DRAWING INDEX

SHEET NO	DESCRIPTION
1 of 4	GENERAL NOTES
2 of 4	X-MAS 31" SYSTEM LAYOUT
3 of 4	X-MAS 31" ASSEMBLY
4 of 4	BILL OF MATERIALS, STEEL POST WITH TIMBER BLOCKOUT, 31"

X-MAS MEDIAN ATTENUATOR SYSTEM, 31" - PERMANENT

1. THE ENERGY ABSORBING SYSTEM REPRESENTED ON THIS APPROVED PRODUCT LIST (APL) IS A PROPRIETARY DESIGN BY LINDSAY TRANSPORTATION SOLUTIONS AND MARKETED UNDER THE TRADE NAME X-MAS.
2. THE X-MAS IS A REDIRECTIVE, NON-GATING CRASH CUSHION WHICH IS SUITED FOR SHIELDING THE ENDS OF DOUBLE FACE W-BEAM GUARDRAIL SYSTEMS. THE X-MAS CAN BE USED IN PERMANENT APPLICATIONS. THE BEGINNING OF LENGTH OF NEED SHALL BE AT THE POINT OF INTERSECTION BETWEEN THE FACE OF THE CRASH CUSHION AND THE DEPARTURE LINE, AT THE CENTERLINE OF POST 1.
3. THE X-MAS HAS BEEN EVALUATED TO NCHRP 350 CRASH TEST CRITERIA AND IS SUITABLE FOR TEST LEVEL 2 AND TEST LEVEL 3 APPROACH TERMINAL APPLICATIONS.
4. THE X-MAS SHALL BE ASSEMBLED AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S DETAILED DRAWINGS, PROCEDURES, SPECIFICATIONS, PRODUCT MANUAL, OR SUITABLE GUIDE. INFORMATION AND COPIES OF THE ABOVE MANUALS ARE AVAILABLE ON THE APL.
5. THE X-MAS IS AVAILABLE IN 24" NOMINAL WIDTH AND MATCHES THAT OF DOUBLE FACE W-BEAM GUARDRAIL. THE SYSTEM WIDTH SHALL BE CALLED OUT IN THE PLANS, PERMIT OR OTHER CONTRACT DOCUMENT FOR EACH LOCATION.
6. THE X-MAS SHALL BE CONSTRUCTED PARALLEL TO THE APPROACH TRAVEL LANE AND ON CROSS SLOPES 1:10 OR FLATTER.
7. METALLIC COMPONENTS SHALL MEET THE GALVANIZING REQUIREMENTS FOR GUARDRAIL, SPECIFICATION 967OF THE FDOT SPECIFICATIONS.
8. A YELLOW TYPE 1 OBJECT MARKER SHALL BE CENTERED 3 FT IN FRONT OF THE X-MAS. MOUNTING HARDWARE SHALL BE IN CONFORMANCE WITH SPECIFICATION 993. AS AN ALTERNATIVE, THE CONTRACTOR HAS THE OPTION TO INSTALL REFLECTIVE SHEETING ON THE NOSE OF THE CRASH CUSHION IN LIEU OF THE OBJECT MARKER. THE SHEETING MUST BE SOLID YELLOW, TYPE IV OR BETTER, AND MUST BE A PRODUCT LISTED ON THE DEPARTMENT'S APL. THE MARKER OR SHEETING SHALL BE INCLUDED IN THE COST OF THE X-MAS SYSTEM. THE SHEETING TO BE APPLIED TO THE NOSE OF THE CRASH CUSHION SHALL BE A MINIMUM OF 360 SQUARE INCHES WITH A MINIMUM HEIGHT OF 15 INCHES.
9. QUANTITY OF PAYMENT IS BASED ON EACH INDEPENDENT LOCATION AS CALLED FOR IN THE PLANS OR AS DIRECTED BY THE ENGINEER. THE COST OF SUBGRADE PREPARATION AND OTHER APPURTENANT CONSTRUCTION WILL BE INCLUDED IN THE COST OF THE X-MAS.
10. IN COMPLIANCE WITH THE AASHTO 2011 ROADSIDE DESIGN GUIDE, REMOVE ALL CURBS AND ISLANDS TO ENSURE PROPER IMPACT PERFORMANCE.
11. NO CONCRETE PAD REQUIRED. THE GUARDRAIL MOW STRIP SHOULD BE CONTINUED UNDER THE X-MAS PER FDOT INDEX 400.
12. UNITS OF MEASURE ARE IN ENGLISH UNITS.
13. THE X-MAS IS NOT INTENDED FOR USE IN GORE AREAS OF FREEWAY AND EXPRESSWAY MAINLINE RAMP TERMINALS, GORES OF ROADWAY FORKS OR OTHER GORE LOCATIONS WHERE THERE IS A HISTORY OF HIGH FREQUENCE VEHICLE DEPARTURES FROM THE ROADWAY, OR WHERE THE POTENTIAL EXISTS FOR SUCH DEPARTURES. THE X-MAS IS WELL SUITED FOR THE ENDS OF GUARDRAIL IN MEDIAN CROSSOVERS.
14. REGARDING THE ORIENTATION OF PANEL LAP SPLICES, INSTALL THE X-MAS SYSTEM AS SHOWN IN THE DRAWINGS, REGARDLESS OF THE DIRECTION OF TRAFFIC IN THE ADJACENT LANES (I.E. PANEL LAPPING MAY NOT BE IN THE DIRECTION OF TRAFFIC UNDER SOME CONDITIONS).
15. FOR THE X-MAS SYSTEM TO FUNCTION PROPERLY, I.E. TELESCOPE TO ABSORB ENERGY, THE GUARDRAIL PANELS WITHIN THE END TERMINAL MUST BE PROPERLY LAPPED STARTING FROM THE TERMINAL HEAD; FIRST PANEL IS LAPPED ON TOP OF START OF SECOND PANEL, SECOND PANEL IS LAPPED OVER TOP OF THIRD PANEL.

