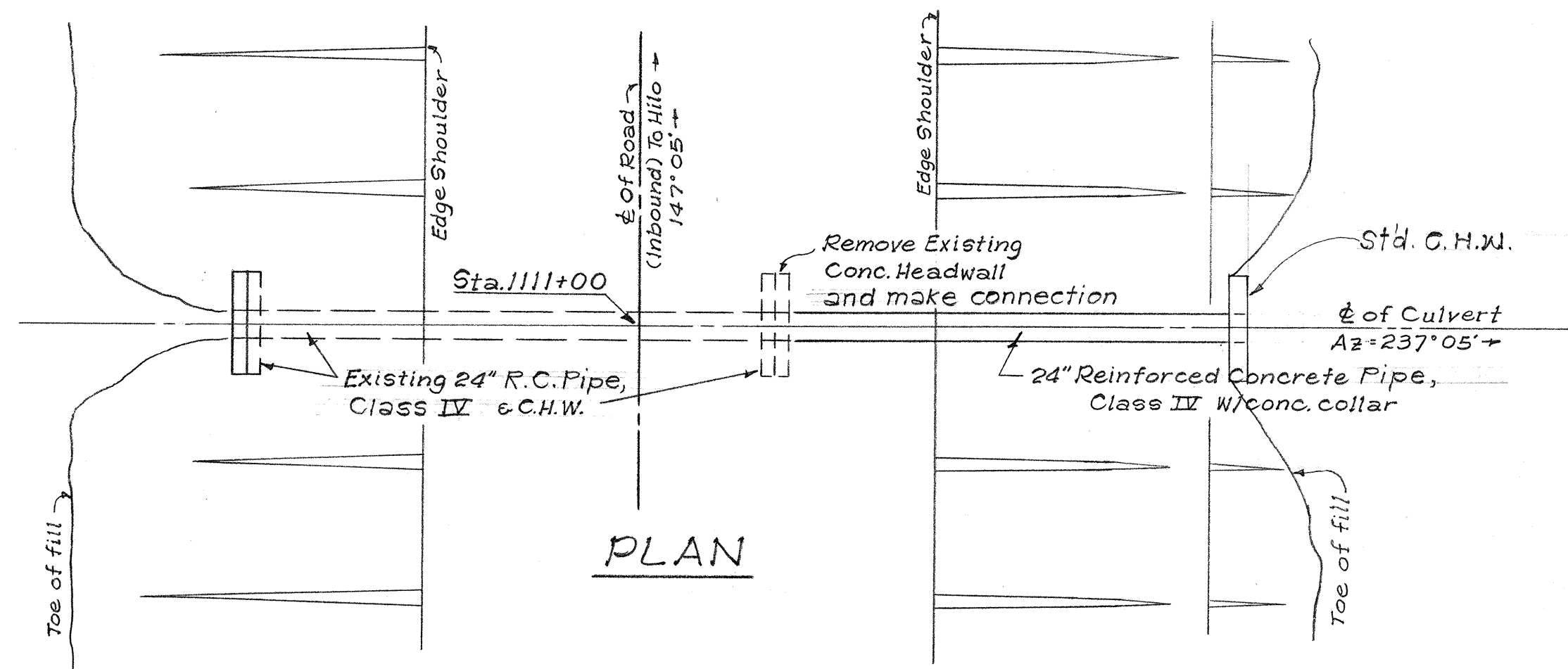
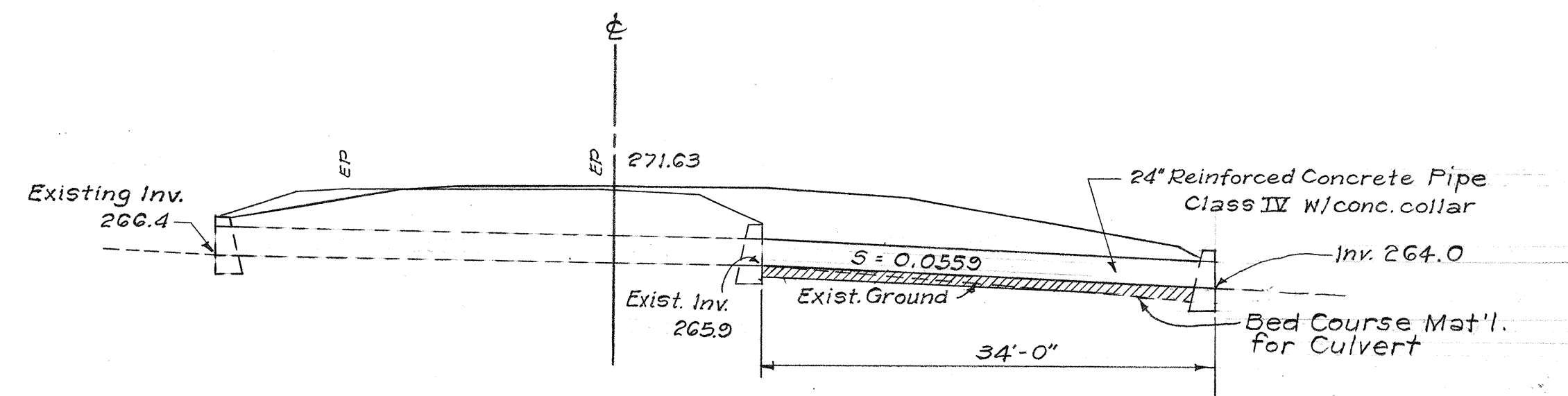


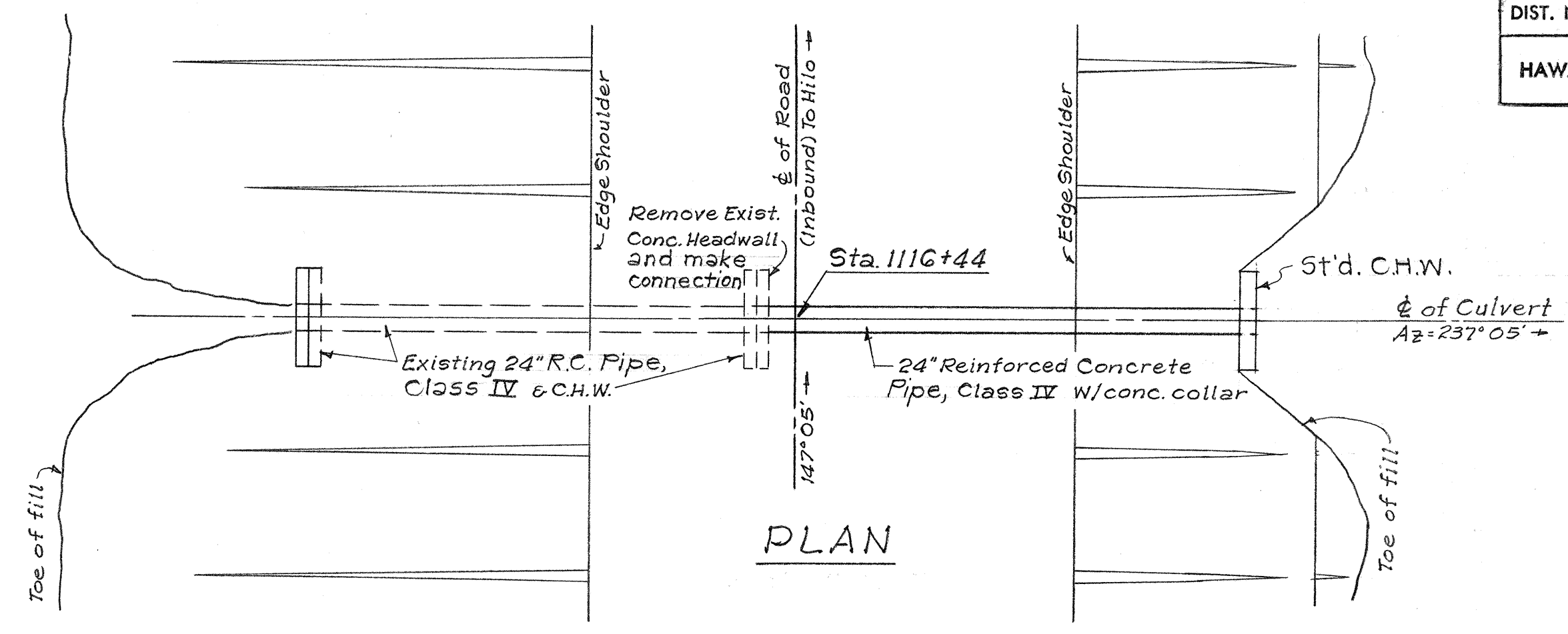
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-011-2(9)	1969	12	62



