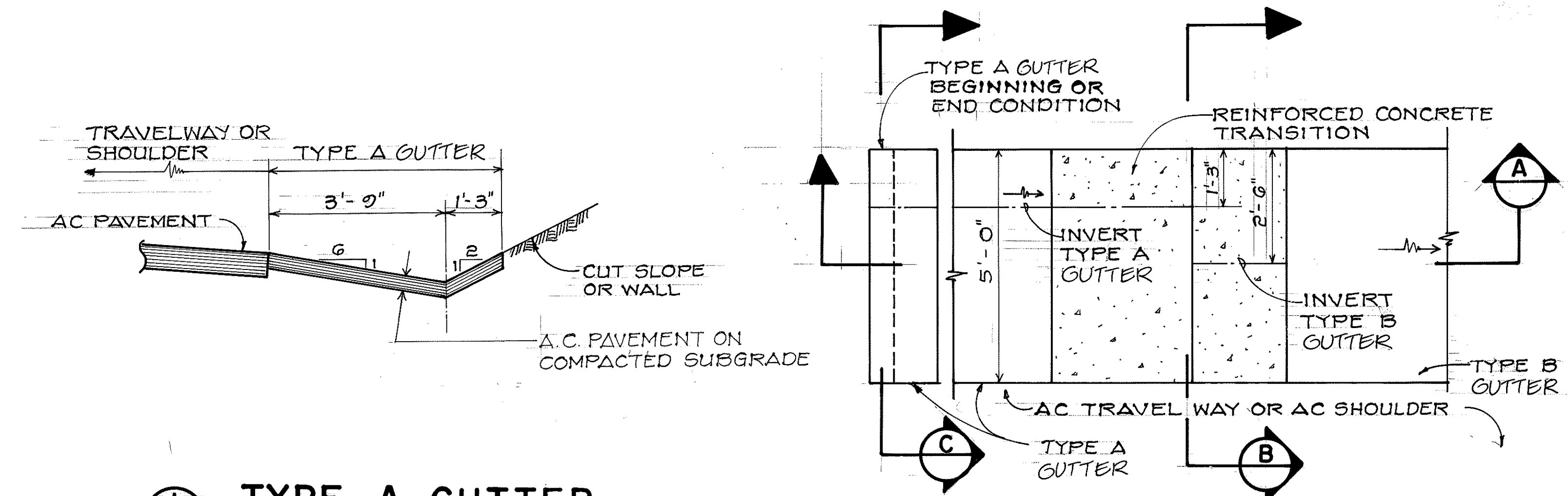
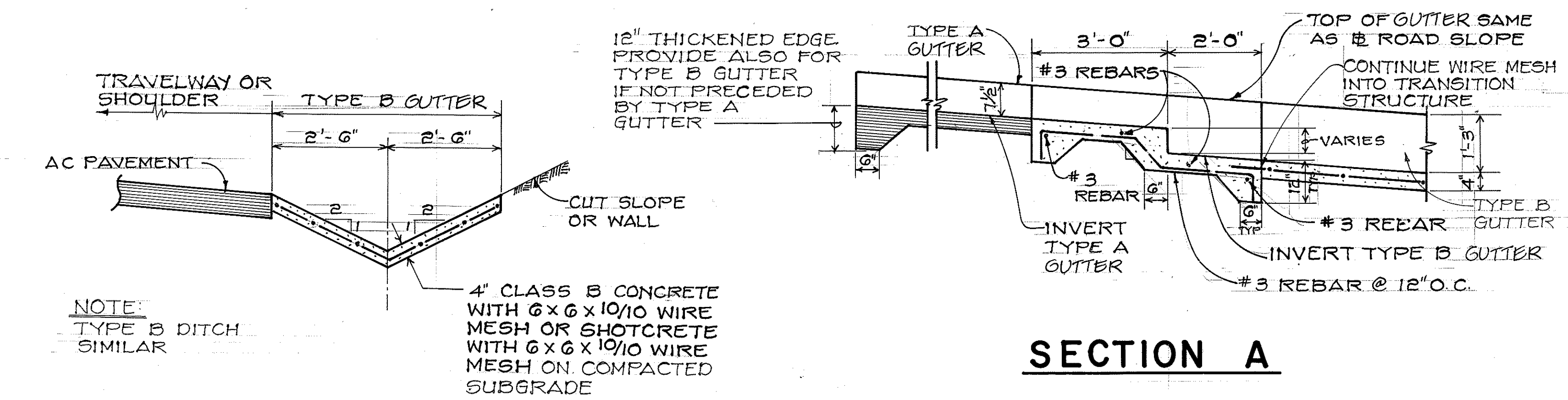


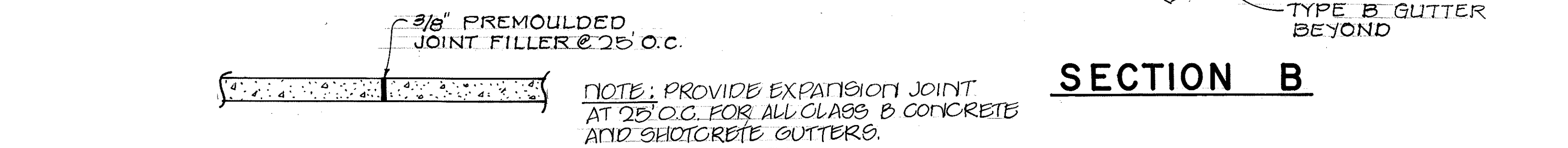
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY.-H-01-86	1987	34	115



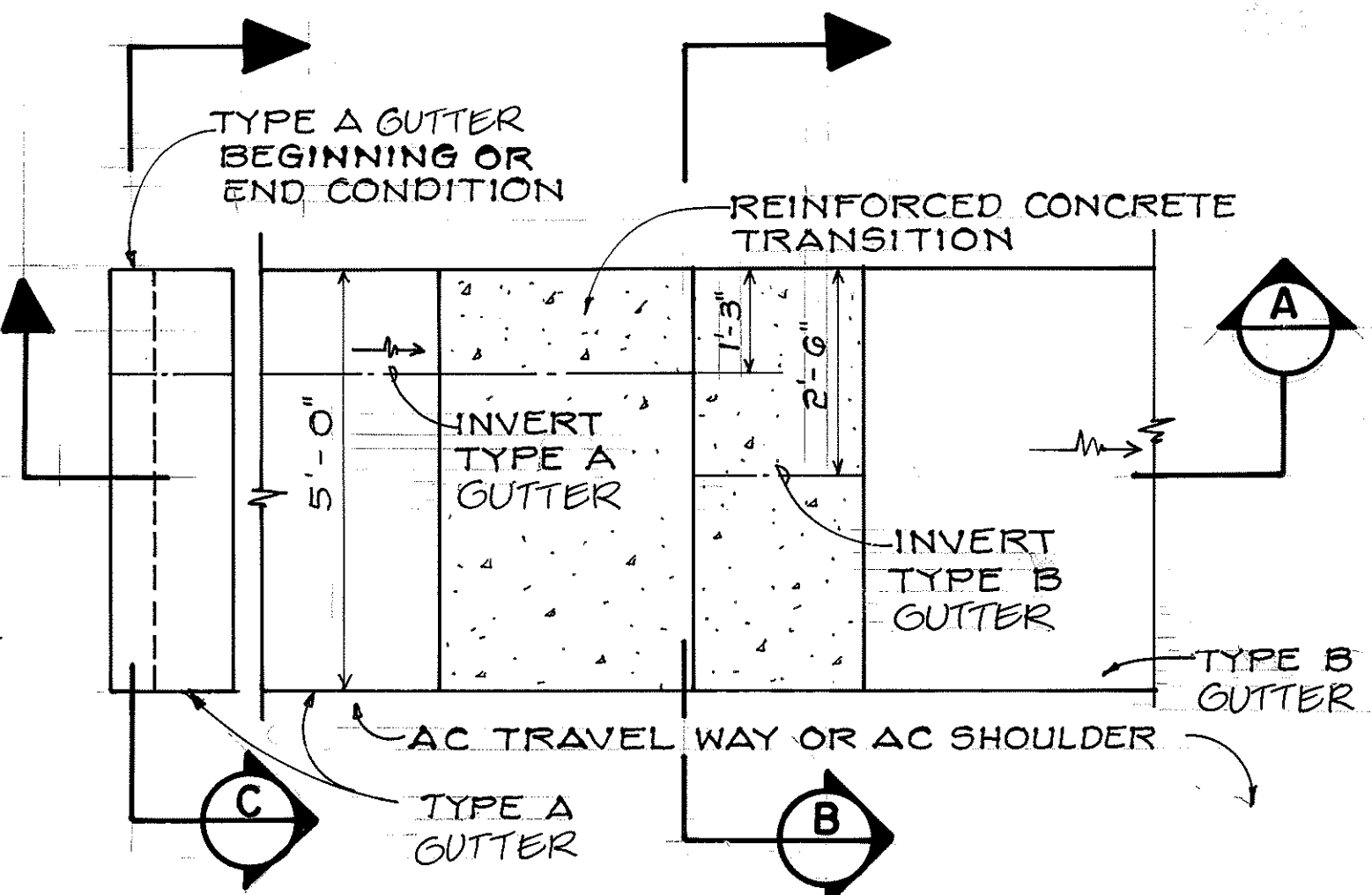
1
34 TYPE A GUTTER
SCALE: 1/2" = 1'-0"



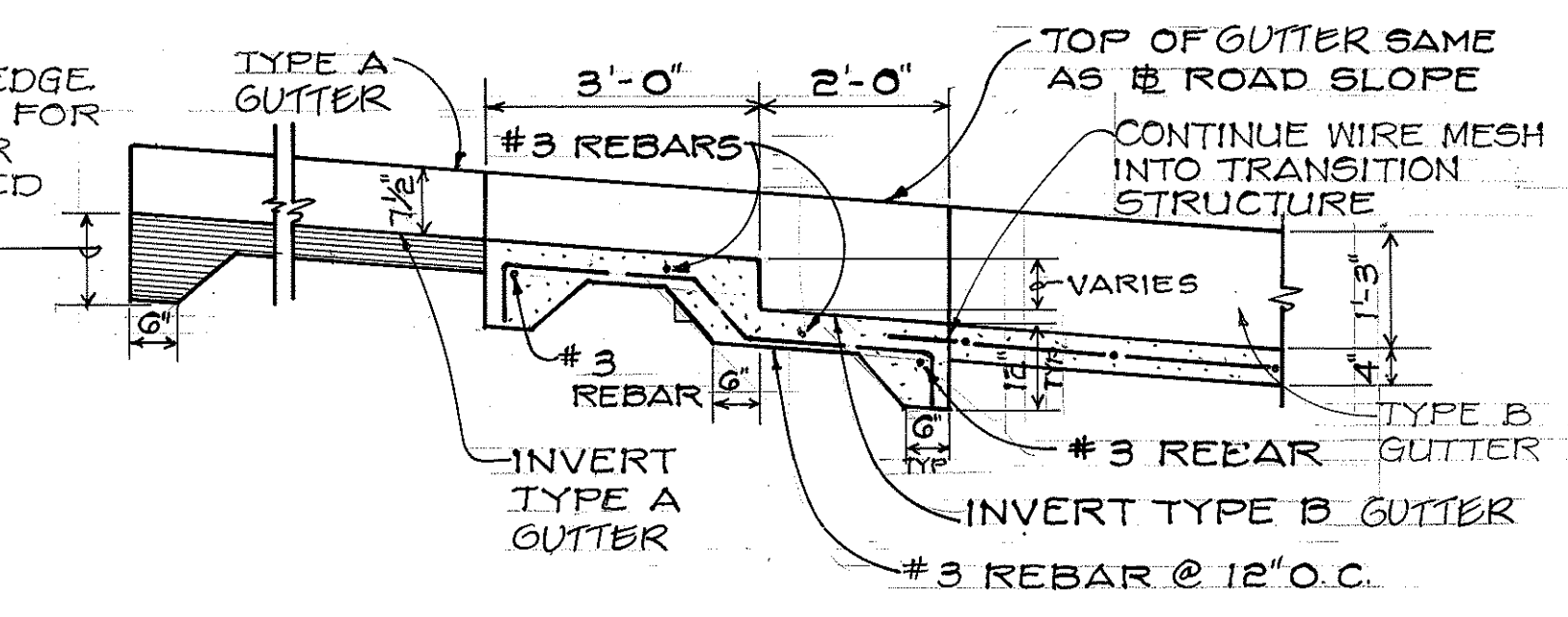
2
34 TYPE B GUTTER
SCALE: 1/2" = 1'-0"



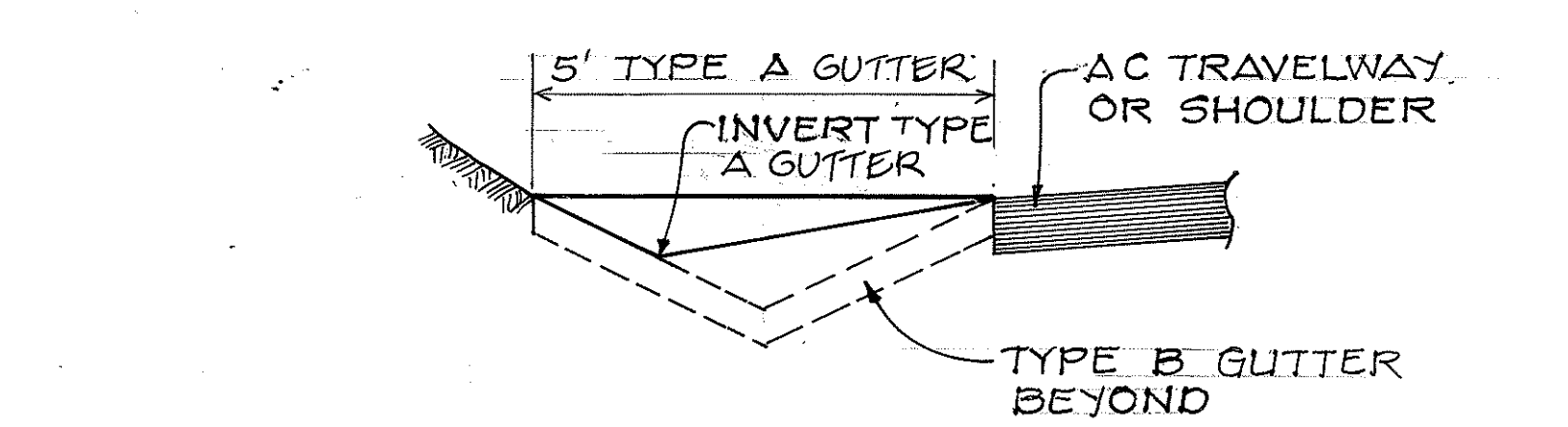
3
34 TYPICAL EXPANSION JOINT
SCALE: 3/4" = 1'-0"



