

DRAINAGE SUMMARY

PROJECT : INTERSTATE ROUTE H-3

F. A. I. PROJECT NO: 1 - H-3-(150)

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-H3-(150)	1989	ADD. 28	164

ITEM NO.		206. 1000	206. 7100	206. 8000	207. 0100	503. 0010	508. 0100	602. 1000	603. 0010	603. 1012	603. 1016	603. 1026	603. 1034	603. 1056	603. 1060	603. 3212	603. 3282	603. 6343	603. 6549	603. 6550	603. 6562	603. 6630	603. 6832	603. 6912	604. 2501	612. 0100	611. 0100
UNIT USED		CY.	CY.	CY.	CY.	CY.	CY.	LB.	CY.	LF.	LF.	LF.	LF.	LF.	LF.	LF.	LF.	LF.	LF.	LF.	LF.	LF.	LF.	LF.	Ea.	CY.	CY.
STRUCTURE	STATION	STRUCTURE EXCAVATION OTHER THAN AT BRIDGES	STRUCTURAL BACKFILL FOR STRUCTURAL PLATE CULVERTS	FILTER MATERIAL	DITCH AND CHANNEL EXCAVATION	CLASS A CONCRETE OTHER THAN IN BRIDGES	CEMENT RUBBLE MASONRY	REINFORCING STEEL OTHER THAN IN BRIDGES	BED COURSE MATERIAL FOR CULVERT	30-INCH RCP, CL III	42-INCH RCP, CL III	72-INCH RCP, CL III	108-INCH RCP, CL III	48-INCH RCP, CL IV	60-INCH RCP, CL IV	156-INCH SSPP, 7Ga.	156-INCH SSPP, 5Ga.	60-INCH CSP, SHT. "T" - 0.138" or 60-INCH RCP, CL IV	54-INCH CSP, SHT. "T" - 0.138" or 54-INCH RCP, CL III	60-INCH CSP, SHT. "T" - 0.138" or 60-INCH RCP, CL III	84-INCH SSPP, 5 Ga. or 84-INCH RCP, CL III	84-INCH SSPP, 7 Ga. or 84-INCH RCP, CL III	108-INCH SSPP, 7 Ga. or 108-INCH RCP, CL V	36-INCH ASRP, SHT. "T" - 0.075" or 36-INCH RCP, CL III	TYPE 6" x 4'-8" 3-INCH DIAMETER PIPE TRASH RACK	GROUTED RUBBLE PAVING	HAND- LAID RIPRAP
INLET AND OUTLET	@ Sta. 403+65 :	1132			32	170.0	23	13160	136				138													8.5	
2-CONCRETE HEADWALLS	@ Sta. 404+68 :	242			4	6.5		300	60	214																	
CONCRETE DROP INLET AND IMPACT TYPE ENERGY DISSIPATOR	@ Sta. 408+30	205		4.0		13.0		2150	40	142																	10.5
STANDARD INLET AND IMPACT TYPE ENERGY DISSIPATOR	@ Sta. 421+18.50	1134		17.5	15	60.5		9170	103			154														11.0	52.0
CONCRETE HEADWALL JUNCTION BOX AND IMPACT TYPE ENERGY DISSIPATOR	@ Sta. 428+24	1049		16.0		55.0		6456	169					164	104												46.5
CONCRETE HEADWALL AND IMPACT TYPE ENERGY DISSIPATOR	@ Sta. 433+90	* 579	159	22.0	14	93.0		9750	154												166					7.5	65.5
CONCRETE HEADWALL AND IMPACT TYPE ENERGY DISSIPATOR	@ Sta. 438+32.57	961		16.0	11	76.5		5119	150									280								31	37.5
STANDARD INLET AND IMPACT TYPE ENERGY DISSIPATOR	@ Sta. 445+61.83	598		12.5	12	43.0		6890	88											164							37.5
CONCRETE DROP INLET AND IMPACT TYPE ENERGY DISSIPATOR	@ Sta. 449+60	* 813	123	22.0		70.0		10470	49													144			1		65.5
INLET	@ Sta. 453+39 o/s 62.5' Rt.	123			15	5.5		850	17										42								
CONCRETE HEADWALL	@ Sta. 455+38 o/s 80' Rt.	156			2	2.0		175	44															126			
INLET AND OUTLET	@ Sta. 462+30.50	* 1438	493		32	180.0	35	15470	274														256			8.5	
CONCRETE HEADWALL AND IMPACT TYPE ENERGY DISSIPATOR	@ Sta. 472+14.50	445		6.5	11	19.5		3260	80		210															14.5	20.0
CONCRETE HEADWALL AND IMPACT TYPE ENERGY DISSIPATOR	@ Sta. 480+44	685		4.0	9	11.5		1850	64	342																	10.5
INLET AND OUTLET	@ Sta. 485+68	* 3100	577	50.0	764	270.0		20600	557							272	46										

*Quantities are based on SSPP. If the Contractor Indicated RCP In the Proposal, quantity adjustments shall be made in the field as required.

ABBREVIATIONS	
ASRP	Aluminum Spiral Rib Pipe
CAP	Corrugated Aluminum Pipe
CSP	Corrugated Steel Pipe
RCP	Reinforced Concrete Pipe
SSPP	Structural Steel Plate Pipe

1/4/89	Quantities for Class A Concrete revised for @ Sta. 403+65, 462+30.5 and 485+68
DATE	REVISION

SHEET No. H 1 OF 54 SHEETS

ADD. 28

8/31/90 Add roadway structures from Sta. 400+00 to Sta. 402+50.
1/4/89 Deleted roadway structures from Sta. 400+00 to Sta. 402+50. Sta. 405+00 Lt. added Struct Exc. and culvert quantities.

DATE REVISION

PROJECT: INTERSTATE ROUTE H-3
F.A.I. PROJECT NO.: I-H3-I(50)

DRAINAGE

SUMMARY

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-I(50)	1990	C.O. ADD 29	164

ITEM NO.		206. 1000	503. 0010	602. 1000	603. 1010			603. 6910	603. 6911			604. 5014	604. 5015	604. 5016	604. 5018	604. 5020		604. 5024	604. 5025	604. 5026	604. 5028		604. 5033	604. 5034	604. 5044	604. 5045	604. 5054	604. 5065			604. 5035	604. 5070	604. 5071	612. 0100						
UNIT USED		C.Y.	C.Y.	LB.	L.F.			L.F.	L.F.			Ea.	Ea.	Ea.	Ea.	Ea.		Ea.	Ea.	Ea.	Ea.		Ea.	Ea.	Ea.	Ea.	Ea.		Ea.			Ea.	Ea.	Ea.	C.Y.					
STRUCTURE	STATION	STRUCTURE EXCAVATION OTHER THAN AT BRIDGES	CLASS A CONCRETE OTHER THAN IN BRIDGES	REINFORCING STEEL OTHER THAN IN BRIDGES	24-INCH RCP, CL. III			24-INCH ASRP, SHT. "1"-0.075" or 24-INCH RCP, CL. III	30-INCH ASRP, SHT. "1"-0.075" or 30-INCH RCP, CL. III			TYPE 2 GRATED DROP INLET 4.50 FT. TO 5.49 FT.	TYPE 2 GRATED DROP INLET 5.50 FT. TO 6.49 FT.	TYPE 2 GRATED DROP INLET 6.50 FT. TO 7.49 FT.	TYPE 2 GRATED DROP INLET 8.50 FT. TO 9.49 FT.	TYPE 2B GRATED DROP INLET 14.50 FT. TO 15.49 FT.		TYPE 3 GRATED DROP INLET 4.50 FT. TO 5.49 FT.	TYPE 3 GRATED DROP INLET 5.50 FT. TO 6.49 FT.	TYPE 3 GRATED DROP INLET 6.50 FT. TO 7.49 FT.	TYPE 3 GRATED DROP INLET 8.50 FT. TO 9.49 FT.		TYPE 2 MEDIAN DROP INLET 3.50 FT. TO 4.49 FT.	TYPE 2 MEDIAN DROP INLET 4.50 FT. TO 5.49 FT.	TYPE 3 MEDIAN DROP INLET 4.50 FT. TO 5.49 FT.	TYPE 3 MEDIAN DROP INLET 5.50 FT. TO 6.49 FT.	TYPE 61214 GRATED DROP INLET 4.50 FT. TO 5.49 FT.		TYPE 61614 GRATED DROP INLET 5.50 FT. TO 6.49 FT.		TYPE 2 MEDIAN DROP INLET 5.50 FT. TO 6.49 FT.	TYPE 61614 GRATED DROP INLET 6.50 FT. TO 7.49 FT.	TYPE 2A GRATED DROP INLET 13.50 FT. TO 14.49 FT.	GROUTED RUBBLE PAVING						
TYPE 61214 G.D.I.	Sta. 400+00 Rt.	40						39																																
TYPE 3 M.D.I.	Sta. 400+00	40						42																		1														
TYPE 61614 G.D.I.	Sta. 400+00 o/s 13' ± Lt.	37						38																										1						
TYPE 2 G.D.I.	Sta. 400+00 Lt.	118							98			1																					1							
TYPE 2 M.D.I.	Sta. 402+50	55						58																																
TYPE 2 G.D.I.	Sta. 402+50 Lt.	254						244				1																												
TYPE 2 G.D.I.	Sta. 405+00	50						52																		1														
TYPE 2 G.D.I.	Sta. 405+00 Lt.	225						244				1																												
TYPE 61214 G.D.I.	Sta. 407+32 Rt.	36			39																													1						
TYPE 2 M.D.I.	Sta. 407+32	36			39																												1							
TYPE 2 G.D.I.	Sta. 407+32 Lt.	21	2.5	75	28							1																												
TYPE 2 M.D.I.	Sta. 410+00	24			38																				1															
TYPE 2 G.D.I.	Sta. 410+00 Lt.	164			262									1																										
TYPE 2 M.D.I.	Sta. 418+50	35						38																		1														
TYPE 2 G.D.I.	Sta. 418+50 Lt.	170						272						1																										
TYPE 61214 G.D.I.	Sta. 420+85 Rt.	33						52																				1												
TYPE 2 M.D.I.	Sta. 421+20							38																1																
TYPE 2B G.D.I.	Sta. 421+27 Lt.														1																									
TYPE 61214 G.D.I.	Sta. 422+60 Rt.	34						38																				1												
TYPE 3 M.D.I.	Sta. 422+60	37						38																					1											
TYPE 3 G.D.I.	Sta. 422+60 Lt.	134						134											1																					
TYPE 3 G.D.I.	Sta. 424+00 Rt.	27						76										1																						
TYPE 3 G.D.I.	Sta. 424+00 Lt.	94						94											1																					
TYPE 3 G.D.I.	Sta. 425+00 Rt.	70						76										1																						
TYPE 2 G.D.I.	Sta. 425+00 Lt.	94						94					1																											
TYPE 3 G.D.I.	Sta. 426+00 Rt.	70						76										1																						
TYPE 2 G.D.I.	Sta. 426+00 Lt.	94						94					1																											
TYPE 3 G.D.I.	Sta. 427+00 Rt.	73						76										1																						

SHEET No. H2 OF 54 SHEETS

C.O. ADD. 29

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTED BY	DRAWN BY	
CHECKED BY	TRACED BY	
	QUANTITIES BY	

DRAINAGE SUMMARY

PROJECT: INTERSTATE ROUTE H-3

F. A. I. PROJECT NO.: I-H3-I(50)

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	I-H3-I(50)	1989	ADD. 30	164

		DRAINAGE SUMMARY																				FED. ROAD DIST. NO. STATE FED. AID PROJ. NO. FISCAL YEAR SHEET NO. TOTAL SHEETS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
		PROJECT: INTERSTATE ROUTE H-3																				HAWAII HAW I-H3-1(50) 1989 30 164																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
1/4/89 Revised quantities of drainage structures		F. A. I. PROJECT NO.: I-H3-1(50)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
DATE REVISION																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
ITEM NO.		206.	503.	602.	603.			603.	603.			604.	604.	604.	604.	604.		604.	604.	604.	604.	604.		604.			604.		604.	612.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
UNIT USED		1000	0010	1000	1010			6910	6911			5014	5015	5016	5018	5020		5024	5025	5026	5028		5033	5034	5044	5045	5054		5065		5035	5071	0100																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
		C.Y.	C.Y.	L.B.	L.F.			L.F.	L.F.			Ea.	Ea.	Ea.	Ea.	Ea.		Ea.	Ea.	Ea.	Ea.		Ea.	Ea.	Ea.	Ea.	Ea.		Ea.		Ea.	C.Y.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
STRUCTURE	STATION	STRUCTURE EXCAVATION OTHER THAN AT BRIDGES		CLASS A CONCRETE OTHER THAN IN BRIDGES		REINFORCING STEEL OTHER THAN IN BRIDGES		24-INCH RCP, CL. III				24-INCH ASRPP, SHI-Y=0.015" OR 24-INCH RCP, CL. III		30-INCH ASRPP, SHI-Y=0.015" OR 30-INCH RCP, CL. III				TYPE 2 GRATED DROP INLET 4.50 FT. TO 5.49 FT.		TYPE 2 GRATED DROP INLET 5.50 FT. TO 6.49 FT.		TYPE 2 GRATED DROP INLET 6.50 FT. TO 7.49 FT.		TYPE 2 GRATED DROP INLET 8.50 FT. TO 9.49 FT.		TYPE 2B GRATED DROP INLET 14.50 FT. TO 15.49 FT.				TYPE 3 GRATED DROP INLET 4.50 FT. TO 5.49 FT.		TYPE 3 GRATED DROP INLET 5.50 FT. TO 6.49 FT.		TYPE 3 GRATED DROP INLET 6.50 FT. TO 7.49 FT.		TYPE 3 GRATED DROP INLET 8.50 FT. TO 9.49 FT.				TYPE 2 MEDIAN DROP INLET 3.50 FT. TO 4.49 FT.		TYPE 2 MEDIAN DROP INLET 4.50 FT. TO 5.49 FT.		TYPE 3 MEDIAN DROP INLET 4.50 FT. TO 5.49 FT.		TYPE 3 MEDIAN DROP INLET 5.50 FT. TO 6.49 FT.		TYPE 61214 GRATED DROP INLET 4.50 FT. TO 5.49 FT.				TYPE 61614 GRATED DROP INLET 5.50 FT. TO 6.49 FT.				TYPE 2 MEDIAN DROP INLET 5.50 FT. TO 6.49 FT.				TYPE 2A GRATED DROP INLET 13.50 FT. TO 14.49 FT.		GROUTED RUBBLE PAVING																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					

S U M M A R Y

PROJECT: INTERSTATE ROUTE H-3

F. A. I. PROJECT NO.: I-H3-1(50)

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	I-H3-1(50)	1989	ADD. 31	164

1/4/80	Revised quantities of drainage structures
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DATE	REVISION
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[illegible]

SHEET NO. 44 OF 54 SHEETS

ADD. 31

S U M M A R Y

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	I-H3-1(50)	1989	ADD. 32	164

1/4/89	Revised quantities of drainage structures
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DATE	REVISION
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SHEET NO. 45 OF 54 SHEETS

32 5

DRAINAGE

SUMMARY

PROJECT: INTERSTATE ROUTE H-3

F.A.J. PROJECT NO.: I-H3-I(50)

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-I(50)	1989	C.O. ADD 33	164

ITEM NO.	207 0100	640 0170
UNIT USED	C.Y.	Ea.
CONCRETE SPILLWAYS	DITCH AND CHANNEL EXCAVATION	CONCRETE SPILLWAY
STATION		
Sta. 405+60 Rt.	11.0	1
Sta. 429+97 Rt.	11.0	1
Sta. 435+55 Rt.	11.0	1
Sta. 439+97 Rt.	11.0	1
Sta. 443+97 Rt.	11.0	1
Sta. 448+45 Rt.	11.0	1
Sta. 451+39 Rt.	11.0	1
Sta. 471+25 Rt.	11.0	1
Sta. 478+68 Rt.	11.0	1
Sta. 483+74 Rt.	11.0	1

ITEM NO.	206 1000	605 0001	605 0006	605 0106
UNIT USED	C.Y.	L.F.	L.F.	L.F.
UNDERDRAINS	STRUCTURE EXCAVATION OTHER THAN AT BRIDGES	FILTER FABRIC UNDERDRAIN	6-INCH PERFORATED UNDER-DRAIN PIPE	6-INCH NONPERFORATED UNDER-DRAIN PIPE (INCL. 45° ELBOW)
STATION				
FROM	TO			
Sta. 399+00 Lt.	Sta. 412+95 Lt.	1395	1395	
Sta. 416+39 Lt.	Sta. 490+20 Lt.	7381	7381	
Sta. 399+00 Rt.	Sta. 403+00 Rt.	400	400	
Sta. 405+60 Rt.	Sta. 412+00 Rt.	2	640	640
Sta. 417+10 Rt.	Sta. 437+50 Rt.	2040	2040	
Sta. 440+00 Rt.	Sta. 443+97 Rt.	7	397	397
Sta. 446+80 Rt.	Sta. 448+45 Rt.	4	165	165
Sta. 449+70 Rt.	Sta. 451+39 Rt.	4	169	169
Sta. 456+75 Rt.	Sta. 460+35 Rt.	360	360	
Sta. 464+65 Rt.	Sta. 471+25 Rt.	2	660	660
Sta. 472+50 Rt.	Sta. 478+68 Rt.	2	618	618
Sta. 480+75 Rt.	Sta. 483+74 Rt.	2	299	299
Sta. 488+00 Rt.	Sta. 490+20 Rt.	220	220	
TRANSVERSE UNDERDRAIN				
Sta. 398+69.20	Sta. 398.69.20 Lt.	68	68	
Sta. 400+04.39 Rt.	Sta. 400+04.39 Lt.	130	130	
Sta. 427+02.25 Lt.	Sta. 427+02.25 Rt.	75	75	
Sta. 458+02.25 Rt.	Sta. 458+02.25	38	38	
Sta. 458+02.25	Sta. 458+02.25 Lt.	38	38	
Sta. 490+20 Rt.	Sta. 490+20 Lt.	120	120	

8/31/90	Added Longitudinal Underdrain
7/21/89	Added Transverse Underdrain
1/4/89	Revised Underdrain summary
DATE	REVISION

SHEET No. H6 OF 54 SHEETS

C.O. ADD. 33

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

DRAINAGE SUMMARY

PROJECT : INTERSTATE ROUTE H-3

F. A. I. PROJECT NO : I-H3-1(50)

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1989	60 ADD. 34	164

ITEM NO.		609.	609.	609.	609.	609.
		2218	2616	2617	2618	2614
UNIT USED		L.F.	L.F.	L.F.	L.F.	L.F.
GUTTERS						
STATION		GUTTER, TYPE 2 (G1218)	GUTTER, TYPE 2 (G1610)	GUTTER, TYPE 2 F	GUTTER, TYPE 2 C	GUTTER, TYPE 2 (G1614)
FROM	TO					
Sta. 399+00 Lt	Sta. 402+85 Lt				385	
Sta. 399+00 Rt	Sta. 402+95 Rt	395				
Sta. 404+21.47 Lt	Sta. 412+76 Lt			991		
Sta. 405+60 Rt	Sta. 411+82 Rt	622				
Sta. 416+53 Lt	Sta. 453+44 Lt				3601	
Sta. 417+30 Rt	Sta. 420+85 Rt	355				
Sta. 421+48 Rt	Sta. 423+00 Rt	152				
Sta. 423+00 Rt	Sta. 427+35 Rt				435	
Sta. 433+12.02 Rt	Sta. 433+83 Rt				71	
Sta. 433+40 Lt	Sta. 453+44 Lt				2004	
Sta. 433+83 Rt	Sta. 435+55 Rt			172		
Sta. 435+55 Rt	Sta. 437+47 Rt				192	
Sta. 437+47 Rt	Sta. 438+15 Rt			68		
Sta. 439+97 Rt	Sta. 443+97 Rt	400				
Sta. 446+89 Rt	Sta. 448+45 Rt	156				
Sta. 449+81 Rt	Sta. 451+39 Rt	158				
Sta. 454+52 Lt	Sta. 490+20 Lt				3565	
Sta. 456+81 Rt	Sta. 460+31 Rt	350				
Sta. 464+65 Rt	Sta. 471+25 Rt	660				
Sta. 472+68 Rt	Sta. 478+68 Rt	600				
Sta. 480+25 Rt	Sta. 480+75 Rt			50		
Sta. 480+75 Rt	Sta. 488+74 Rt				299	
Sta. 482+00	Sta. 490+20		820			
Sta. 483+74 Rt	Sta. 488+40 Rt			466		
Sta. 488+40 Rt	Sta. 490+20 Rt	180				
Sta. 399+00	Sta. 405+25					625

ITEM NO.		207.	640.	640.
		0100	1000	5002
UNIT USED		C.Y.	L.F.	L.F.
DRAINAGE DITCHES				
STATION		DITCH AND CHANNEL EXCAVATION	1.5 FT. x 1.5 FT. (SS 1/1) LINED TRAPEZOIDAL DRAINAGE DITCH	3.0 FT. x 5.0 FT. (SS 2/1) LINED TRAPEZOIDAL DRAINAGE DITCH
FROM	TO			
Sta. 399+00 Rt	Sta. 403+27 Rt	209	438	
Sta. 405+87 Rt	Sta. 408+28 Rt	86	246	
Sta. 408+32 Rt	Sta. 411+20 Rt	105	300	
Sta. 416+43 Rt	Sta. 420+96 Rt	166	474	
Sta. 421+16 Rt	Sta. 426+12 Rt	175	500	
Sta. 433+12.02 Rt	Sta. 433+87 Rt	20	75	
Sta. 433+93 Rt	Sta. 436+62 Rt	95	270	
Sta. 438+29 Rt	Sta. 443+12 Rt	190	544	
Sta. 444+30 Rt	Sta. 445+55 Rt	47	135	
Sta. 445+71 Rt	Sta. 448+50 Rt	114	324	
Sta. 448+50 Rt	Sta. 449+72 Rt	180		122
Sta. 450+11 Rt	Sta. 450+88 Rt	28	80	
Sta. 458+07 Rt	Sta. 462+02 Rt	148	422	
Sta. 465+50 Rt	Sta. 471+38 Rt	217	620	
Sta. 473+00 Rt	Sta. 479+38 Rt	231	660	
Sta. 483+95 Rt	Sta. 485+10 Rt	46	132	

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

8/31/90	Add Gutters from Sta. 399+00 Rt. to Sta. 402+95 Rt., Sta. 399+00 Lt. to Sta. 402+85 Lt., and Sta. 399+00 to Sta. 405+25
1/4/89	Deleted Gutters from Sta. 399+00 Rt. to Sta. 402+95 Rt. and Sta. 399+00 Lt. to Sta. 402+85 Lt. Sta. 402+85 Lt. revised to Sta. 404+16.47 Lt. Drainage ditch limits changed from Sta. 410+25 Rt. to Sta. 411+20 Rt.
DATE	REVISION

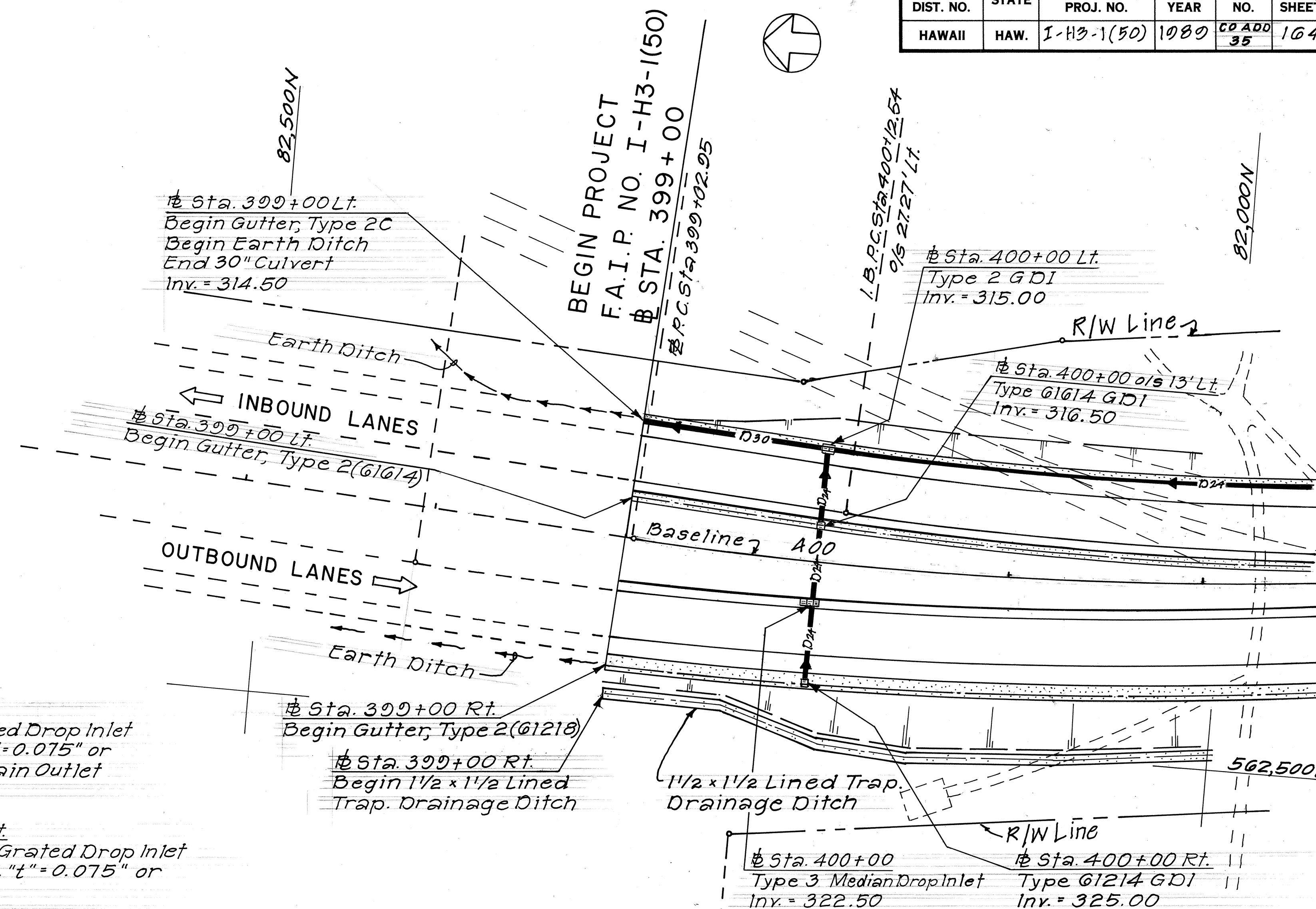
SHEET No. H7 OF 54 SHEETS

C.O. ADD. 34

GENERAL NOTES

1. The Contractor shall provide a smooth connection of the underdrains, gutters and culverts between this project and Halekou Interchange.
2. For details of Type 2A G.D.I. and Type 2B G.D.I., see sheet no. H50 & H51.
3. For details of Type 2 Median D.I. and Type 3 Median D.I. see sheet no. H48.
4. For details of Type 2 G.D.I. and Type 3 G.D.I. see sheet no. H40.
5. Provide 20' transition sections between different types of gutters. Location of transitions shall be as shown on the plans or as directed by the Engineer.
6. Lined drainage ditches shall be sloped to drain as shown on the plans or as directed by the Engineer. For details of 1 1/2 x 1 1/2 Lined Trapezoidal Drainage Ditch see sheet no. H54.
7. The Contractor shall provide a smooth transition between the existing ditches and the Inlet and Outlet Structures.
8. Earth Ditch shall be sloped to drain as shown on the plans or as directed by the Engineer. Above work shall not be paid for separately but shall be considered incidental to the various contract items. See sheet no. H54 for Typical.
9. For detail of Concrete Headwalls, see sheet no. H52.
10. 4" PVC Drain Weep Holes shall not be measured separately but shall be considered incidental to the various contract items.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1988	60 400 35	164



Sta. 400+00 Lt.
Construct: Type 2 Grated Drop Inlet
Install: 30" ASRP, Sht. "t" = 0.075" or
30" RCP, Cl. III. Underdrain Outlet
@ both ends.

Sta. 400+00 o/s 13' Lt.
Construct: Type 61614 Grated Drop Inlet
Install: 24" ASRP, Sht. "t" = 0.075" or
24" RCP, Cl. III.

Construct: Gutter, Type 2C
(See Typical Roadway Section for Detail)
Sta. 399+00 Lt. to Sta. 402+00 Lt.

Construct: Gutter, Type 2(61614)
Sta. 399+00 Lt. to Sta. 402+00 Lt.
(For Detail see Sht. No. H53 A)

Underdrain Schedule
(For Details, See Sht. No. H53)
Install: 6" Perforated Underdrain Pipe
Sta. 399+00 Rt. to Sta. 402+00 Rt.
Sta. 399+00 Lt. to Sta. 402+00 Lt.
Plug ends for future connection @
Sta. 399+00 Lt. and Rt.

Construct: 1 1/2 x 1 1/2 Lined Trapezoidal Drainage Ditch
Sta. 399+00 Rt. to Sta. 402+00 Rt.

Transverse Underdrain Schedule
(For Details, see sheet no. H53 A)
Install: 6" Perforated Underdrain Pipe
Sta. 398+69.20 to Sta. 398+69.20 Lt.
Sta. 400+04.39 Rt. to Sta. 400+04.39 Lt.

Construct: Gutter, Type 2(61218)
(See Typical Roadway Section for Detail)
Sta. 399+00 Rt. to Sta. 402+00 Rt.

Sta. 400+00
Construct: Type 3 Median Drop Inlet
(For Details, See Sht. No. H48)
Install: 24" ASRP, Sht. "t" = 0.075" or
24" RCP, Cl. III.

Sta. 400+00 Rt.
Construct: Type 61214 Grated Drop
Inlet. Install: 24" ASRP, Sht. "t" =
0.075" or 24" RCP, Cl. III. Underdrain
Outlet @ both ends.

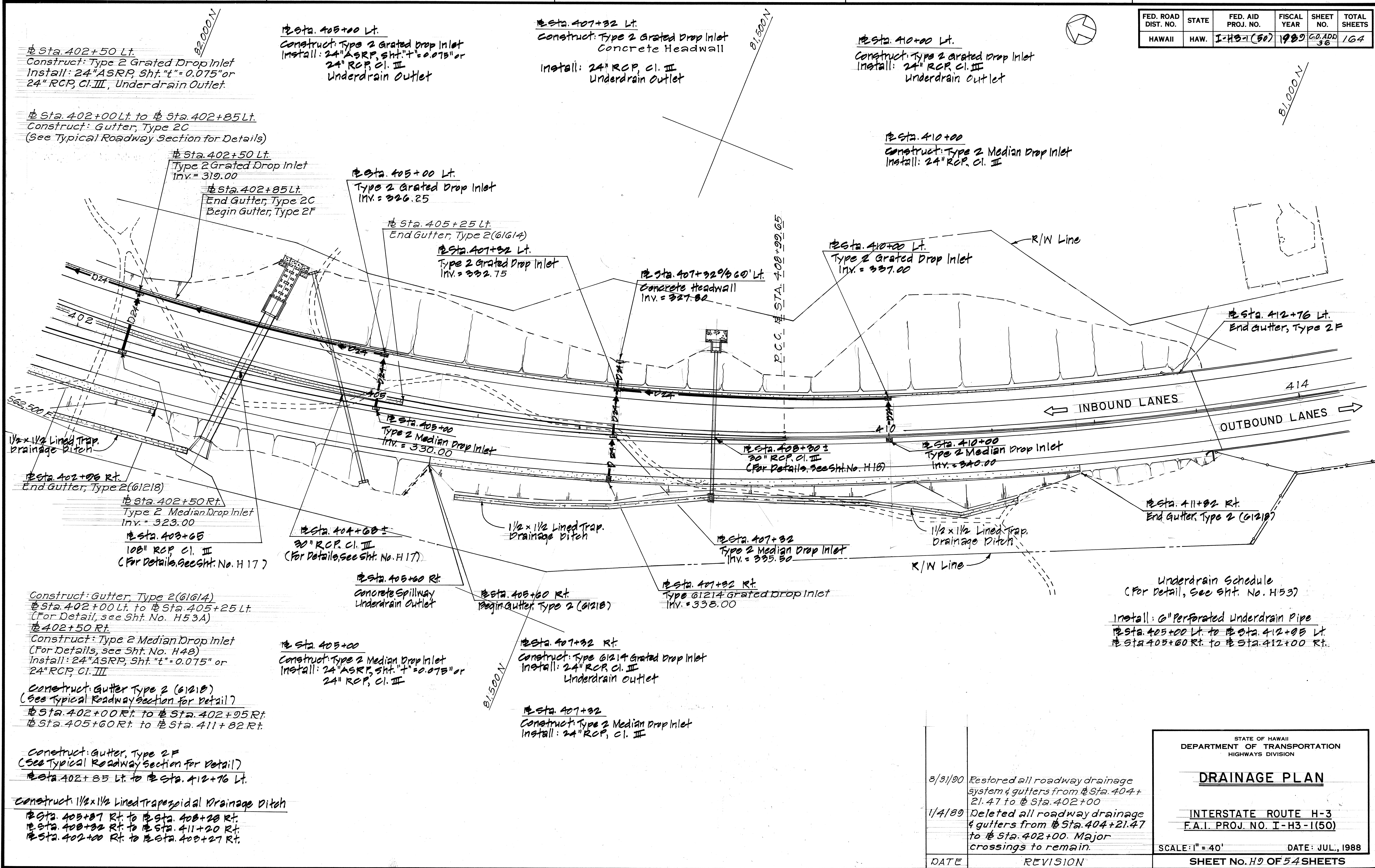
ORIGINAL PLAN	DATE
DRAWN BY	
CHECKED BY	
NOTED BY	
QUANTITIES BY	
CHECKED BY	
NO.	

8/31/90	Redesigned all roadway drain- age system and gutters.
7/21/89	Added Transverse Underdrain
1/4/89	Deleted all roadway drainage system and gutters.
DATE	REVISION

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
DRAINAGE PLAN
INTERSTATE ROUTE H-3 F.A.I. PROJ. NO. I-H3-1(50)
SCALE: 1" = 40' DATE: JUL., 1988
SHEET No. H8 OF 54 SHEETS

C.O.ADD. 35

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1989	60, ADD 36	164



DATE	_____
SURVEY PLOTTED BY	_____
TRACED BY	_____
NOTED BY	_____
CHECKED BY	_____
NO.	_____

Construct: Gutter, Type 2 (61614)
 Sta. 402+00 Lt. to Sta. 405+25 Lt.
 (For Detail, see Sht. No. H53A)
 Sta. 402+50 Rt.
 Construct: Type 2 Median Drop Inlet
 (For Details, see Sht. No. H48)
 Install: 24" ASRP, Sht. "t" = 0.075" or
 24" RCP, Cl. III
 Construct: Gutter Type 2 (61218)
 (See Typical Roadway Section for Detail)
 Sta. 402+00 Rt. to Sta. 402+95 Rt.
 Sta. 405+60 Rt. to Sta. 411+82 Rt.
 Construct: Gutter, Type 2 F
 (See Typical Roadway Section for Detail)
 Sta. 402+85 Lt. to Sta. 412+76 Lt.

Construct: 1 1/2 x 1 1/2 Lined Trapezoidal Drainage Ditch
 Sta. 405+87 Rt. to Sta. 408+28 Rt.
 Sta. 408+32 Rt. to Sta. 411+20 Rt.
 Sta. 402+00 Rt. to Sta. 408+27 Rt.

Underdrain Schedule
 (For Detail, see Sht. No. H53)
 Install: 6" Perforated Underdrain Pipe
 Sta. 405+00 Lt. to Sta. 412+05 Lt.
 Sta. 405+60 Rt. to Sta. 412+00 Rt.

DATE	REVISION
8/31/90	Restored all roadway drainage system & gutters from Sta. 404+21.47 to Sta. 402+00
1/4/89	Deleted all roadway drainage & gutters from Sta. 404+21.47 to Sta. 402+00. Major crossings to remain.

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

DRAINAGE PLAN

INTERSTATE ROUTE H-3
 F.A.I. PROJ. NO. I-H3-1(50)

SCALE: 1" = 40'

DATE: JUL, 1988

SHEET NO. H9 OF 54 SHEETS

C.O. ADD. 36

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1983	37	164

Construct: Gutter, Type 2C
(See Typical Roadway Section for Detail)
Sta. 416+53 Lt. to Sta. 426+00 Lt.
Sta. 423+00 Rt. to Sta. 426+00 Rt.

Construct: Gutter, Type 2 (G1218)
(See Typical Roadway Section for Detail)
Sta. 417+30 Rt. to Sta. 420+85 Rt.
Sta. 421+48 Rt. to Sta. 423+00 Rt.

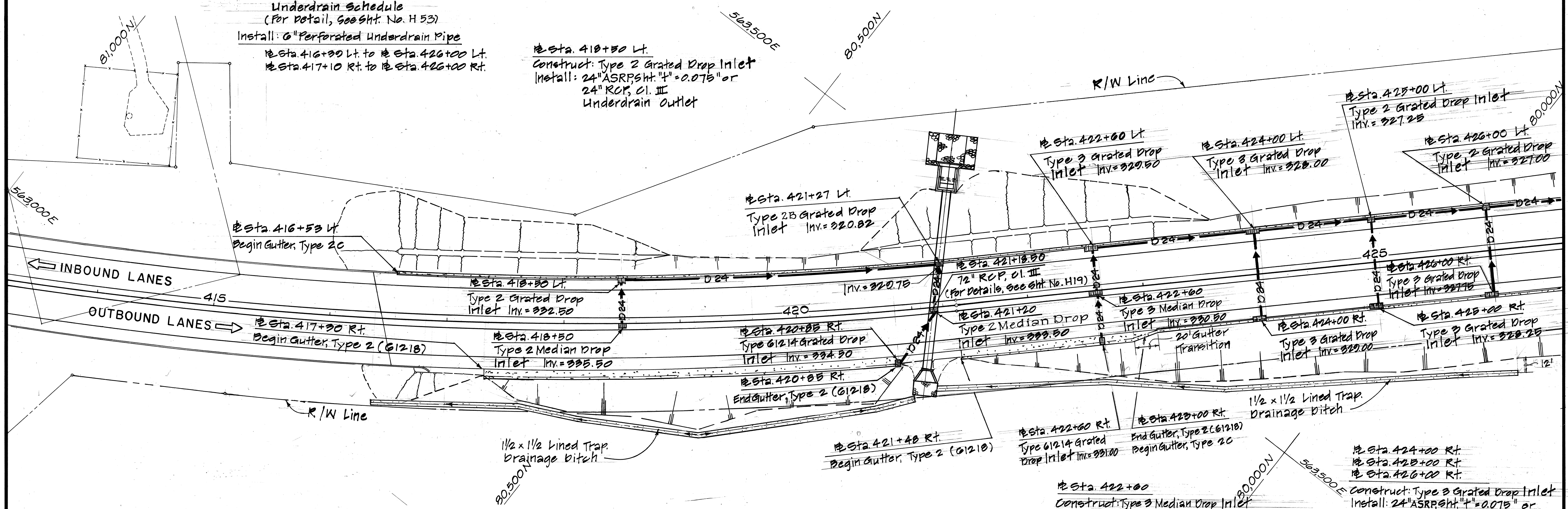
Sta. 421+27 Lt.
Construct: Type 2B Grated Drop Inlet
Install: Underdrain Outlet

Sta. 422+60 Lt.
Sta. 424+00 Lt.
Construct: Type 3 Grated Drop Inlet
Install: 24" ASRP Sht. "t" = 0.075" or 24" RCP, Cl. III Underdrain Outlet

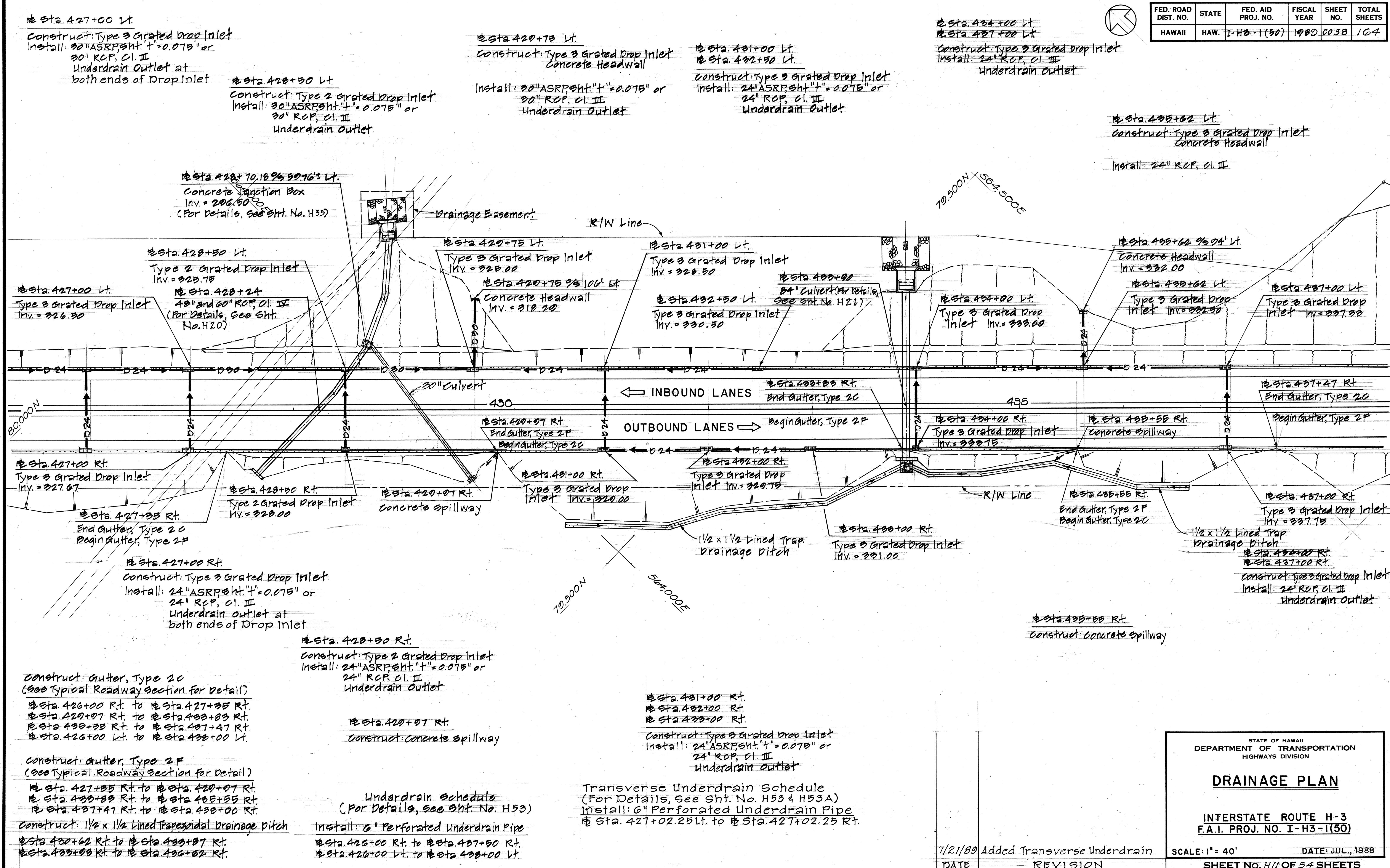
Sta. 425+00 Lt.
Sta. 426+00 Lt.
Construct: Type 2 Grated Drop Inlet
Install: 24" ASRP Sht. "t" = 0.075" or 24" RCP, Cl. III Underdrain Outlet

Underdrain Schedule
(For Detail, See Sht. No. H 53)
Install: 6" Perforated Underdrain Pipe
Sta. 416+30 Lt. to Sta. 426+00 Lt.
Sta. 417+10 Rt. to Sta. 426+00 Rt.

Sta. 418+50 Lt.
Construct: Type 2 Grated Drop Inlet
Install: 24" ASRP Sht. "t" = 0.075" or 24" RCP, Cl. III Underdrain Outlet



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1988	6038	164



DATE	
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
CHECKED BY	
NO.	

Construct: Gutter, Type 2C
(See Typical Roadway Section for Detail)

Sta. 426+00 Rt. to Sta. 427+35 Rt.
Sta. 429+07 Rt. to Sta. 433+83 Rt.
Sta. 435+55 Rt. to Sta. 437+47 Rt.
Sta. 426+00 Lt. to Sta. 433+00 Lt.

Construct: Gutter, Type 2F
(See Typical Roadway Section for Detail)

Sta. 427+35 Rt. to Sta. 429+07 Rt.
Sta. 433+83 Rt. to Sta. 435+55 Rt.
Sta. 437+47 Rt. to Sta. 438+00 Rt.

Construct: 1/2 x 1/2 Lined Trapezoidal drainage ditch

Sta. 430+62 Rt. to Sta. 433+87 Rt.
Sta. 433+83 Rt. to Sta. 436+62 Rt.

Sta. 428+50 Rt.
Construct: Type 2 Grated Drop Inlet
Install: 24" ASRP, Sht. "I" = 0.075" or 24" RCP, Cl. III Underdrain Outlet

Sta. 429+07 Rt.
Construct: Concrete Spillway

Underdrain Schedule
(For Details, See Sht. No. H53)

Install: 6" Perforated Underdrain Pipe
Sta. 426+00 Rt. to Sta. 437+50 Rt.
Sta. 426+00 Lt. to Sta. 433+00 Lt.

Sta. 431+00 Rt.
Sta. 432+00 Rt.
Sta. 433+00 Rt.

Construct: Type 3 Grated Drop Inlet
Install: 24" ASRP, Sht. "I" = 0.075" or 24" RCP, Cl. III Underdrain Outlet

Transverse Underdrain Schedule
(For Details, See Sht. No. H53 & H53A)
Install: 6" Perforated Underdrain Pipe
Sta. 427+02.25 Lt. to Sta. 427+02.25 Rt.

7/21/89	Added Transverse Underdrain
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

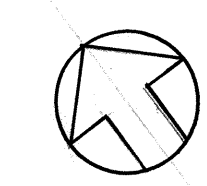
DRAINAGE PLAN

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)

SCALE: 1" = 40' DATE: JUL., 1988

SHEET NO. H11 OF 54 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1989	39	164



Sta. 441+00 Lt.
Sta. 443+50 Lt.

Construct: Type 2 Grated Drop Inlet
Install: 24" ASRP, Sht. "I" = 0.075" or 24" RCP, Cl. III Underdrain Outlet

Sta. 443+62 Lt.

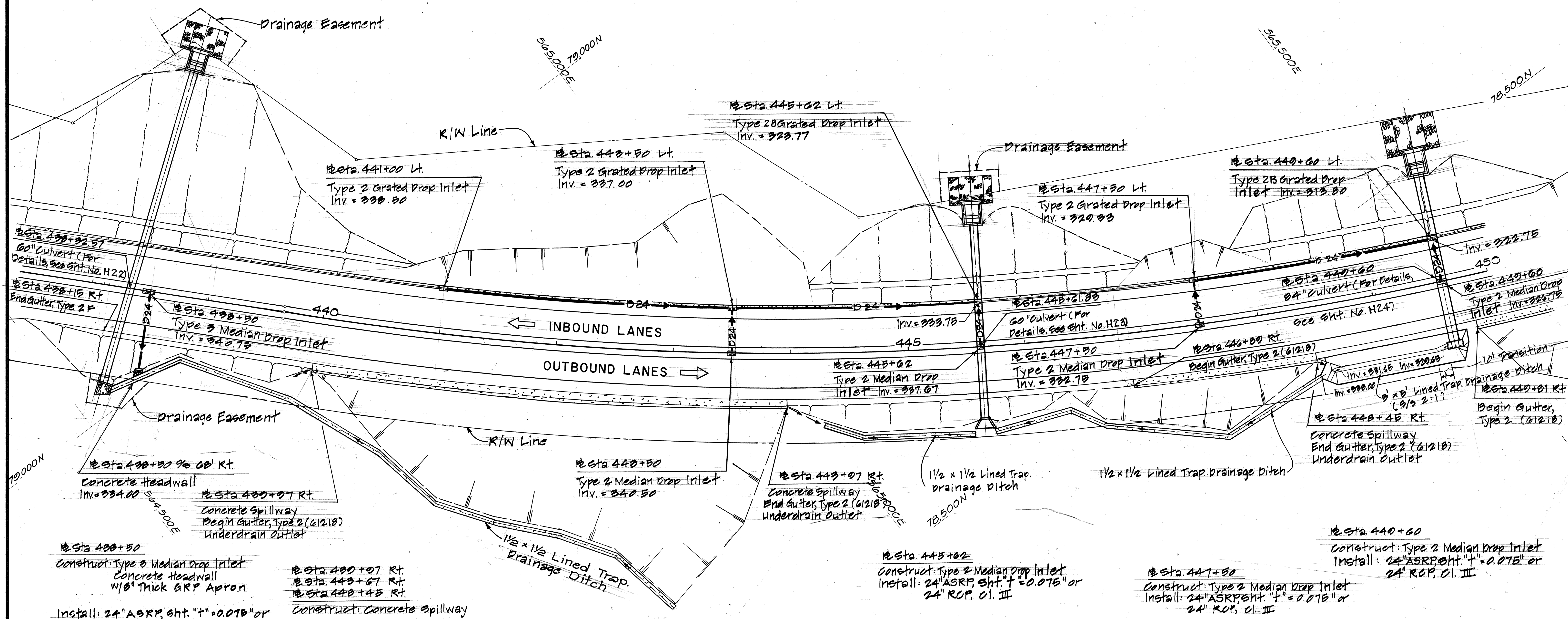
Construct: Type 2B Grated Drop Inlet
Install: Underdrain Outlet

Sta. 447+50 Lt.

Construct: Type 2 Grated Drop Inlet
Install: 24" ASRP, Sht. "I" = 0.075" or 24" RCP, Cl. III Underdrain Outlet

Sta. 449+60 Lt.

Construct: Type 2B Grated Drop Inlet
Install: Underdrain Outlet



DATE	_____
DESIGNED BY	_____
DRAWN BY	_____
CHECKED BY	_____
NOTED BY	_____
QUANTITIES BY	_____
NO.	_____

Construct: Gutter, Type 2 (61218)
(See Typical Roadway Section for Detail)

Sta. 440+07 Rt. to Sta. 443+07 Rt.
Sta. 443+07 Rt. to Sta. 443+45 Rt.
Sta. 443+45 Rt. to Sta. 443+50 Lt.

Construct: Gutter, Type 2C
(See Typical Roadway Section for Detail)

Sta. 440+00 Lt. to Sta. 440+00 Lt.

Construct: Gutter, Type 2F
(See Typical Roadway Section for Detail)

Sta. 440+00 Rt. to Sta. 440+15 Rt.

Construct: 3' x 5' Lined Trapezoidal Drainage Ditch
Sta. 443+50 Rt. to Sta. 443+72 Rt.

Construct: 1/2 x 1/2 Lined Trapezoidal Drainage Ditch

Sta. 443+00 Rt. to Sta. 443+12 Rt.
Sta. 443+12 Rt. to Sta. 443+55 Rt.
Sta. 443+55 Rt. to Sta. 443+50 Lt.

Underdrain Schedule
(For Details, see Sht. No. H-53)

Install: 6" Perforated Underdrain Pipe

Sta. 440+00 Rt. to Sta. 443+07 Rt.
Sta. 443+07 Rt. to Sta. 443+45 Rt.
Sta. 443+45 Rt. to Sta. 443+50 Lt.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PLAN

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)

SCALE: 1" = 40' DATE: JUL., 1989

SHEET NO. H-12 OF 54 SHEETS

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PLAN

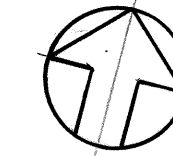
**INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)**

SCALE: 1" = 40' **DATE: JUL., 1988**

SHEET No. 113 OF 54 SHEETS

C.O. ADD.40

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1989	41	164



Sta. 469+50 Lt.
Sta. 467+50 Lt.

Construct: Type 2 Grated Drop Inlet
Install: 24" RCP, Cl. III
Underdrain Outlet

Sta. 472+50 Lt.

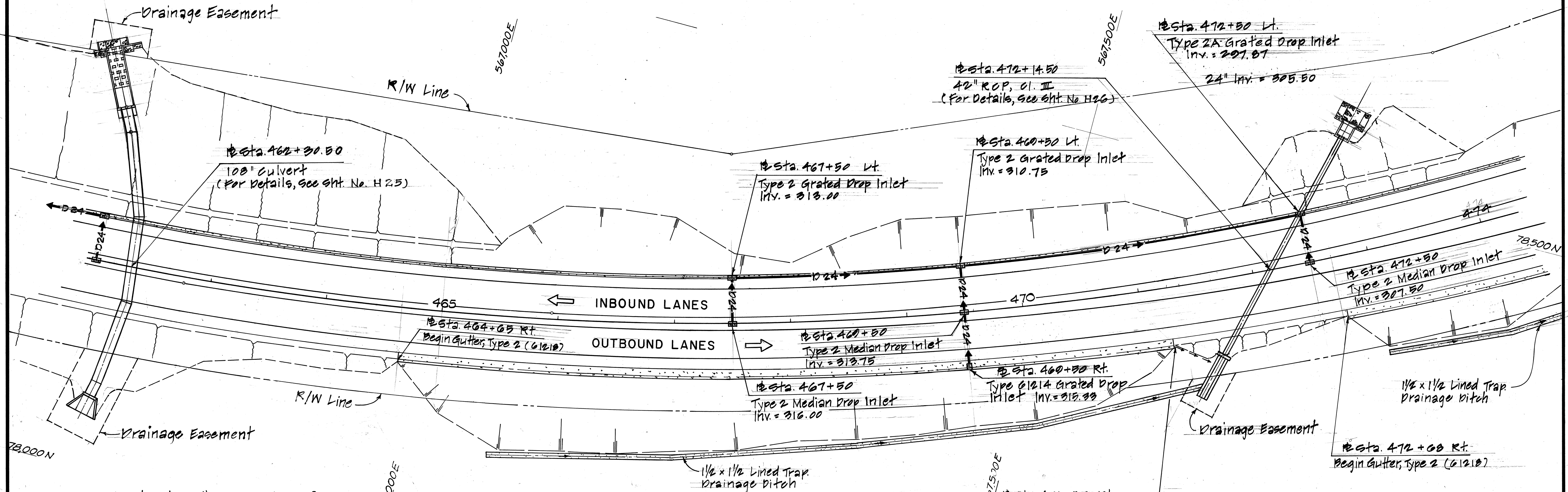
Construct: Type 2 Grated Drop Inlet
Concrete Headwall

Install: 24" RCP, Cl. III
Underdrain Outlet

Underdrain Schedule
(For Details, See Sht. No. H 53)

Install: 6" Perforated Underdrain Pipe

Sta. 462+00 Lt. to Sta. 474+00 Lt.
Sta. 464+65 Rt. to Sta. 471+25 Rt.
Sta. 472+50 Lt. to Sta. 474+00 Rt.



Construct: Gutter, Type 2 (61218)
(See Typical Roadway Section for Details)

Sta. 464+65 Rt. to Sta. 471+25 Rt.
Sta. 472+60 Rt. to Sta. 474+00 Rt.

Construct: Gutter, Type 2C
(See Typical Roadway Section for Details)

Sta. 462+00 Lt. to Sta. 474+00 Lt.

Construct: 1/2 x 1/2 Lined Trapezoidal Drainage Ditch

Sta. 465+50 Rt. to Sta. 471+25 Rt.

Sta. 469+50 Rt.

Construct: Type 61214 Grated Drop Inlet
Install: 24" RCP, Cl. III
Underdrain Outlet

Sta. 471+25 Rt.

Construct: Concrete Spillway

Sta. 467+50
Sta. 469+50

Construct: Type 2 Median Drop Inlet
Install: 24" RCP, Cl. III

Sta. 472+50

Construct: Type 2 Median Drop Inlet
Install: 24" RCP, Cl. III

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

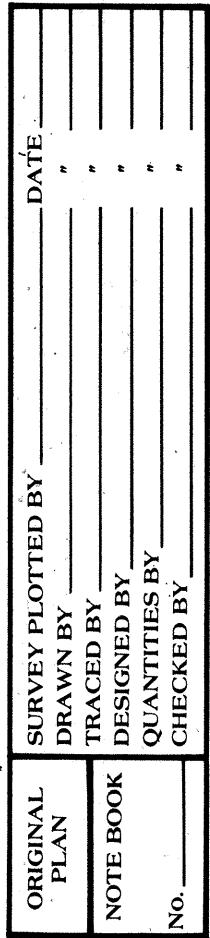
DRAINAGE PLAN

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)

SCALE: 1" = 40'

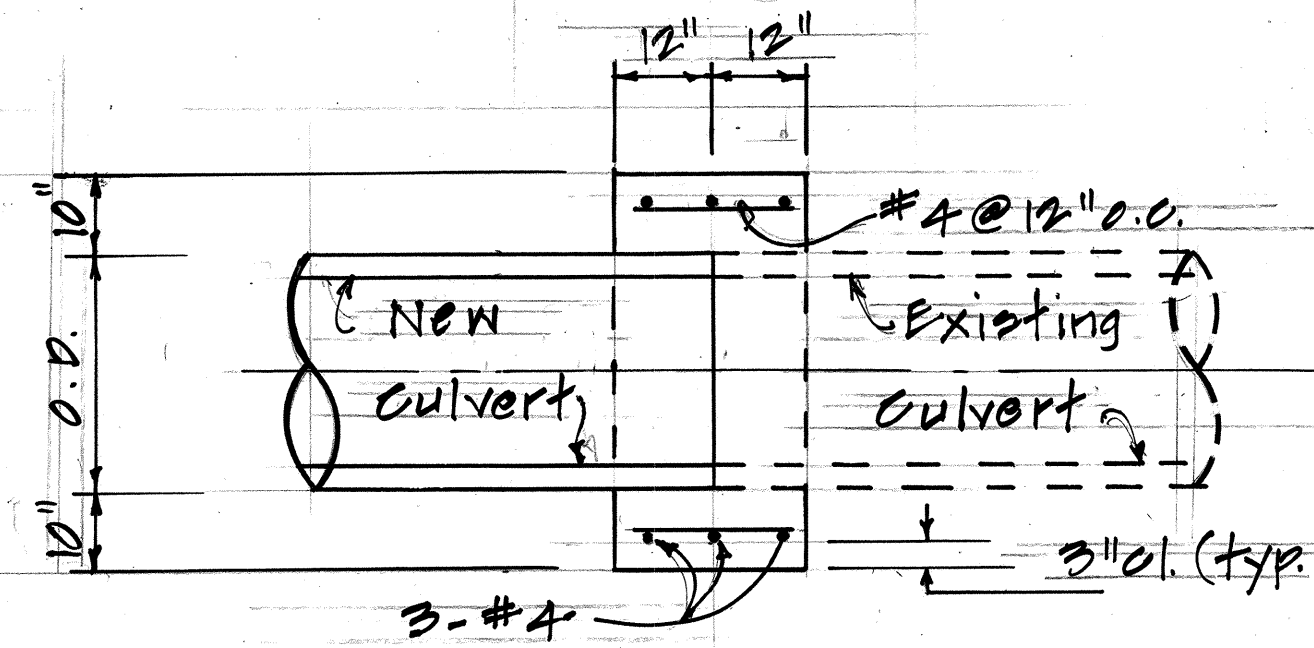
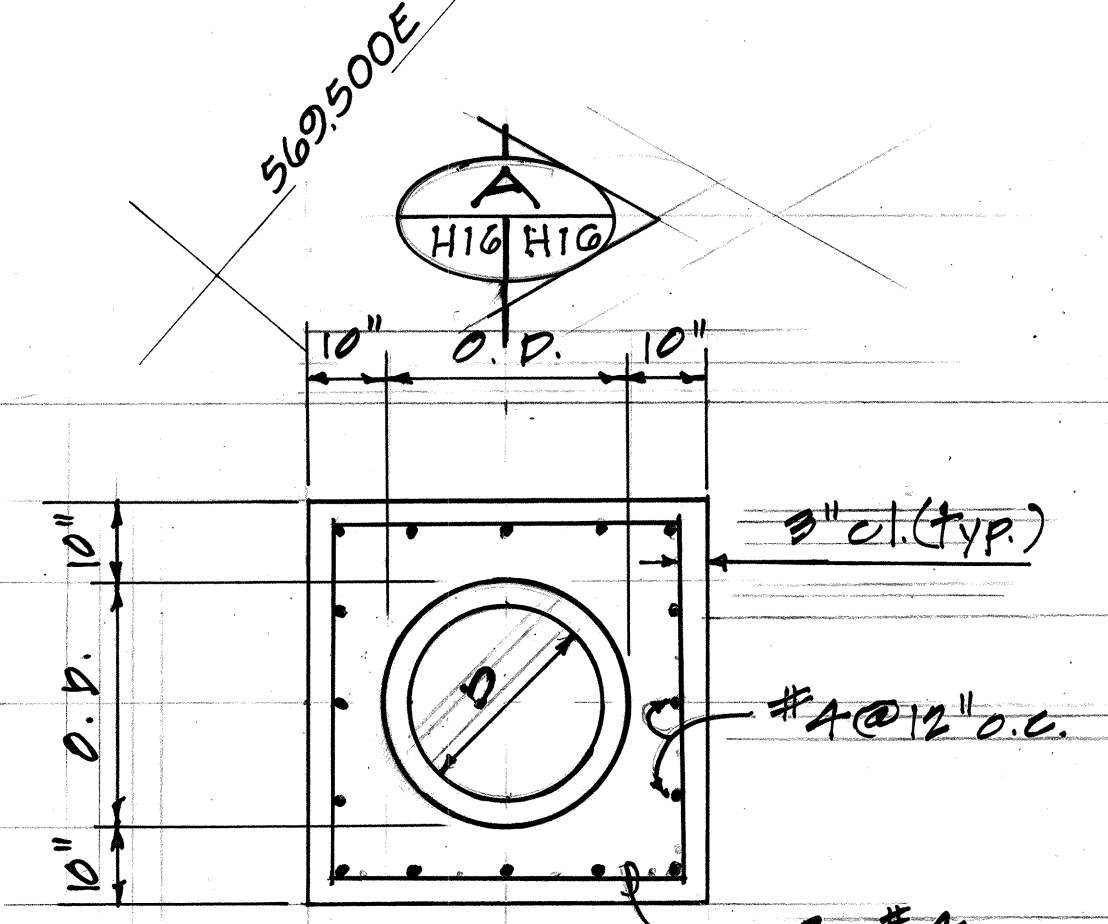
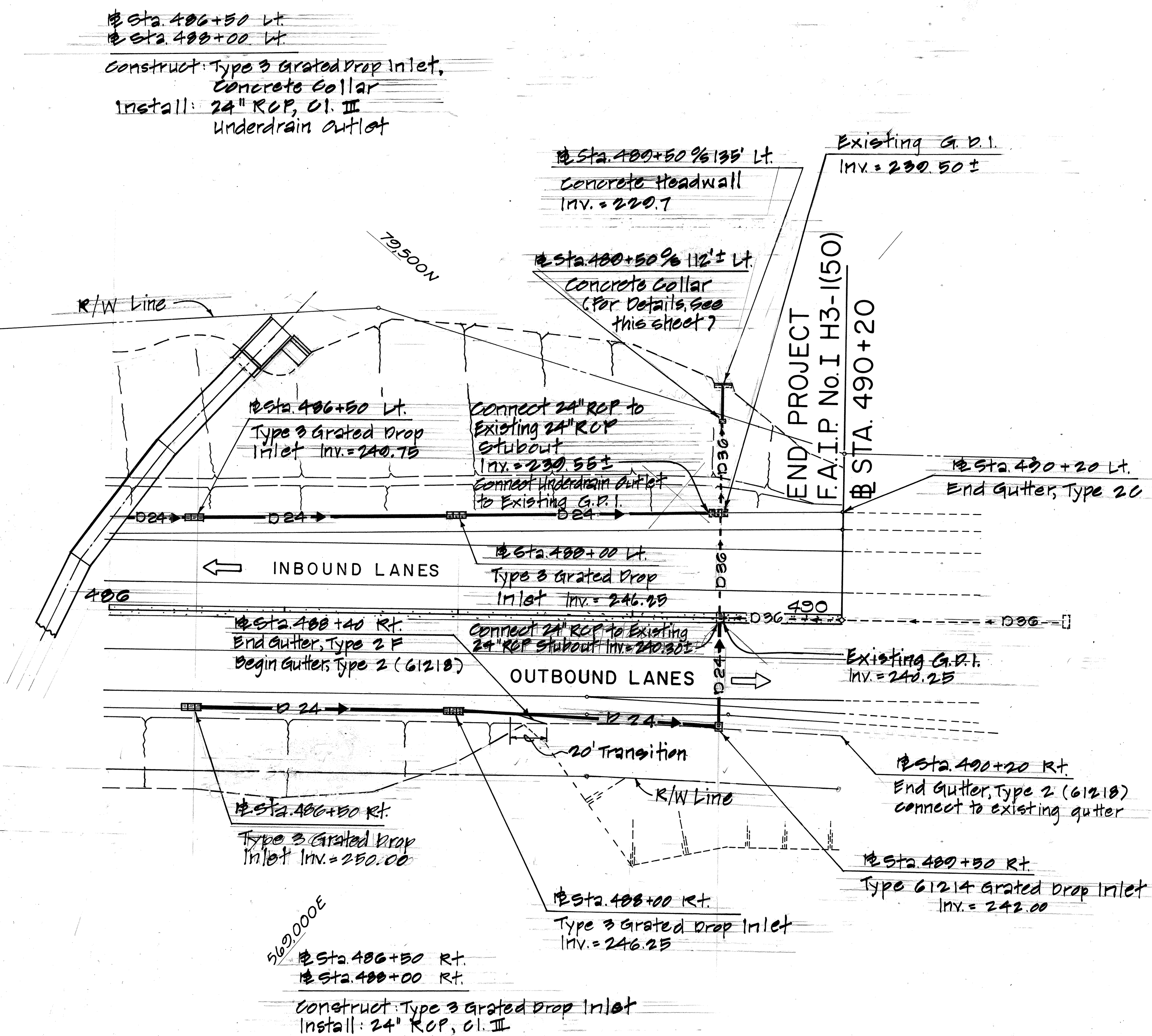
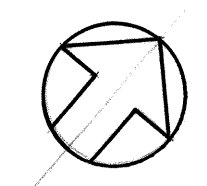
DATE: JUL., 1988

SHEET NO. H14 OF 54 SHEETS



42

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1 (50)	1989	CO. ADD 43	164



Concrete collar shall not be paid for separately, but shall be considered incidental to the various contract items.

DETAILS OF CONCRETE COLLAR

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

DATE	REVISION
7/21/89	Added Transverse Underdrain
1/4/89	Revised notes for Underdrain locations

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PLAN

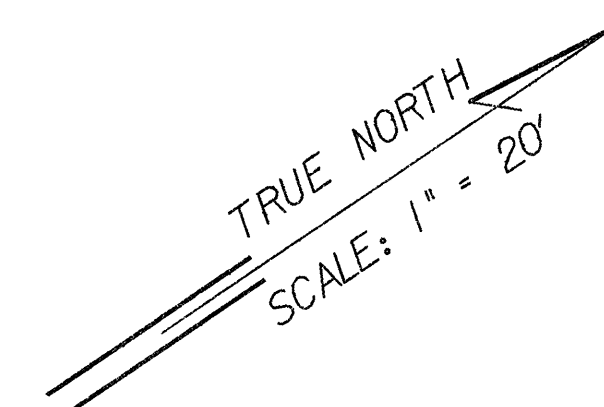
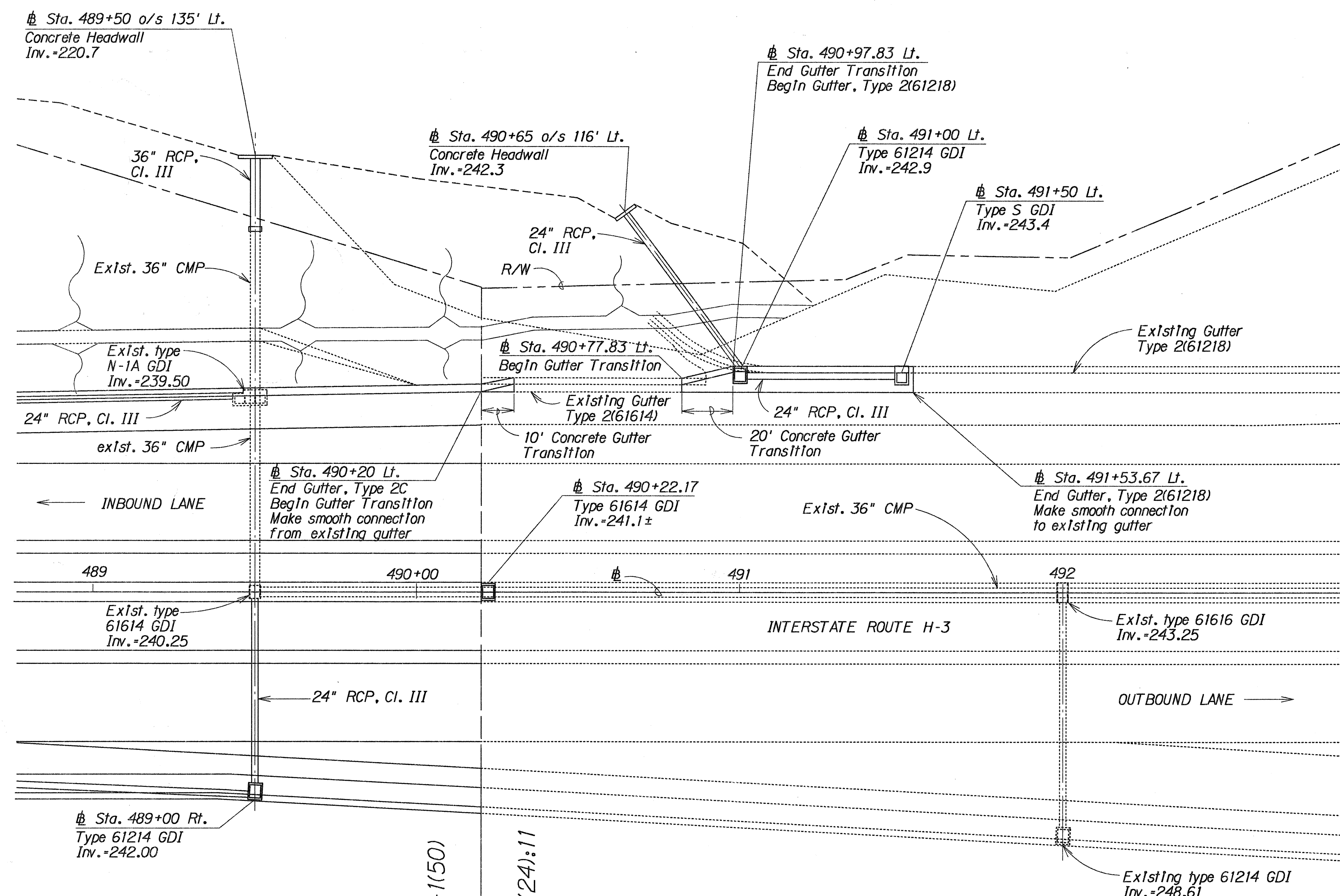
INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)

SCALE: 1" = 40' DATE: JUL., 1988

SHEET NO. H16 OF 54 SHEETS

C.O. ADD. 43

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1991	C0 ADD 43S-1	164



- Sta. 490+20 Lt. to Sta. 490+30 Lt.
Construct: Concrete Gutter Transition
- Sta. 490+22.17
Construct: Type 61614 GDI
- Sta. 490+65 o/s 116' Lt.
Construct: Concrete Headwall
(For Details See Sht. No. H52)
- Sta. 490+77.83 Lt. to Sta. 490+97.83 Lt.
Construct: Concrete Gutter Transition
- Sta. 490+97.83 Lt. to Sta. 491+53.67 Lt.
Construct: Concrete Gutter Type 2(61218)
(See Typical Roadway Section for Detail)
- Sta. 491+00 Lt.
Construct: Type 61214 GDI
Install: 24" RCP, Cl. III
- Sta. 491+50 Lt.
Construct: Type "S" GDI
Install: 24" RCP, Cl. III
(For Details See Sht. No. H16C)

END PROJ. F.A.I.P. No. I-H3-1(50)
Sta. 490+20

PROJECT LIMIT
F.A.I. PROJECT No. I-IRH3-1(24):11

06/03/91		Sheet added to Contract Plan to show drainage improvements between Sta. 490+20 to Sta. 492+00	
DATE	REVISION	SHEET No. H16AOF 54 SHEETS	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

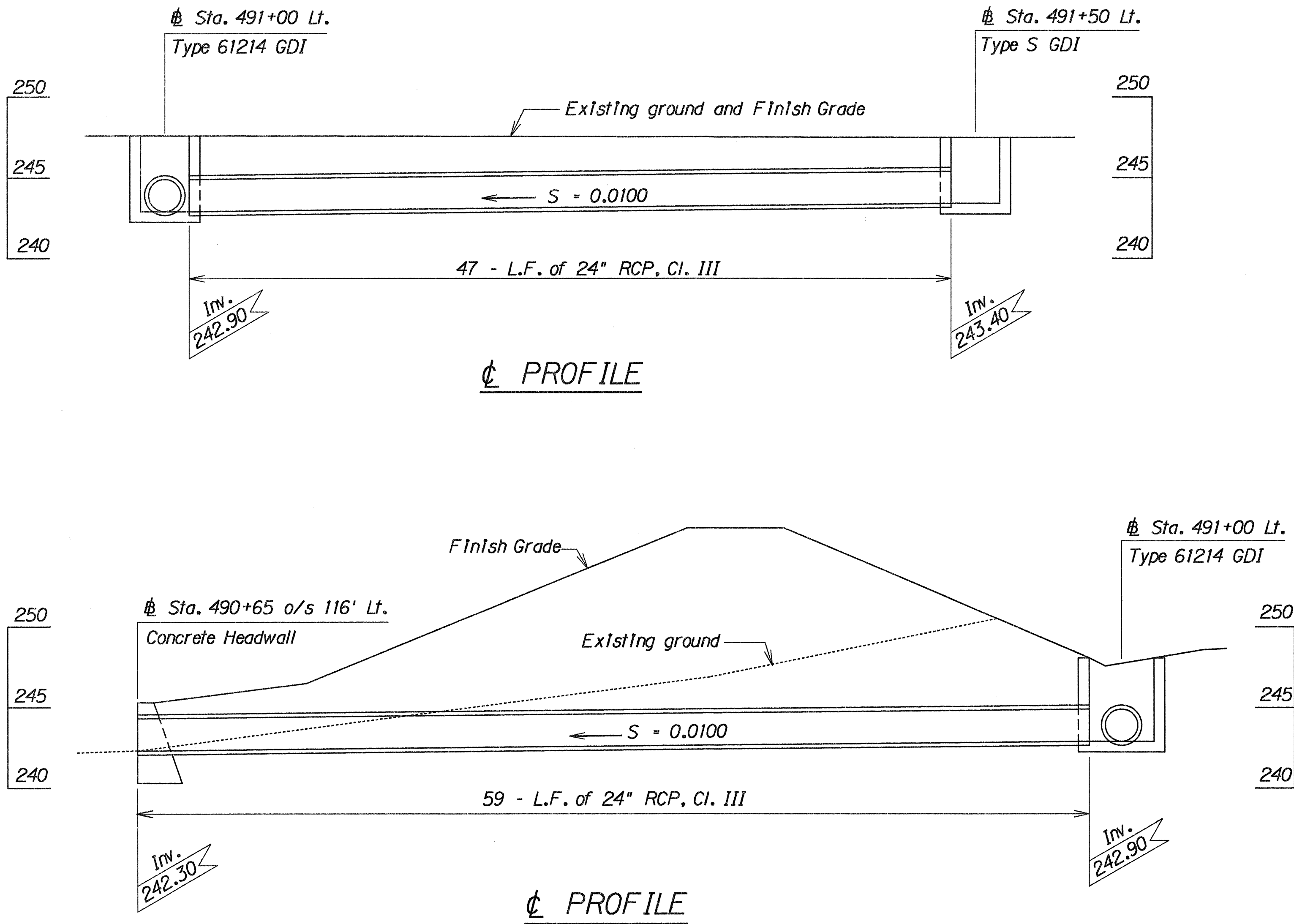
DRAINAGE PLAN

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)

Scale: 1" = 20'
Date: June, 1991

DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
NOTED BY	
APPROVED BY	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1991	C0 ADD 43-S2	164



PROFILE ALONG ϕ 24" CULVERT
 Scale: 1' = 5'

DRAINAGE SUMMARY										
ITEM NO.	UNIT USED	206	503	602	603	604	604	609	609	
		1000	0010	1000	1010	5054	5060	5999	2218	
STRUCTURE	STATION	C.Y.	C.Y.	L.B.	L.F.	Ea.	Ea.	Ea.	L.F.	L.F.
		Structure Excavation Other Than At Bridge	Class A Concrete Other Than In Bridges	Reinforcing Steel Other Than In Bridge	24 - Inch RCP, Cl. III	Type 61214 Grated Drop Inlet 4.50 Ft. to 5.49 Ft.	Type 61614 Grated Drop Inlet 6.50 Ft. to 7.49 Ft.	Type "s" Grated Drop Inlet 4.50 Ft. to 5.49 Ft.	Gutter Type 2(61218)	Gutter Type 2(61614)
Type 61614 GDI	ϕ Sta. 490+22.17					1				
Gutter Transition	ϕ Sta. 490+20 Lt. to ϕ Sta. 490+30 Lt.									10
Concrete Headwall	ϕ Sta. 490+65 o/s 116' Lt.	5	1	111						
Gutter Transition	ϕ Sta. 490+77.83 Lt. to ϕ Sta. 490+97.83 Lt.								20	
Gutter, Type 2(61218)	ϕ Sta. 490+97.83 Lt. to ϕ Sta. 491+53.67 Lt.								56	
Type 61612 GDI	ϕ Sta. 491+00 Lt.	42			59	1				
Type S GDI	ϕ Sta. 491+50 Lt.	42			47					

