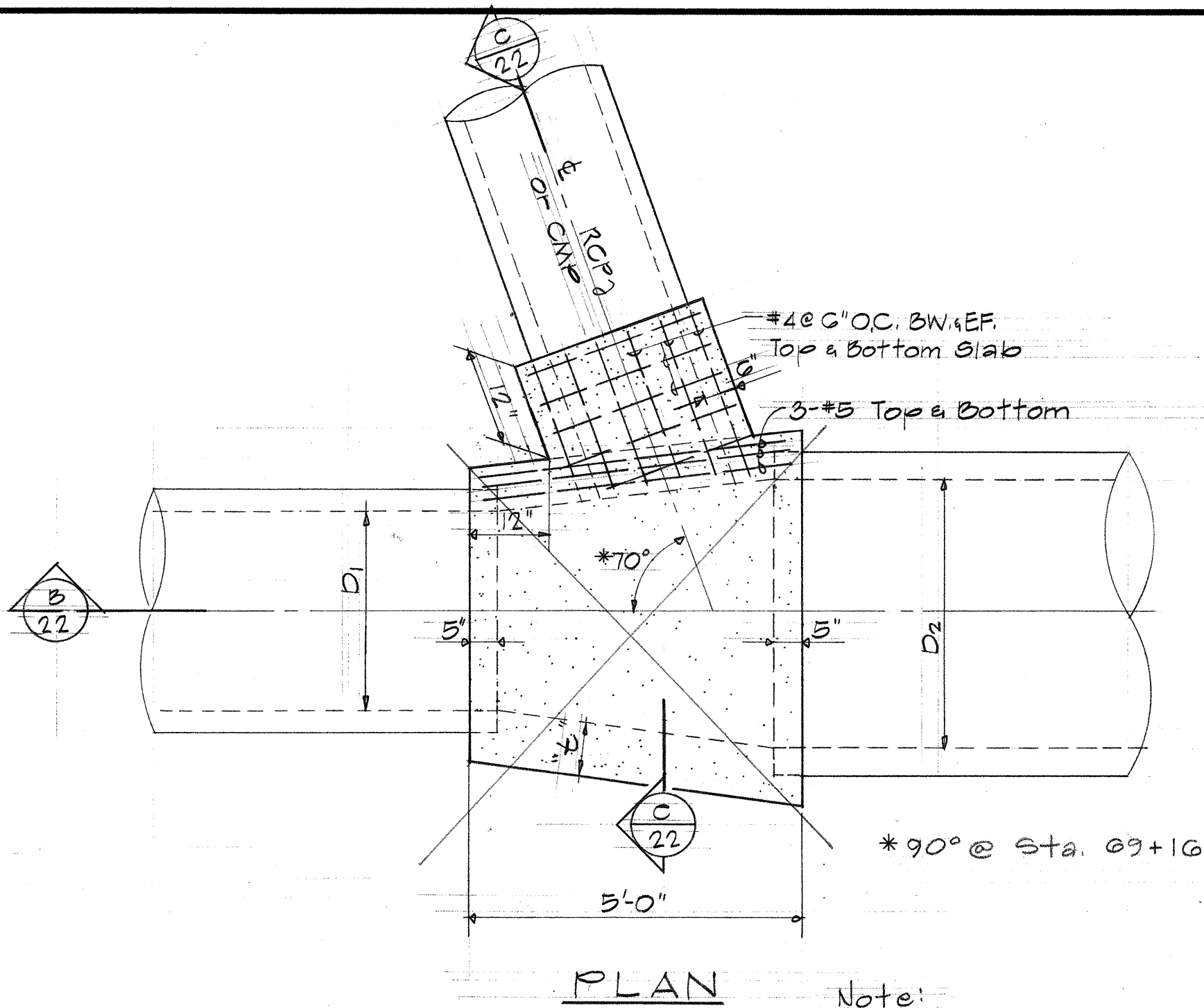


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-RF-011-2(13)	1975	22	126

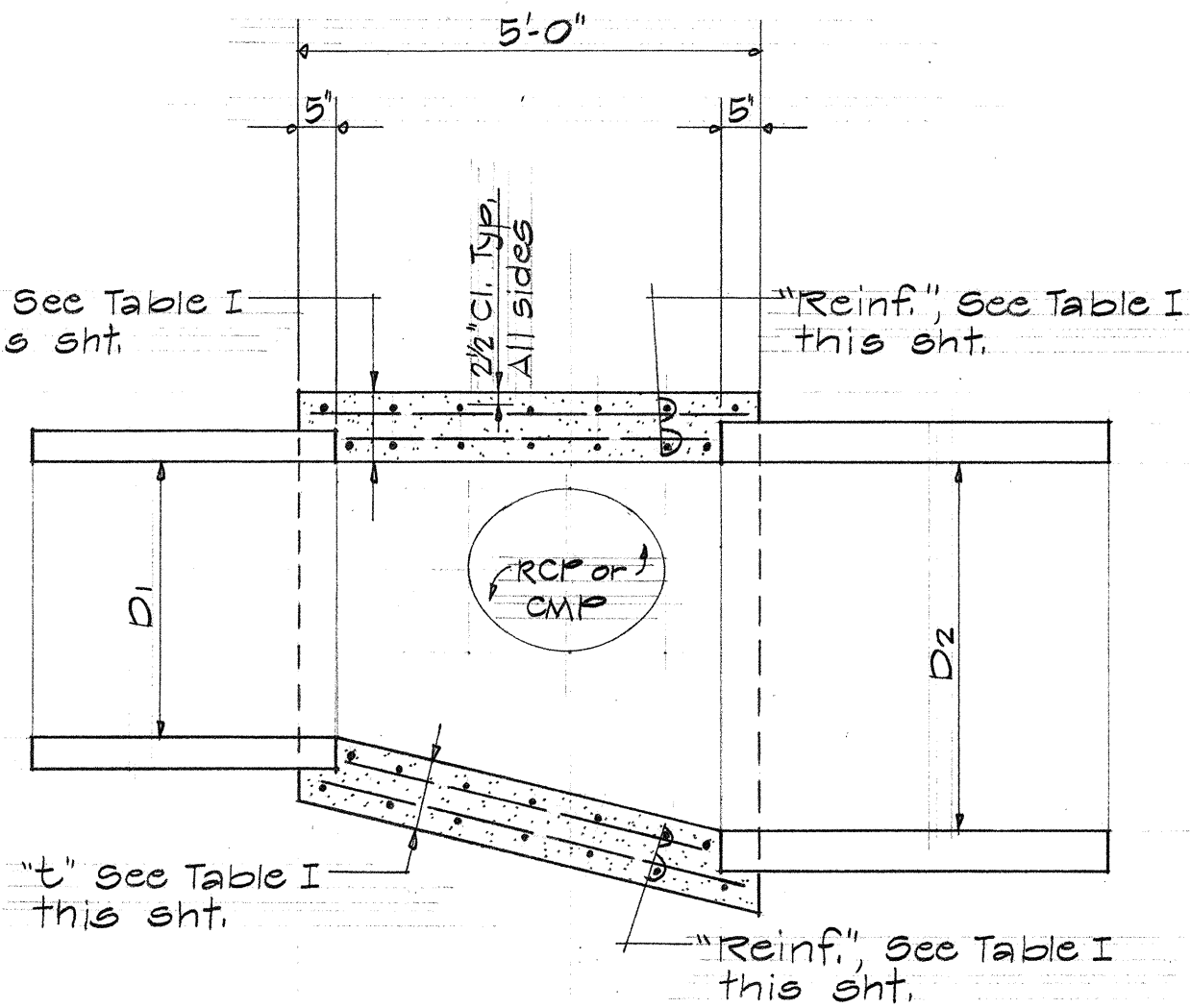
D2	"t"	"Reinf."
36"	8"	#4 @ 12" OC, BW
48"	9"	#4 @ 12" OC, BW
60"	10"	#4 @ 12" OC, BW
72"	11"	#5 @ 12" OC, BW
84"	12"	#5 @ 12" OC, BW
96"	13"	#6 @ 12" OC, BW



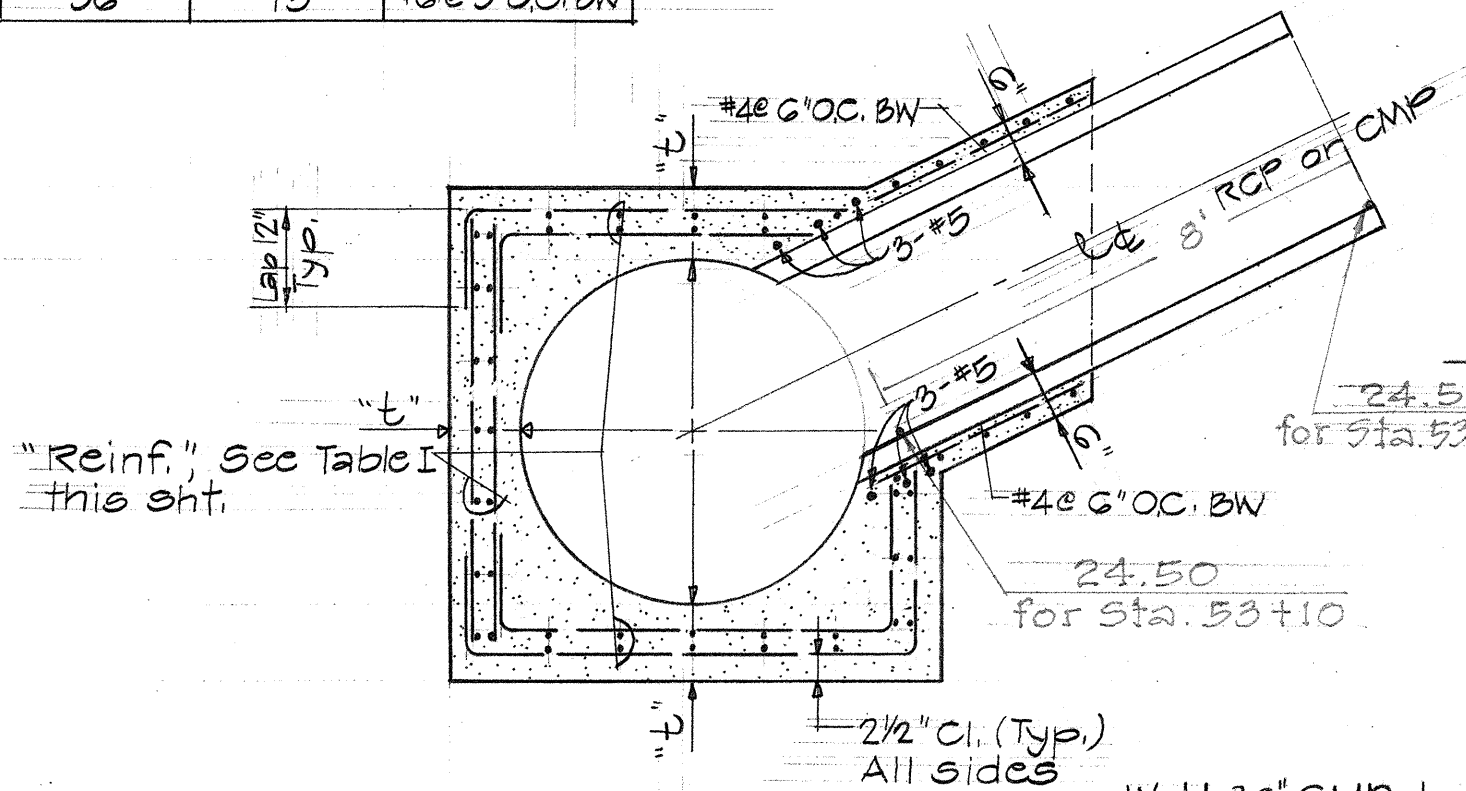
PLAN

Note:
See Table I

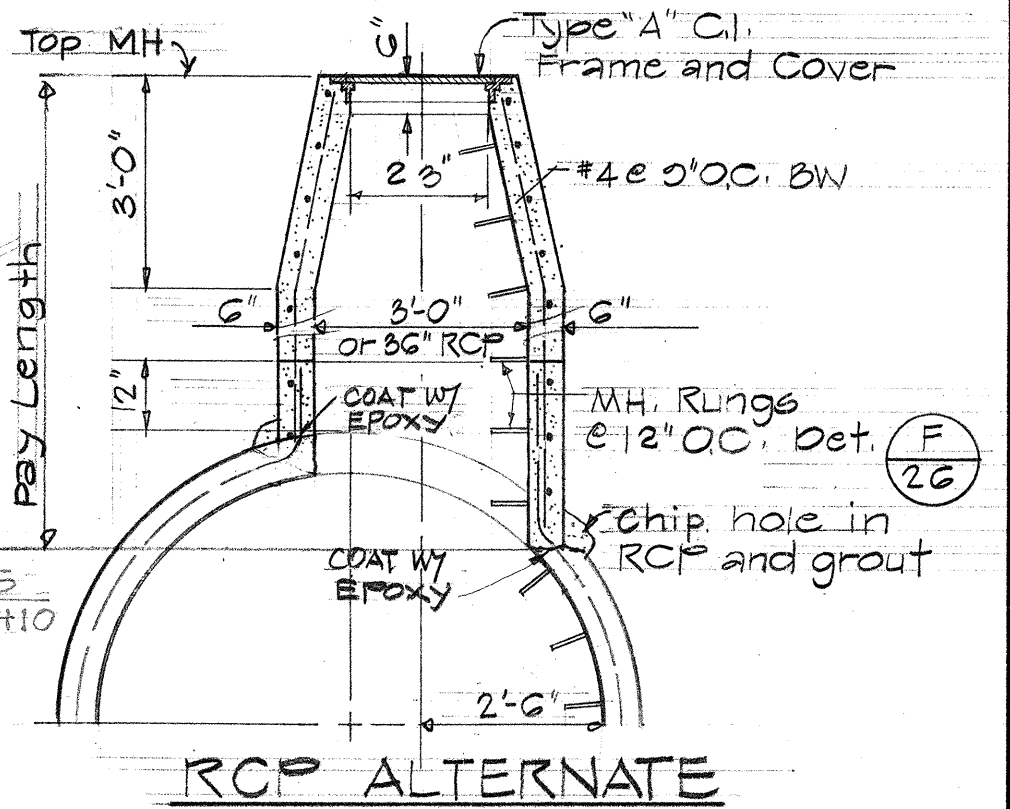
DETAIL A TRANSITION STRUCTURE "A"
Scale: 1/2" = 1'-0"



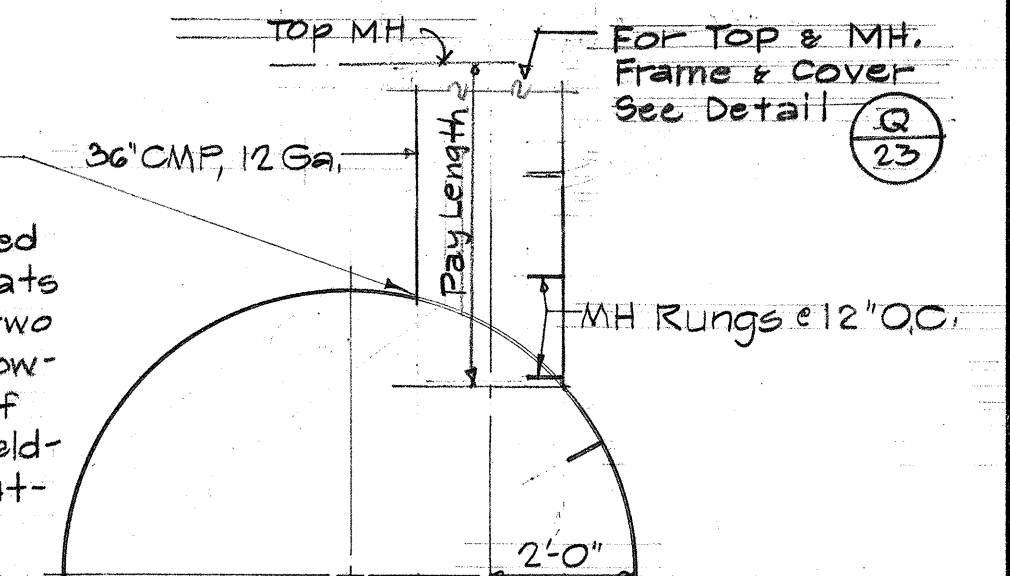
SECTION B
Scale: 1/2" = 1'-0"



