

CONTENTS

DESCRIPTION

DESCRIPTION	DRAWING NO.	SHEET NO.
QuardGuard Elite TL-2 Narrow System w/Tension Strut Backup	QL2TSCVR5-U	1 Of 1
QuardGuard Elite TL-2 69" System w/Tension Strut Backup	QL2TSCVR5-U69	1 Of 1
QuardGuard Elite TL-2 90" System w/Tension Strut Backup	QL2TSCVR5-U90	1 Of 1
QuardGuard Elite TL-3 Narrow System w/Tension Strut Backup	60-32-58	1 Of 1
QuardGuard Elite TL-3 69" System w/Tension Strut Backup	60-32-63	1 Of 1
QuardGuard Elite TL-3 90" System w/Tension Strut Backup	60-32-64	1 Of 1
QuardGuard Elite TL-3+ Narrow System w/Tension Strut Backup	QL4TSCVR-U	1 Of 1
QuardGuard Elite System Concrete Pad	3540483-0000	1 Of 1
QuardGuard Elite System Asphalt Anchor Kit	3540004-0000	1-2 Of 2
QuardGuard Elite System Safety Shape 4" Offset Transition Assy	35-40-18	1 Of 1
QuardGuard Elite System Quad-Beam To W-Beam Transition Assy	35-40-21	1-2 Of 2

NOTES FOR QUADGUARD ELITE

1. The energy absorbing system represented on these Qualified Products List (QPL) drawings is a proprietary design by Energy Absorption Systems, Inc. and marketed under the name QuadGuard Elite System (QGE). Any infringement on the rights of the designer shall be the sole responsibility of the users.
The QGE system is available in units meeting the requirements of NCHRP 350 Test Level 2 (5-bay) and Test Level 3 (8-bay). There is also a high speed unit that was crash tested at 115 km/hr (14-bay).

The Test Level 2 (5-bay) units may be used where speeds are 45 mph or less.

The Test Level 3 (8-bay) and high speed (14-bay) units may be used for any speed.
2. The QGE system is a unidirectional, non-gating, redirective crash cushion which is well suited for use shielding hazards subject to high speed traffic. The QGE may be used for permanent or temporary installations. The beginning length of need shall be at the point of intersection between the face of the crash cushion and the transverse centerline of the first diaphragm.
3. The QGE shall be mounted parallel to the approach traffic lanes. Cross slope of the foundation shall not exceed 8% and not vary more than 2% from front to back.
4. The QuadGuard tension strut backup is the primary backup to be used on Florida Department of Transportation projects. Use of concrete backups will be permitted, but will require call out and detailing in the plans for site specific construction; concrete backups must meet manufacturer's specifications, installation guidelines and transition hardware requirements.
5. The QGE shall be assembled and installed in accordance with these approved drawings and the manufacturer's detailed drawings, procedures and specifications.
6. The QGE 5 and 8-bay units are available in 24", 30", 36", 69" and 90" nominal widths. The 14-bay units are available in 24", 30" and 36" nominal widths. The system width will be as called out in the plans, permit or other contract document for each location.
7. Only the QuadGuard Type QE1 and Type QE2 energy absorbing cylinders shall be used as shown on the drawings.
8. All metallic components shall meet the galvanizing requirements for guardrail, Index No. 400.
9. A yellow Type I 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.

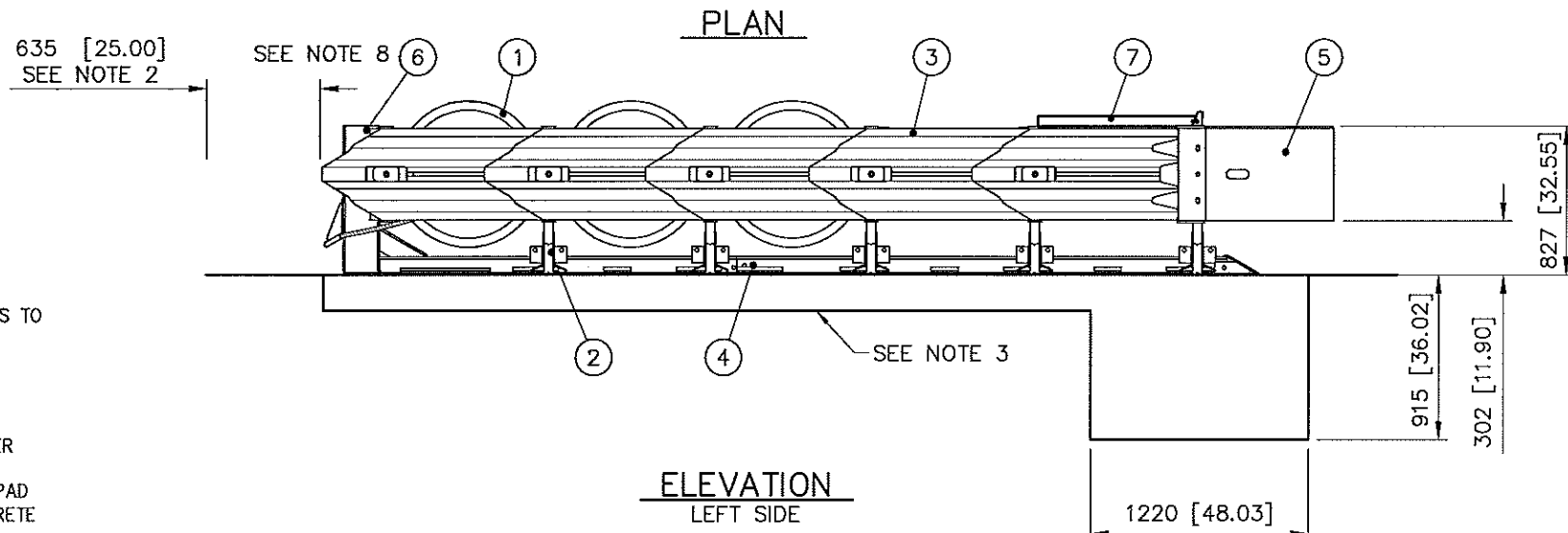
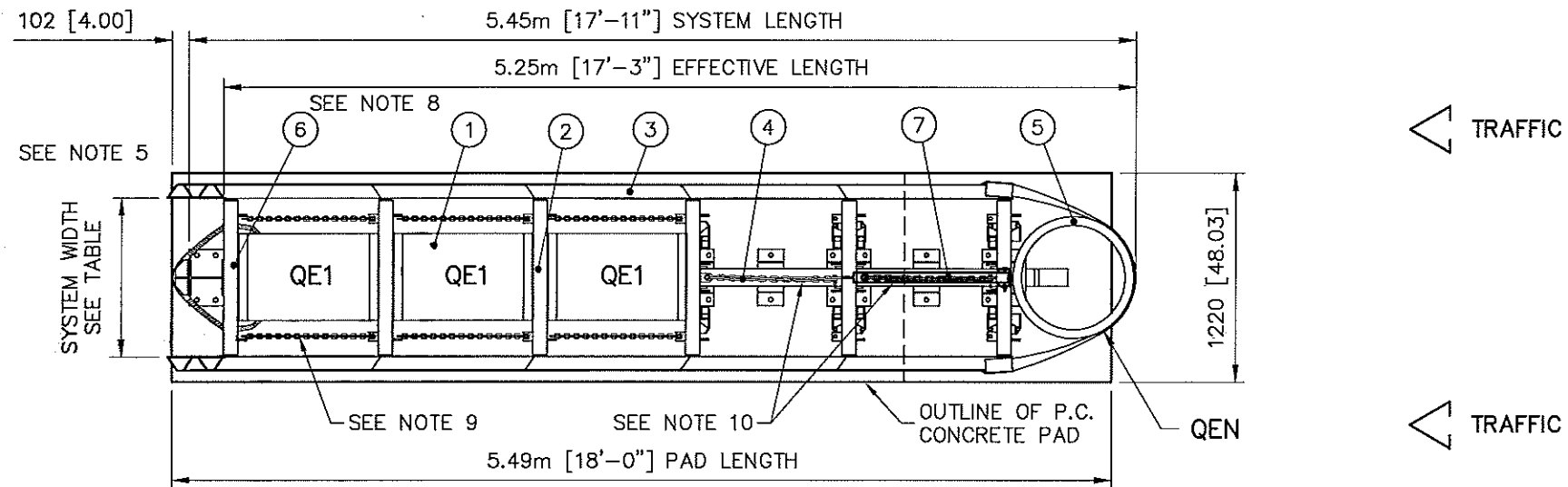
As an option, the contractor may install reflective sheeting on the nose of the crash cushion. The sheeting to be used must be solid yellow, Type III or better and must be a product listed on the Department's Qualified Products List (QPL). The sheeting to be applied to the nose of the crash cushion shall 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 for the QuadGuard Elite System. Permanent units will be paid for under the contract unit price for Vehicle Impact Attenuator /Crash Cushion, EA; temporary units will be paid for under the contract unit price for Vehicle Impact Attenuator (Redirective Option X Temporary), LO.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

QUADGUARD ELITE

Date:
09/22/09

QPL No. S544 - 0039



- 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 635 [25.00] MIN.
 - THE QUADGUARD ELITE MUST BE CORRECTLY ANCHORED FOR PROPER IMPACT PERFORMANCE.
 - 150 [6.00] MIN. REINFORCED 28 MPa [4000 PSI] P.C. CONCRETE PAD
 - 200 [8.00] MIN. NON-REINFORCED 28 MPa [4000 PSI] P.C. CONCRETE ROADWAY (MEASURING AT LEAST 3.7m [12'] WIDE AND 15.2m [50'] LONG).
 - 178 [7.00] MIN. REINFORCED 28MPa [4000 PSI] P.C. CONCRETE DECK.
 - 76 [3.00] COMPACTED ASPHALT* AND 76 [3.00] P.C. CONCRETE USING 18" THREADED RODS.
 - 200 [8.00] COMPACTED ASPHALT* AND 200 [8.00] COMPACTED SUBBASE** USING 18" THREADED RODS. THIS MUST BE INSPECTED EVERY 6 MOS OR AFTER EVERY IMPACT TO ENSURE ANCHORS WORK PROPERLY.
 - 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 BY CALLING CUSTOMER SERVICE DEPARTMENT AT 1-888-32-ENERG.

- FOR PROPER IMPACT PERFORMANCE, THE UNIT MUST BE RESTORED TO ITS ORIGINAL LENGTH AFTER EACH IMPACT.
- 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 ASSEMBLY NOT INCLUDED IN MODEL NUMBER.
- CHAINS SHOWN INCLUDED ONLY ON 914 [36.00] AND WIDER SYSTEMS.
- CHAINS SHOWN INCLUDED IN BAYS 1 & 2 ONLY ON 24,30,36 SYSTEMS.

MODEL#	SYSTEM WIDTH
QS2405E*	610 [24.00]
QS3005E*	762 [30.00]
QS3605E*	914 [36.00]

* Y=YELLOW NOSE
G=GRAY NOSE

Frank J. Powell, PE 3617 Cincinnati Ave.
Florida #70359 Rocklin, CA 95765

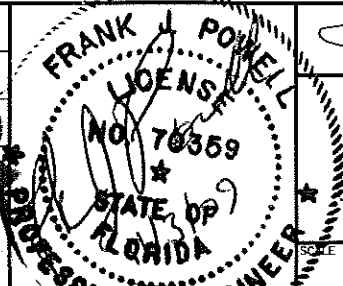
UNIDIRECTIONAL
MODEL NO. QS___05E (SEE CHART)

KEY	① QUADGUARD ELITE CYLINDER	④ MONORAIL	⑦ HIT INDICATOR
	② DIAPHRAGM	⑤ NOSE ASSEMBLY	
	③ FENDER PANEL	⑥ BACKUP	

Revisions	Date	Rev.	By	Ckd.	App.
ADDED CHAIN ASSY BAY 1 & 2, NOTE 10 & FENDER PANEL ASSY WAS 3540454-0000 (ECO 2496)	11/13/08	A	WWL	STT	AVB
UPDATE NOTE 3	7/1/09	B	FJP	JME	KWL

REFERENCES	
SERIAL#	DIAPHRAGM ASSY. 3540464-0000
SALES ORDER#	NOSE ASSY. 3540495-0000
EH PROJECT#	FENDER PANEL ASSY. 3540585-0000
DESIGN SPEED	BACKUP ASSY. 3540484-0000
NOSE COLOR	MONORAIL ASSY. 3540482-0000
NUMBER OF UNITS	CONCRETE PAD 3540483-0000
TRANSITION ASSY.	BAY ASSY. 3540493-0000
WHEEL DEFLECTOR ASSY.	CHAIN ASSY. 3540491-0000
	CHAIN ASSY. BAY 1 & 2 3540075-0000
	HIT INDICATOR ASSY. 3540463-0000

DRAWN:	S. Trageser	DATE:	4/30/08
DESIGNED:		DATE:	
CHECKED:	KRM	DATE:	4/30/08
APPROVED:	J. M. Thompson	DATE:	4/30/08
CAD FILE:	QL2TSCVR5-U.dwg		