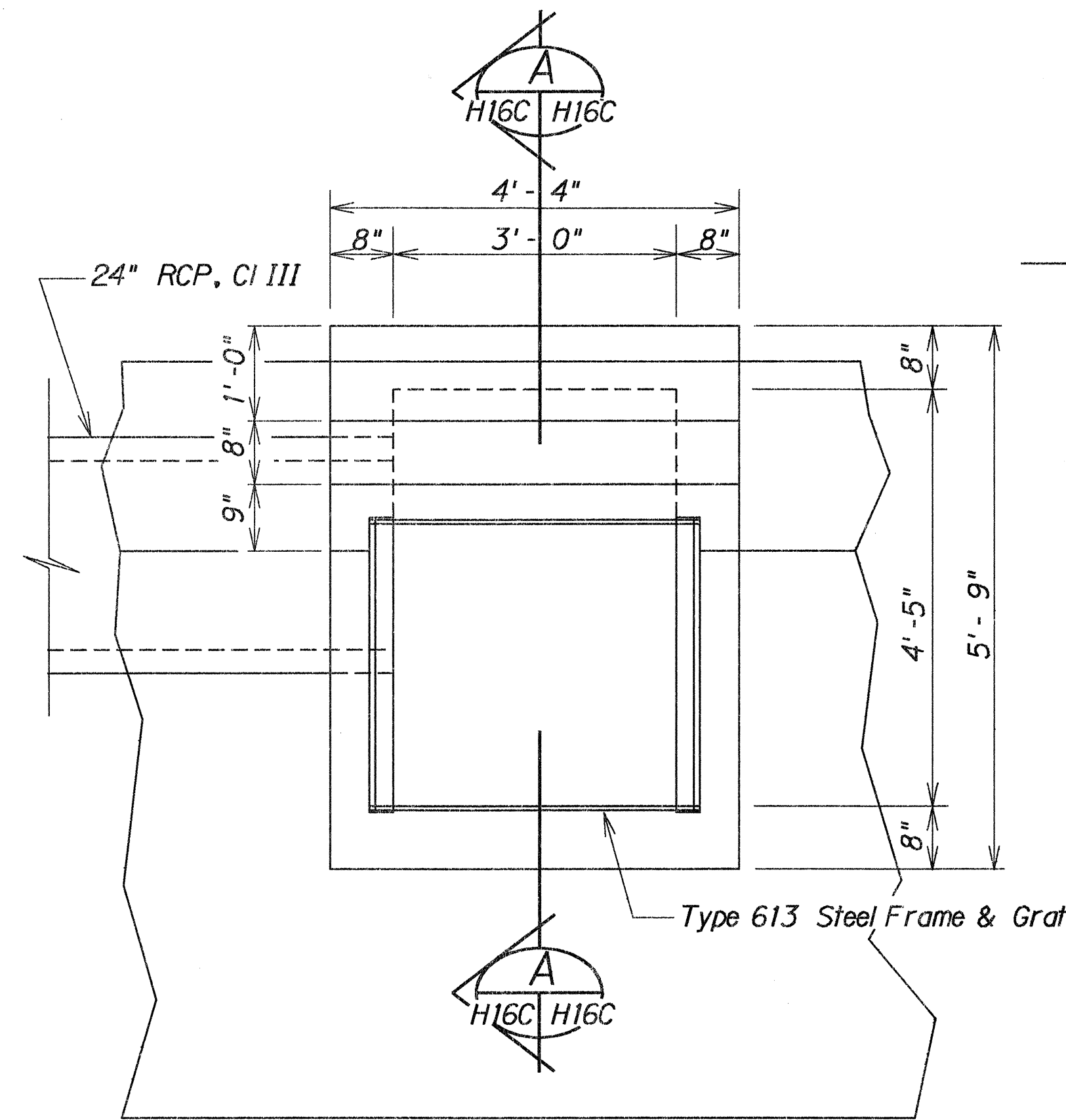
06/03/91	Sheet added to Contract Plan to show drainage improvements between ϕ Sta. 490+20 to ϕ Sta. 492+00
DATE	REVISION

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
DRAINAGE PROFILE
 INTERSTATE ROUTE H-3
 F.A.I. PROJ. NO. I-H3-1(50)

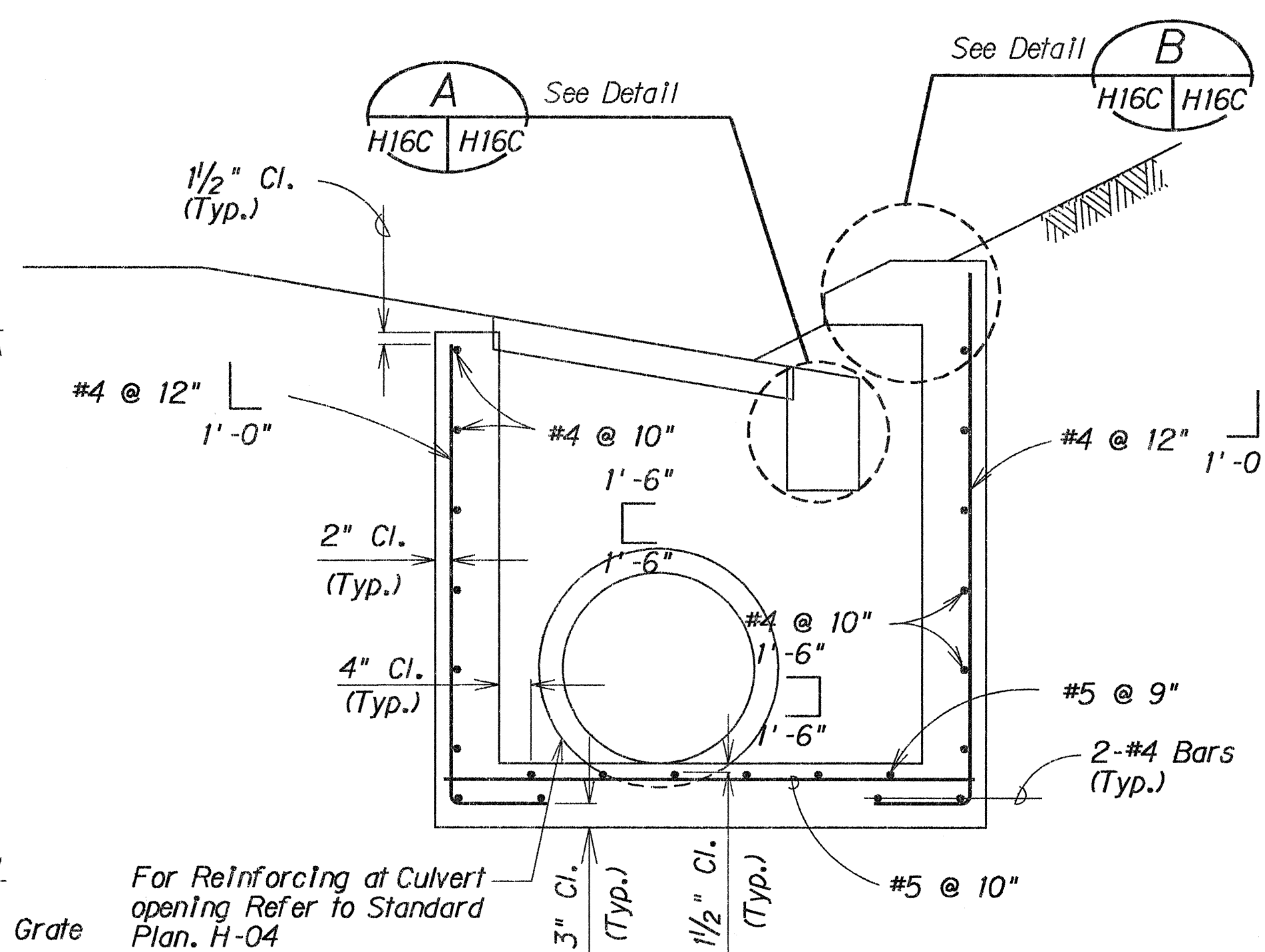
Scale: As Noted
 Date: June, 1991

SHEET No. H16B OF 54 SHEETS

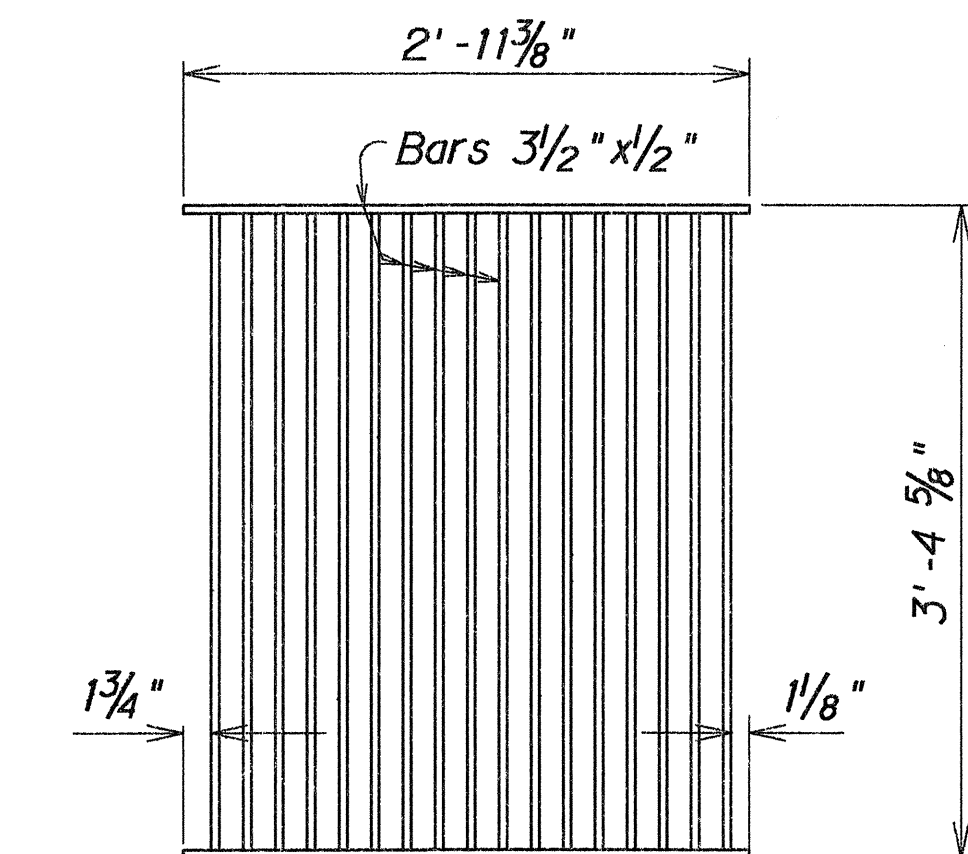
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1991	CO ADD 43S-3	164



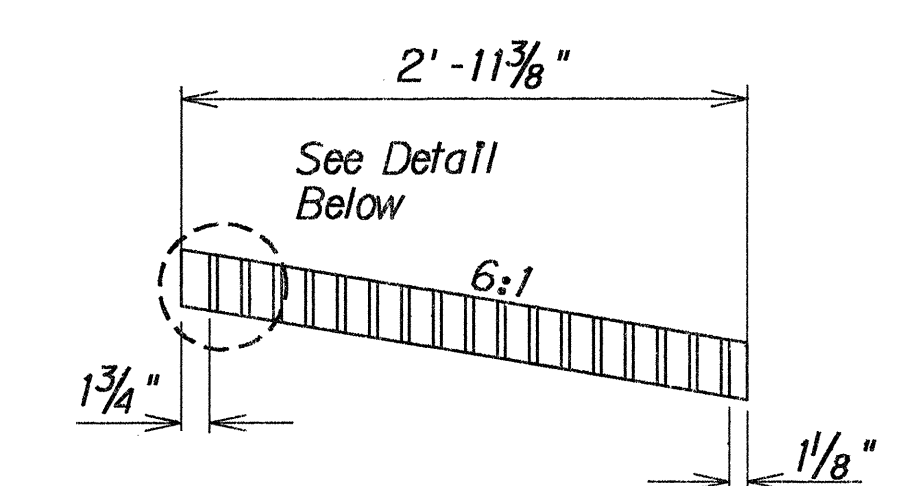
PLAN
Scale: 3/4" = 1'-0"



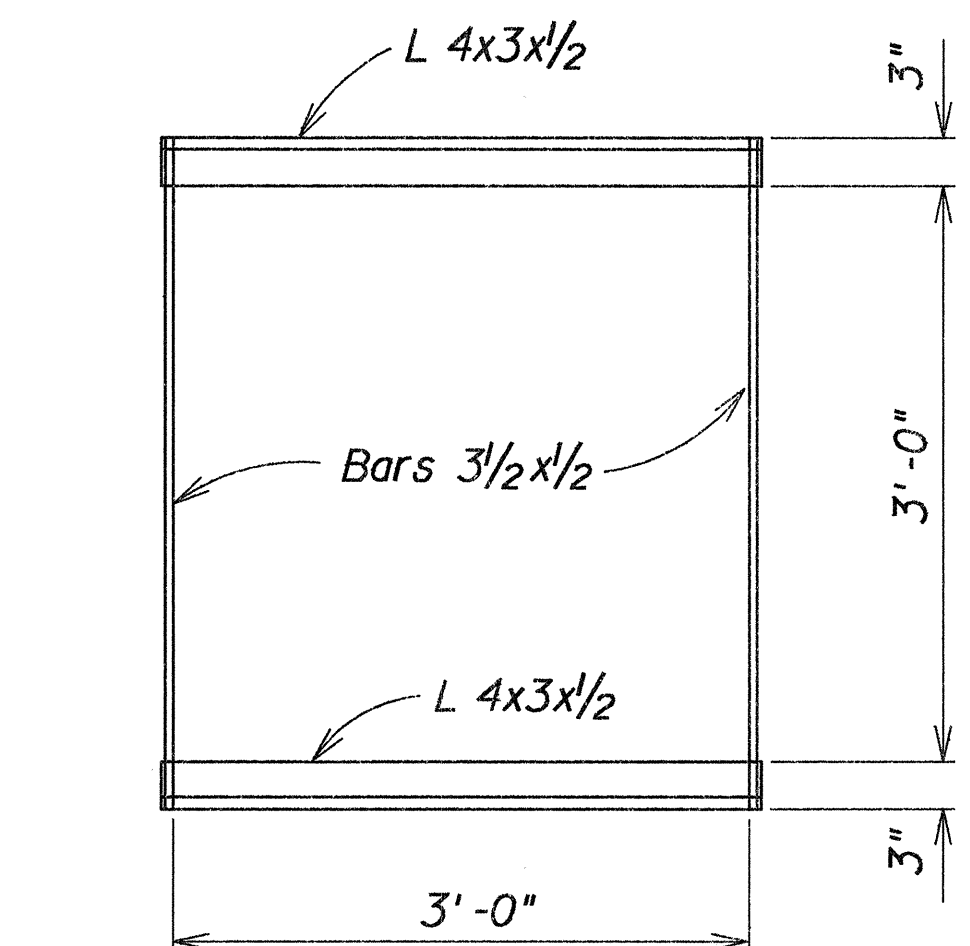
SECTION
Scale: 3/4" = 1'-0"



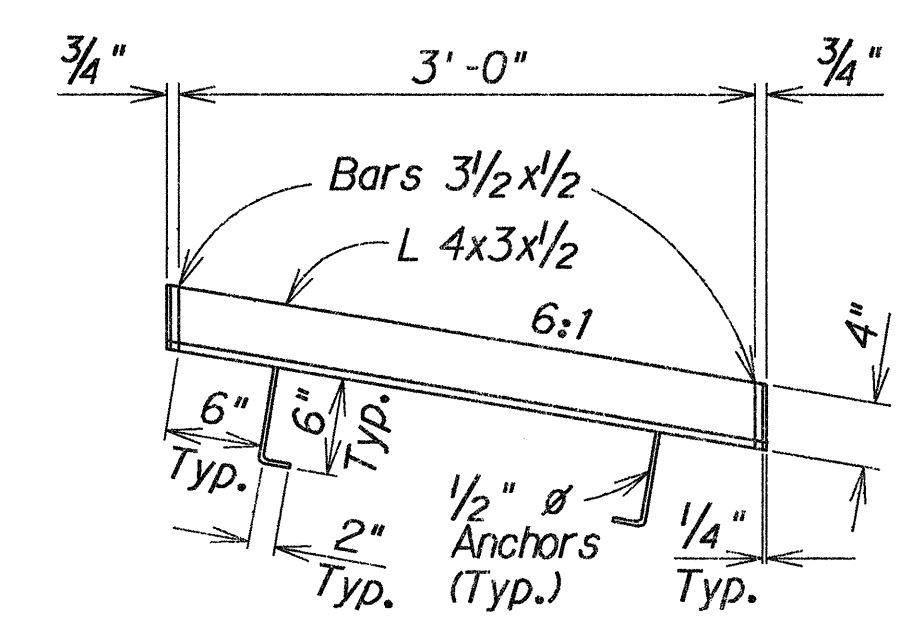
PLAN
Scale: 1" = 1'-0"



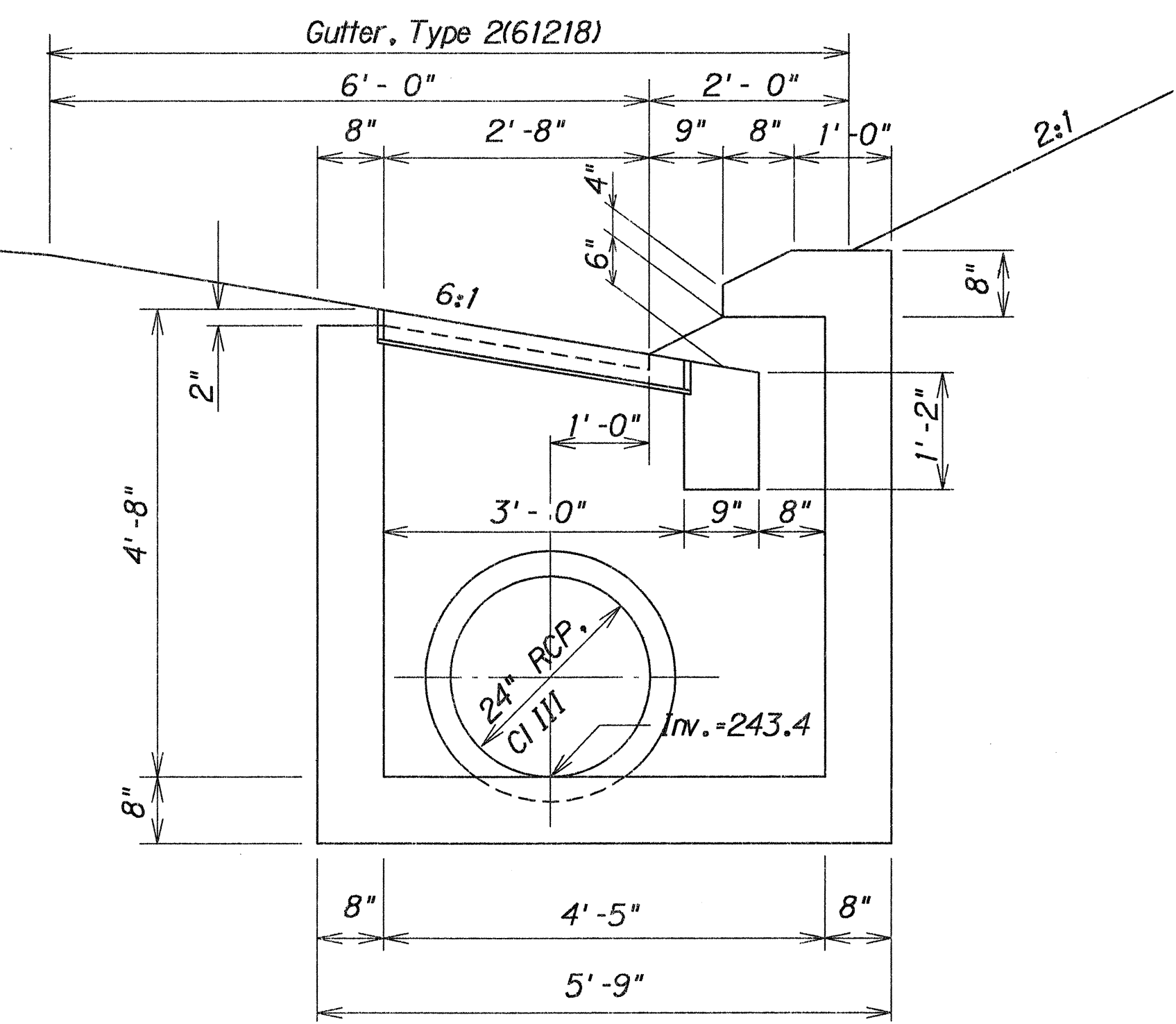
SECTION
Scale: 1" = 1'-0"



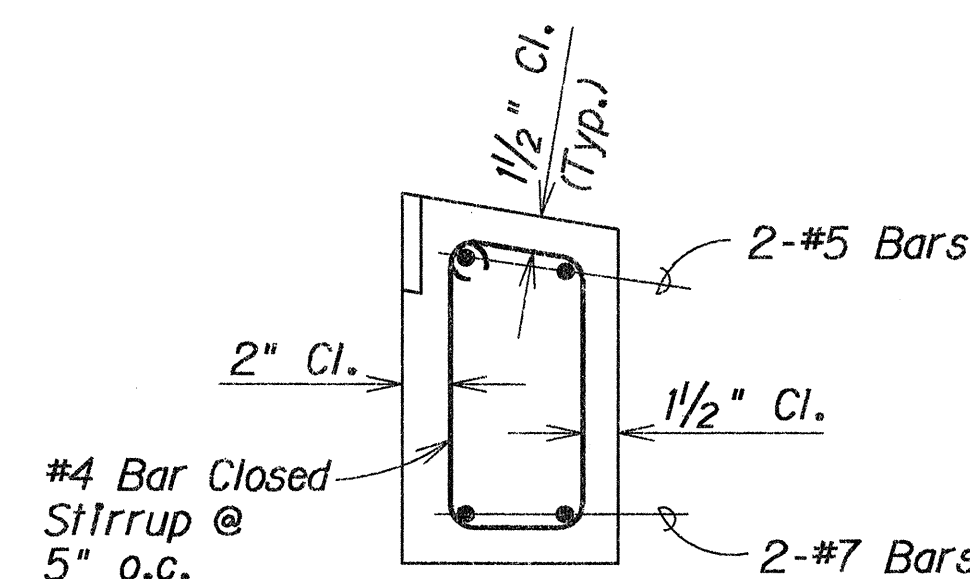
PLAN
Scale: 1" = 1'-0"



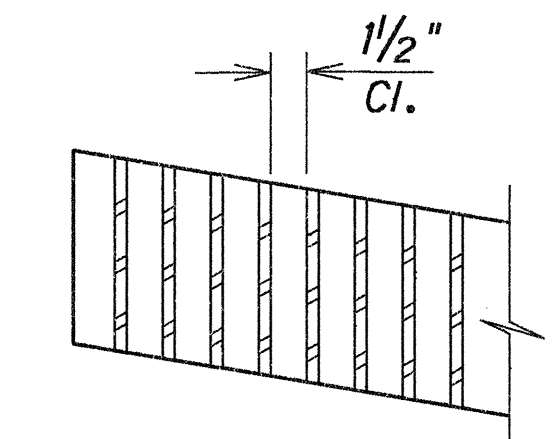
FRAME
Scale: 1" = 1'-0"



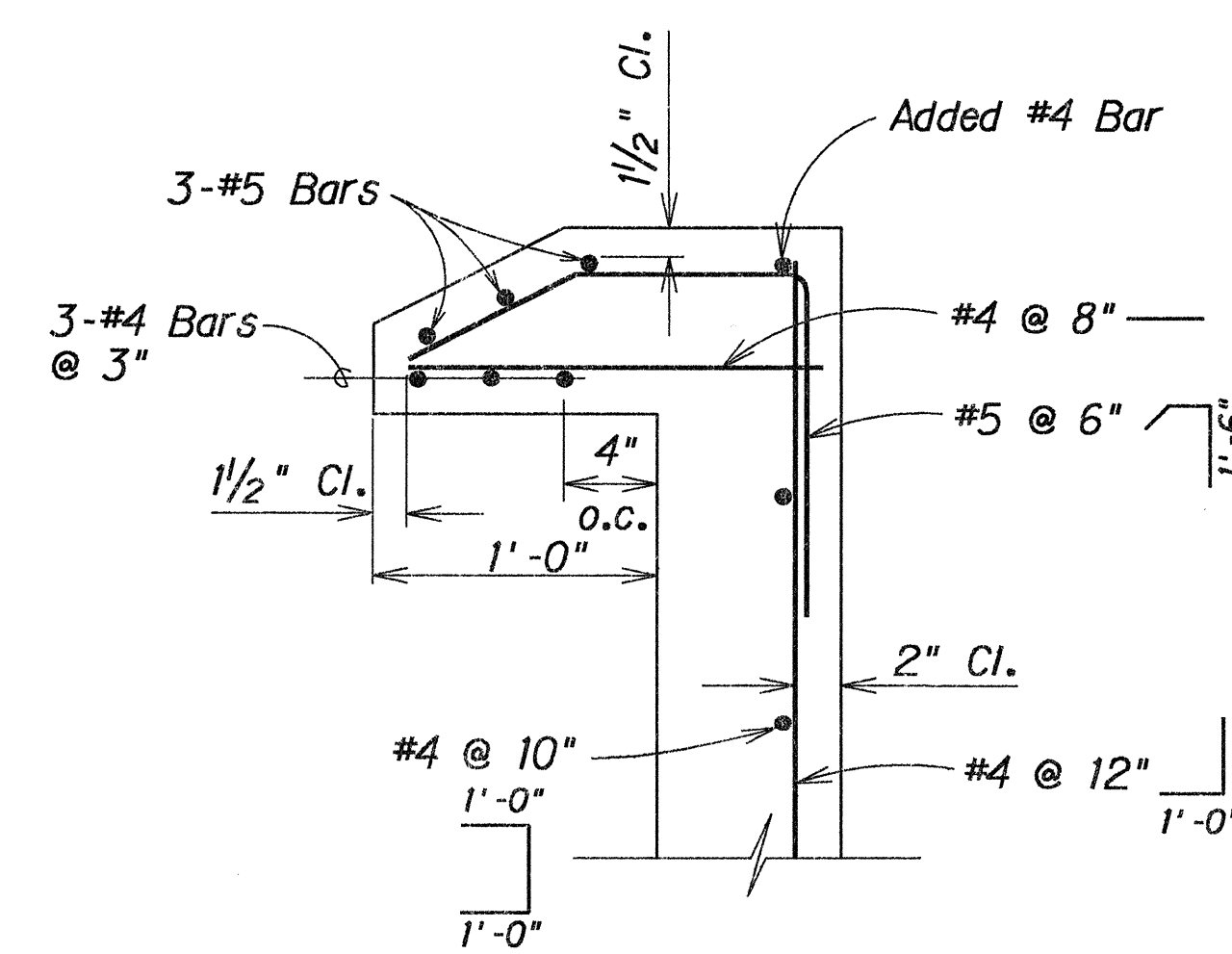
SECTION
Scale: 3/4" = 1'-0"



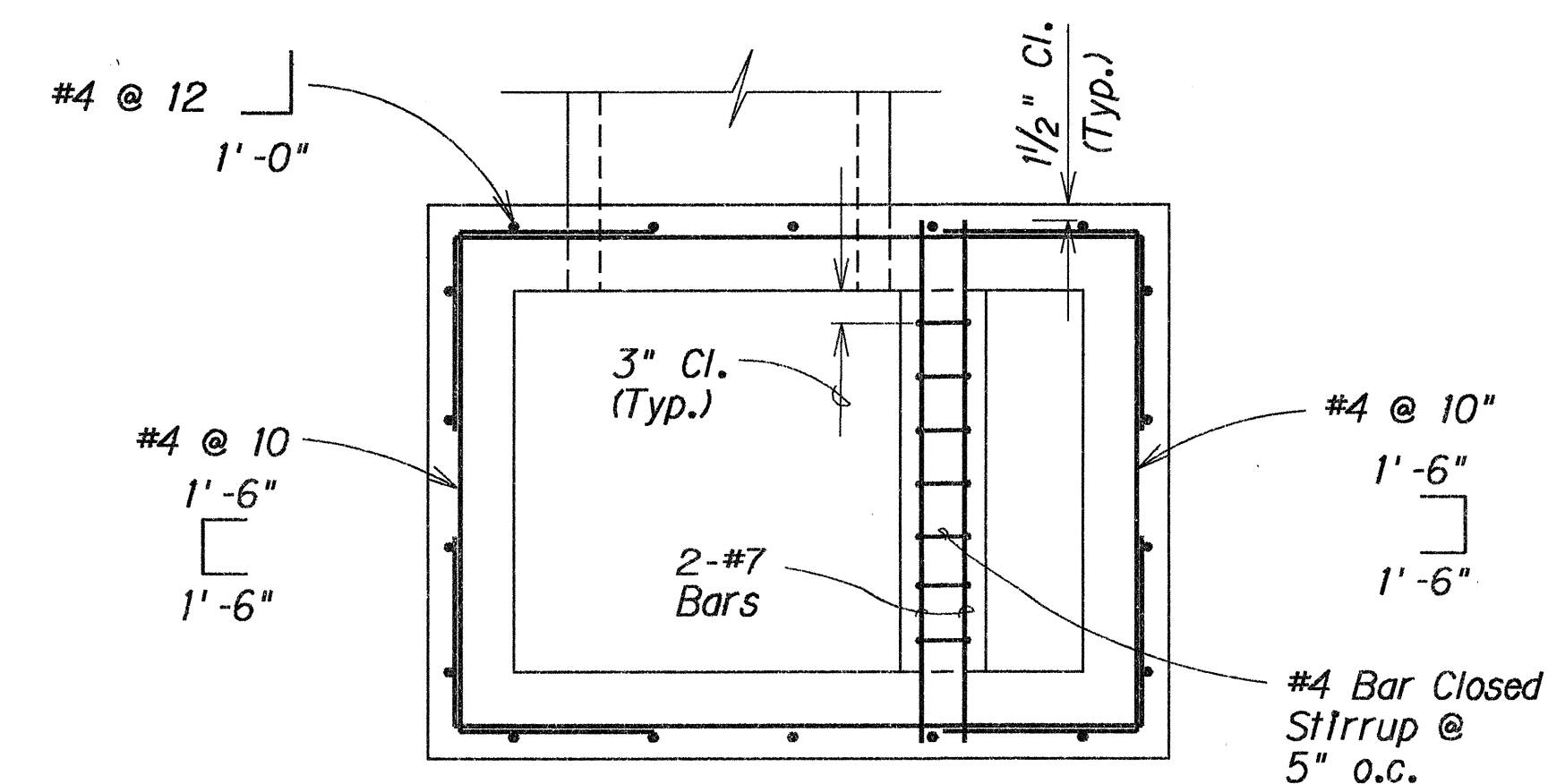
DETAIL
Scale: 1 1/2" = 1'-0"



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



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



PLAN VIEW OF WALL REINFORCING

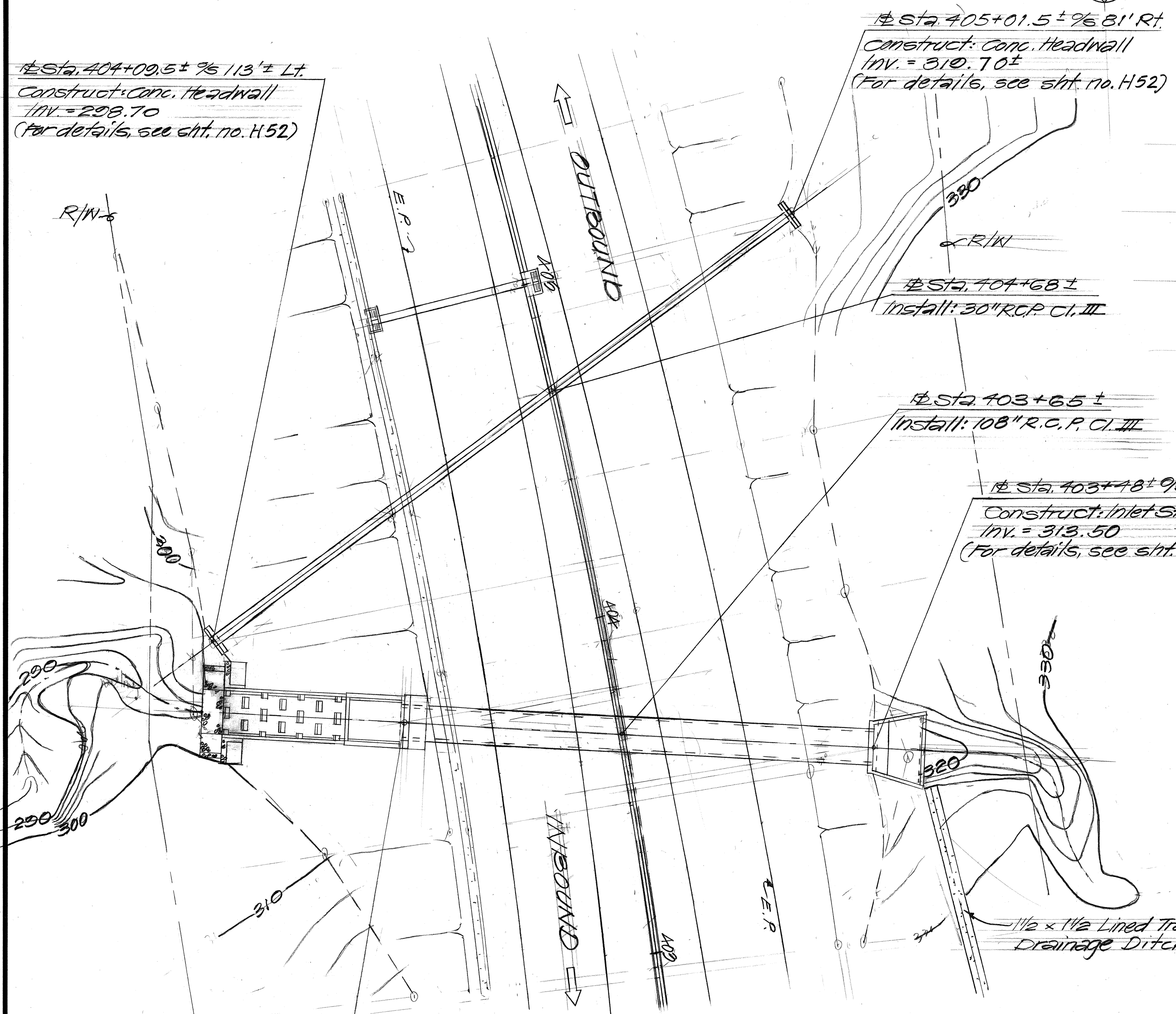
DETAILS OF TYPE S GRATED DROP INLET AT STA. 491+50 LT.

06/03/91 Sheet added to Contract Plan to show drainage improvements between Sta. 490+20 to Sta. 492+00

DATE	REVISION
	STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION DRAINAGE DETAILS INTERSTATE ROUTE H-3 F.A.I. PROJ. NO. I-H3-1(50)

Scale: As Noted Date: June, 1991
SHEET No. H16C OF 54 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1989	44	164



Sta. 404+09.5 ± 9/5 113' ± LT.
Construct: Conc. Headwall
Inv. = 298.70
(For details, see sht. no. H 52)

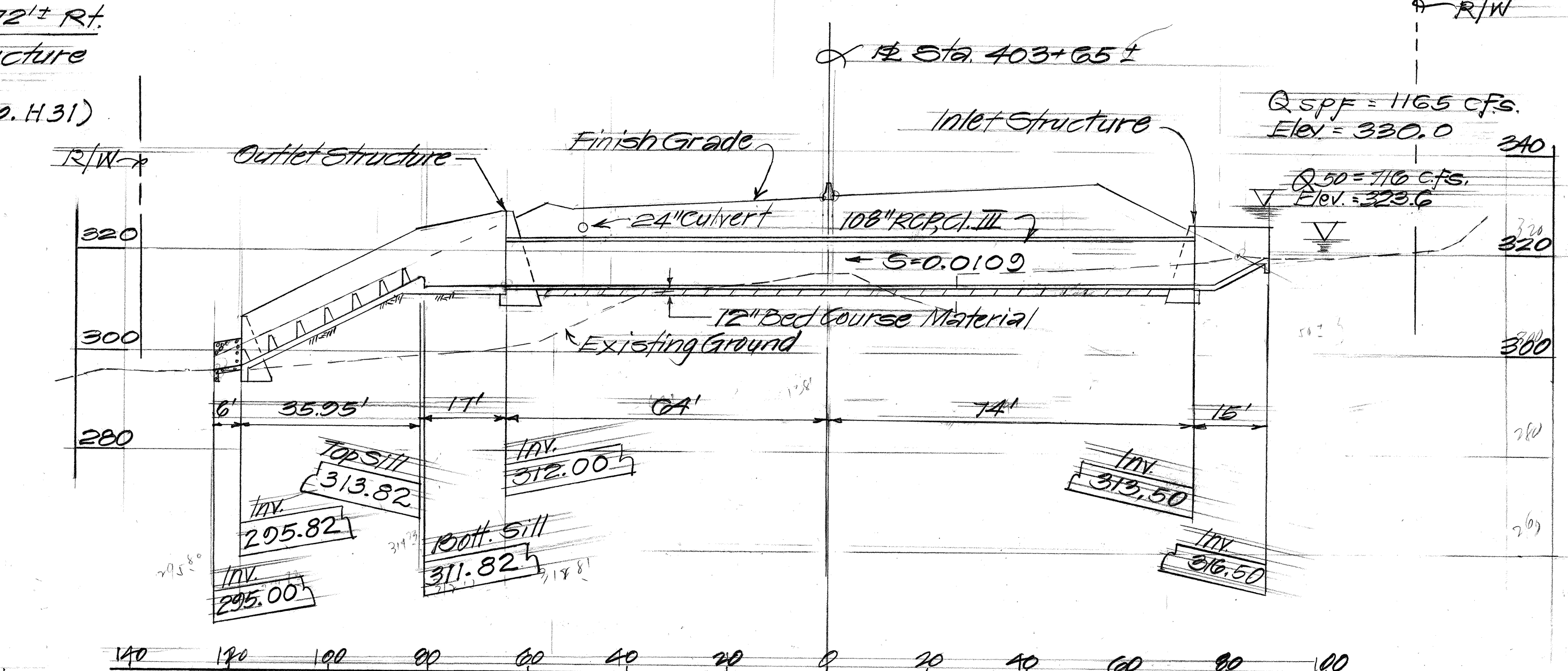
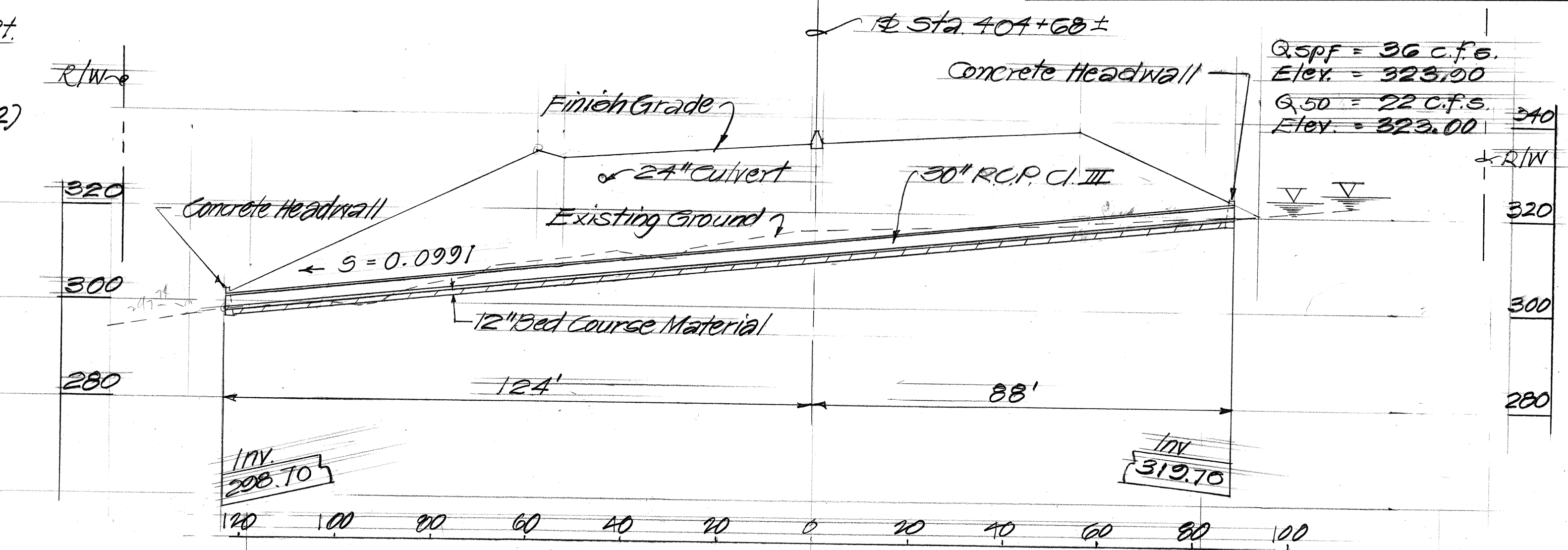
Sta. 405+01.5 ± 9/6 81' RT.
Construct: Conc. Headwall
Inv. = 310.70 ±
(For details, see sht. no. H 52)

Sta. 404+68 ±
Install: 30" R.C.P. C.I. III

Sta. 403+65 ±
Install: 108" R.C.P. C.I. III

Sta. 403+78 ± 9/6 72' ± RT.
Construct: Inlet Structure
Inv. = 313.50
(For details, see sht. no. H 31)

Sta. 403+70 ± 9/6 62.4' ± LT.
Construct: Outlet Structure
Inv. = 312.00
(For details, see sht. no. H 32)



108" CULVERT AT # STA. 403+65 ± AND 30" CULVERT AT # STA. 404+68 ±

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PLAN
PLAN AND PROFILE

STA. 403+65 ± AND # STA. 404+68 ±

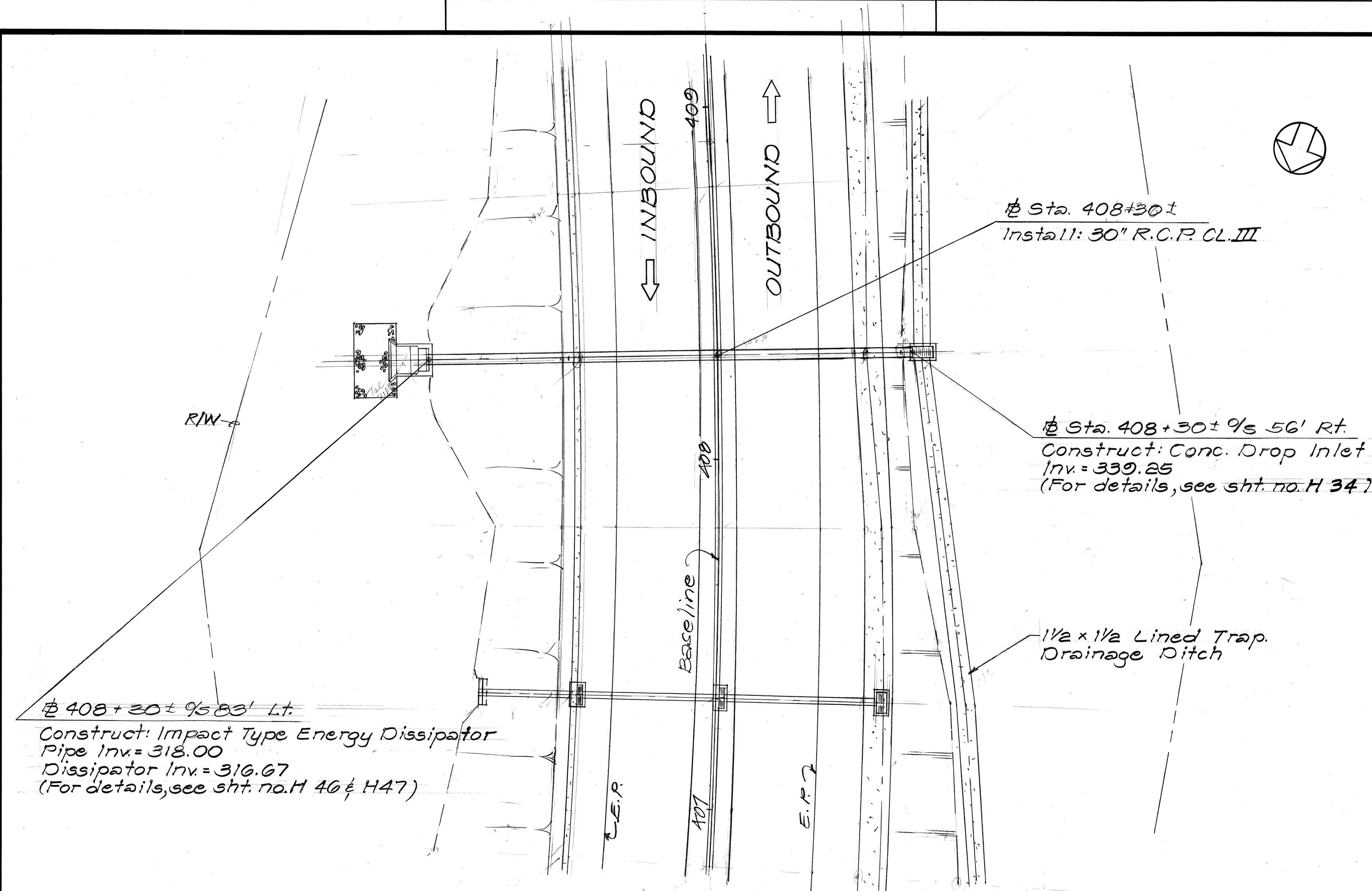
INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)

SCALE: AS NOTED DATE: JUL., 1988

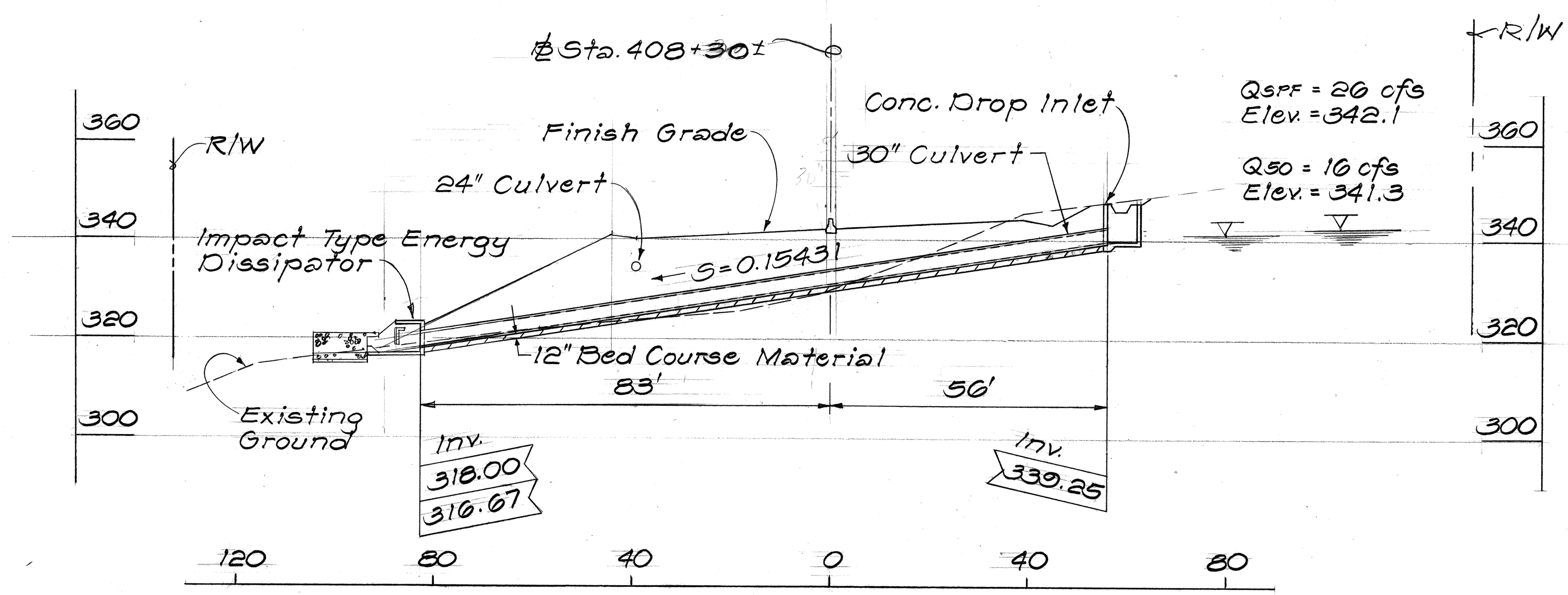
SHEET NO. 117 OF 54 SHEETS

DATE	
SURVEY PLOTTED BY	
DRAWN BY	
TRACED BY	
NOTED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
NO.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1989	45	164



PLAN
Scale: 1" = 20'



PROFILE
Scale: Horiz. 1" = 20'
Vert. 1" = 20'

30" RCP AT STA. 408+30±

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PLAN
PLAN AND PROFILE
@ STA. 408+30

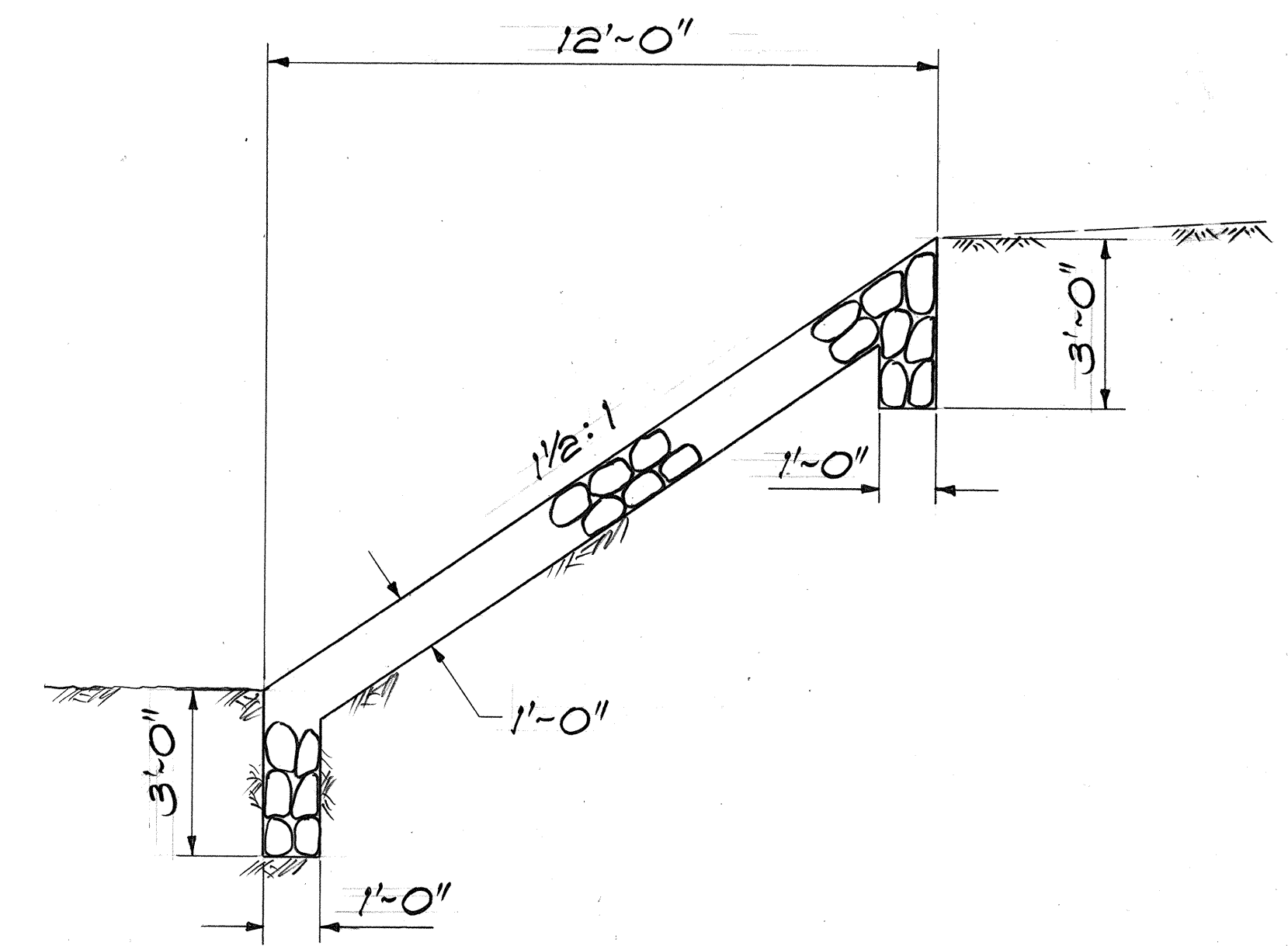
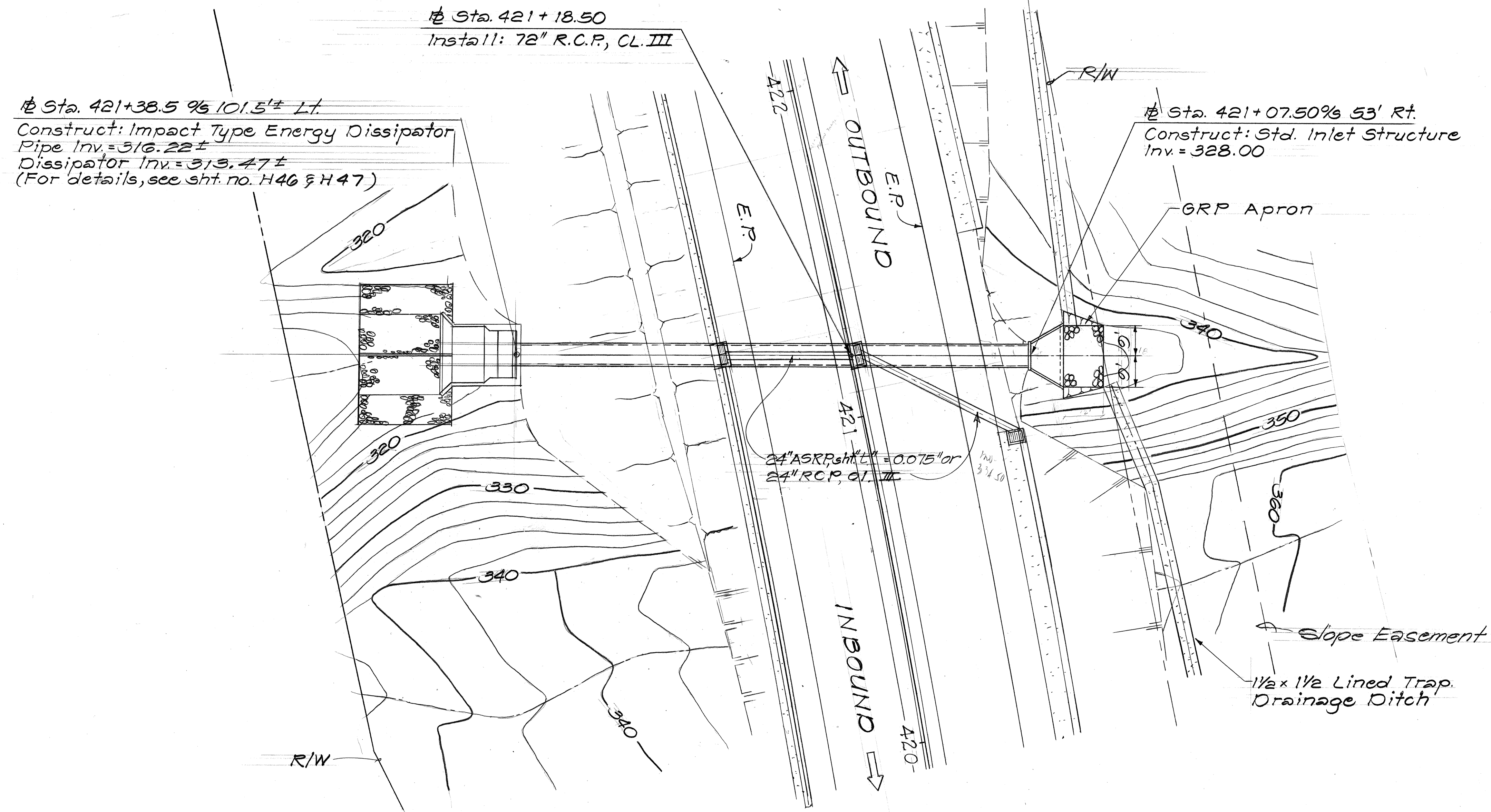
INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)

SCALE: AS NOTED DATE: JUL., 1988

SHEET NO. 45 OF 54 SHEETS

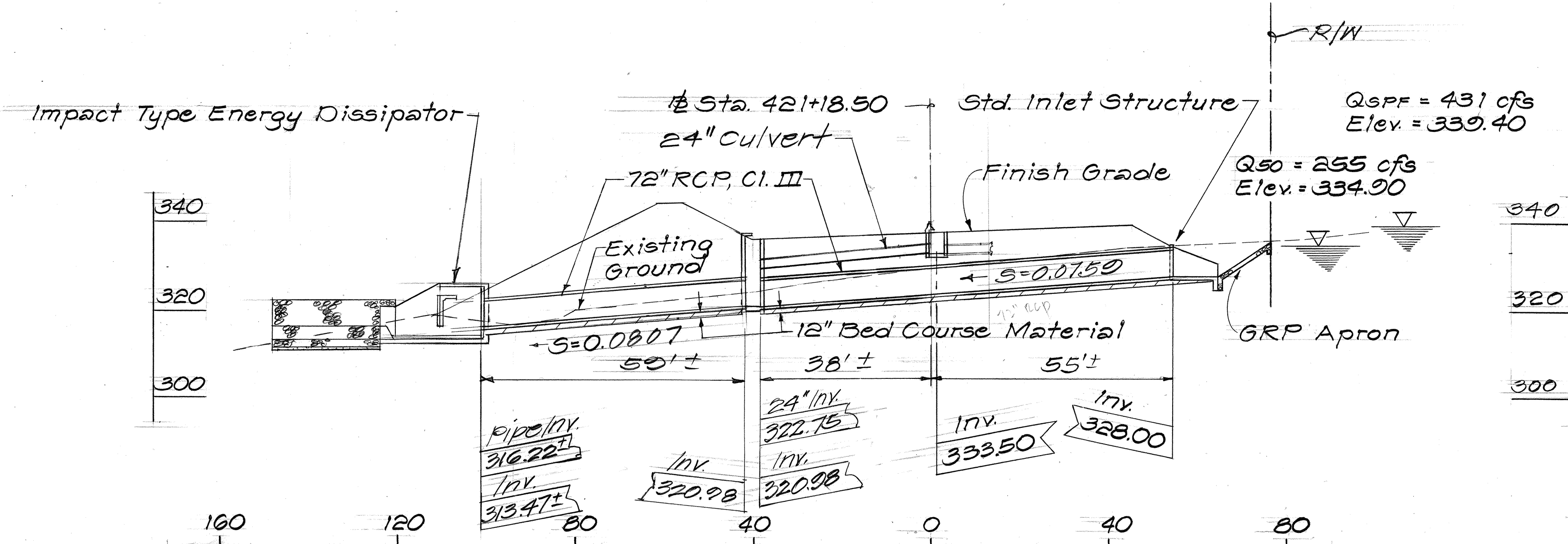
DATE	
DESIGNED BY	
CHECKED BY	
NOTED BY	
PLANNED BY	
ORIGINAL	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1989	46	164



GRP APRON DETAIL
Scale: 3/8" = 1'-0"

PLAN
Scale: 1" = 20'



PROFILE
Scale: Horiz. 1" = 20'
Vert. 1" = 20'

72" RCP AT STA. 421+18.50

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PLAN
PLAN AND PROFILE
STA. 421+18.50

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)

SCALE: AS NOTED DATE: JUL., 1988
SHEET No. H19 OF 54 SHEETS

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

Sta. 429+73 @ 567' R/L
Construct: Concrete Headwall
Inv. = 319.00
(For details, see sht. no. 452)

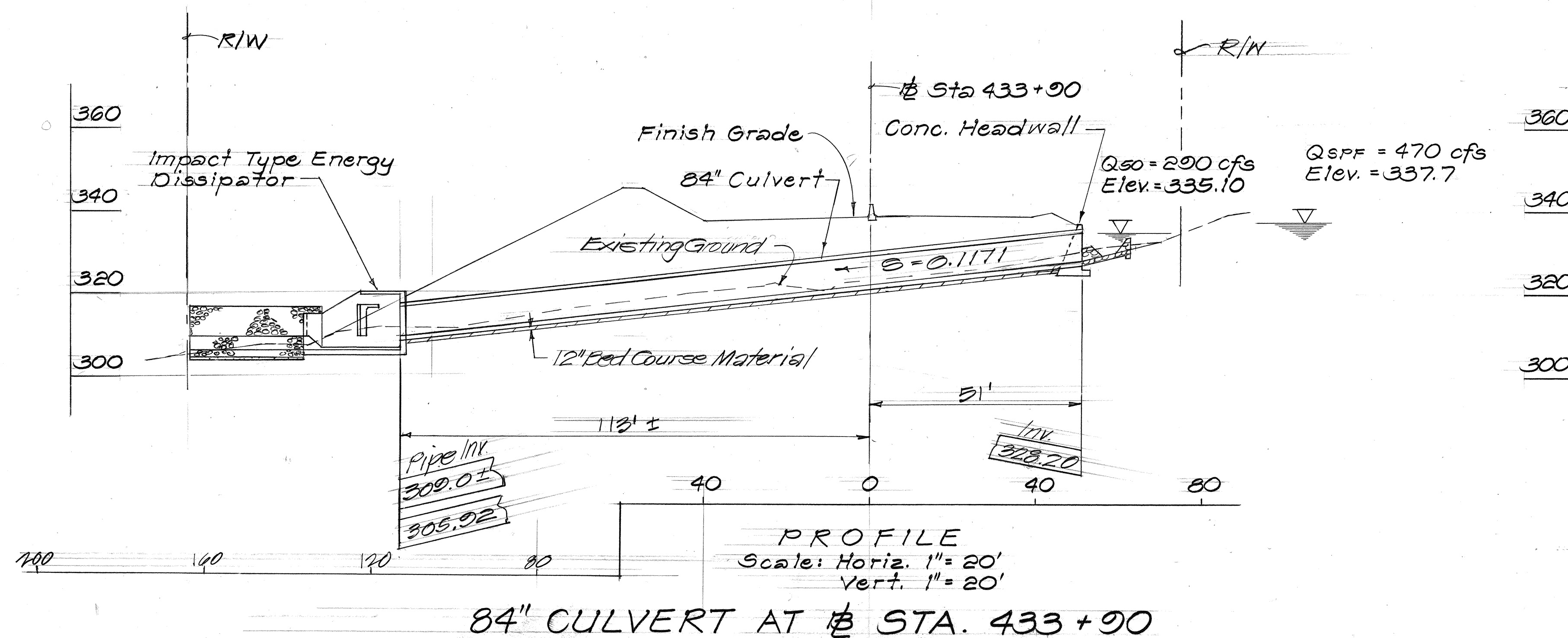
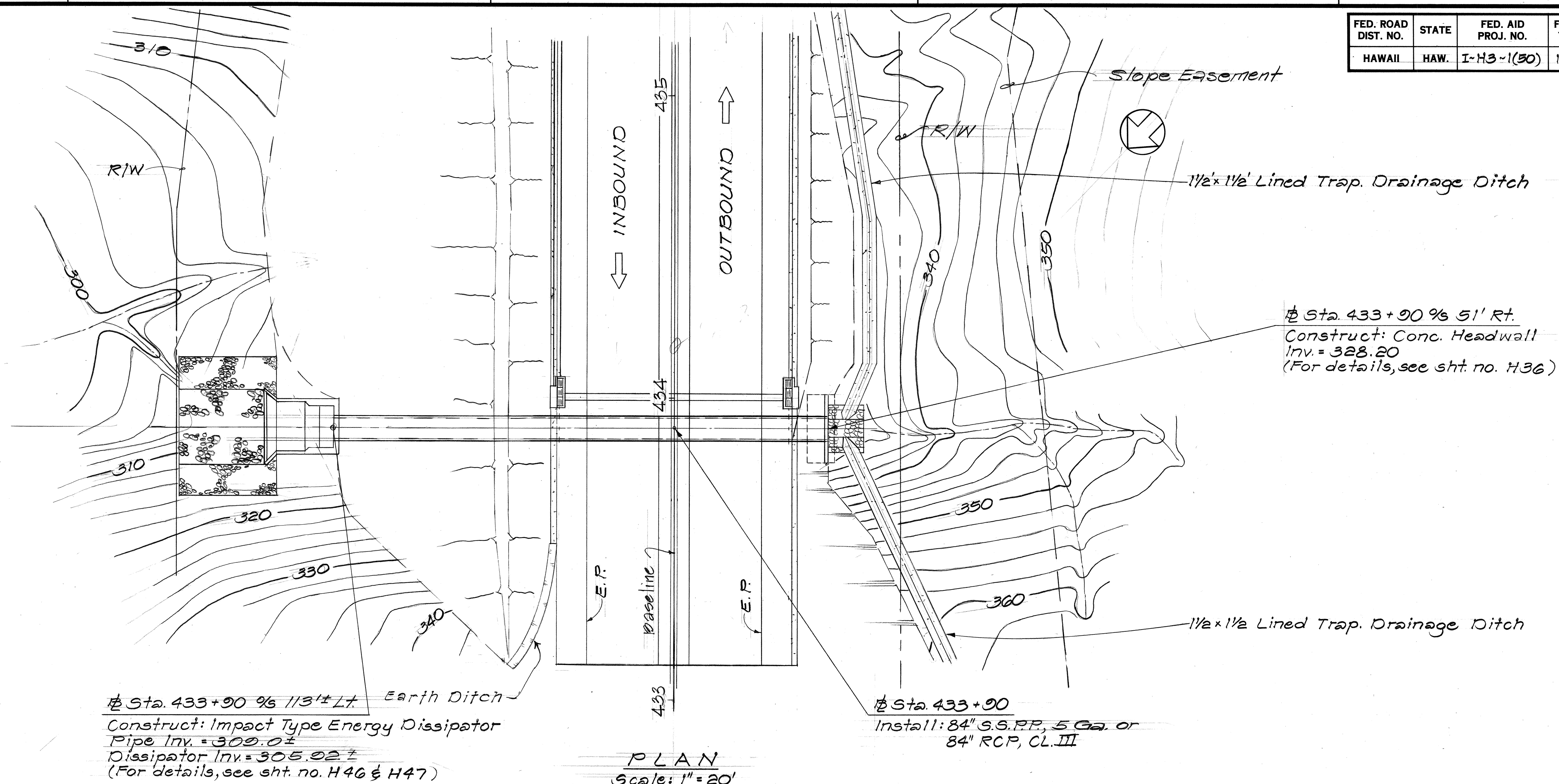
Sta. 428+24
Install: 48" and 60"
R.C.P., C.I. IV

Sta. 427+64.5 to 427+62' RT.
Construct: Concrete Headwall
Inv. = 319.00
(For details, see sheet no. H 52)

PROFILE OF 48" AND 60" CULVERTS

SHEET No. H20 OF 54 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1989	48	164



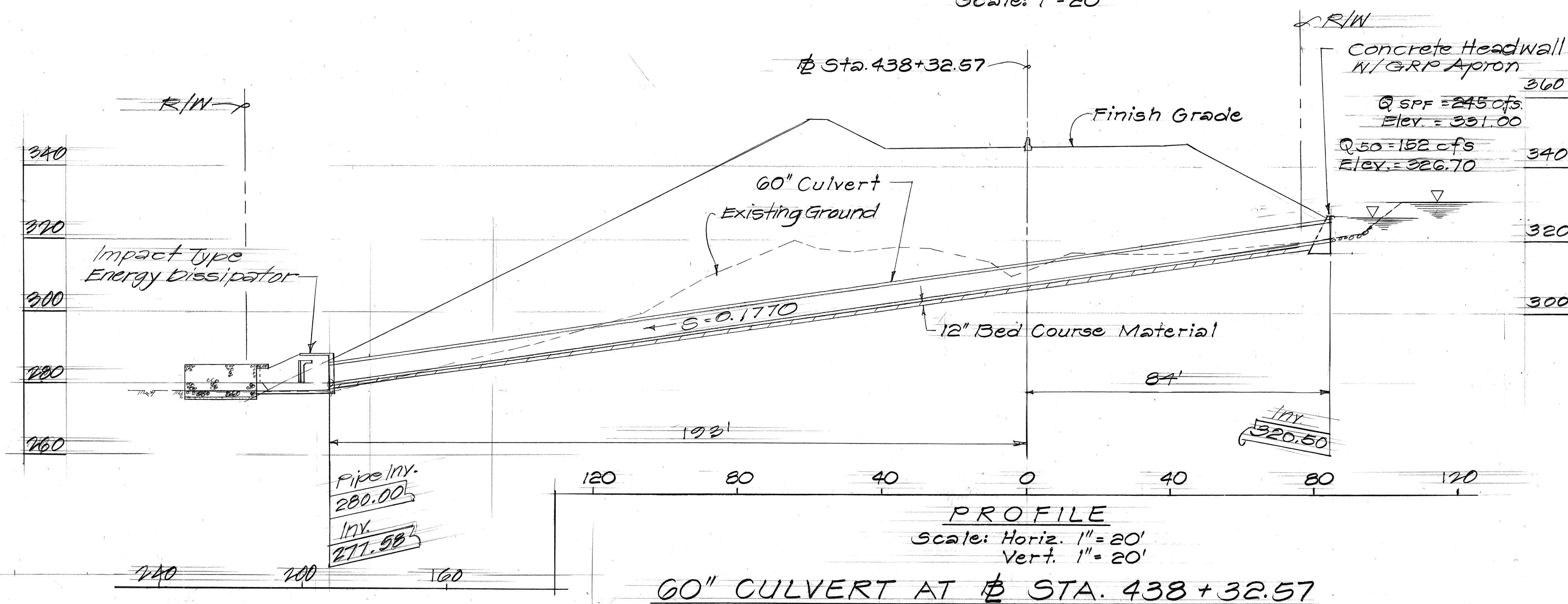
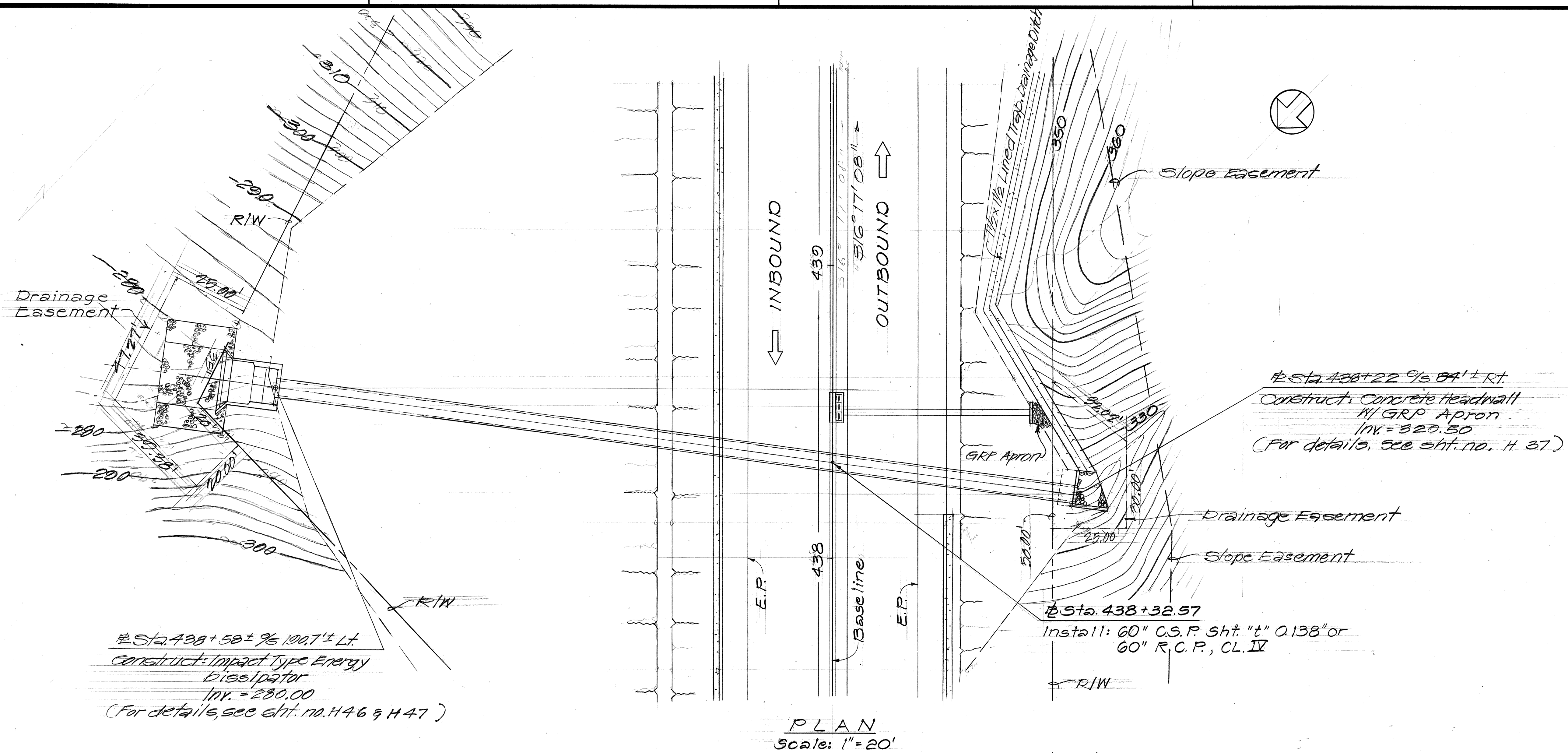
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PLAN
PLAN AND PROFILE
STA. 433+90

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)

SCALE: AS NOTED DATE: JUL., 1988
SHEET No. H21 OF 54 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1989	49	164



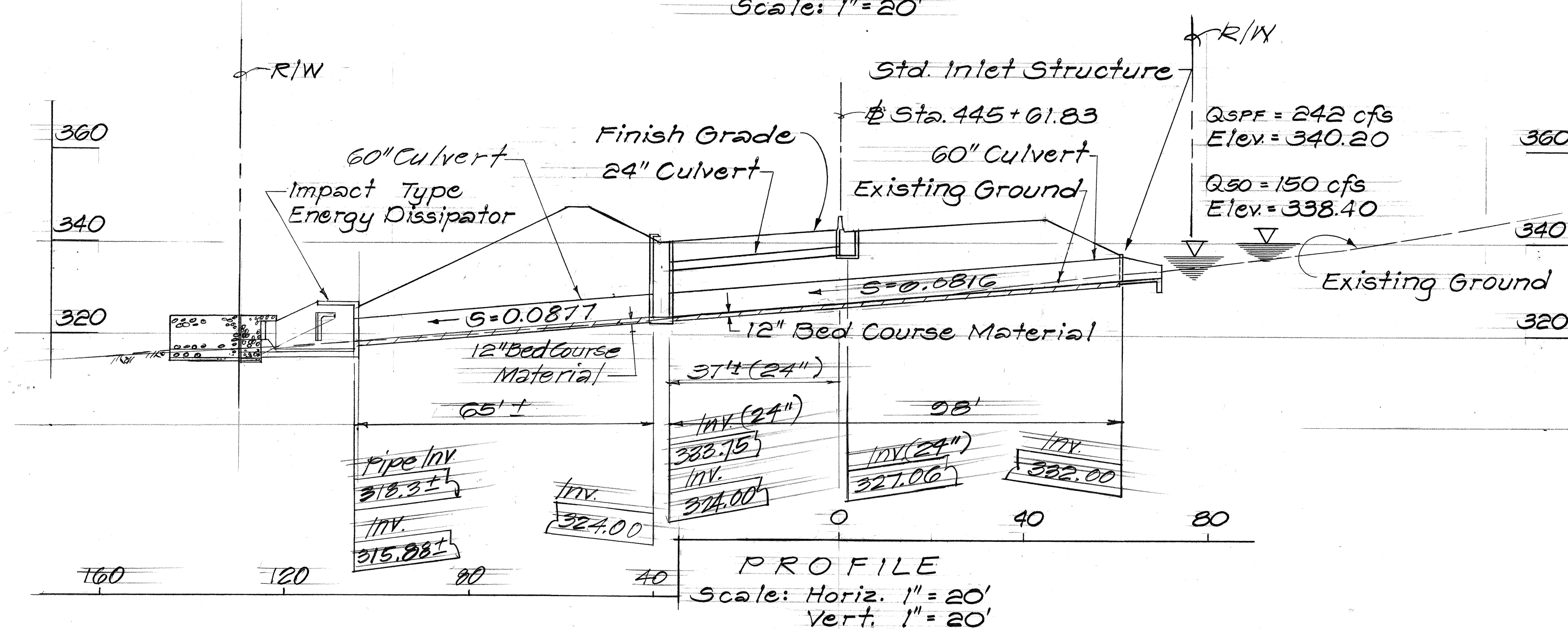
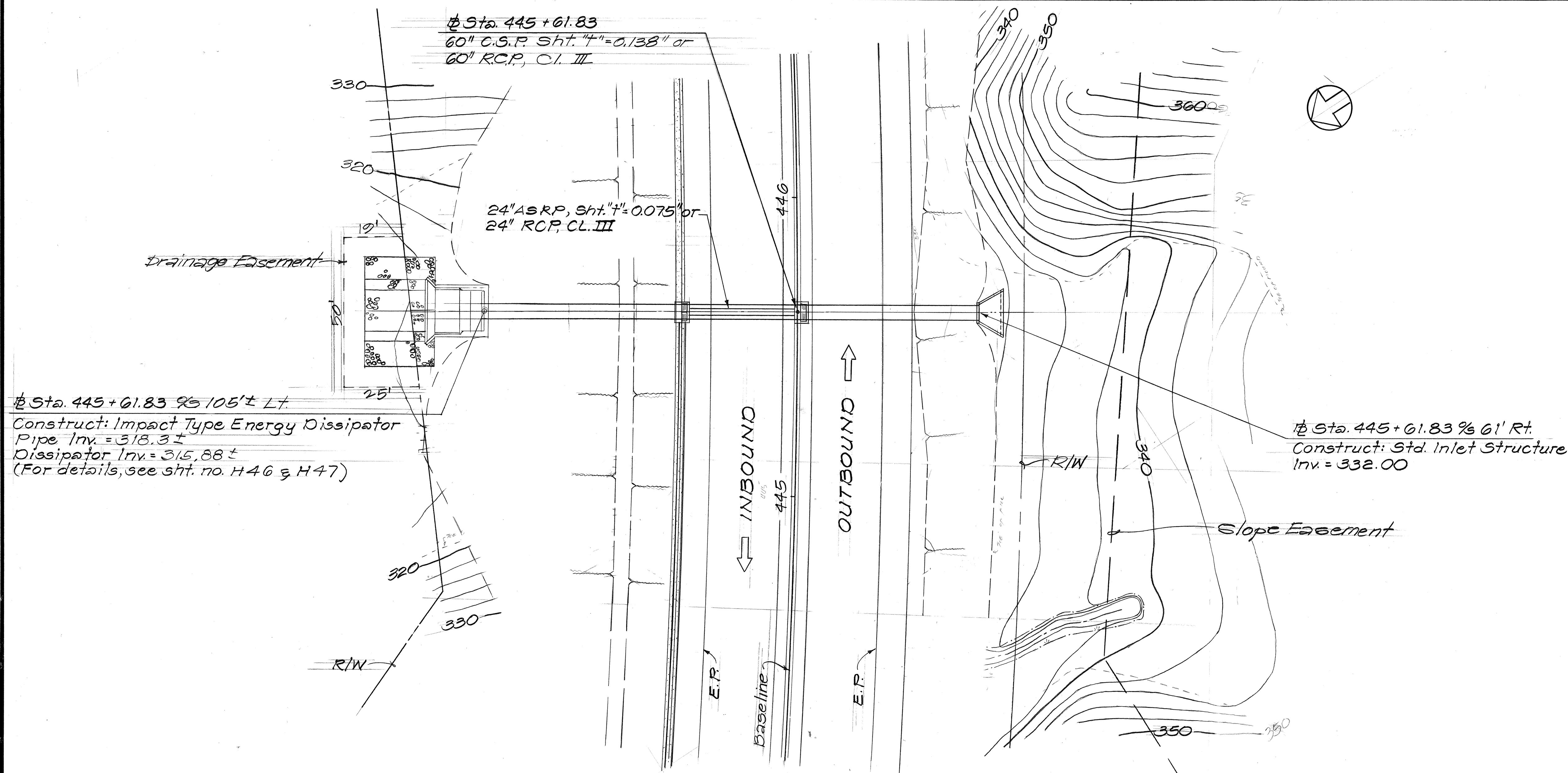
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PLAN
PLAN AND PROFILE
STA. 438+32.57

