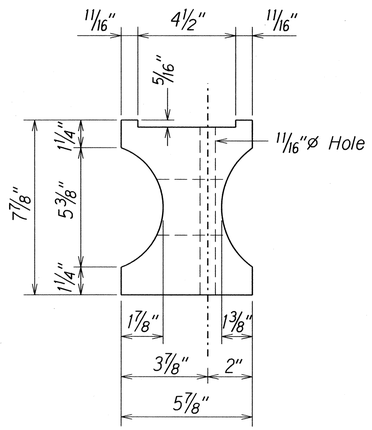
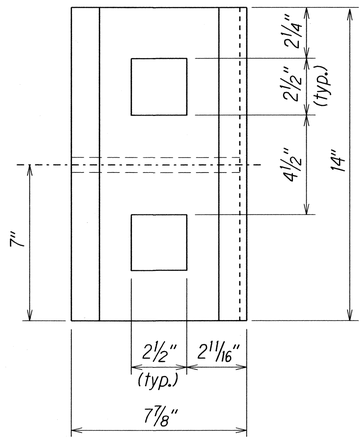
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-M-01-15M	2016	ADD.11S-1	41

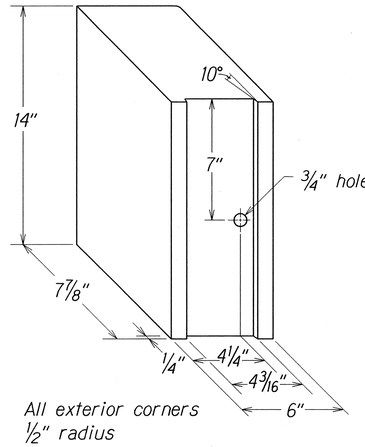


TOP

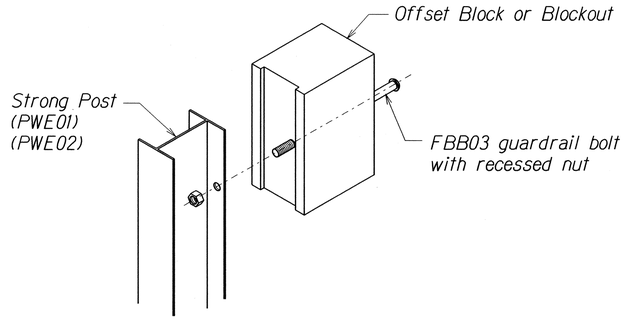


SIDE

RECYCLED PLASTIC BLOCKOUT (TYPE I)

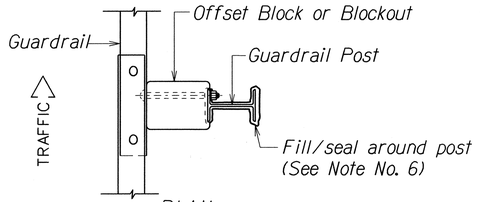


RECYCLED POLYETHYLENE OFFSET BLOCK (TYPE II)

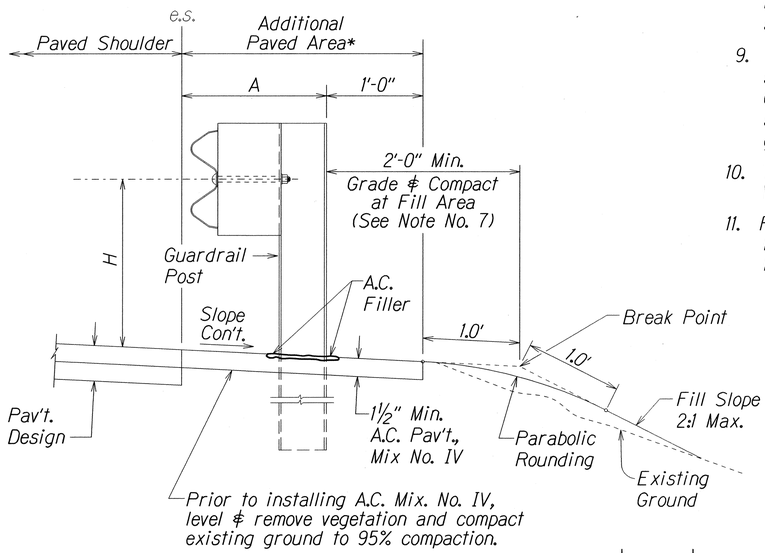


Exploded View
(Rail and washer not shown)

STEEL POST AND BLOCK DETAIL

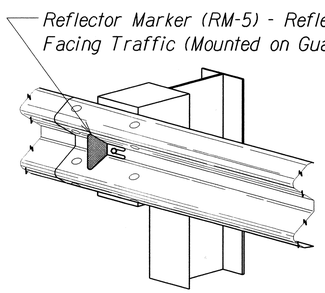


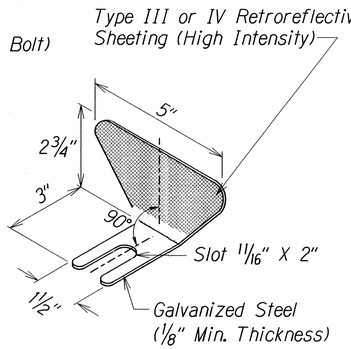
PLAN



ELEVATION

TYPICAL GUARDRAIL INSTALLATION





REFLECTOR MARKER (RM-5) DETAIL AND TYPICAL 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 areas, shoulder shall be grubbed, graded and paved as shown on the plan. Paved shoulder width shall be determined in the field and approved by the Engineer. This work will not be paid separately but shall be made under Item 401.0100 A.C. Pavement, Mix IV.
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. This work will not be paid separately but shall be made under Item No. 401.0100 A.C. Pavement, Mix IV.
9. Reflector Markers (RM-5) mounted on guardrails shall be spaced every 25 feet. Spacing of RM-5's on Horizontal Curves shall comply with Table III-1 of the MUTCD. RM-5's shall not be installed on Terminal Sections. RM-5 on new guardrail shall be incidental to guardrail pay item.
10. Type G end terminals shall be paid for under Strong Post W-Beam Guardrail.
11. Removed guardrails and post shall be delivered to State Highways baseyard, Kahului. This work shall not be paid separately but shall be considered incidental to guardrail pay items.

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"

DATE	REVISION
4-12-16	Additional Details of Guardrail.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GUARDRAIL DETAILS & NOTES

HANA HIGHWAY RESURFACING
Haleakala Highway to Paia and
HALEAKALA HIGHWAY RESURFACING
Hana Highway to North Firebreak Rd.
Project No. HWY-M-01-15M

Scale: As Shown Date: April, 2016

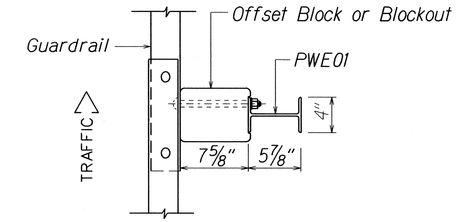
SHEET No. 1 OF 5 SHEETS

ADD. 11S-1

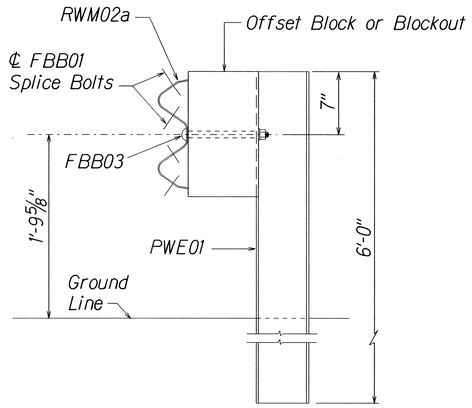
ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE
NOTE BOOK | NO.

2/21/01 tdl:ruby/guardrail/te50ex.dgn (standard plan TE-50 rd9/01/00)

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-M-01-15M	2016	ADDJIS-2	41



PLAN

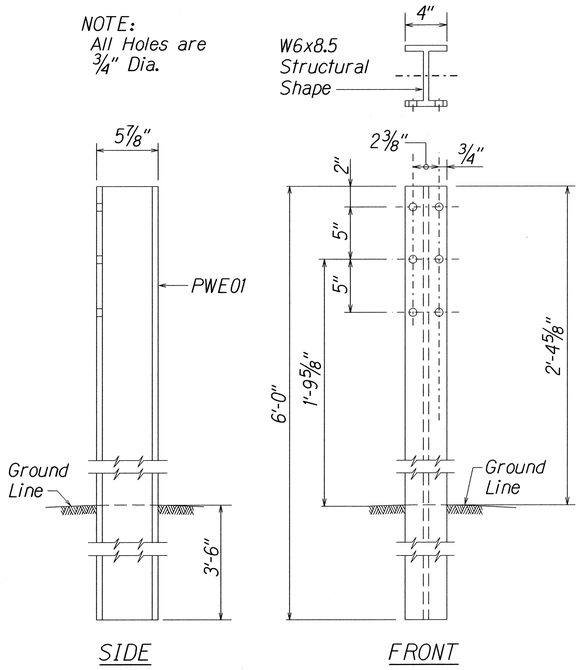


ELEVATION

STRONG POST W-BEAM GUARDRAIL

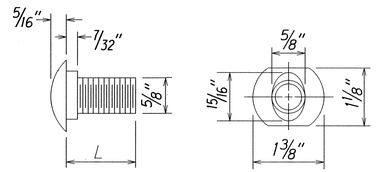
(SGR04a)

NOTE:
All Holes are 3/4" Dia.

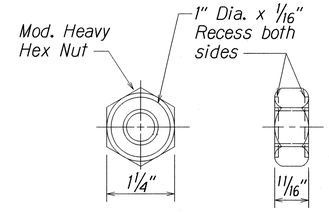


SIDE FRONT

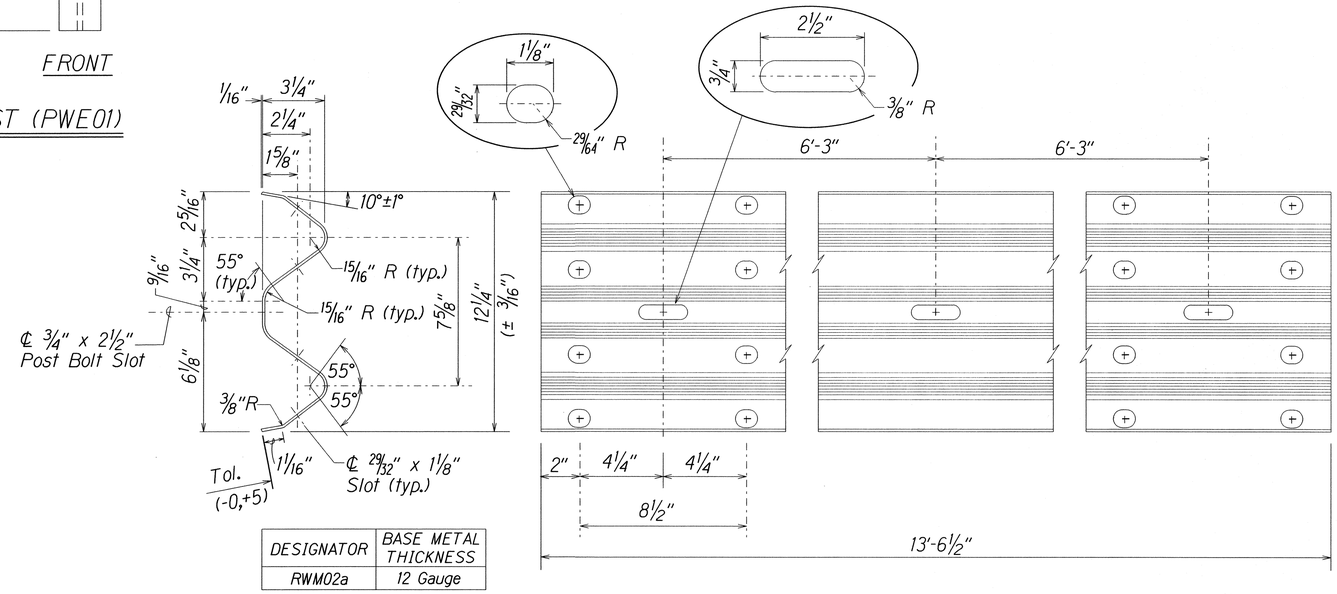
W-BEAM STRONG POST (PWE01)



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

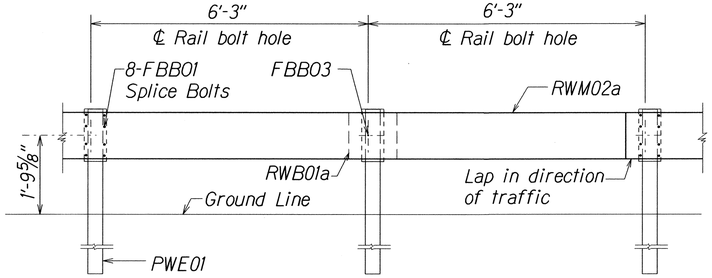


GUARDRAIL BOLTS AND RECESSED NUT



DESIGNATOR	BASE METAL THICKNESS
RWM02a	12 Gauge

2 SPACE W-BEAM GUARDRAIL (RWM02a)



ELEVATION

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

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

r3/24/03 tdl:ruby/guardrail/wbeamsb.dgn (standard plan TE-50 r03/06/87)

DATE	REVISION
4-12-16	Additional Details of Guardrail.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRONG POST W-BEAM GUARDRAIL

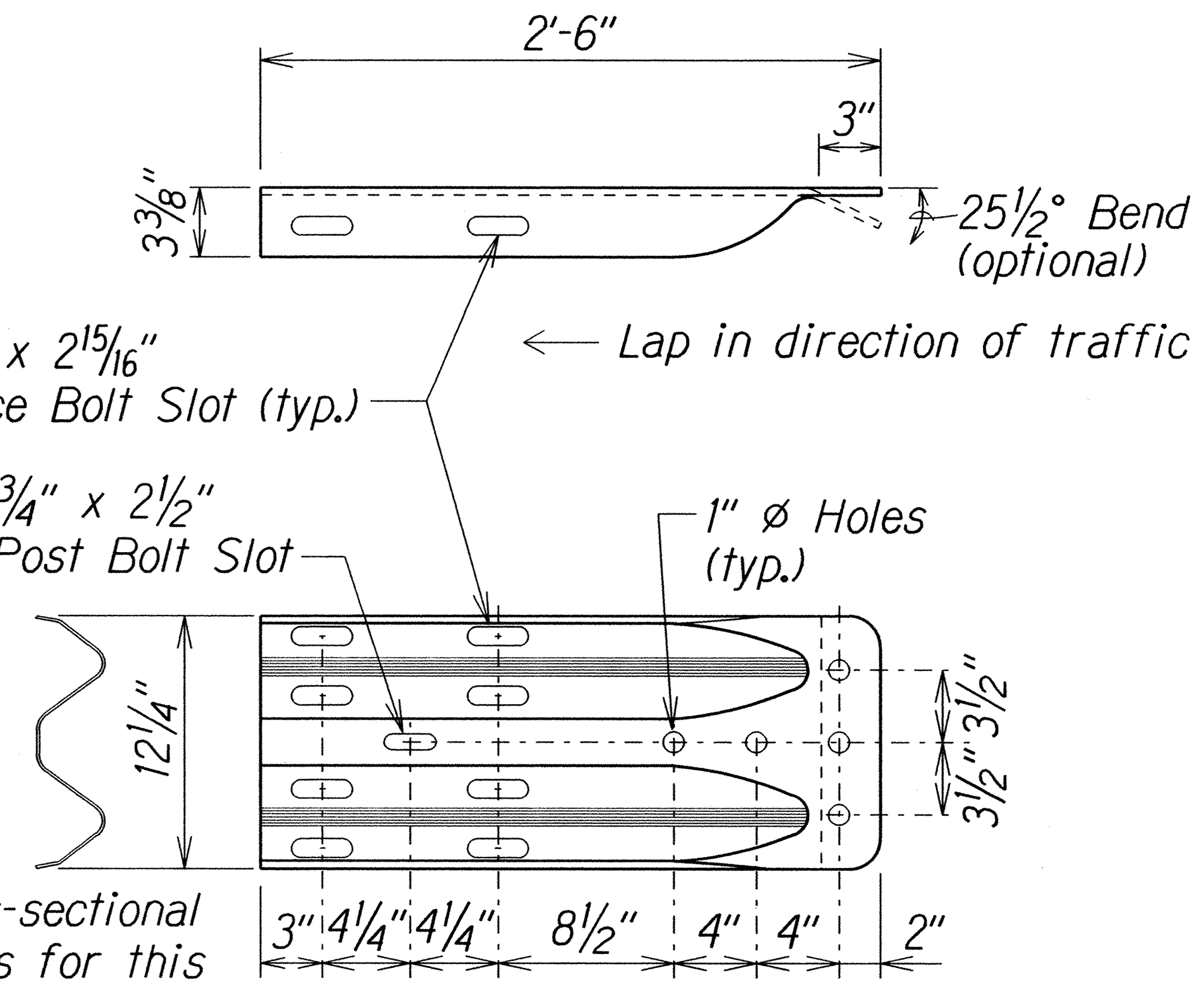
HANA HIGHWAY RESURFACING
Haleakala Highway to Paia and
HALEAKALA HIGHWAY RESURFACING
Hana Highway to North Firebreak Rd.
Project No. HWY-M-01-15M