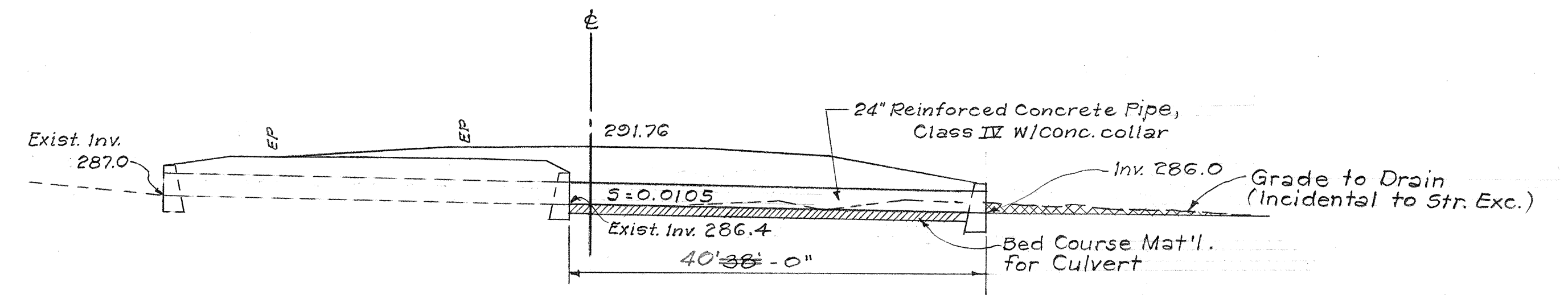
PLAN



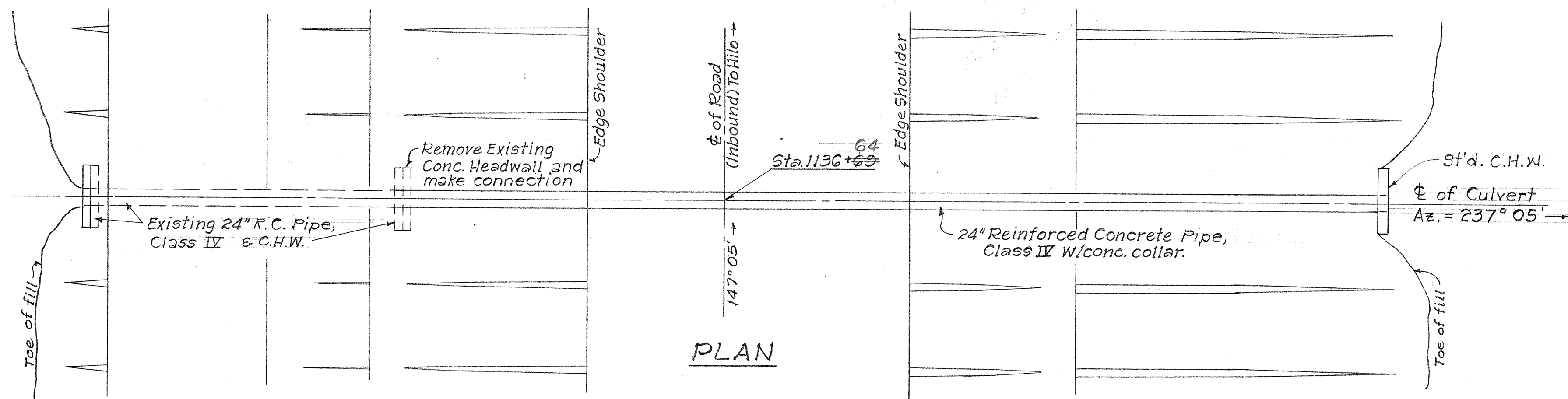
PROFILE
CULVERT AT STA. 1111+00
Scale: 1"=10'-0"



