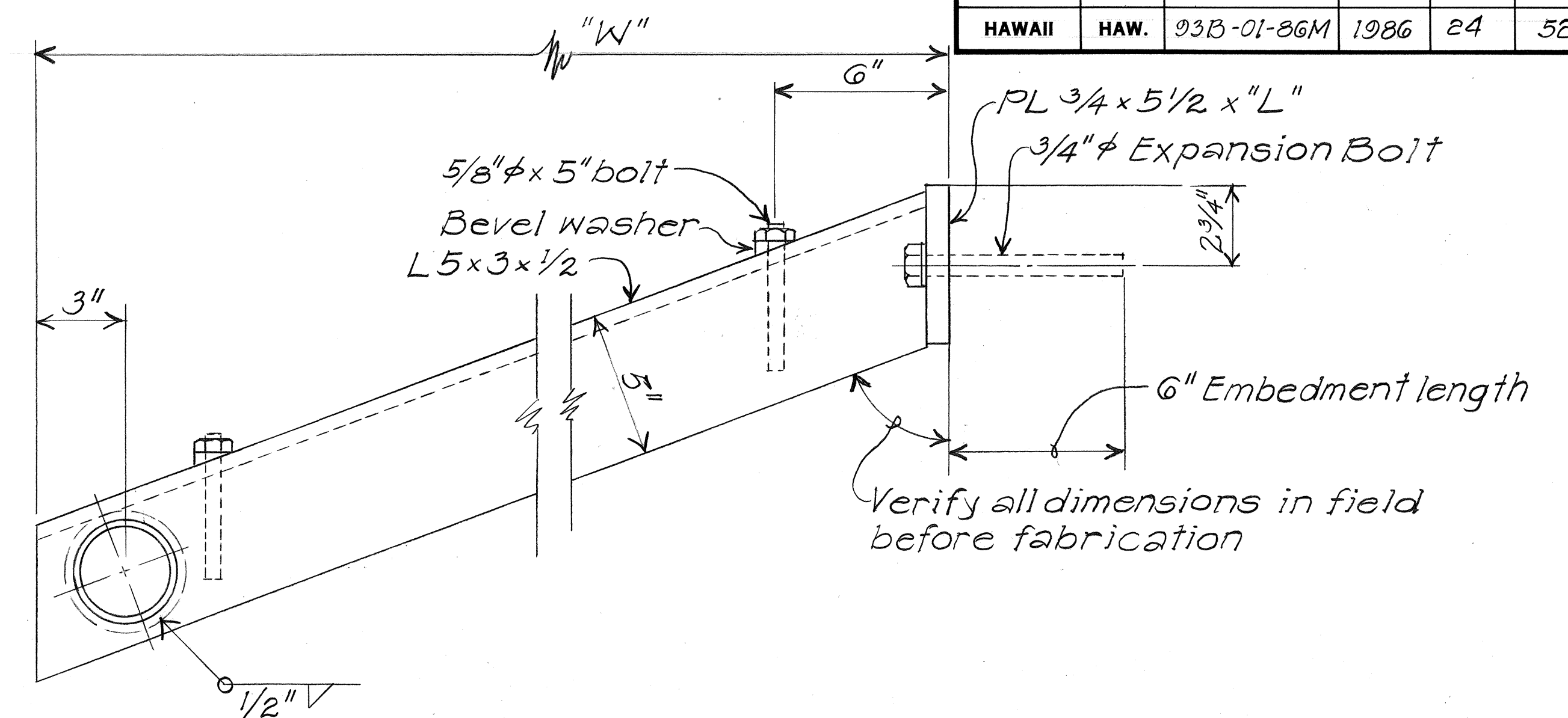
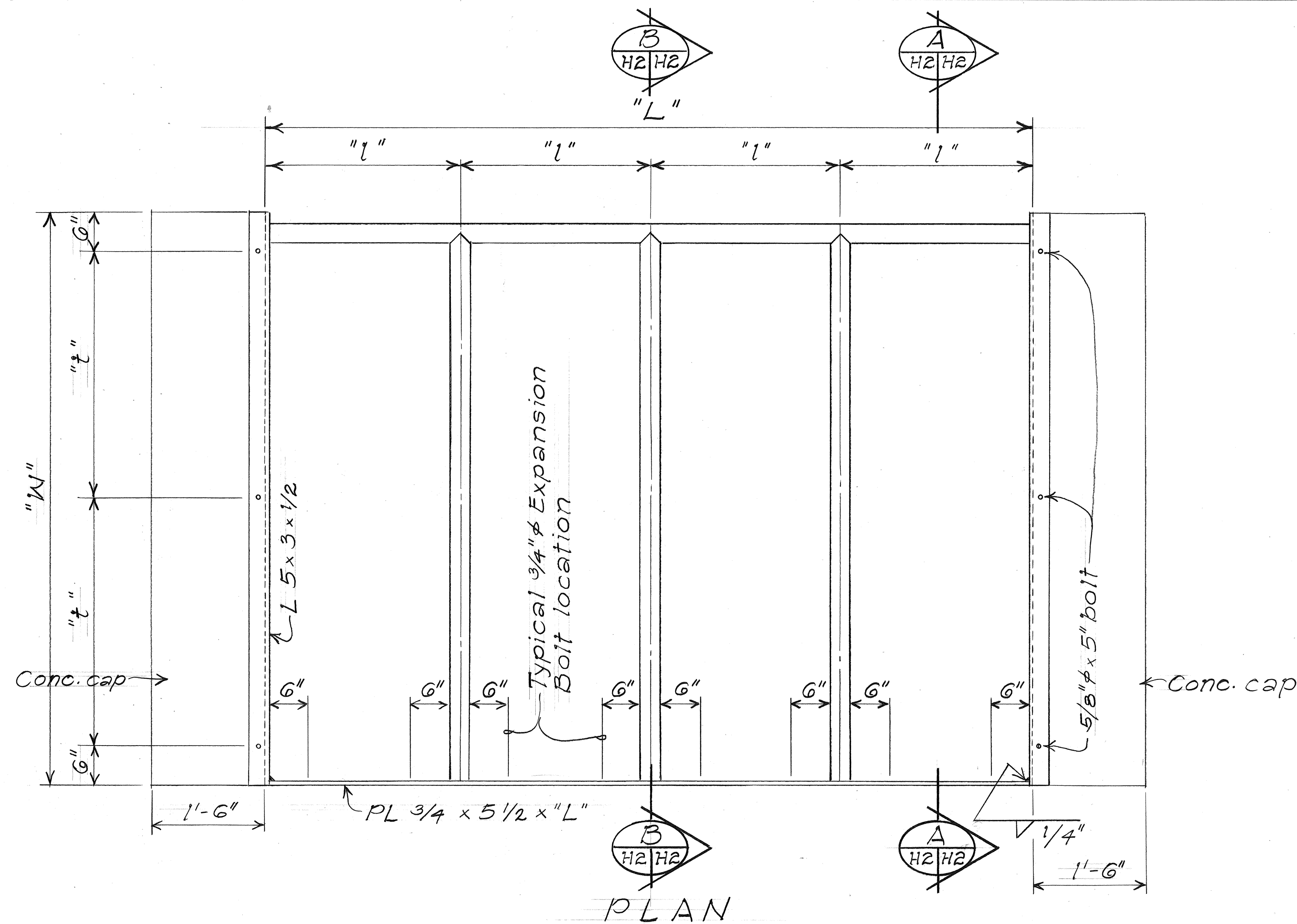
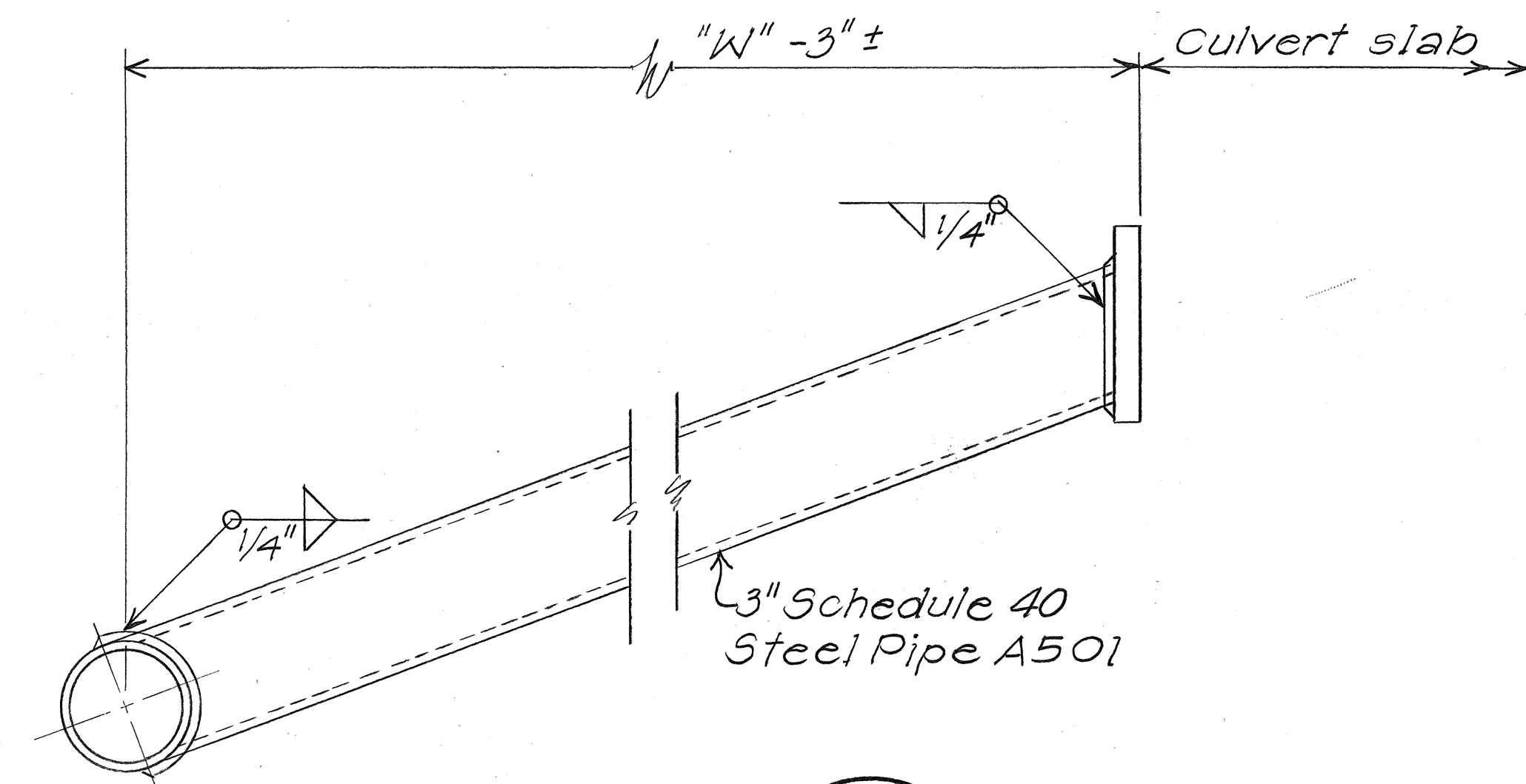


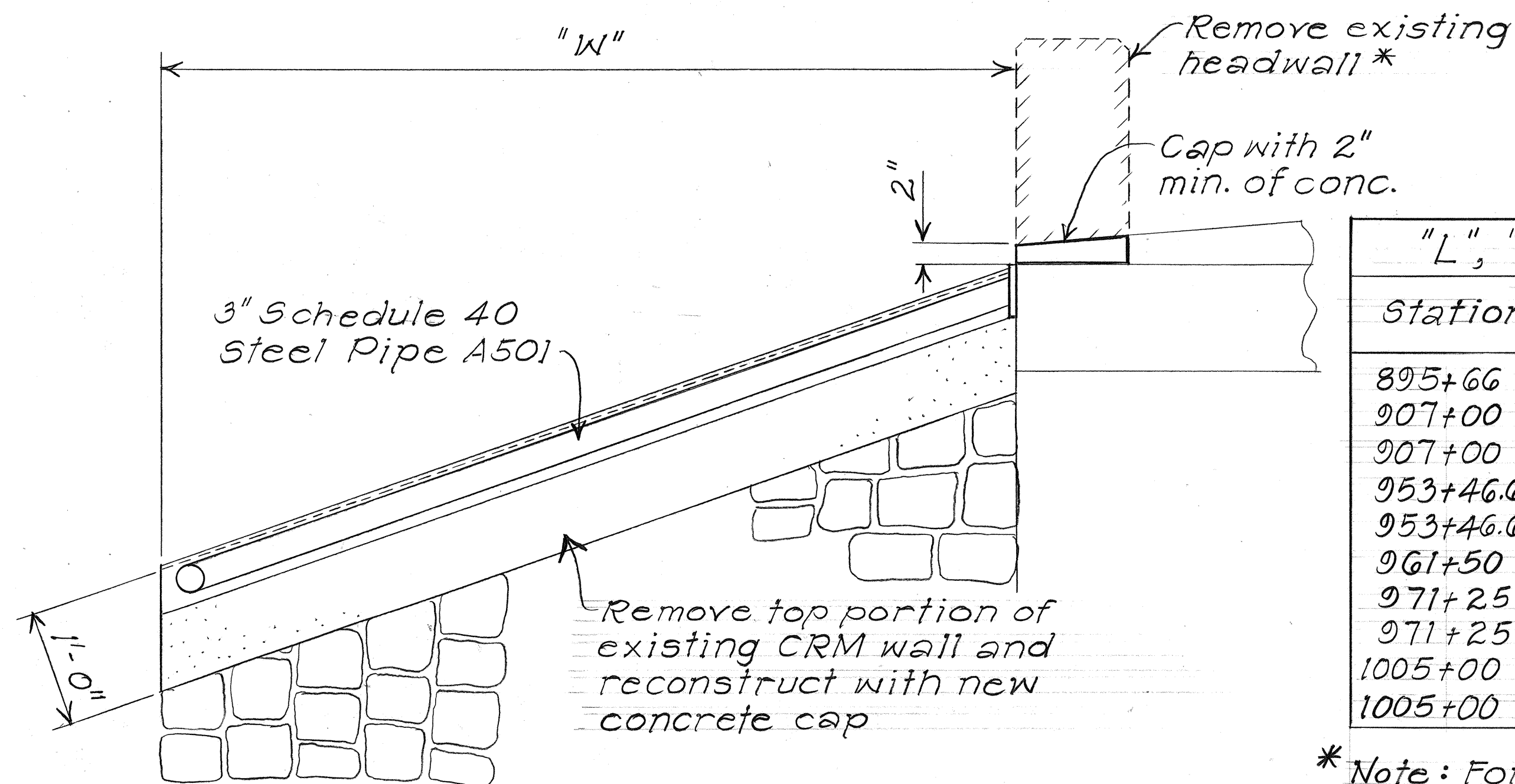
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	93B-01-86M	1986	24	52



