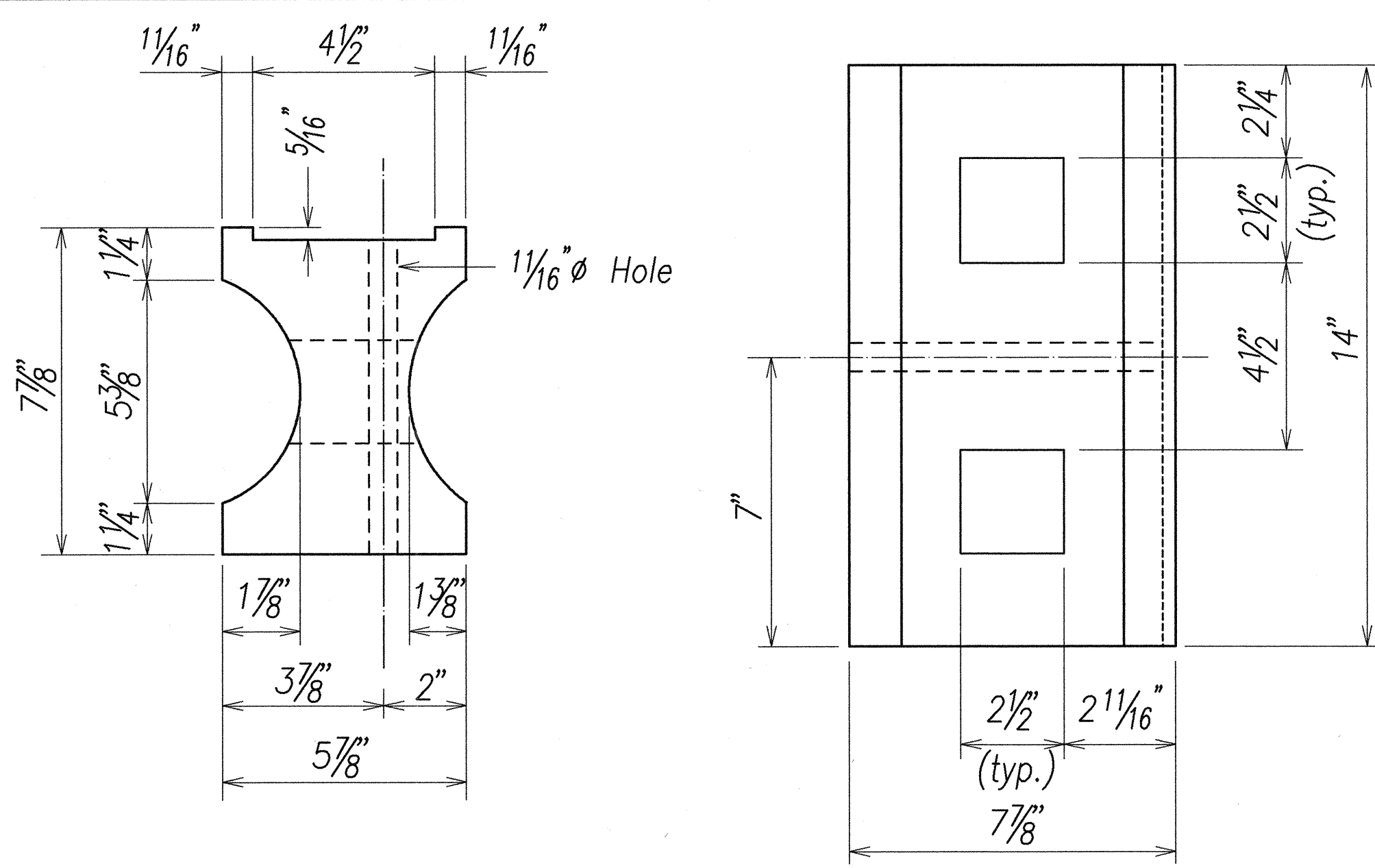
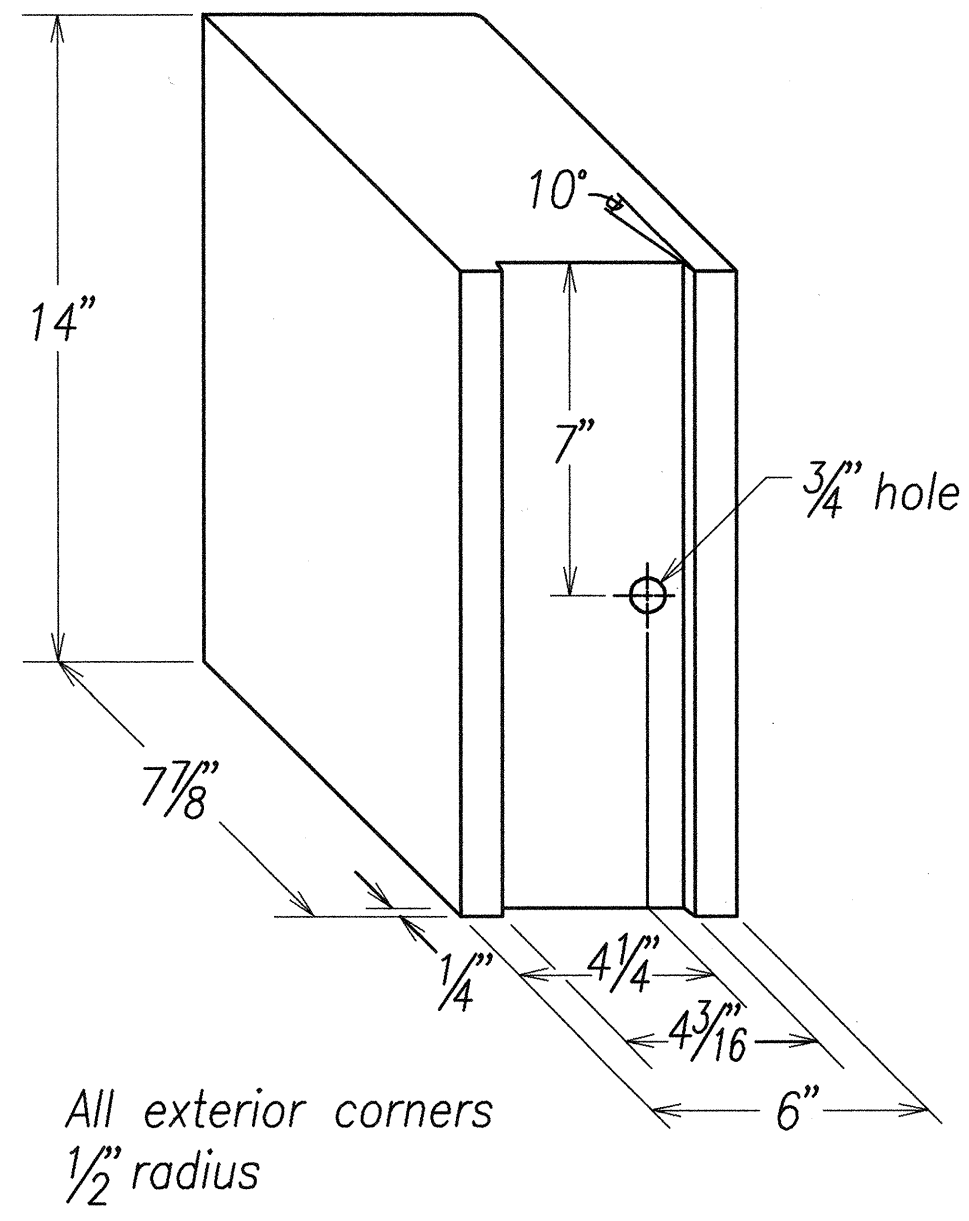