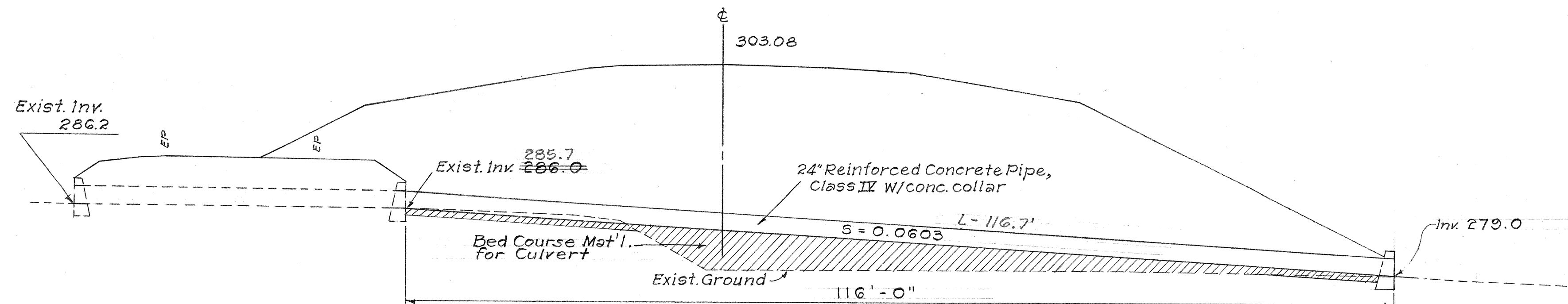
PLAN



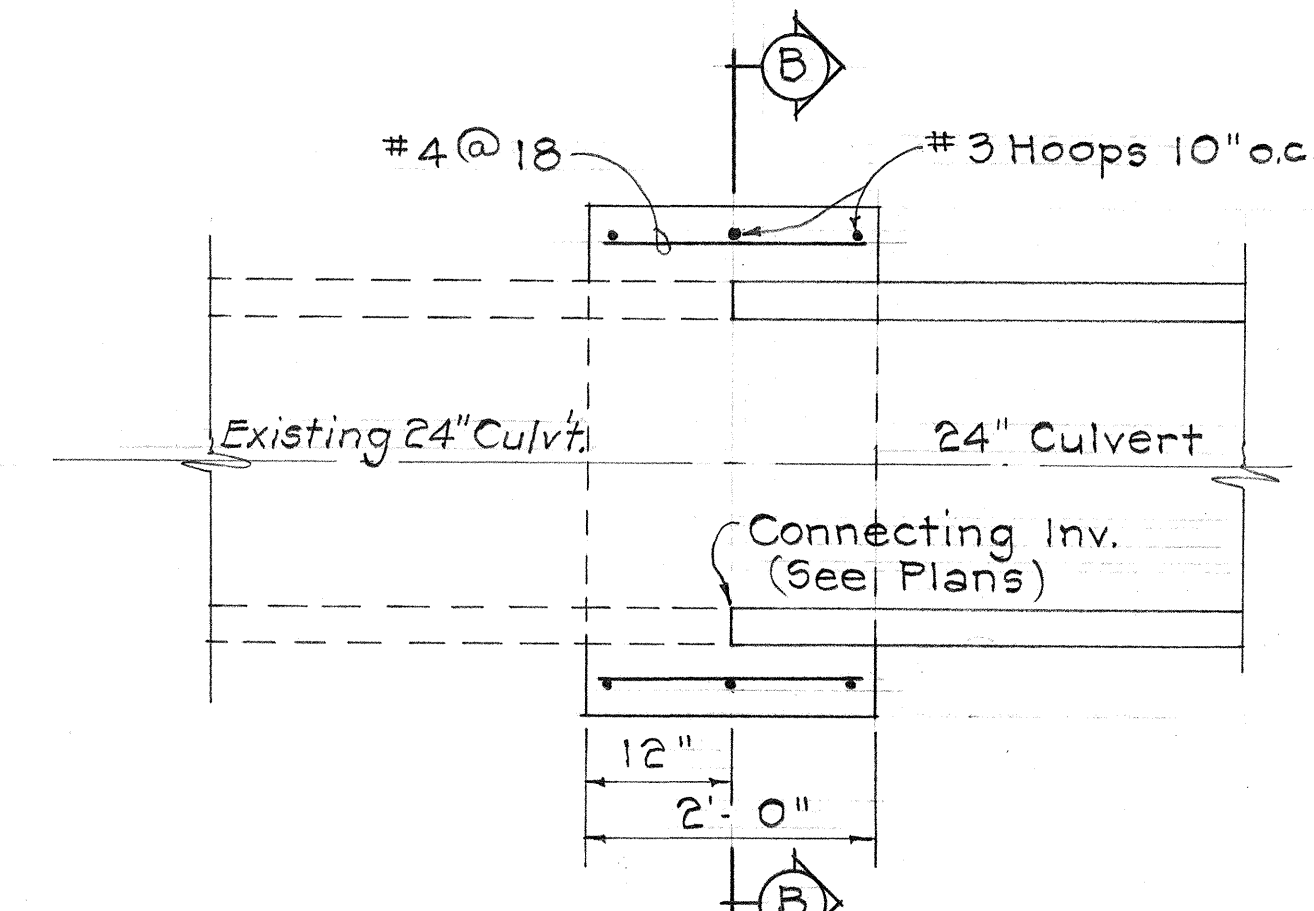
PROFILE
CULVERT AT STA. 1116+44
Scale: 1"=10'-0"



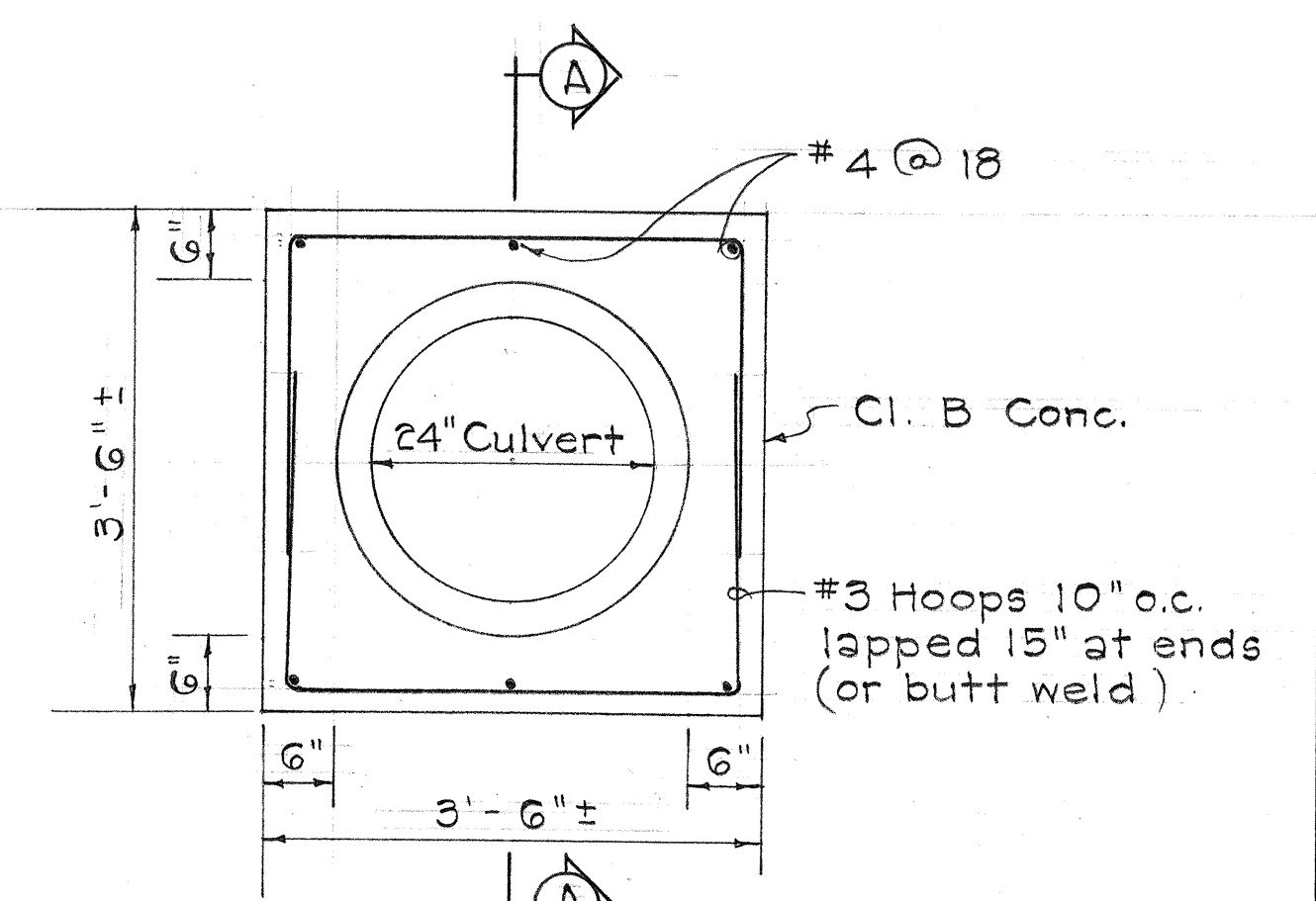
PLAN



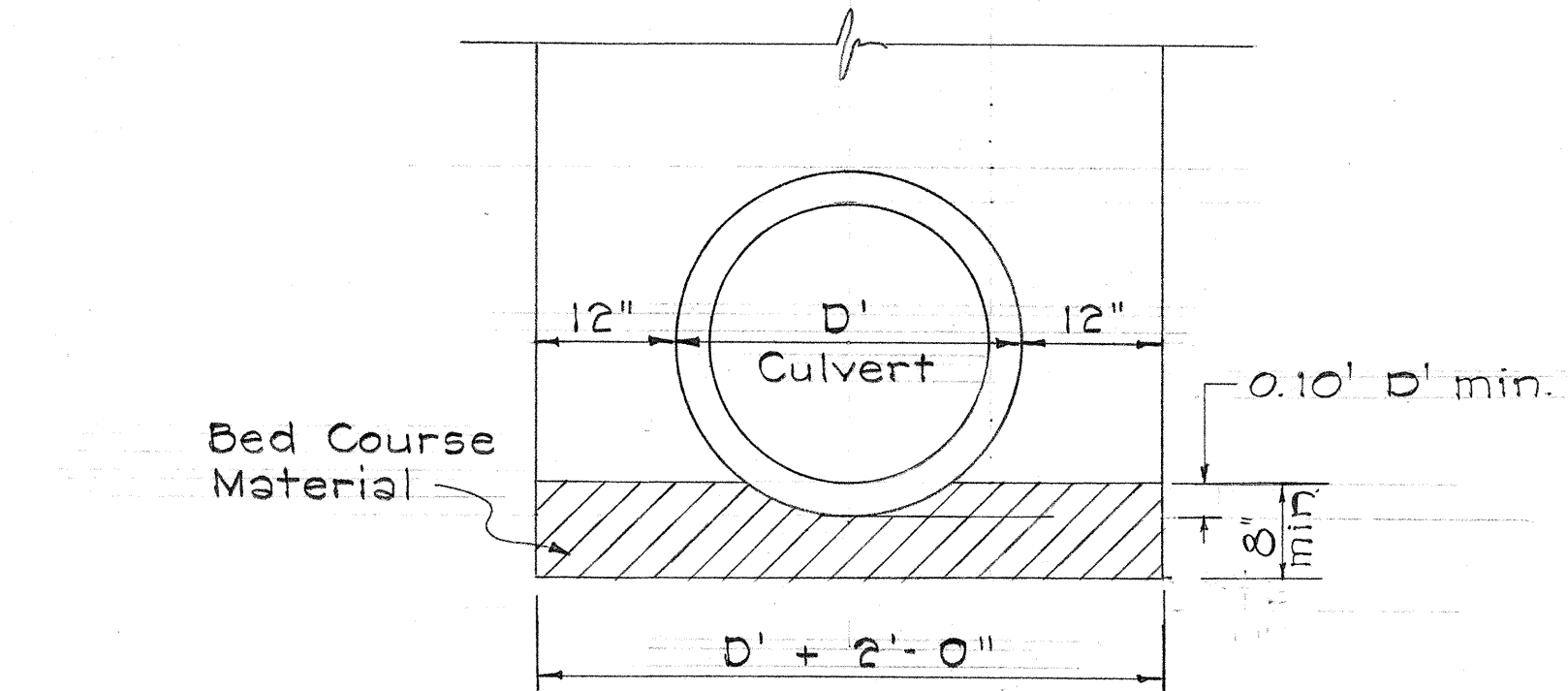
PROFILE
CULVERT AT STA. 1136+64
Scale: 1"=10'-0"