GERRIT ANDREW DYKE LICENSE NO. 65903 STATE OF FLORIDA PROFESSIONAL ENGINEER 9/28/17

APPROVALS

DRAWN BY:	JMT
DRAWN DATE:	11/19/13
APPR'D BY:	GAD
APPR'D DATE:	11/05/14

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE:
FRACTIONS ±1/16 DECIMAL .XX = ±.03 .XXX = ±.010 ANGLES ±1/2°
INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5-1994

THIRD ANGLE PROJECTION

DO NOT SCALE DRAWING

REV	ECN#	DATE
2	ADDED NOTES 14&15	9/28/17
1	AP 01006	10/15/14
0	AP 01006	11/19/13

LINDSAY™ TRANSPORTATION SOLUTIONS
BARRIER SYSTEMS INC.
180 River Road
Rio Vista, CA 94571
Tel: 888-800-3691
www.barriersystemsinc.com

TITLE: X-MAS MEDIAN ATTENUATOR SYSTEM, 31"
STATE OF FLORIDA DOT
APL NO. S544-000-048

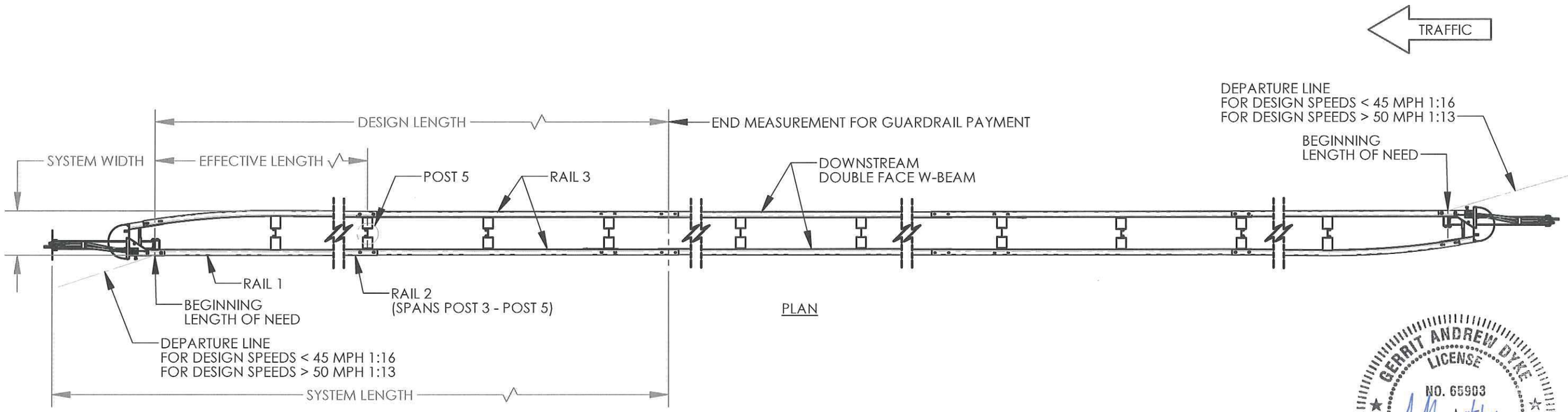
SIZE	DWG NO.	REV.
B	BSI-1311015-AP	2

SCALE	FDOT APL	SHEET
NTS	S544-000-048	1 OF 4

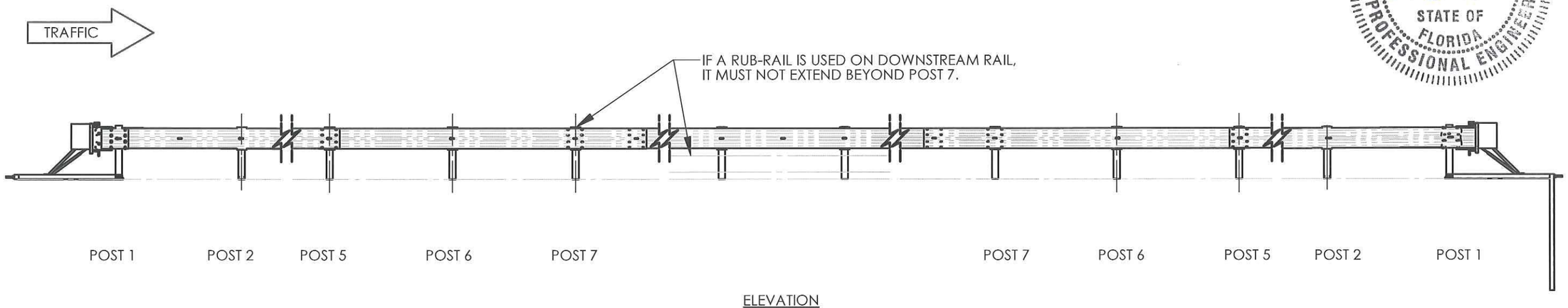
Doc. B100108

Last Saved by: nvoelte; Friday, July 14, 2017 2:40:00 PM

SYSTEM WIDTH	MODEL NUMBER	SYSTEM LENGTH	DESIGN LENGTH	EFFECTIVE LENGTH	PAD LENGTH	PRODUCT SPECIFIC DATA
2'-0"	XTMTSS4-MGSL	45'-11 1/2"	40'-7 1/2"	25'-0"	N/A	RAIL 3 OF THE X-MAS (BEYOND POST 5) CAN BE CONSIDERED PART OF STANDARD GUARDRAIL SYSTEM, THEREFORE NOT INCLUDED IN EFFECTIVE LENGTH.



PLAN



ELEVATION

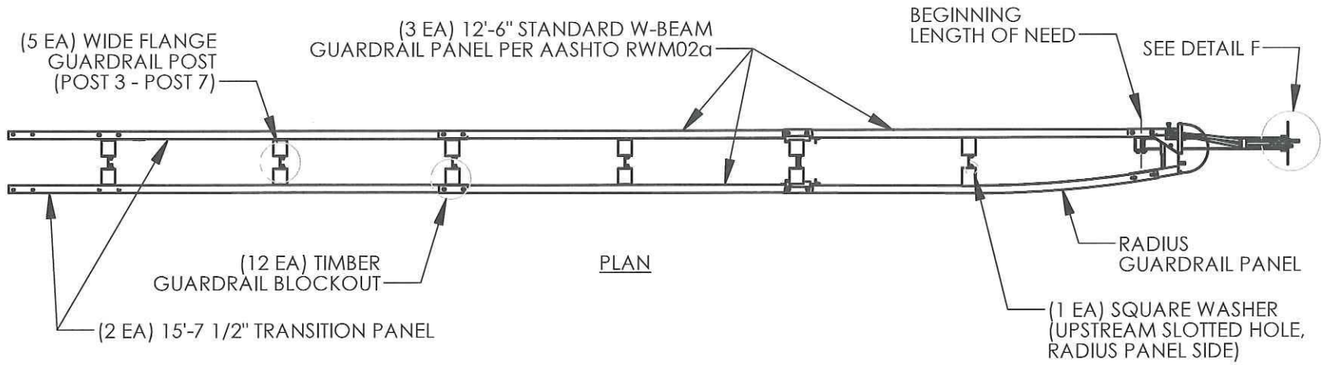
GERRIT ANDREW DYKE
LICENSE
NO. 65903
11/5/14
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