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-058-1(3)	2001	13	39

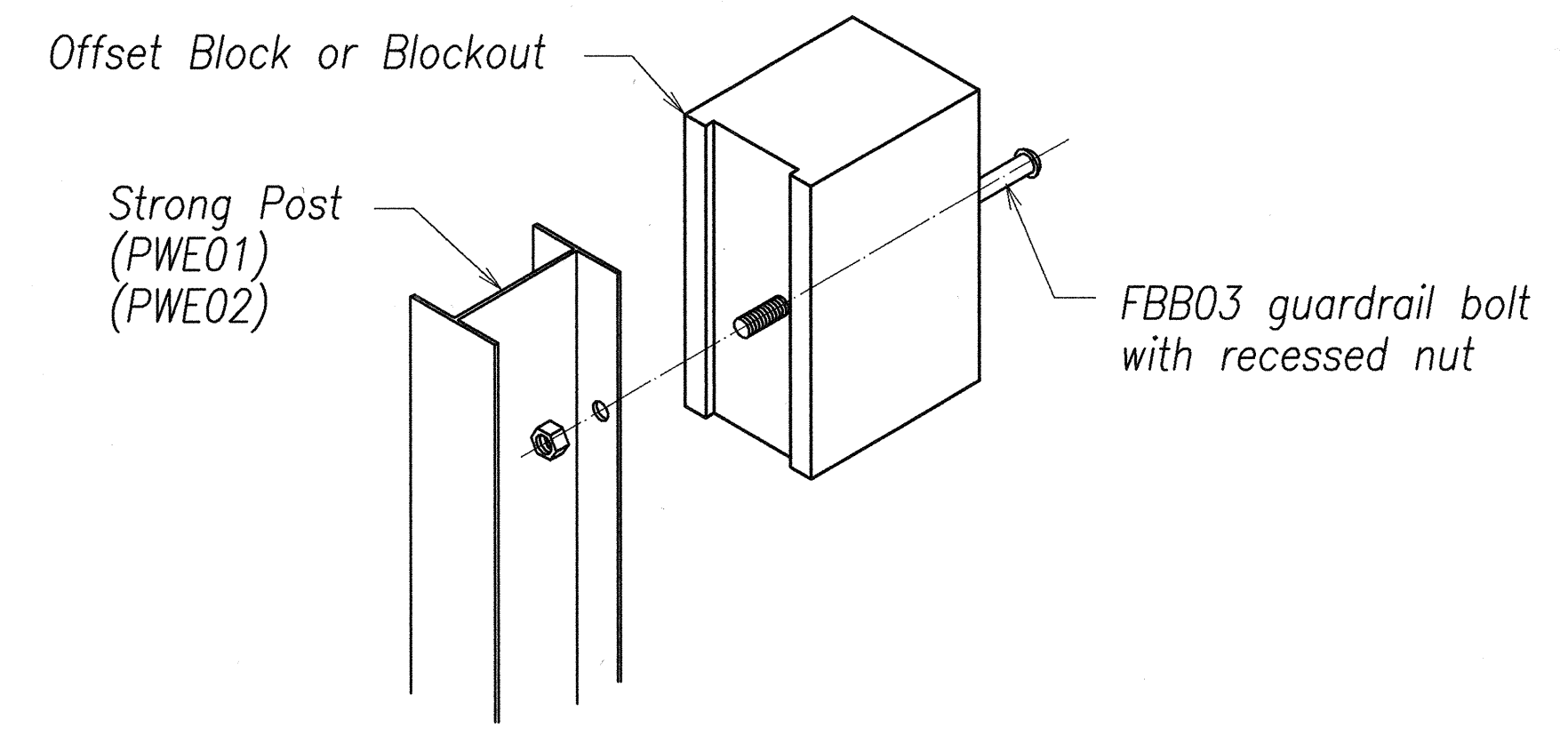


TOP
 SIDE
RECYCLED PLASTIC BLOCKOUT (TYPE I)

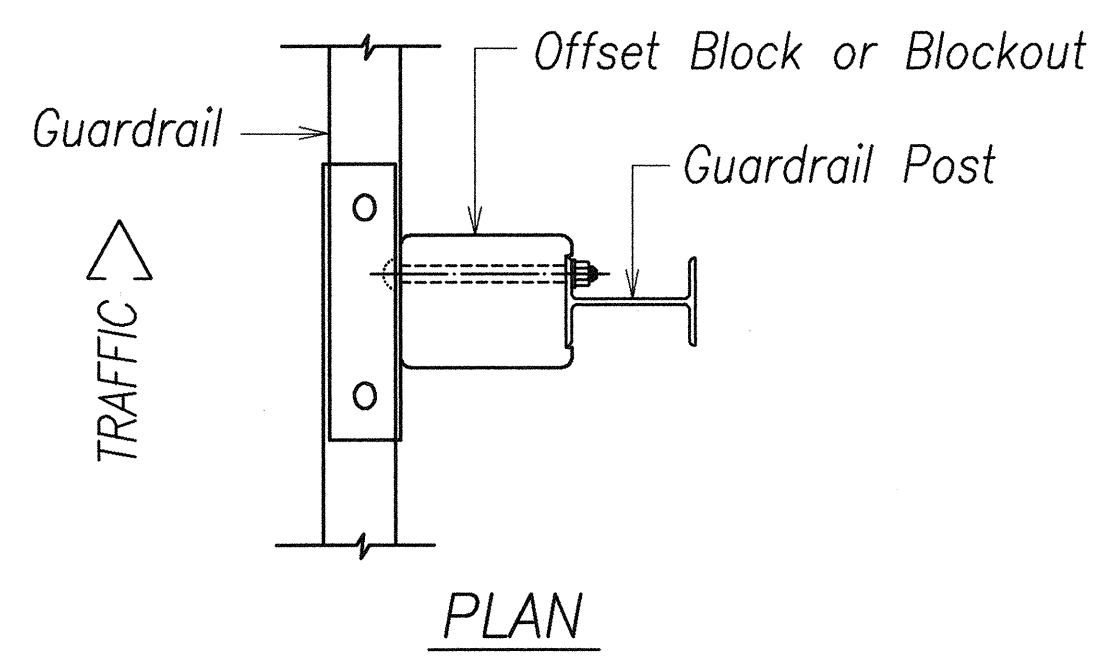


RECYCLED POLYETHYLENE
 OFFSET BLOCK (TYPE II)

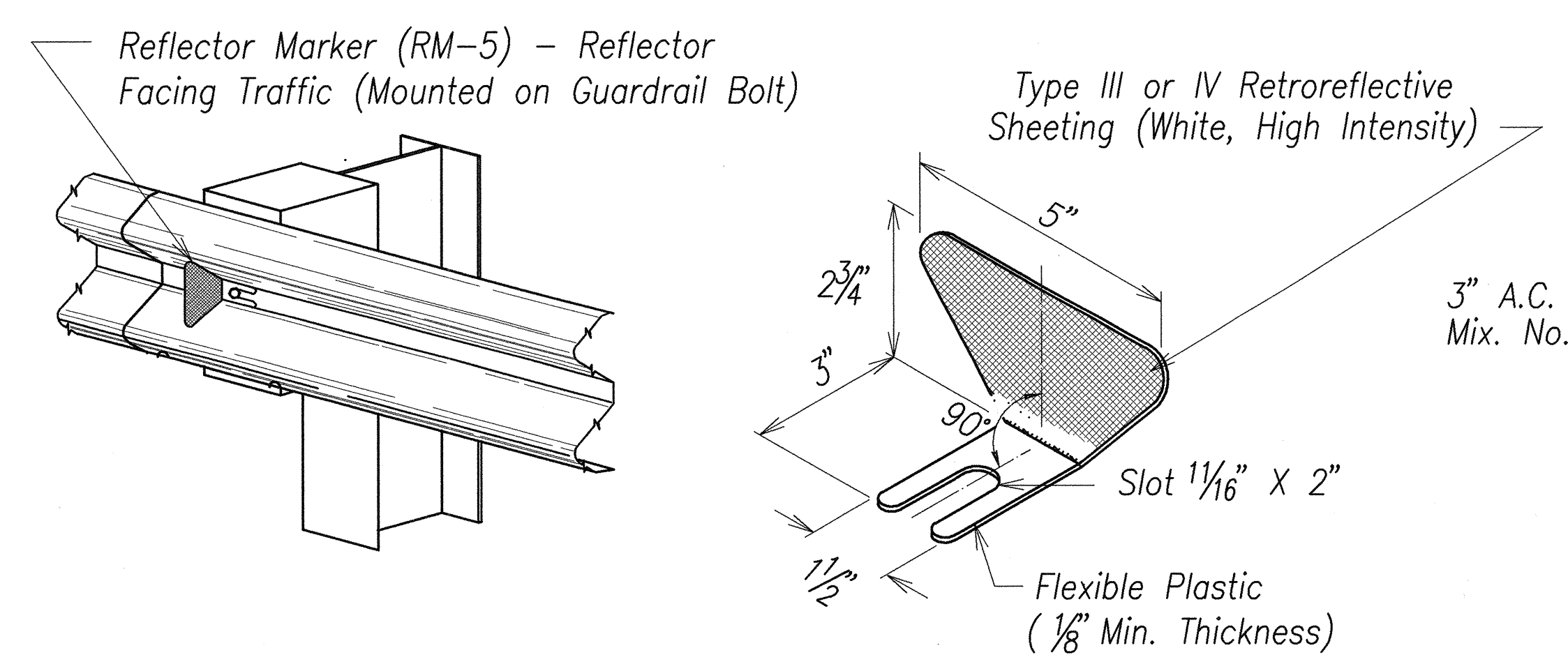
- GENERAL NOTES
1. All hardware, posts and fasteners shall be hot-dip zinc coated galvanized after fabrication. No punching, drilling or cutting will be permitted after galvanizing.
 2. Where conditions require, special post lengths in increments of 6 inches may be specified.
 3. All fasteners, posts, and rail elements (i.e. FBB03, PWE01, RWM02a, etc.) shall conform to the latest edition and amendments of "A Guide to Standardized Highway Barrier Rail Hardware," a report prepared and approved by the AASHTO-AGC-ARTBA Joint Cooperative Committee, Subcommittee On New Highway Materials, Task Force 13 Report. Dimensions of fasteners, posts and rail elements have been converted from metric units into their present form.
 4. The Recycled Plastic Block or Offset Block shall be approved by the State.
 5. Reflector Markers (RM-5) mounted on guardrails shall be spaced every 50'-0". RM-5's shall not be installed on the FLEAT-350 Terminal Sections.