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

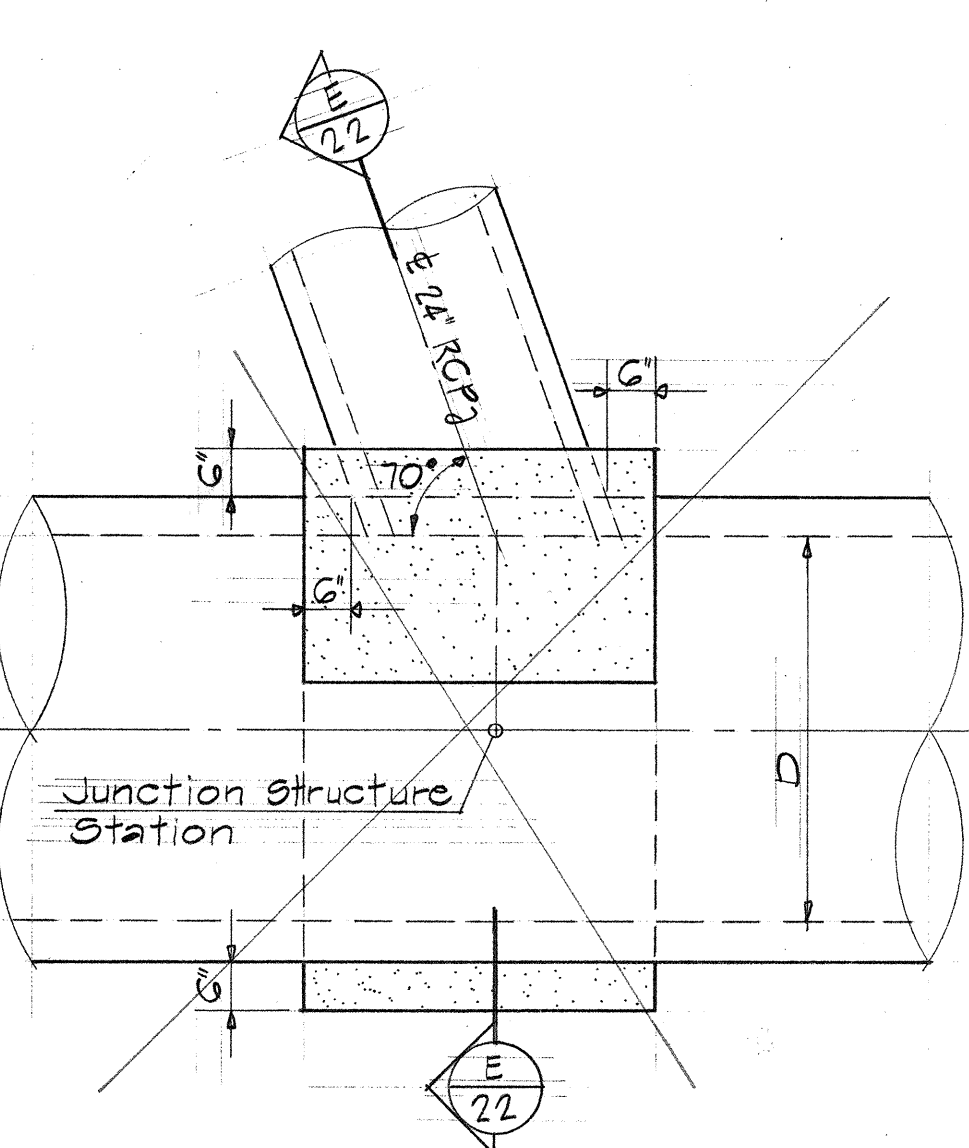


RCP ALTERNATE

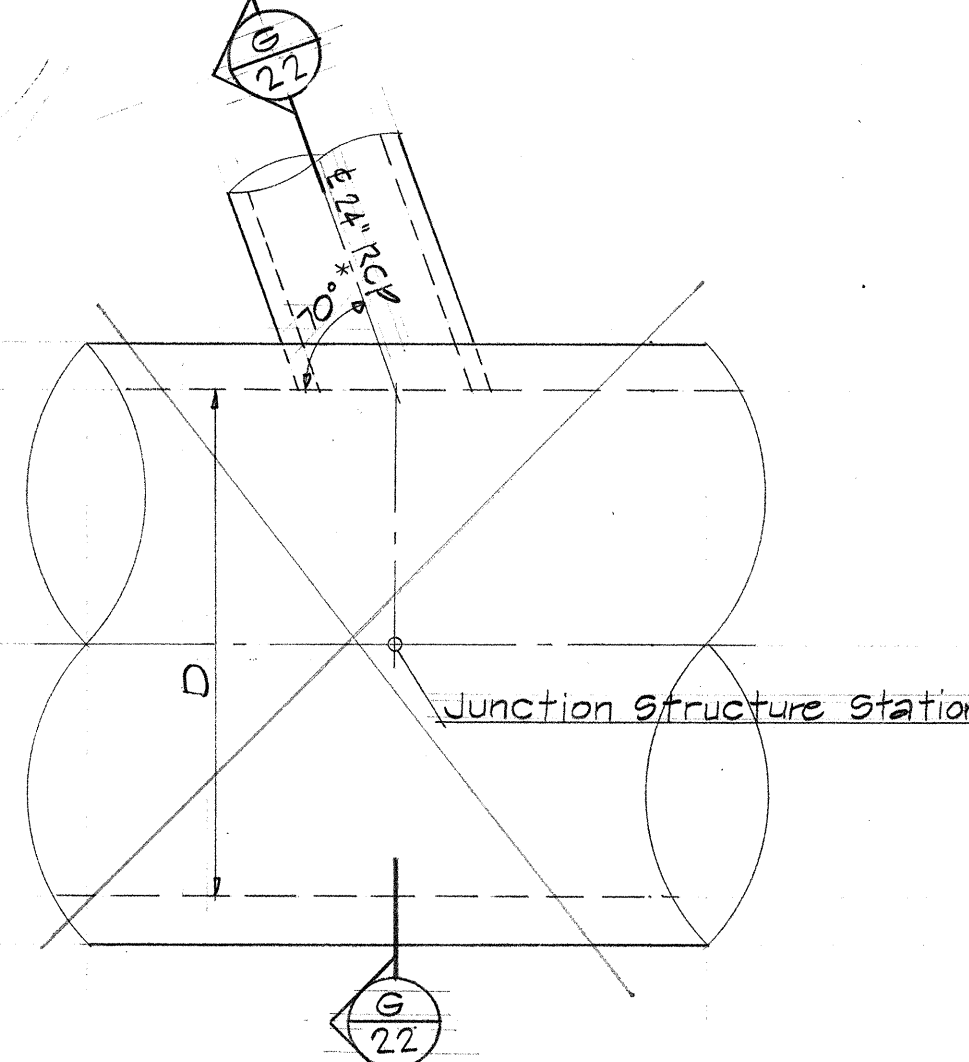


CMP ALTERNATE

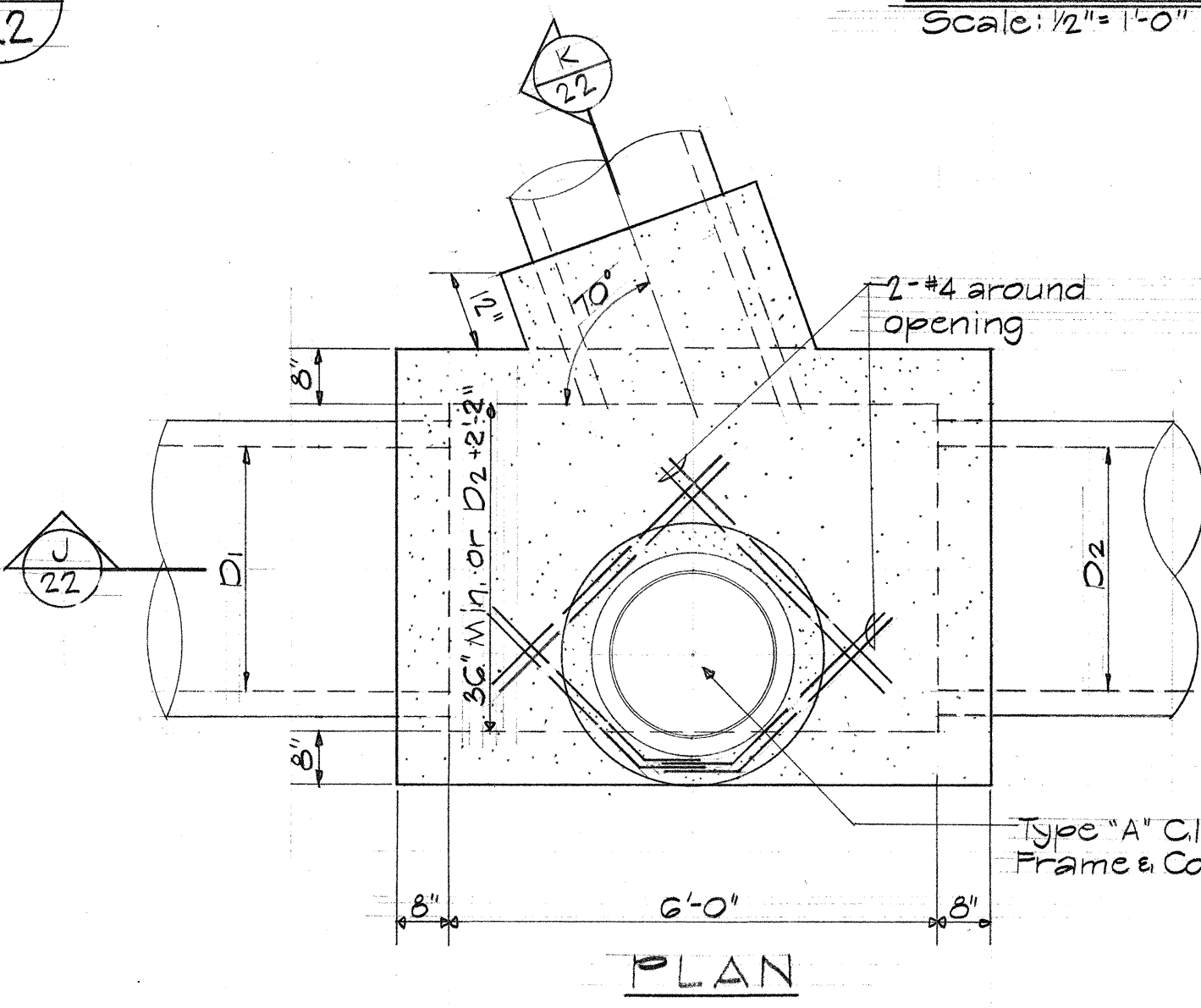
DETAIL L TYPE "B" MANHOLE
Scale: 3/8" = 1'-0"



DETAIL D JUNCTION STRUCTURE "B"
Scale: 1/2" = 1'-0"

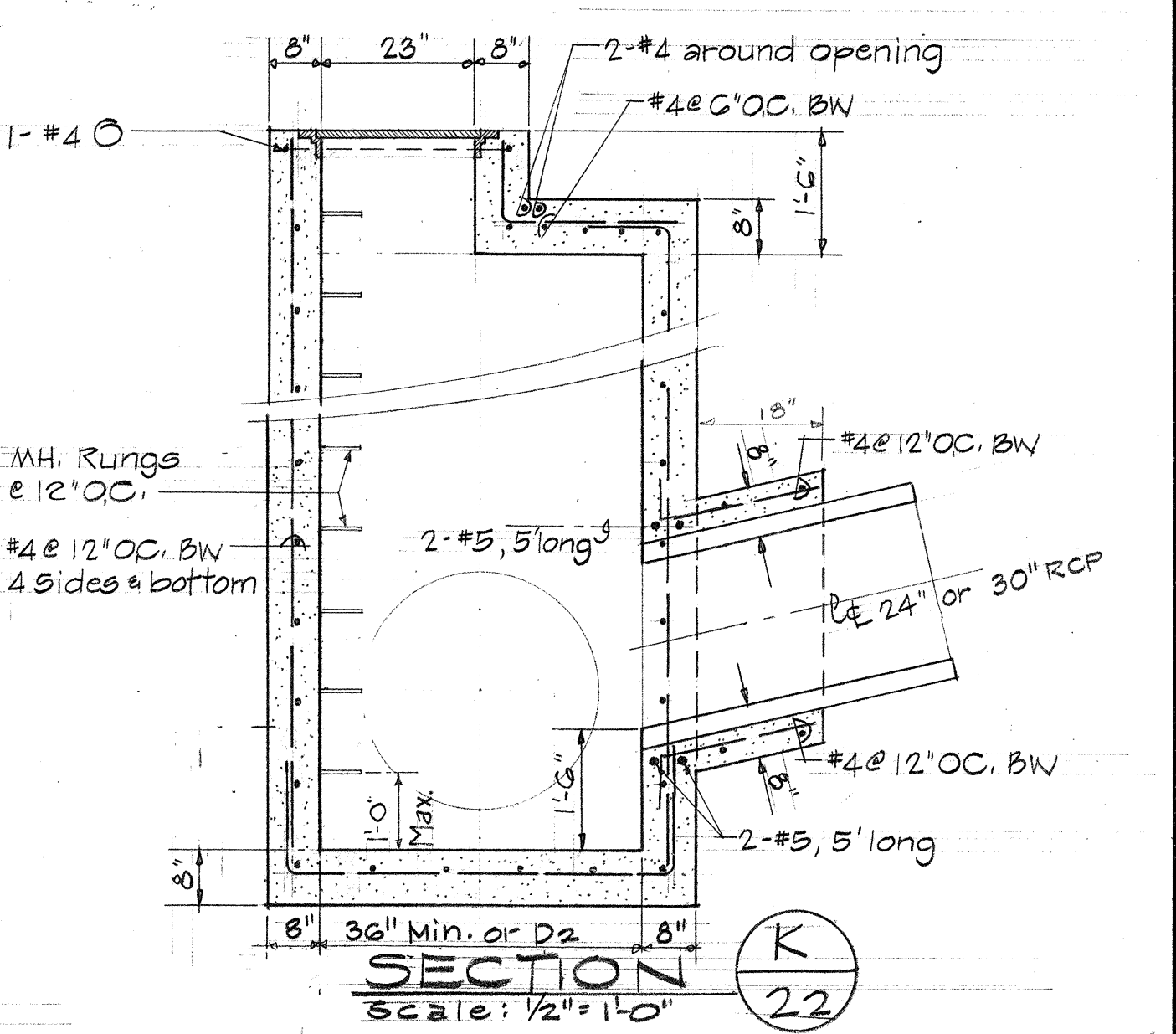


DETAIL F JUNCTION STRUCTURE "C"
Scale: 3/8" = 1'-0"

