

NOTES:

- IN COMPLIANCE WITH THE AASHTO 2002 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 762 [30.00] MIN.
- 150 [6.00] MIN. REINFORCED 28 MPa [4000 PSI] P.C. CONCRETE PAD OR 200 [8.00] MIN. NON-REINFORCED 28 MPa [4000 PSI] P.C. CONCRETE ROADWAY MEASURING AT LEAST 3.6m WIDE BY 15.2m LONG.
- SEE THE "QUADGUARD CEN 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 CURRENT MANUAL ARE AVAILABLE BY CALLING CUSTOMER SERVICE DEPARTMENT AT (888) 323-6374.
- WHERE NECESSARY, THE CUSTOMER SHALL SUPPLY A TRANSITION FROM THE QUADGUARD SYSTEM TO THE OBJECT BEING SHIELDED.
- UNITS OF MEASUREMENT ARE MILLIMETERS [INCHES], UNLESS OTHERWISE NOTED.
- BACKUP AND MONORAIL ASSEMBLIES NOT INCLUDED IN MODEL NUMBER, ORDER SEPARATELY.
- OVERALL WIDTH FOR 5 BAY SYSTEM. OTHER SYSTEMS ARE SLIGHTLY NARROWER.

NO. BAYS	MODEL NO.	SYSTEM LENGTH	EFFECTIVE LENGTH	PAD LENGTH	DESIGN SPEED
5	QI9005*	5.22m [17'-1 1/2"]	4.57m [15'-0"]	5.49m [18'-0"]	80 km/h
6	QI9006*	6.13m [20'-1 1/2"]	5.49m [18'-0"]	6.40m [21'-0"]	100 km/h
8	QI9008*	7.96m [26'-1 1/2"]	7.31m [24'-0"]	8.23m [27'-0"]	110 km/h

* Y = YELLOW NOSE,
G = GRAY NOSE,
B = BLACK NOSE

UNIDIRECTIONAL
MODEL NO. SEE TABLE

KEY	① QUADGUARD CARTRIDGE	④ MONORAIL	⑦ BUMPER
	② DIAPHRAGM	⑤ NOSE ASSEMBLY	
	③ FENDER PANEL	⑥ BACKUP	

SERIAL#	DIAPHRAGM ASSY.	3540509-0000
SALES ORDER#	NOSE ASSY.	3540552-0000
EH PROJECT#	FENDER PANEL ASSY.	3540472-0000
DESIGN SPEED	BACKUP ASSY.	3540565-0000
NOSE COLOR	MONORAIL ASSY.	3540060-OCEN
NUMBER OF UNITS	CONCRETE PAD	3540110-OCEN
	BUMPER ASSY.	3540580-0000

DRAWN:	D. STAUS	DATE:	10/28/99
DESIGNED:	RBB	DATE:	10/28/99
CHECKED:	KRM	DATE:	11/04/99
APPROVED:	RBB	DATE:	11/04/99
CAD FILE:	QCTSCVR-U90.dwg		

ENERGY ABSORPTION SYSTEMS, INC.
ENGINEERING AND RESEARCH DEPARTMENT

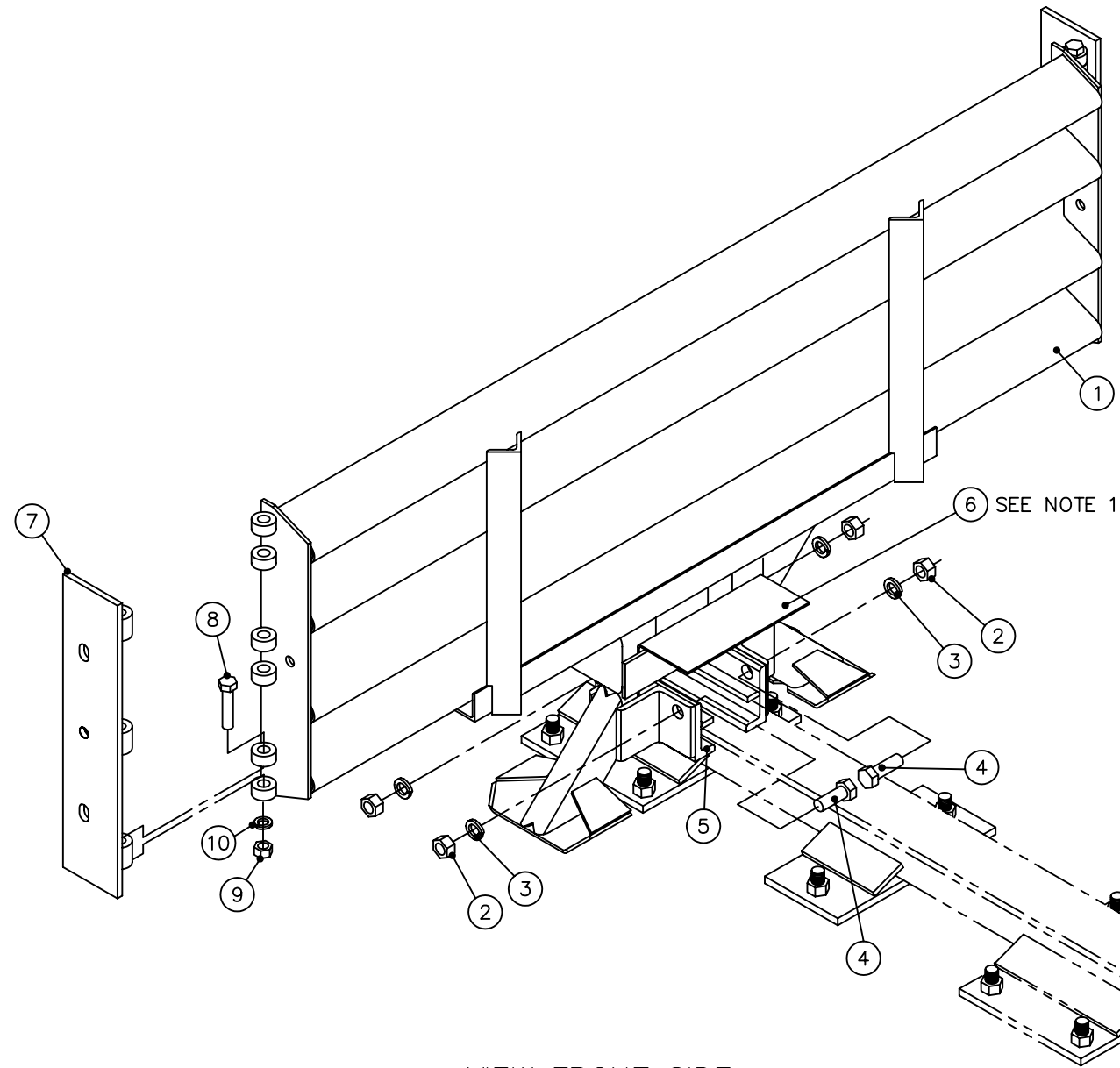
QUADGUARD® CEN SYSTEM
90" SYSTEM W/TENSION STRUT BACKUP

SCALE	1: 40	DWG.	QCTSCVR-U90	SHEET	1 OF 1	REV	H
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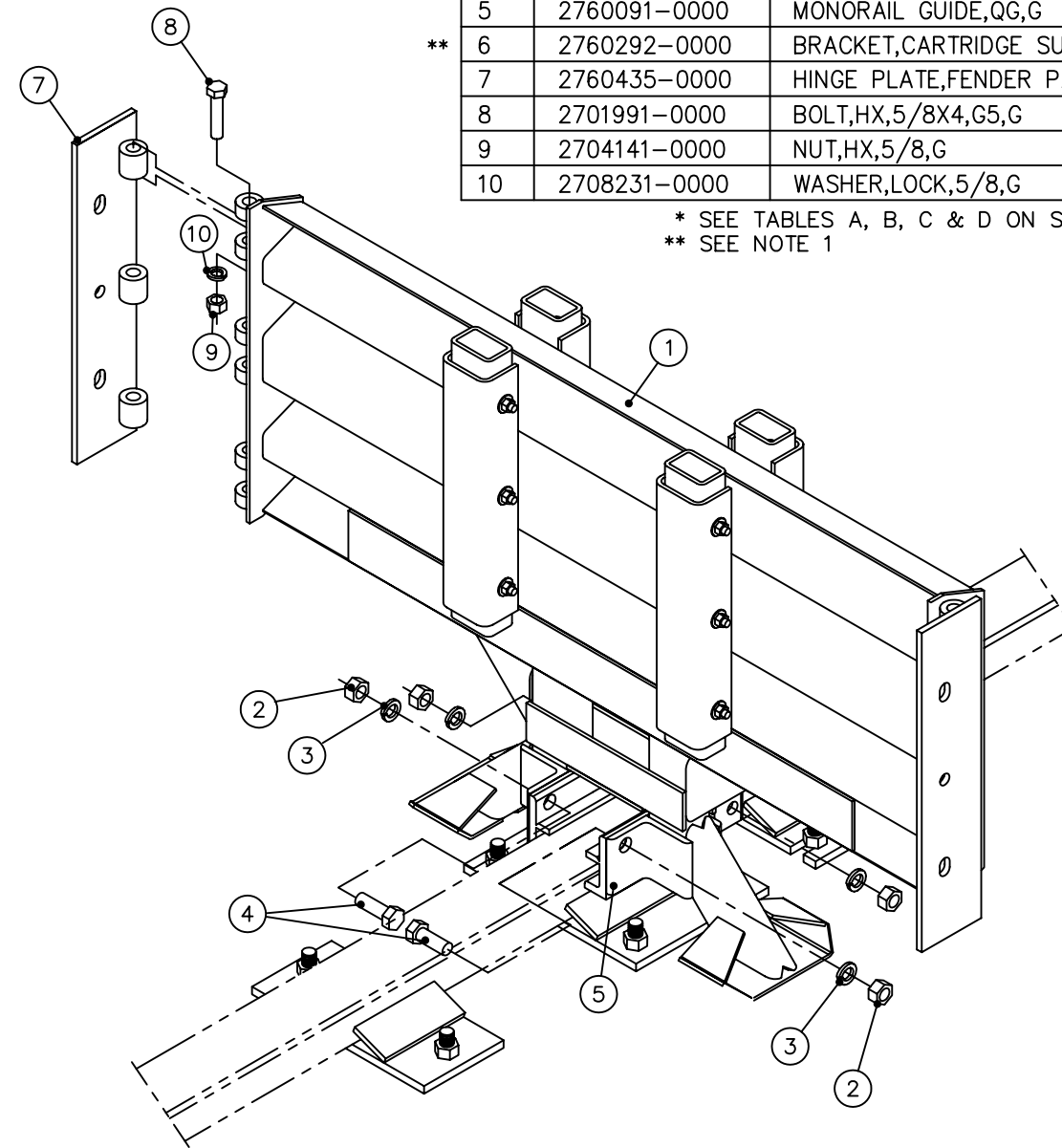
Revisions	Date	Rev.	By	Ckd.	App.
PCN 1882, ADDED BLACK NOSE OPTION	06/02/04	F	RGC	STT	KWL
REVISED NOTE 7, (ADDED MONORAIL), PCN 2053	10/12/05	G	DDS	KM	KWL
WAS UNIDIRECTIONAL, TABEL AND PAD WIDTH WAS 1219	03/25/08	H	RJV	STT	PLK

