



♦ ♦ ♦ ♦ ADDENDUM TO BID ♦ ♦ ♦ ♦

PRECAST BOX CULVERTS ON ZION HILL ROAD AT LOW WATER CROSSING

Guadalupe County Auditor's Office
307 W. Court, Suite 205
Seguin, Texas 78155
830-303-4188 Ext. 1328

Bid Title: PRECAST BOX CULVERTS ON ZION HILL ROAD AT LOW WATER CROSSING
Bid No.: 16-4990A
Addendum No.: 1
Issued: July 29, 2016

TO BIDDER: This addendum is an integral part of the bid package under consideration by you as a Bidder in connection with the subject matter herein below identified. Guadalupe County deems all sealed bids to have been proffered in recognition and consideration of the entire bid package – including all issued addenda.

Receipt of this present Addendum by a Bidder should be evidenced by returning it signed as part of the Bidder's sealed bid proposal. If the Bid has already been received by the County Judge's office, Bidder should return this Addendum in a separate sealed envelope, which is clearly marked with the Bid Title, Bid Number and Opening Date and Time, stated as follows:

ADDENDUM TO: Precast Box Culverts on Zion Hill Road at Low Water Crossing
Bid No. 16-4990A
2:00 p.m., August 9, 2016

REASON FOR ISSUANCE OF THIS ADDENDUM:

1. ***Correction to specifications, page 7, Design Engineer and page 15, 1) General Considerations, a) Definitions, iii)***
 - a) ***M&S Engineering not Wilson Engineering***
2. ***Clarification to Specifications***
 - a) ***No Bid Bond required, only performance and payment bonds (see page 6, Performance and Payment Bonds)***
 - b) ***No warranty required (see page 20, Procedures at Final Acceptance, Re-inspection Procedure, "Upon receipt of Contractor's notice that work has been completed, including punch-list items resulting from earlier inspections and excepting incomplete items delayed because of acceptable circumstances, Owner will re-inspect work. Upon completion of re-inspection, Owner will either recommend final acceptance and final payment, or advise Contractor of work not completed or obligations not fulfilled as required for final acceptance. If necessary, procedure will be repeated.")***
 - c) ***See attached documents for clearer images, as shown in bid specifications, from page 42 through page 48.***
 - d) ***No liquidated damages will be assessed and project completion no later than November 30, 2016 (see page 35, Bid Submission Form, 4.0)***

The information included herein is hereby incorporated into the documents of this present bid matter and supersedes any conflicting documents or portion thereof previously issued.

Receipt of this Addendum is hereby acknowledged by the undersigned Bidder.

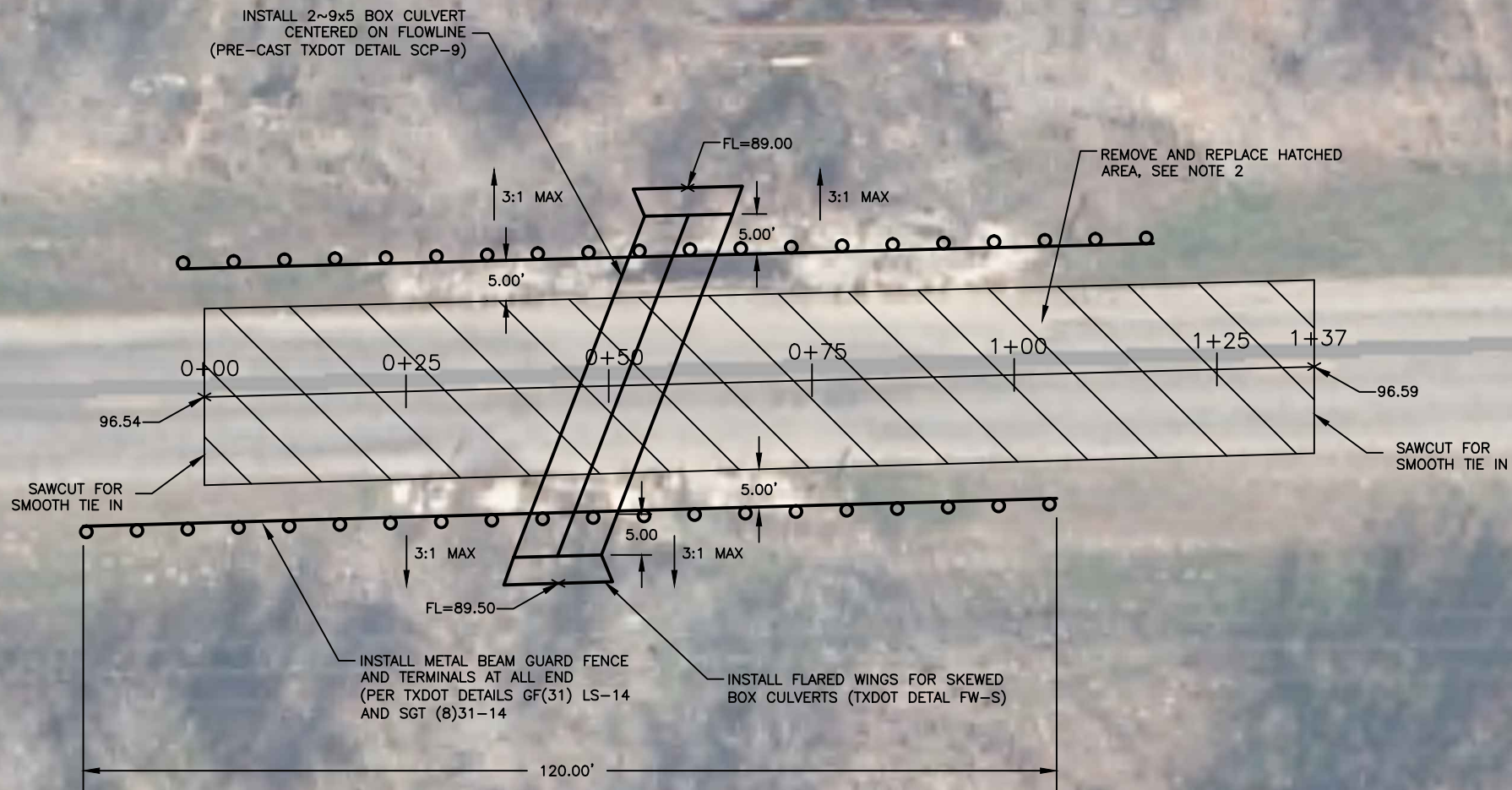
Authorized Signature (Bidder)