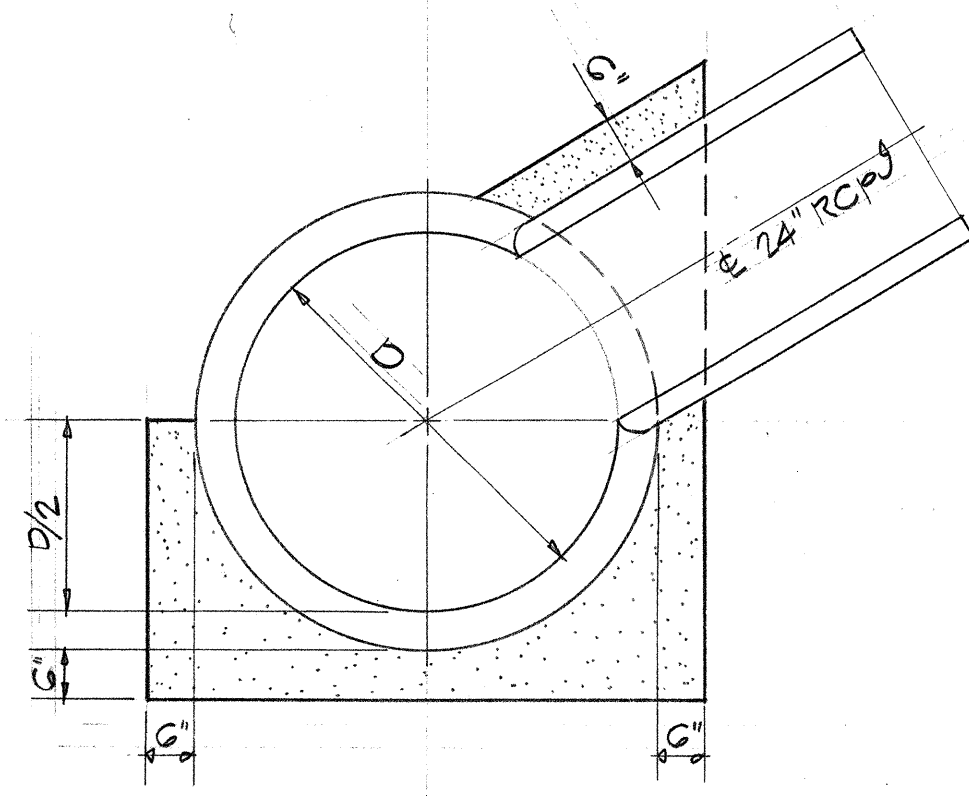


PLAN

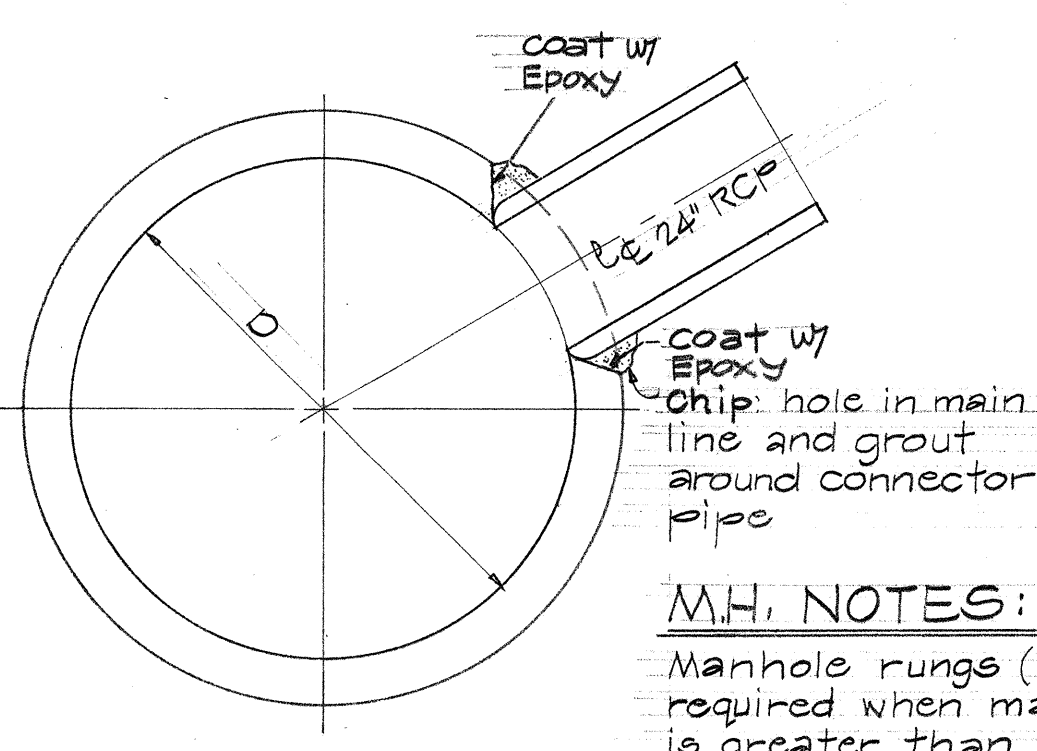
DETAIL H TYPE "A" MANHOLE
Scale: 1/2" = 1'-0"



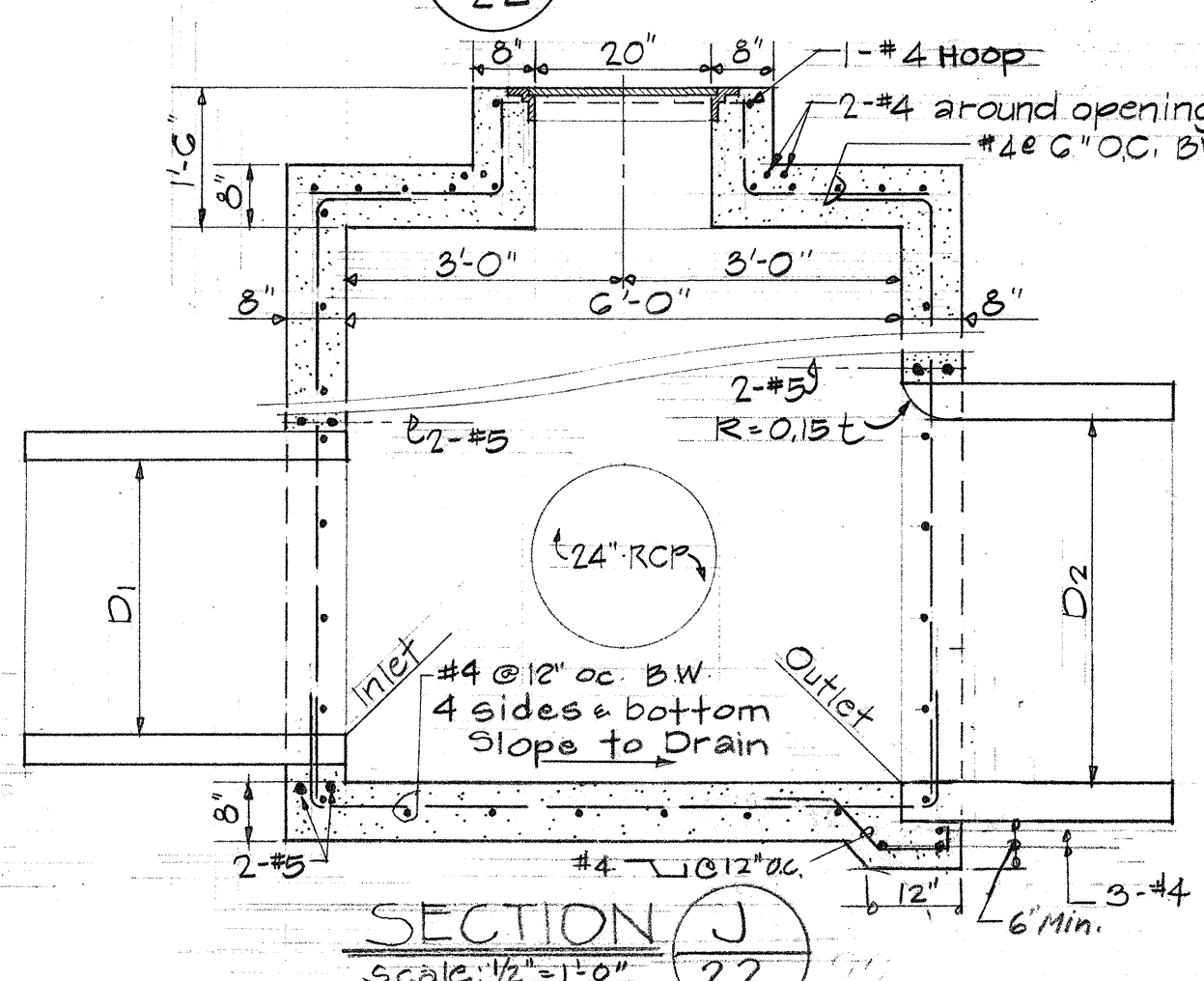
SECTION K
Scale: 1/2" = 1'-0"



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

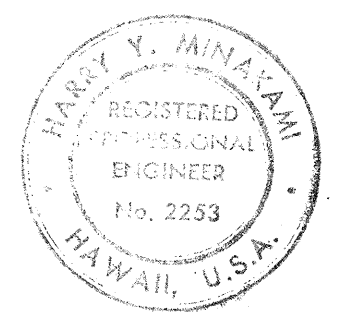


SECTION G
Scale: 3/8" = 1'-0"



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

M.H. NOTES:
Manhole rungs (#12" OC) are required when manhole depth is greater than 4'-6". Only one rung, 12" from bottom, is required if manhole depth is 4'-6" or less.



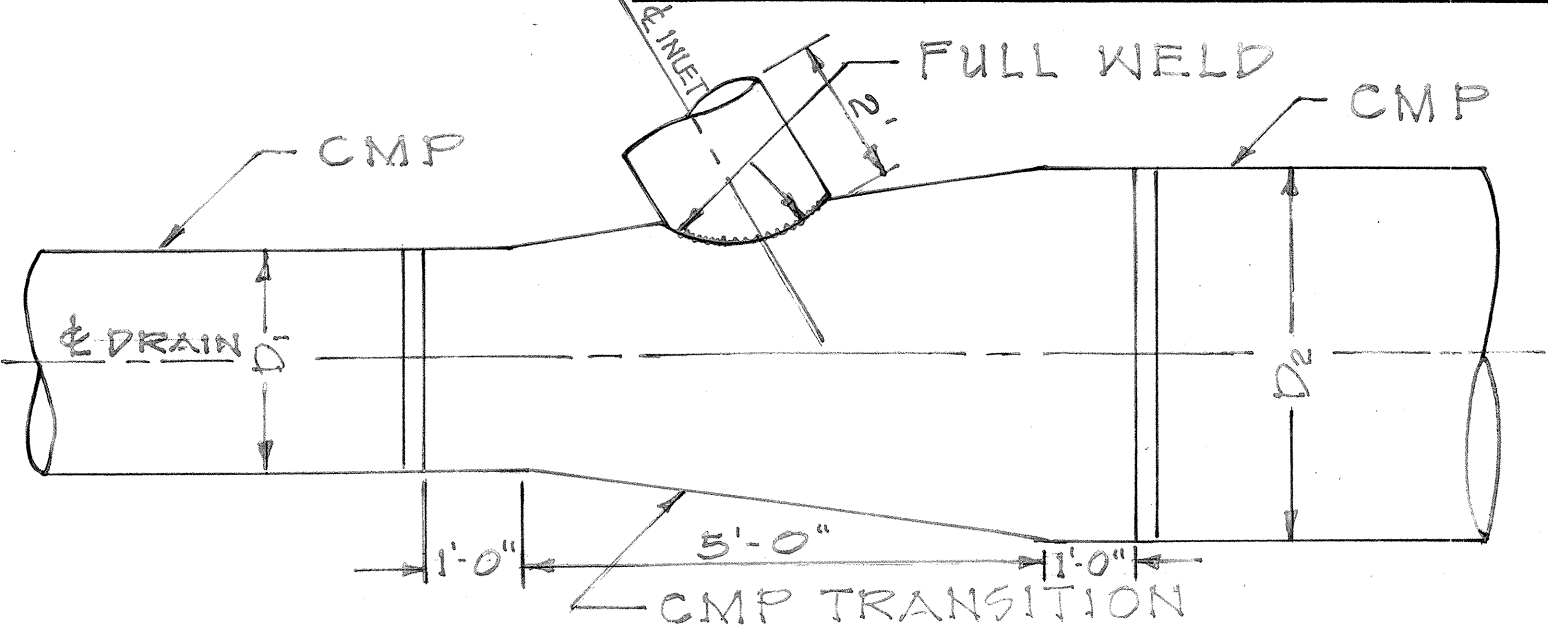
This work was prepared by me or under my supervision.
Harry Y. Mankin

DATE	REVISION
4-11-75	ADDED PAY LENGTH FOR TYPE "B" MANHOLE.
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION MANHOLE, JUNCTION & TRANSITION STRUCTURE DETAILS KANOELEHUA AVE. MAKALIKA ST. TO KANOELEHUA AVE. Federal Aid Project No. F-RF-011-2(13) Scale: As Shown SHEET NO. 1 OF 7 SHEETS	

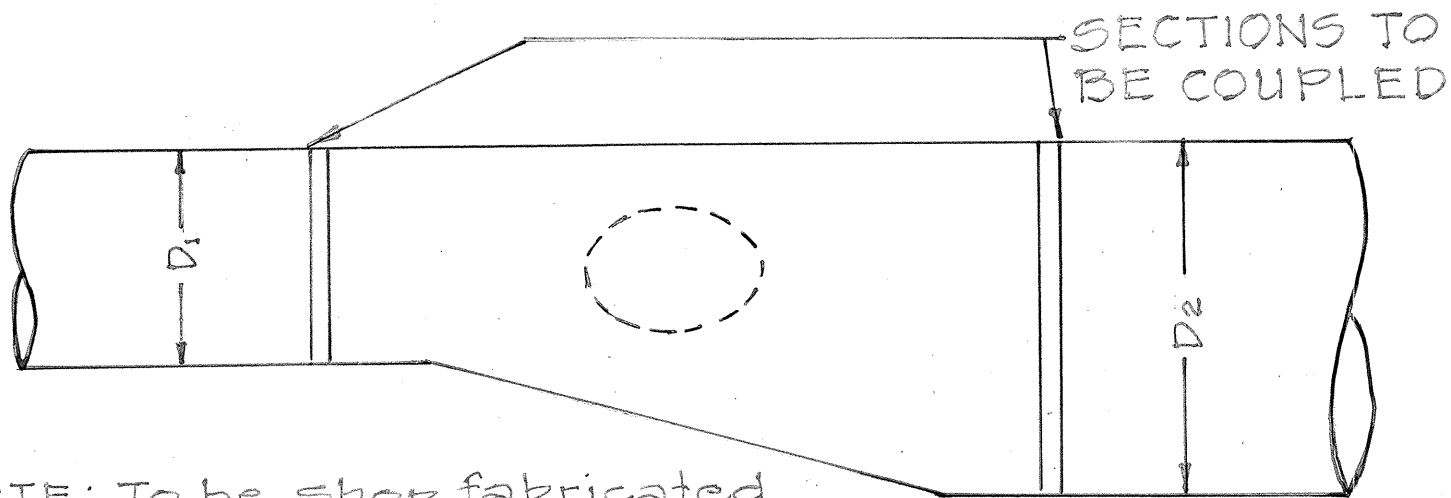
ORIGINAL PLAN	DATE
DRAWN BY	
DESIGNED BY	
NOTED BY	
CHECKED BY	

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.				