PARTS LIST			
ITEM	STOCK NO.	DESCRIPTION	REQ'D
1	*	DIAPHRAGM,QB,QG,G	1.00
2	2704341-0000	NUT,HX,3/4,G,GR DH	4.00
3	2708201-0000	WASHER,LOCK,3/4,G	4.00
4	2699121-0000	BOLT,HX,3/4X2,G8,G	4.00
5	2760091-0000	MONORAIL GUIDE,QG,G	2.00
** 6	2760292-0000	BRACKET,CARTRIDGE SUPPORT,DIA	2.00
7	2760435-0000	HINGE PLATE,FENDER PANEL,QG,G	2.00
8	2701991-0000	BOLT,HX,5/8X4,G5,G	6.00
9	2704141-0000	NUT,HX,5/8,G	6.00
10	2708231-0000	WASHER,LOCK,5/8,G	6.00

* SEE TABLES A, B, C & D ON SHEETS 2-4
 ** SEE NOTE 1



VIEW FRONT SIDE
 DIAPHRAGMS #4-9



VIEW BACK SIDE
 TYPICAL DIAPHRAGM #2 (SEE TABLES A, B, C & D ON SHEETS 2-4)

- NOTES:
 1. TWO EACH OF ITEM 6 REQUIRED ON DIAPHRAGMS 4 THROUGH LAST. ONE REQUIRED ON DIAPHRAGM 3 (SEE DRAWING 3540580-0000).

ASSEMBLY NO. 3540 ____ - ____

Revisions	Date	Rev.	By	Ckd.	App.
ADDED ITEMS 7, 8, 9, & 10	07/23/01	C	LWC	STT	DMO
ADDED 8 BAY SYSTEM ON SHEET 3	9/26/01	D	DK	STT	DO
REMOVED 9 BAY SYSTEM	01/29/02	E	RSG	DAK	DMO

REFERENCES

DRAWN: D. Staus	DATE: 11/3/99
DESIGNED: R. Blaski	DATE: 11/3/99
CHECKED: KRM	DATE: 11/16/99
APPROVED: RB	DATE: 11/16/99
CAD FILE: 3540509-0000.dwg	
NEXT ASSEMBLY:	

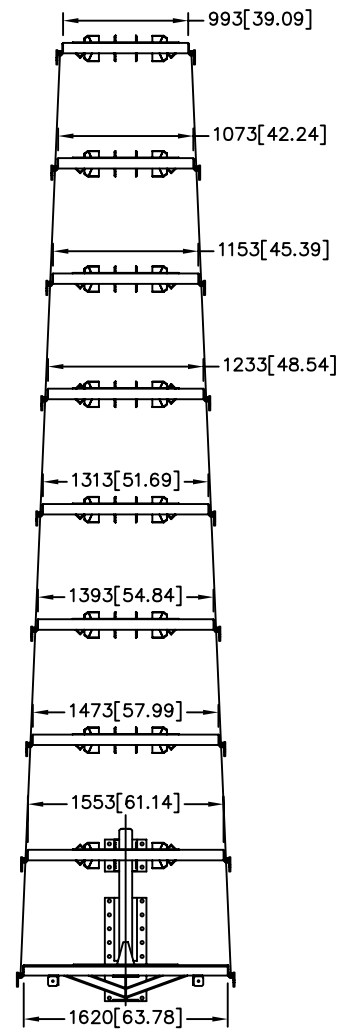


ENERGY ABSORPTION SYSTEMS, INC.
 ENGINEERING AND RESEARCH DEPARTMENT

QUADGUARD® CEN SYSTEMS
 DIAPHRAGM ASSY,
 QGC, 69/90, 5, 6 & 8 BAY

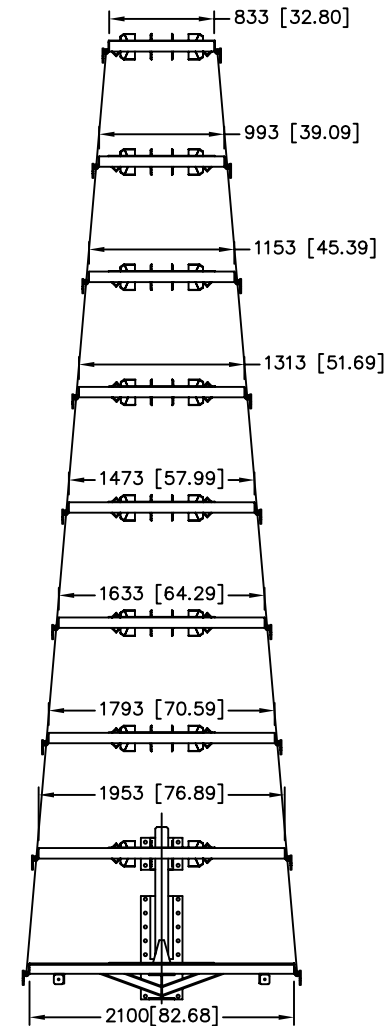
SCALE 1:12	DWG. 3540509-0000	SHEET 1 of 4	REV E
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TABLE A "69"		
ASSEMBLY NO.	DESCRIPTION	ITEM 1 STOCK NO.
3540501-0993	DIAPHRAGM ASSY, QG, 0993	2761046-0993
3540501-1073	DIAPHRAGM ASSY, QG, 1073	2761046-1073
3540501-1153	DIAPHRAGM ASSY, QG, 1153	2761046-1153
3540340-1233	DIAPHRAGM ASSY, QG, 1233	2761041-1233
3540340-1313	DIAPHRAGM ASSY, QG, 1313	2761041-1313
3540340-1393	DIAPHRAGM ASSY, QG, 1393	2761041-1393
3540340-1473	DIAPHRAGM ASSY, QG, 1473	2761041-1473
3540340-1553	DIAPHRAGM ASSY, QG, 1553	2761041-1553



8 Bay QuadGuard CEN Systems – 1753 (69)

TABLE B "90"		
ASSEMBLY NO.	DESCRIPTION	ITEM 1 STOCK NO.
3540509-0833	DIAPHRAGM ASSY, QG, 0833	2761046-0833
3540501-0993	DIAPHRAGM ASSY, QG, 0993	2761046-0993
3540501-1153	DIAPHRAGM ASSY, QG, 1153	2761046-1153
3540340-1313	DIAPHRAGM ASSY, QG, 1313	2761041-1313
3540340-1473	DIAPHRAGM ASSY, QG, 1473	2761041-1473
3540340-1633	DIAPHRAGM ASSY, QG, 1633	2761041-1633
3540340-1793	DIAPHRAGM ASSY, QG, 1793	2761041-1793
3540340-1953	DIAPHRAGM ASSY, QG, 1953	2761041-1953



8 Bay QuadGuard CEN Systems – 2286 (90)

NOTE: 1. DIMENSIONS ARE IN MILLIMETERS [INCHES]
UNLESS OTHERWISE NOTED.

(SEE TABLES A & B)

ASSEMBLY NO. 3540 ____ - ____

Revisions	Date	Rev.	By	Ckd.	App.
SEE SHEET 1	07/23/01	C	LWC	STT	DMO
ADDED 8 BAY ON SHEET 3	9/26/01	D	DK	STT	DO
REMOVED 9 BAY SYSTEM	01/28/02	E	RSG	DAK	DMO

REFERENCES

DRAWN: D. Staus	DATE: 11/3/99
DESIGNED: R. Blaski	DATE: 11/3/99
CHECKED: KRM	DATE: 11/16/99
APPROVED: RB	DATE: 11/16/99
CAD FILE: 3540509-0000 Sh02.dwg	
NEXT ASSEMBLY:	

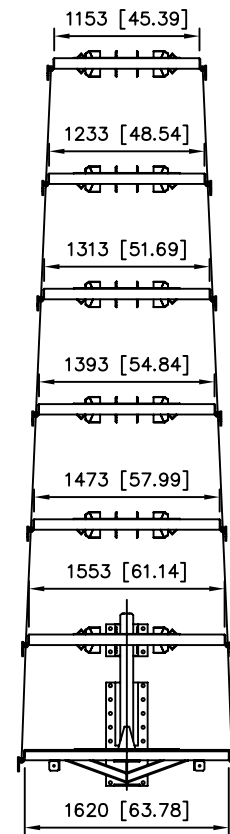


ENERGY ABSORPTION SYSTEMS, INC.
ENGINEERING AND RESEARCH DEPARTMENT

QUADGUARD® CEN SYSTEMS
DIAPHRAGM ASSEMBLY,
QGC, 69/90, 8 BAY

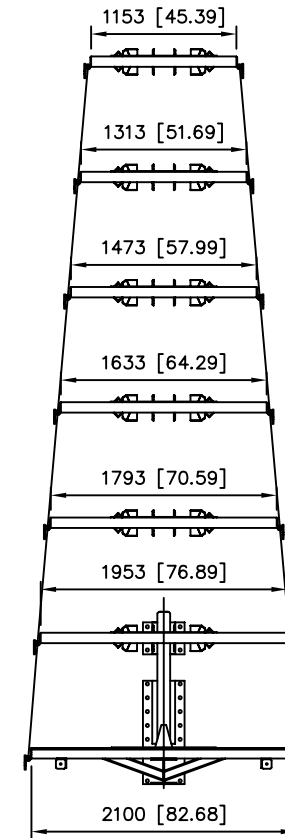
SCALE 1=60	DWG. 3540509-0000	SHEET 2 of 4	REV E
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TABLE C "69"		
ASSEMBLY NO.	DESCRIPTION	ITEM 1 STOCK NO.
3540501-1153	DIAPHRAGM ASSY, QG, 1153	2761046-1153
3540501-1233	DIAPHRAGM ASSY, QG, 1233	2761046-1233
3540501-1313	DIAPHRAGM ASSY, QG, 1313	2761046-1313
3540340-1393	DIAPHRAGM ASSY, QG, 1393	2761041-1393
3540340-1473	DIAPHRAGM ASSY, QG, 1473	2761041-1473
3540340-1553	DIAPHRAGM ASSY, QG, 1553	2761041-1553



6 Bay QuadGuard CEN Systems – 1753 (69)

TABLE D "90"		
ASSEMBLY NO.	DESCRIPTION	ITEM 1 STOCK NO.
3540501-1153	DIAPHRAGM ASSY, QG, 1153	2761046-1153
3540501-1313	DIAPHRAGM ASSY, QG, 1313	2761046-1313
3540509-1473	DIAPHRAGM ASSY, QG, 1473	2761046-1473
3540340-1633	DIAPHRAGM ASSY, QG, 1633	2761041-1633
3540340-1793	DIAPHRAGM ASSY, QG, 1793	2761041-1793
3540340-1953	DIAPHRAGM ASSY, QG, 1953	2761041-1953



6 Bay QuadGuard CEN Systems – 2286 (90)

NOTE: 1. DIMENSIONS ARE IN MILLIMETERS [INCHES]
UNLESS OTHERWISE NOTED.