Title of Person Signing Above

Typed Name of Firm, Corporation

Date: Feb 12, 2016, 12:16pm User: rld, gfreeland
File: 5:Active Projects\Projects\Guadalupe County\2015\Zion Hills\Guadalupe County\Zion Hills\PROPOSED EXHIBIT.dwg

ZION HILLS



NOTES:

- ALL EXISTING CULVERT CROSSINGS SHALL BE REMOVED AT CROSSING AND DISPOSED OF PROPERLY. ALL ROADWAY BETWEEN 0+00 AND 1+37 TO BE REMOVED.
- ROADWAY ELEVATION SHOULD BE BUILT UP OVER CULVERT CROSSING FROM STA 0+00 TO STA 1+37. CONSTRUCT NEW ROADWAY AT CENTERLINE ELEVATION 96.50 FOR ENTIRE DISTANCE (CROWN ROAD 2% FROM CENTERLINE TO OUTSIDE EDGES). SUBGRADE SHALL BE MOISTURE CONDITIONED TO 95% DENSITY. INSTALL 10" FLEXIBLE BASE (TXDOT TYPE 1 OR 2) AND 2" HMAC, TYPE D AS SURFACE COURSE (OR MATCH LIKE KIND AND THICKNESS OF EXISTING ROADWAY).
- ELEVATIONS AND STATIONING REFERENCED FROM DATA PROVIDED BY GUADALUPE COUNTY. THIS INFORMATION REFERENCE A BENCHMARK ELEVATION = 100.00 AND IS NOT AN ACTUAL ELEVATION
- UTILITY LOCATIONS ARE UNKNOWN IN THIS AREA. PLEASE CALL 1-800-DIG-TESS PRIOR TO EXCAVATING.
- GRADE NO MORE THAN 3:1 SIDESLOPES WITHIN ROW TO TIE BACK TO EXISTING GRADE IN PARKWAY.

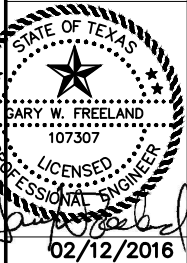
0 10 20
SCALE (FEET)



GUADALUPE COUNTY

ZION HILL LOW WATER CROSSING

PROPOSED CONDITIONS EXHIBIT



JOB: GUAD

DATE:

DRAWN: PM:

DESIGN: DM:

PEER: OTHER:

REVISIONS:

DELTA	DESCRIPTION

SHEET:

EXH 001

M&S ENGINEERING
CIVIL | ELECTRICAL | STRUCTURAL | MEP | SURVEYING
TOTAL REGISTERED ENGINEERING HOURS: 1,324
SURVEYING HOURS: 1,004,420