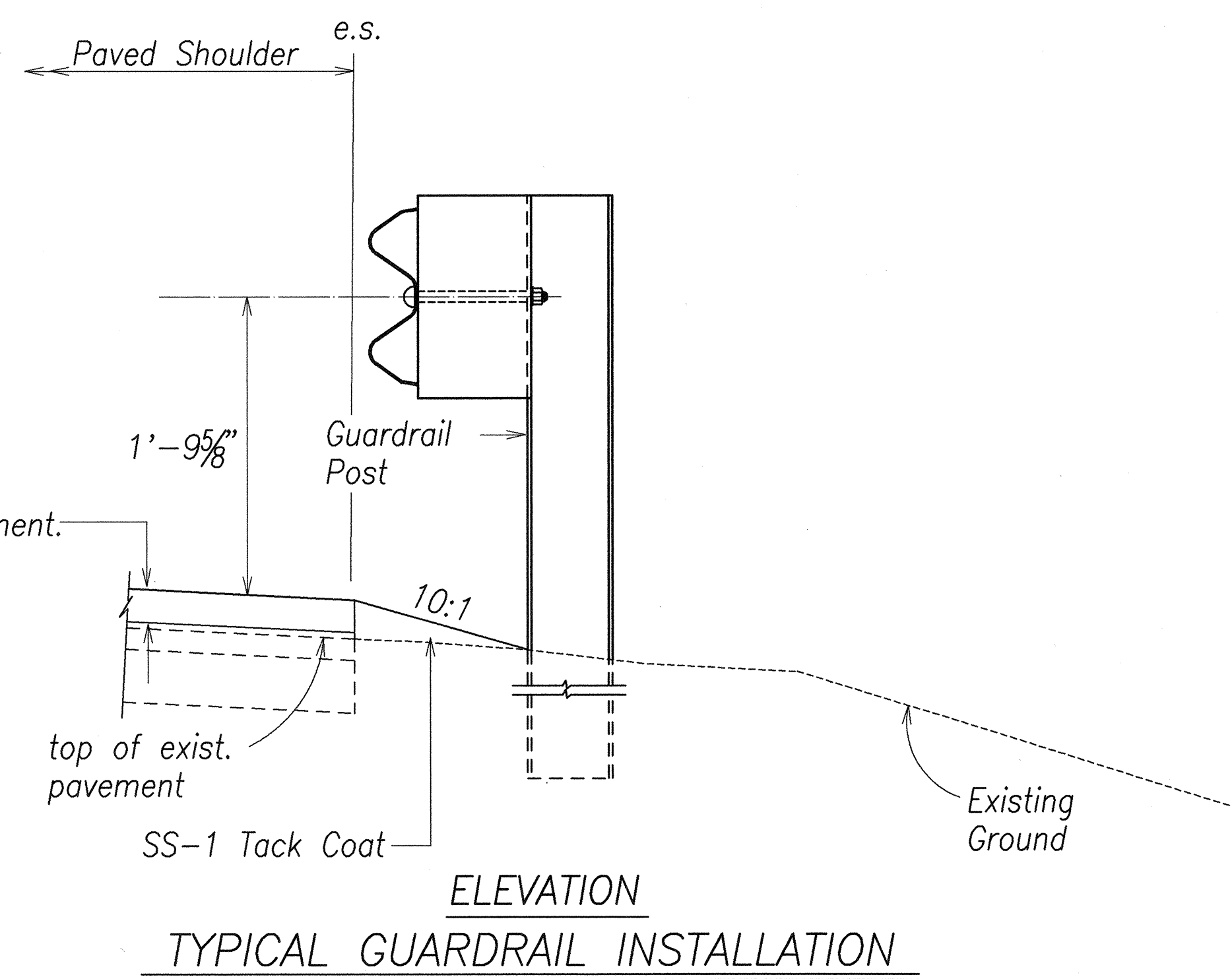
Exploded View
 (Rail, washer and reflector not shown)
STEEL POST AND BLOCK DETAIL



PLAN
 e.s.
 Paved Shoulder

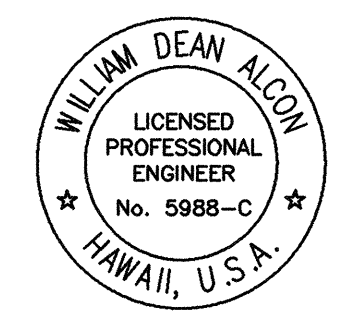


REFLECTOR MARKER (RM-5) DETAIL AND TYPICAL INSTALLATION



ELEVATION
TYPICAL GUARDRAIL INSTALLATION

DATE	3-8-00
SURVEY PLOTTED BY	
DRAWN BY	D. Wilson
DESIGNED BY	S. Horono
QUANTITIES BY	
CHECKED BY	Wm. D. Alton
ORIGINAL PLAN	
No.	amk001010p



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 ME OR UNDER MY SUPERVISION

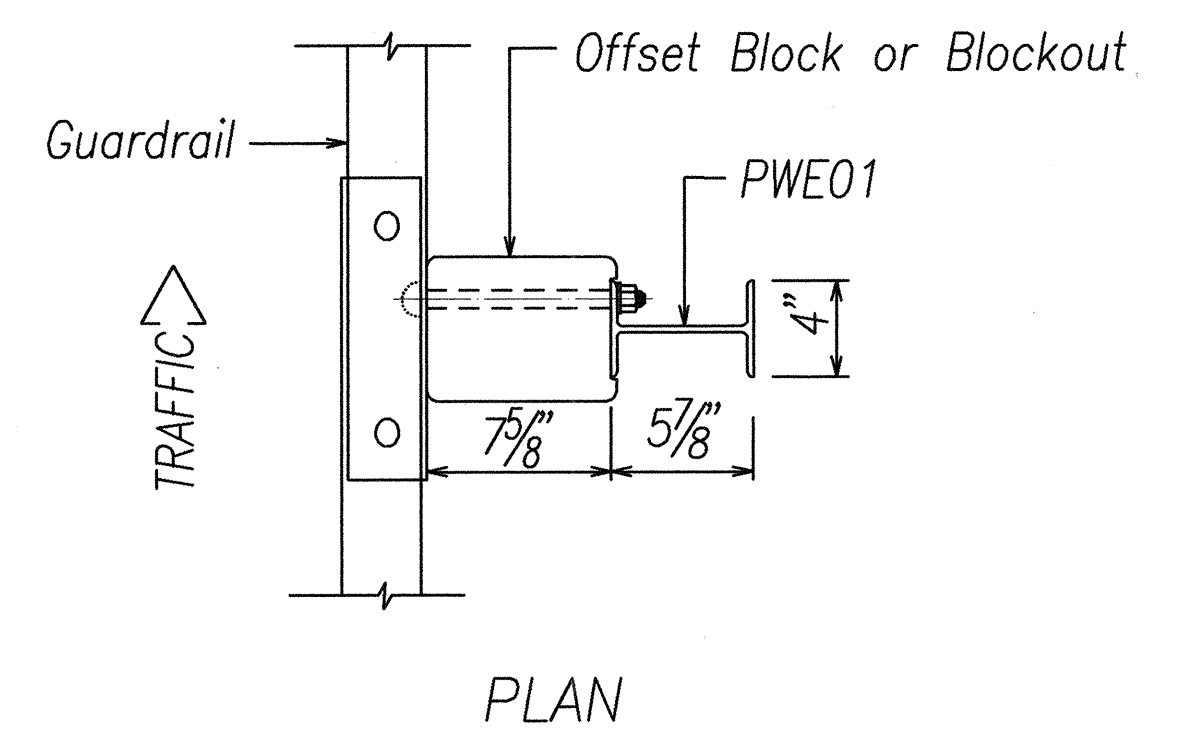
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

