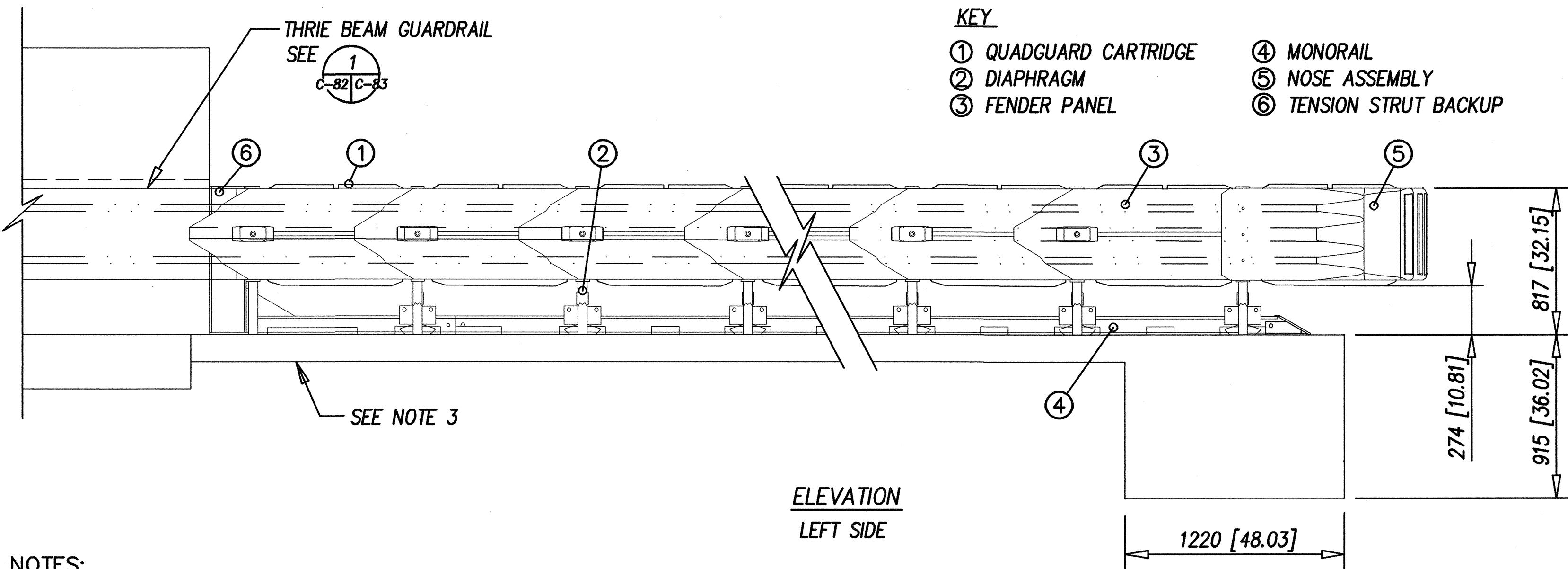
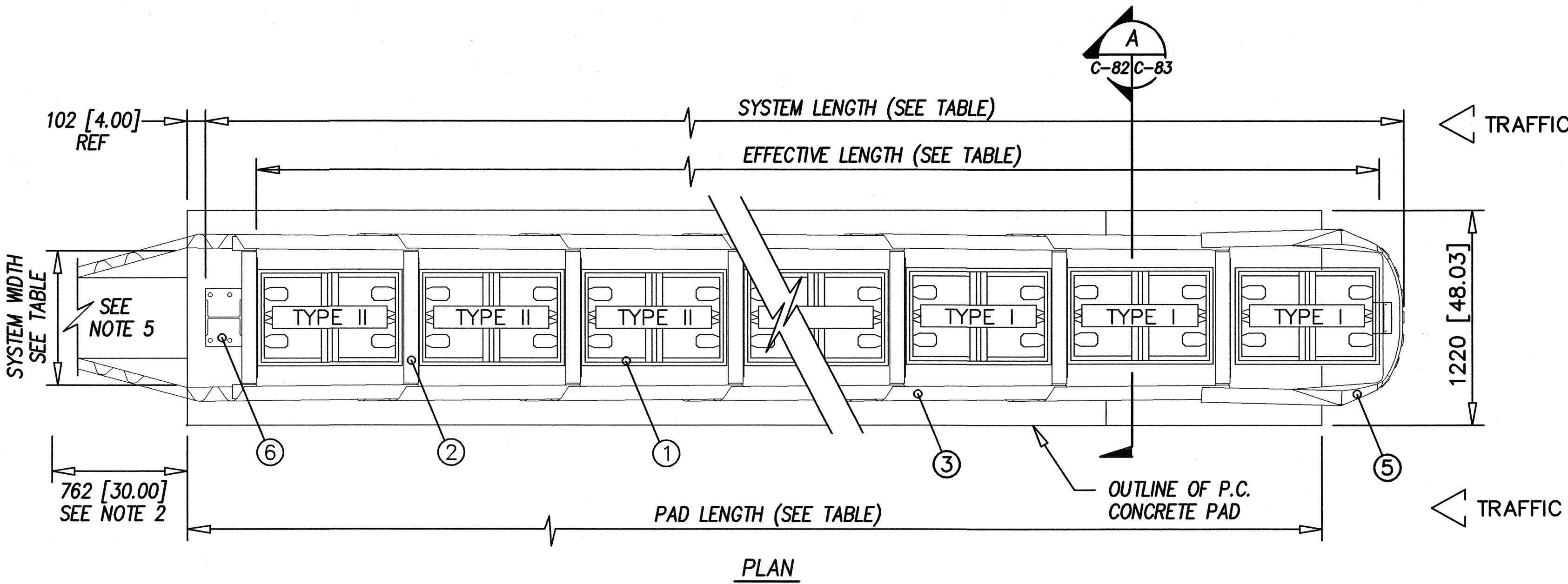


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-092-1(25)	2002	87	268



NOTES:

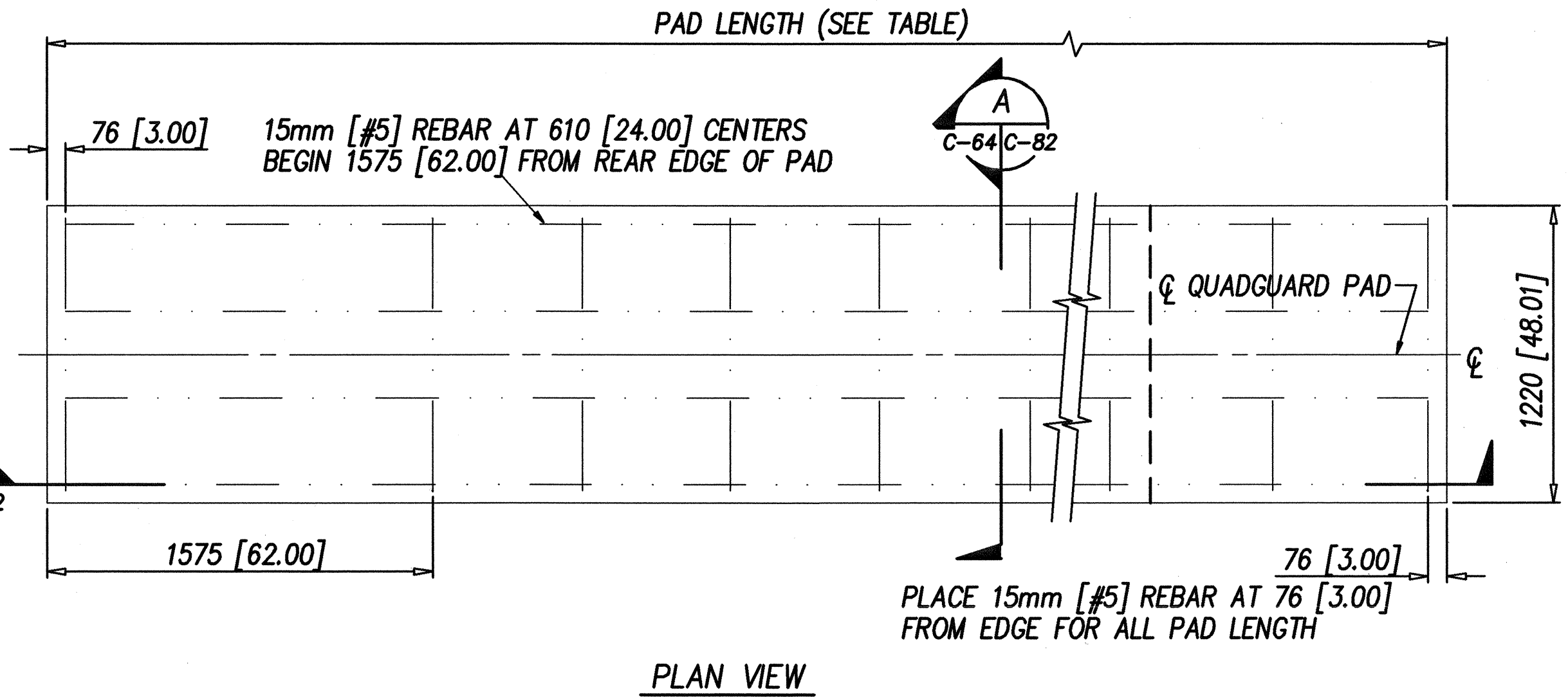
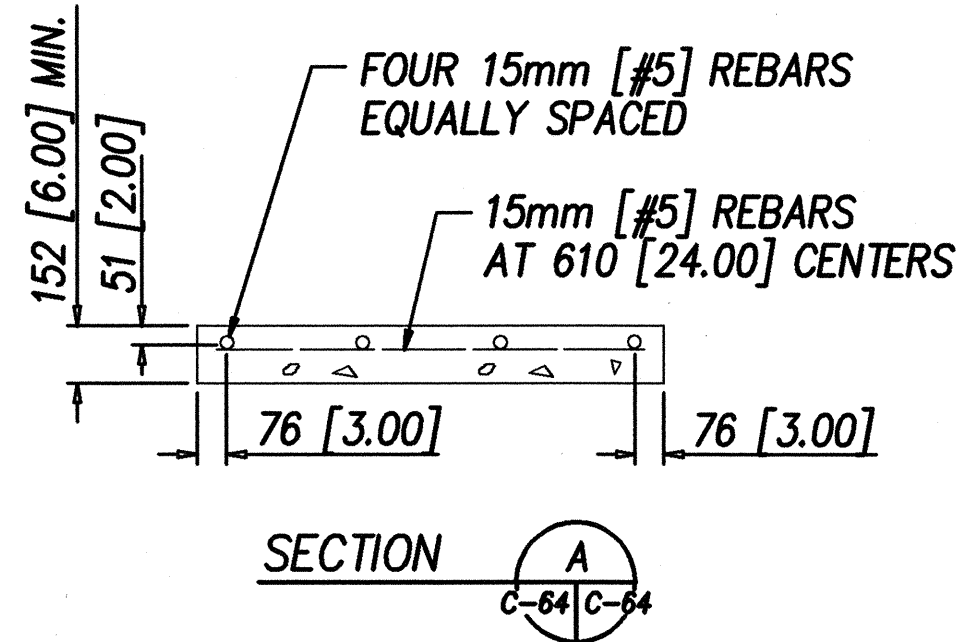
- IN COMPLIANCE WITH THE AASHTO 1996 ROADSIDE DESIGN GUIDE, MANUFACTURER RECOMMENDS REMOVAL OF ALL CURBS AND ISLANDS TO ENSURE PROPER IMPACT PERFORMANCE.
- PROVISION SHALL BE MADE FOR REAR FENDER PANELS TO SLIDE REARWARD UPON IMPACT 762 [30.00] MINIMUM.
- 152 [6.00] MINIMUM REINFORCED 27.6 MPa [4000 PSI] P.C. CONCRETE PAD OR 203 [8.00] MINIMUM NON-REINFORCED 27.6 MPa [4000 PSI] P.C. CONCRETE ROADWAY.
- SEE THE "QUADGUARD SYSTEM DESIGN MANUAL" CODED ENE 820-796 FOR A DESCRIPTION OF ITS IMPACT PERFORMANCE CHARACTERISTICS AND DESIGN LIMITATIONS BEFORE PLACING A SYTEM AT A GIVEN SITE. INFORMATION AND COPIES OF ABOVE MANUAL ARE AVAILABLE BY CALLING CUSTOMER SERVICE DEPARTMENT AT (312) 467-6750.
- WHERE NECESSARY, THE CUSTOMER SHALL SUPPLY A TRANSITION FROM THE QUADGUARD SYSTEM TO THE OBJECT BEING SHIELDED.