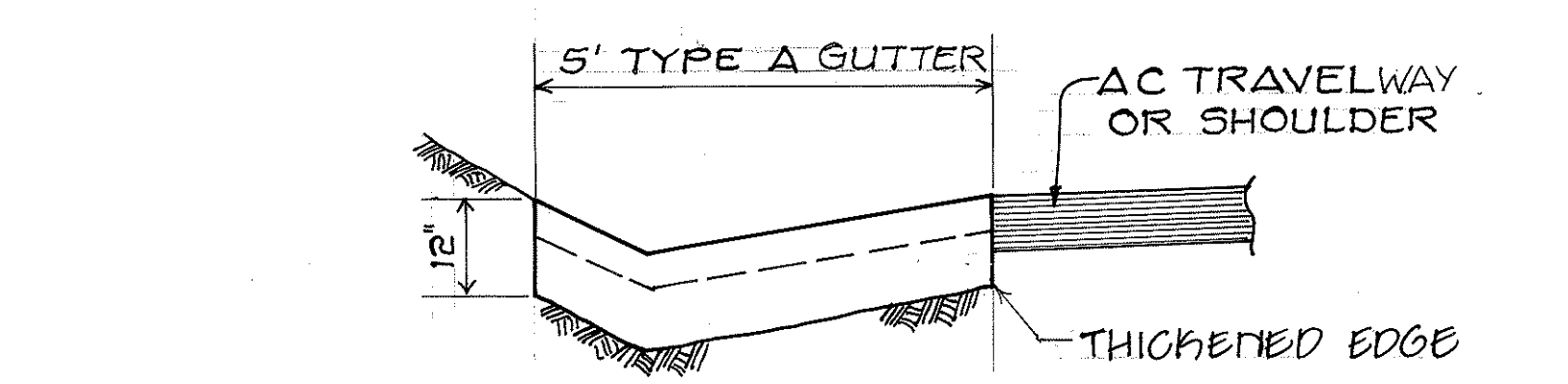
PLAN



SECTION A

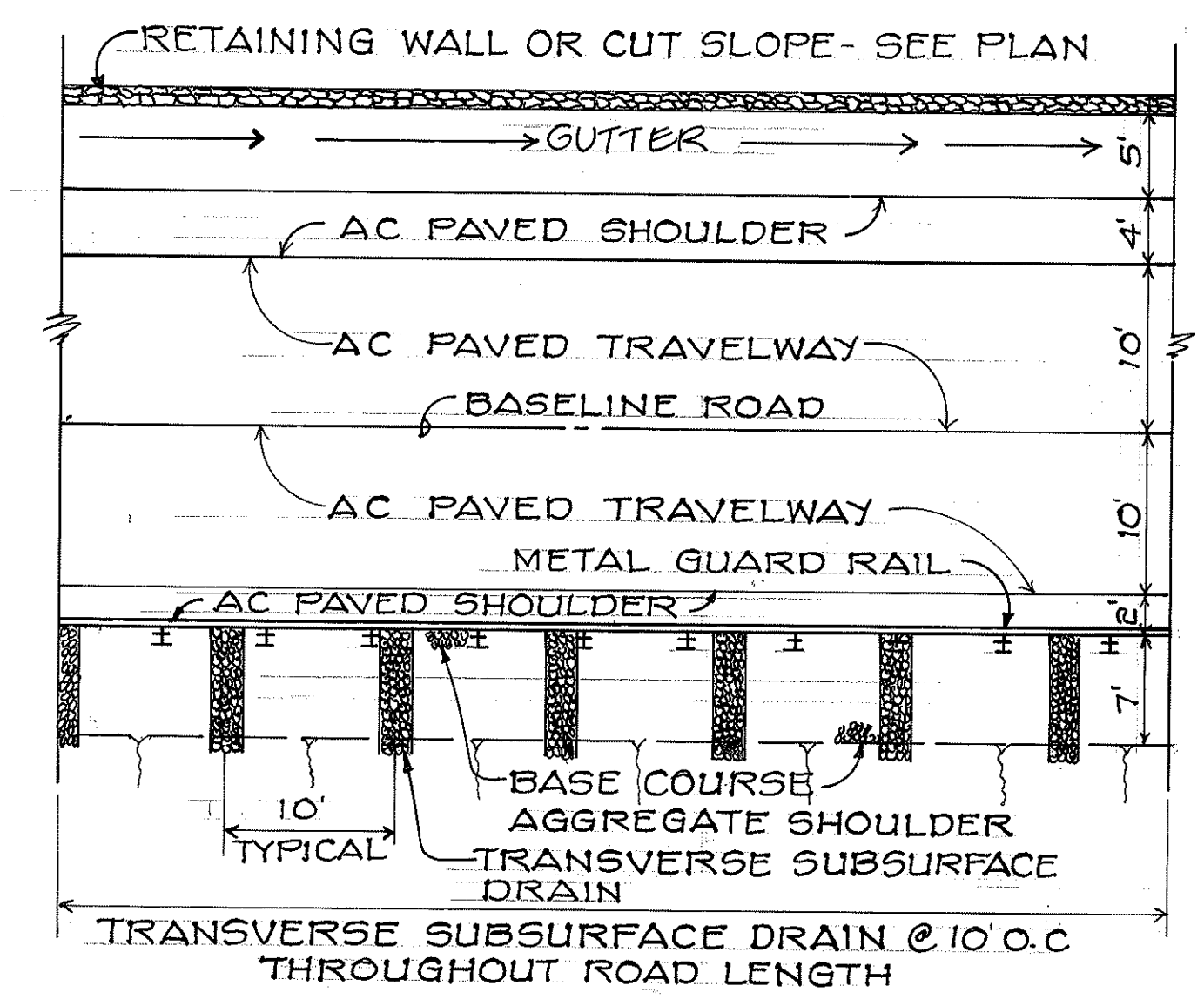


SECTION B

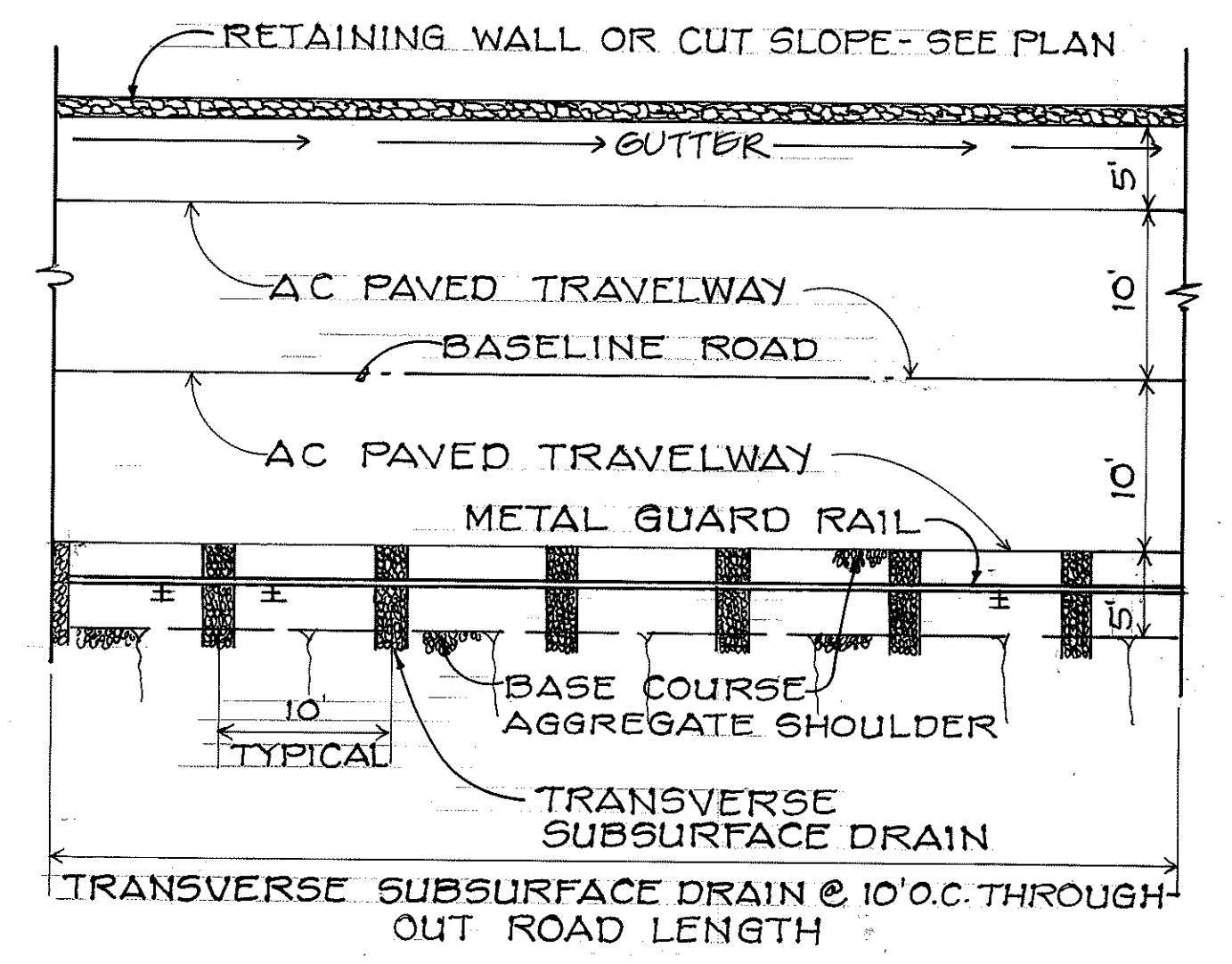


SECTION C

4
34 TYPE A AND TYPE B GUTTER DETAILS
SCALE: 1/2" = 1'-0"



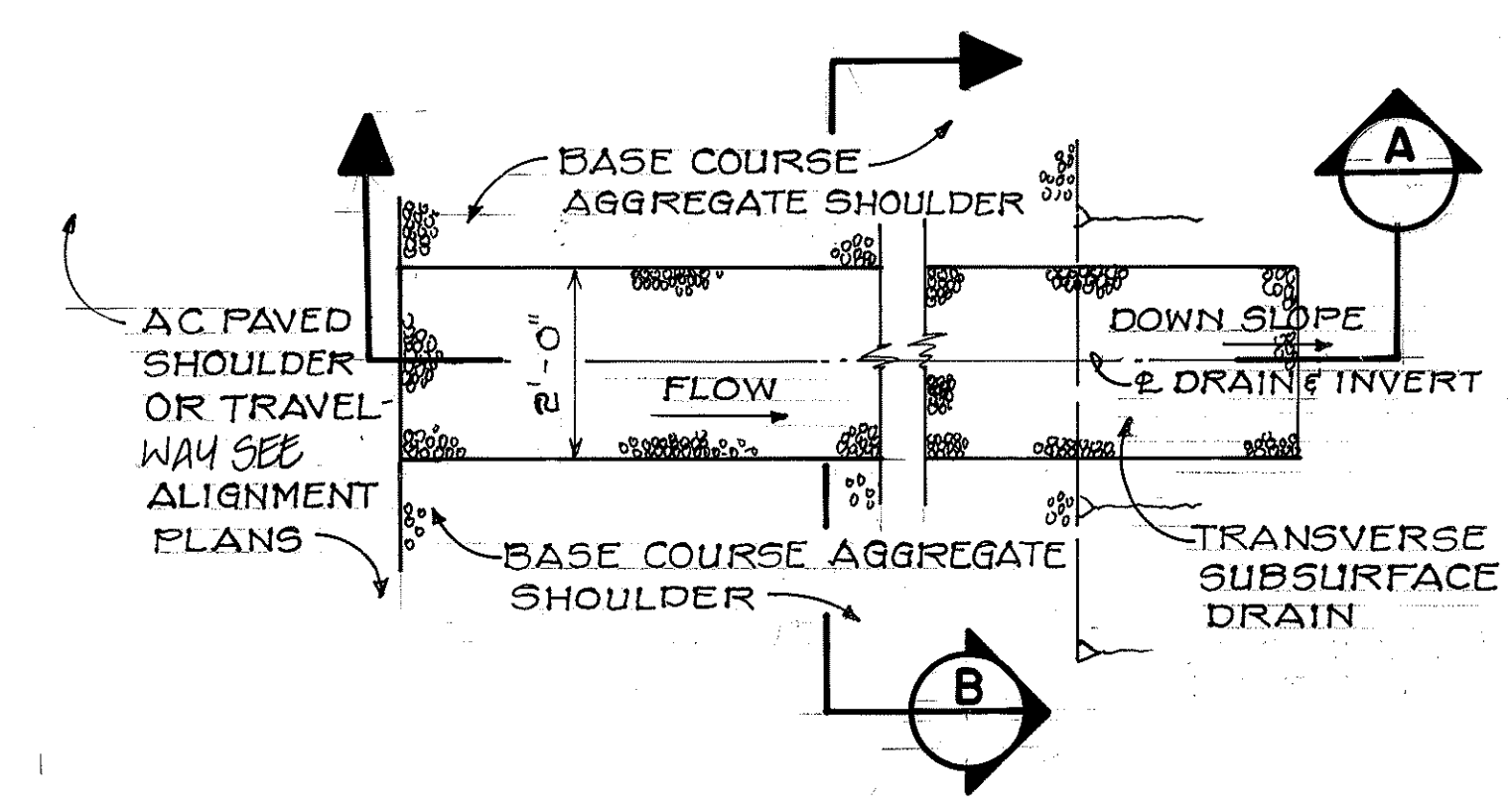
5
34 PARTIAL MAIN ACCESS ROAD
PLAN - TRANSVERSE
SUBSURFACE DRAIN
SCALE: 1" = 10'-0"



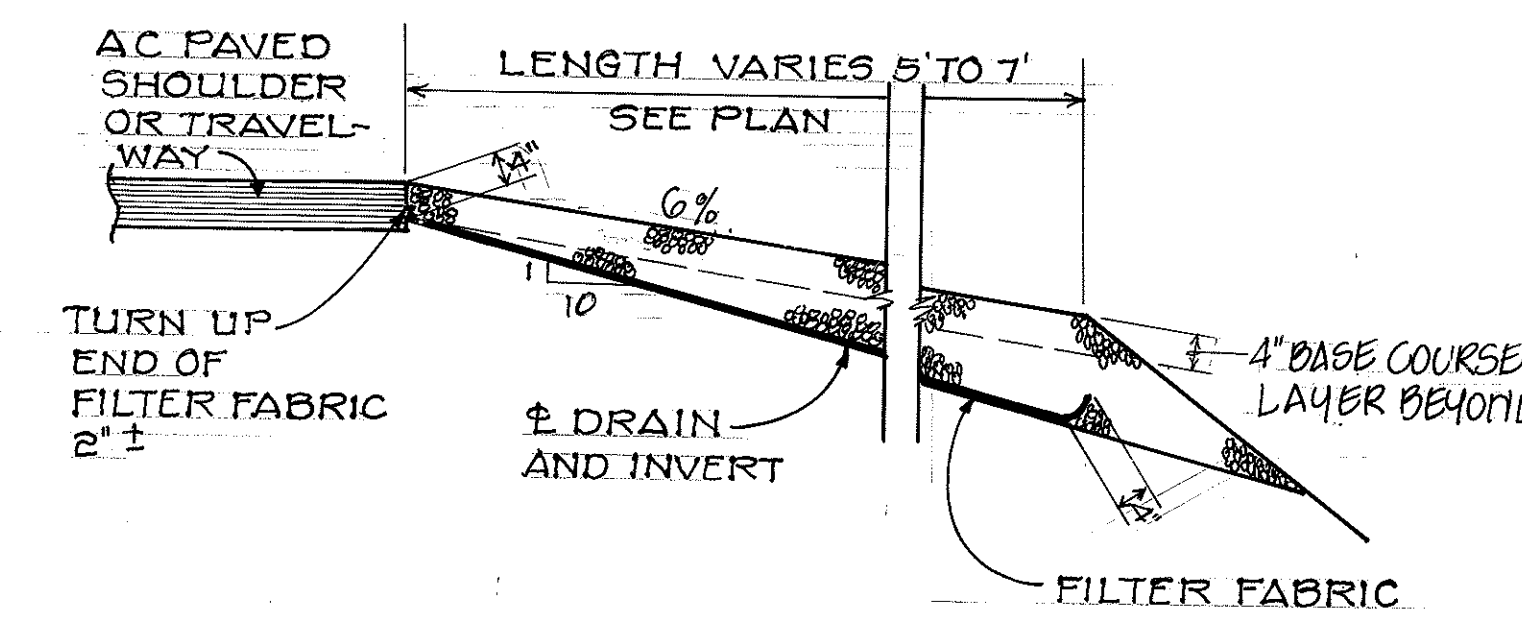
6
34 PARTIAL SPUR ROAD PLAN
TRANSVERSE SUBSURFACE DRAIN
SCALE: 1" = 10'-0"

