

SUBJECT: PLANS AND PROPOSAL ADDENDUMS

PROJECT: F 2B23(028)

CONTROL: 1191-05-009

COUNTY: ROBERTSON

LETTING: 08/03/2023

REFERENCE NO: 0720

**PROPOSAL ADDENDUMS**

- 
- PROPOSAL COVER
- BID INSERTS (SH. NO.: 7 )
- GENERAL NOTES (SH. NO.: )
- SPEC LIST (SH. NO.: )
- SPECIAL PROVISIONS: )
- ADDED:
- DELETED:
- SPECIAL SPECIFICATIONS:
- ADDED:
- DELETED:
- OTHER: PLAN SHEET AND OTHER CHANGES

DESCRIPTION OF ABOVE CHANGES  
(INCLUDING PLANS SHEET CHANGES)

\*\*\*\*\* BID INSERTS \*\*\*\*\*

ADDED THE FOLLOWING BID ITEMS:  
636-6001

DELETED THE FOLLOWING BID ITEMS:  
636-6002

\*\*\*\*\* PLAN SHEETS \*\*\*\*\*

SHEETS 2 (INDEX OF SHEETS):  
REPLACED.

SHEETS 16B (ESTIMATE & QUANTITY SHEET):  
REPLACED.

SHEETS 24 (SUMMARY OF SIGNING QUANTITIES):  
REPLACED.

SHEETS 141A (PSET-SC):  
DESCRIPTION OF ABOVE CHANGES  
(INCLUDING PLANS SHEET CHANGES)

(CONTINUED)

ADDED.

SHEETS 142A (PSET-SP):  
ADDED.

CK: DW: CK: DW:

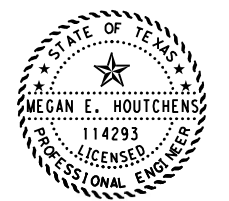
<b>SHEET</b>	<b>GENERAL INFORMATION</b>
1	TITLE SHEET
2	INDEX OF SHEETS
3	PROJECT LOCATION MAP
4 - 10	PROJECT LAYOUT
11	EXISTING TYPICAL SECTIONS
12 - 14	PROPOSED TYPICAL SECTIONS
15, 15A-15K	GENERAL NOTES
16, 16A-16L	ESTIMATE AND QUANTITY
17	SUMMARY OF TCP QUANTITIES
18	SUMMARY OF ROADWAY QUANTITIES
19 - 20	SUMMARY OF DRAINAGE QUANTITIES
21	SUMMARY OF SW3P QUANTITIES
22	SUMMARY OF ILLUMINATION QUANTITIES
23	SUMMARY OF PAVEMENT MARKINGS QUANTITIES
24	SUMMARY OF SIGNING QUANTITIES
25 - 30	SUMMARY OF SMALL SIGNS
	<b>TRAFFIC CONTROL</b>
31	TCP NARRATIVE
32 - 35	TCP TYPICAL SECTIONS
36	TREATMENT FOR VARIOUS EDGE CONDITIONS
	<b>TRAFFIC CONTROL STANDARDS</b>
37 - 48	>> BC(1) THRU BC(12)-21
49	>> TCP(2-1)-18
50	>> TCP(2-2)-18
51	>> TCP(3-1)-13
52	>> TCP(3-3)-14
53	>> TCP(7-1)-13
54	>> WZ(STPM)-13
55	>> WZ(RS)-22
56	>> WZ(UL)-13
57	>> TCP(S-1)-08A
58	>> TCP(S-2)-08A
59	>> TCP(S-2c)-10
	<b>ROADWAY</b>
60 - 66	SURVEY CONTROL
67 - 69	HORIZONTAL & VERTICAL CONTROL
70 - 71	HORIZONTAL ALIGNMENT DATA
72 - 96	ROADWAY PLAN & PROFILE
97 - 99	SIDESTREET PLAN & PROFILE
100	DRIVEWAY SUMMARY SHEET
101	DRIVEWAY DETAIL
102	MAILBOX TURNOUT DETAIL
	<b>ROADWAY STANDARDS</b>
103	>> GF(31)-19
104	>> GF(31)DAT-19
105	>> MBGF(MS)-19
106	>> SGT(10S)31-16
107	>> SGT(11S)31-18
108	>> SGT(12S)31-18
109	>> SGT(15)31-20
110	>> MB(1)-21
111	>> MB(2)-21
112	>> MB(3)-21
113	>> MB(4)-21
114	>> HOT MIX LONGITUDINAL JOINT DETAILS
114A	>> WF(1)-10