QUADGUARD SYSTEM W/ TENSION STRUT BACKUP

Not to Scale

SYSTEM DIMENSIONS

BAYS	24" WIDTH MODEL#		SYSTEM LENGTH		EFFECTIVE LENGTH		PAD LENGTH		REBAR REQUIRED		YDS. OF CONC. IN PAD	
	GREY	YELLOW	m	ft-in	m	ft-in	m	ft-in	m	ft-in	m ³	YARDS ³
3	QS2403G	QS2403Y	4.00	[13'-1"]	3.57	[11'-8"]	3.66	[12'-0"]	20.73	[68'-0"]	1.82	[2.4]



NOTES:

- CROSS SLOPE OF PAD SHALL NOT EXCEED 8%, AND NOT VARY MORE THAT 2% FROM FRONT TO BACK.

QUADGUARD SYSTEM CONCRETE PAD, TENSION STRUT, QG

ORIGINAL PLAN	DATE
DRAWN BY	
CHECKED BY	
NOTED BY	
DATE	



THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION

SIGNATURE DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CRASH CUSHION DETAILS - 1

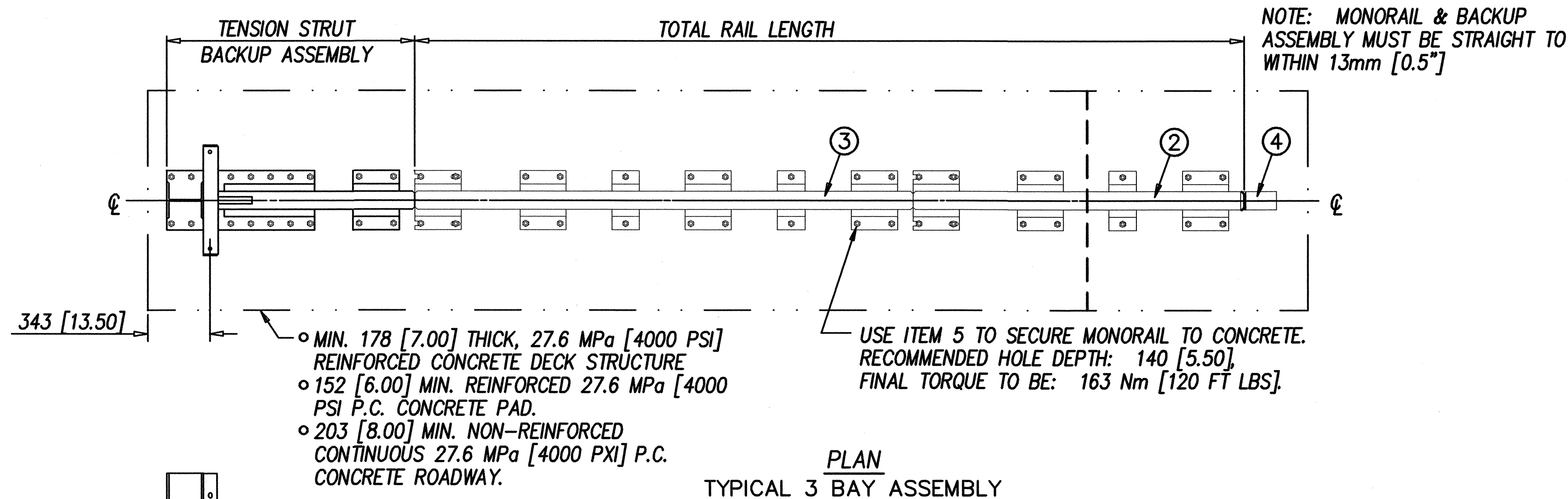
NIMITZ HIGHWAY REHABILITATION
SUMNER STREET TO QUEEN STREET
F.A.I. Proj. No. NH-092-1(25)

Scale: As shown

Date: 10/19/01

SHEET No. C-82 OF 107 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-092-1(25)	2002	88	268



NOTES:

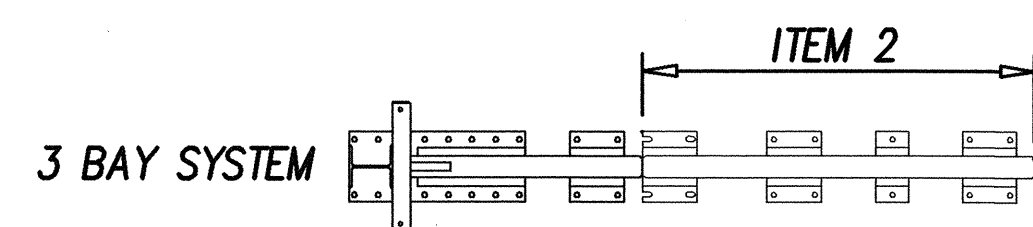
- USE MONORAIL(S) (ITEM 1, 2, AND 3) AS TEMPLATE(S) TO LOCATE MP-3 ANCHOR BOLTS (ITEM 5).
- CROSS SLOPE OF PAD SHALL NOT EXCEED 8% AND NOT VARY MORE THAN 2% FROM FRONT TO BACK.

TABLE "L"						
ASSY NO.	NO. OF BAYS	TOTAL RAIL LENGTH	*ITEM 1	*ITEM 2	*ITEM 3	*ITEM 5
3540060-0300	3	1830 [72.0]	0	1	0	3

