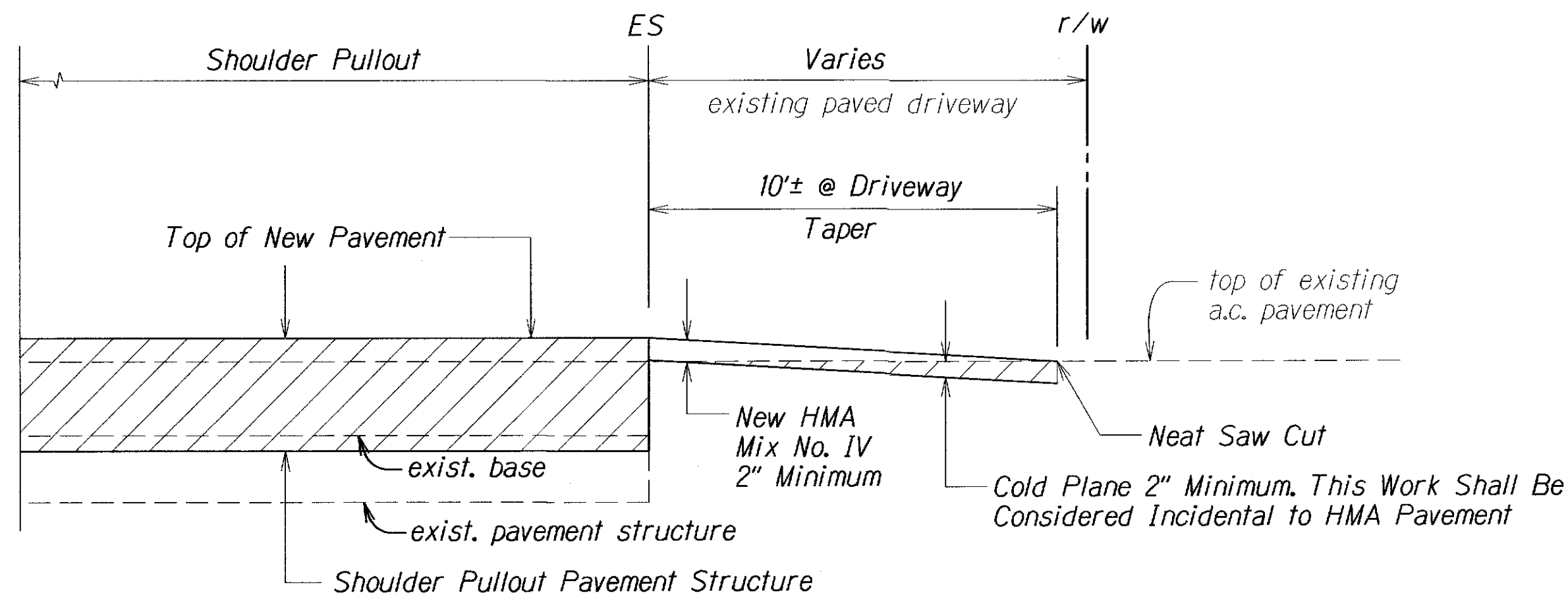
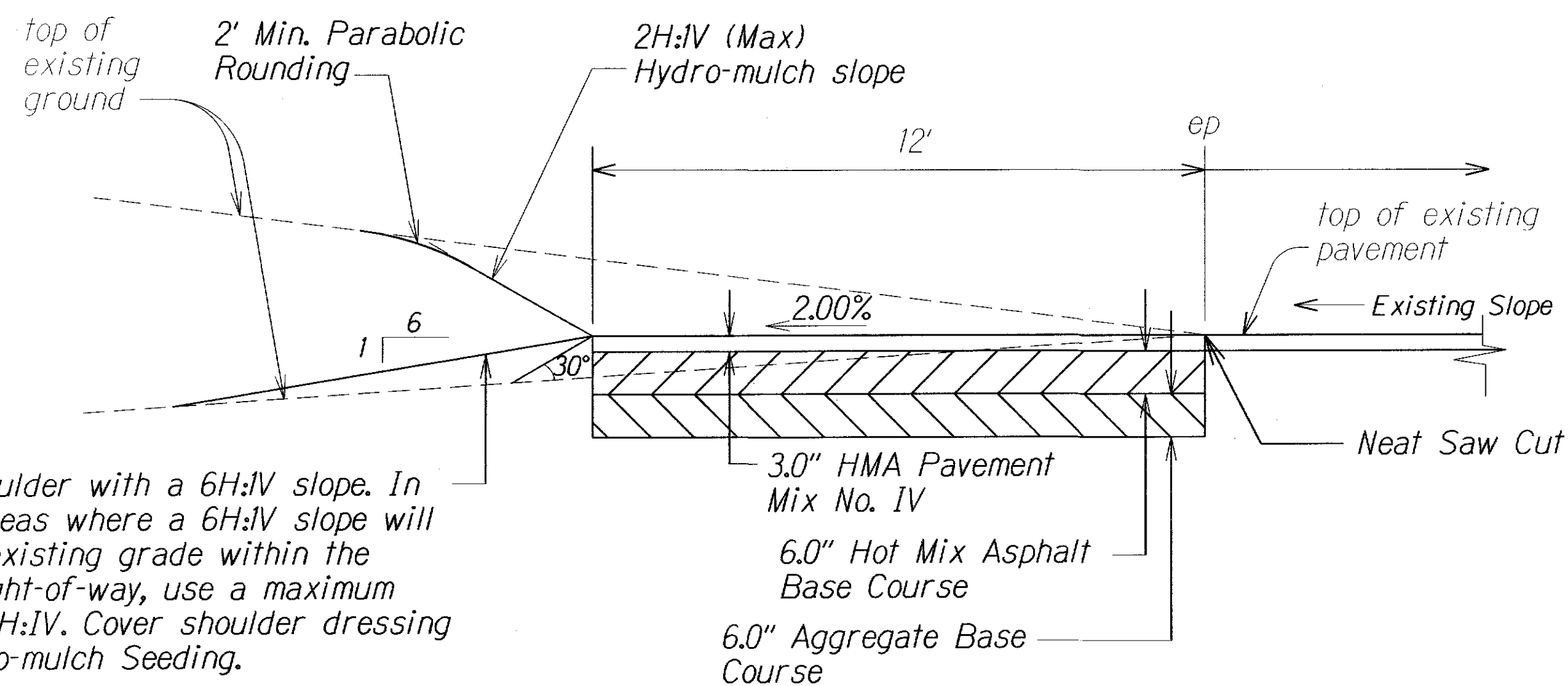


FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HS1P-2050(007)	2017	ADD. 7	35



