716° 11′ 50.08" Tangent = 8.7661 Length = 13.2969 Radius = 8.0000 External = 3.8678		1,419,640.4652
External = 5.9741 Long Chord = 13.1186 Mid. Ord. = 3.4201 P.C. Station 91+05.48 N P.T. Station 91+20.86 N C.C. Back = N 56° 28′ 15.60" W Ahead = N 53° 40′ 52.99" E Chord Bear = N 1° 23′ 41.30" W	16,582,829.9064 E 16,582,843.0212 E 16,582,836.5753 E	1,419,654.5390 1,419,654.2196 1,419,658.9578	External = 3.8678 Long Chord = 11.8183 Mid. Ord. = 2.6072 P.C. Station 92+02.40 P.T. Station 92+15.70 C.C. Back = N 49° 16′ 46.69" W Ahead = N 45° 57′ 09.06" E Chord Bear = N 1° 39′ 48.81" W	N 16,582,924.3544 E N 16.582.918.6043 F	1,419,647.1090 1,419,646.7659 1,419,652.3279
	e Data *		-	Curve Data **	
Curve ESW097 P.I. Station Delta = 119° 05′ 07.84" (LT) Degree = 318° 18′ 35.59" Tangent = 30.6101 Length = 37.4118	16,582,861.1508 E	1,419,678.8833	Curve ESW101 P.I. Station Delta = 109° 23′ 34.46" Degree = 318° 18′ 35.59" Tangent = 25.4190 Length = 34.3668 Radius = 18.0000	(LT)	1,419,665.0361
Lona Chord = 31.0323			External = 13.1468		
Mid. Ord. = 8.8759 P.C. Station 91+20.86 N P.T. Station 91+58.27 N	16,582,843.0212 E 16,582,873.8912 E 16,582,857.5244 E	1,419,654.2196 1,419,651.0506	Mid. Ord. = 7.5977 P.C. Station 92+15.70 P.T. Station 92+50.06 C.C.	N 16,582,953.3926 E	1,419,646.7659 1,419,642.2996 1,419,634.2513
P.T. Station 91+58.27 N C.C. Back = N 53° 40′ 53.00" E Ahead = N 65° 24′ 14.84" W Chord Bear = N 5° 51′ 40.92" W	16,582,857.5244 E	1, 419, 643. 5587	Back = N 45° 57′ 09.04" E Ahead = N 63° 26′ 25.42" W Chord Bear = N 8° 44′ 38.19" W	,	1, 419, 634. 2313
	e Data *			Curve Data **	
Curve ESW098 P.I. Station Delta = 108° 24′ 34.64" (RT) Degree = 716° 11′ 50.08" Tangent = 11.0942	16,582,878.5086 E	1,419,640.9629	Curve ESW102 P.I. Station Delta = 101° 09′ 16.89" Degree = 716° 11′ 50.08" Tangent = 9.7315 Length = 14.1239 Radius = 8.0000		1,419,633.5951
Length = 15.1368 Radius = 8.0000 External = 5.6778 Long Chord = 12.9778 Mid. Ord. = 3.3209 P.C. Station 91+58.27 N	16,582,873.8912 E 16,582,886.6219 E	1,419,651.0506 1,419,648.5298	Radius = 8.0000 External = 4.5977 Long Chord = 12.3597 Mid. Ord. = 2.9197 P. C. Station 92+50.06 P. T. Station 92+64.19	N 16,582,953.3926 E	1, 419, 642. 2996 1, 419, 639. 5481
P.T. Station 91+73.41 N C.C. N Back = N 65° 24′ 18.26″ W Ahead = N 43° 00′ 16.37″ E Chord Bear = N 11° 12′ 00.94″ W	16,582,873.8912 E 16,582,886.6219 E 16,582,881.1654 E	1, 419, 648. 5298 1, 419, 654. 3802	C.C.  Back = N 63° 26′ 25.44" W Ahead = N 37° 42′ 51.45" E Chord Bear = N 12° 51′ 46.99" W		1, 419, 645. 8767
Curv	e Data *			Curve Data **	
Curve ESW099 P.I. Station Delta = 92° 17′ 03.05" (LT) Degree = 318° 18′ 35.59" Tangent = 18.7323	16,582,900.3208 E	1,419,661.3062	Curve ESW103 P.I. Station Delta = 93° 09′ 00.48" Degree = 318° 18′ 35.59" Tangent = 19.0179 Length = 29.2640	(LT)	1,419,651.1818
Length = 28.9919 Radius = 18.0000 External = 7.9788 Long Chord = 25.9582 Mid. Ord. = 5.5283 P.C. Station 91+73.41 N P.T. Station 92+02.40 N C.C. Back = N 43° 00′ 16.37" E Ahead = N 49° 16′ 46.68" W Chord Bear = N 3° 08′ 15.15" W	16,582,886.6219 E 16,582,912.5411 E 16,582,898.8989 E	1,419,648.5298 1,419,647.1090 1,419,635.3664	Radius = 18.0000 External = 8.1855 Long Chord = 26.1459 Mid. Ord. = 5.6267 P.C. Station 92+64.19 P.T. Station 92+93.45 C.C. Back = N 37° 42′ 51.43" E Ahead = N 55° 26′ 09.04" W Chord Bear = N 8° 51′ 38.80" W	N 16,582,965.4422 E N 16,582,991.2761 E N 16,582,976.4532 E	1,419,639.5481 1,419,635.5207 1,419,625.3088

No.	Revision	Ву	Date



Kimley»Horn





PR 100 ROADWAY IMPROVEMENTS

HORIZONTAL CONTROL DATA

EAST SIDEWALK BASELINE

SHEET 14 OF 17

ED.RD. IV.NO.	FEDERAL AID PROJECT NO.			H I GHWA	NY NO.
6	N\A			PR	100
STATE		DISTRICT	col	JNTY	SHEET NO.
TEXA	AS PHR CAMERON				
CONTR	DL	SECTION	JOB		058
N\	\A N\A N\A				

): 11/6/2018 2:51:22 PM 20.0000 f+ / in.	E: K:\LAC*TPTO\1projec+\069234003*SP1*Padre*BIvd*Medians\CADD\Shee+s\PDMGE016.dgn
11/6/2018 2	K: \LAC*TPTO\1p
TED:	ENAME:

		re Data			Curve Data **	
Curve ESW104 P.I. Station Delta = Degree = Tangent = Length = Radius =	93+03.56 N 103° 17′ 39.31" (RT) 716° 11′ 50.08" 10.1106 14.4226 8.0000	16,582,997.0110 E	1,419,627.1940	Curve ESW108 P.I. Station 93+97.13 Delta = 100° 58′ 07.33" Degree = 716° 11′ 50.08" Tangent = 9.6994 Length = 14.0979 Radius = 8.0000	N 16,583,077.6242 E	1,419,619.4615
External = Long Chord = Mid. Ord. = P.C. Station P.T. Station C.C.	4.8928 12.5473 3.0360 92+93.45 93+07.88 N 55° 26' 36.72" W 47° 51' 02.59" E 3° 47' 47.06" W	16,582,991.2761 E 16,583,003.7958 E 16,582,997.8646 E	1,419,635.5207 1,419,634.6900 1,419,640.0585	Length = 14.0979 Radius = 8.0000 External = 4.5729 Long Chord = 12.3432 Mid. Ord. = 2.9097 P.C. Station 93+87.43 P.T. Station 94+01.53 C.C. Back = N 58° 46′ 02.01" W Ahead = N 42° 12′ 05.32" E Chord Bear = N 8° 16′ 58.34" W	N 16,583,084.8094 E N 16,583,079,4355 F	1,419,627.7551 1,419,625.9769 1,419,631.9032
		re Data *			Curve Data **	
Curve ESW105 P.I. Station Delta = Degree = Tangent = Length = Radius =	93+30.79 N 103° 41′ 56.20" (LT) 318° 18′ 35.59" 22.9146 32.5780 18.0000	16,583,019.5005 E	1,419,651.3765	Curve ESW109 P.I. Station Delta = 96° 42′ 03.85" Degree = 318° 18′ 35.59" Tangent = 20.2387 Length = 30.3795 Radius = 18.0000 External = 9.0851 Long Chord = 26.9001 Mid. Ord. = 6.0377 P.C. Station	N 16,583,099.8022 E (LT)	1,419,639.5717
External = Long Chord = Mid. Ord. = P.C. Station P.T. Station C.C. Back = N Ahead = N	11.1390 28.3101 6.8809 93+07.88 N 93+40.45 N N 46° 44′ 10.32″ E 56° 57′ 45.88″ W 5° 06′ 47.78″ W	16,583,003.7958 E 16,583,031.9932 E 16,583,016.9035 E	1,419,634.6900 1,419,632.1668 1,419,622.3535	P.T. Station 94+31.91 C.C. 94+31.91 Back = N 42° 12′ 00.87" E Ahead = N 54° 30′ 02.97" W	N 16,583,084.8094 E N 16,583,111.5546 E N 16,583,096.9004 E	1,419,625.9769 1,419,623.0949 1,419,612.6425
Chord Bear = N		ve Data		Chord Bear = N 6° 09′ 01.05" W	Curve Data	
Curve ESW106 P.I. Station Delta = Degree = Tangent =	* 93+50.46 N 102° 42′ 38.04" (RT) 716° 11′ 50.08" 10.0054 14.3411	16,583,037.4203 E	1,419,623.7612	Curve ESW110 P.I. Station Delta = 97° 57′ 20.75" Degree = 716° 11′ 50.08" Tangent = 9.1958 Length = 13.6772	(RT)	1,419,615.6084
Length = Radius = External = Long Chord = Mid. Ord. = P.C. Station P.T. Station C.C. Back = N Ahead = N Chord Bear = N	8.0000 4.8105 12.4965 3.0041 93+40.45 93+54.79 N 57° 09' 06.08" W 45° 33' 31.96" E 5° 47' 47.06" W	16,583,031.9932 E 16,583,044.4259 E 16,583,038.7141 E	1,419,632.1668 1,419,630.9048 1,419,636.5062	Radius = 8.0000  External = 4.1886  Long Chord = 12.0713  Mid. Ord. = 2.7492  P.C. Station 94+31.91  P.T. Station 94+45.58  C.C.  Back = N 54° 30′ 02.97" W  Ahead = N 43° 27′ 17.77" E  Chord Bear = N 5° 31′ 22.60" W	N 16,583,111.5546 E N 16,583,123.5699 E N 16.583.118.0676 E	1,419,623.0949 1,419,621.9331 1,419,627.7405
		re Data			Curve Data	
Curve ESW107 P.I. Station Delta = Degree = Tangent = Length = Radius =	93+77.78 N 103° 52′ 37.73" (LT) 318° 18′ 35.59" 22.9881 32.6340 18.0000	16,583,060.5216 E	1,419,647.3175	Curve ESW111 P.I. Station 94+68.32 Delta = 103° 15′ 58.65" Degree = 318° 18′ 35.59" Tangent = 22.7374 Length = 32.4421 Radius = 18.0000	N 16,583,140.0753 E (LT)	1,419,637.5715
External = Long Chord = Mid. Ord. = P.C. Station P.T. Station C.C. Back = N Ahead = N Chord Bear = N	11.1968 28.3446 6.9029 93+54.79 93+87.43 N 45° 33′ 31.17" E 58° 19′ 06.55" W 6° 22′ 47.69" W	16,583,044.4259 E 16,583,072.5949 E 16,583,057.2773 E	1,419,630.9048 1,419,627.7551 1,419,618.3015	External = 10.9998 Long Chord = 28.2259 Mid. Ord. = 6.8275 P.C. Station 94+45.58 P.T. Station 94+78.03 C.C. Back = N 43° 27′ 17.78" E Ahead = N 59° 48′ 40.86" W Chord Bear = N 8° 10′ 41.54" W	N 16,583,123.5699 E N 16,583,151.5087 E N 16,583,135.9500 E	1,419,621.9331 1,419,617.9179 1,419,608.8667

No.	Revision	Ву	Date

PRELIMINARY

FOR REVIEW ONLY

Not for construction, bidding, or permit purposes.

Kimley >>> Horn

Engineer\_RYAN\_DELMOTTE

P.E. No. 114242\_Date 11/6/2018

Kimley > Horn
THE REGISTERED ENGINEERING FIRM F-928





PR 100 ROADWAY IMPROVEMENTS

HORIZONTAL CONTROL DATA

EAST SIDEWALK BASELINE

SHEET 15 OF 17

ED. RD. IV. NO.	FEDERAL AID PROJECT NO.			H I GHWA	NY NO.
6	N\A			PR	100
STATE		DISTRICT	col	JNTY	SHEET NO.
TEXA	AS PHR CAMERON		ERON		
CONTRO	DL	SECTION	JOB		059
N\A		N∖A	N	<b>\</b> A	

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00000	03*SPI*F
PM 2	10692340
2:51:24	\1projec
: 11/6/2018 2:51:24 PM 20.0000 ft / in	AME: K:\LAC*TPTO\1project\069234003*SPI*Padre*Blvd
ë	AME:

	Curve Data **		Curve Data **
Curve ESW112 P.I. Station 94+87.98 Delta = 102° 26′ 49.26″ Degree = 716° 11′ 50.08″ Tangent = 9.9584 Length = 14.3043 Radius = 8.0000	(RT) ´ ´	1,419,609.3102	Curve ESW116 P.I. Station 95+81.03 N 16,583,237.6366 E 1,419,602.3342 Delta = 99° 25′ 43.48" (RT) Degree = 716° 11′ 50.08" Tangent = 9.4381 Length = 13.8829 Radius = 8.0000
External = 4.7738 Long Chord = 12.4735 Mid. Ord. = 2.9897 P.C. Station 94+78.03 P.T. Station 94+92.33 C.C. Back = N 59° 48′ 40.84″ W Ahead = N 42° 38′ 08.42″ E Chord Bear = N 8° 35′ 16.21″ W	N 16,583,151.5087 E N 16,583,163.8424 E N 16,583,158.4237 E	1,419,617.9179 1,419,616.0553 1,419,621.9407	External = 4.3724 Long Chord = 12.2053 Mid. Ord. = 2.8272 P.C. Station 95+71.60 N 16,583,232.5095 E 1,419,610.2583 P.T. Station 95+85.48 N 16,583,244.6136 E 1,419,608.6902 C.C. N 16,583,239.2261 E 1,419,614.6041 Back = N 57° 05′ 44.99" W Ahead = N 42° 19′ 58.49" E Chord Bear = N 7° 22′ 53.25" W
Course FCW117	Curve Data **		Curve Data **
Curve ESW113 P.I. Station Delta = 98° 32′ 04.40" Degree = 318° 18′ 35.59" Tangent = 20.9028 Length = 30.9555 Radius = 18.0000 External = 9.5849 Long Chord = 27.2794	(LT)	1,419,630.2135	Curve ESW117 P.I. Station 96+08.51 N 16,583,261.6370 E 1,419,624.1981 Delta = 103° 58′ 25.18" (LT) Degree = 318° 18′ 35.59" Tangent = 23.0280 Length = 32.6643 Radius = 18.0000 External = 11.2282 Long Chord = 28.3633
Long Chord = 27.2794 Mid. Ord. = 6.2544 P.C. Station 94+92.33 P.T. Station 95+23.28 C.C. Back = N 42° 38′ 08.44″ E Ahead = N 55° 53′ 55.96″ W Chord Bear = N 6° 37′ 53.76″ W	N 16,583,163.8424 E N 16,583,190.9393 E N 16,583,176.0344 E	1,419,616.0553 1,419,612.9050 1,419,602.8132	External = 11.2282 Long Chord = 28.3633 Mid. Ord. = 6.9148 P.C. Station 95+85.48 N 16,583,244.6136 E 1,419,608.6902 P.T. Station 96+18.14 N 16,583,272.5753 E 1,419,603.9338 C.C. N 16,583,256.7355 E 1,419,595.3838 Back = N 42° 19′ 58.50" E Ahead = N 61° 38′ 26.68" W Chord Bear = N 9° 39′ 14.09" W
Chord Bedi - N 0 31 33.10 W	Curve Data		Curve Data
Curve ESW114 P.I. Station 95+33.89 Delta = 105° 57′ 41.64" Degree = 716° 11′ 50.08" Tangent = 10.6090		1,419,604.0713	Curve ESW118  P.I. Station 96+27.98 N 16,583,277.2494 E 1,419,595.2744  Delta = 101° 46′ 44.83" (RT)  Degree = 716° 11′ 50.08"
Tangent = 10.6090 Length = 14.7950 Radius = 8.0000 External = 5.2872 Long Chord = 12.7749 Mid. Ord. = 3.1833 P.C. Station 95+33.08 P.T. Station 95+38.08 C.C. Back = N 56° 22′ 21.31" W Ahead = N 49° 35′ 20.33" E Chord Bear = N 3° 23′ 30.49" W	N 16,583,190.9393 E N 16,583,203.6919 E N 16,583,197.6006 E	1,419,612.9050 1,419,612.1491 1,419,617.3353	Tangent = 9.8403 Length = 14.2110 Radius = 8.0000 External = 4.6820 Long Chord = 12.4149 Mid. Ord. = 2.9535 P.C. Station 96+18.14 N 16,583,272.5753 E 1,419,603.9338 P.T. Station 96+32.35 N 16,583,284.7722 E 1,419,601.6178 C.C. Back = N 61° 38′ 26.68" W Ahead = N 40° 08′ 18.14" E Chord Bear = N 10° 45′ 04.27" W
	Curve Data **		Curve Data **
Curve ESW115 P.I. Station 95+62.27 Delta = 106° 41′ 00.26" Degree = 318° 18′ 35.59" Tangent = 24.1856 Length = 33.5156 Radius = 18.0000 External = 12.1487	(LT)	1,419,630.5640	Curve ESW119 P.I. Station 96+52.39 N 16,583,300.0924 E 1,419,614.5362  Delta = 96° 08′ 19.43" (LT) Degree = 318° 18′ 35.59"  Tangent = 20.0398 Length = 30.2029 Radius = 18.0000 External = 8.9368 Long Chord = 26.7824
External = 12.1487 Long Chord = 28.8796 Mid. Ord. = 7.2533 P.C. Station 95+38.08 P.T. Station 95+71.60 C.C. Back = N 49° 35′ 15.26″ E Ahead = N 57° 05′ 45.00″ W Chord Bear = N 3° 45′ 14.87″ W	8 N 16,583,203.6919 E 9 N 16,583,232.5095 E N 16,583,217.3970 E	1,419,612.1491 1,419,610.2583 1,419,600.4800	Long Chord = 26.7824 Mid. Ord. = 5.9719 P.C. Station 96+32.35 N 16,583,284.7722 E 1,419,601.6178 P.T. Station 96+62.56 N 16,583,311.2984 E 1,419,597.9224 C.C. N 16,583,296.3757 E 1,419,587.8570 Back = N 40° 08′ 18.14" E Ahead = N 56° 00′ 01.29" W Chord Bear = N 7° 55′ 51.57" W
			Curve Data **
			Curve ESW120 P.I. Station 96+73.12 N 16,583,317.2057 E 1,419,589.1643 Delta = 105° 43′ 40.97" (RT) Degree = 716° 11′ 50.08" Tangent = 10.5641 Length = 14.7624 Radius = 8.0000
			External = 5.2514 Long Chord = 12.7553 Mid. Ord. = 3.1703 P.C. Station 96+62.56 N 16,583,311.2984 E 1,419,597.9224 P.T. Station 96+77.32 N 16,583,324.0346 E 1,419,597.2245 C.C. N 16,583,317.9307 E 1,419,602.3959 Ahead = N 49° 43′ 39.68" E Chord Bear = N 3° 08′ 10.81" W

No.	Revision	Ву	Date



**Kimley** »Horn





PR 100 ROADWAY IMPROVEMENTS

HORIZONTAL CONTROL DATA

EAST SIDEWALK BASELINE

SHEET 16 OF 17

FED.RD. DIV.NO.		FEDERAL AID PROJECT	HIGHWAY NO.			
6		N\A		PR 100		
STATE		DISTRICT	col	JNTY	SHEET NO.	
TEXA	\S	PHR	CAM	ERON		
CONTRO	DL	SECTION	JOB		060	
N\A	4	N\A	N	<b> \A</b>		

Curve Data **		Curve Data
Curve ESW116 P.I. Station 95+81.03 N 16,583,237.6366 E  Delta = 99° 25′ 43.48" (RT)  Degree = 716° 11′ 50.08"  Tangent = 9.4381  Length = 13.8829  Radius = 8.0000  External = 4.3724  Long Chord = 12.2053	Delta = 107° 14′ 31. Degree = 318° 18′ 35. Tangent = 24.4 Length = 33.6 Radius = 18.0	59" 334 911 000
Mid. Ord. = 2.8272 P.C. Station 95+71.60 N 16,583,232.5095 E P.T. Station 95+85.48 N 16,583,244.6136 E C.C. N 16,583,239.2261 E Back = N 57° 05′ 44.99" W Ahead = N 42° 19′ 58.49" E Chord Bear = N 7° 22′ 53.25" W	Long Chord = 28.9  1,419,610.2583 Mid. Ord. = 7.3  1,419,608.6902 P.C. Station 96+77  1,419,614.6041 P.T. Station 97+11  C.C. Back = N 49° 43′ 39.67  Ahead = N 57° 30′ 51.66  Chord Bear = N 3° 53′ 35.99	1840 1238 1.32 N 16,583,324.0346 E 1,419,597.2245 1.01 N 16,583,352.9517 E 1,419,595.2565 N 16,583,337.7682 E 1,419,585.5889
Curve Data **		Curve Data **
Curve ESW117 P.I. Station 96+08.51 N 16,583,261.6370 E  Delta = 103° 58′ 25.18" (LT)  Degree = 318° 18′ 35.59"  Tangent = 23.0280  Length = 32.6643  Radius = 18.0000  External = 11.2282  Long Chord = 28.3633	1,419,624.1981	8.97 N 16,583,357.2273 E 1,419,588.5408 60" (RT) 08" 0613 1276 10000
Mid. Ord. = 6.9148 P.C. Station 95+85.48 N 16,583,244.6136 E P.T. Station 96+18.14 N 16,583,272.5753 E C.C. N 16,583,256.7355 E Back = N 42° 19′ 58.50" E Ahead = N 61° 38′ 26.68" W Chord Bear = N 9° 39′ 14.09" W	External = 3.2  1,419,608.6902	862 1294 .01 N 16,583,352.9517 E 1,419,595.2565 5.54 N 16,583,363.9637 E 1,419,592.7838 N 16,583,359.7001 E 1,419,599.5529
Curve Data **		Curve Data
Curve ESW118 P.I. Station Delta = 101° 46′ 44.83" (RT) Degree = 716° 11′ 50.08" Tangent = 9.8403 Length = 14.2110 Radius = 8.0000	1,419,595.2744	** 7.18 N 16,583,384.1096 E 1,419,605.1575 43" (LT) 59" 425 227
External = 4.6820 Long Chord = 12.4149 Mid. Ord. = 2.9535 P.C. Station 96+18.14 N 16,583,272.5753 E P.T. Station 96+32.35 N 16,583,284.7722 E C.C. N 16,583,279.6151 E Back = N 61° 38′ 26.68" W Ahead = N 40° 08′ 18.14" E Chord Bear = N 10° 45′ 04.27" W	Radius = 18.0 External = 11.7 Long Chord = 28.6 1,419,603.9338 Mid. Ord. = 7.0 1,419,601.6178 P.C. Station 97+23 1,419,607.7337 P.T. Station 97+56 C.C. Back = N 31° 33′ 30.66 Ahead = N 73° 52′ 27.77 Chord Bear = N 21° 09′ 28.55	1,433 1963 1,54 N 16,583,363.9637 E 1,419,592.7838 1,66 N 16,583,390.6762 E 1,419,582.4453 N 16,583,373.3844 E 1,419,577.4459
Curve Data ** Curve ESW119	Course from PT ESW123 to PC ES	W124 N 73° 52′ 27.78" W Dist 14.2792
P. I. Station 96+52.39 N 16-583-300.0924 F	1,419,614.5362	Curve Data **
Degree = 318° 18′ 35.59" Tangent = 20.0398 Length = 30.2029 Radius = 18.0000 External = 8.9368 Long Chord = 26.7824 Mid. Ord. = 5.9719	Radius = 8.0	2.50 N 16,583,395.0521 E 1,419,567.2238 50" (LT) 08" 589 7792
P.C. Station 96+32.35 N 16,583,284.7722 E P.T. Station 96+62.56 N 16,583,311.2984 E C.C. N 16,583,296.3757 E Back = N 40° 08′ 18.14" E Ahead = N 56° 00′ 01.29" W Chord Bear = N 7° 55′ 51.57" W	1,419,587.8570 Mid. Ord. = 0.1 P.C. Station 97+70 P.T. Station 97+74 C.C.	0603 477 0.94 N 16,583,394.6422 E 1,419,568.7279 1.02 N 16,583,394.8673 E 1,419,565.6759 N 16.583,386.9237 F 1,419,566.6241
Curve Data **	Back = N 74° 45′ 12.91 Ahead = S 83° 11′ 34.59 Chord Bear = N 85° 46′ 49.16	" W " W
Curve ESW120 P.I. Station 96+73.12 N 16,583,317.2057 E Delta = 105° 43′ 40.97" (RT) Degree = 716° 11′ 50.08" Tangent = 10.5641 Length = 14.7624 Radius = 8.0000	1,419,589.1643 Course from PT ESW124 to ESW15 Point ESW158 N 16,58	88 S 83° 12′ 38.22" W Dist 18.4588 83,392.6851 E 1,419,547.3465 Sta 97+92.48
External = 5.2514 Long Chord = 12.7553 Mid. Ord. = 3.1703 P.C. Station 96+62.56 N 16,583,311.2984 E P.T. Station 96+77.32 N 16,583,324.0346 E C.C. Back = N 56° 00′ 01.29" W Ahead = N 49° 43′ 39.68" E Chord Bear = N 3° 08′ 10.81" W	1,419,597.9224 1,419,597.2245 1,419,602.3959	

No.	Revision	Ву	Date

FOR REVIEW ONLY
Not for construction, bildding,
or permit purposes,
Kimley >>>> Horn

Engineer\_RYAN\_DELMOTTE
P.E. No. \_114242\_Date\_11/6/2018

Kimley » Horn

TBPE REGISTERED ENGINEERING FIRM F-928





PR 100 ROADWAY IMPROVEMENTS

HORIZONTAL CONTROL DATA

EAST SIDEWALK BASELINE

SHEET 17 OF 17

FED. RD. DIV. NO.	ı	FEDERAL AID PROJECT	HIGHWAY NO.			
6		N∖A		PR 100		
STATE		DISTRICT	col	JNTY	SHEET NO.	
TEXA	\S	PHR	САМ	ERON		
CONTRO	DL	SECTION	JOB		061	
N\A	4	N∖A	N\A			

Chain WSW01 contains:    CUR WSW001 CUR WSW002 CUR WSW003 WSW006 WSW007 CUR WSW004 CUR WSW005 CU 6 CUR WSW007 CUR WSW008 CUR WSW009 CUR WSW010 CUR WSW011 CUR WSW012 CUR CUR WSW014 CUR WSW015 CUR WSW016 CUR WSW017 CUR WSW018 CUR WSW019 CUR WSW021 CUR WSW022 CUR WSW023 CUR WSW024 CUR WSW025 WSW033 WSW034  Beginning chain WSW01 description	WSW013 - SW020 CU-
Curve Data **	
Curve WSW001 P.I. Station Delta = 32° 54′ 29.60" (RT) Degree = 318° 18′ 35.59" Tangent = 5.3162 Length = 10.3384 Radius = 18.0000 External = 0.7686	694.2738
Long Chord = 10.1969 Mid. Ord. = 0.7372 P.C. Station 100+00.00 N 16,578,361.4814 E 1,419, P.T. Station 100+10.34 N 16,578,371.0388 E 1,419, C.C. N 16,578,360.2430 E 1,419,6 Back = N 3° 56′ 41.96″ E Ahead = N 36° 51′ 11.55″ E Chord Bear = N 20° 23′ 56.75″ E	693.9081 697.4623 711.8654
Course from PT WSW001 to PC WSW002 N 36° 51′ 11.55" E Dist 17.8561	
Curve Data ** Curve WSW002	
P.I. Station 100+33.62 N 16,578,389.6669 E 1,419,70 Pelta = 33° 32′ 17.49″ (LT) Pegree = 318° 18′ 35.59″ Tangent = 5.4239 Length = 10.5363 Radius = 18.0000 External = 0.7994 Per State	711.4249
Mid. Ord. = 0.7654	708.1718 711.7385 693.7686
Curve Data **	
Delta = 1° 01′ 15.96" (RT) Degree = 0° 57′ 00.08"  Tangent = 53.7423 Length = 107.4817 Radius = 6,031.0000 External = 0.2394 Long Chord = 107.4802 Mid. Ord. = 0.2394	714.8462
P.C. Station 100+38.73 N 16,578,395.0818 E 1,419, P.T. Station 101+46.21 N 16,578,502.3225 E 1,419, C.C. N 16,578,046.3353 E 1,425, Back = N 3° 18′ 54.05" E Ahead = N 4° 20′ 10.01" E Chord Bear = N 3° 49′ 32.03" E	711.7385 718.9095 732.6468
Course from PT WSW003 to WSW006 N 4° 20′ 10.01" E Dist 373.9971	
Point WSW006 N 16,578,875.2491 E 1,419,747.1864 Sta 105.  Course from WSW006 to WSW007 N 4° 20′ 10.01" E Dist 33.6290	+20.21
	+53.84
Delta = 7° 24′ 10.80" (LT) Degree = 3° 00′ 04.86"  Tangent = 123.4997  Length = 246.6556  Radius = 1,909.0000  External = 3.9906  Long Chord = 246.4841	833.5445
Mid: Ord. = 3.9823	824.2071 826.9371 920.6712
Course from PT WSW004 to PC WSW005 N 3° 18′ 14.08" W Dist 15.7945	

		Curve *	Data *		
Curve WSW005 P.I. Station Delta = Degree = Tangent =	118+48.03 2° 48' 03.90" 3° 00' 04.86" 46.6730	(LT)	16,580,199.8489	E	1,419,823.1442
Length = Radius = External = Long Chord = Mid. Ord. = P.C. Station P.T. Station C.C. Back = N Ahead = N Chord Bear = N	46.6730 93.3274 1,909.0000 0.5705 93.3181 0.5703 118+94.68 3° 32′ 27.37" W 6° 20′ 31.27" W 4° 56′ 29.32" W	N N N	16,580,153.2650 16,580,246.2363 16,580,035.3620	E	1,419,826.0268 1,419,817.9886 1,417,920.6712
Curve WSW006		*	Da†a *		
P.I. Station Delta = Degree = Tangent = Length = Radius = External =	78° 00' 04.56" 318° 18' 35.59" 4.5764 24.5048 18.0000	N (RT)	16,580,260.7397	E	1,419,816.5310
Long Chord = Mid. Ord. = P.C. Station P.T. Station C.C.	22. 6558 4. 0115 118+94. 68 119+19. 19	N N	16,580,246.2363 16,580,265.1805 16,580,248.0362	E	1,419,817.9886 1,419,830.4145 1,419,835.8983
Back = N Ahead = N Chord Bear = N	5° 44′ 19.76" W 72° 15′ 44.81" E 33° 15′ 42.52" E	N	16,580,248.0362	E	1,419,835.8983
		Curve	Data *		
Curve WSW007 P.I. Station Delta = Degree = Tangent = Length =	78° 19' 58.13" 190° 59' 09.35" 24.4381 41.0150	N (LT)	16,580,272.6258	Е	1,419,853.6909
External =	30.0000 8.6940 37.8945				
Mid. Ord. = P.C. Station P.T. Station C.C. Back = N	72° 15′ 44.81" E	N N N	16,580,265.1805 16,580,296.9269 16,580,293.7544	E E	1,419,830.4145 1,419,851.1066 1,419,821.2748
Ahead = N Chord Bear = N	72° 15′ 44.81" E 6° 04′ 13.32" W 33° 05′ 45.74" E				
Course from PT W	SW007 to PC WSW008	8 N 6° (	04′ 13.32" W Dist	11.479	1
		Curve *	Data *		
Curve WSW008 P.I. Station Delta = Degree = Tangent = Length =	81° 14′ 08.41″ 318° 18′ 35.59″ 15.4376 25.5209 18.0000 5.4364	(N (LT)	16,580,323.6926	E	1,419,848.2601
Length = Radius = External = Long Chord = Mid. Ord. = P.C. Station P.T. Station C.C. Back = N Ahead = N Chord Bear = N	25.5209 18.0000 5.7133 23.4364 4.3368 119+71.68 119+97.20 6° 04' 13.33" W 87° 18' 21.74" W 46° 41' 17.54" W	N N N	16,580,308.3416 16,580,324.4182 16,580,306.4381	EEE	1,419,849.8927 1,419,832.8396 1,419,831.9936

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No.	Revision	Ву	Date



Kimley » Horn
THPE REGISTERED ENGINEERING FIRM F-928





PR 100 ROADWAY IMPROVEMENTS

HORIZONTAL CONTROL DATA

WEST SIDEWALK BASELINE

SHEET 1 OF 14

D. RD.	ı	EDERAL AID PROJECT	HIGHWAY NO.			
6		N∖A		PR 100		
STATE		DISTRICT	col	JNTY	SHEET NO.	
TEXA	4S	PHR	CAMERON		062	
CONTR	DL	SECTION	JOB			
N\	4	N∖A	N	I\A		

No.	Revision	Ву	Date
	PRELIMINA	₹ <b>Υ</b>	

FOR REVIEW ONLY
Not for construction, bidding, or permit purposes.

Kimley >>> Horn

Engineer\_RYAN\_DELMOTTE
P. E. No. \_\_114242\_Date\_\_11/6/2018

Kimley»Horn



\*\*Texas Department of Transportation © 2018

PR 100 ROADWAY IMPROVEMENTS

HORIZONTAL CONTROL DATA

WEST SIDEWALK BASELINE
SHEET 2 OF 14

AY NO.	HIGHWAY NO.		FEDERAL AID PROJECT	ı	FED.RD. DIV.NO.
100	PR 100		N∖A		6
SHEET NO.	UNTY	col	DISTRICT	Ē	STAT
	ERON	САМ	PHR	\S	TEXA
063	JOB	3	SECTION	OL	CONTR
]	1\A	l N	N\A	Δ	N/

ENAME: K:\LAC\*TPTO\1projec+\069234003\*SPI\*Padre\*BIvd\*Medians\CADD\Shee+s\PDMGEOG

	ve Data * 16,580,540.3690 E	1,419,784.1029	Curve WSW023 P.I. Station Delta = 103° 53′ 17.72" (RT) Degree = 318° 18′ 35.59" Tangent = 22.9927 Length = 32.6375 Radius = 18.0000
External = 10.5597 Long Chord = 27.9497 Mid. Ord. = 6.6554 P.C. Station 122+37.98 N P.T. Station 122+69.98 N C.C. Back = N 56° 02′ 01.34" W Ahead = N 45° 49′ 40.74" E Chord Bear = N 5° 06′ 10.30" W	16,580,527.9806 E 16,580,555.8197 E 16,580,542.9092 E	1,419,802.4927 1,419,800.0068 1,419,812.5494	External = 11.2004 Long Chord = 28.3468 Mid. Ord. = 6.9043 P.C. Station 123+30.88 N 16,580,608.5183 E 1,419,793.6889 P.T. Station 123+63.52 N 16,580,636.6578 E 1,419,790.2668 C.C. Back = N 58° 52′ 41.08" N 16,580,623.9276 E 1,419,790.2668 Ahead = N 45° 00′ 36.65" E 1,419,790.26924 Chord Bear = N 6° 56′ 02.21" W
Curv	ve Data		Curve Data **
Curve WSW020 P.I. Station Delta = 103° 45′ 17.75″ (LT) Degree = 716° 11′ 50.08″ Tangent = 10.1945 Length = 14.4869 Radius = 8.0000	16,580,562.9234 E	1,419,807.3188	Curve WSW024 P.I. Station Delta = 76° 54′ 32.67" (LT) Degree = 716° 11′ 50.08" Tangent = 6.3531 Length = 10.7385 Radius = 2.2158
External = 4.9587 Long Chord = 12.5871 Mid. Ord. = 3.0612 P. C. Station 122+69.98 N P. T. Station 122+84.47 N C. C. Back = N 45° 49′ 40.73" E Ahead = N 57° 55′ 37.02" W Chord Bear = N 6° 02′ 58.15" W	16,580,555.8197 E 16,580,568.3367 E 16,580,561.5577 E	1, 419, 800, 0068 1, 419, 798, 6802 1, 419, 794, 4322	Long Chord = 9.9503 Mid. Ord. = 1.7322 P.C. Station 123+63.52 N 16,580,636.6578 E 1,419,790.2668 P.T. Station 123+74.25 N 16,580,646.5430 E 1,419,791.4028 C.C. Back = N 45° 00′ 36.65" E N 16,580,642.3156 E 1,419,784.6109 Back = N 45° 00′ 36.65" E N 16,580,642.3156 E 1,419,784.6109 Chord Bear = N 6° 33′ 20.32" E
V	ve Data		Curve Data **
Curve WSW021 P.I. Station Delta = 101° 59′ 09.61″ (RT) Degree = 318° 18′ 35.59″ Tangent = 22.226 Length = 32.0398 Radius = 18.0000	16,580,580.1369 E	1,419,779.8494	Curve WSW025 P.I. Station Delta = 24° 49′ 20.53" (RT) Degree = 318° 18′ 35.59" Tangent = 3.9612 Length = 7.7982 Radius = 0.4307
External = 10.5980 Long Chord = 27.9745 Mid. Ord. = 6.6705 P.C. Station 122+84.47 N P.T. Station 123+16.51 N C.C. Back = N 57° 55′ 37.02" W Ahead = N 44° 03′ 32.59" E Chord Bear = N 6° 56′ 02.22" W	16,580,568.3367 E 16,580,596.1066 E 16,580,583.5894 E	1,419,798.6802 1,419,795.3030 1,419,808.2382	Long Chord = 7.7373 Mid. Ord. = 0.4207 P.C. Station 123+74.25 N 16,580,646.5430 E 1,419,791.4028 P.T. Station 123+82.05 N 16,580,653.8371 E 1,419,788.8215 C.C. N 16,580,656.0546 E 1,419,806.6844 Back = N 31° 53′ 56.01" W Ahead = N 7° 04′ 35.49" W Chord Bear = N 19° 29′ 15.75" W
Curv	ve Data		Course from PT WSW025 to WSW033 N 7° 04′ 35.48" W Dist 41.8478
Curve WSW022 P.I. Station 123+26.55 N Delta = 102° 56′ 13.70″ (LT)	16,580,603.3259 E	1,419,802.2890	Point WSW033 N 16,580,695.3662 E 1,419,783.6661 Sta 124+23.90 Course from WSW033 to WSW034 N 6° 59′ 38.56" W Dist 55.7855
Length = 14.3/2/			Equation: Sta 124+79.69 (BK) = Sta 130+00.00 (AH)
Radius = 8.0000 External = 4.8422			Begin Region 2 Point WSW034 N 16,580,750.7365 E 1,419,776.8733 Sta 130+00.00
Long Chord = 12.5163 Mid. Ord. = 3.0164 P.C. Station 123+16.51 N P.T. Station 123+30.88 N C.C. Back = N 44° 03′ 32.61" E Ahead = N 58° 52′ 41.09" W Chord Bear = N 7° 24′ 34.24" W	16,580,596.1066 E 16,580,608.5183 E 16,580,601.6698 E	1,419,795.3030 1,419,793.6889 1,419,789.5540	Ending chain WSW01 description

No.	Revision	Ву	Date
	FOR REVIEW ONLY NOT for construction, blidding or permit purposes.  Kimley >>> Hor  Engineer_RYAN_DELMOTTE P.E. No114242_pare11/6/2	n	

Kimley»Horn





PR 100 ROADWAY IMPROVEMENTS

HORIZONTAL CONTROL DATA

WEST SIDEWALK BASELINE

SHEET 3 OF 14

. NO.	1	FEDERAL AID PROJECT NO.		HIGHWA	Y NO.	
9)		N\A		PR	100	
STATE		DISTRICT	COUNTY		SHEET NO.	
TEXA	\S	PHR	CAMERON			
CONTRO	DL	SECTION	JOB		064	
N\A	4	N∖A	N\A			
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No.	Revision	Ву	Date

FOR REVIEW ONLY
Not for construction, blading, or permit purposes,
Kimley Horn
Engineer\_RYAN\_DELMOTTE
P.E. No. 114242\_Date 11/6/2018

**Kimley** Whorn





PR 100 ROADWAY IMPROVEMENTS

HORIZONTAL CONTROL DATA

WEST SIDEWALK BASELINE

SHEET 4 OF 14

/. NO.	1	FEDERAL AID PROJECT NO.		HIGHWA	Y NO.
6	N∖A		PR	100 SHEET	
STATE		DISTRICT	col	COUNTY	
TEXA	\S	PHR	CAMERON		
CONTRO	DL	SECTION	J	ОВ	065
N\A	4	N∖A	N\A		

	No.	Revision	Ву	Date
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**Kimley** Whorn





PR 100 ROADWAY IMPROVEMENTS

HORIZONTAL CONTROL DATA

WEST SIDEWALK BASELINE

SHEET 5 OF 14

IV. NO.		FEDERAL AID PROJECT NO.		HIGHWA	Y NO.	
6		N\A		PR	100	
STATE		DISTRICT	col	JNTY	SHEET NO.	
TEXA	\S	PHR	CAM	ERON		
CONTRO	DL	SECTION	7	ЮВ	066	
NV	4	N∖A	N	I\A		
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CUEVO WEWOAA		Curve Data	
Curve WSW044 P.I. Station Delta = 101° 58′ 39.38″ (RT) Degree = 318° 18′ 35.59″ Tangent = 22.2193 Length = 32.0372 Radius = 18.0000 External = 10.5954	1,419,712.9435	Curve WSW048 P.I. Station Delta = 91° 26′ 54.84" (LT) Degree = 716° 11′ 50.08" Tangent = 8.2049	1997
Long Chord = 27.9728 Mid. Ord. = 6.6695 P.C. Station 134+46.60 N 16,581,142.3197 E P.T. Station 134+78.64 N 16,581,170.0393 E C.C. Back = N 58° 42′ 11.06″ W Ahead = N 43° 16′ 28.32″ E Chord Bear = N 7° 42′ 51.37″ W  Curve Data	1,419,731.9295 1,419,728.1747 1,419,741.2801	Length = 12.7686 Radius = 8.0006 External = 3.4595 Long Chord = 11.4558 Mid. Ord. = 2.4151 P.C. Station 136+08.34 N 16,581,294.9595 E 1,419,713.5 P.T. Station 136+21.11 N 16,581,306.2064 E 1,419,713.5 C.C. Back = N 34° 45′ 58.01" E Ahead = N 56° 40′ 56.83" W Chord Bear = N 10° 57′ 29.41" W	5211 3434 9492
Curve WSW045		Curve Data **	
Curve WSW045 P.I. Station Delta = 94° 27′ 24.96" (LT) Degree = 716° 11′ 50.08" Tangent = 8.6478 Length = 13.1887 Radius = 8.0000 External = 3.7807 Long Chord = 11.7451	1,419,734.1027	Curve WSW049 P.I. Station Delta = 104° 47' 11.83" (RT) Degree = 318° 18' 35.59" Tangent = 23.3678 Length = 32.9197 Radius = 18.0000 External = 11.4967	3163
External = 3.7807 Long Chord = 11.7451 Mid. Ord. = 2.5674 P.C. Station 134+78.64 N 16,581,170.0393 E P.T. Station 134+91.83 N 16,581,181.7565 E C.C. Back = N 43° 16′ 28.33" E Ahead = N 51° 10′ 56.62" W Chord Bear = N 3° 57′ 14.14" W	1,419,728.1747 1,419,727.3648 1,419,722.3500	Long Chord = 28.5199 Mid. Ord. = 7.0157 P.C. Station 136+21.11 N 16,581,306.2064 E 1,419,711.3 P.T. Station 136+54.03 N 16,581,334.6464 E 1,419,709.2 C.C. N 16,581,321.2479 E 1,419,721.2 Back = N 56° 40′ 56.83" W Ahead = N 48° 06′ 15.00" E Chord Bear = N 4° 17′ 20.92" W	3434 2104 2304
** Curve WSW046		Curve Data	
Curve WSW046 P.I. Station Delta = 44° 54′ 12.21" (RT) Degree = 318° 18′ 35.59" Tangent = 7.4381 Length = 14.1068 Radius = 18.0000 External = 1.4763 Long Chord = 13.7486	1,419,721.5695	Curve WSW050 P.I. Station Delta = 104° 42' 46.25" (LT) Degree = 716° 11' 50.08" Tangent = 10.3719 Length = 14.6207 Radius = 8.0000	9308
External = 1.4763 Long Chord = 13.7486 Mid. Ord. = 1.3644 P.C. Station 134+91.83 N 16,581,181.7565 E P.T. Station 135+05.93 N 16,581,193.8124 E C.C. Back = N 51° 10′ 56.62" W Ahead = N 6° 16′ 44.41" W Chord Bear = N 28° 43′ 50.51" W	1, 419, 727. 3648 1, 419, 720. 7560 1, 419, 738. 6480	Radius = 8.0000 External = 5.0987 Long Chord = 12.6692 Mid. Ord. = 3.1140 P.C. Station 136+54.03 N 16,581,334.6464 E 1,419,709.2 P.C. Station 136+68.65 N 16,581,347.2807 E 1,419,709.2 C.C. N 16,581,340.6013 E 1,419,703.8 Back = N 48° 06′ 15.01" E Ahead = N 56° 36′ 31.24" W Chord Bear = N 4° 15′ 08.12" W	2104 2710 8682
Course from PT WSW046 to WSW057 N 6° 16′ 44.40" W Dist 56.8957		Chord Bear = N 4° 15′ 08.12" W	
Point WSW057 N 16,581,250.3668 E 1,419,714.5333 Sta	135+62.83	Curve Data **	
Course from WSW057 to WSW058 N 6° 47′ 23.24" W Dist 5.3331  Point WSW058 N 16,581,255.6625 E 1,419,713.9027 Sta  Course from WSW058 to PC WSW047 N 7° 20′ 53.12" W Dist 26.9520  Curve Data	135+68.16	Curve WSW051 P.I. Station Delta = 102° 10′ 59.06" (RT) Degree = 318° 18′ 35.59" Tangent = 22.3009 Length = 32.1018 Radius = 18.0000	6513
Curve WSW047 P.I. Station Delta = 42° 06′ 51.13" (RT) Degree = 318° 18′ 35.59" Tangent = 6.9301 Length = 13.2306 Radius = 10.0000 External = 1.2880 Long Chord = 12.9347 Mid. Ord = 12.9247 Mid. Ord = 135.95.11 N 16,581,282.3932 E P.C. Station 136+08.34 N 16,581,284.3932 E P.T. Station 136+08.34 N 16,581,284.6954 E	1,419,709.5693	External = 10.6589 Long Chord = 28.0134 Mid. Ord. = 6.6946 P.C. Station 136+68.65 N 16,581,347.2807 E 1,419,708.2 P.T. Station 137+00.75 N 16,581,375.1644 E 1,419,705.5 C.C. Back = N 56° 36′ 31.23" W Ahead = N 45° 34′ 27.83" E Chord Bear = N 5° 31′ 01.70" W	2710 5777 1774
Long Chord = 12.9347 Mid. Ord. = 1.2020 P.C. Station 135+95.11 N 16,581,282.3932 E P.T. Station 136+08.34 N 16,581,294.9595 E C.C. Back = N 7° 20′ 53.11" W Ahead = N 34° 45′ 58.02" E Chord Bear = N 13° 42′ 32.45" E	1, 419, 710. 4557 1, 419, 713. 5211 1, 419, 728. 3078		

No.	Revision	Ву	Date



Kimley»Horn





PR 100 ROADWAY IMPROVEMENTS

HORIZONTAL CONTROL DATA

WEST SIDEWALK BASELINE

SHEET 6 OF 14

ED.RD. IV.NO.	FEDERAL AID PROJECT NO.		H I GHWA	NY NO.	
6		N\A		PR	100
STATE		DISTRICT	col	JNTY	SHEET NO.
TEXA	\S	PHR	CAM	ERON	
CONTRO	DL	SECTION	7	ОВ	067
N\A	4	N∖A	N	<b>\</b> A	

No.	Revision	Ву	Date
	PRELIMINA	RY	
	FOR REVIEW ONL  Not for construction, biddl  or permit purposes.	ng,	
	Kimley»Ho	rn	

# Kimley»Horn

ngineer RYAN DELMOTTE P. E. No. 114242 Date 11/6/2018





# PR 100 ROADWAY IMPROVEMENTS

HORIZONTAL CONTROL DATA

WEST SIDEWALK BASELINE SHEET 7 OF 14

DIV. NO.	1	EDERAL AID PROJECT	H I GHWA	NY NO.	
6		N\A		PR	100 SHEET
STATE		DISTRICT	DISTRICT COUNT		
TEXAS		S PHR		ERON	
CONTROL		SECTION	JOB		068
N\A		N∖A	N	<b>\</b> A	

		Curve *	• Data *		
Curve WSW062 P.I. Station Delta = Degree = Tangent = Length = Radius = External = Long Chord =	139+43.89 102° 58′ 24.31″ 716° 11′ 50.08″ 10.0526 14.3778 8.0000 4.8474 12.5194	(LT)	16,581,583.2912	E	1,419,686.5864
Mid. Ord. = P.C. Station P.I. Station C.C. Back = N Ahead = N Chord Bear = N	12.5194 3.0184 139+38.21 45° 55′ 27.41" E 57° 02′ 56.90" W 5° 33′ 44.75" W	N N N	16,581,576.2985 16,581,588.7590 16,581,582.0459		1,419,679.3644 1,419,678.1509 1,419,673.7995
		Curve *	Data *		
Curve WSW063 P.I. Station Delta = Degree = Tangent = Length = Radius = External = Long Chord =	139+69.75 100° 13′ 49.35″ 318° 18′ 35.539″ 21.4883 18.0000 10.0703 27.6241	(RT)	16,581,600.4747	E	1,419,660.0764
Mid. Ord. = P.C. Station P.T. Station C.C. Back = N Ahead = N Chord Bear = N	57° 02′ 56.89" W 43° 10′ 52.46" E 6° 56′ 02.22" W	N N N	16,581,588.7590 16,581,616.1810 16,581,603.8635	E	1,419,678.1509 1,419,674.8160 1,419,687.9414
Curve WSW064		*	: Data *		
P.I. Station Delta = Degree = Tangent = Length = Radius = External = Long Chord =	139+89.45 101° 14′ 37.45″ 716° 11′ 50.08″ 9.7469 14.1363 8.0000 4.6096 12.3676	(LT)	16,581,623.2884	E	1, 419, 681. 4859
Mid. Ord. = P.C. Station P.I. Station C.C. Back = N Ahead = N Chord Bear = N	12.3676 2.9245 139+73.84 139+93.84 43° 10′ 52.47" E 58° 03′ 44.99" W 7° 26′ 26.26" W	N N N	16,581,616.1810 16,581,628.4445 16,581,621.6555	E	1, 419, 674. 8160 1, 419, 673. 2144 1, 419, 668. 9824
Curve WSW065	440.40.77		*	_	4 440 057 4044
P.I. Station Delta = Degree = Tangent = Length Radius = External = Long Chord = Mid. Ord. =	91° 40′ 49.01″ 318° 18′ 35.59″ 18.5358 28.8022 18.8020 7.8375 25.4604	(RT)	16,581,638.2498		
P.C. Station P.T. Station C.C. Back = N Ahead = N Chord Bear = N	25. 8264 139-93. 84 140-93. 84 140-22. 64 58° 03′ 44. 99" W 33° 37′ 04. 02" E 12° 13′ 20. 48" W	N N N	16,581,628.4445 16,581,653.6854 16,581,643.7197		1, 419, 673. 2144 1, 419, 667. 7468 1, 419, 682. 7363

Course from PT WSW065 to PC WSW066 N 33° 37′ 04.02" E Dist 24.5911

Curve WSW066
P.I. Station
Delta
Degree =
Tangent =
Length =
External = 16,581,676.6153 E 1,419,682.9916 Long Chord =
Long Chord =
Mid. Ord. =
P.C. Station
P.T. Station
C.C.
Back =
Ahead =
Chord Bear = Course from PT WSW066 to WSW081 N 6° 47′ 23.11" W Dist 65.5878 Point WSW081 N 16,581,744.6665 E 1,419,674.8893 Sta 141+18.46 Course from WSW081 to WSW082 N 6° 47′ 23.10" W Dist 49.6130 End Region 1 Equation: Sta 141+68.07 (BK) = Sta 150+00.00 (AH) Begin Region 2 Point WSW082 N 16,581,793.9315 E 1,419,669.0238 Sta 150+00.00 \_\_\_\_\_\_ Ending chain WSW02 description 3 Describe Chain WSW03 < **\*** Chain WSW03 contains:
 WSW082 CUR WSW067 CUR WSW068 CUR WSW069 CUR WSW070 CUR WSW071 CUR WSW072 CUR WSW073 CUR WSW074 WSW092 WSW093 CUR WSW075 CUR WSW076 CUR WSW077 CUR WSW078 CUR - WSW079 CUR WSW080 CUR WSW081 CUR WSW082 WSW104 WSW105 WSW106 WSW107 WSW18 WSW110 WSW111 WSW112 CUR WSW083 CUR WSW084 CUR WSW085 CUR WSW085 CUR WSW085 CUR WSW085 CUR WSW086 CUR WSW087 - CUR WSW088 CUR WSW099 CUR WSW091 CUR WSW092 CUR WSW093 CUR WSW094 CU-R WSW095 CUR WSW096 CUR WSW097 CUR WSW099 CUR WSW099 CUR WSW100 CUR WSW101 CUR - WSW102 CUR WSW103 CUR WSW104 CUR WSW105 CUR WSW106 CUR WSW107 CUR WSW105 WSW145 WSW146 CUR WSW109 CUR WSW111 CUR WSW112 WSW153 WSW154 CUR WSW113 WS-W157 Beginning chain WSW03 description Point WSW082 N 16,581,793.9315 E 1,419,669.0238 Sta Course from WSW082 to PC WSW067 N 6° 47′ 23.11" W Dist 20.9106 Curve Data Curve WSW067
P.I. Station
Delta =
Degree =
Tangent =
Length =
Radius =
External =
Long Chord =
Mid. Ord. =
P.C. Station
P.T. Station
C.C. 16,581,827.4434 E 1,419,665.0338

Curve Data

No.	Revision	Ву	Date



Kimley»Horn





# PR 100 ROADWAY IMPROVEMENTS

HORIZONTAL CONTROL DATA

WEST SIDEWALK BASELINE

SHEET 8 OF 14

ED. RD. IV. NO.	ı	FEDERAL AID PROJECT NO. HIGHWA			NY NO.
6		N\A PR			100
STATE		DISTRICT	col	JNTY	SHEET NO.
TEXA	\S	PHR	CAM	ERON	
CONTRO	DL	SECTION	J	ОВ	069
N\A	4	N∖A	N	<b>\</b> A	

1,419,642.0571

1,419,634.3221 1,419,633.3927 1,419,628.9870

1,419,626.4422

1,419,633.3927 1,419,625.4370 1,419,643.3053

152+20.27

152+41.06

1,419,619.4771

1,419,630.8977

1,419,624.6516 1,419,622.6292 1,419,618.5839

Curve Data

No.	Revision	Ву	Date



Kimley»Horn





# PR 100 ROADWAY IMPROVEMENTS

HORIZONTAL CONTROL DATA

WEST SIDEWALK BASELINE

SHEET 9 OF 14

ED. RD. IV. NO.	ı				AY NO.
6		N\A			100
STATE		DISTRICT	col	JNTY	SHEET NO.
TEXA	\S	PHR	CAM	ERON	
CONTR	DL	SECTION	7	ОВ	070
N\	4	N∖A	N	<b>\</b> A	

		Curve	Data				Curva	Data	
Curve WSW077 P.I. Station Delta = Degree = Tangent = Length = Radius = External =	153+06.28 110° 37′ 15.95" 318° 18′ 35.55" 26.0055 34.7526 18.0000 13.6273		16,582,049.7894	E	1, 419, 600. 1935	Curve WSW081 P.I. Station Delta = 102° 44′ 56.98" Degree = 318° 18′ 35.59" Tangent = 22.5277 Length = 18.0000	* N (RT)	<b>*</b>	1,419,595.7102
Long Chord = Mid. Ord. = P.C. Station P.T. Station C.C. Back = N Ahead = N Chord Bear = N	29.6010 7.7557 152+80.27 153+15.02 59° 37′ 28.04" W 50° 59′ 47.91" E 4° 18′ 50.07" W		16, 582, 036. 6393 16, 582, 066. 1564 16, 582, 052. 1684	E	1,419,622.6292 1,419,620.4026 1,419,631.7312	External = 10.8357 Long Chord = 28.1248 Mid. Ord. = 6.7639 P.C. Station 153+77.75 P.T. Station 154+10.03 C.C. Back = N 57° 29′ 36.37" W Ahead = N 45° 15′ 20.61" E Chord Bear = N 6° 07′ 07.88" W	N N N	16,582,120.0349 E 16,582,147.9995 E 16,582,135.2148 E	1,419,614.7085 1,419,611.7106 1,419,624.3816
		Curve *	Da†a *			Course from PT WSW081 to PC WSW082	N 45°	15' 20.61" E Dist 20.993	37
Curve WSW078 P.I. Station Delta = Degree =	153+26.52 110° 20′ 01.36" 716° 11′ 50.08"	(N (LT)	16,582,073.3918	E	1,419,629.3365	Curve WSW082	Curve *	Da†a *	
langent = Length = Radius = External =	11.4963 15.4965 8.0000 6.0059 13.1331 3.4305					P.I. Station 154+38.07	(LT)	16,582,167.7379 E	1,419,631.6261
P.C. Station P.T. Station C.C. Back = N	153+15.02 153+30.43 50° 59′ 47.93″ E 59° 20′ 13.43″ W 4° 10′ 12.75″ W	N N N	16,582,066.1564 16,582,079.2547 16,582,072.3733	E E	1, 419, 620. 4026 1, 419, 619. 4476 1, 419, 615. 3677	External = 1.5725 Long Chord = 12.7551 Mid. Ord. = 1.4233 P.C. Station 154+31.03 P.T. Station 154+44.20 C.C.	N N N	16,582,162.7778 E 16,582,174.7566 E 16,582,173.4317 E	1,419,626.6215 1,419,631.0037 1,419,616.0624
		Curve	Data			C.C. Back = N 45° 15′ 20.61" E Ahead = N 5° 04′ 02.10" W Chord Bear = N 20° 05′ 39.25" E		,	,
Curve WSW079		*	*			Chord Bear = N 20° 05′ 39.25" Ë			
Curve WSW079 P.I. Station Delta = Degree = Tangent =	153+53.83 104° 51′ 17.32" 318° 18′ 35.59"	(RT)	16,582,091.1867	E	1,419,599.3222	Course from PT WSW082 to WSW104 N Point WSW104 N 16,582,18			154+52.20
Length = Radius =	318° 18' 35' 59" 23.3966 32.9411 18.0000 11.5195					Course from WSW104 to WSW105 N 6° Point WSW105 N 16,582,19		.62" W Dist 8.0064 E 1.419.629.1767 Sta	154+60.20
Long Chord = Mid. Ord. =	28.5329 7.0242					Course from WSW105 to WSW106 N 6°		• •	
Long Chord = Long Chord = Mid. Ord. = P.C. Station P.T. Station C.C.	153+30.43 153+63.37	N N N	16,582,079.2547 16,582,107.5804 16,582,094.7380	E E	1,419,619.4476 1,419,616.0149 1,419,628.6273	Point WSW106 N 16,582,22		• •	154+98.27
Back = N Ahead = N Chord Bear = N	59° 20′ 13.42" W 45° 31′ 03.90" E 6° 54′ 34.76" W					Course from WSW106 to WSW107 N 7°  Point WSW107 N 16,582,23			155+06.31
Chord Bear = N	6 54 54.76 W	Curve	Data			Course from WSW107 to WSW108 N 7°		, ,	199+06.31
Curve WSW080		*	*			Point WSW108 N 16,582,31			155+83.29
Curve WSW080 P.I. Station Delta =	153+73.43 103° 00′ 44.56" 716° 11′ 50.08"	N (LT)	16,582,114.6291	E	1, 419, 623. 1921	Course from WSW108 to WSW109 N 7°	02′ 46.	.71" W Dist 7.9308	
Degree = Tangent = Length =	10.0596					Point WSW109 N 16,582,32	0.7224	E 1,419,613.4546 Sta	155+91.22
Radius = External =	14.3832 8.0000 8.2828					Course from WSW109 to WSW110 N 7°	02′ 46.	.71" W Dist 37.7174	
Long Chord = Mid. Ord. =	12.5228 3.0206					Point WSW110 N 16,582,35	8.1550	E 1,419,608.8277 Sta	156+28.94
Long Chord = Mid. Ord. = P.C. Station P.T. Station C.C.	3.0206 153+63.37 153+77.75	N N	16,582,107.5804 16,582,120.0349 16,582,113.2882	E	1, 419, 616. 0149 1, 419, 614. 7085 1, 419, 610. 4094	Course from WSW110 to WSW111 N 7°			450.77.44
Back = N		N	16, 582, 113. 2882	Ė	1, 419, 610. 4094	Point WSW111 N 16,582,36		•	156+37.41
Ahead = N Chord Bear = N	45° 31′ 03.90" E 57° 29′ 40.67" W 5° 59′ 18.39" W					Course from WSW111 to WSW112 N 7°  Point WSW112 N 16,582,37			156+44.86
						Course from WSW112 to PC WSW083 N		, ,	133 141

No.	Revision	Ву	Date







PR 100 ROADWAY IMPROVEMENTS

HORIZONTAL CONTROL DATA

WEST SIDEWALK BASELINE

SHEET 10 OF 14

ED. RD. IV. NO.	_	FEDERAL AID PROJECT	١0.	H I GHWA	Y NO.
6		N\A		PR	100
STATE		DISTRICT	col	JNTY	SHEET NO.
TEXA	\S	PHR	CAM	ERON	
CONTRO	DL	SECTION	7	ОВ	071
NV	4	N\A	N	<b>\</b> A	

							Curve	· Data		
Curve WSW083 P.I. Station 156+53 Delta = 58° 29' 17. Degree = 716° 11' 50. Tangent = 4.4 Length = 8.1 Radius = 8.0	* 73 N 0" (LT) 8" 91	e Data * 16,582,382.7676	E	1,419,605.8624	Curve WSW087 P.I. Station Delta = Degree = Tangent = Length = Radius =	157+55.62 59° 17' 59.27" 318° 18' 35.59" 10.2462 18.6296 18.0000 2.7119 17.8092 2.35687	N (LT)	16,582,462.3763	E	1,419,574.2744
Length = 8.1 Radius = 8.0 External = 1.0 Long Chord = 7.8 Mid. Ord. = 1.0 P.C. Station 156+49 P.T. Station 156+57 C.C. Back = N 6° 04′ 13.34 Ahead = N 64° 33′ 30.84 Chord Bear = N 35° 18′ 52.09	00 86 96 95 N	16,582,378.3136 16,582,384.6918 16,582,377.4676	FILLE	1,419,606.3360 1,419,601.8176 1,419,598.3809	External = Long Chord = Mid. Ord. = P.C. Station P.T. Station C.C. Back = N Ahead = N Chord Bear = N	2.7119 17.8092 2.3568 157+45.37 157+64.00 23° 47′ 24.49" E 35° 30′ 34.78" W 5° 51′ 35.14" W	Ň	16,582,453.0007 16,582,470.7168 16,582,460.2617	E E	1,419,570.1412 1,419,568.3230 1,419,553.6707
Course from PT WSW083 to PC WS		° 33′ 30.83" W Dis	+ 18.49	57	Curve WSW088 P.I. Station	157.170 65	*	<b>*</b>	_	1,419,559.8150
Course WCWOO 4	Curv *	e Data *			Delta = Dearee =	157+78.65 78° 16′ 29.48" 318° 18′ 35.59"	(RT)	16,582,482.6403	L	1,419,559.8150
Curve WSW084 P.I. Station Delta = 100° 53′ 56. Degree = 318° 18′ 35. Length = 21.7 Length = 18.0 External = 1.00° 53′ 56. 18′ 35. 18′ 35. 18′ 35. 18′ 35. 18′ 37.	82 83	16,582,402.0009	E	1,419,565.4326	Tangent = Length = Radius = External = Long Chord = Mid. Ord. = P.C. Station P.T. Station C.C.	14.6477 24.5908 18.0000 5.2068 22.7226 4.0386 157+64.00	N N N	16,582,470.7168 16,582,493.3939 16,582,481.1719	E E	1, 419, 568. 3230 1, 419, 569. 7607 1, 419, 582. 9753
MIG. UFG. = 6.5 P.C. Station 156+75 P.T. Station 157+07 C.C. Back = N 64° 33′ 30.83	92 N 61 N	16,582,392.6373 16,582,419.5583 16,582,408.8918	E E	1, 419, 585. 1155 1, 419, 578. 3489 1, 419, 592. 8481	Back = N Ahead = N Chord Bear = N	35° 30′ 34.77" W 42° 45′ 54.70" E 3° 37′ 39.96" E		· Data	_	1, 413, 302. 3133
Ahead = N 36° 20′ 25.95 Chord Bear = N 14° 06′ 32.44		e Data			Curve WSW089 P.I. Station Delta =	157+98.41	 N	16,582,500.6049	E	1,419,576.4301
Curve WSW085 P.I. Station Delta = 91° 53′ 35. Degree = 716° 11′ 50. Tangent = 8.2 Length = 12.8 Radius = 8.0	* 88 N 1" (LT) 8" 88	16,582,426.2189	E	1,419,583.2488	Delta = Degree = Tangent = Length = External = Long Chord = P.C. Station P.T. Station C.C.	157+98.41 101° 40′ 36.02" 716° 11′ 50.08" 9.8224 14.1967 8.0000 4.6659 12.49479 157+88.59 158+02.79		16 502 407 7070	r	1 410 560 7607
External = 3.5 Long Chord = 11.4 Mid. Ord. = 2.4 P.C. Station 157+07 P.T. Station 157+20 C.C. Back = N 36° 20′ 25.95 Ahead = N 55° 33′ 09.36	91 74 61 N 44 N	16,582,419.5583 16,582,430.8961 16,582,424.2989	E	1,419,578.3489 1,419,576.4300 1,419,571.9048	Ahead = N Chord Bear = N	42° 45′ 54.70" E	N	· Data	E E E	1, 419, 569. 7607 1, 419, 568. 0185 1, 419, 563. 8876
Curve WSW086 P.I. Station 157+35 Delta = 79° 20′ 33.	Curv *	e_Da†a * 16,582,439.3405	E	1,419,564.1191	Curve WSW090 P.I. Station Delta = Degree = Tangent = Length = Radius =	158+26.28 105° 04' 53.95" 318° 18' 35.59" 23.4927 33.0124 18.0000	(RT)	16,582,517.8075	E	1,419,547.9000
Degree = 318° 18′ 35. Tangent = 14.9 Length = 24.9 Radius = 18.0 External = 5.3 Long Chord = 22.9 Mid. Ord. = 4.1 P.C. Station 157+20 P.T. Station 157+45 C.C. Back = N 55° 37′ 99.36	9" 87 600 52 18	16 502 470 0061	r	1 410 576 4700	External = Long Chord = Mid. Ord. = P.C. Station P.T. Station C.C. Back = N	11.5957 28.5763 7.0525 158+02.79 158+35.80		16,582,505.6768 16,582,534.0767 16,582,521.0915	E E E	1,419,568.0185 1,419,564.8477 1,419,577.3130
		16,582,430.8961 16,582,453.0007 16,582,445.7397	E E	1,419,576.4300 1,419,570.1412 1,419,586.6117	Ahead = N Chord Bear = N	58° 54′ 41.32" W 46° 10′ 12.63" E 6° 22′ 14.34" W				
Back = N 55° 33′ 09.36 Ahead = N 23° 47′ 24.49 Chord Bear = N 15° 52′ 52.43	W E W				Curve WSW091		*	: Data *		
					Curve WSW091 P.I. Station Delta Degree = Tangent = Length = Radius = External = Long Chord =	158+46.25 105° 07' 06.99" 716° 11' 50.08" 10.4482 14.6773 8.0000 5.1592 12.7037 3.1365 158+35.80 158+50.48	(LT)	16,582,541.3122	E	1,419,572.3850
					External = Long Chord = Mid. Ord. = P.C. Station P.T. Station C.C. Back = N Ahead = N Chord Bear = N	46° 10′ 12 63" F		16,582,534.0767 16,582,546.7015 16,582,539.8479	E E	1, 419, 564. 8477 1, 419, 563. 4340 1, 419, 559. 3075

No.	Revision	Ву	Date



**Kimley** »Horn





PR 100 ROADWAY IMPROVEMENTS

HORIZONTAL CONTROL DATA

WEST SIDEWALK BASELINE

SHEET 11 OF 14

IV. NO.	1	FEDERAL AID PROJECT I	NO.	HIGHWA	Y NO.	
6		N\A		PR	100	
STATE		DISTRICT	col	JNTY	SHEET NO.	
TEXA	\S	PHR	CAM	ERON		
CONTRO	DL	SECTION	7	ОВ	072	
N\A	4	N∖A	N	<b>\</b> A		
					_	•

LOTTED: 11/6/2018 2:51:49 PM 20.0000 ft / in. ILENAME: K:\LAC\*TPTO\1bro!ect\069234003\*SPI\*Padre\*B|vd\*Medians\CADD\Sheets\PDMC Curve Data

		Curve *	Data *		
Curve WSW097 P.I. Station Delta Degree = Tangent = Length = Radius = External = Long Chord =	161+37.05 91° 59′ 35.59″ 318° 18′ 35.59″ 18.6374 28.9000 18.0000 7.9105	N (RT)	16,582,802.0632	E	1,419,517.8543
Living Chord = Mid. Ord. = P.C. Station P.T. Station C.C. Back = N Ahead = N Cnord Bear = N	25.8948 5.4954 161+47.31 47° 46′ 10.81" W 44° 13′ 25.14" E 1° 46′ 22.83" W	N N N N N N N N N N N N N N N N N N N	16,582,789.5368 16,582,815.4191 16,582,802.8648	E E	1,419,531.6543 1,419,530.8531 1,419,543.7523
O WCW000		Curve *	Data *		
Curve WSW098 P.I. Station Delta Degree = Tangent = Length = Radius = External = Long Chod =	161+57.25 102° 18′ 54.73″ 716° 11′ 50.08″ 9.9349 14.2500 4.7520 12.4620 2.9826	(LT)	16,582,822.5387	E	1,419,537.7823
Mid. Ord. = P.C. Station P.T. Station C.C. Back = N Ahead = N Chord Bear = N	12.9826 161+47.31 161+61.60 44° 13′ 25.15″ E 58° 05′ 29.58″ W 6° 56′ 02.21″ W	N N N	16,582,815.4191 16,582,827.7900 16,582,820.9988	E E	1,419,530.8531 1,419,529.3486 1,419,525.1201
Curve WSW099		*	Da†a *		
P.I. Station Delta = Degree = Tangent = Length = Radius = External =	161+83.95 102° 18' 54.72" 318° 18' 55.5536 32.1433 18.06999 28.0395	(RT)	16,582,839.6053	E	1,419,510.3728
Mid. Ord. = P.C. Station P.T. Station C.C. Back = N Ahead = N Chord Bear = N	58° 05′ 29.58" W 44° 13′ 25.15" E 6° 56′ 02.21" W	N N N	16,582,827.7900 16,582,855.6244 16,582,843.0701	E E	1,419,529.3486 1,419,525.9636 1,419,538.8628
Curve WSW100		*	*		
P.I. Station Delta Delta Degree = Tangent = Length = Radius = External =	162+03.96 103° 53′ 52.72″ 716° 11′ 50.2208 14.5069 8.0069 4.9794 12.5994	N (LT)	16,582,862.9488	E	1,419,533.0922
Mid. Ord. = P.C. Station P.T. Station C.C. Back = N Ahead = N Chord Bear = N	12.5994 3.0691 161+08.25 44° 13′ 25.16" E 59° 40′ 27.56" W 7° 43′ 31.20" W	N N N	16,582,855.6244 16,582,868.1094 16,582,861.2041	E	1,419,525.9636 1,419,524.2699 1,419,520.2306

No.	Revision	Ву	Date



Kimley» Horn

THE REGISTERED ENGINEERING FIRM F-928





#### PR 100 ROADWAY IMPROVEMENTS

HORIZONTAL CONTROL DATA

WEST SIDEWALK BASELINE

SHEET 12 OF 14

ED.RD. IV.NO.	FEDERAL AID PROJECT NO.			HIGHWA	Y NO.
6		N\A		N\A PR 100	
STATE		DISTRICT	col	COUNTY	
TEXA	\S	PHR	CAMERON		
CONTRO	CONTROL SECTION JOB		073		
N\A	4	N∖A	N\A		

Course from WSW146 to PC WSW109 N 6° 47′ 23.11" W Dist 21.7552

1,419,504.6018

1,419,518.9577 1,419,512.3919 1,419,528.3466

1,419,515.1723

1,419,512.3919 1,419,510.8369 1,419,505.3009

1,419,499.8483

1,419,510.8369 1,419,508.4103 1,419,523.2929

1,419,522.3436

1,419,520.6604 1,419,521.9898 1,419,514.0459

165+42.69

165+67.77

21.7787

	Curve Data				Curve Data **	
Curve WSW101 P.I. Station Delta = 102° 11′ 06.49" Degree = 318° 18′ 35.59" Tangent = 22.3017 Length = 32.1024 Radius = 18.0000 External = 10.6595	**	E	1,419,505.0197	Curve WSW105 P.I. Station Delta = 86° 08' 20.80" Degree = 318° 18' 35.59" Tangent = 16.8262 Length = 27.0614 Radius = 18.0000		Ē
Radius = 18.0000 External = 10.6595 Long Chord = 28.0138 Mid. Ord. = 6.6948 P.C. Station 162+08.25 P.T. Station 162+40.35 C.C. Back = N 59° 40′ 27.56" W Ahead = N 42° 30′ 38.94" E Chord Bear = N 8° 34′ 54.31" W	N 16,582,868.1094 N 16,582,895.8096 N 16,582,883.6465	E	1,419,524.2699 1,419,520.0897 1,419,533.3584	External = 6.6398 Long Chord = 24.5839 Mid. Ord. = 163+01.85 P.C. Station 163+01.85 C.C. Back = N 58° 33′ 35.46″ W Ahead = N 27° 34′ 45.34″ E Chord Bear = N 15° 29′ 25.06″ W	N 16,582,949.1324 E N 16,582,972.8233 E N 16,582,964.4898 E	- - - - - - -
	Curve Data **			Curve WSW106	**	
Degree = 716° 11′ 50.08" Tangent = 8.5636 Length = 13.1106	N 16,582,902.1223	E	1,419,525.8762	Curve WSW106 P.I. Station Delta = 73° 47′ 27.19" Degree = 716° 11′ 50.08" Tangent = 6.0056 Length = 10.3032 Radius = 8.0000 External = 2.0033	(LT)	E
Long Chord = 11.6919 Mid. Ord. = 2.5388 P.C. Station 162+40.35 P.T. Station 162+53.46 C.C. Back = N 42° 30′ 35.57" E Abead = N 51° 23′ 15.39" W	N 16,582,895.8096 N 16,582,907.4664 N 16,582,901.2153	E E E	1,419,520.0897 1,419,519.1848 1,419,514.1924	Long Chord = 9.6057 Mid. Ord. = 1.6021 P.C. Station 163+28.91 C.C. Back = N 27° 34′ 45.34″ E Ahead = N 46° 12′ 41.84″ W Chord Bear = N 9° 18′ 58.25″ W	N 16.582.976.5271 E	
Chord Bear = N 4° 26′ 19.91″ W					Curve Data	
Curve WSW103 P.I. Station Delta = 104° 25′ 42.34" Degree = 318° 18′ 35.59" Tangent = 23.2174 Length = 32.8072 Radius = 18.0000	Curve Data ** N 16,582,921.9549 (RT)	E	1,419,501.0429	Curve WSW107 P.I. Station Delta = 80° 26' 21.23" Degree = 318° 18' 35.59" Tangent = 15.2217 Length = 25.2707 Radius = 18.0000 External = 5.5733	N 16,582,992.8357 E	Ξ
Radius = 18.0000 External = 11.3776 Long Chord = 28.4511 Mid. Ord. = 6.9712 P.C. Station 162+53.46 P.T. Station 162+86.27 C.C. Back = N 51° 23′ 18.15″ W Ahead = N 53° 02′ 24.19″ E Chord Bear = N 0° 49′ 33.02″ E	N 16,582,907.4664 N 16,582,935.9145 N 16,582,921.5315		1,419,519.1848 1,419,519.5948 1,419,530.4175	External = 5.5733 Long Chord = 23.2459 Mid. Ord. = 4.2556 P.C. Station 163+39.22 P.T. Station 163+64.49 C.C. Back = N 46° 12′ 41.84″ W Ahead = N 34° 13′ 39.39″ E Chord Bear = N 5° 59′ 31.22″ W	N 16,582,982.3023 E N 16,583,095.4212 E N 16,582,995.2966	<u> </u>
CHOI & Bedi - N 0 43 33.02 E	Curve Data			Course from PT WSW107 to PC WSW10		21.778
Curve WSW104 P.I. Station 162+98.04	**	_	500 0010		Curve Data **	
P.I. Station Delta = 111° 35′ 59.69" Degree = 716° 11′ 50.08" Tangent = 11.7716 Length = 15.5823 Radius = 8.0000 External = 6.2327 Long Chord = 13.2333		E	1,419,529.0010	Curve WSW108 P.I. Station Delta = 41° 01′ 02.51" Degree = 716° 11′ 50.08" Tangent = 2.9925 Length = 5.727 Radius = 8.2000		Ē
MIG. 0rd. = 3.5033 P.C. Station 162+86.27 P.T. Station 163+01.85 C.C. Back = N 53° 02′ 24.22" F	N 16,582,935.9145 N 16,582,949.1324 N 16.582.942.3070	E E	1, 419, 519. 5948 1, 419, 518. 9577 1, 419, 514. 7848	Long Chord = 0.5414 Long Chord = 5.6056 Mid. Ord. = 0.5070 P.C. Station 163+86.27 P.T. Station 163+91.99	N 16,583,023.4281 E	<u> </u>
Ahead = N 58° 33′ 35.48" W Chord Bear = N 2° 45′ 35.63" W	,			Chord Bear = N 13° 43′ 08.14″ E  Course from PT WSW108 to WSW145 N  Point WSW145 N 16,583,1  Course from WSW145 to WSW146 N 6°	6° 47′ 23.10" W Dis+ 150. 78.5173 E 1,419,504.1731	1 Sta 7

	No.	Revision	Ву	Date
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PR 100 ROADWAY IMPROVEMENTS

HORIZONTAL CONTROL DATA

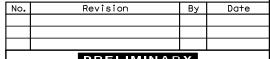
WEST SIDEWALK BASELINE

SHEET 13 OF 14

ED.RD. IV.NO.	FEDERAL AID PROJECT NO.			H I GHWA	NY NO.
6		N∖A			100
STATE		DISTRICT	COUNTY		SHEET NO.
TEXA	\S	PHR	CAMERON		
CONTROL		SECTION	JOB		074
N∖A		N∖A	N\A		

		e Data *		
Curve WSW109 P.I. Station Delta = 27° 26′ 15.78" Degree = 409° 15′ 20.04" Tangent = 3.417' Length = 6.7043 Radius = 14.0000 External = 0.4111 Long Chord = 6.6404	(RT)	16, 583, 228. 4115	E	1,419,498.2326
Mid. Ord. = 0.3994 P.C. Station 165+89.52 P.T. Station 165+96.23 C.C. Back = N 6° 47′ 23.11" W Ahead = N 20° 38′ 52.67" E Chord Bear = N 6° 55′ 44.78" E	N N N	16,583,225.0177 16,583,231.6097 16,583,226.6729	E E	1, 419, 498. 6367 1, 419, 499. 4378 1, 419, 512. 5385
Curava WCW110		e Data *		
Curve WSW110 P.I. Station	N (LT)	16,583,234.8066	E	1,419,500.6425
Mid. Ord. = 0.3991 P.C. Station 165+96.293 P.T. Station 166+02.93 C.C. Back = N 20° 38′ 52.67″ E Ahead = N 6° 46′ 45.29″ W Chord Bear = N 6° 56′ 03.69″ E	N N N	16,583,231.6097 16,583,238.1990 16,583,236.5464	E	1, 419, 499. 4378 1, 419, 500. 2392 1, 419, 486. 3371
Course from PT WSW110 to PC WSW111	N 6°	46′ 45.29" W Dist	16.488	8
	Curve	e Data *		
Curve WSW111 P.I. Station Delta = 27° 27' 41.90" Degree = 409° 15' 20.04" Tangent = 3.4208 Length = 6.7101 Radius = 14.0000	(LT)	16,583,257.9695	E	1,419,497.8890
External = 0.4119 Long Chord = 6.6461 Mid. Ord. = 0.4001 P.C. Station 166+19.42 P.T. Station 166+26.13 C.C. Back = N 6° 46′ 45.29" W Ahead = N 34° 14′ 27.20" W Chord Bear = N 20° 30′ 36.25" W	N N N	16,583,254.5726 16,583,260.7974 16,583,252.9200	EEE	1,419,498.2928 1,419,495.9642 1,419,484.3907
O WOWA A O	*	e Data *		
Curve WSW112 P.I. Station Delta = 27° 27′ 04.08" Degree = 409° 15′ 20.04" Tangent = 3.4195 Length = 6.7076 Radius = 14.0000 External = 0.4115	(RT)	16,583,263.6242	E	1,419,494.0401
Long Chord = 6.6436 Mid. Ord. = 0.3998 P.C. Station 166+26.13 P.T. Station 166+32.84 C.C. Back = N 34° 14′ 27.20″ W Ahead = N 6° 47′ 23.12″ W Chord Bear = N 20° 30′ 55.16″ W	N N N	16,583,260.7974 16,583,267.0196 16,583,268.6748	E E	1,419,495.9642 1,419,493.6359 1,419,507.5377
, ,	24.6983	E 1,419,486.76	86 Sta	166+90.92
Course from WSW153 to WSW154 N 6°  Point WSW154 N 16,583,36  Course from WSW154 to PC WSW113 N	52.5254	E 1,419,482.26	48 Sta	167+29.02

	Curve Data **	
Curve WSW113 P. I. Station Delta = 89° 49′ 25.28″ Degree = 716° 11′ 50.08″ Tangent = 7.9754 Length = 12.5418 Radius = 8.0000 External = 3.2963 Long Chord = 11.2963	N 16,583,384.5599 E (RT)	1,419,479.6414
Mid. Ord. = 2.3344 P.C. Station 167+43.23 P.T. Station 167+55.77 C.C. Back = N 6° 47′ 23.10″ W Ahead = N 83° 02′ 02.18″ E Chord Bear = N 38° 07′ 19.54″ E	N 16,583,376.6404 E N 16,583,385.5271 E N 16,583,377.5862 E	1,419,480.5843 1,419,487.5579 1,419,488.5282
Course from PT WSW113 to WSW157 N	83° 02′ 02.18" E Dist 16.6713	
Point WSW157 N 16,583,38	37.5491 E 1,419,504.1062 Sta	167+72.44
Ending chain WSW03 description		





Kimley»Horn





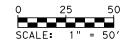
PR 100 ROADWAY IMPROVEMENTS

HORIZONTAL CONTROL DATA

WEST SIDEWALK BASELINE

SHEET 14 OF 14

ED. RD. IV. NO.	FEDERAL AID PROJECT NO.			HIGHWA	NY NO.
6		N\A			100
STATE	TE DISTRICT COUNTY		JNTY	SHEET NO.	
TEXAS		PHR	CAMERON		
CONTROL		SECTION	JOB		075
N\A		N∖A	N∖A		



#### NOTES:

- 1. STATIONS, AND OFFSETS GIVEN AT FACE OF CURB OF & PDR UNLESS OTHERWISE NOTED.
- 2. SEE MEDIAN, PAVEMENT MARKING, SIGNING, LANDSCAPE, & HARDSCAPE DETAILS FOR ADDITIONAL INFORMATION.
- 3. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
- 4. SEE REMOVAL PLANS FOR REMOVAL LIMITS.
- 5. SEE TYPICAL SECTIONS FOR LIMITS OF LANDSCAPE PLANTERS.
- 6. IF ANY EXISTING CROSSWALKS AER WIDER THAN 9', CONTRACTOR SHALL CONFIRM WITH CITY OF ACTUAL ASPHALT OVERLAY WIDTH.

LEGEND

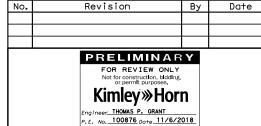
—--- EX ROW

PROP LANDSCAPE AREA

PROP BRICK PAVER

FLUSH MEDIAN

PROP ASPHALT FOR TRAFFIC PATTERNS XD CROSSWALK



# **Kimley Horn**





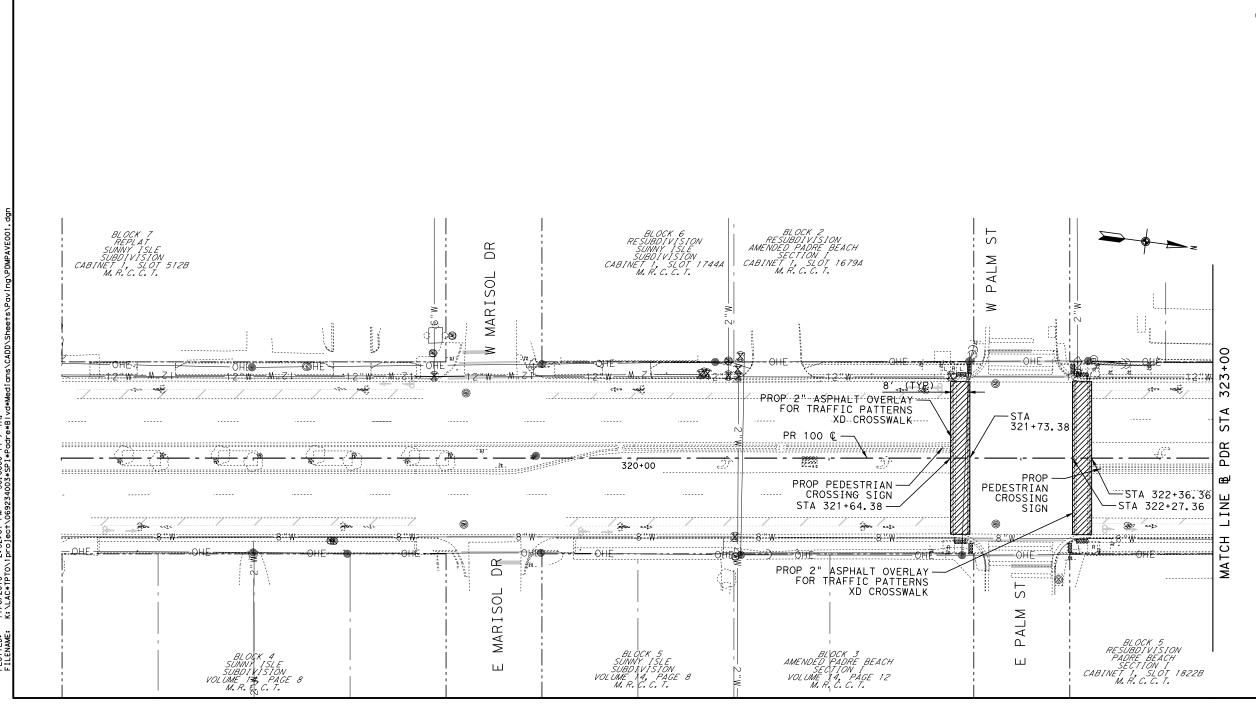
#### PR 100 ROADWAY IMPROVEMENTS

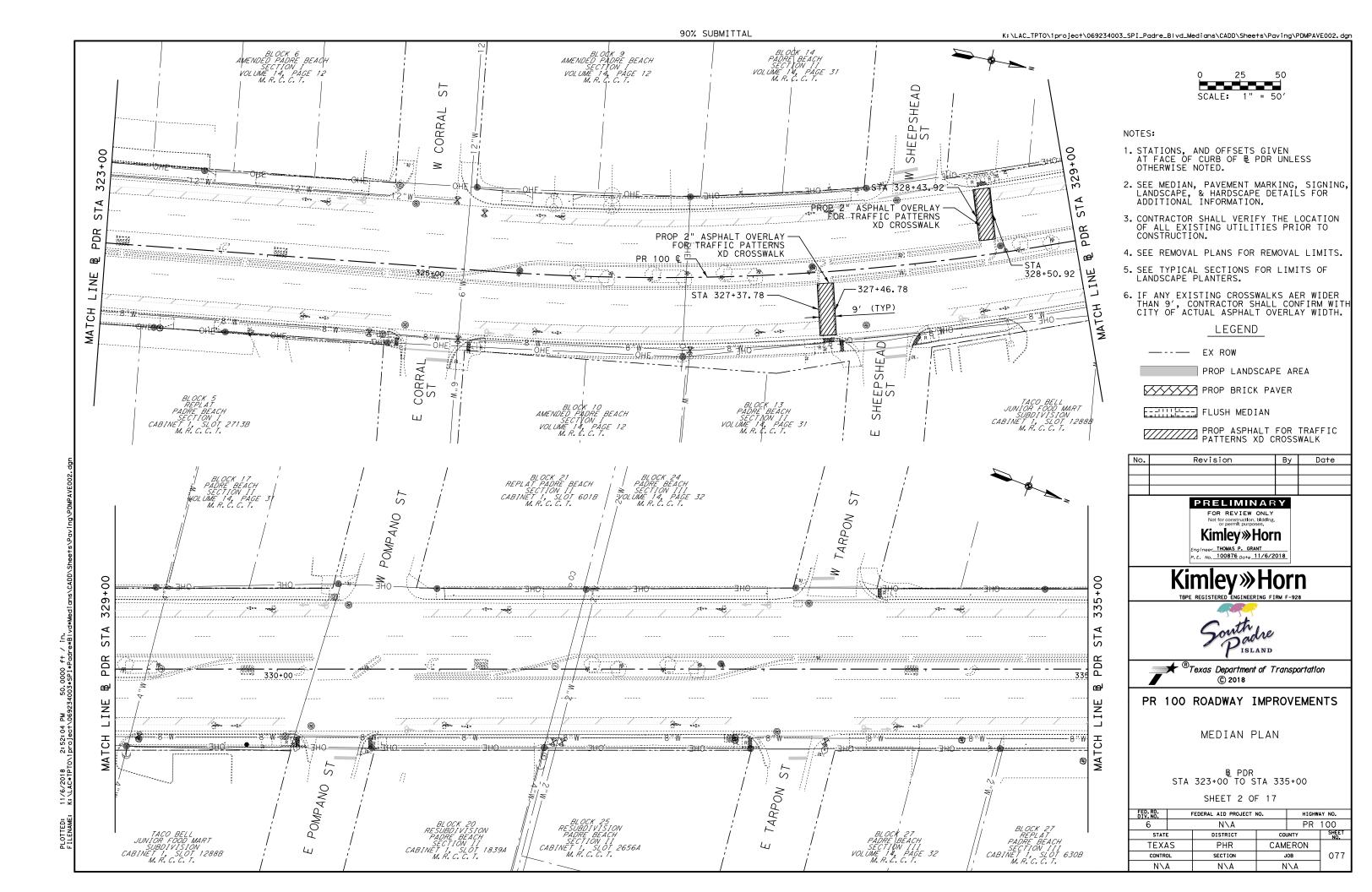
MEDIAN PLAN

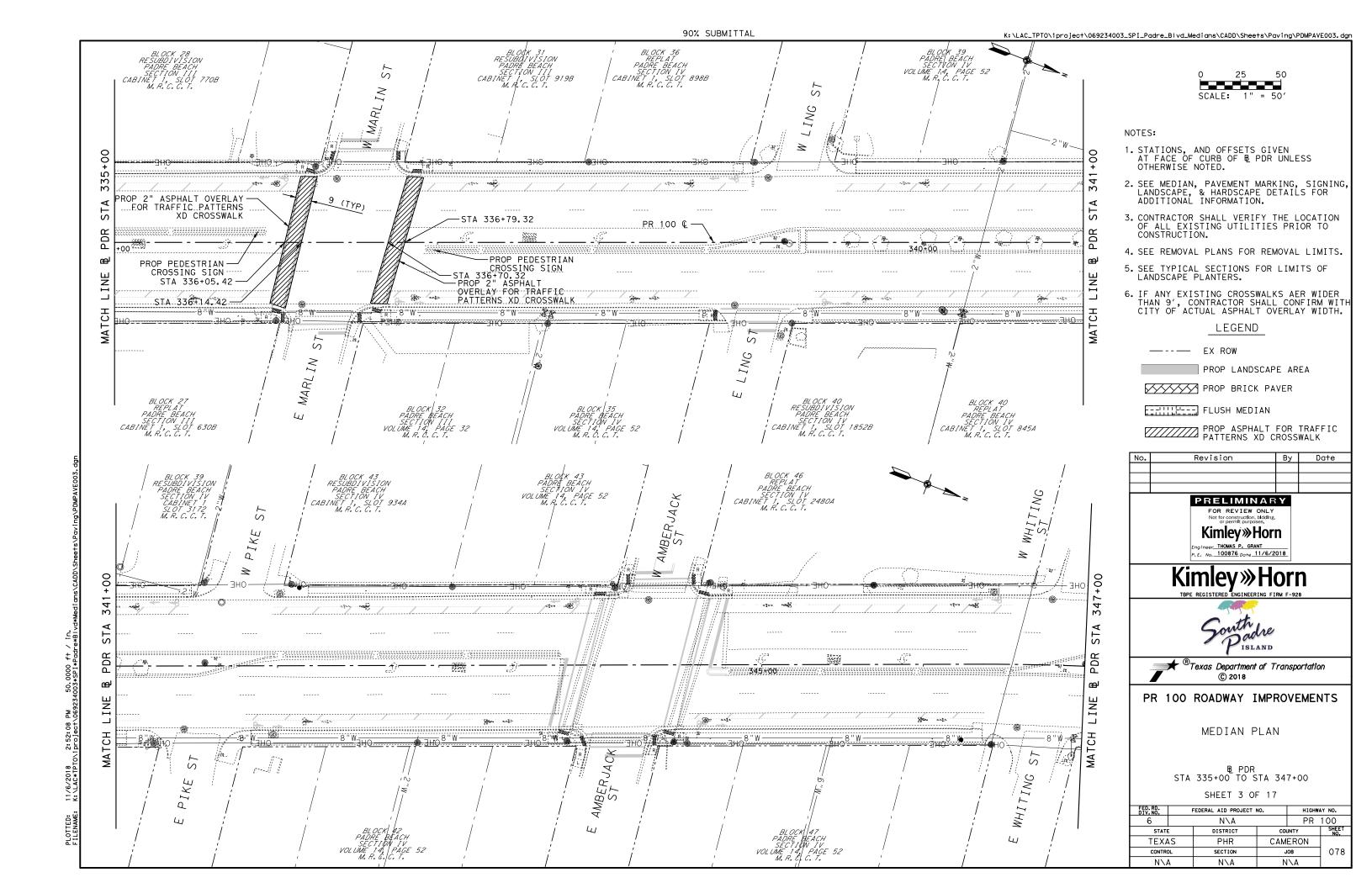
₽ PDR STA 311+00 TO STA 323+00

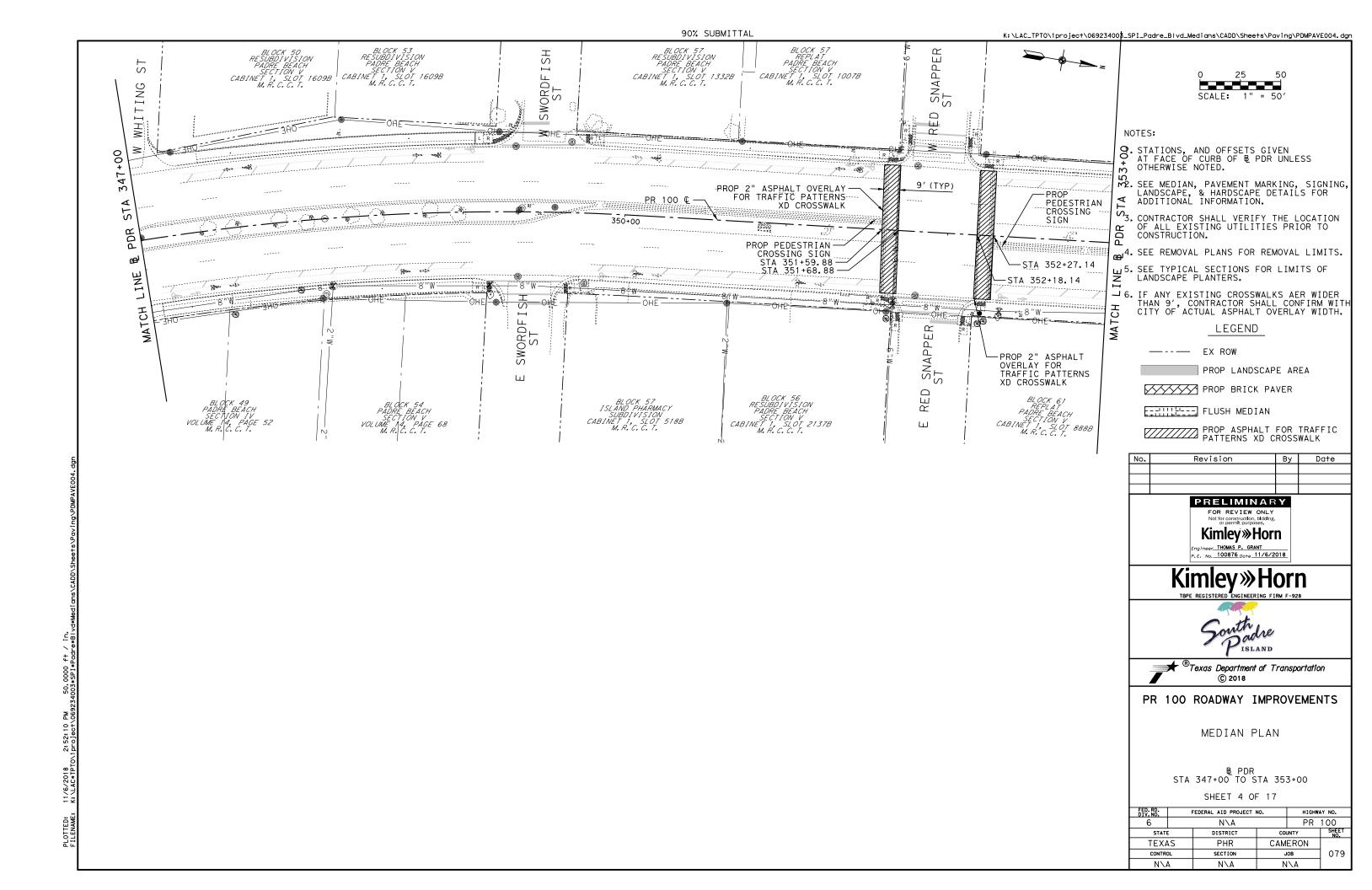
SHEET 1 OF 17

DIV. NO.	FEDERAL AID PROJECT NO.			HIGHWA	IT NO.
6	N\A			PR	100
STATE	TE DISTRICT COUNTY		SHEET NO.		
TEXA	\S	PHR	PHR CAMERON		
CONTROL		SECTION	JOB		076
N\A		N\A	N	I\A	











#### NOTES:

- 1. STATIONS, AND OFFSETS GIVEN AT FACE OF CURB OF & PDR UNLESS OTHERWISE NOTED.
- 2. SEE MEDIAN, PAVEMENT MARKING, SIGNING, LANDSCAPE, & HARDSCAPE DETAILS FOR ADDITIONAL INFORMATION.
- 3. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
- 4. SEE REMOVAL PLANS FOR REMOVAL LIMITS.
- 5. SEE TYPICAL SECTIONS FOR LIMITS OF LANDSCAPE PLANTERS.
- 6. IF ANY EXISTING CROSSWALKS AER WIDER THAN 9', CONTRACTOR SHALL CONFIRM WITH CITY OF ACTUAL ASPHALT OVERLAY WIDTH.

#### LEGEND

—--- EX ROW

PROP LANDSCAPE AREA

PROP BRICK PAVER

FLUSH MEDIAN

PROP ASPHALT FOR TRAFFIC PATTERNS XD CROSSWALK

No.	Revision	Ву	Date
	PRELIMINAR	Υ	
	FOR REVIEW ONLY		

# Kimley» Horn Engineer\_THOMAS P. GRANT P. E. No. 100876 pare 11/6/2018

# Kimley» Horn THE REGISTERED ENGINEERING FIRM F-928





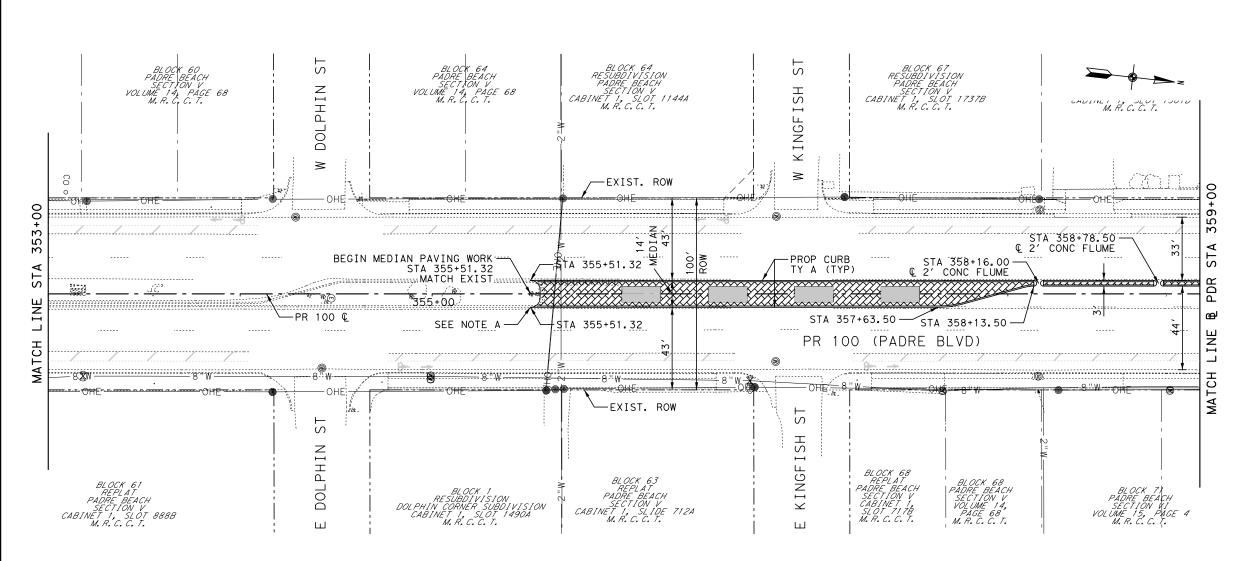
#### PR 100 ROADWAY IMPROVEMENTS

MEDIAN PLAN

| PDR STA 347+00 TO STA 359+00

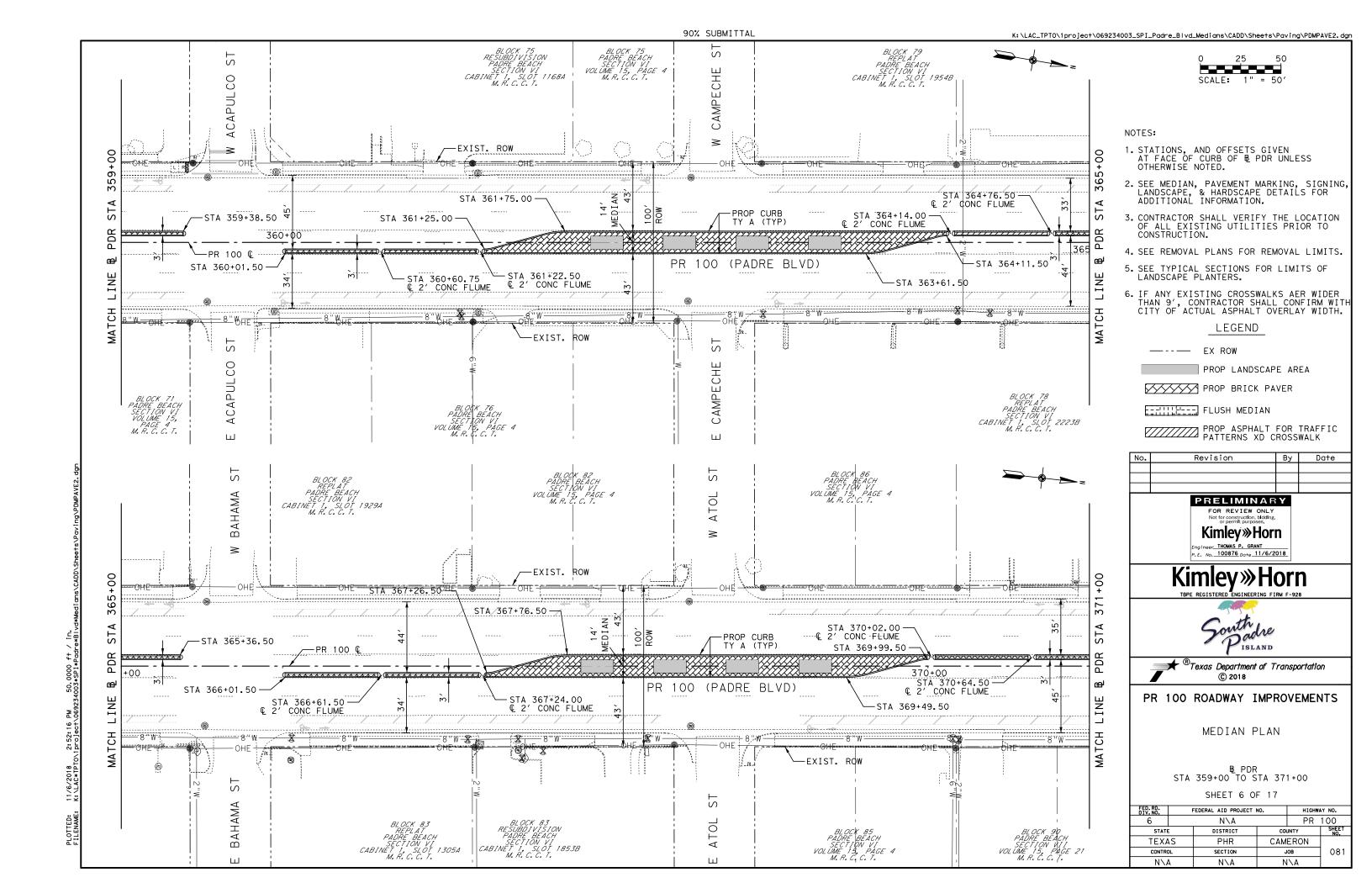
SHEET 5 OF 17

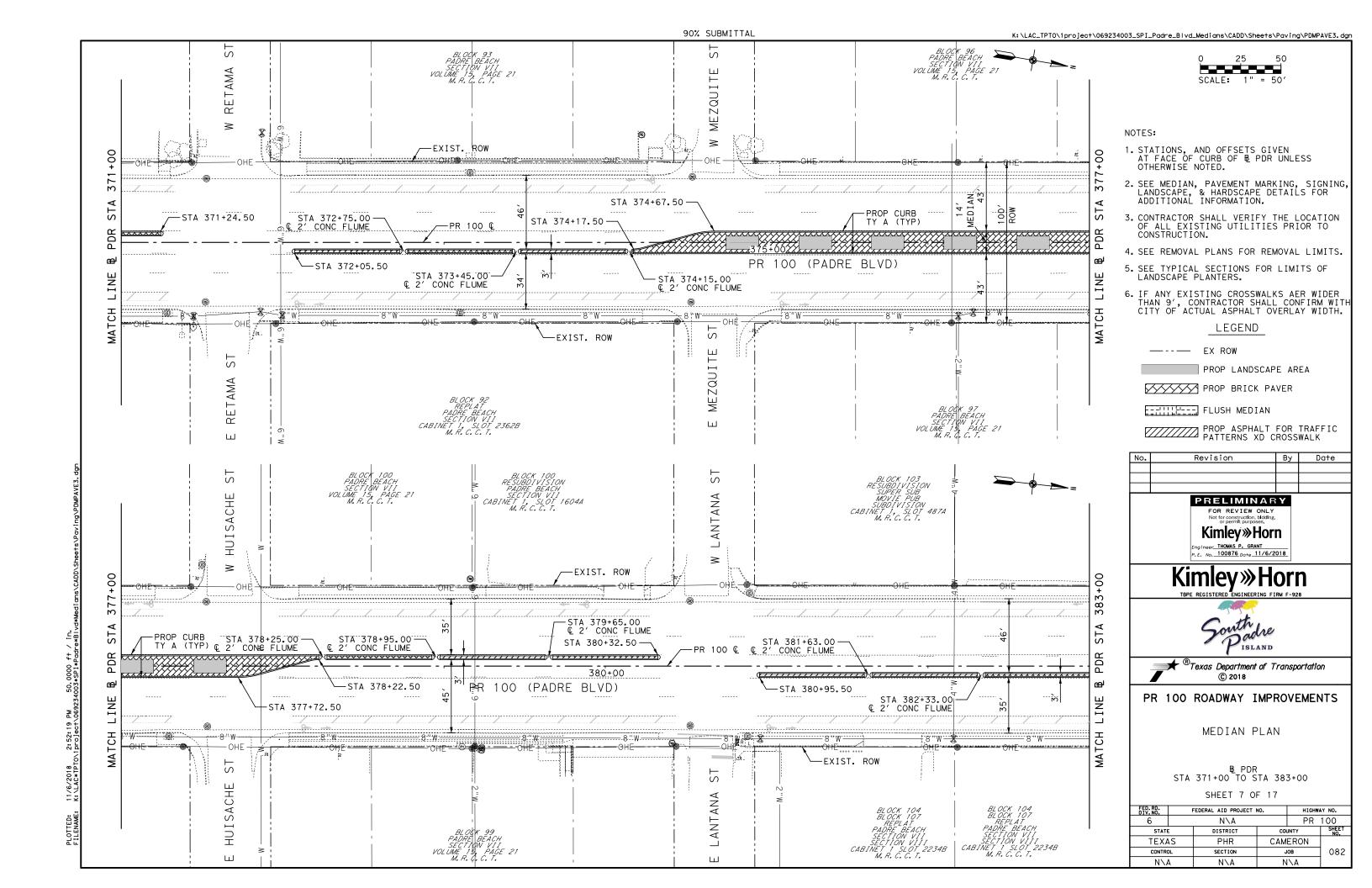
ED. RD. IV. NO.	FEDERAL AID PROJECT NO.			H I GHWA	AY NO.
6	N\A			PR	100
STATE	ATE DISTRICT COL		JNTY	SHEET NO.	
TEXAS		PHR	CAMERON		
CONTROL		SECTION	JOB		080
N\A		N∖A	N	I\A	

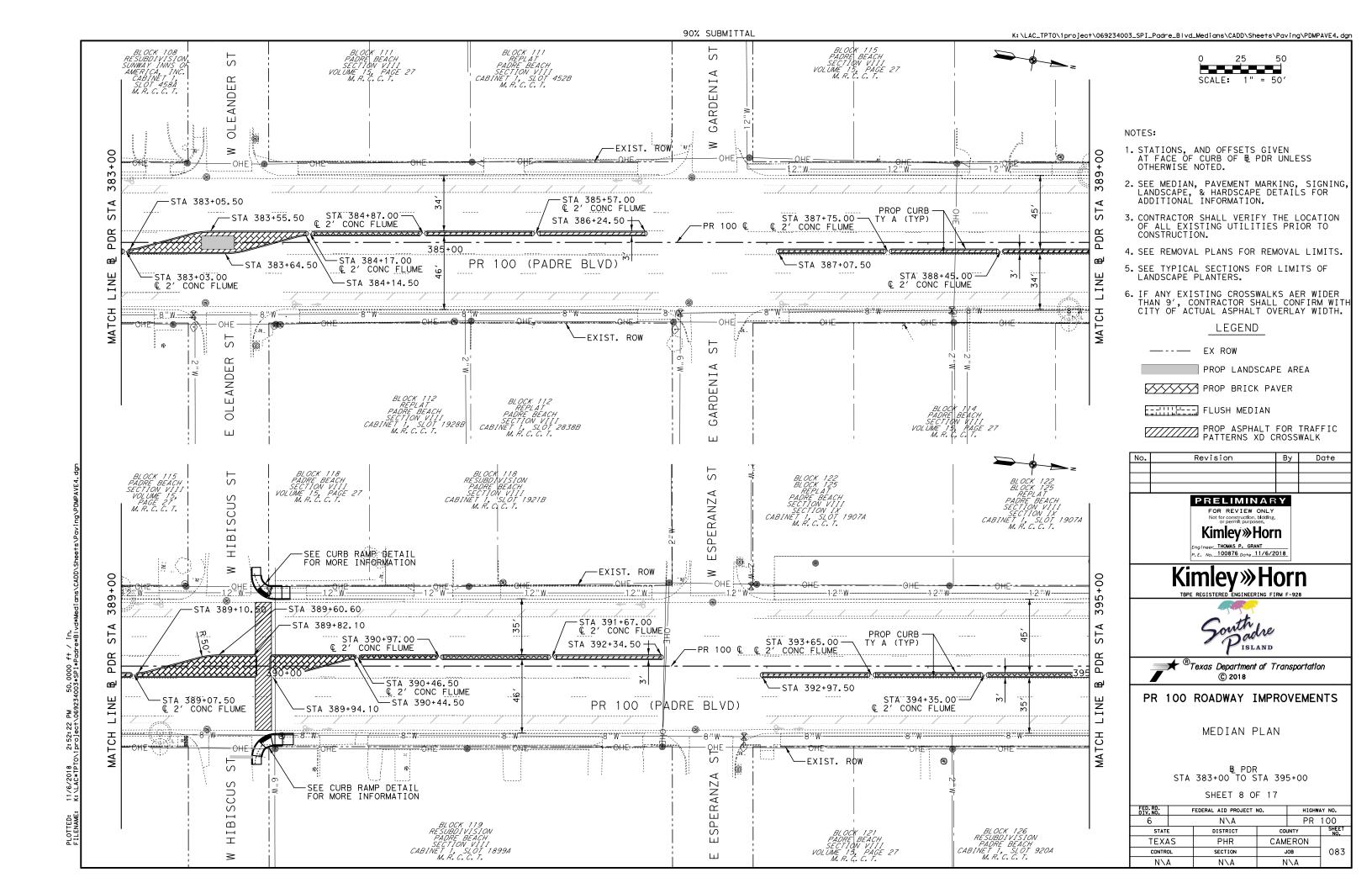


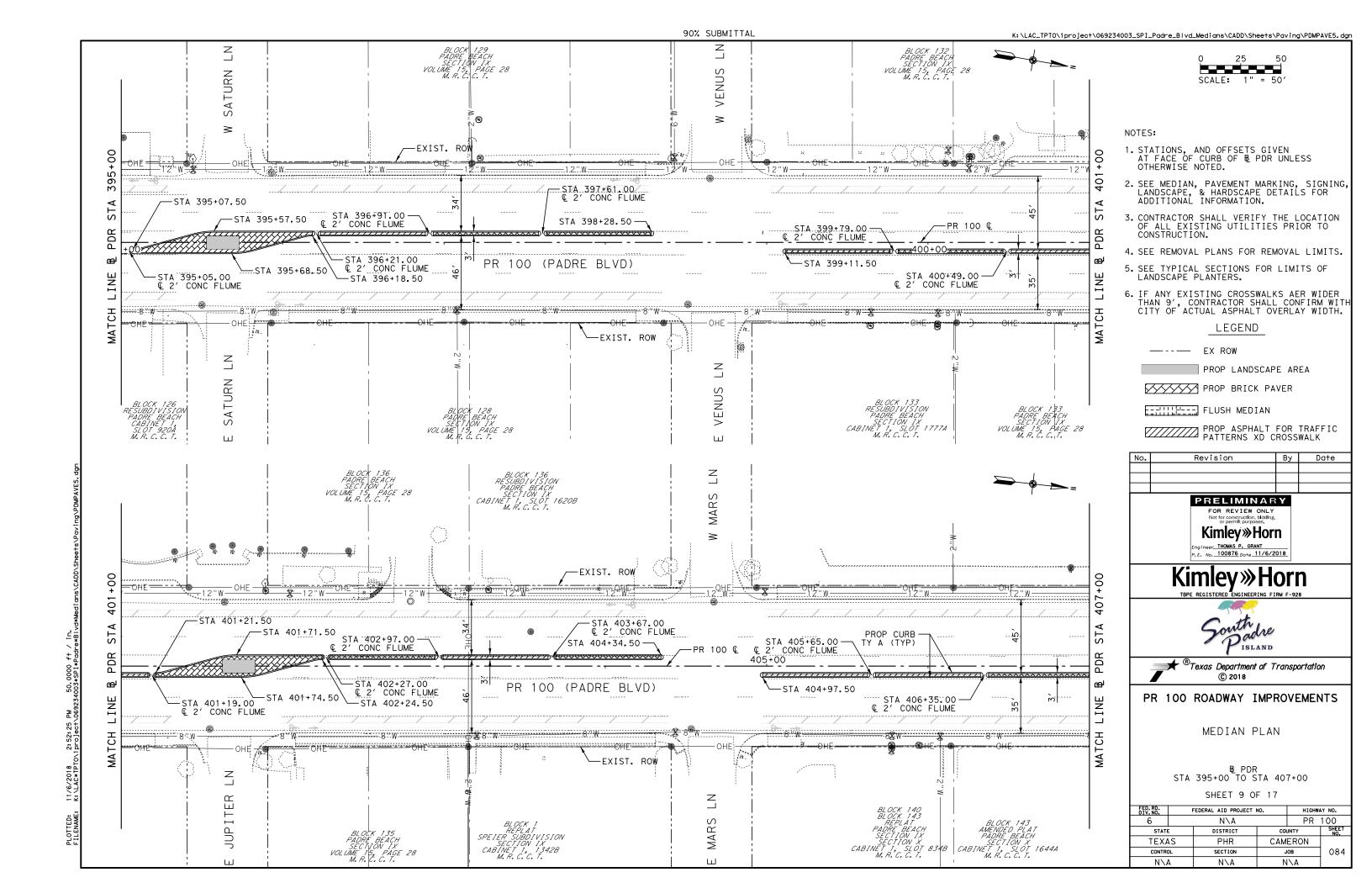
NOTE A

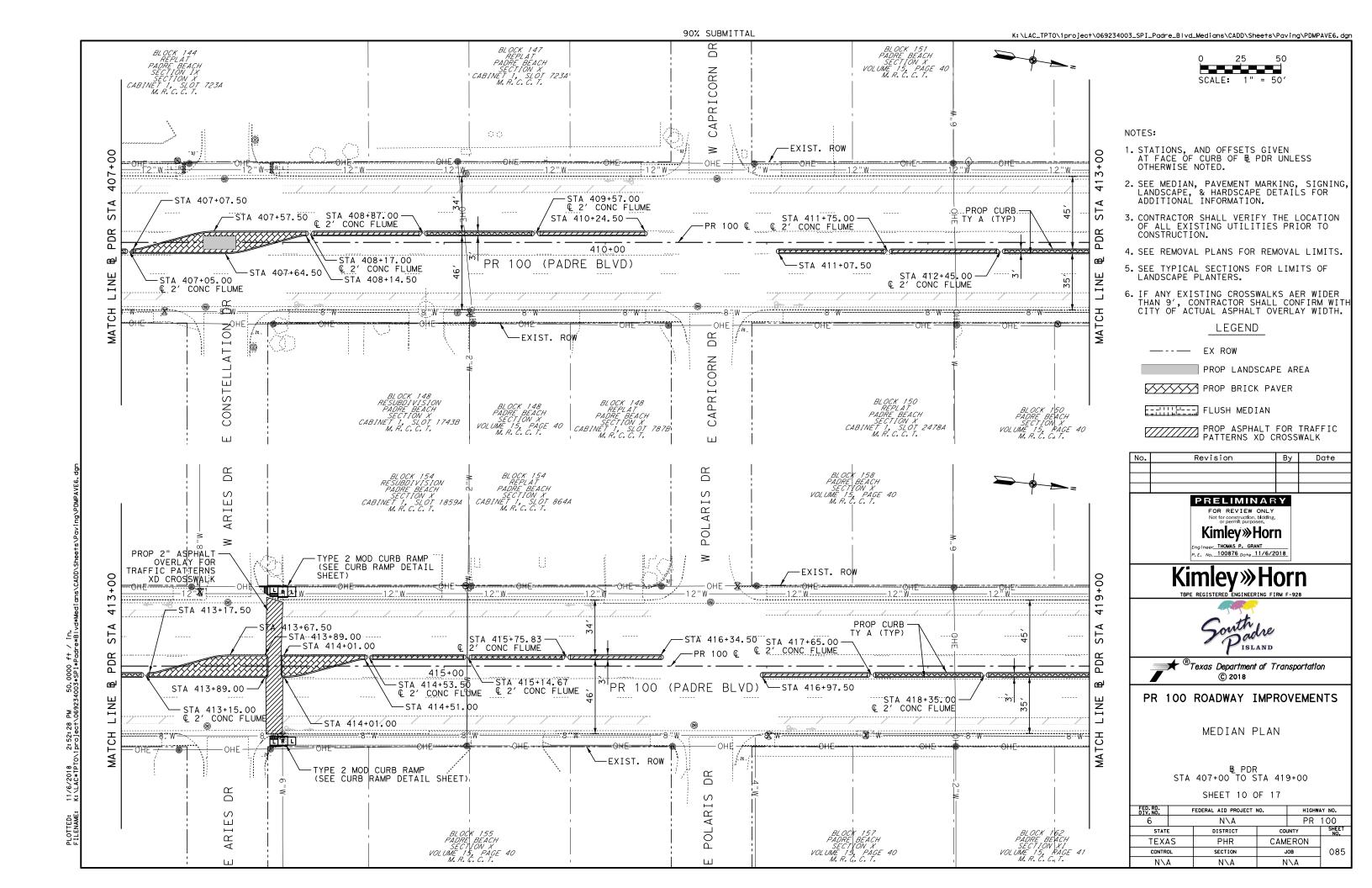
CONTRACTOR TO BLEND NEW BRICK PAVERS INTO EXISTING BRICK PAVER PATTERN. FADE NEW AND EXISTING PAVERS OVER 10'.