<b>SHEET</b>	<b>DRAINAGE</b>
115 - 117	DRAINAGE AREA MAP
118	HYDROLOGY DATA SHEET EXISTING CONDITIONS
119	HYDROLOGY DATA SHEET PROPOSED CONDITIONS
120	HYDRAULIC DATA SHEET EXISTING CONDITIONS
121	HYDRAULIC DATA SHEET PROPOSED CONDITIONS
122 - 139	CULVERT LAYOUT
	<b>DRAINAGE STANDARDS</b>
140 - 141	>> SETP-CD
141A	>> PSET-SC
142	>> SETP-PD
142A	>> PSET-SP
143 - 144	>> PSL
145	>> PB
146	>> PDD
147	>> CH-PW-S
148 - 149	>> SRR
	<b>UTILITIES</b>
150 - 162	UTILITY LAYOUT
	<b>TRAFFIC</b>
163 - 175	SIGNING AND PAVEMENT MARKINGS LAYOUT
176	SMALL SIGN DETAILS
	<b>TRAFFIC STANDARDS</b>
177	** PM(1)-22
178	** PM(2)-22
179	** PM(3)-22
180	** RS(2)-23
181	** RS(4)-23
182	** RS(5)-23
183	** D&OM(1)-20
184	** D&OM(2)-20
185	** D&OM(3)-20
186	** D&OM(4)-20
187	** D&OM(5)-20
188	** SMD(GEN)-08
189	** SMD(SLIP-1)-08
190	** SMD(SLIP-2)-08
191	** SMD(SLIP-3)-08
192	** TSR(3)-13
193	** TSR(4)-13
194	** TSR(5)-13
195	** SPRFBA(1)-13
	<b>ILLUMINATION</b>
196	PROPOSED ILLUMINATION LAYOUT AT STERLING ROBERTSON DAM
197	PROPOSED ILLUMINATION ELECTRICAL DETAILS
198	PROPOSED ILLUMINATION LAYOUT AT HWY 7
199	PROPOSED ILLUMINATION ELECTRICAL DETAILS

	<b>ILLUMINATION STANDARDS</b>
200	** ED(1)-14
201	** ED(2)-14
202	** ED(3)-14
203	** ED(4)-14
204	** ED(5)-14
205	** ED(6)-14
206	** ED(7)-14
207	** ED(9)-14
208	** RID(1)-20
209	** RID(2)-20
210	** RIP(1)-19
211	** RIP(2)-19
212	** RIP(3)-19
213	** RIP(4)-19
	<b>ENVIRONMENTAL</b>
214	TXDOT STORM WATER POLLUTION PREVENTION PLAN
215	EPIC
216 - 228	SW3P LAYOUT
	<b>ENVIRONMENTAL STANDARDS</b>
229	>> EC(1)-16
230	>> EC(2)-16
231 - 233	>> EC(9)-16

>> THE STANDARD SHEETS SPECIFICALLY IDENTIFIED ABOVE HAVE BEEN SELETED BY ME OR UNDER MY SUPERVISION AND ARE APPLICABLE TO THIS PROJECT.

*Megan E. Houtchens* P.E. 7/20/2023  
MEGAN E. HOUTCHENS DATE



PGAL, INC.  
TBPE FIRM REG. F-2742

\*\* THE STANDARD SHEETS SPECIFICALLY IDENTIFIED ABOVE HAVE BEEN SELETED BY ME OR UNDER MY SUPERVISION AND ARE APPLICABLE TO THIS PROJECT.

*Zahidul Q. Siddique* P.E. 7/20/2023  
ZAHIDUL Q. SIDDIQUE DATE



NO.	DATE	REVISION	APPROV.

**Texas Department of Transportation**  
PGAL  
3131 Briarpark Dr, Suite 200  
Houston, Texas 77042  
(713) 622-1444  
TBPE REG. NO. F-2742

**FM 937**  
**INDEX OF SHEETS**  
SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
1191	05	009	FM 937
DIST	COUNTY	SHEET NO.	
BRY	ROBERTSON	2	

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**1** THIS SHEET REPLACED BY ADDENDUM #1 7/20/2023.



