



State of West Virginia
 Department of Administration
 Purchasing Division
 2019 Washington Street East
 Post Office Box 50130
 Charleston, WV 25305-0130

Request for Quotation

RFQ NUMBER
8512C2023

PAGE
1

ADDRESS CORRESPONDENCE TO ATTENTION OF:
PAUL REYNOLDS
304-558-0468

*709022004 800-380-1718

VENDOR

M H CORBIN INC
 8420 ESTATES COURT
 PLAIN CITY OH 43064

SHIP TO

DIVISION OF HIGHWAYS
 TRAFFIC ENGINEERING DIVISION
 BUILDING 5, ROOM A550
 1900 KANAWHA BOULEVARD EAST
 CHARLESTON, WV
 25305-0430

DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
11/07/2011				

BID OPENING DATE: 11/22/2011 BID OPENING TIME 01:30PM

LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
0001	1	LS		220-53		
<p>ENERGY ABSORPTION SYSTEM ATTENUATING DEVICES</p> <p>REQUEST FOR QUOTATION</p> <p>THE WEST VIRGINIA STATE DIVISION OF PURCHASING FOR THE AGENCY, THE WEST VIRGINIA DIVISION OF HIGHWAYS IS SOLICITING BIDS TO PROVIDE ENERGY ABSORPTION SYSTEM DEVICES PER THE ATTACHED SPECIFICATIONS.</p> <p>EXHIBIT 3</p> <p>LIFE OF CONTRACT: THIS CONTRACT BECOMES EFFECTIVE UPON AWARD AND EXTENDS FOR A PERIOD OF ONE (1) YEAR OR UNTIL SUCH "REASONABLE TIME" THEREAFTER AS IS NECESSARY TO OBTAIN A NEW CONTRACT OR RENEW THE ORIGINAL CONTRACT. THE "REASONABLE TIME" PERIOD SHALL NOT EXCEED TWELVE (12) MONTHS. DURING THIS "REASONABLE TIME" THE VENDOR MAY TERMINATE THIS CONTRACT FOR ANY REASON UPON GIVING THE DIRECTOR OF PURCHASING 30 DAYS WRITTEN NOTICE.</p> <p>UNLESS SPECIFIC PROVISIONS ARE STIPULATED ELSEWHERE IN THIS CONTRACT DOCUMENT, THE TERMS, CONDITIONS AND PRICING SET HEREIN ARE FIRM FOR THE LIFE OF THE CONTRACT.</p> <p>RENEWAL: THIS CONTRACT MAY BE RENEWED UPON THE MUTUAL WRITTEN CONSENT OF THE SPENDING UNIT AND VENDOR, SUBMITTED TO THE DIRECTOR OF PURCHASING THIRTY (30) DAYS PRIOR TO THE EXPIRATION DATE. SUCH RENEWAL SHALL BE IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF THE</p>						

RECEIVED
 2011 NOV 22 A 10:40
 PURCHASING DIVISION
 STATE OF WV

SEE REVERSE SIDE FOR TERMS AND CONDITIONS			
SIGNATURE	TELEPHONE	DATE	
<i>Mahmud M Al</i>	614-875-5216	11/21/11	
TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE	
<i>VP</i>	31-1192248		

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'



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<p>ORIGINAL CONTRACT AND SHALL BE LIMITED TO TWO (2) ONE (1) YEAR PERIODS.</p> <p>CANCELLATION: THE DIRECTOR OF PURCHASING RESERVES THE RIGHT TO CANCEL THIS CONTRACT IMMEDIATELY UPON WRITTEN NOTICE TO THE VENDOR IF THE COMMODITIES AND/OR SERVICE SUPPLIED ARE OF AN INFERIOR QUALITY OR DO NOT CONFORM TO THE SPECIFICATIONS OF THE BID AND CONTRACT HEREIN.</p> <p>OPEN MARKET CLAUSE: THE DIRECTOR OF PURCHASING MAY AUTHORIZE A SPENDING UNIT TO PURCHASE ON THE OPEN MARKET, WITHOUT THE FILING OF A REQUISITION OR COST ESTIMATE, ITEMS SPECIFIED ON THIS CONTRACT FOR IMMEDIATE DELIVERY IN EMERGENCIES DUE TO UNFORESEEN EXHIBIT 4</p> <p>LOCAL GOVERNMENT BODIES: UNLESS THE VENDOR INDICATES IN THE BID HIS REFUSAL TO EXTEND THE PRICES, TERMS, AND CONDITIONS OF THE BID TO COUNTY, SCHOOL, MUNICIPAL AND OTHER LOCAL GOVERNMENT BODIES, THE BID SHALL EXTEND TO POLITICAL SUBDIVISIONS OF THE STATE OF WEST VIRGINIA. IF THE VENDOR DOES NOT WISH TO EXTEND THE PRICES, TERMS, AND CONDITIONS OF THE BID TO ALL POLITICAL SUBDIVISIONS OF THE STATE, THE VENDOR MUST CLEARLY INDICATE SUCH REFUSAL IN HIS BID. SUCH REFUSAL SHALL NOT PREJUDICE THE AWARD OF THIS CONTRACT IN ANY MANNER.</p> <p>REV. 3/88</p> <p>PURCHASING CARD ACCEPTANCE: THE STATE OF WEST VIRGINIA CURRENTLY UTILIZES A VISA PURCHASING CARD PROGRAM WHICH IS ISSUED THROUGH A BANK. THE SUCCESSFUL VENDOR MUST ACCEPT THE STATE OF WEST VIRGINIA VISA PURCHASING CARD FOR PAYMENT OF ALL ORDERS PLACED BY ANY STATE AGENCY AS A CONDITION OF AWARD.</p>						

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BID OPENING DATE: 11/22/2011		BID OPENING TIME 01:30PM		

LINE	QUANTITY	UOP	CAT NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
<p>NOTICE</p> <p>A SIGNED BID MUST BE SUBMITTED TO:</p> <p>DEPARTMENT OF ADMINISTRATION PURCHASING DIVISION BUILDING 15 2019 WASHINGTON STREET, EAST CHARLESTON, WV 25305-0130</p> <p>THE BID SHOULD CONTAIN THIS INFORMATION ON THE FACE OF THE ENVELOPE OR THE BID MAY NOT BE CONSIDERED:</p> <p>SEALED BID</p> <p>BUYER: PAUL REYNOLDS FILE 33</p> <p>RFQ. NO.: 8512C2023</p> <p>BID OPENING DATE: 11/22/2011</p> <p>BID OPENING TIME: 01:30 P.M.</p> <p>PLEASE PROVIDE A FAX NUMBER IN CASE IT IS NECESSARY TO CONTACT YOU REGARDING YOUR BID:</p> <p style="text-align: center;">----- <i>Bill Corbin</i> -----</p> <p>CONTACT PERSON (PLEASE PRINT CLEARLY):</p> <p style="text-align: center;">----- <i>614-873-8095</i> -----</p>						

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GENERAL TERMS & CONDITIONS
REQUEST FOR QUOTATION (RFQ) AND REQUEST FOR PROPOSAL (RFP)

1. Awards will be made in the best interest of the State of West Virginia.
2. The State may accept or reject in part, or in whole, any bid.
3. Prior to any award, the apparent successful vendor must be properly registered with the Purchasing Division and have paid the required \$125 fee.
4. All services performed or goods delivered under State Purchase Order/Contracts are to be continued for the term of the Purchase Order/Contracts, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise available for these services or goods this Purchase Order/Contract becomes void and of no effect after June 30.
5. Payment may only be made after the delivery and acceptance of goods or services.
6. Interest may be paid for late payment in accordance with the *West Virginia Code*.
7. Vendor preference will be granted upon written request in accordance with the *West Virginia Code*.
8. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.
9. The Director of Purchasing may cancel any Purchase Order/Contract upon 30 days written notice to the seller.
10. The laws of the State of West Virginia and the *Legislative Rules* of the Purchasing Division shall govern the purchasing process.
11. Any reference to automatic renewal is hereby deleted. The Contract may be renewed only upon mutual written agreement of the parties.
12. **BANKRUPTCY:** In the event the vendor/contractor files for bankruptcy protection, the State may deem this contract null and void, and terminate such contract without further order.
13. **HIPAA BUSINESS ASSOCIATE ADDENDUM:** The West Virginia State Government HIPAA Business Associate Addendum (BAA), approved by the Attorney General, is available online at www.state.wv.us/admin/purchase/vrc/hipaa.htm and is hereby made part of the agreement. Provided that the Agency meets the definition of a Cover Entity (45 CFR §160.103) and will be disclosing Protected Health Information (45 CFR §160.103) to the vendor.
14. **CONFIDENTIALITY:** The vendor agrees that he or she will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the agency's policies, procedures, and rules. Vendor further agrees to comply with the Confidentiality Policies and Information Security Accountability Requirements, set forth in <http://www.state.wv.us/admin/purchase/privacy/noticeConfidentiality.pdf>.
15. **LICENSING:** Vendors must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, and the West Virginia Insurance Commission. The vendor must provide all necessary releases to obtain information to enable the director or spending unit to verify that the vendor is licensed and in good standing with the above entities.
16. **ANTITRUST:** In submitting a bid to any agency for the State of West Virginia, the bidder offers and agrees that if the bid is accepted the bidder will convey, sell, assign or transfer to the State of West Virginia all rights, title and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the State of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired by the State of West Virginia. Such assignment shall be made and become effective at the time the purchasing agency tenders the initial payment to the bidder.

I certify that this bid is made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership, or person or entity submitting a bid for the same material, supplies, equipment or services and is in all respects fair and without collusion or fraud. I further certify that I am authorized to sign the certification on behalf of the bidder or this bid.

INSTRUCTIONS TO BIDDERS

1. Use the quotation forms provided by the Purchasing Division. Complete all sections of the quotation form.
2. Items offered must be in compliance with the specifications. Any deviation from the specifications must be clearly indicated by the bidder. Alternates offered by the bidder as **EQUAL** to the specifications must be clearly defined. A bidder offering an alternate should attach complete specifications and literature to the bid. The Purchasing Division may waive minor deviations to specifications.
3. Unit prices shall prevail in case of discrepancy. All quotations are considered F.O.B. destination unless alternate shipping terms are clearly identified in the quotation.
4. All quotations must be delivered by the bidder to the office listed below prior to the date and time of the bid opening. Failure of the bidder to deliver the quotations on time will result in bid disqualifications: Department of Administration, Purchasing Division, 2019 Washington Street East, P.O. Box 50130, Charleston, WV 25305-0130
5. Communication during the solicitation, bid, evaluation or award periods, except through the Purchasing Division, is strictly prohibited (W.Va. C.S.R. §148-1-6.6).

Specifications

Purpose: The purpose of this contract shall be to furnish materials required for the maintenance, replacement, or installation of Energy Absorption System GREAT (Guardrail Energy Absorbing Terminal) attenuating devices, Energy Absorption System Quadguard attenuating devices, Energy Absorption System Quadguard-II attenuating devices, Energy Absorption System Quadguard-HS attenuating devices, and Trinity Industries TRACC attenuating devices.

1.0 DEFINITIONS

- A. The "Agency" shall be defined as the West Virginia Division of Highways
- B. The "Vendor" shall be defined as the successful bidder.
- C. The "Contract" shall be defined as the binding agreement that is entered into between the State of West Virginia and the Vendor to provide the services as herein specified.
- D. "Release Order" shall be defined as order placed against the Contract by the Agency.
- E. Mandatory Requirements: The terms "must", "will", "shall", "minimum", "maximum", or "is/are required" identify a mandatory item or factor. Decisions regarding compliance with any mandatory requirements shall be at the sole discretion of the State.

2.0 SCOPE OF WORK

Technical Requirements: The successful Vendor shall provide individual replacement components for Energy Absorption System GREAT (Guardrail Energy Absorbing Terminal) attenuating devices, Energy Absorption System Quadguard attenuating devices, Energy Absorption System Quadguard-II attenuating devices, Energy Absorption System Quadguard-HS attenuating devices, and Trinity Industries TRACC attenuating devices. The successful Vendor(s) shall also supply complete units upon request (excludes GREAT attenuating devices).

- 2.1 Complete descriptions of the individual parts are included as part of the bid schedule. The bid schedule also includes references to the appropriate manufacturer installation drawing, also included as part of this Contract for reference.

This Contract also includes items for the purchase of complete Quadguard, Quadguard-II, Quadguard-HS, and TRACC units for use at the Agency's discretion.

2.2 Freight

2.2.1 All shipments are to be FOB Destination.

2.2.2 The Vendor shall be responsible for all freight charges incurred as a result of the purchases under this Contract. For orders where expedited delivery is requested and authorized by the Agency, the Vendor may invoice for these charges provided that it will be given as a "pass through" cost to the Agency. No markup shall be permitted for expedited delivery. See Section 3.2.3 for more information. Note, the Agency understands that expedited delivery of GREAT system parts is normally not possible within the time frame stipulated. Therefore, any expedited delivery request associated with any Release Order which includes any parts for GREAT impact attenuating systems shall be disregarded. The Vendor shall not invoice for any extra freight charges for any such order regardless of the delivery turnaround time associated with any non-GREAT parts included as part of any such order, and the provisions of 2.3.2 shall apply.

2.3 Delivery

2.3.1 This Contract may be utilized by multiple recipients statewide, each having a unique delivery address.

2.3.2 Release Orders shall be delivered in full within a maximum of twenty-one (21) Calendar Days ARO. If the vendor is unable to deliver in full within twenty-one (21) Calendar Days, the Vendor shall be subject to a \$50.00 per Calendar Day penalty at the purchasing organizations discretion for each Calendar Day beyond twenty-one (21) Calendar Days ARO. This penalty shall be assessed by subtracting the penalty from the payment due to the Vendor upon full delivery of the Release Order.

2.3.3 All large components shall be shipped adequately secured on pallets for ease in unloading. Large components shall be easily identifiable or the packaging shall be labeled indicating the contained parts. All accessory hardware and relatively small components shall be appropriately packaged and labeled. Any material delivered not meeting the above requirements shall be subject to being returned to the Vendor at the Vendor's expense.

2.3.4 Delivery is an integral part of this contract and failure to comply will be cause to initiate a WV-82, Vendor Performance Form. This form will officially notify the West Virginia Division of Purchasing and the Vendor of unsatisfactory performance in the execution of this contract and the requirements herein.

3.0 ORDERING AND INVOICING

3.1 Release Orders

3.1.1 For all orders, the Agency will issue to the Vendor a WV-35 Release Order. Issuance of the Release Order shall contain the type of merchandise to be purchased and shall serve as the authorization to process the order.

3.2 Payment

3.2.1 The State of West Virginia currently utilizes a VISA purchasing card program which is issued through a local bank. The Vendor must accept the State of West Virginia purchasing card for payment of all orders placed against this Contract.

3.2.2 The Vendor must supply a credit card receipt, sales receipt, or cash register receipt. Charges must not be applied until merchandise is received in full by the Agency.

3.2.3 For orders where expedited delivery has been requested by the Agency per Section 2.2.2, the Vendor may add actual shipping costs (prepaid) to the invoice as a separate item. In this case, the Vendor shall attach a copy of the freight bill to the invoice sent to the Agency. All such orders shall be delivered in full within ten (10) Calendar Days ARO. If any such order is not received in full within ten (10) Calendar Days ARO, the Vendor may not add shipping costs as described above to the invoice and the order will be treated as a normal non-expedited order with the provisions of Section 2.3.2 to apply.

4.0 AWARD

4.1 Contract Sections

4.1.1 This Contract shall be awarded in its' entirety. The Vendor shall be required to provide a bid for all items listed.

BID SCHEDULE

The following estimated quantities are for bid purposes only. Actual quantities will be determined by the needs of the West Virginia Division of Highways and may be increased or decreased:

ITEM NUMBER	ESTIMATED QUANTITY	DESCRIPTION	PART DETAIL SHEET(S)	COST	(OOH USE ONLY) INVENTORY SUBCODE
Energy Absorption Systems GREAT Attenuators					
GREAT panels and parts					
1	1	GREAT three-beam fender panel w/ connection to diaphragm hardware, mushroom bolt assembly, and deflector assembly	5	890.10	311000
2	1	GREAT complete mushroom bolt and deflector assembly	5	67.08	312000
3	1	GREAT concrete block backup deflector panel w/ connection to fender panel hardware	14	7.93	313000
4	1	GREAT concrete block backup slide panel w/ connection to fender panel hardware	8	152.22	NA
5	1	GREAT steel backup slide panel w/ connection to backup hardware	11, 12	161.25	NA
6	1	GREAT extension panel w/ connection to backup and three to w-beam panel hardware	14	219.30	314000
7	1	GREAT NJ barrier backup left side 4" offset transition panel w/ support bracket, connection to support bracket hardware, and connection to steel backup hardware	11	1290.00	315000
8	1	GREAT NJ barrier backup right side 4" offset transition panel w/ support bracket, connection to support bracket hardware, and connection to steel backup hardware	11	1290.00	316000
9	1	GREAT three beam to w-beam transition panel w/ connection to extension panel and w-beam hardware	14	325.08	317000
GREAT diaphragms and parts					
10	1	GREAT 24" diaphragm w/ cable guide assembly and cable guide connection hwy	4	1288.71	321000
11	1	GREAT 30" diaphragm w/ cable guide assembly and cable guide connection hwy	4	1380.30	322000
GREAT restraining cables and parts					
12	1	GREAT 6 bay restraining cable w/ connection hardware and 8 ea. 3x3x1/4 washer bars	6	2270.40	331000
13	1	GREAT 6 bay restraining cable w/ connection hardware and 8 ea. 3x3x1/4 washer bars	6	2334.90	332000
14	1	GREAT 7 bay restraining cable w/ connection hardware and 8 ea. 3x3x1/4 washer bars	6	2401.98	333000
15	1	GREAT cable guide assembly w/ connection to diaphragm hardware	4	52.89	NA
16	1	GREAT front anchor plate for restraining cable w/ connection to foundation MP-3 anchors	6	387.00	NA
17	1	GREAT rear anchor plate for restraining cable w/ connection to foundation MP-3 anchors	6	387.00	NA
GREAT nose cover and parts					
18	1	GREAT nose cover w/ connection to diaphragm hardware (does not include legs)	3	763.68	341000
19	1	GREAT nose support legs (2 ea.) w/ tabs and connection to nose cover hardware	3	59.34	342000
GREAT chain rail assemblies and parts					
20	1	GREAT 8 ft. 11 in. "A" chain rail section w/ proof coil chains	7	1186.80	NA
21	1	GREAT 9 ft. 3-1/4 in. "A" chain rail section w/ proof coil chains	7		NA
22	1	GREAT 18 ft. "B" chain rail section w/ proof coil chains	7	2463.90	NA
23	1	GREAT 9 ft. "B" or "C" chain rail section w/ proof coil chains	7	632.10	351000
24	1	GREAT 3 ft. "C" chain rail section w/ proof coil chains	7	535.35	352000
25	1	GREAT 6 ft. "C" chain rail section w/ proof coil chains	7	632.10	353000
26	1	GREAT proof coil chain w/ clevis & keeper pin	7	44.38	354000

GREAT backups and parts					
27	1	GREAT NJ barrier 30" metal backup	10		NA
28	1	GREAT NJ barrier 24" uni-directional metal backup	9		NA
29	1	GREAT NJ barrier 24" bi-directional metal backup	10		NA
30	1	GREAT NJ barrier 30" metal backup right attachment bracket w/ attachment to metal backup hardware	10		NA
31	1	GREAT NJ barrier 30" metal backup left attachment bracket w/ attachment to metal backup hardware	10		NA
32	1	GREAT NJ barrier 24 inch uni-directional metal backup right attachment bracket w/ attachment to metal backup hardware (for barrier measuring 6 inches at top)	9		NA
33	1	GREAT NJ barrier 24 inch uni-directional metal backup left attachment bracket w/ attachment to metal backup hardware (for barrier measuring 6 inches at top)	9		NA
34	1	GREAT NJ barrier 24 inch uni-directional metal backup right attachment bracket w/ attachment to metal backup hardware for NJ barrier measuring 7 to 16 inches at top)	9		NA
35	1	GREAT NJ barrier 24 inch uni-directional metal backup left attachment bracket w/ attachment to metal backup hardware for NJ barrier measuring 7 to 16 inches at top)	9		NA
36	1	GREAT NJ barrier 24 inch bi-directional metal backup right attachment bracket w/ attachment to metal backup hardware	10		NA
37	1	GREAT NJ barrier 24 inch bi-directional metal backup left attachment bracket w/ attachment to metal backup hardware	10		NA
38	1	GREAT w-beam post steel backup w/ connection to w-beam post hardware	12		NA
39	1	GREAT 24" tension strut backup w/ 9 ft. 3-1/4 in. section "A" chain roll w/ proof coil chains (24" units)	13		NA
40	1	GREAT 30" tension strut backup w/ 9 ft. 3-1/4 in. section "A" chain roll w/ proof coil chains (30" units)	13		NA
GREAT cartridges and parts					
41	1	GREAT Hexfoam II Type 51 cartridge	NA		371000
42	1	GREAT concrete block backup cartridge support bracket	8		NA
43	1	GREAT NJ barrier metal backup cartridge support bracket w/ connection hardware	11		NA
Energy Absorption Systems Quadguard Attenuators					
Quadguard 24" to 36" units					
Quadguard diaphragms and parts (24" to 36")					
44	1	Quadguard 24" diaphragm w/ monorail guides, cartridge support brackets, and hardware for guides	16	730.14	811100
45	1	Quadguard 30" diaphragm w/ monorail guides, cartridge support brackets, and hardware for guides	15	806.25	811200
46	1	Quadguard 36" diaphragm w/ monorail guides, cartridge support brackets, and hardware for guides	16	864.30	811300
Quadguard nose cover and parts (24" to 36")					
47	1	Quadguard yellow belt nose cover w/ cartridge support bracket, nose support legs, nose attachment brackets, pull-out brackets, and connection to diaphragm hardware (fits 24" and 30" units)	16	1519.62	812100
48	1	Quadguard yellow belt nose cover w/ cartridge support bracket, nose support legs, nose attachment brackets, pull-out brackets, and connection to diaphragm hardware (fits 36" units)	16	1519.62	812100

		Quadguard backups and parts (24" to 36")			
49	1	Quadguard 24" tension strut backup with cartridge support bracket, side panel, and side panel connection hardware.	10	1990.47	NA
50	1	Quadguard 30" tension strut backup with cartridge support bracket, side panel, and side panel connection hardware.	19	2038.20	NA
51	1	Quadguard 36" tension strut backup with cartridge support bracket, side panel, and side panel connection hardware.	19	2115.60	NA
52	1	Quadguard concrete block backup 24" front face w/ side panel and side panel connection hardware.	20	1135.20	NA
53	1	Quadguard concrete block backup 30" front face w/ side panel and side panel connection hardware.	20	1190.67	NA
54	1	Quadguard concrete block backup 36" front face w/ side panel and side panel connection hardware.	20	1270.65	NA
		Quadguard panels and parts (24" to 36")			
55	1	Quadguard quad beam to w-beam transition panel w/ diagonal brace, diagonal brace connection hardware, and connection to post #2 bar washers (24" unit)	23	870.75	814100
56	1	Quadguard quad beam to w-beam transition panel w/ diagonal brace, diagonal brace connection hardware, brace blockouts, and connection to post #2 bar washers (30" unit)	23	870.75	814200
57	1	Quadguard quad beam to w-beam transition panel w/ diagonal brace, diagonal brace connection hardware, brace blockouts, and connection to post #2 bar washers (36" unit)	23	870.75	814300
58	1	Quadguard quad beam to thrie beam transition panel w/ diagonal brace, diagonal brace connection hardware, and connection to post #2 bar washers (24" unit)	24	806.26	814400
59	1	Quadguard quad beam to thrie beam transition panel w/ diagonal brace, diagonal brace connection hardware, brace blockouts, and connection to post #2 bar washers (30" unit)	24	806.26	814500
60	1	Quadguard quad beam to thrie beam transition panel w/ diagonal brace, diagonal brace connection hardware, brace blockouts, and connection to post #2 bar washers (36" unit)	24	806.26	814600

		Quadguard 69" and 90" units			
		Quadguard diaphragms and parts (69" and 90" units)			
61	1	Quadguard 26.50" diaphragm w/ monorail guides, cartridge support brackets, and hardware for guides	26	810.12	821100
62	1	Quadguard 26.95" diaphragm w/ monorail guides, cartridge support brackets, and hardware for guides	26	980.40	821110
63	1	Quadguard 32.80" diaphragm w/ monorail guides, cartridge support brackets, and hardware for guides	26	1019.10	821120
64	1	Quadguard 35.94" diaphragm w/ monorail guides, cartridge support brackets, and hardware for guides	26	1074.57	821130
65	1	Quadguard 39.09" diaphragm w/ monorail guides, cartridge support brackets, and hardware for guides	26	1095.21	821140
66	1	Quadguard 42.24" diaphragm w/ monorail guides, cartridge support brackets, and hardware for guides	26	1154.55	821150
67	1	Quadguard 45.39" diaphragm w/ monorail guides, cartridge support brackets, and hardware for guides (NOTE: For 120" units, use item #89)	26	1180.35	821160
68	1	Quadguard 48.64" diaphragm w/ monorail guides, cartridge support brackets, and hardware for guides	26	1190.67	821170
69	1	Quadguard 50.12" diaphragm w/ monorail guides, cartridge support brackets, and hardware for guides	26	1210.02	821180
70	1	Quadguard 51.69" diaphragm w/ monorail guides, cartridge support brackets, and hardware for guides	26	1219.05	821190
71	1	Quadguard 54.84" diaphragm w/ monorail guides, cartridge support brackets, and hardware for guides	28	1230.66	821200
72	1	Quadguard 57.69" diaphragm w/ monorail guides, cartridge support brackets, and hardware for guides	26	1238.40	821210
73	1	Quadguard 59.67" diaphragm w/ monorail guides, cartridge support brackets, and hardware for guides	26	1270.65	821220
74	1	Quadguard 61.14" diaphragm w/ monorail guides, cartridge support brackets, and hardware for guides	26	1280.97	821230
75	1	Quadguard 64.29" diaphragm w/ monorail guides, cartridge support brackets, and hardware for guides	26	1315.80	821240
76	1	Quadguard 68.07" diaphragm w/ monorail guides, cartridge support brackets, and hardware for guides	26	1354.50	821250
77	1	Quadguard 70.69" diaphragm w/ monorail guides, cartridge support brackets, and hardware for guides	26	1385.46	821260
78	1	Quadguard 73.74" diaphragm w/ monorail guides, cartridge support brackets, and hardware for guides	26	1406.10	821270
79	1	Quadguard 76.89" diaphragm w/ monorail guides, cartridge support brackets, and hardware for guides	28	1425.45	821280
80	1	Quadguard 80.04" diaphragm w/ monorail guides, cartridge support brackets, and hardware for guides	26	1477.05	821290
		Quadguard nose cover and parts (69" and 90" units)			
81	1	Quadguard 69" yellow belt nose cover w/ cartridge support bracket, nose attachment brackets, pullout brackets, nose attachment hardware, pullout bracket hardware, and nose attachment bracket hardware (fits 69" 3-7 bay units)	27	1638.30	822100
82	1	Quadguard 90" yellow belt nose cover w/ cartridge support bracket, nose attachment brackets, pullout brackets, nose attachment hardware, pullout bracket hardware, and nose attachment bracket hardware (fits 69" to 90" units)	27	1638.30	822100

		Quadguard backups and parts (69" and 90")			
83	1	Quadguard tension strut backup w/ side panel, hinge plates, telospar struts, cartridge support bracket, support bracket locking bar, and connection hardware (69" unit)	29	2483.25	NA
84	1	Quadguard tension strut backup w/ side panel, hinge plates, telospar struts, cartridge support bracket, support bracket locking bar, and connection hardware. (90" unit)	29	2599.35	NA
85	1	Quadguard concrete block backup front face w/ hinge plate, side panel, telospar struts, and connection hardware. (69" unit)	30	1615.08	NA
86	1	Quadguard concrete block backup front face w/ hinge plate, side panel, telospar struts, and connection hardware. (90" unit)	30	1740.21	NA
		Quadguard panels and parts (69" and 90")			
87	1	Quadguard quad beam to w-beam transition panel w/ pivot support bracket, support bracket hardware, and connection to post #2 bar washers (69" and 90" units)	31	748.20	824100
88	1	Quadguard quad beam to thrie beam transition panel w/ pivot support bracket, support bracket hardware, and connection to post #2 bar washers (69" and 90" units)	32	825.60	824200
		Quadguard 120" units			
		Quadguard diaphragms and parts (120" units)			
89	1	Quadguard 45.39" diaphragm w/ monorail guides, cartridge support brackets, and hardware for guides	35	1244.85	841100
NA	NA	Quadguard 67.99" diaphragm w/ monorail guides, cartridge support brackets, and hardware for guides USE LINE ITEM 72	26	NA	NA
NA	NA	Quadguard 70.69" diaphragm w/ monorail guides, cartridge support brackets, and hardware for guides USE LINE ITEM 77	26	NA	NA
90	1	Quadguard 82.68" diaphragm w/ monorail guides, cartridge support brackets, and hardware for guides	26	1689.90	841200
91	1	Quadguard 95.31" diaphragm w/ monorail guides, cartridge support brackets, and hardware for guides	26	1950.48	841250
92	1	Quadguard 108" diaphragm w/ monorail guides, cartridge support brackets, and hardware for guides	26	2205.90	841300
		Quadguard backups and parts (120" units)			
93	1	Complete Quadguard tension strut backup w/ center section, right section, left section, side panels, hinge plates, telospar struts, cartridge support bracket, support bracket locking bar, and all connection hardware	33	4773.00	NA
94	1	Replacement 120" Quadguard tension strut backup right section w/ side panels, hinge plates, telospar struts, and all required connection h/w	33	1238.40	NA
95	1	Replacement 120" Quadguard tension strut backup left section w/ side panels, hinge plates, telospar struts, and all required connection h/w	33	1238.40	NA
		Quadguard nose cover and parts (120" units)			
96	1	Quadguard 120" yellow bell nose cover w/ cartridge support bracket, nose attachment brackets, pullout brackets, nose attachment hardware, pullout bracket hardware, and nose attachment bracket hardware (fits 120" units)	27 (installation similar)	1935.00	842100

		Energy Absorption Systems Quadguard - HS Attenuators			
		Quadguard-HS 24" to 36" units			
		Quadguard-HS diaphragms and parts (24" to 36")			
NOTE: SPECIAL DIAPHRAGMS AND DIAPHRAGM COMPONENTS FOR DIAPHRAGMS 1 THRU 3 FROM THE FRONT ARE LISTED BELOW. FOR ALL OTHER PARTS, USE					
97	1	Quadguard-HS 24" diaphragm w/ monorail guides, cartridge support brackets, and hardware for guides (diaphragms 1 thru 3 only)	34	970.08	851100
98	1	Quadguard-HS 30" diaphragm w/ monorail guides, cartridge support brackets, and hardware for guides (diaphragms 1 thru 3 only)	34	1055.22	851200
99	1	Quadguard-HS 36" diaphragm w/ monorail guides, cartridge support brackets, and hardware for guides (diaphragms 1 thru 3 only)	34	1109.40	851300
100	1	Diaphragm #3 bumper assembly with bumper and hardware (for 24" to 36" units)	62	516.00	NA
101	1	Diaphragm #2 bumper/spacer assembly with bumper, spacer, and hardware (for 24" to 36" units)	62	454.08	NA
102	1	Diaphragm #1 spacer assembly with spacer and hardware (for 24" to 36" units)	62	406.35	NA
		Quadguard-HS nose covers (24" to 36")			
103	1	Quadguard-HS yellow bell nose cover w/ nose attachment brackets, pull-out brackets, and connection to diaphragm hardware (fits 24" and 30" units)	80/81	1522.20	852100
104	1	Quadguard-HS yellow bell nose cover w/ nose attachment brackets, pull-out brackets, and connection to diaphragm hardware (fits 36" units)	80/81	1522.20	852200
105	BLANK				
106	BLANK				
		Quadguard common parts (all units)			
		Quadguard panels and parts (all units)			
107	1	Quadguard mushroom bolt assembly	17	51.60	831100
108	1	Quadguard fender panel w/ connection to diaphragm hardware and mushroom bolt assembly	17	503.10	831200
109	1	Quadguard NJ barrier backup left side 4 inch offset transition panel w/ support bracket, and connection to support bracket hardware.	22	599.85	831300
110	1	Quadguard NJ barrier backup right side 4 inch offset transition panel w/ support bracket, and connection to support bracket hardware.	22	599.85	831400
111	1	Quadguard NJ barrier backup left side 9 inch offset transition panel w/ support bracket, and connection to support bracket hardware. (not to be used for traffic approaching rear of unit)	NA	806.25	NA
112	1	Quadguard NJ barrier backup right side 9 inch offset transition panel w/ support bracket and connection to support bracket hardware. (not to be used for traffic approaching rear of unit)	NA	806.25	NA
		Quadguard backups and parts (all units)			
113	1	Quadguard concrete block backup end shoe attachment w/ connection to block MP-3 anchors	21	387.00	832100
114	1	Quadguard concrete block backup wheel deflector w/ connection to block MP-3 anchors	26	322.50	832200
		Quadguard monorails and parts (all units)			
115	1	Quadguard one bay monorail section	18, 28	706.35	833100
116	1	Quadguard two bay monorail section	18, 28	950.09	833200
117	1	Quadguard three bay monorail section	18, 28	1190.67	833300
118	1	Quadguard monorail end cap w/ connection to monorail hardware	18, 28	65.14	833400
		Quadguard cartridges (all units)			
119	1	Quadguard type I cartridge	NA	580.50	834100
120	1	Quadguard type II cartridge	NA	612.75	834200
		Quadguard miscellaneous parts (all units)			
121	1	Quadguard diaphragm cartridge support bracket	28	32.25	835100
122	1	Quadguard flex bell nose clamp	16 / 27 / 70	41.28	NA

		Energy Absorption Systems Quadguard II Attenuators			
		Quadguard II 24" to 48" units			
		Quadguard II diaphragms and parts (24" to 48")			
NOTE: THE STANDARD 48" QUADGUARD DIAPHRAGM BELOW IS UNIQUE TO THE QUADGUARD II SYSTEM, BUT ONLY BASED ON ITS' WIDTH. STANDARD					
123	1	Quadguard-II 48" diaphragm w/ monorell guides, cartridge support brackets, monorell shims, and hardware for guides	15	1244.85	881100
124	1	Quadguard II diaphragm shim for 24" to 48" diaphragms (2 ea. required for each diaphragm)	85	58.05	NA
		Quadguard II nose cover and parts (24" to 48")			
125	1	Quadguard II "narrow" yellow metal nose cover w/ cartridge support brackets and connection to diaphragm hardware (fits 24" to 48" units) * see Item 126 for additional part for 48" unit noses	82	599.85	882100
126	1	Quadguard II "narrow" yellow metal nose cover 12" spacer with connection hardware. (supplemental part required for nose covers used with 48" design width units)	83	619.20	882200
		Quadguard II 69" to 120" units			
		Quadguard II nose cover and parts (69" to 120")			
127	1	Quadguard II "wide" yellow metal nose cover w/ cartridge support brackets and connection to diaphragm hardware (fits 69" to 120" units)	84	625.65	883100

		Complete Quadguard Units			
128	1	Quadguard unit, 3-bay, 24" width, concrete backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	9313.80	NA
129	1	Quadguard unit, 3-bay, 30" width, concrete backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	9513.75	NA
130	1	Quadguard unit, 3-bay, 36" width, concrete backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	10010.40	NA
131	1	Quadguard unit, 3-bay, 69" width, concrete backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	12745.20	NA
132	1	Quadguard unit, 3-bay, 80" width, concrete backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	13525.65	NA
133	1	Quadguard unit, 3-bay, 24" width, tension strut backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	10165.20	NA
134	1	Quadguard unit, 3-bay, 30" width, tension strut backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	10365.15	NA
135	1	Quadguard unit, 3-bay, 36" width, tension strut backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	10850.19	NA
136	1	Quadguard unit, 3-bay, 69" width, tension strut backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	12745.20	NA
137	1	Quadguard unit, 3-bay, 80" width, tension strut backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	18253.50	NA
138	1	Quadguard unit, 6-bay, 24" width, concrete backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	16389.95	NA
139	1	Quadguard unit, 6-bay, 30" width, concrete backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	16886.10	NA
140	1	Quadguard unit, 6-bay, 36" width, concrete backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	17395.65	NA
141	1	Quadguard unit, 6-bay, 69" width, concrete backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	20949.60	NA

142	1	Quadguard unit, 6-bay, 90" width, concrete backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	22155.75	NA
143	1	Quadguard unit, 6-bay, 120" width, concrete backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	33765.75	NA
144	1	Quadguard unit, 6-bay, 24" width, tension strut backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	17247.30	NA
145	1	Quadguard unit, 6-bay, 30" width, tension strut backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	17731.05	NA
146	1	Quadguard unit, 6-bay, 36" width, tension strut backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	18240.60	NA
147	1	Quadguard unit, 6-bay, 69" width, tension strut backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	20949.60	NA
148	1	Quadguard unit, 6-bay, 80" width, tension strut backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	22149.30	NA
149	1	Quadguard unit, 6-bay, 120" width, tension strut backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	33765.75	NA
150	1	Quadguard-HS unit, 24" width, concrete backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	24800.25	NA
161	1	Quadguard-HS unit, 30" width, concrete backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	25380.75	NA
162	1	Quadguard-HS unit, 36" width, concrete backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	26199.90	NA
153	1	Quadguard-HS unit, 24" width, tension strut backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	25651.65	NA
154	1	Quadguard-HS unit, 30" width, tension strut backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	26232.15	NA
155	1	Quadguard-HS unit, 36" width, tension strut backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	27044.85	NA

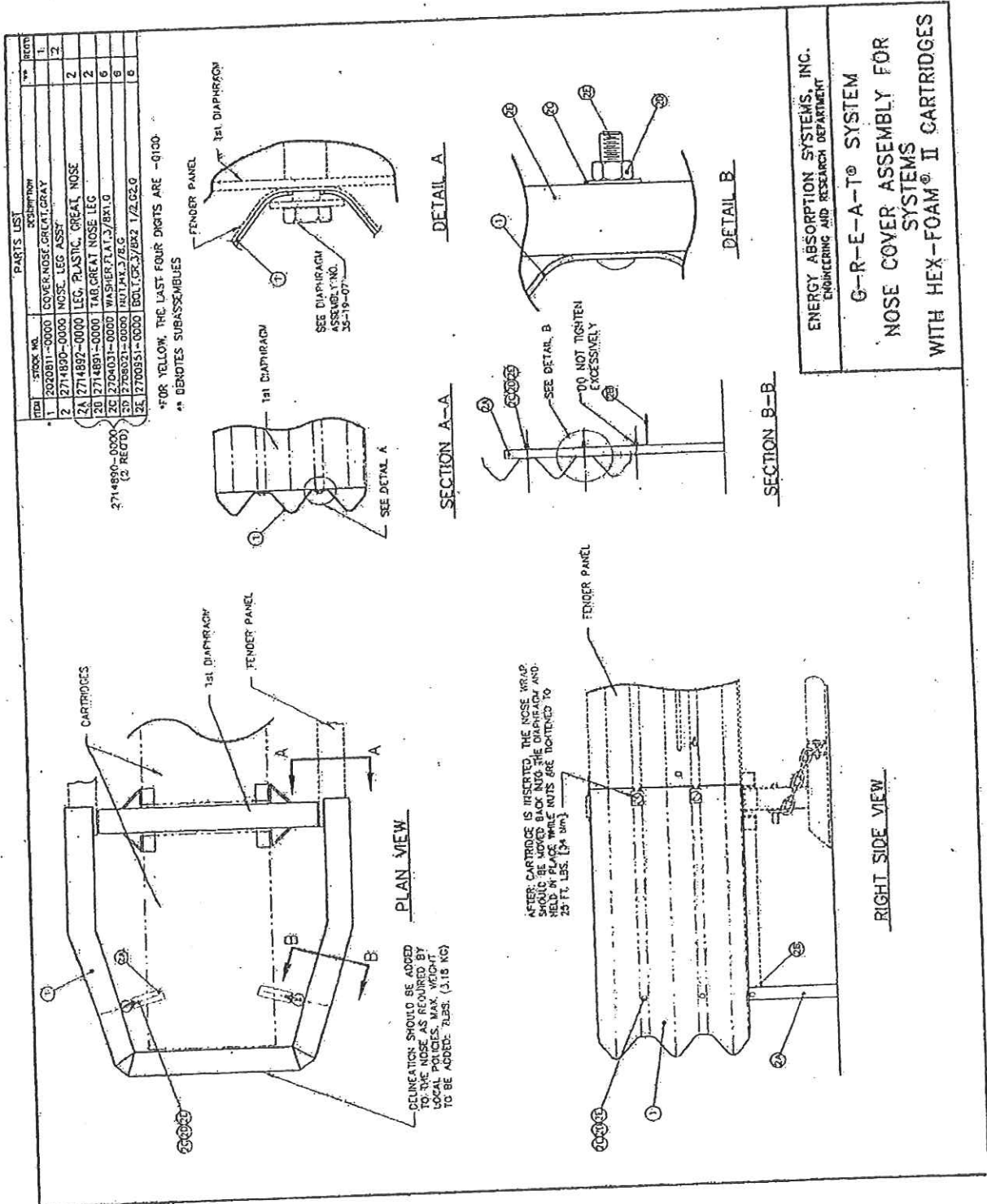
166	1	Quadguard-II unit, 2-bay, 24" width, concrete backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	8094.75	NA
167	1	Quadguard-II unit, 2-bay, 30" width, concrete backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	8339.85	NA
158	1	Quadguard-II unit, 2-bay, 36" width, concrete backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	8572.05	NA
169	1	Quadguard-II unit, 2-bay, 48" width, concrete backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	8933.25	NA
160	1	Quadguard-II unit, 2-bay, 24" width, tension strut backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	9049.35	NA
161	1	Quadguard-II unit, 2-bay, 30" width, tension strut backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	9288. ⁰⁰	NA
162	1	Quadguard-II unit, 2-bay, 36" width, tension strut backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	9507.30	NA
163	1	Quadguard-II unit, 2-bay, 48" width, tension strut backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	10023.30	NA
164	1	Quadguard-II unit, 5-bay, 24" width, concrete backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	15699.30	NA
165	1	Quadguard-II unit, 5-bay, 30" width, concrete backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	15996. ⁰⁰	NA
166	1	Quadguard-II unit, 5-bay, 36" width, concrete backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	16544.25	NA
167	1	Quadguard-II unit, 5-bay, 48" width, concrete backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	17150.55	NA
168	1	Quadguard-II unit, 5-bay, 69" width, concrete backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	18356.70	NA
169	1	Quadguard-II unit, 5-bay, 90" width, concrete backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	19408.05	NA

170	1	Quadguard-II unit, 6-bay, 126" width, concrete backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	34397.85	NA
171	1	Quadguard-II unit, 6-bay, 24" width, tension strut backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	16653.90	NA
172	1	Quadguard-II unit, 6-bay, 30" width, tension strut backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	16944.15	NA
173	1	Quadguard-II unit, 6-bay, 36" width, tension strut backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	17492.40	NA
174	1	Quadguard-II unit, 6-bay, 48" width, tension strut backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	18240.60	NA
175	1	Quadguard-II unit, 6-bay, 69" width, tension strut backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	19317.75	NA
176	1	Quadguard-II unit, 6-bay, 90" width, tension strut backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	20356.20	NA
177	1	Quadguard-II unit, 6-bay, 126" width, tension strut backup installation (to include all parts, components, hardware, anchoring studs, and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	34397.85	NA

