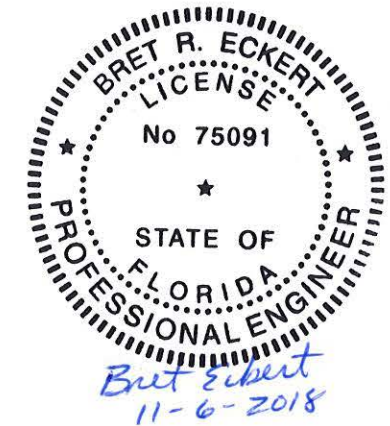


**QUADGUARD® ELITE FAMILY (Temporary)
S102-4115**

1. The energy absorbing system represented on these Qualified Products List (QPL) drawings is a proprietary design by Energy Absorption Systems, of Trinity Industries, Inc., and marketed under the name QUADGUARD® Elite Family (QGE).
2. The QGE is a unidirectional and bidirectional, when appropriate transitions are used, non-gating, redirective crash cushion which is well suited for use shielding hazards. The QGE is used for temporary installations. The beginning length of need shall be at the point of intersection between the face of the crash cushion and the departure line.
3. The QGE is an NCHRP-350 crash cushion suitable for Test Level 2 and Test Level 3 crash cushion applications.
4. The QGE shall be assembled and installed in accordance with the manufacturer's detailed drawings, procedures, specifications and installation guide. Information and copies of the above manual are available on the Qualified Products List (QPL).
5. The QuadGuard Elite Tension Strut Backup is the primary backup to be used on Florida Department of Transportation projects.
6. The QGE is available in 24" and 30", nominal widths. The system width will be as called out in the plans, permit or other contract document for each location.
7. Only the QGE Type 1, Type 2 and QEN energy absorbing cylinders shall be used as shown on the drawings.
8. Metallic components shall meet the galvanizing requirements for guardrail, section 967 of the FDOT specifications.
9. A yellow Type 1 Object Marker shall be centered 3' in front of the nose of the QGE. Mounting hardware shall be in conformance with index no. 11860. The cost of the Object Marker shall be included in the cost of the QGE. As an option, the contractor may install reflective sheeting on the nose of the crash cushion. The sheeting to be used must be solid yellow, Type III or better and must be a product listed on the Department's Qualified Products List (QPL). 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.

10. Quantity for payment is based on each independent location as called for in the plans or as directed by the Engineer. The cost of foundations, subgrade preparation and other appurtenant construction will be included in the cost of the QGE.
11. In compliance with AASHTO 2011 Roadside Design Guide, remove all curbs and islands to ensure proper impact performance.
12. Supply adequate transition from the QGE system to the object being shielded.
13. Units of measure are in English units.

TABLE OF CONTENTS	
TITLE	SHEET
QUADGUARD® ELITE FAMILY	2
DIAPHRAGM ASSEMBLY	3
NOSE ASSEMBLY 24, 30, 36	4
FENDER PANEL ASSEMBLY	5
BACKUP ASSEMBLY	6
MONORAIL ASSEMBLY	7
PLATE ASSEMBLY, BOLT-ON MONORAIL	8
CONCRETE PAD	9
BAY ASSEMBLIES	10&11
CHAIN ASSEMBLY, BAYS 1 & 2	12
HIT INDICATOR ASSEMBLY	13
4" OFFSET TRANSITION ASSEMBLY	14

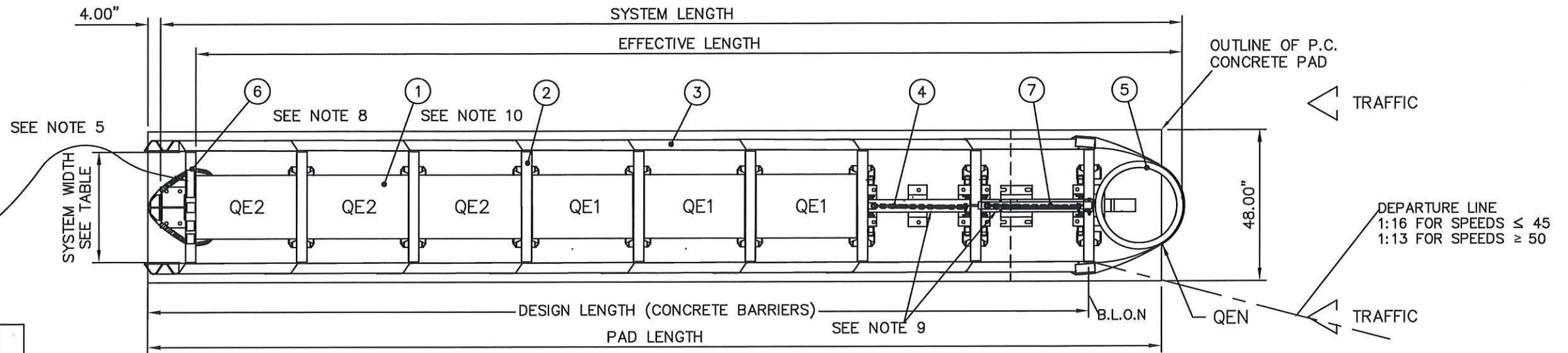


DRAWN: S. Trageser	DATE: 03/13/2012	MODEL NO: N/A
CHECKED: K. Looney	DATE: 03/13/2012	FILE: 60-36-66 SH01.dwg
UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE IN METERS [INCH]. DIMENSIONS ACCORDING TO ASME Y14.5M-1994 AND THP-SE-003 UNLESS OTHERWISE SPECIFIED.		
DO NOT SCALE DRAWING		
Revision	ECO	Date Rev By Chk.
SEE SHEETS 7 & 8	6050	09/13/18 A JMS BRE

QUADGUARD® ELITE FAMILY
TEMPORARY DRAWING SET
FOR APL 102-041-015



DRAWING: 60-36-66	REV: A	SHEET: 1 of 14
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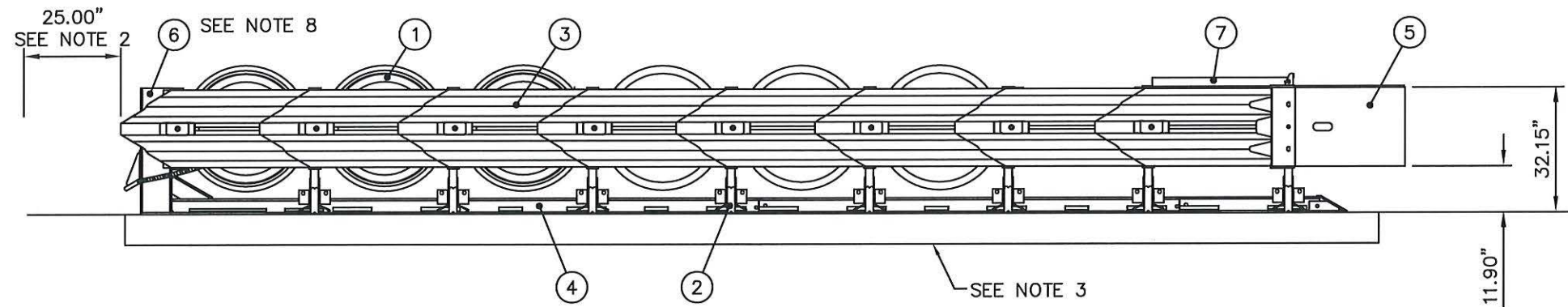
FLORIDA QPL# S102-4115
ON ALL PRODUCTS DECAL (114461B)

CAUTION
To ensure that this safety product will function properly to reduce the severity of vehicle impacts, this product should be located, installed, and maintained following recommendations given in the product manuals and drawings supplied with the system. Installers and users should heed warnings and cautions. Failure to do so may result in improper product performance and possible bodily injury. Copies of product manuals and answers to questions can be obtained by calling ENERGY ABSORPTION SYSTEMS, Customer Service Department at (888)323-6374.

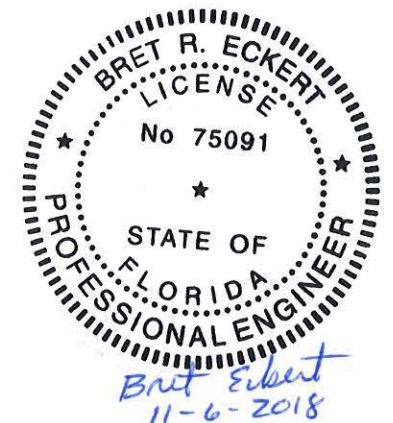
SALES ORDER # _____
PART # _____
SERIAL # _____
DATE INFO. _____
SHIP DATE _____

FLORIDA QPL# S102-4115

PLAN



ELEVATION
LEFT SIDE



NOTES:

- IN COMPLIANCE WITH THE AASHTO 2011 ROADSIDE DESIGN GUIDE, MANUFACTURER RECOMMENDS REMOVAL OF ALL CURBS AND ISLANDS TO ENSURE PROPER IMPACT PERFORMANCE.
- PROVISION SHALL BE MADE FOR REAR FENDER PANELS TO SLIDE REARWARD UPON IMPACT 25.00" MIN.
- 8.00" MIN. REINFORCED 4000 PSI P.C. CONCRETE PAD OR 8.00" MIN. NON-REINFORCED 4000 PSI P.C. CONCRETE ROADWAY (MEASURING AT LEAST 12' WIDE AND 50' LONG).
- SEE THE "QUADGUARD ELITE SYSTEM PRODUCT MANUAL" FOR A DESCRIPTION OF ITS IMPACT PERFORMANCE CHARACTERISTICS AND DESIGN LIMITATIONS BEFORE PLACING A SYSTEM AT A GIVEN SITE. INFORMATION AND COPIES OF ABOVE MANUAL ARE AVAILABLE ON THE QPL.
- FOR PROPER IMPACT PERFORMANCE, THE UNIT MUST BE RESTORED TO ITS ORIGINAL LENGTH AFTER EACH IMPACT.
- BACKUP ASSEMBLY NOT INCLUDED IN MODEL NUMBER..
- CHAINS SHOWN INCLUDED IN BAYS 1 & 2 ONLY..
- 5 BAY QUADGUARD ELITE SYSTEMS USE ONLY QE1 AND QEN CYLINDERS.
- THE QUADGUARD ELITE FAMILY HAS BEEN TESTED TO NCHRP 350 TL-3 AS A REDIRECTIVE, NON-GATING SYSTEM. THE MODEL NUMBERS LISTED IN THE TABLE ARE ACCEPTED FOR SPEEDS EQUAL TO OR LESS THAN THE LISTED WORKZONE SPEED.
- FHWA ACKNOWLEDGES THAT HIGHWAY SAFETY HARDWARE TESTED TO NCHRP REPORT 350 TL-3 AT 62.1 mph IS ELIGIBLE FOR FHWA MATCHING FUNDS WHEN INSTALLED ON HIGHWAYS WITH POSTED SPEEDS GREATER THAN 62.1 mph.

BAYS	24" WIDTH MODEL#	30" WIDTH MODEL#	SYSTEM LENGTH	EFFECTIVE LENGTH	PAD LENGTH	DESIGN LENGTH	WORKZONE SPEED	TESTED TO	# OF CYLINDERS TYPE QE1	TYPE QE2
5	QS2405E	QS3005E	17'-11"	17'-7"	18'-0"	16'-3"	45 mph	TL-2	3	0
8	QS2408E	QS3008E	26'-7"	25'-11"	27'-1"	25'-0"	60 mph *	TL-3	3	3

* FOR FACILITIES WITH A WORKZONE SPEED OF ≥ 50 mph USE A 8 BAY SYSTEM. FOR FACILITIES WITH A WORKZONE SPEED OF ≤ 45 mph USE A 5 BAY. SEE NOTE 9 & 10.