SECTION "A-A"
DETAIL OF CONNECTION TO EXISTING CULVERT
Scale: 3/4"=1'-0"



SECTION "B-B"



DETAIL OF BED COURSE MATERIAL FOR CULVERT
Scale: 3/4"=1'-0"

DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STATE OF HAWAII

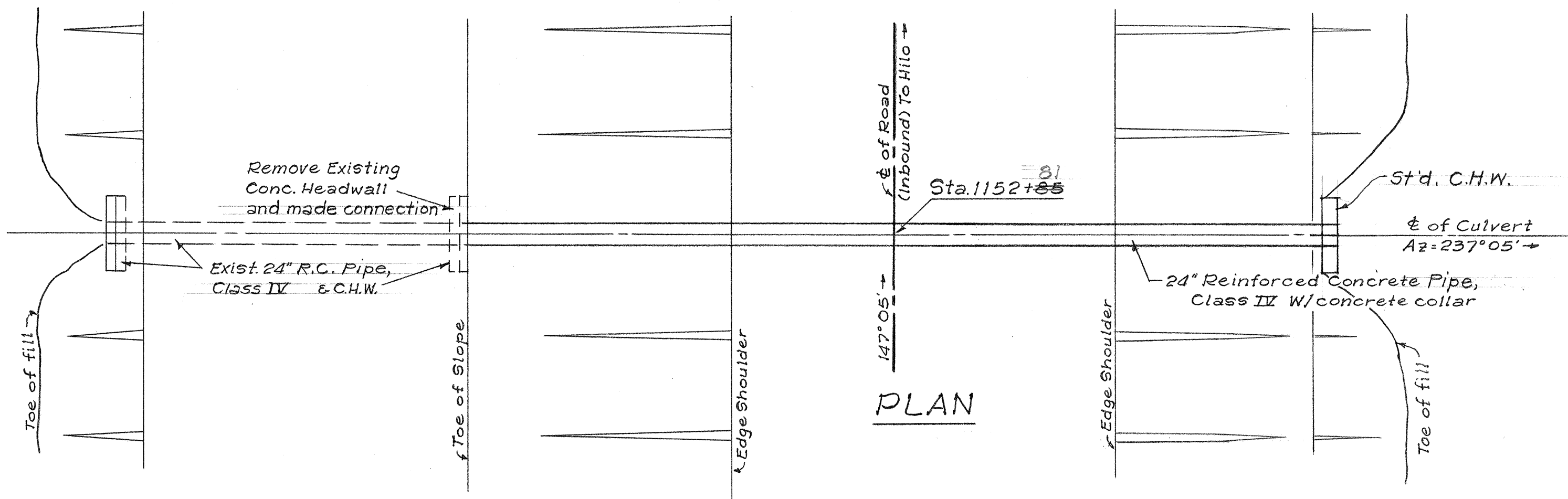
DRAINAGE DETAILS

VOLCANO ROAD
PROJECT NO. F-011-2 (9)
SLAUGHTER HOUSE ROAD TO MAKALIKA STREET
Scale: As Shown Date: Aug. 1969

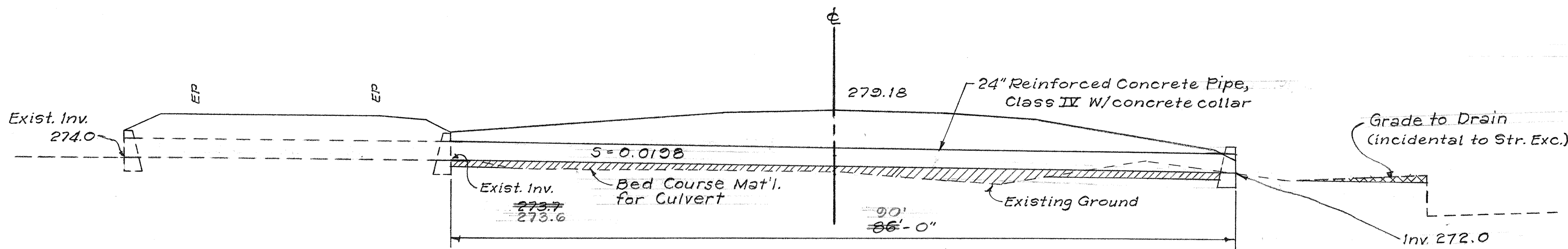
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-011-2(9)	1969	13	62

NOTE:

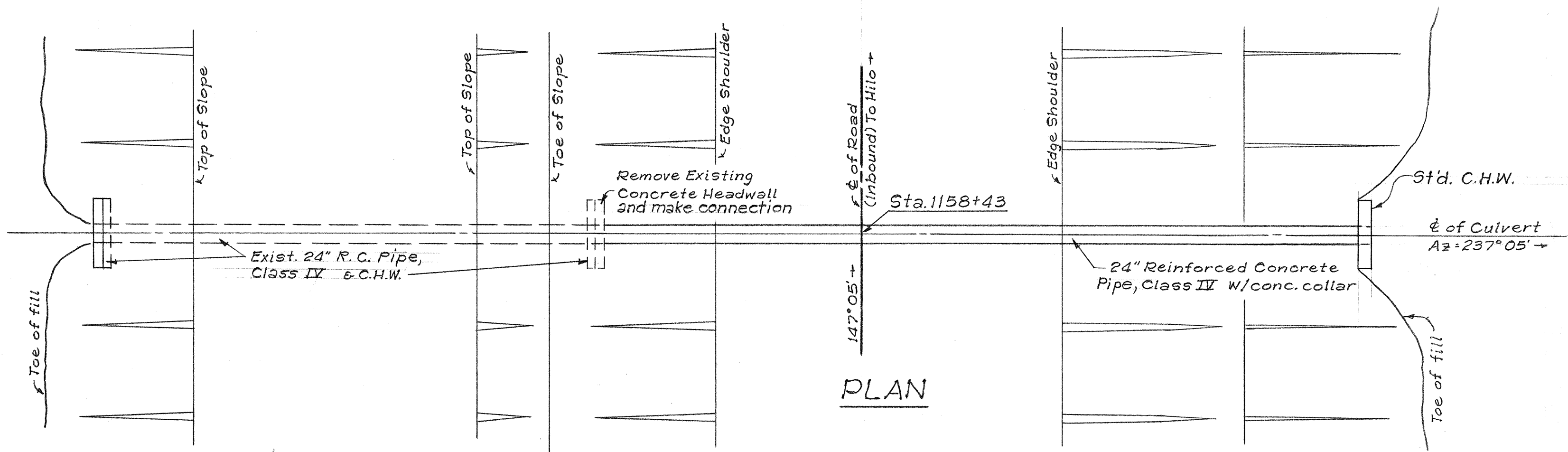
1. Removing of existing concrete headwall and grading to drain will not be paid for separately, but shall be considered incidental to Structure Excavation.