# Estimate & Quantity Sheet

CONTROLLING PROJECT ID 1191-05-009

DISTRICT Bryan  
HIGHWAY FM 937

COUNTY Robertson

CONTROL SECTION JOB				1191-05-009		TOTAL EST.	TOTAL FINAL
PROJECT ID				A00127190			
COUNTY				Robertson			
HIGHWAY				FM 937			
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL		
	618-6024	CONDT (PVC) (SCH 40) (2") (BORE)	LF	270.000		270.000	
	620-6010	ELEC CONDR (NO.6) INSULATED	LF	2,580.000		2,580.000	
	624-6010	GROUND BOX TY D (162922)W/APRON	EA	8.000		8.000	
	628-6145	ELC SRV TY D 120/240 060(NS)SS(E)SP(O)	EA	2.000		2.000	
	636-6001	ALUMINUM SIGNS (TY A)	SF	18.000		18.000	
	644-6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	30.000		30.000	
	644-6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	13.000		13.000	
	644-6030	IN SM RD SN SUP&AM TYS80(1)SA(T)	EA	4.000		4.000	
	644-6031	IN SM RD SN SUP&AM TYS80(1)SA(T-2EXT)	EA	1.000		1.000	
	644-6075	RELOCATE SM RD SN SUP&AM(SIGN ONLY)	EA	1.000		1.000	
	644-6076	REMOVE SM RD SN SUP&AM	EA	39.000		39.000	
	658-6062	INSTL DEL ASSM (D-SW)SZ 1(BRF)GF2(BI)	EA	12.000		12.000	
	658-6081	INSTL DEL ASSM (D-SW)SZ 1(WFLX)GND(BI)	EA	3.000		3.000	
	658-6101	INSTL OM ASSM (OM-2Z)(WFLX)SRF)SRF	EA	154.000		154.000	
	658-6102	INSTL OM ASSM (OM-3L)(WFLX)SRF)SRF	EA	2.000		2.000	
	658-6104	INSTL OM ASSM (OM-3R)(WFLX)SRF)SRF	EA	2.000		2.000	
	662-6004	WK ZN PAV MRK NON-REMOV (W)4"(SLD)	LF	58,286.000		58,286.000	
	662-6016	WK ZN PAV MRK NON-REMOV (W)24"(SLD)	LF	72.000		72.000	
	662-6034	WK ZN PAV MRK NON-REMOV (Y)4"(SLD)	LF	116,572.000		116,572.000	
	662-6075	WK ZN PAV MRK REMOV (W)24"(SLD)	LF	144.000		144.000	
	662-6111	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	EA	2,186.000		2,186.000	
	666-6030	REFL PAV MRK TY I (W)8"(DOT)(100MIL)	LF	30.000		30.000	
	666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	420.000		420.000	
	666-6309	RE PM W/RET REQ TY I (W)6"(SLD)(100MIL)	LF	57,610.000		57,610.000	
	666-6318	RE PM W/RET REQ TY I (Y)6"(BRK)(100MIL)	LF	5,910.000		5,910.000	
	666-6321	RE PM W/RET REQ TY I (Y)6"(SLD)(100MIL)	LF	26,980.000		26,980.000	
	668-6076	PREFAB PAV MRK TY C (W) (24") (SLD)	LF	180.000		180.000	
	668-6077	PREFAB PAV MRK TY C (W) (ARROW)	EA	2.000		2.000	
	668-6085	PREFAB PAV MRK TY C (W) (WORD)	EA	4.000		4.000	
	672-6007	REFL PAV MRKR TY I-C	EA	22.000		22.000	
	672-6009	REFL PAV MRKR TY II-A-A	EA	804.000		804.000	
	685-6004	INSTL RDS D FLSH BCN ASSM (SOLAR PWRD)	EA	1.000		1.000	
	685-6006	REMOV RDS D FLSH BCN AM (SOLAR PWRD)	EA	1.000		1.000	
	3077-6012	SP MIXESSP-CSAC-A PG64-22	TON	12,260.000		12,260.000	
	6001-6002	PORTABLE CHANGEABLE MESSAGE SIGN	EA	2.000		2.000	
	6056-6001	PREFORMED IN-LANE(TRANS) RUMBLE STRIP	LF	80.000		80.000	
	6185-6002	TMA (STATIONARY)	DAY	122.000		122.000	



**1** THIS SHEET REPLACED BY ADDENDUM #1 7/20/2023.

SHEET NUMBER	636	644	644	644	644	644	644
	6001	6001	6004	6030	6031	6075	6076
	ALUMINUM SIGNS (TY A)	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	IN SM RD SN SUP&AM TYS80(1)SA(T)	IN SM RD SN SUP&AM TYS80(1)SA(T-2EXT)	RELOCATE SM RD SN SUP&AM(SIGN ONLY)	REMOVE SM RD SN SUP&AM
	SF	EA	EA	EA	EA	EA	EA
CSJ: 1191-05-009							
SHEET 1 OF 13 (BEGIN TO STA 168+00)		2	2				3
SHEET 2 OF 13 (STA 168+00 TO STA 192+00)		14	2			1	15
SHEET 3 OF 13 (STA 192+00 TO STA 216+00)		1	2				1
SHEET 4 OF 13 (STA 216+00 TO STA 240+00)							
SHEET 5 OF 13 (STA 240+00 TO STA 264+00)		2					2
SHEET 6 OF 13 (STA 264+00 TO STA 288+00)		3	2	2			5
SHEET 7 OF 13 (STA 288+00 TO STA 312+00)							
SHEET 8 OF 13 (STA 312+00 TO STA 336+00)		1	2	1	1		4
SHEET 9 OF 13 (STA 336+00 TO STA 360+00)		2	2				4
SHEET 10 OF 13 (STA 360+00 TO STA 384+00)							
SHEET 11 OF 13 (STA 384+00 TO STA 408+00)							
SHEET 12 OF 13 (STA 408+00 TO STA 432+00)		4	1	1			4
SHEET 13 OF 13 (STA 432+00 TO END)	18	1					1
PROJECT TOTAL	18	30	13	4	1	1	39

SHEET NUMBER	658	658	658	658	658	685	685
	6062	6081	6101	6102	6104	6004	6006
	INSTL DEL ASSM (D-SW)SZ 1(BRF)GF2(BI)	INSTL DEL ASSM (D-SW)SZ 1(WFLX)GND(BI)	INSTL OM ASSM (OM-2Z)(WFLX)SRF)SRF	INSTL OM ASSM (OM-3L)(WFLX)SRF)SRF	INSTL OM ASSM (OM-3R)(WFLX)SRF)SRF	INSTL RDS D FL SH BCN ASSM (SOLAR PWRD)	REMOV RDS D FL SH BCN AM (SOLAR PWRD)
	EA	EA	EA	EA	EA	EA	EA
CSJ: 1191-05-009							
SHEET 1 OF 13 (BEGIN TO STA 168+00)			10				
SHEET 2 OF 13 (STA 168+00 TO STA 192+00)	12		14	2	2		
SHEET 3 OF 13 (STA 192+00 TO STA 216+00)			14				
SHEET 4 OF 13 (STA 216+00 TO STA 240+00)			20				
SHEET 5 OF 13 (STA 240+00 TO STA 264+00)			14				
SHEET 6 OF 13 (STA 264+00 TO STA 288+00)			12				
SHEET 7 OF 13 (STA 288+00 TO STA 312+00)			20				
SHEET 8 OF 13 (STA 312+00 TO STA 336+00)			10				
SHEET 9 OF 13 (STA 336+00 TO STA 360+00)			16				
SHEET 10 OF 13 (STA 360+00 TO STA 384+00)			10				
SHEET 11 OF 13 (STA 384+00 TO STA 408+00)			8				
SHEET 12 OF 13 (STA 408+00 TO STA 432+00)			6				
SHEET 13 OF 13 (STA 432+00 TO END)		3				1	1
PROJECT TOTAL	12	3	154	2	2	1	1