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)

SCALE: AS NOTED DATE: JUL., 1988
SHEET No. H22 OF 54 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1989	50	164



60" CULVERT AT STA. 445 + 61.83

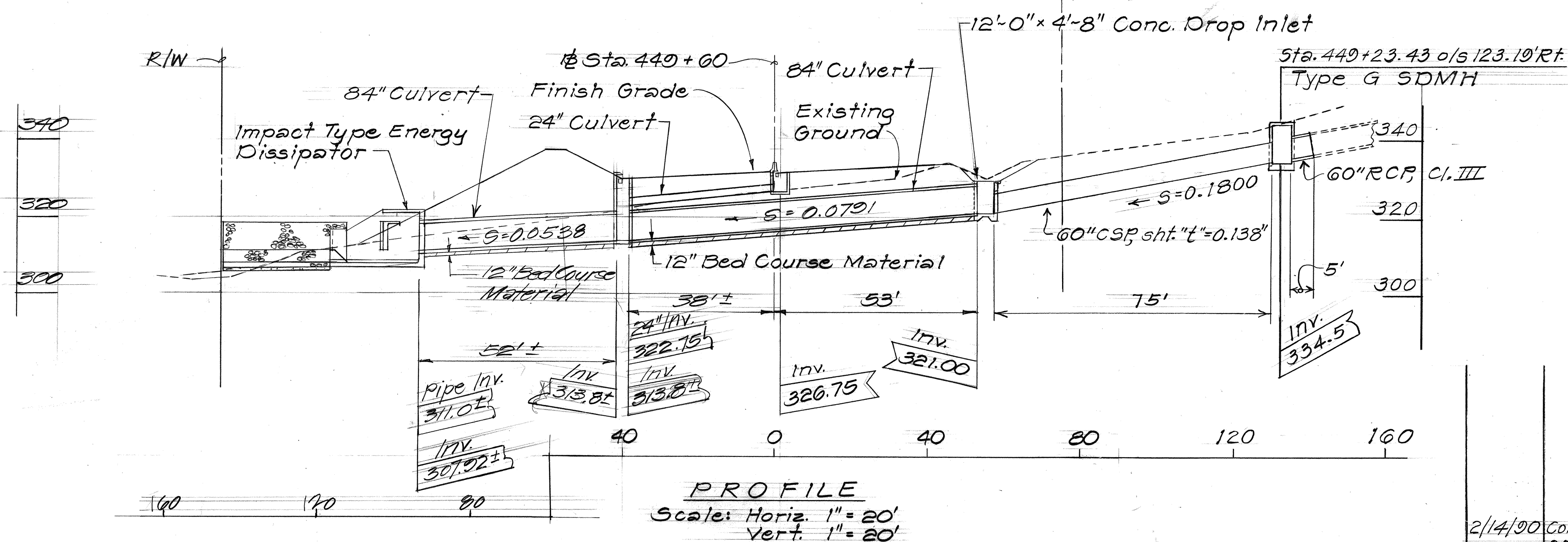
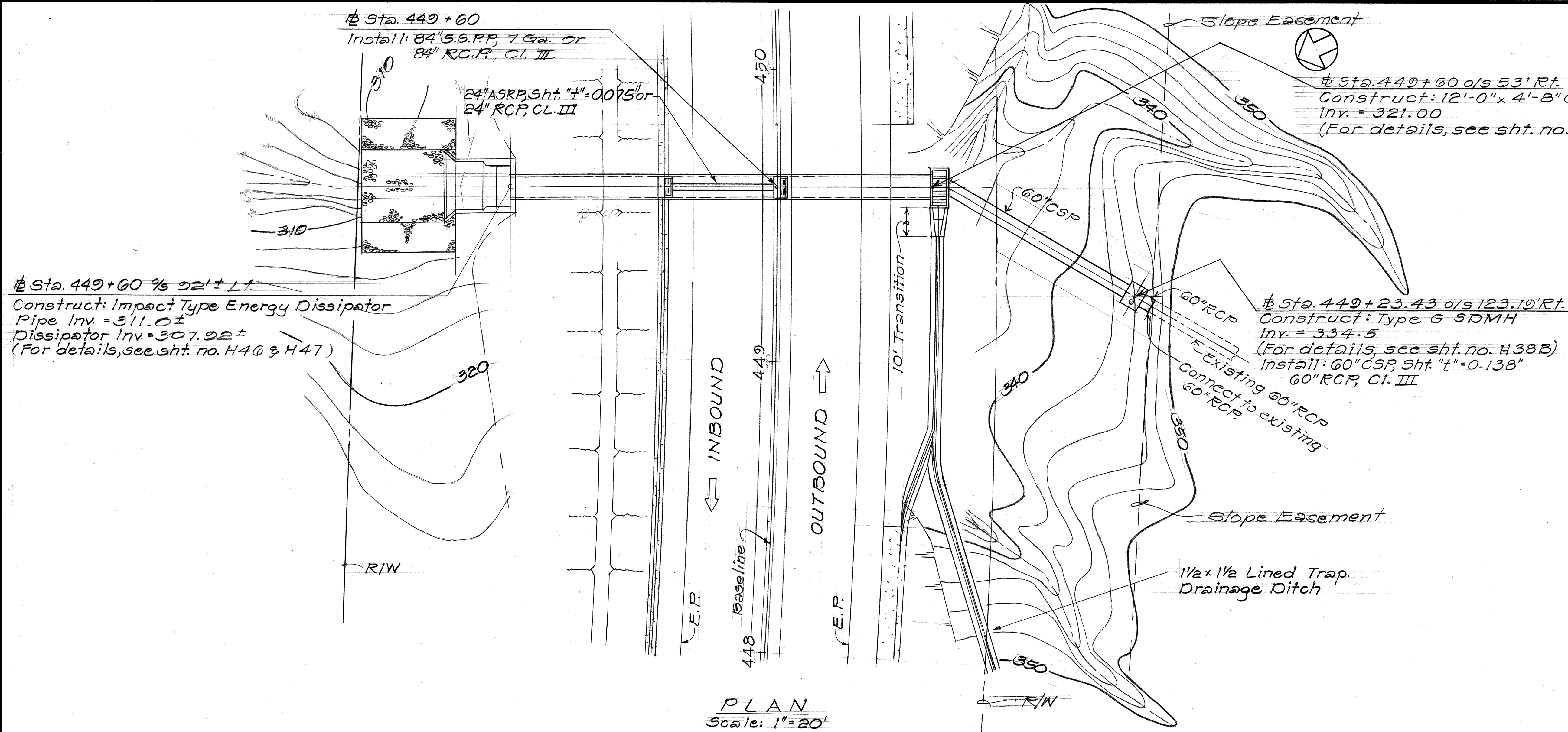
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

DRAINAGE PLAN
PLAN AND PROFILE
STA. 445 + 61.83

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)

SCALE: AS NOTED DATE: JUL., 1988
SHEET No. H23 OF 54 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1989	C.O.51	164



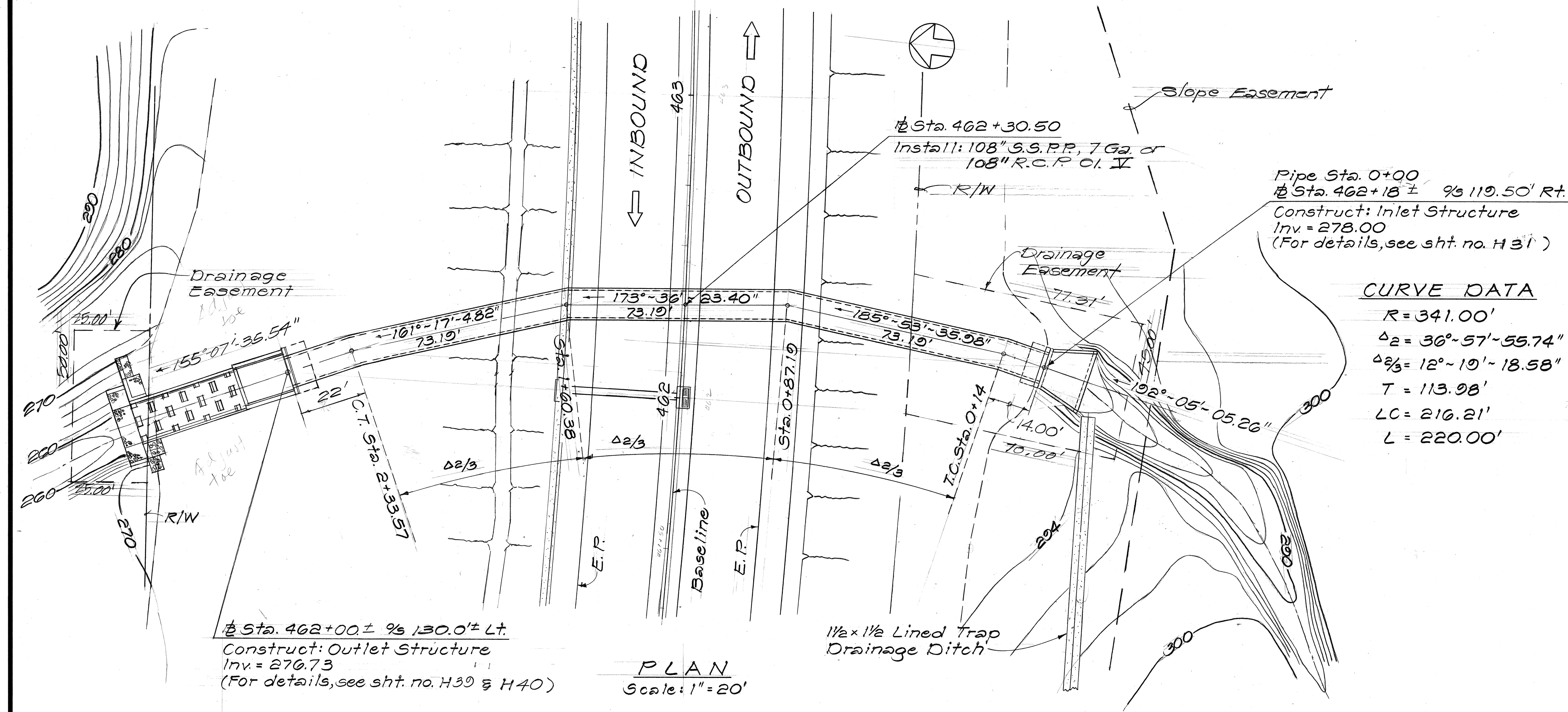
84" CULVERT AT STA. 449+60

2/14/90 Connect 60" culvert to 12'-0"x4'-8" C.D.I. Replace 3'x5' Trap. Drainage Ditch w/1 1/2 x 1 1/2 Lined Trap. Drainage Ditch.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PLAN
PLAN AND PROFILE
STA. 449+60
INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)
SCALE: AS NOTED
DATE: JUL., 1988
SHEET No. H24 OF 54 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1988	52	164



CURVE DATA

R = 341.00'

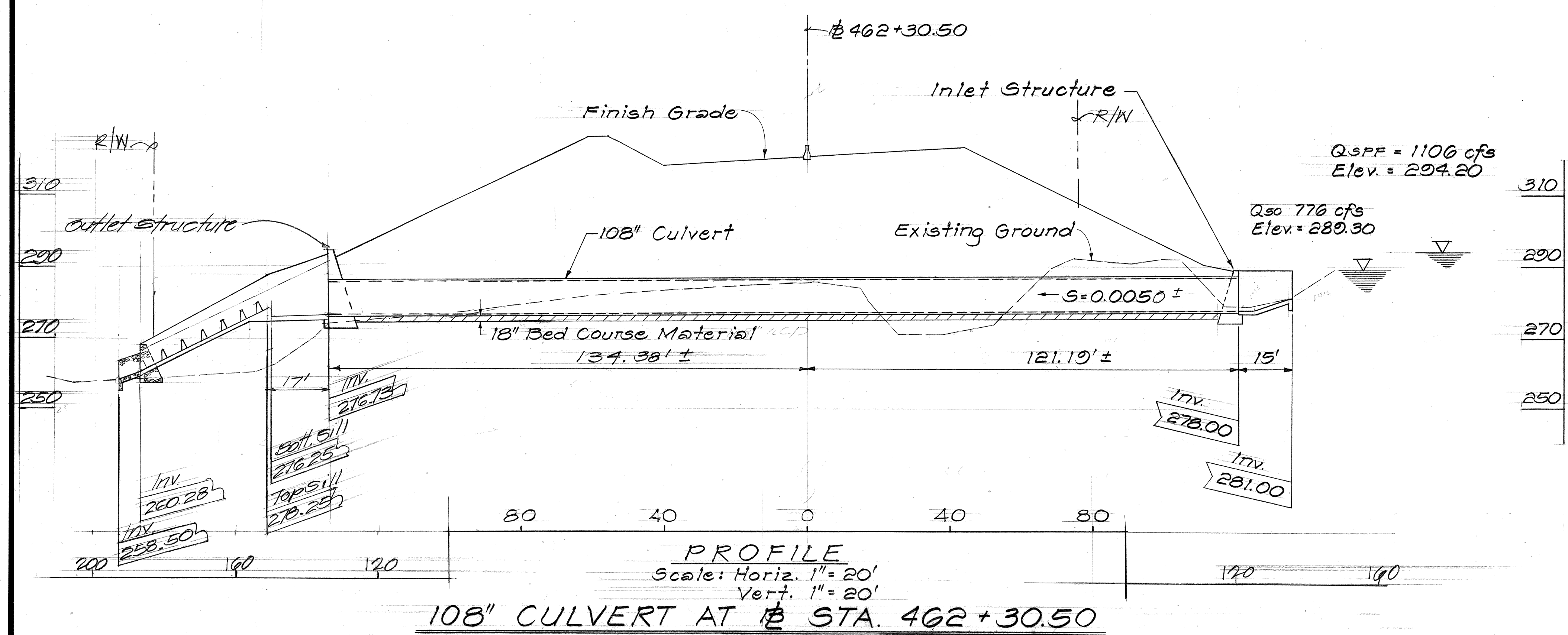
Δ₂ = 36°-57'-55.74"

Δ_{2/3} = 12°-19'-18.58"

T = 113.98'

LC = 210.21'

L = 220.00'



108" CULVERT AT STA. 462+30.50

Scale: Horiz. 1" = 20'
Vert. 1" = 20'

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

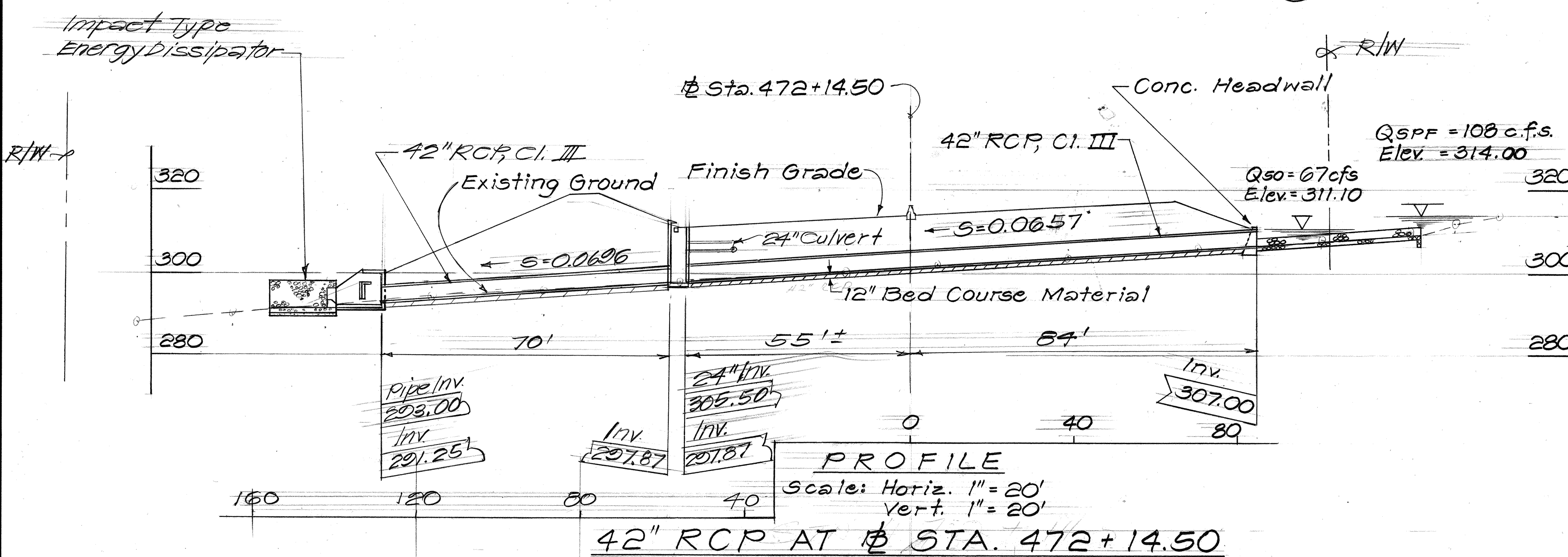
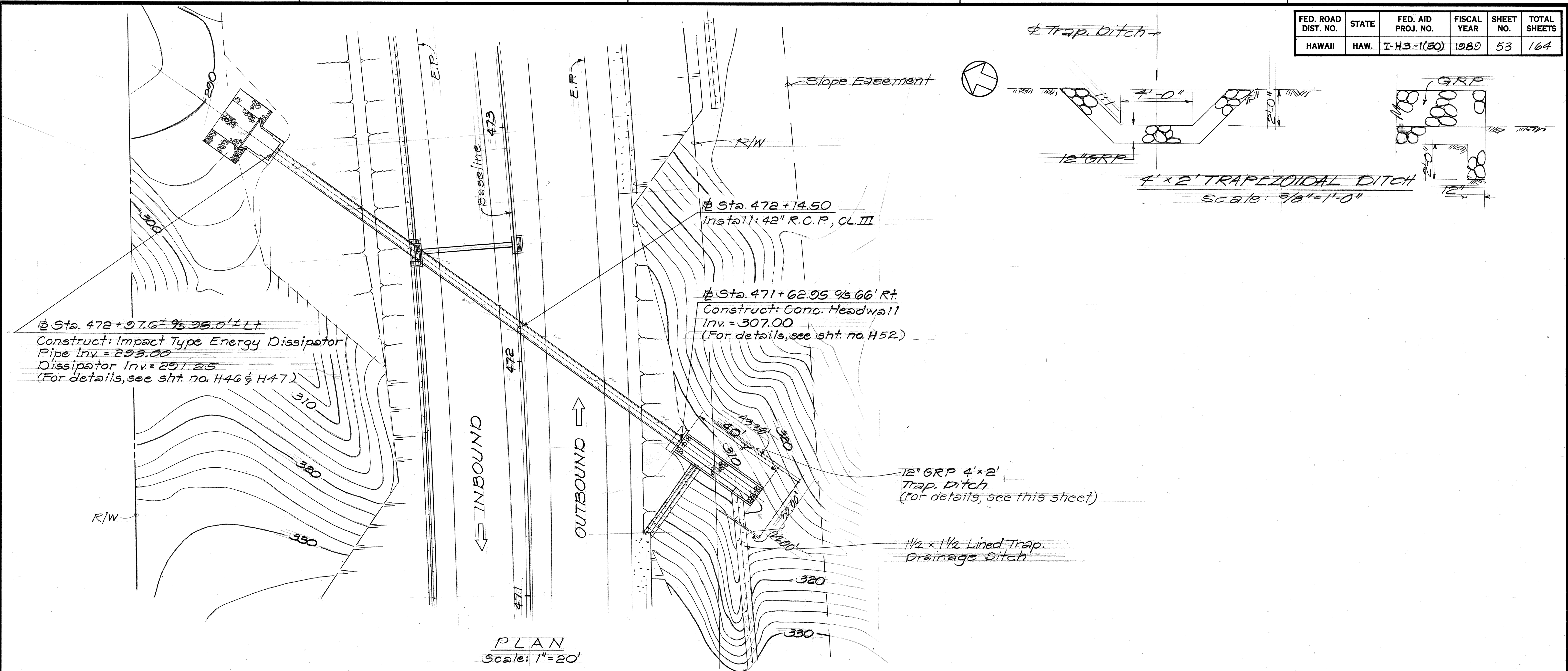
DRAINAGE PLAN
PLAN AND PROFILE
STA. 462+30.50

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)

SCALE: AS NOTED DATE: JUL., 1988
SHEET No. H25 OF 54 SHEETS

DATE	
DESIGNED BY	
DRAWN BY	
CHECKED BY	
NOTED BY	
QUANTITIES BY	
CHECKED BY	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1980	53	164



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PLAN
PLAN AND PROFILE
STA. 472+14.50

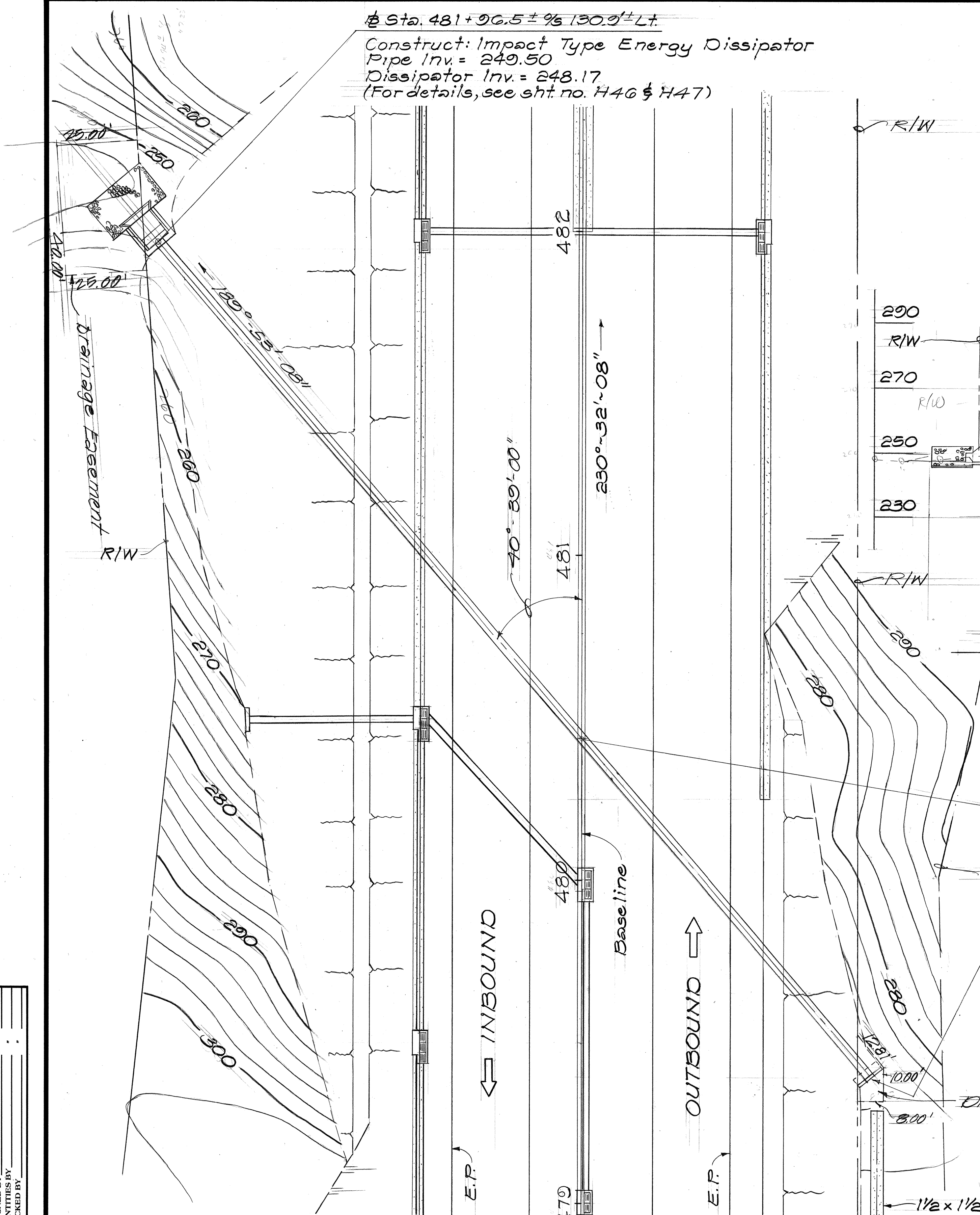
INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)

SCALE: AS NOTED DATE: JUL., 1988
SHEET No. H20 OF 54 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1989	54	164

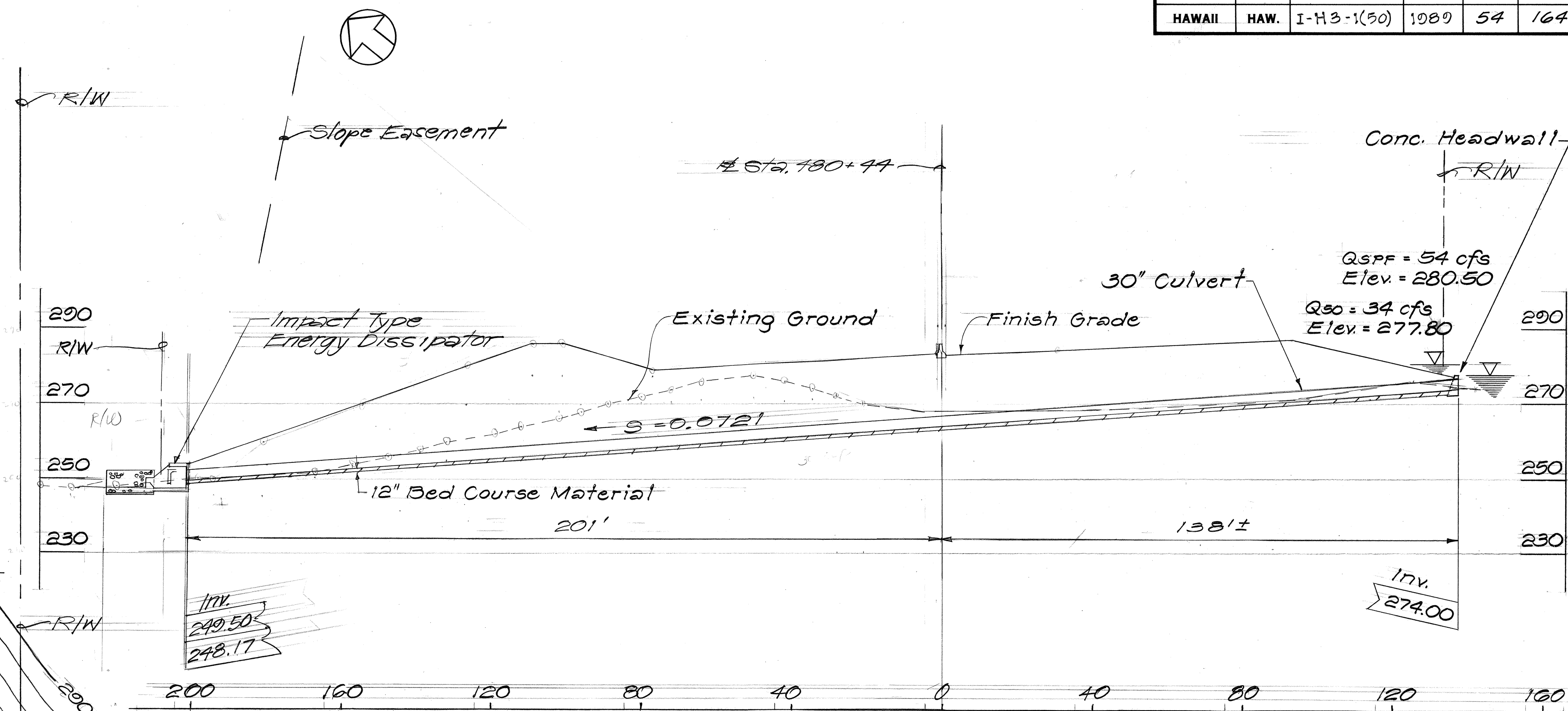
Sta. 481+96.5 ± 96 130.0' ± Lt.

Construct: Impact Type Energy Dissipator
Pipe Inv. = 249.50
Dissipator Inv. = 248.17
(For details, see sht. no. H46 & H47)



PLAN
Scale: 1" = 20'

30" CULVERT AT STA. 480+44



PROFILE
Scale: Horiz. 1" = 20'
Vert. 1" = 20'

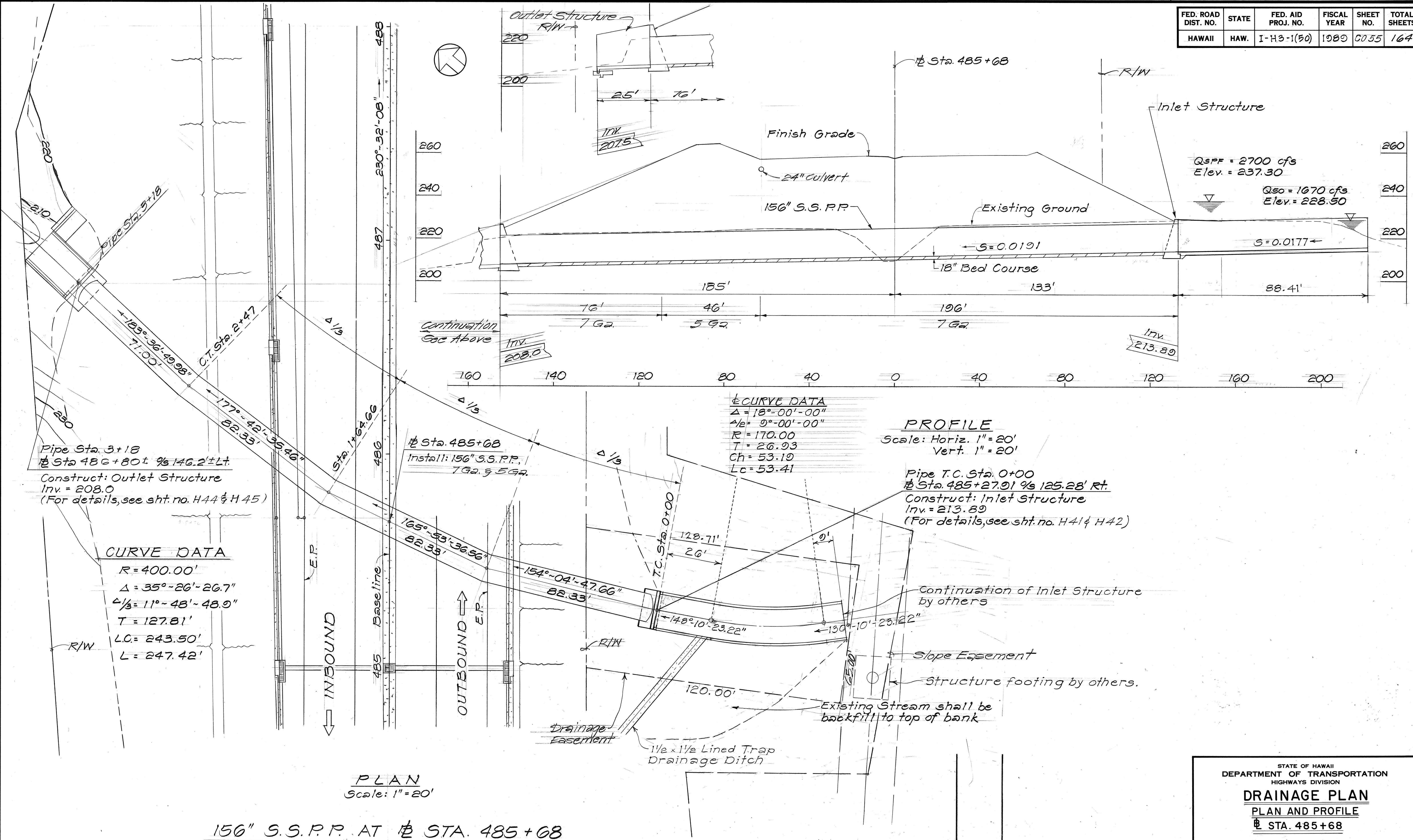
Sta. 480+44
Install: 30" R.C.P. CL. III

Sta. 479+39.76 96 89.50' Rt.
Construct: Conc. Headwall
Inv. = 274.00
(For details, see sht. no. H52)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
DRAINAGE PLAN
PLAN AND PROFILE
STA. 480+44
INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)
SCALE: AS NOTED DATE: JUL., 1988
SHEET No. H27 OF 54 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1989	0055	164

DATE	
DESIGNED BY	
DRAWN BY	
CHECKED BY	
NOTED BY	
DATE	



6/12/90	Revised Inlet Structure design.
DATE	REVISION

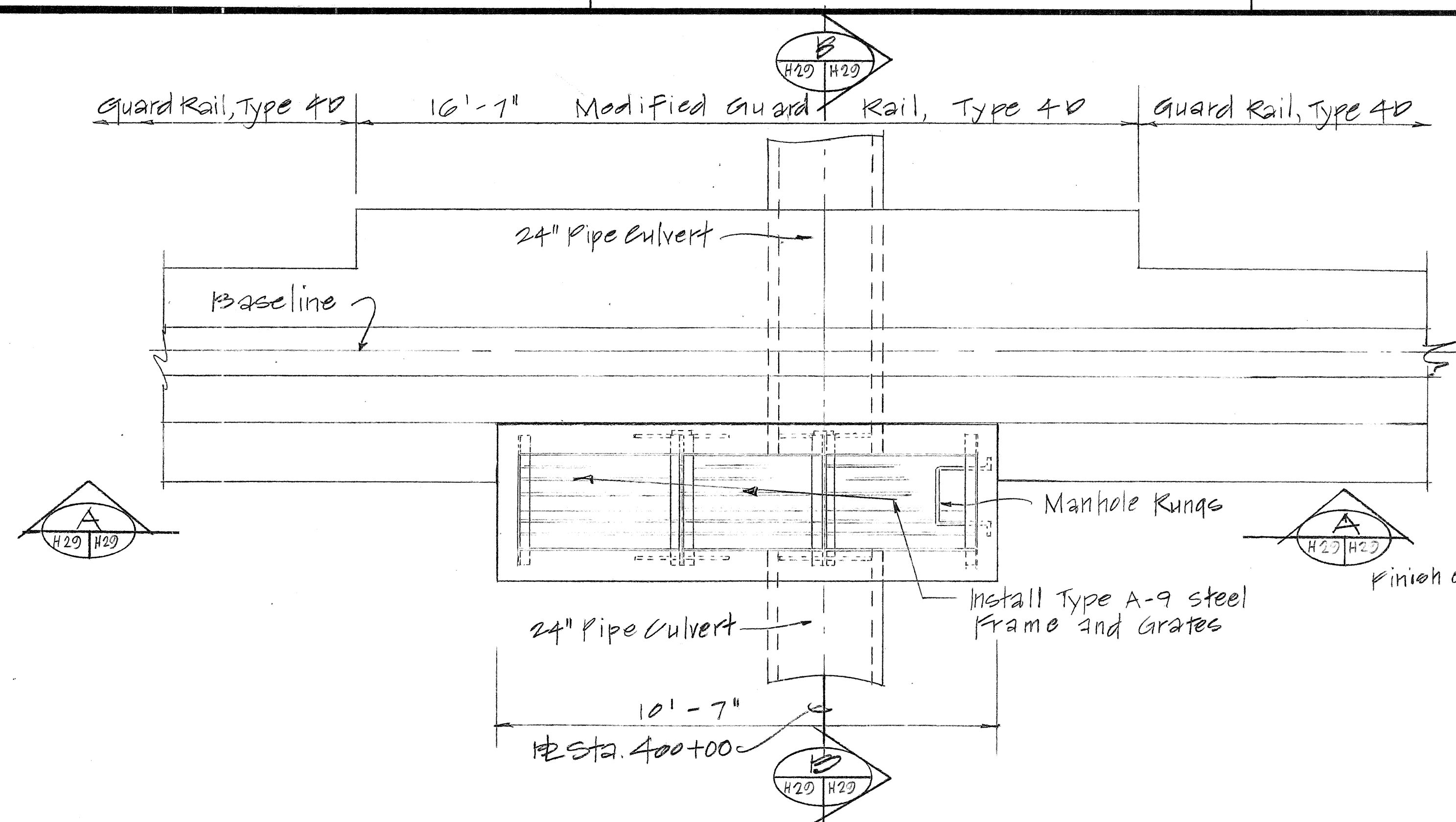
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

DRAINAGE PLAN
PLAN AND PROFILE
STA. 485+68

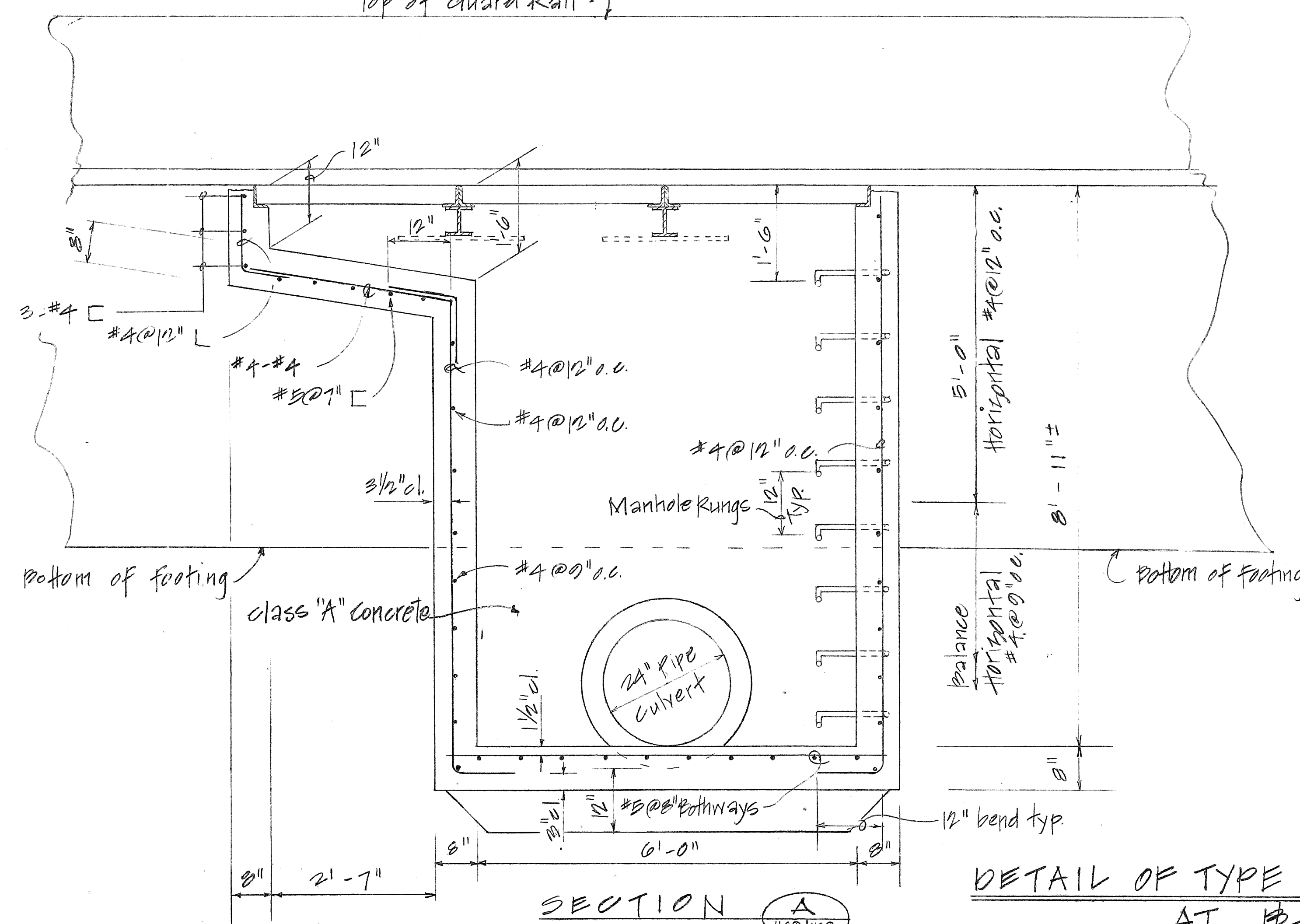
INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)
SCALE: AS NOTED **DATE: JUL., 1988**
SHEET No. H28 OF 54 SHEETS

C.O.55

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1989	56	164

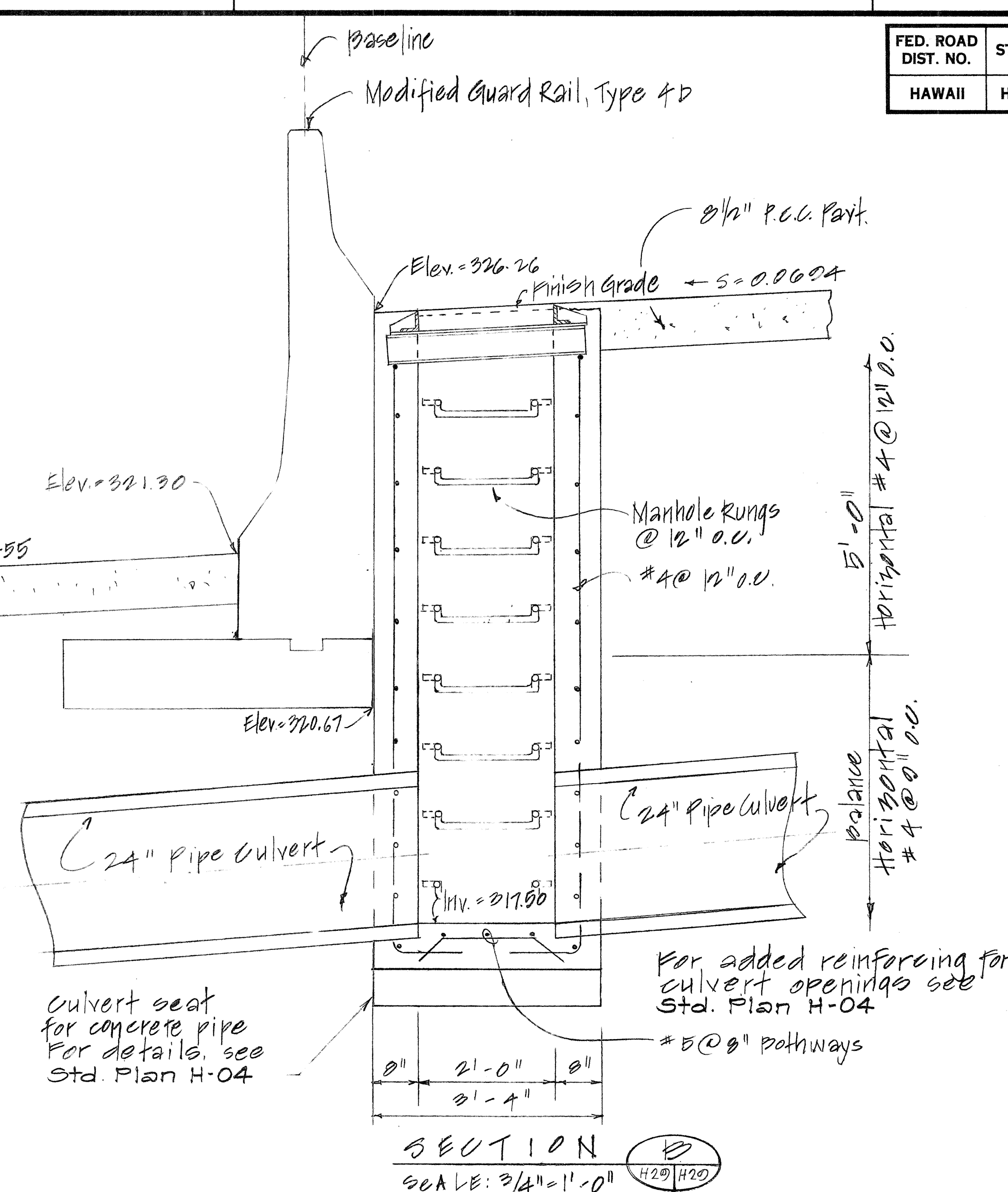


PLAN
SCALE: 1/2" = 1'-0"



SECTION
SCALE: 3/4" = 1'-0"

DETAIL OF TYPE A MEDIAN DROP INLET
AT STA. 400+00



SECTION
SCALE: 3/4" = 1'-0"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

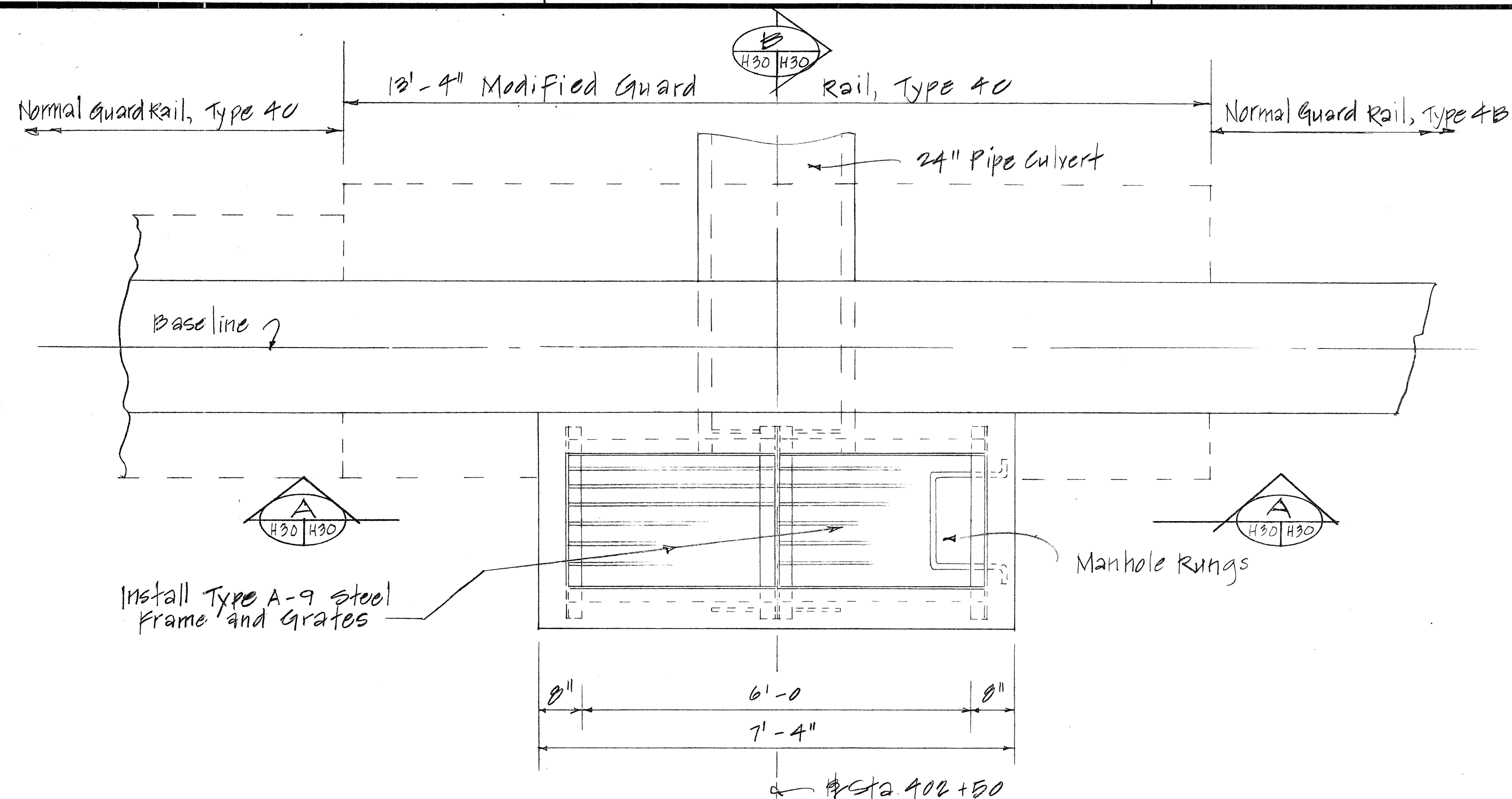
DRAINAGE DETAILS

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)

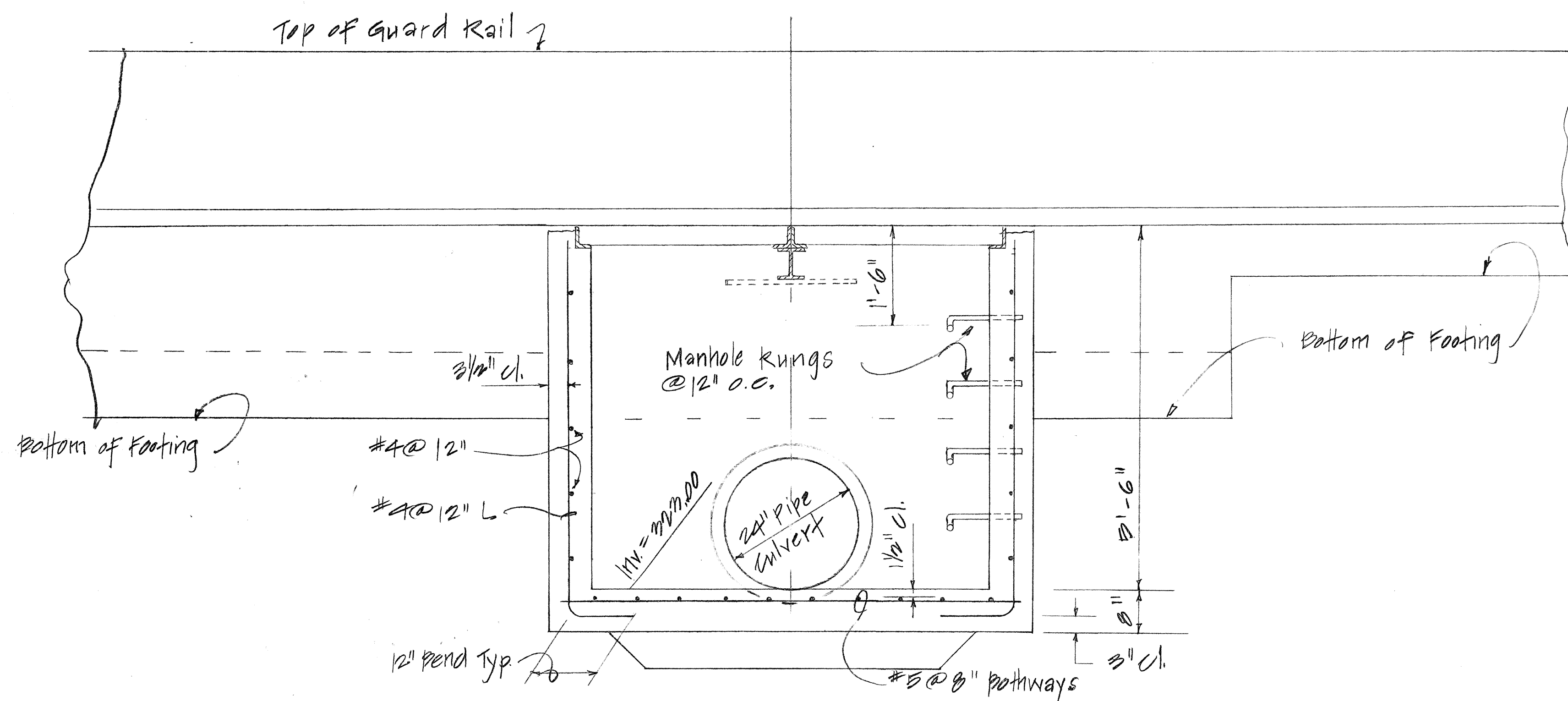
SCALE: AS NOTED DATE: JUL., 1988
SHEET No. 1129 OF 54 SHEETS

COPY OF ORIGINAL TRACING

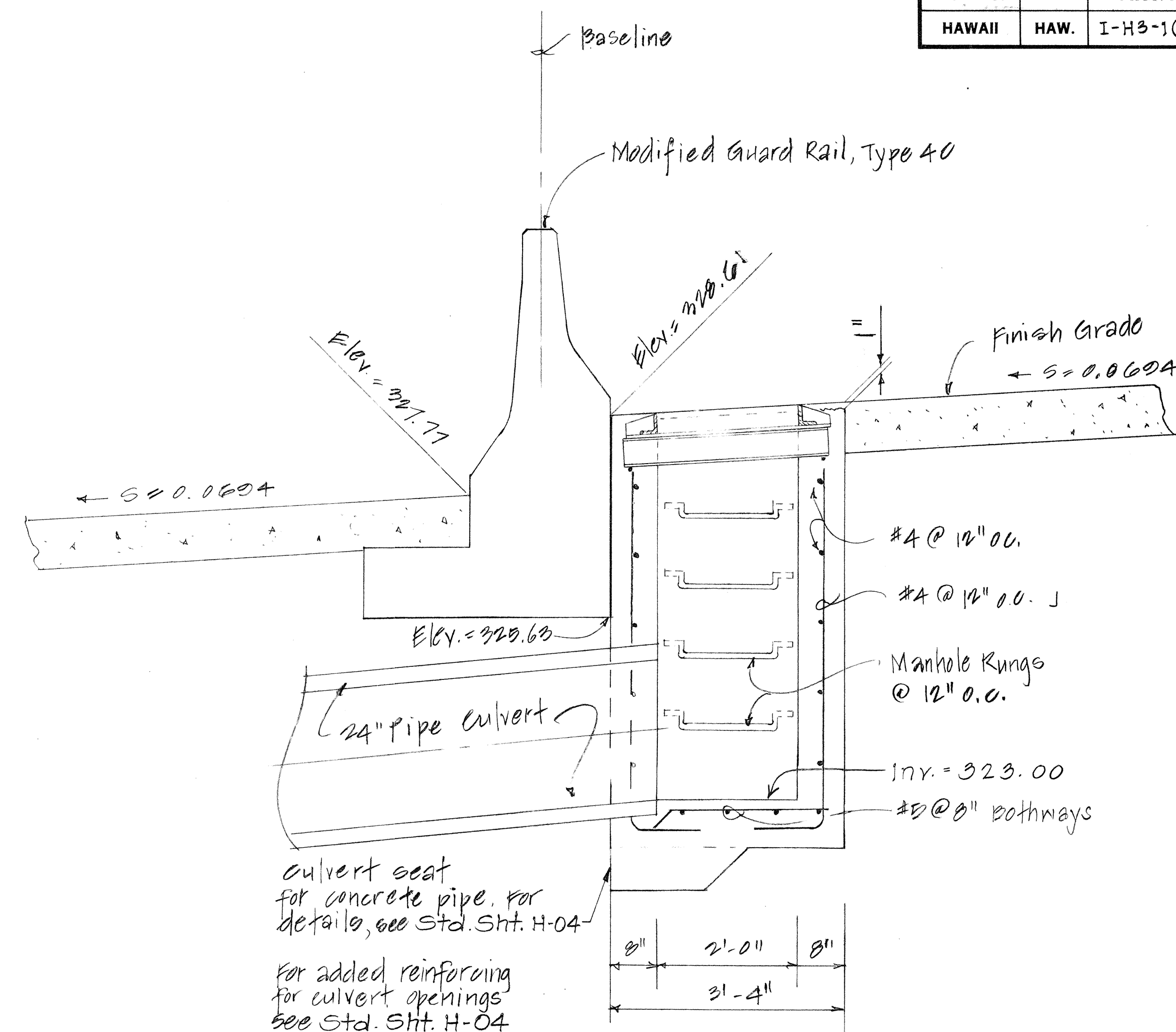
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1988	57	164



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



SECTION A
SCALE: 3/4" = 1'-0"



SECTION B
SCALE: 3/4" = 1'-0"

DETAIL OF TYPE B MEDIAN DROP INLET AT STA. 402+50

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

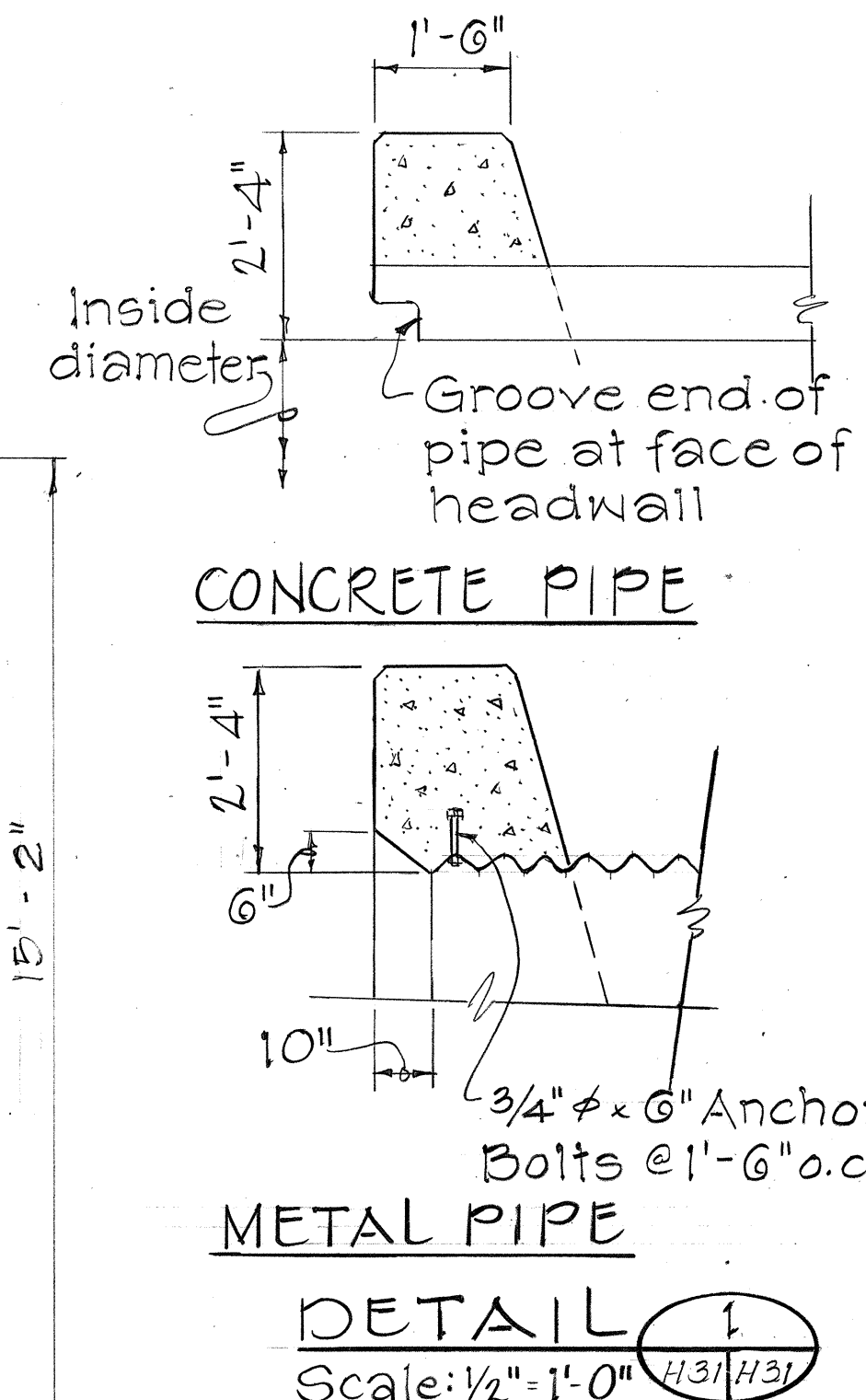
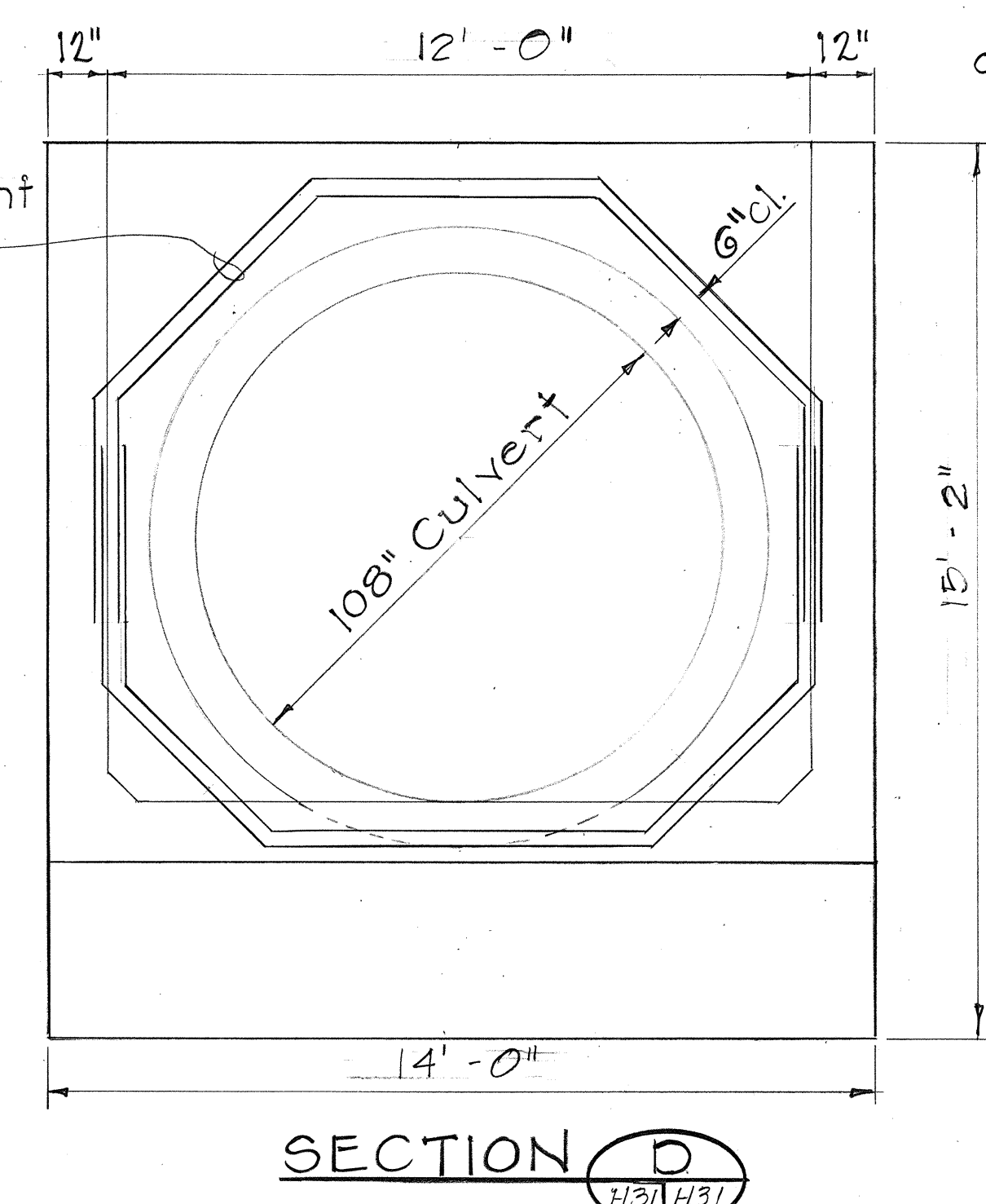
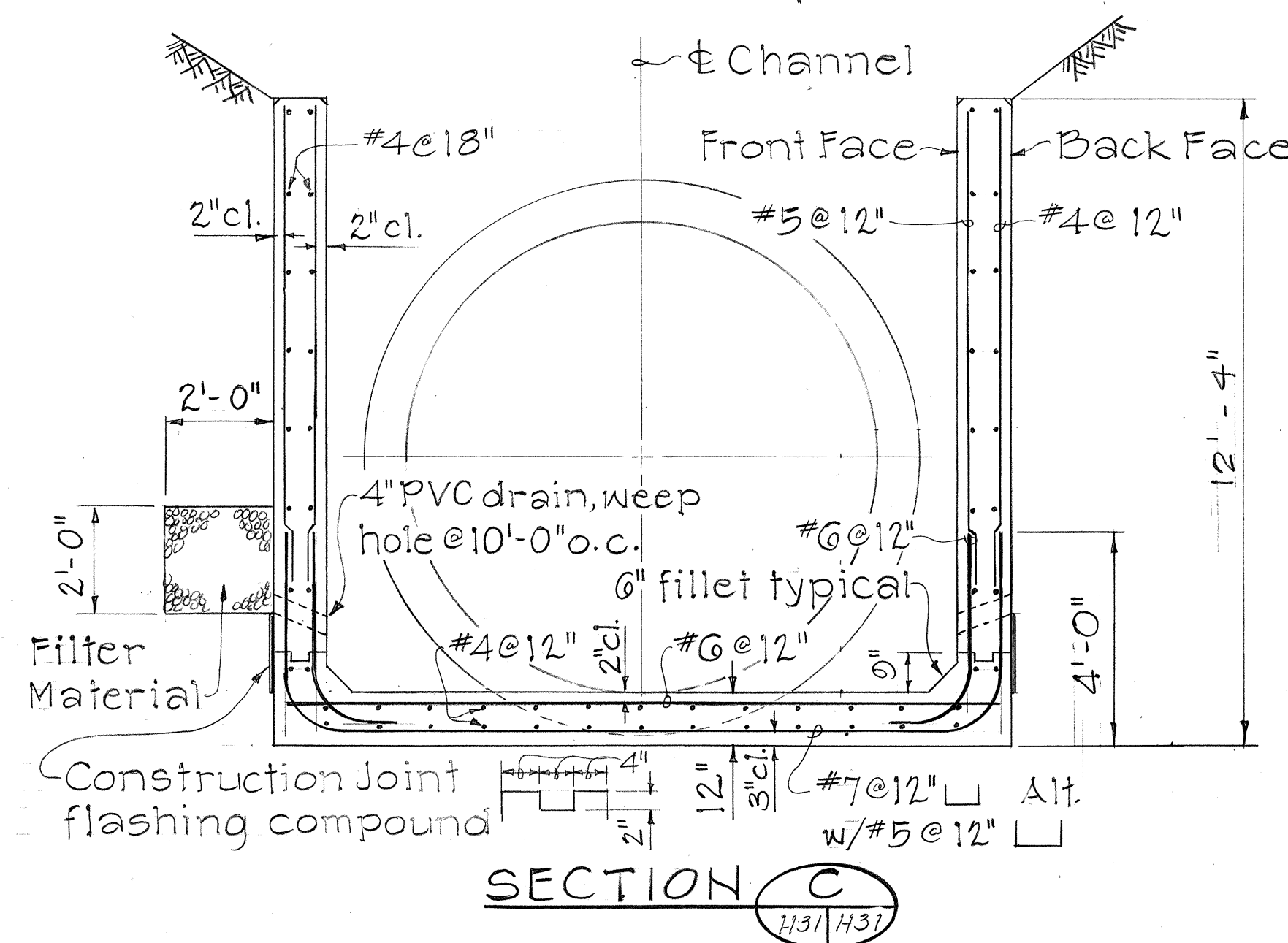
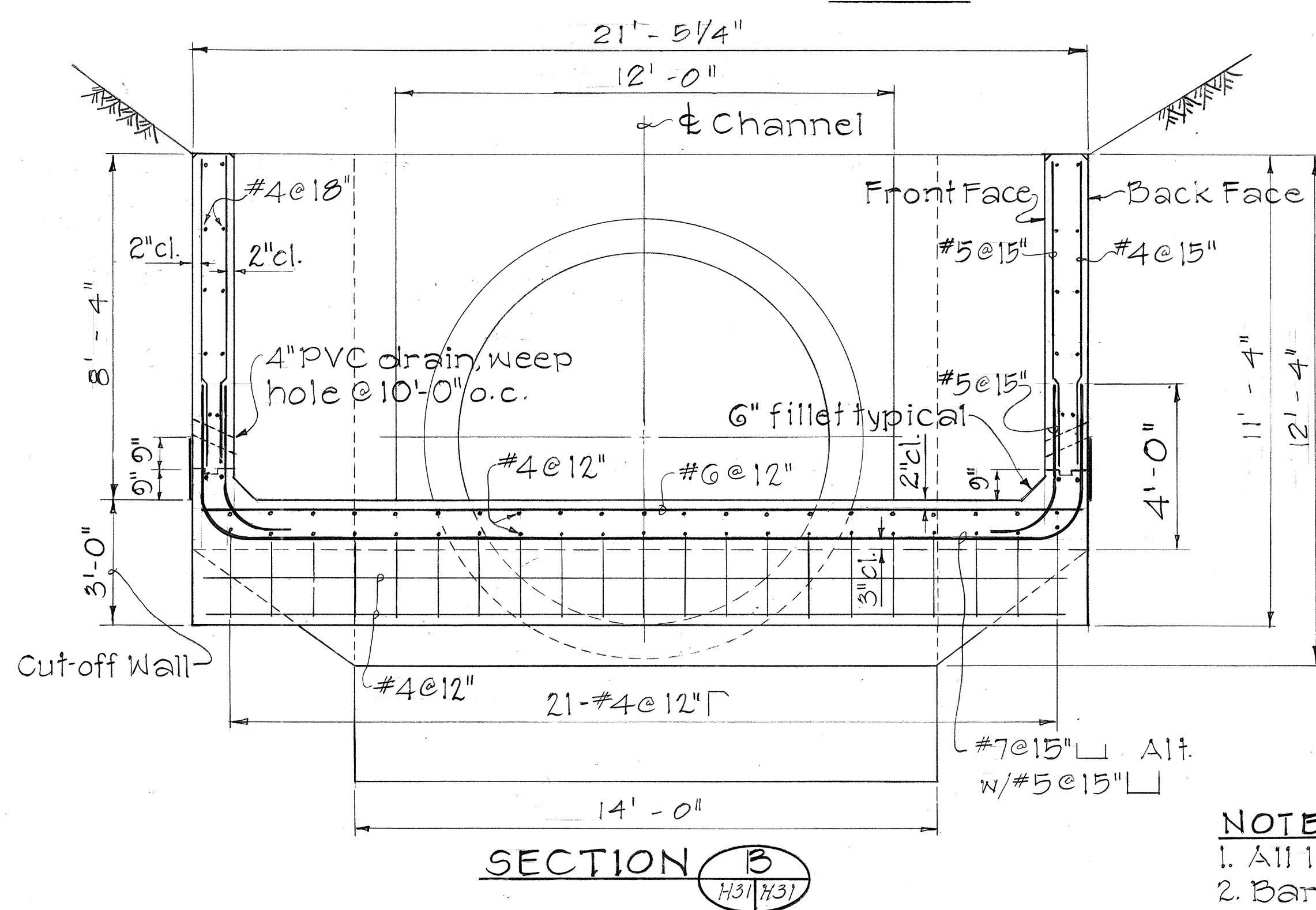
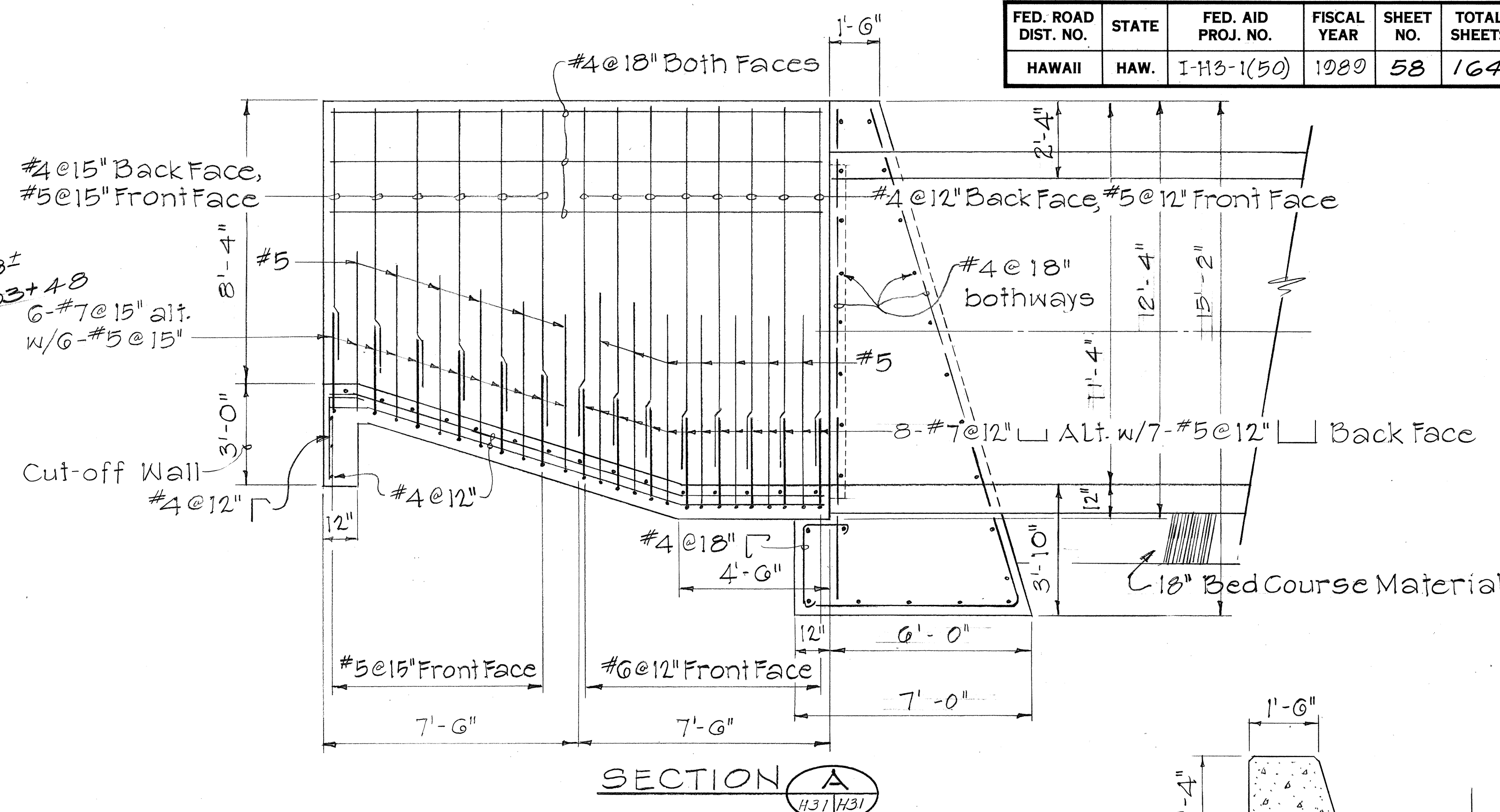
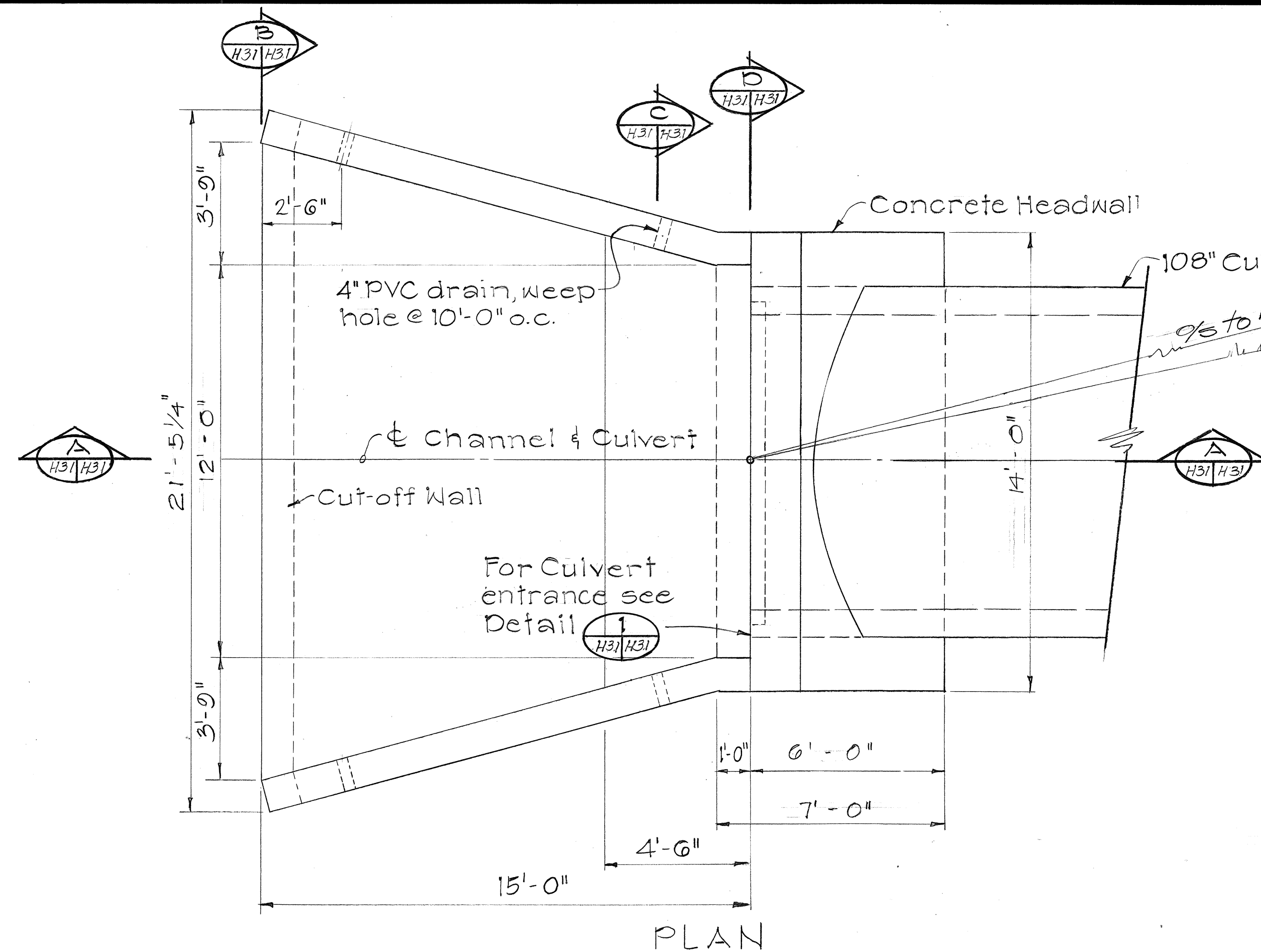
DRAINAGE DETAILS

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)

SCALE: AS NOTED DATE: JUL., 1988
SHEET NO. H300F 54 SHEETS

COPY OF ORIGINAL TRACING

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1988	58	164



- NOTES:
- All lapped splices shall be 40 bar diameters.
 - Bar spliced at construction joint shall be anchored 40 bar diameters each side of joint.
 - 4" PVC drain and filter material shall be incidental to Class A Concrete.