X-MAS 31" SYSTEM LAYOUT

SIZE	DWG NO.	REV.
B	BSI-1311015-AP	1
SCALE 1:64	FDOT QPL S544-000-048	SHEET 2 OF 4

Doc. B100108

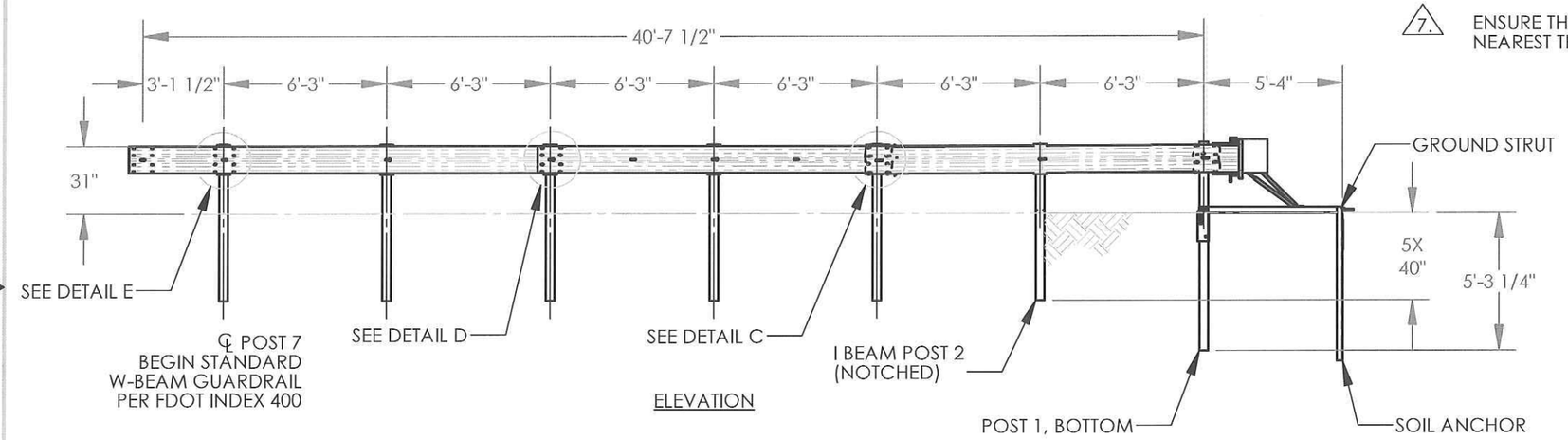
Last Saved by: jeff.thompson; Wednesday, November 05, 2014 11:00:27 AM



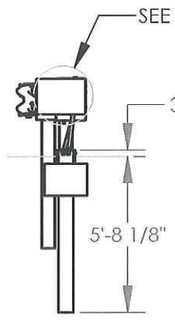
PLAN

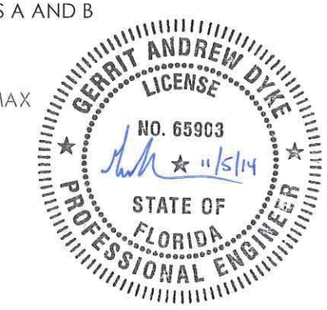
NOTES:

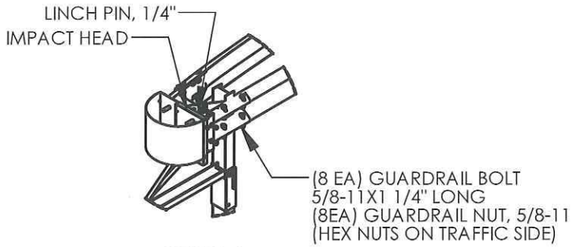
1. X-MAS TO BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS.
2. ONLY TIGHTEN THE CABLE ASSEMBLIES USING THE HEX NUTS AT THE REAR CABLE BRACKETS AND ONLY AFTER THE FRICTION PLATE HAS BEEN TURNED AT THE HEAD ASSEMBLY. DO NOT TIGHTEN THE CABLE ASSEMBLIES AT THE FRONT OF THE GROUND STRUT.
3. THE SPECIAL SHEAR BOLTS USED TO CONNECT THE W-BEAM PANELS AT POST 5 ARE DIFFERENT THAN STANDARD GUARDRAIL SPLICE BOLTS. FOR EASY IDENTIFICATION, THEY ARE SUPPLIED WITH YELLOW HEADS.
4. ADDITIONAL HARDWARE IS PROVIDED TO SPLICE X-MAS TO EXISTING GUARDRAIL AT POST 7.
5. NO RUB RAIL SHALL BE INSTALLED BETWEEN POST 1 AND POST 7.
6. THE RADIUS GUARDRAIL PANEL (PART NO. B070233) SHOULD ALWAYS BE INSTALLED ON THE OPPOSITE SIDE OF THE HEAD-ON DEPARTENSURE THAURE IMPACT (BACKSIDE OF SYSTEM).
7. ENSURE THE BOTTOM CABLE PASSES THROUGH THE GROUND STRUT HOLE NEAREST THE STRAIGHT (NON-RADIUS) SIDE OF THE SYSTEM.



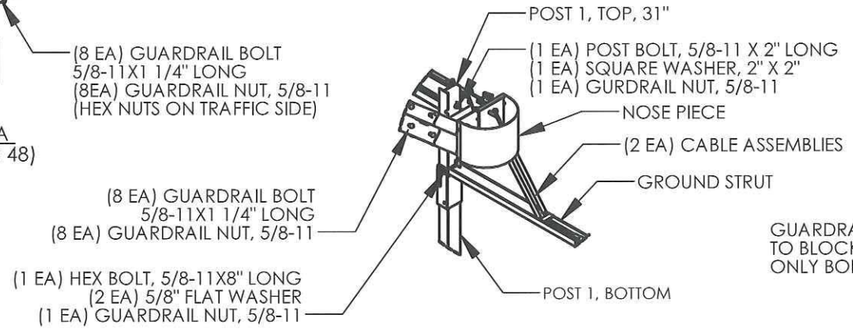
ELEVATION



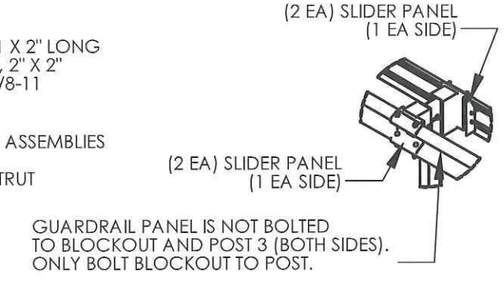




DETAIL A
(SCALE 1 : 48)



DETAIL B
(SCALE 1 : 48)



DETAIL C
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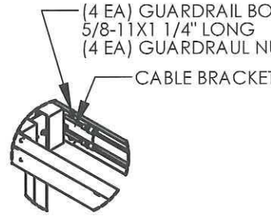

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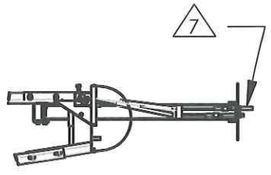

DETAIL F
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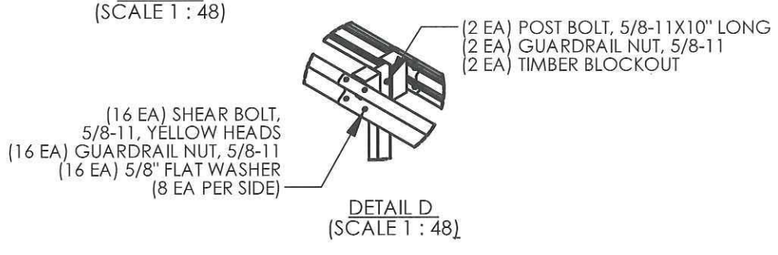

