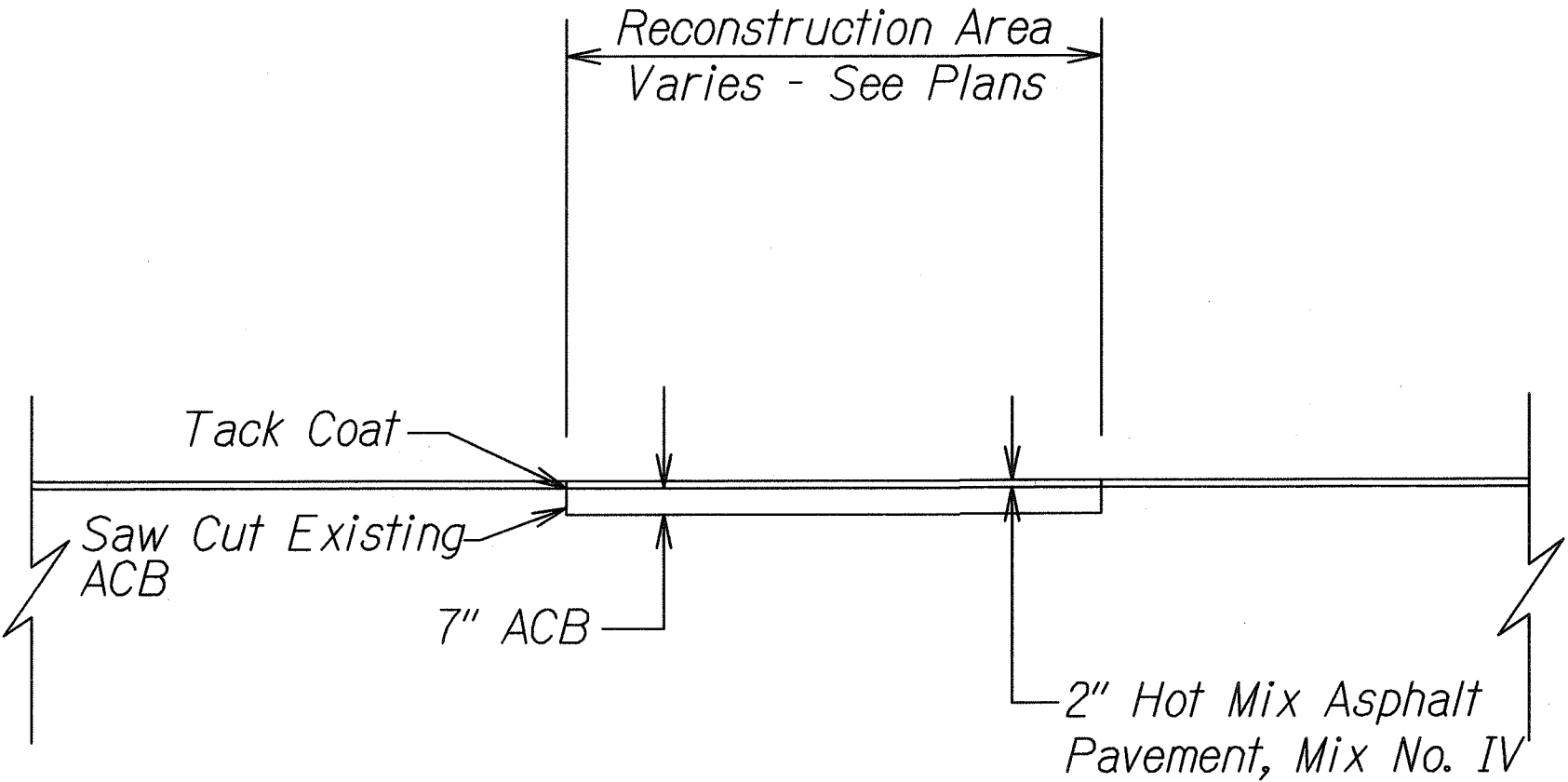
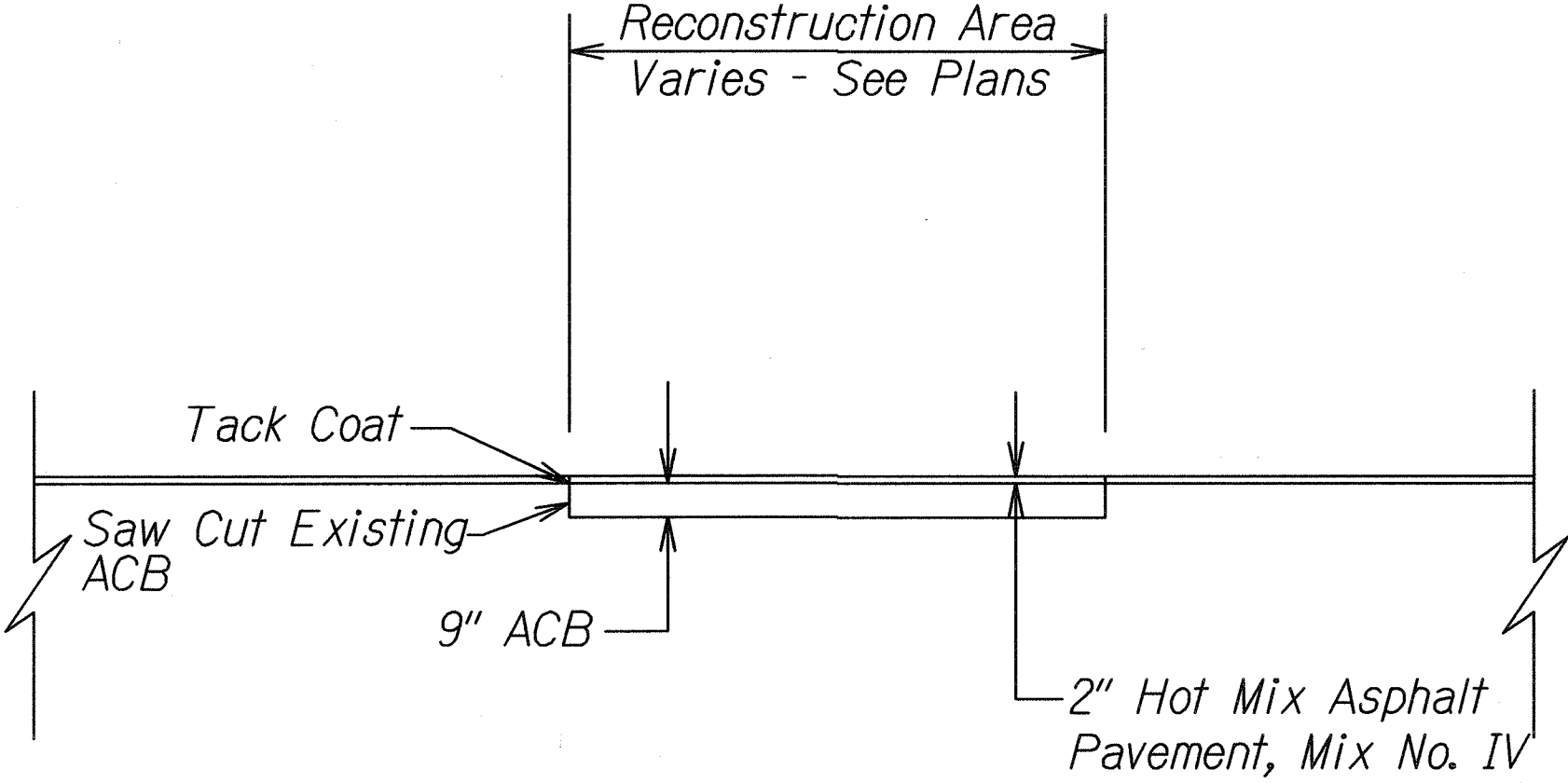


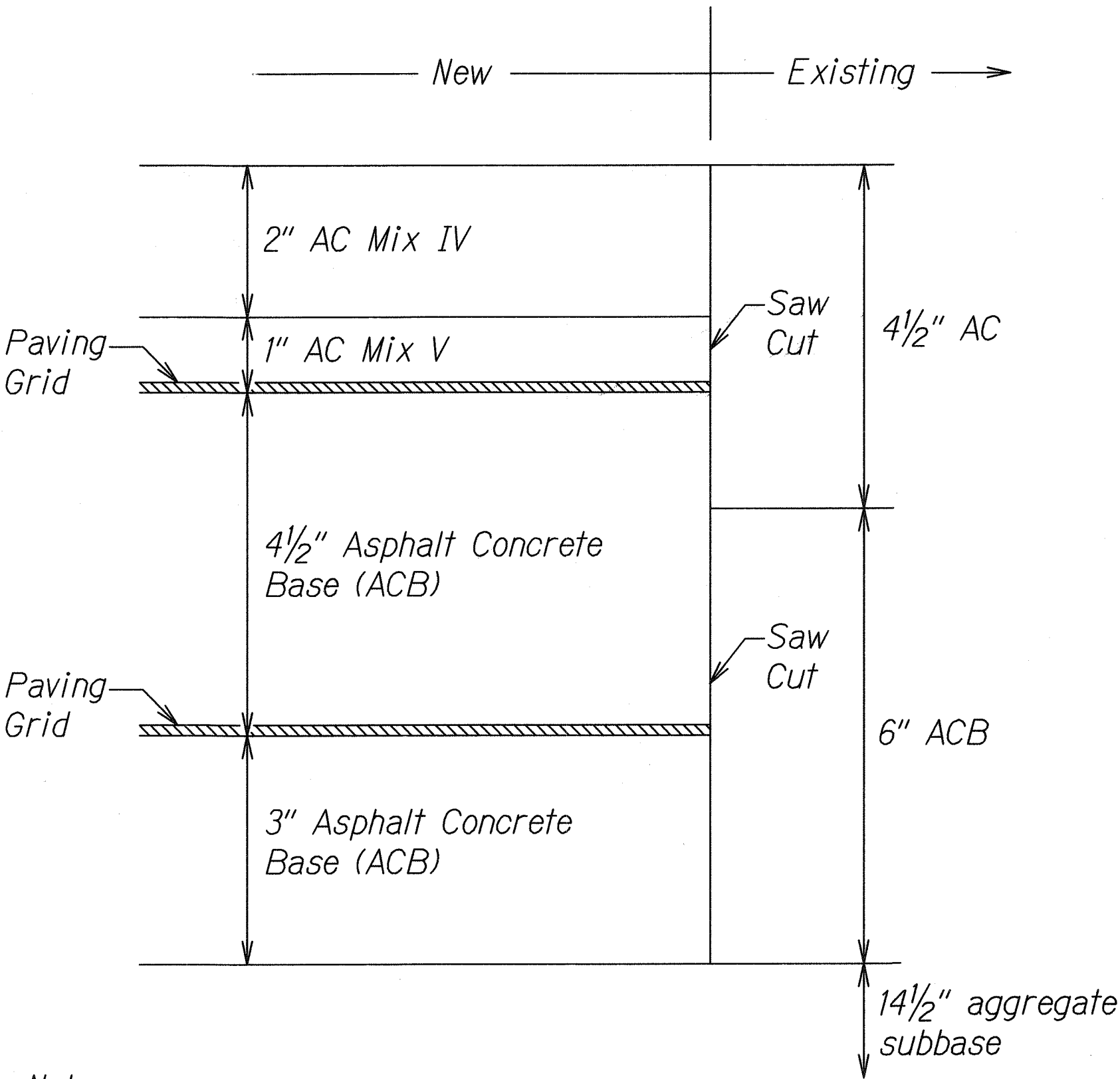
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-724(002)	2012	ADD. 14	81



TYPICAL RECONSTRUCTION AREA, KAHUAPAANI STREET
Kahuapaani Street, # Sta. 32+88 to # Sta. 63+00
Not to Scale

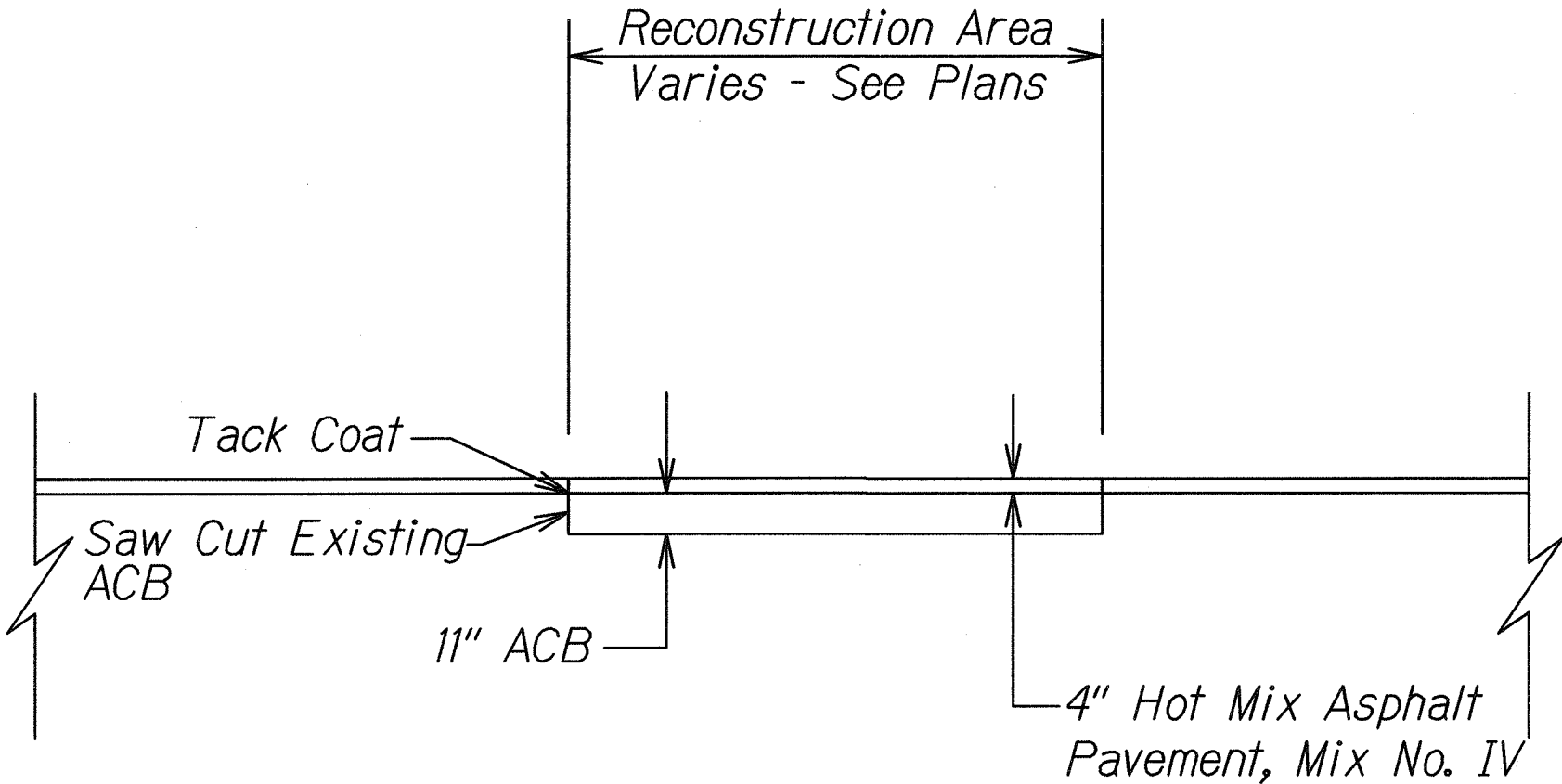


TYPICAL RECONSTRUCTION AREA
Ramp J and Ramp L
Not to Scale

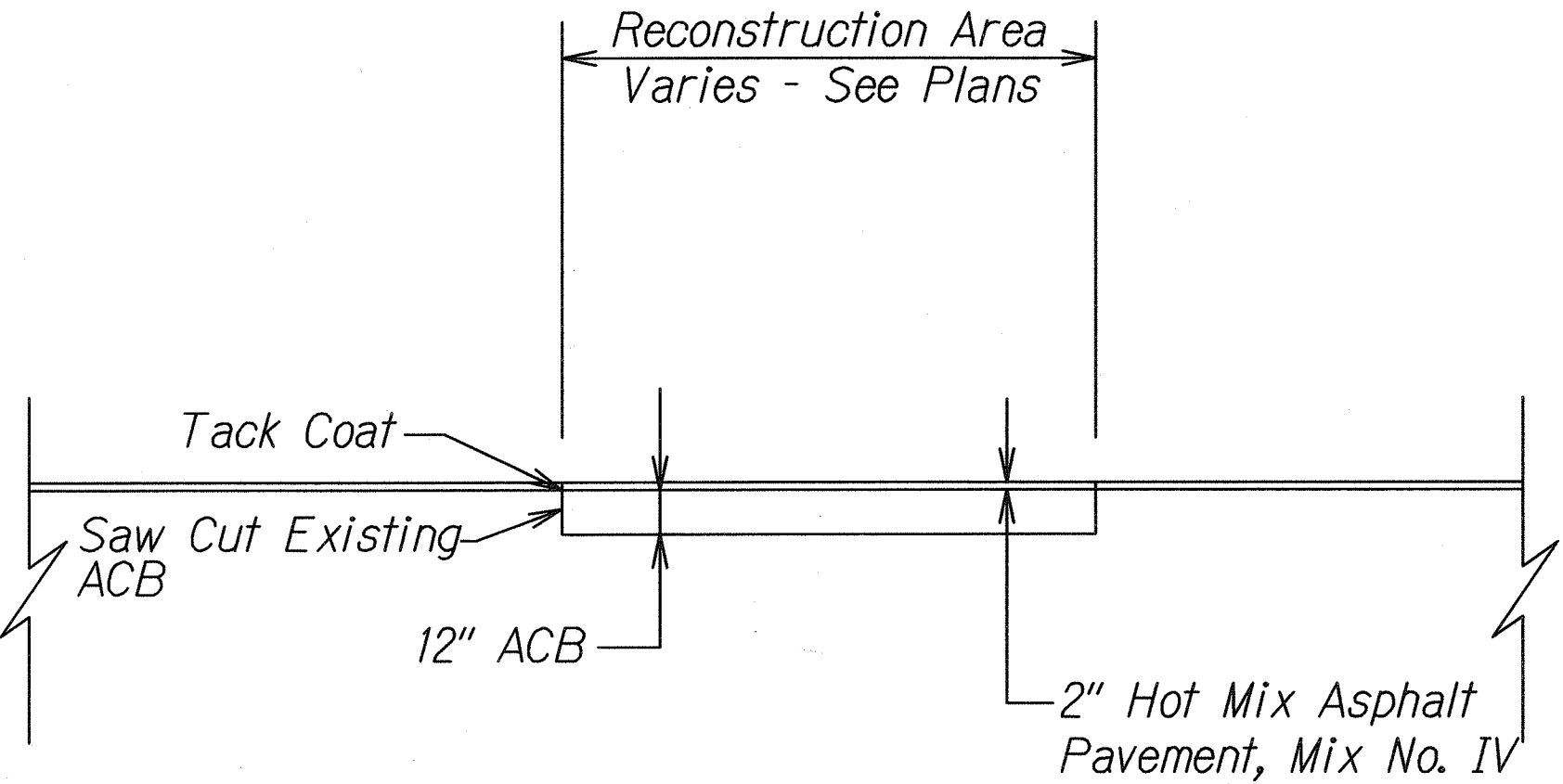


Note:
 *Paving Grid*
 See Section 421 - Reconstruction of Bridge Approaches
 for specifications

TYPICAL RECONSTRUCTION OF BRIDGE APPROACH
Kahuapaani Street, # Sta. 22+31 to # Sta. 22+56
Not to Scale



TYPICAL RECONSTRUCTION AREA
Δ Salt Lake Blvd., # Sta. 34+00 to # Sta. 35+50, O/S Left
Not to Scale



TYPICAL RECONSTRUCTION AREA
Salt Lake Blvd., Entrance to Commercial Center, # Sta. 33+00
Not to Scale

Note:
 No ramping allowed

6/14/12	Removed Recon Area, Kahuapaani St. Δ Revised text "35+60" to "35+50". Δ Added station limits.
---------	-----------------------------------------------------------------------------------------------------

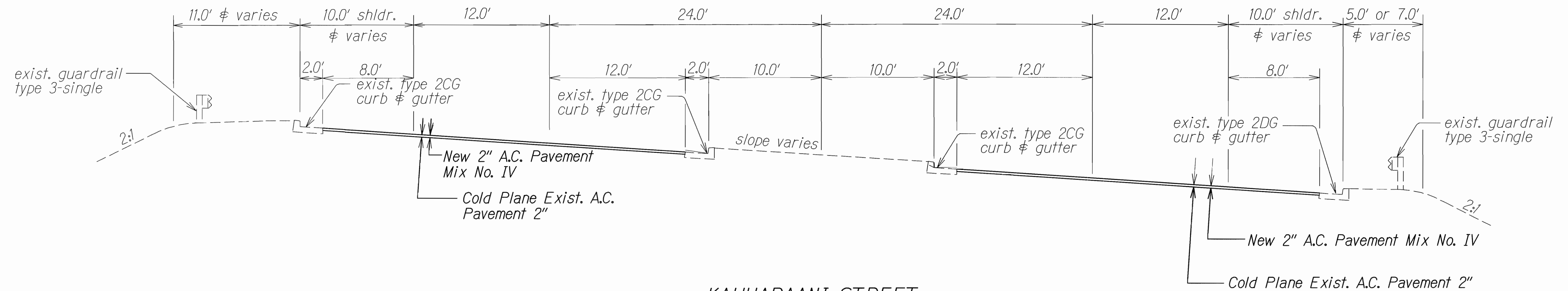
DATE	REVISION
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STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
TYPICAL DETAILS
KAHUAPAANI STREET RESURFACING
Moanalua Freeway to Salt Lake Boulevard
Federal Aid Project No. STP-724(002)

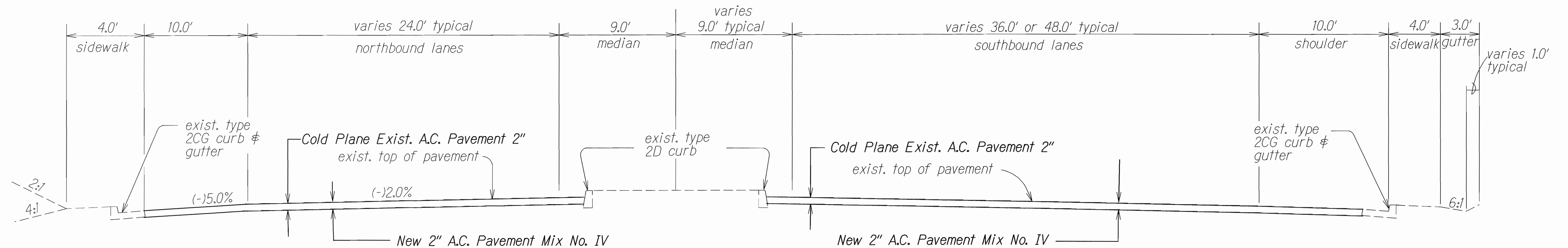
Scale: As Noted Date: May, 2012

SHEET No. 1 OF 1 SHEETS

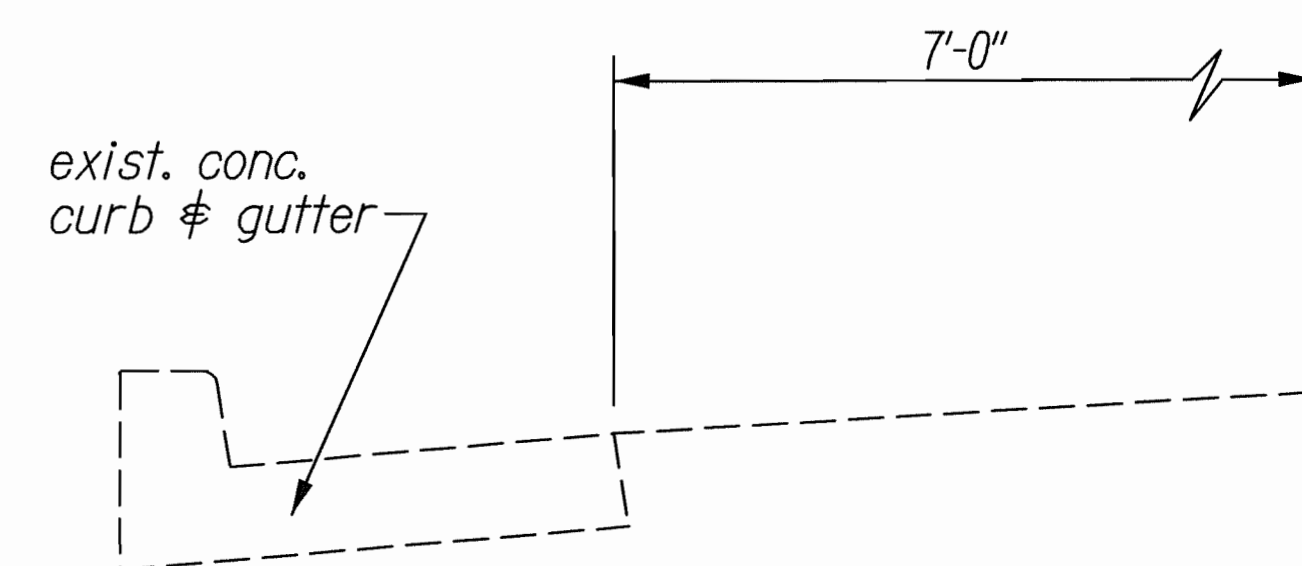
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-7241(002)	2012	15	81



KAHUAPAANI STREET
FROM STRUCTURE NO. 10 TO STA. 28+50
 Scale: 1/4"=1'-0"



KAHUAPAANI ST. TANGENT SECTION
Sta. 36+35.07 TO Sta. 45+53.16
 Scale: 1/4"=1'-0"



KAHUAPAANI ST. Sta. 32+80 to 64+50 N.B. & S.B.
 Scale: 1" = 1'-0"

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	5/15/95
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

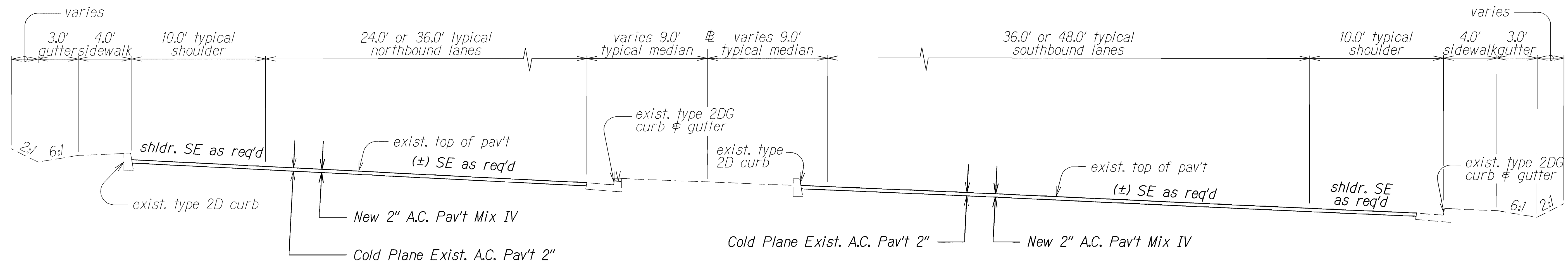
TYPICAL SECTION

KAHUAPAANI STREET RESURFACING
Moanalua Freeway to Salt Lake Boulevard
Federal Aid Project No. STP-7241(002)

Scale: 1"=5'-0" Date: May, 2012

SHEET No. 1 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-724(002)	2012	16	81

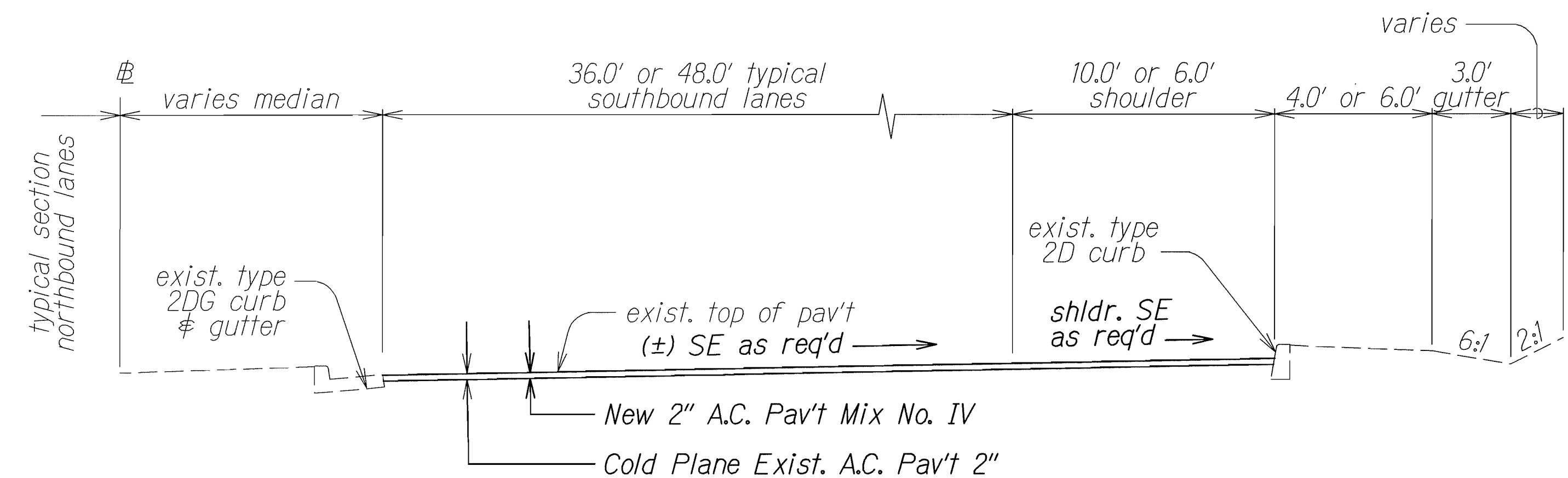


KAHUAPAANI ST. SUPERELEVATED SECTION

Sta. 32+84.74 to Sta. 36+35.07

Sta. 45+53.16 to Sta. 49+00±

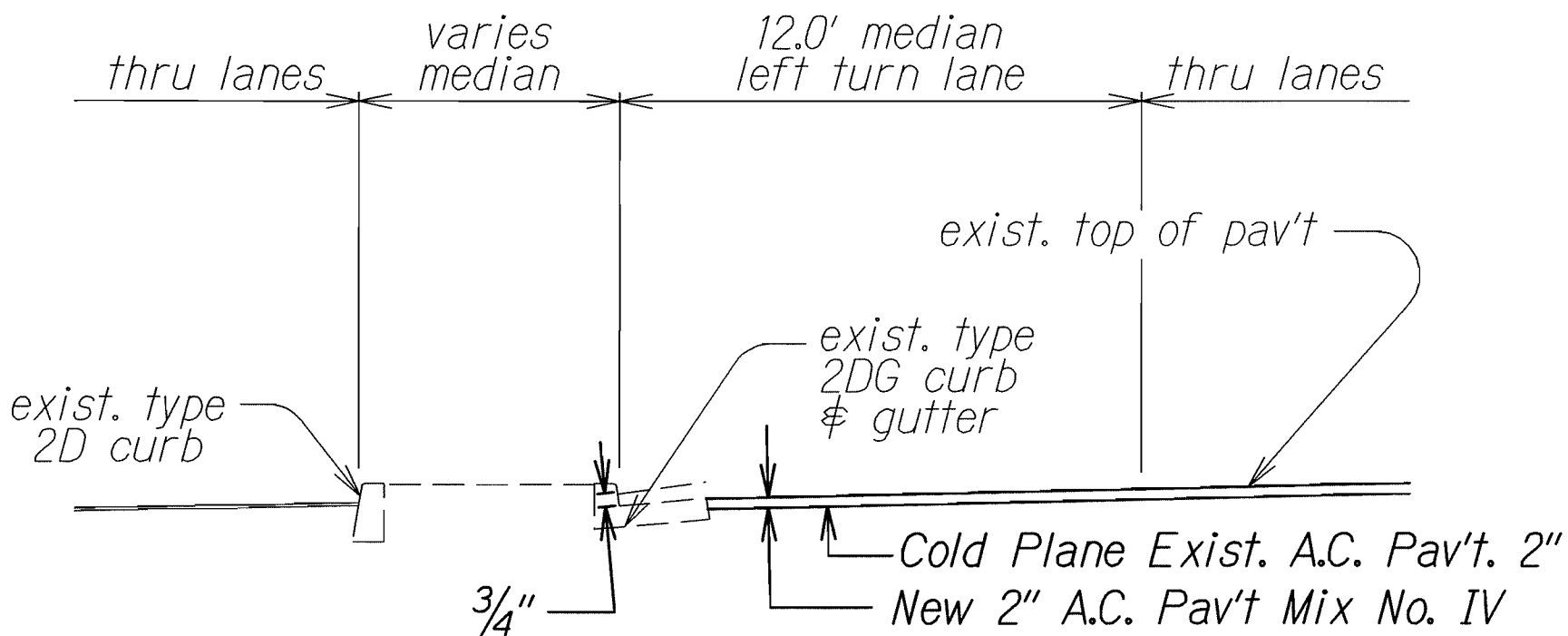
Not to Scale



KAHUAPAANI ST. SUPERELEVATED SECTION

Sta. 49+00± to Sta. 56+06.74

Not to Scale



TYPICAL SECTION AT MEDIAN LEFT TURN LANE

S.B. Lanes Sta. 44+25 to Sta. 49+33.96

N.B. Lanes Sta. 50+64.45 to Sta. 54+71.74

Not to Scale

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL SECTION

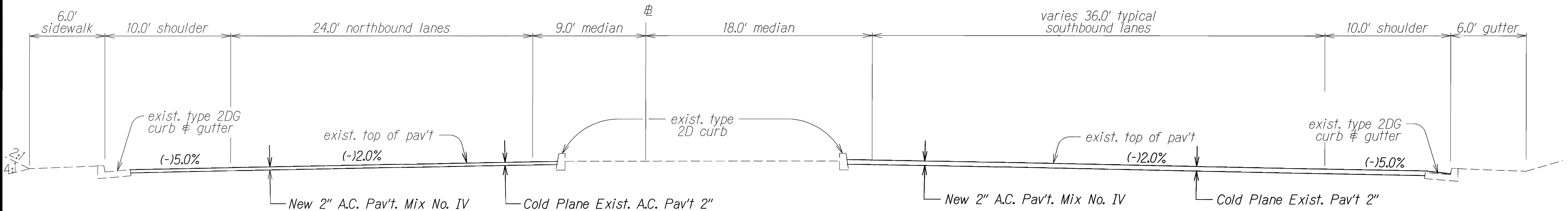
KAHUAPAANI STREET RESURFACING
Moanalua Freeway to Salt Lake Boulevard
Federal Aid Project No. STP-724(002)

