

## GENERAL NOTES:

- 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.  $2\frac{1}{2}$  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.

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
- \*4'-6" Foundation Tubes E735 W/Soil Plates SP600

STATE OF HAWAII **DEPARTMENT OF TRANSPORTATION** HIGHWAYS DIVISION FLEAT-350 FLARED ENERGY ABSORBING TERMINAL <u>HAWAII BELT ROAD</u> KUPAPAULUA BRIDGE WIDENING

<u>HAMAKUA DISTRICT</u> <u>Federal-Aid Project No. BR-019-2(38)</u>

Scale: As Noted Date: Oct 2001 SHEET No. C-23 OF 41 SHEETS

Plates SP600 DETAIL

	to prevent the cubic from twisting when digitering hats.
	7. (R) or (L) indicates right or left Impact Head Reflector Marker
	(IHRM). Providing and installing of IHRM shall be considered
GROUND II LINE	incidental to end treatment.
	8. The stripes for IHRM shall slope downward at an angle of 45°
	towards the side of the end treatment that traffic is to pass.
Ground Line /         \ B - \ (8) Splice Bolts	1/4" Dia. x 4" Bolt B140404
Strut F780	w/ Nut N014
Cable A Rail not attached <u>B580122</u> & Anchor Box at post #3 Nuts N050	w/ Nut N014] Breakaway End Post & (2) Washers W014
Anchor box Assembly	PB620
$\lceil C760 \rceil$	Impact
<u>ELEVATION</u>	Head
	F3000
Breakaway End Post 5" Dia. x 11/4" B580122	IMPACT HEAD CONNECTING DETAIL
Breakaway End Post %" Dia. x 1½" <u>B580122</u> Hex Nut <u>PB620</u> w/H.G.R. Nut <u>N050</u>	
N100	Recycled Plastic Block or Offset Block
& Washer   Anchor Assy Charles Davidson   3 under Nut Only	W-Beam Guardrail
W100 E770 Steel Breakdway Ground Strut Steel Break	
Gr <u>ound</u> Strut PB620 E780 Line Post	1'-1"
E780	%" Dia. x 10" <u>B581002</u>
	W/H.G.R. Nut $N050$
Dearing Flate III 74 Dia. X 10	winder Nut only
#EX REGIO BOIL B341004   & 3/4" Nut NO30	ander wat only
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	
/" Dia. x 7½"   W/(2) Washers Wood	$\frac{\sqrt{\sqrt{\sqrt{1/3}}}}{\sqrt{1/3}}$
Hex Head Bolt <u>B580754</u>   \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \	4 1/3
& H.G.R. Nut N050 Hex Head Bolt B580754	Plant / / / / / / / / / / / / / / / / / / /
Soil Tube S730 Soil Tube L/30 Soil Tube L/30 & H.G.R. Nut N050	$Black \longrightarrow /\longrightarrow -4 1/3"$
	SECTION P. P. Yellow Reflector —
PARTIAL VIEW OF POST 1 SECTION A-A	SECTION B-B IHRM(R)
	(Typical @ Posts #3-7) IMPACT HEAD REFLECTOR
(@ Post #2) Note	te: Rail Not Bolted @ Post #3 MARKER INSERT

FISCAL SHEET TOTAL YEAR NO. SHEETS

FED. AID PROJ. NO.

HAW. BR-019-2(38) 2002 25

FED.ROAD DIST.NO.

W-BEAM GUARDRAIL END SECTION, 12 GA.

\*FOUNDATION SOIL TUBE, 6" x 8" x 72"

W-BEAM GUARDRAIL, 12 GA.

BCT CABLE ANCHOR ASSEMBLY

STEEL BREAKAWAY END POST

STEEL BREAKAWAY LINE POST

%" Dia. x 7½" HEX BOLT

¾" Dia. x 10" HEX BOLT

1" ANCHOR CABLE HEX NUT

1" ANCHOR CABLE WASHER

½" A325 STRUCTURAL NUT

CABLE ANCHOR BOX SHOULDER BOLT

 $1/_{16}$ " OD x  $9/_{16}$ " ID A325 STR. WASHER

%" Dia. H.G.R. NUT

¾" Dia. HEX NUT

1/4" x 4" HEX BOLT

H.G.R. WASHER

¾" ID WASHER

¼" HEX NUT

¼" WASHER

%" Dia. x 1¼" SPLICE BOLT, POST #2

%" Dia. x 10" H.G.R. BOLT (POST 3 THRU 7)

W-BEAM GUARDRAIL CENTER SECTION, 12 GA.

RECYCLED PLASTIC BLOCKOUT OR OFFSET BLOCK

IMPACT HEAD REFLECTOR MARKER-1 HRM (R) OR (L)

HARDWARE

(SPLICE 24, SOIL TUBES 2, POST 2 THRU 7, 6)

ITEM NO.

F3000

F1303

F1304

G1203

S730

E750

S760

E770

E780

PB620

PB621

B580122

B580754

B341004

B581002

N050

N030

W050

W030

N100

W100

N014

W014

SB58A

N055A

W050A

B140404

QTY

IMPACT HEAD

BEARING PLATE

GROUND STRUT

CABLE ANCHOR BOX

STATE

BILL OF MATERIALS