DETAIL D
(SCALE 1 : 48)

X-MAS 31" ASSEMBLY

SIZE	DWG NO.	REV.
B	BSI-1311015-AP	1
SCALE 1:64	FDOT QPL S544-000-048	SHEET 3 OF 4

X-MAS MEDIAN ATTENUATOR SYSTEM BILL OF MATERIALS
(STEEL POST WITH TIMBER BLOCKOUT, 31" CONFIGURATION)

PARTNO.	QTY	DESCRIPTION	SPECIFICATION
B061072	1	HEAD UNIT WELDMENT	X-MAS
B061058	1	CABLE FRICTION PLATE, HEAD UNIT	X-MAS
B061079	2	SLIDER BRACKET WELDMENT	X-MAS
B061088	2	SLIDER PANEL WELDMENT, W-BEAM	X-MAS
B061083	1	CABLE BRACKET WELDMENT	X-MAS
B061109	2	CABLE ASSEMBLY	X-MAS
B061094	1	GROUND STRUT WELDMENT	X-MAS
B061104	1	SOIL ANCHOR WELDMENT	X-MAS
B061098	1	BOTTOM POST WELDMENT, POST 1	X-MAS
BSI-1009044-00	1	POST #1,TOP,40.875,X350 31"	X-MAS
B061100	1	I-BEAM POST,POST 2	X-MAS
B071001	1	NOSE PIECE	X-MAS
B070219	1	IMPACT HEAD WELDMENT	X-MAS
B061236	1	BAR, MEDIAN GUARDRAIL TERMINAL	X-MAS
B070233	1	PANEL, RADIUS GUARDRAIL, W-BEAM, X-MAS	X-MAS
4000443	3	W-BEAM GUARDRAIL	FDOT
BSI-1410067-00	2	TRANSITION PANEL, 15'-7 1/2"	X-MAS
4002337	12	W-BEAM TIMBER BLOCKOUT	FDOT
BSI-1012078-00	5	WIDE FLANGE GUARDRAIL POST, POST 3 - 7	FDOT
4002305	4	NYLON RIVET	X-MAS
4001115	48	GUARDRAIL SPLICE BOLT, 5/8-11X1 1/4"	FDOT
2000302	1	POST BOLT, 5/8-11X2"	FDOT
2001635	12	POST BOLT, 5/8-11X10"	FDOT
4001116	60	GUARDRAIL NUT, 5/8-11	FDOT
2001717	1	HEX BOLT, 5/8-11X8"	FDOT
2001615	4	HEX BOLT, M20-2.5X75mm	FDOT
2001636	2	ROUND WASHER, 5/8"	FDOT
K080123	2	SHEAR BOLT KIT, YELLOW HEAD, W/NUT & WASHER	X-MAS
B070805	2	SQUARE WASHER, 2"X2, 3/4" HOLE	FDOT
2000090	1	LINCH PIN, 1/4"	X-MAS

NOTES:

1. ALL GUARDRAIL POSTS, PANELS, BLOCKOUTS AND ASSOCIATED HARDWARE SHALL BE IN ACCORDANCE WITH FDOT STANDARD SPECIFICATION 536 AND INDEX 400.
2. FOR CONNECTIONS TO THRIE-BEAM GUARDRAIL, A W-THRIE BEAM TRANSITION PANEL PER AASHTO RWT02 SHALL BE INSTALLED DOWNSTREAM OF POST 7. FOR GUARDRAIL CONNECTION TO CONCRETE BARRIER WALL APPROACH ENDS, SEE THE "MEDIAN BARRIER WALL" CONNECTION DETAIL, INDEX 410.
3. IN LIEU OF TIMBER OFFSET BLOCKS, COMPOSITE OFFSET BLOCKS MEETING THE REQUIREMENTS OF SPECIFICATION SECTION 536 MAY BE USED.

X-MAS STEEL POST WITH TIMBER BLOCKOUT, 31" BILL OF MATERIALS

GERRIT ANDREW DYKE
LICENSE
NO. 65903
11/5/14
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

SIZE	DWG NO.	REV.
B	BSI-1311015-AP	1
SCALE NTS	FDOT QPL S544-000-048	SHEET 4 OF 4

Doc. B100108

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