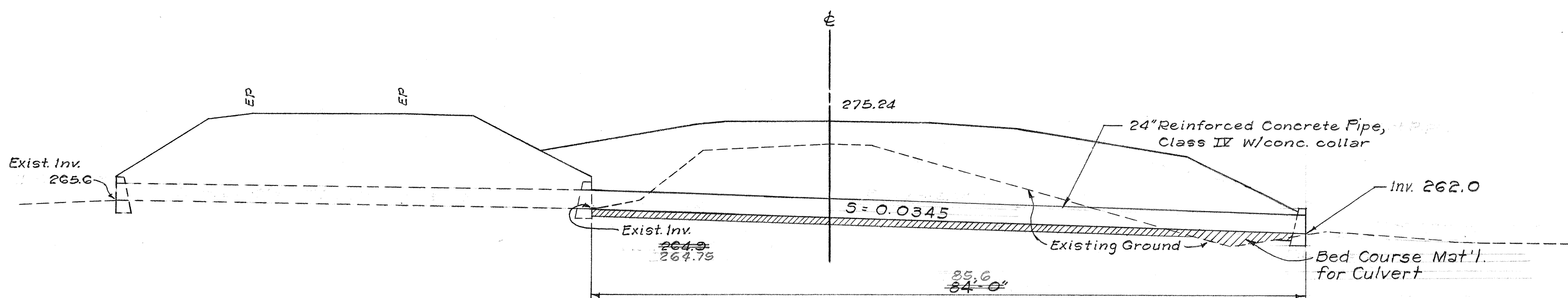
PLAN



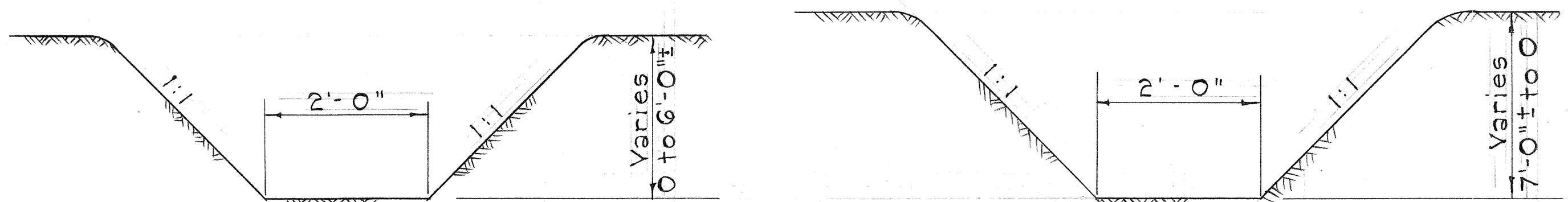
PROFILE
CULVERT AT STA. 1152+85
Scale: 1"=10'-0"



PLAN

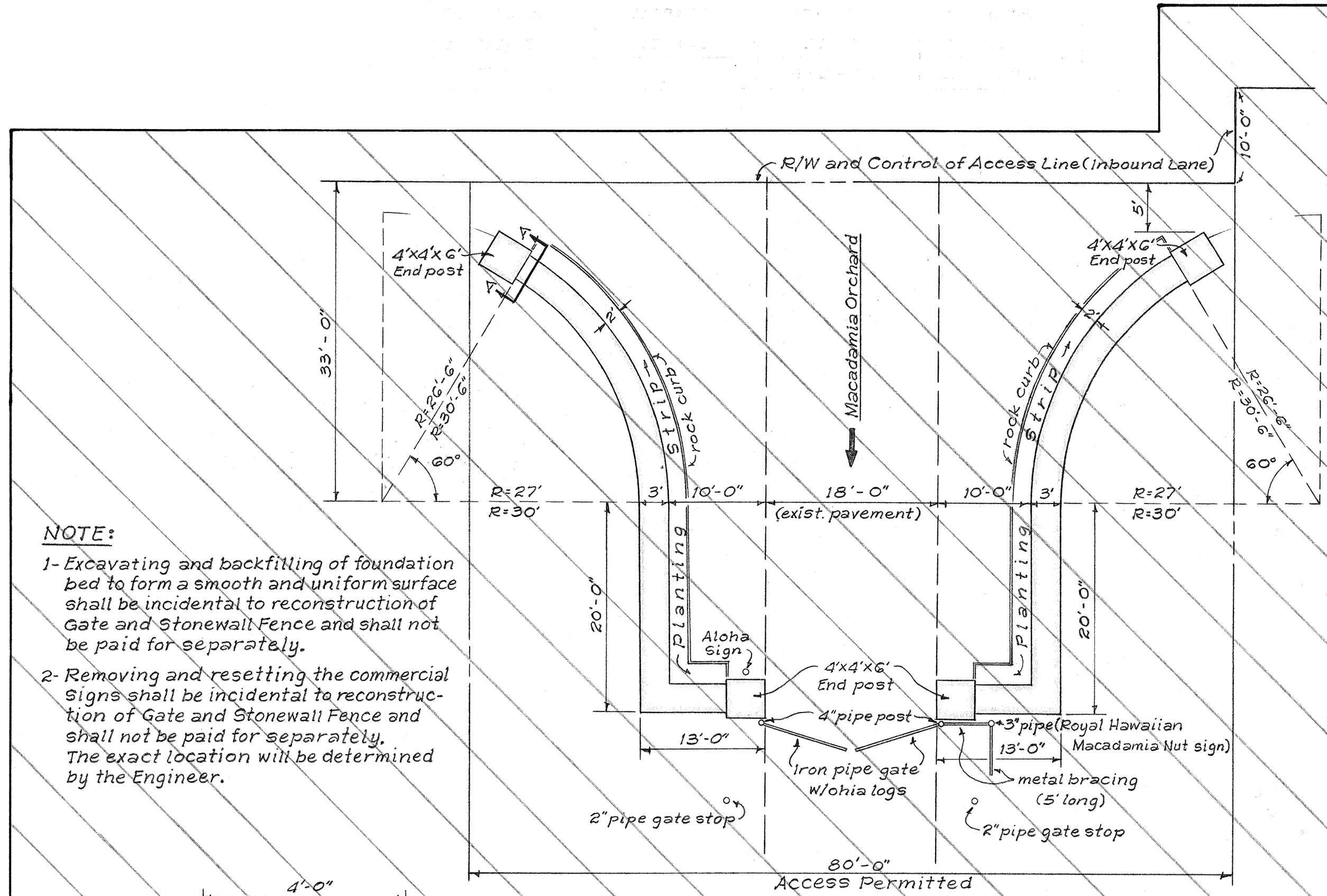


PROFILE
CULVERT AT STA. 1158+43
Scale: 1"=10'-0"