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**THIS SHEET REPLACED BY ADDENDUM #1 7/20/2023.**


  

  
Engineers & Innovators, LLC  
 TBPE REGISTRATION NO. F-18368

FM 937

**SUMMARY OF  
SIGNING QUANTITIES**

SHEET 01 OF 01

CONT	SECT	JOB	HIGHWAY
1191	05	009	FM 937
DIST		COUNTY	SHEET NO.
BRY		ROBERTSON	24

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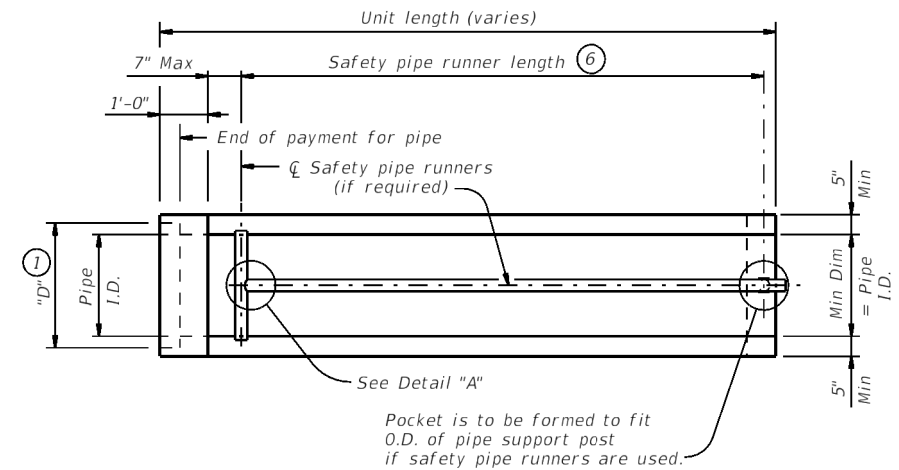
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### REQUIREMENTS FOR CULVERT PIPES AND SAFETY PIPE RUNNERS

Pipe I.D.	RCP Wall "B" Thickness	TP Wall Thickness (8)	"D" (1)	Slope	Min Length of Unit	Single Pipe		Multiple Pipes	
						Skew	Pipe Runners Required	Skew	Pipe Runners Required
12"	2"	1.15"	17.00"	3:1	2' - 11"	≤ 45°	No	≤ 45°	No
				4:1	3' - 6"				
				6:1	4' - 9"				
15"	2 1/4"	1.30"	20.50"	3:1	3' - 8"	≤ 45°	No	≤ 45°	No
				4:1	4' - 7"				
				6:1	6' - 5"				
18"	2 1/2"	1.60"	24.00"	3:1	4' - 6"	≤ 45°	No	≤ 45°	No
				4:1	5' - 8"				
				6:1	8' - 0"				
24"	3"	1.95"	31.00"	3:1	6' - 2"	≤ 45°	No	= 30°	No
				4:1	7' - 10"				
				6:1	11' - 3"				
30"	3 1/2"	2.65"	38.50"	3:1	7' - 10"	= 15°	No	= 15°	No
				4:1	10' - 1"				
				6:1	14' - 8"				
36"	4"	2.75"	45.50"	3:1	9' - 5"	= 0°	No	≥ 0°	Yes
				4:1	12' - 3"				
				6:1	17' - 11"				
42"	4 1/2"	2.7"	52.50"	3:1	11' - 1"	≥ 0°	Yes	≥ 0°	Yes
				4:1	14' - 5"				
				6:1	21' - 2"				

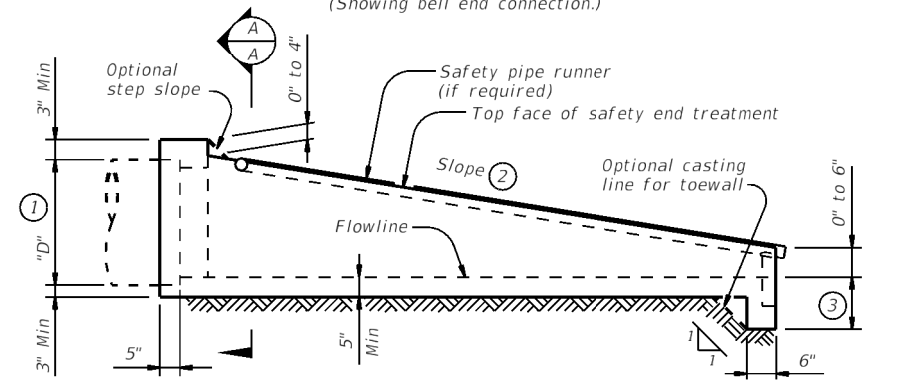
### SAFETY PIPE RUNNER DIMENSIONS

Max Safety Pipe Runner Length	Required Pipe Runner Size		
	Pipe Size	Pipe O.D.	Pipe I.D.
11' - 2"	3" STD	3.500"	3.068"
15' - 6"	3 1/2" STD	4.000"	3.548"
20' - 10"	4" STD	4.500"	4.026"
35' - 4"	5" STD	5.563"	5.047"