Not to Scale
Date: May, 2012

SHEET No. 2 OF 7 SHEETS

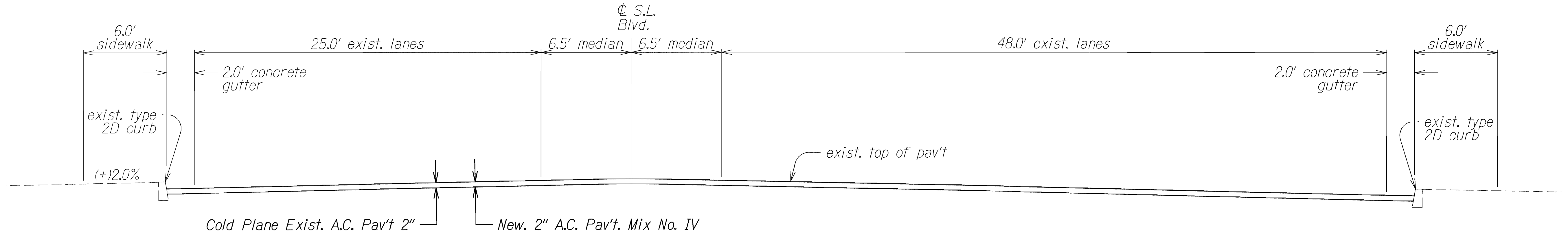
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
24and902	DESIGNED BY	X
No. 500	QUANTITIES BY	
	CHECKED BY	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-724(002)	2012	17	81



KAHUAPAANI ST. TANGENT SECTION
± Sta. 56+06.74 to Salt Lake Blvd.

Not to Scale



SALT LAKE BLVD. TYPICAL SECTION
± Sta. 27+82.39± to ± Sta. 29+80±

Not to Scale

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
24and903	CHECKED BY	
N.		

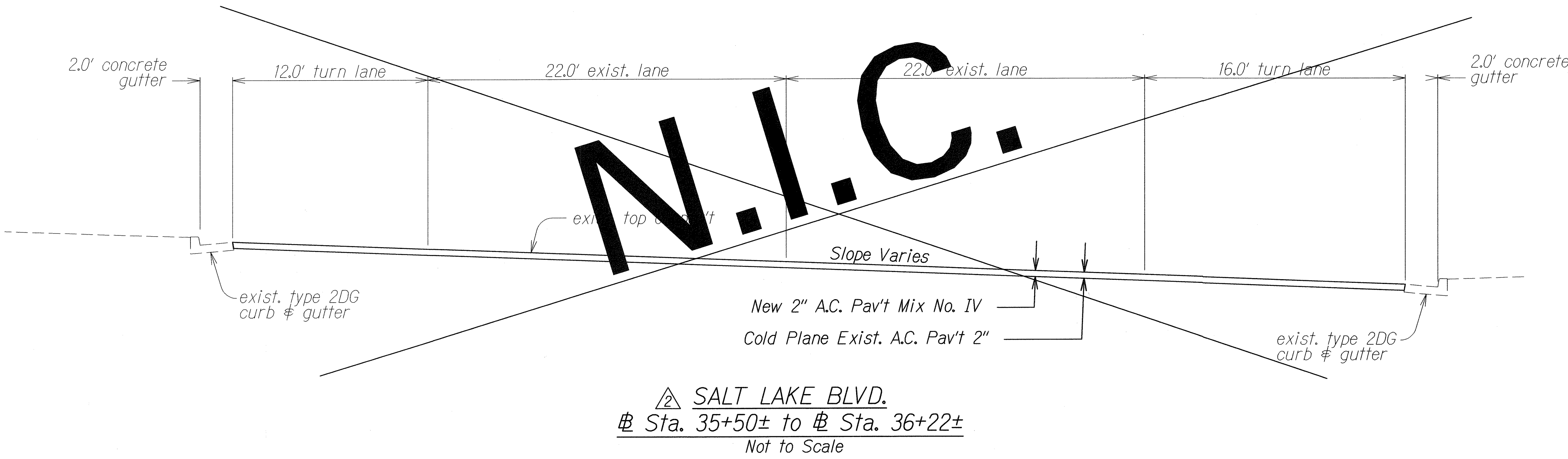
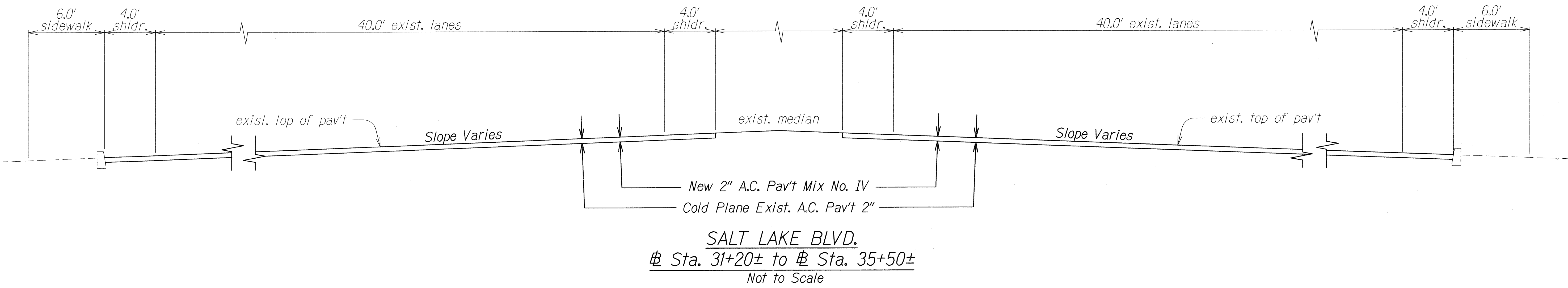
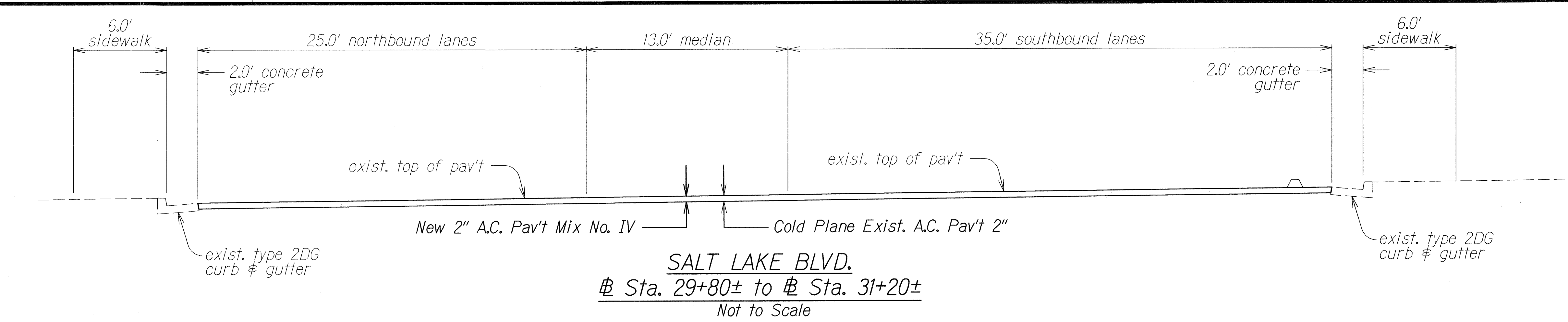
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL SECTION
KAHUAPAANI STREET RESURFACING
Moanalua Freeway to Salt Lake Boulevard
Federal Aid Project No. STP-724(002)

Not to Scale Date: May, 2012

SHEET No. 3 OF 7 SHEETS

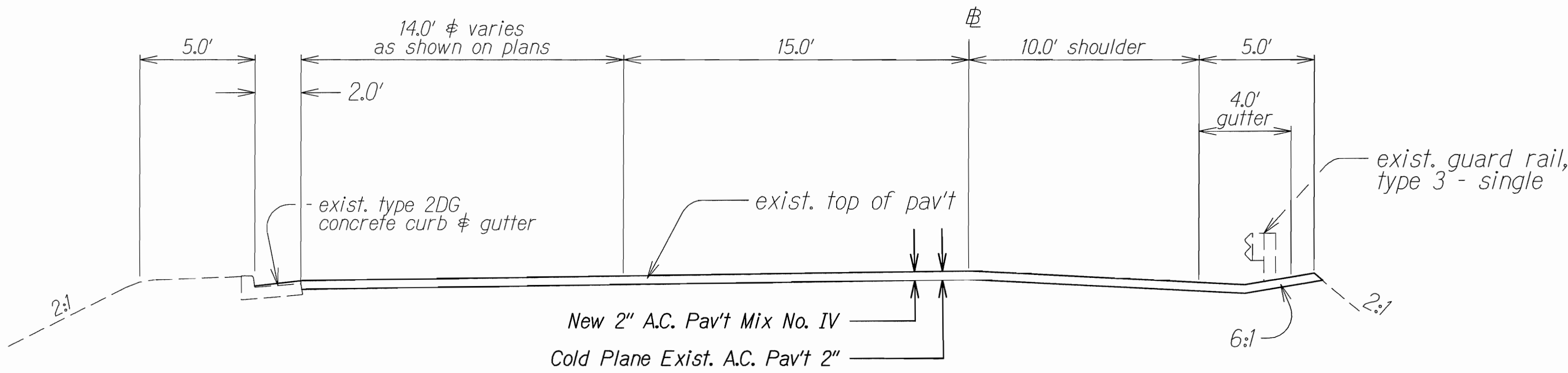
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-724(002)	2012	ADD. 18	81



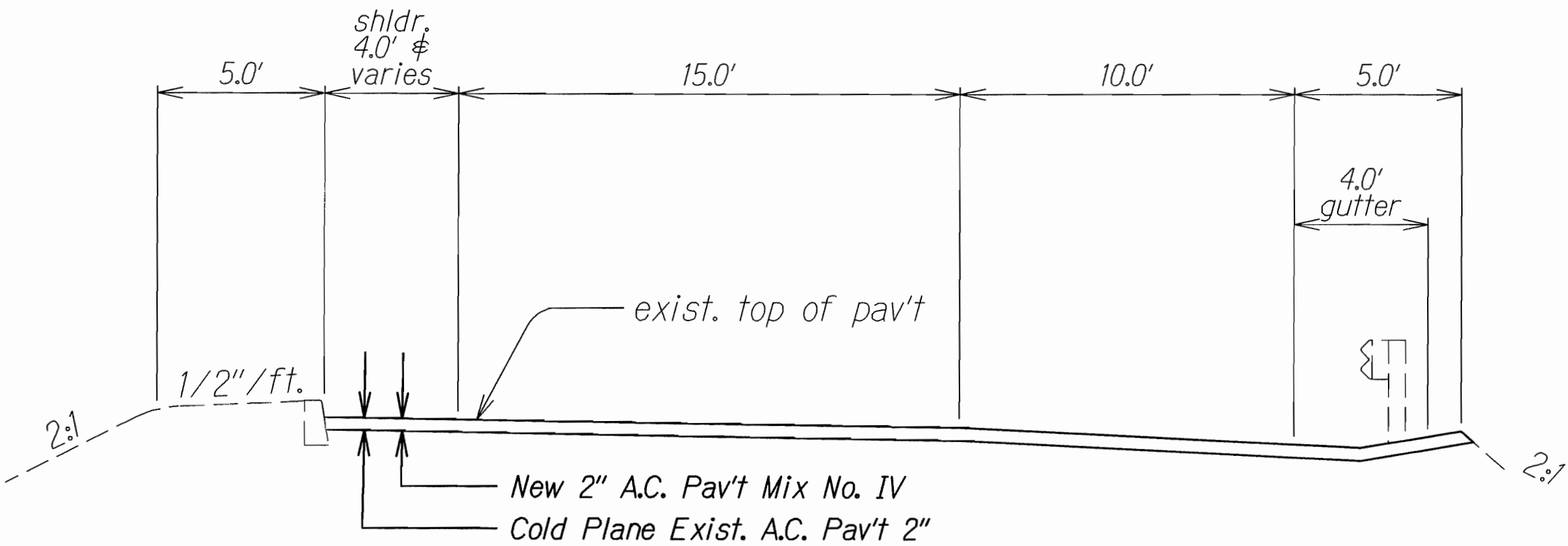
6/20/12	2 Deleted Typical Section, Sta. 35+50± to Sta. 36+22±.
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION TYPICAL SECTION KAHUAPAANI STREET RESURFACING Moanalua Freeway to Salt Lake Boulevard Federal Aid Project No. STP-724(002)	
Not to Scale	Date: May, 2012
SHEET No. 4 OF 7 SHEETS	

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTED	DRAWN BY	
DESIGNED BY	CHECKED BY	
DATE		

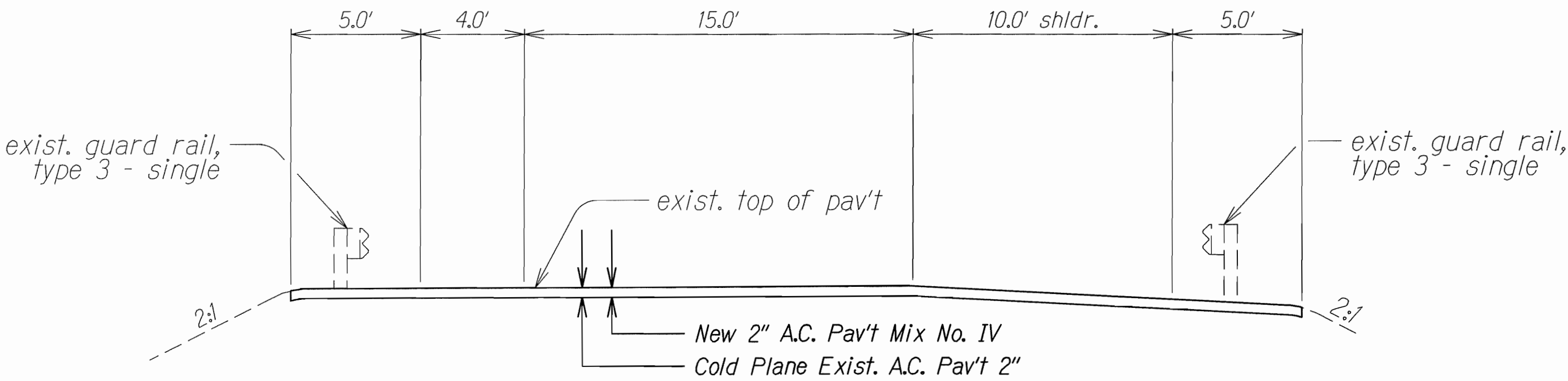
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-724(002)	2012	19	81



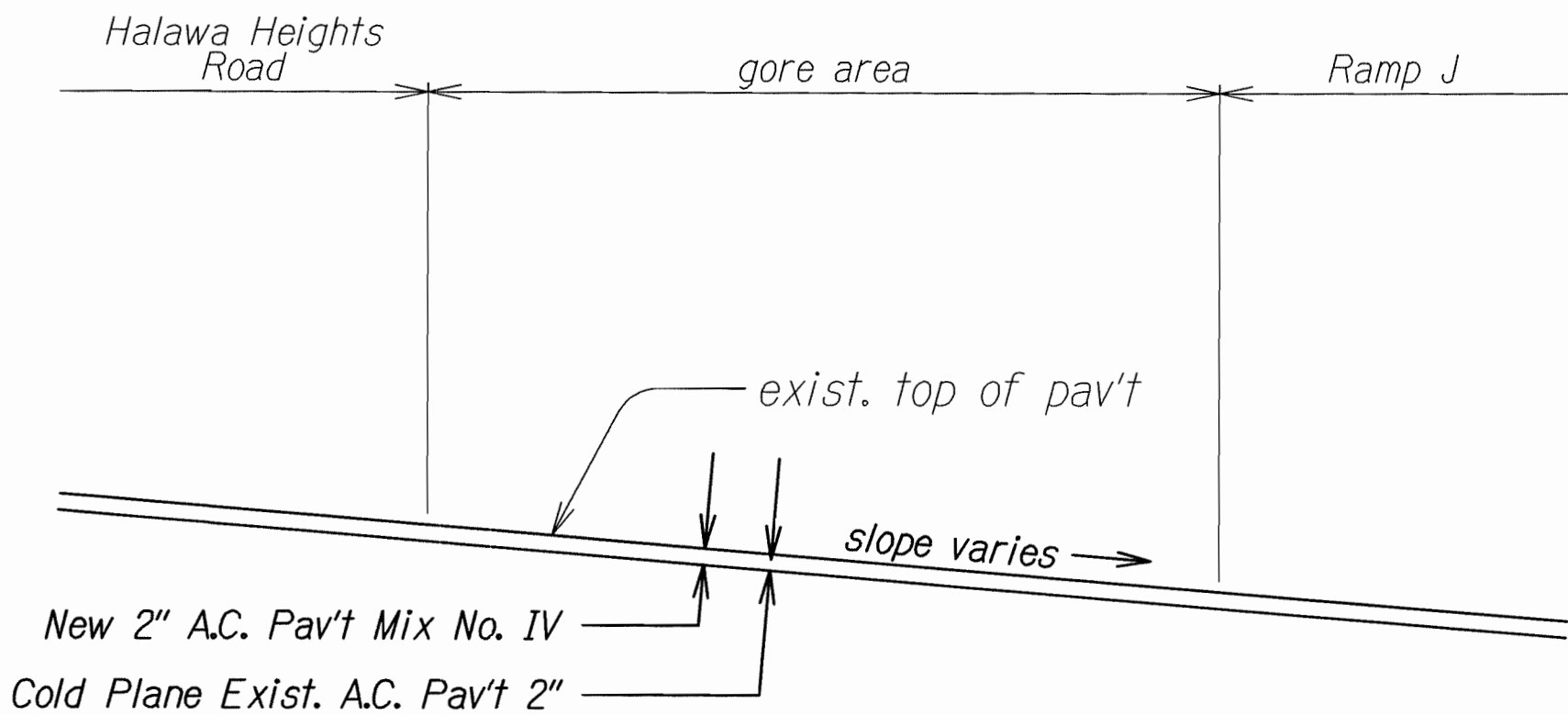
RAMP J
 Sta. 13+50 to Sta. 16+40
 Not to Scale



RAMP J
 Sta. 16+40 to Sta. 19+30
 Not to Scale



RAMP J
 ONE LANE RAMPS
 Not to Scale



GORE AREA DETAIL
 RAMP J ADJOINING KAHUAPAANI STREET
 Not to Scale

Note: New pavement to match existing roadway slopes.

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

TYPICAL SECTION

KAHUPAANI STREET RESURFACING

Moanalua Freeway to Salt Lake Boulevard

Federal Aid Project No. STP-724(002)

Not to Scale

Date: May, 2012

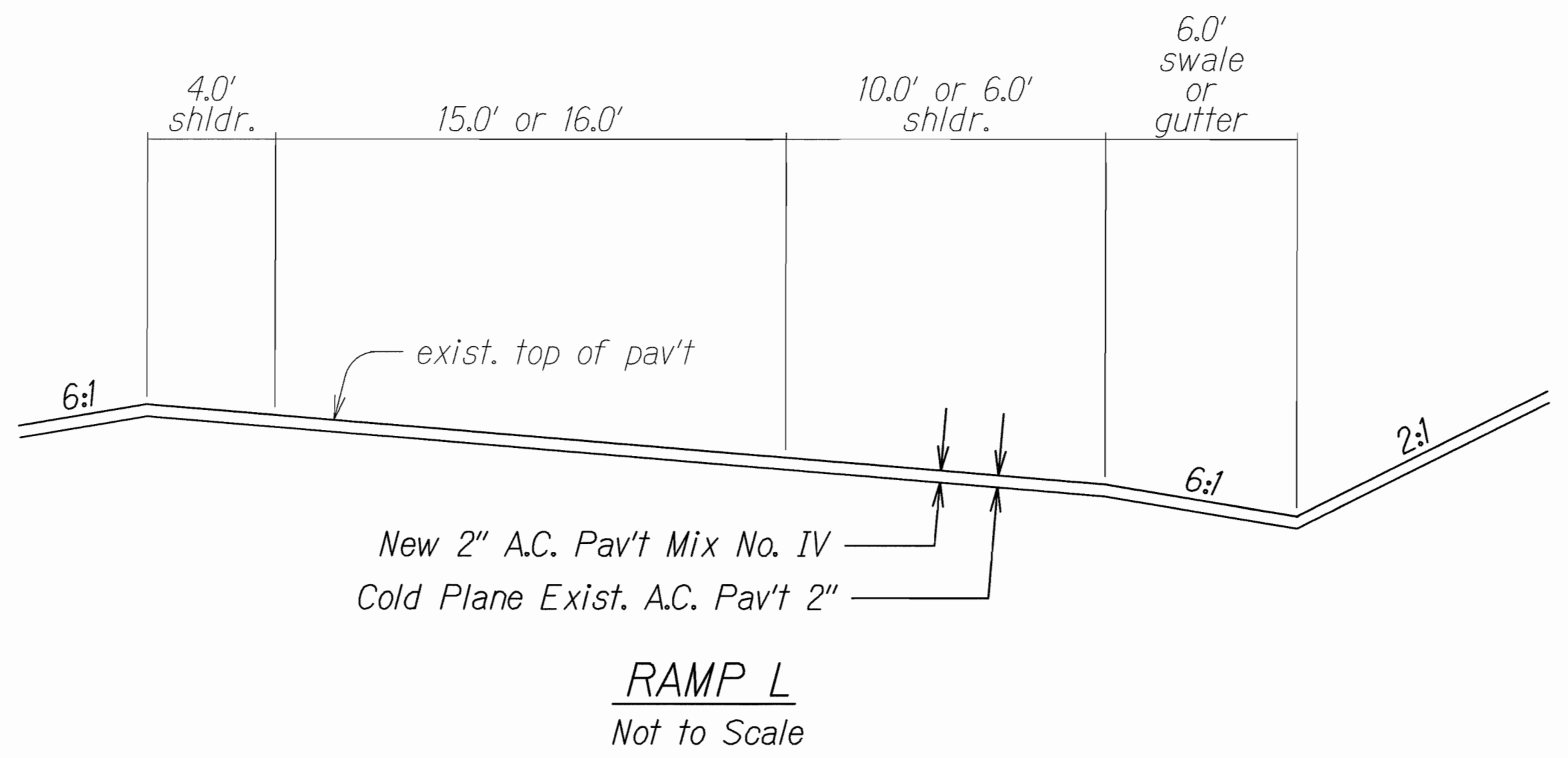
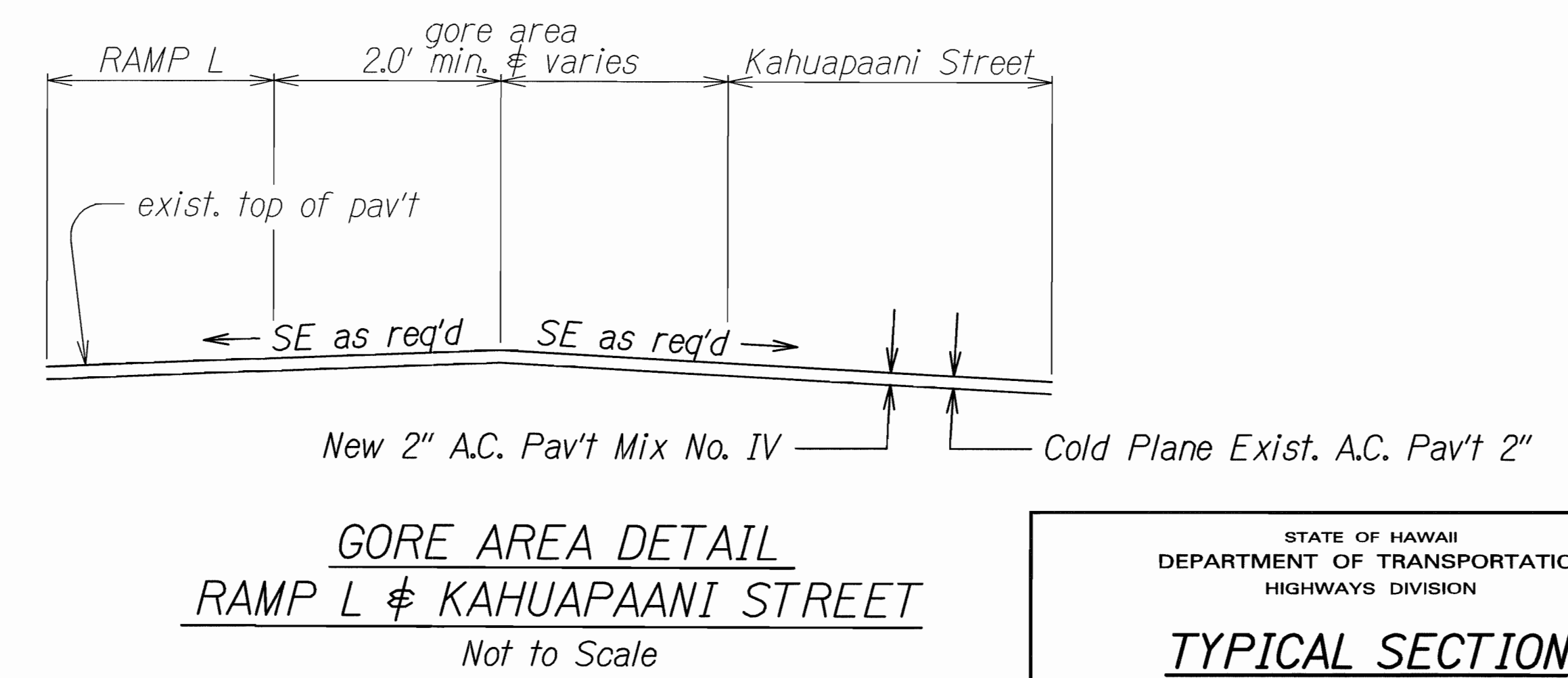
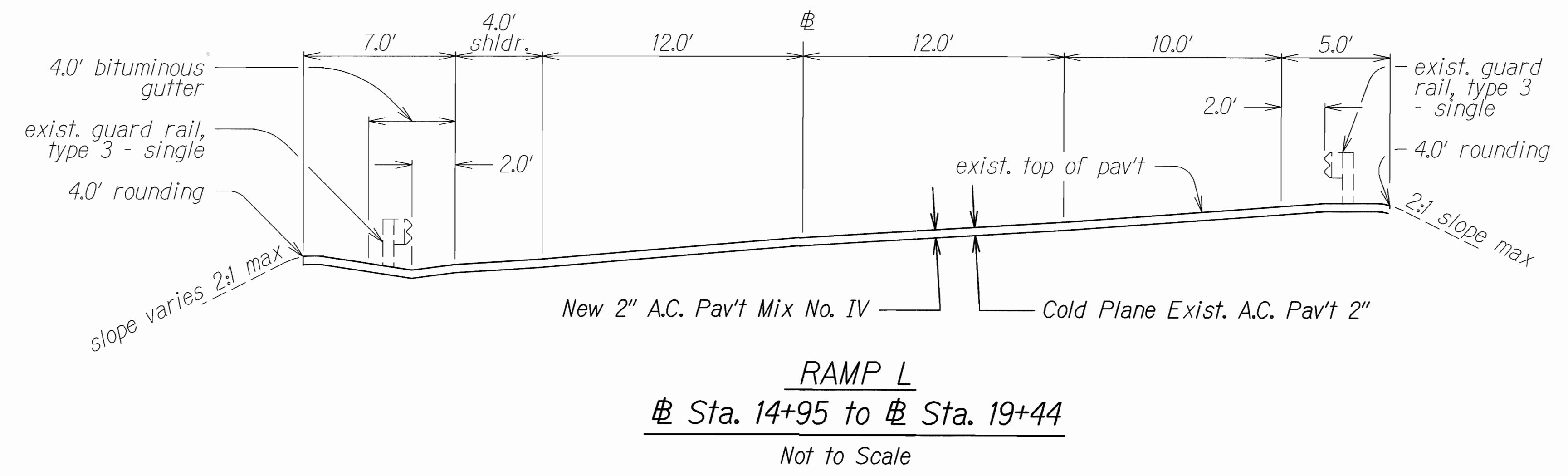
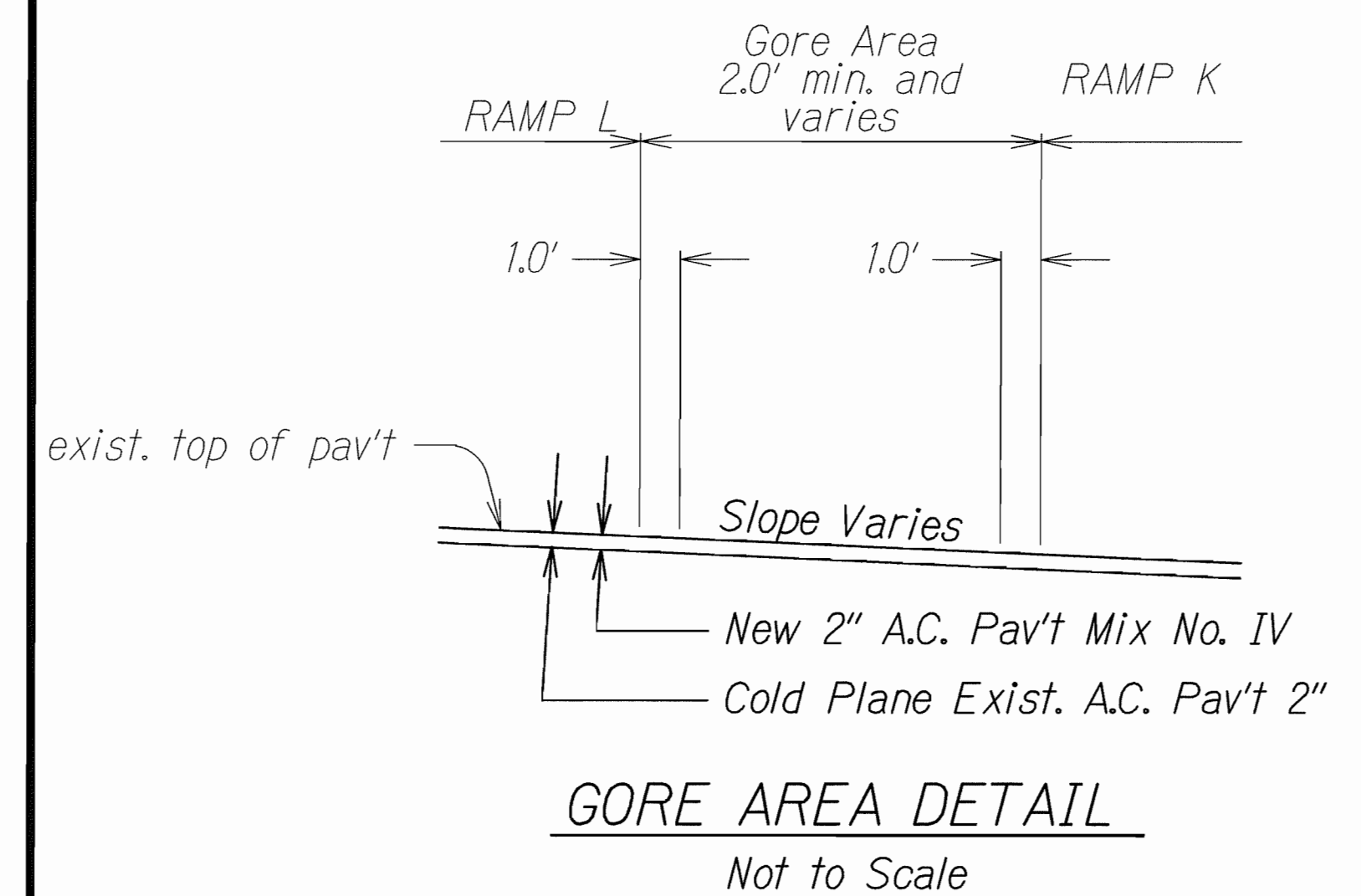
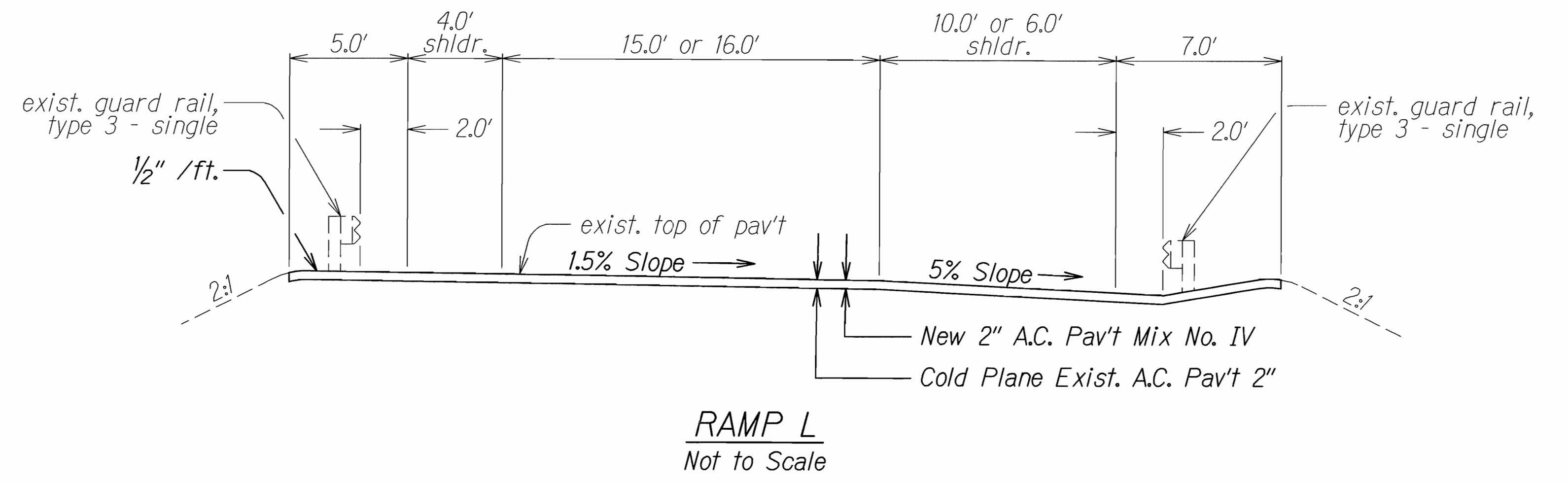
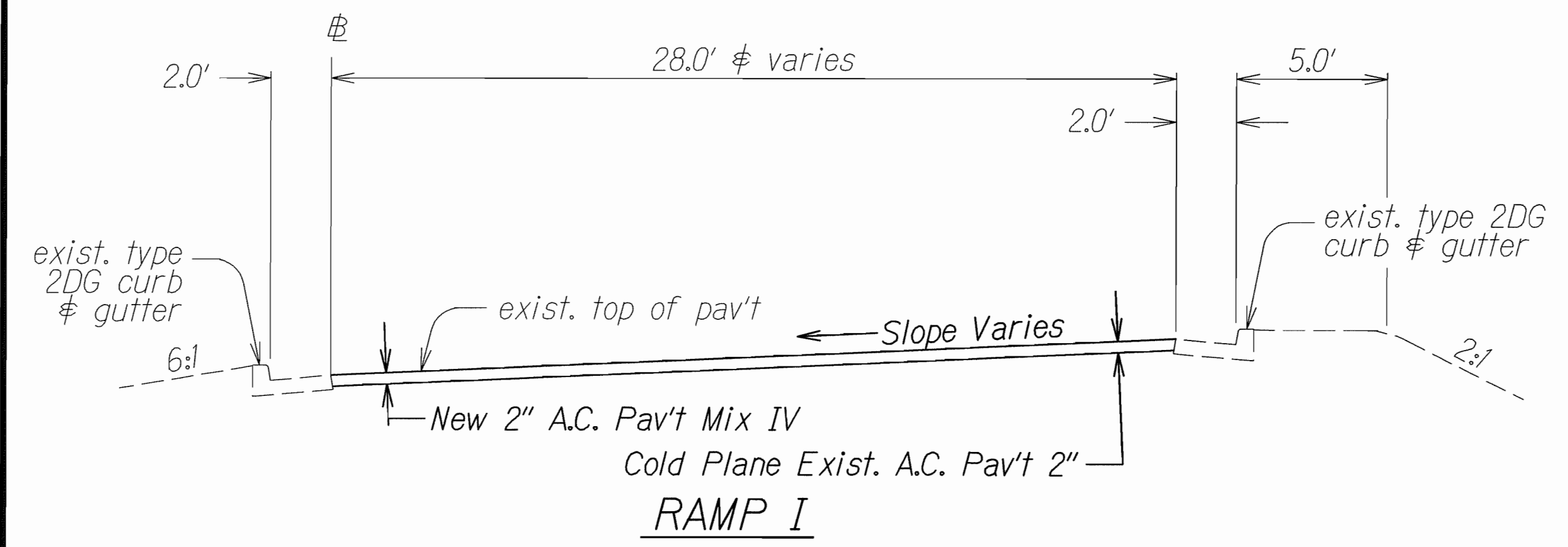
SHEET No. 5