CONTACT
WWW.MSANDS.COM
PHONE: (830) 228-5446
FAX: (830) 885-2170

MAIN OFFICE
P.O. BOX 1070
6477 FM 311
SPRING BRANCH, TX 78070

BRANCH OFFICE
P.O. BOX 1070
NEW BRAUNFELS, TX 78130
PHONE: (830) 629-2985

Zion Hill Rd: 1/08/2016

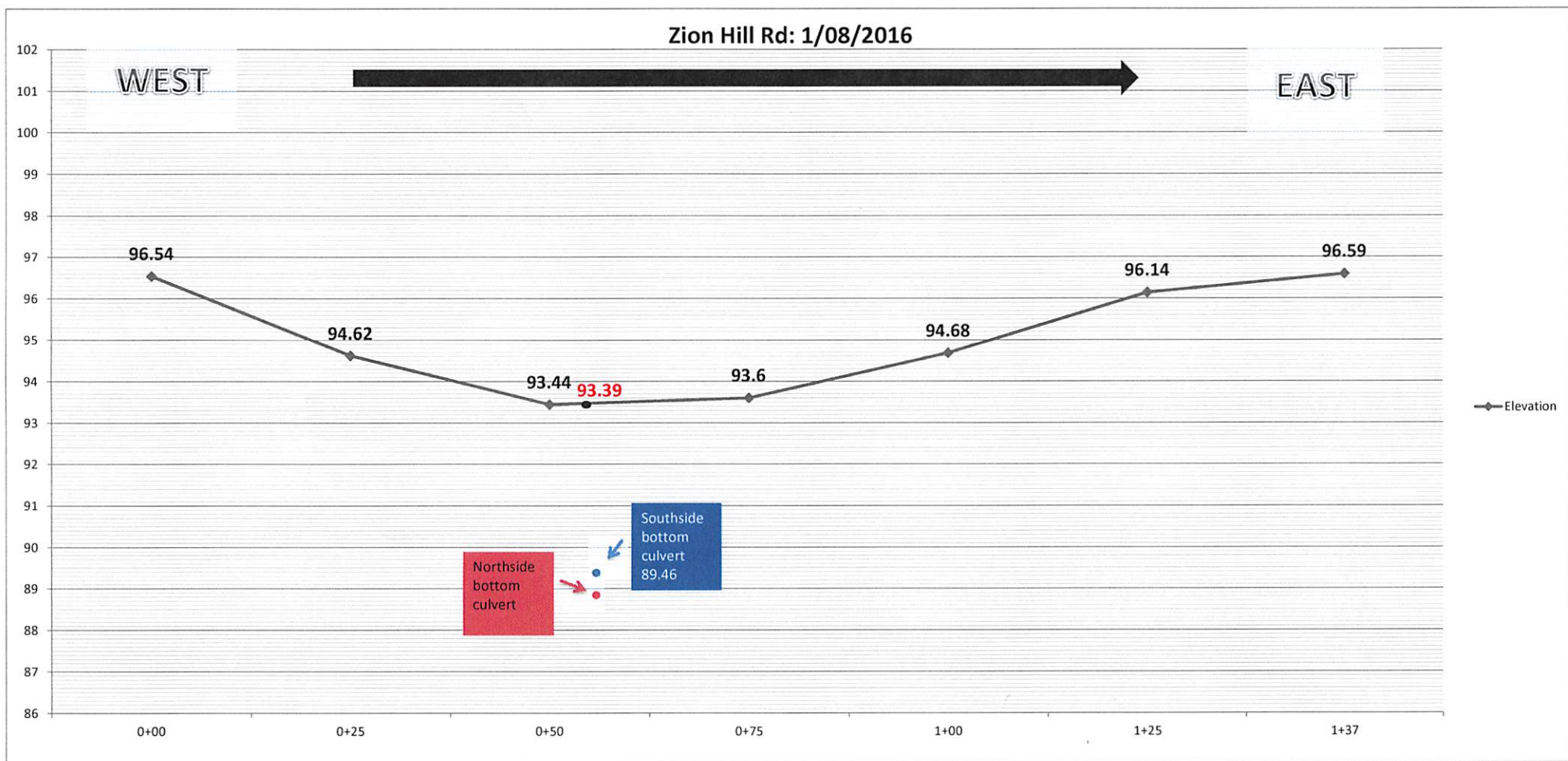
West → East

small bridge just past Boyd Rd before you reach 2324 address

****Benchmark:South East Side Utility Pole marked with nail and green tape****

STARTING BENCHMARK: 100		HI: 101.29	
<u>Station:</u>	<u>Elevation</u>	<u>Center of Bridge</u>	
0+00	96.54	North Side	South Side
0+25	94.62	Edge of Road: 8.36	Edge of Road: 8.02
0+50	93.44	92.93	93.27
0+55	93.39	Bottom of Culvert: 12.31	Bottom of Culvert: 11.83
0+75	93.6	88.98	89.46
1+00	94.68		
1+25	96.14		
1+37	96.59		

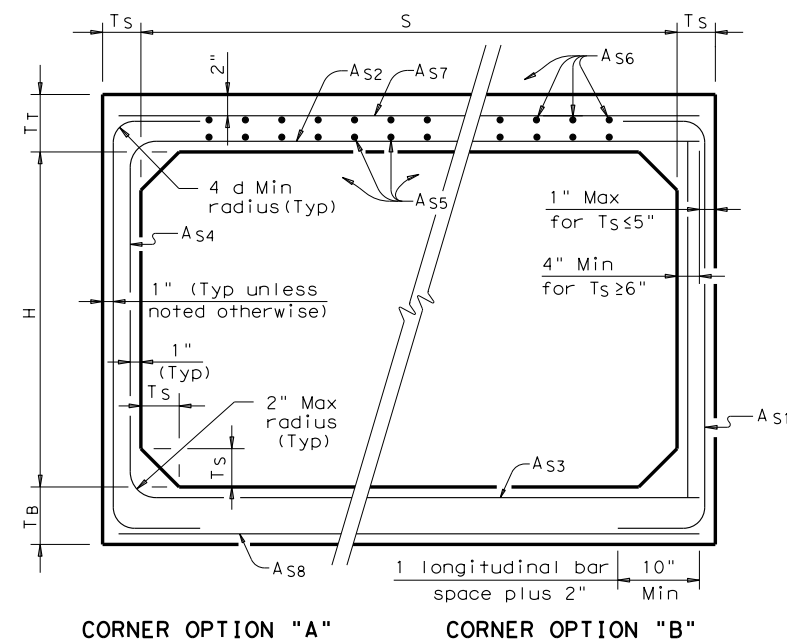




DATE: _____
FILE: _____

[illegible]

② A_{s1} thru A_{s4}, A_{s7} and A_{s8} are minimum required areas of reinforcement per linear foot of box length. A_{s6} and A_{s5} are minimum required areas of reinforcement per linear foot of box width.




FILL HEIGHT LESS THAN 2 FT



HL93 LOADING



SCP-9

FILE: scp09sts.dgn	DN: GAF	CK: LMW	DW: BWH/TxDOT	CK: GAF
 February 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY	SHEET NO.	

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

DATE: FILE:

TABLE OF DIMENSIONS & REINFORCING STEEL
(Wings for One Structure End)

Dimensions					Variable Reinforcing				Estimated Quantities ⁽³⁾ per ft of wing length (2~Wings)	
Maximum Wingwall Height Hw	W	X	Y	Z	Bars J1		Bars J2		Reinf (Lb/Ft)	Conc (CY/Ft)
					Size	Spa	Size	Spa		
2'-6"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	33.73	0.248
3'-0"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	37.07	0.261
3'-6"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	37.74	0.273
4'-0"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	38.41	0.285
4'-6"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	41.75	0.330
5'-0"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	45.09	0.343
5'-6"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	45.75	0.355
6'-0"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	46.42	0.367
7'-0"	3'-8"	1'-9"	1'-3"	7"	#4	1'-0"	#4	1'-0"	52.77	0.414
8'-0"	4'-2"	2'-0"	1'-6"	8"	#5	1'-0"	#4	1'-0"	60.19	0.486
9'-0"	4'-8"	2'-3"	1'-9"	8"	#4	6"	#4	6"	81.49	0.535
10'-0"	5'-2"	2'-6"	2'-0"	8"	#5	6"	#4	6"	97.25	0.584
11'-0"	5'-8"	2'-9"	2'-3"	8"	#6	6"	#5	6"	133.65	0.634
12'-0"	6'-2"	3'-0"	2'-6"	9"	#7	6"	#5	6"	162.29	0.721
13'-0"	6'-8"	3'-3"	2'-9"	11"	#7	6"	#5	6"	178.80	0.856
14'-0"	7'-2"	3'-6"	3'-0"	1'-0"	#8	6"	#5	6"	216.78	0.959
15'-0"	7'-8"	4'-0"	3'-0"	1'-1"	#9	6"	#6	6"	283.06	1.068
16'-0"	8'-2"	4'-6"	3'-0"	1'-3"	#9	6"	#6	6"	297.02	1.234

TABLE OF WINGWALL REINFORCING
(2~Wings)

Bar	Size	No.	Spa
DL	#5	~	1'-0"
DS	#5	~	1'-0"
E	#4	~	1'-0"
F	#4	~	1'-0"
G	#6	4	~
M	#4	4	~
P	#4	~	1'-0"
RS	#5	3	~
RL	#5	3	~
V	#4	~	1'-0"

TABLE OF ESTIMATED CULVERT TOEWALL QUANTITIES

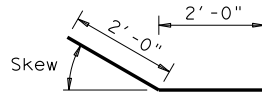
Bar	Size	No.	Spa
L	#4	~	1'-6"
Q	#4	1	~
Reinf (Lb/Ft)			2.45
Conc (CY/Ft)			0.037

WING DIMENSION CALCULATIONS:

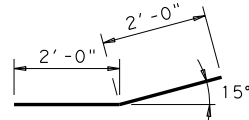
Formulas: (All values are in Feet)
 $Hw = H + T + C - 0.250'$
 $A = (Hw - 0.333') (SL)$
 $B = (A) [\text{Tangent } (\theta + 15^\circ)]$
 $Lw = (A) \div [\text{Cosine } (\theta + 15^\circ)]$
For Cast-in-place culverts:
 $Ltw = [(N) (S) + (N+1) (U)] \div (\text{Cosine } \theta)$
For Precast culverts:
 $Ltw = [(N) (2U+S) + (N-1) (0.500')] \div (\text{Cosine } \theta)$
Total Wingwall Area (Two Wings ~ S.F.) =
 $(0.5) (Hw + 0.333') (Lw + A)$

Hw = Height of Wingwall
SL:1 = Side Slope Ratio (Horizontal:1 Vertical)
A = Length of Short Wingwall
Lw = Length of Long Wingwall
Ltw = Culvert Toewall Length
N = Number of Culvert Spans
 θ = Culvert Skew

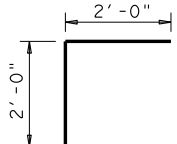
See applicable box culvert standard for H, S, T, and U values.



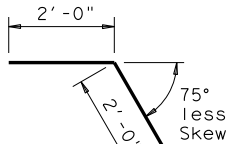
BARS DS
(Short Wing)



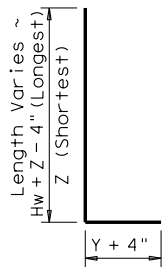
BARS DL
(Long Wing)



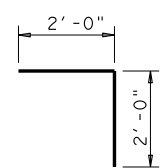
BARS RS
(Short Wing)



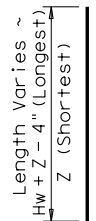
BARS RL
(Long Wing)



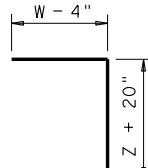
BARS J1



BARS L



BARS V

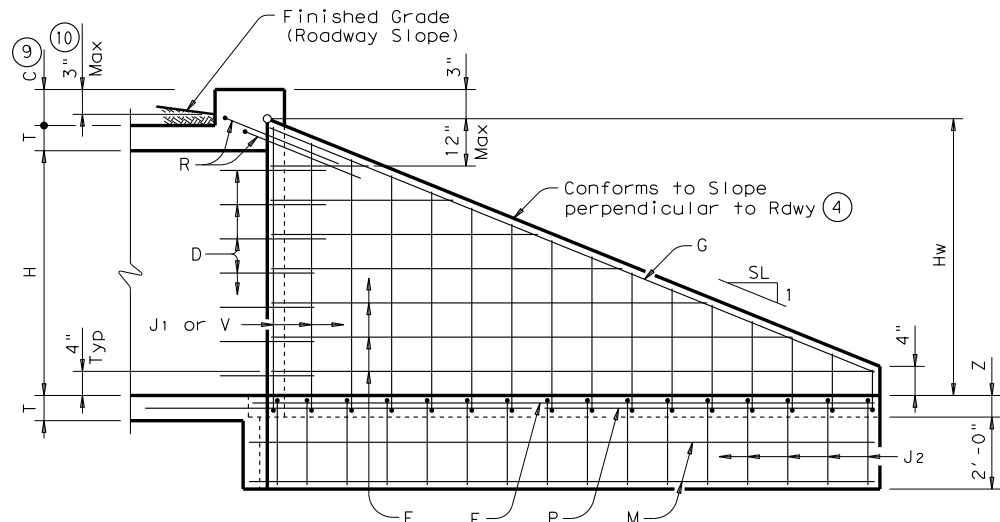


BARS J2

- Extend Bars P 3'-0" minimum into bottom slab of Box Culvert.
- Adjust to fit as necessary to maintain 1 1/4" clear cover and 4" minimum between bars.
- Quantities shown are based on an average wing height for two wings (one structure end). To determine total quantities for two wings multiply the tabulated values by 0.5 x (A+Lw).
- Recommended values of Slope are: 2:1, 3:1, 4:1, & 6:1.
- When shown elsewhere on the plans, a 5" deep concrete riprap shall be constructed. Payment for riprap shall be as required by Item 432, "Riprap". Unless otherwise shown on the plans or directed by the Engineer, the riprap shall have a 6" wide by 1'-6" deep reinforced concrete toewall along all edges adjacent to natural ground; the toewall shall be reinforced by extending typical riprap reinforcing into the toewall; construction joints or grooved joints, oriented in the direction of flow, shall extend across the full distance of the riprap, at intervals of approximately 20'. When such riprap is provided, the culvert toewall shown in SECTION B-B will not be required.
- At Contractor's option, Culvert Toewall may be ended flush with Wingwall Toewall. Adjust reinforcing from that shown as necessary.
- Applicable values of Skew are: 15°, 30°, and 45°.
- Typical wingwall angle for all skews.
- 0" min to 5'-0" max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail, bicycle rail or curbs taller than 1'-0", refer to ECD standard. For structures with T6 bridge rail, refer to T6-CM standard. For structures with traffic rail, other than T6, refer to RAC standard.
- For vehicle safety, curb heights and wall heights shall be reduced, if necessary, to provide a maximum 3" projection above finished grade. No changes will be made in quantities and no additional compensation will be allowed for this work.

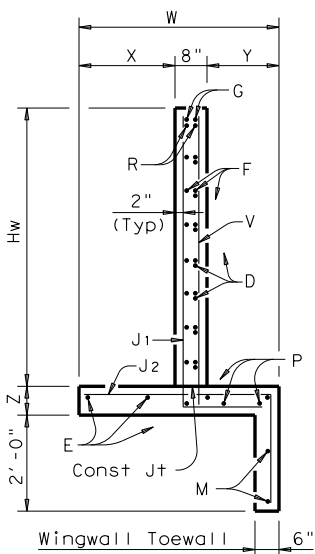
GENERAL NOTES:

Designed according to AASHTO LRFD Specifications.
All reinforcing steel shall be Grade 60.
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.
All concrete shall be Class "C" and shall have a minimum compressive strength of 3600 psi.
All reinforcing bars shall be adjusted to provide a minimum of 1 1/4" clear cover.
When structure is founded on solid rock, depth of toewalls for culverts and wingwalls may be reduced or eliminated as directed by the Engineer.
See BCS sheet for additional dimensions and information.
The quantities for concrete and reinforcing steel resulting from the formulas given on this sheet are for Contractor's information only.