(SEE TABLES C & D)

ASSEMBLY NO. 3540 ____ - ____

REFERENCES

DRAWN: D. Kohfeld	DATE: 12/3/99
DESIGNED: R. Blaski	DATE: 11/3/99
CHECKED:	DATE:
APPROVED:	DATE:
CAD FILE: 3540509-0000 Sh03.dwg	
NEXT ASSEMBLY:	



ENERGY ABSORPTION SYSTEMS, INC.
ENGINEERING AND RESEARCH DEPARTMENT

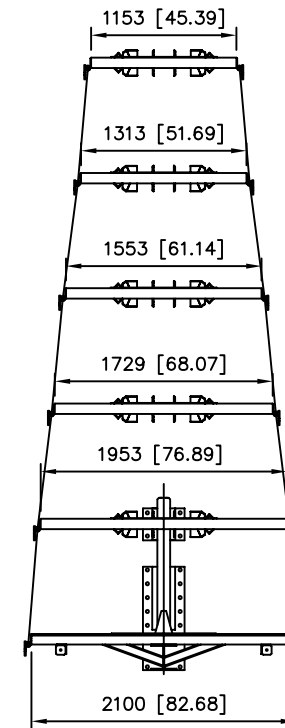
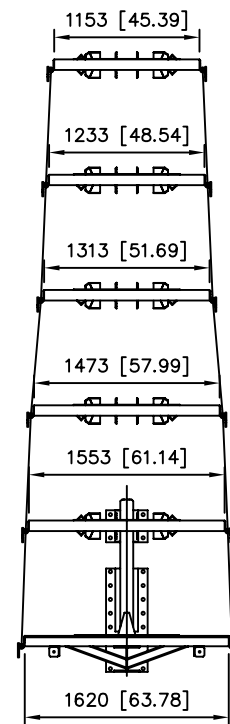
QUADGUARD® CEN SYSTEMS
DIAPHRAGM ASSEMBLY,
QGC, 69/90, 6 BAY

Revisions	Date	Rev.	By	Ckd.	App.
SEE SHEET 1	07/23/01	C	LWC	STT	DMO
ADDED 8 BAY ON SHEET 3	9/26/01	D	DK	STT	DO
REMOVED 9 BAY SYSTEM	01/29/02	E	RSG	DAK	DMO

SCALE 1=60	DWG. 3540509-0000	SHEET 3 of 4	REV E
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TABLE C "69"		
ASSEMBLY NO.	DESCRIPTION	ITEM 1 STOCK NO.
3540501-1153	DIAPHRAGM ASSY, QG, 1153	2761046-1153
3540501-1233	DIAPHRAGM ASSY, QG, 1233	2761046-1233
3540501-1313	DIAPHRAGM ASSY, QG, 1313	2761046-1313
3540340-1473	DIAPHRAGM ASSY, QG, 1473	2761041-1473
3540340-1553	DIAPHRAGM ASSY, QG, 1553	2761041-1553

TABLE D "90"		
ASSEMBLY NO.	DESCRIPTION	ITEM 1 STOCK NO.
3540501-1153	DIAPHRAGM ASSY, QG, 1153	2761046-1153
3540501-1313	DIAPHRAGM ASSY, QG, 1313	2761046-1313
3540509-1553	DIAPHRAGM ASSY, QG, 1553	2761046-1553
3540340-1729	DIAPHRAGM ASSY, QG, 1729	2761041-1729
3540340-1953	DIAPHRAGM ASSY, QG, 1953	2761041-1953



5 Bay QuadGuard CEN Systems – 1753 (69) 5 Bay QuadGuard CEN Systems – 2286 (90)

NOTE: 1. DIMENSIONS ARE IN MILLIMETERS [INCHES]
UNLESS OTHERWISE NOTED.

(SEE TABLES C & D)

ASSEMBLY NO. 3540 ____ - ____

REFERENCES

DRAWN: D. Kohfeld	DATE: 12/3/99
DESIGNED: R. Blaski	DATE: 11/3/99
CHECKED:	DATE:
APPROVED:	DATE:
CAD FILE: 3540509-0000 Sh04.dwg	
NEXT ASSEMBLY:	

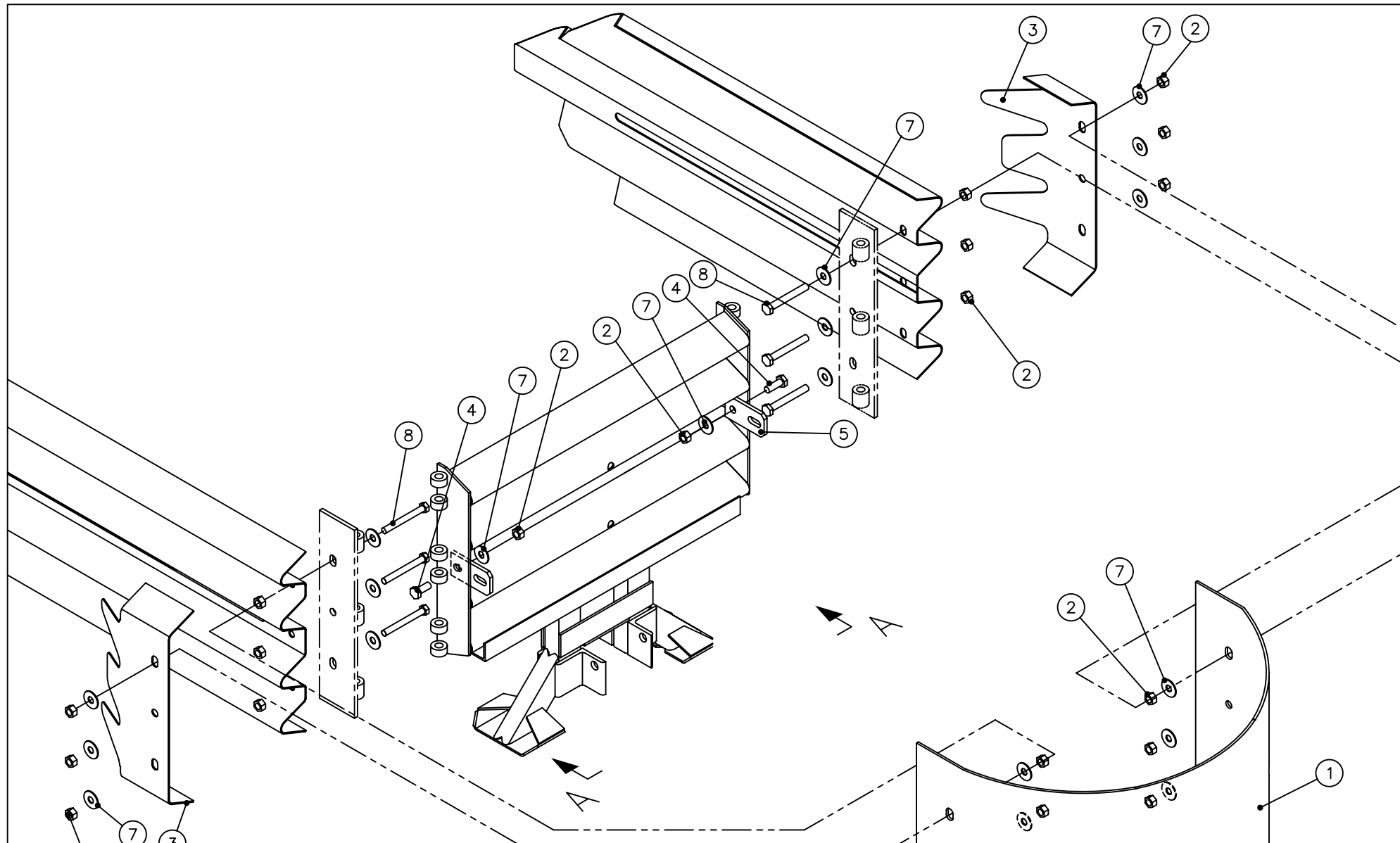


ENERGY ABSORPTION SYSTEMS, INC.
ENGINEERING AND RESEARCH DEPARTMENT

QUADGUARD® CEN SYSTEMS
DIAPHRAGM ASSEMBLY,
QGC, 69/90, 5 BAY

Revisions	Date	Rev.	By	Ckd.	App.
SEE SHEETS 1	07/23/01	C	LWC	STT	DMO
ADDED 8 BAY ON SHEET 3	9/26/01	D	DK	STT	DO
REMOVED 9 BAY SYSTEM	01/28/02	E	RSG	DAK	DMO

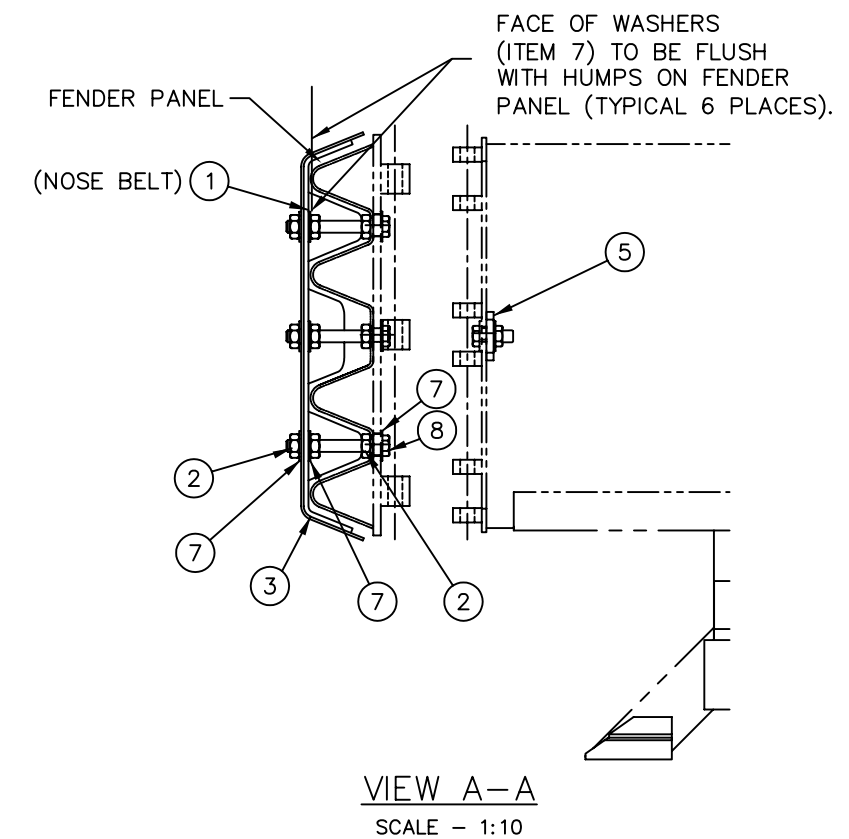
SCALE 1=60	DWG. 3540509-0000	SHEET 4 of 4	REV E
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PARTS LIST			
ITEM	STOCK NO.	DESCRIPTION	REQ'D
1	SEE TABLE	BELT,NOSE,QGC	1.00
2	2704141-0000	NUT,HX,5/8,G	20.0
3	2760504-0000	CLAMP,BELT,LMC	2.00
4	2698241-0000	BOLT,HX,5/8X2 1/4,G8,G	2.00
5	2760251-0000	BRACKET,PULL OUT,QG	2.00
7	2708291-0000	WASHER,FLAT,5/8X1 3/4,G	20.0
8	2701994-0000	BOLT,HX,5/8X5,G5,G,ALL THREAD	6.00