OF 7

SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DESIGNED BY	
2/24/2012	QUANTITIES BY	
N. J. J.	CHECKED BY	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-7241(002)	2012	20	81



Note: Slope varies, new pavement to match existing roadway slopes.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	DATE
2/14/12	DESIGNED BY	DATE
2/14/12	CHECKED BY	DATE
2/14/12	CHECKED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

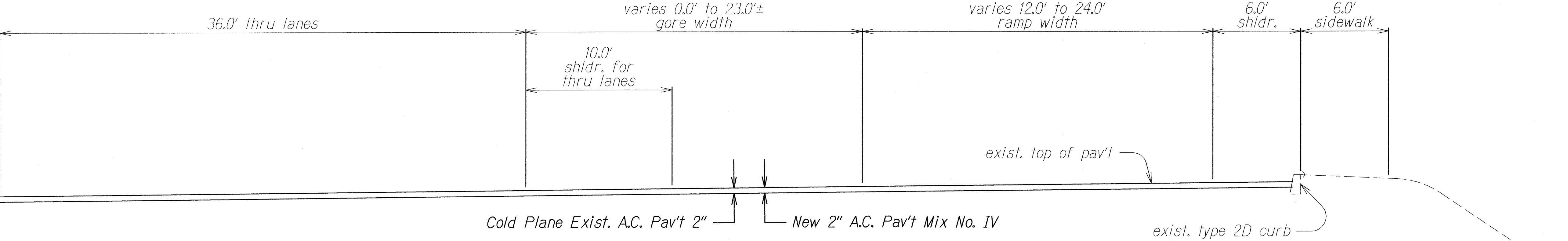
TYPICAL SECTION
KAHUAPAANI STREET RESURFACING
Moanalua Freeway to Salt Lake Boulevard
Federal Aid Project No. STP-7241(002)

Not to Scale

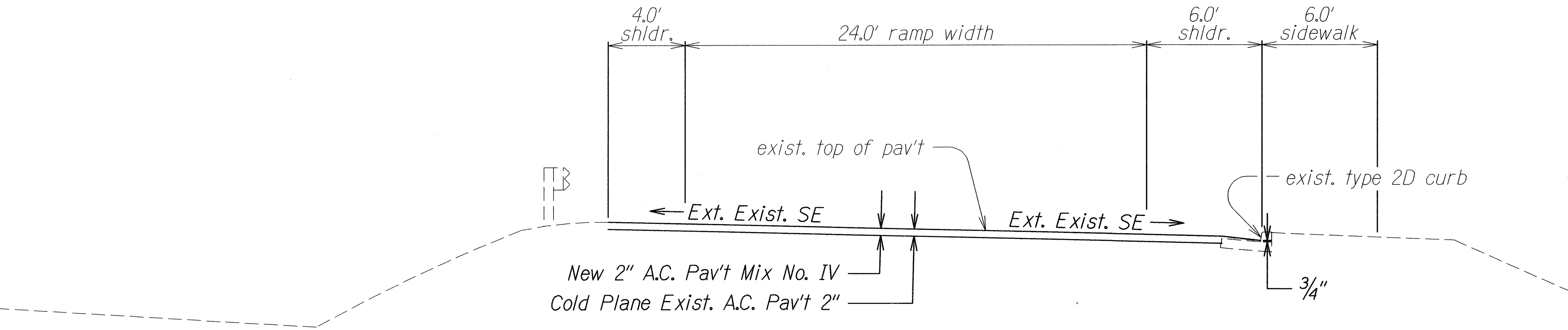
Date: May, 2012

SHEET No. 6 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-7241(002)	2012	ADD. 21	81



RAMP "HS" TYPICAL SECTION
RAMP "HS" Sta. 2+99.01 to Sta. 7+00±
Not to Scale



RAMP "HS" TYPICAL SECTION
RAMP "HS" Sta. 7+00± to Sta. 9+00
Not to Scale

6/20/12 2 Revised paving limit on Ramp "HS".

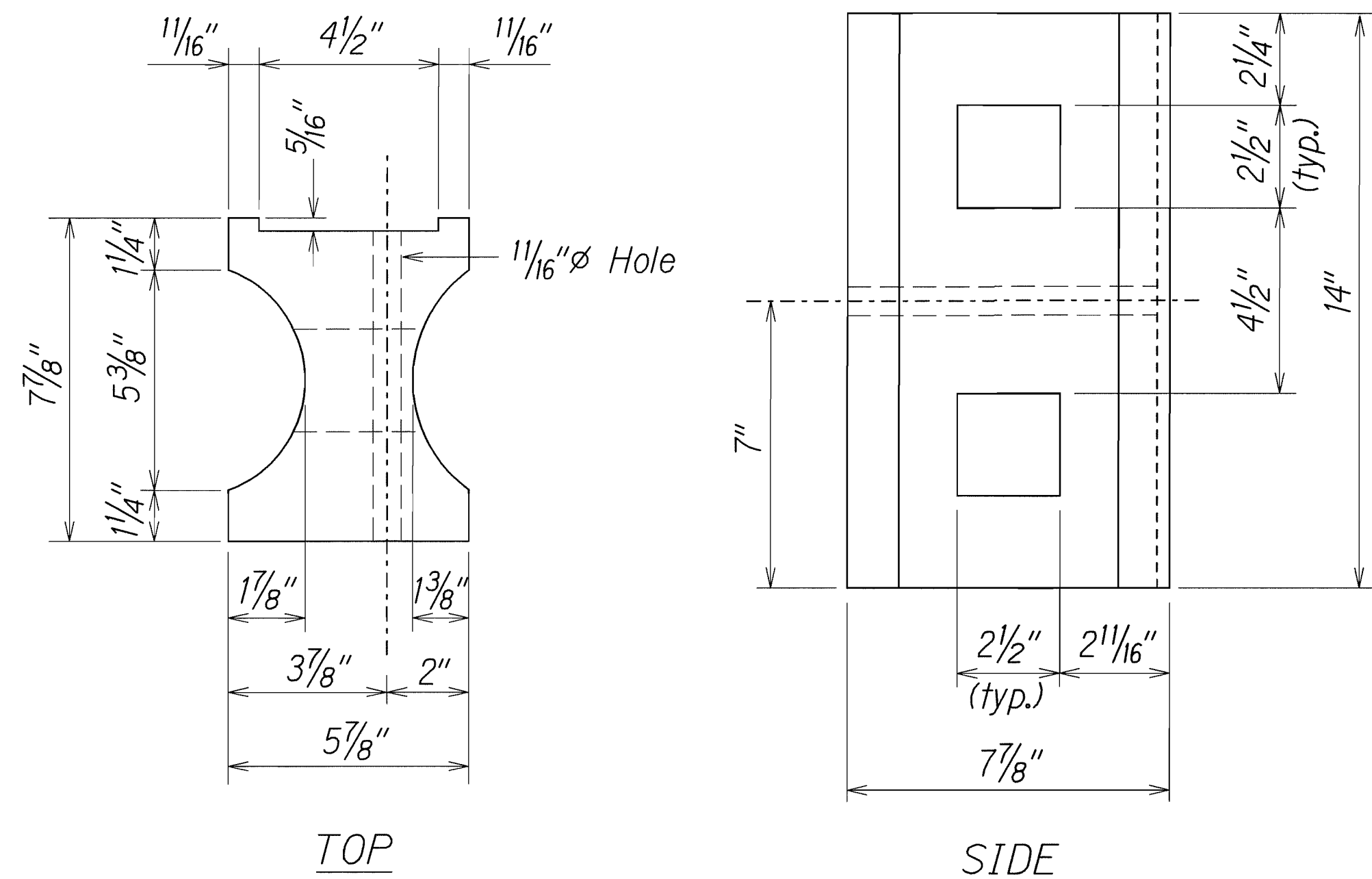
DATE REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
TYPICAL SECTION
KAHUAPAANI STREET RESURFACING
Moanalua Freeway to Salt Lake Boulevard
Federal Aid Project No. STP-7241(002)
Not to Scale Date: May, 2012

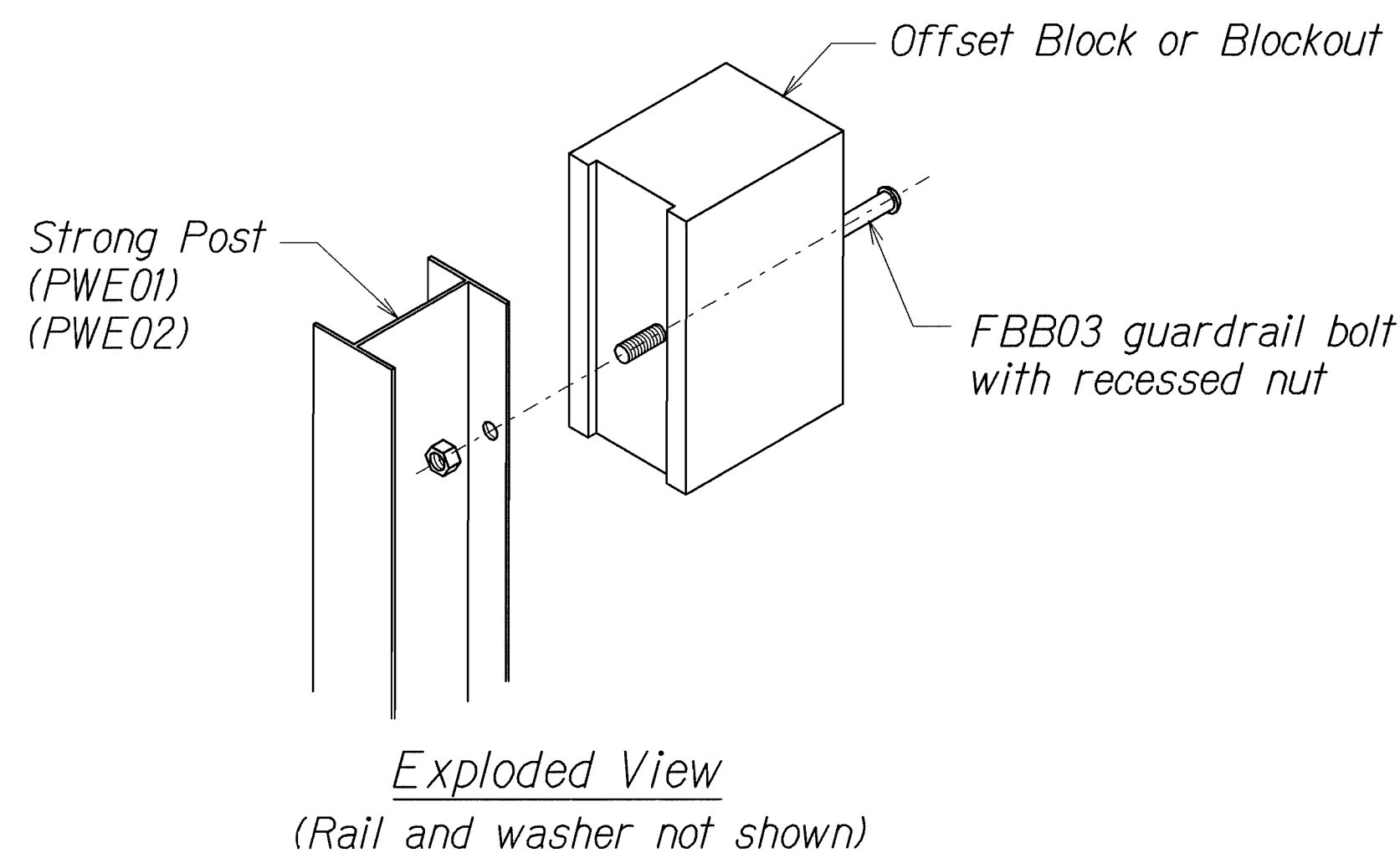
SHEET No. 7 OF 7 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTED	DRAWN BY	
DESIGNED BY	CHECKED BY	
DATE		

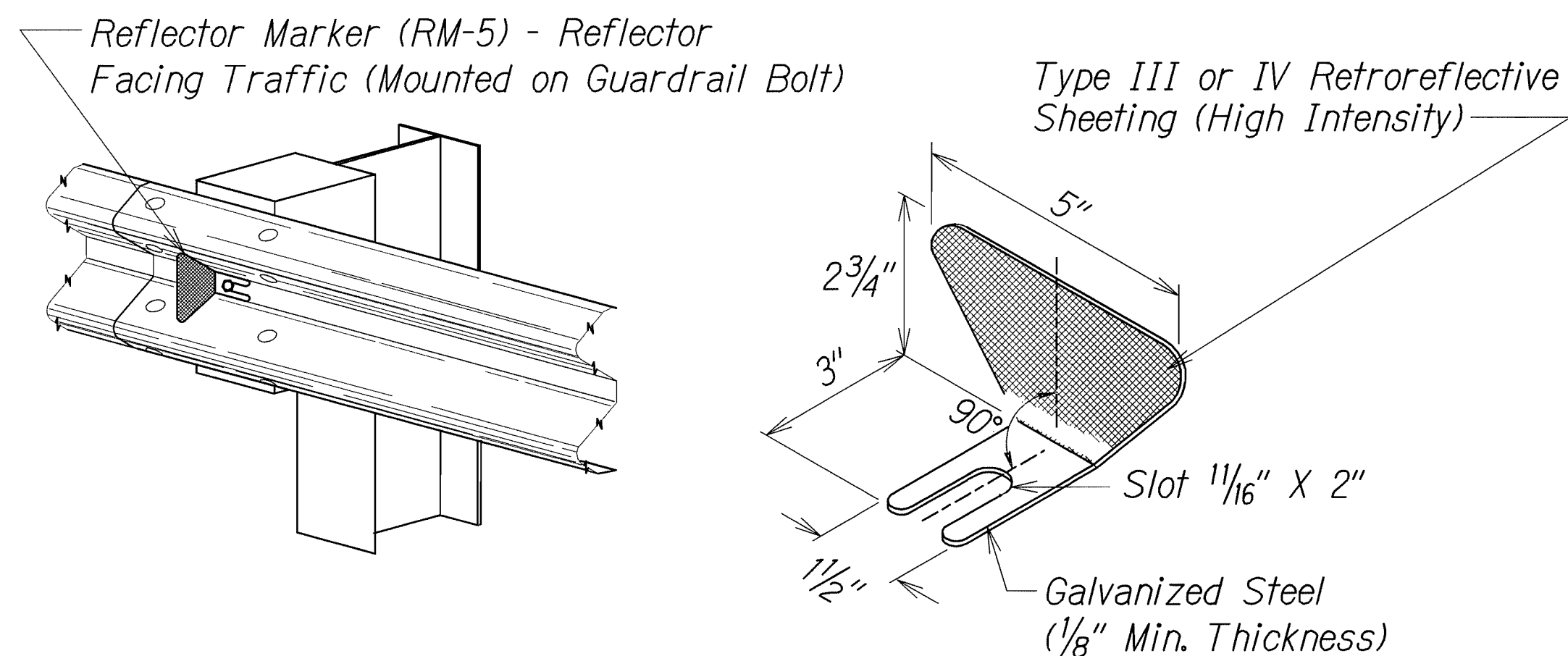
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-724(002)	2012	23	81



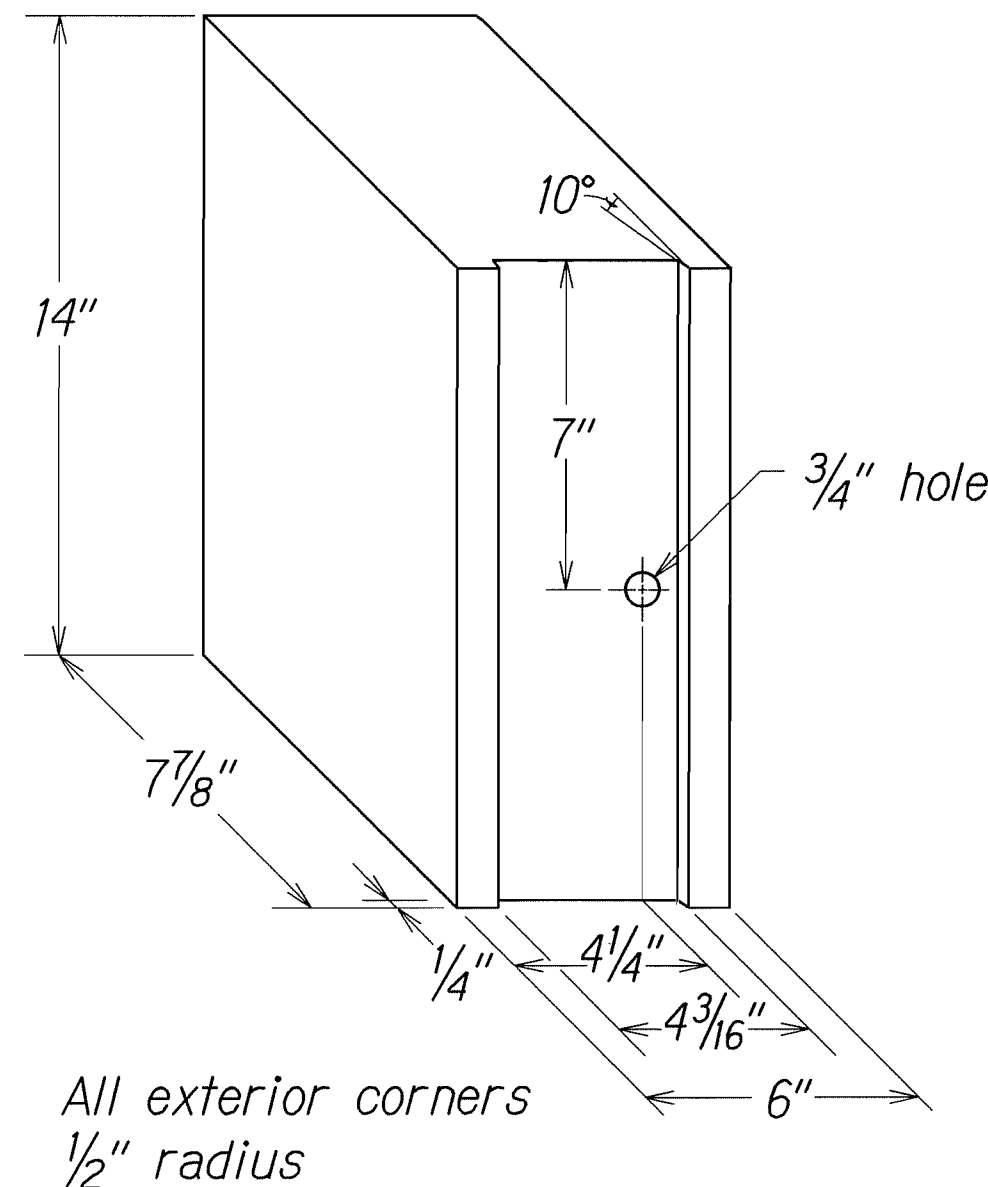
TOP
SIDE
RECYCLED PLASTIC BLOCKOUT (TYPE I)



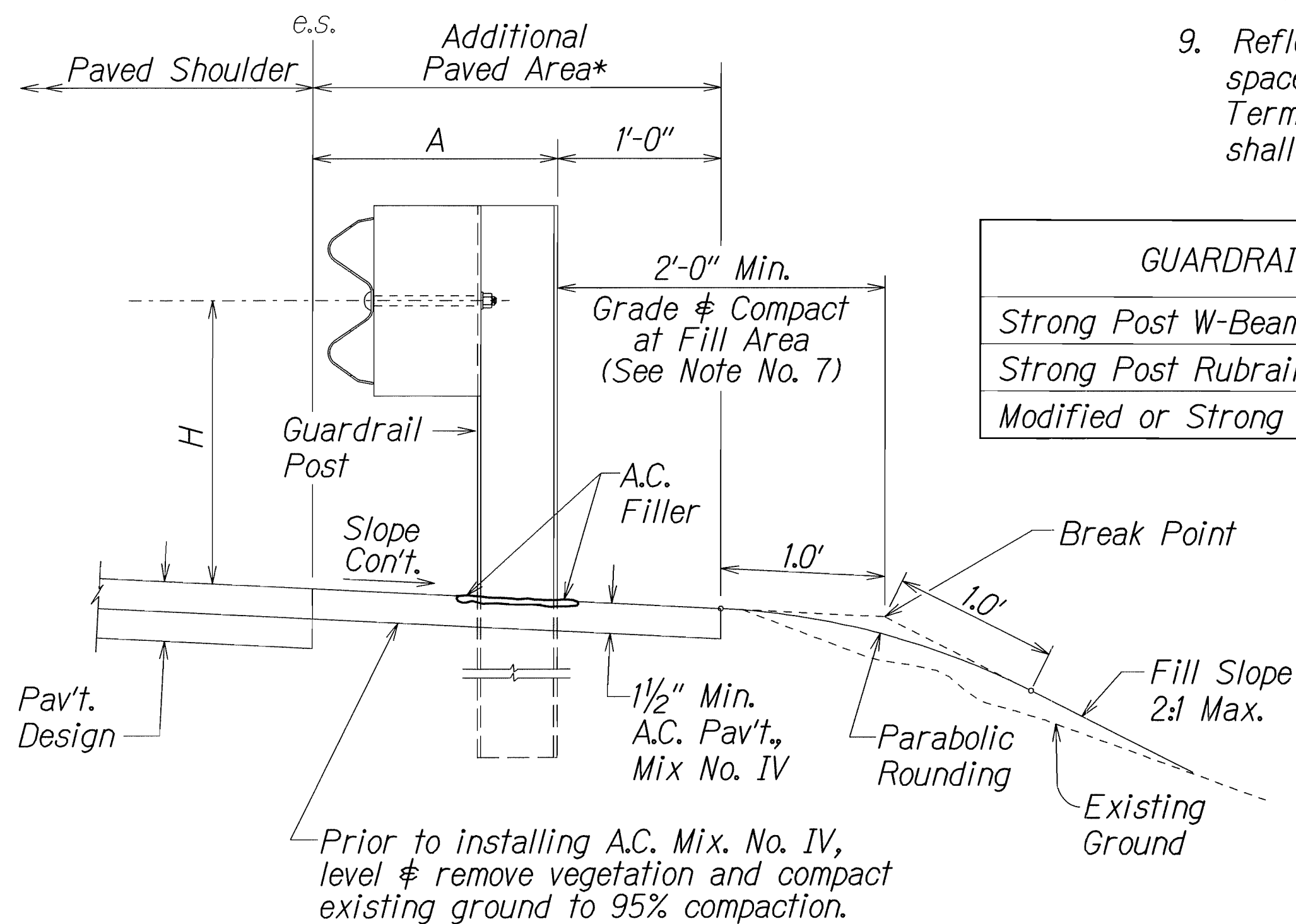
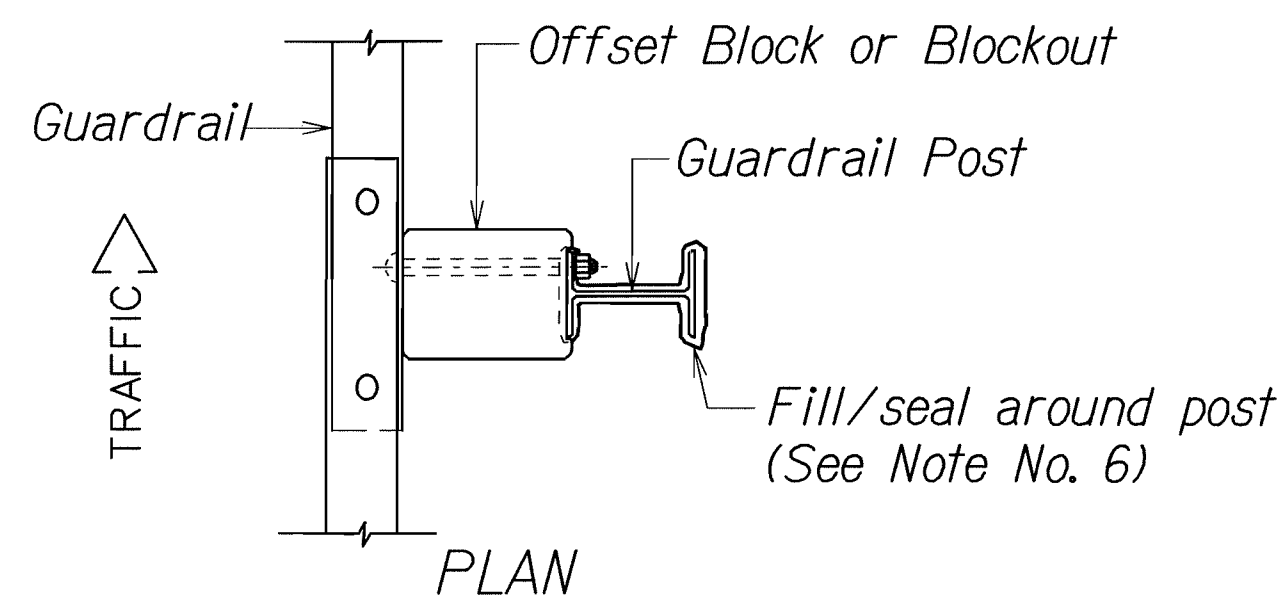
STEEL POST AND BLOCK DETAIL



REFLECTOR MARKER (RM-5) DETAIL AND TYPICAL INSTALLATION



RECYCLED POLYETHYLENE OFFSET BLOCK (TYPE II)



TYPICAL GUARDRAIL INSTALLATION

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, RWM02b, 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 fastners, 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. All new guardrail systems (system consists of total length of guardrail including both end treatments) shall include the Additional Paved Area.
6. After the guardrail posts are installed in the paved area, the Contractor shall fill/seal around each guardrail post and all cracks in the paved area caused during the guardrail post installation. If required by the inspector/engineer, the Contractor shall tamper the paved area around the guardrail post prior to filling/sealing. All costs associated with this work shall not be paid for separately, but shall be considered incidental to the various guardrail items.
7. When standards for the fill slope area cannot be met, a site specific, engineer approved design may be used.
8. New A.C. pavement at guardrails shall extend 6 feet longitudinally beyond terminal ends.
9. Reflector Markers (RM-5) mounted on guardrails shall be spaced every 25 feet. RM-5's shall not be installed on Terminal Sections. Furnishing and installing of each RM-5 shall be considered incidental to the adjacent guardrail system.