DETAIL CMP TRANSTION

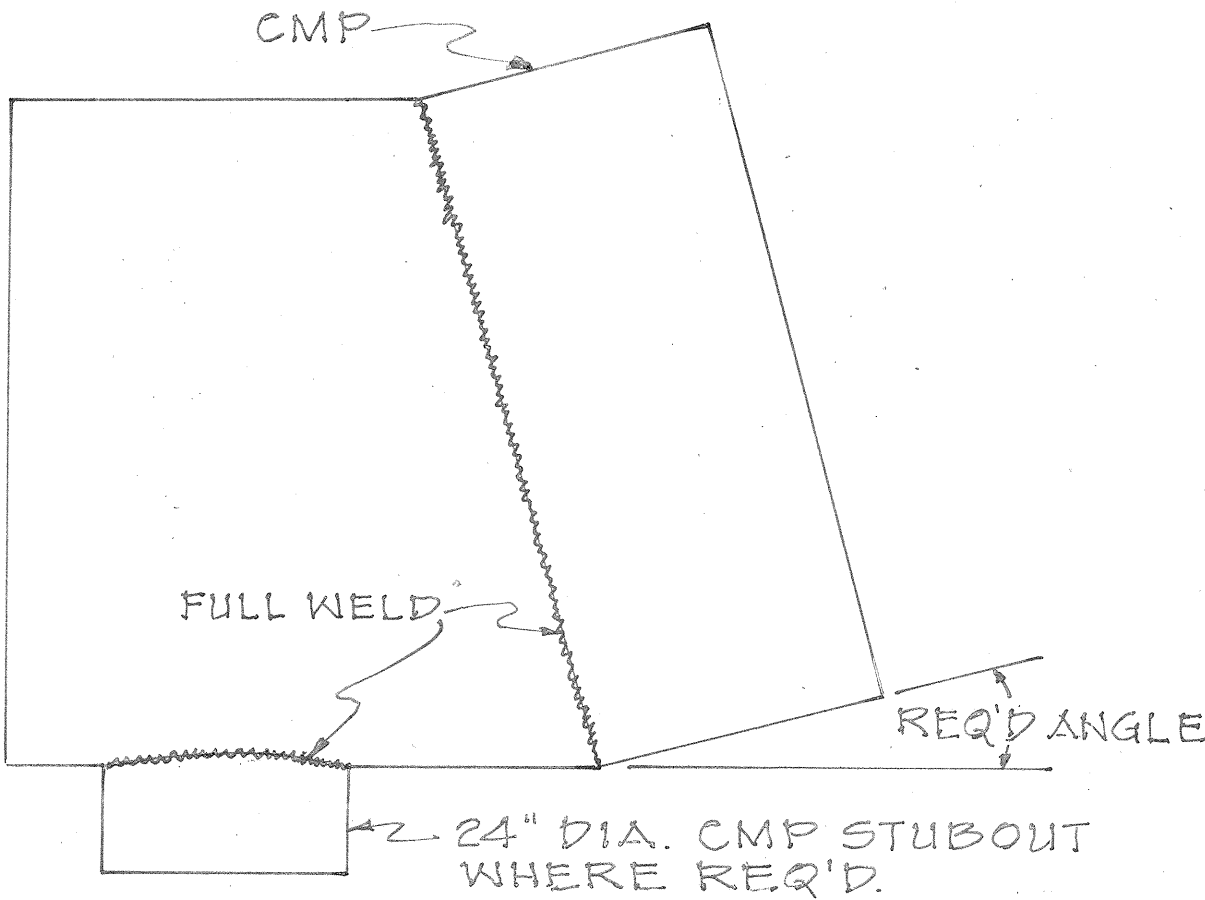


NOTE: To be shop fabricated and galvanized as per specifications

SECTION

Location	D ₁	D ₂	Thickness	Stubout
52+37 (West)	78"	78"	0.070"	24" CMP
49+32 (West)	66"	78"	0.070"	24" CMP
57+02 (East)	48"	66"	0.070"	24" CMP

Contract Change Order No. 2
Kanoelehua Avenue Widening
Project No. F-RF-011-2(13)



CMP ELBOW DETAIL

Location	Size	Thickness	Stubout
57+03 (West)	96"	0.070"	24" CMP
58+30 (West)	96"	0.070"	None
77+77 (East)	114"	0.070"	None
79+00 (East)	114"	0.070"	None

NOTE: To be shop fabricated & galvanized as per specifications.

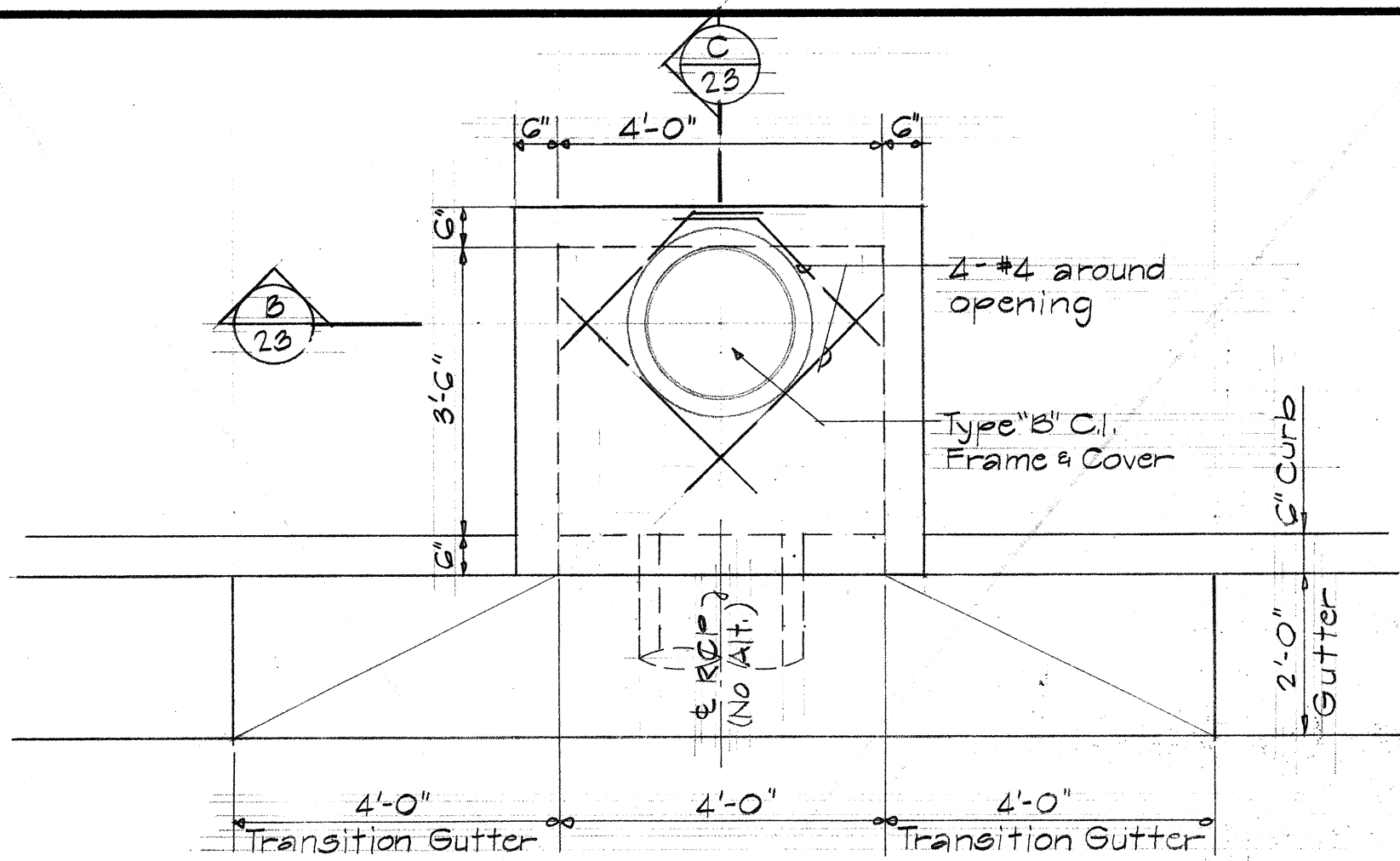
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

TRANSITION STRUCTURE DETAILS
AND C.M.P. ELBOW DETAIL

KANOELEHUA AVE.
MAKALIKA ST. TO KAMEHAMEHA AVE.
FEDERAL AID PROJECT NO. F-RF-011-2(13)

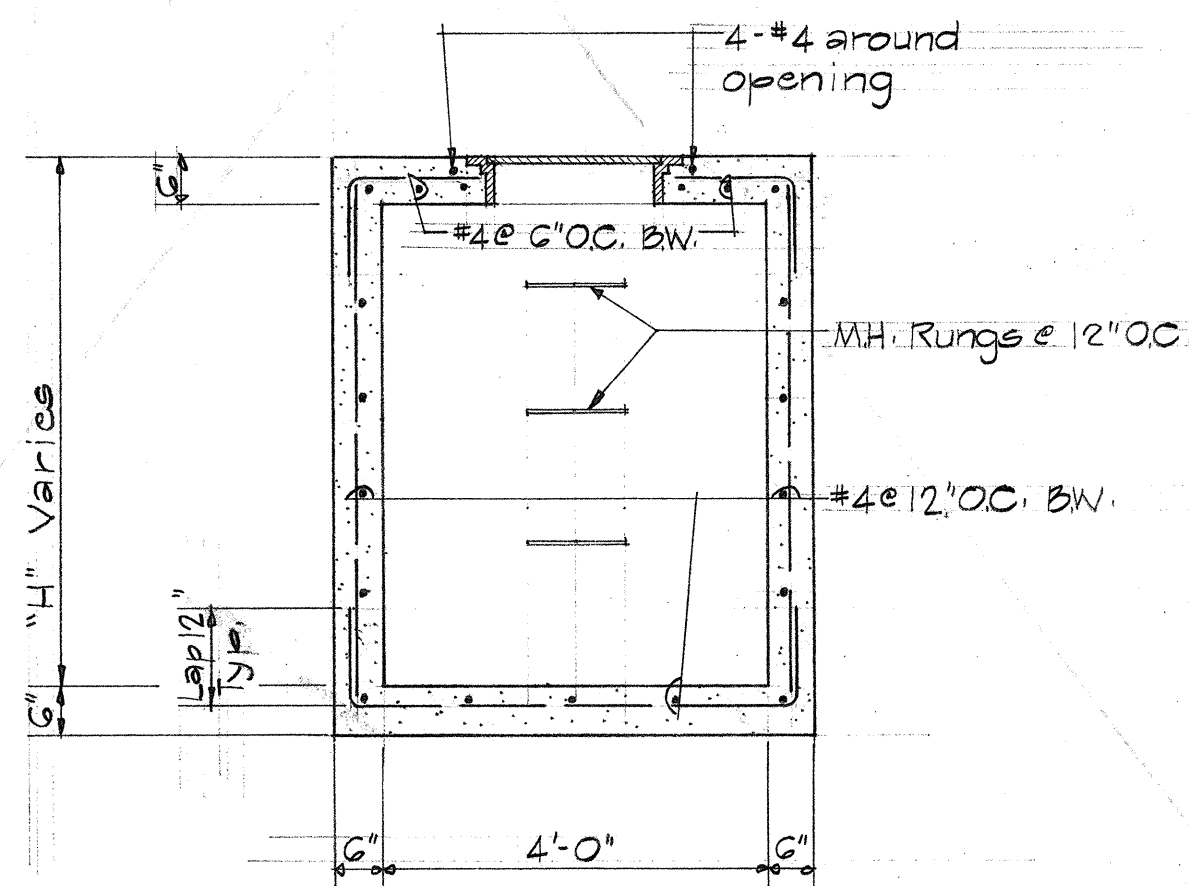
Dimensions as shown

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-RF-011-2(13)	1975	23	126

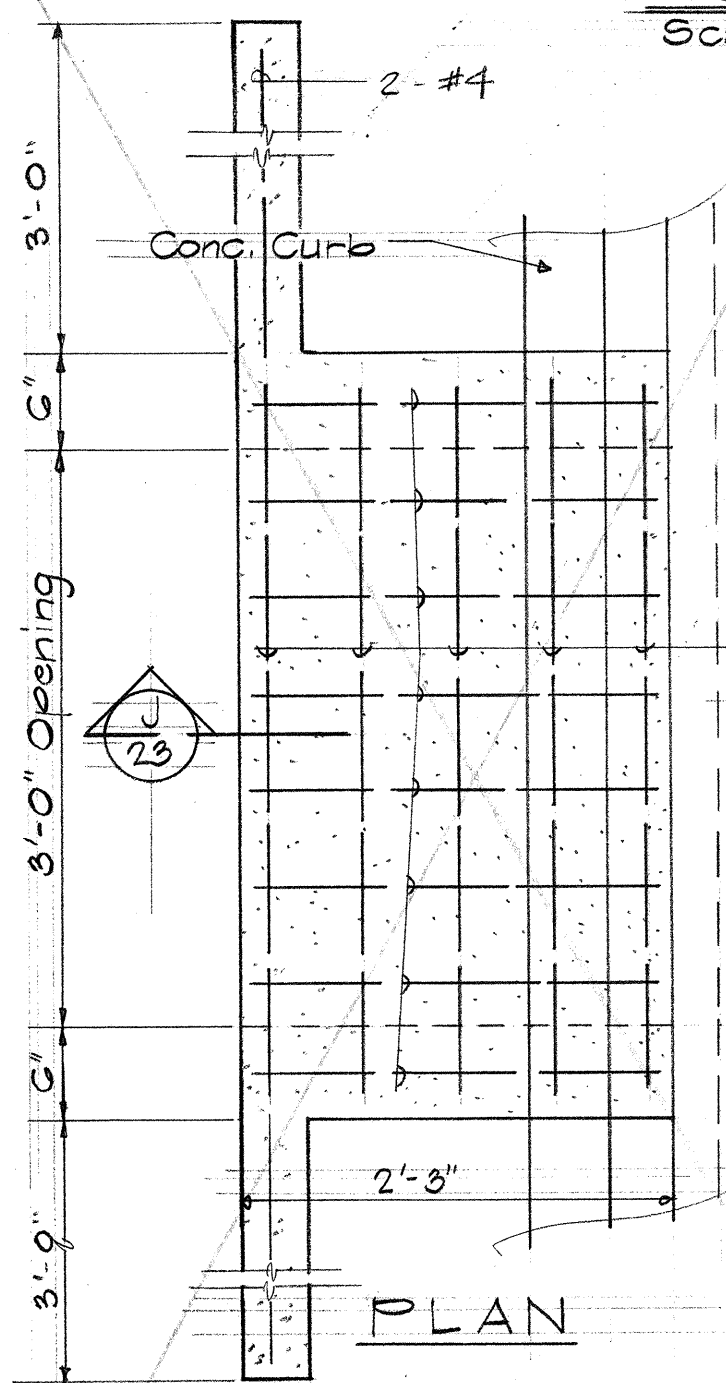


PLAN

DETAIL A TYPE "M" CATCH BASIN
Scale: 1/2" = 1'-0"

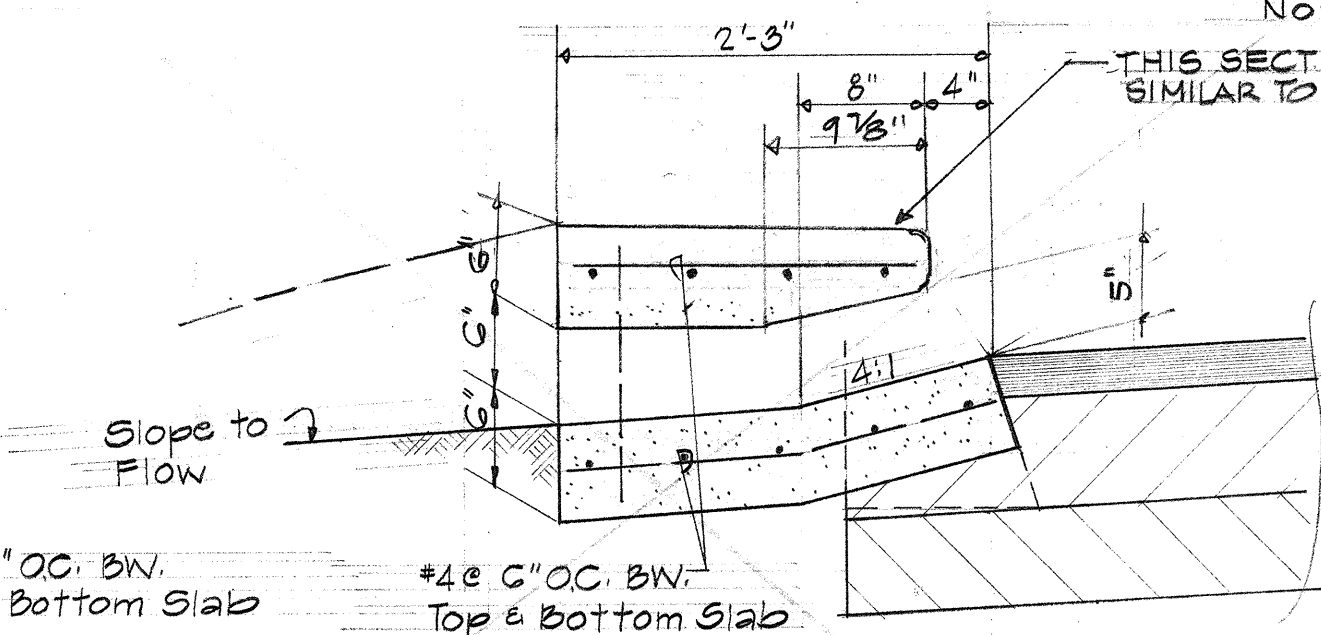


SECTION B
Scale: 1/2" = 1'-0"