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



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



ELEVATION

"L", "l", "W" & "t" TABLE				
Station	Span "L"	Spacing "l"	CRM Wall length "W"	5/8" Bolt spacing "t"
895+66 LT	10'-0"	4 @ 2'-6"	7'-6" ±	2 @ 3'-3"
907+00 LT	10'-0"	4 @ 2'-6"	8'-6" ±	2 @ 3'-0"
907+00 RT	10'-0"	4 @ 2'-6"	8'-6" ±	2 @ 3'-0"
953+46.0 LT	6'-0"	3 @ 2'-0"	8'-6" ±	2 @ 3'-0"
953+46.6 RT	6'-0"	3 @ 2'-0"	5'-0" ±	2 @ 2'-4 1/2"
961+50 LT	4'-0"	2 @ 2'-0"	7'-8" ±	2 @ 3'-4"
971+25 LT	4'-0"	2 @ 2'-0"	8'-0" ±	2 @ 3'-10 1/2"
971+25 RT	4'-0"	2 @ 2'-0"	5'-0" ±	1 @ 4'-0"
1005+00 LT	4'-0"	2 @ 2'-0"	5'-0" ±	1 @ 4'-0"
1005+00 RT	4'-0"	2 @ 2'-0"	5'-0" ±	1 @ 4'-0"

*Note: For Sta. 907+00 Lt & Rt cut headwall as shown on sheet no. H3

TYPE ("L" x "W") 3" PIPE GRATE

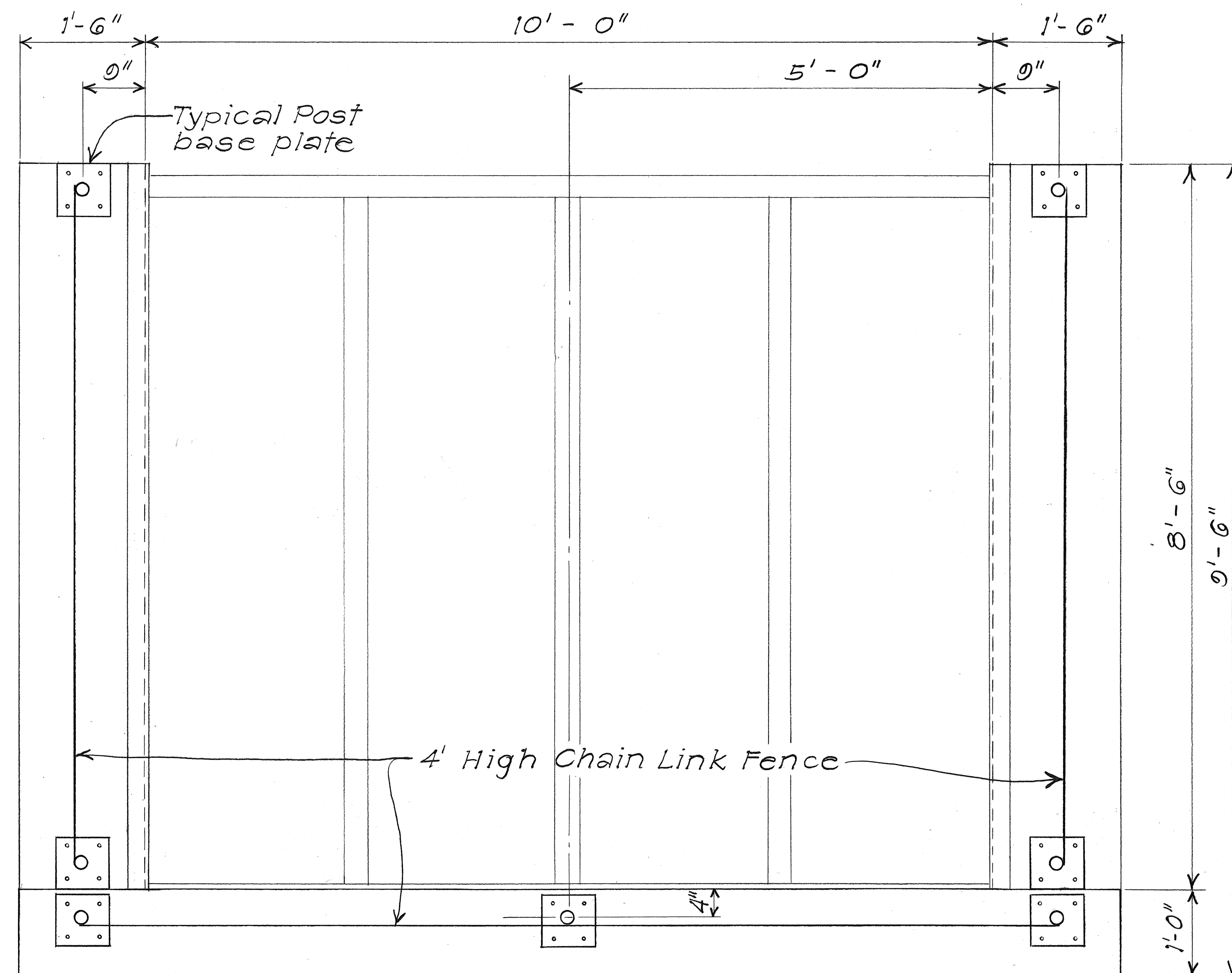
Scale: 1" = 1'-0"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

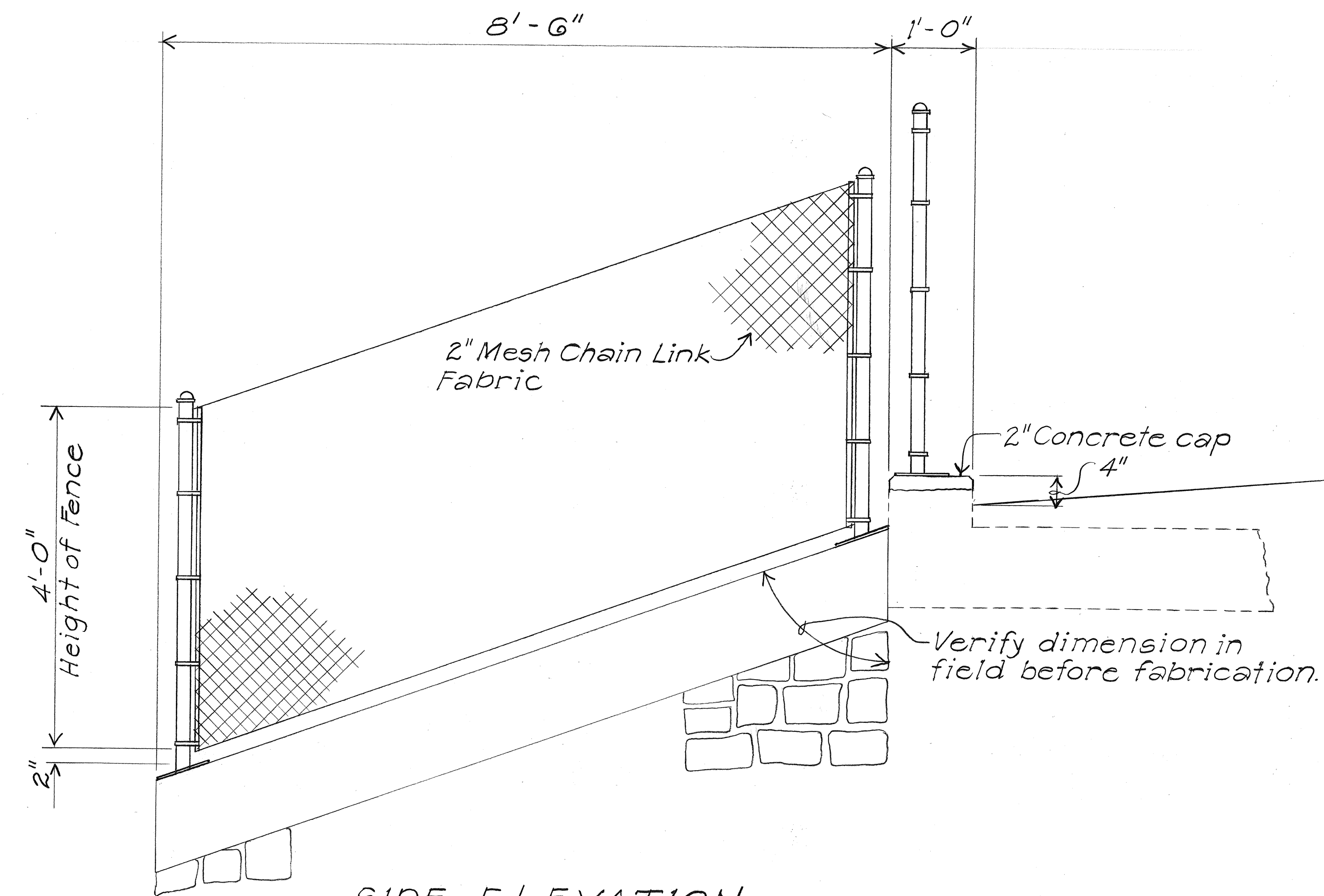
DRAINAGE DETAILS

FARRINGTON HIGHWAY RESURFACING
Kaupuni Stream to Makaha
Project No. 93B-01-86M
Scale: As Noted Date: Feb. 1986
SHEET NO. H2 OF 7 SHEETS

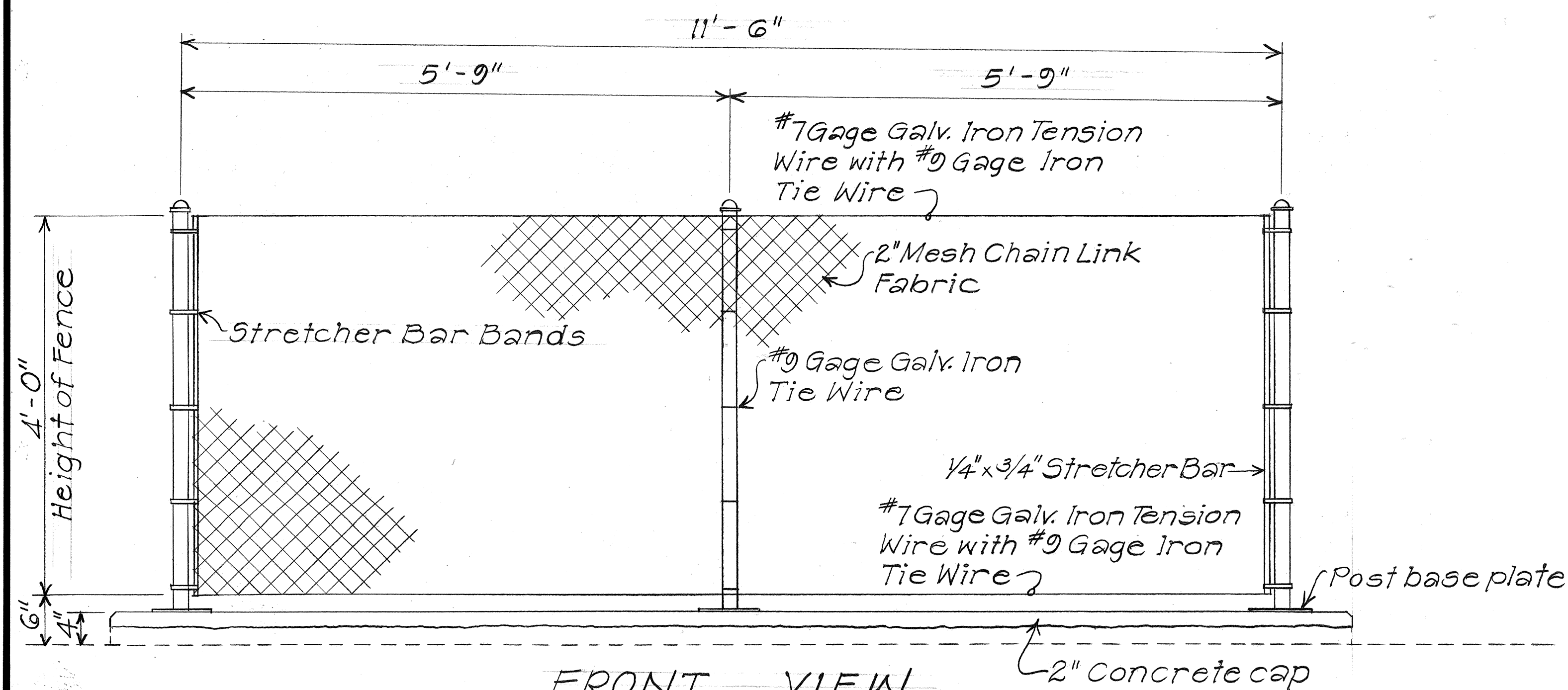
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	93B-01-86M	1986	25	52