GUARDRAIL TYPE	DIMENSION	
	H	A
Strong Post W-Beam	1'-9 5/8"	1'-6"
Strong Post Rubrail (W-Beam)	2'-0"	1'-6"
Modified or Strong Post Thrie Beam	2'-0"	2'-0"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GUARDRAIL DETAILS & NOTES

KAHUAPAANI STREET RESURFACING
Moanalua Fwy. to Salt Lake Blvd.
Federal-Aid Project No. STP-724(002)

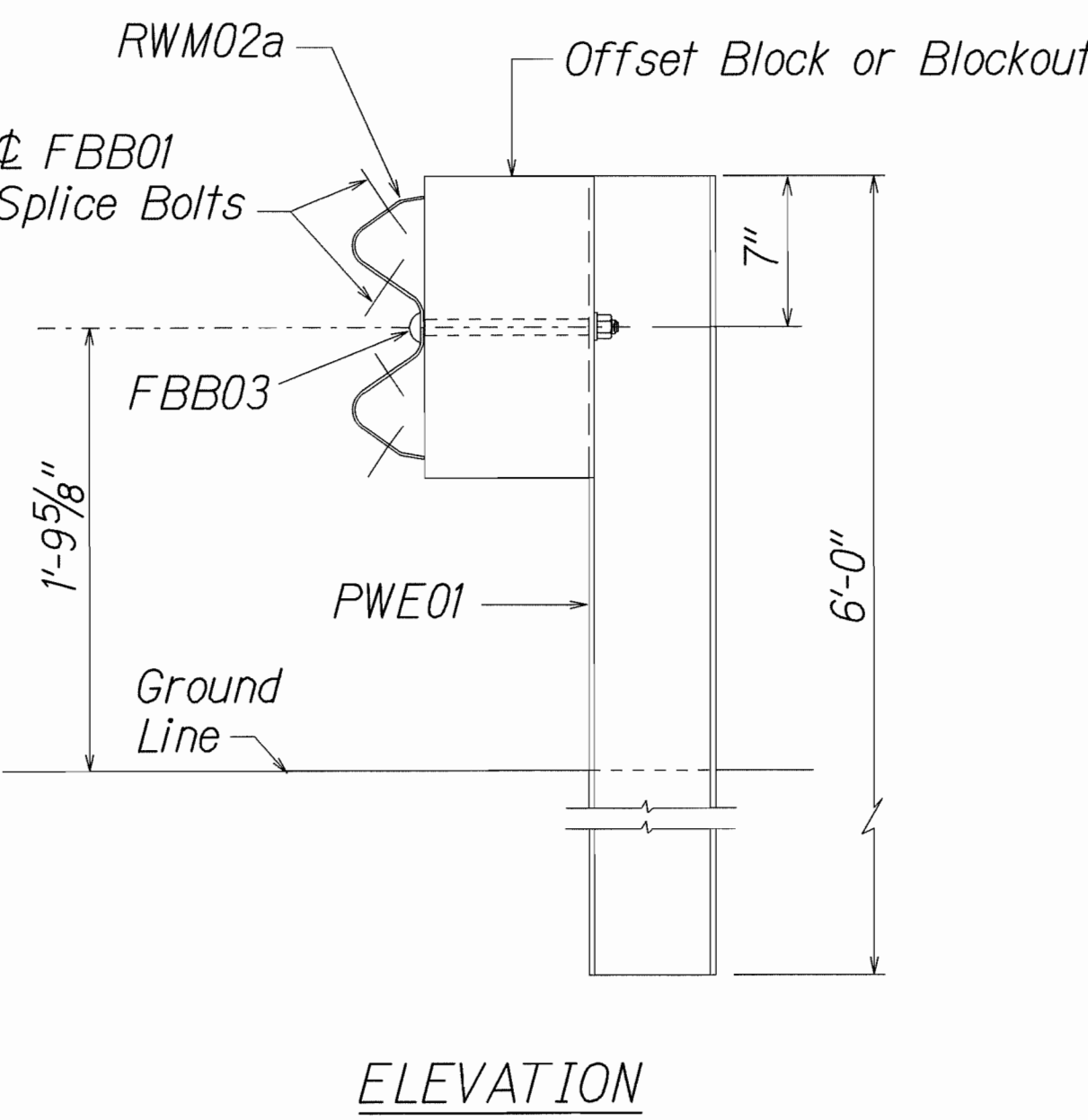
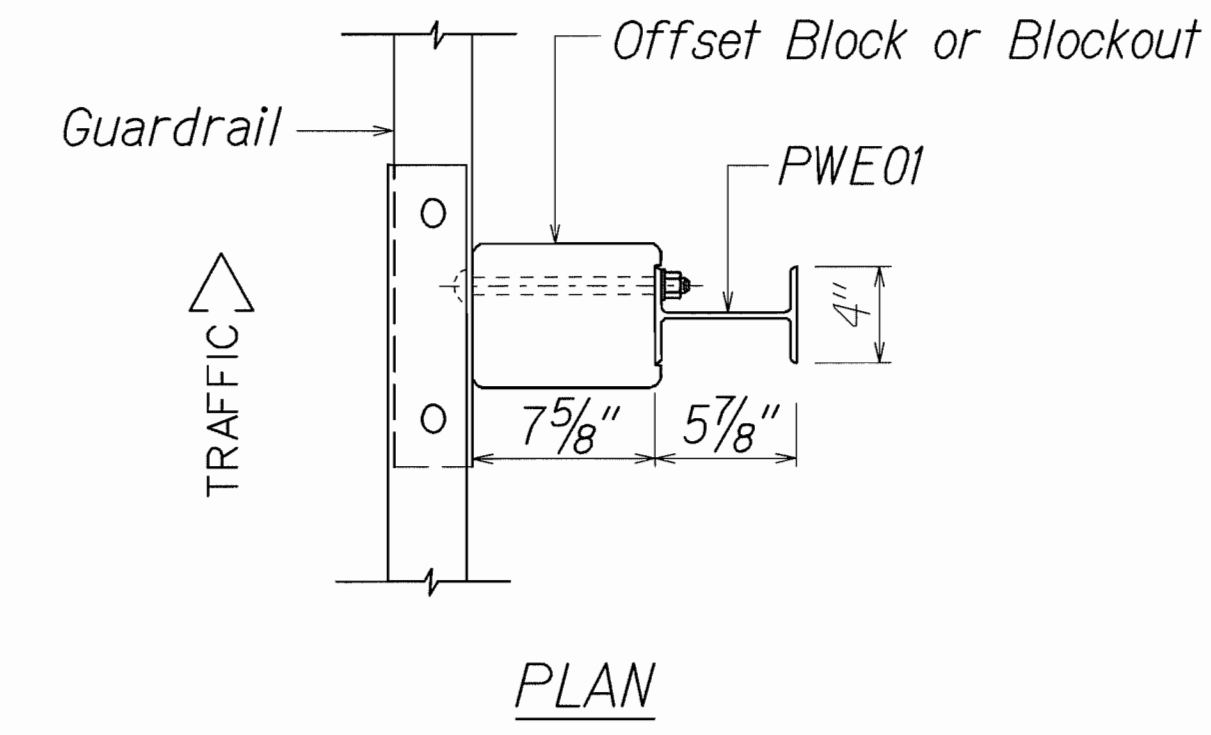
Scale: NTS
Date: May, 2012

SHEET No. 1 OF 1 SHEETS

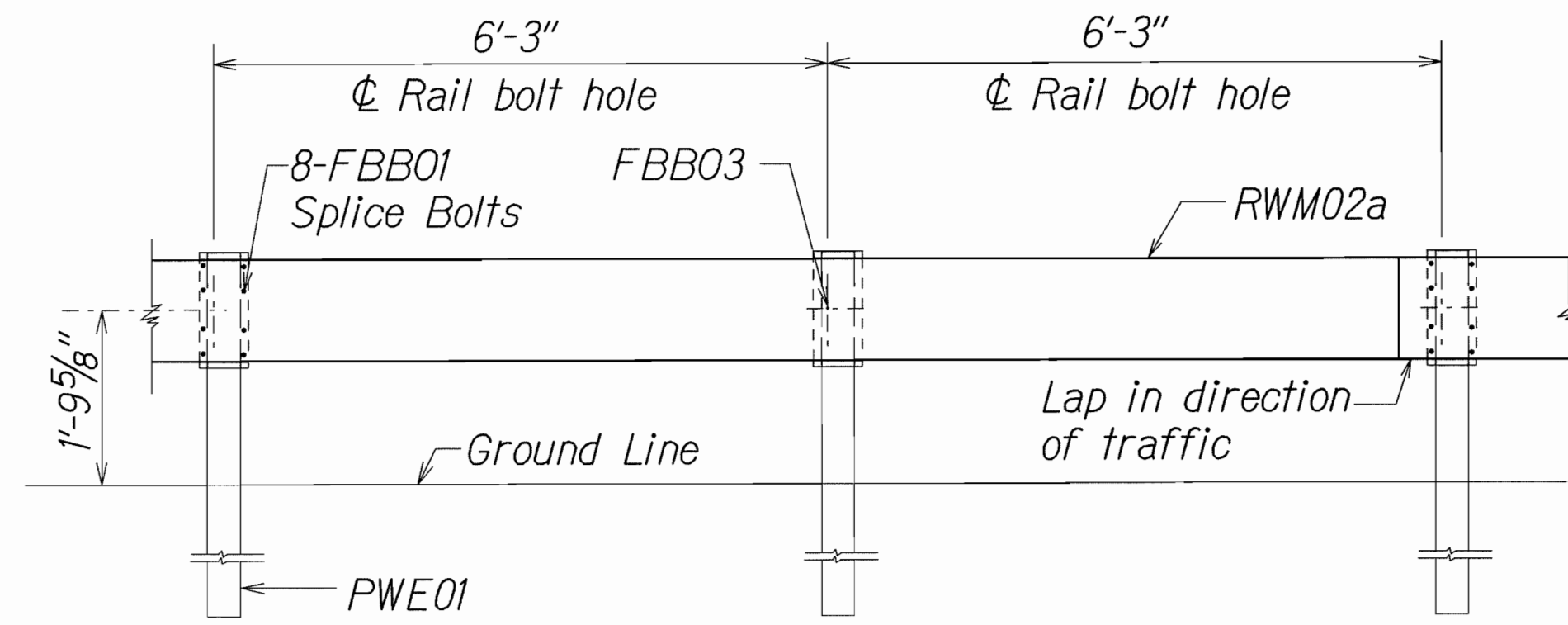
ORIGINAL PLAN	DATE
DRAWN BY	
DESIGNED BY	
CHECKED BY	
NOTED BY	
QUANTITIES BY	
REVIEW BY	

22/28/02 H:\rudy\guardrail\resurfacing (standard plan TE-50 r09/01/00)

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-7241(002)	2012	24	81

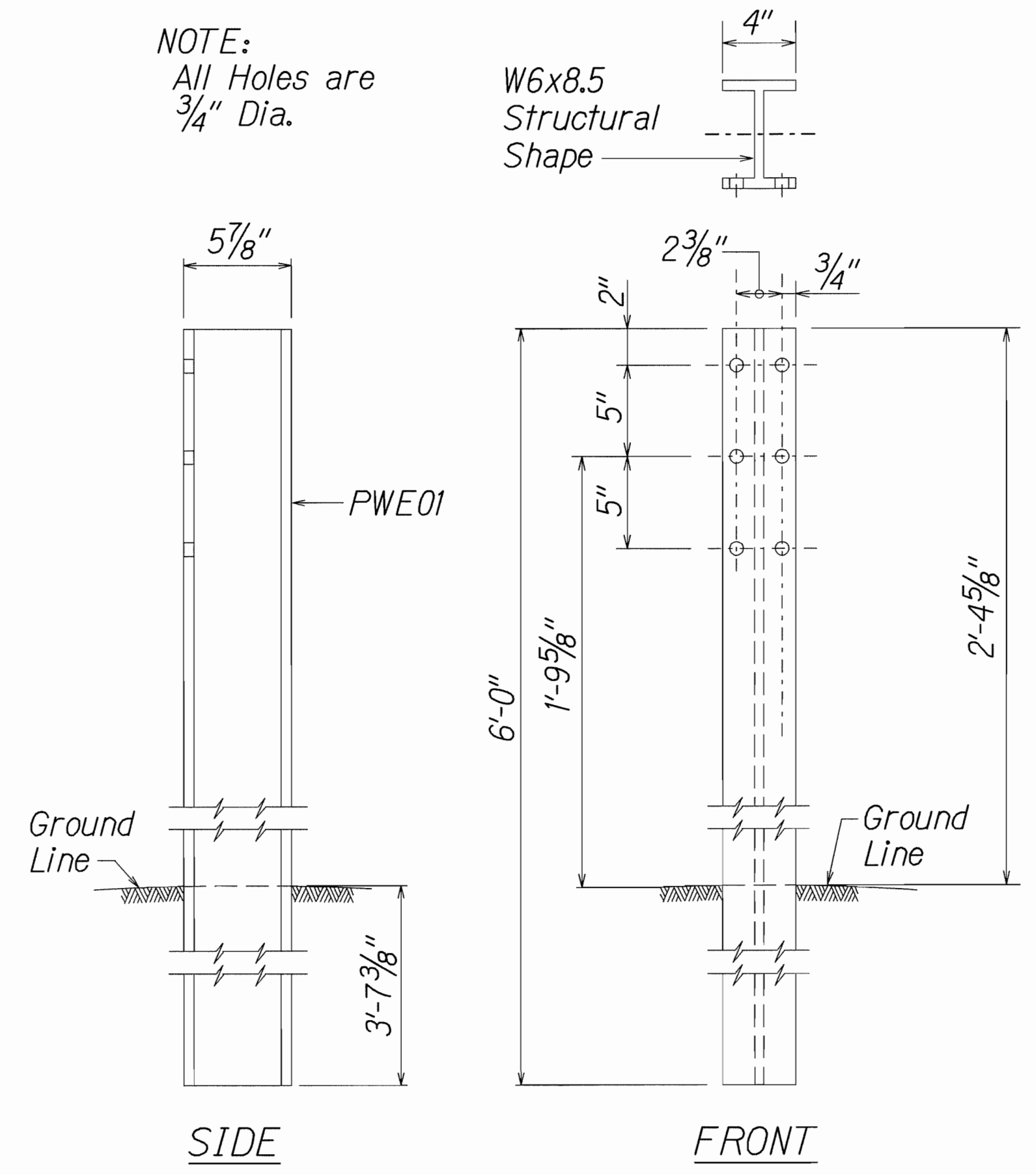


STRONG POST W-BEAM GUARDRAIL
(SGR04a)

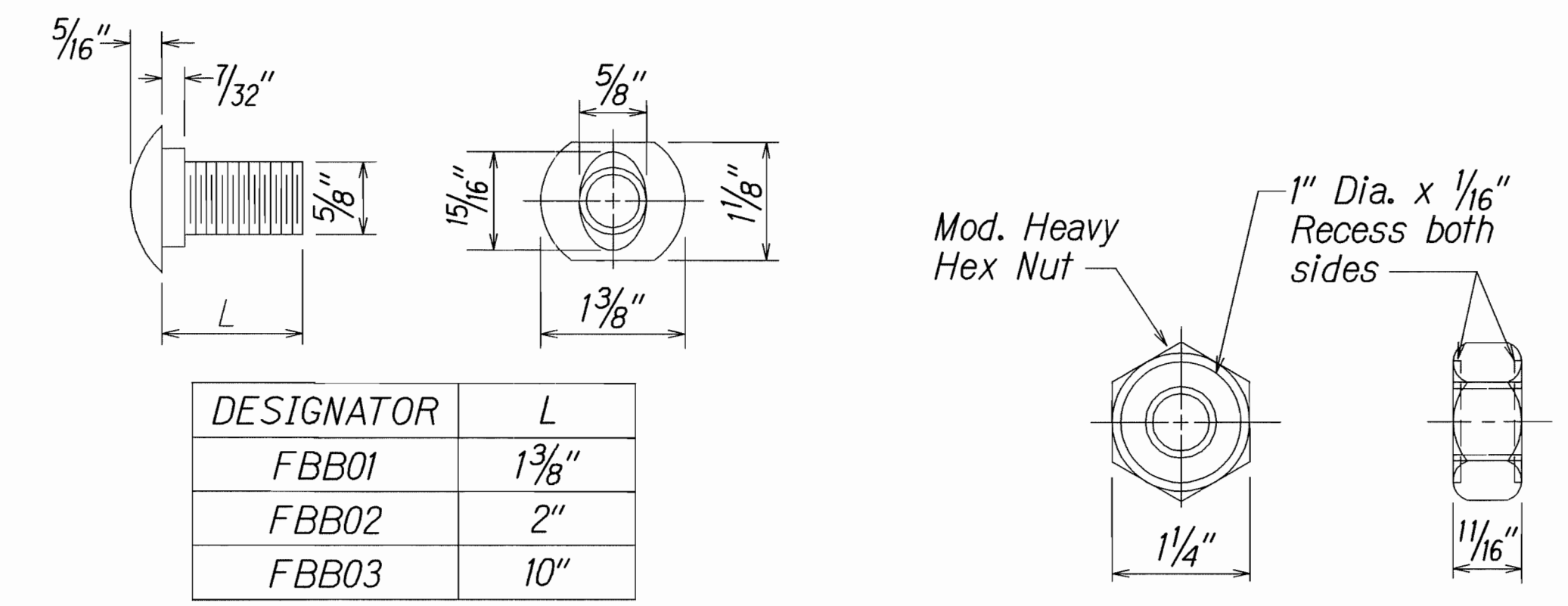


STRONG POST W-BEAM GUARDRAIL WITH
RECYCLED OFFSET BLOCK OR PLASTIC BLOCKOUT

NOTE:
All Holes are
3/4" Dia.

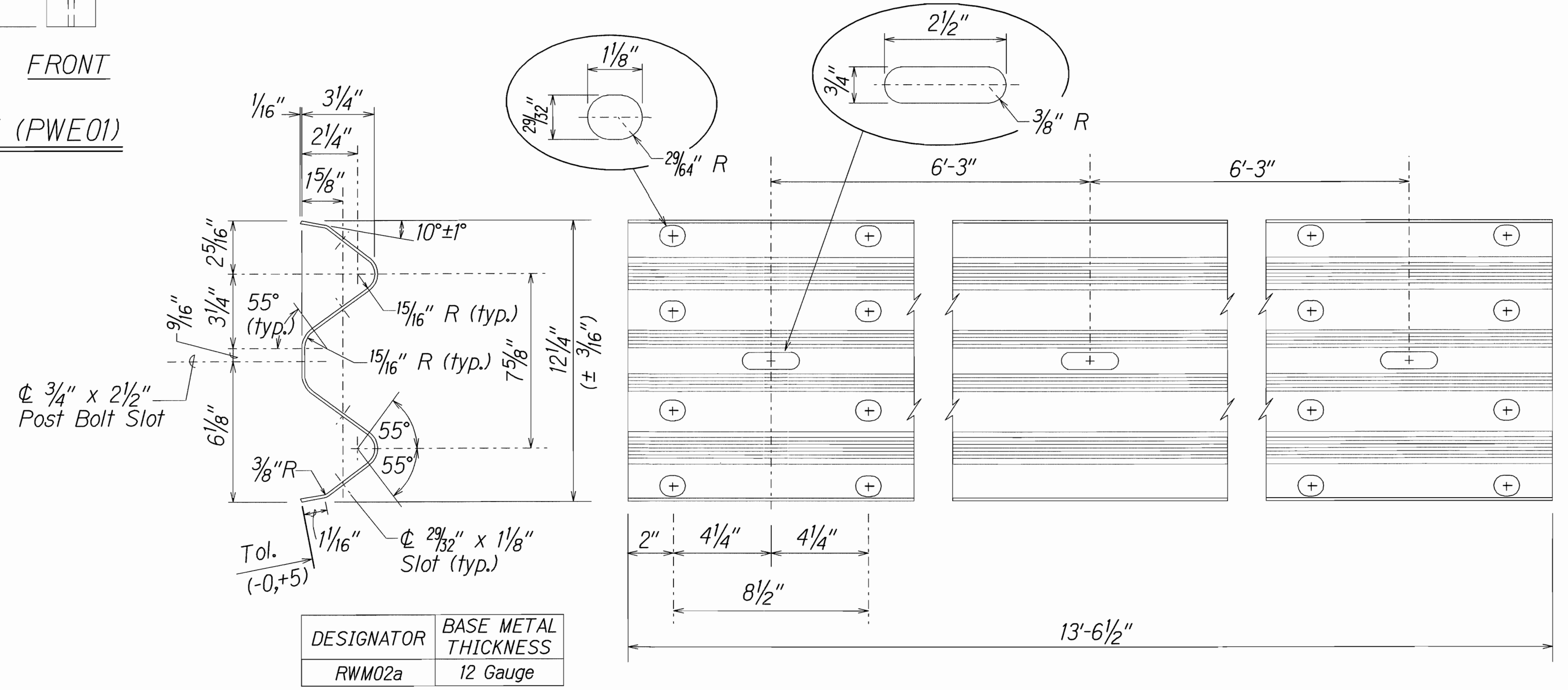


W-BEAM STRONG POST (PWE01)



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

GUARDRAIL BOLTS AND RECESSED NUT



2 SPACE W-BEAM GUARDRAIL (RWM02a)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRONG POST W-BEAM GUARDRAIL

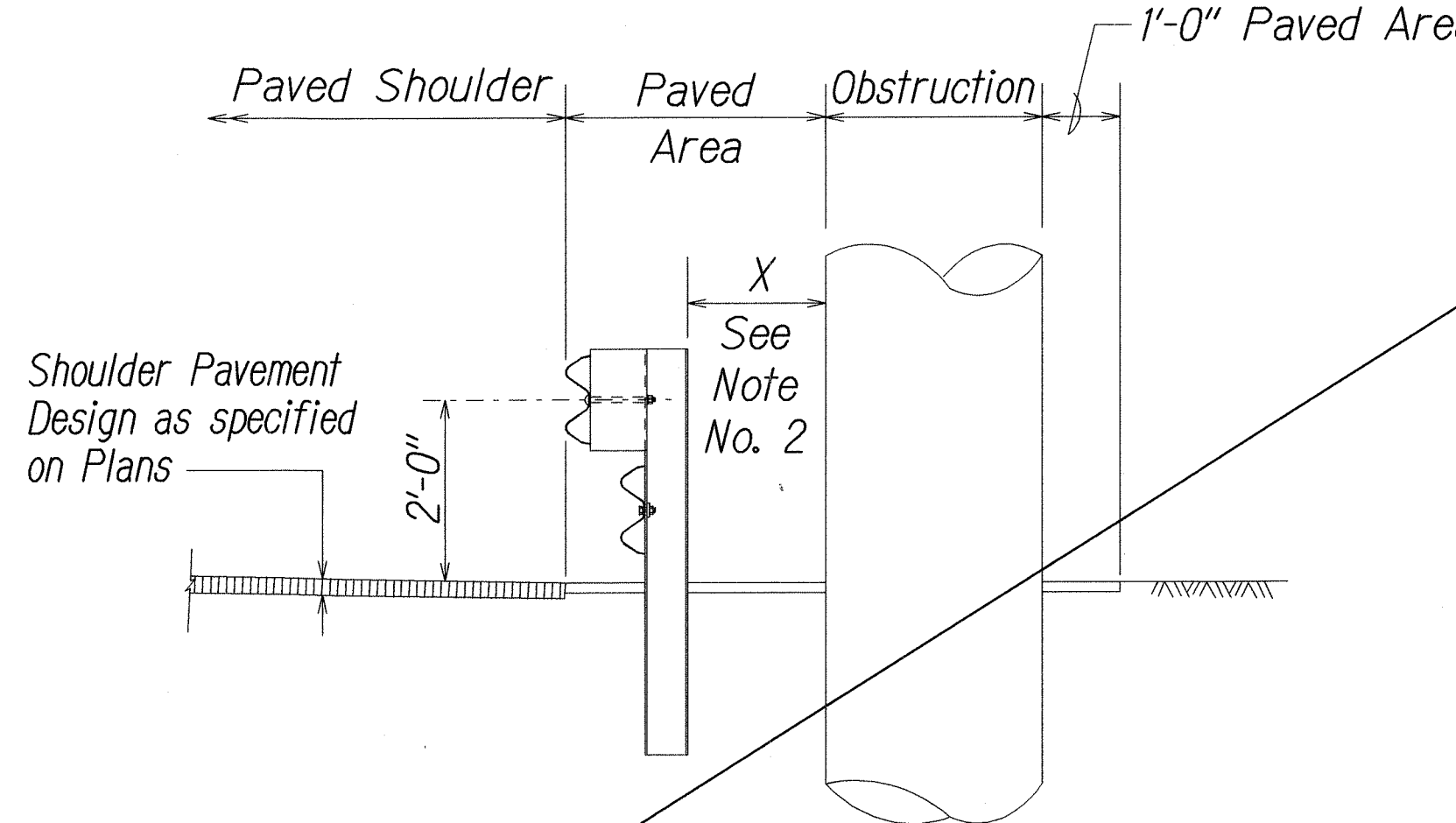
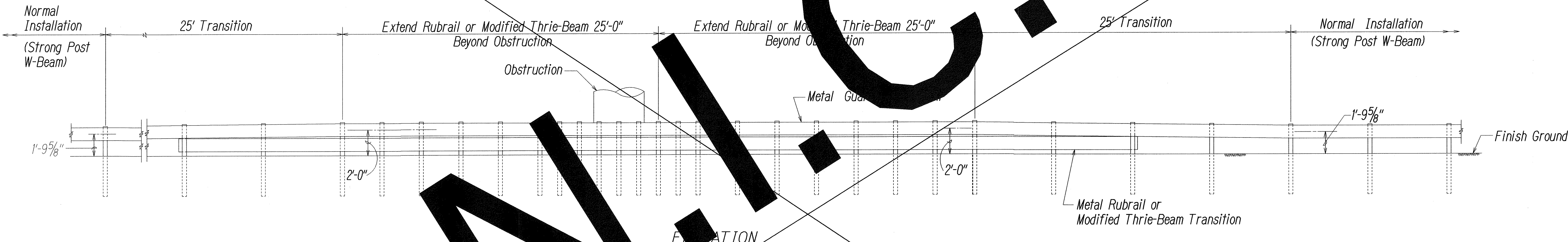
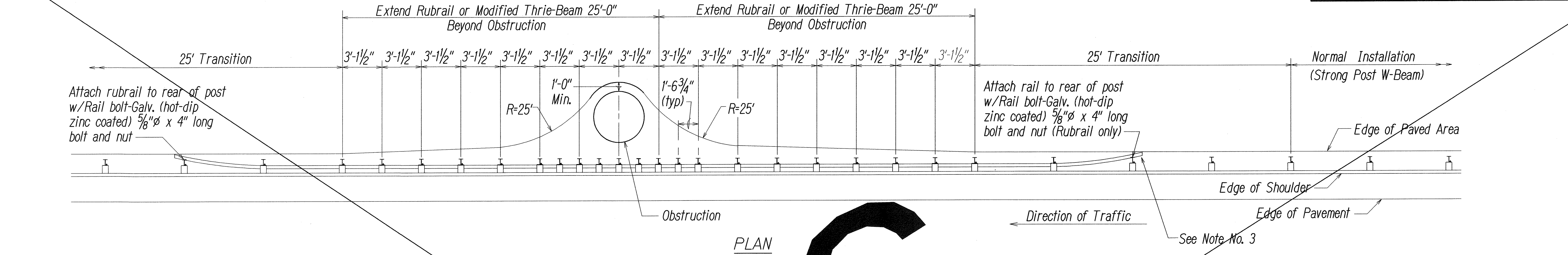
KAHUAPAANI STREET RESURFACING
Moanalua Fwy. to Salt Lake Blvd.
Federal-Aid Project No. STP-7241(002)

Scale: NTS Date: May, 2012

ORIGINAL PLAN	DATE
DESIGNED BY	
TRACED BY	
QUANTITIES BY	
CHECKED BY	

11/10/05 fcl:ubj/guardrail/wbeams.pgn (standard plan TE-50 r03.06/87)

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-724(002)	2012	ADD.26	81



TYPICAL SECTION AT OBSTRUCTION

DETAIL OF GUARDRAIL INSTALLATION AT OBSTRUCTION

- NOTES:**
1. All Guardrail and Concrete Barrier Designs at Obstructions shall be approved by the Engineer.
 2. If $X < 2'-0"$, Concrete Barrier or special guardrail design;
 $2'-0" \leq X < 3'-0"$, Strong Post Rubrail or Strong Post Thrie-Beam with reduced post spacing;
 $3'-0" \leq X$, Strong Post W-Beam with 6'-3" post spacing (Normal Installation).
 3. If a pedestrian walkway or bicycle route is located behind the guardrail, the Engineer should install the Modified Thrie-Beam System. The Rubrail termini may become a hazard to pedestrians & bicyclists.