SHOULDER PULLOUT AT PAVED DRIVEWAY DETAIL
Not to Scale

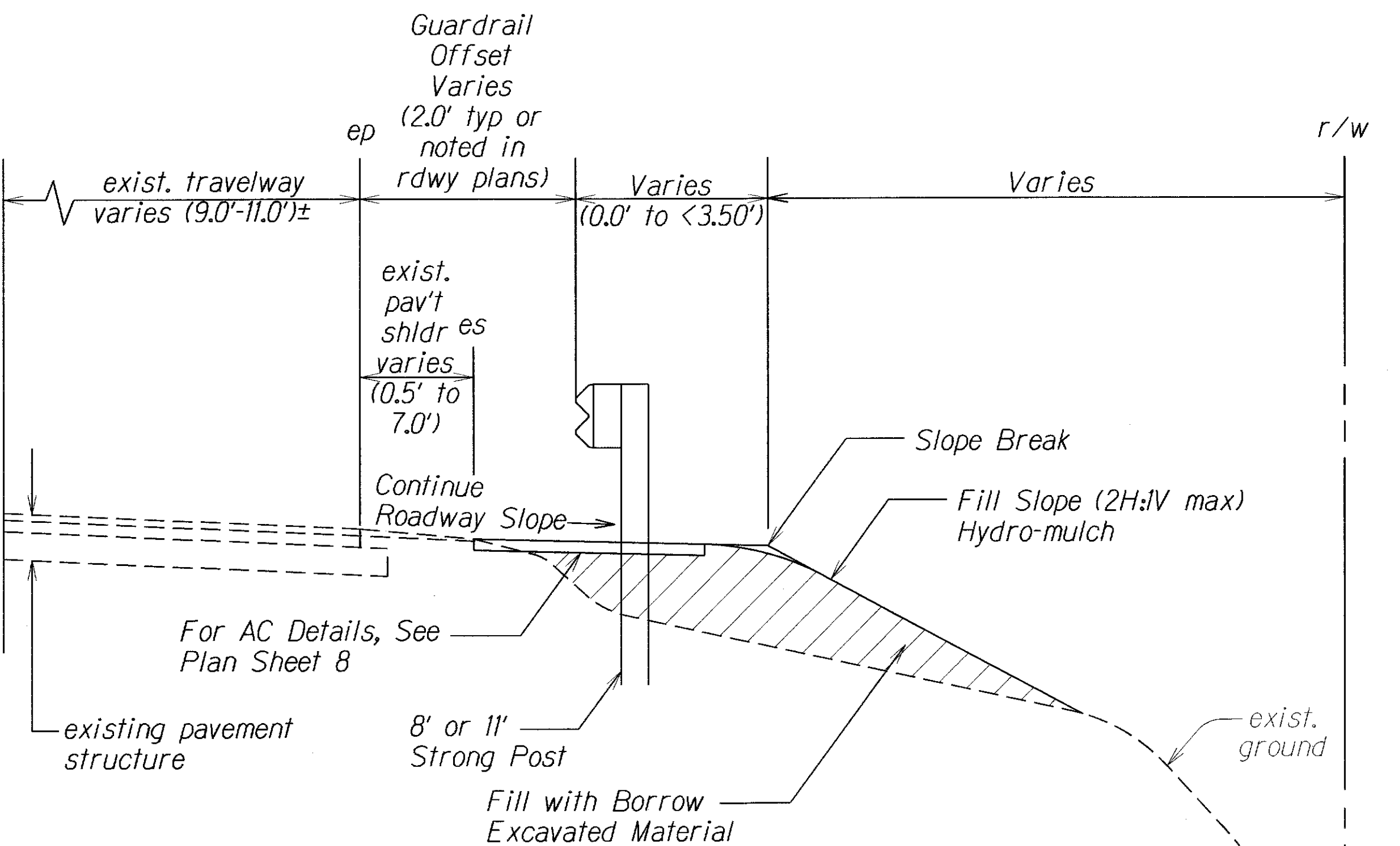


Dress shoulder with a 6H:1V slope. In steeper areas where a 6H:1V slope will not meet existing grade within the State's right-of-way, use a maximum slope of 4H:1V. Cover shoulder dressing with Hydro-mulch Seeding.

TYPICAL 12.0' SHOULDER PULLOUT
Not to Scale

Notes:

- Contractor shall mount a device directly on the paver screed extension to provide a 30° beveled shoulder edge.
- Contractor shall mitigate pavement drop-offs which shall be approved by the Engineer.



GUARDRAIL WITH 8.0' AND 11.0' STRONG POSTS
Not to Scale

Notes:

- 8' strong post shall be installed in areas where the length between the fill top slope break and front face of guardrail is between 0.0' and 3.50'.
- 11' strong post shall be installed in areas where a max fill slope of 2H:1V behind the front face of guardrail is not feasible within the State's right-of-way. If the existing top slope break is located within 2.0' of the ep, offset the front face of guardrail 1.0' from the ep and taper the approach and trailing ends with a minimum of 18:1 flare. This work shall be considered incidental to Guardrail Strong Post W-Beam 11.0' Post. No additional fill slope will be needed in these areas.
- Additional paved area shall be installed up to the existing paved edge of shoulder.

11/2/17 Added notes and revised details

DATE REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

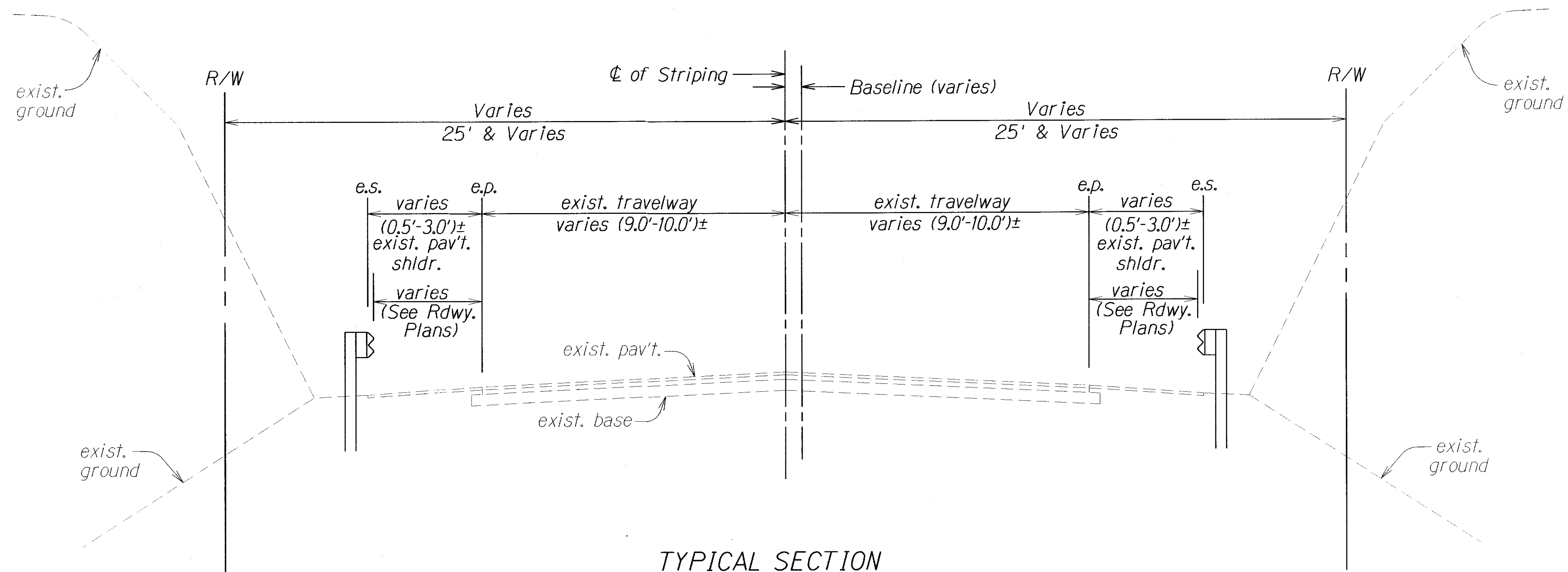
MISCELLANEOUS DETAILS

KOHALA MOUNTAIN ROAD
Safety Improvements
Federal Aid Project No. HSIP-0250(007)