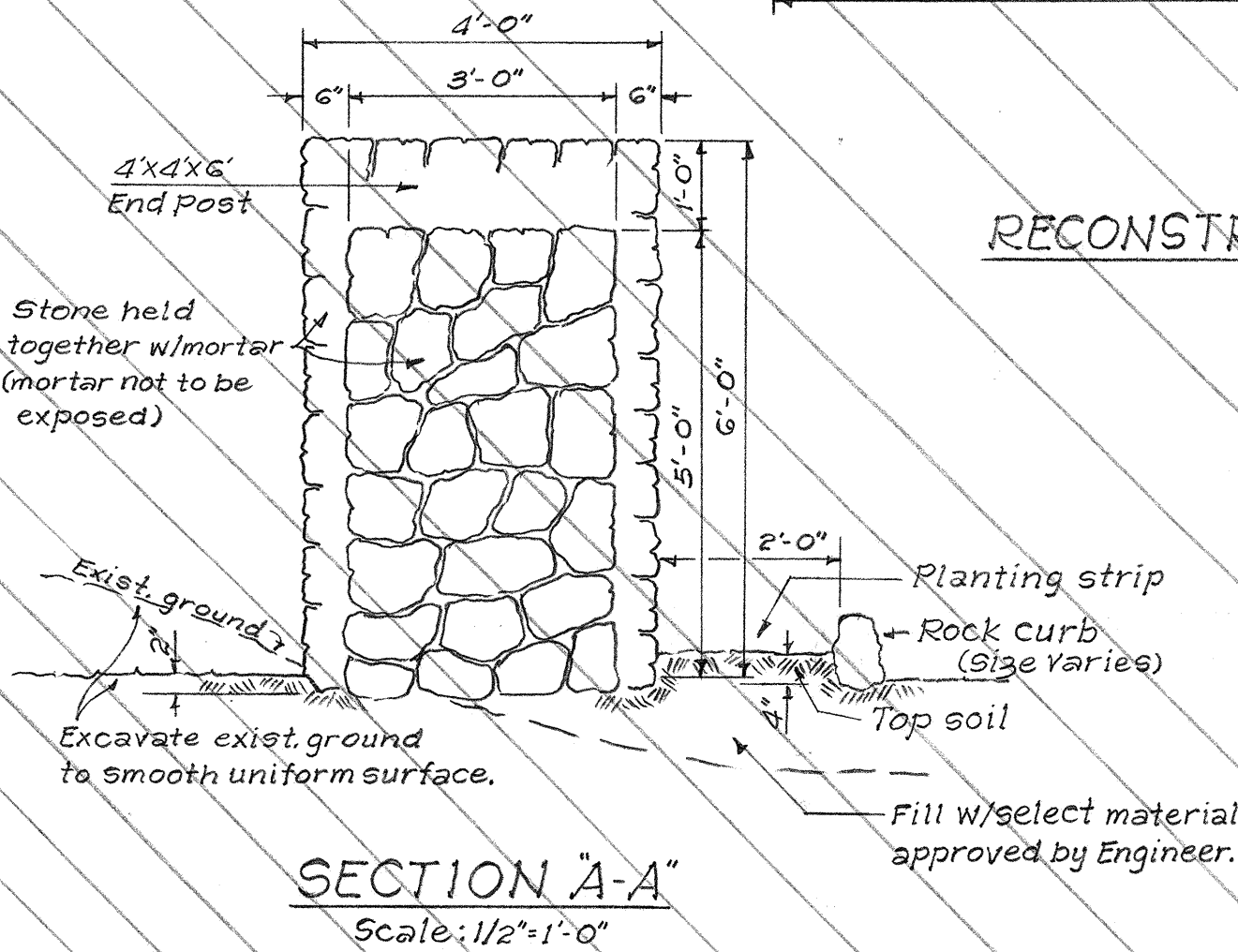
TYPICAL DITCH SECTION BETWEEN
STA. 1156+50 AND STA. 1158+26
Scale: 3/4"=1'-0"

TYPICAL DITCH SECTION BETWEEN
STA. 1158+58 AND STA. 1160+00
Scale: 3/4"=1'-0"



NOTE:

1- Excavating and backfilling of foundation bed to form a smooth and uniform surface shall be incidental to reconstruction of Gate and Stonewall Fence and shall not be paid for separately.
2- Removing and resetting the commercial signs shall be incidental to reconstruction of Gate and Stonewall Fence and shall not be paid for separately. The exact location will be determined by the Engineer.

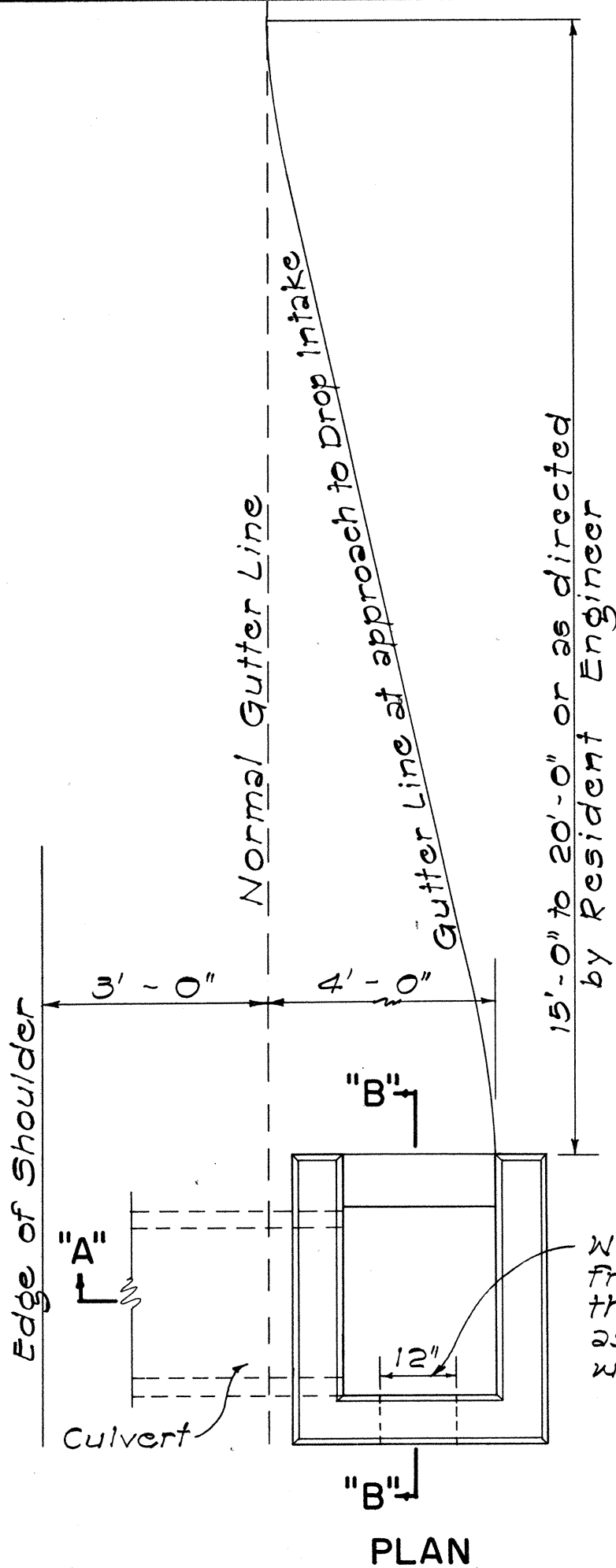


SECTION A-A
Scale: 1/2"=1'-0"

PLAN
RECONSTRUCTED LAVA ROCK WALL
Scale: 3/32"=1'-0"