Scale: As Shown Date: April, 2016

SHEET No. 2 OF 5 SHEETS

ADD. 11S-2

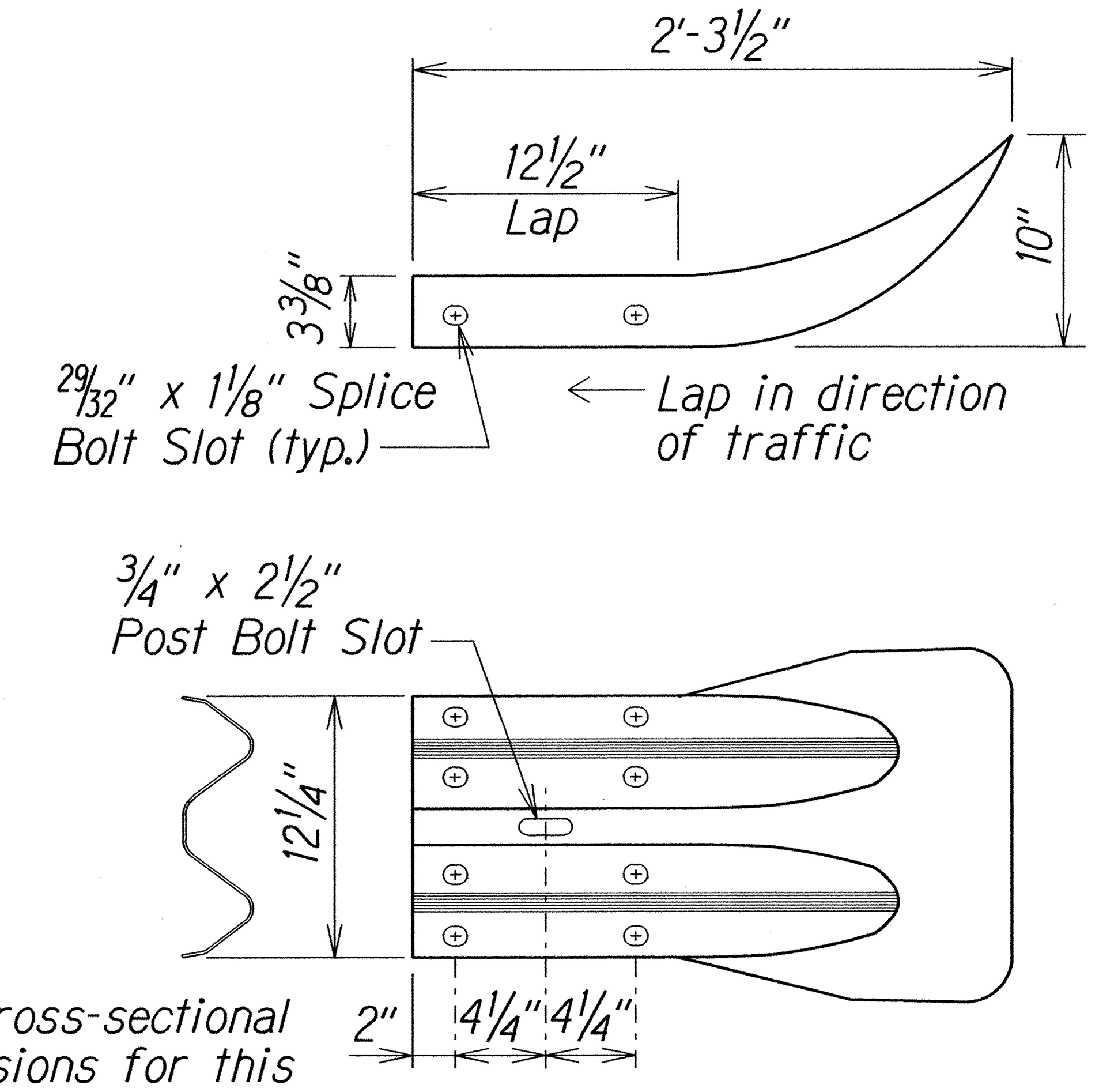
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-M-01-15M	2016	ADDJ1S-3	41



The cross-sectional dimensions for this part are to fit over part RWMO2a on the approach end and under part RWMO2a on the trailing end.

DESIGNATOR	BASE METAL THICKNESS
RWE02b	10 Gauge

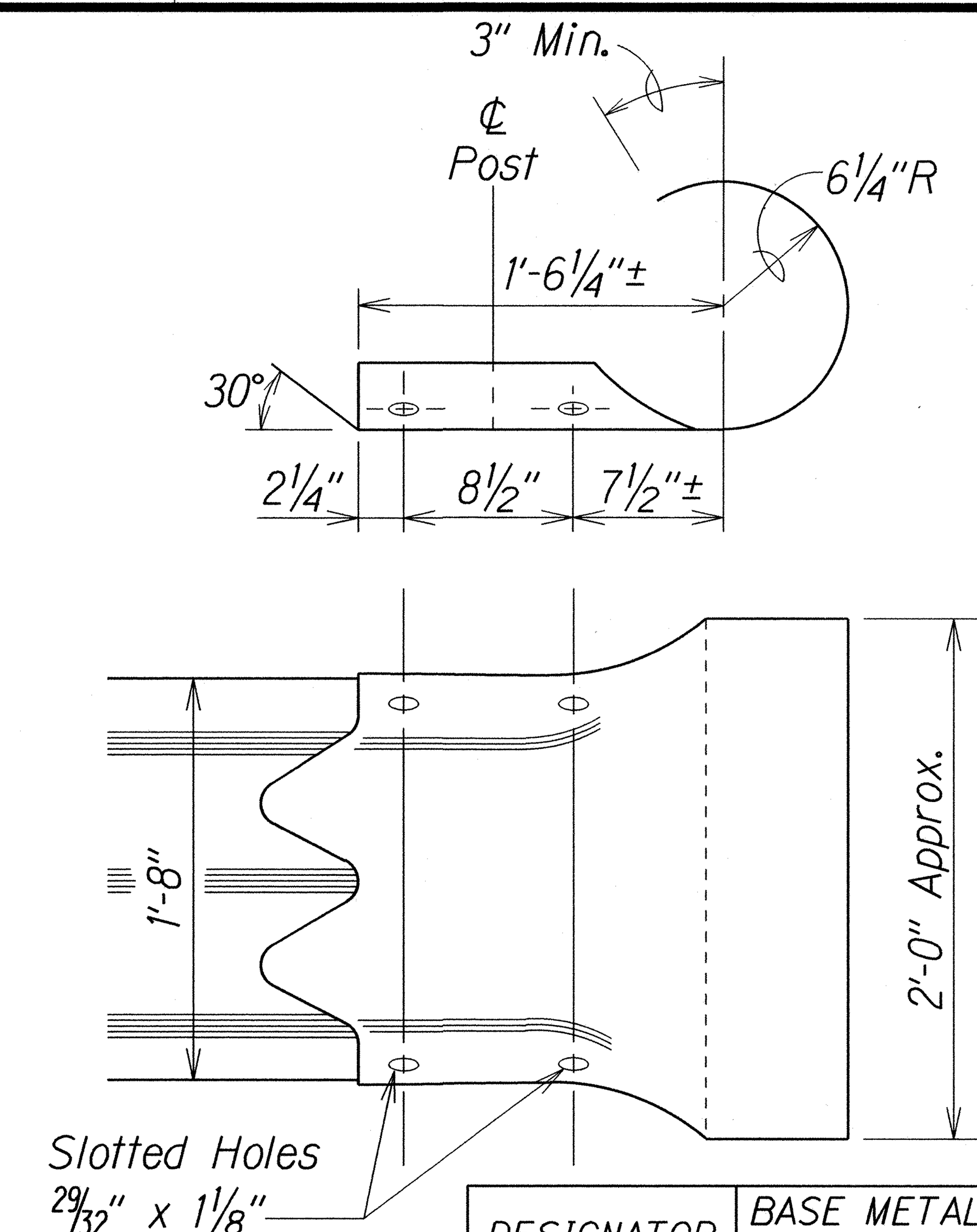
W-BEAM TERMINAL CONNECTOR (RWE02b)



The cross-sectional dimensions for this part are to fit over part RWMO2a on the approach end and under part RWMO2a on the trailing end.

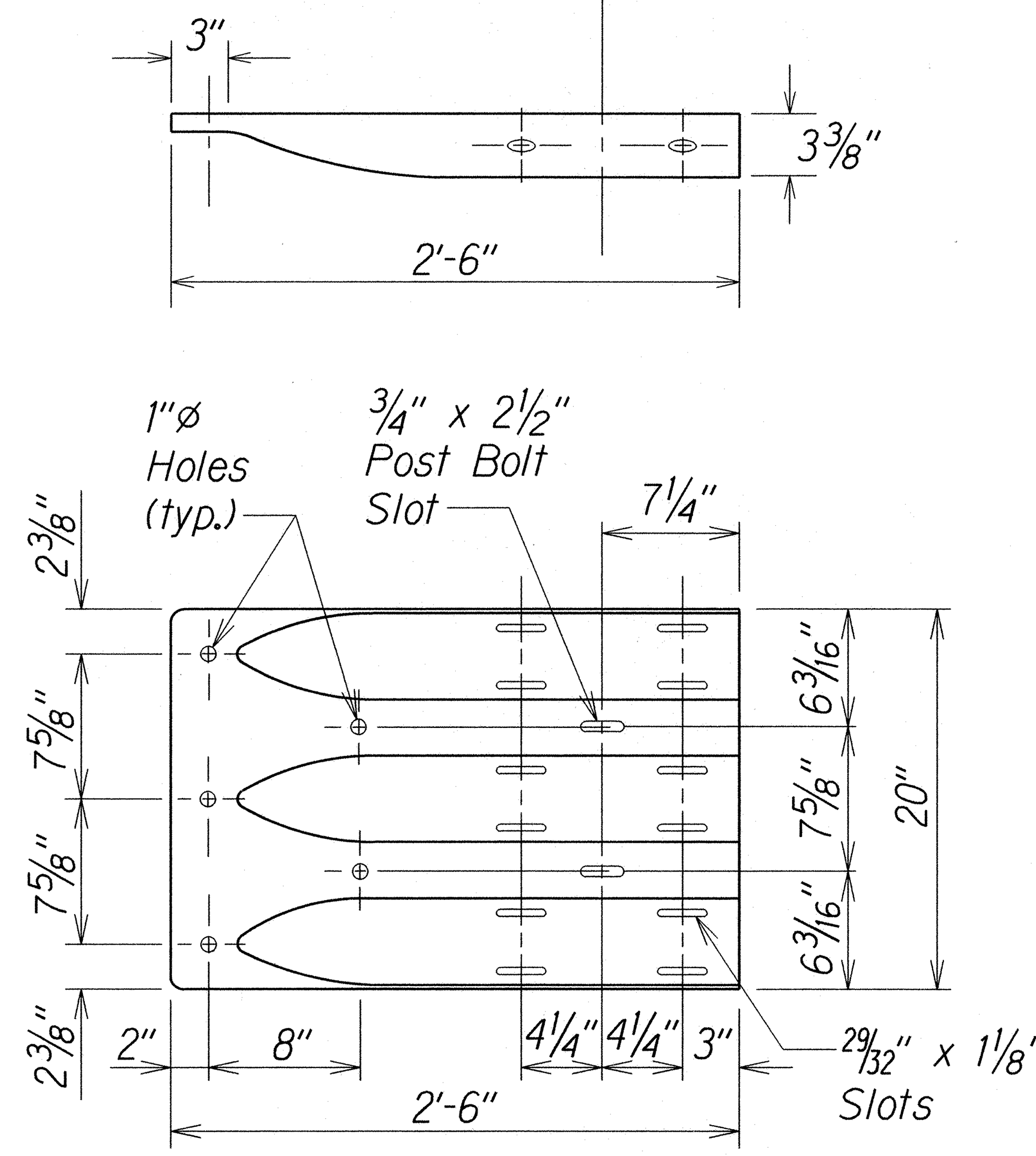
DESIGNATOR	BASE METAL THICKNESS
RWE01a	12 Gauge

W-BEAM END SECTION (FLARED RWE01a)



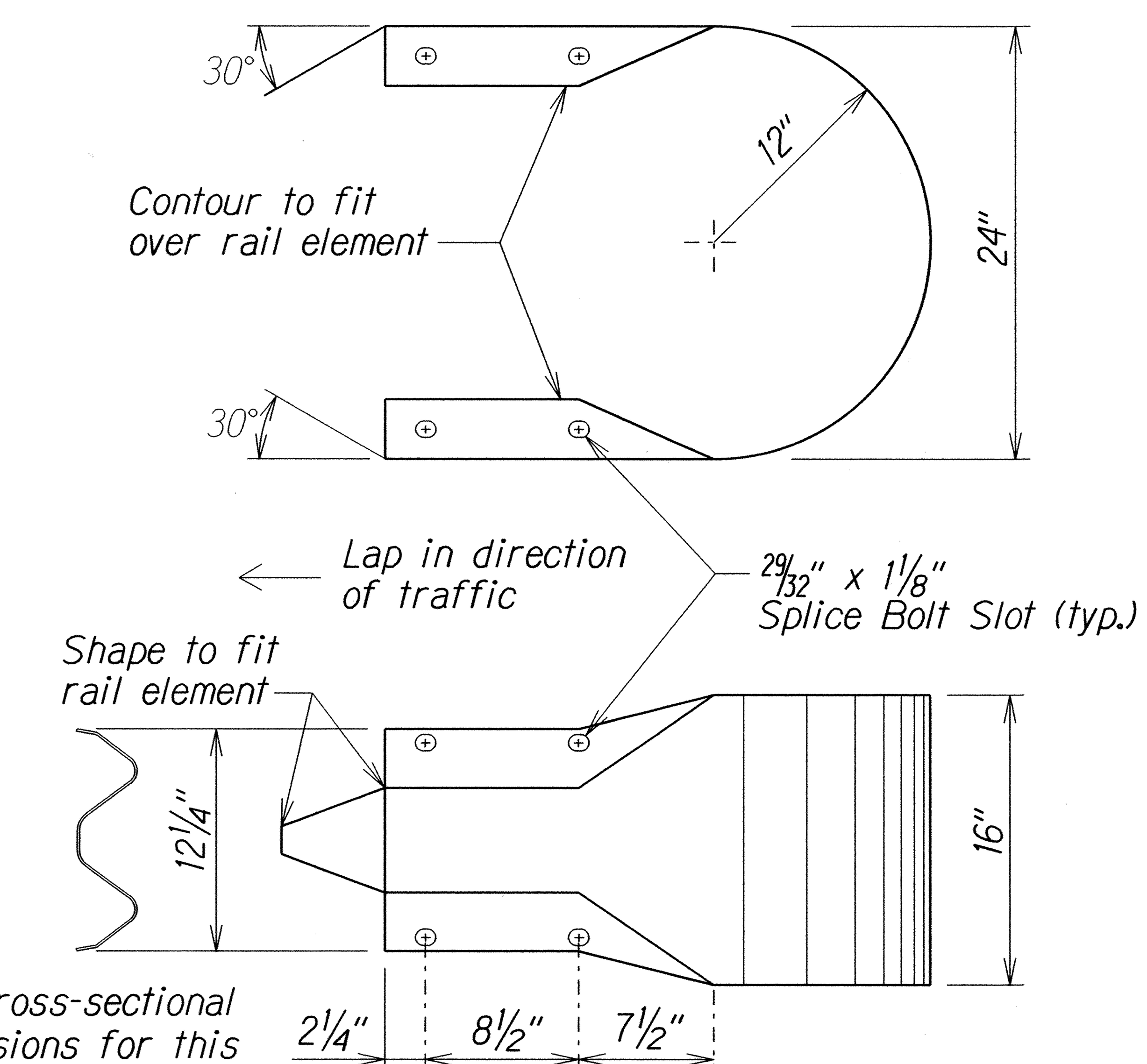
DESIGNATOR	BASE METAL THICKNESS
RTE02b	10 Gauge

THRIE-BEAM SECTION (ROUNDED) (RTE02b)