		Trinity Industries TRACC Attenuators			
		TRACC common parts			
		Base components			
178	1	TRACC base module assembly (part # 25982A) pre-assembled w/ cross ties, nut holder plates, & shoulder studs. Does not include rip plates or doubler plates.	49, 60	1925.67	NA
179	1	Left end shoe (part # 25955A) w/ attachment h/v	49, 60	1507.76	NA
180	1	Right end shoe (part # 25954A) w/ attachment h/v	49, 60	150.76	NA
181	1	Front anchor weldment (part # 25956A) w/ attachment h/v.	49, 60	394.39	NA
182	1	3'-1" rear extension plate (part # 25961G) w/ attachment h/v (for 9-bay units)	49, 60	222.47	NA
183	1	2'-0 1/2" rear extension plate (part # 25995G) w/ attachment h/v (for 6-bay units)	65, 66	134.50	NA
		9-bay unit rip plate components			
184	1	Rip plate, stage 3, bottom (part # 25964G)	49, 60	219.63	211100
185	1	Rip plate, stage 3, middle (part # 25965G)	49, 60	215.82	211150
186	1	Rip plate, stage 3, top (part # 25966G)	49, 60	215.82	211200
187	1	Rip plate, stage 2, (part # 25963G)	49, 60	207.92	211260
		6-bay unit rip plate components			
188	1	Rip plate, stage 3, bottom (part # 25993G)	65, 66	211.46	211300
189	1	Rip plate, stage 3, middle (part # 25992G)	65, 66	211.46	211350
190	1	Rip plate, stage 3, top (part # 25991G)	65, 66	207.10	211400
191	1	Rip plate, stage 2, (part # 25990G)	65, 66	196.20	211450
		doubler plates			
192	1	doubler plate (part # 25960G) w/ removable bolts.	49, 60	938.62	211600
193	1	11-1/2" rear doubler plate for 6-bay unit only (part # 25996G) w/ removable bolts	65, 66	147.19	211650
		fender panels			
194	1	"two-bay" fender panel (part # 25973) w/ attachment to diaphragm and adjacent fender panel h/v	61, 62, 63, 64	342.92	212100
195	1	"one-bay" fender panel (part # 25974) w/ attachment to diaphragm and adjacent fender panel h/v	61, 62, 63, 64	329.27	212160
		sled and frames (diaphragms)			
196	1	24" frame (diaphragm) (part # 25971)	61, 62, 63, 64	417.83	213100
197	1	24" front sled (part # 25970) w/ shredder assembly (part # 25976) pre-assembled	61, 62, 63, 64	2846.46	213160
198	1	shredder assembly (part # 25976) w/ hitch pin clip (part # 3253) and 3/4" x 2" clevis pin (part # 4425)	61, 62, 63, 64	241.54	213200
199	1	24" end frame (part # 25972A) w/ connection to 24" concrete block h/v, connection to NJ shape h/v (including transition adaptor (part # PC33356G) & adaptor connection to wall h/v), & connection to constant slope barrier h/v.	43, 44, 45, 46, 47, 48, 61, 62	1155.75	NA
200	1	end frame (part # 33405 - 1/2 of split end frame for 33" and 39" units) w/ connection to barrier h/v (33" and 39" only)	67, 68	827.02	NA
201	1	1-1/2" WT-Frame extension (part # 33406) w/ connection to frame h/v (33" units only)	67, 68	192.76	213250
202	1	3" WT-Frame extension (part # 33471) w/ connection to frame h/v (39" units only)	69, 60, 61	335.33	213300
203	1	WT-Joint plate (part # 33467) w/ 3x1/4 fender panel plate and connection h/v (39" units only)	69, 60, 61	145.01	213350
		TRACC to w-beam transition components			
204	1	Lower end Upper W-beam (part # PC33344A) w/ connection to end frame h/v & splice connection h/v	36, 37	1195.86	214100
205	1	W-beam (part # PC105G) w/ splice connection h/v	36, 37	334.54	214160
206	1	Backup post (post # 1) (part # PC664G) w/ connection to end frame h/v	36, 37	225.85	NA
207	1	Backup post (post # 1) w/ end plate (part # PC33345A) w/ connection to end frame h/v	36	577.18	NA
208	1	Support post (post # 2, 3) (part # PC33393G)	36, 37	396.07	NA
209	1	Support post (post # 4-9) (part # PC33346G)	36, 37	177.40	NA
210	1	Wood block (part # PC6144B) w/ connection to support post and beam h/v	36, 37	82.07	NA
211	1	Wood block (part # PC6142B) w/ connection to support post and beam h/v	36, 37	81.92	NA
212	1	Wood block (part # PC6145B) w/ connection to support post and beam h/v	36, 37	54.17	NA
213	1	Wood block (part # PC6146B) w/ connection to support post and beam h/v	36, 37	50.71	NA
214	1	Wood block (part # PC6147B) w/ connection to support post and beam h/v	36, 37	51.49	NA
216	1	Wood block (part # PC6143B) w/ connection to support post and beam h/v	36, 37	52.84	NA
216	1	Wood block (part # PC6141B) w/ connection to support post and beam h/v	36, 37	53.02	NA

TRACC to thru beam transition components					
217	1	Right transition panel (part # PC33371A) w/ connection to end frame h/v and splice h/v	39, 40	963.08	214200
218	1	Left transition panel (part # PC33372A) w/ connection to end frame h/v and splice h/v	39, 40	963.08	214250
219	1	Backup post (post #1) (part # PC504G) w/ connection to end frame h/v	39, 40	226.37	NA
220	1	Backup post (post #1) w/ end plate (part # PC33345A) w/ connection to end frame h/v	41	577.70	NA
221	1	Steel Support post (post # 2-4) (part # PC33346G)	39, 40	261.00	NA
222	1	Wood block (part # PC6143) w/ connection to support post and beam h/v (for use w/ steel supports)	39, 40	52.84	NA
223	1	Wood Support post (post # 2-4) (part # PC6137B)	42	109.00	NA
224	1	Wood block (part # PC6138B) w/ connection to support post and beam h/v (for use with wood supports)	42	54.48	NA
TRACC to 24" concrete block transition components					
225	1	24" concrete block end shoe (part # PC33367G) w/ connection to barrier h/v	43, 44	358.26	214300
TRACC to NJ barrier transition components					
226	1	Lower W-beam (part # PC33360A) w/ connection to end frame h/v	45, 46	474.17	214350
227	1	Lower terminal (part # PC33380G) w/ connection to barrier and beam h/v	45, 46	223.36	214400
228	1	Upper W-beam (part # PC33359A) w/ connection to end frame h/v, wood blocks (part numbers PC6135B and PC6136B), and wood block connection h/v	45, 46	494.16	214450
229	1	Upper terminal (part # PC33380G) w/ connection to barrier and beam h/v	45, 46	223.36	214500
TRACC to single slope barrier components					
230	1	Lower W-beam (part # PC33360A) w/ connection to end frame h/v	47, 48	327.00	214550
231	1	Upper W-beam (part # PC33359A) w/ connection to end frame h/v, wood blocks (part numbers PC6533B and PC6534B), and wood block connection h/v	47, 48	436.00	214600
232	1	Upper and Lower terminal (part # PC926G) w/ connection to barrier and beam h/v	47, 48	163.50	214650
TRACC miscellaneous hardware					
233	1	1/2" cable clamp (part # 4324)	69, 60, 61	8.72	215100
234	1	W1-cable clamp plate (part # 33470)	69, 60, 61	119.90	215150
235	1	1/2" cable (part # 6713)	69, 60, 61	337.90	215200
236	1	plate washer assembly w/ 5/8 bolt (part # 5306), 3 ea. plate washers (part # 19737), 5/8 fw (part # 4372), and 5/8 nut (part # 3361)	61, 62, 63, 64	42.51	215250
TRACC nose cover					
237	1	TRACC plastic nose piece w/ attachment hardware (part # 6532B)	69	381.50	215300
Complete TRACC Units					
238	1	TRACC unit, NCHRP-350 Test Level 2, 24" width, to be delivered pre-assembled (to include all anchoring studs and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	10,900.00	NA
239	1	TRACC unit, NCHRP-350 Test Level 3, 24" width, to be delivered pre-assembled (to include all anchoring studs and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	13,625.00	NA
240	1	TRACC unit, NCHRP-350 Test Level 2, 30" width, to be delivered pre-assembled (to include all anchoring studs and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	10,900.00	NA
241	1	TRACC unit, NCHRP-350 Test Level 3, 30" width, to be delivered pre-assembled (to include all anchoring studs and anchoring stud epoxy required for concrete installation) THIS ITEM MAY ONLY BE ORDERED BY THE TRAFFIC ENGINEERING DIVISION	NA	14,388.00	NA

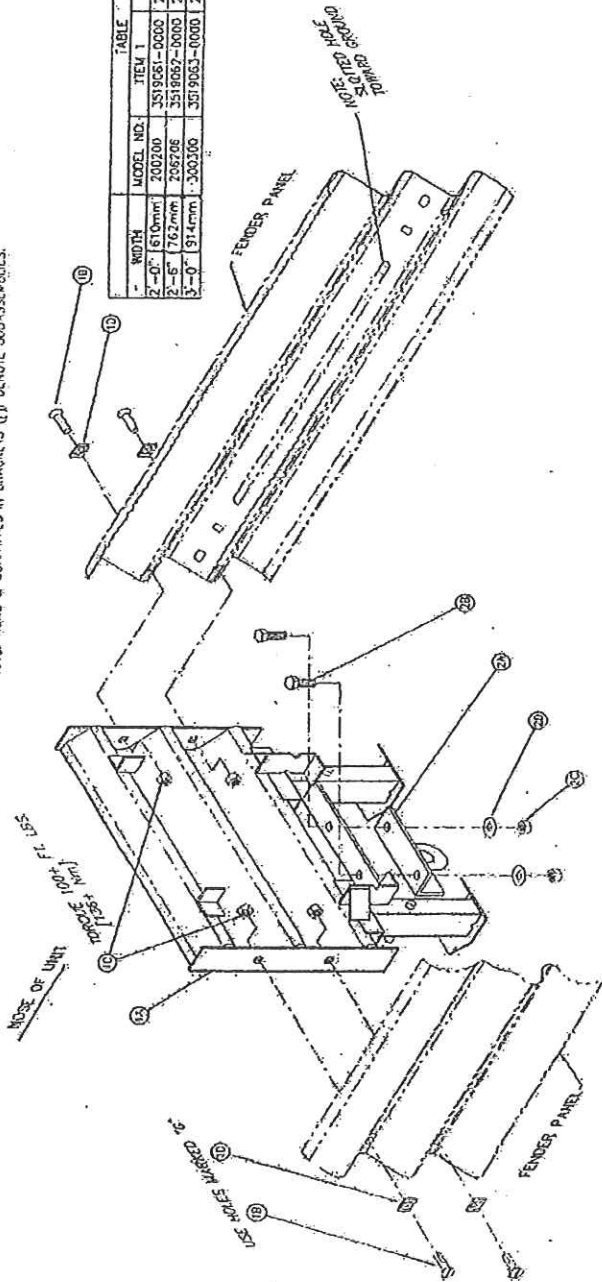
**PAGES 1 THROUGH 2
NOT INCLUDED**



ITEM	STOCK NO.	PARTS LIST											
		1	2	3	4	5	6	7	8	9	10	11	12
1	SEE TABLE	DIAPHRAGM ASSY. TB											
1A	SEE TABLE	DIAPHRAGM TB											
1B	2706781-0000	SCREW, FLAT, SLOTTED, 3/4 x 2, C											
1C	2704091-0000	NUT, HK, 3/4 x 2, C											
1D	2708791-0000	WASHER, FENDER PANEL											
2	2753240-0000	CABLE GUIDE ASSY. GREAT											
2A	2753241-0000	CABLE GUIDE, GREAT											
2B	2700011-0000	BOLT, HK, 3/4 x 2, GS, C											
2C	2704091-0000	NUT, HK, 3/4 x 2, C											
2D	2708081-0000	WASHER, FLAT, 3/4 x 2, C											

NOTE: ITEMS & QUANTITIES IN BRACKETS () DENOTE SUBASSEMBLIES.

TABLE		
WIDTH	MODEL NO.	ITEM 1 (ITEM 1A)
2'-0"	2002000	3519061-0000 2772061-0000
2'-6"	206706	3519062-0000 2772071-0000
3'-0"	3001000	3519063-0000 2772081-0000



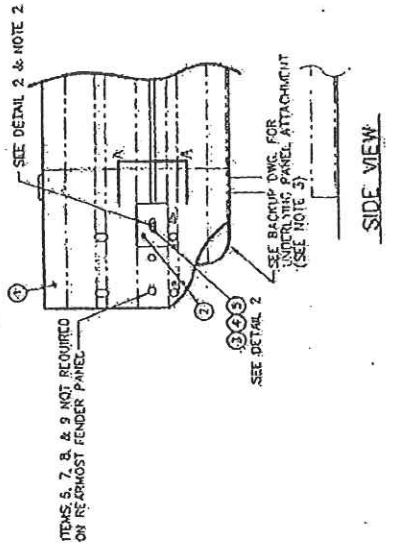
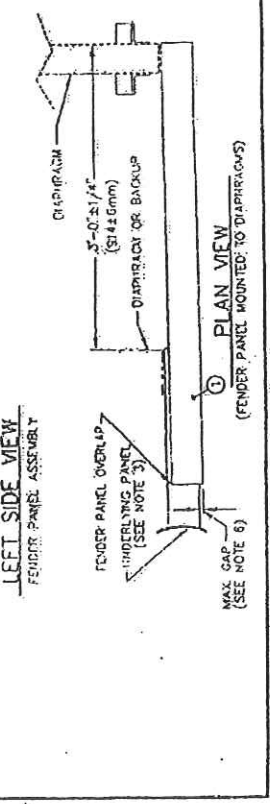
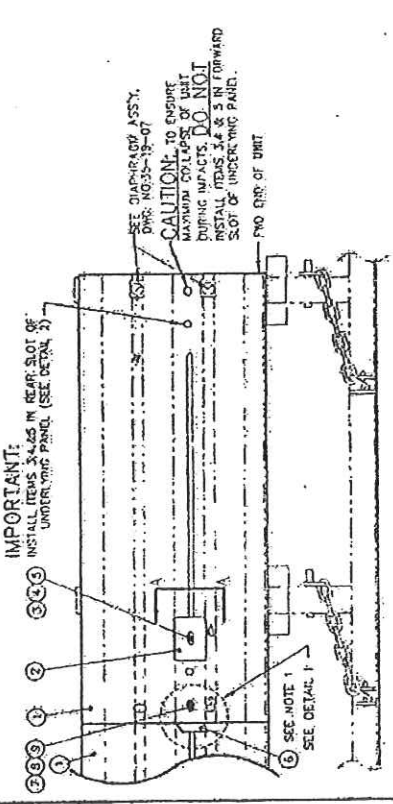
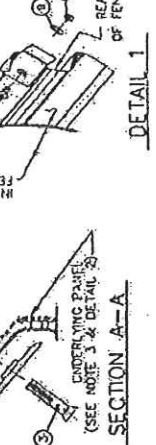
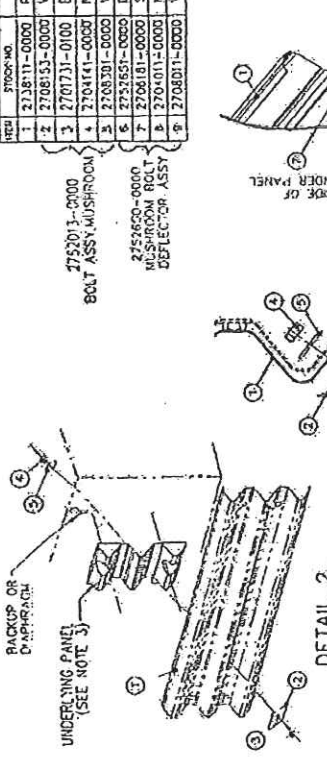
ENERGY ABSORPTION SYSTEMS, INC.
ENGINEERING AND RESEARCH DEPARTMENT

G-R-E-A-T® SYSTEM
DIAPHRAGM ASSEMBLY
FOR
HEX-FOAM® II CARTRIDGES

- NOTES:
1. RESTRAINING CABLE GUIDE ASSEMBLY (ITEMS 2A, 2B, 2C, & 2D) REQUIRED ON FIRST DIAPHRAGM ONLY, ON 3 BAY UNITS. REQUIRED ON FRONT TWO DIAPHRAGMS ONLY, 4 BAY UNITS AND LONGER.

PARTS LIST		NO. OF BAYS											
ITEM	DESCRIPTION	1	2	3	4	5	6	7	8	9	10	11	12
1	273811-0000 PANEL, TB FENDER	2	4	6	8	10	12	14	16	18	20	22	24
2	270813-0000 WASHCOIL MUSHROOM FORGED C.	2	4	6	8	10	12	14	16	18	20	22	24
3	270711-0100 BOLT FL S/BX1 C&P ALLEN SOCKET	2	4	6	8	10	12	14	16	18	20	22	24
4	270411-0000 MUSHROOM DEFLECTOR	2	4	6	8	10	12	14	16	18	20	22	24
5	270311-0000 WASHCOIL MUSHROOM	2	4	6	8	10	12	14	16	18	20	22	24
6	272651-0000 DEFLECTOR MUSHROOM BOLT	2	4	6	8	10	12	14	16	18	20	22	24
7	270611-0000 SCREW FL S/2X1 SLOTTED C.	0	2	4	6	8	10	12	14	16	18	20	22
8	270411-0000 MUSHROOM DEFLECTION ASSY	0	2	4	6	8	10	12	14	16	18	20	22
9	2708011-0000 WASHCOIL FL S/2X1 3/8 G	0	2	4	6	8	10	12	14	16	18	20	22

- NOTES:**
- ITEM 6 TO BE BOLTED TO ITEM 1, BEFORE ITEM 1 IS INSTALLED.
 - ITEM 4 TO BE INSTALLED AND TIGHTENED, USING A 3/8" (10mm) ALLEN WRENCH AND TORQUE WRENCH TO 60 Lb-ft ±10% (81.5 Nm ± 13 Nm).
 - 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.
 - WARNING: THE MUSHROOM DEFLECTORS MUST BE USED ON ALL EXCEPT THE LAST PANEL TO USE THE MUSHROOM DEFLECTORS. CAUSE THE FENDER PANELS TO CATCH ON THE MUSHROOM WASHERS DURING AN IMPACT.
 - WARNING: DO NOT FASTEN THE LAST FENDER PANEL TOO CLOSE TO THE LAST PANEL WITH ADDITIONAL SCREW FL S/2X1 SLOTTED C. THE LAST PANEL MUST BE ABLE TO SLIDE TO ALLOW THE LAST CARTRIDGE TO BE CRUSHED.
 - MAXIMUM GAP: 1/4" (6mm) MAX. ON ANY SIDE, WHERE TRAFFIC APPROACHES FROM REAR. 1/2" (13mm) MAX. ON ANY SIDE, WHERE TRAFFIC APPROACHES FROM HEAD-ON.

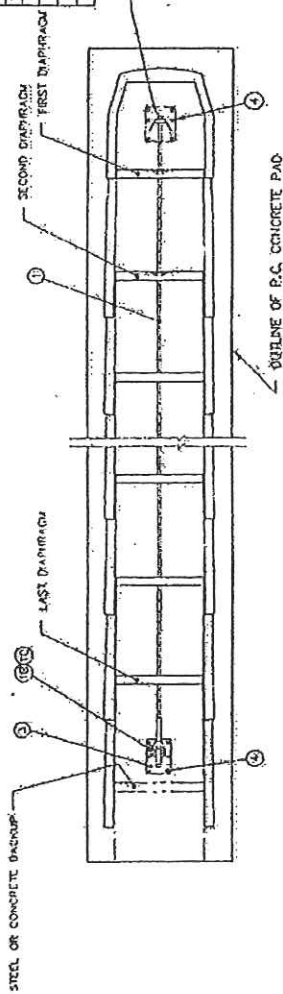


ENERGY ABSORPTION SYSTEMS, INC.
ENGINEERING AND RESEARCH DEPARTMENT

G-R-E-A-T® SYSTEM
THREE-BEAM FENDER
PANEL ASSEMBLY

ITEM	STOCK NO.	DESCRIPTION	QTY
1	SEE TABLE A	CABLE, RESTRAINING, 7/8" φ	1
1A	12704121-0000	NUT, PK. 1 1/2" G	1
1B	12702021-0000	CLIPS PK. 1 5/8" X 1 5/16"	1
1C	12702023-0000	PK. COLLAR, 3/16" X 2 1/2"	1
2	12752511-0000	ANCHOR, CABLE, (STUD END)	1
3	12752512-0000	ANCHOR, CABLE	1
4	13525120-0000	ANCHOR, MP-3 KIT, 3/4" X 6 1/2"	2
8	12708491-0000	WASHER, BAR, 3 X 3 X 1/4, O	6

* DENOTES SUBSEQUENCES
 IF NECESSARY, TO TENSION CABLE, USE BAR WASHER(S), (ITEM 8) BETWEEN FRONT ANCHOR AND NUT (ITEMS 2 AND 1A) THROUGH NUT TO APPROXIMATELY 150 FT LBS. [2032N]



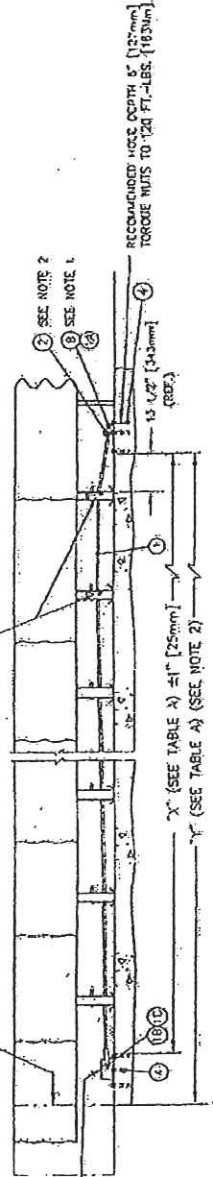
PLAN

(CARTRIDGES NOT SHOWN)

ASSEMBLY NO.	CASE PART NO.	NO. OF BAYS	"X"	"Y"	CABLE LENGTH
3506090-0400	2742111-0000	4	17'-7 1/4" (5337mm)	13'-1 1/2" (401mm)	13'-0" (3962mm)
3506090-0500	2742112-0000	5	18'-7 1/4" (5691mm)	16'-1 1/2" (4915mm)	16'-0" (4877mm)
3506090-0600	2742113-0000	6	17'-7 1/4" (5338mm)	19'-1 1/2" (5820mm)	19'-0" (5791mm)
3506090-0700	2742114-0000	7	20'-7 1/4" (6280mm)	22'-1 1/2" (6776mm)	22'-0" (6706mm)
3506090-0800	2742115-0000	8	23'-7 1/4" (7194mm)	25'-1 1/2" (7658mm)	25'-0" (7620mm)
3506090-0900	2742116-0000	9	26'-7 1/4" (8099mm)	28'-1 1/2" (8573mm)	28'-0" (8535mm)
3506090-1000	2742117-0000	10	27'-7 1/4" (8425mm)	31'-1 1/2" (9487mm)	31'-0" (9449mm)
3506090-1100	2742118-0000	11	30'-7 1/4" (9330mm)	34'-1 1/2" (10401mm)	34'-0" (10363mm)
3506090-1200	2742119-0000	12	35'-7 1/4" (10856mm)	37'-1 1/2" (11330mm)	37'-0" (11292mm)

INSERT RESTRAINING CABLE THROUGH THE RESTRAINING CABLE GUIDES ON THE FIRST AND SECOND DIAPHRAGMS SEE DWG. 35-19-C7.

FRONT FACE OF BACKUP



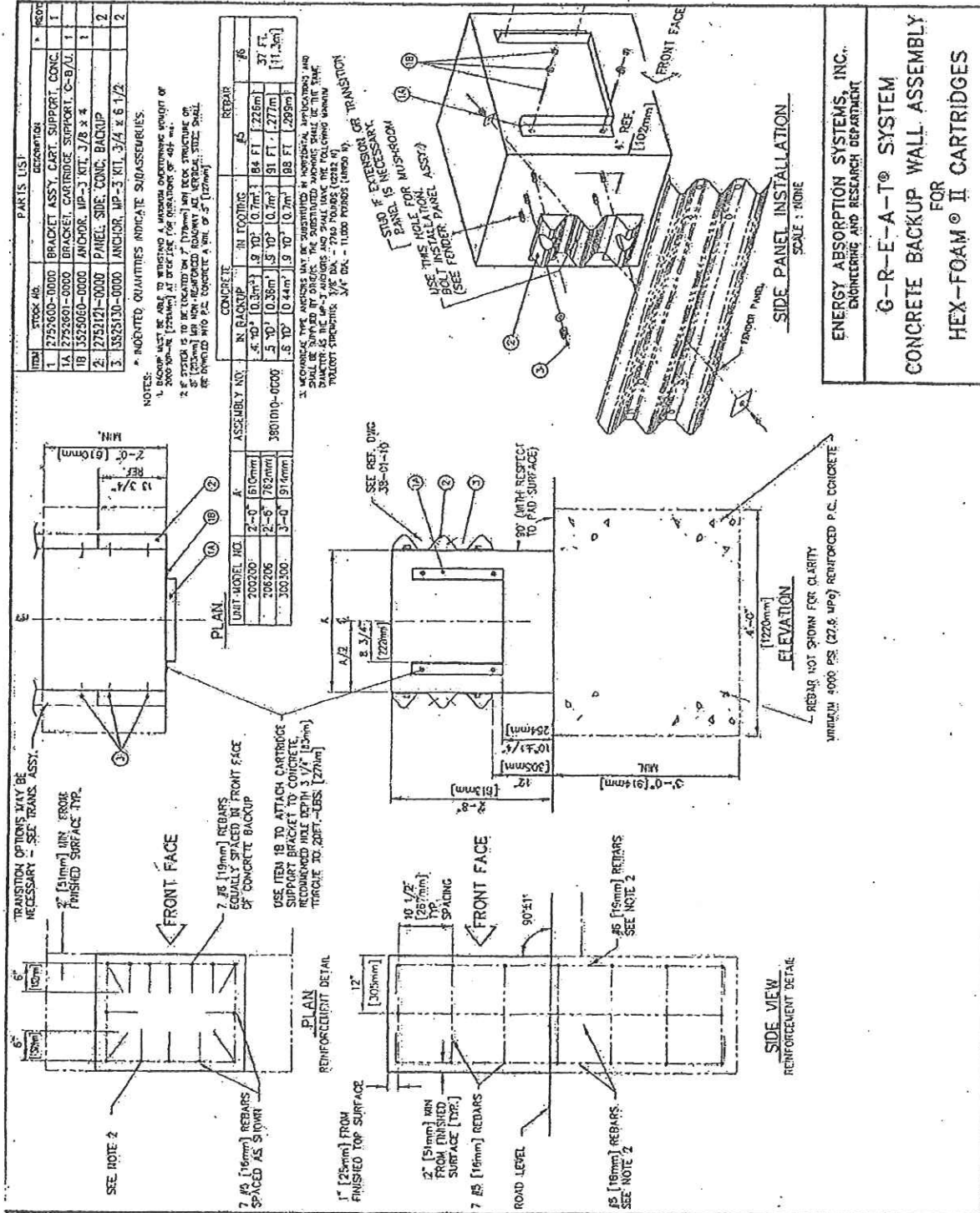
ELEVATION

TYPICAL 6-BAY UNIT SHOWN. SEE TABLE A FOR OTHER SIZES. FOR CLARITY, ANCHOR CHAINS AND NUTS NOT SHOWN.

- NOTES:
1. USE ITEM 8 AS REQUIRED FOR SHK.
 2. FRONT AND REAR ANCHORAGE MAY BE SIMULTANEOUS. "MOVED REARWARD 3" (76mm) TO AVOID REAR.

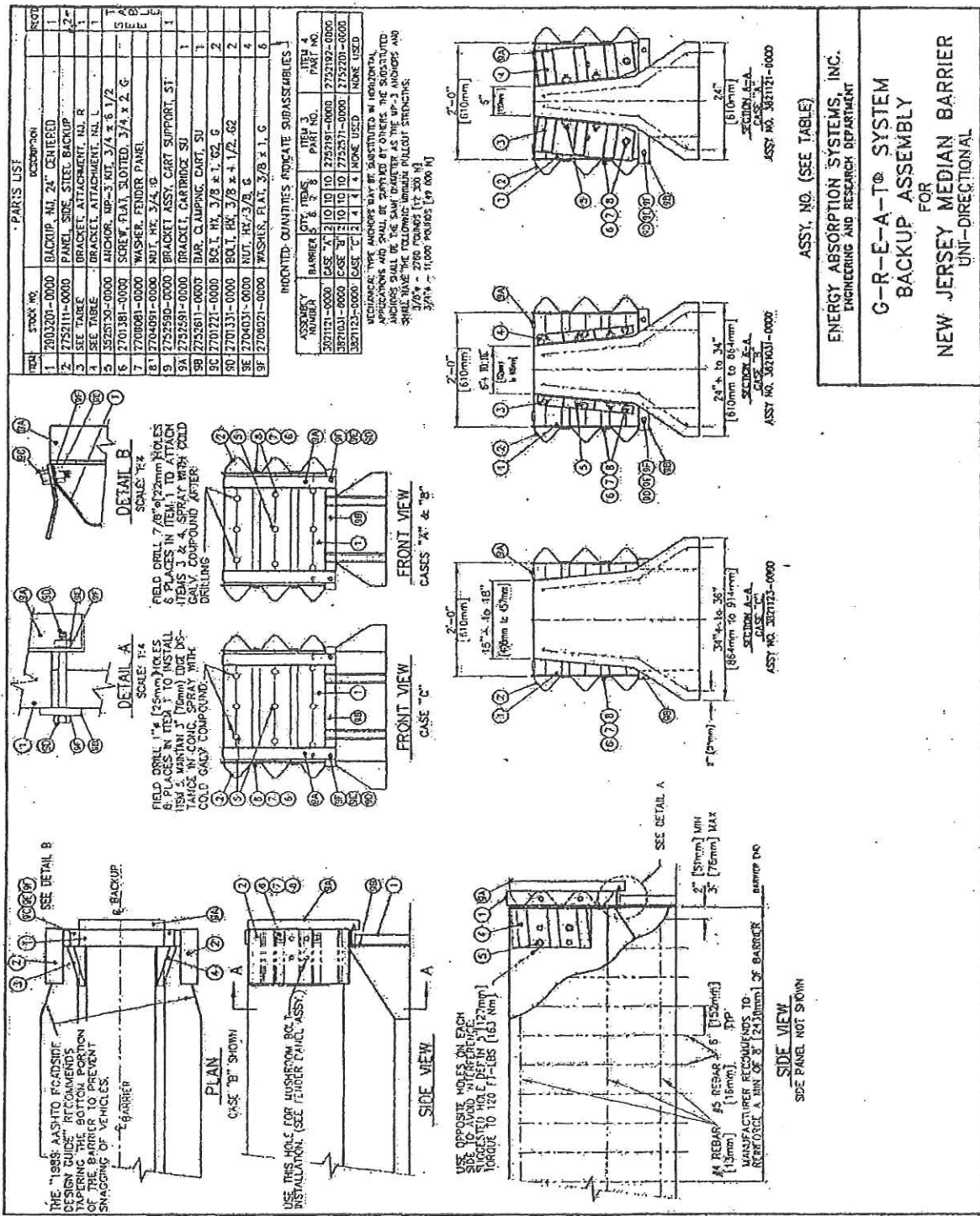
ENERGY ABSORPTION SYSTEMS, INC.
 ENGINEERING AND RESEARCH DEPARTMENT

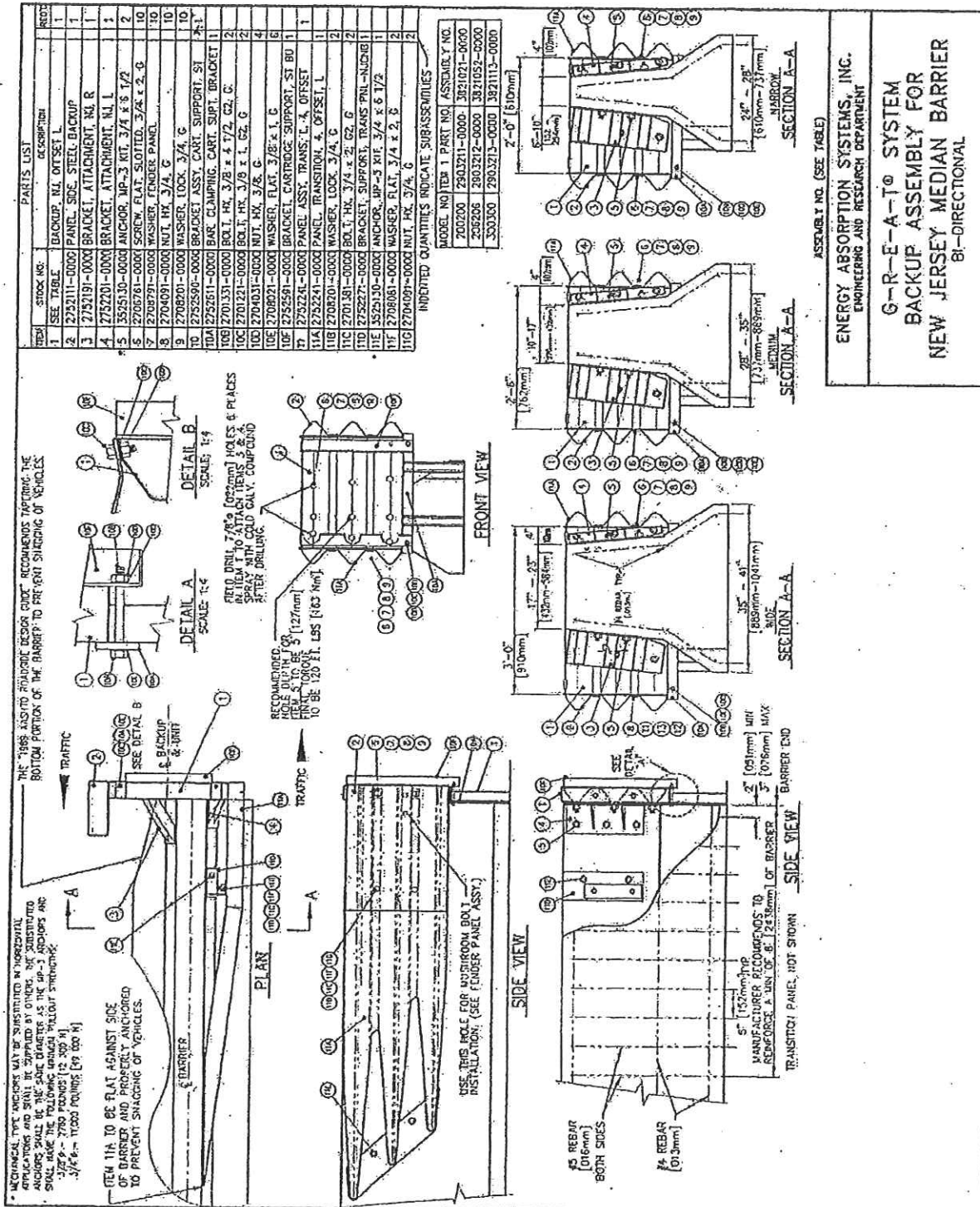
G-R-E-A-T[®] SYSTEM
RESTRAINING CABLE
ANCHOR ASSEMBLY
4-12 BAY SYSTEMS



ENERGY ABSORPTION SYSTEMS, INC.
 ENGINEERING AND RESEARCH DEPARTMENT
 G-R-E-A-T® SYSTEM
 CONCRETE BACKUP WALL ASSEMBLY
 FOR
 HEX-FOAM® II CARTRIDGES

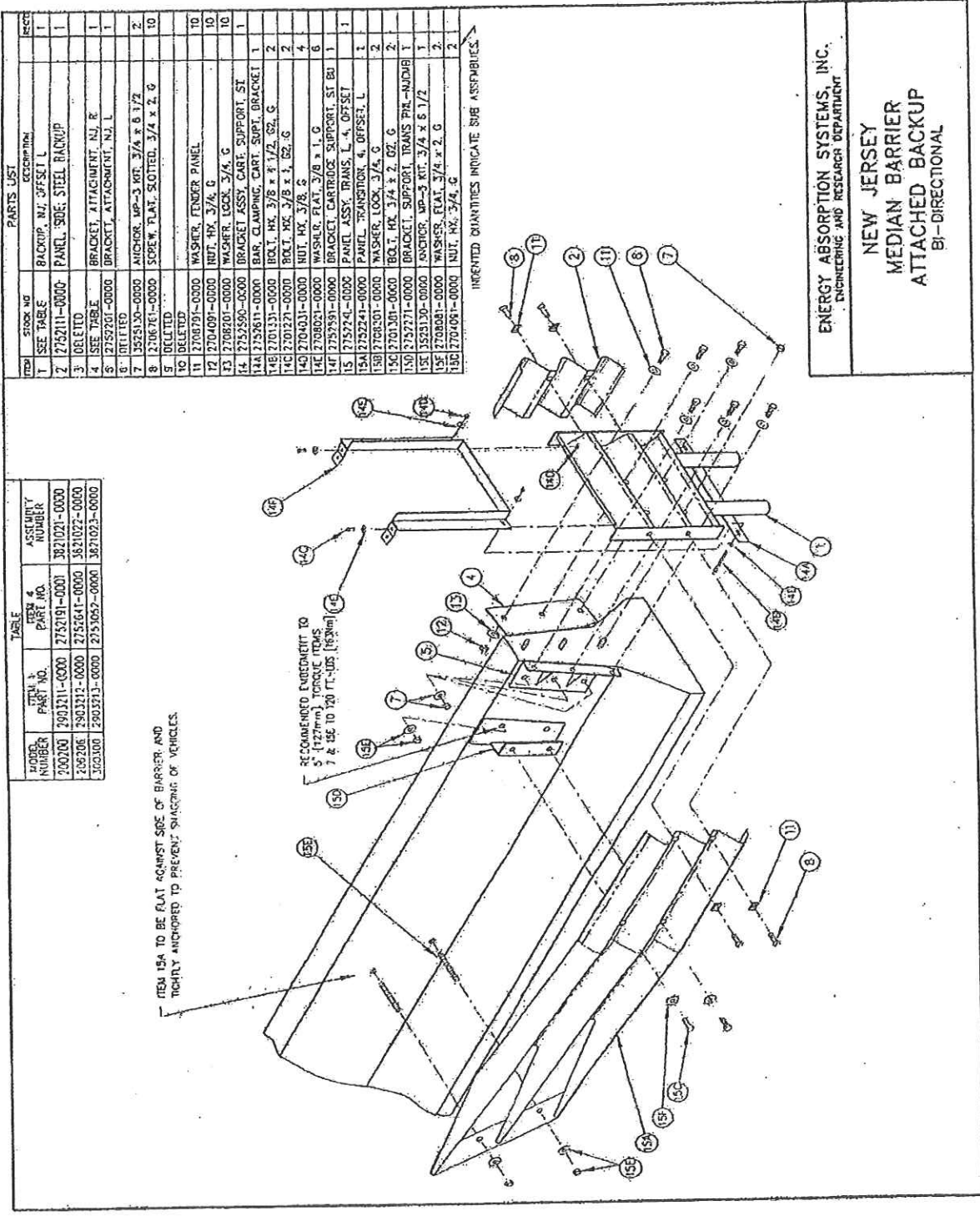






ITEM	STOCK NO.	DESCRIPTION	QTY
1	2732111-0000	BACKUP, N.J. OFFSET L	1
2	2732111-0000	PANEL, SIDE, STEEL, BACKUP	1
3	2732191-0000	BRACKET, ATTACHMENT, N.J. R	1
4	2732201-0000	BRACKET, ATTACHMENT, N.J. L	1
5	3525100-0000	ANCHOR, HP-3 KIT, 3/4" x 8 1/2"	2
6	2706781-0000	SCREW, FLAT, SLOTTED, 3/8" x 2, G	10
7	2706791-0000	WASHER, FENDER PANEL	10
8	2704091-0000	NUT, N.J. 3/4, G	10
9	2706790-0000	WASHER, LOCK, 3/4, G	10
10	2752590-0000	BRACKET ASSY, CART, SUPPORT, SJ	1
10A	2752591-0000	BAR, CLAMPING, CART, SUPP, BRACKET	1
10B	2701531-0000	BOLT, N.J. 3/8 x 4 1/2, GZ, C	2
10C	2701231-0000	BOLT, N.J. 3/8 x 1, GZ, G	2
10D	2704031-0000	NUT, N.J. 3/8, G	4
10E	2706791-0000	WASHER, FLAT, 3/8" x 1, G	6
10F	2752591-0000	BRACKET, CARTRIDGE, SUPPORT, SJ BU	1
11	2752241-0000	PANEL, TRANSITION, 4, OFFSET	1
11A	2752241-0000	PANEL, TRANSITION, 4, OFFSET, L	1
11B	2708201-0000	WASHER, LOCK, 3/4, G	2
11C	2701581-0000	BOLT, N.J. 3/4 x 2, GZ, G	2
11D	2752271-0000	BRACKET, SUPPORT, TRANS PNL-NJDRIB1	1
11E	3525100-0000	ANCHOR, HP-3 KIT, 3/4" x 6 1/2"	1
11F	2706781-0000	WASHER, FLAT, 3/4" x 2, G	2
11G	2704091-0000	NUT, N.J. 3/4, G	2

MODEL NO	ITEM 1 PART NO	ASSEMBLY NO.
200200	2903211-0000	3821021-0000
200206	2903212-0000	3821052-0000
300300	2903213-0000	3821113-0000



TABLE

WORK NUMBER	PART NO.	REV 4 PART NO.	ASSEMBLY NUMBER
200700	2903211-0000	2752791-0001	3821021-0000
205706	2903212-0000	2752641-0000	3821022-0000
302100	2903213-0000	2752652-0000	3821023-0000

PARTS LIST

ITEM	STOCK NO	DESCRIPTION	QTY
1	SEE TABLE	BACKUP, NJ, OFFSET, L	1
2	2752711-0000	PANEL, SIDE, STEEL, BACKUP	1
3	DELETED		
4	SEE TABLE	BRACKET, ATTACHMENT, NJ, R	1
5	2752701-0000	BRACKET, ATTACHMENT, NJ, L	1
6	DELETED		
7	3525130-0000	ANCHOR, WP-3 KIT, 3/4" x 6 3/2"	2
8	2706761-0000	SOE W. FLAT, SCOTTED, 3/4" x 2, G	10
9	DELETED		
10	DELETED		
11	2706791-0000	WASHER, FENDER, PANEL	10
12	2704091-0000	NUT, HK, 3/4, G	10
13	2706701-0000	WASHER, LOCK, 3/4, G	10
14	2752590-0000	BRACKET, ASSY, CART, SUPPORT, ST	1
14A	2752611-0000	BAR, CLAMPING, CART, SUPRT, BRACKET	1
14E	2701531-0000	BOLT, HK, 3/8" x 1 1/2, G2, G	2
14G	2701521-0000	BOLT, HK, 3/8" x 1, G2, G	2
14H	2704031-0000	NUT, HK, 3/8, S	4
14I	27526021-0000	WASHER, FLAT, 3/8" x 1, G	6
14J	27525931-0000	BRACKET, CART, HOOD, SUPPORT, ST, BU	1
15	2752741-0000	PANEL, TRANSITION, L-4, OFFSET	1
15A	27526241-0000	PANEL, TRANSITION, 4, OFFSET, L	1
15B	2706701-0000	WASHER, LOCK, 3/4, G	2
15C	2701301-0000	BOLT, HK, 3/4" x 2, G2, G	2
15D	2752771-0000	BRACKET, SUPPORT, TRANS, PNL-NJ, SUB	1
15E	3525130-0000	ANCHOR, WP-3 KIT, 3/4" x 6 1/2"	1
15F	2706081-0000	WASHER, FLAT, 3/4" x 2, G	2
15G	2704091-0000	NUT, HK, 3/4, G	2

INVENTED QUANTITIES INDICATE SUB ASSEMBLIES.

ENERGY ABSORPTION SYSTEMS, INC.
 ENGINEERING AND RESEARCH DEPARTMENT

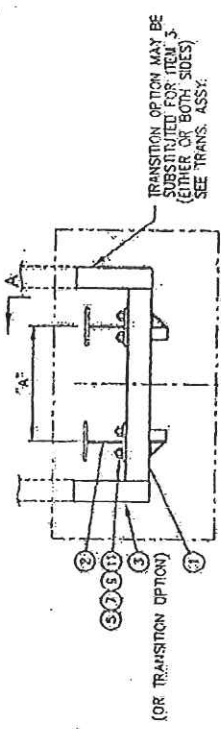
NEW JERSEY
 MEDIAN BARRIER
 ATTACHED BACKUP
 BI-DIRECTIONAL

ITEM	STOCK NO.	DESCRIPTION	QTY
1	SEE TABLE	BACKUP, WF. 24", 30", 36"	1
2	2903311-0000	POST, WF. 74"	2
3	2752111-0000	PANEL SIDE, STEEL BACKUP	2
5	2706761-0000	SCREW, FLAT, SLOTTED, 3/4" x 2, G	12
7	2704091-0000	MIL. HA. 3/4, G	12
8	2706791-0000	WASHER, FORWARD PANEL	12
9	2706791-0000	WASHER, LOCK, 3/4, G	12
B			

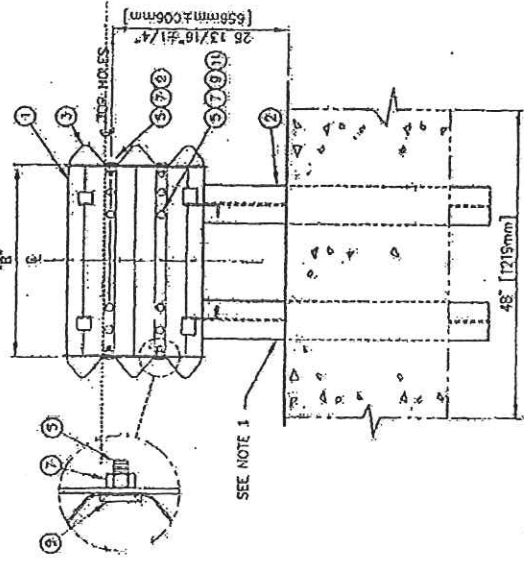
INDENTED QUANTITIES INDICATE SUB ASSEMBLIES.