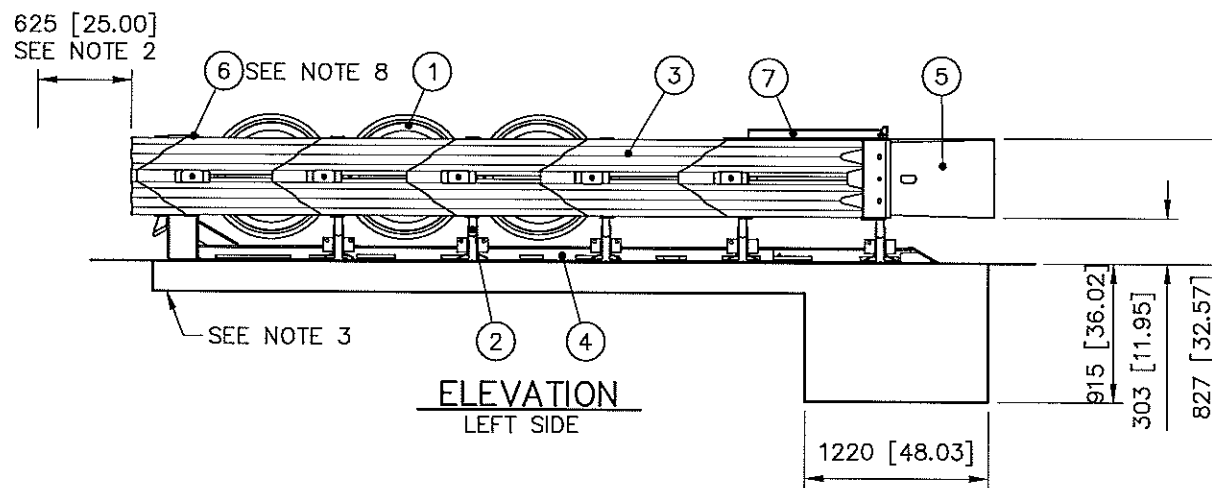
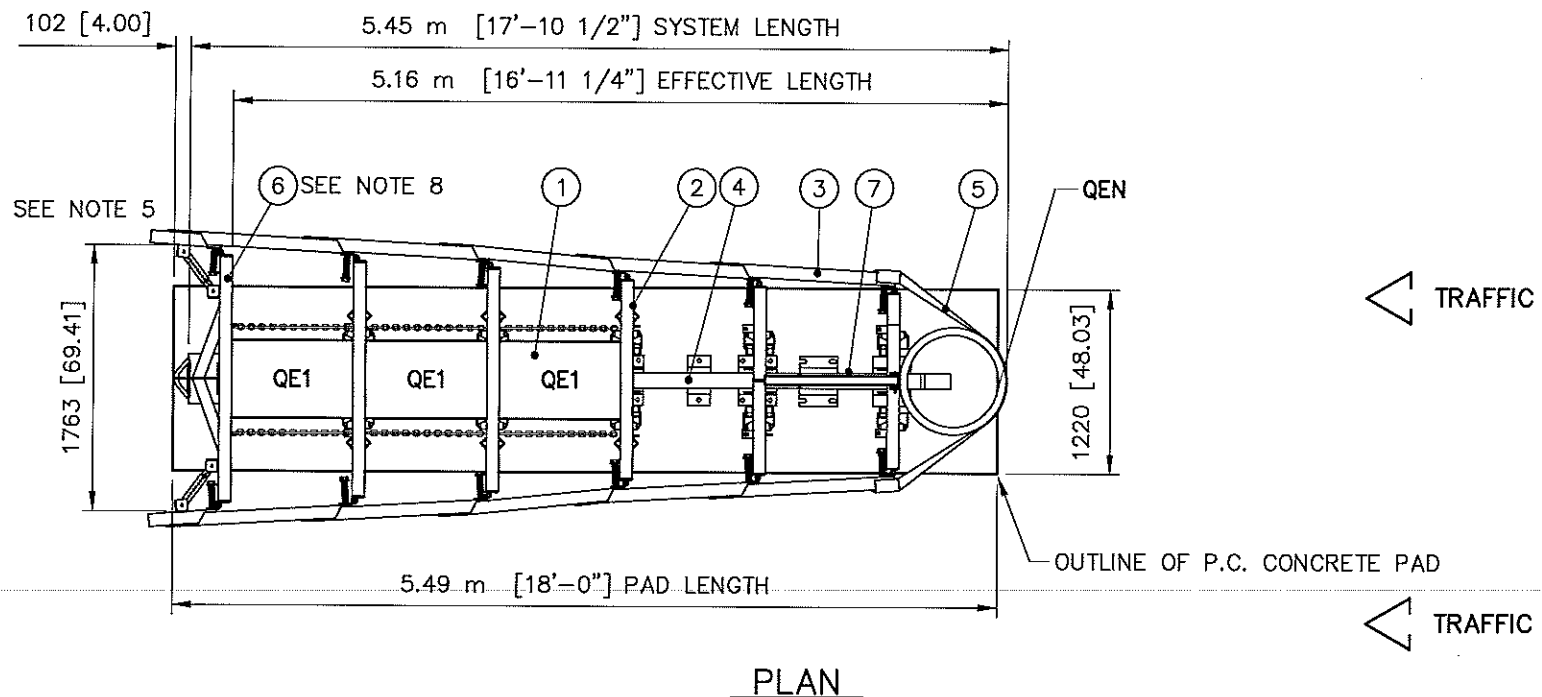


ENERGY ABSORPTION SYSTEMS, INC.
ENGINEERING AND RESEARCH DEPARTMENT

QUADGUARD® ELITE™ SYSTEM
W/ TENSION STRUT BACKUP

SCALE: 1=40

DWG: QL2TSCVR5-U SHEET: 1 OF 1 REV: B



- 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 635 [25.00] MIN.
 - THE QUADGUARD ELITE MUST BE CORRECTLY ANCHORED FOR PROPER IMPACT PERFORMANCE.
 -150 [6.00] MIN. REINFORCED 28 MPa [4000 PSI] P.C. CONCRETE PAD
 -200 [8.00] MIN. NON-REINFORCED 28 MPa [4000 PSI] P.C. CONCRETE ROADWAY (MEASURING AT LEAST 3.7m [12'] WIDE AND 15.2m [50'] LONG).
 -178 [7.00] MIN. REINFORCED 28MPa [4000 PSI] P.C. CONCRETE DECK.
 -76 [3.00] COMPACTED ASPHALT* AND 76 [3.00] P.C. CONCRETE USING 18" THREADED RODS.
 -200 [8.00] COMPACTED ASPHALT* AND 200 [8.00] COMPACTED SUBBASE** USING 18" THREADED RODS. THIS MUST BE INSPECTED EVERY 6 MOS OR AFTER EVERY IMPACT TO ENSURE ANCHORS WORK PROPERLY.
 - 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 BY CALLING CUSTOMER SERVICE DEPARTMENT AT 1-888-32-ENERG.

- WHERE NECESSARY, THE CUSTOMER SHALL SUPPLY A TRANSITION FROM THE QUADGUARD SYSTEM TO THE OBJECT BEING SHIELDED.
- FOR PROPER IMPACT PERFORMANCE, THE UNIT MUST BE RESTORED TO ITS ORIGINAL LENGTH AFTER EACH IMPACT.
- UNITS OF MEASUREMENT ARE MILLIMETERS [INCHES] UNLESS OTHERWISE NOTED.
- BACKUP ASSEMBLY NOT INCLUDED IN MODEL NUMBER.

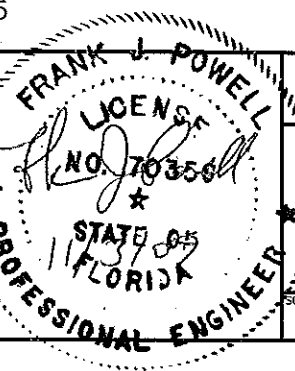
* Y=YELLOW NOSE
G=GRAY NOSE

UNIDIRECTIONAL
MODEL NO. QS6905E*

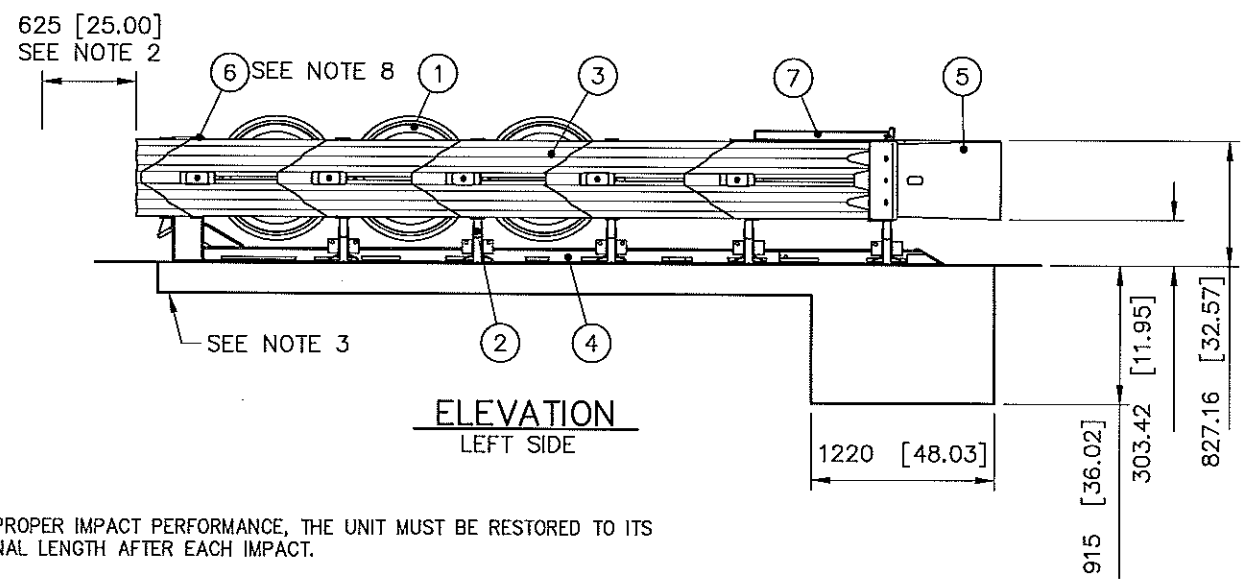
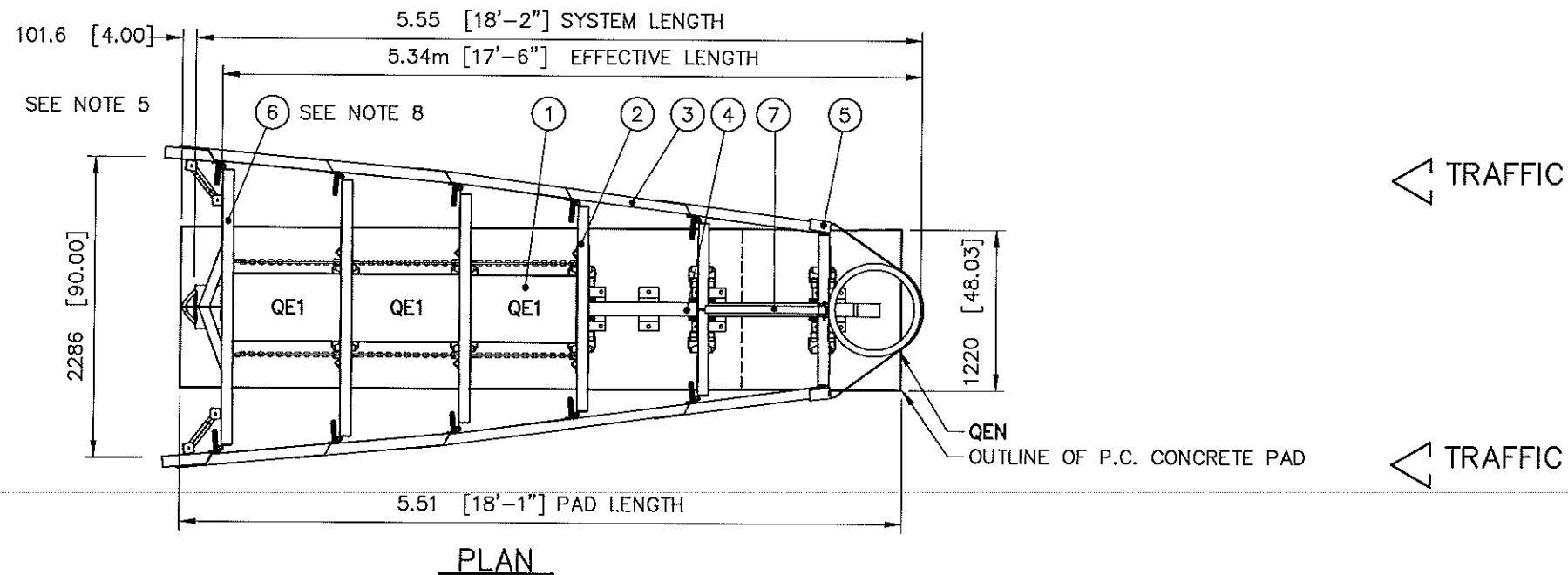
KEY	① QUADGUARD ELITE CYLINDER	④ MONORAIL	⑦ HIT INDICATOR		
	② DIAPHRAGM	⑤ NOSE ASSEMBLY			
	③ FENDER PANEL	⑥ BACKUP			
Revisions	Date	Rev.	By	Ckd.	App.
UPDATED NOTE 3	7/1/09	A	FJP	JME	KWL

REFERENCES			
SERIAL#	_____	DIAPHRAGM ASSY.	3540501-0000
SALES ORDER#	_____	NOSE ASSY.	3540496-0000
EH PROJECT#	_____	FENDER PANEL ASSY.	3540472-0000
DESIGN SPEED	70 km/h [43MPH]	BACKUP ASSY.	3540396-0000
NOSE COLOR	_____	MONORAIL ASSY.	3540482-0000
NUMBER OF UNITS	_____	CONCRETE PAD	3540483-0000
TRANSITION ASSY.	N/A	BAY ASSY.	3540494-0000
WHEEL DEFLECTOR ASSY.	N/A	CHAIN ASSY.	3540491-0000
		HIT INDICATOR ASSY.	3540463-0000

DRAWN:	R. Cummins	DATE:	02/05/09
DESIGNED:	S. Trageser	DATE:	02/09/09
CHECKED:	R. Brougher	DATE:	02/10/09
APPROVED:	//	DATE:	//
CAD FILE:	QL2TSCVR5-U69.dwg		



ENERGY ABSORPTION SYSTEMS, INC. ENGINEERING AND RESEARCH DEPARTMENT	
QUADGUARD® ELITE SYSTEM BAY, 69" WIDE SYSTEM W/64" TENSION STRUT BACKUP	
SCALE	1=50
DWG.	QL2TSCVR5-U69
SHEET	1 OF 1
REV	A



- 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 635 [25.00] MIN.
 - THE QUADGUARD ELITE MUST BE CORRECTLY ANCHORED FOR PROPER IMPACT PERFORMANCE.
 -150 [6.00] MIN. REINFORCED 28 MPa [4000 PSI] P.C. CONCRETE PAD
 -200 [8.00] MIN. NON-REINFORCED 28 MPa [4000 PSI] P.C. CONCRETE ROADWAY (MEASURING AT LEAST 3.7m [12'] WIDE AND 15.2m [50'] LONG).
 -178 [7.00] MIN. REINFORCED 28MPa [4000 PSI] P.C. CONCRETE DECK.
 -76 [3.00] COMPACTED ASPHALT* AND 76 [3.00] P.C. CONCRETE USING 18" THREADED RODS.
 -200 [8.00] COMPACTED ASPHALT* AND 200 [8.00] COMPACTED SUBBASE** USING 18" THREADED RODS. THIS MUST BE INSPECTED EVERY 6 MOS OR AFTER EVERY IMPACT TO ENSURE ANCHORS WORK PROPERLY.
 - 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 BY CALLING CUSTOMER SERVICE DEPARTMENT AT 1-888-32-ENERG.