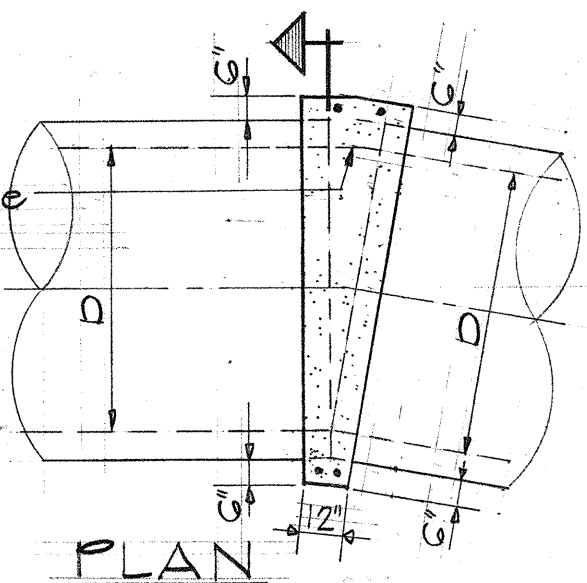


DETAIL H CURB INLET "F"
Scale: 1" = 1'-0"

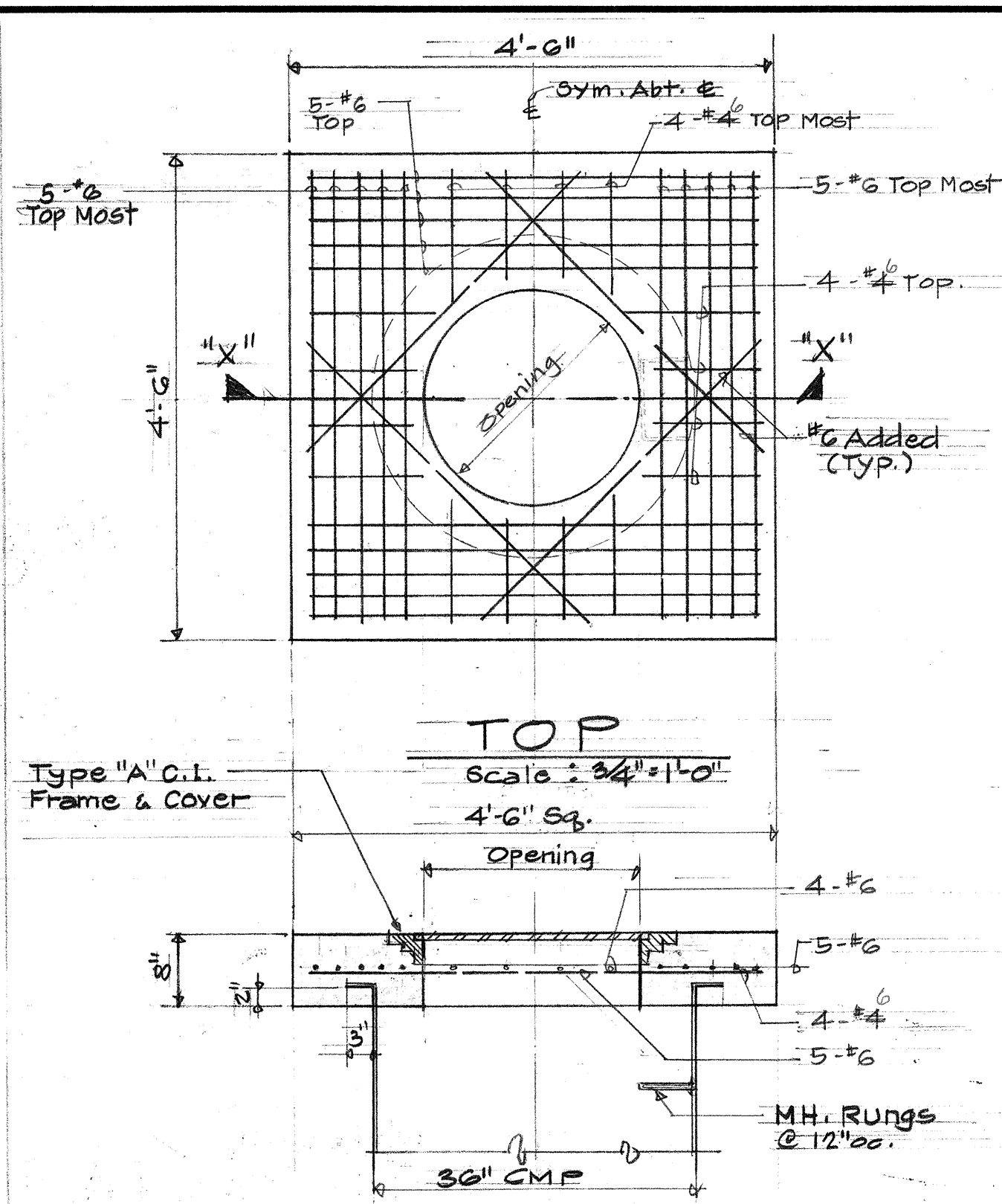
Incidental to conc. Reinforcing steel for drainage system.



SECTION J
Scale: 1" = 1'-0"

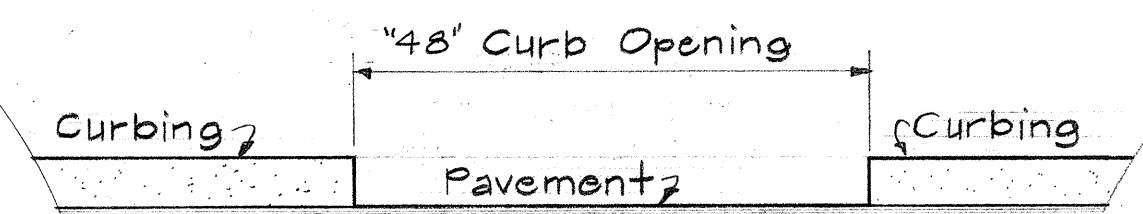


CONC. COLLAR DETAIL M
Scale: 1/4" = 1'-0"

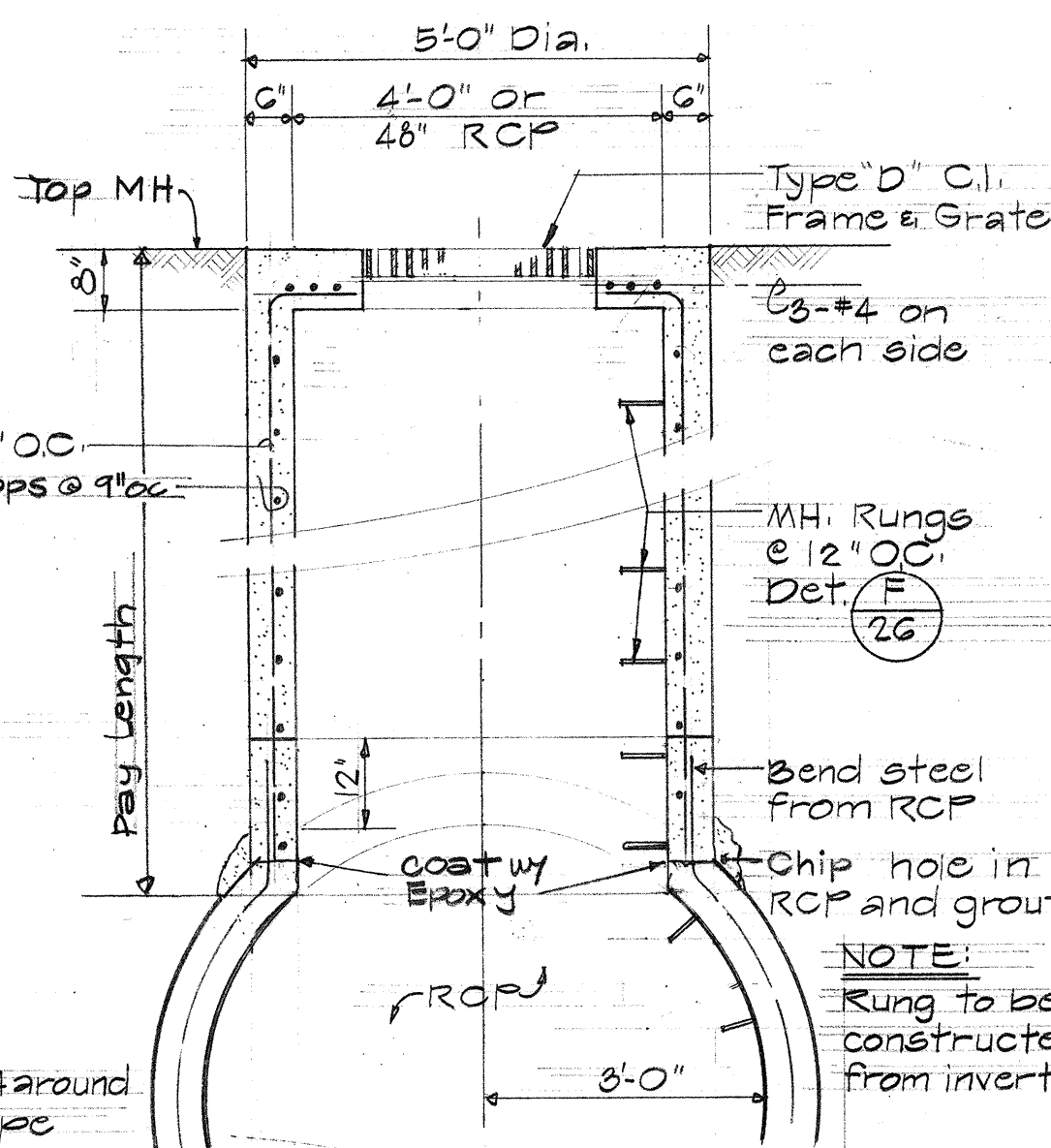


SECTION "X-X"
Scale: 3/4" = 1'-0"