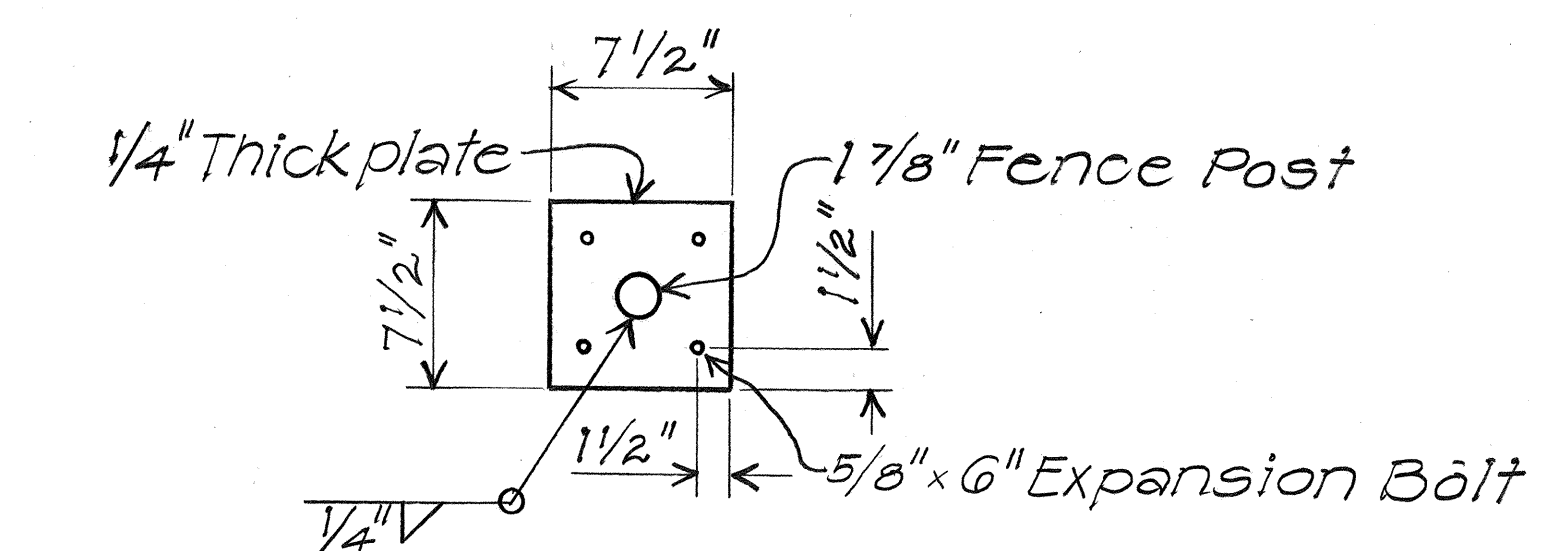
PLAN



SIDE ELEVATION



FRONT VIEW



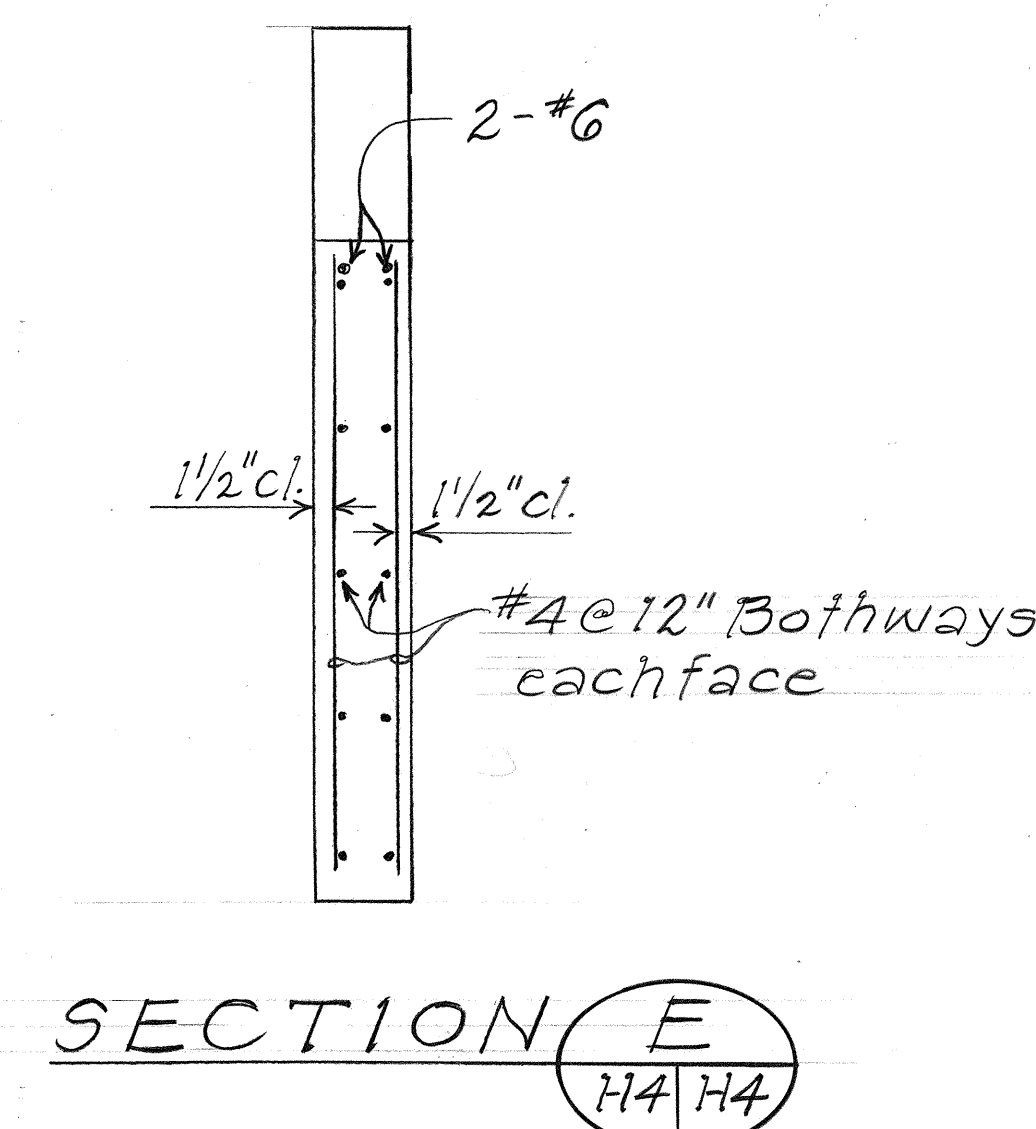
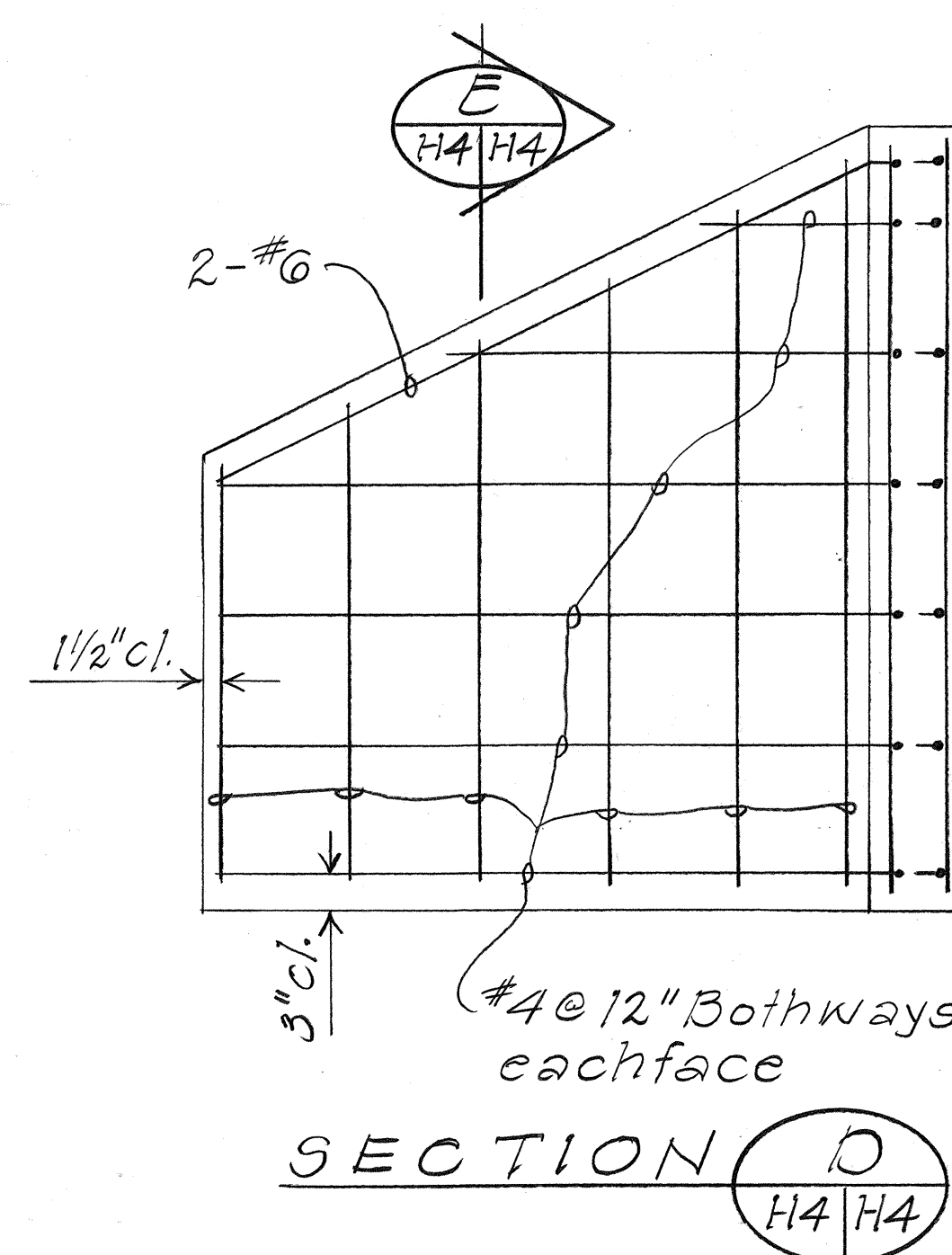
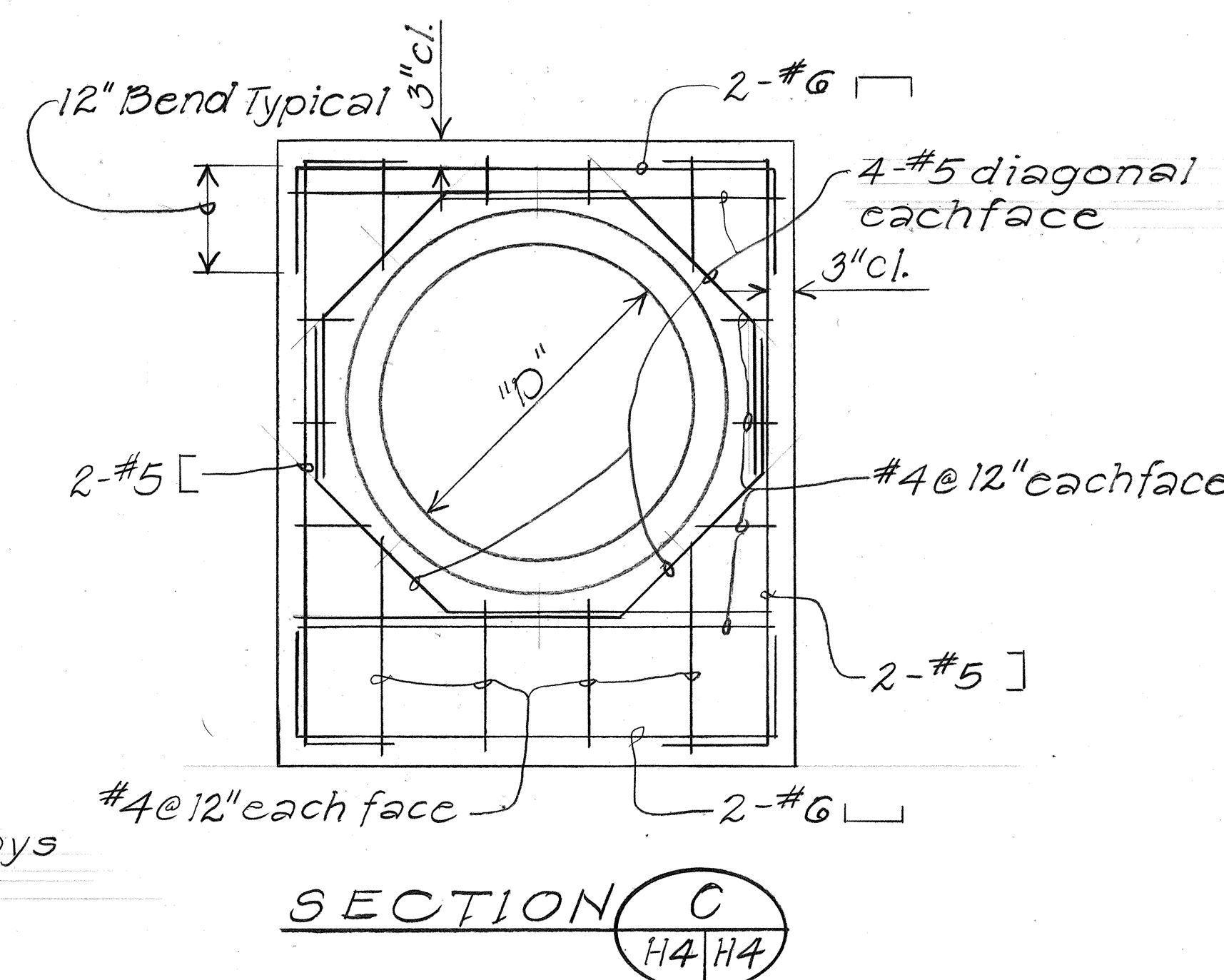