- FOR PROPER IMPACT PERFORMANCE, THE UNIT MUST BE RESTORED TO ITS ORIGINAL LENGTH AFTER EACH IMPACT.
- 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 ASSEMBLY NOT INCLUDED IN MODEL NUMBER. ORDER SEPARATELY.

Frank J. Powell, PE
 Florida #70359
 3617 Cincinnati Ave.
 Rocklin, CA 95765

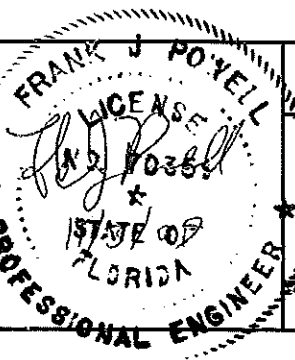
* Y=YELLOW NOSE
 G=GRAY NOSE

UNIDIRECTIONAL
 MODEL NO. QS9005E*

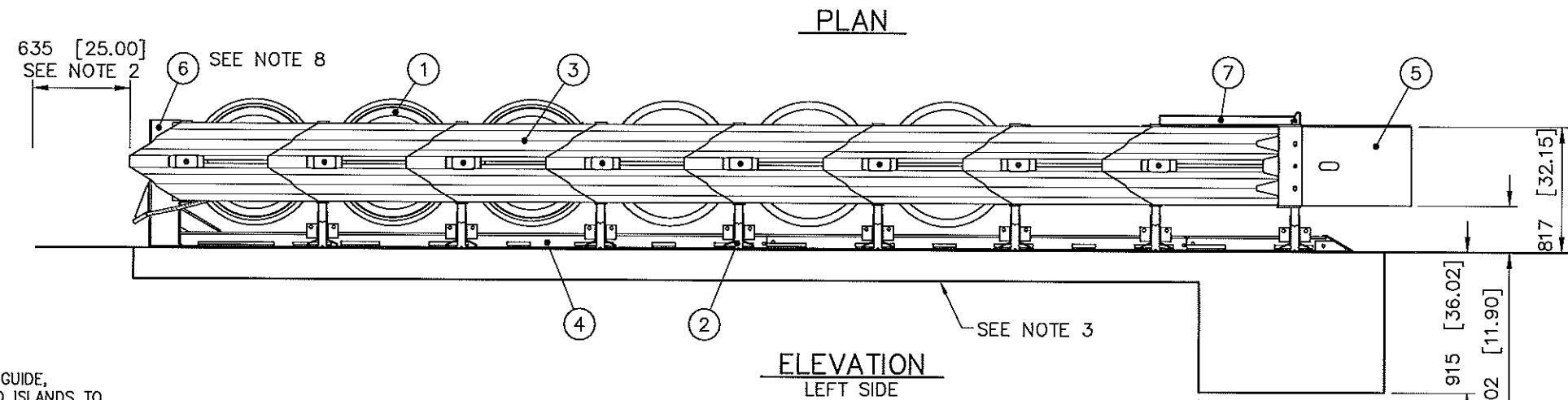
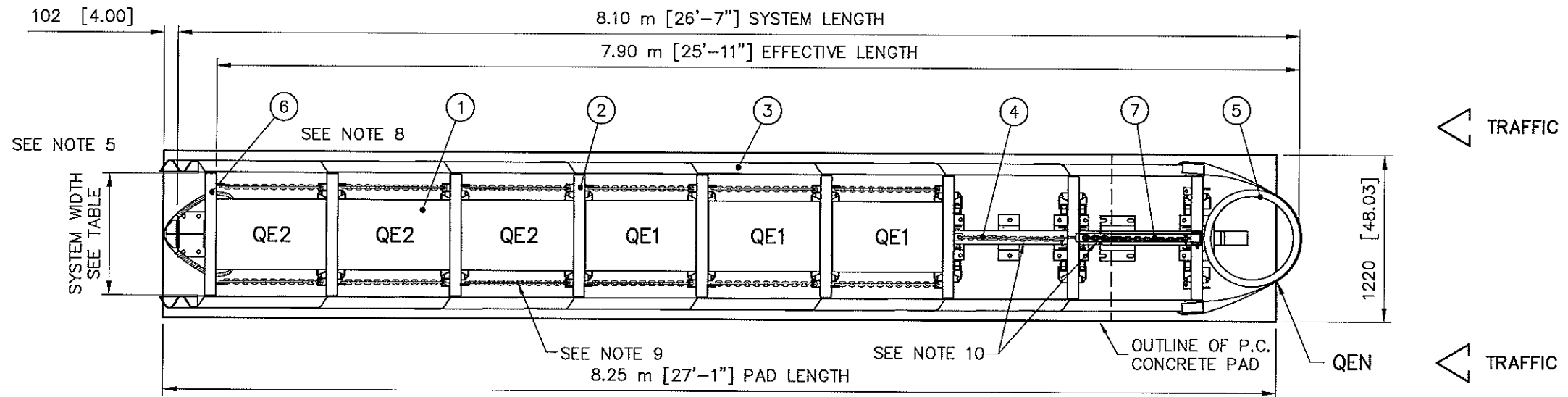
KEY	① QUADGUARD ELITE CYLINDER	④ MONORAIL	⑦ HIT INDICATOR		
	② DIAPHRAGM	⑤ NOSE ASSEMBLY			
	③ FENDER PANEL	⑥ BACKUP			
Revisions	Date	Rev.	By	Ckd.	App.
REMOVED PLATE BY THE NOSE AREA	06/11/09	A	RJV	STT	PAS
UPDATE NOTE 3	7/1/09	B	FJP	JME	KWL

REFERENCES			
SERIAL#	_____	DIAPHRAGM ASSY.	3540501-0000
SALES ORDER#	_____	NOSE ASSY.	3540496-0000
EH PROJECT#	_____	FENDER PANEL ASSY.	3540472-0000
DESIGN SPEED	70 km/h [44 mph]	BACKUP ASSY.	3540396-0000
NOSE COLOR	_____	MONORAIL ASSY.	3540482-0000
NUMBER OF UNITS	_____	CONCRETE PAD	3540483-0000
TRANSITION ASSY.	N/A	BAY ASSY.	3540494-0000
WHEEL DEFLECTOR ASSY.	N/A	CHAIN ASSY.	3540491-0000
		HIT INDICATOR ASSY.	3540463-0000

DRAWN:	R. Cummins	DATE:	02/09/09
DESIGNED:	//	DATE:	//
CHECKED:	S. Trageser	DATE:	02/011/09
APPROVED:	R. Brougner	DATE:	02/11/09
CAD FILE:	QL2TSCVR5-U90.dwg		



ENERGY ABSORPTION SYSTEMS, INC. ENGINEERING AND RESEARCH DEPARTMENT	
QUADGUARD® ELITE SYSTEM 5 BAY, 90" SYSTEM W/83" TENSION STRUT BACKUP	
SCALE	1=50
DWG.	QL2TSCVR5-U90
SHEET	1 OF 1
REV	B



- 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 635 [25.00] MIN.
 - THE QUADGUARD ELITE MUST BE CORRECTLY ANCHORED FOR PROPER IMPACT PERFORMANCE.
 - 150 [6.00] MIN. REINFORCED 28 MPa [4000 PSI] P.C. CONCRETE PAD
 - 200 [8.00] MIN. NON-REINFORCED 28 MPa [4000 PSI] P.C. CONCRETE ROADWAY (MEASURING AT LEAST 3.7m [12'] WIDE AND 15.2m [50'] LONG).
 - 178 [7.00] MIN. REINFORCED 28MPa [4000 PSI] P.C. CONCRETE DECK.
 - 76 [3.00] COMPACTED ASPHALT* AND 76 [3.00] P.C. CONCRETE USING 18" THREADED RODS.
 - 200 [8.00] COMPACTED ASPHALT* AND 200 [8.00] COMPACTED SUBBASE** USING 18" THREADED RODS. THIS MUST BE INSPECTED EVERY 6 MOS OR AFTER EVERY IMPACT TO ENSURE ANCHORS WORK PROPERLY.

- SEE THE "QUADGUARD ELITE SYSTEM DESIGN 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 BY CALLING CUSTOMER SERVICE DEPARTMENT AT 1-888-32-ENERG.
- WHERE NECESSARY, THE CUSTOMER SHALL SUPPLY A TRANSITION FROM THE QUADGUARD SYSTEM TO THE OBJECT BEING SHIELDED.
- FOR PROPER IMPACT PERFORMANCE, THE UNIT MUST BE RESTORED TO ITS ORIGINAL LENGTH AFTER EACH IMPACT.
- UNITS OF MEASUREMENT ARE MILLIMETERS [INCHES] UNLESS OTHERWISE NOTED.
- BACKUP ASSEMBLY NOT INCLUDED IN MODEL NUMBER.
- CHAINS SHOWN INCLUDED ONLY ON 914 [36.00] AND WIDER SYSTEMS.
- CHAINS SHOWN INCLUDED IN BAYS 1 & 2 ONLY ON 24,30,36 SYSTEMS.

MODEL#	SYSTEM WIDTH
QS2408E*	610 [24.00]
QS3008E*	762 [30.00]
QS3608E*	914 [36.00]

* Y=YELLOW NOSE
G=GRAY NOSE

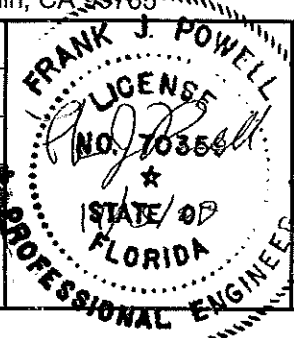
Frank J. Powell, PE 3617 Cincinnati Ave.
Florida #70359 Rocklin, CA 95765

UNIDIRECTIONAL
MODEL NO. QS_08E (SEE CHART)

KEY	① QUADGUARD ELITE CYLINDER	④ MONORAIL	⑦ HIT INDICATOR		
	② DIAPHRAGM	⑤ NOSE ASSEMBLY			
	③ FENDER PANEL	⑥ BACKUP			
Revisions	Date	Rev.	By	Ckd.	App.

REFERENCES	
SERIAL#	DIAPHRAGM ASSY. 3540464-0000
SALES ORDER#	NOSE ASSY. 3540495-0000
EH PROJECT#	FENDER PANEL ASSY. 3540585-0000
DESIGN SPEED	BACKUP ASSY. 3540484-0000
NOSE COLOR	MONORAIL ASSY. 3540482-0000
NUMBER OF UNITS	CONCRETE PAD 3540483-0000
TRANSITION ASSY.	BAY ASSY. 3540493-0000
WHEEL DEFLECTOR ASSY.	CHAIN ASSY. 3540491-0000
	CHAIN ASSY. BAY 1 & 2 3540075-0000
	HIT INDICATOR ASSY. 3540463-0000