TYPE "B" MANHOLE
FRAME & COVER DETAIL Q

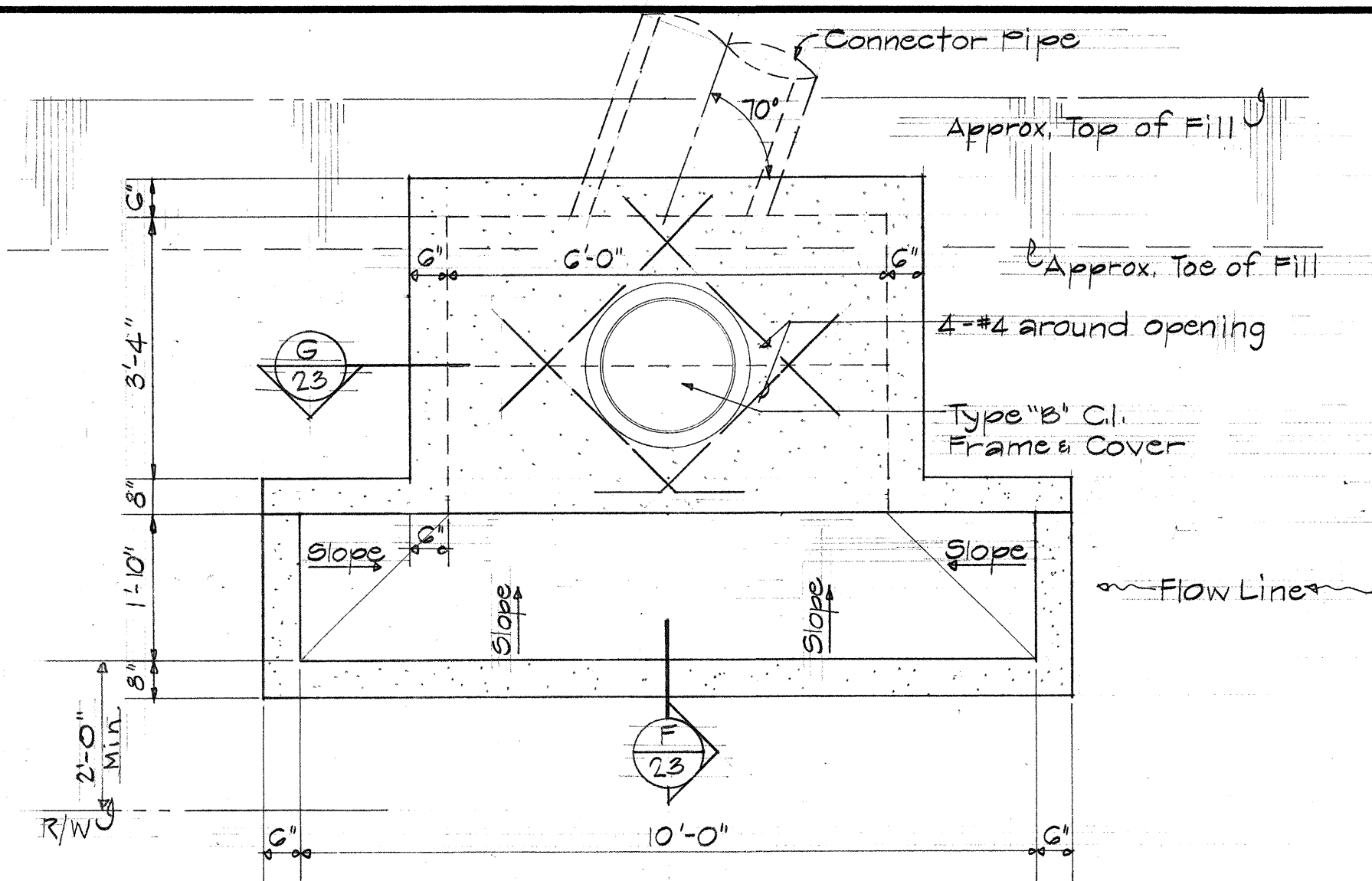


BREAK IN CURB
Not To Scale



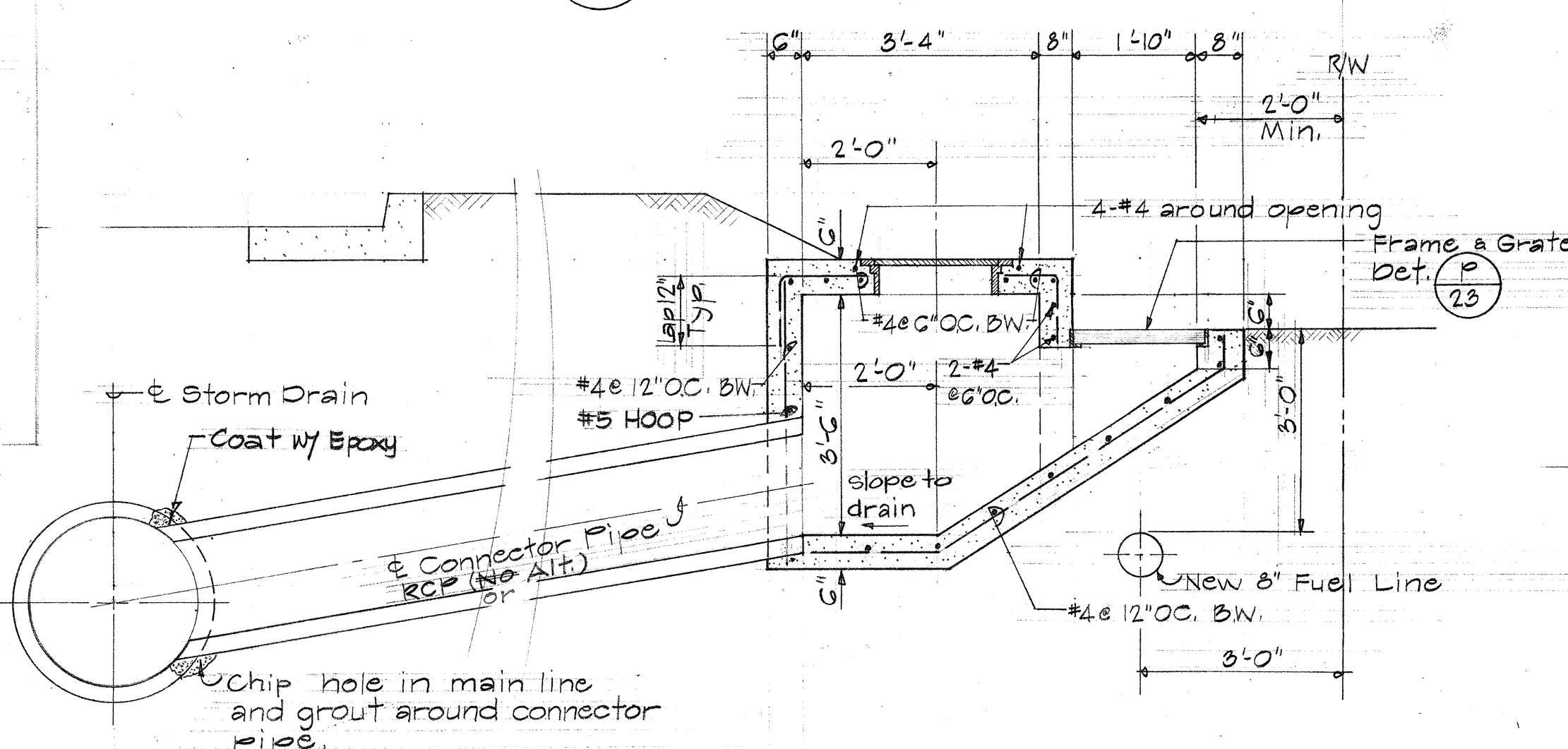
RCP ALTERNATE

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

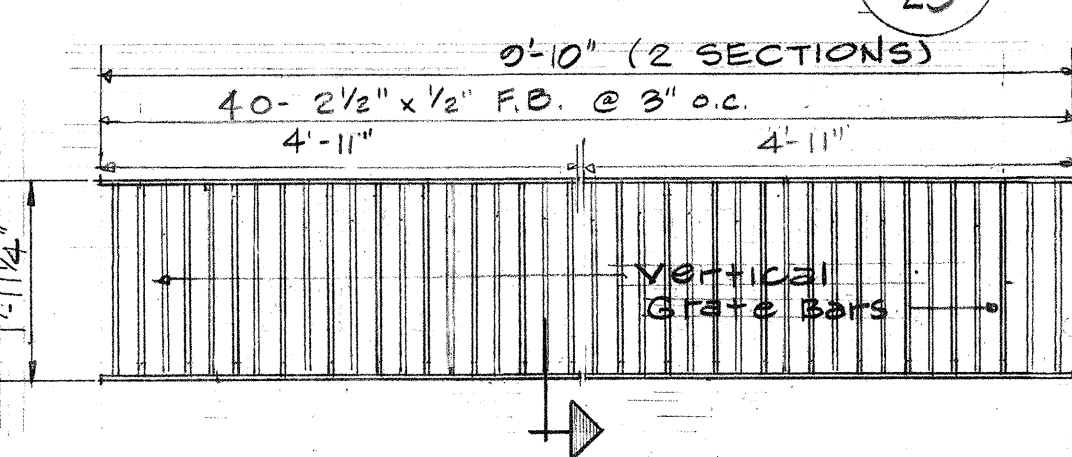


PLAN

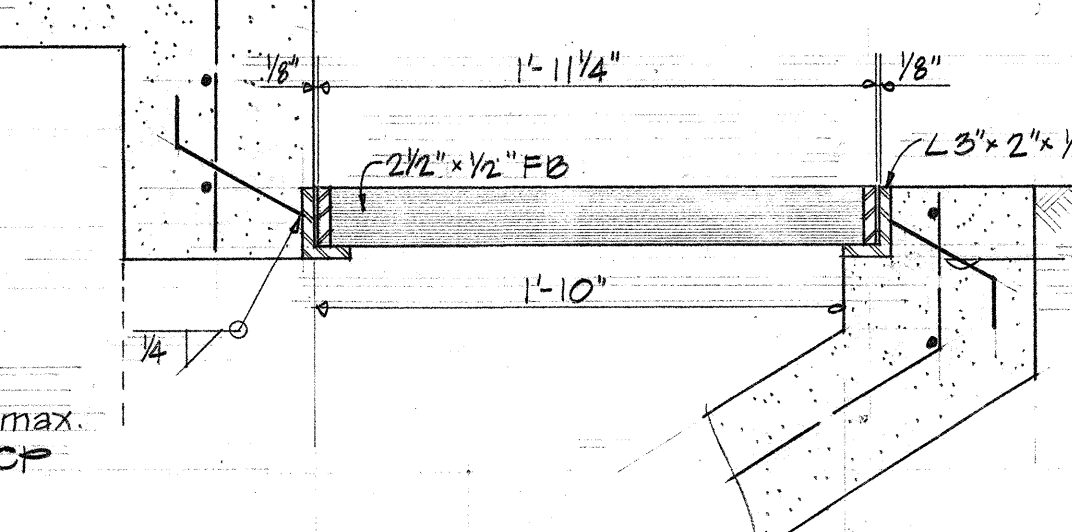
DETAIL E TYPE "K" CATCH BASIN
Scale: 1/2" = 1'-0"



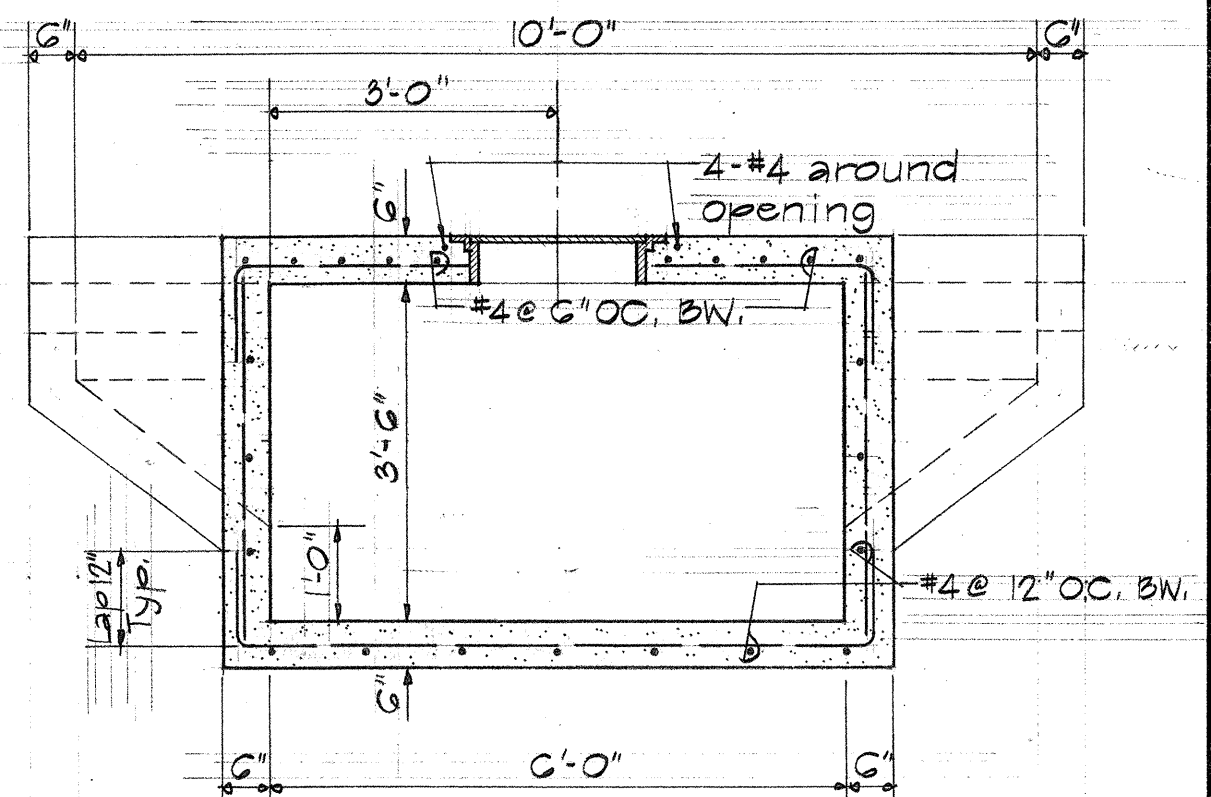
SECTION F
Scale: 1/2" = 1'-0"



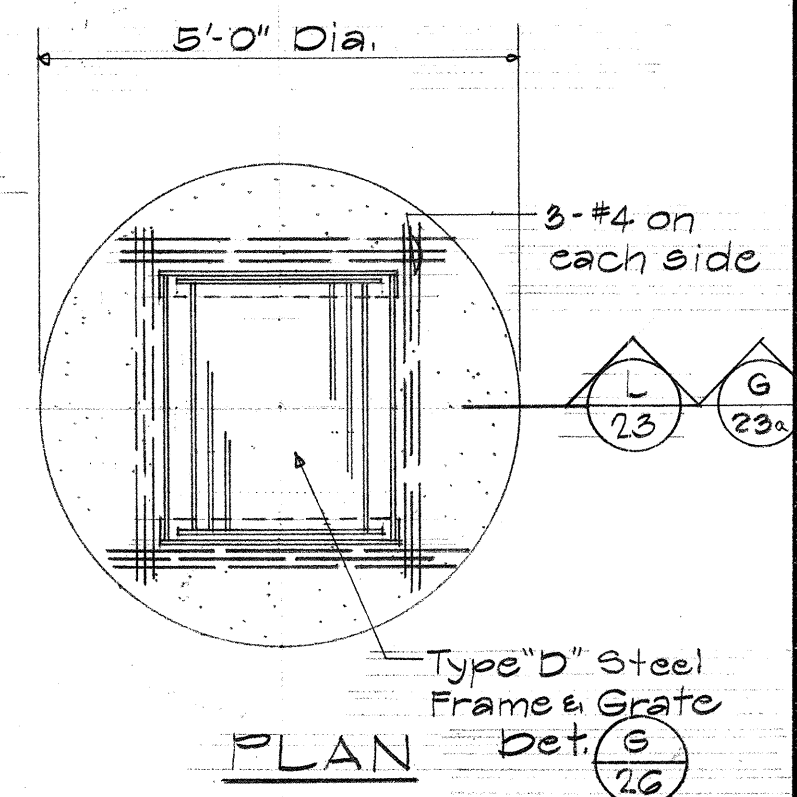
GRATE PLAN
Scale: 1/2" = 1'-0"



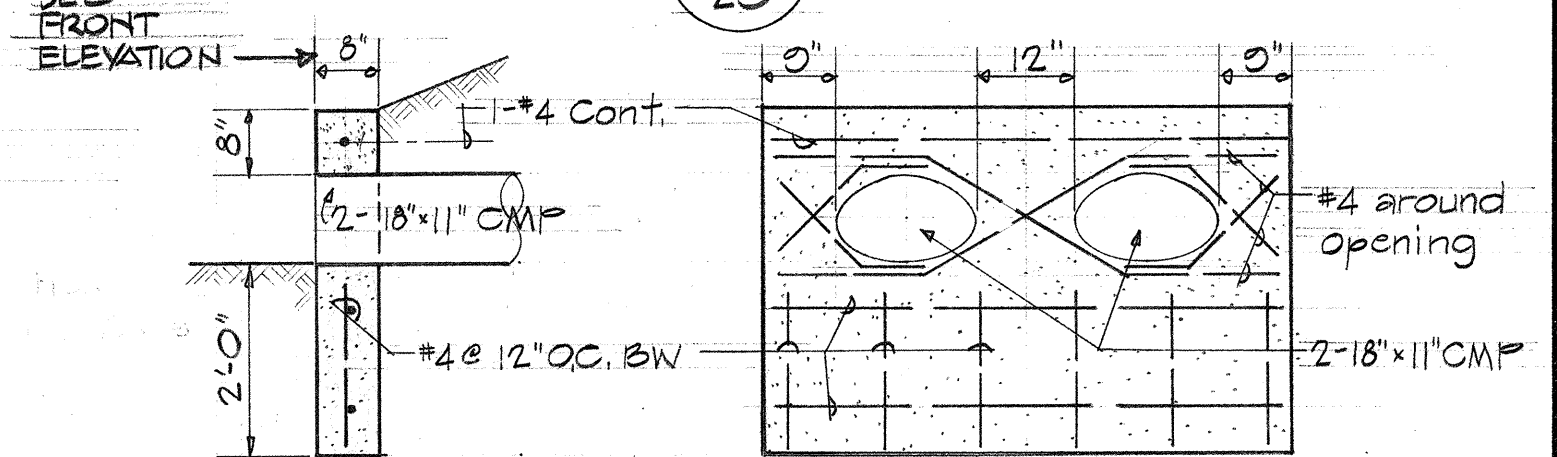
TYPE "E" FRAME & GRATE DET. P
Scale: 1/2" = 1'-0"



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



DETAIL K DROP INLET "H"
Scale: 1/2" = 1'-0"



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

4-11-75
1. ADD. PAY LENGTH TO DROP INLET "H".
2. REVISED FRAME & COVER FOR TYPE "B" MH.
3. REVISED TYPE "E" FRAME & GRATE.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CATCH BASIN
& DROP STRUCTURE DETAILS

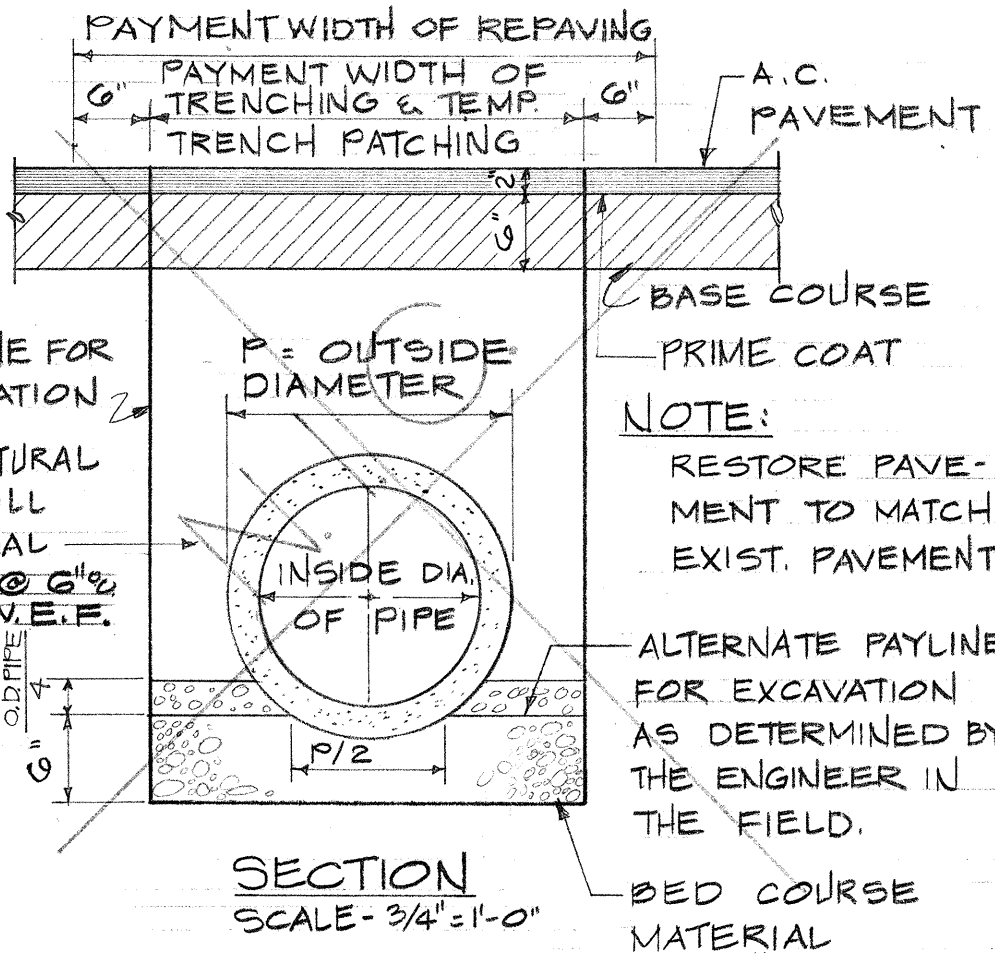
KANOELEHUA AVE.
MAKALIKA ST. TO KAMEHMEHA AVE.
Federal Aid Project No. F-RF-011-2(13)
Scale: As Shown