NOTE:
TRANSVERSE SUBSURFACE DRAIN SHALL BE DELETED AT THE FOLLOWING LOCATIONS:

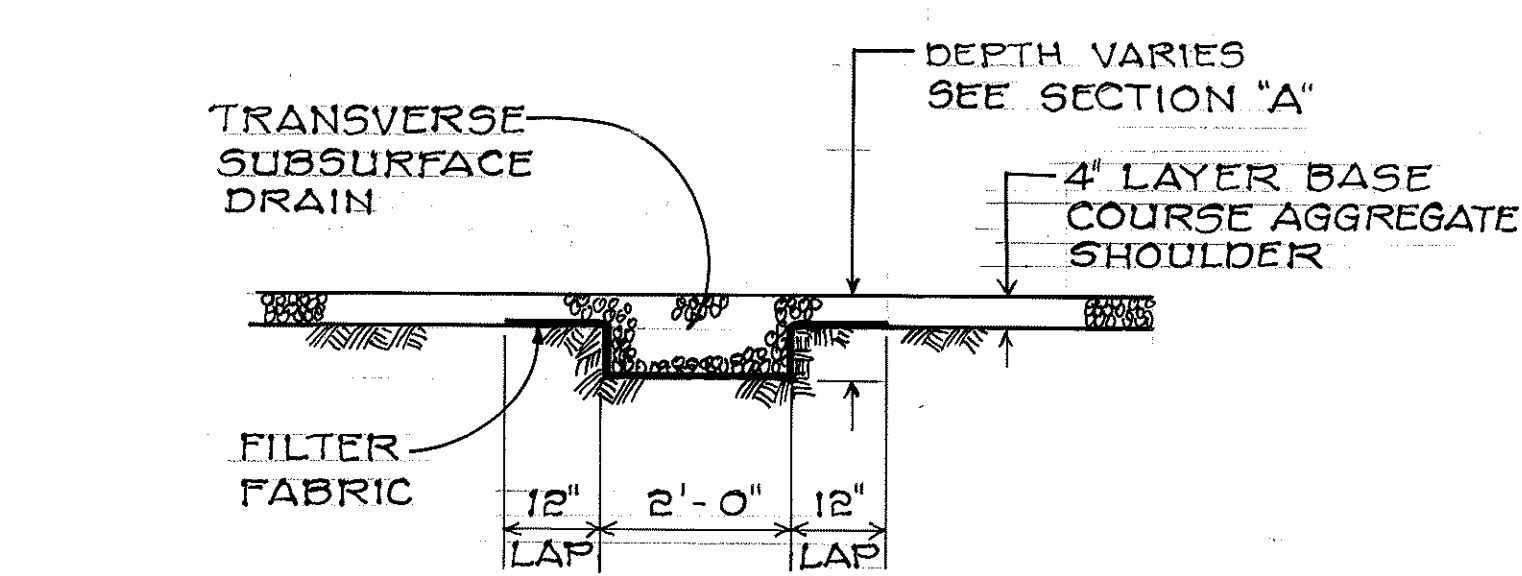
ROAD SECTION	STA. TO STA.
MAIN ACCESS ROAD	27+60 - 30+50 LEFT
	37+00 - 37+50 LEFT
	39+20 - 40+00 LEFT
	40+70 - 41+30 LEFT
SPUR 2	0+75 - 3+30 LEFT
SPUR 3	1+75 - 3+22 LEFT



PLAN



SECTION A



SECTION B

7
34 TRANSVERSE SUBSURFACE
DRAIN DETAILS
SCALE: 1/2" = 1'-0"

JOYCE S. FUKUNAGA
REGISTERED PROFESSIONAL ENGINEER
No. 2107-C
HAWAII, U.S.A.

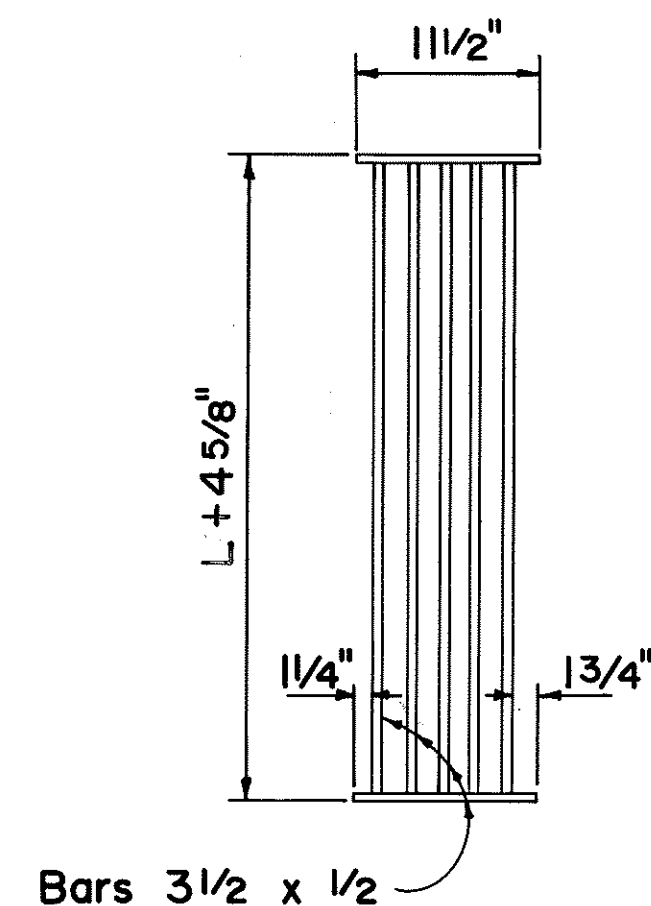
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
Rose S. Fukunaga
FUKUNAGA & ASSOCIATES

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

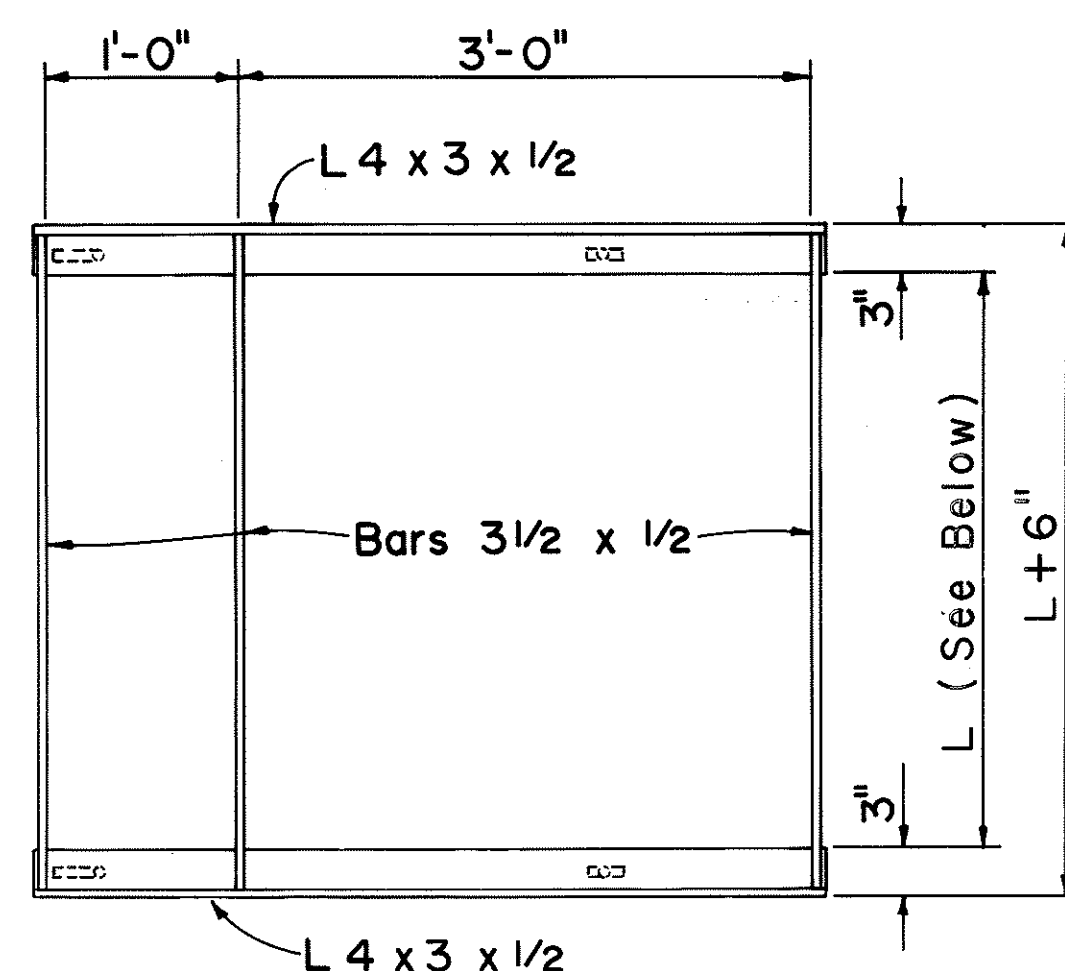
DRAIN DETAILS

MAUNA KEA OBSERVATORY ACCESS ROAD
PHASE I
PROJECT NO. HWY.-H-01-86

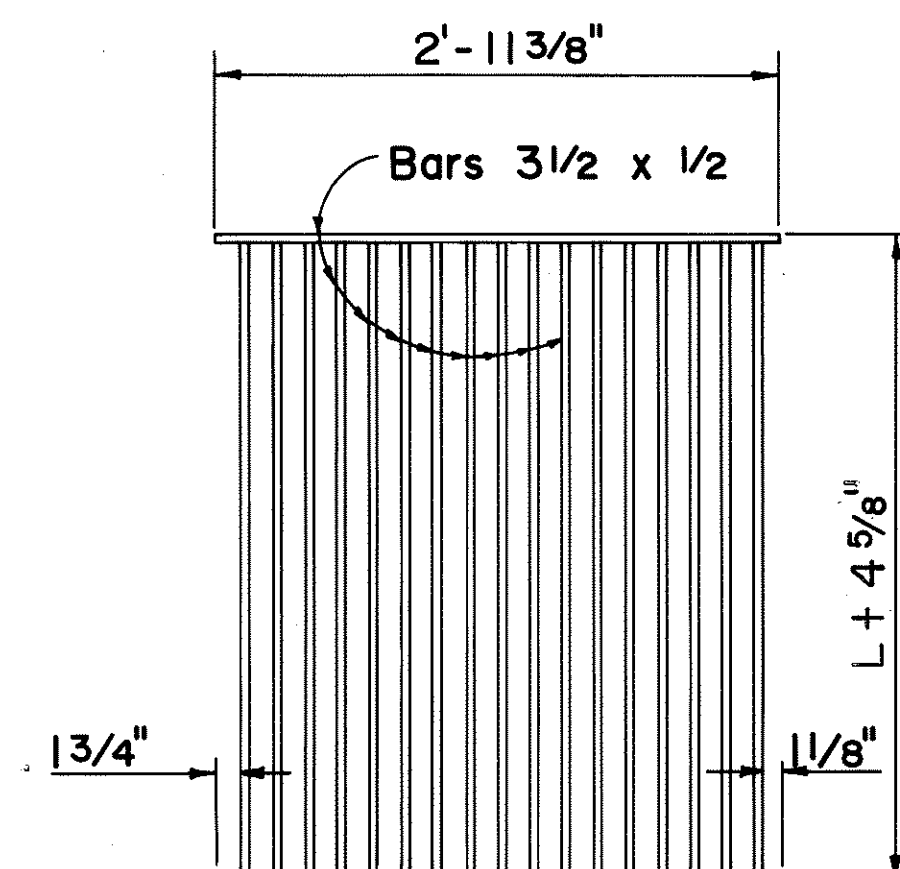
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-H-01-86	1987	36	115