DRAWN:	F.J. Powell	DATE:	6/17/09
DESIGNED:		DATE:	
CHECKED:		DATE:	
APPROVED:		DATE:	
CAD FILE:	603258.dwg		

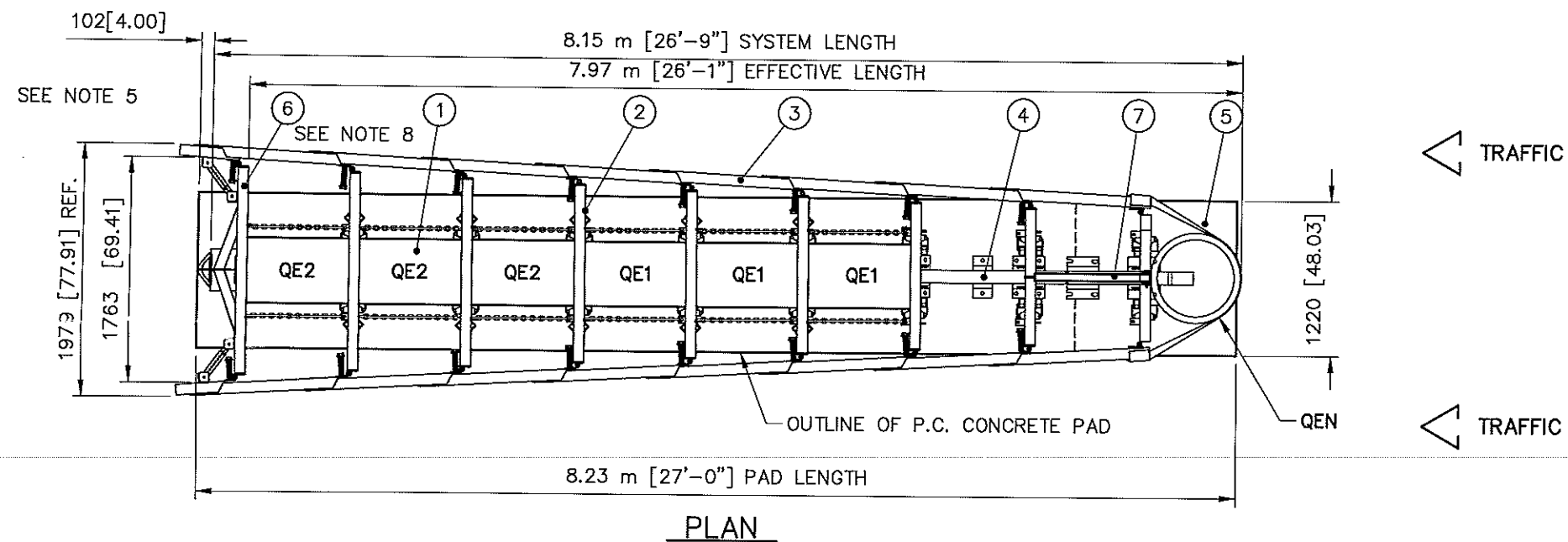


ENERGY ABSORPTION SYSTEMS, INC.
ENGINEERING AND RESEARCH DEPARTMENT

QUADGUARD® ELITE™ SYSTEM
W/ TENSION STRUT BACKUP

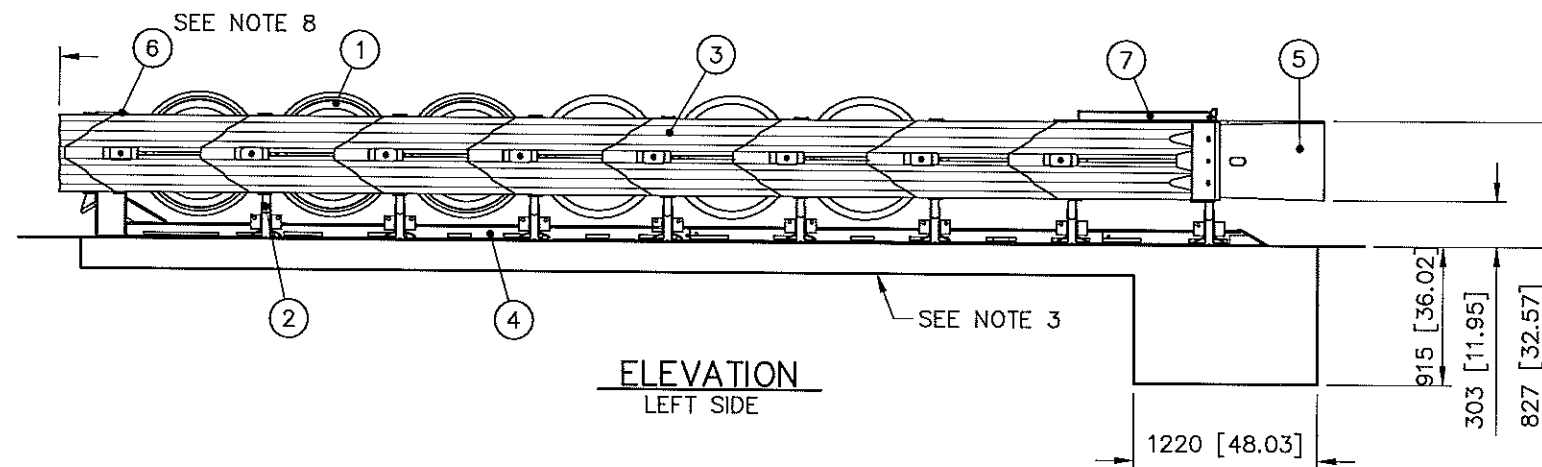
Florida

SCALE	1=50	DWG	60-32-58	SHEET	1 OF 1	REV	-
-------	------	-----	----------	-------	--------	-----	---



- 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 635 [25.00] MIN.
 - THE QUADGUARD ELITE MUST BE CORRECTLY ANCHORED FOR PROPER IMPACT PERFORMANCE.
 - 150 [6.00] MIN. REINFORCED 28 MPa [4000 PSI] P.C. CONCRETE PAD
 - 200 [8.00] MIN. NON-REINFORCED 28 MPa [4000 PSI] P.C. CONCRETE ROADWAY (MEASURING AT LEAST 3.7m [12'] WIDE AND 15.2m [50'] LONG).
 - 178 [7.00] MIN. REINFORCED 28MPa [4000 PSI] P.C. CONCRETE DECK.
 - 76 [3.00] COMPACTED ASPHALT* AND 76 [3.00] P.C. CONCRETE USING 18" THREADED RODS.
 - 200 [8.00] COMPACTED ASPHALT* AND 200 [8.00] COMPACTED SUBBASE** USING 18" THREADED RODS. THIS MUST BE INSPECTED EVERY 6 MOS OR AFTER EVERY IMPACT TO ENSURE ANCHORS WORK PROPERLY.

625 [25.00]
SEE NOTE 2



4. 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 BY CALLING CUSTOMER SERVICE DEPARTMENT AT 1-888-32-ENERG.

- WHERE NECESSARY, THE CUSTOMER SHALL SUPPLY A TRANSITION FROM THE QUADGUARD SYSTEM TO THE OBJECT BEING SHIELDED.
- FOR PROPER IMPACT PERFORMANCE, THE UNIT MUST BE RESTORED TO ITS ORIGINAL LENGTH AFTER EACH IMPACT.
- UNITS OF MEASUREMENT ARE MILLIMETERS [INCHES] UNLESS OTHERWISE NOTED.
- BACKUP ASSEMBLY NOT INCLUDED IN MODEL NUMBER.

Frank J. Powell, PE
Florida #70359

3617 Cincinnati Ave.
Rocklin, CA 95765

* Y=YELLOW NOSE
G=GRAY NOSE

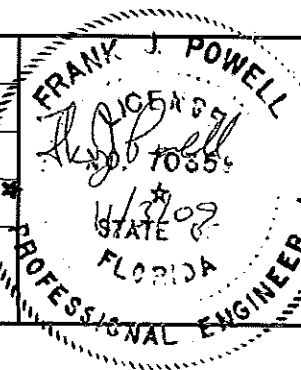
UNIDIRECTIONAL
MODEL NO. QS6908E*

KEY	① QUADGUARD ELITE CYLINDER	④ MONORAIL	⑦ HIT INDICATOR
	② DIAPHRAGM	⑤ NOSE ASSEMBLY	
	③ FENDER PANEL	⑥ BACKUP	

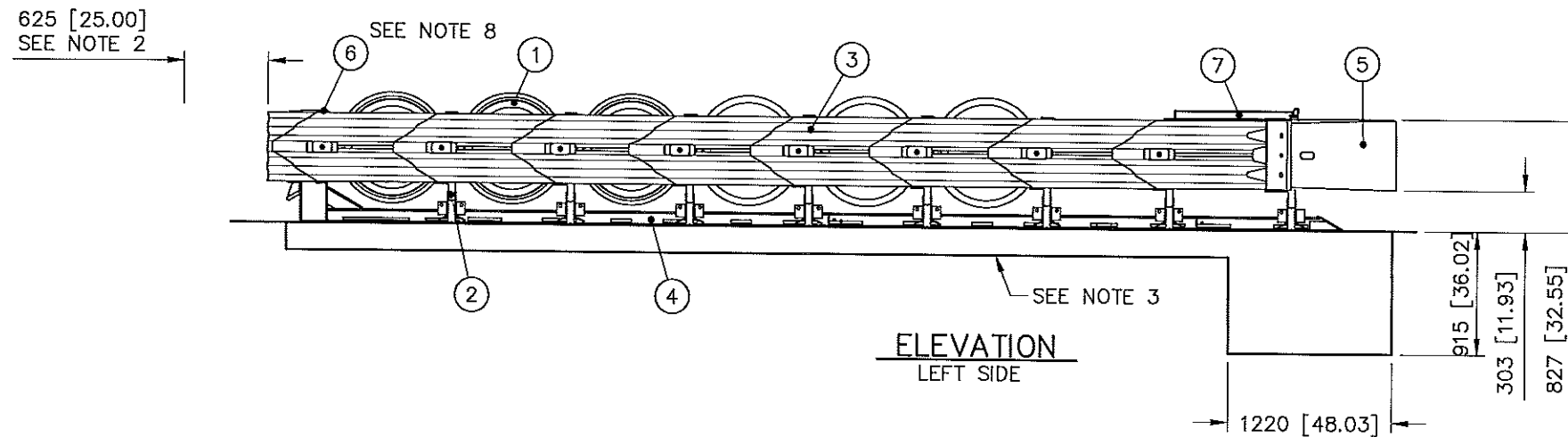
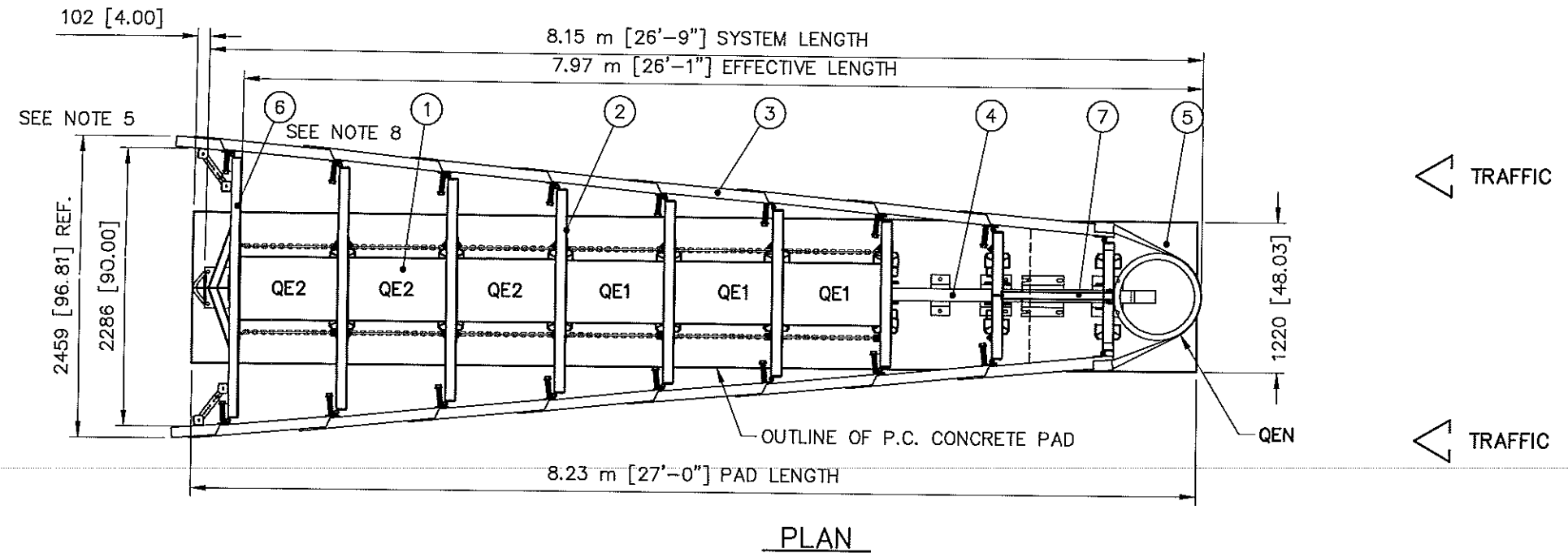
Revisions	Date	Rev.	By	Ckd.	App.

REFERENCES	
SERIAL#	DIAPHRAGM ASSY. 3540501-0000
SALES ORDER#	NOSE ASSY. 3540496-0000
EH PROJECT#	FENDER PANEL ASSY. 3540472-0000
DESIGN SPEED	BACKUP ASSY. 3540396-0000
NOSE COLOR	MONORAIL ASSY. 3540482-0000
NUMBER OF UNITS	CONCRETE PAD 3540483-0000
TRANSITION ASSY.	BAY ASSY. 3540494-0000
WHEEL DEFLECTOR ASSY.	CHAIN ASSY. 3540491-0000
	HIT INDICATOR ASSY. 3540463-0000

DRAWN:	S. Trageser	DATE:	6/24/09
DESIGNED:		DATE:	
CHECKED:	R. Brouger	DATE:	6/24/09
APPROVED:	F. J. Powell	DATE:	7/25/09
CAD FILE:	603263.dwg		



ENERGY ABSORPTION SYSTEMS, INC. ENGINEERING AND RESEARCH DEPARTMENT	
QUADGUARD® ELITE SYSTEM 8 BAY, 69" WIDE SYSTEM W/64" TENSION STRUT BACKUP	
SCALE	1=50
DWG.	60-32-63
SHEET	1 OF 1
FLORIDA	REV



- 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 635 [25.00] MIN.
 - THE QUADGUARD ELITE MUST BE CORRECTLY ANCHORED FOR PROPER IMPACT PERFORMANCE.
 - 150 [6.00] MIN. REINFORCED 28 MPa [4000 PSI] P.C. CONCRETE PAD
 - 200 [8.00] MIN. NON-REINFORCED 28 MPa [4000 PSI] P.C. CONCRETE ROADWAY (MEASURING AT LEAST 3.7m [12'] WIDE AND 15.2m [50'] LONG).
 - 178 [7.00] MIN. REINFORCED 28MPa [4000 PSI] P.C. CONCRETE DECK.
 - 76 [3.00] COMPACTED ASPHALT* AND 76 [3.00] P.C. CONCRETE USING 18" THREADED RODS.
 - 200 [8.00] COMPACTED ASPHALT* AND 200 [8.00] COMPACTED SUBBASE** USING 18" THREADED RODS. THIS MUST BE INSPECTED EVERY 6 MOS OR AFTER EVERY IMPACT TO ENSURE ANCHORS WORK PROPERLY.
 - 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 BY CALLING CUSTOMER SERVICE DEPARTMENT AT 1-888-32-ENERG.

- FOR PROPER IMPACT PERFORMANCE, THE UNIT MUST BE RESTORED TO ITS ORIGINAL LENGTH AFTER EACH IMPACT.
- 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 ASSEMBLY NOT INCLUDED IN MODEL NUMBER.