SHEET No. 2 OF 7 SHEETS

ADD. 23

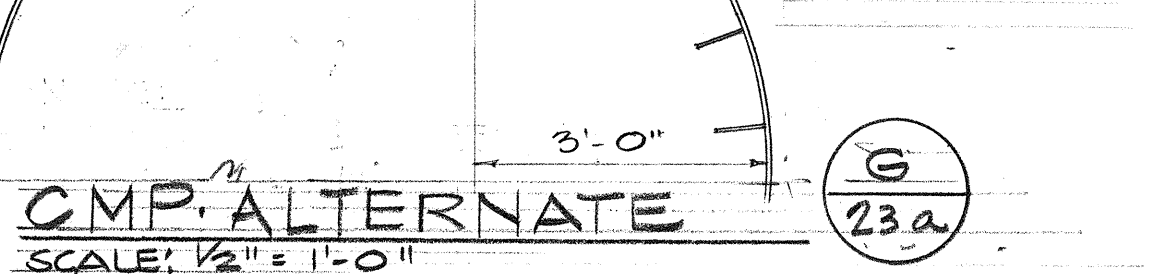
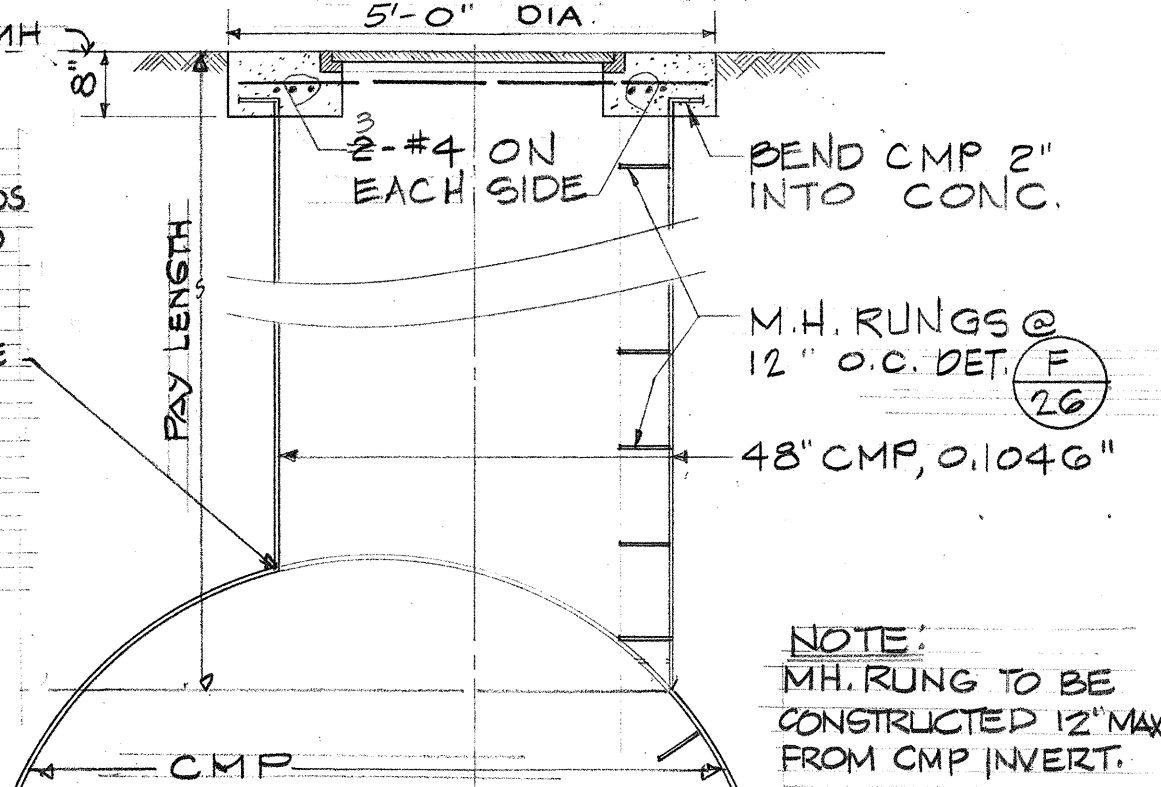
DATE	
DESIGNED BY	
DRAWN BY	
CHECKED BY	
NOTED BY	
NO.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-RF-011-2(13)	1975	23A	126



DRAIN PIPE SIZE (INCHES)	PAYMENT WIDTH OF TRENCHING (INCHES)	WIDTH OF REPAVING (INCHES)
18	42	54
24	48	60
30	54	66
36	60	72
42	66	78
48	72	84
54	78	90
60	84	96
66	90	102
72	96	108
78	102	114
84	108	120
90	114	126
96	120	132
102	126	138
108	132	144
114	138	150

PAYMENT TRENCH WIDTH FOR CAST-IN-PLACE REINFORCED CONCR., ASBESTOS CEMENT CORR. METAL, & STRUCTURAL PLATE PIPE



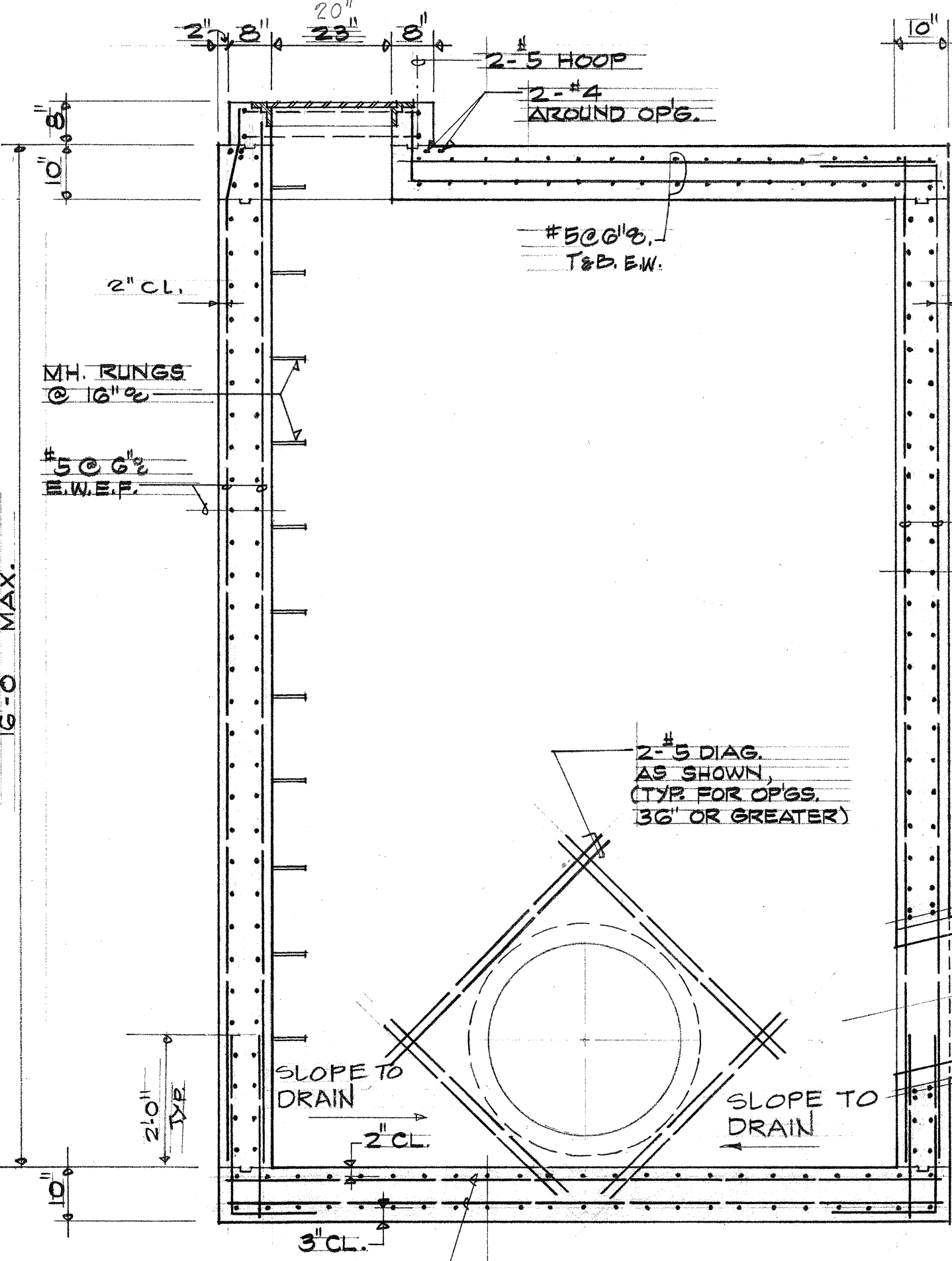
DATE REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

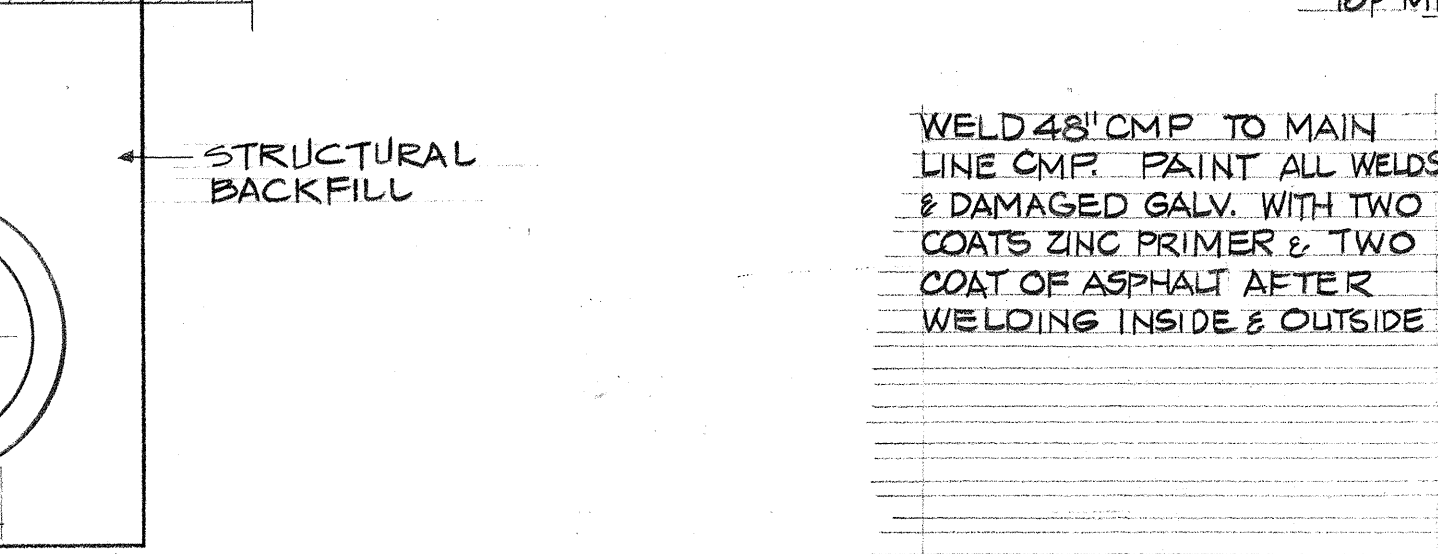
TYPE "A-1" MANHOLE & TYPE "K-1" CATCH BASIN
DROP INLET & PAYMENT
TRENCH WIDTH & REPAVING
KANELEHUA AVE.
MAKALIKA ST. TO KAMEHAMEHA AVE.
Federal Aid Project NaF-RF-011-2(13)
Scale: As Shown

SHEET No. 3 OF 7 SHEETS

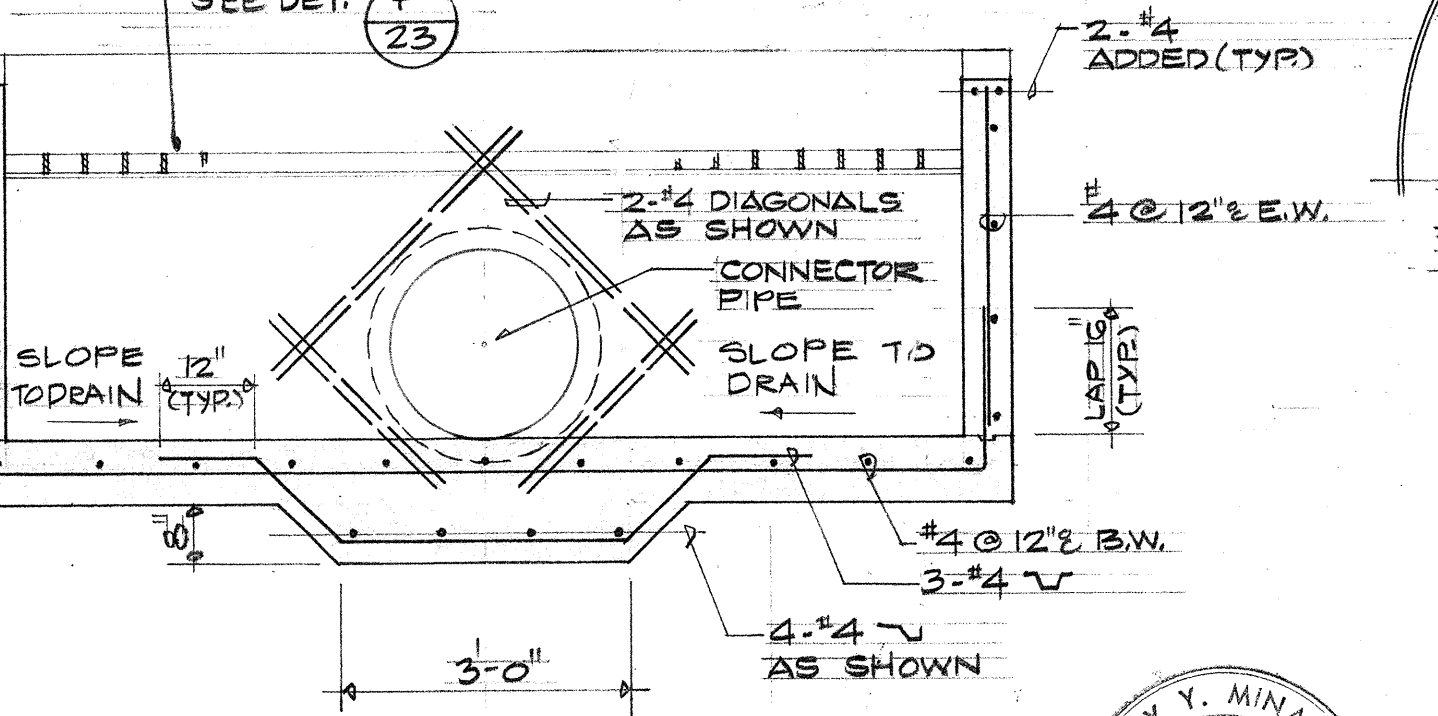
23A



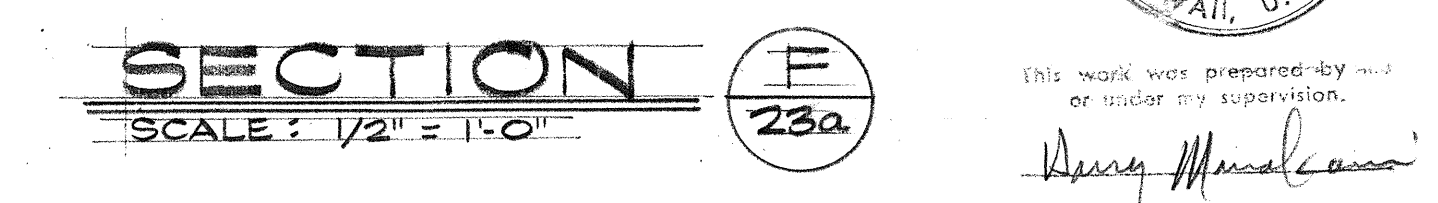
SECTION C
SCALE - 1/2" = 1'-0"