DESIGNATOR	BASE METAL THICKNESS
RTE01b	10 Gauge

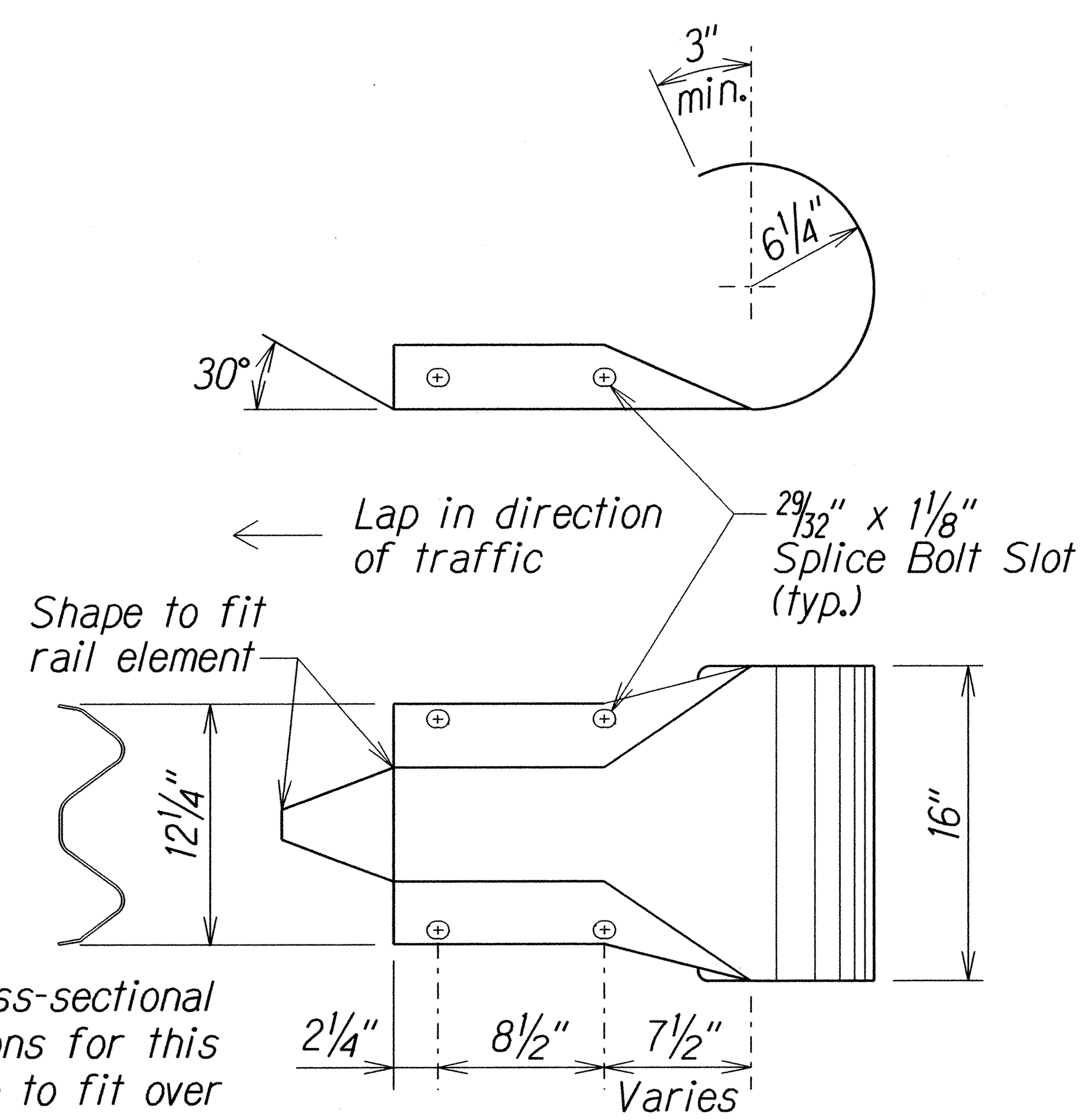
THRIE-BEAM TERMINAL CONNECTOR (RTE01b)



The cross-sectional dimensions for this part are to fit over part RWMO2a

DESIGNATOR	BASE METAL THICKNESS
RWE06a	12 Gauge

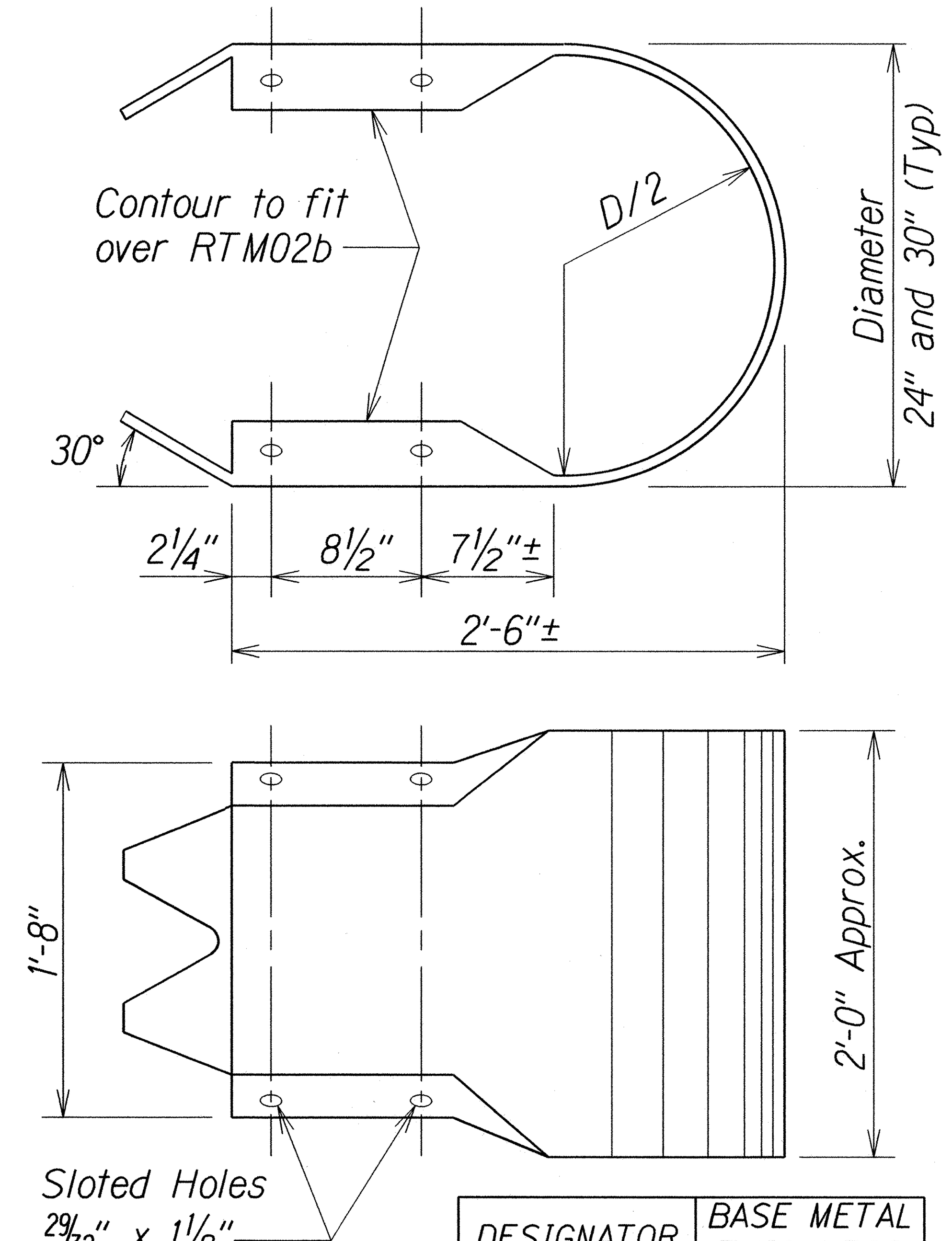
W-BEAM END SECTION (BUFFER RWE06a)



The cross-sectional dimensions for this part are to fit over part RWMO2a

DESIGNATOR	BASE METAL THICKNESS
RWE03a	12 Gauge

W-BEAM END SECTION (ROUNDED RWE03a)



DESIGNATOR	BASE METAL THICKNESS
RTE03b & RTE04b	10 Gauge

THRIE-BEAM END SECTION (BUFFER RTE03b or RTE04b)

	DATE	REVISION
3	4-12-16	Additional Details of Guardrail.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GUARDRAIL TERMINAL CONNECTORS AND END SECTIONS

HANA HWY. RESURFACING, Haleakala Hwy. to Paia and HALEAKALA HIGHWAY RESURFACING Hana Highway to North Firebreak Rd.
Project No. HWY-M-01-15M

Scale: As Noted Date: April, 2016

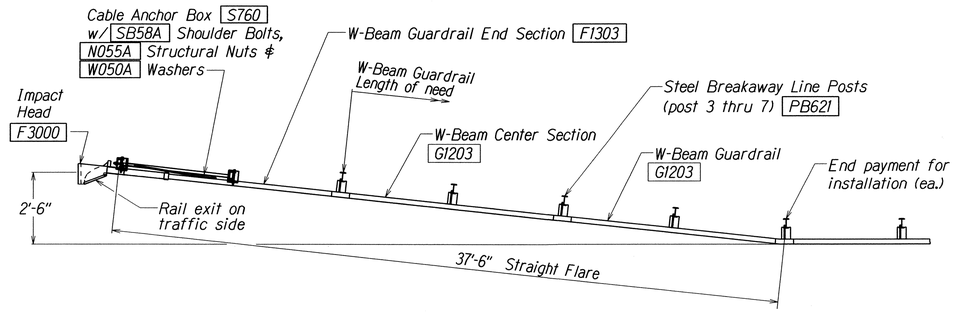
SHEET No. 3 OF 5 SHEETS

ADD. 11S–3

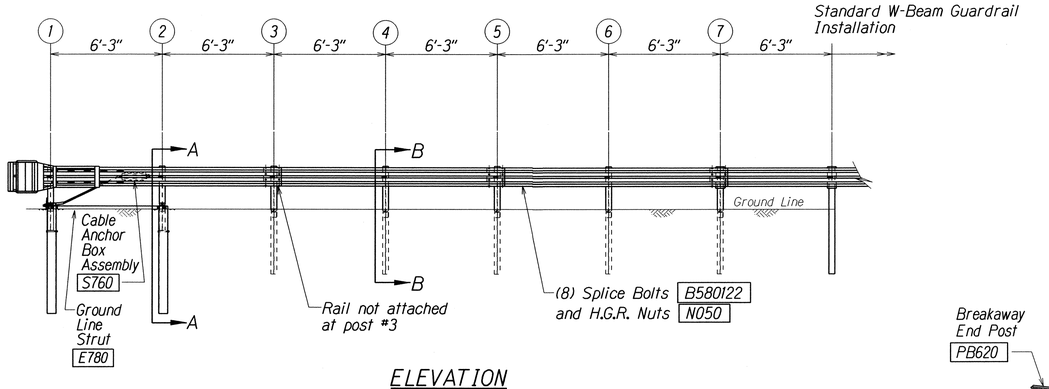
ORIGINAL PLAN / NOTE BOOK No. — SURVEY PLOTTED BY / DRAWN BY / TRACED BY / DESIGNED BY / QUANTITIES BY / CHECKED BY — DATE

tdl.ruby/guardrail/te51rev.dgn (standard plan TE-51 (09/01/87))

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-M-01-15M	2016	ADD.11S-4	41



PLAN



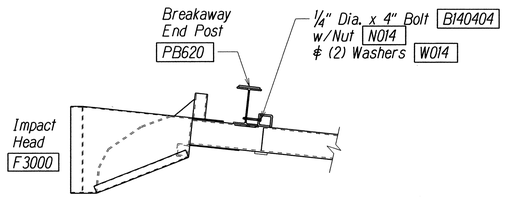
ELEVATION

GENERAL NOTES

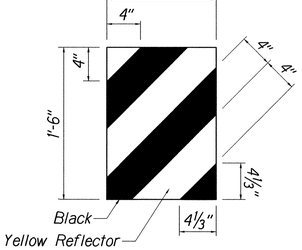
1. Breakaway steel posts are required with the FLEAT Terminal.
2. All bolts, nuts, cable assemblies, cable anchors and bearing plates shall be galvanized.
3. The soil tubes shall not protrude more than 4" above ground (measured along a 5' cord). Site grading may be necessary to meet this requirement.
4. The soil tubes may be driven with an approved driving head. Soil tubes shall 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 ½" 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.
7. (R) or (L) indicates right or left Impact Head Reflector Marker (IHRM). Providing and installing of IHRM shall be considered 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.

ITEM NO.	QTY.	BILL OF MATERIALS
F3000	1	IMPACT HEAD
F1303	1	W-BEAM GUARDRAIL END SECTION, 12 GA.
G1203	2	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
	1	IMPACT HEAD REFLECTOR MARKER - IHRM(R) OR (L)
		HARDWARE
B580122	25	5/8" Dia. x 1¼" SPLICE BOLT, POST #2
B580754	2	5/8" Dia. x 7½" HEX BOLT
B341004	2	¾" 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	¾" Dia. HEX NUT
W050	6	H.G.R. WASHER
W030	4	¾" ID WASHER
N100	2	1" ANCHOR CABLE HEX NUT
W100	2	1" ANCHOR CABLE WASHER
B140404	2	¼" x 4" HEX BOLT
N014	2	¼" HEX NUT
W014	4	¼" WASHER
SB58A	8	CABLE ANCHOR BOX SHOULDER BOLT
N055A	8	½" A325 STRUCTURAL NUT
W050A	16	1 1/16" OD x 9/16" ID A325 STR. WASHER

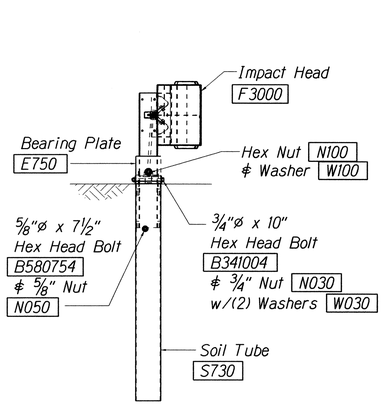
Foundation Tube Options For Posts 1 & 2
*6'-0" Split Foundation Tubes S730
*6'-0" Solid Foundation Tubes E731
*5'-0" Foundation Tubes S735 W/Soil Plates SP600
*4'-6" Foundation Tubes E735 W/Soil Plates SP600



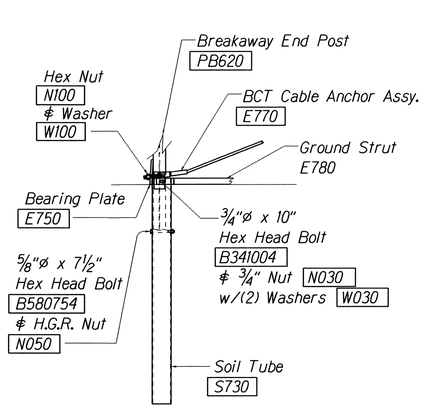
IMPACT HEAD CONNECTING DETAIL



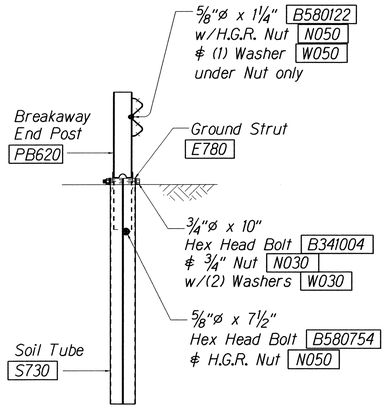
IHRM(R)
IMPACT HEAD REFLECTOR MARKER INSERT DETAIL



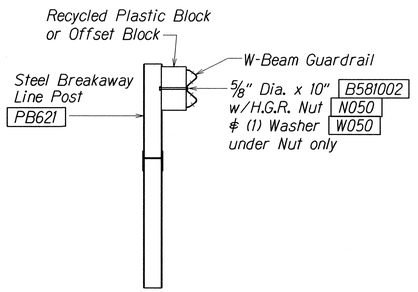
FRONT VIEW OF POST 1



PARTIAL VIEW OF POST 1



SECTION A-A
at Post #2



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

DATE	REVISION
3 4-12-16	Additional Details of FLEAT-350.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

FLEAT-350
FLARED ENERGY ABSORBING TERMINAL

HANA HWY. RESURFACING, Haleakala Hwy. to Paia and
HALEAKALA HIGHWAY RESURFACING
Hana Highway to North Firebreak Rd.
Project No. HWY-M-01-15M

Scale: As Noted Date: April, 2016

SHEET No. 4 OF 5 SHEETS

ADD. 11S-4

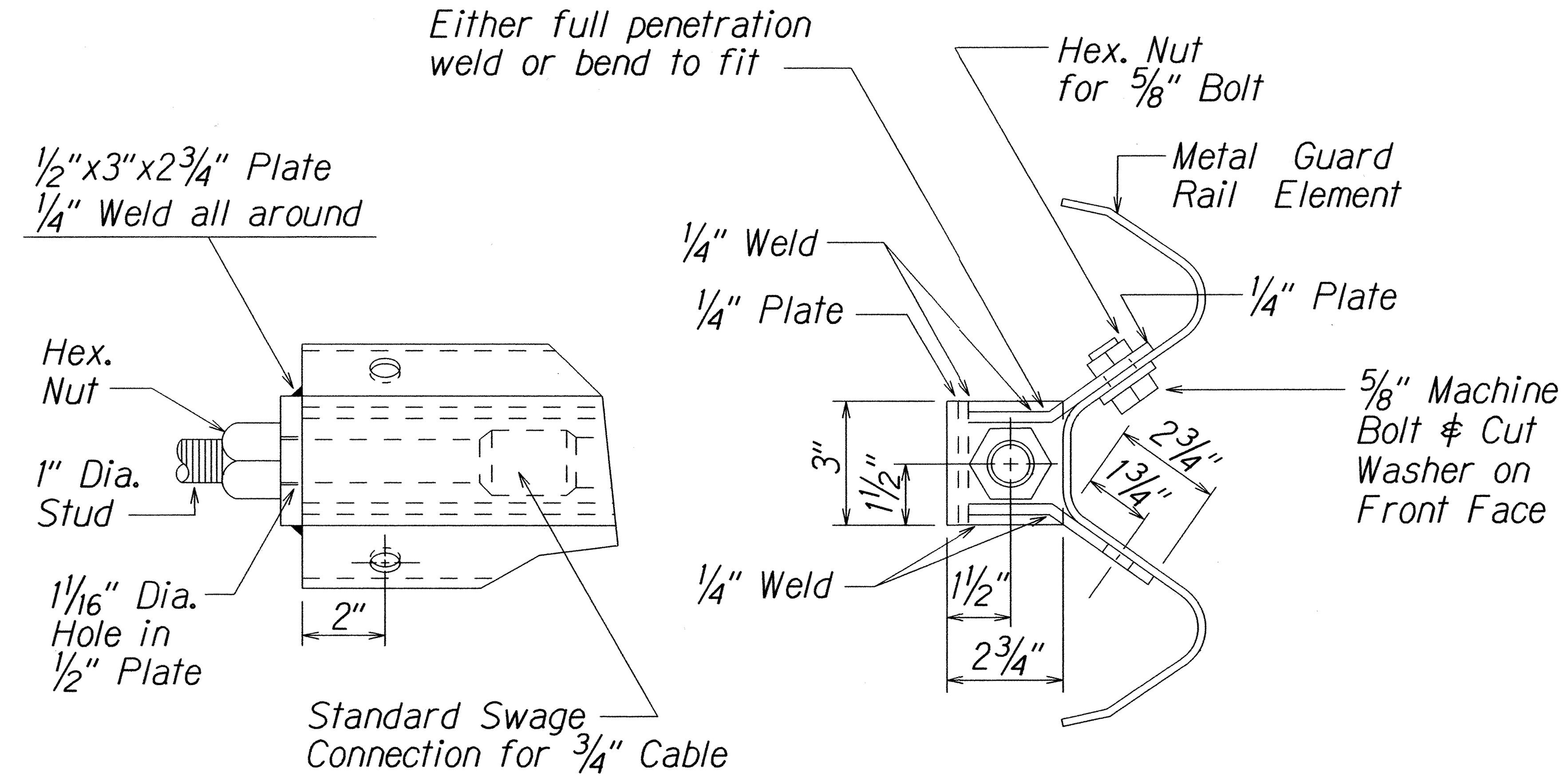
ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY X | TRACED BY | DESIGNED BY X | QUANTITIES BY | CHECKED BY | DATE X | NOTE BOOK | No.