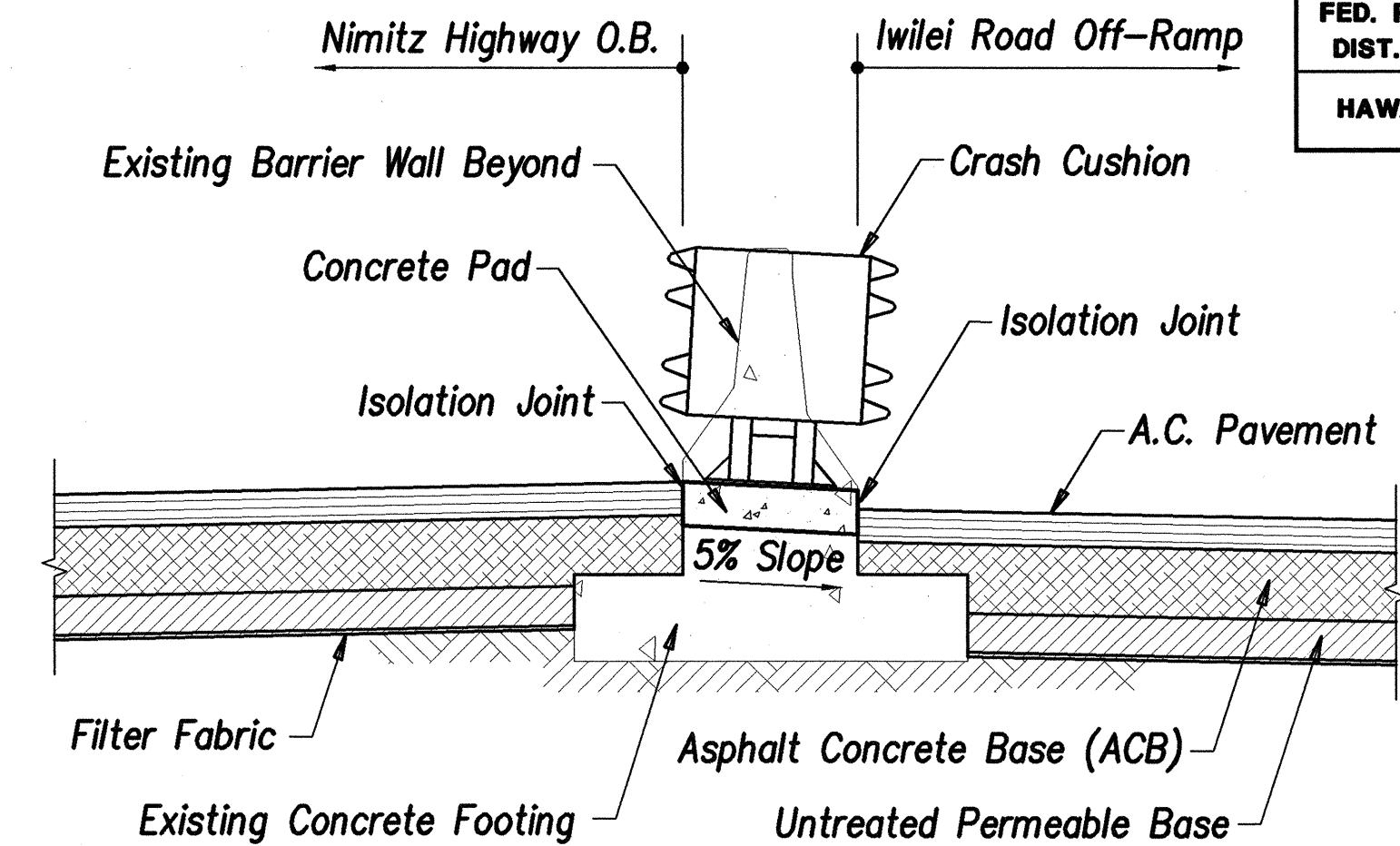
PARTS LIST			
ITEM	STOCK NO.	DESCRIPTION	REQ'D.
1	2760051-0000	MONORAIL, ONE BAY, QG, G	*
2	2760061-0000	MONORAIL, TWO BAY, QG, G	*
3	2760071-0000	MONORAIL, THREE BAY, QG, G	*
4	2760041-0000	END CAP, MONORAIL, QG, G	1.00
5	2535300-0000	ANCHOR, MP-3, PT-KIT, ? X 7, VT	*
6	2699251-0000	BOLT, HX, ? X 3?, G5, G	1.00
7	2704341-0000	NUT, HX, ?, G, GR DH	1.00
8	2708201-0000	WASHER, LOCK, ?, G	1.00

* SEE TABLE

MONORAIL ASSEMBLY, QG W/ TENSION STRUT BACKUP



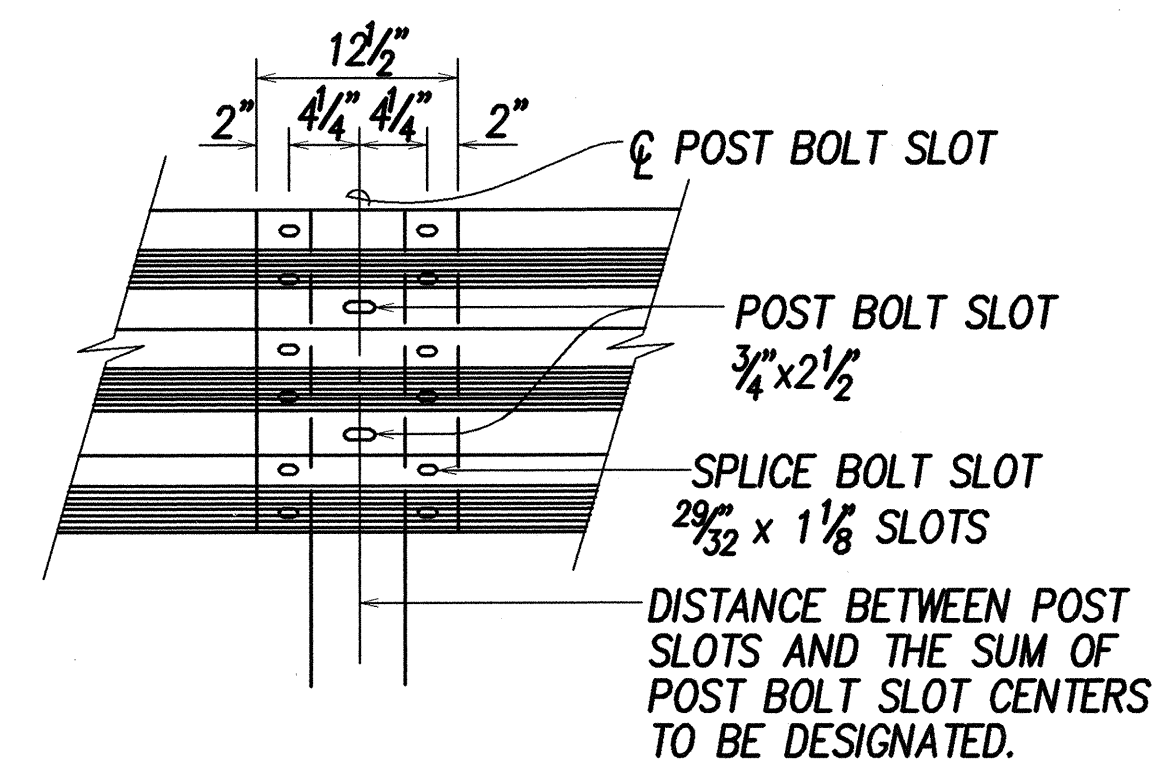
MONORAIL ASSEMBLY LAYOUT (3 BAY SYSTEM)