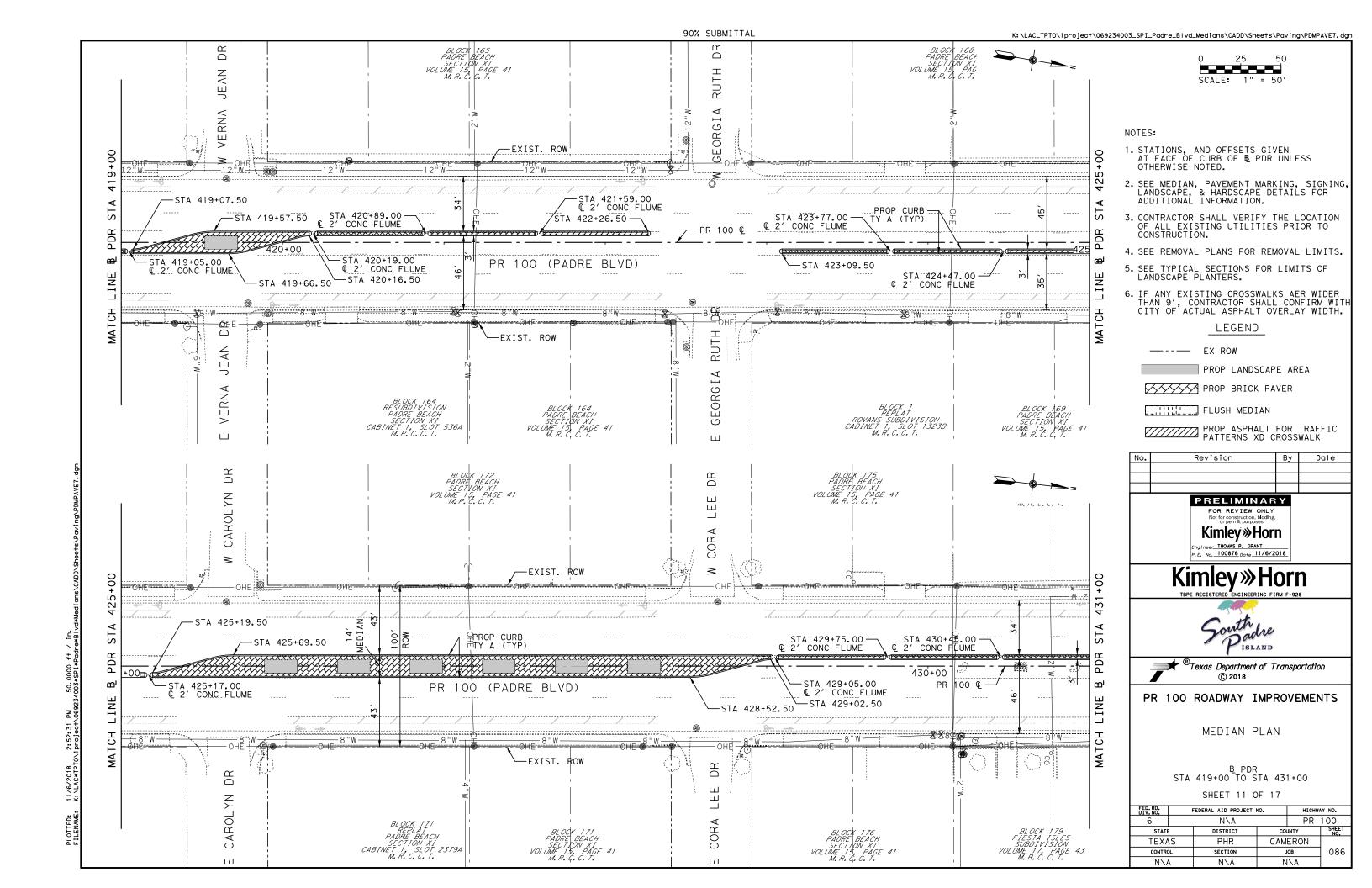


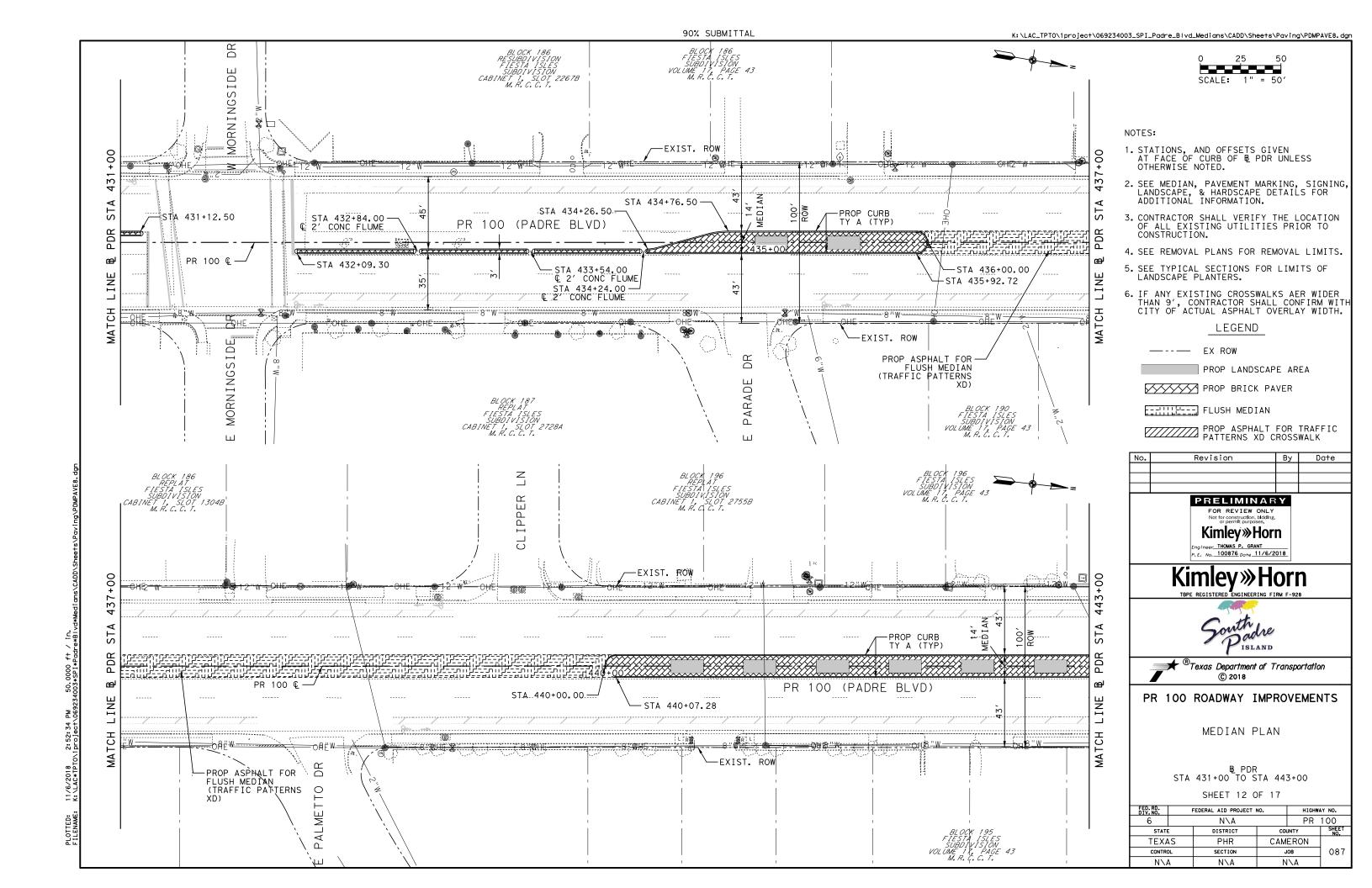


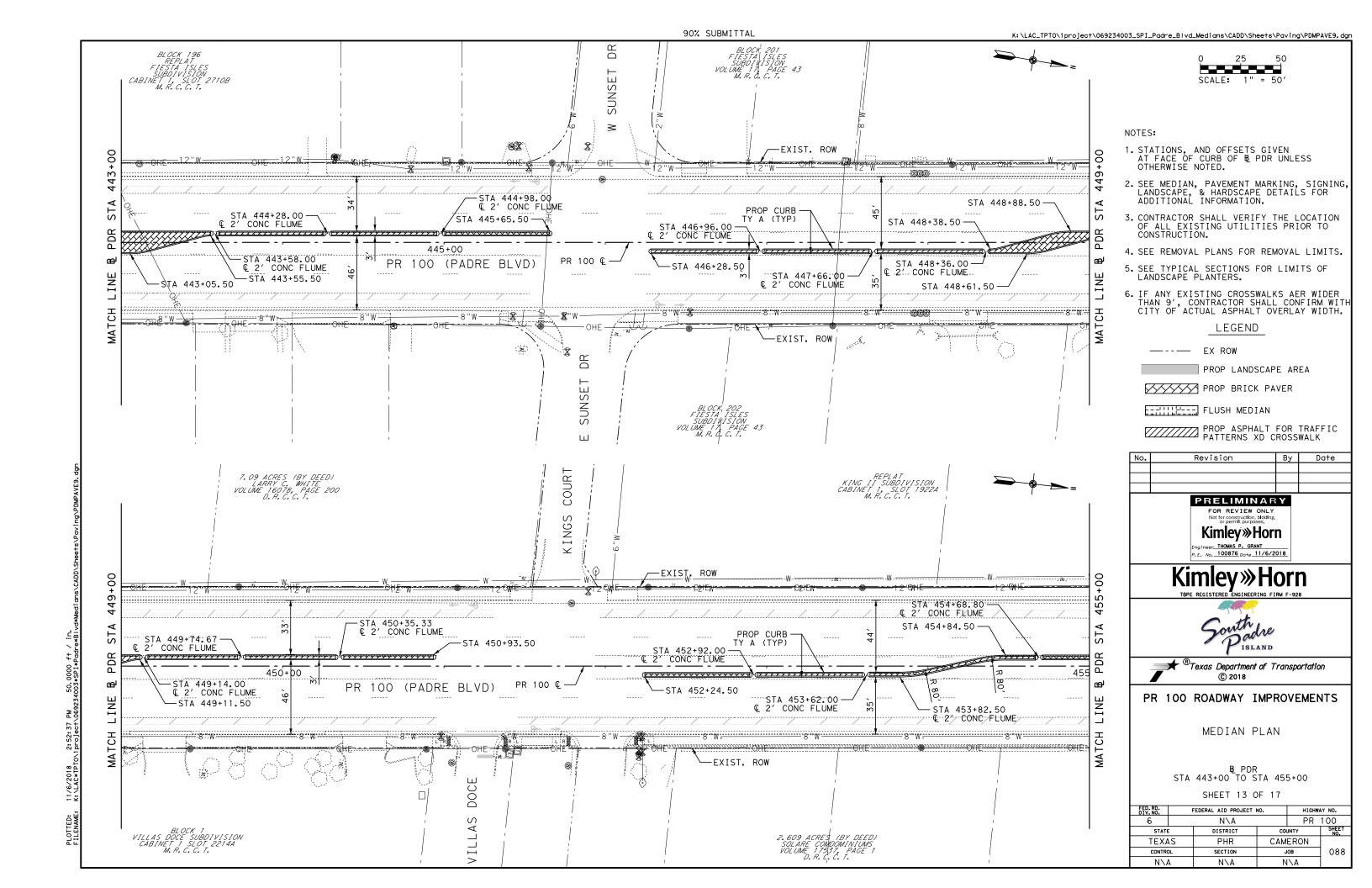


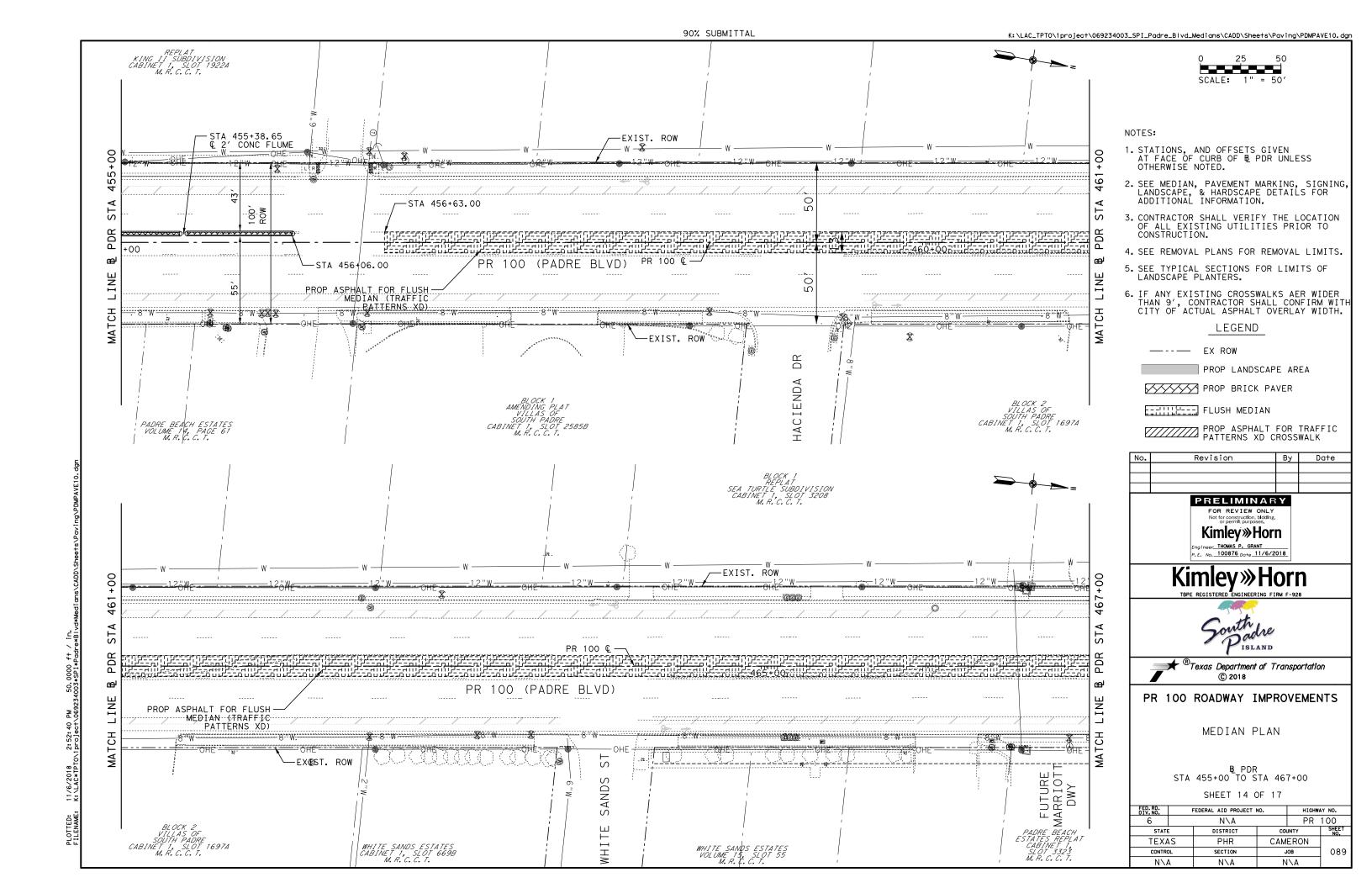


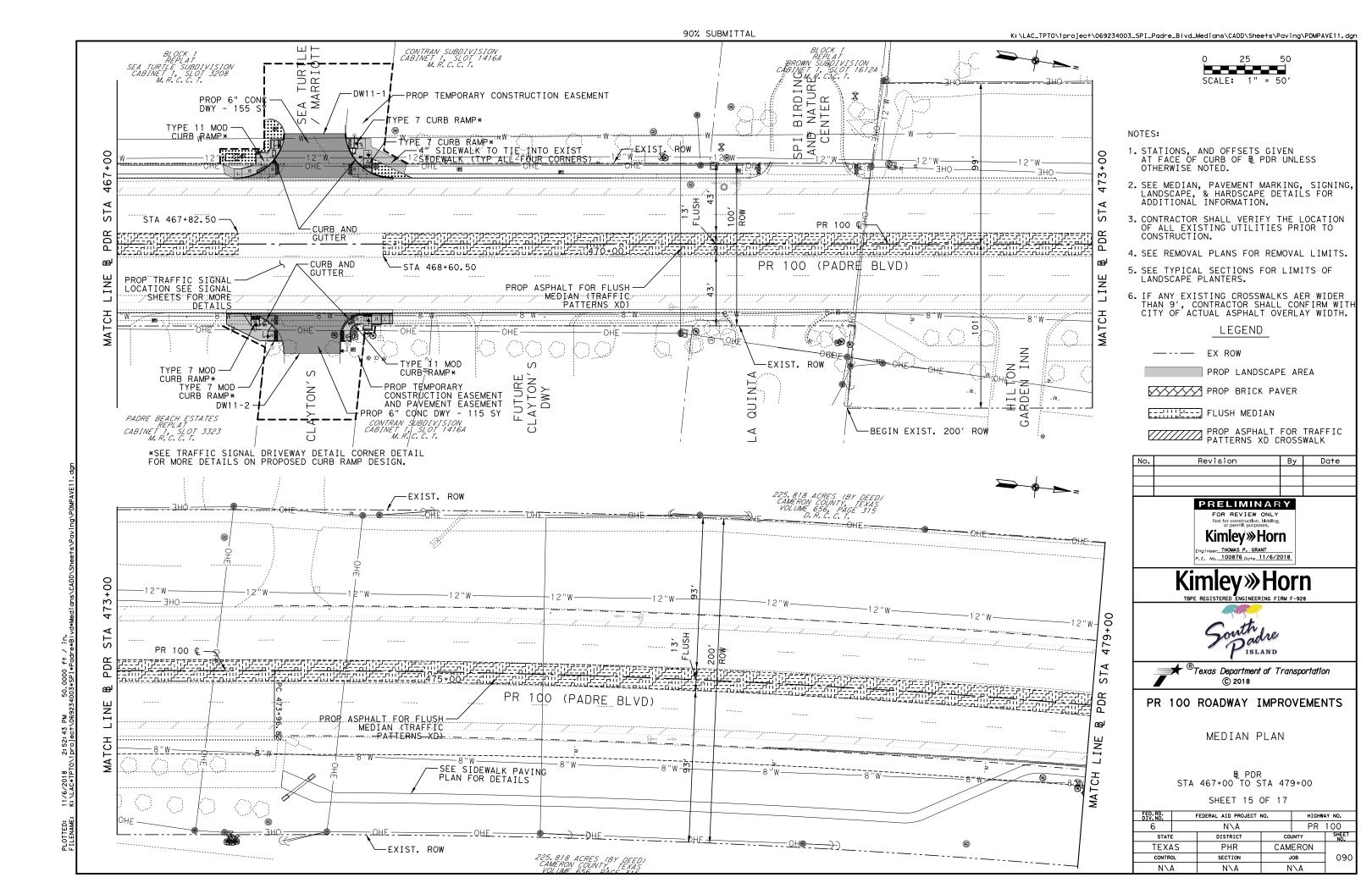


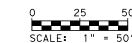












- 1. STATIONS, AND OFFSETS GIVEN AT FACE OF CURB OF & PDR UNLESS OTHERWISE NOTED.
- 2. SEE MEDIAN, PAVEMENT MARKING, SIGNING, LANDSCAPE, & HARDSCAPE DETAILS FOR ADDITIONAL INFORMATION.
- 3. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
- 4. SEE REMOVAL PLANS FOR REMOVAL LIMITS.
- 5. SEE TYPICAL SECTIONS FOR LIMITS OF LANDSCAPE PLANTERS.
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LEGEND

—--- EX ROW

PROP LANDSCAPE AREA

PROP BRICK PAVER

FLUSH MEDIAN

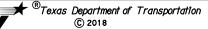
PROP ASPHALT FOR TRAFFIC PATTERNS XD CROSSWALK

	PRELIMINAR	Υ	

### FOR REVIEW ONLY Not for construction, bidding. **Kimley** »Horn Engineer THOMAS P. GRANT P.E. No. 100876 Date 11/6/2018

Kimley » Horn TBPE REGISTERED ENGINEERING FIRM F-928





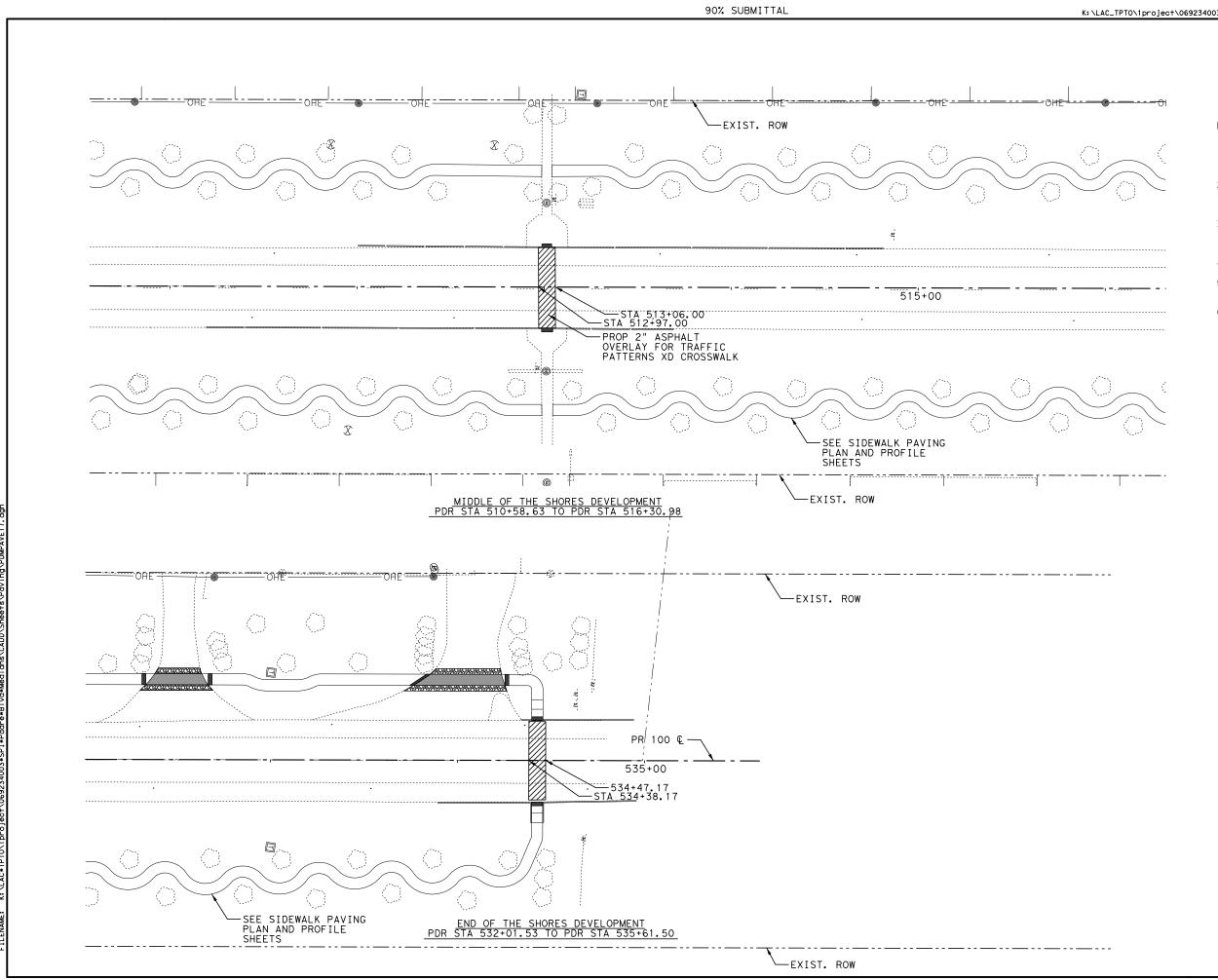
#### PR 100 ROADWAY IMPROVEMENTS

MEDIAN PLAN

B PDR STA 479+00 TO END PROJECT

SHEET 16 OF 17

ED.RD. IV.NO.	1	EDERAL AID PROJECT	H I GHWA	WAY NO.				
6		N\A	PR	100				
STATE		DISTRICT	col	JNTY	SHEET NO.			
TEXA	\S	PHR	CAM	ERON				
CONTRO	DL	SECTION	7	ЮВ	091			
N\A	4	N\A	N	I\A				
		•						



0 25 50 SCALE: 1" = 50'



#### NOTES:

- 1. STATIONS, AND OFFSETS GIVEN AT FACE OF CURB OF & PDR UNLESS OTHERWISE NOTED.
- 2. SEE MEDIAN, PAVEMENT MARKING, SIGNING, LANDSCAPE, & HARDSCAPE DETAILS FOR ADDITIONAL INFORMATION.
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- 6. IF ANY EXISTING CROSSWALKS AER WIDER THAN 9', CONTRACTOR SHALL CONFIRM WITH CITY OF ACTUAL ASPHALT OVERLAY WIDTH.

LEGEND

\_\_\_\_ EX ROW

PROP LANDSCAPE AREA

PROP BRICK PAVER

FLUSH MEDIAN

PROP ASPHALT FOR TRAFFIC PATTERNS XD CROSSWALK

No. Revision By Date

PRELIMINARY

FOR REVIEW ONLY

FOR REVIEW ONLY
Not for construction, bidding,
or permit purpose.

Kimley>> Horn

Engineer\_THOMAS\_P. GRANT
P. E. No. 100876\_pore\_11/6/2018

Kimley » Horn

THE REGISTERED ENGINEERING FIRM F-928

South padre PISLAND



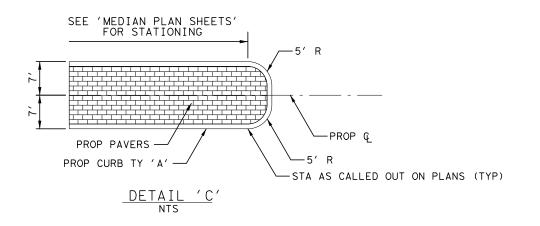
### PR 100 ROADWAY IMPROVEMENTS

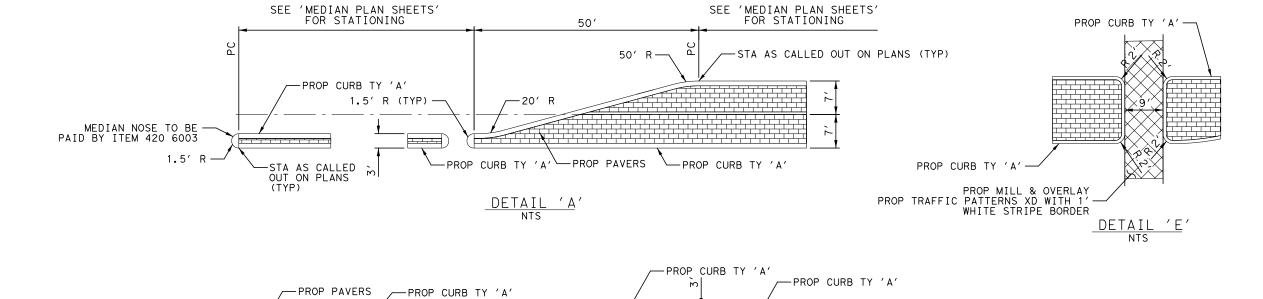
MEDIAN PLAN

SHEET 17 OF 17

ı	EDERAL AID PROJECT	NO.	HIGHWA	AY NO.						
	N\A PR 1									
E	DISTRICT	col	JNTY	SHEET NO.						
48	PHR	CAM	ERON							
OL	SECTION	J	ОВ	092						
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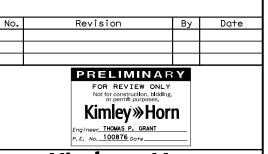
20' R

DETAIL 'B'

50′

SEE 'MEDIAN PLAN SHEETS' FOR STATIONING -1.5' R (TYP)

SEE 'MEDIAN PLAN SHEETS' FOR STATIONING







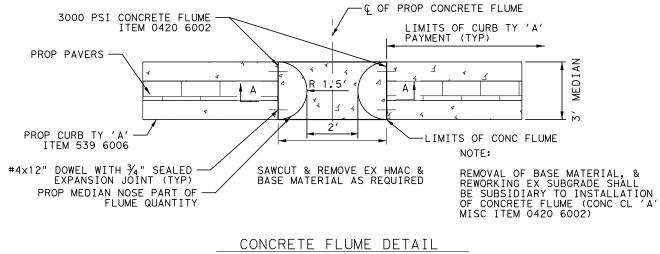


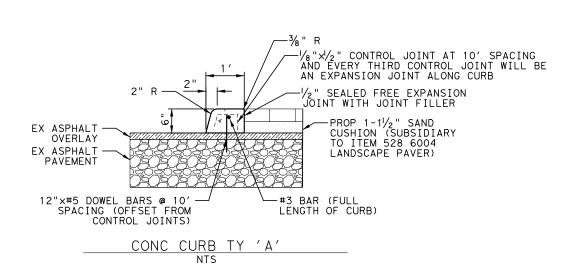
#### PR 100 ROADWAY IMPROVEMENTS

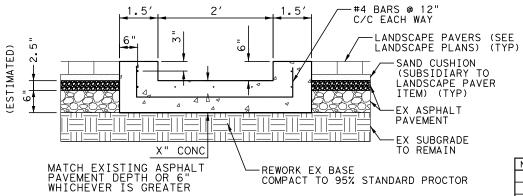
CONCRETE MEDIAN DETAILS

SHEET	1	OF	2

FED. RD. DIV. NO.		FEDERAL AID PROJECT	NO.	HIGHW/	AY NO.						
6		N\A PR 1									
STATE	E	DISTRICT	col	SHEET NO.							
TEXA	\S	PHR	R CAMERON								
CONTRO	OL	SECTION	ОВ	093							
N\A	4	N\A	N	<b> \A</b>	1						







SECTION A-A

No.	Revision	Ву	Date
	PRELIMINA	RY	
	FOR REVIEW ONI Not for construction, bldd or permit purposes.		
	Kimley»Ho		
	Engineer THOMAS P. GRANT P.E. No. 100876 Date		

Kimley» Horn





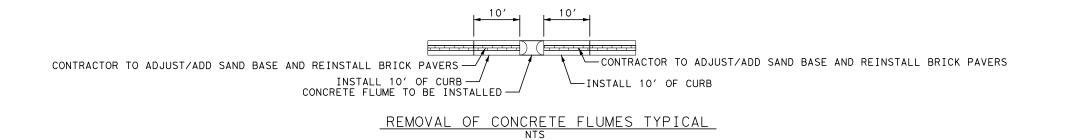
#### PR 100 ROADWAY IMPROVEMENTS

CONCRETE MEDIAN DETAILS

SHEET 2 OF 2

D. RD. IV. NO.	FEDERAL AID PROJECT NO. HIGHWAY NO.								
6	N\A PR 1								
STATE		DISTRICT	co	SHEET NO.					
TEXA	\S	PHR	CAM						
CONTR	DL	SECTION	7	094					
N\	4	N∖A	N						

### REMOVAL OF CONCRETE FLUMES TYPICAL



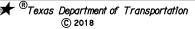
#### NOTES:

- 1. ALL WORK FOR EACH CONCRETE FLUME REPLACEMENT SHALL BE PAID VIA ITEM SPI 004 INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
  - \*CURB DEMO
  - \*FLUME DEMO
  - \*FLUME DEMO
    \*ADJUSTING/REWORKING/INSTALLING
    \*SAND BASE AS NEEDED FOR PAVERS
    \*ADJUSTING BRICK PAVERS AS NEEDED
    \*INSTALLING CONCRETE FLUME
    \*INSTALLING CONCRETE CURB
    \*JOINTS

Revision Date Ву

PRELIMINARY FOR REVIEW ONLY
Not for construction, bldding,
or permit purposes. **Kimley** »Horn ngineer THOMAS P. GRANT

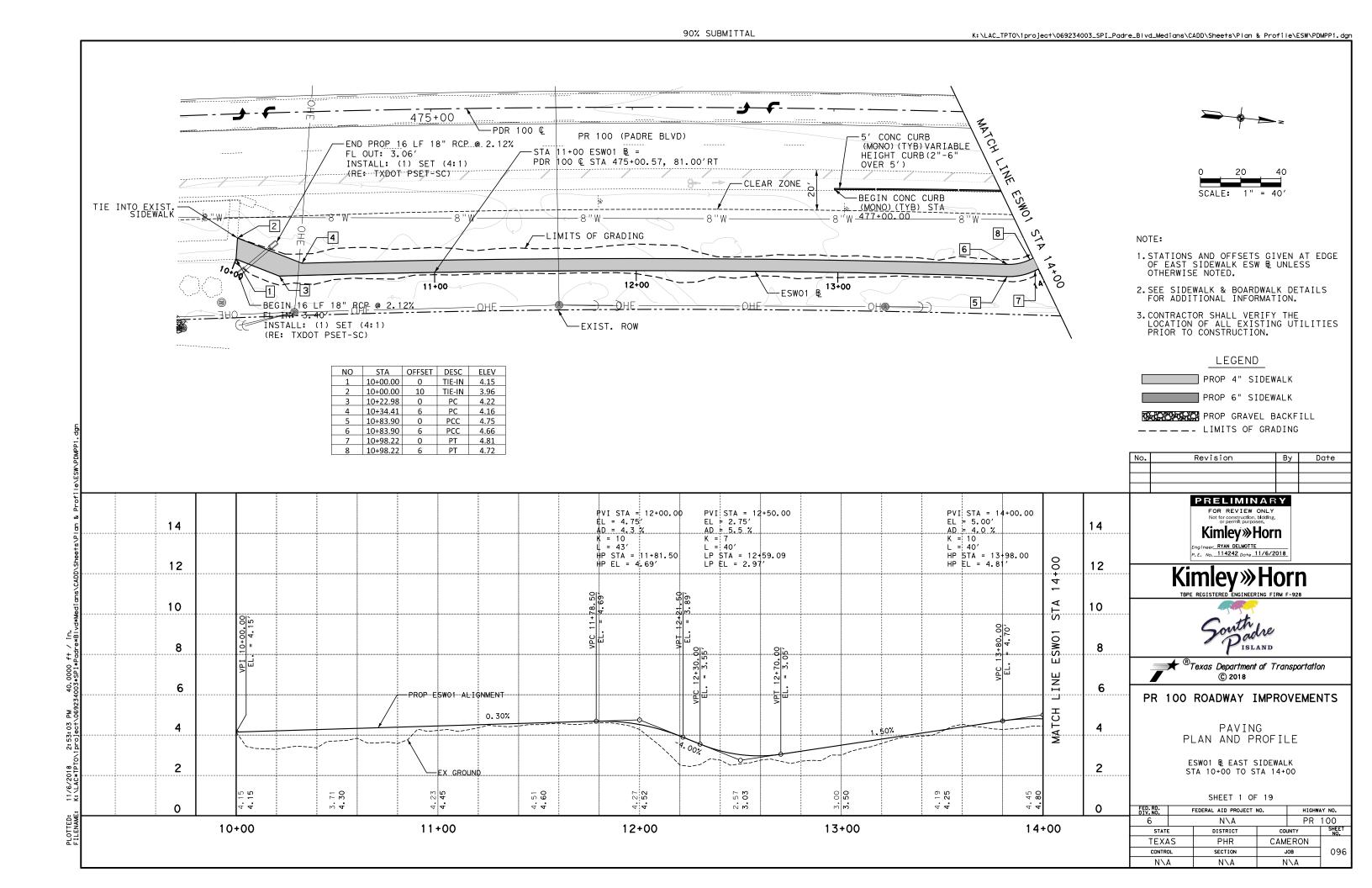


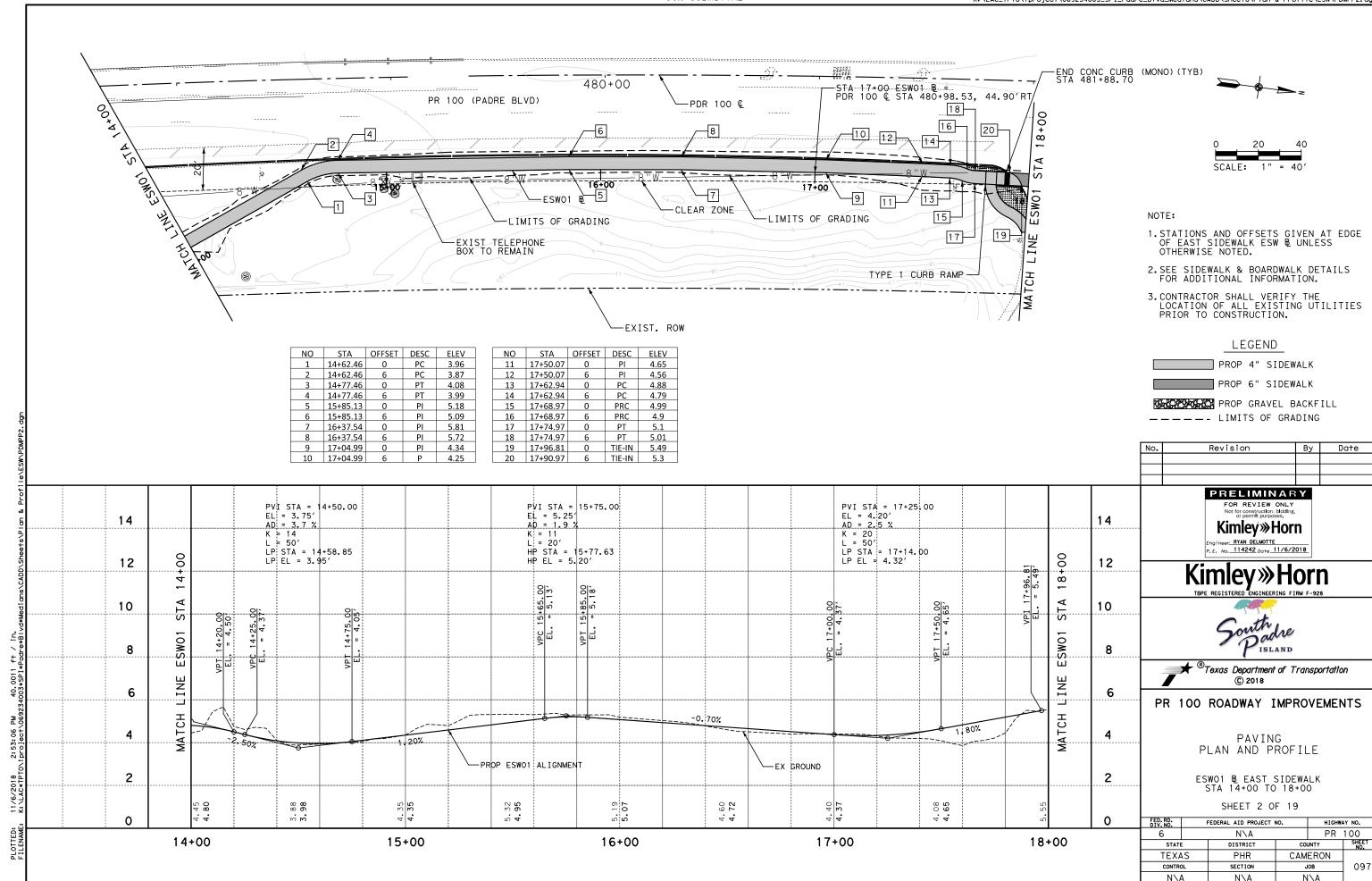


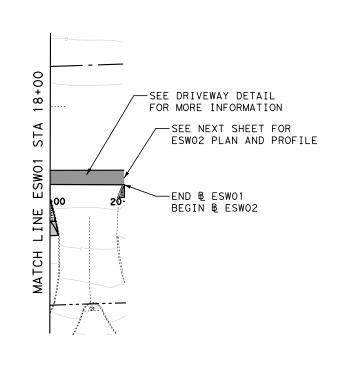
#### PR 100 ROADWAY IMPROVEMENTS

CONCRETE MEDIAN DETAILS

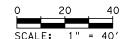
FED.RD. DIV.NO. FEDERAL AID PROJECT NO. HIGHWAY NO. 6 PR 100 N\A STATE DISTRICT COUNTY TEXAS PHR CAMERON 095 CONTROL SECTION JOB N\A N\A N\A











#### NOTE:

- 1.STATIONS AND OFFSETS GIVEN AT EDGE OF EAST SIDEWALK ESW & UNLESS OTHERWISE NOTED.
- 2.SEE SIDEWALK & BOARDWALK DETAILS FOR ADDITIONAL INFORMATION.
- 3. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.

#### LEGEND

PROP 4" SIDEWALK

PROP 6" SIDEWALK

Revision

PROP GRAVEL BACKFILL \_\_\_\_ LIMITS OF GRADING

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PRELIMINARY
FOR REVIEW ONLY  Not for construction, bldding, or permit purposes.
Kimley»Horn
Engineer RYAN DELMOTTE
P.E. No. 114242 Date 11/6/2018

Ву

Date

**Kimley** » Horn

South padre

\*\*Texas Department of Transportation © 2018

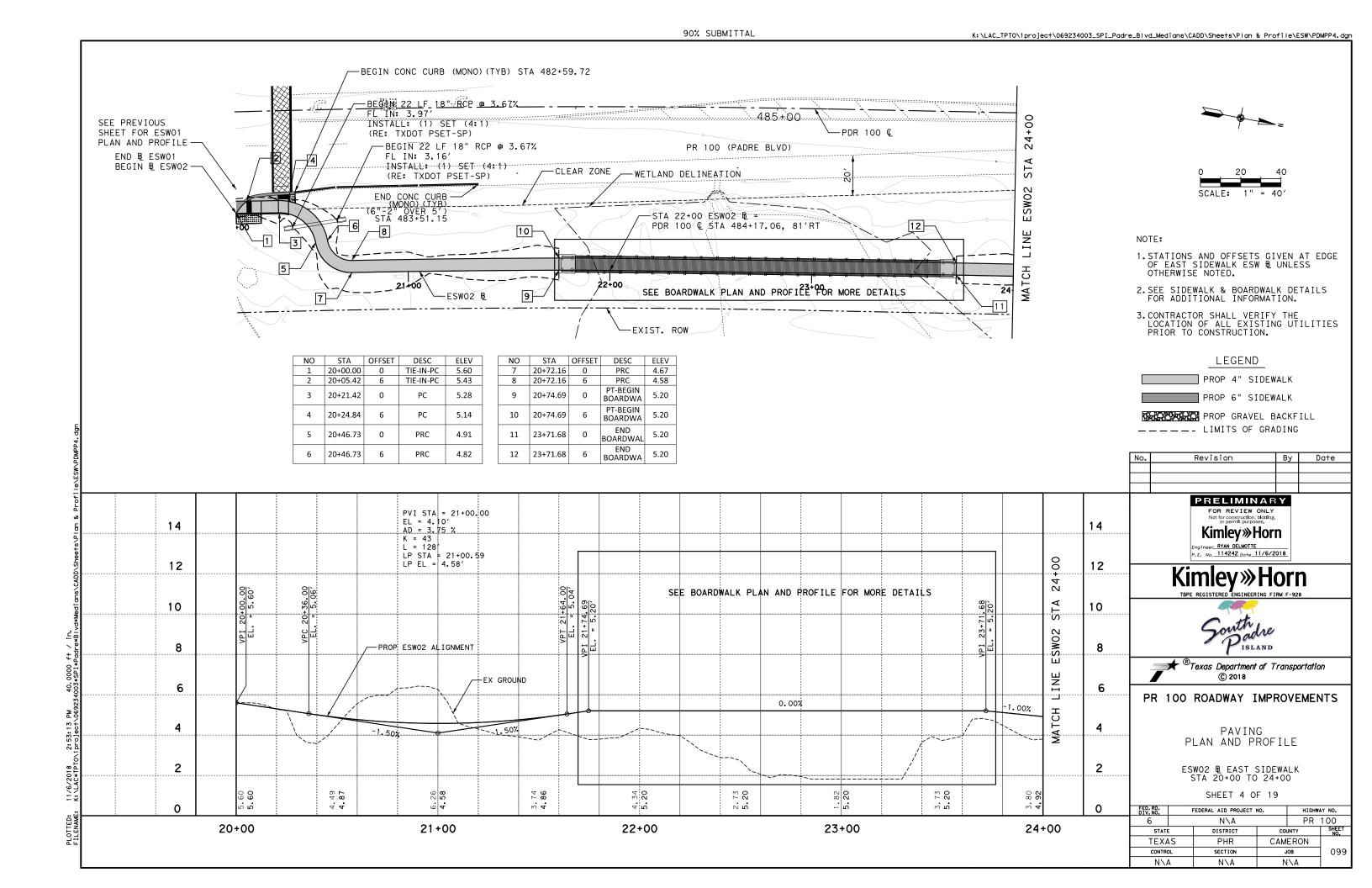
#### PR 100 ROADWAY IMPROVEMENTS

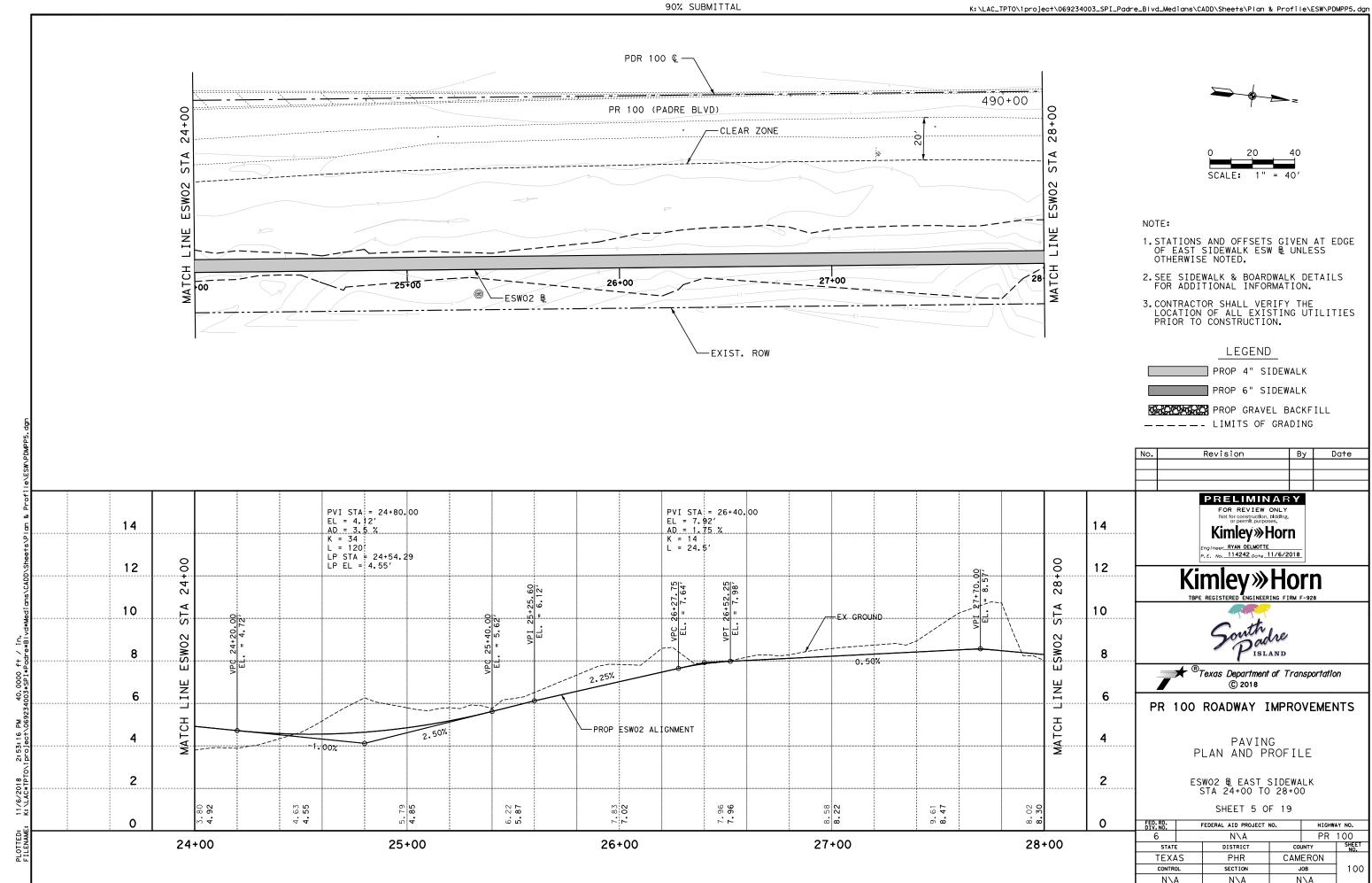
PAVING PLAN AND PROFILE

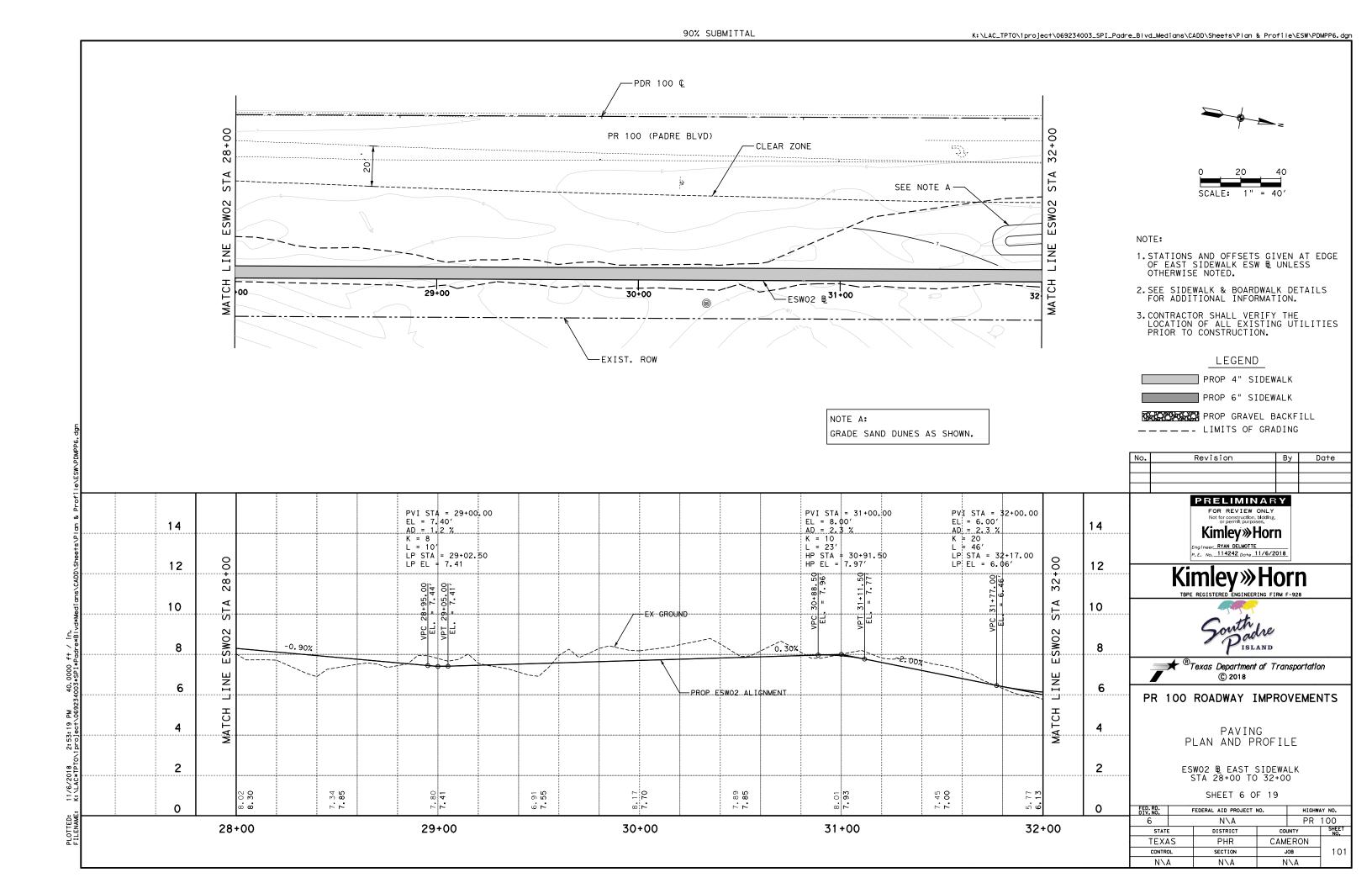
ESW01 & EAST SIDEWALK STA 18+00 TO 18+30.87

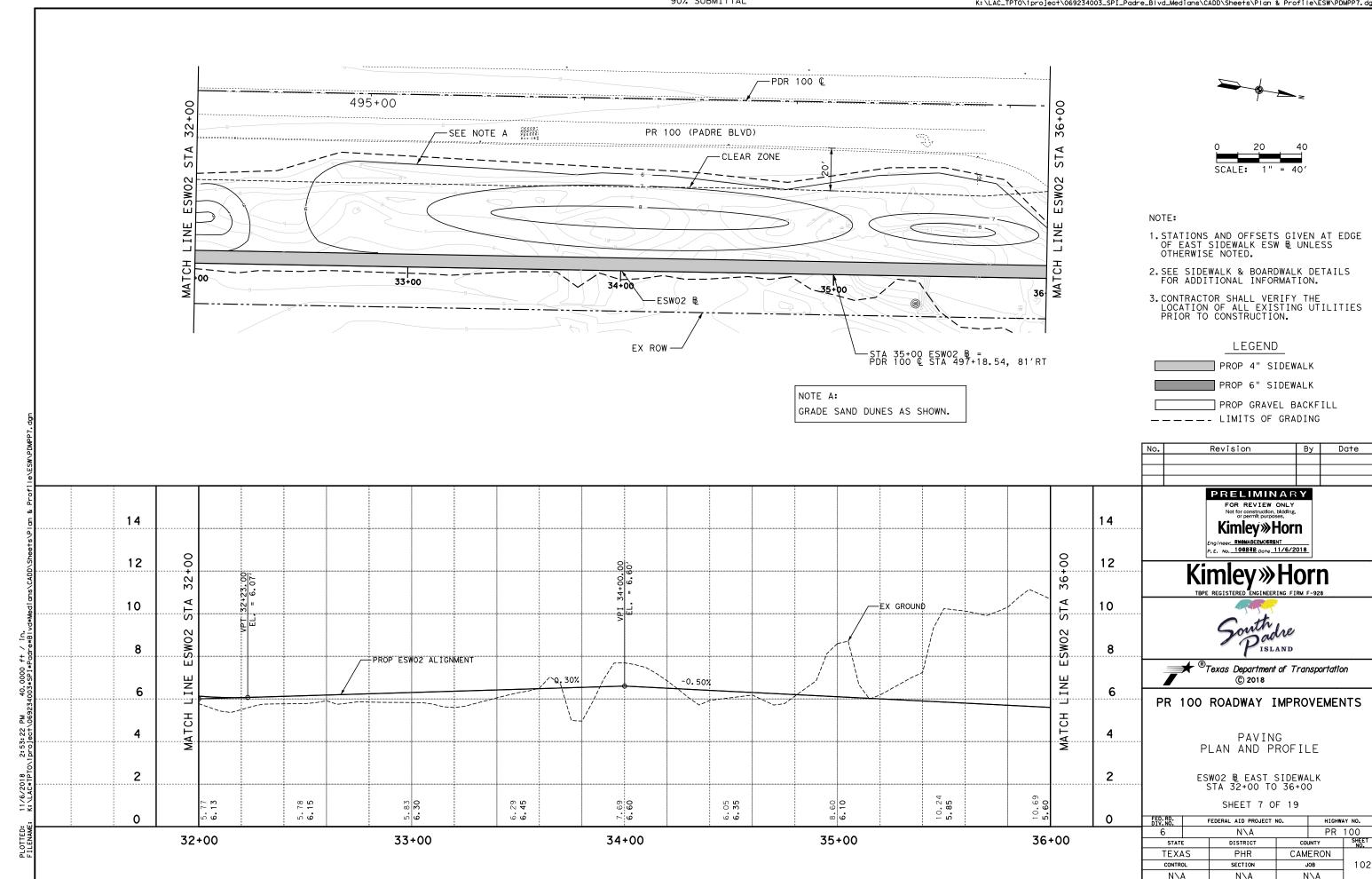
SHEET 3 OF 19

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO. HIGHWAY NO.									
6	N\A PR 100									
STATE		JNTY	SHEET NO.							
TEXA	\S	PHR	CAM							
CONTRO	DL	SECTION	J	098						
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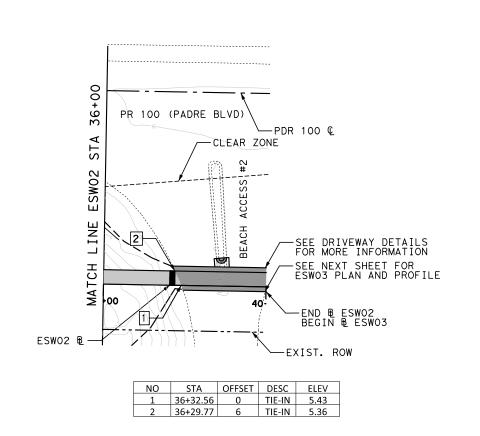






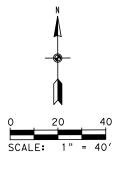
NOTE A:

GRADE SAND DUNES AS SHOWN.



37+00

36+00



#### NOTE:

- 1.STATIONS AND OFFSETS GIVEN AT EDGE OF EAST SIDEWALK ESW & UNLESS OTHERWISE NOTED.
- 2. SEE SIDEWALK & BOARDWALK DETAILS FOR ADDITIONAL INFORMATION.
- 3.CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.

#### LEGEND

PROP 4" SIDEWALK

PROP 6" SIDEWALK

PROP GRAVEL BACKFILL \_\_\_\_ LIMITS OF GRADING

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																				No.	Revision
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RY rn /2018

Ву

Date

lorn FIRM F-928

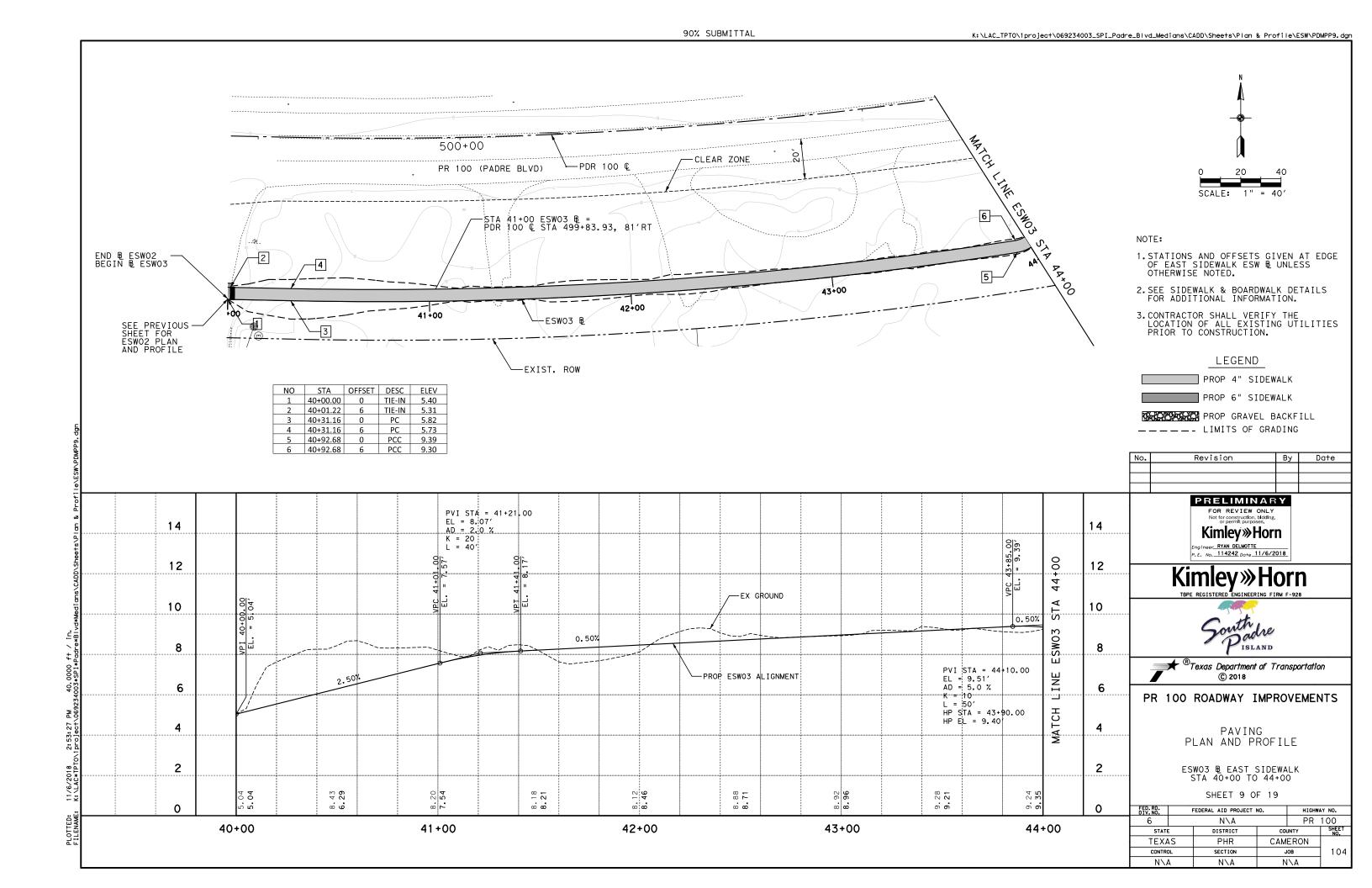
Transportation

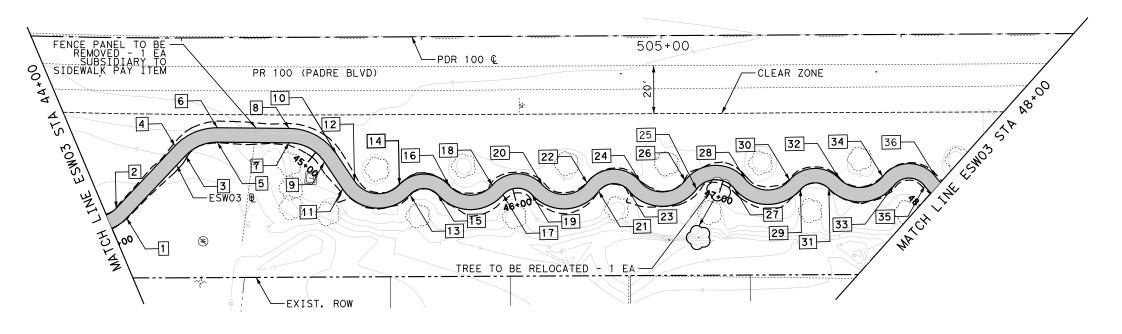
PROVEMENTS

OFILE

DEWALK 68.07

FED.RD. DIV.NO.		FEDERAL AID PROJECT NO. HIGHWAY NO.											
6		N\A PR 100											
STAT	Ē	DISTRICT	co	SHEET NO.									
TEXA	45	PHR	CAM										
CONTR	OL	SECTION	J	103									
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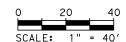
NO	STA	OFFSET	DESC	ELEV
1	44+07.48	0	PT	9.24
2	44+07.48	6	PT	9.15
3	44+43.23	0	PC	8.01
4	44+43.23	6	PC	7.92
5	44+58.03	0	PT	7.35
6	44+58.03	58.03 6		7.26
7	44+87.89	0	PC	6.08
Q	11127 80	6	DC.	E 00

NO	STA	OFFSET	DESC	ELEV	NO	STA	OFFSET	DESC	ELEV
1	44+07.48	0	PT	9.24	9	45+05.40	0	PT	5.53
2	44+07.48	6	PT	9.15	10	45+05.40	6	PT	5.44
3	44+43.23	0	PC	8.01	11	45+18.99	0	PC	5.20
4	44+43.23	6	PC	7.92	12	45+18.99	6	PC	5.11
5	44+58.03	0	PT	7.35	13	45+51.30	0	PRC	4.79
6	44+58.03	6	PT	7.26	14	45+51.30	6	PRC	4.70
7	44+87.89	0	PC	6.08	15	45+64.46	0	PRC	4.77
8	44+87.89	6	PC	5.99	16	45+64.46	6	PRC	4.68

	NO	STA	OFFSET	DESC	ELEV
	17	45+95.16	0	PRC	4.90
	18	45+95.16	6	PRC	4.81
	19	46+08.70	0	PRC	4.96
	20	46+08.70	6	PRC	4.87
	21	46+40.59	0	PRC	5.10
	22	46+40.59	6	PRC	5.01
	23	46+55.10	0	PRC	5.17
	24	46+55 10	6	PRC	5.08

NO	STA	OFFSET	DESC	ELEV
		OITSET		
25	46+87.58	0	PRC	5.11
26	46+87.58	46+87.58 6		5.02
27	47+05.68	0	PRC	5.05
28	47+05.68	6	PRC	4.96
29	47+37.13	0	PRC	4.96
30	47+37.13	6	PRC	4.87
31 47+50.45		0	PRC	4.92
32	47+50.45	6	PRC	4.83

2		<b>\rightarrow</b>	<u> </u>	_ ≥



#### NOTE:

NO STA OFFSET DESC ELEV

33 47+81.23 0 PRC 4.83 34 47+81.23 6 PRC 4.74

35 47+96.06 0 PRC 4.78 36 47+96.06 6 PRC 4.69

- 1.STATIONS AND OFFSETS GIVEN AT EDGE OF EAST SIDEWALK ESW & UNLESS OTHERWISE NOTED.
- 2. SEE SIDEWALK & BOARDWALK DETAILS FOR ADDITIONAL INFORMATION.
- 3.CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.

#### LEGEND

☐ PROP 4" SIDEWALK

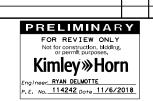
PROP 6" SIDEWALK

PROP GRAVEL BACKFILL

\_\_\_\_ LIMITS OF GRADING

Revision

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Ject (Ub9234	4	L = 50	= 43+90.00 = 9.40′	4.50	0. 45%	-0.30y		MATCH L	4
1005*SP1*PG	6	PVI STA	A = 44+10,00		—EX GR	DUND		INE	6
dre*bivd*M	8	SW03 S	VPC 44+		VPT 45+ EL. =	VPI 46		SW03 S	8
ed I dus \CAD	10	STA 44+	VPT 4 EL. 70,000		70. 0 <u>0</u> 4. 79′	6+60.00 = 5.19′		TA 48-	10
UNSHEETSIF	12	00	44+35,00 = 8,39'	K = 20 L = 100' LP STA = 45+60.91 LP EL = 4.76'				00	12
an & Proti	14			PVI STA = 45+20.00 EL = 4.56' AD = 4.95 %					14
e E									



Ву

Date

# **Kimley** » Horn

South produce Pisland



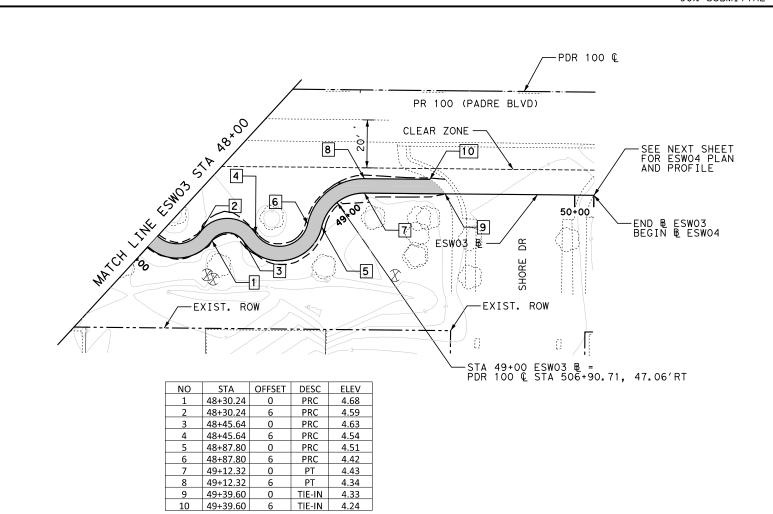
#### PR 100 ROADWAY IMPROVEMENTS

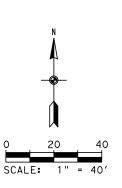
PAVING PLAN AND PROFILE

ESW03 & EAST SIDEWALK STA 44+00 TO 48+00

SHEET 10 OF 19

FED. RD. DIV. NO.	_	FEDERAL AID PROJECT NO. HIGHWA						
6		N\A PR						
STATE		DISTRICT	JNTY	SHEET NO.				
TEXA	\S	PHR	CAM	ERON				
CONTROL		SECTION	7	ОВ	105			
N\A	4	N∖A	N\A N\A					





#### NOTE:

- 1.STATIONS AND OFFSETS GIVEN AT EDGE OF EAST SIDEWALK ESW & UNLESS OTHERWISE NOTED.
- 2. SEE SIDEWALK & BOARDWALK DETAILS FOR ADDITIONAL INFORMATION.
- 3. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.

#### LEGEND

PROP 4" SIDEWALK

PROP 6" SIDEWALK

Ву

Date

PROP GRAVEL BACKFILL

\_\_\_\_\_ LIMITS OF GRADING

Revision

, Profile\E													
rs/Plan 8		14											 14
DD\Shee1		12	00+									 	 12
ed!ans\CA		10	TA 48			45.96 4.33'							10
t / in. dre*Blvd*Me		8	SW03 S			(PI 49+45 EL. = 4.							8
40.0000 f† 003*SPI*P¤		6	I NE										6
33 PM 9c1\0692340		4	TCH L	-0.			EX GROUND						4
018 2:53: ⊀TPTO\1proje		2	AM			ROP ESWO3 ALIGNMENT							2
11/6/201 : K:\LAC*1		0	4.61	.4. 8.8. 2.8.	.4 7.4 7.4	. 2 12.	3. 9. 33						0
OTTED: LENAME:	'		48+00	• 1	49+00	i	50+00	· ·	i	<u> </u>	<u> </u>	1	

PRELIMINARY
FOR REVIEW ONLY
Not for construction, bidding, or permit purposes.
Kimley » Horn
Engineer_RYAN_DELMOTTE
P. E. No. 114242 Date 11/6/2018
55.0

# Kimley»Horn

South re Padre



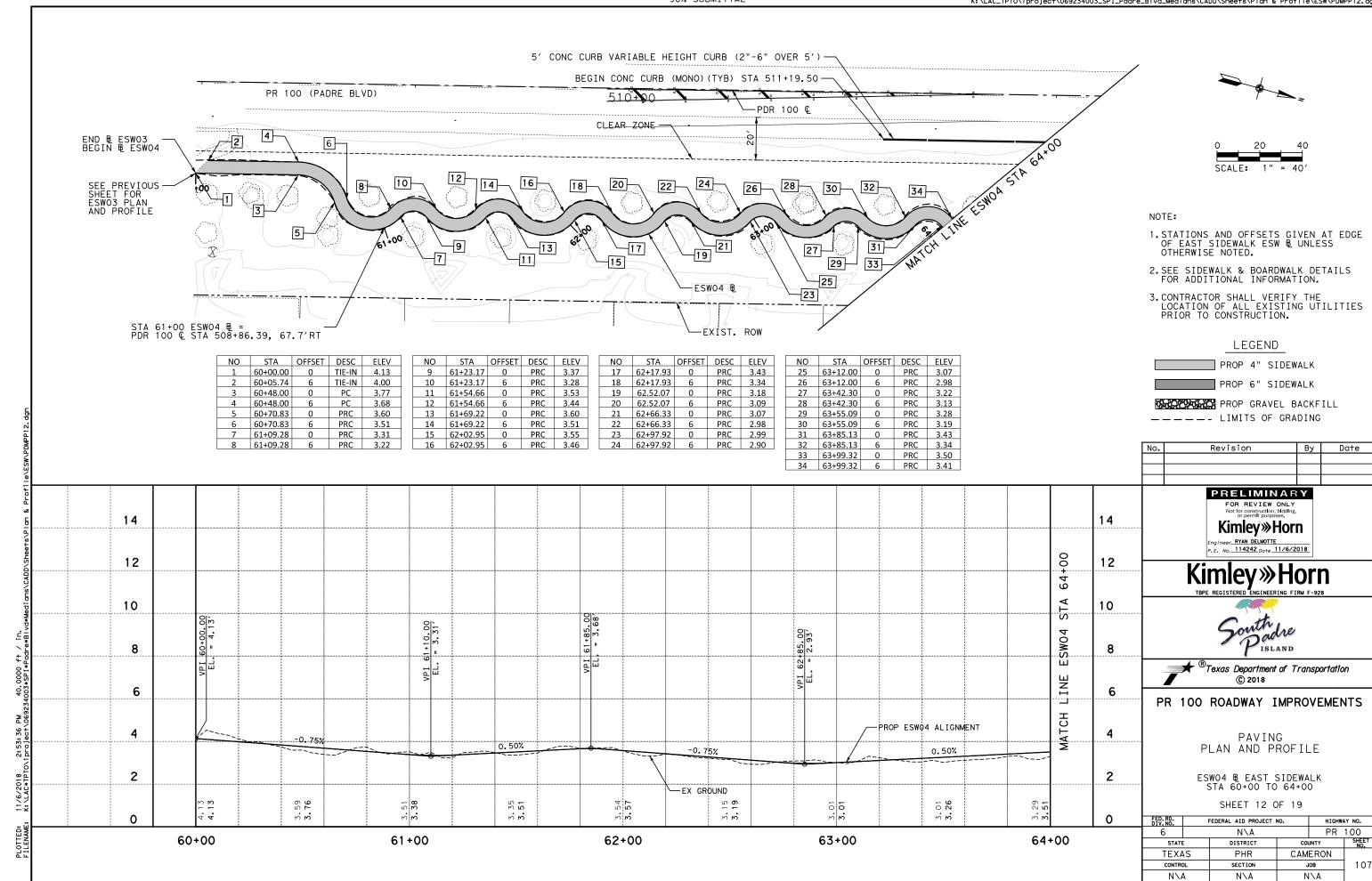
### PR 100 ROADWAY IMPROVEMENTS

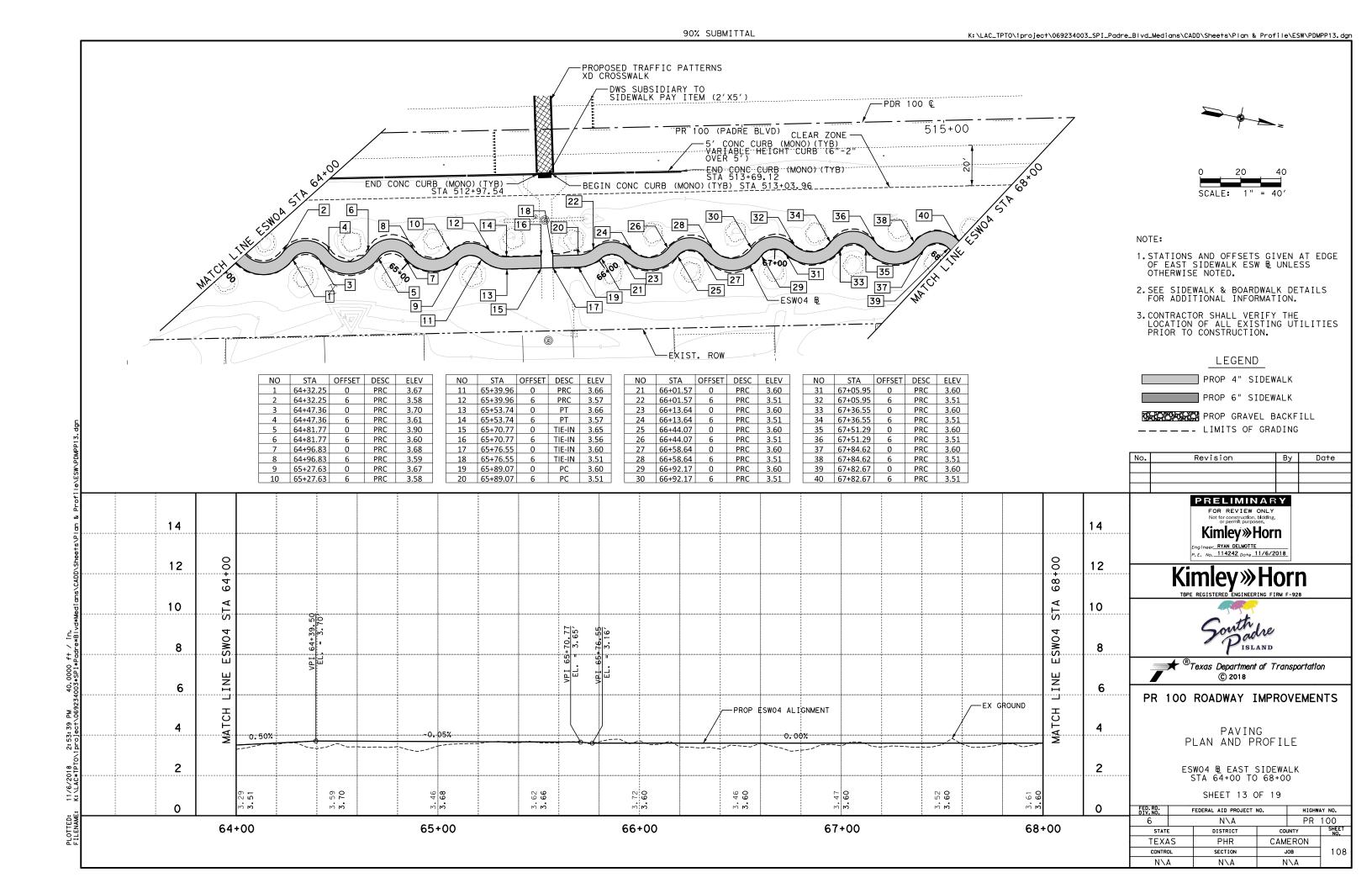
PAVING PLAN AND PROFILE

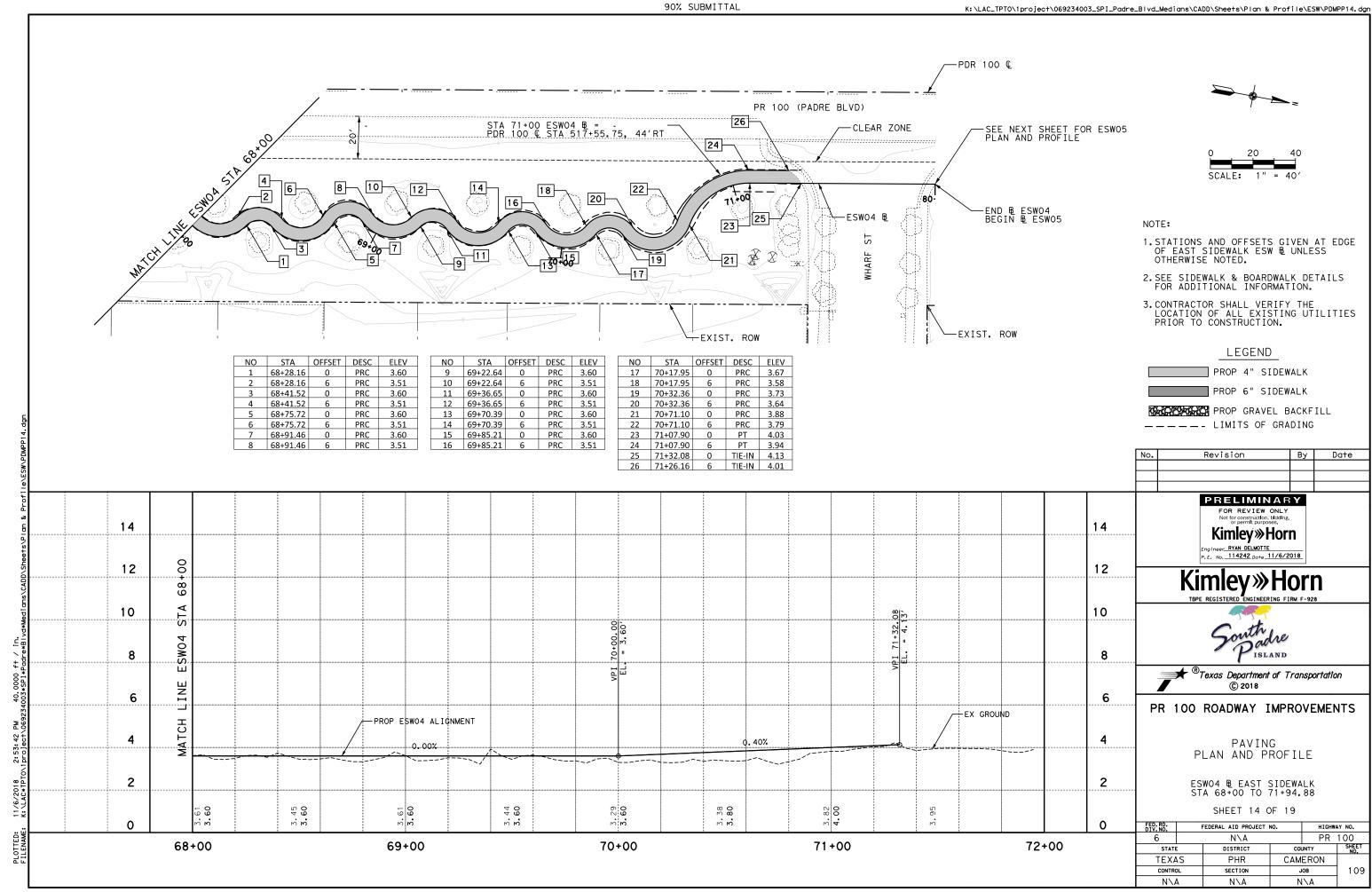
ESW03 B EAST SIDEWALK STA 48+00 TO 50+08.04

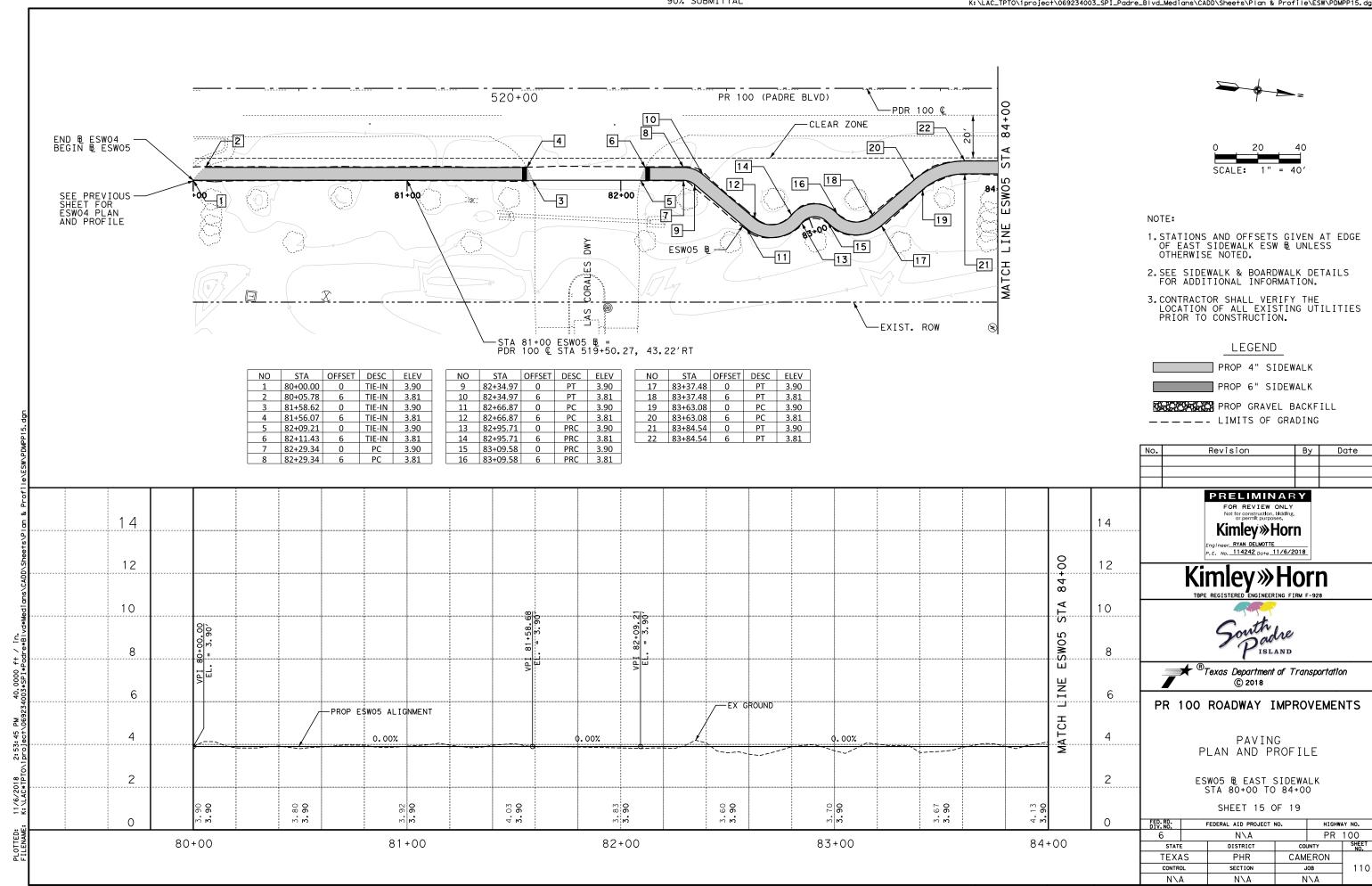
SHEET 11 OF 19

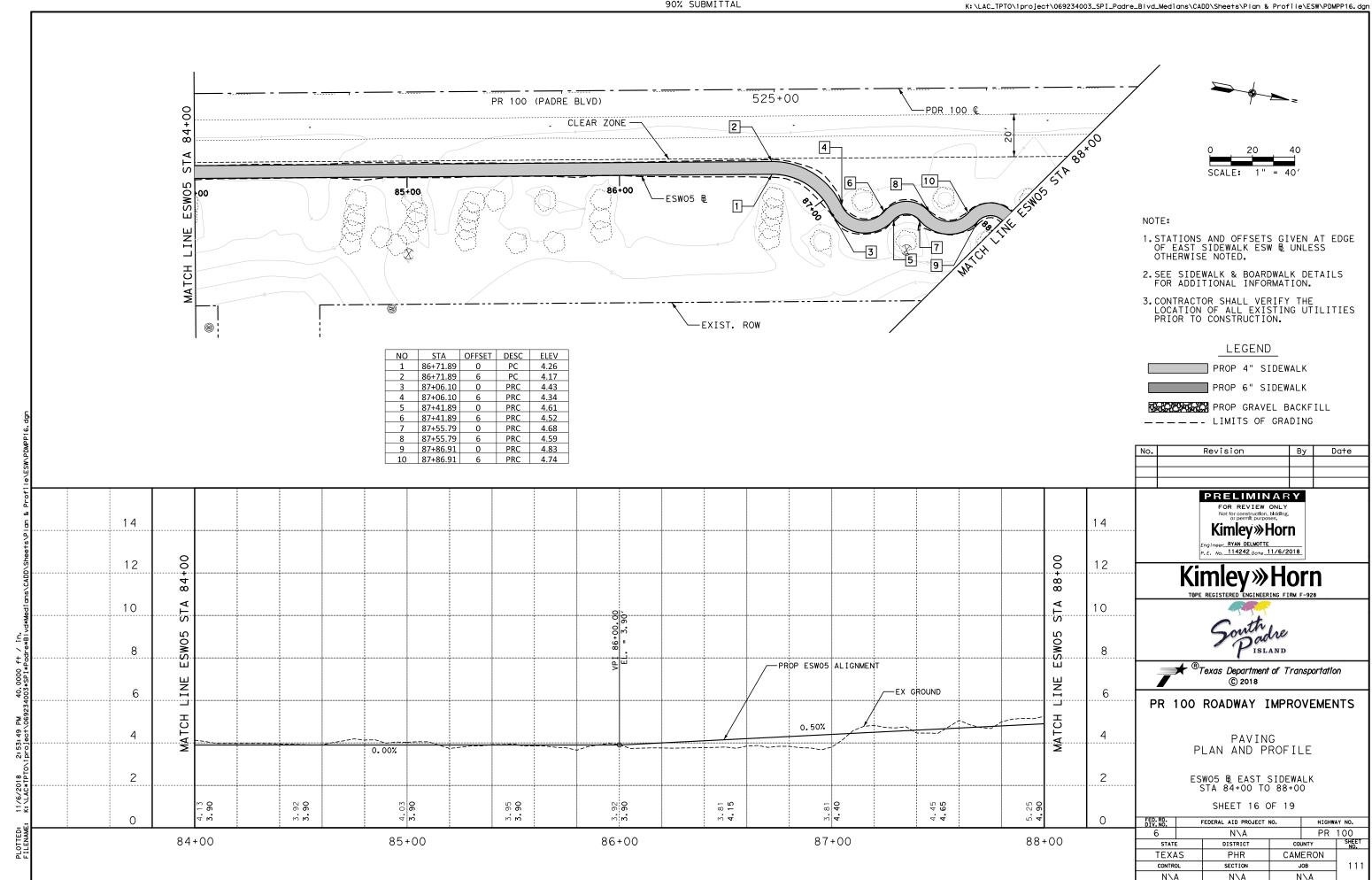
DIV. NO.	FEDERAL AID PROJECT	HIGHWA	AY NO.	
6	N∖A	PR	100	
STATE	DISTRICT	JNTY	SHEET NO.	
TEXAS	TEXAS PHR CAM		ERON	
CONTROL	SECTION	SECTION JOB		106
N\A	N\A	N∖A		

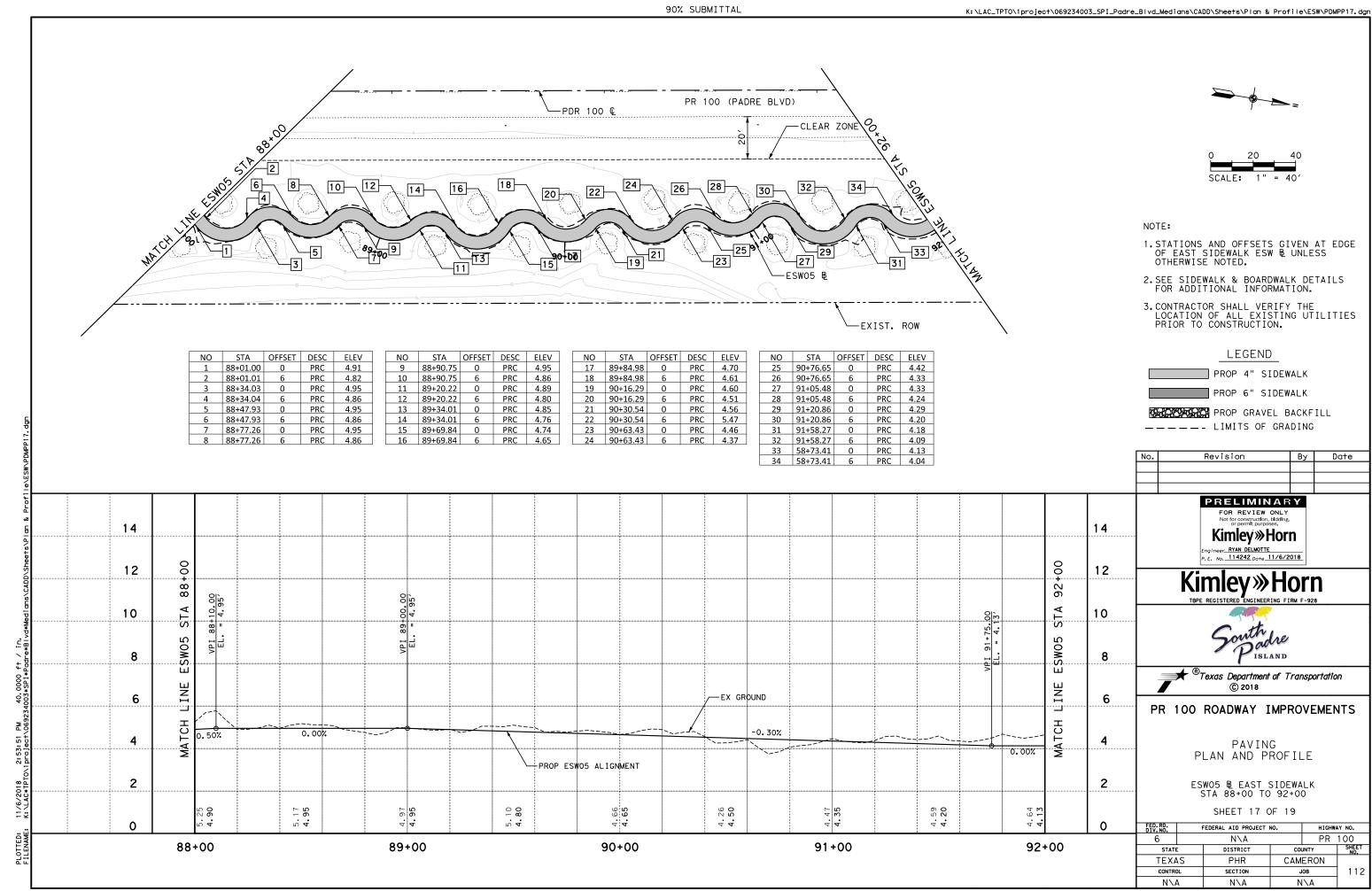


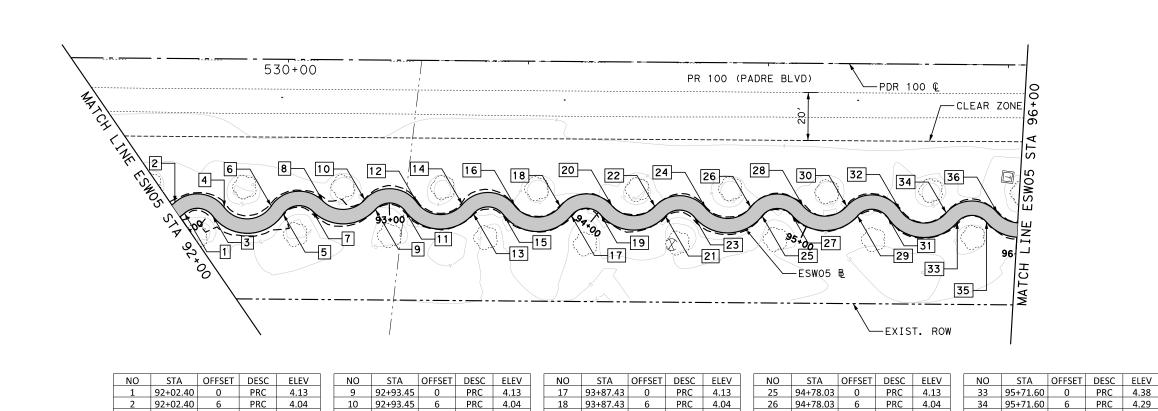












19

94+01.53

20 94+01.53 6

21 94+31.91

22 94+31.91

0

0

23 94+45.58 0 PRC 4.13

24 94+45.58 6 PRC 4.04

6

92+15.70

4 92+15.70

5 92+50.06

6 92+50.06

7 92+64.19

8 92+64.19

0

0

PRC

PRC

PRC

PRC

PRC

PRC 4.04

4.13

4.04

4.13

4.04

4.13

11 92+07.88

12 92+07.88

14 93+40.45

13 93+40.45 0

0

6

15 93+54.79 0 PRC 4.13

16 93+54.79 6 PRC 4.04

PRC 4.13

PRC 4.04

PRC 4.13

6 PRC 4.04

		~ <
0	20	40



#### NOTE:

- 1.STATIONS AND OFFSETS GIVEN AT EDGE OF EAST SIDEWALK ESW & UNLESS OTHERWISE NOTED.
- 2. SEE SIDEWALK & BOARDWALK DETAILS FOR ADDITIONAL INFORMATION.
- 3. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.

#### LEGEND

PROP 4" SIDEWALK

PROP 6" SIDEWALK

PROP GRAVEL BACKFILL

\_\_\_\_ LIMITS OF GRADING

No.	Revision	Ву	Date

PRELIMINARY

FOR REVIEW ONLY

Not for construction, bldding,
or permit purposes,

Kimley >>>> Horn

Engineer\_RYAN DELMOTTE

P. E. No. \_114242 pare \_11/6/2018

# Kimley » Horn THE REGISTERED ENGINEERING FIRM F-928

South re Padre



#### PR 100 ROADWAY IMPROVEMENTS

PAVING PLAN AND PROFILE

ESW05 & EAST SIDEWALK STA 92+00 TO 96+00

SHEET 18 OF 19

ED.RD. IV.NO.	ı	FEDERAL AID PROJECT	NO.	HIGHWA	AY NO.
6		N\A		PR	100
STATE		DISTRICT	COUNTY		SHEET NO.
TEXAS		PHR	CAMERON		
CONTROL		SECTION	JOB		113
N∖A		N∖A	N	<b>\</b> A	

\E3#\														
01 I E												1 1		
dn & Pr	14												14	
Sheets	12	8										00	12	
1S/CAUD/		95+(										)+96		
j j	10	STA								3,00		STA	10	
dre*BIVG*N		\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$								1 95+20.		S 8005 S	8	
U5*5F1*FQ		INE								VPI		INE E	6	
92340	·····	7				PROP ESW05 ALIGNMENT		EX GROUND						P
Ject (Ub)	<b>4</b>	ATCH				0.00%	, J.				50%	MATCH	4	
*   F   U \   pro	2	Σ				3-2-						Σ	2	
E: N: \LAU	0	4.64 <b>4.</b> 13	4. 26 1.3		3.92 4.13	3.89 <b>7.13</b>	3, 89 4, 13	3.79	4.18	4. 41 4. 28	1.2	4.53	0	FED. DIV
LENAM		92+00		g	93+00		94+00		95+00		96	6+00		6

PRC 4.13

PRC 4.04

PRC 4.13

PRC 4.04

27 94+92.33

28 94+92.33

29 95+23.28

0 PRC 4.13

6 PRC 4.04

0 PRC 4.14

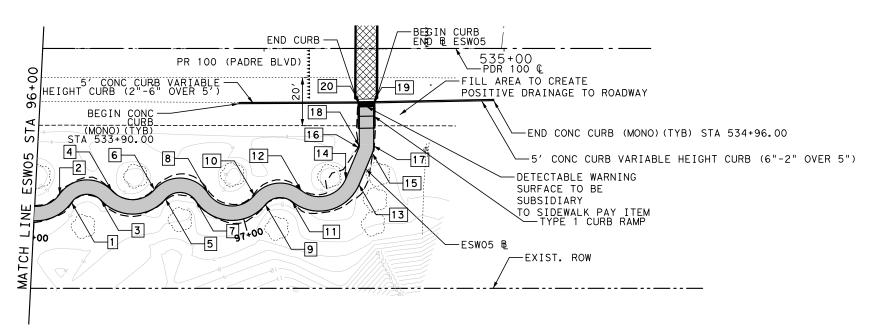
30 95+23.28 6 PRC 4.05

31 95+38.08 0 PRC 4.22

32 95+38.08 6 PRC 4.13

35 95+85.48 0 PRC 4.45

36 95+85.48 6 PRC 4.36



NO	STA	OFFSET	DESC	ELEV		NO	STA	OFFSET	DESC	ELEV
1	96+18.14	0	PRC	4.62		11	97+23.54	0	PRC	4.62
2	96+18.14	6	PRC	4.53		12	97+23.54	6	PRC	4.53
3	96+32.35	0	PRC	4.69		13	97+56.66	0	PT	4.37
4	96+32.35	6	PRC	4.60		14	97+56.66	6	PT	4.28
5	96+62.56	0	PRC	4.84	[	15	97+70.94	0	PC	4.26
6	96+62.56	6	PRC	4.75		16	97+70.94	6	PC	4.17
7	96+77.32	0	PRC	4.91		17	97+74.02	0	PT	4.24
8	96+77.32	6	PRC	4.82		18	97+74.02	6	PT	4.15
9	97+11.01	0	PRC	4.71	[	19	97+92.48	0	TIE-IN	4.10
10	97+11.01	6	PRC	4.62	[	20	97+92.48	6	TIE-IN	4.01

97+00

96+00





#### NOTE:

- 1.STATIONS AND OFFSETS GIVEN AT EDGE OF EAST SIDEWALK ESW & UNLESS OTHERWISE NOTED.
- 2. SEE SIDEWALK & BOARDWALK DETAILS FOR ADDITIONAL INFORMATION.
- 3. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.

#### LEGEND

PROP 4" SIDEWALK

PROP 6" SIDEWALK

Revision

PROP GRAVEL BACKFILL

\_\_\_\_ LIMITS OF GRADING

Ie/ES													
& Profi													
ts/Plan	14											14	
ADD\Shee	12	00+9								 		12	
edians/C	10	P 9			4, 93,			0/8				10	_
in. *Blvd*Me		05 S		\$96 ·· 1 d)	- - - -			97+92,48 = 4,10 <sup>7</sup>					
000 ft / PI*Padre	8	ESWO						V P I				8	
40.00 34003*SI	6	LINE				EX G	ROUND				 	6 –	<u></u>
57 PM	4	ATCH	0,	50%		-0.75%	1 3. I A					4	
2:53:57 0\1project		Σ	PROP	ESWO5 ALIGNMENT									
/6/2018 \LAC*TPT	2											2	
:: :::::::::::::::::::::::::::::::::::	0		4.21 4.53	4.98 <b>.78</b>	5.07	4.79						0	FED. DIV.

98+00

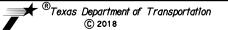


Ву

Date

## Kimley»Horn

South re Pisland



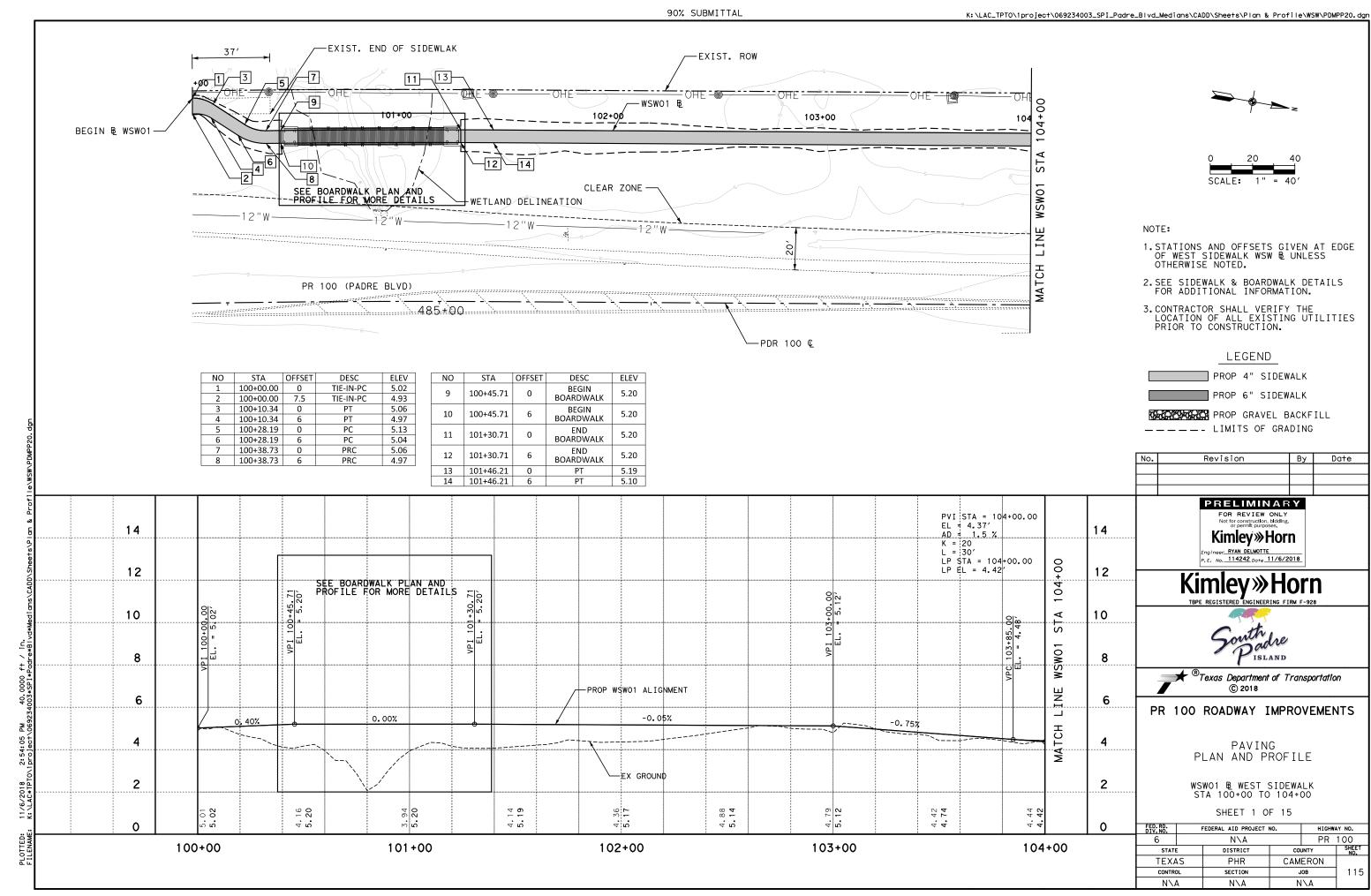
### PR 100 ROADWAY IMPROVEMENTS

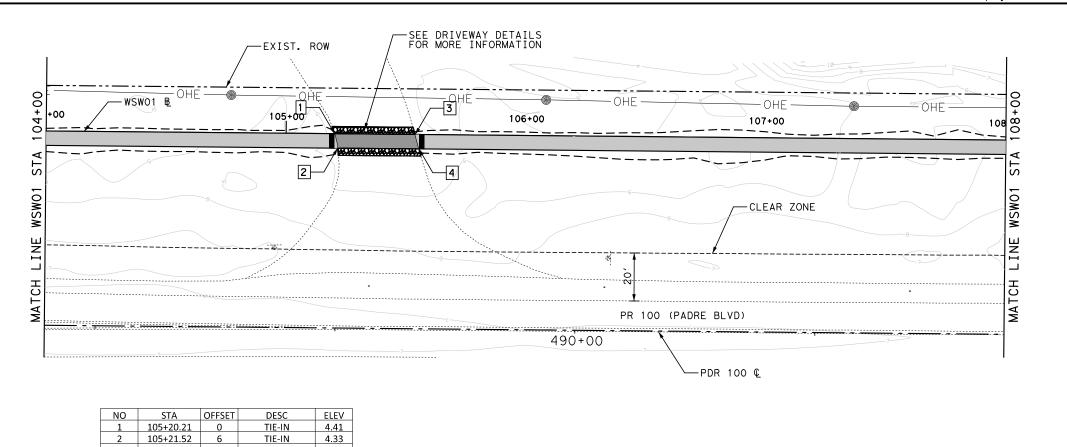
PAVING PLAN AND PROFILE

ESW05 B EAST SIDEWALK STA 96+00 TO 97+92.48

SHEET 19 OF 19

FED. RD. DIV. NO.	ı	FEDERAL AID PROJECT	NO.	H I GHWA	AY NO.	
6		N\A		PR	100	
STATE	Ē	DISTRICT	col	JNTY	SHEET NO.	
TEXA	\S	PHR	CAM	ERON		
CONTRO	OL	SECTION	7	ОВ	114	
N\A	Д	N\A	N	<b>\</b> A		









- 1.STATIONS AND OFFSETS GIVEN AT EDGE OF WEST SIDEWALK WSW & UNLESS OTHERWISE NOTED.
- 2. SEE SIDEWALK & BOARDWALK DETAILS FOR ADDITIONAL INFORMATION.
- 3.CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.

#### LEGEND

PROP 4" SIDEWALK

PROP 6" SIDEWALK

PROP GRAVEL BACKFILL

\_\_\_\_ LIMITS OF GRADING

Revision

TTED: ENAME:		104+00		105+00		106+00		107+00		108+00		6
: 11/6/2018 E: K:\LAC*TP1	1 : 0 1	4 . 4 4 . 4 4 4 4 4 4 6 4 6 4 6 6 6 6 6 6 6 6	4.65	5.03	4.68 4.68	4, 82 4, 95	4.95 5.18	4.83	5. 22 4. 89	5, 29 5, 39	0	FED. DIV.
2018 2:54 :*TPT0\1proj		Ž			P	ROP WSWO1 ALIGNMEN	т	EX GROUND		<b>≥</b>	2	
:10 PM ect\06923	4	T L L	0, 75%	3.50		0.50%	-0.75	5%	1.00%	ATCH L	4	
40,0000 f 4003*SPI*P	6	M N N N N N N N N N N N N N N N N N N N		A Ida	VPI E		3/\ 1/\	V PC	1- M	M W	6	Р
∵+ / in. adre*Blvd*N	8	NO1 S		PC 104+8 EL. = PT 105+1 EL. = 105+20. = 4.4	I 105+53.84		PC 106+433 - EL. = 5.1 - EL. =	VPC 107+07.50	107+42:5	VPI 10 EL.	8	-
fedians∖CAD	10	STA 104		55, 00 51, 00 51, 00 71, 00 17, 00			175 175 187 187 187 187 187 187 187 187 187 187	<u>-</u>	QI <u>-</u>	08+00 <u>.00</u> = 5.39′ TA 108	10	
D∖Shee†s∖P	12	O LP EL =	= 104+00.00	K = 7 L = 30' HP STA = 104+90.29 HP EL = 5.02'			K = 10 L = 12.5' HP STA = 106+48.75 HP EL = 5.18'	K = 20 L = 35 LP STA = 107+2 LP EL = 4.71'	. 50	00	12	
lan & Prof	14	EL = 4. AD = 1		PVI STA = 105+00.00 EL = 5.12' AD = 4.25 %			PVI STA = 106+50.00 EL = 5.20' AD = 1.25 %	PVI STA = 107+ EL = 4.64' AD = 1.75 %	25.00		14	
e\WS												

3 105+53.84 0 4 105+55.45 6 4.72

4.64

TIE-IN TIE-IN

Р	RELIMINARY
	FOR REVIEW ONLY  Not for construction, bldding, or permit purposes.
	Kimley≫Horn
Engi	neer RYAN DELMOTTE No. 114242 Date 11/6/2018

Ву

Date

## Kimley»Horn

South re Padre



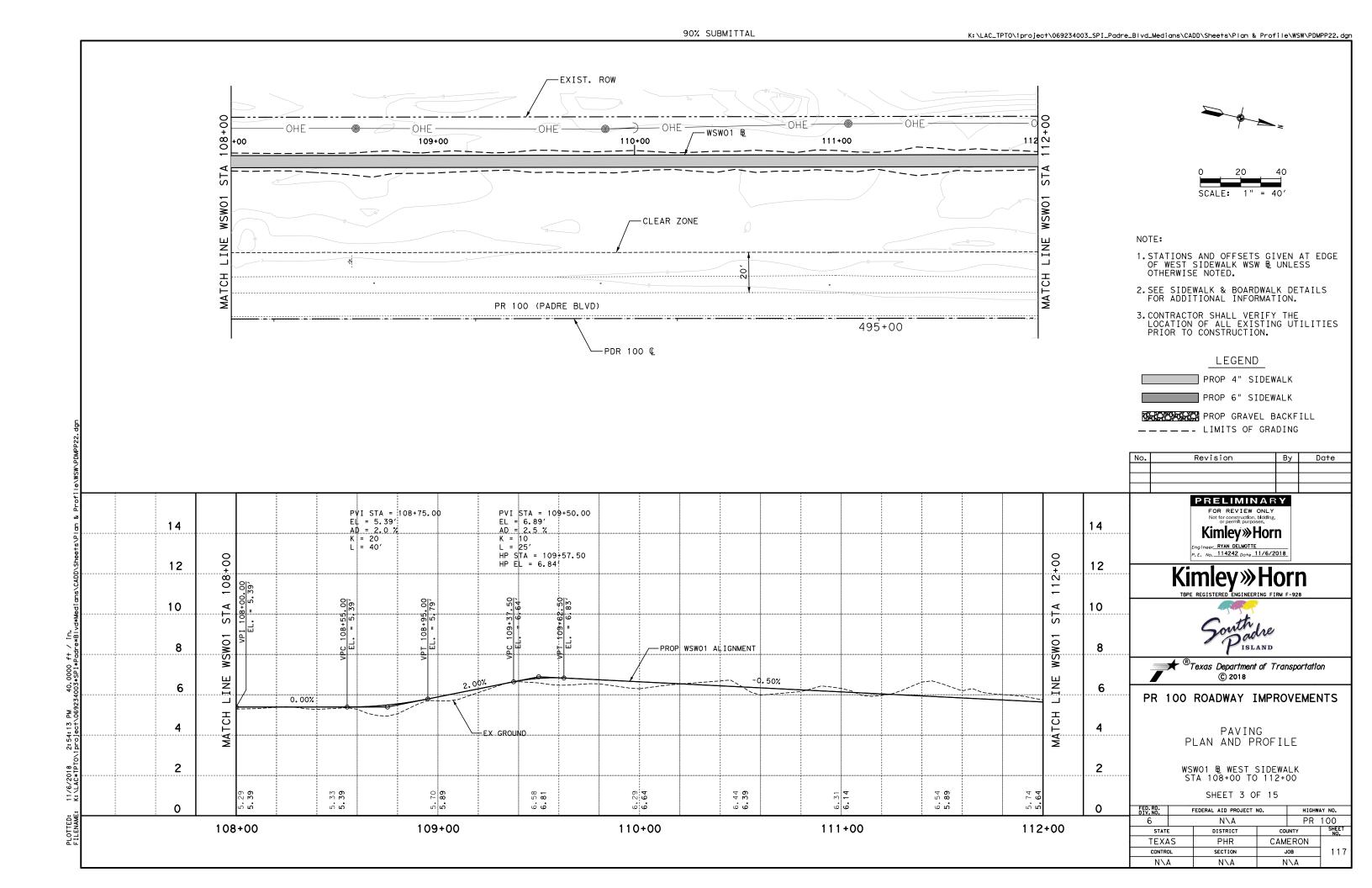
### PR 100 ROADWAY IMPROVEMENTS

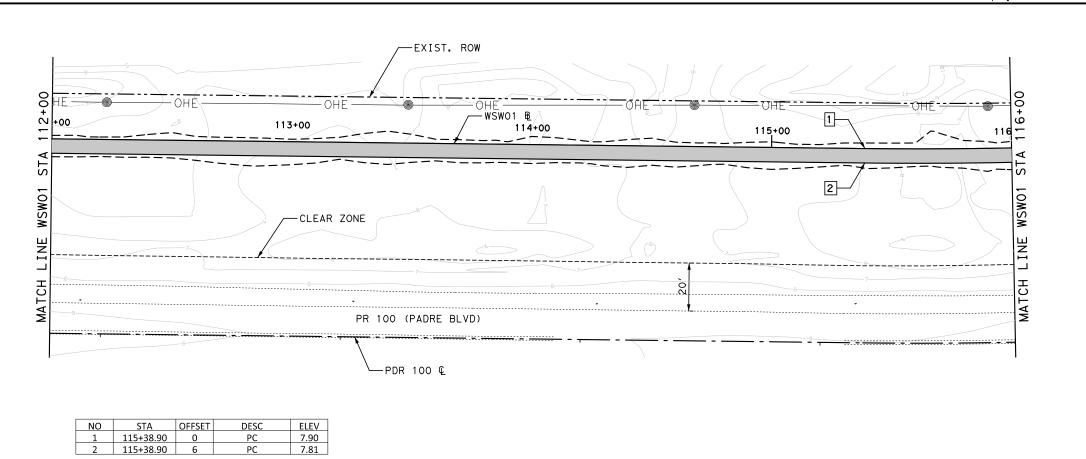
PAVING PLAN AND PROFILE

WSW01 B WEST SIDEWALK STA 104+00 TO 108+00

SHEET 2 OF 15

FED.RD. DIV.NO.	ı	EDERAL AID PROJECT	NO.	H I GHWA	Y NO.
6		N\A		PR	100
STATE		DISTRICT	col	SHEET NO.	
TEXAS		PHR CAM		ERON	
CONTRO	DL	SECTION	JOB		116
N\A	4	N∖A	N	\A	









- 1.STATIONS AND OFFSETS GIVEN AT EDGE OF WEST SIDEWALK WSW & UNLESS OTHERWISE NOTED.
- 2. SEE SIDEWALK & BOARDWALK DETAILS FOR ADDITIONAL INFORMATION.
- 3. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.

#### LEGEND

PROP 4" SIDEWALK

PROP 6" SIDEWALK

PROP GRAVEL BACKFILL

\_\_\_\_ LIMITS OF GRADING

Revision

OTTED:	E: K:\LAC*Ti	2:54 *TPT0\1proj	:16 PM ect\069234	40, 0011 f1 003*SPI*Pg	dre*Blvd*M	edians\CAD[	\\Shee†s\P	an & Profil	N \ e \ M \
	0	2	4	6	8	10	12	14	
112		Σ	ATCH L	INE WS	WO1 ST	TA 112	00+		
+00	5. 74 5. 64		-0.50%		PC 112+1 EL. = 9	. 56′	L LP	: EL	
	5, 32 <b>5, 69</b>						= 20 = 70' P STA = 112 P EL = 5.54	/I STA = 1 - 5.39' ) = 3.5 %	
			3.00		12+	2,00	2+25.00 4′	2+50.00	
113+00	6.96 6.89				EL. = 6	6. 44,	K	l E	
0						7, 19′	= 10 = 30'	VI STA = 113 L = 7.64' D = 3.0 %	
	7.19				VPT 113	7.64′		3+25.00	
			-EX GROUND	00%			1		
114	06.90				VPC 11 EL.	3+85.00 = 7.64′	K = 10 L = 30'	PVI STA EL = 7.6 AD = 3.0	
+00	7.53			3.00	VPT 11 EL. VPC 11	114+15.00 = 7.19' 114+25.00 = 6.89'		= 114+00.00 4'	
	5.96 <b>6.45</b>						K = 10 L = 50' LP \$TA = 11 LP £L = 6.4	PVI STA = 1 EL = 6.14' AD = 5.0 %	
					VPT 11	114+75.00	4+55 <b>.</b> 00	14+50.00	
115+00	7.44		PROP WS	2.00%					
	7.79		WO1 ALIGNMENT		VPC   111	15+32.50 = 7,79 7,79 - 7,88	K = 10 L = 35' HP STA = 115+52.50 HP EL = 7.99'	PVI STA = 115+50.00 EL = 8.14' AD = 3.5 %	
116	7.03			1.50%					
+00		MA	тсн L	INE WS	SW01 ST	۲A 116+	00+		
	0	2	4	6	8	10	12	14	
	FED.		P   						

PRELIMINAR	Υ
FOR REVIEW ONLY	
Not for construction, bldding, or permit purposes.	
│ Kimley≫Horı	n
Engineer RYAN DELMOTTE	
P. E. No. 114242 Date 11/6/20	018

Ву

Date

## **Kimley West**

South re Padre



#### PR 100 ROADWAY IMPROVEMENTS

PAVING PLAN AND PROFILE

WSW01 B WEST SIDEWALK STA 112+00 TO 116+00

SHEET 4 OF 15

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO. HIGHWAY N					
6		N\A	100			
STATE		DISTRICT	col	JNTY	SHEET NO.	
TEXA	\S	PHR CAMERON				
CONTRO	DL	SECTION JOB		118		
N\A	4	N∖A	N	<b>\</b> A		

CONTROL

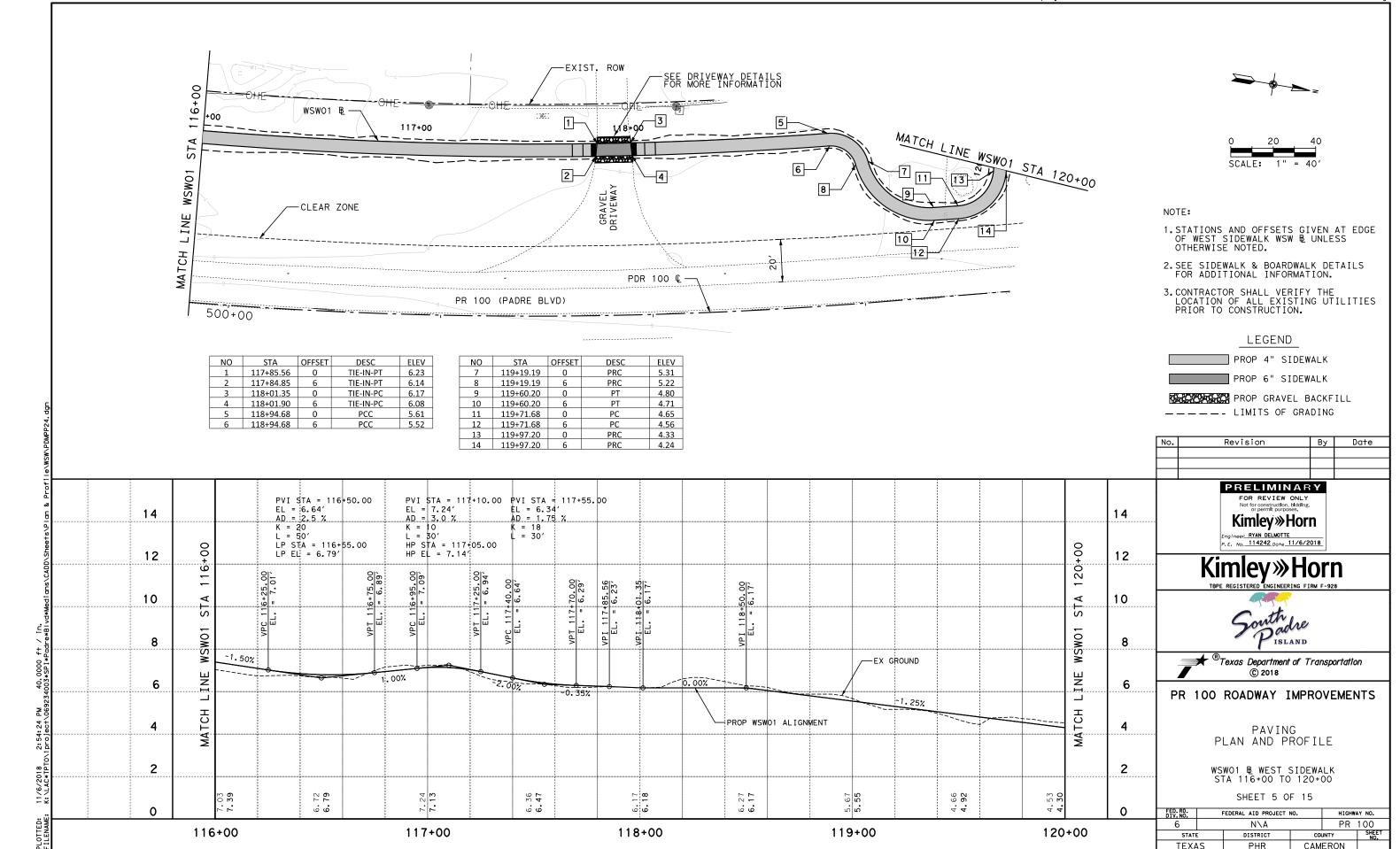
N\A

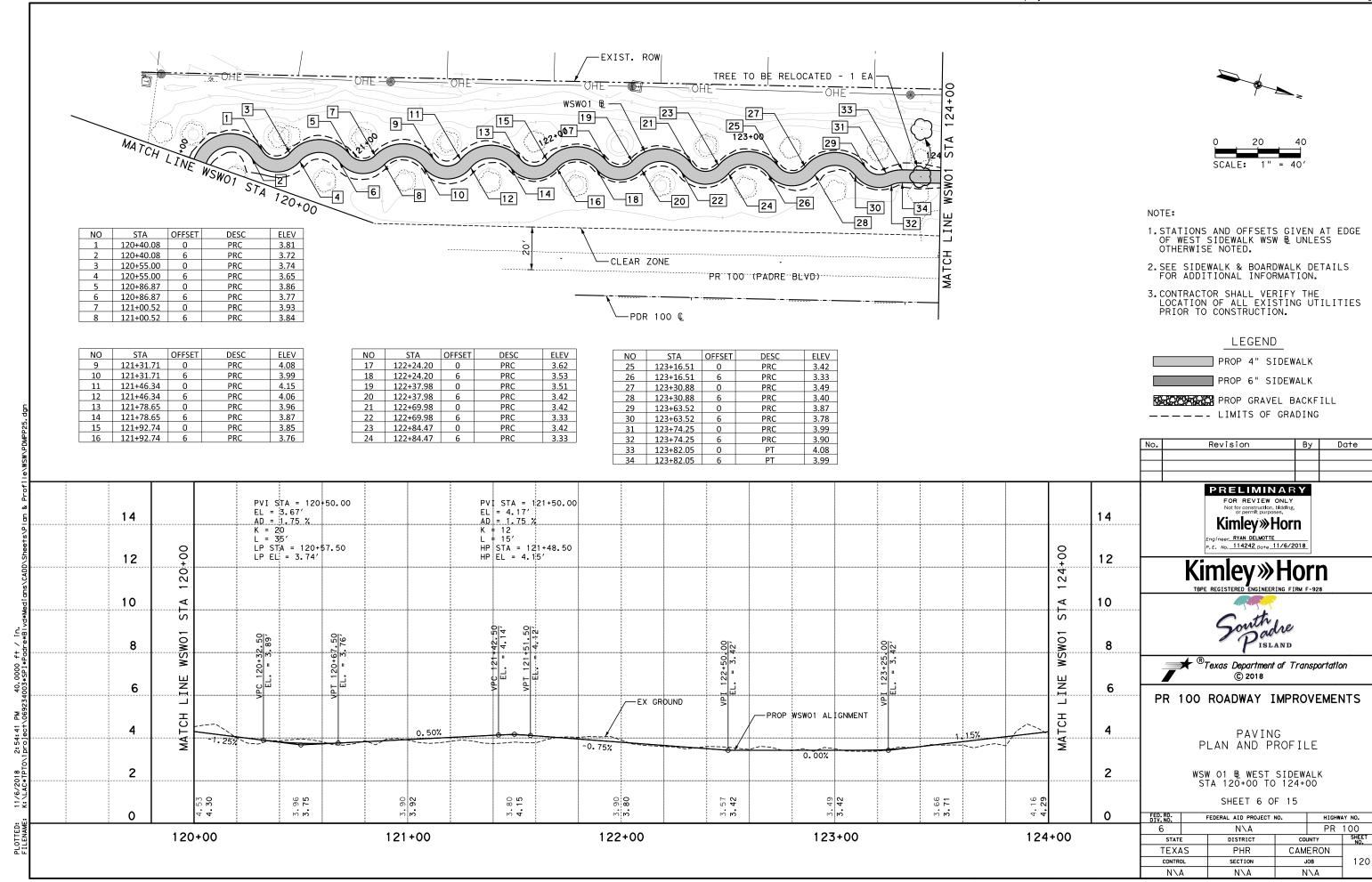
SECTION

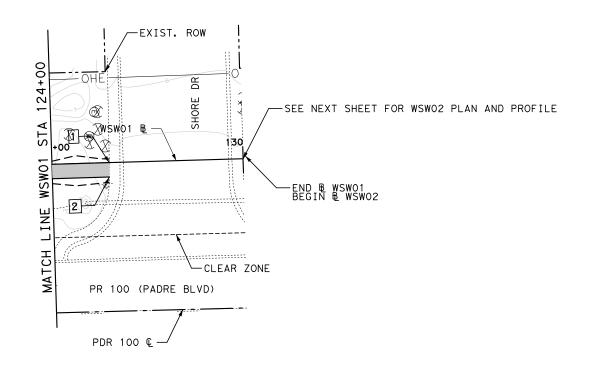
N\A

JOB

N\A







NO	STA	OFFSET	DESC	ELEV
1	124+23.90	0	TIE-IN	4.56
2	124+23.76	6	TIE-IN	4.47





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#### LEGEND

PROP 4" SIDEWALK

PROP 6" SIDEWALK

PROP GRAVEL BACKFILL

\_\_\_\_ LIMITS OF GRADING

No. Revision By Date

PRELIMINARY

FOR REVIEW ONLY
Not for construction, bladding,
or permit purpose.