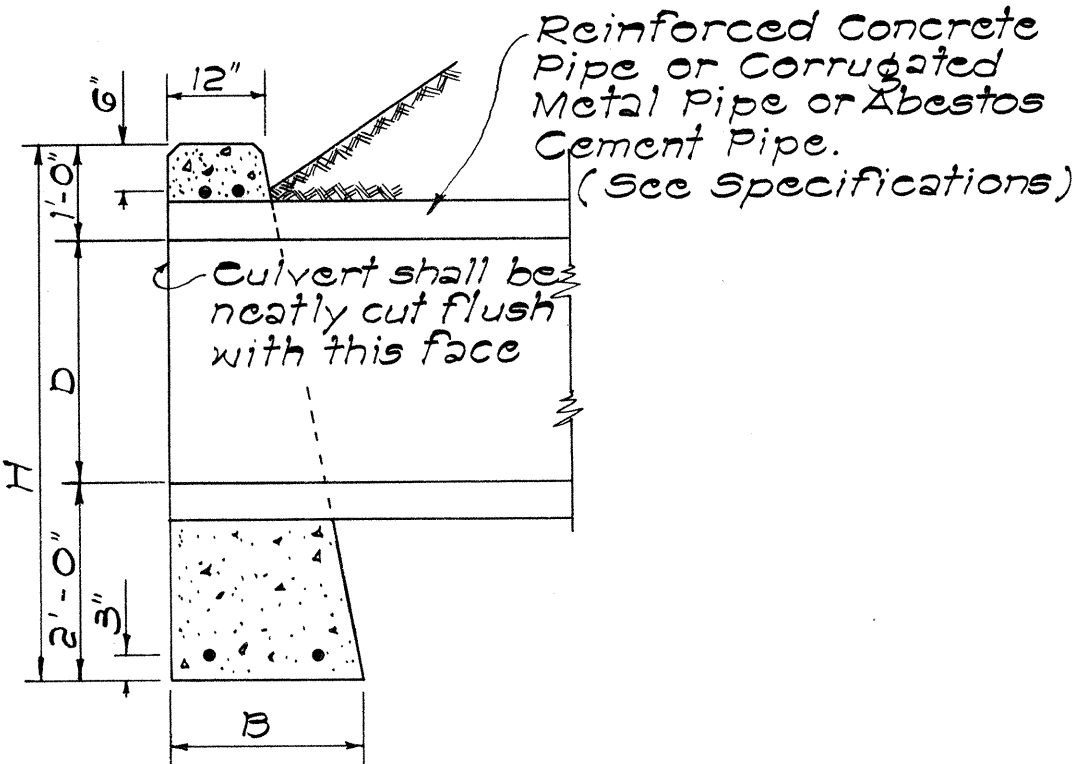
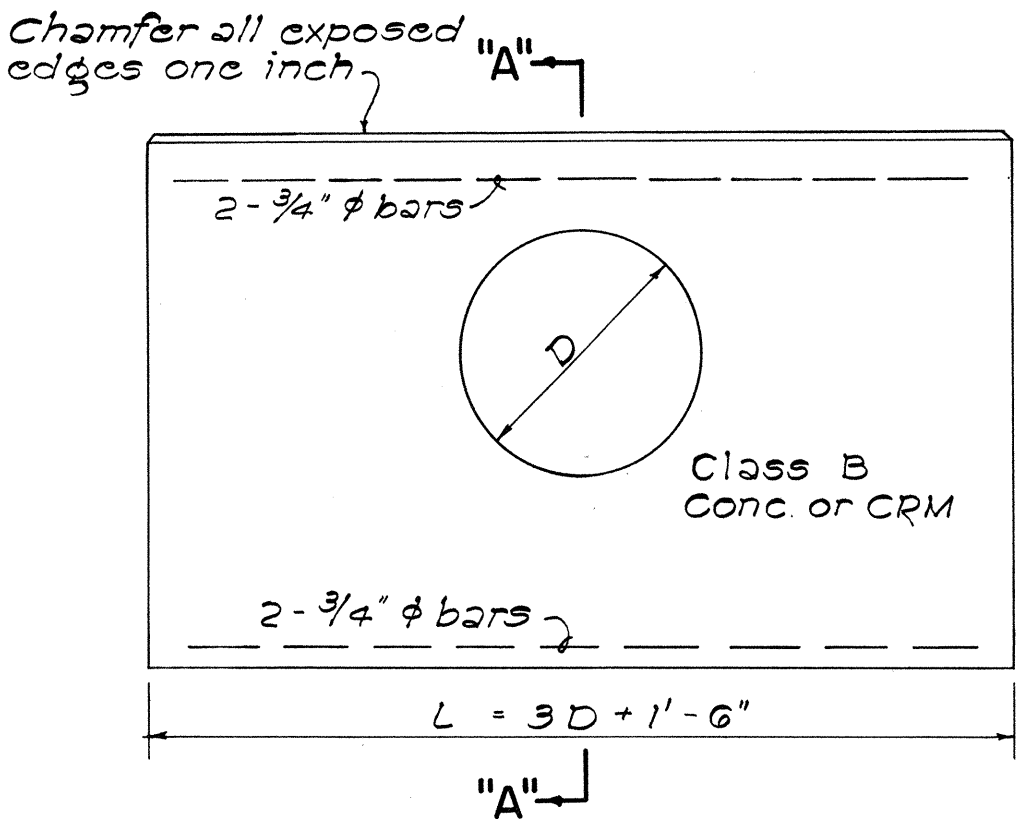
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STATE OF HAWAII
DRAINAGE DETAILS
& RECONSTRUCTED LAVA ROCK WALL
VOLCANO ROAD
PROJECT NO. F-011-2 (9)
SLAUGHTER HOUSE ROAD TO MAKALIKA STREET
Scale: As Shown Date: Aug. 1969

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-011-2(9)	1967	14	62



DATA - CONC. DROP INTAKE						Where Variable Equals
D'	D	L-D'+6"	S	Cu. Yds.		
23"	18"	2'-5"	8"	1.41	4'-6"	
30"	24"	3'-0"	8"	1.72	5'-0"	
37"	30"	3'-7"	9"	2.32	5'-6"	
44"	36"	4'-2"	9"	2.73	6'-0"	
51"	42"	4'-9"	10"	3.54	6'-6"	
58"	48"	5'-4"	10"	4.01	7'-0"	

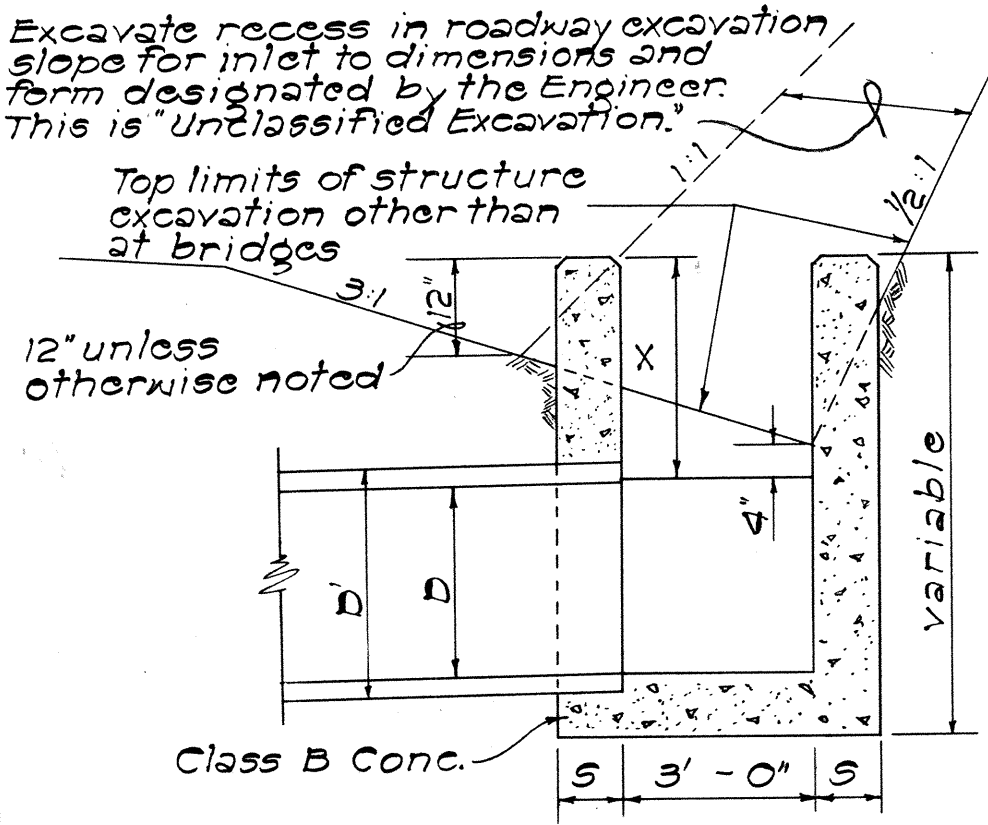
Note: Dimension "X" is assumed as 2'-4" in figuring the above quantities.