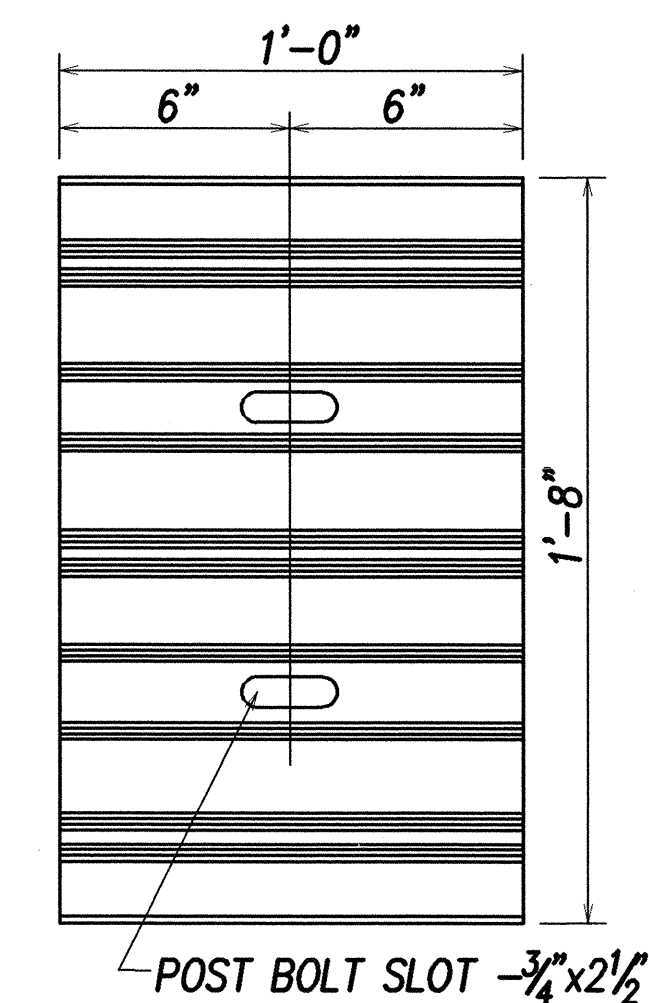
CRASH CUSHION SECTION

Scale: 1" = 2'-0"

A
C-82C-83



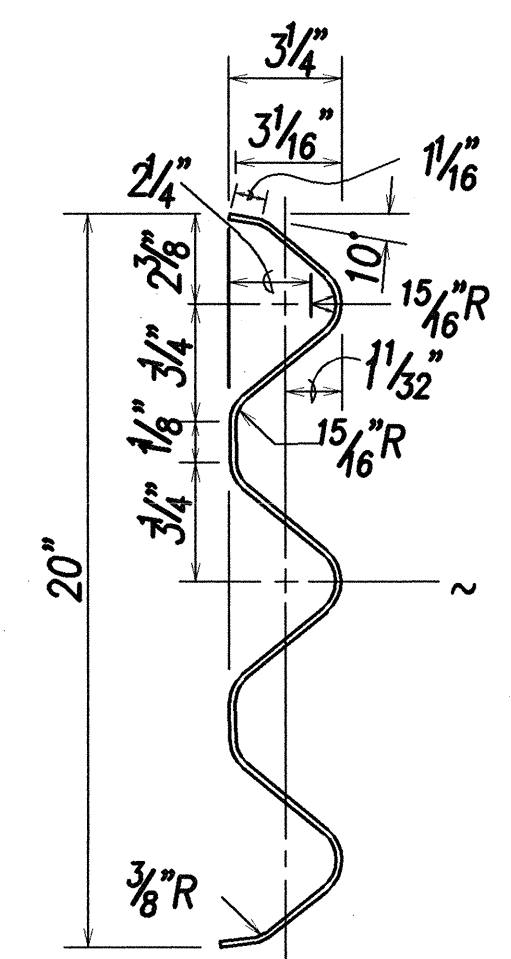
RAIL SPLICE



BACKUP PLATE

(RTB01b)

(USE AT POSTS WHERE SPLICES DO NOT OCCUR)