6/19/12 ☒ Work shown will not be included in contract.

DATE REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
GUARDRAIL DETAILS
(AT OBSTRUCTION)
KAHUAPAANI STREET RESURFACING
Moanalua Fwy. to Salt Lake Blvd.
Federal-Aid Project No. STP-724(002)
Scale: NTS Date: May, 2012

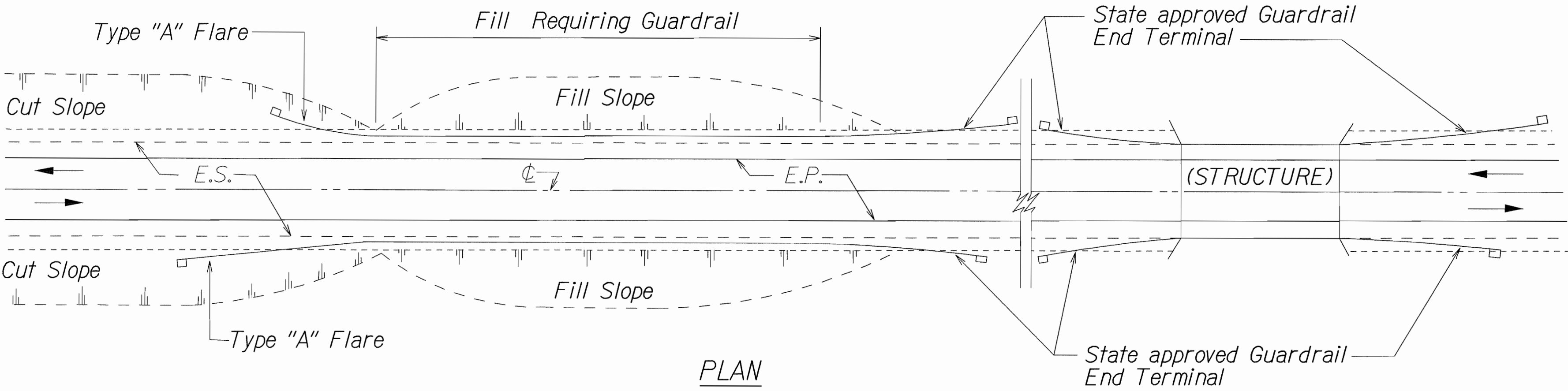
SHEET No. 1 OF 1 SHEETS

ADD.26

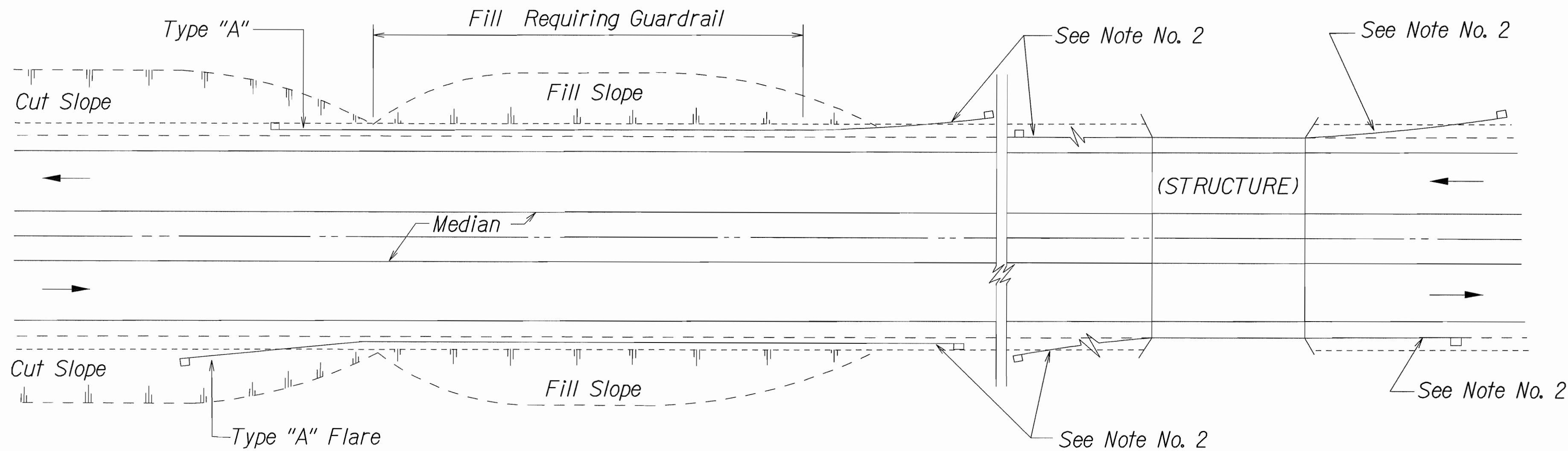
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
NOTED BY	DESIGNED BY	
NOTED BY	CHECKED BY	

18-22/01 181rub/guardrail/185freudon (standard plan TE-53 r09/01/87 & TE-54 r11/03/89)

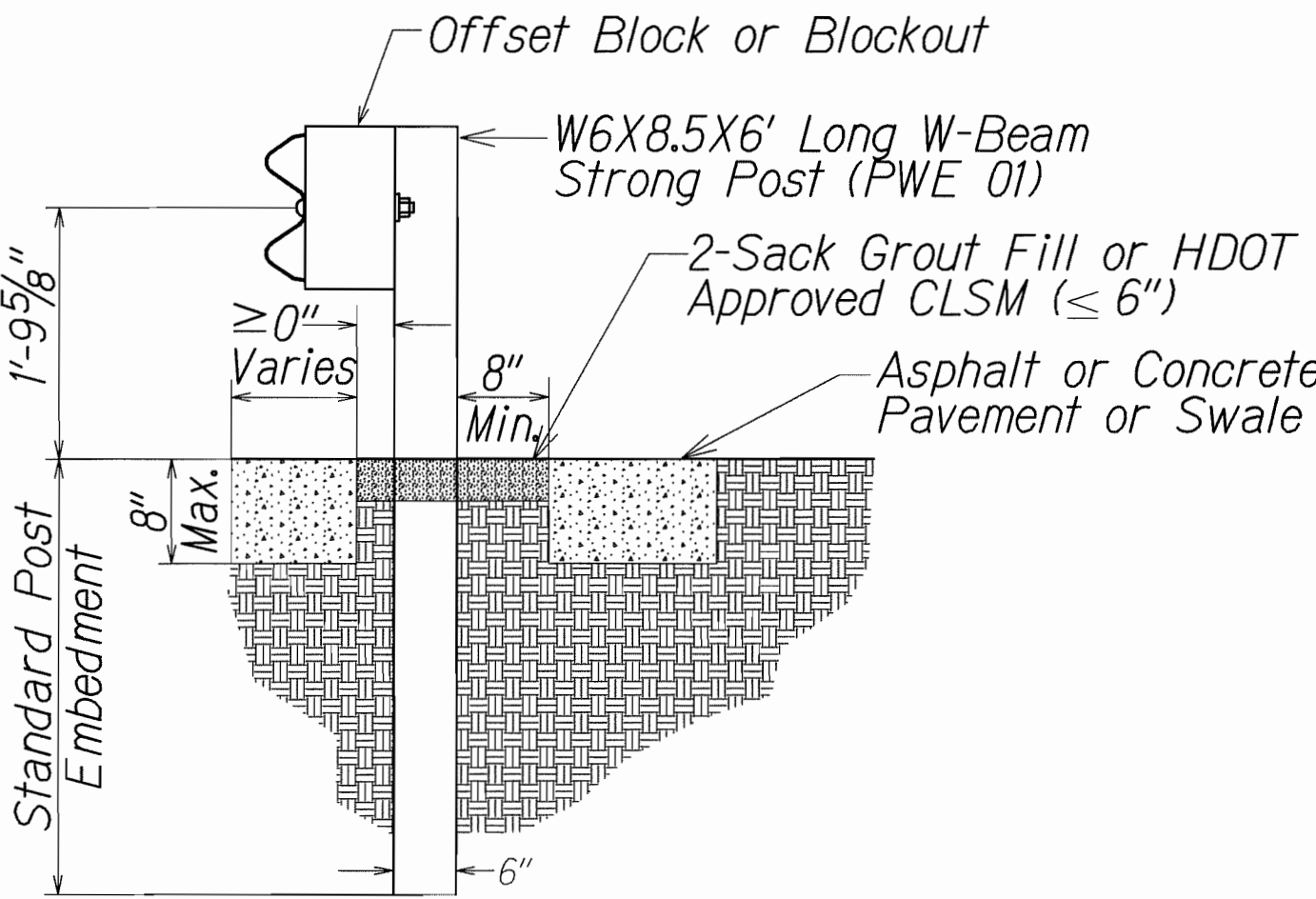
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-724(002)	2012	27	81



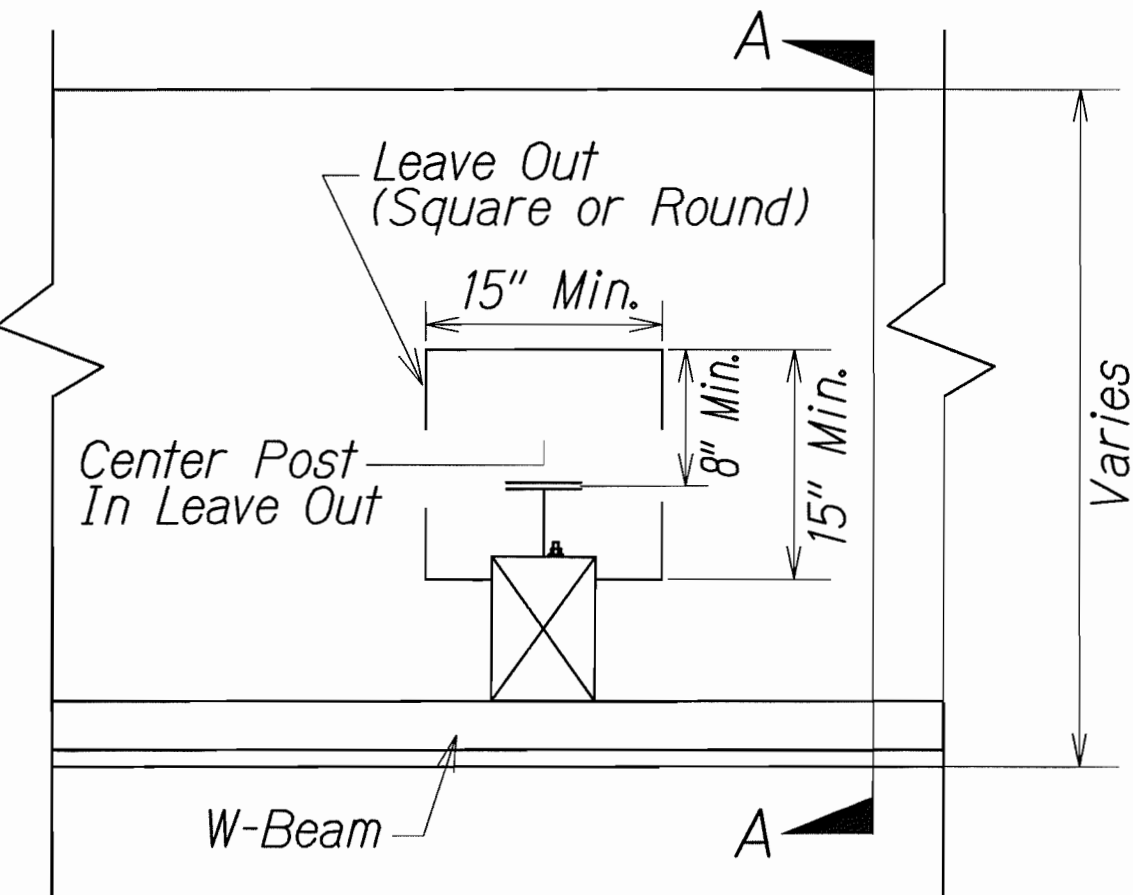
PLAN
TWO WAY ROADWAY



PLAN
ONE WAY ROADWAY (DIVIDED HIGHWAY)



SECTION A-A



STEEL POST DETAIL

STRONG POST W-BEAM GUARDRAIL
POST IN PAVEMENT OR DRAINAGE SWALE

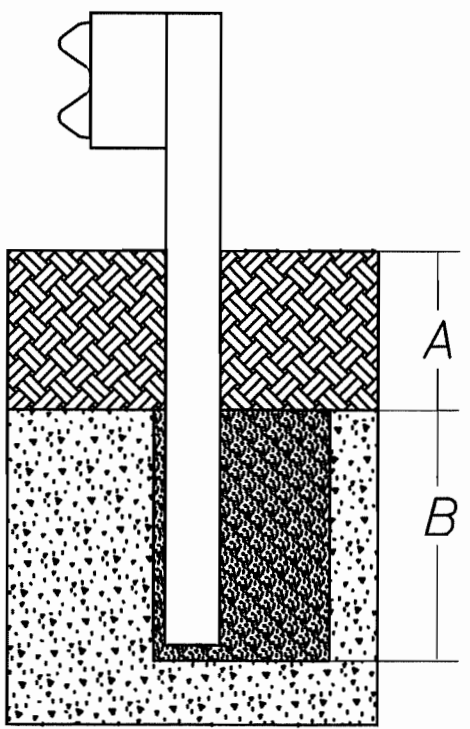
NOTES:

1. Metal Guardrail connection to concrete structures requires End Post Connection. See Structure Plans.
2. Depending on the existing field conditions, the Engineer shall determine which guardrail end terminal should be installed.
3. Refer to State's most current approved Product List for NCHRP 350 approved Guardrail End Terminals.

NOTES (STRONG POST W-BEAM IN ROCK):

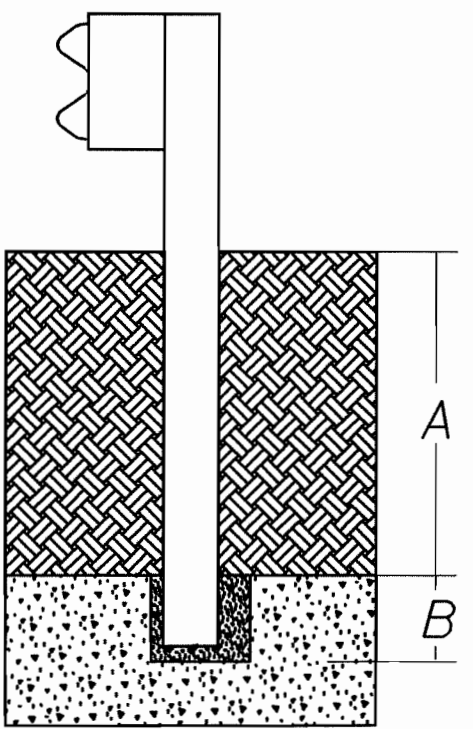
1. Backfill of drilled holes shall be with compressible material, ASTM C33 Coarse Aggregate, Size No. 57.
2. Elongated 21-inch long hole can be accomplished by drilling three 8-inch diameter holes at 6 1/2-inches on center.

Case 1

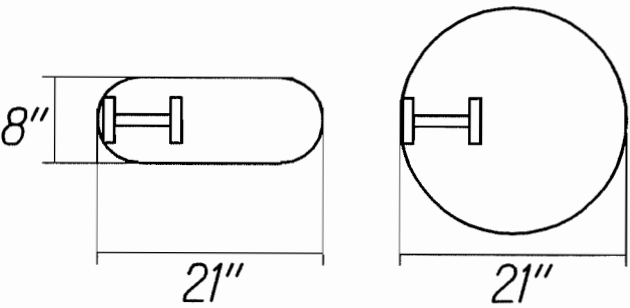


Soil

Case 2



ASTM C33 Coarse Aggregate, Size No. 57



Plan View Steel Posts
Either hole configuration acceptable

(A) ranging from 0 to 18-inches,
the depth of required drilling
(B) is equal to 24-inches.

Overlying Soil Depths of
0 to 18-inches

(A) ranging from 18-inches to the
embedment depth of the post, depth
of required drilling (B) is equal to
either 12-inches or the desired
embedment depth minus the depth
of soil whichever is less.

Overlying Soil Depths of
18 to 42-inches

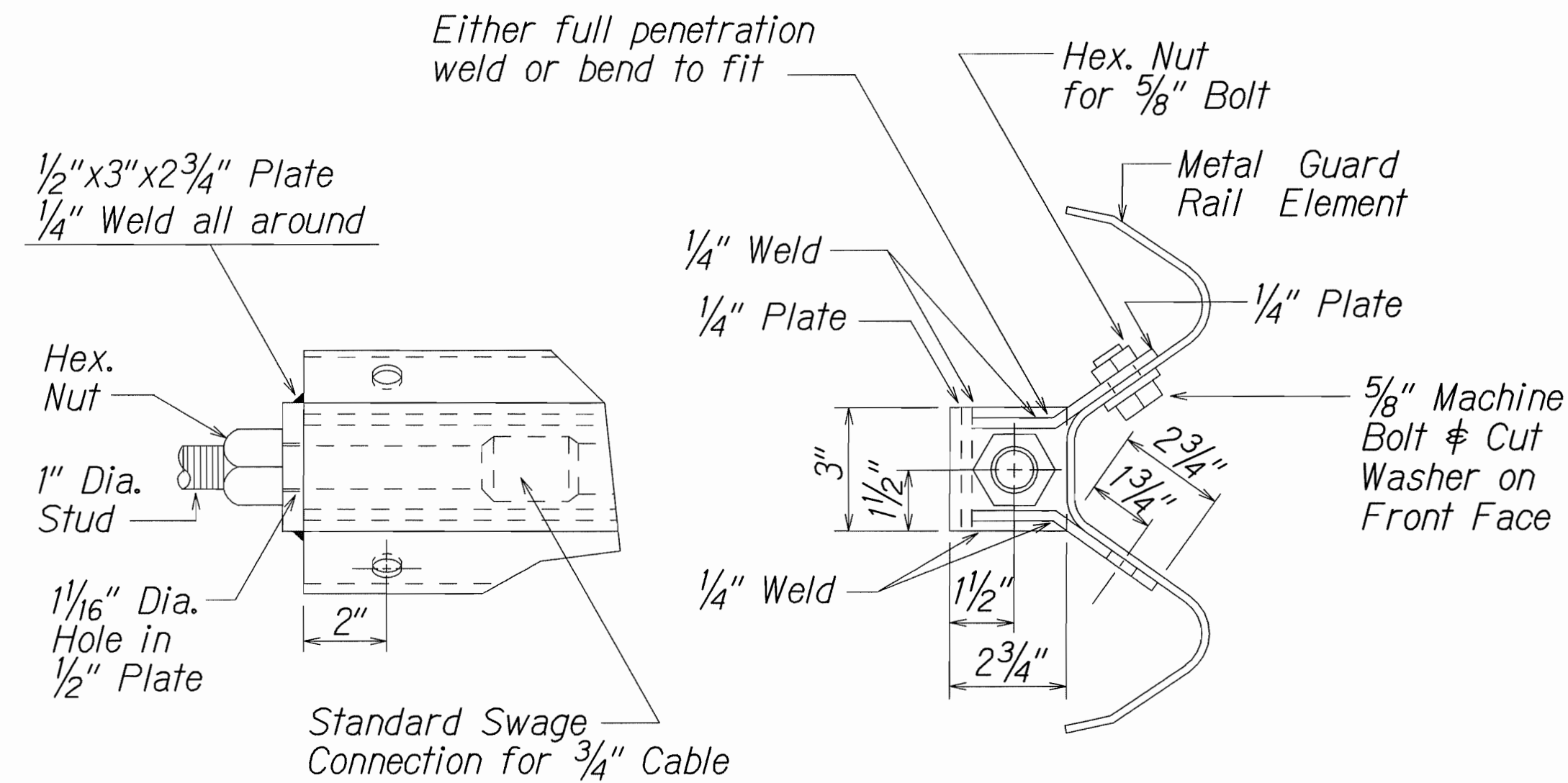
STRONG POST W-BEAM GUARDRAIL IN ROCK

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
GUARDRAIL DETAILS
KAHUA PAANI STREET RESURFACING
Moanalua Road to Salt Lake Blvd.
Federal Aid Project No. STP-724(002)

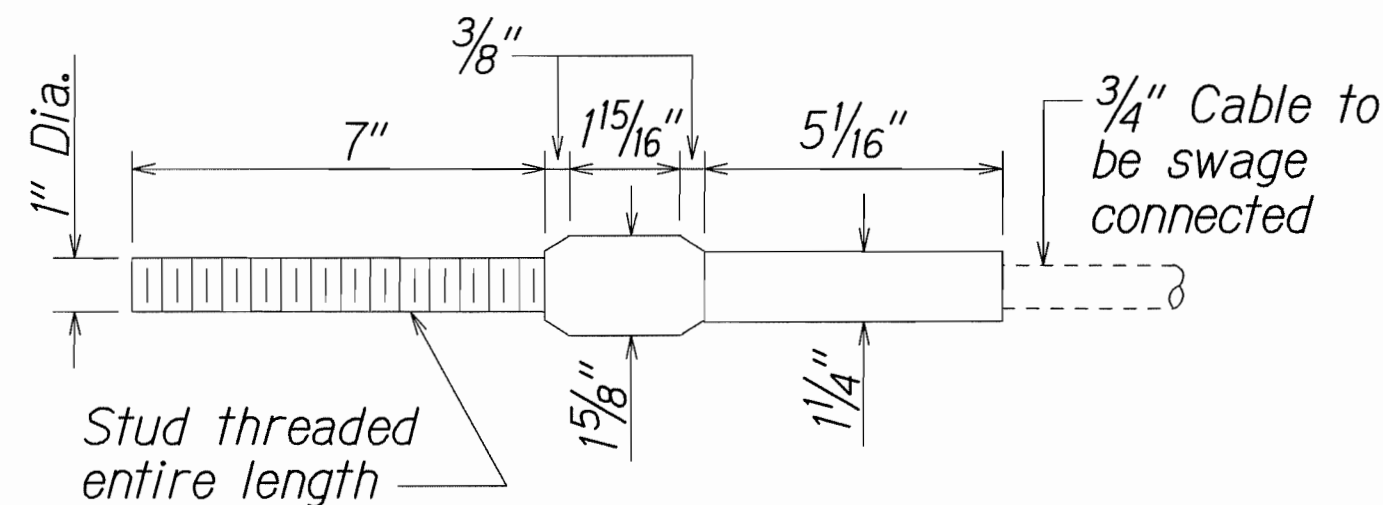
Scale: NTS Date: May, 2012

SHEET No. 1 OF 1 SHEETS

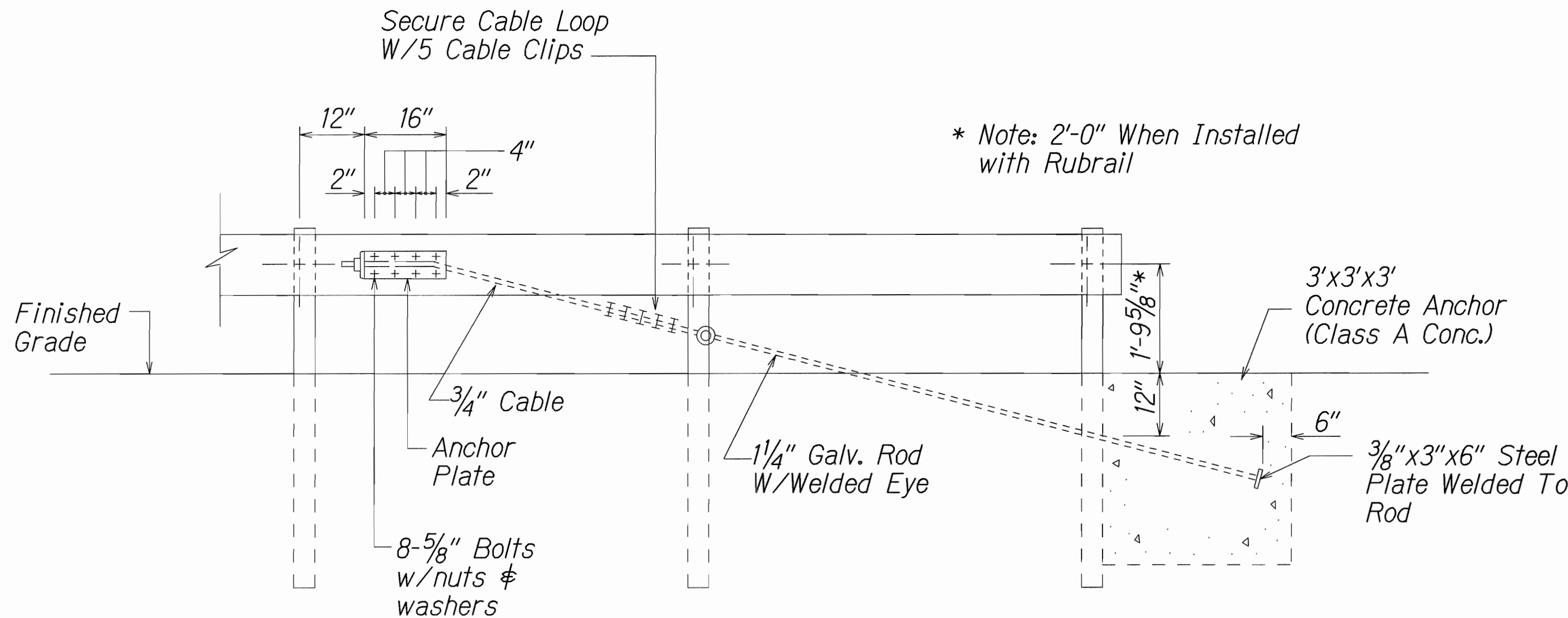
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-724(002)	2012	28	81



ANCHOR PLATE DETAILS

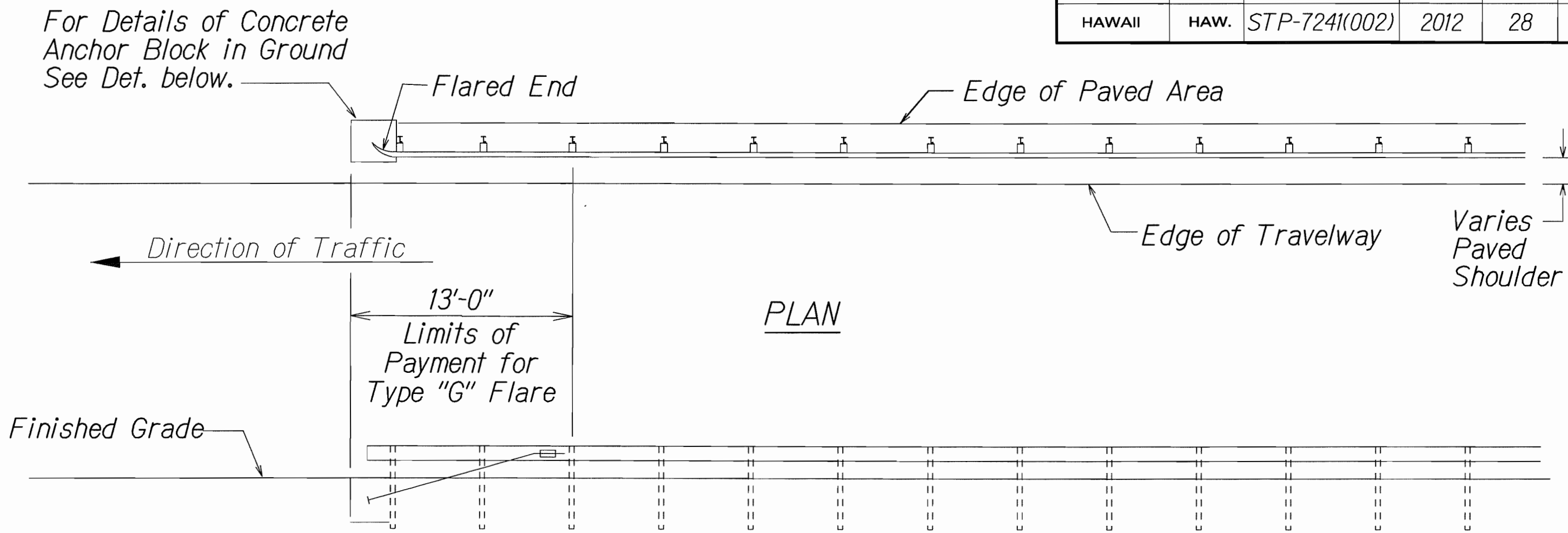


STANDARD SWAGED FITTING
AND STUD



ANCHOR BLOCK DETAIL

- Concrete, G.R.P., excavation, anchor rod and miscellaneous appurtenances necessary to anchor the guardrail ends shall be incidental to metal guardrail.



ELEVATION

TYPE "G" FLARE END TERMINAL

NOTE:

Type "G" Modified End Terminal is a site specific end terminal with a taper and radial termini. A site specific detailed drawing is required for all Type "G" Modified End Terminal and must receive Engineer's approval.

The taper (flare rate) of the guardrail shall follow the latest edition of AASHTO'S Roadside Design Guide (currently, Table 5.6 - Suggested Flare Rate for Barrier Design, page 5-21, Jan. 1996 edition).

The radius of the radial termini is an Engineer's judgement based on the site evaluation. The Engineer shall consider safety (minimize the spearing & blunt end situation); degree and potential seriousness of the hazard; bicycle and pedestrian accessibility; maintenance equipment accessibility; Right-of-Way availability; the smallest radii the metal w-beam/thrie-beam railing can be constructed (check with supplier/contractor); posted speed limit; angle of vehicle impact; and aesthetics when designing the Type "G" Modified End Terminal.

During construction, the Contractor shall layout the proposed Type "G" Modified End Terminal and receive approval from the Construction Engineer prior to installation.