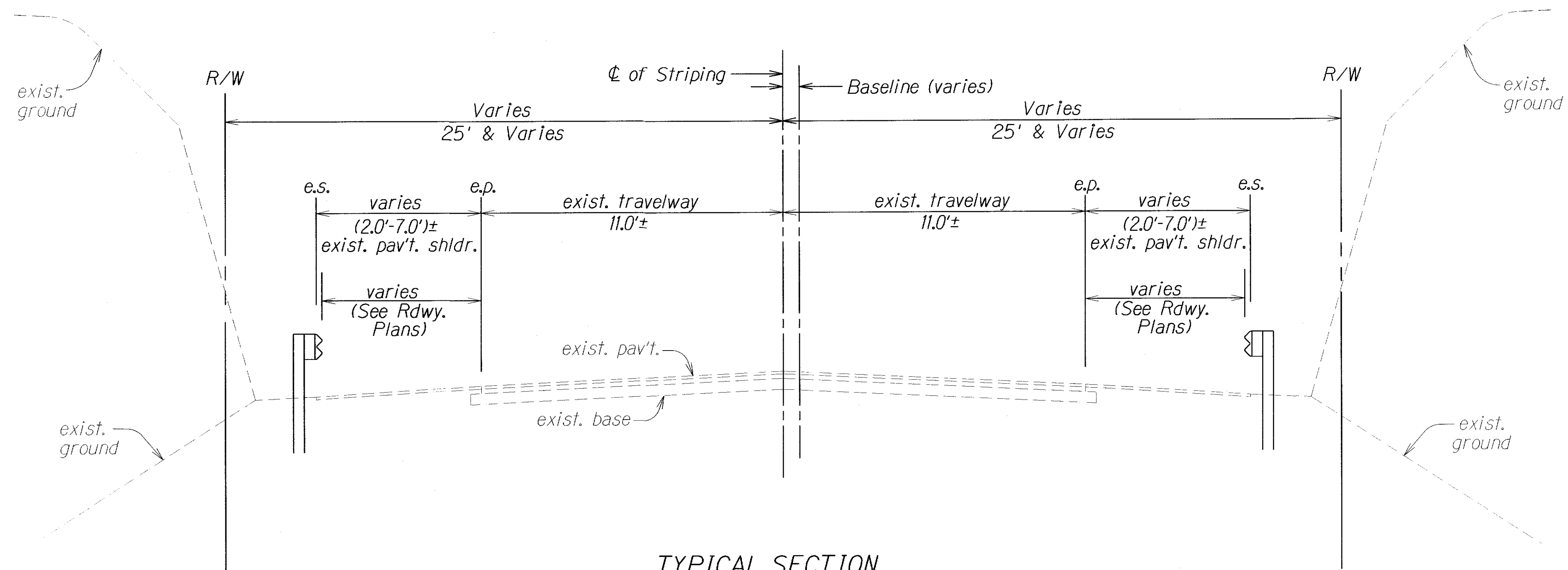
Scale: Not to Scale Date: October, 2017

SHEET No. 1 OF 1 SHEETS

DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HSIP-0250(007)	2017	ADD. 7 S-1	2017



TYPICAL SECTION
 STA. 421+50.0± to STA. 439+06.95±
 STA. 493+00.0± to STA. 532+10.27±
 Not to Scale



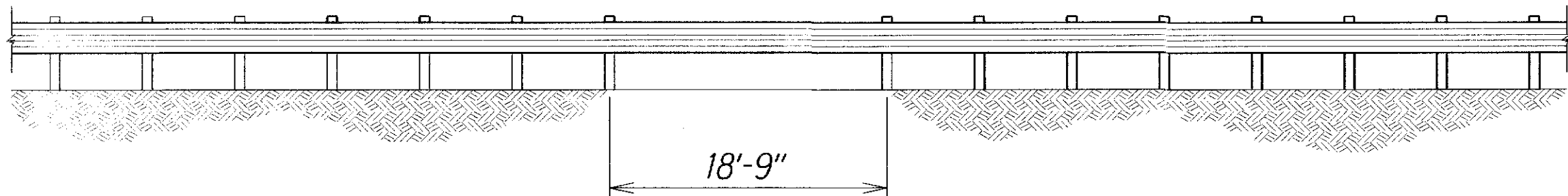
TYPICAL SECTION
 STA. 439+06.95± to STA. 493+00.0±
 STA. 533+37.54± to STA. 535+0.00±
 Not to Scale

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

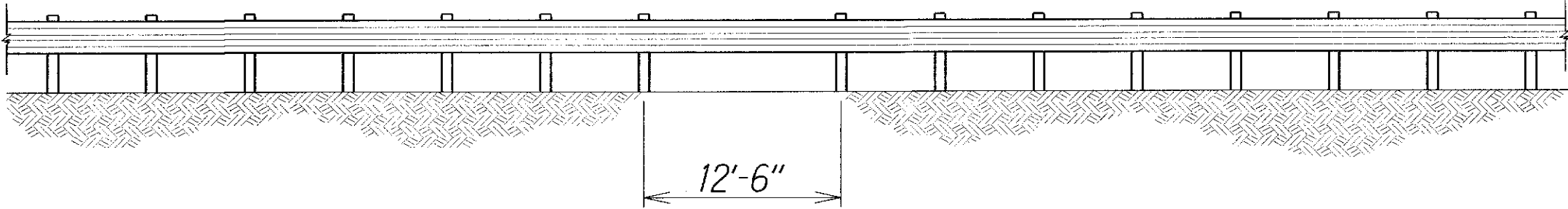
11/2/17	Added sheet
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION TYPICAL SECTIONS KOHALA MOUNTAIN ROAD Safety Improvements Federal Aid Project No. HSIP-0250(007) Scale: Not to Scale Date: October, 2017 SHEET No. 1 OF 1 SHEETS	

ADD. 7 S-1

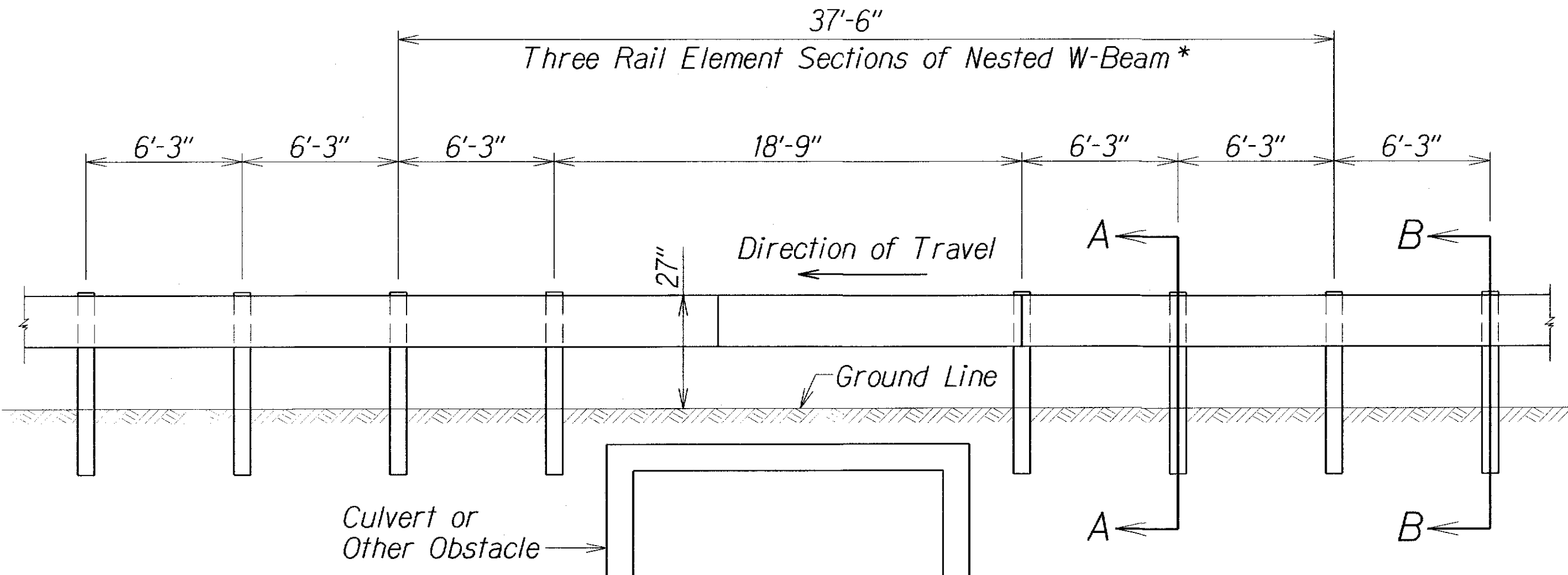
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HSIP-0250(007)	2017	ADD. 12	35