KEY

- ① CARTRIDGE
- ② DIAPHRAGM
- ③ FENDER PANEL
- ④ MONORAIL
- ⑤ NOSE ASSEMBLY
- ⑥ BACKUP

REFERENCES

SERIAL#	_____	DIAPHRAGM ASSY.	SHEET 3
SALES ORDER#	_____	NOSE ASSY.	SHEET 4
EH PROJECT#	EH 8942-5	FENDER PANEL ASSY.	SHEET 5
DESIGN SPEED	SEE CHART	BACKUP ASSY.	SHEET 6
NOSE COLOR	_____	MONORAIL ASSY.	SHEET 7
NUMBER OF UNITS	_____	CONCRETE PAD	SHEET 9
TRANSITION ASSY.	SHEET 14	BAY ASSY.	SHEETS 10 & 11
BOLT-ON PLATE ASSY.	SHEET 8	CHAIN ASSY.	N/A
		CHAIN ASSY. BAY 1 & 2	SHEET 12
		HIT INDICATOR ASSY.	SHEET 13

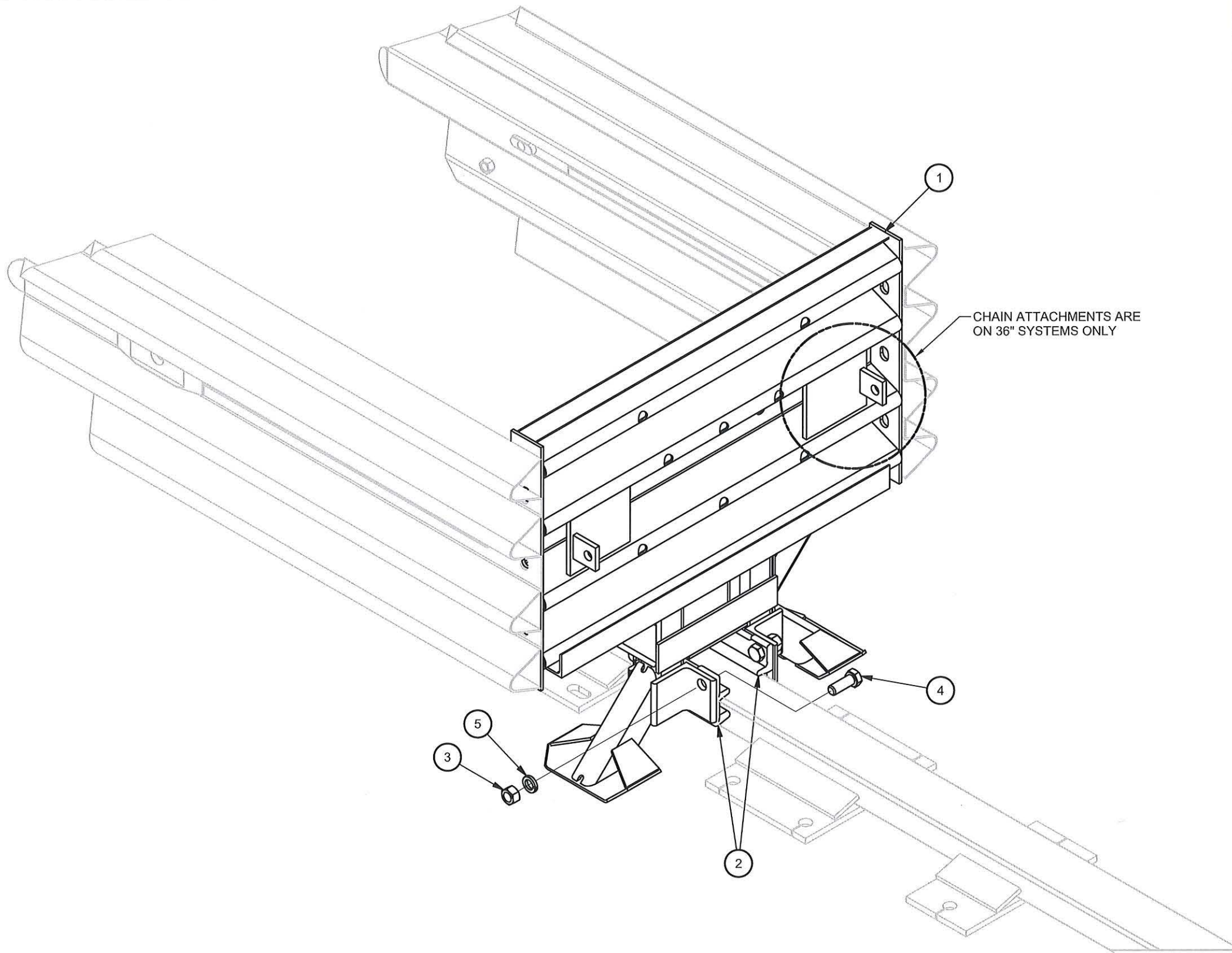
DRAWN:	S. TRAGESER	DATE:	03/14/12	MODEL NO.:	SEE TABLE
CHECKED:	K. LOONEY	DATE:	03/21/12	FILE:	60-36-66 SH02.dwg
UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE IN METERS (INCH). DIMENSIONS ACCORDING TO ASME Y14.5M AND CEMC-THP-SE-003 UNLESS OTHERWISE SPECIFIED.					
DO NOT SCALE DRAWING					
Revision	ECO	Date	09/12/18	Rev	A
SEE SHEETS 7 & 8	6050			JMS	BRE

QUADGUARD® ELITE™ FAMILY TEMPORARY
W/ TENSION STRUT BACKUP, FOR FLORIDA

APL 102-041-015

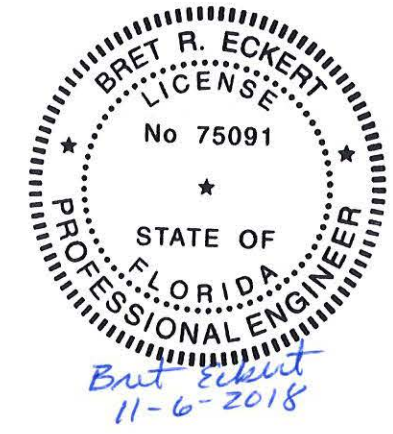
DRAWING:	60-36-66	REV:	A	SHEET:	2 of 14
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PARTS LIST			
ITEM	STOCK NO.	DESCRIPTION	QTY.
1	SEE TABLE	DIAPHRAGM,QB,36,QGE	1
2	611368	MONORAIL GUIDE,QG,G	2
3	003704	NUT,HX,3/4,G	4
4	113555	BOLT,HX,3/4X2,G8,G	4
5	118089	WASHER,LOCK,3/4,G	4

Table		
WIDTH	ASSEMBLY NO.	ITEM 1 PART NO.
24"	607187	607820
30"	607189	607826

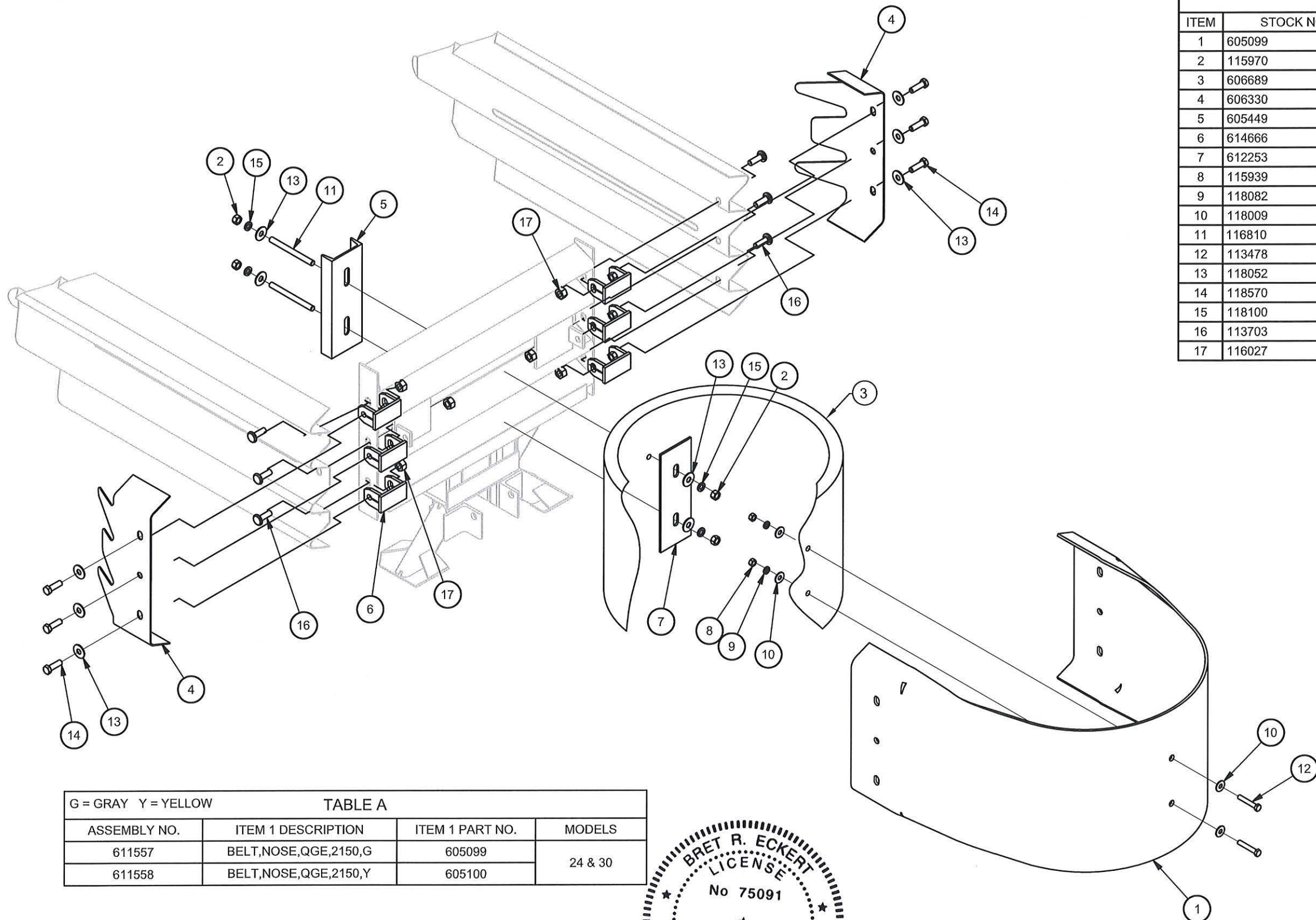


DRAWN: S. Trageser	DATE: 03/15/2012	MODEL NO: SEE TABLE
CHECKED: K. Looney	DATE: 03/21/2012	FILE: 60-36-66 SH03.dwg
UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE IN METERS [INCH], DIMENSIONS ACCORDING TO ASME Y14.5M-1994 AND THP-SE-003 UNLESS OTHERWISE SPECIFIED.		
DO NOT SCALE DRAWING		
Revision	ECO	Date
SEE SHEETS 7 & 8	6050	09/13/18
	Rev	By
	A	JMS
	Chk.	BRE

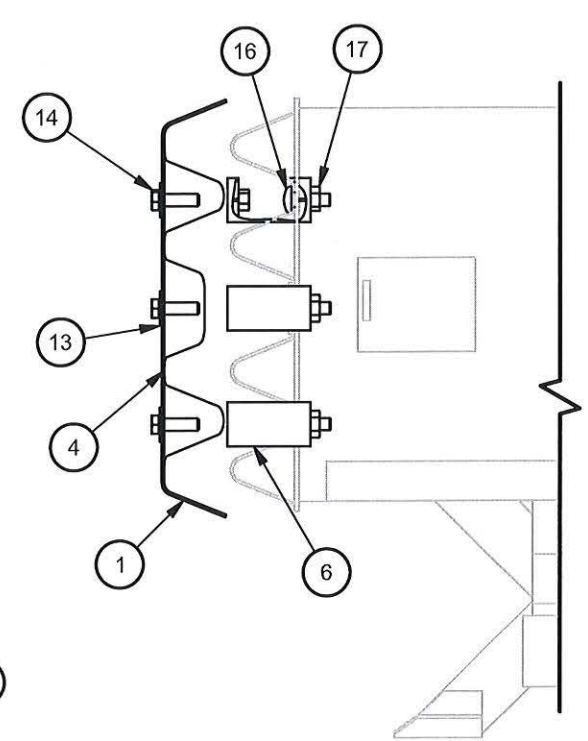
QUADGUARD® ELITE™ FAMILY
TEMPORARY
 DIAPHRAGM ASSY,QGE,24,30
 APL 102-041-015

DRAWING: 60-36-66
 REV: A





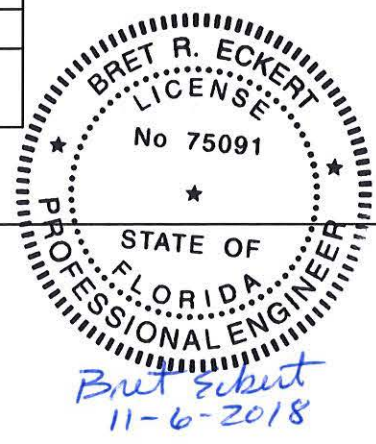
PARTS LIST			
ITEM	STOCK NO.	DESCRIPTION	QTY.
1	605099	BELT,NOSE,84 5/8,QGE,24&30,G	1
2	115970	NUT,HX,5/8,G	4
3	606689	CYLINDER,NOSE,HDPE,28X20	1
4	606330	CLAMP,NOSE BELT,QG	2
5	605449	BRACKET,CHAIN MOUNT,VERT TAB,G	1
6	614666	STOP,TAB,WRAP,WELDMENT	6
7	612253	PLATE,NOSE CYLINDER	1
8	115939	NUT,HX,1/2,G	2
9	118082	WASHER,LOCK,1/2,G	2
10	118009	WASHER,FLAT,1/2X1 3/8,G	4
11	116810	ROD,THREADED,5/8X7,G5,G	2
12	113478	BOLT,HX,1/2X3,G5,G	2
13	118052	WASHER,FLAT,5/8 X 1 3/4, G	10
14	118570	BOLT,HX,5/8X2,G5,G	6
15	118100	WASHER,LOCK,5/8,G	4
16	113703	BOLT,SPLICE,M16X50,8.8,G	6
17	116027	NUT,HX,SPLICE,M16,G	6



SECTION A-A
SCALE 1 / 10

G = GRAY Y = YELLOW

TABLE A			
ASSEMBLY NO.	ITEM 1 DESCRIPTION	ITEM 1 PART NO.	MODELS
611557	BELT,NOSE,QGE,2150,G	605099	24 & 30
611558	BELT,NOSE,QGE,2150,Y	605100	