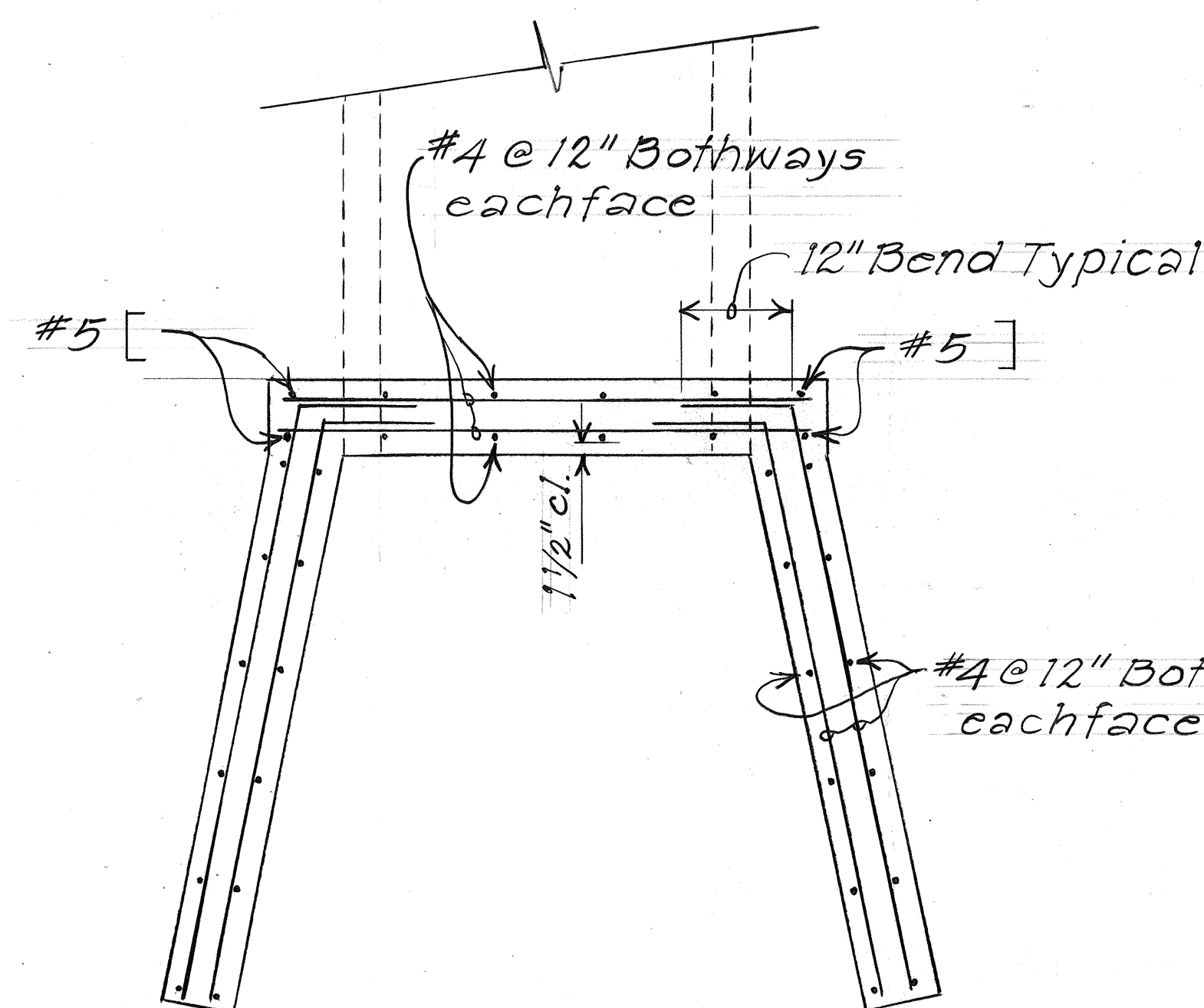
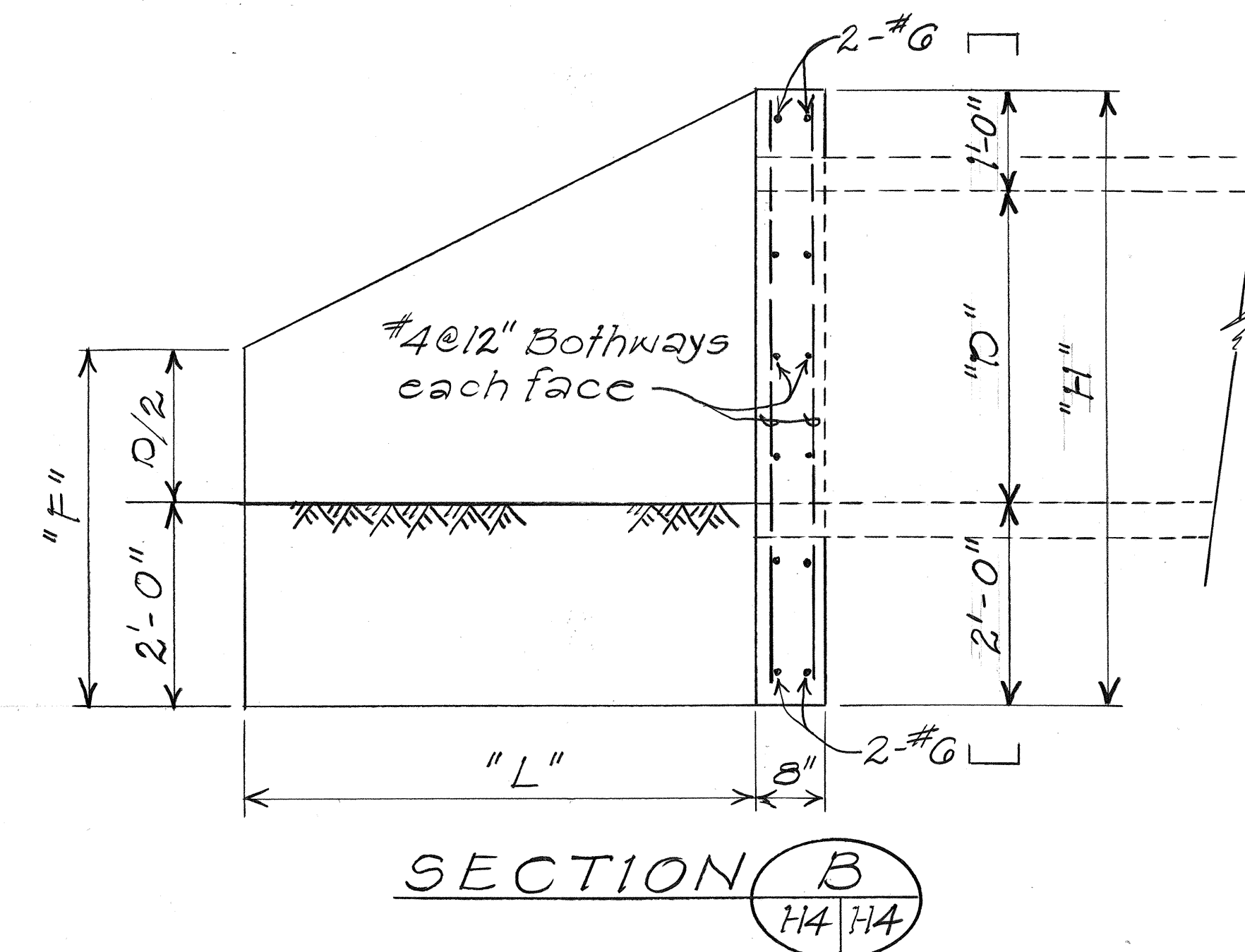
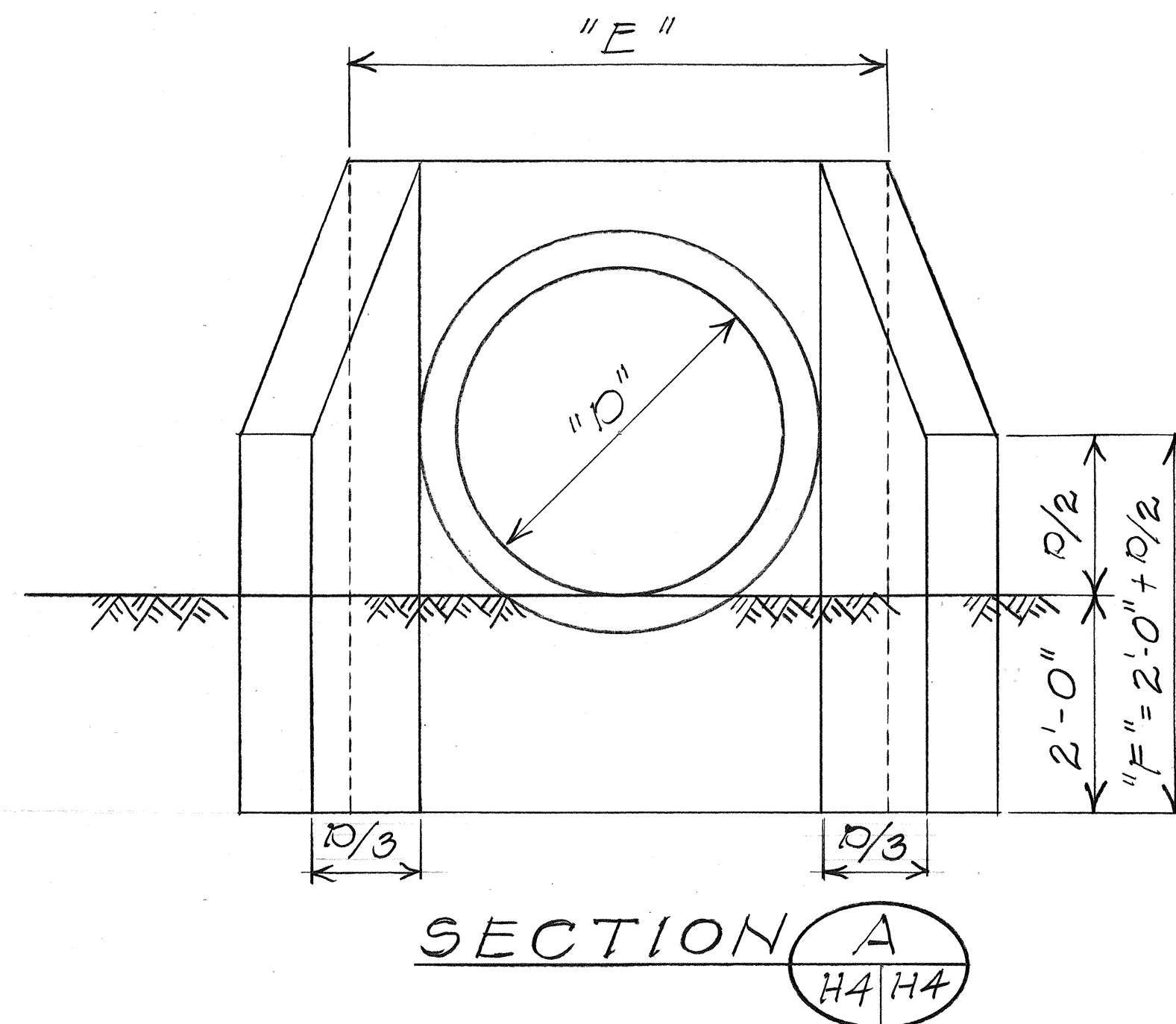
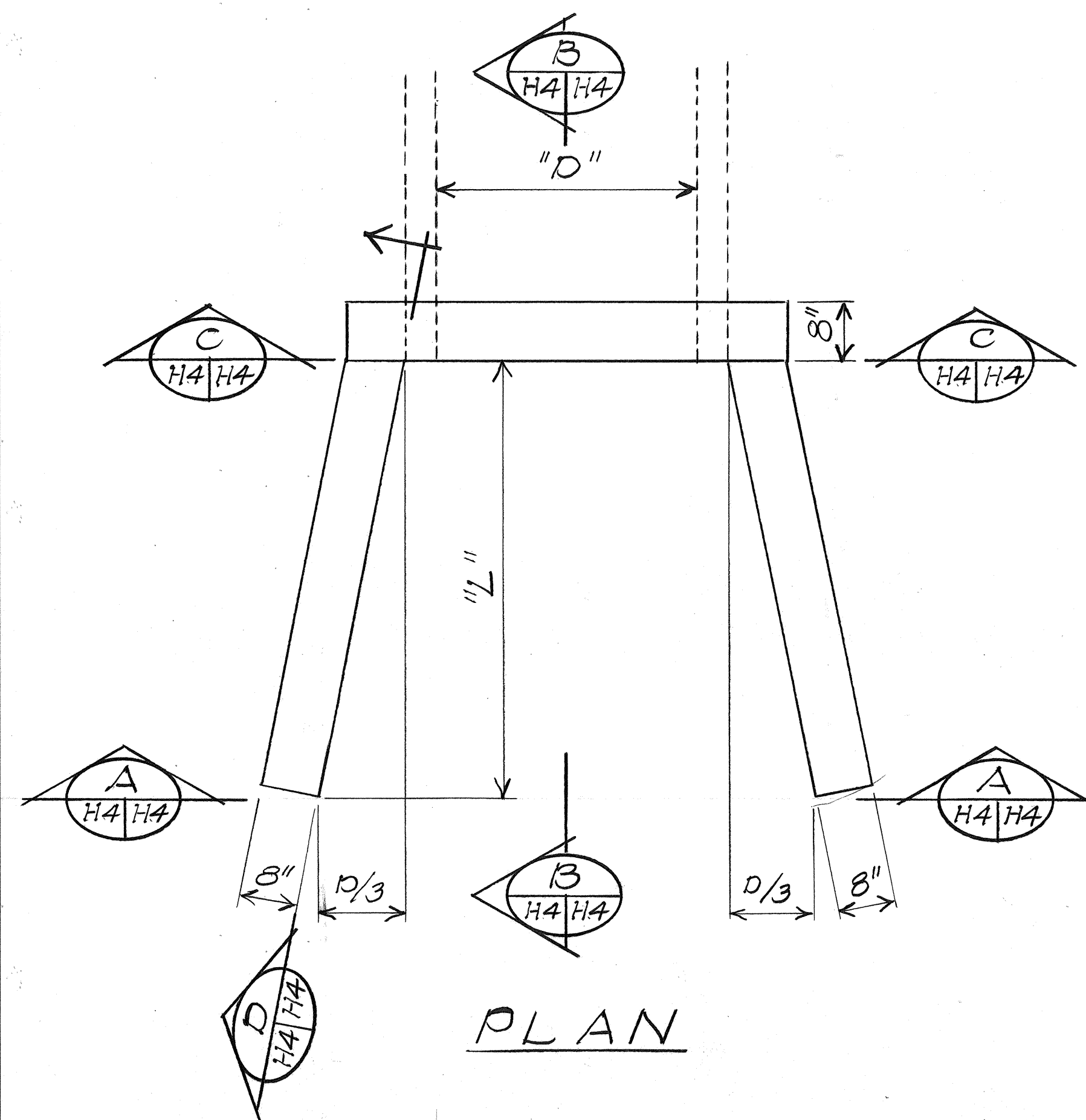
DETAIL OF BASE PLATE