TABLE

	SYSTEM WIDTH	BELT LENGTH	COLOR	ASSY NO.	ITEM 1 PART NO.
5-6 BAY	2286 [90"]	1970 78"	GRAY	3540554-0000	2718109-0000
		1970 78"	YELLOW	3540554-0100	2718109-0100
		1970 78"	BLACK	3540554-0200	2718109-0200
5-6 BAY	1753 [69"]	1970 78"	GRAY	3540554-0000	2718109-0000
		1970 78"	YELLOW	3540554-0100	2718109-0100
		1970 78"	BLACK	3540554-0200	2718109-0200
8 BAY	2286 [90"]	1780 70"	GRAY	3540553-0000	2718108-0000
		1780 70"	YELLOW	3540553-0100	2718108-0100
		1780 70"	BLACK	3540553-0200	2718108-0200
8 BAY	1753 [69"]	1970 78"	GRAY	3540554-0000	2718109-0000
		1970 78"	YELLOW	3540554-0100	2718109-0100
		1970 78"	BLACK	3540554-0200	2718109-0200



ASSEMBLY NO. (SEE TABLE)

REFERENCES

DRAWN: D. Staus	DATE: 11/1/99
DESIGNED: RBB	DATE: 11/1/99
CHECKED: KRM	DATE: 11/4/99
APPROVED: RB	DATE: 11/4/99
CAD FILE: 3540552-0000.dwg	
NEXT ASSEMBLY:	

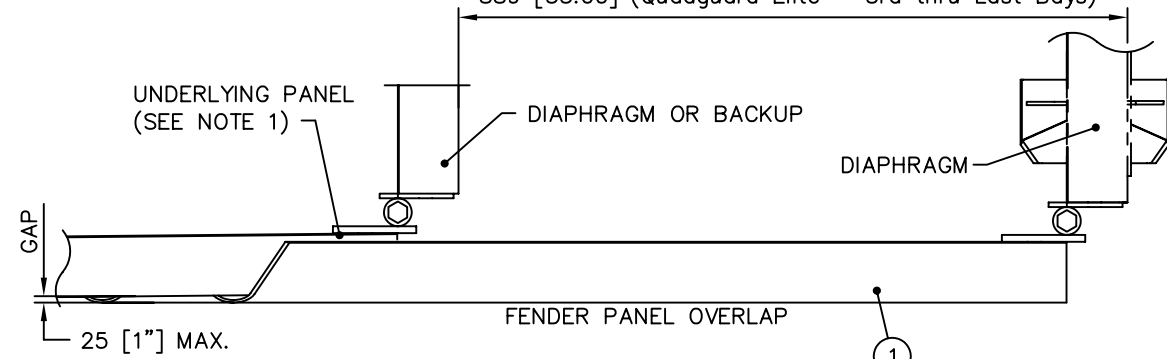
ENERGY ABSORPTION SYSTEMS, INC.
ENGINEERING AND RESEARCH DEPARTMENT

QUADGUARD® CEN SYSTEM
NOSE ASSY,69 & 90,QGC

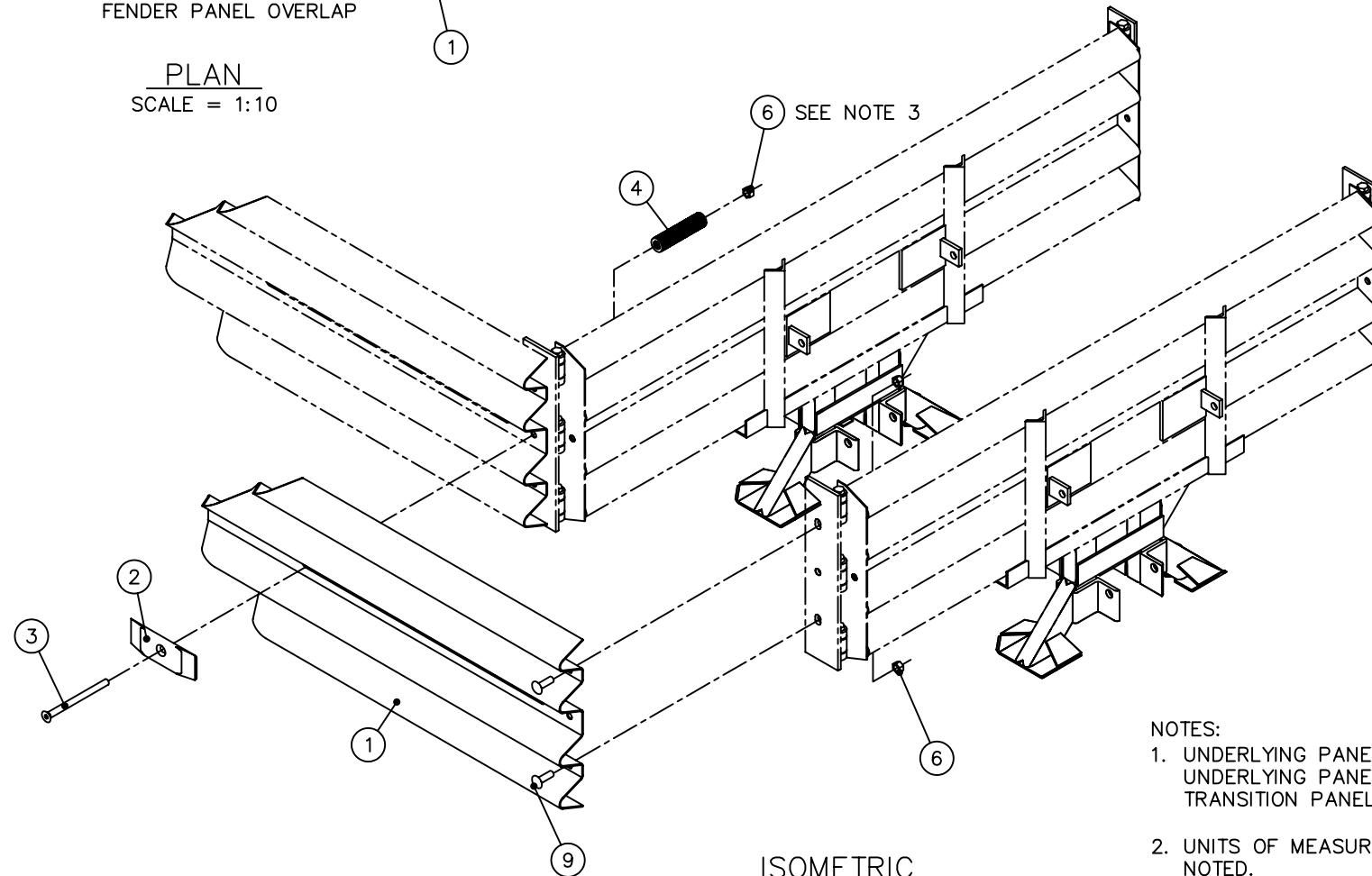
SCALE 1:15	DWG. 3540552-0000	SHEET 1 of 1	REV E
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Revisions	Date	Rev.	By	Ckd.	App.
DELETED 9 BAY SYSTEM	2/11/04	D	SDN	STT	KWL
PCN 1882, ADDED BLACK NOSE BELT	06/01/04	E	RGC	STT	KWL
ADDED 8-BAY TO TABLE	9/25/01	C	DK	STT	DO

- 914 [36.00] (Quadguard CEN - All bays)
- 914 [36.00] (Quadguard LMC - 1st thru 4th bays)
- 787 [31.00] (Quadguard LMC - 5th thru Last bays)
- 914 [36.00] (Quadguard Elite - 1st & 2nd Bays)
- 889 [35.00] (Quadguard Elite - 3rd thru Last Bays)



PLAN
SCALE = 1:10



ISOMETRIC
SCALE = 1:20

PARTS LIST			
ITEM	STOCK NO.	DESCRIPTION	REQ'D
1	2760081-0000	PANEL,FENDER,QG,G	1.00
2	2708841-0000	WASHER,MUSHROOM,QG,G	1.00
3	2706605-0000	SCREW,FL,5/8X8 1/2,G8,G,SOCKET	1.00
4	2715044-0000	SPRING,DIE,1 1/2 ODX3/4X6	1.00
6	2704191-0000	NUT,HX,5/8,G,RAIL	3.00
9	2699341-0000	BOLT,RAIL,5/8X2,G	2.00

TWO FENDER PANEL ASSEMBLIES REQUIRED PER BAY.

- NOTES:
1. UNDERLYING PANEL IS A FENDER PANEL IF ATTACHED TO A DIAPHRAGM. UNDERLYING PANEL IS A BACKUP SIDE PANEL, EXTENSION PANEL OR TRANSITION PANEL IF ATTACHED TO THE BACKUP.
 2. UNITS OF MEASUREMENT ARE MILLIMETERS [INCHES] UNLESS OTHERWISE NOTED.
 3. TIGHTEN NUT UNTIL IT REACHES END OF THREADS.