(standard plan TE-61 rll/03/89 & TE-62 r09/01/87)

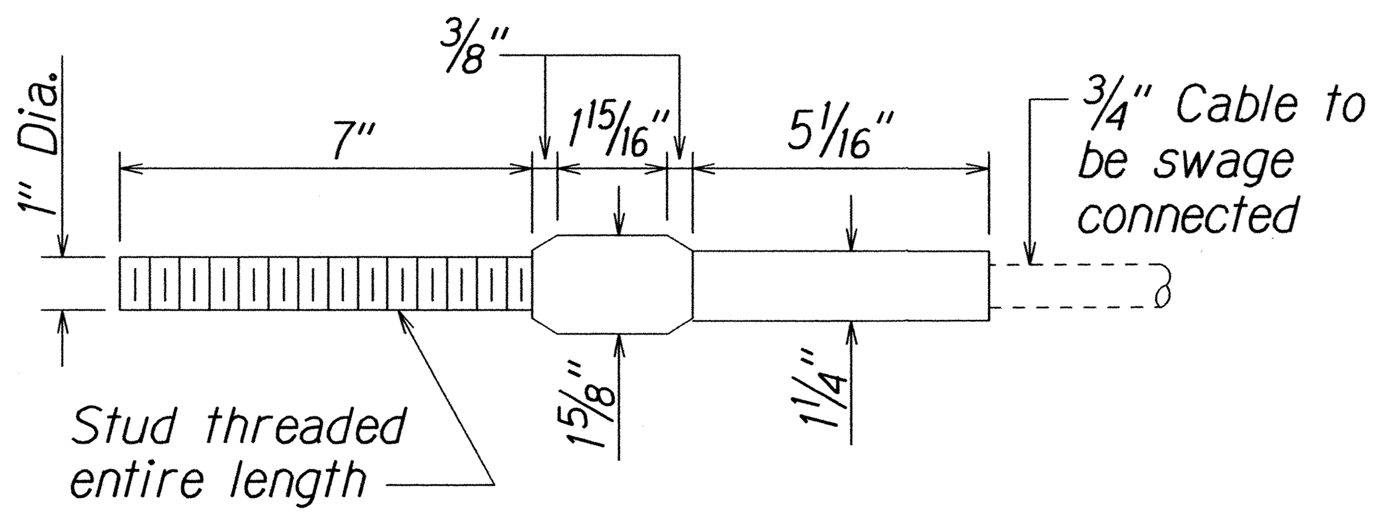
td:ruby/guardrail/fleat350.dgn

r8/12/02

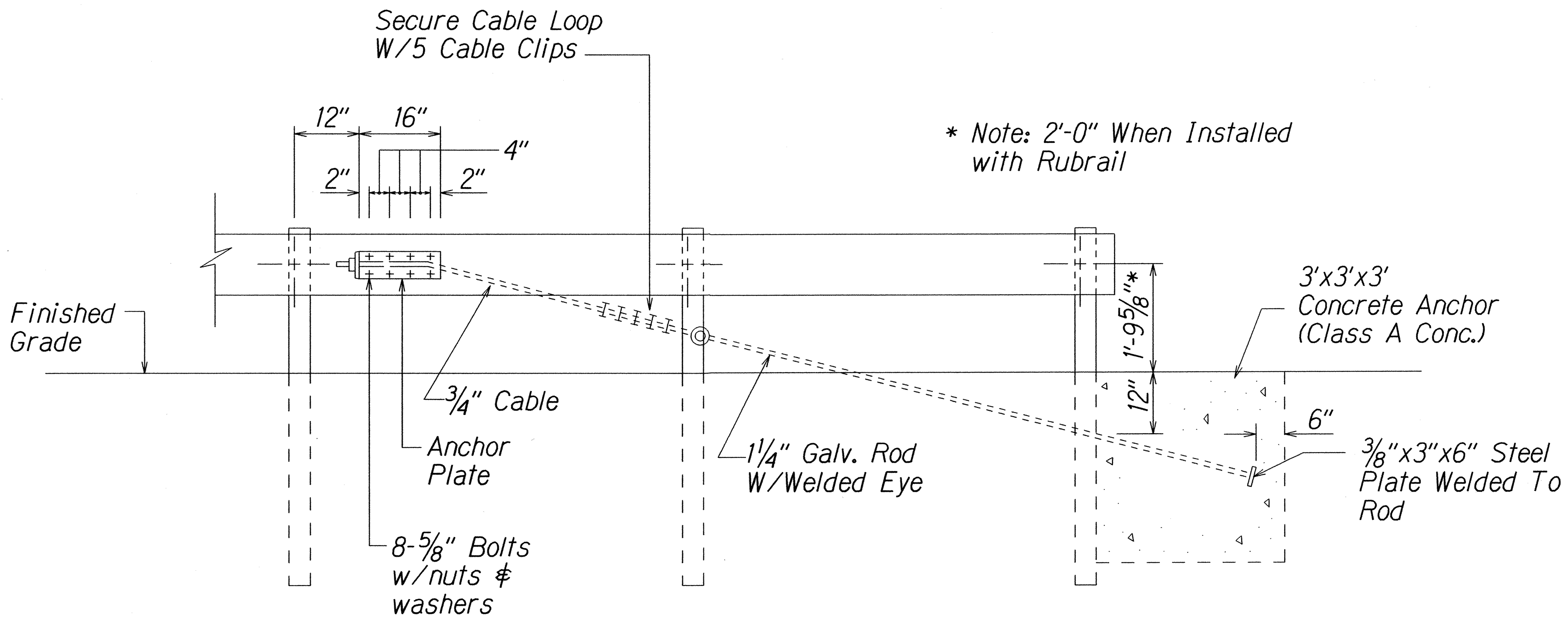
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-M-01-15M	2016	ADDJ1S-5	41



ANCHOR PLATE DETAILS

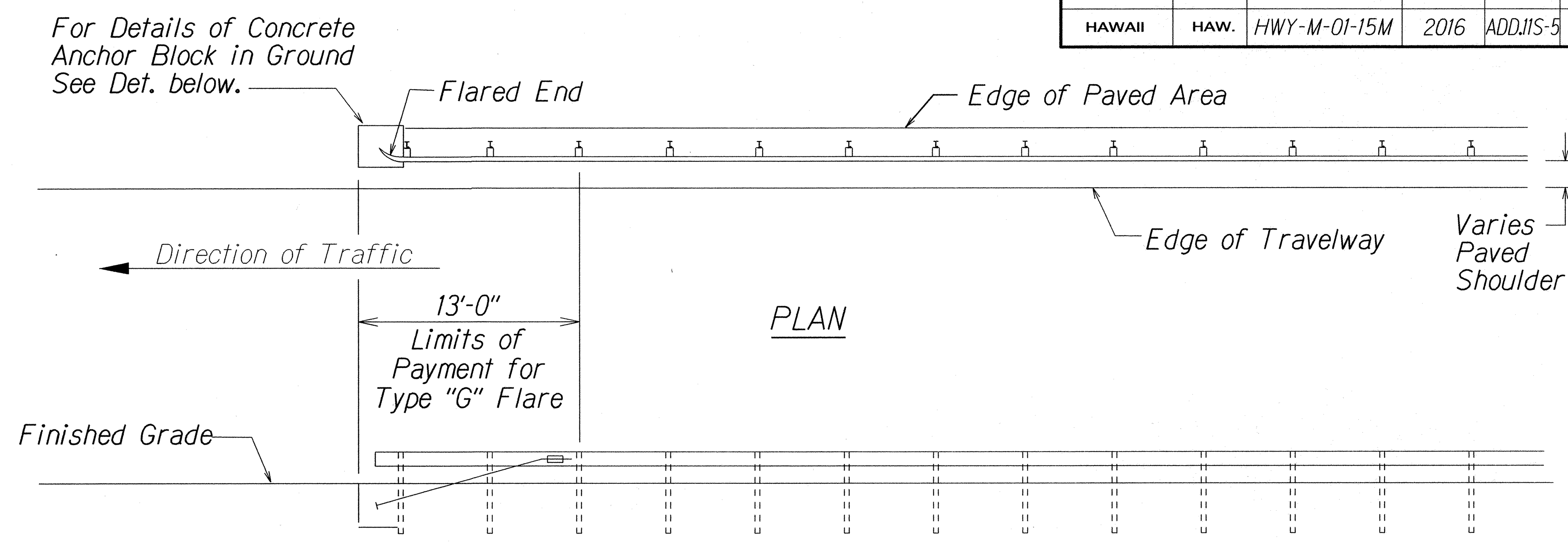


STANDARD SWAGED FITTING AND STUD



ANCHOR BLOCK DETAIL

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



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.

	DATE	REVISION
3	4-12-16	Additional Details of Type G End Terminal.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GUARDRAIL DETAILS

HANA HIGHWAY RESURFACING
Haleakala Highway to Paia and
HALEAKALA HIGHWAY RESURFACING
Hana Highway to North Firebreak Rd.
Project No. HWY-M-01-15M

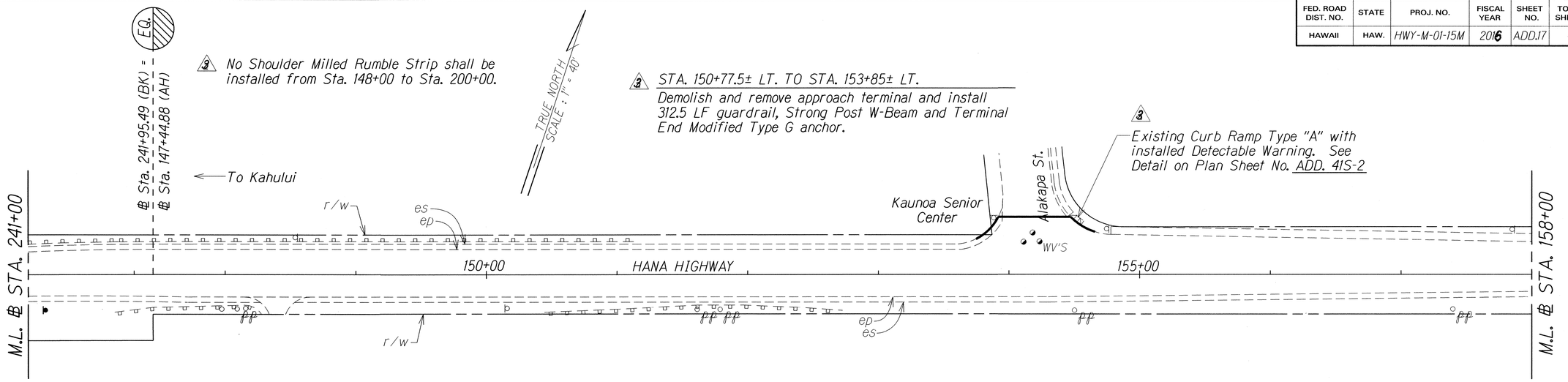
Scale: As Shown — Date: April, 2016

SHEET No. 5 OF 5 SHEETS

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

r3/13/02 tdl:ruby/guardrail/te59rev.dgn (standard plan TE-59 r11/03/89)

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-M-01-15M	2016	ADD.17	41



3 No Shoulder Milled Rumble Strip shall be installed from Sta. 148+00 to Sta. 200+00.

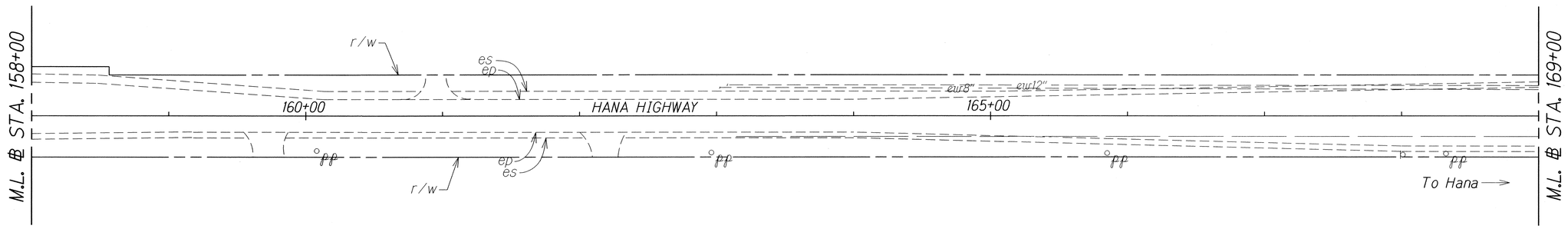
3 STA. 150+77.5± LT. TO STA. 153+85± LT.
Demolish and remove approach terminal and install 312.5 LF guardrail, Strong Post W-Beam and Terminal End Modified Type G anchor.

3 Existing Curb Ramp Type "A" with installed Detectable Warning. See Detail on Plan Sheet No. ADD. 41S-2

3 STA. 240+85.49± RT. TO STA. 147+59.88± RT.
Demolish and remove approach terminal and install 87.5 LF guardrail, Strong Post W-Beam and Approach terminal end Type FLEAT-350 (1 Each).

3 STA. 147+59.88± RT. TO STA. 147+97.88± RT.
Demolish and remove existing trailing end and install Type FLEAT-350 (1 Each).

3 STA. 150+60± RT. TO STA. 151+85± RT.
Demolish and remove approach terminal and install 87.5 LF guardrail, Strong Post W-Beam and Approach terminal Type FLEAT-350 (1 Each).



ORIGINAL PLAN		DATE
	SURVEY PLOTTED BY	
	DRAWN BY	JC
	TRACED BY	JC
NOTE BOOK	DESIGNED BY	JC
	QUANTITIES BY	
	CHECKED BY	

	DATE	REVISION
3	4-12-16	Additional Guardrail.
3	4-28-16	Add Notes.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN

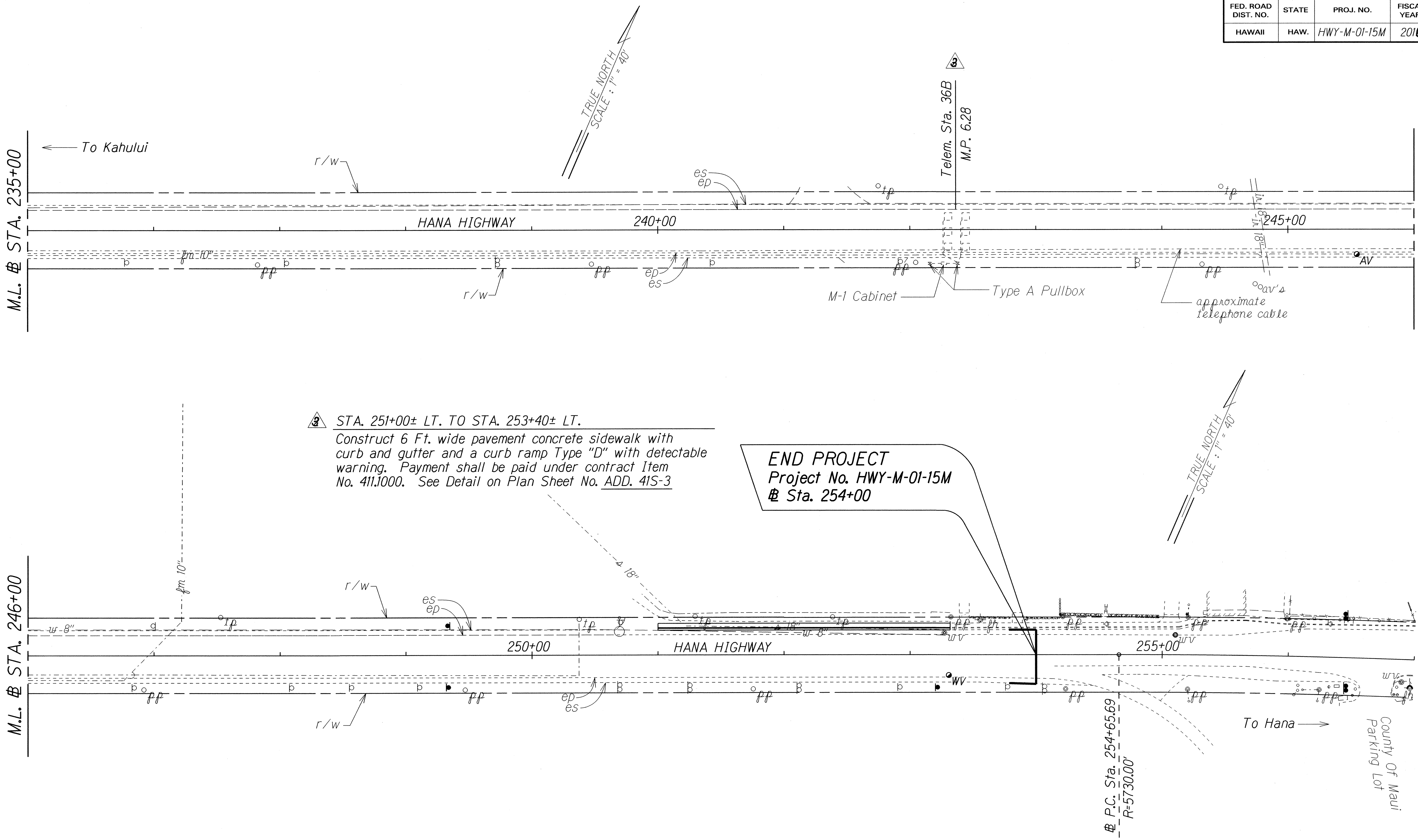
HANA HIGHWAY RESURFACING
Haleakala Highway to Paia and
HALEAKALA HIGHWAY RESURFACING
Hana Highway to North Firebreak Rd.
Project No. HWY-M-01-15M