Kimley: Horn
Engineer\_RYAN DELMOTTE
P. E. No. \_114242 pare \_11/6/2018

**Kimley** » Horn

South re Padre

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#### PR 100 ROADWAY IMPROVEMENTS

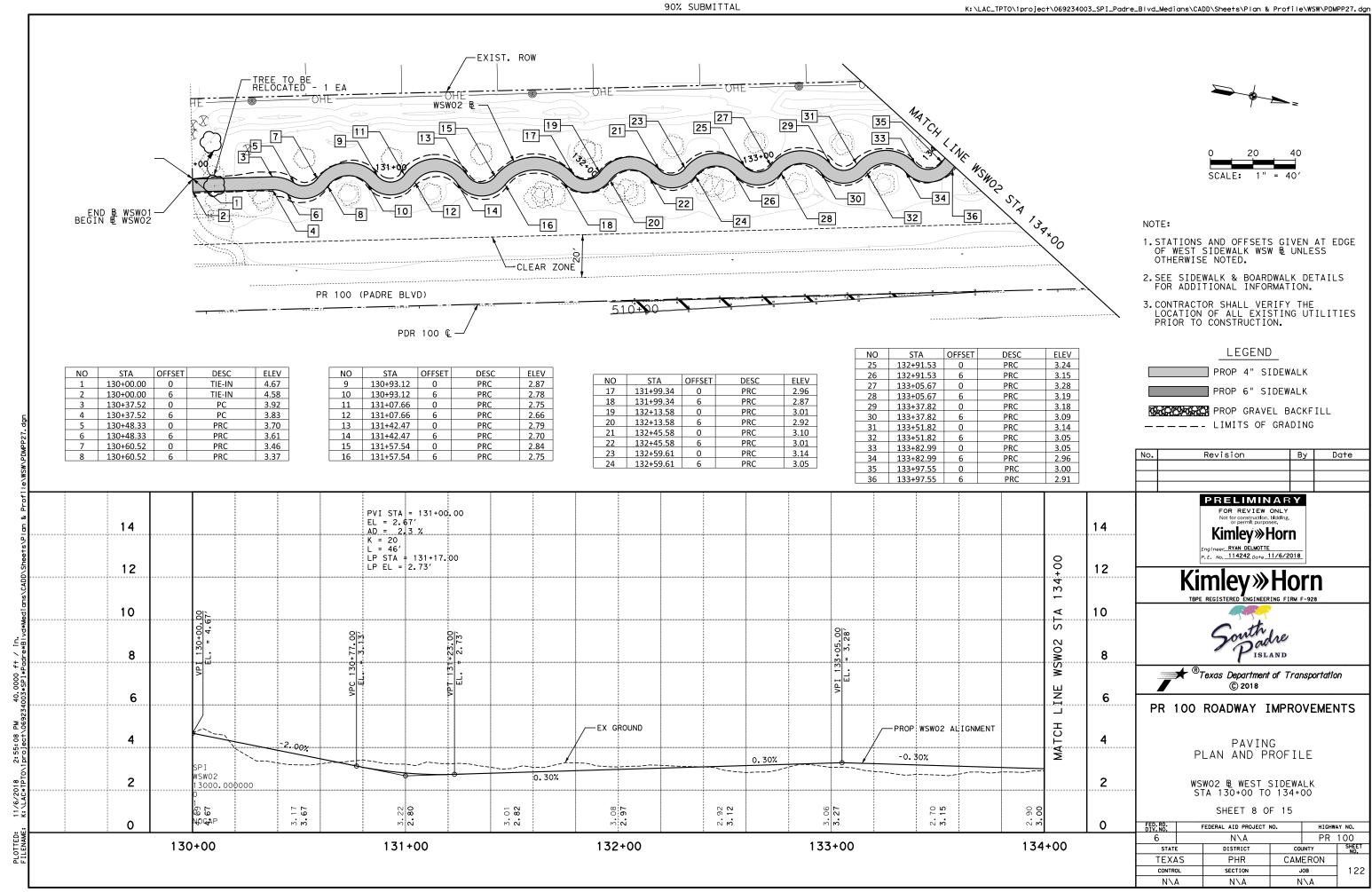
PAVING PLAN AND PROFILE

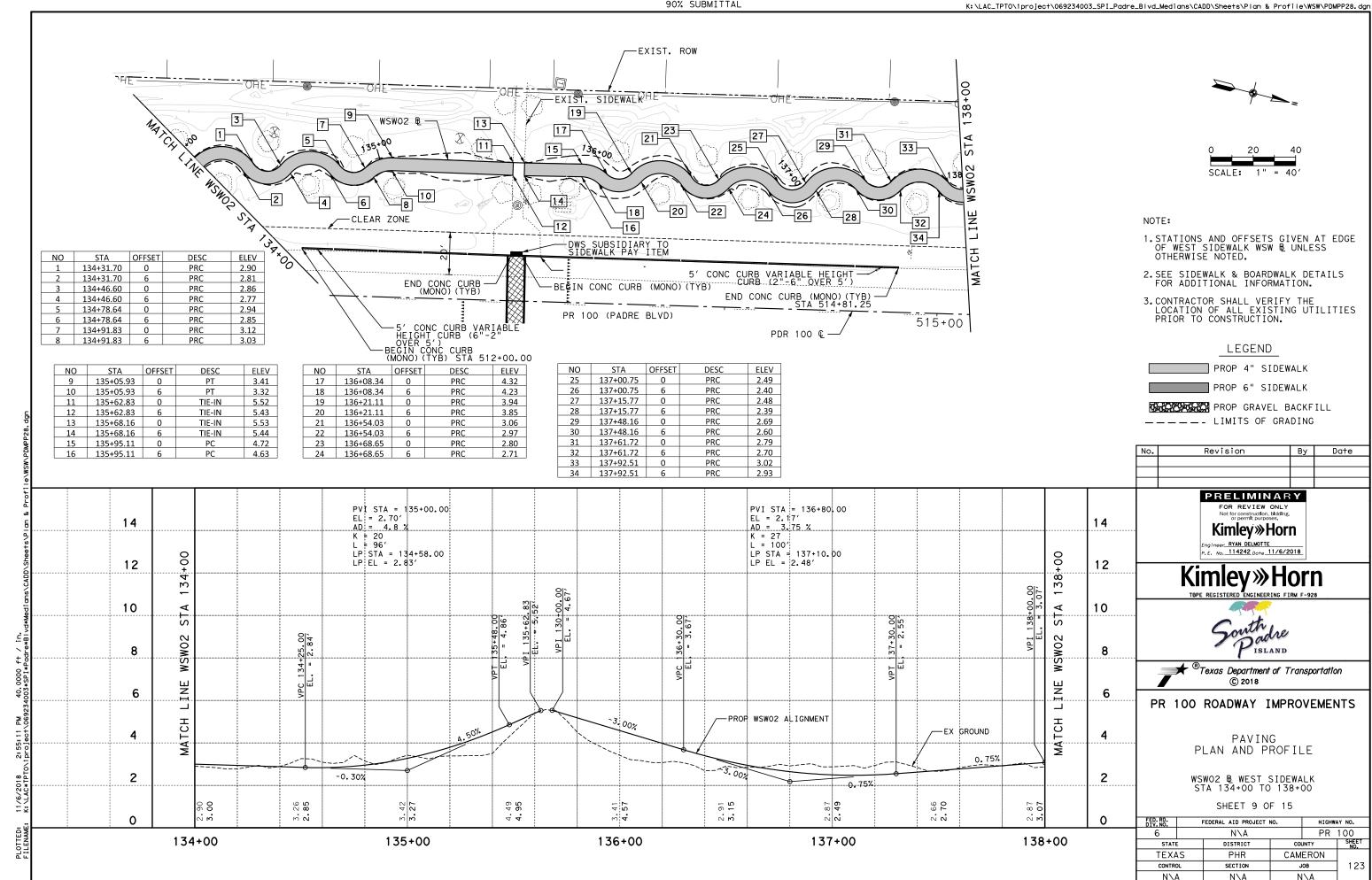
WSW01 B WEST SIDEWALK STA 124+00 TO 124+79.69

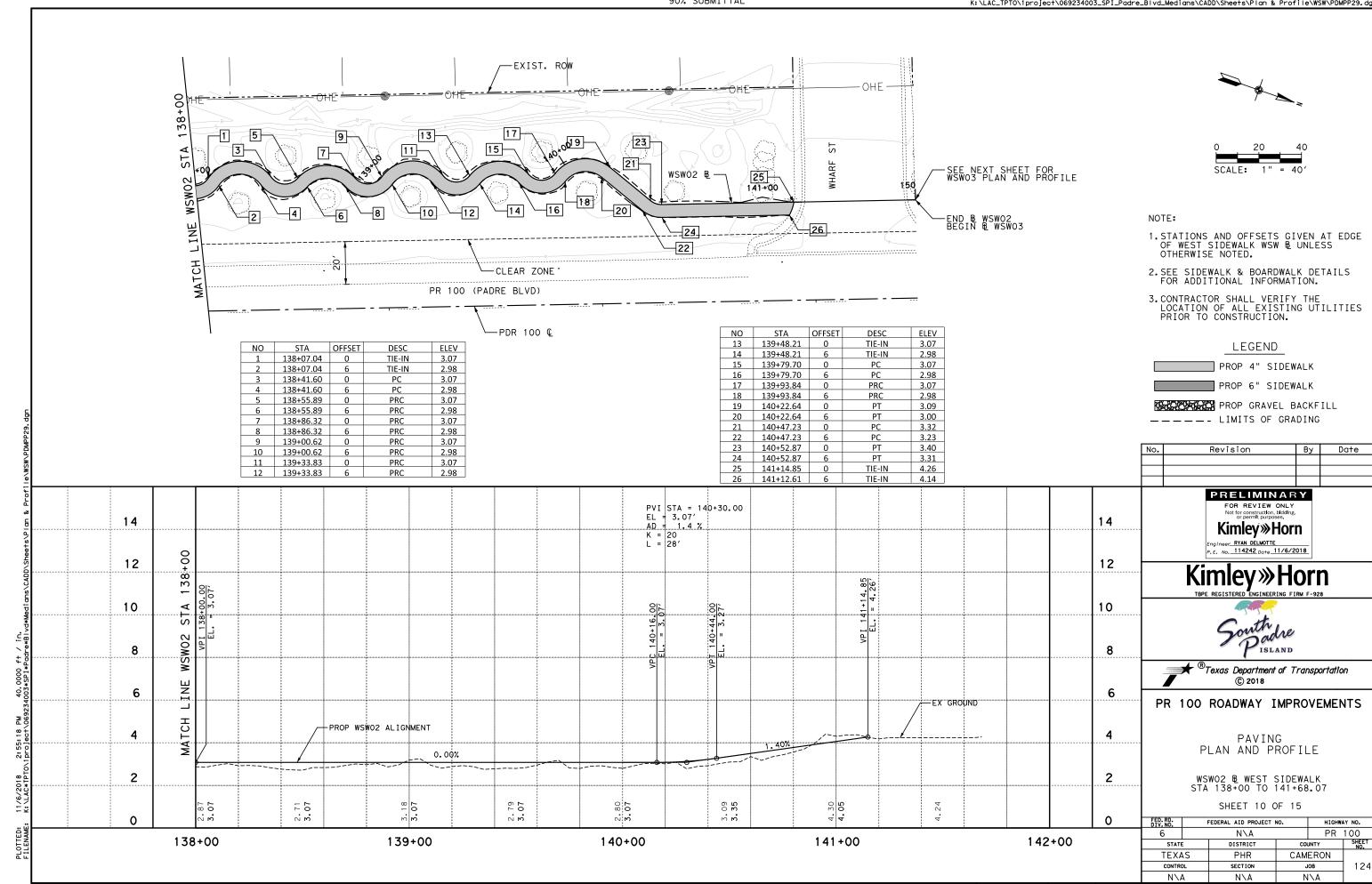
SHEET 7 OF 15

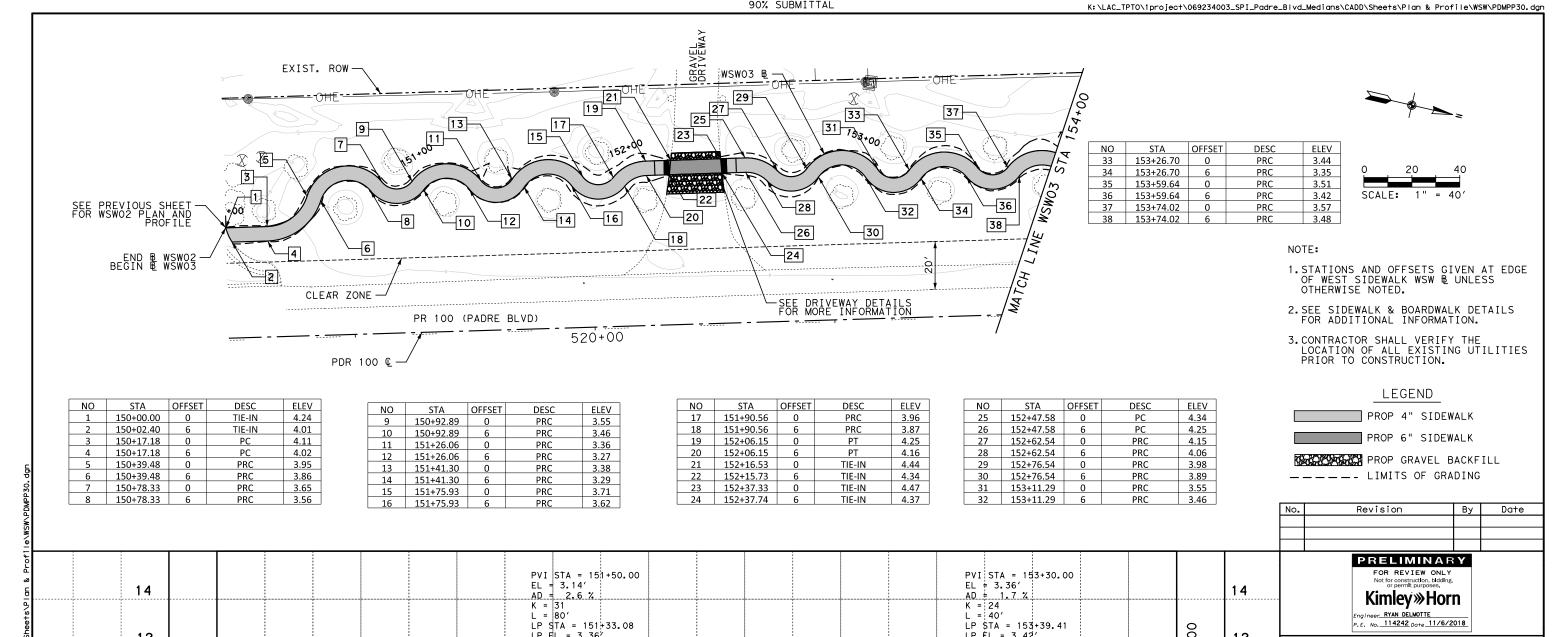
FED.RD. DIV.NO.	ı	FEDERAL AID PROJECT NO. HIGHW				
6		N\A	100			
STATE	Ē	DISTRICT	col	JNTY	SHEET NO.	
TEXA	\S	PHR	CAM	ERON		
CONTR	OL	SECTION	JOB		121	
N\	\A N\A N\A		I\A			

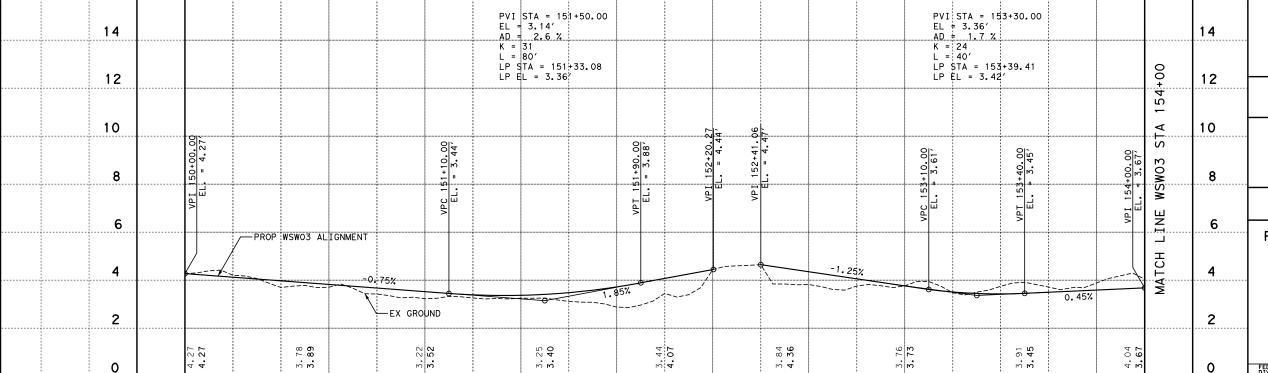
70								 			 				L
9 0 1	5 - - 8 5	14												14	
0/s+ee45/0		12	4+00											12	L
047.9001.be		10	TA 124											10	L
+ / in.		8	WSW01 S	90										8	
40,0000 f	<b>:</b>   :		INE WS	VPI 124+23. EL. = 4.5		GROUND								6	
PM		4	TCH L	1.15%										4	
2018 2:54:52		2	AM	PRO	DP WSW01 ALIGNMENT									2	
11/6/2018		0	4.16	4.29	. 60									0	
OTTED:			124+	00		125-	+00								$\vdash$











152+00

153+00

151+00

150+00

**Kimley** » Horn TBPE REGISTERED ENGINEERING FIRM F-928

> South, Pisland

\*\*Texas Department of Transportation © 2018

PR 100 ROADWAY IMPROVEMENTS

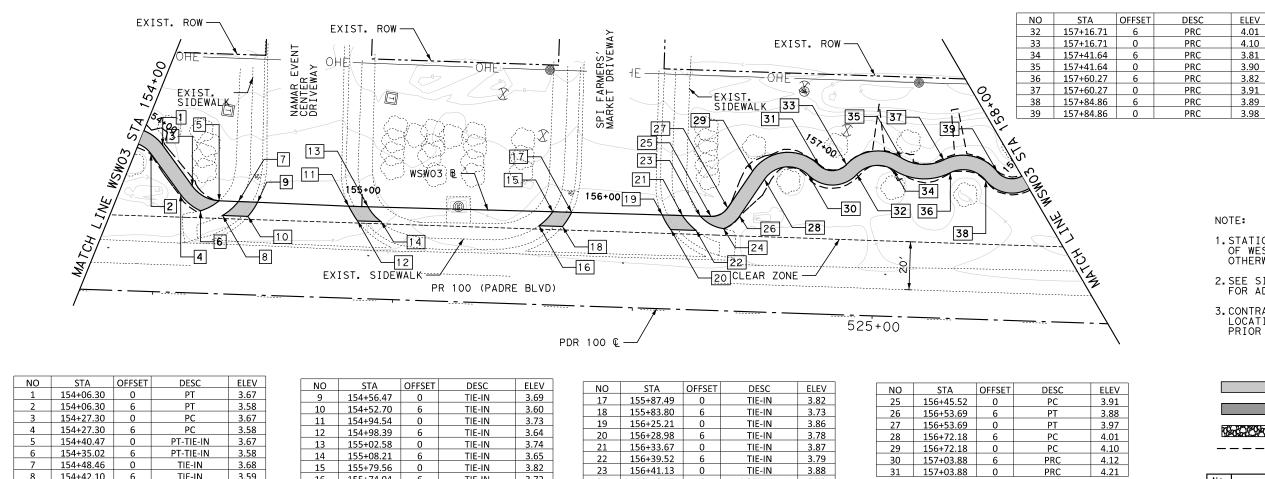
PAVING PLAN AND PROFILE

WSW03 & WEST SIDEWALK STA 150+00 TO 154+00

SHEET 11 OF 15

154+00

FED. RD. DIV. NO.	ı	FEDERAL AID PROJECT NO. HIGH				
6		N\A PR				
STATE	Ē				SHEET NO.	
TEXA	\S	PHR	CAMERON			
CONTROL		SECTION	JOB		125	
N\A		N\A	N	<b>\</b> A		



			•						
NO	STA	OFFSET	DESC	ELEV	NO	STA	OFFSET	DESC	ELEV
17	155+87.49	0	TIE-IN	3.82	25	156+45.52	0	PC	3.91
18	155+83.80	6	TIE-IN	3.73	26	156+53.69	6	PT	3.88
19	156+25.21	0	TIE-IN	3.86	27	156+53.69	0	PT	3.97
20	156+28.98	6	TIE-IN	3.78	28	156+72.18	6	PC	4.01
21	156+33.67	0	TIE-IN	3.87	29	156+72.18	0	PC	4.10
22	156+39.52	6	TIE-IN	3.79	30	157+03.88	6	PRC	4.12
23	156+41.13	0	TIE-IN	3.88	31	157+03.88	0	PRC	4.21
24	156+48.75	6	PC-TIE-IN	3.79					

157+00





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- 3.CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.

#### LEGEND

PROP 4" SIDEWALK

PROP 6" SIDEWALK

Revision

No.

158+00

PROP GRAVEL BACKFILL

\_\_\_\_ LIMITS OF GRADING

@ \FC#																					
- Idn & Proti		14																		14	
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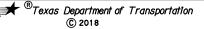
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P. E. No. 114242 Date 11/6/2018

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# Kimley » Horn

South padre Pisland



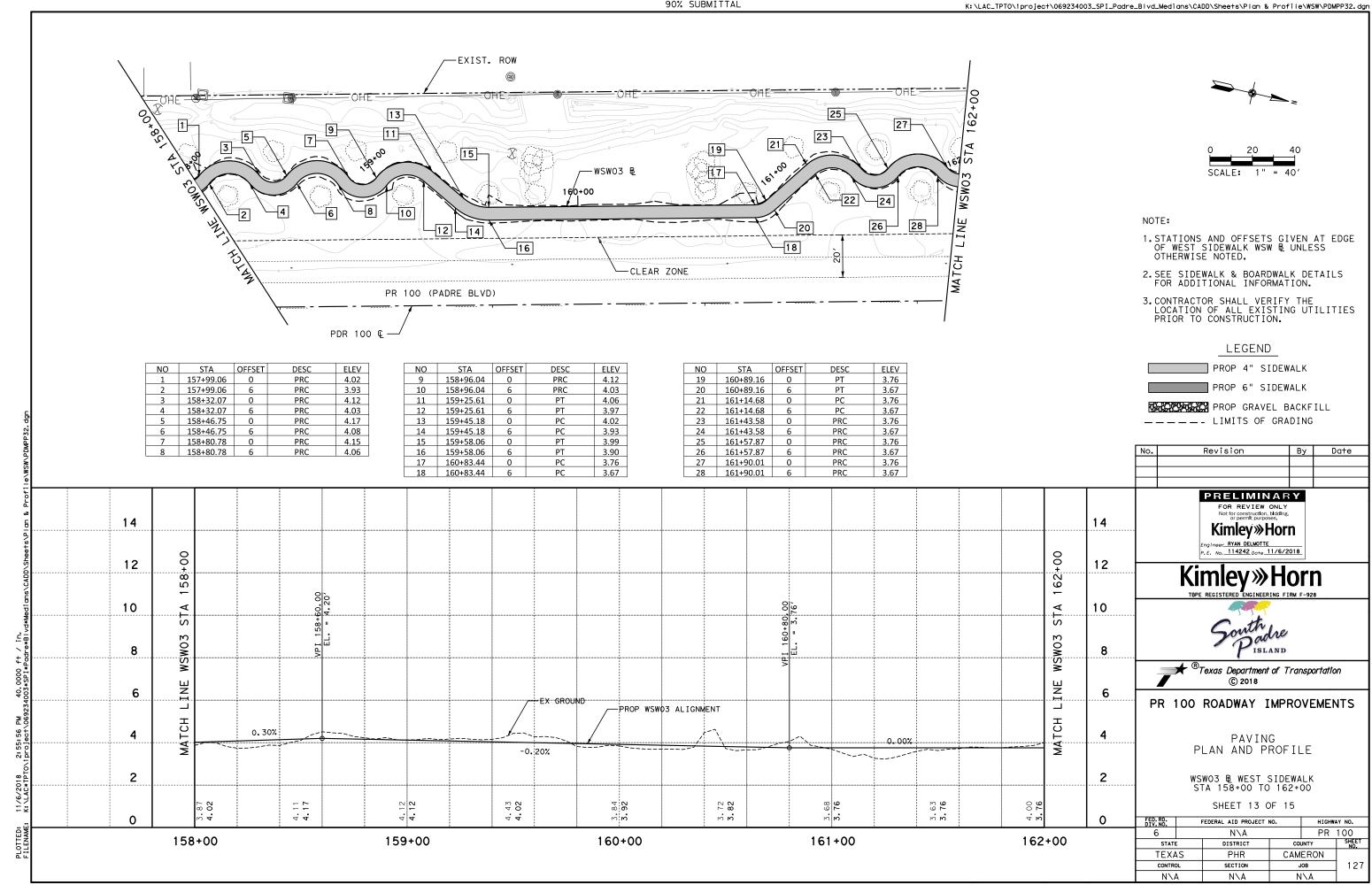
#### PR 100 ROADWAY IMPROVEMENTS

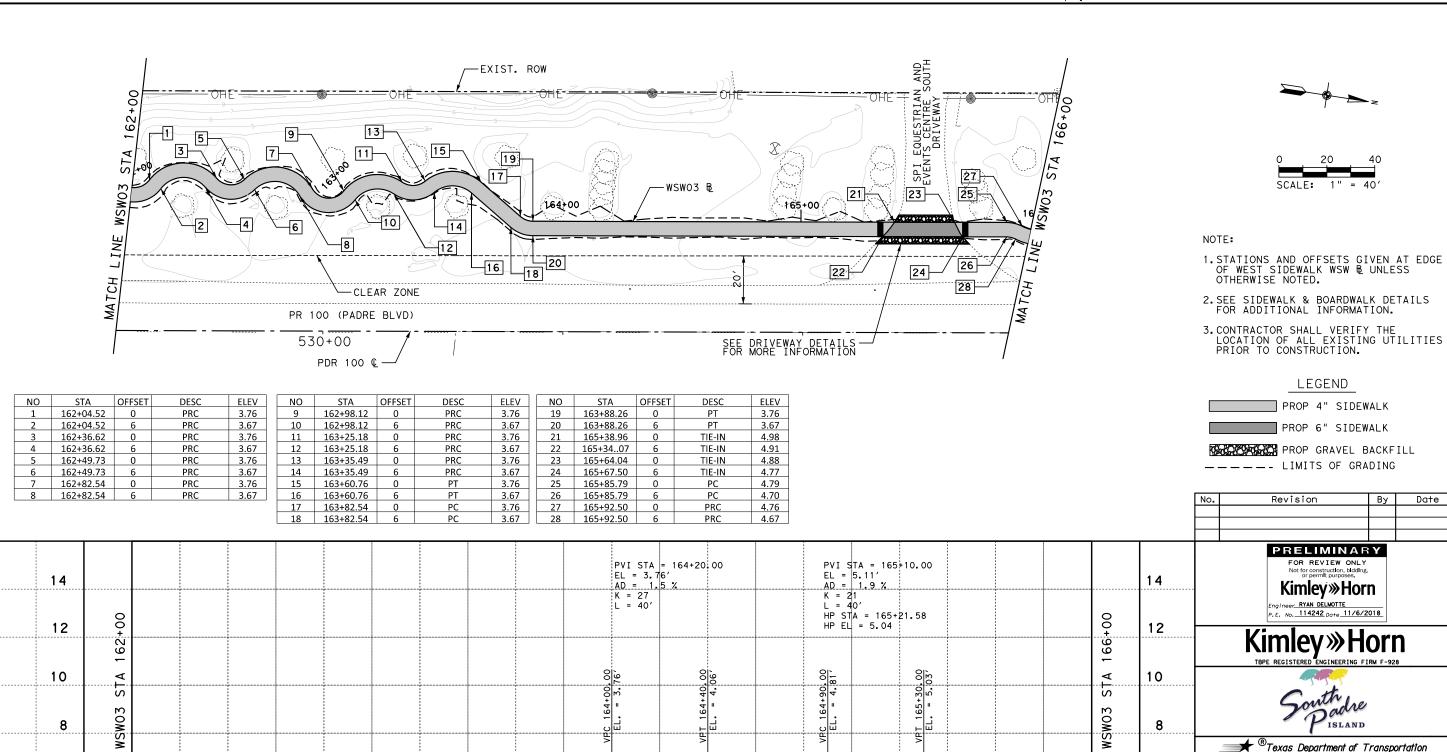
PAVING PLAN AND PROFILE

WSW03 & WEST SIDEWALK STA 154+00 TO 158+00

SHEET 12 OF 15

FED.RD. DIV.NO.	ı	FEDERAL AID PROJECT NO. HIGH					
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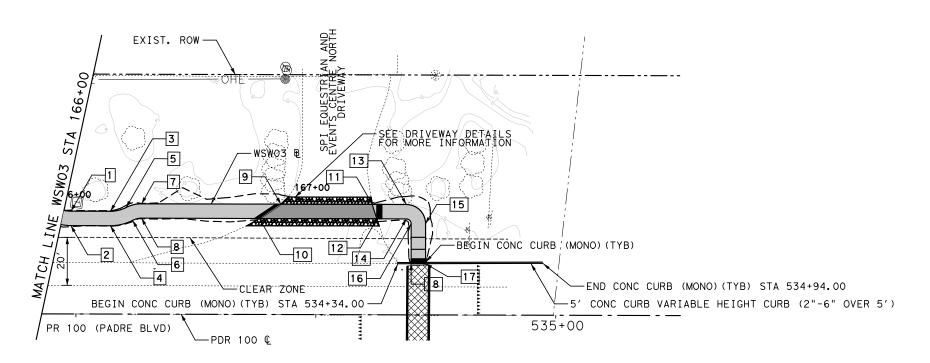
PR 100 ROADWAY IMPROVEMENTS

PAVING PLAN AND PROFILE

WSW03 & WEST SIDEWALK STA 162+00 TO 166+00

SHEET 14 OF 15

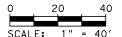
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CONTROL		SECTION	JOB		128		
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NO	STA	OFFSET	DESC	ELEV
1	165+99.20	0	PT	4.73
2	165+99.20	6	PT	4.64
3	166+15.69	0	PC	4.67
4	166+15.69	6	PC	4.58
5	166+22.40	0	PRC	4.64
6	166+22.40	6	PRC	4.55
7	166+29.11	0	PT	4.61
8	166+29.11	6	PT	4.52
9	166+87.19	7	TIE-IN	4.38
10	166+78 28	8	TIF-IN	4 33

NO	STA	OFFSET	DESC	ELEV
11	167+25.29	0	PT	4.23
12	167+25.29	6	PT	4.14
13	167+39.50	0	PC	4.17
14	167+39.50	6	PC	4.08
15	167+52.04	0	PRC	4.12
16	167+52.04	6	PRC	4.03
17	167+68.71	0	PT	4.06
18	167+68.71	6	PT	3.97





- 1.STATIONS AND OFFSETS GIVEN AT EDGE OF WEST SIDEWALK WSW & UNLESS OTHERWISE NOTED.
- 2.SEE SIDEWALK & BOARDWALK DETAILS FOR ADDITIONAL INFORMATION.
- 3. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.

#### LEGEND

PROP 4" SIDEWALK

PROP 6" SIDEWALK

PROP GRAVEL BACKFILL

\_\_\_\_ LIMITS OF GRADING

No.	Revision	Ву	Date
	PRELIMINAR	Υ	
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Kimley » Horn

Engineer\_RMMABEEMOSRENT
P.E. No. 100848 Date 11/6/2018

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PR 100 ROADWAY IMPROVEMENTS

PAVING PLAN AND PROFILE

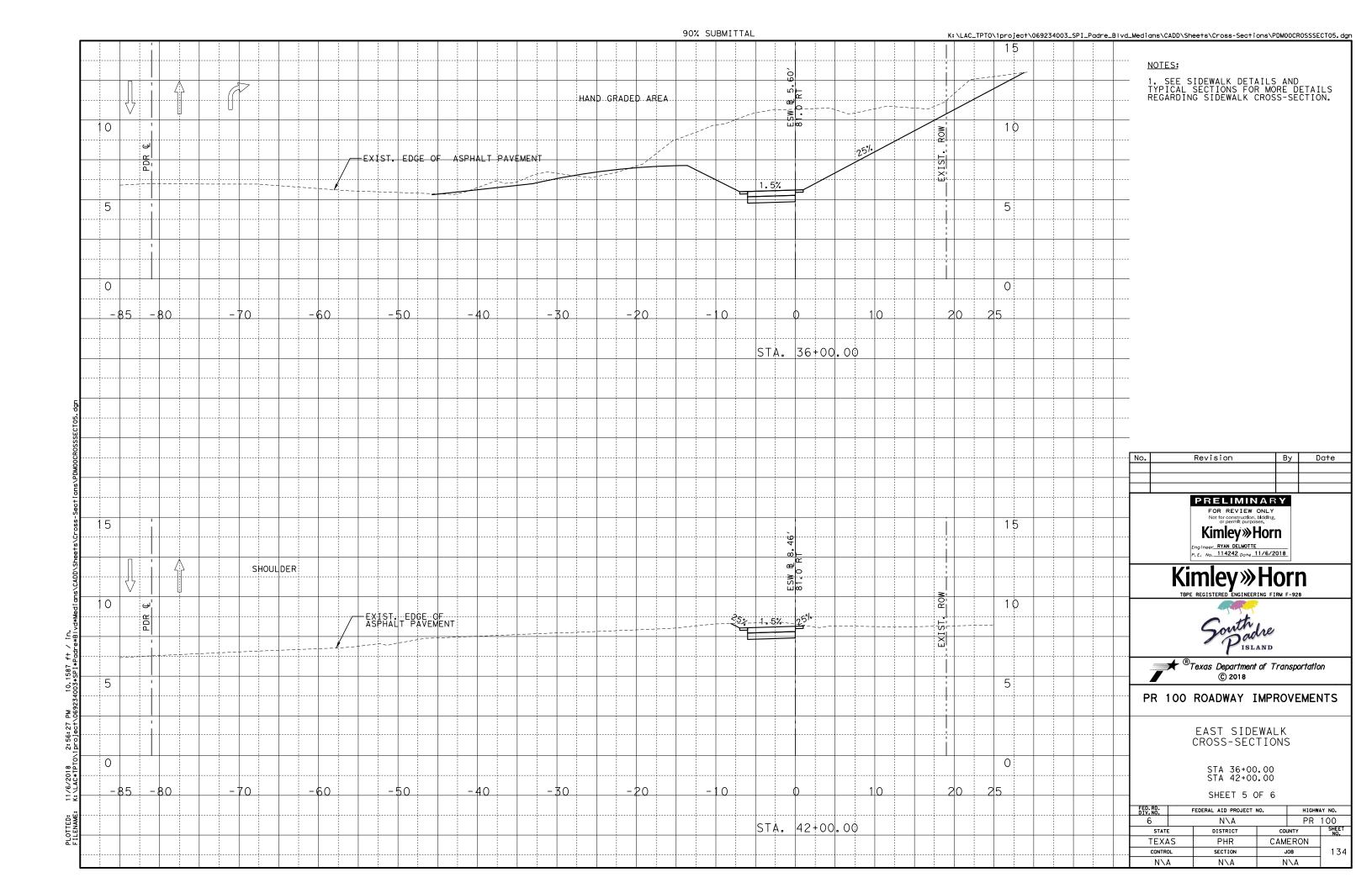
WSW03 & WEST SIDEWALK STA 166+00 TO 167+72.44

SHEET 15 OF 15

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CONTRO	DL	SECTION	JOB		129
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90% SUBMITTAL  $K: \LAC\_TPTO\lproject\\ \label{label} K: \LAC\_TPTO\lproject\\ \label{label} O69234003\_SPI\_Padre\_BIVd\_Medians\\ \CADD\Sheets\\ \Cross-Sections\\ \Sheets\\ \Sheets\\ \Cross-Sections\\ \Sheets\\  15 NOTES: 1. SEE SIDEWALK DETAILS AND TYPICAL SECTIONS FOR MORE DETAILS REGARDING SIDEWALK CROSS-SECTION. SHOULDER 25% 1.5% 10 10 EXIST EDGE OF ASPHALT PAVEMENT 5 0 0 -70 -40 -10 STA. 43+50.00 No. Revision By Date PRELIMINARY

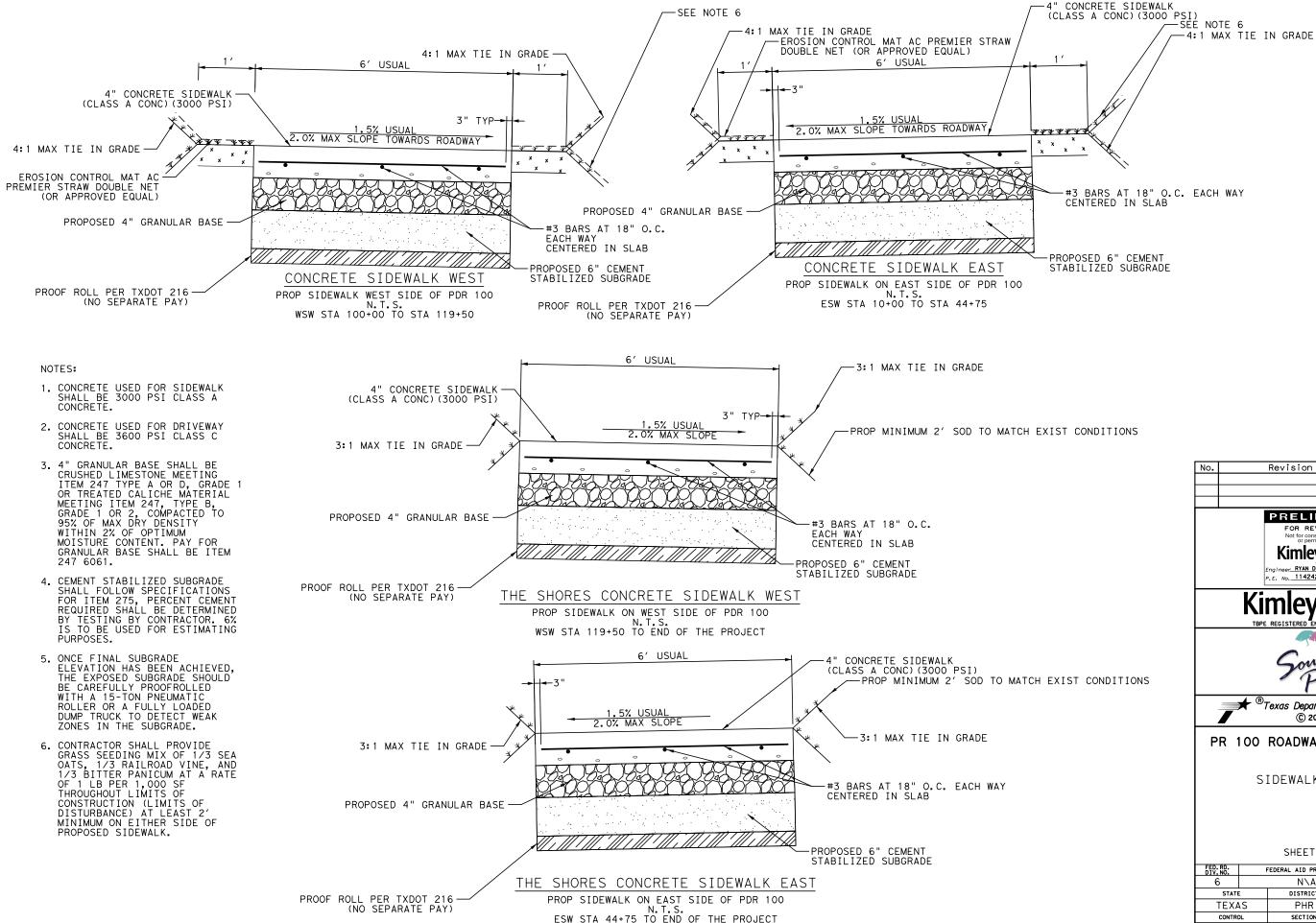
FOR REVIEW ONLY

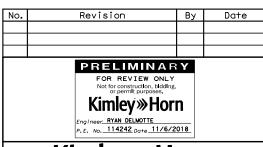
Not for construction, bidding, or permit purposes. 15 15 Kimley >>> Horn

Engineer\_RYAN\_DELMOTTE
P.E. No. \_114242\_Date \_11/6/2018 Kimley » Horn

TBPE REGISTERED ENGINEERING FIRM F-928 10 10 South padre ®Texas Department of Transportation 5 PR 100 ROADWAY IMPROVEMENTS EAST SIDEWALK CROSS-SECTIONS 0 0 STA 43+50.00 -80 -70 -60 -50 -40 -30 -20 -10 10 20 SHEET 6 OF 6 FED. RD. DIV. NO. FEDERAL AID PROJECT NO. HIGHWAY NO. N\A PR 100 STATE DISTRICT COUNTY TEXAS PHR CAMERON 135 CONTROL SECTION JOB N\A N\A N\A







# Kimley » Horn



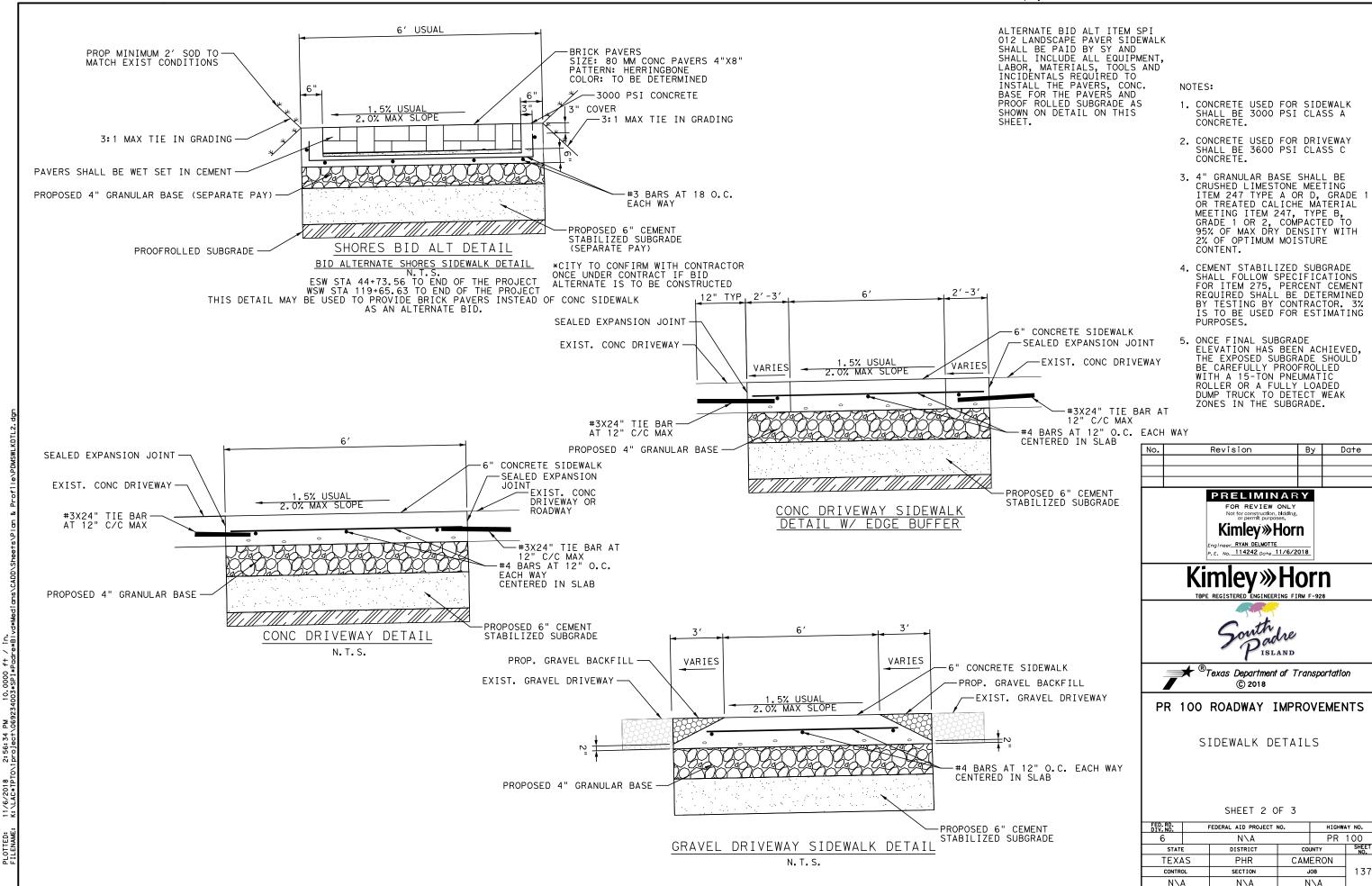


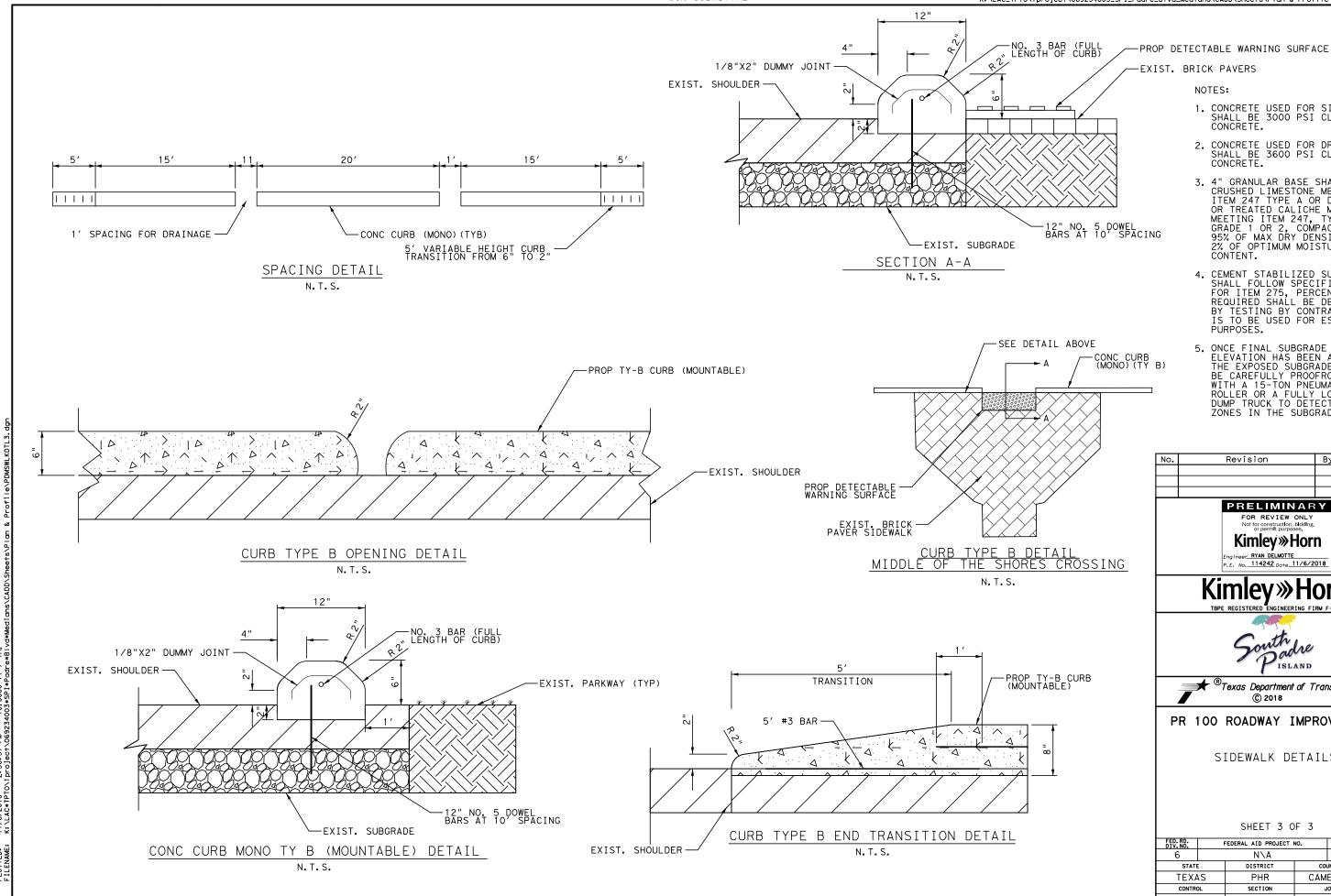
#### PR 100 ROADWAY IMPROVEMENTS

SIDEWALK DETAILS

SHEET 1 OF 3

FED. RD. DIV. NO.		FEDERAL AID PROJECT	NO.	. HIGHWA	
6	N\A		PR	100	
STATE		DISTRICT	col	JNTY	SHEET NO.
TEXA	\S	PHR	CAMERON		
CONTROL		SECTION	JOB		136
N\	4	N\A	N	<b>\</b> A	





- 1. CONCRETE USED FOR SIDEWALK SHALL BE 3000 PSI CLASS A CONCRETE.
- 2. CONCRETE USED FOR DRIVEWAY SHALL BE 3600 PSI CLASS C CONCRETE.
- 3. 4" GRANULAR BASE SHALL BE CRUSHED LIMESTONE MEETING ITEM 247 TYPE A OR D, GRADE 1 OR TREATED CALICHE MATERIAL MEETING ITEM 247, TYPE B, GRADE 1 OR 2, COMPACTED TO 95% OF MAX DRY DENSITY WITH 2% OF OPTIMUM MOISTURE CONTENT.
- 4. CEMENT STABILIZED SUBGRADE SHALL FOLLOW SPECIFICATIONS FOR ITEM 275, PERCENT CEMENT REQUIRED SHALL BE DETERMINED BY TESTING BY CONTRACTOR. 3% IS TO BE USED FOR ESTIMATING PURPOSES.
- 5. ONCE FINAL SUBGRADE
  ELEVATION HAS BEEN ACHIEVED,
  THE EXPOSED SUBGRADE SHOULD
  BE CAREFULLY PROOFROLLED
  WITH A 15-TON PNEUMATIC
  ROLLER OR A FULLY LOADED
  DUMP TRUCK TO DETECT WEAK ZONES IN THE SUBGRADE.





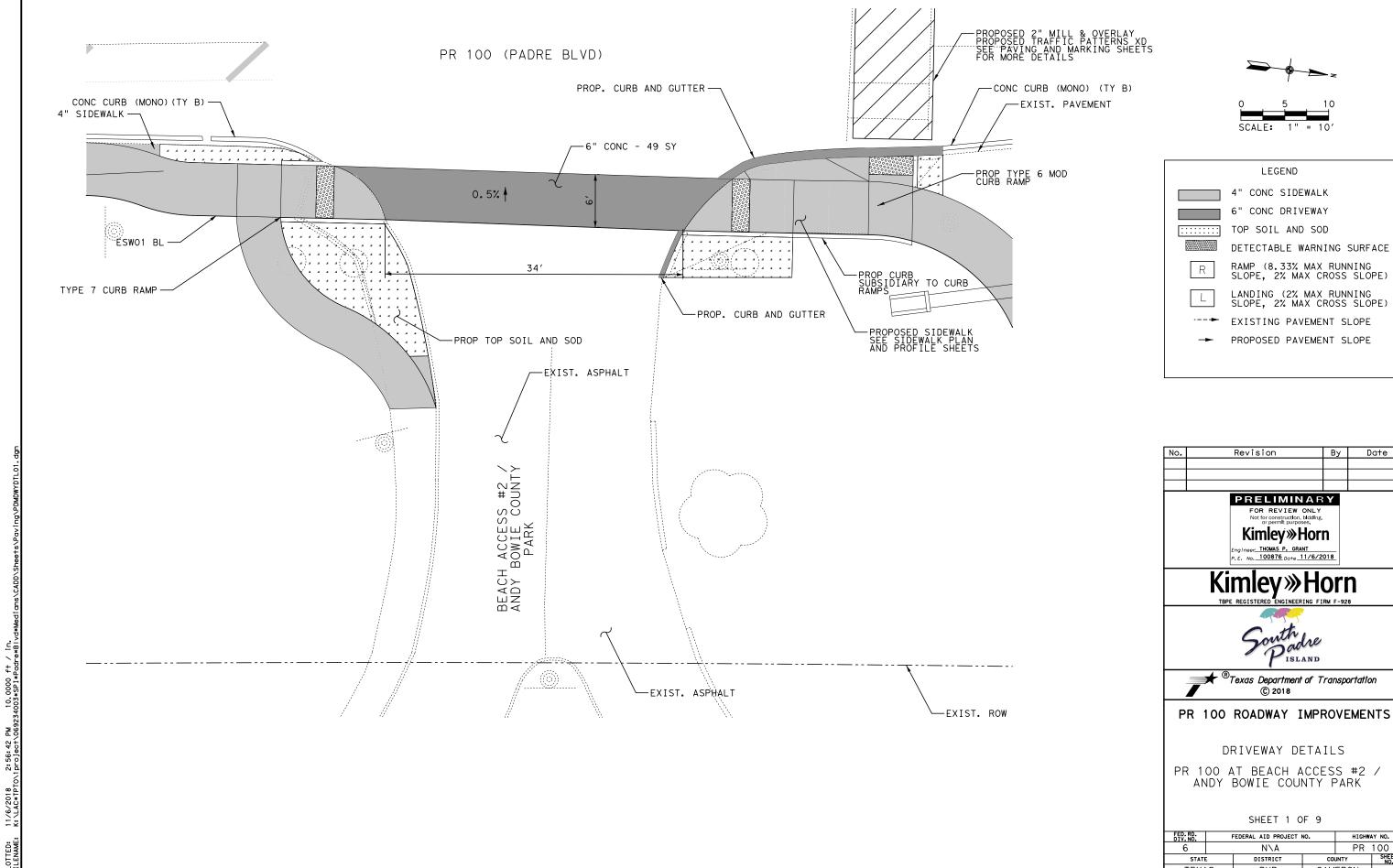


#### PR 100 ROADWAY IMPROVEMENTS

SIDEWALK DETAILS

SHEET 3 OF 3

FED. RD. DIV. NO.	_	FEDERAL AID PROJECT	H I GHWA	Y NO.	
6		N\A			100
STATE		DISTRICT	col	JNTY	SHEET NO.
TEXA	\S	PHR	CAM	ERON	
CONTRO	DL	SECTION	3	ОВ	138
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RAMP (8.33% MAX RUNNING SLOPE, 2% MAX CROSS SLOPE)

LANDING (2% MAX RUNNING SLOPE, 2% MAX CROSS SLOPE)

--- EXISTING PAVEMENT SLOPE

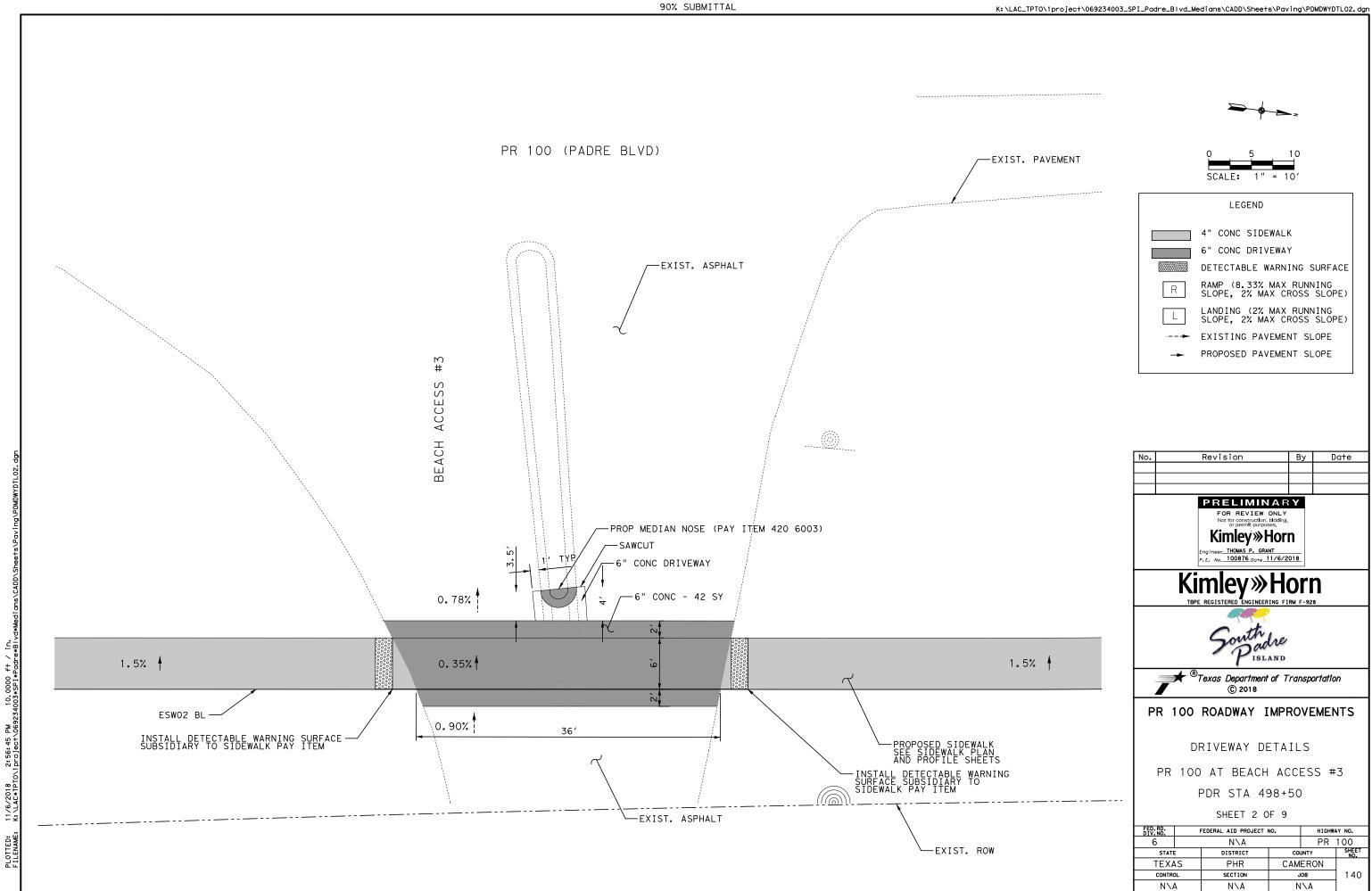
PROPOSED PAVEMENT SLOPE

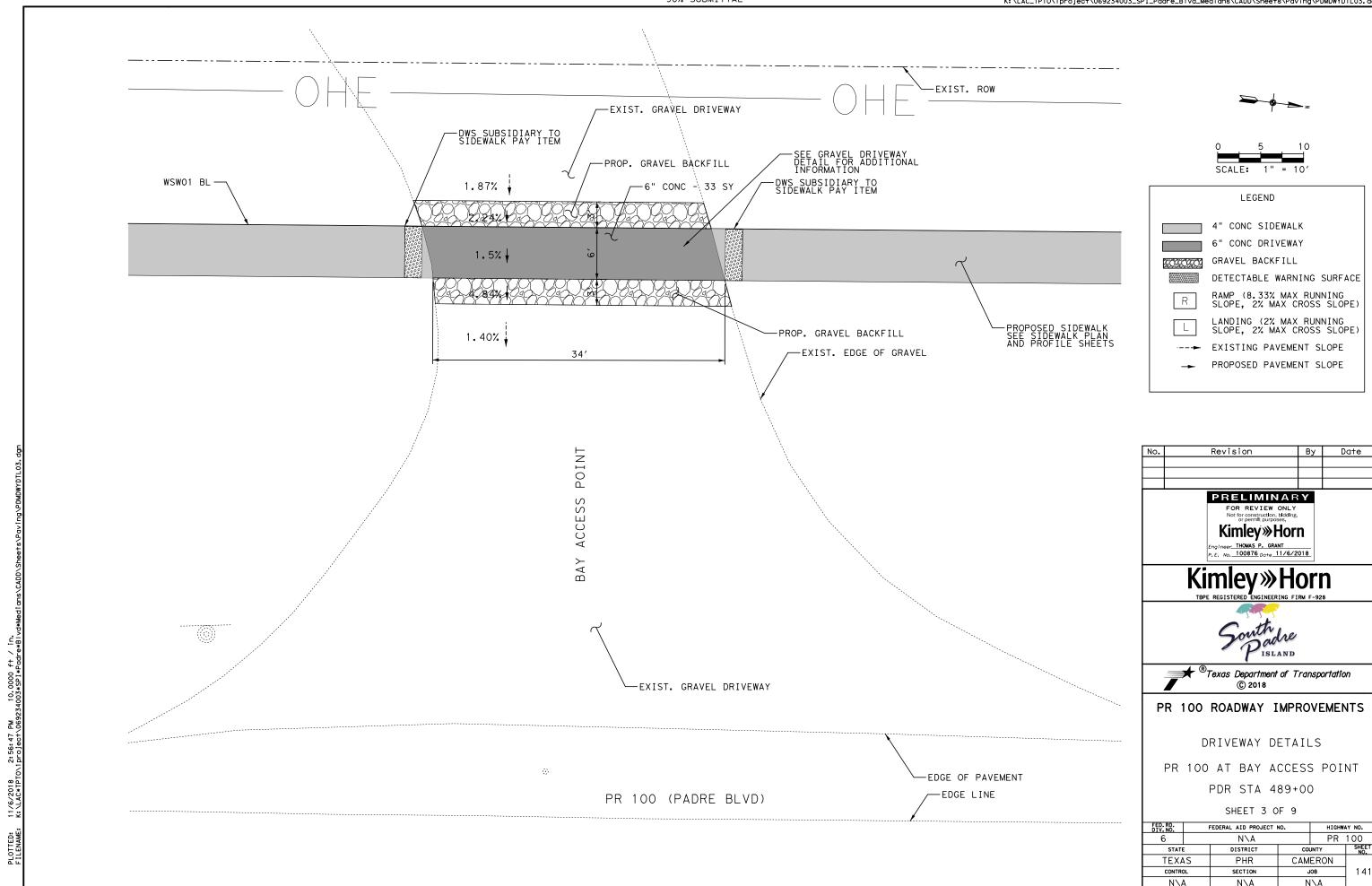
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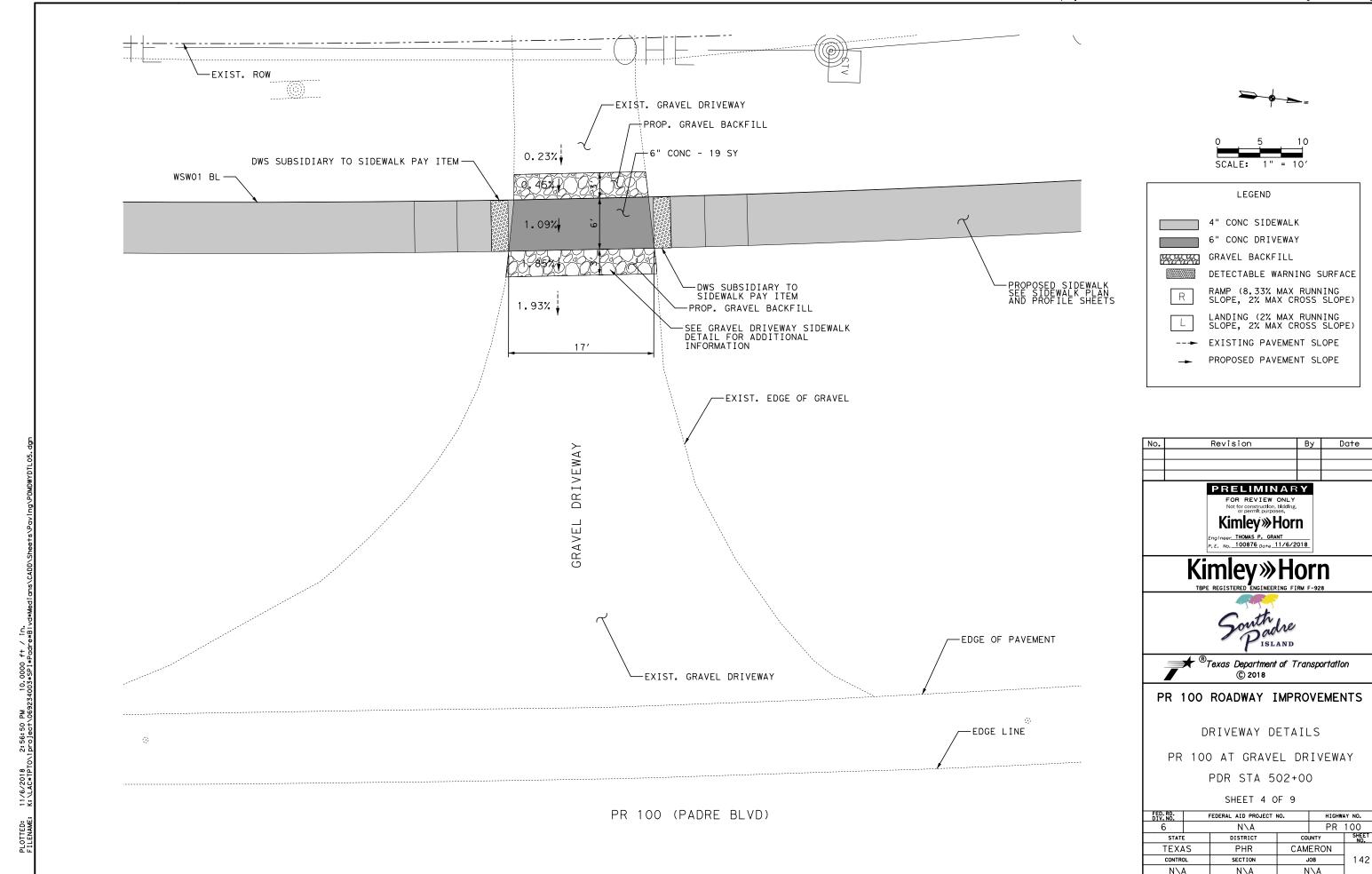
Kimley » Horn

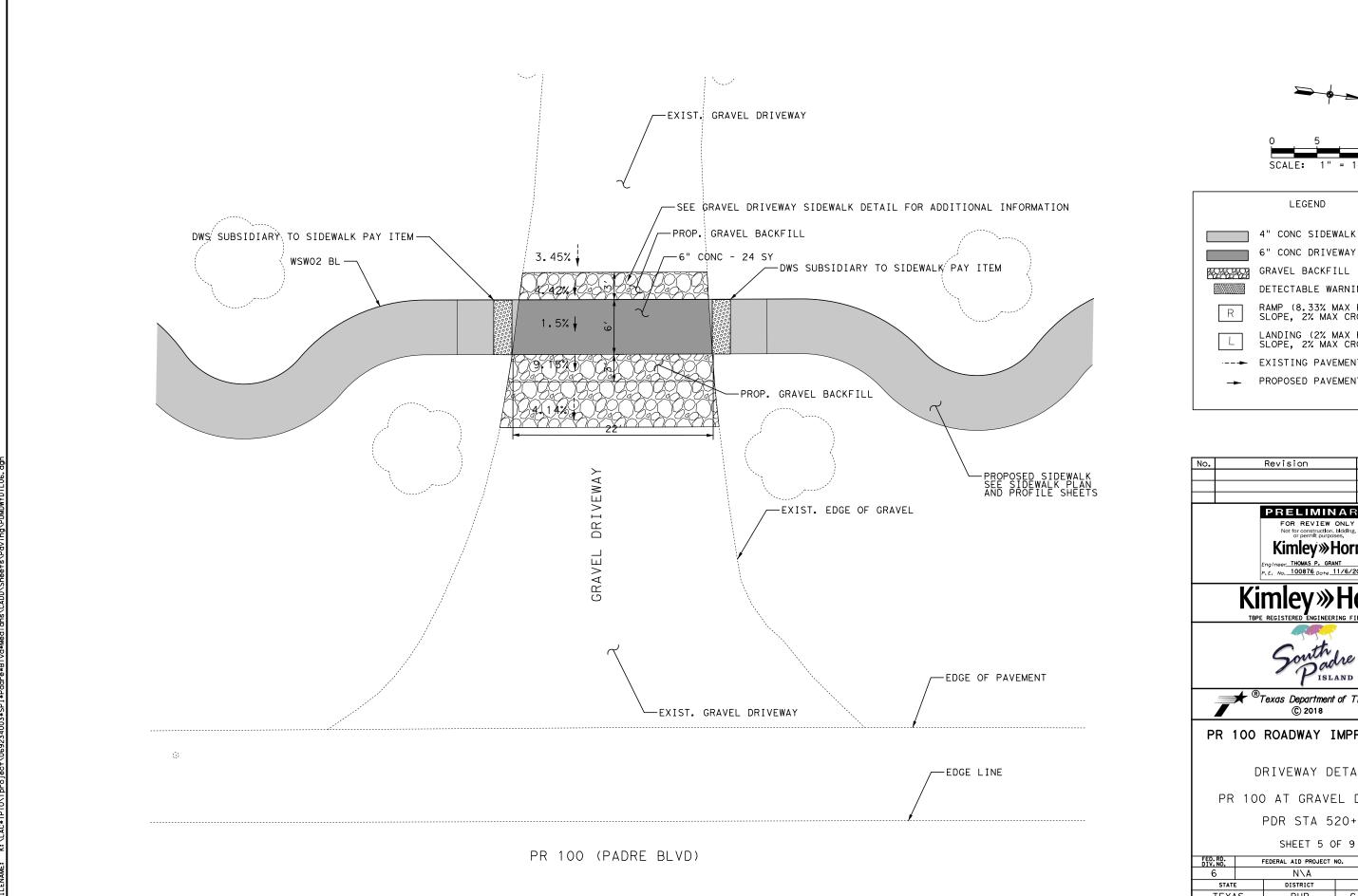


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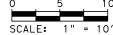












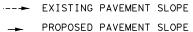
LEGEND

4" CONC SIDEWALK

DETECTABLE WARNING SURFACE

RAMP (8.33% MAX RUNNING SLOPE, 2% MAX CROSS SLOPE)

LANDING (2% MAX RUNNING SLOPE, 2% MAX CROSS SLOPE)



No.	Revision	Ву	Date







#### PR 100 ROADWAY IMPROVEMENTS

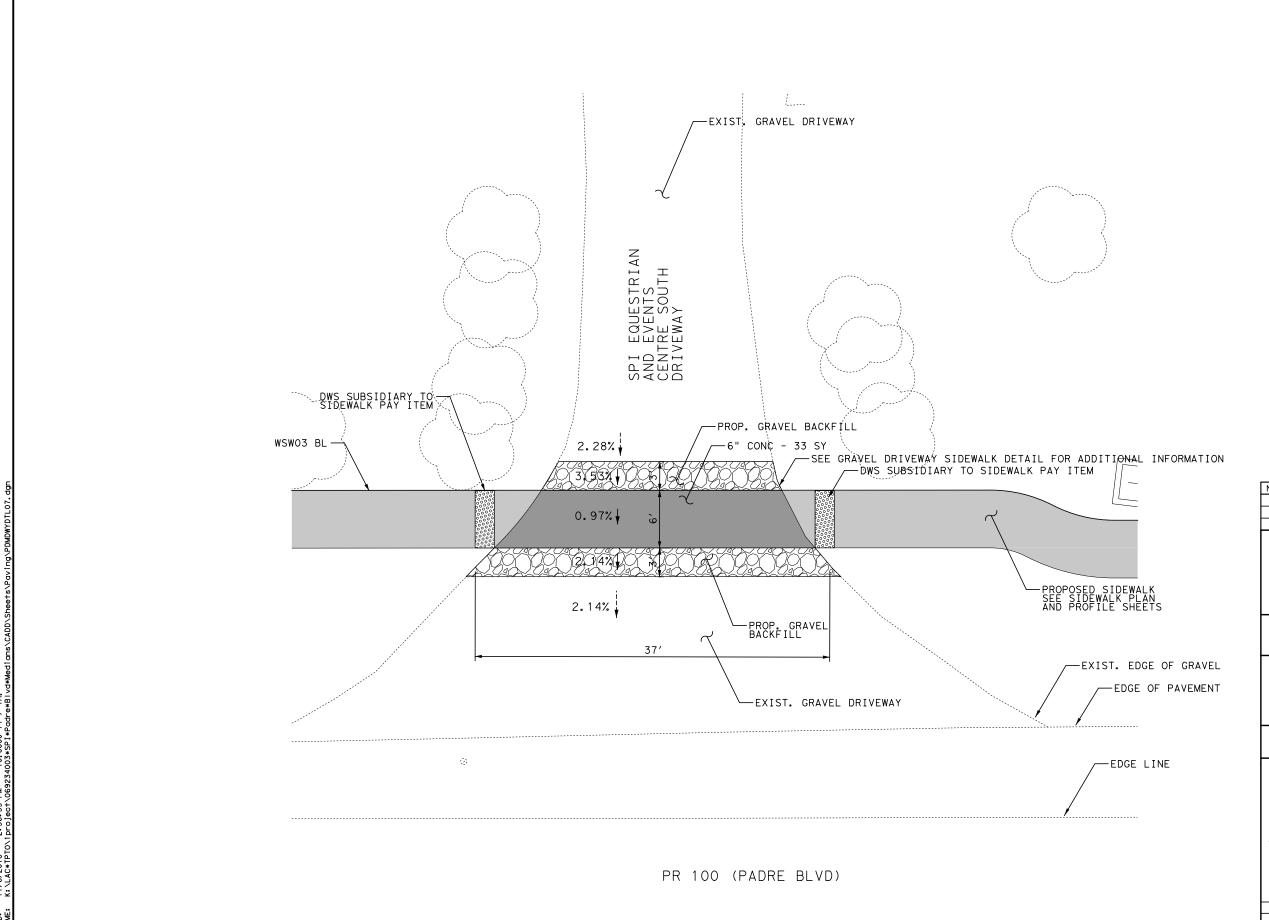
DRIVEWAY DETAILS

PR 100 AT GRAVEL DRIVEWAY

PDR STA 520+50

SHEET 5 OF 9

6 N\A PR 100  STATE DISTRICT COUNTY SHEET NO.  TEXAS PHR CAMERON						
STATE DISTRICT COUNTY SHEET NO.  TEXAS PHR CAMERON	FED. RD. DIV. NO.	ı	FEDERAL AID PROJECT NO.		H I GHWA	Y NO.
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CONTROL SECTION JOB 143	CONTRO	DL	SECTION JOB		143	
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LEGEND

6" CONC DRIVEWAY

4" CONC SIDEWALK

GRAVEL BACKFILL

DETECTABLE WARNING SURFACE

RAMP (8.33% MAX RUNNING SLOPE, 2% MAX CROSS SLOPE)

LANDING (2% MAX RUNNING SLOPE, 2% MAX CROSS SLOPE)

--
EXISTING PAVEMENT SLOPE

PROPOSED PAVEMENT SLOPE

Revision By Date

> PRELIMINARY FOR REVIEW ONLY
> Not for construction, bidding, or permit purposes. **Kimley \*\* Horn** Engineer\_THOMAS P. GRANT
> P.E. No. 100876 Date 11/6/2018





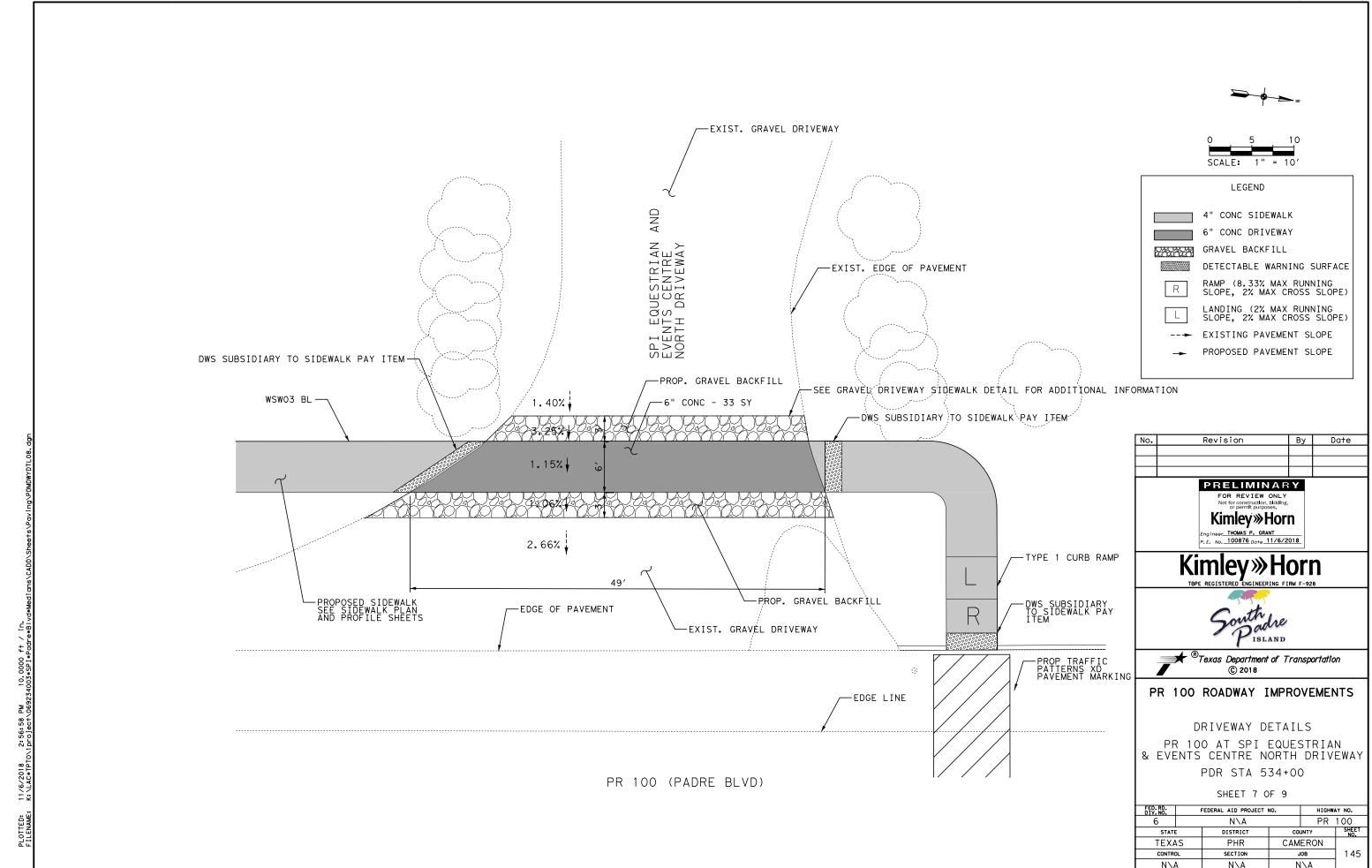
#### PR 100 ROADWAY IMPROVEMENTS

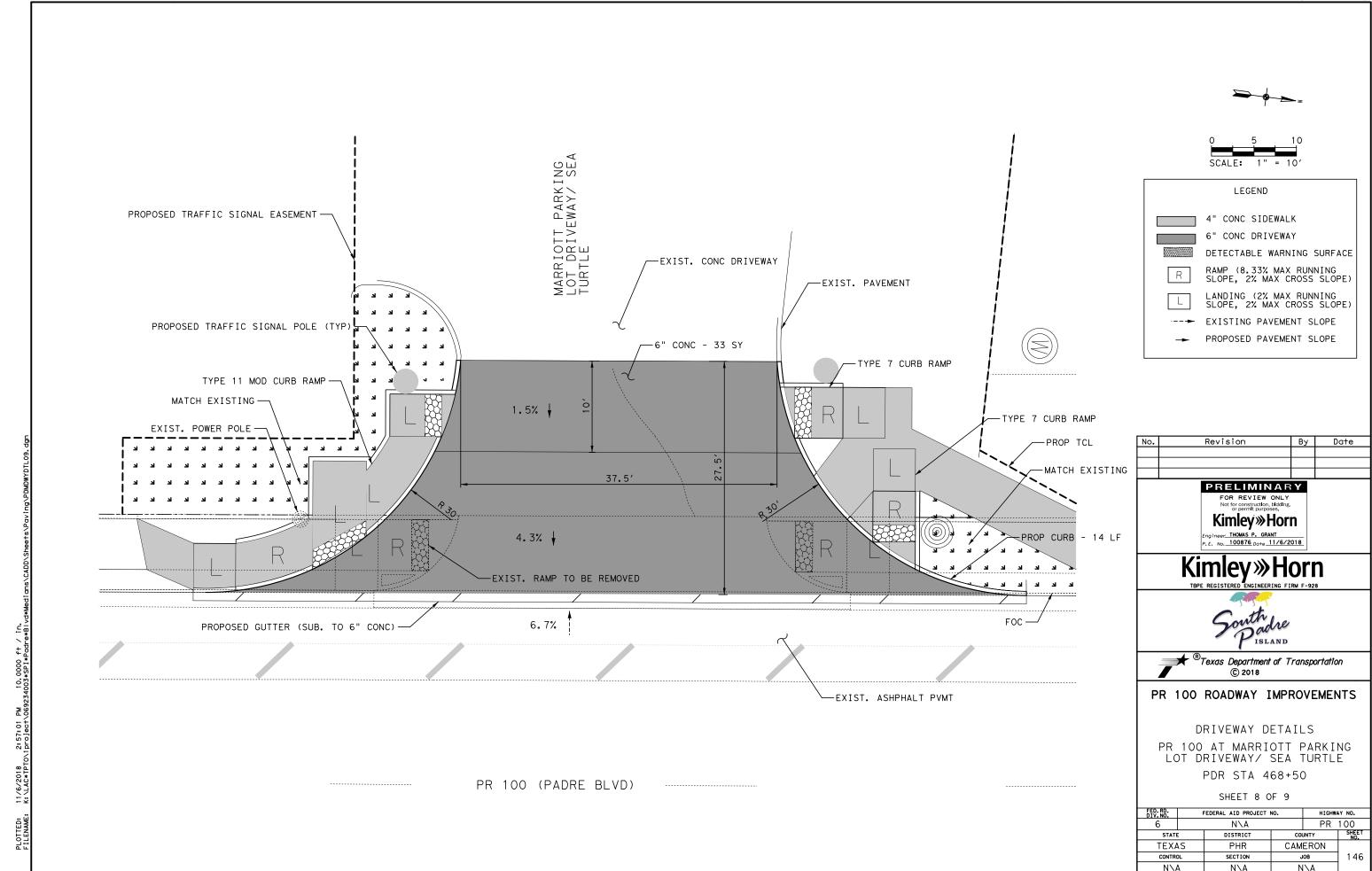
DRIVEWAY DETAILS PR 100 AT SPI EQUESTRIAN & EVENTS CENTRE SOUTH DRIVEWAY

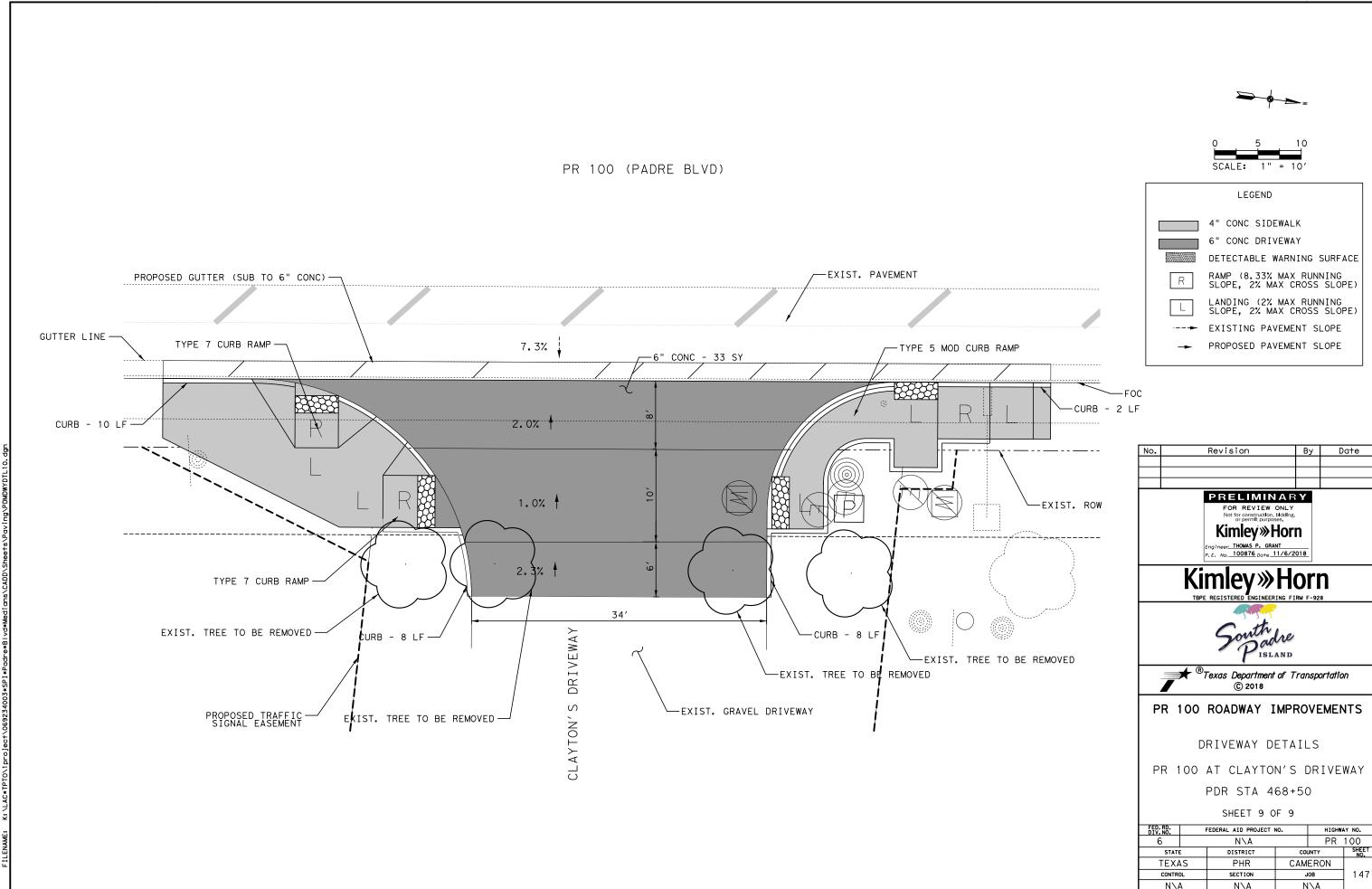
PDR STA 533+50

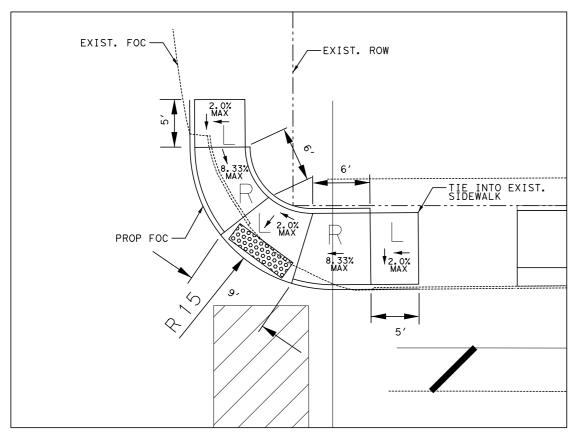
SHEET 6 OF 9

FED.RD. DIV.NO.		FEDERAL AID PROJECT NO.		H I GHWA	Y NO.
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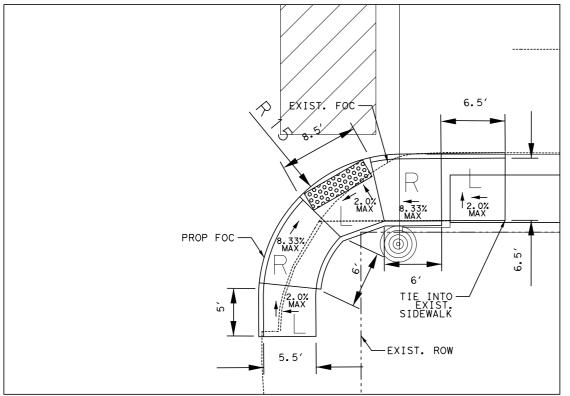




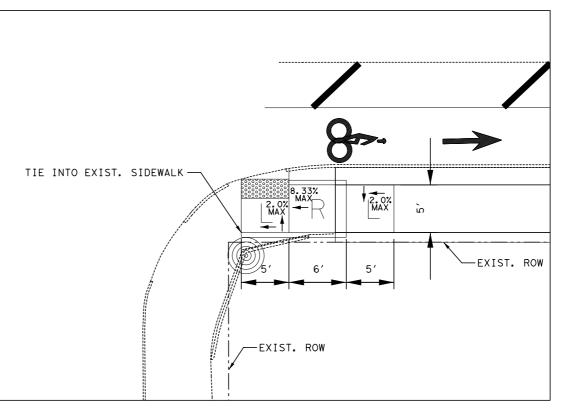


CURB RAMP AT NORTHWEST CORNER OF HIBISCUS

CURB RAMP AT NORTHWEST CORNER OF AIRES



CURB RAMP AT NORTHEAST CORNER OF HIBISCUS



CURB RAMP AT NORTHWEST CORNER OF AIRES

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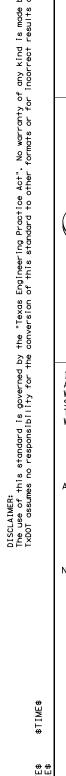
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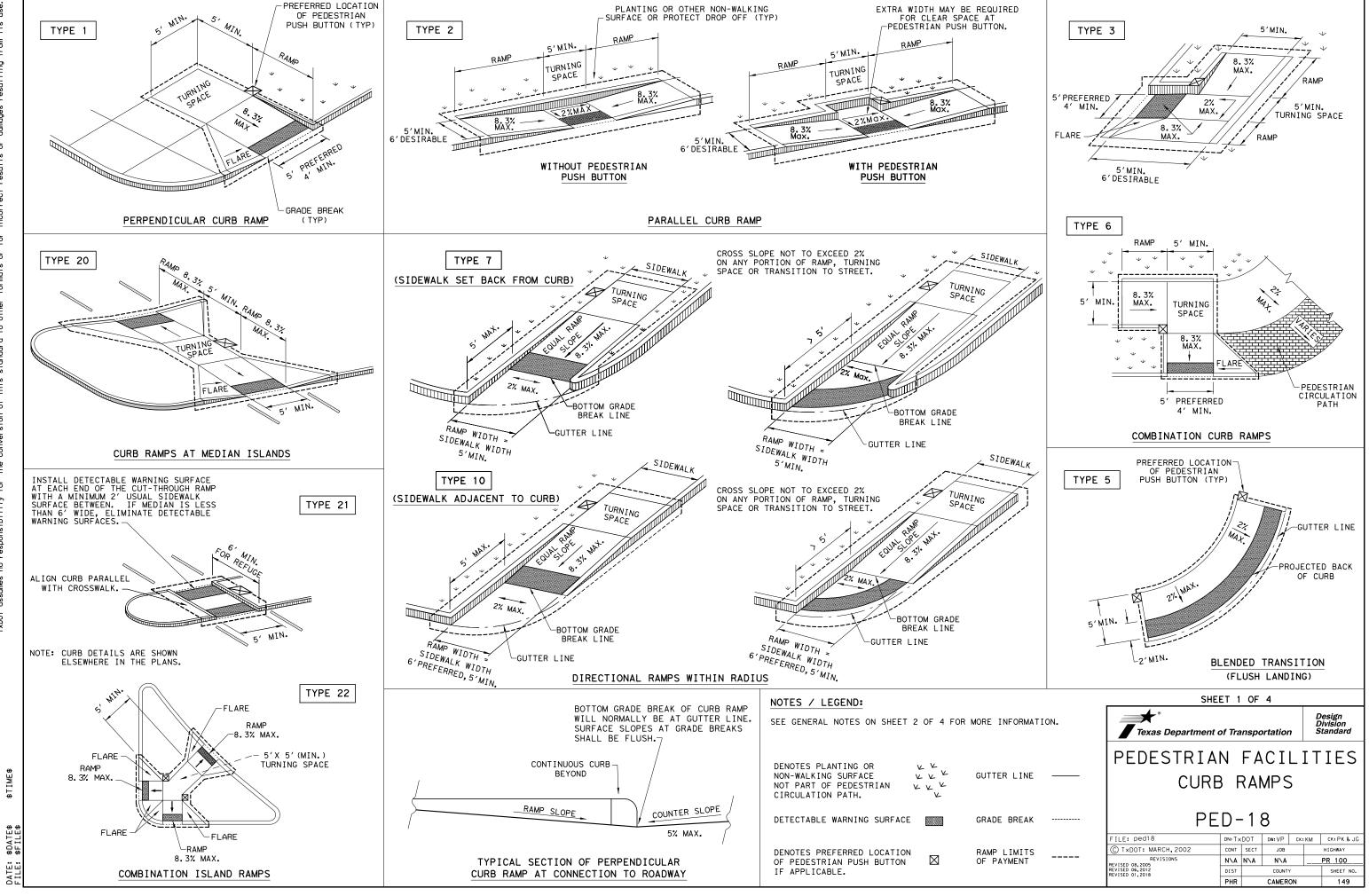
SECTION N\A CAMERON

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CONTROL





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#### GENERAL NOTES

#### CURB RAMPS

- 1. Install a curb ramp or blended transition at each pedestrian street crossing.
- 2. All slopes shown are maximum allowable. Cross slopes of 1.5% and lesser running should be used. Adjust curb ramp length or grade of approach sidewalks as directed.
- 3. Maximum allowable cross slope on sidewalk and curb ramp surfaces is 2%.
- 4. The minimum sidewalk width is 5'. Where the sidewalk is adjacent to the back of curb, a 6' sidewalk width is desirable. Where a 5' sidewalk cannot be provided due to site constraints, sidewalk width may be reduced to 4' for short distances. 5'x 5' passing areas at intervals not to exceed 200' are required.
- 5. Turning Spaces shall be 5'x 5' minimum. Cross slope shall be maximum 2%.
- 6. Clear space at the bottom of curb ramps shall be a minimum of 4'x 4' wholly contained within the crosswalk and wholly outside the parallel vehicular travel path.
- 7. Provide flared sides where the pedestrian circulation path crosses the curb ramp. Flared sides shall be sloped at 10% maximum, measured parallel to the curb. Returned curbs may be used only where pedestrians would not normally walk across the ramp, either because the adjacent surface is planted, substantially obstructed, or otherwise protected.
- 8. Additional information on curb ramp location, design, light reflective value and texture may be found in the latest draft of the Proposed Guidelines for Pedestrian Facilities in the Public Right of Way (PROWAG) as published by the U.S. Architectural and Transportation Barriers Compliance Board (Access Board).
- To serve as a pedestrian refuge area, the median should be a minimum of 6' wide, measured from back of curbs. Medians should be designed to provide accessible passage over or through them.
- 10. Small channelization islands, which do not provide a minimum 5'x 5' landing at the top of curb ramps, shall be cut through level with the surface of the street.
- 11. Crosswalk dimensions, crosswalk markings and stop bar locations shall be as shown elsewhere in the plans. At intersections where crosswalk markings are not required, curb ramps shall align with theoretical crosswalks unless otherwise directed.
- 12. Provide curb ramps to connect the pedestrian access route at each pedestrian street crossing. Handrails are not required on curb ramps.
- 13. Curb ramps and landings shall be constructed and paid for in accordance with Item 531 "Sidewalks".
- 14. Place concrete at a minimum depth of 5" for ramps, flares and landings, unless otherwise directed.
- Furnish and install No. 3 reinforcing steel bars at 18" o.c. both ways, unless otherwise directed.
- 16. Provide a smooth transition where the curb ramps connect to the street.
- 17. Curbs shown on sheet 1 within the limits of payment are considered part of the curb ramp for payment, whether it is concrete curb, gutter, or combined curb and gutter.
- 18. Existing features that comply with applicable standards may remain in place unless otherwise shown on the plans.

#### DETECTABLE WARNING MATERIAL

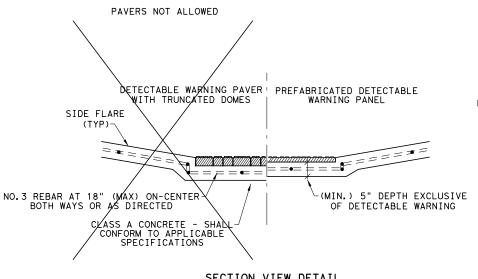
- 19. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with PROWAG. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install an approved cast-in-place dark brown or dark red detectable warning surface material adjacent to uncolored concrete, unless specified elsewhere in the plans.
- 20. Detectable Warning Materials must meet TxDOT Departmental Materials Specification DMS 4350 and be listed on the Material Producer List. Install products in accordance with manufacturer's specifications.
- 21. Detectable warning surfaces must be firm, stable and slip resistant.
- 22. Detectable warning surfaces shall be a minimum of 24 inches in depth in the direction of pedestrian travel, and extend the full width of the curb ramp or landing where the pedestrian access route enters the street.
- 23. Detectable warning surfaces shall be located so that the edge nearest the curb line is at the back of curb and neither end of that edge is greater than 5 feet from the back of curb. Detectable warning surfaces may be curved along the corner radius.
- 24. Shaded areas on Sheet 1 of 4 indicate the approximate location for the detectable warning surface for each curb ramp type.

#### DETECTABLE WARNING PAVERS (IF USED)

- 25. Furnish detectable warning paver units meeting all requirements of ASTM C-936, C-33. Lay in a two by two unit basket weave pattern or as directed.
- 26. Lay full-size units first followed by closure units consisting of at least 25 percent (25%) of a full unit. Cut detectable warning paver units using a power saw.

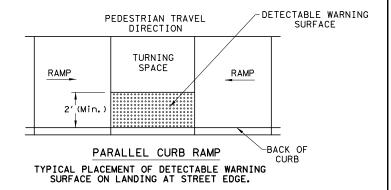
#### SIDEWALKS

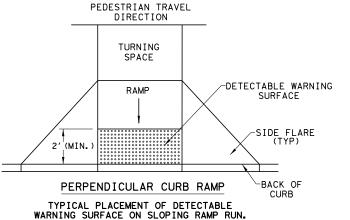
- 27. Provide clear ground space at operable parts, including pedestrian push buttons. Operable parts shall be placed within unobstructed reach range specified in PROWAG section R406.
- 28. Place traffic signal or illumination poles, ground boxes, controller boxes, signs, drainage facilities and other items so as not to obstruct the pedestrian access route or clear ground space.
- 29. Street grades and cross slopes shall be as shown elsewhere in the plans.
- 30. Changes in level greater than 1/4 inch are not permitted.
- 31. The least possible grade should be used to maximize accessibility. The running slope of sidewalks and crosswalks within the public right of way may follow the grade of the parallel roadway. Where a continuous grade greater than five percent (5%) must be provided, handrails may be desirable to improve accessibility. Handrails may also be needed to protect pedestrians from potentially hazardous conditions. If provided, handrails shall comply with PROWAG R409.
- 32. Handrail extensions shall not protrude into the usable landing area or into intersecting pedestrian routes.
- 33. Driveways and turnouts shall be constructed and paid for in accordance with Item "Intersections, Driveways and Turnouts". Sidewalks shall be constructed and paid for in accordance with Item, "Sidewalks".
- 34. Sidewalk details are shown elsewhere in the plans.

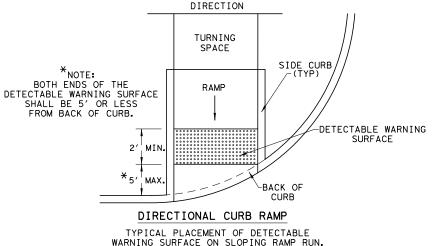


SECTION VIEW DETAIL
CURB RAMP AT DETECTIBLE WARNINGS

#### DETECTABLE WARNING SURFACE DETAILS







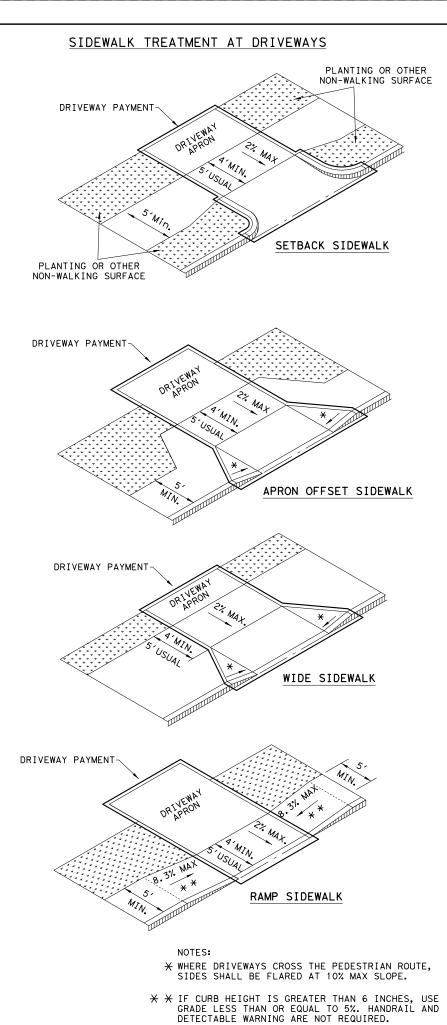
PEDESTRIAN TRAVEL

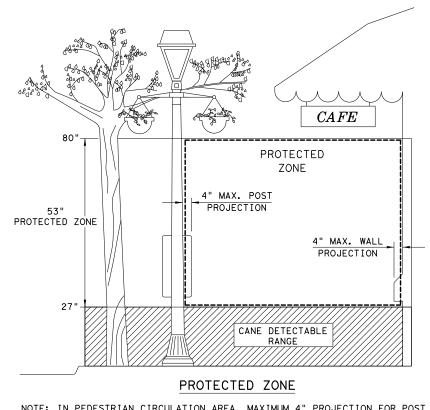


SHEET 2 OF 4

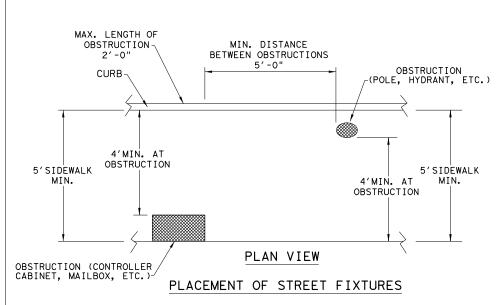
PED-18

ILE: ped18	DN: T×DOT		Dw: VP	CK: KM	CK: PK & JG	
TxDOT: MARCH, 2002	CONT	SECT	JOB		HIGHWAY	
REVISIONS VISED 08.2005	N\A	\A N\A N\A			PR 100	
VISED 06,2012 VISED 01,2018	DIST		COUNT	(	SHEET NO.	
	PHR		CAMER	ON	150	l

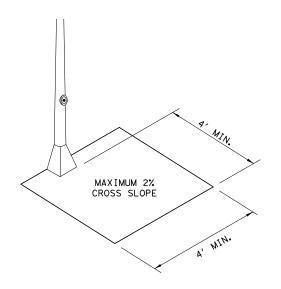




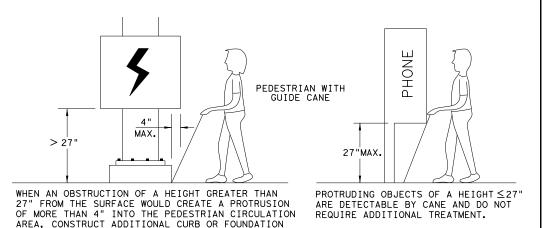
NOTE: IN PEDESTRIAN CIRCULATION AREA, MAXIMUM 4" PROJECTION FOR POST OR WALL MOUNTED OBJECTS BETWEEN 27" AND 80" ABOVE THE SURFACE.



NOTE: ITEMS NOT INTENDED FOR PUBLIC USE. MINIMUM 4' X 4' CLEAR GROUND SPACE REQUIRED AT PUBLIC USE FIXTURES.



CLEAR SPACE ADJACENT TO PEDESTRIAN PUSH BUTTON



DETECTION BARRIER FOR VERTICAL CLEARANCE < 80"

AT THE BOTTOM TO PROVIDE A MAXIMUM 4" OVERHANG.





PEDESTRIAN FACILITIES

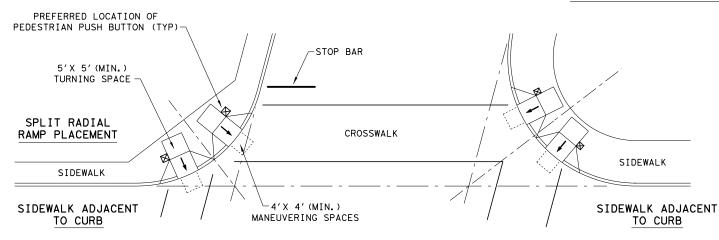
CURB RAMPS

PED-18

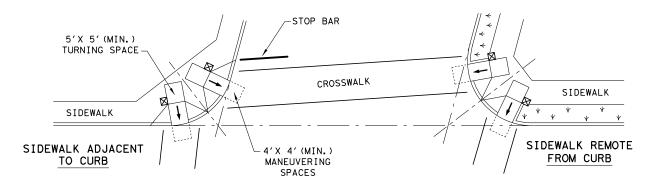
ILE: ped18	DN: T×DOT		DW: VP	CK: KM		CK: PK & JG
C) T×DOT: MARCH, 2002	CONT SECT JOB HIGHW		H [ GHWAY			
REVISIONS EVISED 08,2005	N\A	N\A	A N\A PR 100		PR 100	
EVISED 06,2012 EVISED 01,2018	DIST	COUNTY			SHEET NO.	
	PHR		CAMER	ON		151

# DATE: \$DATE\$ FIIF: \$FIIF\$

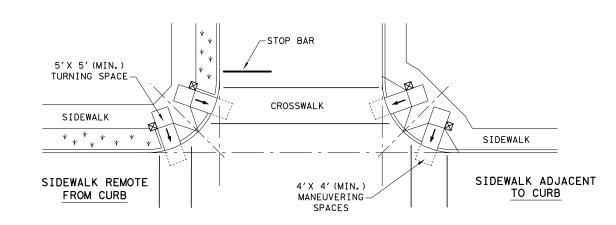
### TYPICAL CROSSING LAYOUTS SEE SHEET 1 OF 4 FOR DETAILS AND DIMENSIONS



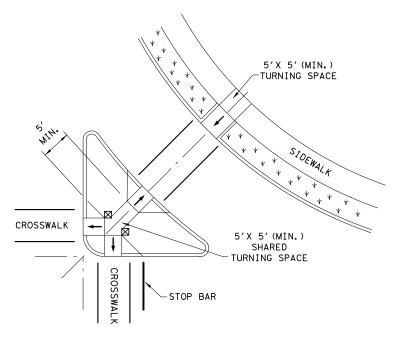
#### SKEWED INTERSECTION WITH "LARGE" RADIUS



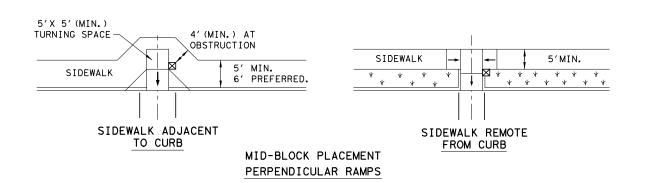
#### SKEWED INTERSECTION WITH "SMALL" RADIUS



NORMAL INTERSECTION WITH "SMALL" RADIUS



AT INTERSECTION W/FREE RIGHT TURN & ISLAND



#### LEGEND:

SHOWS DOWNWARD SLOPE.

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON (IF APPLICABLE).

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH.

 $\begin{array}{c} \times \times \\ \times \times \times \\ \times \times \end{array}$ 

 $\boxtimes$ 

SHE	ET 4	1 OF 4
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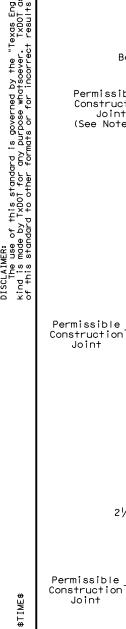
Texas Department of Transportation

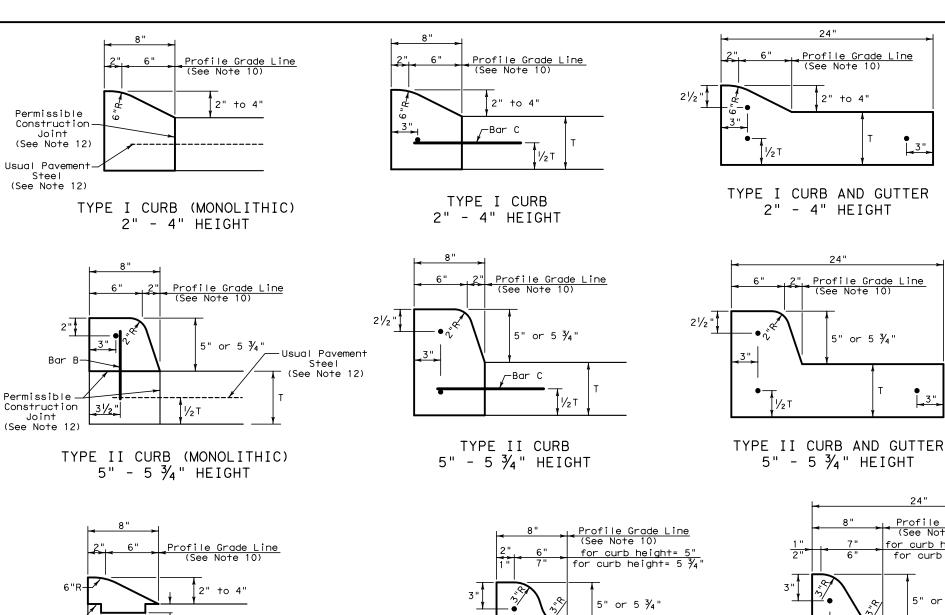
PEDESTRIAN FACILITIES

CURB RAMPS

PED-18

LE: ped18	DN: T×DOT		DW: VP	CK:	KM CK: PK & JG	
TxDOT: MARCH, 2002	CONT	NT SECT JOB		HIGHWAY		
REVISIONS ISED 08,2005	N\A	N\A N\A				PR 100
ISED 06, 2012 ISED 01, 2018	DIST		COUNT	Y		SHEET NO.
	PHP		CAMER	ON		152





Permissible Construction Joint

(See Note 12)

 $\frac{1}{2}$ " Wide Expansion Joint Material-

Top of Pavement

2 ea  $\sim \frac{7}{8}$ " x 24"

1/2 T

Smooth Dowels-

-Bar C

TYPE IIa CURB

5" - 5 ¾" HEIGHT

Top of Curb

14"

EXPANSION JOINT DETAIL

1/2 T

-Use 2 layers of roofing felt

to wrap bars and plug end

11/2 '

Asphalt or

Concrete Pavement

Prof<u>ile Grade Line</u>

Asphalt or

Concrète Pavement

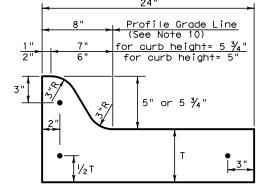
TYPE III CURB (KEYED)

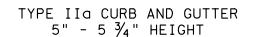
2" - 4" HEIGHT

TYPE IV CURB (KEYED)

5" - 5 ¾" HEIGHT

21/2"





<u>Curb Transition Note:</u> Field conditions may require a longer or shorter transition, and shall be shown elsewhere in the plans, or as directed by the Engineer. 10'-0" Curb Transition (0" to 2"), (See Curb Transition Note) Top of Curb-Change in Height Top of Pavement

CURB TRANSITION Note: To be paid for as Highest Curb

Varies

BAR C BAR B

General Notes

Curb and Gutter.

2. Concrete shall be Class A.

Construction Division.

minimum radius of 4 inch.

sawed or removed at existing joints.

at locations directed by The Engineer.

pavement dimension 'T' is 8" maximum.

1. All materials and construction shall be in accordance with Item 529, "Concrete Curb, Gutter, and Combined

3. When reinforcing bars are used, they shall be No.4 unless

the Department Producer List (MPL), maintained by TxDOT,

4. Round exposed sharp edges with a rounding tool, to a

6. Where concrete curb is placed on existing concrete pavement, the pavement shall be drilled and the reinforcing bars grouted in place.

7. Expansion and contraction joints shall be constructed to match pavement joints in all curbs and curb and

to concrete pavement, expansion joints shall be

8. Vertical and horizontal dowel bars and transverse

9. Dimension  ${}^{\prime}\text{T}^{\prime}$  shown is the thickness of concrete

and plan-profile sheets for exact locations.

reinforcing bars shall be placed at four feet C~C.

10. Usual profile grade line. Refer to typical sections

pavement. When curb is installed adjacent to flexible

11. One-half inch expansion joint material shall be provided where curb or curb and gutter is adjacent to sidewalk

12. When vertical permissible construction joints are used,

pavement, the longitudinal pavement steel shall be

placed in accordance with pavement details shown elsewhere in the plans for longitudinal construction

conform to that required for concrete curb.

resulting in a longitudinal construction joint in the

joints. Reinforcing steel for curb section shall then

gutter adjacent to jointed concrete pavement. Where

placement of curb or curb and gutter is not adjacent

provided at structures, curb returns at streets, and

5. All existing curbs and driveways to be removed shall be

otherwise shown. The use of synthetic fiber in lieu of steel

reinforcing is acceptable, provided the fiber producer is on

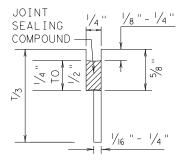
Texas Department of Transportation

### CONCRETE CURB AND CURB AND GUTTER

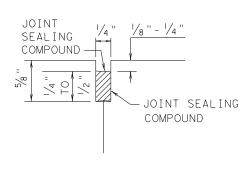
CCCG-12

FILE: cccg12.dgn	DN: TxDOT		ck: AM Dw: VP		CK:
© TxDOT: 1995	CONT	SECT	JOB		HIGHWAY
REVISIONS UPDATED 2012 - VP	N\A	N\A	N∖A	F	PR 100
	DIST		COUNTY		SHEET NO.
	PHR		CAMERO	N	153

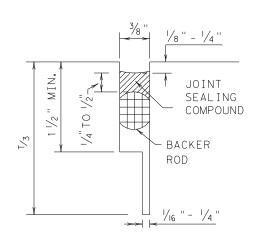
### METHOD B: JOINT SEALING COMPOUND



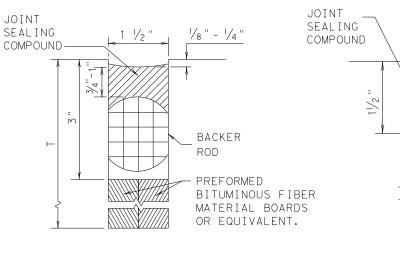




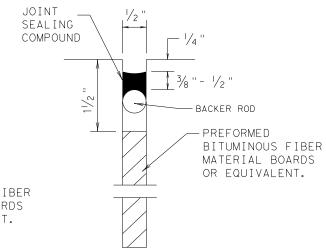
LONGITUDINAL OR TRANSVERSE CONSTRUCTION JOINT



TRANSVERSE SAWED CONTRACTION JOINT

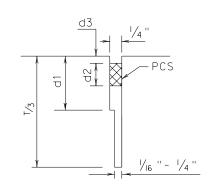


TRANSVERSE FORMED EXPANSION JOINT

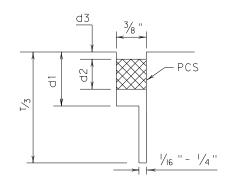


FORMED ISOLATION JOINT

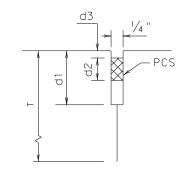
## METHOD A: PREFORMED COMPRESSION SEALS (PCS) (DMS-6310 CLASS 6)



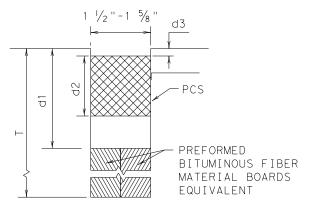
LONGITUDINAL SAWED CONTRACTION JOINT



TRANSVERSE SAWED CONTRACTION JOINT



LONGITUDINAL CONSTRUCTION JOINT



TRANSVERSE FORMED EXPANSION JOINT

### GENERAL NOTES

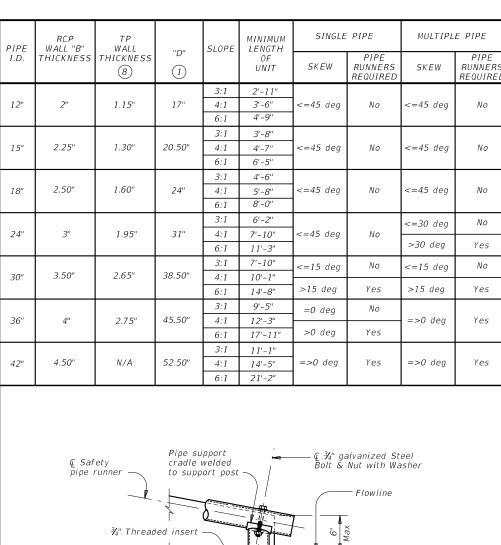
- 1. UNLESS OTHERWISE SHOWN IN THE PLANS, EITHER METHOD "A" OR METHOD "B" MAY BE USED.
- 2. THE LOCATION OF JOINTS SHALL BE AS SHOWN ELSEWHERE IN THE PLANS.
- 3. THE JOINT RESERVOIR FOR SEALANT OR PCS SHALL BE SAWED UNLESS OTHERWISE SHOWN ON THE PLANS FOR THE LONGITUDINAL AND TRANSVERSE CONSTRUCTION JOINTS AND THE SAWED JOINTS.
- 4. DIMENSIONS d1, d2, AND d3 SHOWN IN METHOD A SHALL BE IN ACCORDANCE WITH THE PREFORMED COMPRESSION SEAL MANUFACTURER'S RECOMMENDATION.
- 5. REFER TO DMS-6310 "JOINT SEALANTS AND FILLERS" FOR THE CLASSIFICATIONS.
- 6. FOR SAWED LONGITUDINAL JOINT, LONGITUDINAL OR TRANSVERSE CONSTRUCTION JOINT, USE JOINT SEALANT CLASS 5 OR 8 UNLESS OTHERWISE SHOWN ON THE PLAN OR APPROVED.
- 7. FOR TRANSVERSE SAWED CONTRACTION, TRANSVERSE FORMED EXPANSION JOINT, AND ISOLATION JOINT USE JOINT SEALANT CLASS 5 OR 8 AT NEW JOINTS. USE JOINT SEALANT CLASS 4,5,7,OR 8 FOR MAINTAINING EXISTING JOINTS.
- 8. THE JOINTS SHALL BE CLEANED IN ACCORDANCE WITH THE ITEM 438 "CLEANING AND SEALING JOINTS" OR ITEM 713 "CLEANING AND SEALING JOINTS AND CRACKS (CONCRETE PAVEMENT)".
- 9. ISOLATION JOINTS ACCOMMODATE HORIZONTAL AND VERTICAL MOVEMENTS THAT OCCUR BETWEEN A PAVEMENT AND A STRUCTURE. ISOLATION JOINTS MAY BE USED FOR BRIDGE ABUTMENTS, INTERSECTIONS, CURB AND GUTTER, OLD AND NEW PAVEMENTS, OR AROUND DRAINAGE INLETS, MANHOLES, FOOTINGS AND LIGHTING STRUCTURES.



# CONCRETE PAVING DETAILS JOINT SEALS

JS-14

ILE: js14.dgn	DN: Tx[	TOC	DN: HC	DW:	HC	ck: AN
C)TxDOT: DECEMBER 2014	CONT	SECT	JOB		HIGHWAY	
REVISIONS	REVISIONS N\A N\A PR		R 100			
	DIST		COUNTY			SHEET NO.
	PHR		CAMERO	N		154



END DETAIL FOR INSTALLATION

OF SAFETY PIPE RUNNERS

(If required)

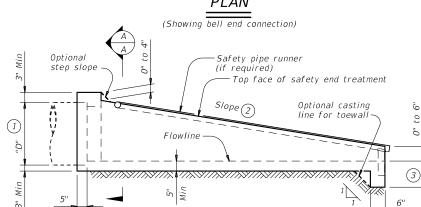
Cement stabilized

bedding and

backfill (7)

Reinforcement to have 1" Min cover

Unit Length Varies Safety Pipe Runner Length 67" Max - End of payment for pipe 🕻 Safety pipe runners (if required) -See Detail "A" Pocket is to be formed to fit O.D. of pipe support post if safety pipe runners are used. **PLAN** (Showing bell end connection)



(1) Dimension "D" is based on Reinforced Concrete Pipe (RCP) meeting the requirements of ASTM C-76, Class III, (RCP Wall "B" thickness). Adjust "D" for any other wall thickness used. For Thermoplastic Pipe (TP) take into account the annular space requirements for arouted connection's.

 $^{igg(2igg)}$  Slope as shown elsewhere in plans. Slope of 3:1 or flatter is required for vehicle safety.

Safety Pipe

Runner

Length

11'- 2"

15'- 6"

20'-10"

35'- 4"

 ${rac{\Im}{3}}$  Toewall to be used only when dimension is shown elsewhere in the plans.

Fill the top 4" of void between precast end treatments with concrete riprap. Concrete riprap is considered subsidiary to the Item "Safety End Treatment".

 $^{(5)}$  Adjust clear distance between pipes to provide for the minimum distance between safety end

6 Measured along slope.

pipe

Cross pipe to

be same size

as safety pipe

runner or 1/2"

OPTION B

runner

Provide cement stabilized bedding and backfill in accordance with the Item, "Excavation and Backfill for Structures". Bedding and backfill is considered subsidiary to the Item "Safety End Treatment". When concrete riprap is specified around the safety end treatment, backfill as directed by Engineer

 $^{igg(8)}$  Thermoplastic pipe wall thickness may vary. Adjust accordingly. Thermoplastic pipe requires the safety end treatments to have a bell end for grouted connections.

#### GENERAL NOTES:

Precast safety end treatment for reinforced concrete pipe (RCP), and thermoplastic pipe (TP) may be used for TYPE II end treatment as specified in Item "Safety End Treatment".

When precast safety end treatment is used as a Contractor's alternate to mitered RCP, riprap will not be required unless noted otherwise on the plans.

Required Pipe Runner Size

3.500"

4.000"

4.500"

5.563"

Size

3" STD

3 ½" STD

4" STD

5" STD

Pipe I.D.

3.068"

3.548"

4.026"

5.047"

Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.

Manufacture this product in accordance with Item "Safety End Treatment" except as noted below .

A. Provide minimum reinforcing of #4 at 6" (Grade 40) or #4 at 9" (Grade 60) each way or 6"x6" - D12 x D12

or 5"x5" - D10 x D10 welded wire reinforcement (WWR). B. For precast (steel formed) sections, provide Class "C" concrete (f'c = 3,600 psi).

At the option and expense of the Contractor the next larger size of safety end treatment may be furnished; as long as the "D" dimension cast is that of the required size of pipe.

Pipe runners are designed for a traversing load of 1,800 Lbs at yield as recommended by Research Report 280-1, "Safety Treatment of Roadside Cross-Drainage Structures", Texas Transportation Institute, March 1981.

Provide safety pipe runners, cross pipes, pipe support posts, and pipe stubs meeting the requirements of ASTM A53 (Type E or S, Grade B), ASTM A500 (Grade B), or API 5LX52.

Galvanize all steel components except reinforcing steel after fabrication. Repair galvanizing damaged during transport or construction in accordance with the specifications

Connect RCP using the Optional Joint for RCP detail shown or in accordance with Item 464 "Reinforced Concrete Pipe". Connect TP by grouting. See PBGC standard for grouted connections with TP and precast safety end treatment.



Bridge Division Standard PRECAST SAFETY END

TREATMENT TYPE II ~ CROSS DRAINAGE

PSET-SC

psetscss-18.dgn	DN: RLW		CK: KLR	DW:	JTR	CK: GAF
xDOT February 2010	CONT	SECT	JOB		Н	GHWAY
REVISIONS	N\A	N\A	N\A		PR	100
-10: Add note for synthetic fibers. -18: Added Thermoolastic Pipe in Lable.	DIST		COUNTY			SHEET NO.
	PHR		CAMER	NC		155

### LONGITUDINAL ELEVATION

(Showing bell end connection)

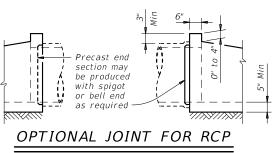
Pipe stub shall

have an O.D. of

than the L.D. or

the safety pipe

- ¼" to ⅙" less



12" 1/4

Safety

pipe

OPTION A DETAIL A

Pipe Dia Cross

¾" galvanized steel bolts with washers and inserts -1/3 Pine Dia projection

INSTALLATION DETAIL FOR SAFETY PIPE RUNNERS

-¾" Threaded insert

Showing joint between RCP and precast safety end treatment)

Min

OPTION WITH INVERT BOTTOM

OPTION WITH SQUARE BOTTOM SECTION A-A

∑¾" galvanized

steel bolts with

washers and

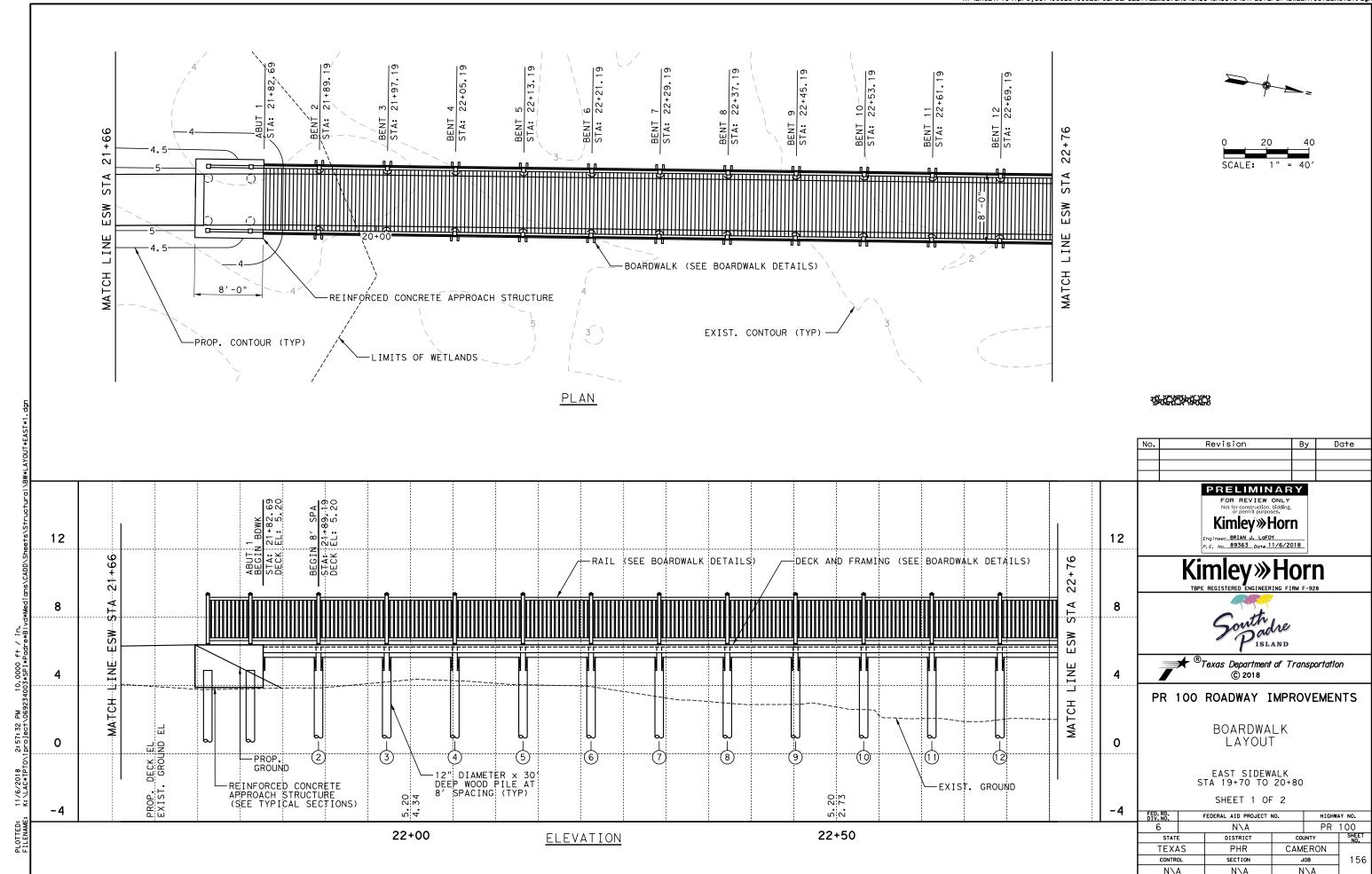
Invert

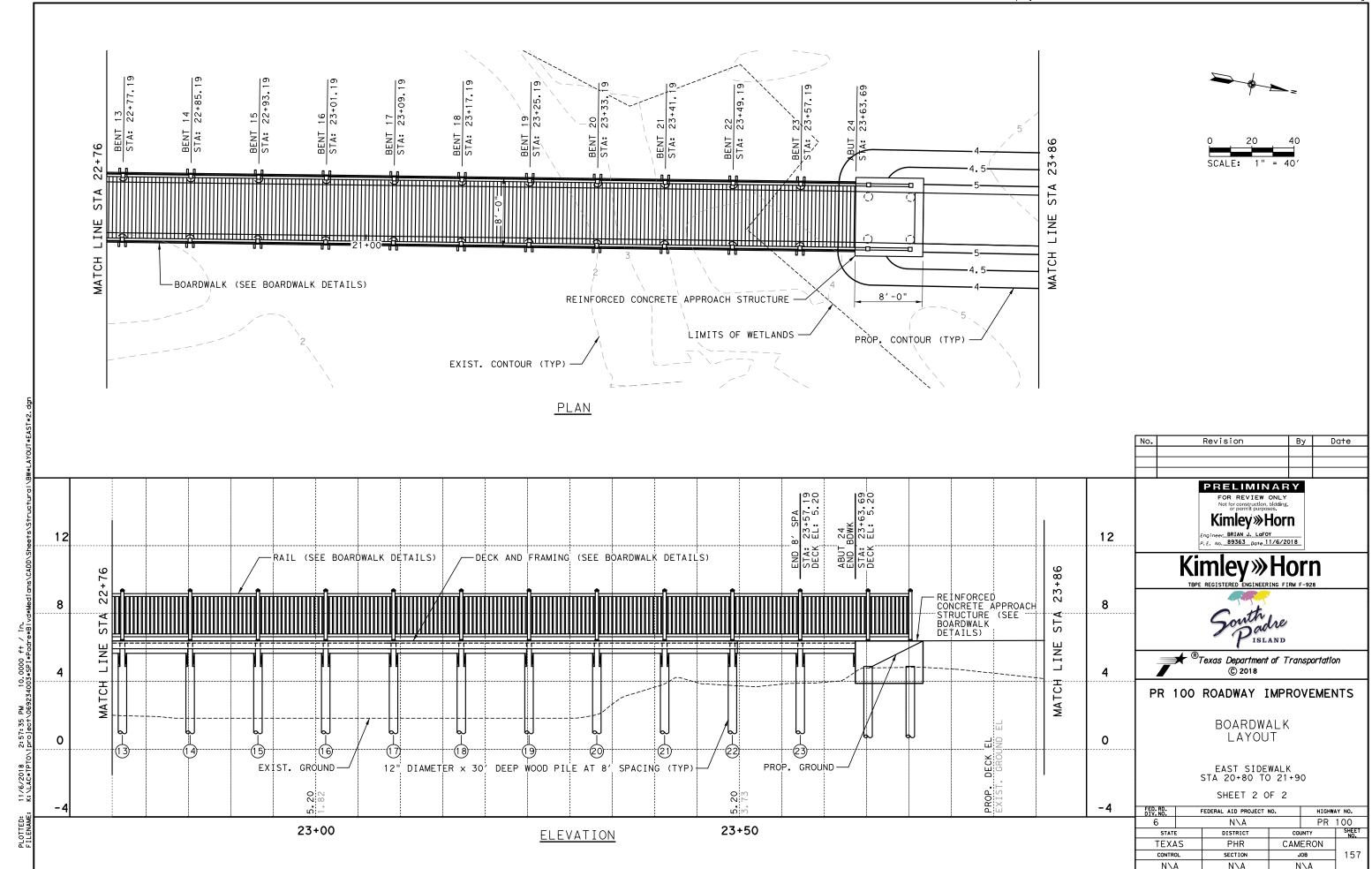
© Pipe support post (post to be same

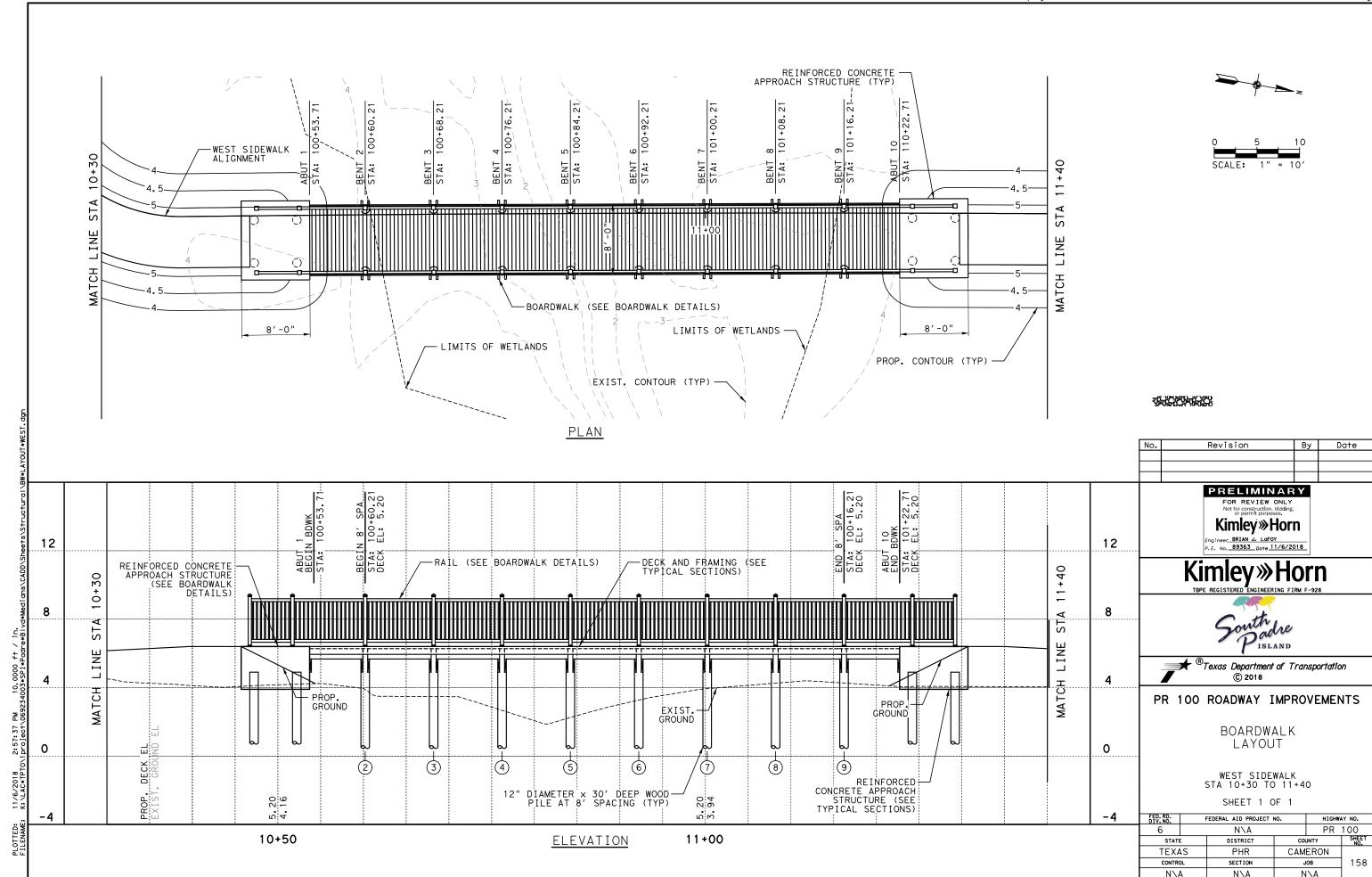
liameter as safety pipe runner and

MULTIPLE PIPE INSTALLATION

fitted in a formed pocket)







#### STRUCTURAL NOTES:

#### DESIGN CRITERIA

LIVE LOAD: 100 PSF

WIND LOAD: BASED ON ASCE 7-10 REQUIREMENTS FOR 150 MPH WIND

IMPORTANCE FACTOR: 1.00

EXPOSURE FACTOR: D

SURFACE ROUGHNESS: D
DESIGN CODES ARE AS FOLLOWS:
-INTERNATIONAL BUILDING CODE, IBC 2015
-ASCE 7-10, MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES WITH SUPPLEMENT NO. 1

-ACI 318-14, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE -ANSI/AWC NDS 2015, NATIONAL DESIGN SPECIFICATION (NDS) FOR WOOD CONSTRUCTION WITH 2015 NDS SUPPLEMENT

REFERENCE STANDARDS ARE AS FOLLOWS:

-CRSI HANDBOOK, 1990 -AASHTO 1996 STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SIXTEENTH EDITION

#### TIMBER NOTES

PRIOR TO PILE PLACEMENT, THE CONTRACTOR SHALL PROVIDE THE ENGINEER DATA REGARDING THE PROPOSED HAMMER AND CUSHION SYSTEM.
PILES SHALL BE ASTM D-25, CLASS "C" TREATED, PEELED SOUTHERN YELLOW PINE OR DOUGLAS FIR. PILES SHALL BE CREOSOTED ACCORDING TO AWPA MANUAL STANDARDS C-3 WITH A MINIMUM RETENTION OF 12 POUNDS PER CUBIC FOOT.