ASSY NO. 3540472-0000

REFERENCES

DRAWN: R. Cummins	DATE: 04/20/98
DESIGNED: J. Machado	DATE: 4/10/97
CHECKED: K. Mortensen	DATE: 04/29/98
APPROVED: R. Blaski	DATE: 04/29/98
CAD FILE: 3540472-0000.dwg	
NEXT ASSEMBLY:	



ENERGY ABSORPTION SYSTEMS, INC.
ENGINEERING AND RESEARCH DEPARTMENT

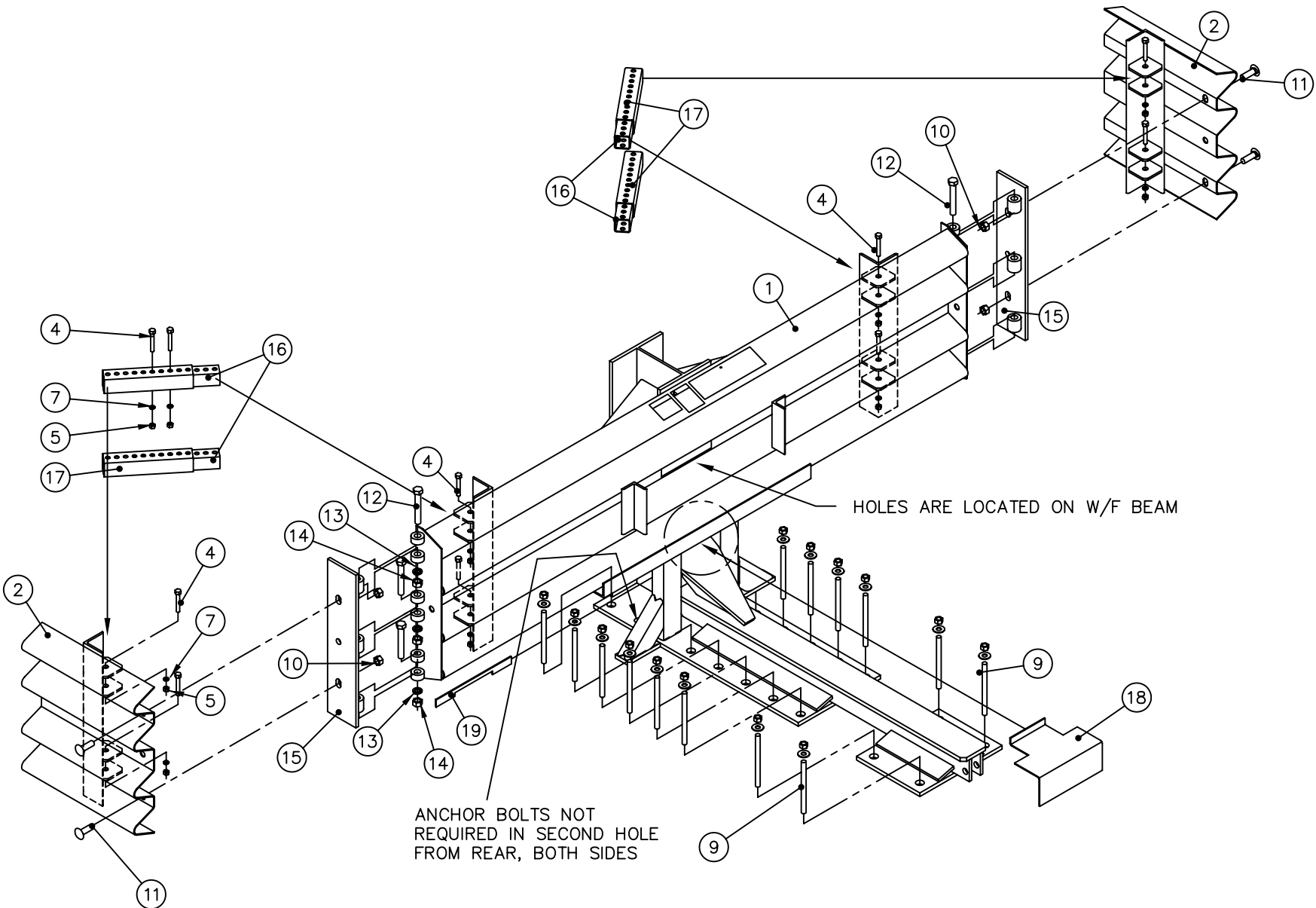
QuadGuard® LMC, ELITE™ & CEN SYSTEM,
FENDER PANEL ASSY,
QG LMC/QGE/CEN,69/90

SCALE AS NOTED	DWG. 3540472-0000	SHEET 1 of 1	REV G
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Revisions	Date	Rev.	By	Ckd.	App.
ADDED CEN SYSTEM	11/3/99	E	DLS	KM	
REMOVED ITEMS 7, 8, 10, & 11	07/11/01	F	LWC	BMK	DMO
ADDED NOTE 3	3/26/02	G	DDW	DMO	SPT

PARTS LIST

ITEM	STOCK NO.	DESCRIPTION	REQ'D
1	SEE TABLE	BACKUP,TS,___,QGC W/DECALS	1.00
2	2760471-0000	PANEL,SIDE,QG WIDE,G	2.00
4	2699601-0000	BOLT,HX,3/8X3 1/2,G2,G,ALL THREAD	16.0
5	2704031-0000	NUT,HX,3/8,G	16.0
7	2708041-0000	WASHER,LOCK,3/8,G	16.0
9	3525300-0000	ANCHOR,MP-3,PT-KIT,3/4X7,VT	3.00
10	2704191-0000	NUT,HX,5/8,G,RAIL	4.00
11	2699341-0000	BOLT,RAIL,5/8X2,G	4.00
12	2701991-0000	BOLT,HX,5/8X4,G5,G	6.00
13	2708231-0000	WASHER,LOCK,5/8,G	6.00
14	2704141-0000	NUT,HX,5/8,G	6.00
15	2760435-0000	HINGE PLATE,FENDER PANEL,QG LMC 69/90	2.00
16	2760501-0000	TEL ST 1 3/4X1 3/4X12GA,H4S,G,10" LG	4.00
17	2760502-0000	TEL ST 2X2X12GA,H2S,G,10" LONG	4.00
18	2760293-0000	BRACKET,CARTRIDGE SUPPORT,TS B/U	1.00
19	2760294-0000	LOCKING BAR,CART SUPPORT,QG	1.00



TABLE

ASSY. NO.	STOCK NO.	DESCRIPTION	WIDTH
3540565-0000	2760571-0000	BACKUP,TS,64,QGC,W/DECALS	1620 [64"]
3540566-0000	2760572-0000	BACKUP,TS,83,QGC,W/DECALS	2100 [83"]

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 MILLIMETERS [INCHES] UNLESS OTHERWISE NOTED.

ASSEMBLY NO. (SEE TABLE)



ENERGY ABSORPTION SYSTEMS, INC.
ENGINEERING AND RESEARCH DEPARTMENT

QUADGUARD® CEN SYSTEM
BACKUP ASSY,TS,QGC 69/90

SCALE	DWG.	SHEET	REV
1:20	3540565-0000	1 of 1	A

REFERENCES

DRAWN:	D. Staus	DATE:	11/3/99
DESIGNED:	R. Blaski	DATE:	11/3/99
CHECKED:	KRM	DATE:	11/4/99
APPROVED:	RB	DATE:	11/4/99
CAD FILE:	3540565-0000.dwg		
NEXT ASSEMBLY:			

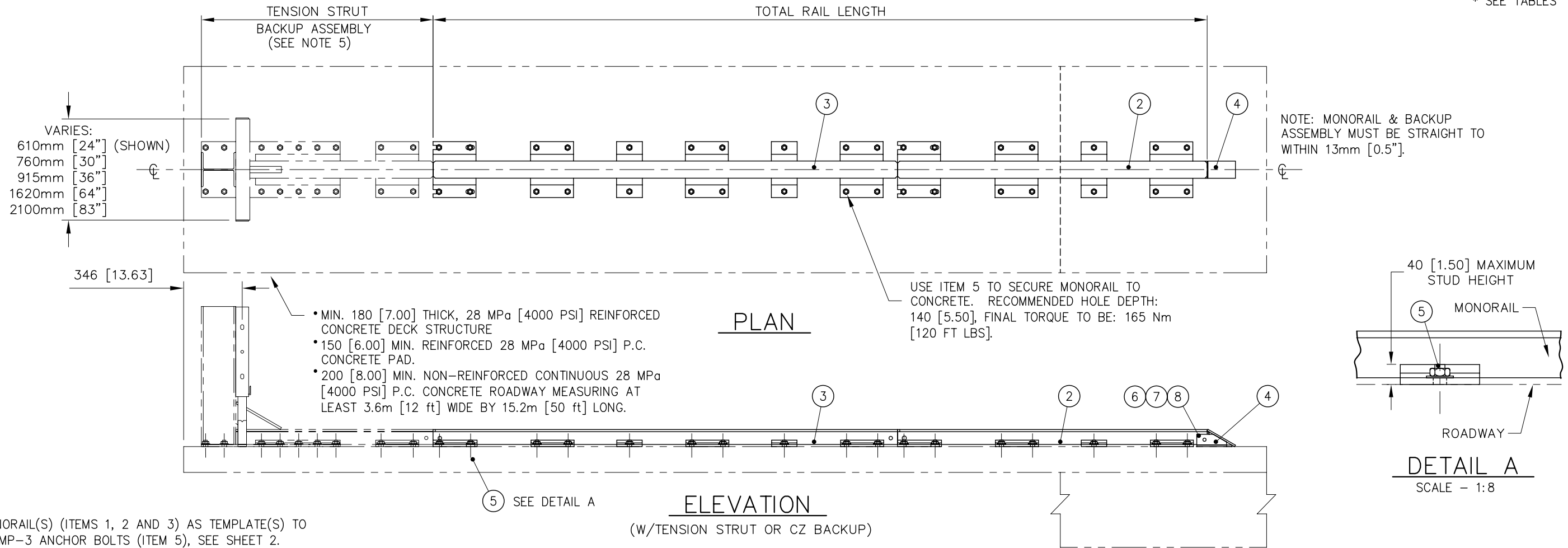
Revisions	Date	Rev.	By	Ckd.	App.
ADDED ITEMS 18 & 19	02/17/00	A	RGC	BB	SPT

TABLE 1: RAIL ASSEMBLIES W/ 1 THRU 3 BAY SECTIONS						
ASSEMBLY NO.	TOTAL RAIL LENGTH	*ITEM 1	*ITEM 2	*ITEM 3	*ITEM 5	NO. OF BAYS
3540060-0500	3660 [144.1]	1	0	1	5	5
3540060-0600	4575 [180.1]	0	1	1	6	6
3540060-0800	6405 [252.1]	1	0	2	8	8

TABLE 2: RAIL ASSEMBLIES W/ 1 AND 2 BAY SECTIONS					
ASSEMBLY NO.	TOTAL RAIL LENGTH	*ITEM 1	*ITEM 2	*ITEM 5	NO. OF BAYS
3540060-5CEN	3660 [144.1]	0	2	5	5
3540060-6CEN	4575 [180.1]	1	2	6	6
3540060-8CEN	6405 [252.1]	1	3	8	8

PARTS LIST			
ITEM	STOCK NO.	DESCRIPTION	REQ'D
1	2760051-0000	MONORAIL, ONE BAY, QG, G	*
2	2760061-0000	MONORAIL, TWO BAYS, QG, G	*
3	2760071-0000	MONORAIL, THREE BAYS, QG, G	*
4	2760041-0000	END CAP, MONORAIL, QG, G	1.00
5	3525300-0000	ANCHOR, MP-3, PT-KIT, 3/4X7, VT	*
6	2699571-0000	BOLT, HX, 5/8X3 1/2, G5, G	1.00
7	2704141-0000	NUT, HX, 5/8, G	1.00
8	2708231-0000	WASHER, LOCK, 5/8, G	1.00

* SEE TABLES



NOTES:

- USE MONORAIL(S) (ITEMS 1, 2 AND 3) AS TEMPLATE(S) TO LOCATE MP-3 ANCHOR BOLTS (ITEM 5), SEE SHEET 2.
- CROSS SLOPE OF PAD SHALL NOT EXCEED 8 % & NOT VARY MORE THAN 2% FROM FRONT TO BACK.
- UNITS OF MEASUREMENT ARE MILLIMETERS [INCHES] UNLESS OTHERWISE NOTED.
- EVERY STUD MUST BE EMBEDDED TO A DEPTH OF 140 [5.5]. IF REBAR IS ENCOUNTERED IN A P.C. CONCRETE PAD, DRILL THROUGH IT. IF REBAR IS ENCOUNTERED ON A DECK STRUCTURE, ASK PROJECT ENGINEER FOR DIRECTION.