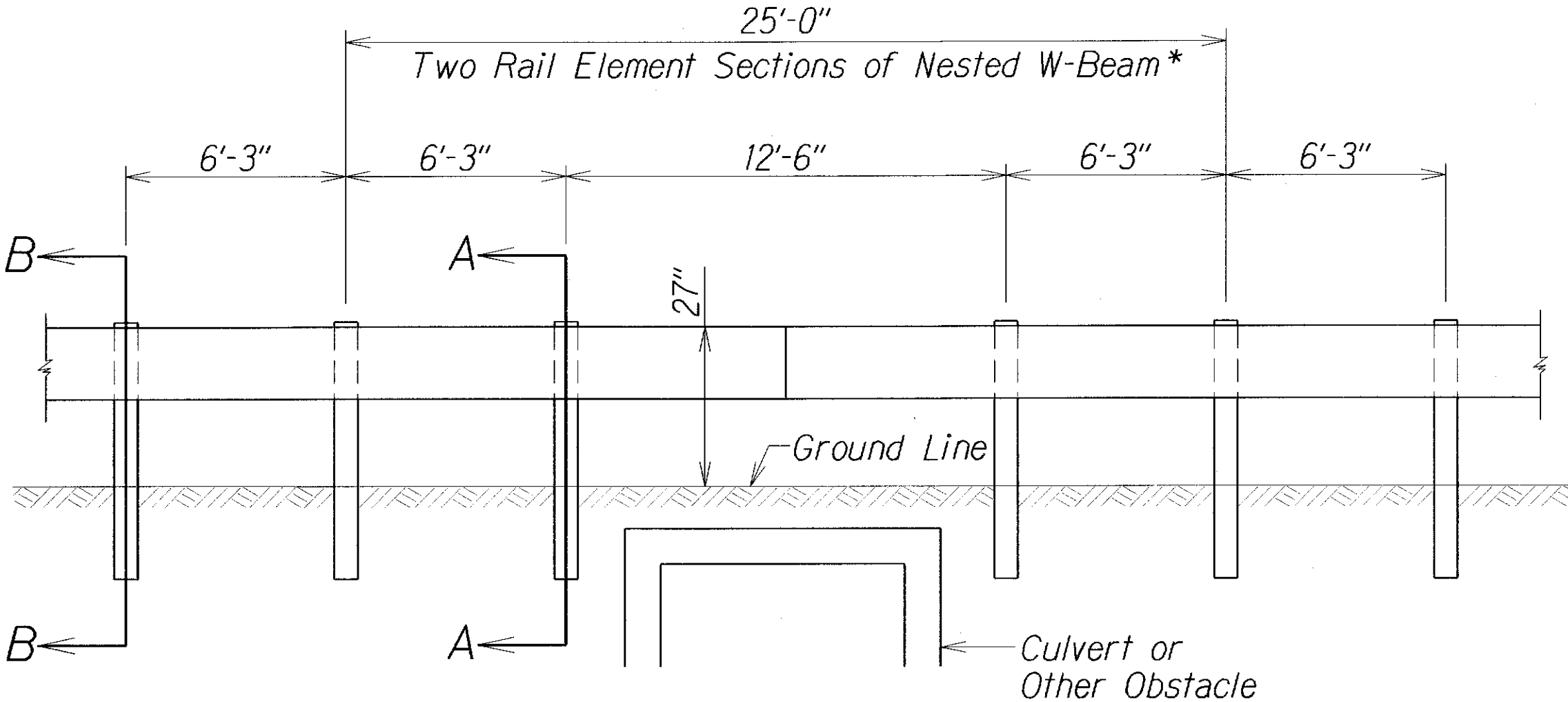
LONG SPAN OVER CULVERT



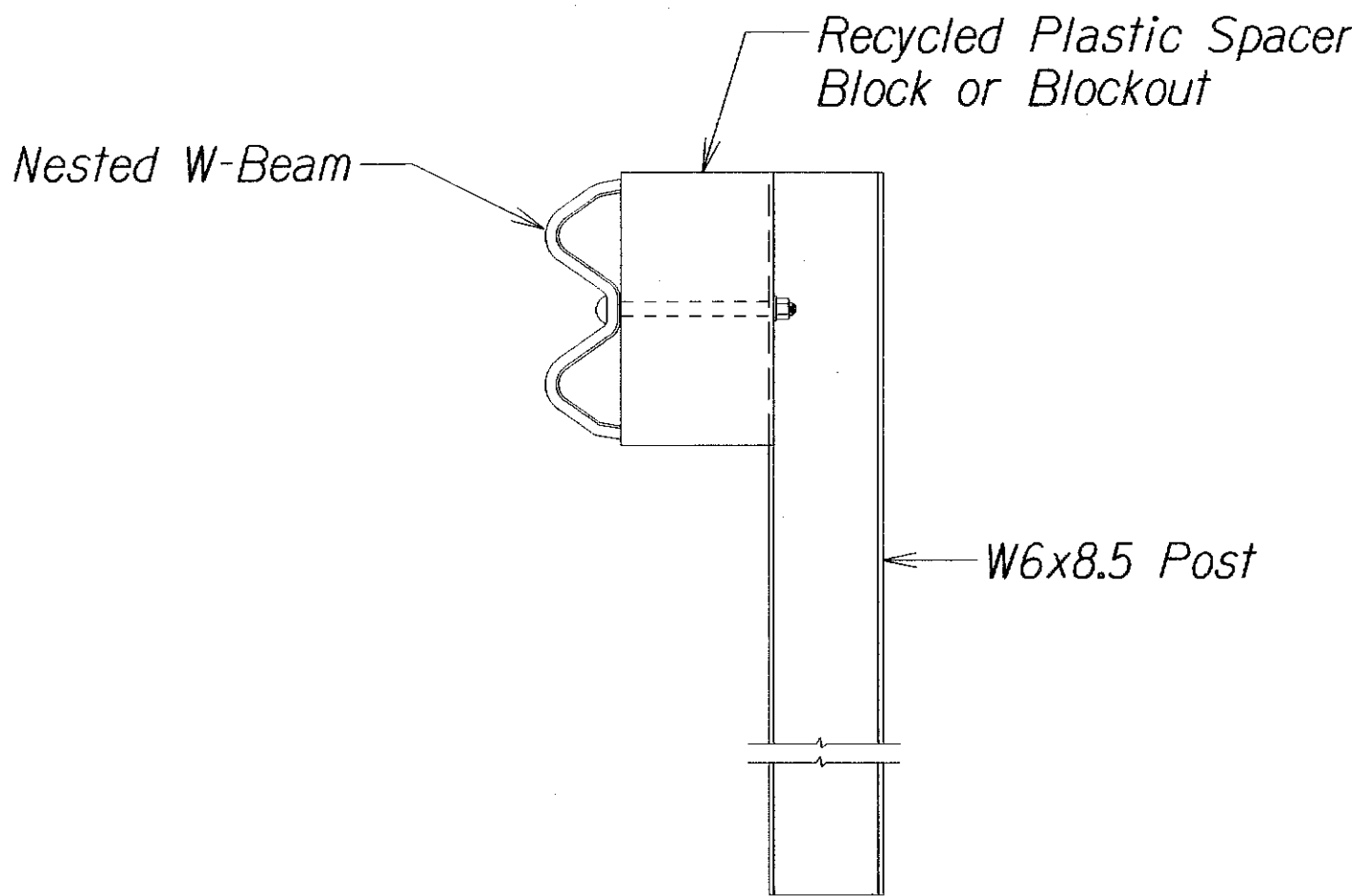
LONG SPAN OVER CULVERT



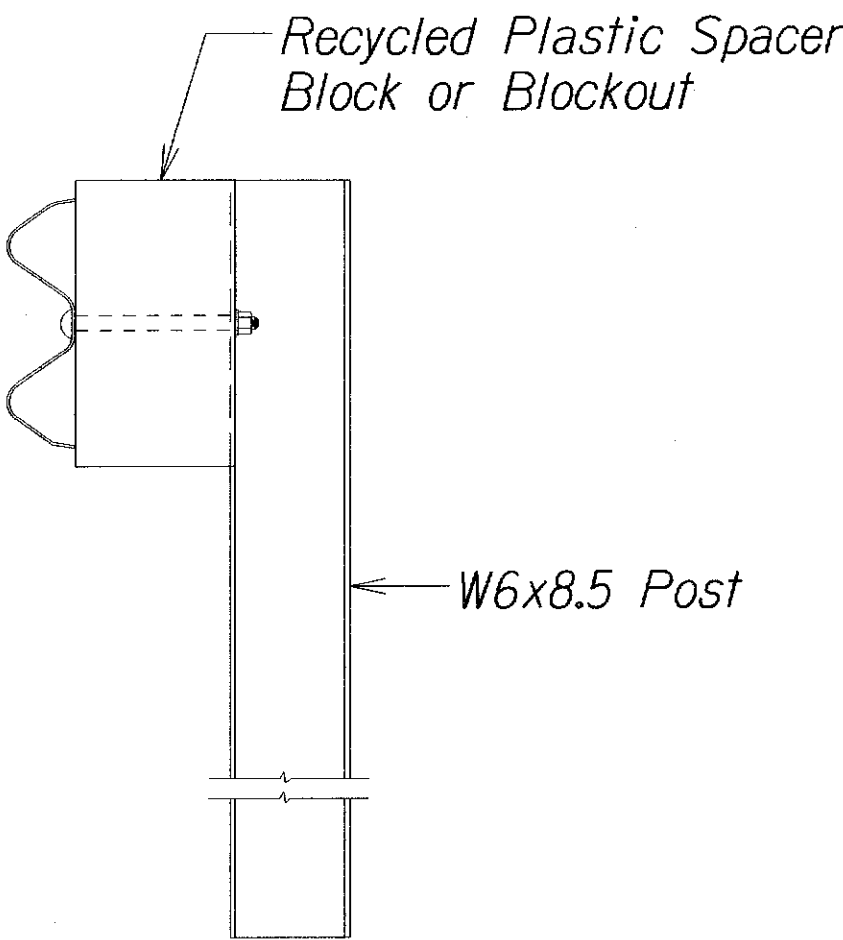
NESTED LONG SPAN STRONG POST
W-BEAM GUARDRAIL OVER 18'-9" CULVERT
(MAXIMUM DYNAMIC DEFLECTION OF 3.2 FT.)



(SPLICE IN CENTER OF 12'-6" SPACING)
NESTED LONG SPAN STRONG POST
W-BEAM GUARDRAIL OVER 12'-6" CULVERT
(MAXIMUM DYNAMIC DEFLECTION OF 3.1 FT.)



SECTION A-A

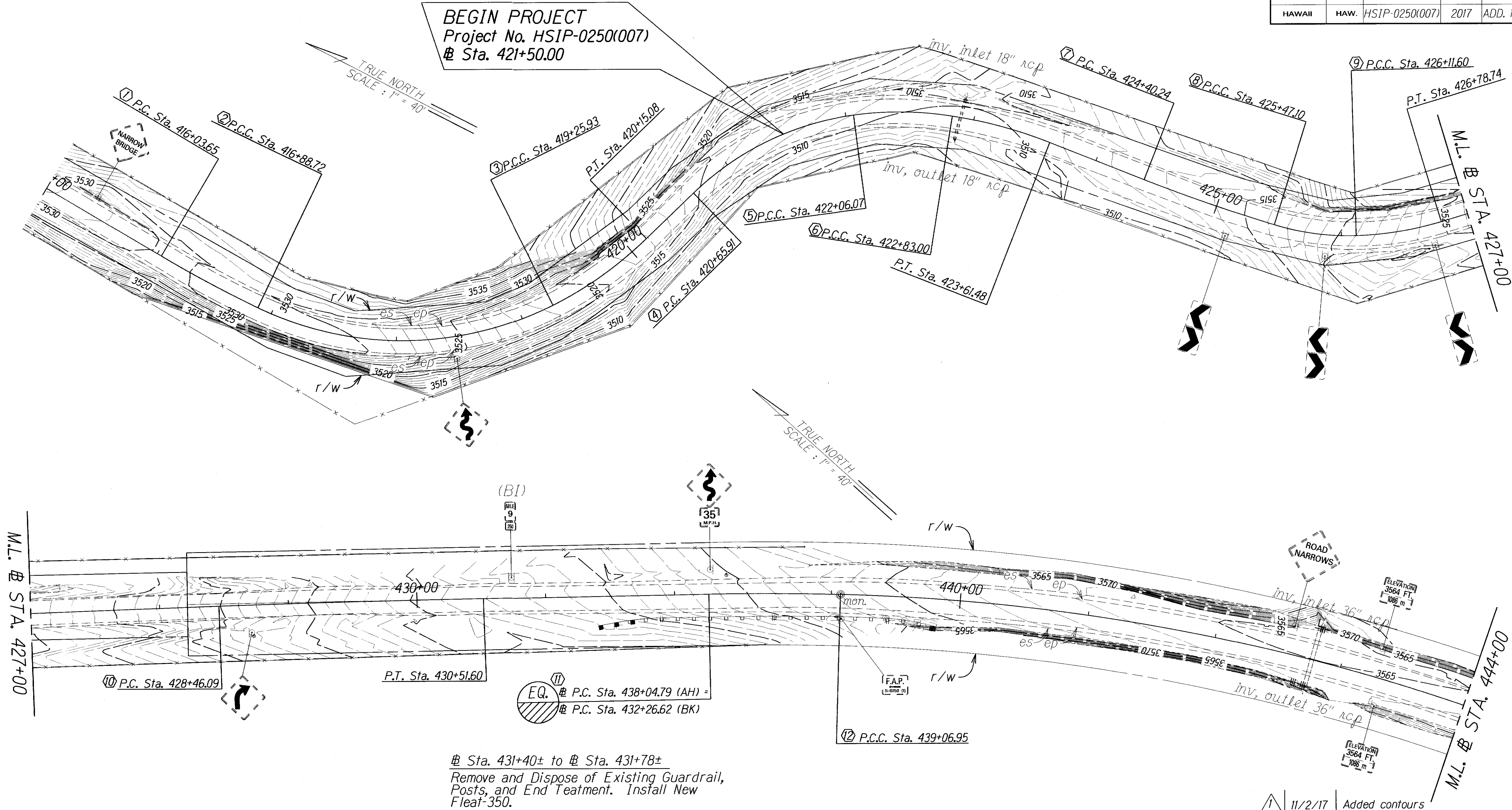


SECTION B-B

- Notes:**
- All rail elements sections are 12'-6" and all posts are 6' long or noted on plans.
 - This work, if necessary, shall be considered incidental to Guardrail pay items.
 - All nested w-beam splice points shall be staggered. *

11/2/17	Added notes
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION NESTED LONG SPAN STRONG POST W-BEAM GUARDRAIL OVER CULVERT KOHALA MOUNTAIN ROAD SAFETY IMPROVEMENTS Federal Aid Project No. HSIP-0250(007) Scale: NTS Date: October, 2017	