Frank J. Powell, PE 3617 Cincinnati Ave.
Florida #70359 Rocklin, CA 95765

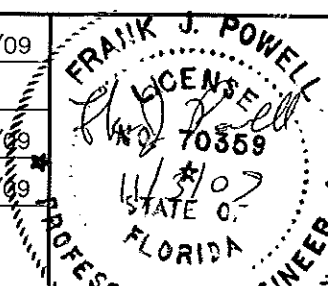
* Y=YELLOW NOSE
G=GRAY NOSE

UNIDIRECTIONAL
MODEL NO. QS9008E*

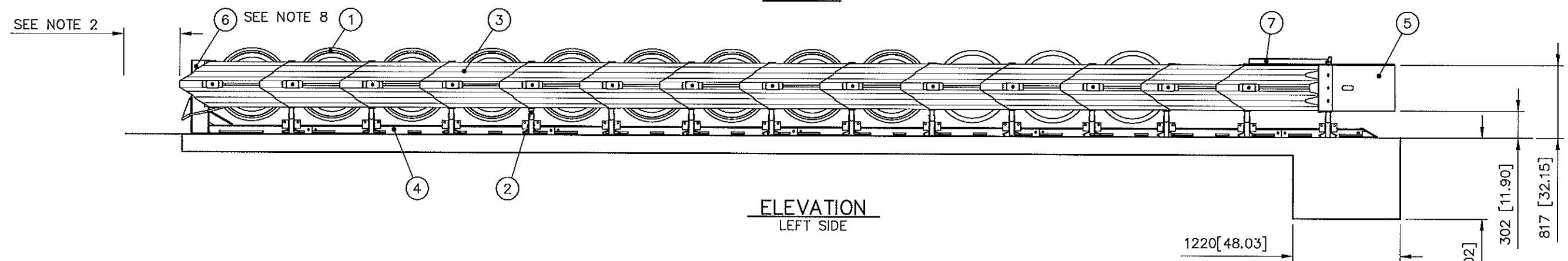
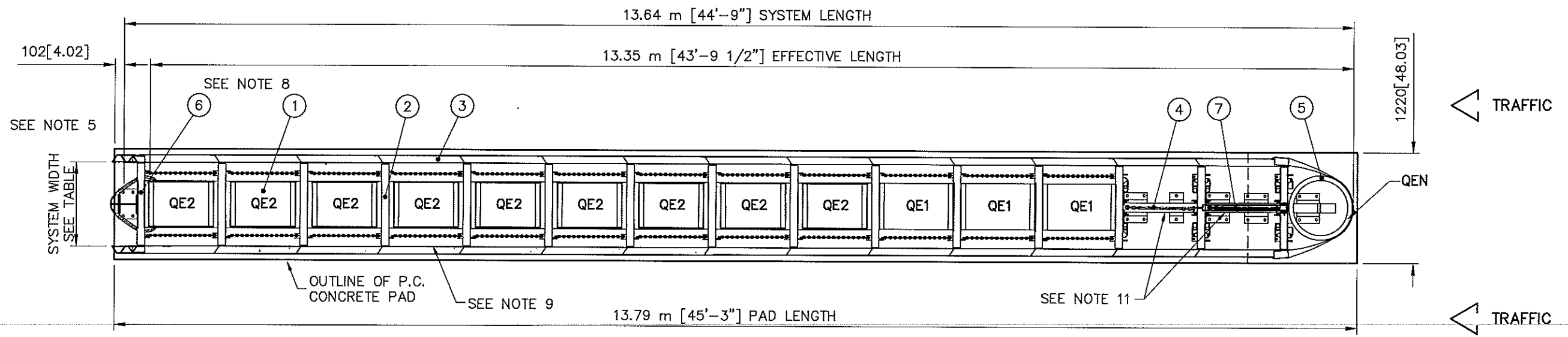
KEY	① QUADGUARD ELITE CYLINDER	④ MONORAIL	⑦ HIT INDICATOR		
	② DIAPHRAGM	⑤ NOSE ASSEMBLY			
	③ FENDER PANEL	⑥ BACKUP			
Revisions	Date	Rev.	By	Ckd.	App.

REFERENCES	
SERIAL#	DIAPHRAGM ASSY. 3540501-0000
SALES ORDER#	NOSE ASSY. 3540496-0000
EH PROJECT#	FENDER PANEL ASSY. 3540472-0000
DESIGN SPEED	BACKUP ASSY. 3540396-0000
NOSE COLOR	MONORAIL ASSY. 3540482-0000
NUMBER OF UNITS	CONCRETE PAD 3540483-0000
TRANSITION ASSY.	BAY ASSY. 3540494-0000
WHEEL DEFLECTOR ASSY.	CHAIN ASSY. 3540491-0000
	HIT INDICATOR ASSY. 3540463-0000

DRAWN:	S. Trageser	DATE:	6/24/09
DESIGNED:		DATE:	
CHECKED:	R. Brouger	DATE:	6/24/09
APPROVED:	F. J. Powell	DATE:	6/25/09
CAD FILE:	603264.dwg		



ENERGY ABSORPTION SYSTEMS, INC. ENGINEERING AND RESEARCH DEPARTMENT	
QUADGUARD® ELITE SYSTEM 8 BAY, 90" WIDE SYSTEM W/83" TENSION STRUT BACKUP	
SCALE	1=50
DWG.	60-32-64
SHEET	1 OF 1
REV	



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 635 [25.00] 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 3.7m [12'] WIDE AND 15.2m [50'] LONG).
- SEE THE "QUADGUARD ELITE SYSTEM DESIGN 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 BY CALLING CUSTOMER SERVICE DEPARTMENT AT 1-888-32-ENERG.
- FOR PROPER IMPACT PERFORMANCE, THE UNIT MUST BE RESTORED TO ITS ORIGINAL LENGTH AFTER EACH IMPACT.
- 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 ASSEMBLY NOT INCLUDED IN MODEL NUMBER.
- CHAINS SHOWN INCLUDED ONLY ON 914 [36.00] AND WIDER SYSTEMS.

△10. THE ELEVEN BAY QUADGUARD ELITE SYSTEM HAS BEEN FULLY TESTED AT 100 km/h [60 MPH] UNDER THE FULL 8 TEST MATRIX OF NCHRP 350 TL-3. BASED UPON CALCULATED VALUES, THE SYSTEM SHOWN SHALL BE CAPABLE OF MEETING THE OCCUPANT RISK CRITERIA AS RECOMMENDED IN NCHRP 350 FOR VEHICLES WEIGHING 2000 kg, IMPACTING HEAD-ON AT 115 km/h [70 MPH].

11. CHAINS SHOWN INCLUDED IN BAYS 1 & 2 ONLY ON 24,30,36 SYSTEMS.

MODEL#	SYSTEM WIDTH
QS2414E*	610 [24.00]
QS3014E*	760 [30.00]
QS3614E*	915 [36.00]

* Y=YELLOW
G=GRAY

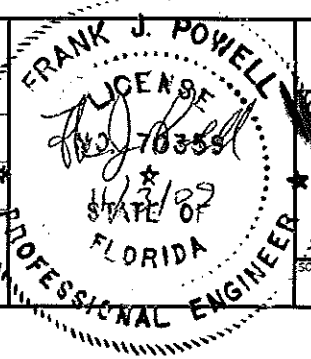
UNIDIRECTIONAL
MODEL NO. QS_14E (SEE CHART)

Frank J. Powell, PE 3617 Cincinnati Ave.
Florida #70359 Rocklin, CA 95765

KEY	① QUADGUARD ELITE CYLINDER	④ MONORAIL	⑦ HIT INDICATOR
	② DIAPHRAGM	⑤ NOSE ASSEMBLY	
	③ FENDER PANEL	⑥ BACKUP	

REFERENCES	
SERIAL#	DIAPHRAGM ASSY. 3540464-0000
SALES ORDER#	NOSE ASSY. 3540495-0000
EH PROJECT#	FENDER PANEL ASSY. 3540585-0000
DESIGN SPEED	BACKUP ASSY. 3540484-0000
NOSE COLOR	MONORAIL ASSY. 3540482-0000
NUMBER OF UNITS	CONCRETE PAD 3540483-0000
TRANSITION ASSY.	BAY ASSY. 3540493-0000
WHEEL DEFLECTOR ASSY.	CHAIN ASSY. 3540491-0000
	CHAIN ASSY. BAY 1 & 2 3540075-0000
	HIT INDICATOR ASSY. 3540463-0000

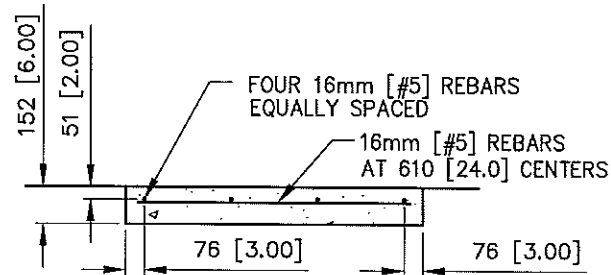
DRAWN: S. CHOLDA	DATE: 12/08/98
DESIGNED:	DATE:
CHECKED: KRM	DATE: 07/14/99
APPROVED: RBB	DATE: 07/15/99
CAD FILE: QL4TSCVR-U.dwg	



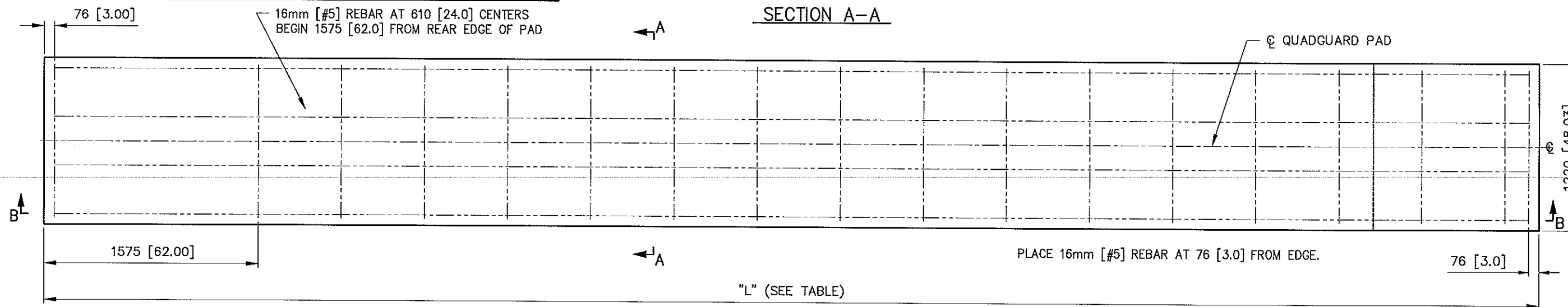
ENERGY ABSORPTION SYSTEMS, INC. ENGINEERING AND RESEARCH DEPARTMENT			
QUADGUARD® ELITE™ SYSTEM W/ TENSION STRUT BACKUP			
SCALE: 1=50	DWG. QL4TSCVR-U	SHEET: 1 OF 1	REV: D

Revisions	Date	Rev.	By	Ckd.	App.
DIAPHRAGM ASSY WAS 3540487-0000	08/26/02	B	LWC	DMO	STT
AASHTO WAS 1996	11/20/03	C	SDC	STT	ACF
ADDED CHAIN ASSY BAY 1 & 2, NOTE 11 & FENDER PANEL ASSY WAS 3540454-0000 (FCO 2498)	11/14/08	D	WWL	STT	AVB

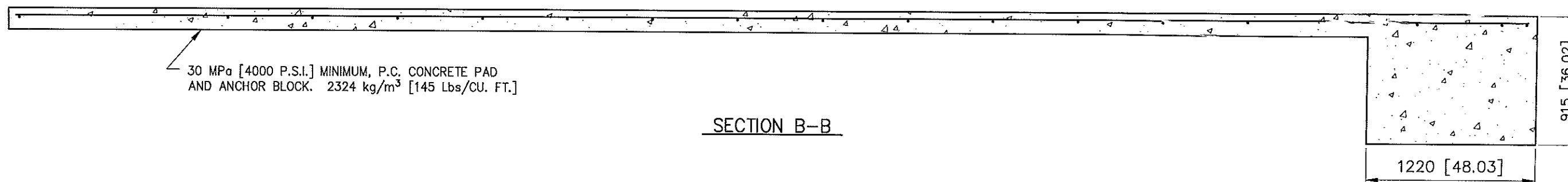
TABLE				
UNIT SIZE	"L"		REBAR REQUIRED	CONCRETE VOLUME
	m	[ft-in]	m [ft-in]	m ³ [YARDS ³]
5 BAY	5.49	[18'-0"]	30.9 [101'-6"]	2.15 [2.8]
7 BAY	7.32	[24'-0"]	42.06 [138'-0"]	2.51 [3.3]
8 BAY	8.23	[27'-0"]	48.1 [157'-9"]	2.68 [3.6]
11 BAY	10.97	[36'-0"]	63.4 [208'-0"]	3.19 [4.2]
14 BAY	13.72	[45'-0"]	79.4 [260'-6"]	3.70 [4.9]



SECTION A-A



PLAN VIEW



SECTION B-B

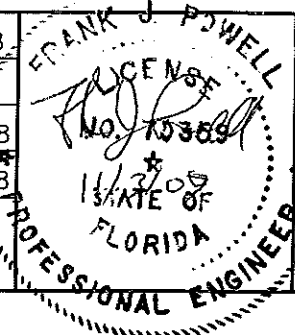
NOTES:

- 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.

Frank J. Powell, PE
Florida #70359
3617 Cincinnati Ave.
Rocklin, CA 95765

REFERENCES

DRAWN: D. Staus	DATE: 11/6/98
DESIGNED:	DATE:
CHECKED: S. Trageser	DATE: 12/21/98
APPROVED: RBB	DATE: 12/21/98
CAD FILE: 3540483-0000.dwg	
NEXT ASSEMBLY:	



ENERGY ABSORPTION SYSTEMS, INC.
ENGINEERING AND RESEARCH DEPARTMENT

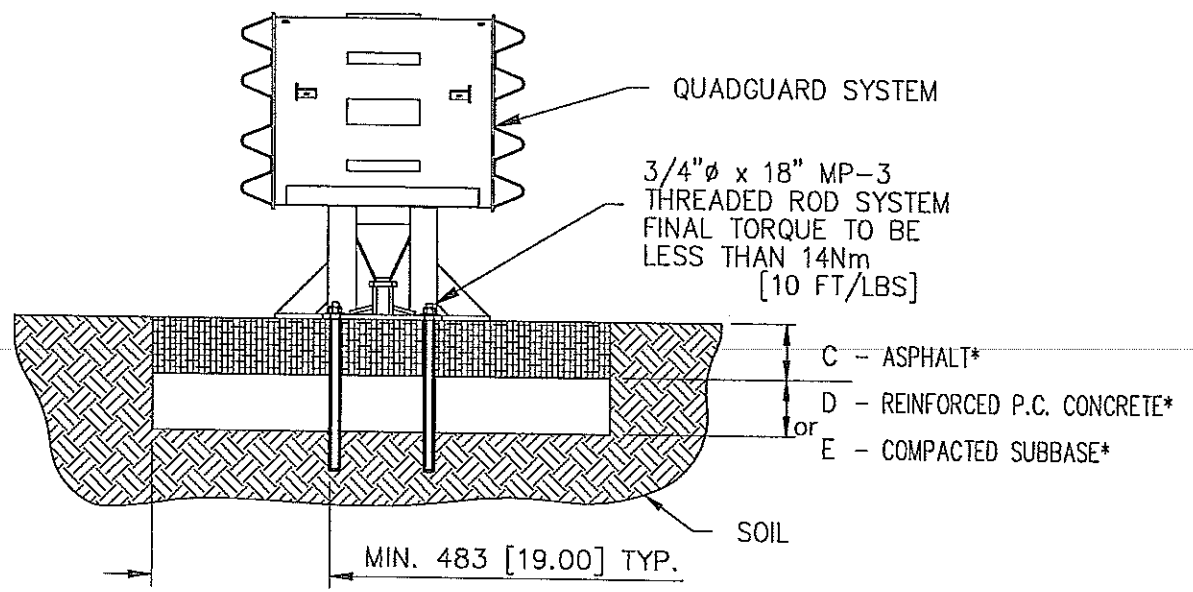
QUADGUARD® ELITE™ SYSTEM
CONCRETE PAD, QG ELITE