SECTION THRU

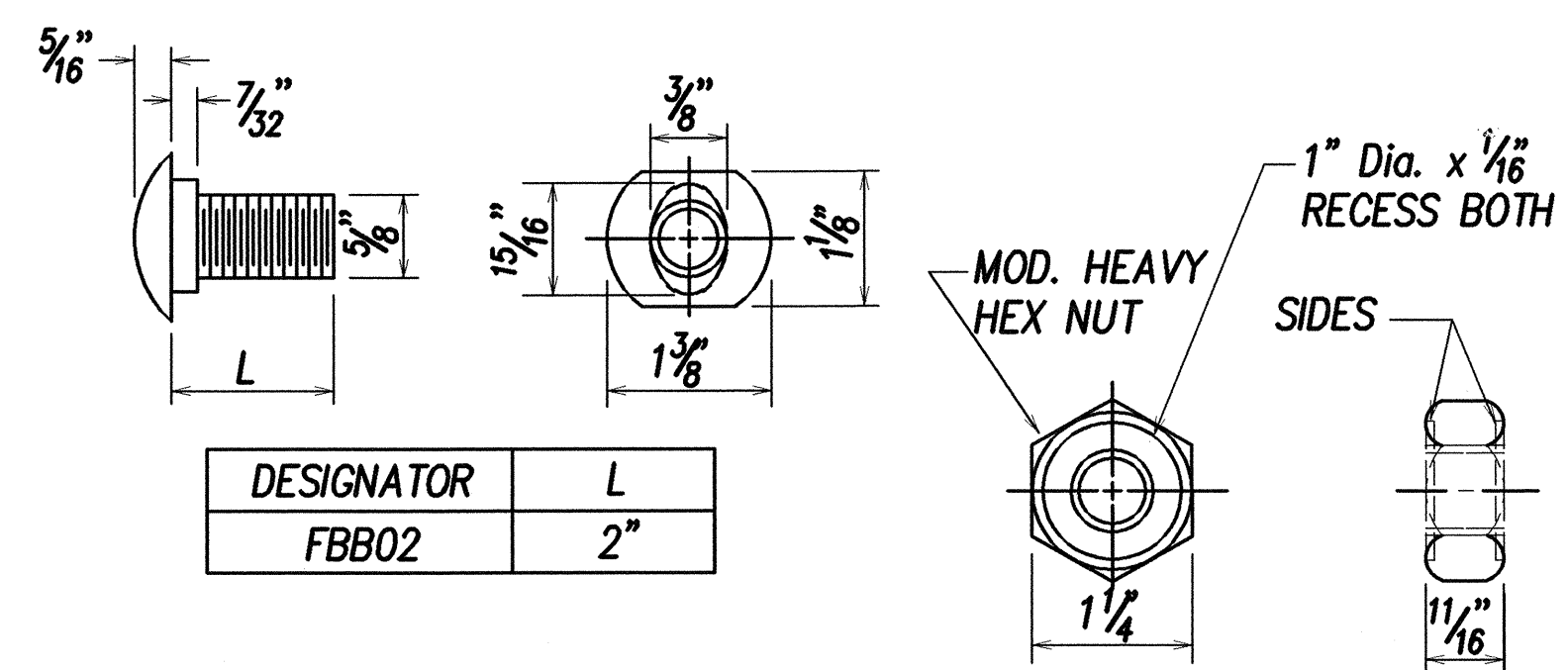
RAIL ELEMENT

(RTM02b)

THRIE BEAM GUARDRAIL DETAILS

Not to Scale

1
C-82C-83



GUARDRAIL BOLTS AND RECESSED NUT

UNITS OF MEASUREMENT ARE MILLIMETERS [INCHES] UNLESS OTHERWISE NOTED

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CRASH CUSHION DETAILS - 2

NIMITZ HIGHWAY REHABILITATION
SUMNER STREET TO QUEEN STREET
F.A.I. Proj. No. NH-092-1(25)

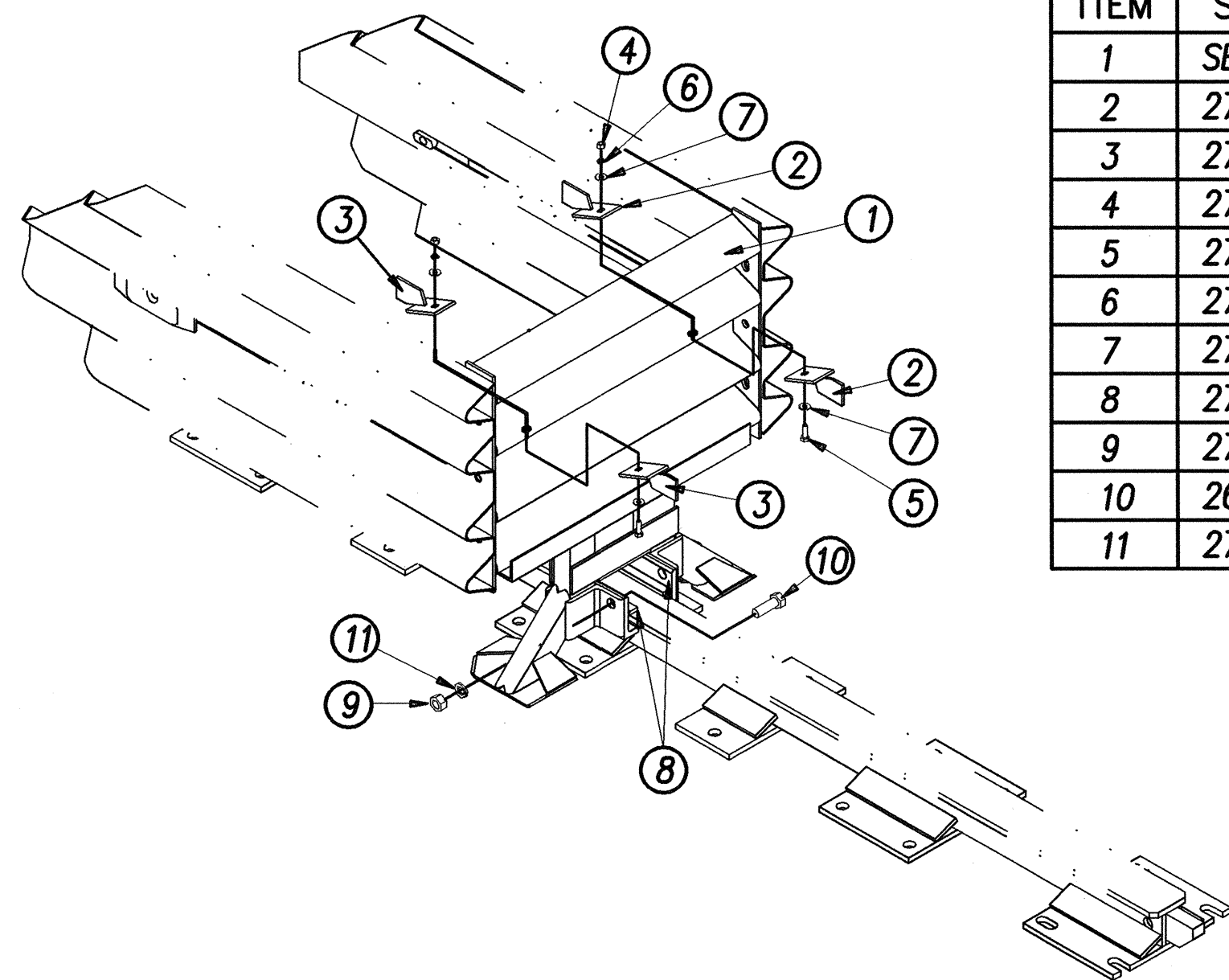
Scale: As shown

Date: 10/19/01

SHEET No. C-83 OF 107 SHEETS

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
CHECKED BY	
ORIGINAL PLAN	No.
NOTE BOOK	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-092-1(25)	2002	89	268