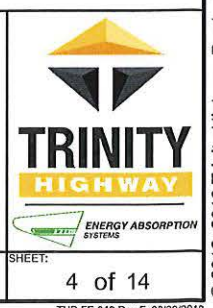


DRAWN: S. Trageser	DATE: 03/15/2012	MODEL NO: SEE TABLE
CHECKED: K. Looney	DATE: 03/21/2012	FILE: 60-36-61 SH04.dwg
UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE IN METERS [INCH]. DIMENSIONS ACCORDING TO ASME Y14.5M-1994 AND THP-SE-003 UNLESS OTHERWISE SPECIFIED.		
Revision	ECO	Date Rev By Chk.
SEE SHEETS 7 & 8	6050	09/13/18 A JMS BRE

QUADGUARD® ELITE™ FAMILY
TEMPORARY

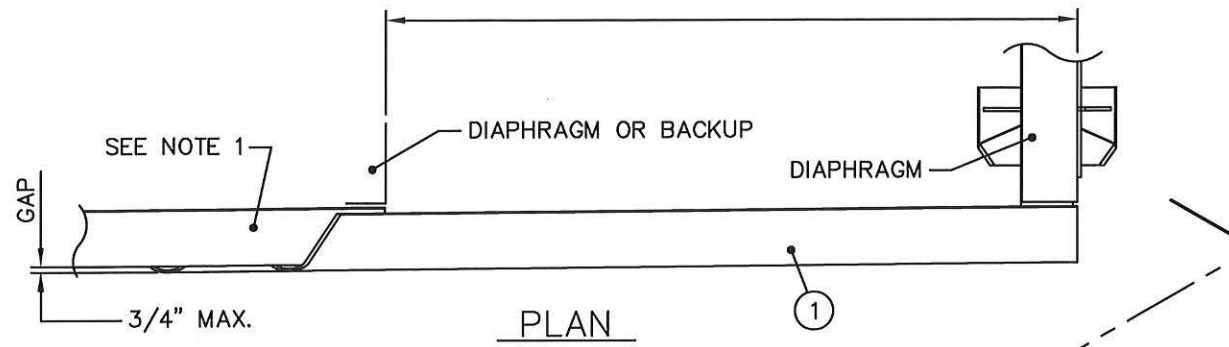
NOSE ASSY,QGE,24,30,G OR Y
APL 102-041-015

DRAWING: 60-36-66 REV: A SHEET: 4 of 14



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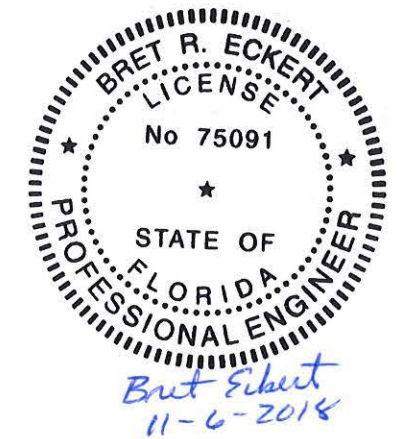
36.00 (Quadguard Elite - 1st & 2nd Bays)
 35.00 (Quadguard Elite - 3rd thru Last Bays)



1	611832	PANEL,FENDER,QQ,G	1.00
2	113703	BOLT,SPLICE,M16X50,8.8,G	2.00
3	116027	NUT,HX,SPLICE,M16,G	2.00
4	617045	WASHER,MUSHROOM,FORGED,QQ,G	1.00
5	116878	SCREW,FL,5/8X5,G8,G,SOCKET	1.00
6	115970	NUT,HX,5/8,G	1.00
7	118052	WASHER,FLAT,5/8X1 3/4,G	1.00
8	117459	SPRING,DIE,1 1/4 OD X5/8X1 1/2	1.00

TWO FENDER PANEL ASSEMBLIES REQUIRED PER BAY.

THE SPRING (ITEM 8) SHOULD BE COMPRESSED 1/16" TO 1/8" TO COMPLETE THE ASSEMBLY.



NOTES:

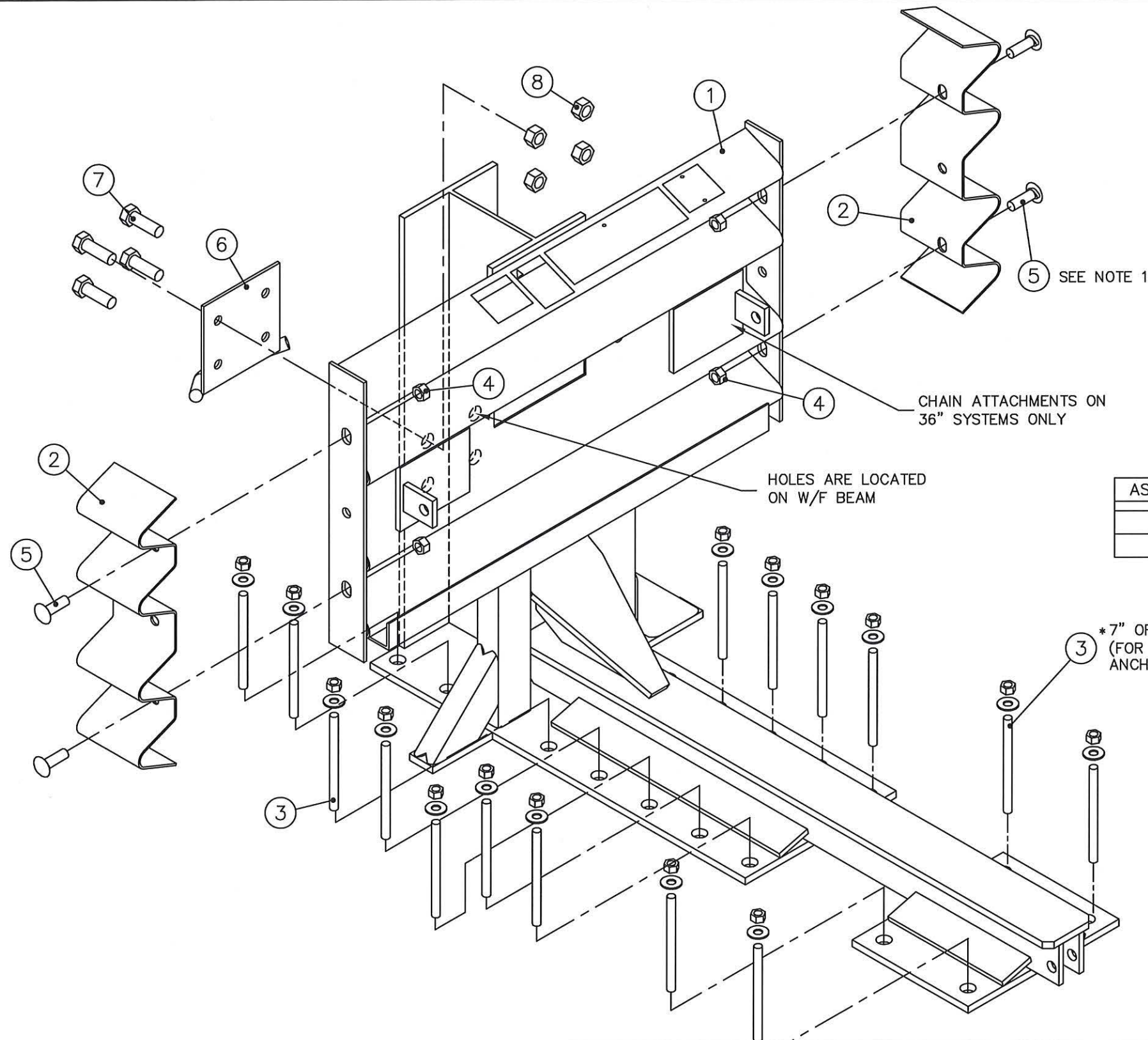
1. UNDERLYING PANEL IS EITHER ANOTHER FENDER PANEL OR, IN THE CASE OF THE LAST FENDER PANEL IT COULD BE A BACKUP SIDE PANEL, EXTENSION PANEL OR TRANSITION PANEL.
2. UNITS OF MEASUREMENT ARE INCHES UNLESS OTHERWISE NOTED.

DRAWN: S. Trageser	DATE: 03/15/2012	MODEL NO: 608235
CHECKED: K. Looney	DATE: 03/21/2012	FILE: 60-36-66 SH05.dwg
UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE IN METERS [INCH]. DIMENSIONS ACCORDING TO ASME Y14.5M-1994 AND THP-SE-003 UNLESS OTHERWISE SPECIFIED.		
DO NOT SCALE DRAWING		
Revision	ECO	Date
SEE SHEETS 7 & 8	6050	09/13/18
	Rev	By
	A	JMS
	Chk.	BRE

QUADGUARD® ELITE FAMILY
 TEMPORARY FENDER PANEL
 APL 102-041-015



DRAWING:	60-36-66	REV:	A	SHEET:	5 of 14
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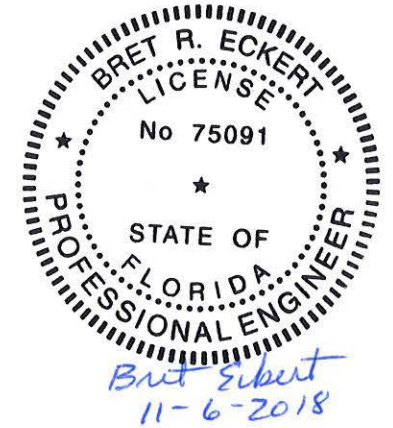


1	SEE TABLE	BACKUP,TS,___,QG ELITE,W/DECALS	1.00
2	611898	PANEL,SIDE,QG,G	2.00
3	603673	ANCHOR,MP-3,PT-KIT,3/4X7,VT	3.00
4	003340	NUT,HX,5/8,G,RAIL	4.00
5	003400	BOLT,RAIL,5/8X2,G	4.00
6	605418	BRACKET,CABLE SUPPORT,BACKUP	1.00
7	113552	BOLT,HX,3/4X2,G2,G	4.00
8	115953	NUT,HX,3/4,G	4.00

* FOR TEMPORARY INSTALLATION, SEE NOTE BELOW AND DWG. 35-40-24L

TABLE

ASSEMBLY NO.	ITEM	PART NUMBER	DESCRIPTION
604603		604744	BACKUP,TS,24,QG ELITE,W/DECALS
604604	1	604751	BACKUP,TS,30,QG ELITE,W/DECALS



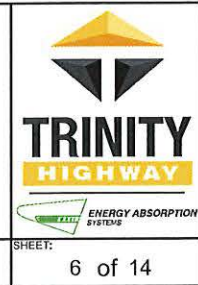
- NOTES:
1. WHEN TRANSITIONING QUADGUARD SYSTEM TO EXISTING BARRIER REFER TO THE TRANSITION ASSEMBLY DRAWINGS FOR PROPER USE OF SIDE PANEL PART NO. 2760141-0000.
 2. DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED.

DRAWN: S. Trageser	DATE: 03/15/2012	MODEL NO: SEE TABLE
CHECKED: K. Looney	DATE: 03/21/2012	FILE: 60-36-66 SH06.dwg
UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE IN METERS [INCH]. DIMENSIONS ACCORDING TO ASME Y14.5M-1994 AND THP-SE-003 UNLESS OTHERWISE SPECIFIED.		
Revision	ECO	Date
SEE SHEETS 7 & 8	6050	09/13/18
	Rev	By
	A	JMS
	Chk.	BRE