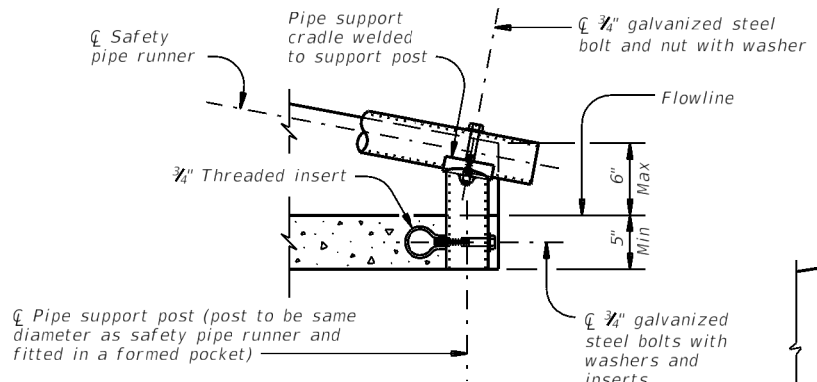
#### PLAN

(Showing bell end connection.)



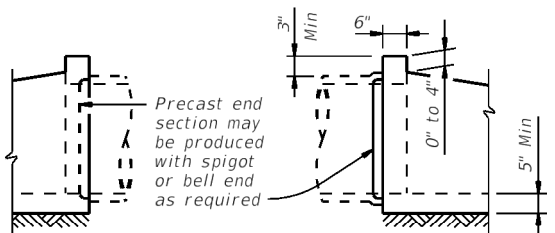
#### LONGITUDINAL ELEVATION

(Showing bell end connection.)



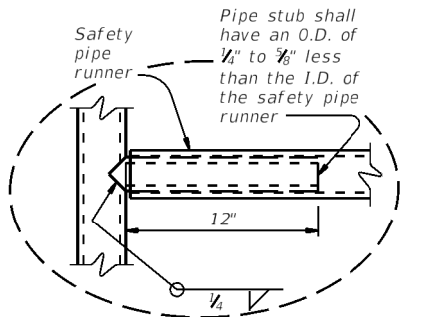
#### END DETAIL FOR INSTALLATION OF SAFETY PIPE RUNNERS

(If required)

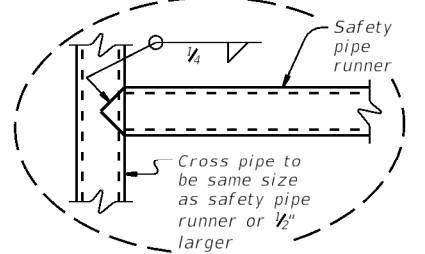


#### OPTIONAL JOINT FOR RCP

(Showing joint between RCP and precast safety end treatment)



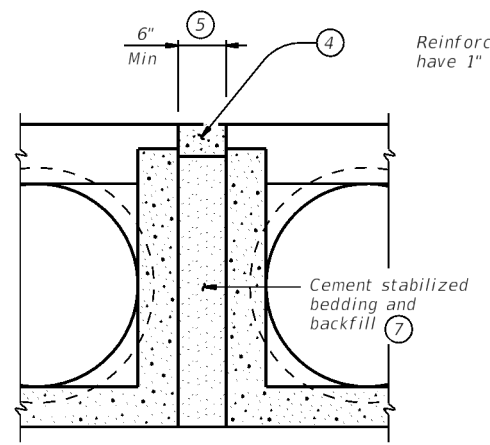
#### OPTION A



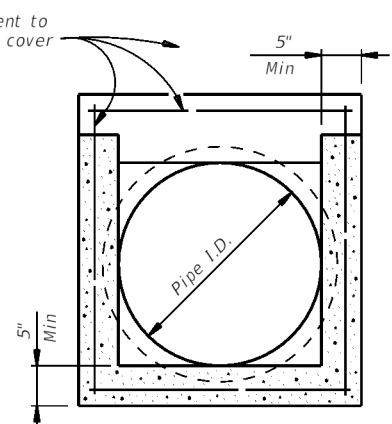
#### OPTION B

#### DETAIL A

(If required)

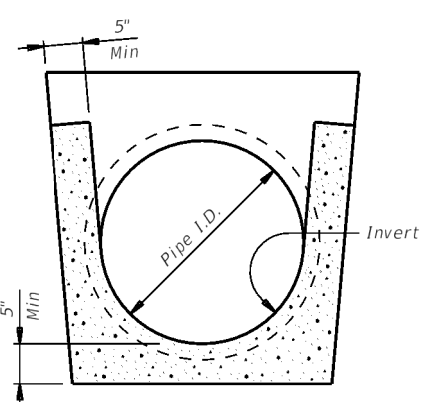


#### MULTIPLE PIPE INSTALLATION

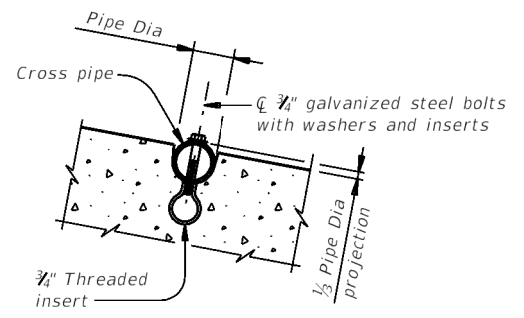


#### OPTION WITH SQUARE BOTTOM

#### SECTION A-A



#### OPTION WITH INVERT BOTTOM



#### INSTALLATION DETAIL FOR SAFETY PIPE RUNNERS

(If required)