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

CHAIN LINK FENCE DETAILS AT INLET & OUTLET ~ STA. 907+00

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
DRAINAGE DETAILS
FARRINGTON HIGHWAY RESURFACING Kaupuni Stream to Makaha Project No. 93B-01-86M Scale: 1" = 1'-0" Date: Feb. 1986 SHEET No. H3 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	93B-01-86M	1986	26	52



DATA FOR CONCRETE HEADWALL					
STATION	"D"	"H"	"L"	"E"	"F"
985+50 LT & RT	24"	5'-0"	3'-4"	4'-0"	3'-0"
989+00 LT & RT	36"	6'-0"	5'-0"	5'-1"	3'-6"

CONCRETE HEADWALL (INLET & OUTLET)

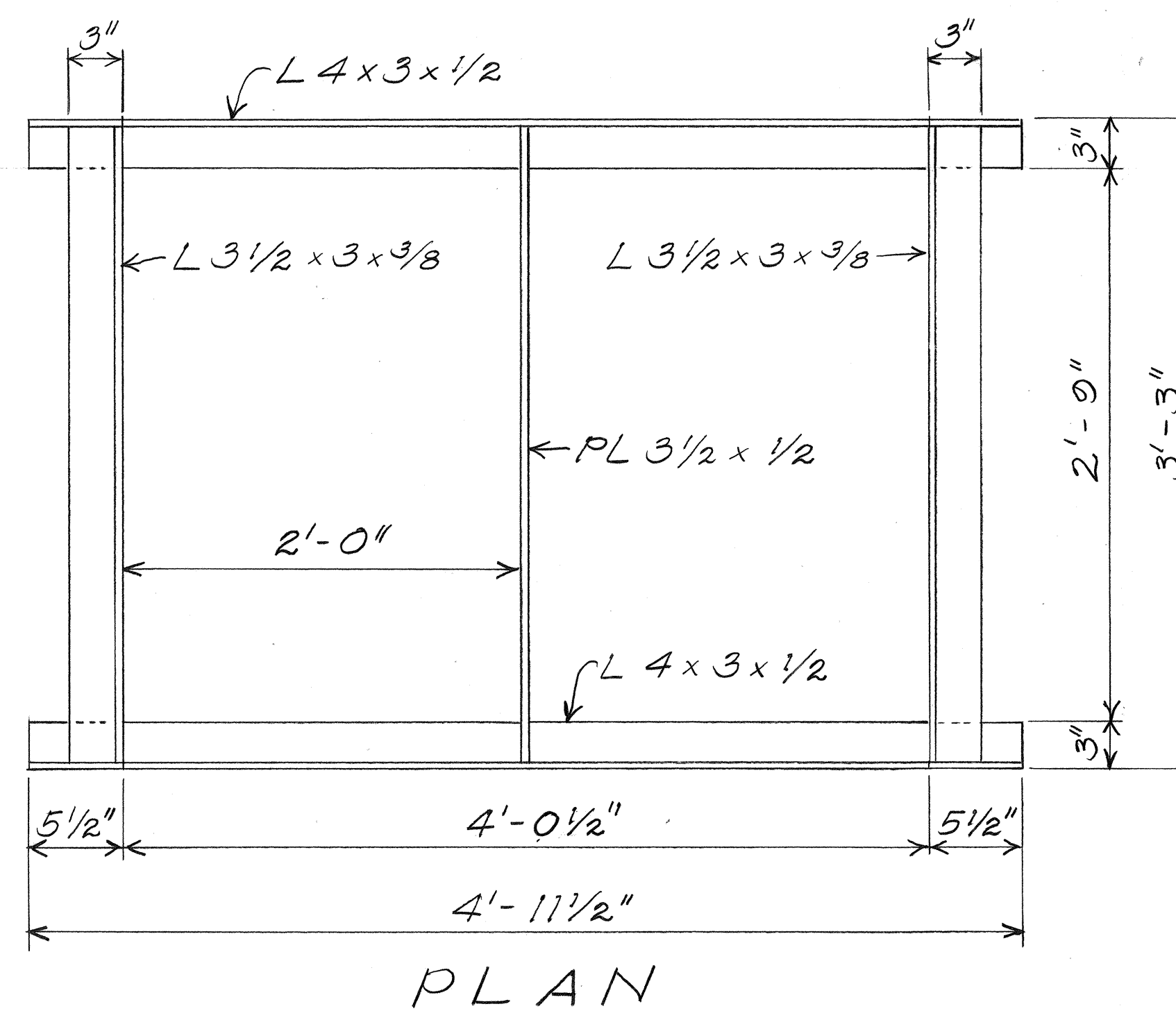
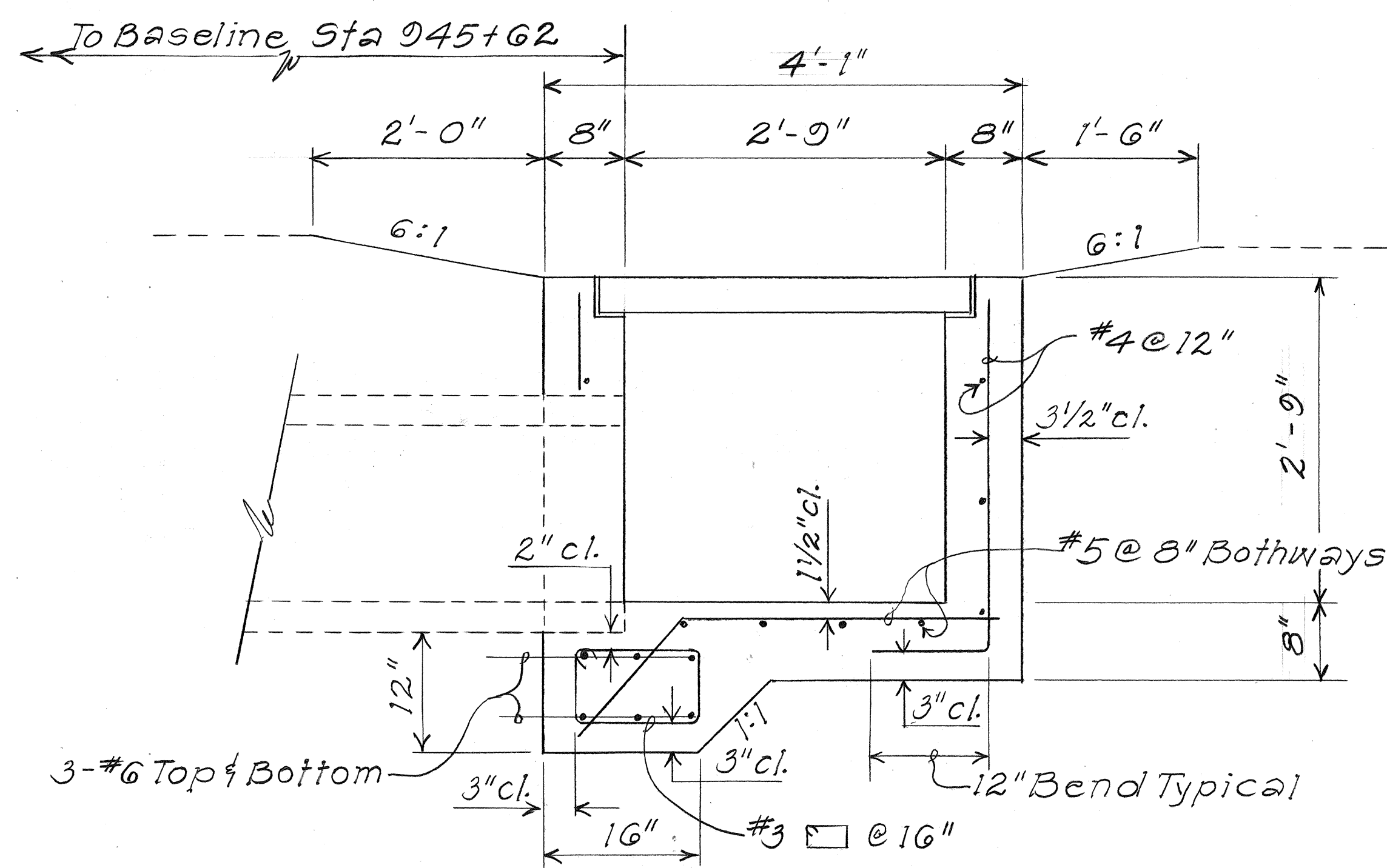
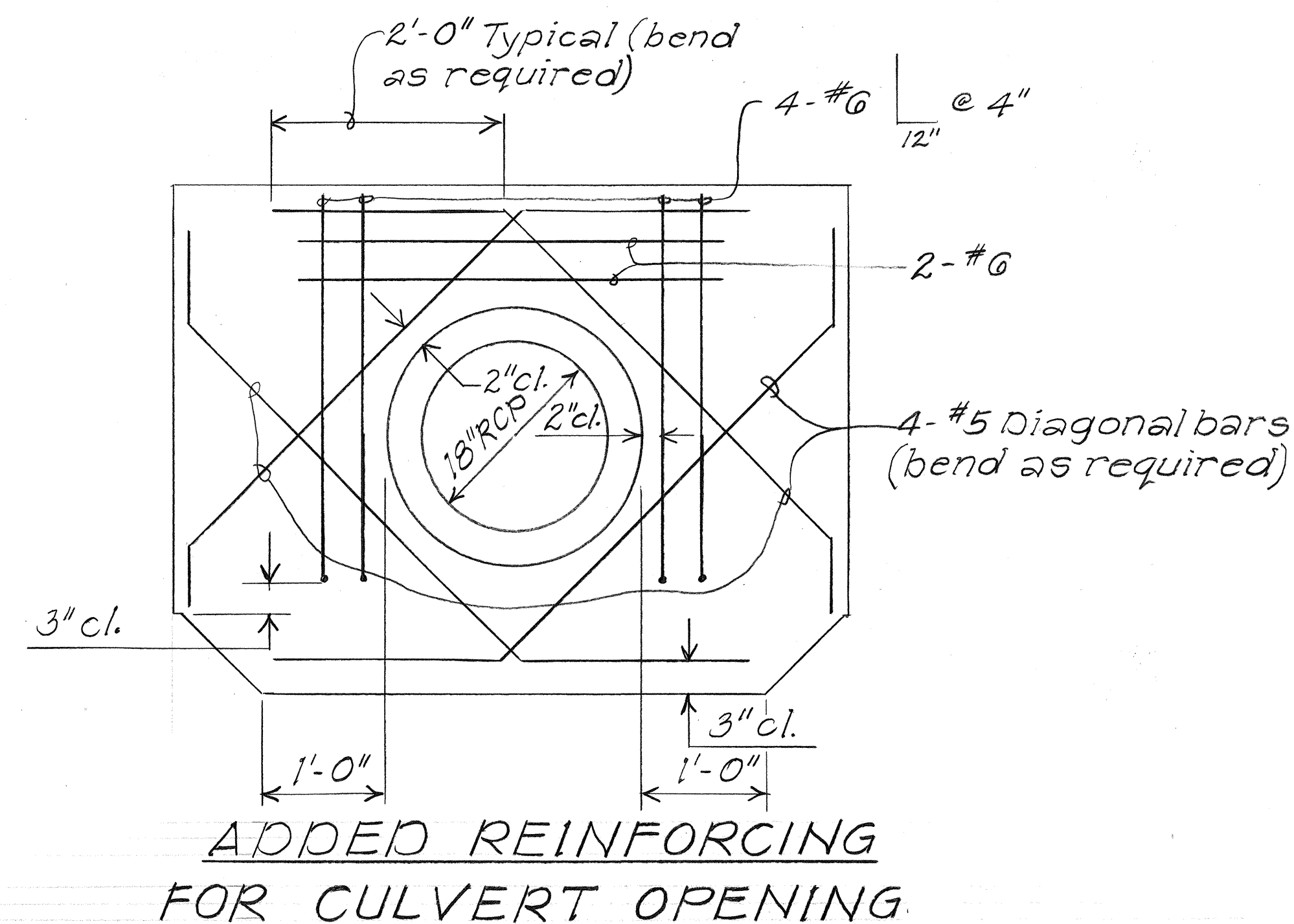
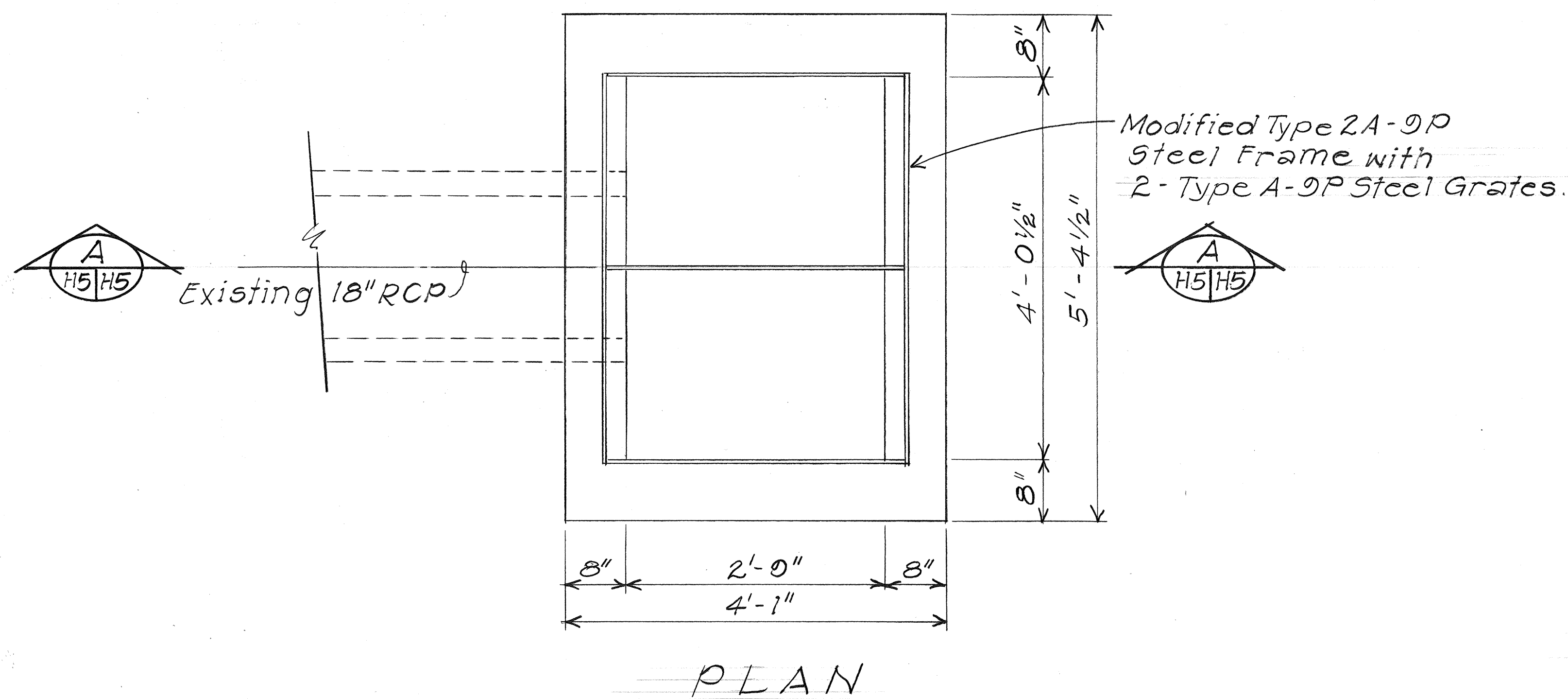
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