QUADGUARD® ELITE™ FAMILY
TEMPORARY

BACKUP ASSY, TS
APL 102-041-015

DRAWING: 60-36-66 REV: A SHEET: 6 of 14



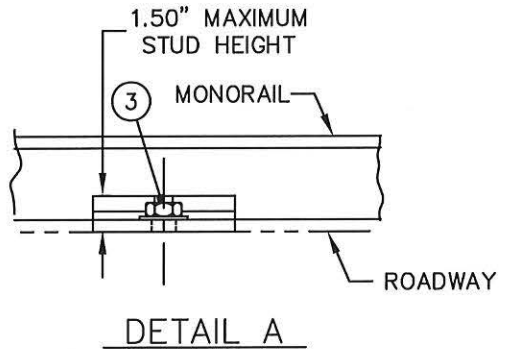
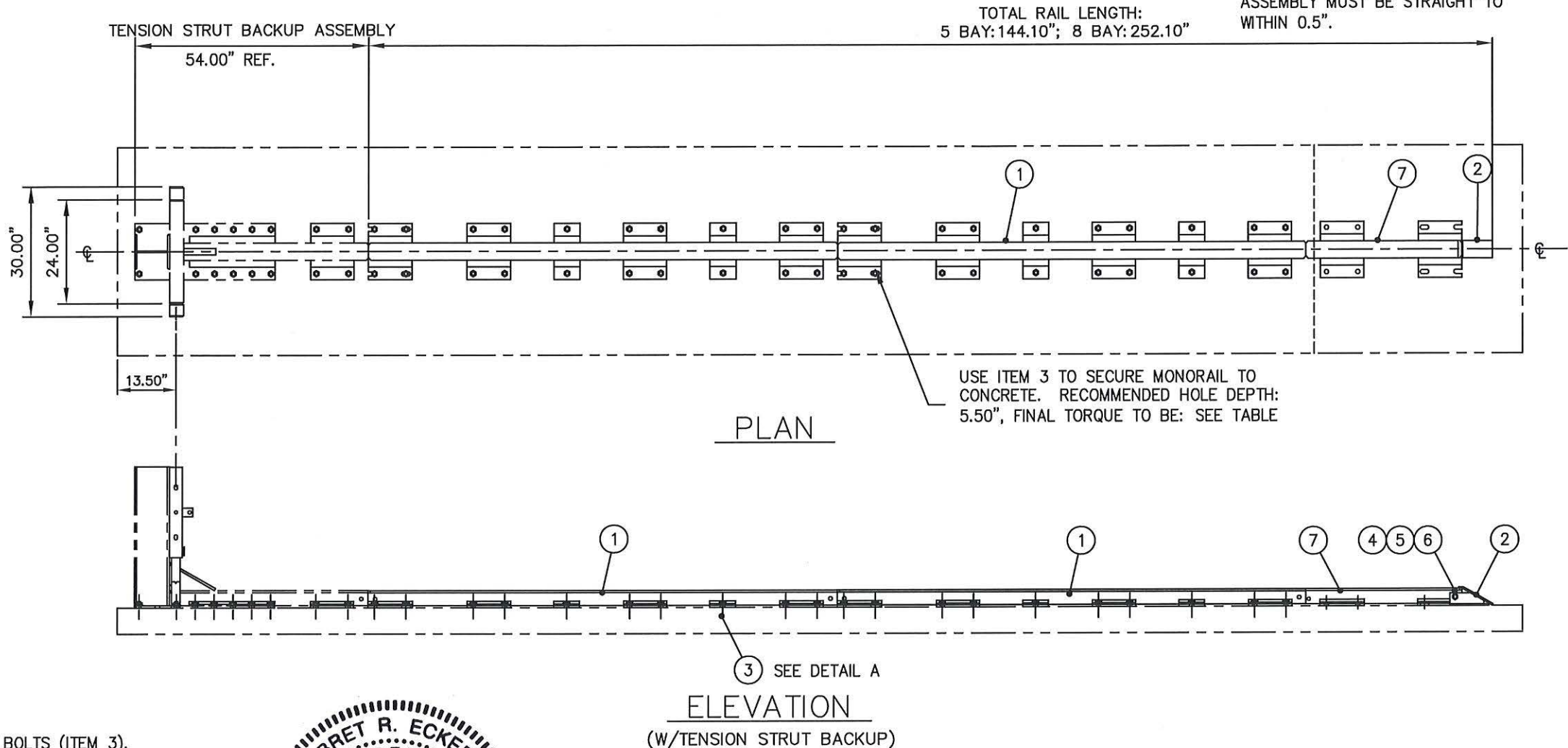
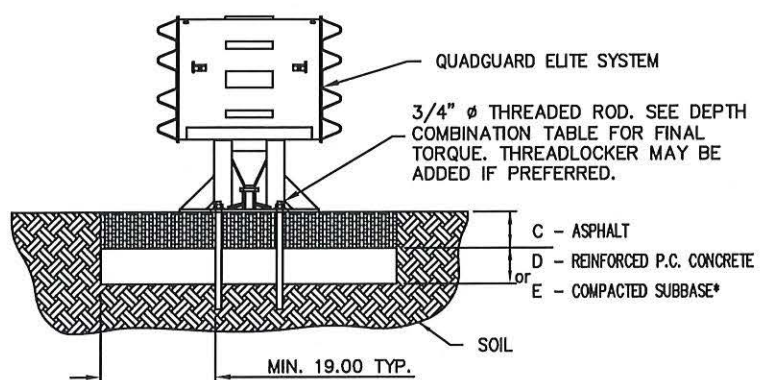
PARTS LIST 5 BAY 8 BAY

ITEM	STOCK NO.	DESCRIPTION	REQ'D	REQ'D
1	611379	MONORAIL, THREE BAYS, QG, G	1.00	2.00
2	608136	END CAP, MONORAIL, QG, G	1.00	1.00
3	619316	ANCHOR, HILT, 3/4X7, VT	4.00	8.00
4	113660	BOLT, HX, 5/8X3 1/2, G5, G	1.00	1.00
5	003354	NUT, HX, 5/8, G	1.00	1.00
6	118100	WASHER, LOCK, 5/8, G	1.00	1.00
7	611370	MONORAIL, ONE BAY, QG, G	1.00	1.00

- MATERIALS:
 C - ASPHALTIC CONCRETE
 D - 4000 PSI P. C. CONCRETE
 E - SUBBASE, PREPARED & COMPACTED
 • 95% COMPACTION MINIMUM LAYER

DEPTH COMBINATION TABLE

"C"	"D"	"E"	REQ'D STUD LENGTH	FINAL TORQUE
--	6"	--	7"	100 ft lbs
3"	3"	--	18"	100 ft lbs
6"	--	6"	18"	10 ft lbs
8"	--	--	18"	10 ft lbs



- NOTES:
 1. USE MONORAILS (ITEMS 1 & 7) AS TEMPLATES TO LOCATE ANCHOR BOLTS (ITEM 3).
 2. CROSS SLOPE OF PAD SHALL NOT EXCEED 1:10 NOR VARY MORE THAN 2% FROM FRONT TO BACK.
 3. UNITS OF MEASUREMENT ARE INCHES UNLESS OTHERWISE NOTED.
 4. EVERY STUD MUST BE EMBEDDED TO A DEPTH OF 5.5". IF REBAR IS ENCOUNTERED IN A P.C. CONCRETE PAD, DRILL THROUGH IT. IF REBAR IS ENCOUNTERED ON A DECK STRUCTURE, DO NOT DRILL THROUGH REBAR WITHOUT FIRST GETTING PERMISSION FROM A PROJECT ENGINEER.

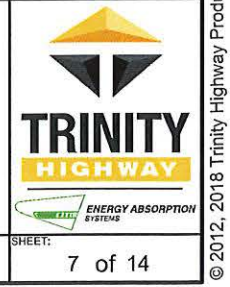


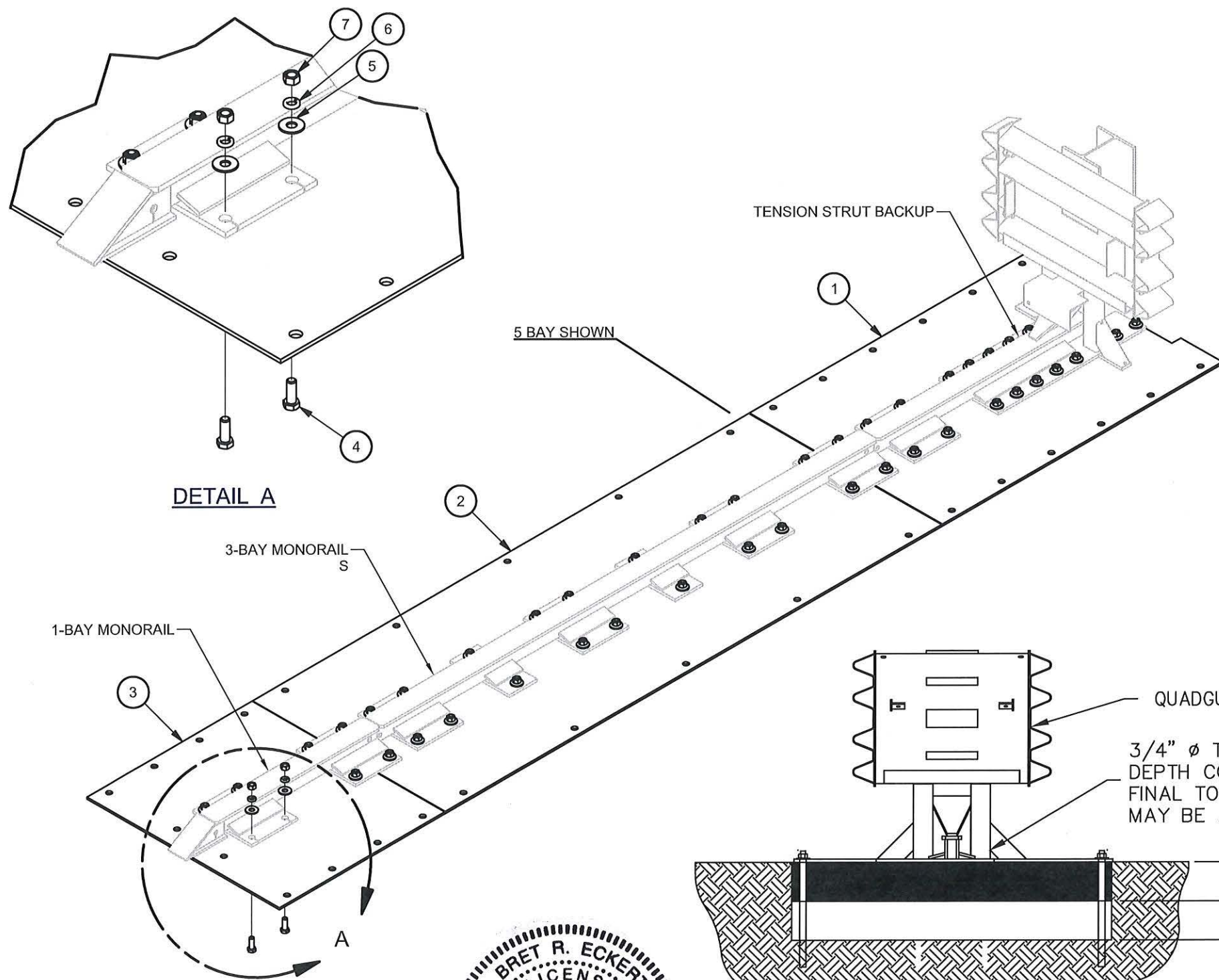
5 BAY ASSEMBLY NO. 611359
 8 BAY ASSEMBLY NO. 611361

DRAWN: S. Trageser	DATE: 03/15/2012	MODEL NO: SEE TABLE
CHECKED: K. Looney	DATE: 03/21/2012	FILE: 60-36-66 SH07.dwg
UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE IN METERS [INCH]. DIMENSIONS ACCORDING TO ASME Y14.5M-1994 AND THP-SE-003 UNLESS OTHERWISE SPECIFIED.		
DO NOT SCALE DRAWING		
Revision	ECO	Date Rev By Chk.
CLARIFIED ANCHOR TORQUES, UPDATED P/NS	6050	09/13/18 A JMS BRE

QUADGUARD® ELITE™ FAMILY
 TEMPORARY
 MONORAIL ASSY, QGE
 APL 102-041-015

DRAWING: 60-36-66
 REV: A
 SHEET: 7 of 14





PARTS LIST			5 BAYS	8 BAYS
ITEM	STOCK NO.	DESCRIPTION	QTY.	QTY.
1	618214	ADAPTER PLATE,B/U,BOLT-ON MONORAIL,G	1	1
2	618215	ADAPTER PLATE,3 BAY,BOLT-ON MONORAIL,G	1	2
3	618216	ADAPTER PLATE,1 BAY,BOLT-ON MONORAIL,G	1	1
4	113553	BOLT,HX,3/4X2,G5,G	46	66
5	118027	WASHER,FLAT,3/4X2,HVY,G	46	66
6	118089	WASHER,LOCK,3/4,G	46	66
7	115953	NUT,HX,3/4,G	46	66
8	118381	INSTALL INSTRUCTIONS,PLATE ASSY,5 BAY	1	1

Table		
BAYS	ASSEMBLY #	LBS
5	618213	934.2
8	608616	1427.4

MATERIALS:
 C - ASPHALTIC CONCRETE
 D - 4000 PSI P. C. CONCRETE
 E - SUBBASE, PREPARED & COMPACTED

• 95% COMPACTION
 MINIMUM LAYER

DEPTH COMBINATION TABLE				
"C"	"D"	"E"	REQ'D STUD LENGTH	FINAL TORQUE
--	6"	--	7"	100 ft lbs
3"	3"	--	18"	100 ft lbs
6"	--	6"	18"	10 ft lbs
8"	--	--	18"	10 ft lbs

BRET R. ECKERT
 LICENSE
 No 75091
 STATE OF
 FLORIDA
 PROFESSIONAL ENGINEER
Bret Eckert
 11-6-2018

DRAWN: S. Trageser	DATE: 03/12/2012	MODEL NO: SEE TABLE
CHECKED: K. Looney	DATE: 03/13/2012	FILE: 60-36-61 SH08.dwg
UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE IN METERS [INCH]. DIMENSIONS ACCORDING TO ASME Y14.5M-1994 AND THP-SE-003 UNLESS OTHERWISE SPECIFIED.		
Revision	ECO	Date
ADDED FINAL TORQUE TO TABLE, CHANGED NUMBERS TO ROMACS	6050	09/13/18
	Rev	By
	A	JMS
	Chk.	BRE

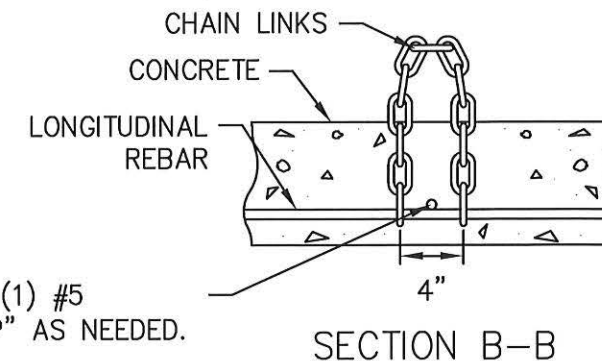
QUADGUARD® ELITE™ FAMILY
 TEMPORARY
 PLATE ASSY,
 BOLT-ON MONORAIL, 24 & 30,QG
 APL 102-041-015