PILES SHALL HAVE A MINIMUM BUTT DIAMETER OF 12 INCHES AND A MINIMUM TIP DIAMETER

OF 8 INCHES.
AN 8" DIAMETER PILOT HOLE MAY BE DRILLED TO A DEPTH OF 5 FEET ABOVE THE FINAL TIP ELEVATION TO FACILITATE PILE DRIVING. JETTING ALONG SIDE OF PILES IS NOT PERMITTED. ADEQUATE CUSHING MATERIAL SHALL BE PROVIDED BETWEEN PILE DRIVER CAP AND THE PILE HEAD. A SOFTWOOD CUSHION WITH A THICKNESS OF 6 TO 12 INCHES IS PREFERRED. THE PILE DRIVING HELMET OR CAP SHALL BE SUFFICIENTLY LOOSE AROUND THE PILE BUTT SO AS NOT TO DEVELOP TORSIONAL STRESSES IN THE PILE DURING INSTALLATION; HOWEVER, THE HELMET SHOULD BE CAPABLE OF CONTROLLING PILE ALIGNMENT. THE ENTIRE HAMMER-CUSHION-PILE SYSTEM SHOULD BE COMPATIBLE AND CAPABLE OF DRIVING PILES TO THE DESIGN PENETRATIONS WITHOUT DAMAGING PILES. BLOW COUNTS CONSISTENTLY IN EXCESS OF 50 BLOWS/FOOT SHALL NOT BE ALLOWED. PILES SHALL BE PROPERLY ALIGNED PRIOR TO DRIVING AND HELD WITH FIXED LEADS. REALIGNMENT ONCE DRIVING HAS COMMENCED IS NOT PERMITTED.

ROUGH CARPENTRY SHALL COMPLY WITH THE PROVISIONS OF THE 2015 EDITION OF THE

ROUGH CARPENTRY SHALL CUMPLY WITH THE PROVISIONS OF THE 2013 EDITION OF THE INTERNATIONAL BUILDING CODE.

ALL LUMBER USED FOR LOAD SUPPORTING PURPOSES SHALL BE IDENTIFIED BY THE GRADE MARK OF AN APPROVED LUMBER GRADING OR INSPECTION BUREAU OR AGENCY.

ALL LUMBER SHALL BE PRESERVATIVELY TREATED AND SHALL BEAR AN APPROVED AWPB QUALITY MARK. THE QUALITY MARK SHALL BE ON A STAMP OR LABEL AFFIXED TO THE PRESERVATIVE-TREATED WOOD AND SHALL INCLUDE THE FOLLOWING INFORMATION. IDENTIFICATION OF TREATING MANUFACTURER

TYPE OF PRESERVATIVE USED.

C. MINIMUM PRESERVATIVE RETENSION (PCF).
D. END USE FOR WHICH THE PRODUCT IS TREATED.
E. AWPA STANDARD TO WHICH THE PRODUCT WAS TREATED.
F. IDENTITY OF THE ACCREDITED INSPECTION AGENCY.

12. FRAMING LUMBER MOISTURE CONTENT SHALL NOT EXCEED 19 PERCENT AT TIME OF INSTALLATION.

13. MATERIALS

FRAMING LUMBER

<u>USE ITEM</u> BEAMS, STRINGERS, LUMBER SPECIES SOUTHERN PINE DECKING 2×6 COMPOSITE

MINIMUM GRADE SEE MANUFACTURER REQUIREMENTS

B. FASTENERS

BOLTS AND ALL OTHER FASTENERS SHALL BE STAINLESS STEEL

14. VERTICAL FRAMING MEMBERS SHALL BE CONTINUOUS LENGTH WITHOUT SPLICING. SPLICES IN HORIZONTAL MEMBERS SHALL OCCUR ONLY OVER BEARING POINTS. LAP MEMBERS WHICH BEAR ON PLATES TO PROVIDE FULL BEARING FOR EACH MEMBER.

15. STRUCTURAL MEMBERS HAVING IMPROPER CUTTING, DRILLING, OR EXCESSIVE DEFECTS SHALL BE REPLACED OR REINFORCED IN A MANNER ACCEPTABLE TO THE ENGINEER.

16. PROVIDE SOLID BLOCKING BETWEEN FLOOR JOIST AT BEARING LOCATIONS AND AT MID OPENING OF SPANS GREATER THAN 8'-0" OR AS NOTED. BLOCKING TO MATCH SIZE OF FRAMING MEMBER.

17. ALL METAL HANGERS, ETC., SHALL BE STAINLESS STEEL. 18. ALL TIMBER PRODUCTS SHALL BE SUBMITTED FOR ENGINEER APPROVAL.

#### FOUNDATION NOTES

FOUNDATION SYSTEM: TIMBER PILES

TIMBER PILES SHALL HAVE A MINIMUM EMBEDMENT OF 30 FEET BELOW THE PROPOSED SAND DUNE FINISH GRADE

EXCAVATION, COMPACTION, AND BACKFILL SHALL BE IN ACCORDANCE WITH GEOTECHNICAL BY TERRACON REPORT NO. 88175108 DATED FEBRUARY 26, 2018.

#### CONCRETE NOTES

ALL CONCRETE SHALL BE DESIGNED, MIXED, TRANSPORTED, AND PLACED IN ACCORDANCE WITH TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT) STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MAINTENANCE OF HIGHWAYS, STREETS, AND BRIDGES, 2014, AND THE LATEST EDITION OF ACI 318.

LATEST EDITION OF ACI 318.

CONCRETE MIX DESIGN SHALL BE IN ACCORDANCE WITH TXDOT ITEM 421, HYDRAULIC CEMENT CONCRETE. CONTRACTOR SHALL SUBMIT ALL MIX DESIGNS FOR APPROVAL PRIOR TO CONSTRUCTION. CONCRETE FOR STRUCTURES SHALL BE CLASS S AND HAVE A MINIMUM 28-DAY COMPRESSION STRENGTH OF 4,000 PSI.

ALL REINFORCING STEEL SHALL BE ASTM A-615 GRADE 60 IN ACCORDANCE WITH TXDOT ITEM 440, REINFORCING STEEL. CONTRACTOR SHALL SUBMIT CERTIFICATION FOR REINFORCING STEEL. REINFORCING PLACEMENT SHALL BE IN ACCORDANCE WITH ACI 318. CHAMFER ALL EXPOSED CONCRETE EDGES 3/4 "UNLESS OTHERWISE NOTED.

ALL REINFORCING CLEAR COVER SHALL BE 2" WHEN FORMED AND 3" WHEN CAST AGAINST EARTH INN ESS OTHERWISES NOTED.

EARTH UNLESS OTHERWISE NOTED.

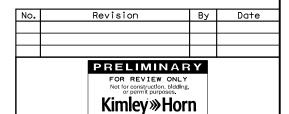
ALL REINFORCING DIMENSIONS ARE TO OUTSIDE OF BAR UNLESS OTHERWISE NOTED.

#### COMPOSITE DECKING MATERIAL

- NOMINAL SIZE OF COMPOSITE DECKING MATERIAL FOR DECKING PLANKS SHALL BE 2"x6" BOARD.
- 2. COMPOSITE DECKING BOARD MANUFACTURED BY TREX COMPANY. INC.. OR EQUIVALENT COMPOSITE DECKING BOARDS MAY BE USED SUBJECT TO REVIEW AND EVALUATION OF THE

COMPOSITE DECKING SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS, PROCEDURES, AND REQUIREMENTS.
BOARDWALK TREX DECKING COLOR SHALL BE GRAVEL PATH. BOARDWALK TREX RAILING COLOR SHALL BE GRAVEL PATH WITH THE RAILING CAP POINTED TYPE.
ALL FASTENERS SHALL BE MADE OF STAINLESS STEEL.
DECKING SHALL BE DESIGNED AND INSTALLED TO LIMIT BENDING DEFLECTION UNDER TOTAL LOAD TO LESS THAN OR EQUAL TO L/360. DESIGN LIVE LOAD IS 100 PSF.
THE CONTRACTOR AND MANUFACTURER SHALL SUBMIT TO THE ENGINEER THE FOLLOWING FOR REVIEW AND EVALUATION."

REVIEW AND EVALUATION" PRODUCT DATA INCLUDING SPECIFICATIONS, PRODUCT HANDLING, AND INSTALLATION INSTRUCTION.





Engineer BRIAN J. LaFOY
P.E. No. 89363 Date 11/6/2018





#### PR 100 ROADWAY IMPROVEMENTS

BOARDWALK NOTES

SHEET 1 OF 1

	AY NO.	HIGHWA	FED.RD. DIV.NO.			
	100	PR	N\A PR			
ET .	SHEET NO.	COUNTY		DISTRICT	Ē	STATI
		CAMERON		PHR	\S	TEXA
59	159	JOB		SECTION	CONTROL	
	I	N\Δ		N/A	^	N/

FED. RD. DIV. NO.

6

STATE

TEXAS

CONTROL

N\A

FEDERAL AID PROJECT NO.

N\A

DISTRICT

PHR

SECTION

N\A

Ву

Date

HIGHWAY NO. PR 100

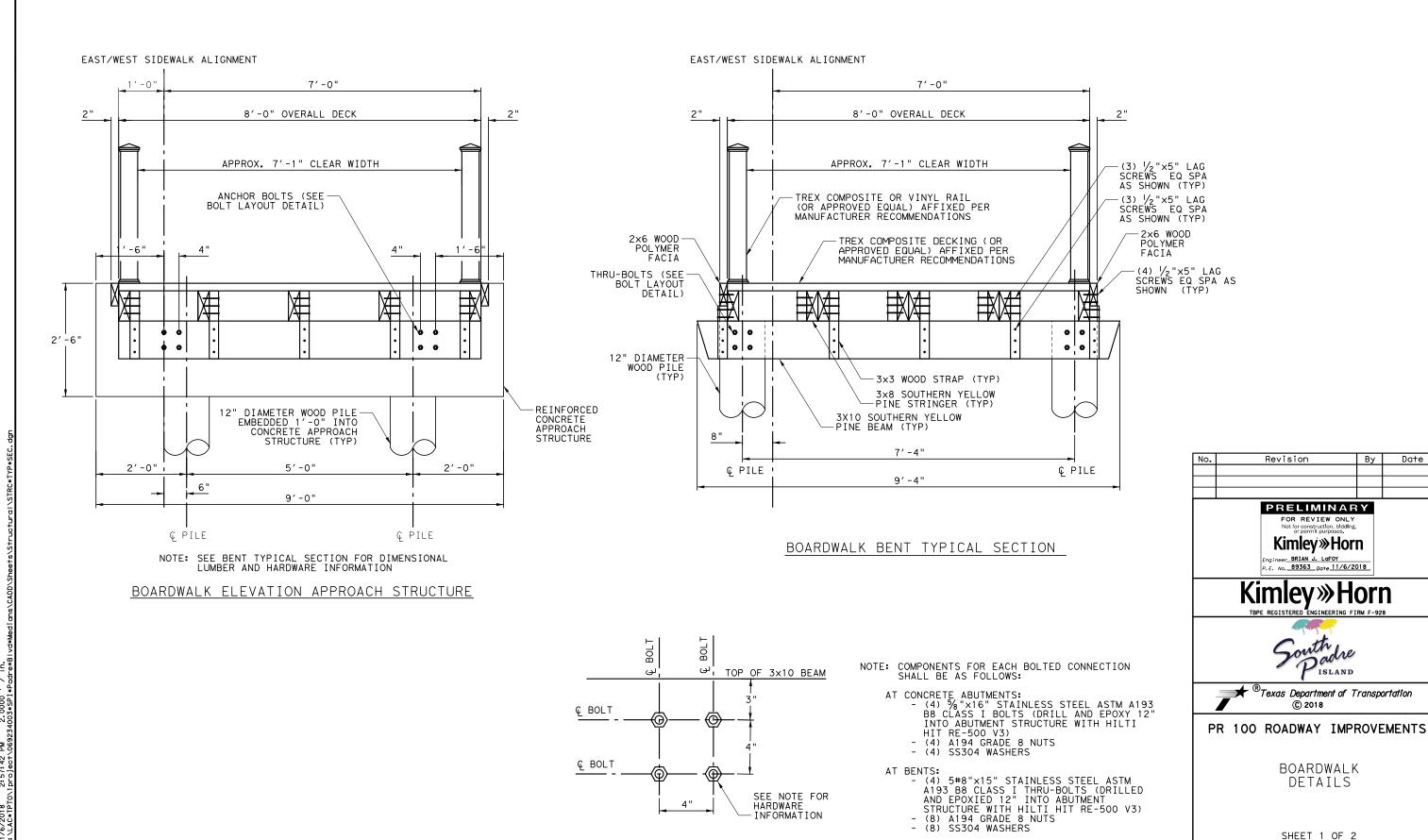
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COUNTY

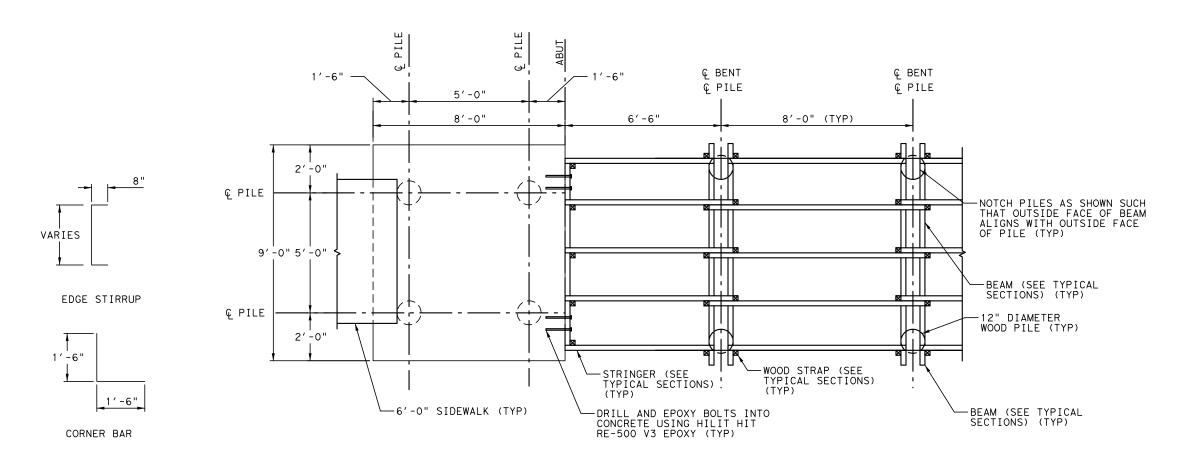
JOB

N\A

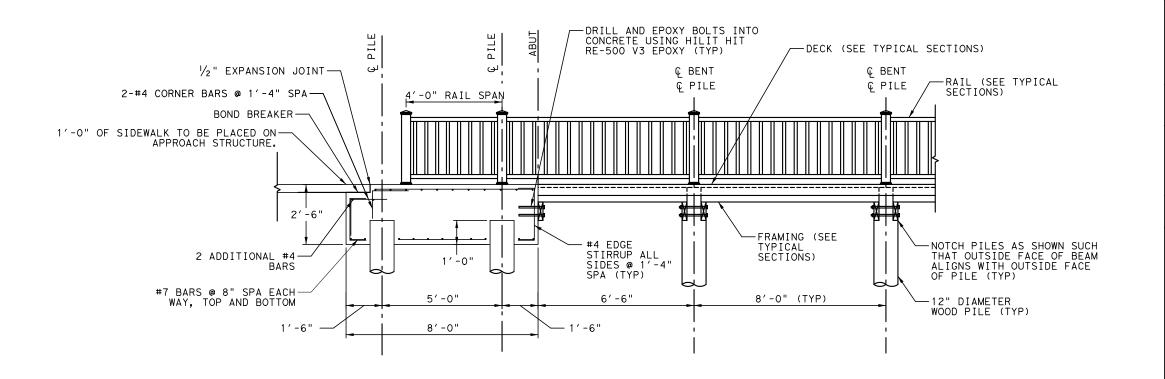
CAMERON



BOLT LAYOUT DETAIL



#### BOARDWALK FRAMING PLAN



BOARDWALK ELEVATION

I No. I	Revision	l D	Data		
No.	Revision	Ву	Date		
	FOR REVIEW ON Not for construction, bid or permit purposes.  Kimley >>> Hot Engineer_BRIAN_J. LofoY P. E. No. 89363_ Date 11/	orn			
Kimlev»Horn					







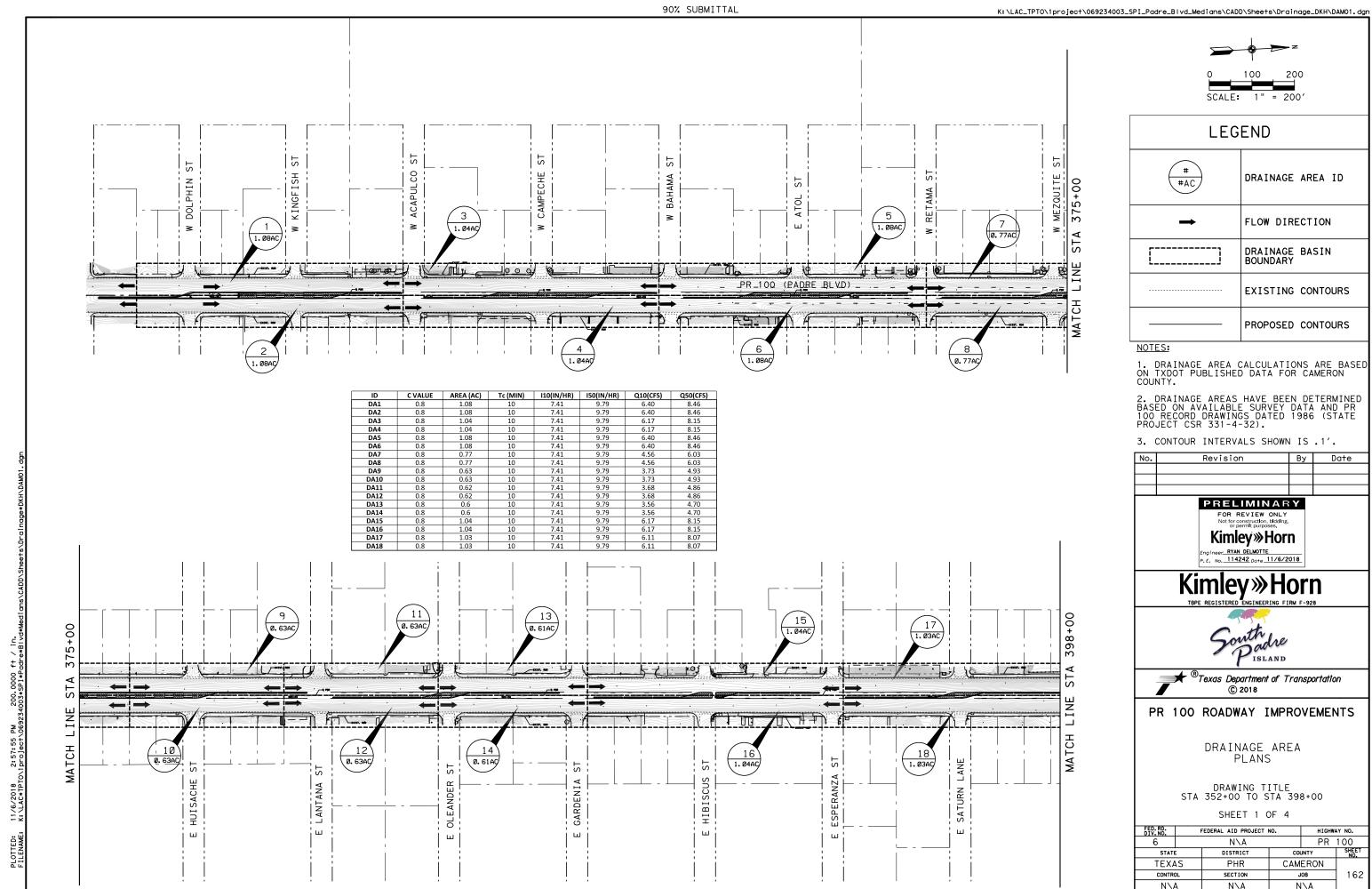
### PR 100 ROADWAY IMPROVEMENTS

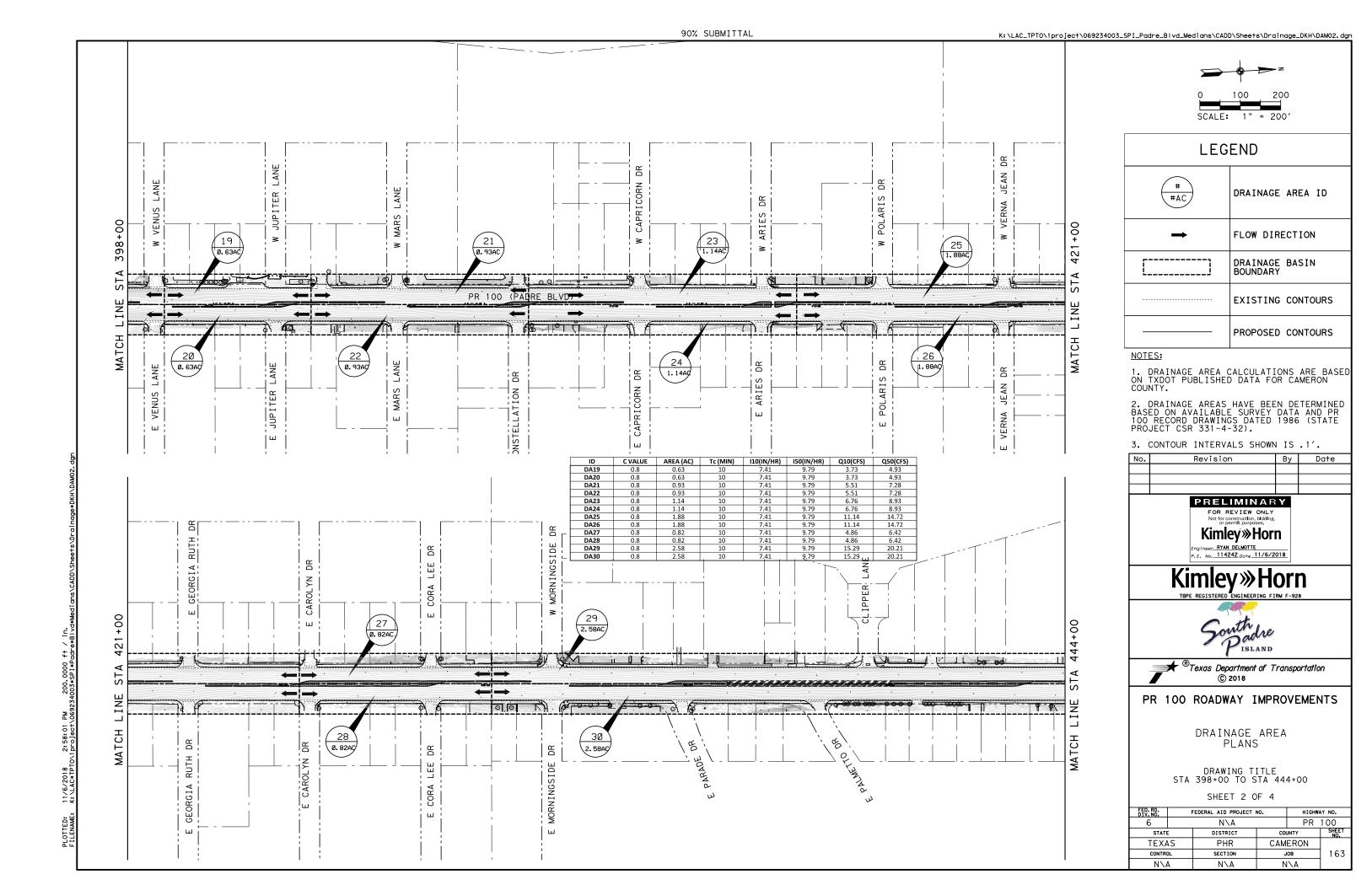
BOARDWALK DETAILS

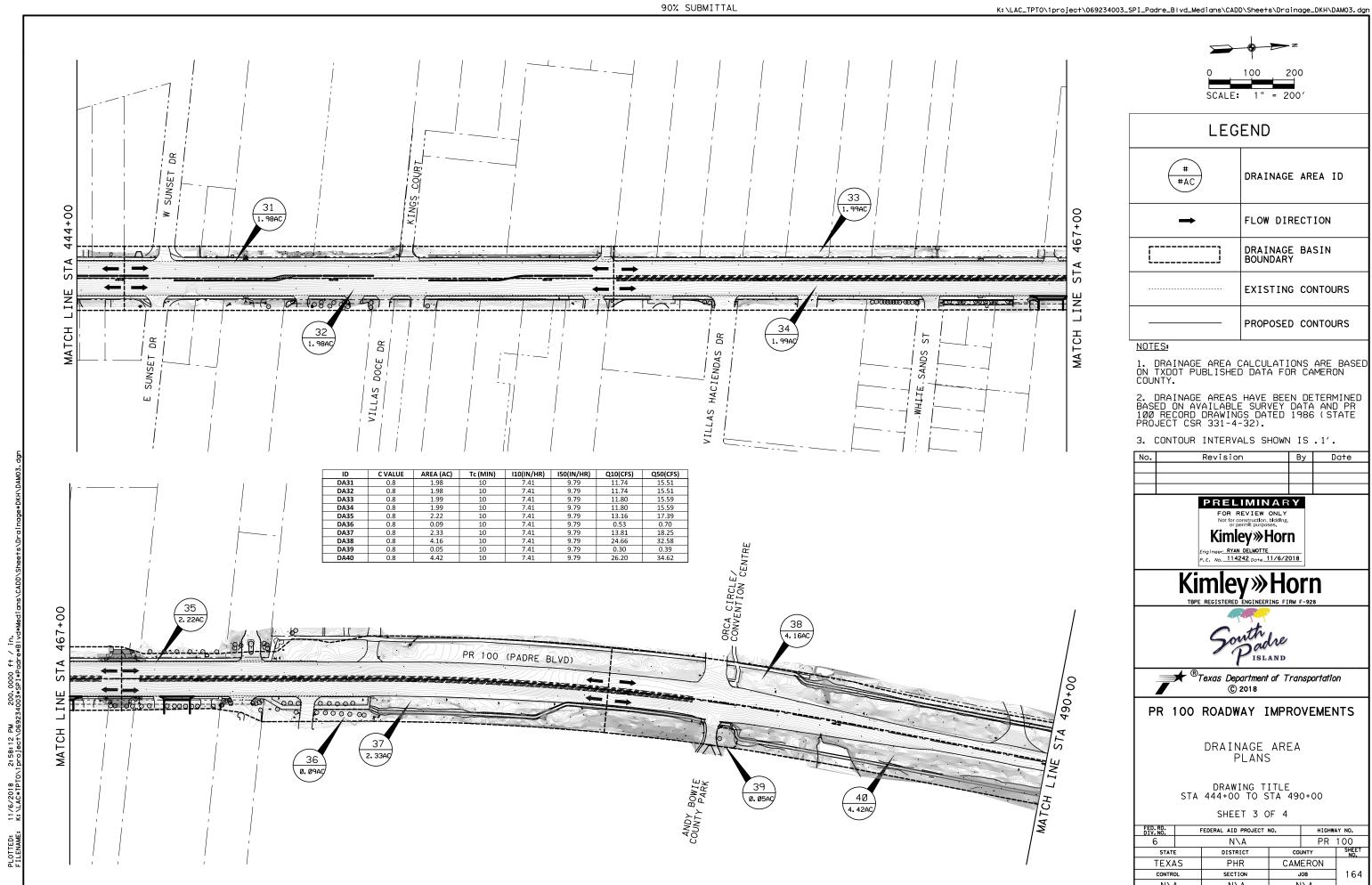
SHEET 2 OF 2

FED. RD. DIV. NO.	- 1	Y NO.			
6		N\A PR			100
STATE		DISTRICT	COUNTY		SHEET NO.
TEXA	\S	PHR	CAMERON		
CONTROL SECTION JOI		ЮВ	161		
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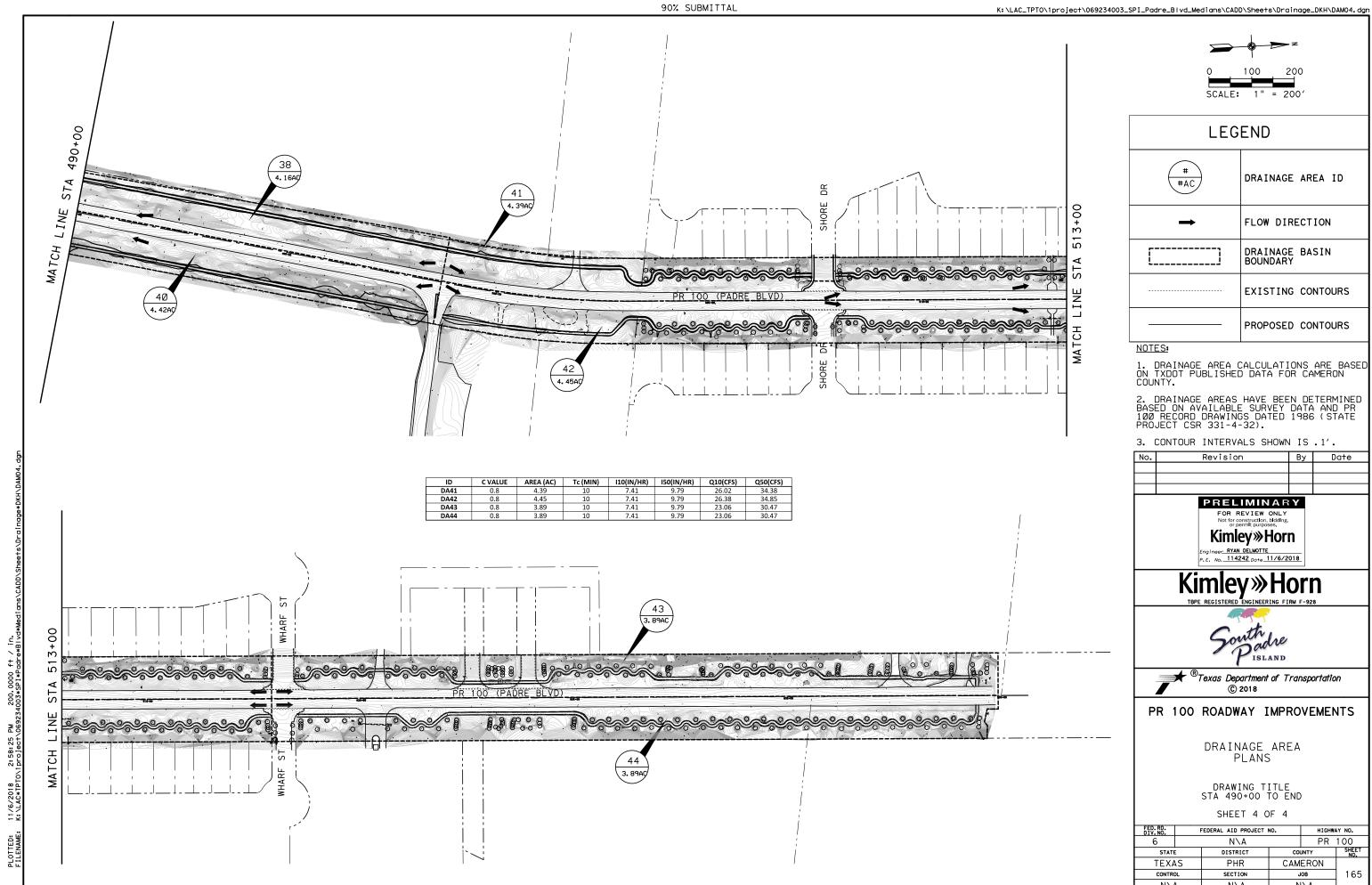






#AC	DRAINAGE AREA ID
<b>→</b>	FLOW DIRECTION
	DRAINAGE BASIN BOUNDARY
	EXISTING CONTOURS
	PROPOSED CONTOURS

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.			HIGHWAY NO.		
6	N\A			PR	100	
STATE		DISTRICT	COUNTY		SHEET NO.	
TEXA	\S	PHR	CAMERON			
CONTROL		SECTION	JOB		164	
N\A	4	N∖A	N	N\A		



#AC	DRAINAGE AREA ID
<b>→</b>	FLOW DIRECTION
	DRAINAGE BASIN BOUNDARY
	EXISTING CONTOURS
	PROPOSED CONTOURS

No.	Revision	Ву	Date
	PRELIMINAR	Y	
	FOR REVIEW ONLY		

FED. RD. DIV. NO.	- 1	EDERAL AID PROJECT	HIGHWAY NO.		
6		N\A	PR	100	
STATE		DISTRICT	COUNTY		SHEET NO.
TEXA	4S	PHR	CAMERON		
CONTROL		SECTION	JOB		165
N\A	4	N\A	N	N∖A	

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Kind is made by IXDOI for any purpose
of this standard to other formats or t

SIGNS SUMMARY OF SMALL SM RD SGN ASSM TY XXXXX (X) (X-XXXX)BRIDGE MOUNT CLEARANCE POST TYPE POSTS ANCHOR TYPE MOUNTING DESIGNATION SIGNS SHEET SIGN SIGN PREFABRICATED | 1EXT or 2EXT = # of Ext UA=Universal Conc DIMENSIONS (See SIGN NO. NO. NOMENCLATURE FRP = Fiberglass UB=Universal Bolt Note 2) BM = Extruded Wind Beam TWT = Thin-Wall SA=Slipbase-Conc WC = 1.12 #/ft Wing P = "Plain" 10BWG = 10 BWG TY = TYPE SB=Slipbase-Bolt T = "T" Channe I S80 = Sch 80 WS=Wedge Steel U = "U" EXAL = Extruded Alum Sign TY N WP=Wedge Plastic Panels TY S SHEET 1 OF 3 SEE PEDESTRIAN SIGN CROSSING DETAIL (DOUBLE SIDED) 12"X36" R1-6 169 2 R1-6 12"X36" N/A\* STATE  $\overline{\nabla}$ SEE PEDESTRIAN SIGN CROSSING DETAIL R1-6 (DOUBLE SIDED) 12"X36" N/A\* 171 2 R1-6 12"X36" N/A\* WITHIN CROSSWALK STATE SEE PEDESTRIAN SIGN CROSSING DETAIL (DOUBLE SIDED) 172 R1-6 12"X36" N/A\* 172 12"X36" 2 R1-6 N/A\* WITHIN 172 R6-1R 36"X12" S80 SA 172 R6-1R 36"X12" S80 SA 4 173 R6-1R 36"X12" SA S80 173 R6-1R 36"X12" SA 2 S80 173 R6-1R 36"X12" S80 SA 3 1 173 4 R6-1R 36"X12" S80 1 SA 174 R6-1R 36"X12" S80 SA 174 2 R6-1R 36"X12" S80 1 SA ONE WAY 174 3 R6-1R 36"X12" S80 SA 4 36"X12" S80 1 SA 174 R6-1R 175 36"X12" S80 SA 175 36"X12" S80 SA 175 3 36"X12" S80 SA 175 4 R6-1R 36"X12" S80 SA 176 R6-1R 36"X12" S80 SA ONE WAY 176 2 R6-1R 36"X12" S80 1 SA P 176 3 R6-1R 36"X12" S80 SA 176 4 R1-1 R3-5R UNDERNEATH R1-1 30"X30" S80 SA R3-5R 176 4 30"X36" S80 SA S80 177 R6-1R 36"X12" SA 177 2 R6-1R 36"X12" S80 SA 3 177 R6-1R 36"X12" S80 SA 177 4 36"X12" 1 R6-1R S80 SA Р ;; R6-1R 36"X12" S80 SA 178 178 2 R6-1R 36"X12" S80 SA 178 3 36"X12" R6-1R S80 SA 178 R6-1R 36"X12" S80 SA 178 R6-1R 36"X12" S80 SA 178 R6-1R 36"X12" S80 SA



ALUMINUM SIGN BI	ANKS THICKNESS
Square Feet	Minimum Thickness
Less than 7.5	0.080"
7.5 to 15	0.100"
Greater than 15	0.125"

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.

http://www.txdot.gov/

#### NOTE:

- 1. Sign supports shall be located as shown on the plans, except that the Engineer may shift the sign supports, within design guidelines, where necessary to secure a more desirable location or to avoid conflict with utilities. Unless otherwise shown on the plans, the Contractor shall stake and the Engineer will verify all sign support locations.
- For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS) Standard Sheet.
- For Sign Support Descriptive Codes, SEE Sign Mounting Details Small Roadside Signs General Notes & Details SMD(GEN).
- 4. SEE TRAFFIC SIGNAL CHARTS SHEET FOR SIGNS MOUNTED ON TRAFFIC SIGNAL
- 5. SIGNS ON LED WARNING SIGN ASSEMBLIES NOT QUANTIFIED WITH SOSS.
- \*SEE SIGN DETAIL IN PLANS FOR MORE
  INFORMATION ABOUT BASE AND MOUNTING DETAILS.



Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS (PROPOSED)

SHEET 1 OF 3

SOSS

ILE:	sums16.dgn	DN: Tx	DOT	ck: TxDOT	DW:	T×DOT	ck: TxDOT
TxDOT	May 1987	CONT	SECT	JOB		н	I GHWAY
	REVISIONS	N\A	N\A	N\A		PR 100	
1-16 3-16		DIST		COUNTY			SHEET NO.
, . 0		PHR		CAMER	NC		166

18

			SUMMARY	OF SN	_							
				SM RD SGN ASSM TY XXXXXX (X)	SM RD SGN ASSM TY XXXXX (X)					BRIDGE MOUNT CLEARANCE		
PLAN	CZON	C.T.ON			=	=	POST TYPE	POSTS	ANCHOR TYPE	MOUN	TING DESIGNATION	SIGNS
SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	ALUMINUM	ALUMINUM	FRP = Fiberglass		UB=Universal Bolt		) 1EXT or 2EXT = # of Ext BM = Extruded Wind Beam	(See Note 2)
							TWT = Thin-Wall 10BWG = 10 BWG	1 or 2	SA=Slipbase-Conc SB=Slipbase-Bolt	P = "Plain" T = "T"	WC = 1.12 #/ft Wing Channel	TY = TYPE
					FLAT	EXAL			WS=Wedge Steel WP=Wedge Plastic	U = "U"	EXAL= Extruded Alum Sign Panels	TY N TY S
SHEET	2 OF	3				Ė						
179	1	R6-1R	ONE WAY	36"X12"	~		\$80	1	SA	P		
						F						
179	2 -	R4-7	CENTER LANE (BACK-TO-BACK)	24"X30" —	~	+	\$80	1	SA	P		
		R3-9b	SOUTHBOUND NORTHBOUND	24"X36" —								
179	3 —	R4-7	CENTER (BACK-TO-BACK)	24"X30" —	~		\$80	1	SA	Р		
		R3-9b	NORTHBOUND SOUTHBOUND	24"X36" —								
			GENTER LANE			F						
181	1	R3-9b	ONLY	24"X36"	~		\$80	1	SA	Р		
181	2	R4-7	<b>V</b> 2	24"X30"	~	,	\$80	1	SA	P		
181	3	R3-8MOD	<u>~ ^ ^</u>	42"X30"			\$80	1	SB	P		
181	4	R3-9b	CENTER LANE LANE ONLY	24"X36"	~	1	\$80	1	SA	P		
			ONLY			+						
182	1	R3-8MOD	NICY THE STATE OF	42"X30"	~	_	\$80	1	SB	P		
						F						
182	2	R3-9b	CENTER LANE	24"X36"	~		\$80	1	SA	Р		
			ONLY			+						
			GENTER									
182	3	R3-9b	CENTER LANE ONLY	24"X36"	\ <u>\</u>	1	\$80	1	SA	Р		
			ONLY		$\vdash$	+						



ALUMINUM SIGN BI	ANKS THICKNESS
Square Feet	Minimum Thickness
Less than 7.5	0.080"
7.5 to 15	0.100"
Greater than 15	0.125"

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- 4. SEE TRAFFIC SIGNAL CHARTS SHEET FOR SIGNS MOUNTED ON TRAFFIC SIGNAL



Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS (PROPOSED) SHEET 2 OF 3

SOSS

	•							
ILE:	sums16.dgn	DN: TxDOT		ck: TxDOT	ck: TxDOT Dw:		ck: TxDOT	
C) TxDOT	May 1987	CONT	CONT SECT JOB		HIGHWAY			
	REVISIONS	N\A	N\A	N\A		PF	100	
4-16 8-16		DIST		COUNTY			SHEET NO.	
0 .0		PHR	CAMERON			167		

OF SMALL SUMMARY SIGNS SM RD SGN ASSM TY XXXXX (X) (X-XXXX)BRIDGE (TYPE (TYPE MOUNT CLEARANCE PLAN POST TYPE POSTS ANCHOR TYPE MOUNTING DESIGNATION SIGNS SHEET SIGN SIGN UA=Universal Conc PREFABRICATED 1EXT or 2EXT = # of Ext DIMENSIONS (See SIGN NOMENCLATURE NO. NO. FRP = Fiberglass UB=Universal Bolt BM = Extruded Wind Beam Note 2) TWT = Thin-Wall SA=Slipbase-Conc WC = 1.12 #/ft Wing P = "Plain" 10BWG = 10 BWG SB=Slipbase-Bolt TY = TYPE Channe I T = "T" EXAL= Extruded Alum Sign S80 = Sch 80 WS=Wedge Steel U = "U" TY N WP=Wedge Plastic Panels TY S SHEET 3 OF 3 W11-2 36"X36"-169 SA 169 2 — S80 SA └ W16-7P 24"X12"<sup>□</sup> 36"X36"-W11-2 170 S80 SA 170 2 — S80 SA Ρ 24"X12" └ W16-7P 36"X36"-W11-2 171 S80 SA 171 2 — S80 SA 1 Ρ - W16-7P 24"X12" - W11-2 36"X36"-172 S80 SA 172 2 — SA S80 └ W16-7P 24"X12" 176 R1-1 30"X30" SA ä

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#### ALUMINUM SIGN BLANKS THICKNESS Minimum Thickness Sauare Feet Less than 7.5 0.080" 0.100" 7.5 to 15 Greater than 15 0.125"

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- 4. SEE TRAFFIC SIGNAL CHARTS SHEET FOR SIGNS MOUNTED ON TRAFFIC SIGNAL.



Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS (REMOVE) SHEET 3 OF 3

SOSS

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E:	sums16.dgn	DN: TxDOT		ck: TxDOT	DW:	TxDOT	ck: TxDOT
T×DOT	May 1987	CONT SECT		JOB		HIGHWAY	
	REVISIONS	N\A	I\A N\A N\A		Р	R 100	
16 16		DIST		COUNTY			SHEET NO.
		PHR		CAMER	ON		168

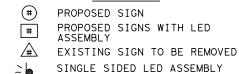


#### NOTES:

- 1.EXISTING SMALL SIGNS AND LARGE GUIDE SIGNS TO REMAIN UNLESS OTHERWISE NOTED IN THE SIGNING PLANS.
- 2. SEE PAVING PLAN, LANDSCAPE PLAN, TYPICAL SECTIONS LAYOUTS, AND PAVEMENT MARKING LAYOUTS FOR ADDITIONAL DETAILS.
- 3. SIGNS SHALL BE PLACED IN ROW. EDGE OF SIGNS SHALL NOT BE PLACED LESS THAN 2.0' FROM F.O.C. SIGN HEIGHT PLACEMENT SHALL FOLLOW ADA STANDARDS. SIGNS SHALL BE PLACED OUTSIDE OF SIDEWALK WHEN POSSIBLE, AND WHEN NOT POSSIBLE, SHALL BE PLACED IN SUCH A WAY TO MINIMIZE OBSTRUCTION TO PEDESTRIANS.

LEGEND

4. SEE TXDOT DETAILS FOR FURTHER CLARIFICATION TO SIGN PLACEMENT.

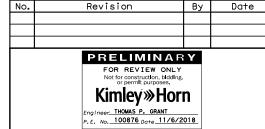


W/ PUSHBUTTON

DOUBLE SIDED LED ASSEMBLY

W/ PUSHBUTTON

SMALL ROADSIDE SIGN ASSEMBLY



## Kimley > Horn THPE REGISTERED ENGINEERING FIRM F-928





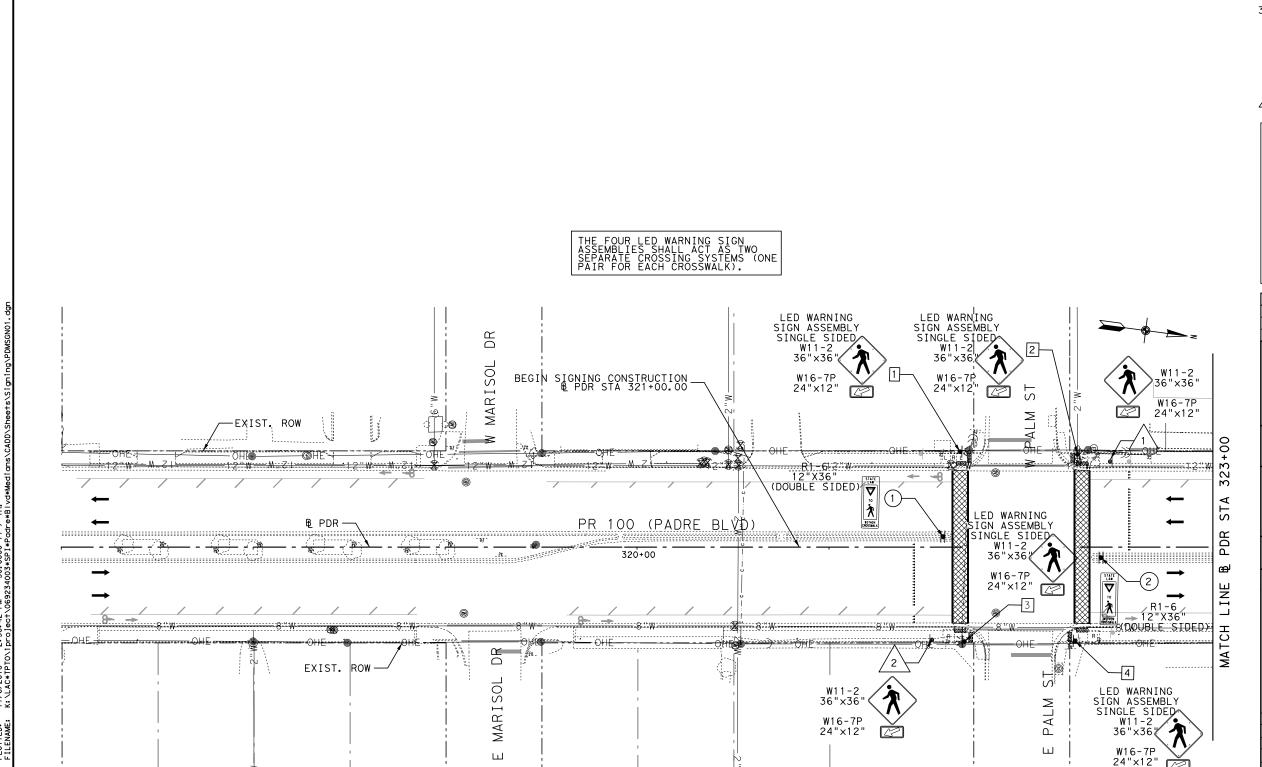
#### PR 100 ROADWAY IMPROVEMENTS

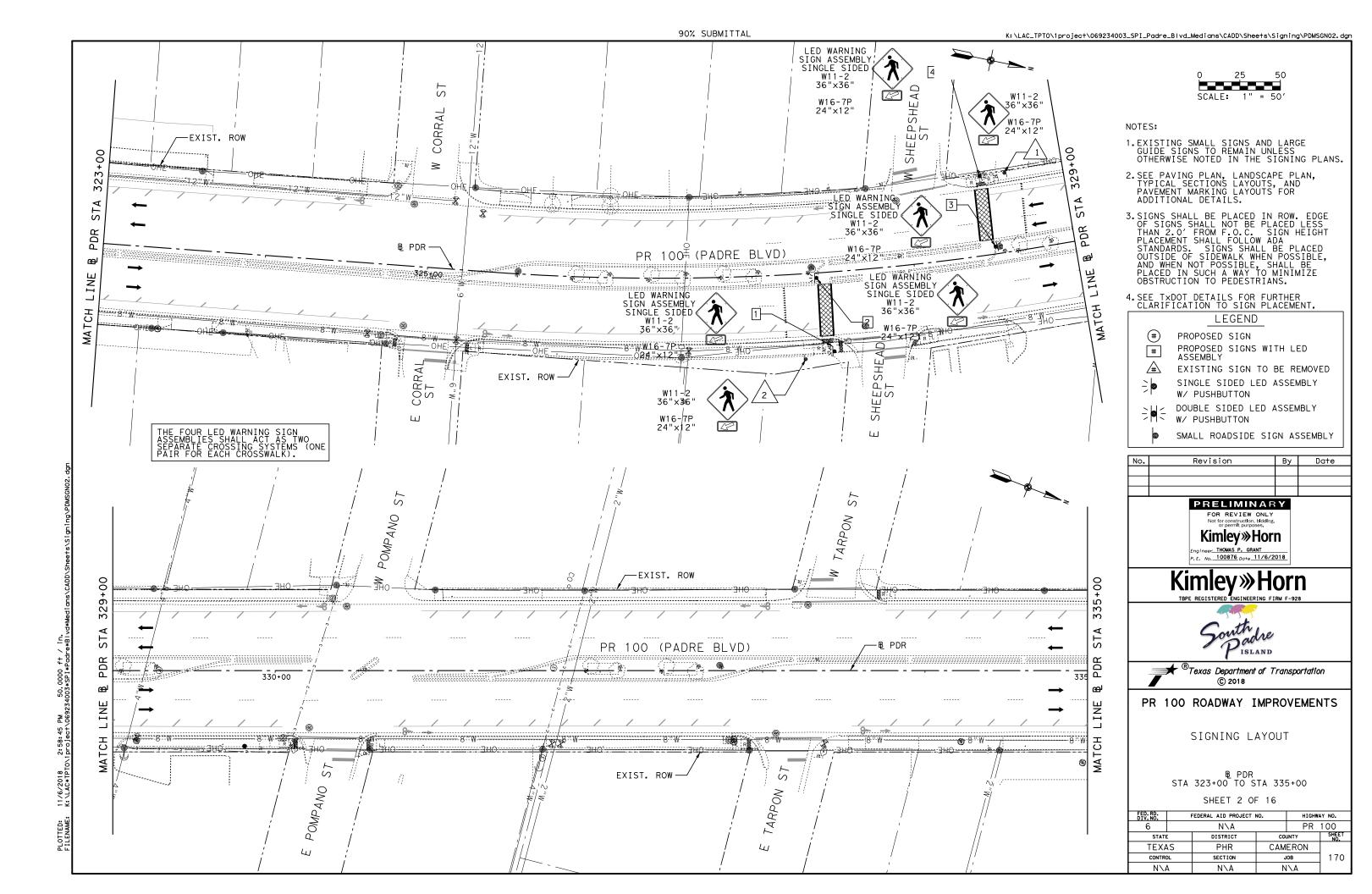
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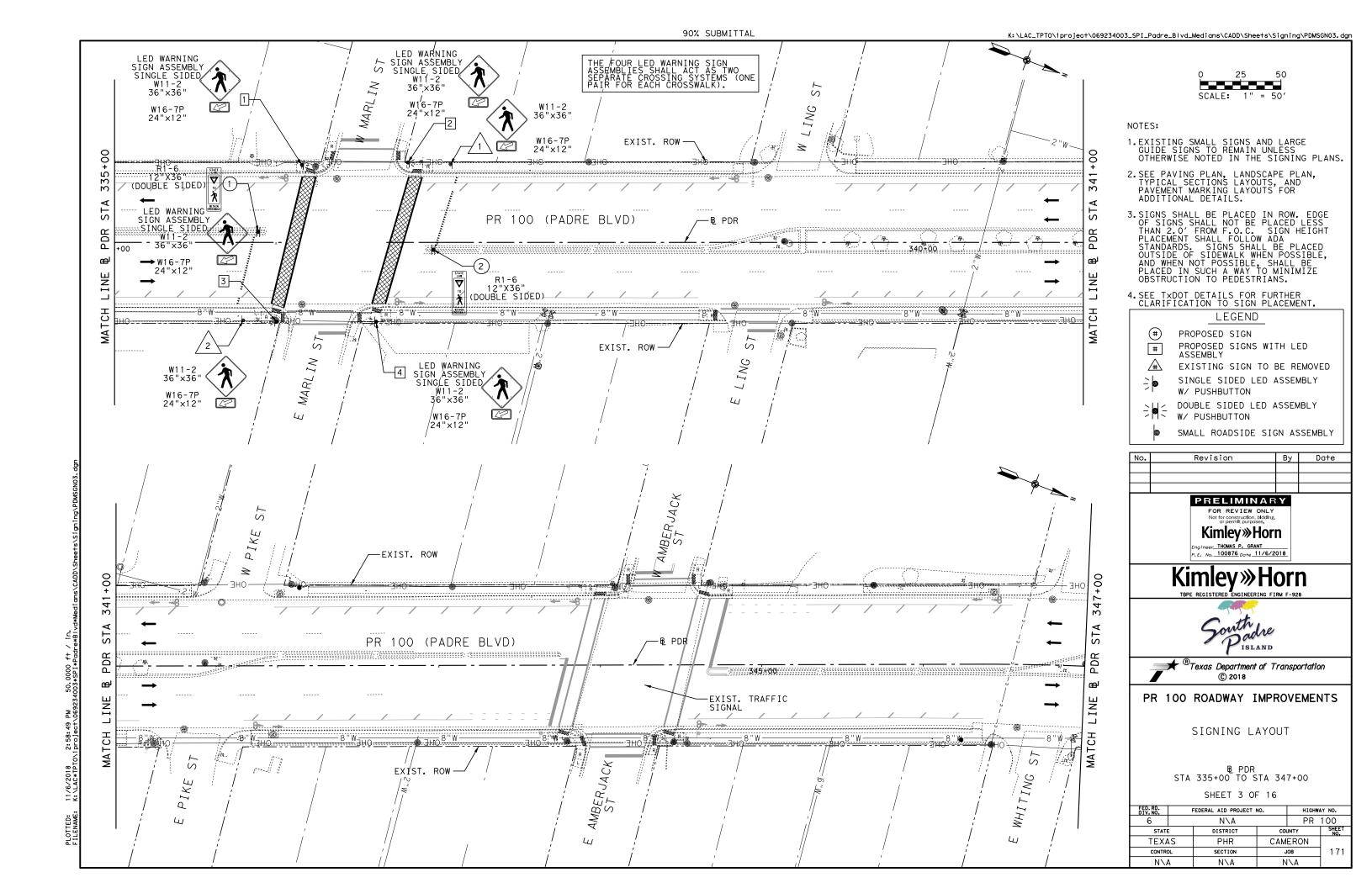
₽ PDR STA 311+00 TO STA 323+00

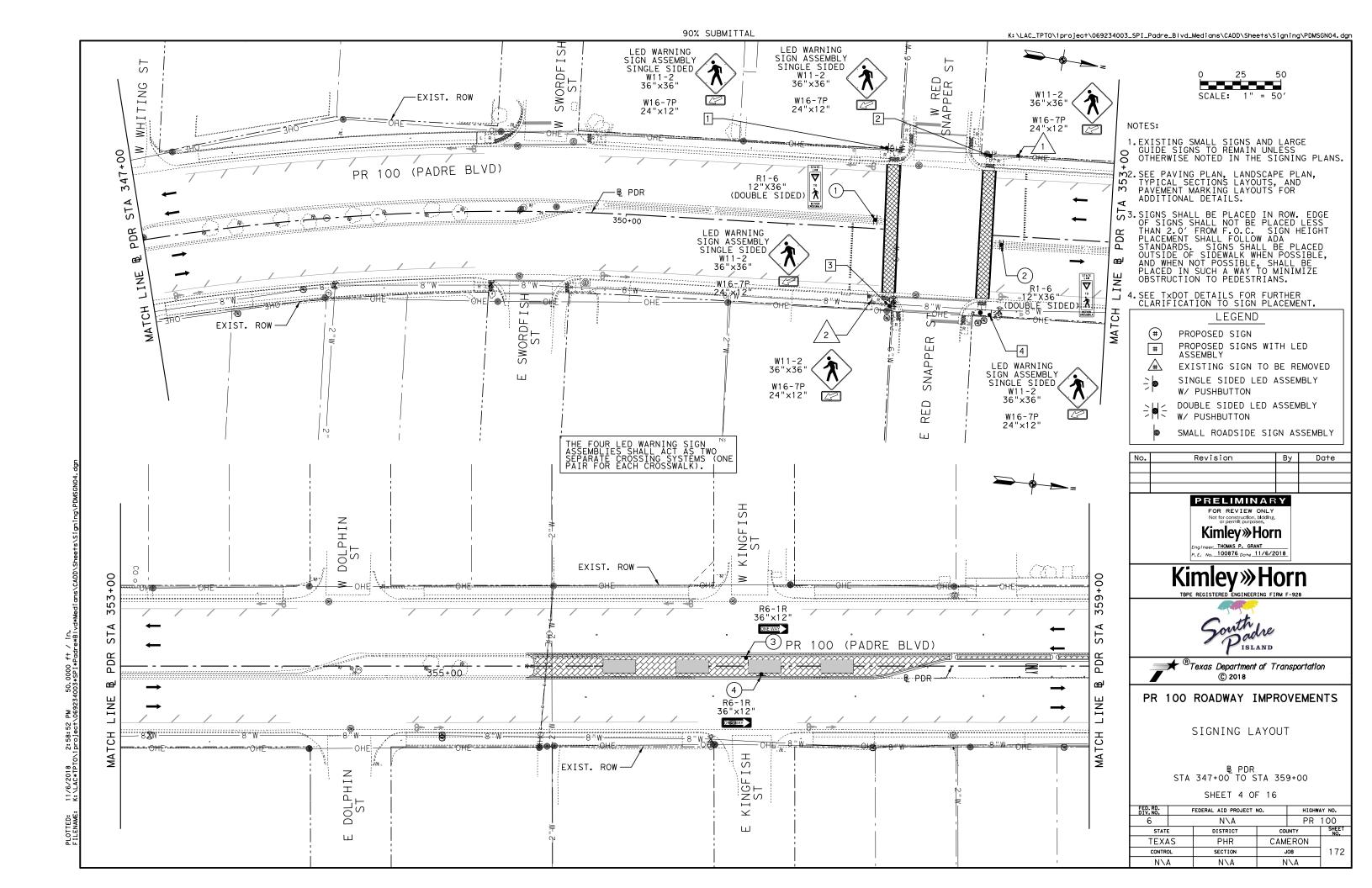
SHEET 1 OF 16

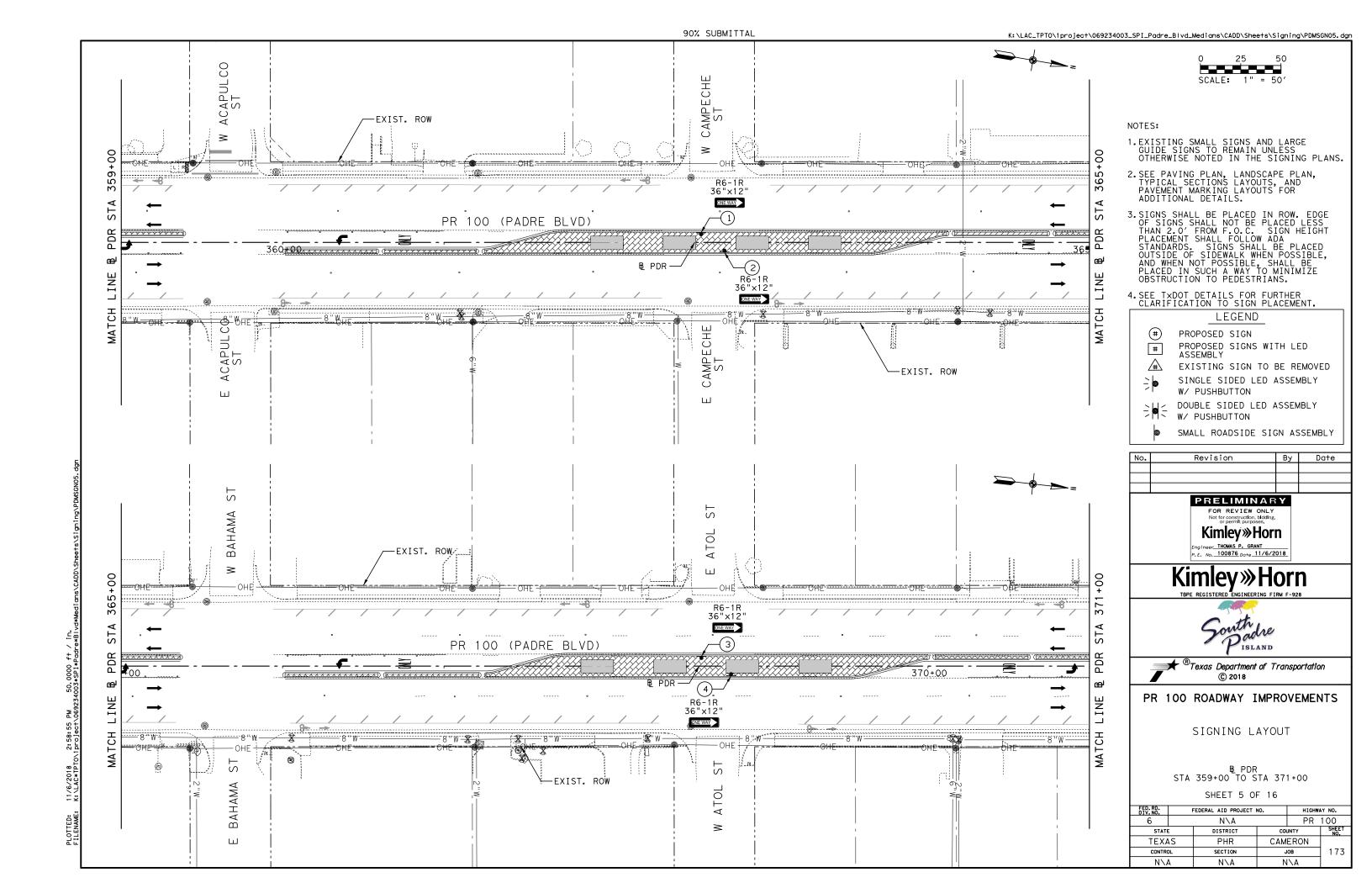
FED.RD. DIV.NO.	-	FEDERAL AID PROJECT	H I GHWA	Y NO.	
6		N\A	PR	100	
STATE		DISTRICT	COUNTY		SHEET NO.
TEXA	\S	PHR	CAMERON		
CONTRO	DL	SECTION	SECTION JOB		169
N\A	4	N\A N\A			

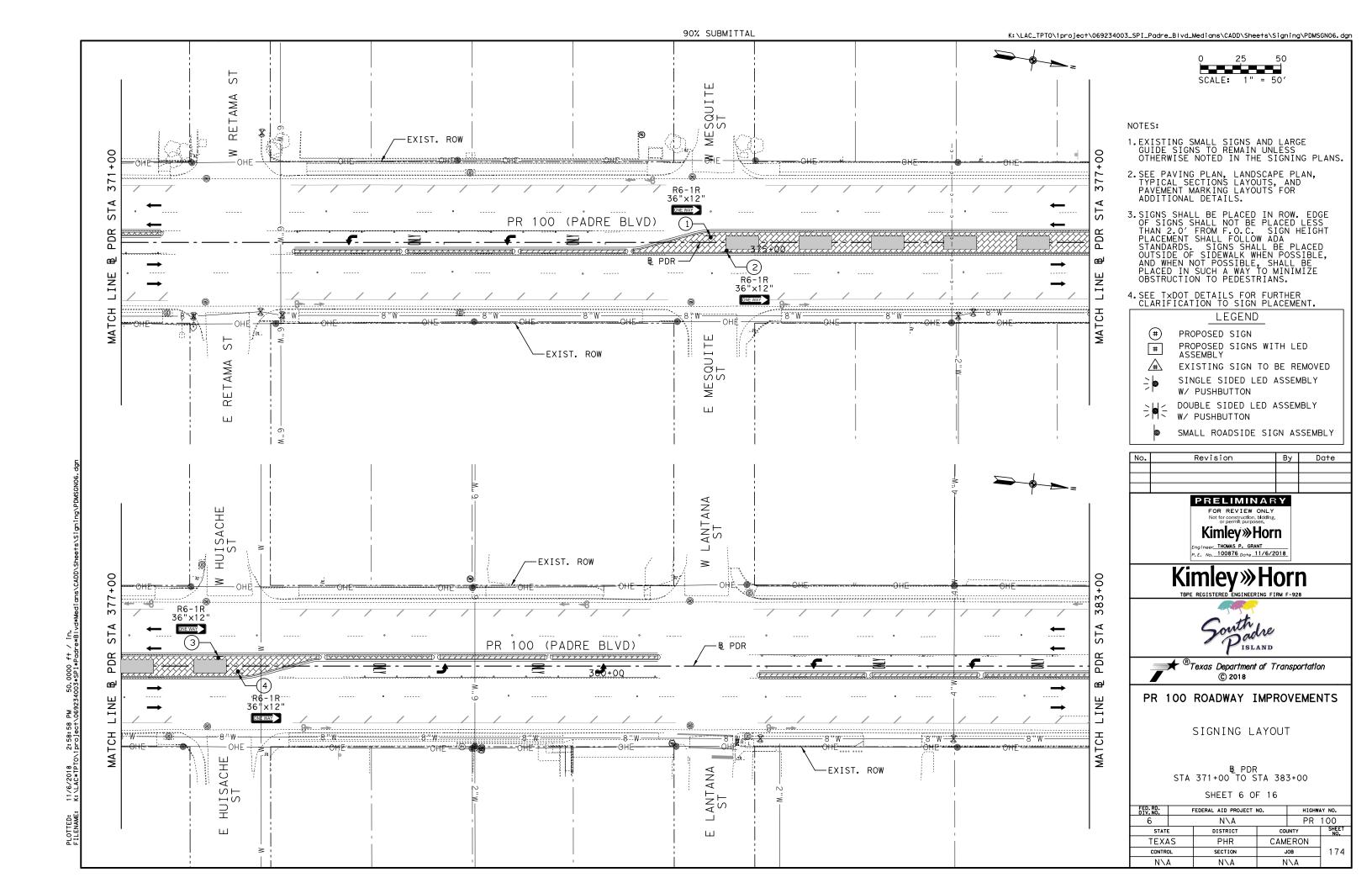


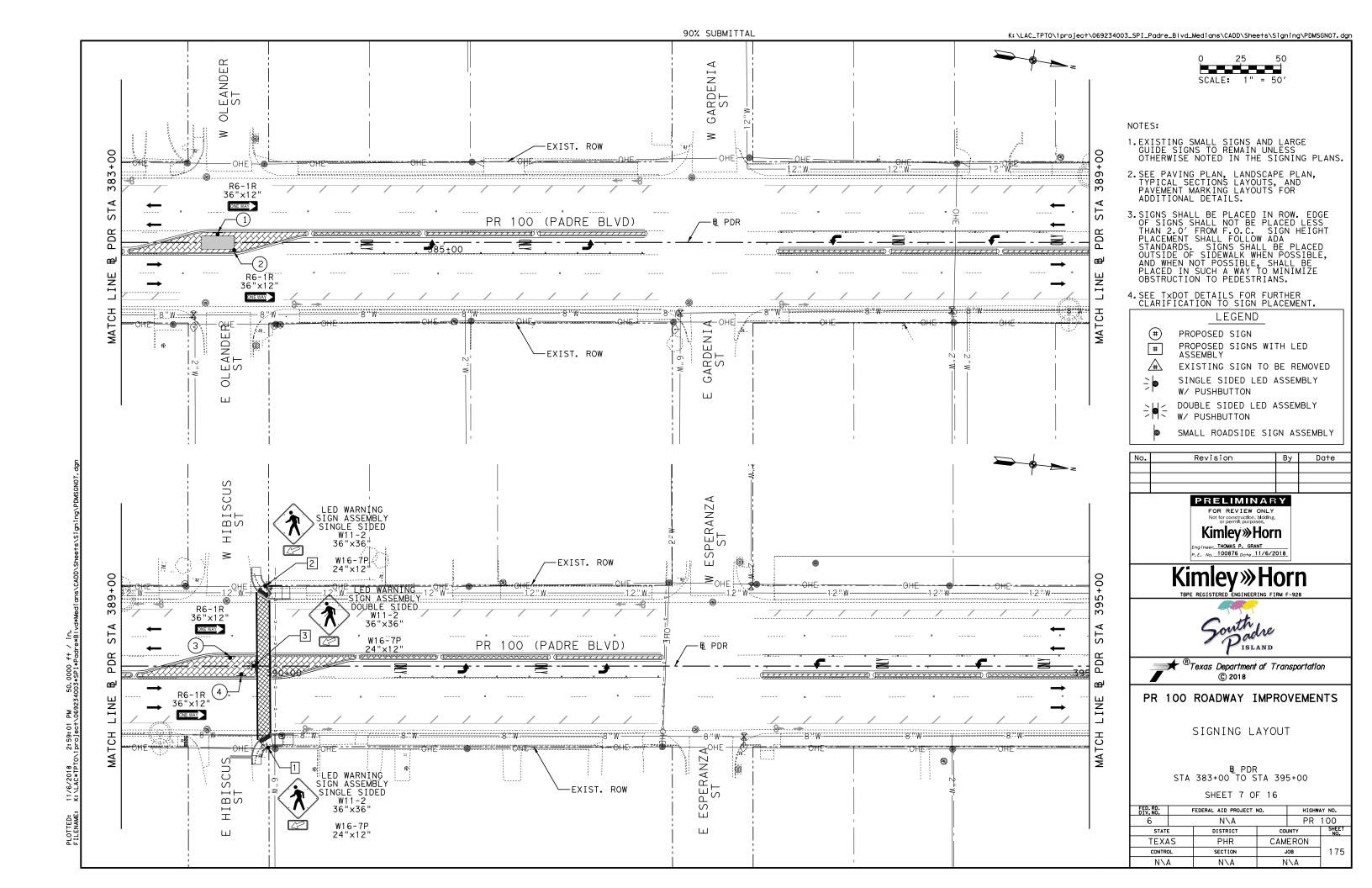


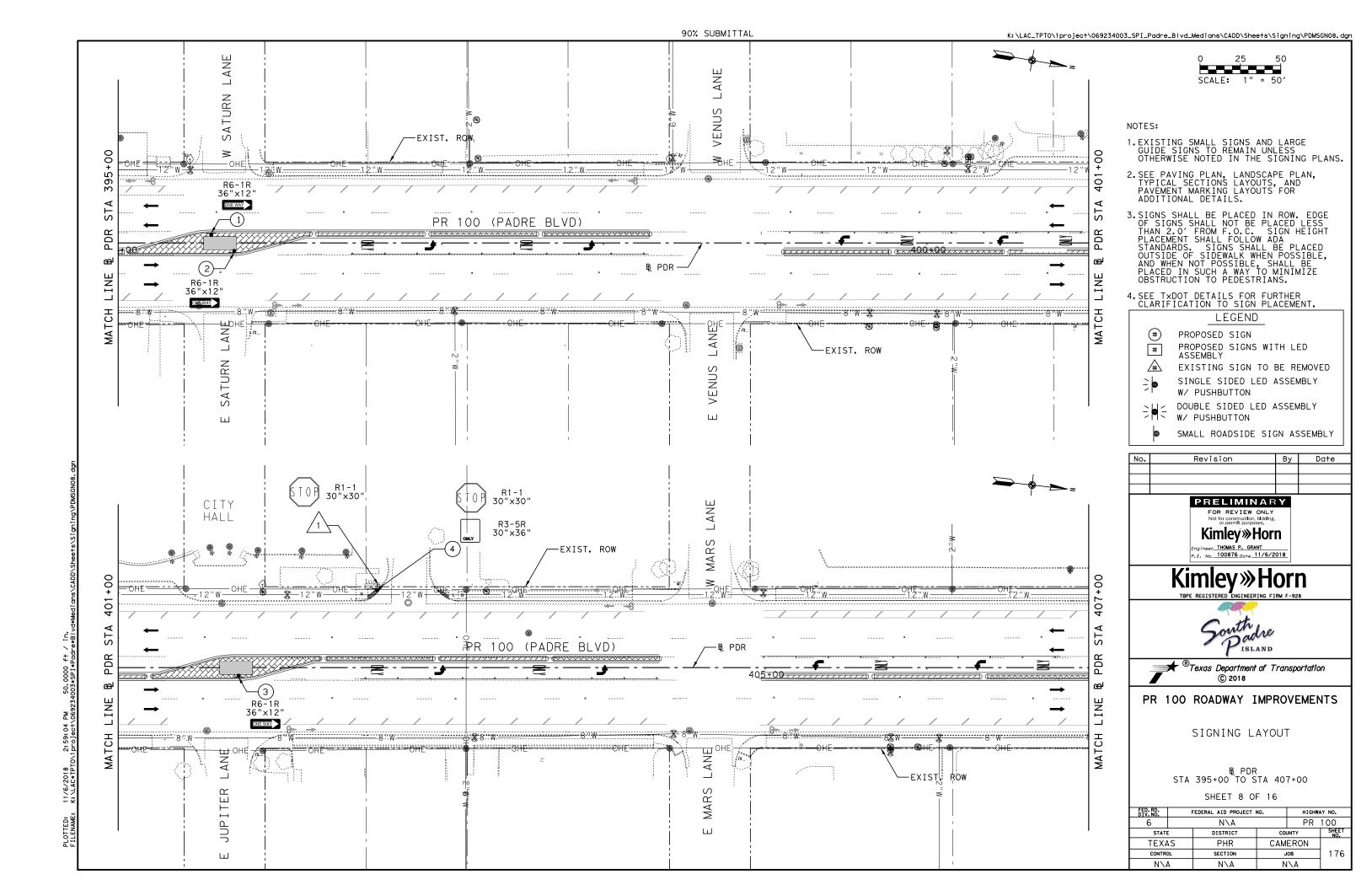


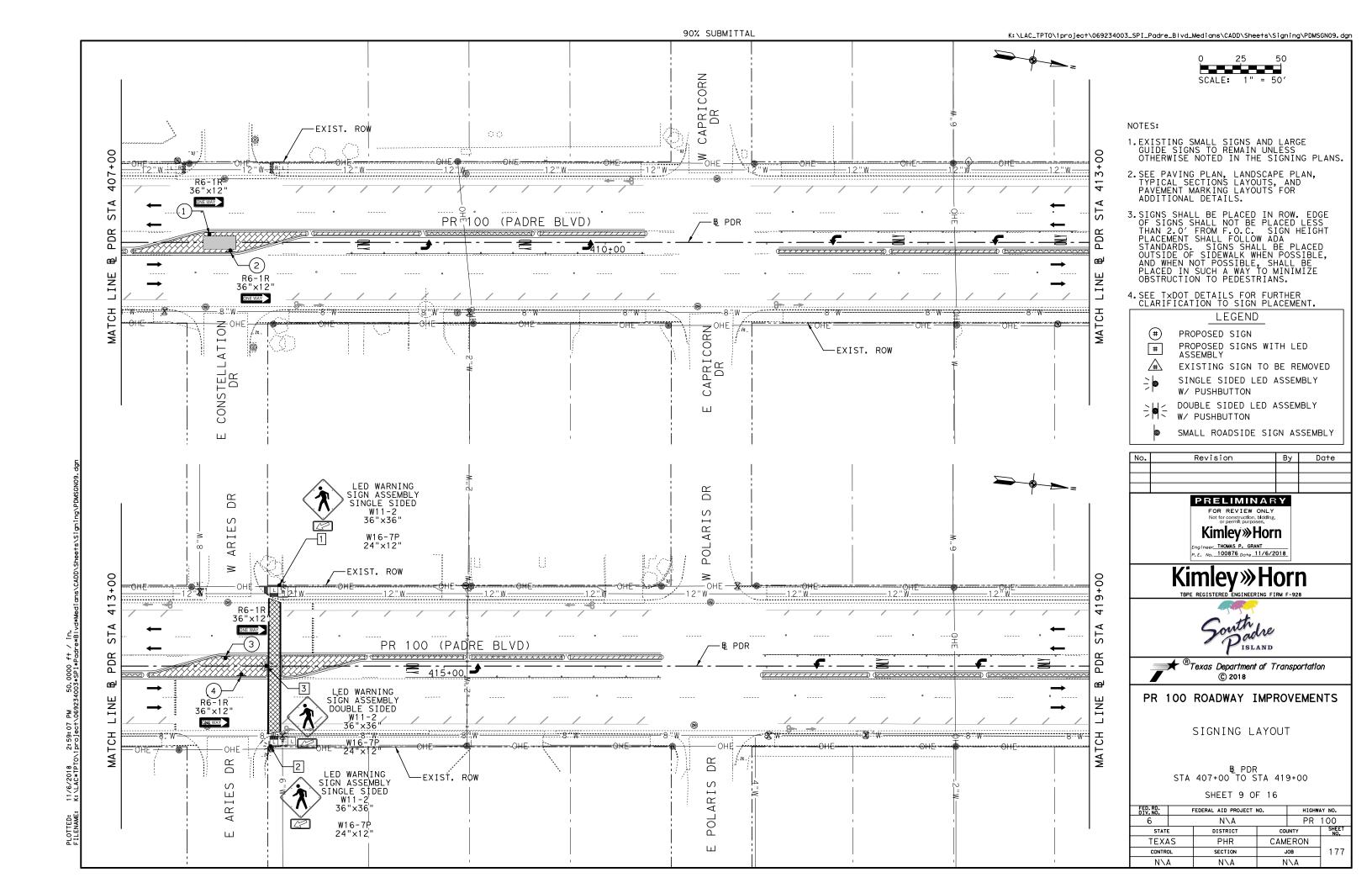


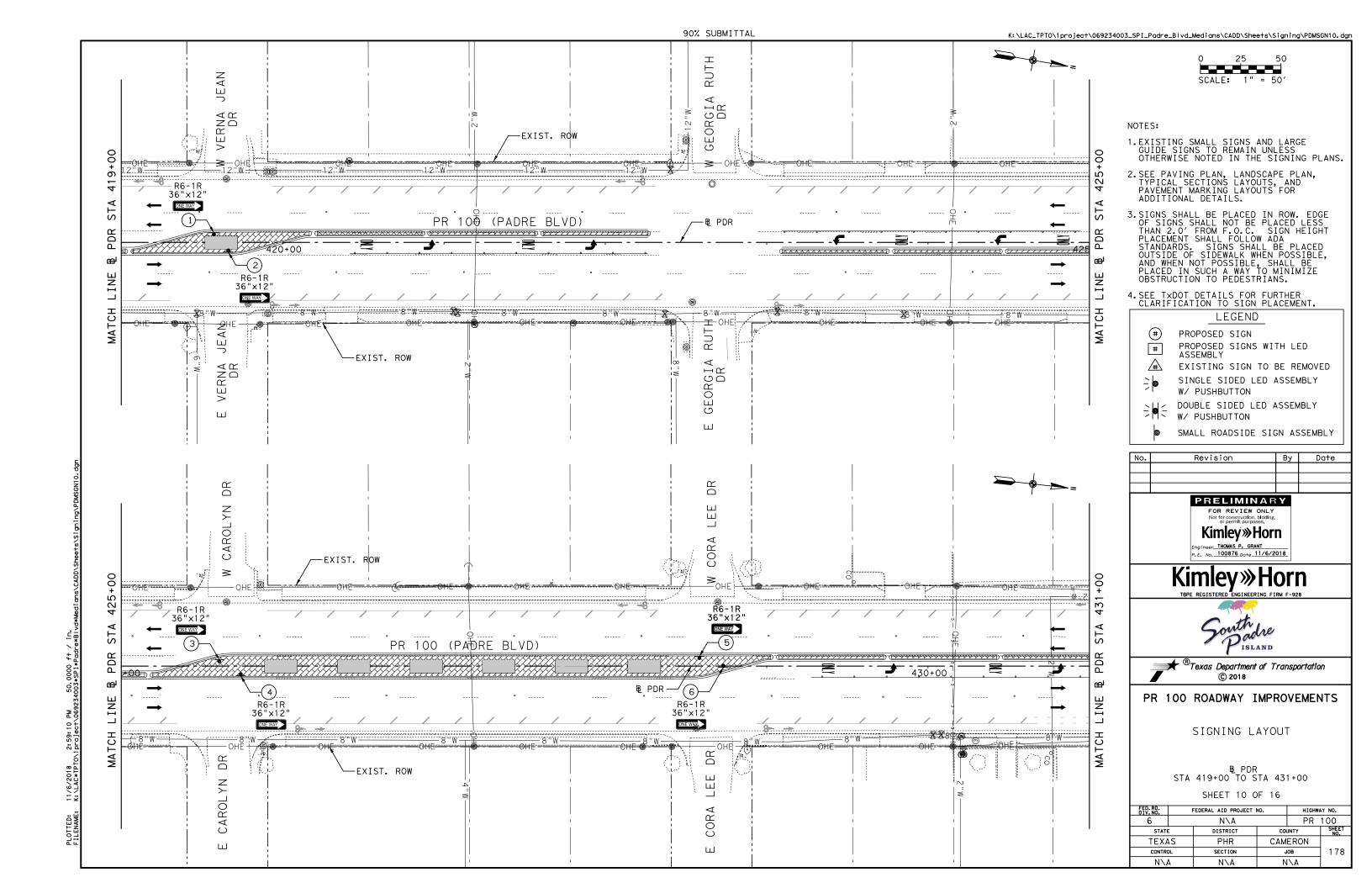


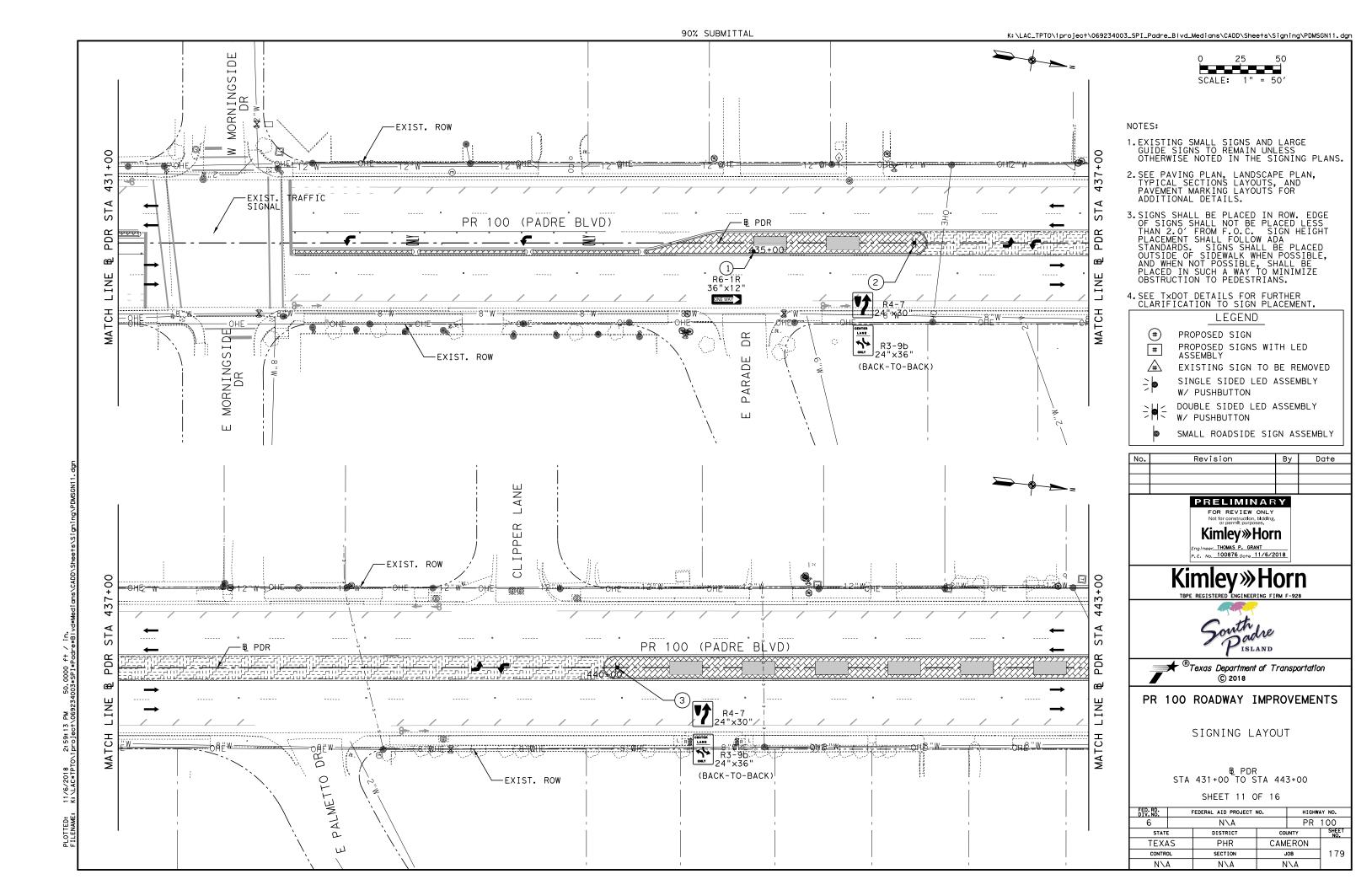


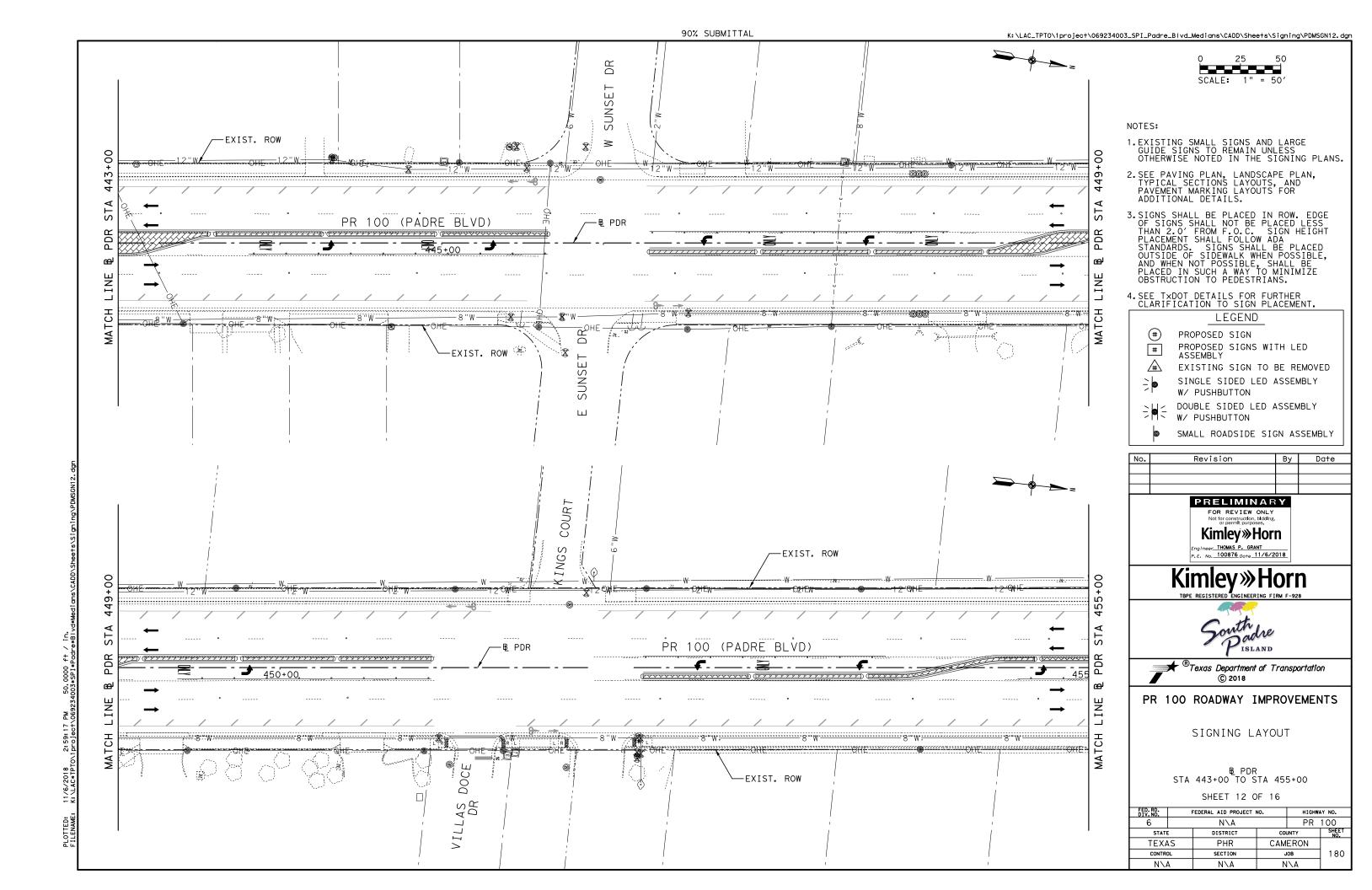


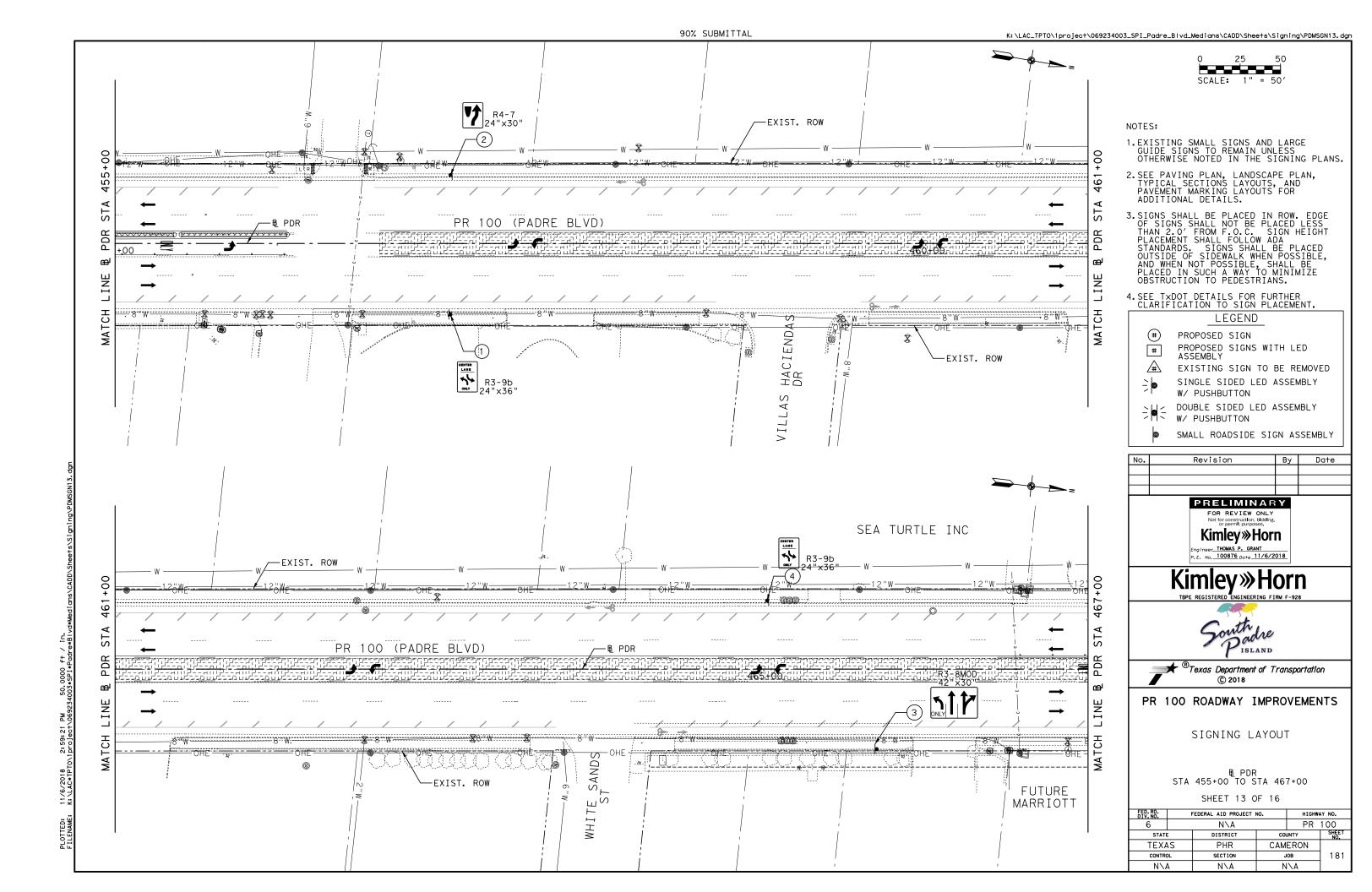




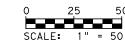








-EXIST. ROW



- 1.EXISTING SMALL SIGNS AND LARGE GUIDE SIGNS TO REMAIN UNLESS OTHERWISE NOTED IN THE SIGNING PLANS.
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- 4. SEE TXDOT DETAILS FOR FURTHER CLARIFICATION TO SIGN PLACEMENT.

#### LEGEND

PROPOSED SIGN

PROPOSED SIGNS WITH LED

EXISTING SIGN TO BE REMOVED SINGLE SIDED LED ASSEMBLY

W/ PUSHBUTTON DOUBLE SIDED LED ASSEMBLY

W/ PUSHBUTTON

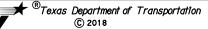
SMALL ROADSIDE SIGN ASSEMBLY



**Kimley** » Horn Engineer THOMAS P. GRANT
P.E. No. 100876 Date 11/6/2018

Kimley » Horn TBPE REGISTERED ENGINEERING FIRM F-928





PR 100 ROADWAY IMPROVEMENTS

SIGNING LAYOUT

₽ PDR STA 467+00 TO STA 479+00

SHEET 14 OF 16

DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWA	IT NO.	
6	N\A			PR	100
STATE	Ē	DISTRICT	COUNTY		SHEET NO.
TEXA	\S	PHR	CAMERON		
CONTRO	OL	SECTION	JOB		182
N\A	Δ.	N\A	N\A		



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#### LEGEND

PROPOSED SIGN

PROPOSED SIGNS WITH LED ASSEMBLY

EXISTING SIGN TO BE REMOVED

SINGLE SIDED LED ASSEMBLY W/ PUSHBUTTON

DOUBLE SIDED LED ASSEMBLY W/ PUSHBUTTON

SMALL ROADSIDE SIGN ASSEMBLY

No.	Revision	Ву	Date			

#### PRELIMINARY FOR REVIEW ONLY **Kimley** » Horn

Engineer THOMAS P. GRANT
P.E. No. 100876 Date 11/6/2018

Kimley » Horn TBPE REGISTERED ENGINEERING FIRM F-928





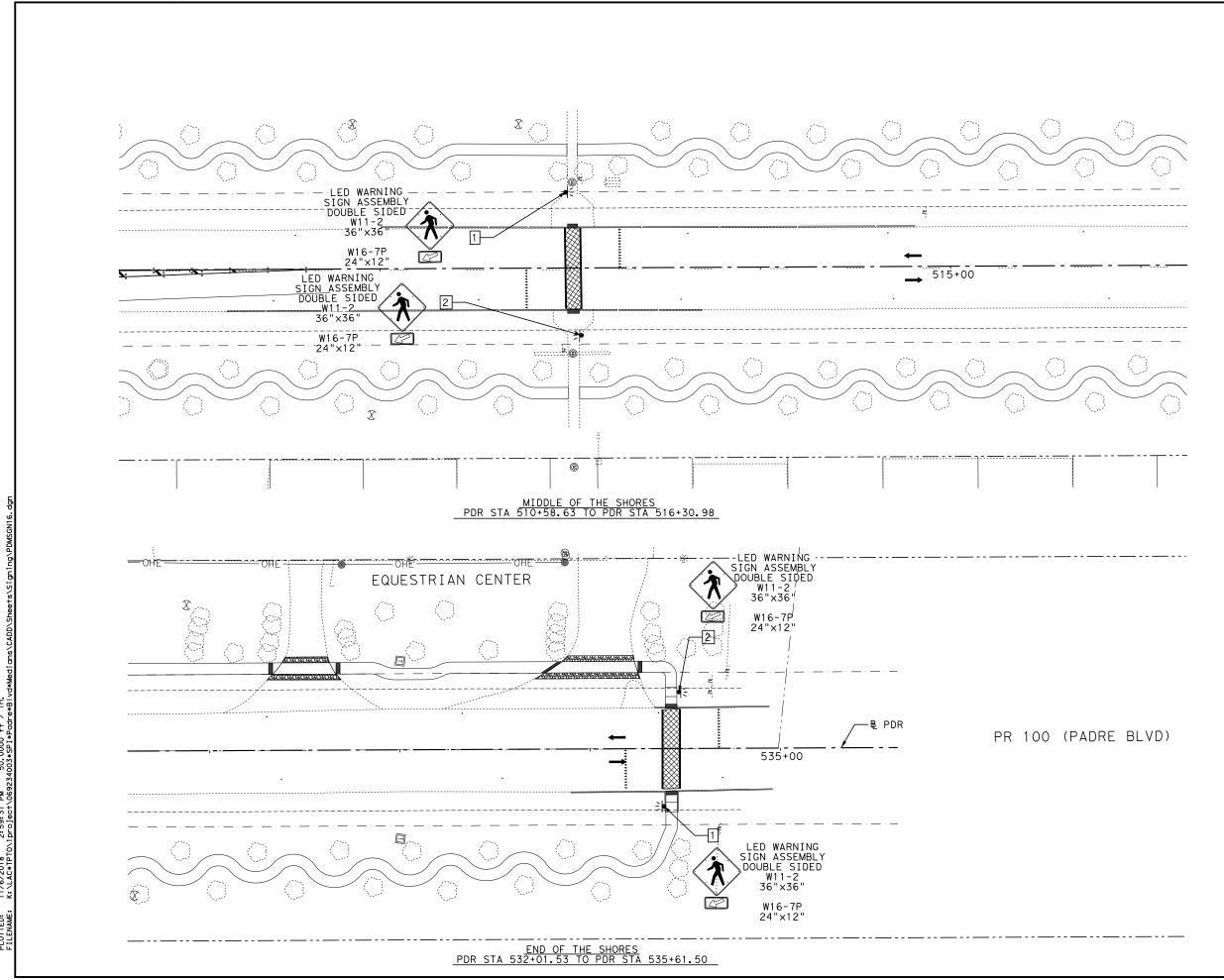
#### PR 100 ROADWAY IMPROVEMENTS

SIGNING LAYOUT

₽ PDR STA 479+00 TO 485+00

SHEET 15 OF 16

DIV. NO.	FEDERAL AID PROJECT NO.			HIGHWA	AY NO.
6	N\A			PR	100
STATE		DISTRICT	COUNTY		SHEET NO.
TEXA	.S	PHR	CAMERON		
CONTRO	)L	SECTION	JOB		183
N\A	١	N∖A	N\A		



#### NOTES:

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## LEGEND PROPOSED SIGN

# PROPOSED SIG

PROPOSED SIGNS WITH LED ASSEMBLY

EXISTING SIGN TO BE REMOVED

SINGLE SIDED LED ASSEMBLY

W/ PUSHBUTTON

DOUBLE SIDED LED ASSEMBLY

W/ PUSHBUTTON

SMALL ROADSIDE SIGN ASSEMBLY

No.	Revision	By	Date
	PRELIMIN	ARV	

FOR REVIEW ONLY
Not for construction, bidding,
or permit purposes.

Kimley >>> Horn

Engineer\_ THOMAS P. GRANT
P. E. No. 100876 Date 11/6/2018

## Kimley»Horr

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#### PR 100 ROADWAY IMPROVEMENTS

SIGNING LAYOUT

SHEET 16 OF 16

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.			H I GHWA	Y NO.
6	N\A			PR	100
STATE		DISTRICT	COUNTY		SHEET NO.
TEXA	\S	PHR	CAMERON		
CONTRO	DL	SECTION	JOB		184
N\A		N∖A	N	<b> </b> \A	

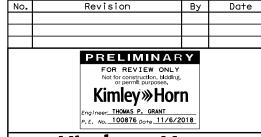
90% SUBMITTAL

NOTES:

1. SEE MARKING DETAILS FOR MEDIAN NOSE
STRIPING PLACEMENT.

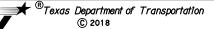
2. SEE PAVEMENT MARKING DETAILS SHEET FOR TRAFFIC PATTERN CROSSWALK AND FLUSH MEDIAN DETAILS.

LEGEND QTY A REFL PAV MRK TY I (W) (ARROW) O EA (100MIL) (B) REFL PAV MRK TY I (W) O EA (ONLY) (100MIL) (C) REFL PAV MRK TY I (W) 18" 50 EA (YLD TRI)(100MIL) (D) REFL PAV MARK TY I (W) 4" (DOT) \_\_\_\_O\_\_LF (100MIL) 2' STRIPE - 6' GAP (E) REFL PAV MRK TY I (W)8"(SLD) \_\_O\_LF (100MIL) F) REFL PAV MRK TY I (W) 12" (SLD) 320 LF (100MIL) GREFL PAV MRK TY I (W)24"(SLD) 0 LF (100MIL) (H) REFL PAV MRK TY I (Y) 4" (SLD) \_\_O\_LF (100MIL) (I) REFL PAV MRKR TY II-C-R REFL PAV MRK TY I (Y)6" (MED NOSE) (100MIL) \_\_\_O\_\_LF REFL PAV MRK TY I (Y)4"(DOT) O LF (M) REFL PAV MRKR TY II-A-A O EA N REFL PAV MRK TY I (Y) 12" (SLD) 0 LF Revision Ву



# Kimley»Horn





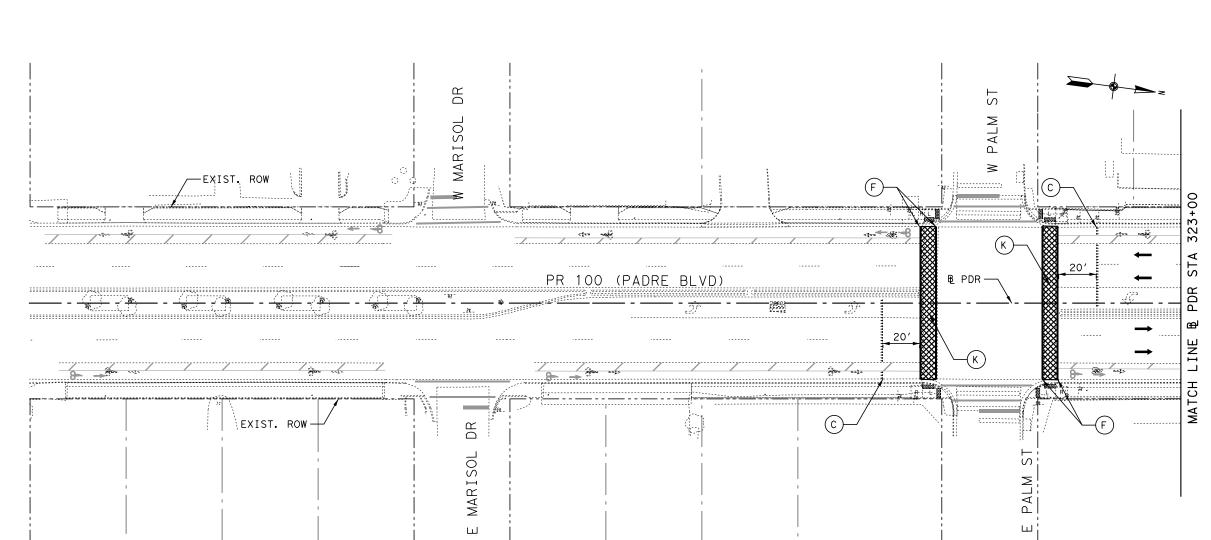
#### PR 100 ROADWAY IMPROVEMENTS

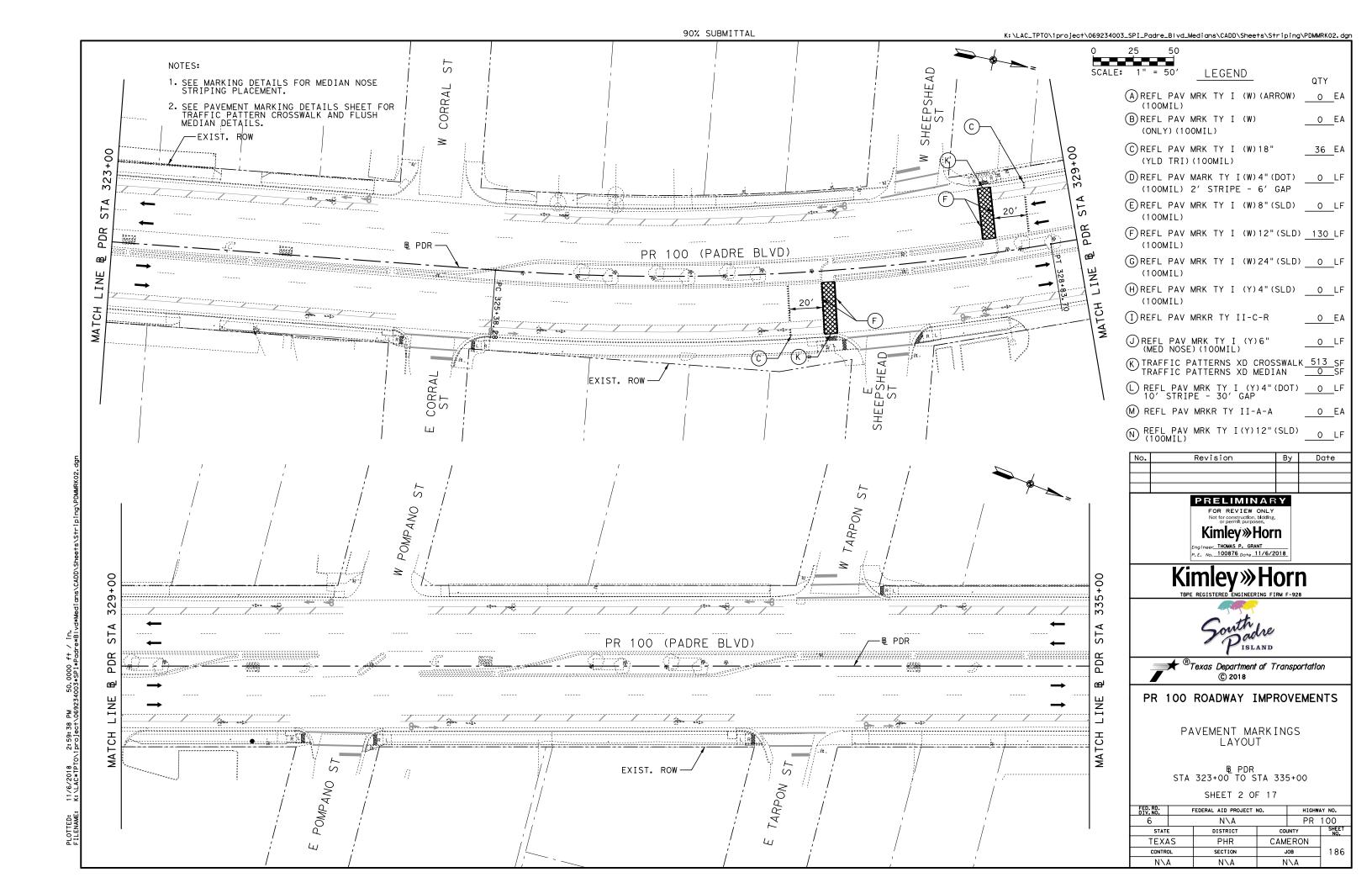
PAVEMENT MARKINGS LAYOUT

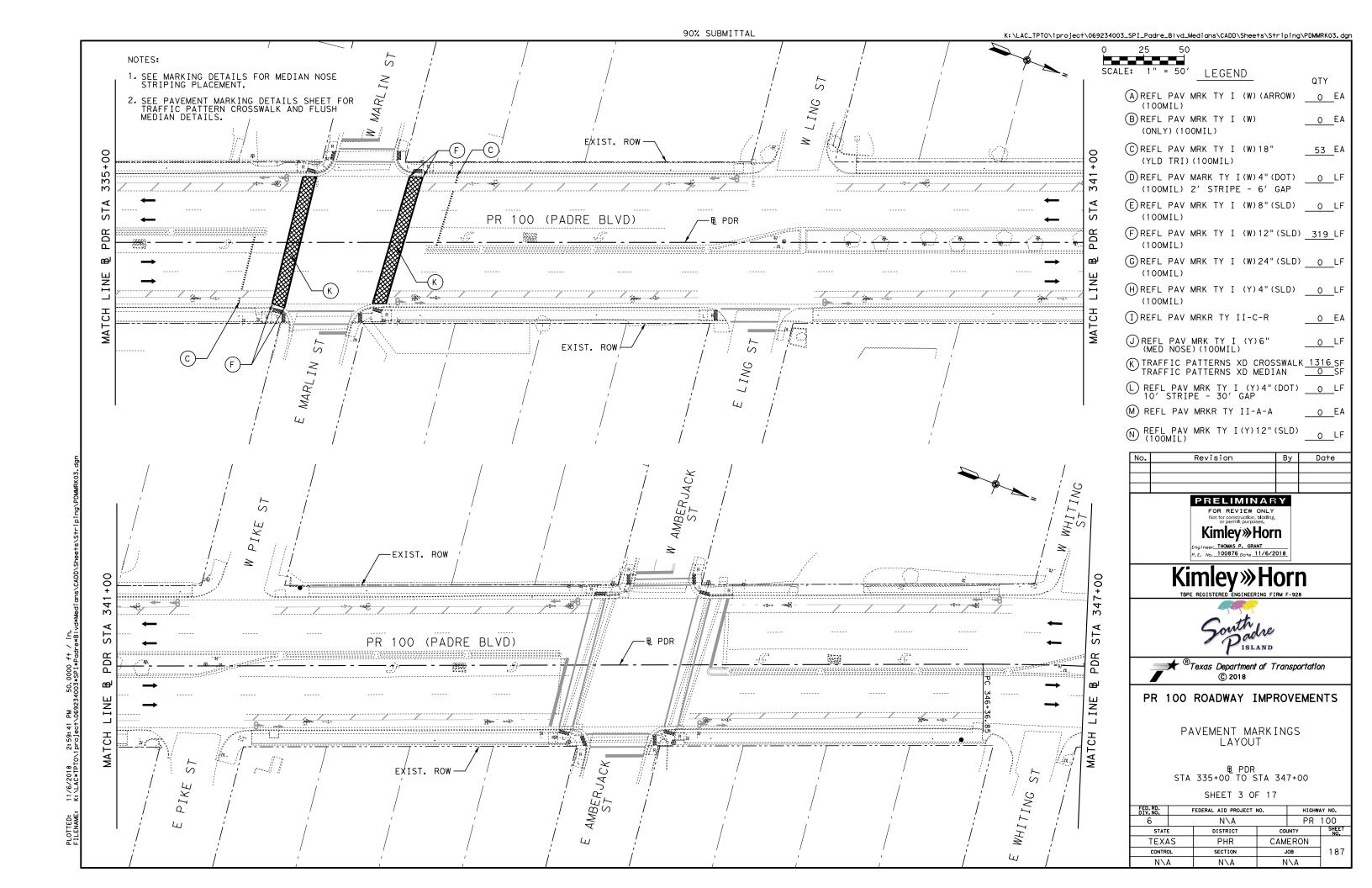
B PDR STA 311+00 TO STA 323+00

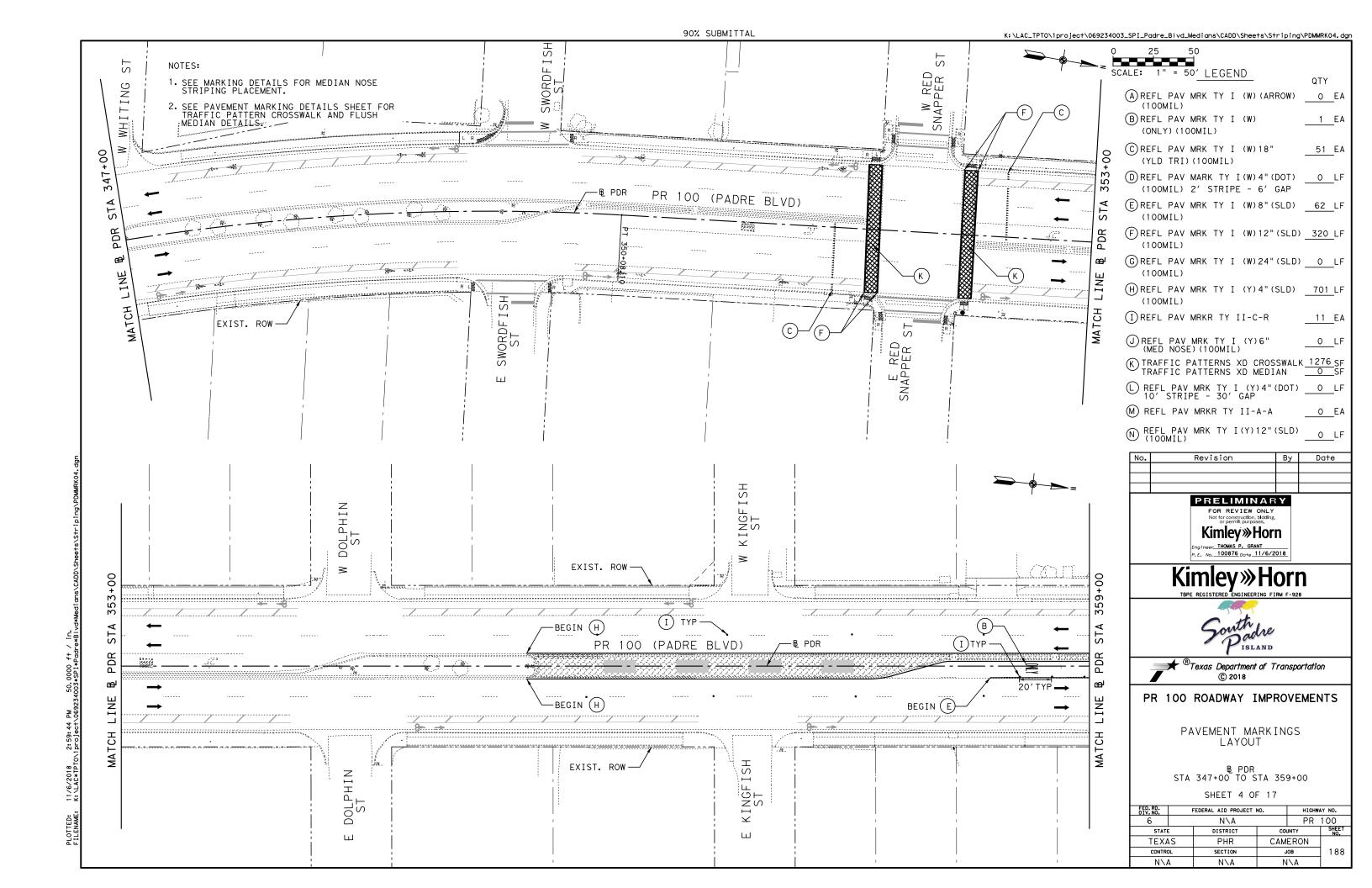
SHEET 1 OF 17

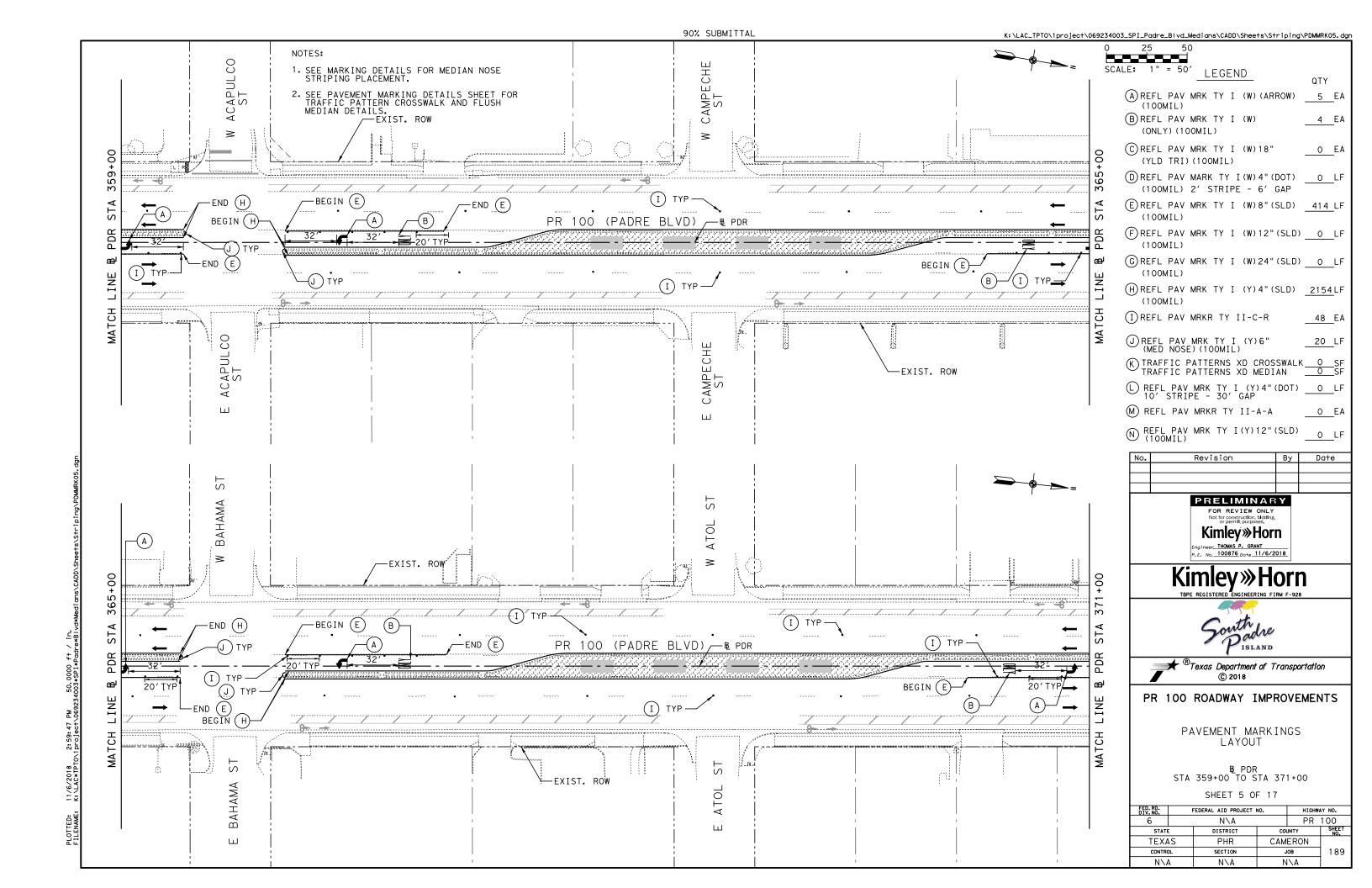
DIV. NO.	FEDERAL AID PROJECT NO.			HIGHWA	AY NO.
6	N\A			PR	100
STATE		DISTRICT	COUNTY		SHEET NO.
TEXA	\S	PHR	CAMERON		
CONTRO	DL	SECTION	JOB		185
NVA	4	N∖A	N	N\A	