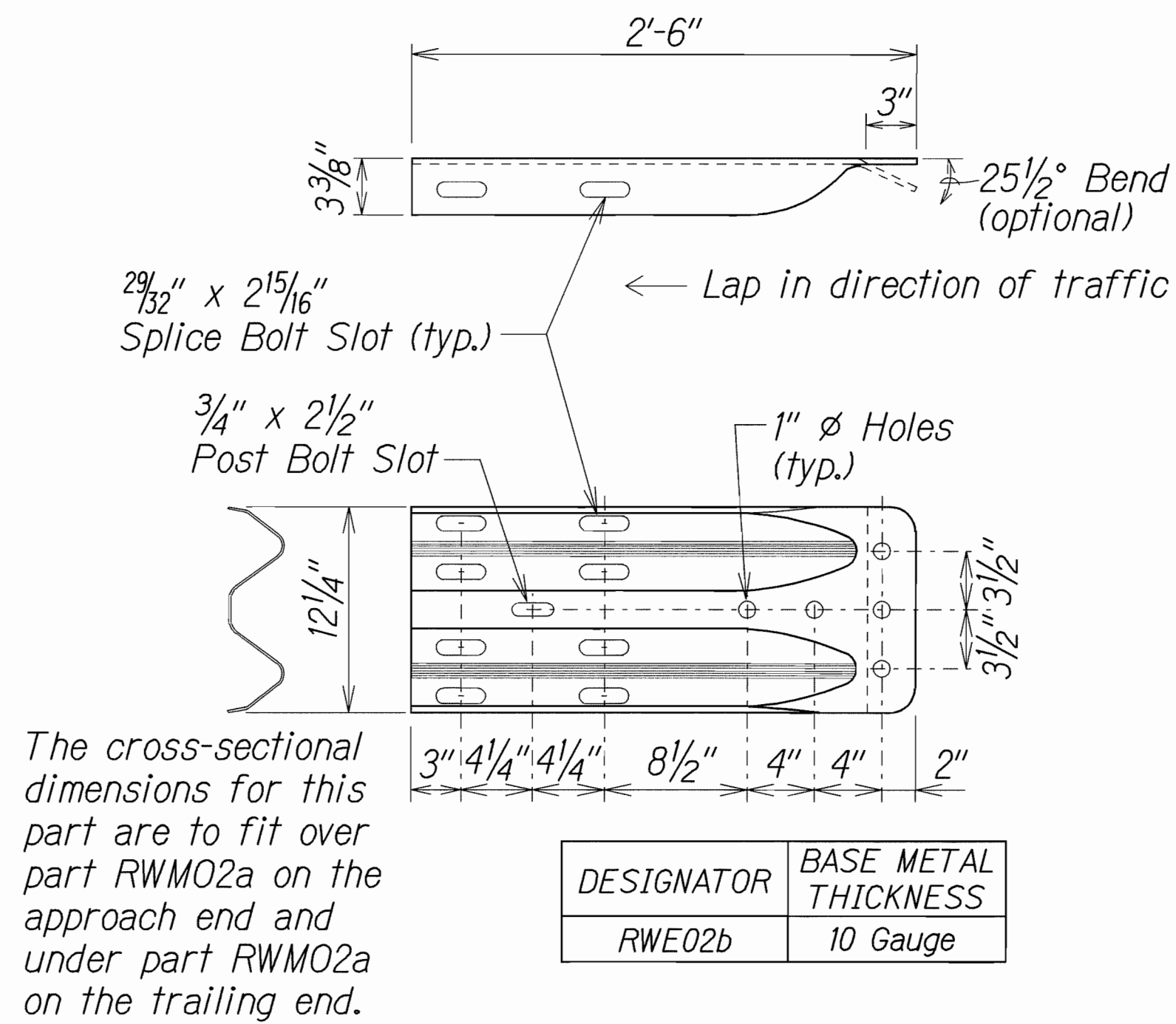
SURVEY PLOTTED BY	DATE
DESIGNED BY	DATE
NOTED BY	DATE
QUANTITIES BY	DATE
CHECKED BY	DATE

13/13/02 tdl/ruby/guardrail/1559rev.dgn (standard plan TE-59.rtl/03/03)

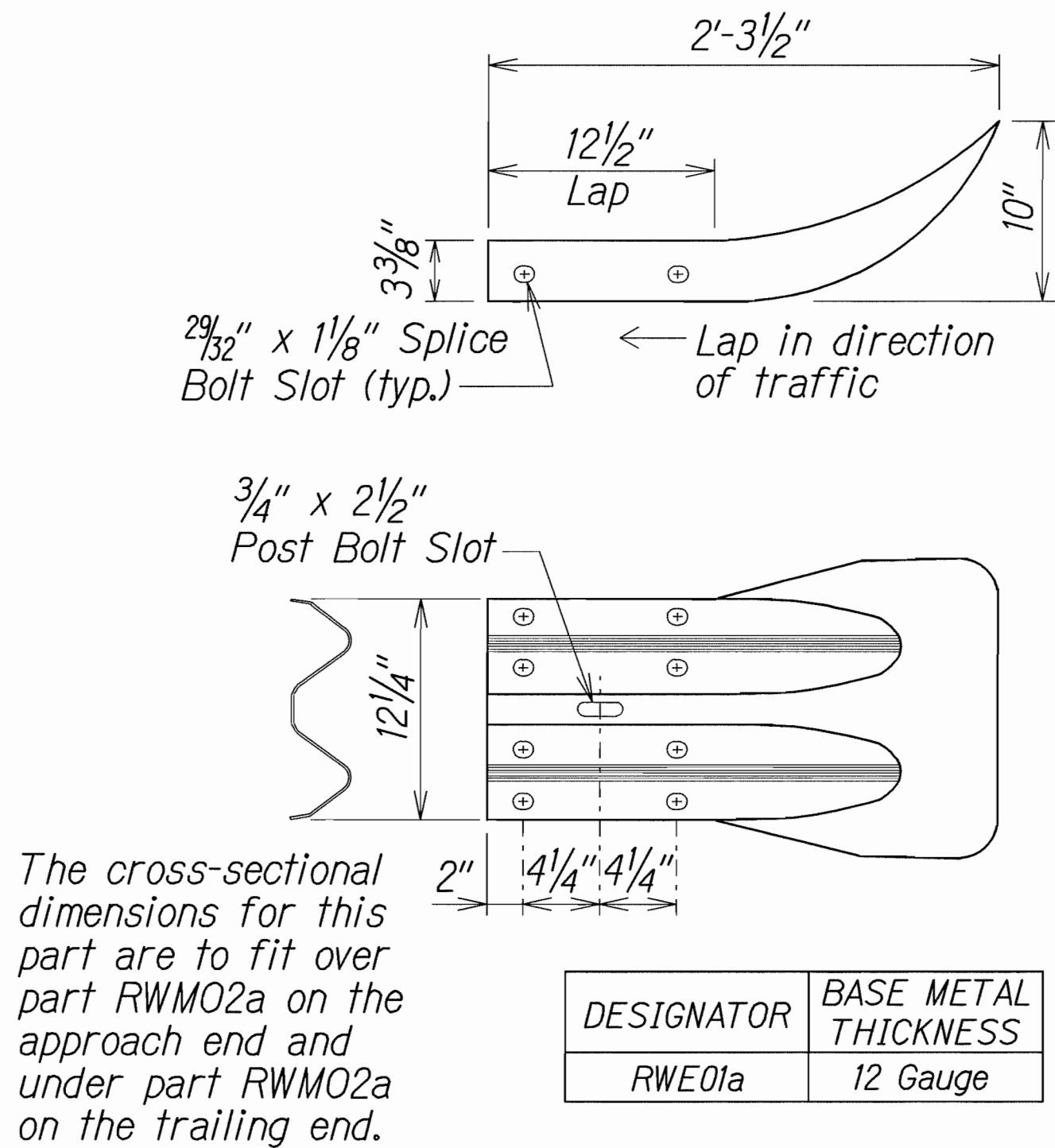
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GUARDRAIL DETAILS
KAHUAPAANI STREET RESURFACING
Moanalua Fwy. to Salt Lake Blvd.
Federal-Aid Project No. STP-724(002)
Scale: NTS Date: May, 2012
SHEET No. 1 OF 1 SHEETS

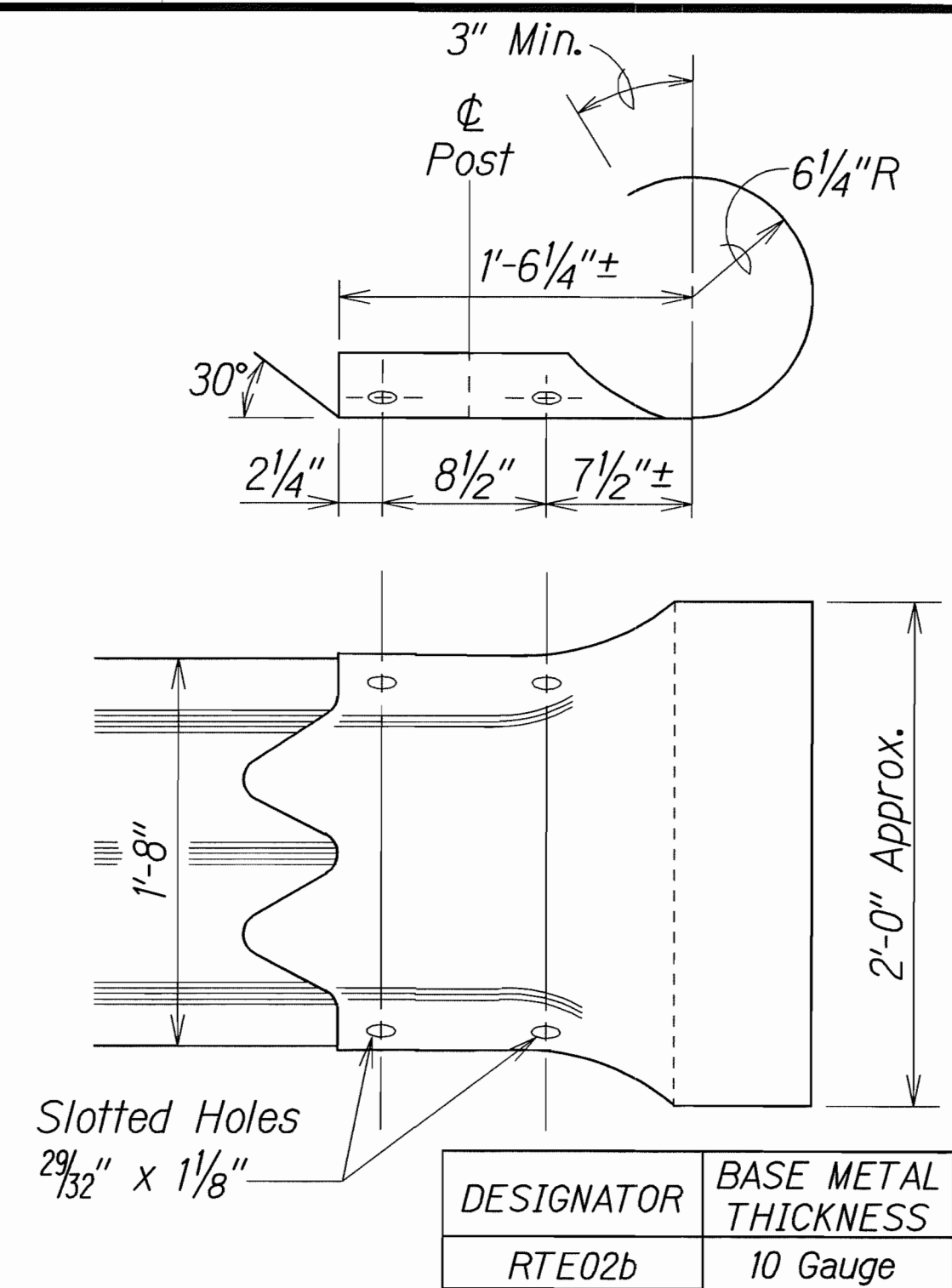
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-7241(002)	2012	29	81



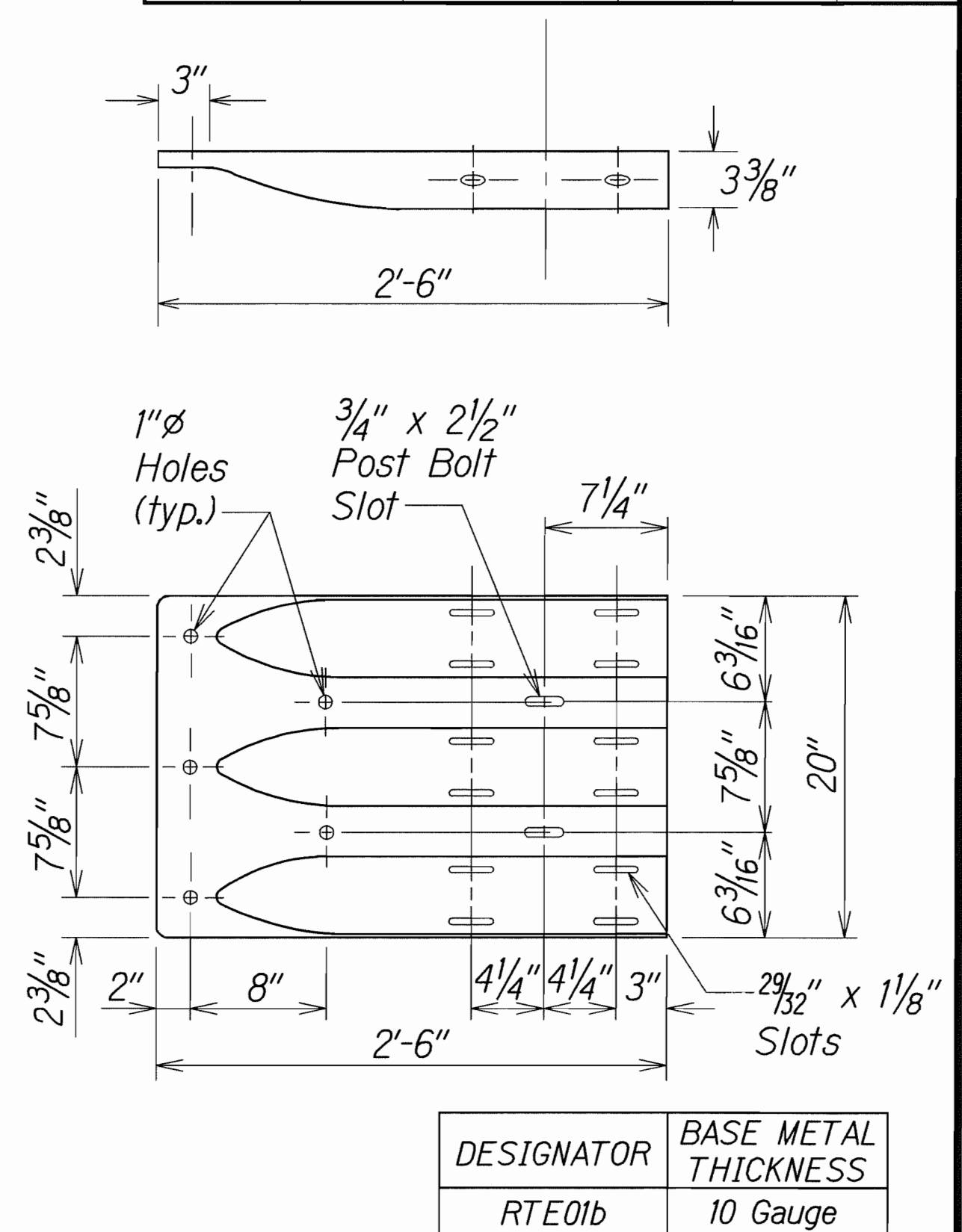
W-BEAM TERMINAL CONNECTOR (RWE02b)



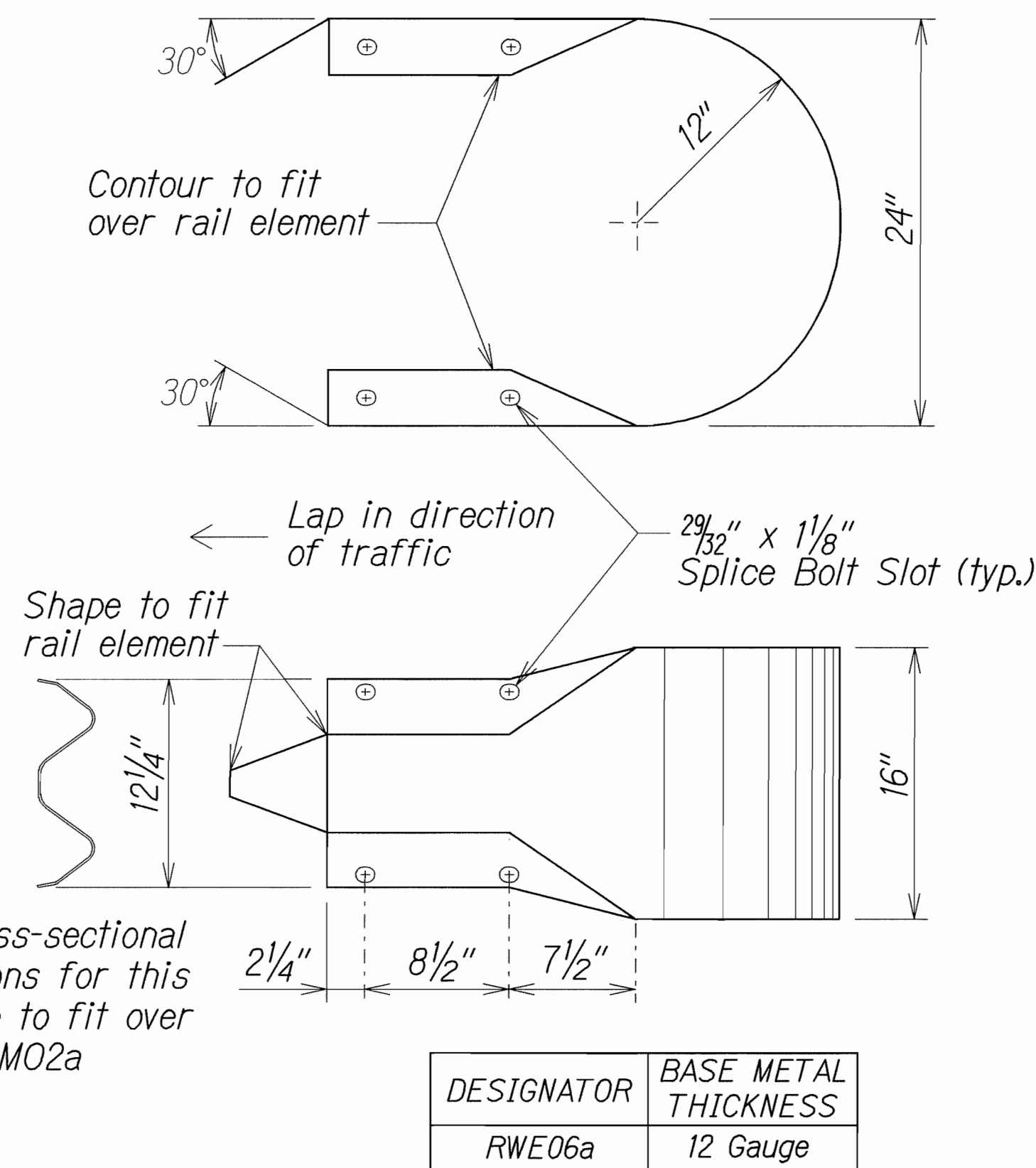
W-BEAM END SECTION (FLARED RWE01a)



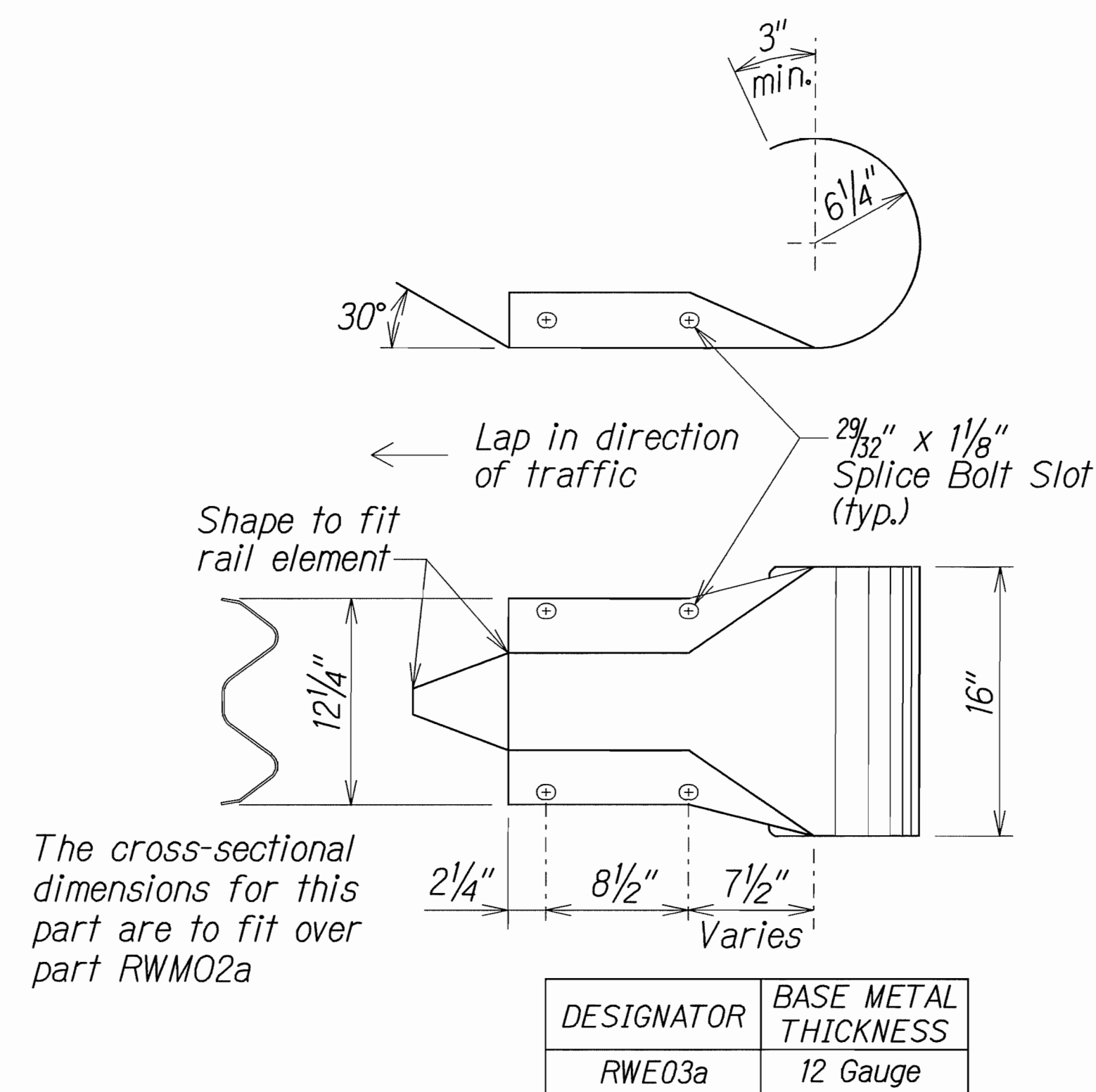
THRIE-BEAM SECTION (ROUNDED) (RTE02b)



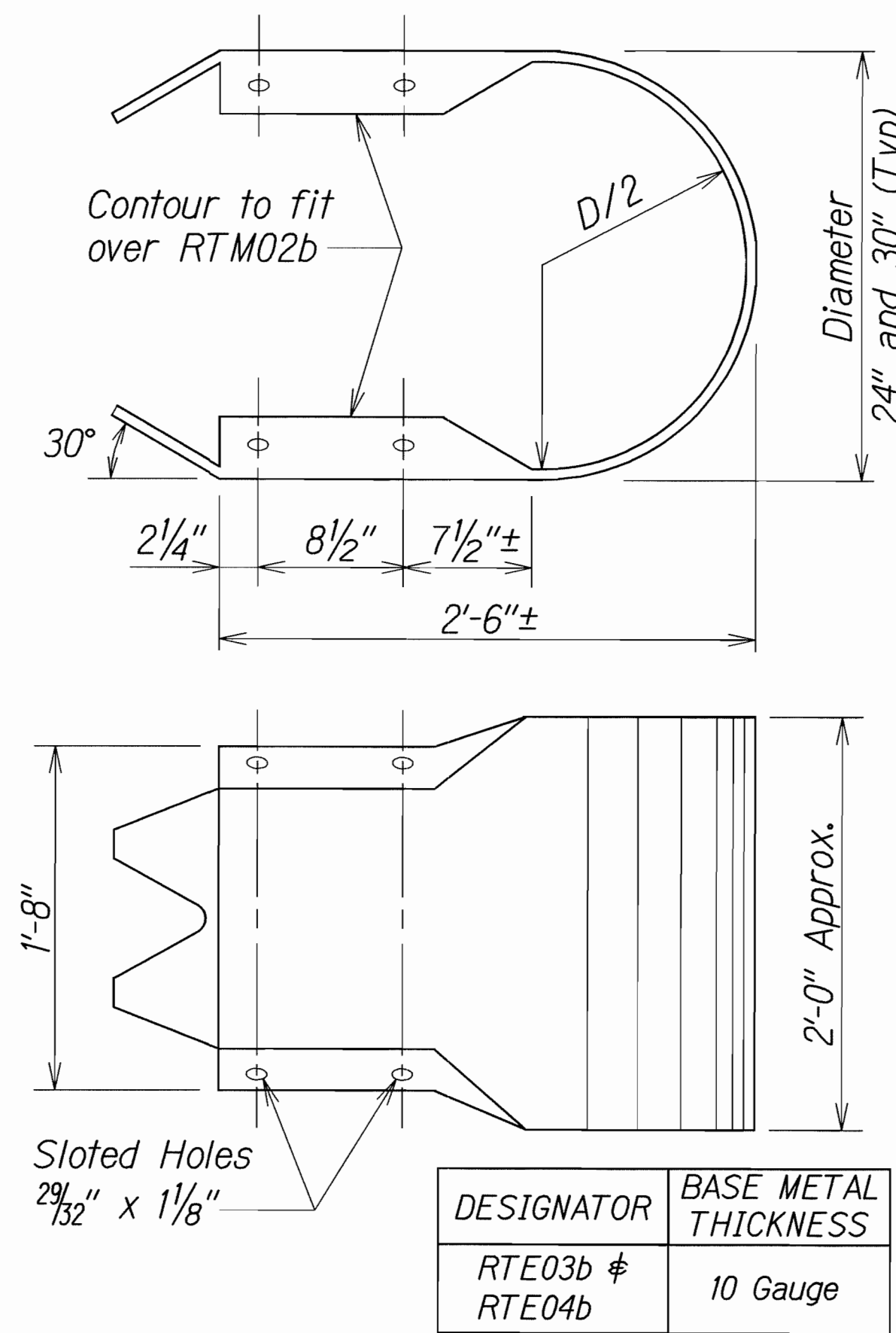
THRIE-BEAM TERMINAL CONNECTOR (RTE01b)



W-BEAM END SECTION (BUFFER RWE06a)



W-BEAM END SECTION (ROUNDED RWE03a)



THRIE-BEAM END SECTION (BUFFER RTE03b or RTE04b)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GUARDRAIL TERMINAL CONNECTORS AND END SECTIONS

KAHUAPAANI STREET RESURFACING
Moanalua Fwy. to Salt Lake Blvd.
Federal-Aid Project No. STP-7241(002)

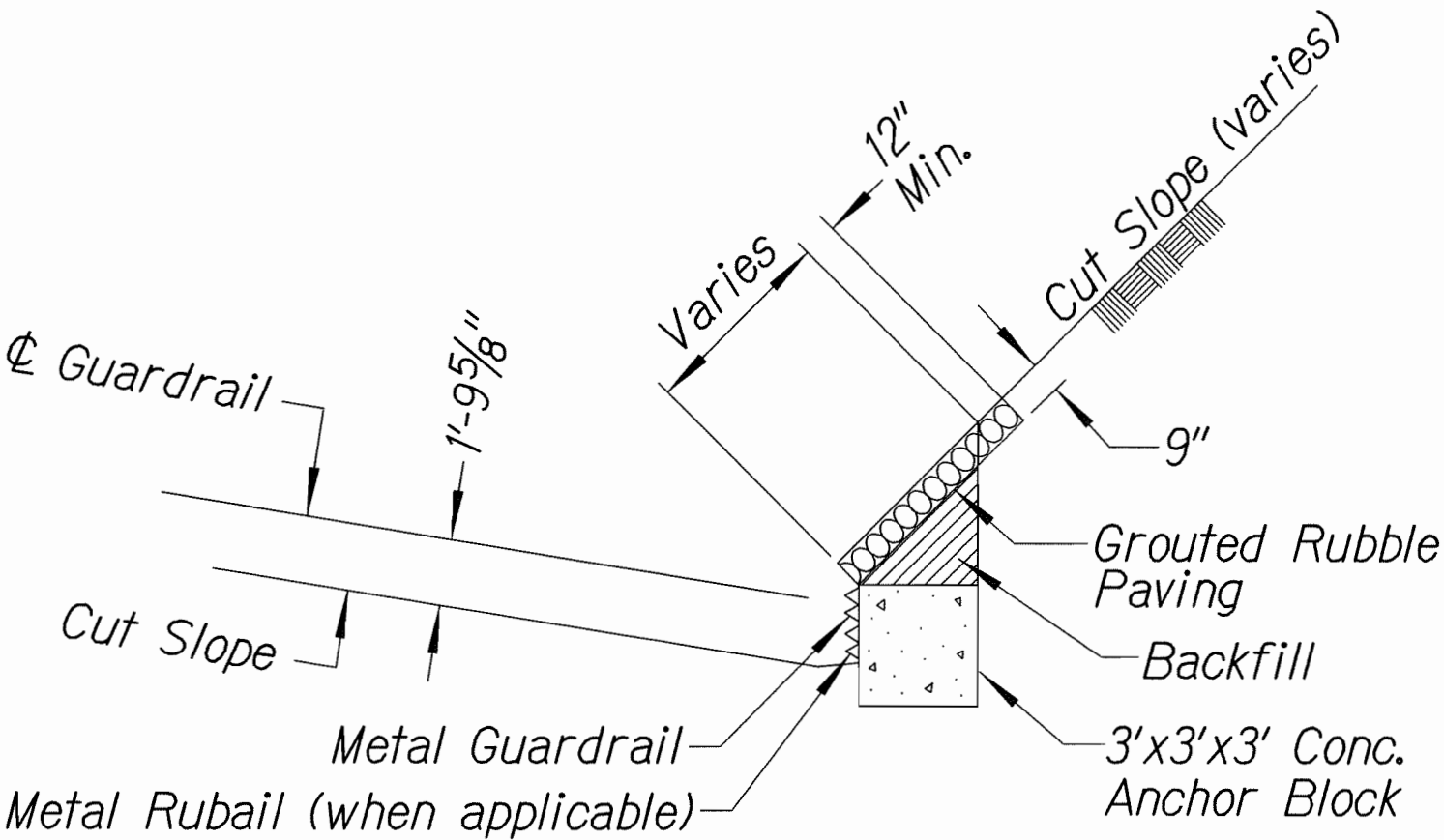
Scale: NTS Date: May, 2012

SHEET No. 1 OF 1 SHEETS

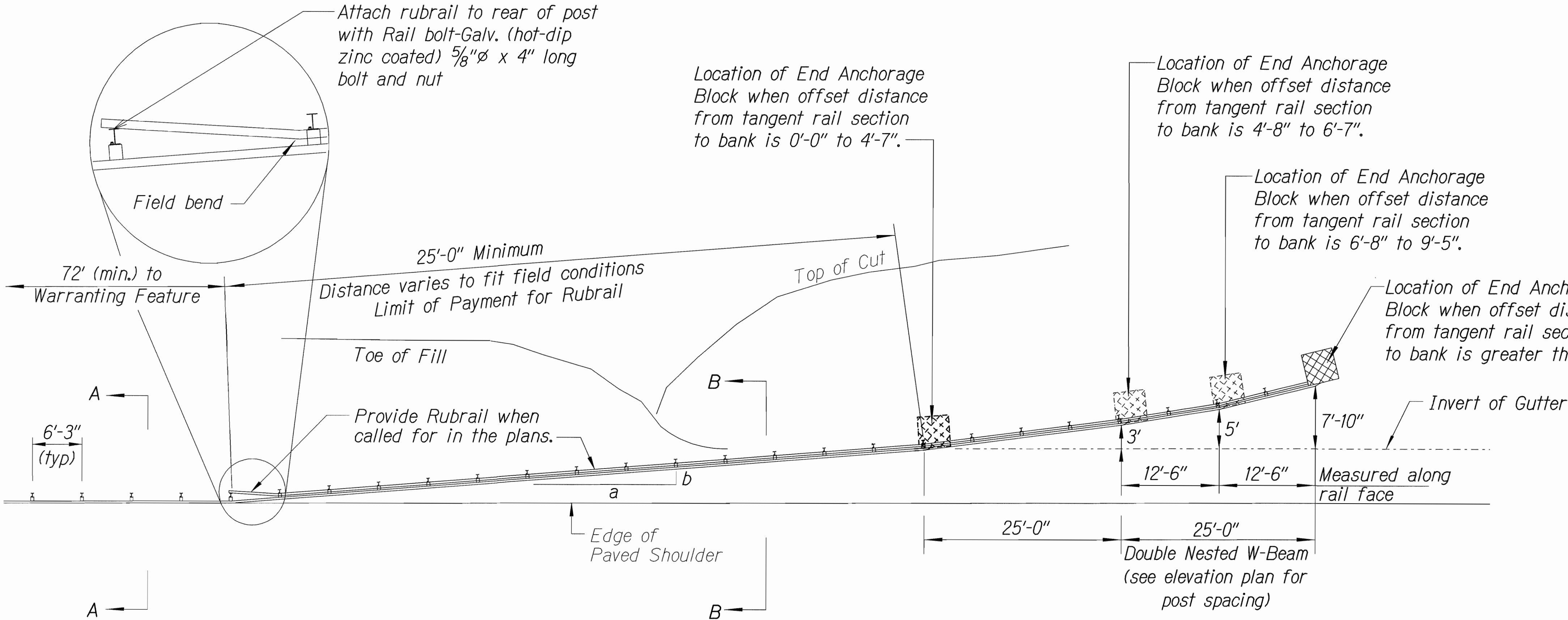
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-724(002)	2012	30	81

General Notes

- All posts are 6'-0" in length within the 50'-0" pay limit for the Modified Type "A-1" Flare without rubrail.
- Whenever swales or a change in grade is encountered within the 50'-0" pay limit for the Modified Type "A-1" Flare, a rubrail shall be installed and all posts shall have a minimum embedment of 4'-0". Post lengths shall be adjusted to provide the minimum embedment.
- All fasteners, posts, blocks and rail elements 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-AGCARTBA Joint Cooperative Committee and HDOT's Statewide Guideline for Permanent Highway Safety Hardware.
- Limit of payment for Modified Type "A-1" Flare shall be 50'-0" from End Shoe including Rubrail (when applicable), Anchor Block and GRP work.
- Excavation, Anchor Block, Backfill and GRP work shall be considered incidental to the Modified Type "A-1" Flare.