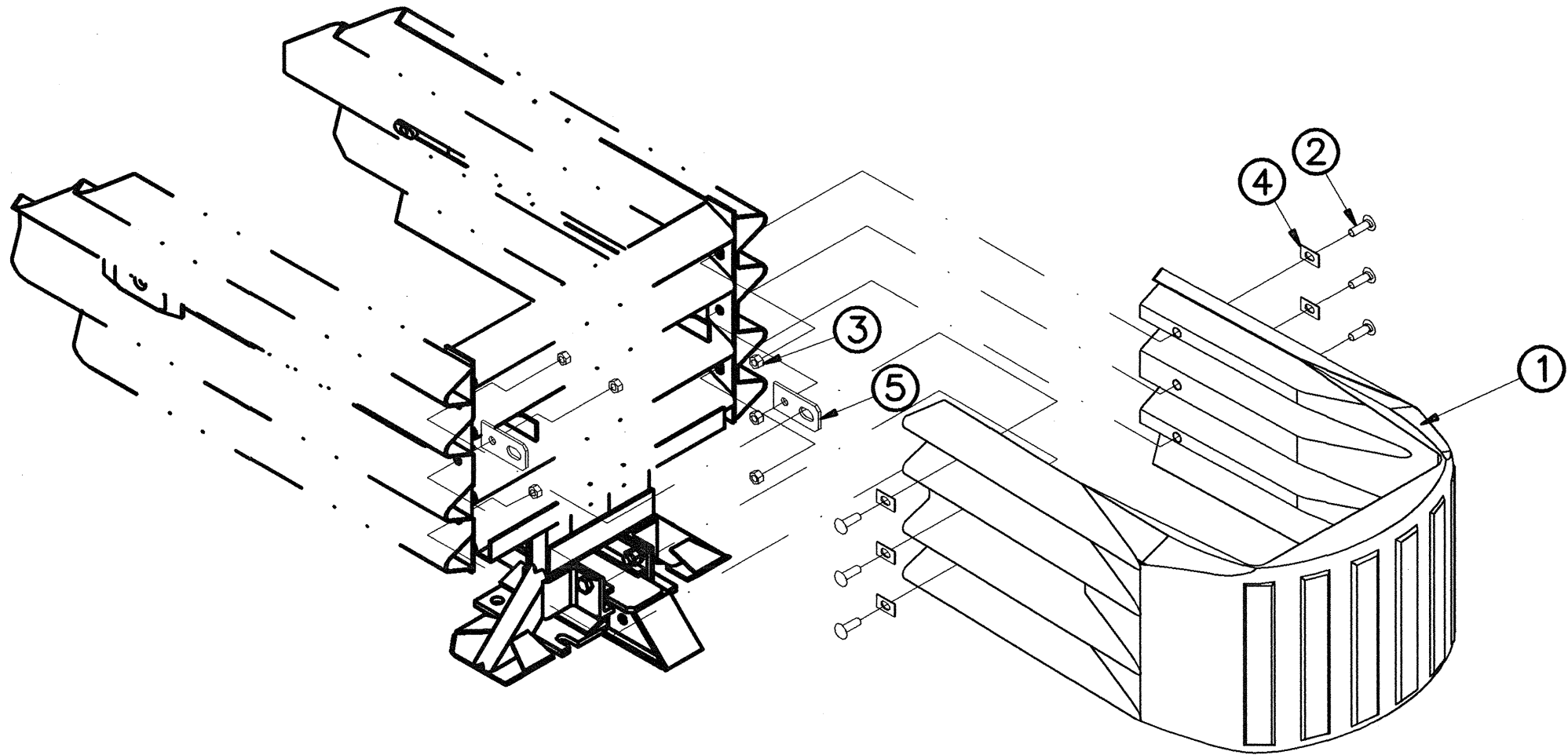
PARTS LIST			
ITEM	STOCK NO.	DESCRIPTION	REQ'D.
1	SEE TABLE A	DIAPHRAGM, QB, QG,G	1.00
2	2760101-0000	BRACKET, CARTRIDGE SUPPORT, R, QG, G	2.00
3	2760111-0000	BRACKET, CARTRIDGE SUPPORT, L, QG, G	2.00
4	2704031-0000	NUT, HX, 3/8, G	2.00
5	2701021-0000	BOLT, HX, 3/8 X 1-1/2, G	2.00
6	2708041-0000	WASHER, LOCK, 3/8, G	2.00
7	2708021-0000	BOLT, HX, 3/8 X 1, G	4.00
8	2760091-0000	MONORAIL GUIDE, QG,G	2.00
9	2704341-0000	NUT, HX, 3/4, GR DH	4.00
10	2699121-0000	BOLT, HX, 3/4 X 2, G8,G	4.00
11	2708201-0000	WASHER, LOCK 3/4, G	4.00

TABLE A		
ASSY. NO.	STOCK NO.	DESCRIPTION
3540071-0000	276011-0000	DIAPHRAGM, QB, 24, QG,G
3540072-0000	2761021-0000	DIAPHRAGM, QB, 30, QG,G
3540073-0000	2761031-0000	DIAPHRAGM, QB, 36, QG,G

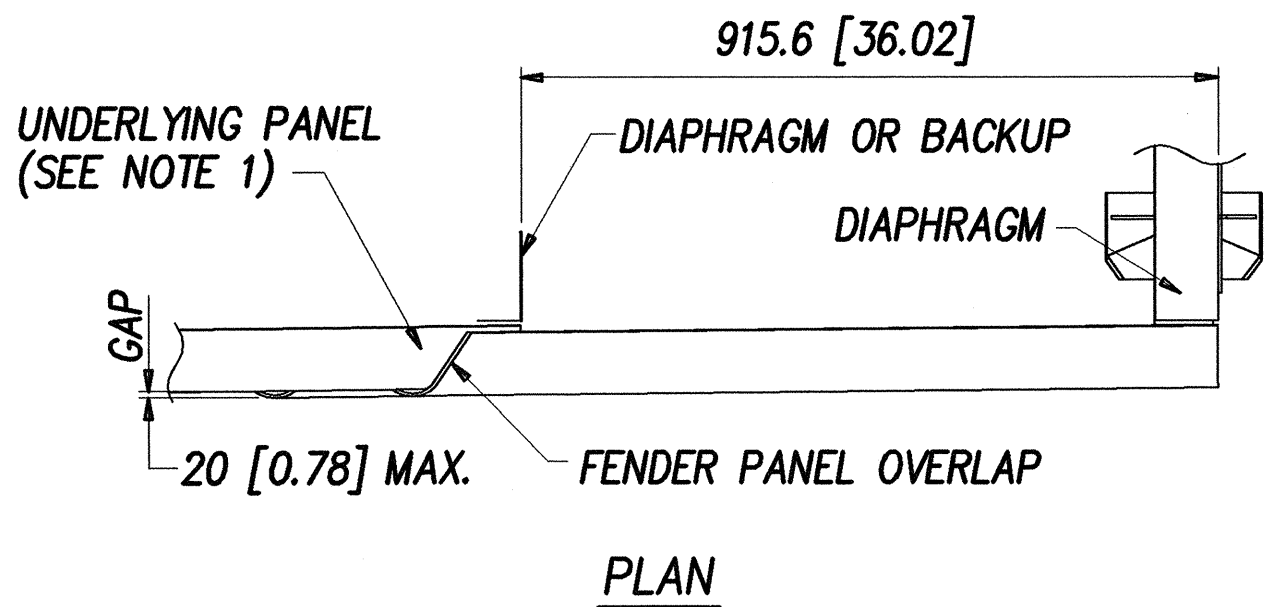
DIAPHRAGM ASSEMBLY, QG

PARTS LIST			
ITEM	STOCK NO.	DESCRIPTION	REQ'D.
1	3540130-0*00	NOSE, W/SUPPORT BRACKET	1.00
2	2699341-0000	BOLT, RAIL, 5/8 X 2, G	6.00
3	2704191-0000	NUT, HX, 5/8, G, RAIL	6.00
4	2708871-0000	WASHER, BAR, 1/8 X 1-1/4 X 2, W/HOLE, G	6.00
5	2760251-0000	BRACKET, PULL-OUT	2.00