MODEL NUMBER	ASSEMBLY NUMBER	PART NO. 1	A"	B"
208200	3831011-0000	2903321-0000	1'-0" (305mm)	2'-0" (610mm)
208206	3831012-0000	2903322-0000	1'-6" (457mm)	2'-6" (762mm)
300300	3831013-0000	2903323-0000	2'-0" (610mm)	3'-0" (914mm)

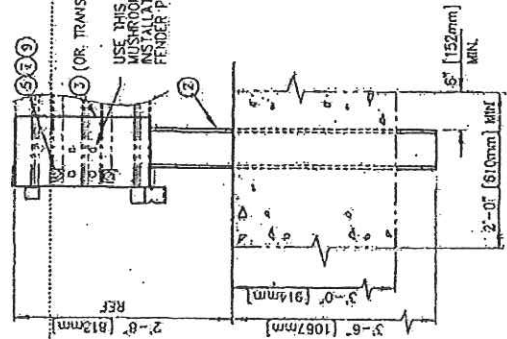
TABLE



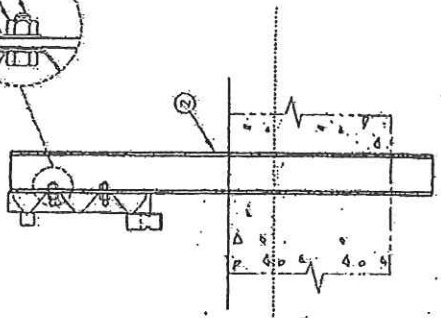
TOP VIEW



FRONT VIEW



SIDE VIEW



SECTION A-A

ASSEMBLY NO. (SEE TABLE)

ENERGY ABSORPTION SYSTEMS, INC.
ENGINEERING AND RESEARCH DEPARTMENT

G-R-E-A-T® SYSTEM
WIDE FLANGE BACKUP
ASSEMBLY

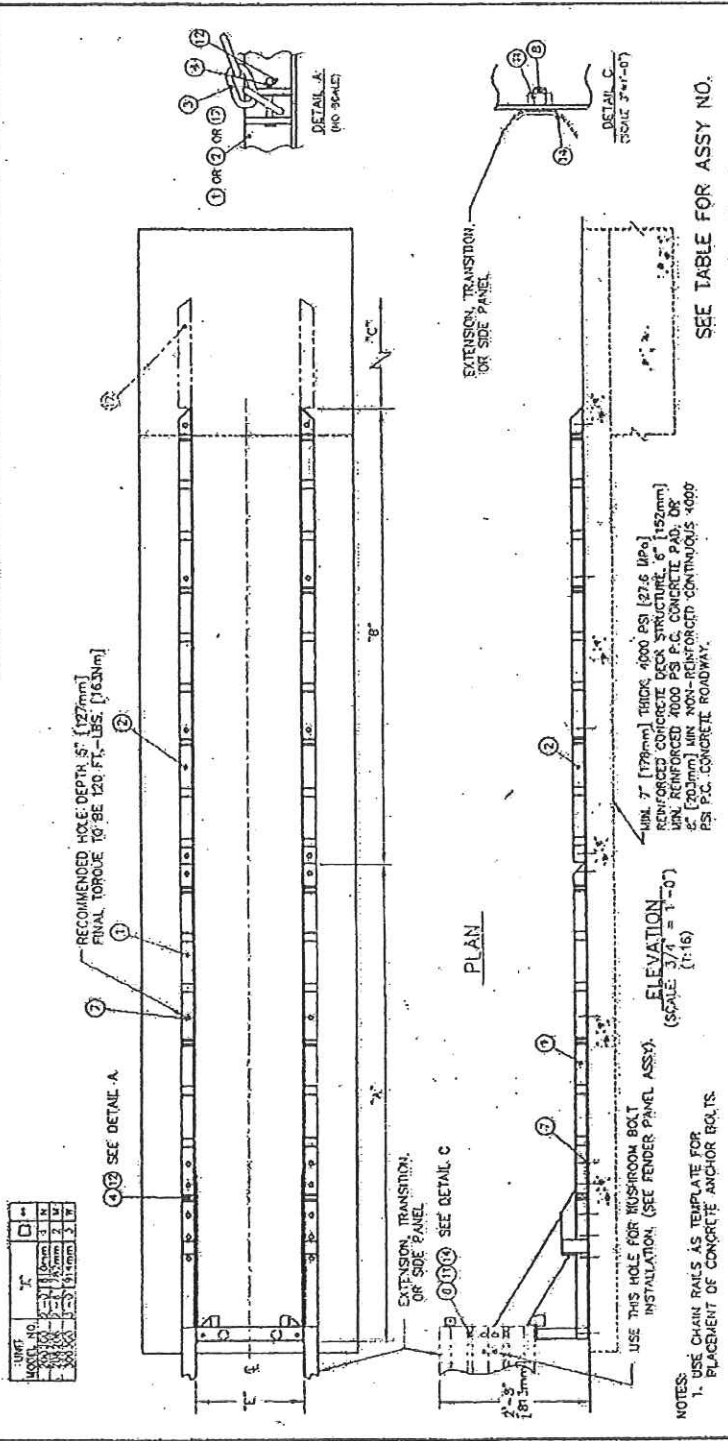
FOR HEX FOAM® II CARTRIDGES

NOTE:
1. PRE-ASSEMBLE BACKUP (ITEM 1) TO WF POSTS (ITEM 2) PRIOR TO EMBEDDING IN CONCRETE.

SEE PAGE 26 FOR FORWARD PAD DETAILS

TABLE 1

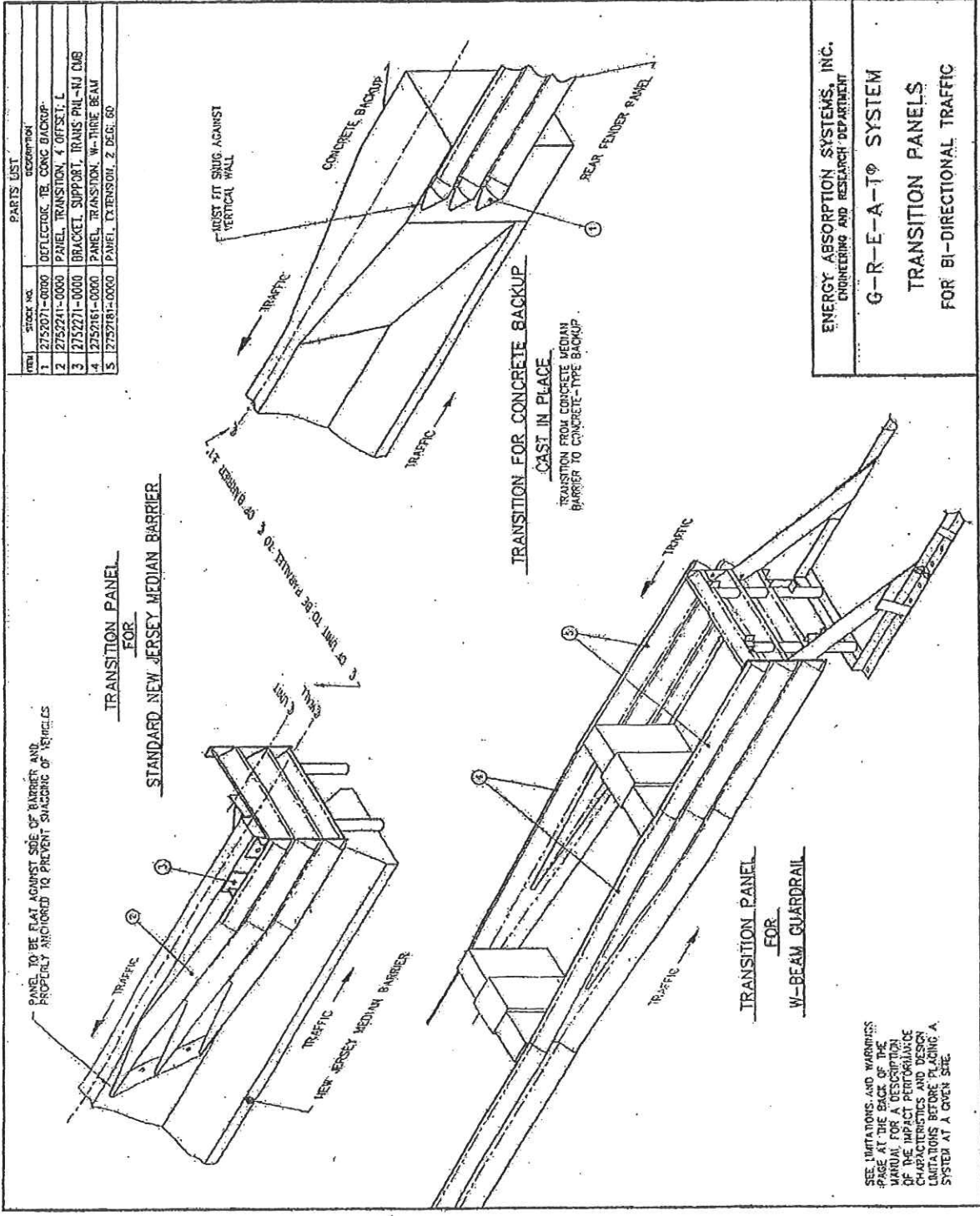
ASSEMBLY NO.	NO. OF CHAIN RAILS	RAIL LENGTH	W. OTH. Ø	"B" (ITEM 2)	"C" (ITEM 17)
341011-0000	1	8'-3 1/4" (2527mm)	Ø 3 1/4" (86mm)	11'-0" (3353mm)	Ø 1 1/2" (38mm)
341012-0000	2	8'-3 1/4" (2527mm)	Ø 3 1/4" (86mm)	11'-0" (3353mm)	Ø 1 1/2" (38mm)
341013-0000	3	8'-3 1/4" (2527mm)	Ø 3 1/4" (86mm)	11'-0" (3353mm)	Ø 1 1/2" (38mm)
341014-0000	4	8'-3 1/4" (2527mm)	Ø 3 1/4" (86mm)	11'-0" (3353mm)	Ø 1 1/2" (38mm)
341015-0000	5	8'-3 1/4" (2527mm)	Ø 3 1/4" (86mm)	11'-0" (3353mm)	Ø 1 1/2" (38mm)
341016-0000	6	8'-3 1/4" (2527mm)	Ø 3 1/4" (86mm)	11'-0" (3353mm)	Ø 1 1/2" (38mm)
341017-0000	7	8'-3 1/4" (2527mm)	Ø 3 1/4" (86mm)	11'-0" (3353mm)	Ø 1 1/2" (38mm)
341018-0000	8	8'-3 1/4" (2527mm)	Ø 3 1/4" (86mm)	11'-0" (3353mm)	Ø 1 1/2" (38mm)
341019-0000	9	8'-3 1/4" (2527mm)	Ø 3 1/4" (86mm)	11'-0" (3353mm)	Ø 1 1/2" (38mm)
341020-0000	10	8'-3 1/4" (2527mm)	Ø 3 1/4" (86mm)	11'-0" (3353mm)	Ø 1 1/2" (38mm)
341021-0000	11	8'-3 1/4" (2527mm)	Ø 3 1/4" (86mm)	11'-0" (3353mm)	Ø 1 1/2" (38mm)
341022-0000	12	8'-3 1/4" (2527mm)	Ø 3 1/4" (86mm)	11'-0" (3353mm)	Ø 1 1/2" (38mm)
341023-0000	13	8'-3 1/4" (2527mm)	Ø 3 1/4" (86mm)	11'-0" (3353mm)	Ø 1 1/2" (38mm)
341024-0000	14	8'-3 1/4" (2527mm)	Ø 3 1/4" (86mm)	11'-0" (3353mm)	Ø 1 1/2" (38mm)
341025-0000	15	8'-3 1/4" (2527mm)	Ø 3 1/4" (86mm)	11'-0" (3353mm)	Ø 1 1/2" (38mm)
341026-0000	16	8'-3 1/4" (2527mm)	Ø 3 1/4" (86mm)	11'-0" (3353mm)	Ø 1 1/2" (38mm)
341027-0000	17	8'-3 1/4" (2527mm)	Ø 3 1/4" (86mm)	11'-0" (3353mm)	Ø 1 1/2" (38mm)



SEE TABLE FOR ASSY NO.

ENERGY ABSORPTION SYSTEMS, INC.
ENGINEERING AND RESEARCH DEPARTMENT

G-R-E-A-T® SYSTEM
TENSION STRUT BACKUP &
CHAIN RAIL ASSEMBLY



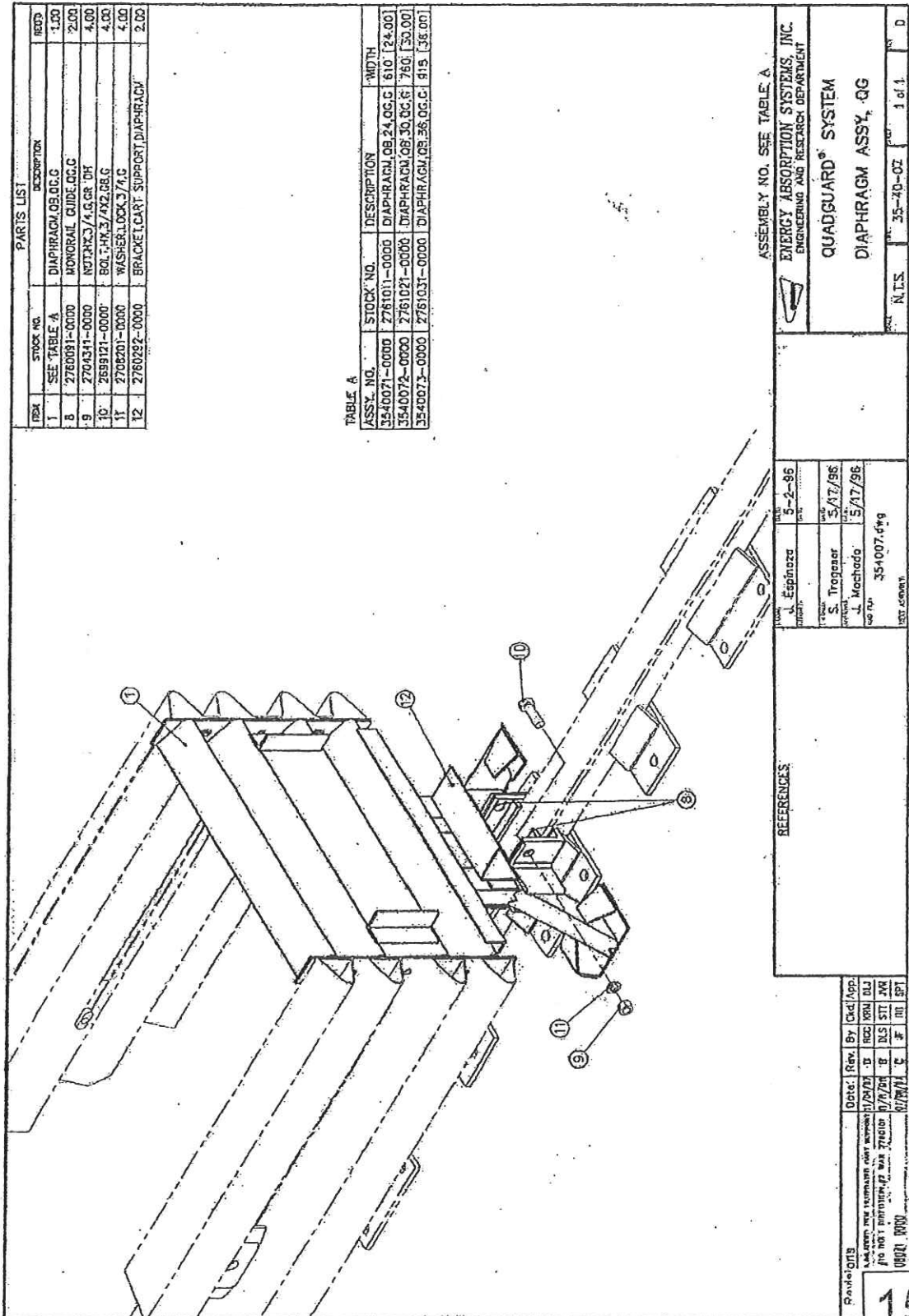
PARTS LIST

ITEM	Stock No.	Description
1	2752071-0000	REFLECTOR, TR. CONC BACKUP.
2	2752241-0000	PANEL, TRANSITION, 4' OFFSET, L
3	2752271-0000	BRACKET SUPPORT, TRANS PHU-NJ DMB
4	2752161-0000	PANEL, TRANSITION, W-THREE BEAM
5	2752181-0000	PANEL, EXTENSION, 2' DEG, GO

ENERGY ABSORPTION SYSTEMS, INC.
 ENGINEERING AND RESEARCH DEPARTMENT
G-R-E-A-T[®] SYSTEM
TRANSITION PANELS
FOR BI-DIRECTIONAL TRAFFIC

SEE LIMITATIONS AND WARNINGS PAGE AT THE BACK OF THE MANUAL FOR A DESCRIPTION OF THE IMPACT PERFORMANCE CHARACTERISTICS AND DESIGN LIMITATIONS BEFORE PLACING A SYSTEM AT A GIVEN SITE.

**QUADGUARD SYSTEM
FOR NARROW HAZARDS**



PARTS LIST			
ITEM	STOCK NO.	DESCRIPTION	QTY
1	SEE TABLE A	DIAPHRAGM, QG, QG.C	1.00
8	2760091-0000	MONORAIL GUIDE, QG.C	2.00
9	2760431-0000	ROTOR, 3/4" G, GR, DH	4.00
10	2699121-0000	BOL, 1/4" X 3/4" X 2, GR, C	4.00
11	2760201-0000	WASHER, LOCK, 3/4", C	4.00
12	2760292-0000	BRACKET, CART, SUPPORT, DIAPHRAGM	2.00

TABLE A

ASSY. NO.	STOCK NO.	DESCRIPTION	WIDTH
3540071-0000	2761011-0000	DIAPHRAGM, QG, 24, QG.C	610 (24.00)
3540072-0000	2761021-0000	DIAPHRAGM, QG, 30, QG.C	760 (30.00)
3540073-0000	2761031-0000	DIAPHRAGM, QG, 36, QG.C	915 (36.00)

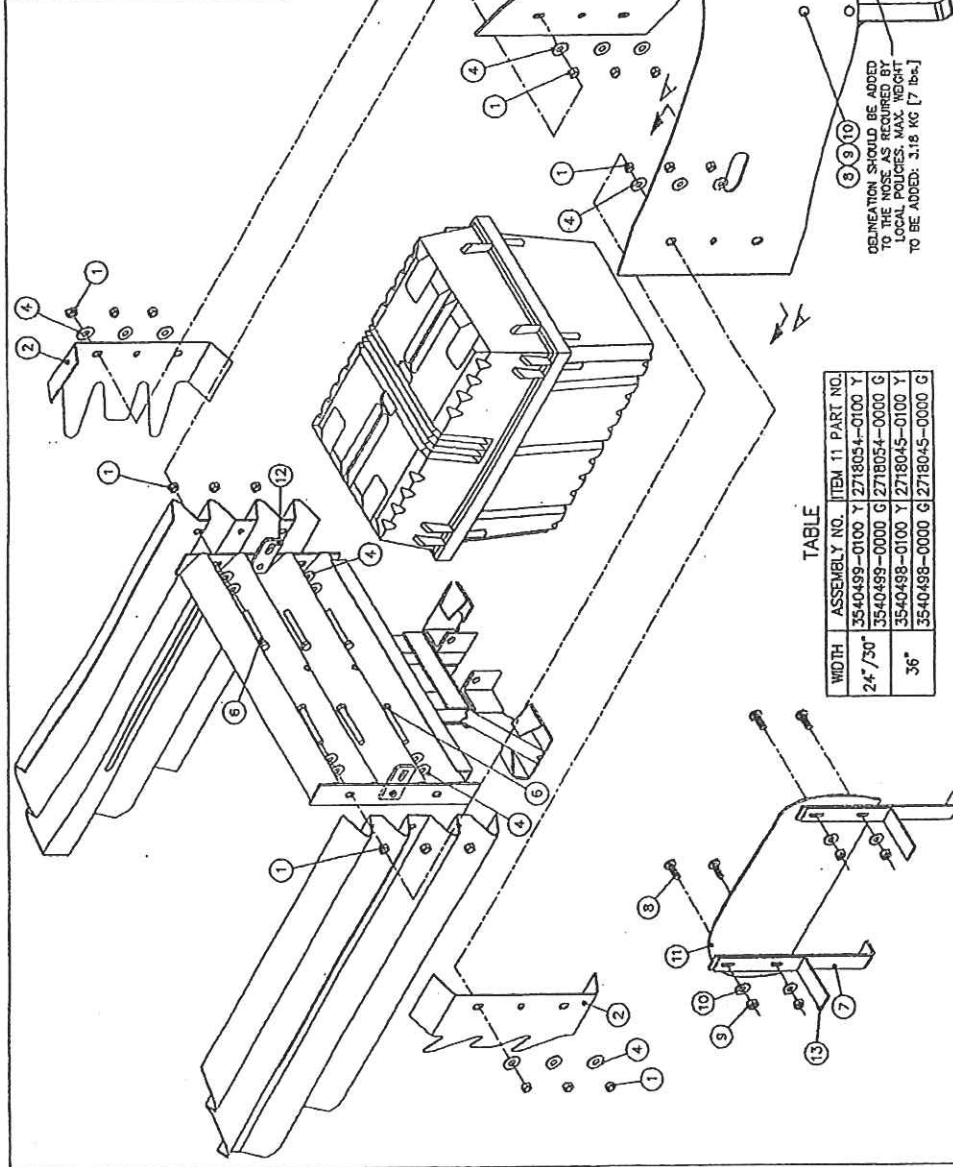
ASSEMBLY NO. SEE TABLE A
ENERGY ABSORPTION SYSTEMS, INC.
 ENGINEERING AND RESEARCH DEPARTMENT
QUADGUARD® SYSTEM
DIAPHRAGM ASSY., QG

DATE: 5-2-86
 DESIGNED BY: J. Espinoza
 CHECKED BY: S. Tropezar
 DATE: 5/17/96
 DRAWN BY: J. Mochado
 DATE: 5/17/96
 PART NO.: 35-1007.dwg
 REV. 0000

REFERENCES

Date	Rev.	By	Chk/ App.
11/24/77	D	RCC	KRM
1/7/78	B	B.S.	STL
1/24/78	C	JM	SP

ITEM	STOCK NO.	DESCRIPTION	QTY
1	2704141-0000	NUT,HX.5/8,G	18.0
2	2760504-0000	CLAMP,BELT,LMC	2.00
4	2708291-0000	WASHER,FLAT,5/8X1.3/4,C	20.0
6	2701994-0000	BOLT,HX.5/8X5.6S,G,ALL THREAD	6.00
7	2714953-0000	LEG,SUPPORT,30 DEG BEND,FLEX BELT,CG,C	2.00
8	2700131-0000	BOLT,LEV.3/8X1.1/4,GZ,G	4.00
9	2704031-0000	NUT,HX.3/8,G	4.00
10	2706021-0000	WASHER,FLAT,3/8X1,G	4.00
11	SEE TABLE	BELT,NOSE GUARD,PARALLEL	1.00
12	2760251-0000	BRACKET,PULL OUT,CG	2.00
13	2714954-0000	CARTRIDGE,SUPPORT LEG BRACKET,ADJUSTABLE	2.00



WIDTH	ASSEMBLY NO.	ITEM 11 PART NO.
24" / 30"	3540499-0100 Y	2718054-0100 Y
	3540499-0000 G	2718054-0000 G
36"	3540499-0100 Y	2718045-0100 Y
	3540499-0000 G	2718045-0000 G

ASSEMBLY NO. (SEE TABLE)
ENERGY ABSORPTION SYSTEMS, INC.
 ENGINEERING AND RESEARCH DEPARTMENT
QUADGUARD® SYSTEM
 NOSE ASSY, QG, 24, 30, 36, ALSO
 QG CZ ON A PLATE, W/BELTING

DATE	BY	APP.
12/28/98	D. Steus	
12/30/98	BB	
12/30/98	SPT	

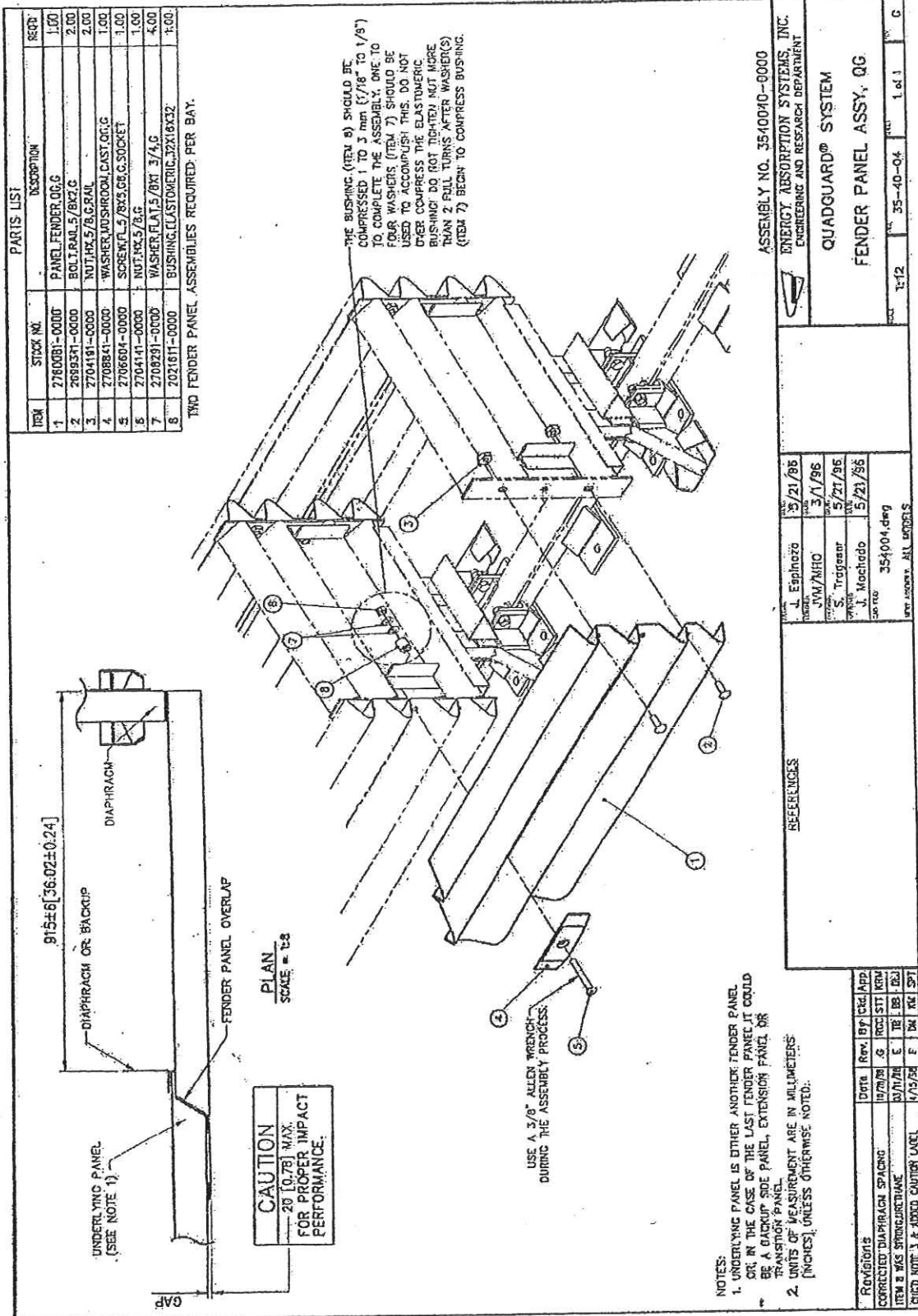
via file: 354049.dwg
 part number: 35-40-49

DATE	REV.	BY	CHK.	APP.
10/27/03	D	LWC	RCB	ACF
4/13/00	C	DK	BB	/

ITEM 7 WAS 2714932-0000, ADD ITEM 13
 DRAWING WAS 3540499-0000
 QUANTITY OF THIS PART WAS 2000000

1 of 1

16



PARTS LIST

ITEM	STOCK NO.	DESCRIPTION	REQD.
1	2760081-0000	PANEL FENDER QG.C	1.00
2	2689371-0000	BOLT RA1.5/8X2.G	2.00
3	2704181-0000	NUT HK.5/8.G.RAL	2.00
4	2708841-0000	WASHER WASHROCK CAST QG.C	1.00
5	2706804-0000	SCREW FL.5/8X3.06.G.SOCKET	1.00
6	2704141-0000	NUT HK.5/8.G	1.00
7	2708291-0000	WASHER FLA1.5/8X1.3/4.G	4.00
8	2021811-0000	BUSHING ELASTOMERIC 32X18X32	1.00

TWO FENDER PANEL ASSEMBLIES REQUIRED PER BAY.

THE BUSHING (ITEM 8) SHOULD BE COMPRESSED 1 TO 3 mm (1/16" TO 1/8") TO COMPLETE THE ASSEMBLY. ONE TO FOUR WASHERS (ITEM 7) SHOULD BE USED TO ACCOMPLISH THIS. DO NOT OVER COMPRESS THE ELASTOMERIC BUSHING. DO NOT TIGHTEN NUT MORE THAN 2 FULL TURNS AFTER WASHER(S) (ITEM 7) BEGINS TO COMPRESS BUSHING.

ASSEMBLY NO. 3540040-0000
 ENERGY ABSORPTION SYSTEMS, INC.
 ENGINEERING AND RESEARCH DEPARTMENT

QUADGUARD® SYSTEM
 FENDER PANEL ASSY, QG

REV. 1-12 35-40-04 1 of 1 G

DATE	BY	DESCRIPTION
3/21/85	J. Eplandro	REVISED
3/1/86	J.M./MHO	REVISED
5/21/85	S. Triggear	REVISED
5/21/86	J. Mochardo	REVISED

354004.dwg
 REV. 1-12 35-40-04 1 of 1 G

REFERENCES

NOTES:

- UNDERLYING PANEL IS EITHER ANOTHER FENDER PANEL OR IN THE CASE OF THE LAST FENDER PANEL IT COULD BE A GASKET SIDE PANEL, EXTENSION PANEL OR TRANSITION PANEL.
- UNITS OF MEASUREMENT ARE IN MILLIMETERS [INCHES], UNLESS OTHERWISE NOTED.

Revisions	Date	Rev. by	Desc/App
CORRECTED DIAPHRAGM SPACING	10/7/78	G. ROO STI	REV
ITEM # WAS SPRINGCORRECTIVE	10/7/78	E. TRIGG	REV
CHANGED NOTE 3 & ADDED CAUTION LABEL	1/25/79	F. J. DUNN	REV

QUADGUARD SYSTEM
FOR NARROW HAZARDS

QUADGUARD SYSTEM FOR NARROW HAZARDS

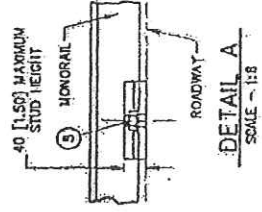
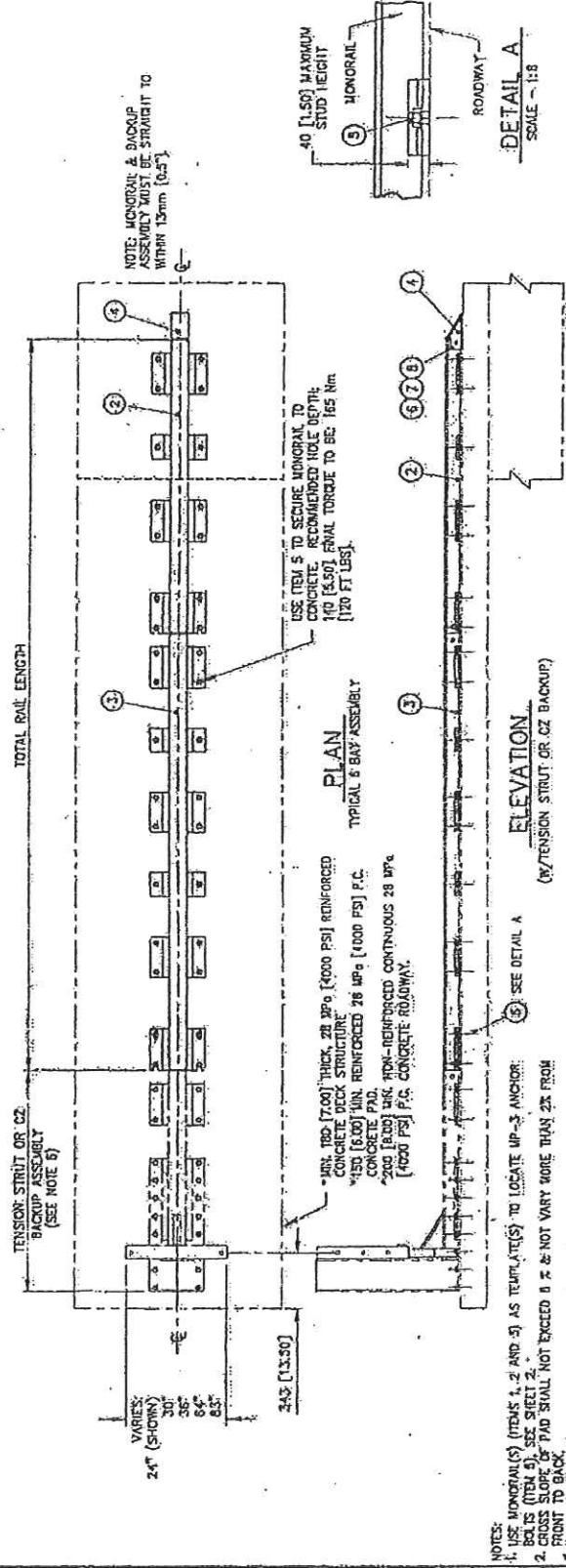
TABLE 1						
ASSEMBLY NO.	DATA RAIL LENGTH	ITEM 1	ITEM 2	ITEM 3	ITEM 5	NO. OF BAYS
3540080-0100	0	0	0	0	1	1
3540080-0200	915 (36.0)	1	0	0	2	2
3540080-0300	1830 (72.0)	0	1	0	3	3
3540080-0400	2745 (108.1)	0	0	1	4	4
3540080-0500	3660 (144.1)	1	0	0	5	5
3540080-0600	4575 (180.1)	0	1	0	6	6
3540080-0700	5490 (216.4)	0	0	2	7	7
3540080-0800	6405 (252.1)	1	0	2	8	8
3540080-0900	7320 (288.2)	0	1	2	9	9
3540080-1000	8235 (324.2)	0	0	3	10	10
3540080-1100	9150 (360.2)	1	0	3	12	12
3540080-1200	10065 (398.2)	0	1	3	13	13

*NOT APPLICABLE FOR 90° OR C2 CG SYSTEMS

*NOT APPLICABLE FOR C2 CG SYSTEMS

PARTS LIST	
ITEM	DESCRIPTION
1	MONORAIL ONE BAY CG.C
2	MONORAIL TWO BAYS CG.C
3	MONORAIL THREE BAYS CG.C
4	END CAP MONORAIL CG.C
5	ANCHOR MP-3 PT-KIT-3/4X7-VT
6	BOLT-HX 5/8X3-1/2-6S.C
7	NUT-HX 5/8.C
8	WASHER-LOCK 5/8.C

* SEE TABLE



- NOTES:
1. USE MONORAIL(S) (ITEMS 1, 2 AND 3) AS TEMPLATE(S) TO LOCATE UP-3 ANCHOR.
 2. CROSS SECTION 1 - SEE SHEET 2.
 3. FRONT TO BACK.
 4. EVERY STUD MUST BE EMBEDDED TO A DEPTH OF 140 (5.5) IN REBAR IS ENCASED IN A 12 CONCRETE PAD, 100# THROUGHOUT. IF REBAR IS ENCOUNTERED ON A DECK STRUCTURE, ASK PROJECT ENGINEER FOR DIRECTION.
 5. FOR C2 SYSTEMS, SEE DRAWING 35-40-24 ALSO.

ASSEMBLY NO. SEE TABLE L

ENERGY ABSORPTION SYSTEMS, INC.
ENGINEERING AND RESEARCH DEPARTMENT

QUADGUARD® SYSTEM
MONORAIL ASSY, CG

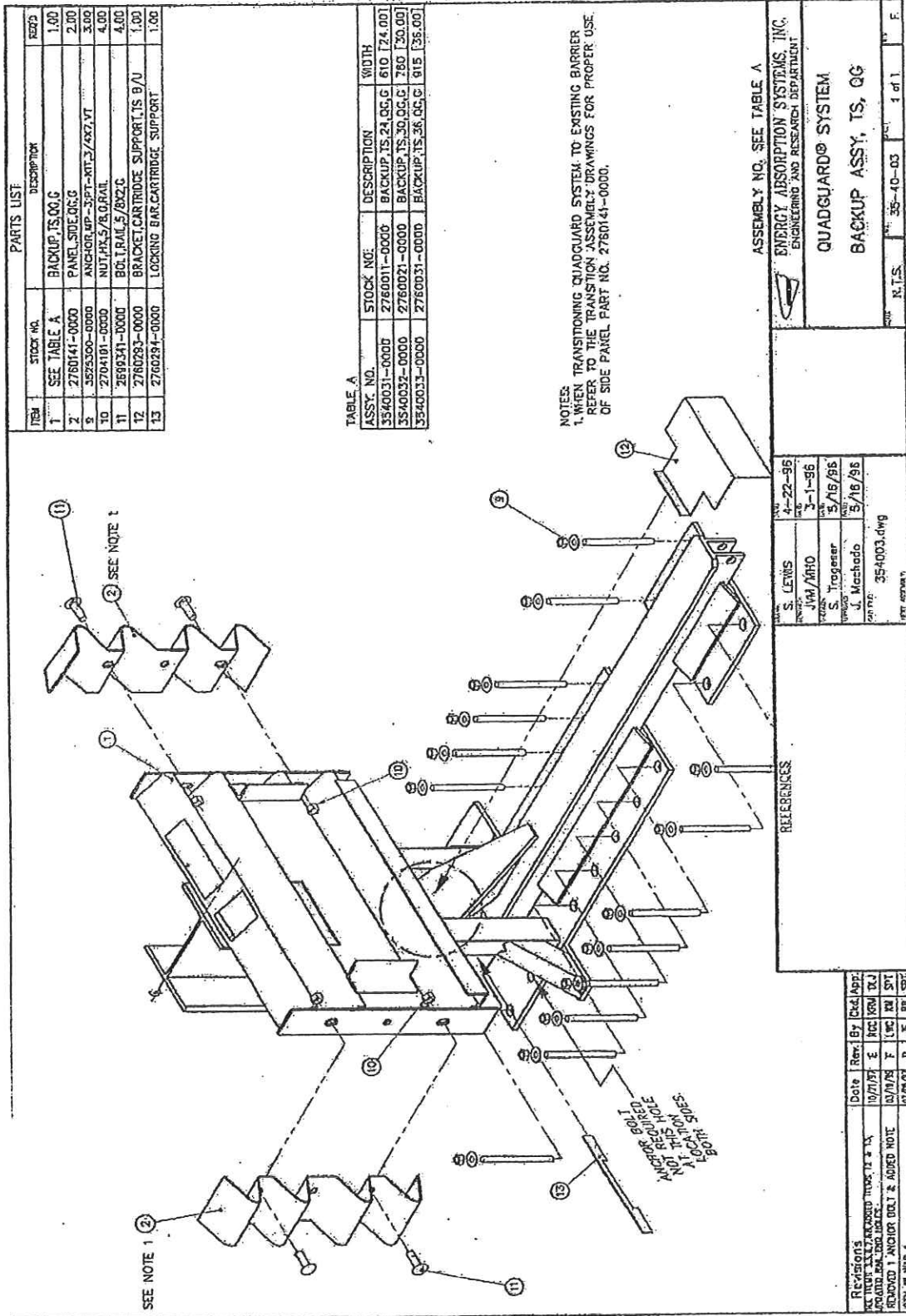
R.I.S. 35-40-06 1 of 3

DATE	REV.	BY	CHKD.	APP.
10/07/94	R	BB	KM	
05/08/96	L	UNC	KM	
12/21/91	I	STI	KM	BPT

REFERENCES

NO.	DESCRIPTION	DATE
1	D. Straus	5-8-96
2	MHO/JVM	3-1-96
3	S. Trojoseer	5/17/96
4	M. Oberth	5/17/96

354008.dwg



PARTS LIST

ITEM	STOCK NO.	DESCRIPTION	QTY
1	SEE TABLE A	BACKUP, IS, QG, C	1.00
2	2760141-0000	PANEL, SIDE, QG, C	2.00
3	3523300-0000	ANCHOR, WP-3PT-RIT-3/4X7-VT	3.00
10	2704191-0000	NUT, PK, S, B, G, RAIL	4.00
11	2690341-0000	BOLT, RAIL, S, B, G, RAIL	4.00
12	2760293-0000	BRACKET, CARTRIDGE SUPPORT, IS, B, U	1.00
13	2760294-0000	LOCKING BAR, CARTRIDGE SUPPORT	1.00

TABLE A

ASSY. NO.	STOCK NO.	DESCRIPTION	WIDTH
3540031-0000	2760011-0000	BACKUP, IS, 24, QG, C	610 [24.00]
3540032-0000	2760021-0000	BACKUP, IS, 30, QG, C	780 [30.00]
3540033-0000	2760031-0000	BACKUP, IS, 36, QG, C	915 [36.00]

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.

ASSEMBLY NO. SEE TABLE A
 ENERGY ABSORPTION SYSTEMS, INC.
 ENGINEERING AND RESEARCH DEPARTMENT
 QUADGUARD® SYSTEM
 BACKUP ASSY, IS, QG

DATE	4-22-96
BY	JMW/MHD
DATE	3-1-96
BY	S. Progeer
DATE	5/16/95
BY	J. Machado
DATE	5/16/95
DATE	354003.dwg
DATE	REV 000001

REFERENCES

Date	Rev	By	Desc	Appr
10/7/97	E	WEL	REV	DLJ
03/7/98	F	WEL	REV	SPT
07/26/01	D	JF	REV	SPT

Revisions
 HAS BEEN EXPLICITLY ENCLOSED UNDER 13.3.15
 QUADGUARD ASSY, IS, QG, C
 REMOVED 1 ANCHOR BOLT & ADDED NOTE
 07/26/01 D JF BE SPT

QUADGUARD SYSTEM
 FOR NARROW HAZARDS

**QUADGUARD SYSTEM
FOR NARROW HAZARDS**

PARTS LIST

ITEM	STOCK NO.	DESCRIPTION	QTY
1	SEE TABLE	BACKUP CONCRETE FRONT FACE, Q.C.	1.00
2	3925130-0000	ANCHOR WP-3 PT. 3/4x6 1/2 HGR	4.00
3	2760141-0000	PANEL SIDE, Q.C.G.	2.00
10	2704991-0000	NUT, HK. 5/8 G. RAIL	4.00
11	2699341-0000	BOLT, RAIL, 5/8x2 G.	4.00
15	3525300-0000	ANCHOR WP-3 PT. MTL. 3/4x7 1/2	2.00
16	2760051-0000	MONORAIL ONE BAY, Q.C.G.	1.00

TABLE

MODEL	ASSEMBLY NO.	"W"	"A"	ITEM 1
Q524	3540141-0000	610 [24.00]	140 [5.50]	2760181-0000
Q530	3540142-0000	762 [30.00]	152 [6.00]	2760191-0000
Q536	3540143-0000	914 [36.00]	191 [7.50]	2760201-0000

NOTES

1. DIMENSIONS ARE IN MILLIMETERS [INCHES] UNLESS OTHERWISE NOTED.
2. FOR REFERENCE ONLY. USE ITEM 1 AS A TEMPLATE TO DRILL HOLES IN CONCRETE. A REBAR CUTTING BIT WILL LIKELY BE REQUIRED TO ACHIEVE PROPER ANCHOR INSTALLATION.
3. STUDS LOCATED IN UPPER VALLEY WILL NEED TO EXTEND APPROX. 57 [2.25] FROM FACE OF CONCRETE IN ORDER TO GET NUTS ON. WASHERS MAY BE OMITTED.