INLET STRUCTURE AT STA. 403+48± 9/6 72' RT. AND STA. 462+18± 9/6 119.5' RT.
Scale: 3/8" = 1'-0"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

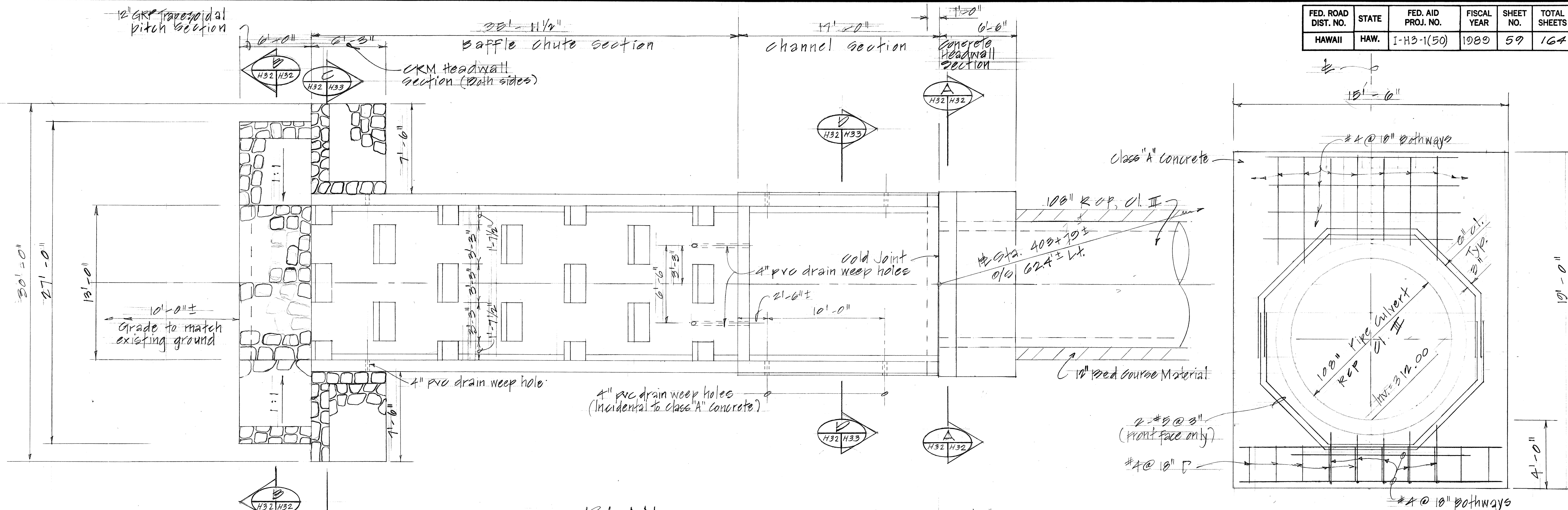
DRAINAGE DETAILS

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)

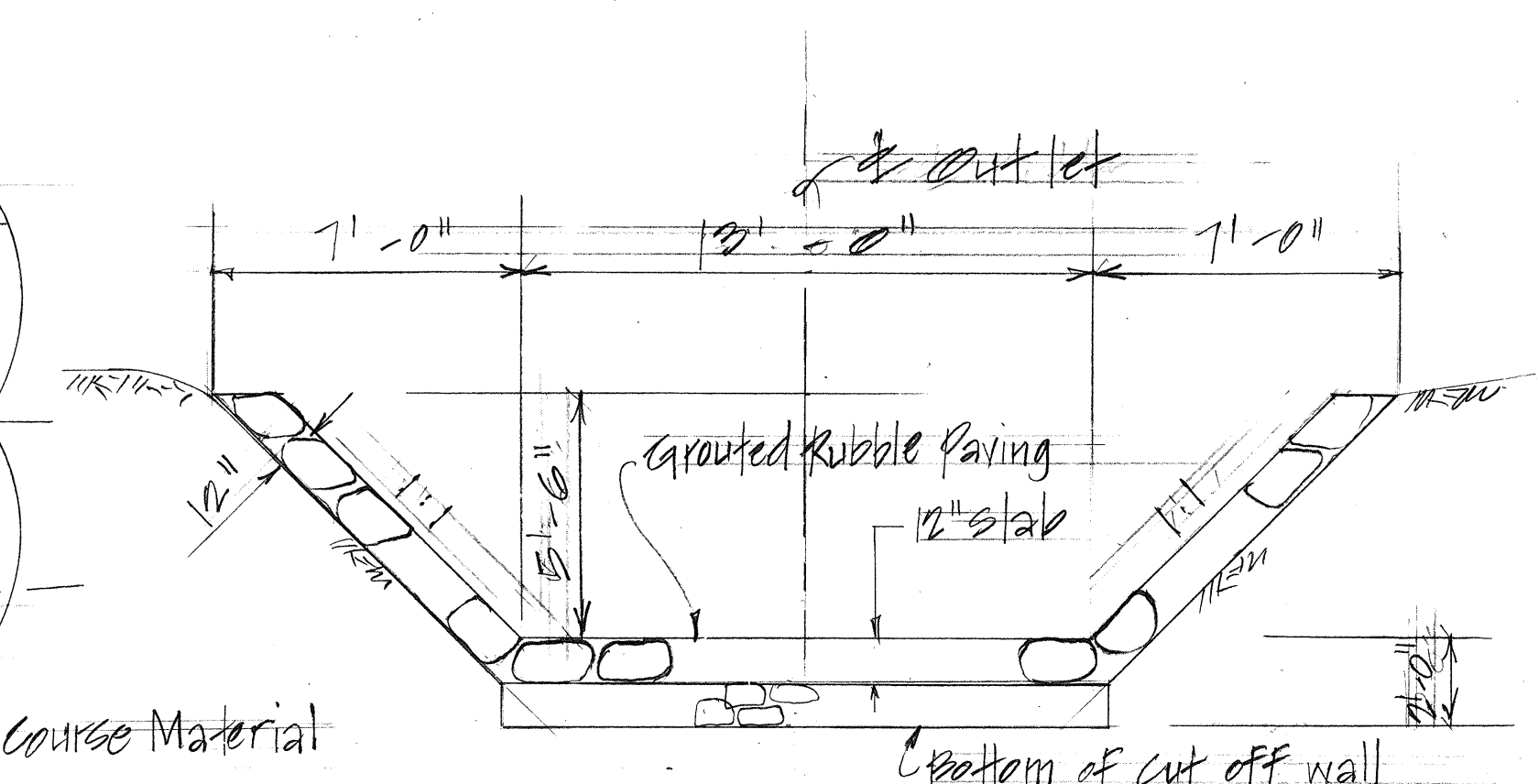
SCALE: AS NOTED DATE: JUL., 1988

SHEET No. H31 OF 54 SHEETS

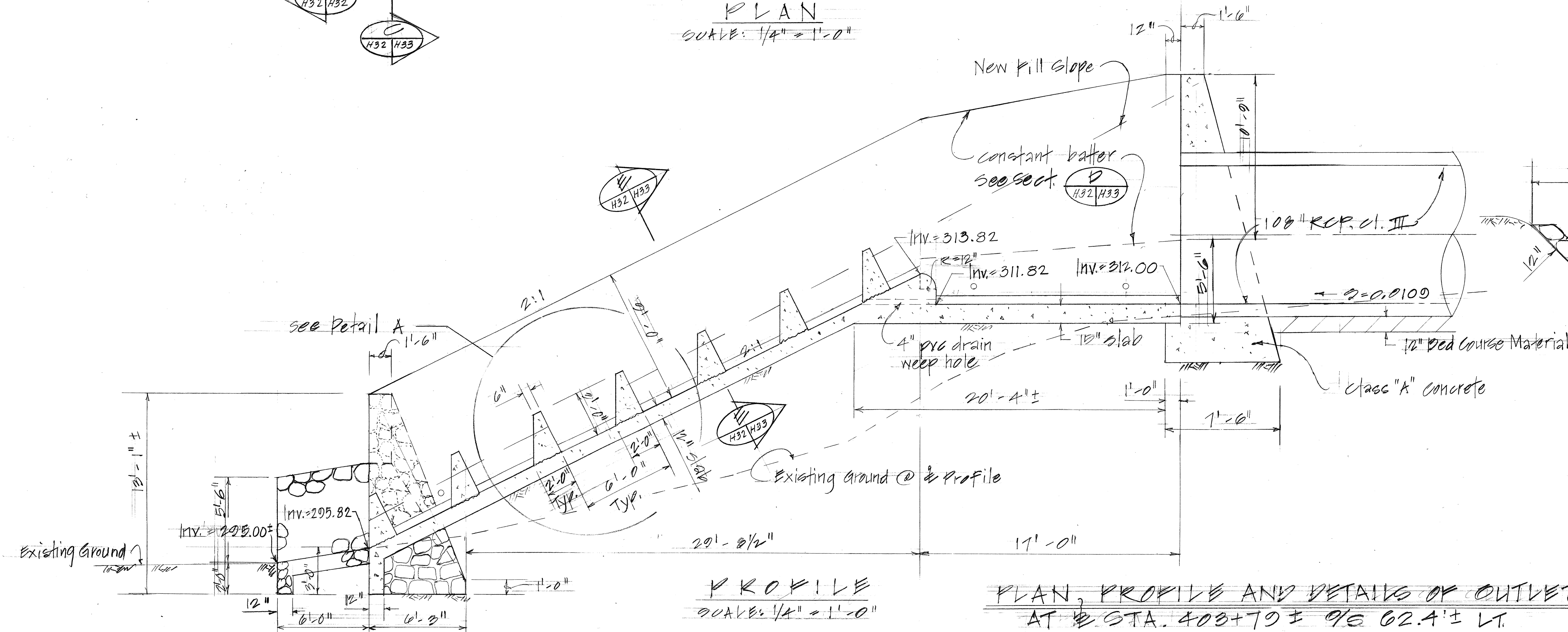
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1989	59	164



SECTION A
SCALE: 3/8" = 1'-0"



SECTION B
SCALE: 1/4" = 1'-0"



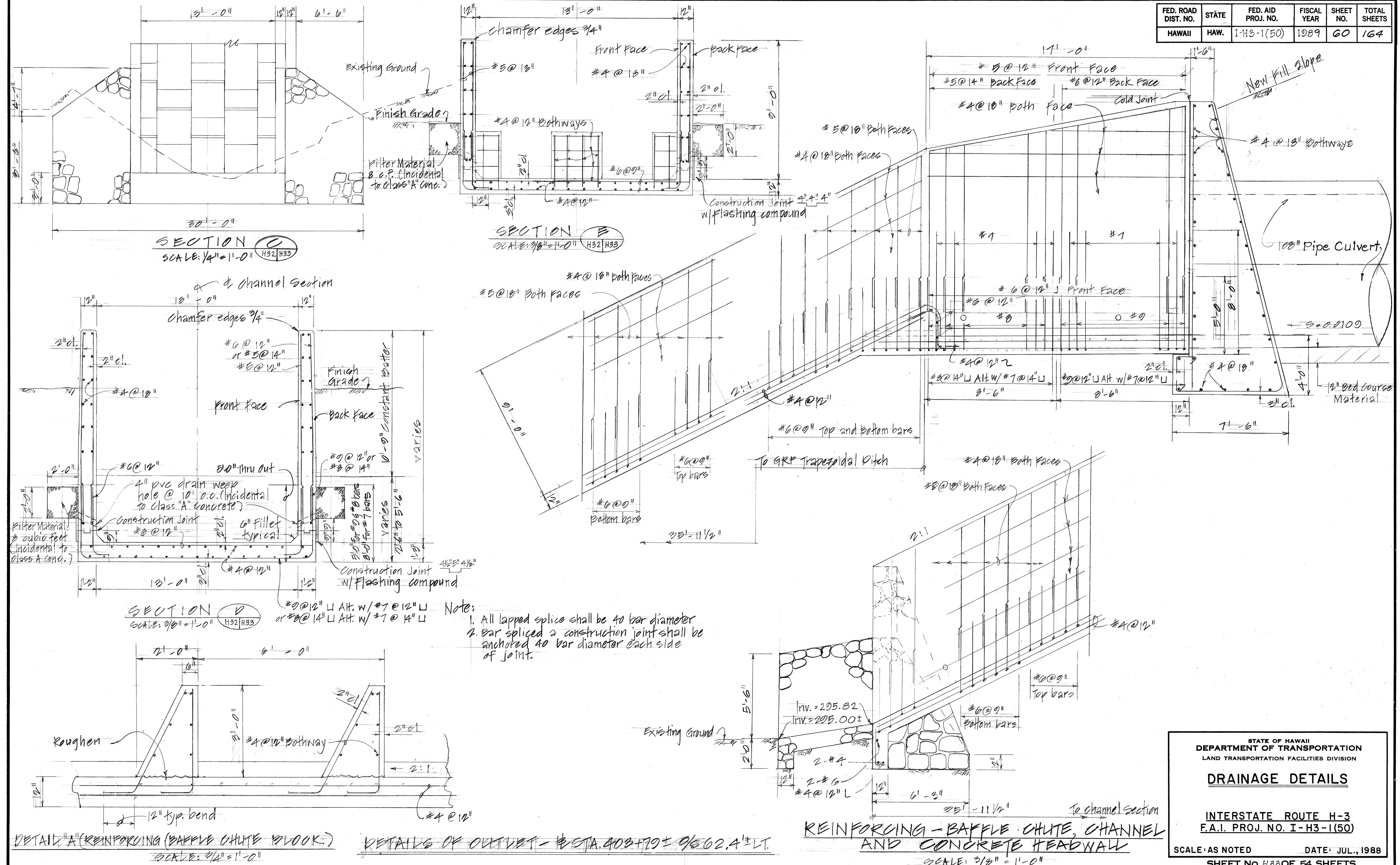
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

DRAINAGE DETAILS

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)

SCALE: AS NOTED DATE: JUL., 1988
SHEET NO. H32 OF 54 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1989	60	164



DATE	_____
DESIGNED BY	_____
TRACED BY	_____
NOTE BOOK	_____
QUANTITIES BY	_____
CHECKED BY	_____
No.	_____

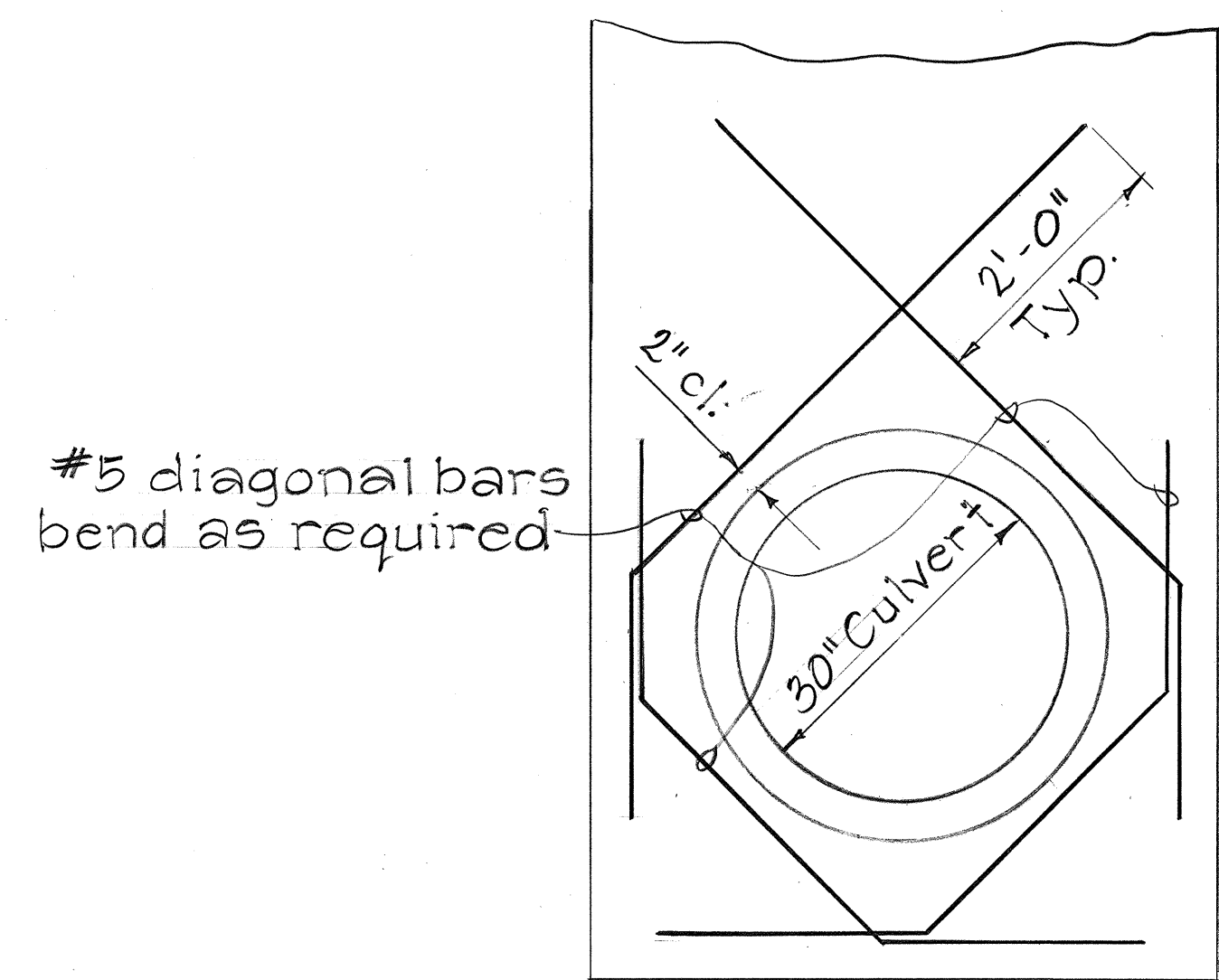
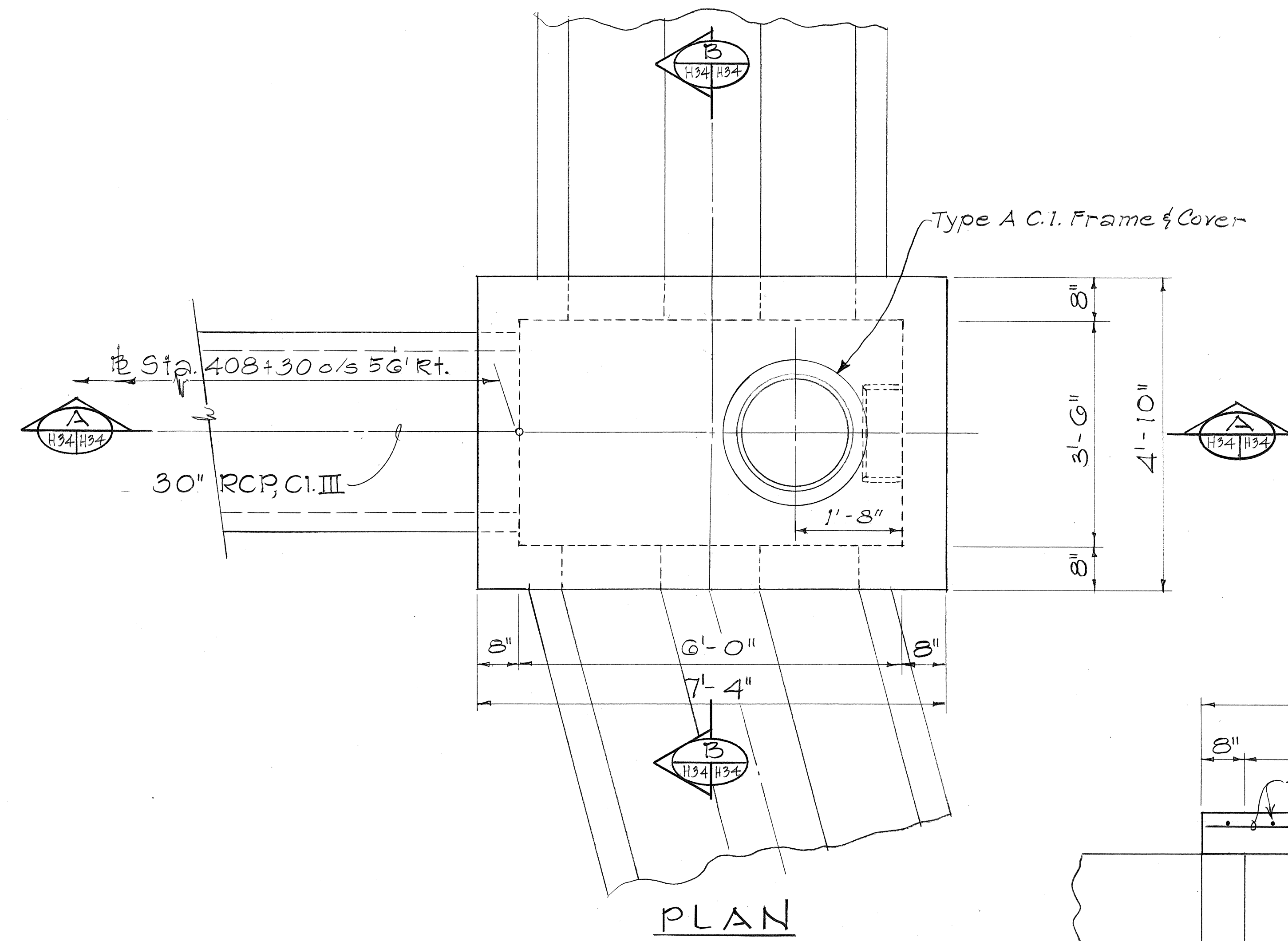
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

DRAINAGE DETAILS

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)

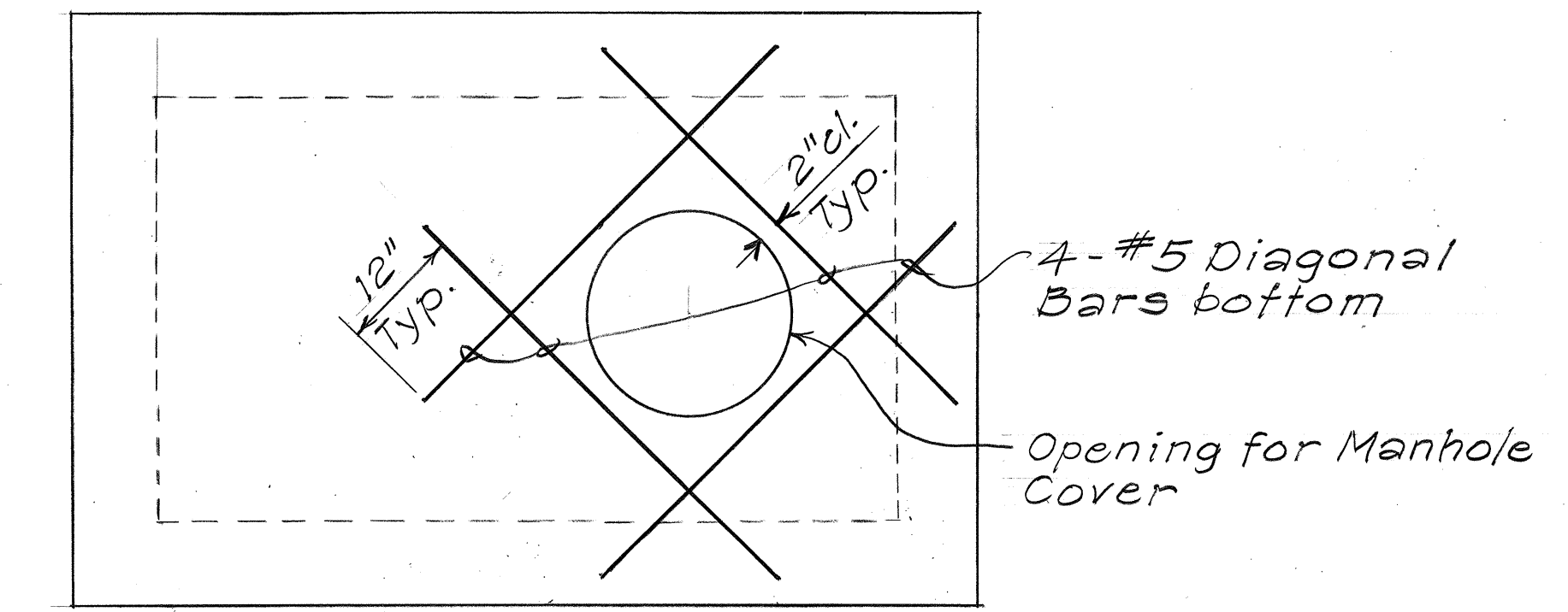
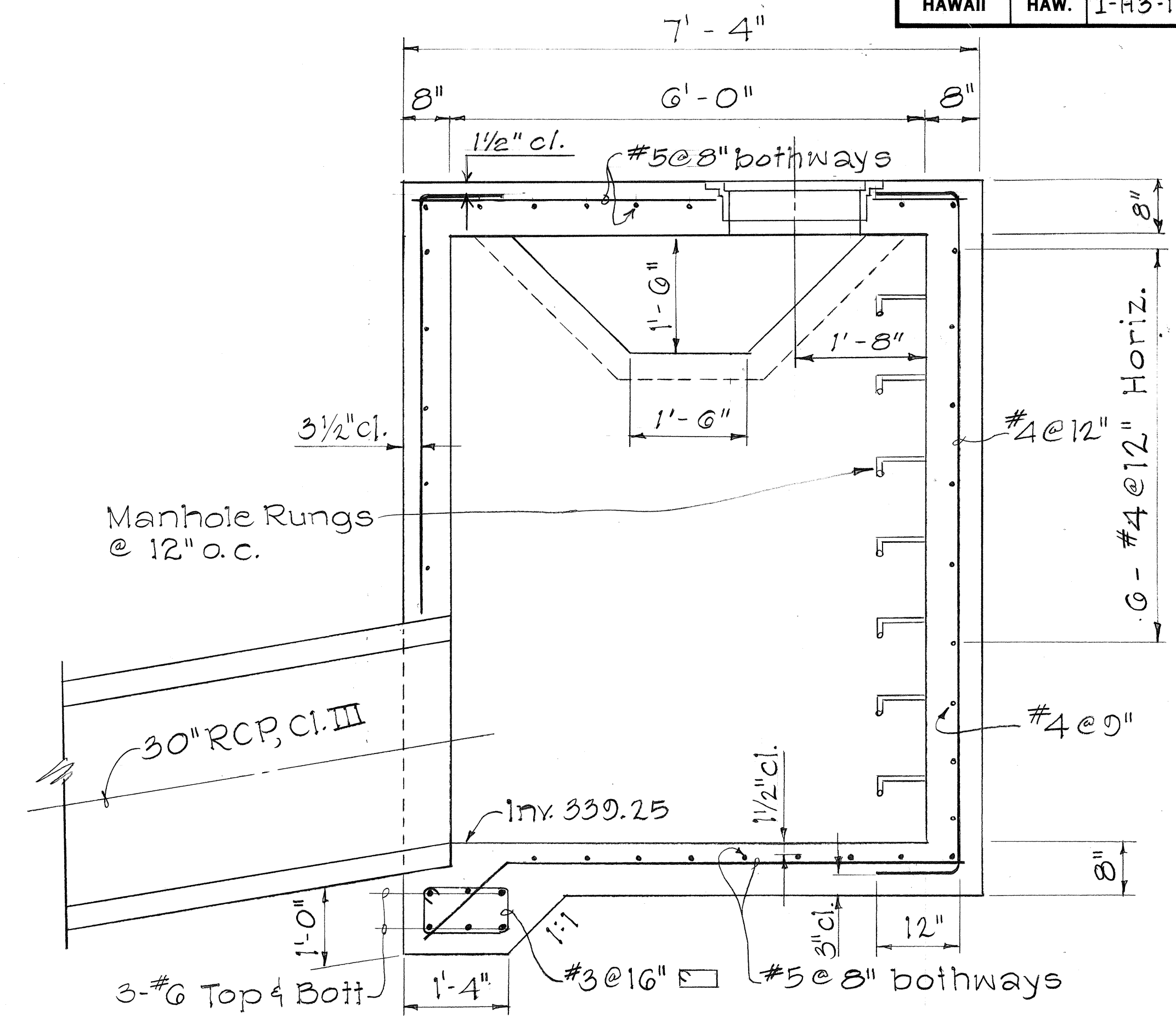
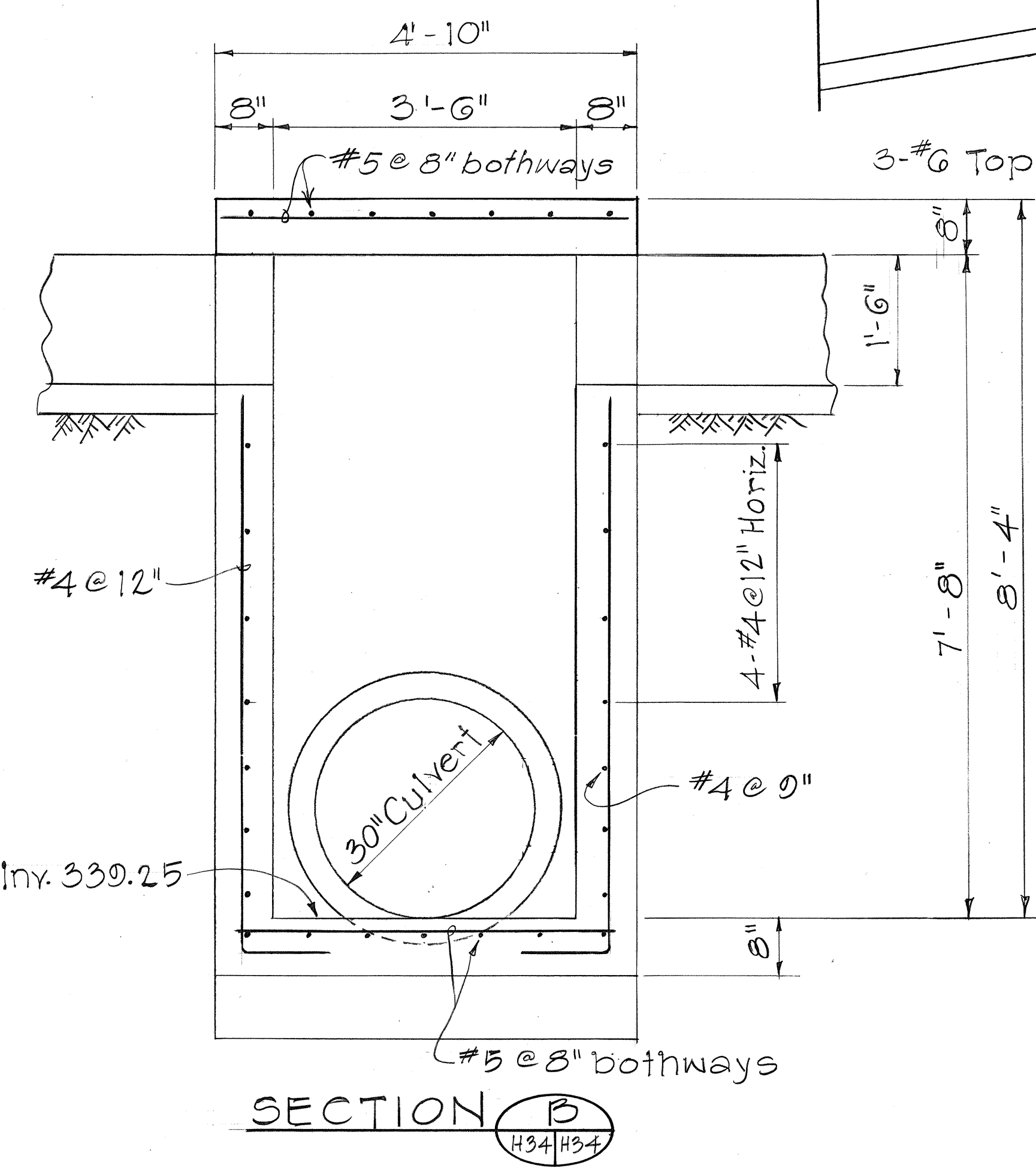
SCALE: AS NOTED DATE: JUL., 1988
SHEET NO. H33 OF 54 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1980	C.O. 61	164



ADDED REINFORCING FOR CULVERT OPENING

CONCRETE DROP INLET AT STA. 408+30 0/s 56' RT.
Scale: 3/4" = 1'-0"



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

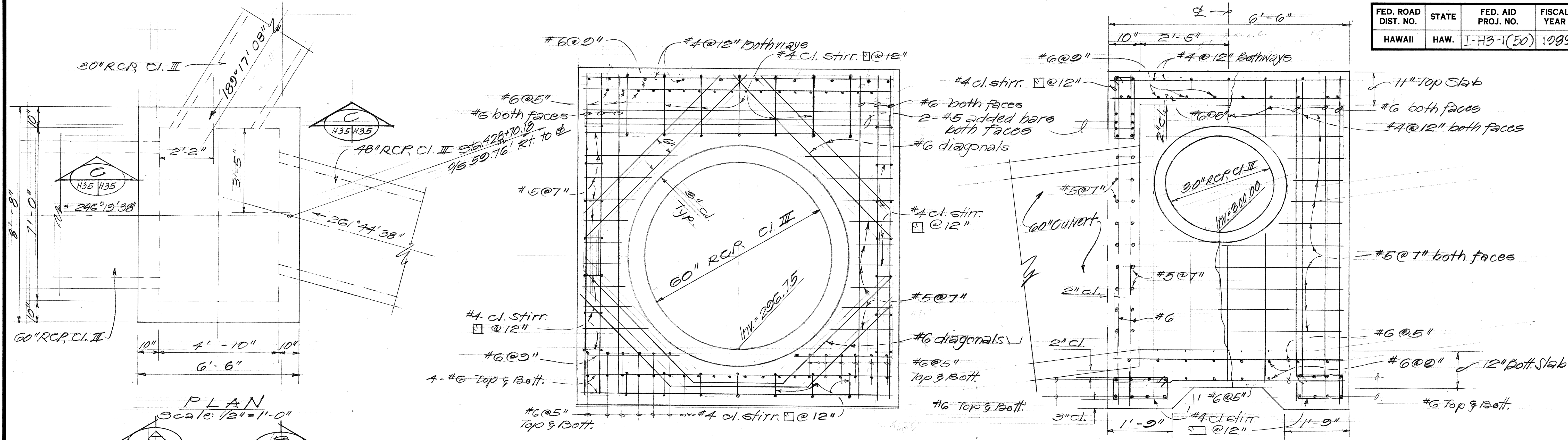
INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)

SCALE: AS NOTED DATE: JUL., 1988

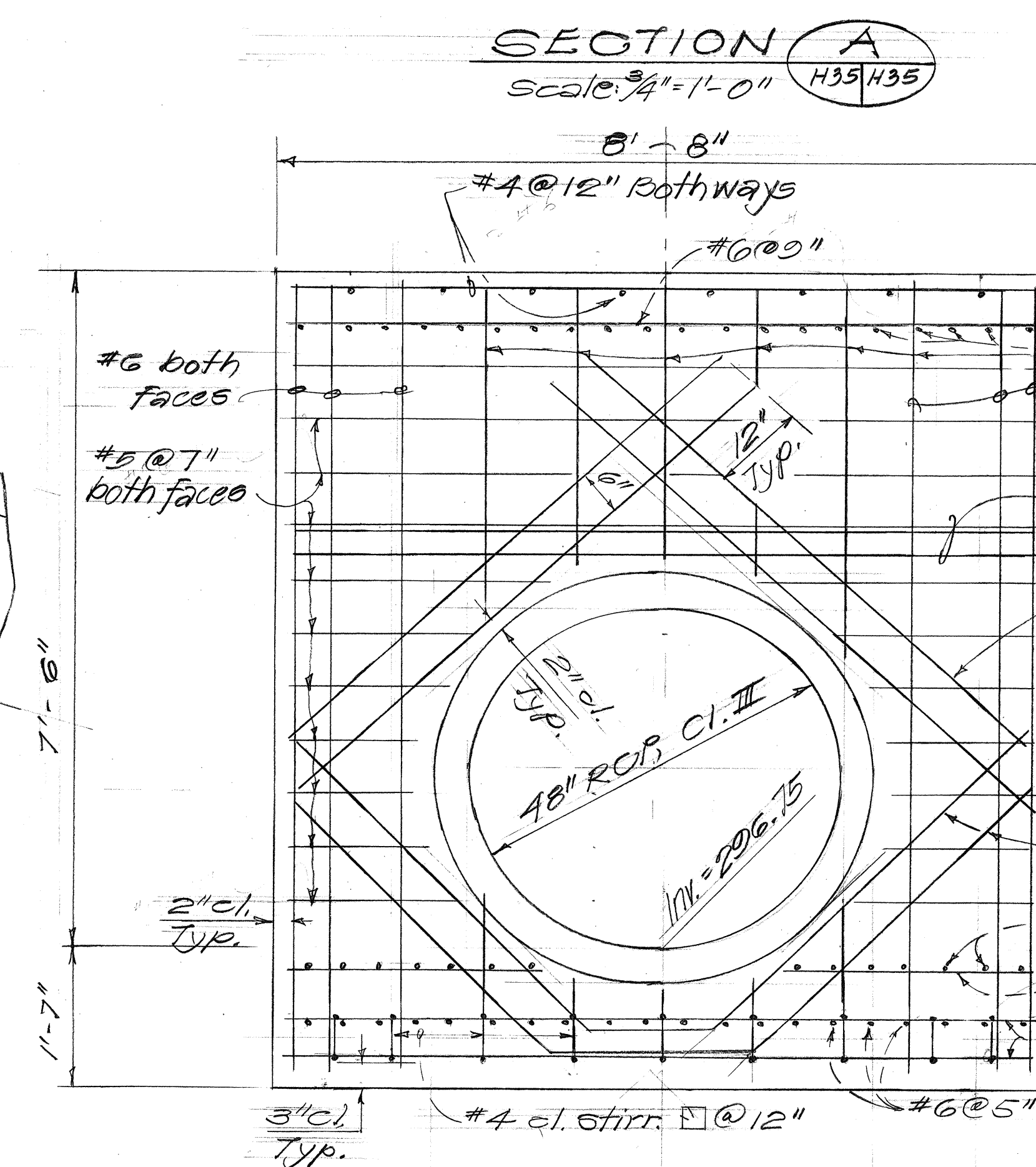
SHEET NO. H34 OF 54 SHEETS

DATE	REVISION
8/31/90	Top slab and C.I. Frame & Cover added to C.D.I.

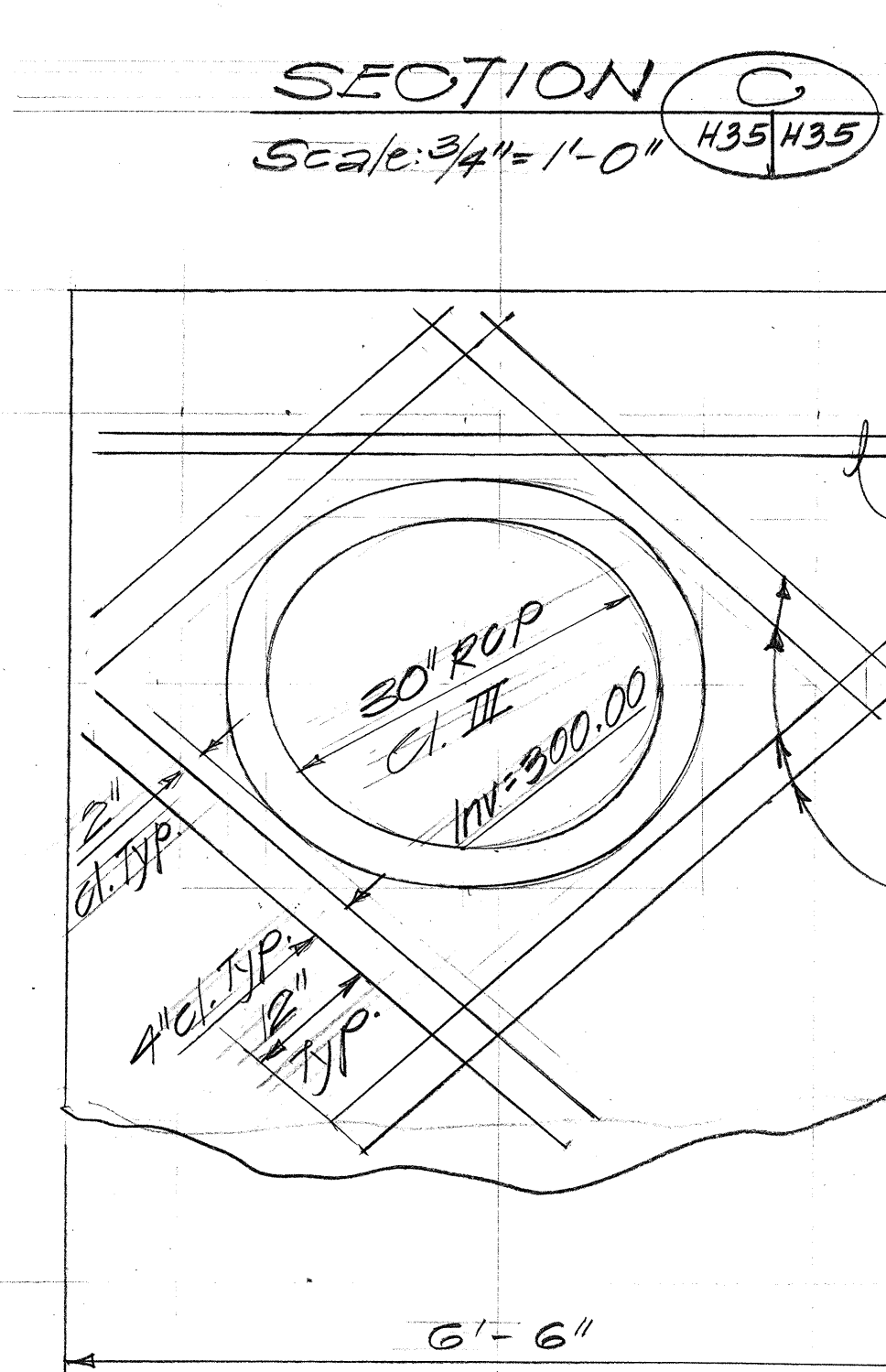
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1989	62	164



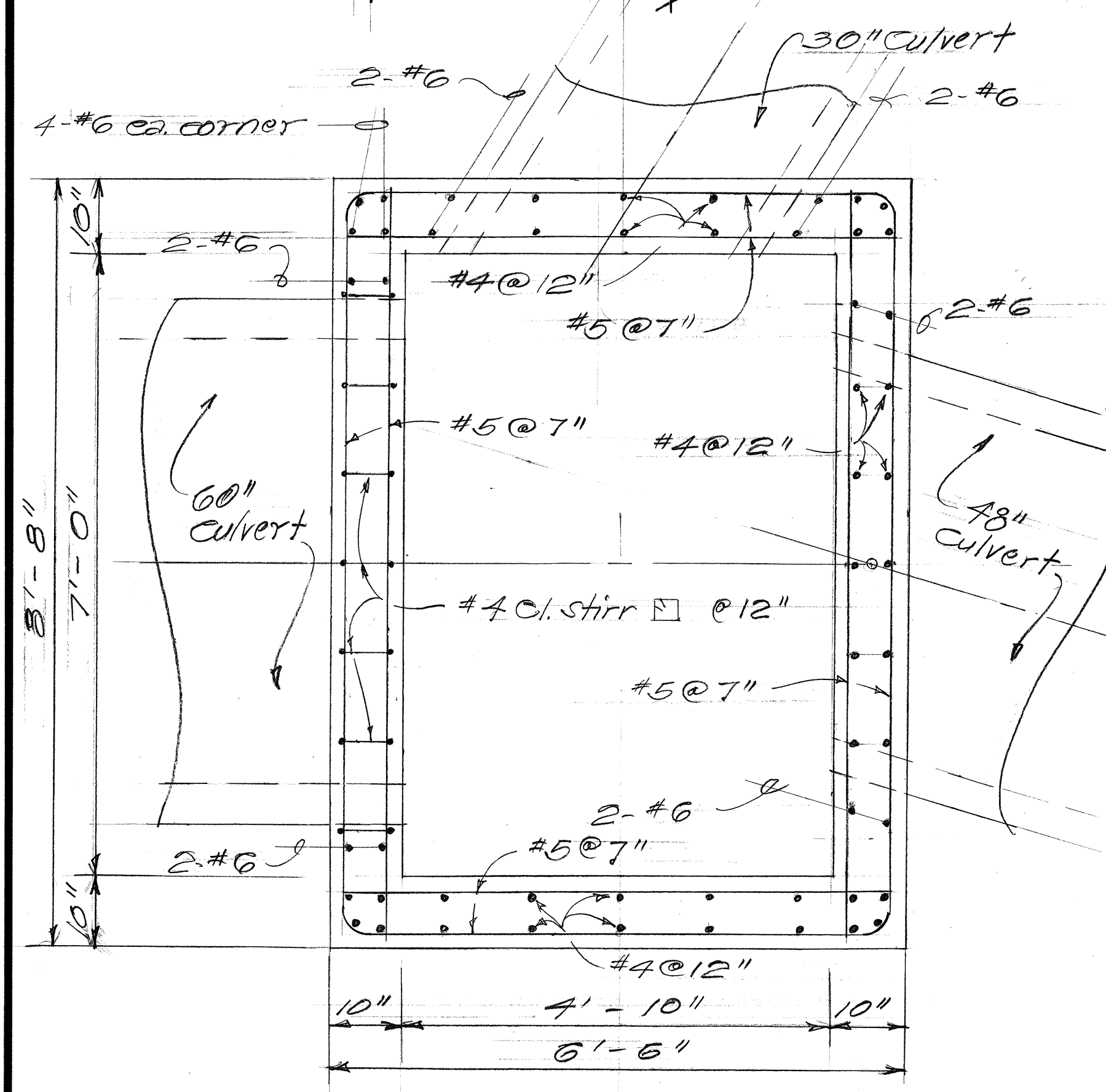
PLAN
Scale: 1/2" = 1'-0"



SECTION A
Scale: 3/4" = 1'-0"



SECTION C
Scale: 3/4" = 1'-0"



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

DETAILS OF CONCRETE JUNCTION BOX AT STA. 428+70.18 % 59.76' LT.

ADDED REINF. - 30" CULVERT
Scale: 3/4" = 1'-0"

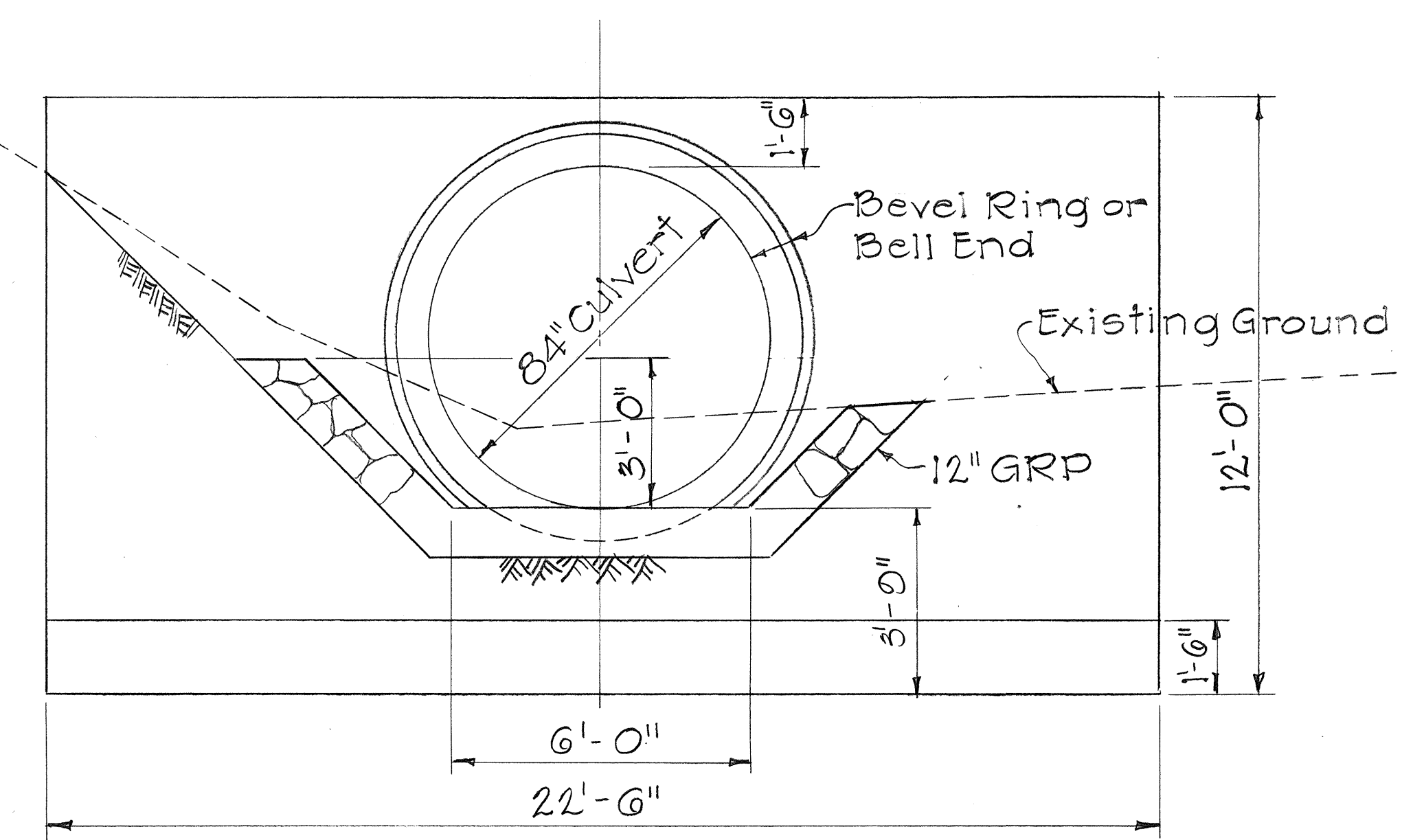
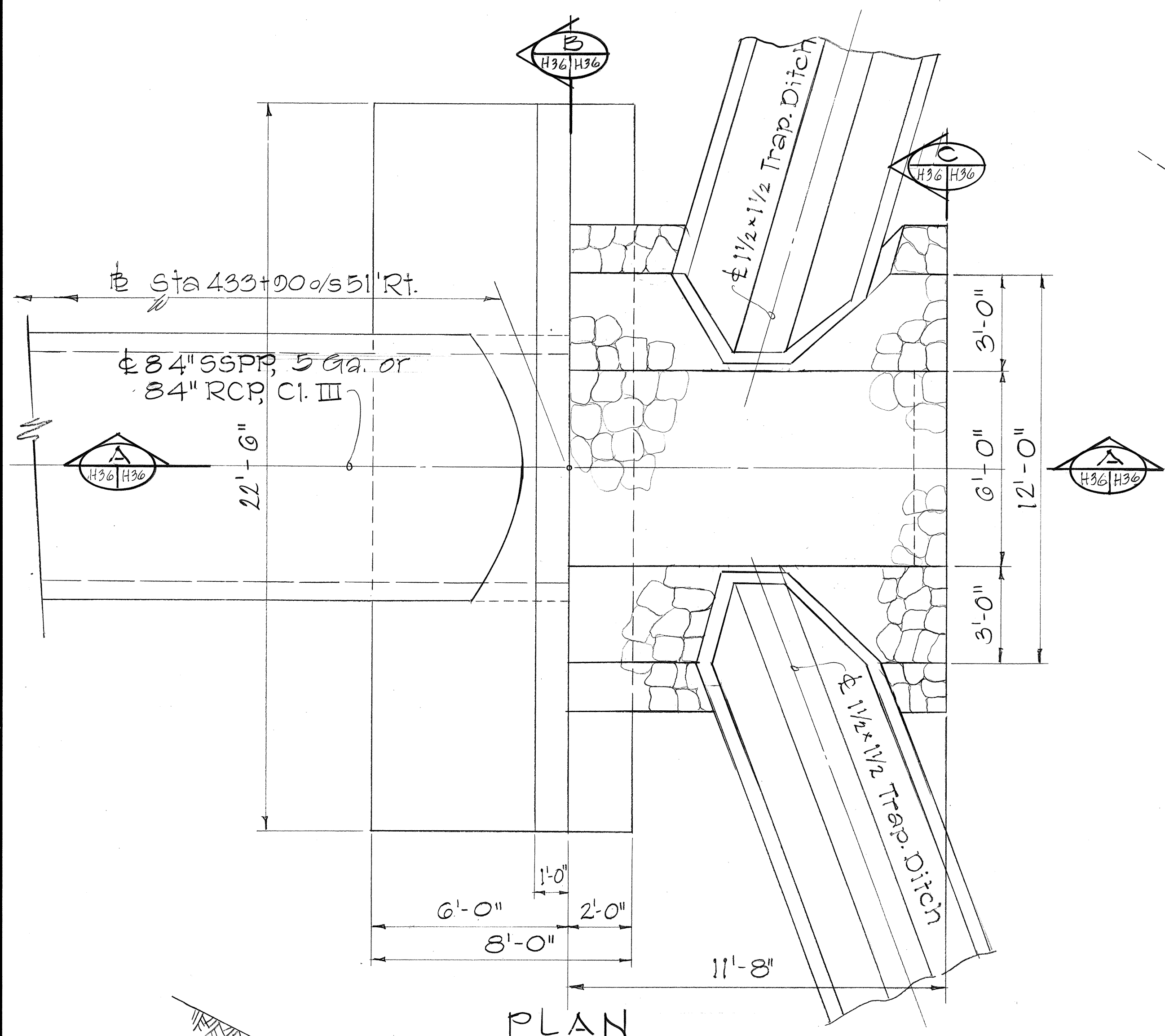
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

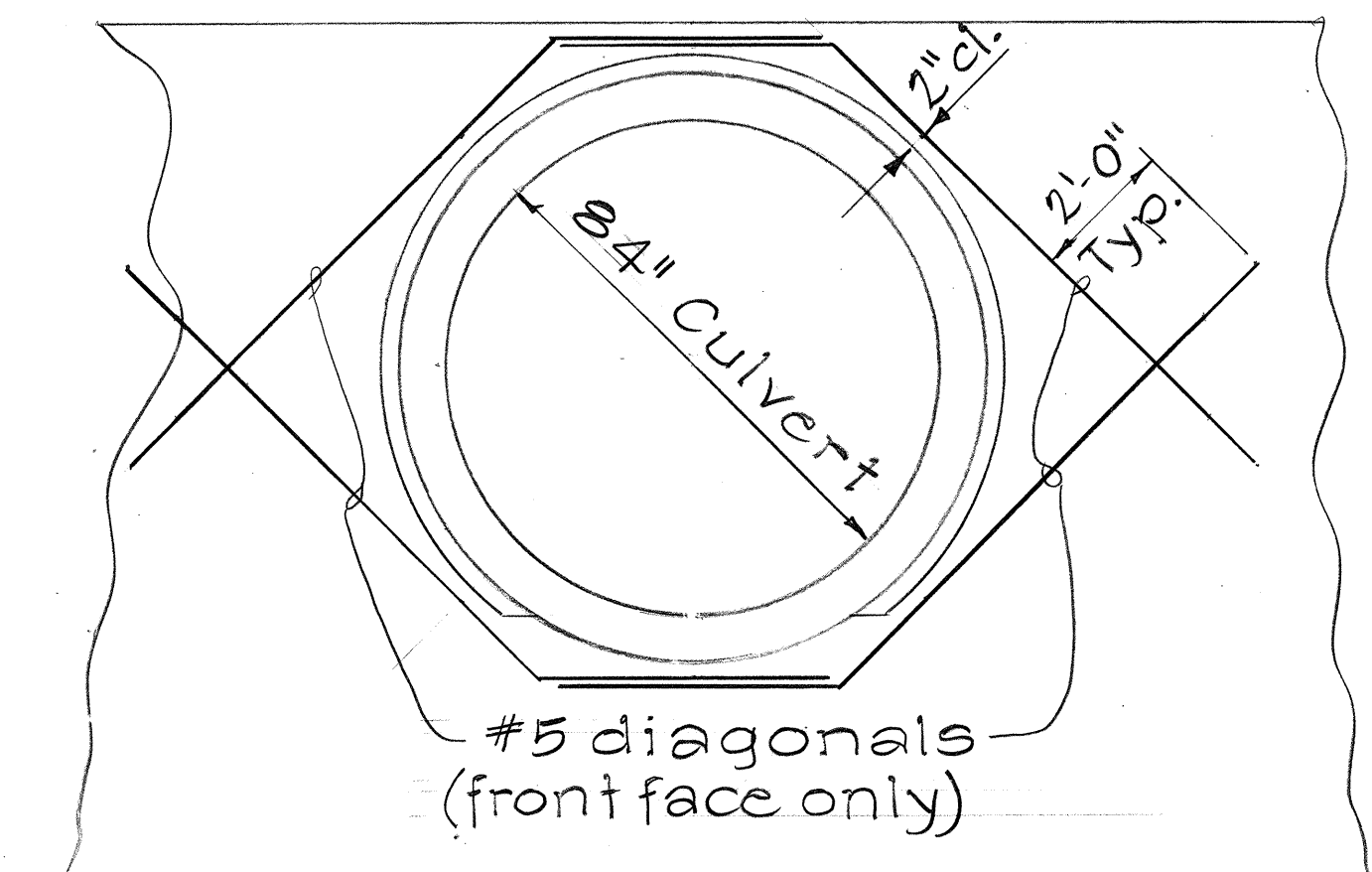
INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)

SCALE: AS NOTED DATE: JUL., 1988
SHEET NO. H35 OF 54 SHEETS

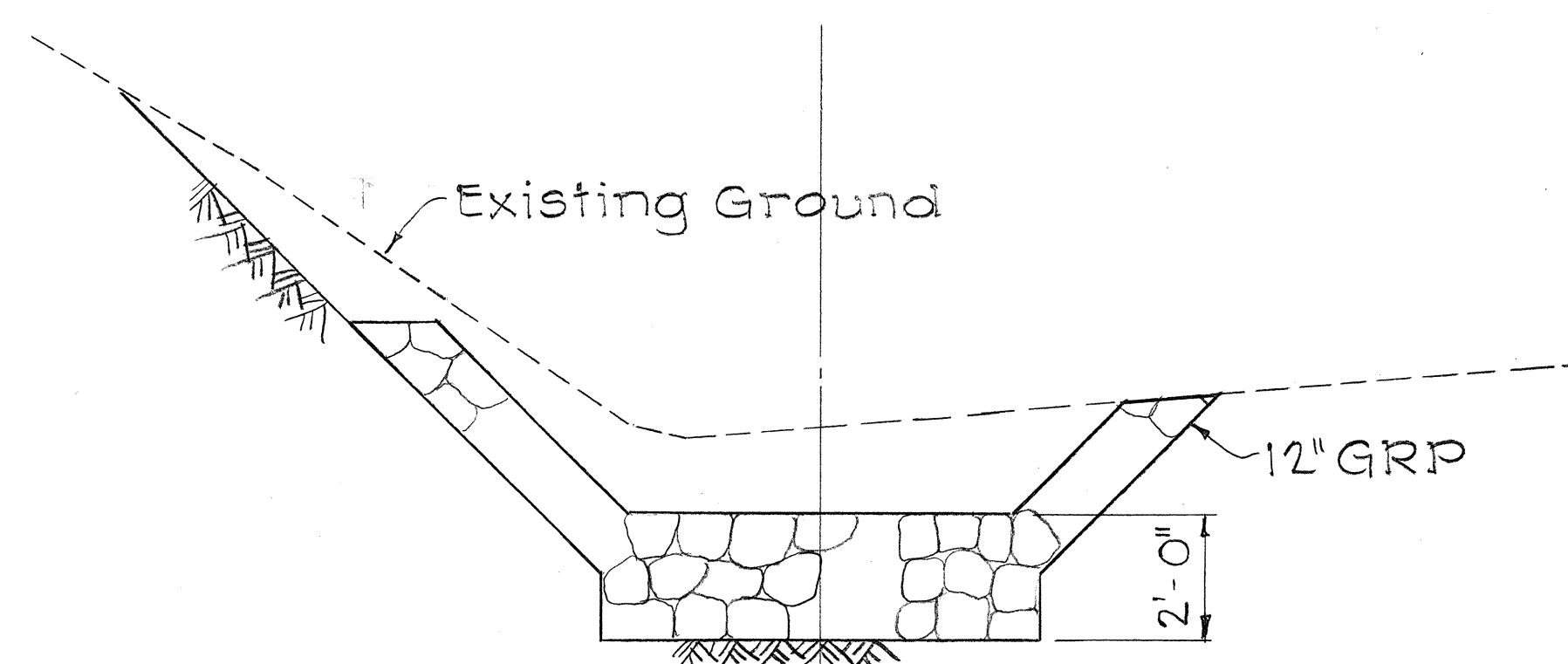
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1989	63	164



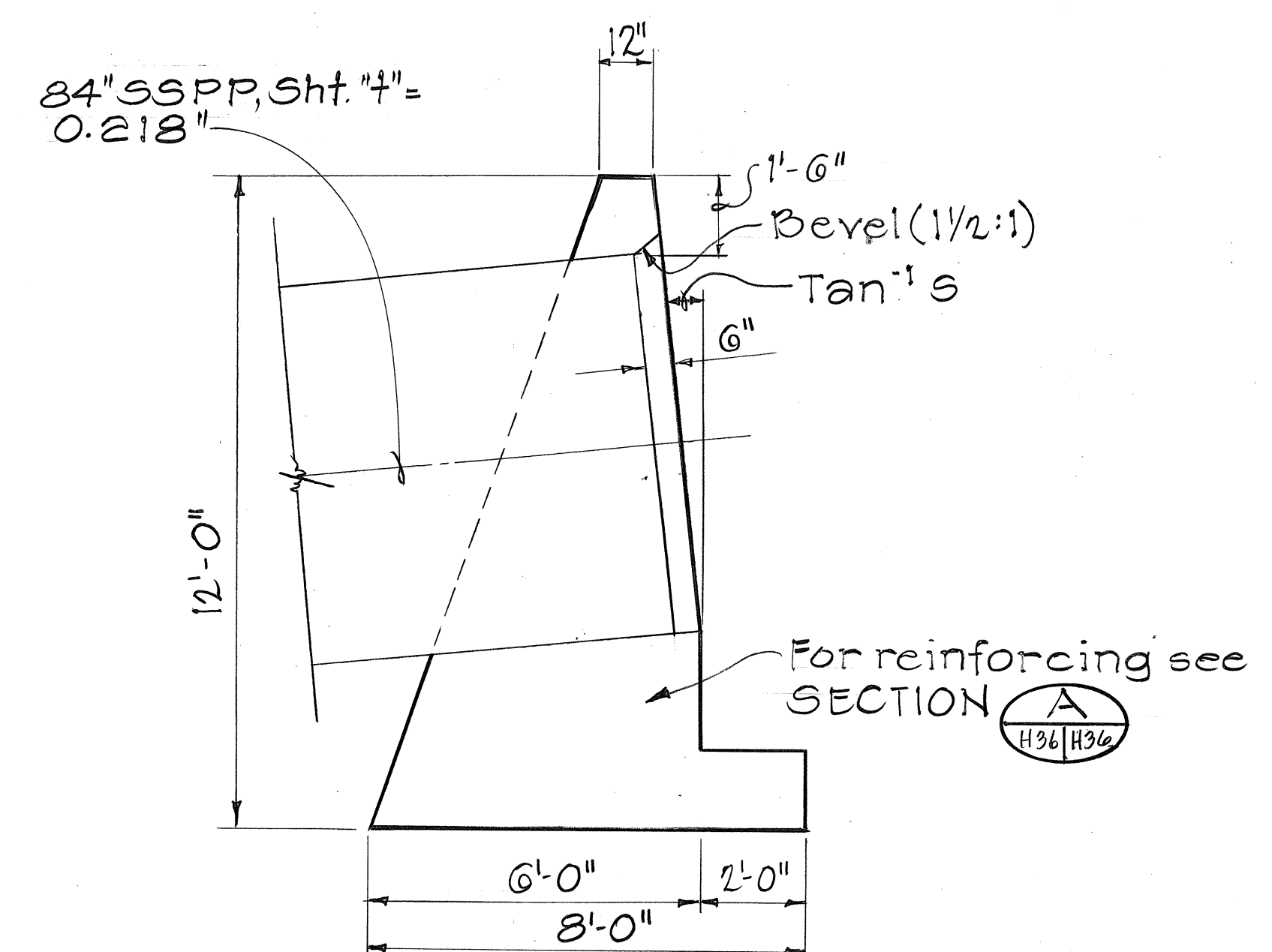
SECTION B



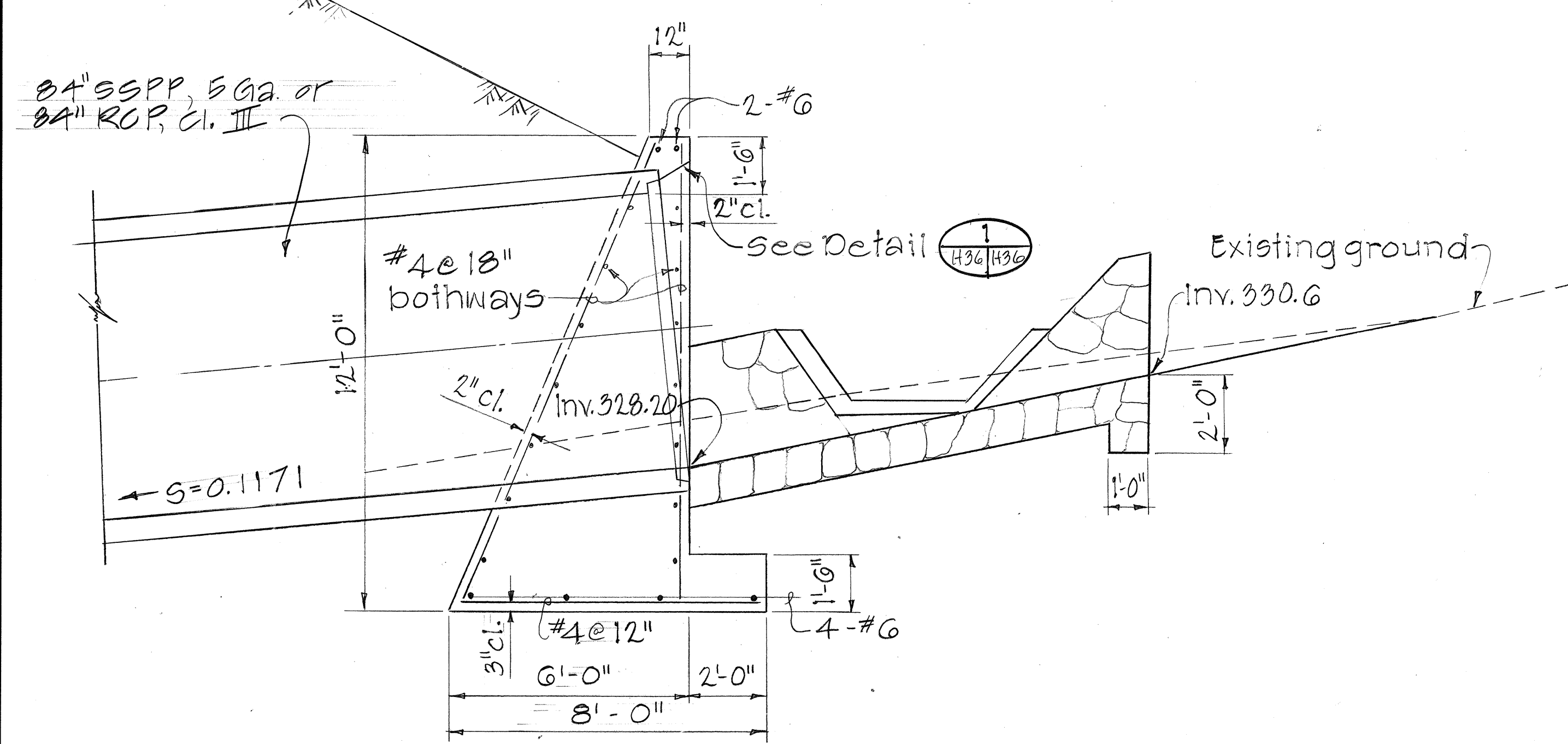
ADDED REINFORCING AROUND CULVERT



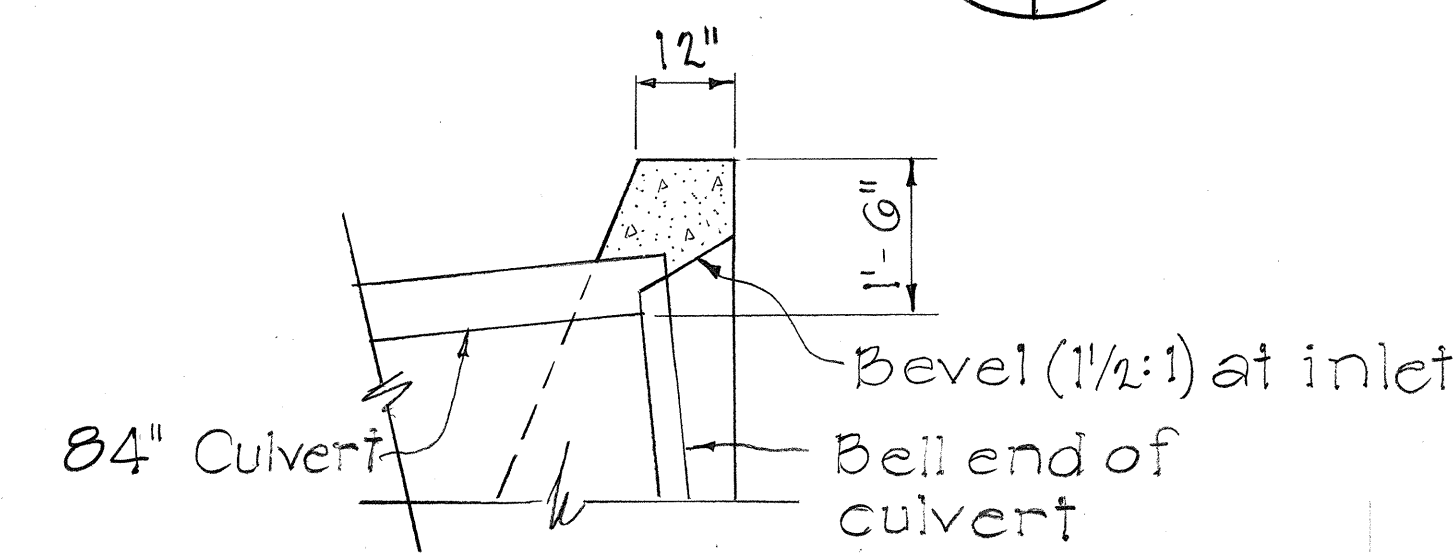
SECTION C



HEADWALL DETAIL FOR SSPP OPTION



SECTION A



DETAIL 1

CONCRETE HEADWALL AT STA. 433+00.0/51' RT.
Scale: 3/8" = 1'-0"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)

SCALE: AS NOTED DATE: JUL., 1988
SHEET NO. H36 OF 54 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1989	64	164

RET. WALL	"A"	"B"
H	8.15'	6.25'
L	6.0'	5.0'
"a" bars	#6@6" #4@7"	
"b" bars	#6@6" #5@7"	
CO	3'-6" 3'-0"	

Note: See Standard Plan B-03 for limits of structural excavation, structural backfill, filter material, material and impervious material.

* construction joint waterproofing see Standard Specification

SECTION B
Scale: 3/4" = 1'-0"

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

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

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

ELEVATION VIEW
Scale: 1/2" = 1'-0"

EXTENSION OF HORIZONTAL BARS

STEP REINFORCING
Scale: 3/4" = 1'-0"

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

DETAILS OF INLET HEADWALL AND GRP APRON
AT STA. 438+22 ± 9/8 84 ± RT.