Scale: 1" =40' Date: March, 2015

SHEET No. 6 OF 13 SHEETS

ADD. 17

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-M-01-15M	2016	ADD.21	41



	DATE	REVISION
3	4-12-16	Additional Concrete Sidewalk.
3	4-28-16	Added Counting Station.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN

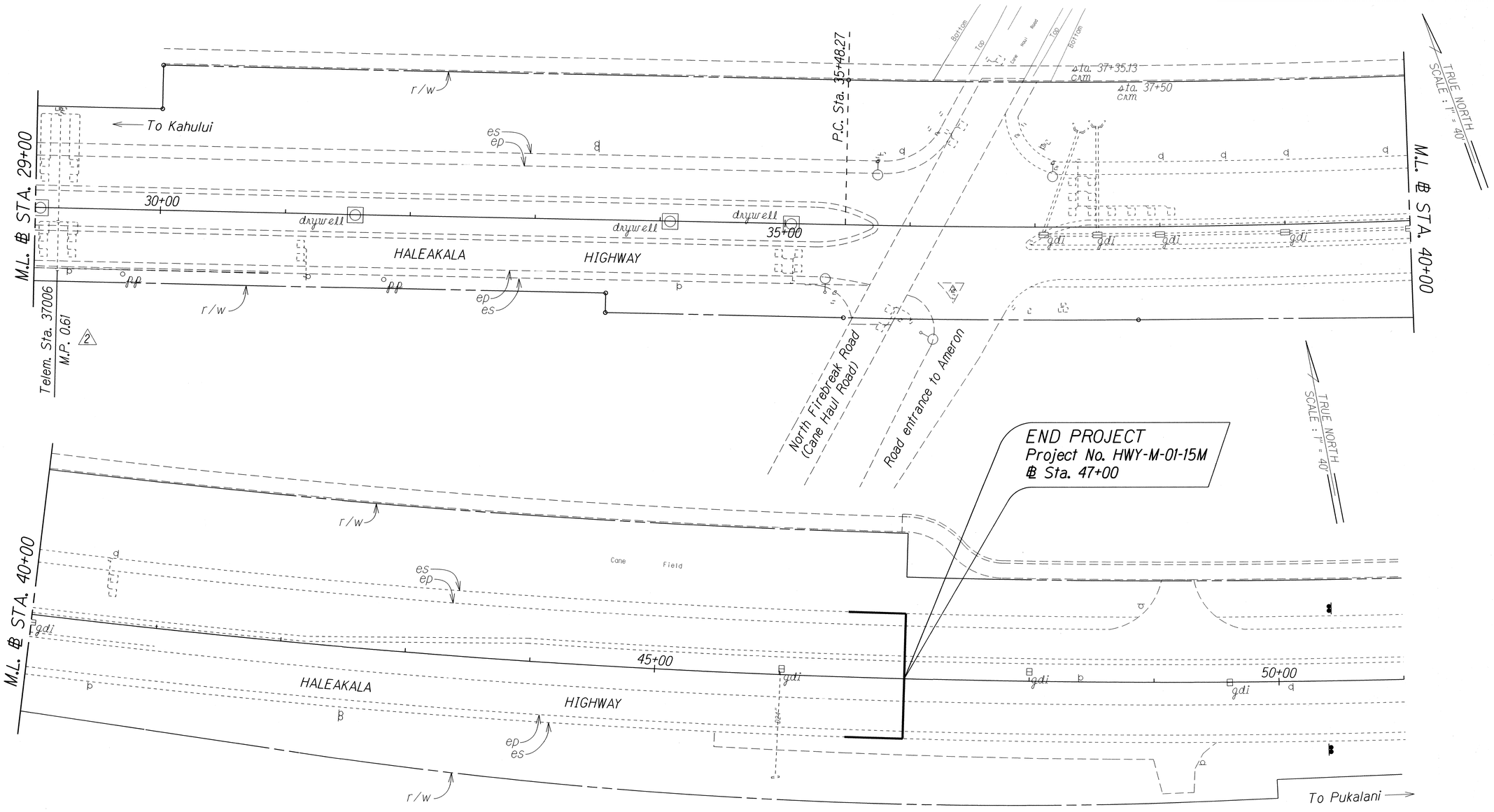
HANA HIGHWAY RESURFACING
Haleakala Highway to Paia and
HALEAKALA HIGHWAY RESURFACING
Hana Highway to North Firebreak Rd.
Project No. HWY-M-01-15M

Scale: 1" =40'   Date: March, 2015

SHEET No. 10 OF 13 SHEETS

ORIGINAL PLAN | NOTE BOOK | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-M-01-15M	2016	ADD.24	41



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 11/15
	DRAWN BY JH	
	TRACED BY	
NOTE BOOK	DESIGNED BY JH	
	QUANTITIES BY	
	CHECKED BY	

DATE	REVISION
3 4-28-16	Added Counting Station.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN

HANA HIGHWAY RESURFACING
Haleakala Highway to Paia and
HALEAKALA HIGHWAY RESURFACING
Hana Highway to North Firebreak Rd.
Project No. HWY-M-01-15M

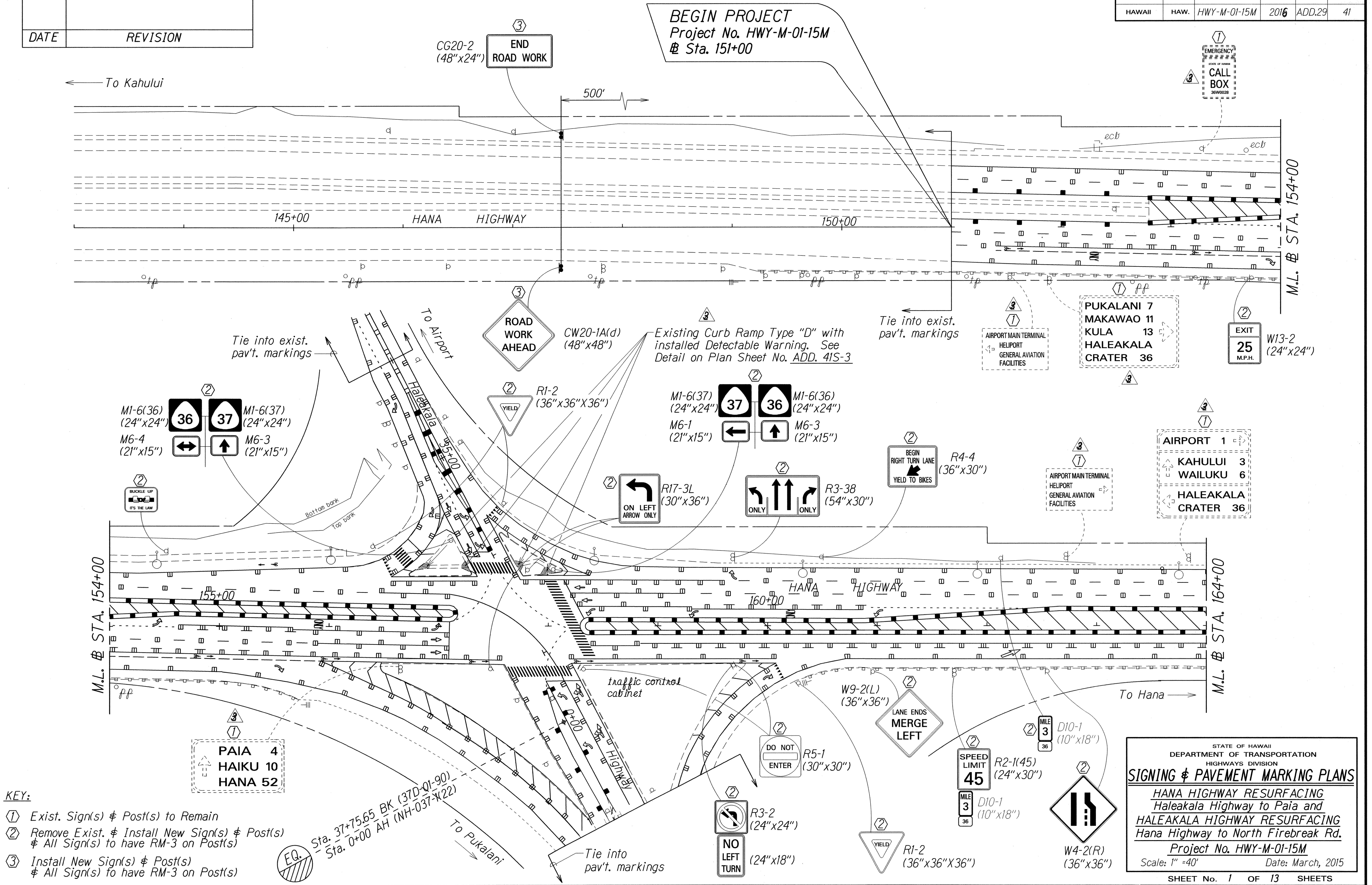
Scale: 1" =40' Date: March, 2015

SHEET No. 13 OF 13 SHEETS

ADD. 24

3	4-15-16	Destination Signs and Notes.
	DATE	REVISION

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-M-01-15M	2016	ADD.29	41



BEGIN PROJECT
Project No. HWY-M-01-15M
℄ Sta. 151+00
CG20-2 (48"x24") END ROAD WORK
To Kahului
500'
145+00
HANA HIGHWAY
150+00
M.L. ℄ STA. 154+00
EMERGENCY CALL BOX
CW20-1A(d) (48"x48") ROAD WORK AHEAD
Existing Curb Ramp Type "D" with installed Detectable Warning. See Detail on Plan Sheet No. ADD. 41S-3
Tie into exist. pav't. markings
To Airport
Haleakala
R1-2 (36"x36"X36") YIELD
M1-6(36) (24"x24") 36
M1-6(37) (24"x24") 37
M6-4 (21"x15")
M6-3 (21"x15")
M6-1 (21"x15")
BUCKLE UP IT'S THE LAW
R17-3L (30"x36") ON LEFT ARROW ONLY
R3-38 (54"x30") ONLY ONLY
R4-4 (36"x30") BEGIN RIGHT TURN LANE YIELD TO BIKES
AIRPORT MAIN TERMINAL HELIPORT GENERAL AVIATION FACILITIES
PUKALANI 7
MAKAWAO 11
KULA 13
HALEAKALA CRATER 36
W13-2 (24"x24") EXIT 25 M.P.H.
AIRPORT 1
KAHULUI 3
WAILUKU 6
HALEAKALA CRATER 36
155+00
HANA HIGHWAY
160+00
M.L. ℄ STA. 164+00
traffic control cabinet
To Hana
W9-2(L) (36"x36") LANE ENDS MERGE LEFT
R5-1 (30"x30") DO NOT ENTER
D10-1 (10"x18") MILE 3 36
R2-1(45) (24"x30") SPEED LIMIT 45
R3-2 (24"x24")
NO LEFT TURN (24"x18")
R1-2 (36"x36"X36") YIELD
W4-2(R) (36"x36")
PAIA 4
HAIKU 10
HANA 52
Sta. 37+75.65 BK (37D-01-90)
Sta. 0+00 AH (NH-037-1(22)
EQ.
To Pukalani
Tie into pav't. markings
Highway

KEY:

① Exist. Sign(s) & Post(s) to Remain

② Remove Exist. & Install New Sign(s) & Post(s) & All Sign(s) to have RM-3 on Post(s)

③ Install New Sign(s) & Post(s) & All Sign(s) to have RM-3 on Post(s)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNING & PAVEMENT MARKING PLANS

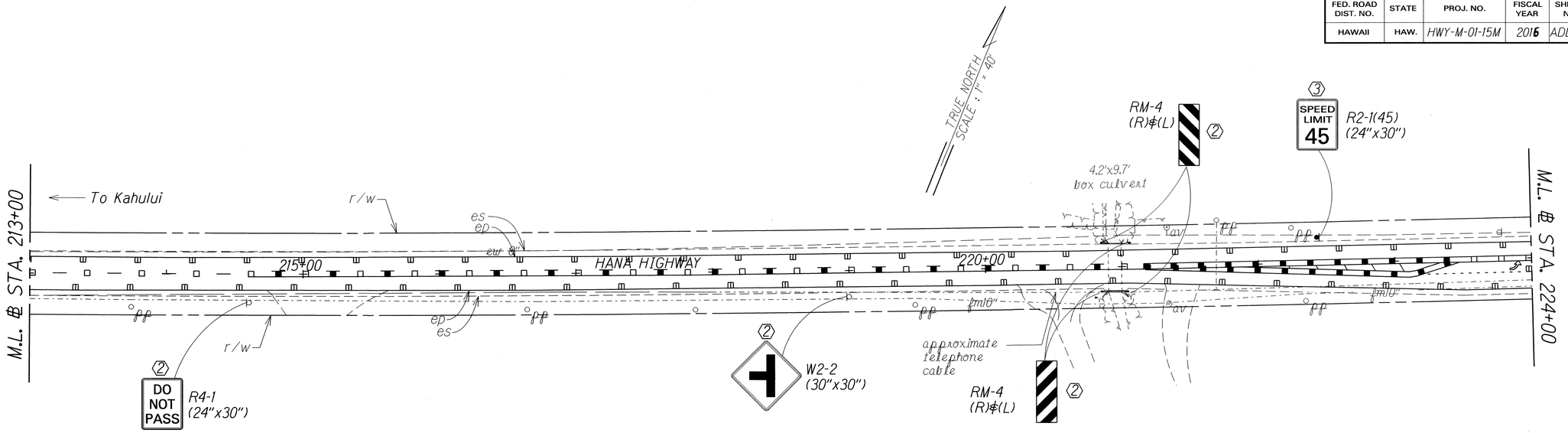
HANA HIGHWAY RESURFACING
Haleakala Highway to Paia and
HALEAKALA HIGHWAY RESURFACING
Hana Highway to North Firebreak Rd.
Project No. HWY-M-01-15M

Scale: 1" =40' Date: March, 2015

SHEET No. 1 OF 13 SHEETS

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

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-M-01-15M	2016	ADD.37	41



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE aug. 2015
	DRAWN BY JH	
	TRACED BY JH	
NOTE BOOK	DESIGNED BY JH	
	QUANTITIES BY	
	CHECKED BY	

NO.	DATE	REVISION
2	4-15-16	Signs & Pavement Markings.