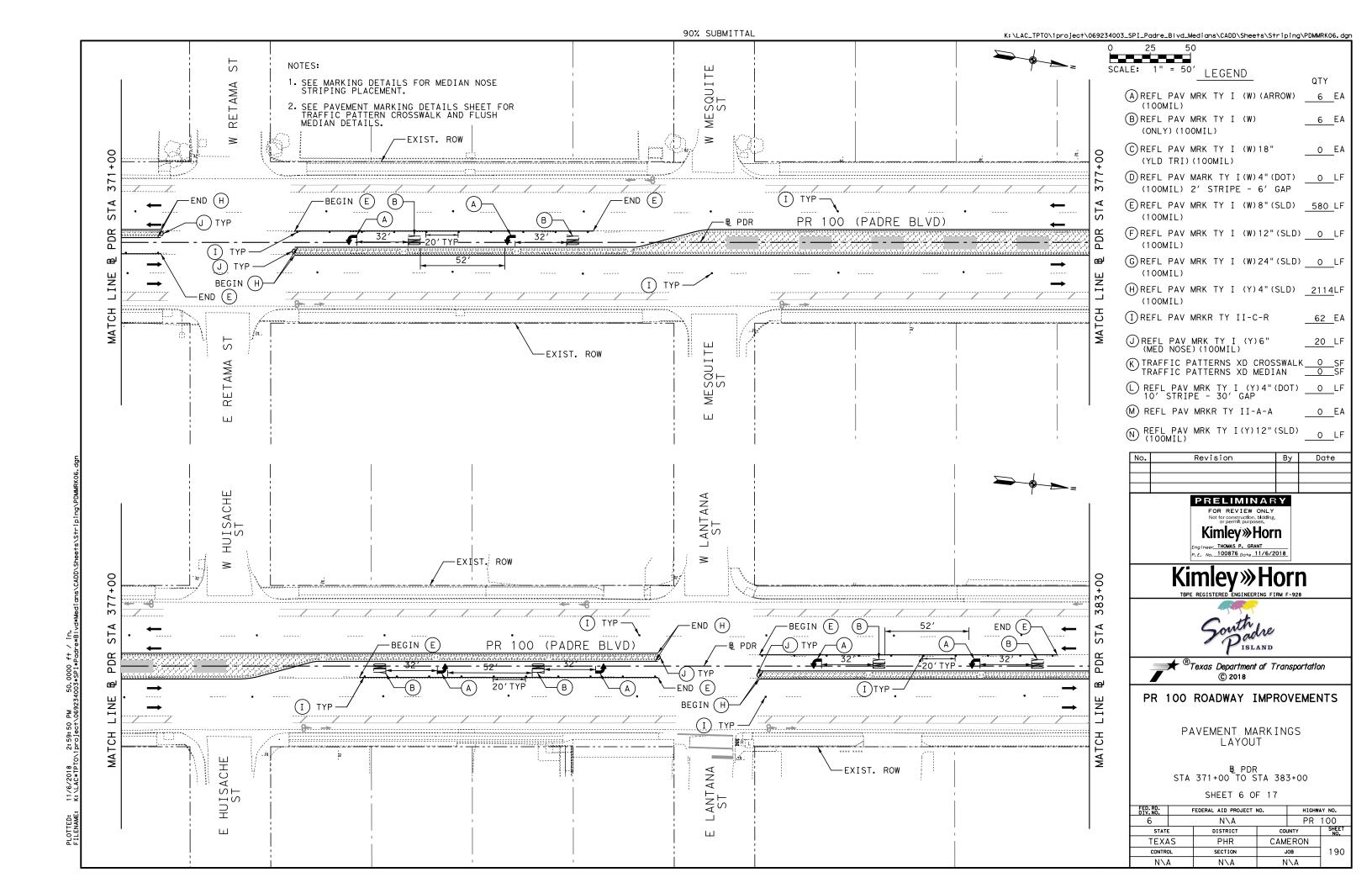


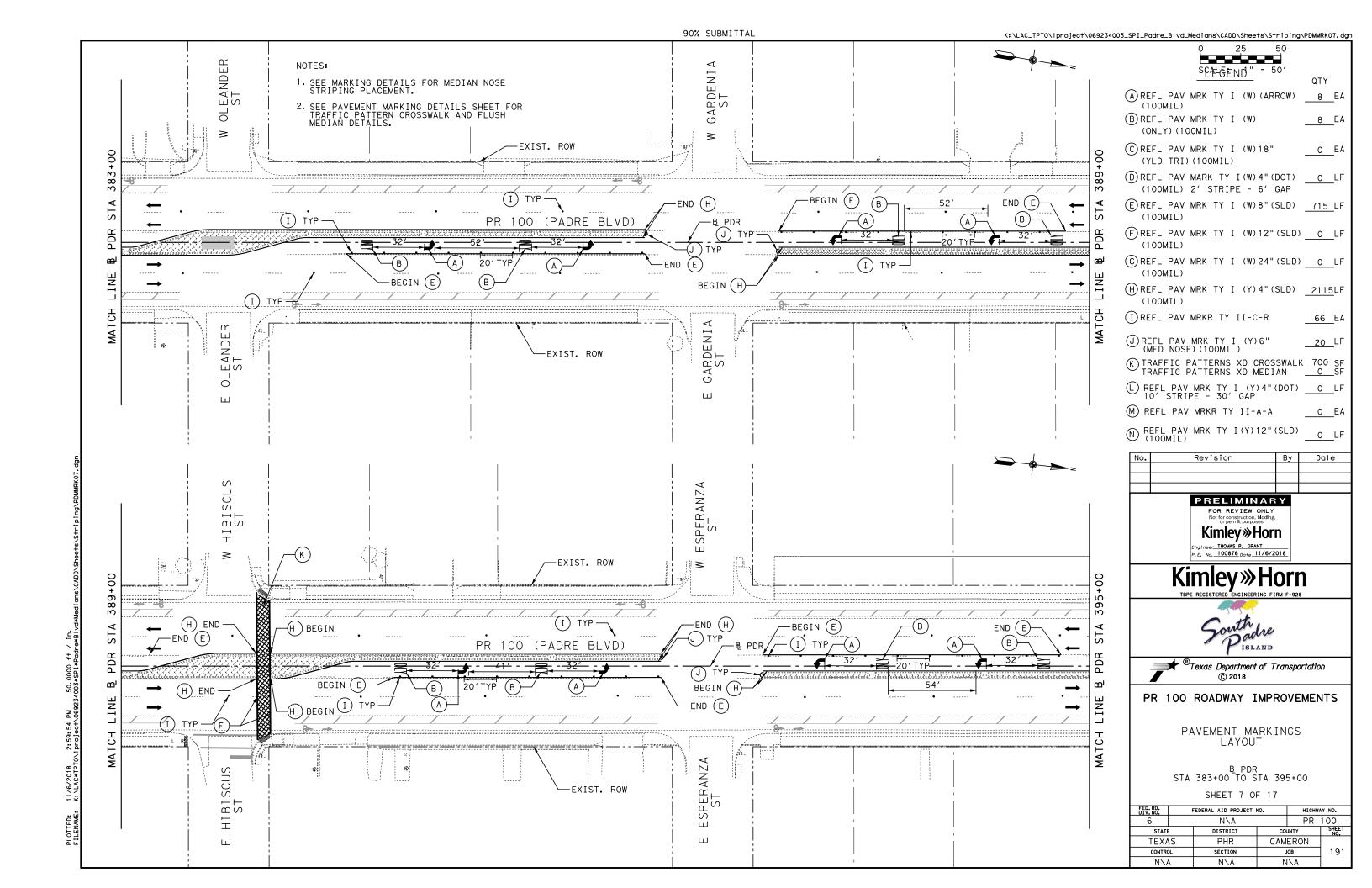


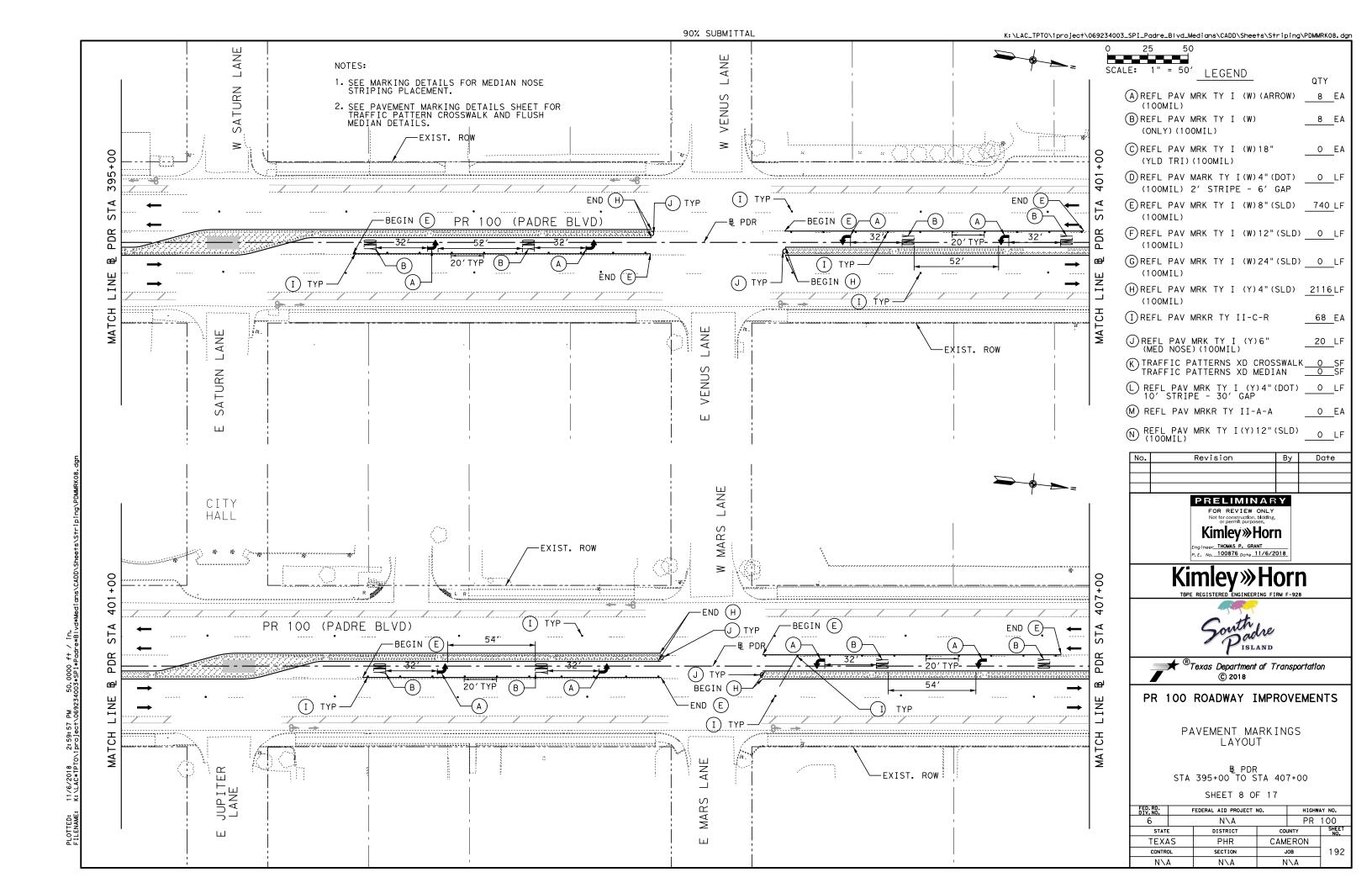


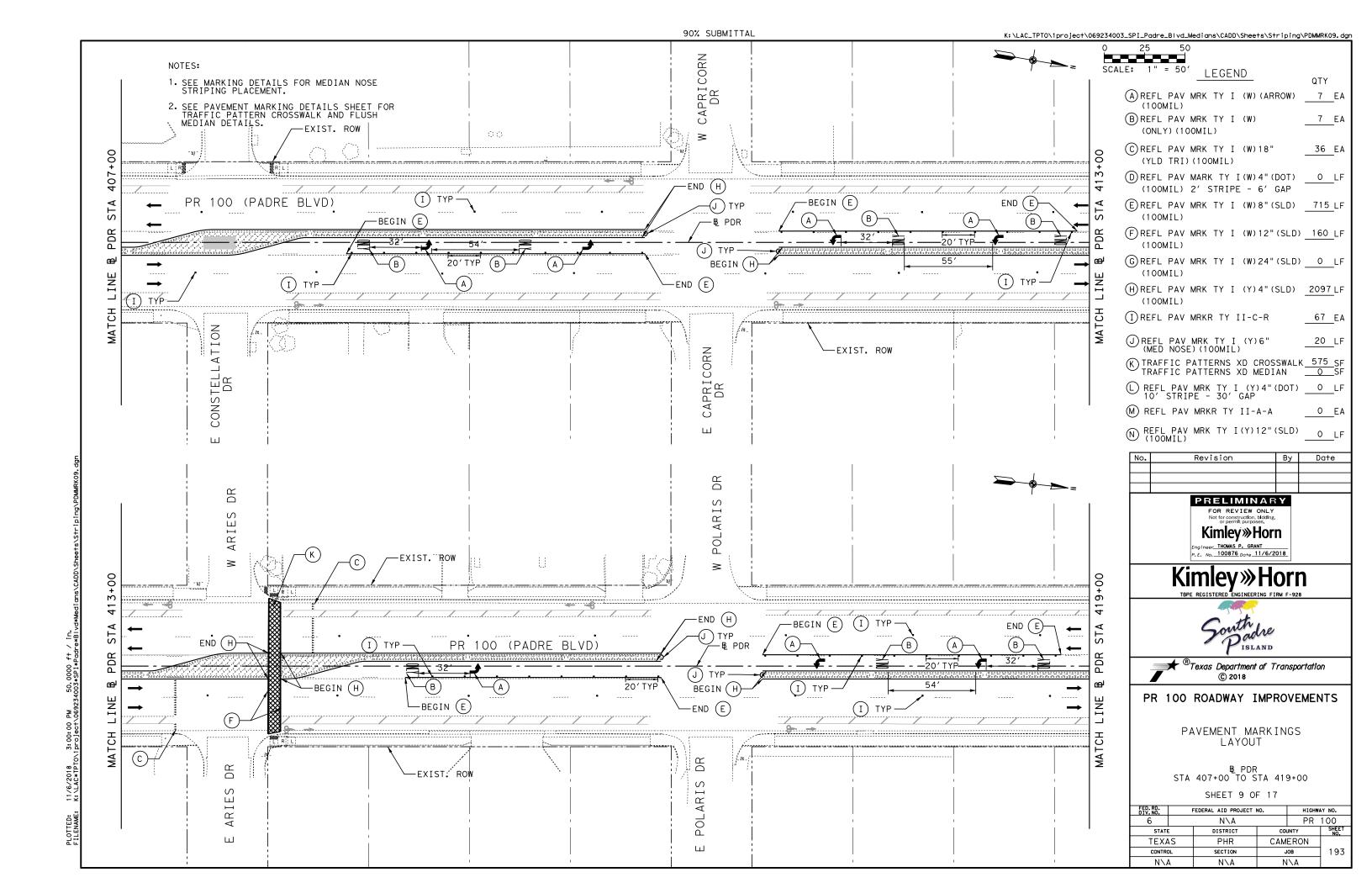


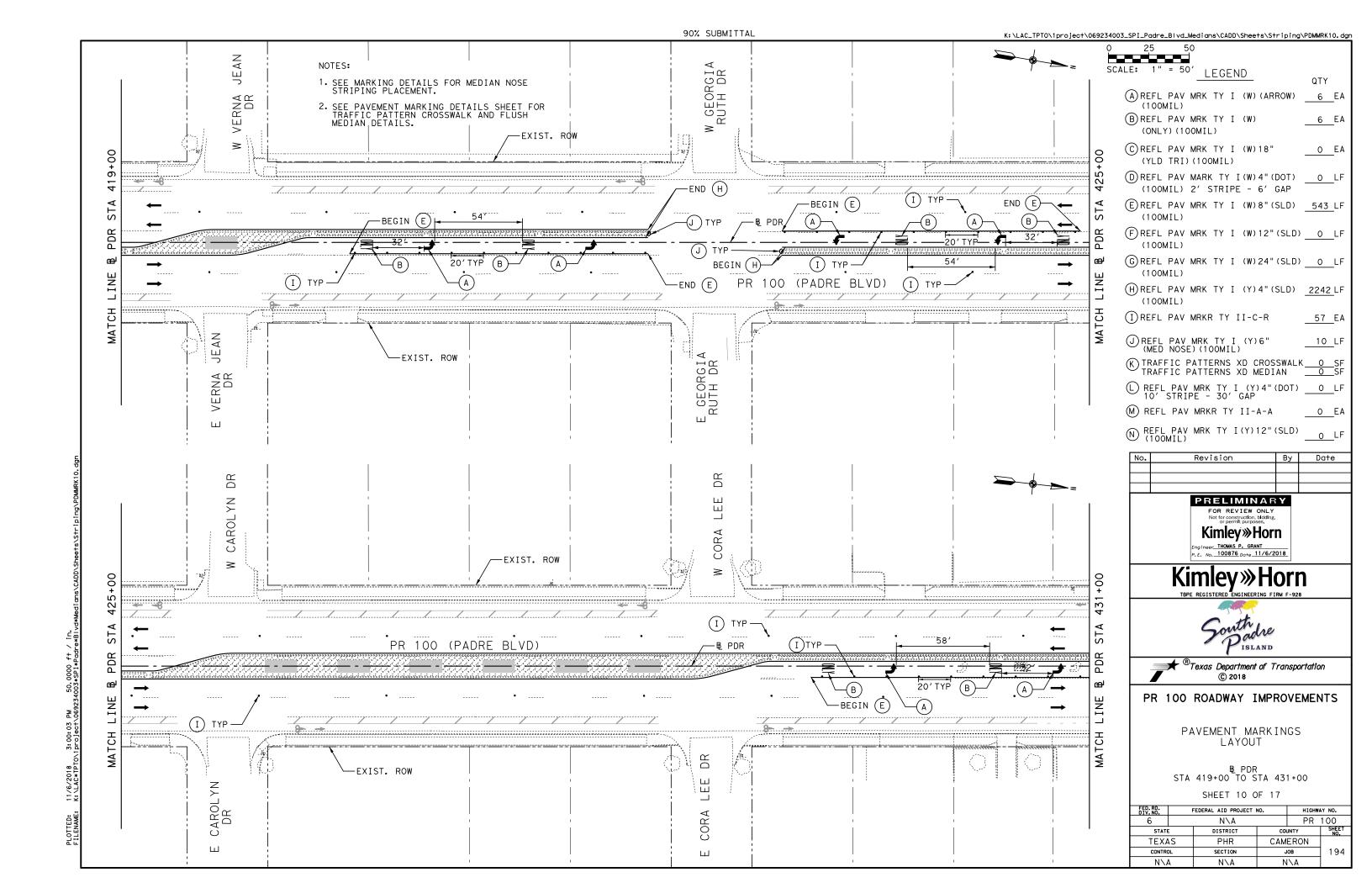


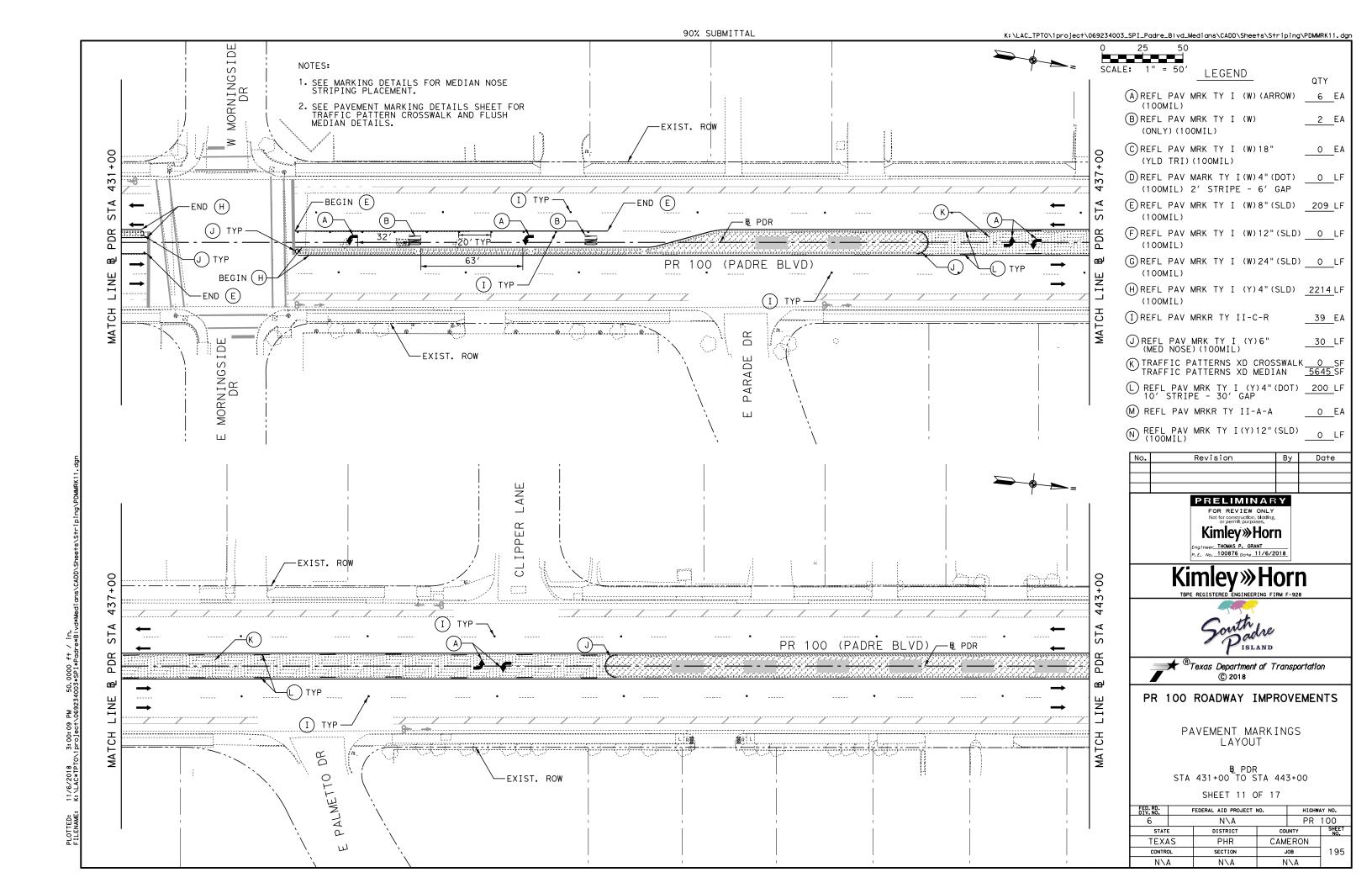


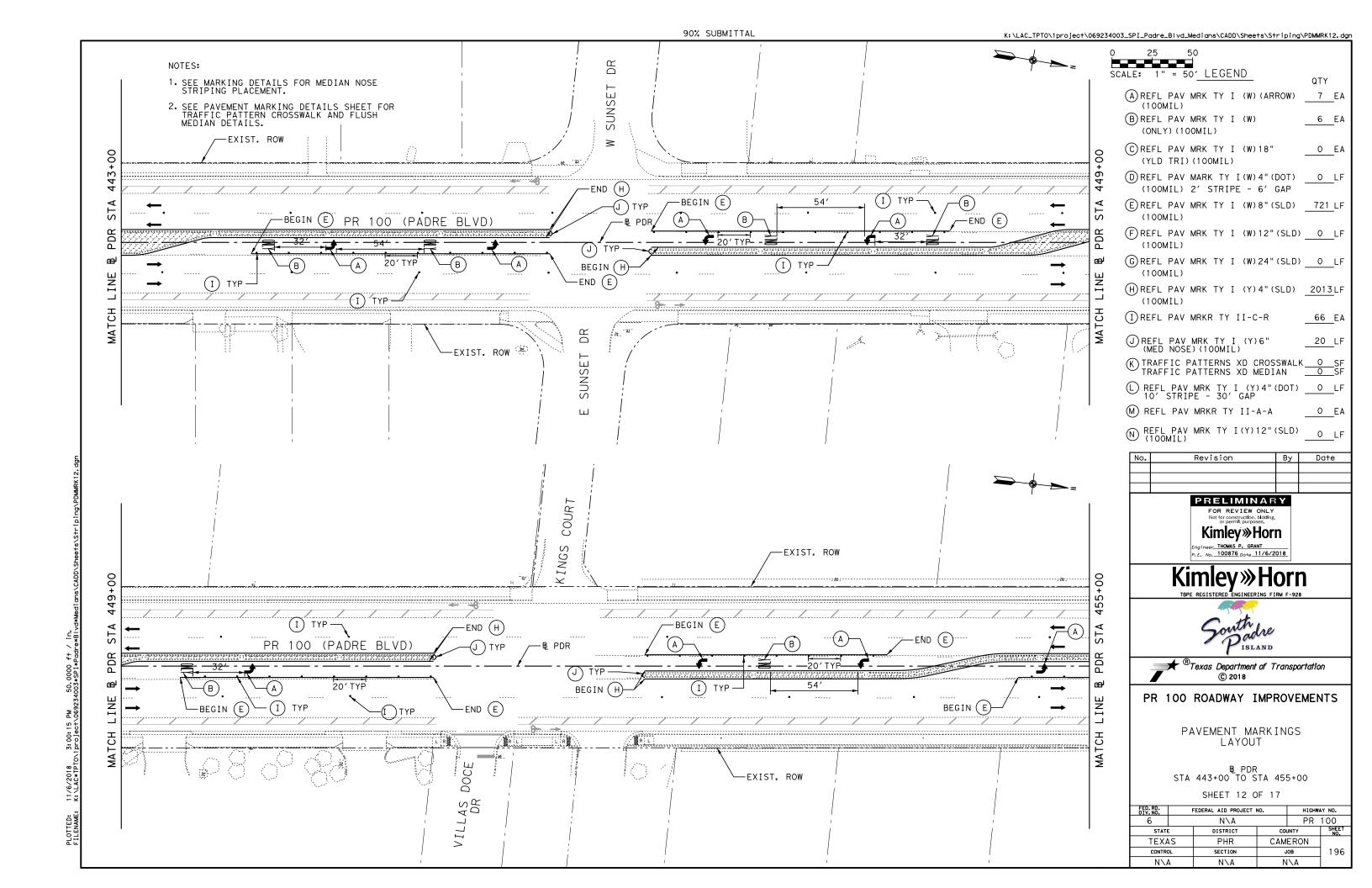


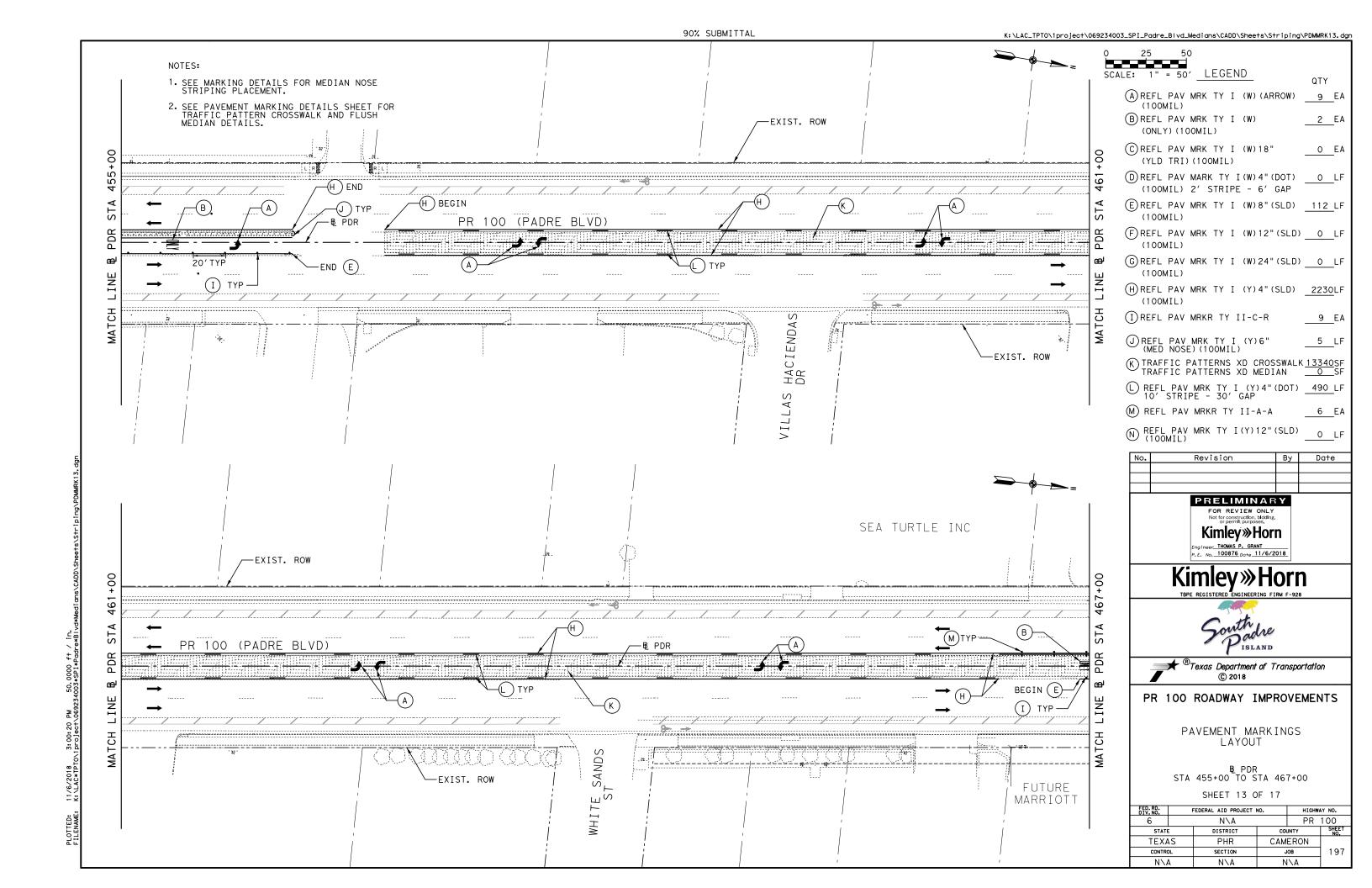


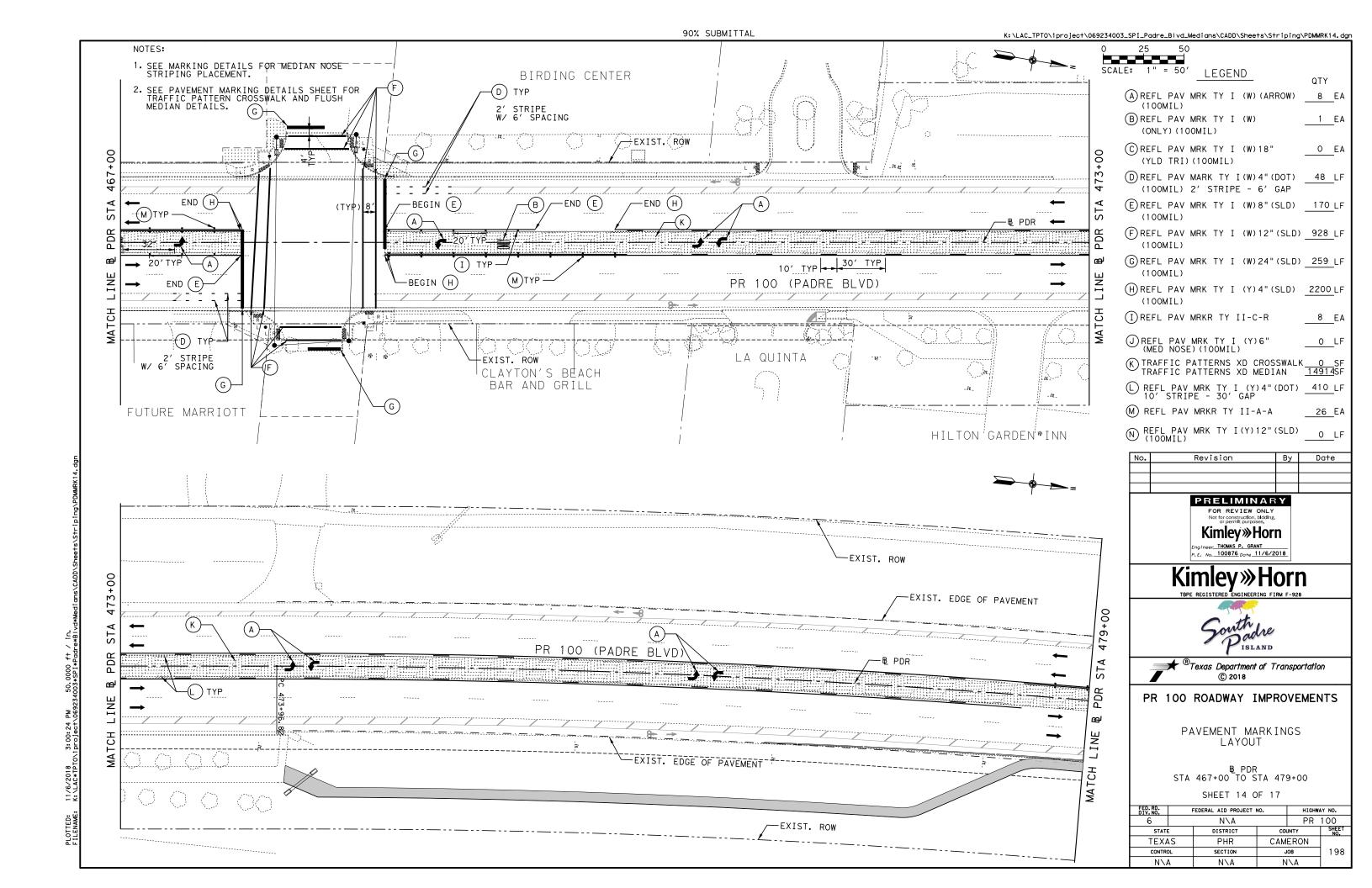


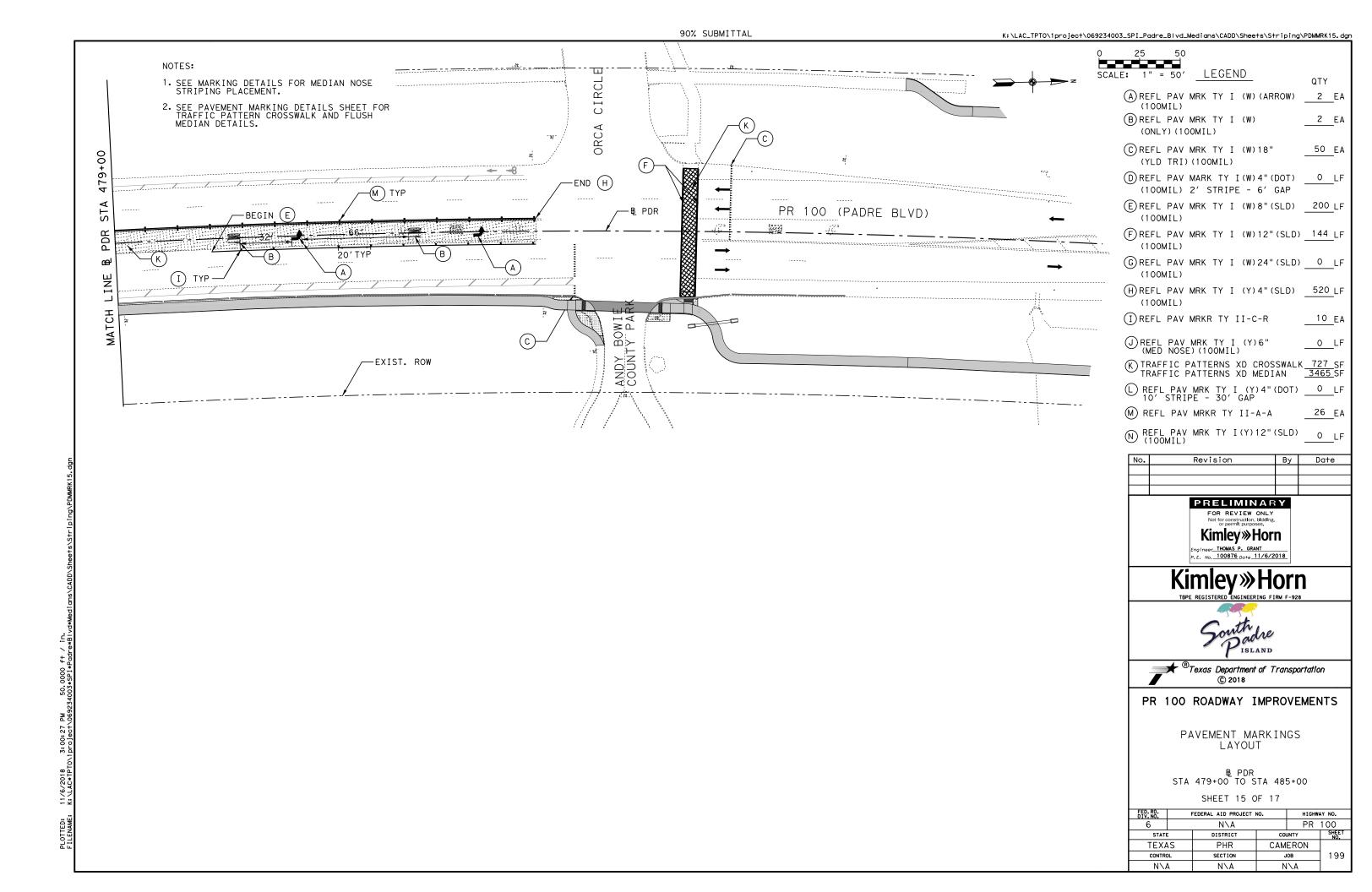


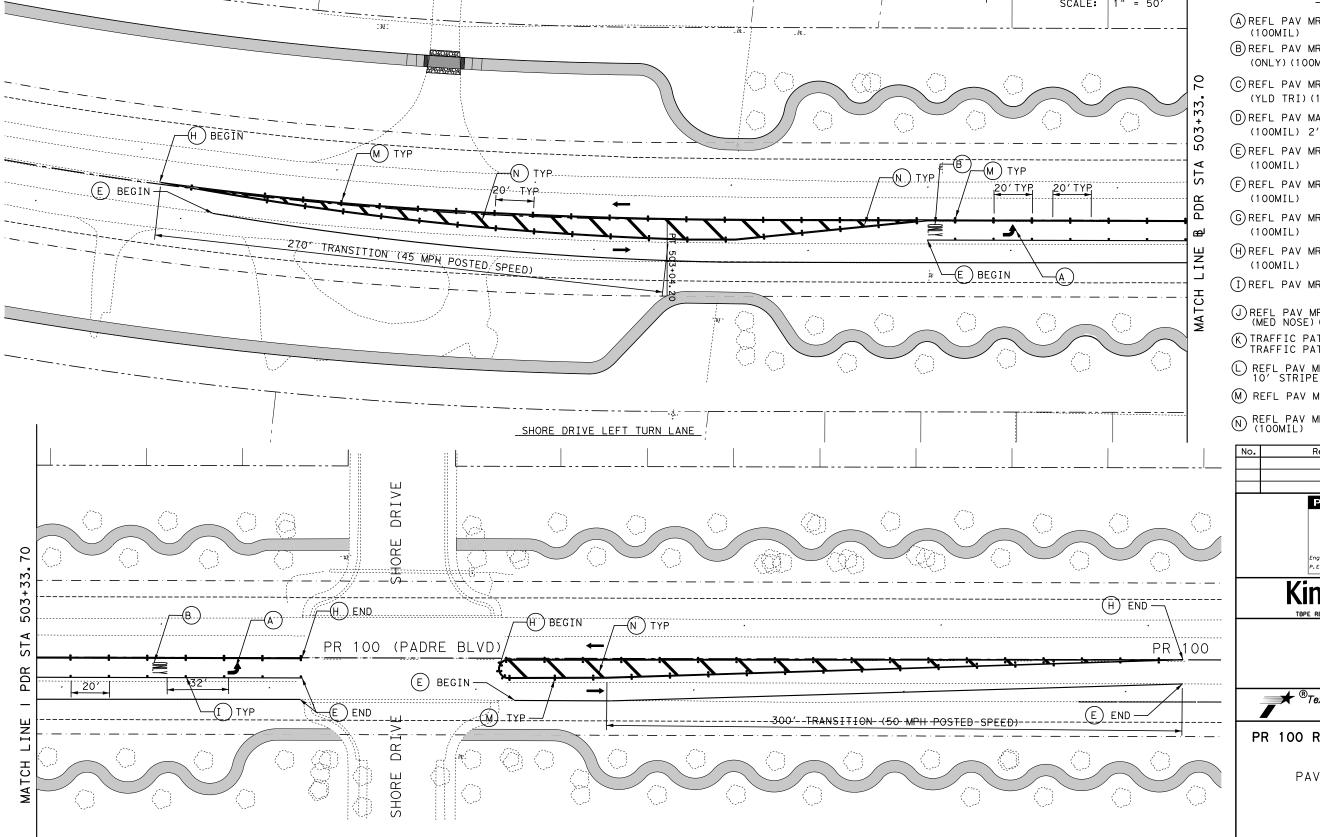












O EA

0 LF

F) REFL PAV MRK TY I (W)12"(SLD) O LF

GREFL PAV MRK TY I (W) 24" (SLD) O LF

H REFL PAV MRK TY I (Y)4"(SLD) 4146LF

I) REFL PAV MRKR TY II-C-R 14 EA

JREFL PAV MRK TY I (Y)6" (MED NOSE) (100MIL)

K TRAFFIC PATTERNS XD CROSSWALK \_ TRAFFIC PATTERNS XD MEDIAN \_

REFL PAV MRK TY I (Y)4"(DOT) O LF

<u> 172</u>EA

(M) REFL PAV MRKR TY II-A-A

N REFL PAV MRK TY I (Y) 12" (SLD) 284 LF

Revision Date PRELIMINARY

FOR REVIEW ONLY Not for consultation, blidding, **Kimley** »Horn Engineer THOMAS P. GRANT
P.E. No. 100876 Date 11/6/2018



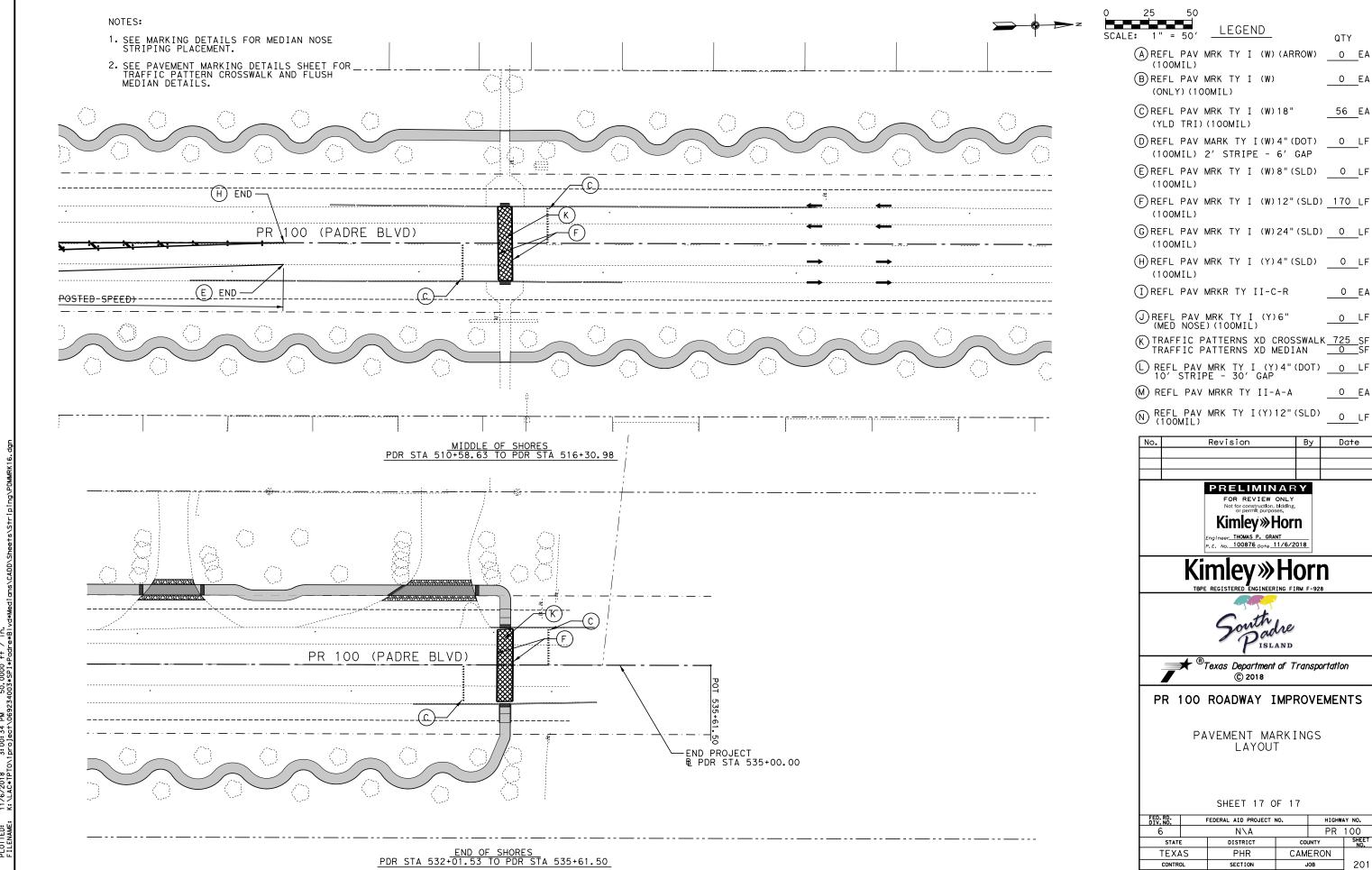
\*\*Texas Department of Transportation © 2018

PR 100 ROADWAY IMPROVEMENTS

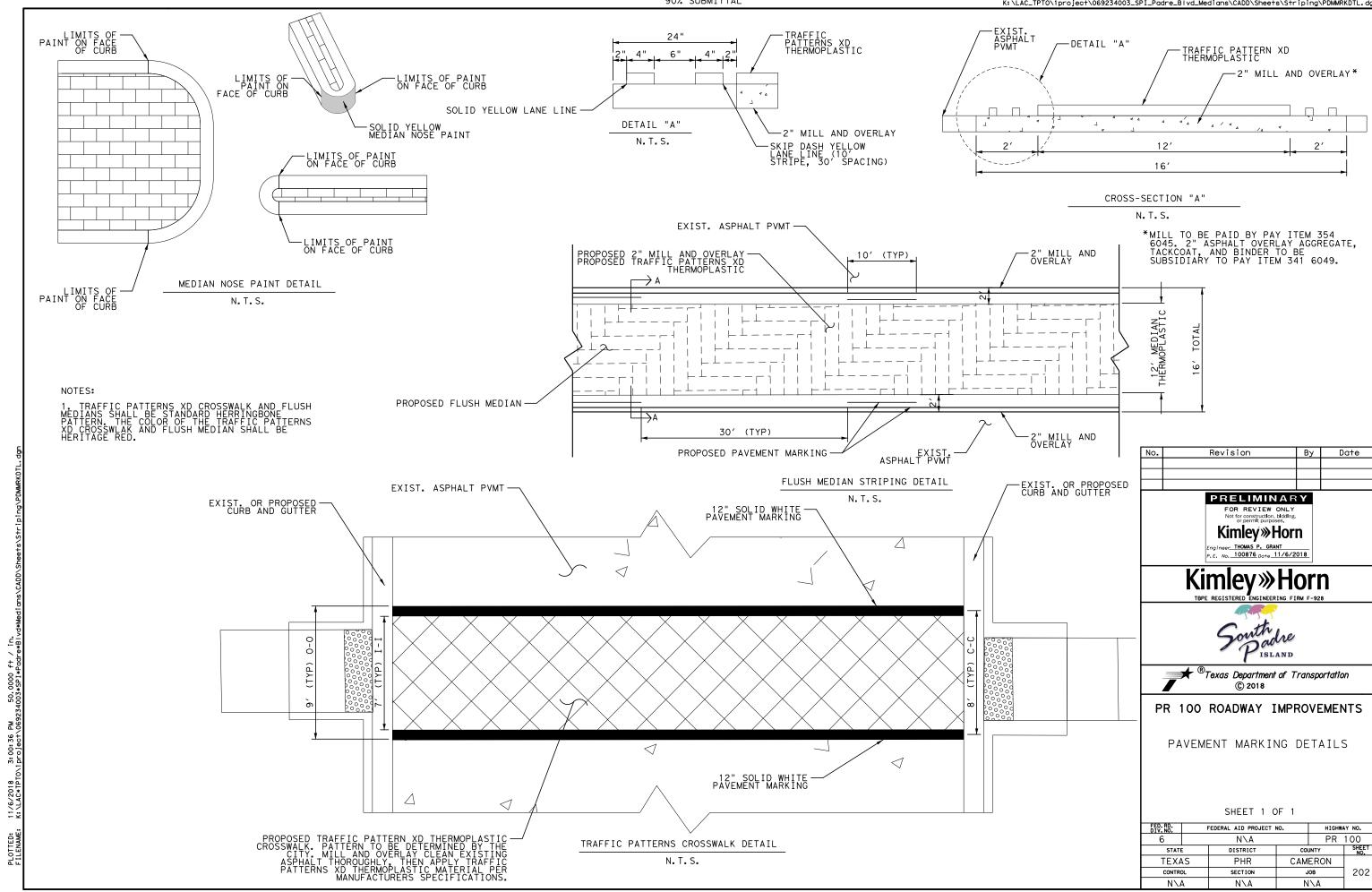
PAVEMENT MARKINGS LAYOUT

SHEET 16 OF 17

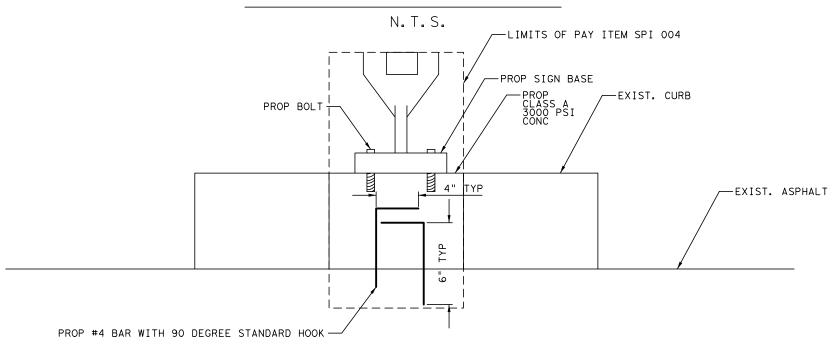
DIV. NO.	FEDERAL AID PROJECT NO.			HIGHWA	AY NO.
6	N\A			PR	100
STATE		DISTRICT COUNTY		SHEET NO.	
TEXA	\S	PHR	CAMERON		
CONTRO	DL	SECTION	JOB		200
N\A	4	N∖A	N\A		



N\A N\A



#### PEDESTRIAN CROSSING SIGN DETAIL



DETAIL A

N. T. S.

#### NOTES:

- . THE IN-STREET PEDESTRIAN CROSSING SIGN SHALL HAVE A BLACK LEGEND (EXCEPT FOR THE "YIELD" SIGN SYMBOL AND BORDER ON WHITE BACKGROUND, SURROUNDED BY AN OUTER FLUORESCENT YELLOW-GREEN BACKGROUND AREA.
- 2. THE SIGN SUPPORT SHALL BE DESIGNED TO BEND OVER AND THEN BOUNCE BACK TO ITS NORMAL VERTICAL POSITION WHEN STRUCK BY A VEHICLE.
- 3. THE TOP OF AN IN-STREET PEDESTRIAN CROSSING SIGN SHALL BE A MAXIMUM C 4 FEET ABOVE THE PAVEMENT SURFACE.
- 4. SHOP DRAWING TO BE SENT TO CITY AND TXDOT OF SIGN BASE FOR APPROVAL PRIOR TO FABRICATION.

No.	Revision	Ву	Date	
PRELIMINARY				
	FOR REVIEW ONLY			

Kimley» Horn
Engineer\_THOMAS P. GRANT
P. E. No. 100876 Date 11/6/2018

Kimley » Horn
THPE REGISTERED ENGINEERING FIRM F-928





#### PR 100 ROADWAY IMPROVEMENTS

PEDESTRIAN CROSSING SIGN DETAIL

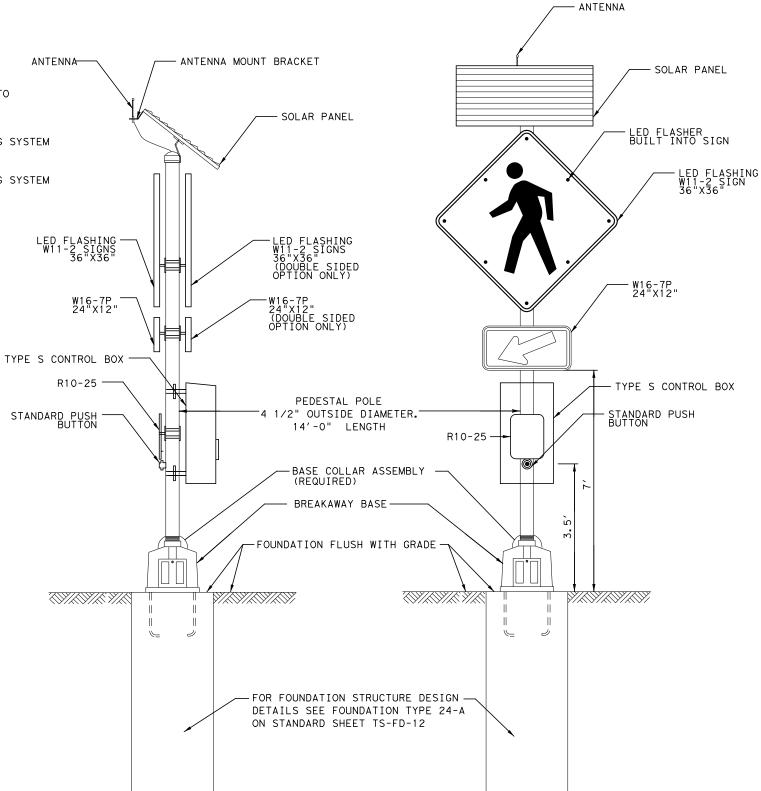
SHEET 1 OF 1

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.			H I GHWA	AY NO.
6	N\A			PR	100
STATE		DISTRICT	COUNTY		SHEET NO.
TEXA	\S	PHR	CAMERON		
CONTRO	DL	SECTION	JOB		203
N\A	4	N∖A	N\A		
					_

FLASHING LED SIGN ASSEMBLY SHALL BE PAID FOR AND ASSEMBLED USING THE FOLLOWING ITEMS: FUSH BUTTON, AND ALL THE OTHER NECESSARY ITEMS TO FULLY ASSEMBLE AND MAKE OPERATIONAL EACH FLASHING LED SIGN ASSEMBLY)

SPI 005 - DOUBLE SIDED SOLAR POWERED LED WARNING SYSTEM (ITEM COVERS PED POLE ASSEMBLY, DRILLED SHAFT, WARNING SIGN)

SPI 006 - SINGLE SIDED SOLAR POWERED LED WARNING SYSTEM (ITEM COVERS PED POLE ASSEMBLY, DRILLED SHAFT, WARNING SIGN)



FLASHING LED SIGN PEDESTAL POLE AND FOUNDATION DETAIL N.T.S.

#### NOTES:

- 1.FLASHING LED SIGNS SHALL BE COORDINATED WIRELESSLY SUCH THAT THE LED SIGNS ON BOTH SIDES OF THE CROSSWALK SHALL FLASH WHEN ONE OF THE PUSH BUTTONS IS PRESSED.
- 2.BATTERIES SHALL BE INSTALLED IN THE CONTROL BOX SO THAT FLASHERS OPERATE THRU THE NIGHT.
- 3.LED SIGNS WILL FLASH A PRESET AMOUNT OF TIME TO ALLOW PEDESTRIANS TO CROSS THE ENTIRE LENGTH OF THE ROAD BEFORE THE LEDS TERMINATE FLASHING.
- 4. OTHER UNITS OF DIFFERENT DESIGN/
  CONFIGURATION WHICH MEET THE
  SPECIFICATIONS AND ARE APPROVED
  BY THE ENGINEER WILL BE DEEMED
  ACCEPTABLE. SHOP DRAWINGS SHALL BE
  BE DELIVERED TO CITY FOR APPROVAL
  PRIOR TO PURCHASE OR INSTALLATION
  OF FLASHER.

No.	Revision	Ву	Date	
	PRELIMINAR	Υ		
	FOR REVIEW ONLY Not for construction, bidding,			
	or permit purposes.			
Kimley»Horn				
Engineer_THOMAS P. GRANT P.E. No. 100876 Pate 11/6/2018				

# **Kimley** » Horn





PR 100 (PADRE BLVD)

FLASHING LED SIGN DETAIL

SHEET 1 OF 1

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO. HI			H I GHWA	Y NO.
6	(SI	EE TITLE SHE	PR	100	
STATE		DISTRICT COUNTY		JNTY	SHEET NO.
TEXA	\S	PHR	САМ	ERON	
CONTRO	DL	SECTION	3	ЮВ	204
N\A	4	N∖A	N	<b>\</b> A	

# \$TIME\$

# REQUIREMENTS FOR INDEPENDENT MOUNTED ROUTE SIGNS

SHEETING REQUIREMENTS					
USAGE	COLOR	SIGN FACE MATERIAL			
BACKGROUND	WHITE	TYPE A SHEETING			
BACKGROUND	ALL OTHERS	TYPE B OR C SHEETING			
LEGEND & BORDERS	WHITE	TYPE A SHEETING			
LEGEND & BORDERS	BLACK	ACRYLIC NON-REFLECTIVE FILM			
LEGEND & BORDERS	ALL OTHERS	TYPE B or C SHEETING			



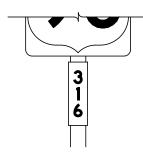




TYPICAL EXAMPLES

# REQUIREMENTS FOR BLUE, BROWN & GREEN D AND I SERIES GUIDE SIGNS

SHEETING REQUIREMENTS							
USAGE COLOR SIGN FACE MATERIAL							
BACKGROUND	ALL	TYPE B OR C SHEETING					
LEGEND & BORDERS	WHITE	TYPE D SHEETING					
LEGEND, SYMBOLS & BORDERS TYPE B OR C SHEETING							













TYPICAL EXAMPLES

#### GENERAL NOTES

- Signs to be furnished shall be as detailed elsewhere in the plans and/or as shown on sign tabulation sheet. Standard sign designs and arrow dimensions can be found in the "Standard Highway Sign Designs for Texas" (SHSD).
- 2. White legend shall use the Clearview Alphabet. The following Clearview fonts shall be used to replace the existing white Federal Highway Administration (FHWA) Standard Highway Alphabets, when not specified in the SHSD, or in the plans.

В	CV-1W
С	CV-2W
D	CV-3W
E	CV-4W
Emod	CV-5WR
F	CV-6W

- 3. Route sign legend (ie. IH, US, SH and FM shields) shall use the Federal Highway Administration (FHWA) Standard Highway Alphabets B, C, D, E, Emod or F).
- 4. Lateral spacing between letters and numerals shall conform with the SHSD, and any approved changes thereto. Lateral spacing of legend shall provide a balanced appearance when spacing is not shown.
- 5. Independent mounted route sign with white or colored legend and borders shall be applied by screening process with transparent color ink, transparent colored overlay film to white background sheeting or cut-out white sheeting to colored background sheeting, or combination thereof. White legend, symbols and borders on all other signs shall be cut-out white sheeting applied to colored background sheeting.
- 6. Information regarding borders and radii for signs is found in the "Standard Highway Sign Designs for Texas". Dimensions shown and described for borders and corner radii on parent sign are nominal. Borders may vary in width as much as 1/2 inch. Corner radii above 3 inches may vary in width as much as 1 inch. Borders and corner radii within a parent sign must be of matching widths. The sign area outside the corner radius should be trimmed or rounded.
- 7. Sign substrate shall be any material that meets the Departmental Material Specification requirements of DMS-7110 or approved alternative.
- 8. Mounting details of roadside signs are shown in the "SMD series" Standard Plan Sheets.

DEPARTMENTAL MATERIAL SPEC	IFICATIONS
ALUMINUM SIGN BLANKS	DMS-7110
SIGN FACE MATERIALS	DMS-8300

ALUMINUM SIGN	BLANKS THICKNESS					
Square Feet Minimum Thickness						
Less than 7.5	0.080					
7.5 to 15	0.100					
Greater than 15	0.125					

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.

http://www.txdot.gov/



TYPICAL SIGN REQUIREMENTS

Traffic Operations Division Standard

TSR(3)-13

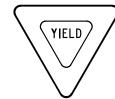
			_				
LE:	tsr3-13.dgn	DN: T	<dot< td=""><td>ck: TxDOT</td><td>DW:</td><td>TxDOT</td><td>ck: TxDOT</td></dot<>	ck: TxDOT	DW:	TxDOT	ck: TxDOT
TxDOT October 2003		CONT SECT		JOB		HIGHWAY	
REVISIONS 2-03 7-13 9-08		N\A	N\A	N\A F			100
		DIST	COUNTY				SHEET NO.
		PHR	CAMERON 205				205

9-08

# .r.

REQUIREMENTS FOR RED BACKGROUND
REGULATORY SIGNS
(STOP, YIELD, DO NOT ENTER AND WRONG WAY SIGNS)









REQUIREMENTS FOR FOUR SPECIFIC SIGNS ONLY

SHEETING REQUIREMENTS							
USAGE	COLOR	SIGN FACE MATERIAL					
BACKGROUND	RED	TYPE B OR C SHEETING					
BACKGROUND	WHITE	TYPE B OR C SHEETING					
LEGEND & BORDERS	WHITE	TYPE B OR C SHEETING					
LEGEND	RED	TYPE B OR C SHEETING					

#### REQUIREMENTS FOR WARNING SIGNS





TYPICAL EXAMPLES

SHEETING REQUIREMENTS							
USAGE COLOR SIGN FACE MATERIAL							
BACKGROUND	FLOURESCENT YELLOW	TYPE B <sub>FL</sub> OR C <sub>FL</sub> SHEETING					
LEGEND & BORDERS	BLACK	ACRYLIC NON-REFLECTIVE FILM					
LEGEND & SYMBOLS	ALL OTHER	TYPE B OR C SHEETING					

# REQUIREMENTS FOR WHITE BACKGROUND REGULATORY SIGNS

(EXCLUDING STOP, YIELD, DO NOT ENTER AND WRONG WAY SIGNS)





TYPICAL EXAMPLES

SHEETING REQUIREMENTS								
USAGE COLOR SIGN FACE MATERIAL								
BACKGROUND	WHITE	TYPE A SHEETING						
BACKGROUND	ALL OTHERS	TYPE B OR C SHEETING						
LEGEND, BORDERS AND SYMBOLS	BLACK	ACRYLIC NON-REFLECTIVE FILM						
LEGEND, BORDERS AND SYMBOLS	ALL OTHER	TYPE B OR C SHEETING						

#### REQUIREMENTS FOR SCHOOL SIGNS





TYPICAL EXAMPLES

SHEETING REQUIREMENTS								
USAGE COLOR SIGN FACE MATERIAL								
BACKGROUND	WHITE	TYPE A SHEETING						
BACKGROUND	FLOURESCENT YELLOW GREEN	TYPE B <sub>FL</sub> OR C <sub>FL</sub> SHEETING						
LEGEND, BORDERS AND SYMBOLS	BLACK	ACRYLIC NON-REFLECTIVE FILM						
SYMBOLS	RED	TYPE B OR C SHEETING						

#### GENERAL NOTES

- Signs to be furnished shall be as detailed elsewhere in the plans and/or as shown on sign tabulation sheet. Standard sign designs and arrow dimensions can be found in the "Standard Highway Sign Designs for Texas" (SHSD).
- 2. Sign legend shall use the Federal Highway Administration (FHWA) Standard Highway Alphabets (B, C, D, E, Emod or F).
- 3. Lateral spacing between letters and numerals shall conform with the SHSD, and any approved changes thereto. Lateral spacing of legend shall provide a balanced appearance when spacing is not shown.
- Black legend and borders shall be applied by screening process or cut-out acrylic non-reflective black film to background sheeting, or combination thereof.
- 5. White legend and borders shall be applied by screening process with transparent colored ink, transparent colored overlay film to white background sheeting or cut-out white sheeting to colored background sheeting, or combination thereof.
- 6. Colored legend shall be applied by screening process with transparent colored ink, transparent colored overlay film or colored sheeting to background sheeting, or combination thereof.
- 7. Sign substrate shall be any material that meets the Departmental Material Specification requirements of DMS-7110 or approved alternative.
- 8. Mounting details for roadside mounted signs are shown in the "SMD series" Standard Plan Sheets.

ALUMINUM SIGN	BLANKS THICKNESS
Square Feet	Minimum Thickness
Less than 7.5	0.080
7.5 to 15	0.100
Greater than 15	0.125

DEPARTMENTAL MATERIAL SPEC	IFICATIONS
ALUMINUM SIGN BLANKS	DMS-7110
SIGN FACE MATERIALS	DMS-8300

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.

http://www.txdot.gov/



Traffic Operations Division Standard

# TYPICAL SIGN REQUIREMENTS

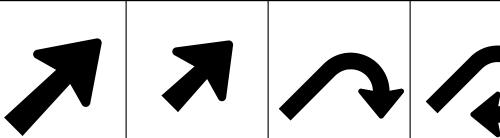
TSR(4) - 13

				•					
.E:	tsr4-13.d	gn	DN:	T>	OOT	ck: TxDOT	DW:	TxDOT	ck: TxDOT
txDOT October 2003		CONT SECT		SECT	JOB		HIGHWAY		
REVISIONS 1-03 7-13 1-08		NΝ	Α	NΛA	N\A		PF	100	
		DIS	DIST COUNTY				SHEET NO.		
		PH	R		CAMERO	NC		206	

#### ARROW DETAILS

for Large Ground-Mounted and Overhead Guide Signs

E-3

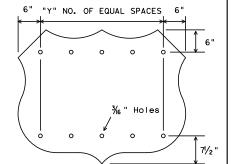






Down Arrow

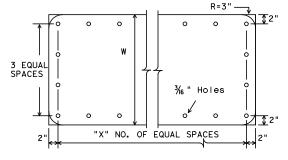
¾6" Holes



SIGN BLANK PUNCHING DETAILS FOR ATTACHMENTS WHEN SPECIFIED

TO BE TYPE A ALUMINUM SIGNS

(FOR MOUNTING TO GUIDE SIGN FACE)



U.S. ROUTE MARKERS

Sign Size

24×24

30×24 36×36 45×36

48×48

5

STATE ROUTE MARKERS

No.of Digits	W	Х
4	24	4
4	36	5
4	48	6
3	24	3
3	36	4
3	48	5

Type A

TYPE

LETTER SIZE	USE
10.67" U/L and 10" Caps	Single
13.33" U/L and 12" Caps	Lane
16" & 20" U/L	Exits
10.67" U/L and 10" Caps	Multiple

Type B

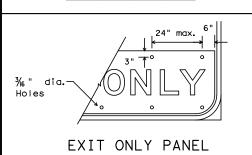
Lane	13.33" U/L and 12" Caps	A-2
Exits	16" & 20" U/L	A-3
Multiple	10 <b>.</b> 67" U/L and 10" Caps	B-I
Lane	13.33" U/L and 12" Caps	B-2
Exits	16" & 20" U/L	B-3

CODE	USED ON SIGN NO.
E-3	E5-laT
E-4	E5-lbT

#### NOTE

Arrow dimensions are shown in the "Standard Highway Sign Designs for Texas" manual.

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website. http://www.txdot.gov/



INTERSTATE ROUTE MARKERS

15

20

11/2

13/4

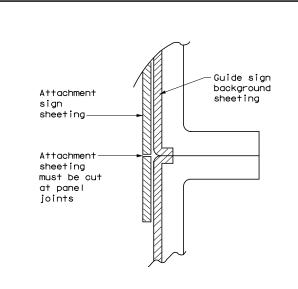
21

28

36

48

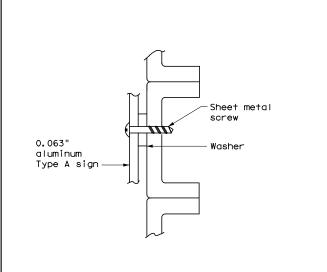
## MOUNTING DETAILS OF ATTACHMENTS TO GUIDE SIGN FACE ("EXIT ONLY" AND "LEFT EXIT" PANELS, ROUTE MARKERS AND OTHER ATTACHMENTS)



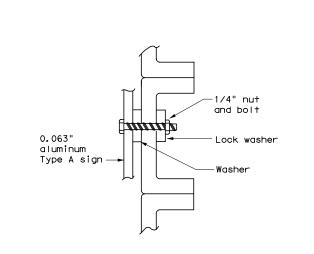
DIRECT APPLIED ATTACHMENT

#### NOTE:

- 1. Sheeting for legend, symbols, and borders must be cut at panel joints.
- 2. Direct applied attachment signs will be subsidiary to "Aluminum Signs" or "Fiberglass Signs".



SCREW ATTACHMENT

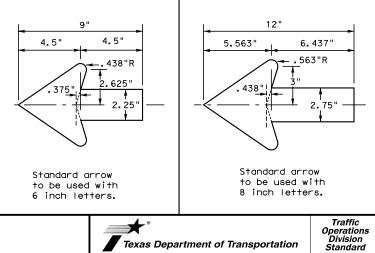


NUT/BOLT ATTACHMENT

#### NOTE:

Furnish Type A aluminum sign attachments only when specified in the plans. These signs will be paid for under "Aluminum Signs".

## ARROW DETAILS for Destination Signs (Type D)





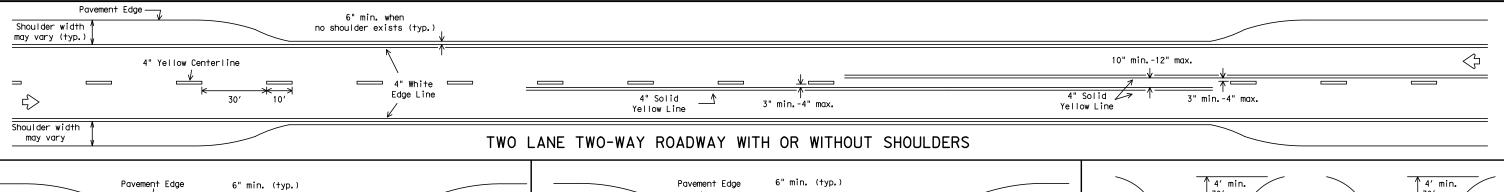
TYPICAL SIGN REQUIREMENTS

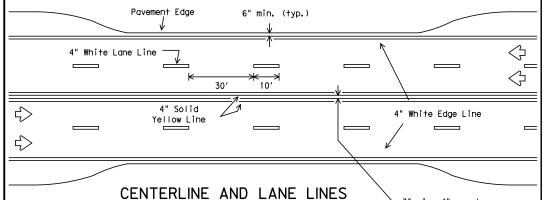
TSR(5) - 13

E: -	tsr5-13.dq	jn	DN: To	<dot< th=""><th>ck: TxDOT</th><th>DW:</th><th>T×DOT</th><th>ck: TxDOT</th></dot<>	ck: TxDOT	DW:	T×DOT	ck: TxDOT
TxDOT (	October	2003	CONT	SECT	JOB		н	GHWAY
	REVISIONS		N\A	N\A	N\A		PR	100
-03 7-13 -08	3		DIST		COUNTY			SHEET NO.
-08			PHR		CAMERO	NC		207







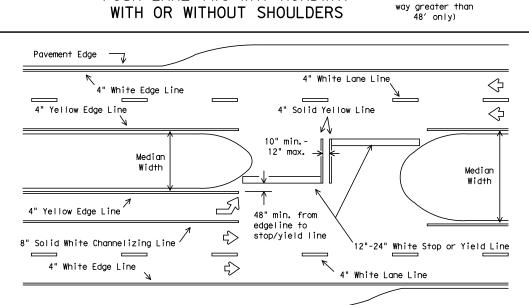


FOUR LANE TWO-WAY ROADWAY

WITH OR WITHOUT SHOULDERS

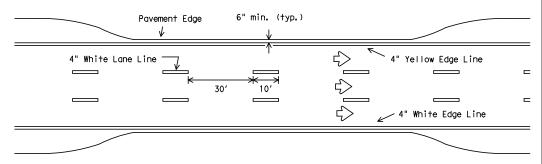
3" min.-4" usual

(12" max. for traveled

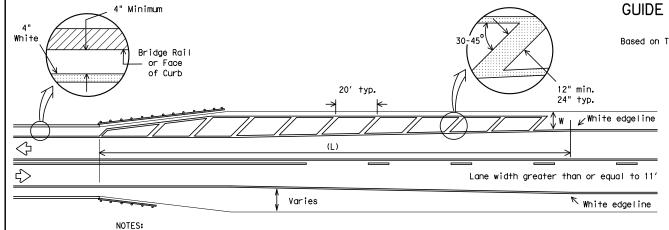


All medians shall be field measured to determine the location of necessary striping. Stop/Yield bars and centerlines shall be placed when the median width is greater than 30 ft. The median width is defined as the area between two roadways of a divided highway measured from edge of traveled way to edge of traveled way. The median excludes turn lanes. The median width might be different between intersections, interchanges and of opposite approaches of the same intersection. The narrow median width will be the controlling width to determine if markings are required.

FOUR LANE DIVIDED ROADWAY INTERSECTIONS



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



- 1. No-passing zone on bridge approach is optional but if used, it shall be a minimum 500 feet long.
- 2. For crosshatching length (L) see Table 1.
- 3. The width of the offset (W) and the required crosshatching width is the full shoulder width in advance of the bridge.
- 4. The crosshatching is not required if delineators or barrier reflectors are used along the structure.
- 5. For guard fence details, refer elsewhere in the plans.

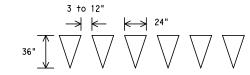
#### ROADWAYS WITH REDUCED SHOULDER WIDTHS ACROSS BRIDGE OR CULVERT

#### GENERAL NOTES

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

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

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



FOR POSTED SPEED ON ROAD BEING MARKED EQUAL TO OR GREATER THAN 45 MPH

FOR POSTED SPEED ON ROAD BEING MARKED EQUAL TO OR LESS THAN 40 MPH

YIELD LINES

	30' max. STOP LINES Solid Whi Width: 12 24 EDGE LINE 4" Solid	" min. " max.	30' max.
for Ed	CENTERLINE 4" Yellow Length: 1 Gap: 30'  * OPTIONAL 4" Solid Yellow li on approd intersed (500' min	*  ne ches to ions  Minimum F for Centerlines	Requirements
	y Width ≥ 20′	Pavement Wid	th 16′ ≤ W < 20′

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

Based on Traveled Way and Pavement Widths for Undivided Highways

#### TABLE 1 - TYPICAL LENGTH (L)

Posted Speed **	Formula
≤ 40	L= WS 2
≥ 45	L=WS

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

An 8 foot shoulder in advance of a bridge reduces to 4 feet on a 70 MPH roadway. The length of the crosshatching should be:

 $L = 8 \times 70 = 560 \text{ ft.}$ 

A 4 foot shoulder in advance of a bridge reduces to 2 feet on a 40 MPH roadway. The length of the crosshatching should be:

 $L = 4(40)^2 / 60 = 106.67$  ft. rounded to 110 ft.

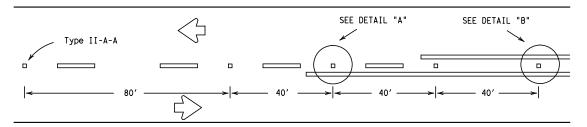


## TYPICAL STANDARD PAVEMENT MARKINGS

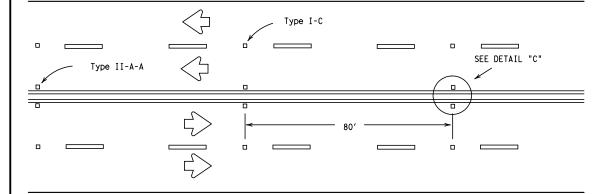
PM(1) - 12

© TxDOT November 1978	DN: TX	OT	CK: TXDOT	DW:	TXDOT	CK: TXDOT
REVISIONS	CONT	SECT	JOB		H	HIGHWAY
8-95 2-12 5-00	N\A	N\A	N\A		Р	R 100
8-00	DIST		COUNTY			SHEET NO.
3-03	PHR		CAMERO	N		208

#### REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE

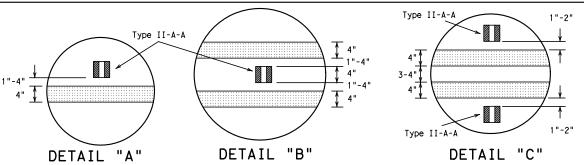


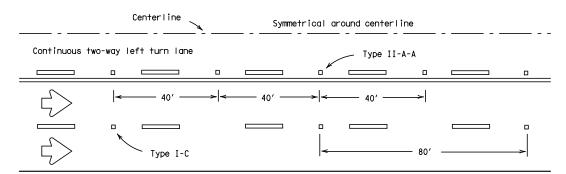
#### CENTERLINE FOR ALL TWO LANE ROADWAYS



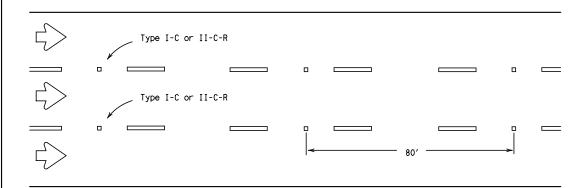
#### CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY HIGHWAYS

Raised pavement marker Type I-C, clear face toward normal traffic, shall be placed on 80-foot centers.



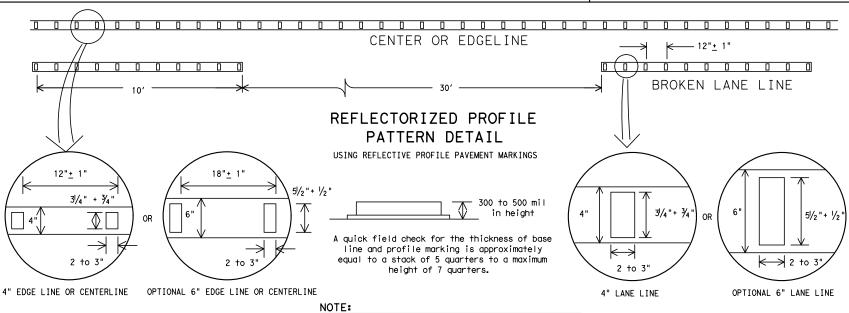


#### CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



#### LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

Raised pavement markers Type II-C-R shall have clear face toward normal traffic and red face toward wrong-way traffic.



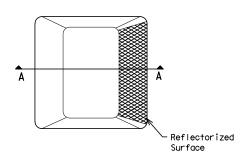
Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

#### **GENERAL NOTES**

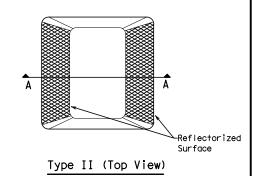
- 1. All raised payement markers placed in broken lines shall be placed in line with and midway between
- 2. On concrete pavements the raised pavement markers should be placed to one side of the longitudinal

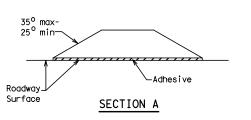
MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240
 •	

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



Type I (Top View)





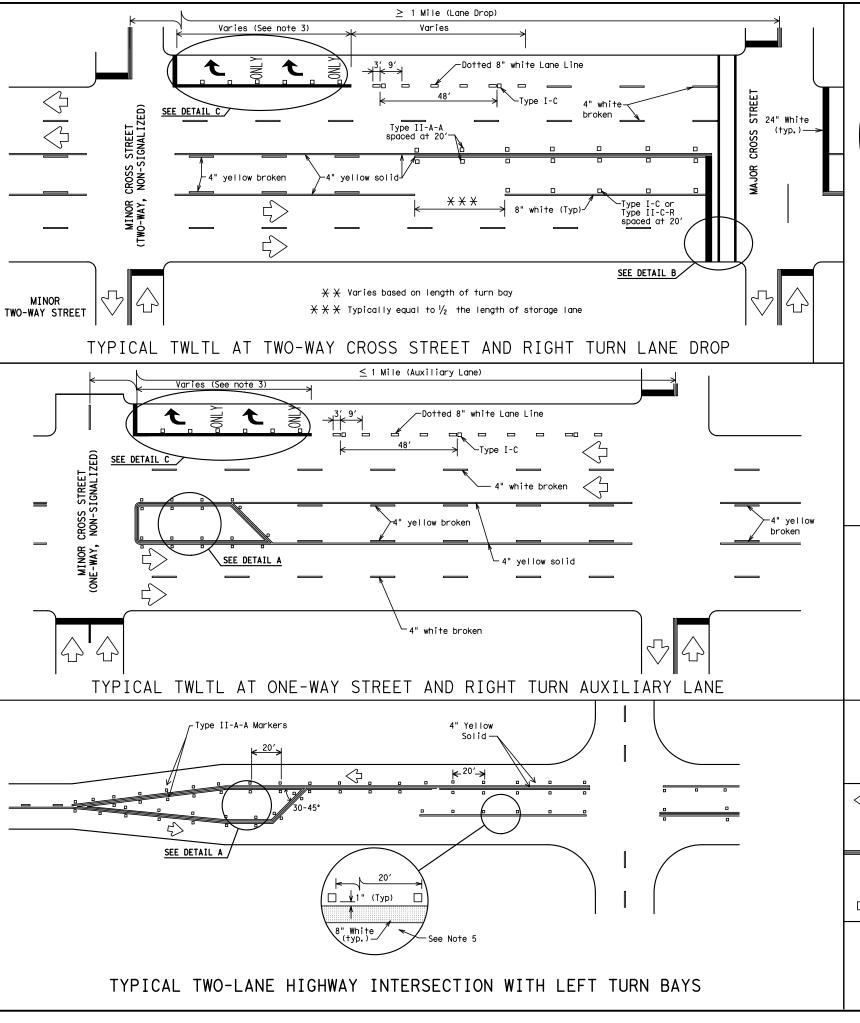
RAISED PAVEMENT MARKERS

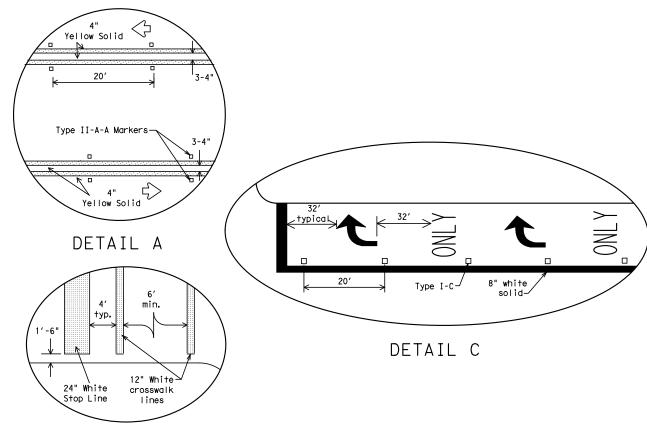


POSITION GUIDANCE USING RAISED MARKERS REFLECTORIZED PROFILE MARKINGS

PM(2)-12

©⊺xDOT April 1977	DN: TX	тоот	CK: TXDOT	DW:	TXDOT	CK: TXDOT	
REVISIONS	CONT	SECT	JOB		ніс	SHWAY	
I-92 2-10 I-00 2-12	N\A	N\A	N\A	N\A		PR 100	
3-00	DIST		COUNTY		,	SHEET NO.	
?-08	PHR		CAMERO	N		209	





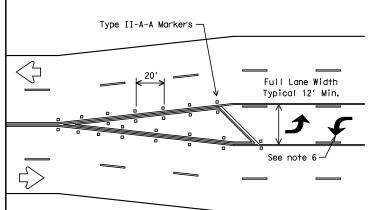
## 

Final placement of Stop Bar

and Crosswalk shall be approved

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

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



TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY

#### GENERAL NOTES

- Refer elsewhere in plans for additional RPM placement and details.
- 2. Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn bays for emphasis. Details for words and arrows as shown in the Standard Highway Sign Designs for Texas.
- 3. When lane used word and arrow markings are used, two sets of arrows should be used if the length of the bay is greater than 180 feet. When a single lane use arrow or word and arrow marking is used for a short turn lane, it should be located at or near the upstream end of the full-width turn lane.
- Other crosswalk paterns as shown in the "Texas Manual on Uniform Traffic Control Devices" may be used.
- Raised pavement marker Type I-C with undivided highways, flush medians and two way left turn lanes. Raised pavement marker Type II-C-R with divided highways and raised medians.
- 6. A two-way left-turn (TWLT) lane-use arrow pavement marking should be used at or just downstream from the beginning of a two-way left-turn lane within a corridor. Repeating the marking after each intersection or dedicated turn bay is not required unless stated elsewhere in the plans.



PAVEMENT MARKINGS FOR TWO-WAY LEFT TURN LANES DIVIDED HIGHWAYS AND RURAL LEFT TURN BAYS

PM(3)-12

©⊺xDOT April 1998	DN: TXE	тоот	CK: TXDOT	DW:	TXDOT	CK: TXDOT	
REVISIONS	CONT	SECT	JOB		HIC	HIGHWAY	
·00 2-12 ·00	N\A	N\A	N\A		PR 100		
-03	DIST	COUNTY			SHEET NO.		
-10	PHR	CAMERON				210	



#### SM RD SGN ASSM TY XXXXX(X)XX(X-XXXXX

#### Post Type

FRP = Fiberglass Reinforced Plastic Pipe (see SMD(FRP)) TWT = Thin-Walled Tubing (see SMD(TWT))

10BWG = 10 BWG Tubing (see SMD(SLIP-1) to (SLIP-3)) S80 = Schedule 80 Pipe (see SMD(SLIP-1) to (SLIP-3))

#### Number of Posts (1 or 2) -

#### Anchor Type

UA = Universal Anchor - Concreted (see SMD(FRP) and (TWT)) UB = Universal Anchor - Bolted down (see SMD(FRP) and (TWT))

- WS = Wedge Anchor Steel (see SMD(TWT))
- WP = Wedge Anchor Plastic (see SMD(TWT))
- SA = Slipbase Concreted (see SMD(SLIP-1) to (SLIP-3))
- SB = Slipbase Bolted Down (see SMD(SLIP-1) to (SLIP-3))

#### Sign Mounting Designation

P = Prefab. "Plain" (see SMD(SLIP-1) to (SLIP-3), (TWT), (FRP)) T = Prefab. "T" (see SMD(SLIP-1) to (SLIP-3), (TWT))

U = Prefab. "U" (see SMD(SLIP-1) to (SLIP-3)) IF REQUIRED

No more than 2 sign

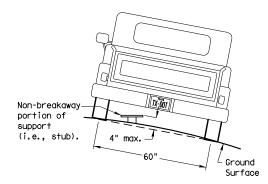
posts should be located

within a 7 ft. circle.

- 1EXT or 2EXT = Number of Extensions (see SMD(SLIP-1) to (SLIP-3), (TWT))
- BM = Extruded Wind Beam (see SMD(SLIP-1) to (SLIP-3)) WC = 1.12 #/ft Wing Channel (see SMD(SLIP-1) to (SLIP-3)) EXAL = Extruded Aluminum Sign Panels (see SMD(SLIP-3))

diameter

## REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



To avoid vehicle undercarriage snagging, any substantial remains of a breakaway support. when it is broken away, should not project more than 4 inches above a 60-inch chord (i.e., typical space between wheel paths).

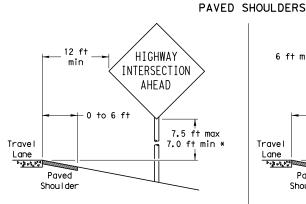
Not Acceptable

7 ft.

diameter

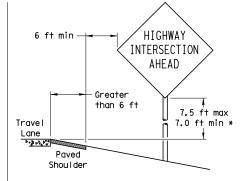
circle

Not Acceptable



#### LESS THAN 6 FT. WIDE

When the shoulder is 6 ft. or less in width. the sign must be placed at least 12 ft. from the edge of the travel lane.



SIGN LOCATION

#### GREATER THAN 6 FT. WIDE

When the shoulder is greater than 6 ft in width. the sign must be placed at least 6 ft. from the edge of the shoulder.

#### When this sign is needed at the end of a two-lane, two way roadway, the right edge of the sign should be in line with the centerline of the roadway. Place as close to ROW as practical.

Paved

Shou I den

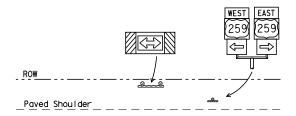
T-INTERSECTION

12 ft min

← 6 ft min

7.5 ft max

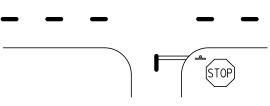
7.0 ft min \*



Edge of Travel Lane

Travel

Lane



#### \* Signs shall be mounted using the following condition that results in the greatest sign elevation:

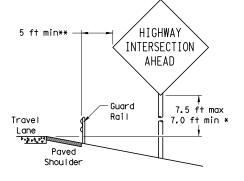
- (1) a minimum of 7 to a maximum of 7.5 feet above the edge of the travel lane or (2) a minimum of 7 to a maximum of 7.5 feet above the
- grade at the base of the support when sign is installed on the backslope.

The maximum values may be increased when directed by

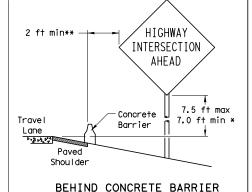
See the Traffic Operations Division website for detailed drawings of sign clamps, Triangular Slipbase System components and Wedge Anchor System components.

The website address is: http://www.txdot.gov/publications/traffic.htm

## BEHIND BARRIER



BEHIND GUARDRAIL



\*\*Sign clearance based on distance required for proper guard rail or concrete barrier performance.

RESTRICTED RIGHT-OF-WAY

(When 6 ft min. is not possible.)

7.5 ft max

7.0 ft min \*

HIGHWAY

INTERSECTION

AHEAD

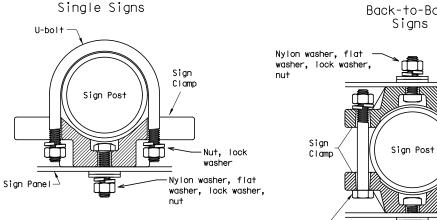
Maximum

Travel

Lane

P 2 - 4 P 4

possible

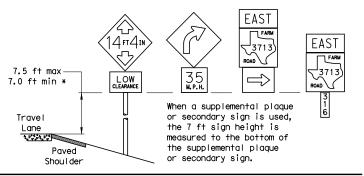


Not Acceptable

Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum. When two sign clamps are used to mount signs

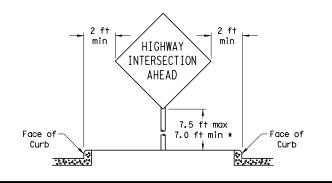
back-to-back, use a 5/16-18 UNC galvanized hex head per ASTM A307 with nut and helical-spring lock washer. The approximate bolt lengths for various post sizes and sign clamp types are given in the table at right. The bolt length may need to be adjusted depending upon field conditions.

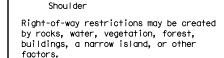
Sign clamps may be either the specific size clamp the universal clamp.



SIGNS WITH PLAQUES

#### CURB & GUTTER OR RAISED ISLAND





In situations where a lateral restriction prevents the minimum horizontal clearance from the edge of the travel lane, signs should be placed as far from the travel lane as practical.

\*\*\* Post may be shorter if protected by guardrail or if Engineer determines the post could not be hit due to extreme



#### STANDARD PLANS TEXAS DEPARTMENT OF TRANSPORTATION Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

SMD (GEN) -08

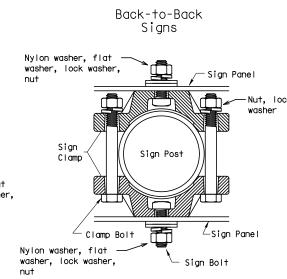
TxD01	July 2	2002		DN: - TXDOT	ck: - TxDO	Ţ	w: - TxDOT	ck: - TxDOT
SIONS STATE FEDERAL DISTRICT REGION				FEDERAL AID PROJECT				SHEET
-08	PHR 6 (SEE TITLE SHEET)							211
	COUNTY				CONTROL	SECTION	JOB	HIGHWAY
	CAMERON				N\A	N\A	N\A	PR -100

## TYPICAL SIGN ATTACHMENT DETAIL

7 ft.

diameter

circle



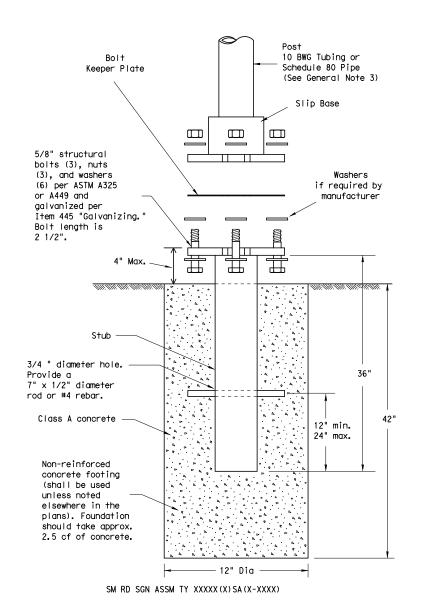
Acceptable

diameter

circle

D' D'	Approximate Bolt Length				
Pipe Diameter	Specific Clamp	Universal Clamp			
2" nominal	3"	3 or 3 1/2"			
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"			
3" nominal	3 1/2 or 4"	4 1/2"			

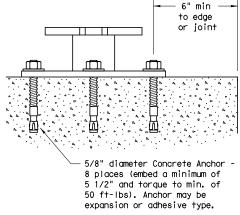
#### TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS



#### NOTE

There are various devices approved for the Triangular Slipbase System. Please reference the Material Producer List for approved slip base systems. http://www.txdot.gov/business/producer list.htm The devices shall be installed per manufacturers' recommendations. Installation procedures shall be provided to the Engineer by Contractor.

#### CONCRETE ANCHOR



SM RD SGN ASSM TY XXXXX(X)SB(X-XXXX)

Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. Heavy hex nut per ASTM A563, and hardened washer per ASTM F436. The stud bolt shall have a minimum yield and ultimate tensile strength of 50 and 75 KSI, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations. Top of bolt shall extend at least flush with top of the nut when installed. The anchor, when installed in 4000 psi normalweight concrete with a 5 1/2" minimum embedment, shall have a minimum allowable tension and shear of 3900 and 3100 psi, respectively.

#### GENERAL NOTES:

- 1. Slip base shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to approval of the TxDOT Traffic Standards Engineer.
- Material used as post with this system shall conform to the following specifications:

10 BWG Tubing (2.875" outside diameter)

0.134" nominal wall thickness

Seamless or electric-resistance welded steel tubing or pipe Steel shall be HSLAS Gr 55 per ASTM A1011 or ASTM A1008

Other steels may be used if they meet the following:

55,000 PSI minimum yield strength 70,000 PSI minimum tensile strength

20% minimum elongation in 2"

Wall thickness (uncoated) shall be within the range of 0.122" to 0.138"

Outside diameter (uncoated) shall be within the range of 2.867" to 2.883"

Galvanization per ASTM A123 or ASTM A653 G210. For precoated steel tubing (ASTM A653), recoat

tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.

Schedule 80 Pipe (2.875" outside diameter) 0.276" nominal wall thickness

Steel tubing per ASTM A500 Gr C

Other seamless or electric-resistance welded steel tubing or pipe with equivalent

outside diameter and wall thickness may be used if they meet the following:

46,000 PSI minimum yield strength

62,000 PSI minimum tensile strength

21% minimum elongation in 2"

Wall thickness (uncoated) shall be within the range of 0.248" to 0.304" Outside diameter (uncoated) shall be within the range of 2.855" to 2.895"

Galvanization per ASTM A123

3. See the Traffic Operations Division website for detailed drawings of sign clamps and Texas Universal Triangular Slipbase System components. The website address is:

http://www.txdot.gov/publications/traffic.htm

4. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.

#### ASSEMBLY PROCEDURE

#### Foundation

- 1. Prepare 12-inch diameter by 42-inch deep hole. If solid rock is encountered, the depth of the foundation may be reduced such that it is embedded a minimum of 18 inches into the solid rock.
- 2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable. motor-driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Concrete shall be Class A.
- 3. Push the pipe end of the slip base stub into the center of the concrete. Rotate the stub back and forth while pushing it down into the concrete to assure good contact between the concrete and stub. Continue to work the stub into the concrete until it is between 2 to 4 inches above the ground.
- 4. Plumb the stub. Allow a minimum of 4 days to set, unless otherwise directed by the Engineer.
- 5. The triangular slipbase system is multidirectional and is designed to release when struck from any direction.

- 1. Cut support so that the bottom of the sign will be 7 to 7.5 feet above the edge of the travelway (i.e., edge of the closest lane) when slip plate is below the edge of pavement or 7 to 7.5 feet above slip plate when the slip plate is above the edge of the travelway. The cut shall be plumb and
- 2. Attach sign to support using connections shown. When multiple signs are installed on the same support, ensure the minimum clearance between each sign is maintained. See SMD(SLIP-2) for clearances based on sign types.

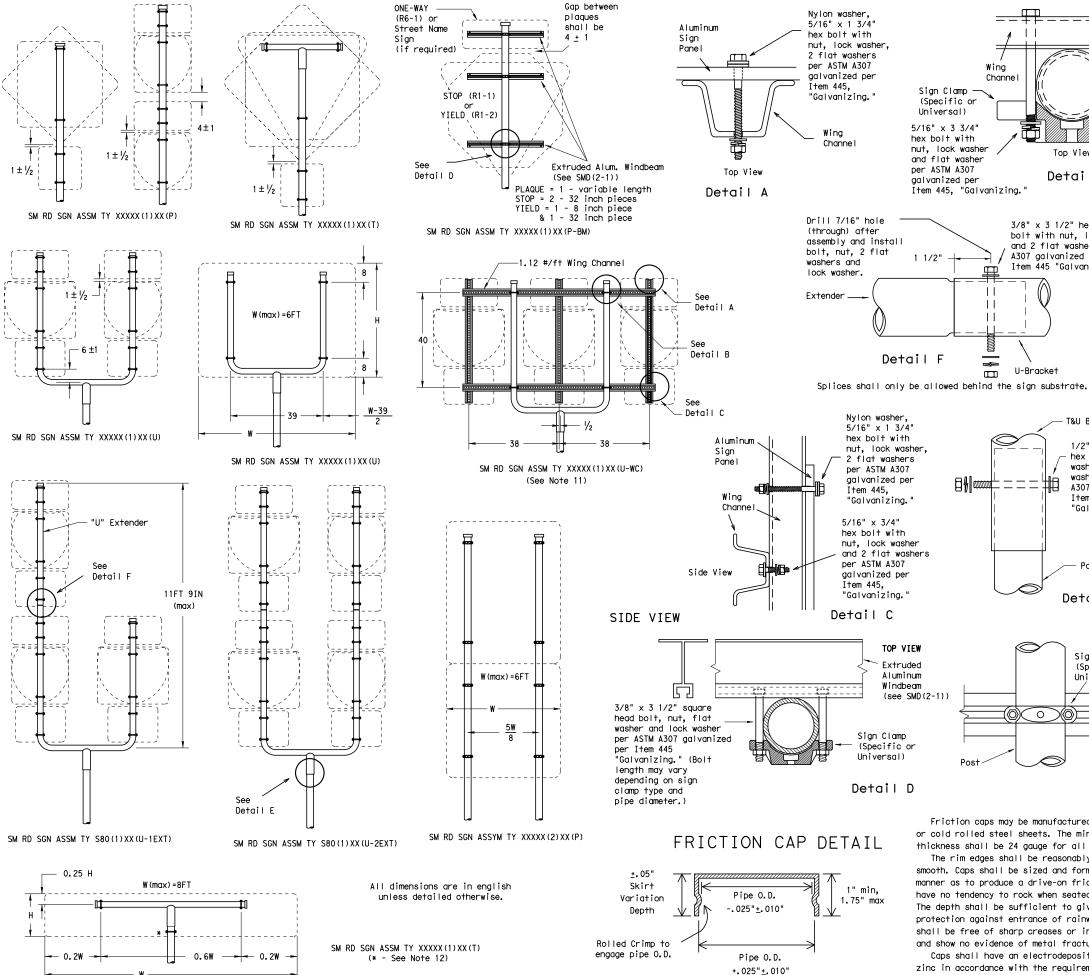


## SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-1)-08

© TxD01	July 2	2002	DN: - TXDOT	ck: - TxDO	T DW	:- TxDOT	ck: - TxDOT
REVISIONS	STATE DISTRICT	FEDERAL REGION	FEDE	RAL AID PROJECT			SHEET
9-08 PHR 6			(SEE T	(SEE TITLE SHEET)			
	COUNTY			CONTROL	SECTION	JOB	HIGHWAY
		CAM	FRON	N\A	N\A	N\A	PR -100





#### GENERAL NOTES:

1.	SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
	10 BWG	1	16 SF
	10 BWG	2	32 SF
	Sch 80	1	32 SF
	Sch 80	2	64 SF

- 2. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
- 3. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
- 4. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
- 5. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
- 6. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of areater height.
- 7. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently
- when impacted by an errant vehicle.

  8. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
- Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
- 10. Additional route markers may be added vertically, provided the total sign area does not exceed the maximum allowable amount per Note 1.
- 11. Additional sign clamp required on the "T-bracket" post for 24 inch height signs. Place the clamp 3 inches above bottom of sign when possible.
- 12. Post open ends shall be fitted with Friction Caps.
- 13. Sign blanks shall be the sizes and shapes shown on the plans.

	REQUIRED SUPPORT	
	SIGN DESCRIPTION	SUPPORT
	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
۲	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
Regulatory	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
Regu	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
ō	48x60-inch signs	TY S80(1)XX(T)
Warning	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
WG	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)

#### STANDARD PLANS Texas Department of Transportation Traffic Operations Division

#### SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-2)-08

TxDOT July 2002			DN: - TXDOT	ck: - TxDO	DW: - TXDOT		ck: - TxDOT	
VISIONS	STATE DISTRICT	FEDERAL REGION	FEC	FEDERAL AID PROJECT				
9-08	PHR	6	(SEE T	213				
		COU	NTY	CONTROL	SECTION	JOB	HIGHWAY	
		CAM	ERON	N\A	N\A	N∖A	PR ·100	

Friction caps may be manufactured from hot rolled or cold rolled steel sheets. The minimum sheet metal thickness shall be 24 gauge for all cap sizes.

0

Wing

11

Channe I

Top View

3/8" x 3 1/2" heavy hex

A307 galvanized per

U-Bracket

Item 445 "Galvanizing.

bolt with nut, lock washer

and 2 flat washers per ASTM

T&U Bracket

Item 445,

Detail E

Sign Clamp

Universal)

(Specific or

"Galvanizing.

1/2" x 4" heavy

hex bolt, nut, lock

washer and 2 flat

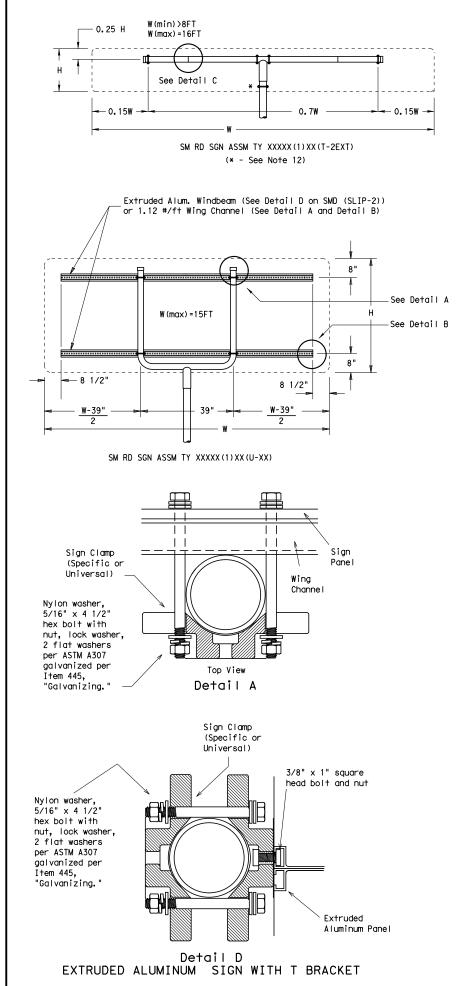
washers per ASTM

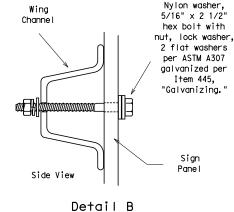
A307 galvanized per

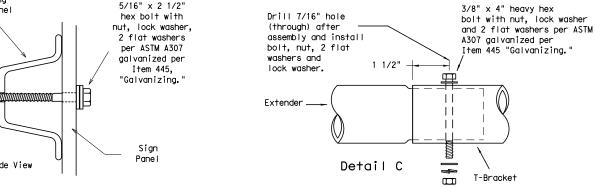
Detail B

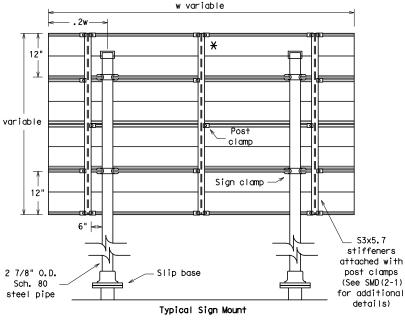
The rim edges shall be reasonably straight and smooth. Caps shall be sized and formed in such a manner as to produce a drive-on friction fit and have no tendency to rock when seated on the pipe. The depth shall be sufficient to give positive protection against entrance of rainwater. They shall be free of sharp creases or indentations and show no evidence of metal fracture.

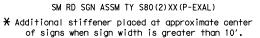
Caps shall have an electrodeposited coating of zinc in accordance with the requirements of ASTM B633 Class FE/ZN 8.

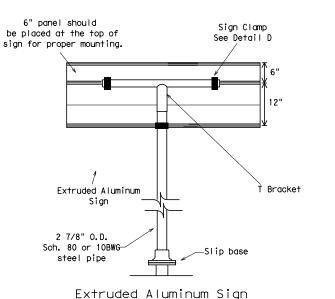




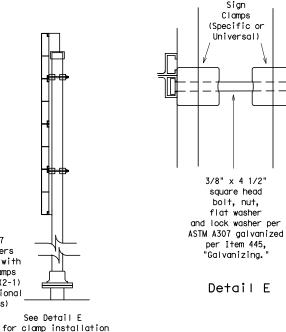








With T Bracket



Splices shall only be allowed behind the sign substrate.



Use Extruded Alum. Windbeam as stiffeners See SMD (2-1) for additional details

See Detail E for clamp installation

#### GENERAL NOTES:

1.	SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
	10 BWG	1	16 SF
	10 BWG	2	32 SF
	Sch 80	1	32 SF
	Sch 80	2	64 SF

- The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
- 3. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
- 4. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
- 5. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
- 6. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of areater height.
- 7. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
- Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
- Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
- 10. Sign blanks shall be the sizes and shapes shown on
- 11. Additional sign clamp required on the "T-bracket" post for 24 inch high signs. Place the clamp 3 inches above bottom of sign when possible.
- 12. Post open ends shall be fitted with Friction Caps.

	REQUIRED SUPPORT	
	SIGN DESCRIPTION	SUPPORT
	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
Ţ.	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
Regulatory	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
Regn	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
ō	48x60-inch signs	TY S80(1)XX(T)
Warning	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
MC	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)



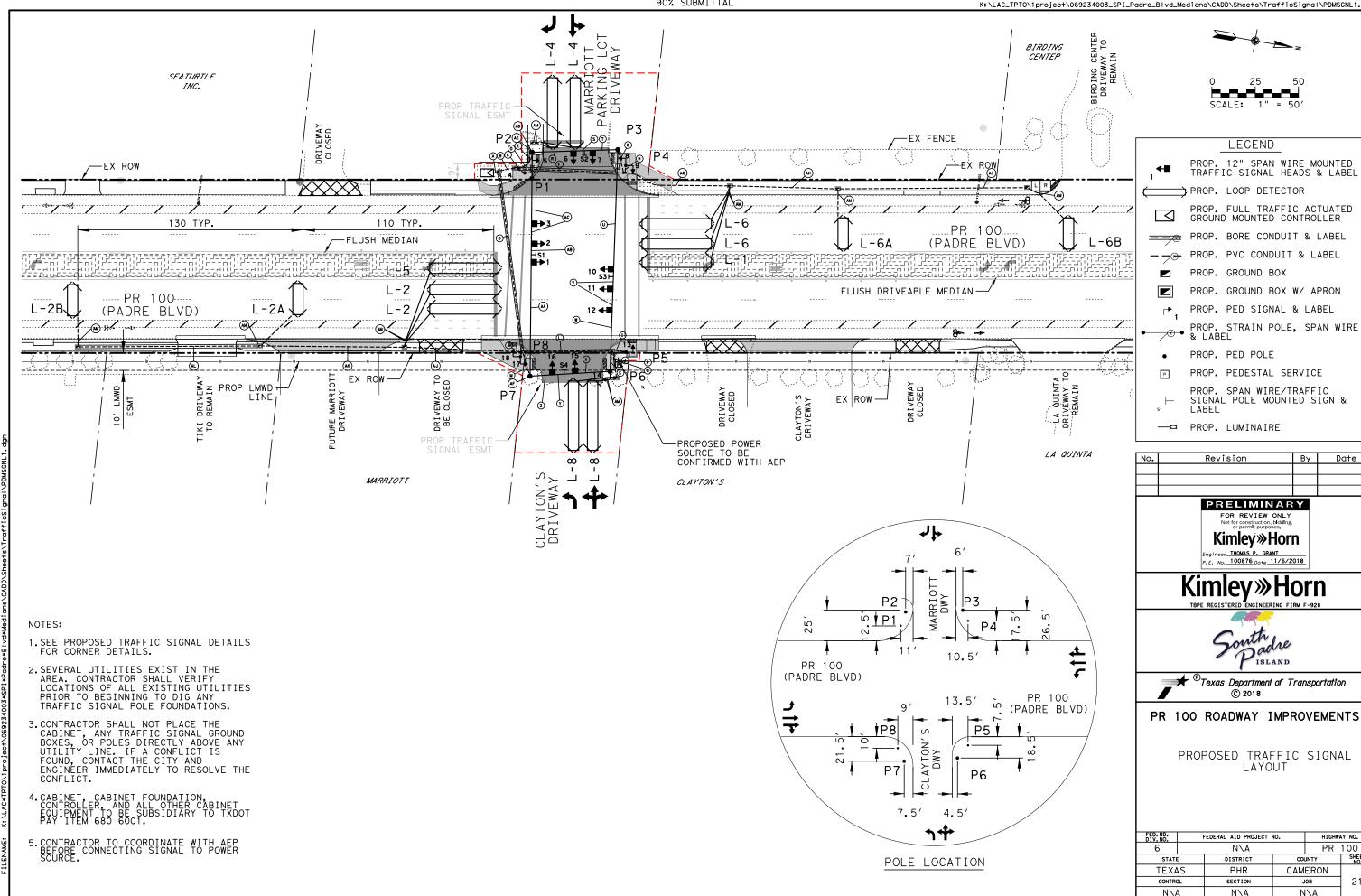
#### SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

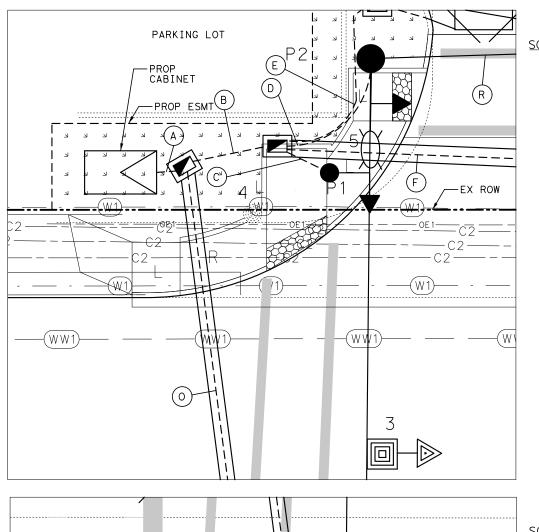
SMD(SLIP-3)-08

©TxDOT July 2002			DN: - TXDOT	ck: - TxDO	T DW:	- TxDOT	ck: - TxDOT	
REVISIONS	STATE DISTRICT	FEDERAL REGION	FEDE	FEDERAL AID PROJECT				
9-08 PHR 6 (SEE TITE					IEET)		214	
		COU	INTY	CONTROL	SECTION	JOB	HIGHWAY	
		CAM	ERON	N\A	N\A	N\A	PR 100	

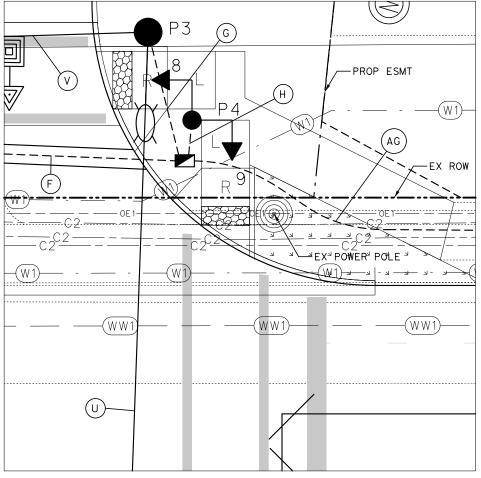
Date

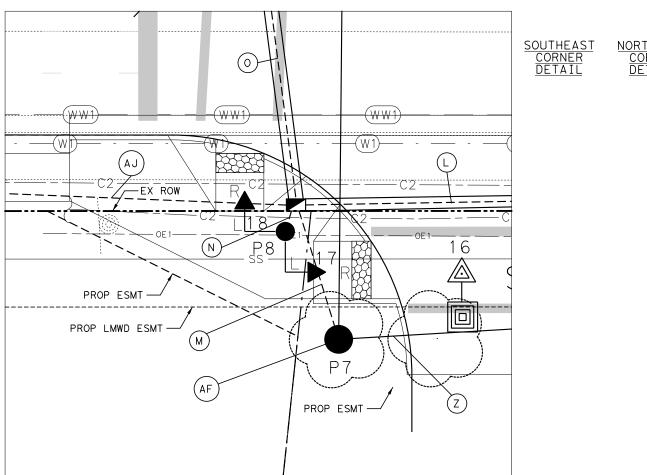
PR 100



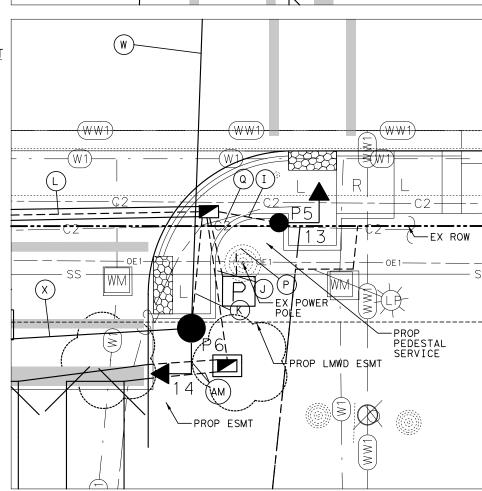


<u>SOUTHWEST</u> **NORTHWEST** CORNER DETAIL CORNER DETAIL

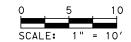




NORTHEAST CORNER DETAIL







#### LEGEND

PROP. 12" SPAN WIRE MOUNTED TRAFFIC SIGNAL HEADS & LABEL

> PROP. LOOP DETECTOR

PROP. FULL TRAFFIC ACTUATED GROUND MOUNTED CONTROLLER

PROP. BORE CONDUIT & LABEL

PROP. GROUND BOX

PROP. GROUND BOX W/ APRON

PROP. PED SIGNAL & LABEL

PROP. STRAIN POLE, SPAN WIRE & LABEL

PROP. PVC CONDUIT & LABEL

PROP. PED POLE

PROP. PEDESTAL SERVICE

PROP. SPAN WIRE/TRAFFIC SIGNAL POLE MOUNTED SIGN & LABEL

── PROP. LUMINAIRE

	PRELIMIN FOR REVIEW	Y	
No.	Revision	Ву	Date

**Kimley** »Horn Engineer THOMAS P. GRANT
P.E. No. 100876 Date 11/6/2018

South dre Pisland



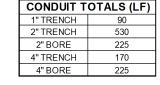
#### PR 100 ROADWAY IMPROVEMENTS

PROPOSED TRAFFIC SIGNAL CORNER DETAILS

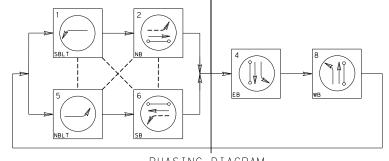
FED.RD. DIV.NO.	-	AY NO.			
6	N\A			PR	100
STATE		DISTRICT	COUNTY		SHEET NO.
TEXA	TEXAS PHR CAMERON		ERON		
CONTROL		SECTION	JOB		216
N\A		N∖A	N\A		

						SUN	1M	ARY O	F CON	DUIT A	ND CA	BLES					
	SI	ITEM	618 SI (FT) S	ZE/TYP CHEDU							œ		/ 684 EL			7	
RUN NUMBER	CONDUIT STATUS	1" PVC (TRENCH)	2" PVC (TRENCH)	2" PVC (BORE)	4" PVC (TRENCH)	4" PVC (BORE)	CABLE STATUS	NO. 8 BARE WIRE	NO. 6 XHHW WIRE	TRAY CABLE 4 COND. #12 AWG	LOOP DETECTOR WIRE	2 COND. #14 AWG	2 COND. #12 AWG	5 COND. #12 AWG	7 COND. #12 AWG	LENGTH OF RUN	RUN NUMBER
A-1	1				10		1	1				8	9	11	4	10	A-1
A-2	1				10		1	1						4	4	10	A-2
A-3			10				1	1	2							10	A-3
A-4	<u> </u>		10		40		1	1		0						10	A-4
В	-				10			1		2		4	5	7	4	10	В
<u>C</u>	1				10		1	1		4		1	1	_		10	С
D					20 15		1	1		1		1	1	5	4	20 15	D E
E	<u> </u>				10	65	1	1				3	2			65	F-1
F-1	H			65		00	i	1		1				2		65	F-2
F-2 G	÷			- 55	15		1	1		1				2		15	G
H	i i				10		i	1		'			2			10	Н
	Η				10		ΗĖ	1					1	1		10	i i
J	Ħ				20		Ť	1				1		'		20	J
K	Ė				15		Ť	1					1	1		15	K
L-1	Ť					55	Ť	1				1	2	2		55	L-1
L-2	i			55			Ť	1	2	2						55	L-2
M	Τ				15		Т	1								15	М
N	Т				10		Τ	1					2	2		10	N
0-1	Τ					105	Τ	1				4	4	4		105	0-1
0-2	Τ			105			Τ	1	2	2						105	0-2
Р	1		10				Τ	1								10	Р
Q	1		10				1	1	2	2						10	Q
R	S						1	1						2	2	26	R
S	S						1	1						1	2	11	S
Т	S						1							1	1	15	Т
U	S						1							1	1	69	U
V	S						1							1		24	V
W	S						1									36	W
X	S						1									21	X
<u>Y</u>	S						1								1	14	Y
<u>Z</u>	S						1							1	1	13	Z AA
AA	S						+							1	1	66 23	AB
AB	S						+							1	2	44	AC
AC AD	Р						<u> </u>							4	4	20	AD
AE	P						i						1	5	4	5	AE
AF	P						i						<u> </u>			5	AF
AG	1		50				Ť					3				50	AG
AH	T		65				Ī					2				65	AH
Al	Τ		115				Т					1				115	Al
AJ	Τ		70				Τ					3				70	AJ
AK	Τ		85				Τ					2				85	AK
AL	1		105				Τ					1				105	AL
AM	Τ	90					Τ				2					90	AM
			CA	BLE T	OTAL	S (LF)		697	360	460	180	1715	900	1521	685		

- 1.) STATUS IS "I" INSTALL, "S" SPAN WIRE, "P" RUN IN POLE
- 2.) WIRE QUANTITIES IN THE ABOVE TABLES ARE ROUNDED UP TO THE NEAREST 5' TO ACCOUNT FOR THE STUB UP INTO THE GROUND
- BOXES. 3.) RUN AM LENGTH IS THE SUM OF ALL CONDUIT TO LOOP DETECTORS  $% \left( 1\right) =\left( 1\right) \left( 1\right$



SPAN WIRE QUA	NTITIES
3/16" GALVANIZED STEEL SWAY CABLE	362'
5/16" GALVANIZED STEEL SPAN WIRE CABLES	1028'



PHASING DIAGRAM ---- COMPATIBLE PHASES ○── PEDESTRIAN MOVEMENT

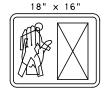
TRAFFIC SIGNAL POLES										
POLE	QUANTITY	SIGNAL POLE FOUNDATION		FOUNDATION						
NUMBER	QUANTITY	DESIGNATION	TYPE	DEPTH						
2,3	2	SPL-34D-100	36 (TY B)	15'/EA						
6,7	2	SP-34D-100	36 (TY B)	15'/EA						
1,4,5,8	4	PP-10-100	24 (TY A)	6'/EA						

PP = PEDESTRIAN POLE

	LOOP DETECTOR CHART												
LOOP	SIZE	WIRE LENGTH	SAW CUT	AMPLIFIER	SETTING	FUNCTION	DELAY						
LOOF	SIZL	(FT)	(FT)	NO.	SETTING	TONCTION	TIMING						
L-1	6' x 40'	260	130	1	PRESENCE	CALL & EXTEND Ø1							
L-2	(2) 6' x 40'	470	235	2	PRESENCE	CALL & EXTEND Ø2							
L-2A	6' x 20'	130	65	9	PRESENCE	CALL & EXTEND Ø2							
L-2B	6' x 20'	130	65	9	PRESENCE	CALL & EXTEND Ø2							
L-4	(2) 6' x 40'	420	210	4	PRESENCE	CALL & EXTEND Ø4							
L-5	6' x 40'	270	135	5	PRESENCE	CALL & EXTEND Ø5							
L-6	(2) 6' x 40'	460	230	6	PRESENCE	CALL & EXTEND Ø6							
L-6A	6' x 20'	130	65	11	PRESENCE	CALL & EXTEND Ø6							
L6-B	6' x 20'	130	65	11	PRESENCE	CALL & EXTEND Ø6							
L-8	(2) 6' x 40'	430	215	8	PRESENCE	CALL & EXTEND Ø8							



R10-3e SIGN w/ APS PUSH BUTTON STATION



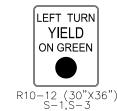
LED PEDESTRIAN SIGNALS w/COUNTDOWN SIGNALS NO. 4,5,8,9,13,14,17,18

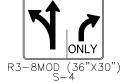
12" HORIZONTAL

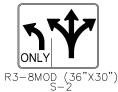
SIGNALS NO.

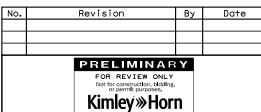
# NOTES:

- 1. THE CONTRACTOR SHALL FURNISH & INSTALL A FULL TRAFFIC ACTUATED SIGNAL CONTROLLER, SIGNAL HEADS, CABLES, CONDUITS LOOP DETECTORS, GROUND BOXES, LUMINAIRES, STEEL STRAIN POLES AND CONTROLLER FOUNDATION AS SHOWN,
- 2. THE LOCATION SHOWN FOR THE TRAFFIC CONTOLLER, STEEL POLES, LOOP DETECTORS, GROUND BOXES, CONDUIT RUNS AND CONTROLLER FOUNDATION IS APPROXIMATE. THE EXACT LOCATION MAY VARY TO REFLECT ACTUAL FIELD CONDITIONS BY THE CONTRACTOR IN COORDINATION WITH THE PHARR DISTRICT TRAFFIC SECTION AND ENGINEERING.
- 3. CONTRACTOR SHALL STAKE OUT ALL POLE LOCATIONS FOR APPROVAL FROM TXDOT.
- 4. ALL SIGNAL CABLE SHALL BE #12 AWG, SERVICE CABLE SHALL BE #6 AWG, 2/C LOOP LEAD-IN CABLE SHALL BE #14 AWG SHIELDED AND LOOP WIRES IN STREET SHALL BE #14
- 5. THE CONTRACTOR SHALL FURNISH NEW LED TRAFFIC SIGNAL LAMPS FOR ALL TRAFFIC SIGNALS HEADS.
- 6.ALL TRAFFIC SIGNAL HEAD ASSEMBLIES SHALL HAVE VENTED BACKPLATES.
- 7. THE CONTRACTOR SHALL VERIFY WITH THE UTILITY
  8 COMPANIES AS TO THE EXACT LOCATION OF THE EXISTING UNDERGROUND\_UTILITIES\_PRIOR\_TO\_CONSTRUCTION TO AVOID CONFLICT WITH OR DAMAGE TO THESE UTILITIES.
- 8. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES TO MAKE ANY ADJUSTMENTS, DUE TO UTILITY CONFLICTS, AS DEFINED IN THE SPECIFICATIONS OR DEEMED NECESSARY BY THE ENGINEER.











ngineer THOMAS P. GRANT

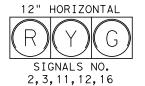


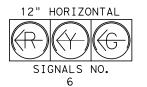


# PR 100 ROADWAY IMPROVEMENTS

PROPOSED TRAFFIC SIGNAL CHARTS

FED. RD. DIV. NO.		FEDERAL AID PROJECT NO. HIGHW							
6		N\A PR							
STAT	E	DISTRICT	col	SHEET NO.					
TEXA	48	PHR	CAM						
CONTR	OL	SECTION	JOB		217				
N\	Д	N\A	N	\A					







#### GENERAL NOTES FOR ALL ELECTRICAL WORK

- 1. The location of all conduits, junction boxes, ground boxes, and electrical services is diagrammatic and may be shifted to accommodate field conditions.
- 2. Provide new and unused materials. Ensure that all materials and installations comply with the applicable articles of the National Electrical Code (NEC), TxDOT standards and specifications, National Electrical Manufacturers Association (NEMA), and are listed by Underwriters Laboratories (UL) or a Nationally Recognized Testing Lab (NRTL). NRTLs such as Canadian Standard Association (CSA), Intertek Testing Services NA Inc., or FM Approvals LLC can be considered equivalent to UL. Where reference is made to NEMA listed devices, International Electrotechnical Commission (IEC) listed devices will not be considered an acceptable equal to a NEMA listed device. Acceptable devices may have both a NEMA and IEC listing. Faulty fabrication or poor workmanship in any material, equipment, or installation is justification for rejection. Replace or reinstall rejected material or equipment at no additional cost to the Department.
- 3. Miscellaneous nuts, bolts and hardware, except for high strength bolts, may be stainless steel when plans specify galvanized, provided the bolt size is  $\frac{1}{2}$  in. or less in diameter.
- 4. Provide the following test equipment as required by the Engineer to confirm compliance with the contract and the NEC: voltmeter, ammeter, megohm meter (1000 volt DC), ground resistance tester, torque wrenches, and torque screwdrivers. Ensure all equipment has been properly calibrated within the last year. Provide calibration certification to the Engineer upon request. Operate test equipment during inspection as requested by the Engineer.
- 5. Install grounding as shown on the plans and in accordance with the NEC. Ensure all metallic conduits; metal poles; luminaires; and metal enclosures are bonded to the equipment grounding conductor. Provide stranded bare copper or green insulated grounding conductors. Ground rods, connectors, and bonding jumpers are subsidiary to the various bid items.
- 6. When required by the Engineer, notify the Department in writing of materials from the Material Producers List (MPL) intended for use on each project. Prequalified materials are listed on the MPL on TxDOT's website under "Roadway Illumination and Electrical Supplies." No substitutions will be allowed for materials on this list.

## CONDUIT

## A. MATERIALS

- 1. Provide conduit, junction boxes, fittings, and hardware as per TxDOT Departmental Material Specification (DMS) 11030 "Conduit" and Item 618 "Conduit" of TxDOT's "Standard Specifications For Construction And Maintenance Of Highways, Streets, And Bridges," latest edition. Provide conduits listed under Item 618 on the MPL under "Roadway Illumination and Electrical Supplies.' Provide conduit types according to the descriptive code or as shown on the plans. Do not substitute other types of conduits for those shown. Provide liquidtight flexible metal conduit (LFMC) when flexible conduit is called for on galvanized steel rigid metallic conduit (RMC) systems. Provide liquidtight flexible nonmetallic conduit (LFNC) when flexible conduit is called for on polyvinyl chloride (PVC) systems.
- 2. Provide galvanized steel RMC for all exposed conduits, unless otherwise shown on the plans. Properly bond all metal conduits.
- 3. Unless otherwise shown on the plans, provide junction boxes with a minimum size as shown in the following table, which applies to the greatest number of conductors entering the box through one conduit with no more than four conduits per box. When a mixture of conductor sizes is present, count the conductors as if all are of the larger size. For situations not applicable to the table, size junction boxes in accordance with NEC.

AWG	3 CONDUCTORS	5 CONDUCTORS	7 CONDUCTORS
#1	10" x 10" x 4"	12" x 12" x 4"	16" x 16" x 4"
#2	8" × 8" × 4"	10" × 10" × 4"	12" × 12" × 4"
#4	8" × 8" × 4"	10" × 10" × 4"	10" × 10" × 4"
#6	8" × 8" × 4"	8" × 8" × 4"	10" × 10" × 4"
#8	8" × 8" × 4"	8" × 8" × 4"	8" × 8" × 4"

- 4. Junction boxes with an internal volume of less than 100 cu. in. and supported by entering raceways must have threaded entries or hubs identified for the intended purpose and supported by connection of two or more rigid metal conduits. Secure conduit within 3 ft. of the enclosure or within 18 in. of the enclosure if all conduit entries are on the same side. Mechanically secure all junction boxes with an internal volume greater than 100 cu. inches.
- 5. Provide hot dipped galvanized cast iron or sand cast aluminum outlet boxes for junction boxes containing only 10 AWG or 12 AWG conductors. Do not use die cast aluminum boxes. Size outlet boxes according to the NEC.
- 6. Do not use intermediate metal conduit (IMC) or electrical metallic tubing (EMT) unless specifically required by the plan sheets. When EMT is called for, provide junction boxes made from galvanized steel sheeting, listed and approved for outdoor use, unless otherwise noted on the plans. Size all galvanized steel junction boxes in accordance with the NEC. Provide junction boxes for IMC conduit systems that meet the same requirements for junction boxes used with RMC systems.
- 7. Provide PVC junction boxes intended for outdoor use on PVC conduit systems, unless otherwise noted on the plans.

- 8. Provide PVC elbows in PVC conduit systems, unless otherwise shown on the plans. Use only a flat, high tensile strength polyester fiber pull tape for pulling conductors through the PVC conduit system. When galvanized steel RMC elbows are specifically called for in the plans and any portion of the RMC elbow is buried less than 18 in., ground the RMC elbow by means of a grounding bushing on a rigid metal extension. Grounding of the rigid metal elbow is not required if the entire RMC elbow is encased in a minimum of 2 in. of concrete. PVC extensions are allowed on these concrete encased rigid metal elbows. RMC or PVC elbows are subsidiary to various bid items.
- 9. When required, provide High-Density Polyethylene (HDPE) conduit with factory installed internal conductors according to Item 622 "Duct Cable." At the Contractor's request and with approval by the Engineer, substitute HDPE conduit with no conductors for bored schedule 40 or schedule 80 PVC conduit bid under Item 618. Ensure bored HDPE substituted for PVC is schedule 40 and of the same size PVC called for in the plans. Ensure the substituted HDPE meets the requirements of Item 622, except that the conduit is supplied without factory-installed conductors. Make the transition of the HDPE conduit to PVC (or RMC elbow when required) at the bore pit. Provide conduit of the size and schedule as shown on the plans. Do not extend substituted conduit into ground boxes or foundations. Provide PVC or galvanized steel RMC elbows as called for at all ground boxes and foundations.
- 10. Use two-hole straps when supporting 2 in. and larger conduits. On electrical service poles, properly sized stainless steel or hot dipped galvanized one-hole standoff straps are allowed on the service riser conduit.
- B. CONSTRUCTION METHODS
- 1. Provide and install expansion joint conduit fittings on all structure-mounted conduits at the structure's expansion joints to allow for movement of the conduit. In addition, provide and install expansion joint fittings on all continuous runs of galvanized steel RMC conduit externally exposed on structures such as bridges at maximum intervals of 150 ft. When requested by the project Engineer, supply manufacturer's specification sheet for expansion joint conduit fittings. Repair or replace expansion joint fittings that do not allow for movement at no additional cost to the Department. Provide the method of determining the amount of expansion to the Engineer upon request. Do not use LFMC or LFNC as a substitute for the required expansion conduit fittings.
- 2. Space all conduit supports at maximum intervals of 5 ft. Install conduit spacers when attaching metal conduit to surface of concrete structures. See "Conduit Mounting Options" on ED(2). Install conduit support within 3 ft. of all enclosures and conduit terminations.
- 3. Do not attach conduit supports directly to pre-stressed concrete beams except as shown specifically in the plans or as approved by the Engineer.
- 4. Unless otherwise shown on the plans, jack or bore conduit placed beneath existing roadways, driveways, sidewalks, or after the base or surfacing operation has begun. Backfill and compact the bore pits below the conduit per Item 476 "Jacking, Boring, or Tunneling Pipe or Box" prior to installing conduit or duct cable to prevent bending of the connections.
- 5. When placing conduit in the sub-grade of new roadways, backfill all trenches with excavated material unless otherwise noted on the plans. When placing conduit in the sub-base of new roadways, backfill all trenches with cement-stabilized base as per requirements of Items 110 "Excavation", 400 "Excavation and Backfill for Structures", 401 "Flowable Backfill", 402 "Trench Excavation Protection", and 403 "Temporary Special Shoring."
- 6. Provide and place warning tape approximately 10 in. above all trenched conduit as per Item 618.
- 7. During construction, temporarily cap or plug open ends of all conduit and raceways immediately after installation to prevent entry of dirt, debris and animals. Temporary caps constructed of durable duct tape are allowed. Tightly fix the tape to the conduit opening. Clean out the conduit and prove it clear in accordance with Item 618 prior to installing any conductors.
- 8. Ensure conduit entry into the top of any enclosure is waterproof by installing conduit sealing hubs or using boxes with threaded bosses. This includes surface mounted safety switches, meter cans, service enclosures, auxiliary enclosures and junction boxes. Grounding bushings on water tight sealing hubs are not required.
- 9. Fit the ends of all PVC conduit terminations with bushings or bell end fittings. Provide and install a grounding type bushing on all metal conduit terminations.
- 10. Install a bonding jumper from each grounding bushing to the nearest ground rod, grounding lug, or equipment grounding conductor. Ensure all bonding jumpers are the same size as the equipment grounding conductor. Bonding of conduit used as a casing under roadways for duct cable is not required, if the duct extends the full length through the casing.
- 11. At all electrical services, install a 6 AWG solid copper grounding electrode conductor.
- 12. Place conduits entering ground boxes so that the conduit openings are between 3 in. and 6 in. from the bottom of the box. See the ground box detail on sheet ED(4).
- 13. Seal ends of all conduits with duct seal, expandable foam, or by other methods approved by the Engineer. Seal conduit immediately after completion of conductor installation and pull tests. Do not use duct tape as a permanent conduit sealant. Do not use silicone caulk as a conduit sealant.
- 14. File smooth the cut ends of all mounting strut and conduit. Before installing, paint the field cut ends of all mounting strut and RMC (threaded or non-threaded) with zinc rich paint (94% or more zinc content) to alleviate overspray. Use zinc rich paint to touch up galvanized material as allowed under Item 445 "Galvanizing." Do not paint non-galvanized material with a zinc rich paint as an alternative for materials required to be galvanized.