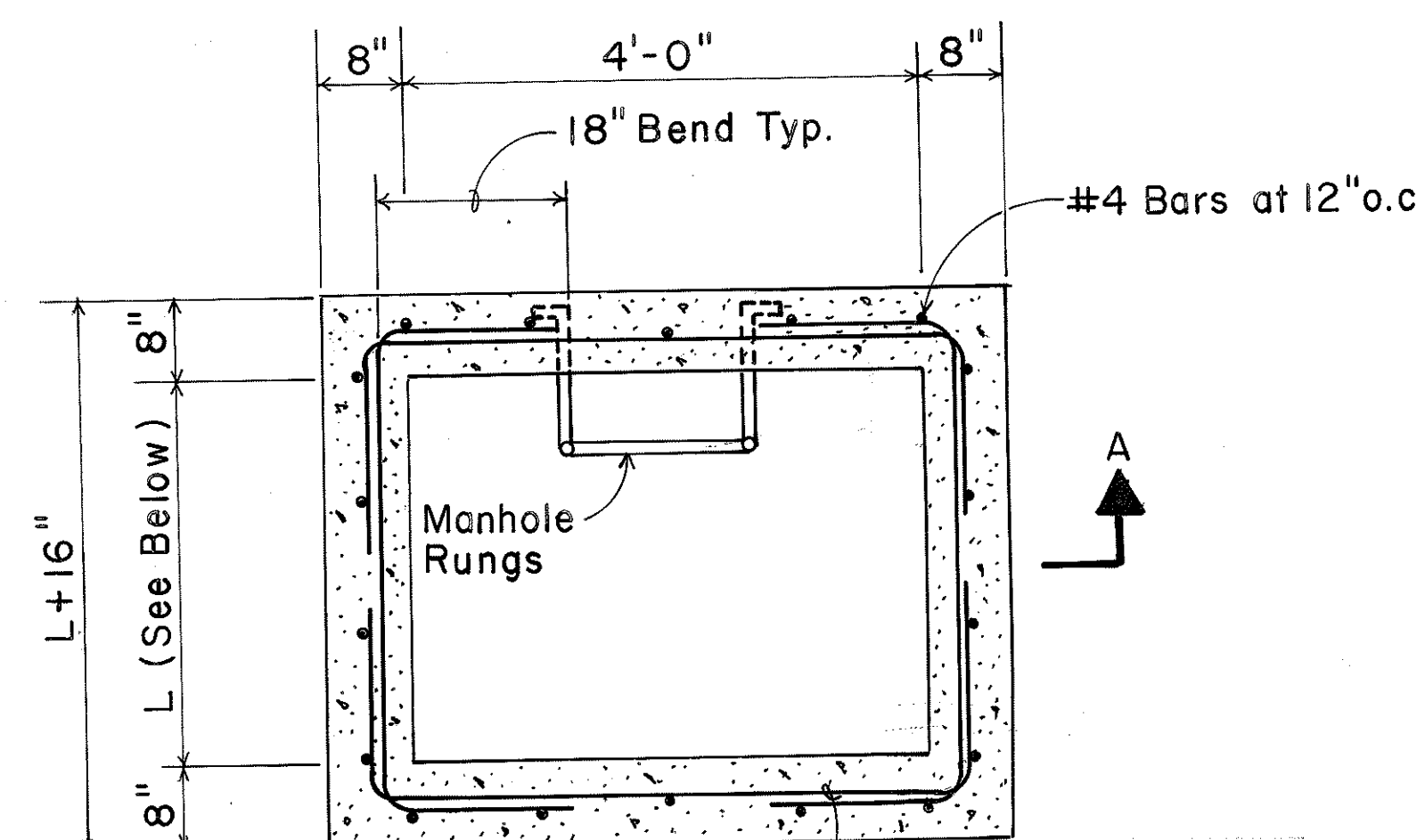
PLAN



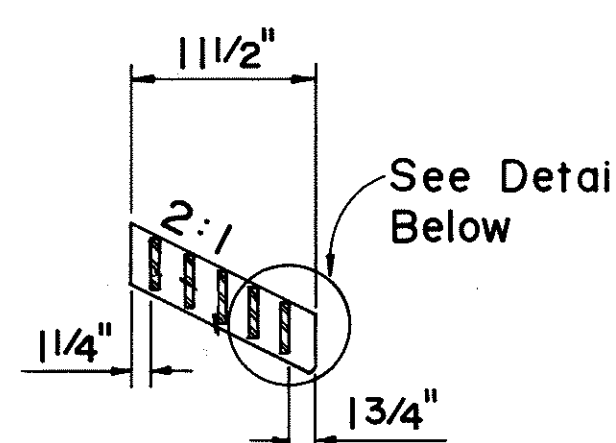
PLAN



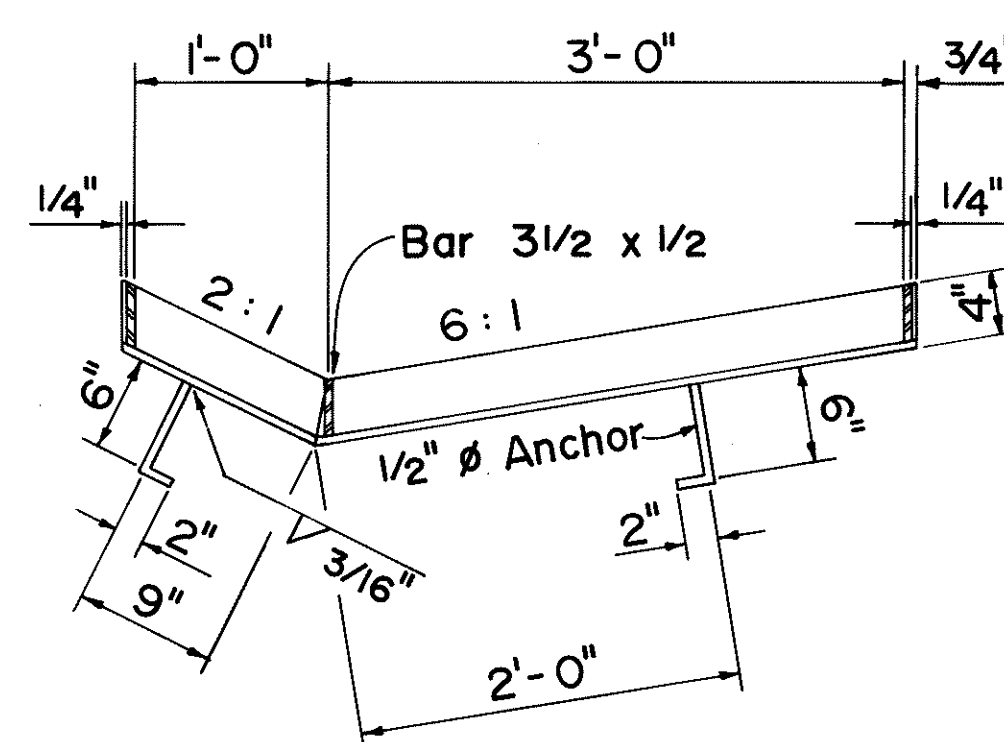
PLAN



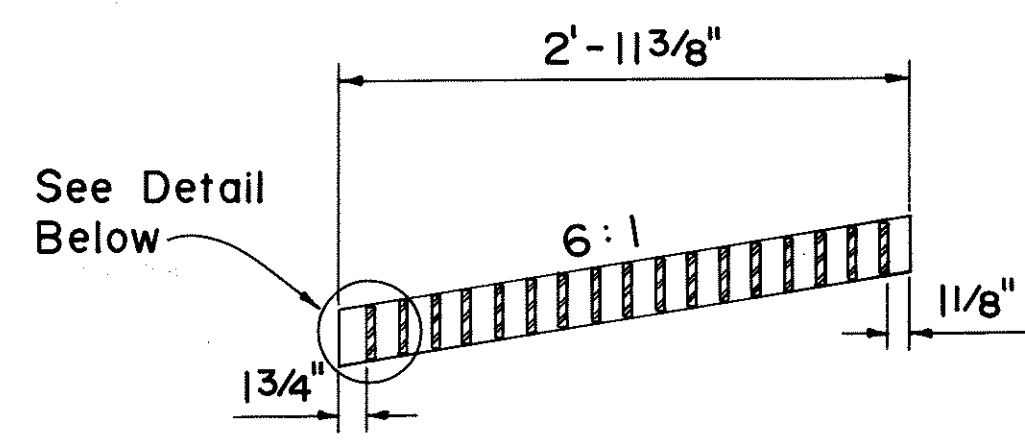
PLAN



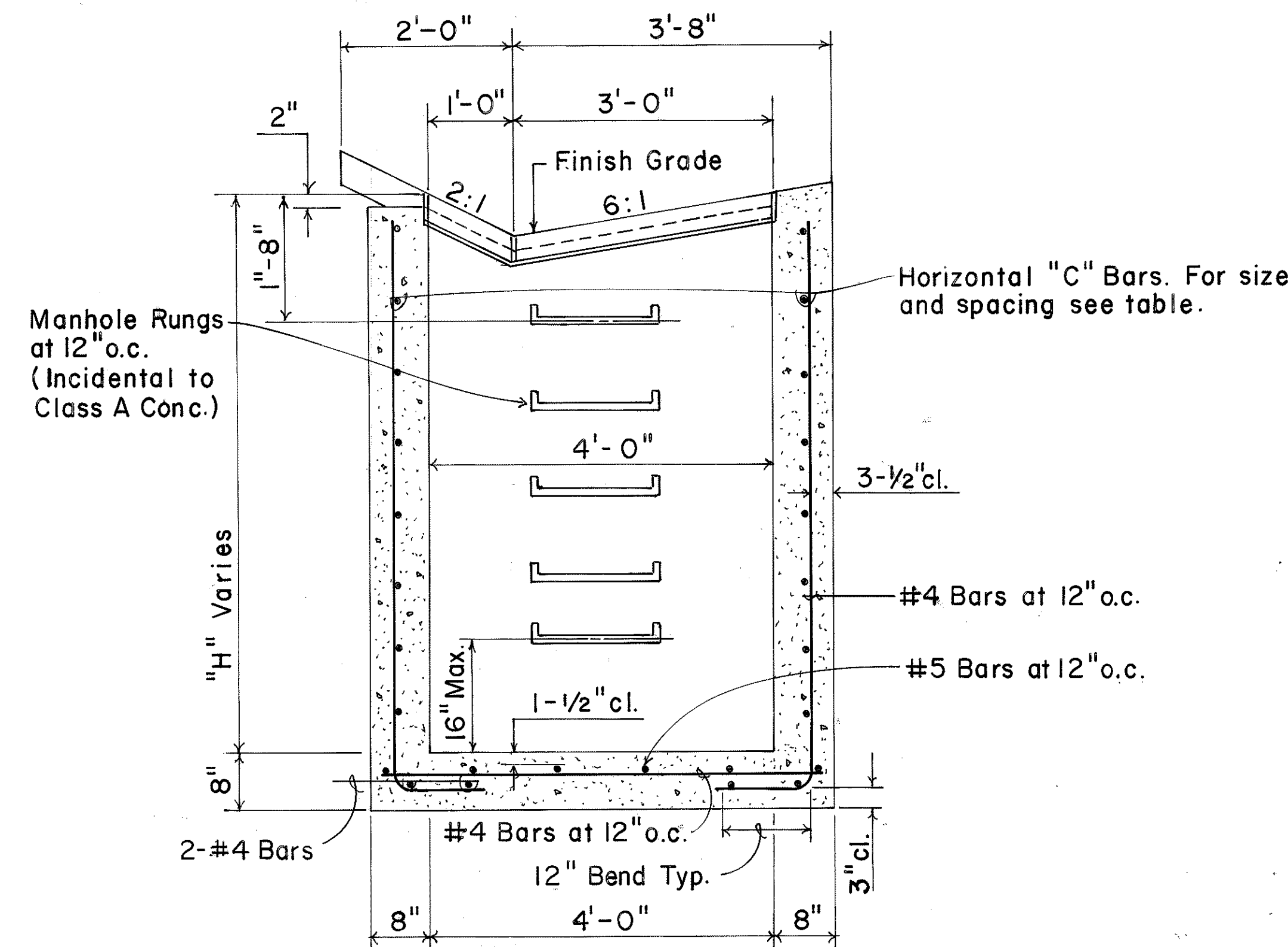
SECTION



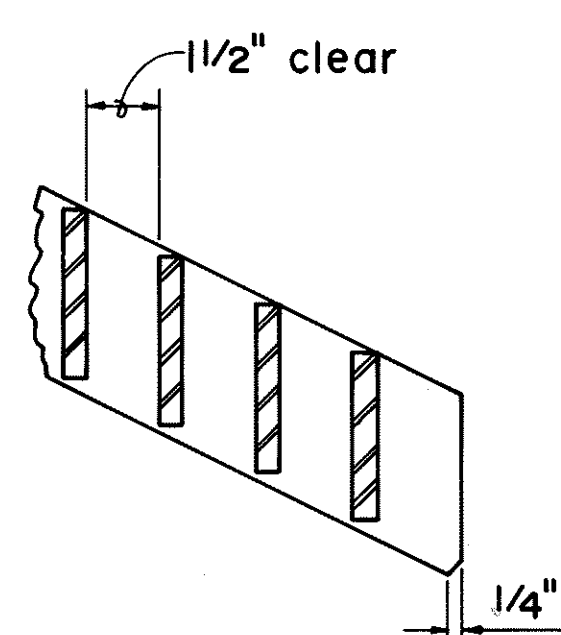
SECTION



SECTION



SECTION "A-A"

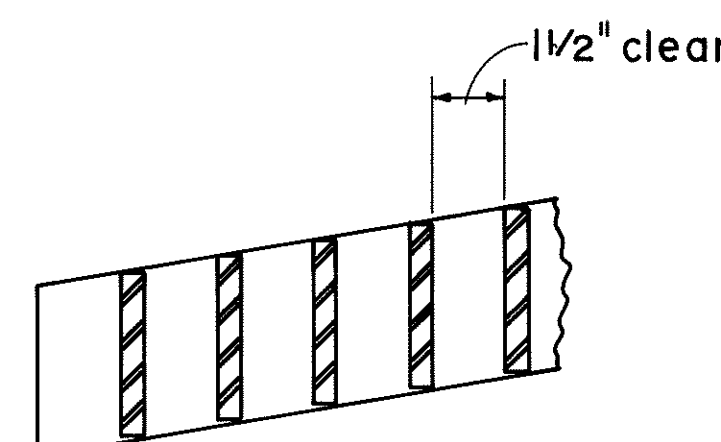


GRATE

NOTES:

1. ALL WELDS 3/8" UNLESS OTHERWISE NOTED.
2. FRAMES AND GRATES SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.
3. FRAME AND GRATE FOR D.I. # MAR-2A SHALL BE TYPE 6I214B. SEE STD. PLAN NO. H-14.

MODIFIED 6I214 STEEL FRAME AND GRATES
NO SCALE

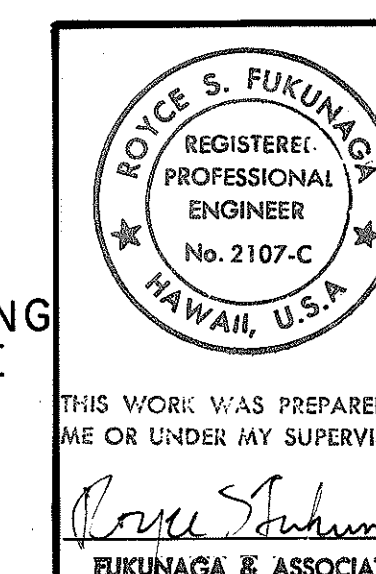


GRATE

TABLE: HORIZONTAL BARS	
"H"	"C" Bars
5'-0" Max.	#4 at 10" o.c.
10'-0" Max.	#5 at 9" o.c.

NOTES:

1. MANHOLE RUNGS SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.
2. FOR ADDITIONAL REINFORCING AT CULVERT OPENINGS, SEE STD. PLAN NO. H-04.