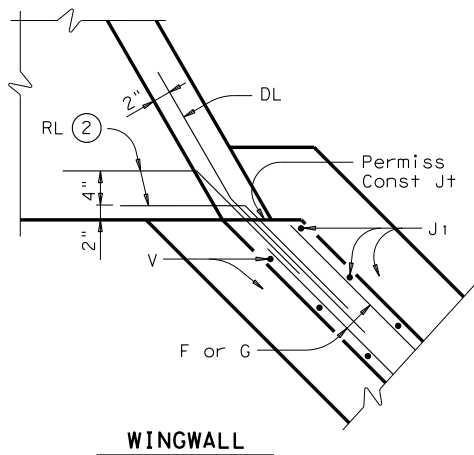


INSIDE ELEVATION

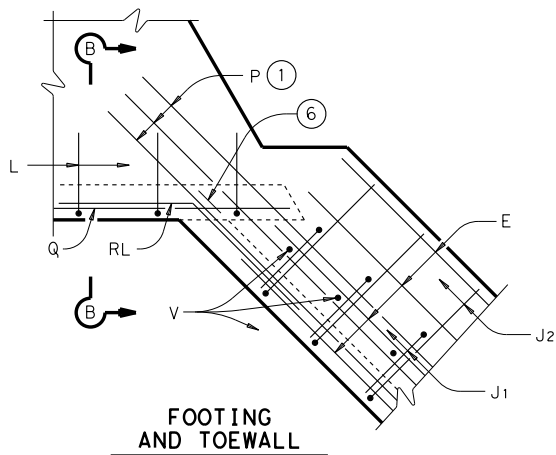
(Showing reinforcing. Culvert and Culvert Toewall reinforcing not shown for clarity.)



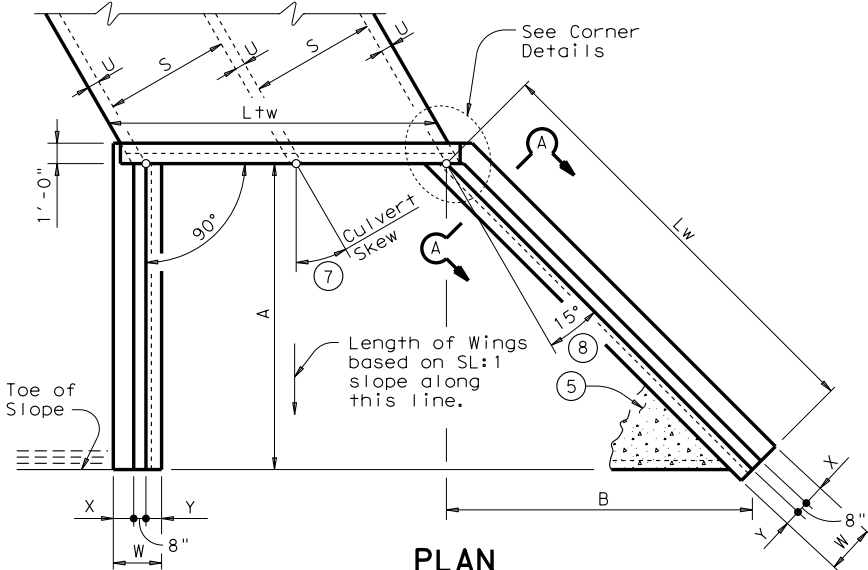
SECTION A-A



WINGWALL

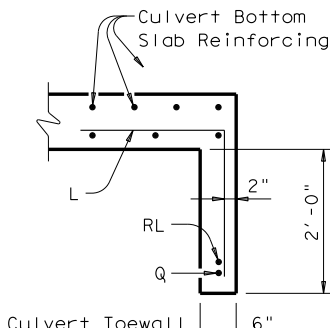


FOOTING AND TOEWALL



PLAN

(Showing dimensions and 30° Skew.)



SECTION B-B⁽⁵⁾



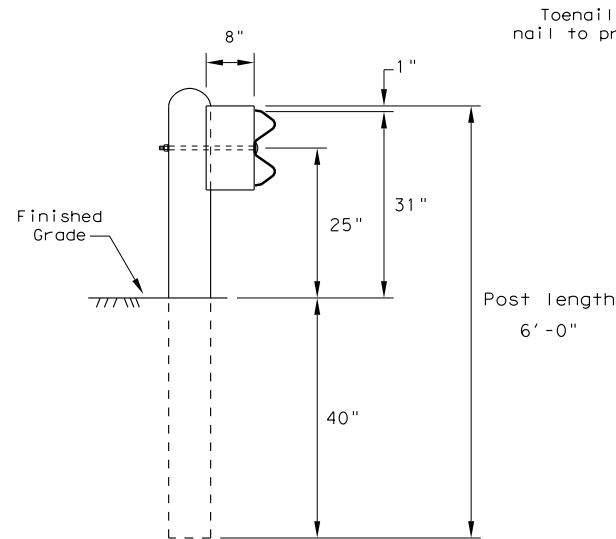
CONCRETE WINGWALLS
WITH FLARED WINGS FOR
SKEWED BOX CULVERTS

FW-S

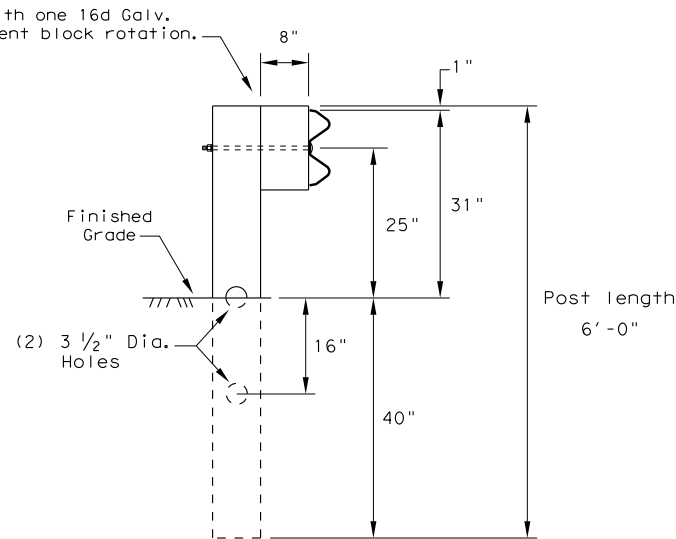
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©TxDOT February 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS				
11-10: Add note for synthetic fibers.	DIST		COUNTY	SHEET NO.