REFERENCES

CONCRETE BACKUP, Q.C. 35-40-08

REVISONS

Date	Rev.	By	Desc/APP.
30/07/96	U	LMC	REV 99
11/08/97	F	RCC	REV 01
27/09/98	C	DJS	REV 01

UNIDIRECTIONAL
ASSEMBLY NO. (SEE TABLE)

ENERGY ABSORPTION SYSTEMS, INC.
ENGINEERING AND RESEARCH DEPARTMENT

QUADGUARD® SYSTEM
BACKUP ASSY, CONCRETE, Q.C.

1-15 35-40-14 1 of 1 H

PARTS LIST			
ITEM	STOCK NO.	DESCRIPTION	QTY
1	278027-0000	SIDE PANEL END SHOE, Q.C.	1.00
2	3025130-0000	ANCHOR, MP-3, P1 KIT, 3/4 X 8 1/2 FOR	1.00

REPLACE EXISTING PANEL

FRONT OF UNIT

EXISTING RAIL BOLT

CONCRETE BACKUP

REPLACE EXISTING PANEL

FRONT OF UNIT

EXISTING RAIL BOLT

TENSION STIRRUP BACKUP

LEFT SIDE APPLICATION

RIGHT SIDE APPLICATION

LEFT SIDE APPLICATION

RIGHT SIDE APPLICATION

NOTES:

1. DIMENSIONS ARE IN MILLIMETERS (INCHES).

2. USE END SHOE AS TEMPLATE FOR DRILLING.

RECOMMENDED HOLE DEPTH: 127 (5.00)

FINAL TORQUE: TO BE 163 Nm (120 FT-LBS) (70%)

ANCHOR STUD END SHOULD BE FLUSH WITH OUTSIDE SURFACE OF ANCHOR NUT.

ASSEMBLY NO. 3540150-0000

ENERGY ABSORPTION SYSTEMS, INC.
ENGINEERED AND RESEARCH DEPARTMENT

QUADGUARD® SYSTEM
END SHOE ASSY, QG

N.T.S. 35-40-15 1 of 1

REFERENCES

D. Slouze 5/24/96

W. Kraggs 5/5/96

S. Trappeser 5/5/96

35-4015.019g

Rev	By	Chk	App
1	W. Kraggs	G. Lusk	RAJ SPT
2	W. Kraggs	H. Lusk	DAJ SPT
3	W. Kraggs	H. Lusk	RAJ SPT

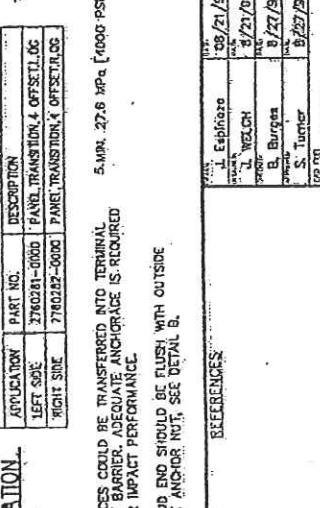
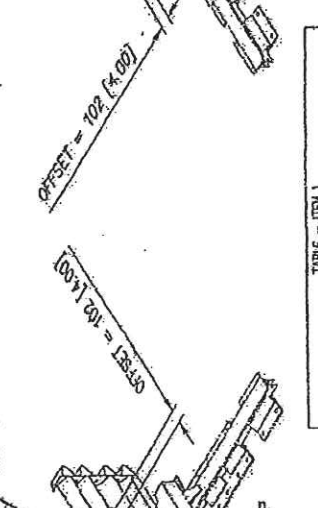
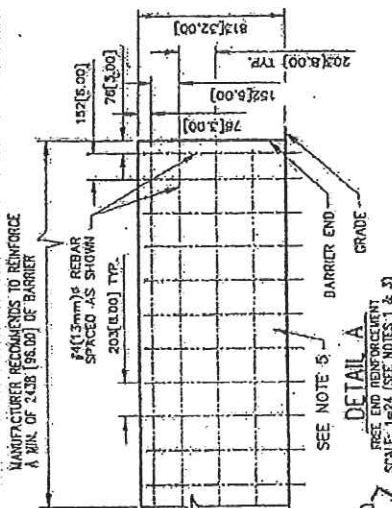
DATE: 5/24/96

REV TO SHOW ITC FOR CODE 0/0

**QUADGUARD SYSTEM
FOR NARROW HAZARDS**

QUADGUARD SYSTEM FOR NARROW HAZARDS

ITEM	STOCK NO.	DESCRIPTION	QTY
1	SEE TABLE	PANEL TRANSITION, 4 OFFSET, OC	1.00
2	2780201-0000	BRACKET SUPPORT & TRANS TO CRB	1.00
3	3525130-0000	ANCHOR MP - 3/16" DIA. 3/4" X 6" - 1/2" HOR	1.00
4	2699341-0000	BOLT RAIL 5/8" X 2.0	3.00
5	2780191-0000	NUT RAIL 5/8" X 2.0	3.00



DETAIL B
NOT TO SCALE

SEE NOTES 2 & 4
SEE DETAIL B

REPLACE SIDE PANEL P-4, 2780191-0000 WITH TRANSITION PANEL (ITEM 1)
102 14.001 MIN. EDGE DISTANCE

REBAR END REINFORCEMENT SCALE: 1/4" = 1'-0" (SEE NOTES 1 & 5)

DETAIL A
BARRIER END GRADE

MANUFACTURER RECOMMENDS TO REINFORCE A MIN. OF 3.0\"/>

TABLE - ITEM 1

APPLICATION	PART NO.	DESCRIPTION
LEFT SIDE	2780201-0000	PANEL TRANSITION, 4 OFFSET, OC
RIGHT SIDE	2780202-0000	PANEL TRANSITION, 4 OFFSET, OC

REFERENCES:

1. THE CONCRETE BARRIER REINFORCEMENT SHOWN IN DETAIL A IS RECOMMENDED TO ENSURE ADEQUATE DRAINAGE INTEGRITY FOR PROPER IMPACT PERFORMANCE. IT IS APPROPRIATE FOR A STANDARD SAFETY SHAPED BARRIER WITH A 610 (24.001) BASE AND A 150 (6.001) 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 (5.000) FINAL TORQUE TO BE 163 Nm (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.

NOTES:

1. THE CONCRETE BARRIER REINFORCEMENT SHOWN IN DETAIL A IS RECOMMENDED TO ENSURE ADEQUATE DRAINAGE INTEGRITY FOR PROPER IMPACT PERFORMANCE. IT IS APPROPRIATE FOR A STANDARD SAFETY SHAPED BARRIER WITH A 610 (24.001) BASE AND A 150 (6.001) 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 (5.000) FINAL TORQUE TO BE 163 Nm (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.

REVISIONS

Date	Rev	By	Check	App
10/21/94	1	RD	TRM	SPT
07/23/94	2	RD	TRM	SPT
06/25/94	3	RD	TRM	SPT

UPDATED CHART SUPPORT & RAIL END HOLE
REVISED DIMS

REVISED ITEM 3 NOTES

REFERENCES:

1. THE CONCRETE BARRIER REINFORCEMENT SHOWN IN DETAIL A IS RECOMMENDED TO ENSURE ADEQUATE DRAINAGE INTEGRITY FOR PROPER IMPACT PERFORMANCE. IT IS APPROPRIATE FOR A STANDARD SAFETY SHAPED BARRIER WITH A 610 (24.001) BASE AND A 150 (6.001) 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 (5.000) FINAL TORQUE TO BE 163 Nm (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.

REFERENCES:

1. THE CONCRETE BARRIER REINFORCEMENT SHOWN IN DETAIL A IS RECOMMENDED TO ENSURE ADEQUATE DRAINAGE INTEGRITY FOR PROPER IMPACT PERFORMANCE. IT IS APPROPRIATE FOR A STANDARD SAFETY SHAPED BARRIER WITH A 610 (24.001) BASE AND A 150 (6.001) 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 (5.000) FINAL TORQUE TO BE 163 Nm (120-FT-LBS) (TYP).

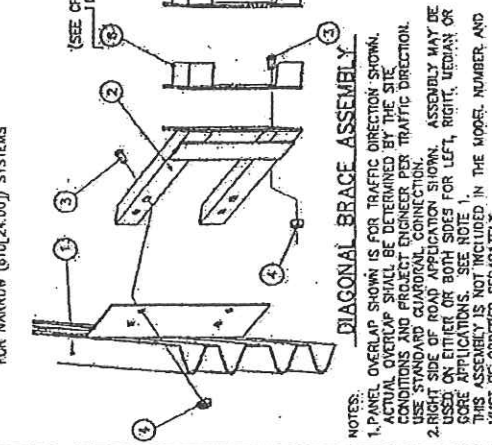
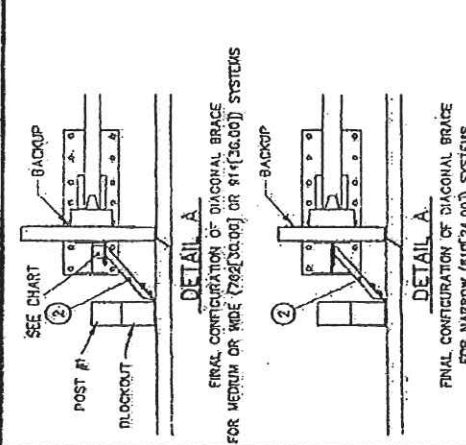
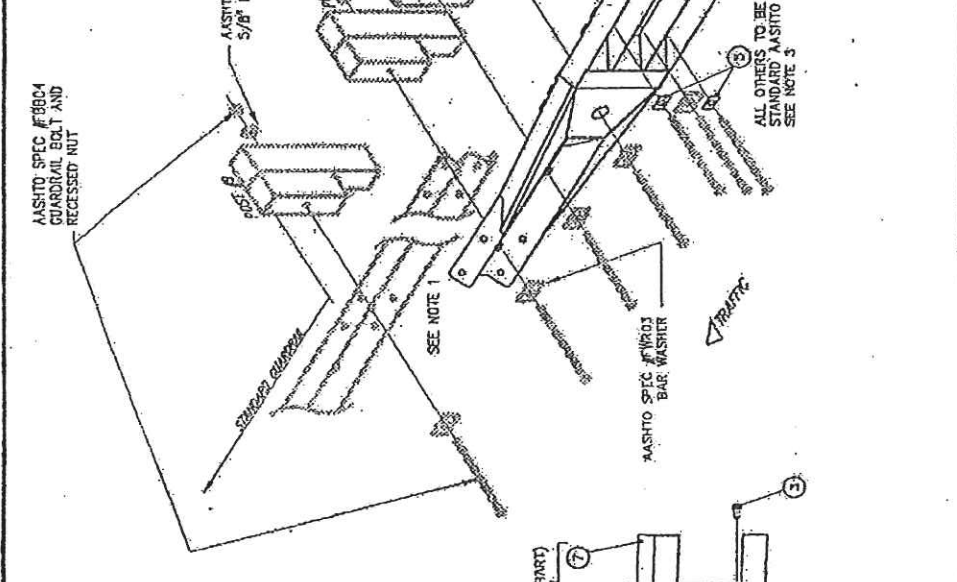
3. IMPACT FORCES COULD BE TRANSFERRED INTO TERMINAL END OF THE BARRIER. ADEQUATE ANCHORAGE IS REQUIRED FOR PROPER IMPACT PERFORMANCE.

4. ANCHOR STUD END SHOULD BE FLUSH WITH OUTSIDE SURFACE OF ANCHOR NUT. SEE DETAIL B.

PARTS LIST		RECD			
ITEM	STOCK NO.	DESCRIPTION	N	M	W
1	2760321-0000	QUADGUARD TO W-BEAM TRANS. PANEL	1	1	1
2	2760341-0000	DIAGONAL BRACE	1	1	1
3	2698341-0000	BOLT, RAIL, 5/8X2.5"	4	6	6
4	2704191-0000	NUT, RAIL, 5/8X	4	6	6
5	2708871-0000	WASHER BAR, 1/2X1 1/4X2 W/HOLE	2	2	2
6	2760342-0000	DIAGONAL BRACE BLOCKOUT, 3"	0	1	0
7	2760343-0000	DIAGONAL BRACE BLOCKOUT, 5"	0	0	1

SYSTEM WIDTH	ASSEMBLY #	BLOCKOUT
610 (24.00)	N 354021N-0000	NOT REQ'D
762 (30.00)	M 351021M-0000	ITEM #5*
914 (36.00)	W 354021W-0000	ITEM #7*

*SEE PARTS LIST ABOVE FOR QTY REQ



DIAGONAL BRACE ASSEMBLY

NOTES:

1. PANEL OVERLAP SHOWN IS FOR TRAFFIC DIRECTION SHOWN. ACTUAL OVERLAP SHALL BE DETERMINED BY THE SITE CONDITIONS AND TRAFFIC DIRECTION.
2. RIGHT SIDE OF ROAD APPLICATION SHOWN. ASSEMBLY MAY BE USED ON EITHER OR BOTH SIDES FOR LEFT, RIGHT, URBAN OR SCORE APPLICATIONS. SEE NOTE 1.
3. THIS ASSEMBLY IS NOT INCLUDED IN THE MODEL NUMBER AND MUST BE ORDERED SEPARATELY.
4. 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.

DESIGNED BY	J. Busse	DATE	09/29/95
DRAWN BY	JAK	DATE	10/21/95
CHECKED BY	SHL	DATE	10/14/95
DATE	10/14/95	BY	J. Machado
FILE NO.	2594071.dwg		
REV. NO.	1		

ENERGY ABSORPTION SYSTEMS, INC.
ENGINEERING AND RESEARCH DEPARTMENT

TRANSITION ASSEMBLY,
QUAD-BEAM TO W-BEAM

N.T.S. 35-40-21 1 of 2 C

REFERENCES

Date	Rev.	By	Check
07/17/91	A	JF	BR SPT
10/26/91	E	REC	RESM SPT
06/16/95	C	LYC	BR KM

ADDED 7627 FOR MED. & WIDE SYSTEMS

UPDATED CARTRIDGE SUPPORT BRACKETS

CHANGED BRIDGE WALKWAY TO 2"

QUADGUARD SYSTEM FOR NARROW/HAZARDS

PARTS LIST		RECD		
ITEM	STOCK NO.	DESCRIPTION	N	W
1	2760331-0000	CHUCKER TO THREE-BEAM TRANS. PANEL	1	1
2	2760341-0000	DIAGONAL BRACE	1	1
3	2699341-0000	BOLT, GAL. 5/8X2.0	4	0
4	2704191-0000	NUT, H.S. 5/8X2.0	4	0
5	2706871-0000	WASHER BAR 1/8X1 1/4X2.0/HOLE	2	2
6	2760342-0000	DIAGONAL BRACE BLOCKOUT, 3"	0	1
7	2760243-0000	DIAGONAL BRACE BLOCKOUT, 6"	0	1

SYSTEM WIDTH	ASSEMBLY #	BLOCKOUT
5'0" (24.00)	N 3540221-0000	NOT RECD
7'6" (30.00)	W 3540221-0000	ITEM #5:
9'14" (35.00)	W 3540221-0000	ITEM #7:

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

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

REPLACE SIDE PANEL PIN 2760141-0000 WITH TRANSITION PANEL (ITEM 1)

SEE DIAGONAL BRACE ASSEMBLY & DETAIL A

ALL OTHERS TO BE STANDARD ANSHTO SEE NOTE 3

ANSHTO SPEC #FWC16 5/8" FLAT WASHER

ANSHTO SPEC #FWC16 BAR WASHER

ANSHTO SPEC #FWC16 3/8" FLAT WASHER

SEE NOTE

EMERGENCY PREPARED

BACKUP

POST #1

BLOCKOUT

DETAIL A

FINAL CONFIGURATION OF DIAGONAL BRACE FOR MEDIUM & WIDE (7'6" (30.00) OR 9'14" (35.00)) SYSTEMS

BACKUP

DETAIL A

FINAL CONFIGURATION OF DIAGONAL BRACE FOR NARROW (9'0" (24.00)) SYSTEMS

SEE CHART

DIAGONAL BRACE ASSEMBLY

NOTES:

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

Revisions: _____ Date: Rev. By: (dcl/mb)

MODEL #827 FOR MED. & WIDE SYSTEMS 01/01/01 A # 08 SPT

REFERENCES:

REV.	DATE	BY	DESCRIPTION
1	08/25/98	T. Basse	REVISED
2	09/23/98	JPN	REVISED
3	10/14/98	SHL	REVISED
4	10/14/98	J. Mchiboto	REVISED

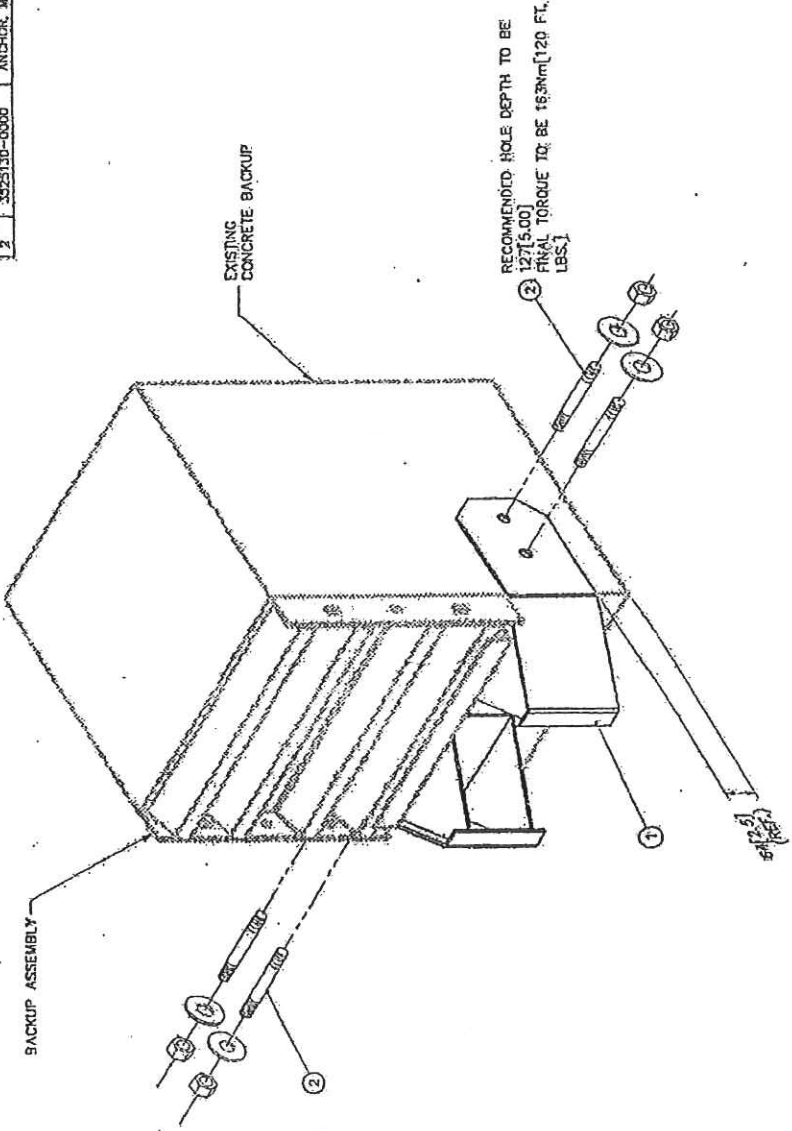
ENERGY ABSORPTION SYSTEMS, INC.
ENGINEERING AND RESEARCH DEPARTMENT

TRANSITION ASSEMBLY
QUAD-BEAM TO THIRY-BEAM

N.T.S. 35-40-22 1 of 2 A

QUADGUARD SYSTEM FOR NARROW HAZARDS

PARTS LIST			
ITEM	STOCK NO.	DESCRIPTION	QTY
1	2780311-0000	DEFLECTOR CONCRETE BACKUP, QS	2
2	35251310-0000	ANCHOR MP-3 RTF, 3/4x6 1/2, HORIZ	1



ASSY NO. 3540200-0000

ENERGY ABSORPTION SYSTEMS, INC.
ENGINEERING AND RESEARCH DEPARTMENT

DEFLECTOR ASSEMBLY,
CONCRETE BACKUP
RETROFIT, QG

DATE: 08/28/98
BY: R. COMINS
CHECKED: W. KRACE
DATE: 09/26/98
BY: SKL
DATE: 07/23/98
BY: WCK
DATE: 07/25/98
DWG NO: 354020.dwg
REV: 0000

REVISIONS

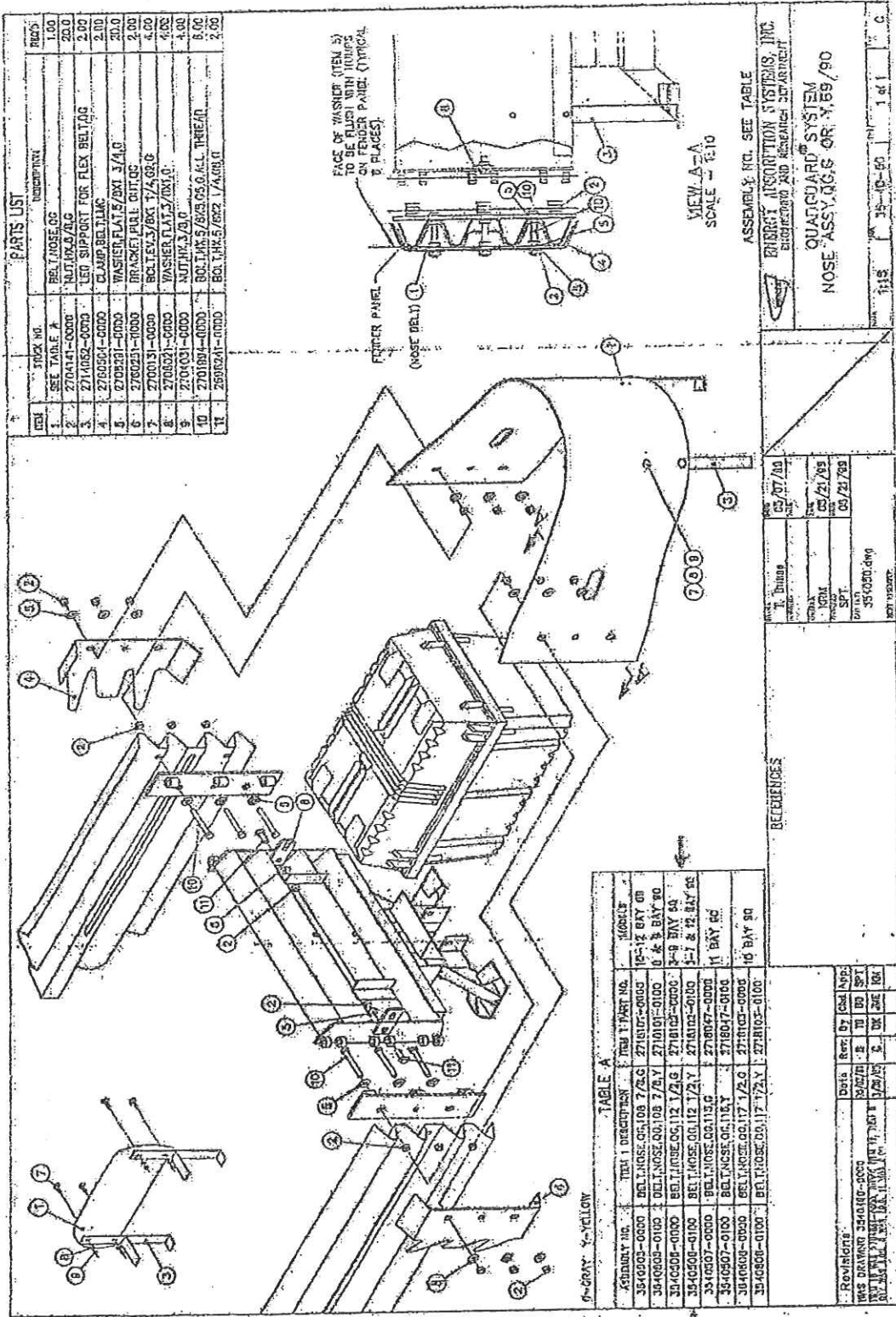
CHG'D	PART NO.	NO.	TO	ASSY NO.	Date	Rev	By	Chk	App.
					08/28/98	1	R. COMINS		
					09/26/98		W. KRACE		
					07/23/98		SKL		
					07/25/98		WCK		

CHG'D TITLE BLOCK

1-4 35-40-20 1 of 1 B

NOTE:
1. USE DEFLECTOR AS A TEMPLATE TO LOCATE AND DRILL 23(0.88) HOLES.
2. DIMENSIONS ARE IN MILLIMETERS [INCHES], UNLESS OTHERWISE NOTED.

QUADGUARD SYSTEM
FOR NARROW HAZARDS



PARTS LIST

QTY	ITEM NO.	DESCRIPTION	QTY
1	SEE TABLE A		
2	2704141-0000	BELT NOSE GS	1.00
3	2714052-0000	NUT HK 3/8" LG	20.0
4	2760504-0000	LEG SUPPORT FOR FLEX BELT LG	2.00
5	2703331-0000	CLAMP BELT LAC	2.00
6	2700131-0000	WASHER FLAT 3/8X1 3/4 LG	20.0
7	2700231-0000	BRACKET PABLE OUTLGS	2.00
8	2700231-0000	BCLT V 3/8X1 1/4 GR 8	4.00
9	2704031-0000	WASHER FLAT 3/8X1 1/2	4.00
10	2701894-0000	NUT HK 3/8" LG	4.00
11	2599241-0000	BCLT HK 5/8X3/8 S 6 ALL THREA'D	6.00
12	2599241-0000	BCLT HK 5/8X2 1/4 GR 11	2.00

TABLE A

ASSEMBLY NO.	ITEM 1 DESCRIPTION	ITEM 1 PART NO.	QTY
3540503-0000	BELT NOSE GS 108 7/8 LG	2718105-0000	12-12 BAY 00
3540503-0100	BELT NOSE GS 108 7/8 LG	2718105-0100	0 4 & 8 BAY 90
3540504-0000	BELT NOSE GS 12 1/2 LG	2718105-0000	3-8 BAY 50
3540504-0100	BELT NOSE GS 12 1/2 LG	2718105-0100	3-7 & 12 BAY 90
3540507-0000	BELT NOSE GS 115 LG	2718105-0000	11 BAY 60
3540507-0100	BELT NOSE GS 115 LG	2718105-0100	
3540508-0000	BELT NOSE GS 17 1/2 LG	2718105-0000	10 BAY 90
3540508-0100	BELT NOSE GS 17 1/2 LG	2718105-0100	

REVISIONS

NO.	DATE	BY	REASON
1	05/21/93	SPT	ISSUE FOR MANUFACTURE
2	05/21/93	SPT	ISSUE FOR MANUFACTURE

DATE: 05/27/93
BY: T. THONG
CHKD: KRM
APP'D: SPT
DRWING NO.: 3540503.dwg
REV. NO.: 02

ASSEMBLY INCL. SEE TABLE
EMERY ASSURON SYSTEM, INC.
BUCKLE AND STRAP ATTACHMENT
NOSE ASSY. Q.G.S. OR. N. 88/90

VIEW A-Z-A
SCALE: 1/8:1

QUADGUARD SYSTEM FOR WIDE HAZARDS

TABLE 1

ASSEMBLY NO.	TOTAL RAIL LENGTH	*ITEM 1	*ITEM 2	*ITEM 3	*ITEM 4	*ITEM 5	NO. OF BAYS
3540060-0100	0	0	0	0	0	0	1
3540060-0200	915 (36.0)	1	0	0	0	0	2
3540060-0300	1830 (72.0)	0	1	0	0	0	3
3540060-0400	2745 (108.1)	0	0	1	0	0	4
3540060-0500	3660 (144.1)	1	0	1	0	0	5
3540060-0600	4575 (180.1)	0	1	1	0	0	6
3540060-0700	5490 (216.1)	0	0	2	0	0	7
3540060-0800	6405 (252.1)	1	0	2	0	0	8
3540060-0900	7320 (288.2)	0	1	2	0	0	9
3540060-1000	8235 (324.2)	0	0	3	0	0	10
3540060-1100	9150 (360.2)	1	0	3	0	0	11
3540060-1200	10065 (396.2)	0	1	3	0	0	12

NOT APPLICABLE FOR 60" & 90" OR C2 OG SYSTEMS

NOT APPLICABLE FOR C2 OG SYSTEMS

NOT APPLICABLE FOR 60" & 90" OR C2 OG SYSTEMS

NOT APPLICABLE FOR C2 OG SYSTEMS

NOT APPLICABLE FOR 60" & 90" OR C2 OG SYSTEMS

NOT APPLICABLE FOR C2 OG SYSTEMS

NOT APPLICABLE FOR 60" & 90" OR C2 OG SYSTEMS

NOT APPLICABLE FOR C2 OG SYSTEMS

NOT APPLICABLE FOR 60" & 90" OR C2 OG SYSTEMS

NOT APPLICABLE FOR C2 OG SYSTEMS

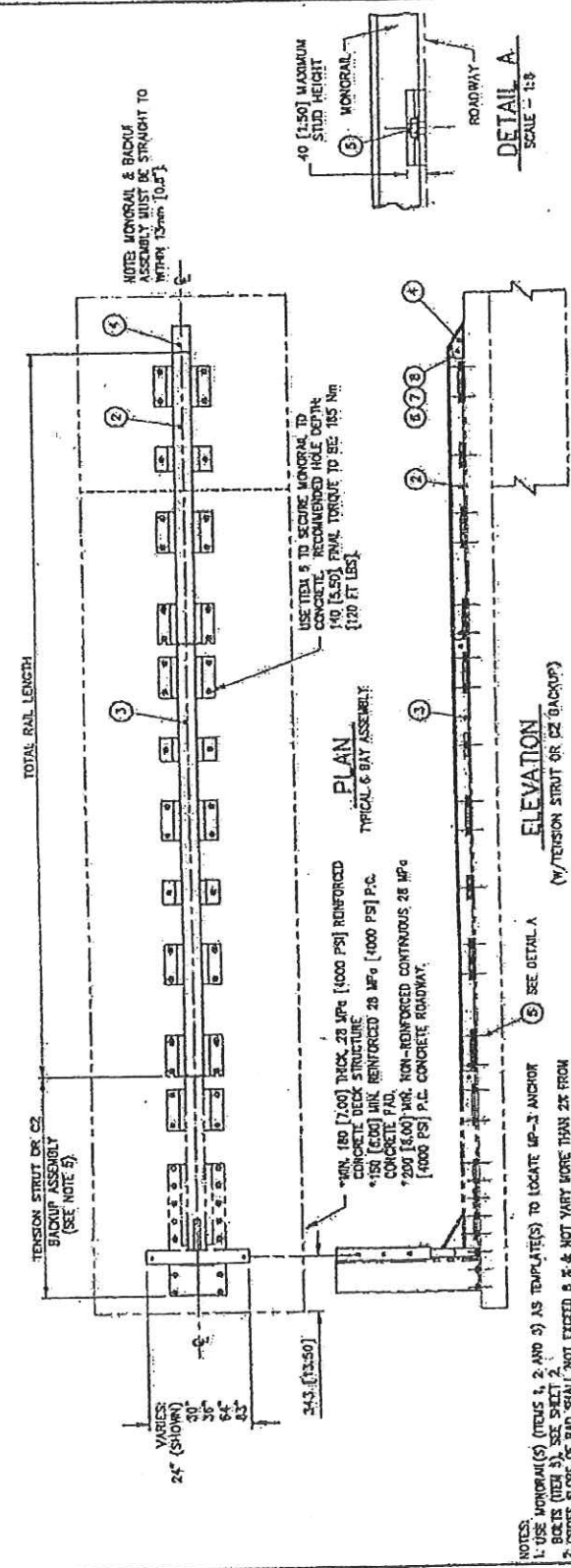
NOT APPLICABLE FOR 60" & 90" OR C2 OG SYSTEMS

NOT APPLICABLE FOR C2 OG SYSTEMS

NOT APPLICABLE FOR 60" & 90" OR C2 OG SYSTEMS

NOT APPLICABLE FOR C2 OG SYSTEMS

NOT APPLICABLE FOR 60" & 90" OR C2 OG SYSTEMS



PARTS LIST

ITEM	STOCK NO.	DESCRIPTION	QTY
1	2780051-0000	MONORAIL ONE BAYS OC/C	*
2	2780051-0000	MONORAIL TWO BAYS OC/C	*
3	2780071-0000	MONORAIL THREE BAYS OC/C	*
4	2780041-0000	END CAP MONORAIL OC/C	1.00
5	3525300-0000	ANCHOR MP-3PT-NIT/3/4X7-VT	*
6	2689571-0000	BOL 1/4X5/8X3-1/2-SS-C	1.00
7	2704741-0000	NUT HKS/2LG	1.00
8	2708231-0000	WASHER LOCK 5/8-C	1.00

* SEE TABLE

ASSEMBLY NO. SEE TABLE 1

ENERGY ABSORPTION SYSTEMS, INC.
ENGINEERING AND RESEARCH DEPARTMENT

QUADGUARD SYSTEM
MONORAIL ASSY, QG

N.T.S. 35-40-06 1 of 3 L

DESIGNED BY	D. Stone	DATE	5-8-86
CHECKED BY	MHO/JVM	DATE	3-1-86
APPROVED BY	S. Truesler	DATE	5/17/86
DATE	M. Oberth	DATE	5/17/86
PROJECT NO.	35-4006.dwg		

REFERENCES

1. USE MONORAIL(S) (ITEMS 1, 2 AND 3) AS TEMPLATE(S) TO LOCATE MP-3 ANCHOR BOLTS (ITEM 5). SEE SHEET 2.

2. BOLTS (ITEM 5) OR PAD SHALL NOT EXCEED 8" & NOT VARY MORE THAN 2% FROM FRONT TO BACK.

3. HOLE OF MEASUREMENT ARE MILLIMETERS (INCHES) UNLESS OTHERWISE NOTED.

4. PLYW. SHD 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.

5. FOR C2 SYSTEMS, SEE DRAWING 35-40-24 ALSO.

Revisions	Date	Rev. By	Drawn
ITEM 6 WAS 2701991-0000	8/23/86	K. TB	MB
ITEM 4 REDESIGNED	05/05/86	L. LKC	RM SPT
NO. OF BAYS	was 8	is 12	1 of 3

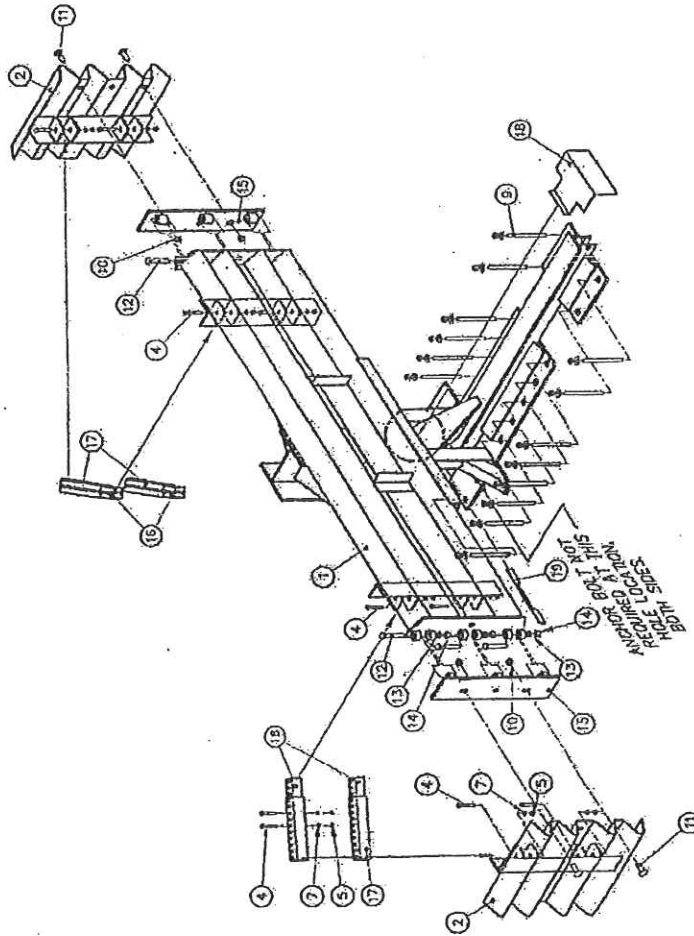
PARTS LIST

ITEM	STOCK NO.	DESCRIPTION	QTY
1	SEE TABLE A	GACKUP, TS, .06 WIDE, G	1.00
2	2760471-0000	PANEL, SIDE, OG, WIDE, G	2.00
4	2699601-0000	BOLT, HK, 3/8X3 1/2, G2, C, ALL, THREAD	16.0
5	27604031-0000	NUT, HK, 3/8, G	16.0
7	2708091-0000	WASHER, LOCK, 3/8, G	16.0
9	3525300-0000	ANCHOR, MP, 3/4 PT, 41, 3/4 X 7, VT	3.00
10	2704191-0000	NUT, HK, 5/8, C, RAL	4.00
11	2699341-0000	BOLT, RAT, 5/8 X 2, C	4.00
12	2701891-0000	BOLT, HK, 5/8 X 4, G5, G	6.00
13	2708231-0000	WASHER, LOCK, 5/8, G	6.00
14	2704141-0000	NUT, HK, 3/8, G	6.00
15	2760435-0000	HINGE PLATE, FENDER, PANEL, OG, G	2.00
16	2760301-0000	TEL, ST 1 3/4 X 1 3/4 X 126, H, H, S, G, 10" LG	4.00
17	2760502-0000	TEL, ST 2 X 2 X 126, H, H, S, G, 10" LONG	4.00
18	2760793-0000	BRACKET, CARTRIDGE SUPPORT, TS B/U	1.00
19	2760294-0000	LOCKING BAR, CART, SUPPORT, OG	1.00

TABLE A

ASSY. NO.	STOCK NO.	DESCRIPTION	WIDTH
3540391-0000	2760451-0000	BACKUP, TS, 64, OG, WIDE, G	1620 (84")
3540392-0000	2760452-0000	BACKUP, TS, 81, OG, WIDE, G	2100 (81")

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.



ASSEMBLY NO. SEE TABLE A

ENERGY ABSORPTION SYSTEMS, INC.
 ENGINEERING AND RESEARCH DEPARTMENT

QUADGUARD® SYSTEM

BACKUP ASSY, TS, OG WIDE



1:20 3540390-0000 1 of 1 E

REFERENCES

DATE	BY	REV	DESCRIPTION
7/1/97	D. Stout	1	ISSUE
6/2/97	J. Machado	2	REVISED
7/17/97	B. Kroger	3	REVISED
7/17/97	J. Machado	4	REVISED

Revisions

DATE	REV	BY	CHKD	APPD
12/01/99	E	DWC	DWC	SPT
03/19/98	C	LWC	KM	SPT
12/10/93	D	DK	BB	SPT

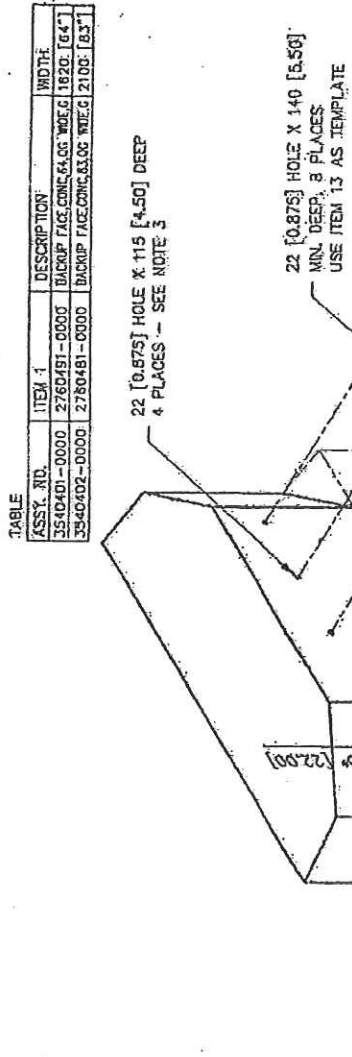
REVISION 1 ANCHOR BOLT & ANCHOR NUTS
 UPDATED DIMENSIONS. ITEM 15 WAS 2760435-0000

**QUADGUARD SYSTEM
 FOR WIDE HAZARDS**

**QUADGUARD SYSTEM
FOR WIDE HAZARDS**

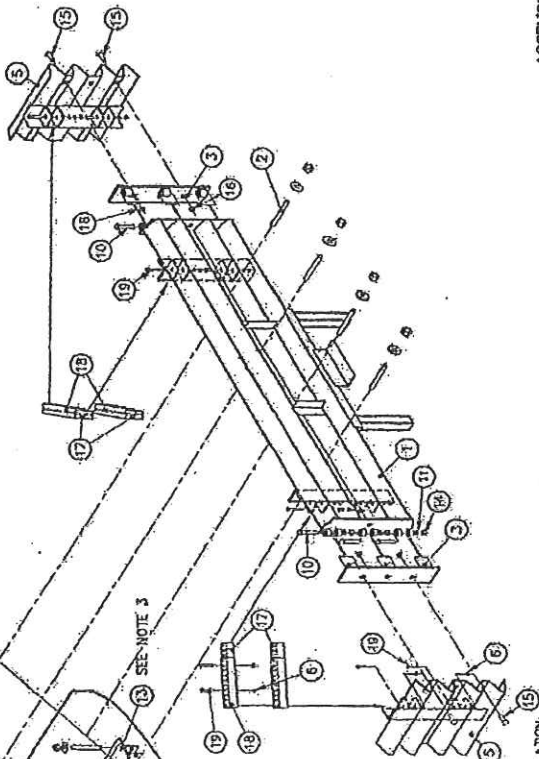
TABLE

ASSTY. NO.	ITEM 1	DESCRIPTION	WIDTH
3540400-0000	2760491-0000	BACKUP FACE CONC. 4.0G WIDE G	1820 [64"]
3540402-0000	2760481-0000	BACKUP FACE CONC. 8.0G WIDE G	2100 [83"]



PARTS LIST

ITEM	STOCK NO.	DESCRIPTION	QTY
1	SEE TABLE	BACKUP FACE CONC. 4.0G WIDE G	1.00
2	3525130-0000	ANCHOR HP-SPT RT. 3/4X1 1/2 HOK	1.00
3	2760435-0000	HINGE PLATE FENDER PANEL 0G G	2.00
5	2760471-0000	PANEL SIDE 0G WIDE G	2.00
6	2704031-0000	NUT HK 3/8 G	16.0
10	2701991-0000	BOLT HK 5/8X4.05 G	6.00
11	2708231-0000	WASHER LOCK 5/8 G	6.00
12	3525500-0000	ANCHOR HP-SPT RT. 3/4X1 1/2	2.00
13	2760051-0000	MONORAIL ONE BAY 0G G	1.00
14	2701411-0000	NUT HK 5/8 G	6.00
15	2701811-0000	BOLT RAILS 5/8X1 1/4 G	4.00
16	2704191-0000	NUT HK 5/8 G RAIL	4.00
17	2760501-0000	TEL ST 3/4X1 3/4X1204 HAS G 10" LG	4.00
18	2760502-0000	TEL ST 2X2X1204 HAS G 10" LONG	4.00
19	2769601-0000	BOLT HK 3/8X3 1/2 G 2.02 G ALL THREAD	16.0



NOTES:
 1. DIMENSIONS ARE IN MILLIMETERS [INCHES] UNLESS OTHERWISE NOTED.
 2. FOR REFERENCE ONLY. USE ITEM 1 AS A TEMPLATE TO DRILL HOLES IN CONCRETE.
 3. ITEM 13 TO BE CENTERED LATERALLY WITH BACKUP.
 4. A REBAR CUTTING BIT WILL LIKELY BE REQUIRED TO ACHIEVE PROPER ANCHOR INSTALLATION.