STATE OF HAWAII
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HIGHWAYS DIVISION

DRAIN DETAILS

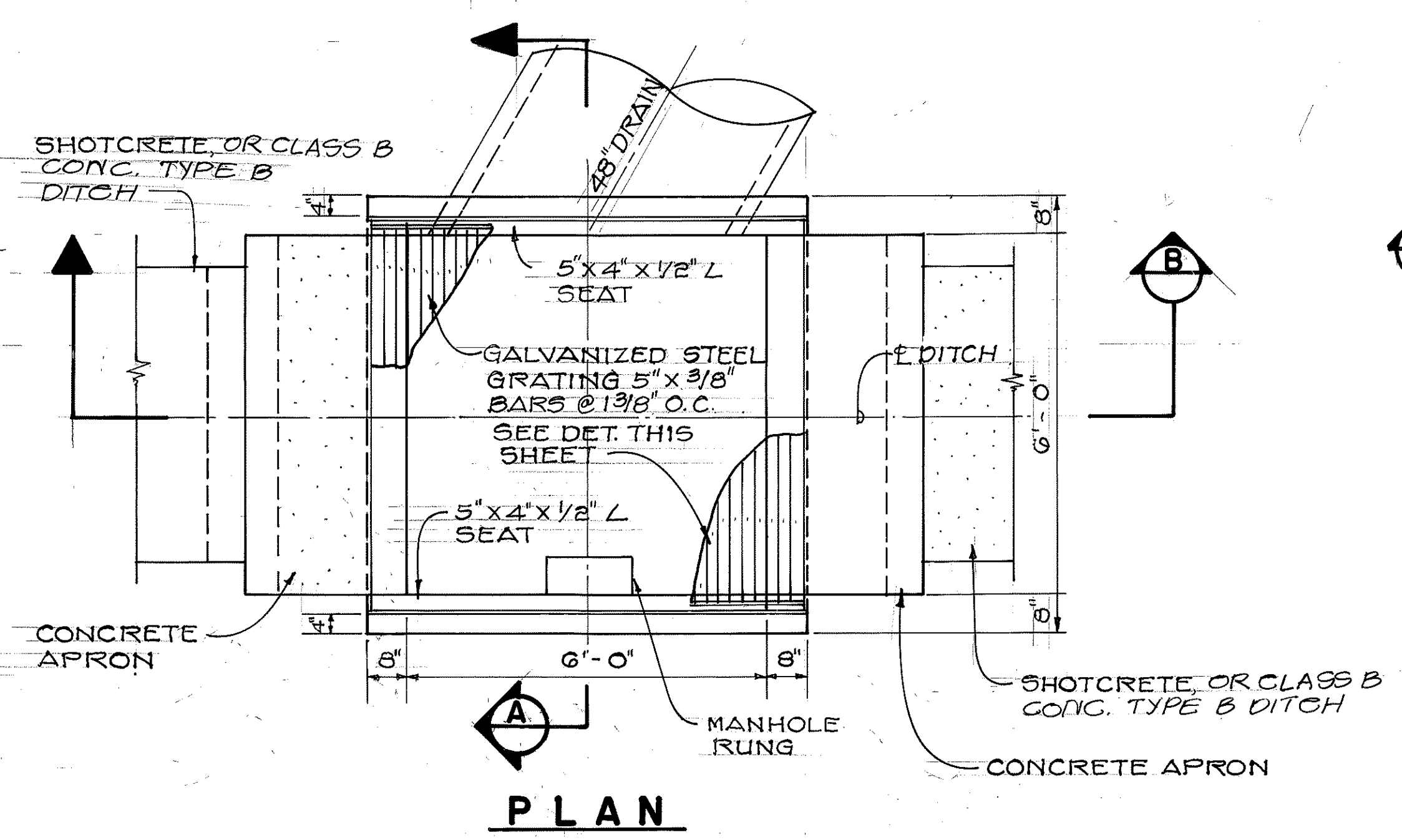
MAUNA KEA OBSERVATORY ACCESS ROAD
PHASE I
PROJECT NO. HWY.-H-01-86

SCALE: AS SHOWN

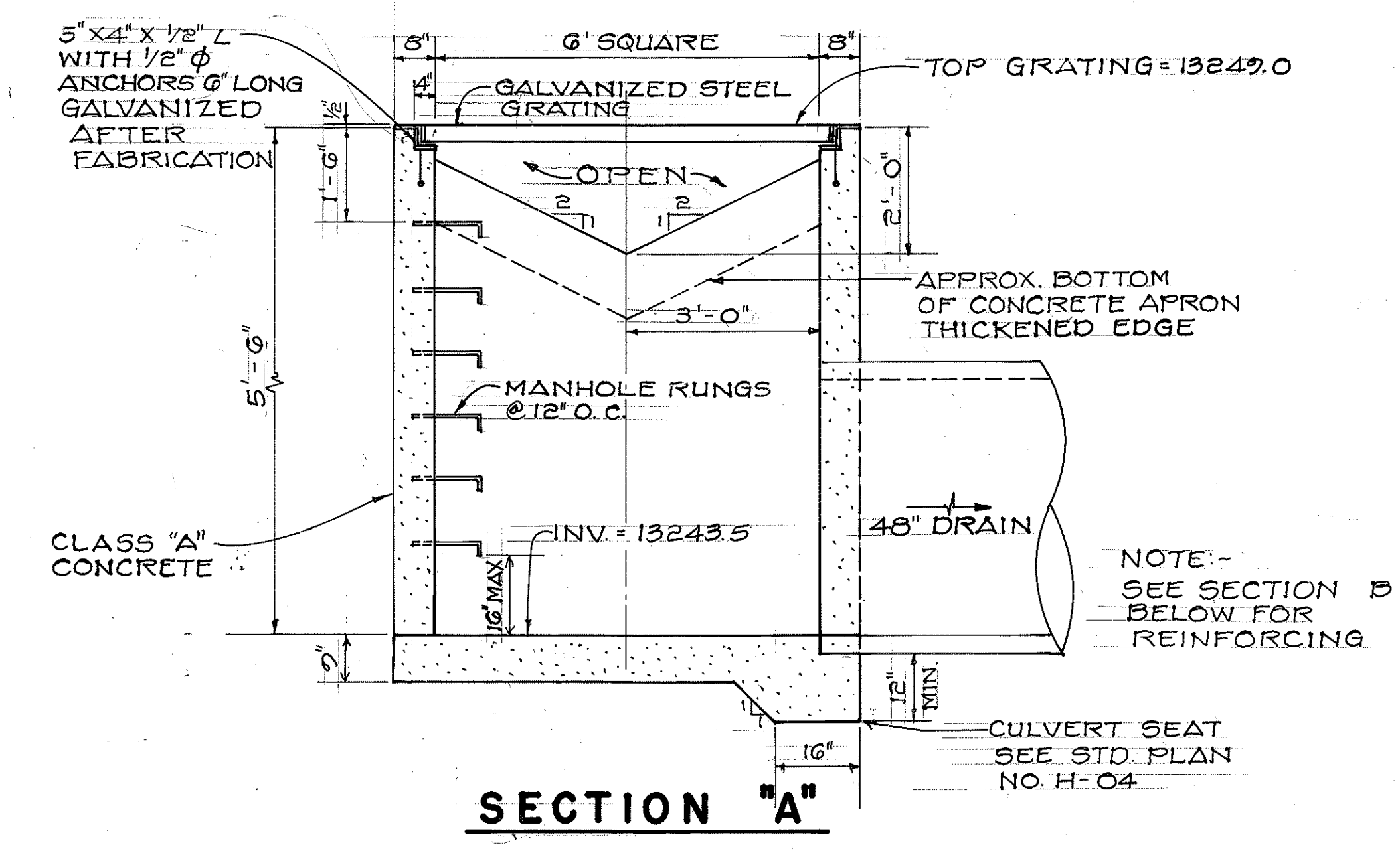
SHEET No. 3 OF 5 SHEETS

MODIFIED TYPE 6I214 GRATED DROP INLET
NO SCALE

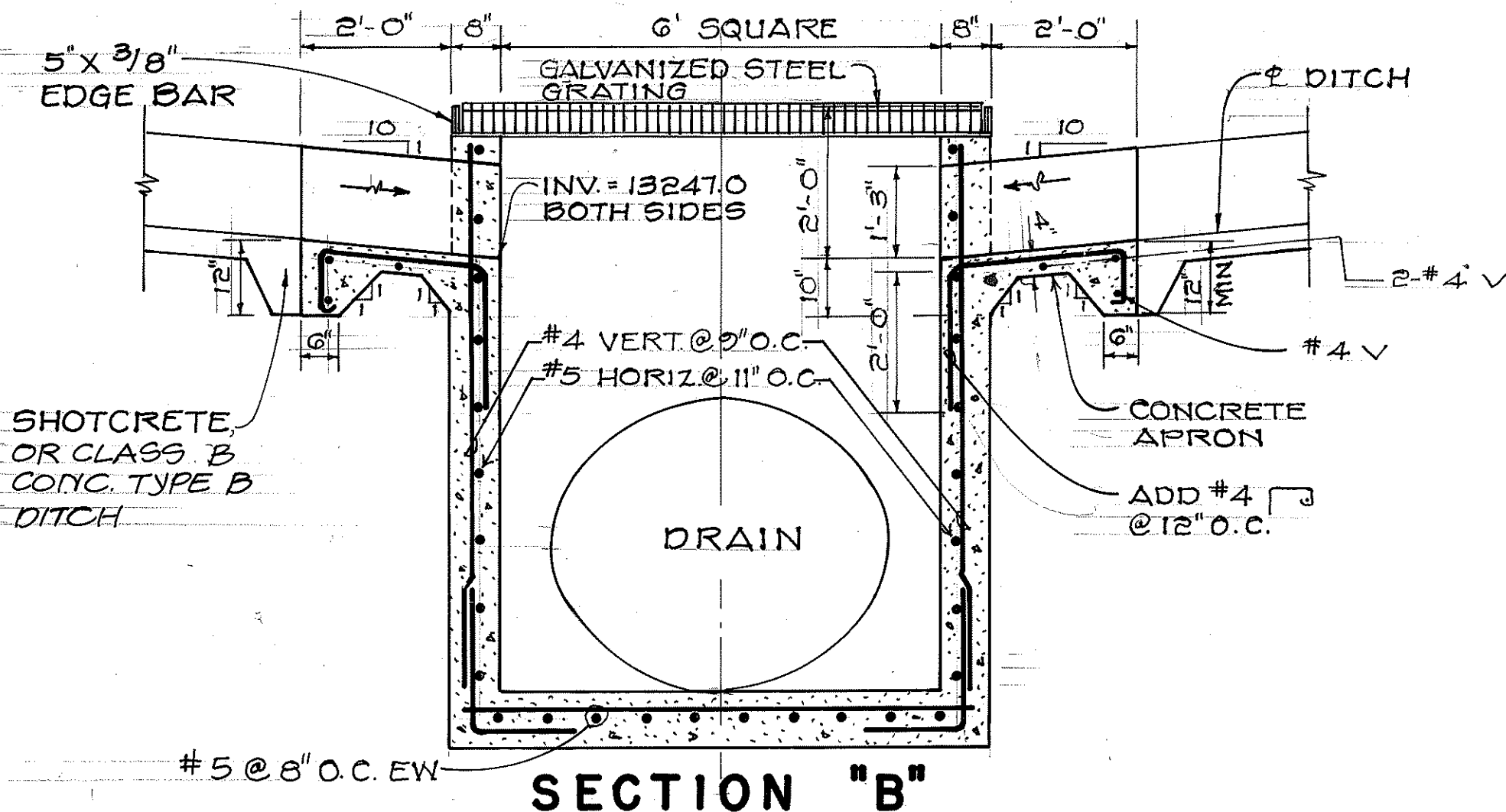
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-H-01-86	1987	37	115