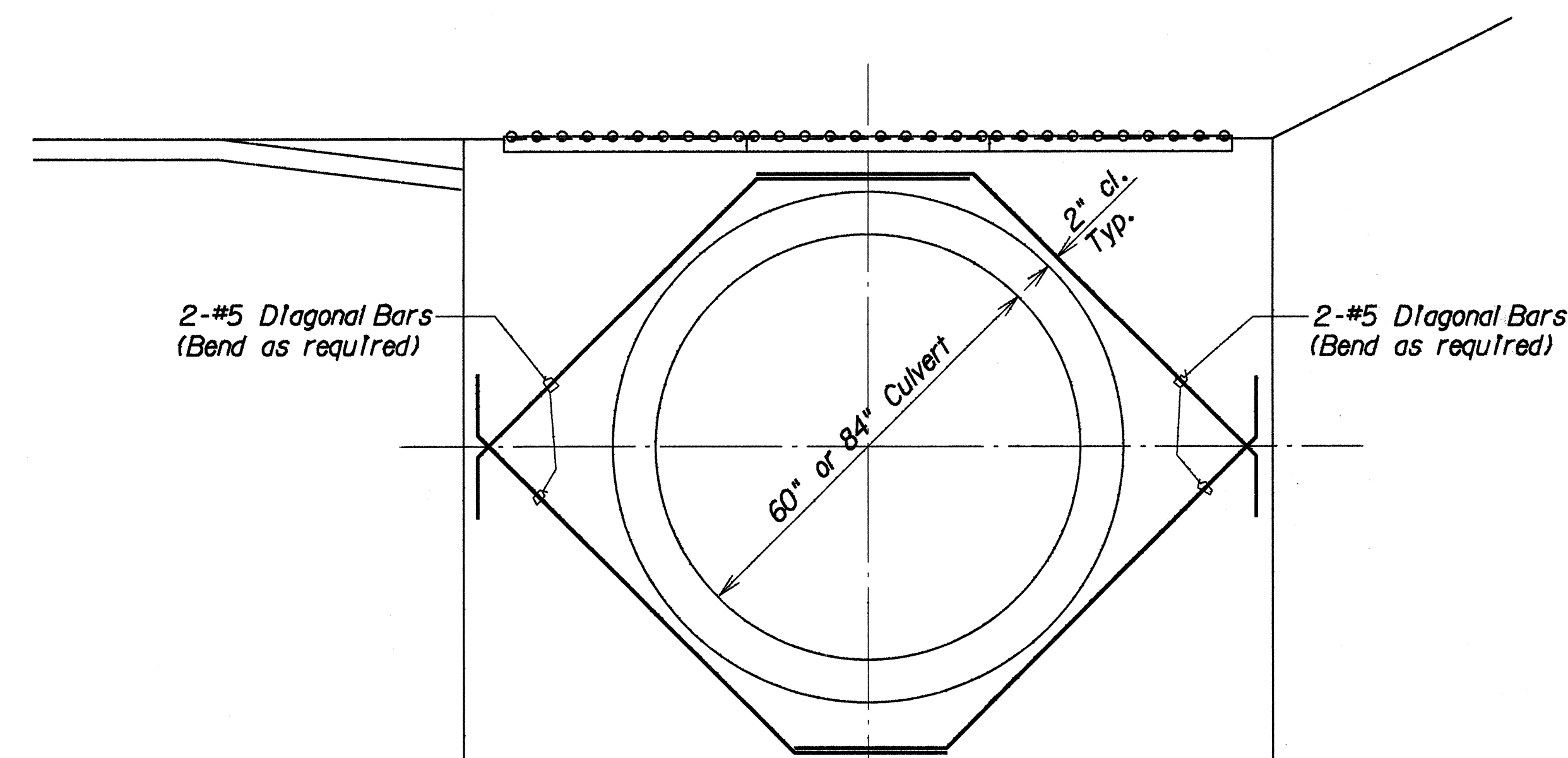
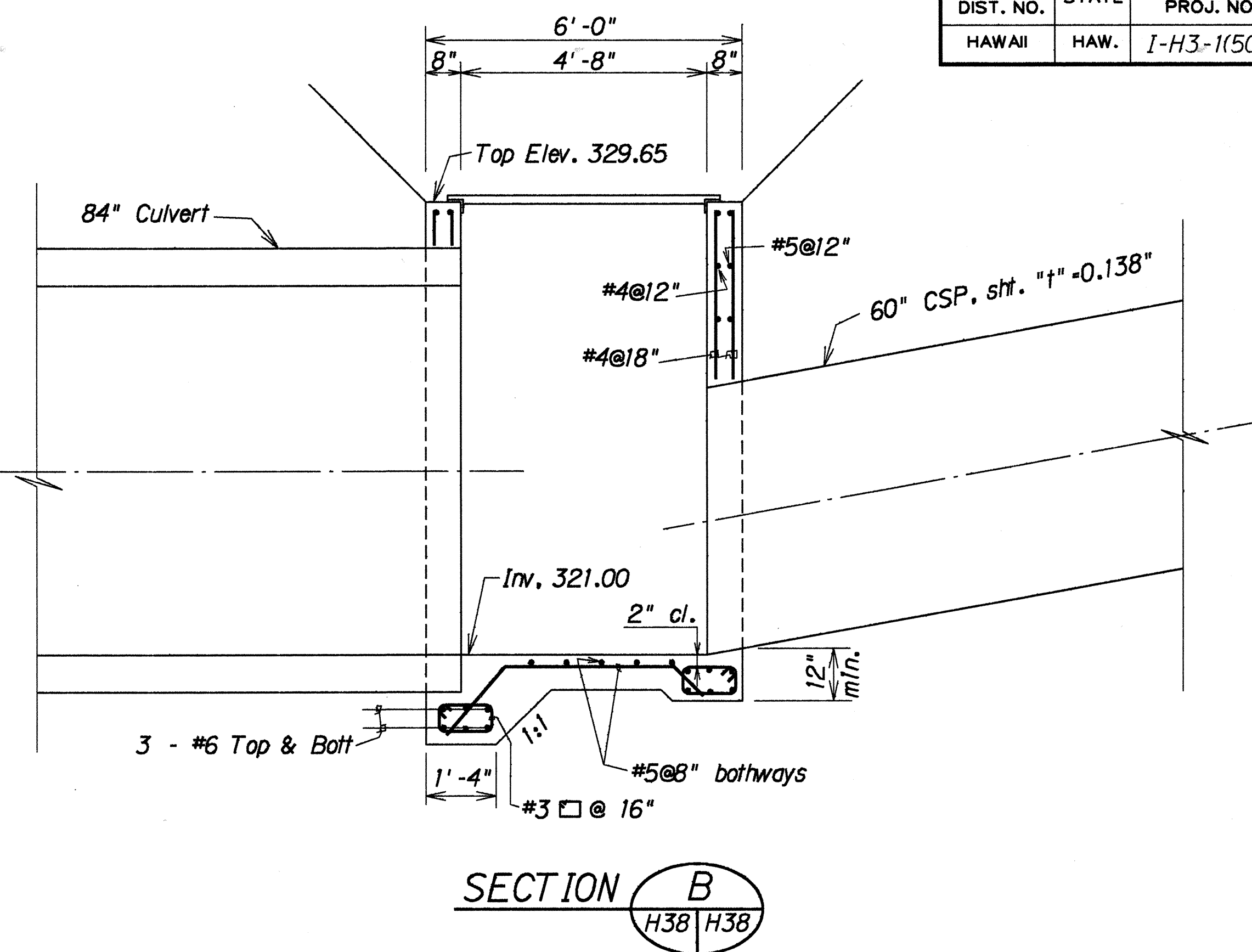
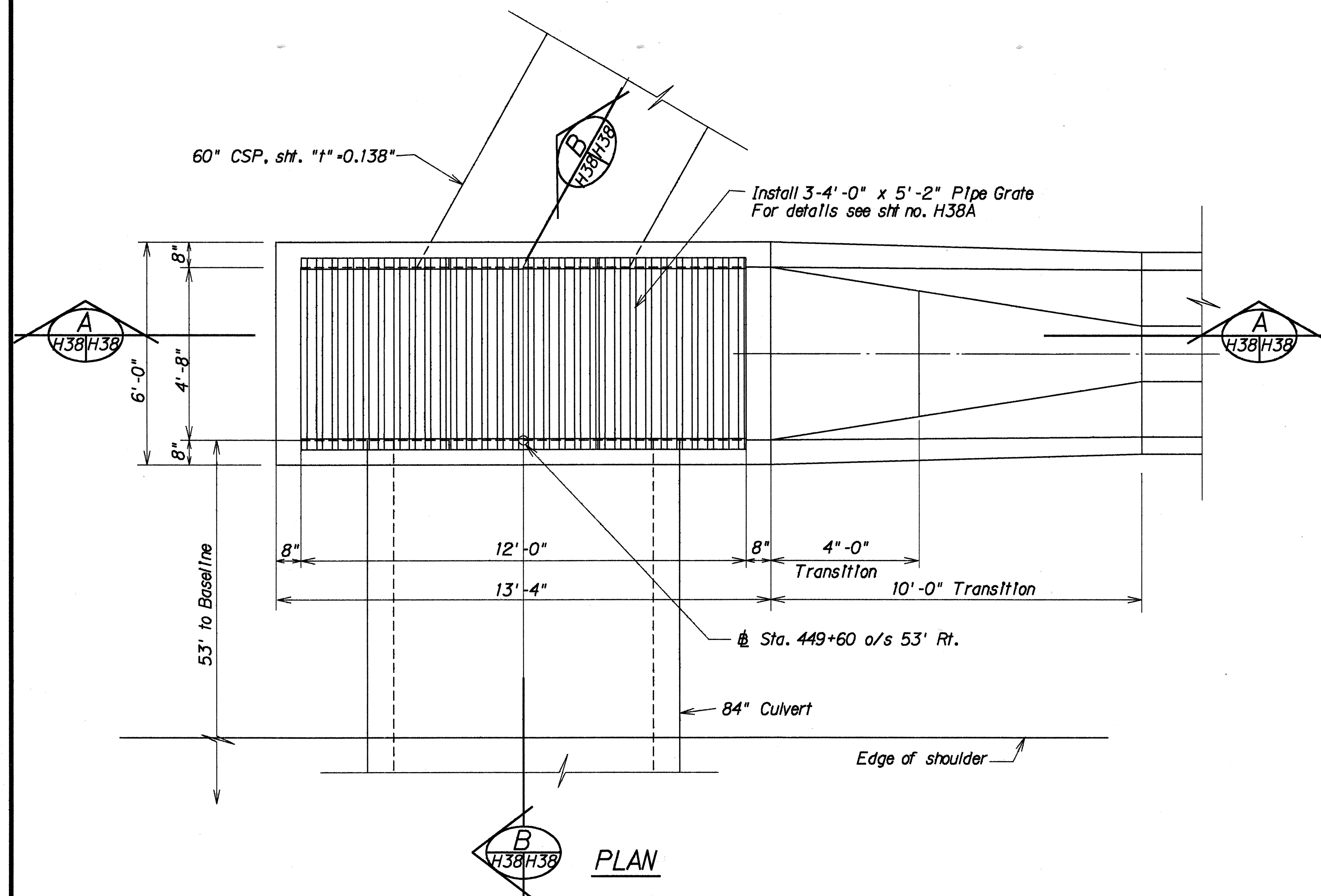
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

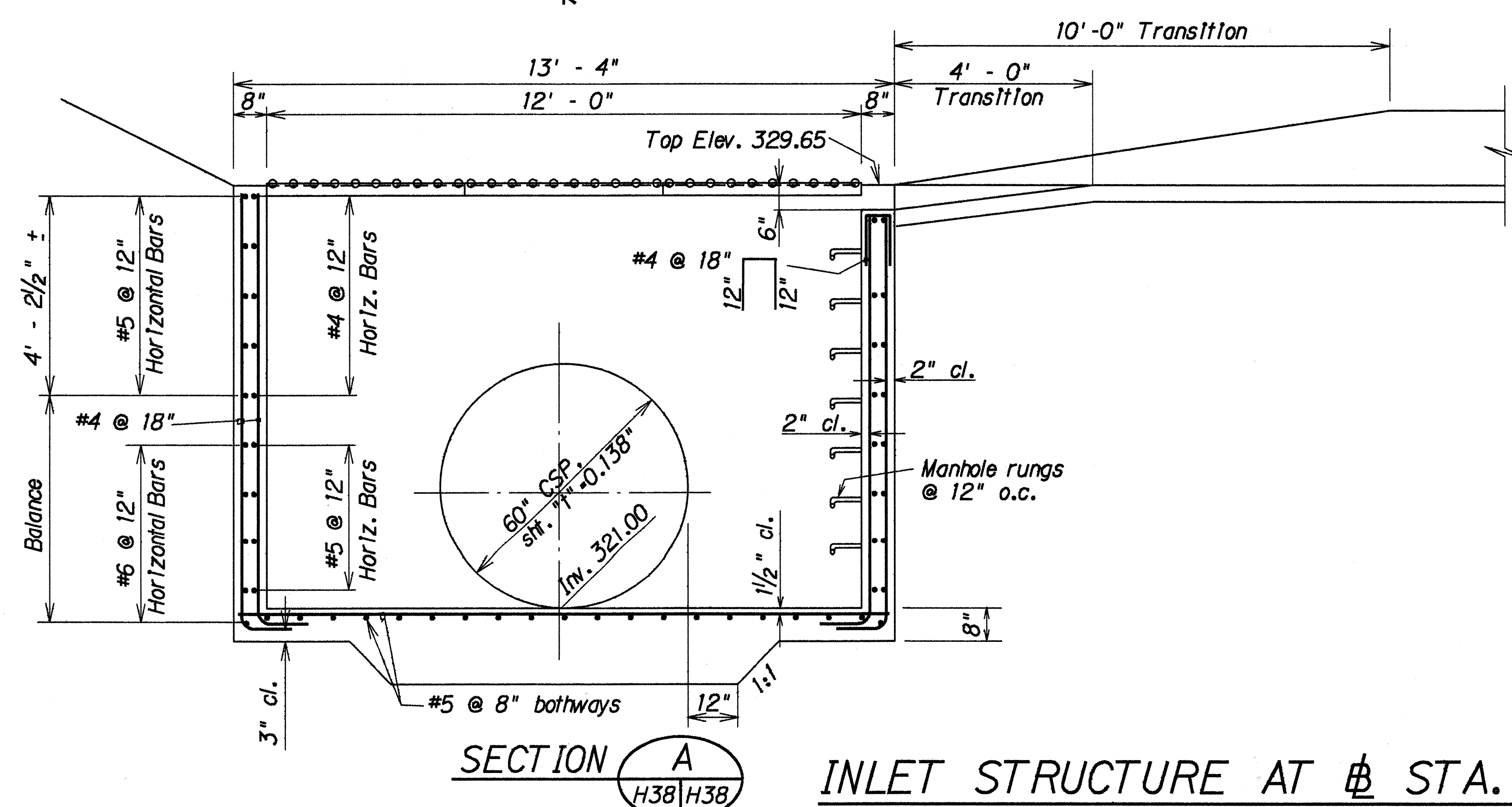
INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)

SCALE: AS NOTED DATE: JUL., 1988
SHEET NO. H37 OF 54 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1989	C.O.65	164



ADDED REINFORCING FOR CULVERT OPENINGS



INLET STRUCTURE AT STA. 449+60 o/s 53' RT.

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

2/14/90 Modified Inlet Structure
DATE REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

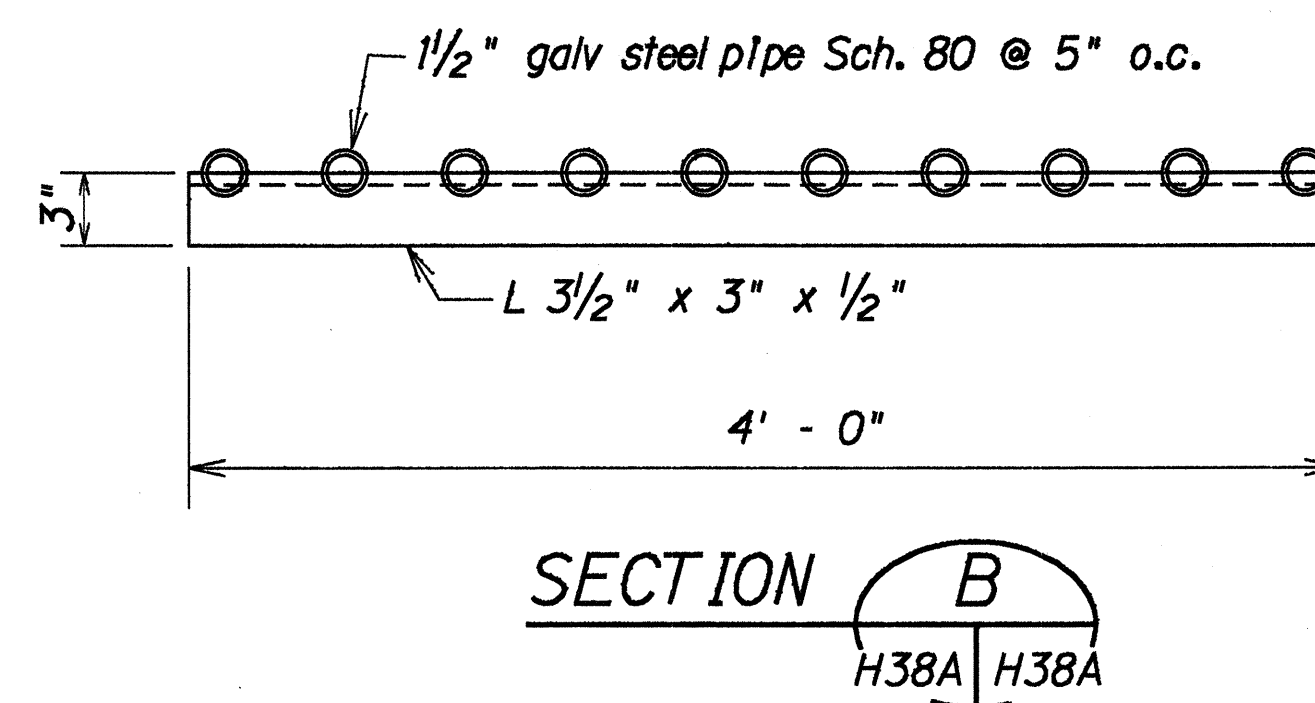
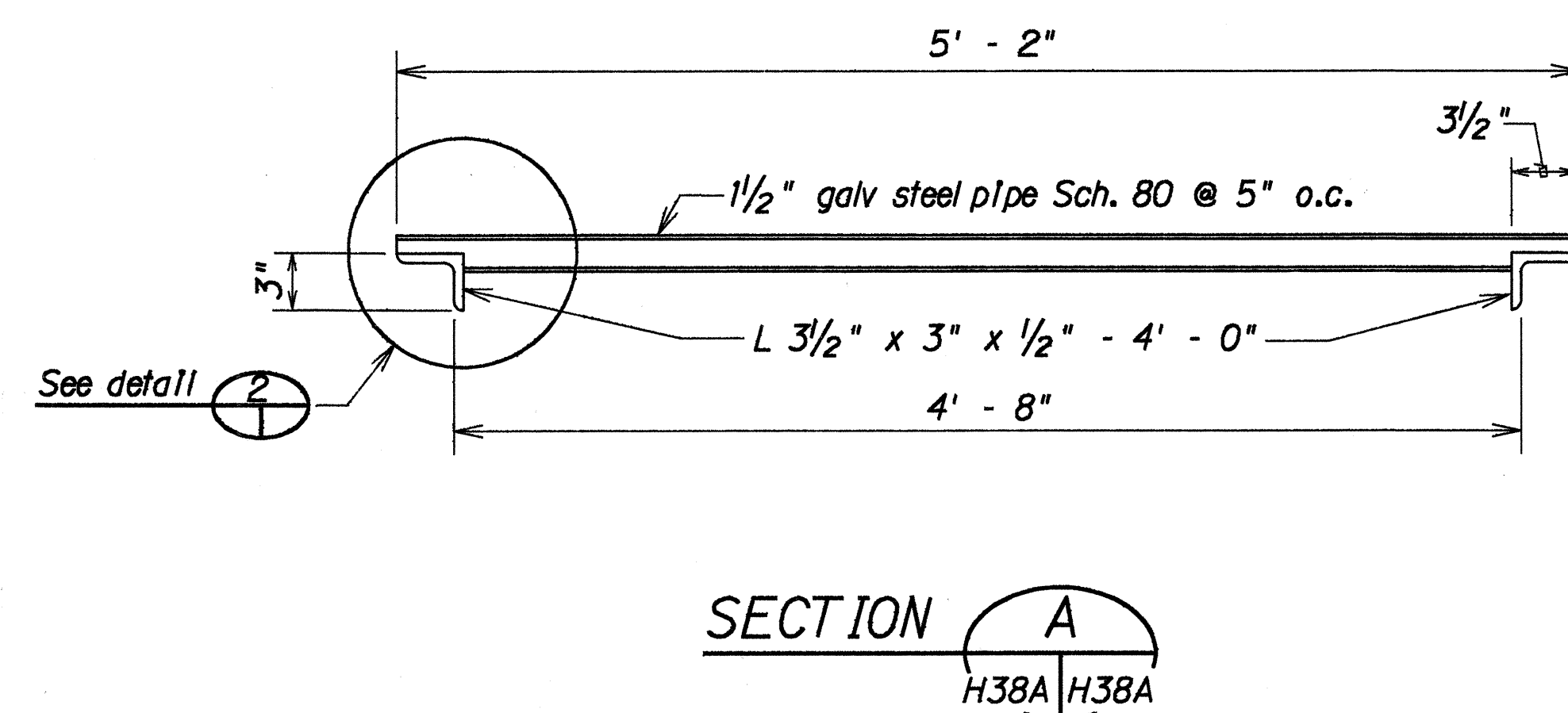
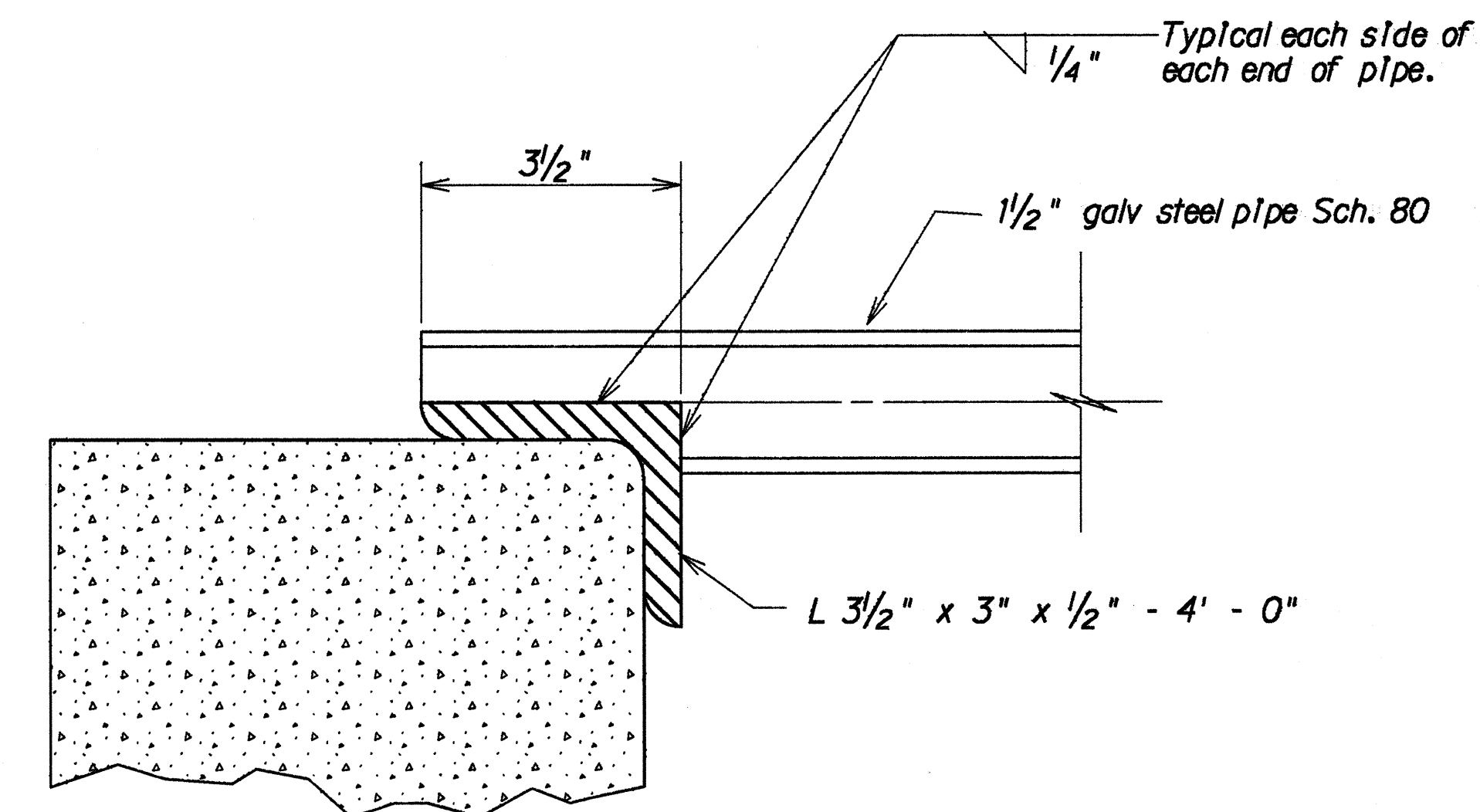
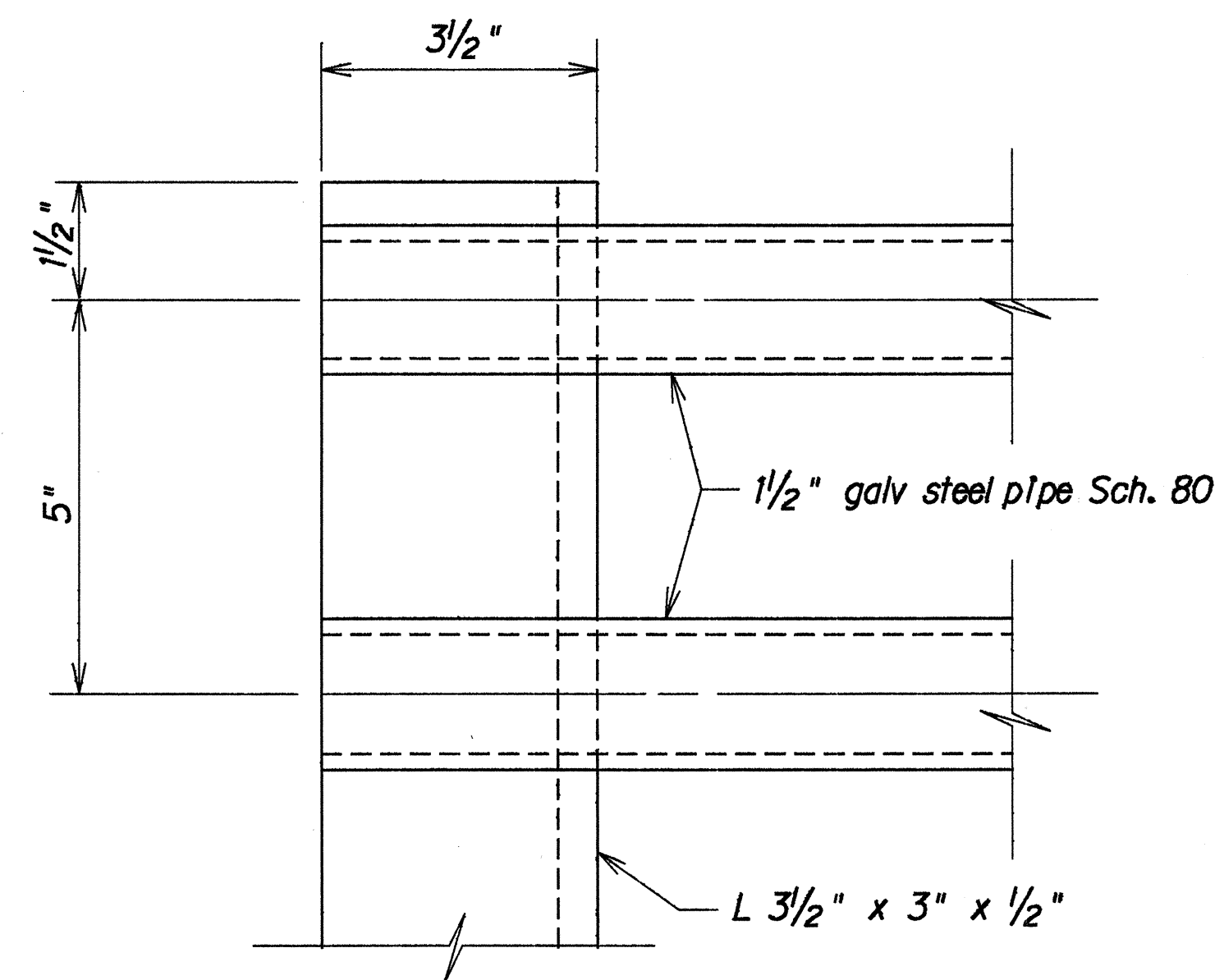
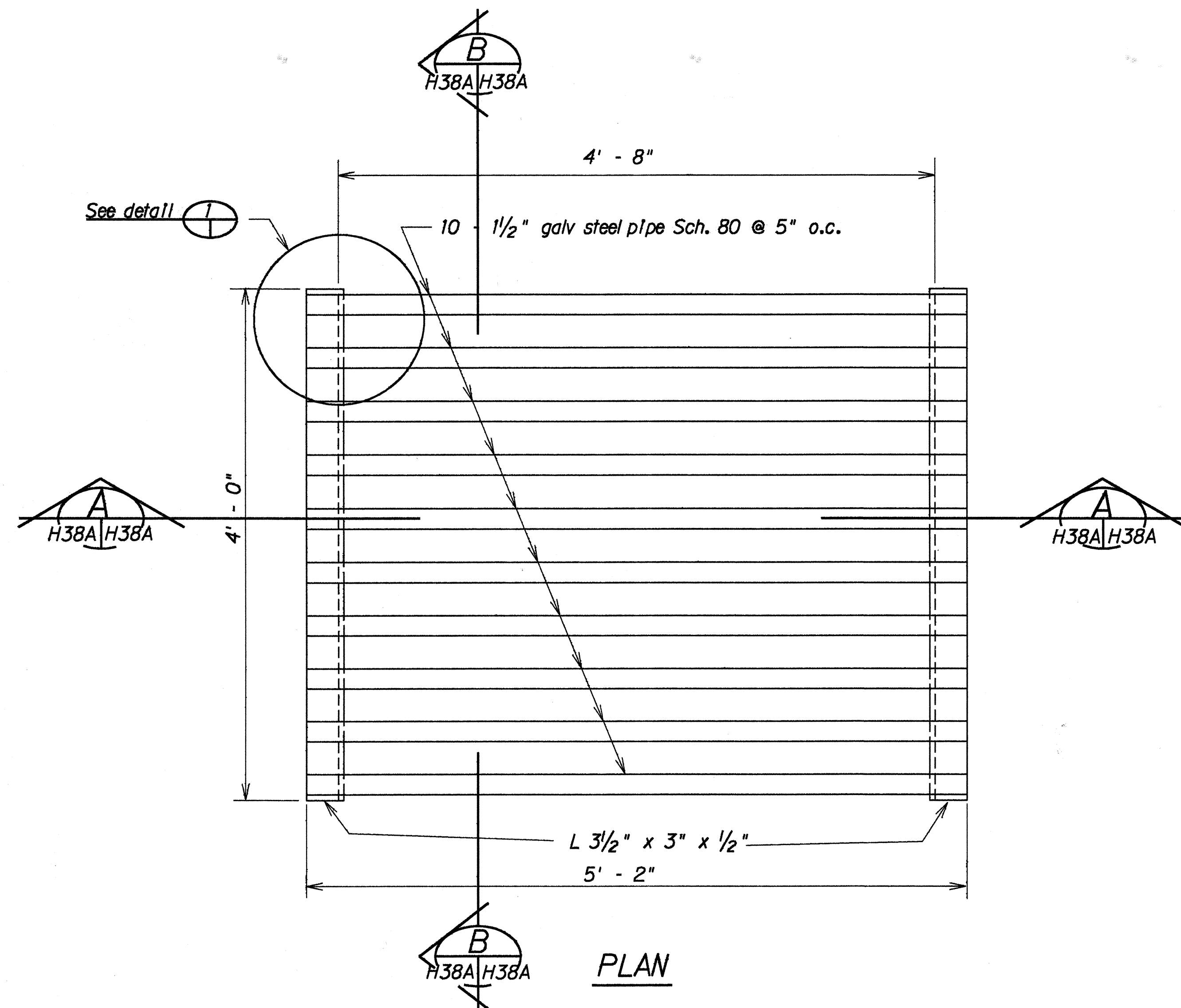
INTERSTATE ROUTE H - 3
F. A. I. PROJECT NO. I - H3 - 1(50)

SCALE: AS NOTED DATE: JUL., 1989
SHEET No. H38 OF 54 SHEETS

C.O. 65

DESIGNED BY	DATE
CHECKED BY	
NOTED BY	
QUANTITIES BY	
TRACED BY	
REVIEWED BY	
ORIGINAL FILED	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1989	C.O.65 S-1	164



DETAILS OF 4' - 0" x 5' - 2" PIPE GRATE

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

2/14/90 New Pipe Grates for Inlet Structure @ Sta. 449+60

DATE REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

INTERSTATE ROUTE H - 3
F. A. I. PROJECT NO. I - H3 - 1(50)

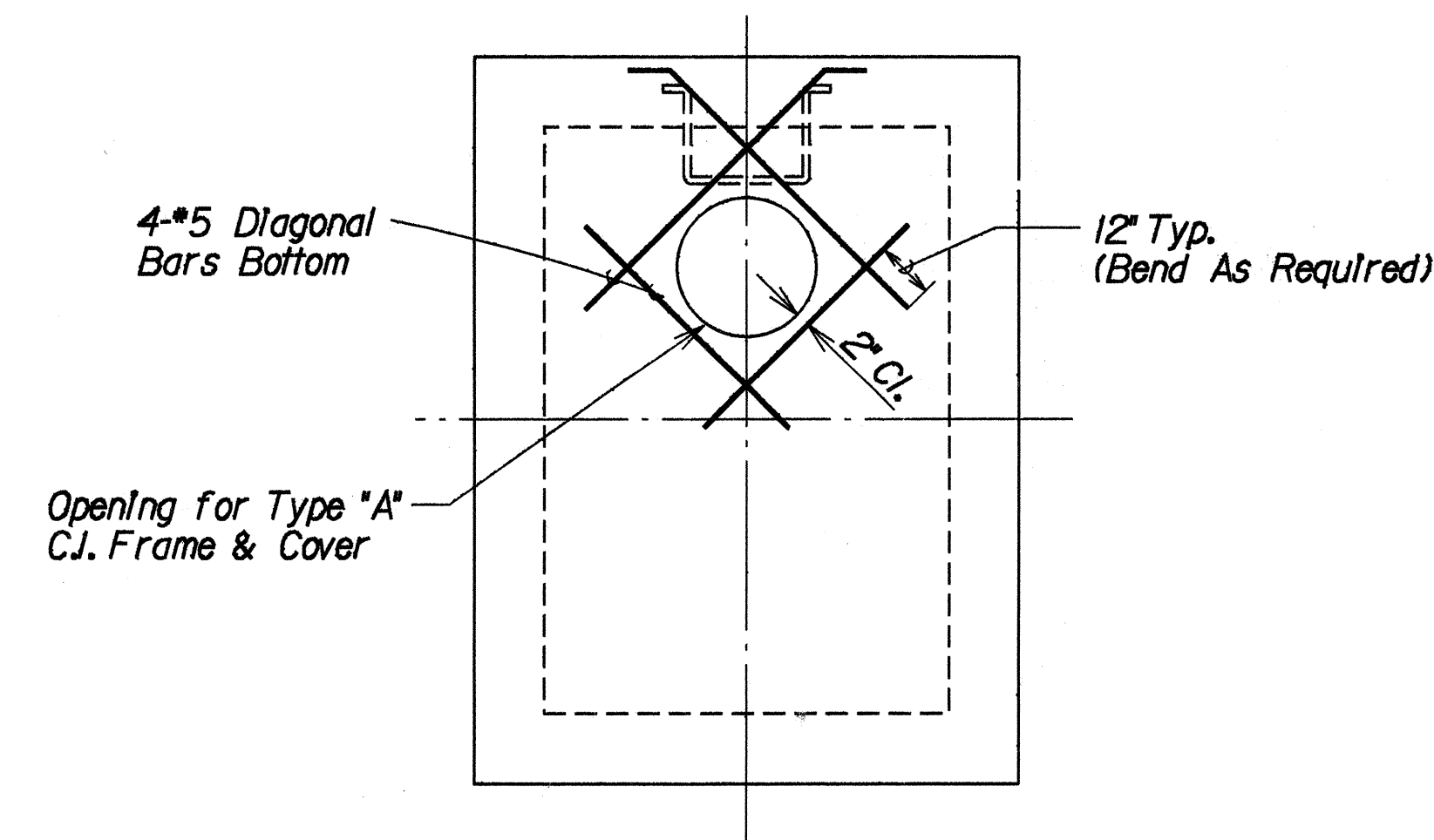
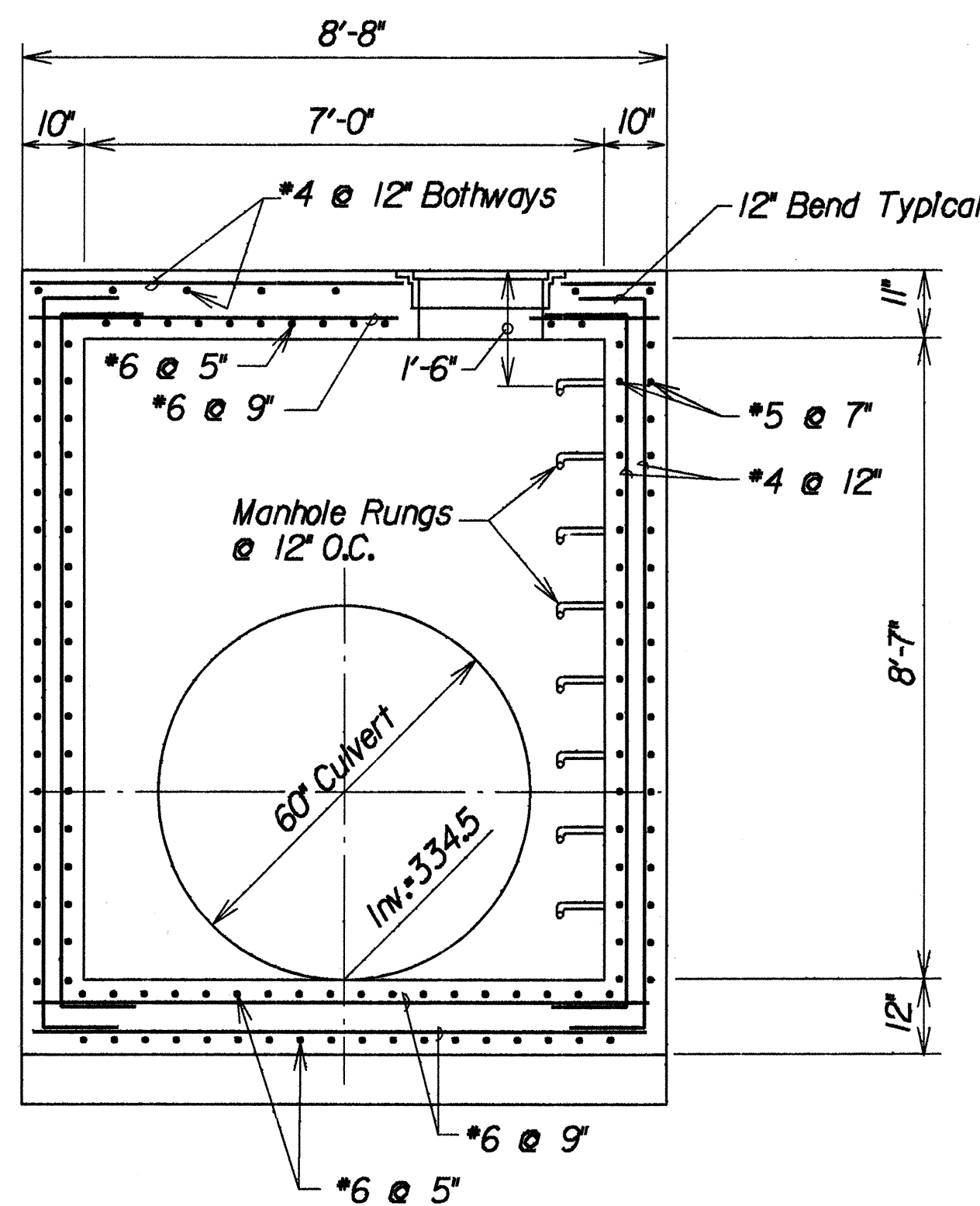
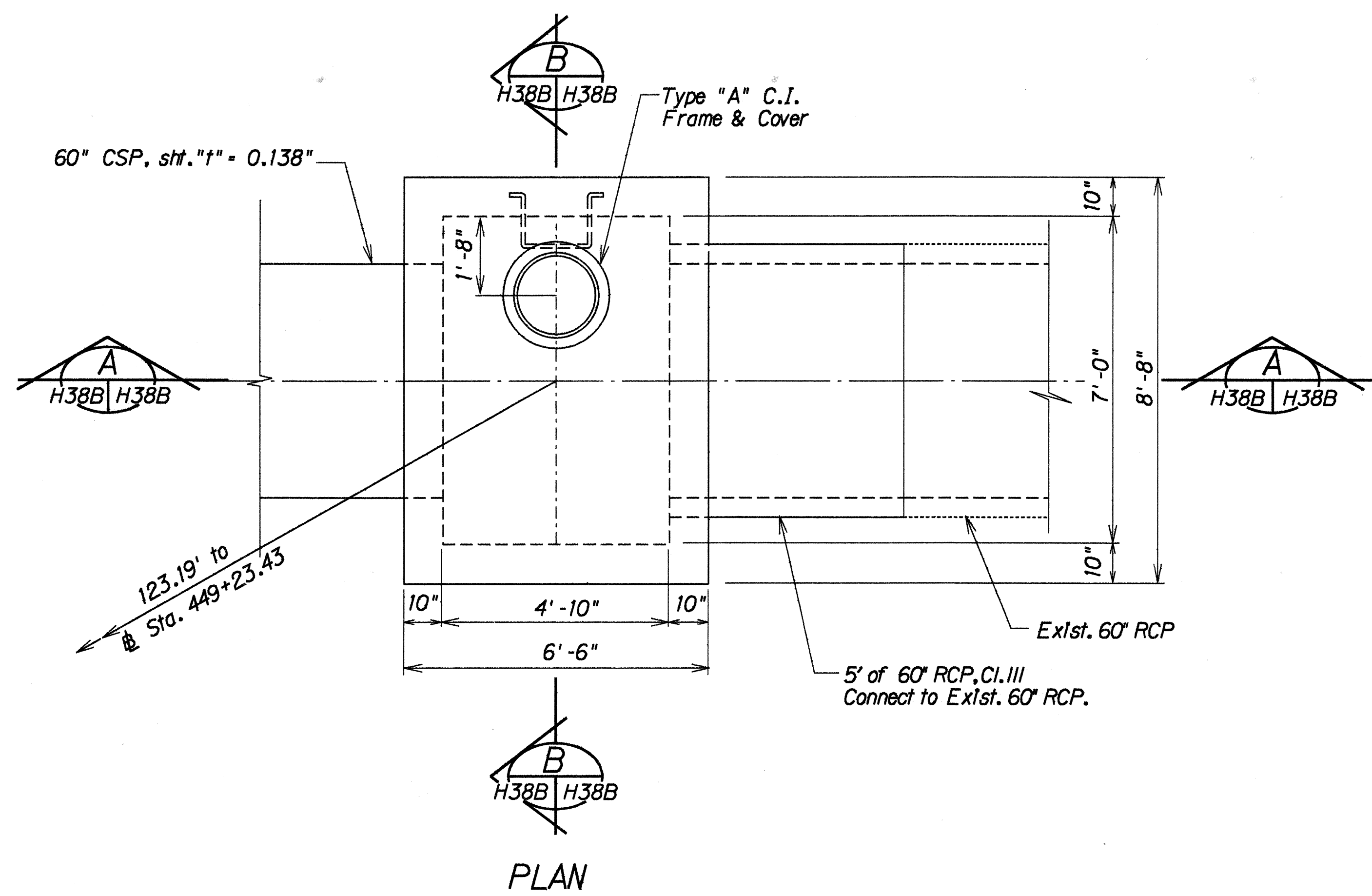
SCALE: AS NOTED DATE: FEB., 1990

SHEET No. H38A OF 54 SHEETS

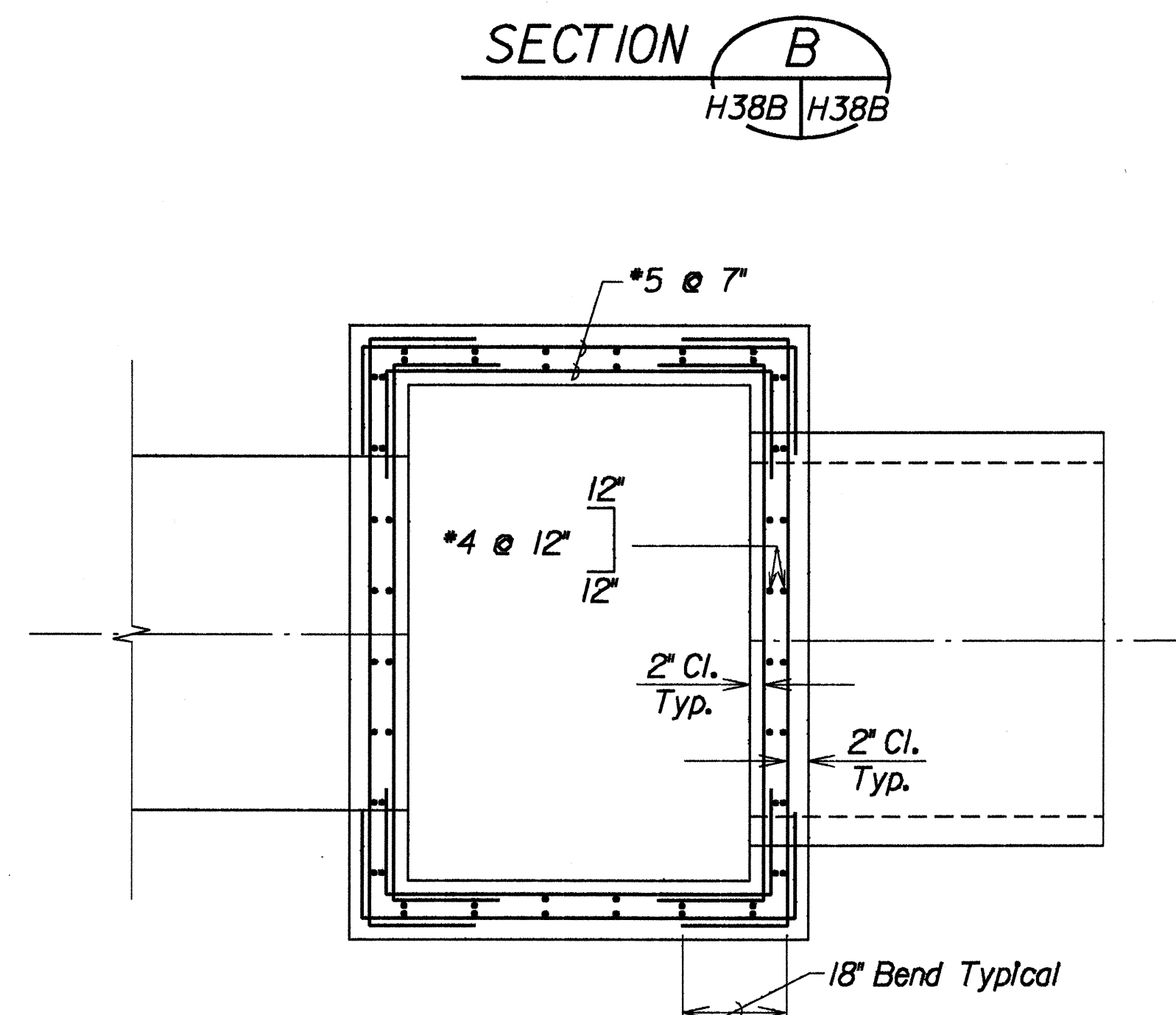
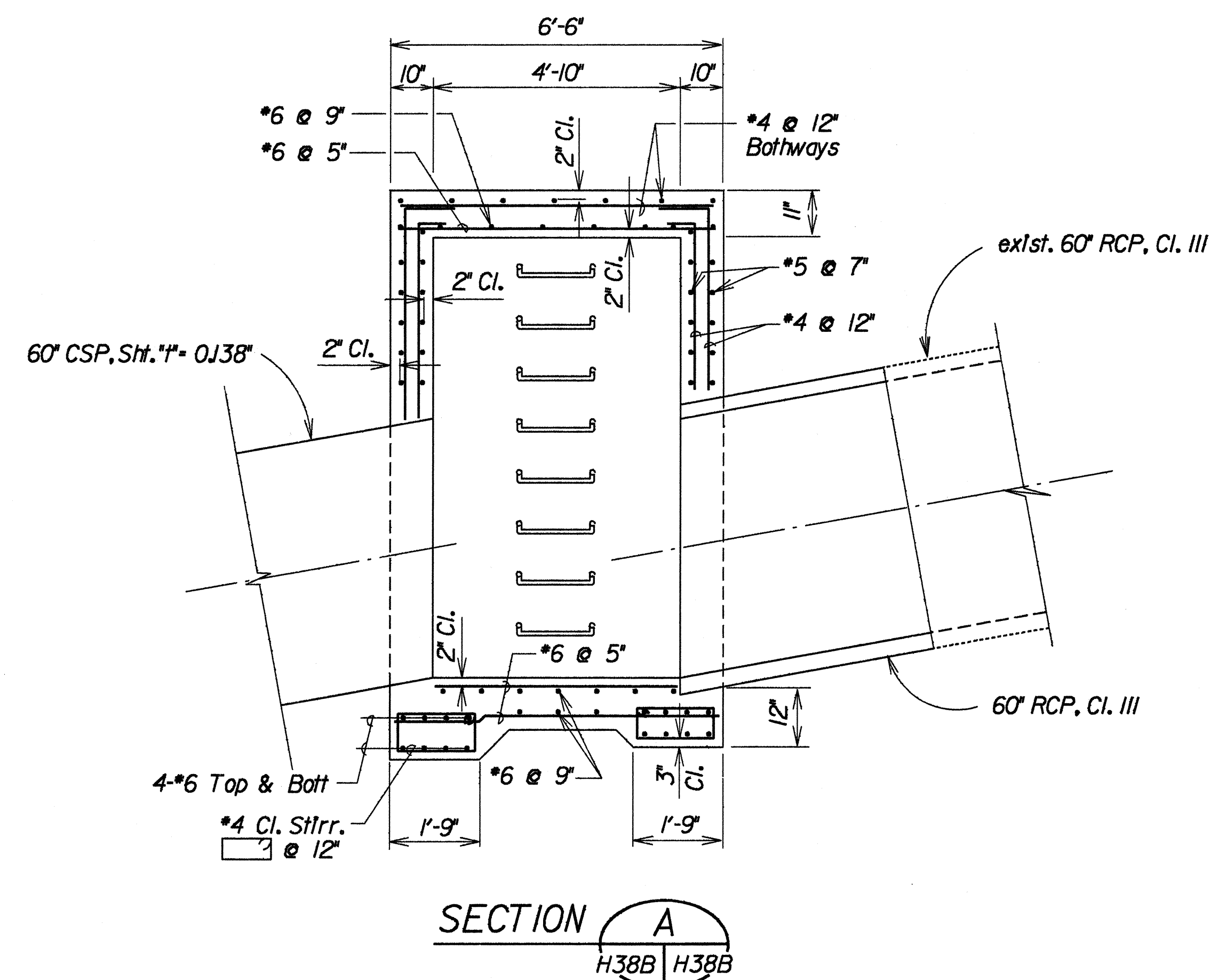
C. O. 65 S-1

DESIGNED BY	DATE
TRACED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	

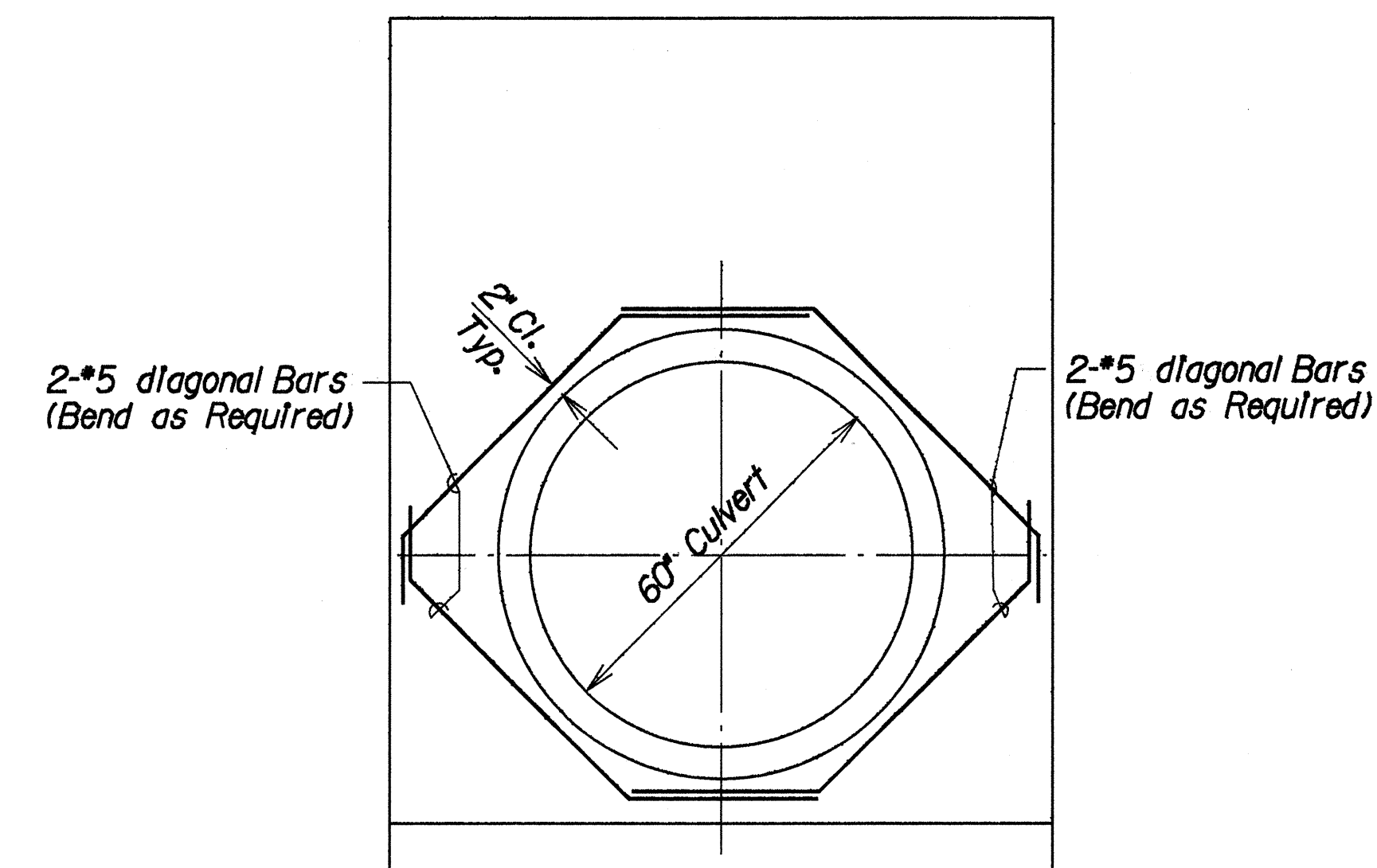
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1989	C.O.65 S-2	164



ADDED REINFORCING FOR MANHOLE OPENING



PLAN VIEW OF REINFORCING STEEL



ADDED REINFORCING FOR CULVERT OPENINGS

TYPE "G" SDMH AT STA. 449+23.43 O/S 123.19' RT.

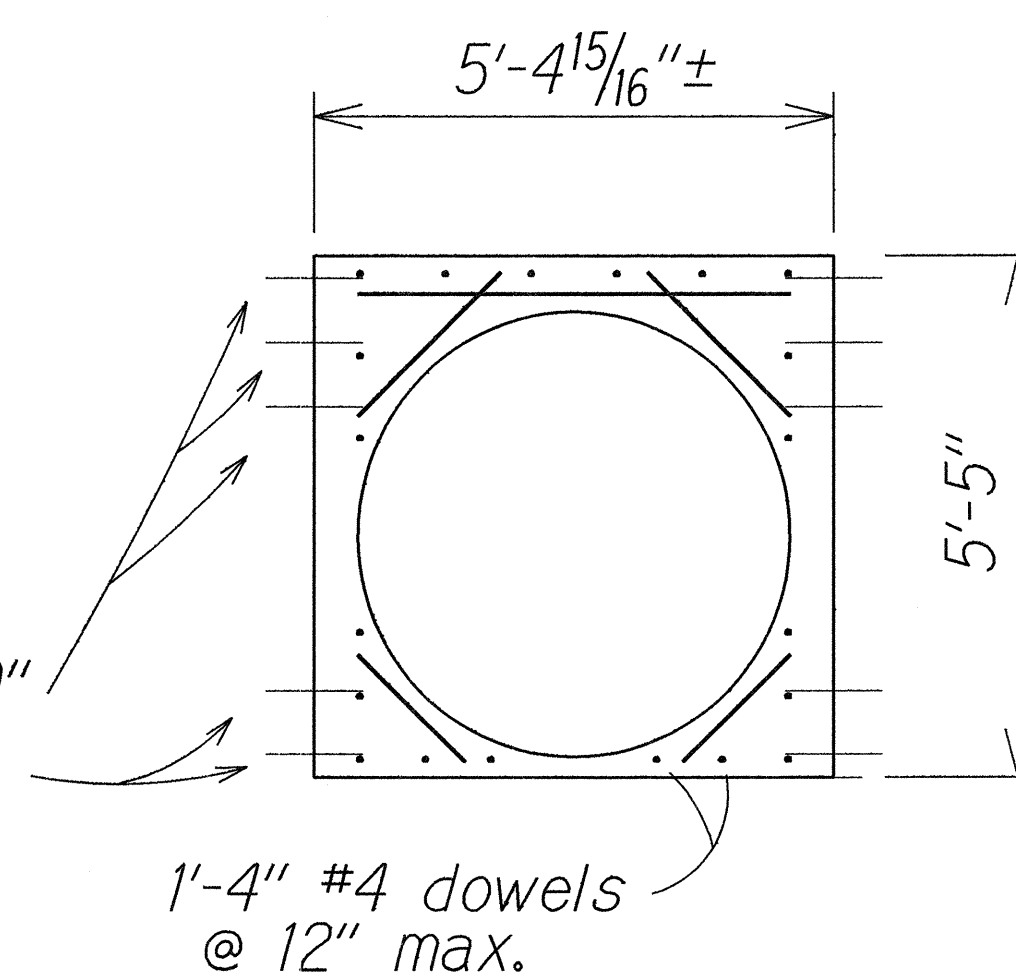
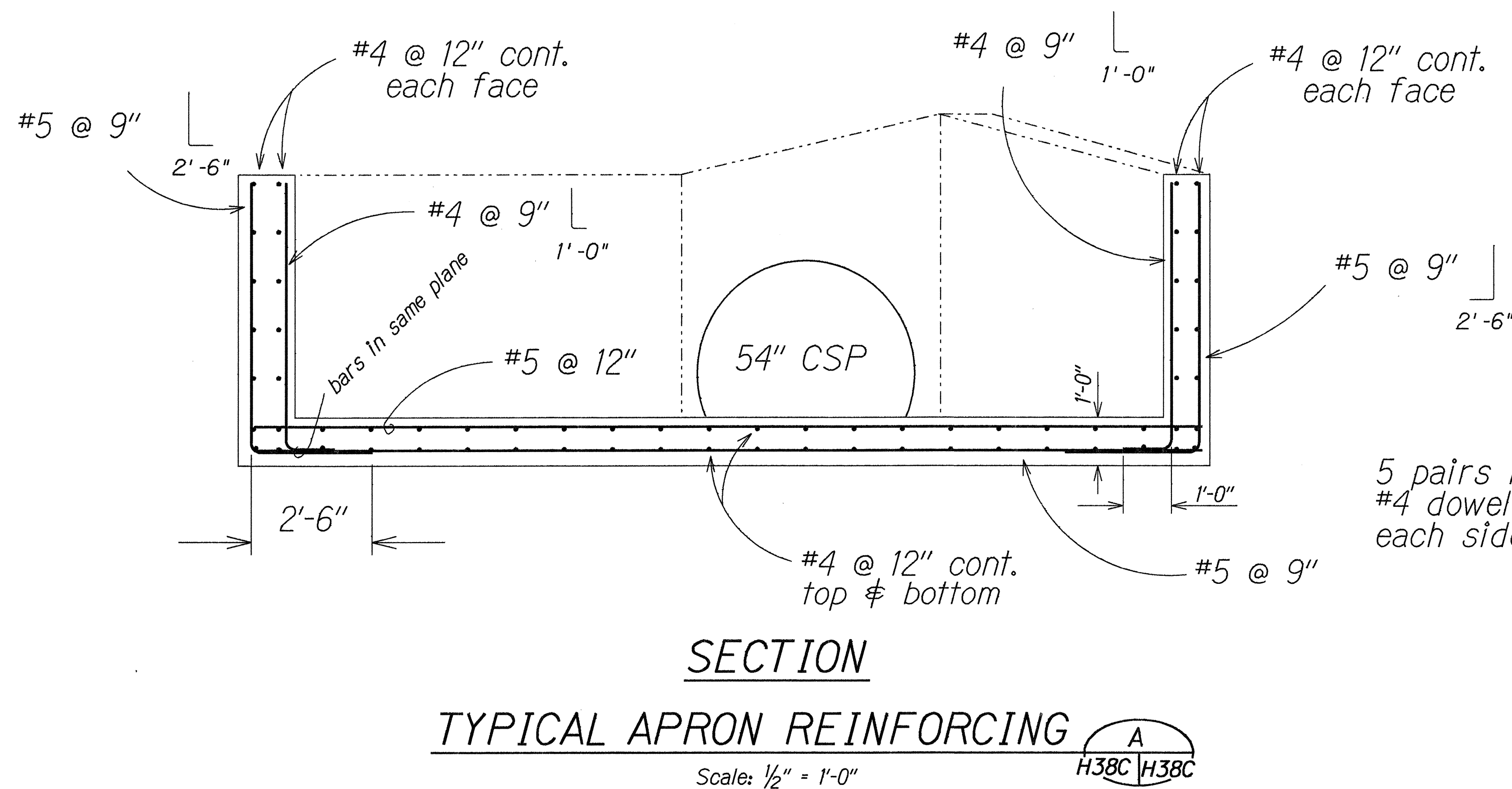
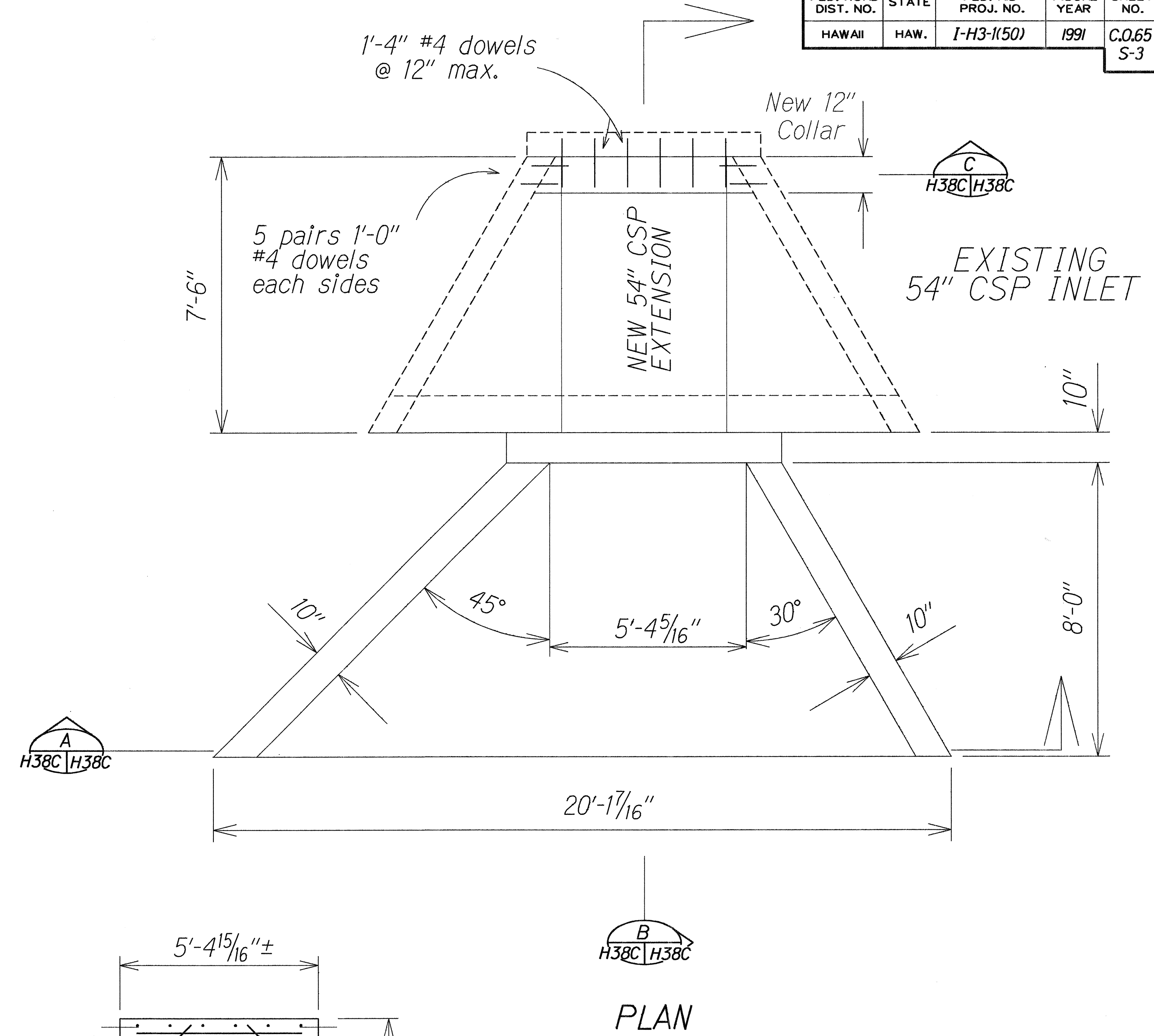
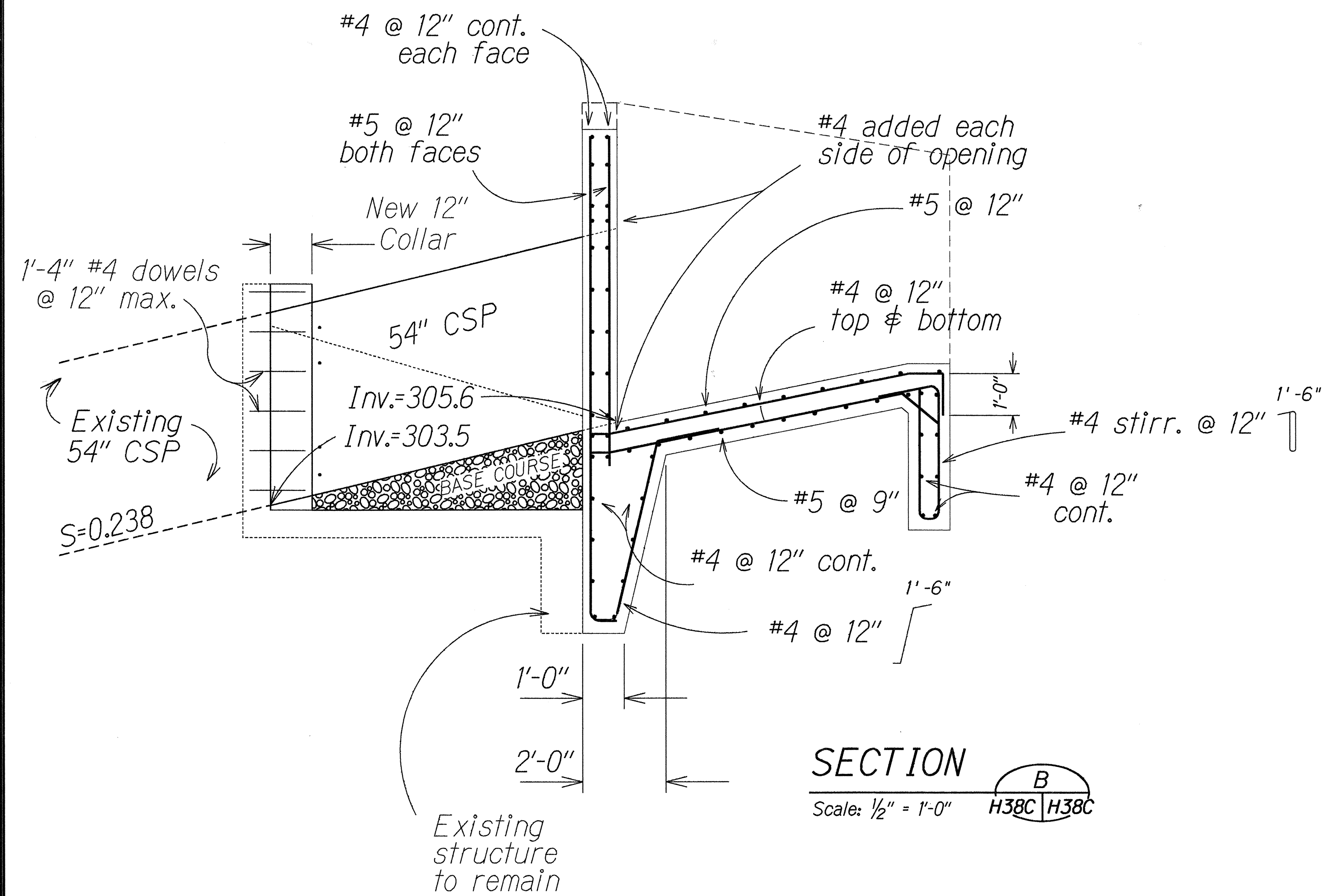
Scale: 1/2" = 1'-0"

2/14/90	Type G SDMH added as Junction Box between H3 and Golf Course
DATE	REVISION

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
DRAINAGE DETAILS	
INTERSTATE ROUTE H - 3 F. A. I. PROJECT NO. 1 - H3 1(50)	
SCALE: AS NOTED	DATE: FEB., 1990
SHEET No. H38BOF 54 SHEETS	

C.O. 65 S-2

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1991	C.O.65 S-3	164



Note: Drill 5/8" hole & epoxy dowels 6" into existing headwall/wingwall

SECTION
TYPICAL APRON REINFORCING

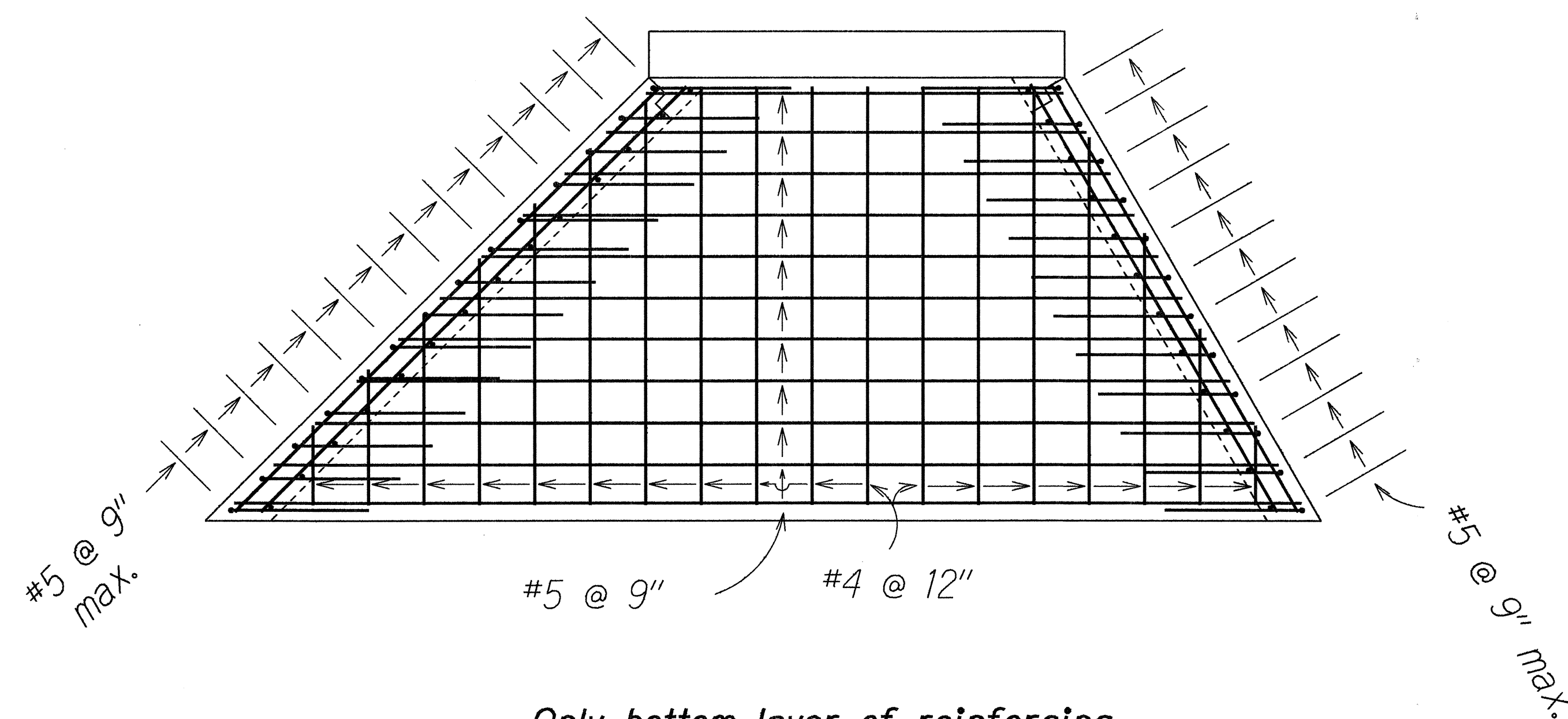
COLLAR DETAIL

INLET STRUCTURE AT STA. 453+39 o/s 62.5' RT.

11/07/90	Inlet extension @ Sta. 453+39 o/s 62.5' Rt.	Scale: As Noted	Date: Nov., 1990
DATE	REVISION	SHEET No. H38C OF 54 SHEETS	

C.O. 65 S-3

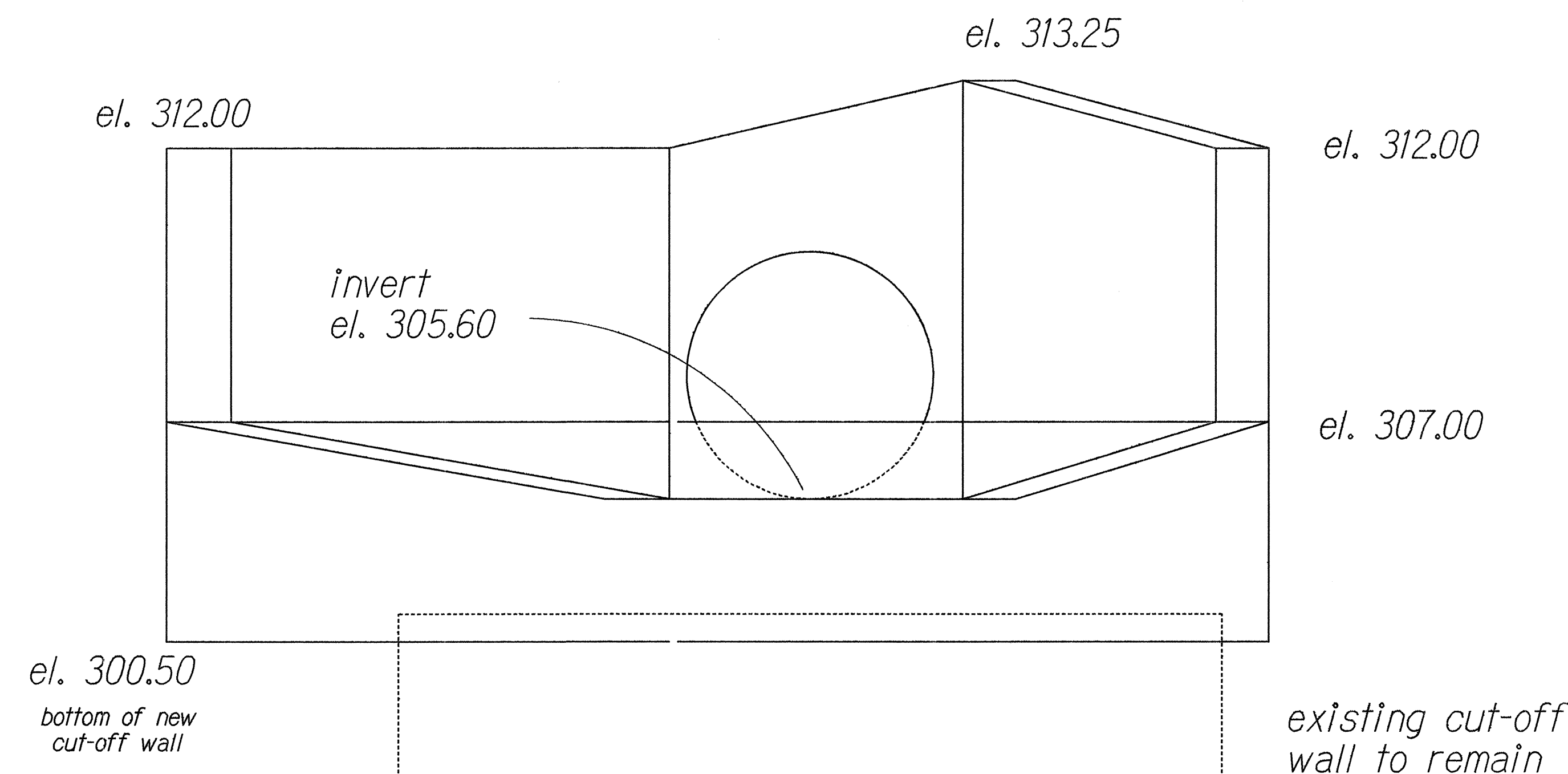
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1991	C.O.65 S-4	164



Only bottom layer of reinforcing
in slab show for clarity

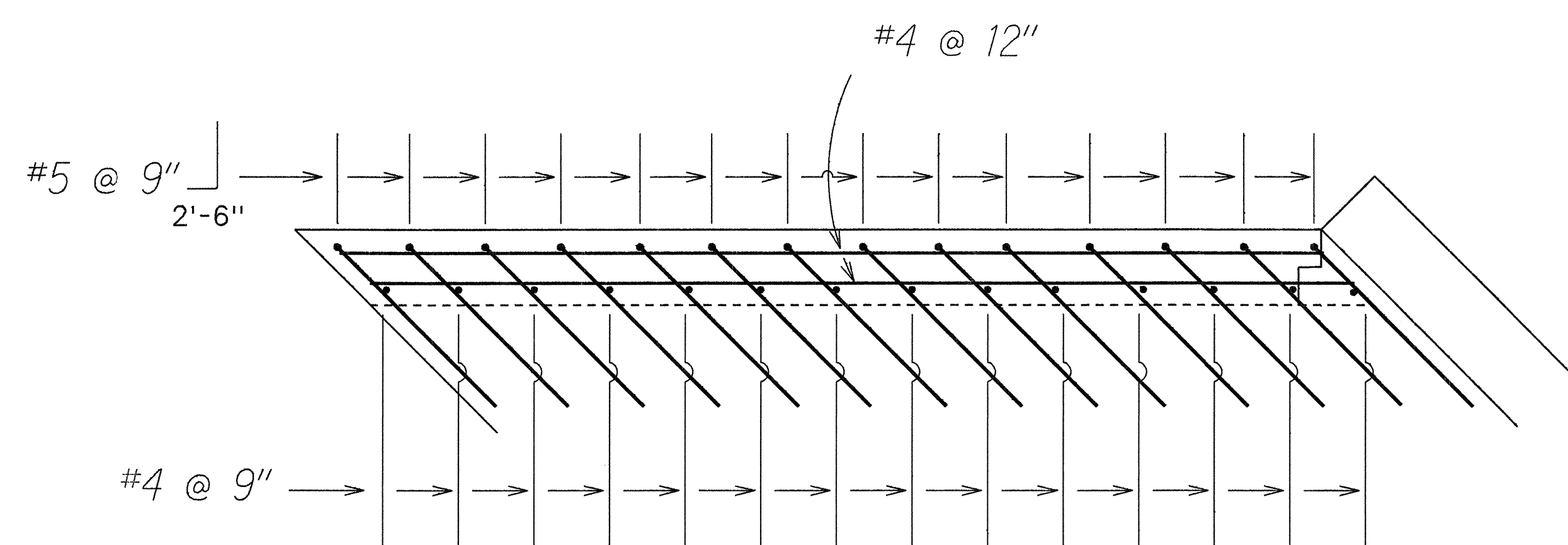
PLAN

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



ELEVATION

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

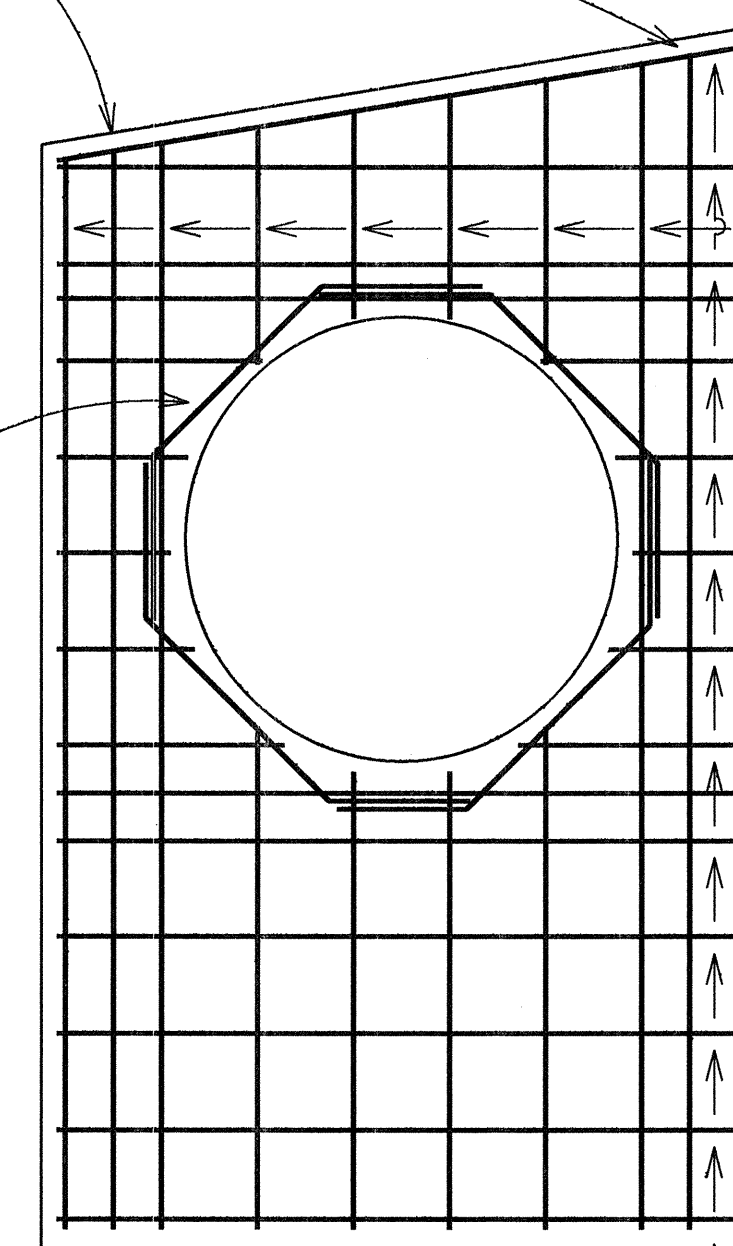


TYPICAL REINFORCING IN WINGWALL

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

#5 added
each side
each face

4- #5 diagonals



#4 added
each side
each face

HEADWALL REINFORCING

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

INLET STRUCTURE AT STA. 453+39 o/s 62.5' RT.