- 1 Dimension "D" is based on reinforced concrete pipe (RCP) meeting the requirements of ASTM C-76, Class III, (RCP Wall "B" thickness). Adjust "D" for any other wall thickness used. For thermoplastic pipe (TP) take into account the annular space requirements for grouted connections.
- 2 Slope as shown elsewhere in plans. Slope of 3:1 or flatter is required for vehicle safety.
- 3 Toewall to be used only when dimension is shown elsewhere in the plans.
- 4 Fill the top 4" of void between precast end treatments with concrete riprap. Concrete riprap is considered subsidiary to the Item 467, "Safety End Treatment".
- 5 Adjust clear distance between pipes to provide for the minimum distance between safety end treatments.
- 6 Measured along slope.
- 7 Provide cement stabilized bedding and backfill in accordance with the Item 400, "Excavation and Backfill for Structures". Bedding and backfill is considered subsidiary to the Item 467, "Safety End Treatment". When concrete riprap is specified around the safety end treatment, backfill as directed by Engineer.
- 8 Thermoplastic pipe wall thickness may vary. Adjust accordingly. Thermoplastic pipe requires the safety end treatments to have a bell end for grouted connections.

#### GENERAL NOTES:

Precast safety end treatment for reinforced concrete pipe (RCP), and thermoplastic pipe (TP) may be used for TYPE II end treatment as specified in Item "Safety End Treatment".  
 When precast safety end treatment is used as a Contractor's alternate to mitered RCP, riprap will not be required unless noted otherwise on the plans.  
 Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.  
 Manufacture this product in accordance with Item 467, "Safety End Treatment" except as noted below:  
 A. Provide minimum reinforcing of #4 at 6" (Grade 40) or #4 at 9" (Grade 60) each way or 6"x6" - D12 x D12 or 5"x5" - D10 x D10 welded wire reinforcement (WWR).  
 B. For precast (steel formed) sections, provide Class "C" concrete (f'c = 3,600 psi).  
 At the option and expense of the Contractor, the next larger size of safety end treatment may be furnished as long as the "D" dimension cast is that of the required size of pipe.  
 Pipe runners are designed for a traversing load of 1,800 Lbs at yield as recommended by Research Report 280-1, "Safety Treatment of Roadside Cross-Drainage Structures", Texas Transportation Institute, March 1981.  
 Provide safety pipe runners, cross pipes, pipe support posts, and pipe stubs meeting the requirements of ASTM A53 (Type E or S, Grade B), ASTM A500 (Grade B), or API 5LX52.  
 Galvanize all steel components except reinforcing steel after fabrication. Repair galvanizing damaged during transport or construction in accordance with the specifications.  
 Connect RCP using the Optional Joint for RCP detail shown or in accordance with Item 464 "Reinforced Concrete Pipe". Connect TP by grouting. See Pipe and Box Grouted Connections (PBGC) standard for grouted connections with TP and precast safety end treatment.

Bridge Division Standard

## PRECAST SAFETY END TREATMENT TYPE II ~ CROSS DRAINAGE

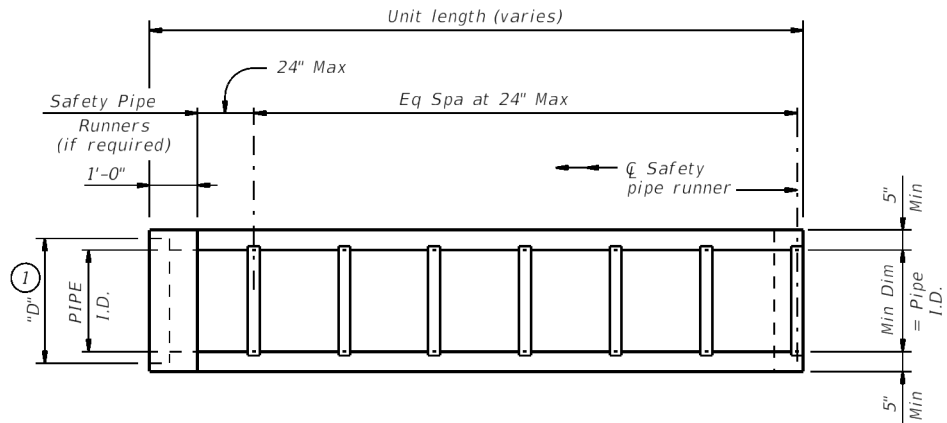
### PSET-SC

FILE: psetscs-21.dgn	GN: RLW	CK: KLR	DW: JTR	CK: GAF
TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS 12-21: Added 42" TP	119	05	009	FM 937
DIST	COUNTY		SHEET NO.	
BRY	ROBERTSON		141A	

THIS SHEET ADDED BY ADDENDUM #1 7/20/2023.