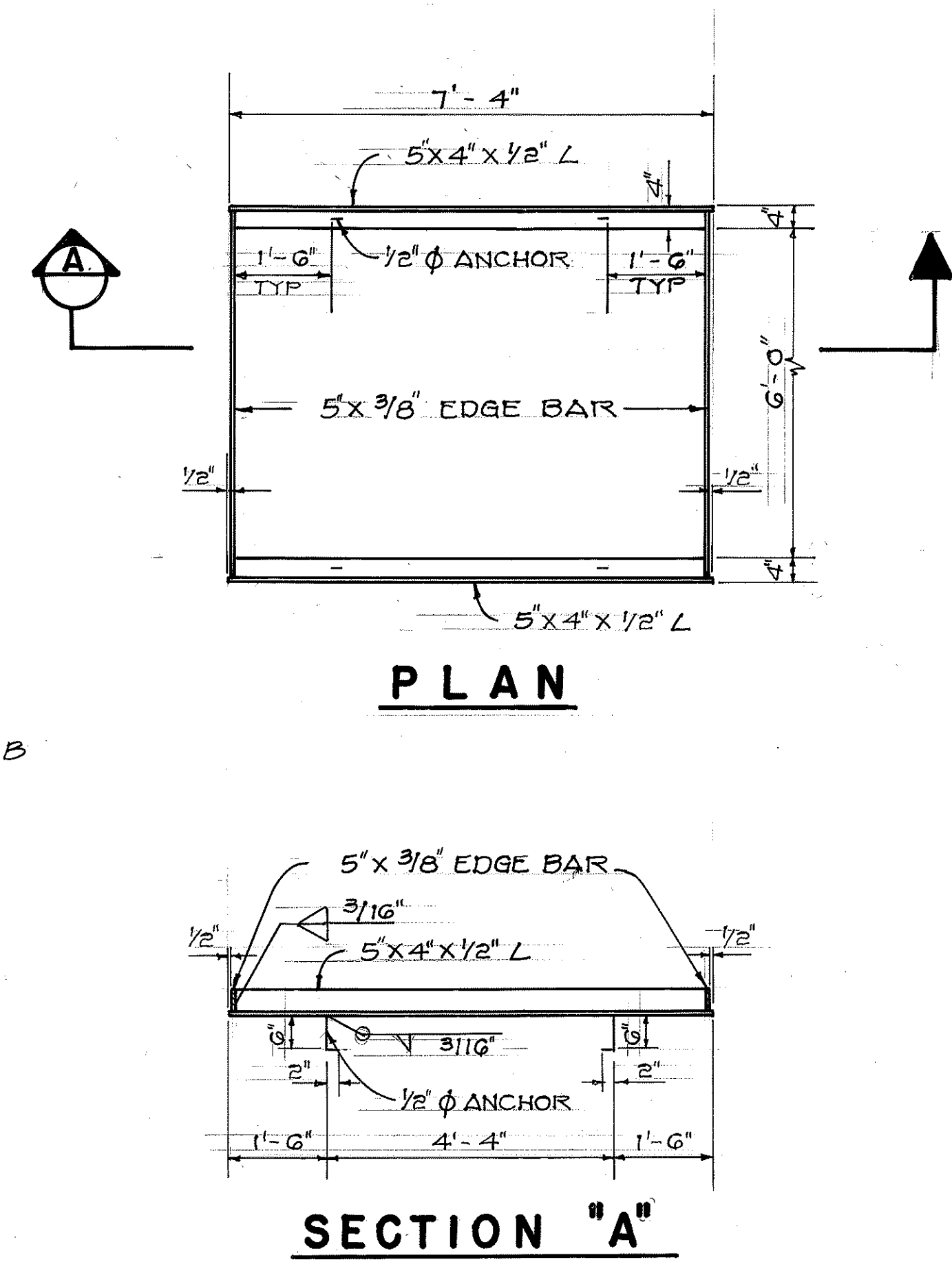
PLAN



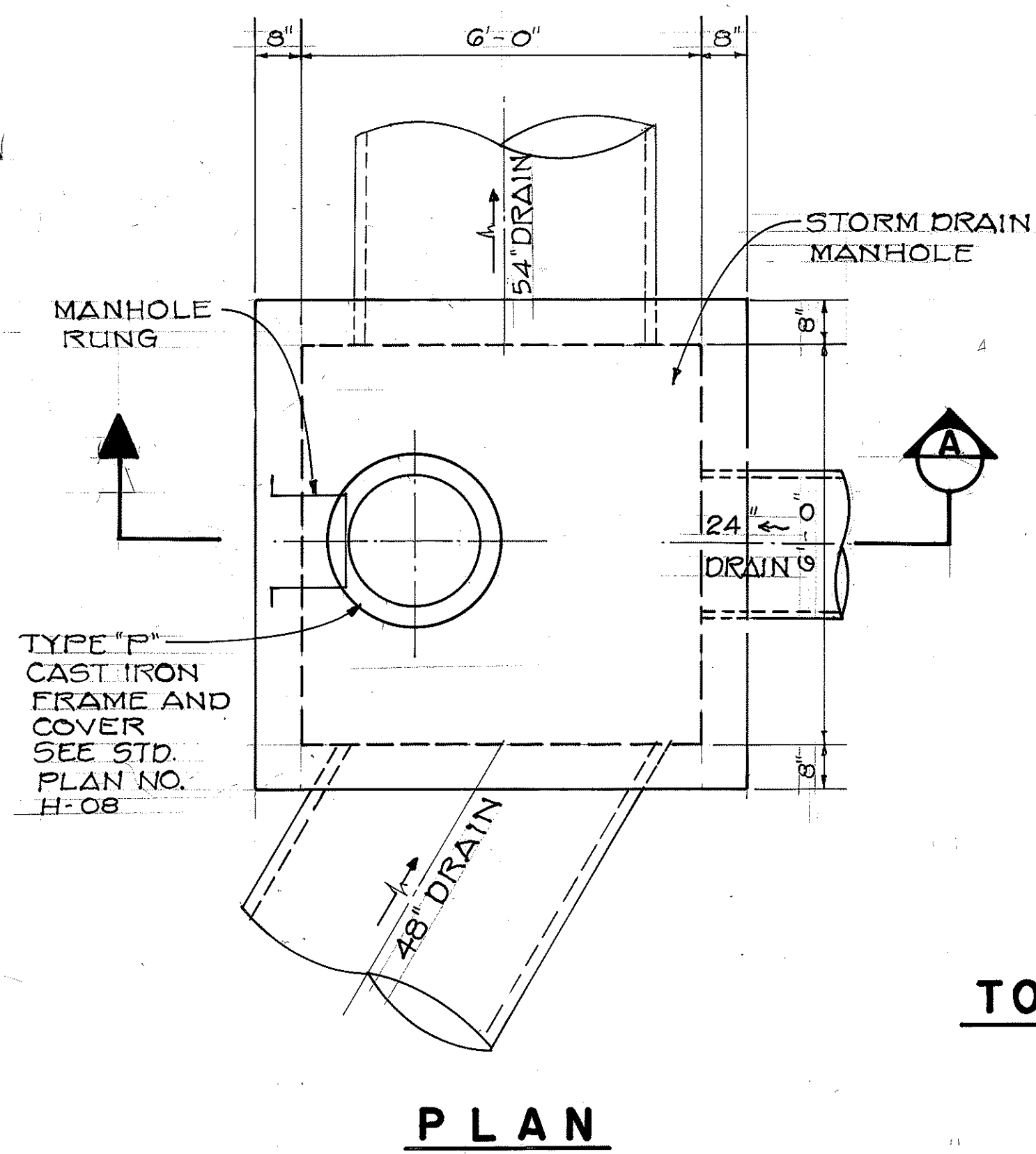
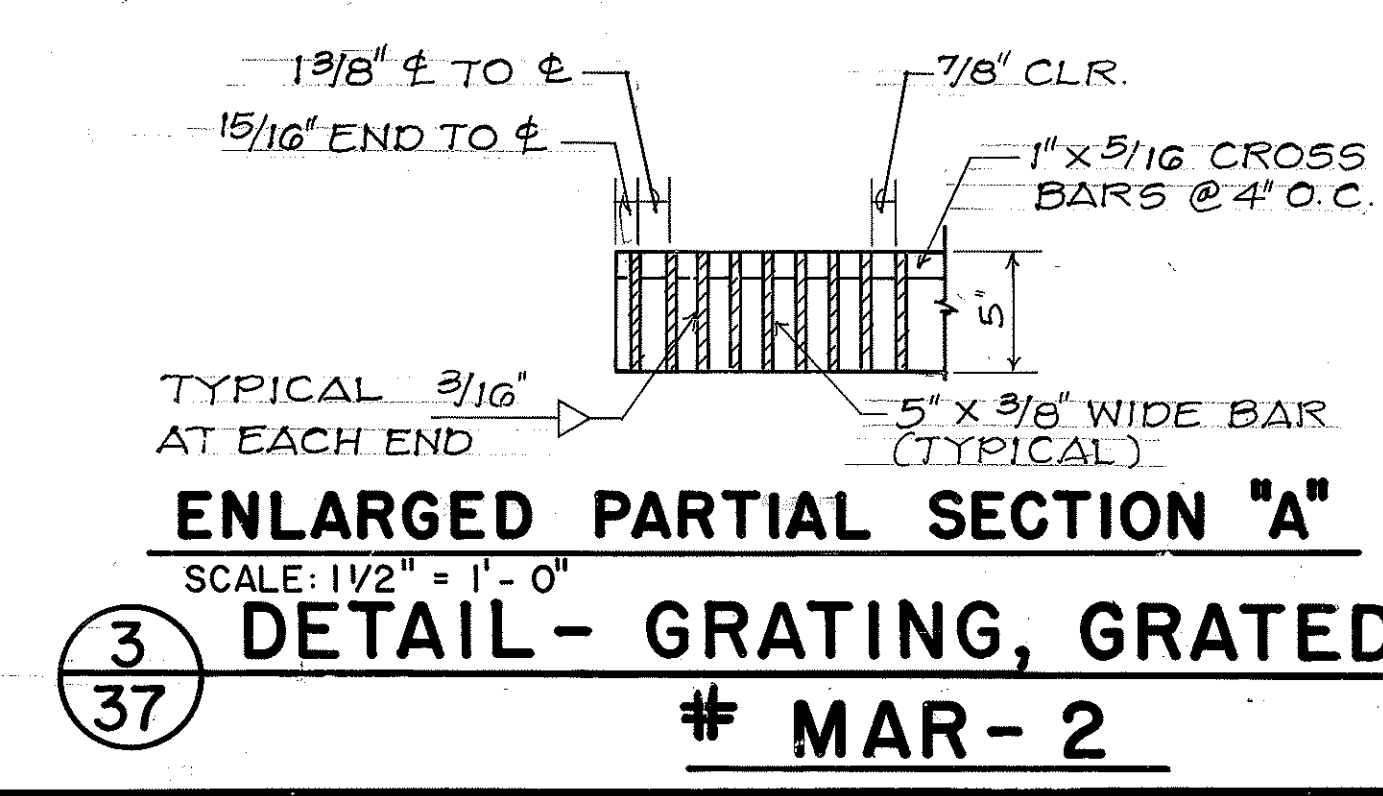
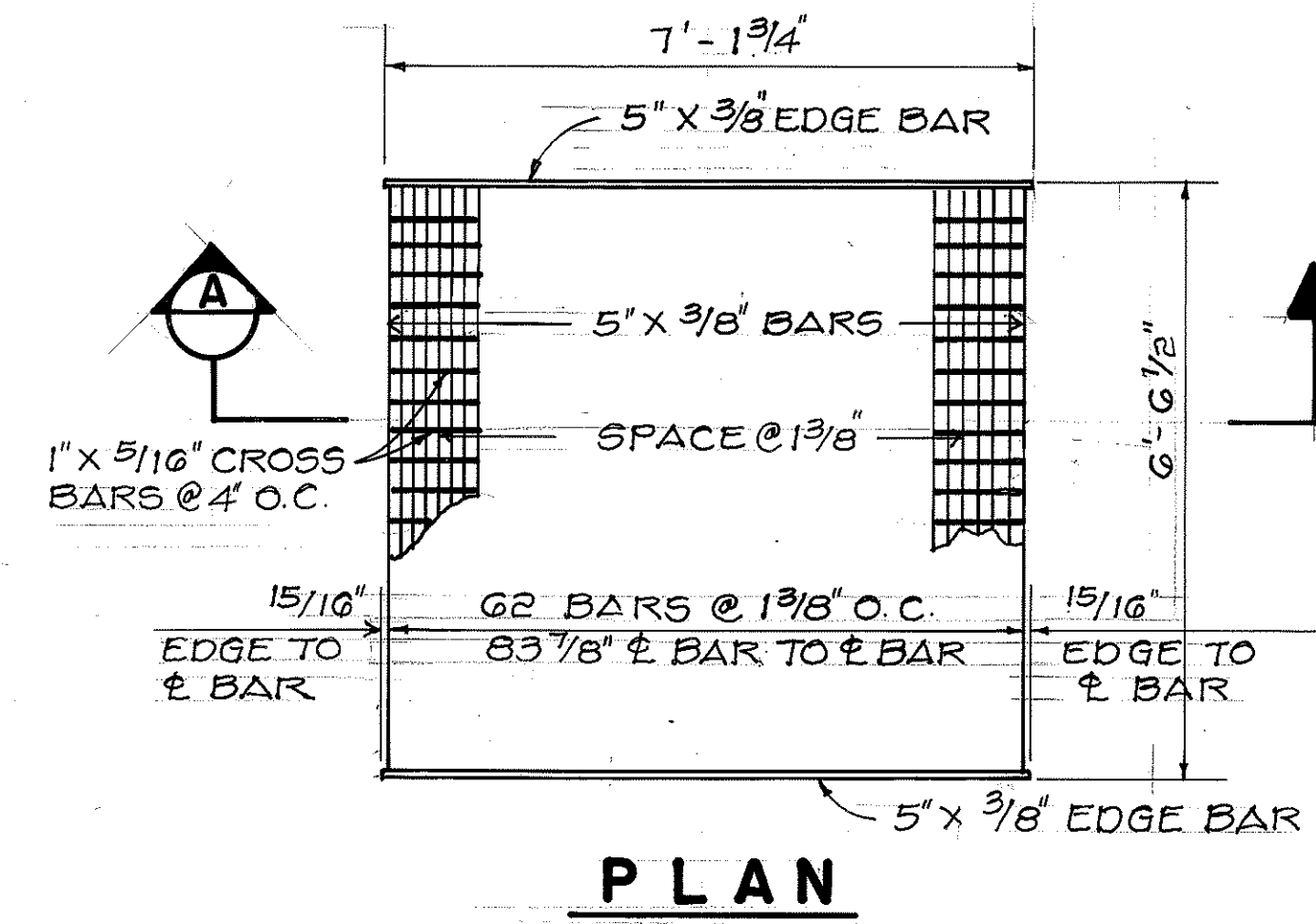
SECTION "A"



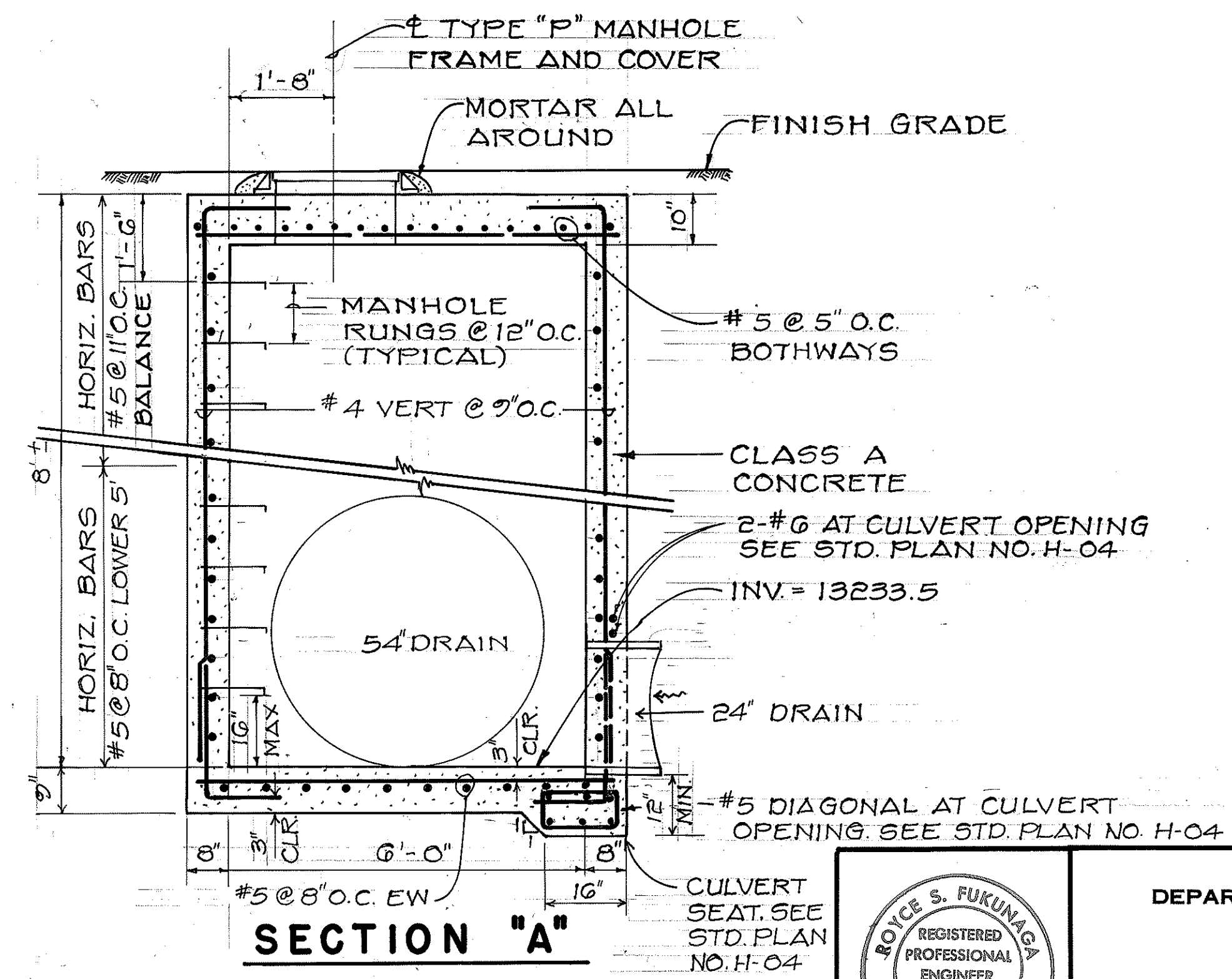
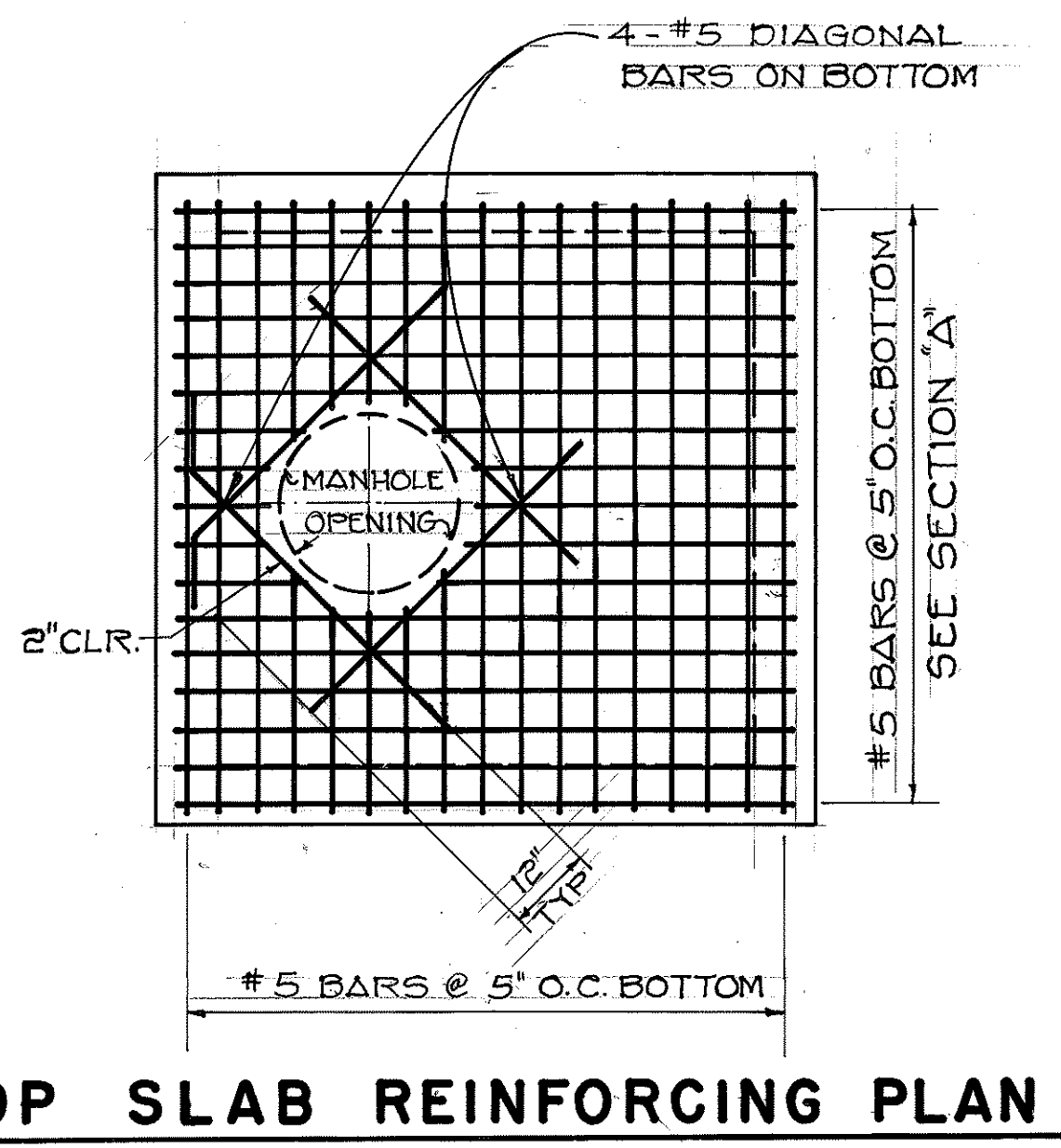
1 37 DETAILS - GRATED D.I. # MAR - 2 SCALE: 1/2" = 1' - 0"