# ELECTRICAL DETAILS CONDUITS & NOTES

Traffic

Operation Division Standard

ED(1)-14

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TxDOT	October 2014	CONT	SECT	JOB		HIGHWAY	
	REVISIONS	N\A	N\A	\A N\A		PR 100	
		DIST		COUNTY		SHEET NO.	
		PHR		CAMER	ON	218	

# **ELECTRICAL CONDUCTORS** A. MATERIAL INFORMATION

1. Provide Type XHHW insulated conductors in accordance with Departmental Material Specification (DMS)11040 "Conductors" and Item 620 "Electrical Conductors." Provide conductors as listed on the Material Producers List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies" Item 620. Color code insulated conductors in conformance with the NEC. Identify grounded (neutral) conductors with white insulation. Identify grounding conductors (ground wires) with green insulation or bare conductors. Identify ungrounded (hot) conductors with any color insulation except green, white, or gray. Keep color scheme consistent throughout the wiring system. Identify conductors 6 American Wire Gauge (AWG) and smaller by continuous color jacket. Identify electrical conductors 4 AWG and larger by continuous color

jacket or by colored tape. When identifying conductors with colored tape, mark at

2. Provide a solid copper 6 AWG grounding electrode conductor to bond the electrical service equipment to the concrete encased grounding electrode or the ground rod at the service location. Connect the grounding electrode conductor to the ground rod with a UL listed connector in accordance with DMS 11040. Connect the grounding electrode conductor to the concrete encased grounding electrode as shown in the

least 6 in. of the conductor's insulation with half laps of tape.

- Where two or more circuits are present in one conduit or enclosure, permanently identify the conductors of each branch circuit by attaching a non-metallic tag around both circuit conductors at each accessible location. Provide tags with two straps, large enough to indicate circuit number, letter, or other identification as shown in the plans. Print circuit identification on the tag
- Use listed compression or screw type pressure connectors, terminal blocks, or split bolt connectors for splicing as specified in DMS 11040. Use hot melt adhesive tape to fill the gap and seal the ends of heat shrink tubing. Provide UL listed gel-filled insulating splice covers. Splicing materials, insulating materials, breakaway disconnects, splice covers, and fuse holders are subsidiary to various bid items.
- B. CONSTRUCTION METHODS
- Use only a flat, high tensile strength polyester fiber pull tape for pulling conductors through the conduit system. After installing conductors in conduit, perform conductor pull test. If a conductor cannot be freely pulled, make any needed alterations or repairs at no additional cost to the department. Perform insulation resistance tests in accordance with Item 620. Coordinate with the Engineer to witness the tests.
- 2. Leave 2 ft. minimum, 3 ft. maximum length for each conductor up to the splice in ground boxes. Leave 3 ft. minimum, 4 ft. maximum length of conductor in ground boxes when pulled through with no splice. Leave 1 ft. minimum, 1.5 ft. maximum length of conductor at enclosures, weatherheads and pole bases.
- Make splices only in junction boxes, ground boxes, pole bases, or electrical enclosures and use only listed compression or screw type pressure connectors, terminal blocks, or split bolt connectors. Insulate splices with heavy wall heat shrink tubing or gel-filled insulating splice covers to provide a watertight splice. Overlap conductor insulation with heat shrink tubing a minimum of 2 in. past both sides of the splice. Where heat shrink tubing may not shrink sufficiently to provide a watertight seal around the individual conductors, prior to heating the tubing, increase the diameter of the conductor insulation using hot melt adhesive tape to provide a watertight seal between the individual conductors and the heat shrink tubing. Ensure the tape extends past the heat shrink tubing. Use hot melt adhesive tape to fill the gap and seal the ends of heat shrink tubing. Heat shrink tubing that appears to have been burned, or overheated, is considered defective and must be replaced.
- 4. Size and install gel-filled insulating splice covers according to manufacturer's specifications when used in place of heat shrink tubing.
- 5. Wire nuts with factory applied waterproof sealant may be used for 8 AWG or smaller conductors in above ground junction boxes, but not in pole bases or ground boxes. Install wire nuts in an upright position to prevent the
- 6. Support conductors in illumination poles with a J-hook at the top of the pole.
- 7. When terminating conductors, remove the insulation and jacketing material without nicking the individual strands of the conductor. Conductors with nicked individual conductor strands or removed strands will be considered damaged.
- 8. Replace conductors and cables that are damaged beyond repair or that fail an insulation resistance test at no additional cost to the department.
- 9. Do not repair damaged conductors with duct tape, electrical tape, or wire nuts. Use only approved splicing methods.
- 10. Do not terminate more than one conductor under a sinale connector. unless the connector is rated for multiple conductors. Do not exceed the pressure connector's listing for maximum number and size of conductors allowed.
- 11. Install breakaway connectors on conductors bid under Item 620 whenever those conductors pass through a breakaway support device. Follow manufacturer's instructions when terminating conductors to breakaway connectors. Properly torque threaded connections. Proper terminations are critical to the safe operation of breakaway devices. Trim waterproofing boots on breakaway connectors to fit snugly around the conductor to ensure waterproof connection. Only one conductor may enter a single opening in a boot. Provide waterproof boots with the correct number of openings. Leave unused openings factory sealed. Use prequalified breakaway connectors as shown on the MPL.

12. Provide and install a separate stranded equipment grounding conductor (EGC) in all conduits that contain circuit wiring of 50 volts or more. Unless shown elsewhere, size the EGC to be the same size as the largest current carrying conductor contained in the conduit. Ensure all EGCs are bonded together at every accessible location. For traffic signal installations, provide a minimum size 8 AWG EGC. The EGC is paid for under Item 620.

#### C. TEMPORARY WIRING

- Install temporary conductors and electrical equipment in accordance with the NEC article "Temporary Installations" and Department standard sheets.
- 2. Provide a ground fault circuit interrupter (GFCI) for power outlets for portable electrical equipment, power tools, ice machines, ice storage bins and refrigerators located outdoors at grade. GFCI may be any one of following: molded cord and plug set, receptacle, or circuit breaker type.
- 3. Use listed wire nuts with factory applied sealant for temporary wiring
- 4. Enclose conductor splices within a listed enclosure or ground box, or ensure the splices are more than 10 ft. above grade vertically and more than 5 ft. horizontally from any metal structure. Where installing temporary conductors in areas subject to vehicle traffic or mobile construction equipment, ensure the vertical clearance to ground is at least 18 ft. when measured at the lowest point. Ground messenger wires that support power conductors in conformance with the NEC.
- 5. Protect and when necessary repair any existing electrical conduits uncovered during the construction process in a timely manner and in conformance with

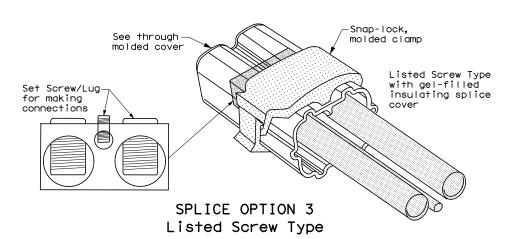
#### GROUND RODS & GROUNDING ELECTRODES

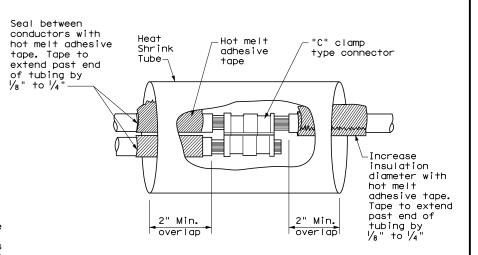
#### A. MATERIAL INFORMATION

1. Provide and install a grounding electrode at electrical services. Provide ground rods according to DMS 11040 and the plans. Larger diameter or longer length rods may be called for in some specific locations, see the individual plans sheets. Concrete encased grounding electrodes may be called for in specific locations including electrical service, see individual plan sheets.

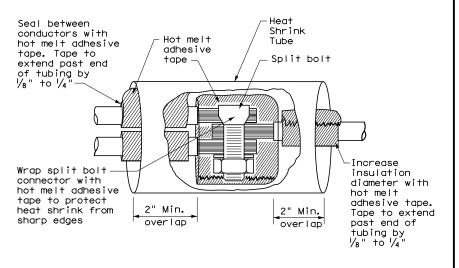
#### B. CONSTRUCTION METHODS

- 1. Furnish auxiliary ground rods for lightning protection and install in soil, concrete, or both, as called for in the plans. For ground rods installed in concrete, ensure the connection of the conductor to the ground rod is readily accessible for inspection or repairs. For ground rods installed in soil, ensure that the upper end is between 2 to 4 in. below finished grade.
- 2. Do not place ground rods in the same drilled hole as a timber pole.
- 3. Install ground rods so the imprinted part number is at the upper end of
- 4. Remove all non-conductive coatings such as concrete splatter from the rod at the clamp location.
- 5. Route all conductors as short and straight as possible for connection to lightning protection ground rods. When a bend is required, ensure a minimum radius bend of four inches for these conductors.
- 6. Unless otherwise called for in the plans, protect grounding electrode conductors with non-metallic conduit. When protecting grounding electrode conductors with metal conduit, provide and install a grounding type bushing and properly sized bonding jumper on each end of the metal conduit.
- 7. Written authorization is required before installing a ground rod in a horizontal trench for rocky soil or a solid rock bottom.

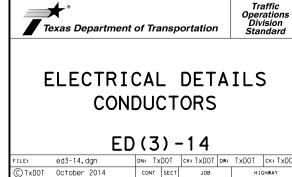




SPLICE OPTION 1 Compression Type



SPLICE OPTION 2 Split Bolt Type



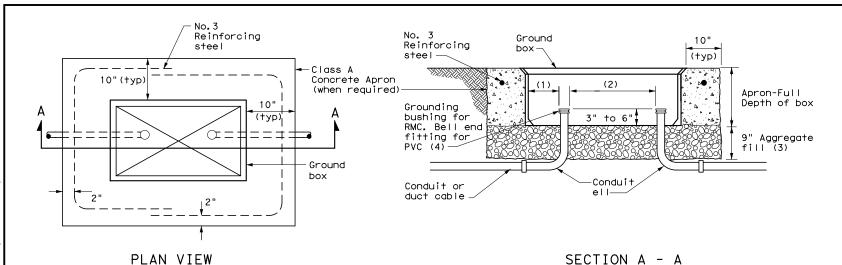
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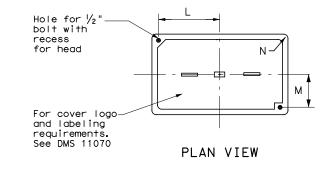


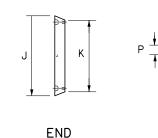
# APRON FOR GROUND BOX

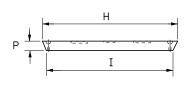
- (1) Uniformly space ends of conduits within the ground box. Position ends of conduits so that ground box walls do not interfere with the installation of grounding bushings or bell end fittings.
- (2) Maintain sufficient space between conduits to allow for proper installation of bushings.
- (3) Place aggregate under the box, not in the box. Aggregate should not encroach on the
- (4) Install a grounding bushing on the upper end of all RMC terminating in a ground box. Ground RMC elbows when any part of the elbow is less than 18 in. below the bottom of the ground box. Install a PVC bushing or bell end fitting on the upper end of all PVC conduits terminating in a ground box.

GROU	GROUND BOX DIMENSIONS										
TYPE	OUTSIDE DIMENSIONS (INCHES) (Width x Length X Depth)										
А	12 X 23 X 11										
В	12 X 23 X 22										
С	16 X 29 X 11										
D	16 X 29 X 22										
E	12 X 23 X 17										

GROUND BOX COVER DIMENSIONS										
TYPE	DIMENSIONS (INCHES)									
1175	Н	Ι	J	K	L	М	N	Р		
А, В & Е	23 1/4	23	13 ¾	13 ½	9  %	5 1/8	1 3/8	2		
C & D	30 1/2 30 1/4 17 1/2 17 1/4 13 1/4 6 3/4 1 3/8 2									







SIDE

GROUND BOX COVER

# **GROUND BOXES** A. MATERIALS

- 1. Provide polymer concrete ground boxes measuring 16x30x24 in. (WxLxD) or smaller in accordance with Departmental Material Specification (DMS) 11070 "Ground Boxes" and Item 624 "Ground Boxes.'
- 2. Provide Type A, B, C, D, and E ground boxes as shown in the plans, and as listed on the Material Producers List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies, " Item 624.
- 3. Ensure ground box cover is correctly labeled in accordance with DMS 11070.
- 4. Provide larger ground boxes in accordance with Item 624 and as shown in the plans.
- B. CONSTRUCTION METHODS
- 1. Remove all gravel and dirt from conduit. Cap all conduits prior to placing aggregate and setting ground box. Provide Grade 3 or 4 coarse aggregate as shown on Table 2 of Item 302 "Aggregates for Surface Treatments." Ensure aggregate bed is in place and at least 9 inches deep, prior to setting the ground box. Install ground box on top of aaareaate.
- 2. Cast ground box aprons in place. Reinforcing steel may be field bent. Ensure the depth of concrete for the apron extends from finished grade to the top of the aggregate bed under the box. Ground box aprons, including concrete and reinforcing steel, are subsidiary to ground boxes when called for by descriptive code.
- 3. Keep bolt holes in the box clear of dirt. Bolt covers down when not working in ground
- 4. Install all conduits and ells in a neat and workmanlike manner. Uniformly space conduits so grounding bushings and bell end fittings can easily be installed.
- 5. Temporarily seal all conduits in the ground box until conductors are installed.
- 6. Permanently seal conduits immediately after the completion of conductor installation and pull tests. Permanently seal the ends of all conduits with duct seal, expandable foam, or other method as approved. Do not use duct tape as a permanent conduit sealant. Do not use silicone caulk as a sealant.
- 7. When a ground rod is present in a ground box, bond all equipment grounding conductors together and to the ground rod with listed connectors.
- 8. When a type B or D ground box is stacked to meet volume requirements, it is allowable to cut an appropriately sized hole for conduit entry in the side wall at least 18 inches below grade.
- 9. If an existing ground box in the contract has a metal cover, bond the cover to the equipment grounding conductor with a 3 ft. long stranded bonding jumper the same size as the grounding conductor. The bonding jumper is subsidiary to various bid items. Verify existing ground boxes with metal covers are shown on the plans, with notes fully describing the work required.
- 10. If other ground boxes with metal covers are within the project limits but are not part of the contract, the Engineer may direct the Contractor to bond the metal covers, identifying the specific boxes in writing. This work will be paid for separately.
- 11. Bond metal ground box covers to the grounding conductor with a tank ground type lug.



# ELECTRICAL DETAILS **GROUND BOXES**

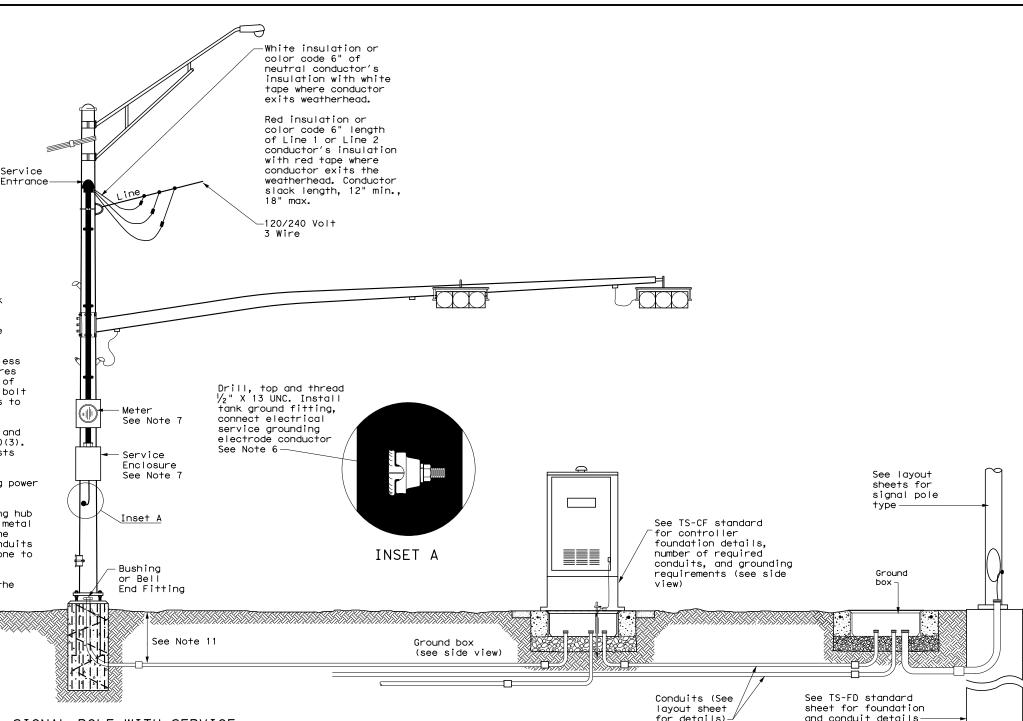
Traffic

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#### TRAFFIC SIGNAL NOTES

- 1. Do not pass luminaire conductors through the signal controller cabinet.
- 2. Include an equipment grounding conductor in all conduits throughout the electrical system. Bond all exposed metal parts to the grounding
- 3. Provide roadway luminaires, when required, in accordance with the material and construction sections of Item 610, "Roadway Illumination Assemblies," except for performance testing of luminaires. Test installed roadway luminaires for proper operation as a part of the associated traffic signal system test.
- 4. If internally illuminated street name signs are approved for use, ground the fixture to the pole with a 12 AWG green XHHW conductor.
- Bond anchor bolts to rebar cage in two locations using #3 bars or 6 AWG stranded copper conductors. Use listed mechanical connectors rated for embedment in concrete. See TXDOT standard TS-FD for further
- 6. Drill and tap signal poles for 1/2 in. X 13 UNC tank ground fitting. Provide and install tank ground fitting 4 in. to 6 in. directly below electrical service enclosure. Provide properly sized hole through the bottom of the enclosure for the service grounding electrode conductor. Connect the electrical service grounding electrode conductor to the tank ground fitting. Ensure electrical service grounding electrode conductor is as short and straight as possible from the enclosure to the tank ground fitting. See Inset A detail for further information. Size service entrance conduit and branch circuit conduit as shown in the plans.
- 7. Mount electrical service enclosure and meter to signal pole with stainless steel bands. Ensure bands are a minimum width of  $\frac{3}{4}$  in. Secure enclosures to bands using two-bolt brackets. Install brackets near top and bottom of each enclosure. Install properly sized stainless steel washers on each bolt in the enclosure. Band or drill and tap properly sized stand-off straps to signal pole for attaching conduit.
- 8. Conduct pull tests and insulation resistance tests on all illumination and power conductors as required in Item 620 "Electrical Conductors" and ED(3). To prevent electronics damage, do not conduct insulation resistance tests on traffic signal cables after termination.
- 9. Lock all enclosures and bolt down all ground box covers before applying power to the signal installation.
- 10. Terminate conduits entering the top of enclosures with a conduit-sealing hub or threaded boss such as meter hub. Install a grounding bushing on all metal conduits not connected to conduit-sealing hub or threaded boss. Bond the grounding bushing to the ground bus with a bonding jumper. Seal all conduits entering enclosures with duct seal or expanding foam. Do not use silicone to seal conduit ends.
- $\hspace{0.1cm}$  11. For all conduits, ensure the burial depth is a minimum of 18". Ensure the minimum burial depth for conduit placed under a roadway is 24".



SIGNAL POLE WITH SERVICE

Type T electrical service mounted on signal pole shown as an example. See electrical details, layout sheets, and electrical service data chart for

See TS-CF standard for

conduit and grounding requirements. See layout

sheets for ground box

conduits that are required.

SIGNAL CONTROLLER FRONT VIEW

SIGNAL POLE

Texas Department of Transportation

Traffic Operation Division Standard

ELECTRICAL DETAILS TYPICAL TRAFFIC SIGNAL SYSTEM DETAILS

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locations and any additional

SIGNAL CONTROLLER SIDE VIEW

 $\frac{1}{4}$ " thk. min.

Top Template

ize Lengt D Thread 6" Min.

van: Top Tus

(Omit bottom template

for FDN 24-A)

Type 1

R=d-

1 ½" Min

Circular Steel Bottom Template

HOOKED ANCHOR

(TYPE 1)

ANCHOR BOLT ASSEMBLY

(8) Orient anchor bolts orthogonal

ensure that two bolts are in

tension under dead load.

with the fixed arm direction to

Circular Steel



														_
	FOUNDATION DESIGN TABLE													
FDN DRILLED			FORCING TEEL	EMBEDDED DRILLED SHAFT LENGTH-f(-)4(,) (5), 6			ANCHOR BOLT DESIGN F					ATION IGN AD ②		
TYPE	SHAFT DIA	VERT BARS	SPIRAL & PITCH	l N	ONE PENET   blows/f   15	ROMETER † 40	ANCHOR BOLT DIA	Fy (ksi)	BOLT CIR DIA	ANCHOR TYPE	MOMENT		TYPICAL APPLICATION	
24-A	24"	4-#5	#2 at 12"	5.7	5.3	4.5	3/4 "	36	12 3/4"	1	10	1	Pedestal pole, pedestal mounted controller.	
30-A	30"	8-#9	#3 at 6"	11.3	10.3	8.0	1 ½"	55	17"	2	87	3	Mast arm assembly. (see Selection Table)	
36-A	36"	10-#9	#3 at 6"	13.2	12.0	9.4	1 3/4"	55	19"	2	131	5	Mast arm assembly. (see Selection Table) 30' strain pole with or without luminaire	.]
36-B	36"	12-#9	#3 at 6"	15.2	13.6	10.4	2"	55	21"	2	190	7	Mast arm assembly. (see Selection Table) Strain pole taller than 30′& strain pole with mast arm	
42-A	42"	14-#9	#3 at 6"	17.4	15.6	11.9	2 1/4"	55	23"	2	271	9	Mast arm assembly. (see Selection Table)	1

	FOUNDATION SELECTION TABLE FOR STANDARD MAST ARM PLUS ILSN SUPPORT ASSEMBLIES (ft)											
		FDN 30-A	FDN 36-A	FDN 36-B	FDN 42-A							
7	MAX SINGLE ARM LENGTH	32′	48′									
DESIGN		24′ X 24′										
LSS SES		28′ X 28′										
1 3 2	MAXIMUM DOUBLE ARM	32′ X 28′	32′ X 32′									
WIND S	LENGTH COMBINATIONS		36′ X 36′									
8 ≥			40′ X 36′									
			44′ X 28′	44′ X 36′								
NS S	MAX SINGLE ARM LENGTH		36′	44′								
0130			24′ X 24′									
DESI(			28′ X 28′									
1 H	MAXIMUM DOUBLE ARM LENGTH COMBINATIONS		32′ X 24′	32′ X 32′								
₹ <u>8</u>	LENGTH COMBINATIONS			36′ X 36′								
OO MPH WIND				40′ ×24′	40′ X 36′							
_					44′ × 36′							

1. For 80mph design wind speed, foundation 30-A can support up to a 32' arm with

2. For 100mph design wind speed, foundation 36-A can support a single 36' mast arm.

Type 2

NUT ANCHOR

(TYPE 2)

-Thickness =

≺2 Sides (Typ)

2 Flat Washers per Anchor Bolt

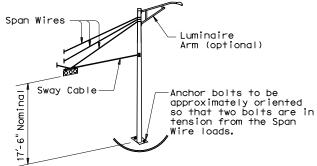
EXAMPLE:

Nut (Typ)

another arm up to 28'

Traffic Signal Pole-

Use average N value over the top third of the embedded shaft. Ignore the top 1' of soil.



TYPICAL STRAIN POLE **ASSEMBLY** Clamp Arm Length Fixed Arm Length Conduit (See Layout Sheets for diameter. d/4 (inch) min. Orient as directed by ILSN Supporting Luminaire required) Arm Arm (optional) Vertical bars may rest on bottom of drilled hole if material is firm enough TYPICAL MAST ARM

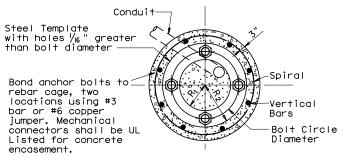
**ASSEMBLY** 

# NOTES:

- 1) Anchor bolt design develops the foundation capacity given under Foundation Design Loads.
- 2 Foundation Design Loads are the allowable moments and shears at the base of the structure.
- 3 Foundations may be listed separately or grouped according to similarity of location and type. Quantities are for the Contractor's information only.
- ④ Field Penetrometer readings at a depth of approximately 3 to 5 feet may be used to adjust shaft lengths.
- (5) If rock is encountered, the Drilled Shaft shall extend a minimum of two diameters into solid rock.
- (6) Decimal lengths in Design Table are to allow interpolation for other penetrometer values. Round to nearest foot for entry into Summary Table.

ANCHOR BOLT & TEMPLATE SIZES											
BOLT DIA IN.	7 BOLT LENGTH	TOP THREAD	BOTTOM THREAD	BOLT CIRCLE	R2	Rı					
3/4 "	1'-6"	3"	_	12 ¾"	7 1/8"	5 % "					
1 1/2 "	3'-4"	6"	4"	17"	10"	7"					
1 3/4"	3'-10"	7"	4 ½"	19"	11 1/4"	7 3/4"					
2"	4'-3"	8"	5"	21"	12 ½"	8 ½"					
2 1/4 "	4'-9"	9"	5 ½"	23"	13 ¾"	9 1/4"					

7 Min dimensions given, longer bolts are accéptable.



TOP VIEW

Circular Steel

Template (Temporary)

Drilled Shaft Dia

ELEVATION

FOUNDATION DETAILS

1/4" to 1/2" of

concrete

the Engineer. 1 or 2

Vertical Bars (See

& number).

to do so when

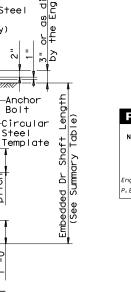
concrete is placed.

Design Table for size

Spiral, 3 flat turns top & 1 flat turn

bottom. (See Design Table for size & pitch)

bolt shank shall project above



FO	JNDA	TION	I SL	IMMAR	Y TA	BLE	3	
LOCATION IDENTIFICATION	AVG. N BLOW	FDN	NO.	С	RILLED	SHAFT (FEET)	LENGTH	ı (6)
IDENTITICATION	/f†.	TYPE	EA	24-A	30-A	36-A	36-B	42-A
F	LASHI	NG LE	SIG	N FOUN	IDATIO	NS .		
₽ PDR STA 322+00	10	24-A	4	24				
₽ PDR STA 328+00	10	24-A	4	24				
₽ PDR STA 336+42	10	24-A	4	24				
₽ PDR STA 352+00	10	24-A	4	24				
₽ PDR STA 390+00	10	24-A	3	18				
₽ PDR STA 414+00	10	24-A	3	18				
₽ PDR STA 482+59	10	24-A	2	12				
₽ PDR STA 513+00	10	24-A	2	12				
₽ PDR STA 534+48	10	24-A	2	12				
PDR 100 @ CLAYTO	ON'S D	RIVEW	AY/M	ARRIOT	T PARK	ING LO	OT DRI	VEWAY
P1, P4, P5, P8	10	24-A	4	24				
P2, P3, P6, P7	10	36-B	4				60	
TOTAL DRILLED S	SHAFT	LENGT	HS	24*			60	

\*24-A FOUNDATIONS FOR FLASHING LED ASSEMBLIES ARE SUBSIDIARY TO ITEM 687

# **GENERAL NOTES:**

Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals and interim revisions thereto.

Reinforcing steel shall conform to Item 440, "Reinforcing Steel".

Concrete shall be Class "C".

Threads for anchor bolts and nuts shall be rolled or cut threads of 8UN series up to 2" in diameter or UNC series for all sizes. Bolts and nuts shall have Class 2A and 2B fit tolerances. Galvanized nuts shall be tapped after galvanizing.

Anchor bolts that are larger than 1" in diameter shall conform to "alloy steel" or "medium-strength mild steel" per Item 449, "Anchor Bolts". Anchor bolts that are 1" in diameter or less shall conform to ASTM A36. Galvanize a minimum of the top end thread length plus 6" for all anchor bolts unless otherwise noted. Exposed washers and exposed nuts shall be galvanized. All galvanizing shall be in accordance with Item 445, "Galvanizing".

Templates and embedded nuts need not be galvanized. Lubricate and tighten anchor bolts when erecting the structure in accordance with Item 449, "Anchor Bolts"



Kimley»Horn TBPE FIRM NO. F-928

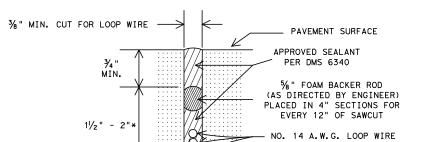
Ingineer THOMAS P. GRANT P.E. No. 100876 Date 11/6/2018



TRAFFIC SIGNAL POLE FOUNDATION

TS-FD-12

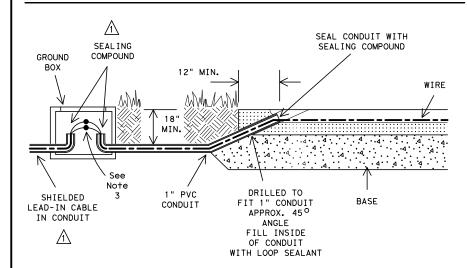
		1995	DN: MS		CK: JSY	DW: MAO/M	MF CK: JSY/TE
5-96	REVISIONS		CONT	SECT	JOB		HIGHWAY
1-99 1-12			N\A	N\A	N\A		PR 100
			DIST		COUNTY		SHEET NO.
			PHR		CAMERO	NC NC	222



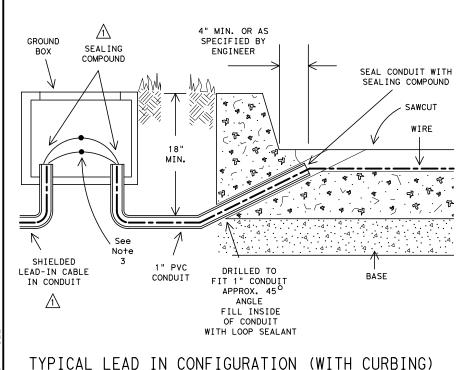
SEE NOTE 4

# LOOP SAW CUT CROSS-SECTION

\* SAWCUTS IN BRIDGE DECKS ARE TYPICALLY 1" DEPTH MAXIMUM SAWCUTS IN BRIDGE DECKS AND ACROSS EXPANSION JOINTS SHALL BE AS APPROVED BY ENGINEER

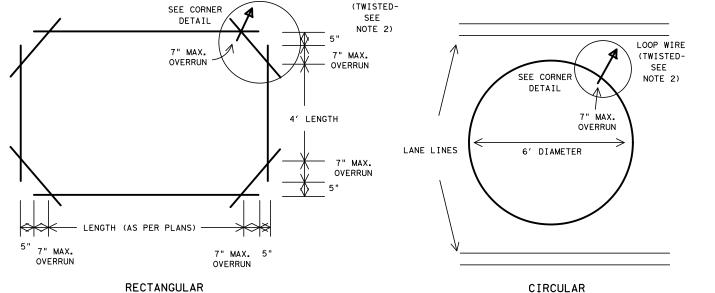


# TYPICAL LEAD IN CONFIGURATION (WITHOUT CURBING)

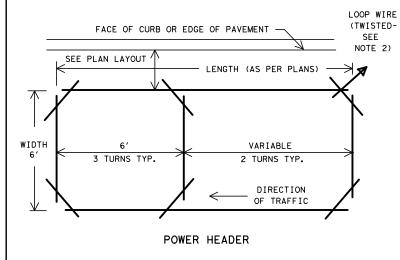


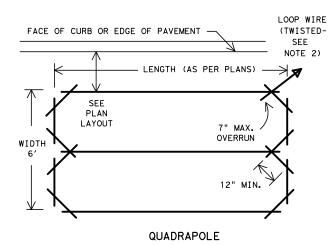
# TYPICAL LOOP DETECTOR LAYOUTS

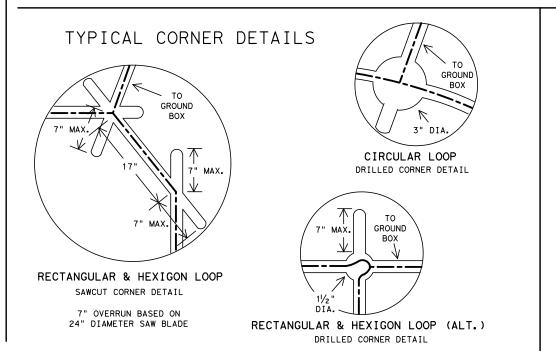
(AS SPECIFIED IN PLANS)

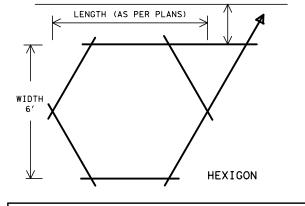


LOOP WIRE









LOOP WIRE

(TWISTED-

SEE

NOTE 2)

SEE

PLAN

LAYOUT

#### GENERAL NOTES:

- The pavement cut is to be made with a concrete saw to neat lines and loose material removed. The cut shall be clean and dry when the wire and sealing compound is placed.
- Loop wire shall be 14 AWG Stranded Type XHHW. Wire from the loop to the ground box shall be twisted a minimum of 5 turns per foot. No splices shall be permitted in the loop or in the run to the ground box.
- 3. The home run cable from the pull box to the controller shall be IMSA 50-2 shielded cable and shall be soldered to the loop wire. The solder joints shall be sealed with Scotchcast or other method acceptable to the Engineer. The shield shall be grounded only at the controller end. Loop home run cable shall be two conductor 14 AWG shielded, Type XHHW.
- 4. All wire placed in the saw cut shall be sealed by fully encapsulating it in a sealant acceptable to the Engineer. Sealing compound shall be in accordance with DMS 6340.
- The loop location, confirguration and number of turns shall be as indicated on the plans or as directed by the Engineer.

Recommended Number of Turns for Loop Detectors LOOP

PERIMETER	NUMBER	APPROXIMATE LOOP
SIZE (FT.)	OF TURNS	SIZES INCLUDED
24' or Less	3 or 4	5' x 5', 6' x 6'
25' - 110'	2 or 3	6' x 10', 6' x 45'
110' or More	1 or 2	6' x 50' or Longer

- A separate saw cut shall be made from each loop to the edge of pavement or as specified by the Engineer.
- 7. Splices between the loop lead-in cable and loop detector shall be made only in the ground box near the loop it is serving.
- Circular loops may use prewound loops encased in continuous pvc tubing. Sawcut width may be adjusted to accommodate tubing.
- The lead-in wire in the circular loop shall be coiled at the 3 inch drilled corner to reduce bending stress.
   Loop duct may be used as specified by Engineer.

For additional information refer to "Texas Traffic Signal Detector" manual, TTI Report 1163-1.



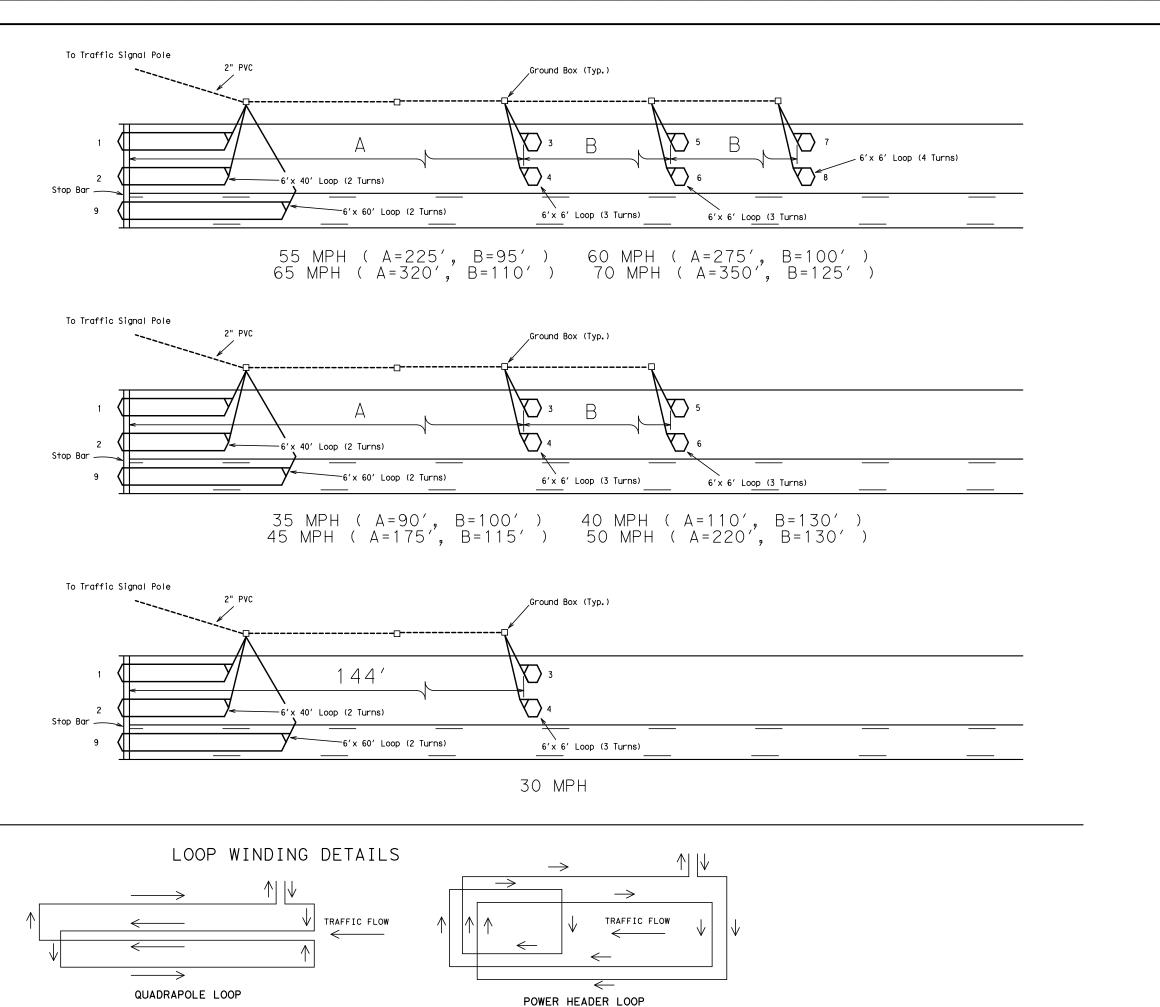
# LOOP DETECTOR INSTALLATION DETAILS

LD(1)-03

© .	TxDOT December 1998	DN: TX	тоот	CK: TXDOT DW:		TXDOT	CK: TXDOT	
2-99	REVISIONS	CONT	SECT	JOB			HIGHWAY	
1-03		N\A	N\A	N\A		PR 100		
		DIST		COUNTY			SHEET NO.	
		PHR		CAMERO	DN		223	

79A





GENERAL NOTES:

Loops 1 and 2 shall be connected to the controller cabinet by means of the same loop lead-in (2/C #14 AWG).

Loops 3 thru 6 shall be connected to the controller cabinet by means of the same loop lead-in (2/C #14 AWG).

Loops 7 and 8 shall be connected to the controller cabinet by means of the same loop lead-in (2/C  $\pm$ 14 AWG).

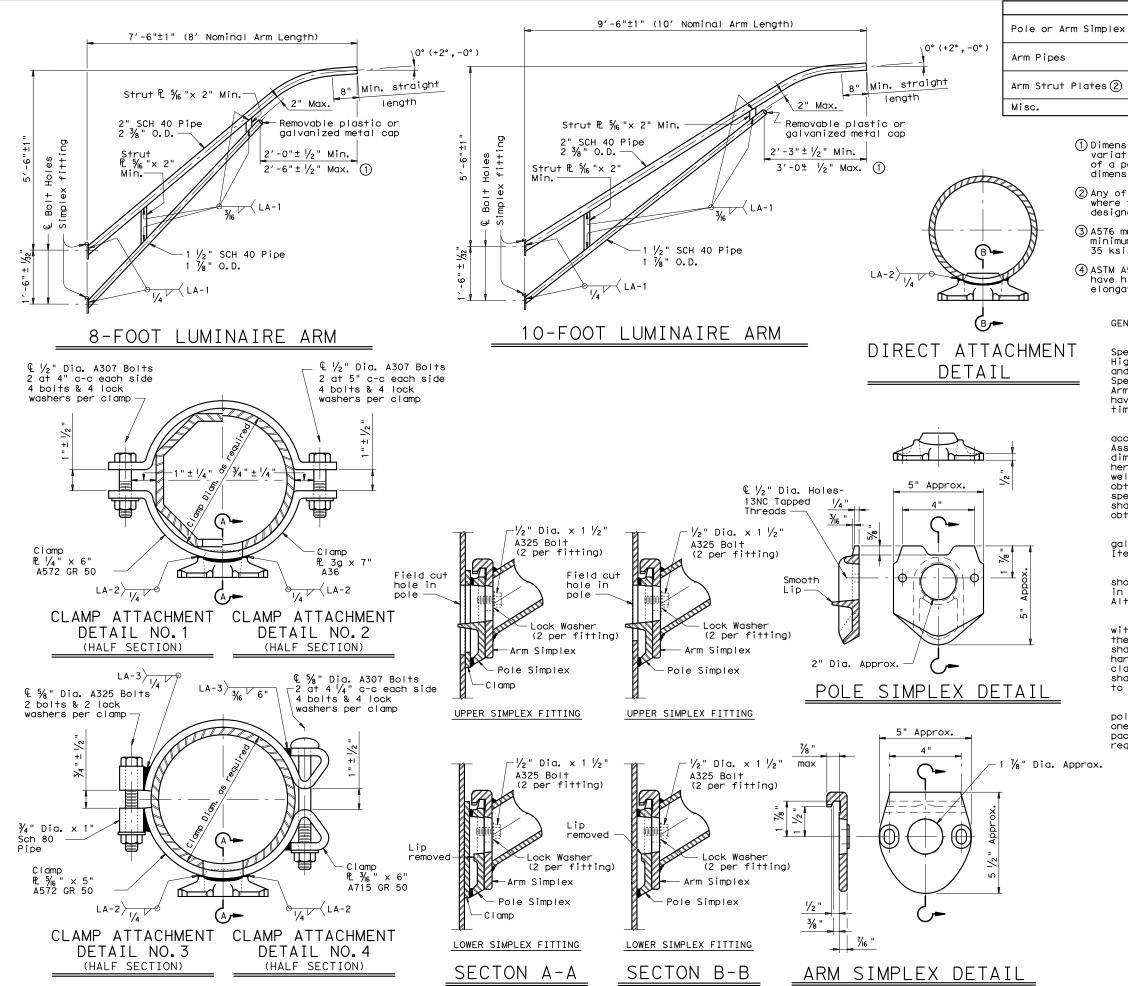
Loop 9 shall be connected to the controller cabinet by means of a loop lead-in (2/C #14 AWG). Loop 9 shall be placed only when a left turn lane exists.



# LOOP DETECTOR PLACEMENT DETAILS

LD(2)-03

© TxDOT January 2003	DN: TX	тоот	CK: TXDOT	DW:	TXDOT	CK: TXDOT
REVISIONS	CONT	SECT	JOB		HIC	SHWAY
	N\A	N\A	N\A		PR	100
	DIST		COUNTY		,	SHEET NO.
	PHR		CAMERO	N		224



- ① Dimensional limits are given to show acceptable variation in design. All of a Fabricator's production of a particular arm length shall have the same dimensions within specified tolerances.
- ② Any of the materials listed for plates may be used where the drawings do not specify a particular ASTM designation.
- (3) A576 must be suitable for forging and also meet minimum tensile strength of 65 ksi, minimum yield of 35 ksi, and elongation in 2 inches of 22 percent.
- (4) ASTM A572, A1008 HSLAS-F, and A1011 HSLAS-F may have higher yield strengths but shall not have less elongation than the grade indicated.

GENERAL NOTES:

Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals and Interim Revisions thereto. Design Wind Speed equals 90 mph plus a 1.3 gust factor. Arms are designed to support a 60 lb. luminaire having an effective projected area (actual area times drag coefficient) of 1.6 sq. ft.

Materials and fabrication shall be in accordance with Item 686, "Traffic Signal Pole Assemblies (Steel)" and with the details, dimensions, and weld procedures shown herein. Weld references call for preapproved weld procedures which the Fabricator must obtain prior to fabrication. In the absense of specified Fabricaton tolerances, dimensions shall be within the tolerances generally obtainable in normal fabrication practice.

Unless otherwise noted, all parts shall be galvanized after fabrication in accordance with Item 445, "Galvanizing".

Deviation from the details and dimensions shown herein require submission of shop drawings in accordance with Item 441, "Steel Structures". Alternate designs are not acceptable.

Each pole simplex fitting shall be supplied with 2 ASTM A325 bolts and 2 lock washers of the size specified. The bolts and lock washers shall be secured to the pole with the other hardware items called for in the plans. When clamp attachment is specified, the Fabricator shall ship the clamp assembly securely attached to the pole at the location shown on the plans.

If clamp assemblies are ordered without poles, the Fabricator shall ship one upper and one lower clamp assembly together in a single package, including all nuts and washers required for the clamps and simplex fittings.



ARM DETAILS

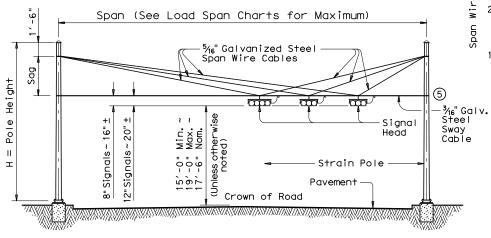
LUM-A-12

C TxDOT August 1995	DN: LEH		CK: JSY	DW: LTT	CK: TEB
96 REVISIONS	CONT	SECT	JOB		HIGHWAY
99 12	N∖A	N\A	N\A		PR 100
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	PHR		CAMERO	N	225

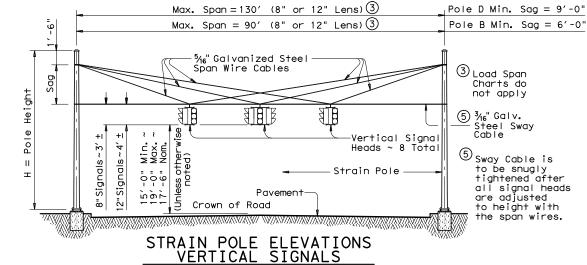
129

STRAIN POLE DESCRIPTION	Pole Type	Found- ation Type	Maximum Permissible Span Wire Load (lbs.)
26' Pole	Α	36-A	4900
30' Pole	В	36-A	4300
30' Pole with Lum.	В	36-A	4000
30' Pole with 20' Mast Arm	С	36-B	4400
30' Pole with 24' Mast Arm	С	36-B	4000
30' Pole with 28' Mast Arm	С	36-B	3600
30' Pole with 32' Mast Arm	С	36-B	3300
30' Pole with 36' Mast Arm	С	36-B	2900
30' Pole with 20' Mast Arm & Lum.	С	36-B	4100
30' Pole with 24' Mast Arm & Lum.	С	36-B	3800
30' Pole with 28' Mast Arm & Lum.	С	36-B	3400
30' Pole with 32' Mast Arm & Lum.	С	36-B	3000
30' Pole with 36' Mast Arm & Lum.	С	36-B	2500
34' Pole	D	36-B	5200
34' Pole with Lum.	D	36-B	4900

2 Numbers on Load Span Charts indicate the number of signal heads on the span. The total span wire design load is based on one 5-section head and one or more additional 3-section head(s). Design wind pressures on cables are assumed as 1.6 lb/ft. Weight of span wire cables (one per signal head) is assumed as 0.65 lb/ft which includes an allowance for conductor cables and miscellaneous hardware. The effect of the sway cable on load distribution is ignored as it is assumed to break at design wind conditions. When a pole supports 2 spans, the span wire design loads for both spans should be added vectorially to determine the design load for that pole.



# STRAIN POLE ELEVATIONS HORIZONTAL SIGNALS



(Mast arms are not used with vertical signals)

5000 4000 3000 No. Signal Heads-1000 50 50 Span (ft.)

<sup>2</sup>SIGNALS WITH 12-INCH LENS

	5000					77	7	77	77	7	7		77
<u>.</u>					/	//	Ι,	///	/_	//			/
(Ibs.	4000			/		//		//				//	
	4000			//	/3/	6	,4/	3	/		//		
Span Wire Design Load	7000		,4	6/	/ <sup>5</sup> /	$\binom{2}{2}$		4		,3/		2	
esig	3000	,			///	5	<b>/</b> ;		,2		\		
re	2000	//	//		//.	//	/			No. Sign	of		
<b>≥</b>	2000	//	//					, '		Sign	nal H	leads	s—
Spd	1000	//											
		200				,	2				r C	00	170
							Span	(ft.					
Galv	/ <b>.</b>	<u>ري</u> ح	SIG	NA	LS	WI	TH	8-	·IN	CH	LE	<u>NS</u>	_

Signal Head Type	Wt. Per Head	Wind Area �
-Section, 12" Lens	125 lbs	9.6 sq. ft.
-Section, 8" Lens	70 lbs	4.8 sq. ft.

75 lbs

45 lbs

♦ Effective projected design wind area (actual area times drag coefficient)

- - Sag = 4'-6" (26' or 30' Pole) - Sag = 8'-0" (30' or 34' Pole) — - —— Sag = 11'-6" (34' Pole)

3-Section, 12" Lens

3-Section, 8" Lens

		ROUND	POLES		F	OLYGON	5		
Pole Type	D <sub>B</sub>	D <sub>T</sub>	4)thk	H	D <sub>B</sub>	Dτ	(4)thk	Н	
1300	in.	in.	in.	ft.	in.	in.	in.	ft.	4 Thickness shown
Α	12.5	8.9	. 239	26	13.0	9.0	. 239	26	are minimum,
В	13.5	9.3	.239	30	14.0	9.0	. 239	30	thicker material may be used.
С	15.5	11.3	.239	30	16.0	11.0	.239	30	may be asea.
D	15.5	10.7	. 239	34	16.0	11.0	. 239	34	PRELIMINA
				·				·	FOR REVIEW ONL

 $D_B$  = Pole Base O.D. DT = Pole Top O.D. H = Pole Height

5.64 sq. ft.

3.0 sq. ft.

are minimum, thicker materials may be used.

PRELIMINARY Kimlev»Horn \*QUANTITIES ONLY

Pole Type	Ship each pole wi hardware attached handhole at base, simplex and 1 pip	j: pole cap, 2 clar		Ship each pole with the following hardware attached: handhole at base, pole cap and 1 pipe plug.				
	Description	Designation	Quantity	Description	Designation	Quantity		
Α				26' Strain Pole	SP 26 A-100			
В	30' Strain Pole	SPL 30 B-100		30' Strain Pole	SP 30 B-100			
D	34' Strain Pole	SPL 34 D-100	2	34' Strain Pole	SP 34 D-100	2		
Poles	(With Traffic Si	ignal Arm)						
	Strain poles	with Luminaire		Strain poles without Luminaire				
Pole	Ship each pole w hardware attache	ith the following	l	Ship each pole with the following hardware attached:				

Quantity

SHIPPING PARTS LIST

(Without Traffic Signal Arm)

handhole at base, pole cap, clamp-on

Designation

SPL 30 C-100

simplex and 3 pipe plugs.

Description

30' SPw/TS Arm

Туре

Strain poles with Luminaire

<u>Traff</u>	fic Signal Arr	ms (For Type	C poles)				
	Type I Arm (	(1 Signal)	Type II Arm	(2 Signals)	Type III Arm (3 Signals)		
Nominal Arm Length	Ship each Typ the following attached: 2 CGB Connect with bolts an	n hardware Fors, 1 clamp	Ship each Typ the following attached: 1 Bracket Ass Connectors ar with bolts ar	hardware sembly, 3 CGB ad 1 clamp	Ship each Type III Arm with the following hardware attached: 2 Bracket Assemblies, 4 CGB Connectors and 1 clamp with bolts and washers		
ft.	Designation	Quantity	Designation	Quantity	Designation	Quantity	
20	201-100						
24	24I-100		24 Ⅲ -100				
28	28I-100		28 II -100				
32			32 II -100		32 III -100		
36			36 Ⅱ -100		36 Ⅲ −100		

Anchor B	<u>olt Assem</u>	þlies (1 per pole	<del>,</del> )
Anchor Bolt	Anchor Bolt	Templates may be remo	oved
Diameter	Length	Quantity	
1 3/4"	3′-10"		
2"	4'-3"	4	Eac Top
			8 f   (Tv

(1) See Sheet "DMA-100"

Luminaire Arms	
Nominal Arm Length	Quantity
8′ Arm	2

Strain poles without Luminaire

handhole at base, pole cap and

Designation

SP 30 C-100

Quantity

3 pipe plugs.

Description

30' SPw/TS Arm

ach Anchor Bolt Assembly consists of the following: op and Bottom templates, 4 anchor bolts, 8 nuts, flat washers, and 4 nut anchor devices Type 2) per Standard Drawing "TS-FD".

SHEET 1 OF 2

Texas Department of Transportation

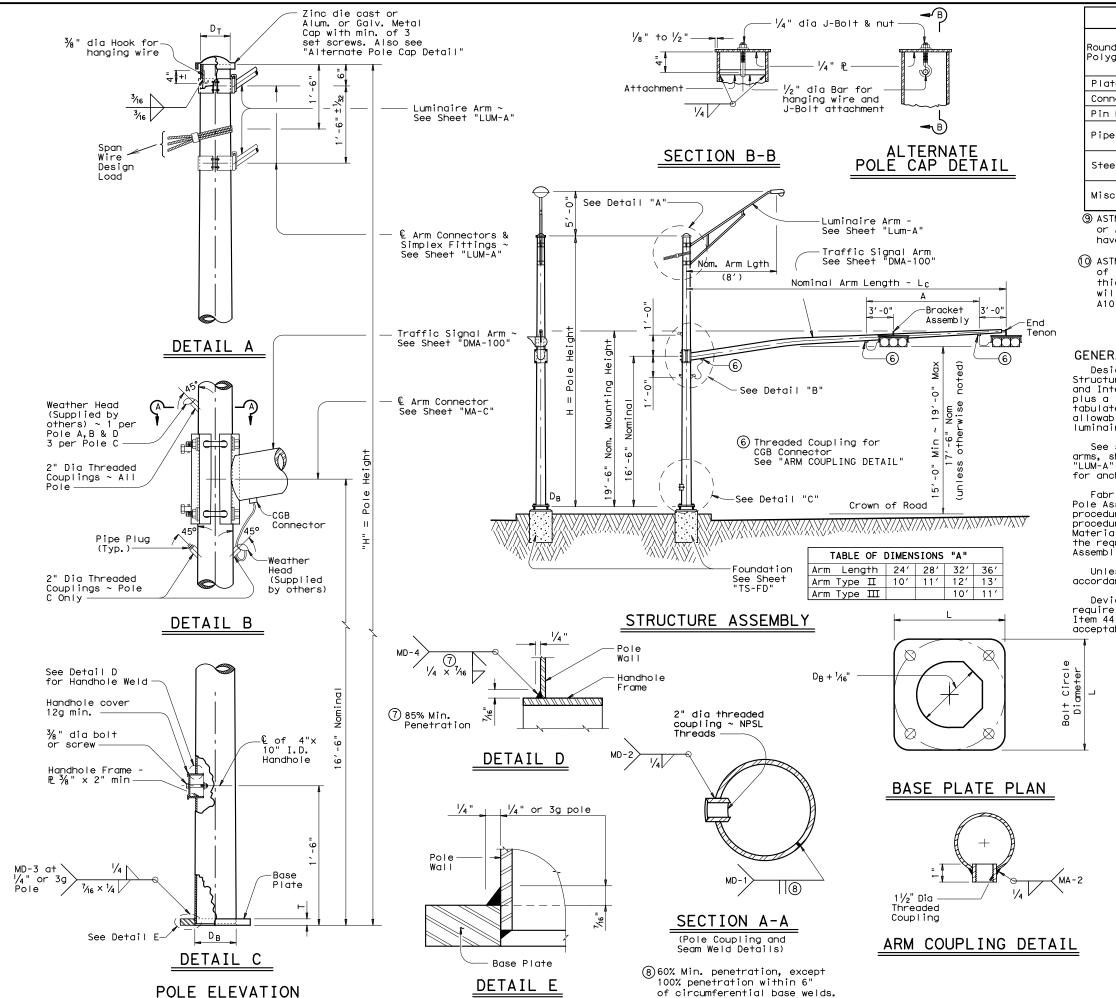
Traffic Operations Division TRAFFIC SIGNAL SUPPORT STRUCTURES STRAIN POLE ASSEMBLIES

(100 MPH WIND ZONE)

SP-100(1)-12

© TxDOT March 1996	DN: MS		CK: JSY	DW:	BR		CK: JSY
REVISIONS	CONT	SECT	JOB			HIG	HWAY
96 12	N\A	N\A	N\A		F	'nR	100
	DIST		COUNTY			s	HEET NO.
	PHR		CAMERO	N			226





MATERIALS ASTM A595 Gr.A. A588, A1008 HSLAS Gr.50 Class 2. Round Shafts or A1011 HSLAS Gr. 50 Class 2, A572 Gr. 50 or A1011 SS Gr. 50 (i) Polygonal Shafts® Plates 9 ASTM A36, A588, or A572 Gr.50 Connection Bolts ASTM A325 except where noted Pin Bolts ASTM A325 ASTM A53 Gr.B, A501, A1008 HSLAS-F Gr.50, A1011 HSLAS-F Gr.50 Pipe (9) ASTM A475, 7 Wire Utilities Grade Steel Cable Galvanized steel or stainless steel Misc. Hardware or as noted

- Mastm A572, A1008 HSLAS, A1011 HSLAS, A1008 HSLAS-F, A1011 HSLAS-F, or A1011 SS may have higher yield strengths but shall not have less elongation than the grade indicated.

  Mastmatic A1008 HSLAS A1008 HSL
- (a) ASTM A1011 SS Gr.50 shall also have a minimum elongation of 18 percent in 8 inches or 23 percent in 2 inches. Material thickness in excess of those stipulated under A1011 SS will be acceptable providing the material meets all other A1011 SS requirements and the requirements of this item.

#### GENERAL NOTES

Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals and Interim Specifications thereto. Design Wind Speed equals 100 mph plus a 1.3 gust factor. The maximum permissible span wire design loads tabulated are calculated at a stress load of 1.4 times the basic allowable stress. A simultaneous wind on the pole, mast arm, and luminaire is also included.

See standard sheet "DMA-100" for details of clamp-on traffic signal arms, sheet "MA-C" for traffic signal arm connection details, sheet "LUM-A" for luminaire arm and connection details, and sheet "TS-FD" for anchor bolt and foundation details.

Fabrication shall be in accordance with Item 686, "Traffic Signal Pole Assemblies (Steel)" and with the details, dimensions, and weld procedures shown herein. Weld references call for preapproved weld procedures which the Fabricator must obtain prior to fabrication. Materials, fabrication tolerances, and shipping practices shall meet the requirements of this sheet and Item 686, "Traffic Signal Pole Assemblies (Steel)".

Unless otherwise noted, all parts shall be galvanized in accordance with Item 445, "Galvanizing", after fabrication.

Deviation from the details and dimensions shown herein require submission of shop drawings in accordance with Item 441, "Steel Structures". Alternate designs are not acceptable.

Foundation Type	Anchor Bolt Diameter	Bolt Hole Diameter	Bolt Circle Diameter	Base PL Dim. L x T
36-A	1 3/4"	2"	19"	19" × 1 ¾"
36-B	2"	2 1/4"	21"	21" x 2"

SHEET 2 OF 2



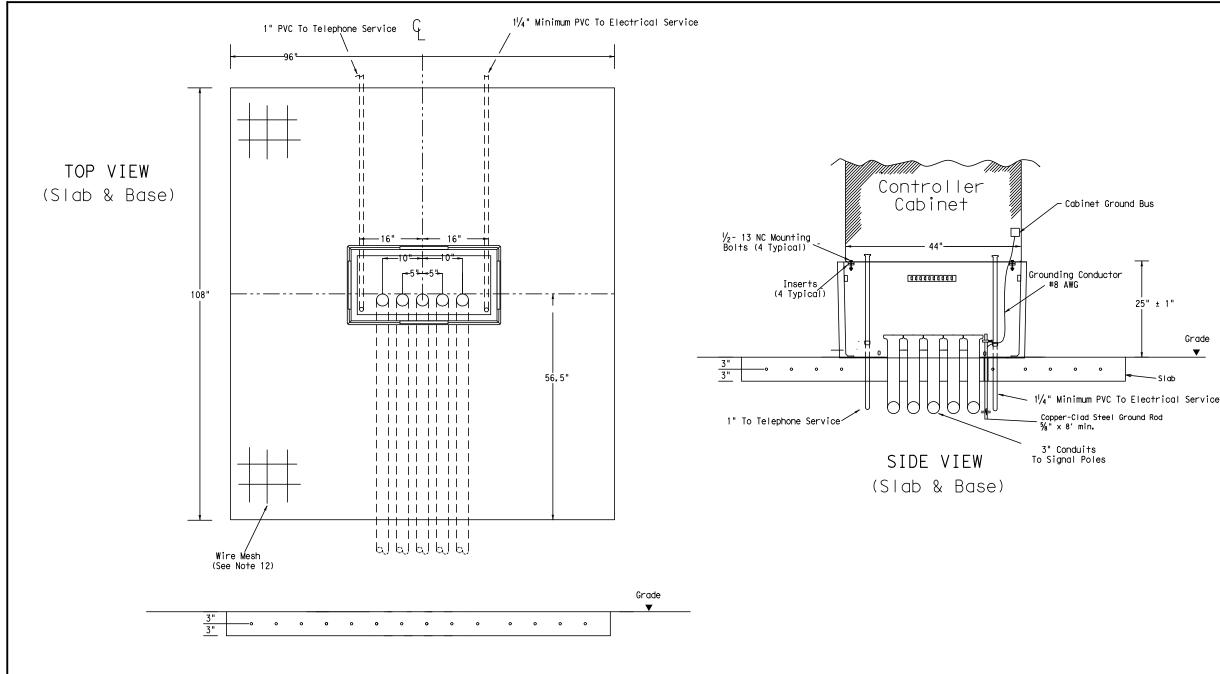
TRAFFIC SIGNAL
SUPPORT STRUCTURES
STRAIN POLE ASSEMBLIES

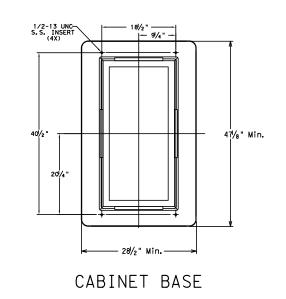
(100 MPH WIND ZONE)

SP-100(2)-12

© TxDOT March 1996	DN: MS		CK: JSY DW:		BR CK: JSY	
REVISIONS	CONT	SECT	JOB			HIGHWAY
5-96 I-12	N\A	N\A	N\A		Р	R 100
. 12	DIST		COUNTY			SHEET NO.
	PHR		CAMERO	N		227

121B





TRAFFIC SIGNAL CONTROLLER BASE:

- 1. Provide a traffic signal controller base (cabinet base) manufactured of polymer concrete material consisting of calcareous and siliceous stone; glass fibers and thermoset polyester resin. The polymer concrete cabinet base must be reinforced on the inside of the cabinet base with fiberglass matting. Provide one of the following bases: Armorcast Part # A6001848X24, Quazite Model # PG3048Z709, or other as approved by TxDOT Traffic Operation Division.
- The polymer concrete material must have a minimum compressive strength of 10,300 pounds per square inch
- (psi), minimum flexural strength of 3600 psi, and minimum shear strength of 3600 psi. The polymer concrete cabinet base must conform to the dimensions shown and must accommodate a standard TxDOT basemount cabinet.
- Supply the cabinet base with four  $\frac{1}{2}$ "-13 UNC stainless steel inserts for attachment of the cabinet to the base. Inserts must withstand a minimum torque of 50 ft-Ib and a minimum straight pull out strength of
- 5. Provide the cabinet base with 4 cable racks mounted one on each side of the base 2" to 7 " from the top edge of the base. Unless approved otherwise, cable racks must be  $1-1/2 \times \%_8 \times \%_6$  inch steel channel with eight T-slots spaced at 1-1/2 inches. The cable racks must easily accommodate the insertion of tie wraps attach field wiring to the racks to serve as strain relief. Secure cable racks to the base using ½"-13 UNC stainless steel screws and inserts.
- 6. The cabinet base, when secured to the concrete slab with controller cabinet attached, must withstand a minimum wind load of 125 mph or a 850 lb force applied at 49" above the bottom of the base without causing the base or cabinet to come out of their anchored position or cause any permanent deformation. The manufacturer must supply certification by an independent testing laboratory or sealed by a Texas Licensed Professional Engineer. Provide the cabinet base with hardware for attachment to a concrete slab.
- 7. The traffic signal base must be permanently marked either by impress or by permanent ink with the manufacturer's model number and name or load.
- 8. Seal the base to the concrete with a silicone caulk bead and fastened to the slab per manufacturer's instructions.

## CONCRETE SLAB:

9. Traffic signal controller pad must be a portland cement concrete slab poured in place, must conform to the dimensions shown, and must be level.

- 10. Bond a #8 AWG copper ground wire and an 8 ft ground rod bonded to the reinforcing mesh by a suitable UL Listed clamp and terminated to the cabinet grounding bus for the purpose of providing a local ground for the electrical grounding conductor. The electrical grounding conductor specified in Item 680-3.A.4 is required and must be terminated to the cabinet ground bus.
- 11. Install a PVC sleeve to prevent the ground rod from direct embedment in the slab.
- 12. Provide welded wire mesh 6X6-W2.9 X W2.9 for reinforcement. Provide joints and splices in the mesh with a minimum 6-inch overlap. Center the mesh between top and bottom and provide a minimum 3 inch cover on the edges.
- 13. Provide Class B concrete minimum for the slab in accordance with Item 421. Construct the slab in accordance with Item 531.

#### CONDUITS

- 14. Stub up and run 3-inch conduits through the slab to the various traffic signal poles and ground boxes as shown on the layouts. Install the number of conduits as shown on layouts plus two additional 3 inch conduits for future use. Terminate the conduits with a bushing between 2 and 4-inches above the slab.
- Extend conduits for future use at least 18 inches from the edge of the slab, terminate underground with a coupling, and cap and seal so that the seal can be removed without damaging the coupling. This must also apply to unused telephone conduit.
- Stub up two separate conduits through the slab from the electrical and telephone services. Run the conduit for the electrical feed directly to the electrical service enclosure. Run the conduit for the telephone line directly to the telephone service, usually located on the same pole as the electrical service. Telephone must not under any circumstance share a conduit with any other function.
- 17. Terminate electric and telephone conduits above the slab with a coupling. After the base is installed, extend the conduits above the top of the base and secure to the base using a steel one-hole strap or similar suitable substitute.

## CONTROLLER CABINET:

- 18. Anchor the controller cabinet to the base using four stainless steel 1/2-13 NC bolts.
- 19. The silicone caulk bead specified in Item 680.3.B must be RTV 133.

#### PAYMENT:

20. Bid TS-CF as subsidiary to Item 680.



TRAFFIC SIGNAL CONTROLLER CABINET BASE AND PAD

TS-CF-04

© TxDOT October 2000	DN: TXD	тот	CK: TXDOT	DW:	TXDOT	CK: TXDOT
12-04 REVISIONS	CONT	SECT	JOB		HI	GHWAY
	N∖A	N\A	N\A		PR	100
	DIST		COUNTY			SHEET NO.
	PHR		CAMERO	N		228

Grade

FEDERAL AID PROJECT NO.

DISTRICT

PHR

SECTION

N\A

6

STATE

TEXAS

CONTROL

N\A

(SEE TITLE SHEET)

HIGHWAY NO.

PR 100

229

COUNTY

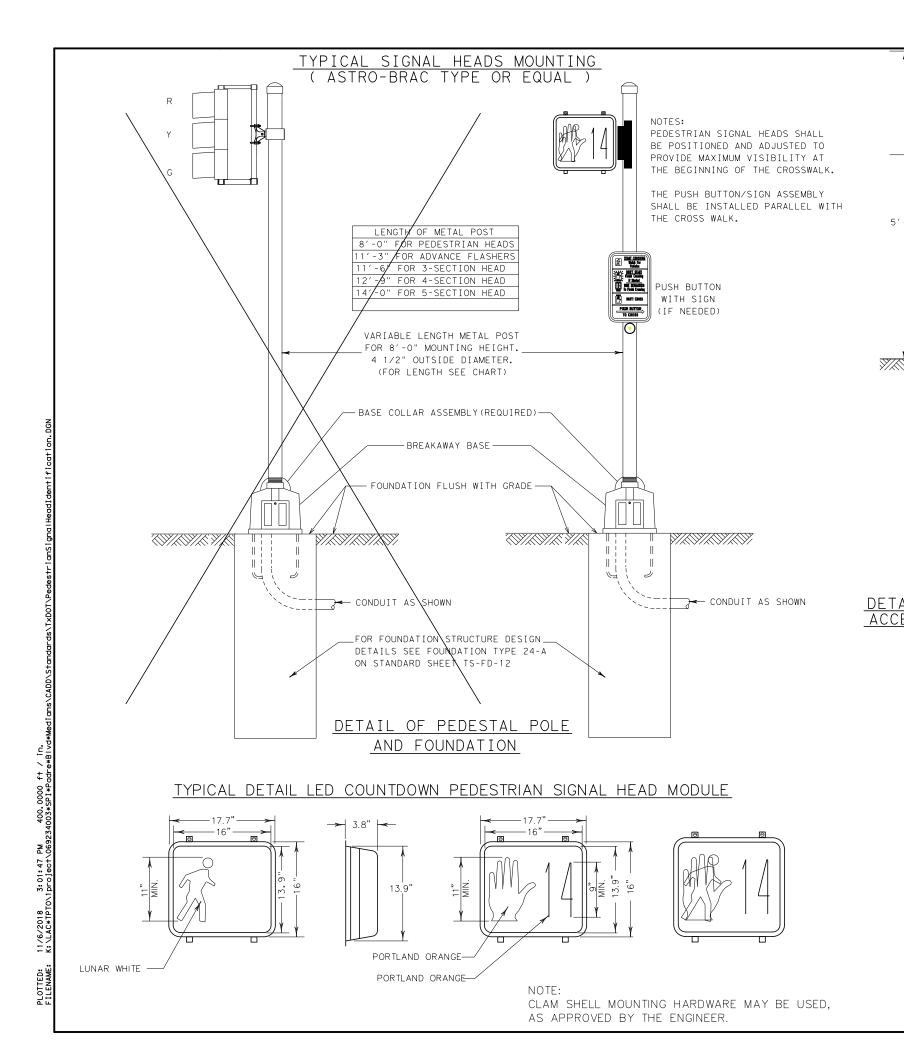
CAMERON

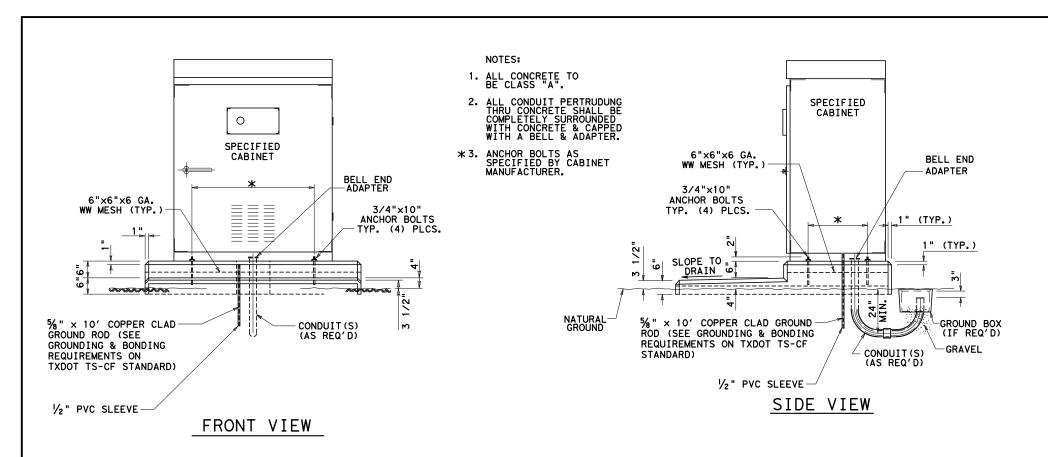
JOB

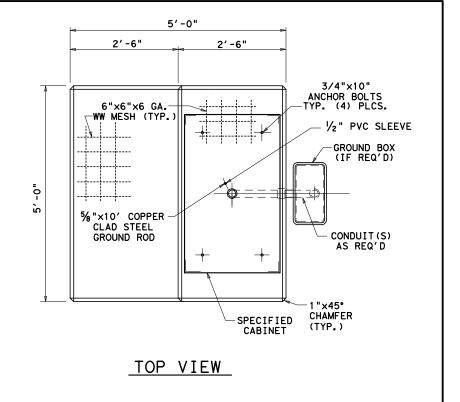
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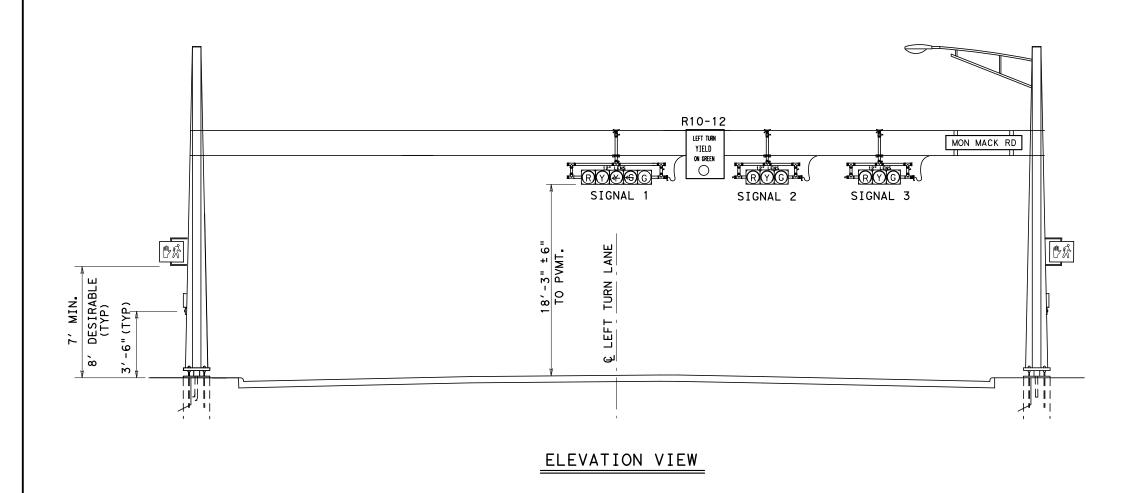
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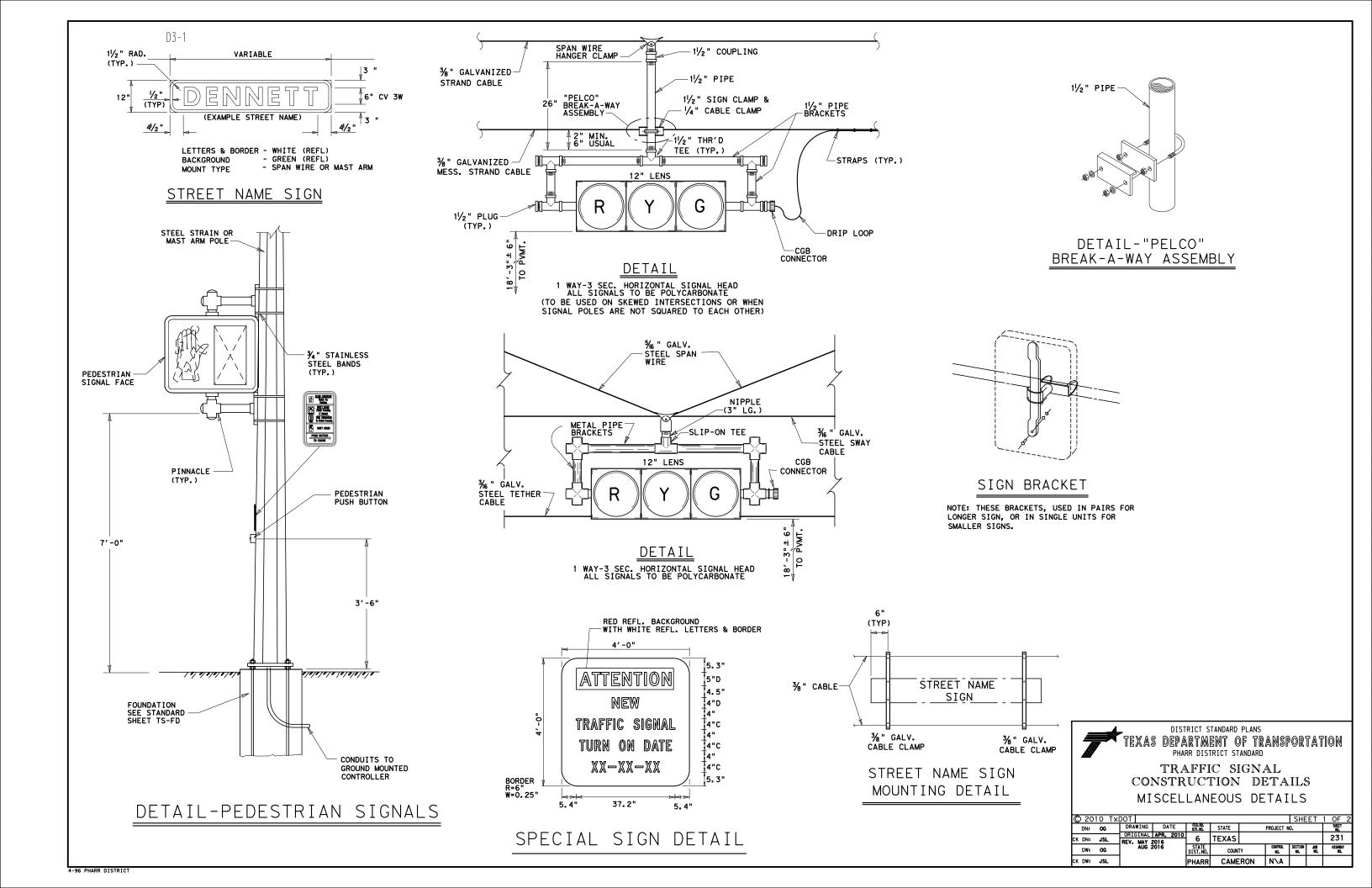


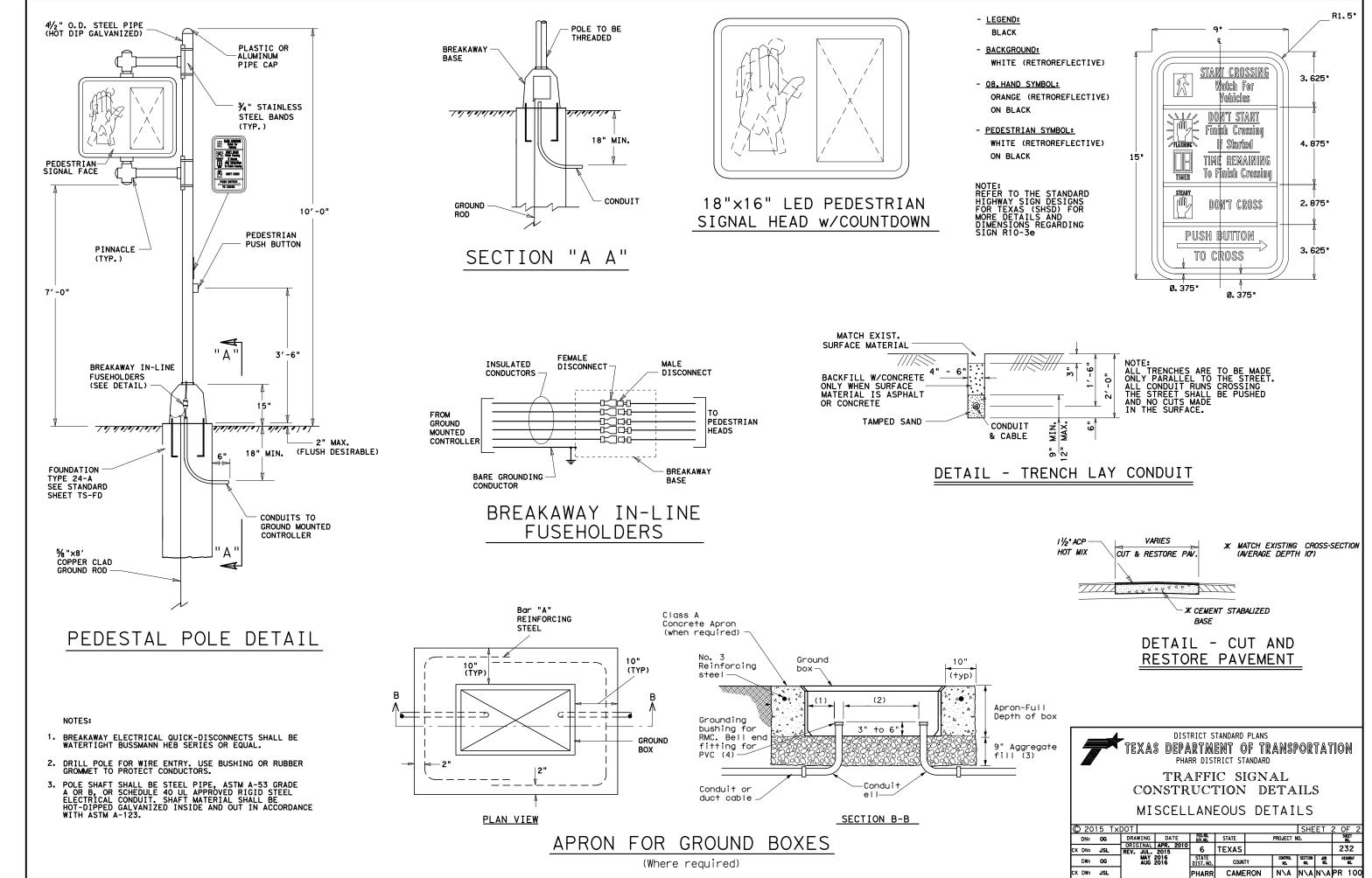


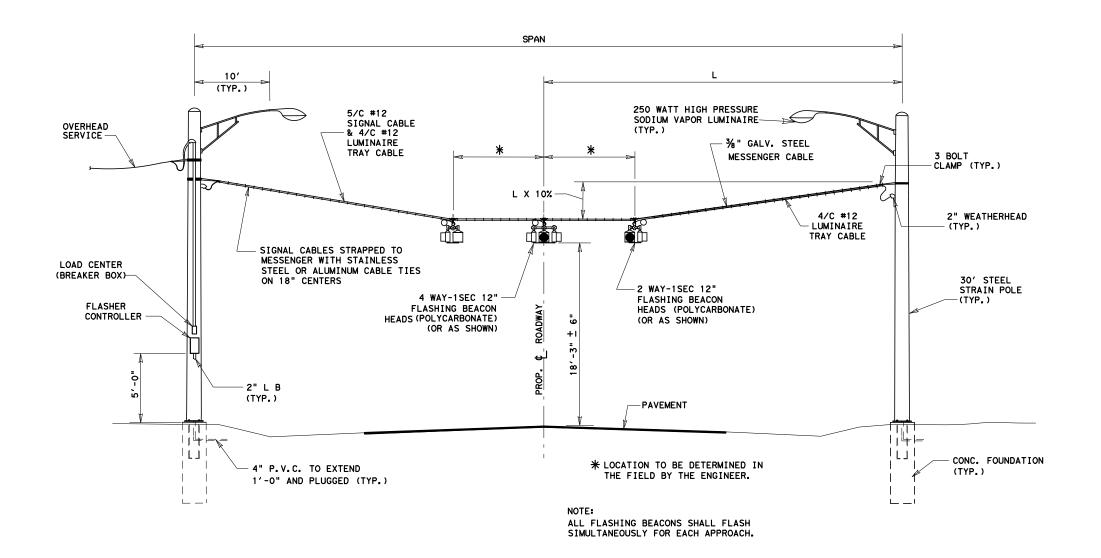
# DETAIL OF BASE MOUNT CABINET FOUNDATION



DISTRICT STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
PHARR DISTRICT STANDARD
TRAFFIC SIGNAL
CONSTRUCTION DETAILS
CONTROLLER FOUNDATON &
LOOP DETECTOR INSTALLATION





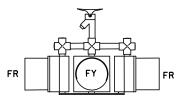


# TYPICAL FLASHING BEACON INSTALLATION

NOT TO SCALE

# NOTES:

- 1. THE CONTRACTOR SHALL INSTALL STEEL STRAIN POLES, LUMINAIRES, FLASHING BEACON HEADS, SIGNAL CABLES AND SPAN WIRE AS SHOWN.
- 2. THE LOCATIONS SHOWN FOR THE STEEL STRAIN POLES IS APPROXIMATE. THEIR EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER IN COORDINATION WITH THE PHARR DISTRICT SIGNAL SHOP.
- 3. THE EXACT LOCATION OF ALL KNOWN UNDER-GROUND UTILITIES IS NOT CERTAIN. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ANY UNDERGROUND UTILITIES BEFORE DRILLING FOR STEEL POLE FOUNDATIONS AND SERVICE POLES.
- 4. SIGNAL CABLE SHALL BE #12 AWG AND SERVICE CABLE SHALL BE #6 AWG.
- THE CONTRACTOR SHALL FURNISH NEW LED TRAFFIC SIGNAL LAMPS FOR ALL FLASHING BEACON HEADS.
- 6. THE LUMINAIRES SHALL BE EQUIPPED WITH PHOTO ELECTRIC CELLS FOR THEIR OPERATION.



DETAIL

4 WAY-1 SEC.

12" FLASHING BEACON HEAD
(OR AS SHOWN)



DISTRICT STANDARD PLANS

TEXAS DEPARTMENT OF TRANSPORTATION PHARR DISTRICT STANDARD

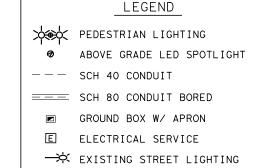
TRAFFIC SIGNAL CONSTRUCTION DETAILS MISCELLANEOUS DETAILS

$\mathbb{C}$	201	15 Tx[	TOC						SHE	ET 4	4 OF	4
	DN:	OG	DRAWING	DATE	FED.RO. DIV.NO.	STATE		PROJECT N	0.		SHEE NO.	T
cĸ	DN:	GIG	ORIGINAL	Oct. 2015	6	TEXAS		N\A			23	3
	DW:	OG			STATE DIST.NO.	COUN	ſΥ	CONTROL NO.	SECTION NO.	J08 NO.	HIGH	IAY D.
CK	DW:	GIG			PHARR	CAME	RON	N\A	N\A	N\A	PR 1	00



#### NOTES:

- 1. ALL INDICATED LENGTHS IN CONDUIT/CONDUCTOR RUN SCHEDULES ARE HORIZONTAL ONLY. THE CONTRACTOR SHALL ALLOW FOR SPLICING AND VERTICAL REQUIREMENTS.
- 2. THE CONTRACTOR SHALL VERIFY WITH THE UTILITY COMPANIES THE EXACT LOCATION OF EXISTING UNDERGROUND UTILITIES, PRIOR TO CONSTRUCTION TO AVOID CONFLICT OR DAMAGE TO THESE UTILITIES. THE CONTRACTOR SHALL SEEK THE APPROVAL OF THE ENGINEER AND ADJUST THE OFFSETS TO AVOID DAMAGE TO UTILITIES.
- 3. SEE LIGHTING DETAILS FOR PLANTER ELECTRICAL DETAIL.



□ OUTDOOR OUTLET

No.	Revision	Ву	Date
	PRELIMINAR	Υ	
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	Kimley»Hor	n	
	Engineer SCOTT R. ARNOLD P. E. No. 96782 Date 11/6/20	018	

# **Kimley** »Horn





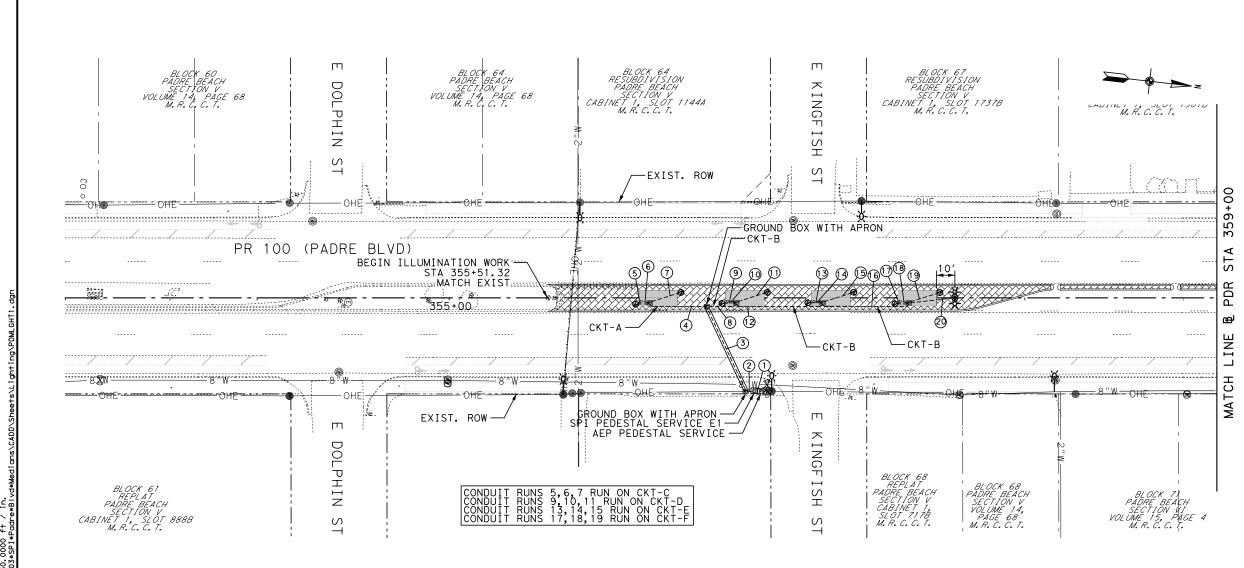
# PR 100 ROADWAY IMPROVEMENTS

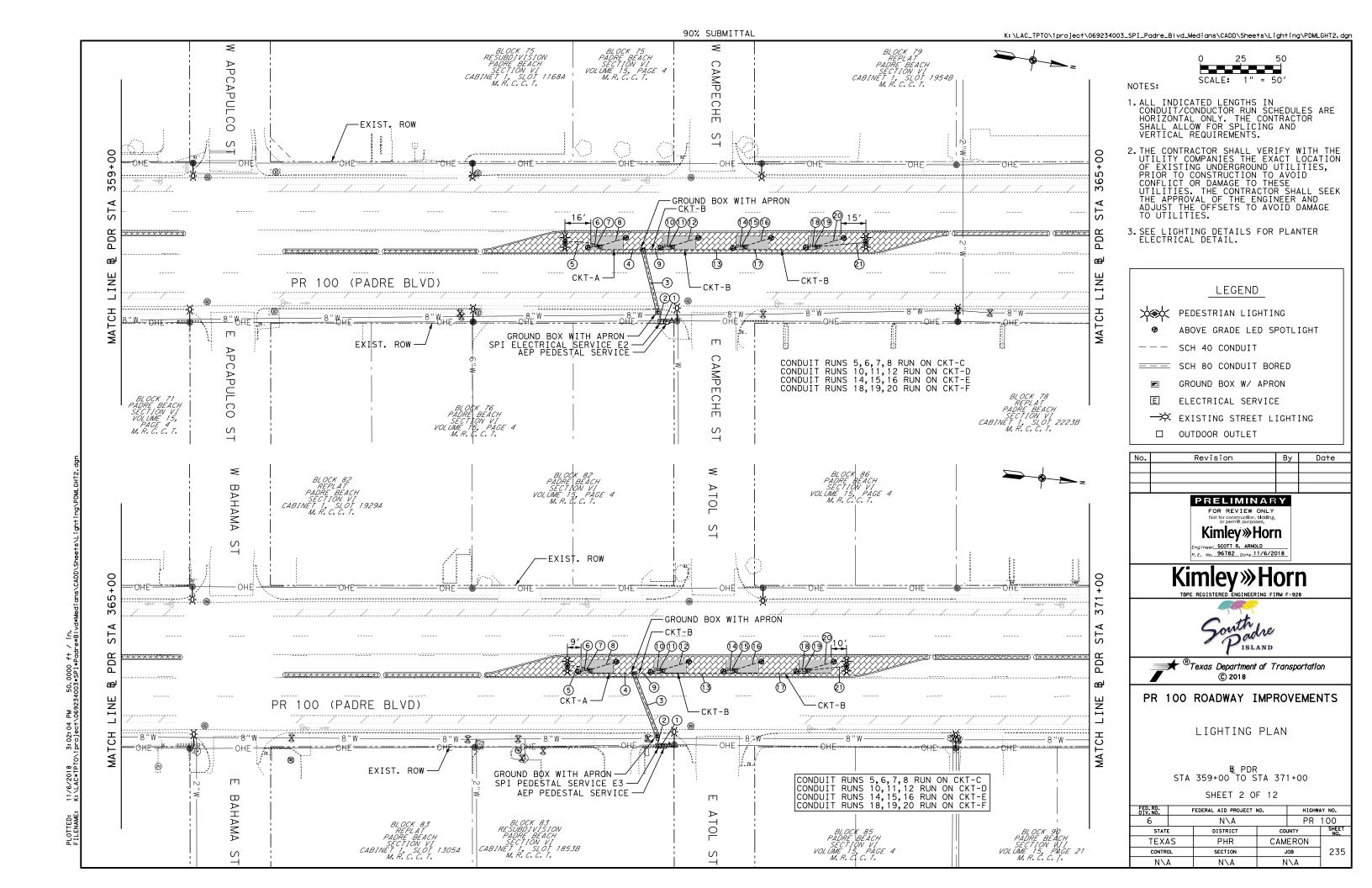
LIGHTING PLAN

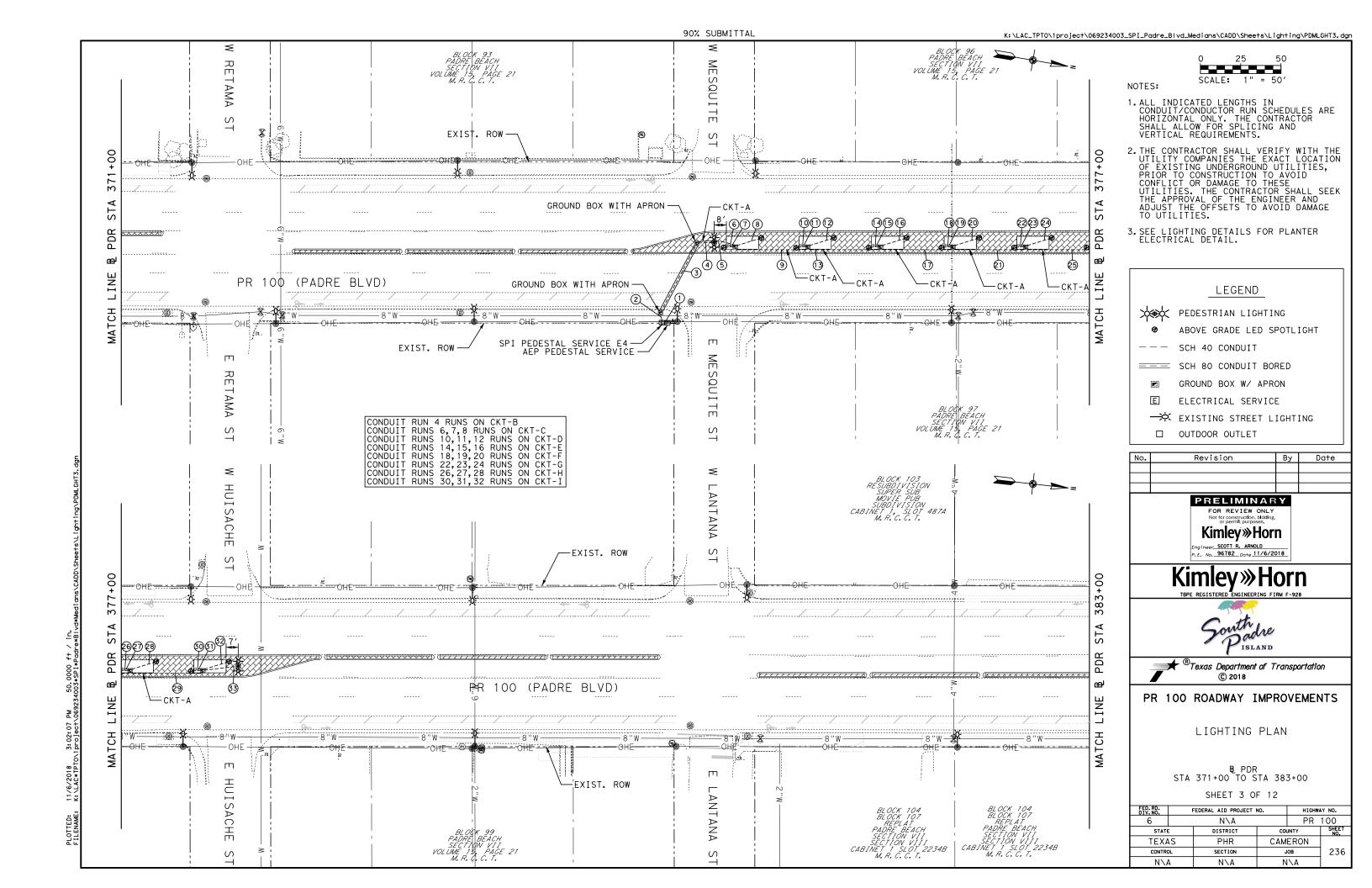
₽ PDR STA 347+00 TO STA 359+00

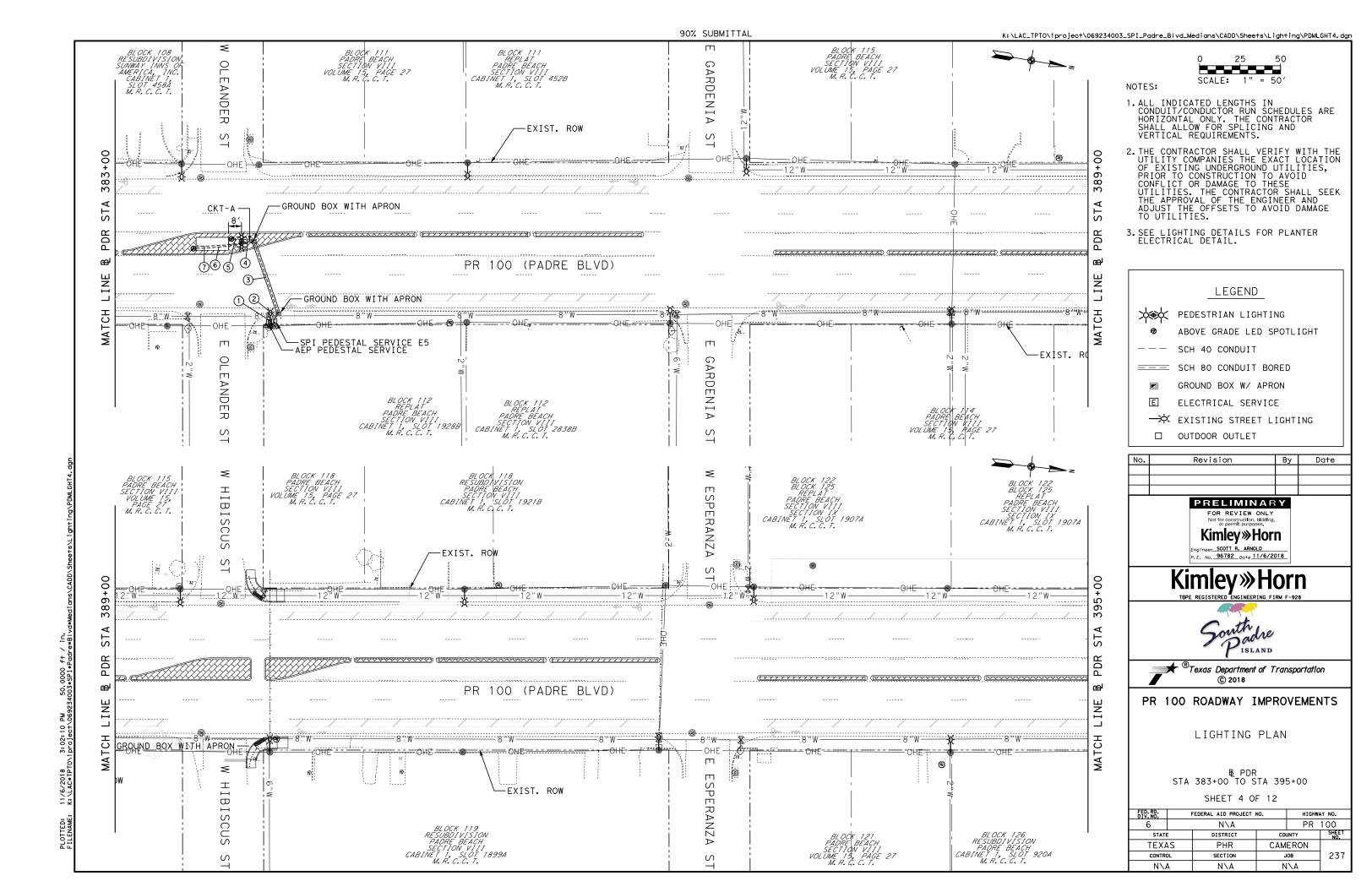
SHEET 1 OF 12

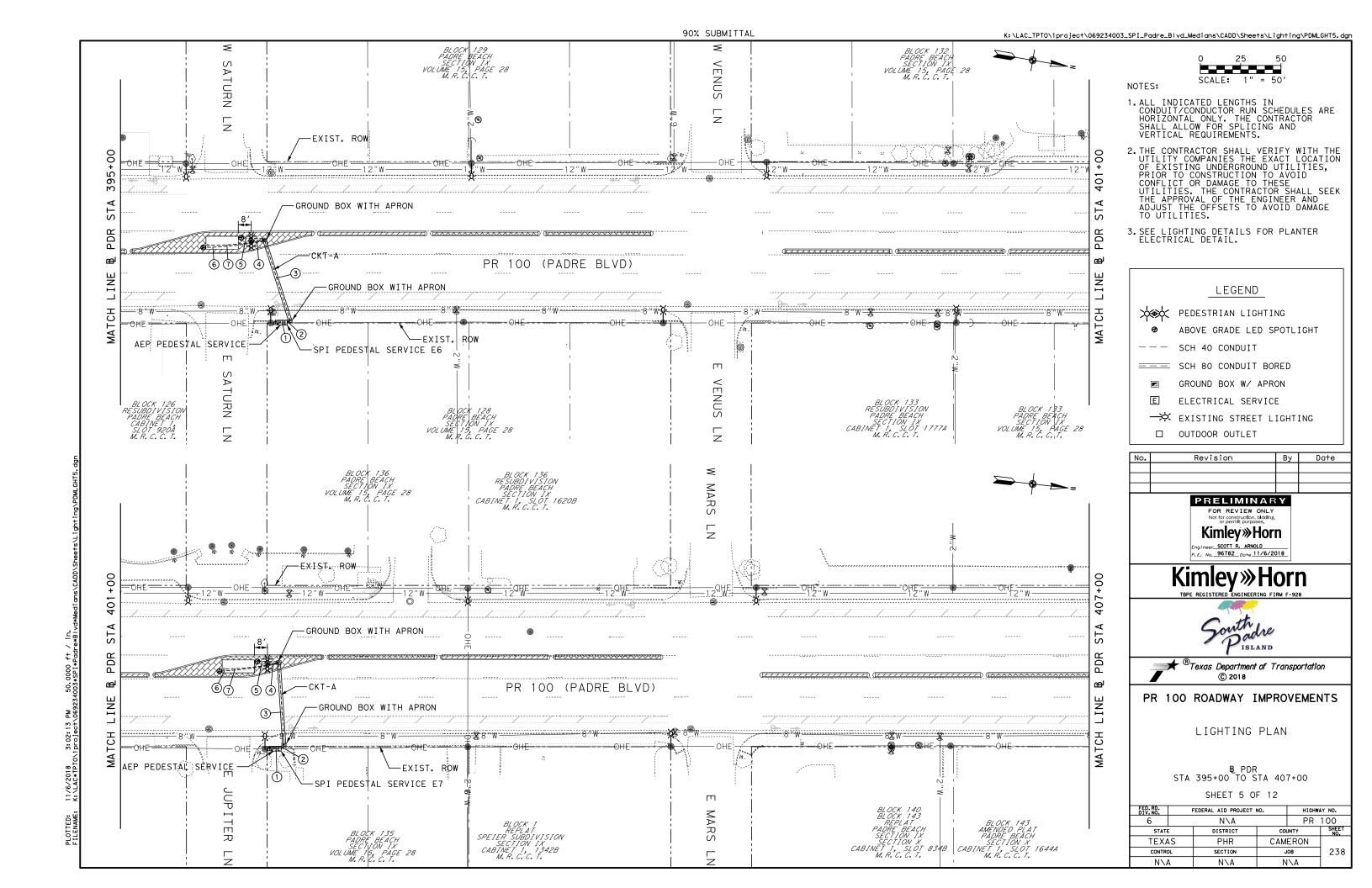
FED. RD. DIV. NO.	ı	FEDERAL AID PROJECT	H I GHWA	Y NO.	
6		N\A	PR	100	
STATE	TE DISTRICT CO			JNTY	SHEET NO.
TEXA	\S	PHR	CAMERON		
CONTROL		SECTION		JOB	
N\A		N∖A	N	<b> </b> \A	

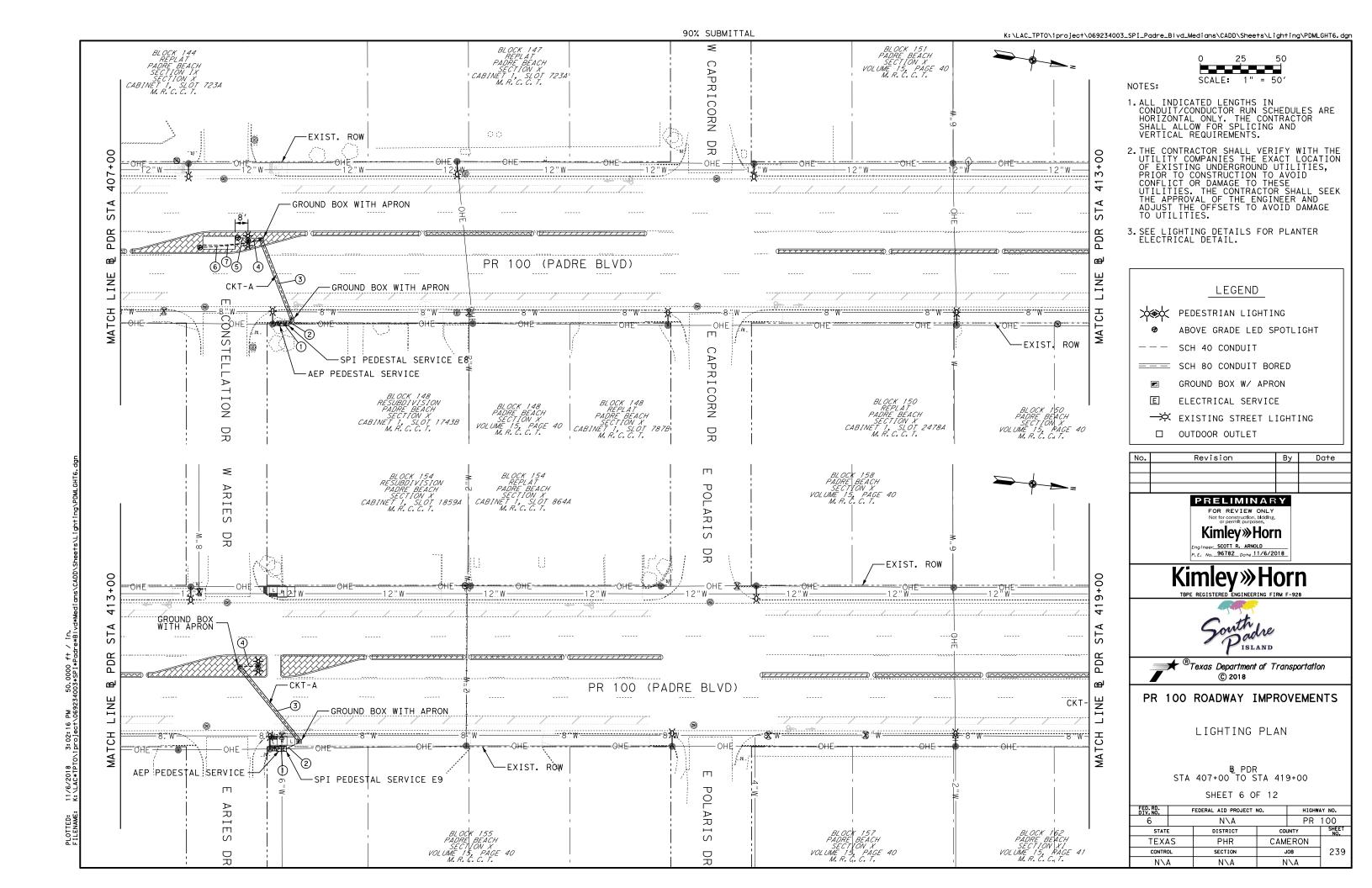


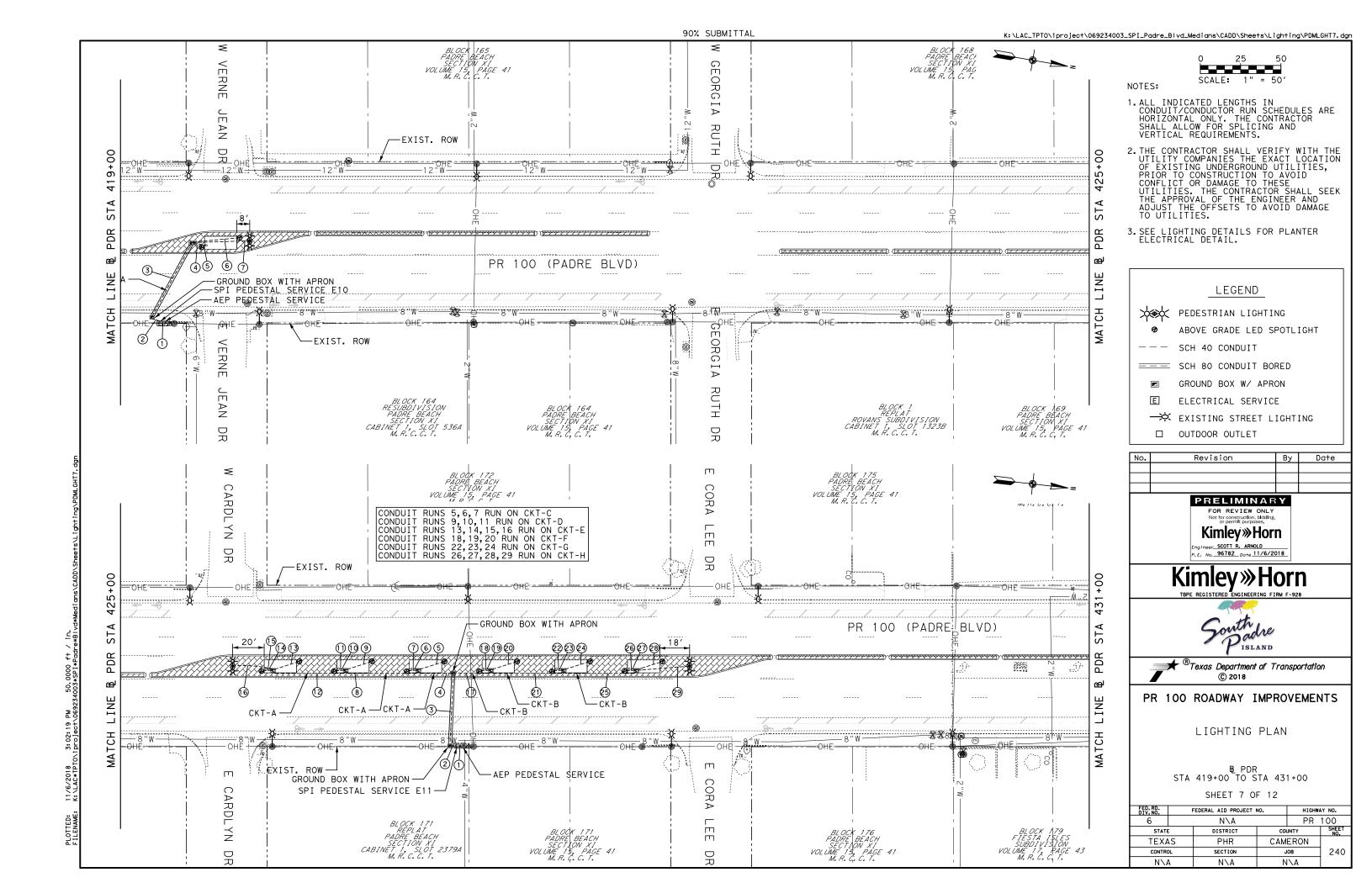


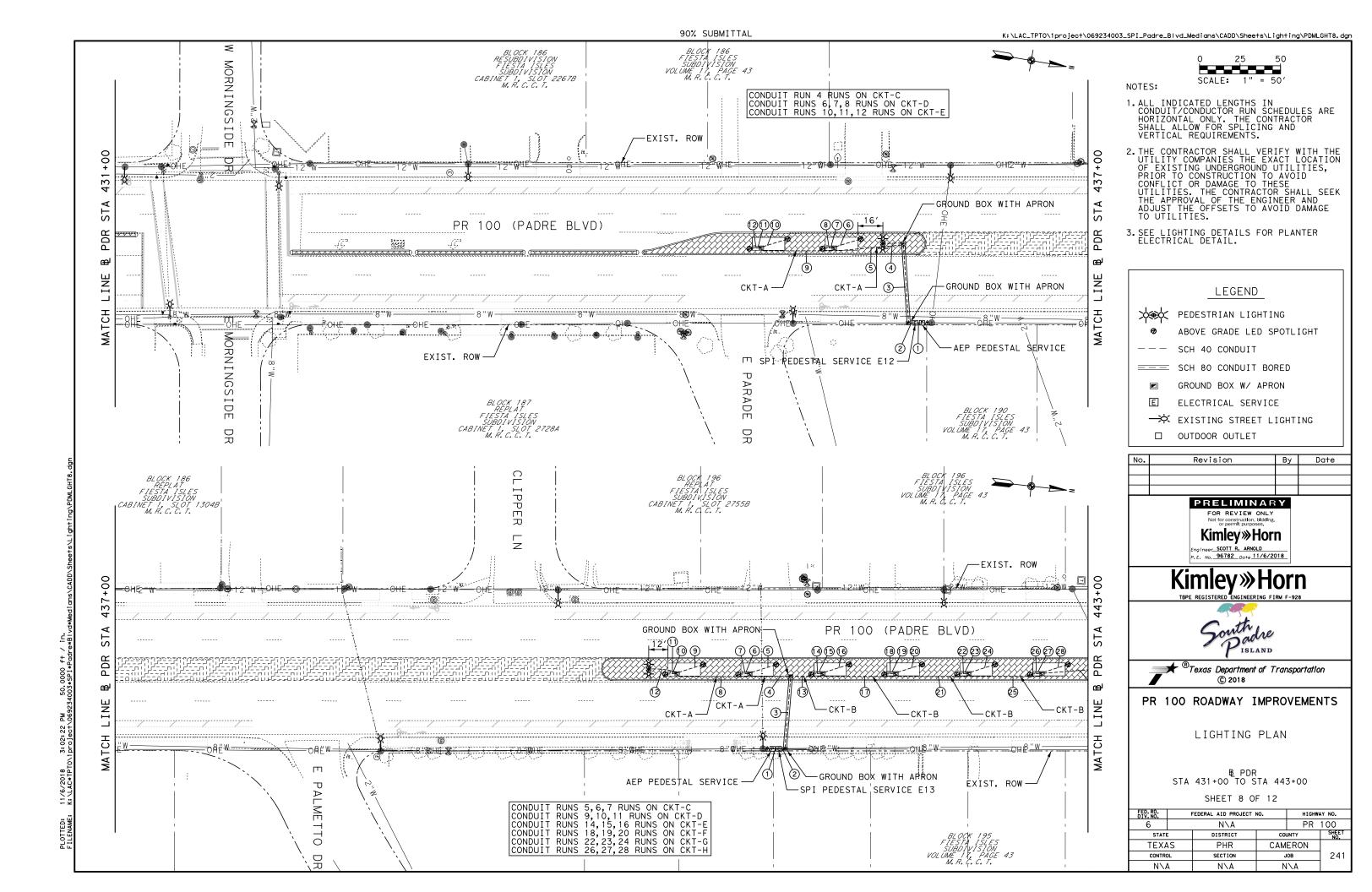


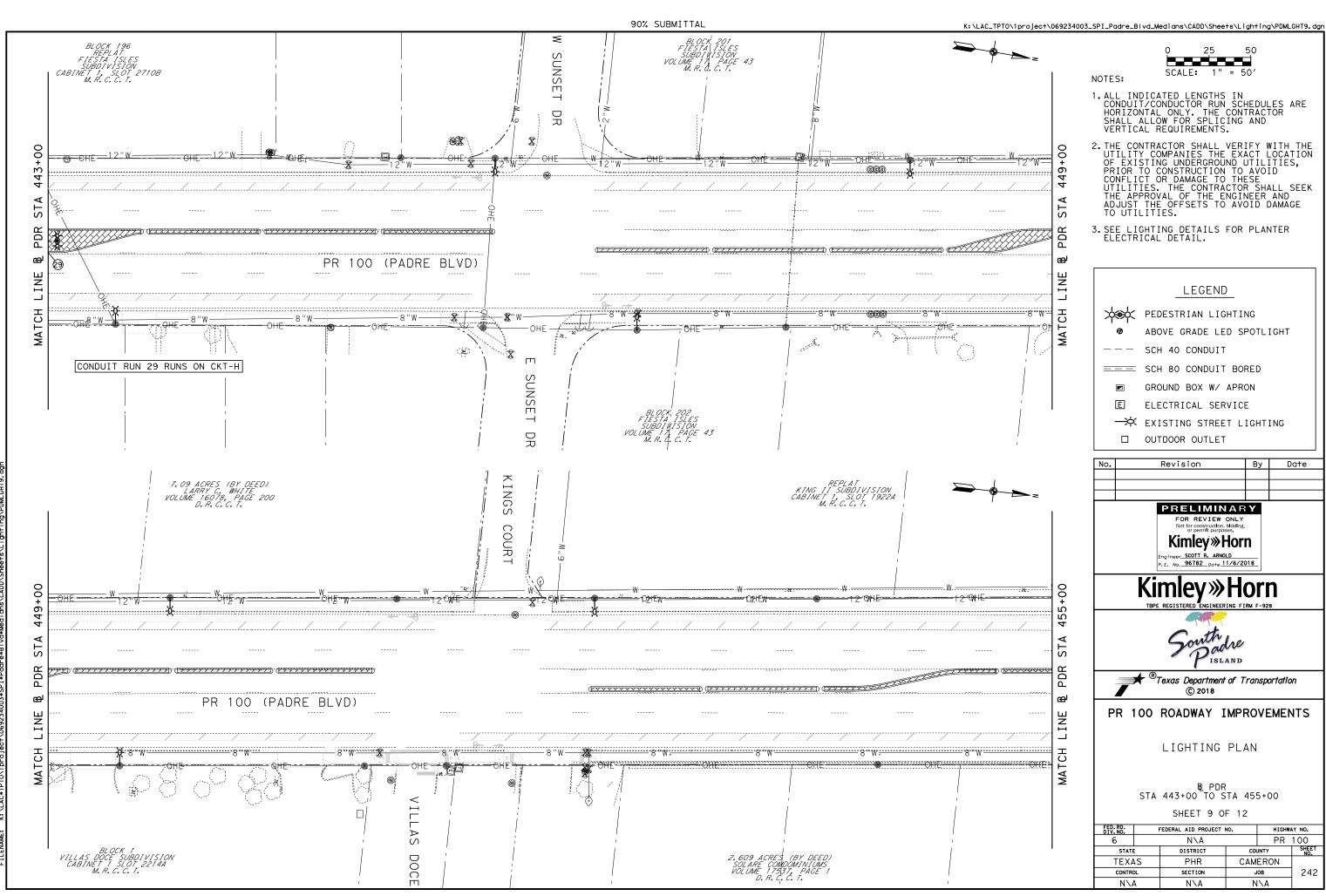














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- 3. SEE LIGHTING DETAILS FOR PLANTER ELECTRICAL DETAIL.