TRINITY
 HIGHWAY
 ENERGY ABSORPTION
 SYSTEMS

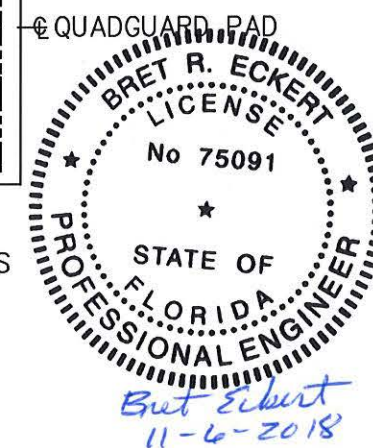
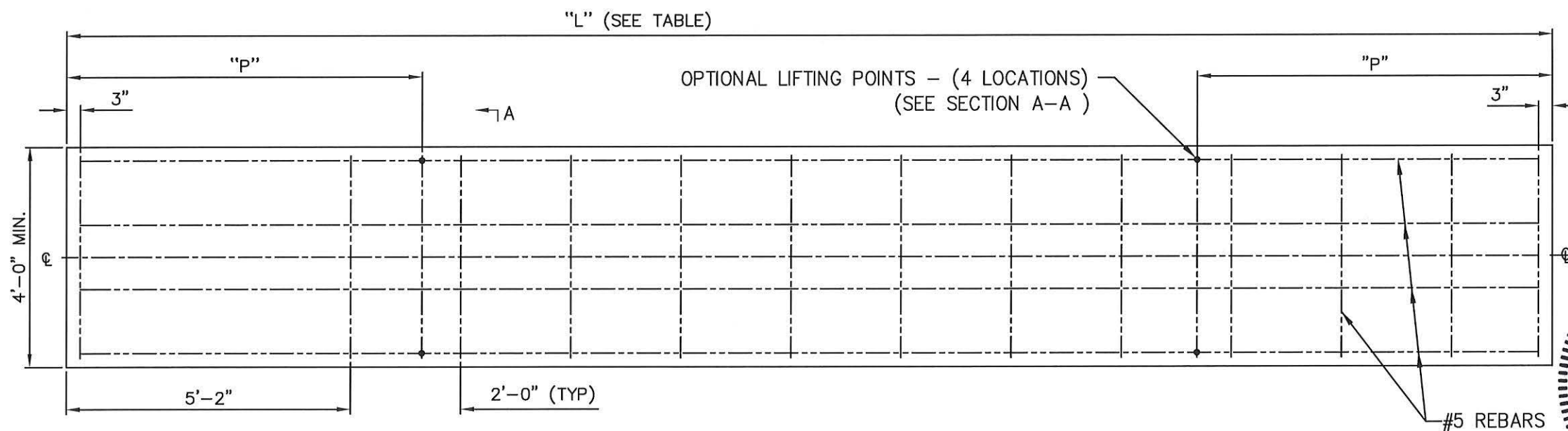
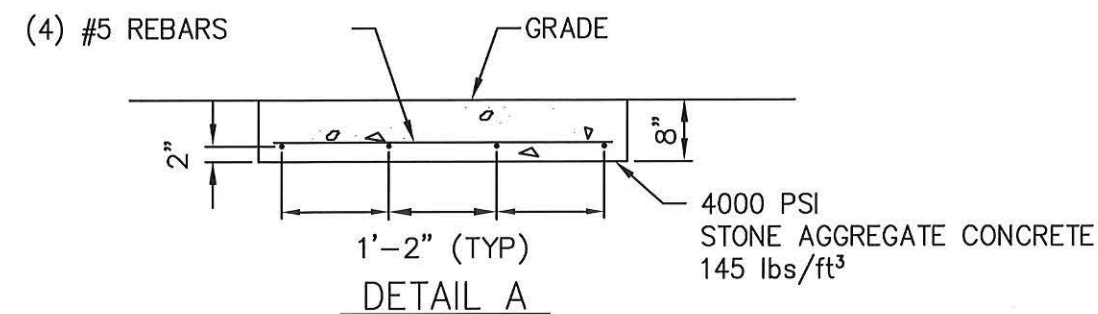
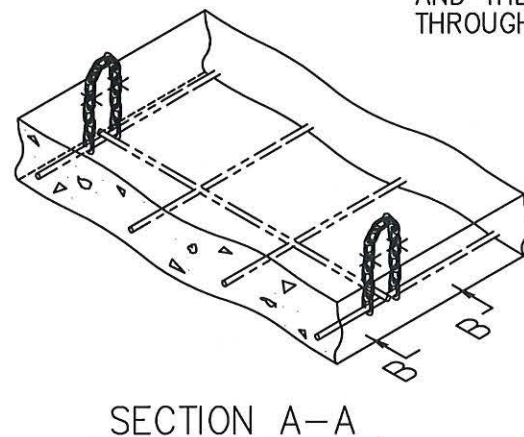
DRAWING:	60-36-66	REV:	A	SHEET:	8 of 14
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TABLE				YARDS ³ OF CONCRETE IN PAD
NO. OF BAYS	"L" (PAD LENGTH)	"P"	REBAR REQ.	
5	18' -0"	4' -6"	103'	1.8
8	27' -1"	6' -9"	160'	2.7

OPTIONAL LIFTING POINTS: USE 1/2" PROOF COIL CHAIN. THE CHAIN MUST MEET THE REQUIREMENTS OF ASTM A-413 GRADE 28. THE MINIMUM LENGTH CHAIN IS 15 LINKS AND THE REBAR WILL BE INSERTED THROUGH BOTH ENDS AS SHOWN.



NOTE: ADD (1) #5 REBAR @ "P" AS NEEDED.



NOTE:

- CROSS SLOPE OF PAD SHALL NOT EXCEED 1:10 AND NOT VARY MORE THAN 2% FROM FRONT TO BACK.
- TO PREVENT SLIDING DURING AN IMPACT, PAD MUST BE INSTALLED AGAINST OR TIED TO AN EXISTING STRUCTURE. OTHERWISE ADDITIONAL BELOW GRADE SUPPORTS MUST BE ADDED AS DETERMINED NECESSARY BY THE PROJECT ENGINEER.
- UNITS OF MEASUREMENT ARE INCHES UNLESS OTHERWISE NOTED.

DRAWN: S. Trageser	DATE: 02/24/2012	MODEL NO: SEE TABLE
CHECKED: K. Looney	DATE: 02/28/2012	FILE: 60-36-66 SH09.dwg
UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE IN METERS (INCH). DIMENSIONS ACCORDING TO ASME Y14.5M-1994 AND THP-SE-003 UNLESS OTHERWISE SPECIFIED.		
DO NOT SCALE DRAWING		
Revision	ECO	Date Rev By Chk.
SEE SHEETS 7 & 8	6050	09/13/18 A JMS BRE

QUADGUARD® ELITE™ FAMILY
(TEMPORARY)
CONCRETE PAD
APL 102-041-015

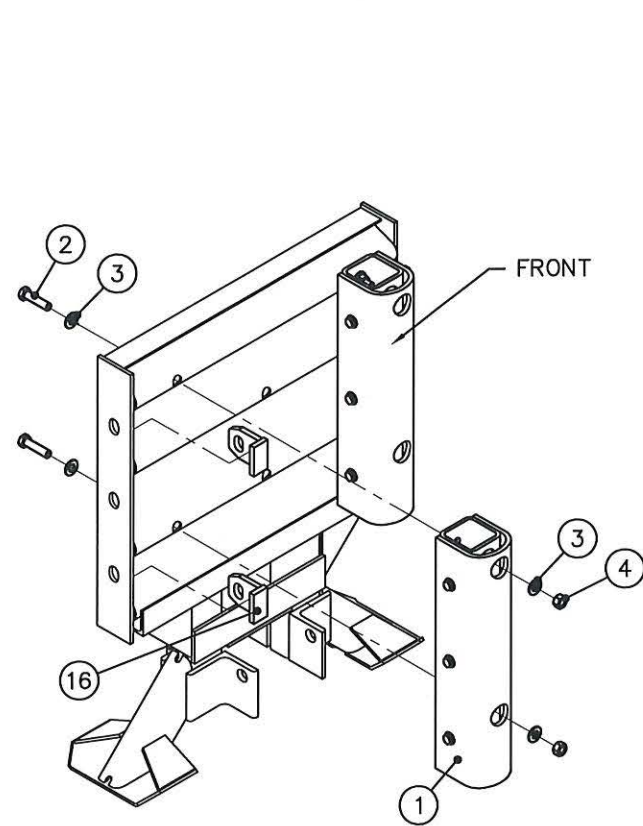


DRAWING: 60-36-66	REV: A	SHEET: 9 of 14
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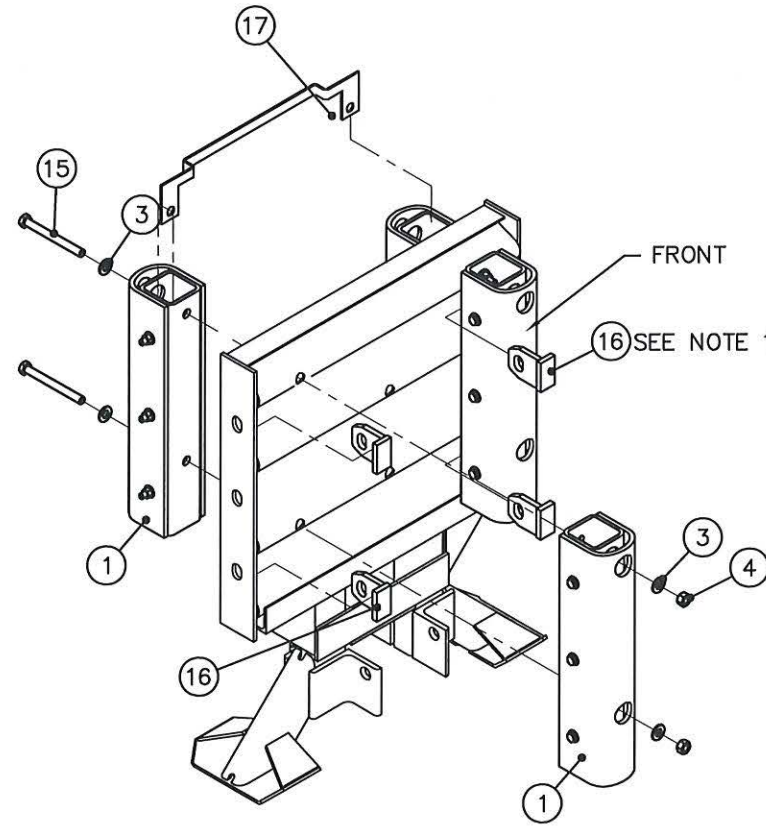
TABLE						
SYSTEM	ASSY NO.	ITEM NUMBER				
		8	9	12	13	14
		QUANTITY				
5 BAY SYSTEM	605040	3	0	6	4	8
8 BAY SYSTEM	605044	3	3	12	7	14

PARTS LIST			
ITEM	STOCK NO.	DESCRIPTION	REQ'D
1	605707	BUMPER ASSEMBLY,ELITE,24,30,36	8.00
2	113472	BOLT,HX,1/2X2,G2,G	4.00
3	118009	WASHER,FLAT,1/2X1 3/8,G	24.0
4	115939	NUT,HX,1/2,G	12.0
8	606646	CYLINDER ASSY,ELITE,QE1	*
9	606647	CYLINDER ASSY,ELITE,QE2	*
12	618547	TUBE,CABLE JACKET	*
13	113851	CABLE ASSEMBLY,CYLINDER RETAINER	*
14	114108	CLAMP,WIRE ROPE,1/2	*
15	113487	BOLT,HX,1/2X5,G	8.00
16	615612	TAB,STOP	8.00
17	605463	BRACKET,HIT INDICATOR	1.00

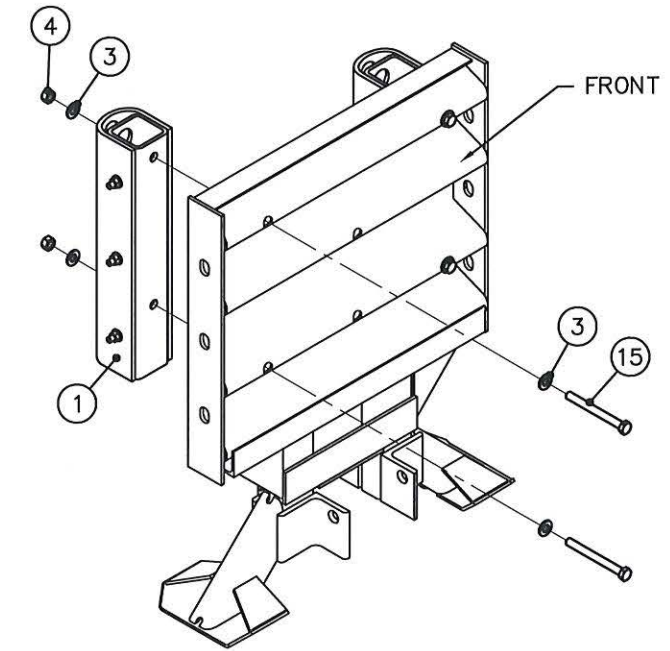
* SEE TABLE



DIAPHRAGM 3



DIAPHRAGM 2



DIAPHRAGM 1

NOTE:
1. PLACE ONLY ON DIAPHRAGMS 2 AND 3.