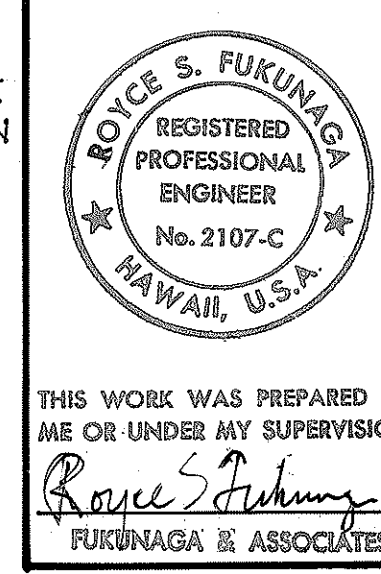
2 37 DETAIL - GRATING FRAME GRATED D.I. # MAR - 2 SCALE: 1/2" = 1' - 0"



PLAN

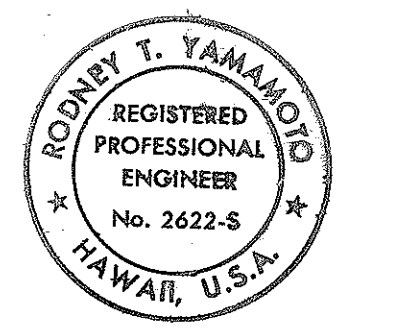


4 37 DETAILS - DRAIN MANHOLE # MAR - 2 SCALE: 1/2" = 1' - 0"



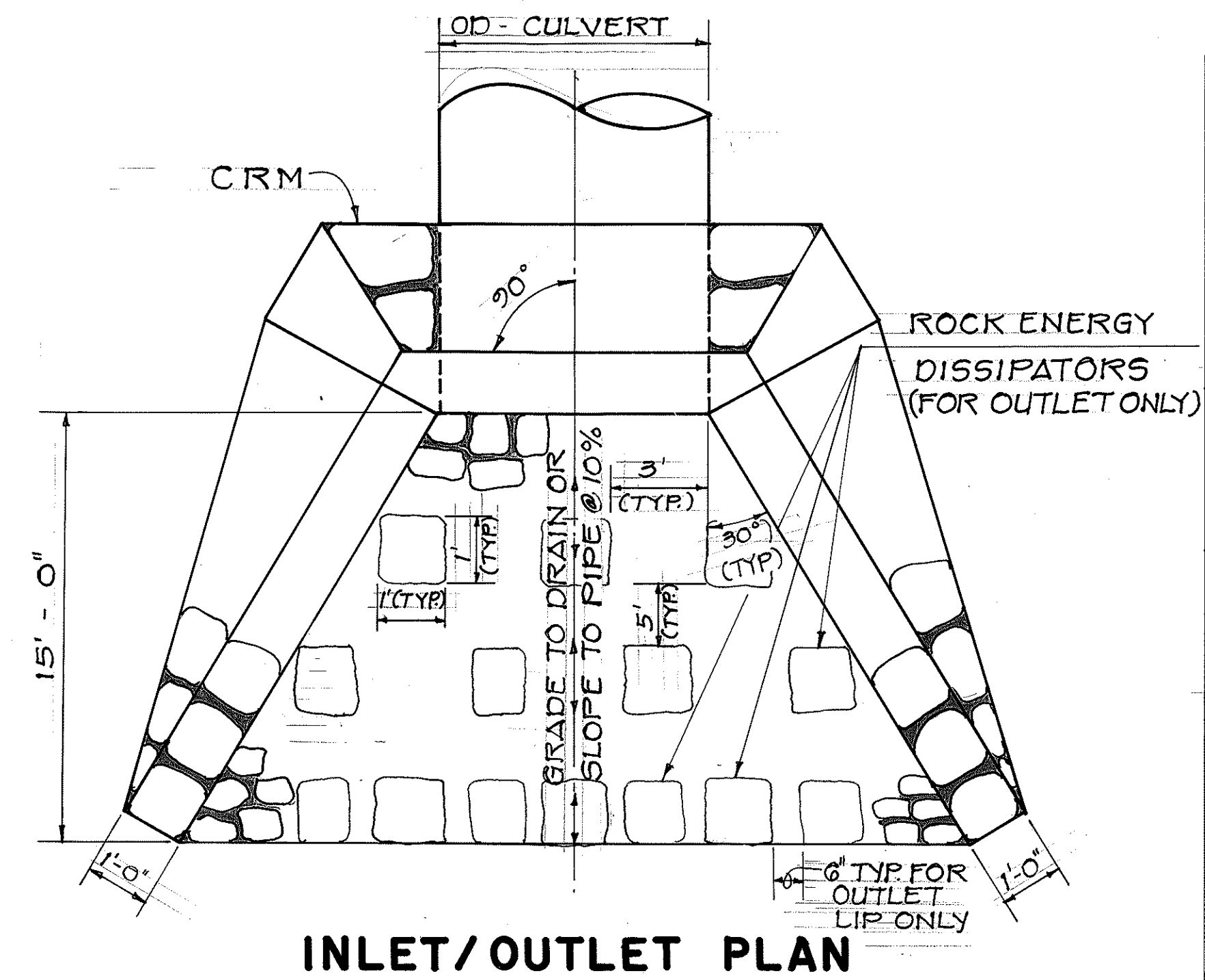
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAIN DETAILS
MAUNA KEA OBSERVATORY ACCESS ROAD
PHASE I
PROJECT NO. HWY - H - 01 - 86
SCALE: AS NOTED

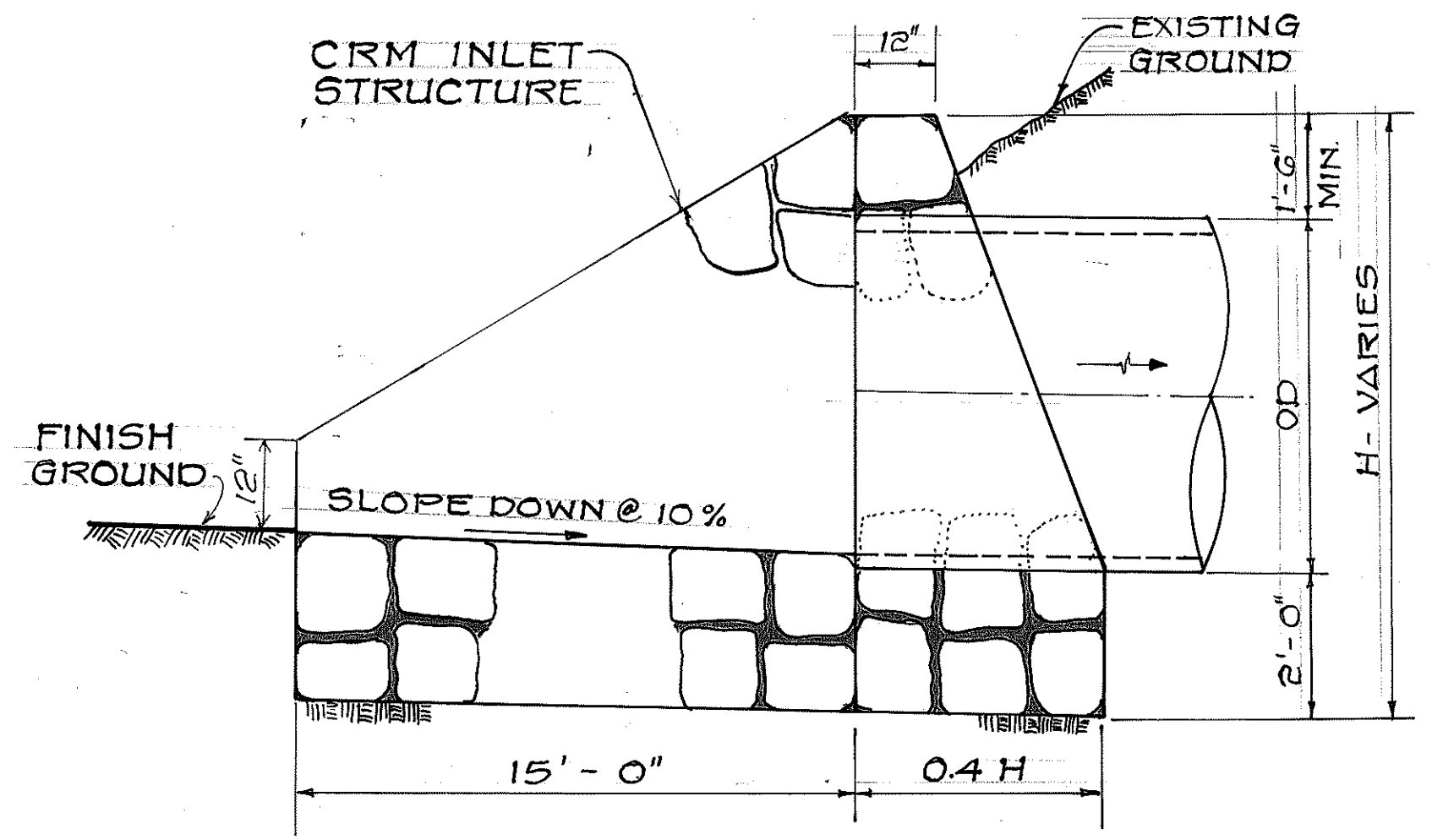


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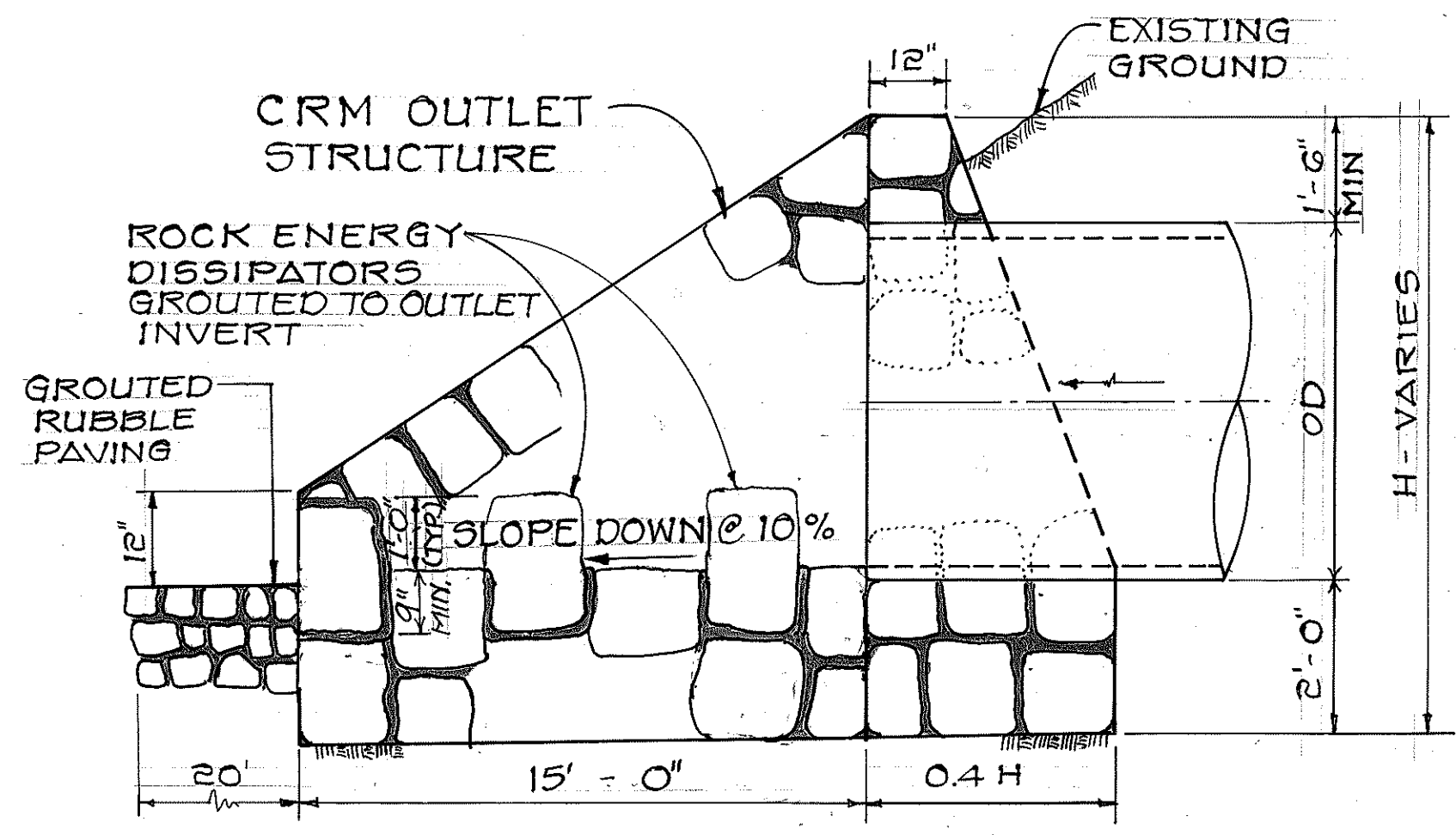
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY.-H-01-86	1987	38	115