# LEGEND

PEDESTRIAN LIGHTING

ABOVE GRADE LED SPOTLIGHT SCH 40 CONDUIT

SCH 80 CONDUIT BORED

GROUND BOX W/ APRON

ELECTRICAL SERVICE

→ EXISTING STREET LIGHTING

☐ OUTDOOR OUTLET

Revision Ву Date

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P. E. No. 96782 Date 11/6/2018

**Kimley** » Horn

South padre

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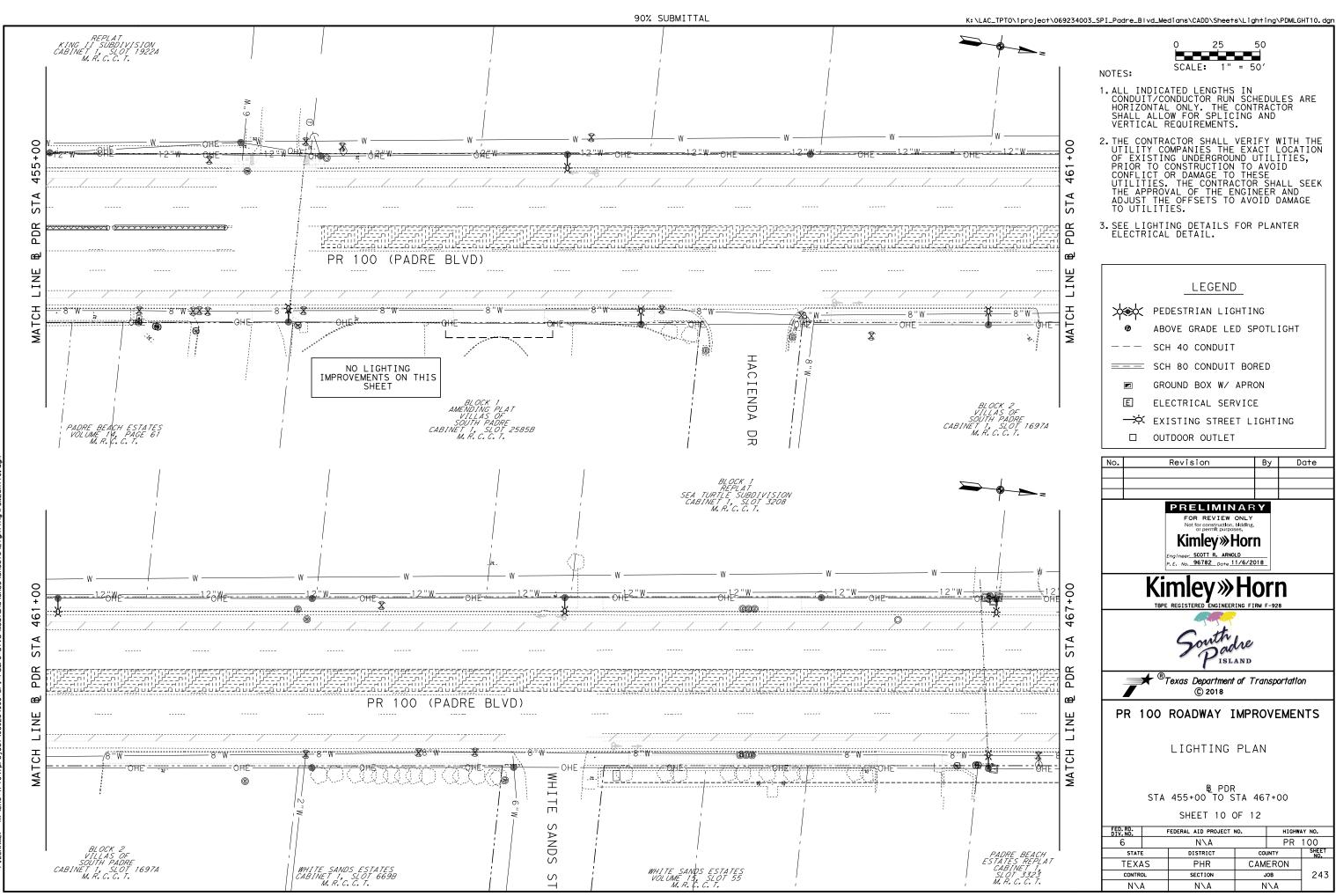
PR 100 ROADWAY IMPROVEMENTS

LIGHTING PLAN

₽ PDR STA 443+00 TO STA 455+00

SHEET 9 OF 12

FED.RD. DIV.NO.	-	FEDERAL AID PROJECT	H I GHWA	Y NO.	
6		N\A			100
STATE		DISTRICT COUNTY			SHEET NO.
TEXA	\S	PHR	САМ	ERON	
CONTRO	CONTROL SECTION JOB		ЮВ	242	
N\A	4	N∖A	N	I\A	



SCALE: 1" = 50

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# LEGEND

PEDESTRIAN LIGHTING

SCH 80 CONDUIT BORED

GROUND BOX W/ APRON

ELECTRICAL SERVICE

Revision Ву Date

PRELIMINARY FOR REVIEW ONLY
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P. E. No. 96782 Date 11/6/2018

**Kimley** » Horn

South padre

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PR 100 ROADWAY IMPROVEMENTS

LIGHTING PLAN

₽ PDR STA 455+00 TO STA 467+00

SHEET 10 OF 12

DIV. NO.	,	EDERAL AID PROJECT	HIGHWA	Y NO.	
6		N\A	PR	100	
STATE	DISTRICT COU		JNTY	SHEET NO.	
TEXAS	S	PHR	CAM	ERON	
CONTROL	-	SECTION	JOB		243
N/A	N\A		<b>\</b> A		



- 1. ALL INDICATED LENGTHS IN CONDUIT/CONDUCTOR RUN SCHEDULES ARE HORIZONTAL ONLY. THE CONTRACTOR SHALL ALLOW FOR SPLICING AND VERTICAL REQUIREMENTS.
- 2. THE CONTRACTOR SHALL VERIFY WITH THE UTILITY COMPANIES THE EXACT LOCATION OF EXISTING UNDERGROUND UTILITIES, PRIOR TO CONSTRUCTION TO AVOID CONFLICT OR DAMAGE TO THESE UTILITIES. THE CONTRACTOR SHALL SEEK THE APPROVAL OF THE ENGINEER AND ADJUST THE OFFSETS TO AVOID DAMAGE TO UTILITIES.
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# LEGEND

PEDESTRIAN LIGHTING

ABOVE GRADE LED SPOTLIGHT SCH 40 CONDUIT

SCH 80 CONDUIT BORED

GROUND BOX W/ APRON

ELECTRICAL SERVICE

→ EXISTING STREET LIGHTING

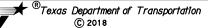
☐ OUTDOOR OUTLET

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P. E. No. 96782 Date 11/6/2018

**Kimley Morn** 





# PR 100 ROADWAY IMPROVEMENTS

LIGHTING PLAN

₽ PDR STA 467+00 TO STA 479+00

SHEET 11 OF 12

6         N\A         PR 100           STATE         DISTRICT         COUNTY         SHEET NO.           TEXAS         PHR         CAMERON           CONTROL         SECTION         JOB         244           N\A         N\A         N\A	DIV. NO.	ı	EDERAL AID PROJECT	HIGHWA	AY NO.		
TEXAS PHR CAMERON  CONTROL SECTION JOB 244	6		N\A	PR	PR 100		
CONTROL SECTION JOB 244	STATE		DISTRICT	col	UNTY	SHEET NO.	
	TEXAS		PHR	CAMERON			
N\A N\A N\A	CONTROL		SECTION	JOB		244	
	N\A	N\A N\A			I\A		

SCALE: 1" = 50'

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# LEGEND

PEDESTRIAN LIGHTING

ABOVE GRADE LED SPOTLIGHT

SCH 40 CONDUIT

GROUND BOX W/ APRON

ELECTRICAL SERVICE

→ EXISTING STREET LIGHTING

☐ OUTDOOR OUTLET

No.	Revision	Ву	Date

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P. E. No. 96782 Date 11/6/2018

# **Kimley** » Horn





# PR 100 ROADWAY IMPROVEMENTS

LIGHTING PLAN

B PDR STA 479+00 TO END PROJECT

SHEET 12 OF 12

ED. RD. IV. NO.	1	FEDERAL AID PROJECT	H I GHWA	HIGHWAY NO.		
6		N\A	PR	İ		
STATI		DISTRICT	JNTY	SHEET NO.	İ	
TEXA	\S	PHR	CAM	ERON		ĺ
CONTR	DL	SECTION	7	ОВ	245	İ
N\	4	N∖A	N	<b> </b> \A		ĺ

	SUMM	ARY OF	COND	UIT AN	D CABLES (	E1)	
	H 40)	Н 40)	(0	GТН (FEET)	ITEM 620 CONDUCTOR NO.	N	
RUN NUMBER	1/2" PVC (TRENCH)(SCH40)	2" PVC (TRENCH)(SCH40)	2" PVC (BORE)(SCH 80)	GROUND LENGTH (FEET) #8 BARE	#8 INSULATED	LENGTH OF RUN	RUN NUMBER
1		10				10	1
3		10		1	10	10	2
			50	1	10	50	3
4		35		1	2 2 2	35	4
5	10			1	2	10	5
6	5			1	2	5	6
7	20			1	2	20	7
8		15		1	6	15	8
9	10			1	2	10	9
10	5			1	2 2	5	10
11	20			1	2	20	11
12		45		1	4	45	12
13	10			1	2 2 2 2	10	13
14	5			1	2	5	14
15	20			1	2	20	15
16		45		1		45	16
17	10			1	2	10	17
18	5			1	2	5	18
19	20			1	2 2 2	20	19
20	25			1	2	25	20
TOTALS (LF)	165	160	50	365	1,360		

	SUMM	ARY OF	COND	UIT AN	D CABLES (I	Ξ2)	
RUN NUMBER	1/2" PVC (TRENCH)(SCH 40)	2" PVC (TRENCH)(SCH40)	2" PVC (BORE)(SCH 80)	GROUND LENGTH (FEET) #8 BARE	ITEM 620 CONDUCTOR NO.	LENGTH OF RUN	RUN NUMBER
N N	/2" PY TREN	" PVC TREN	" PVC	SROU 8 BAI	8 INS	ENG.	N N
	10	10	20	O #	*	10	1
1		10		1	10	10	2
3		10	40	1	10	40	3
4		30	40	1	2	30	4
5	20	30		1	2	20	5
6	10			1	2	10	6
7	5			1	2	5	7
8	20			1	2	20	8
9	20	20		1	6	20	9
10	10			1	2	10	10
11	5			1	2	5	11
12	20			1	2	20	12
13		45		1	4	45	13
14	10			1	2	10	14
15	5			1	2	5	15
16	20			1	2	20	16
17		45		1	2	45	17
18	10			1	2	10	18
19	5			1	2	5	19
20	20			1	2	20	20
21	30			1	2	30	21
TOTALS (LF)	190	160	40	380	1,330		

	SUMM	ARY OF	COND	UIT AN	D CABLES (I	Ξ3)	
IBER	1/2" PVC (TRENCH)(SCH 40)	2" PVC (TRENCH)(SCH40)	CH 80)	GROUND LENGTH (FEET) #8 BARE	ITEM 620 CONDUCTOR NO.	OF RUN	IBER
RUN NUMBER	1/2" PVC (TRENCH	2" PVC (TRENCH	2" PVC (BORE)(SCH 80)	GROUND #8 BARE	#8 INSULATED	LENGTH OF RUN	RUN NUMBER
1		10				10	1
2		10		1	10	10	2
3			40	1	10	40	2 3 4
4		30		1	2	30	4
5	15			1	2	15	5
6	10			1	2 2	10	6 7
7	5			1	2	5	7
8	20			1	2	20	8
9		20		1	6	20	9
10	10			1	2	10	10
11	5			1	2	5	11
12	20			1	2	20	12
13		45		1	4	45	13
14	10			1	2	10	14
15	5			1	2 2 2	5	15
16	20			1	2	20	16
17		45		1		45	17
18	10			1	2	10	18
19	5			1	2	5	19
20	20			1	2 2	20	20
21	25			1		25	21
TOTALS (LF)	180	160	40	370	1,310		

	SUMM	ARY OF	COND	UIT AN	D CABLES (	Ξ4)	
	40)	40)		GROUND LENGTH (FEET) #8 BARE	ITEM 620 CONDUCTOR NO.	7	
r	1/2" PVC (TRENCH)(SCH 40)	2" PVC (TRENCH)(SCH 40)	2" PVC (BORE)(SCH 80)	5		LENGTH OF RUN	<u>س</u>
RUN NUMBER	(80	(8)	픙	Ė	#8 INSULATED	Ä	RUNNUMBER
M	ا <u>ي</u> آ		)S)	يب ك	🖺	Ĕ	≥
Ž	≧≅		N N	J A		GT	Ž
á	TR	4 E	# P	3.R(	=	핊	5
1		10	2)	0#	*	10	1
2		10		1	16	10	2
3			45	1	16	45	3
4	10			1	2	10	4
5		30		1	14	30	5
6	10			1	2	10	6
7	5			1	2	5	7
8	20			1	2	20	8
9		45		1	12	45	9
10	10			1	2	10	10
11	5			1	2	5	11
12	20	45		1	2 10	20 45	12 13
13 14	10	40		1	2	10	14
15	5			1	2	5	15
16	20			1	2	20	16
17		45		1	8	45	17
18	10			1	2	10	18
19	5			1	2	5	19
20	20			1	2	20	20
21		45		1	6	45	21
22	10			1	2	10	22
23	5			1	2	5	23
24	20	45		1	2	20	24
25	10	45		1	4	45	25
26	10 5			1	2 2	10 5	26 27
27 28	20			1	2	20	28
28 29		45		1	2	45	29
30	10			1	2	10	30
31	5			1	2	5	31
32	20			1	2	20	32
33	25			1	2	25	33
TOTALS (LF)	280	320	45	635	3,750		

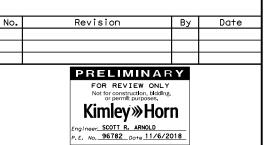
	SUMM	ARY OF	COND	UIT AN	D CABLES (I	E5)	
	40)	40)		тн (FEET)	ITEM 620 CONDUCTOR NO.	Z	
RUN NUMBER	1/2" PVC (TRENCH)(SCH 40)	2" PVC (TRENCH)(SCH 40)	2" PVC (BORE)(SCH 80)	GROUND LENGTH (FEET #8 BARE	#8 INSULATED	LENGTH OF RUN	RUN NUMBER
1		10				10	1
2		10		1	2	10	2
3			50	1	2	50	3
4	10			1	2	10	4
5	15			1	2	15	5
6	40			1	2	40	6
7	35			1	2	35	7
TOTALS (LF)	100	20	50	160	320		

	SUMM	ARY OF	COND	UIT AN	D CABLES (I	<b>=</b> 6)	
~	;H 40)	.H 40)	80)	ИСТН	ITEM 620 CONDUCTOR NO.	SUN	8
RUN NUMBER	1/2" PVC (TRENCH)(SCH 40)	2" PVC (TRENCH)(SCH 40)	2" PVC (BORE)(SCH 80)	GROUND LENGTH (FEET) #8 BARE	#8 INSULATED	LENGTH OF RUN	RUN NUMBER
1		10				10	1
2		10		1	2	10	2
3			55	1	2	55	3
4	10			1	2	10	4
5	15			1	2	15	5
6	40			1	2	40	6
7	35			1	2	35	7
TOTALS (LF)	100	20	55	165	330		

	SUMM	ARY OF	COND	UIT AN	D CABLES (I	Ξ7)	
	40)	40)	_	тн (FEET)	ITEM 620 CONDUCTOR NO.	z	
RUN NUMBER	1/2" PVC (TRENCH)(SCH 40)	2" PVC (TRENCH)(SCH 40)	2" PVC (BORE)(SCH 80)	GROUND LENGTH (FEET) #8 BARE	#8 INSULATED	LENGTH OF RUN	RUN NUMBER
1		10				10	1
2		10		1	2	10	2
3			55	1	2	55	3
4	10			1	2	10	4
5	15			1	2	15	5
6	40			1	2	40	6
7	35			1	2	35	7
TOTALS (LF)	100	20	55	165	330		

	SUMM	ARY OF	COND	UIT AN	D CABLES (E	Ξ8)	
	40)	40)		тн (FEET)	ITEM 620 CONDUCTOR NO.	7	
RUN NUMBER	1/2" PVC (TRENCH)(SCH 40)	2" PVC (TRENCH)(SCH 40)	2" PVC (BORE)(SCH 80)	GROUND LENGTH (FEET) #8 BARE	#8 INSULATED	LENGTH OF RUN	RUN NUMBER
1		10			*	10	1
2		10		1	2	10	2
3			55	1	2	55	3
4	10			1	2	10	4
5	15			1	2	15	5
6	40			1	2	40	6
7	35			1	2	35	7
TOTALS (LF)	100	20	55	165	330		

	SUMMARY OF CONDUIT AND CABLES (E9)											
RUN NUMBER	1/2" PVC (TRENCH)(SCH 40)	2" PVC (TRENCH)(SCH 40)	2" PVC (BORE)(SCH 80)	GROUND LENGTH (FEET) #8 BARE	ITEM 620 CONDUCTOR NO. GENERAL NO. 88	LENGTH OF RUN	RUN NUMBER					
1		10				10	1					
2		15		1	2	15	2					
3			50	1	2	50	3					
4	15			1	2	15	4					
TOTALS (LF)	15	25	50	80	160							









# PR 100 ROADWAY IMPROVEMENTS

LIGHTING PLAN

SUMMARY OF CONDUIT CHARTS

SHEET 1 OF 2

D. RD. IV. NO.	FEDERAL AID PROJECT NO.			H I GHWA	Y NO.
6		N\A	PR	100	
STATE	Ē	DISTRICT	col	JNTY	SHEET NO.
TEXA	\S	PHR	CAM	CAMERON	
CONTR	OL	SECTION	7	JOB	
N\	Д	N\A	N	N∖A	

;	SUMMA	RY OF	COND	JIT AND	CABLES (E	13)	
	1/2" PVC (TRENCH)(SCH 40)	2" PVC (TRENCH)(SCH 40)		GROUND LENGTH (FEET) #8 BARE	ITEM 620 CONDUCTOR NO.	7	
œ	픘	픘	80)	9		Ę	nc nc
RUN NUMBER	(S(	(S(	2" PVC (BORE)(SCH 80)	Ξ	#8 INSULATED	LENGTH OF RUN	RUN NUMBER
Σ	υĒ	Ξ	(Sc	무띠	≦	¥	_ ₹
ž	ĕĕ	SΝ	δŰ	₽ĕ	ารเ	GT	Ž
á	/2" TRI	F R	BO -	GROUNE #8 BARE	_ €	N.	5
1	1	10	2.2	0#	*	10	1
2		10		1	12	10	2
3		- 10	50	1	12	50	3
4		25	- 00	1	4	25	4
5	20			1	2	20	5
6	5			1	2	5	6
7	10			1	2	10	7
8		45		1	2	45	8
9	20			1	2	20	9
10	5			1	2	5	10
11	10			1	2	10	11
12	20			1	2	20	12
13		20		1	8	20	13
14	10			1	2	10	14
15	5			1	2	5	15
16	20			1	2	20	16
17		45		1	6	45	17
18	10			1	2	10	18
19	5			1	2	5	19
20	20			1	2	20	20
21		45		1	4	45	21
22	10			1	2	10	22
23	5			1	2	5	23
24	20			1	2	20	24
25		45		1	2	45	25
26	10			1	2	10	26
27	5			1	2	5	27
28	20			1	2	20	28
29	35	0.45		1	2	35	29
TOTALS (LF)	265	245	50	550	2,140		

	_	_		(FEET)	ITEM 620 CONDUCTOR NO.	į	
RUN NUMBER	1/2" PVC (TRENCH)(SCH 40)	2" PVC (TRENCH)(SCH 40)	2" PVC (BORE)(SCH 80)	GROUND LENGTH (FEET) #8 BARE	#8 INSULATED	LENGTH OF RUN	L RUN NUMBER
1		10	, Z	0#	*	10	1
		10		1	12	10	2
3		-10	50	1	12	50	2
4		20	- 55	1		20	4
5	20			1	6 2 2 2	20	5
6	5			1	2	5	6
7	10			1	2	10	7
8		45		1	4	45	8
9	20			1	2	20	9
10	5			1	2	5	10
11	10			1	2 2	10	11
12		45		1	2	45	12
13	20			1	2	20	13
14	5			1	2	5	14
15	10			1	2 2	10	15
16	30			1	2	30	16
17		25		1	6	25	17
18	10			1	2	10	18
19	5			1	2 2	5	19
20	20			1	2	20	20
21		45		1	4	45	21
22	10			1	2 2 2	10	22
23	5			11	2	5	23
24	20			1	2	20	24
25	10	45		1	2	45	25
26	10			1	2	10	26
27	5			1	2 2 2	5	27
28	20			1	2	20 35	28 29
29 TOTALS (LF)	35	245	50			35	29
TOTALS (LF)	275	245	טט	560	2,080		

(	SUMMA	RY OF	COND	JIT AND	CABLES (E	12)	
	40)	40)		тн (FEET)	ITEM 620 CONDUCTOR NO.	7	
RUN NUMBER	1/2" PVC (TRENCH)(SCH 40)	2" PVC (TRENCH)(SCH 40)	2" PVC (BORE)(SCH 80)	GROUND LENGTH (FEET) #8 BARE	#8 INSULATED	LENGTH OF RUN	RUN NUMBER
1		10				10	1
2		10		1	6	10	2
3			50	1	6	50	3
4	15			1	2	15	4
5		45		1	4	45	5
6	20			1	2	20	6
7	5			1	2	5	7
8	10			1	2	10	8
9	45			1	2	45	9
10	20			1	2	20	10
11	5			1	2	5	11
12	10			1	2	10	12
TOTALS (LF)	130	65	50	235	800		

No. Revision By Date

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Kimley» Horn

Engineer\_SCOTT R. ARNOLD
P. E. No. 96782 pare 11/6/2018

Kimley» Horn

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®Texas Department of Transportation
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PR 100 ROADWAY IMPROVEMENTS

LIGHTING PLAN

SUMMARY OF CONDUIT CHARTS

SHEET 2 OF 2

IV. NO.	FEDERAL AID PROJECT NO.			H I GHWA	AY NO.			
6		N\A		PR	100			
STATE	Ē	DISTRICT	COUNTY		SHEET NO.			
TEXA	\S	PHR	CAM	ERON				
CONTR	OL	SECTION	7	JOB				
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Kimley» Horn

Engineer\_ SCOTT R. ARNOLD

P. E. No. 96782 Date 11/6/2018

Kimley » Horn
THE REGISTERED ENGINEERING FIRM F-928

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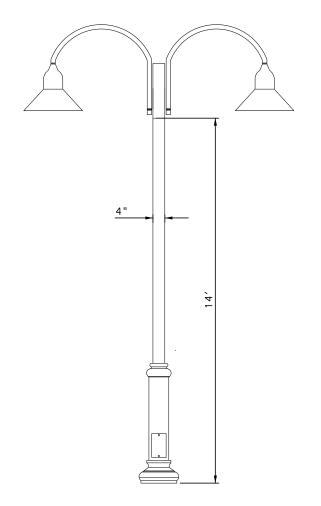
PR 100 ROADWAY IMPROVEMENTS

LIGHTING PLAN

SUMMARY OF LIGHTING QUANTITIES

ED.RD. IV.NO.	FEDERAL AID PROJECT NO.			H I GHWA	Y NO.	
6		N\A		PR	100	
STATE		DISTRICT	ICT COUNTY		SHEET NO.	
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CONTRO	DL	SECTION	7	JOB		
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		•				





PEDESTRIAN LIGHTING ASSEMBLY NTS

# GENERAL:

## I. SCOPE

DETAILS HEREIN APPLY TO ROADWAY LIGHTING INSTALLATIONS BID UNDER THE FOLLOWING SPECIFICATION ITEMS: ROADWAY ILLUMINATION ASSEMBLIES, PEDESTRIAN ASSEMBLIES, IN-GRADE TREE ASSEMBLIES, FOUNDATIONS, ROADWAY, STREET AND PEDESTRIAN ILLUMINATION ASSEMBLIES, AND SPECIAL SPECIFICATIONS RELATING TO ROADWAY LIGHTING. ALL WORK, MATERIALS AND SERVICES NOT SHOWN ON THE PLANS WHICH MAY BE NECESSARY FOR COMPLETE AND PROPER CONSTRUCTION SHALL BE PERFORMED, FURNISHED AND INSTALLED BY THE CONTRACTOR. FAULTY FABRICATION OR POOR WORKMANSHIP IN ANY MATERIAL, EQUIPMENT OR INSTALLATION WILL BE CONSIDERED JUSTIFICATION FOR REJECTION. MATERIAL AND INSTALLATION SHALL COMPLY WITH THE APPLICABLE PROVISIONS OF THE NATIONAL ELECTRIC CODE, NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION AND, WHEN REQUIRED, UNDERWRITERS LABORATORIES STANDARDS. WHERE MANUFACTURERS PROVIDE WARRANTIES OR GUARANTEES AS A CUSTOMARY TRADE PRACTICE, CONTRACTOR SHALL FURNISH TO THE STATE SUCH WARRANTIES OR GUARANTEES.

THE LOCATION OF POLES AND FIXTURES ARE DIAGRAMMATIC ONLY AND MAY BE SHIFTED BY THE ENGINEER TO ACCOMMODATE LOCAL CONDITIONS. ERECTION AND/OR REMOVAL OF POLES AND LUMINAIRES LOCATED NEAR OVERHEAD ELECTRICAL LINES SHALL BE ACCOMPLISHED USING ESTABLISHED INDUSTRY AND UTILITY SAFETY PRACTICES AND IN ACCORDANCE WITH LAWS GOVERNING SUCH WORK. THE CONTRACTOR SHALL CONSULT WITH THE APPROPRIATE UTILITY COMPANY PRIOR TO BEGINNING SUCH WORK.

## II. ROADWAY ILLUMINATION ASSEMBLIES.

## A. GENERAL

- STRUCTURAL SUPPORT DESIGN FOR LUMINAIRES LIGHTING STANDARDS SHALL BE DESIGNED IN ACCORDANCE WITH THE LATEST ISSUE OF THE AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS." FOR TRANSFORMER BASE POLES, FABRICATOR SHALL INCLUDE TRANSFORMER BASE AND CONNECTING HARDWARE IN DESIGN CALCULATIONS AND SHOP DRAWING SUBMITTALS. MANUFACTURER'S SHOP DRAWINGS SHALL INCLUDE THE ASTM DESIGNATIONS FOR ALL MATERIAL TO BE USED.
- HAND HOLES ALL POLES SHALL HAVE HAND HOLES WITH REINFORCING FRAMES AND COVERS. THE OPENINGS ON ALL POLES SHALL BE APPROXIMATELY 4 INCHES x 10 INCHES LOCATED APPROXIMATELY 10 INCHES FROM THE BOTTOM OF THE POLE.

  J-HOOKS ALL POLES SHALL BE EQUIPPED WITH A J-HOOK INSIDE THE POLE, NEAR THE TOP FOR SUPPORTING VERICAL CONDUCTORS.
- ALUMINUM POLES

- a. ALUMINUM POLES SHALL BE FABRICATED IN ACCORDANCE WITH "STRUCTURAL WELDING, ALUMINUM: ANSI/AWS D1.2.

  b. POLE COMPONENTS SHALL BE CONSTRUCTED USING THE MATERIALS LISTED IN SPECIFICATIONS

  ALTERNATE MATERIAL EQUAL TO OR BETTER THAN MATERIAL SPECIFIED MAY BE SUBSTITUTED WITH THE APPROVAL OF THE ENGINEER.

  INSTALLATION OF HIGH STRENGTH BOLTS THE TIGHTENING OF NUTS ON HIGH STRENGTH BOLTS SHALL BE IN ACCORDANCE WITH THE ITEM "STRUCTURAL BOLTING."

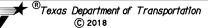
  ALL POLES SHALL BE ERECTED PLUMB AND TRUE. TOP OF FOUNDATION SHALL BE STRUCK LEVEL SO THE POLE WILL BE PLUMB. SHOE BASE POLES MAY USE LEVELING NUTS TO PLUMB POLE. SHIMS AND LEVELING NUTS SHALL NOT BE USED UNDER TRANSFORMER BASES. GROUT SHALL NOT BE PLACED BETWEEN BASE PLATE OR FLANGE AND THE FOUNDATION. IN EACH POLE, CONTINUOUS COLOR-CODED STRANDED NO. 12 AWG COPPER TYPE XHHW OR OTHER APPROVED XLP CONDUCTIORS SHALL BE CONNECTED TO THE LINE SIDE OF EACH
- RALLAST ACORN NUTS WILL NOT BE ALLOWED FOR ATTACHING POLE TO TRANSFORMER BASE OR FOUNDATION. NUT COVERS WILL NOT BE ALLOWED. FABRICATION TOLERANCES SHALL BE AS SHOWN ON FABRICATION TOLERANCES TABLE.

Revision Ву Date



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# PR 100 ROADWAY IMPROVEMENTS

LIGHTING DETAILS

SHEET 1 OF 3

FED. RD. DIV. NO.	ı	HIGHWA	AY NO.		
6		N\A			100
STATE		DISTRICT	CT COUNTY		SHEET NO.
TEXA	4S	PHR	CAMERON		
CONTROL		SECTION	JOB		249
N\A	4	N\A	N	I\A	

#### B. ALL LUMINAIRES

- 1. THE LUMINAIRES AND POLE ASSEMBLIES SHALL BE AS DESCRIBED IN SPECIFICATIONS FOR PEDESTRIAN AND IN-GRADE LUMINAIRES.
- 2. UNDERPASS LUMINAIRES SHALL BE FUSED INTERNALLY. FUSES SHALL BE 10 AMP TIME-DELAY TYPE.
- 3. THE CONTRACTOR MAY BE RESPONSIBLE FOR FIXTURE TESTING COSTS. SEE MATERIALS AND TESTS SECTION TEST METHOD TEX-1110-T.
- 4. THE CONTRACTOR SHALL FURNISH SIX (6) SETS OF SUBMITTALS OF THE LUMINAIRE FIXTURE TO THE ENGINEER AT THE PROJECT ADDRESS. THESE SUBMITTALS SHALL BE APPROVED BY THE ENGINEER BEFORE THE CONTRACTOR BEGINS WORK.

PART	DIMENSION	TOLFRANCE
	SHAFT DIAMETER: OTHER	+/- 1"
	I.D. OF OUTSIDE PIECE OF SLIP FITTING PIECES	+1/8" -1/16"
	O.D. OF INSIDE PIECE OF SLIP FITTING PIECES	+1/32" -1/8"
	SHAFT DIAMETER: OTHER	+3/16"
DOLE ACCEMBLY	OUT OF "ROUND"	1/4"
POLE ASSEMBLY	STRAIGHTNESS OF SHAFT	+/- 1/4" IN 10F1
	TWIST IN SHAFT	4° IN 50FT
	PERPENDICULAR TO BASEPLATE	+1/8" IN 24"
	POLE CENTERED ON BASEPLATE	+/- 1/4"
	LOCATION OF ATTACHMENTS	+/- 1/4"
	ARM LENGTH	+/- 3"
	ARM RISE	+/- 1 3/4" IN 10
	ARM DIAMETER	+/- 3/16"
15V 1665VD	OVERALL LENGTH OR WIDTH	+/- 1/4"
ARM ASSEMBLY	THICKNESS	+1/4" -1/16"
	DEVIATION FROM FLAT	1/8" IN 12"
	SPACING BETWEEN HOLES	+/- 3/32"
	ANCHOR BOLT HOLE SIZE	+/- 1/16"
	LENGTH	+1" -1/4"
ANCHOR BOLT	THREADED LENGTH	+1 1/2" -1/8"
	GALVANIZED LENGTH (IF REQUIRED)	+8" -1/4"
	BOLT HOLE SPACING	+/- 1/16"
MISCELLANEOUS	STRUT LOCATION IN TRUSS ARMS	+/- 1/16"

- 1) POLE BONDING CONNECTOR BLACKBURN TTC3 OR WEAVER TGC3 OR EQUAL.
- ② FUSED CONNECTOR ALL ELECTRICAL CONNECTORS FOR BREAKAWAY POLES SHALL BE WATERTIGHT AND SHALL BE DESIGNED AS BREAK-AWAY (BUCKANNAN 65U, BUSSMANN HEBW, LITTELFUSE LEB OR EQUAL). ALL FUSES SHALL BE TIME-DELAY TYPES. 10 AMP (LITTELFUSE FLQ, BUSSMAN FNQ OR EQUAL).
- (3) UN-FUSED CONNECTOR ALL ELECTRICAL CONNECTIONS FOR NEUTRALS SHALL BE WATERTIGHT. FOR BREAKAWAY POLES, CONNECTIONS SHALL BE DESIGNED AS BREAKAWAY, SHALL HAVE A WHITE COLOR MARKING, AND SHALL BE A PERMANENTLY INSTALLED'S OLID NEUTRAL (BUCHANNAN 200, BUSSMAN HET, LITTELFUSE LET OR EQUAL). DUMMY/NEUTRAL FUSE SHALL BE BUSSMAN NTS-R-3 OR EQUAL.
- 4 SPLIT BOLT OR OTHER CONNECTOR.
- ⑤ GROUND ROD CLAMP BLACKBURN GG58H, BURNDY GKP635, OR EQUAL.
- (6) WEATHERPROOF GROUND FAULT RECEPTACLE.

10.	Revision	Ву	Date

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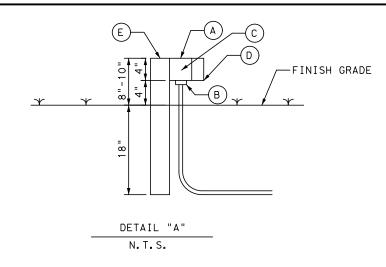


PR 100 ROADWAY IMPROVEMENTS

LIGHTING DETAILS

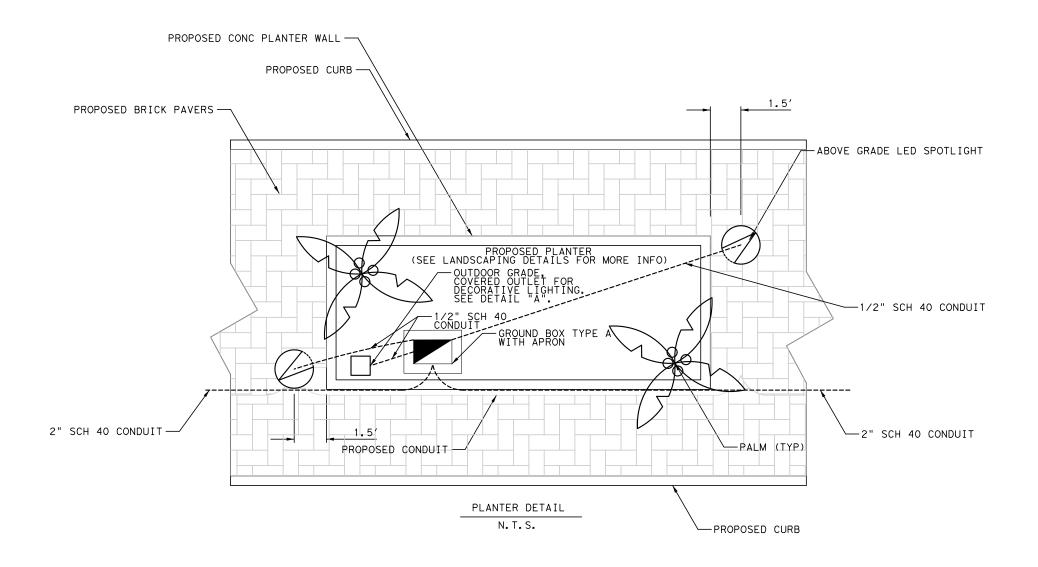
SHEET 2 OF 3

D. RD. V. NO.	FEDERAL AID PROJECT NO.			H I GHWA	AY NO.
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STATE		DISTRICT	T COUNTY		SHEET NO.
TEXA	\S	PHR	CAM	ERON	
CONTRO	DL	SECTION	JOB		250
N\	4	N∖A	N	N\A	



#### NOTES:

- 1. USE A SEALING COMPOUND TO PLUG ALL UNUSED HOLES I RECEPTABLE BOX TO ENSURE WEATHERPROOF SEALS.
- 2. INSTALL RECEPTABLE BOX TO 2"X4" BY SCREWS OR OTHER APPROVED METHOD.
- 3. INSTALL 2"X4" AT LEAST 18" BELOW FINISH GRADE AND 8-10" ABOVE FINISH GRADE.
- 4. THE WEATHERPROOF OUTLET SYSTEM (SPI003) INCLUDES THE FOLLOWING
  - A. WEATHERPROOF RECEPTACLE BOX
  - B. 1/2" PVC CONNECTOR
  - C. WEATHER/TAMPER RESISTANT GFCI RECPTACLE
  - D. WEATHERPROOF RECEPTACLE COVER(LOCKABLE)
  - E. 2"X4" POST FOR MOUNTING



# NOTES:

1. ABOVE GRADE LED SPOTLIGHT SPECIFICATION TO BE DETERMINE AT NEXT SUBMITTAL.

No.	Revision	Ву	Date
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	Engineer SCOTT R. ARNOLD		
	P.E. No. 96782 Date 11/6	/2018	







# PR 100 ROADWAY IMPROVEMENTS

LIGHTING DETAIL

SHEET 3 OF 3

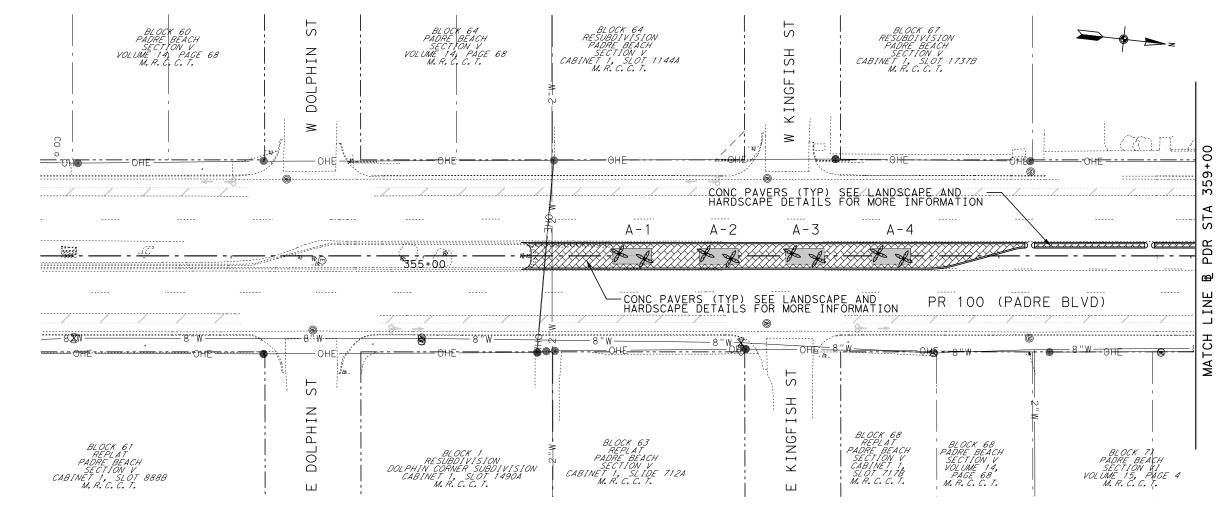
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CONTR	DL	SECTION	JOB		251	
N\	4	N∖A	N\A			



NOTE:

1. SEE LANDSCAPE AND HARDSCAPE DETAILS FOR PLANT INFORMATION SPECIFIC TO EACH PLANTER.

2. ALL EXISTING LANDSCAPING WITHIN ROW/PARKWAY TO REMAIN. CONTRACTOR TO REPLACE LANDSCAPING IF DISTURBED DURING CONSTRUCTION. CITY TO PROVIDE FINAL APPROVAL.





PALM TREE (TYP)

MEDIAN PLANTER

No.	Revision	Ву	Date			
PRELIMINARY						

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P, L, A, KATHERINE A. UTECHT
P, L, A, No. 3318 Orte 11/6/2018

Kimley > Horn

THPE REGISTERED ENGINEERING FIRM F-928





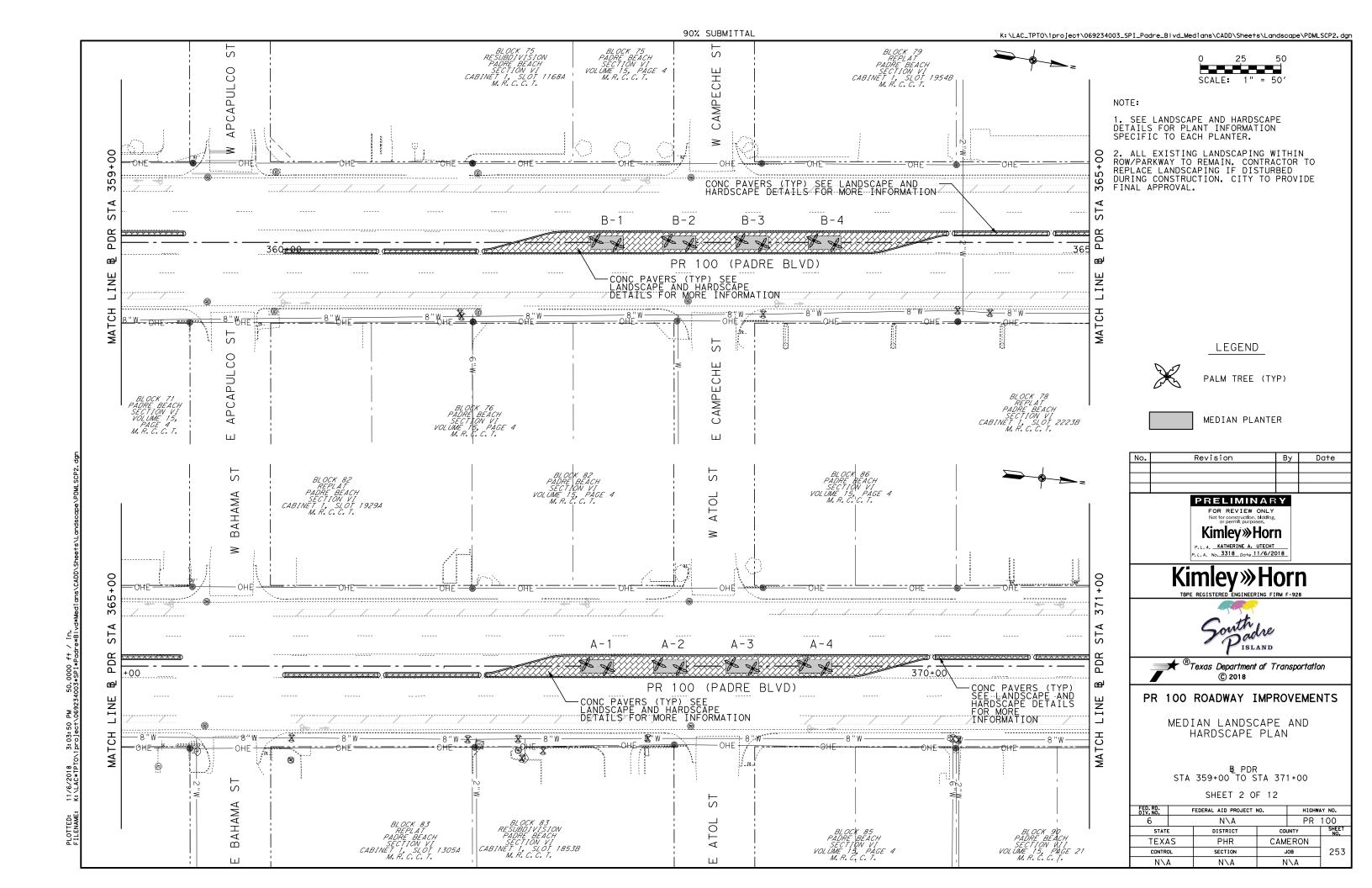
# PR 100 ROADWAY IMPROVEMENTS

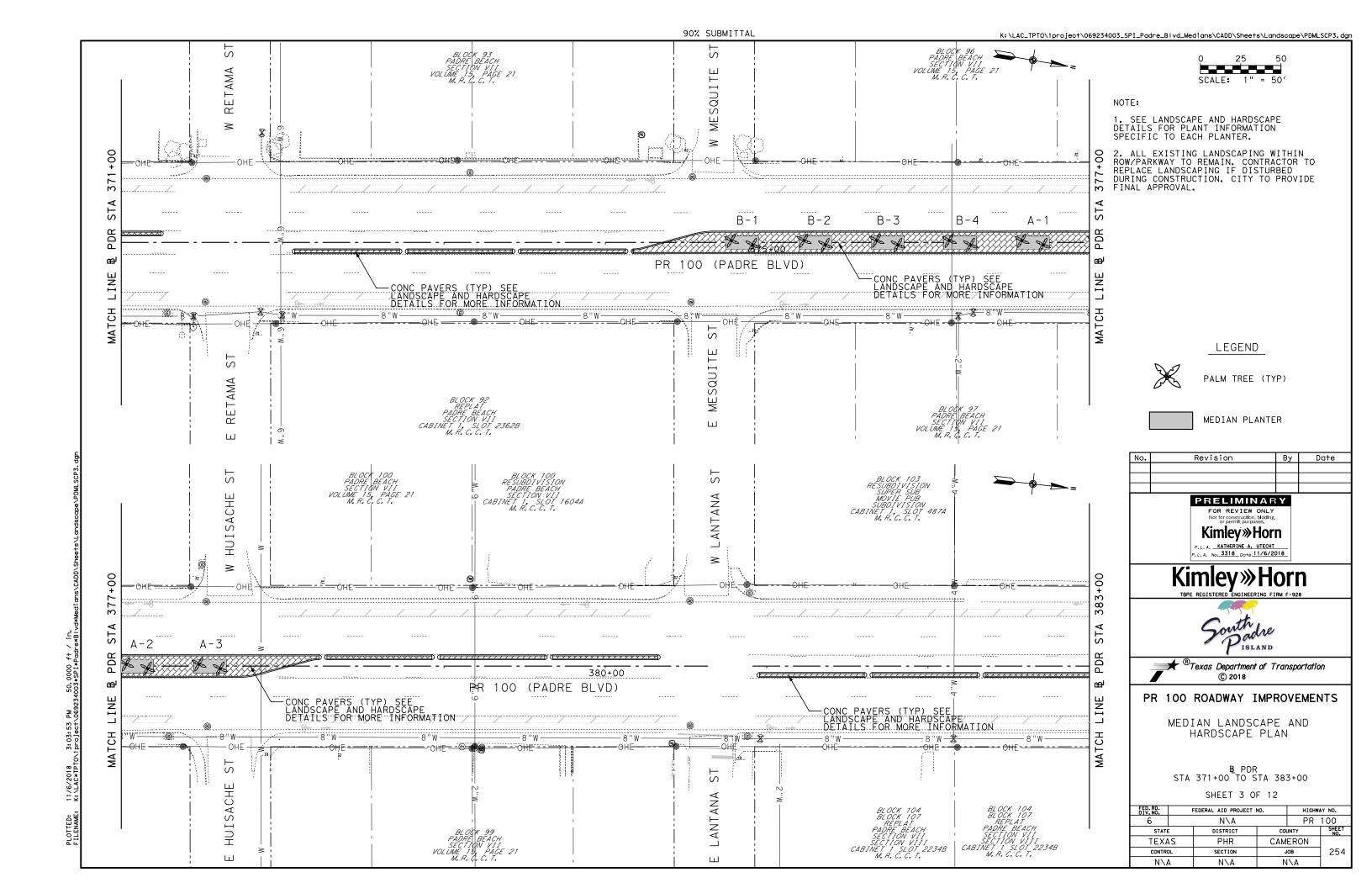
MEDIAN LANDSCAPE AND HARDSCAPE PLAN

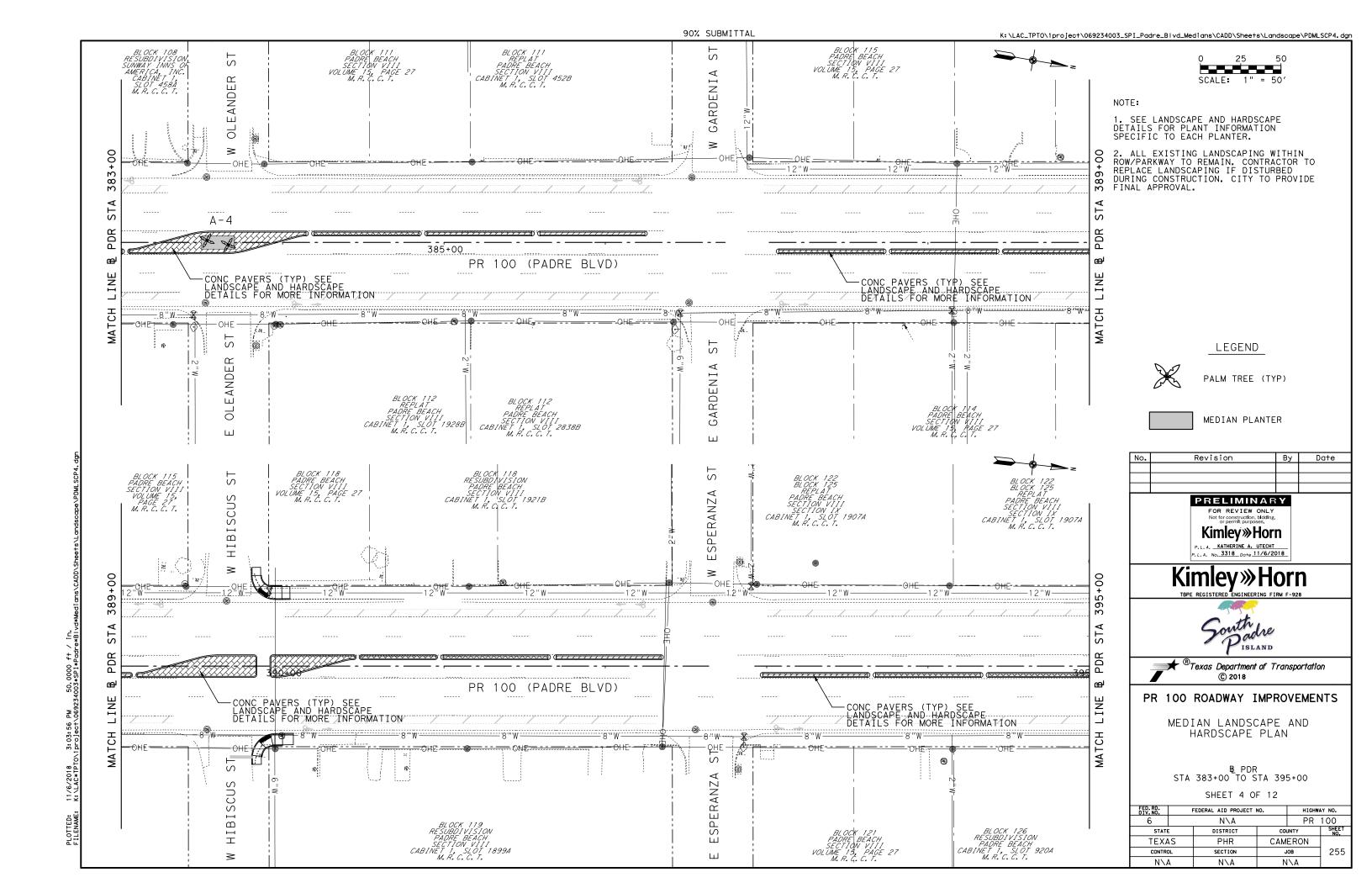
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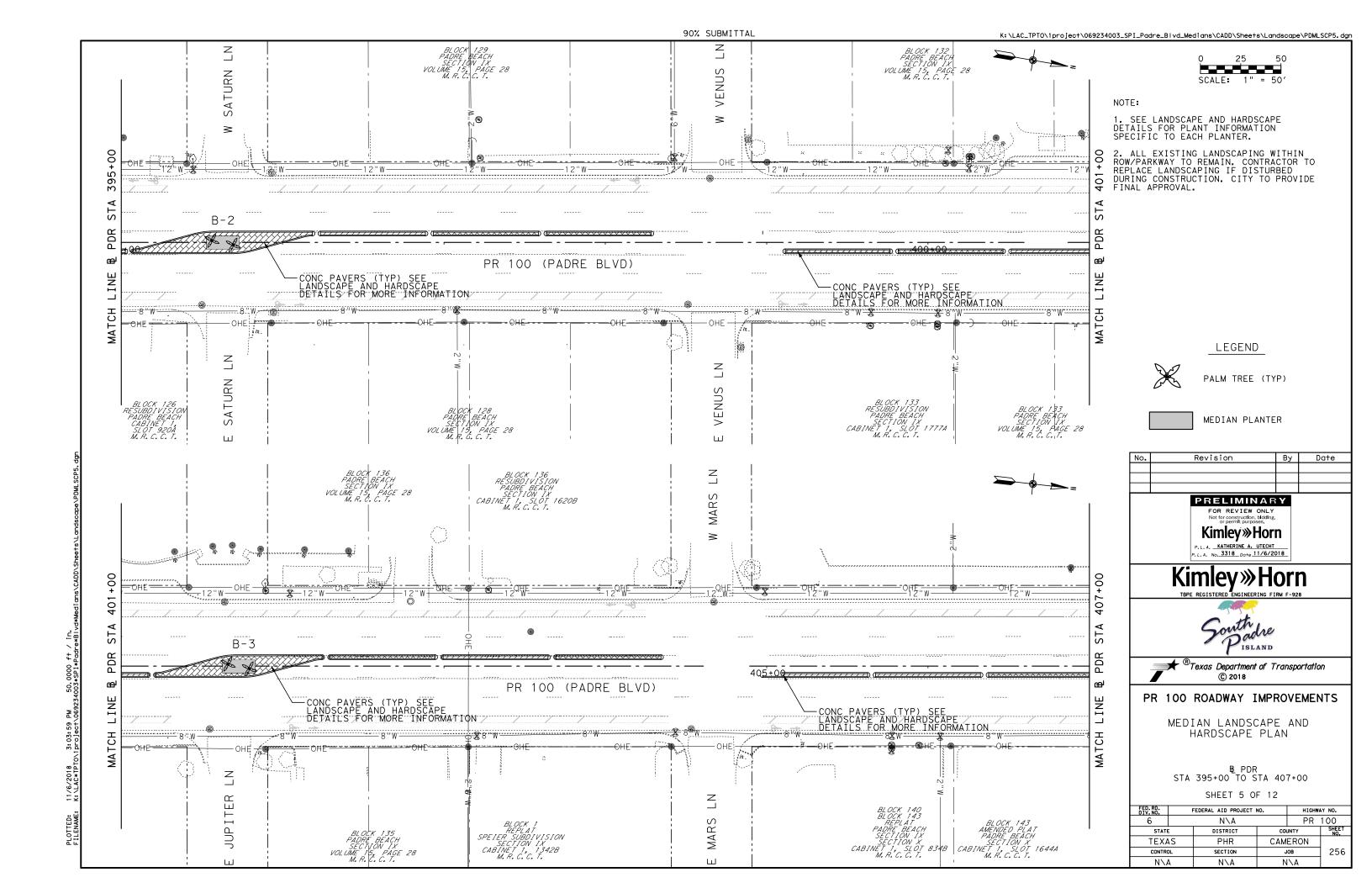
SHEET 1 OF 12

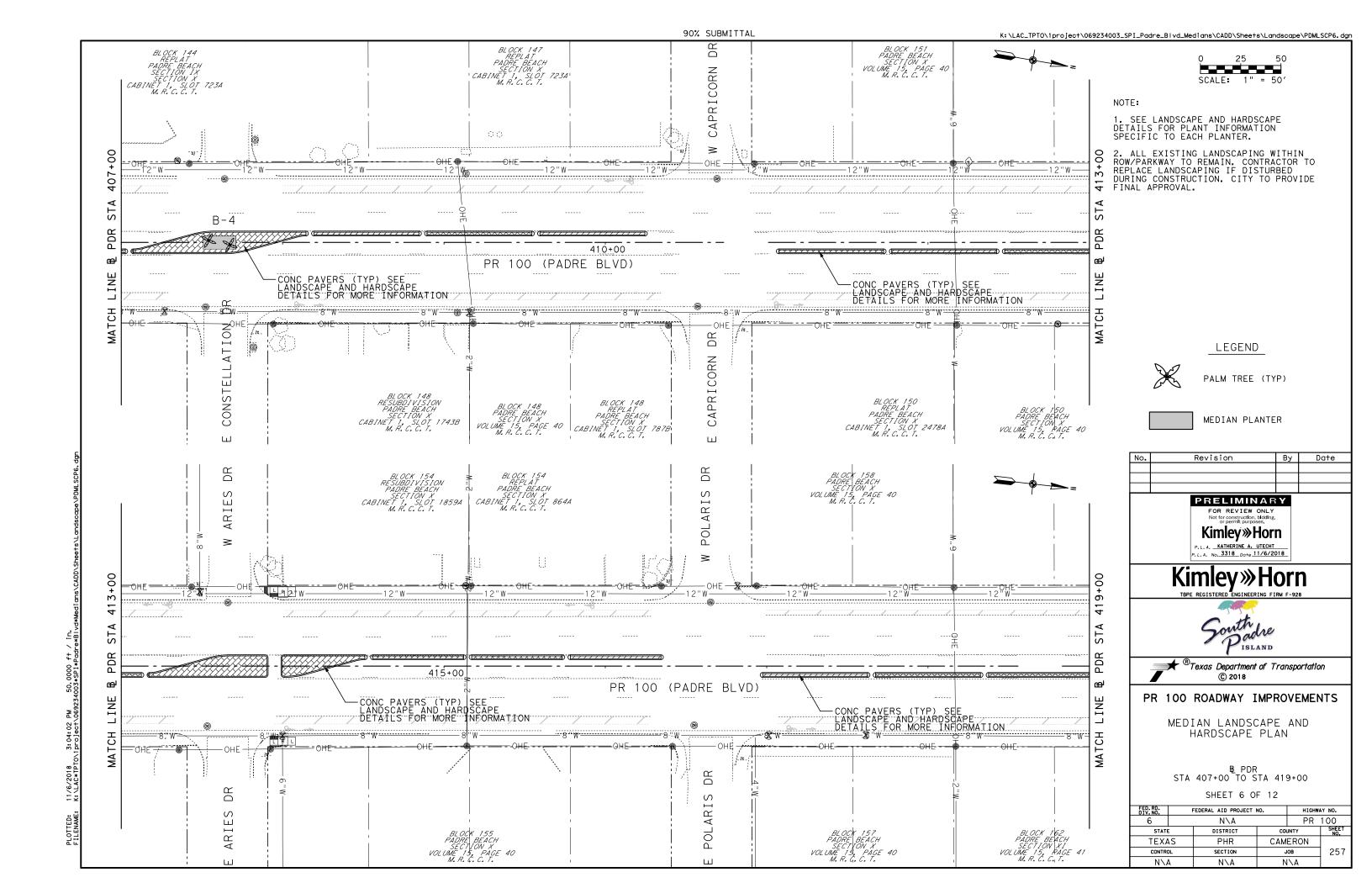
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6	N\A			PR 100	
STATE		DISTRICT	COUNTY		SHEET NO.
TEXAS		PHR	CAMERON		
CONTROL		SECTION	JOB		252
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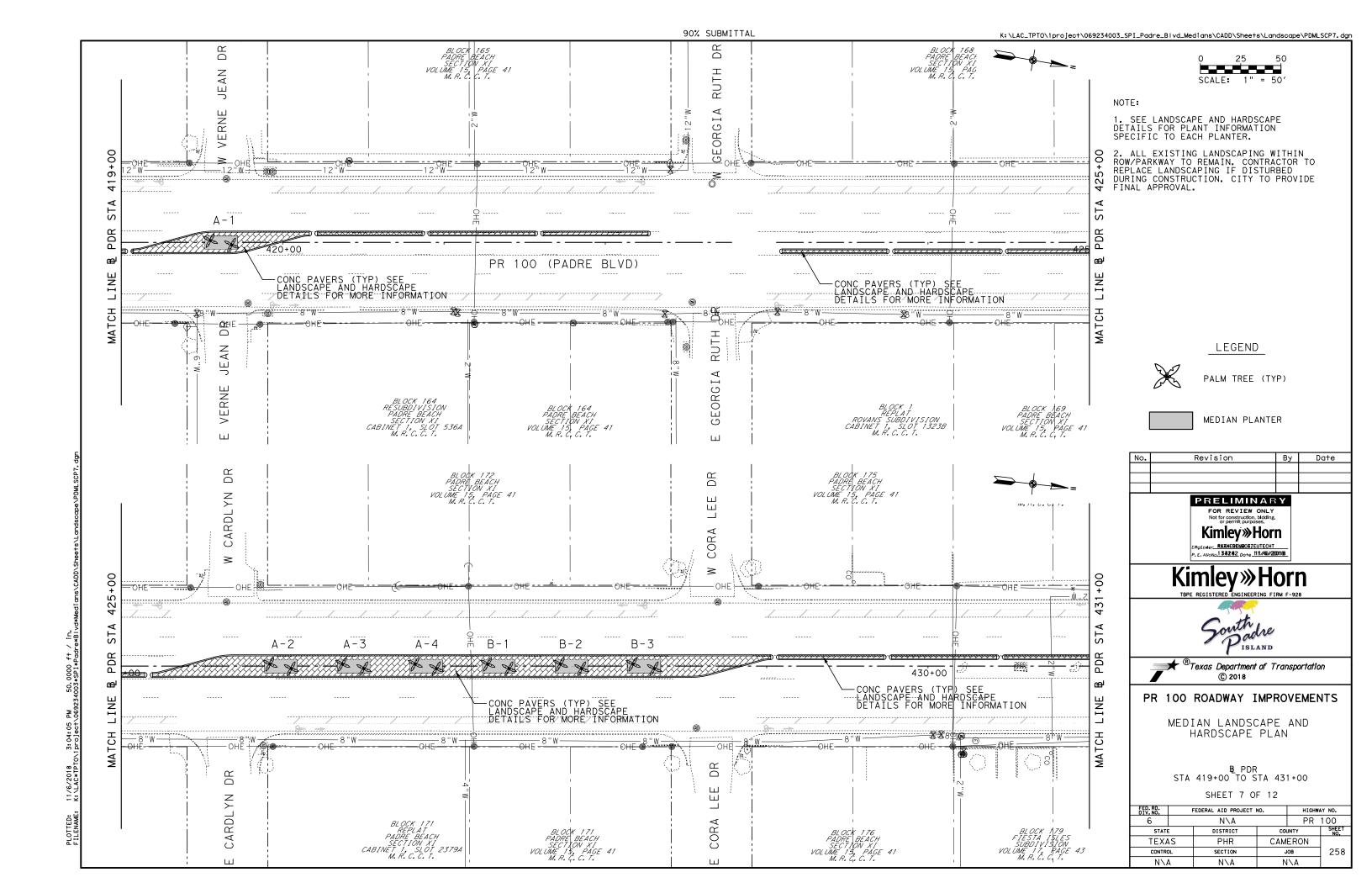


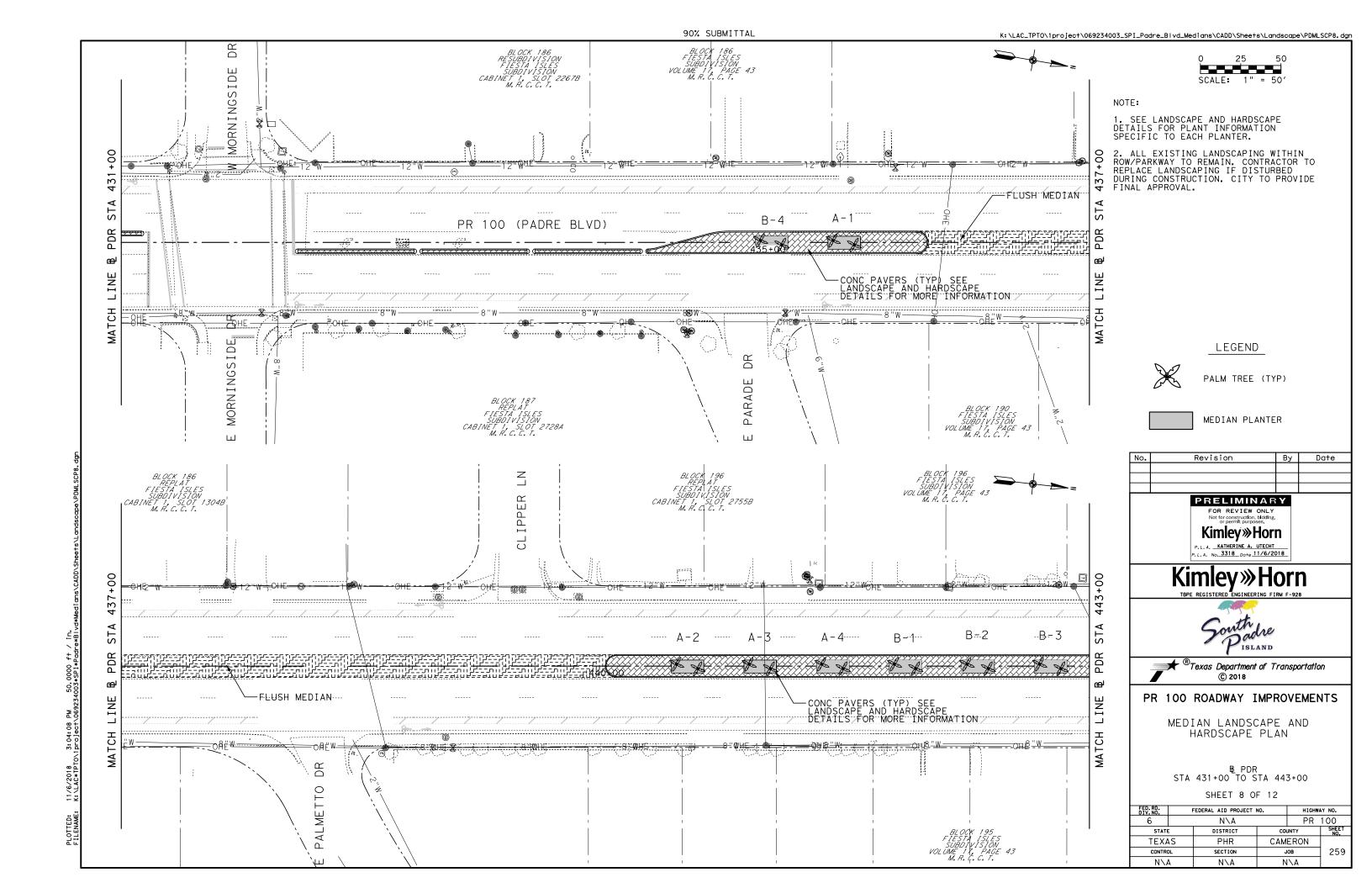


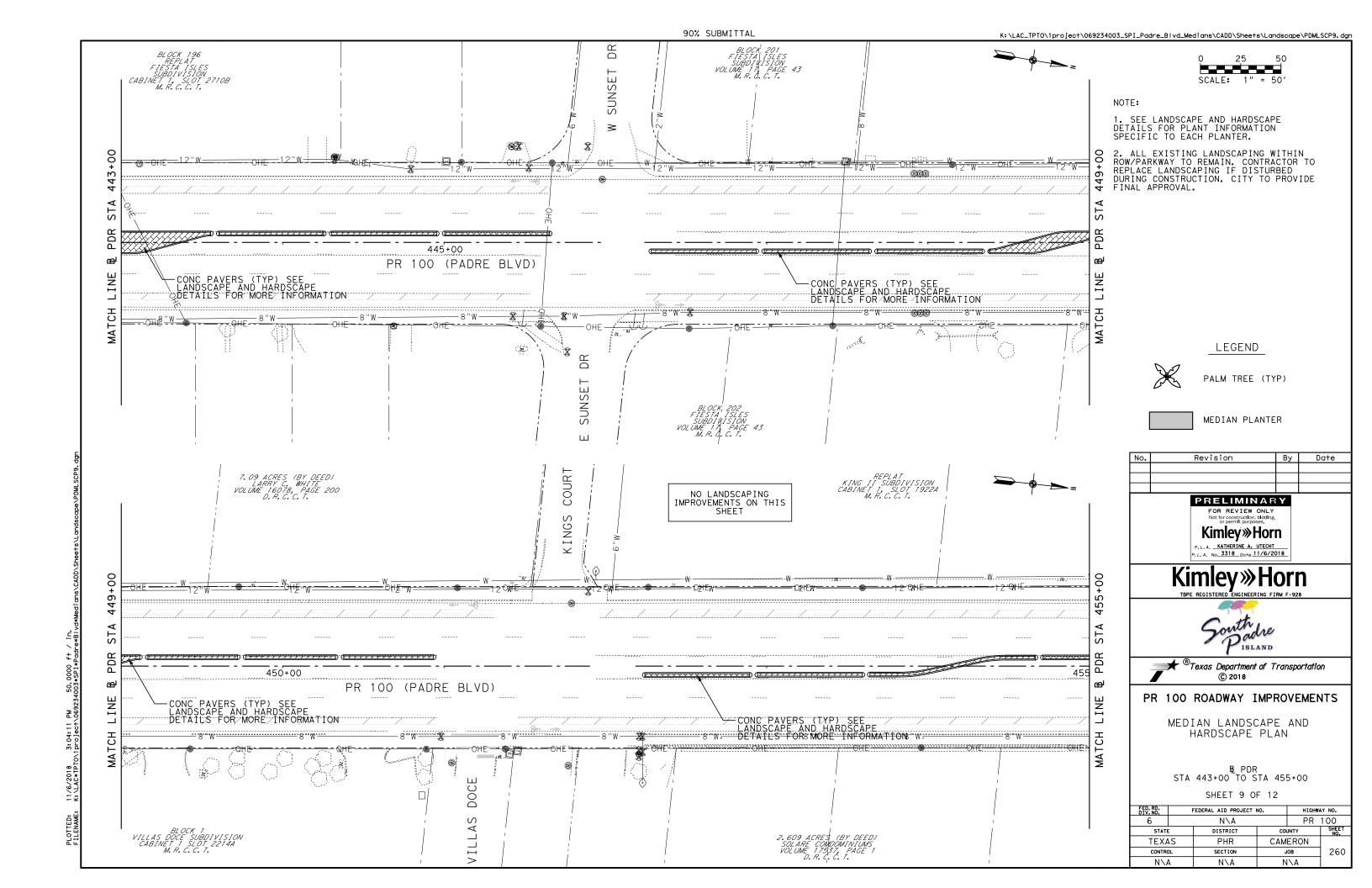


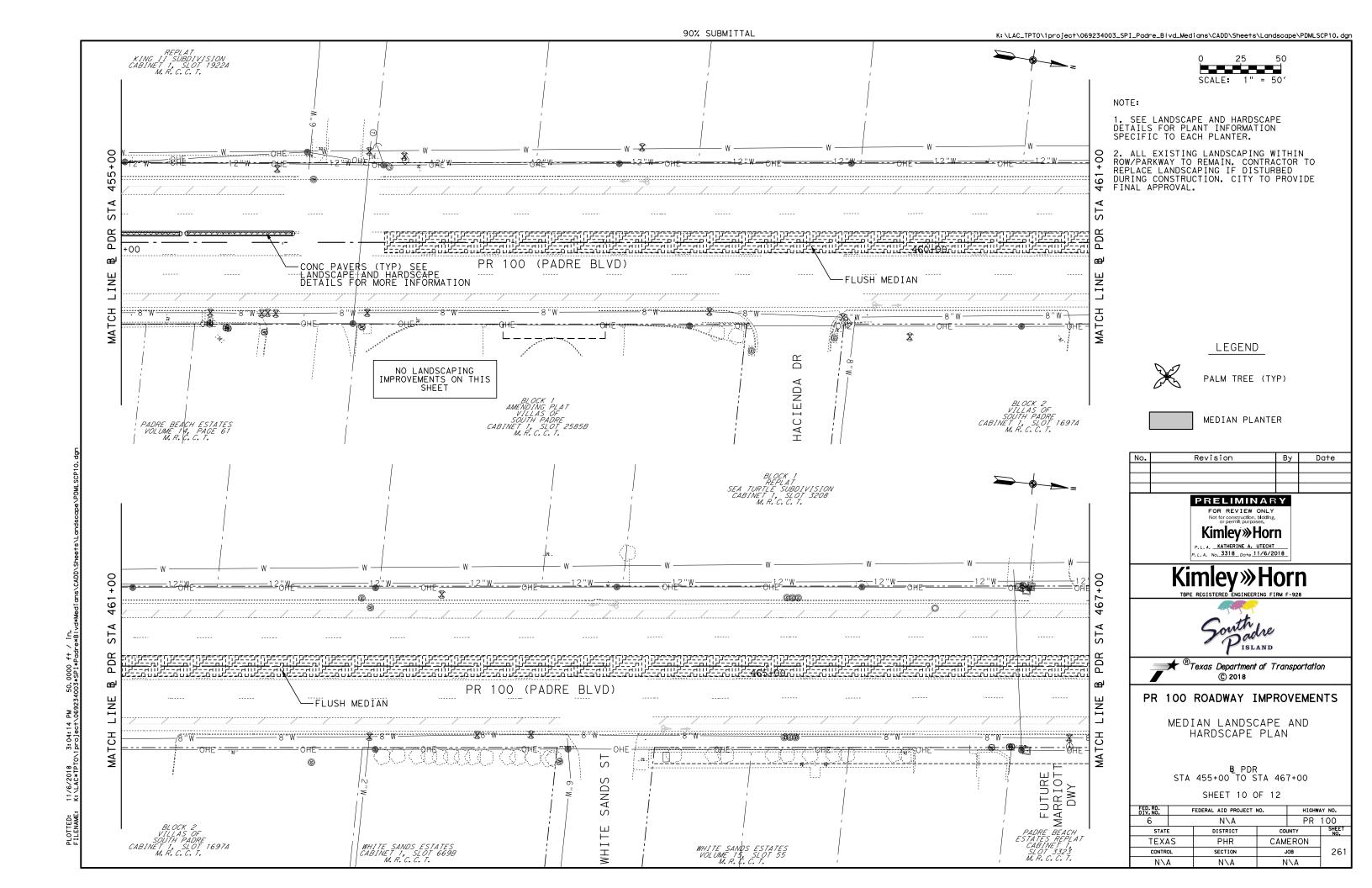


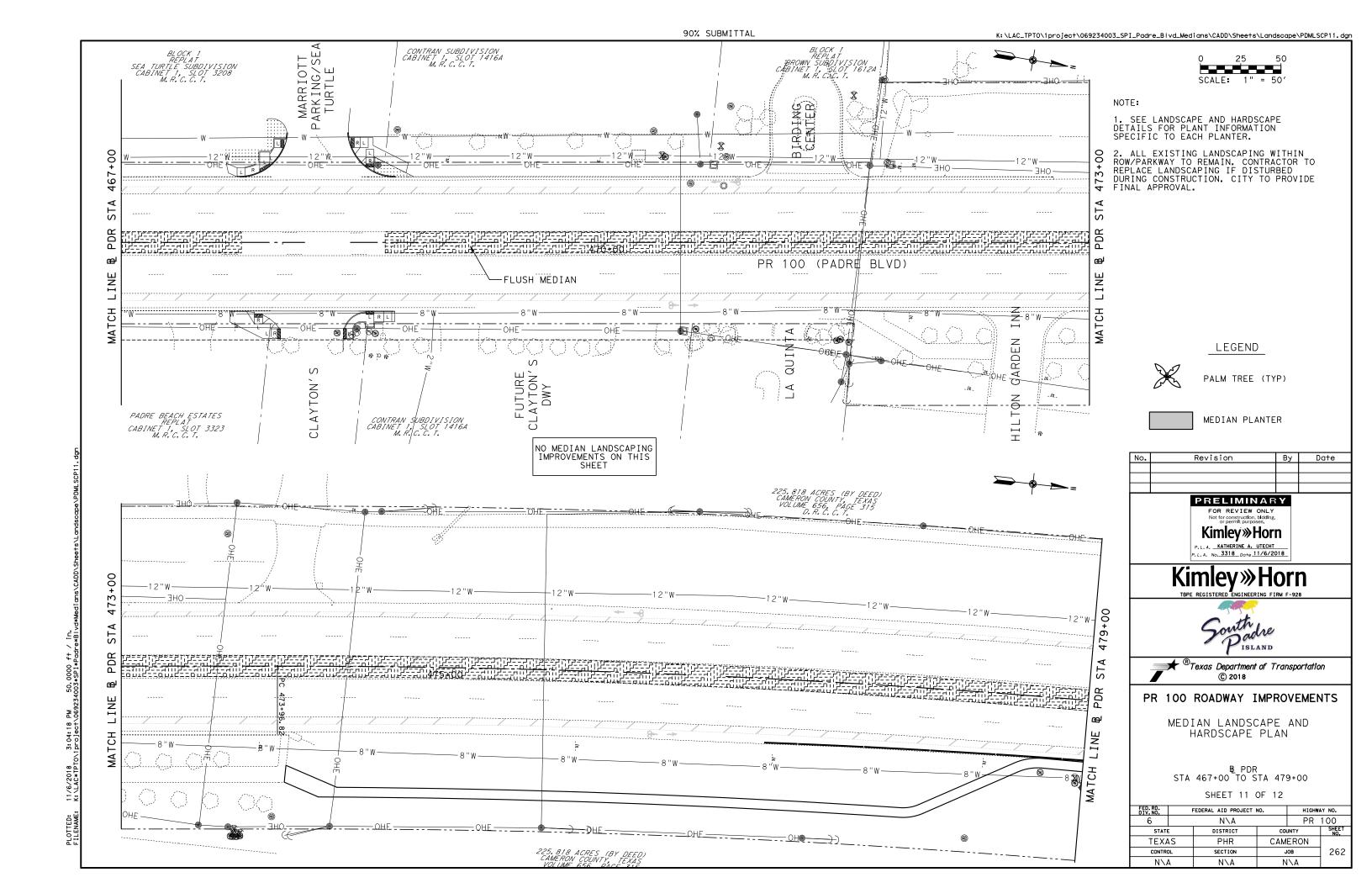


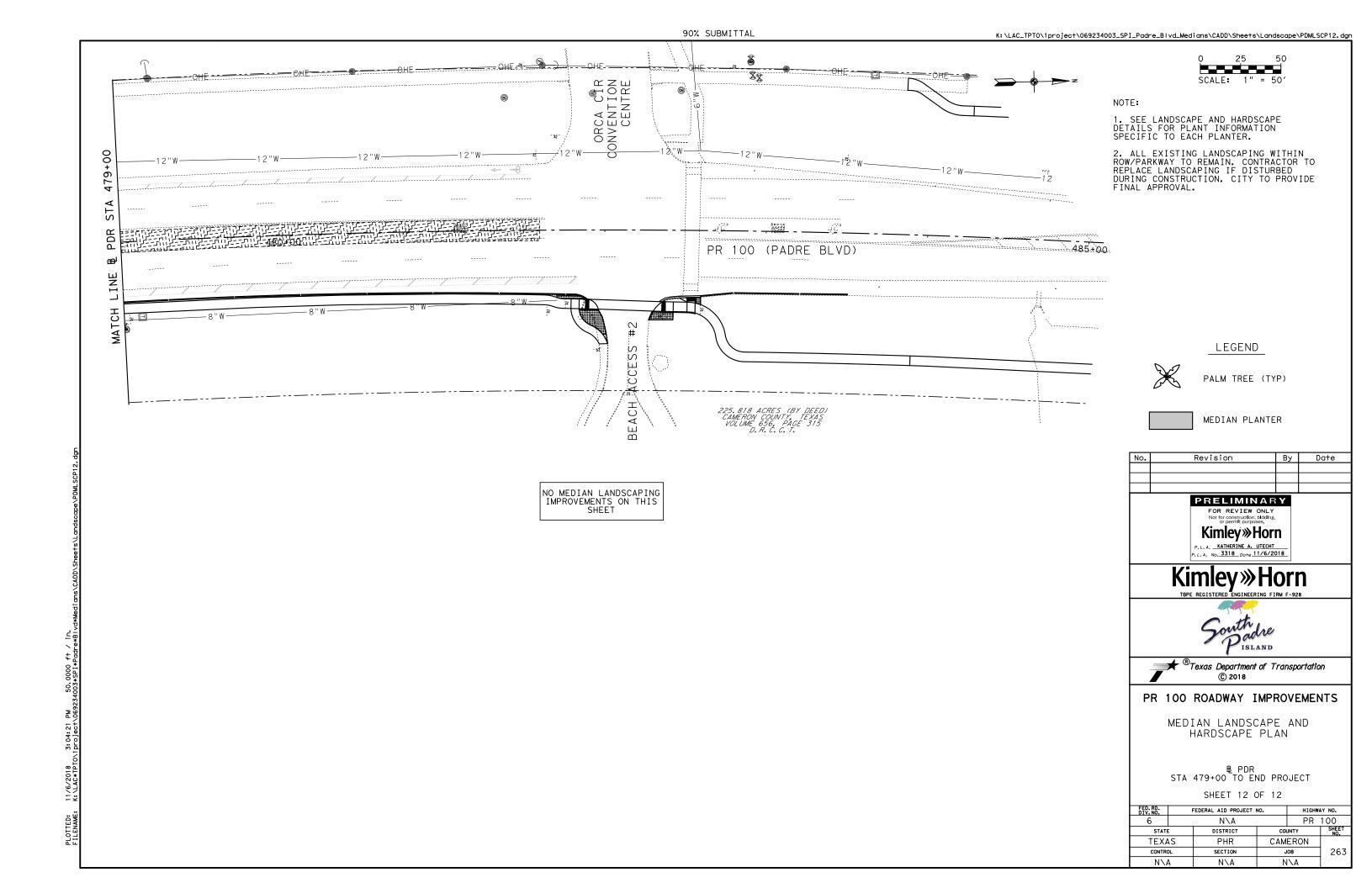




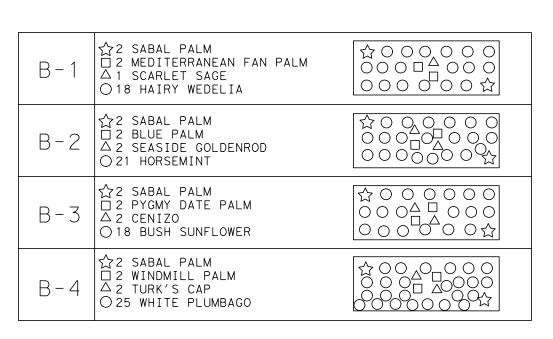








A - 1	☆2 SABAL PALM ☐2 MEDITERRANEAN FAN PALM △2 SEASIDE GOLDENROD ○16 INDIAN MALLOW	
A-2	☐ 2 SABAL PALM △ 2 BLUE PALM ○ 10 SHRUBBY BLUE SAGE	
A-3	☆2 SABAL PALM ☐2 PYGMY DATE PALM △2 WHITE PLUMBAGO ○15 HORSEMINT	公 ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○
A-4	↑2 SABAL PALM □ 2 WINDMILL PALM △ 2 TURK'S CAP ○ 14 MEXICAN BUTTONBUSH	





SABAL PALM

MEDITERRANEAN FAN PALM





SEASIDE GOLDENROD INDIAN MALLOW



SABAL PALM



PYGMY DATE PALM



WHITE PLUMBAGO





SABAL PALM





SCARLET SAGE



HAIRY WEDELIA







BUSH SUNFLOWER



SHRUBBY BLUE SAGE





SABAL PALM



BLUE PALM

WINDMILL PALM



TURK'S CAP







SEASIDE GOLDENROD





SABAL PALM

TURK'S CAP



No.	Revision	Ву	Date	
BBELLMINIA SV				

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## **Kimley** » Horn



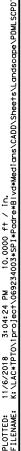


## PR 100 ROADWAY IMPROVEMENTS

MEDIAN LANDSCAPE AND HARDSCAPE DETAILS

SHEET 1 OF 2

FED. RD. DIV. NO.	ı	FEDERAL AID PROJECT NO.			AY NO.
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CONTROL

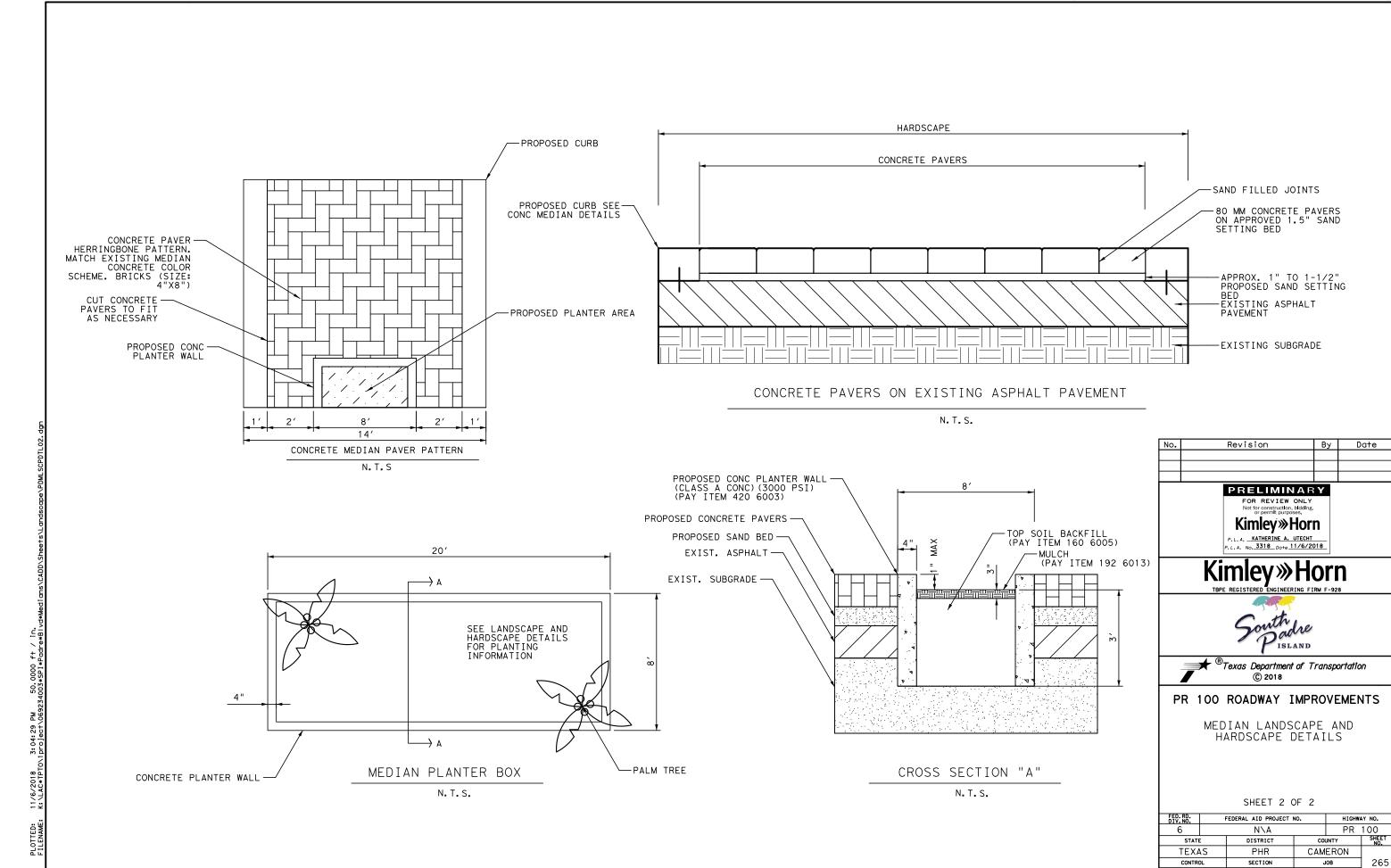
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SECTION

N\A

JOB

N\A



rootball

- GENERAL NOTES:

  1. Reference Item 192 of the Texas Standard
  Specifications for Construction and Maintenance
  of Highways, Streets, and Bridges 2004 for
  specifications, dimensions, volumes, and
  measurements not shown.

  2. Verify that all planting meets the following
  clear zone minimum distance requirements
  from the edge of the travel lane:
  Trees: 30' unless protected by a barrier,
  Engineer has final authority over all clear
  zone related issues.
- Engineer has final authority over all clear zone related issues.

  5. Roadway edges shown on the plans are to be considered the edge of travel lane unless labeled otherwise.

  6. Locate and stake all underground conduits and utilities associated with but not limited to: power supply, lighting, signal wires and detectors, gas, electric, telephone, fiber optics, etc.
- and detector's, gas, electric, telephone, fiber optics, etc.

  5. Repair and/or replace any damaged underground conduits and utilities at contractor's expense.

  6. Locate and stake existing ground boxes, inlets, culverts, manholes, etc. within the project area with a 4 wooden stake pointed orange. Maintain the stakes in place for duration of the contract. Remove stakes when directed by engineer.

  7. Repair and/or replace any damaged structures, pavement, riprap, equipment, materials, slopes, vegetation, and surfaces at contractor's expense.

  PAIM TEPATMENTS. APPLICATIONS. AND NOTES:

- vegetation, and surfaces at contractor's expense.

  PALM TREATMENTS, APPLICATIONS, AND NOTES:

  8. Treatments to plant material to ensure health and quality of plant from disease, stress, insects, or other detrimental impacts are incidental.

  9. Applications of fertilizers, vitamins and hormones are incidental.

  10. Multiple treatments and applications are incidental.

  11. Any required soil tests are incidental.

Rootball

PALM TREE PLANTING

REQUIREMENTS PRIOR TO PLANTING:

12. Sproy foliage with an approved anti-desiccant.

Maintain rootball, trunk, and frond moisture
conditions during transportation and storage
activities. Apply an approved soil fungicide to entire

#### REQUIREMENTS AT TIME OF PLANTING:

- \*13. Apply an approved aluminum based foliar fungicide to tops and bottoms of fronds and bud.

  \*14. After fungicide has dried, apply an approved insecticide to the fronds and trunk.

  \*15. After insecticide has dried, apply an approved anti-desiccant to the fronds and trunk.

  16. Incorporate aproved fertilizer into the backfill around the rootball.

  \*17. When backfilling around rootball, work backfill equally around rootball in 6" lifts to eliminate air pockets.

  18. Soak each lift up to finish grade using an approved liquid form of vitamins and hormones specifically for paims diluted with water at a ratio recommened by manufacturer. Use a liquid which contains but is not limited to Mg and Mn.
- 19. Use backfill consisting of the following: 70% existing soil removed from the plant pit and 15% Erosion Control Compost as described in 1tem 161.2.B Compost Work backfill equally around the rootball as described in previous notes on this sheet. Compost is incidental.
- 20. Use Erosion Control Compost for surface application for palm planting as described in Item 161.2.8 Compost. Compost for surface application for palm planting is incidental.
   21. Maintain soil moisture conditions as specified in watering schedule on this sheet.

#### REQUIREMENTS AFTER PLANTING:

- 23.Fertilize palms every 4 months with a combination of "Palm Saver", K and Mg in liquid form with granular form of K and Mg sulfates. Apply all granular palm fertilizers by drilling 10" into soil around rootball.

  \*24.Application of fertilizers and micronutrients may be adjusted according to soil and palm conditions.

  \*25.Maintain watering and soil moisture conditions as specified on this sheet.
  For further recommendations for treatment of insects, diseases, and nutritional problems, contact a palm specialist.

- $^st$  Complete this work in the presence of the engineer.

#### TREE SPADE REQUIREMENTS:

- 26.Tree spade to provide a 70 inch (min.) root ball.
- 27.In the event palm trees can not be transplanted by tree spade, palms to be hand dug with written authorization from the Engineer. Palms hand dug to have a root ball 36 inches deep and 32 inches wide. Root balls to be balled and burlapped.

#### VEGETATIVE WATERING SCHEDULE FOR PALMS ONLY

PHASE	ITEM DESCRIPTION	FREQUENCY AND RATE
Construction	Watering is incidental to Item 1012 and is not paid for seperately	Maintain the root ball and surrounding backfill evenly
Maintenance	Watering is incidental to Item 1012 and is not paid for seperately	moist, but never saturated. See notes this schedule. Submit watering schedule to
Item 193 Landscape Establishment (When Shown In Plans)	Item 193.3.C. Watering will be paid for under Item 193-2006 Vegetative Watering	engineer for approval prior to installation. Watering required for a 12 month period.

Rootball

Rootball

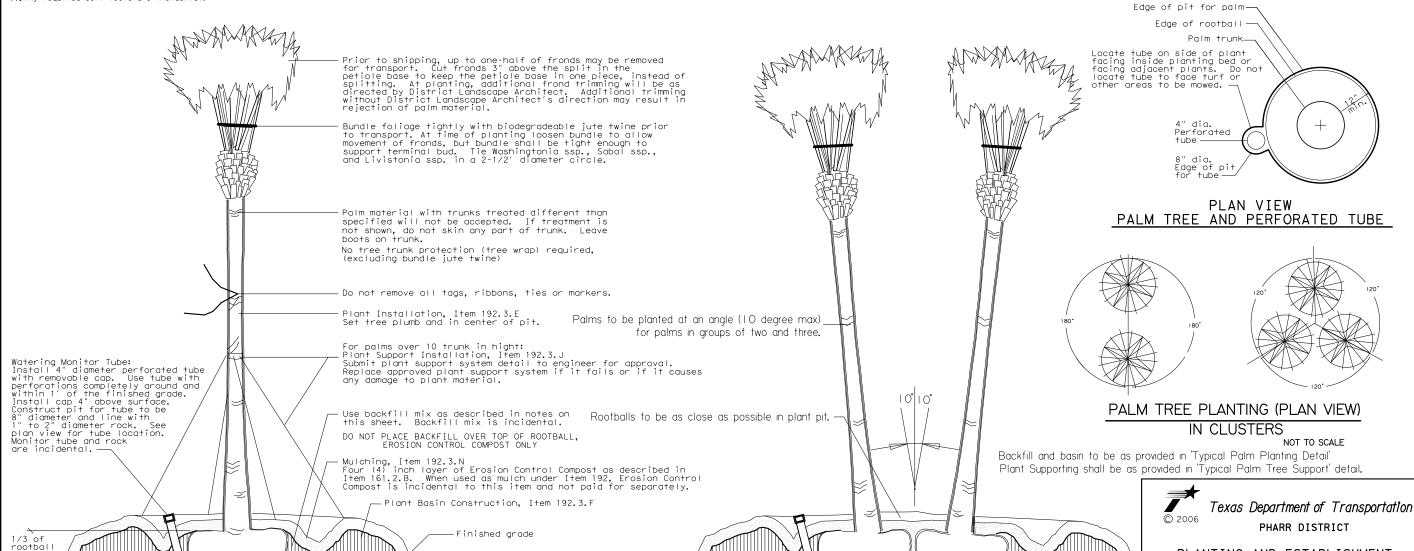
PALM TREE PLANTING

IN CLUSTERS OF 2 AND 3

Monitor watering to maintain root ball and surrounding backfill evenly moist, but never saturated. Rate and frequency may be adjusted to meet site conditions and weather. Submit adjustments to engineer for approval. Inspect monitor tubes and pump out standing water. Daily inspection and pumping may be necessary when rootball is over-saturated by rain, run-off, watering or other events. Apply water over the rootball within the tree well only. Adjust rate and frequency to meet site conditions and weather as approved or directed by engineer.

Plant material in poor condition due to the failure to apply the specified amount of water within the time allowed or overwatering, will be replaced at contractor's expense.

Watering will be paid for as described in this schedule unless Item 170 is shown in plans. When Item 170 is shown, see Irrigation Details and Materials.



Rootball radious size to be min. 12 inches from

Construct pit to be 2/3 depth and same shape of rootball. Construct pit large enough to easily accept rootball. Maximum distance between edge of rootball and pit is 3 inches. See notes this sheet for required treatments of soil and rootball

Plant Pit Excavation Item 192.3.D

the edge of trunk.

prior to planting.

Use compacted soil to level tree and to

establish proper rootball elevation

-Existing soil

SHEET

266

PALM TREE

PLANTING AND ESTABLISHMENT

PALM PLANTING

BY TREE SPADE

PROJECT NUMBER

Details not to scale

STATE

TEXAS



#### NOTE:

- 1. STATIONS, AND OFFSETS GIVEN AT BACK OF CURB OF & PDR UNLESS OTHERWISE NOTED.
- 2. SEE LANDSCAPE AND HARDSCAPE DETAILS FOR ADDITIONAL INFORMATION.
- 3. CONTRACTOR TO PROVIDE TEMPORARY IRRIGATION IN ALL PLANTER AREAS THROUGHOUT THE CORRIDOR UNTIL FULLY ESTABLISHED TYP.

## LEGEND



PROP DRIP IRRIGATION AREA

---- EX ROW

FOR IRRIGATION INFORMATION REFER TO IRRIGATION SCHEDULE SHEET.



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or permit purpose.

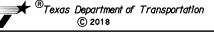
Kimley >>> Horn

L. I. KATHERINE A. UTECHT

L. I. No. 21532 Date 11/6/2018

Kimley » Horn
THPE REGISTERED ENGINEERING FIRM F-928





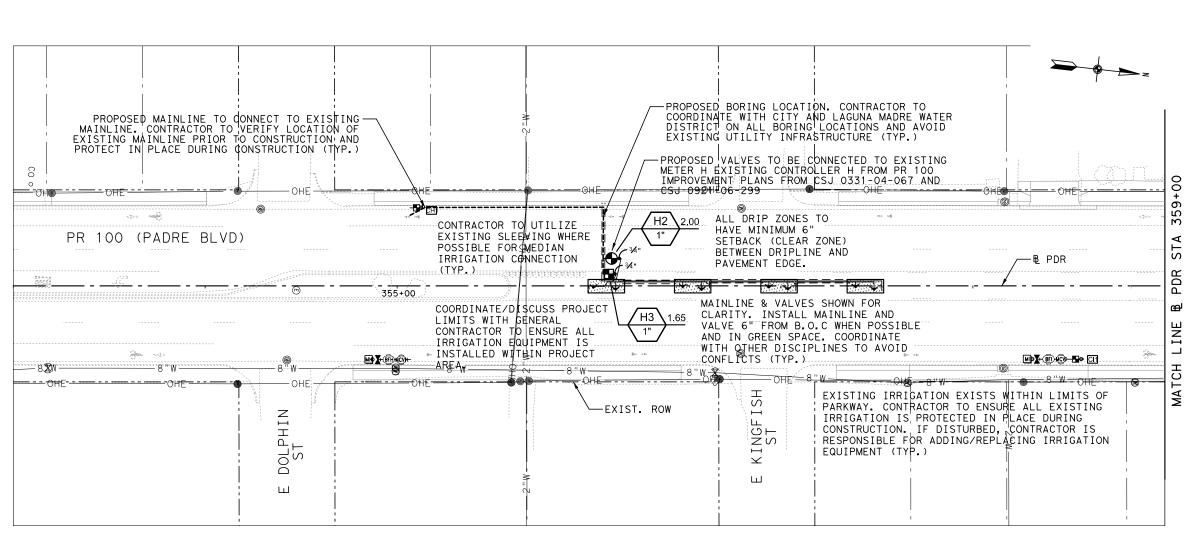
## PR 100 ROADWAY IMPROVEMENTS

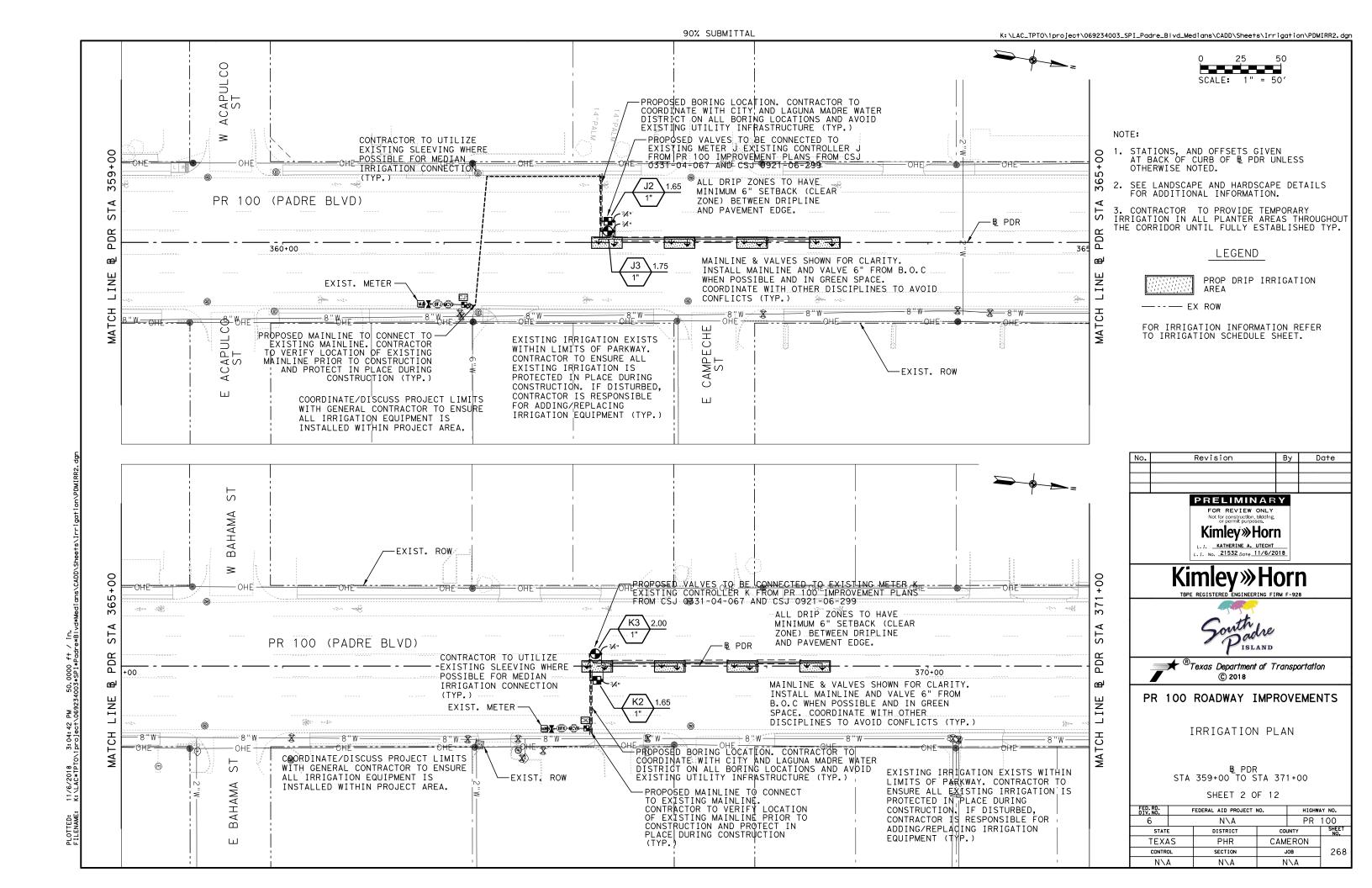
IRRIGATION PLAN

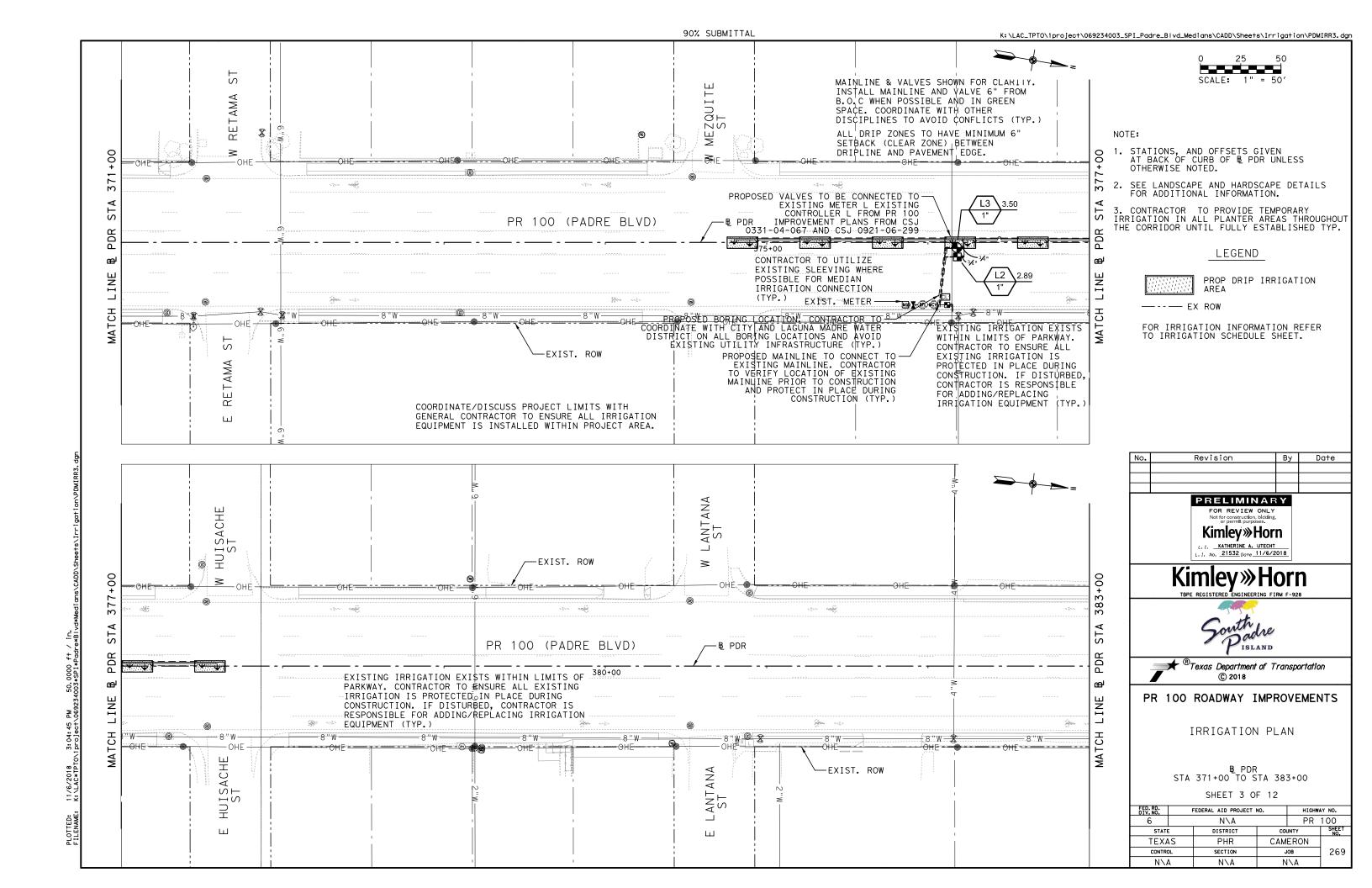
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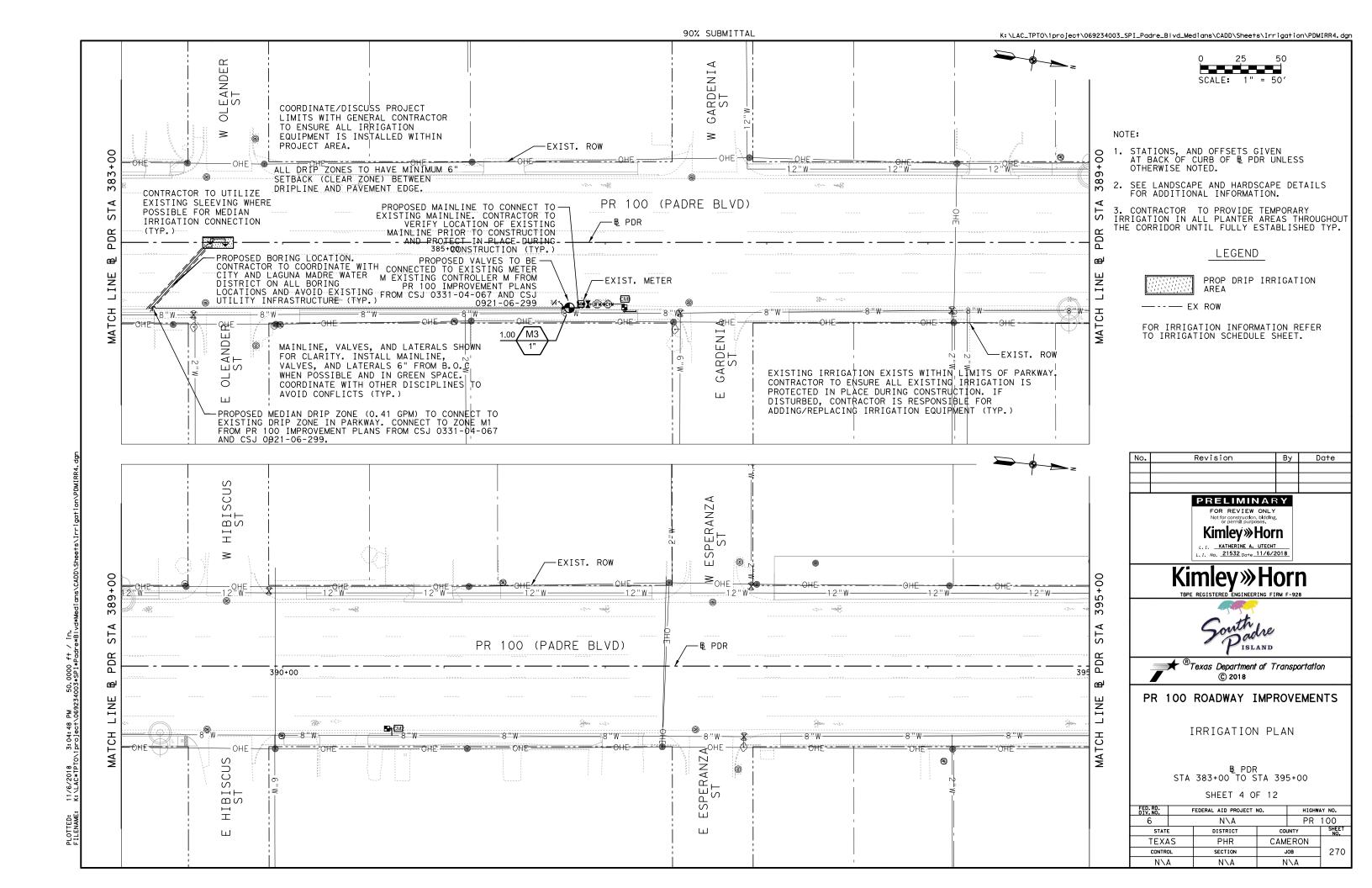
SHEET 1 OF 12

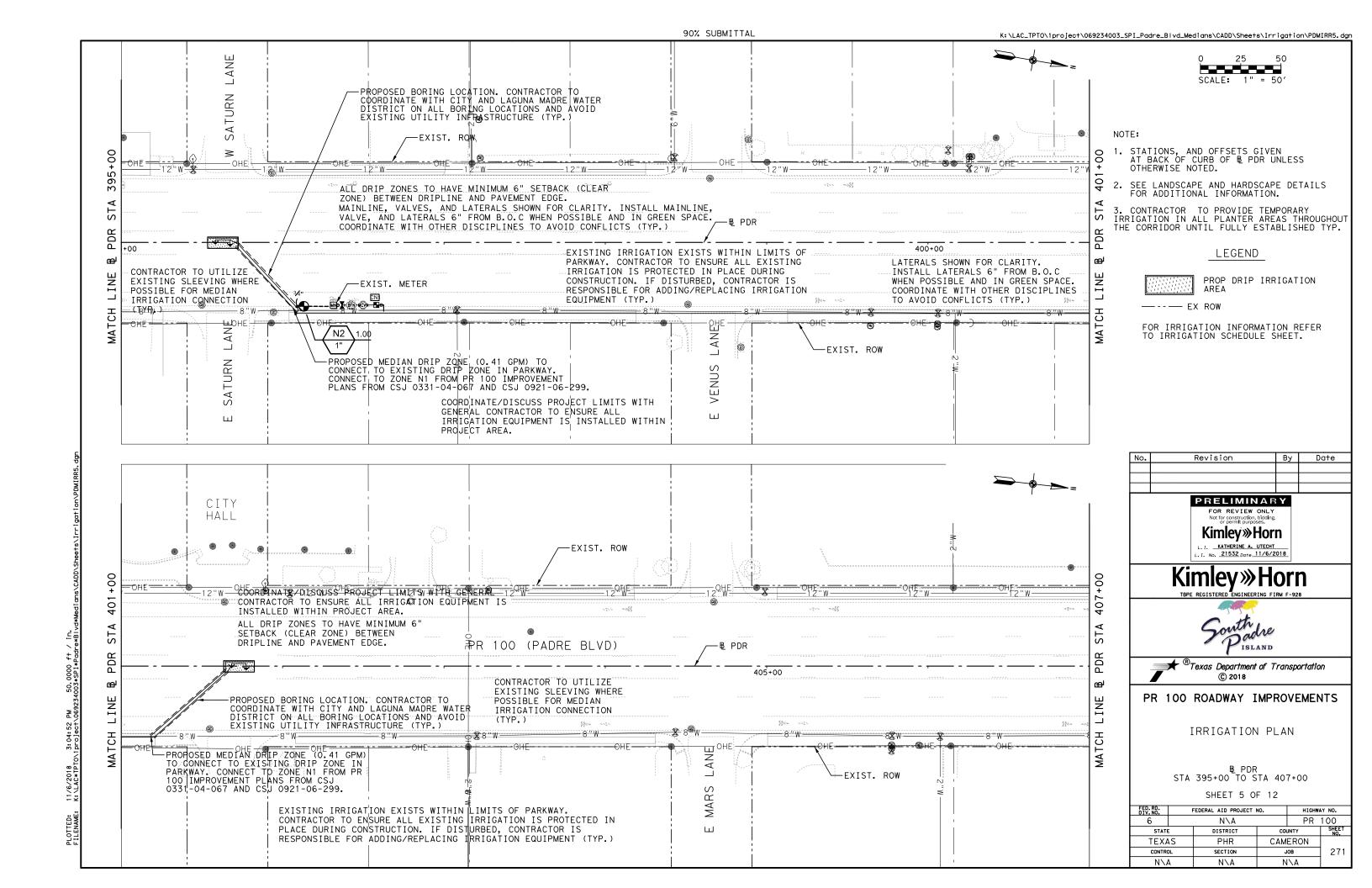
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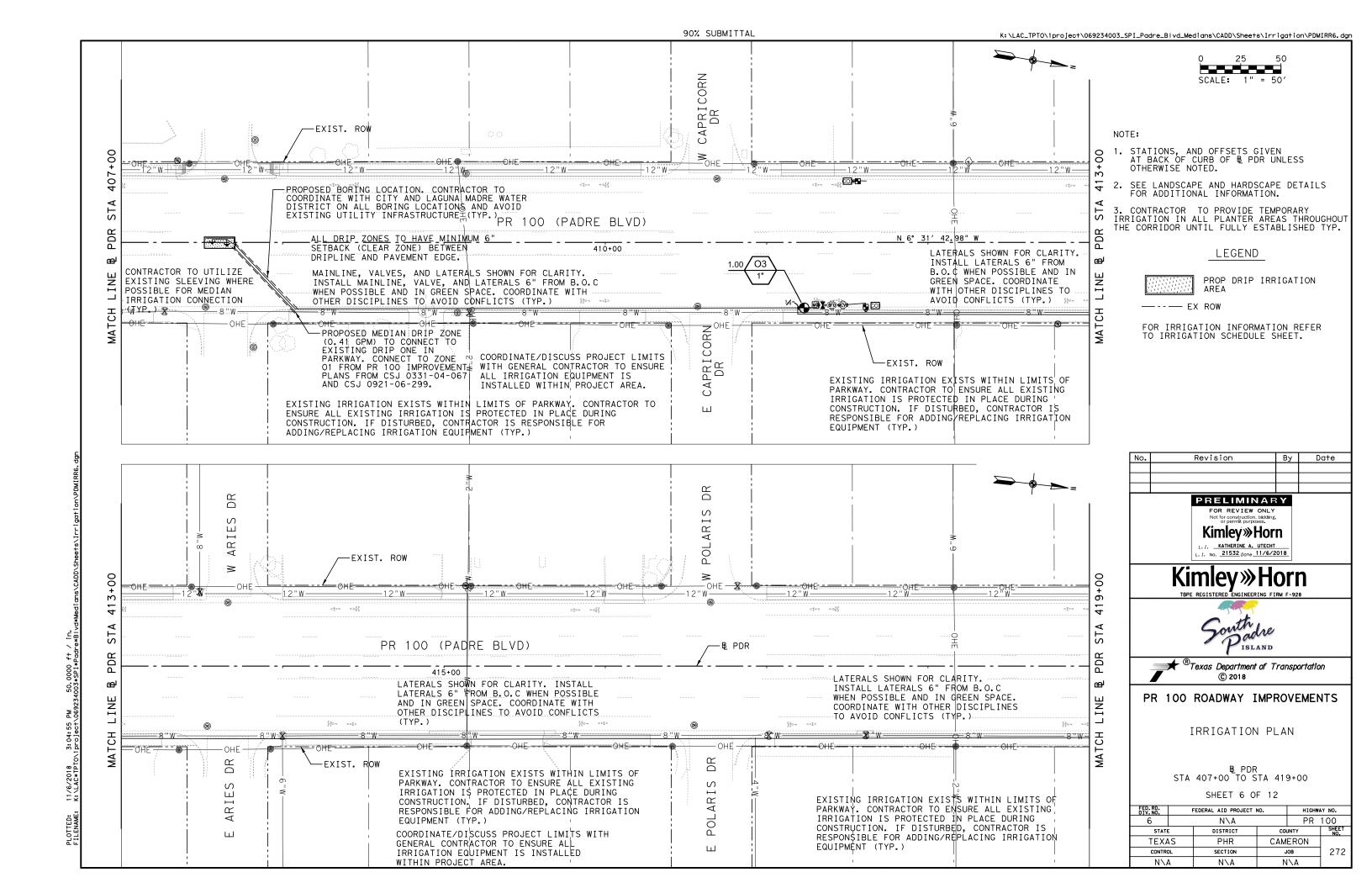


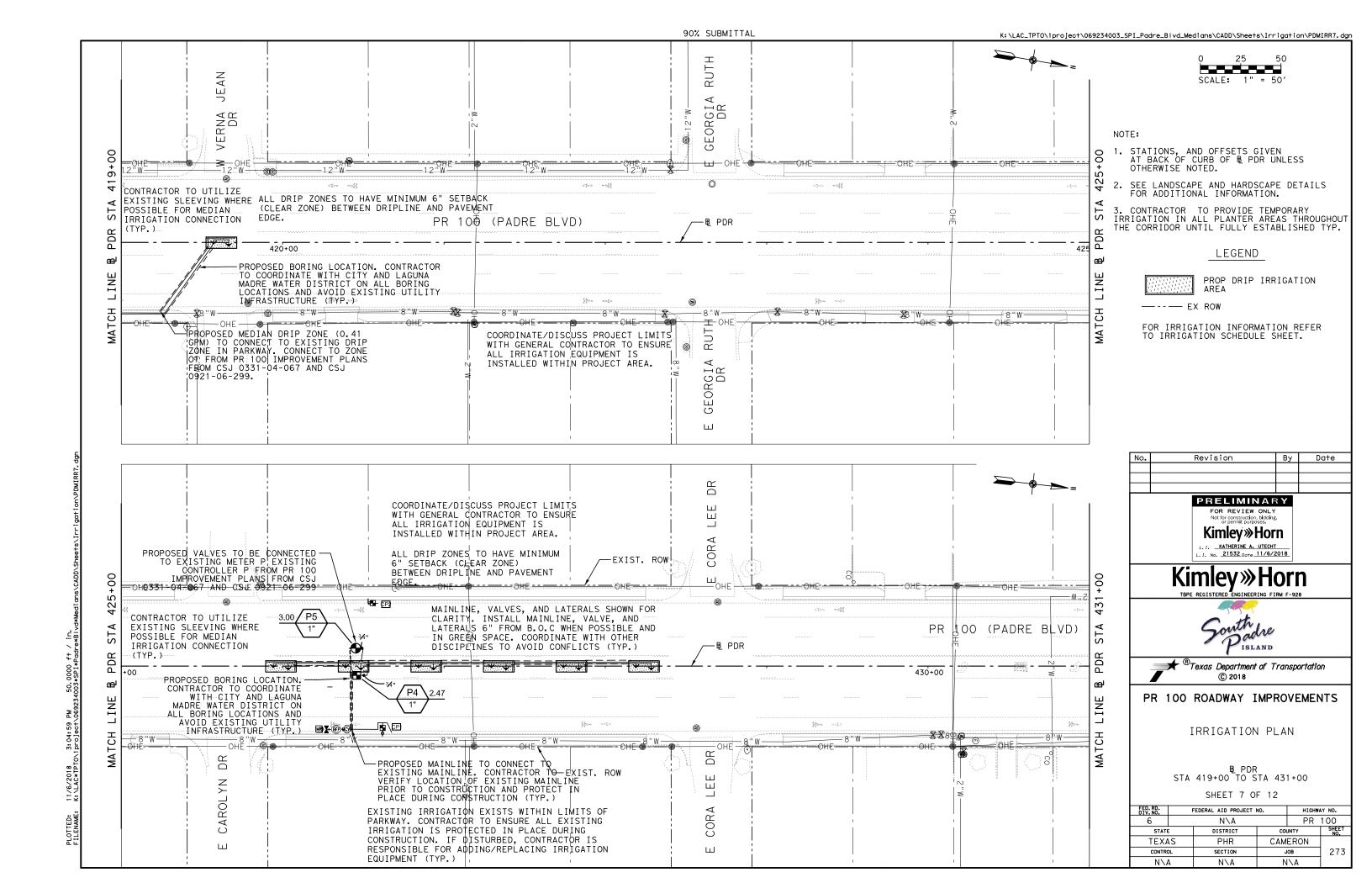


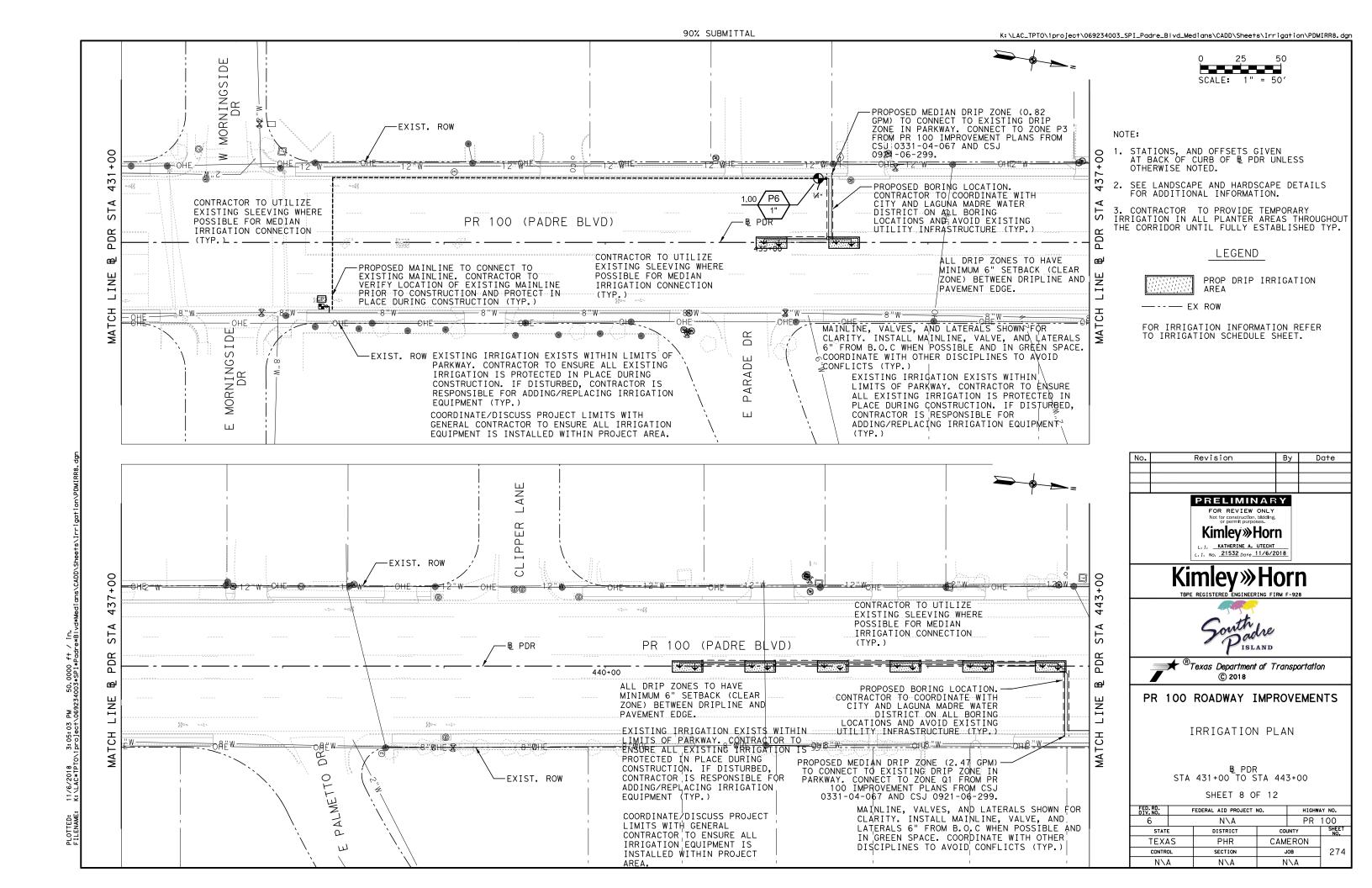


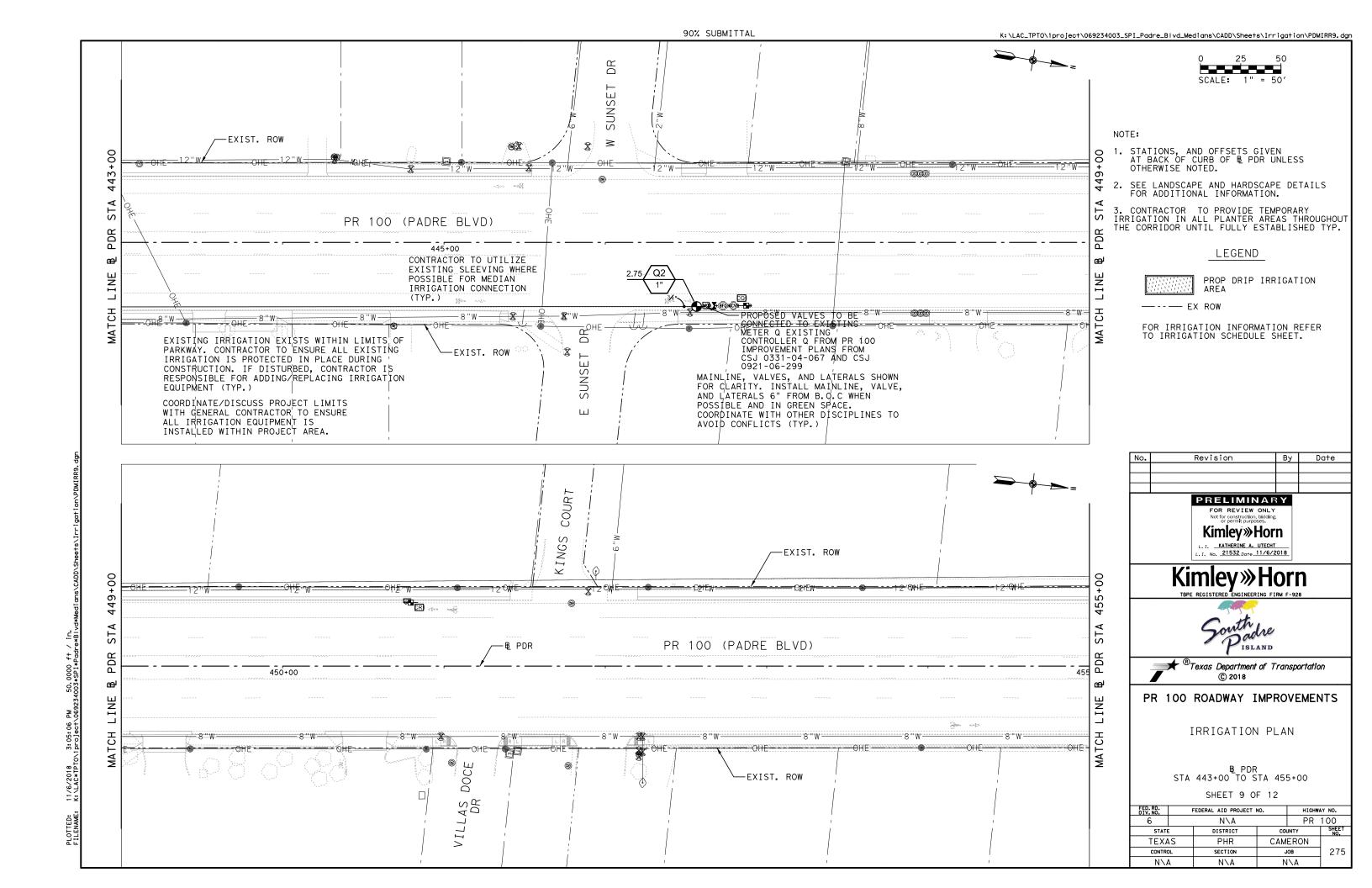


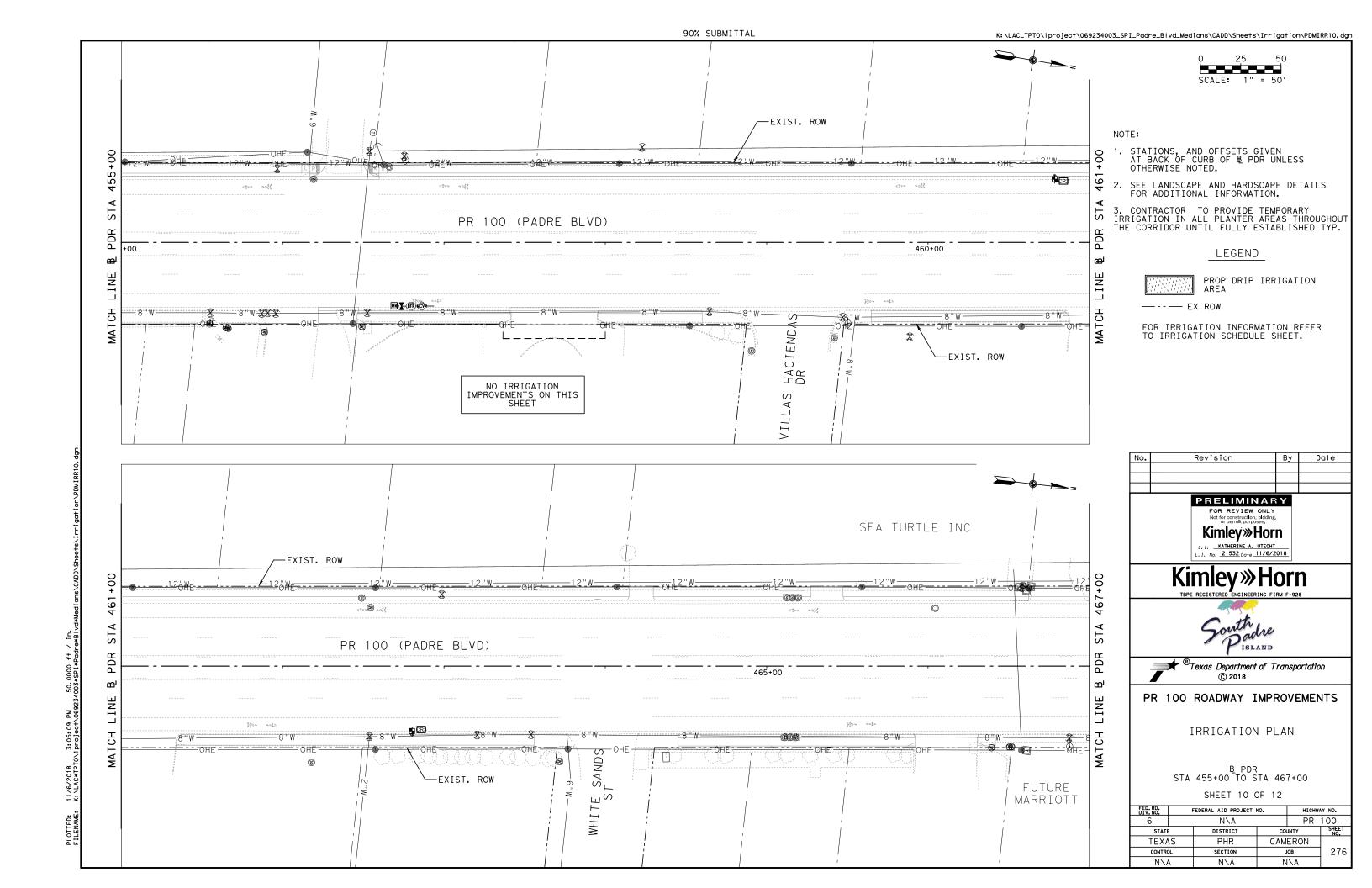


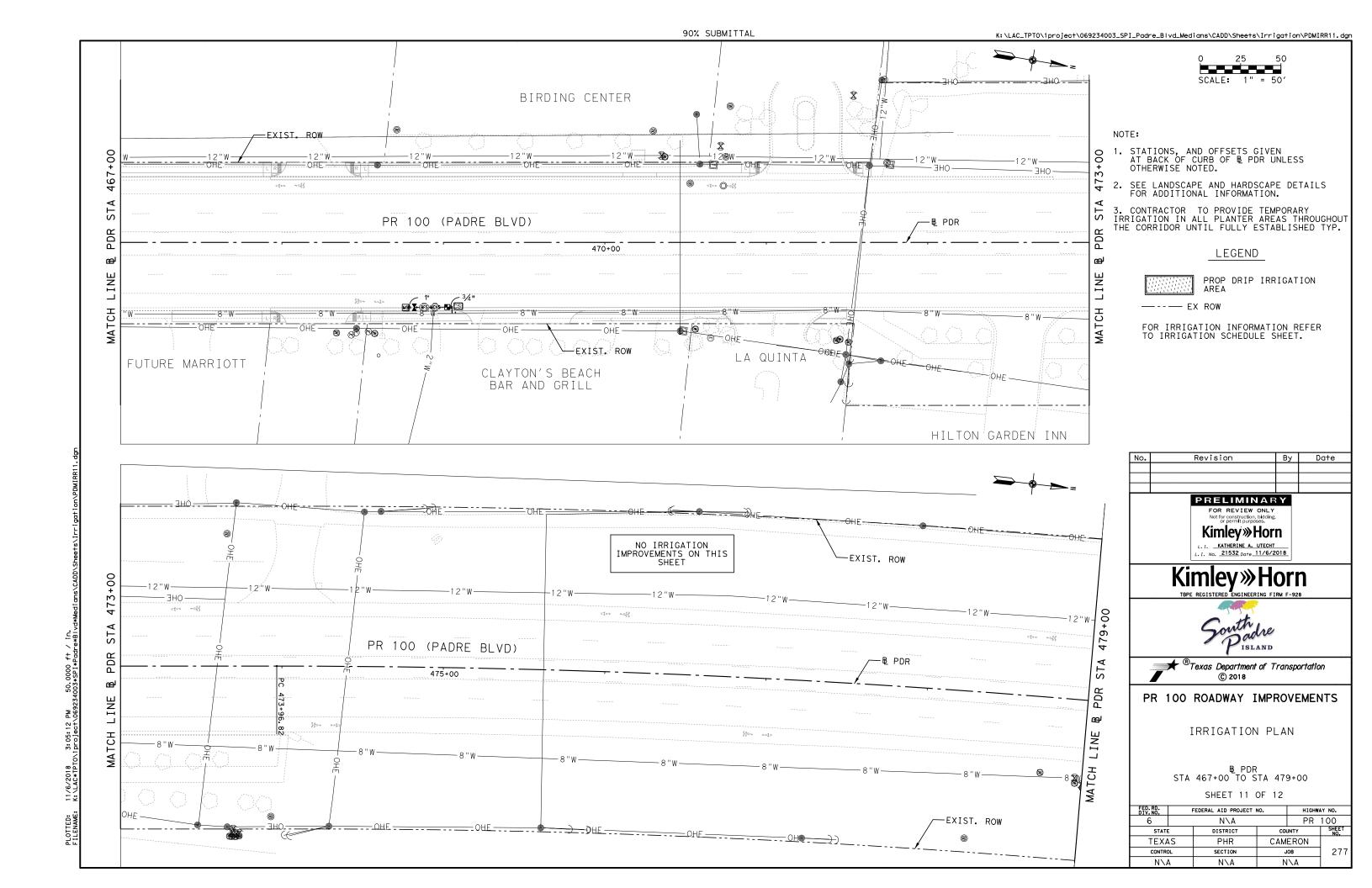












SCALE: 1" = 50'

- 1. STATIONS, AND OFFSETS GIVEN AT BACK OF CURB OF & PDR UNLESS OTHERWISE NOTED.
- 2. SEE LANDSCAPE AND HARDSCAPE DETAILS FOR ADDITIONAL INFORMATION.