KEY:

1. Exist. Sign(s) & Post(s) to Remain
2. Remove Exist. & Install New Sign(s) & Post(s) & All Sign(s) to have RM-3 on Post(s)
3. Install New Sign(s) & Post(s) & All Sign(s) to have RM-3 on Post(s)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNING & PAVEMENT MARKING PLANS

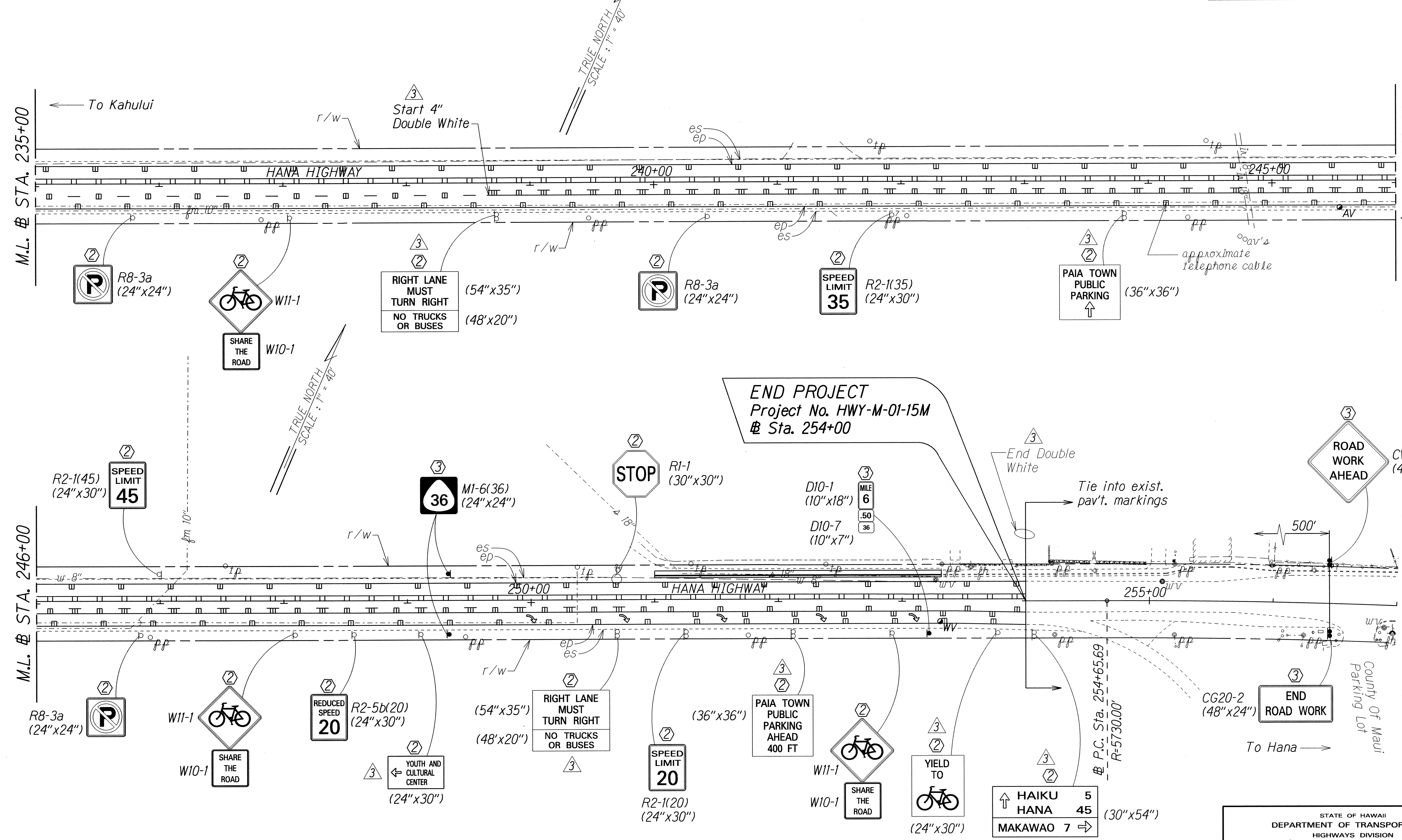
HANA HIGHWAY RESURFACING
Haleakala Highway to Paia and
HALEAKALA HIGHWAY RESURFACING
Hana Highway to North Firebreak Rd.
Project No. HWY-M-01-15M

Scale: 1" =40' Date: March, 2015

SHEET No. 9 OF 13 SHEETS

ADD. 37

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-M-01-15M	2016	ADD.38	41



3	4-15-16	Signs & Pavement Markings.
	DATE	REVISION

KEY:

1. Exist. Sign(s) & Post(s) to Remain
2. Remove Exist. & Install New Sign(s) & Post(s) & All Sign(s) to have RM-3 on Post(s)
3. Install New Sign(s) & Post(s) & All Sign(s) to have RM-3 on Post(s)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNING & PAVEMENT MARKING PLANS

HANA HIGHWAY RESURFACING
Haleakala Highway to Paia and
HALEAKALA HIGHWAY RESURFACING
Hana Highway to North Firebreak Rd.

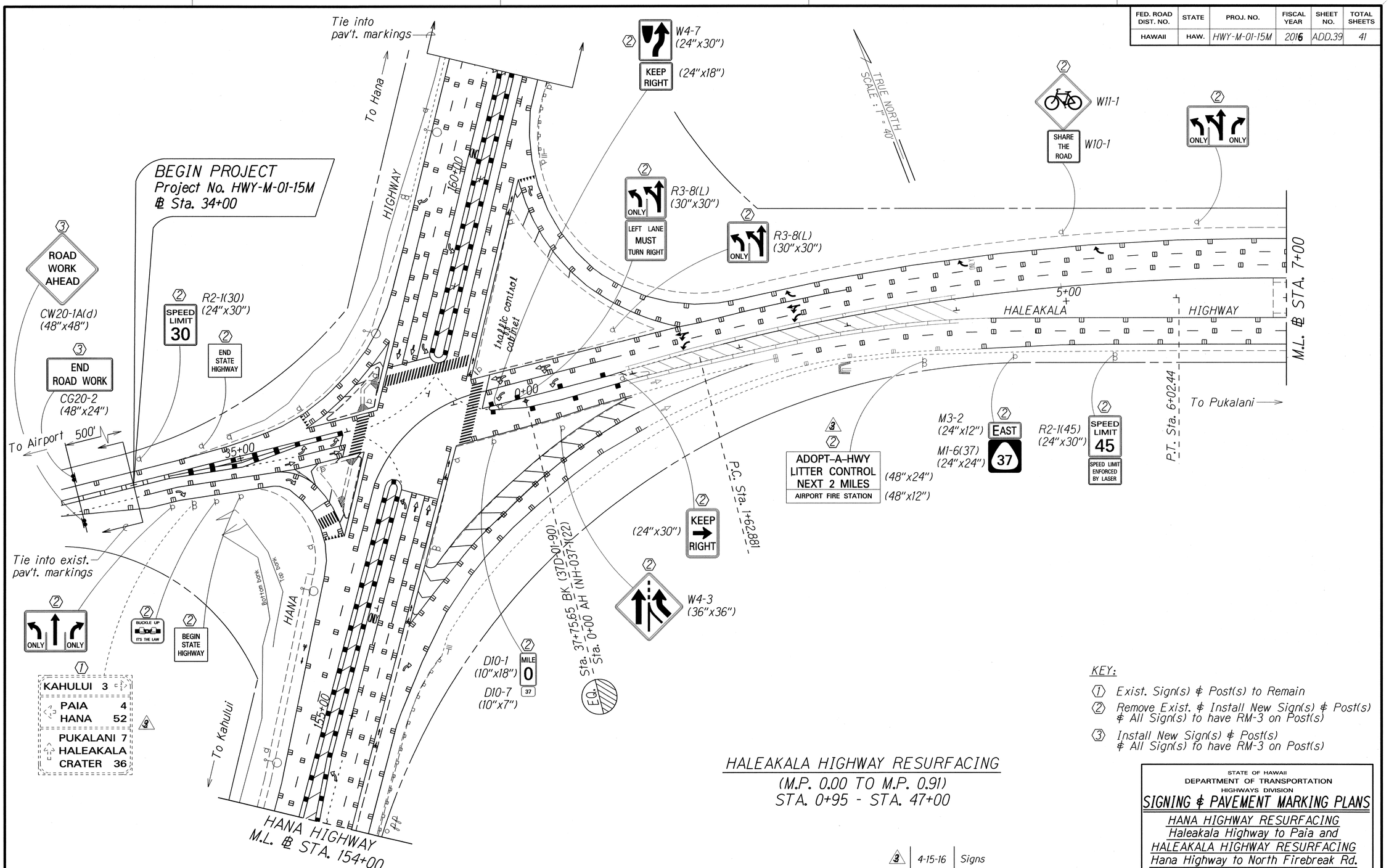
Project No. HWY-M-01-15M

Scale: 1" =40' Date: March, 2015

SHEET No. 10 OF 13 SHEETS

ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | NOTE BOOK | DATE

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-M-01-15M	2016	ADD.39	41



KEY:

1. Exist. Sign(s) & Post(s) to Remain
2. Remove Exist. & Install New Sign(s) & Post(s) & All Sign(s) to have RM-3 on Post(s)
3. Install New Sign(s) & Post(s) & All Sign(s) to have RM-3 on Post(s)

HALEAKALA HIGHWAY RESURFACING

(M.P. 0.00 TO M.P. 0.91)
STA. 0+95 - STA. 47+00

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 10/06
	DRAWN BY AT	
NOTE BOOK	TRACED BY	
	DESIGNED BY AT	
	QUANTITIES BY	
	CHECKED BY	

DATE	REVISION
3 4-15-16	Signs

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNING & PAVEMENT MARKING PLANS

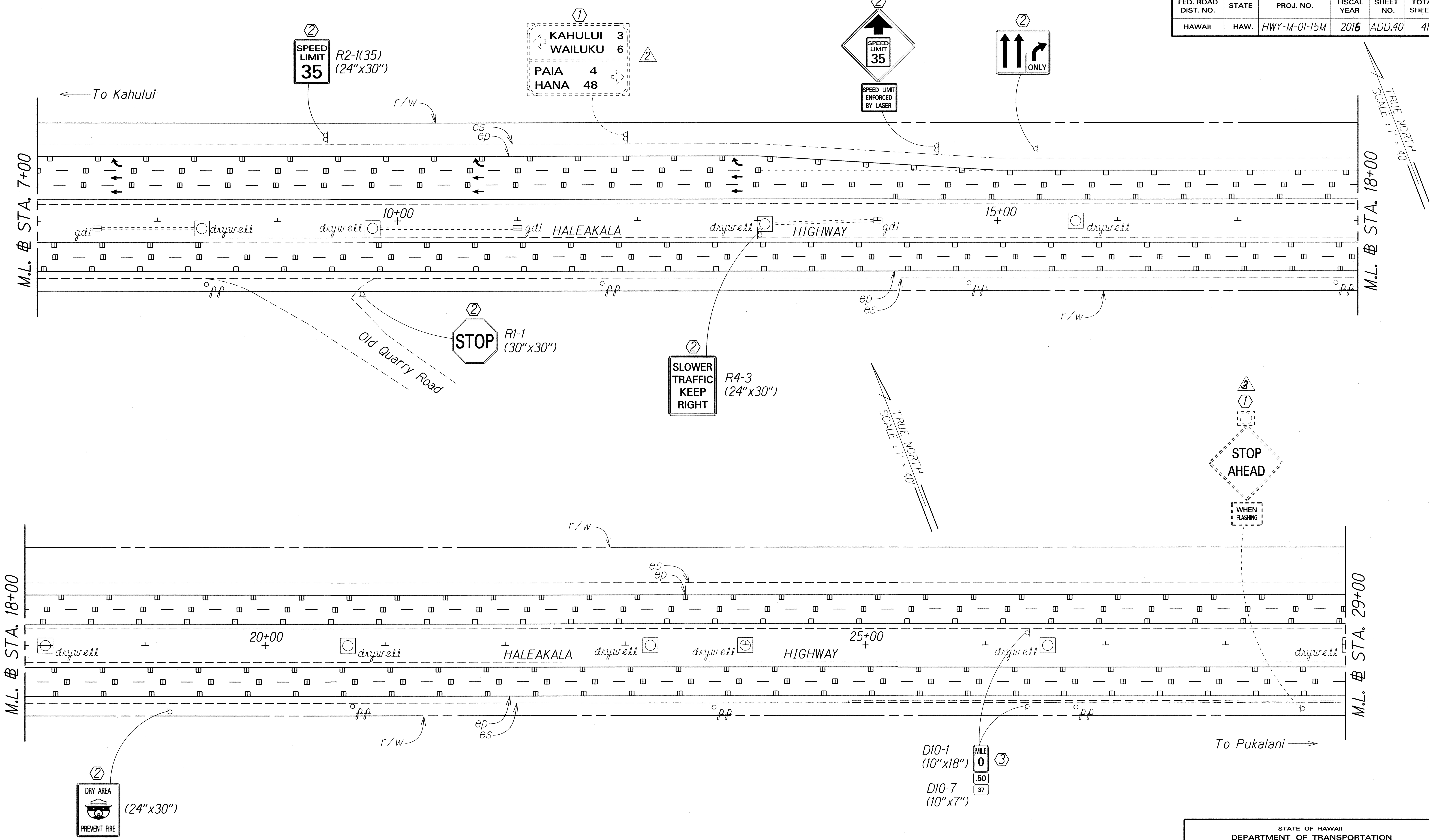
HANA HIGHWAY RESURFACING
Haleakala Highway to Paia and
HALEAKALA HIGHWAY RESURFACING
Hana Highway to North Firebreak Rd.
Project No. HWY-M-01-15M

Scale: 1" =40' Date: March, 2015

SHEET No. 11 OF 13 SHEETS

ADD. 39

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-M-01-15M	2016	ADD.40	41



3	4-15-16	Signs & Pavement Markings.
	DATE	REVISION

KEY:

1. Exist. Sign(s) & Post(s) to Remain
2. Remove Exist. & Install New Sign(s) & Post(s) & All Sign(s) to have RM-3 on Post(s)
3. Install New Sign(s) & Post(s) & All Sign(s) to have RM-3 on Post(s)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNING & PAVEMENT MARKING PLANS

HANA HIGHWAY RESURFACING
Haleakala Highway to Paia and
HALEAKALA HIGHWAY RESURFACING
Hana Highway to North Firebreak Rd.

Project No. HWY-M-01-15M

Scale: 1" =40' Date: March, 2015

SHEET No. 12 OF 13 SHEETS

ORIGINAL PLAN | NOTE BOOK | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-M-01-15M	2016	ADD.41S-1	41

CURB RAMP AND SIDEWALK NOTES:

1. These typical details are intended as curb ramp guidelines for design and construction. These guidelines shall not replace site specific curb ramp plans.
2. A 2% maximum cross slope shall be maintained in the direction of pedestrian traffic.
3. Subject to field conditions, the Engineer shall determine the final location of curb ramps.
4. All pullboxes shall be installed away from the curb ramp and within the sidewalk/unpaved area to the maximum extent feasible.
5. Where necessary, existing pullboxes, handholes, manholes, etc. shall be adjusted to match curb ramp grade. Adjustments shall not be paid for separately but shall be considered incidental to the various curb ramp items unless indicated otherwise.
6. Transitions from ramps to gutters and roadways shall be flush.
7. Curb ramps and sidewalks shall be constructed to eliminate ponding to the maximum extent feasible.
8. The pedestrian push button shall meet operational and reach requirements of the American with Disabilities Act Accessibility Guidelines (ADAAG):
   a) Forward Reach. The maximum height for forward reach shall be 48".
   b) Side Reach. The maximum height for side reach shall be 48".
   c) Operation. Controls and operating mechanisms shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate controls shall be no greater than 5 lbf.
9. The maximum slopes of adjoining gutters or road surface immediately fronting the curb ramp shall not exceed 5% for Type A, D and Combination ramps and 8.33% for Type B, C, and E ramps.
10. There shall be a 30"x48" level ground surface (2% max. cross slope, both directions) for a forward or side approach, as appropriate, to a pedestrian push button.
11. Construction joints are required to join curb ramps with sidewalks.
12. Unless otherwise noted, new gutters are required as shown.
13. All curb ramps shall be reinforced with 6x6 W1.4/W1.4 welded wire fabric.
14. Surface of sidewalks and curb ramps shall be firm, stable, and slip-resistant. This includes the surfaces of pullboxes, valve covers, manhole covers, etc.
15. Bed course material is required for curb ramps, sidewalks, and gutters.
16. All sidewalks shall provide a minimum clear width of 3'-0" (excluding curb) for pedestrian circulation. If this cannot be met, a minimum 32-inch clear width is allowed for a distance of 24-inches.
17. Passing spaces along new sidewalks with 5' clear width or less shall be provided at maximum 200' intervals as required by ADA guidelines. The passing area shall be a minimum 5' wide by 5' long as feasible.
18. If possible, install utility poles, fire hydrants, light poles, sign posts, pullboxes, etc. off of sidewalk but within the right-of-way.
19. Objects protruding from utility poles and walls adjacent to the sidewalks (i.e. wall mounted fire hydrants, telephones, meters on poles, etc.) shall be mounted to meet the current American with Disabilities Act Accessibility Guidelines (ADAAG) and will be subject to Engineer's approval.
20. If a curb ramp is not constructed according to the plans, the Contractor shall reconstruct the curb ramp at no cost to the State. Construction tolerance for Portland Cement Concrete shall be based on 1/4 inch per 10 ft. (±0.2%). Remedial measures will not be accepted.
21. Additional information is available from:
    a) American with Disabilities Act Accessibility Guidelines (ADDAG), Jan. 1998, The Access Board.
    b) Accessible Rights-of-Way: A Design Guide, Nov. 1999, The Access Board.
    c) Designing Sidewalks and Trails for Access, Part 1, July 1999, FHWA.
    d) Designing Sidewalks and Trails for Access, Part 2, Sept. 2001, FHWA.
22. Pay limits for the various types of curb ramps are as shown on these typical details.
23. For curb ramps at curb returns, install Construction Joints per Standard full width sidewalk at curb return.
24. When directed by the Engineer, Sidewalk Transition Area shall be extended beyond shown plan limits to match the nearest scoreline.