Revisions	Date	Rev.	By	Ckd.	App.
ADDED 8 BAYS TO TABLE	12/12/06	A	STT	KM	RCB
8.23 IN TABLE WAS 8.37	12/12/06	B	STT	KEL	RCB
ADDED 5 BAY TO TABLE	02/10/09	C	RGC	STT	RCB

SCALE 1:30	DWG. 3540483-0000	SHEET 1 of 1	REV C
---------------	----------------------	-----------------	----------

NEXT ASSEMBLY:
QS3611LT1

PARTS LIST			
ITEM	STOCK NO.	DESCRIPTION	REQ'D
1	2700731-0500	ROD, THREADED, 3/4x18, G5, G	78
2	2704341-0000	NUT, HX, 3/4, G, GR DH	78
3	2708081-0000	WASHER, FLAT, 3/4x2, HVY, G	78
4	3525100-0000	MP-3, QUART PACKAGE	20
5	354024T-1100	INST., QG ANCHOR KIT, TX	1



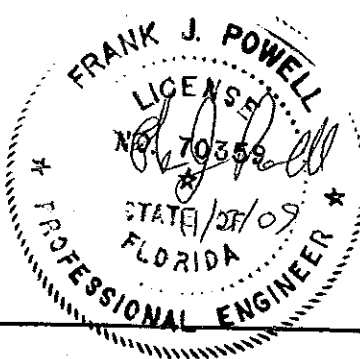
MATERIALS:
 C - MISCELLANEOUS ASPHALTIC CONCRETE
 D - 28 MPa [4000 PSI] P. C. CONCRETE
 E - STABILIZED SUBBASE, PREPARED & COMPACTED

SECTION A-A
 REFER TO QUADGUARD ANCHORING SYSTEM
 INSTALLATION & SAFETY INSTRUCTIONS FOR
 FURTHER INFORMATION

DEPTH COMBINATION			
"C"	"D"	"E"	REQ'D ROD LENGTH
--	152mm [6"]	--	180mm [7"]
76mm [3"]	76mm [3"]	--	460mm [18"]
152mm [6"]	--	152mm [6"]	460mm [18"]
203mm [8"]	--	--	460mm [18"]

NOTE:
 1. ANCHOR SYSTEM FOR PROPER IMPACT PERFORMANCE. Use MP-3® polyester anchor system, supplied by Energy Absorption Systems, or approved equal. QuadGuard Systems installed on asphalt must be inspected to ensure the anchors are still properly set following each impact. Re-anchor as necessary. See drawing 35-40-46.

Frank J. Powell, PE
 Florida #70359
 3617 Cincinnati Ave.
 Rocklin, CA 95765



DRAWN: T. Busse	DATE: 8/12/05
DESIGNED:	DATE:
CHECKED: <i>[Signature]</i>	DATE: 8/17/05
APPROVED: <i>[Signature]</i>	DATE: 8/17/05
DWG. FILE: 3540004-0000.dwg	DATE: 8-15-05

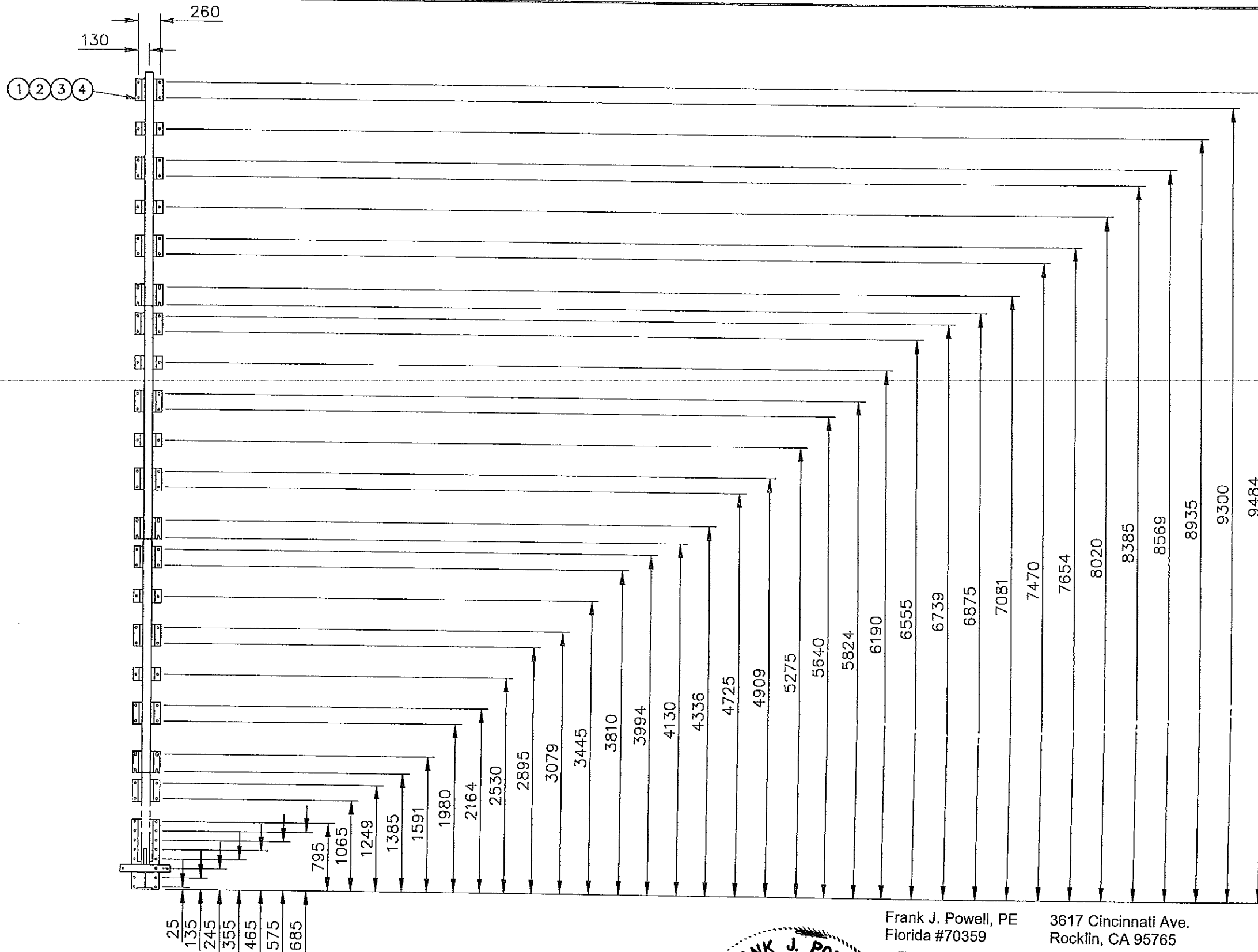
ASSY NO. 354024T-1000

ENERGY ABSORPTION SYSTEMS, INC.
 ENGINEERING AND RESEARCH DEPARTMENT

QuadGuard® SYSTEM
 ASPHALT ANCHOR KIT, QG LMC

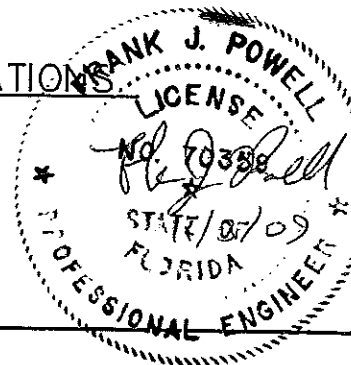
Instruction No.
354024T-1100

SCALE AS NOTED	DWG. 3540004-0000	SHEET 1 of 2	REV
-------------------	----------------------	-----------------	-----



NOTES:
 1. MANUFACTURER RECOMMENDS USING THE MONORAIL AND BACKUP AS A TEMPLATE FOR DRILLING HOLES. HOLE LOCATIONS ARE GIVEN HERE FOR REFERENCE PURPOSES ONLY.
 2. UNITS ARE MILLIMETERS.

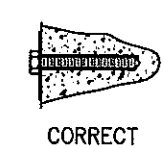
ANCHOR BOLT LOCATIONS



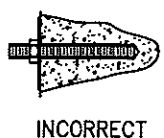
Frank J. Powell, PE
 Florida #70359
 3617 Cincinnati Ave.
 Rocklin, CA 95765

DESIGNED: T. Busse	DATE: 8/12/05
CHECKED: <i>[Signature]</i>	DATE: 8/17/05
APPROVED: <i>[Signature]</i>	DATE: 8/17/05
DATE: 8-15-05	
DWG FILE: 3540004-0000.dwg	

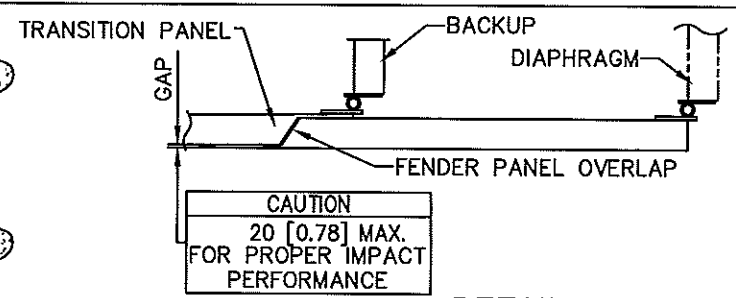
ENERGY ABSORPTION SYSTEMS, INC. ENGINEERING AND RESEARCH DEPARTMENT			
		QuadGuard® SYSTEM ASPHALT ANCHOR KIT, QG LMC	
SCALE: 1:50	DWG: 3540004-0000	SHEET: 2 of 2	REV:



CORRECT

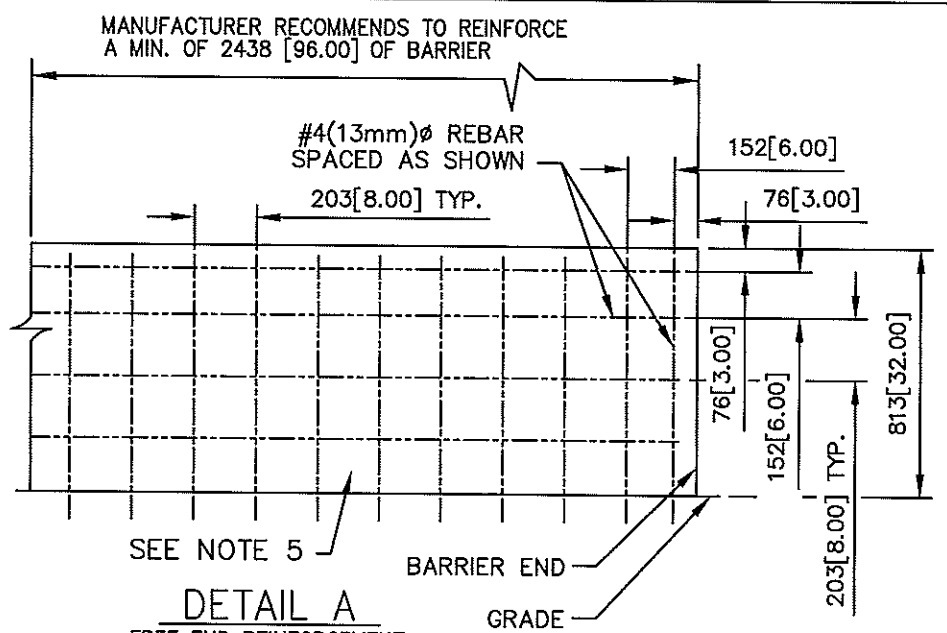


INCORRECT



CAUTION
20 [0.78] MAX.
FOR PROPER IMPACT
PERFORMANCE

DETAIL C
SCALE: 1=20



MANUFACTURER RECOMMENDS TO REINFORCE
A MIN. OF 2438 [96.00] OF BARRIER

#4(13mm)Ø REBAR
SPACED AS SHOWN

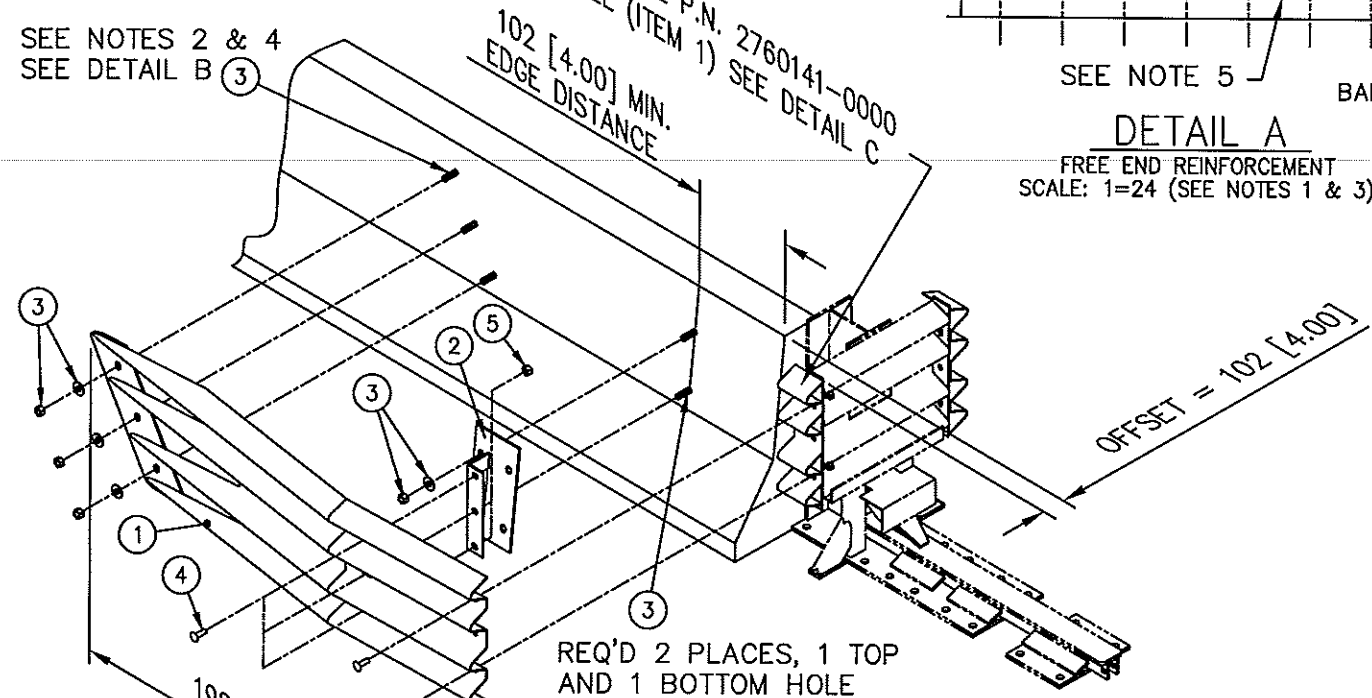
DETAIL A
FREE END REINFORCEMENT
SCALE: 1=24 (SEE NOTES 1 & 3)