ASSEMBLY NO. (SEE TABLE)

ENERGY ABSORPTION SYSTEMS, INC.
 ENGINEERING AND RESEARCH DEPARTMENT

BACKUP ASSY; CONCRETE, 4.0G WIDE

SCALE: 1:25

3540400-0000

1 of 1

REFERENCES:

CONCRETE BACKUP, 0G WIDE

35-10-41

DATE: 7/9/97

BY: J. Machado

DATE: 5/21/97

BY: B. Kohn

DATE: 3/17/97

DATE: 3/17/97

BY: S. Triggler

DATE: 3/17/97

PROJECT: 3540400-0000.dwg

REV. SHEET:

Revisions:

Rev	Date	By	App.
10	11/20/96	D	LWC/DMK/SPT
9	7/9/96	B	CLS/KM/SPT
8	12/8/95	C	DK/KM/SB

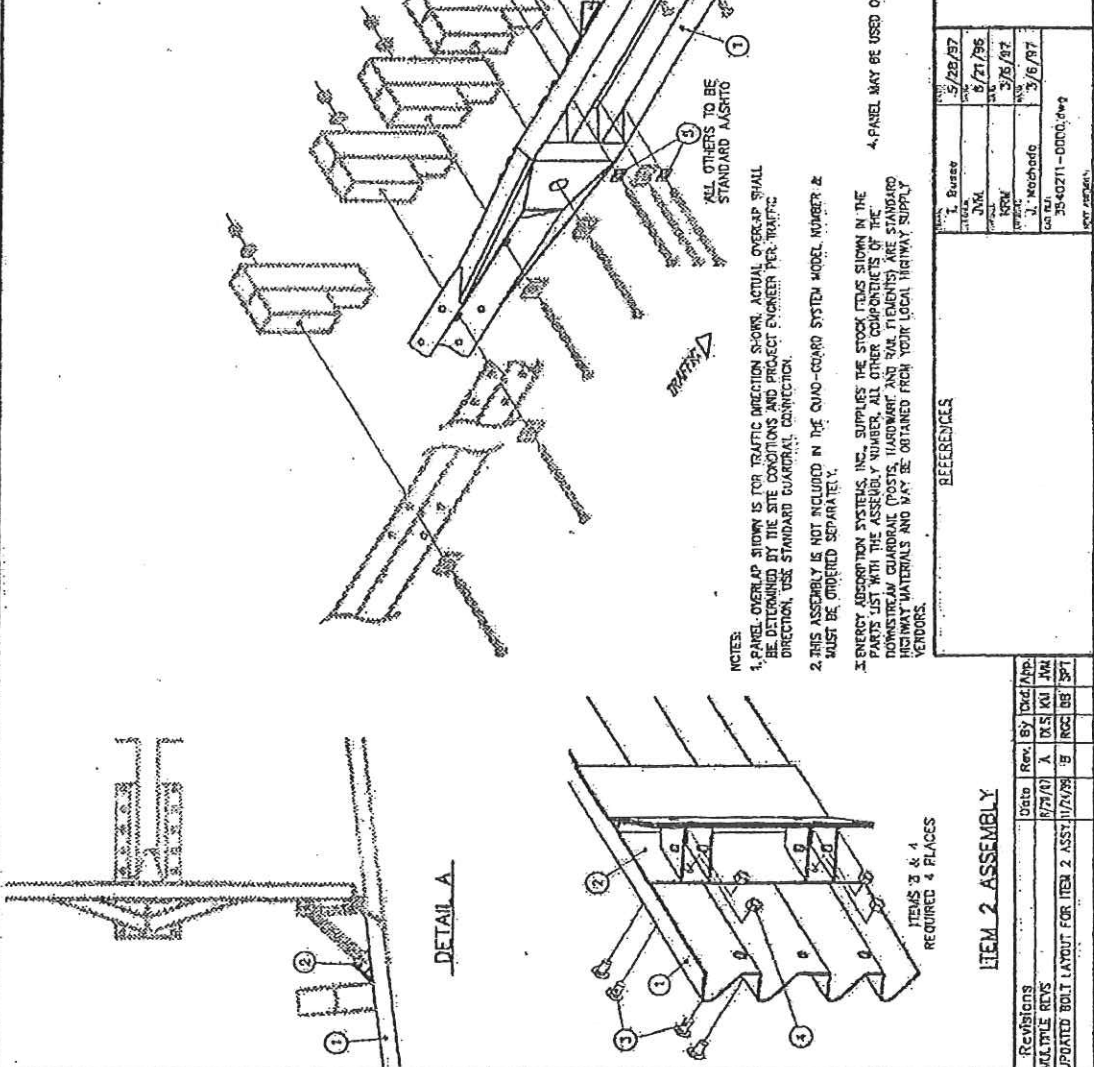
ITEM 10 WAS 2760471-0000

ADDED LEGS

CHG ITEM 3. WAS 2760481-0000.

**QUADGUARD SYSTEM
FOR WIDE HAZARDS**

ITEM	STOCK NO.	DESCRIPTION	REQ'D
1	2760121-0000	QUADGUARD TO W-BEAM TRANS. PANEL	1.00
2	2760903-0000	BRACKET/PINOT SUPPORT, TRANS. CG	1.00
3	2701811-0000	BOLT, RAIL, 5/8" X 1 1/4" G	4.00
4	2704191-0000	NUT, PK, 5/8" G	4.00
5	2768871-0000	WASHER, BAR, 1/8" X 1 1/4" X 2.0" W/HOLE	2.00



NOTES:
 1. PANEL OVERLAP SHOWN IS FOR TRAFFIC DIRECTION SHOWN. ACTUAL OVERLAP SHALL BE DETERMINED BY THE SITE CONDITIONS AND PROJECT ENGINEER FOR TRAFFIC DIRECTION. USE STANDARD BUFFER/AL CONVENTION.
 2. THIS ASSEMBLY IS NOT INCLUDED IN THE QUAD-GUARD SYSTEM MODEL NUMBER & MUST BE ORDERED SEPARATELY.
 3. ENERGY ABSORPTION SYSTEMS, INC., SUPPLIES THE STOCK ITEMS SHOWN IN THE PARTS LIST WITH THE ASSEMBLY NUMBER. ALL OTHER COMPONENTS OF THE DOWNSTREAM GUARDRAIL (POSTS, HARDWARE AND RAIL ELEMENTS) ARE STANDARD HIGHWAY MATERIALS AND MAY BE OBTAINED FROM YOUR LOCAL HIGHWAY SUPPLY VENDORS.

ASSEMBLY NO. 3540211-0000
 ENERGY ABSORPTION SYSTEMS, INC.
 ENGINEERING AND RESEARCH DEPARTMENT

QUAD-GUARD™
 TRANSITION ASSEMBLY,
 QUAD-BEAM™ TO W-BEAM-WIDE

DATE	REV	BY	CHKD	APP'D
5/28/97		J. BURSE		
6/21/96		J. BURSE		
3/6/97		J. BURSE		
3/6/97		J. BURSE		

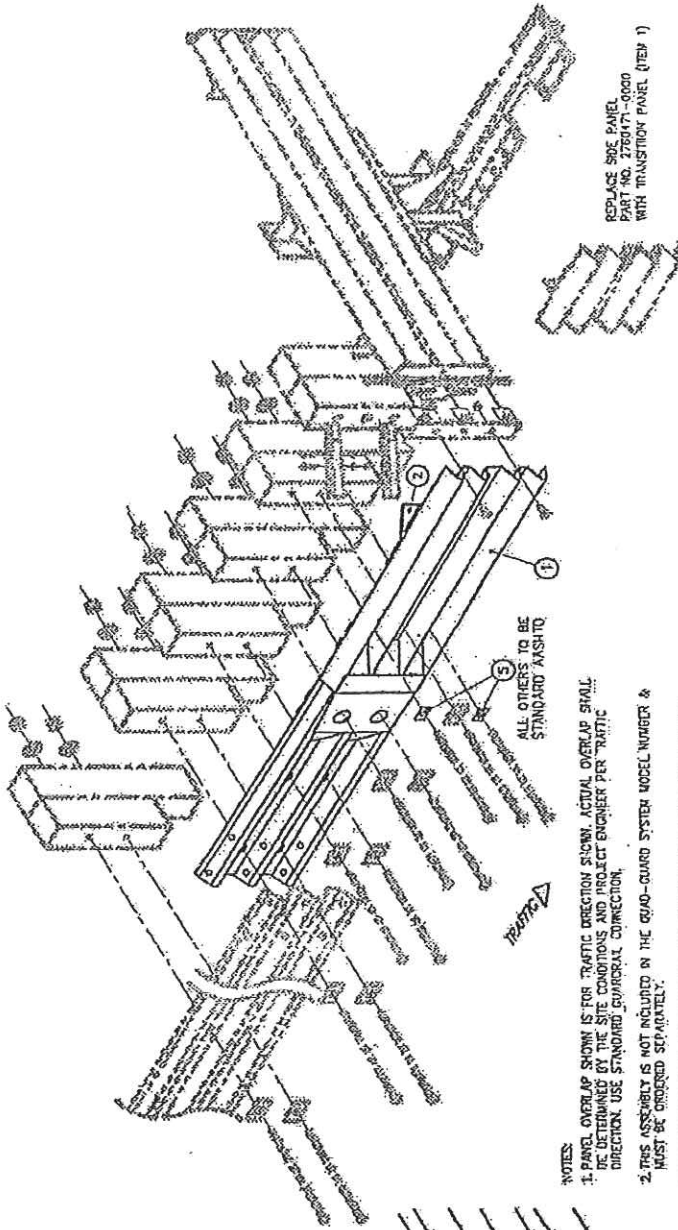
REFERENCES

REV	DATE	BY	CHKD	APP'D
1	05/21/96	J. BURSE		
2	05/21/96	J. BURSE		
3	05/21/96	J. BURSE		
4	05/21/96	J. BURSE		

ITEM 2 ASSEMBLY

**QUADGUARD SYSTEM
FOR WIDE HAZARDS**

PARTS LIST			
ITEM	STOCK NO.	DESCRIPTION	QTY
1	2780331-0000	QUADGUARD TO THREE-BEAM TRANS. PANEL	1.00
2	2780503-0000	BRACKET/PANOT SUPPORT TRANS. 00	1.00
3	2701811-0000	BOL TRAIL 5/8" X 1 1/4" G	4.00
4	2702491-0000	RIT-HX 5/8" G	4.00
5	2706871-0000	WASHER 8X1 1/4" X 2" W/ WIDE	2.00



- NOTES:
- 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 OVERLAP CONNECTION.
 - THIS ASSEMBLY IS NOT INCLUDED IN THE QUAD-GUARD SYSTEM MODEL NUMBER & MUST BE ORDERED SEPARATELY.
 - ENERGY ABSORPTION SYSTEMS, INC. SUPPLIES THE STOCK ITEMS SHOWN IN THE PARTS LIST WITH THE ASSEMBLY NUMBER. ALL OTHER COMPONENTS OF THE DOWNSTREAM CORDONAL (POSTS, BARRICADE AND RAIL ELEMENTS) ARE STANDARD HIGHWAY MATERIALS AND MAY BE OBTAINED FROM YOUR LOCAL HIGHWAY SUPPLY VENDORS.

A-PANEL MAY BE USED ON LEFT AND/OR RIGHT SIDE.

ASSEMBLY NO. 3540221-0000
ENERGY ABSORPTION SYSTEMS, INC.
ENGINEERING AND RESEARCH DEPARTMENT

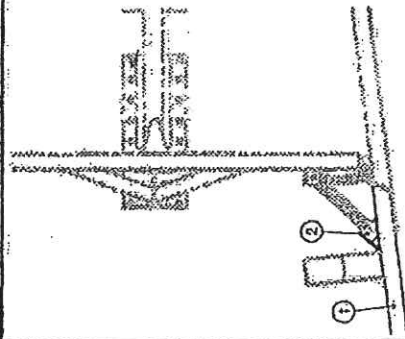
QUAD-GUARD™
TRANSITION ASSEMBLY,
QUAD-BEAM™ TO THREE-BEAM - WIDE

P.N.T.S. 3540221-0000 I of 2 B

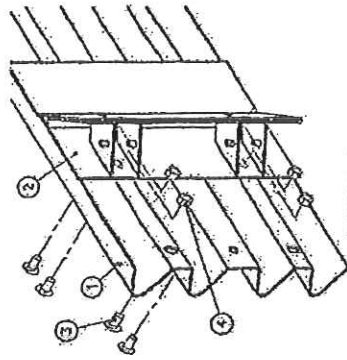
REFERENCES

REV.	DATE	BY	CHKD.
05/29/97	05/29/97	JAM	JAM
05/21/96	05/21/96	XRM	JAM
05/03/97	05/03/97	J. Machado	JAM
05/03/97	05/03/97	J. Machado	JAM

DESIGN: 3540221-0000.dwg



DETAIL A



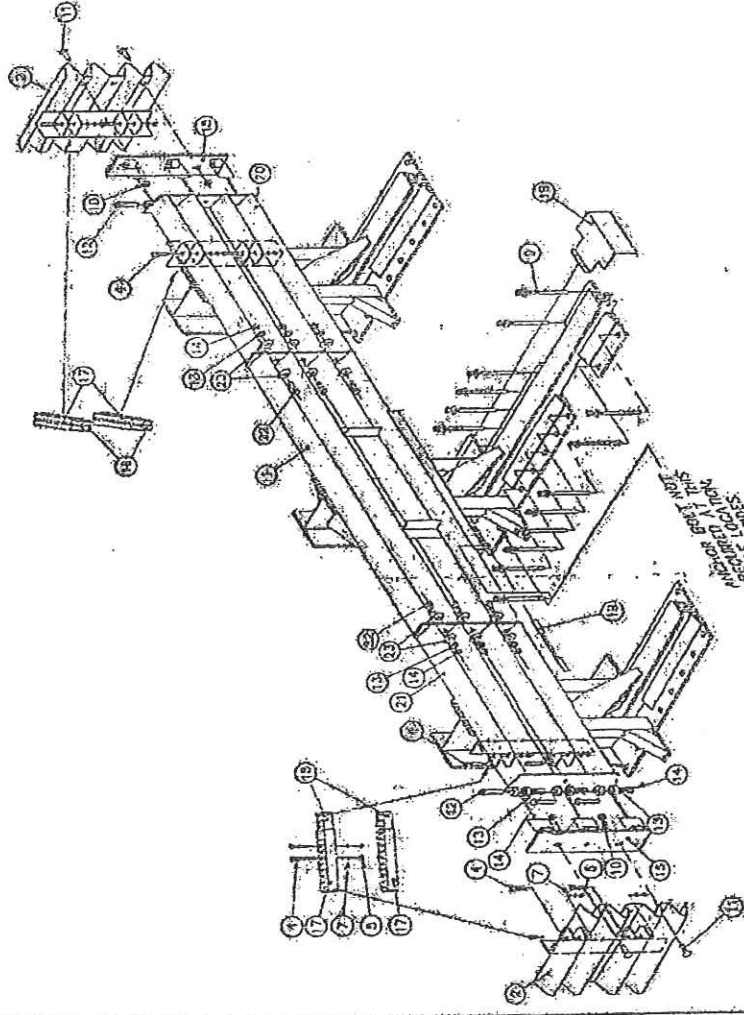
ITEM 2 ASSEMBLY

Revisions	Date	Rev. By	Chk. App.
MULTIPLE REVS	07/27/97	A	D.S. WILSON
UPDATED DETAILING	07/29/99	B	RICE, B.B. SPT

PARTS LIST

ITEM	STOCK NO.	DESCRIPTION	QTY
1	2700431-0000	BACKUP TS 120.00 WIDE CENTER SECTION	1.00
2	2700471-0000	PANEL SIDE ON W/REG	2.00
3	2609007-0000	BOLT 1/2" X 3" ANCH 1/2" OZ FULL THREAD	16.0
4	2700031-0000	WASHER LOCK 3/4"	16.0
5	2700041-0000	ANCHOR BUSH SPT-MT 3/4 X 7/8	8.00
6	3023305-0000	ANCHOR BUSH SPT-MT 3/4 X 7/8	8.00
7	2700191-0000	WASHER LOCK 3/4"	4.00
8	2700191-0000	WASHER LOCK 3/4"	4.00
9	2700191-0000	WASHER LOCK 3/4"	4.00
10	2700191-0000	WASHER LOCK 3/4"	4.00
11	2700191-0000	WASHER LOCK 3/4"	4.00
12	2700191-0000	WASHER LOCK 3/4"	4.00
13	2700191-0000	WASHER LOCK 3/4"	4.00
14	2700191-0000	WASHER LOCK 3/4"	4.00
15	2700191-0000	WASHER LOCK 3/4"	4.00
16	2700191-0000	WASHER LOCK 3/4"	4.00
17	2700191-0000	WASHER LOCK 3/4"	4.00
18	2700191-0000	WASHER LOCK 3/4"	4.00
19	2700191-0000	WASHER LOCK 3/4"	4.00
20	2700191-0000	WASHER LOCK 3/4"	4.00
21	2700191-0000	WASHER LOCK 3/4"	4.00
22	2700191-0000	WASHER LOCK 3/4"	4.00
23	2700191-0000	WASHER LOCK 3/4"	4.00

NOTES:
 1. WHEN TRANSITIONING GUARDIAN SYSTEM TO EXISTING BARRIER REFER TO THE TRANSITION ASSEMBLY DRAWINGS FOR PROPER USE OF SIDE PANEL, ITEM #2 AND DIAGONAL BRACES, ITEMS 16 & 17.



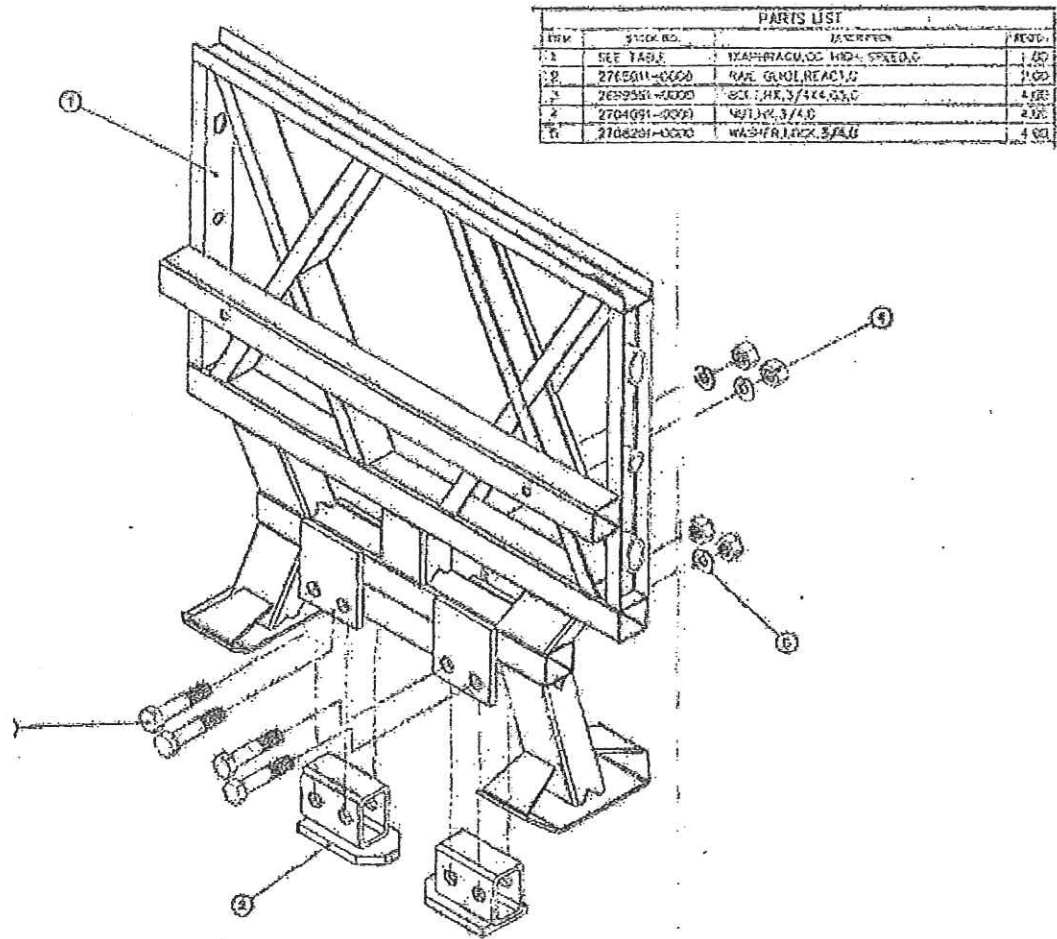
ASSEMBLY NO. 6012210-0000
 ENERGY ABSORPTION SYSTEMS, INC.
 ENGINEERING AND RESEARCH DEPARTMENT
 GUARDIAN® SYSTEM
 BACKUP ASSY, TS, 120.00 WIDE

REFERENCES

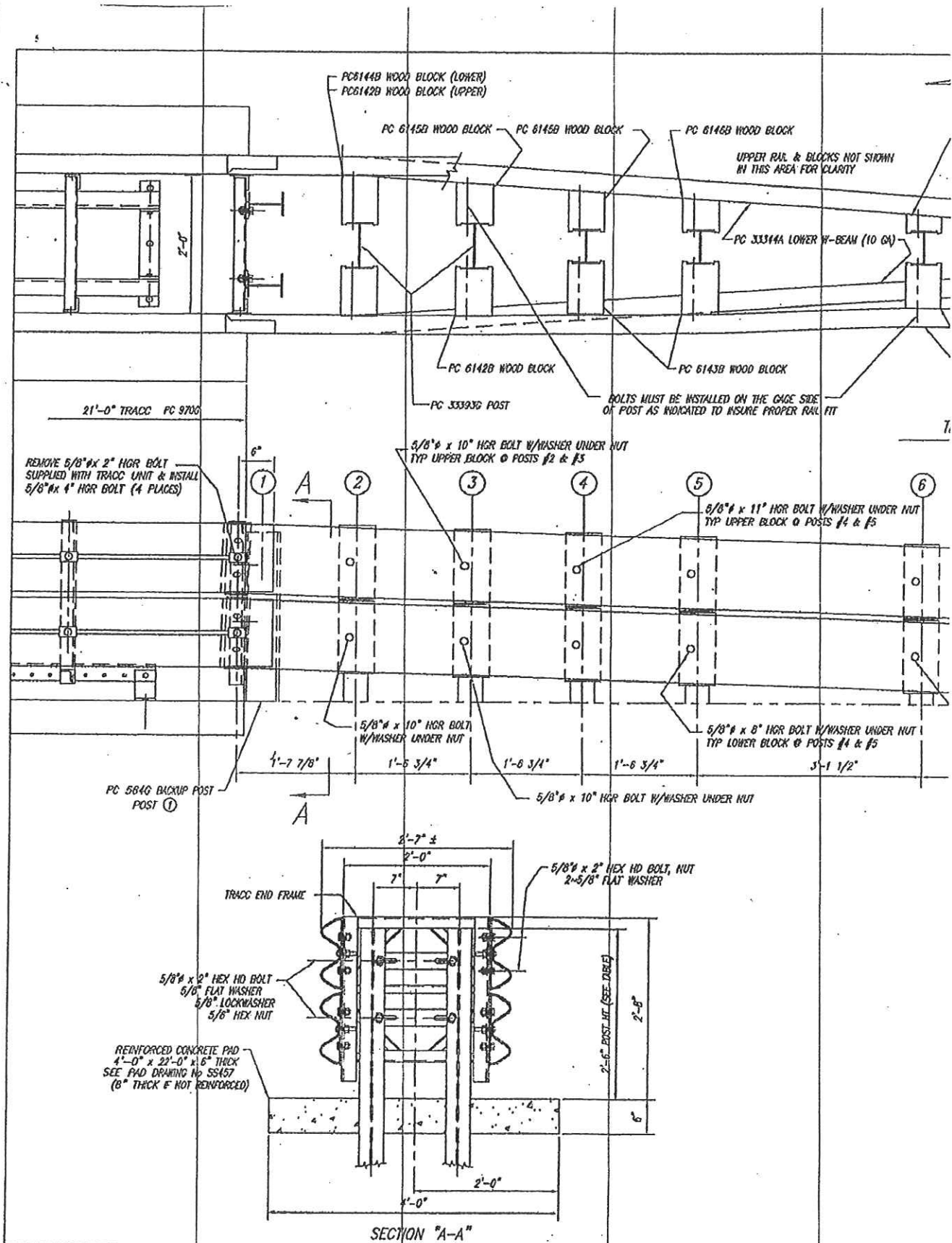
DATE	BY	CHKD	APP
01/08/01	H. MCDYER		
01/19/01	BS		
01/19/01	SPT		

REVISIONS

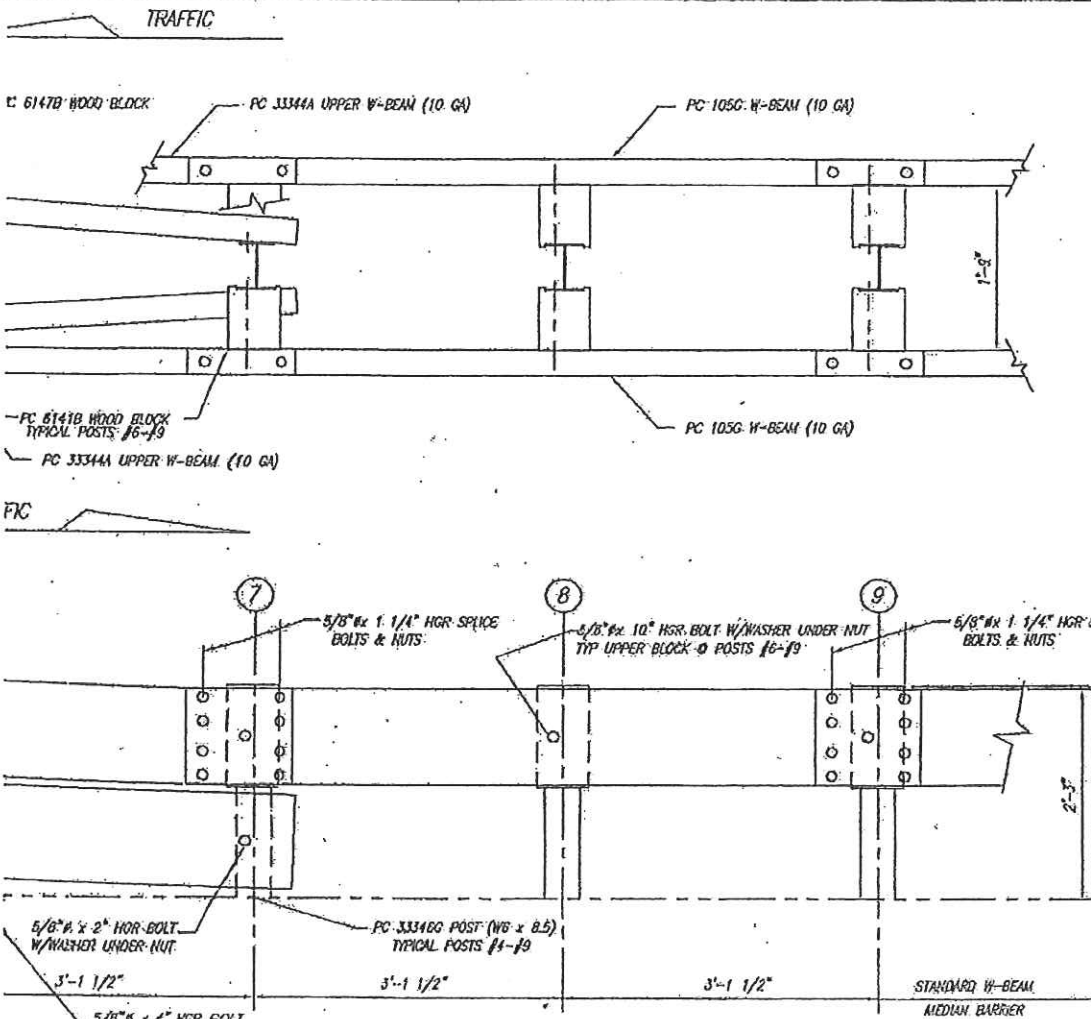
REV	CHANGED TO	DATE	BY	CHKD	APP
1	REV CHANGED TO MATCH BIT 2	01/08/01	SPT		



NOTE: THIS DIAPHRAGM TO BE USED ONLY FOR DIAPHRAGMS 1 THRU 3 ON THE QUADGUARD-HS



MATCH RIGHT SIDE OF SHEET WITH LEFT SIDE OF SHEET 37



TRACC TRANSITION BILL OF MATERIAL

PRODUCT CODE	QTY	DESCRIPTION
105G	2	10/63/TRACC (QUADRANT)
584G	2	BACKUP POST (W6 x 8.5 x 6'-6")
33344A	4	10/126/TRACC (QUADRANT)
33346G	2	POST W6 x 13 x 7'-6"
33346G	6	POST W6 x 8.5 x 6'-6"
6141B	8	RTD WD BLOCK 1'-1 (6 x 8")
6142B	4	RTD WD BLOCK 1'-1 (6 x 8 3/4)
6143B	4	RTD WD BLOCK 1'-1 (6 x 9 1/4)
6144B	2	RTD TPRD WD BLK 1'-1 (6 x 8 9/16)
6145B	4	RTD TPRD WD BLK 1'-1 (6 x 7 1/4)
6146B	2	RTD TPRD WD BLK 1'-1 (6 x 8.15/16)
6147B	2	RTD TPRD WD BLK 7'-1 (6 x 3 3/8)
HARDWARE		
J510G	4	5/8" x 11" HGR POST BOLT
J500G	16	5/8" x 10" HGR POST BOLT
J480G	4	5/8" x 6" HGR POST BOLT
J432G	6	5/8" x 4" HGR POST BOLT
J400G	2	5/8" x 2" HGR POST BOLT
J360G	32	5/8" x 1 1/4" HGR SPUCE BOLT
J340G	60	5/8" HGR HEX NUT
J300G	32	5/8" FLAT WASHER (Ø HGR POST BOLT)
J401G	12	5/8" x 2" HEX HD BOLT (A325)
J372G	20	5/8" WASHER
J310G	4	5/8" LOCKWASHER
J361G	12	5/8" HEX NUT

POST HEIGHT TABLE

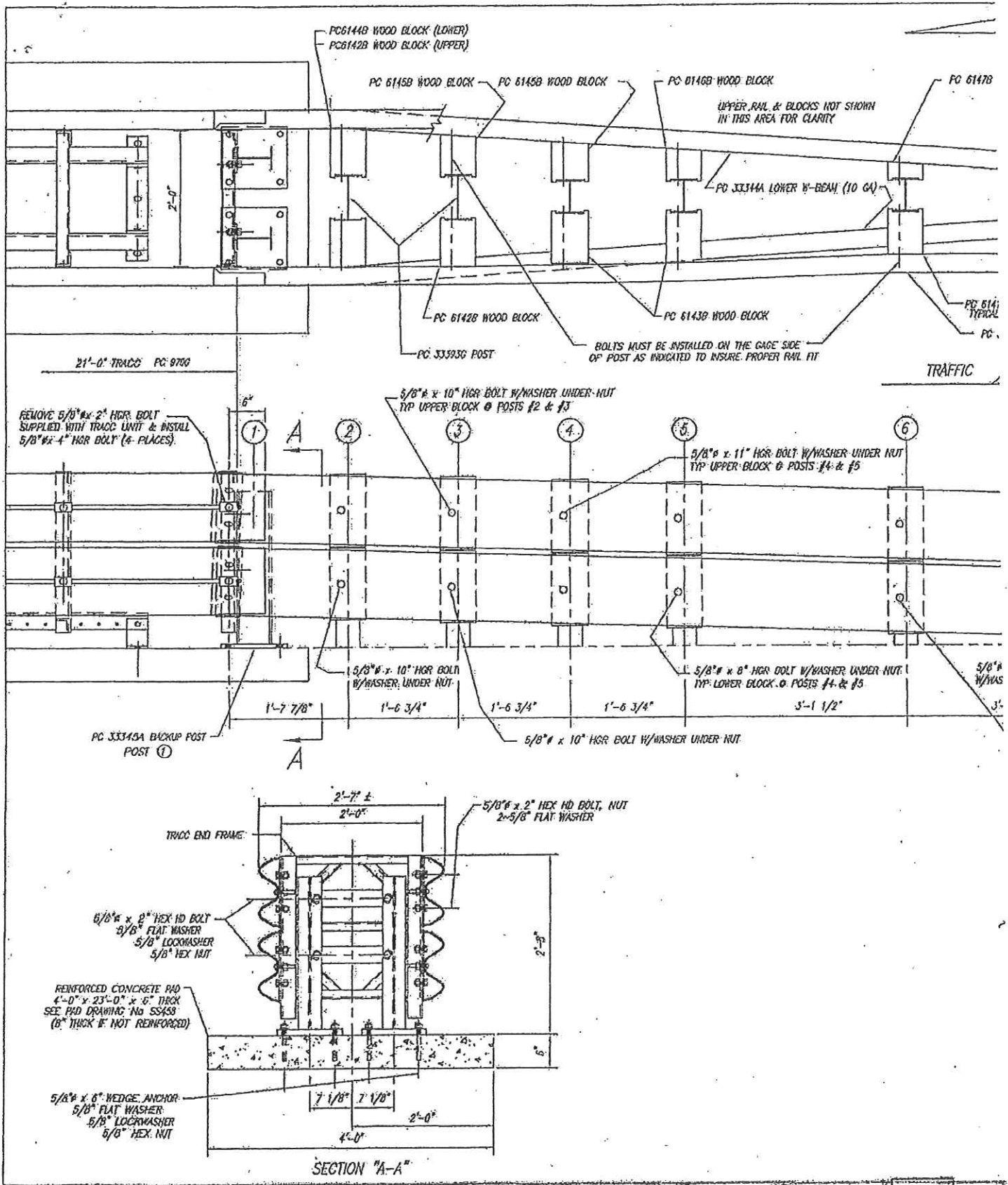
POST NO	HEIGHT
①	2'-0"
②	2'-2 3/8"
③	2'-5 3/4"
④	2'-5 1/8"
⑤	2'-5 1/2"
⑥	2'-4 3/8"
⑦	2'-3 3/8"
⑧	2'-3 3/8"
⑨	2'-3 3/8"

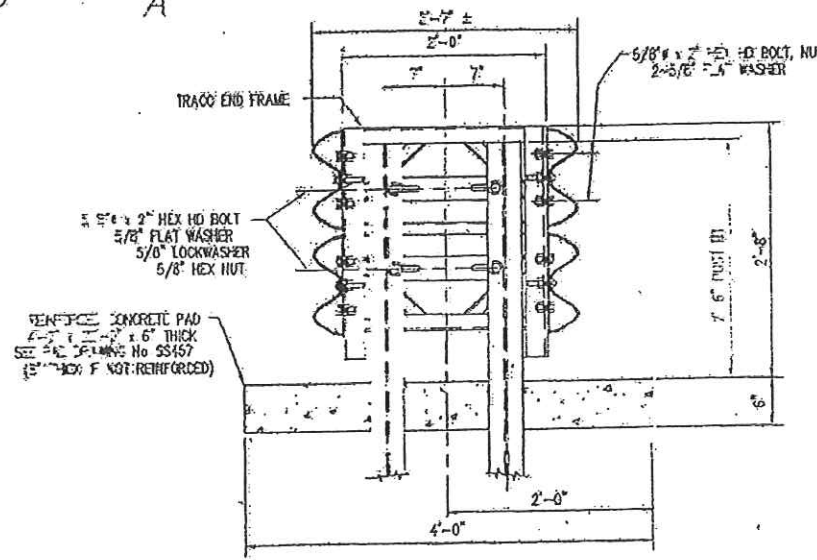
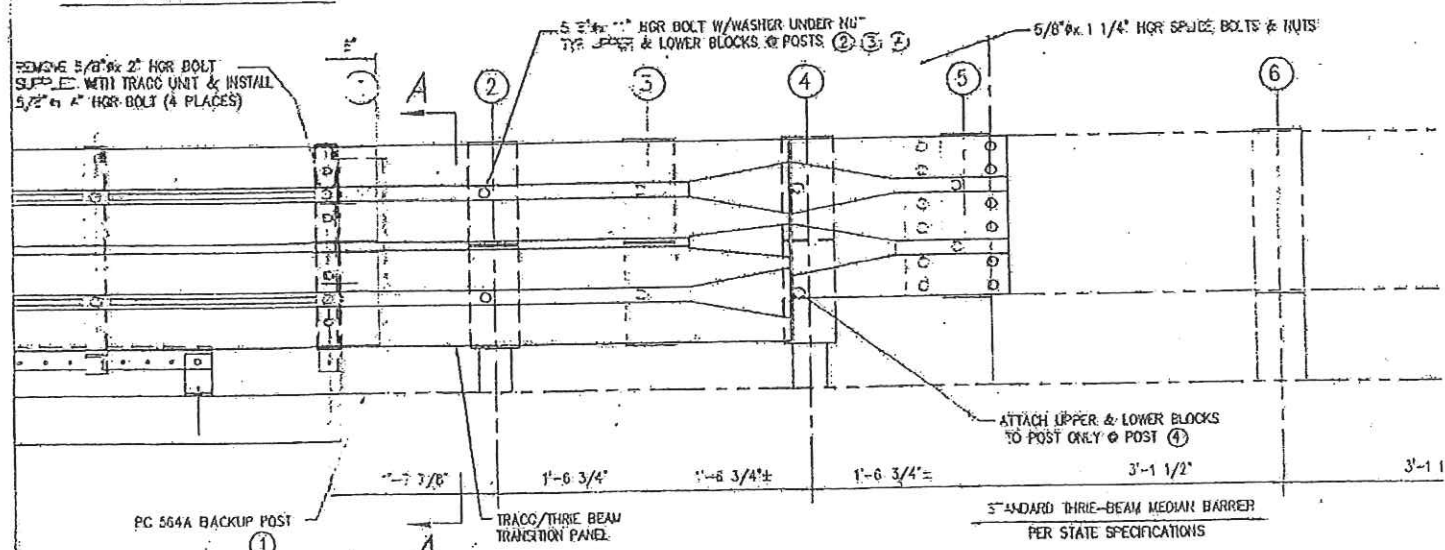
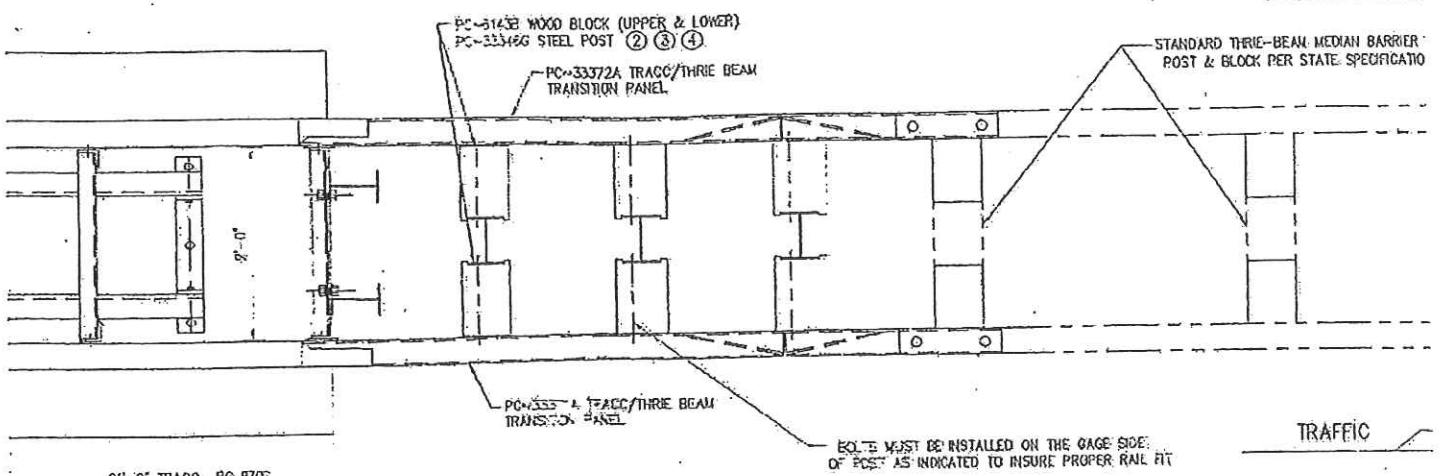
1	BT	8-7-01	REVISED POSTS #2 & #3 AND LENGTH OF TRANSITION	REMARKS
TRACC TRANSITION TO W-BEAM MEDIAN BARRIER PLAN, ELEVATION & SECTIONS (ALL DRIVEN POSTS)				DRAWN: B.T. CHECKED: APPROVED: DATE: 8/16/09 ENG. FILE # SS453-01E SYTHA: E1 OF 1 DRAWING NO: SS 453
TRINITY INDUSTRIES, INC. HIGHWAY SAFETY PRODUCTS 2525 STEMMONS FREEWAY, DALLAS, TX 75336				REV: 1