3. CONTRACTOR TO PROVIDE TEMPORARY IRRIGATION IN ALL PLANTER AREAS THROUGHOUT THE CORRIDOR UNTIL FULLY ESTABLISHED TYP.

LEGEND



PROP DRIP IRRIGATION AREA

---- EX ROW

FOR IRRIGATION INFORMATION REFER TO IRRIGATION SCHEDULE SHEET.

Revision Ву Date

## PRELIMINARY FOR REVIEW ONLY Not for construction, bidding, or permit purposes. Kimley » Horn

L.I. KATHERINE A. UTECHT L.I. No. 21532 Date 11/6/2018

South produce Pisland



## PR 100 ROADWAY IMPROVEMENTS

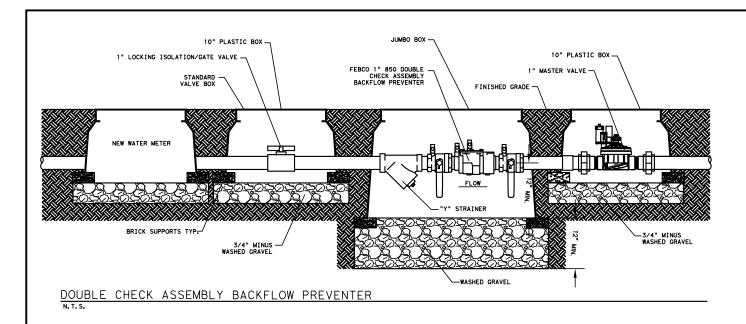
IRRIGATION PLAN

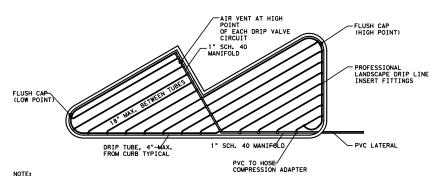
₽ PDR STA 479+00 TO END PROJECT

SHEET 12 OF 12

NO PROPOSED IRRIGATION SYSTEM ON THIS SHEET.

ED. RD. IV. NO.	FEDERAL AID PROJECT NO.			H I GHWA	AY NO.
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STATI		DISTRICT	COUNTY		SHEET NO.
TEXA	\S	PHR	CAMERON		
CONTR	DL	SECTION	JOB		278
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NOTE: 1. INSTALL FLUSH CAP/AIR VENTS AT HIGHEST AND LOWEST POINT. 2. STAKE DRIP HOSE AT EVERY 3RD EMITTER. 3. USE HUNTER INSERT FIITINGS FOR DRIP CONNECTIONS

TYPICAL DRIP IRRIGATION INSTALLATION DETAIL

PVC PIPE SIZE	SOLVENT WELD SCH. 40 FITTINGS	BELL AND GASKET FITTINGS	SOCKETED PIPE
1/2"	2"		2"
3/4"	2"		2"
1"	2 1/2"		2 1/2"
1 1/4"	3"		3"
1 1/2"	3"	3"	3"
2"	4"	4"	4"
2 1/2"	•	6"	4"
3"	6"	6"	6"
4"	8"	8"	4"

Revision

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Kimley»Horn

L.I. KATHERINE A. UTECHT
L.I. No. 21532 Date 11/6/2018

**Kimley** » Horn

South,

PISLAND

\*Texas Department of Transportation © 2017

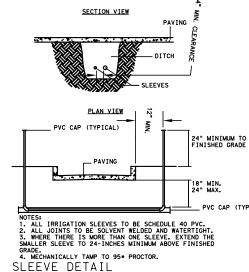
PR 100 (PADRE BLVD)

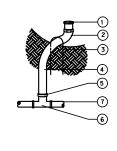
IRRIGATION DETAILS

Ву

Date

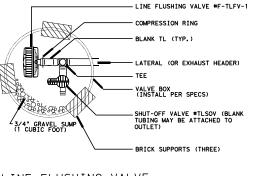
SLEEVE SCHEDULE



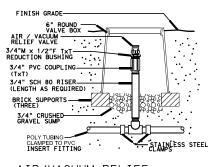


BUBBLER ASSEMBLY

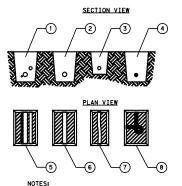
- 1 BUBBLER HEAD AS SPECIFIED
- 2 MALE ADAPTER
- 3 9" LONG (12 GAUGE) WIRE STAPLE
- 4 1/2" FLEX POLY (18" 24" LONG) TO EXTEND TO TRUNK OF EACH TREE 5 REDUCER BUSHING AS REQUIRED
- (6) SCHEDULE 40 PVC TEE (S X S X S)
- 7 LATERAL LINE (CLASS 200 PVC)



LINE FLUSHING VALVE

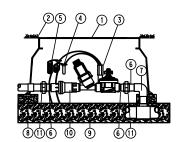


AIR/VACUUM RELIEF (PLUMBED TO POLY)

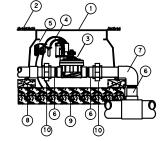


PIPE AND WIRE TRENCHING

- 1 MAINLINE, LATERAL AND WIRING IN THE SAME TRENCH
- (3) LATERAL PIPE
- 4 WIRING IN CONDUIT
- 5 TIE A 24-INCH LOOP IN ALL WIRING AT CHANGES OF DIRECTION OF 30\* OR GREATER. UNTIE AFTER ALL CONNECTIONS HAVE BEEN MADE.
- ALL SOLVENT WELD PLASTIC
   PIPING TO BE SNAKED IN TRENCH
   AS SHOWN.
- ALL SOLVENT WELD PLASTIC PIPING TO BE RAN IN TRENCH AS SHOWN.
- 8 RUN WIRING BENEATH AND BESIDE MAINLINE. TAPE AND BUNDLE AT 10-FOOT INTERVALS.



- 1 JUMBO VALVE BOX 2 FINISH GRADE
- 3 DRIP ZONE KIT MODEL PCZ-101-25 TIP FILTER 45 DEGREES
- 4 WATERPROOF CONNECTORS (2) (5) 18-24" COILED WIRE
- 6 SCH 80 T.O.E. NIPPLE MAIN LINE PIPE & FITTINGS (8) BRICK SUPPORTS (4)
- 9 3/4" MINUS WASHED GRAVEL (10) REGULATOR: 40 PSI
- HUNTER DRIP CONTROL ZONE KIT (1) PVC SLIP UNIONS (2)



- 1 STANDARD VALVE BOX
- 2 FINISH GRADE
- 4) WATERPROOF CONNECTORS (2)
- (5) 18-24" COILED WIRE (6) SCH 80 T.O.E. NIPPLE
- (7) MAIN LINE PIPE & FITTINGS
- (8) BRICK SUPPORTS (4)
- 9 3/4" MINUS WASHED GRAVEL 10 PVC SLIP UNIONS
- FEDERAL AID PROJECT NO. HIGHWAY NO. 6 (SEE TITLE SHEET) PR 100 STATE DISTRICT COUNTY TEXAS CAMERON PHR 279 CONTROL SECTION JOB N\A

INCLUDES FURNISHING ALL LABOR, MATERIALS AND EQUIPMENT FOR THE PROPER INSTALLATION OF THE IRRIGATION SYSTEM. THE WORK INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING: (1) TRENCHING AND BACKFILL, (2) AUTOMATICALLY CONTROLLED LOW VOLUME IRRIGATION SYSTEM, (3) TEST ALL SYSTEMS AND MAKE OPERATIVE, (4) "AS-BUILT" DRAWINGS.

GENERAL IRRIGATION SPECIFICATIONS AND NOTES

#### B. GENERAL:

1. PERMITS AND FEES: OBTAIN ALL PERMITS AND PAY REQUIRED FEES TO ANY GOVERNMENTAL AGENCY HAVING JURISDICTION OVER THE WORK. INSPECTIONS REQUIRED BY LOCAL ORDINANCES DURING THE COURSE OF CONSTRUCTION SHALL BE ARRANGED AS REQUIRED. ON COMPLETION OF THE WORK, SATISFACTORY EVIDENCE SHALL BE FURNISHED TO THE OWNER'S CONSTRUCTION REPRESENTATIVE TO SHOW THAT ALL WORK HAS BEEN INSTALLED IN ACCORDANCE WITH THE TEXAS BUILDING CODE - PLUMBING / APPENDIX 'F' AND CODE REQUIREMENTS.

APPROVAL: WHEREVER THE TERMS "APPROVE" OR "APPROVED" ARE USED IN THE SPECIFICATIONS, THEY SHALL MEAN THE APPROVAL OF THE OWNER'S CONSTRUCTION REPRESENTATIVE IN WRITING.

BEFORE ANY WORK IS STATTED, A CONFERENCE SHALL BE HELD BETWEEN THE CONTRACTOR AND THE OWNER'S CONSTRUCTION REPRESENTATIVE CONCERNING THE WORK UNDER THIS

4. COORDINATION: COORDINATE AND COOPERATE WITH OTHER CONTRACTORS TO ENABLE THE WORK TO PROCEED AS RAPIDLY AND EFFICIENTLY AS POSSIBLE

#### 5. INSPECTION OF SITE:

A. CONTRACTOR SHALL ACQUAINT HIMSELF WITH ALL SITE CONDITIONS. SUBMISSION OF HIS PROPOSAL SHALL BE CONSIDERED EVIDENCE THAT THE EXAMINATION HAS BEEN CONDUCTED. SHOULD UTILITIES NOT SHOWN ON THE PLANS BE FOUND DURING EXCAVATIONS, CONTRACTOR SHALL PROMPTLY NOTIFY THE OWNER'S CONSTRUCTION REPRESENTATIVE FOR INSTRUCTIONS AS TO FURTHER ACTION. FAILURE TO DO SO WILL MAKE CONTRACTOR LIABLE FOR ANY AND ALL DAMAGE THERETO ARISING FROM HIS OPERATIONS SUBSEQUENT TO DISCOVERY OF SUCH UTILITIES NOT SHOWN IN PLANS.

B. CONTRACTOR SHALL MAKE NECESSARY ADJUSTMENTS IN THE LAYOUT AS MAY BE REQUIRED TO CONNECT TO EXISTING STUBOUTS, SHOULD SUCH STUBS NOT BE LOCATED EXACTLY AS SHOWN, AND AS MAY BE REQUIRED TO WORK AROUND EXISTING WORK AT NO INCREASE IN COST TO THE OWNER'S CONSTRUCTION REPRESENTATIVE.

6. PROTECTION OF EXISTING PLANTS AND SITE CONDITIONS: THE CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO PROTECT SITE CONDITIONS TO REMAIN. SHOULD DAMAGE BE INCURRED, THE CONTRACTOR SHALL REPAIR THE DAMAGE TO ITS ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.

7. THE OWNER RESERVES THE RIGHT TO SUBSTITUTE, ADD, OR DELETE ANY MATERIAL OR WORK AS THE WORK PROGRESSES. ADJUSTMENTS TO THE CONTRACT PRICE SHALL BE NEGOTIATED IF DEEMED NECESSARY BY THE OWNER ON A PER DIEM BASIS.

8. THE OWNER RESERVES THE RIGHT TO REJECT MATERIAL OR WORK WHICH DOES NOT CONFORM TO THE CONTRACT DOCUMENTS. REJECTED WORK SHALL BE REMOVED OR CORRECTED AT THE EARLIEST TIME POSSIBLE.

9. WORK SCHEDULE: WITHIN 10 DAYS AFTER AWARD OF THE CONTRACT, THE CONTRACTOR SHALL SUBMIT TO THE OWNER A WORK SCHEDULE.

10. "AS-BUILT" IRRIGATION DRAWINGS: PREPARE AN "AS-BUILT" DRAWING ON A BLUEPRINT WHICH SHALL SHOW DEVIATIONS FROM THE BID DOCUMENTS MADE DURING CONSTRUCTION AFFECTING THE MAIN LINE PIPE, CONTROLLER LOCATIONS, REMOTE CONTROL VALVES AND QUICK COUPLING VALVES. THE DRAWINGS SHALL ALSO INDICATE AND SHOW PROVED SUBSTITUTIONS OF SIZE, MATERIAL AND MANUFACTURERS NAME AND CATALOG NAME AND CATALOG NAME AND CATALOG NIMBER. THE DRAWINGS SHALL BE DELIVERED TO THE TENANT'S CONSTRUCTION REPRESENTATIVE BEFORE FINAL ACCEPTANCE OF WORK 11. FINAL ACCEPTANCE IN ACCEPTANCE OF THE WORK MAY BE OBTAINED FROM THE OWNER'S CONSTRUCTION REPRESENTATIVE UPON THE SATISFACTORY COMPLETION OF ALL WORK.

12. GUARANTEE: ALL WORK SHALL BE GUARANTEED FOR ONE YEAR FROM DATE OF ACCEPTANCE AGAINST ALL DEFECTS IN MATERIAL, EQUIPMENT AND WORKMANSHIP. GUARANTEE SHALL ALSO COVER REPAIR OF DAMAGE TO ANY PART OF THE PREMISES RESULTING FROM LEAKS OR OTHER DEFECTS IN MATERIAL, EQUIPMENT AND WORKMANSHIP TO THE SATISFACTION THE TENANT'S CONSTRUCTION REPRESENTATIVE. REPAIRS, IF REQUIRED, SHALL BE DONE PROMPTLY AT NO

COST TO THE OWNER.

13. A LAMINATED PLAN (8 1/2 X 11) SHOWING THE DIFFERENT IRRIGATION ZONES IN COLOR, PREPARED BY THE IRRIGATION CONTRACTOR, SHALL BE POSTED IN THE MECHANICAL

1. GENERAL: ALL MATERIALS THROUGHOUT THE SYSTEM SHALL BE NEW AND IN PERFECT CONDITION. 1. GENERAL: ALL MATERIALS THROUGHOUT THE SYSTEM SHALL BE NEW AND IN PERFECT CONDI2. PLASTIC PIPING: ALL MAIN LINES AND LATERAL LINES SHALL BE CLASS 200 POLYVINYL
CHLORIDE (PVC) PIPE AND SHALL COMPLY WITH ONE OF THE FOLLOWING STANDARDS: ASTM D
1785, ASTM D-2241, AWWA C-900, OR AWWA C-905. SDR-PR PIPE SHALL HAVE A MINIMUM
WALL THICKNESS AS REQUIRED BY SDR-26. PVC GASKETS FITTINGS SHALL CONFORMING TO
ASTM D 3139. GASKETS SHALL CONFORM TO ASTM F 477, SOLVENT-WELD PVC FITTINGS
SHALL MEET THE REQUIREMENTS OF SCHEDULE 40 AS SET FORTH IN ASTM D 2466. THREADED
PVC PIPE FITTINGS SHALL MEET THE REQUIREMENTS OF SCHEDULE 40 AS SET FORTH IN ASTM
D 2464. CONFORMING TO ASTM D-1784 AND D-2241

3. PLASTIC FITTINGS: ALL SOLVENT-WELD PVC FITTINGS SHALL MEET THE REQUIREMENTS OF SCHEDULE 40 AS SET FORTH IN ASTM D 2466. SCHEDULE 40 SOLVENT-WELD, POLYVINYL CHLORIDE (PVC) STANDARD WEIGHT AS MANUFACTURED BY SLOANE, LASCO, OR APPROVED

4. SOLVENT CEMENT: PVC CEMENT SHALL MEET ASTM D 2564 AND PVC CLEANER-TYPE SHALL MEET ASTM F 656.

5. SPRINKLER HEAD RISERS: SCHEDULE 40 PVC FOR RISERS. PIPE SHALL BE CUT WITH A STANDARD PIPE CUTTING TOOL WITH SHARP CUTTERS. REAM ONLY TO FULL DIAMETER OF PIPE AND CLEAN ALL ROUGH EDGES OR BURRS. CUT ALL THREADS ACCURATELY WITH SHARP DIES. NOT MORE THAN THREE(3) FULL THREADS SHALL SHOW BEYOND FITTINGS WHEN PIPE IS MADE UP. ASSEMBLIES SHALL BE AS DETAILED.

- 6. AUTOMATIC CONTROLLER: SEE LEGEND
- 7. REMOTE CONTROL VALVES: SEE LEGEND

8. CONTROL WIRING: 24 VOLT SOLID UL APPROVED FOR DIRECT BURIAL IN GROUND. MINIMUM WIRE SIZE: 16 GAUGE. ALL SPLICES SHALL BE MADE WITHIN VALVE BOX. 9. SLEEVES FOR CONTROL WIRING: UNDER ALL WALKS AND PAVED AREAS AND WHERE INDICATED ON DRAWINGS. MINIMUM PVC SCHEDULE 40 PLASTIC PIPE.

- 10. SPRINKLER HEADS/ DRIP LINE: SEE LEGEND
- 11. QUICK COUPLING VALVES: SHALL BE NOTED ON DRAWINGS.

1. LAY OUT WORK AS ACCURATELY AS POSSIBLE TO THE DRAWINGS. THE DRAWINGS, THOUGH CAREFULLY DRAWN, ARE GENERALLY DIAGRAMMATIC TO THE EXTENT THAT SWING JOINTS, OFFSETS, AND ALL FITTINGS ARE NOT SHOWN.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FULL AND COMPLETE COVERAGE OF ALL IRRIGATED AREAS AND SHALL MAKE ANY NECESSARY MINOR ADJUSTMENTS AT NO ADDITIONAL COST TO THE OWNER'S CONSTRUCTION REPRESENTATIVE.

3. ANY MAJOR REVISIONS TO THE IRRIGATION SYSTEM MUST BE SUBMITTED AND ANSWERED IN WRITTEN FORM, ALONG WITH ANY CHANGE IN CONTRACT PRICE.

## E. INSTALLATION:

#### 1. EXCAVATION AND TRENCHING:

A. PERFORM ALL EXCAVATIONS AS REQUIRED FOR THE INSTALLATION OF THE WORK INCLUDING UNDER THIS SECTION, INCLUDING SHORING OF EARTH BANKS TO PREVENT CAVE-INS. RESTORE ALL SURFACES, EXISTING UNDERGROUND INSTALLATIONS, ETC., DAMAGE OR CUT AS A RESULT OF THE EXCAVATIONS TO AND IN A MANNER APPROVED BY THE OWNER.

B. TRENCHES SHALL BE MADE WIDE ENOUGH TO ALLOW A MINIMUM OF 6 INCHES BETWEEN PARALLEL PIPE LINES. TRENCHES FOR PIPE LINES SHALL BE MADE OF SUFFICIENT DEPTHS TO PROVIDE THE MINIMUM COVER FROM FINISH ORADE AS FOLLOWS:

1) 24" MINIMUM BELOW BOTTOM PAVEMENT PER SLEEVING INSTALLATION DETAIL THIS SHEET ) MINIMUM COVER OVER IRRIGATION LINES TO HEADS/ DRIPLINE EXCEPT VEHICLE TRAFFIC AREAS ARE AS FOLLOWS:

## 12" COVER OVER LATERALS 18" COVER OVER MAINLINE

C. MAINTAIN ALL WARNING SIGNS, SHORING, BARRICADES, FLARES AND RED LANTERNS AS REQUIRED BY THE SAFETY ORDERS OF THE DIVISION OF INDUSTRIAL SAFETY AND LOCAL ORDINANCES.

#### 2. PIPE LINE ASSEMBLY:

A. INSTALL REMOTE CONTROL VALVES WHERE SHOWN AND GROUP TOGETHER WHERE  $\,$  PRACTICAL, PLACE NO CLOSER THAN 6 INCHES TO WALK EDGES, BUILDINGS AND WALLS.

B. PLASTIC PIPE AND FITTINGS SHALL BE SOLVENT WELDED USING SOLVENTS AND METHODS RECOMMENDED BY MANUFACTURER OF THE PIPE, EXCEPT WHERE SCREWED CONNECTIONS ARE REQUIRED. PIPE AND FITTINGS SHALL BE THOROUGHLY CLEANED OF DIRT, DUST AND MOISTURE BEFORE APPLYING SOLVENT WITH A NON-SYNTHETIC BRISTLE BRUSH. C. PIPE MAY BE ASSEMBLED AND WELDED ON THE SURFACE. SNAKE PIPE FROM SIDE TO SIDE OF TRENCH BOTTOM TO ALLOW FOR EXPANSION AND CONTRACTION.

D. MAKE ALL CONNECTIONS BETWEEN PLASTIC PIPE AND METAL VALVES OR STEEL PIPE WITH THREADED FITTINGS USING PLASTIC MALE ADAPTERS.

## 3. SPRINKLER HEADS/ DRIPLINE:

- A. INSTALL ALL SPRINKLERS/ DRIPLINE AS DETAILED ON DRAWINGS.
- DO NOT SCALE PLANS FOR EXACT HEAD LOCATION.
  PROVIDE A MINIMUM OF 4" BETWEEN SPRINKLERS/ DRIPLINE AND PAVEMENT/ BUILDINGS.

#### 4. CLOSING OF PIPE AND FLUSHING LINES:

A. CAP OR PLUG ALL OPENINGS AS SOON AS LINES HAVE BEEN INSTALLED TO PREVENT THE ENTRANCE OF MATERIALS THAT WOULD OBSTRUCT THE PIPE. LEAVE IN PLACE UNTIL REMOVAL IS NECESSARY FOR COMPLETION OF INSTALLATION.

B. THOROUGHLY FLUSH OUT ALL WATER LINES BEFORE INSTALLING HEADS, DRIPLINE, VALVES AND OTHER HYDRANTS.

C. TEST IN ACCORDANCE WITH PARAGRAPH ON HYDROSTATIC TESTS.

D. UPON COMPLETION OF THE TESTING, THE CONTRACTOR SHALL COMPLETE ASSEMBLY AND ADJUST SPRINKLER HEADS FOR PROPER DISTRIBUTION.

A. SPRINKLER/ DRIPLINE LAYOUT AND SPACING INSPECTION: VERIFICATION THAT THE IRRIGATION DESIGN IS ACCURATELY INSTALLED IN THE FIELD. IT WILL ALSO PROVIDE FOR ALTERATION OR MODIFICATION OF THE SYSTEM TO MEET FIELD CONDITIONS. SPACING SHOULD BE WITHIN 5% OF THE DESIGN SPACING.

B. PIPE INSTALLATION DEPTH INSPECTION: ALL PIPES IN THE SYSTEM SHALL BE INSTALLED TO DEPTHS AS PREVIOUSLY DESCRIBED IN SECTION 'E' OF THESE

C. OPEN TRENCH INSPECTION: THE TRENCH AND ALL JOINTS AND EVERY TRANSITION IN PIPE SIZE, WILL BE OPEN WHERE OPEN TRENCH INSPECTION IS REQUIRED.

D. INSPECTIONS WILL BE PERFORMED THROUGHOUT THE DURATION OF THE INSTALLATION. INSPECTION MAY BE MADE BY THE GOVERNING AGENCY/ OWNER TO EMSURE COMPLIANCE WITH DESION INTENT, SPECIFICATIONS, AND THE IRRIGATION CODES.

A. REQUEST THE PRESENCE OF THE OWNER IN WRITING AT LEAST 48 HOURS IN ADVANCE OF TESTING.

 $\mbox{\bf B.}$  TESTING TO BE ACCOMPLISHED AT THE EXPENSE OF THE CONTRACTOR AND IN THE PRESENCE OF THE OWNER.

C. CENTER LOAD PIPING WITH SMALL AMOUNT OF BACKFILL TO PREVENT ARCHING OR

D. APPLYING A CONTINUOUS AND STATIC WATER PRESSURE OF 125 PSI WHEN WELDED PLASTIC JOINTS HAVE CURED AT LEAST 3 HOURS AND WITH THE RISERS CAPPED AS FOLLOWS:

1) MAIN LINES AND SUBMAINS TO BE TESTED FOR 2 HOURS. 2) NO PRESSURE LOSS IS ALLOWED FOR SOLVENT WELD MAINLINE/ PIPE.

E. FOR PVC AND O-RING GASKET PIPE THE ALLOWABLE LEAKAGE SHALL NOT EXCEED THE NUMBER OF GALLONS PER HOUR AS DETERMINED BY THE FOLLOWING FORMULA:

IN WHICH: L=NPD1/2/ 1,850

L-ALLOWABLE LEAKAGE, IN GALLONS PER HOUR N=NUMBER OF JOINTS D=PIPE DIAMETER IN INCHES P-AVERAGE TEST PRESSURE IN PSI GAUGE

#### F. REPAIR LEAKS RESULTING FROM TESTS.

A. CONNECT REMOTE CONTROL VALVES TO CONTROLLER IN A CLOCKWISE SEQUENCE TO CORRESPOND WITH STATION SETTING BEGINNING WITH STATIONS 1, 2, 3, ETC.

#### 8. AUTOMATIC CONTROL WIRING:

A. INSTALL CONTROL WIRING, SPRINKLER MAINS AND LATERALS IN COMMON TRENCHES WHEREVER POSSIBLE.

B. INSTALL CONTROL WIRES AT LEAST 18" BELOW FINISHED GRADE AND SNAKE WIRE SIDE TO SIDE IN TRENCH BELOW MAIN LINE. EXPANSION CURLS SHALL BE PROVIDED WITHIN THREE (3') FEET OF EACH WIRE CONNECTION TO SOLENDID AND AT LEAST EVERY THREE HUNDRED (300') FEET IN LENGTH. (EXPANSION CURLS ARE FORMED BY WRAPPING AT LEAST FIVE (5) TURNS OF WIRE AROUND A ROD OR PIPE 1" OR MORE IN DIAMETER, THEN WITHDRAWING THE ROD).

C. CONTROL WIRE SPLICES WILL BE ALLOWED ONLY RUNS OVER 1000 FT. CONNECTIONS SHALL BE IN VALVE BOX AND LOCATION TO BE SHOWN ON AS-BUILT PLANS.

D. ALL WIRING PASSING UNDER EXISTING OR FUTURE PAYING, CONSTRUCTION, ETC., SHALL BE ENCASED IN PLASTIC OR GALVANIZED STEEL CONDUIT EXTENDING AT LEAST 24" BEYOND EDGES OF PAYING OR CONSTRUCTION.

#### 9. BACKFILL AND COMPACTING:

BACKFILL AND COMPACTING AND REQUIRED TESTS AND INSPECTIONS HAVE BEEN MADE, BACKFILL EXCAVATIONS AND TRENCHES WITH CLEAN SOIL, FREE OF RUBBISH. INITIAL BACKFILL MATERIAL TO 6 INCHES ABOVE THE TOP OF PIPE SHALL BE FREE OF ROCKS OR STONES LARGER THAN ONE INCH IN DIAMETER FINAL BACKFILL MATERIAL SHALL BE FREE OF ROCKS OR STONES LARGER THAN 3 INCHES IN DIAMETER.

B. BACKFILL FOR ALL TRENCHES, REGARDLESS OF THE TYPE OF PIPE COVERED, SHALL BE COMPACTED TO MINIMUM 90% DENSITY.

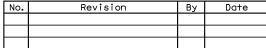
C. COMPACT TRENCHES IN AREAS TO BE PLANTED BY THOROUGHLY FLOODING THE BACKFILL. JETTING PROCESS MAY BE USED IN THOSE AREAS. D. DRESS OFF ALL AREAS TO FINISH GRADES.

10. PROTECTIVE RADIUS OF EXISTING TREES:

A. AN AUGER IS TO BE USED TO TUNNEL UNDER EXISTING TREES IF IRRIGATION IS INSTALLED WITHIN THE PROTECTIVE RADIUS OF EXISTING TREES AND ONLY IF THERE IS NO OTHER OPTION OR TO DO SO CREATES AN UNREASONABLE HARDSHIP.

#### F. CLEAN-UP:

1. REMOVE FROM THE SITE ALL DEBRIS RESULTING FROM WORK OF THIS SECTION.











PR 100 (PADRE BLVD)

IRRIGATION GENERAL NOTES

\$SHT\_PDMIRRNOTES\$

DIV. NO.	FEDERAL AID PROJECT NO.			HIGHW	Y NO.
6	(SEE TITLE SHEET)			PR	100
STATE	DISTRICT COL		JNTY	SHEET NO.	
TEXA	EXAS PHR CAMERON				
CONTRO	DL	SECTION	3	ОВ	280
N\A	4	N\A	l N	\A	

MATERIAL. EXTEND SLEEVES 18 INCHES BEYOND EDGES OF PAVING OR CONSTRUCTION.

No.	Revision	Ву	Date

## PRELIMINARY FOR REVIEW ONLY Kimley » Horn L. I. KATHERINE A. UTECHT .I. No. 21532 Date 11/6/2018





PR 100 (PADRE BLVD)

IRRIGATION SCHEDULE

SHEET 1 OF 1

D. RD. IV. NO.	FEDERAL AID PROJECT NO.			H I GHWA	Y NO.
6	(SE	EE TITLE SHE	PR	100	
STATE	Ē	DISTRICT	COUNTY		SHEET NO.
TEXA	\S	PHR	CAMERON		
CONTR	OL	SECTION	3	ЮВ	281
N\A	4	N\A	N	<b>\</b> A	

During the planning phase of project development, the following Environmental Permits, Issues and Commitments have been developed during coordination with resource agencies, local governmental entities and the general public. Any change		II. Clean Water Act, Sections 401 and 404 Compliance - Continued:			
developed during coordination with resource agencies, local governmental en orders and/or deviations from the final design must be reported to the Engi activities as additional environmental clearances may be required.	tities and the general public. Any change neer prior to the commencement of construction	on 4. The Contractor's designated and qualified Contractor Responsible Person Environmental (CRPe) will monitor the project site daily to ensue compliance with SW3P and TPDES General Permit TXR 150000. Daily Monitoring Reports shall be provided to TxDOT within 48 hours, in accordance with Item 506.3.1.			
I. Clean Water Act, Section 402; Stormwater Pollution Prevention		5.☐ Other Project Specific Actions			
Action Items Required:					
1. The contractor must implement the SW3P by installing Best Management Pr plans and maintained appropriately throughout construction. BMPs must The SW3P may need to be revised as necessary as construction progresses	be in place prior to the start of construction.				
2. For all construction PSL's off the ROW, the contractor must certify com regulations pertaining to the preservation of cultural resources, natur	pliance with all applicable laws, rules and al resources and the environment.	III Cultural Pennurana			
3. Based on the acreage of impact, select the appropriate box below:		III. Cultural Resources	☐ No Action Required		
☐ This project will disturb less than 1 acre of soil and is not part of therefore, a NOI and TPDES Site Notice are not required for this properties.		Bridges, Item 7.7.1 in the e	rd Specifications For Construction And Newscort historical issues or archeological	Maintenance Of Highways, Streets, And artifacts are found during construction. pottery, etc.) cease work in the immediate	
This project will disturb equal to or more than 1 acre of soil but required but a TPDES Site Notice is required. The Construction Site the construction site in a publicly accessible location for review by	Notice (CSN) is required to be posted at	area and contact the Engineer  2. Other Project Specific Actions	immediately.	pottery, etc.) cease work in the immediate	
or  This project will disturb equal to or more than 5 acres of soil and The NOI and Site Notice are required to be posted at the construction	will require a NOI and TPDES Site Notice. on site in a publicly accessible location.				
4. Need to address MS4 requirements (Cameron & Hidalgo Counties only)	eded				
		IV. Vegetation Resources			
II. Clean Water Act, Sections 401 and 404 Compliance		Action Items Required:	☐ No Action Required		
Action Items Rquired:  No Action Required  1. Filling, dredging or excavating in any water bodies, rivers, creeks, streams, wetlands or wet areas is prohibited unless specified in the USACE permit and approved by the Engineer. The contractor shall adhere to all agreements,		1. In accordance with the 2014 TxDOT Standard Specifications; Item 164 - Seeding For Erosion Control; provide and install temporary or permanent seeding for erosion control as shown on the plans or as directed by the Engineer for all seeding and replanting of right of way where possible. (Required for Urban Settings)			
mitigation plans, and BMPs required by the NWP as regulated by the USAC		2. In accordance with Executive Order 13112 on invasive species and the Executive Memorandum on Beneficial Landscaping, native species of plants shall be used for all seeding and replanting of right of way where possible			
The Contractor must adhere to all of the terms and conditions associate  ズ No Permit Required	a with the following permit(s):	for rural roadways. (Required	for Rural Settings)	eplanting of right of way where possible	
No remin Required	co or wotlends offented)	3. Preserve vegetation where possible throughout the project and minimize clearing, grubbing and excavation within stream banks, bed and approach sections.			
Nationwide Permit 14 - PCN Required (1/10th to <1/2 acre, 1/3 in t		4.X Other Project Specific Actions			
Individual 404 Permit Required	radi walers)	4. Officer Froject Specific Actions	•		
Other Nationwide Permit Required: NWP#		403 palm trees are identified in the plans for tree protection.  Contractor to follow the protection detail provided in the PRELIMINARY			
	nermit(s) for Contractor initiated changes in	landscape details. Payment for tree protection shall be provided by item 0100 6002.  FOR REVIEW ONLY Not for construction, bidding, or permit purposes.			
2. The contractor is responsible for obtaining new or revised Section 404 construction methods that change Impacts To Waters Of The U.S., includithe water quality of the State will be maintained and not degraded.	ng wetlands. The Contractor will ensure that	3 palm tree shall be relocated	and is shown in the plans. Payment	Kimley»Horn	
3.★ Best Management Practices for applicable Section 401 General Conditions	:	for this tree relocation shall	be provided by item 0100 6004.	Engineer TREY NEAL P. E. No. 106194 pare 11/6/2018	
General Condition 12 - Categories I and II BMPs required					
<u>Category I (Erosion Control)</u> ☑ Temporary Vegetation ☐ Interceptor Swale [	Mulch Filter Berms and/or Socks			*Texas Department of Transportation	
☐ Blankets, Matting ☐ Diversion Dike ☐ Mulch ☐ Erosion Control Compost ☐   X Sodding	☐ Compost Filter Berms and/or Socks ☐ Compost Blankets			PHARR DISTRICT	
Category II (Sedimentation Control)				ENVIRONMENTAL PERMITS,	
X Silt Fence □ Hay (Straw) Bale Dike □ Rock Berm □ Brush Berms □ Strawn Ber	☑ Mulch Filter Berms and/or Socks □ Compost Filter Berms and/or Socks	Pharr District Contact No. 956-702-6100	Revised 02/19/2015	ISSUES AND COMMITMENTS	
☐ Triangular Filter Dike ☐ Sediment Basins [	Basins Stone Outlet Sediment Traps	BMP: Best Management Practice	obreviations  NWP: Nationwide Permit	(EPIC)	
☐ Sand Bag Berm		CGP: Construction General Permit CRPe: Contractor Responsible Person Environmental	PCN: Pre-Construction Notification PSL: Project Specific Location	SHEET 1 OF 2	
General Condition 21 - Category III BMPs required Category III (Post-Construction TSS Control)	_	DSHS: Texas Department of State Health Services FEMA: Federal Emergency Management Agency FHWA: Federal Highway Administration	SPCC: Spill Prevention Control and Countermeasure SW3P: Storm Water Pollution Prevention Plan ICFO: Texas Commission on Environmental Quality	FED. RD. PROJECT NO. HIGHWAY NO.	
☐ Vegetative Filter Strips ☐ Wet Basins ☐ Retention/Irrigation ☐ Grassy Swales ☐	☐ Mulch Filter Berms and/or Socks ☐ Compost Filter Berms and/or Socks	MOA: Memorandum of Agreement MOU: Memorandum of Understanding	TCEQ: Texas Commission on Environmental Quality THC: Texas Historical Commission TPDES: Texas Pollutant Discharge Elimination System TPWD: Texas Parks and Wildlife Department	6 PR 100	
☐ Extended Detention Basin ☐ Vegetation-Lined Ditches [	Sand Filter Systems	MS4: Municipal Separate Stormwater Sewer System MSAT: Mobile Source Air Toxic	TPWD: Texas Parks and Wildlife Department TxDOT:Texas Department of Transportation T&E: Threatened and Endangered Species	STATE DISTRICT COUNTY  TEXAS PHR CAMERON SHEET  CONTROL SECTION NO.	
☐ Constructed Wetlands ☐ Erosion Control Compost [	Sedimentation Chambers	MBTA: Migratory Bird Treaty Act NOI: Notice of Intent NOI: Notice of Termination	USACE: U.S. Army Corp of Engineers USFWS:U.S. Fish and Wildlife Service	CONTROL SECTION JOB NO.  N\A N\A N\A 282	

N\A

N\A

282

N\A

V. Federal Listed, and Proposed Threatened and Endangered Species, Critical Habitat,  State Listed Species, Candidate Species and Migratory Birds  Action Items Required:  □ No Action Required  1. □ Under the Migratory Bird Treaty Act of 1918 (MBTA), codified at 16 U.S.C. 703-712 and as enforced by the USFWS, the proposed construction work will not remove active nests from bridges, trees, ground and other structures during migratory bird nesting season, (February 15th. through October 1st.). If the Contractor needs to perform work within right of way during nesting season, a qualified Biologist shall conduct a survey to determine if nests are present. If present, Contractor shall maintain a minimum 25 foot buffer zone of vegetation around the nest until the young have fledged or the nest is not occupied. A MBTA Nest Survey Form may be obtained from the Pharr District Office Environmental Section.  2. ☒ There is the potential for the presence of state-listed species & species of concern in the project area and state law prohibits the taking (incidental or otherwise) of state-listed species. Taking is defined as the collection, hooking, hunting, netting, shooting, or share by any means or devices. If any listed species are observed, cease work in the immediate area, do not disturb species or habitat and contact the Engineer immediately.  3. ☒ Other Project Specific Actions:  1. If the species of concern Yellow-flowered alicoche (Echinocereus papillosus) or the state-listed threatened White-lipped frog (Leptodactylus fragilis), Black-striped snake (Coniophanes imperialis), Keeled earless lizard (Holbrookia propinqua), or Coues' rice rat (Oryzomys couesi) are observed, cease work in the immediate area, do not disturb species or habitat and contact the Engineer immediately.	VI. Hazardous Materials on Contamination Issues - Continued:  2. Does the project involve any bridge class structure rehabilitation or replacements (bridge class structures not including box culverts)?  ☐ Yes  ■ No  If "No", then no further action required. If "Yes", then TxDOT is responsible for completing an asbestos assessment/inspection.  3. Are the results of the asbestos inspection positive (is asbestos present)?  ☐ Yes  ■ No  If "Yes", then TxDOT must retain a Texas Department of State Health Services (DSHS) licensed asbestos consultant to assist with the notification, develop abatement/mitigation procedures, and perform management activities as necessary. The notification form to DSHS must be postmarked at least 15 working days prior to scheduled abatement activities and/or demolition.  If "No", then TxDOT is still required to notify DSHS 15 working days prior to any scheduled demolition.  4.★ The Contractor is responsible for providing the date(s) for abatement activities and/or demolition with careful coordination between the Engineer and an Asbestos Consultant in order to minimize construction delays and subsequent claims.
VI. Hazardous Materials on Contamination Issues	<ul> <li>VII. Other Environmental Issues</li> <li>Action Items Required:</li></ul>
Action Items Required:  General (applies to all projects):  Comply with the Hazard Communication Act (HCA) for personnel who will be working with hazardous materials by conducting safety meetings prior to beginning construction and making workers aware of potential hazards in the workplace. Ensure that all workers are provided with personal protective equipment appropriate for any hazardous materials used.  Obtain and keep on-site Material Safety Data Sheets (MSDS) for all hazardous products used on the project, which may include but are not limited to the following categories: Paints, acids, solvents, asphalt products, chemical additives, fuels and concrete curing compounds or additives. Provide protected storage, off bare ground and covered, for products which may be hazardous. Maintain product labelling as required by the HCA.  Maintain an adequate supply of on-site spill response materials as indicated in the MSDS. In the event of a spill, take immediate action to mitigate the spill as indicated in the MSDS and in accordance with safe work practices. Contact the TxDDT Pharr District Spill Coordinator immediately. The Contractor shall be responsible for the proper containment and cleanup of all product spills.  Contact the Engineer if any of the following are detected:  • Dead or distressed vegetation (identified as not normal)  • Trash piles, drums, consisters, barrels, etc.	PRELIMINARY FOR REVIEW ONLY Not for construction, hidding, or permit purposes, Kimley >> Horn Engineer TREY NEAL P. E. No., 106194 Parte 111/6/2018  PHARR DISTRICT
<ul> <li>Trash piles, drums, canisters, barrels, etc.</li> <li>Undesirable smells or odors</li> <li>Evidence of leaching or seepage of contaminant substances</li> <li>Any other evidence indicating possible hazardous materials or contamination discovered on site.</li> <li>If potentially hazardous material and/or contaminated media (i.e.: soil, groundwater, surface water, sediment, building materials) are unexpectedly encountered during construction, assure that such materials and contamination are handled according to applicable federal and state regulations, cease work in the immediate area and contact the Engineer immediately.</li> </ul>	Pharr District Contact No. 956-702-6100  Revised 02/19/2015  List of Abbreviations    BMP: Best Management Practice   COP: Construction General Permit   PCN: Pre-Construction Notification   PSL: Project Specific Location   PSL: Pro

Date Printed: X-X-XX

# SITE DESCRIPTION

OJECT SIT	MAPS:	
-0 1	London Har The Charl (Charles)	
*Drainac	Location Map: Title Sheet (Sheet 001) e Patterns: Drainage Area Maps (162)	
*Approx	<u>Slopes Anticipated After Ma jor Gradings and Areas of Soil Disturbance: Typ Sect</u> 012 to 016	<i>'s</i>
*Major *Project	Controls and Locations of Stabilization Practices: SW3P Site Map Sheets (285 Specific Locations: To be specified by Project Field Office and located in the	
	oct SW3P File  Waters and Discharge Locations: Drainage and Culvert Layout Sheets (NA)	
OUECT DES	CRIPTION: Construction of raised medians, landscape and hardscape improvemen	nts
consistir	g of concrete medians, vegetation plantings with irrigation, concrete pavers, pay	emen
m <u>arkings,</u>	signing, sidewalk, and ped traffic signal modifications along Padre Boulevard.	
	DISTURBING ACTIVITIES:	
INSIA	lation of proposed landscaping.	
TAL PROJE	T AREA: <u>55.52 Acres</u>	
TAL AREA	O BE DISTURBED:	
	NOFF COEFFICIENT:	
Befo	re Construction: N/A Construction: N/A	
Ai ici	COIST GCTOT: N/A	
Five soil Observed Intensity	IDITION OF SOIL & VEGETATIVE types are mapped within the existing right-of-way: CU, GA, MS, MU, and USX. vegetation types within the proposed construction limits included only the Urban H. map unit.	
Five soil Observed Intensity ME OF REC	types are mapped within the existing right-of-way:CU, GA, MS, MU, and USX. vegetation types within the proposed construction limits included only the Urban H.	
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#### EROSION AND SEDIMENT CONTROLS

SOIL STAB	ILIZATION PRACTICES: (Select T = Temporary or P = Permanent, as applicable)
	TEMPORARY SEEDING PRESERVATION OF NATURAL RESOURCES MULCHING (Hay or Straw) FLEXIBLE CHANNEL LINER BUFFER ZONES RIGID CHANNEL LINER PLANTING SOIL RETENTION BLANKET COMPOST MANUFACTURED COMPOST SODDING BIODEGRADABLE EROSION OTHER: (Specify Practice)  CONTROL SOCKS
STRUCTURAL	L PRACTICES: (Select T = Temporary or P = Permanent, as applicable)
	SILT FENCES BIODEGRADABLE EROSION CONTROL SOCKS HAY BALES ROCK FILTER DAMS DIVERSION, INTERCEPTOR, OR PERIMETER DIKES DIVERSION, INTERCEPTOR, OR PERIMETER SWALES DIVERSION DIKE AND SWALE COMBINATIONS PIPE SLOPE DRAINS PAVED FLUMES ROCK BEDDING AT CONSTRUCTION EXIT TIMBER MATTING AT CONSTRUCTION EXIT PIPE MATTING OR EQUAL AT CONSTRUCTION EXIT CHANNEL LINERS SEDIMENT TRAPS SEDIMENT TRAPS SEDIMENT BASINS STORM INLET SEDIMENT TRAP STONE OUTLET STRUCTURES CURBS AND GUTTERS STORM SEWERS VELOCITY CONTROL DEVICES OTHER: (Specify Practice)
<u>Storm</u> <u>drain</u>	ER MANAGEMENT:  In water drainage will be provided by storm sewer networks. This storm  In system will carry drainage within the row to low points in the highway where cross age may occur and ultimately to the designated outfall.
The o	ER MANAGEMENT ACTIVITIES: _(Sequence of Construction)  order of activities will be as follows:  stall perimeter controls, clear R.O.W. on site where construction will take place.
3. R	stall proposed medians, landscaping, sidewalks, and grading. emove perimter controls once paving and landscaping improvement construction is complete d vegetation has been established.
<u>Non-s</u> <u>allowe</u> sprin	WATER MANAGEMENT DISCHARGES:  torm water discharges should be filtered, or held in retention basins, before being ed to mix with storm water. These discharges consist of non-polluted ground water, g water, foundation and/or footing drain water; and water used for dust control, nent washing and vehicle wastewater containing no detergents.

## OTHER REQUIREMENTS & PRACTICES

OTHER EROSION AND SEDIMENT CONTROLS:

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

INSPECTION: For areas of the construction site that have not been finally stabilized, area used for storage of materials, structural control measures, and locations where vehicles enter or exit the site, personnel provided by the permittee and familiar with the SW3P must inspect disturbed areas at least once every fourteen (14) calendar days and within twenty-four (24) hours of the end of a storm event 0.5 inches or greater.

WASTE MATERIALS: All waste materials will be collected and stored in a securely lidded dumpster. All trash and construction debris from the site will be deposited as necessary at a local dump. No construction waste material will be buried on site.

HAZARDOUS WASTE (INCLUDING SPILL REPORTING): At a minimum, any products in the following categories to be hazardous: Paints, Acids for cleaning masonry surfaces, Cleaning Solvents, Asphalt products, Chemical additives for soil stabilization, or Concrete curing compounds and additives. In the event of a spill which may be hazardous, the spill Coordinator should be contacted Immediately. Emptying of excess concrete should not be allowed on site. Likewise, washout of concrete trucks should not be performed on site. These discharges are considered non-allowable non-storm water discharges. Concrete trucks should never be allowed to dump into storm <u>drains or sanitary sewers.</u>

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

OFFSITE VEHICLE TRACKING: <u>The Contractor shall be required</u>, on a regular basis or as may be directed by the Engineer, to dampen haul roads for dust control, stabilize construction entrances and to remove excess dirt from the roadway.

#### MANAGEMENT PRACTICES:

- I. Disposal areas, stockpiles, and haul roads shall be constructed in a manner that will minimize and control the amount of sediment that may enter receiving waters. Disposal areas shall not be located in any wetland, water body or stream bed.
- 2. Construction staging areas and vehicle maintenance areas shall be constructed by the Contractor in a manner to minimize the runoff of pollutants.
- 3. All waterways shall be cleared as soon as practicable of temporary embankment, temporary bridges, matting, falsework, piling, or debris or other obstructions placed during construction operations that are not a part of the finished work.

OTHER: Contractor shall adhere to the following:

I. Construction Materials List of materials stored on job site to be provided by Contractor. 2. The project SW3P File shall be located at the project field office or within the Contractor's mobile office at all times and shall contain the N.O.I., CGP, Signature Authorization, Certification/Qualification Statements, Inspection Reports, Required Maps, and the TPDES Permit, Part II. This File to be persented to authorized State and Federal Agents upon request.

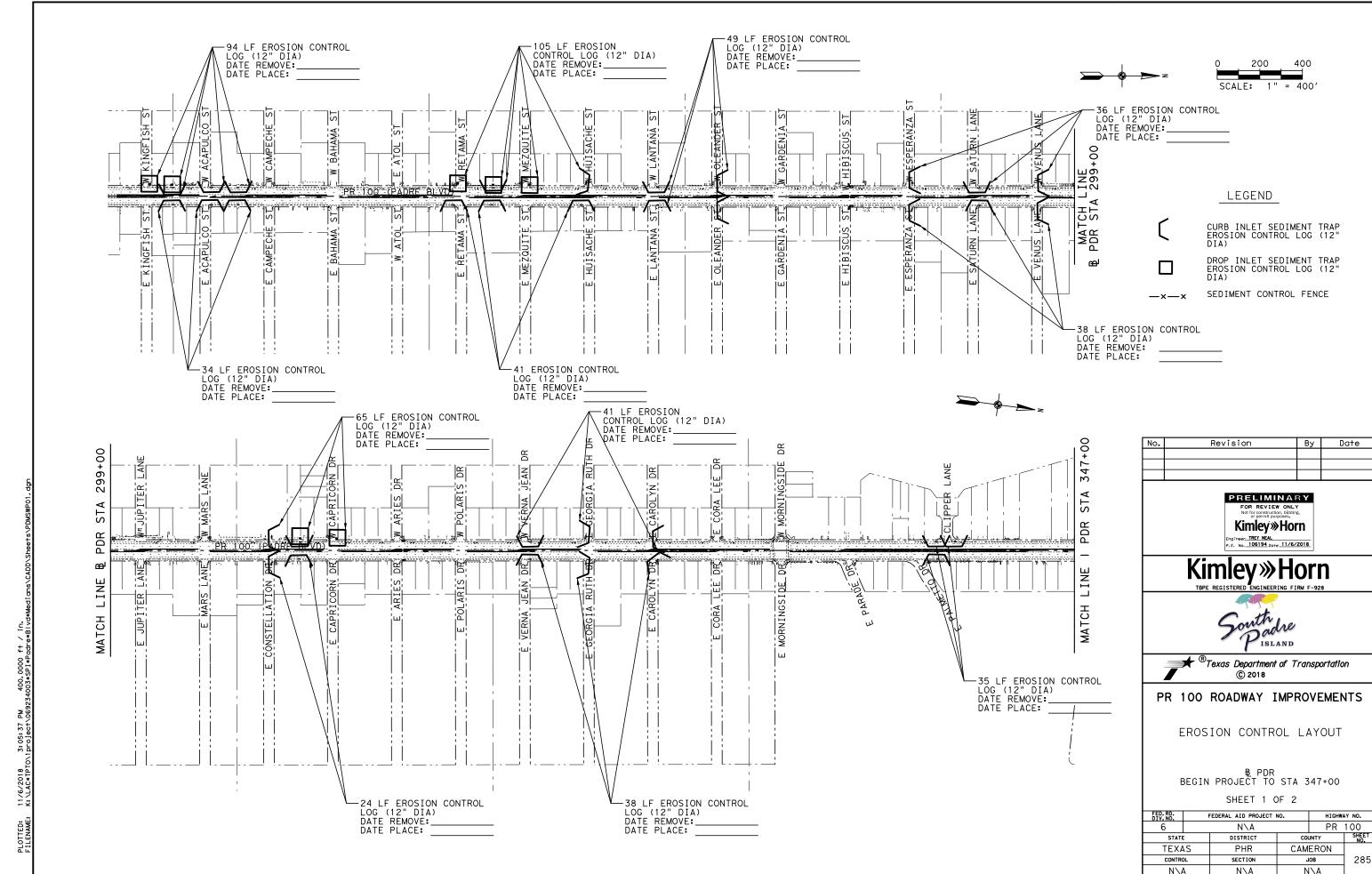
Texas Department of Transportation

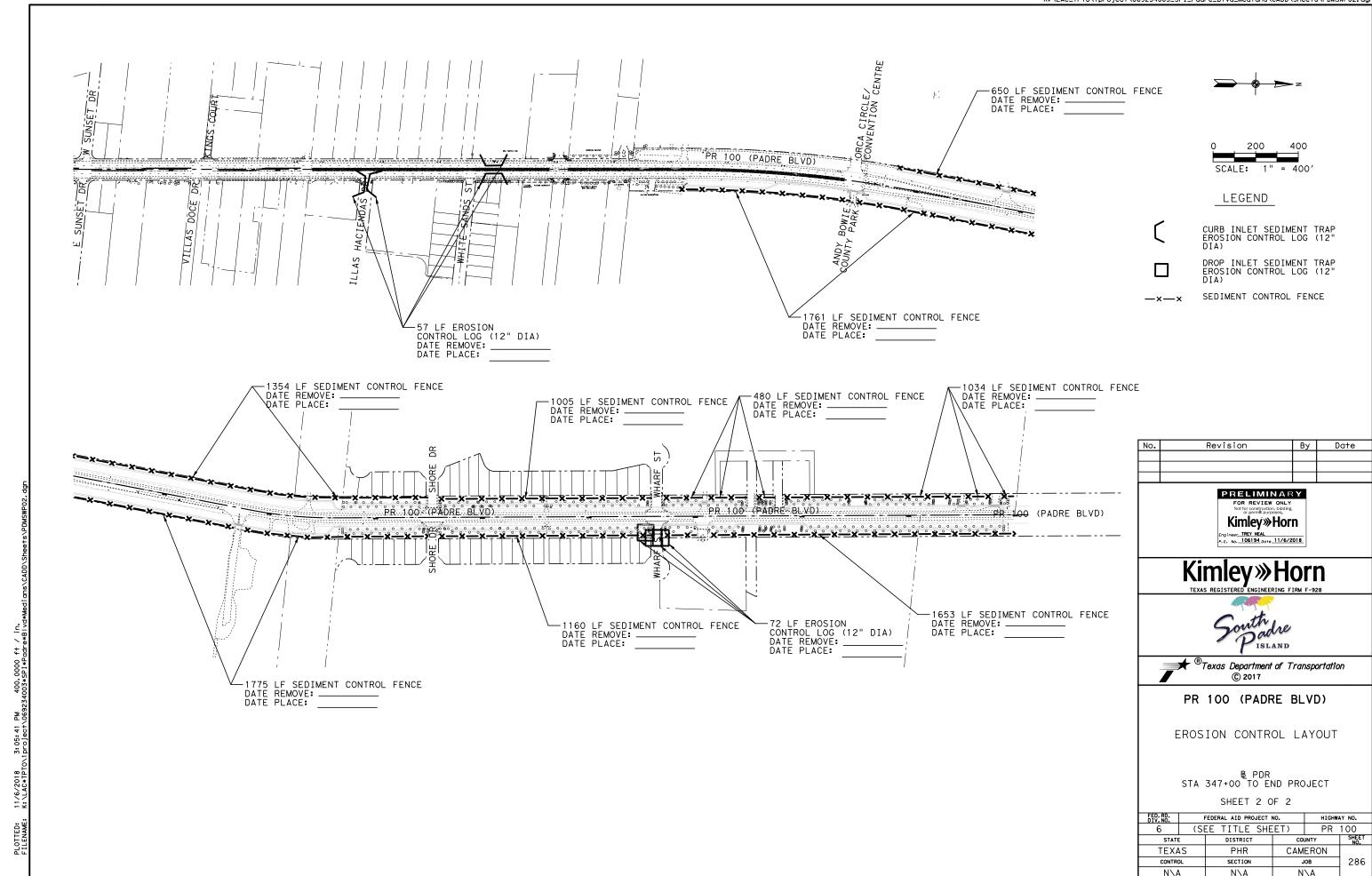
TxDOT STORM WATER POLLUTION PREVENTION PLAN (SW3P)

SW3P.DGN REV. 2-20-14 284 6 STATE DIST. COUNTY TEXAS PHARR CAMERON CONT. SECT. Signature of Registrant & Date N\A PR 100 N\A N\A

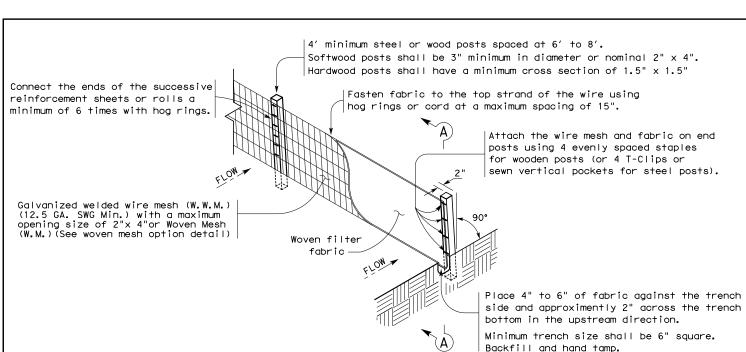
FOR REVIEW ONLY Kimley»Horn Engineer TREY NEAL
P.E. No. 106194 Date 11/6/2018

PRELIMINARY

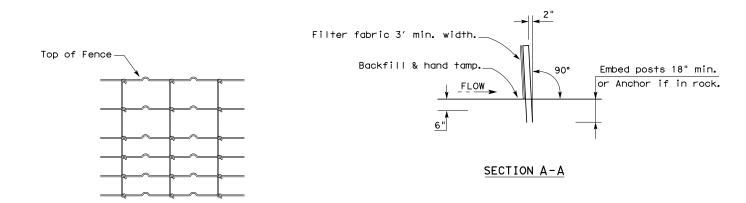








## TEMPORARY SEDIMENT CONTROL FENCE



#### HINGE JOINT KNOT WOVEN MESH (OPTION) DETAIL

Galvanized hinge joint knot woven mesh (12.5 GA.SWG Min.) requires a minimum of five horizontal wires spaced at a maximum of 12 inches apart and all vertical wires spaced at a maximum of 12 inches apart.

#### SEDIMENT CONTROL FENCE USAGE GUIDELINES

A sediment control fence may be constructed near the downstream perimeter of a disturbed area along a contour to intercept sediment from overland runoff. A 2 year storm frequency may be used to calculate the flow rate to be filtered.

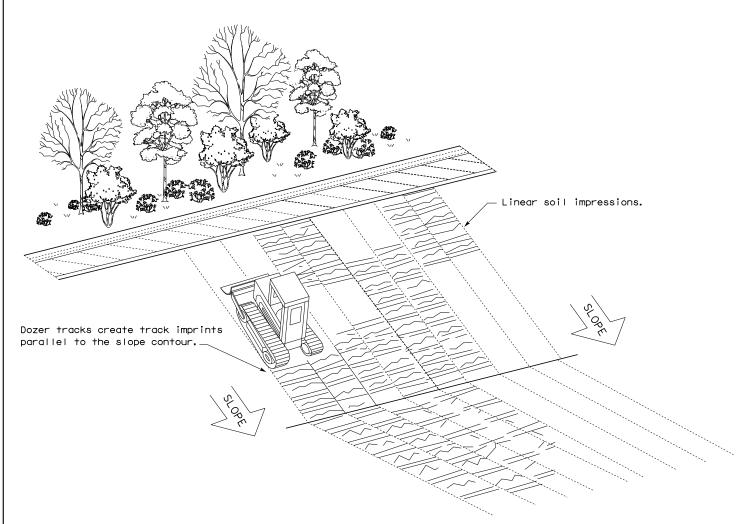
Sediment control fence should be sized to filter a maximum flow through rate of 100 GPM/FT<sup>2</sup>. Sediment control fence is not recommended to control erosion from a drainage area larger than 2 acres.

#### LEGEND

Sediment Control Fence

#### **GENERAL NOTES**

- 1. Vertical tracking is required on projects where soil distributing activities have occurred unless otherwise approved.
- 2. Perform vertical tracking on slopes to temporarily stabilize soil.
- 3. Provide equipment with a track undercarriage capable of producing linear soil impressions measuring a minimum of 12" in length by 2" to 4" in width by 1/2" to 2" in depth.
- 4. Do not exceed 12" between track impressions.
- 5. Install continous linear track impressions where the minimum 12" length impressions are perpendicular to the slope or direction of water flow.



VERTICAL TRACKING



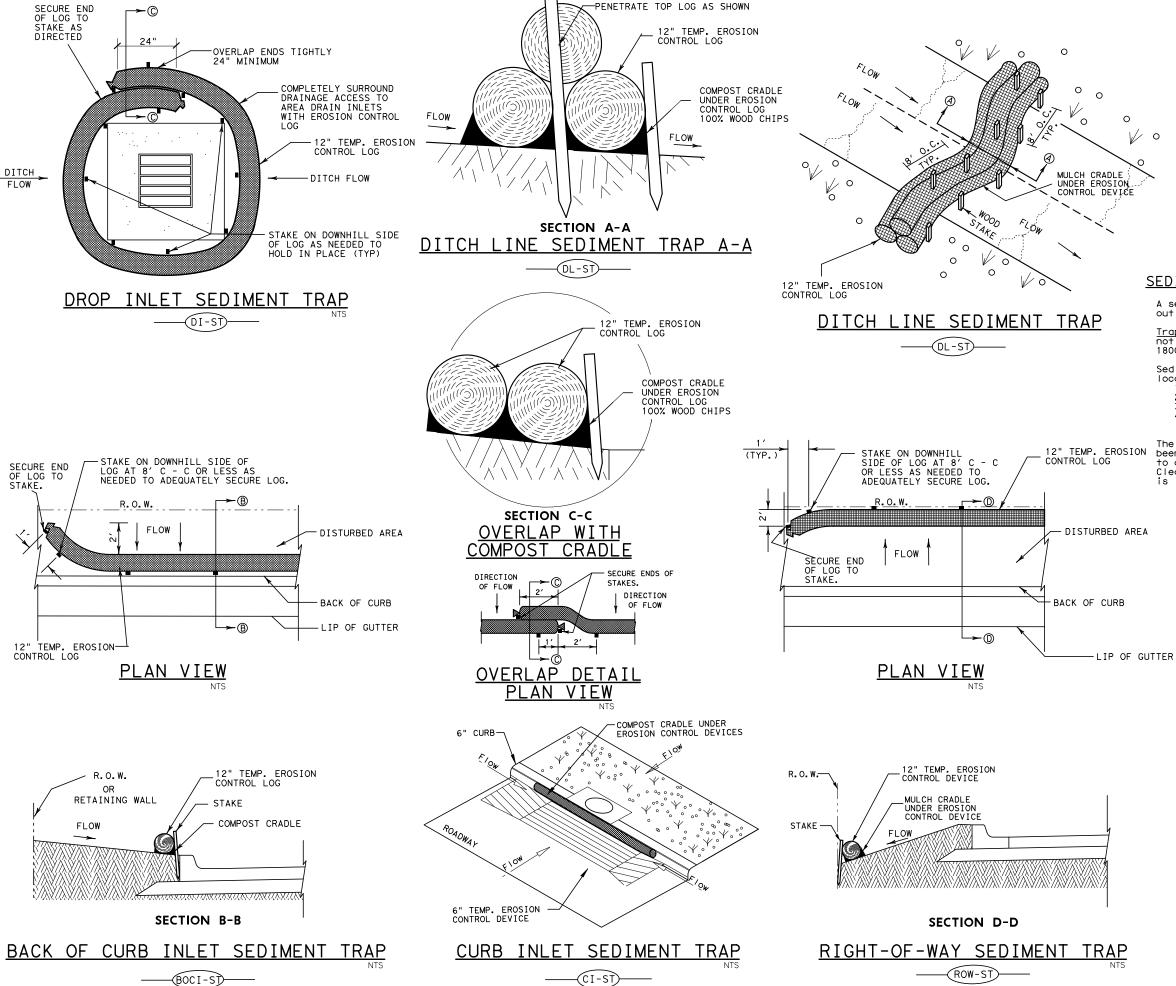
TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

FENCE & VERTICAL TRACKING

EC(1)-16

FILE: ec116	DN: TxDOT		ск: КМ	ow: VP	DN/CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB		HIGHWAY
REVISIONS	REVISIONS NANA NA		N\A		PR 100
	DIST		COUNTY		SHEET NO.
	PHR		CAMERO	)N	287

-(SCF)-



-PENETRATE TOP LOG AS SHOWN

## PLANS SHEET LEGEND

(DI-ST)-DROP INLET SEDIMENT TRAP (DL-ST) DITCH LINE SEDIMENT TRAP -BOCI-ST BACK OF CURB INLET SEDIMENT TRAP (ROW-ST) RIGHT OF WAY SEDIMENT TRAP (CI-ST) CURB INLET SEDIMENT TRAP

## SEDIMENT BASIN & TRAP USAGE GUIDELINES

A sediment trap may be used to precipitate sediment out of runoff draining from an unstabilized area.

 $\overline{\text{Traps}}$ : the drainage area for a sediment trap should not exceed 5 acres. The trap capacity should be 1800 CF/Acre (0.5" over the drainage area).

Sediment traps should be placed in the following

- locations:

  1. Immediately preceding drain inlets
  2. Just before the drainage enters a water course
  - Just before the drainage leaves the right of way Just before the drainage leaves the construction limits where drainage flows away from the project

The trap should be cleaned when the capacity has been reduced by  $\frac{1}{2}$  or the sediment has accumulated to a depth of 1', whichever is less. Cleaning and removal of accumulated sediment deposits is incidental and will not be paid for seperately.

#### GENERAL NOTES

- 1. LENGTHS OF EROSION CONTROL LOGS SHALL
  BE IN ACCORDANCE WITH MANUFACTURER'S
  RECOMMENDATIONS AND AS REQUIRED FOR
  THE PURPOSE INTENDED. MAXIMUM LENGTH
  OF LOGS SHALL BE 30' FOR 12" DIAMETER LOGS.
  2. UNLESS OTHERWISE DIRECTED, USE
  BIODEGRADABLE OR PHOTODEGRADABLE
  CONTATNMENT MESS! ONLY WEEPE OF WILL
- CONTAINMENT MESH ONLY WHERE LOG WILL REMAIN IN PLACE AS PART OF A VEGETATIVE SYSTEM. FOR TEMPORARY INSTALLATIONS,
- USE RECYCLABLE CONTAINMENT MESH.

  3. STUFF LOGS WITH SUFFICIENT FILTER MATERIAL
  TO ACHIEVE DENSITY THAT WILL HOLD SHAPE
- WITHOUT EXCESSIVE DEFORMATION.

  4. STAKES SHALL BE 2" X 2" WOOD

  4' LONG, EMBEDDED SUCH THAT

  2" PROTRUDES ABOVE LOG.

  5. COMPOST CRADLE MATERIAL IS INCIDENTAL AND WILL NOT BE PAID FOR SEPARATELY.

PHARR DISTRICT STANDARD



TEMPORARY EROSION CONTROL LOGS TECL-17 (PHR)

FED. RD. DIV. NO.		HIGHWAY NO.	
6			PR 100
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	PHARR	CAMERON	
CONTROL	SECTION	JOB	288
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LEGEND QTY O CY A EXCAVATION (ROADWAY) B PLANE ASPH CONC PAV (2") 176 SY C ELIM EXT PAV MRK & MRKS 0 LF D ELIM EXT PAV MRK & MRKS 0 LF E ELIM EXT PAV MRK & MRKS 0 LF F ELIM EXT PAV MRK & MRKS (ARROW) O EA G ELIM EXT PAV MRK & MRKS O EA H REMOVE DELIN & OBJECT \_\_\_O EA REMOVING CONC (DRIVEWAYS) 0 SY REMOVING CONC (SIDEWALK OR RAMP) 0 SY NOTES: 1. RPMS, DELINEATORS, AND OBJECT MARKERS REMOVALS ARE CONSIDERED SUBSIDIARY TO ITEM 677, "ELMI EXT PAV MRK & MRKS" AND NOT PAID FOR SEPARATELY UNLESS OTHERWISE NOTED. 2. REFER TO PAVING SHEETS FOR DETAILS ON PLANTER BOX AND CONCRETE FLUME INSTALLATION AND DEPTH. Revision Date Ву PRELIMINARY FOR REVIEW ONLY
Not for construction, bidding,
or permit purposes. Kimley»Horn Engineer THOMAS P. GRANT
P.E. No. 100876 Date 11/6/2018 Kimley » Horn South Padre \*\*Texas Department of Transportation © 2018 PR 100 ROADWAY IMPROVEMENTS REMOVAL PLAN ₽ PDR STA 311+00 TO STA 323+00 SHEET 1 OF 19 FED.RD. DIV.NO. FEDERAL AID PROJECT NO. HIGHWAY NO. 6 PR 100 N\A STATE DISTRICT COUNTY TEXAS PHR CAMERON

289

JOB

N\A

NOTE:
1. 2 BORINGS WERE PERFORMED TO IDENTIFY
THE EXISTING ASPHALT PAVEMENT SECTION
OF 2.5" ASPHALT, 6" GRANULAR BASE,
COMPACTED SUBGRADE. NO ADDITIONAL PAY SHALL
BE GIVEN FOR EXCAVATION IF EXISTING CONDITION
DOES NOT MATCH THE ABOVE DESCRIBED CROSS SECTION.

PR 100 (PADRE BLVD)

320+00

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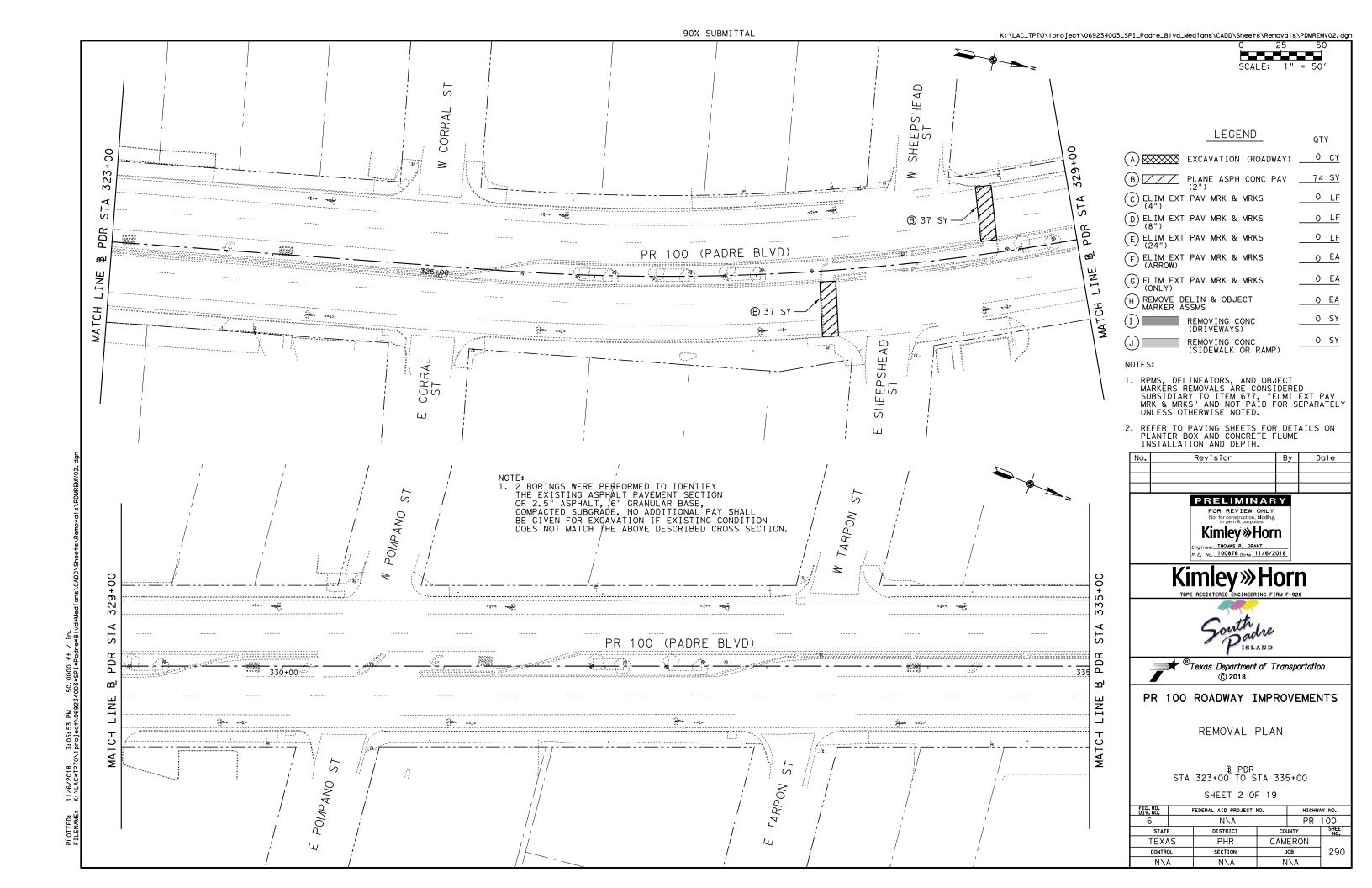
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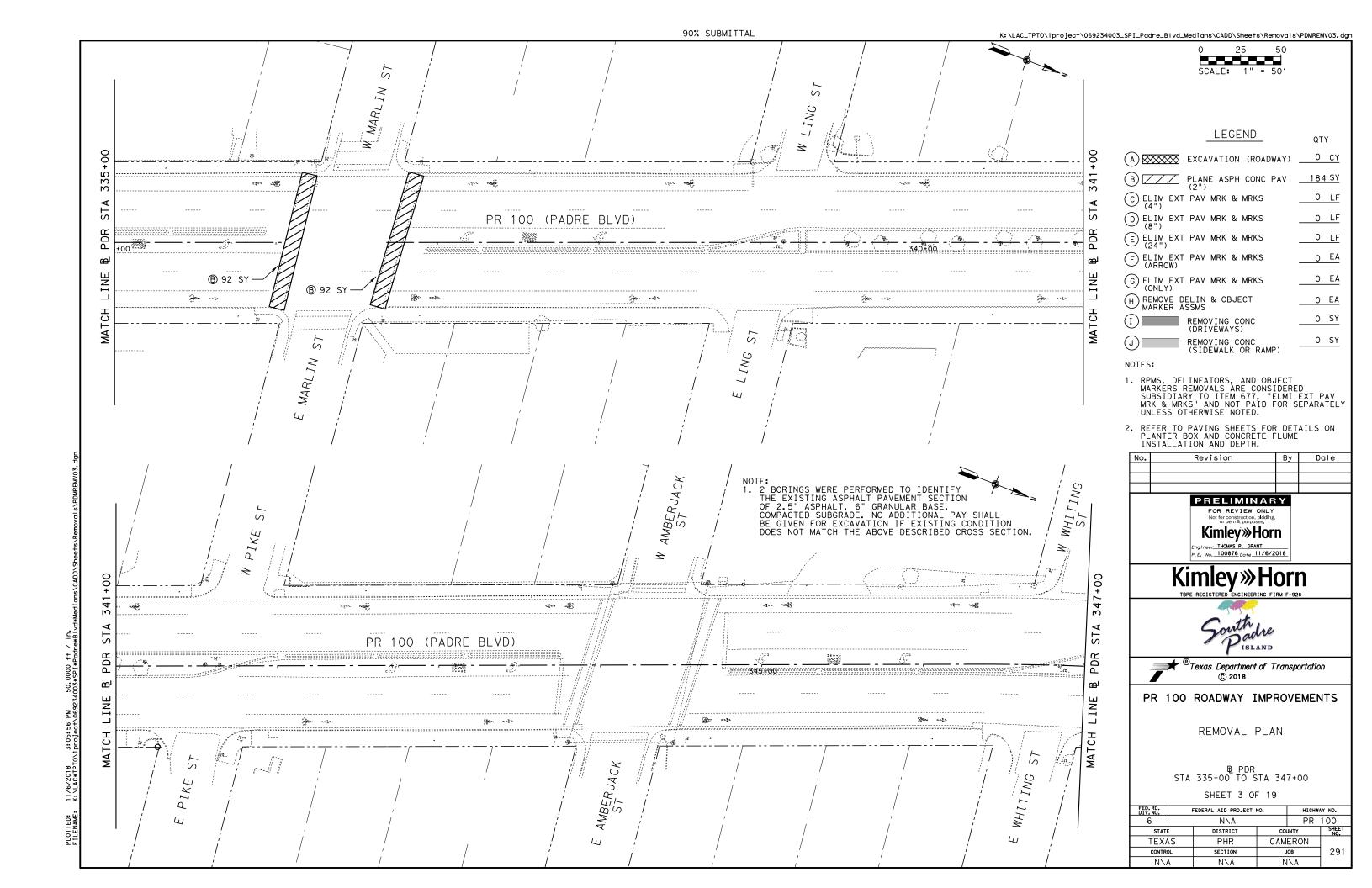
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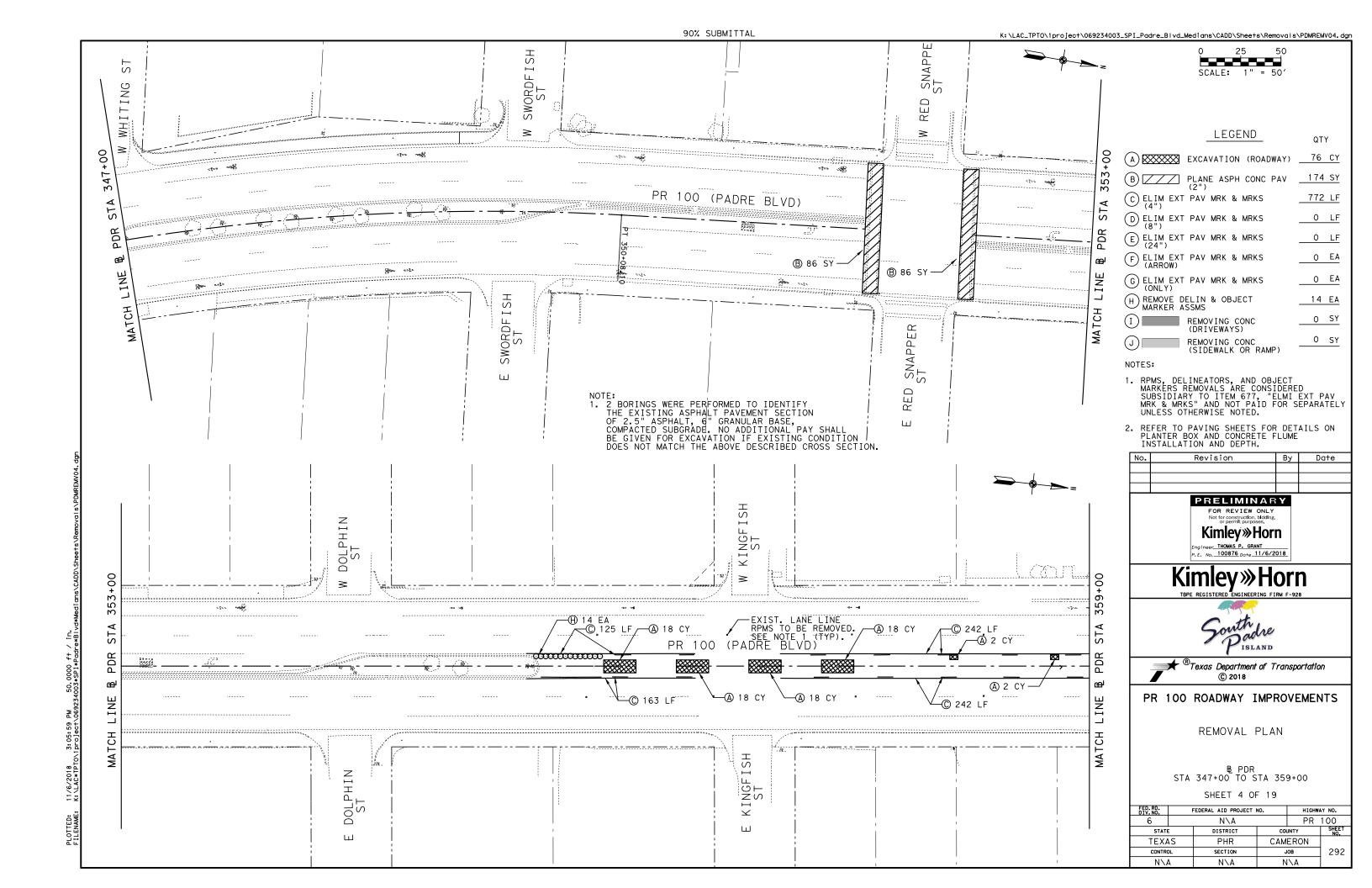
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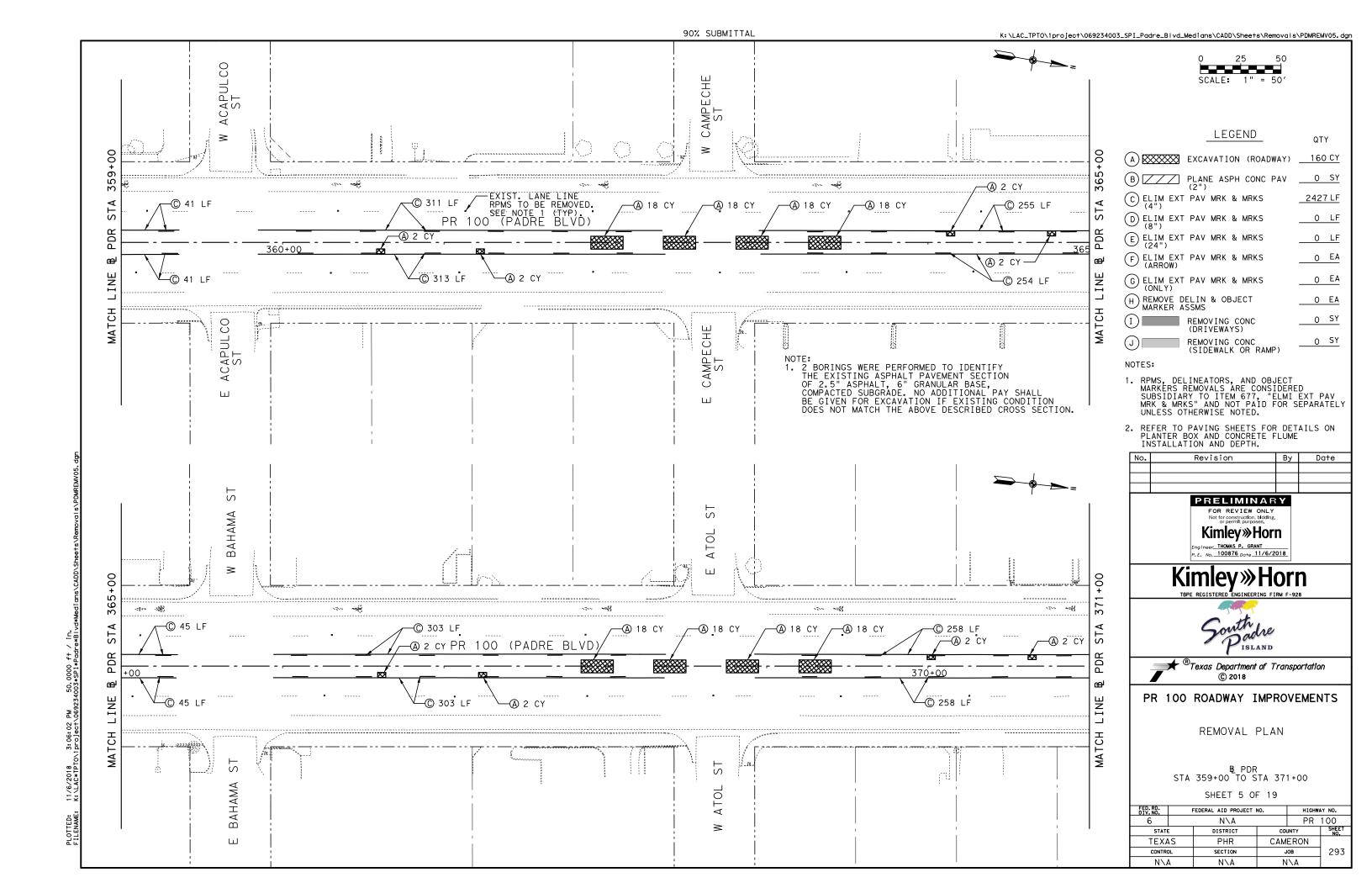
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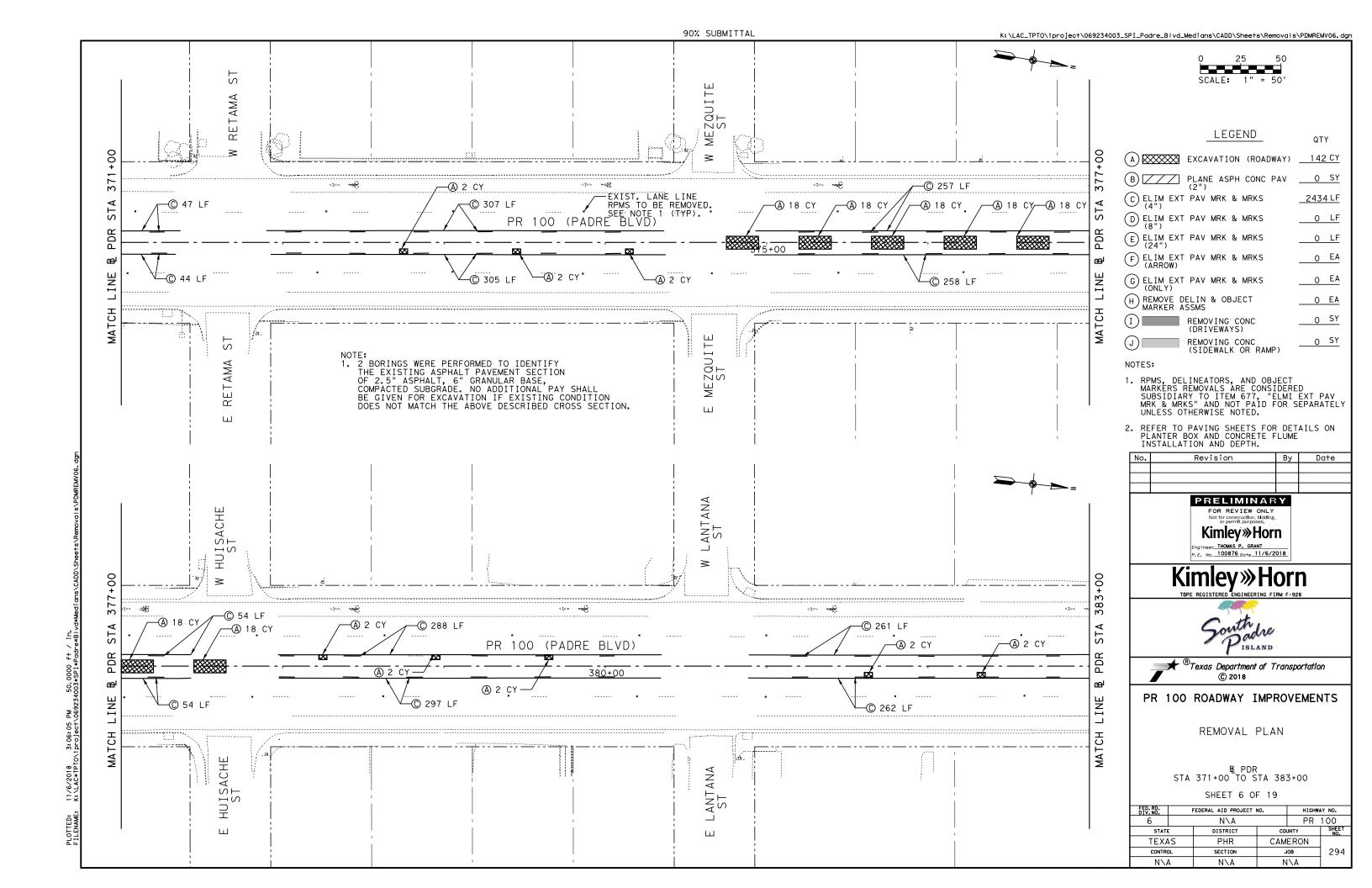
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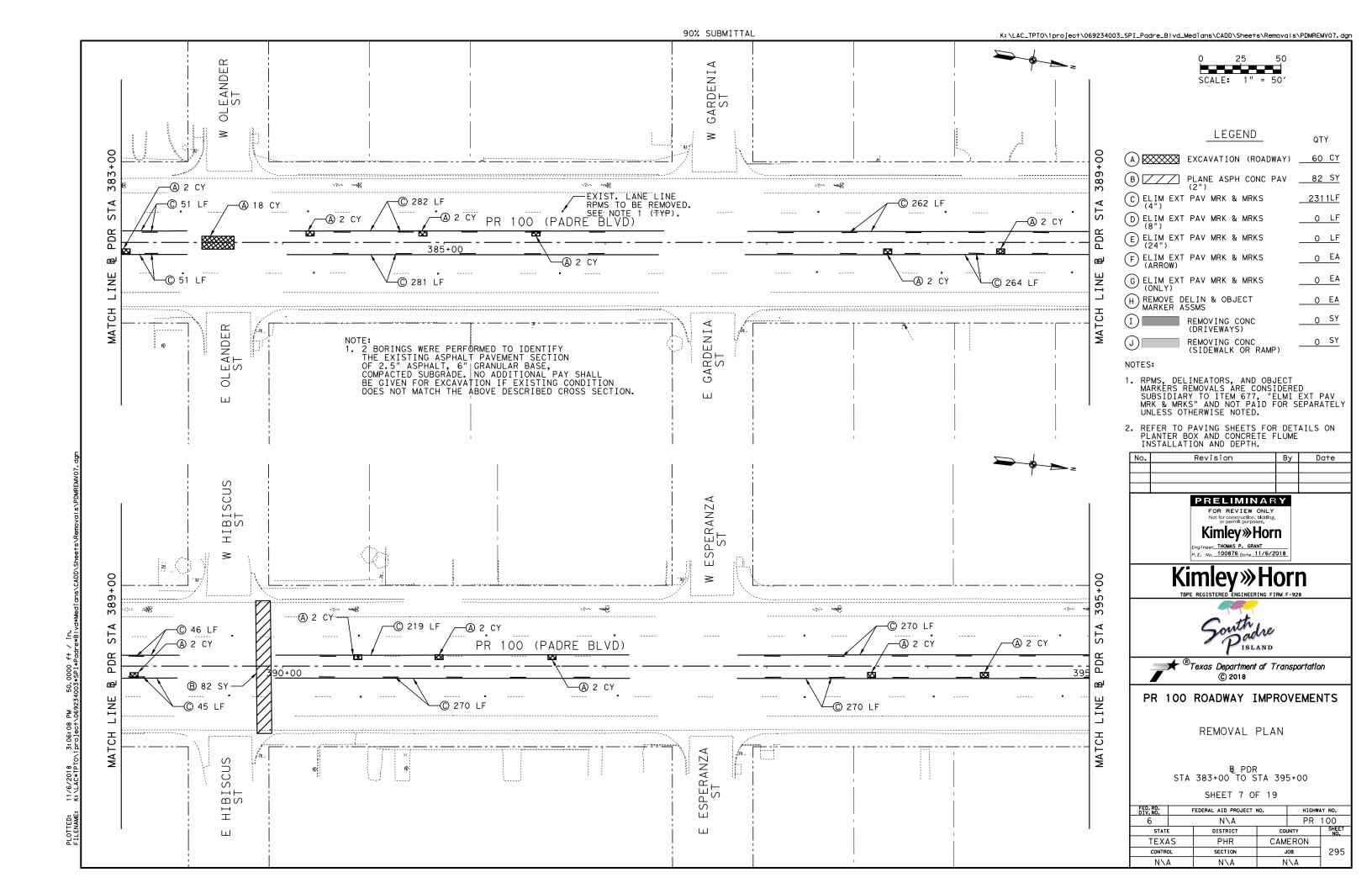


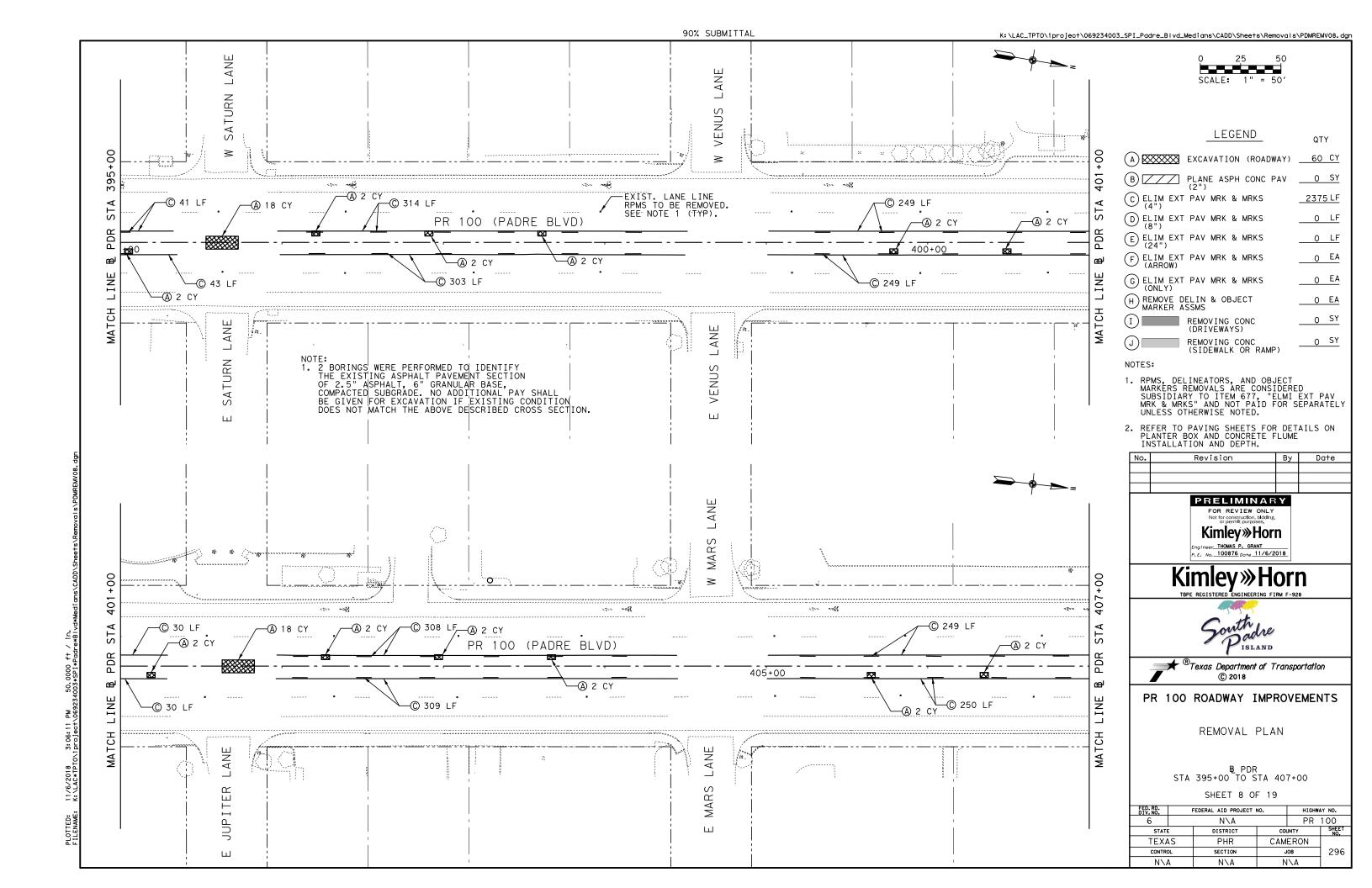


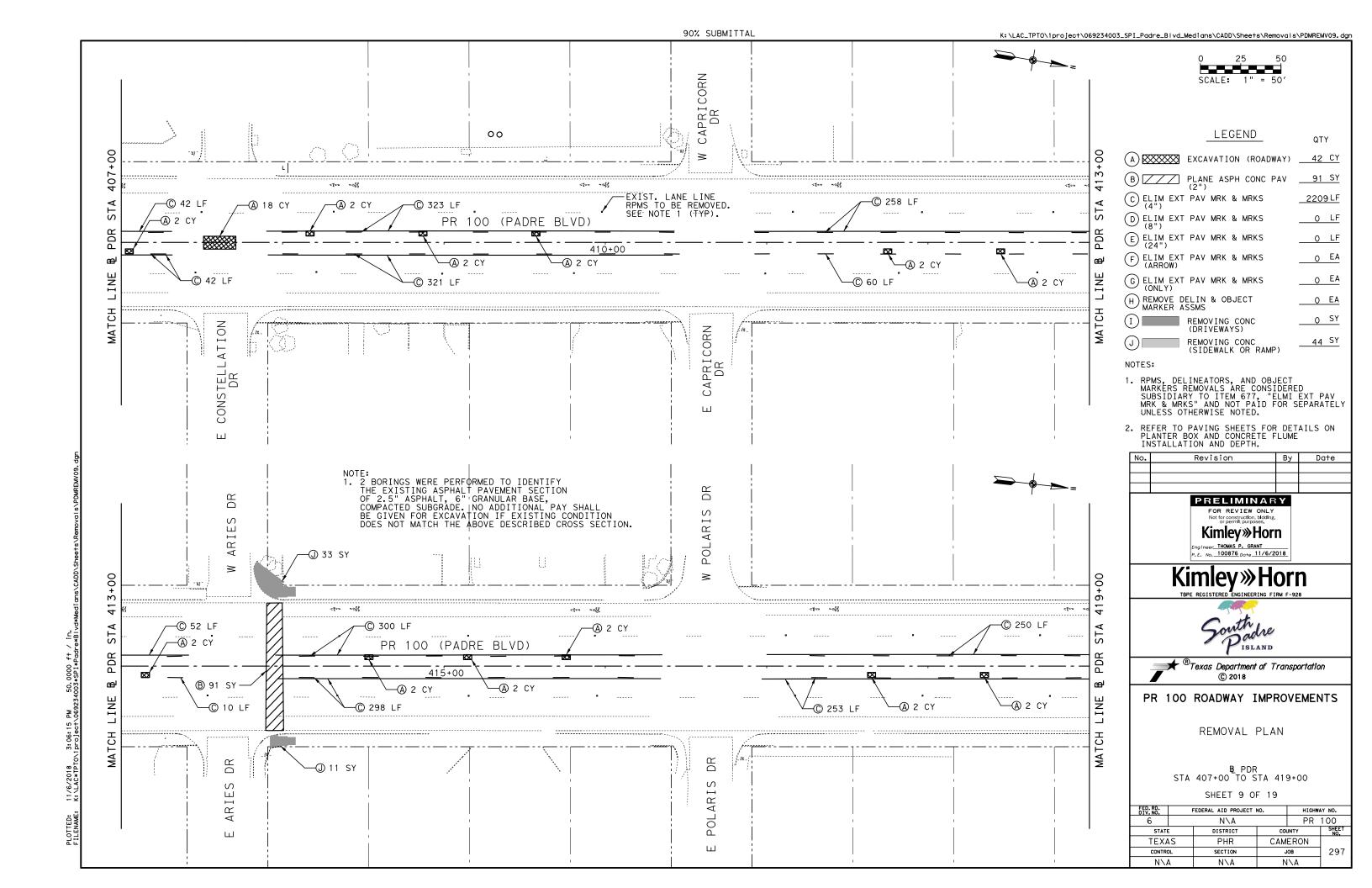


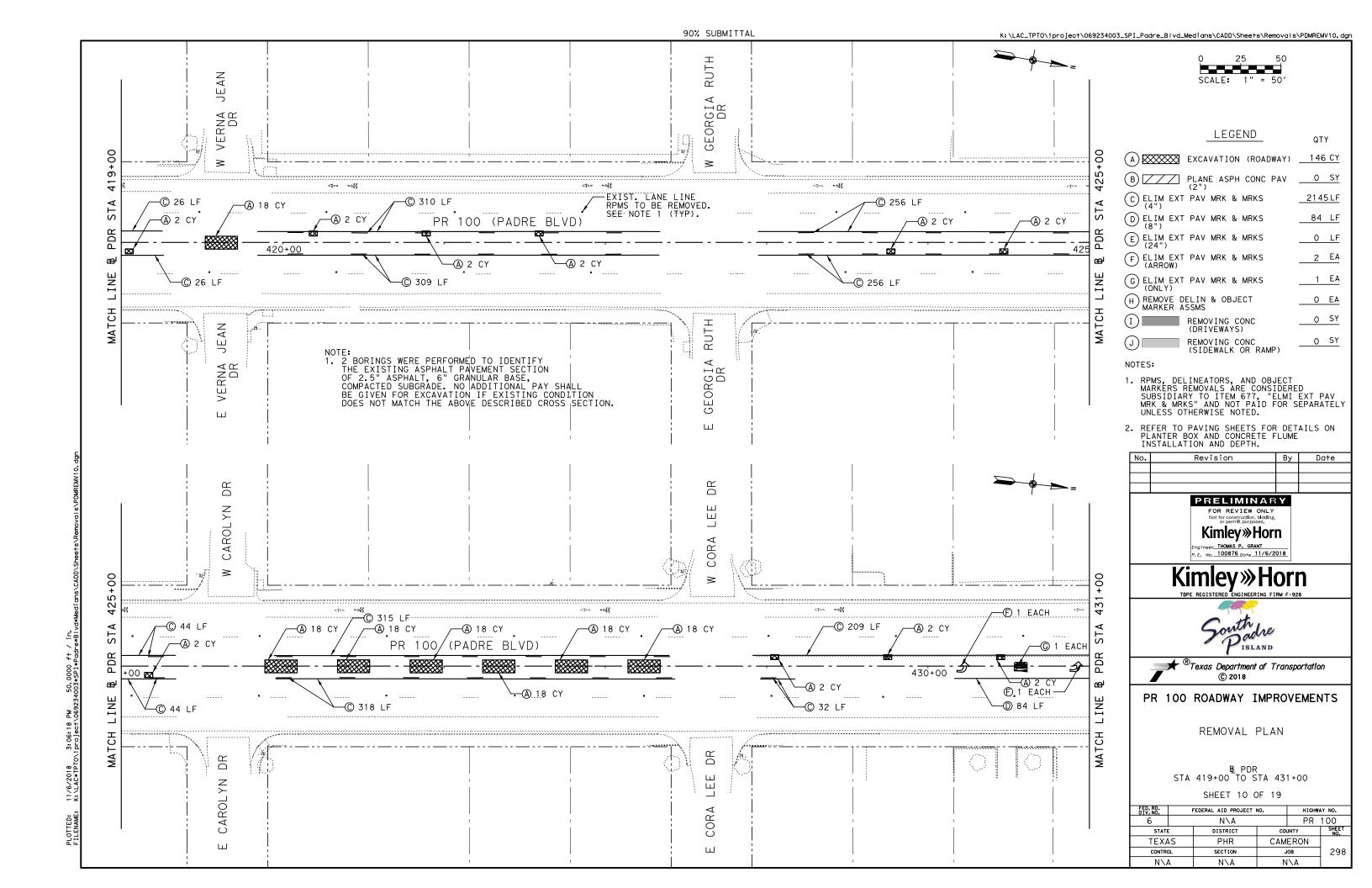


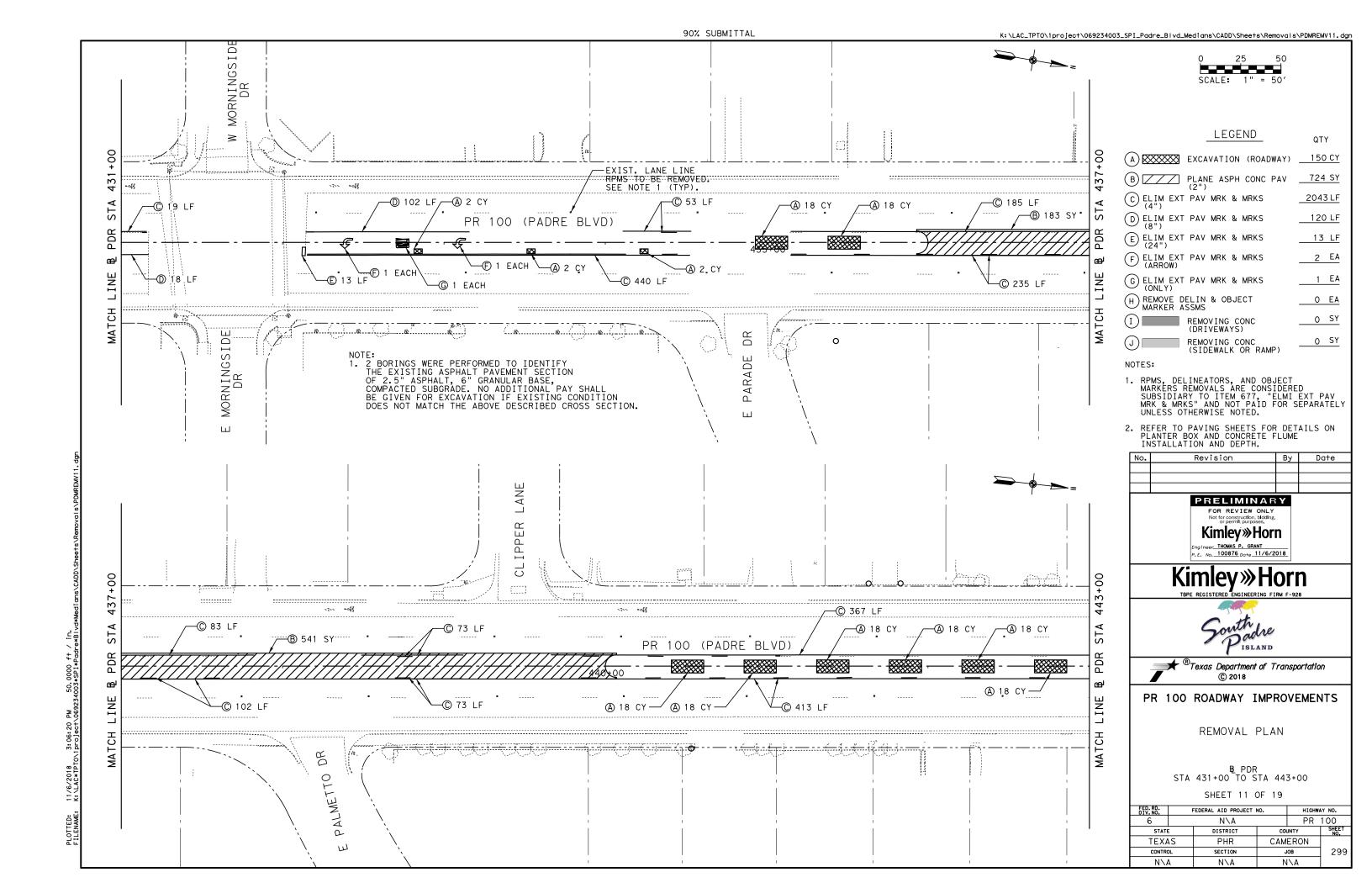


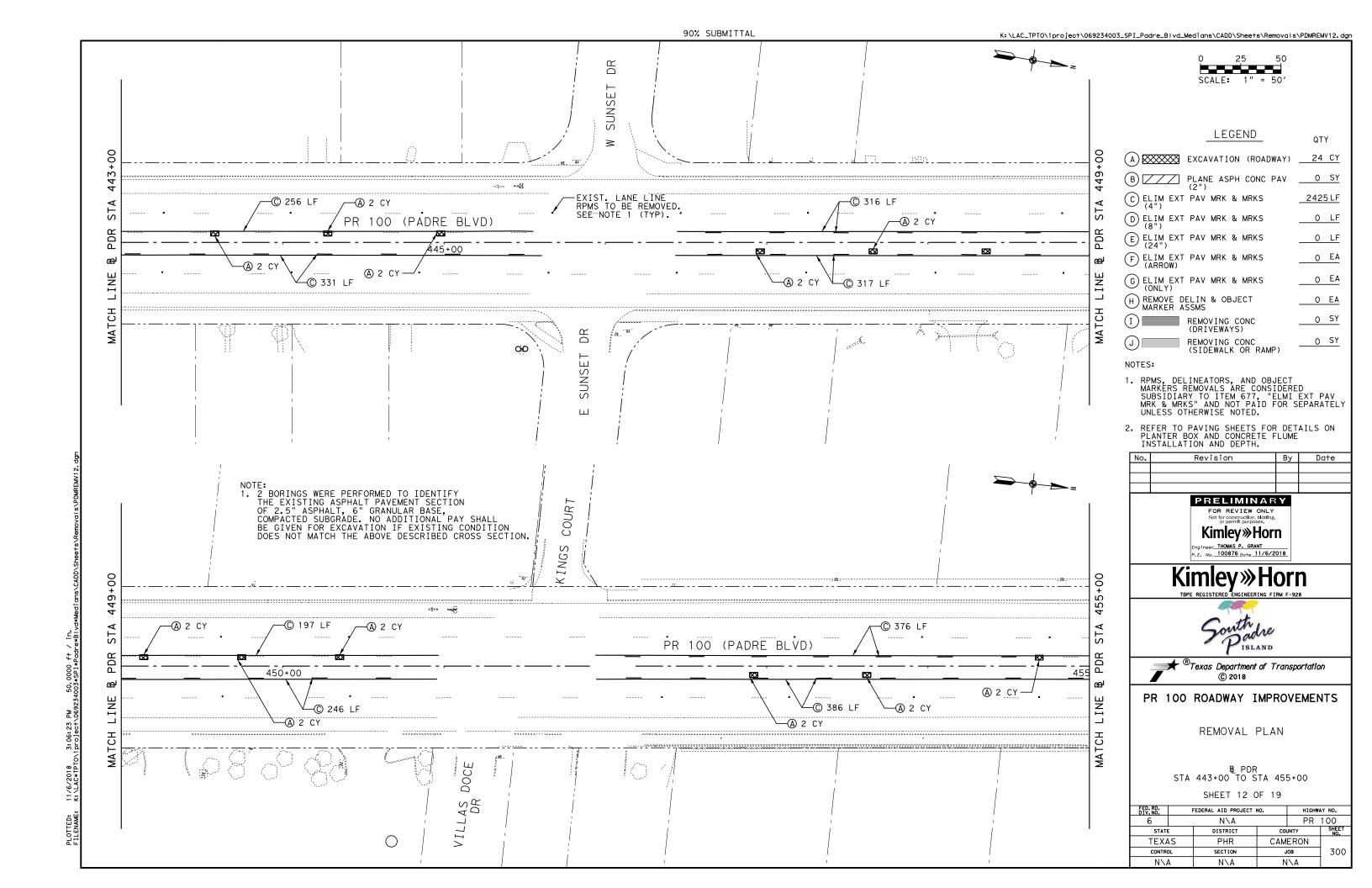


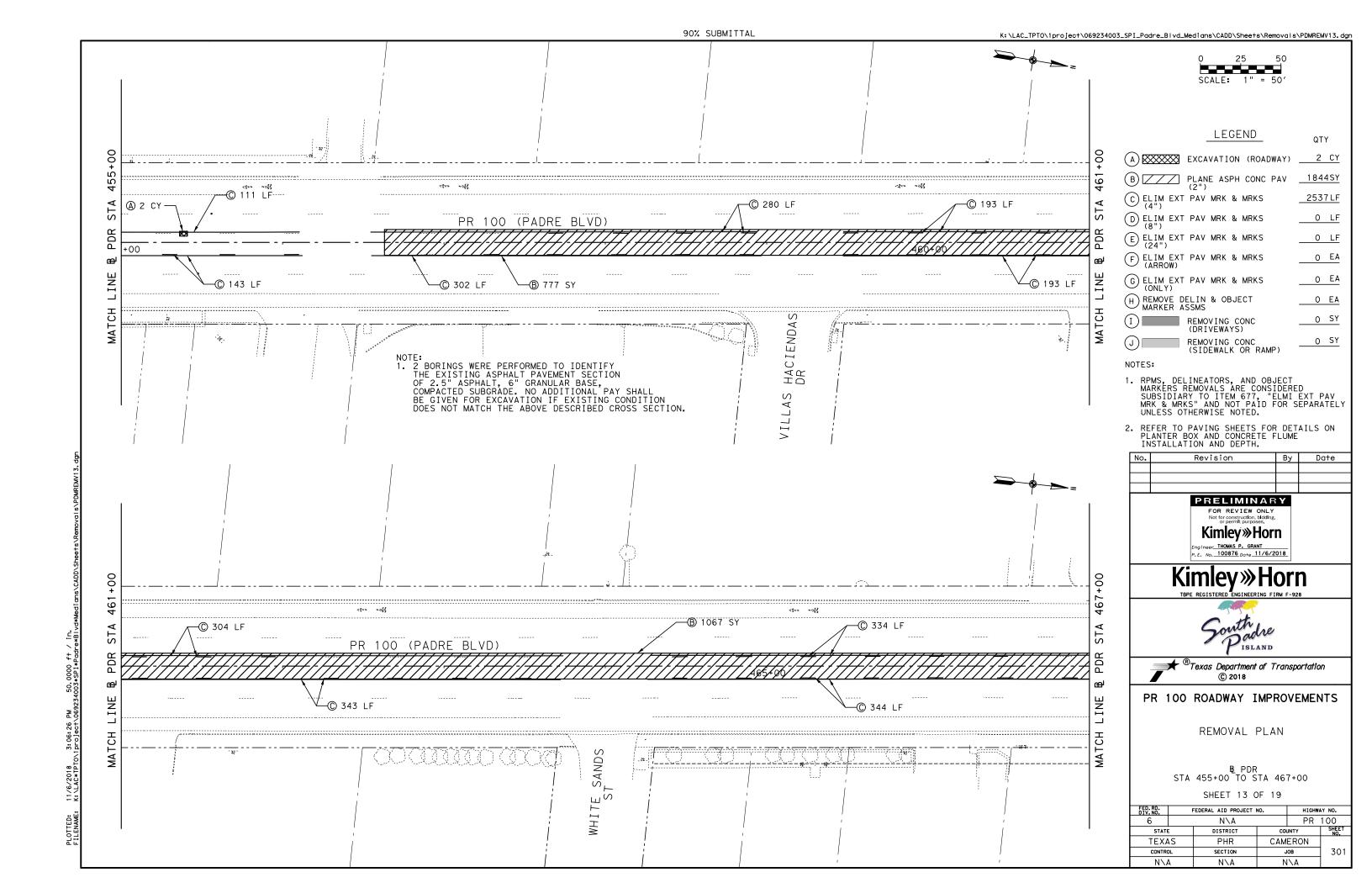


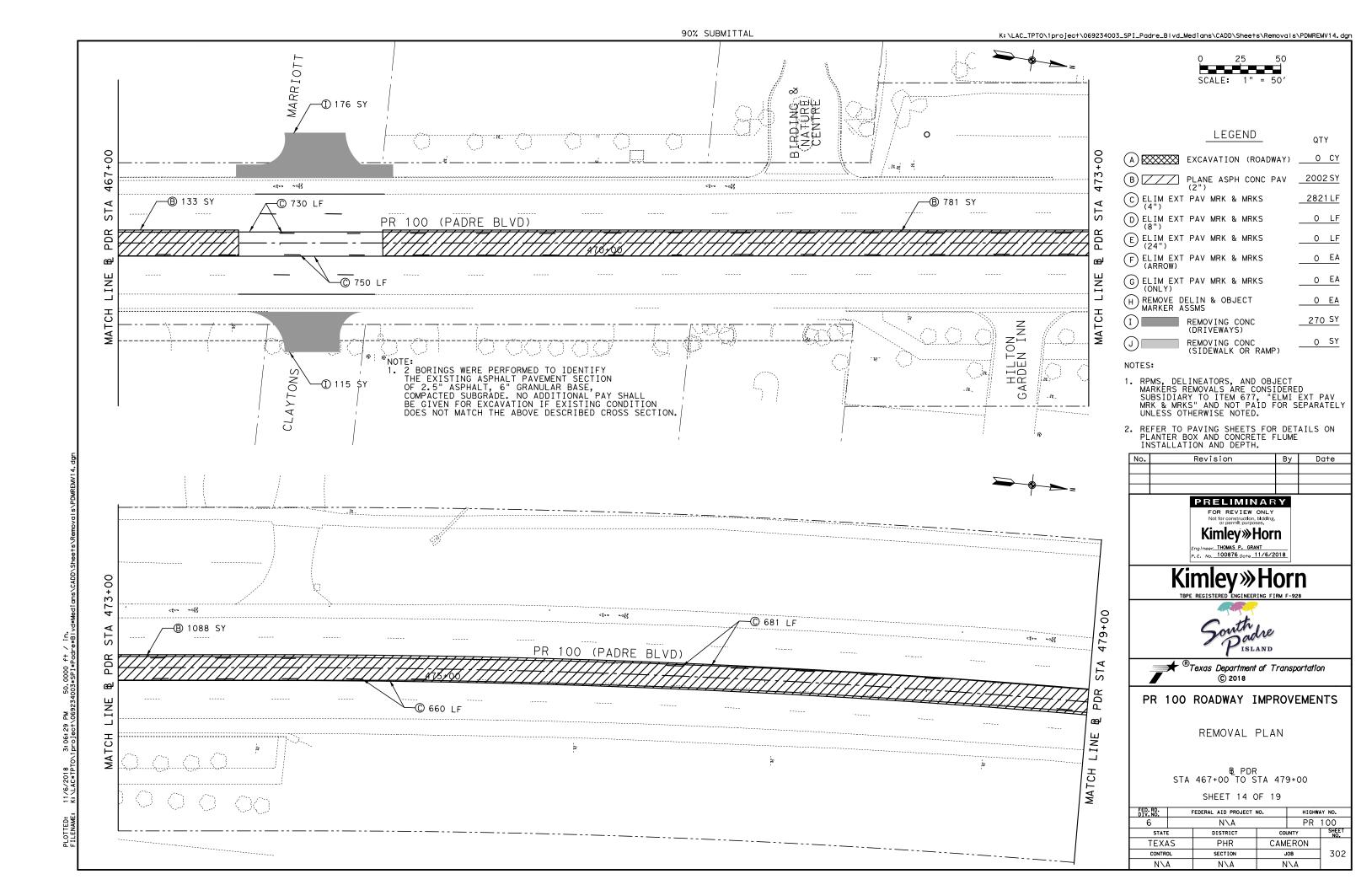


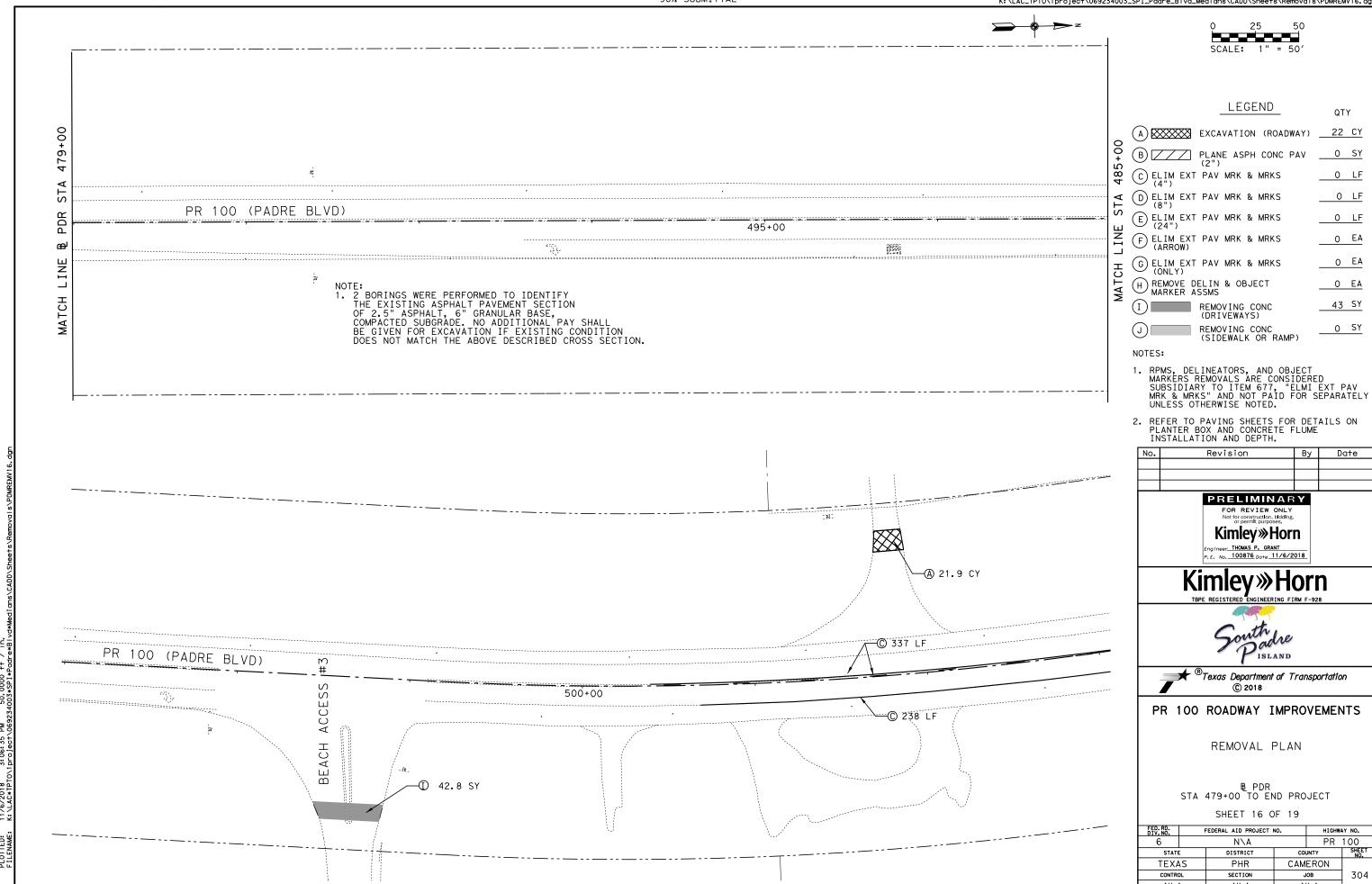












6 N\A PR 100  STATE DISTRICT COUNTY SHEET NO. NO.	DIV. NO.		FEDERAL AID PROJECT NO.		HIGHWAY NO.	
STATE DISTRICT COUNTY NO.			N\A		PR	
	STATE		DISTRICT	COUNTY		SHEET NO.
TEXAS   PHR   CAMERON	TEXAS		PHR	CAMERON		
CONTROL SECTION JOB 304	CONTROL		SECTION	JOB		304
N\A N\A N\A	N\A	<b>\</b> A	N∖A	N∖A		

SCALE: 1" = 50'

LEGEND

QTY

0 CY

0 SY

105 SY

1155 LF

0 LF 0 LF

O EA

G ELIM EXT PAV MRK & MRKS O EA

0 EA 0 SY

REMOVING CONC (SIDEWALK OR RAMP)

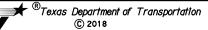
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No.	Revision	Ву	Date					
	PRELIMINARY							
	FOR REVIEW ONLY							

Kimley » Horn Engineer THOMAS P. GRANT
P. E. No. 100876 Date 11/6/2018

**Kimley Morn** TBPE REGISTERED ENGINEERING FIRM F-928





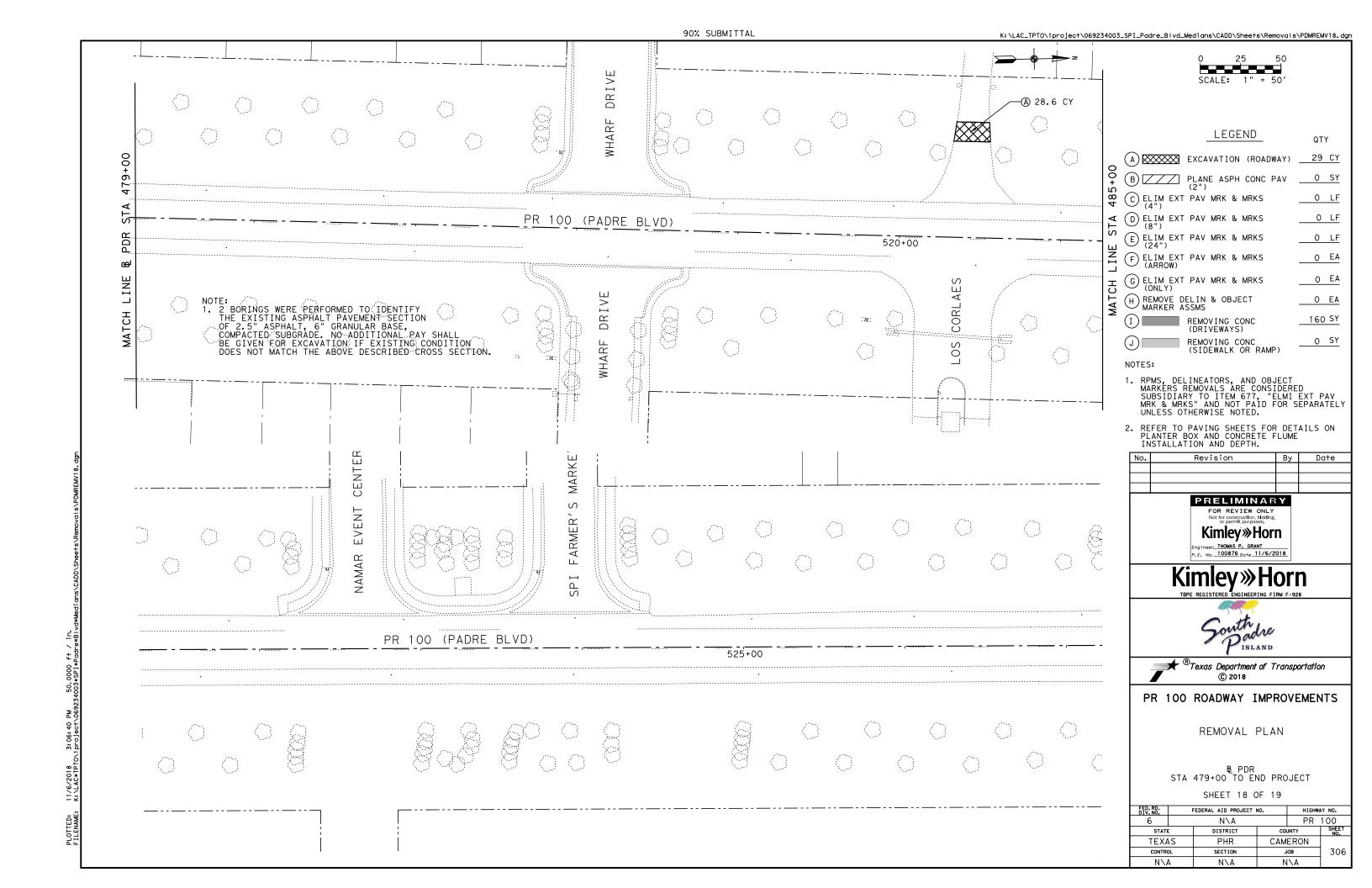
PR 100 ROADWAY IMPROVEMENTS

REMOVAL PLAN

₽ PDR STA 479+00 TO END PROJECT

SHEET 17 OF 19

DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.		
6	N\A			PR 100	
STATE		DISTRICT	COUNTY		SHEET NO.
TEXAS		PHR	CAMERON		
CONTROL		SECTION	JOB		305
N\A		N∖A	N∖A		



307

JOB

N\A

CONTROL

N\A

SECTION

N\A