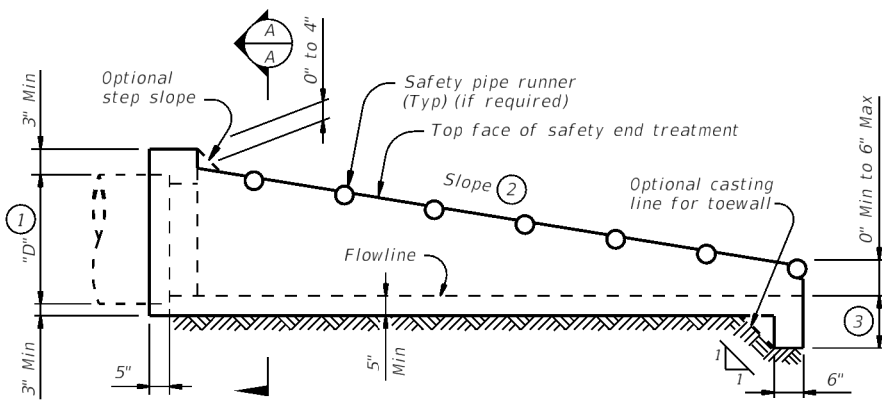
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DATE: 7/19/2023 3:55:11 PM  
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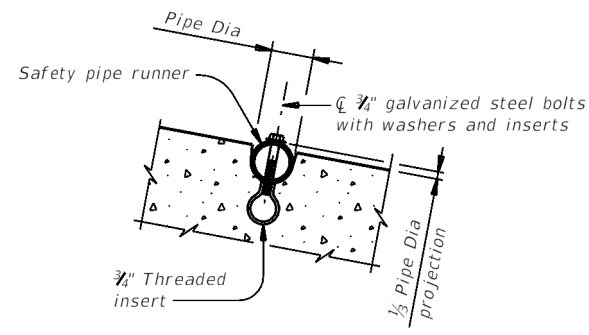
**PLAN**

(Showing bell end connection.)



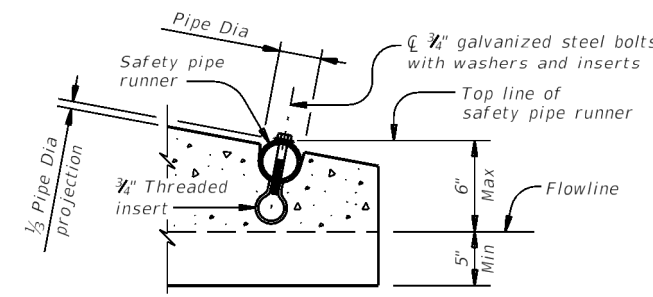
**LONGITUDINAL ELEVATION**

(Showing bell end connection.)

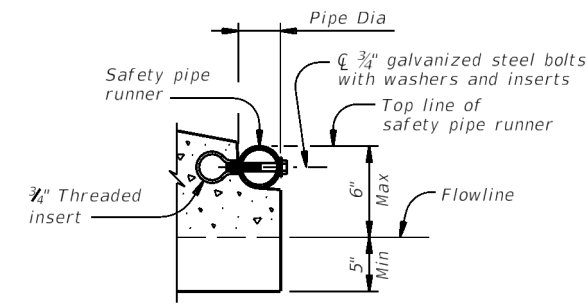


**INSTALLATION DETAIL FOR SAFETY PIPE RUNNERS**

(If required)



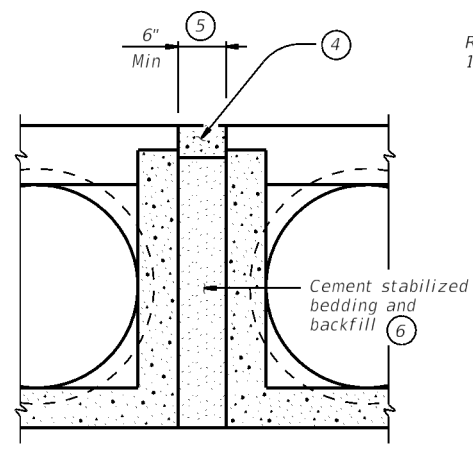
**OPTION A**



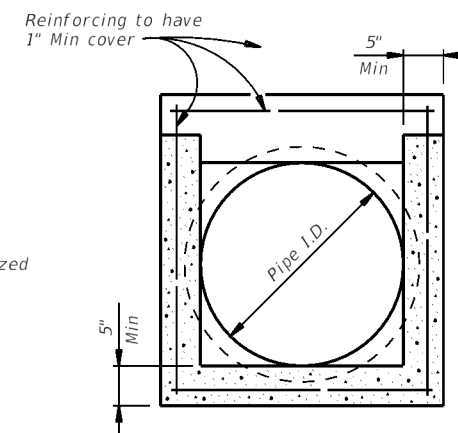
**OPTION B**

**END DETAILS FOR INSTALLATION OF SAFETY PIPE RUNNERS**

(If required)