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37

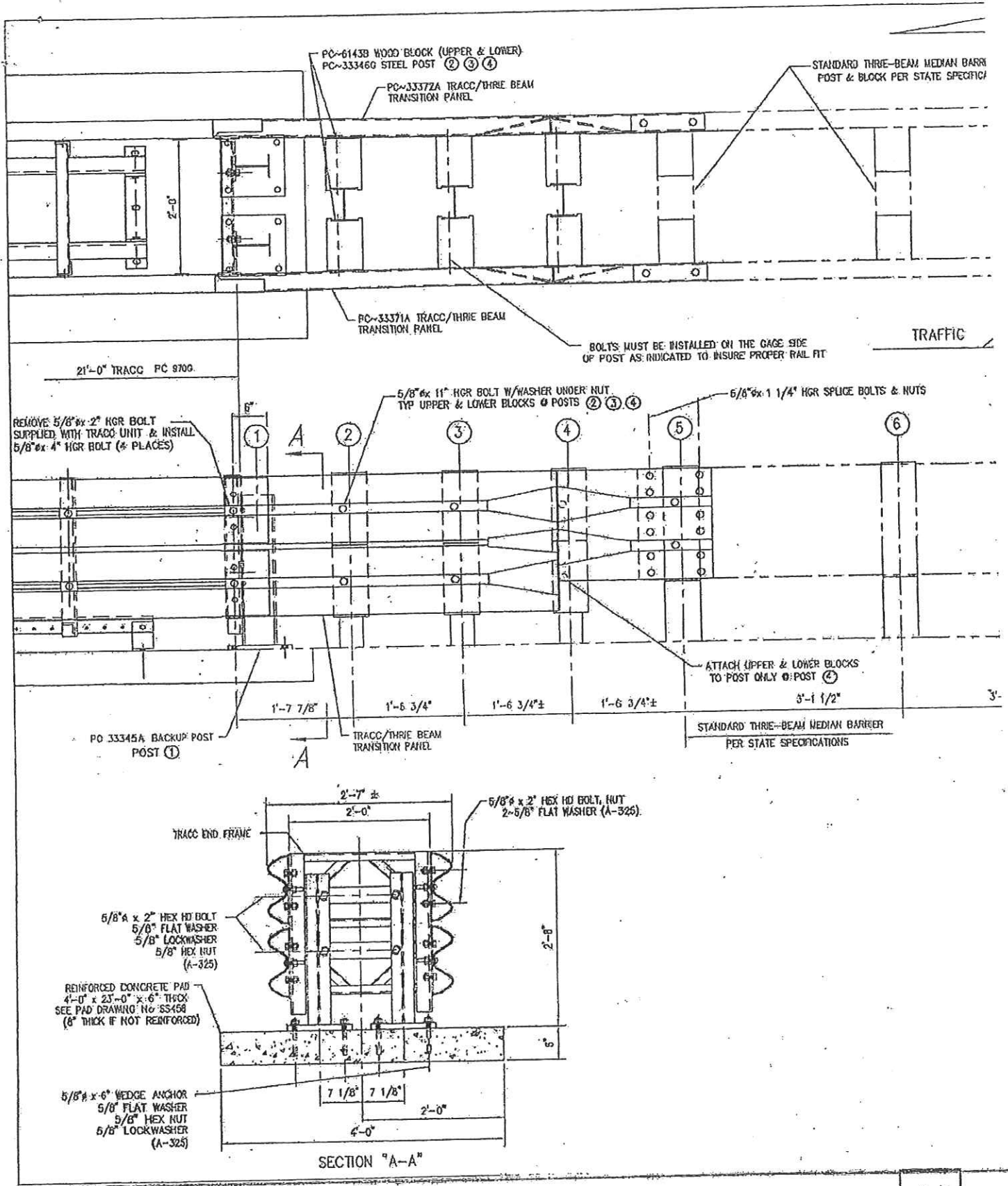
MATCH LEFT SIDE OF SHEET WITH RIGHT SIDE OF SHEET 36

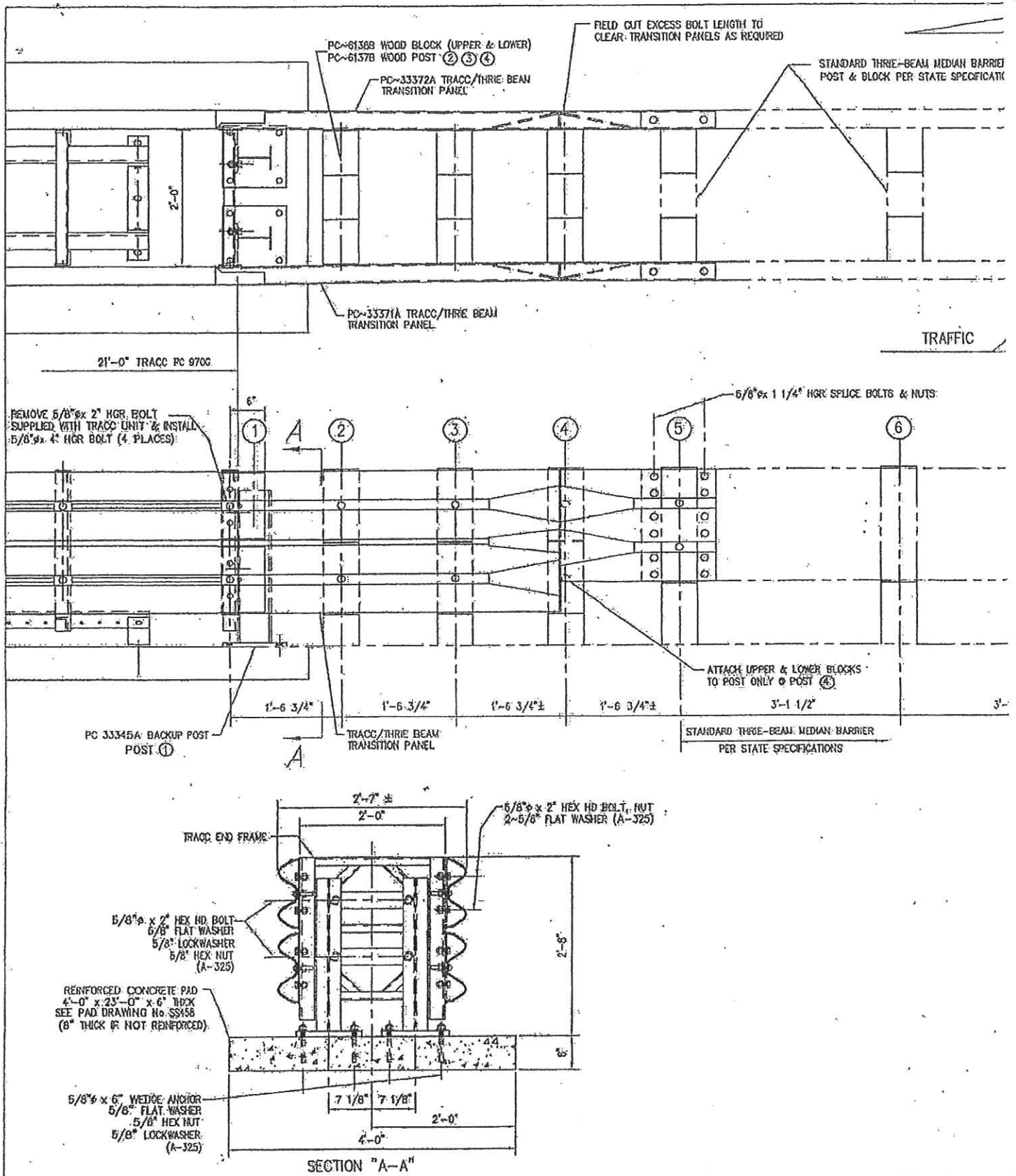


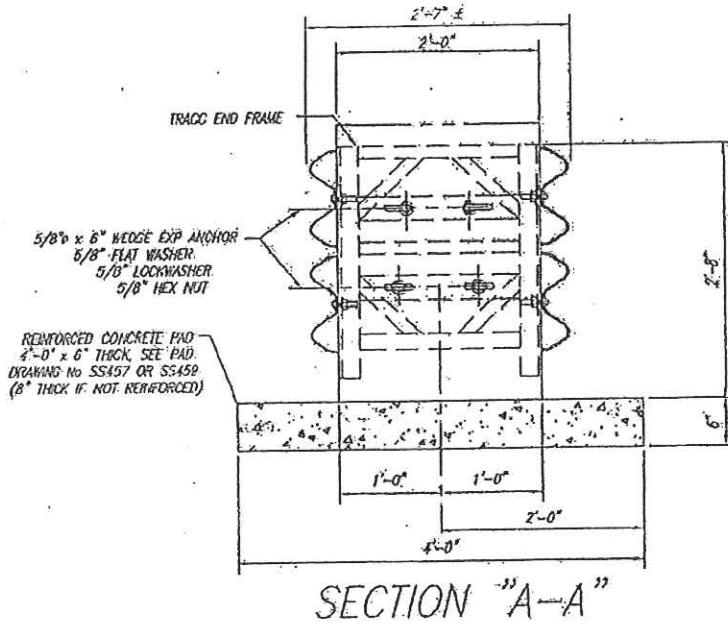
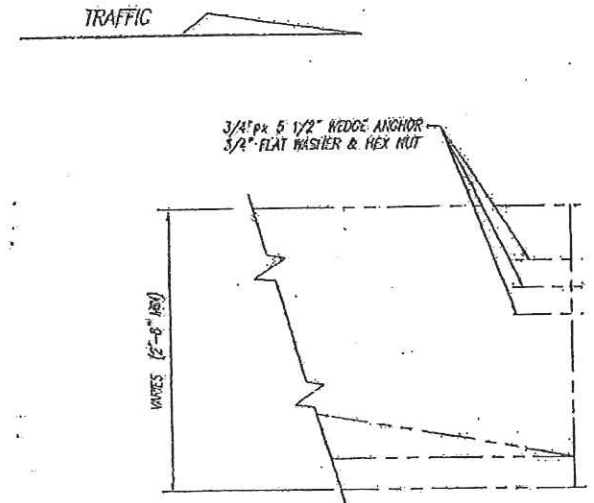
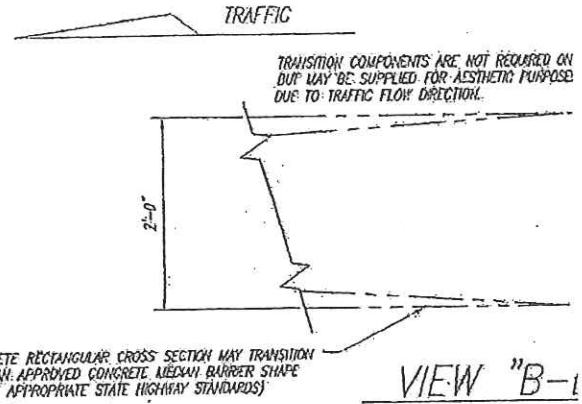


39

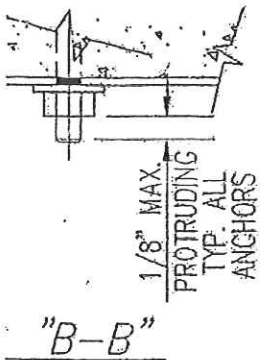
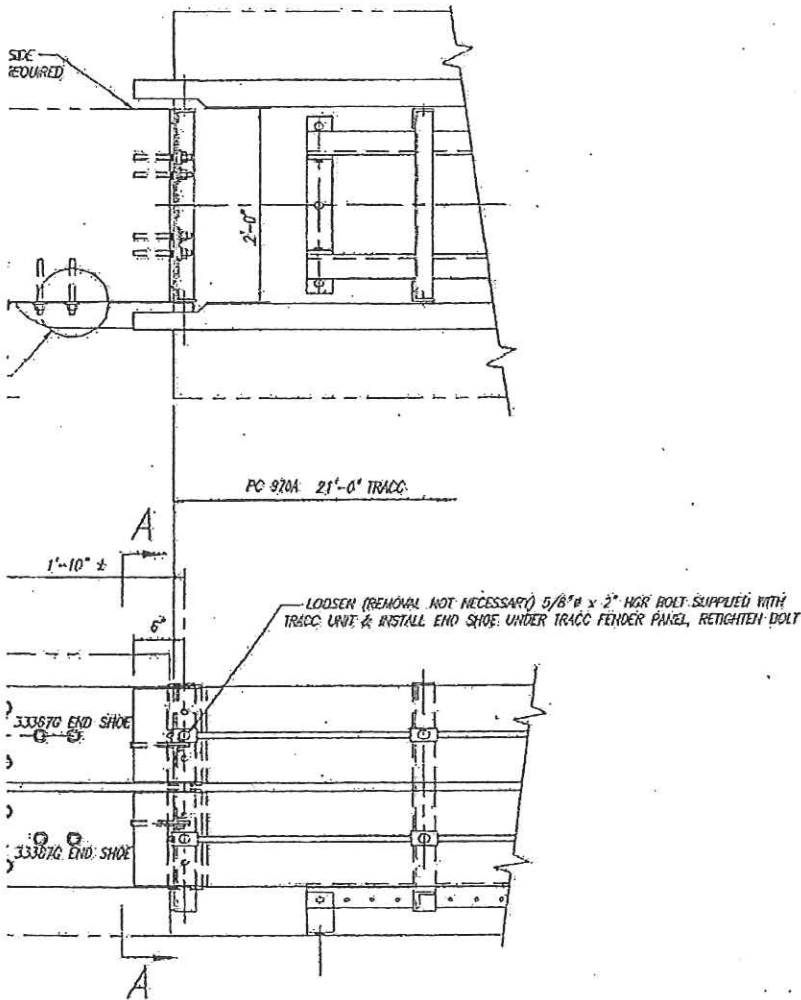
MATCH RIGHT SIDE OF SHEET WITH LEFT SIDE OF SHEET 40







VIE



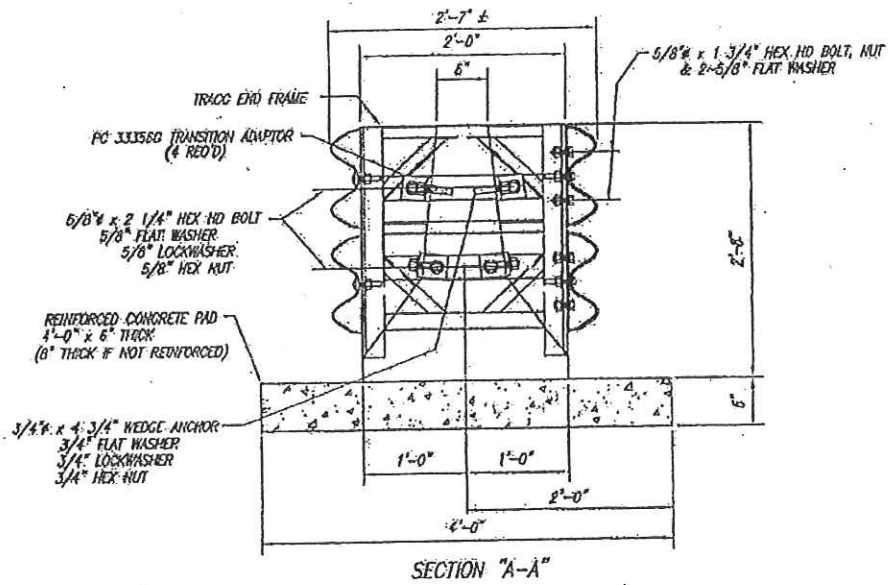
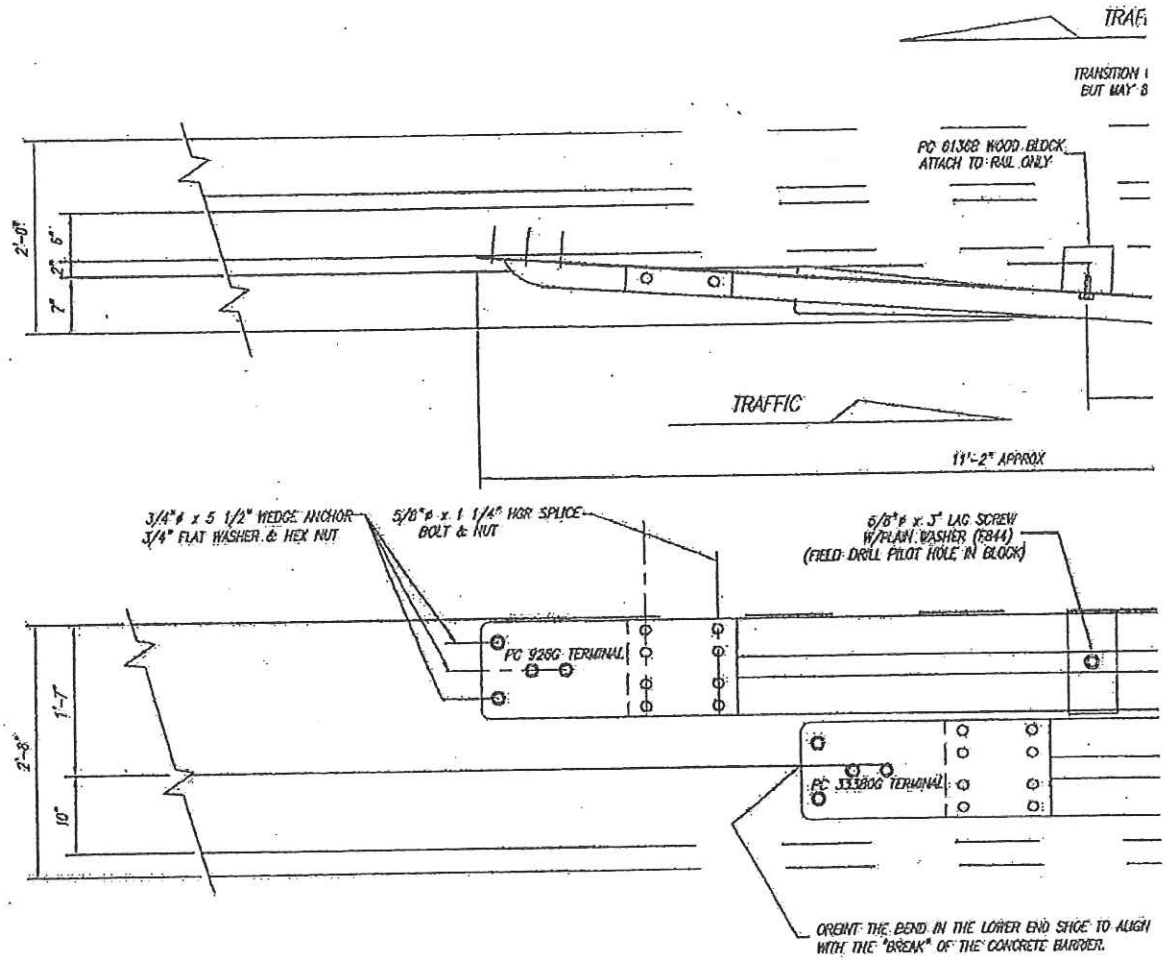
TRACC TRANSITION BILL OF MATERIAL		
PRODUCT CODE	QTY	DESCRIPTION
333870	2	TRACC 10GA END SHOE
HARDWARE		
3316G	4	5/8" LOCKWASHER
4451G	4	5/8" x 6" WEDGE EXP ANCHOR
4688G	8	3/4" x 5 1/2" WEDGE EXP ANCHOR

1	B.T.	L.H.L.	11/19/03	ADDED EXPANSION BOLT VIEW B-B
REV.	CHGD	BY	DATE	REMARKS
TRACC TRANSITION TO VERTICAL CONCRETE WALL, PIER, PARAPET OR BARRIER: PLAN, ELEVATION & SECTIONS				DRAWN B.T. CHECKED APPROVED DATE 9-7-00 EXL FILE J SS456-DIE SHEET E1 OF 1 DRAWING NO SS 456
TRINITY INDUSTRIES, INC. HIGHWAY SAFETY PRODUCTS 2525 STEMMONS FREEWAY, DALLAS, TX 75356				REV 1

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44

MATCH LEFT SIDE OF SHEET WITH RIGHT SIDE OF SHEET 43

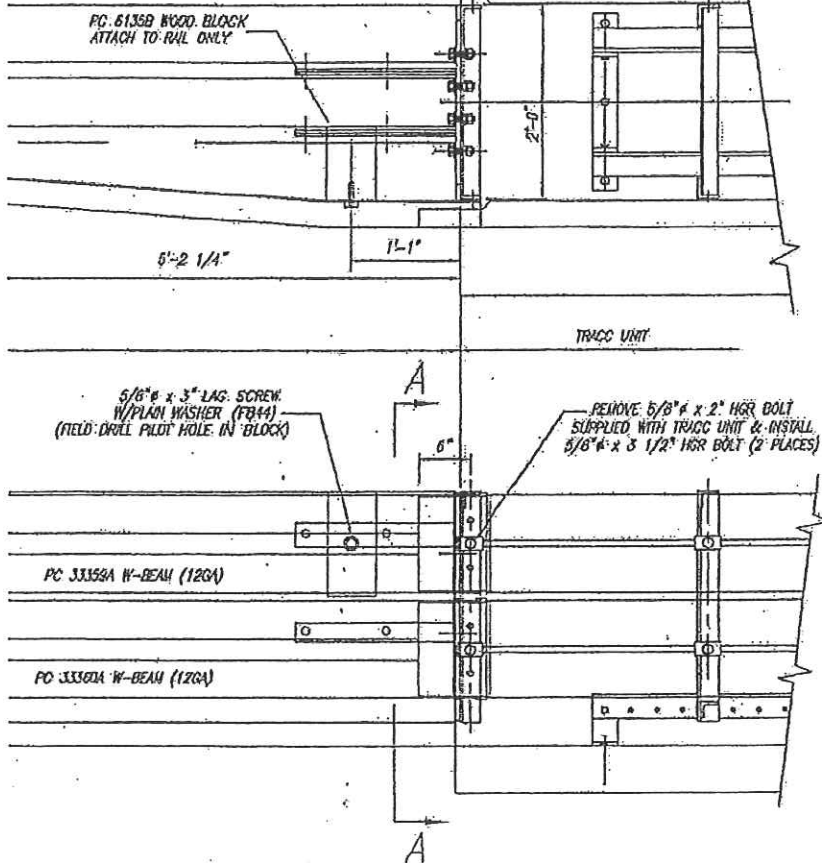


45

MATCH RIGHT SIDE OF SHEET WITH LEFT SIDE OF SHEET 46

C

COMPONENTS ARE NOT REQUIRED ON THIS SIDE SUPPLIED FOR AESTHETIC PURPOSES.



TRACC TRANSITION BILL OF MATERIAL		
PRODUCT CODE	QTY	DESCRIPTION
826G	1	10/END SHOE/EXTRA HOLE (UPPER)
8135B	1	TAPERED HD BLK 1'-1" (6 x 6 1/2)
8136B	1	TAPERED HD BLK 1'-1" (6 x 5 3/4)
33356G	4	TRANSITION ADAPTOR PLATE
33358A	1	12/10.9"/TRACC (UPPER GUARDRAIL)
33360A	1	12/6/10.5"/TRACC (LOWER GUARDRAIL)
33390G	1	10/END SHOE/EXTRA HOLE/BEND (LOWER)
HARDWARE		
3362G	16	5/8"x 1 1/4" HGR SPLICE BOLT
3435G	2	5/8"x 3 1/2" HGR POST BOLT
4412C	2	5/8" x 3" LAG SCREW
5306G	4	5/8" x 2 1/4" HEX HD BOLT (A325)
3391G	4	5/8" x 1 3/4" HEX HD BOLT (A325)
3300G	2	5/8" WASHER (F844)
3340G	16	5/8" HGR NUT
4372G	12	5/8" WASHER (F436)
3310G	4	5/8" LOCKWASHER
3381G	8	5/8" HEX NUT (A563 'DH)
4688G	8	3/4" x 5 1/2" WEDGE ANCHOR
5138G	8	3/4" x 4 3/4" WEDGE ANCHOR
4699G	8	3/4" LOCKWASHER
3701G	16	3/4" WASHER
3710G	16	3/4" HEX NUT

6	SAR	6-20-05	UPDATED PART NUMBERS
5	LH	5-18-02	CHANGED BLOCK POSITION ON TOP PAVED; ADDED LOWER END SING. NOTE
4	BT	8-2-00	DELETED PC4717, PC33361 & 62, ADDED PC829 & PC33380, ENG QTY HARDWARE
3	BT	3-29-00	DELETED PC4421, ADDED PC4412
2	BT	11-5-99	DELETED PC8139, 8140, 8307 & 4441, ADDED PC6135, 8136 & 4442
1	BT	6-30-99	DELETED PC333570 & 33358, ADDED 2 MORE PC33356; CHD SECT A-A & TDNR
REV.	CHK'D	BY	DATE

TRACC

TRACC TRANSITION TO
CONCRETE SAFETY SHAPE BARRIER
PLAN, ELEVATION & SECTIONS

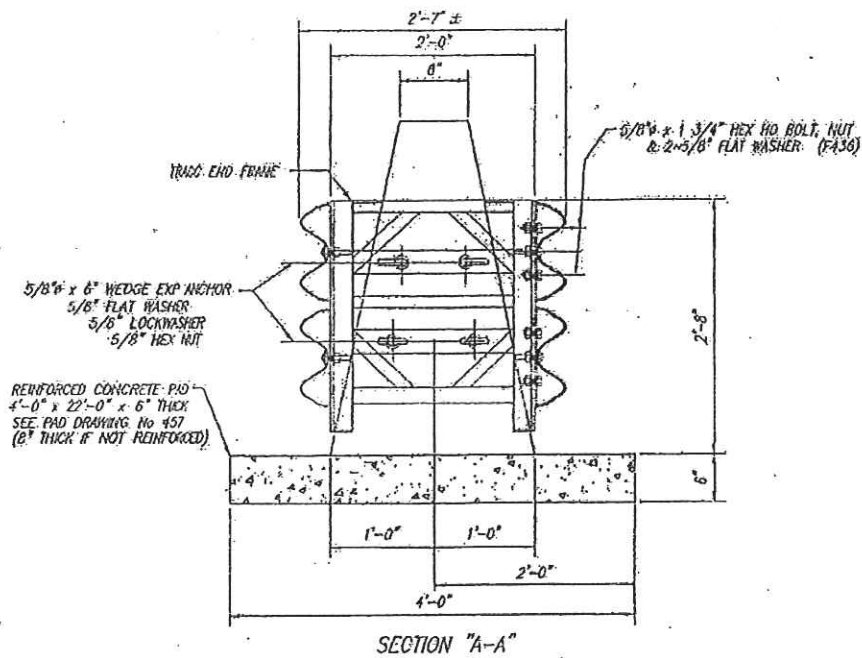
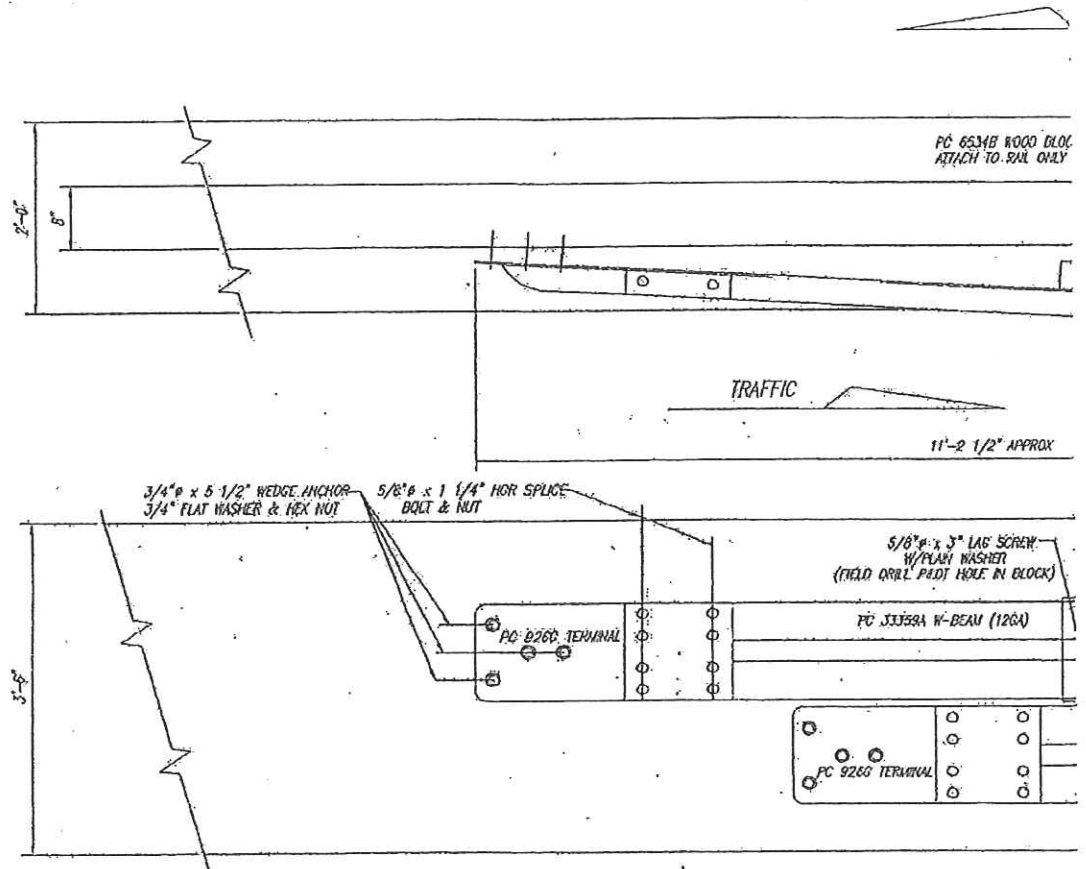
TRINITY INDUSTRIES, INC.
HIGHWAY SAFETY PRODUCTS

DRAWN	BT
CHECKED	
APPROVED	
DATE	05/10/02
ENG FILE #	SS461-01E
DWG TAIL	ET OF 1
DRAWING NO.	
REV.	

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46

MATCH LEFT SIDE OF SHEET WITH RIGHT SIDE OF SHEET 45

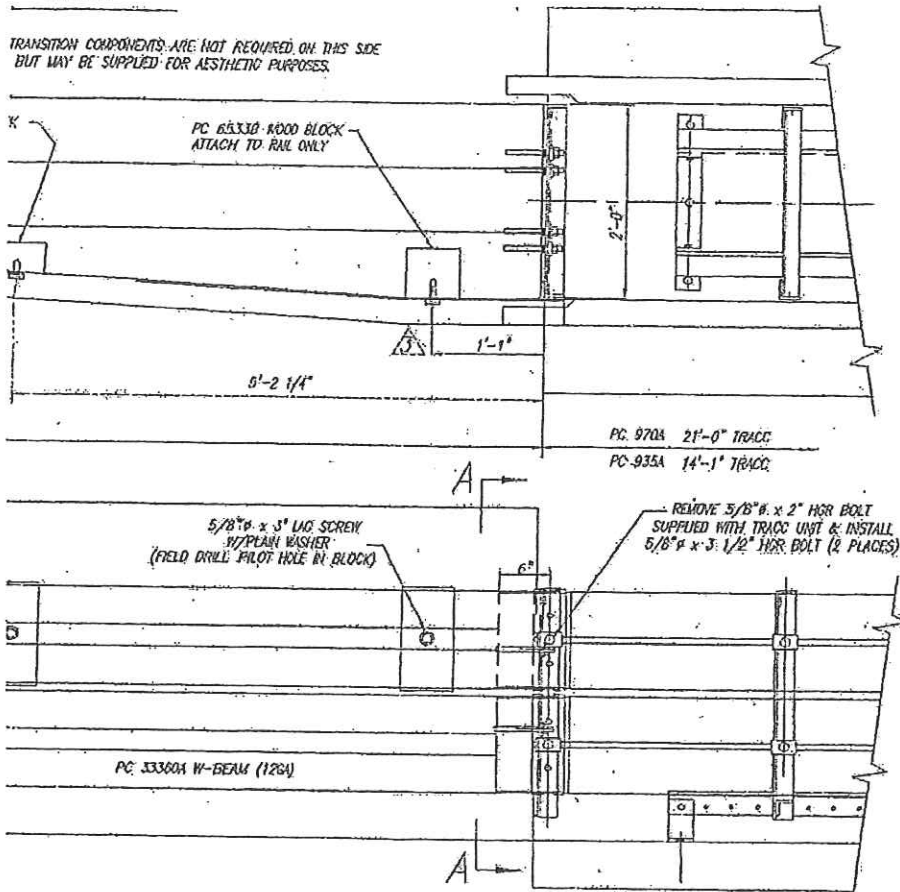


47

MATCH RIGHT SIDE OF SHEET WITH LEFT SIDE OF SHEET 48

TRAFFIC

TRANSITION COMPONENTS ARE NOT REQUIRED ON THIS SIDE BUT MAY BE SUPPLIED FOR AESTHETIC PURPOSES.




TRACC TRANSITION BILL OF MATERIAL		
PRODUCT CODE	QTY	DESCRIPTION
528C	2	10' END SHOE
6533B	1	TAPERED HD BLK 1'-1" (6 1/8" x 8)
6534B	1	MILKED HD BLK 1'-1" (6 x 3 3/4)
33359A	1	12/100" TRACC (UPPER GUARDRAIL)
33360A	1	12/6"10.5" TRACC (LOWER GUARDRAIL)
HARDWARE		
3363G	16	5/8" x 1 1/4" HGR SPLICE BOLT
3391G	4	5/8" x 1 3/4" HGR BOLT
3435C	2	5/8" x 3 1/2" HGR POST BOLT
4412C	2	5/8" x 3" LAG SCREW
3300G	6	5/8" WASHER (F844)
3340C	16	5/8" HGR NUT
4372C	8	5/8" WASHER (F436)
3310C	4	5/8" LOCKWASHER
3361G	8	5/8" HEX NUT (A563 DH)
4451G	4	5/8" x 6" WEDGE EXP ANCHOR
4688G	8	3/4" x 5 1/2" WEDGE EXP ANCHOR
3701C	8	3/4" WASHER
3710G	8	3/4" HEX NUT

REV.	CHKD	BY	DATE	REMARKS
4	LH		04/27/03	REVISED QUANTITY OF 3/4" NUTS/WASHERS
3	BT		01/29/03	CHANGED BLOCK LOCATION
2	LH		01/21/03	CHANGED BLOCKS & THEIR LOCATION ON TOP PANEL
1	BT		8-2-00	DELETED PC33361 & PC 4717, ADDED PC9376, CHG QTY HARDWARE



TRACC

<p>TRACC TRANSITION TO CONCRETE BARRIER SINGLE SLOPE PLAN, ELEVATION & SECTIONS</p>	<p>DRAWN B.T.</p> <p>CHECKED</p> <p>APPROVED</p> <p>DATE 11/05/99</p> <p>ENG FILE # SS462-01E</p> <p>SCALE ET OF 1</p> <p>DRAWING NO. SS 462</p> <p>REV. 4</p>
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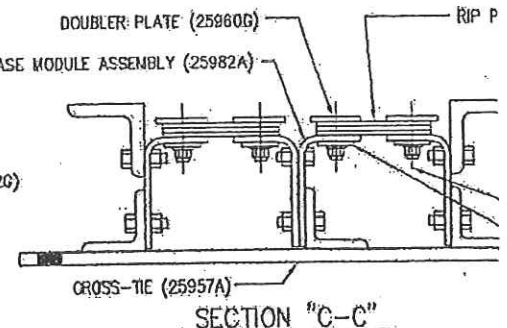
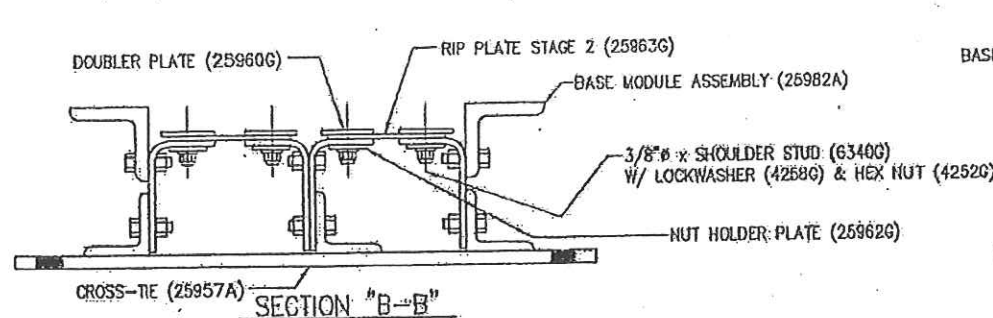
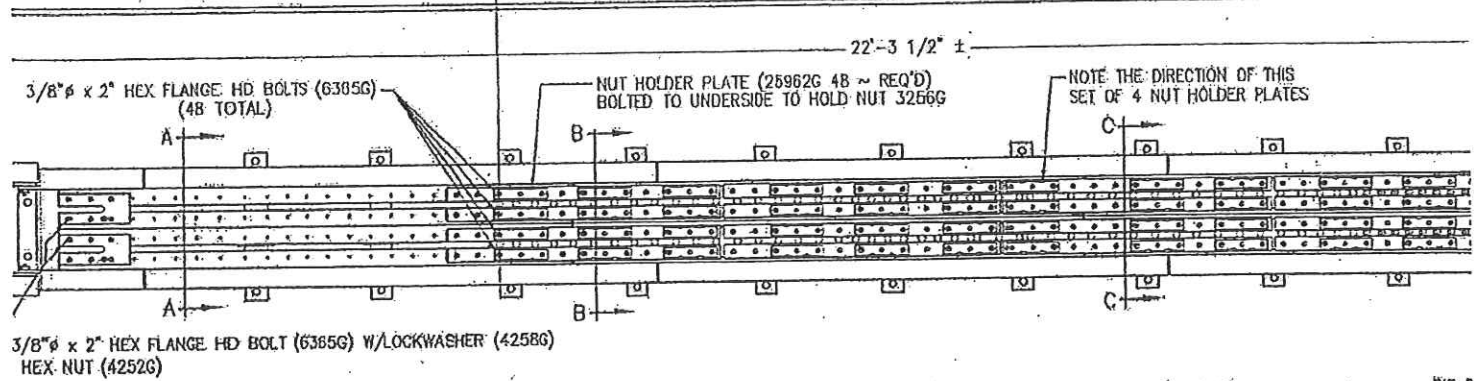
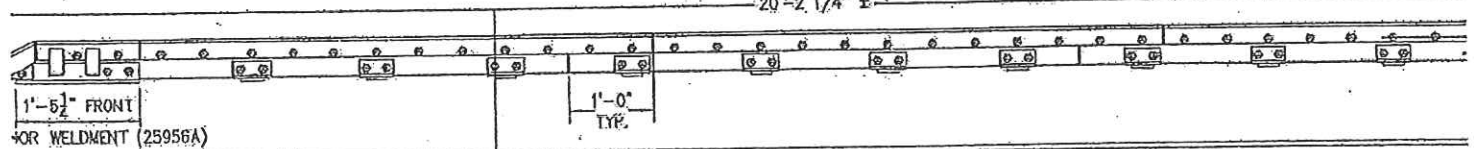
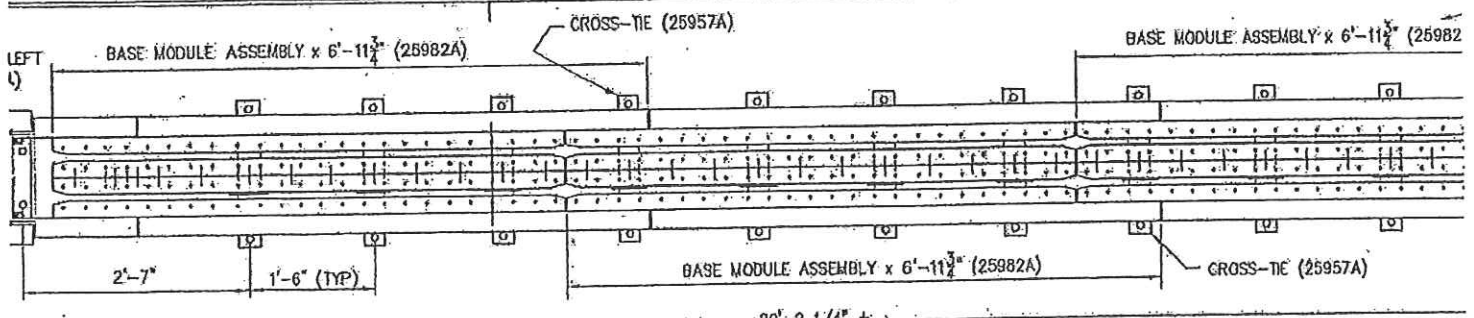
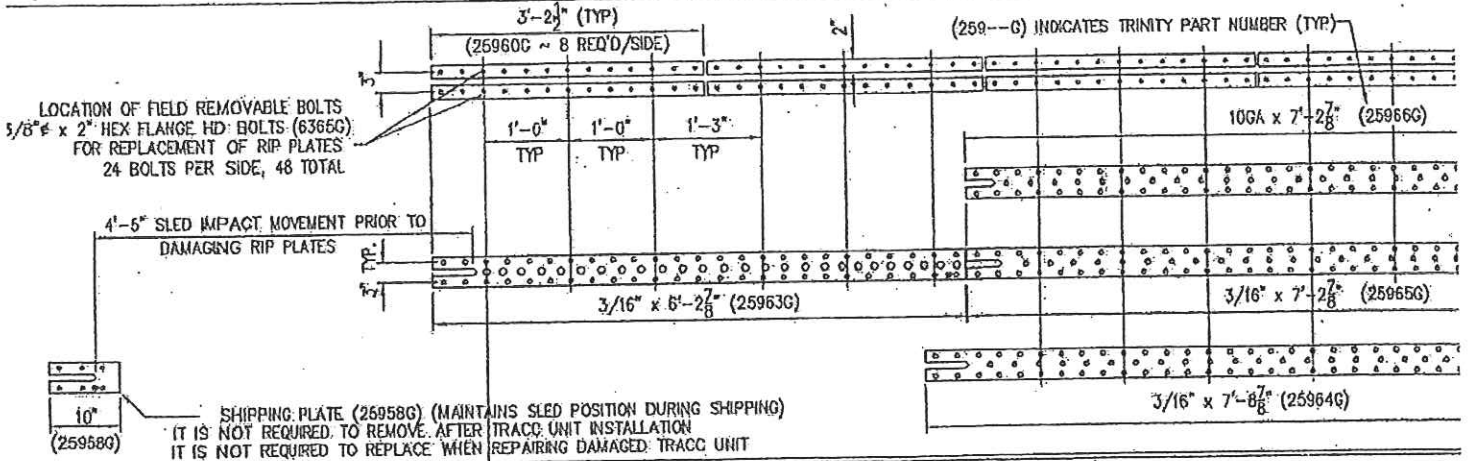


TRINITY INDUSTRIES, INC.
HIGHWAY SAFETY PRODUCTS
2525 STEVENS FREEWAY, DALLAS, TX 75356

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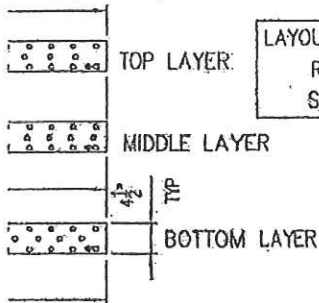
48

MATCH LEFT SIDE OF SHEET WITH RIGHT SIDE OF SHEET 47



MATCH RIGHT SIDE OF SHEET WITH LEFT SIDE OF SHEET 50

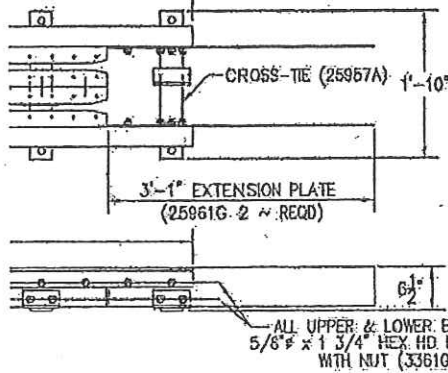
DOUBLER PLATES



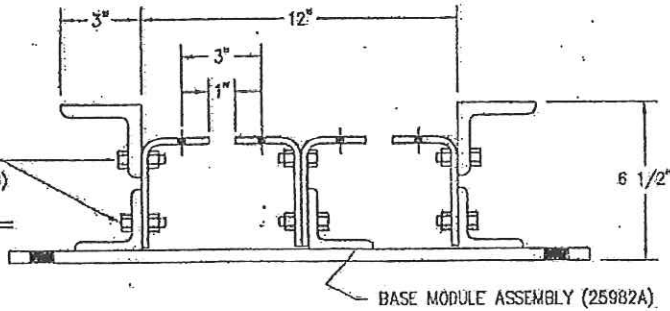
LAYOUT SCHEMATIC, TOP VIEW
RIP PLATES FOR ONE SIDE OF TRACC BASE

TRACC BASE (25981A) BILL OF MATERIALS				
Part #	Description	Qty	WT. EACH (#)	TOTAL WT.
03258G	3/8" Shoulder Nut	48	0.030	1.44
03361G	6/8" Heavy Hex Nut (A663 DH)	40	0.120	4.8
03391G	5/8" x 1 3/4" Hex Head Bolt (A325)	40	0.210	8.4
04252G	3/8" Hex Nut	180	0.030	5.4
04258G	3/8" Lock Washer	180	0.006	1.08
06340G	3/8" X 1 1/2" Shoulder Stud	178	0.060	10.68
06385G	3/8" x 2" Hex Flange Head Bolt (GR-6)	60	0.070	3.6
25954A	End Shoe, Right	1	11.000	11
25955A	End Shoe, Left	1	11.000	11
25956A	Front Anchor Weldment	1	67.000	67
25957A	Cross Tie	3	16.000	54
25958G	Rip Plate, Stage 1 (Shipping Plate)	2	0.800	1.6
25960G	Doublers	16	8.000	128
25961G	Extension Plate, Rear	2	16.000	32
25962G	Nut Holder (Nut Retainer Plate)	48	0.500	24
25963G	Rip Plate, Stage 2	2	17.000	34
25964G	Rip Plate, Stage 3, Bottom	2	22.000	44
25965G	Rip Plate, Stage 3, Middle	2	20.000	40
25966G	Rip Plate, Stage 3, Top	2	15.000	30
25982A	Base Module Assembly	3	328.000	987
			TOTAL WEIGHT	1499.80

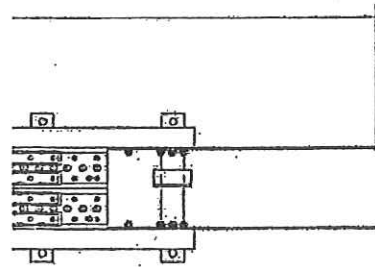
NOTE:
SEE DRAWING PN 25982 FOR ASSEMBLY OF BASE MODULE COMPONENTS.