* 0 INDICATES GRAY
* 1 INDICATES YELLOW

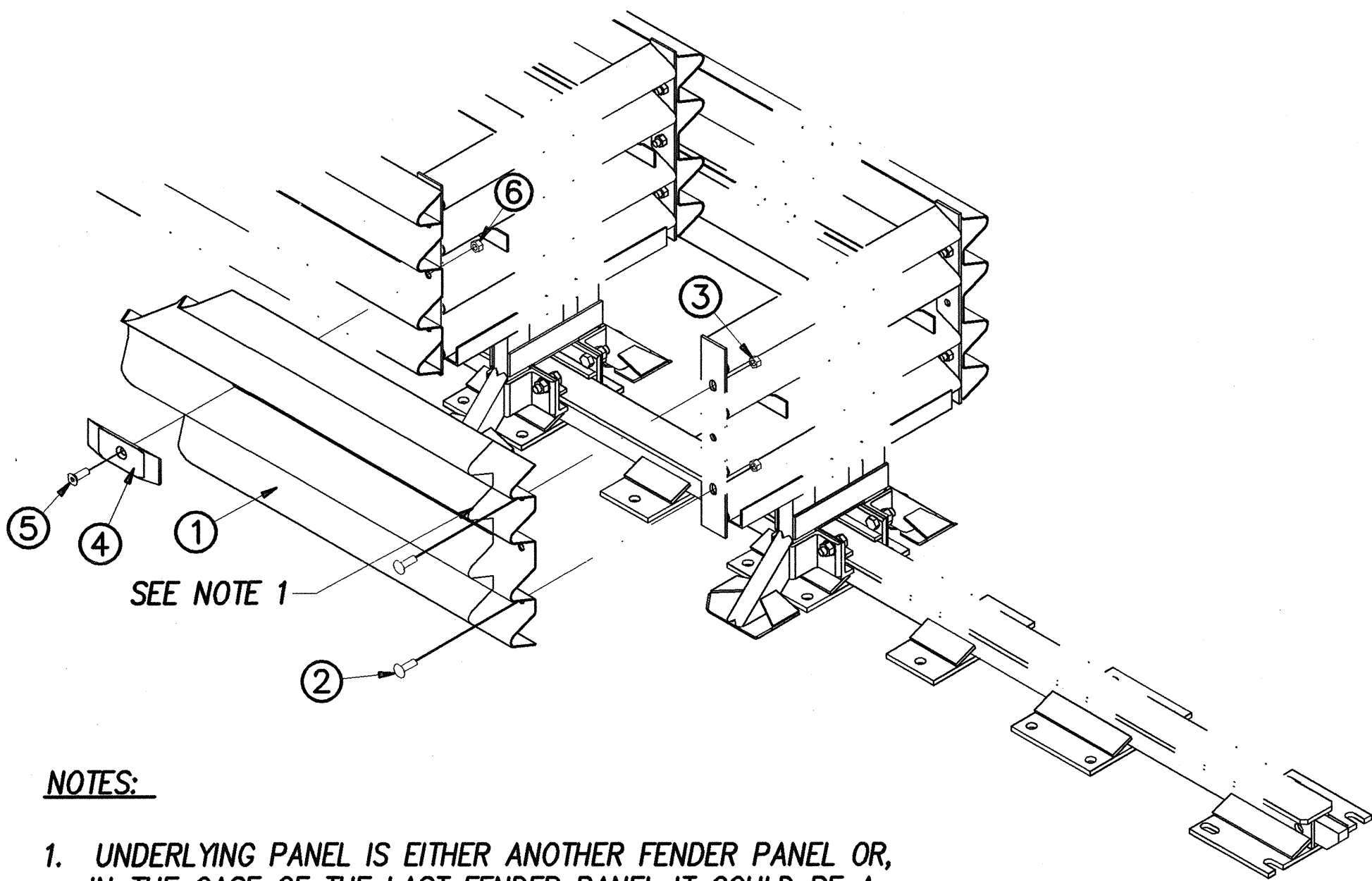


NOSE ASSEMBLY, QG



PARTS LIST			
ITEM	STOCK NO.	DESCRIPTION	REQ'D.
1	2760081-0000	PANEL, FENDER, QG, G	1.00
2	2699341-0000	BOLT, RAIL, 5/8 X 2, G	2.00
3	2704191-0000	NUT, HX, 5/8, G, RAIL	2.00
4	2708841-0000	WASHER, MUSHROOM, CAST QG, G	1.00
5	2701731-0000	BOLT, FL, 5/8 X 3, G8, G, SOCKET	1.00
6	2704141-0000	NUT, HX, 5/8, G	1.00

TWO FENDER PANEL ASSEMBLIES REQUIRED PER BAY



NOTES:
1. UNDERLYING PANEL IS EITHER ANOTHER FENDER PANEL OR, IN THE CASE OF THE LAST FENDER PANEL IT COULD BE A BACKUP SIDE PANEL, EXTENSION PANEL OR TRANSITION PANEL.

FENDER PANEL ASSEMBLY, QG

UNITS OF MEASUREMENT ARE MILLIMETERS [INCHES] UNLESS OTHERWISE NOTED



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

SIGNATURE DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CRASH CUSHION DETAILS - 3

NIMITZ HIGHWAY REHABILITATION
SUMNER STREET TO QUEEN STREET
F.A.I. Proj. No. NH-092-1(25)

Scale: As shown Date: 10/19/01

SHEET No. C-84 OF 107 SHEETS

SURVEY PLATTED BY	DATE
DRAWN BY	
TRACED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	