REFERENCES

DRAWN: D. HAYES JR	DATE: 11/05/01
DESIGNED: MHO/JVM	DATE: 3-1-96
CHECKED: D. OLLOM	DATE: 1/14/02
APPROVED: F. POWELL	DATE: 1/10/02
CAD FILE: 3540060-OCEN.dwg	
NEXT ASSEMBLY:	

ASSEMBLY NO. SEE TABLES 1 & 2

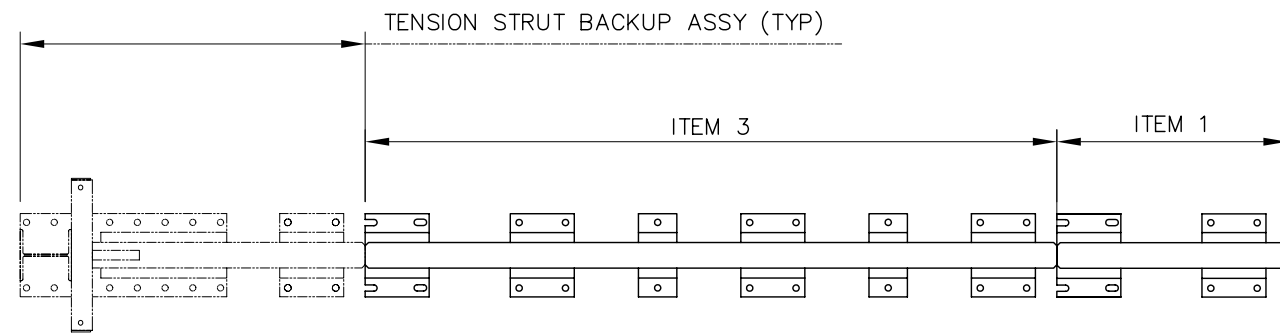


ENERGY ABSORPTION SYSTEMS, INC.
ENGINEERING AND RESEARCH DEPARTMENT

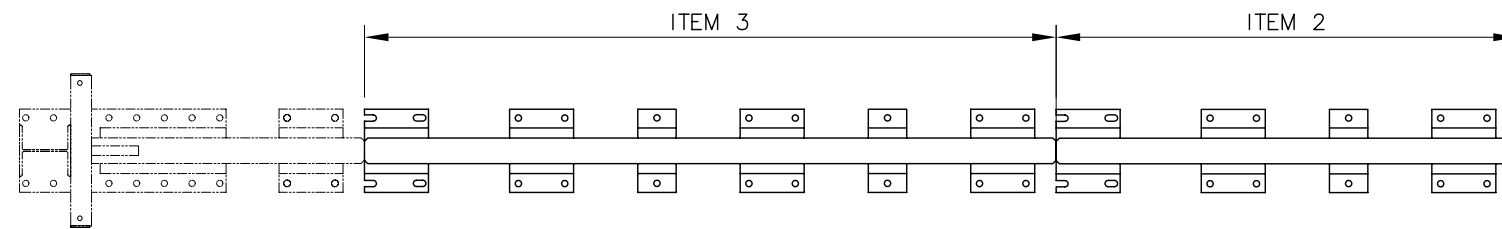
QUADGUARD® CEN SYSTEM
MONORAIL ASSY, QGC

SCALE N.T.S.	DWG. 3540060-OCEN	SHEET 1 of 3	REV B
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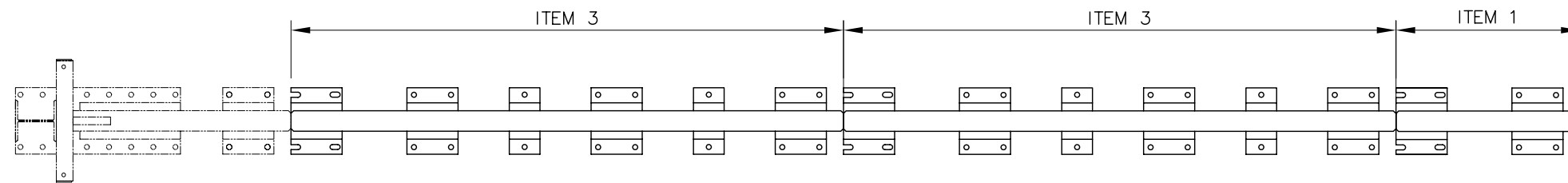
Revisions	Date	Rev.	By	Ckd.	App.
REV CHANGE TO MATCH SHEET 2	09/11/02	A	RGC	DMO	SPT
ADDED 1-2 BAY TABLE & SHT 3, PCN 2053	10/13/05	B	DDS	KM	KWL



5 BAY SYSTEM



6 BAY SYSTEM



8 BAY SYSTEM

ASSEMBLY NO. (SEE TABLE 1 ON SHEET 1)

REFERENCES

DRAWN: D. HAYES JR	DATE: 11/05/01
DESIGNED: MHO/JVM	DATE: 3-1-96
CHECKED: D. OLLOM	DATE: 1/15/02
APPROVED: F. POWELL	DATE: 12/19/01
CAD FILE: 3540060-0CEN SH03.dwg	
NEXT ASSEMBLY:	

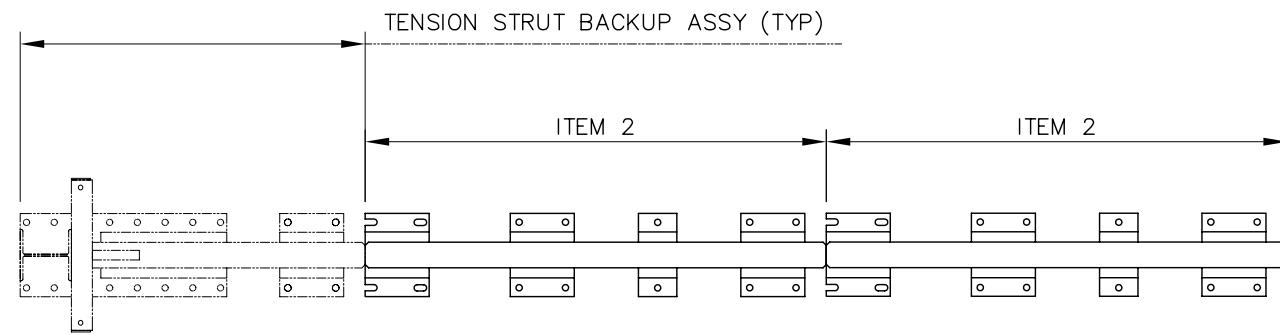


ENERGY ABSORPTION SYSTEMS, INC.
ENGINEERING AND RESEARCH DEPARTMENT

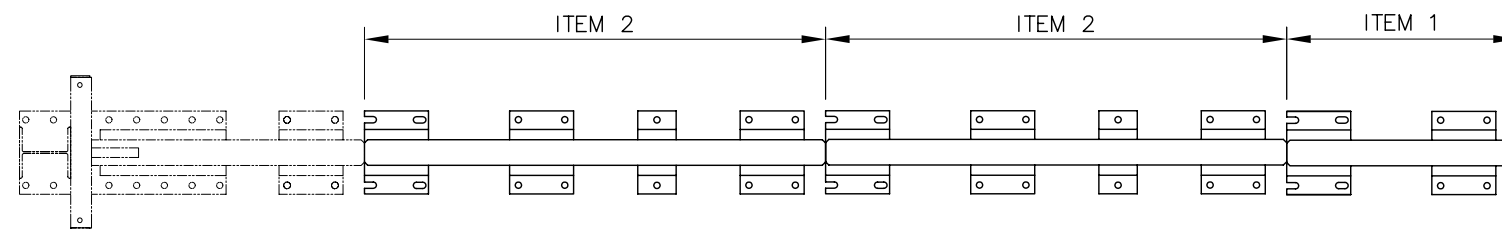
QUADGUARD® CEN SYSTEM
MONORAIL ASSY, QGC

Revisions	Date	Rev.	By	Ckd.	App.
REMOVED SHT 3 & CONCRETE BACKUP OPTION	09/11/02	A	RGC	DMO	SPT
SEE SHEET 1, PCN 2053	10/13/05	B	DDS	KM	KWL

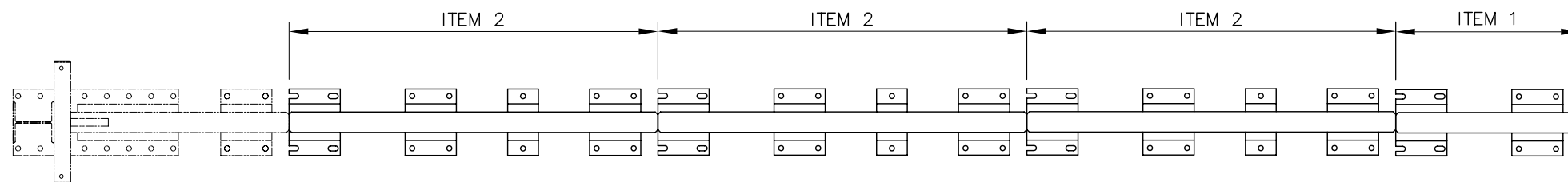
SCALE N.T.S.	DWG. 3540060-0CEN	SHEET 2 of 3	REV B
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5 BAY SYSTEM



6 BAY SYSTEM



8 BAY SYSTEM

ASSEMBLY NO. (SEE TABLE 2 ON SHEET 1)

REFERENCES

DRAWN: D. Standridge	DATE: 10/13/05
DESIGNED: K. Looney	DATE: 8/16/05
CHECKED:	DATE:
APPROVED:	DATE:
CAD FILE: 3540060-0CEN SH03.dwg	
NEXT ASSEMBLY:	