SHEET No. 5	OF 11 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HSIP-0250(007)	2017	ADD. 19	35



Curve #	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫
Δ =	5°02'10.00"	52°04'00.00"	17°22'50.00"	36°19'50.00"	16°38'00.00"	12°19'10.00"	4°5'10.00"	18°57'00.00"	15°17'30.00"	1°02'00.00"	2°37'30.00"	2°37'10.00"
D =	5°55'11.36"	2°56'58.19"	19°29'48.35"	25°55'12.18"	2°37'19.10"	15°41'49.74"	3°49'25.82"	29°22'52.76"	22°46'32.58"	0°30'10.08"	2°34'10.15"	3°30'01.77"
R =	967.8630	261.0346	293.8733	221.0481	264.9887	365.0075	1498.3839	195.0075	251.5652	11395.3448	2229.8541	1636.7919
T =	42.5634	127.5031	44.9179	70.48	38.7364	39.3929	53.4521	32.5456	33.7708	102.7607	51.0892	312.5226
C =	85.0446	229.1330	88.8044	137.8275	76.6581	78.3309	106.8362	64.2032	66.9411	205.5130	102.1516	613.9541
LC =	85.0720	237.2112	89.1459	140.1639	76.9279	78.4820	106.8589	64.4968	67.1402	205.5158	102.1605	617.6115