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

/dl/usr2/traffic/std/curbramp/rampnote-r03-02-11.dgn

R 03-02-11 TE-00 sht. 1 of 9

DATE	REVISION
3 4-28-16	Added Sheet.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

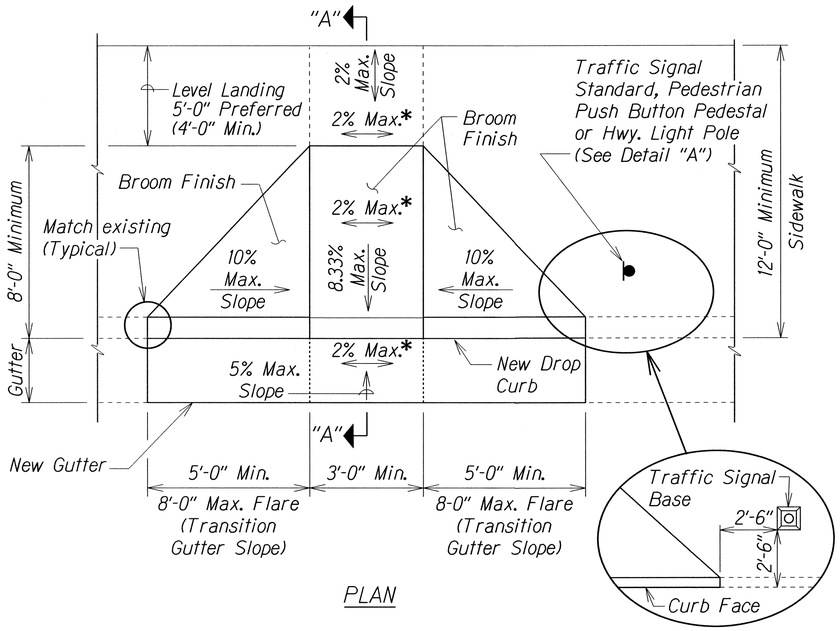
CURB RAMP AND SIDEWALK NOTES

HANA HIGHWAY RESURFACING
Haleakala Highway to Paia and
HALEAKALA HIGHWAY RESURFACING
Hana Highway to North Firebreak Rd.
Project No. HWY-M-01-15M
Date: April, 2016

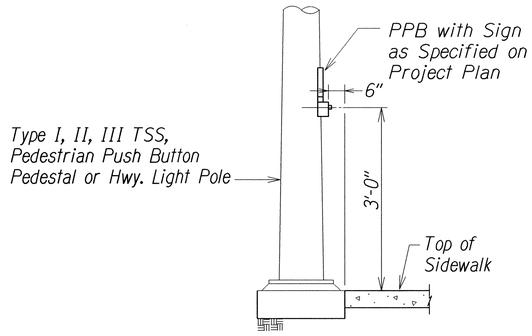
SHEET No. 1 OF 5 SHEETS

R03-02-11 ADD. 41S-1

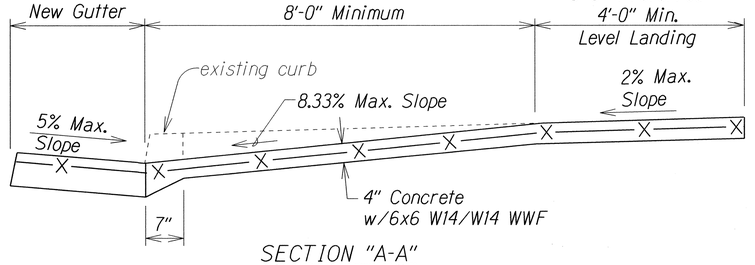
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-M-01-15M	2016	ADD.41S-2	41



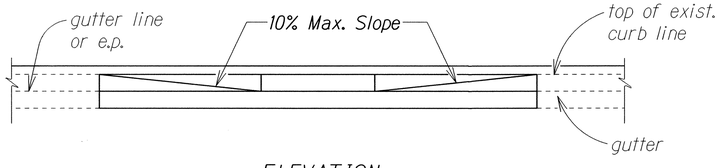
PLAN



DETAIL "A"



SECTION "A-A"



ELEVATION

CURB RAMP - TYPE "A"

SIDEWALK WIDTH 12'-0" OR GREATER

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	
NOTE BOOK	TRACED BY	
	DESIGNED BY	
N.	QUANTITIES BY	
	CHECKED BY	

	DATE	REVISION
3	4-28-16	Added Sheet.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CURB RAMP DETAILS

HANA HIGHWAY RESURFACING
Haleakala Highway to Paia and
HALEAKALA HIGHWAY RESURFACING
Hana Highway to North Firebreak Rd.
Project No. HWY-M-01-15M

Not to Scale Date: April, 2016

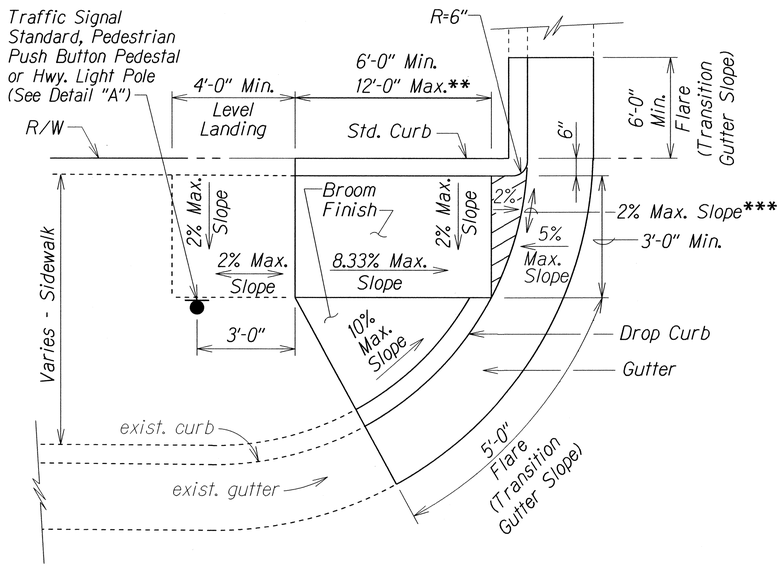
SHEET No. 2 OF 5 SHEETS

R12-06-06 ADD. 41S-2

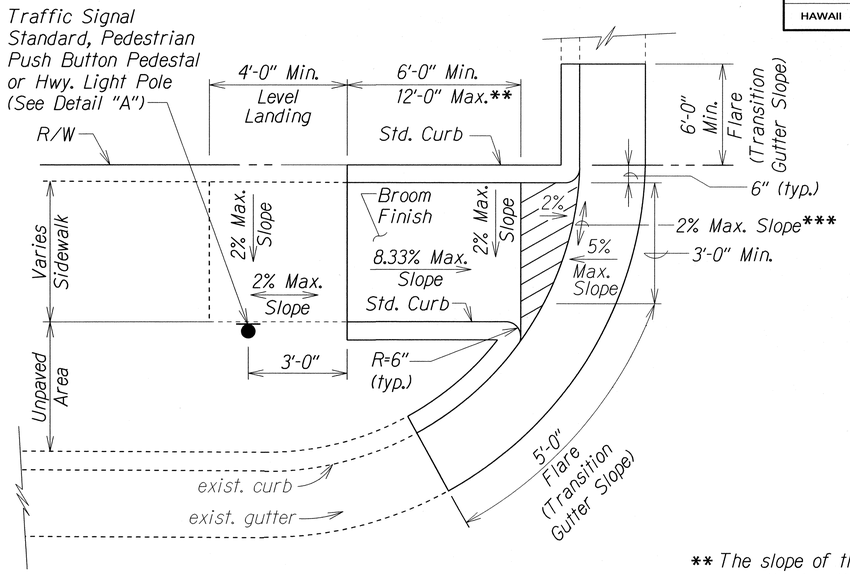
tdl/usr2/traffic/std/curbramp/rampa-r12-06-06.dgn

R12-06-06 TE-XX sht. 2 of 9

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-M-01-15M	2016	ADD.41S-3	41



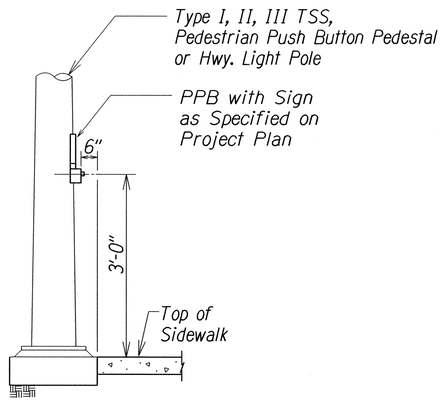
CURB RAMP - TYPE "D"



CURB RAMP - TYPE "D" MODIFIED

** *The slope of the ramp shall take precedence over the length of the ramp. If the maximum slope of a ramp cannot be met within a length of 12 feet, then the slope of the ramp shall be set when the length of the ramp is set at the maximum of 12 feet.*

*** *If Roadway Slope >2% Conform to Roadway Slope and File a Technical Infeasibility (TI) Statement*



DETAIL "A"

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

	DATE	REVISION
3	4-28-16	Added Sheet.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CURB RAMP DETAILS

HANA HIGHWAY RESURFACING
Haleakala Highway to Paia and
HALEAKALA HIGHWAY RESURFACING
Hana Highway to North Firebreak Rd.
Project No. HWY-M-01-15M

Not to Scale — Date: April, 2016

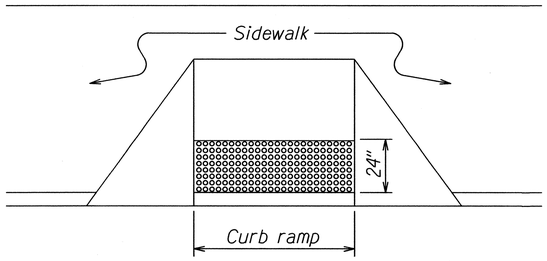
SHEET No. 3 OF 5 SHEETS

R12-06-06 ADD. 41S-3

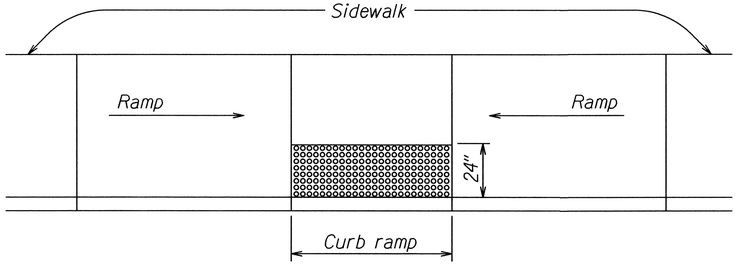
tdl/usr2/traffic/std/curbramp/rampcd-r12-06-06.dgn

R12-06-06 TE-XX sht. 5 of 9

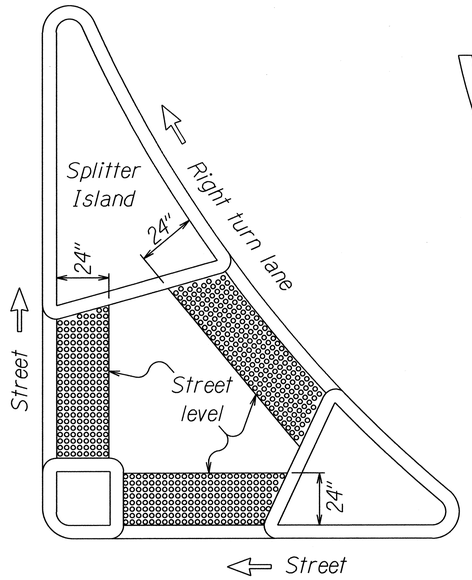
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-M-01-15M	2016	ADD.41S-4	41



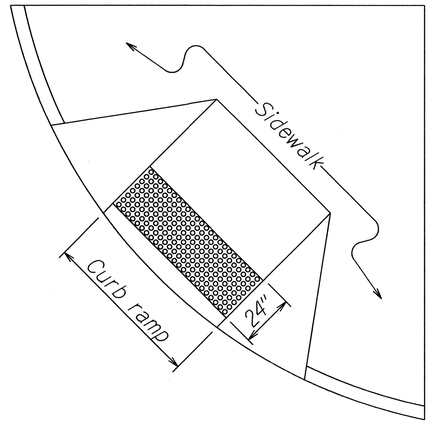
DETECTABLE WARNING AT CURB RAMP



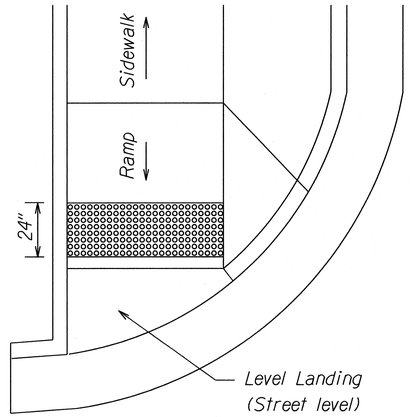
TRANSITION RAMP WITH DETECTABLE WARNING



REFUGE ISLAND WITH DETECTABLE WARNING



SHARED CURB RAMP WITH DETECTABLE WARNING



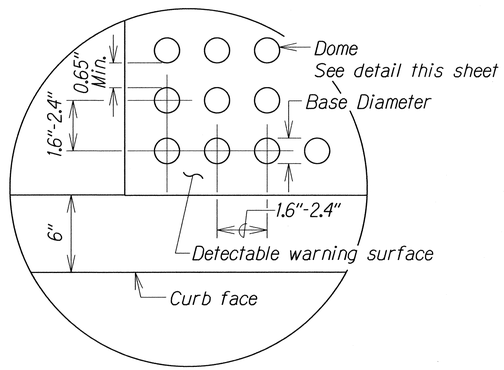
END OF SIDEWALK CURB RAMP WITH DETECTABLE WARNING

TYPICAL INSTALLATION OF DETECTABLE WARNINGS

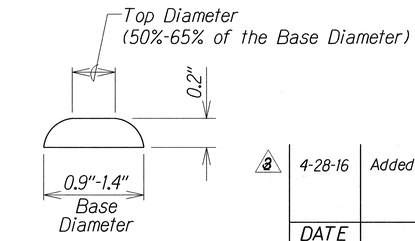
Not to Scale

NOTES:

1. Detectable warnings shall be 24 inches in the direction of travel and extend the full width of the curb ramp or flush surface (does not include flares).
2. Truncated domes shall have a diameter of 0.9 to 1.4 inch at the bottom, a diameter of 50%-65% of the base diameter at the top, a height of 0.2 inch and a center-to-center spacing of 1.6 to 2.4 inches measured along one side of a square arrangement.
3. Domes shall be aligned on a square grid in the predominant direction of travel to permit wheels to roll between the domes.
4. There shall be a minimum of 70 percent contrast in light reflectance between the detectable warning and an adjoining surface, or the detectable warning shall be "safety yellow".
5. The material used to provide visual contrast shall be an integral part of the detectable warning surface.
6. The detectable warning shall be located so that the edge nearest the curb line or other potential hazard is 6 to 8 inches from the curb line.



ENLARGEMENT



DOME SECTION

DETECTABLE WARNING DETAIL

Not to Scale

DATE	REVISION
3 4-28-16	Added Sheet.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DETECTABLE WARNING DETAILS

HANA HIGHWAY RESURFACING
Haleakala Highway to Paia and
HALEAKALA HIGHWAY RESURFACING
Hana Highway to North Firebreak Rd.
Project No. HWY-M-01-15M

Scale: As Shown Date: April, 2016

SHEET No. 4 OF 5 SHEETS

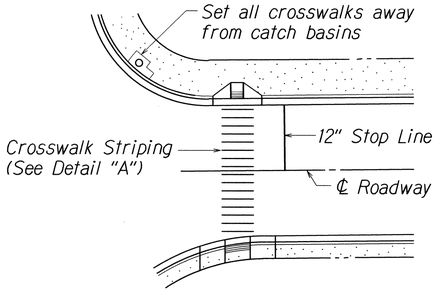
R12-06-06 ADD. 41S-4

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

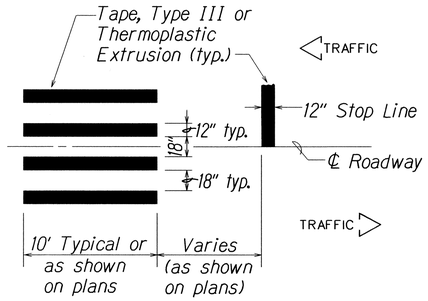
R12-06-06 TE-XX sht. 9 of 9

tdl/usr2/traffic/std/curbramp/detect-r12-06-06.dgn

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-M-01-15M	2016	ADD.41S-5	41



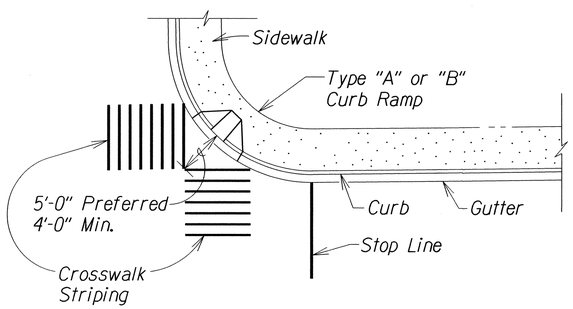
PLAN



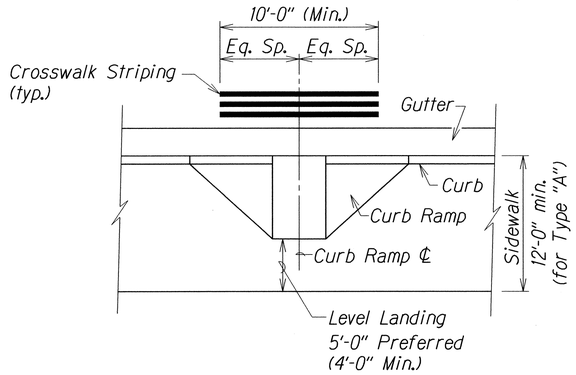
DETAIL "A"

CROSSWALK STRIPING DETAIL

NOTE:
Longitudinal lines shall be parallel to traffic flow.