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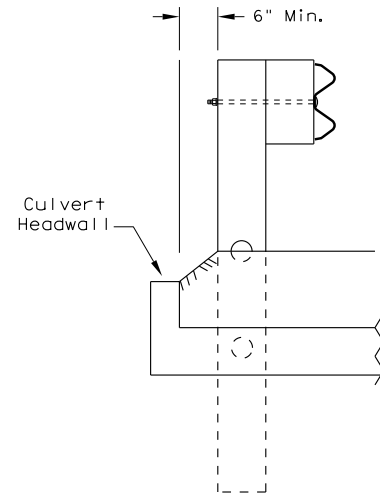
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Standard Line Post Installation



Rectangular CRT Post
(6"x 8" x 6' Long)
(6) CRT required.
See Elevation Detail for locations.

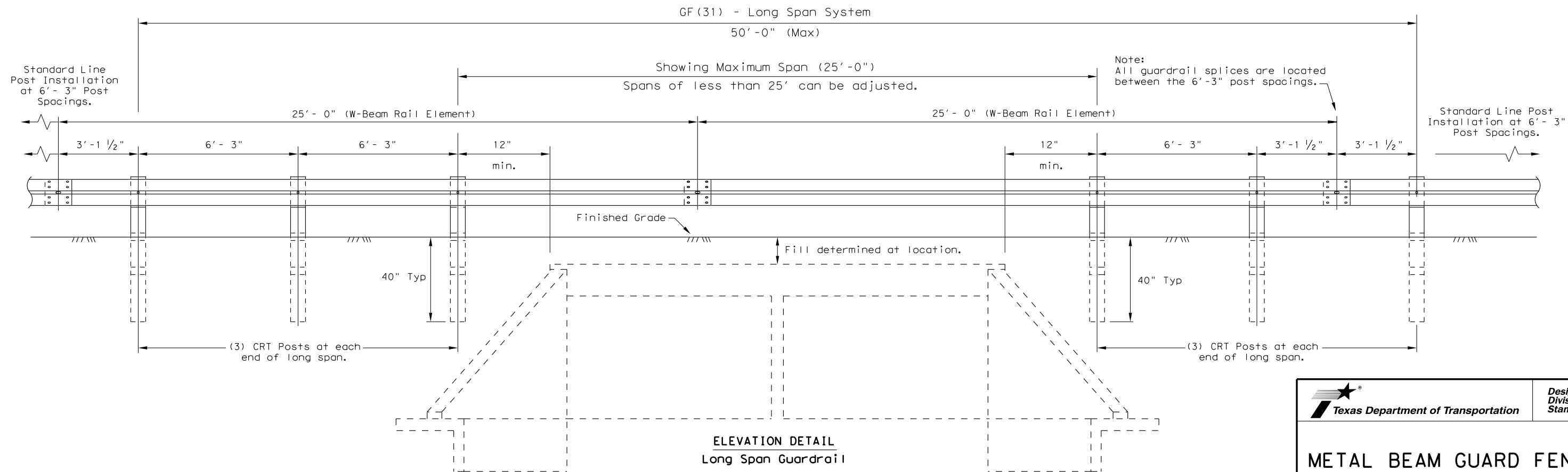



Lateral Offset Between the
Guardrail and the Culvert Headwall

GENERAL NOTES

1. The type of line post (round wood post, rectangular wood post, or steel post) will be as shown in the plans. The exact position of the transitions shall be as shown in the plans or as directed by the Engineer. Steel posts to be galvanized in accordance with Item 445, "Galvanizing."
2. Rail element shall meet all requirements of Item 540, "Metal Beam Guard Fence" except as modified on the plans. The Contractor may furnish rail elements of 12 1/2 or 25 foot nominal lengths.
3. Rail post holes are offset 3'- 1 1/2" from standard guardrail to accommodate the midspan splicing.
4. Button head post bolts (ASTM A307) shall be of sufficient length to extend through the full thickness of the nut (ASTM A563) and no more than 3/4" beyond it. Button head splice bolts (ASTM A307) are 5/8" x 1 1/4" with a 5/8" double recessed nut (ASTM A563). Galvanized fittings (bolts, nuts, and washers) shall be in accordance with Item, "Metal For Structures". Fittings shall be subsidiary to the bid item requiring construction of transition.
5. Where solid rock is encountered or where shown on the plans, the diameter of the holes shall be approximately 12 inches, the backfilling shall be with a cohesionless material, and embedment depth shall be 1' - 6" or more as directed by the Engineer.
6. Posts shall not be set in concrete, of any depth.
7. Refer to GF(31) Standard Sheet for additional details.

NOTE: Field drilled holes shall be repaired in accordance with Item 445, "Galvanizing".
Flame cutting of holes in guardrail shall not be permitted.