GUARDRAIL DETAILS & NOTES

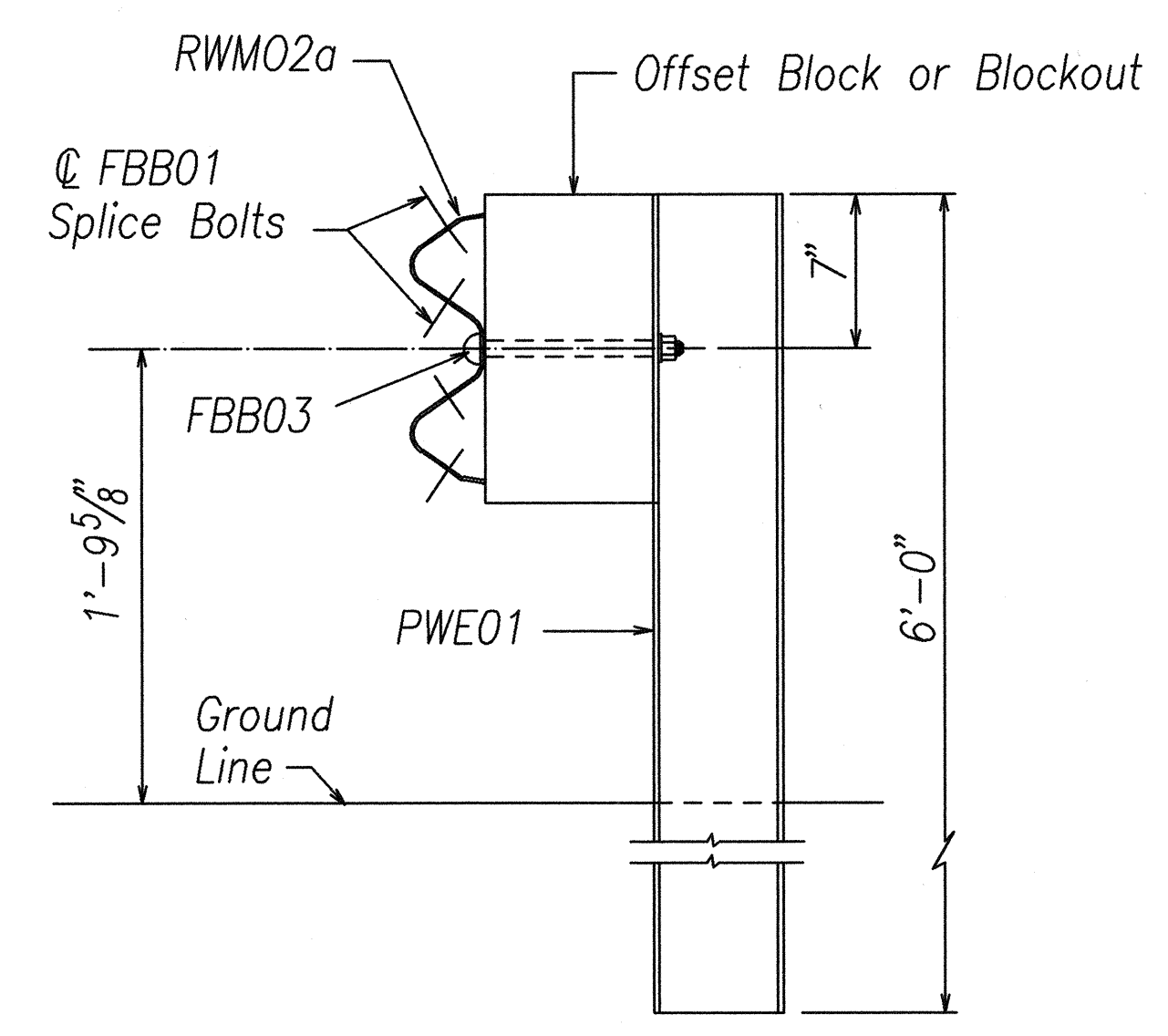
NAWILIWILI ROAD RESURFACING
Kaunualii Highway to Waapa Road
Federal Aid Proj. No. NH-058-1(3)

Scale: NTS Date: Nov. 2000

SHEET No. 1 OF 3 SHEETS

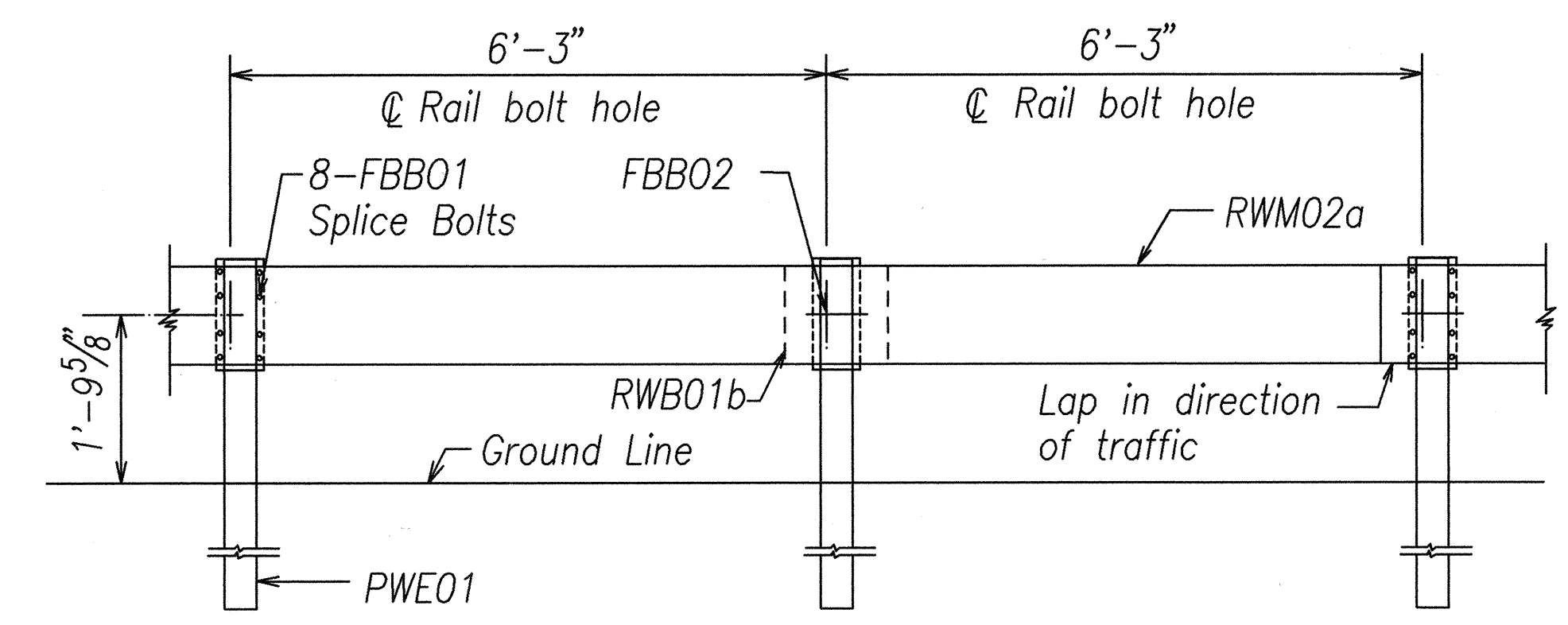


PLAN



ELEVATION

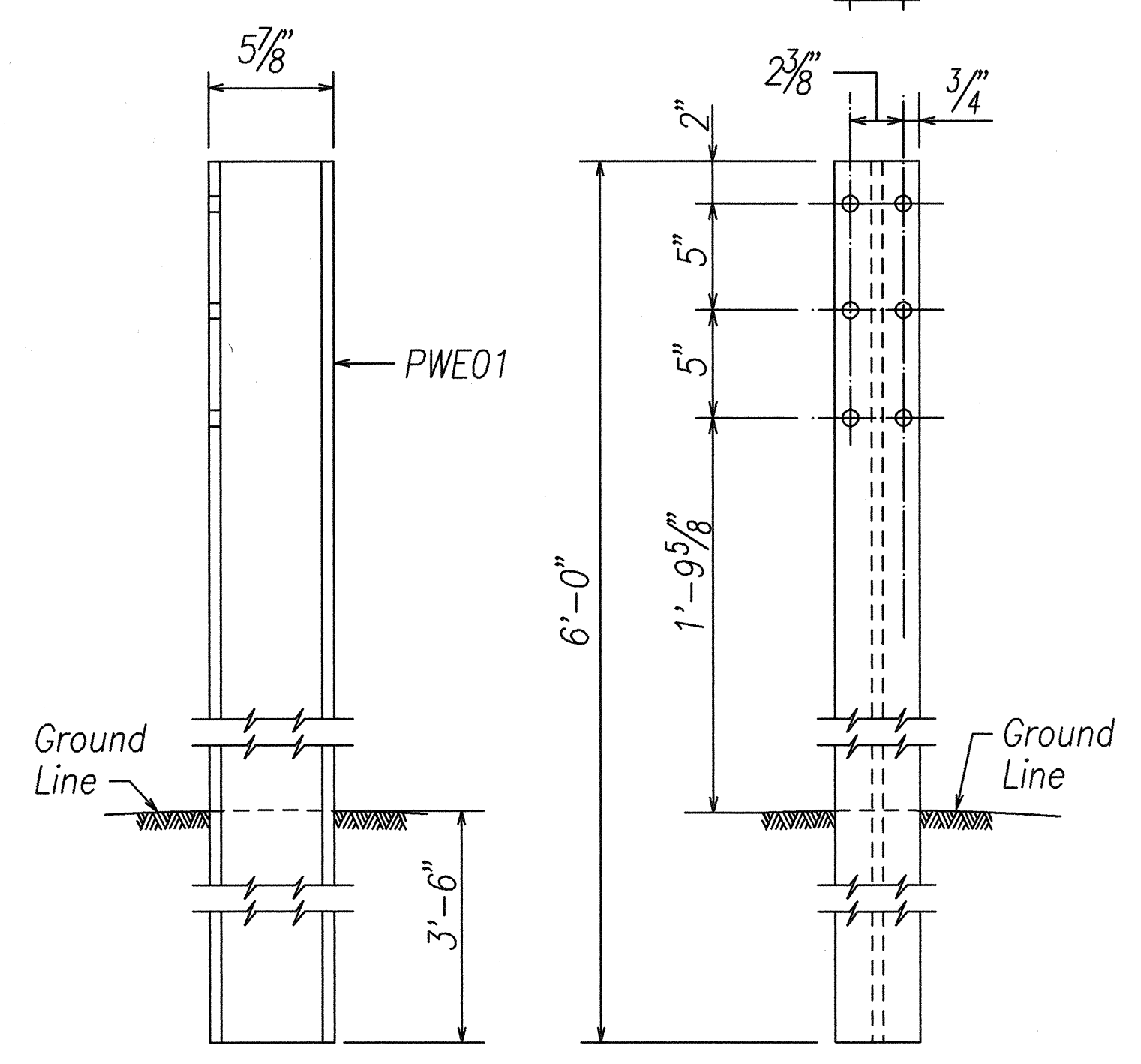
STRONG POST W-BEAM GUARDRAIL (SGR04a)