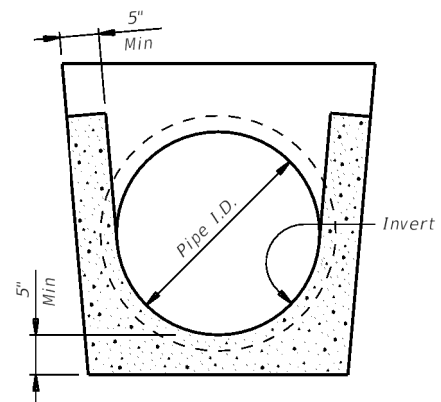


**MULTIPLE PIPE INSTALLATION**

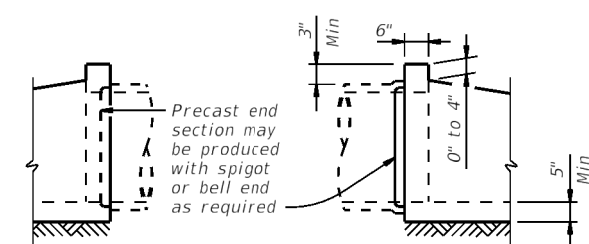


**OPTION WITH SQUARE BOTTOM**

**SECTION A-A**



**OPTION WITH INVERT BOTTOM**



**OPTIONAL JOINT FOR RCP**

(Showing joint between RCP and precast safety end treatment.)

- ① Dimension "D" is based on reinforced concrete pipe (RCP) meeting the requirements of ASTM C-76, Class III, (RCP Wall "B" thickness). Adjust "D" for any other wall thickness used. For thermoplastic pipe (TP) take into account the annular space requirements for grouted connections.
- ② Slope as shown elsewhere in the plans. Slope of 6:1 or flatter is required for vehicle safety.
- ③ Toewall to be used only when dimension is shown elsewhere in the plans.
- ④ Fill the top 4" of void between precast end treatments with concrete riprap. Concrete riprap is considered subsidiary to the Item 467, "Safety End Treatment".
- ⑤ Adjust clear distance between pipes to provide for the minimum distance between safety end treatments.
- ⑥ Provide cement stabilized bedding and backfill in accordance with the Item 400, "Excavation and Backfill for Structures". Bedding and backfill is considered subsidiary to the Item 467, "Safety End Treatment". When concrete riprap is specified around the safety end treatment, backfill as directed by Engineer.
- ⑦ Thermoplastic pipe wall thickness may vary. Adjust accordingly. Thermoplastic pipe requires the safety end treatments to have a bell end for grouted connections.

**GENERAL NOTES:**

Precast safety end treatment for reinforced concrete pipe (RCP), and thermoplastic pipe (TP) may be used for TYPE II end treatment as specified in Item "Safety End Treatment".  
 When precast safety end treatment is used as a Contractor's alternate to mitered RCP, riprap will not be required unless noted otherwise on the plans.  
 Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.  
 Manufacture this product in accordance with Item 467, "Safety End Treatment" except as noted below:  
 A. Provide minimum reinforcing of #4 at 6" (Grade 40) or #4 at 9" (Grade 60) each way or 6"x6" - D12 x D12 or 5"x5" - D10 x D10 welded wire reinforcement (WWR).  
 B. For precast (steel formed) sections, provide Class "C" concrete (f'c = 3,600 psi).  
 At the option and expense of the Contractor the next larger size of safety end treatment may be furnished; as long as the "D" dimension cast is that of the required size of pipe.  
 Pipe runners are designed for a traversing load of 10,000 Lbs at yield as recommended by Research Report 280-2F, "Safety Treatment of Roadside Parallel-Drainage Structures", Texas Transportation Institute, March 1981.  
 Provide pipe runners meeting the requirements of ASTM A53 (Type E or S, Grade B), ASTM A500 (Grade B), or API 5LX52.  
 Galvanize all steel components except reinforcing steel after fabrication. Repair galvanizing damaged during transport or construction in accordance with the specifications.  
 Connect RCP using the Optional Joint for RCP detail shown or in accordance with Item 464, "Reinforced Concrete Pipe". Connect TP by grouting. See Pipe and Box Grouted Connections (PBGC) standard for grouted connections with TP and precast safety end treatment.

REQUIREMENTS FOR CULVERT PIPES AND SAFETY PIPE RUNNERS										
Pipe I.D.	RCP Wall "B" Thickness	TP Wall Thickness	"D"	Slope	Min Length	Pipe Runners Required		Required Pipe Runner Size		
						Single Pipe	Multiple Pipe	Nominal Dia.	O.D.	I.D.
12"	2"	1.15"	17.00"	6:1	4' - 9"	No	Yes, for > 2 pipes	3" STD	3.500"	3.068"
15"	2 1/4"	1.30"	20.50"	6:1	6' - 5"	No	Yes, for > 2 pipes	3" STD	3.500"	3.068"
18"	2 1/2"	1.60"	24.00"	6:1	8' - 0"	No	Yes, for > 2 pipes	3" STD	3.500"	3.068"
24"	3"	1.95"	31.00"	6:1	11' - 3"	No	Yes, for > 2 pipes	3" STD	3.500"	3.068"
30"	3 1/2"	2.65"	38.50"	6:1	14' - 8"	No	Yes	4" STD	4.500"	4.026"
36"	4"	2.75"	45.50"	6:1	17' - 11"	Yes	Yes	4" STD	4.500"	4.026"
42"	4 1/2"	2.7"	52.50"	6:1	21' - 2"	Yes	Yes	4" STD	4.500"	4.026"

Texas Department of Transportation  
 Bridge Division Standard

**PRECAST SAFETY END TREATMENT TYPE II ~ PARALLEL DRAINAGE**

**PSET-SP**

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