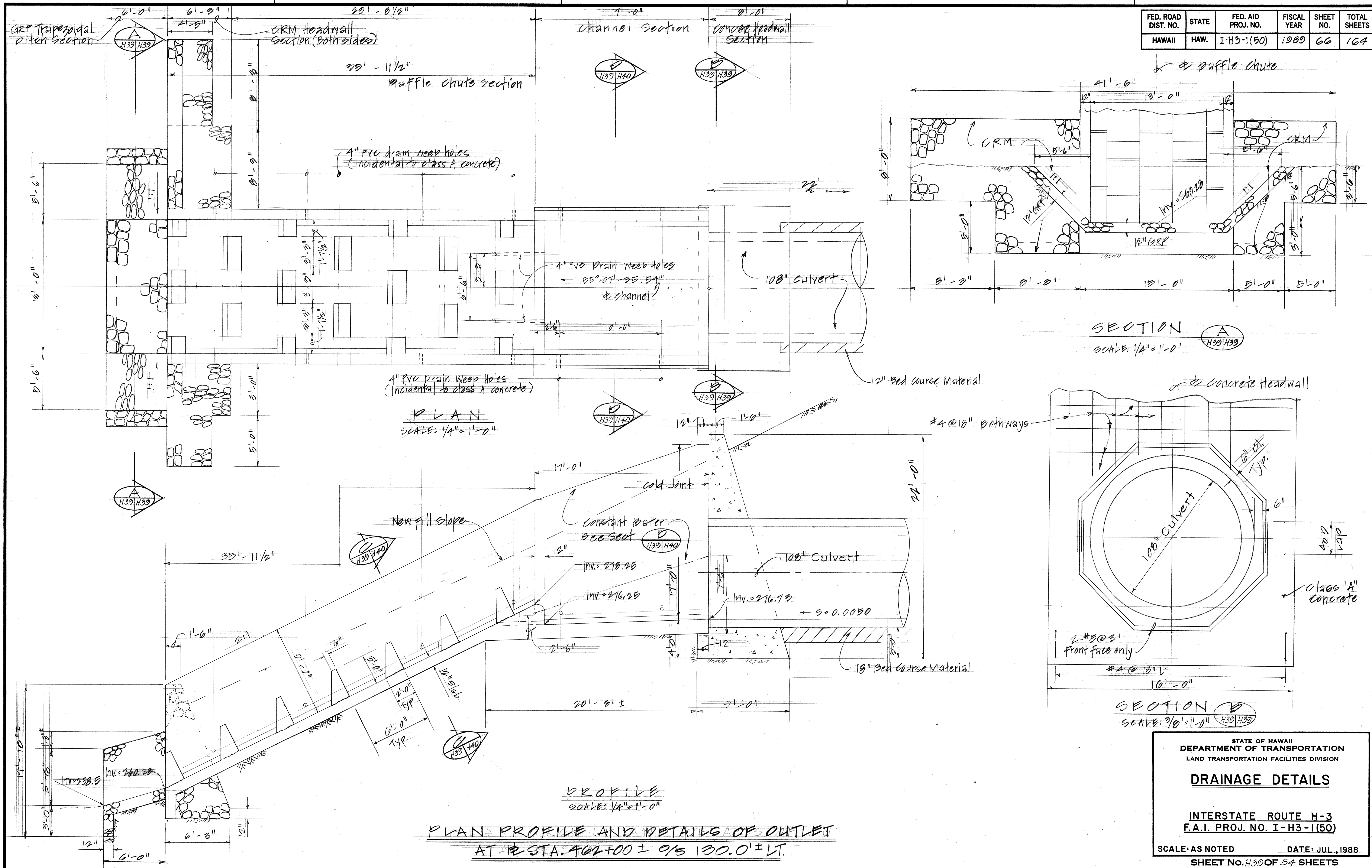
11/07/90	Inlet extension @ Sta. 453+39 o/s 62.5' Rt.
DATE	REVISION

Scale: As Noted	Date: Nov., 1990
SHEET No. H38D OF 54 SHEETS	

C.O. 65 S-4

SURVEY PLOTTED BY	DATE
DRAWN BY	XXX 1990
DESIGNED BY	XXX 1990
CHECKED BY	XXX 1990
ORIGINAL PLAN	XXX 1990
DESIGN FILE	XXX 1990
QUANTITIES BY	XXX 1990
CHECKED BY	XXX 1990
N.	XXXXXXXX

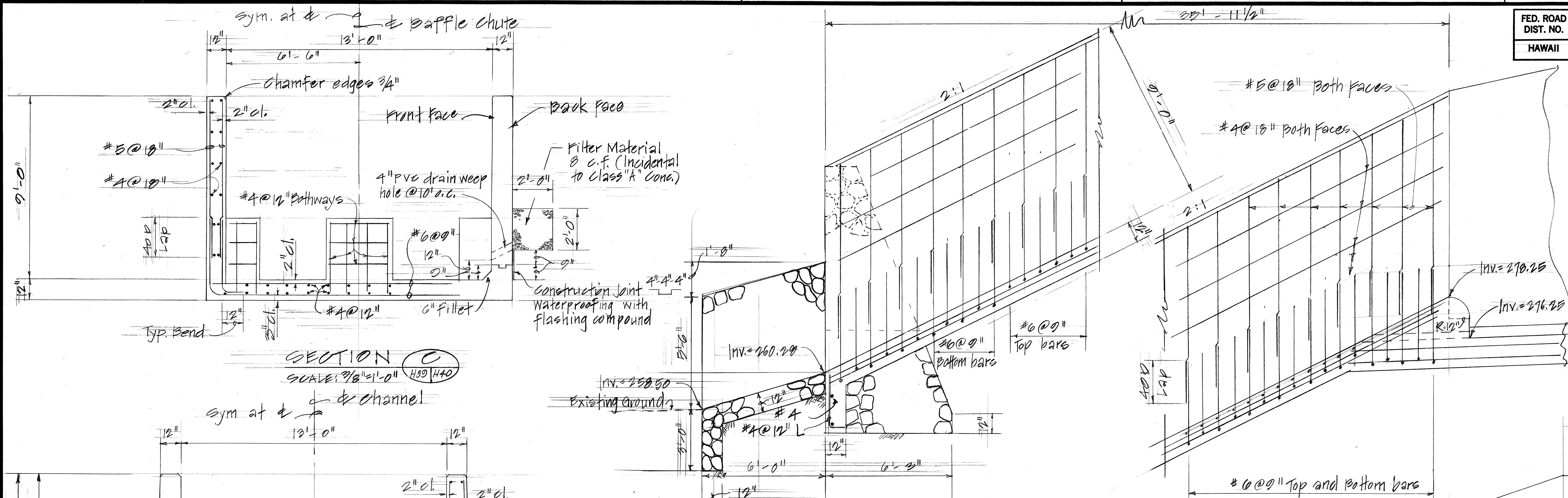
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1989	66	164



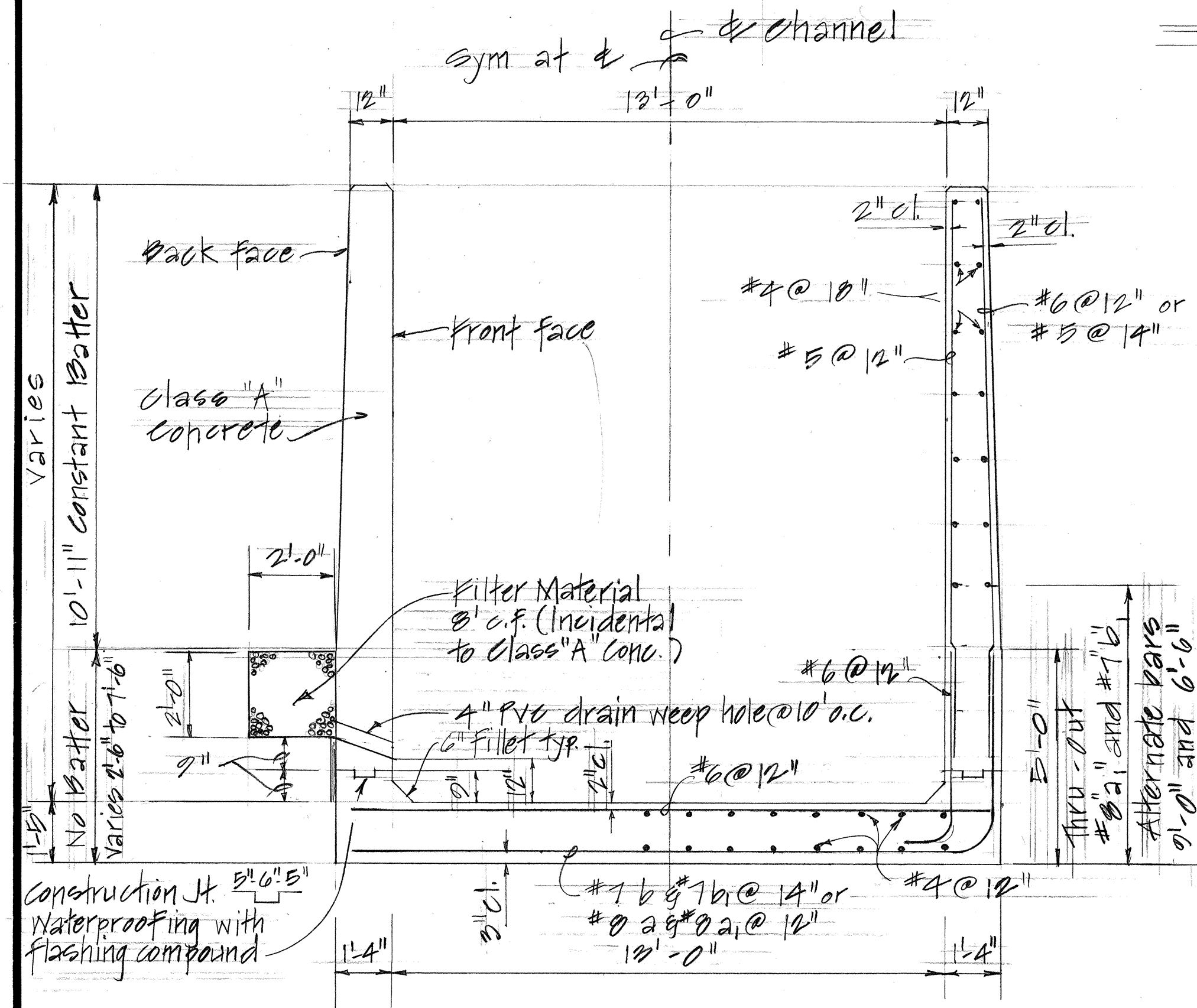
ORIGINAL PLAN	DATE
DESIGNED BY	
TRACED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	
No.	

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION LAND TRANSPORTATION FACILITIES DIVISION
DRAINAGE DETAILS
INTERSTATE ROUTE H-3 F.A.I. PROJ. NO. I-H3-1(50)
SCALE: AS NOTED DATE: JUL., 1988
SHEET NO. H39 OF 54 SHEETS

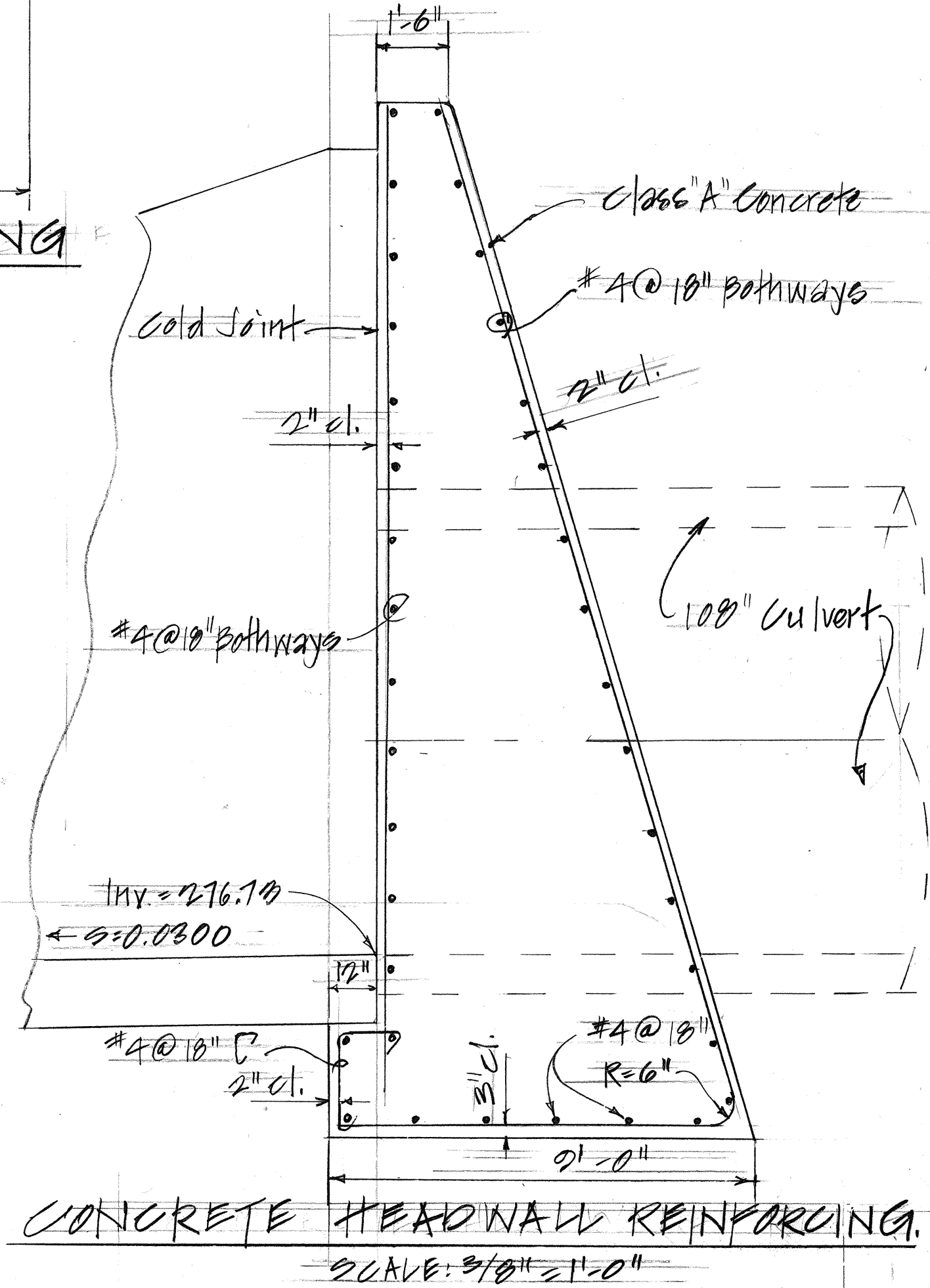
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1989	67	164



Baffle Chute Wall and Slab Reinforcing



Channel Wall and Slab Reinforcing



DETAILS OF OUTLET AT STA. 462+00 ± 0/5 130.0' ± LT.

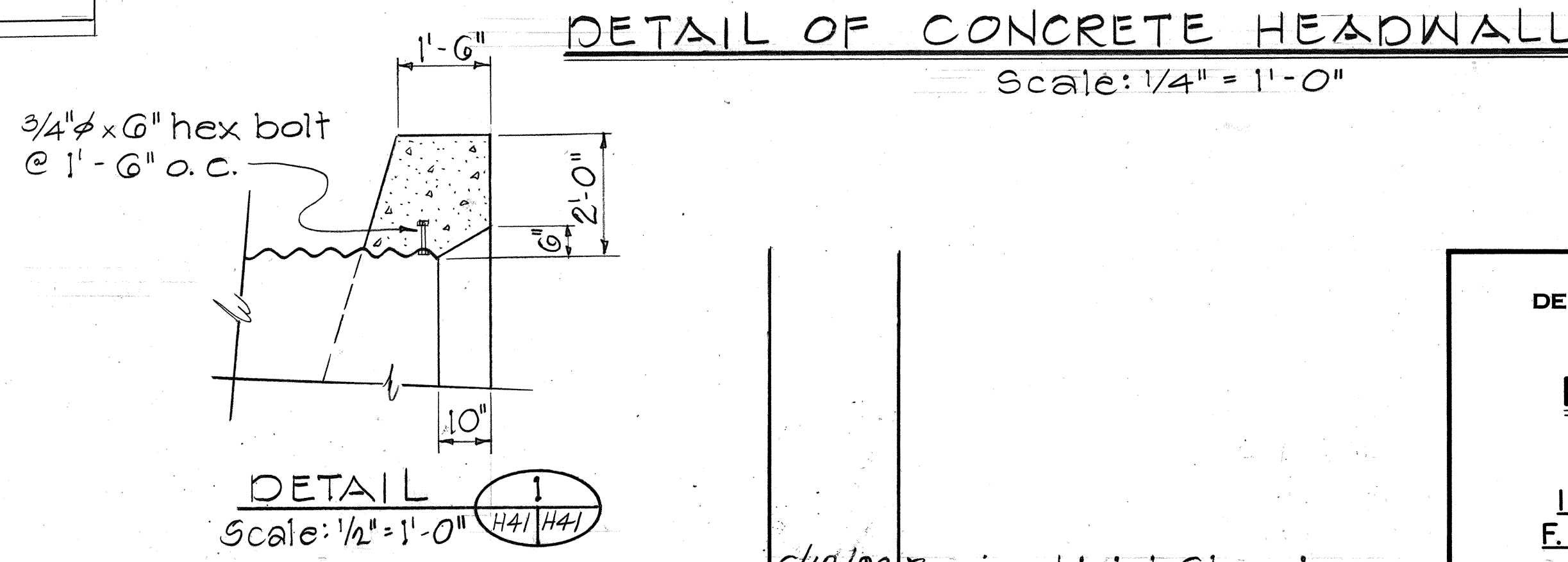
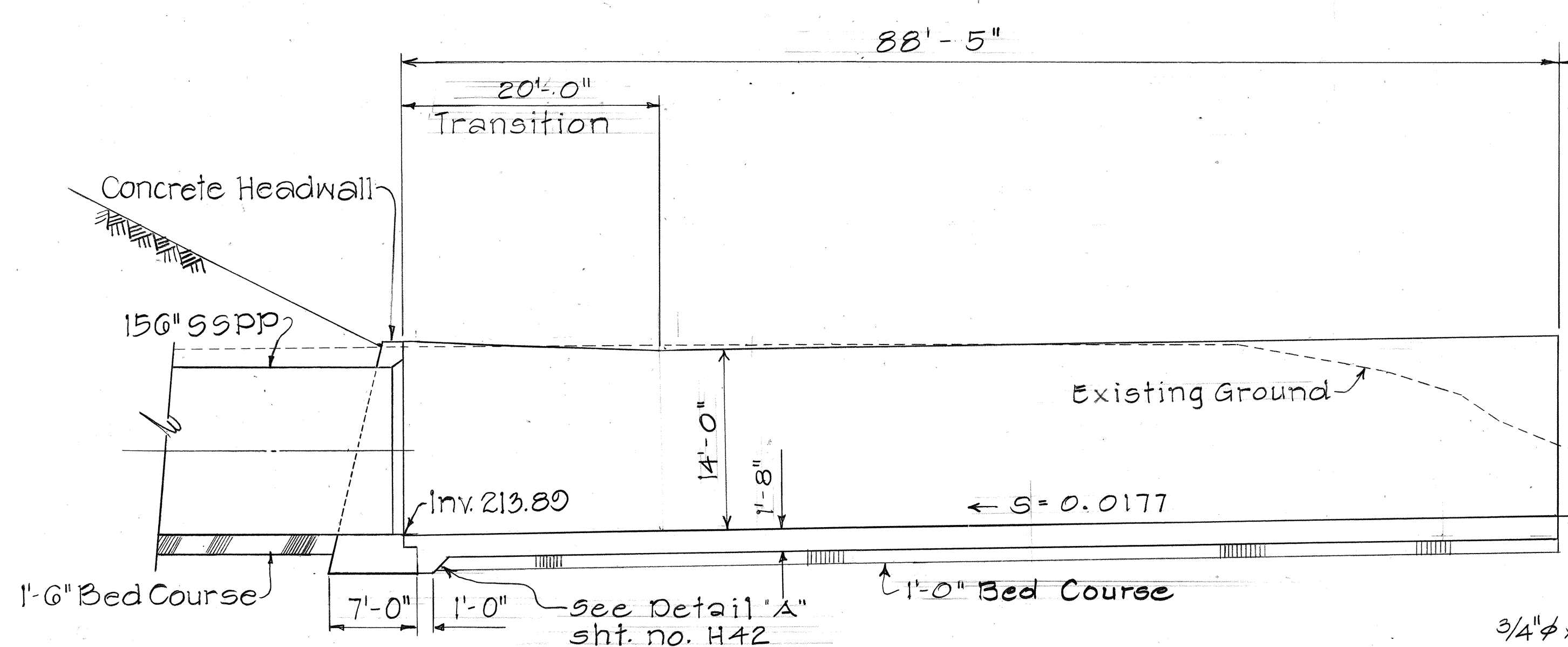
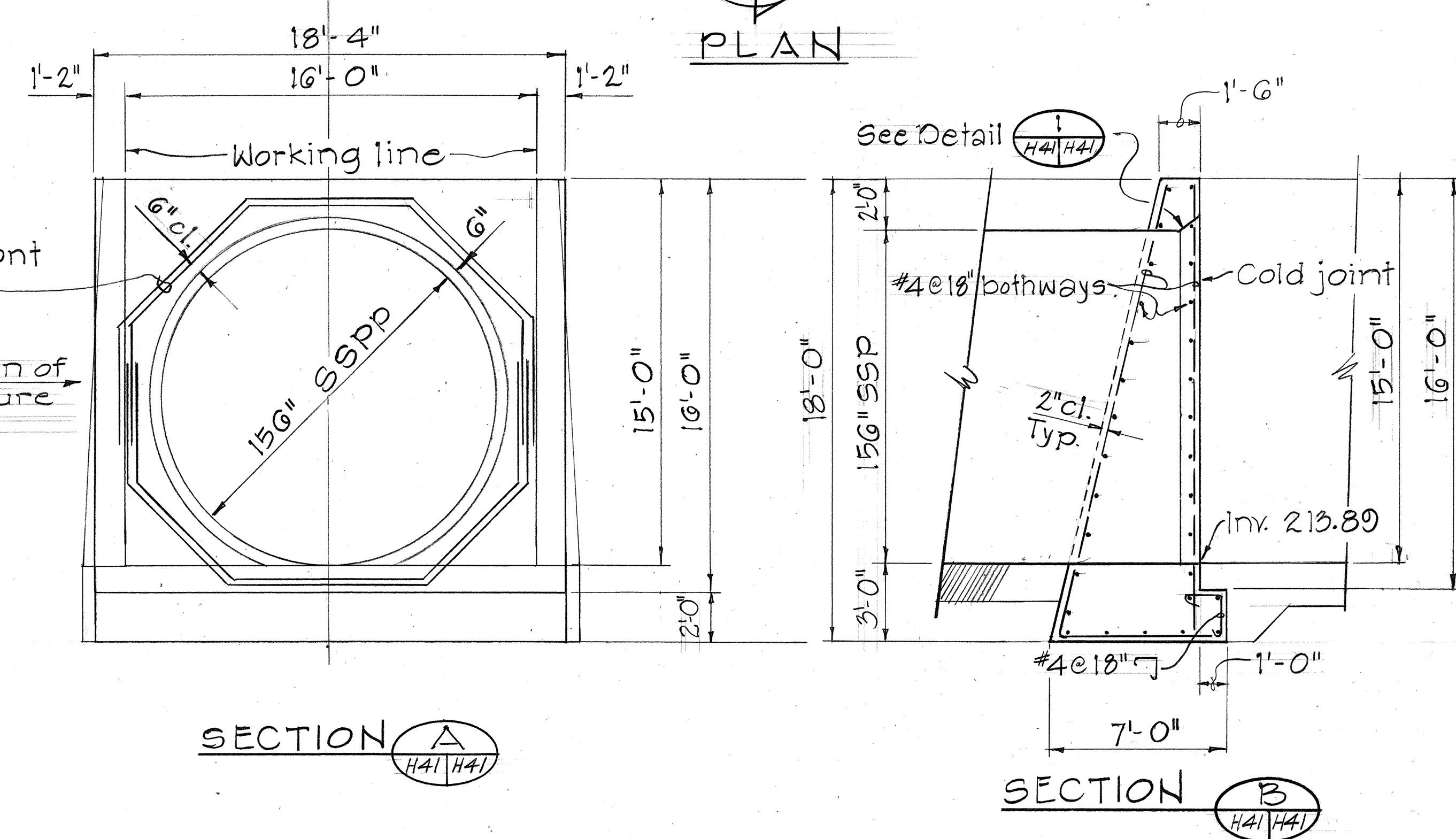
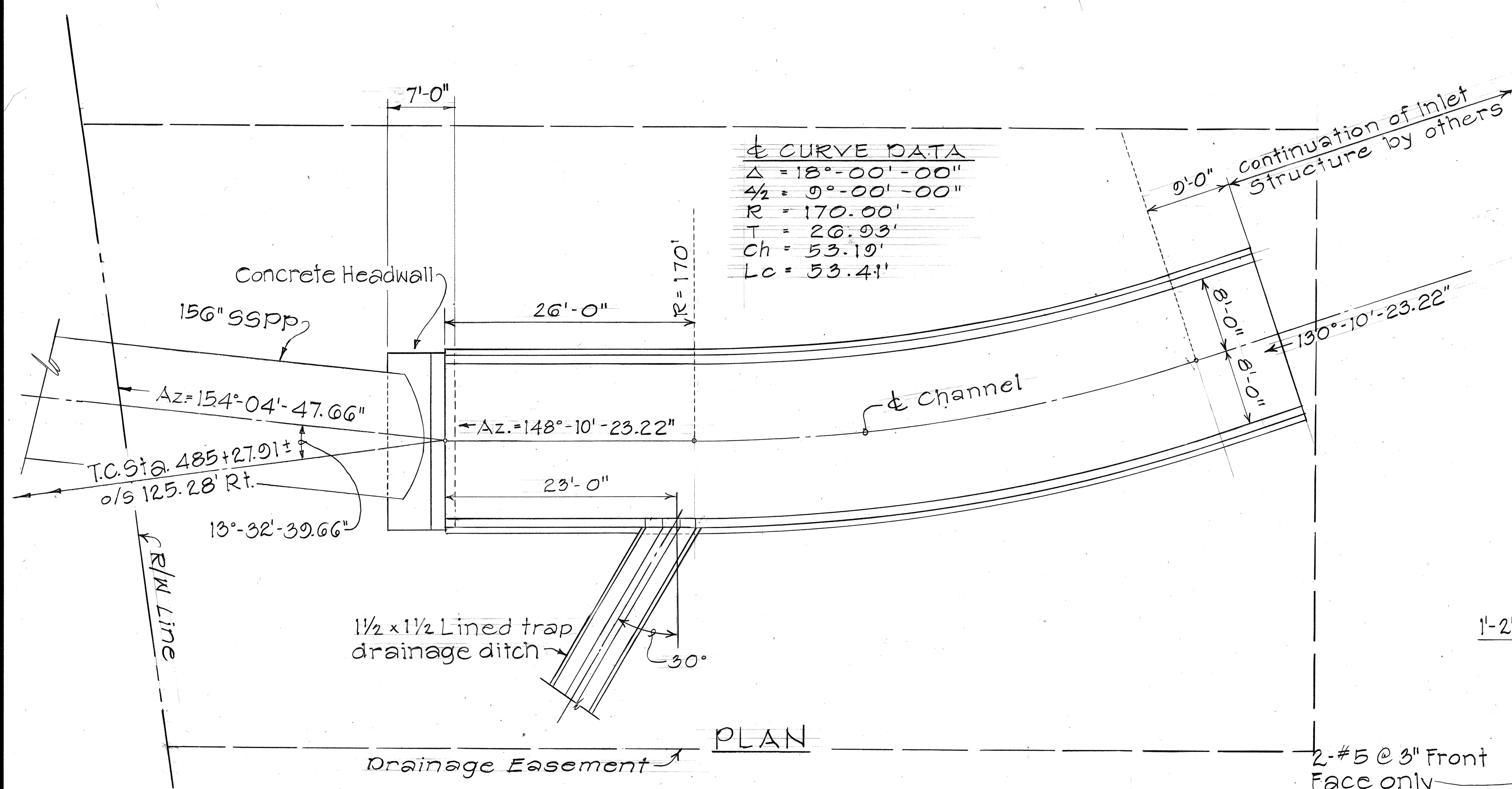
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

DRAINAGE DETAILS

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)

SCALE: AS NOTED DATE: JUL., 1988
SHEET NO. H40 OF 54 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1988	0068	164



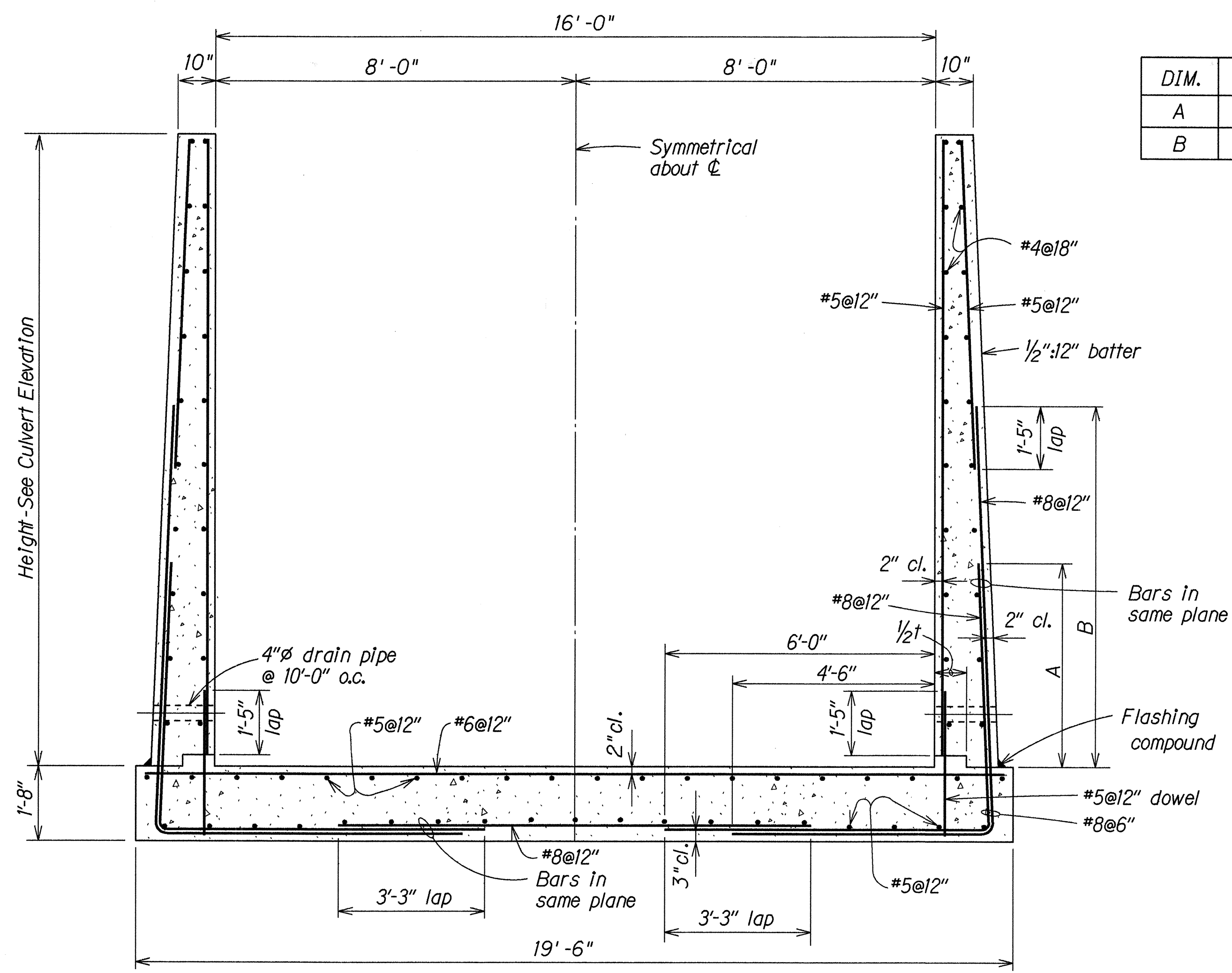
INLET STRUCTURE AT STA. 485+27.91 ± o/s 125.28' RT.
Scale: 1/8" = 1'-0"

DATE	REVISION
6/12/90	Revised Inlet Structure design.

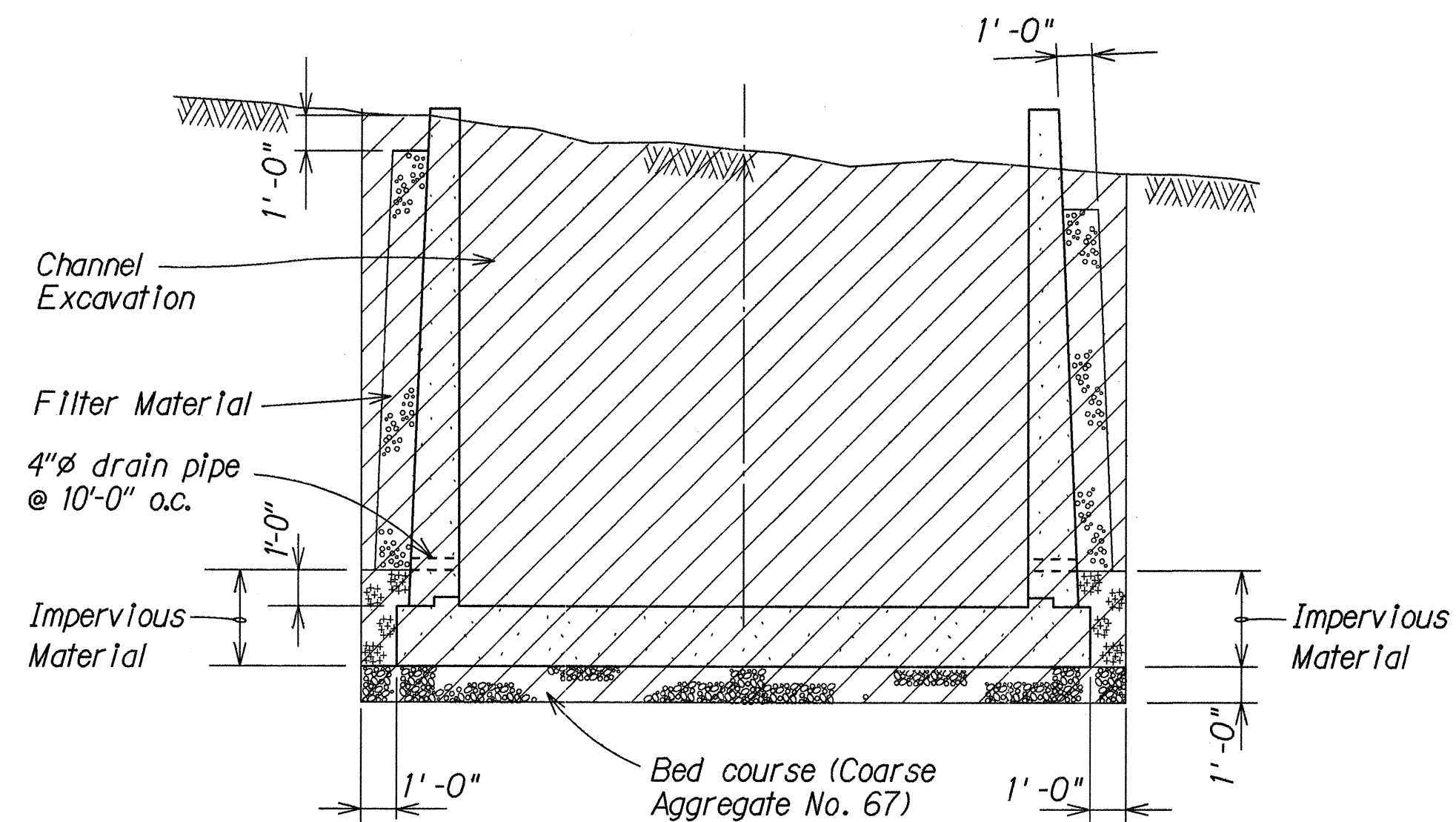
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
DRAINAGE DETAILS	
INTERSTATE ROUTE H-3 F.A.I. PROJ. NO. I-H3-1(50)	
SCALE: AS NOTED	DATE: JUL., 1988
SHEET No. H41 OF 54 SHEETS	

C.O. 68

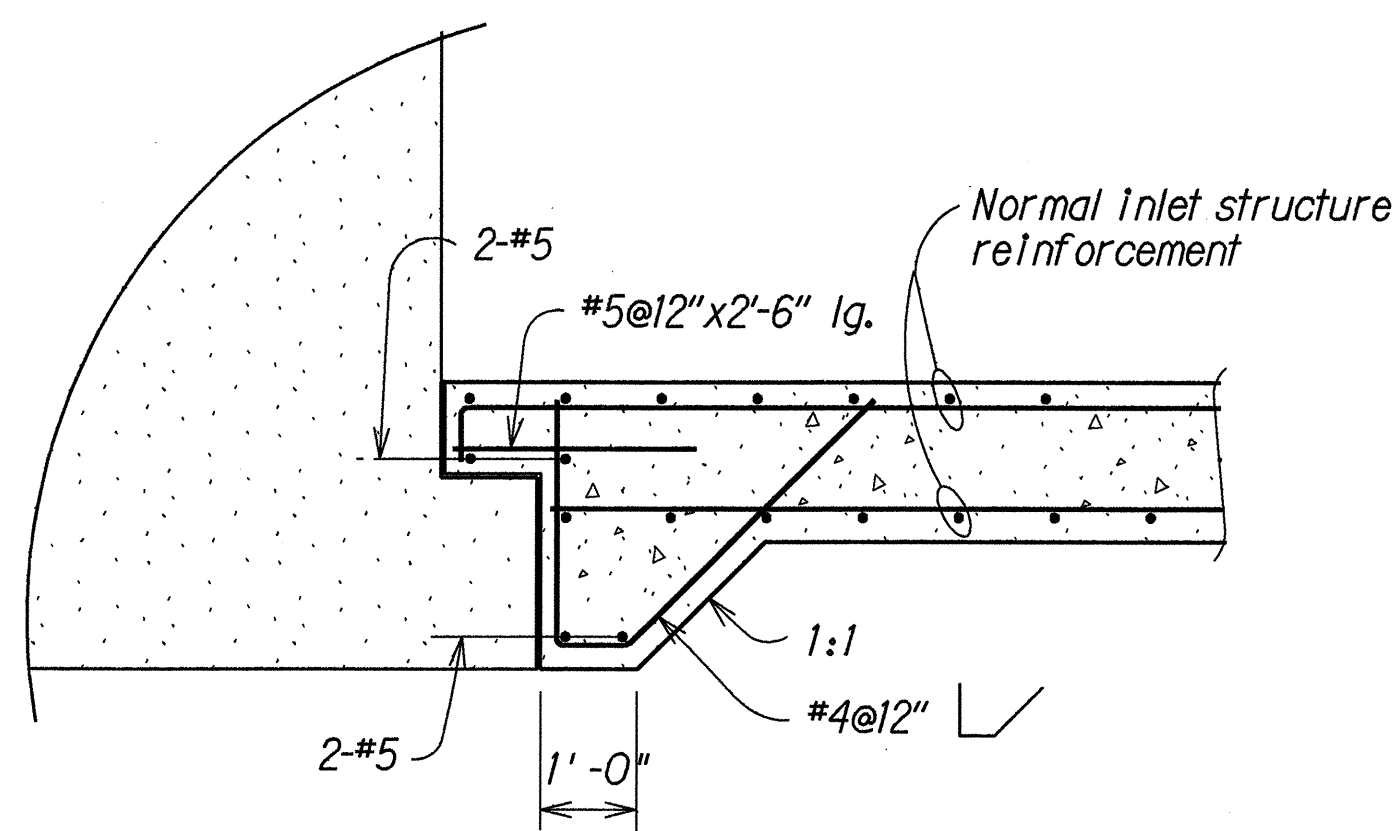
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1990	C.O.69	164



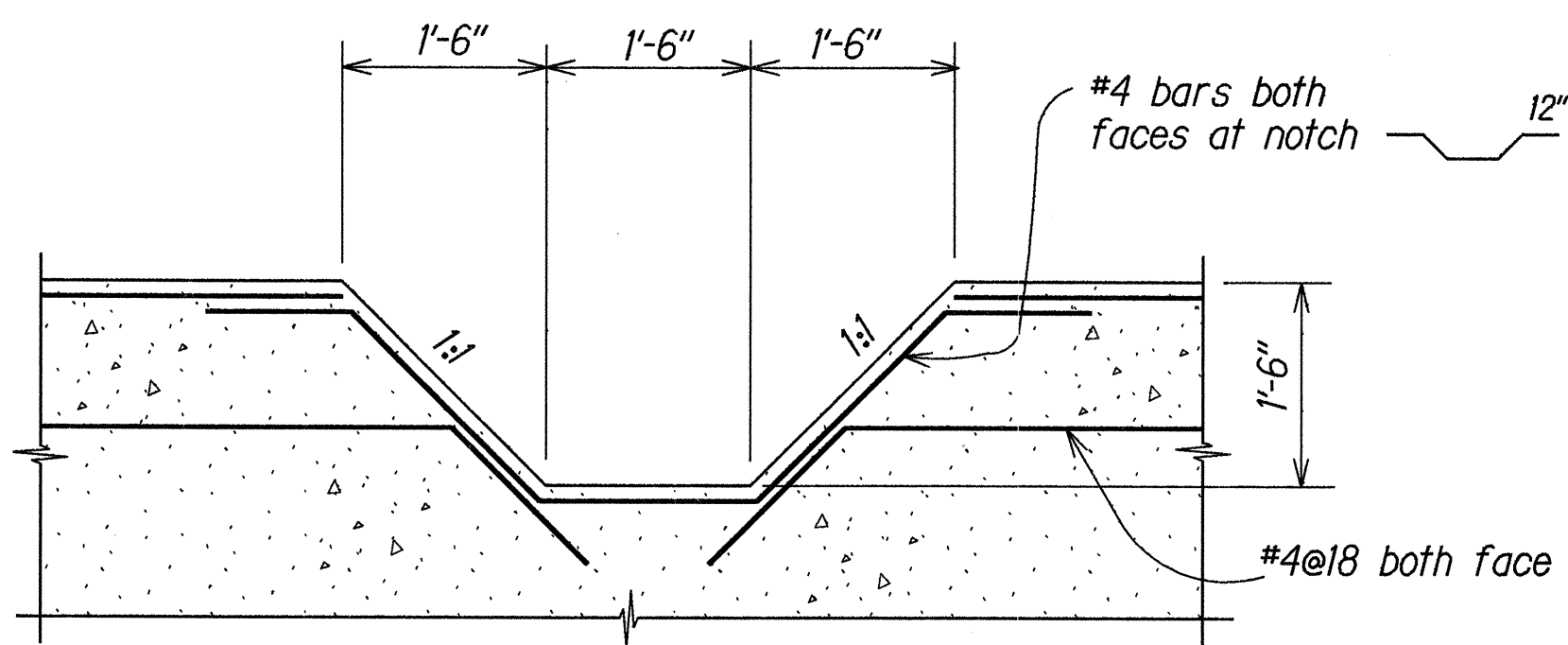
TYPICAL SECTION
Scale: 1/2"=1'-0"



**TYPICAL CHANNEL EXCAVATION
PAY LIMITS**
Scale: 1/4"=1'-0"



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



TRAPEZOIDAL NOTCH DETAIL
Scale: 3/4"=1'-0"

INLET STRUCTURE AT STA. 485+27.91± O/S 125.28' RT.

6/12/90	Revised design of Inlet Structure	Scale: As Noted	June 1990
DATE	REVISION	SHEET No. H42 OF 54 SHEETS	

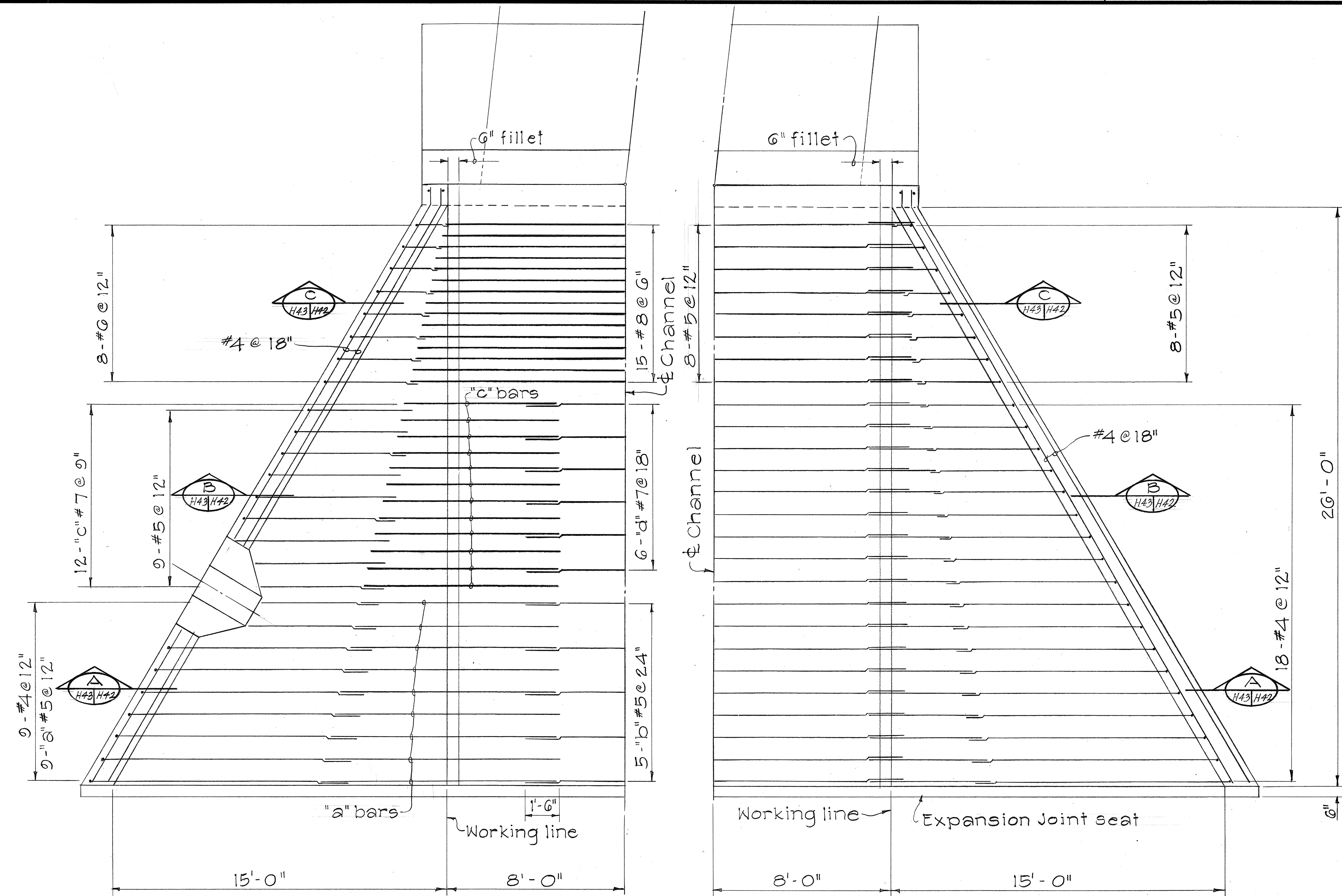
C.O. 69

DRAINAGE DETAILS

**INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)**

SHEET No. H42 OF 54 SHEETS

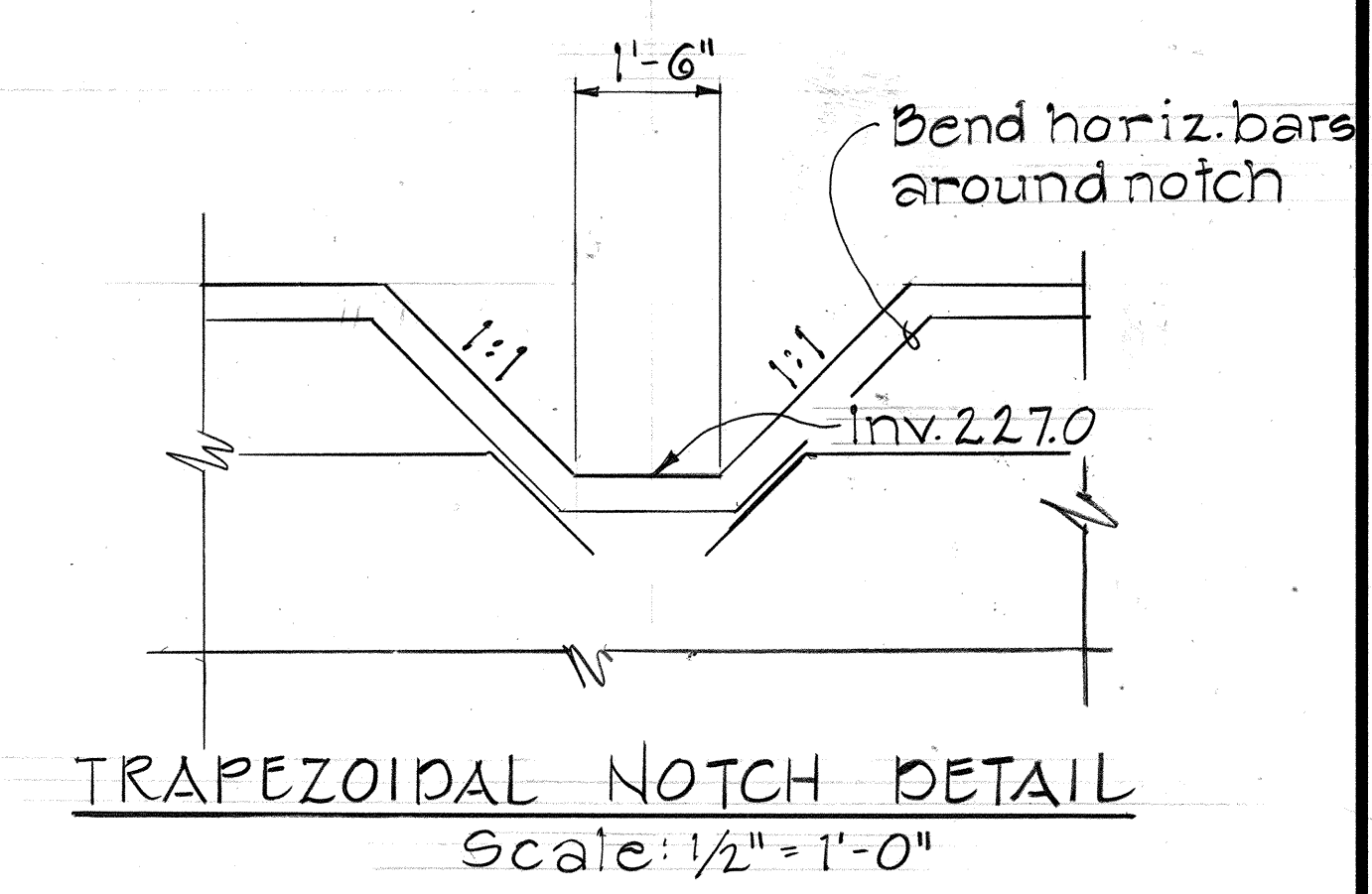
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1989	70	164



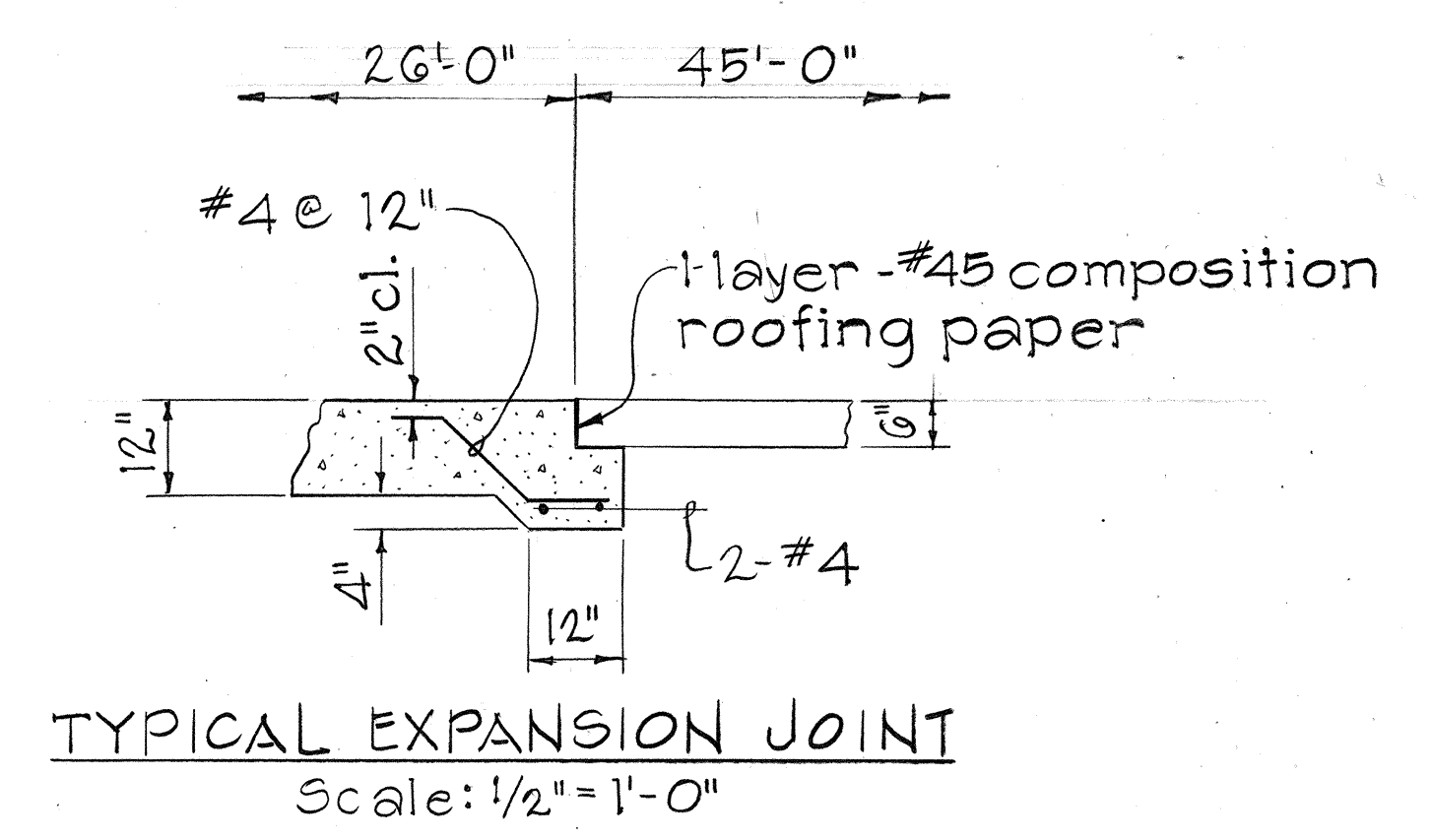
BOTTOM LAYER REINFORCEMENT
(Symmetrical about CL)

TOP LAYER REINFORCEMENT
(Symmetrical about CL)

PLAN VIEW OF REINFORCING STEEL AT CHANNEL TRANSITION
Scale: 3/8" = 1'-0"



TRAPEZOIDAL NOTCH DETAIL
Scale: 1/2" = 1'-0"



TYPICAL EXPANSION JOINT
Scale: 1/2" = 1'-0"

INLET STRUCTURE AT STA. 485+27.91 ± o/s 125.28' RT.

Sheet deleted from
Contract Plans.

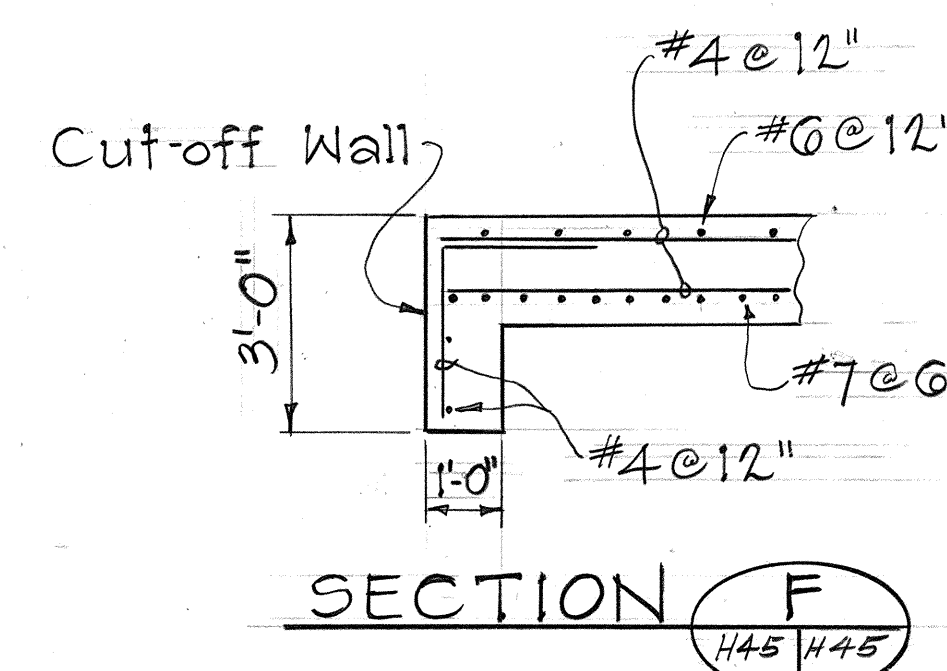
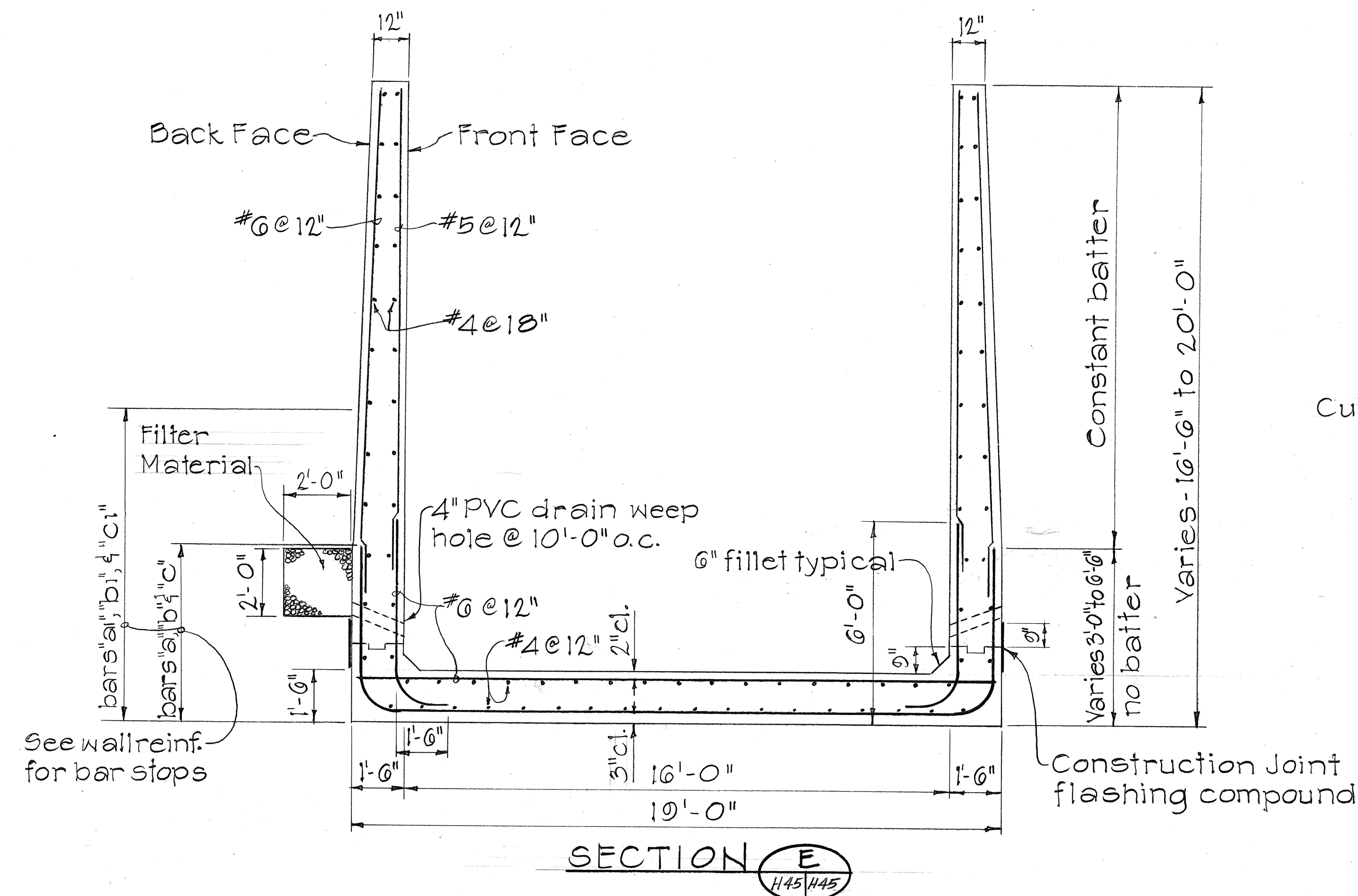
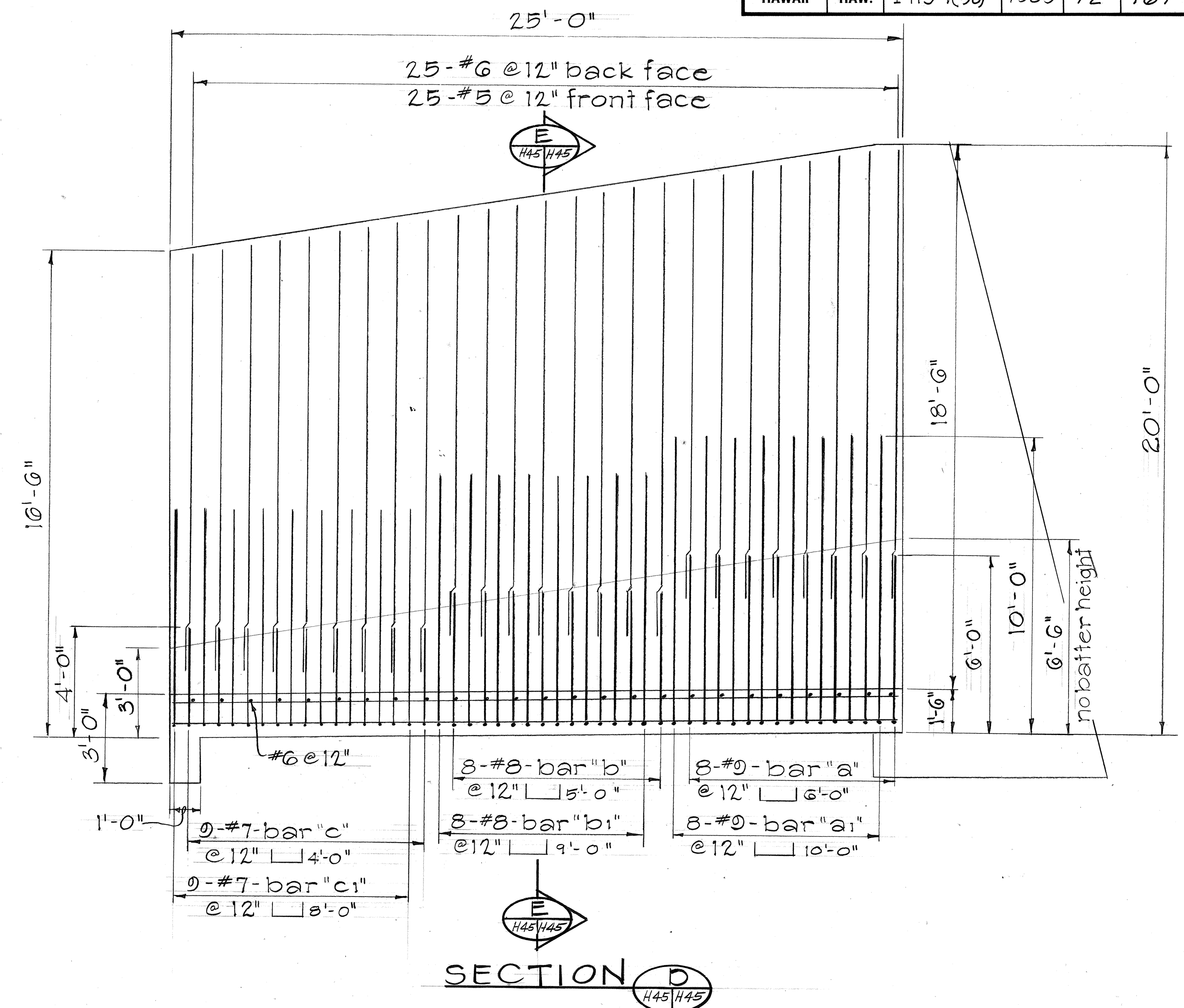
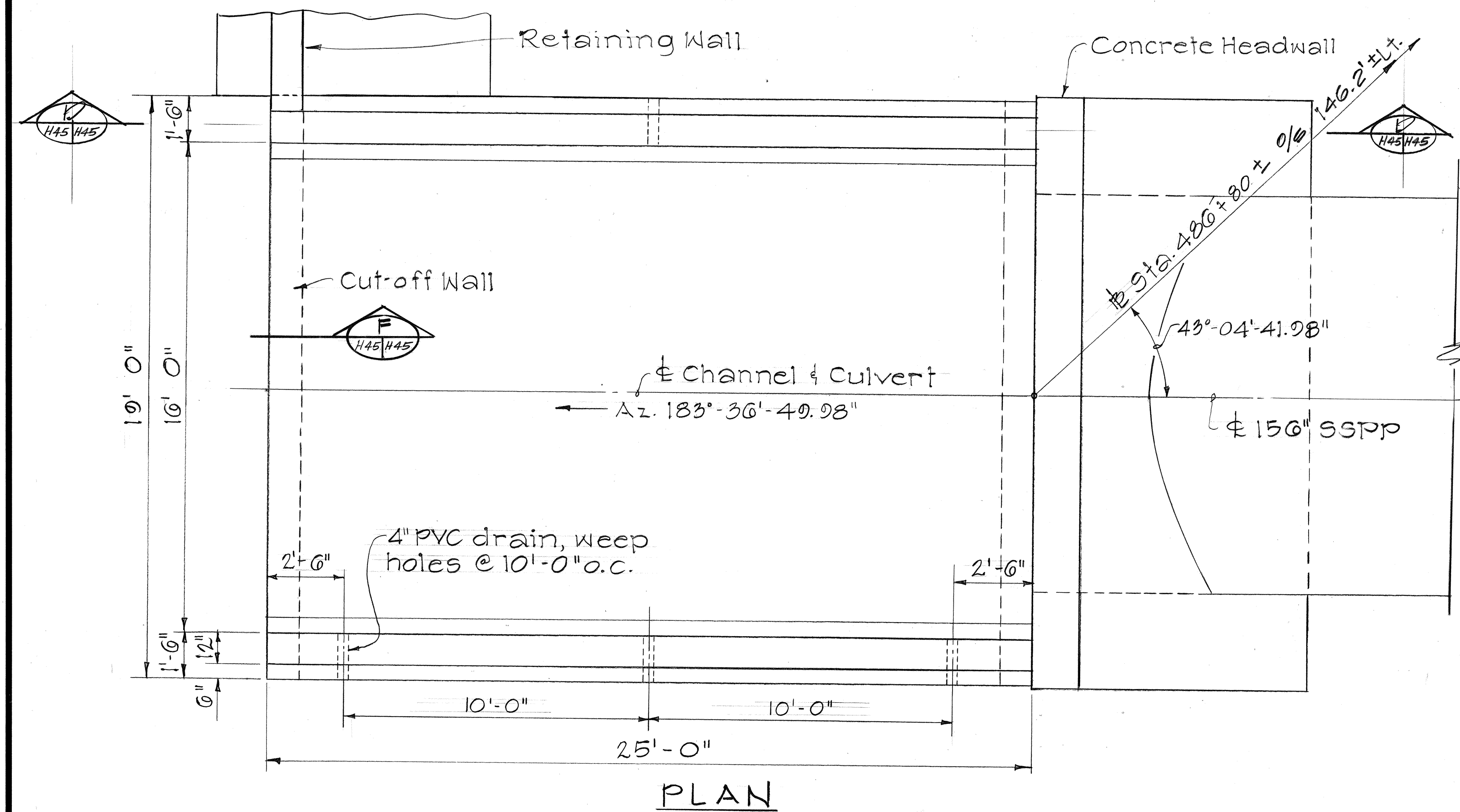
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)
SCALE: AS NOTED DATE: JUL., 1988
SHEET NO. H43 OF 54 SHEETS

DESIGNED BY	DATE
TRACED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1989	72	164



DETAIL OF OUTLET CHANNEL

Scale: 1/8" = 1'-0"

OUTLET STRUCTURE AT STA. 486+80 ± 0/5 146.2' ± LT.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