PARTS LIST			
ITEM	STOCK NO.	DESCRIPTION	REQ'D
1	SEE TABLE	PANEL, TRANSITION, 4 OFFSET, QG	1.00
2	2760301-0000	BRACKET, SUPPORT, 4 TRANS TO CMB	1.00
3	3525130-0000	ANCHOR, MP-3, PT KIT, 3/4X6 1/2 HOR	1.00
4	2699341-0000	BOLT, RAIL, 5/8X2,G	3.00
5	2704191-0000	NUT, HX, 5/8,G, RAIL	3.00

DETAIL B
NOT TO SCALE

SEE NOTES 2 & 4
SEE DETAIL B

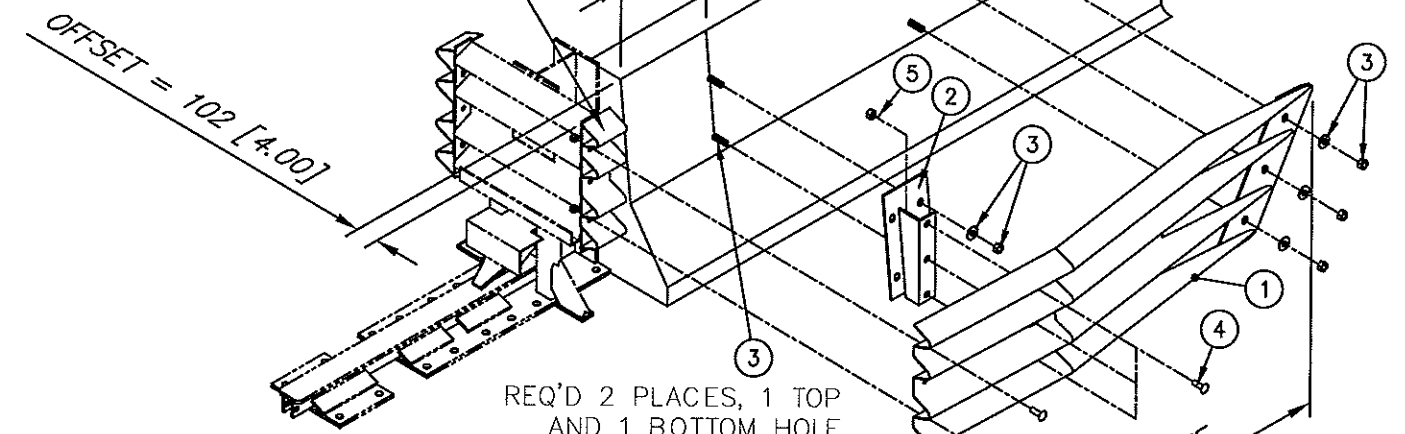
REPLACE SIDE PANEL P.N. 2760141-0000
WITH TRANSITION PANEL (ITEM 1) SEE DETAIL C



REQ'D 2 PLACES, 1 TOP
AND 1 BOTTOM HOLE
MUST BE USED.

LEFT SIDE APPLICATION

5/8x2 RAIL BOLT
(SEE BACKUP ASSY)



REQ'D 2 PLACES, 1 TOP
AND 1 BOTTOM HOLE
MUST BE USED.

RIGHT SIDE APPLICATION

5/8x2 RAIL BOLT
(SEE BACKUP ASSY)

TABLE - ITEM 1		
APPLICATION	PART NO.	DESCRIPTION
LEFT SIDE	2760281-0000	PANEL, TRANSITION, 4 OFFSET, L, QG
RIGHT SIDE	2760282-0000	PANEL, TRANSITION, 4 OFFSET, R, QG

NOTES:

1. THE CONCRETE BARRIER REINFORCEMENT SHOWN IN DETAIL "A" IS RECOMMENDED TO ENSURE ADEQUATE BARRIER INTEGRITY FOR PROPER IMPACT PERFORMANCE. IT IS APPROPRIATE FOR A STANDARD SAFETY SHAPED BARRIER WITH A 610 [24.00] BASE AND A 150 [6.00] TOP. VARIATIONS MAY BE REVIEWED AND DETERMINATIONS MADE AS TO REASONABLE EQUIVALENCE BY PROJECT ENGINEER.
2. USE TRANSITION PANEL AS TEMPLATE FOR DRILLING. RECOMMENDED HOLE DEPTH 127 [5.00]. FINAL TORQUE TO BE 163Nm [120 FT-LBS] (TYP).
3. IMPACT FORCES COULD BE TRANSFERRED INTO TERMINAL END OF THE BARRIER. ADEQUATE ANCHORAGE IS REQUIRED FOR PROPER IMPACT PERFORMANCE.
4. ANCHOR STUD END SHOULD BE FLUSH WITH OUTSIDE SURFACE OF ANCHOR NUT, SEE DETAIL B.
5. MIN. 27.6 MPa [4000 PSI] P.C. CONCRETE MEDIAN BARRIER.

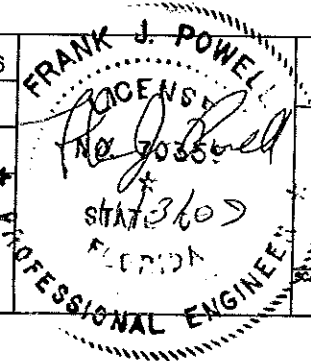
Frank J. Powell, PE 3617 Cincinnati Ave.
Florida #70359 Rocklin, CA 95765

LEFT ASSEMBLY NO. 354018L-0000
RIGHT ASSEMBLY NO. 354018R-0000

Revisions	Date	Rev.	By	Ckd.	App.
REVISED DIM'S.	07/13/98	E	DDS	KRM	SPT
REVISED ITEM 3 NOTES	06/25/99	F	LWC	KM	SPT
ADDED DETAIL C	10/09/01	G	RSG	DMO	FP

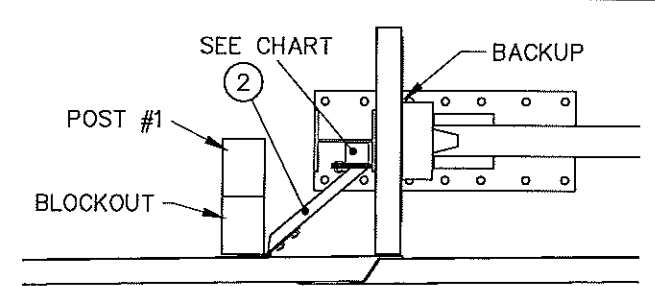
REFERENCES

DRAWN: J. Espinoza	DATE: 08/21/96
DESIGNED: J. WELCH	DATE: 8/21/96
CHECKED: B. Burges	DATE: 8/27/96
APPROVED: S. Turner	DATE: 8/27/96
CAD FILE: 354018.dwg	
NEXT ASSEMBLY:	



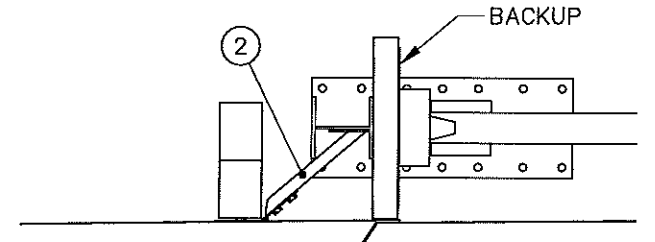
ENERGY ABSORPTION SYSTEMS, INC.
ENGINEERING AND RESEARCH DEPARTMENT

TRANSITION ASSY, 4 OFFSET, QG



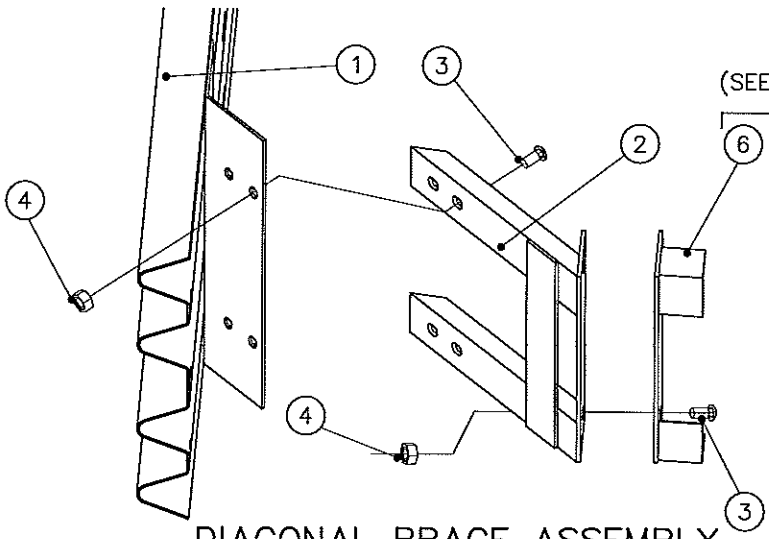
DETAIL A

FINAL CONFIGURATION OF DIAGONAL BRACE FOR MEDIUM OR WIDE (762[30.00] OR 914[36.00]) SYSTEMS



DETAIL A

FINAL CONFIGURATION OF DIAGONAL BRACE FOR NARROW (610[24.00]) SYSTEMS

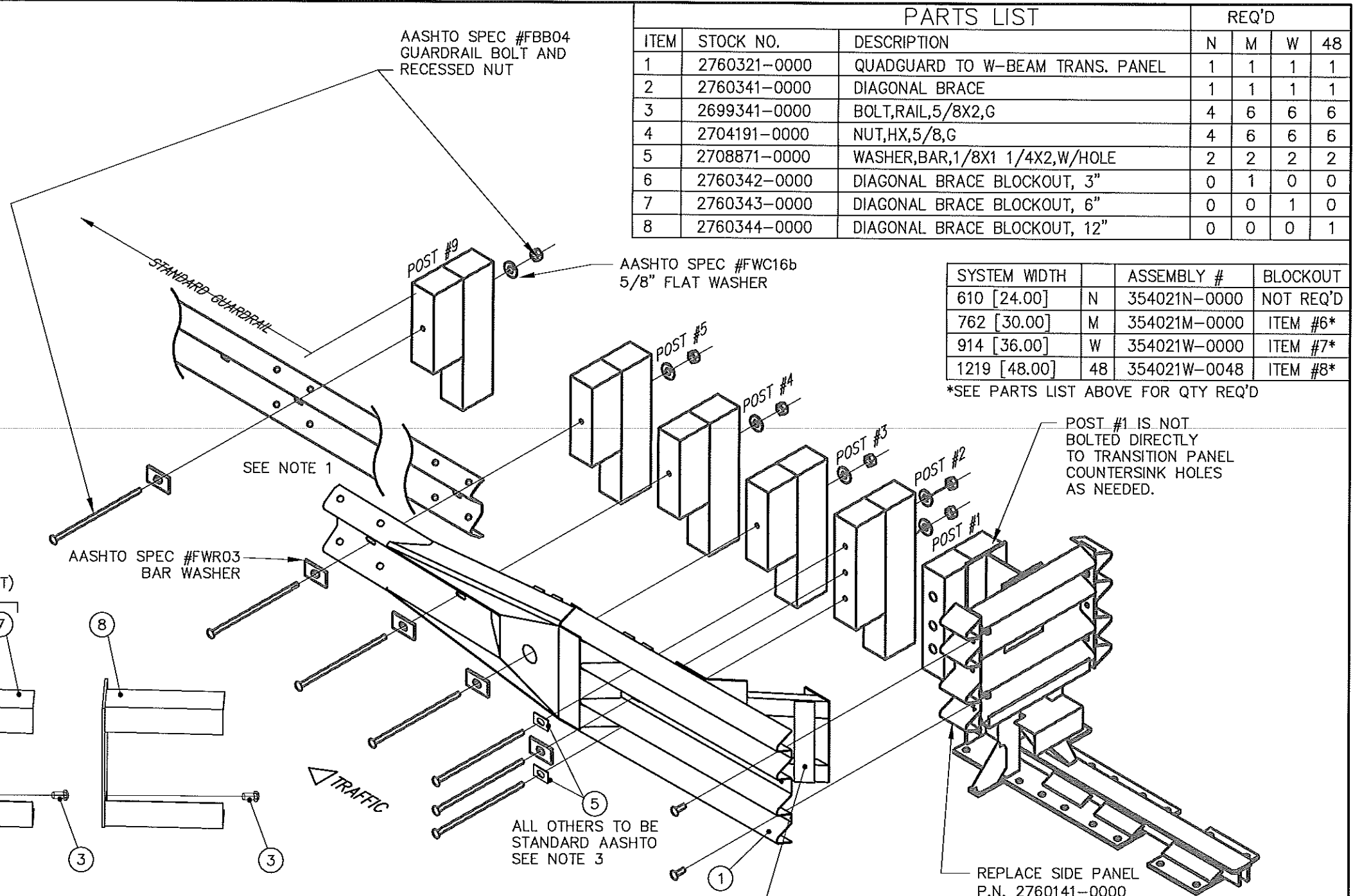


DIAGONAL BRACE ASSEMBLY

NOTES:

1. PANEL OVERLAP SHOWN IS FOR TRAFFIC DIRECTION SHOWN. ACTUAL OVERLAP SHALL BE DETERMINED BY THE SITE CONDITIONS AND PROJECT ENGINEER PER TRAFFIC DIRECTION. USE STANDARD GUARDRAIL CONNECTION.
2. RIGHT SIDE OF ROAD APPLICATION SHOWN. ASSEMBLY MAY BE USED ON EITHER OR BOTH SIDES FOR LEFT, RIGHT, MEDIAN OR GORE APPLICATIONS. SEE NOTE 1. THIS ASSEMBLY IS NOT INCLUDED IN THE MODEL NUMBER AND MUST BE ORDERED SEPARATELY.
3. ENERGY ABSORPTION SYSTEMS, INC. SUPPLIES THE STOCK ITEMS SHOWN IN THE PARTS LIST. ALL OTHER COMPONENTS OF THE DOWNSTREAM GUARDRAIL ARE STANDARD HIGHWAY MATERIALS AND MAY BE OBTAINED FROM YOUR LOCAL HIGHWAY SUPPLY VENDORS.