ELEVATION

STRONG POST W-BEAM GUARDRAIL WITH RECYCLED OFFSET BLOCK OR PLASTIC BLOCKOUT

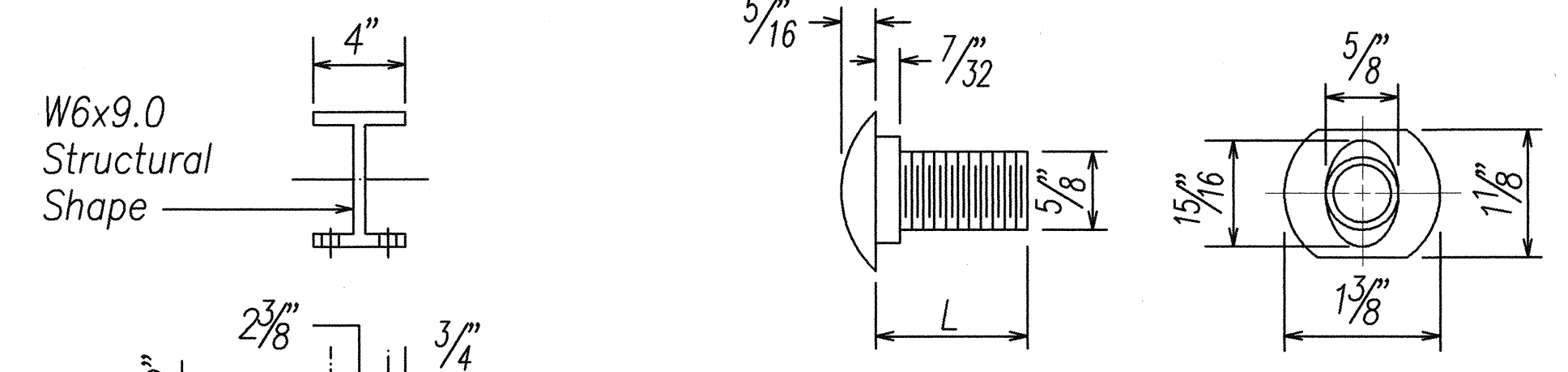
NOTE:
All Holes are 3/4" Dia.



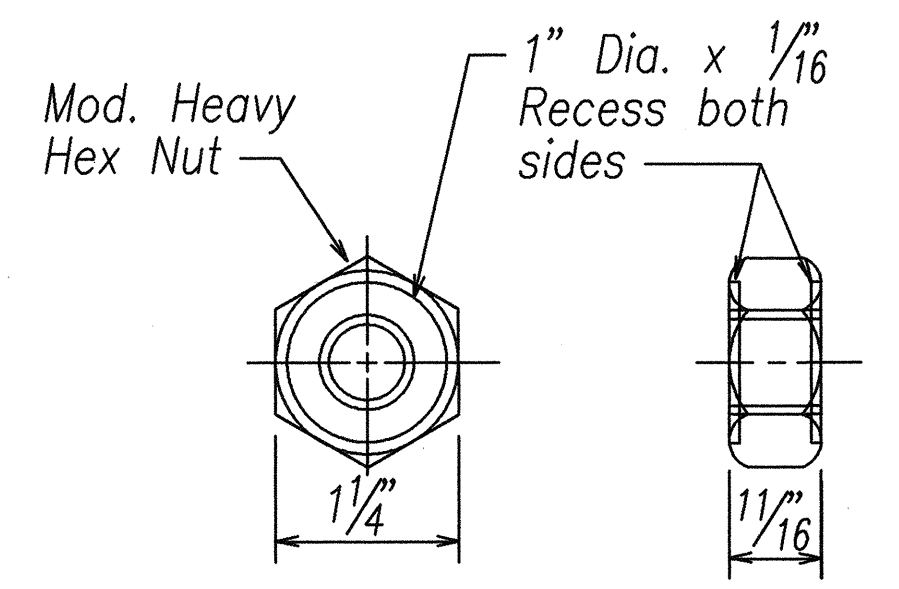
SIDE

FRONT

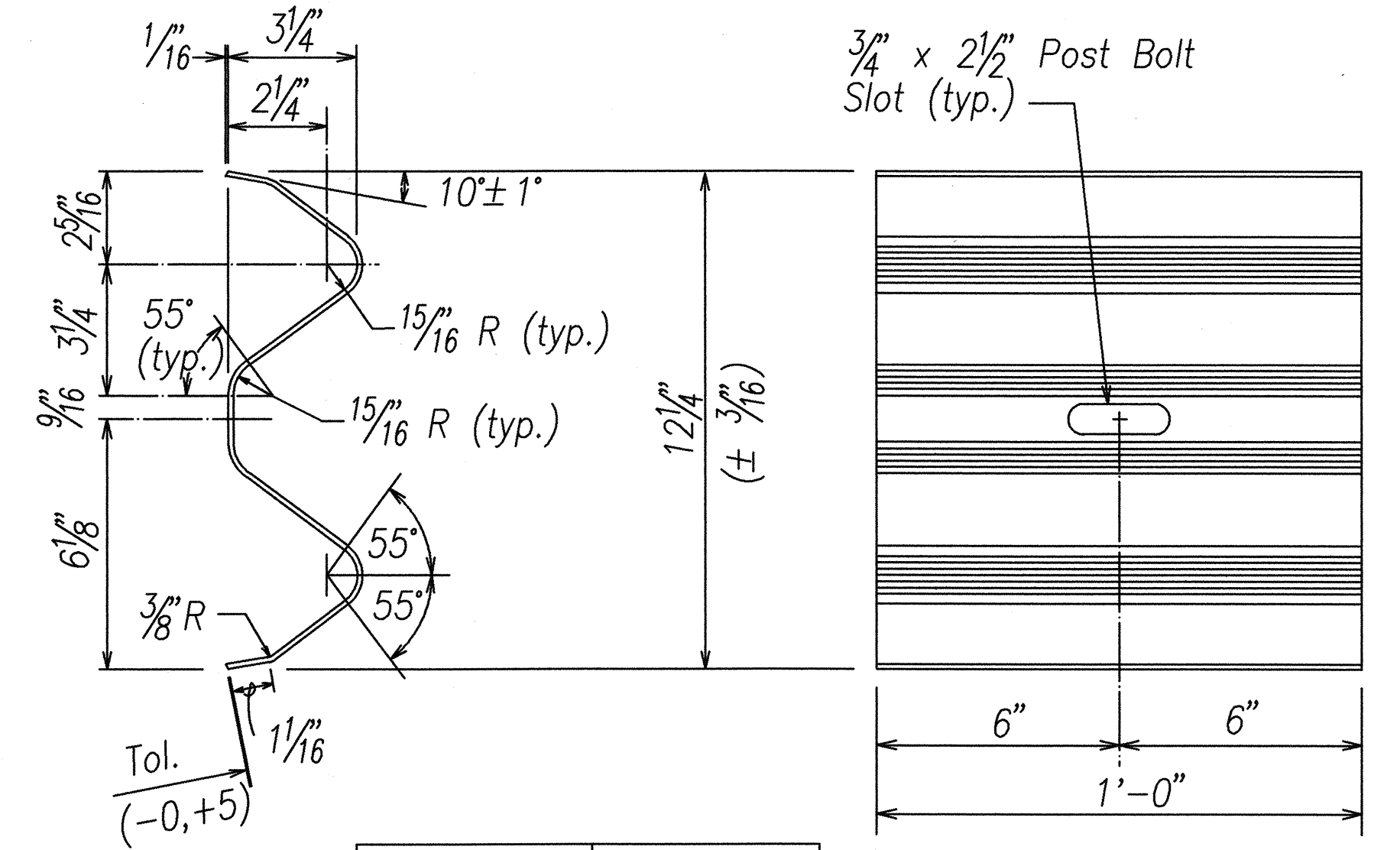
W-BEAM STRONG POST (PWE01)



DESIGNATOR	L
FBB01	1 3/8"
FBB02	2"
FBB03	10"