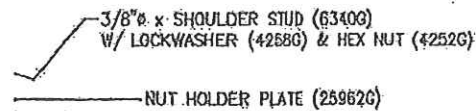
TRACC BASE ASSEMBLY WITHOUT RIP PLATES AND DOUBLER PLATES



COMPLETE TRACC BASE ASSEMBLY WITH RIP PLATES AND DOUBLERS



ES STAGE 3 (TOP) (25966G)
(MIDDLE) (25965G)
(BOTTOM) (25964G)



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REV.	CHK'D	BY	DATE	REMARKS
2		SAR	6/17/05	UPDATED PART NUMBERS
1	SG	BT	5/13/05	REPLACED BEAM GUIDES & BASE ANGLES WITH BASE MODULES

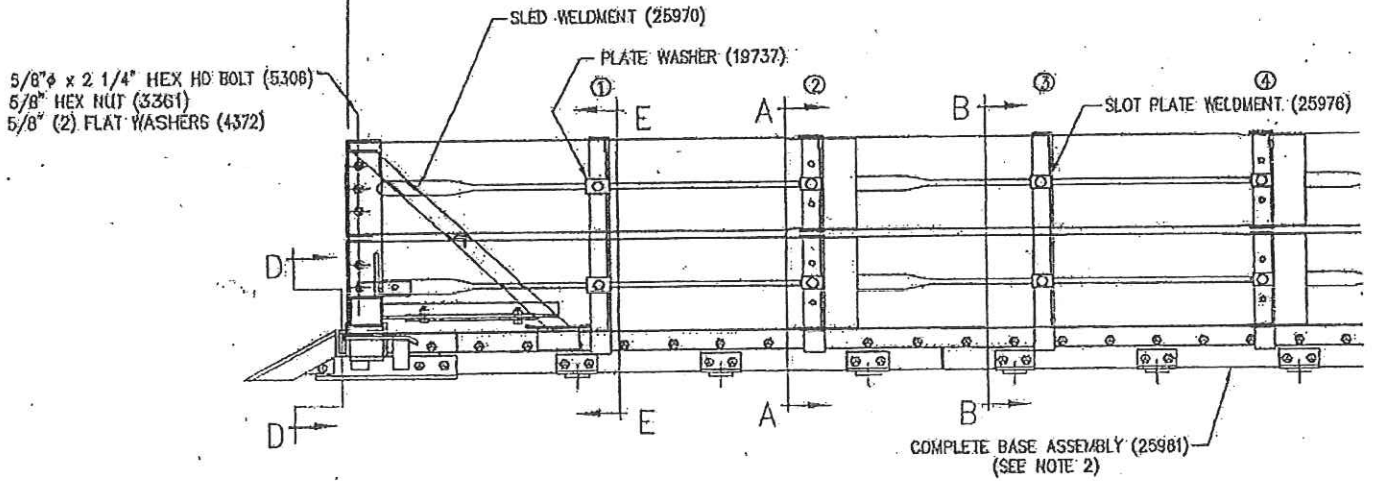
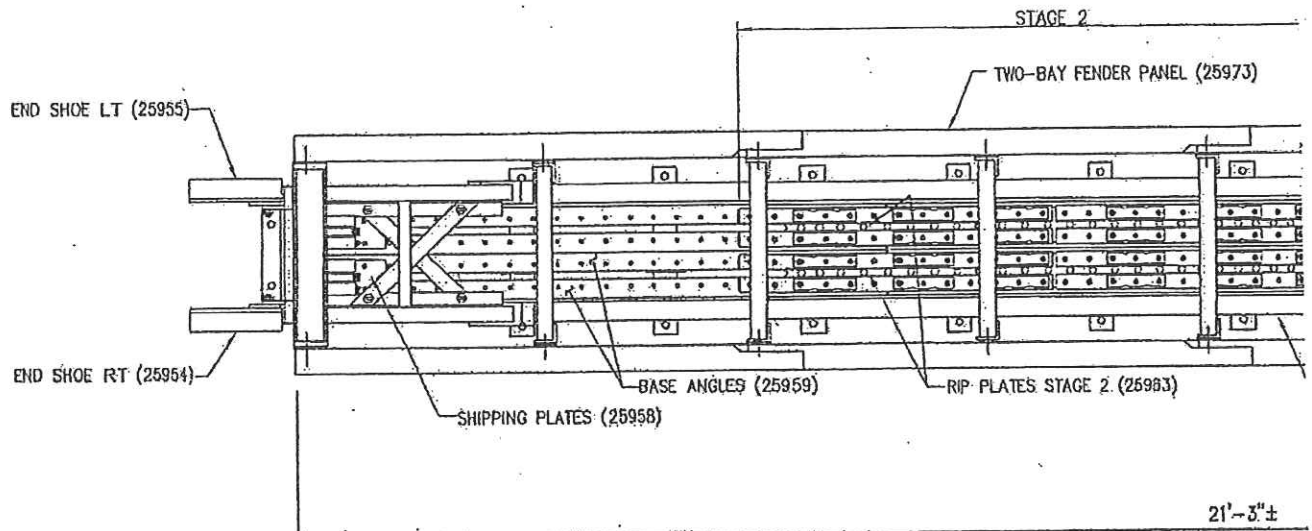
TRACC
CRASH-CUSHION ATTENUATING TERMINAL
ASSEMBLED BASE UNIT
PN 25981

TRINITY INDUSTRIES, INC.
HIGHWAY SAFETY PRODUCTS
2525 STEJACH'S FREEWAY, DALLAS, TX 75207

DRAWN	BT/AH
CHECKED	B.T.
APPROVED	
DATE	04/22/05
ENG. FILE #	SS1001-01E
SHEET #	EI OF 1
DRAWING NO.	SS 1001/PN 25981
REV.	2

50

MATCH LEFT SIDE OF SHEET WITH RIGHT SIDE OF SHEET 49



TRACC. BILL OF MATERIAL (PN 25980)

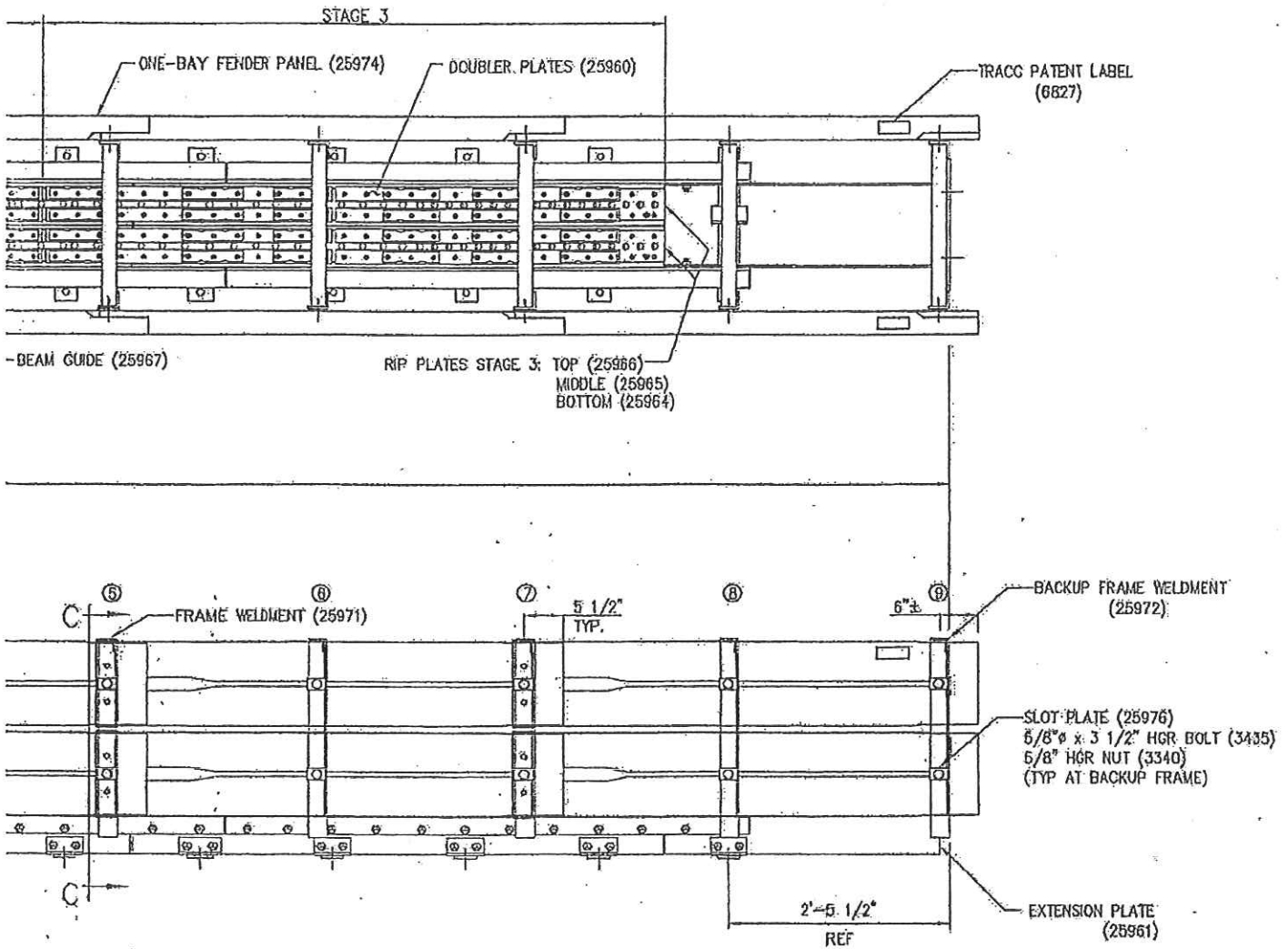
PART NUMBER	QTY	DESCRIPTION	WT/EA
19737G	12	1/4"x3"x2 1/4" TRACC WSHR	0.5#
25970A	1	SLED WELDMENT	185#
25971A	8	FRAME WELDMENT	60#
25972A	1	BACKUP. FRAME WELDMENT	74#
25973A	16	TWO - BAY FENDER PANEL	49#
25974A	4	ONE - BAY FENDER PANEL	28#
25975A	2	SHREDDER ASSEMBLY	6#
25976A	32	SLOT PLATE	0.4#
25981A	1	ASSEMBLED BASE(NOTE 2)	1499#
TOTAL WEIGHT (EXCLUDES SHOP HRDWR)			3165#

SHOP HARDWARE (GALV A153)

PART NUMBER	QTY	DESCRIPTION	MATL SPEC
3253G	2	HITCH PIN CLIP	
3340G	32	5/8" HGR NUT	A563 GR A
3361G	46	5/8" HEX NUT	A563 GR DH
3391G	32	5/8" x 1 3/4" HEX HD. BOLT	A325
3400G	12	5/8" x 2" HGR BOLT	A307 GR A
3435G	20	5/8" x 3 1/2" HGR BOLT	A307 GR A
4372G	88	5/8" FLAT WASHER	F436
4425G	2	3/4" X 2" CLEVIS PIN	
5306G	14	5/8" x 2 1/4" HEX HD. BOLT	A325
6627B	2	TRACC PATENT LABEL	

51

MATCH RIGHT SIDE OF SHEET WITH LEFT SIDE OF SHEET 52



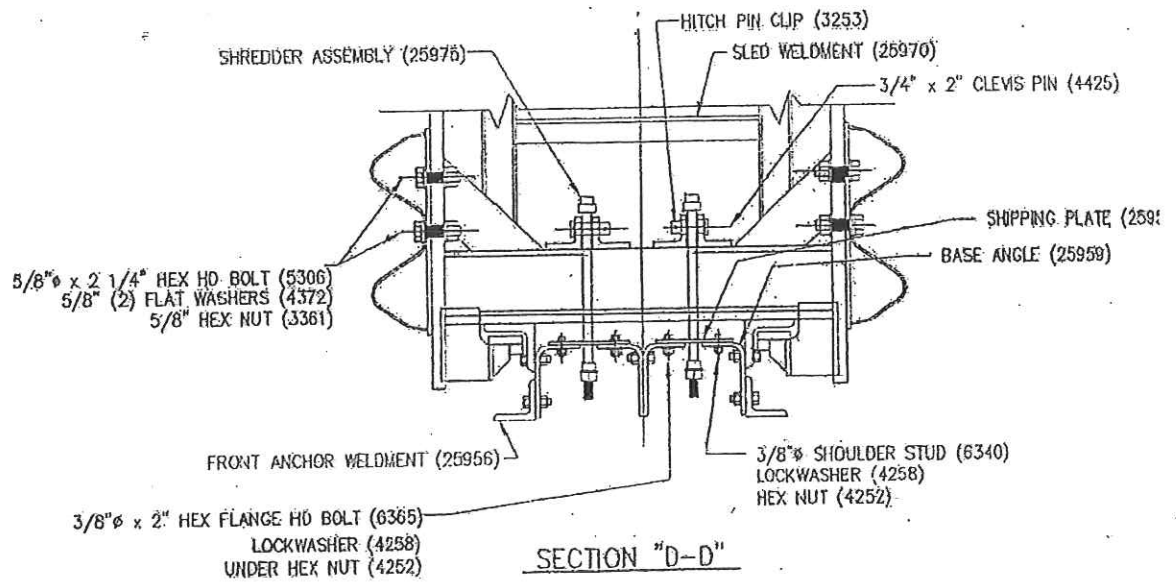
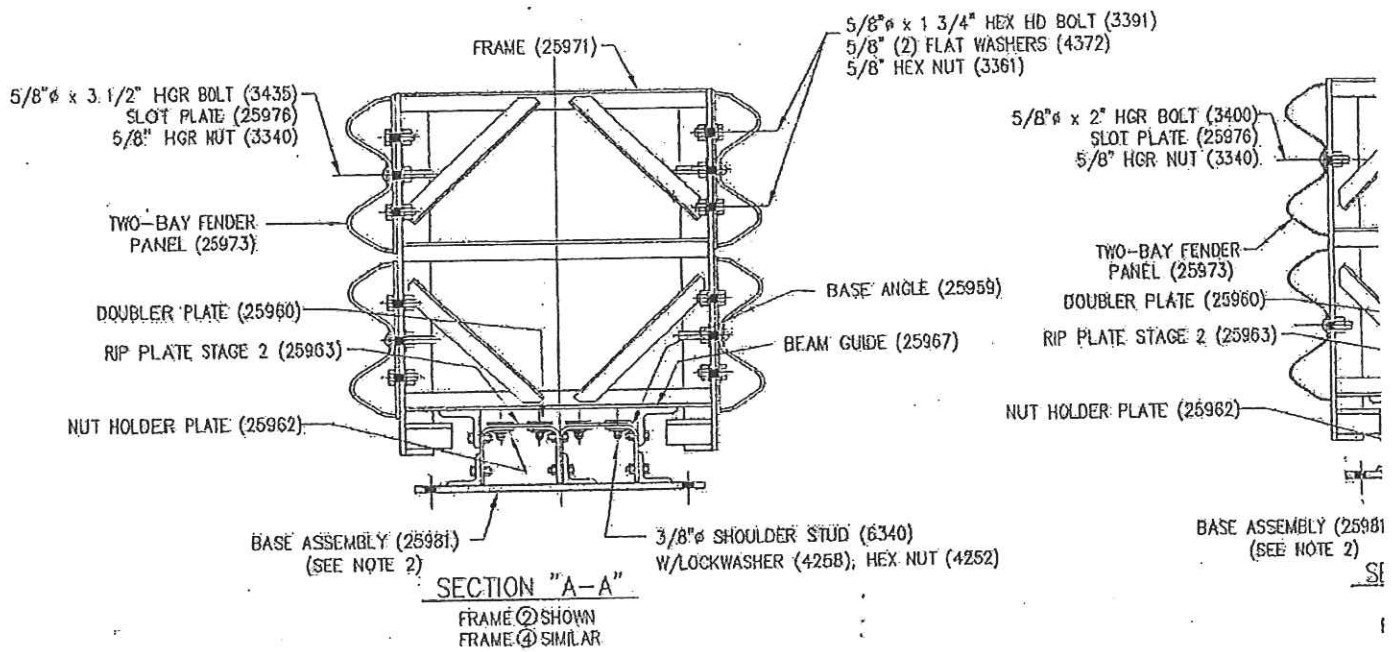
- NOTES:
 1.) FOR SECTIONAL VIEWS SEE SHEET E2 OF 2.
 2.) SEE DRAWING: SS1001 (PN 25981) FOR ASSEMBLY OF ALL BASE COMPONENTS.

REV.	DATE	BY	DESCRIPTION
1	SAR 6/18/05		FIXED WEIGHT & ADDED STAGES 2 & 3
TRACC CRASH-CUSHION ATTENUATING TERMINAL PLAN, ELEVATION, & SECTION SHOP ASSEMBLY DETAILS PN 25980			
DRAWN		LH	
CHECKED		BT	
APPROVED			
DATE		05/11/05	
ENC. FILE #		SS1002-01E	
SHEET NO.		EI OF 2	
DRAWING NO.		SS 1002-01E	
REV.		3	
TRINITY INDUSTRIES, INC. HIGHWAY SAFETY PRODUCTS 2526 STEWARTS FREEWAY, DALLAS, TX 75207			

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52

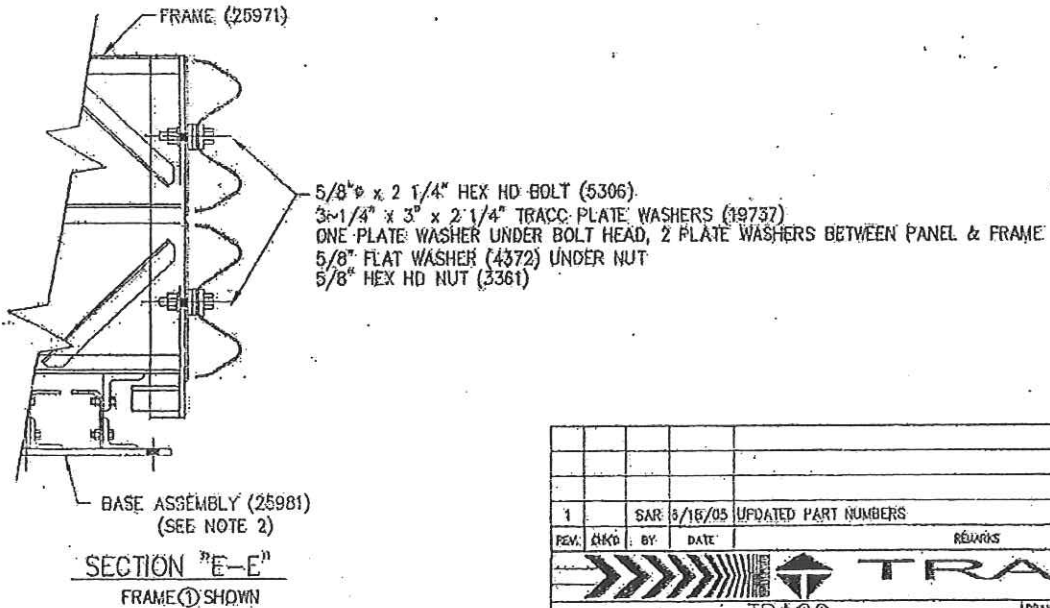
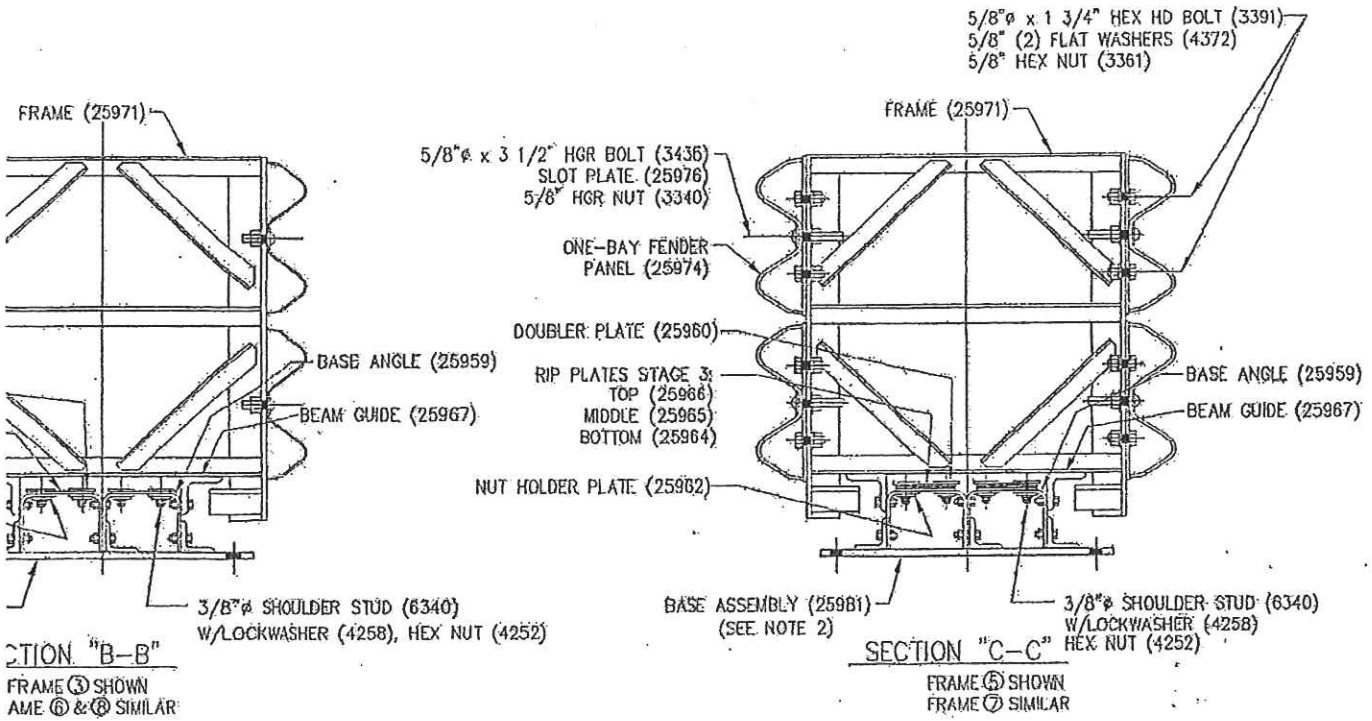
MATCH LEFT SIDE OF SHEET WITH RIGHT SIDE OF SHEET 51



- NOTES:**
1.) FOR PLAN & ELEV
2.) SEE DRAWING SS11
OF ALL BASE COM

53

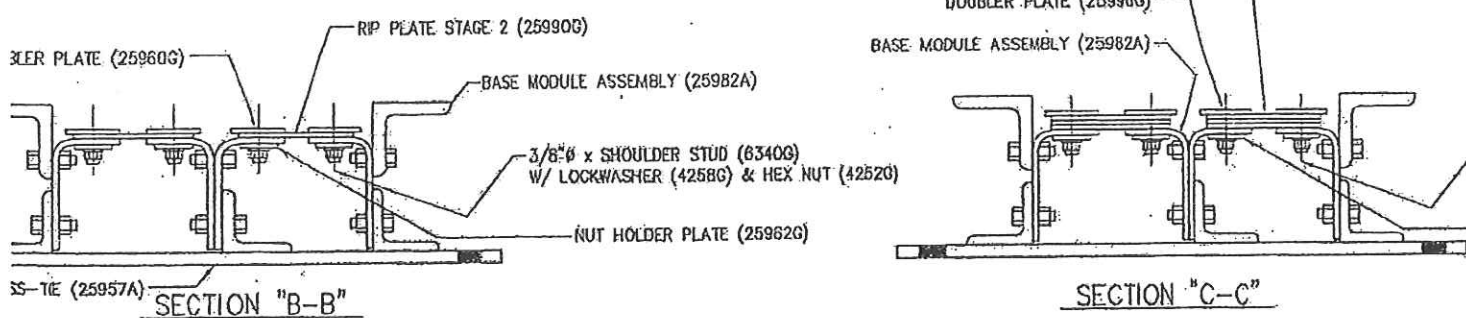
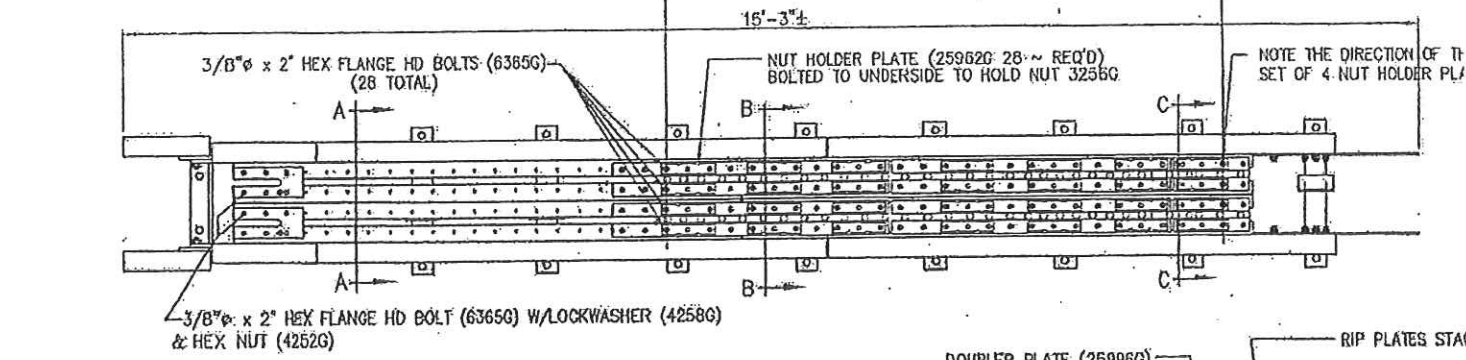
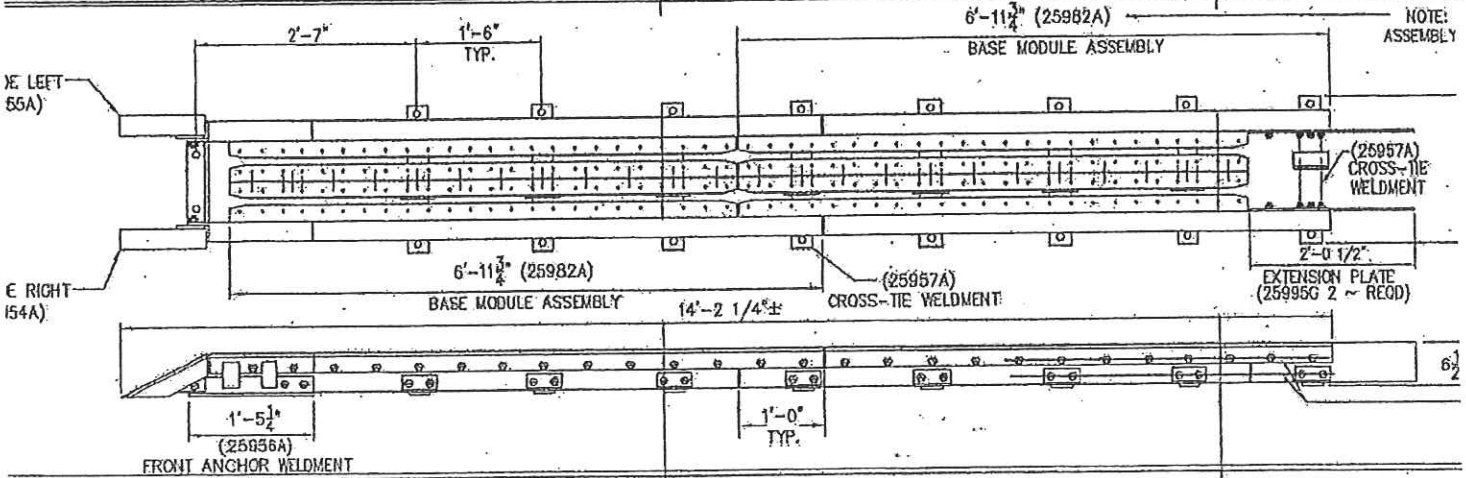
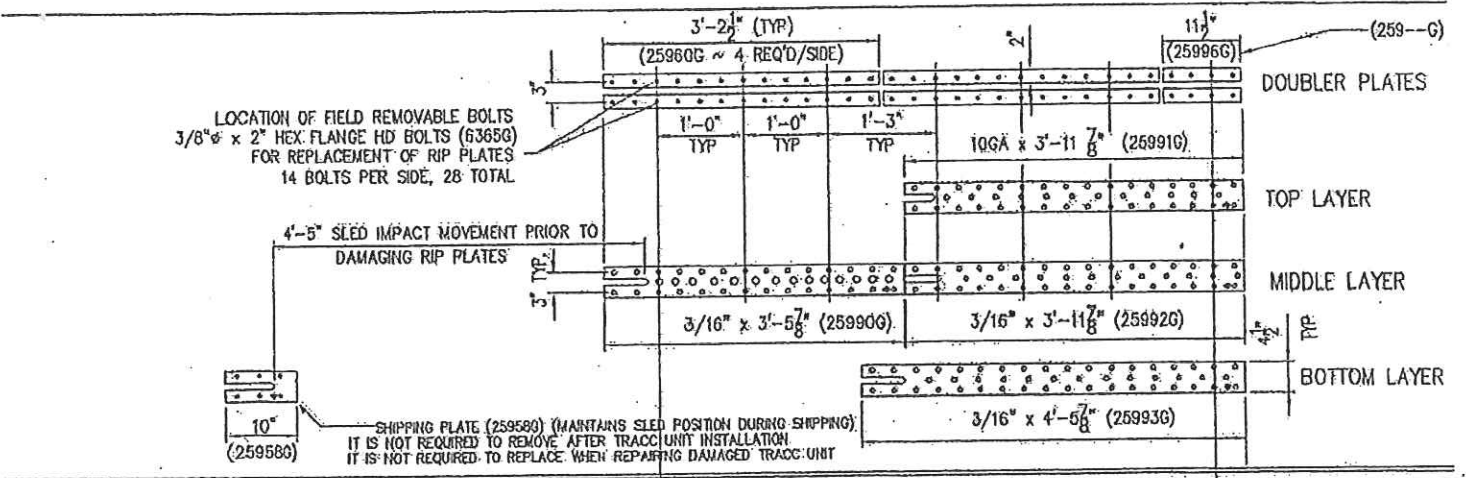
MATCH RIGHT SIDE OF SHEET WITH LEFT SIDE OF SHEET 54



FOR MORE DETAILS SEE SHEET E1 OF 2.
 SEE SHEET E1 (PN 25981) FOR ASSEMBLY
 DETAILS.

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 any purpose other than that for which it was specifically prepared.

1	SAR	5/16/05	UPDATED PART NUMBERS
REV.	CHKD.	BY	DATE
			REVISIONS
TRACC CRASH-CUSHION ATTENUATING TERMINAL PLAN, ELEVATION & SECTIONS SHOP ASSEMBLY DETAILS PN 25980			
			DRAWN: L. H. CHECKED: B.T. APPROVED: DATE: 05/11/05 ENG. FILE # SS1002-02E SKETCH: E2 OF 2 DRAWING NO.
			TRINITY INDUSTRIES, INC. HIGHWAY SAFETY PRODUCTS
			REV.



55

MATCH RIGHT SIDE OF SHEET WITH LEFT SIDE OF SHEET 56

ICATES TRINITY PART NUMBER (TYP)

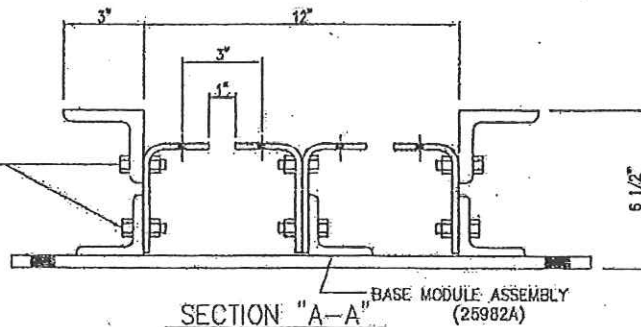
SHORTTRACC BASE (25994A) BILL OF MATERIALS

Part #	Description	Qty	WT. EACH (#)	TOTAL WT.
03256G	3/8" Shoulder Nut	28	0.03	0.84
03361G	5/8" Heavy-Hex Nut (A563 DH)	30	0.12	3.6
03391G	5/8" x 1 3/4" Hex Head Bolt (A325)	30	0.21	6.3
04252G	3/8" Hex Nut	104	0.03	3.12
04258G	3/8" Lock Washer	104	0.008	0.624
06340G	3/8" X 1 1/2" Shoulder Stud	102	0.06	6.12
06365G	3/8" x 2" Hex Flange Head Bolt (GR-5)	30	0.07	2.1
25954A	End Shoe, Right	1	11.0	11
25955A	End Shoe, Left	1	11.0	11
25956A	Front Anchor Weldment	1	67.0	67
25957A	Cross Tie	2	18.0	36
25958G	Rip Plate, Stage 1 (Shipping Plate)	2	0.80	1.6
25960G	Doublers	8	8.0	64
25962G	Nut Holder (Nut Retainer Plate)	28	0.50	14
25982A	Base Module Assembly	2	329	658
25990G	Rip Plate, Stage 2	2	9.0	18
25991G	Rip Plate, Stage 3, Top	2	8.0	16
25992G	Rip Plate, Stage 3, Middle	2	11.0	22
25993G	Rip Plate, Stage 3, Bottom	2	12.0	24
25995G	Extension Plate, Rear	2	11.0	22
25996G	Doubler Plate, Stage-3 (11 1/2")	4	2.5	10
			TOTAL WEIGHT	997

LAYOUT SCHEMATIC, TOP VIEW
RIP PLATES FOR ONE
SIDE OF TRACC BASE

DRAWING PN 25982 FOR
BASE MODULE COMPONENTS

TRACC BASE ASSEMBLY
WITHOUT RIP PLATES
AND DOUBLER PLATES



ALL UPPER & LOWER BOLTS ARE
5/8" x 1 3/4" HEX HD BOLT (3391G)
WITH NUT (3361G)

COMPLETE TRACC BASE ASSEMBLY
WITH RIP PLATES AND DOUBLERS.

(TOP) (25991G)
(MIDDLE) (25992G)
(BOTTOM) (25993G)

3/8" x SHOULDER STUD (6340G)
w/ LOCKWASHER (4258G) & HEX-NUT (4252G)

NUT HOLDER PLATE (25962G)

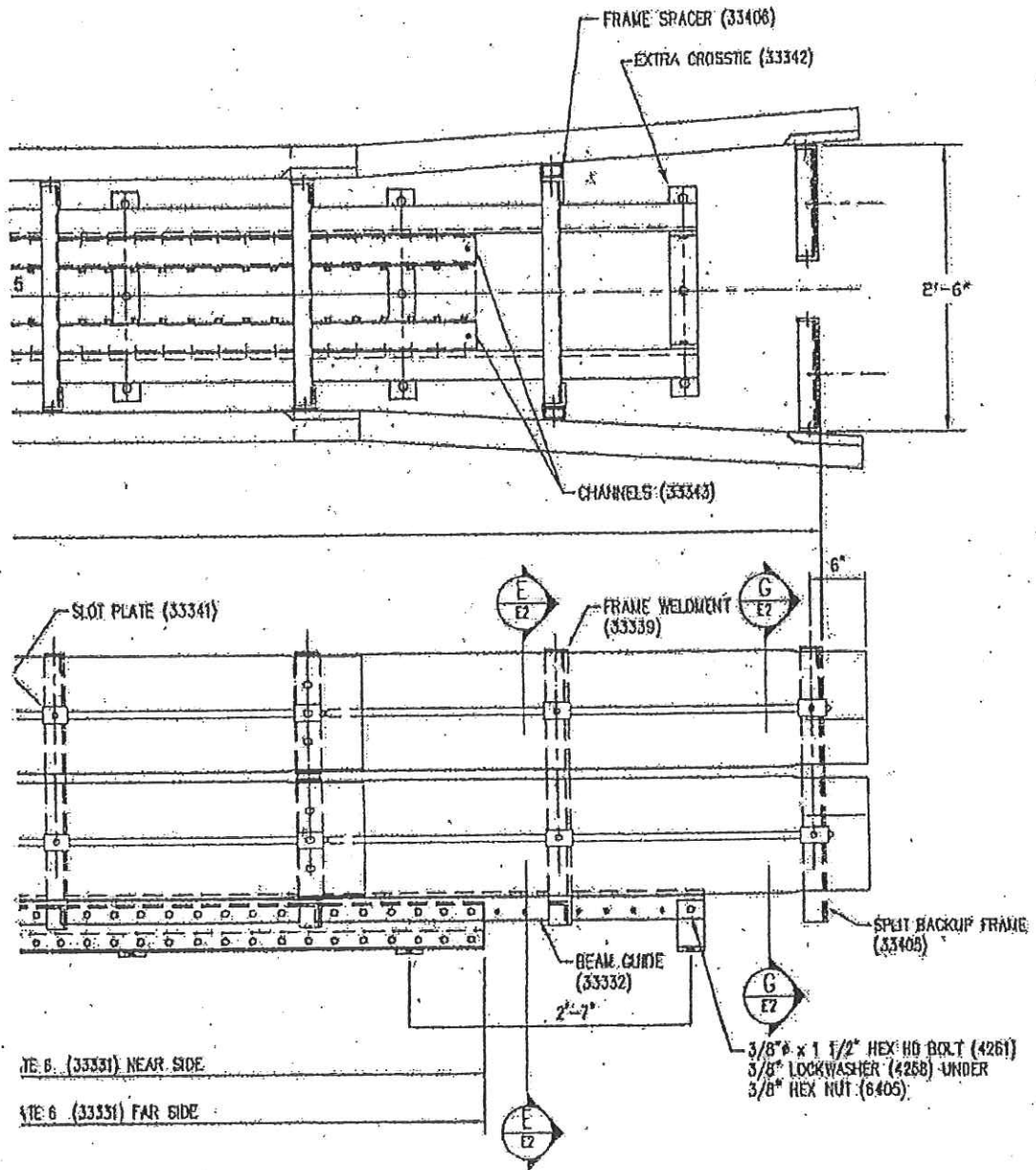
COPYRIGHT © 2005 TRINITY INDUSTRIES INC.

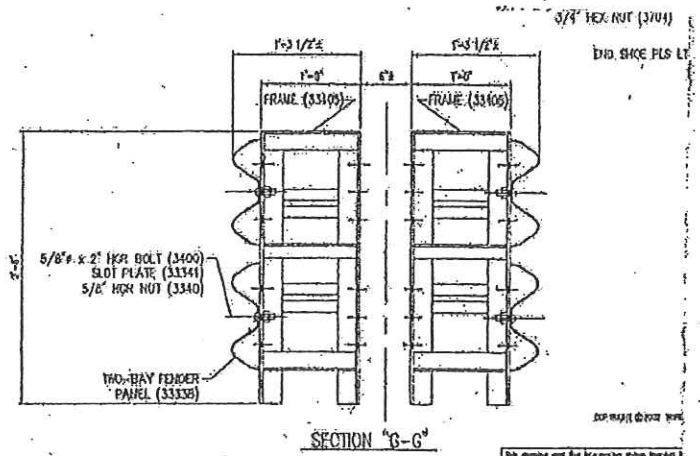
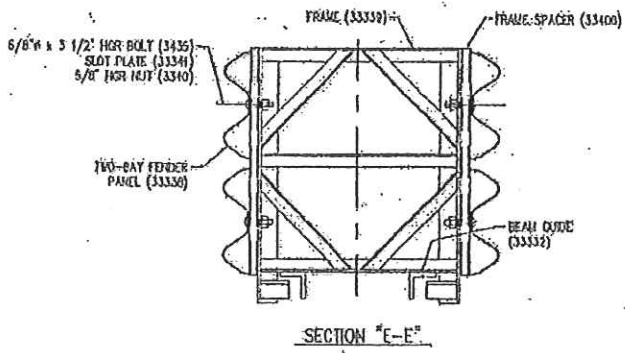
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1	SAR	6/17/05	UPDATED PART NUMBERS
REV.	CHK'D	BY	DATE
REMARKS			
SHORTTRACC CRASH-CUSHION ATTENUATING TERMINAL ASSEMBLED BASE UNIT PN. 25994			
TRINITY INDUSTRIES, INC. HIGHWAY SAFETY PRODUCTS 2525 STEWARTS FREEWAY, DALLAS, TX 75207			DRAWN LH CHECKED ELT APPROVED DATE 05/16/05 ENG. FILE # SS1004-DIE SHEET 1 OF 1 DRAWING NO. SS 1004 25994

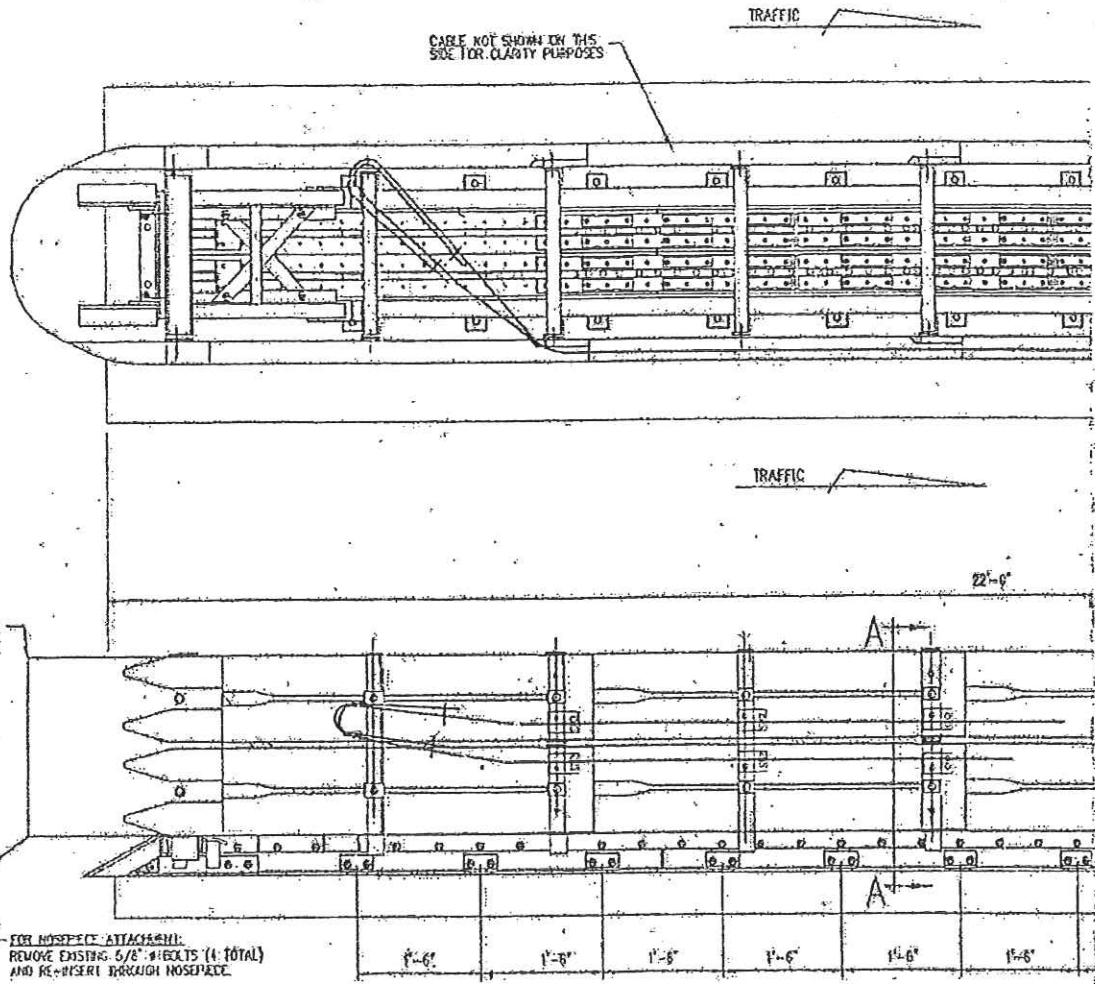
56

MATCH LEFT SIDE OF SHEET WITH RIGHT SIDE OF SHEET 55





Do not modify any dimensions shown hereafter, etc. without the drawing for each part being shown. Part that are shown in this drawing are not to be reproduced without the permission of the manufacturer.