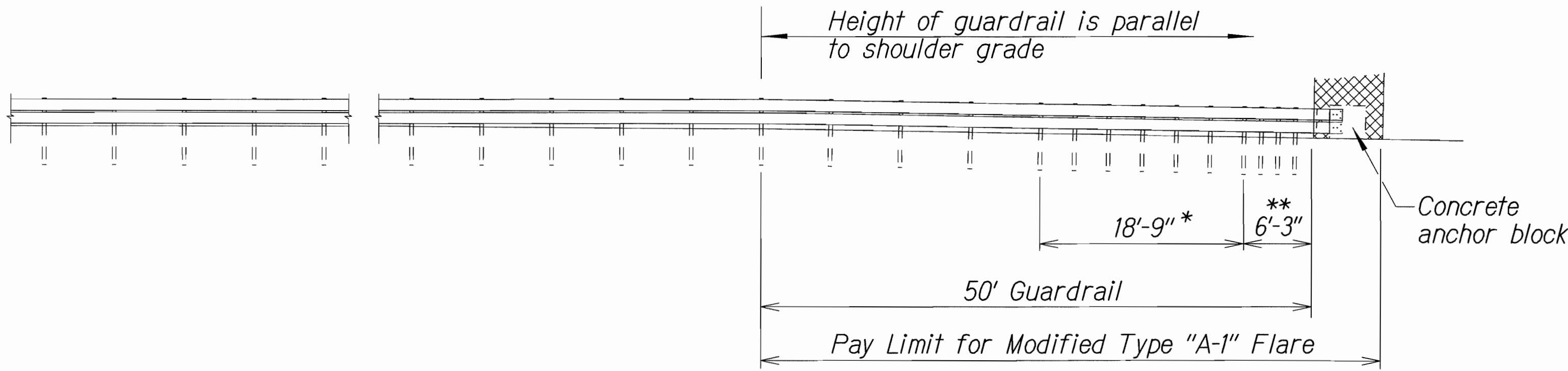


ANCHOR BLOCK IN CUT SECTION



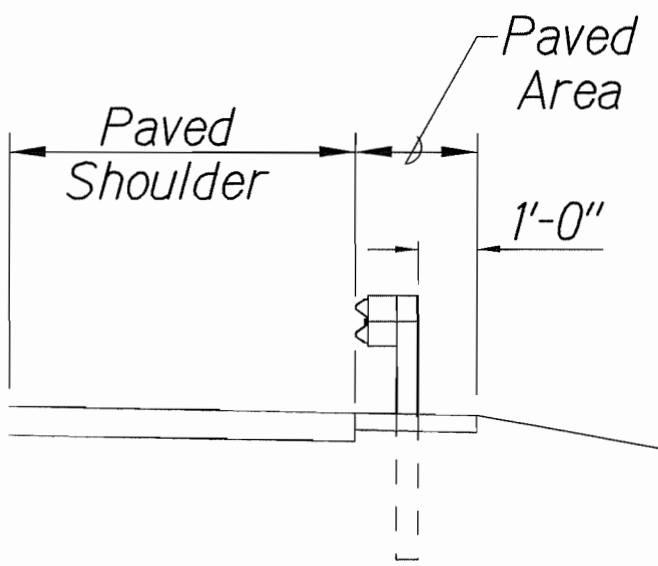
PLAN

Design speed mph	a:b
68	15:1
62	13:1
56	12:1
50	11:1
43	10:1
37	9:1
31	7:1

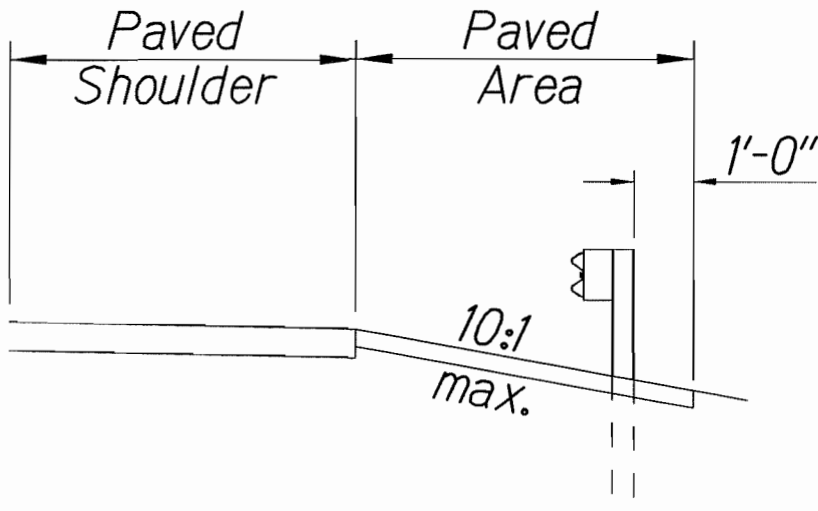


ELEVATION (Profile Along Rail)

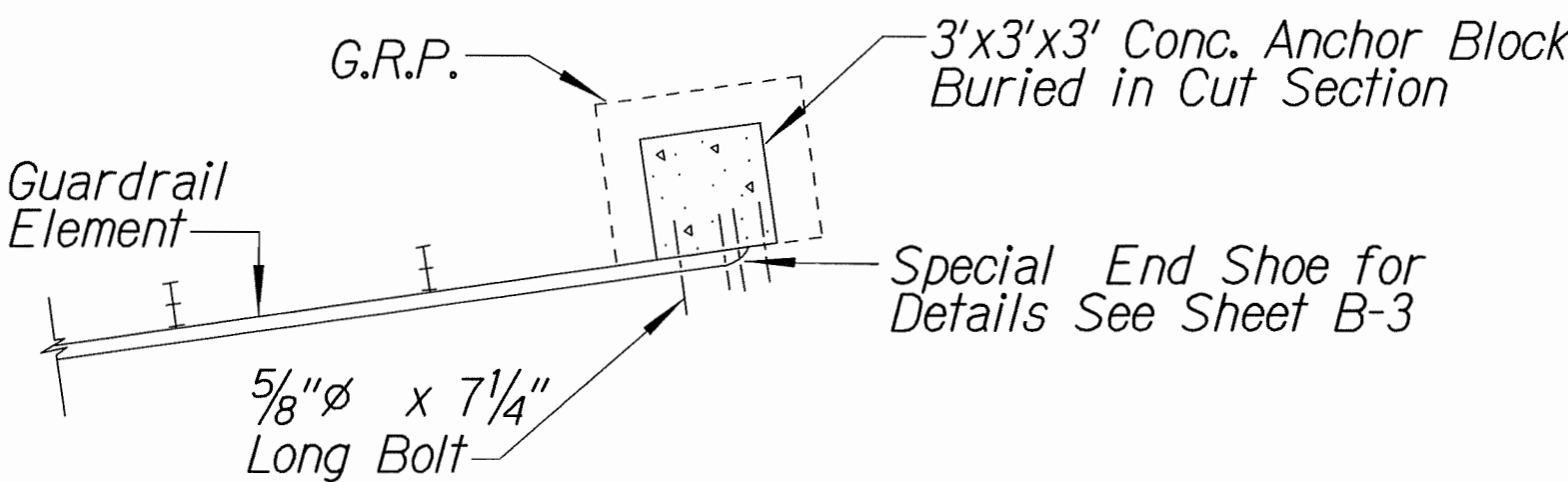
- * Posts at 3'-1 1/2" o.c.
- ** Posts at 1'-6 3/4" o.c.



Section A-A



Section B-B



PLAN - ANCHOR BLOCK IN CUT SECTION

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

MODIFIED TYPE "A-1" FLARE

KAHUAPAANI STREET RESURFACING

Moanalua Fwy. to Salt Lake Blvd.

Federal-Aid Project No. STP-724(002)

Scale: Not To Scale

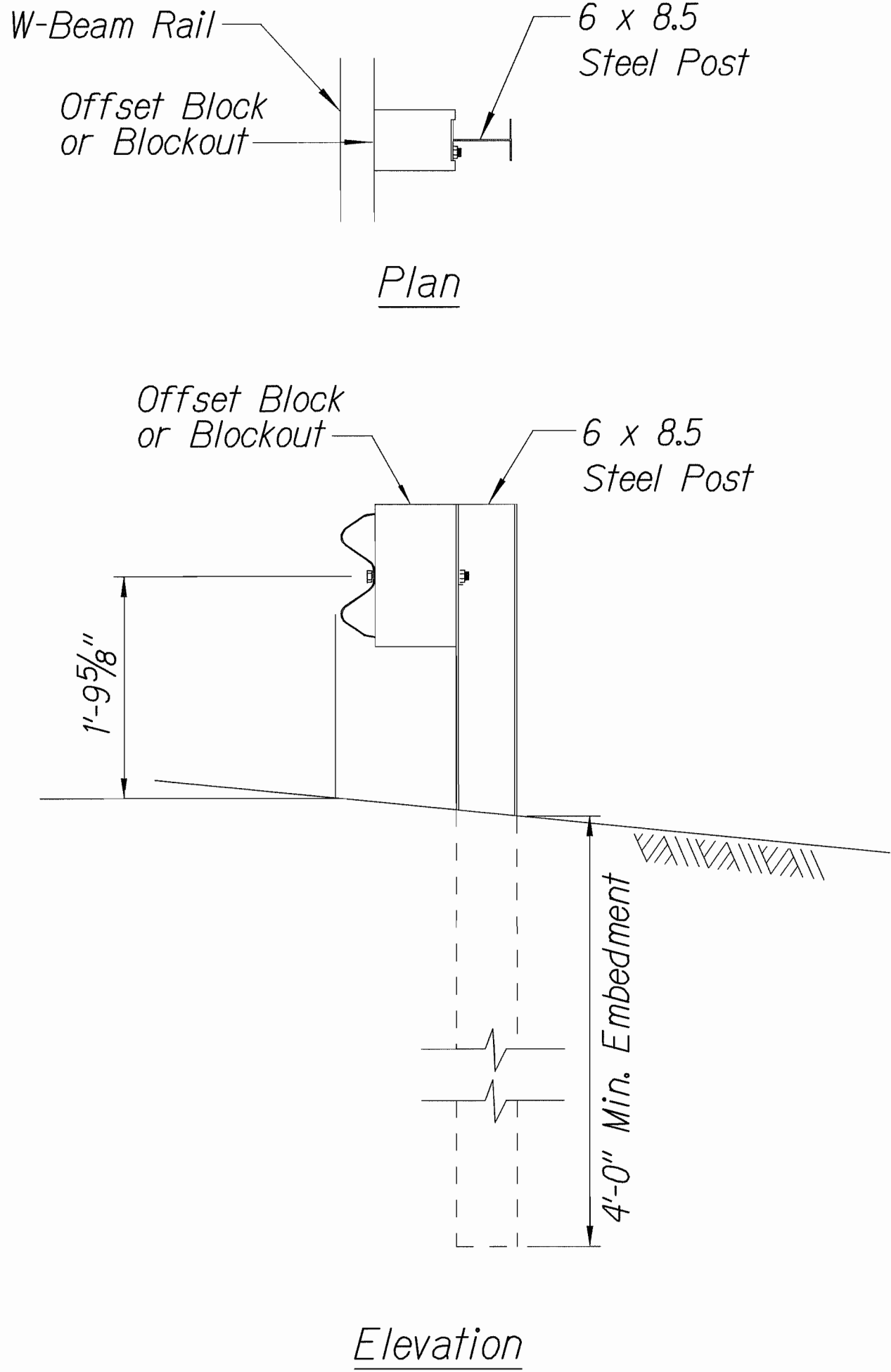
Date: May, 2012

SHEET No. 1 OF 2 SHEETS

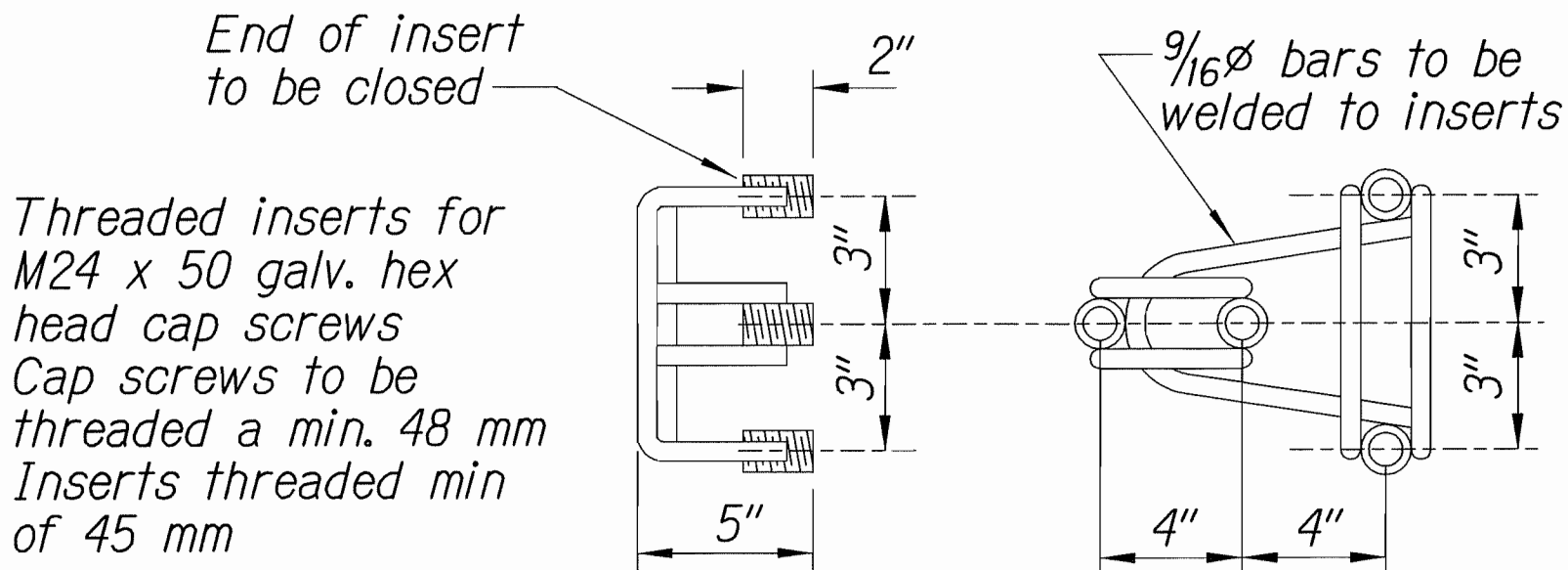
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
dd37are_aj	TRACED BY	
84-Jr-B10A	CHECKED BY	

rs/21/01 rd-rub/guardrail/flare-aj-ldgn (standard plan TE-58 07/01/86 TE-59 11/03/89 TE-60 07/01/86)

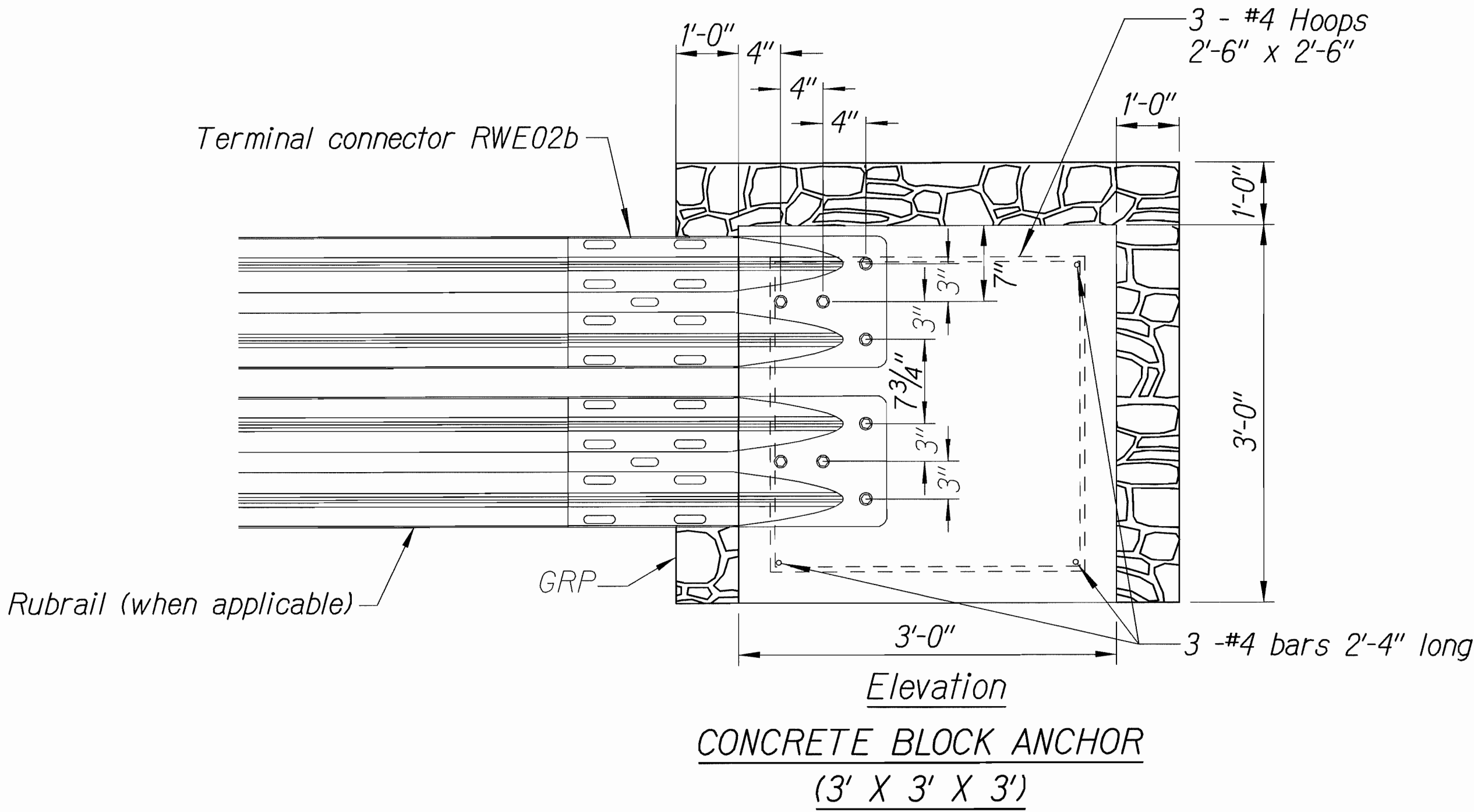
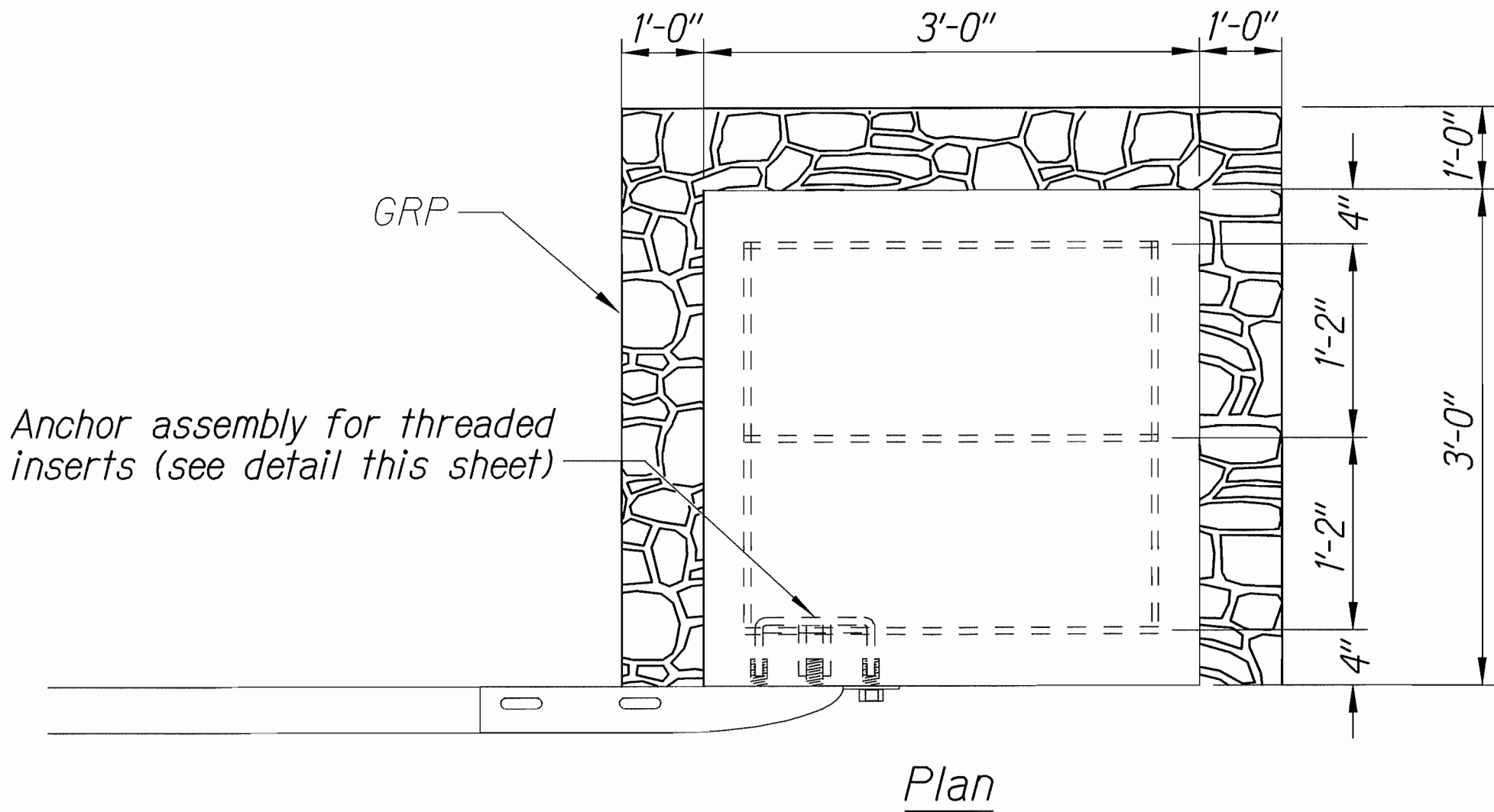
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-724(K002)	2012	31	81



STRONG POST W-BEAM GUARDRAIL



ANCHOR ASSEMBLY
CONCRETE BLOCK ANCHOR



CONCRETE BLOCK ANCHOR
(3' X 3' X 3')

BACKSLOPE ANCHOR TERMINAL END ANCHORAGE DETAILS
MODIFIED TYPE "A-1" FLARE

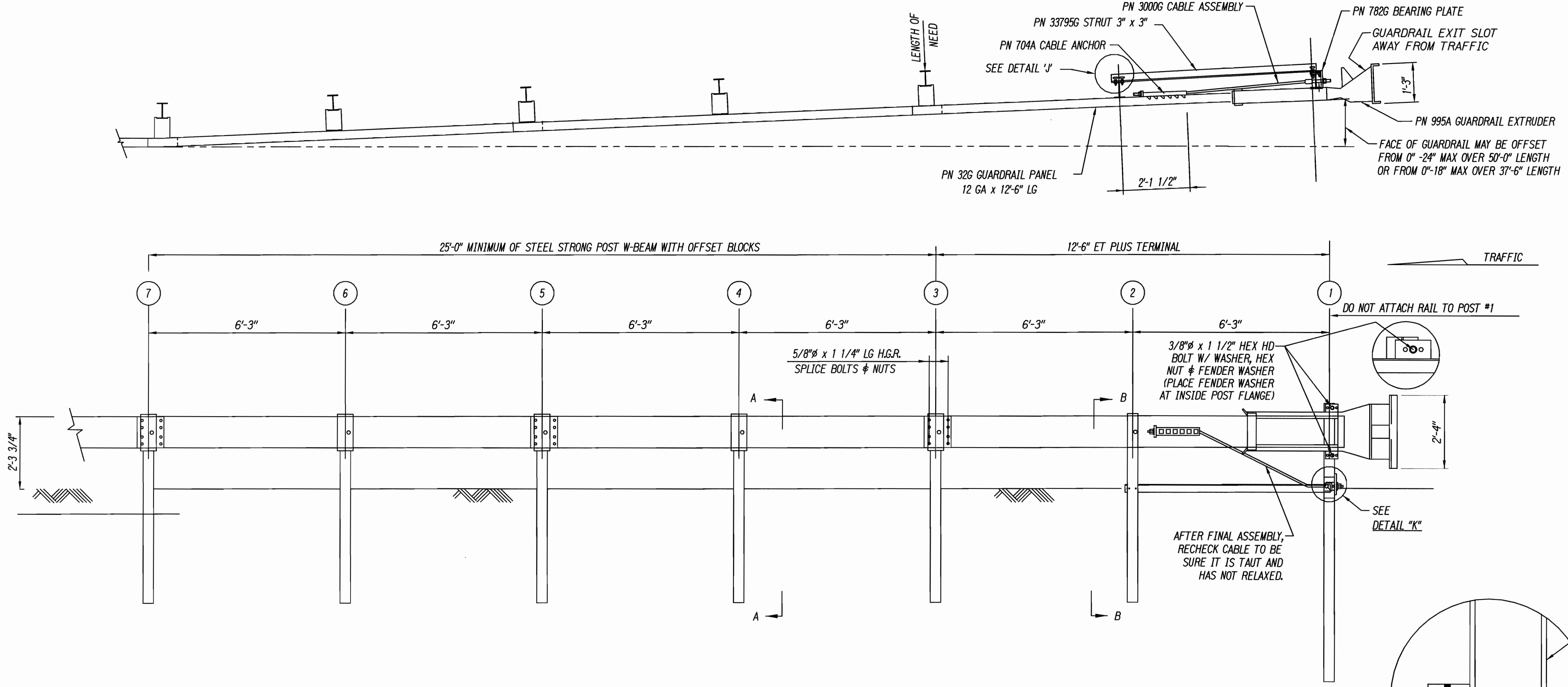
Note:
All fasteners, posts, blocks and rail elements shall conform to the latest edition and amendments of "A Guide to Standardized Highway Barrier Rail Hardware," a report prepared and approved by the AASHTO-AGCARTBA Joint Cooperative Committee and HDOT's Statewide Guideline for Permanent Highway Safety Hardware.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MODIFIED TYPE "A-1" FLARE
KAHUAPAANI STREET RESURFACING
Moanalua Fwy. to Salt Lake Blvd.
Federal-Aid Project No. STP-724(K002)
Scale: Not To Scale Date: May, 2012

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-724(002)	2012	32	0

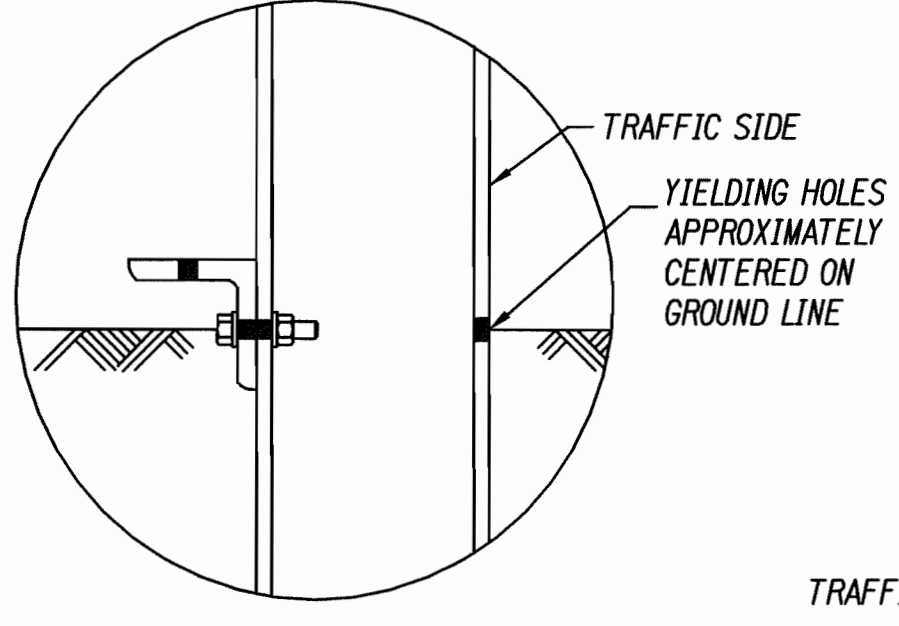
BILL OF MATERIAL		
PN	QTY	DESCRIPTION
32G	1	12/12-6/6/3/S ANC (GUARDRAIL)
704A	1	CABLE ANCHOR BRACKET
995A	1	ET-PLUS EXTRUDER
3000G	1	CABLE 3/4 x 66"
3340G	9	5/8" HEX NUT
3360G	9	5/8" x 1 1/4" SPLICE BOLT
3701G	2	3/4" FLAT WASHER
3704G	2	3/4" HEX NUT
3717G	2	3/4" x 2 1/2" HEX HD BOLT
3900G	2	1" FLAT WASHER
3910G	2	1" HEX NUT
4254G	4	3/8" FLAT WASHER
4255G	2	3/8" FENDER WASHER (1 1/2 OD)
4258G	2	3/8" LOCKWASHER
4261G	2	3/8" x 1 1/2" HEX HD BOLT
4389G	2	7/16" FLAT WASHER
4390G	2	7/16" x 1 1/2" HEX HD BOLT
4393G	2	7/16" LOCK WASHER
4396G	2	7/16" HEX NUT
4699G	2	3/4" LOCK WASHER
6321G	2	3/8" x 2" HEX HD BOLT
6405G	4	3/8" HEX NUT
6668B	1	OBJECT MARKER
145786	1	POST SYT #2
19258A	1	5/8" x 8" x 8" BEARING PLATE
33795G	1	ANGLE STRUT (ET/SYTP/HBA)
33871A	1	POST ET PLUS HBA #1 TOP
33873A	1	POST ET PLUS HBA #1 BOTTOM



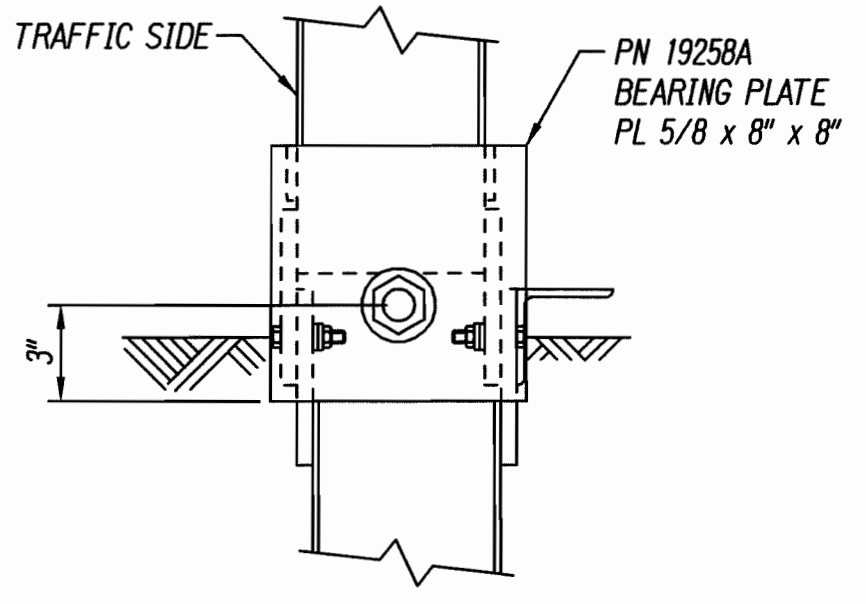
NOTE: Do not attach guardrail to Post #1.