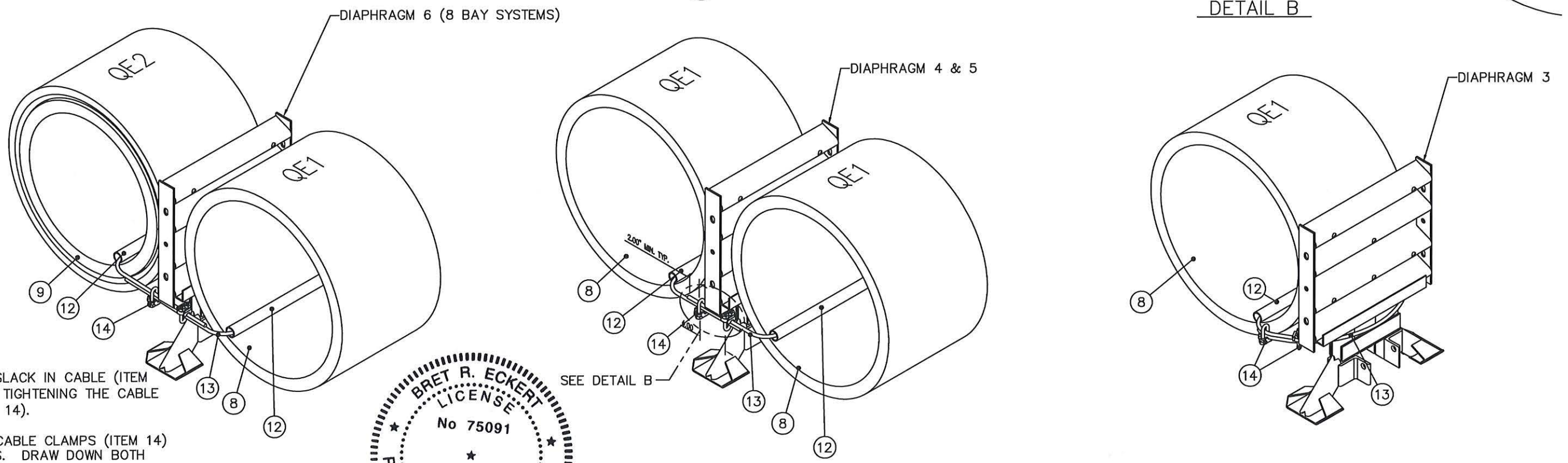
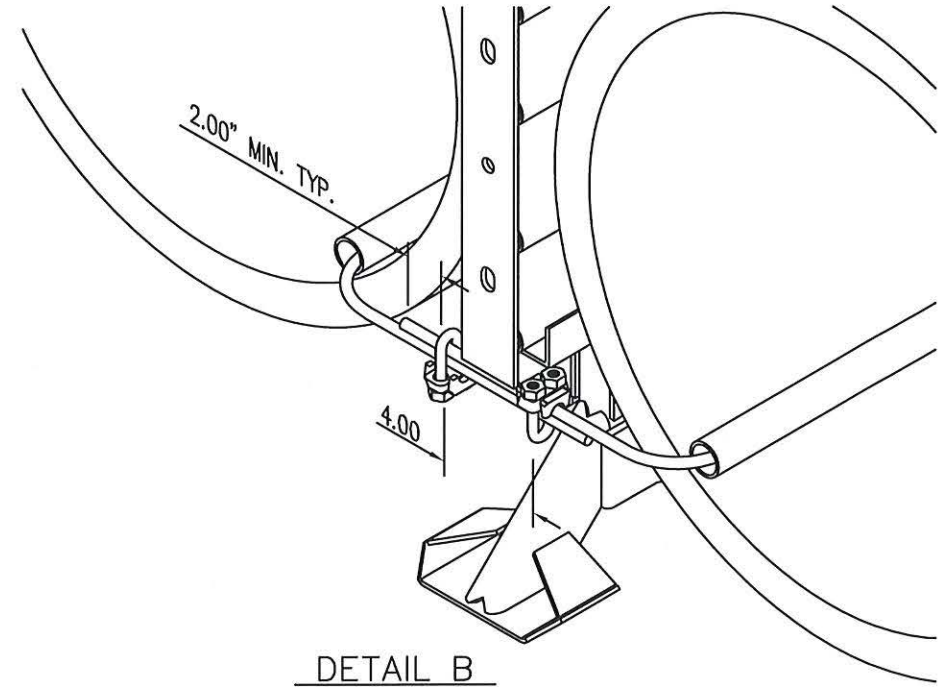
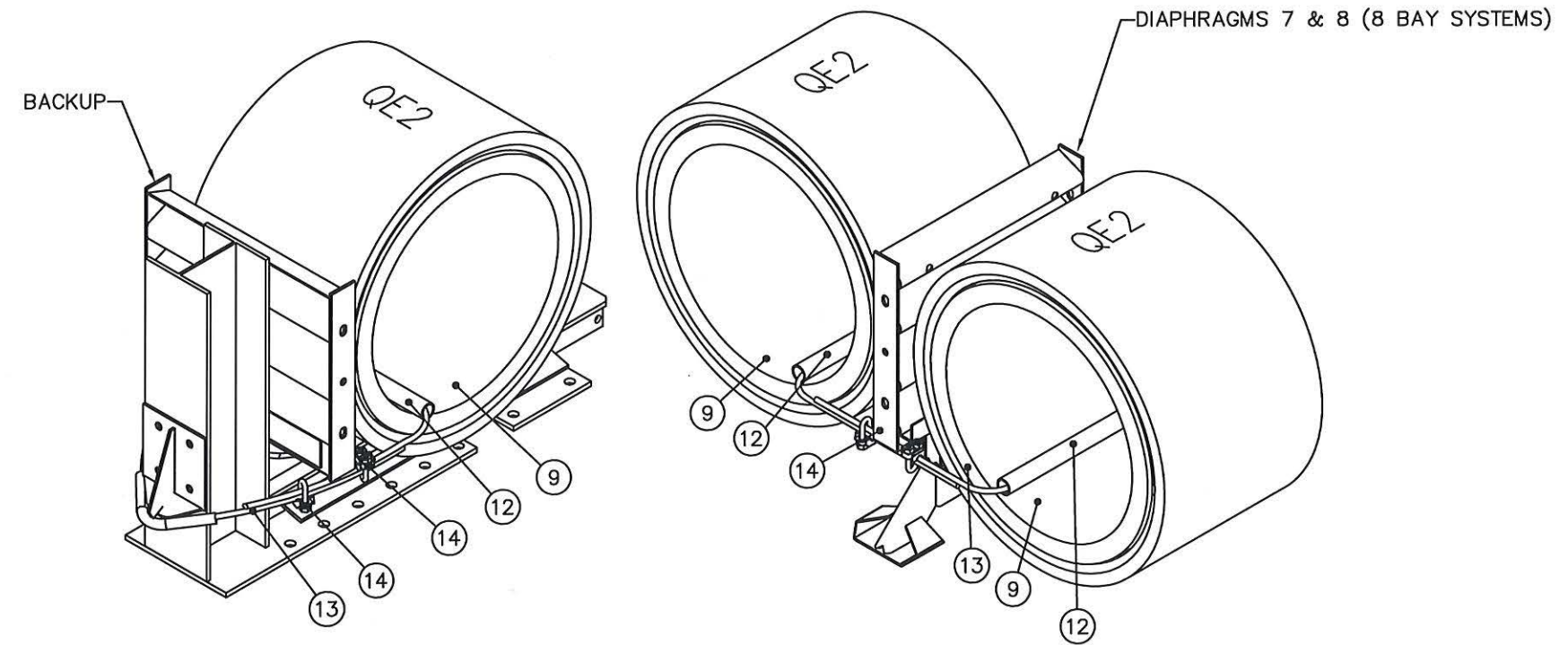
DRAWN: S. Trageser	DATE: 03/15/2012	MODEL NO: SEE TABLE
CHECKED: K. Looney	DATE: 03/21/2012	FILE: 60-36-66 SH10.dwg
UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE IN METERS (INCH). DIMENSIONS ACCORDING TO ASME Y14.5M-1994 AND THP-SE-003 UNLESS OTHERWISE SPECIFIED.		
DO NOT SCALE DRAWING		
Revision	ECO	Date Rev By Chk.
SEE SHEETS 7 & 8	6050	09/13/18 A JMS BRE

QUADGUARD® ELITE™ FAMILY
TEMPORARY
BAY ASSY, QGE, 24, 30
APL 102-041-015

**TRINITY
HIGHWAY**
ENERGY ABSORPTION
SYSTEMS

DRAWING: 60-36-66 REV: A SHEET: 10 of 14

PARTS LIST			
ITEM	STOCK NO.	DESCRIPTION	REQ'D
SEE PARTS LIST ON SHEET 10			



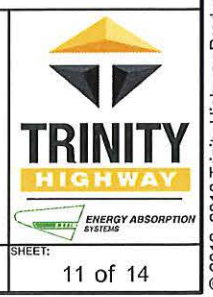
NOTES:
 REMOVE ALL SLACK IN CABLE (ITEM 13) PRIOR TO TIGHTENING THE CABLE CLAMPS (ITEM 14).
 2. TORQUE THE CABLE CLAMPS (ITEM 14) TO 50 FT-LBS. DRAW DOWN BOTH NUTS EVENLY.

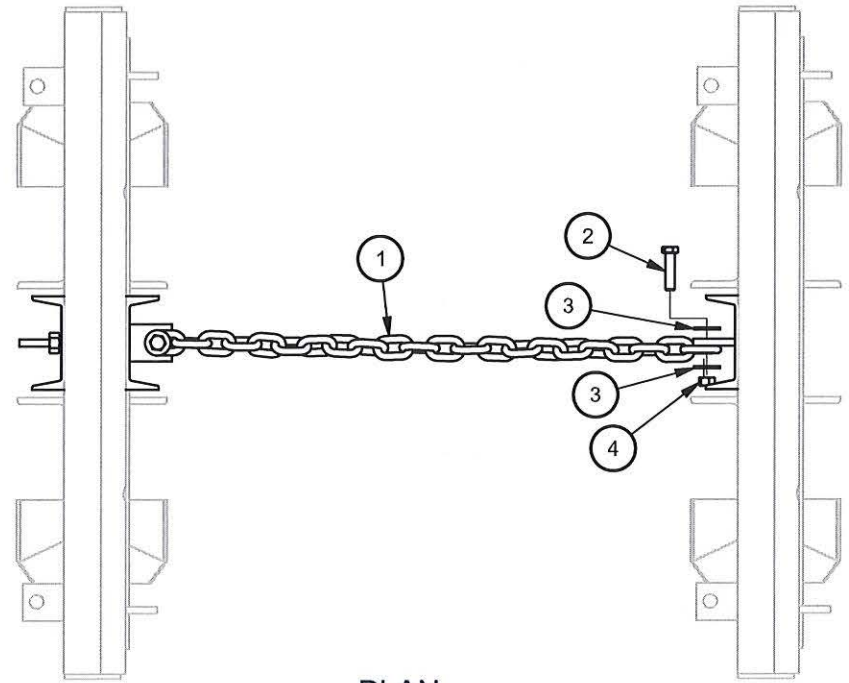
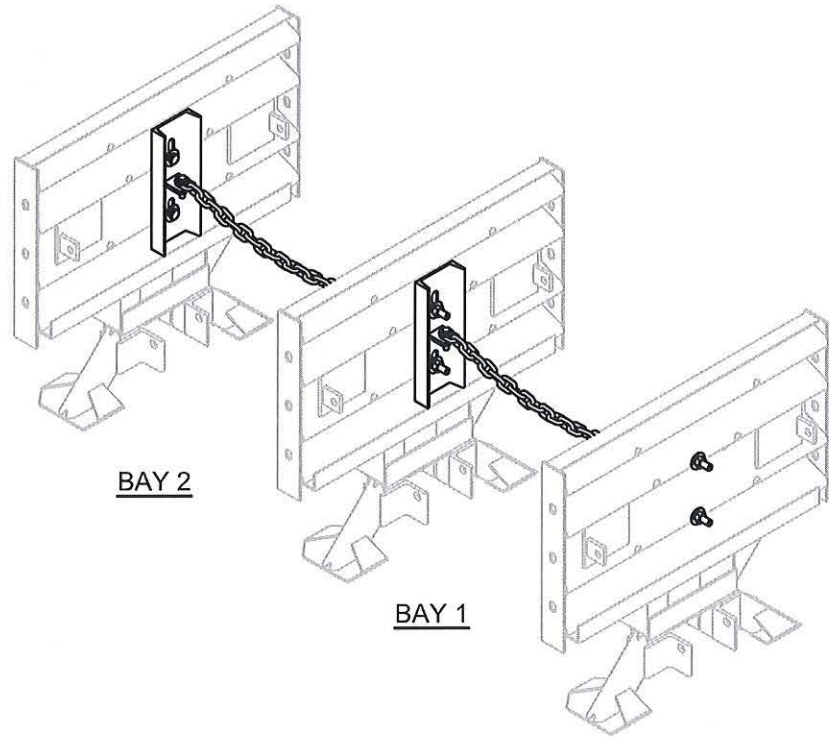
BRET R. ECKERT
 LICENSE
 No 75091
 STATE OF
 FLORIDA
 PROFESSIONAL ENGINEER
Bret Eckert
 11-6-2018