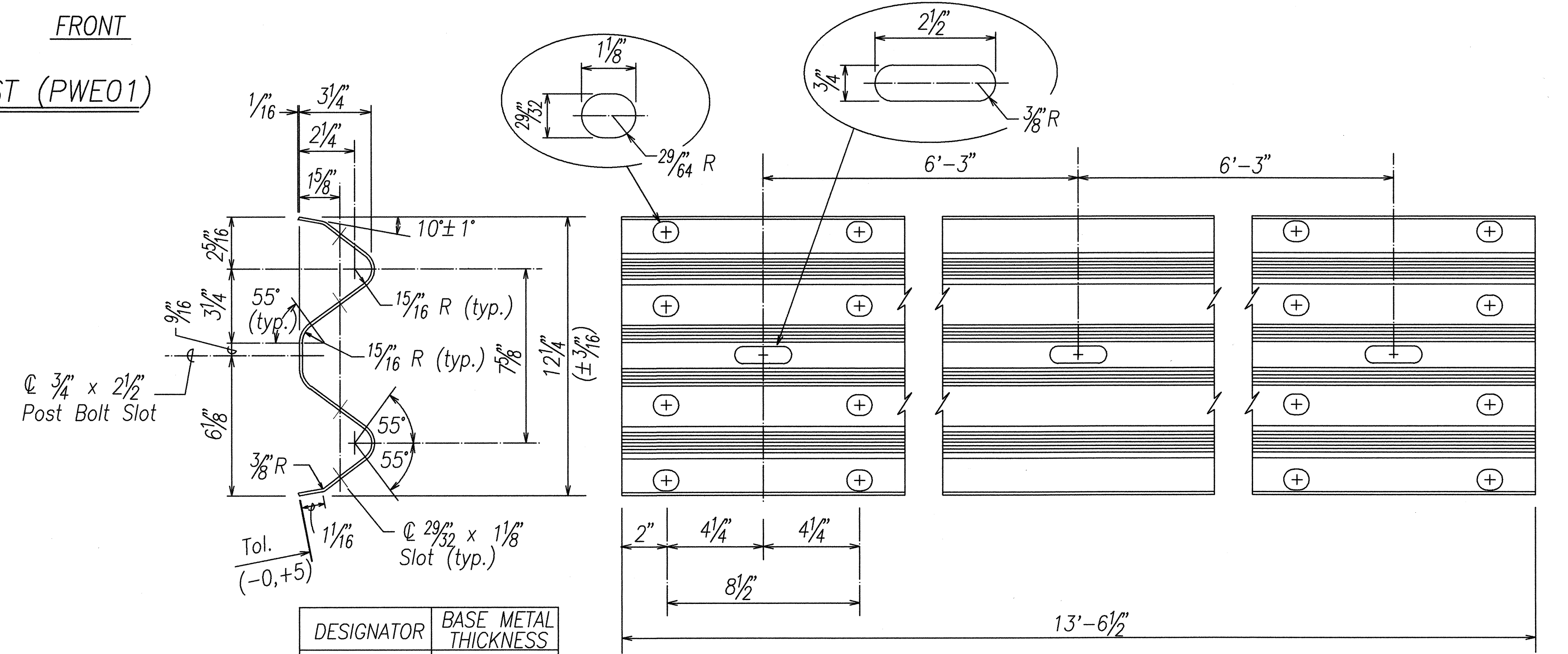


GUARDRAIL BOLTS AND RECESSED NUT



DESIGNATOR	BASE METAL THICKNESS
RWB01a	12 Gauge

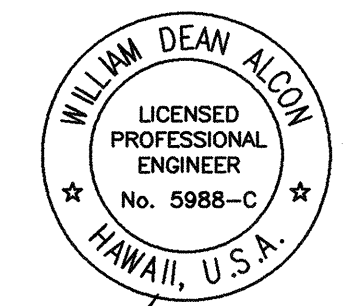
W-BEAM BACK-UP-PLATE (RWB01a)



DESIGNATOR	BASE METAL THICKNESS
RWM02a	12 Gauge

2 SPACE W-BEAM GUARDRAIL (RWM02a)

DATE 3-8-00
 SURVEY PLOTTED BY
 DRAWN BY D. Alton
 DESIGNED BY S. Harano
 QUANTITIES BY
 CHECKED BY Wm. D. Alton
 ORIGINAL PLAN
 NOTE BOOK
 No. 000000/000



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STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