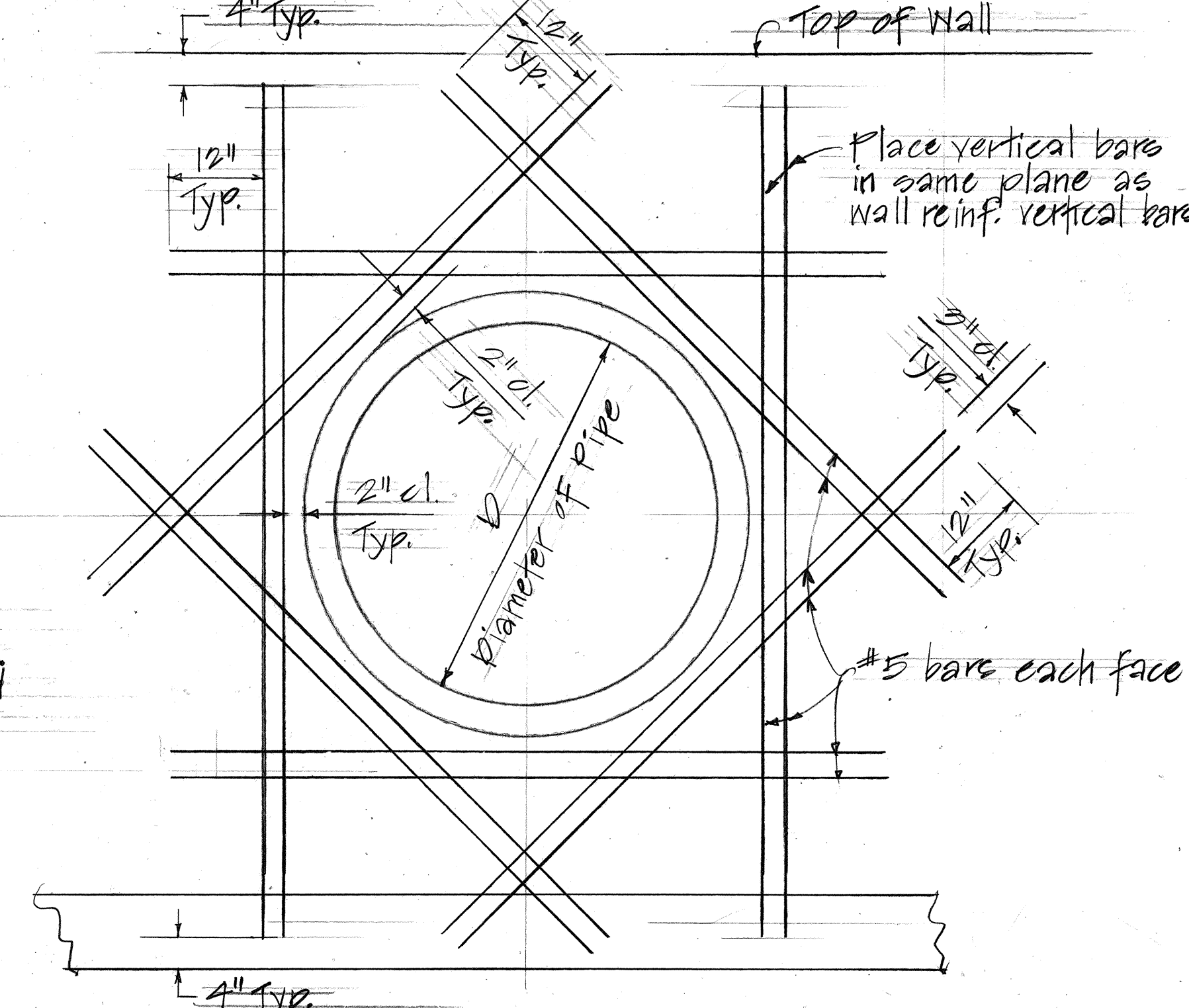
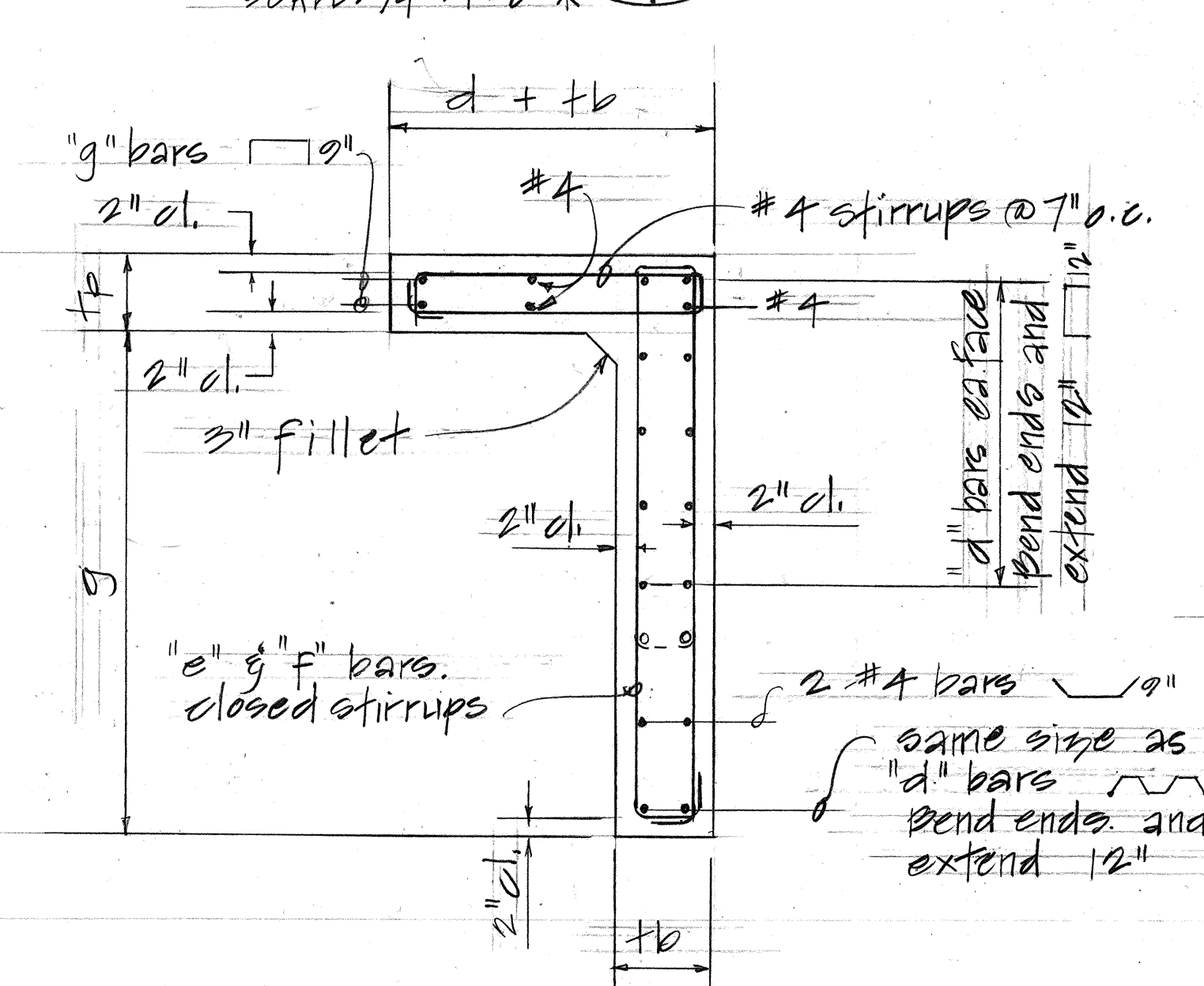
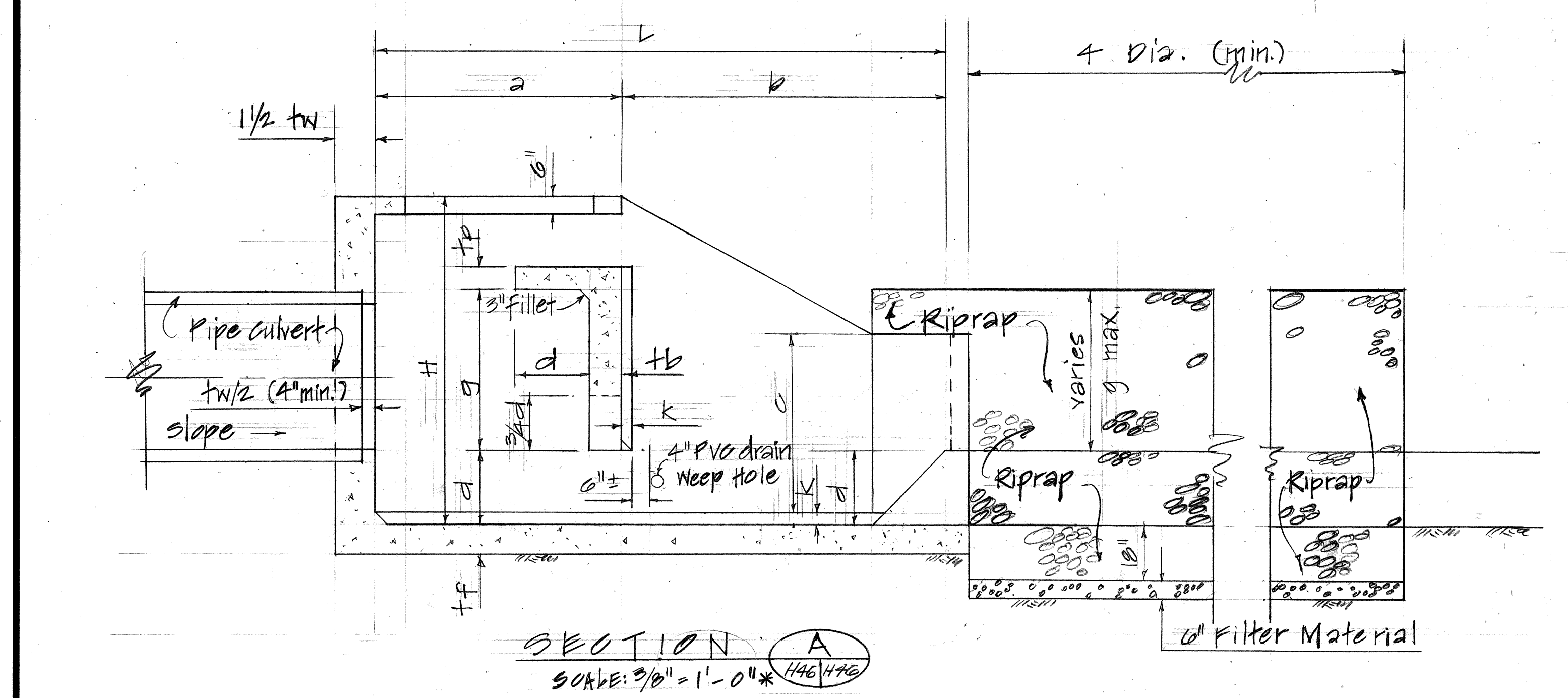
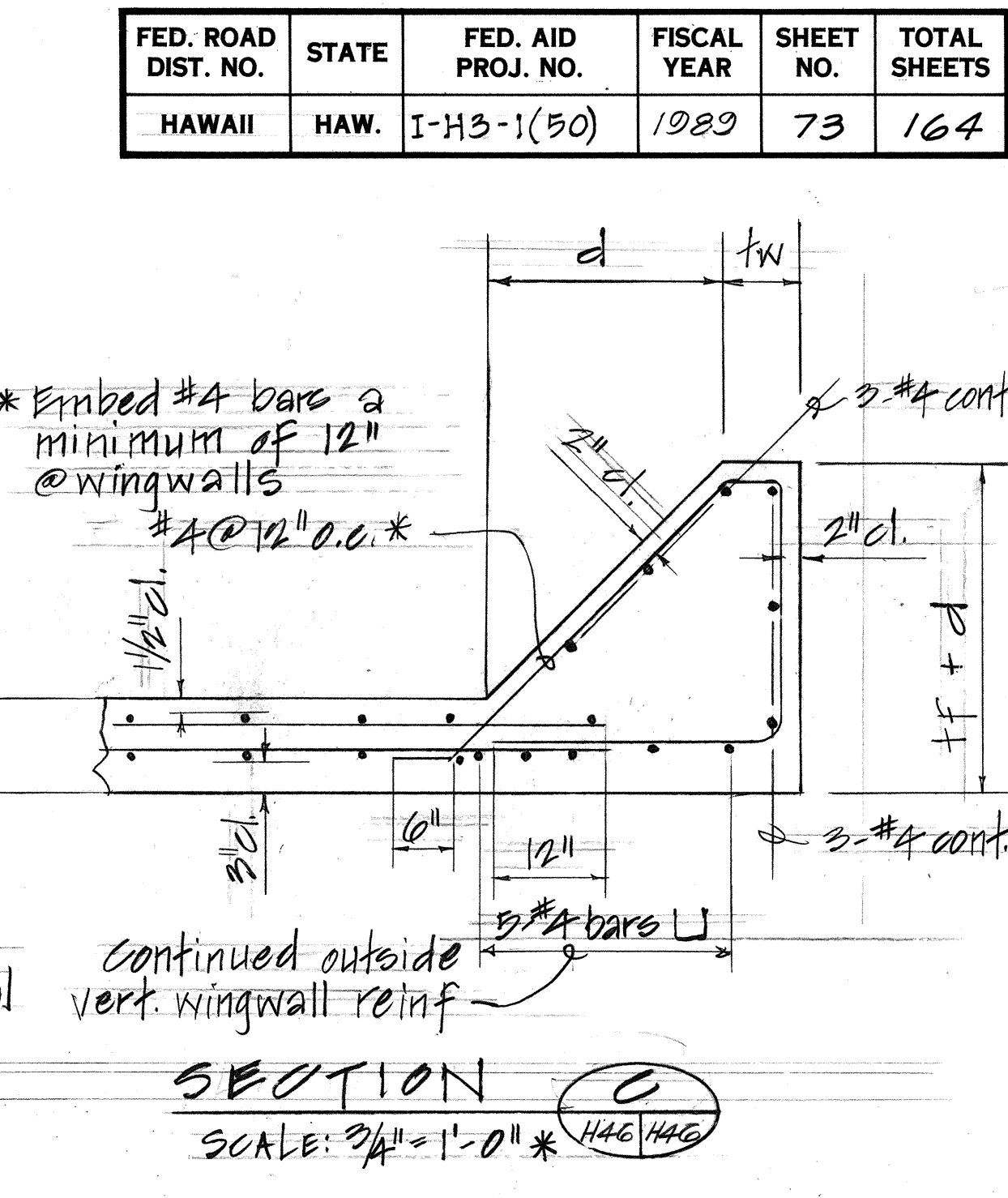
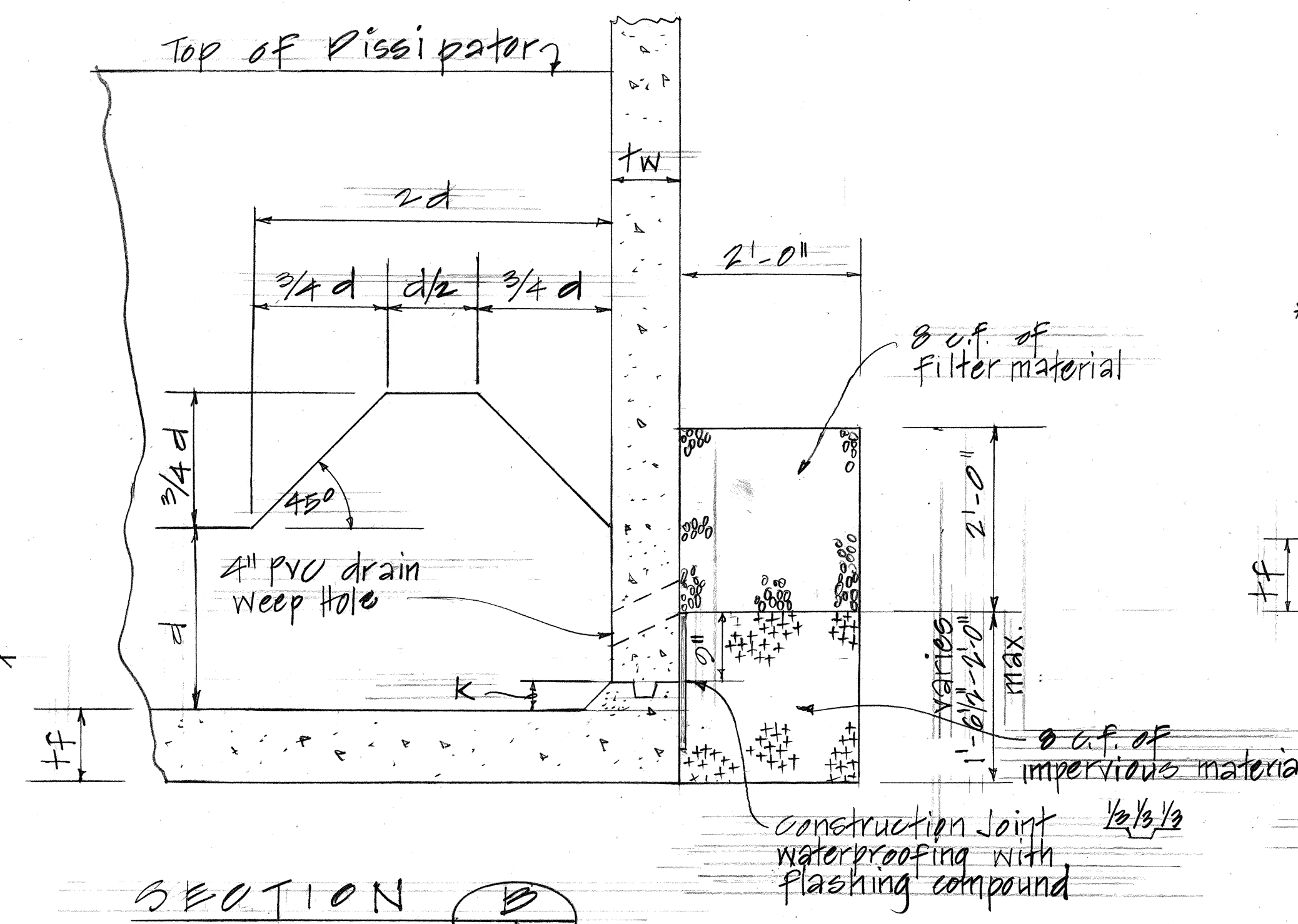
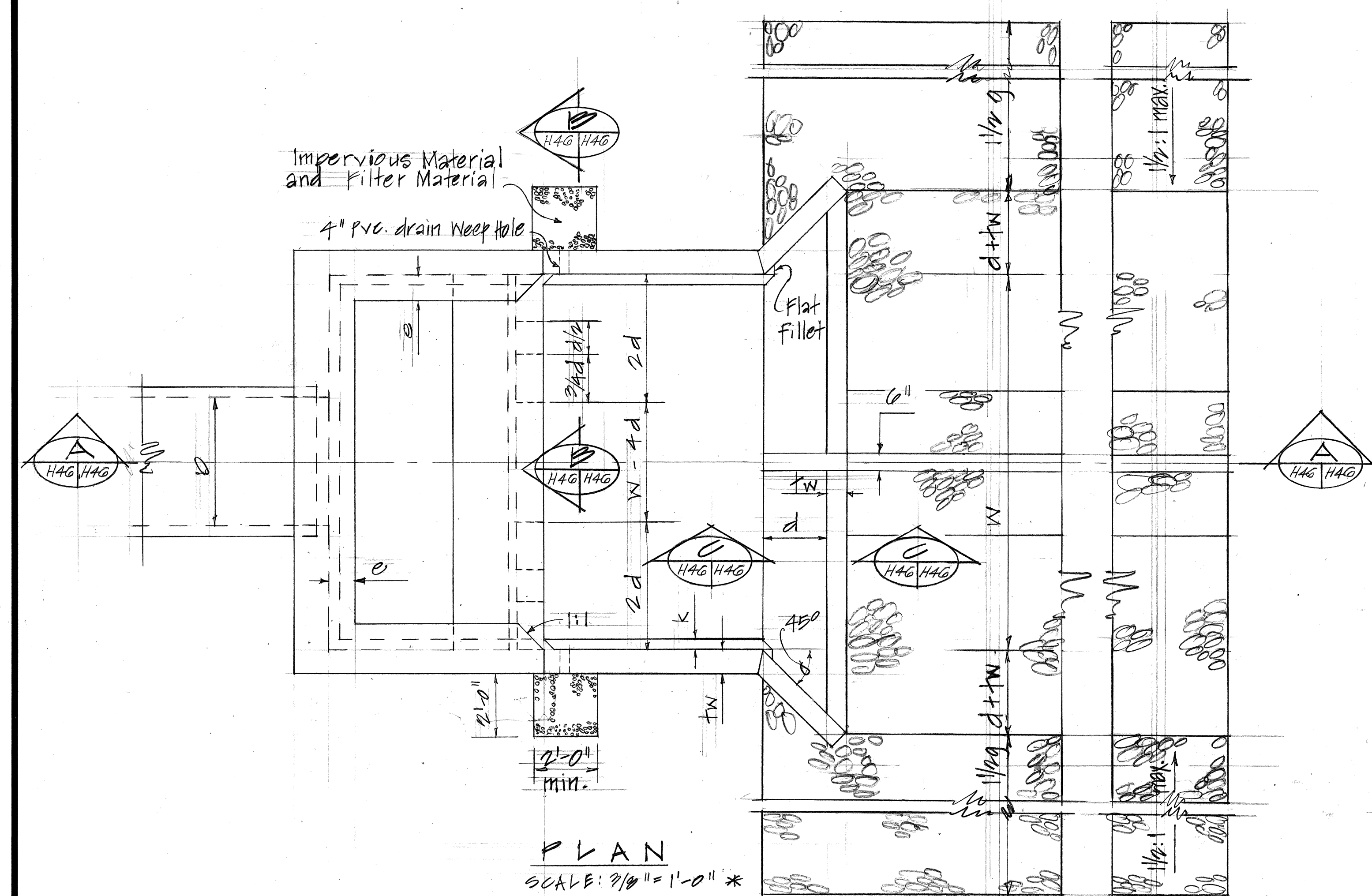
INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)

SCALE: AS NOTED DATE: JUL., 1988

SHEET No. 45 OF 54 SHEETS

72

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1989	73	164



DETAILS OF IMPACT TYPE ENERGY DISSIPATOR

* scale is for dissipator with 48\" pipe culvert. see dimension table for other pipe diameter sizes.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

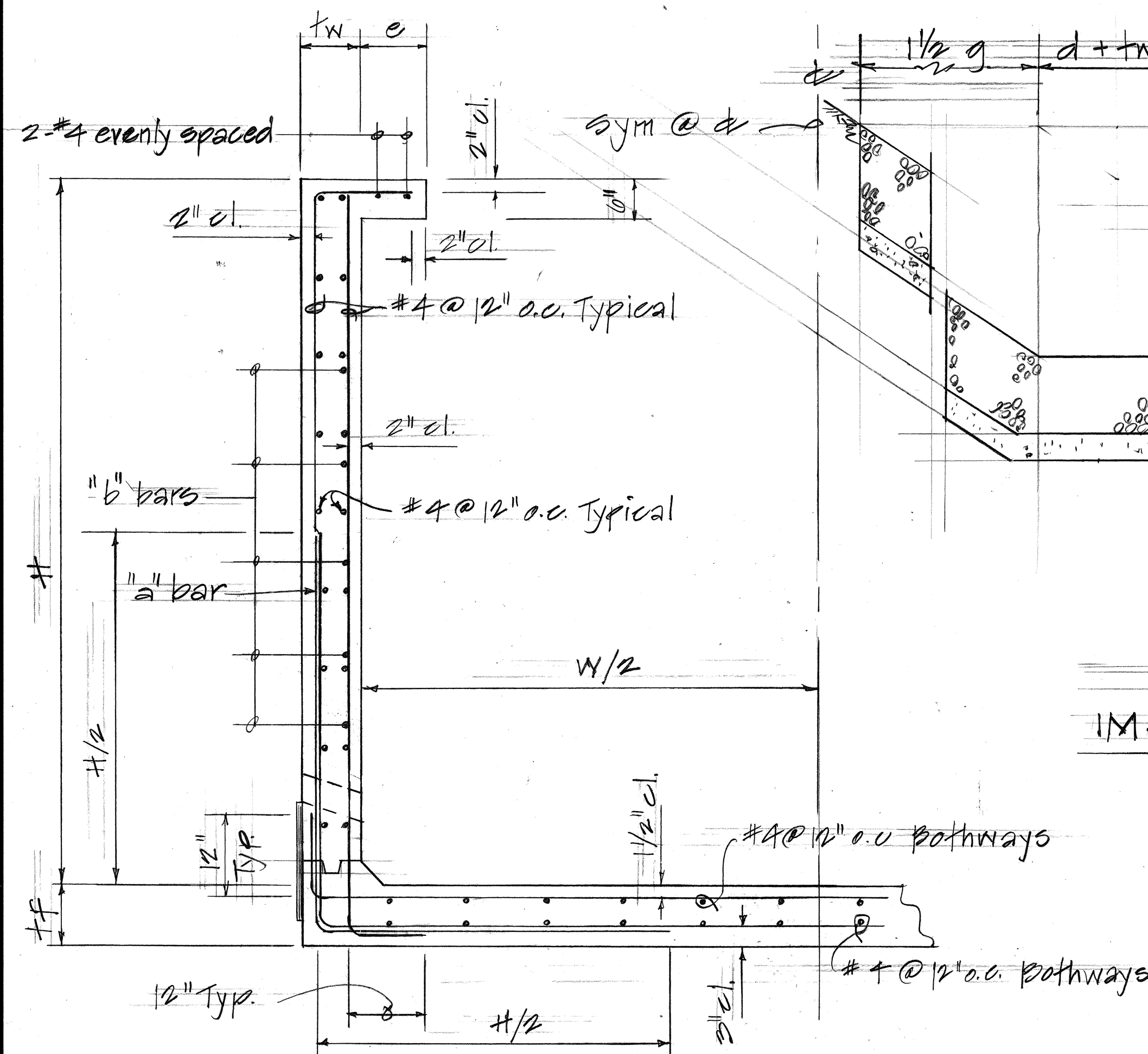
DRAINAGE DETAILS

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)

SCALE: AS NOTED DATE: JUL., 1988

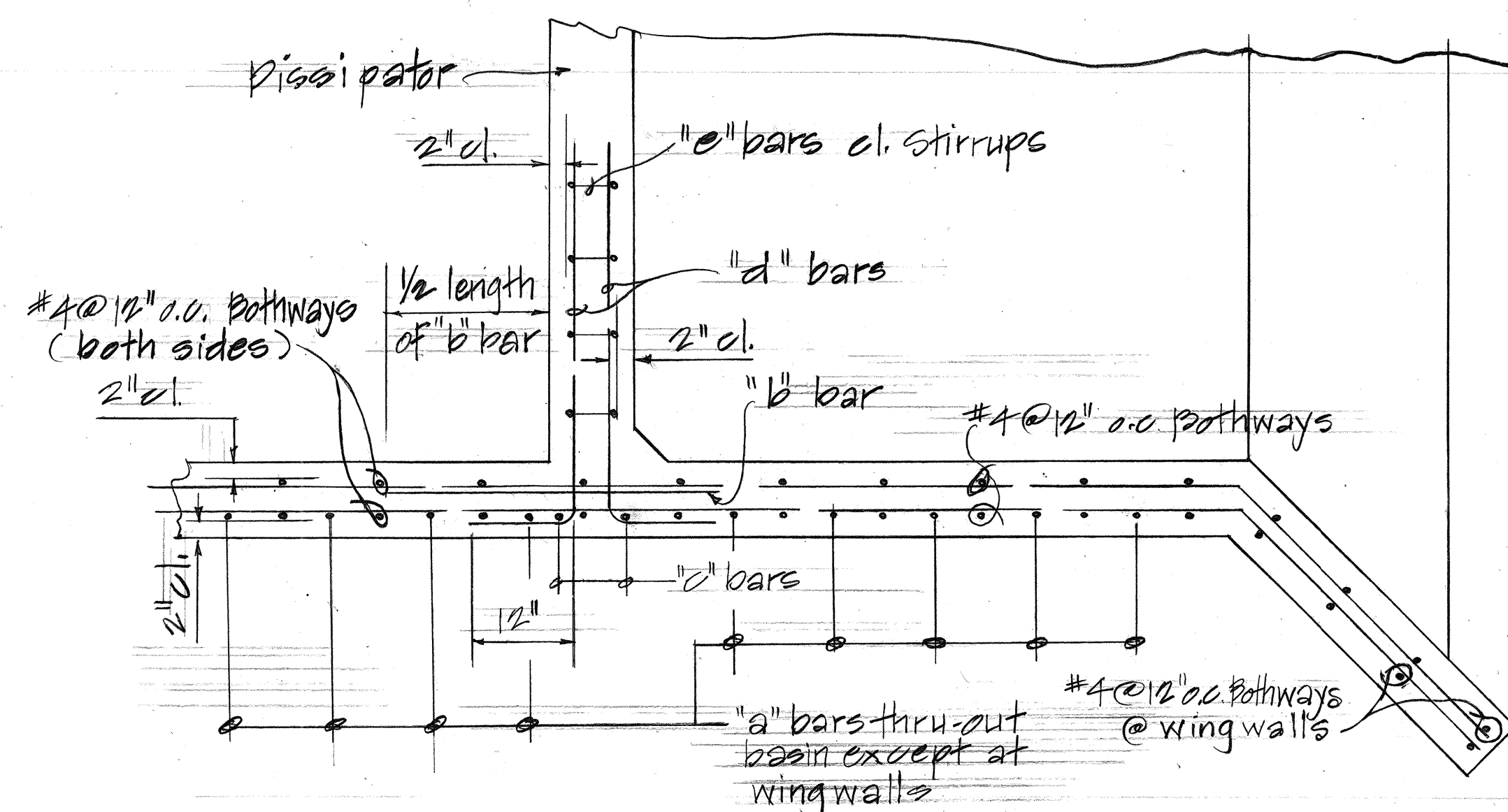
SHEET No. 446 OF 54 SHEETS

DATE	
DESIGNED BY	
TRACED BY	
NOTE BOOK	
CHECKED BY	



TYPICAL WALL AND SLAB REINFORCING

SCALE: 3/4" = 1'-0" *



TYPICAL WALL REINFORCING AND DISSIPATOR CONNECTION

SCALE: 3/4" = 1'-0" *

OUTLET DITCH FOR IMPACT TYPE ENERGY DISSIPATOR

SCALE: 1/2" = 1'-0" *

DISSIPATOR REINFORCING

SCALE: 3/4" = 1'-0" *

BAR DESIGNATION	30"	36"	42"	48"	60"	72"	84"
"a"	#4 @ 12" o.c.	#4 @ 12" o.c.	#5 @ 12" o.c.	#6 @ 12" o.c.	#6 @ 12" o.c.	#7 @ 12" o.c.	#8 @ 12" o.c.
"b"	4 #4 x 2'-6" lg.	5 #4 x 2'-6"	5 #5 x 2'-6"	5 #6 x 3'-3"	5 #7 x 3'-6"	7 #7 x 3'-6"	7 #8 x 4'-6"
"c"	#4 x 4'-7" lg.	#4 x 5'-8"	#5 x 6'-1"	#6 x 6'-7"	#7 x 7'-6"	#7 x 8'-4"	#8 x 9'-3"
"d"	4 #4 @ 7" o.c.	4 #4 @ 8" o.c.	5 #5 @ 7" o.c.	5 #6 @ 8" o.c.	7 #7 @ 8" o.c.	9 #7 @ 8" o.c.	9 #8 @ 7 1/2" o.c.
"e"	#4 stirr. @ 7" o.c.	#4 stirr. @ 7" o.c.	#4 stirr. @ 8" o.c.	#4 stirr. @ 8" o.c.	#5 stirr. @ 9" o.c.	#5 stirr. @ 8" o.c.	#5 stirr. @ 7" o.c.
"f"	none	none	2 #4 stirr. added	4 #4 stirr. added	4 #4 stirr. added	6 #4 stirr. added	6 #4 stirr. added
"g"	2-#4	2-#4	2-#5	2-#5	2-#6	2-#6	2-#6

PIPE DIA. Inches	IMPACT TYPE ENERGY DISSIPATOR														
	Feet and Inches										Inches				
	W	H	L	a	b	c	d	e	g	tw	tf	tb	tp	k	
30	8-0	6-3	10-8	4-7	6-1	3-4	1-4	0-8	3-0	8	6 1/2	7	7	3	
36	9-3	7-3	12-4	5-3	7-1	3-10	1-7	0-8	3-6	8	7 1/2	8	8	3	
42	10-6	8-0	14-0	6-0	8-0	4-5	1-9	0-10	3-11	8	8 1/2	9	9	4	
48	11-9	9-0	15-8	6-9	8-11	4-11	2-0	0-10	4-5	9	9 1/2	10	10	4	
60	14-3	10-9	19-0	8-0	11-0	5-11	2-8	1-0	5-4	11	11 1/2	13	13	6	
72	16-6	12-3	22-0	9-3	12-9	6-11	2-9	1-3	6-2	12	12 1/2	15	15	6	
84	16-6	13-9	22-0	9-6	12-9	7-11	2-1	1-3	7-1	13	13 1/2	17	17	6	

DIMENSION TABLE

DETAILS OF IMPACT TYPE ENERGY DISSIPATOR

* Scale is for dissipator with 48" pipe culvert. See dimension table for other pipe diameter sizes.

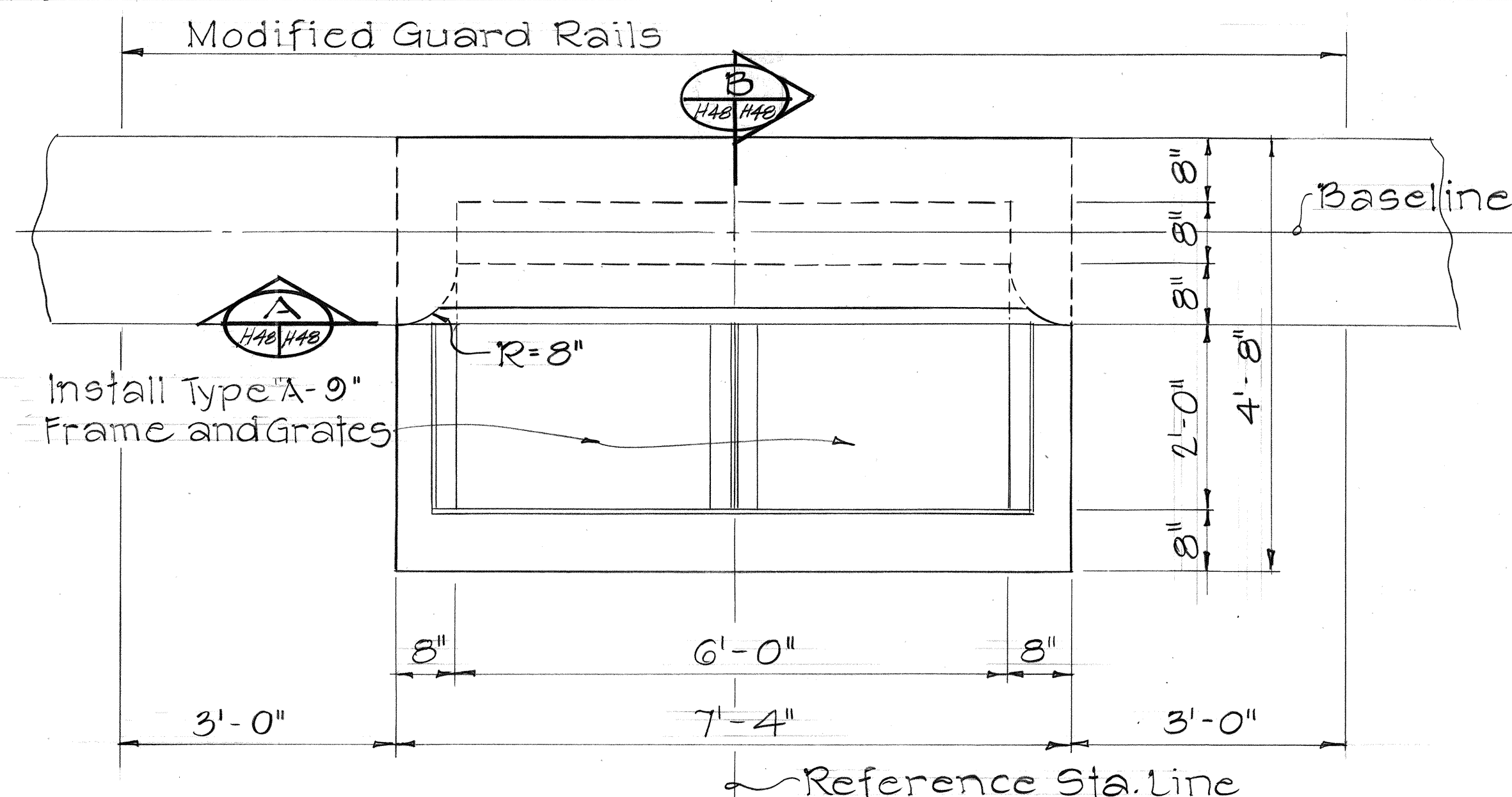
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)

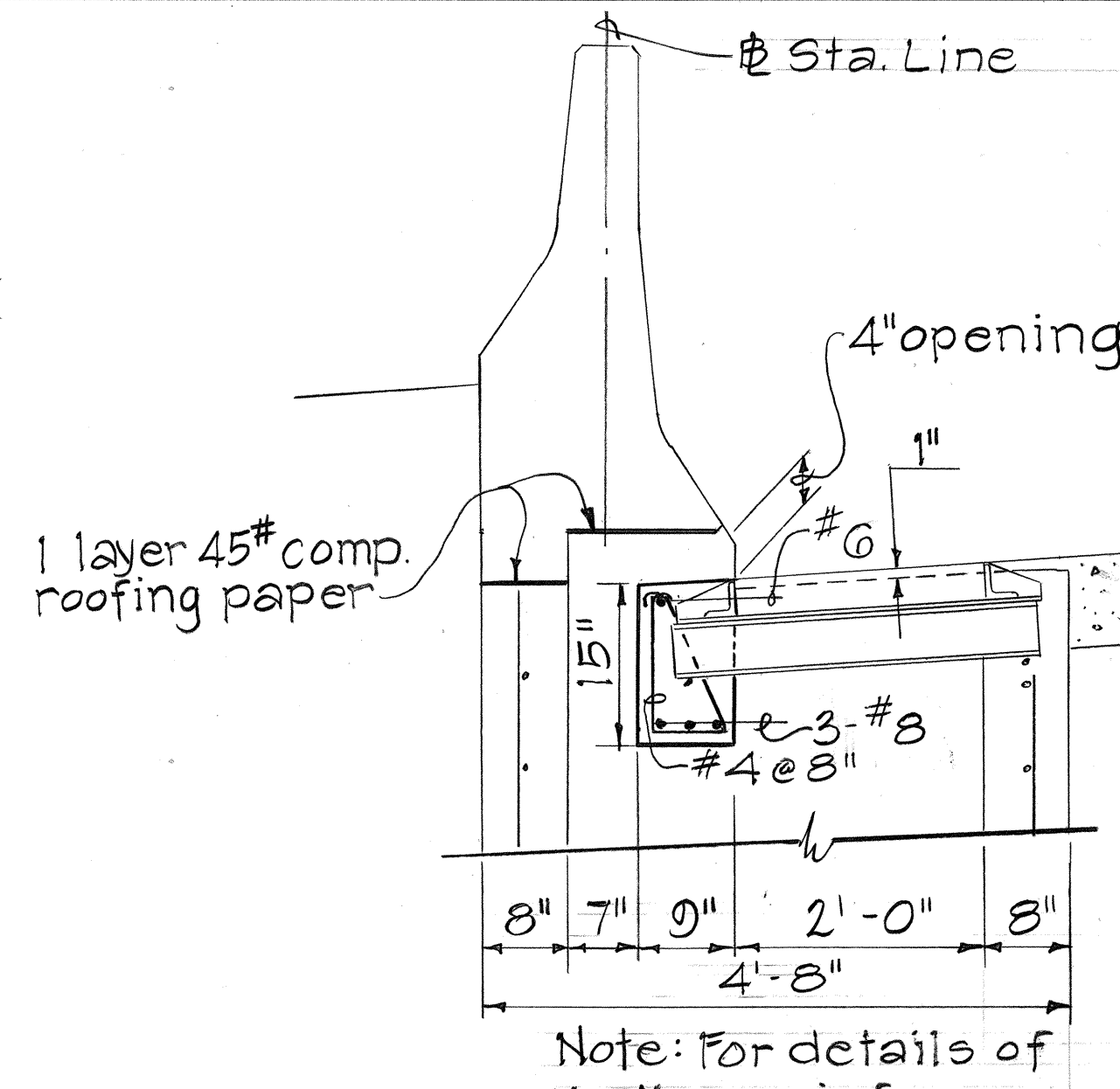
SCALE: AS NOTED DATE: JUL., 1988
SHEET NO. H47 OF 54 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1989	75	164

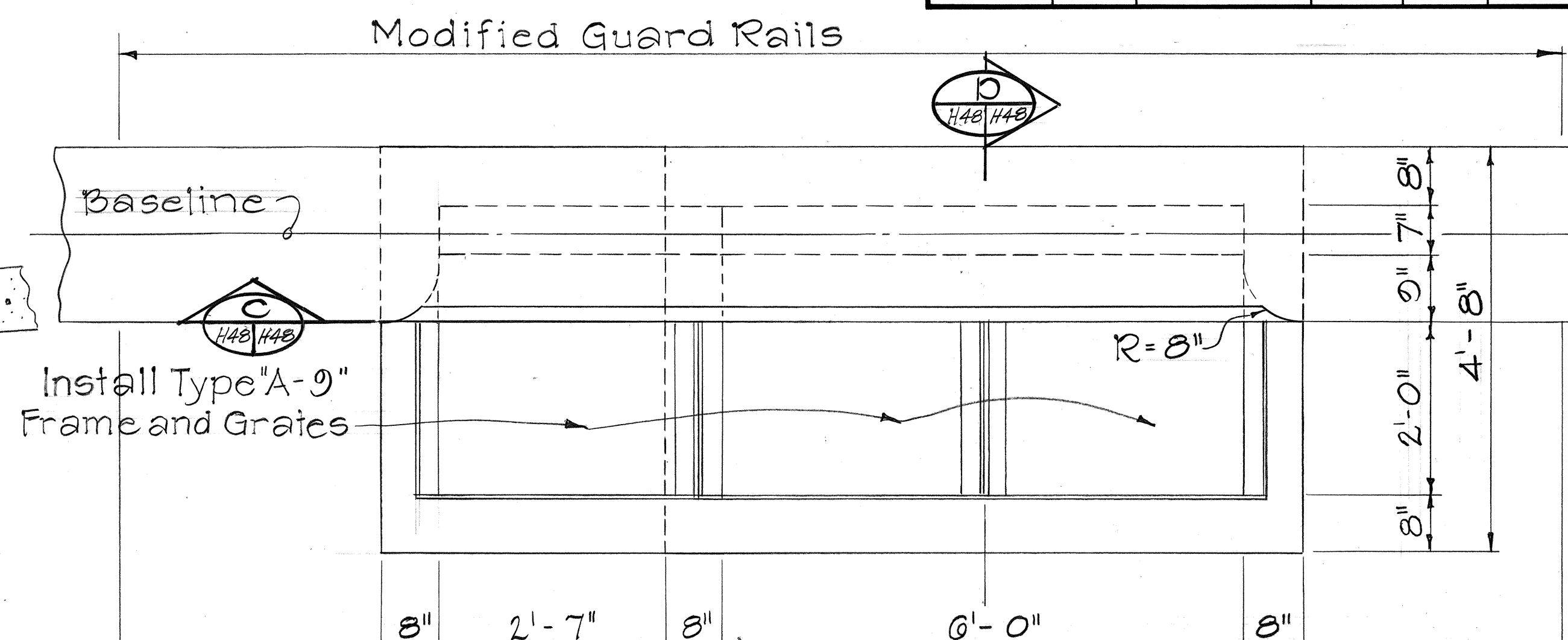


PLAN

Top of Guard Rail

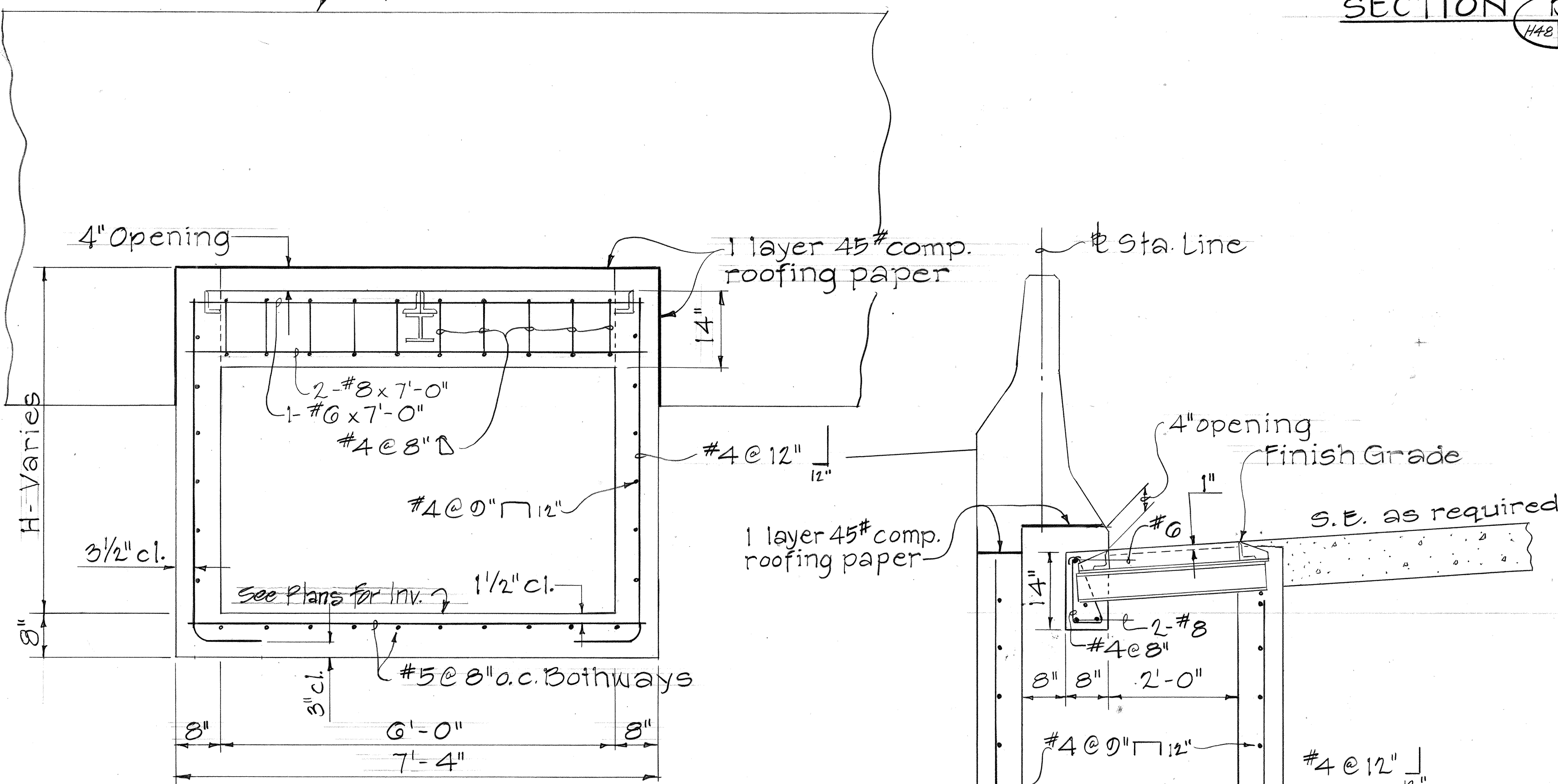


SECTION B

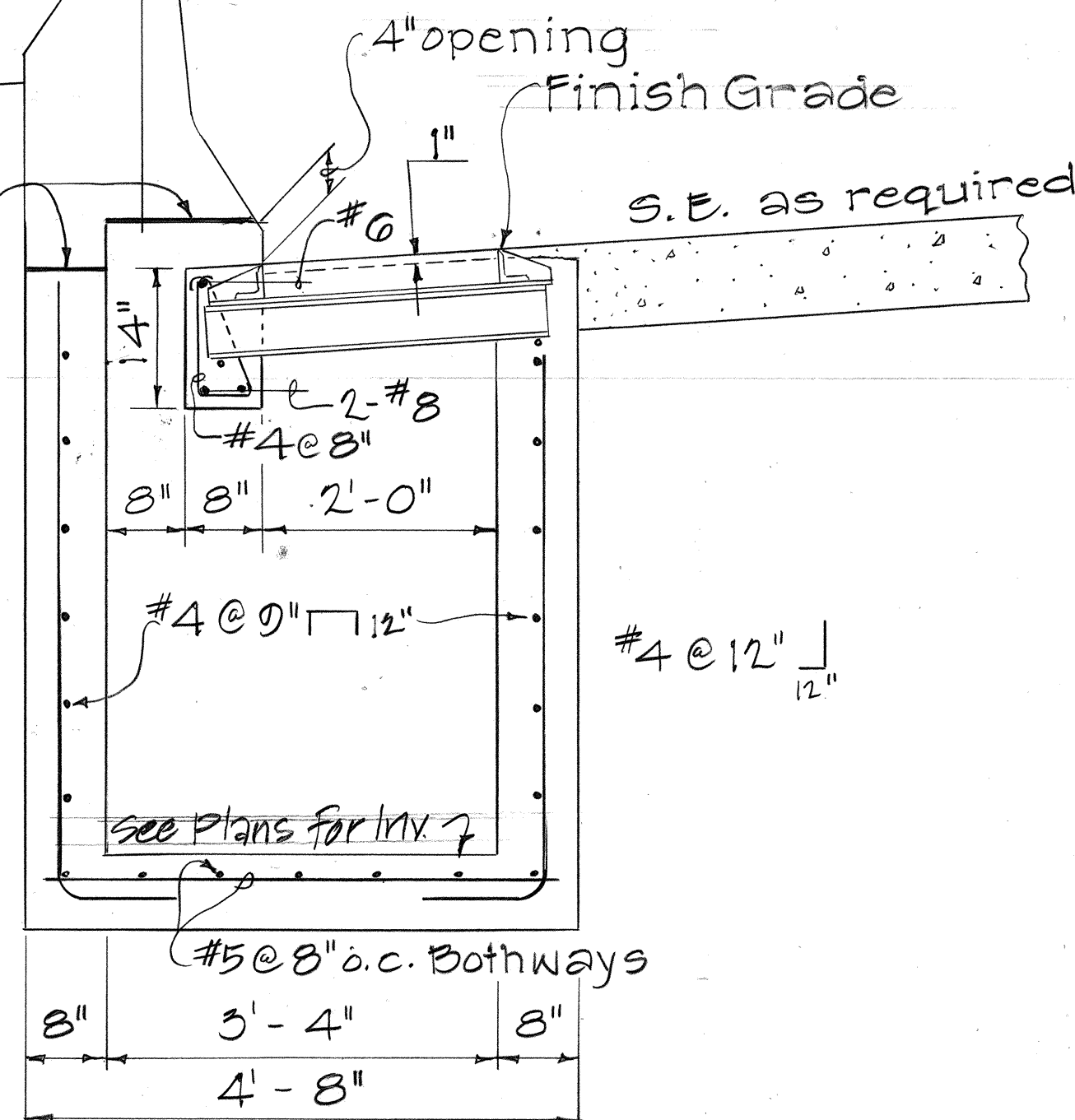


PLAN

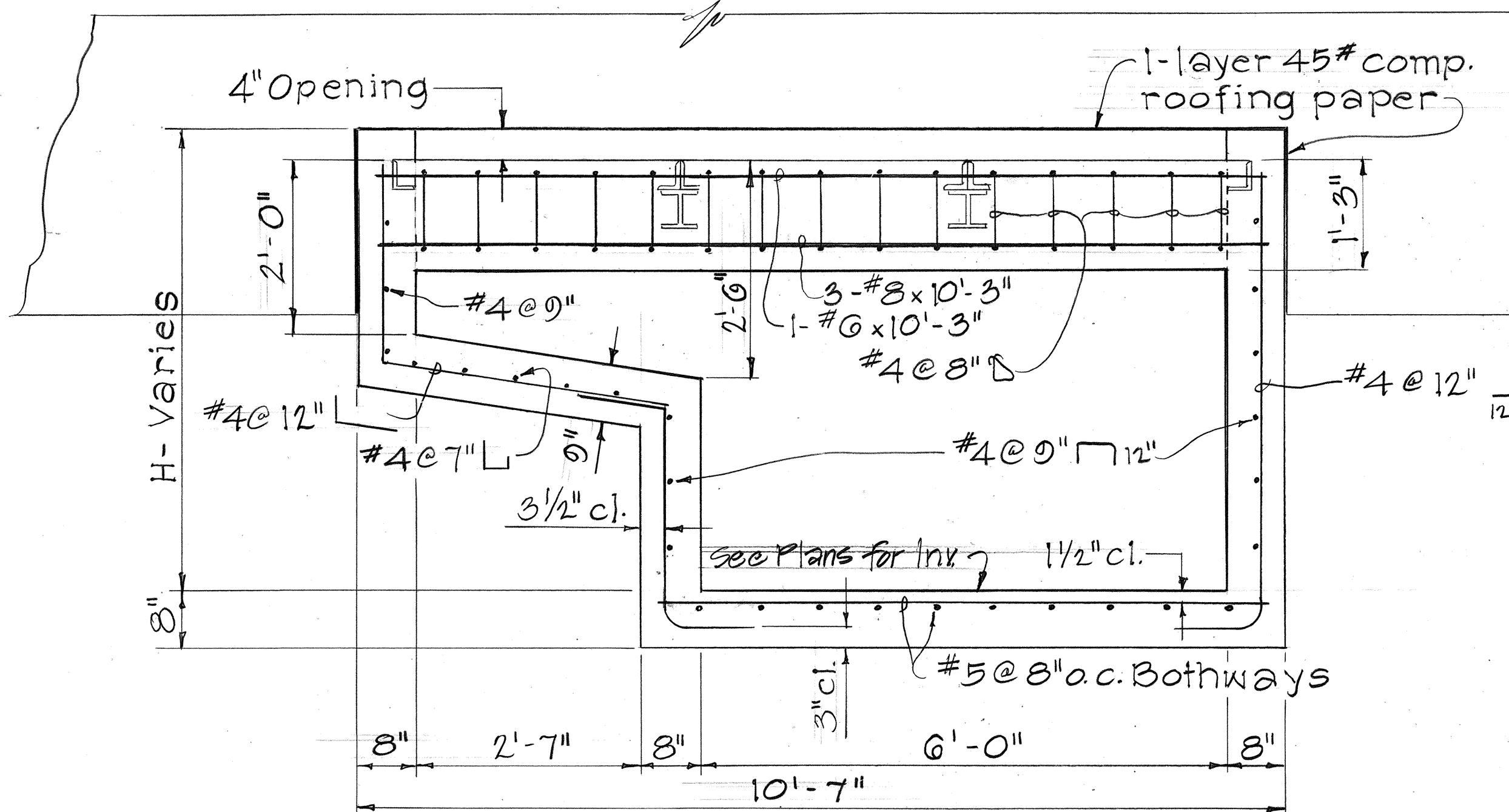
Reference Sta. Line



SECTION A



SECTION B



SECTION C

DETAILS OF TYPE 3 MEDIAN DROP INLET

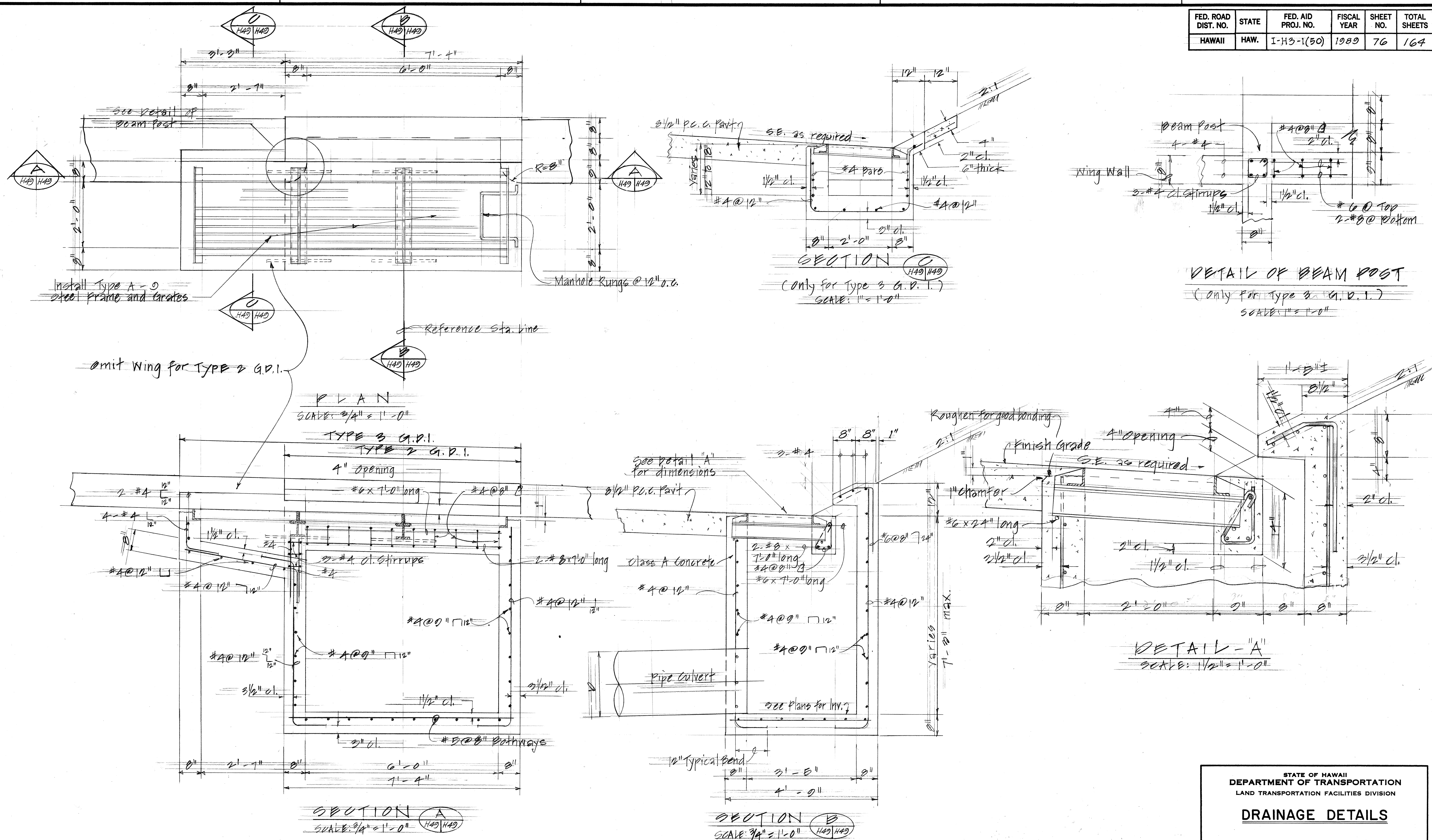
Scale: 3/4" = 1'-0"

DETAILS OF TYPE 2 MEDIAN DROP INLET

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

STATE OF HAWAII	
DEPARTMENT OF TRANSPORTATION	
HIGHWAYS DIVISION	
DRAINAGE DETAILS	
INTERSTATE ROUTE H-3	
F.A.I. PROJ. NO. I-H3-1(50)	
SCALE: AS NOTED	DATE: JUL., 1988
SHEET NO. H48 OF 54 SHEETS	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1989	76	164



DETAILS OF TYPICAL TYPE 3 AND TYPE 2 GRATED DROP INLET

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

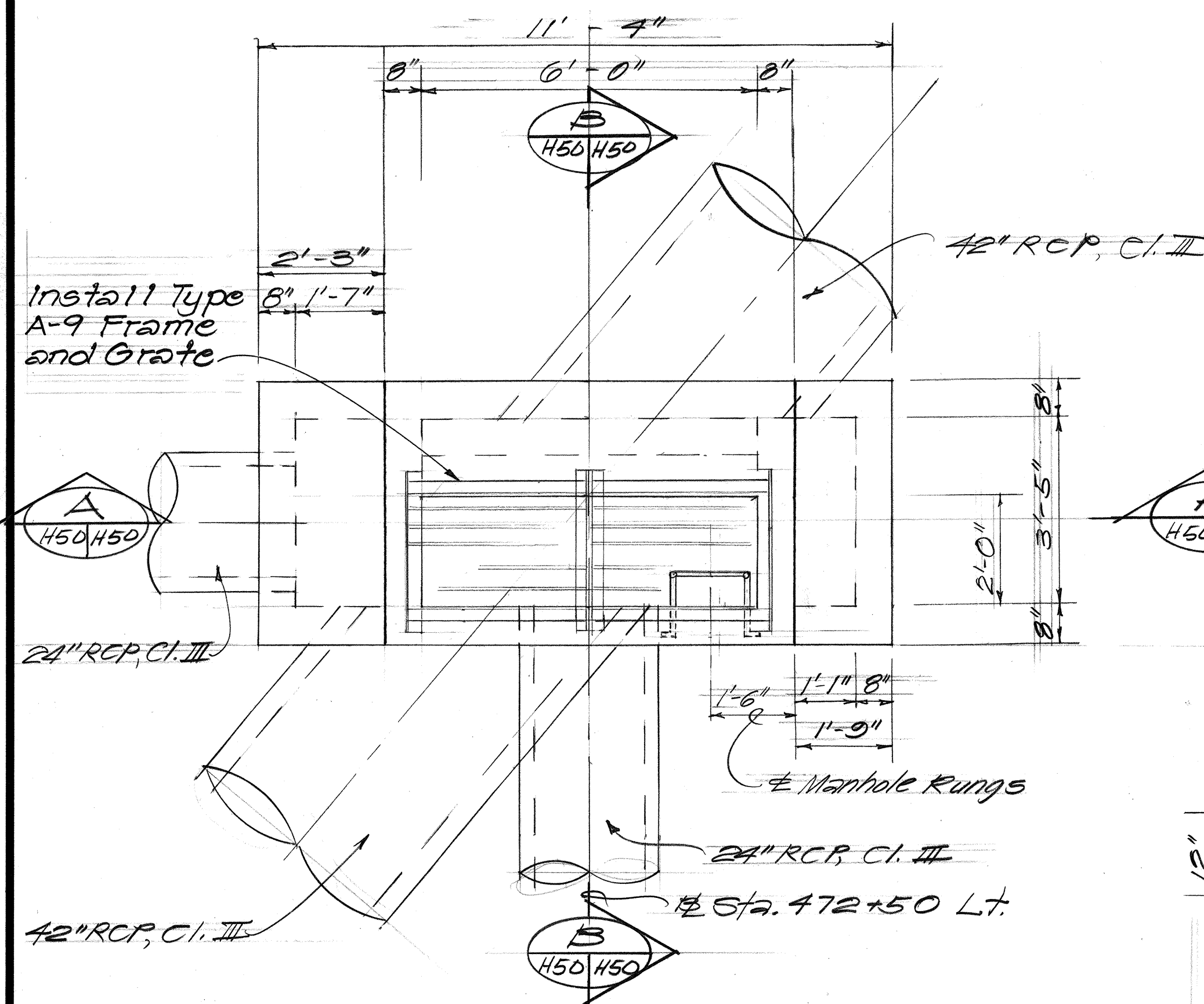
DRAINAGE DETAILS

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)

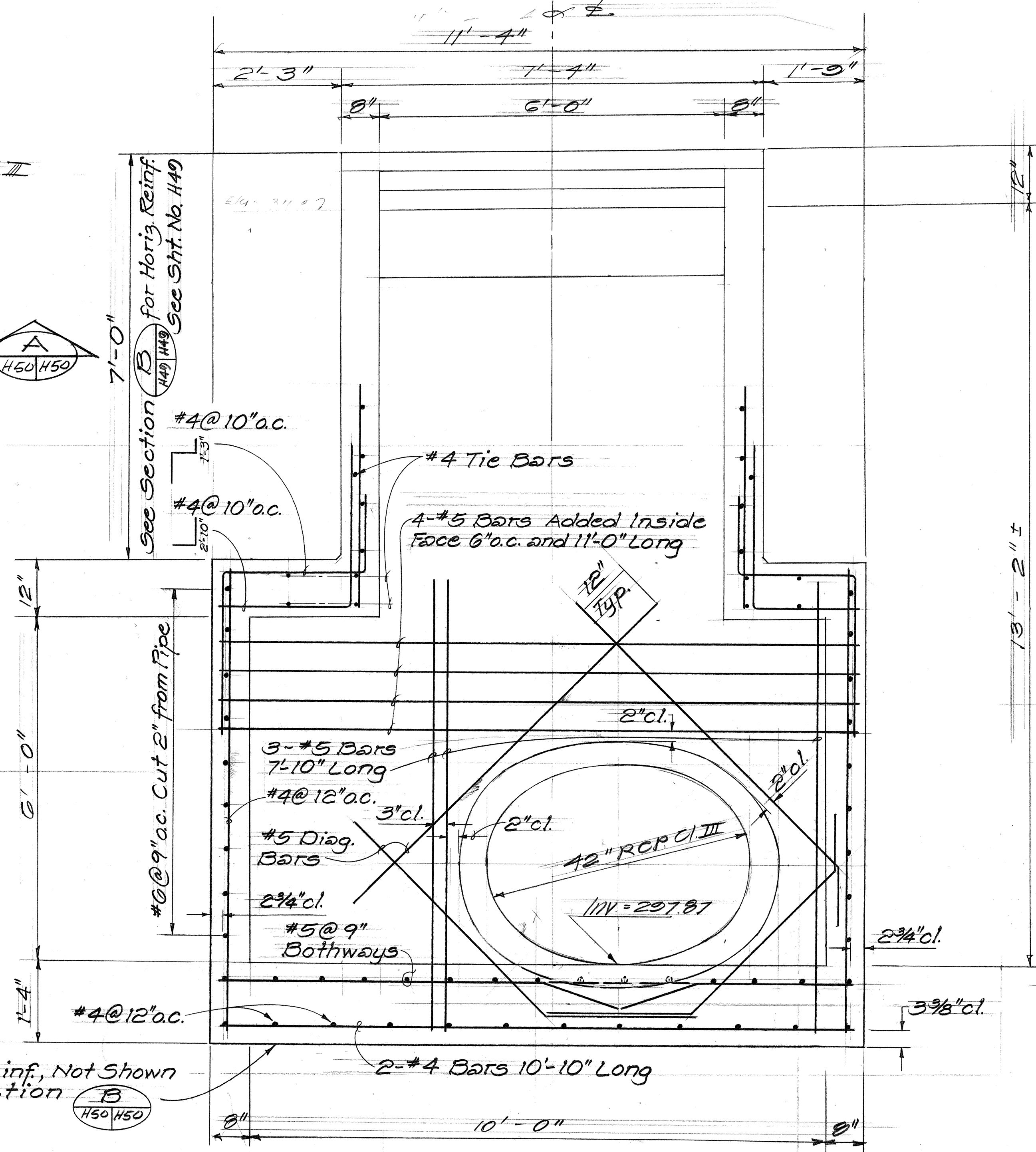
SCALE: AS NOTED DATE: JUL., 1988

SHEET NO. 449 OF 54 SHEETS

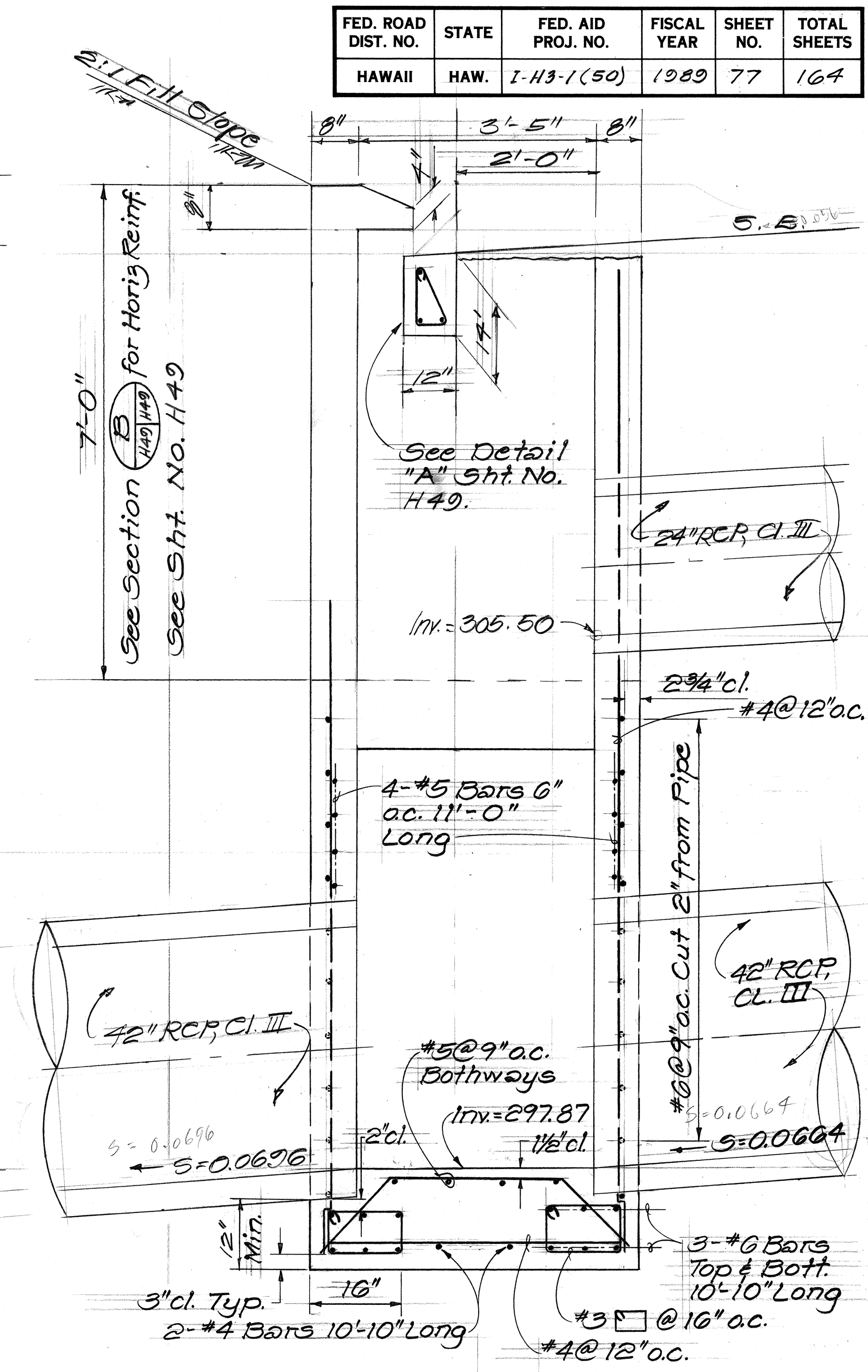
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1989	77	164



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



SECTION A
Scale: 3/4" = 1'-0"



SECTION B
Scale: 3/4" = 1'-0"

DETAILS OF TYPE 2A GRATED DROP INLET AT STA. 472+50 LT.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

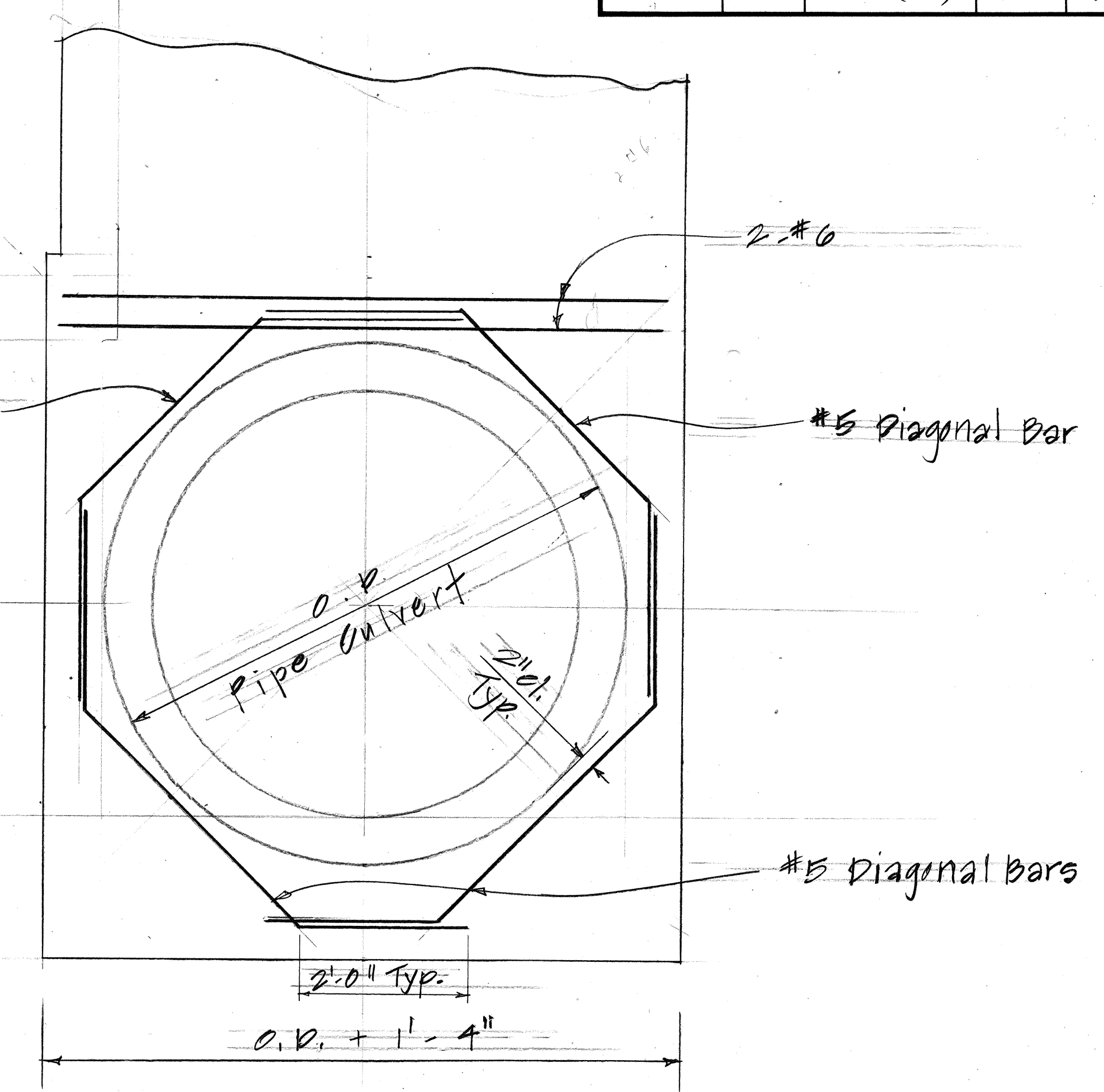
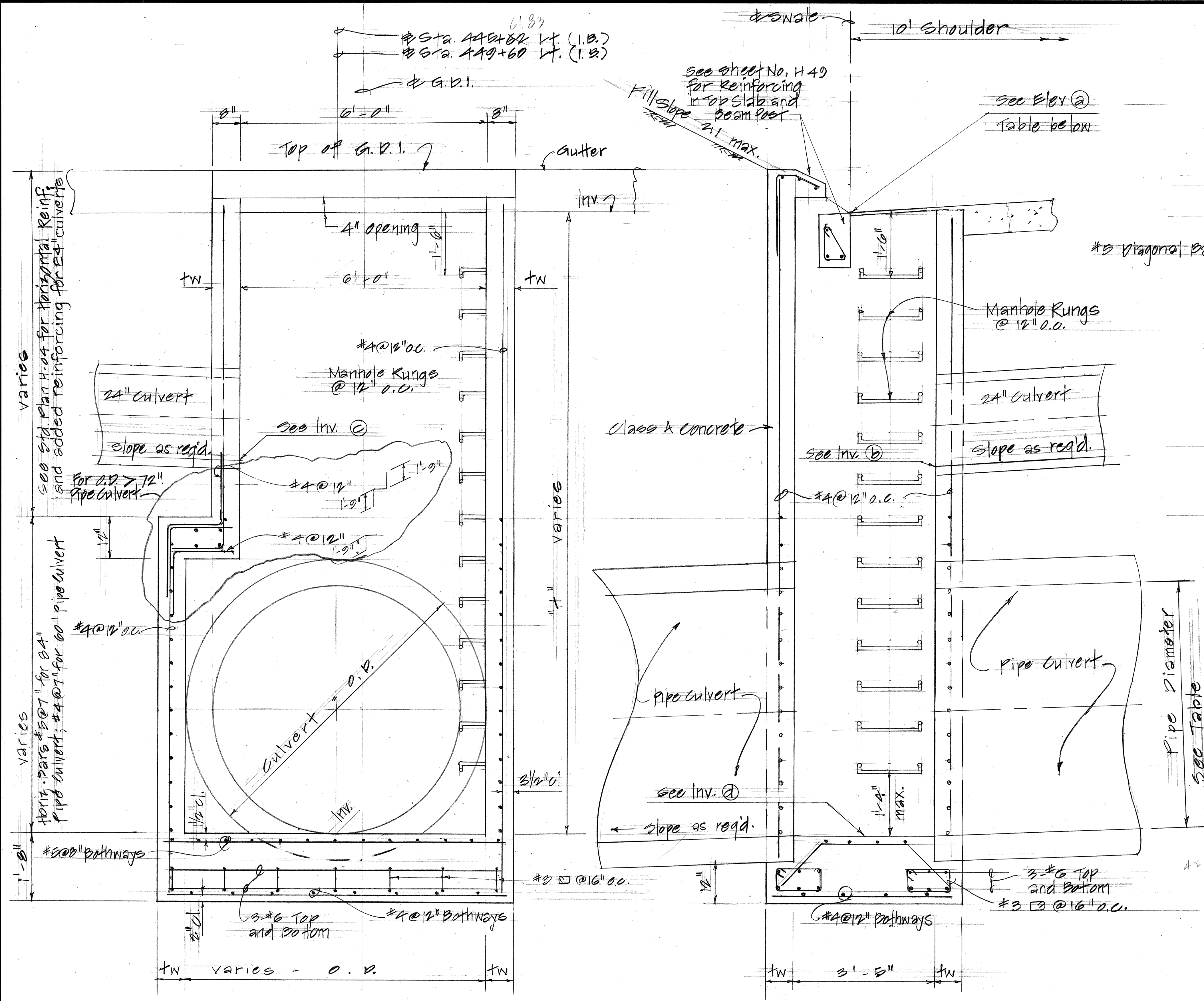
DRAINAGE DETAILS

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)

SCALE: AS NOTED DATE: JUL., 1988
SHEET NO. H50 OF 54 SHEETS

ORIGINAL PLAN	DATE
DRAWN BY	
CHECKED BY	
NOTED BY	
QUANTITIES BY	
CHECKED BY	
NO.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1989	78	164



ADDED REINFORCING FOR 60", 12" AND 24" CULVERT OPENINGS

TYPE 2B GRATED DROP INLET						
# STA.	PIPE-DIA	ELEV. ③	INV. ①	INV. ②	INV. ④	±W H
421 + 27 LT.	72 IN.	326.06	320.75	320.75	320.98	8 IN. 15.08'
445 + 62 LT.	60 IN.	320.75	322.75	322.75	324.00	8 IN. 15.75'
449 + 60 LT.	84 IN.	320.82	322.75	322.75	323.80	9 IN. 15.02'

FRONT ELEVATION

SCALE: 3/4" = 1'-0"

SIDE ELEVATION

SCALE: 3/4" = 1'-0"

DETAILS FOR TYPE 2B GRATED DROP INLET AT
STA. 421+27 LT., 445+62 LT. AND 449+60 LT.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

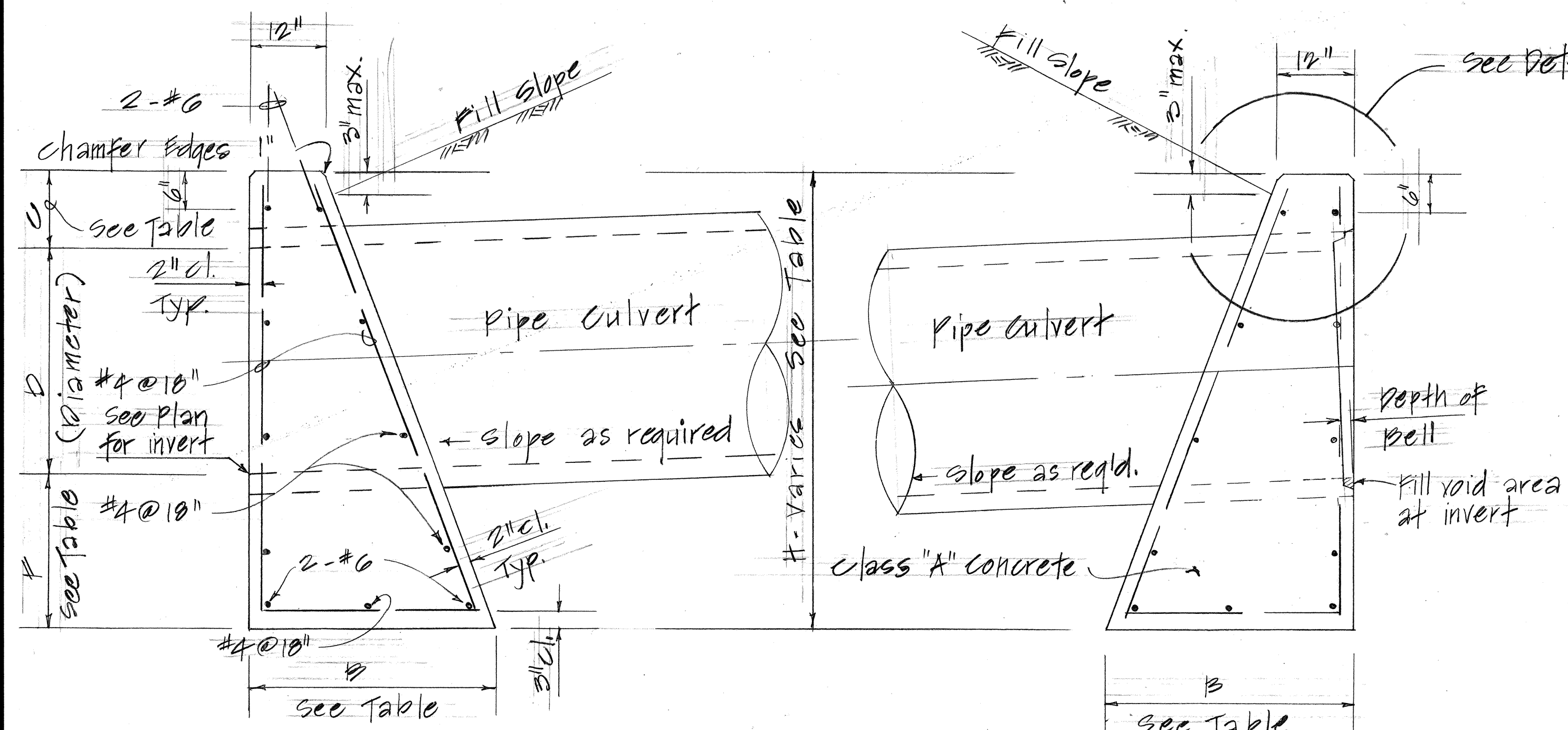
DRAINAGE DETAILS

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)

SCALE: AS NOTED DATE: JUL., 1988

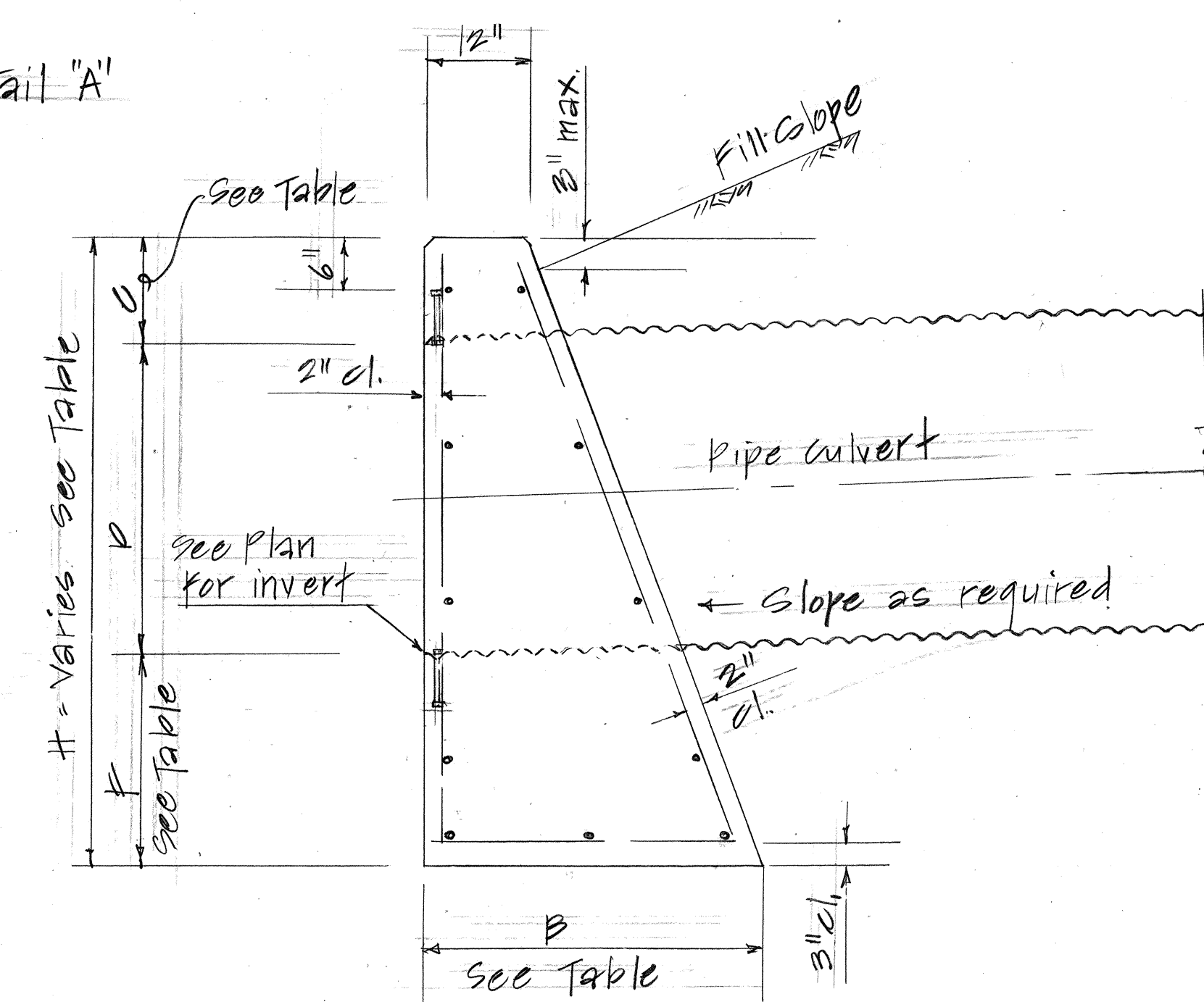
SHEET NO. 45 OF 54 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1988	79	164