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

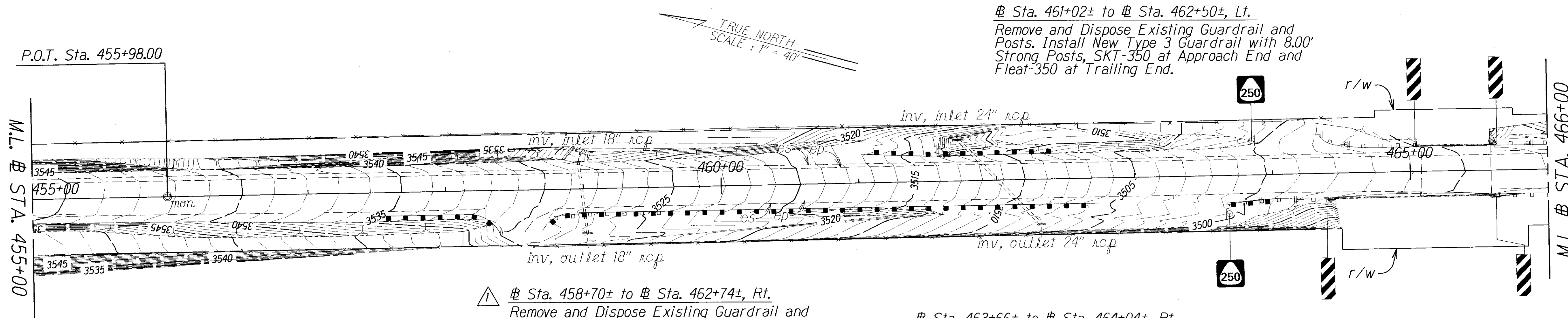
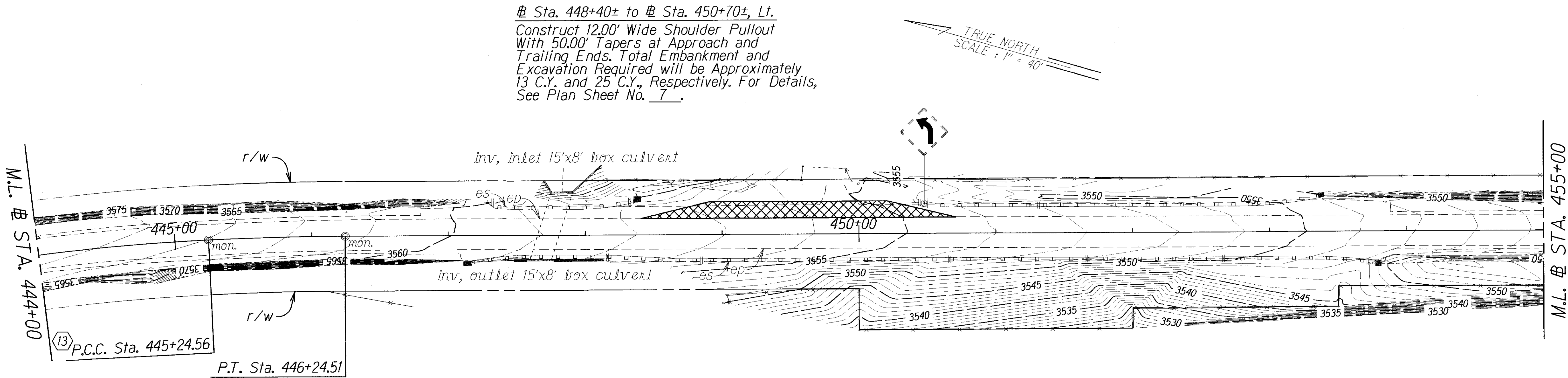
ROADWAY PLANS

KOHALA MOUNTAIN ROAD
SAFETY IMPROVEMENTS
Federal Aid Project No. HSIP-0250(007)

Scale: 1" = 40' Date: October, 2017

SHEET No. 1 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HSIP-0250(007)	2017	ADD. 20	35



Sta. 457+46± to # Sta. 458+36± o/s 17.50±, Rt.
Install New Type 3 Guardrail With New Fleet-350 at Approach End and New Modified Type G, Radius = 25.00' at Trailing End. Begin 25.00' Radius New Type 3 Guardrail From # Sta. 458+15± and Connect to Modified Type G.

Sta. 458+70± to # Sta. 462+74±, Rt.
Remove and Dispose Existing Guardrail and Posts. Install New Type 3 Guardrail with New Modified Type G Radius = 25.00' at Approach End and Fleet-350 at Trailing End. Begin 25.00' Radius New Type 3 Guardrail From # Sta. 458+91± and Connect to Modified Type G. # Sta. 460+50± to # Sta. 461+60± = Install 8.0' Post

Sta. 463+66± to # Sta. 464+04±, Rt.
Remove and Dispose Existing End Treatment. Install New Fleet-350 at Approach End.

11/2/17 Added contours and revised callout

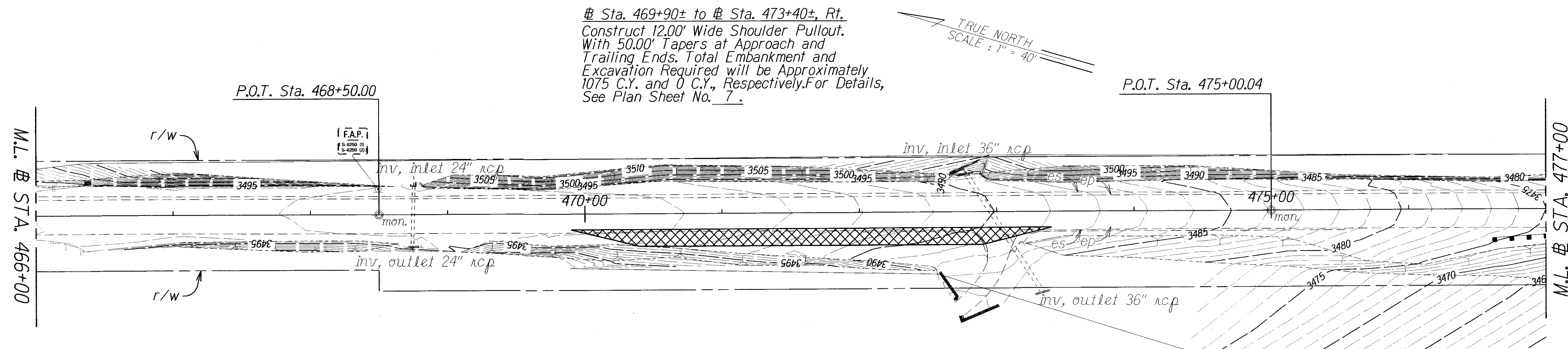
DATE REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ROADWAY PLANS
KOHALA MOUNTAIN ROAD
SAFETY IMPROVEMENTS
Federal Aid Project No. HSIP-0250(007)
Scale: 1" = 40' Date: October, 2017
SHEET No. 2 OF 6 SHEETS