Object Marker Note:

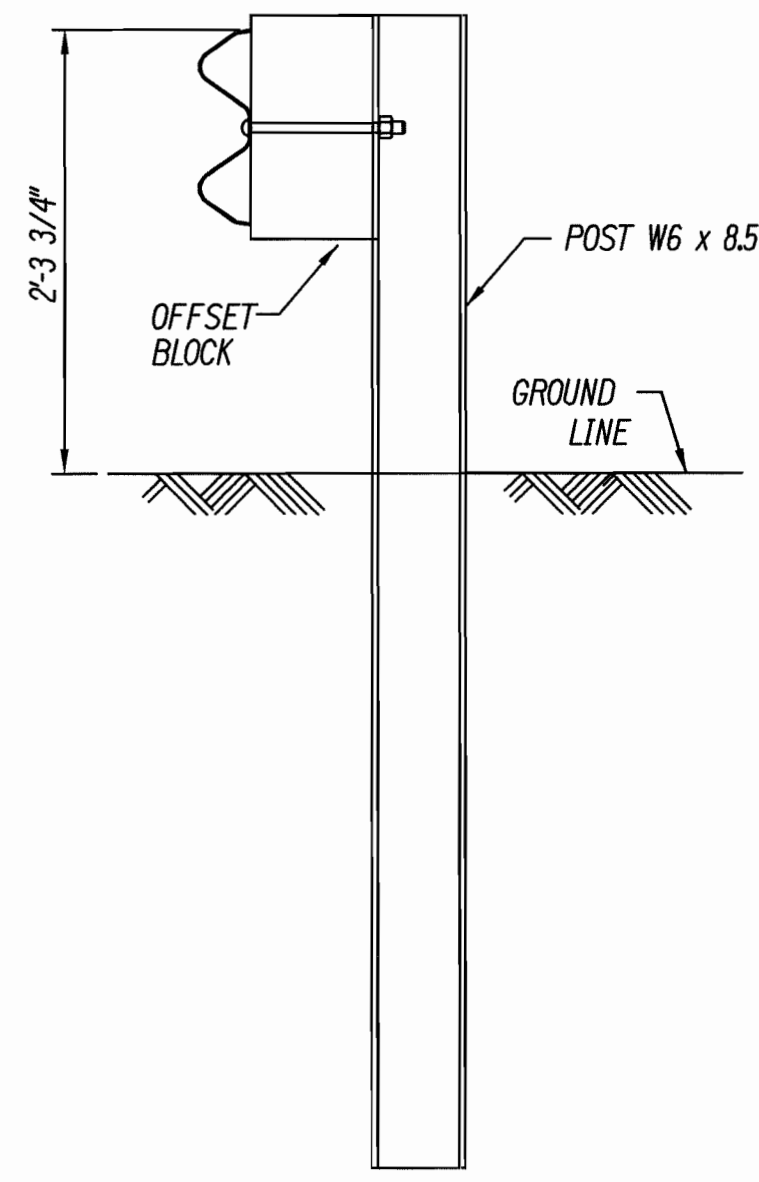
The stripes for Object Marker shall slope downward at an angle of 45° towards the sides of the extruder head where traffic is to pass.



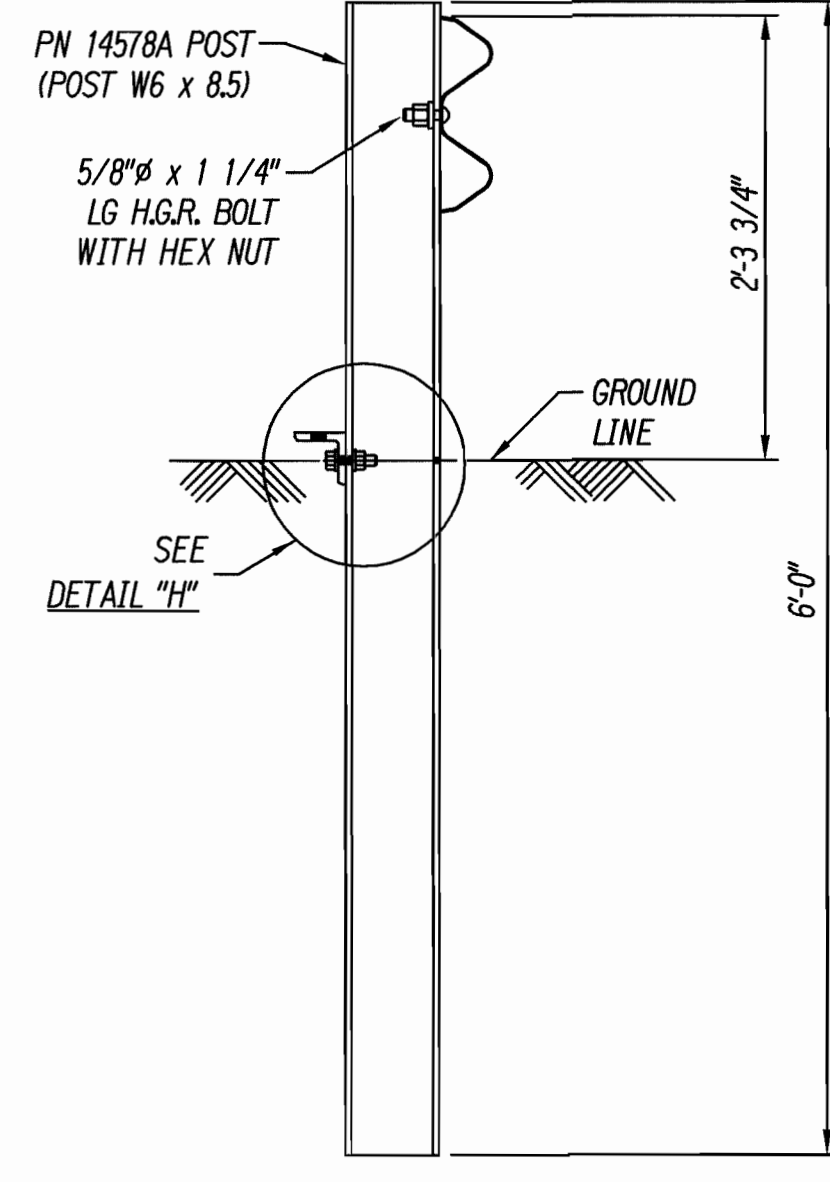
DETAIL "H"
(POST #2)



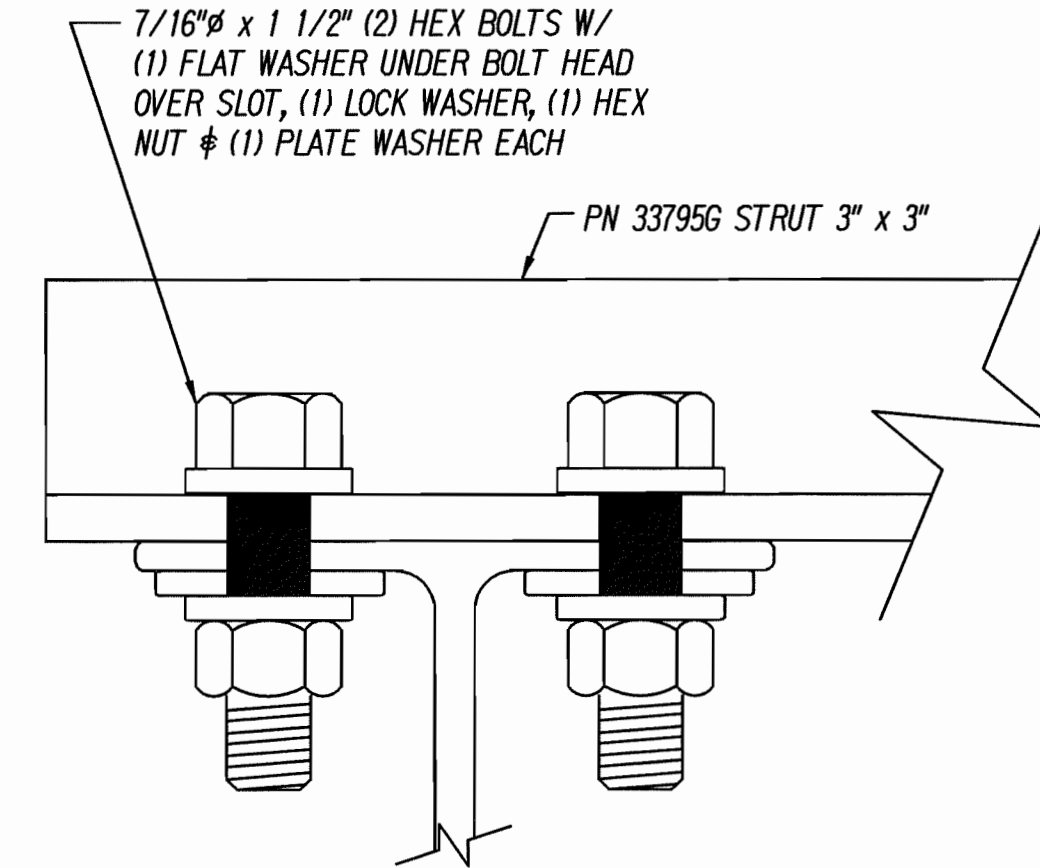
VIEW "K-K"



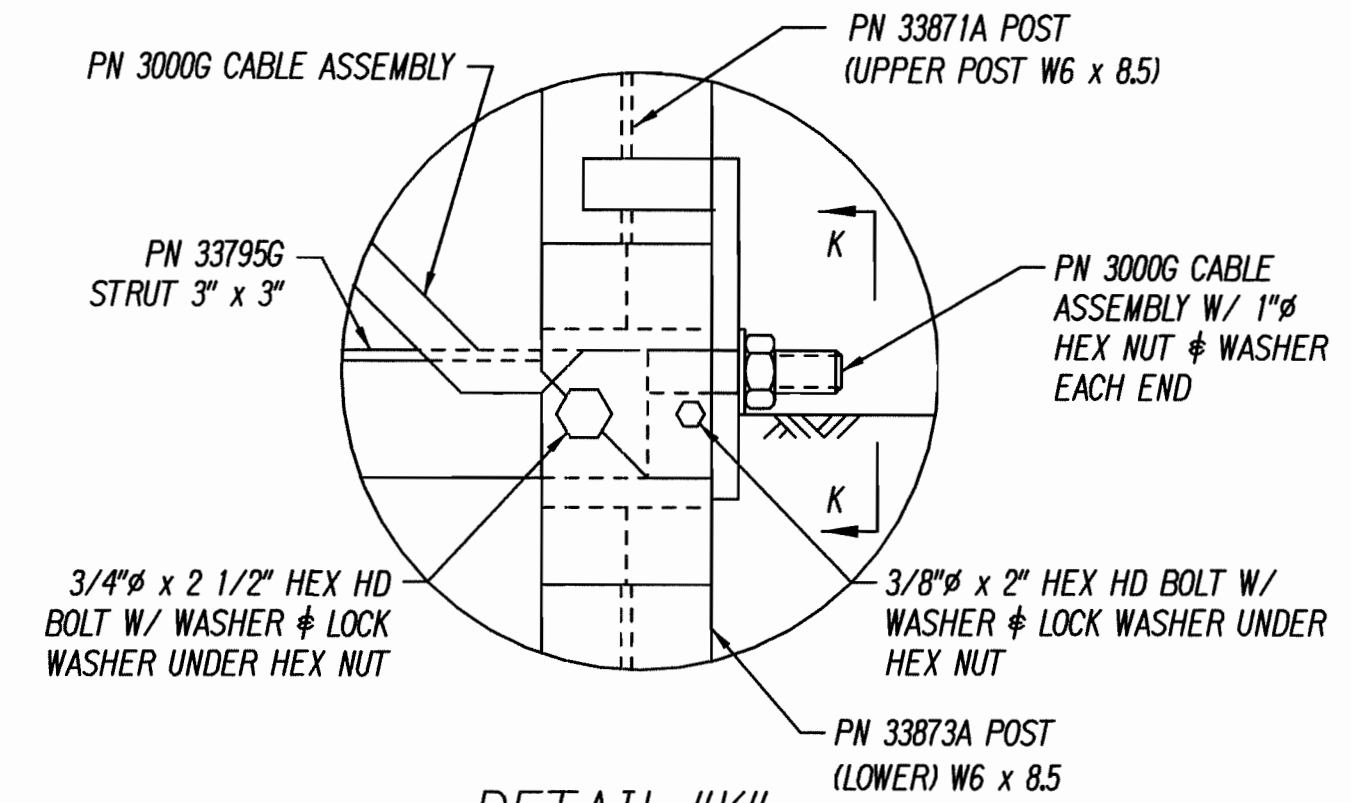
SECTION "A-A"
(TYP @ POSTS # 3 AND BEYOND)



SECTION "B-B"
(POST #2)



DETAIL "J"



DETAIL "K"
(POST #1)

ORIGINAL PLAN	DATE
DESIGNED BY	
CHECKED BY	
NOTED BY	
TRACED BY	
QUANTITIES BY	
DATE	

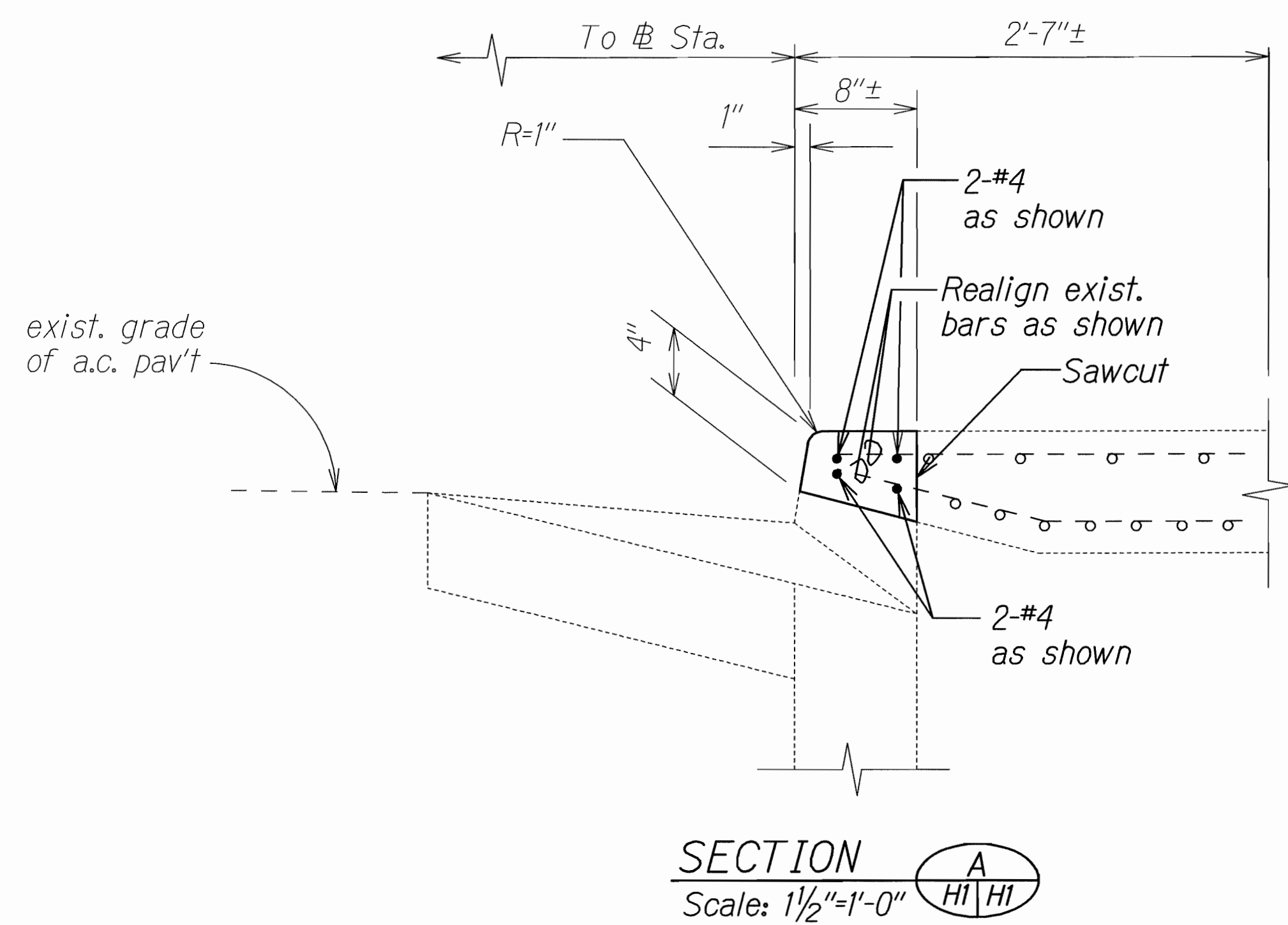
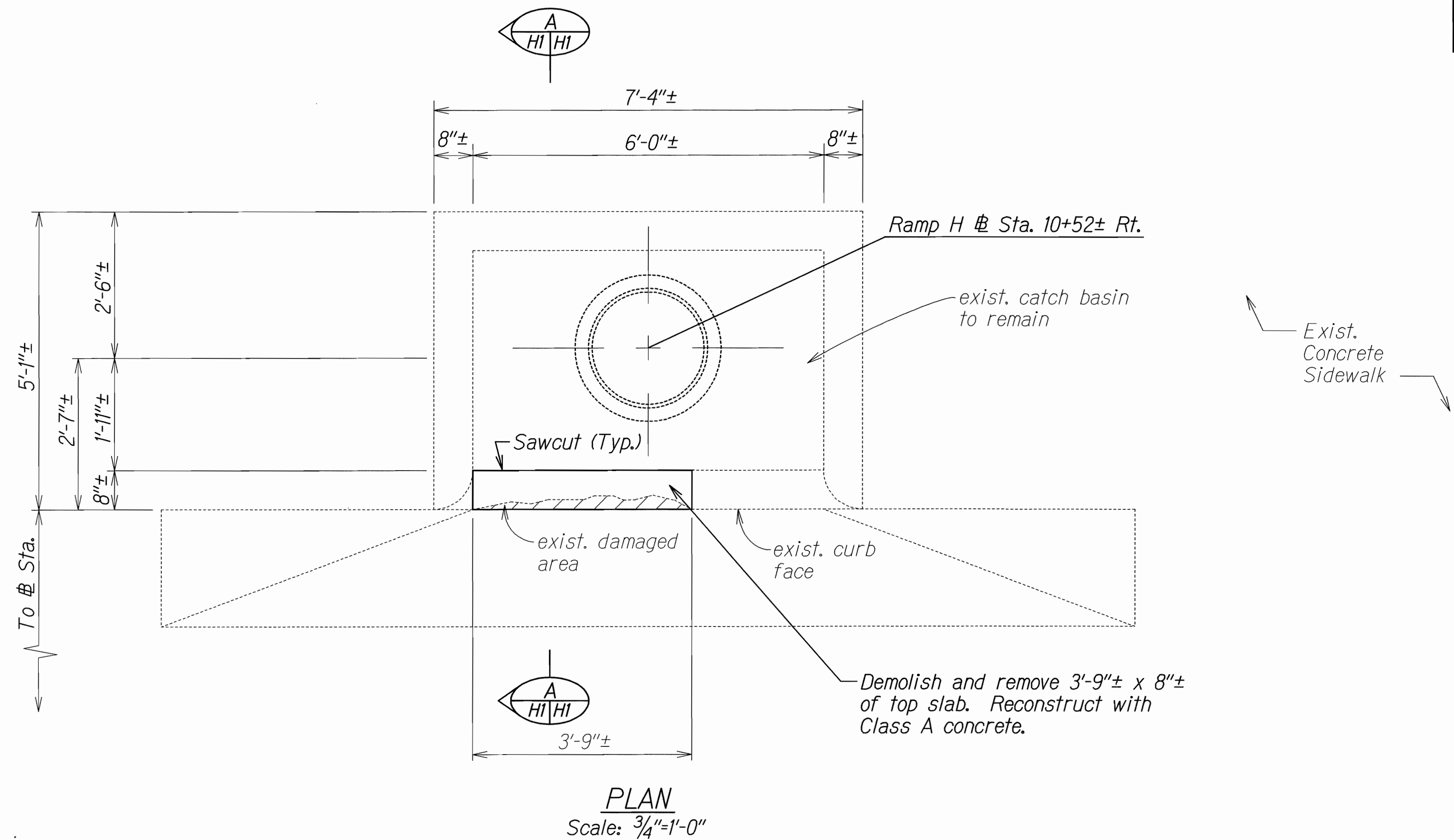
3/22/12 tdl/rub/guardrail/etplus13-B-13.dgn

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ET-PLUS (TL-3)
KAHUAPAANI STREET RESURFACING
Moanalua Fwy. to Salt Lake Blvd.
Federal-Aid Project No. STP-724(002)
Scale: NTS Date: May, 2012

SHEET No. 1 OF 1 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-7241(002)	2012	33	81



DETAILS OF RECONSTRUCTED TYPE "D" CATCH BASIN AT RAMP H @ STA. 10+52± RT.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

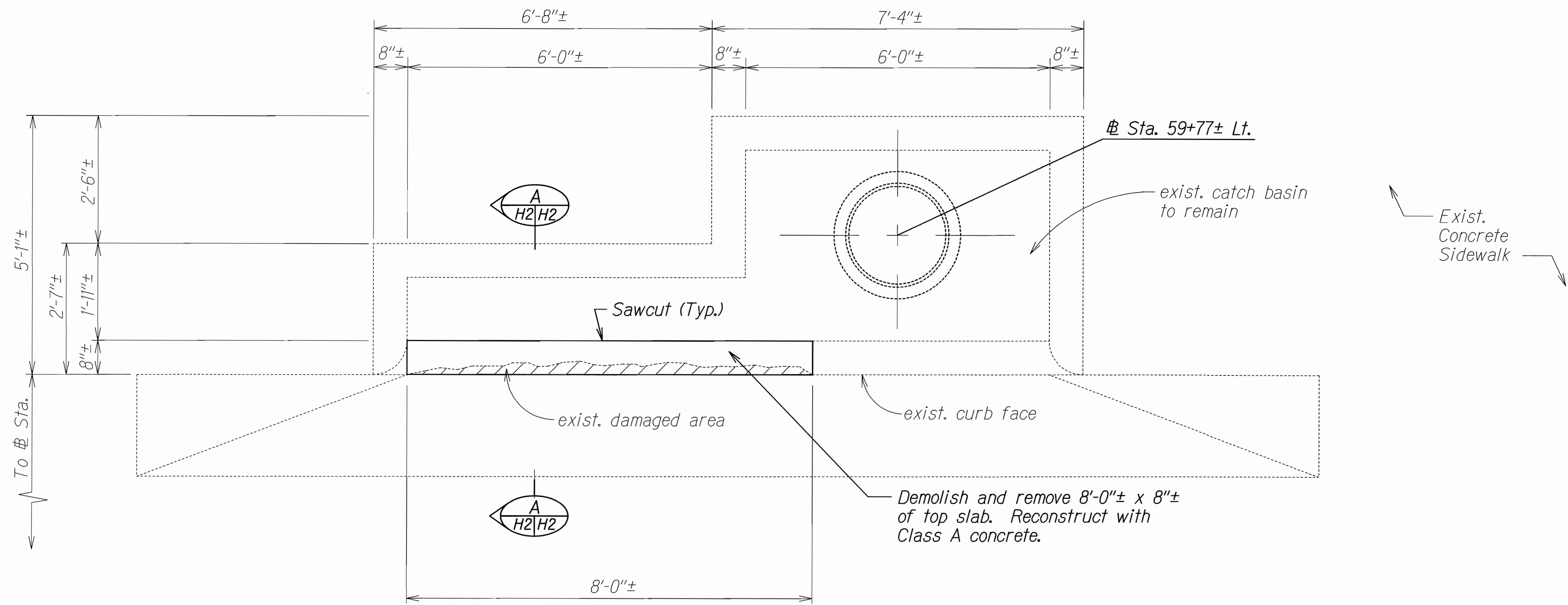
DRAINAGE DETAILS

KAHUAPAANI STREET RESURFACING
Moanalua Fwy. to Salt Lake Blvd.
Federal Aid Project No. STP-7241(002)

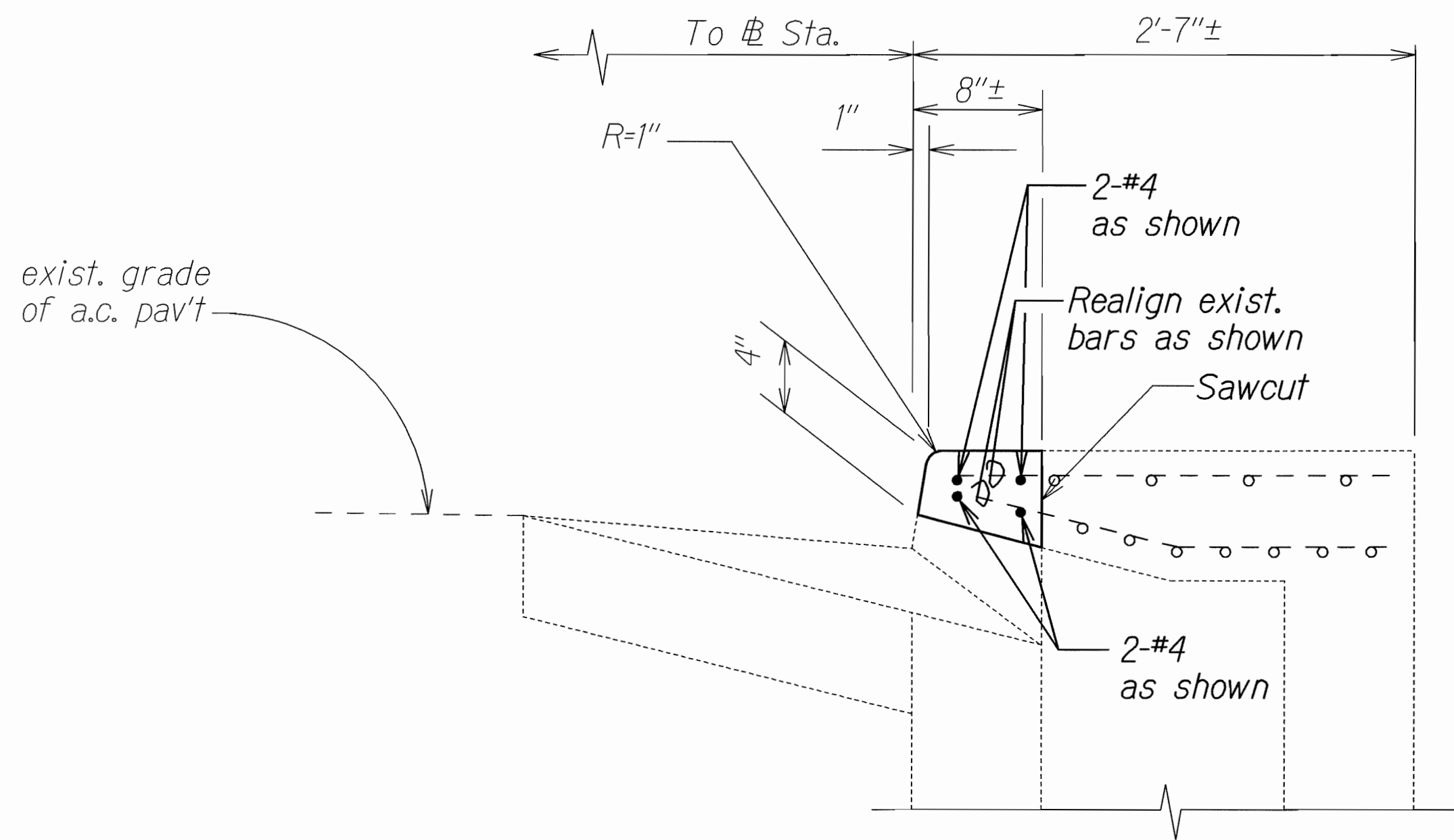
Scale: $\frac{3}{4}" = 1'-0"$ Date: April, 2012

SHEET No. **HI** OF **2** SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-7241(002)	2012	34	81



PLAN
Scale: 3/4"=1'-0"



SECTION
Scale: 1 1/2"=1'-0"

DETAILS OF RECONSTRUCTED TYPE "B" CATCH BASIN AT KAHUAPAANI ST. ± STA. 59+77± LT.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	9/22/11
9/22/11	CHECKED BY	
9/22/11	QUANTITIES BY	
9/22/11	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS
KAHUAPAANI STREET RESURFACING
Moanalua Fwy. to Salt Lake Blvd.
Federal Aid Project No. STP-7241(002)
Scale: 3/4" = 1'-0" Date: April, 2012
SHEET No. H2 OF 2 SHEETS