Texas Department of Transportation

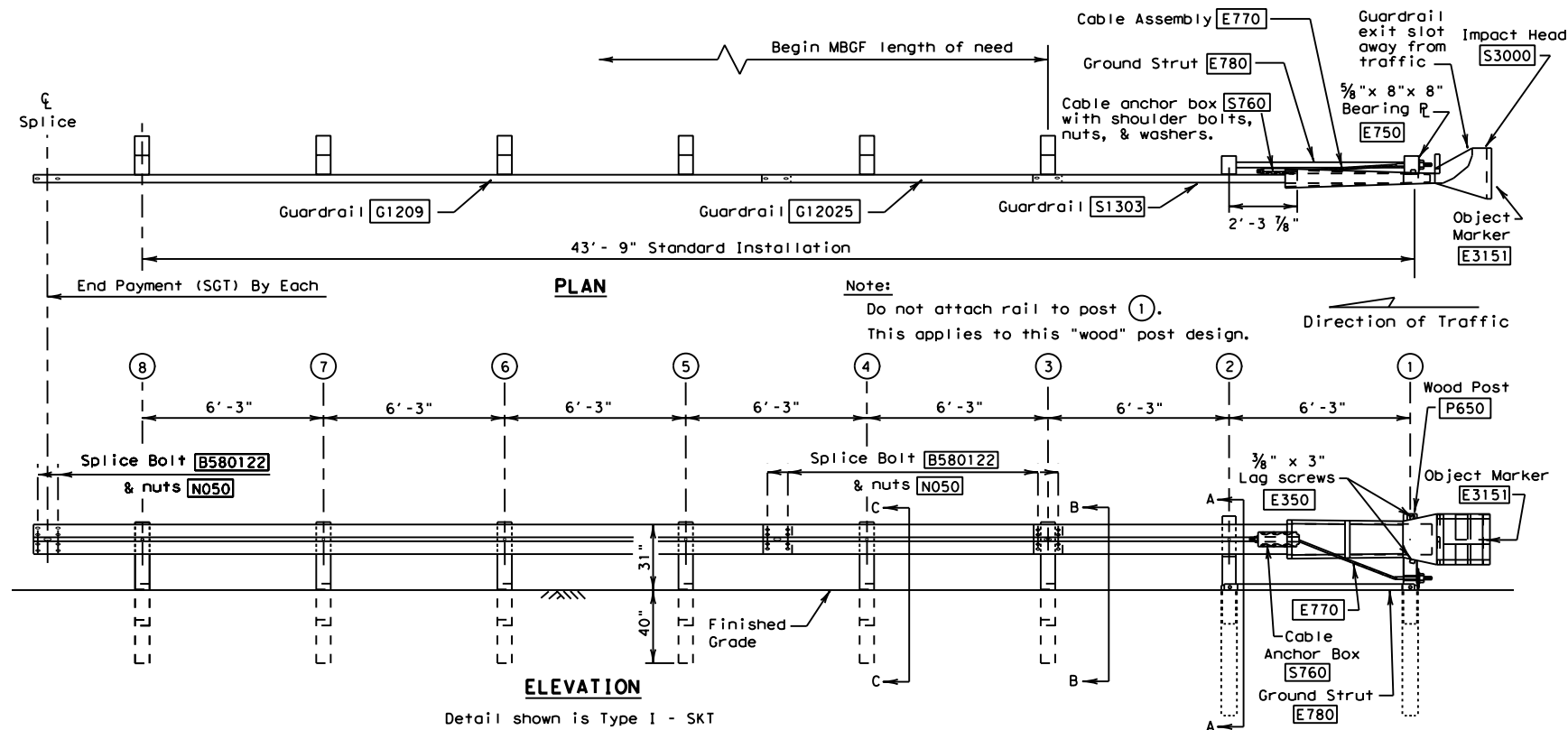
Design
Division
Standard

METAL BEAM GUARD FENCE
(Long Span)

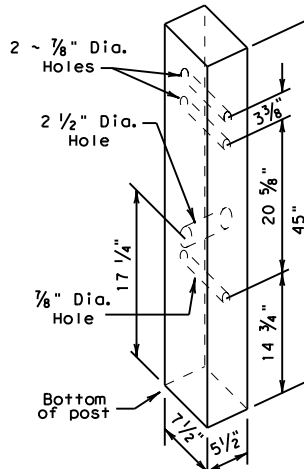
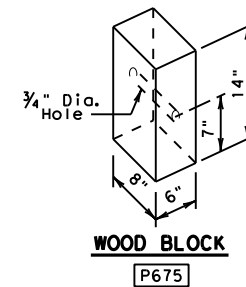
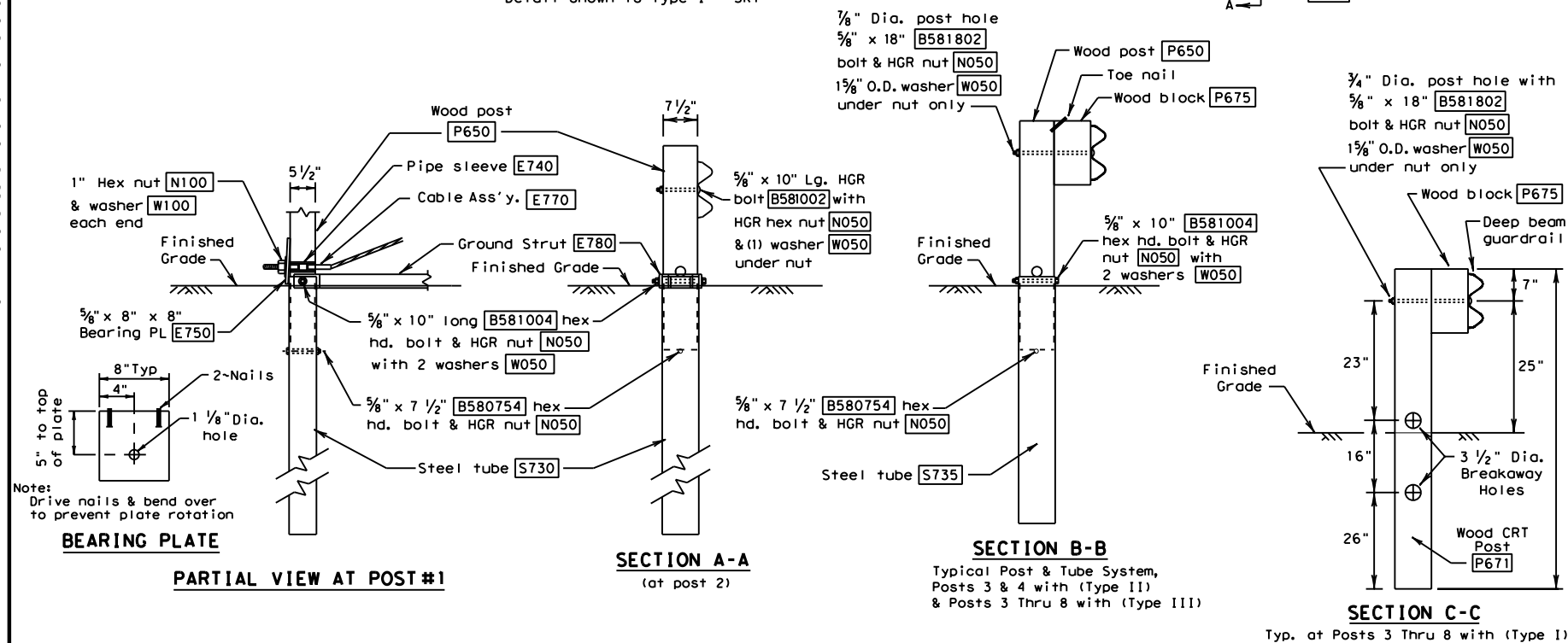
GF (31) LS-14