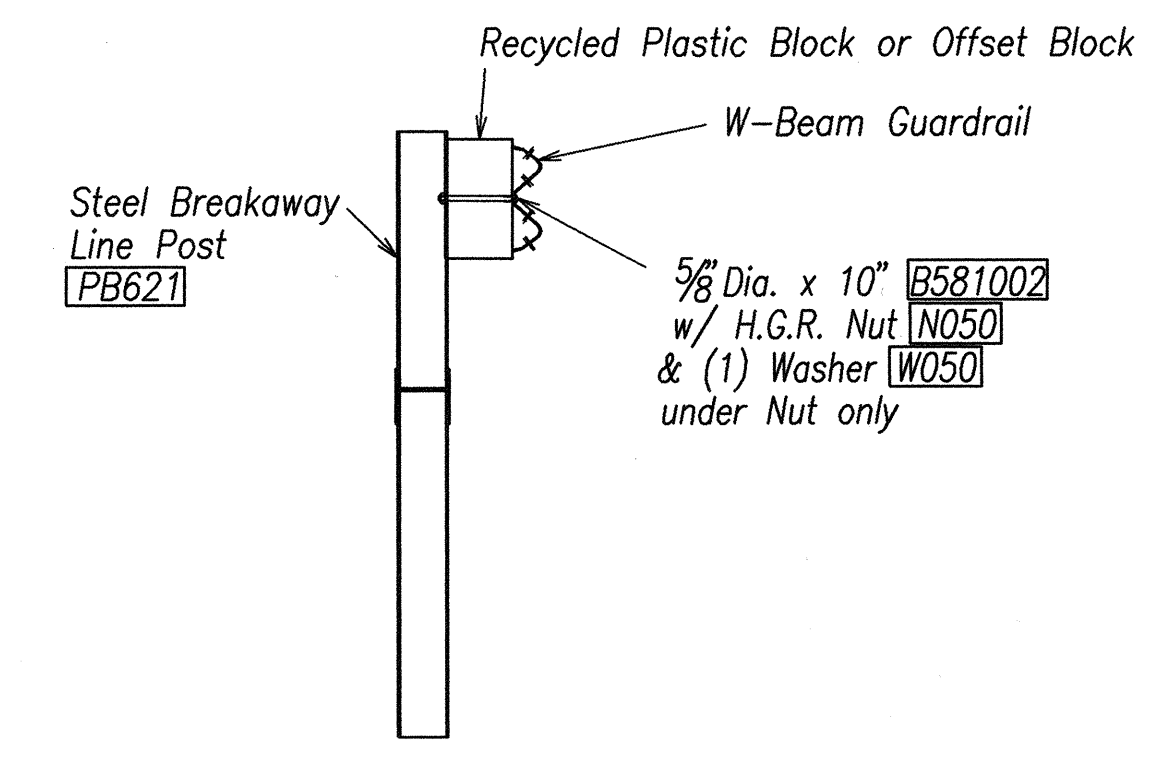
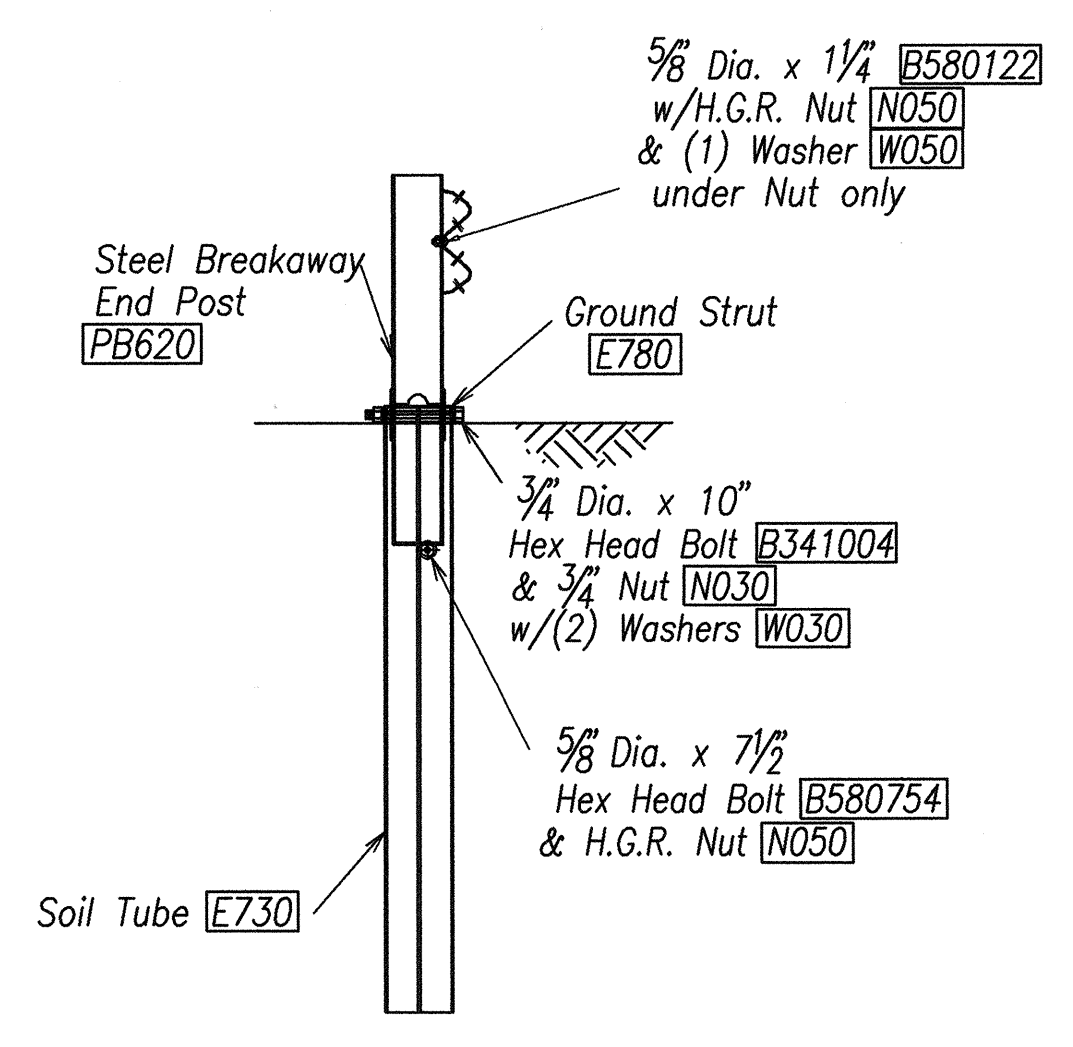
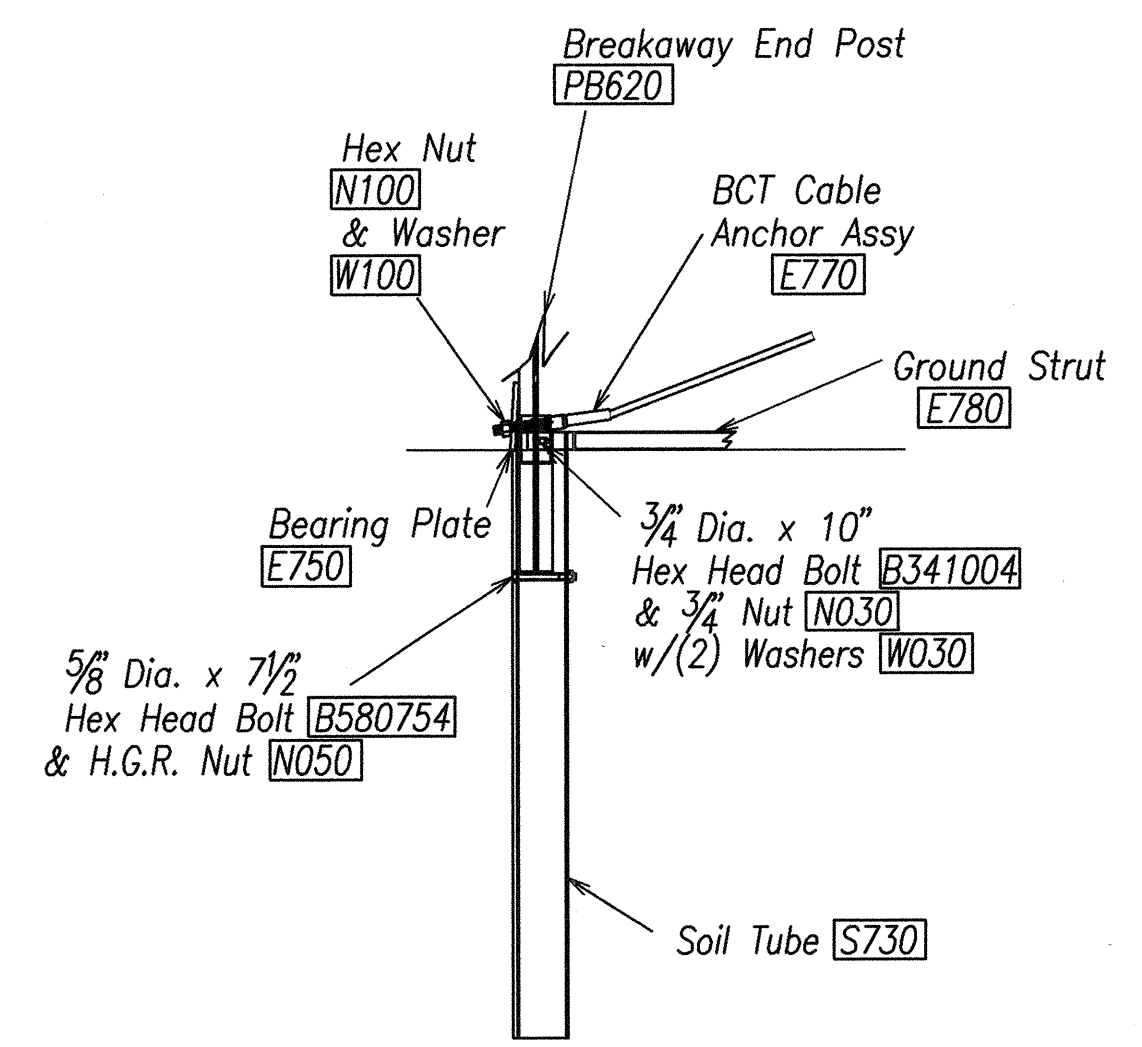
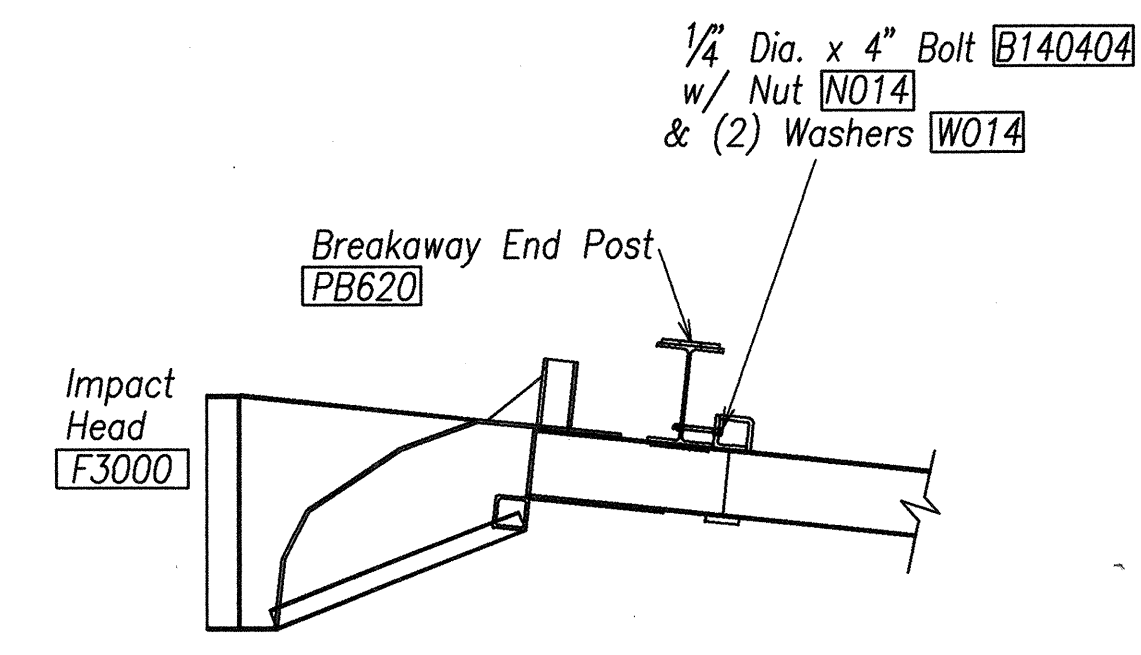
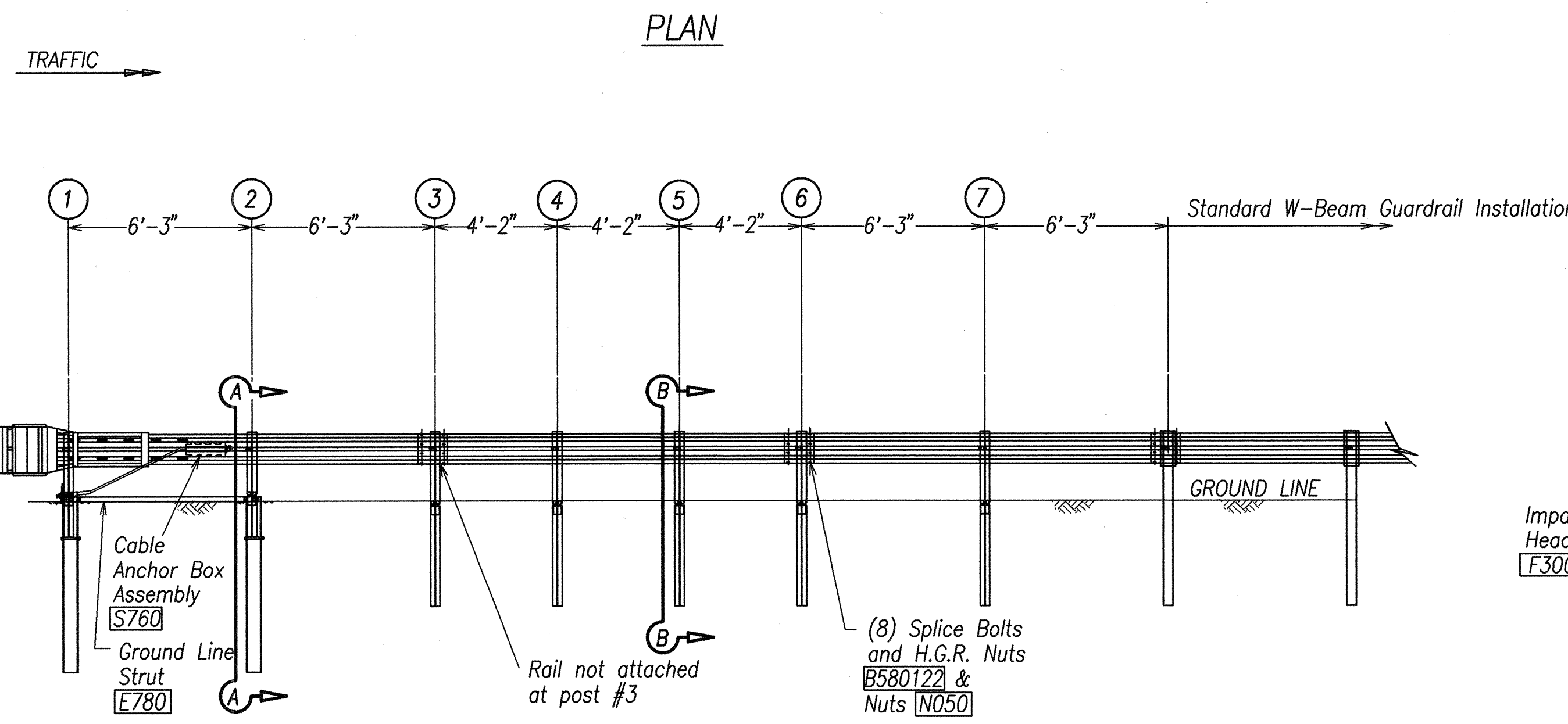
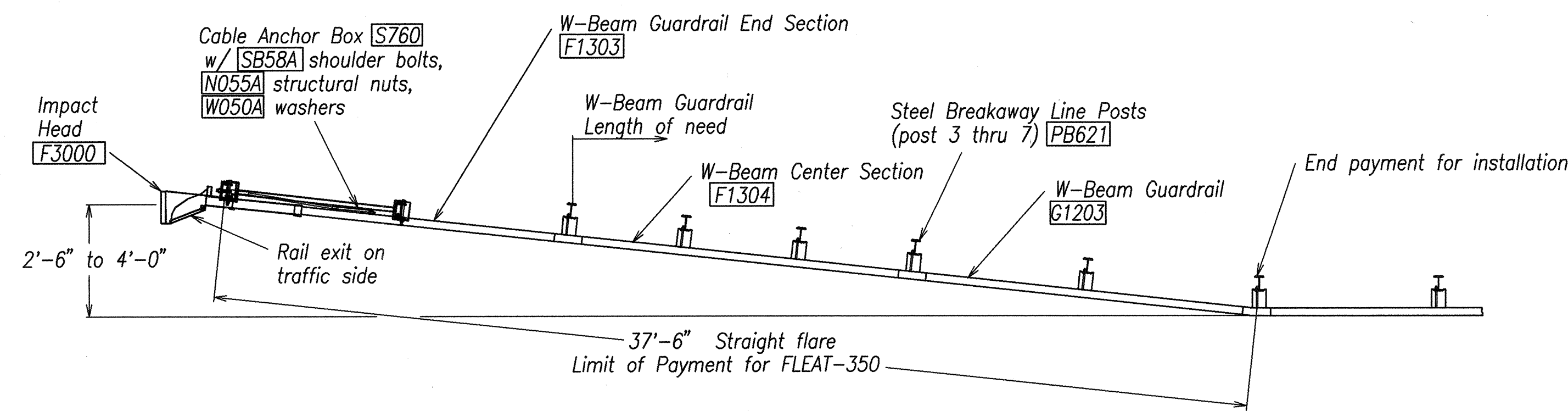
STRONG POST W-BEAM GUARDRAIL