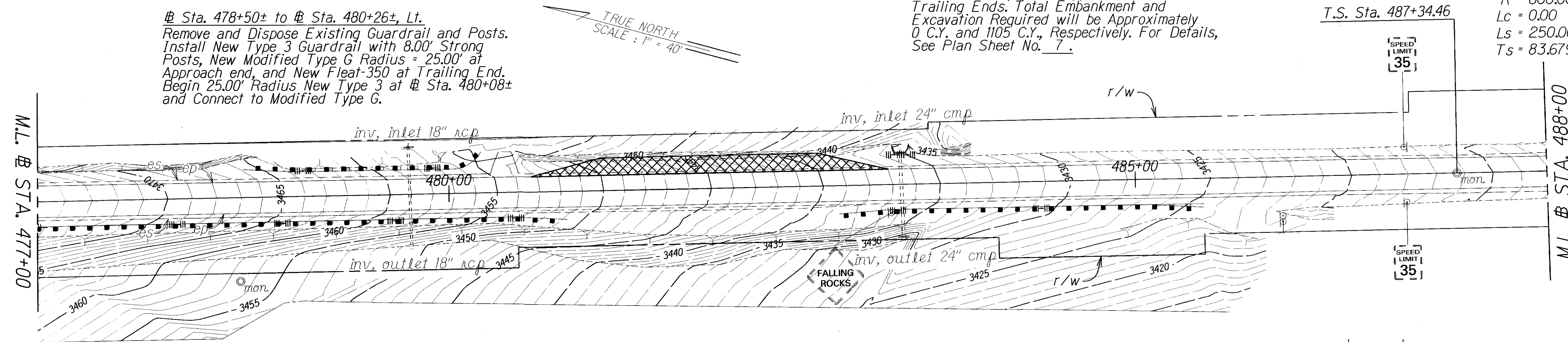
SURVEY PLOTTED BY	DATE
DESIGNED BY	
TRACED BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
CHECKED BY	

Curve #	(13)
Δ =	2°37'30.00"
D =	2°37'35.08"
R =	2181.5246
T =	49.9819
C =	99.9376
LC =	99.9463

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HSIP-0250(007)	2017	ADD. 21	35



Sta. 469+90± to Sta. 473+40±, Rt.
Construct 12.00' Wide Shoulder Pullout.
With 50.00' Tapers at Approach and
Trailing Ends. Total Embankment and
Excavation Required will be Approximately
1075 C.Y. and 0 C.Y., Respectively. For Details,
See Plan Sheet No. 7.



Sta. 478+50± to Sta. 480+26±, Lt.
Remove and Dispose Existing Guardrail and Posts.
Install New Type 3 Guardrail with 8.00' Strong
Posts, New Modified Type G Radius = 25.00' at
Approach end, and New Fleet-350 at Trailing End.
Begin 25.00' Radius New Type 3 at Sta. 480+08±
and Connect to Modified Type G.

Sta. 480+60± to Sta. 483+20±, Lt.
Construct 12.00' Wide Shoulder Pullout.
With 50.00' Tapers at Approach and
Trailing Ends. Total Embankment and
Excavation Required will be Approximately
0 C.Y. and 1105 C.Y., Respectively. For Details,
See Plan Sheet No. 7.

CURVE DATA
 $\Delta = 00^{\circ}00'00''$
 $\Delta c = 00^{\circ}00'00''$
 $Dc = 9^{\circ}32'57.47''$
 $\theta s = 1^{\circ}56'11.83''$
 $R = 600.0000$
 $Lc = 0.00$
 $Ls = 250.0000$
 $Ts = 83.6793$

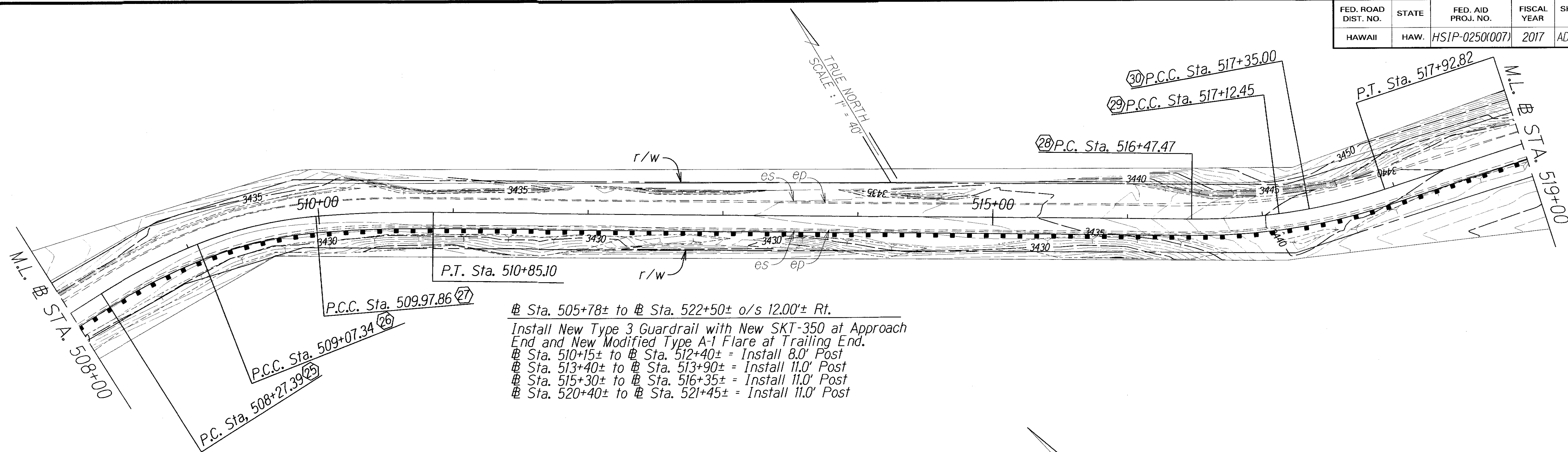
Sta. 476+62± to Sta. 480+86±, Rt.
Remove and Dispose Existing Guardrail and Posts.
Install New Type 3 Guardrail with 8.00' Strong
Posts, and New Fleet-350 at Both Approach
and Trailing Ends.

Sta. 482+84± to Sta. 485+50±, Rt.
Remove and Dispose Existing Guardrail and Posts.
Install New Type 3 Guardrail and New Fleet-350
at Both Approach and Trailing Ends.

11/2/17	Added contours
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION ROADWAY PLANS HOHALA MOUNTAIN ROAD SAFETY IMPROVEMENTS Federal Aid Project No. HSIP-0250(007)	
Scale: 1" = 40'	Date: October, 2017
SHEET No. 3 OF 6 SHEETS	

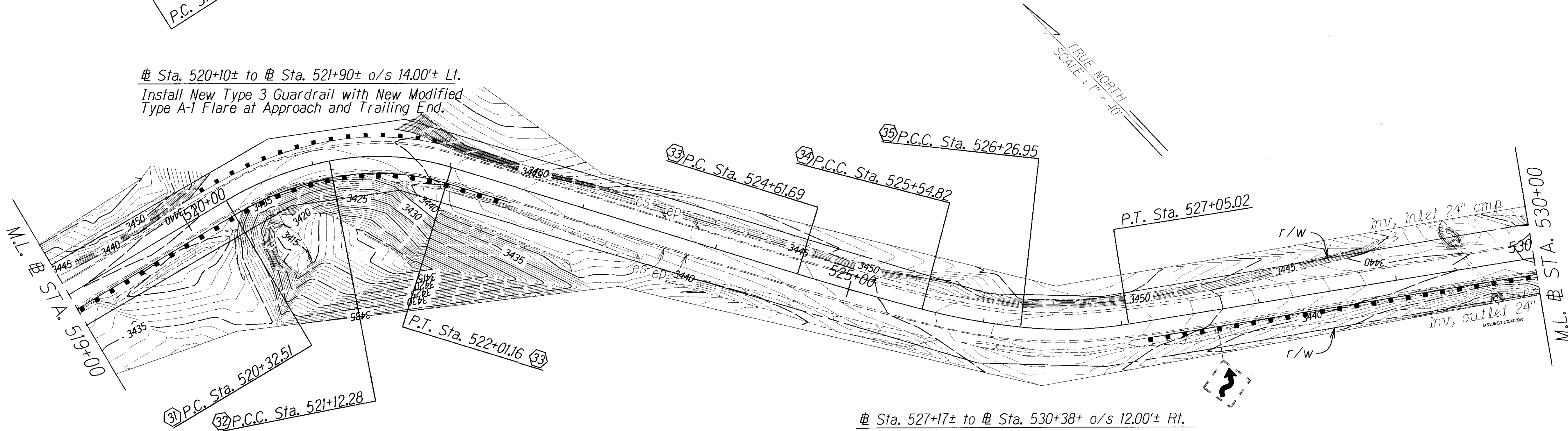
ORIGINAL PLAN	DATE
DESIGNED BY	
TRACED BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HSIP-0250(007)	2017	ADD. 23	35



Sta. 505+78± to Sta. 522+50± o/s 12.00'± Rt.
 Install New Type 3 Guardrail with New SKT-350 at Approach End and New Modified Type A-1 Flare at Trailing End.
 Sta. 510+15± to Sta. 512+40± = Install 8.0' Post
 Sta. 513+40± to Sta. 513+90± = Install 11.0' Post
 Sta. 515+30± to Sta. 516+35± = Install 11.0' Post
 Sta. 520+40± to Sta. 521+45± = Install 11.0' Post

Sta. 520+10± to Sta. 521+90± o/s 14.00'± Lt.
 Install New Type 3 Guardrail with New Modified Type A-1 Flare at Approach and Trailing End.