DRAWN: S. Trageser	DATE: 03/15/2012	MODEL NO: SEE TABLE
CHECKED: K. Looney	DATE: 03/21/2012	FILE: 60-36-66 SH11.dwg
UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE IN METERS (INCH). DIMENSIONS ACCORDING TO ASME Y14.5M-1994 AND THP-SE-003 UNLESS OTHERWISE SPECIFIED.		
Revision	ECO	Date
SEE SHEETS 7 & 8	6050	09/13/18

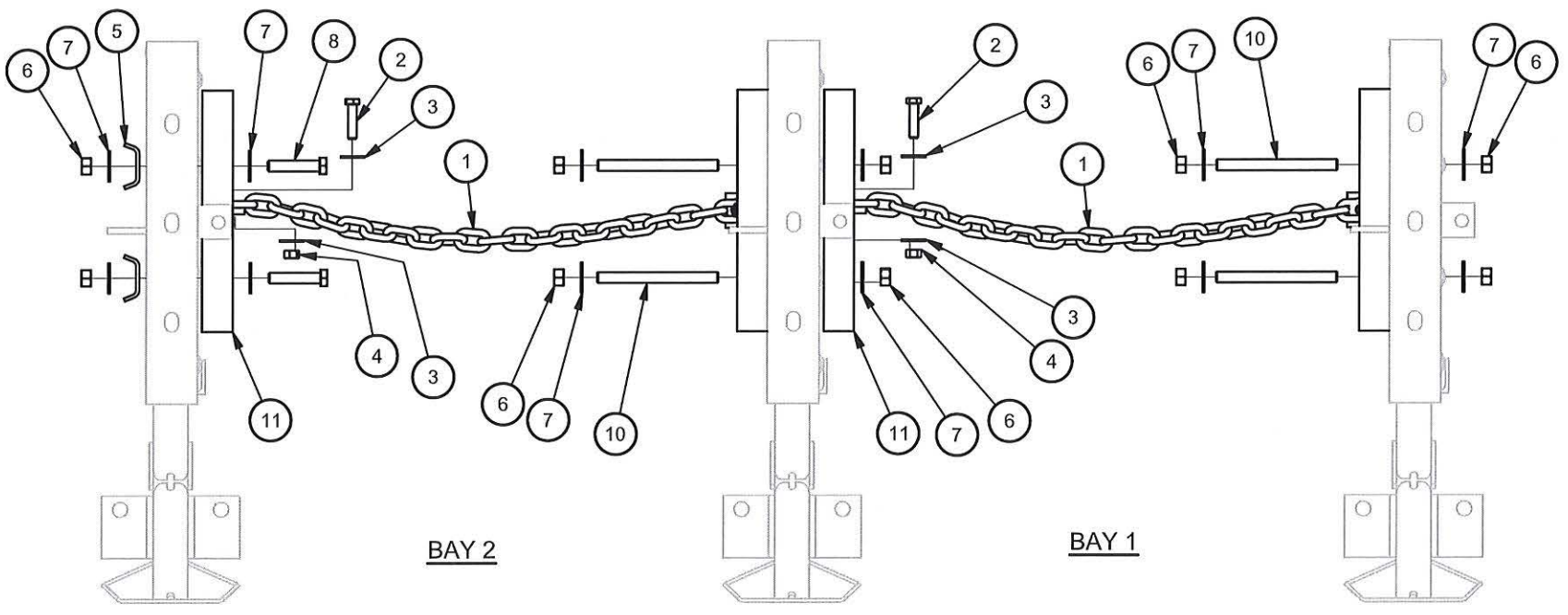
QUADGUARD® ELITE™ FAMILY
 (TEMPORARY)
 BAY ASSY, QG3, 24, 30
 APL 102-041-015

DRAWING: 60-36-66
 REV: A
 SHEET: 11 of 14





PLAN

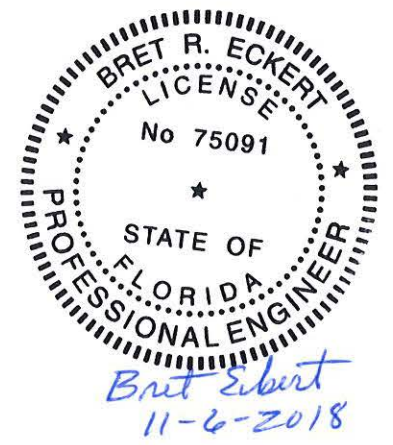


ELEVATION

PARTS LIST			
ITEM	STOCK NO.	DESCRIPTION	QTY.
1	606162	CHAIN,3/8,GRADE 40,29.5,G	2
2	113473	BOLT,HX,1/2X2,G5,G	4
3	118009	WASHER,FLAT,1/2X1 3/8,G	8
4	115939	NUT,HX,1/2,G	4
5	614070	SHIM,NOSE CLAMP,G	2
6	115970	NUT,HX,5/8,G	10
7	118052	WASHER,FLAT,5/8 X 1 3/4, G	12
8	113662	BOLT,HX,5/8X3,G2,G	2
9	605449	BRACKET,CHAIN MOUNT,VERT TAB,G	2
10	116810	ROD,THREADED,5/8X7,G5,G	4
11	605448	BRACKET,CHAIN MOUNT,HORZ TAB	2

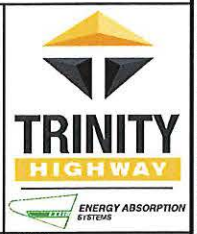
TABLE A	
MODEL NO.	CHAIN ASSEMBLIES REQUIRED
* QS2405E	1
* QS3005E	1
* QS2408E	1
* QS3008E	1

* CHAIN ASSEMBLY REQUIRED IN FIRST AND SECOND BAYS ON APPLICABLE SYSTEMS (SEE TABLE A).

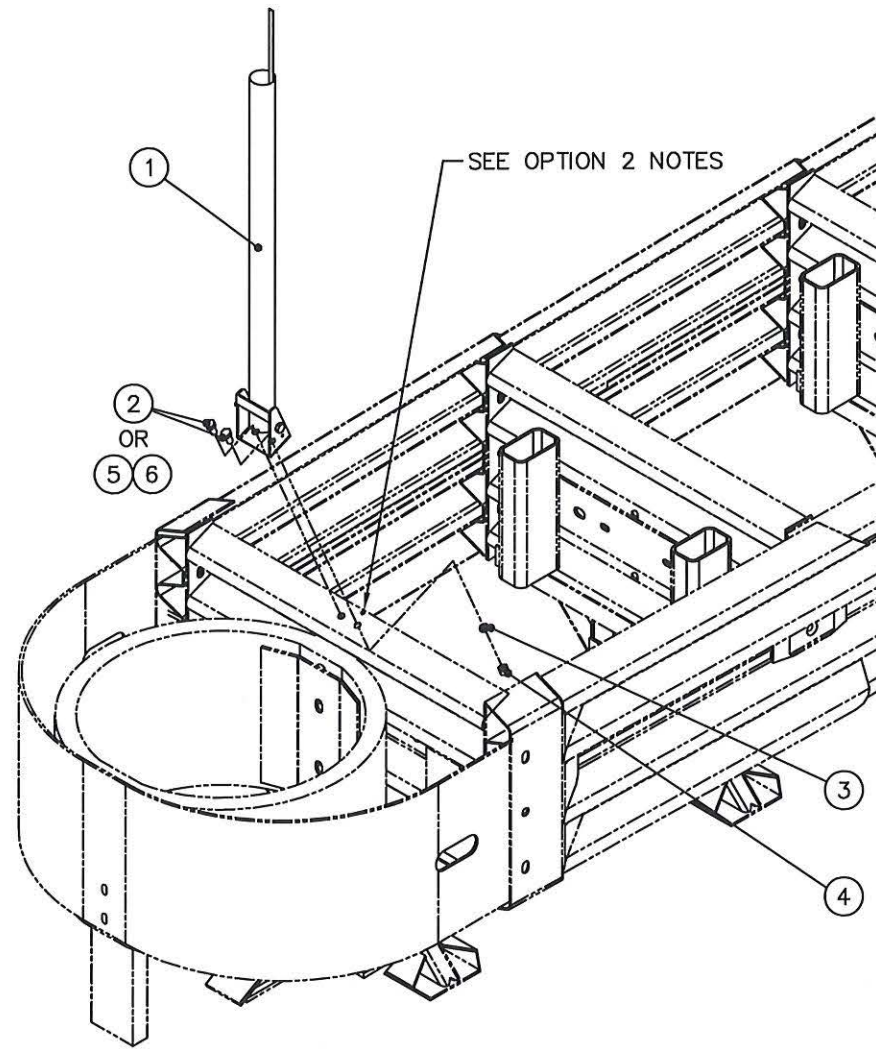


DRAWN: S. Trageser	DATE: 03/16/2012	MODEL NO.: 606138
CHECKED: K. Looney	DATE: 03/21/2012	FILE: 60-36-61 SH12dwg
UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE IN METERS (INCH). DIMENSIONS ACCORDING TO ASME Y14.5M-1994 AND THP-SE-003 UNLESS OTHERWISE SPECIFIED.		
DO NOT SCALE DRAWING		
Revision	ECO	Date
SEE SHEETS 7 & 8	6050	09/13/18
	Rev	By
	A	JMS
	Chk.	BRE

QUADGUARD® ELITE™ FAMILY
TEMPORARY
CHAIN ASSY,QGE,24,30
BAY 1 AND 2
APL 102-041-015



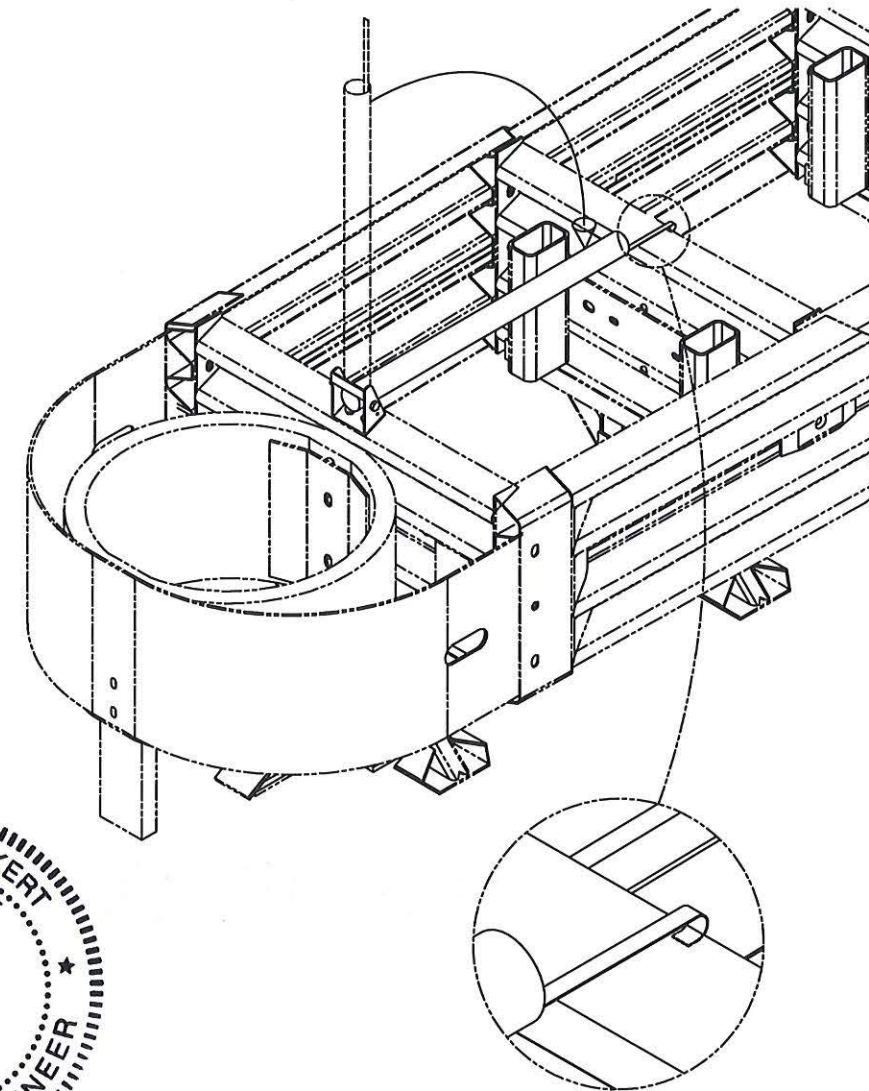
DRAWING:	60-36-66	REV:	A	SHEET:	12 of 14
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STEP 1: POSITION HIT INDICATOR ON 1ST DIAPHRAGM. DRILL ONE $\phi 1/4$ " HOLE AS NEEDED TO SET BRACKET TAB IN DIAPHRAGM. BRACKET SHOULD BE CENTERED ON TOP SURFACE OF DIAPHRAGM.