FILE: gf31ls14.dgn	DN: TxDOT	CK: AM	DW: VP	CK: CGL
© TxDOT: December 2011	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

DATE:
FILE:



Detail shown is Type I - SKT

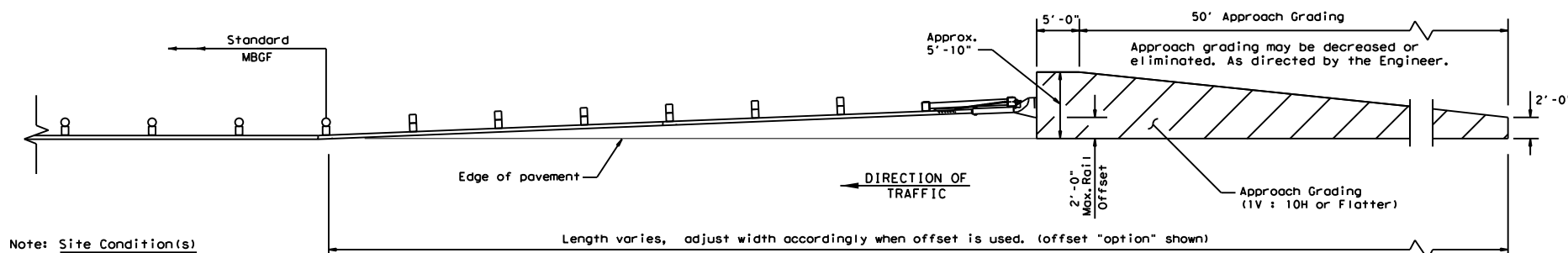


All measurements should be taken from bottom of posts.

UNIVERSAL WOOD POST

P650

POST & TUBE OPTIONS			
Type I	post	①	thru (
Type II	post	①	thru (
Type III	post	①	thru (



Note: Site Condition(s)

Site conditions may exist where grading is required for the proper installation of metal guard fence and end treatments.

APPROACH GRADING AT GUARDRAIL END TREATMENTS

GENERAL NOTES

1. For additional information contact: Interstate Steel Inc. (432) 263-3725
2. The Type of SGT unit will be specified elsewhere in the plans. The numbers in the circles indicate post position. The Type of SGT unit chosen is a maintenance consideration and does not affect the systems performance.

<u>Post & Tube Options</u>				<u>Post Only</u>	
Type I	Posts	①	thru	②	Posts ③ thru ⑧
Type II	Posts	①	thru	④	Posts ⑤ thru ⑧
Type III	Posts	①	thru	⑧	None
3. SGT's placed within the "minimum" 150 ft. radius, shall be installed straight. Standard rail elements may be installed within the radius, without special fabrication.
4. All bolts, nuts cable assemblies, cable anchors, steel tubes & bearing plates shall be galvanized.
5. A flare rate of 25:1 may be used over the first 50 ft. of the system to prevent the terminal head from encroaching the shoulder. The flare may be decreased or eliminated for specific installations, if directed by the Engineer.
6. The steel tubes shall not protrude more than 4 inches above ground. Site grading may be necessary to meet this requirement.
7. The steel tubes may be driven with an approved driving head. They shall not be driven with the wood post in the tube. If the steel tubes are placed in drilled holes, the backfill material must be satisfactorily compacted to prevent tube settlement.
8. If solid rock is encountered. See the Manufacturer's installation manual for the proper installation guidance.
9. The breakaway cable assembly must be taut. A locking device, (vice grips or channel lock pliers) should be used to prevent the cable from twisting when tightening the nuts.
10. The wood blocks shall be "toe nailed" to the rectangular wood posts to prevent them from turning when the wood shrinks. The bearing plate on the front post shall also be "toe nailed" to prevent rotation.
11. For curb installations, the soil tubes and posts shall be installed at the proper ground elevation behind the curb. The posts will then require field drilling new holes to accommodate the rail to post connection bolt to maintain the proper height of the rail above the gutter pan. The excess post length above the rail will be removed if directed by the Engineer.
12. An object marker shall be installed on the front of the impact head as detailed on D&OM(VIA).

POST & TUBE OPTIONS				BILL OF MATERIAL
Item #	Type I	Type II	Type III	DESCRIPTION
S1303	1	1	1	Guardrail (12 Ga.) 12'- 6" SKT
G12025	1	1	1	Guardrail (12 Ga.) 9'- 4 1/2"
G1209	1	1	1	Guardrail (12 Ga.) 25'- 0"
S730	2	2	2	Steel Tube - 6" x 8" x 72" x 1/8" min. or 3/16"
S735	0	2	6	Steel Tube - 6" x 8" x 54" x 1/8" min. or 3/16"
P650	2	4	8	Wood Posts - 5 1/2" x 7 1/2" x 45"
P671	6	4	0	Wood CRT Posts - 6" x 8" x 72"
P675	6	6	6	Wood Block - 6" x 8" x 14"
E740	1	1	1	Pipe Sleeve - 2" Std. Pipe x 5 1/2"
E750	1	1	1	Bearing Plate - 5/8" x 8" x 8"
S760	1	1	1	Cable Anchor Box
E770	1	1	1	Cable Assembly
E780	1	1	1	Ground Strut
S3000	1	1	1	Impact Head
HARDWARE				
B580754	2	4	8	5/8" x 7 1/2" Hex Hd. Bolt
B581004	2	4	8	3/4" x 10" Hex Hd. Bolt (Top of Tubes)
W050	11	15	23	5/8" Washers
B581002	1	1	1	3/4" x 10" HGR Post Bolt (Post 2)
B580122	16	16	16	5/8" x 1 1/4" HGR Splice Bolt
B581802	6	6	6	3/4" x 18" HGR Post Bolt (Posts ③ thru ⑧)
N050	35	39	47	5/8" HGR Nut (24-Spl, Varies-Posts, 2-Strut)
E350	2	2	2	3/8" x 3" Lag Screw
N100	2	2	2	1" Hex Nut (Anchor Cable)
W100	2	2	2	1" Washer (Anchor Cable)
SB12A	8	8	8	Cable Anchor Box Shoulder Bolts
N012A	8	8	8	1/2" Structural Nut
W012A	8	8	8	1/2" Structural Washer
E3151	1	1	1	Object Marker - (18" x 18")



Texas Department of Transportation

**Design
Division
Standard**

**SINGLE GUARDRAIL TERMINAL
(SKT-31)**

SGT (8) 31-14

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REVISONS				
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