ENERGY ABSORPTION SYSTEMS, INC.
ENGINEERING AND RESEARCH DEPARTMENT

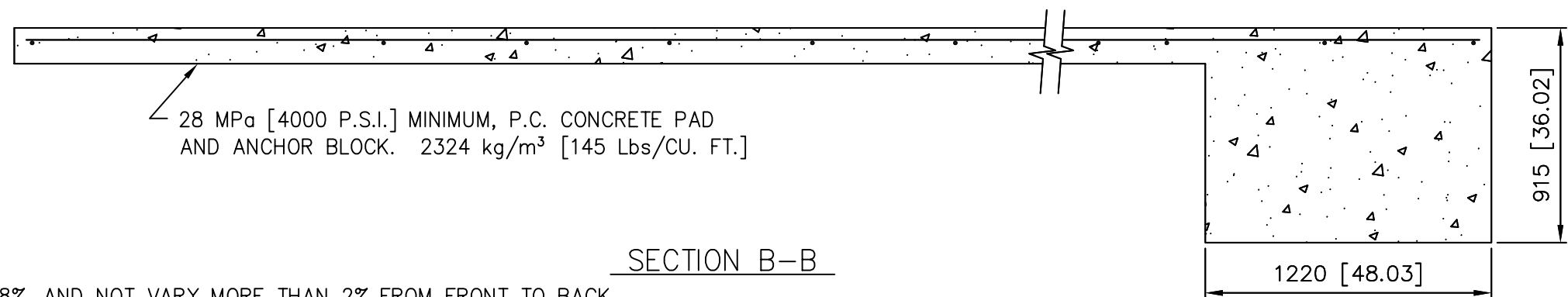
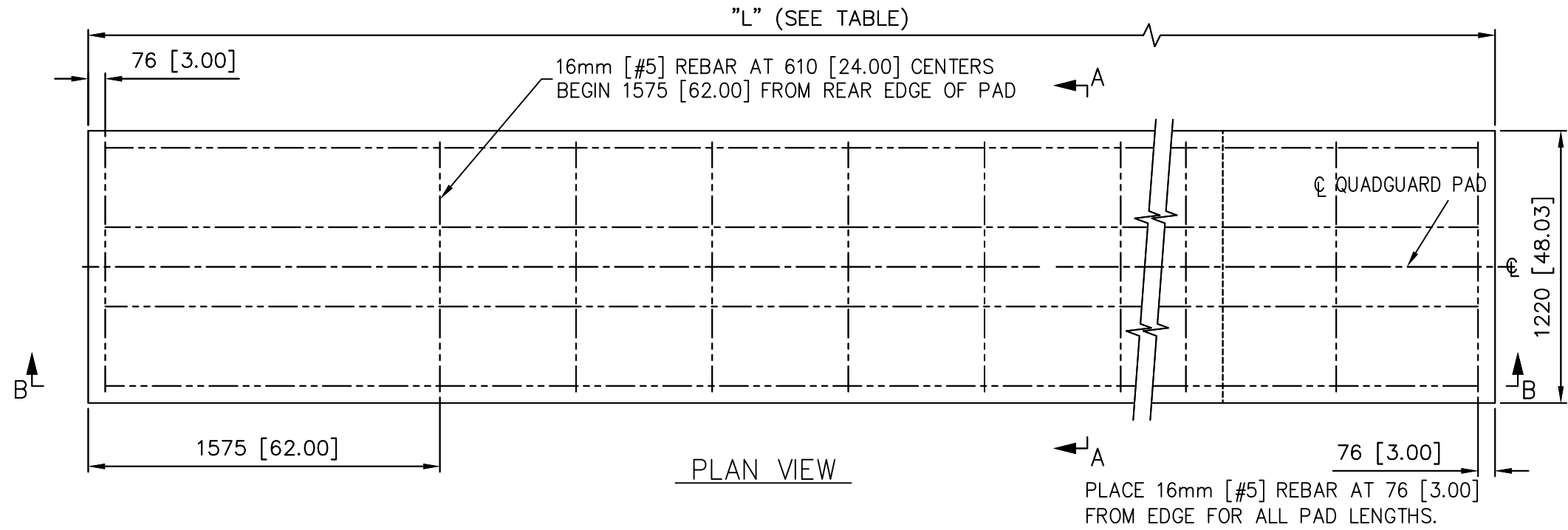
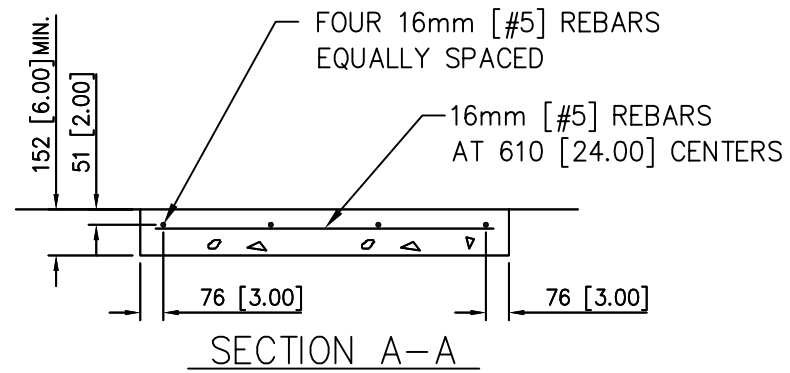
QUADGUARD® CEN SYSTEM

MONORAIL ASSY, QGC

Revisions	Date	Rev.	By	Ckd.	App.
REMOVED SHT 3 & CONCRETE BACKUP OPTION	09/11/02	A	RGC	DMO	SPT
ADDED THIS SHEET, SEE SHEET 1, PCN 2053	10/13/05	B	DDS	KM	KWL

SCALE N.T.S.	DWG. 3540060-0CEN	SHEET 3 of 3	REV B
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TABLE					YARDS OF CONCRETE IN PAD	
NO. OF BAYS	"L" (PAD LENGTH)		REBAR REQUIRED			
	[m]	[ft-in]	[m]	[ft-in]		
5	5.49	[18'-0"]	31.39	[103'-0"]	2.12	[2.8]
6	6.40	[21'-0"]	36.17	[118'-8"]	2.35	[3.1]
8	8.23	[27'-0"]	46.84	[153'-8"]	2.66	[3.5]



NOTES:

- CROSS SLOPE OF PAD SHALL NOT EXCEED 8%, AND NOT VARY MORE THAN 2% FROM FRONT TO BACK.
- UNITS OF MEASUREMENT ARE MILLIMETERS [INCHES] UNLESS OTHERWISE NOTED.

REFERENCES

DRAWN: D. HAYES JR	DATE: 12/18/01
DESIGNED: WGK	DATE: 3/1/96
CHECKED: D. OLLOM	DATE: 12/20/01
APPROVED: F. POWELL	DATE: 12/19/01
CAD FILE: 3540110-OCEN.DWG	
NEXT ASSEMBLY:	



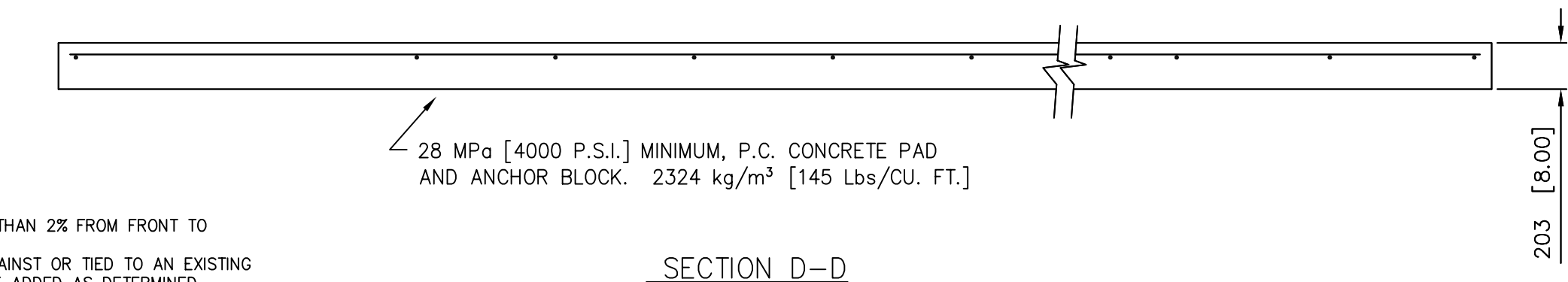
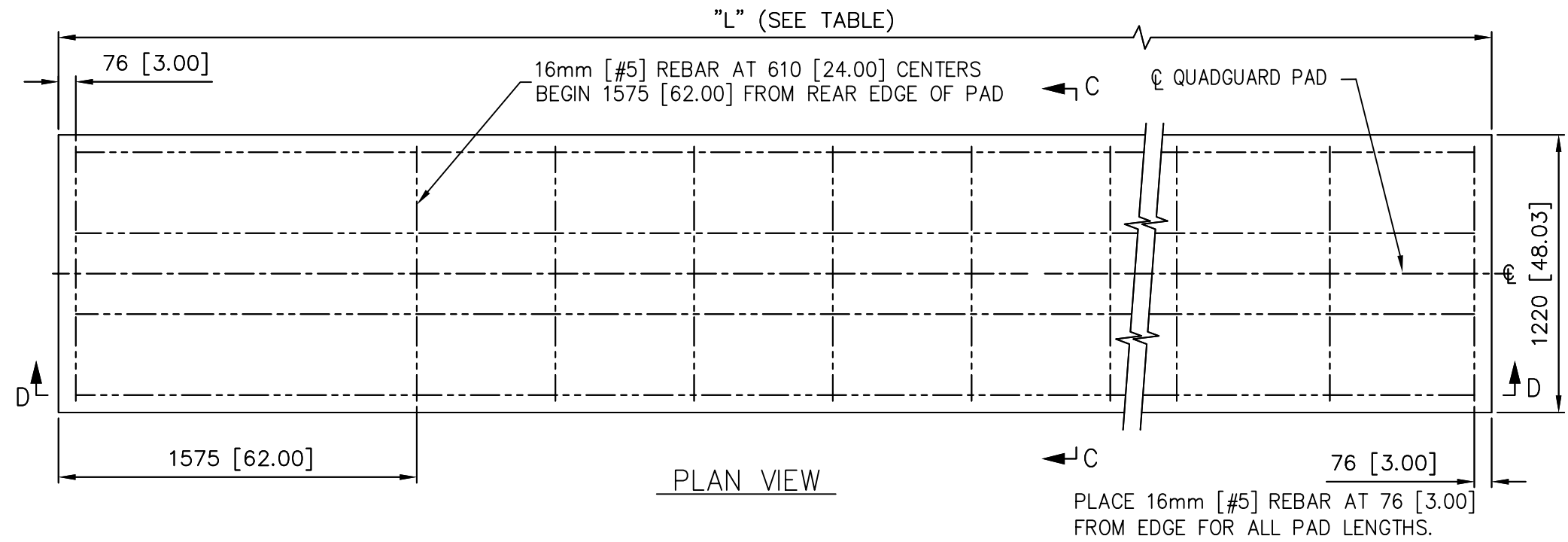
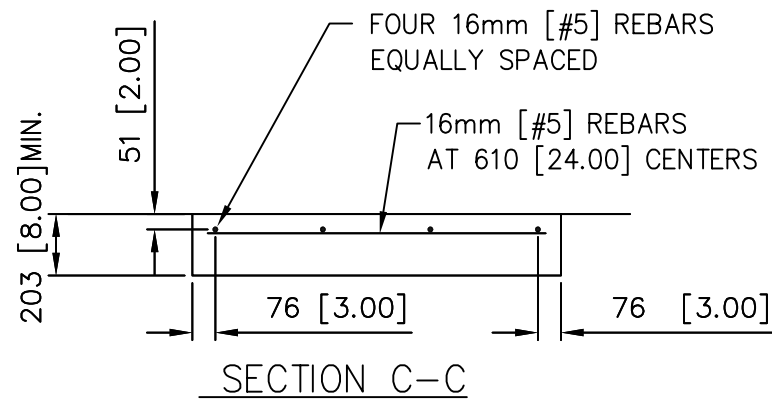
ENERGY ABSORPTION SYSTEMS, INC.
ENGINEERING AND RESEARCH DEPARTMENT