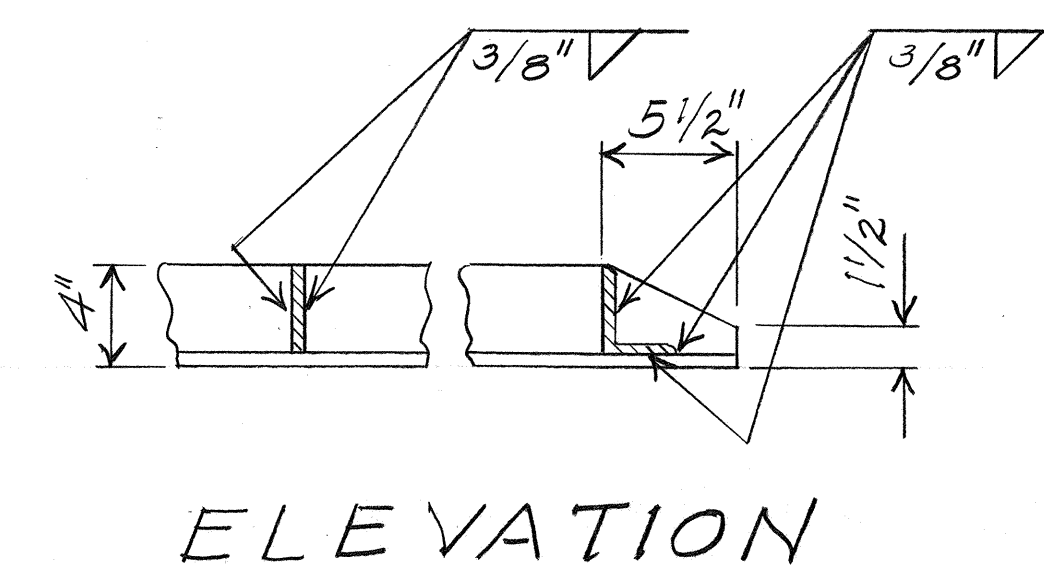
FARRINGTON HIGHWAY RESURFACING
Kaupuni Stream to Makaha
Project No. 93B-01-86M
Scale: 3/4" = 1'-0" Date: Feb. 1986
SHEET No. 14 OF 7 SHEETS

DESIGNED BY	DATE
CHECKED BY	
NOTED BY	
PLANNED BY	
ORIGINAL PLAN	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	93B-01-86M	1986	27	52



DETAIL OF MODIFIED TYPE 2A-9P STEEL FRAME
Scale: 1/2" = 1'-0"



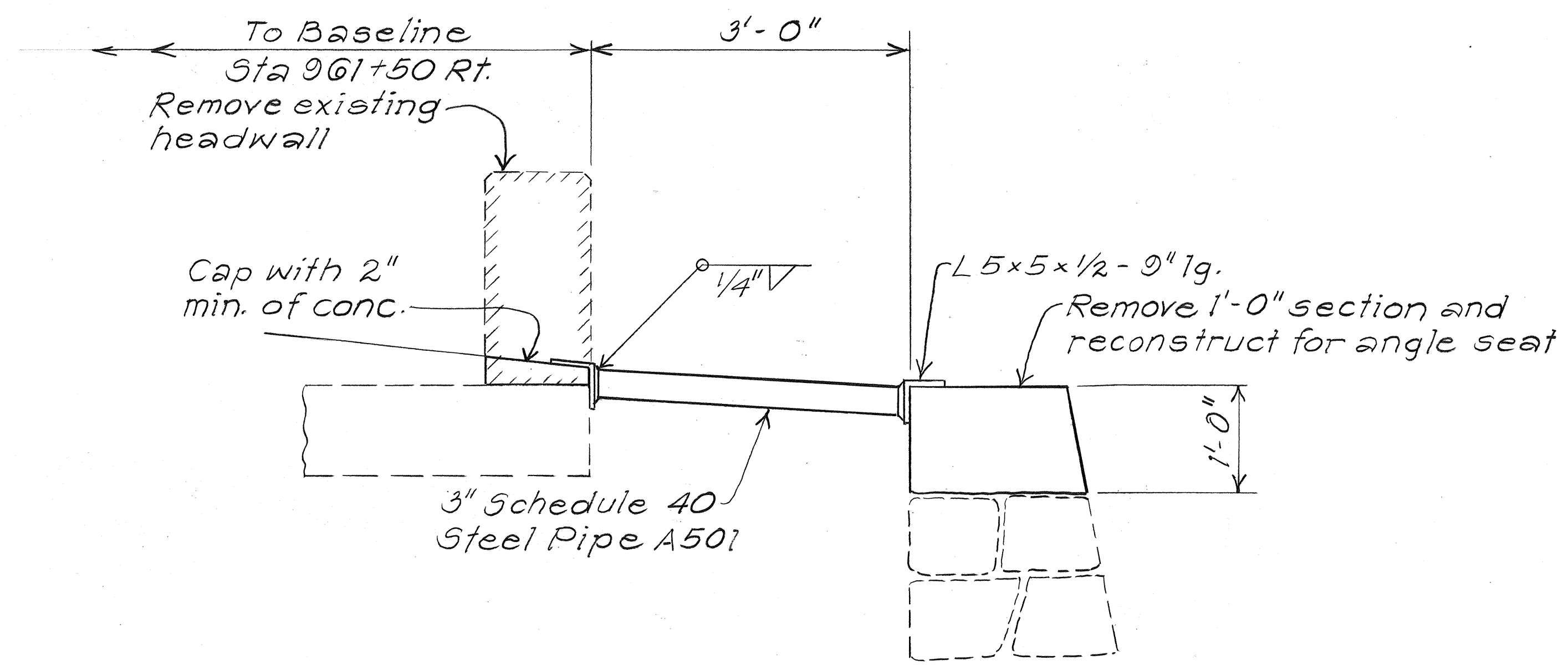
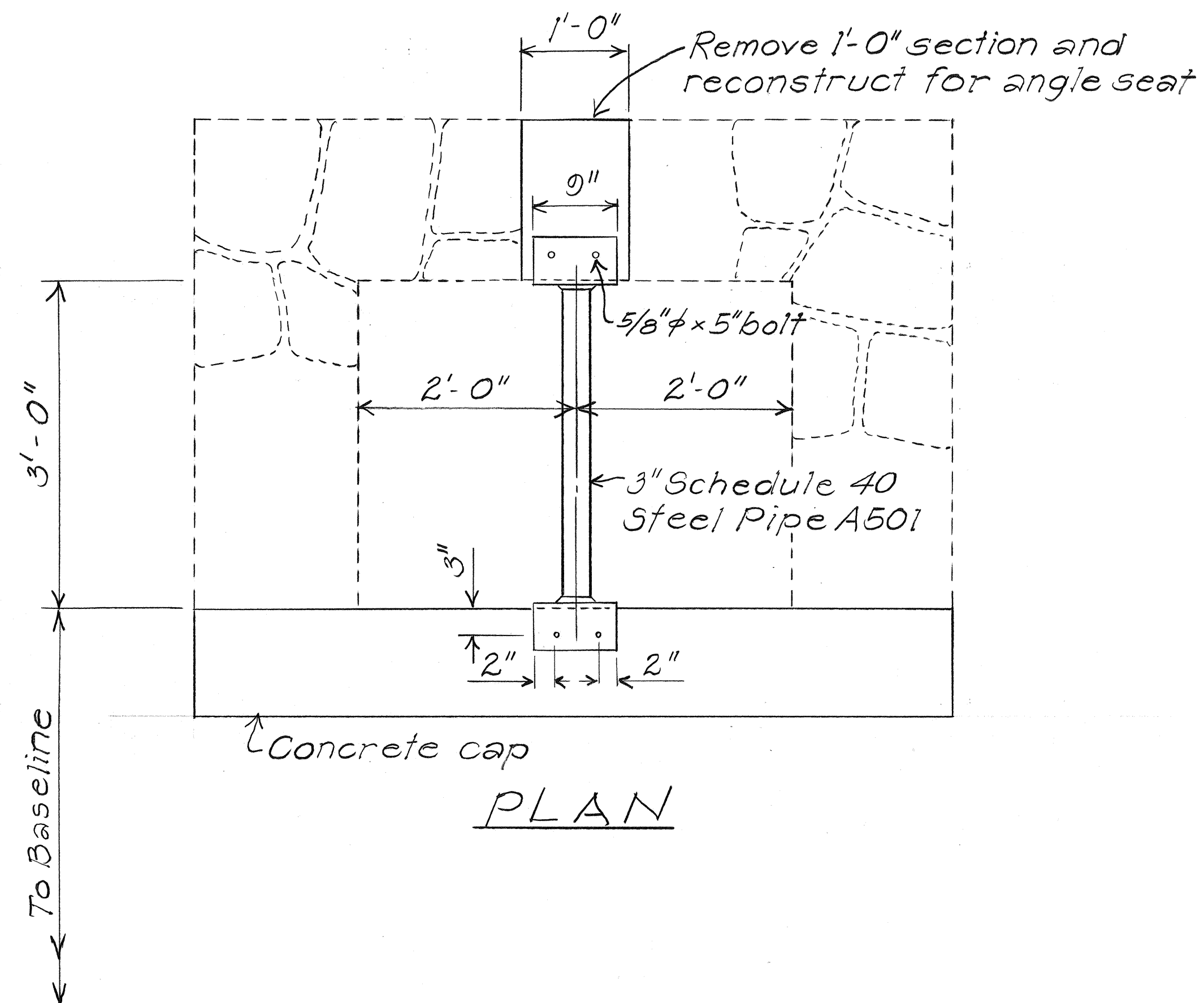
TYPE 2A-9P GRATED DROP INLET AT STA 945+62 RT
Scale: 1" = 1'-0"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

FARRINGTON HIGHWAY RESURFACING
Kaupuni Stream to Makaha
Project No. 93B-01-86M
Scale: As Noted Date: Feb. 1986
SHEET No. 5 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	93B-01-86M	1986	28	52