TYPICAL CROSSWALK STRIPING AT DIAGONAL CURB RAMP



TYPICAL CROSSWALK STRIPING AT CURB RAMP

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

tdl:/usr2/traffic/std/curbramp/rampmisc-r12-06-06.dgn

R12-06-06 TE-XX shft. 7 of 9

DATE	REVISION
3 4-28-16	Added Sheet.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MISCELLANEOUS DETAILS

HANA HIGHWAY RESURFACING
Haleakala Highway to Paia and
HALEAKALA HIGHWAY RESURFACING
Hana Highway to North Firebreak Rd.
Project No. HWY-M-01-15M

Not to Scale Date: April, 2016

SHEET No. 5 OF 5 SHEETS

R12-06-06 ADD. 41S-5

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-M-01-15M	2016	ADD.41S-6	41

ELECTRONIC VEHICLE COUNTING (EVC) SYSTEM NOTES

1. The location of new sensor loops and piezo sensors shall be staked out in the field by the Contractor and approved by the Engineer prior to installation.
2. The Contractor shall inform the Engineer at least three days prior to saw-cutting pavement and installing sensor loops and piezo sensors.
3. Pull in in-bound lanes sensor loop cable and piezo sensor lead cables into conduit, where indicated. Cables shall be tested for acceptance before and after installation into conduit.
4. Piezo lead cables shall be continuous with no splices.
5. The Contractor shall restore all affected areas to their original condition. This item of work shall not be paid for separately, but shall be considered incidental to work of other paid items.
6. The Contractor shall verify the location of the existing utilities and underground structures whether or not it is shown on the plans.
7. The Contractor shall assume that existing undergound utilities not shown on the plans may exists. The Contractor shall be responsible for contacting the different utility companies for information and toning.
8. The Contractor shall be held liable for any damages incurred to the existing utilities and underground structures as a result of his operations. All damaged portions shall be replaced in accordance with the standards and specifications of the affected utility company at no cost to the State.
9. Changes to the contract plans and specifications will not be permitted, unless approved by the Engineer in writing.
10. All cables are to be terminated within the EVC cabinet and shall have a minimum 12" additional slack.
11. Highway crossing conduit shall be provided with 36" cover.
12. Vacuum, pressure wash and air dry by air compressor and clean sawcut thoroghly before installing sensors and/or cables and filling with epoxy loop sealant or PU200 Piezo Installation Resin.
13. All Saw-cutting Slurry shall be Wet Vacuumed, either simultaneous with or immediately after the Saw-cutting operations. The collected Slurry shall be disposed of appropriately (i.e., either, placed in a Filter Fabric Lined Filtration Box or in a Filter Fabric Lined Dug Up Retention/Percolation Basin, and after Filtration/Percolation, the Filter Fabric and the retained sediments, disposed of appropriately).
14. Dry saw-cutting shall not be permitted.

SENSOR LOOP LAYOUT NOTES

1. Detector loop shall consist of four turns of 1C #14 cable meeting IMSA Spec 51-3 or equivalent embedded in a 3/8" wide by 4" deep sawcut, except as noted. Detector loop shall be provided a minimum 2" cover.
2. Sensor loop and lead cable shall be one continuous wire. Lead wires from the same loop shall be twisted in pairs, five twists per foot from the edge of paved shoulder to the pullbox. Do not twist one loop pair with another loop pair.
3. Continuity of sensor loops and lead-in wires shall be tested and warranted for one year from the date of accepatance by the Contractor.
4. Sensor loop lead cables shall be spliced only at the final pullbox to the EVC cabinet. Splice point of cables must be suspended near the top of the pullbox with a j-hook.
5. Splices shall be made by use of a splice kit.
6. All sensor loop lead cables shall be crimped with open end lugs that will fit into the terminal board slots snugly.
7. Stagger sensor loops on roadways with lanes that are less than 12 feet in width.
8. The Contractor shall connect the sensor loop wires on each terminal slot, as shown on plans.
9. The left lane in the direction of traffic flow is designated as lane 1, and the next lane to its right as lane 2 and so on as indicated on plans.
10. All sensor loop lead wires in the EVC cabinet and the pullboxes shall be identified and labeled by direction of traffic flow and lane number as shown on plans.
11. Only one sensor loop shall be placed per saw cut.

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

DATE	REVISION
3 4/28/16	Added Sheet

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EVC TRAFFIC COUNTING SYSTEM NOTES

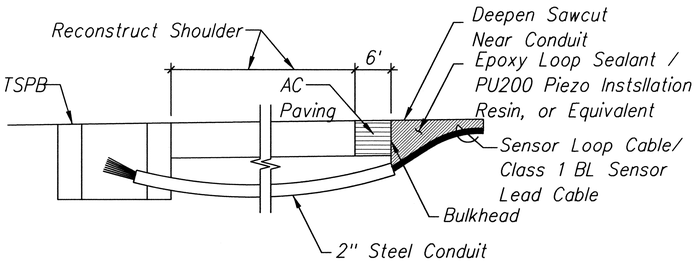
HANA HIGHWAY RESURFACING

Haleakala Highway to Paia
HALEAKALA HIGHWAY RESURFACING
Hana Highway to North Firebreak Road
Project No. HWY-M-01-15M
Date: April, 2016

SHEET No. 1 OF 4 SHEETS

ADD. 41S-6

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-M-01-15M	2016	ADD.41S-7	41

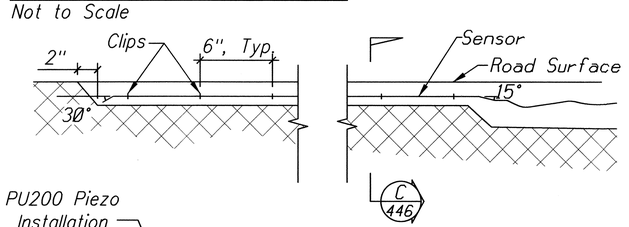


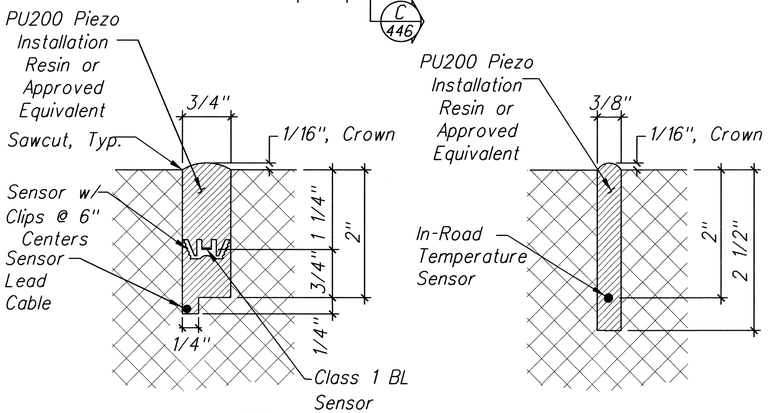
NOTES ON CONSTRUCTION AT END OF SAWCUT:

1. Seal roadway end of conduit after installation of conductors.
2. Install bulkhead across conduit trench.
3. Place Epoxy Loop Sealant or PU200 Piezo Installation Resin or Equivalent in sawcut.
4. Backfill over conduit with new AC.
5. Reconstruct curb and gutter as required.

DETAIL OF SENSOR LOOP/CLASS 1 BL SENSOR AT EDGE OF ROADWAY

Not to Scale





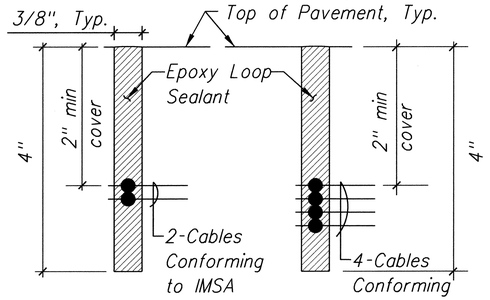
SECTION C 446
Not to Scale

PIEZOELECTRIC SENSOR INSTALLATION DETAIL

Not to Scale

IN-ROAD TEMPERATURE SENSOR INSTALLATION DETAIL

Not to Scale

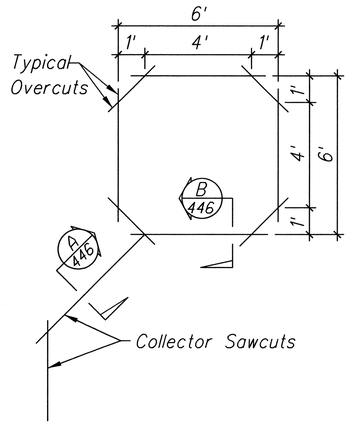


SECTION A 446
Not to Scale

SECTION B 446
Not to Scale

TYPICAL SECTION THROUGH SENSOR LOOP

Not to Scale

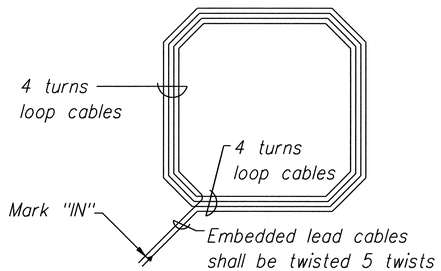


TYPICAL SENSOR LOOP SAWCUT DETAIL

Not to Scale

NOTES:

1. Length of overcuts shall be kept to a minimum. All overcuts shall be backfilled with 3M Loop sealant.
2. All saw-cutting slurry shall be wet vacuumed, either simultaneous with or immediately after the saw-cutting operations, and the collected slurry disposed of appropriately (i.e., either, placed in a filter fabric lined filtration box or in a filter fabric lined dug up retention/percolation basin, and after flitration/percolation, the filter fabric and the retained sediments, disposed of appropriately).



PLAN

TYPICAL SENSOR LOOP WIRING DIAGRAM

Not to Scale

DATE	REVISION
3 4/28/16	Added Sheet

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EVC TRAFFIC COUNTING SYSTEM DETAILS

HANA HIGHWAY RESURFACING

Haleakala Highway to Paia
HALEAKALA HIGHWAY RESURFACING
Hana Highway to North Firebreak Road
Project No. HWY-M-01-15M

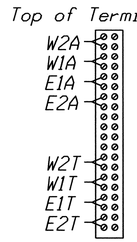
Date: April, 2016

SHEET No. 2 OF 4 SHEETS

ADD. 41S-7

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

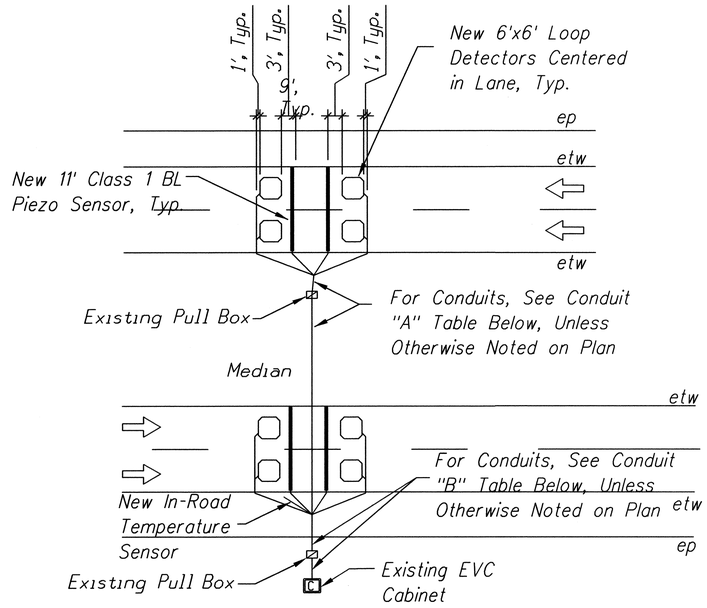
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-M-01-15M	2016	ADD.41S-8	41



Connecting layout of loop lead-in wires to terminal block inside cabinet

TYPICAL FOUR-LANE ROADWAY TERMINAL BLOCK WIRING DETAILS

Not to Scale



Conduit "A" Table:

Conduit* #-Size	Class 1 BL Sensor Lead Cables	2C #18 Loop Detector Cable
Existing	4	4

Conduit "B" Table:

Conduit* #-Size	Class 1 BL Sensor Lead Cables	2C #18 Loop Detector Cable	In-Road Temperature Sensor Cable
Existing	8	8	1

*Conduits under pavement and at utility crossings shall be concrete encased.

*NOTES:

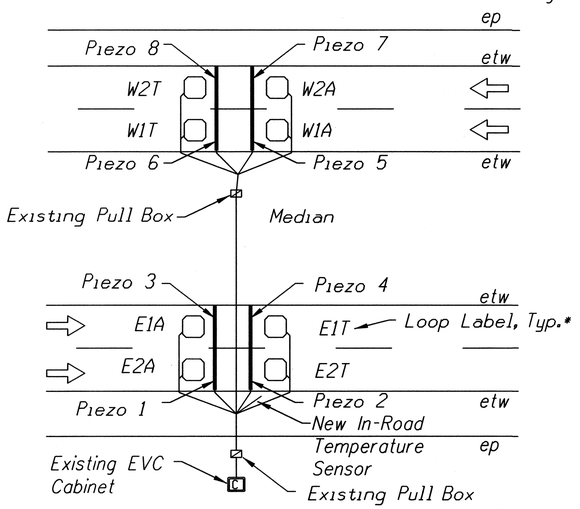
1. All dimensions and callouts are typical unless otherwise noted on plan.
2. Contractor shall coordinate service agreements and connections to electrical and communication service. Contractor shall also contact the appropriate State Dept of Transportation Representative for service agreement. (Highways Planning, Contact, Goro Sulijoadikusumo, P.E., at 587-1839).

EVC COUNTING SYSTEM LAYOUT DETAIL

Not to Scale

E2T
- Indicates approaching or trailing loop
- Indicates lane number
- Indicates directions*

LOOP LABEL LEGEND:
- E = East
- W = West
- A = Approaching
- T = Trailing



LABELING OF LOOPS AND PIEZOS

Not to Scale

DATE	REVISION
4/28/16	Added Sheet

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EVC TRAFFIC COUNTING SYSTEM LAYOUT

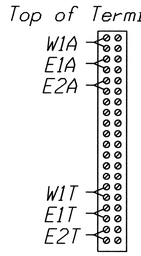
HALEAKALA HIGHWAY MP 0.61
HANA HIGHWAY RESURFACING
Haleakala Highway to Paia
HALEAKALA HIGHWAY RESURFACING
Hana Highway to North Firebreak Road
Project No. HWY-M-01-15M
Date: April, 2016

SHEET No. 3 OF 4 SHEETS

ADD. 41S-8

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

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-M-01-15M	2016	ADD.41S-9	41



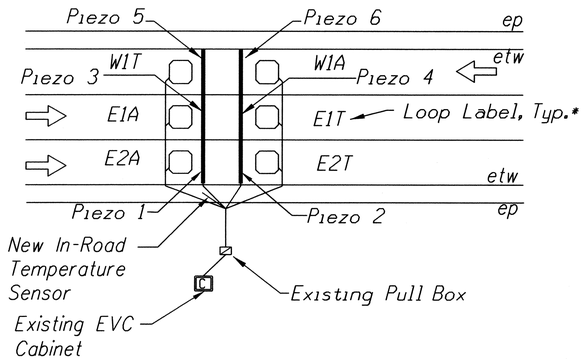
Connecting layout of loop lead-in wires to terminal block inside cabinet

TYPICAL THREE-LANE ROADWAY TERMINAL BLOCK WIRING DETAILS

Not to Scale

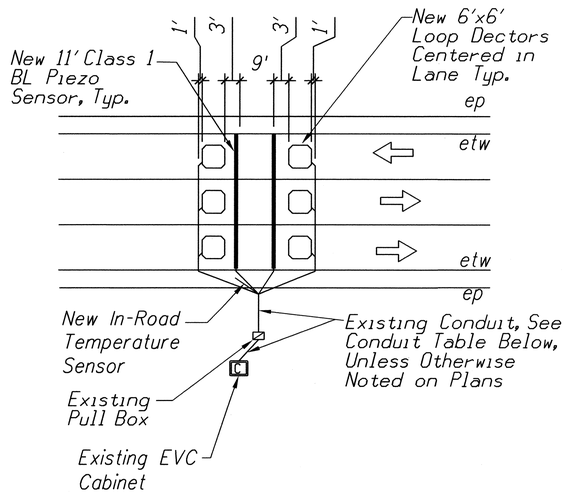
E2T
- Indicates approaching or trailing loop
- Indicates lane number
- Indicates directions*

LOOP LABEL LEGEND:
- E = East
- W = West
- A = Approaching
- T = Trailing



LABELING OF LOOPS AND PIEZOS

Not to Scale



Conduit Table:

Conduit* #-Size	Class 1 BL Sensor Lead Cables	2C #18 Loop Detector Cable	In-Road Temperature Sensor Cable
Existing	6	6	1

*Conduits under pavement and at utility crossings shall be concrete encased.

*NOTES:
1. All dimensions and callouts are typical unless otherwise noted on plan.
2. Contractor shall coordinate service agreements and connections to electrical and communication service. Contractor shall also contact the appropriate State Dept of Transportation Representative for service agreement. (Highways Planning, Contact, Goro Sulijoadikusumo, P.E., at 587-1839).

EVC COUNTING SYSTEM LAYOUT DETAIL

Not to Scale

DATE	REVISION
3 4/28/16	Added Sheet

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EVC TRAFFIC COUNTING SYSTEM LAYOUT
HANA HIGHWAY MP 6.28
HANA HIGHWAY RESURFACING
Haleakala Highway to Paia
HALEAKALA HIGHWAY RESURFACING
Hana Highway to North Firebreak Road
Project No. HWY-M-01-15M
Date: April, 2016

SHEET No. 4 OF 4 SHEETS

ADD. 41S-9

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