STEP 2: ATTACH HIT INDICATOR TO 1ST DIAPHRAGM. OPTION 1: MATCH DRILL TWO $\phi 9/16$ " HOLES AS NEEDED IN DIAPHRAGM. USE ITEMS 2, 3 & 4 TO ATTACH BRACKET. OPTION 2: USE SELF DRILLING + TAP SCREWS (ITEM 5) ALONG WITH FLAT WASHER (ITEM 6) TO ATTACH BRACKET.

PARTS LIST			
ITEM	STOCK NO.	DESCRIPTION	REQ'D
1	610238	HIT INDICATOR,LMC/ELITE	1.00
2	113467	BOLT,HX,1/2X1,G	2.00
3	118082	WASHER,LOCK,1/2,G	2.00
4	115939	NUT,HX,1/2,G	2.00
5	116892	SCREW,HWH,1/4X1,SELF DRILL/TAP,COATED	2.00
6	118013	WASHER,FLAT,1/4 X 1,G	2.00



STEP 3: ROTATE HIT INDICATOR TO HORIZONTAL POSITION AND BEND TRIGGER CLIP AROUND TOP OF 2ND DIAPHRAGM



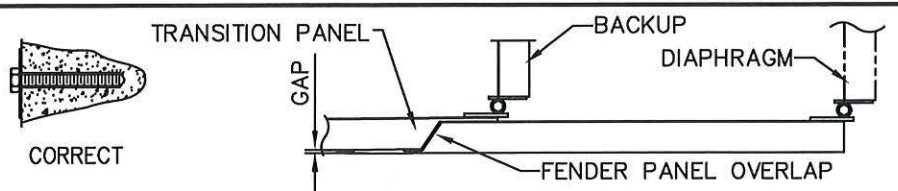
DRAWN: S. Trageser	DATE: 03/16/2012	MODEL NO: 610237
CHECKED: K. Looney	DATE: 03/21/2012	FILE: 60-36-66 SH13.dwg
UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE IN METERS [INCH]. DIMENSIONS ACCORDING TO ASME Y14.5M-1994 AND THP-SE-003 UNLESS OTHERWISE SPECIFIED.		
Revision	ECO	Date
SEE SHEETS 7 & 8	6050	09/13/18
	Rev	By
	A	JMS
	Chk.	BRE

QUADGUARD® ELITE™ FAMILY
TEMPORARY
HIT INDICATOR,
W/ HARDWARE, ELITE
APL 102-041-015



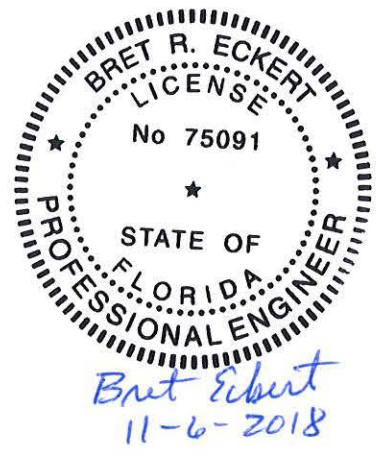
DRAWING: 60-36-66	REV: A	SHEET: 13 of 14
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PARTS LIST			
ITEM	STOCK NO.	DESCRIPTION	REQ'D
1	SEE TABLE	PANEL, TRANSITION, 4 OFFSET, QG	1.00
2	605572	BRACKET, SUPPORT, 4 TRANS TO CMB	1.00
3	603670	ANCHOR, MP-3, PT KIT, 3/4X6 1/2 HOR	1.00
4	003400	BOLT, RAIL, 5/8X2, G	3.00
5	003340	NUT, HX, 5/8, G, RAIL	3.00



CAUTION
3/4" MAX.
FOR PROPER IMPACT
PERFORMANCE

DETAIL C (PLAN VIEW)
SCALE: 1=20



DETAIL B
NOT TO SCALE

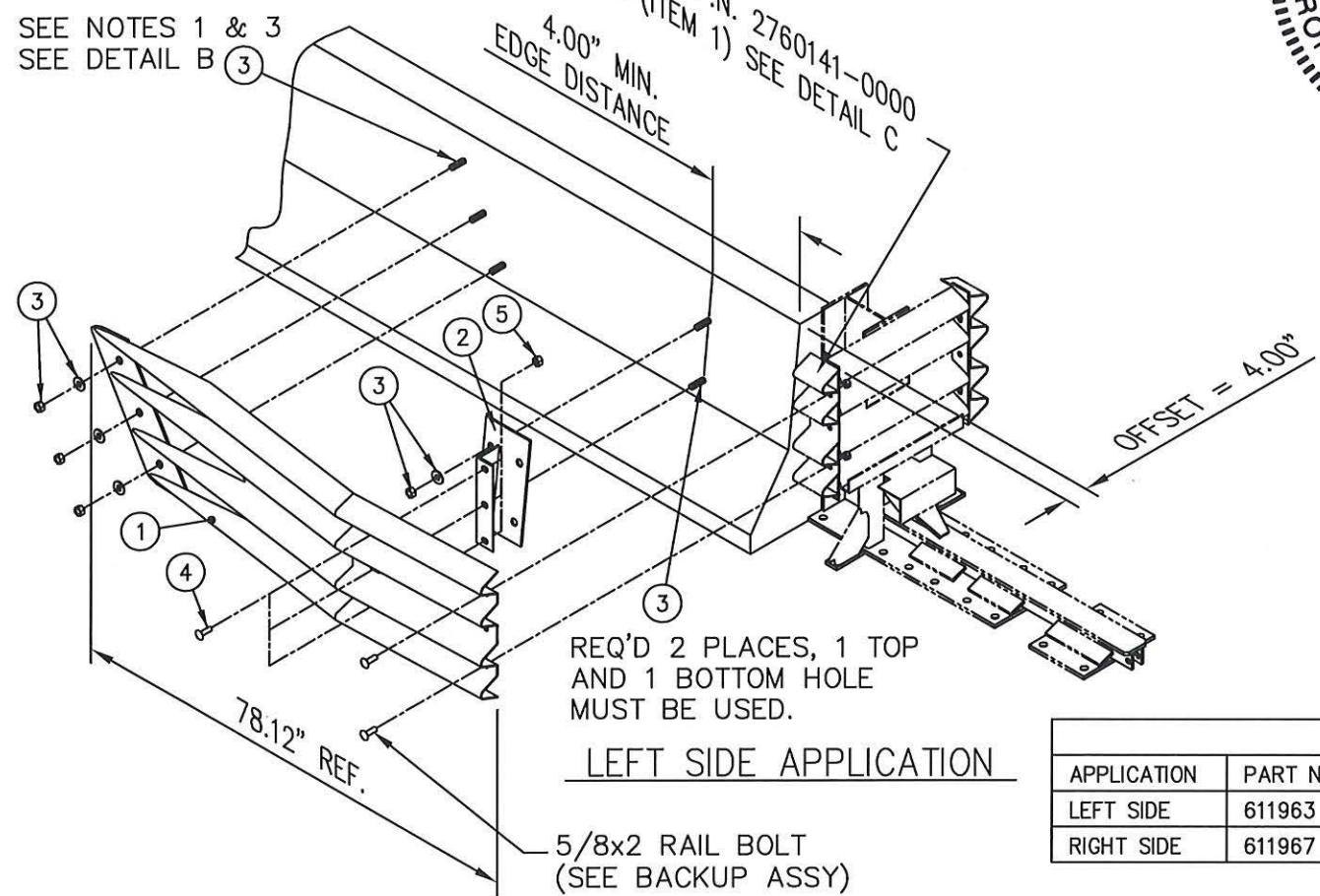
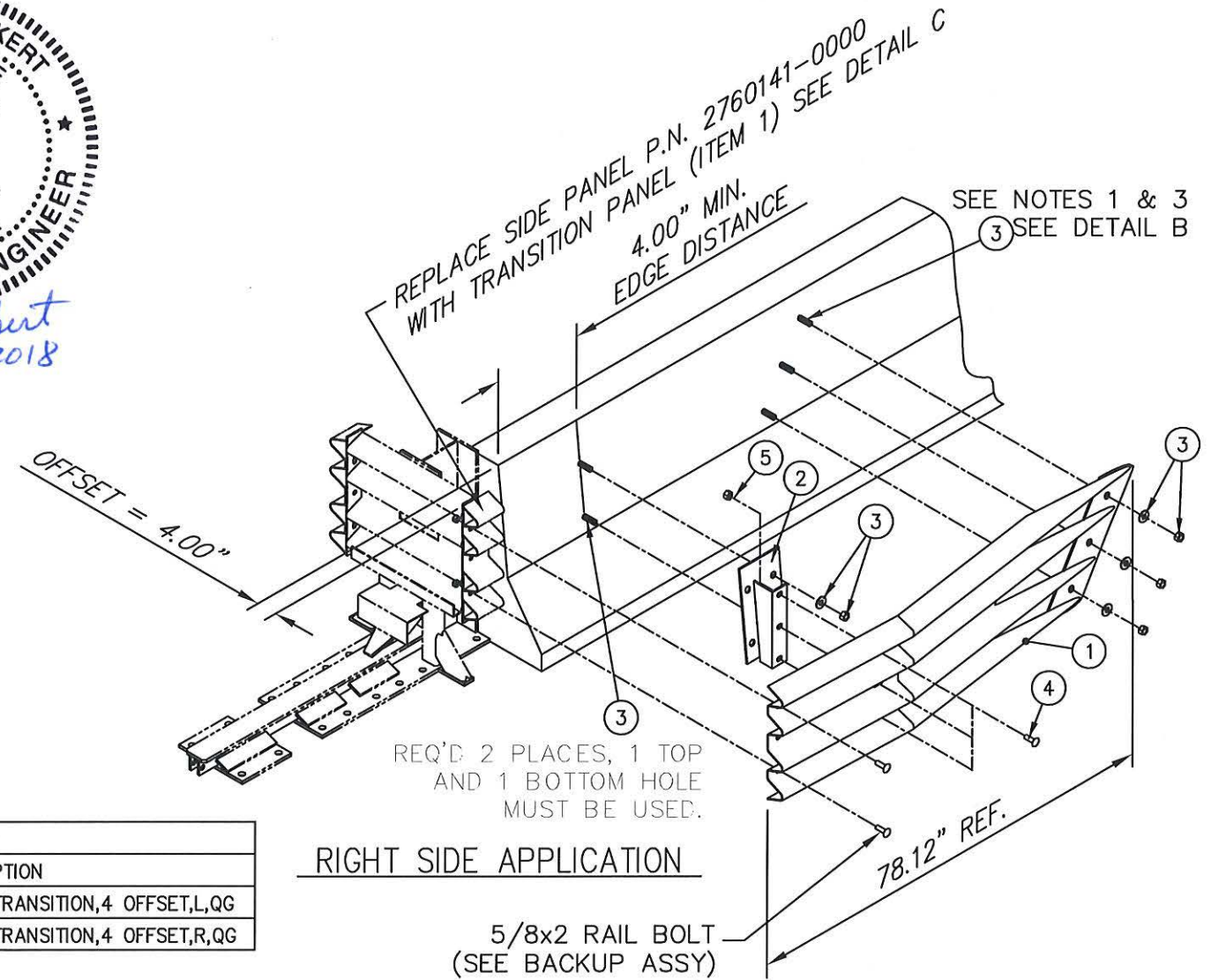


TABLE - ITEM 1		
APPLICATION	PART NO.	DESCRIPTION
LEFT SIDE	611963	PANEL, TRANSITION, 4 OFFSET, L, QG
RIGHT SIDE	611967	PANEL, TRANSITION, 4 OFFSET, R, QG



NOTES:

- USE TRANSITION PANEL AS TEMPLATE FOR DRILLING. RECOMMENDED HOLE DEPTH 5.00". FINAL TORQUE TO BE 120 FT-LBS (TYP).
- IMPACT FORCES COULD BE TRANSFERRED INTO TERMINAL END OF THE BARRIER. ADEQUATE ANCHORAGE IS REQUIRED FOR PROPER IMPACT PERFORMANCE.
- ANCHOR STUD END SHOULD BE FLUSH WITH OUTSIDE SURFACE OF ANCHOR NUT, SEE DETAIL B.
- MIN. 4000 PSI P.C. CONCRETE MEDIAN BARRIER.

LEFT ASSEMBLY NO. 616041
RIGHT ASSEMBLY NO. 616044

DRAWN: S. Trageser	DATE: 03/13/2012	MODEL NO: SEE TABLE
CHECKED: K. Looney	DATE: 03/13/2012	FILE: 60-36-66 SH14.dwg
UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE IN METERS [INCH]. DIMENSIONS ACCORDING TO ASME Y14.5M-1994 AND THP-SE-003 UNLESS OTHERWISE SPECIFIED.		
Revision	ECO	Date Rev By Chk.
SEE SHEETS 7 & 8	6050	09/13/18 A JMS BRE

QUADGUARD® ELITE™ FAMILY
TEMPORARY
TRANSITION ASSY,
4 OFFSET, QG
APL 102-041-015



DRAWING: 60-36-66	REV: A	SHEET: 14 of 14
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