TYPE (3'-0"L) 3" PIPE GRATE

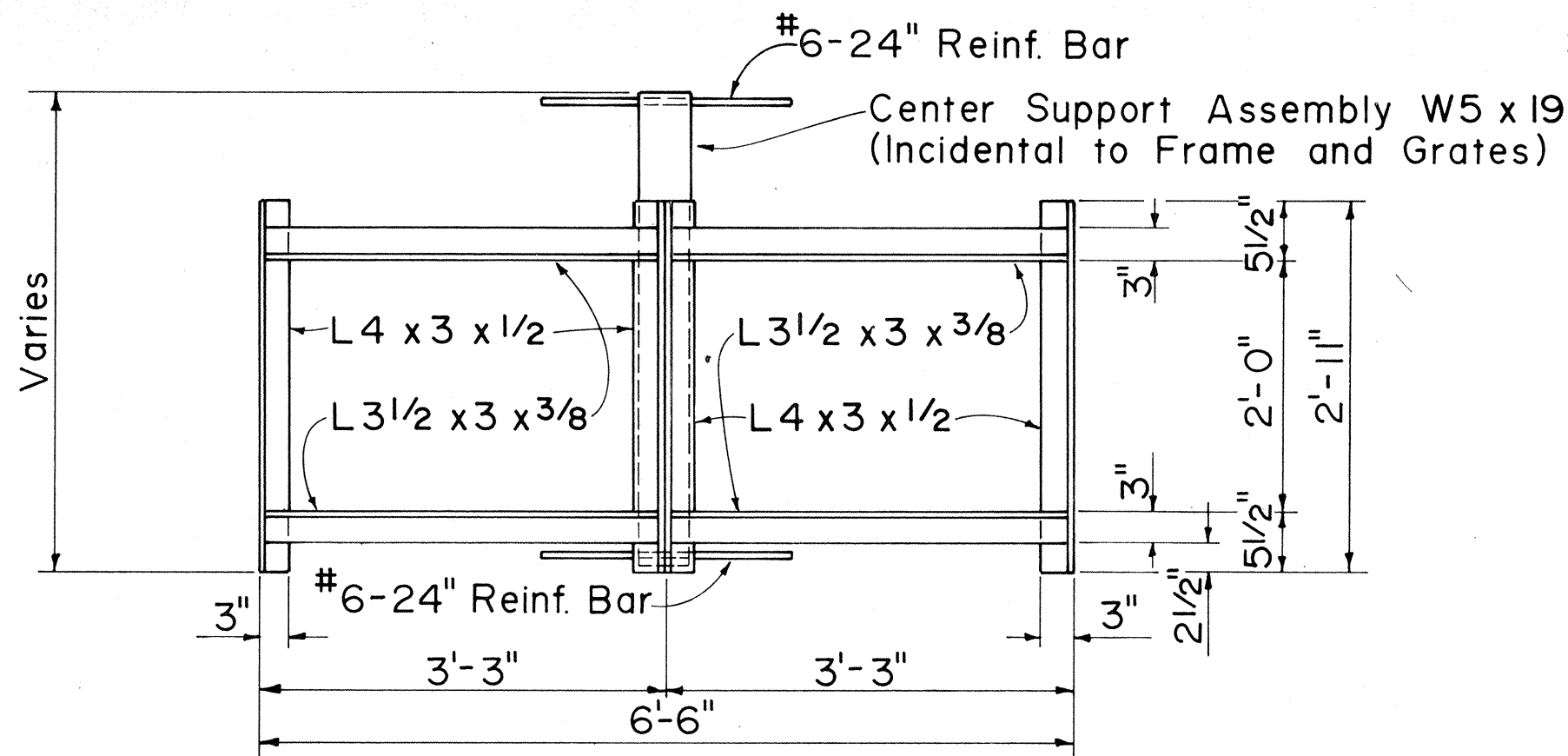
Scale: 1" = 1'-0"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

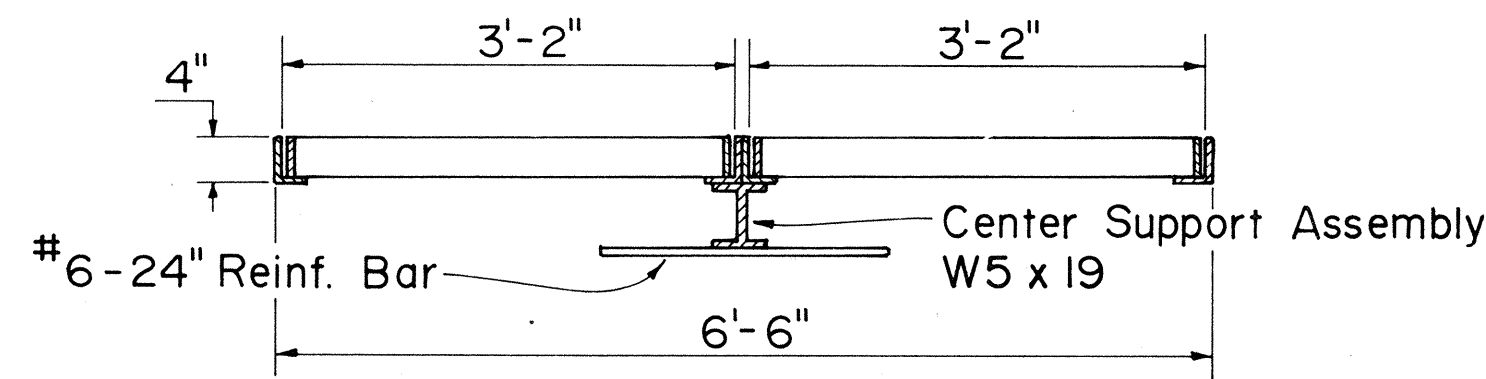
FARRINGTON HIGHWAY RESURFACING
Kaupuni Stream to Makaha
Project No. 93B-01-86M
Scale: 1" = 1'-0" Date: Feb. 1986
SHEET No. H6 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	93B-01-36M	1986	20	52



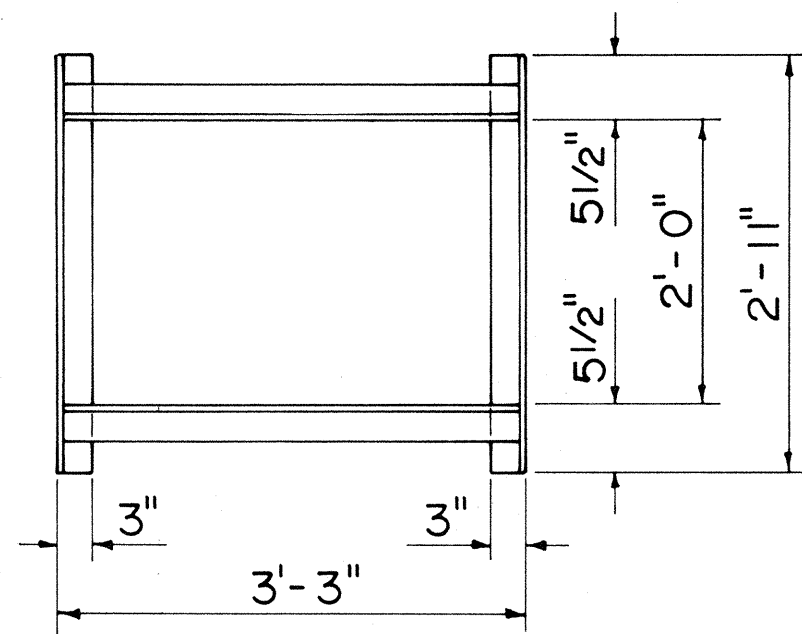
PLAN

(Two or More Grates)



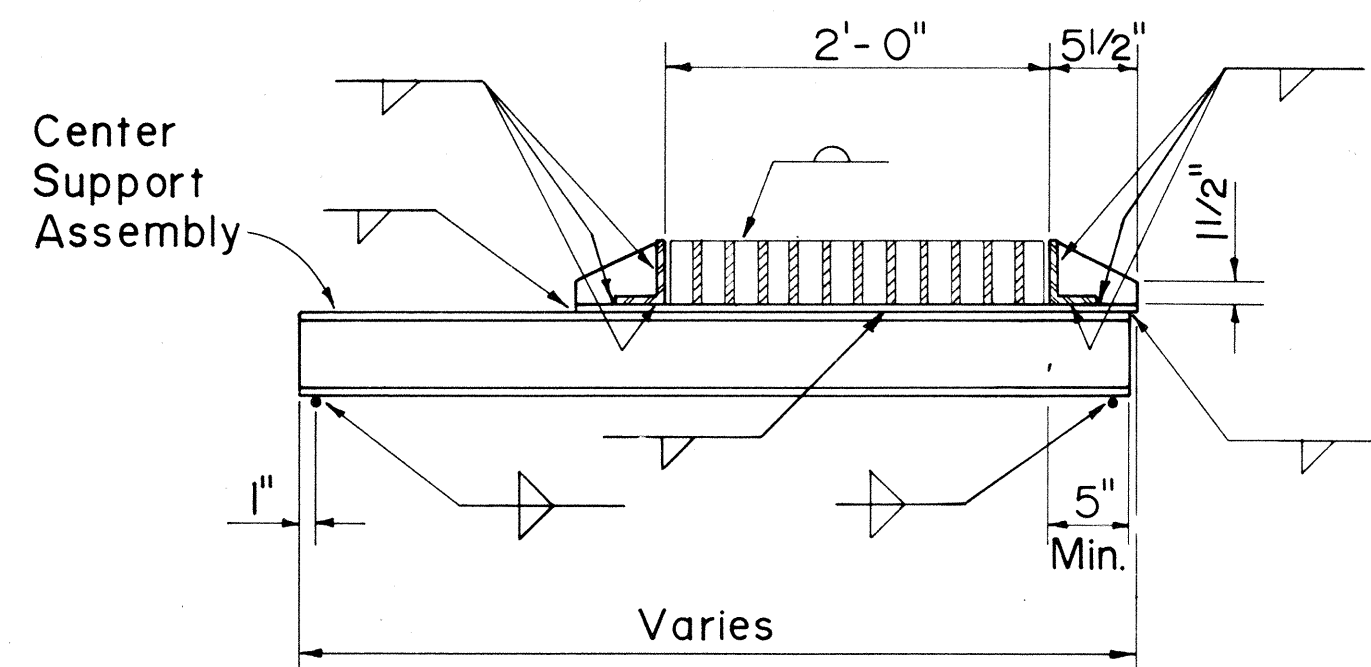
LONGITUDINAL SECTION

(Thru Frame & Grate)



PLAN

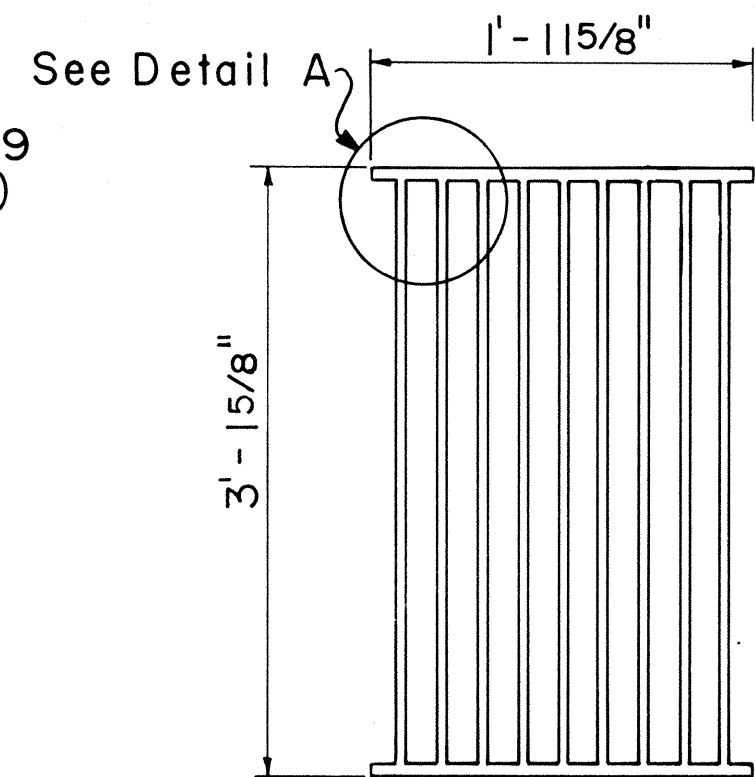
(Single Grate)



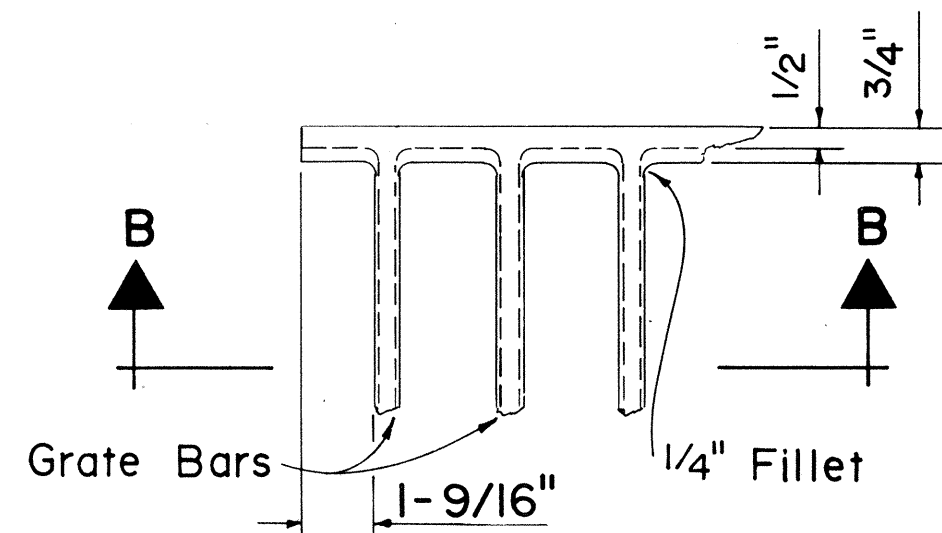
CROSS SECTION

(Thru Frame & Grate)