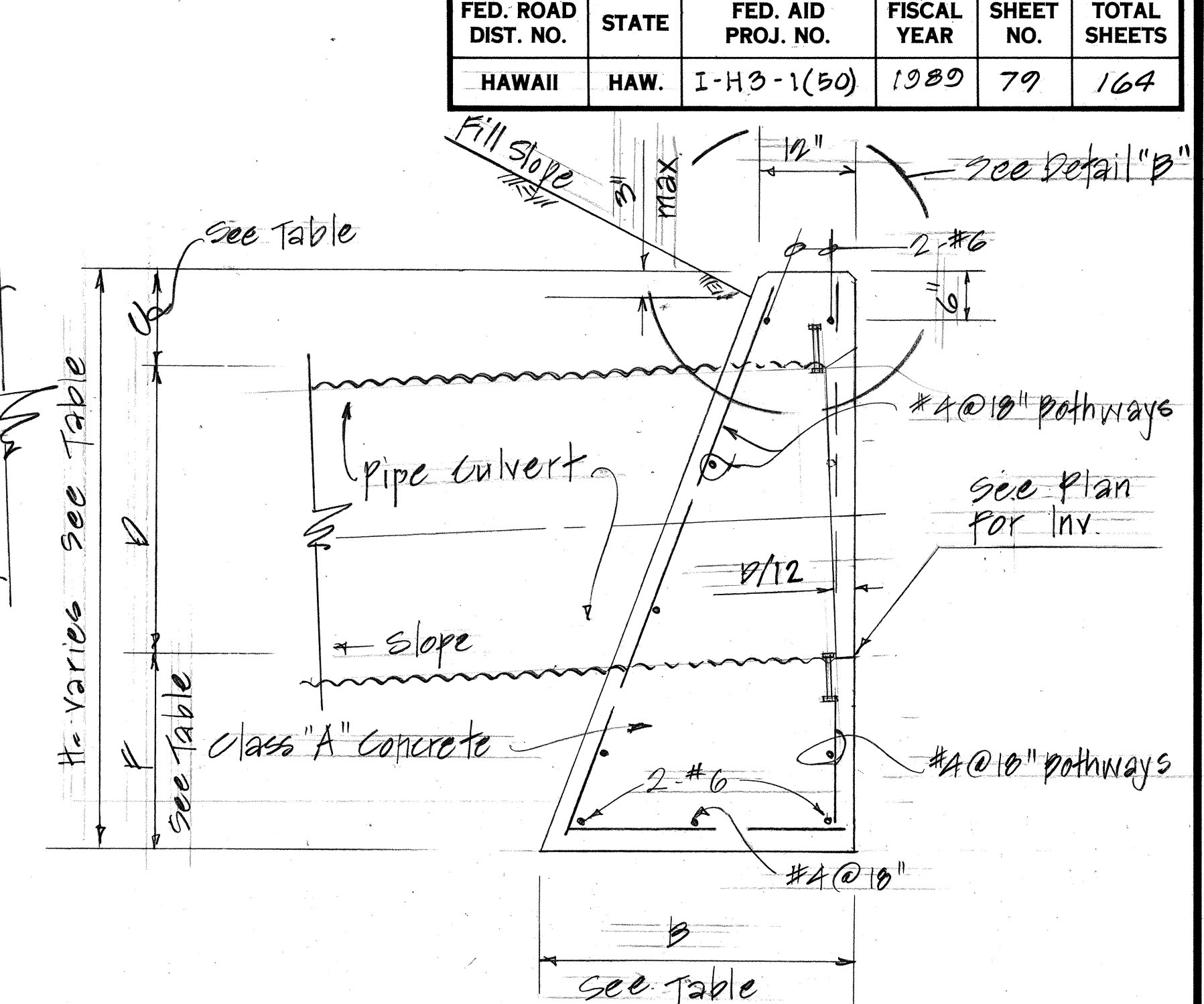


OUTLET - RCP
SCALE: 3/4" = 1'-0"

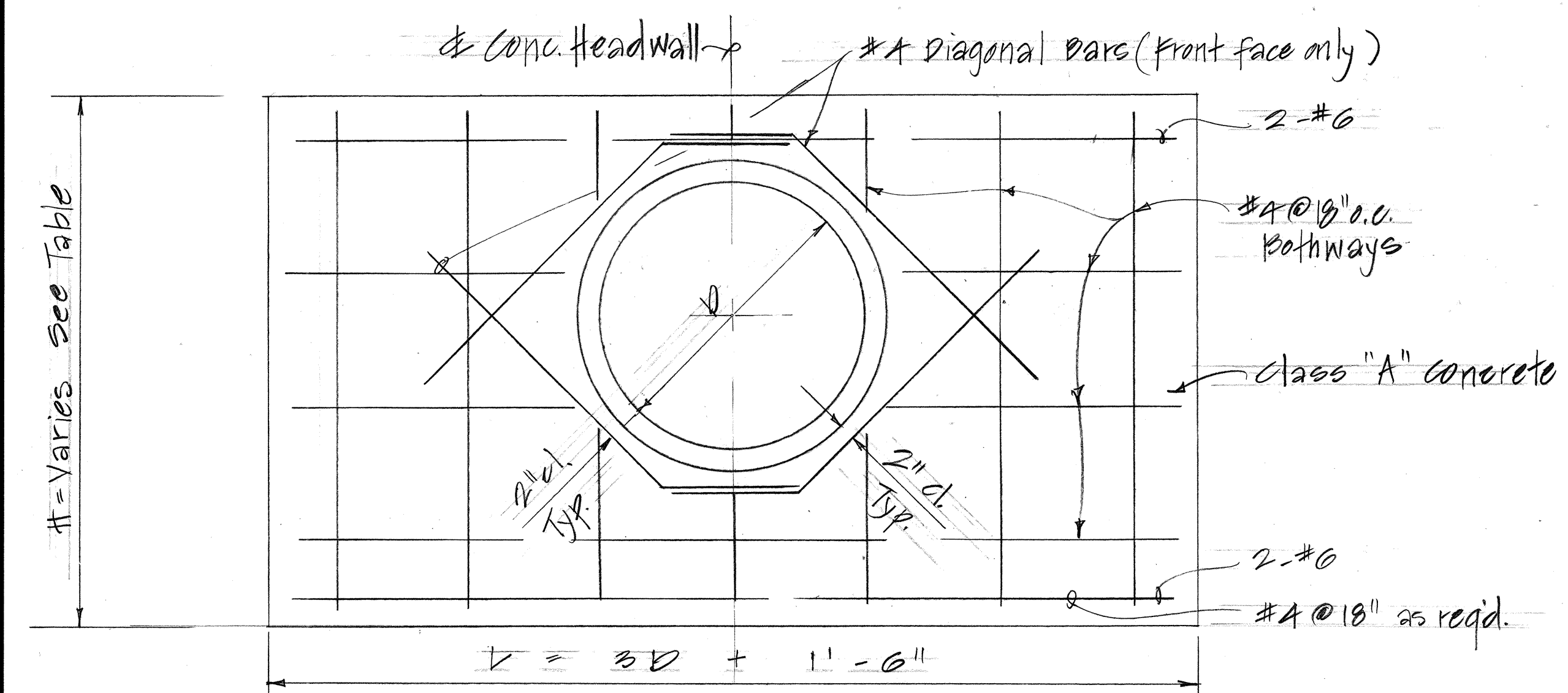
INLET - RCP
SCALE: 3/4" = 1'-0"



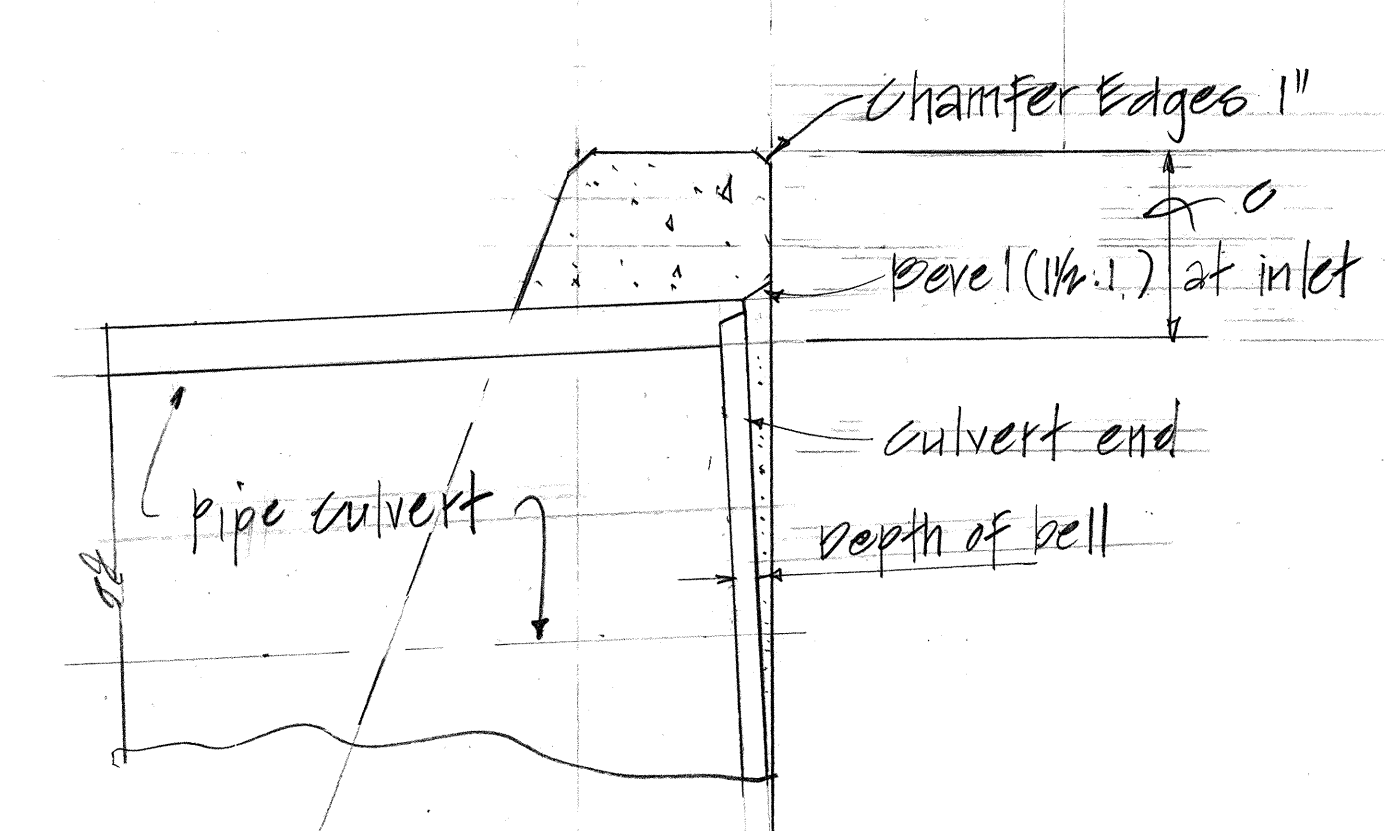
OUTLET - CMP
SCALE: 3/4" = 1'-0"



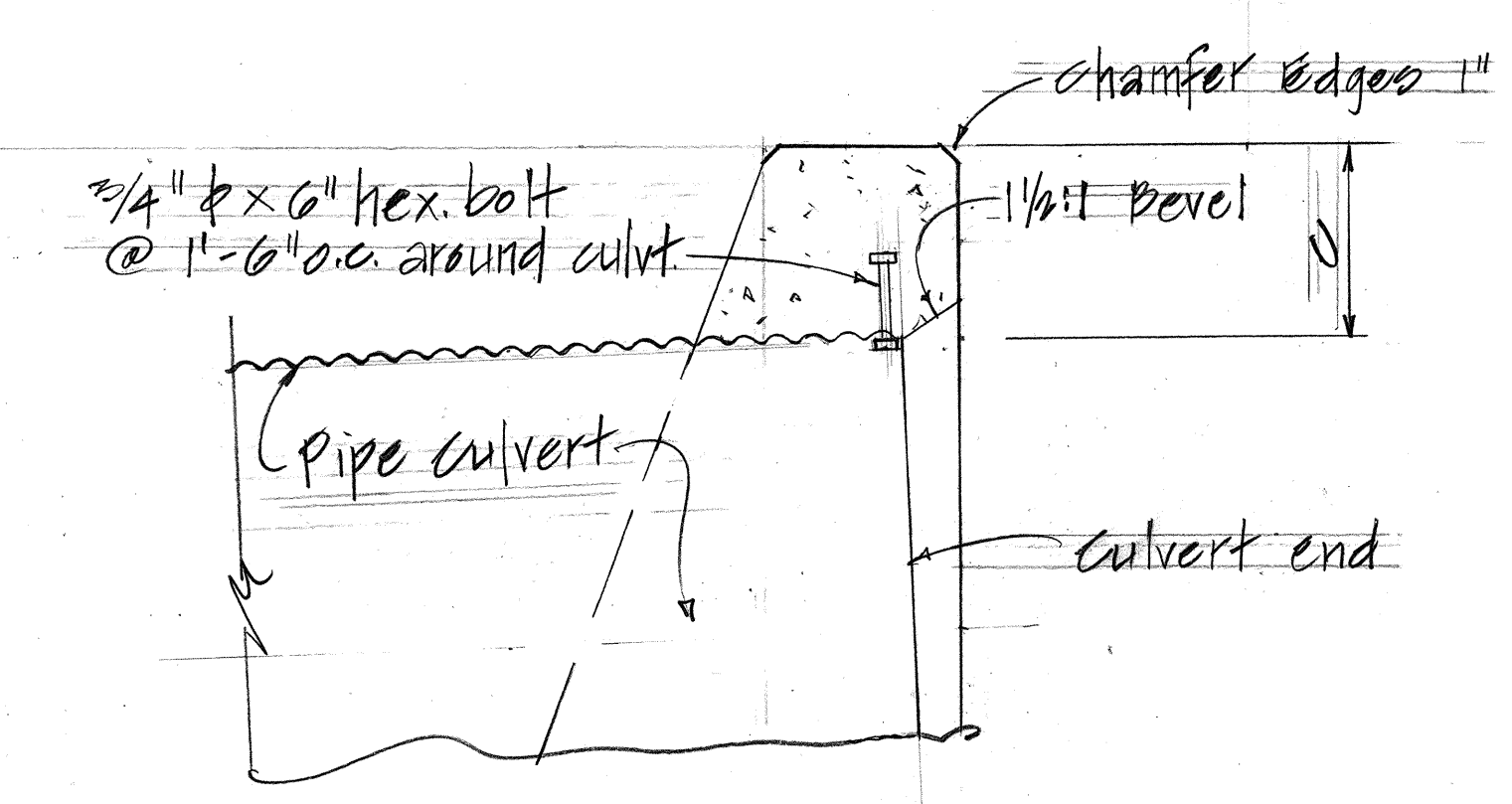
INLET - CMP
SCALE: 3/4" = 1'-0"



TYPICAL - FRONT ELEVATION
SCALE: 3/4" = 1'-0"



DETAIL "A"
SCALE: 1" = 1'-0"



DETAIL "B"
SCALE: 1" = 1'-0"

DATA FOR CONCRETE HEADWALL					
D	B	H	L	O	F
18"	2'-3"	4'-6"	6'-0"	1'-0"	2'-0"
24"	2'-9"	5'-0"	7'-6"	1'-0"	2'-0"
30"	2'-0"	5'-6"	9'-0"	1'-0"	2'-0"
36"	3'-3"	6'-0"	10'-6"	1'-0"	2'-0"
42"	3'-6"	6'-6"	12'-0"	1'-0"	2'-0"
48"	4'-0"	7'-0"	13'-6"	1'-0"	2'-0"
54"	5'-3"	9'-0"	15'-0"	1'-6"	3'-0"
60"	6'-0"	10'-0"	16'-6"	1'-6"	3'-6"

DETAILS OF CONCRETE HEADWALLS

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

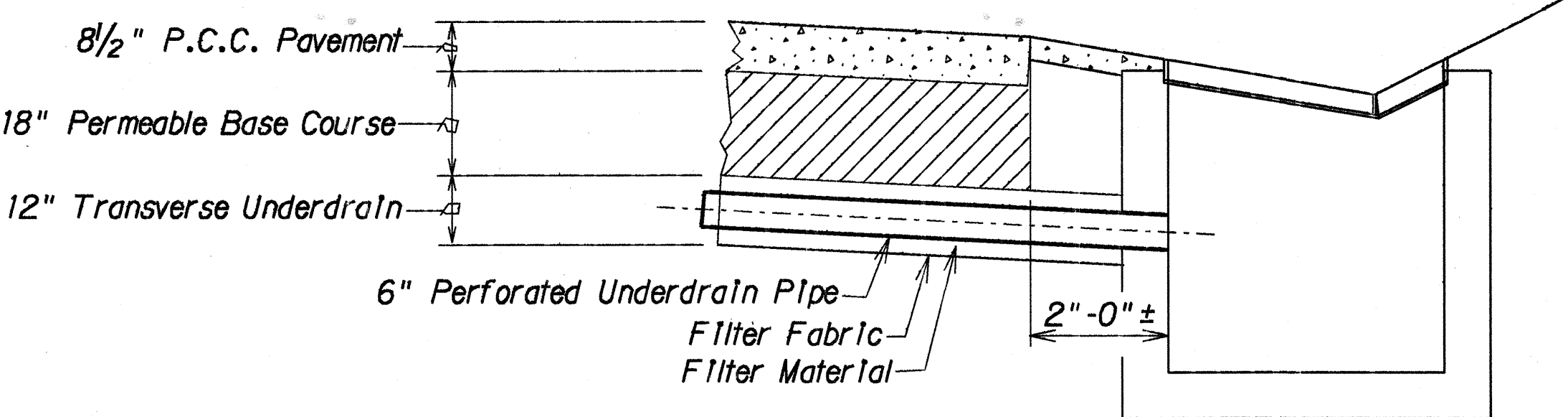
DRAINAGE DETAILS

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)

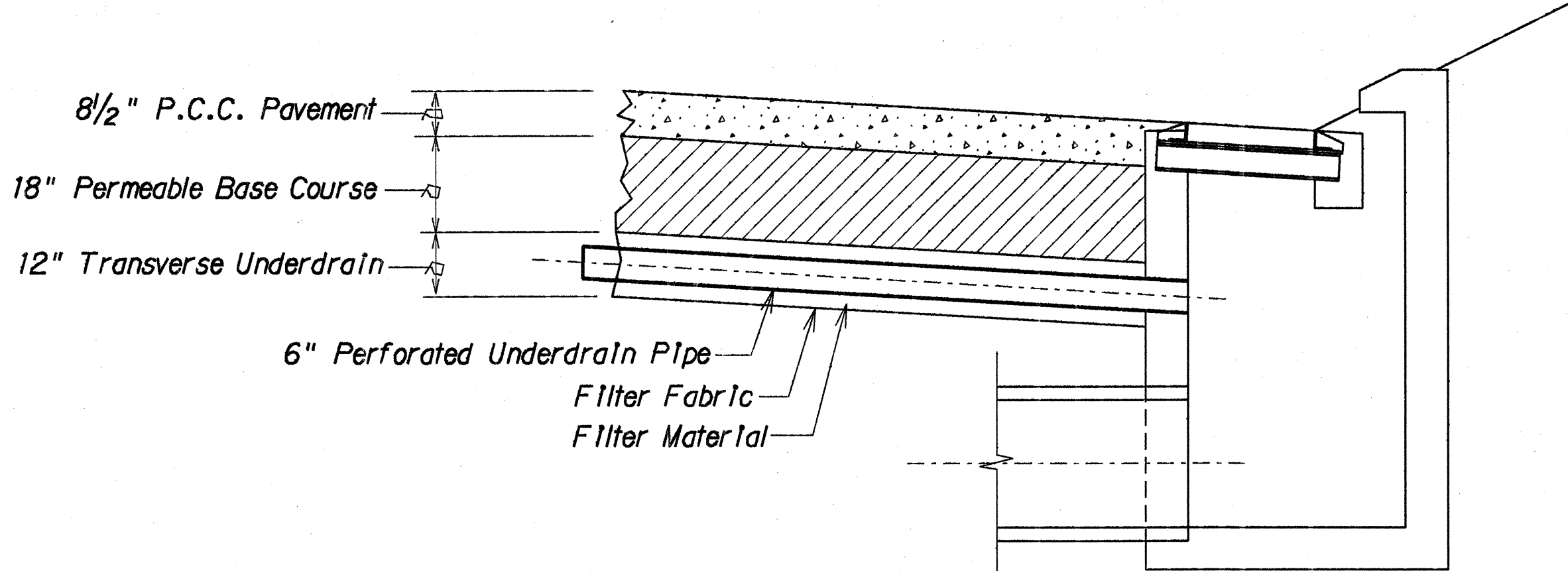
SCALE: AS NOTED DATE: JUL., 1988

SHEET NO. 52 OF 54 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1989	C.O. ADD. 80	164

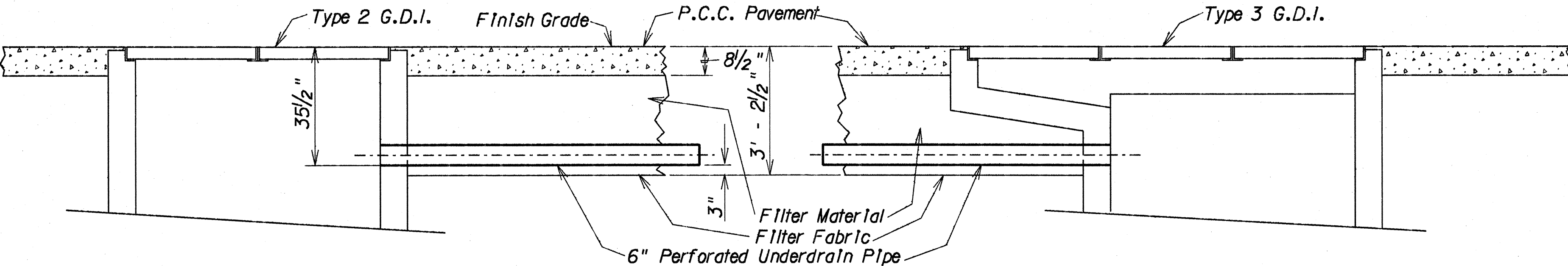


TRANSVERSE UNDERDRAIN OUTLET AT TYPE 61214 GRATED DROP INLET



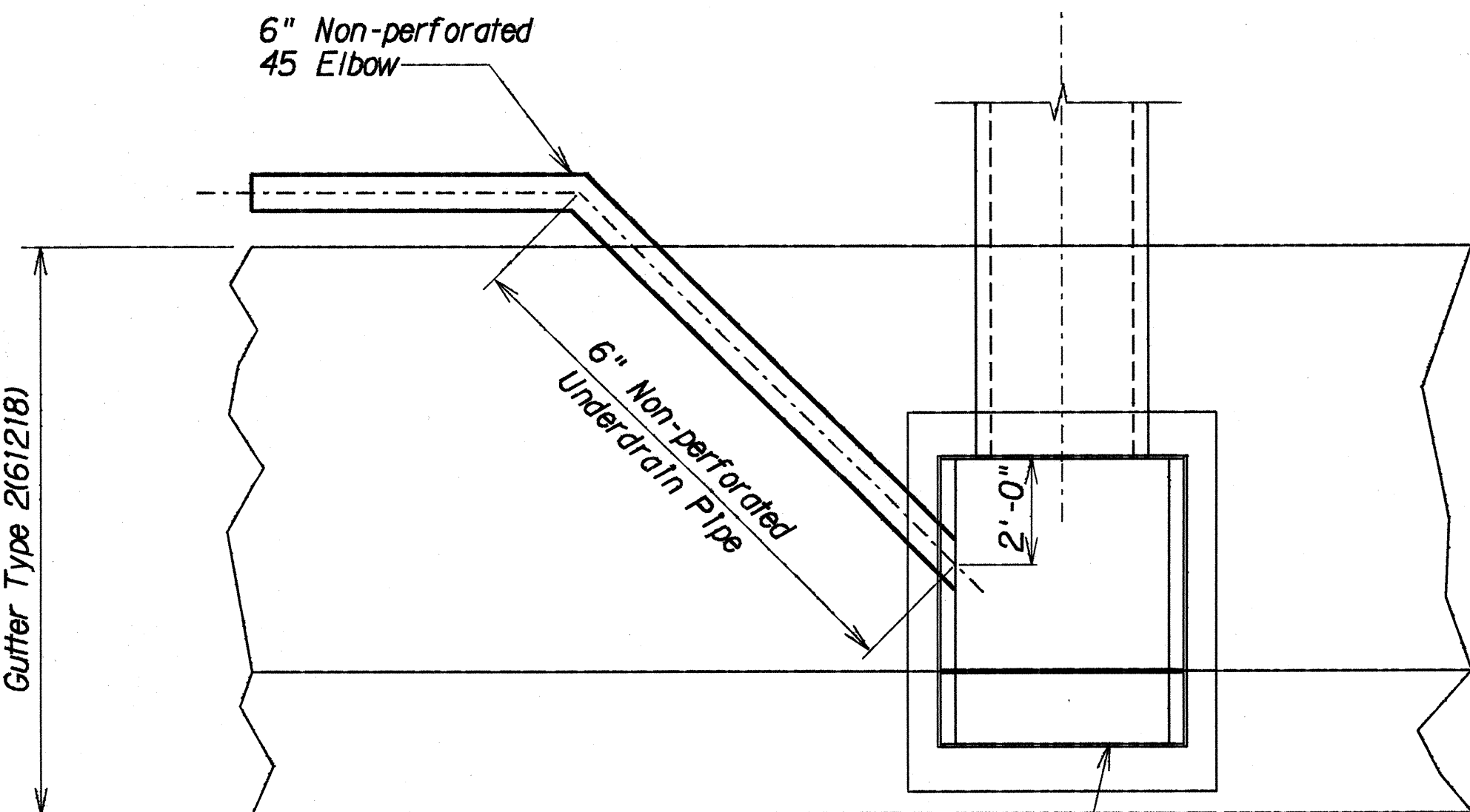
TRANSVERSE UNDERDRAIN OUTLET AT TYPE 2 OR TYPE 3 GRATED DROP INLET

DETAILS FOR TRANSVERSE UNDERDRAIN



CONNECTION OF UNDERDRAINS TO GRATED DROP INLET

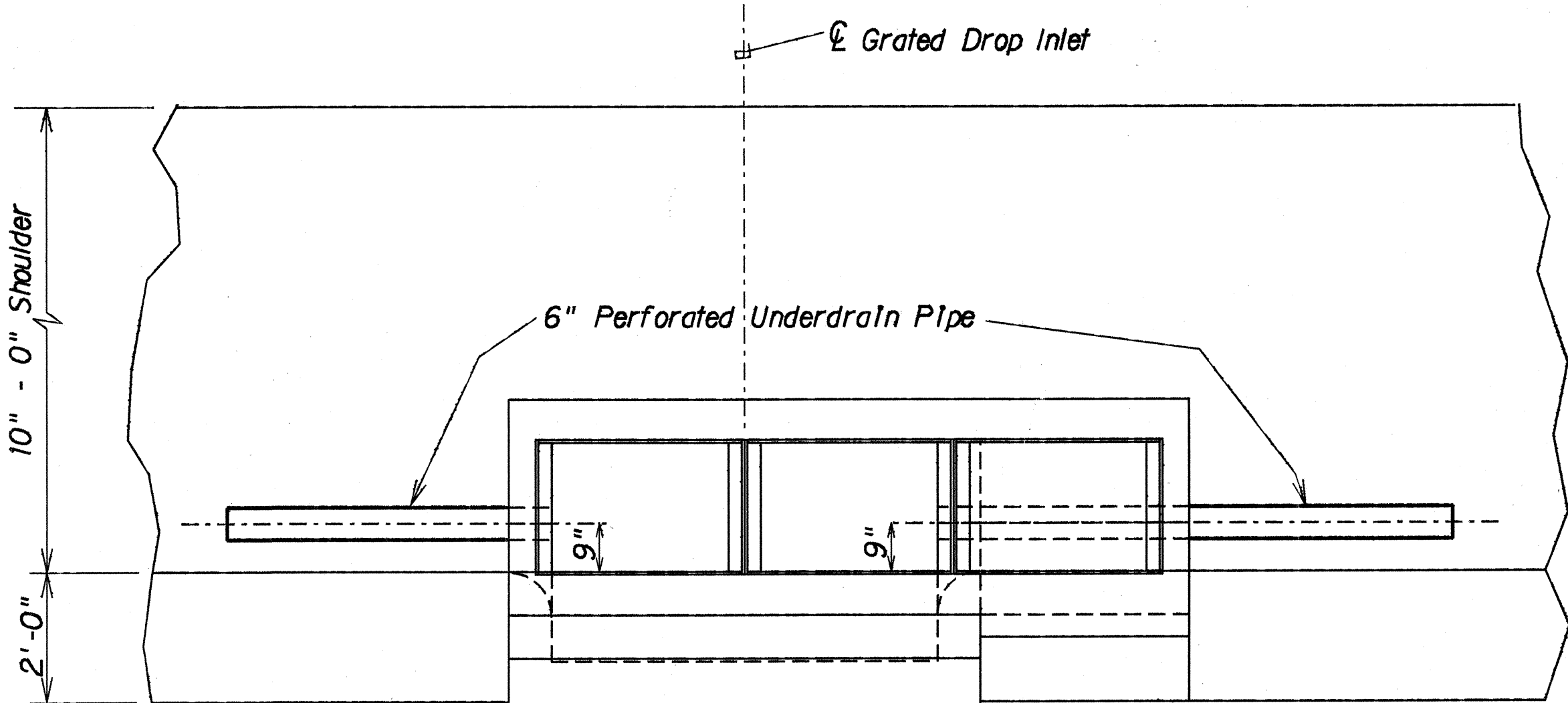
DETAILS FOR UNDERDRAIN SYSTEM



NOTE: Underdrain outlets at spillway shall be constructed same as outlets at GDI.

Type 61214 Grated Drop Inlet

UNDERDRAIN OUTLET AT TYPE 61214 GRATED DROP INLET



UNDERDRAIN OUTLET AT TYPE 2 OR TYPE 3 GRATED DROP INLET

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)

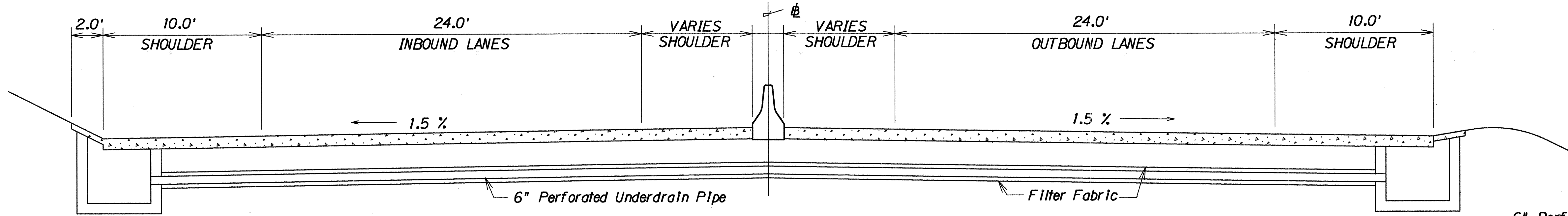
SCALE: 1/2" = 1' - 0" DATE: JUL, 1988
SHEET No. H53 OF 54 SHEETS

7/21/89	Added Transverse Underdrain.
1/4/89	Revised detail at Type 2 or Type 3 GDI and add note.
DATE	REVISION

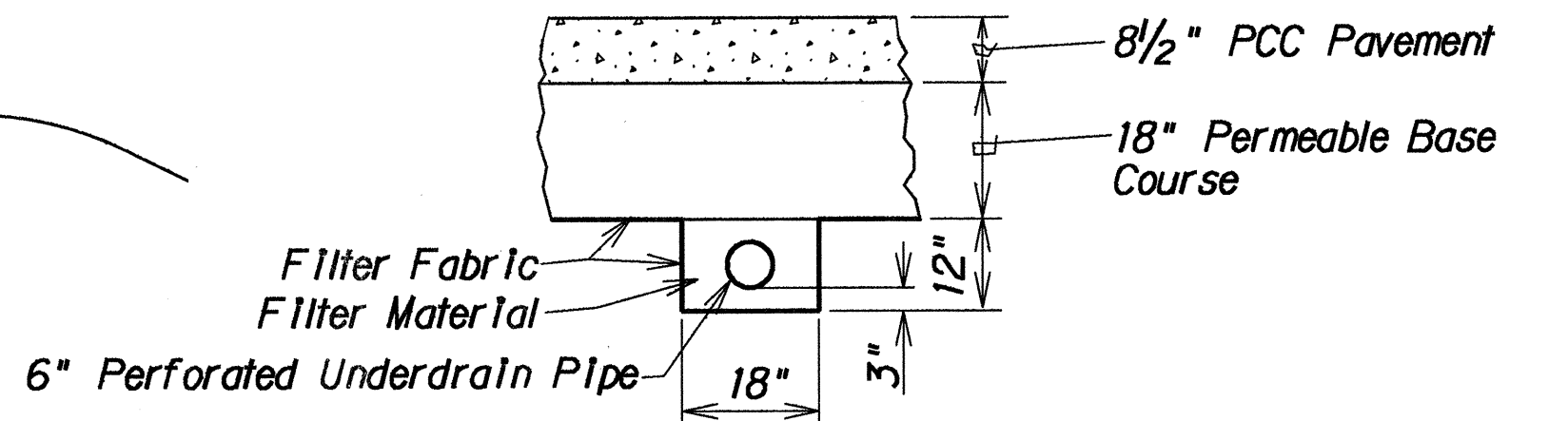
C.O. ADD. 80

ORIGINAL PLAN	DATE
NOTED BY	DESIGNED BY
QUANTITIES BY	CHECKED BY
N.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1989	C.O. ADD. 80 S-1	164

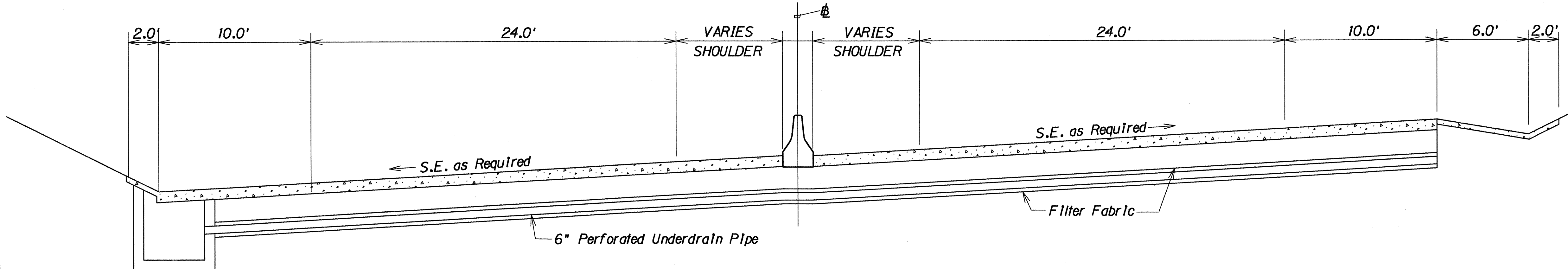


TRANSVERSE UNDERDRAINS AT TANGENT SECTION



SECTION VIEW OF TRANSVERSE UNDERDRAIN

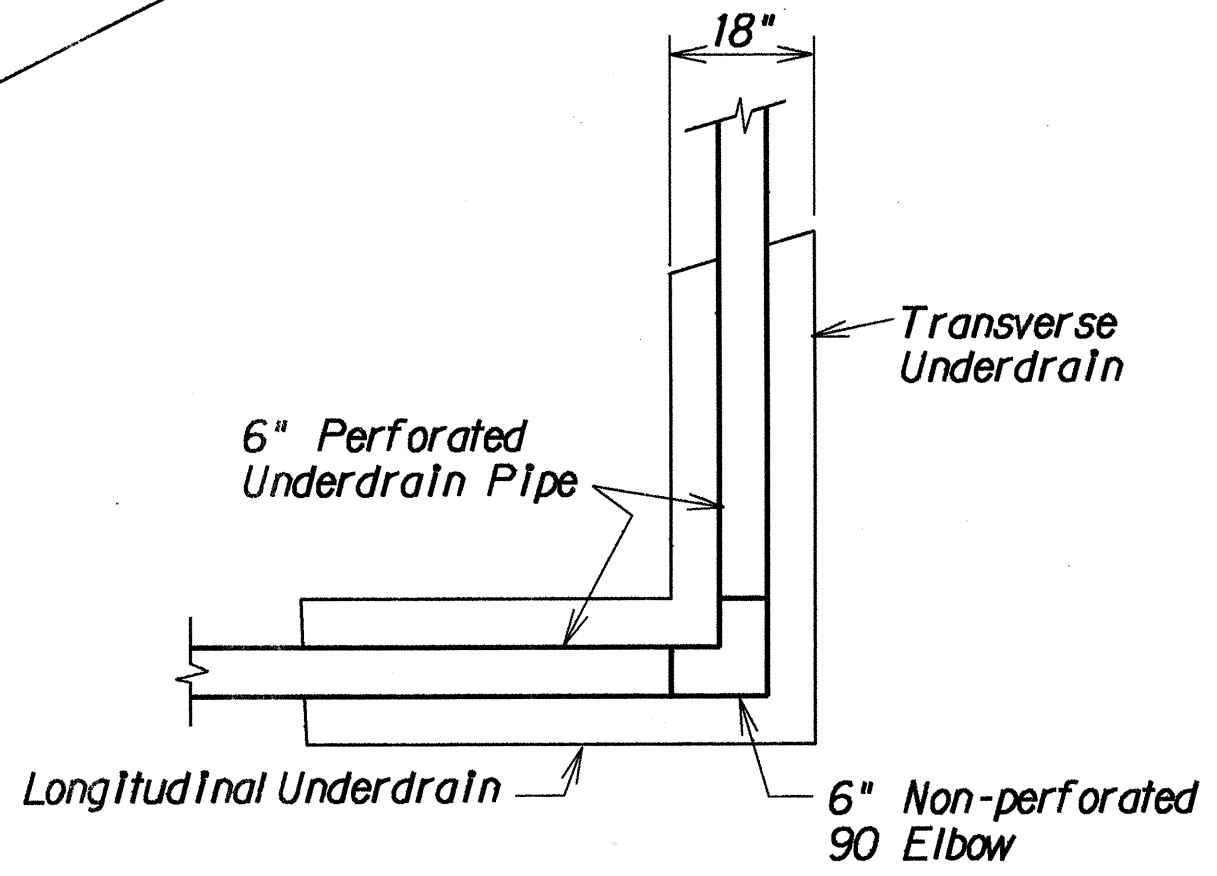
Scale: 1/2" = 1' - 0"



TRANSVERSE UNDERDRAIN AT SUPERELEVATED SECTION

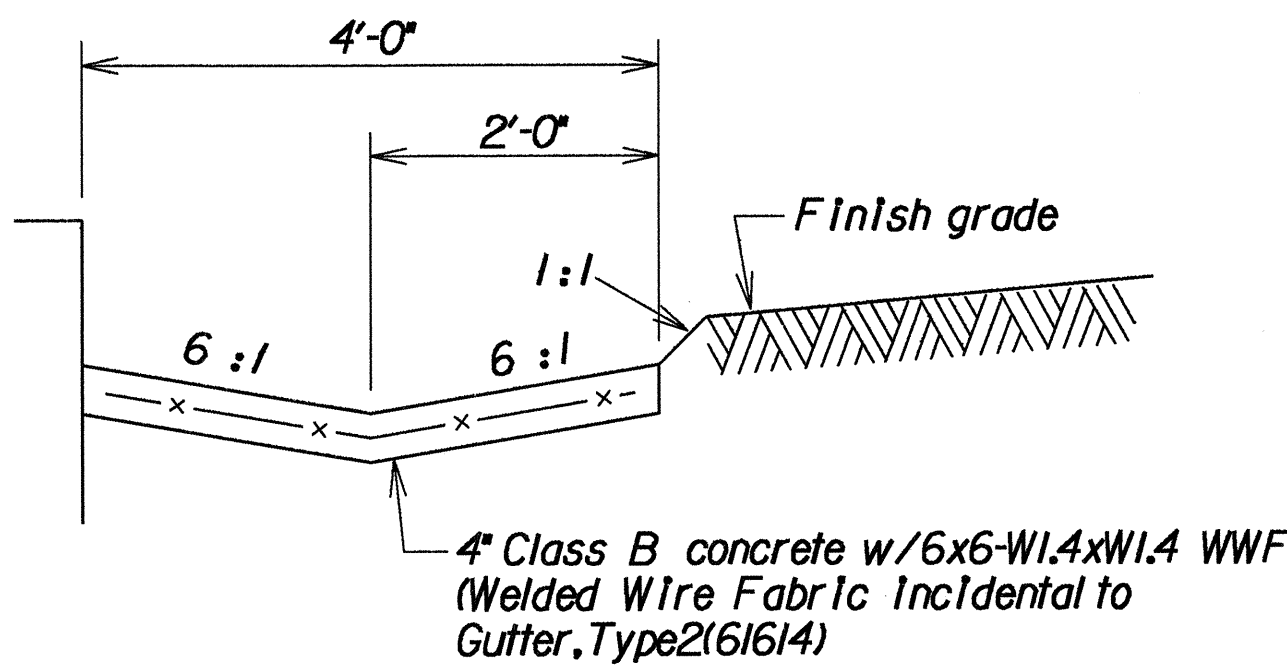
TYPICAL SECTIONS OF TRANSVERSE UNDERDRAIN

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



CORNER DETAIL OF UNDERDRAIN AT STA 490 + 20 (I.B. & O.B.)

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



GUTTER, TYPE 2(61614)

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

8/31/90	Deleted profile and typical transverse underdrain outlet at Sta 398+69± and Sta 400+04±. Add detail of Gutter Type 2(61614).
7/21/89	Sheet added to show Transverse Underdrain details.
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

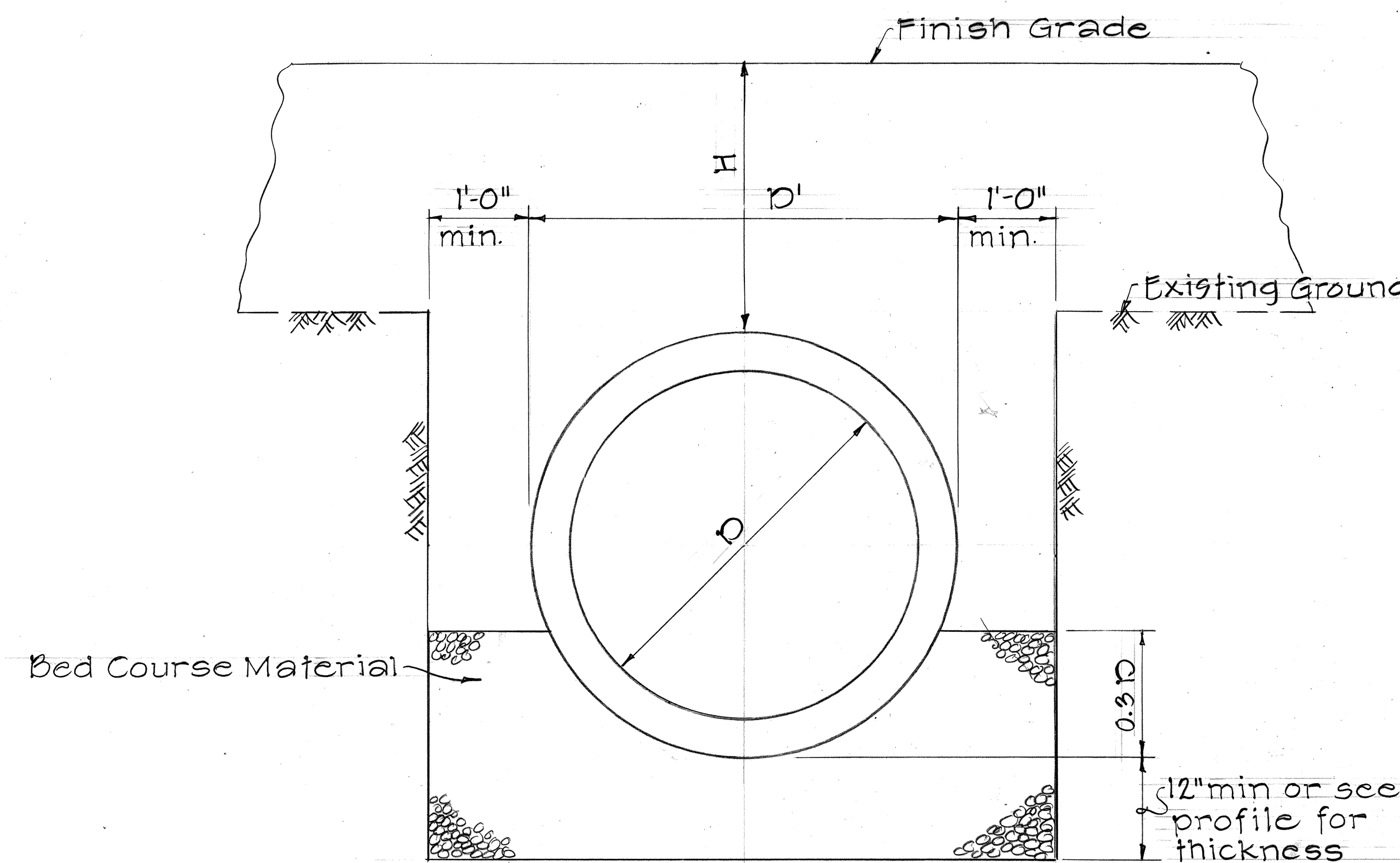
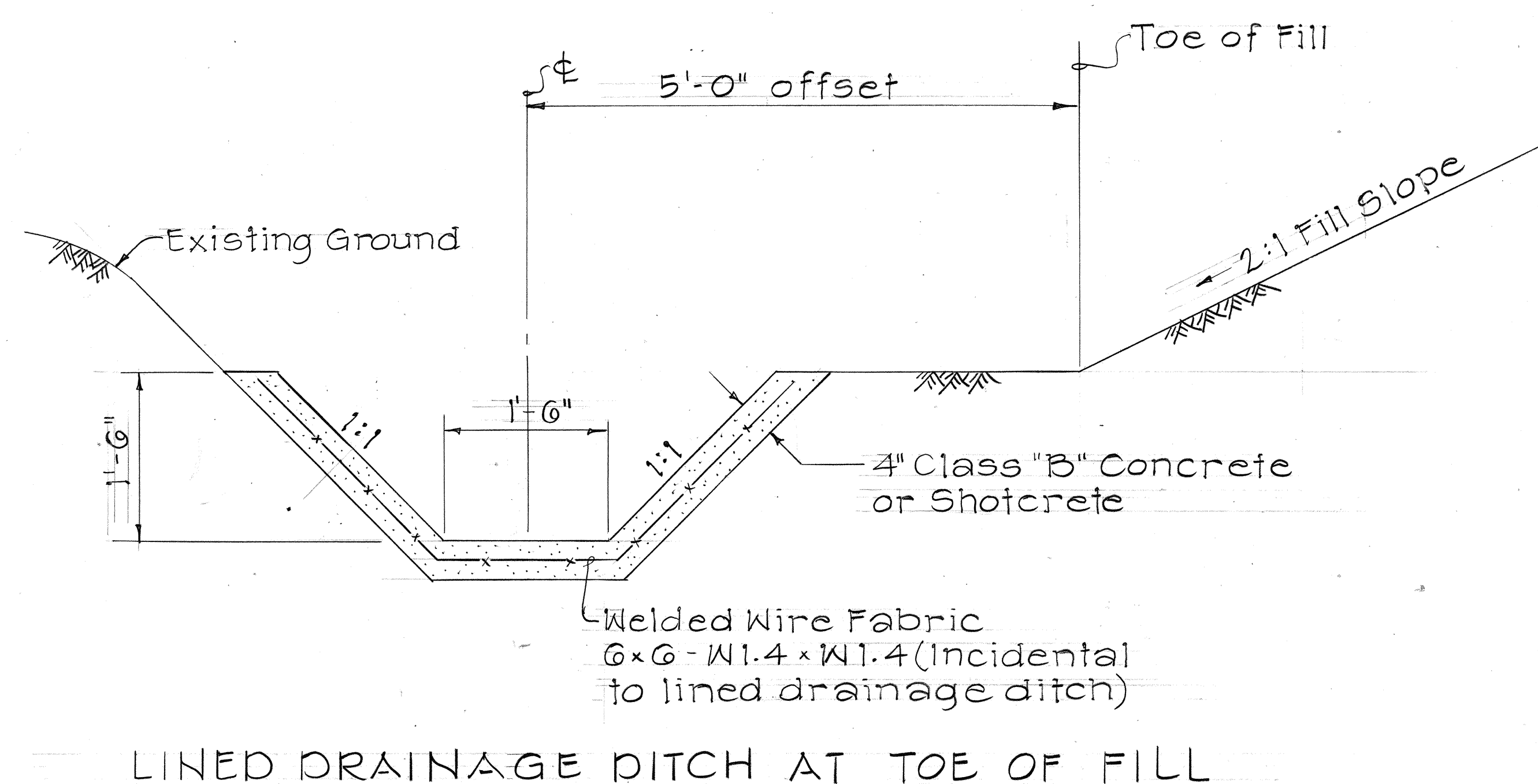
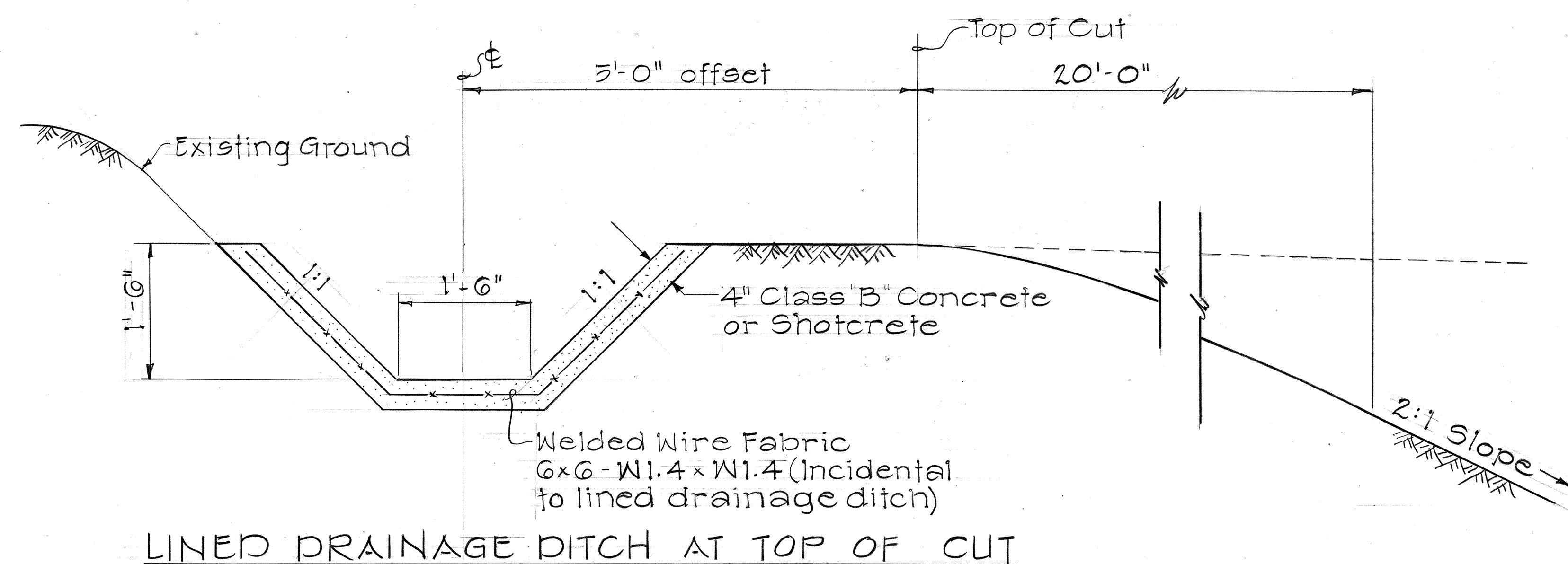
DRAINAGE DETAILS

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(50)

Scale As Noted Date: Jul., 1989

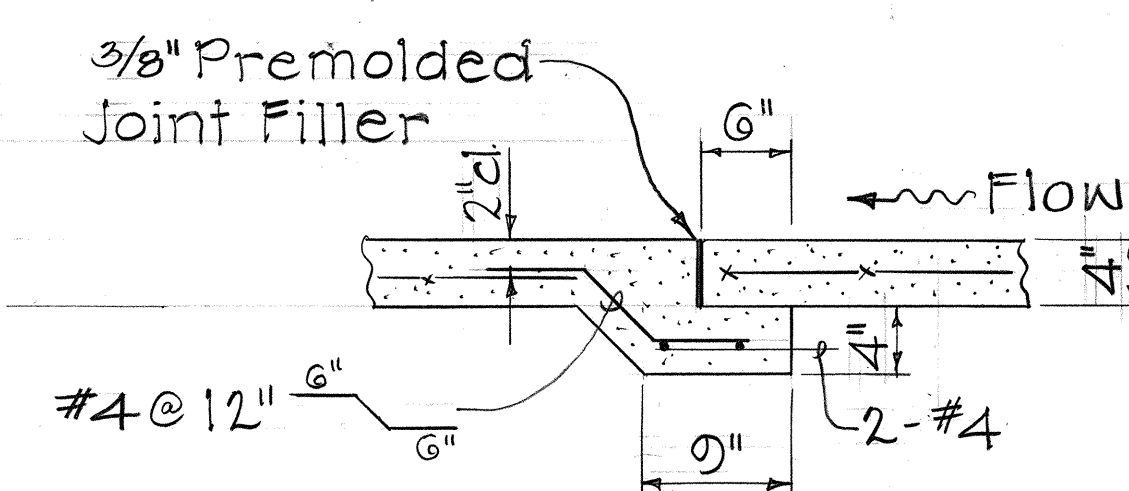
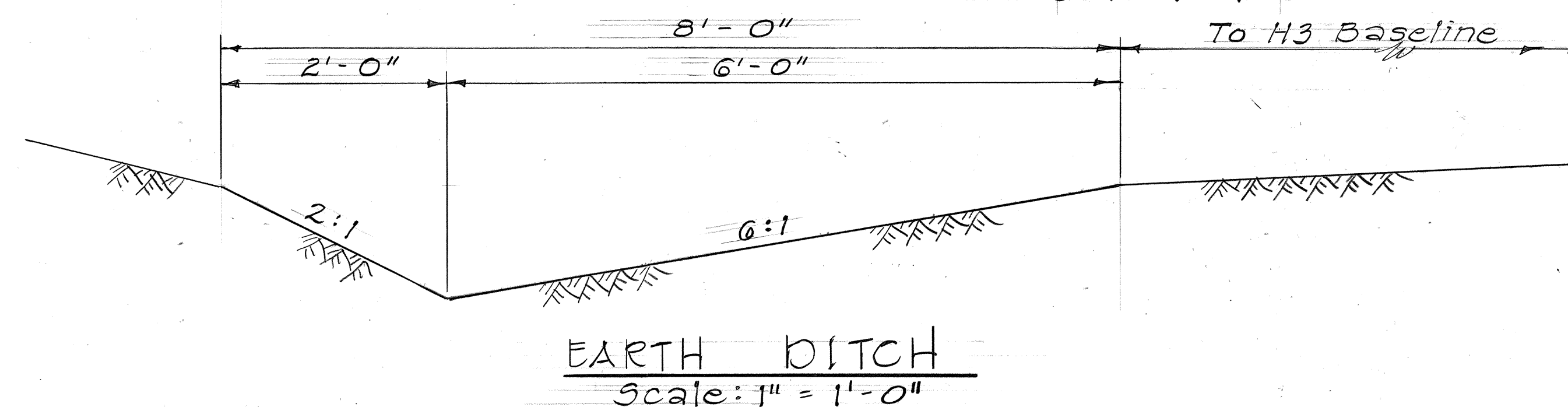
SHEET No. H53A OF 54 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1989	C.O. ADD. 81	164



CLASS B BEDDING TRENCH DETAIL FOR CULVERT CROSSINGS

Scale: 1" = 1'-0"



EXPANSION JOINT DETAIL

Note: Ditch shall be installed with expansion joints at 90' maximum intervals and construction joints at 30' maximum intervals.

DETAILS OF LINED DRAINAGE DITCH

Scale: 1" = 1'-0"

CONSTRUCTION JOINT DETAIL

8/31/90	Deleted Grass Swale added Earth Ditch
1/4/89	Sheet revised to show detail of Grass Swale
DATE	REVISION

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
DRAINAGE DETAILS	
INTERSTATE ROUTE H-3 F.A.I. PROJ. NO. I-H3-1(50)	
SCALE: AS NOTED	DATE: JUL., 1988
SHEET No. H34 OF 54 SHEETS	

C.O. ADD. 81

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(50)	1989	C081AS-1	164

NOTES:

1. UNLESS OTHERWISE SPECIFIED, ALL MATERIALS AND CONSTRUCTION OF WATER SYSTEM FACILITIES AND APPURTENANCES SHALL BE IN ACCORDANCE WITH THE CITY AND COUNTY OF HONOLULU BOARD OF WATER SUPPLY'S "WATER SYSTEM STANDARDS" VOLUME 1, DATED 1985, AND THE "APPROVED MATERIAL LIST AND STANDARD DETAILS FOR WATER SYSTEM CONSTRUCTION", VOLUME 2, DATED 1985, AND ALL SUBSEQUENT AMENDMENTS AND ADDITIONS.
2. THE CONTRACTOR SHALL NOTIFY BWS PLANNING AND ENGINEERING DIVISION, CONSTRUCTION SECTION, ONE WEEK PRIOR TO COMMENCING WORK ON THE WATER SYSTEM, MR. ELMER SHIRAISHI, PHONE= 527-5204.
3. ALL PLANS APPROVED BY THE BOARD OF WATER SUPPLY ARE BASED SOLELY ON THE ADEQUACY OF THE WATER SUPPLY. ALL OTHER FEATURES OF THE WATER SYSTEM, SUCH AS LINES, GRADES, FITTINGS, ETC., AND DRAINAGE AND OTHER FEATURES OF IMPROVEMENTS SHALL NOT BE THE RESPONSIBILITY OF THE BOARD OF WATER SUPPLY.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL WATER LINES DURING CONSTRUCTION. THE CONTRACTOR SHALL BE ESPECIALLY CAREFUL WHEN EXCAVATING BEHIND WATER LINE TEES AND BENDS WHEREVER THERE IS A POSSIBILITY OF WATER LINE MOVEMENT DUE TO REMOVAL OF THE SUPPORTING EARTH BEYOND THE EXISTING REACTION BLOCKS. THE CONTRACTOR SHALL TAKE WHATEVER MEASURE NECESSARY TO PROTECT THE WATER LINES, SUCH AS CONSTRUCTING SPECIAL REACTION BLOCKS (WITH BWS APPROVAL) AND/OR MODIFYING HIS CONSTRUCTION METHODS.
5. REAPPROVAL SHALL BE REQUIRED IF THIS PROJECT IS NOT UNDER CONSTRUCTION WITHIN A PERIOD OF TWO YEARS.
6. THE CONTRACTOR SHALL VERIFY ALL EXISTING SERVICE LATERAL LOCATIONS, WHETHER OR NOT SHOWN ON THE PLANS, PRIOR TO COMMENCING WITH ANY OF THE WORK AND SHALL NOT ASSUME THAT, WHERE NO SERVICES ARE SHOWN, NONE EXISTS.
7. THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES AND STRUCTURES AS SHOWN ON THE PLANS ARE FROM THE LATEST AVAILABLE DATA BUT ARE NOT GUARANTEED AS TO THE ACCURACY OR THE ENCOUNTERING OF OTHER OBSTACLES DURING THE COURSE OF THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE AND SHALL PAY FOR ALL DAMAGES TO EXISTING UTILITIES. THE CONTRACTOR SHALL NOT ASSUME THAT WHERE NO UTILITIES ARE SHOWN, THAT NONE EXIST.
8. UNLESS OTHERWISE SPECIFIED, CONNECTIONS TO EXISTING WATER MAINS AND CHLORINATION OF NEW MAINS SHALL BE DONE BY THE CONTRACTOR, WITH THE BOARD OF WATER SUPPLY'S INSPECTOR COORDINATING THE WORK. FOR DETAILS, CONTACT THE BWS PLANNING AND ENGINEERING DIVISION, ENGINEERING BRANCH, CONSTRUCTION SECTION.
9. THE CONTRACTOR SHALL CHLORINATE THE ENTIRE INSIDE SURFACE OF EACH PIPE AND FITTING WITH DISINFECTION SOLUTION OF 5 OUNCES OF SODIUM HYPOCHLORITE MIXED WITH 10 GALLONS OF WATER.
10. PRIOR TO INSTALLATION, THE CONTRACTOR SHALL SUBMIT FOR APPROVAL BY BOARD OF WATER SUPPLY, THE MANUFACTURER'S CERTIFICATION THAT ALL CAST IRON (GRAY OR DUCTILE) FITTINGS FOR THE PROJECT CONFORM IN ALL RESPECTS OF THE WATER SYSTEM STANDARDS, DATED 1985.
11. POLYGON SHAPE FOR MECHANICAL JOINT GLANDS AS DESCRIBED IN AWWA STANDARD C111 SHALL BE "STRAIGHT-SIDED" OR AN APPROVED EQUAL ON A JOB TO JOB BASIS.
12. THE CONTRACTOR SHALL CUT AND PLUG ALL EXISTING UNUSED LATERALS AT THE MAIN WHETHER OR NOT SHOWN ON THE PLANS. THE DAMAGED AREA SHALL BE REPAIRED TO AN EQUAL OR BETTER CONDITION THAN THE IMMEDIATE AREA. ALL WORK SHALL BE DONE AT THE EXPENSE OF THE CONTRACTOR.
13. BOARD OF WATER SUPPLY APPROVAL OF THESE PLANS DOES NOT CONSTITUTE A WATER COMMITMENT. AVAILABILITY OF WATER WILL BE DETERMINED WHEN BUILDING PERMIT IS PRESENTED TO THE DEPARTMENT. WATER COMMITMENT WILL DEPEND UPON THE STATUS OF THE WATER SYSTEM AT THAT TIME. SHOULD WATER SERVICE BE MADE AVAILABLE, THE WATER COMMITMENT WILL BE EFFECTIVE WHEN THE PROJECT RECEIVES AN APPROVED BUILDING PERMIT FROM THE BUILDING DEPARTMENT. ALL WATER COMMITMENTS WILL BE CANCELED IN THE EVENT THE BUILDING PERMIT IS CANCELED.
14. TEST PRESSURE SHALL BE ONE OF THE FOLLOWING:
 - A. PREVAILING LINE PRESSURE, JOINTS LEFT EXPOSED FOR 24 HOURS TO CHECK FOR LEAKS PRIOR TO BACKFILL.
 - B. 150 psi.
15. PROVIDE 18" MINIMUM COVER FOR 2" WATERLINE.

⚠

REVISED WATERLINES "A" & "B" ALIGNMENT. REVISED NOTE #17
6/17/91
DATE
16. CONTRACTOR TO APPLY AND PAY FOR 1-1/2" METER.

4/14/92
BWS & DATE

2/24/92
DATE

ADDED SHEET FOR 2" WATERLINE
REVISION

LEGEND:

W2	2" WATERLINE
D.I.	DUCTILE IRON
⊗	TAPPING TEE & VALVE
C.O.	CLEANOUT
○	VALVE BOX & VALVE
□	WATER METER BOX

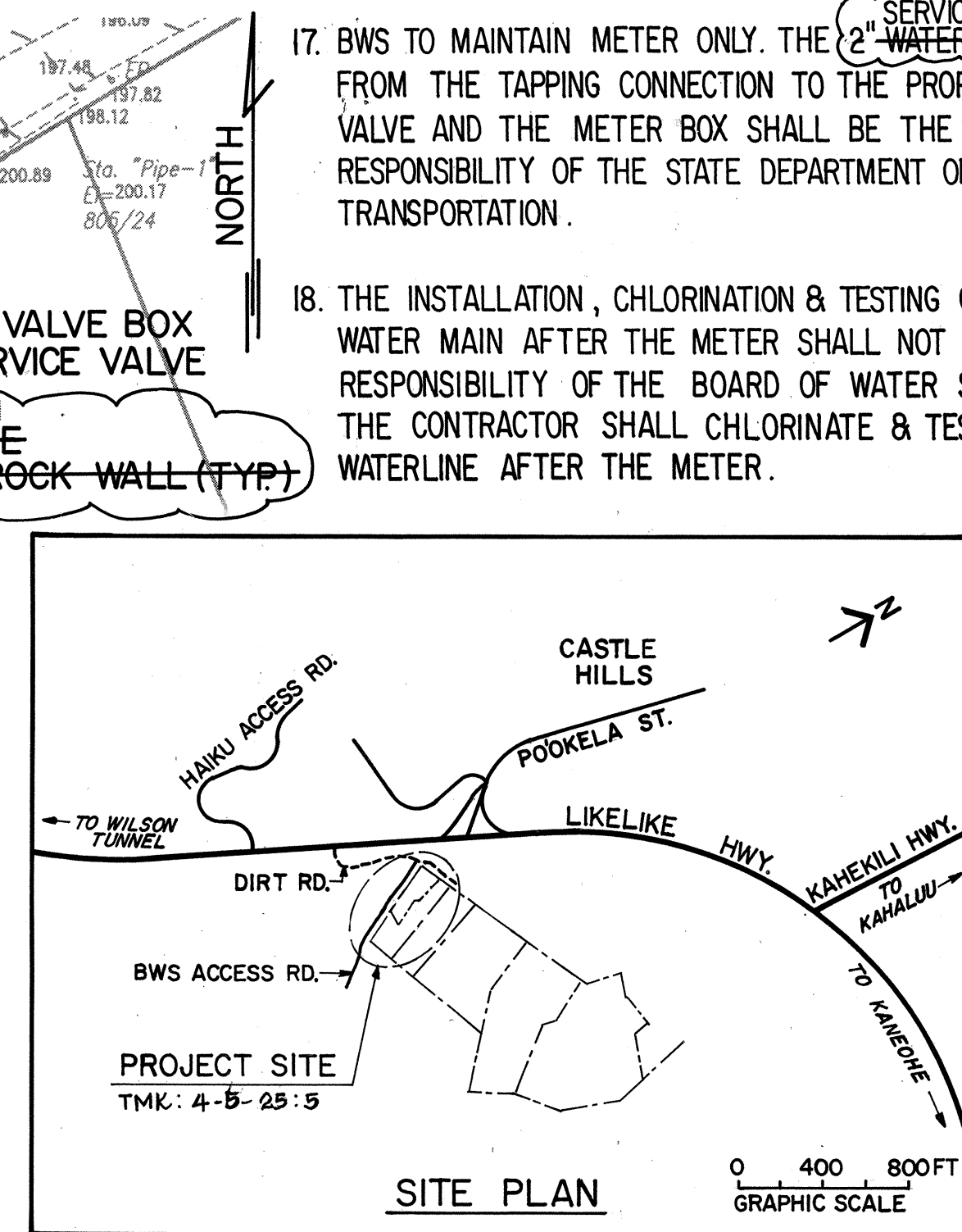


THIS WORK WAS PREPARED BY M
OR UNDER MY SUPERVISION.

APPROVED:

For W. J. Matus 10/4/91
CHIEF, PLNG. & ENGR., B.W.S. W DATE

FLOW REQUIREMENTS			
WATERLINE	F.U.	GPM	GPD
"A" - Irrigation (Future)	-	230	2,300
"B" - Domestic	30	20	2,400
- Irrigation	-	40	1,800
TOTAL "B"		60	4,200



FOR CUSTOMER SERVICE DIVISION
INFORMATION ONLY

AFTER SERVICE IS APPLIED AND PAID FOR, ORDER OFF SERVICE DATE OF INSTALLATION. INDICATE ON CHECK FOLDER THAT WSFC WILL BE APPLICABLE IF SERVICE IS NOT ACTIVATED WITHIN 5 YEARS OF ORDER-OFF DATE.

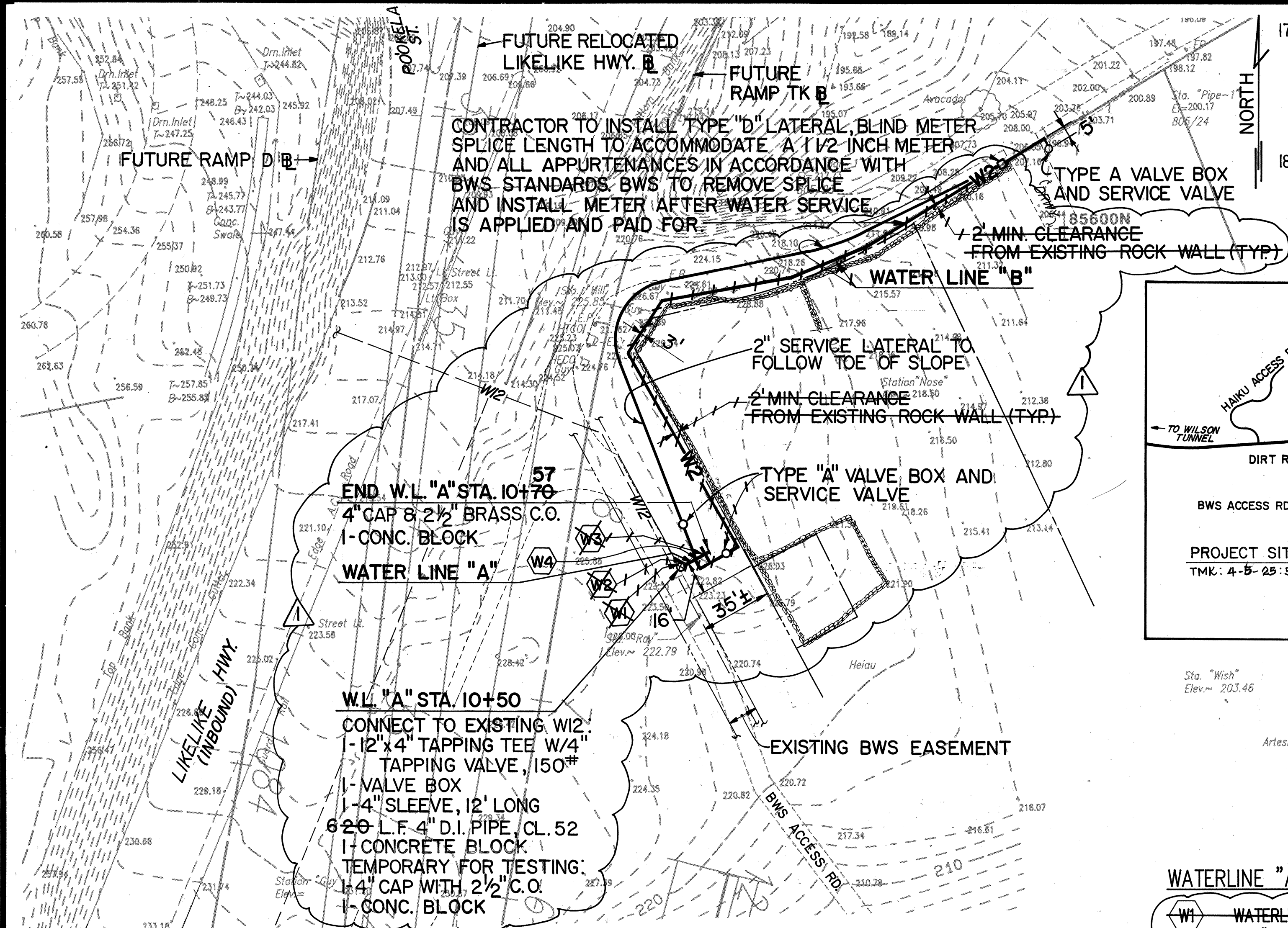
WATERLINE "A" NOTES:

- W1 WATERLINE "A" STA. 10+53-
1 4" 1/8 BEND (B.V.)-
1 CONC. BLOCK-
- W2 WATERLINE "A" STA. 10+55.25-
1 4" 1/8 BEND (T.V.)-
1 CONC. BLOCK-
- W3 WATERLINE "A" STA. 10+68-
1 CONC. BEAM- 56
- W4 WATERLINE "A" STA. 10+63.5-
1- DOUBLE HUB TEE WITH BOSS

THE CURRENT BWS CHARGES APPLICABLE FOR THIS PROJECT ARE AS FOLLOWS:

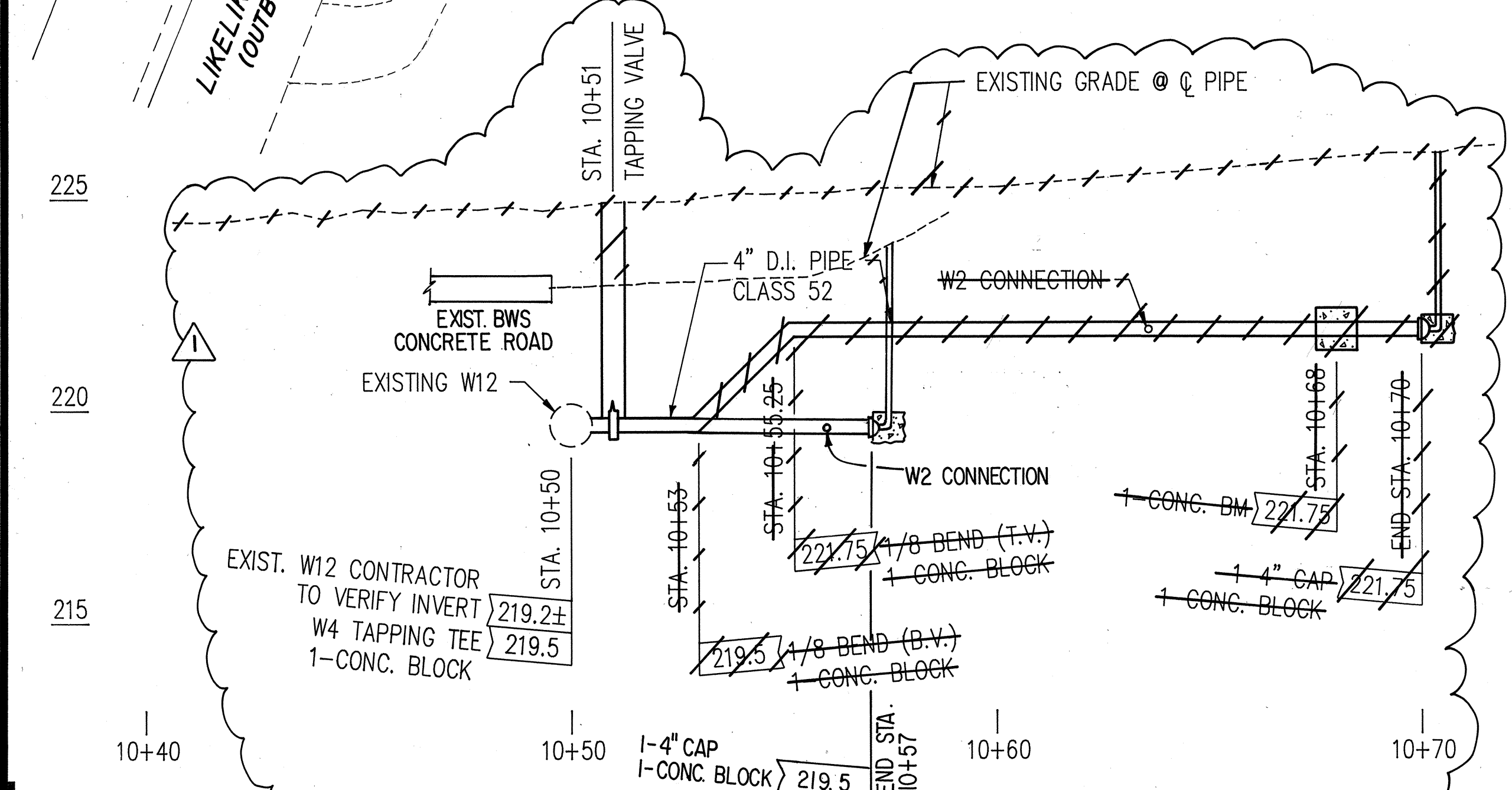
DOMESTIC SERVICE (1 1/2 INCH METER) WATERLINE "B"	
1 1/2 INCH METER COST	\$ 150.00
INSTALLATION CHARGE	20.00
WATER SYSTEM FACILITIES CHARGES	\$12400.00
CREDITS	-
TOTAL FOR WATERLINE "B"	\$12570.00

THE TOTAL BWS CHARGE SHALL BE PAID AT THE TIME OF WATER SERVICE APPLICATION. THE CHARGES ARE SUBJECT TO CHANGE AND SHALL BE FOR BIDDING PURPOSES ONLY. A FORMAL WRITTEN QUOTATION SHOULD BE MADE AFTER THE PLANS HAVE BEEN APPROVED BY THE BWS.



WATERLINE "A" & "B"

SCALE: 1" = 40'-0"



WATERLINE "A" PROFILE

SCALE: $3/8'' = 1'-0''$

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