NAWILIWILI ROAD RESURFACING
Kaunualii Highway to Waapa Road
Federal Aid Proj. No. NH-058-1(3)

Scale: NTS Date: Nov. 2000

SHEET No. 2 OF 3 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-058-1(3)	2001	15	39



SECTION B-B
(Typical @ Post 3 - 7)
NOTE: RAIL NOT BOLTED @ POST #3

IMPACT HEAD CONNECTING DETAIL

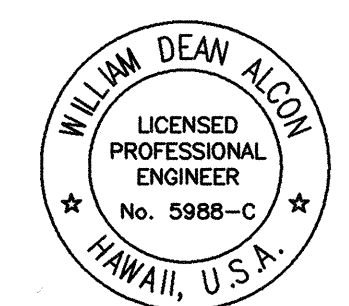
- GENERAL NOTES
1. Breakaway posts are required with the FLEAT Terminal.
 2. All bolts, nuts, cable assemblies, cable anchors and bearing plates shall be galvanized.
 3. The soil tubes shall not protrude more than 4" above ground (measured along a 5' cord). Site grading may be necessary to meet this requirement.
 4. The soil tubes may be driven with an approved driving head. Soil tubes should not be driven with the post in the tube. If the tubes are placed in drilled holes, the backfill material must be satisfactorily compacted to prevent settlement.
 5. When rock is encountered during excavation, a 12" Dia. post hole, 20" deep may be used if approved by the engineer. Granular material will be placed in the bottom of the hole approx. 2 1/2" deep to provide drainage. The soil tubes will be field cut to length, placed in the hole and backfilled with adequately compacted material excavated from the hole.
 6. The breakaway cable assembly must be taut. A locking device, (vice grips or channel lock pliers) should be used to prevent the cable from twisting when tightening nuts.

ITEM NO.	QTY	BILL OF MATERIALS
F3000	1	IMPACT HEAD
F1303	1	W-BEAM GUARDRAIL END SECTION, 12 GA.
F1304	1	W-BEAM GUARDRAIL CENTER SECTION, 12 GA.
G1203	1	W-BEAM GUARDRAIL, 12 GA.
S730	2	*FOUNDATION SOIL TUBE, 6" x 8" x 72"
E750	1	BEARING PLATE
S760	1	CABLE ANCHOR BOX
E770	1	BCT CABLE ANCHOR ASSEMBLY
E780	1	GROUND STRUT
PB620	2	STEEL BREAKAWAY END POST
PB621	5	STEEL BREAKAWAY LINE POST
	5	RECYCLED PLASTIC BLOCKOUT OR OFFSET BLOCK
HARDWARE		
B580122	25	5/8 Dia. x 1 1/4" SPLICE BOLT, POST #2
B580754	2	5/8 Dia. x 7 1/2" HEX BOLT
B341004	2	3/4 Dia. x 10" HEX BOLT
B581002	5	5/8 Dia. x 10" H.G.R. BOLT (POST 3 THRU 7)
N050	32	5/8 Dia. H.G.R. NUT (SPLICE 24, SOIL TUBES 2, POST 2 THRU 7, 6)
N030	2	3/4 Dia. HEX NUT
W050	6	H.G.R. WASHER
W030	4	3/4" ID WASHER
N100	2	1" ANCHOR CABLE HEX NUT
W100	2	1" ANCHOR CABLE WASHER
B140404	2	1/4 x 4" HEX BOLT
N014	2	1/4" HEX NUT
W014	4	1/4" WASHER
SB58A	8	CABLE ANCHOR BOX SHOULDER BOLT
N055A	8	1/2" A325 STRUCTURAL NUT
W050A	16	1 1/16 OD x 9/16 ID A325 STR. WASHER

Foundation Tube Options For Posts 1 & 2

- *6'-0" Split Foundation Tubes S730
- *6'-0" Solid Foundation Tubes E731
- *5'-0" Foundation Tubes S735 W/Soil Plates SP600
- *4'-6" Foundation Tubes E735 W/Soil Plates SP600

DATE: 9-8-00
 SURVEY PLOTTED BY: [Name]
 DRAWN BY: [Name]
 DESIGNED BY: S. Harano
 QUANTITIES BY: [Name]
 CHECKED BY: M. D. Alcon
 No. 0000000000



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STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
FLEAT-350
FLARED ENERGY ABSORBING TERMINAL
 NAWILIWILI ROAD RESURFACING
 Kaunualii Highway to Waapa Road
 Federal Aid Proj. No. NH-058-1(3)
 Scale: NTS Date: Nov. 2000
SHEET No. 3 OF 3 SHEETS