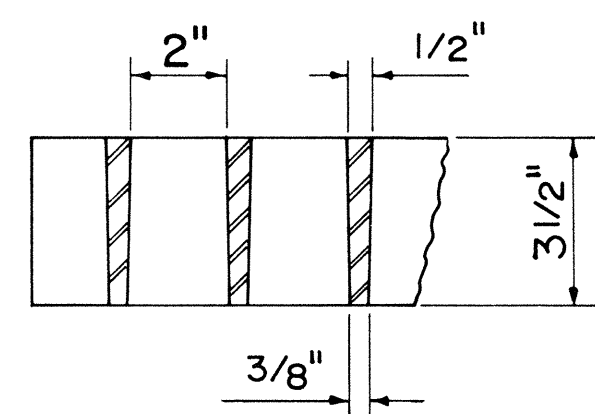
FRAME DETAILS



PLAN



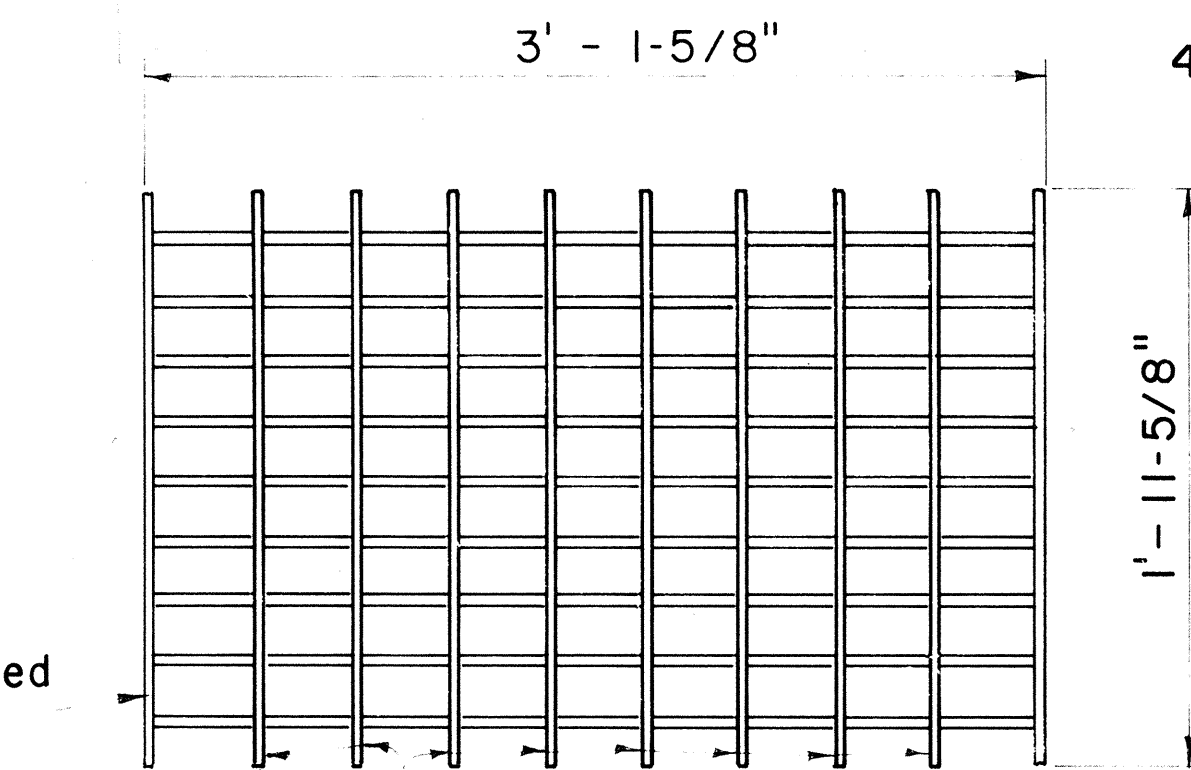
DETAIL A



SECTION B-B

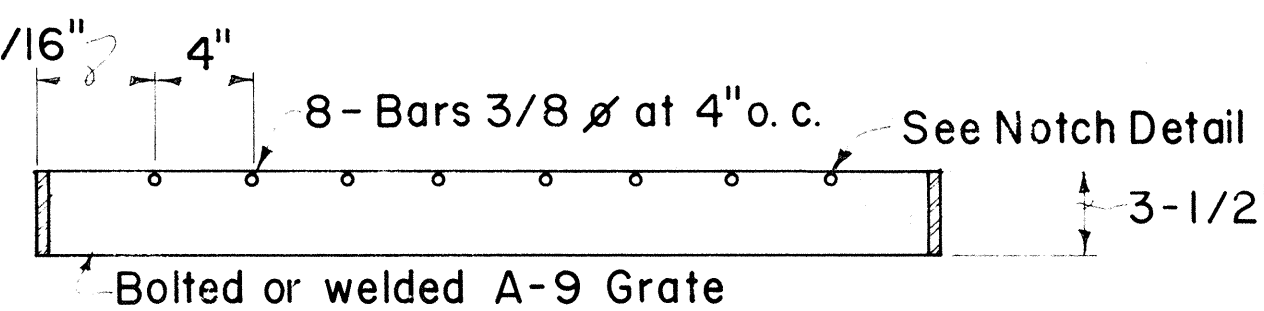
TYPE A-9 STEEL GRATE

ALTERNATIVE CAST MALLEABLE IRON OR CAST STEEL GRATE

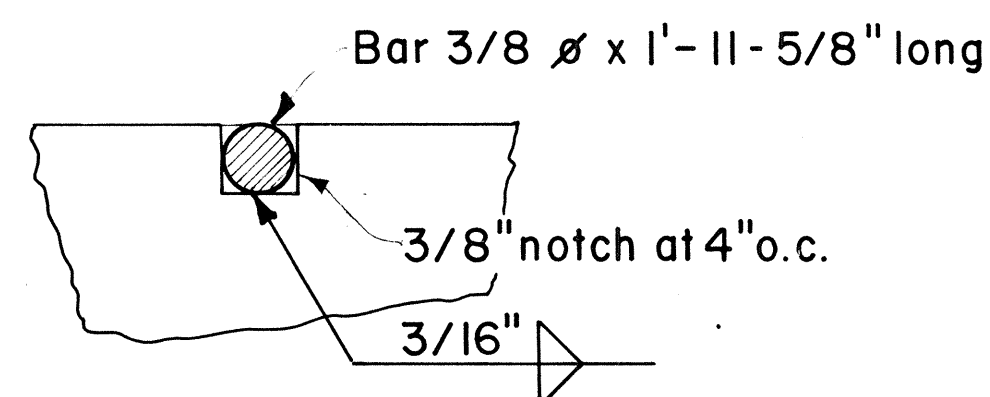


PLAN

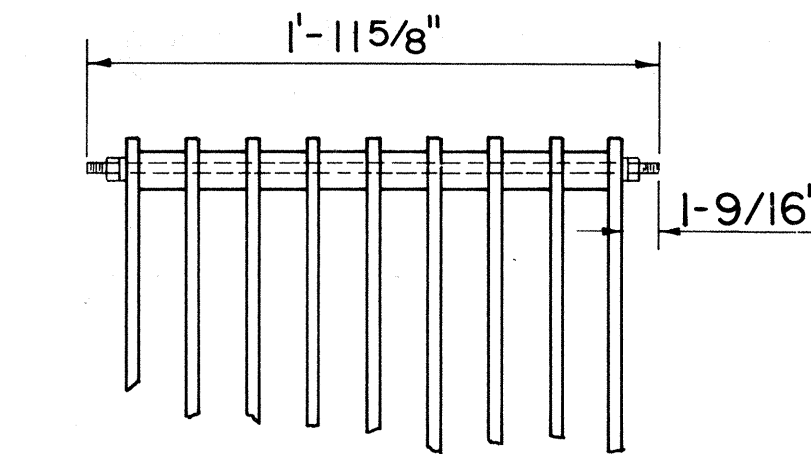
TYPE A-9P STEEL GRATE



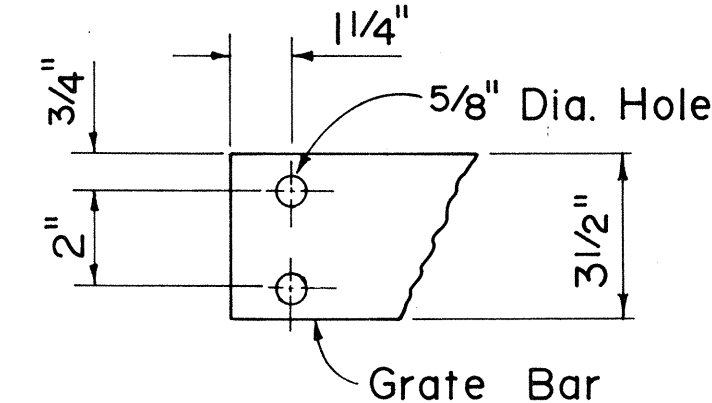
SECTION



NOTCH DETAIL

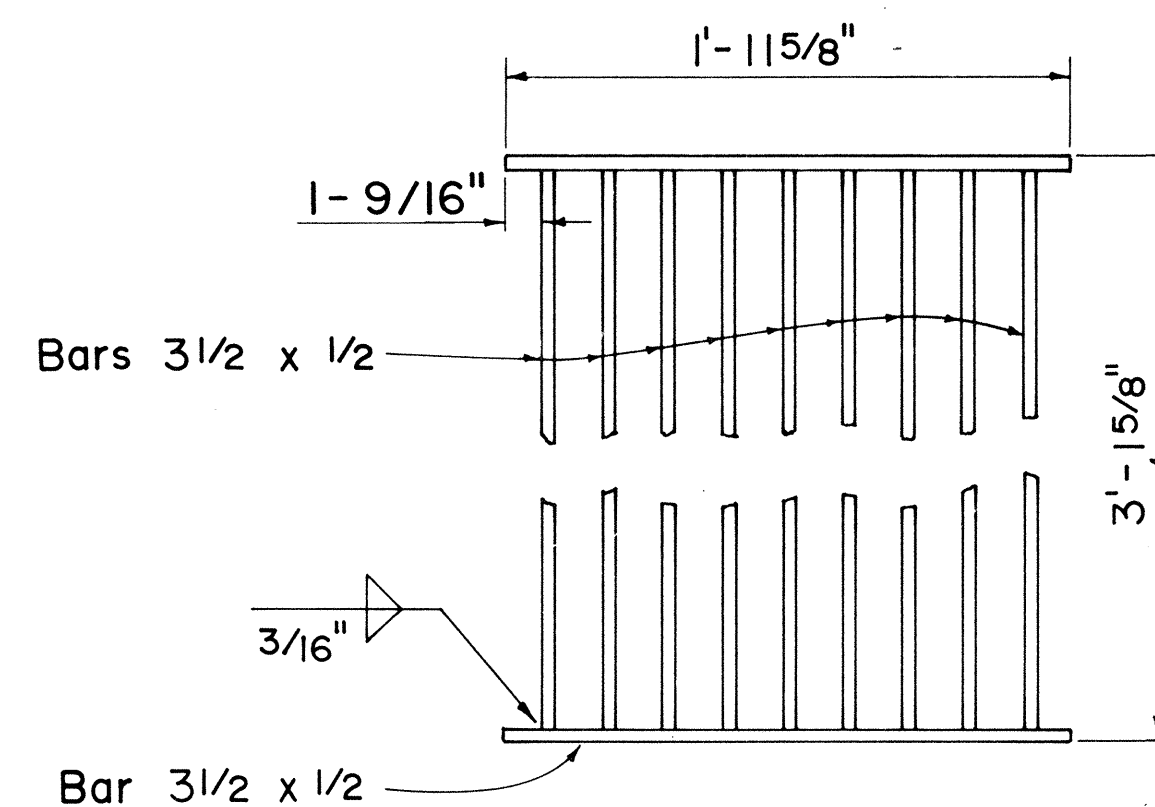


BOLTED END BLOCK



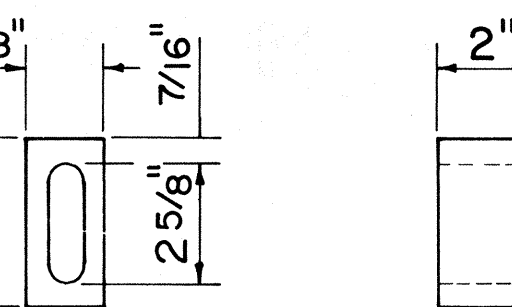
END OF BAR

ALTERNATIVE BOLTED GRATE

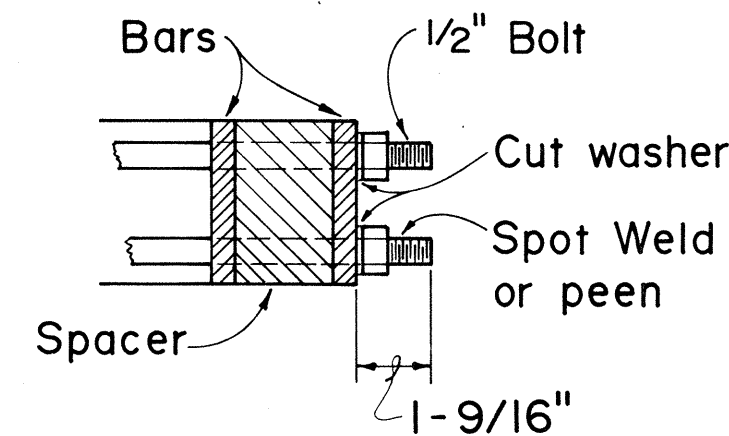


PLAN

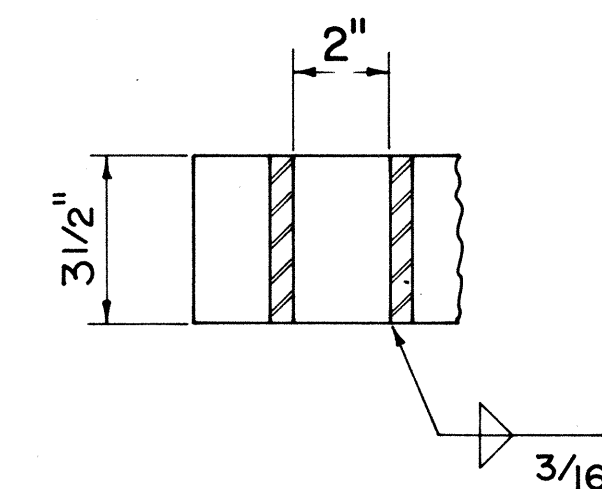
ALTERNATIVE WELDED GRATE



BAR SPACER



BOLTING DETAIL



SECTION

APPROVAL RECOMMENDED:
 6-19-79
 HYDRAULIC DESIGN ENGINEER DATE
 APPROVED:
 6-22-79
 ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1.	Supersedes Sht. DH 7 approved 12-17-69	H.T.	6/22/79
2.	Revise standard nomenclature for rolled steel shapes.	H.T.	4/21/82
3.	Revised note no. 3 & no. 4 and eliminated Type A-12 Grate.	H.T.	7-25-84

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
STANDARD DETAILS TYPE A-9 AND A-9P FRAMES AND GRATES
Not To Scale Date: Dec. 1977
SHEET No. 7 OF 7 SHEETS DH 9