INLET/OUTLET PLAN

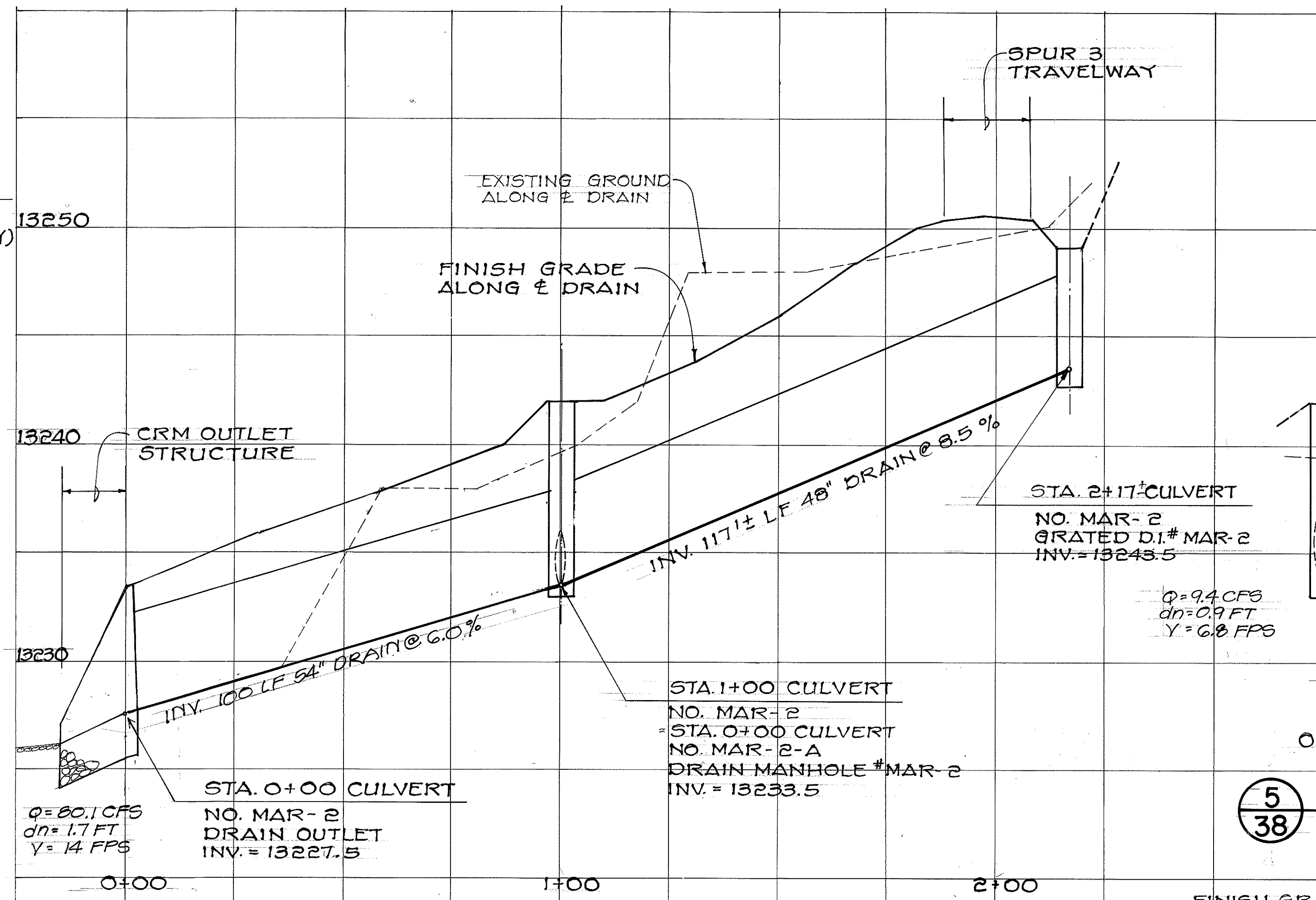


INLET SECTION

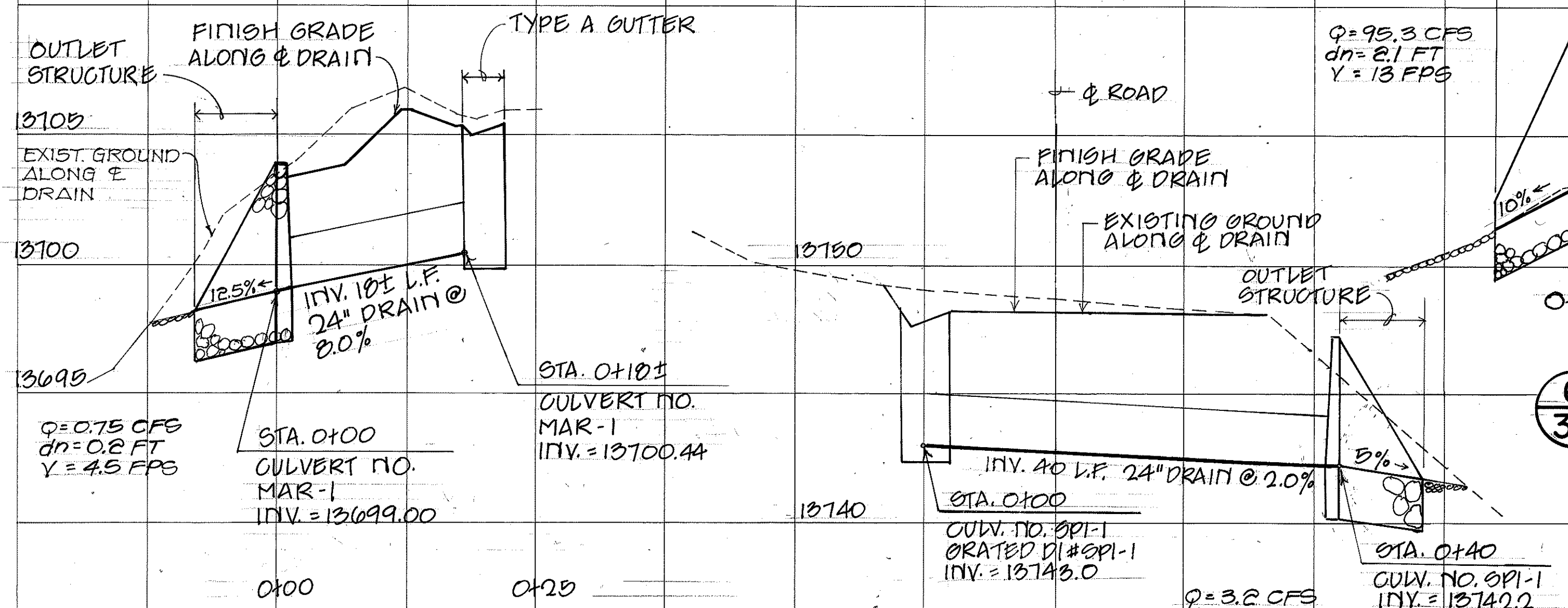


OUTLET SECTION

1 DETAILS - CRM INLET / OUTLET
NO SCALE

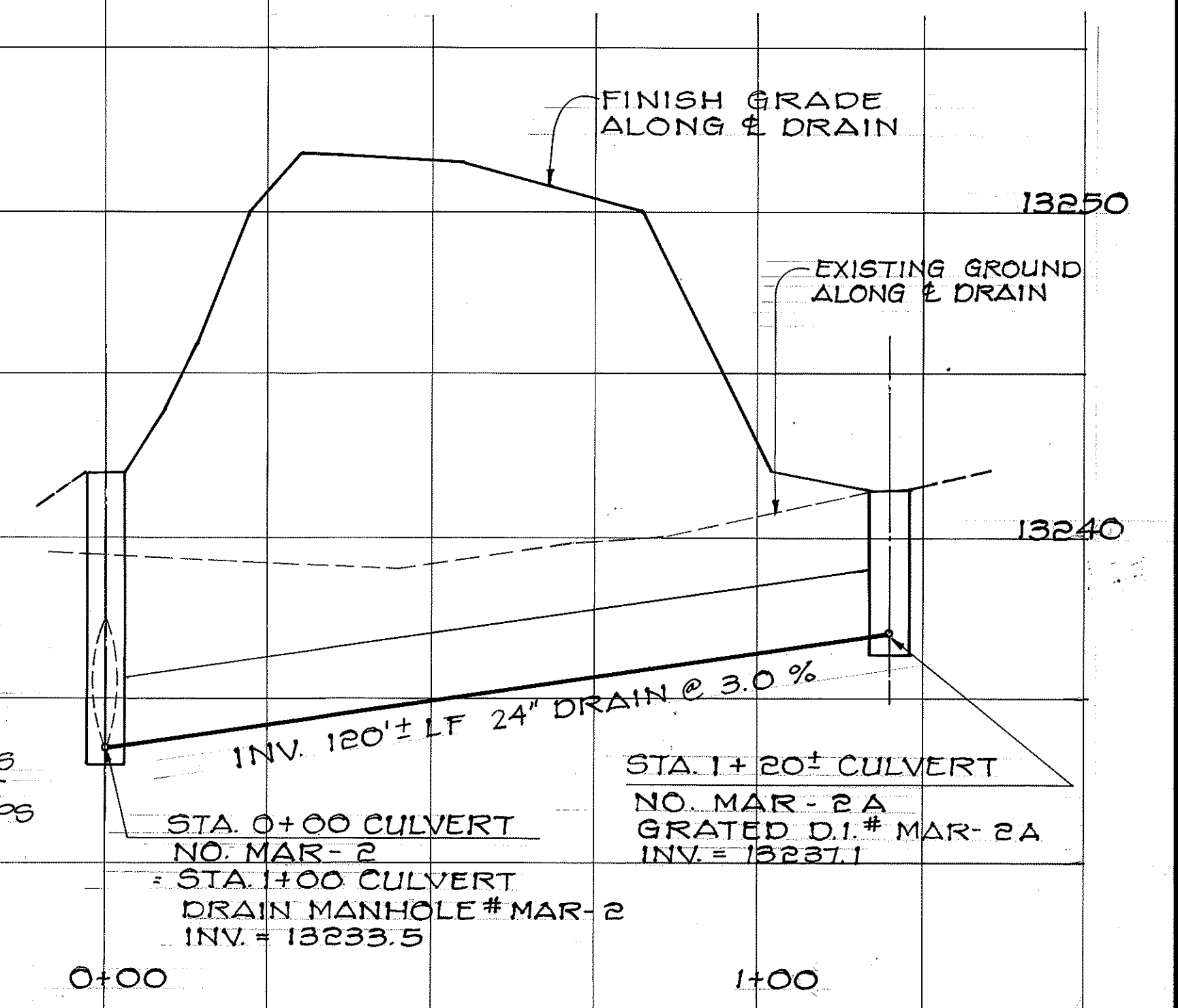


2 PROFILE - CULVERT NO. MAR - 2
SCALE: HORIZ. 1" = 20' - 0"
VERT. 1" = 4' - 0"

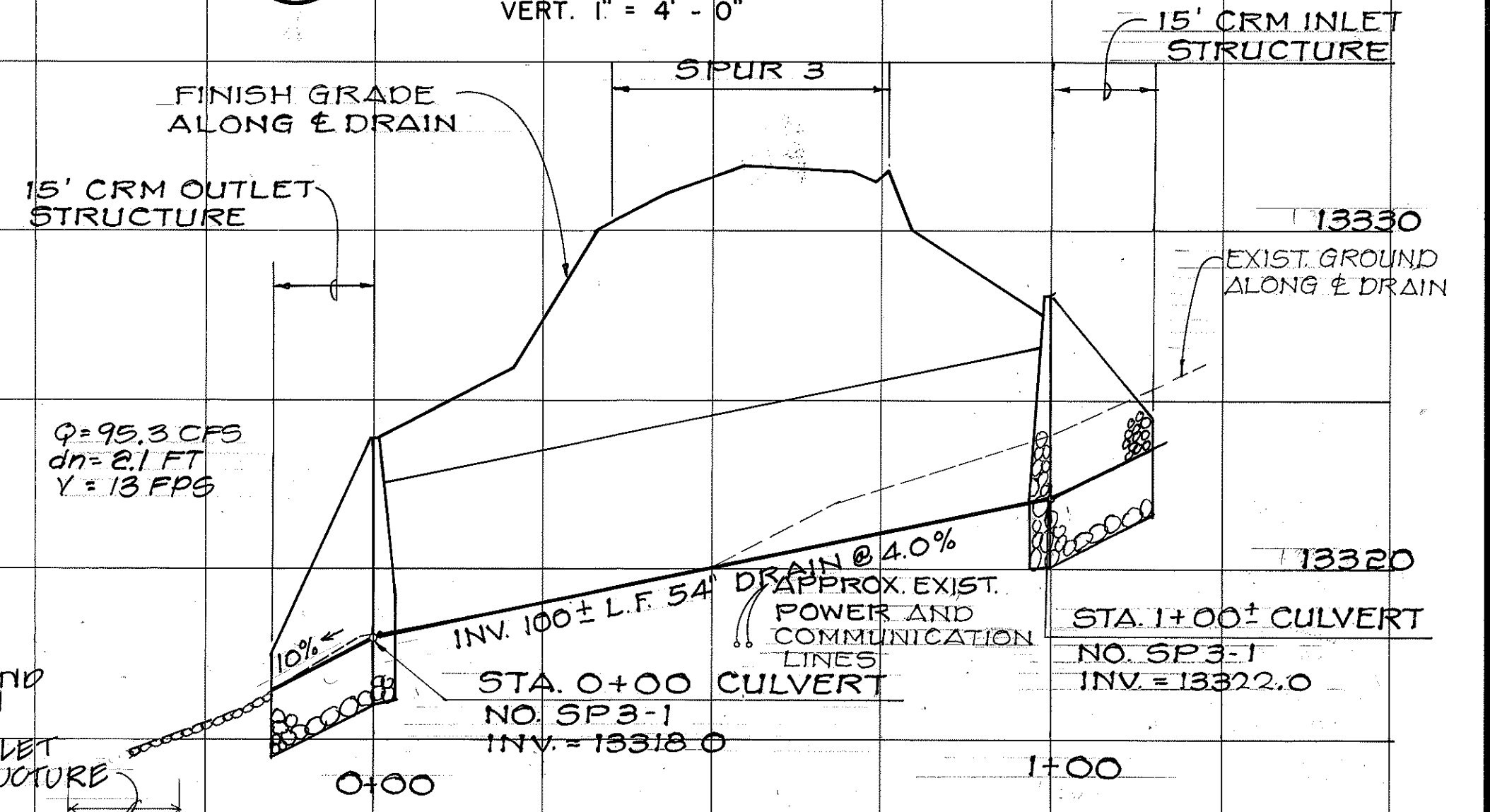


3 PROFILE - CULVERT NO. MAR - 1
SCALE: HORIZ. 1" = 10' - 0"
VERT. 1" = 4' - 0"

4 PROFILE - CULVERT NO. SPI - 1
SCALE: HORIZ. 1" = 10' - 0"
VERT. 1" = 4' - 0"



5 PROFILE - CULVERT NO. MAR - 2A
SCALE: HORIZ. 1" = 20' - 0"
VERT. 1" = 4' - 0"



6 PROFILE - CULVERT NO. SP3 - 1
SCALE: HORIZ. 1" = 20' - 0"
VERT. 1" = 4' - 0"

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Royce S. Fukunaga

FUKUNAGA & ASSOCIATES

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**DRAIN DETAILS
AND PROFILES**

MAUNA KEA OBSERVATORY ACCESS ROAD
PHASE I

PROJECT NO. HWY.-H-01-86

SCALE: AS NOTED

SHEET No. 5 OF 5 SHEETS

DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
CHECKED BY	_____
NOTED BY	_____
QUANTITY BY	_____
CHECKED BY	_____
ORIGINAL PLAN	_____
NOTE BOOK	_____
No.	_____