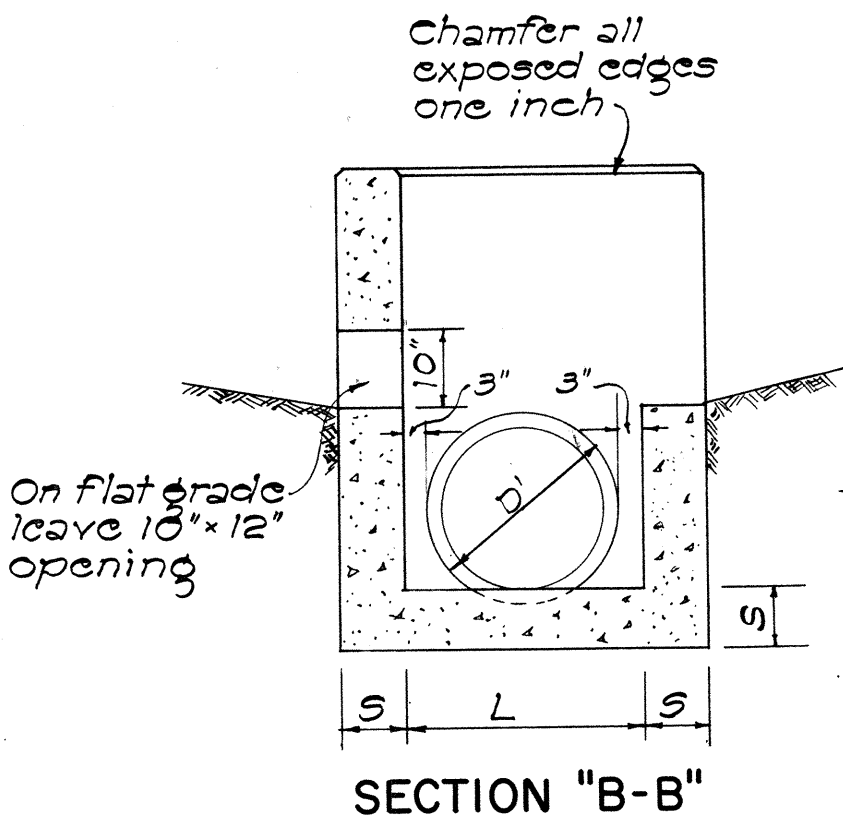
DATA FOR CONC. HEADWALL				CL. B CONC. FOR RCCP	CL. B CONC. FOR CGMP	Steel For One Headwall			
D	B	L	H	Cu. Yd.	Cu. Yd.	No. of Bars	Size	Length	Lbs.
18"	1'-6"	6'-0"	4'-6"	1.12	1.17	4	3/4" ϕ	5'-0"	33
24"	1'-6"	7'-6"	5'-0"	1.52	1.60	4	3/4" ϕ	7'-0"	42
30"	2'-0"	9'-0"	5'-6"	2.36	2.49	4	3/4" ϕ	8'-6"	51
36"	2'-0"	10'-6"	6'-0"	2.94	3.13	4	3/4" ϕ	10'-0"	60
42"	2'-6"	12'-0"	6'-6"	4.19	4.47	4	3/4" ϕ	11'-6"	69
48"	2'-6"	13'-6"	7'-0"	5.01	5.36	4	3/4" ϕ	13'-0"	78

DATA - MASONRY HEADWALL				CRM FOR RCCP	CRM FOR CGMP
D	B	L	H	Cu. Yd.	Cu. Yd.
18"	1'-9"	6'-0"	4'-6"	1.24	1.29
24"	2'-0"	7'-6"	5'-0"	1.83	1.92
30"	2'-3"	9'-0"	5'-6"	2.56	2.70
36"	2'-6"	10'-6"	6'-0"	3.45	3.66

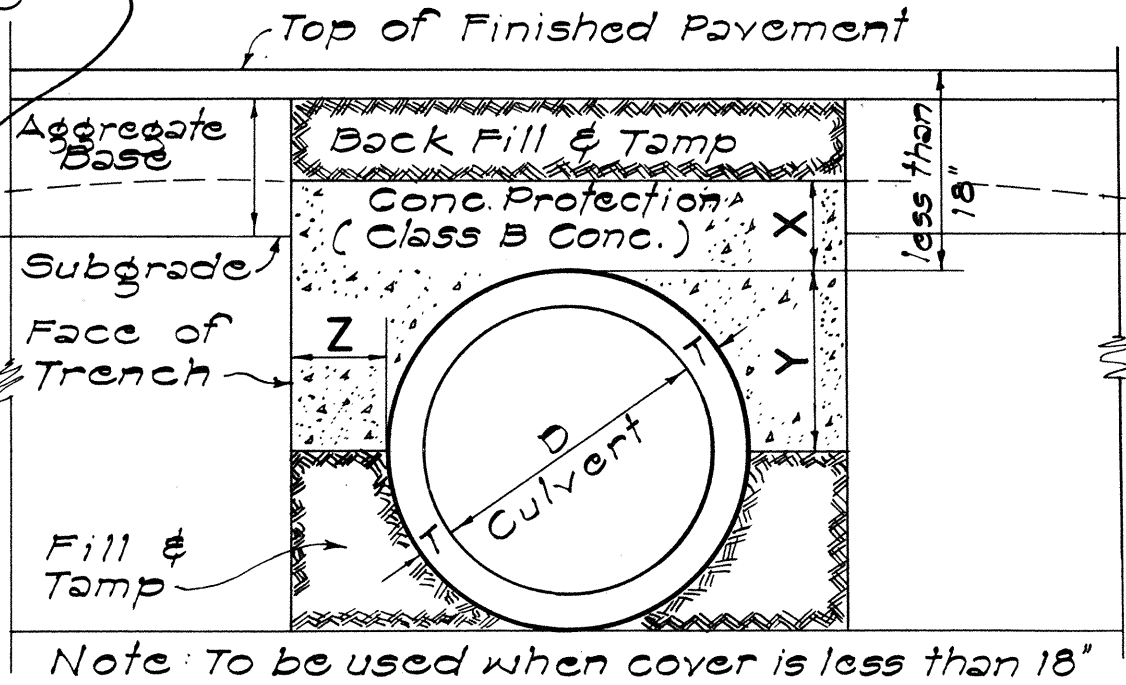
DETAIL OF HEADWALL
Scale: 1/2" = 1'-0"



DETAIL OF CONCRETE DROP INTAKE
Scale: 1/2" = 1'-0"



Note: When subgrade is below top of jacket, it shall be fully compacted to this line and then re-excavated (struc. exc.) to proper subgrade. This surface shall be rolled again.



DATA FOR CONCRETE PROTECTION OVER CULVERTS		
X	Y	Z
6" for 18" D	$\frac{D}{2} + T$	Z must be from pipe to face of trench
7" for 24" D		Minimum = X
8" for 30" D		Maximum pay quantity will be Z = 12"
9" for 36" D		
10" for 42" D		
11" for 48" D		
12 for 54" D		

SECT. OF CULVERT WITH CONC. PROTECTION
Scale: 1" = 1'-0"

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

DROP INTAKE, HEADWALL &
CONCRETE PROTECTION

Scale: As Shown Date: Aug. 1967
SHEET No. 3 OF 4 SHEETS

VOLCANO ROAD ~ SLAUGHTER HOUSE ROAD TO MAKALIKA STREET

DRAINAGE

S U M M A R Y

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-011-2(9)	1969	15	62

[illegible]

SHEET No. 4 OF 4 SHEETS

5

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