4. TRANSITION AND GUARDRAIL PANEL CONNECTIONS MAY BE SLOTTED IN ORDER TO ACCOMMODATE THERMAL EXPANSION AND CONTRACTION.



PARTS LIST			REQ'D			
ITEM	STOCK NO.	DESCRIPTION	N	M	W	48
1	2760321-0000	QUADGUARD TO W-BEAM TRANS. PANEL	1	1	1	1
2	2760341-0000	DIAGONAL BRACE	1	1	1	1
3	2699341-0000	BOLT,RAIL,5/8X2,G	4	6	6	6
4	2704191-0000	NUT,HX,5/8,G	4	6	6	6
5	2708871-0000	WASHER,BAR,1/8X1 1/4X2,W/HOLE	2	2	2	2
6	2760342-0000	DIAGONAL BRACE BLOCKOUT, 3"	0	1	0	0
7	2760343-0000	DIAGONAL BRACE BLOCKOUT, 6"	0	0	1	0
8	2760344-0000	DIAGONAL BRACE BLOCKOUT, 12"	0	0	0	1

SYSTEM WIDTH		ASSEMBLY #	BLOCKOUT
610 [24.00]	N	354021N-0000	NOT REQ'D
762 [30.00]	M	354021M-0000	ITEM #6*
914 [36.00]	W	354021W-0000	ITEM #7*
1219 [48.00]	48	354021W-0048	ITEM #8*

*SEE PARTS LIST ABOVE FOR QTY REQ'D

POST #1 IS NOT BOLTED DIRECTLY TO TRANSITION PANEL COUNTERSINK HOLES AS NEEDED.

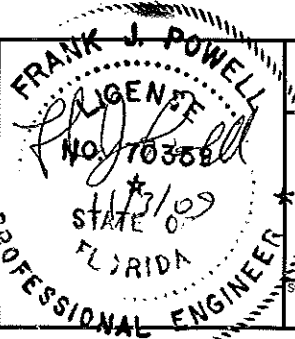
REPLACE SIDE PANEL P.N. 2760141-0000 WITH TRANSITION PANEL (ITEM 1)

SEE DIAGONAL BRACE ASSEMBLY AND DETAIL A

Frank J. Powell, PE
Florida #70359
3617 Cincinnati Ave.
Rocklin, CA 95765

REFERENCES

DRAWN:	T. Busse	DATE:	09/20/96
DESIGNED:	JVM	DATE:	8/21/96
CHECKED:	SML	DATE:	10/14/96
APPROVED:	J. Machado	DATE:	10/14/96
CAD FILE:	354021.dwg		
NEXT ASSEMBLY:			

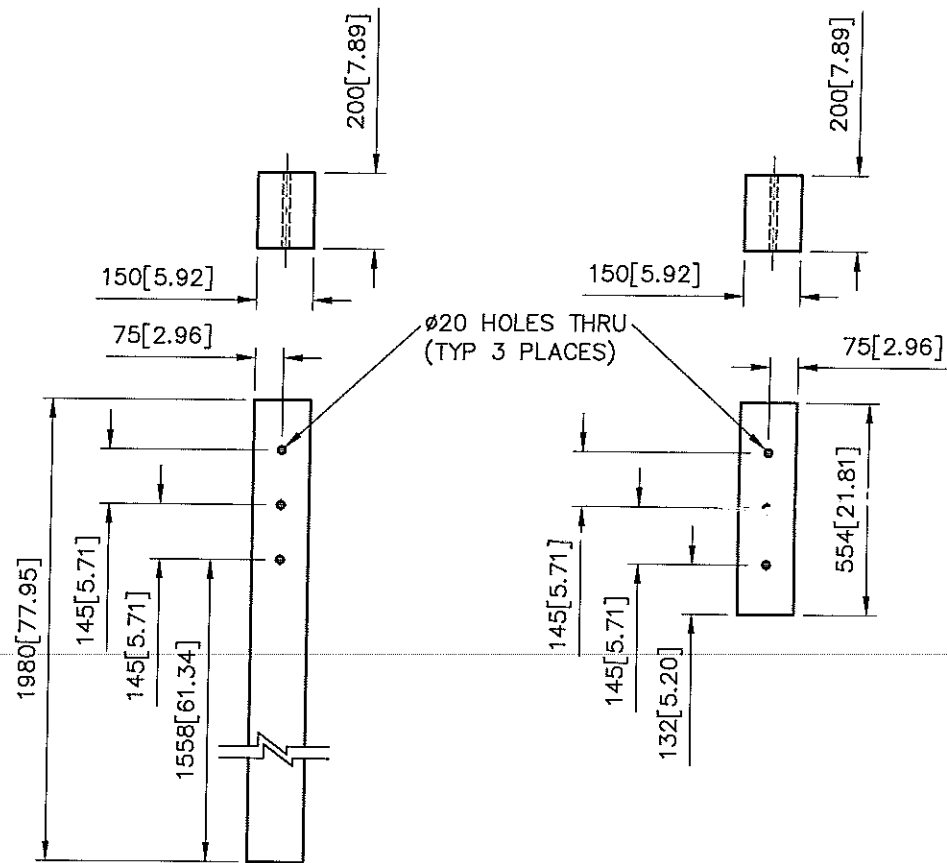


ENERGY ABSORPTION SYSTEMS, INC.
ENGINEERING AND RESEARCH DEPARTMENT

**TRANSITION ASSEMBLY,
QUAD-BEAM TO W-BEAM**

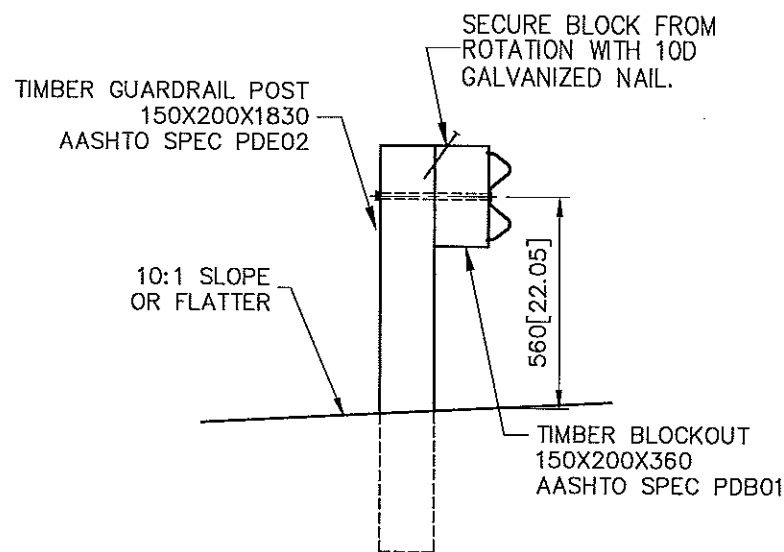
Revisions	Date	Rev.	By	Ckd.	App.
ADDED ITEM 8	10/-7/09	G	STT	KRM	PAS
CHANGED TO MATCH SHEET 2	3/26/02	E	DDW	DMO	SPT
ADDED NOTE 4	8/19/05	F	WWL	JME	ACF

SCALE	N.T.S.	DWG.	35-40-21	SHEET	1 of 2	REV	G
-------	--------	------	----------	-------	--------	-----	---



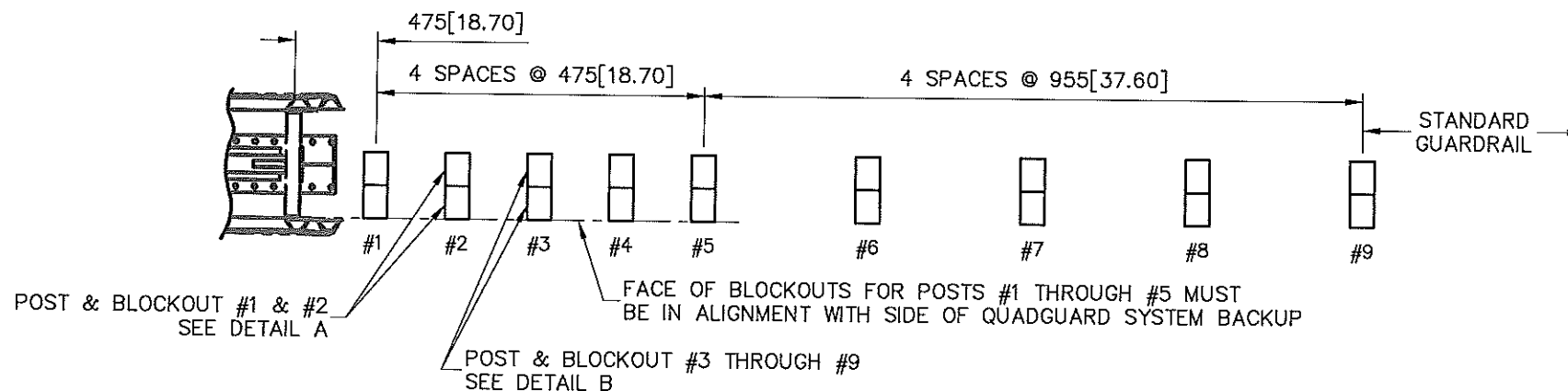
DETAIL A

POSTS & BLOCKOUTS #1 & #2 (NON-STANDARD)
(SEE NOTES 2 & 3)



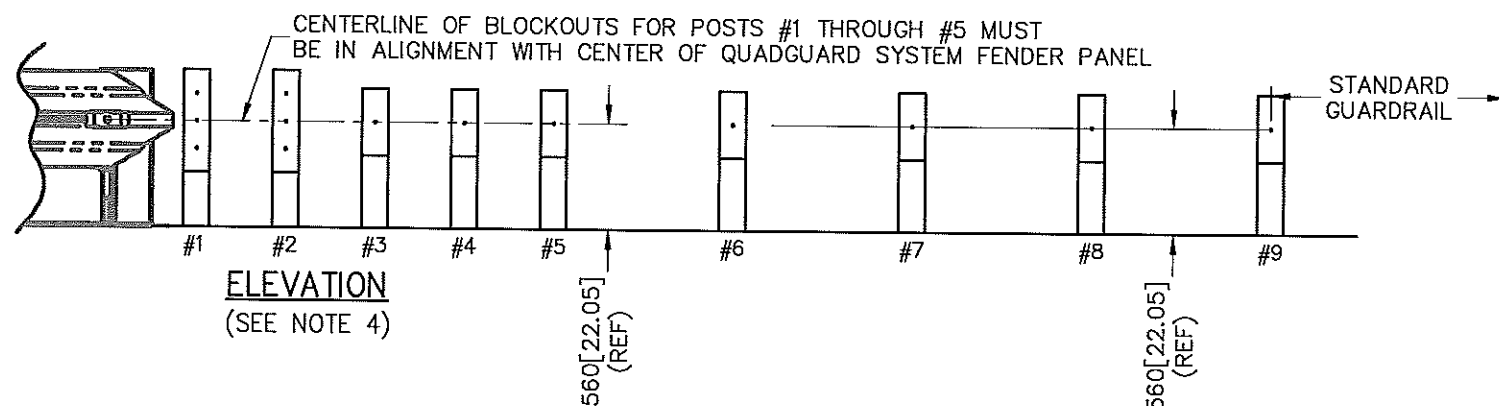
DETAIL B

POSTS & BLOCKOUTS #3 THRU #9
SEE NOTE 3



PLAN

(SEE NOTE 4)



ELEVATION

(SEE NOTE 4)

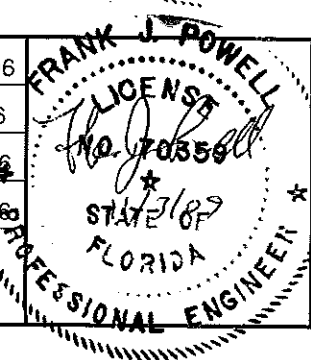
NOTES:

1. DIMENSIONS ARE IN MILLIMETERS [INCHES], UNLESS OTHERWISE NOTED.
2. POSTS & BLOCKOUTS SHALL BE MADE OF TIMBER WITH A STRESS GRADE OF AT LEAST 8 MPa. STRESS GRADING SHALL BE IN ACCORDANCE WITH THE RULES OF THE WEST COAST LUMBER INSPECTION BUREAU, SOUTHERN PINE INSPECTION BUREAU OR OTHER APPROPRIATE TIMBER ASSOCIATION. TIMBER FOR POSTS SHALL BE EITHER ROUGH SAWN (UNPLANED) OR S4S (SURFACED FOUR SIDES) WITH NOMINAL DIMENSIONS INDICATED. THE SIZE TOLERANCE OF POSTS IN THE DIRECTION PARALLEL TO THE AXIS OF THE BOLT HOLES SHALL NOT BE MORE THAN ± 6mm. ALL TIMBER SHALL RECEIVE A PRESERVATION TREATMENT IN ACCORDANCE WITH AASHTO M133 AFTER ALL END CUTS ARE MADE AND ALL HOLES ARE DRILLED.
3. TRANSITION SECTION SHOWN ON SHEET 1 WAS TESTED AND IS IN COMPLIANCE WITH NCHRP 350. STEEL POSTS MAY BE SUBSTITUTED FOR WOOD POSTS PER PROJECT ENGINEER'S DISCRETION.
4. GUARDRAIL & TRANSITION PANEL NOT SHOWN FOR CLARITY.

REFERENCES

Revisions	Date	Rev.	By	Ckd.	App.
SEE SHEET 1	10/07/09	G	STT		
REVISED NOTE 3	3/26/02	E	DDW	DMO	SPT
SEE SHEET 1	8/19/05	F	WWL	JME	ACF

DRAWN: R. Cummins	DATE: 09/20/96
DESIGNED: JVM	DATE: 8/21/96
CHECKED: SML	DATE: 10/14/96
APPROVED: J. Machado	DATE: 10/14/96
CAD FILE: 354021-02.dwg	
NEXT ASSEMBLY:	



Frank J. Powell, PE
Florida #70359

3617 Cincinnati Ave.
Rocklin, CA 95765

ENERGY ABSORPTION SYSTEMS, INC.
ENGINEERING AND RESEARCH DEPARTMENT

**TRANSITION ASSEMBLY,
QUAD-BEAM TO W-BEAM**

SCALE	DWG.	SHEET	REV
N.T.S.	35-40-21	2 of 2	G