Sta. 527+17± to Sta. 530+38± o/s 12.00'± Rt.
 Install New Type 3 Guardrail with New Fleet-350 at Approach and Trailing End.
 Sta. 527+55± to Sta. 528+50± = Install 8.0' Post
 Sta. 528+50± to Sta. 530+00± = Install 11.0' Post

11/2/17 Added contours

Curve #	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)
Δ =	10°54'00.00"	16°44'00.00"	5°18'20.00"	7°56'20.00"	3°01'00.00"	7°52'50.00"	19°38'50.00"	28°09'10.00"	2°26'10.00"	8°34'00.00"	15°17'40.00"
D =	13°37'57.13"	18°29'11.85"	6°04'54.18"	12°12'57.20"	13°22'52.91"	13°37'43.12"	24°37'39.46"	31°40'29.46"	2°36'56.32"	11°52'37.25"	19°35'29.96"
R =	420.2870	309.9310	942.0990	469.0267	428.1759	420.4070	232.6484	180.8873	2190.5032	482.4090	292.4499
T =	40.0989	45.5824	43.6501	32.5462	11.2745	28.9574	40.2841	45.3565	46.5751	36.1314	39.2665
C =	79.8353	90.1946	87.2066	64.9362	22.5412	57.7779	79.3869	87.9891	93.1291	72.0610	77.8345
LC =	79.9558	90.5159	87.2378	64.9882	22.5438	57.8235	79.7772	88.8805	93.1362	72.1281	78.0661

DATE

REVISION

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

ROADWAY PLANS

KOHALA MOUNTAIN ROAD

Safety Improvements

Federal Aid Project No. HSIP-0250(007)

Scale: 1" = 40'

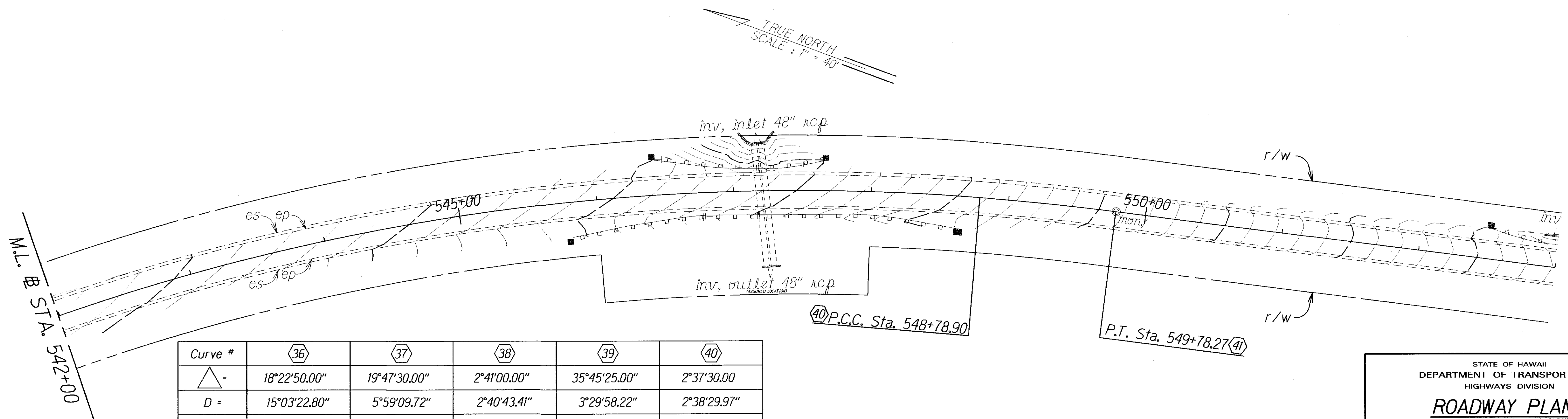
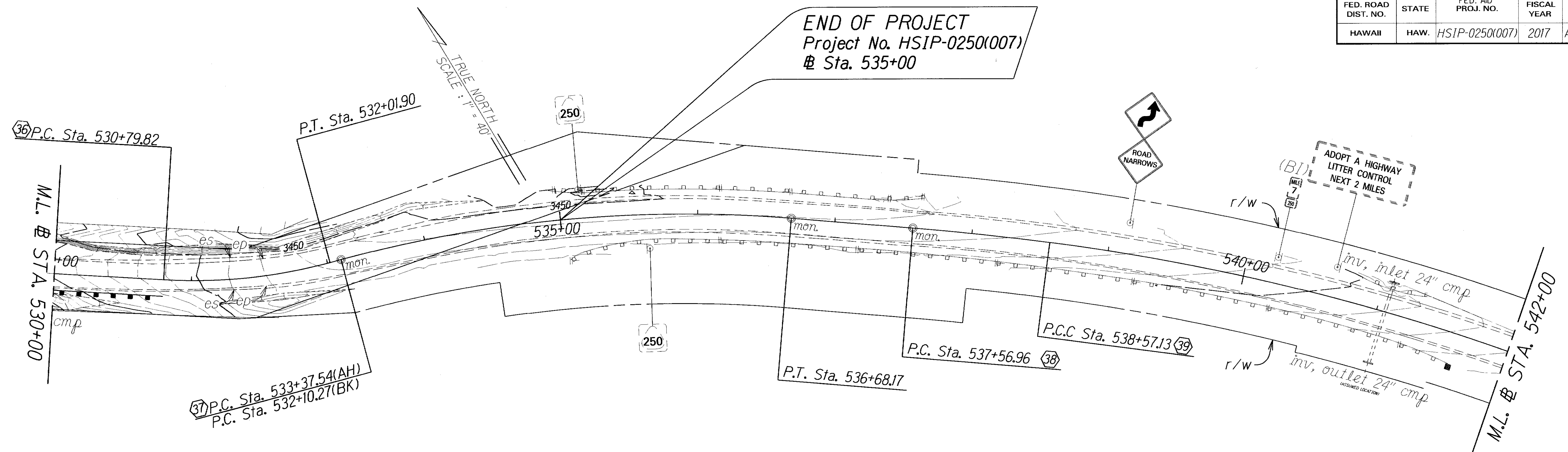
Date: October, 2017

SHEET No. 5

OF 6

SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HSIP-0250(007)	2017	ADD. 24	35



Curve #	36	37	38	39	40
Δ =	18°22'50.00"	19°47'30.00"	2°41'00.00"	35°45'25.00"	2°37'30.00"
D =	15°03'22.80"	5°59'09.72"	2°40'43.41"	3°29'58.22"	2°38'29.97"
R =	380.5427	957.1575	2138.9209	1637.2538	2168.9326
T =	61.5682	166.9790	50.0952	528.1393	49.6934
C =	121.5558	328.9893	100.1629	1021.7715	99.3607
LC =	122.0786	330.6307	100.1721	1005.2707	99.3694

11/2/17 Added contours

DATE REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLANS

KOHALA MOUNTAIN ROAD

SAFETY IMPROVEMENTS

Federal Aid Project No. HSIP-0250(007)

Scale: 1" = 40' Date: October, 2017

SHEET No. 6 OF 6 SHEETS