WIDE TRACK BILL OF MATERIAL

PRODUCT CODE	QTY	DESCRIPTION
6605A	1	39" WIDE TRACK UNIT ASS'LY
66689	4	REFLECTIVE TAPE
65319	1	YELLOW PLASTIC NOSEPIECE

OPTIMAL TRACK ANCHOR IDEAS

PRODUCT CODE	DESCRIPTION
6205B	ADHESIVE DISPENSER
6207B	INDEX HIT HY150 (NOZZLE)
6208B	FILLER HIT HY150 (FILLER TUBE)
6209B	BT TE-C+ 11/16"-1 1/16" (11/16" x 6")

EACH TRACK UNIT SHIPS 100% ASSEMBLED (PLASTIC NOSE INSTALLED AFTER PLACEMENT)

*EACH CARTRIDGE INCLUDES 1 EACH INDEXER HY 150 CARTRIDGE (NOZZLE) (FILLER HIT HY 150 (FILLER TUBE))

**** ANCHOR HARDWARE (CONCRETE BASE)**

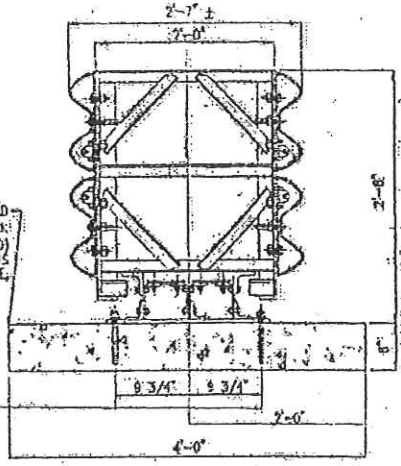
3204B	76	5/8" x 7 1/16" ANCHOR STUD
3310G	26	5/8" LOCKWASHER
3351G	26	5/8" HEX NUT
3300G	26	5/8" FLAT WASHER
6206B	7	ADHESIVE HIT HY150 (CARTRIDGE)

**** ANCHOR HARDWARE (ASPHALT BASE)**

6380G	26	5/8" x 1 1/2" ALL THD ROD
3310G	26	5/8" LOCKWASHER
3351G	26	5/8" HEX NUT
3300G	26	5/8" FLAT WASHER
6206B	7	ADHESIVE HIT HY150 (CARTRIDGE)

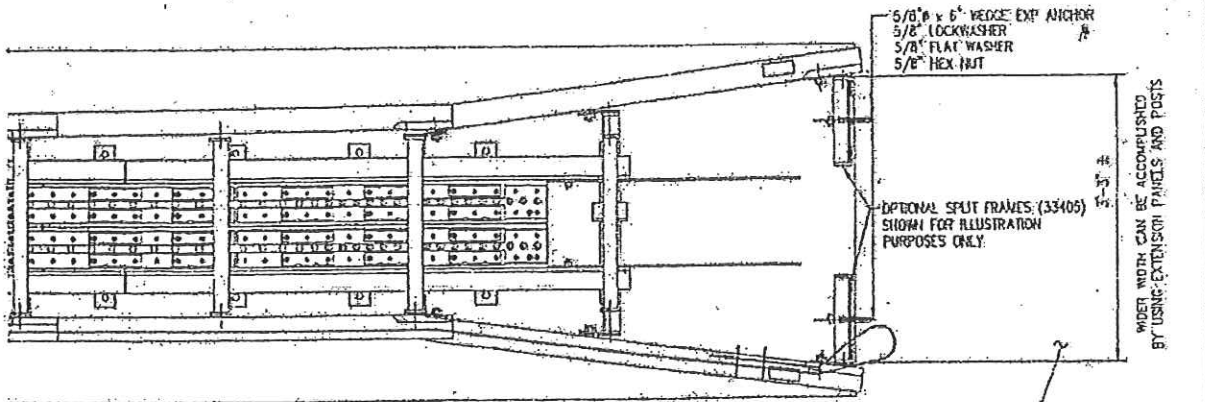
** SEE PRODUCT MANUAL

REINFORCED CONCRETE PAD
4'-0" x 22'-0" x 6" THICK
(6" THICK IF NOT REINFORCED)
REINFORCEMENT DRAWINGS FOR THIS PAD AND OTHER SIZES ARE AVAILABLE



ADHESIVE ANCHORED
5/8" x 7 1/16" ANCHOR STUD
5/8" FLAT WASHER
6/8" LOCKWASHER
5/8" HEX NUT

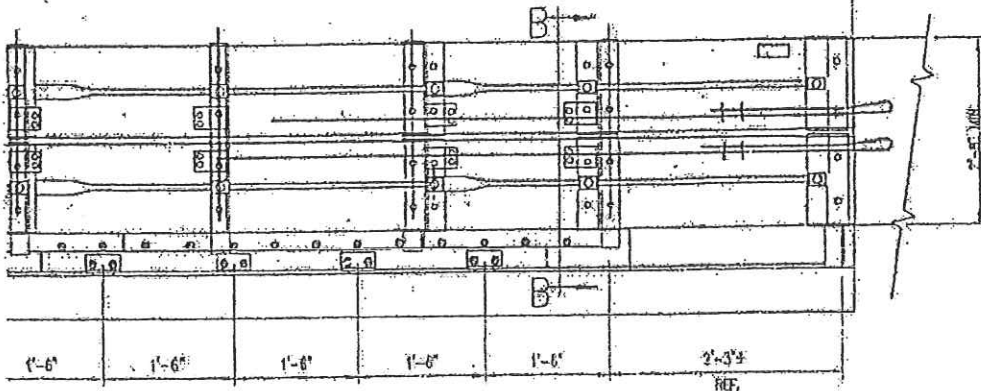
SECTION A-A



WIDTH WITH CAN BE ACCOMMODATED BY USING EXTENSION PANELS AND POSTS

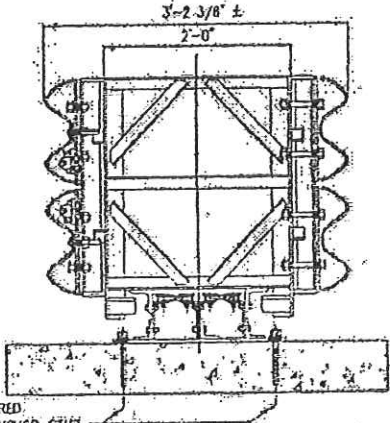
OPTIONAL SPLIT FRAMES (33405) SHOWN FOR ILLUSTRATION PURPOSES ONLY.

ATTACHMENT SHOWN IS TO SHAPES WITH RECTANGULAR CROSS SECTIONS SUCH AS: PIERS, PARAPETS AND MODIFIED CONCRETE BARRIER. TRAFFIC FLOW IS UNIDIRECTIONAL.



FOUNDATION NOTE:
6" REINFORCED CONCRETE PAD IS SHOWN

- OTHER OPTIONS ARE:
- a) 8" THICK MINIMUM UNREINFORCED CONCRETE
 - b) 8" MINIMUM THICK ASPHALT
 - c) 3" THICK (MIN) ASPHALT OVER 3" (MIN) CONCRETE
 - d) 6" THICK ASPHALT OVER 6" COMPACTED SUBBASE



ADHESIVE ANCHORED:
5/8" x 7-1/16" ANCHOR STUDS
5/8" FLAT WASHER
5/8" LOCKWASHER
5/8" HEX NUT

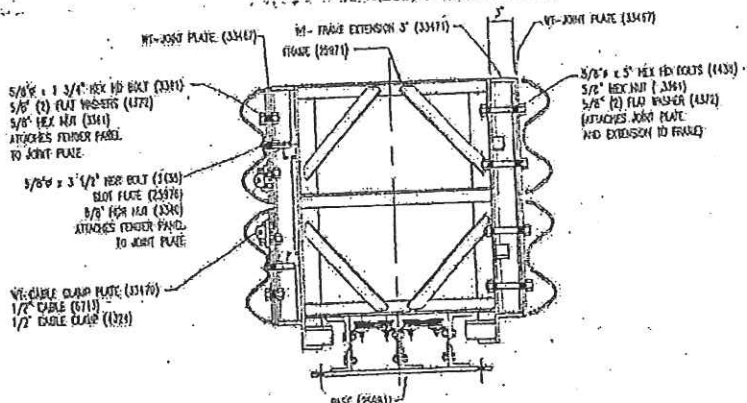
SECTION "B-B"

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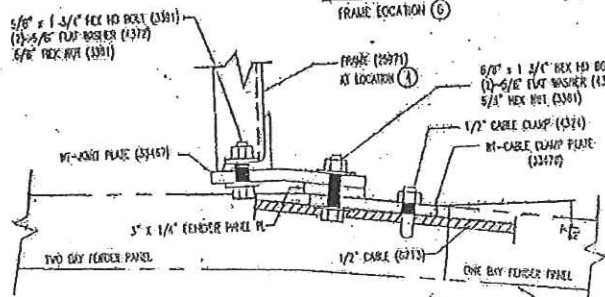
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1				L.H. 05/12/05 MOVED LOCATION OF SLOT PLATES AT FRAMES 7 & 8			
REV	DATE	BY	DATE	DRAWN			
39" WIDETRACC DOUBLE FLARE CRASH-CUSHION ALTERNATING TERMINAL PLAN, ELEVATION & SECTIONS (UNIDIRECTIONAL DIRECT ATTACHMENT)				DRAWN: C.H. CHECKED: C.C. APPROVED: DATE: 10-26-05 Dwg. No: 551021-01E SHEET: 01 OF 1 DRAWING NO: SS1021			
TRINITY HIGHWAY SAFETY PRODUCTS, INC. 2525 STEWARTS-FREEWAY, DALLAS, TX 75207				PER:			

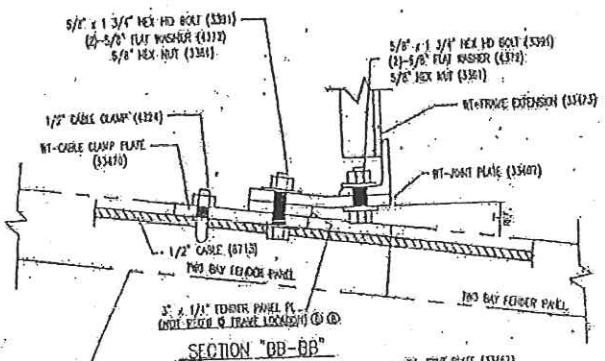
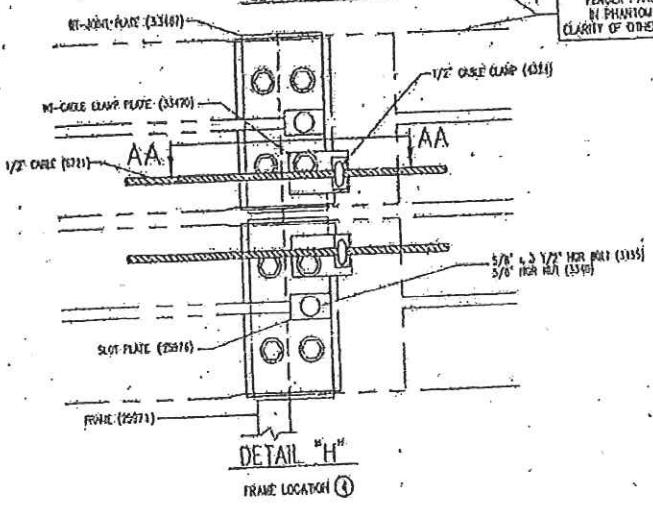
MATCH LEFT SIDE OF SHEET WITH RIGHT SIDE OF SHEET



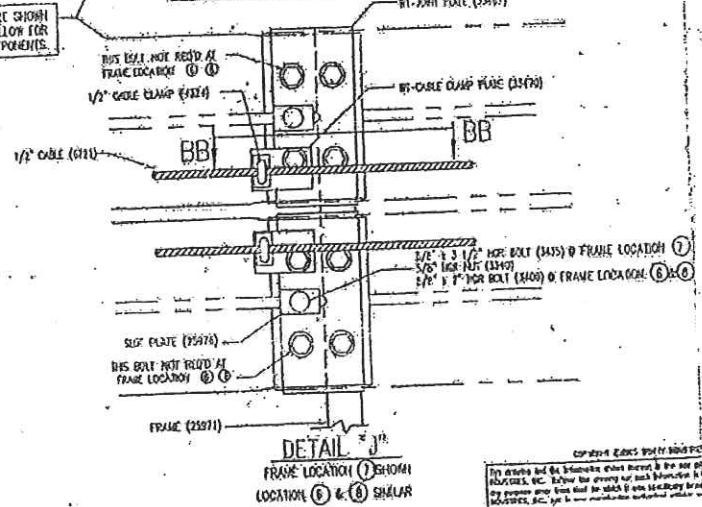
SECTION "E-E"
FRAME LOCATION ⑥



SECTION "AA-AA"



SECTION "BB-BB"



FENDER PANELS ARE SHOWN IN PHANTOM TO ALLOW FOR CLARITY OF OTHER COMPONENTS.

COMPANY LOGO
 THE ABOVE IS A SUMMARY OF THE DESIGN AND NOT A SUBSTITUTE FOR THE ORIGINAL DRAWING. THE USER SHALL BE RESPONSIBLE FOR CHECKING THE DIMENSIONS AND MATERIALS SPECIFICATIONS.

QuadGuard® HS

Installation (cont'd.)

9) Install Bumper Assembly

- A. Use 1/2" x 3" bolts, 1/2" flat washers and 1/2" nuts to attach bumper to front of diaphragm 3. Hang cartridge support bracket onto the lower rear of diaphragm 3 as shown in Figure 29.

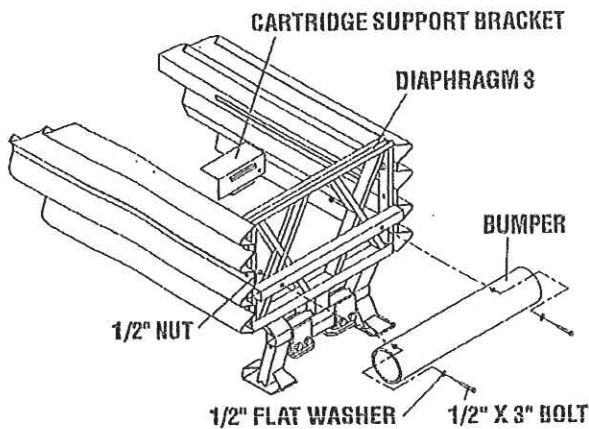


Figure 29

Bumper and Cartridge Support Bracket Installation (Diaphragm 3)

- B. Using 1/2" x 8" bolts, 1/2" flat washers and 1/2" nuts, attach bumper to front, and spacer to rear of diaphragm 2 as shown in Figure 30.

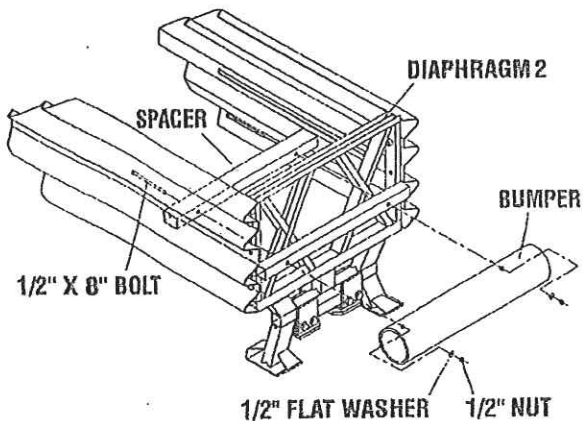


Figure 30

Bumper and Spacer Installation (Diaphragm 2)

- C. Using 1/2" x 8" bolts and 1/2" nuts, attach spacer to rear of diaphragm 1 as shown in Figure 31.

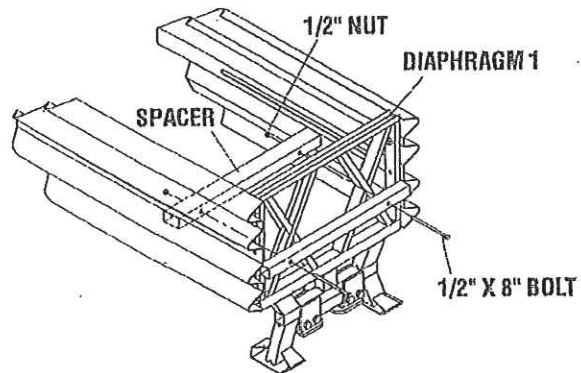


Figure 31

Spacer Installation (Diaphragm 1)

10) Install End Cap

Install end cap to the monorail as shown in Figure 32 and the monorail assembly drawing.

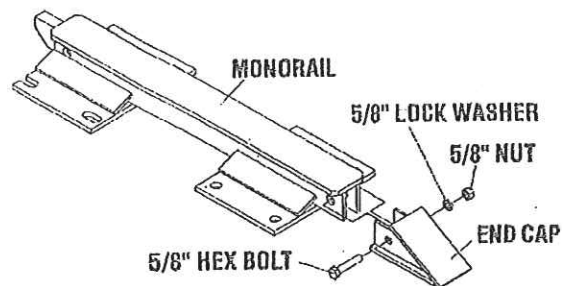
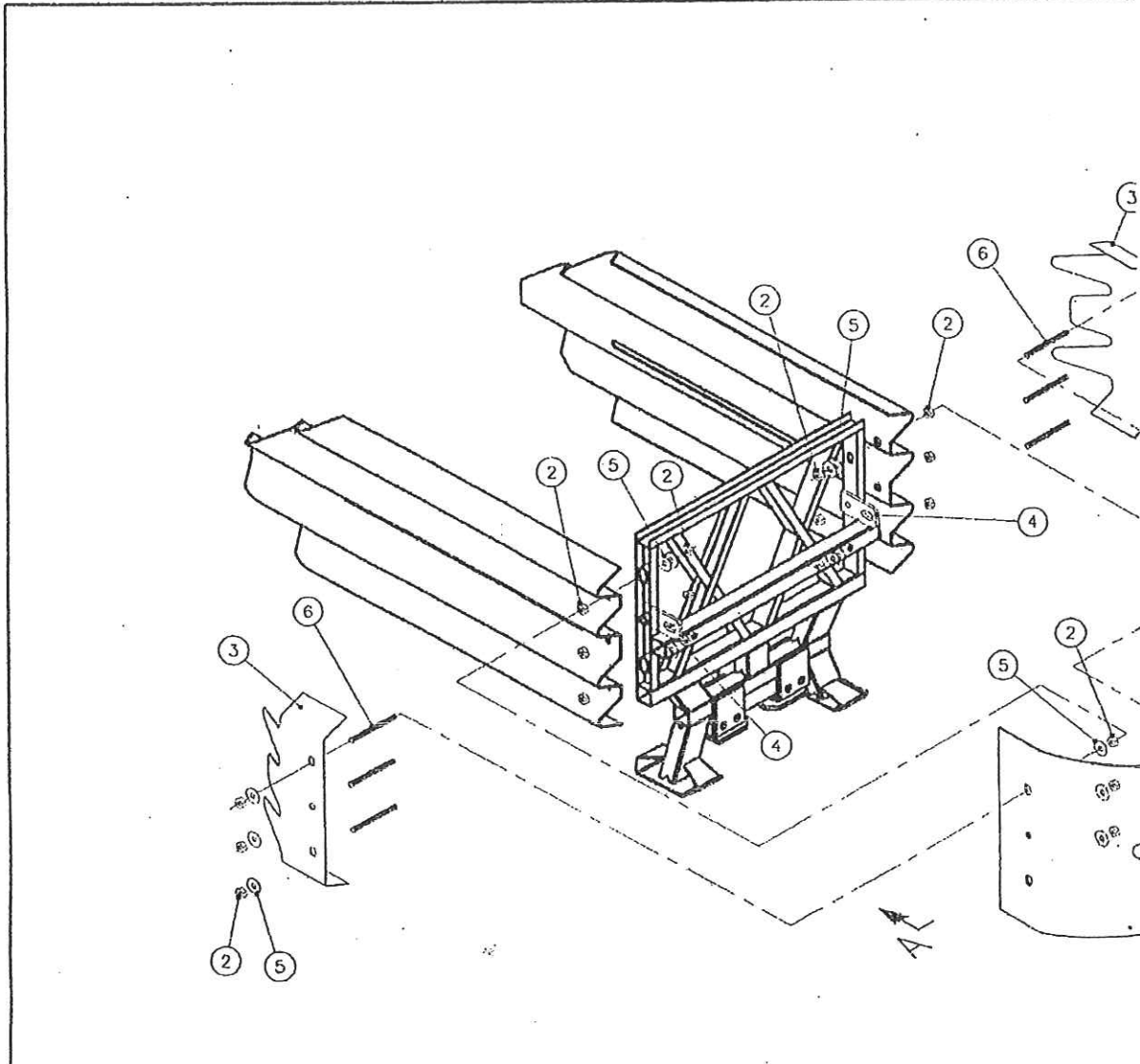


Figure 32

Monorail End Cap Installation

PAGES 63 THROUGH 79
NOT INCLUDED

QuadGuard® HS



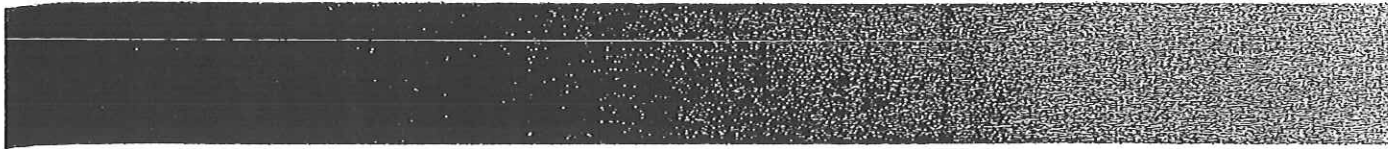
SYSTEM
24" OR
36

REFERENCES

Revisions	Date	Rev.	By	Ckd.	App.
ITEM 6 WAS 2701024-0000, ITEM 2 WAS 18.0	4/17/02	A	DDW	JME	DMO

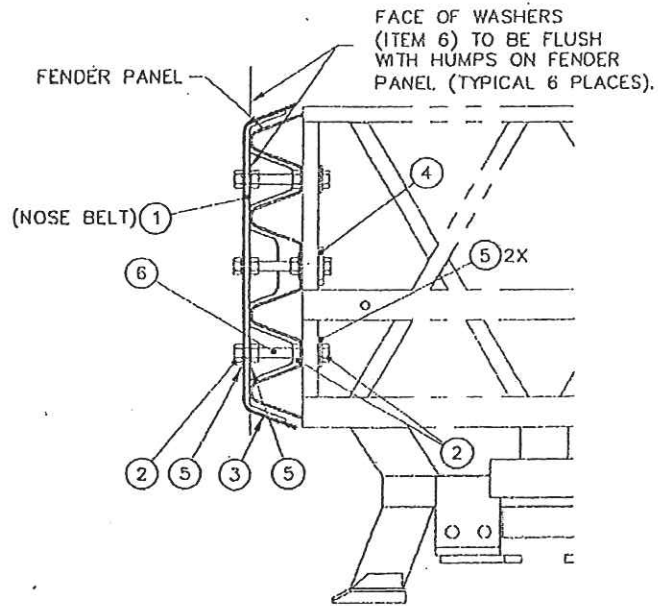
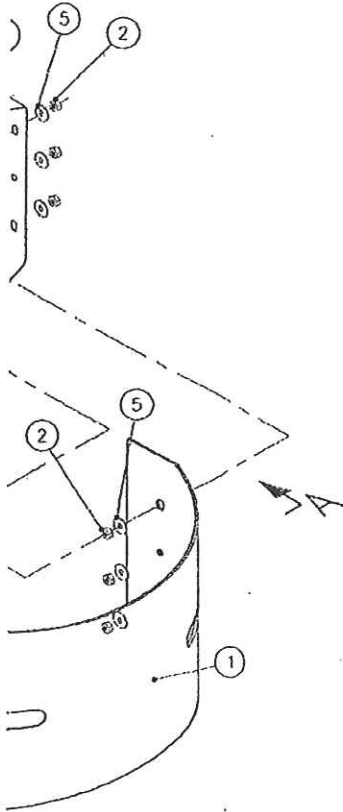


80



PARTS LIST			
ITEM	STOCK NO.	DESCRIPTION	REQ'D
1	SEE TABLE	BELT,NOSE,OG CEN	1.00
2	2704141-0000	NUT,HX,5/8,G	24.0
3	2760504-0000	CLAMP,BELT,LMC	2.00
4	2760251-0000	BRACKET,PULL OUT,OG	2.00
5	2708291-0000	WASHER,FLAT,5/8X1 3/4,G	20.0
6	2699016-0000	ROD,THREADED,5/8X6,G5,G	6.00

* 0 = GRAY, 1 = YELLOW



VIEW A-A
SCALE - 1:10

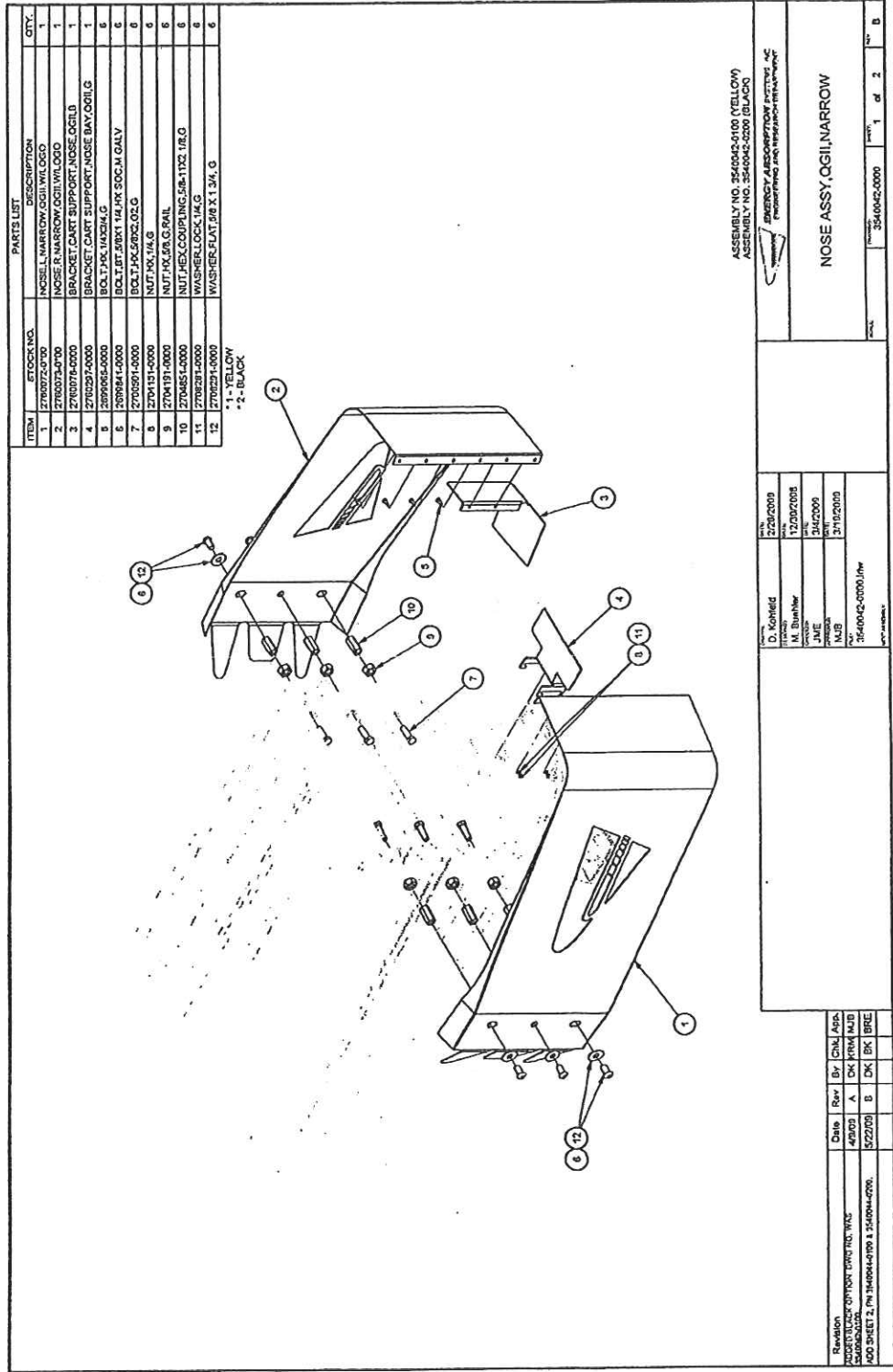
TABLE

WIDTH	BELT LENGTH	COLOR	ASSY NO.	ITEM 1 PART NO.
30"	1524	GRAY	3540611-0000	2718106-0000
	1524	YELLOW	3540611-0100	2718106-0100
	1780	GRAY	3540612-0000	2718108-0000
	1780	YELLOW	3540612-0100	2718108-0100

ASSEMBLY NO. - SEE TABLE

DRAWN: D. Webber DATE: 7/26/01	DESIGNED: Bret Eckert DATE: 7/26/01	ENERGY ABSORPTION SYSTEMS, INC. ENGINEERING AND RESEARCH DEPARTMENT	
CHECKED: JME DATE: 10/12/01	APPROVED: Bret Eckert DATE: 10/12/01		QUADGUARD HIGH SPEED SYSTEM NOSE ASSY
CAD FILE: 354061.dwg		NEXT ASSEMBLY:	
SCALE: 1:15	PART: 35-40-61	SHEET: 1 of 1	REV: A

45 81



PARTS LIST			
ITEM	STOCK NO.	DESCRIPTION	QTY.
1	2780072-0100	NOSE L NARROW QGIL W/LOGO	1
2	2780073-0100	NOSE R NARROW QGIL W/LOGO	1
3	2780076-0000	BRACKET CART SUPPORT NOSE QGIL	1
4	2780229-0000	BRACKET CART SUPPORT NOSE BAY QGIL	1
5	2809065-0000	BOLT 1/4X 1/4X 3/4 G	6
6	2809064-0000	BOLT 1/4X 1/4X 3/4 G	6
7	2701091-0000	BOLT 1/4X 5/8X 3/4 G	6
8	2701131-0000	NUT 1/4X 5/8 G	6
9	2701131-0000	NUT 1/4X 5/8 G	6
10	2704851-0000	NUT HEX COUPLING S&B 1/4X 1/2 TR G	6
11	2780291-0000	WASHER LOCK W/LOGO	6
12	2780291-0000	WASHER FLAT 1/8 X 1 3/4 G	6

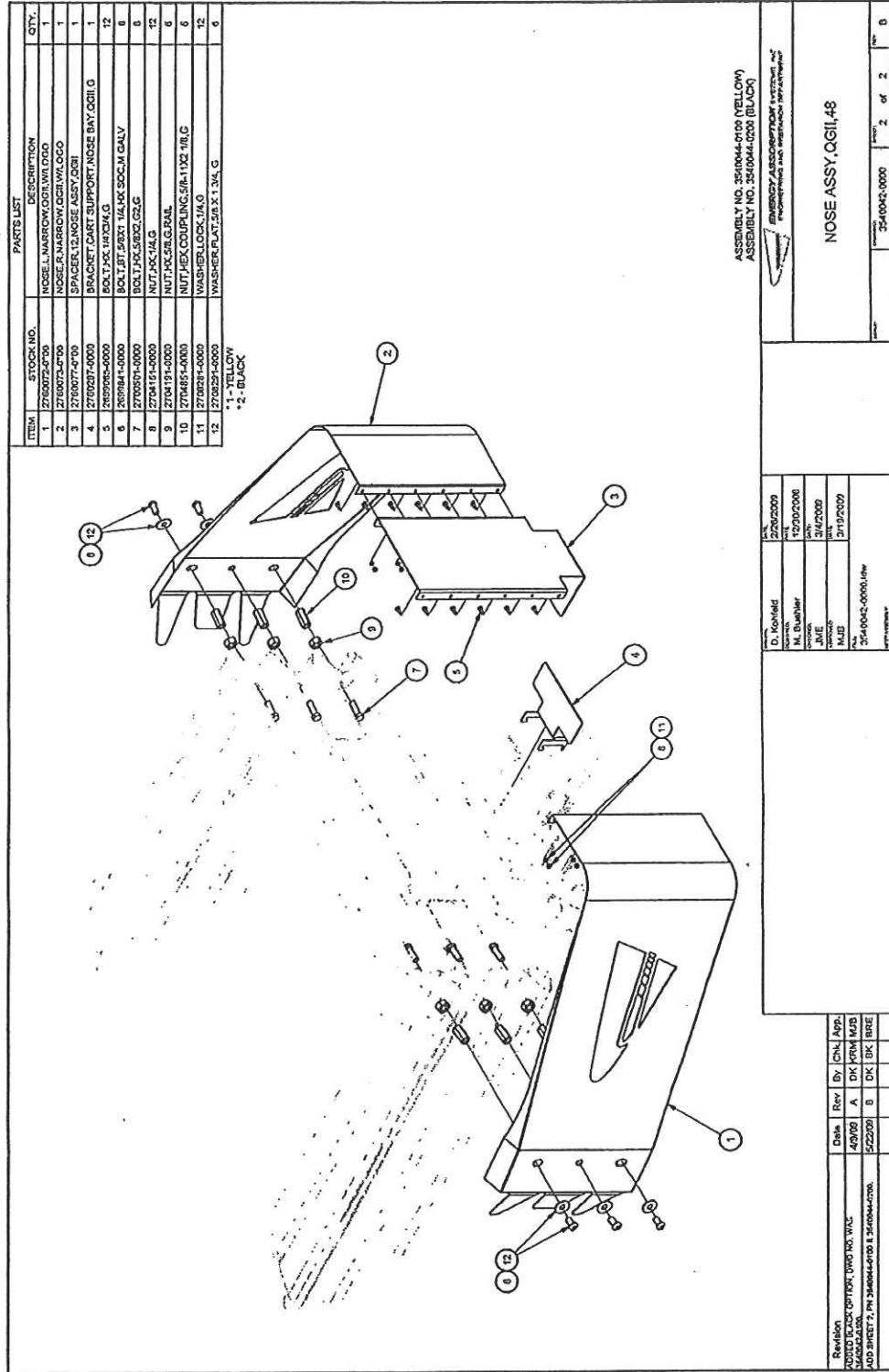
*1 - YELLOW
*2 - BLACK

ASSEMBLY NO. 3540043-0100 (YELLOW)
ASSEMBLY NO. 3540043-0200 (BLACK)

NOSE ASSY, QGIL, NARROW

DATE	BY	CHKD	APPD
12/20/2009	D. Kohnfeld		
DATE	BY	CHKD	APPD
12/20/2008	D. Kohnfeld		
DATE	BY	CHKD	APPD
10/27/2009	JME		
DATE	BY	CHKD	APPD
3/10/2009	MJB		

Revision	Date	Rev	By	Chk	App
2009112001	4/20/09	A	DK	KRM	MJB
2009112002	5/22/09	B	DK	BK	BRE



PARTS LIST			
ITEM	STOCK NO.	DESCRIPTION	QTY.
1	2760072-0000	NOSE L. NARROW QCGI W/1 QCG	1
2	2760072-0000	NOSE R. NARROW QCGI W/1 QCG	1
3	2760072-0000	SPACER 13 NOSE ASSY QCGI	1
4	2760037-0000	BRACKET CART SUPPORT NOSE BAY QCGI	1
5	2760037-0000	BOLT 1/4" X 1/2" X 3/4" G	12
6	2760037-0000	BOLT 1/4" X 1/2" X 3/4" G	8
7	2760037-0000	BOLT 1/4" X 1/2" X 3/4" G	8
8	2760037-0000	NUT 1/4" X 1/2" G	12
9	2760037-0000	NUT 1/4" X 1/2" G	6
10	2760037-0000	NUT 1/4" X 1/2" G	6
11	2760037-0000	WASHER LOCK 1/4" G	12
12	2760037-0000	WASHER PLAT 2.5 X 1.3 X .5 G	6

*1 - YELLOW
*2 - BLACK

ASSEMBLY NO. 351004-0000 (YELLOW)
ASSEMBLY NO. 351004-0001 (BLACK)

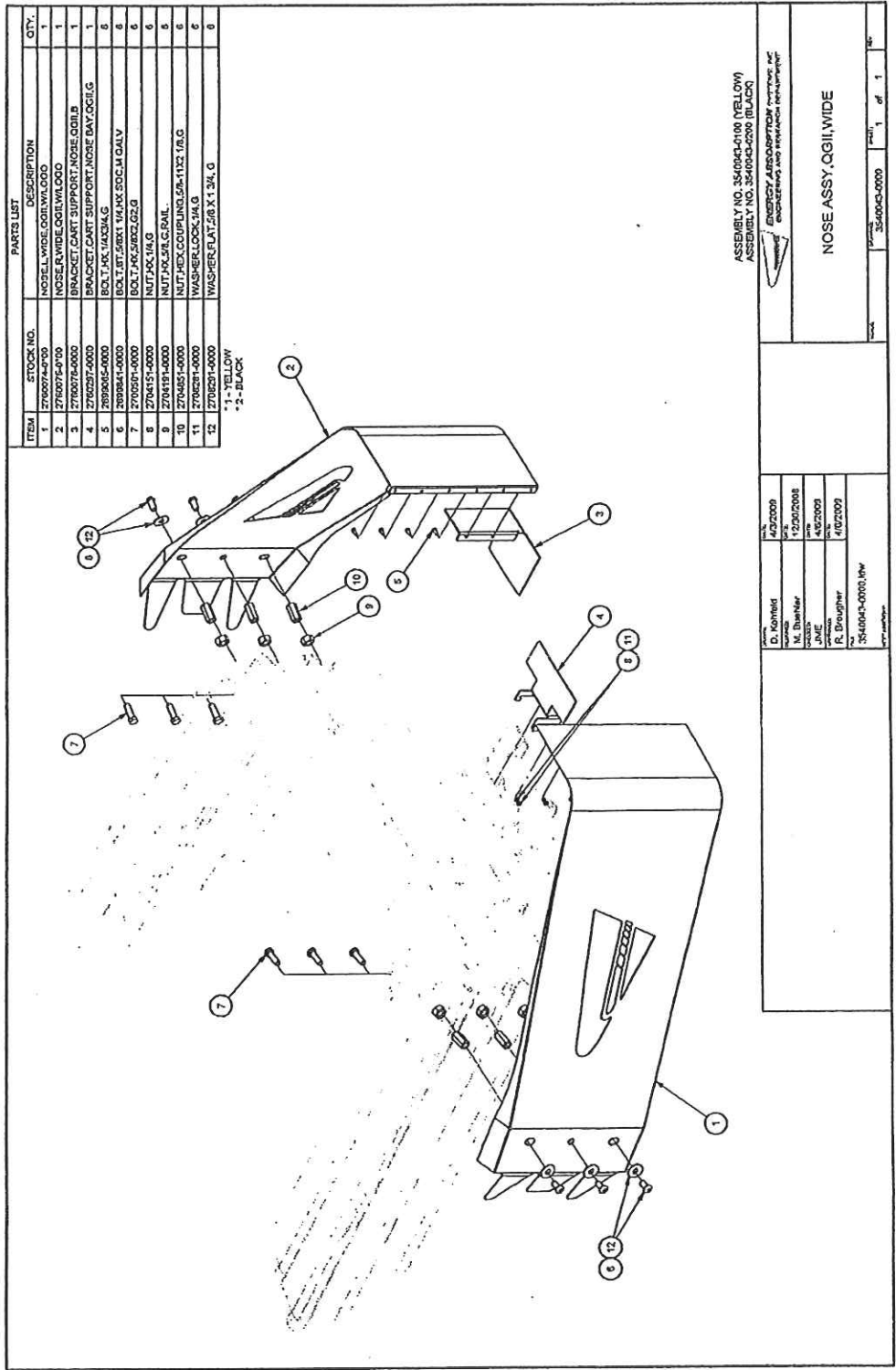
EMERGENCY ASSISTANCE SERVICE
FOR INFORMATION SEE INSTRUCTIONS

NOSE ASSY, QCGI, 48

DESIGNED BY	D. Koyfield	DATE	2/27/2009
CHECKED BY	M. Buehler	DATE	12/02/2008
APPROVED BY	J.VE	DATE	3/4/2009
DATE	MJD	DATE	2/19/2009
SCALE	3541002-0000.000	UNIT	IN

DATE	REV	BY	CHK	APP
4/3/08	A	DK	DK	DK
5/22/09	B	DK	DK	DK

DESIGNED BY: D. Koyfield
CHECKED BY: M. Buehler
DATE: 2/27/2009



ITEM	STOCK NO.	DESCRIPTION	QTY.
1	2700074-0100	NOSE L WIDE QG11 W/L Q10	1
2	2700076-0100	NOSE R WIDE QG11 W/L Q10	1
3	2700076-0000	BRACKET CART SUPPORT NOSE QG11 B	1
4	2700077-0000	BRACKET CART SUPPORT NOSE QG11 G	1
5	2900045-0000	SOL T W/ 1/4 X 3/16 S/L G	0
6	2900044-0000	SOL T W/ 1/4 X 3/16 S/L G	0
7	2700071-0000	SOL T W/ 1/4 X 3/16 S/L G	0
8	2700071-0000	SOL T W/ 1/4 X 3/16 S/L G	0
9	2700071-0000	SOL T W/ 1/4 X 3/16 S/L G	0
10	2700071-0000	SOL T W/ 1/4 X 3/16 S/L G	0
11	2700071-0000	SOL T W/ 1/4 X 3/16 S/L G	0
12	2700071-0000	SOL T W/ 1/4 X 3/16 S/L G	0

*1 - YELLOW
*2 - BLACK

ASSEMBLY NO. 3540041-0100 (YELLOW)
ASSEMBLY NO. 3540043-0000 (BLACK)

EMERGENCY ASSEMBLY PROCEDURE FOR
EXHAUSTORS AND INJECTION TECHNIQUES

NOSE ASSY, QG11, WIDE

REV. 1 of 1

DATE	4/2/2009
BY	D. KOTHE
DATE	12/01/2008
BY	M. BARKER
DATE	8/6/2009
BY	J. HAY
DATE	4/02/2009
BY	R. BRUGHIER
DATE	3/5/04-0100, 1/01

PARTS LIST		DESCRIPTION	QTY.
ITEM	STOCK NO.	DESCRIPTION	QTY.
1	272315-000	SHIM, 1/8" X 5/8" X 1/2"	2

DETAIL A
TYPICAL BOTH SIDES

ASSEMBLY NO. 3540774-0000		ENERGY ASSOCIATION SYSTEMS, INC. <small>10000 Highway 100, Suite 100, Houston, TX 77036</small>	
DATE	BY	CHKD	APP'D
2/27/2009	M. Dunbar		
2/28/2009	JME		
3/4/2009			
3/19/2009			
PROJECT NO. 3540774-0000.000		REV. 1 of 1	

Revision: 1 10000 Highway 100, Suite 100, Houston, TX 77036 (281) 261-2850 UPDATED ITEM 1	Date: 2/27/09 Rev: A By: JME App: DK LIME PCB
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State of West Virginia VENDOR PREFERENCE CERTIFICATE

Certification and application* is hereby made for Preference in accordance with *West Virginia Code*, §5A-3-37. (Does not apply to construction contracts). *West Virginia Code*, §5A-3-37, provides an opportunity for qualifying vendors to request (at the time of bid) preference for their residency status. Such preference is an evaluation method only and will be applied only to the cost bid in accordance with the *West Virginia Code*. This certificate for application is to be used to request such preference. The Purchasing Division will make the determination of the Resident Vendor Preference, if applicable.

1. Application is made for 2.5% resident vendor preference for the reason checked:
 Bidder is an individual resident vendor and has resided continuously in West Virginia for four (4) years immediately preceding the date of this certification; or,
 Bidder is a partnership, association or corporation resident vendor and has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or 80% of the ownership interest of Bidder is held by another individual, partnership, association or corporation resident vendor who has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or,
 Bidder is a nonresident vendor which has an affiliate or subsidiary which employs a minimum of one hundred state residents and which has maintained its headquarters or principal place of business within West Virginia continuously for the four (4) years immediately preceding the date of this certification; or,
2. Application is made for 2.5% resident vendor preference for the reason checked:
 Bidder is a resident vendor who certifies that, during the life of the contract, on average at least 75% of the employees working on the project being bid are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; or,
3. Application is made for 2.5% resident vendor preference for the reason checked:
 Bidder is a nonresident vendor employing a minimum of one hundred state residents or is a nonresident vendor with an affiliate or subsidiary which maintains its headquarters or principal place of business within West Virginia employing a minimum of one hundred state residents who certifies that, during the life of the contract, on average at least 75% of the employees or Bidder's affiliate's or subsidiary's employees are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; or,
4. Application is made for 5% resident vendor preference for the reason checked:
 Bidder meets either the requirement of both subdivisions (1) and (2) or subdivision (1) and (3) as stated above; or,
5. Application is made for 3.5% resident vendor preference who is a veteran for the reason checked:
 Bidder is an individual resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard and has resided in West Virginia continuously for the four years immediately preceding the date on which the bid is submitted; or,
6. Application is made for 3.5% resident vendor preference who is a veteran for the reason checked:
 Bidder is a resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard, if, for purposes of producing or distributing the commodities or completing the project which is the subject of the vendor's bid and continuously over the entire term of the project, on average at least seventy-five percent of the vendor's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years.

Bidder understands if the Secretary of Revenue determines that a Bidder receiving preference has failed to continue to meet the requirements for such preference, the Secretary may order the Director of Purchasing to: (a) reject the bid; or (b) assess a penalty against such Bidder in an amount not to exceed 5% of the bid amount and that such penalty will be paid to the contracting agency or deducted from any unpaid balance on the contract or purchase order.

By submission of this certificate, Bidder agrees to disclose any reasonably requested information to the Purchasing Division and authorizes the Department of Revenue to disclose to the Director of Purchasing appropriate information verifying that Bidder has paid the required business taxes, provided that such information does not contain the amounts of taxes paid nor any other information deemed by the Tax Commissioner to be confidential.

Under penalty of law for false swearing (West Virginia Code, §61-5-3), Bidder hereby certifies that this certificate is true and accurate in all respects; and that if a contract is issued to Bidder and if anything contained within this certificate changes during the term of the contract, Bidder will notify the Purchasing Division in writing immediately.

Bidder: M.H. CORBIN INC

Signed: 

Date: 11-21-11

Title: VP

*Check any combination of preference consideration(s) indicated above, which you are entitled to receive.

RFQ No. 851C2023

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

West Virginia Code §5A-3-10a states: No contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and the debt owned is an amount greater than one thousand dollars in the aggregate

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Debtor" means any individual, corporation, partnership, association, Limited Liability Company or any other form or business association owing a debt to the state or any of its political subdivisions. "Political subdivision" means any county commission; municipality; county board of education; any instrumentality established by a county or municipality; any separate corporation or instrumentality established by one or more counties or municipalities, as permitted by law; or any public body charged by law with the performance of a government function or whose jurisdiction is coextensive with one or more counties or municipalities. "Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceeds five percent of the total contract amount.

EXCEPTION: The prohibition of this section does not apply where a vendor has contested any tax administered pursuant to chapter eleven of this code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

Under penalty of law for false swearing (*West Virginia Code §61-5-3*), it is hereby certified that the vendor affirms and acknowledges the information in this affidavit and is in compliance with the requirements as stated.

WITNESS THE FOLLOWING SIGNATURE

Vendor's Name: M.H. CORBIN Inc.

Authorized Signature: Melissa M. Corbin Date: 11/21/11

State of OHIO

County of Union, to-wit:

Taken, subscribed, and sworn to before me this 21st day of November 20 11

My Commission expires January 14, 20 15

NOTARY PUBLIC Amanda Jo Hall

AFFIX SEAL HERE



AMANDA JO HALL
Notary Public, State of Ohio
My Commission Expires
January 14, 2015