QUADGUARD[®] CEN SYSTEM
CONCRETE PAD, TENSION STRUT, QGC

Revisions	Date	Rev.	By	Ckd.	App.
ADDED SHEET 2	02/05/04	A	RGC	STT	ACF

SCALE NTS	DWG. 3540110-OCEN	SHEET 1 of 2	REV A
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NO. OF BAYS	"L" (PAD LENGTH)		REBAR REQUIRED		YARDS OF CONCRETE IN PAD	
	[m]	[ft-in]	[m]	[ft-in]	m ³	[YARDS ³]
5	5.49	[18'-0"]	31.39	[103'-0"]	1.4	[1.8]
6	6.40	[21'-0"]	36.17	[118'-8"]	1.6	[2.1]
8	8.23	[27'-0"]	46.84	[153'-8"]	2.1	[2.7]



NOTES:

- CROSS SLOPE OF PAD SHALL NOT EXCEED 8%, 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 MILLIMETERS [INCHES] UNLESS OTHERWISE NOTED.

REFERENCES

DRAWN:	R. Cummins	DATE:	2/4/04
DESIGNED:	WGW	DATE:	3/1/96
CHECKED:		DATE:	
APPROVED:		DATE:	
CAD FILE:	3540110-OCEN SH02.DWG		
NEXT ASSEMBLY:			



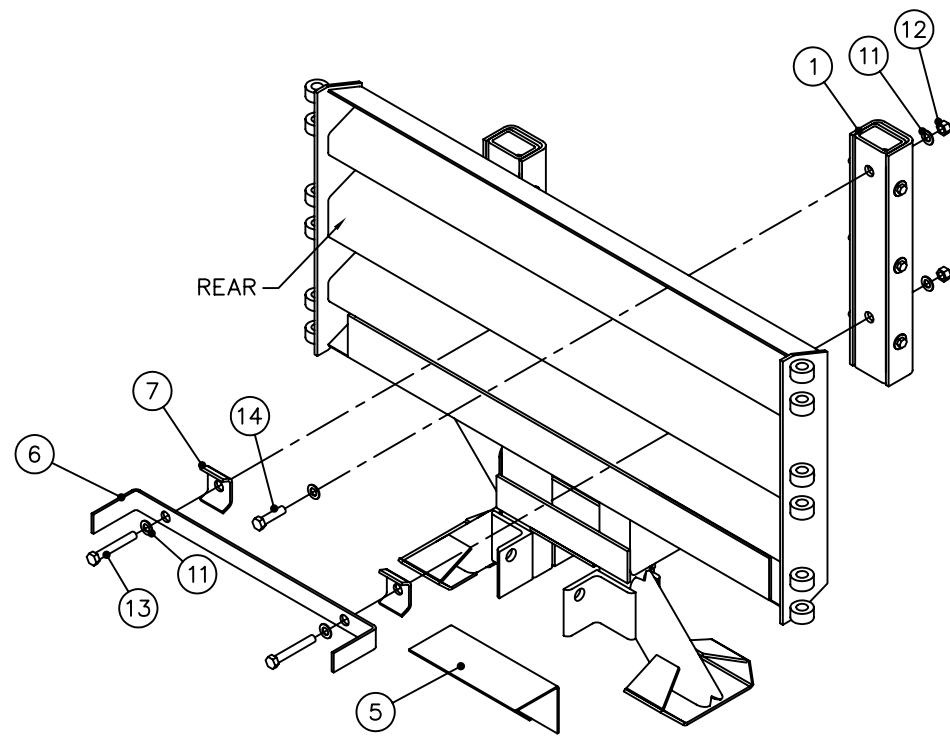
ENERGY ABSORPTION SYSTEMS, INC.
ENGINEERING AND RESEARCH DEPARTMENT

QUADGUARD® SYSTEM
OPTIONAL 8" CONCRETE PAD
FOR TENSION STRUT BACKUP

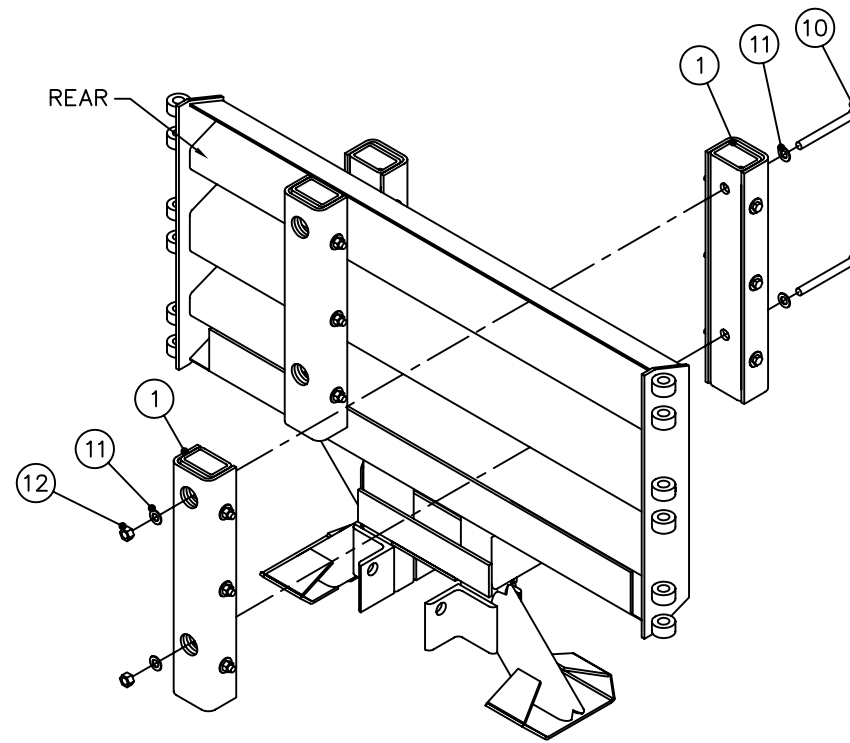
Revisions	Date	Rev.	By	Ckd.	App.
ADDED THIS SHEET	02/04/04	A	RGC	STT	ACF

SCALE	NTS	DWG.	3540110-OCEN	SHEET	2 of 2	REV	A
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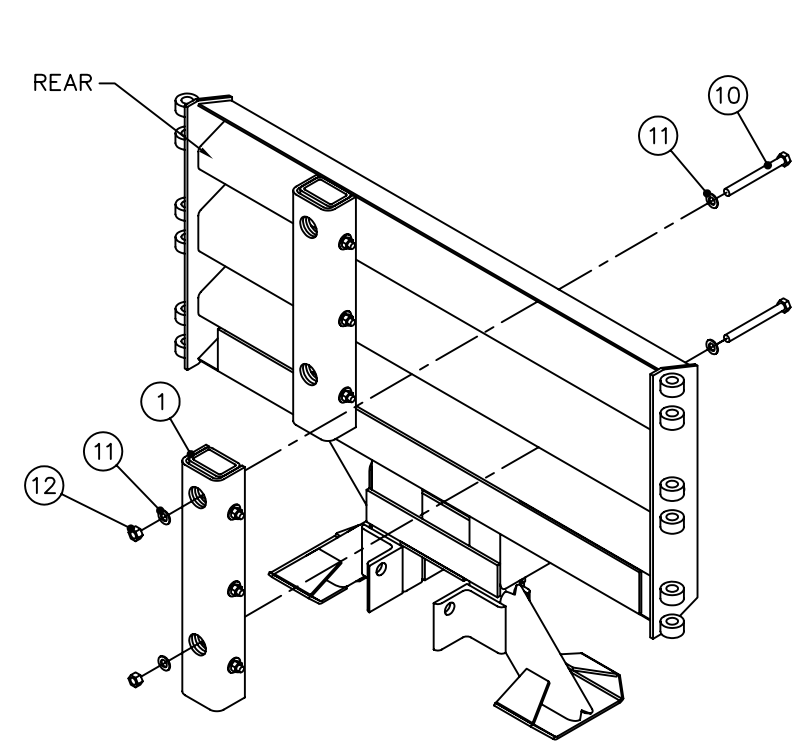
PARTS LIST			
ITEM	STOCK NO.	DESCRIPTION	REQ'D
1	3540574-0000	BUMPER ASSY,QG CEN	8.00
5	2760292-0000	BRACKET,CARTRIDGE SUPPORT,DIAPHRAGM	1.00
6	2760574-0000	BRACKET,CARTRIDGE SUPPORT,CEN	1.00
7	2760507-0000	SHIM,NOSE CLAMP,G	2.00
10	2701591-0000	BOLT,HX,1/2X5,G2,G	8.00
11	2708011-0000	WASHER,FLAT,1/2X1 3/8,G	24.0
12	2704011-0000	NUT,HX,1/2,G	12.0
13	2701361-0000	BOLT,HX,1/2X3,G2,G	2.00
14	2701071-0000	BOLT,HX,1/2X2,G2,G	2.00



DIAPHRAGM 3



DIAPHRAGM 2



DIAPHRAGM 1

Revisions	Date	Rev.	By	Ckd.	App.
ITEM 1 WAS ITEMS 1-4 & 9, RMVD ITEM 8, ADD'D ITEM 14	3/13/00	A	DK	JME	DLJ
ITEM 13 WAS PN 2698181-0000	3/24/00	B	KRM	BMK	JMT
ITEM 14 WAS PN 2701841-0000	3/10/03	C	WWL	JME	DMW

REFERENCES

DRAWN: T. Busse	DATE: 11/3/99
DESIGNED: RBB	DATE: 11/13/98
CHECKED: KRM	DATE: 11/4/99
APPROVED: RB	DATE: 11/4/99
CAD FILE: 3540580-0000.dwg	
NEXT ASSEMBLY:	

ASSEMBLY NO. 3540580-0000



ENERGY ABSORPTION SYSTEMS, INC.
ENGINEERING AND RESEARCH DEPARTMENT

QUADGUARD® CEN SYSTEM
BUMPER ASSYS,
DIAPHRAGMS 1,2 & 3,QGC,69/90

SCALE 1/15	DWG. 3540580-0000	SHEET 1 of 1	REV C
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