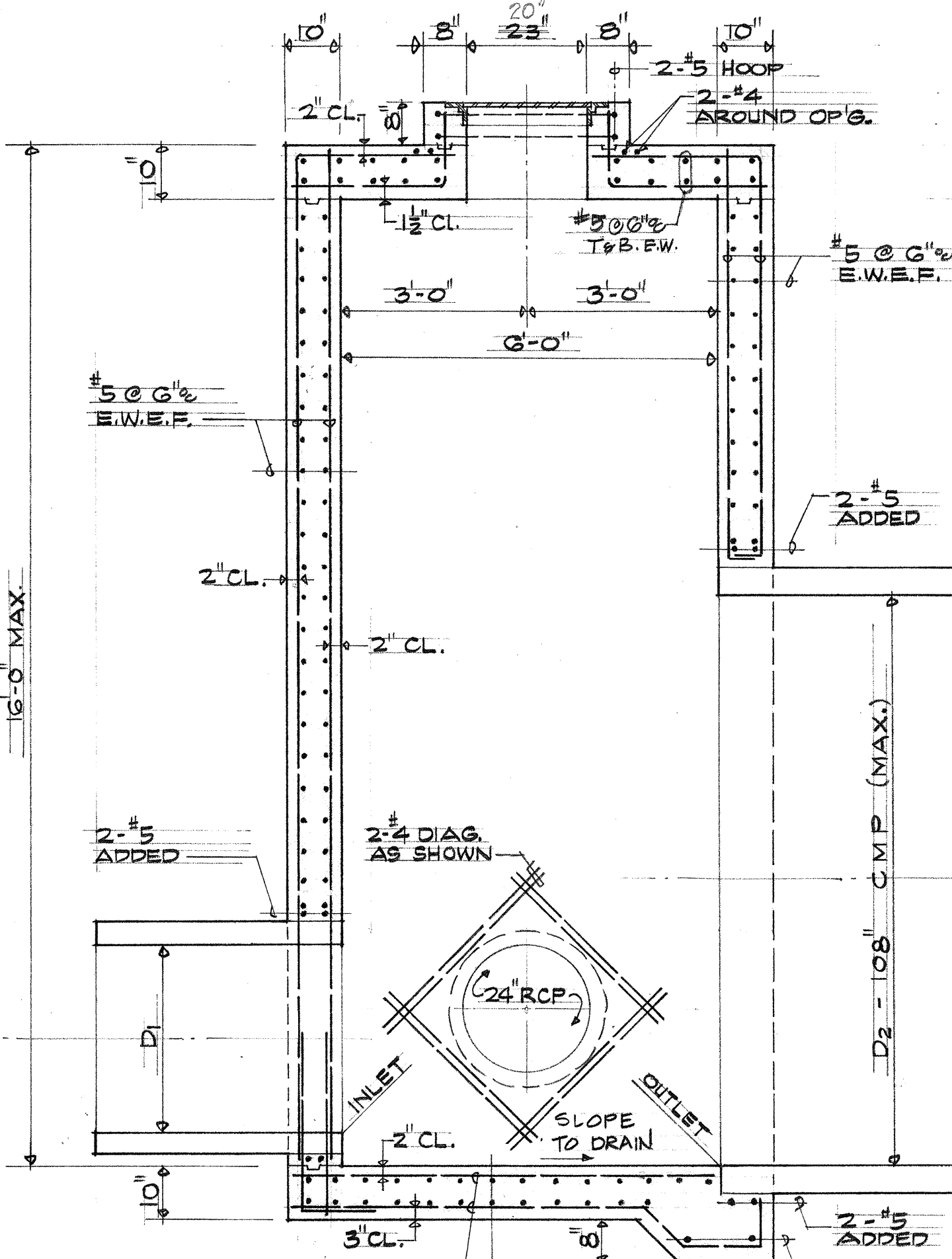
SECTION D
SCALE - 1/2" = 1'-0"



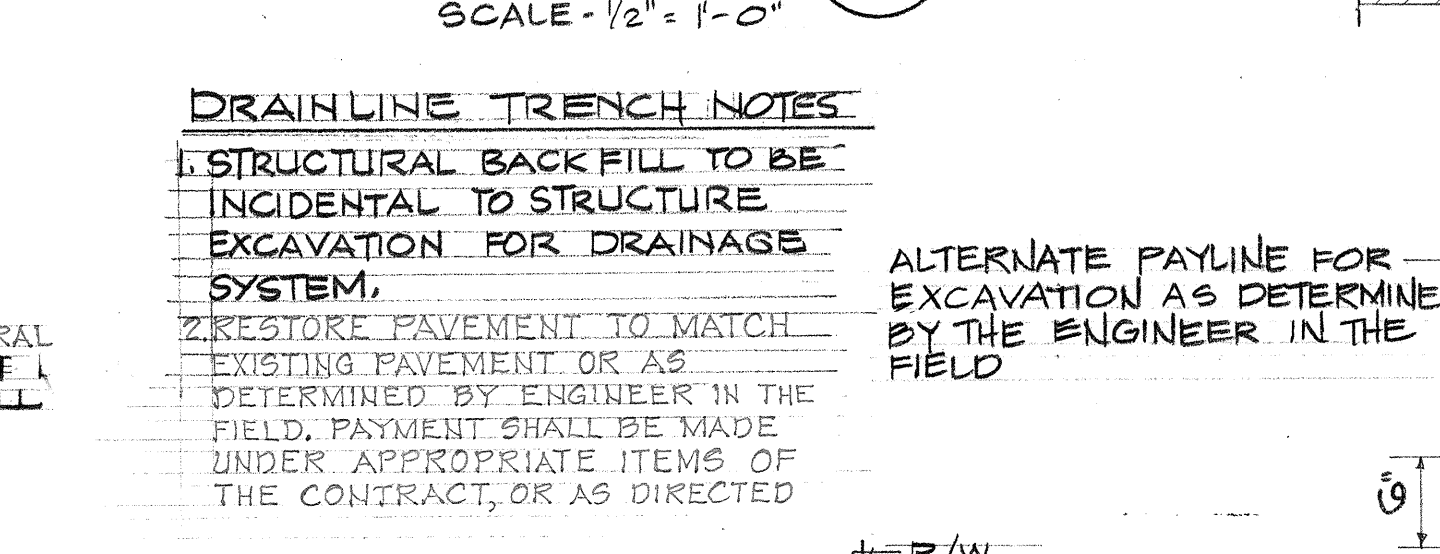
SECTION E
SCALE - 1/2" = 1'-0"



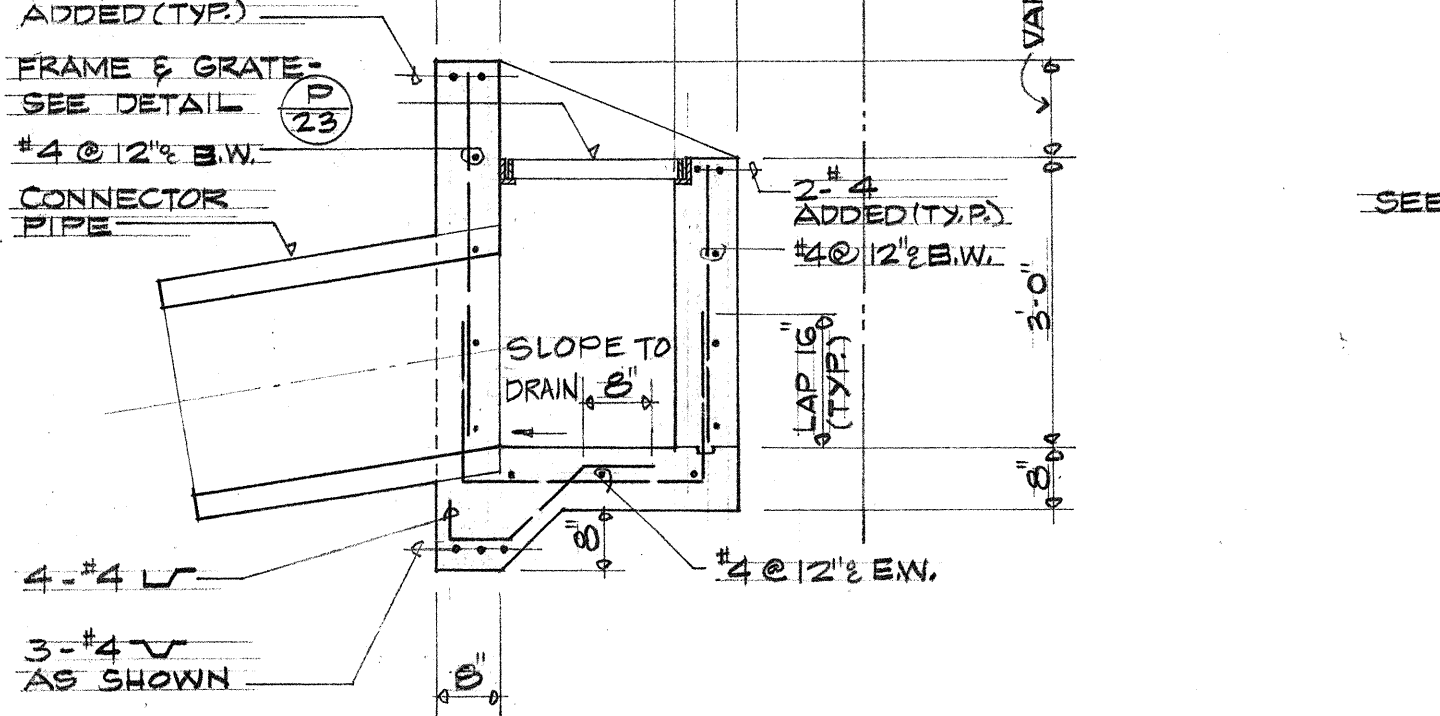
SECTION F
SCALE - 1/2" = 1'-0"



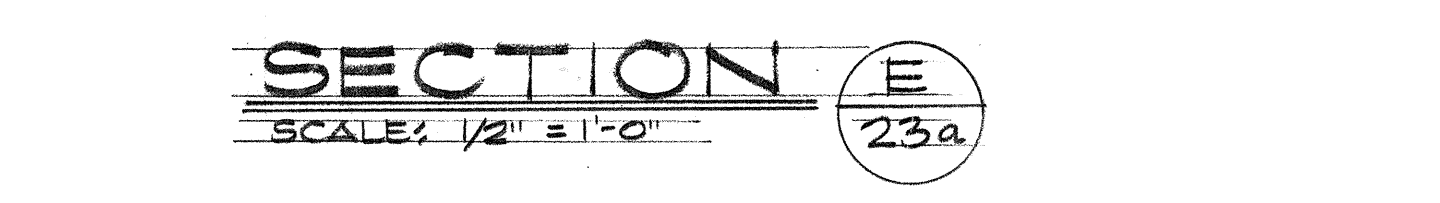
SECTION B
SCALE - 1/2" = 1'-0"



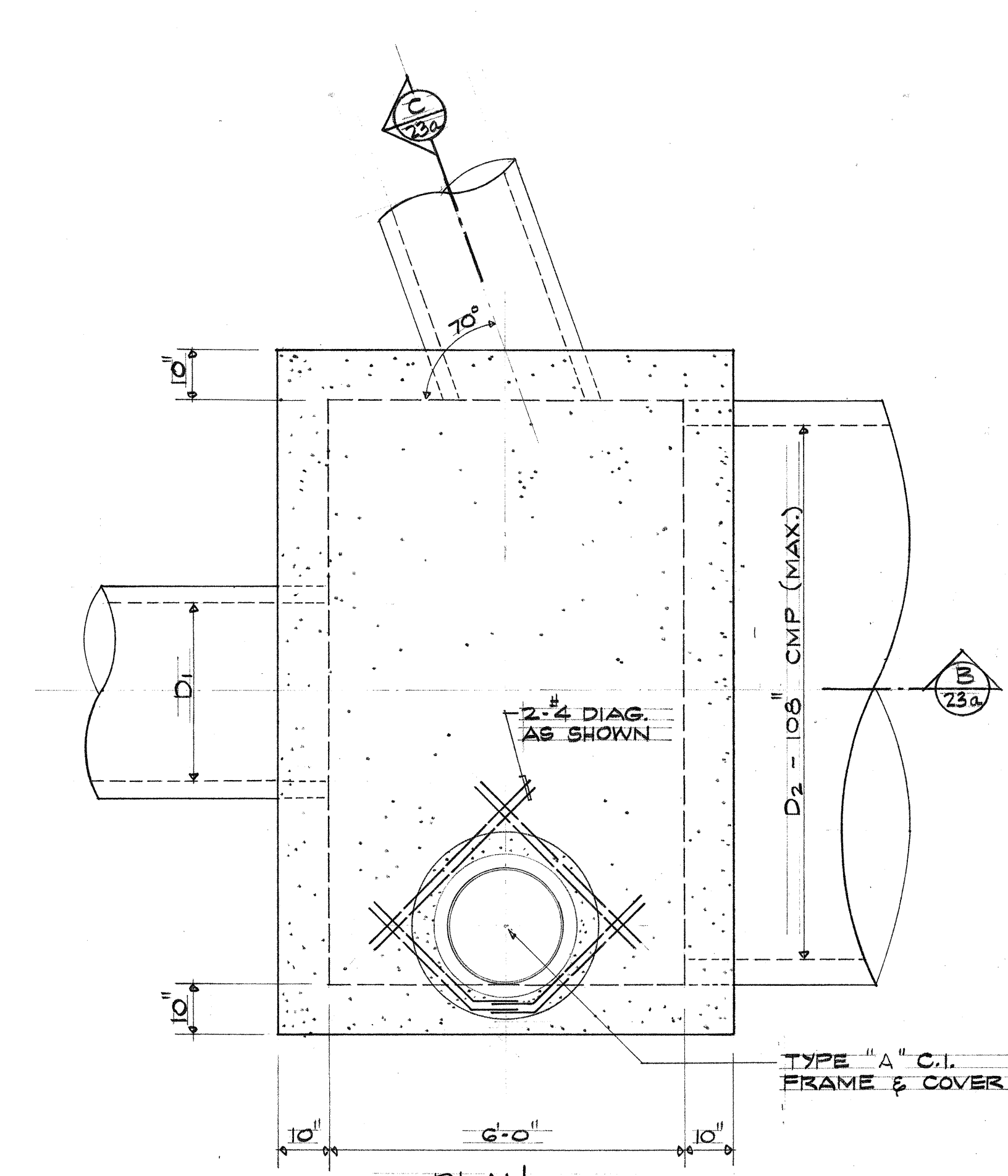
SECTION C
SCALE - 1/2" = 1'-0"



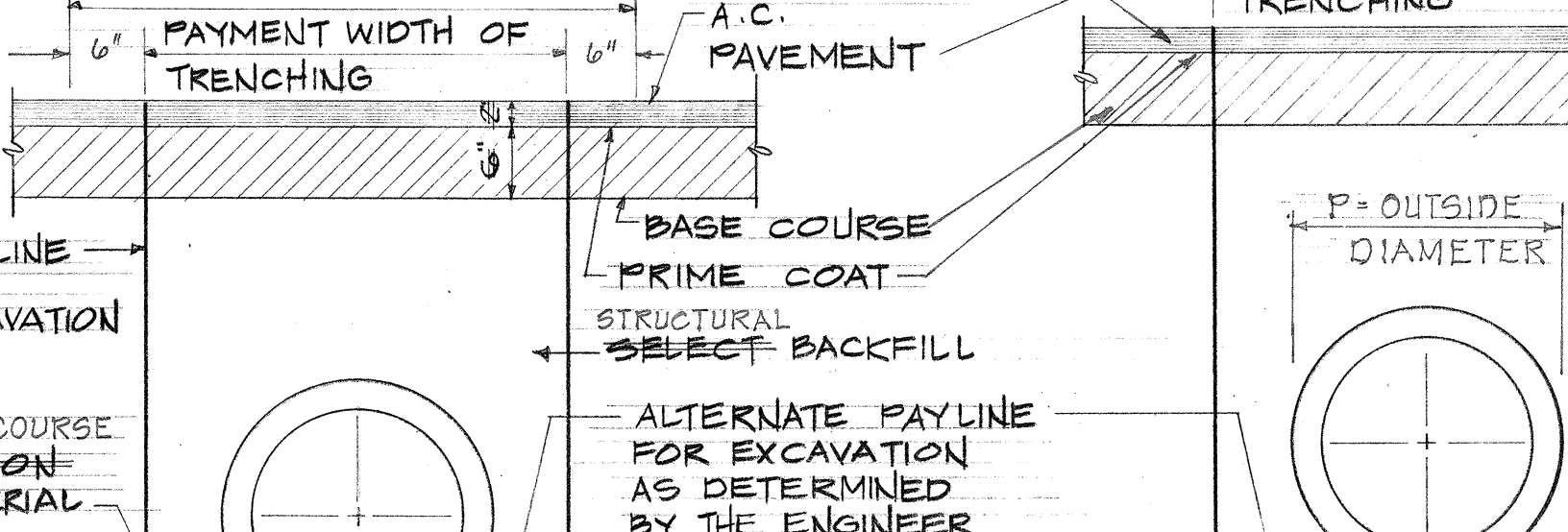
SECTION D
SCALE - 1/2" = 1'-0"



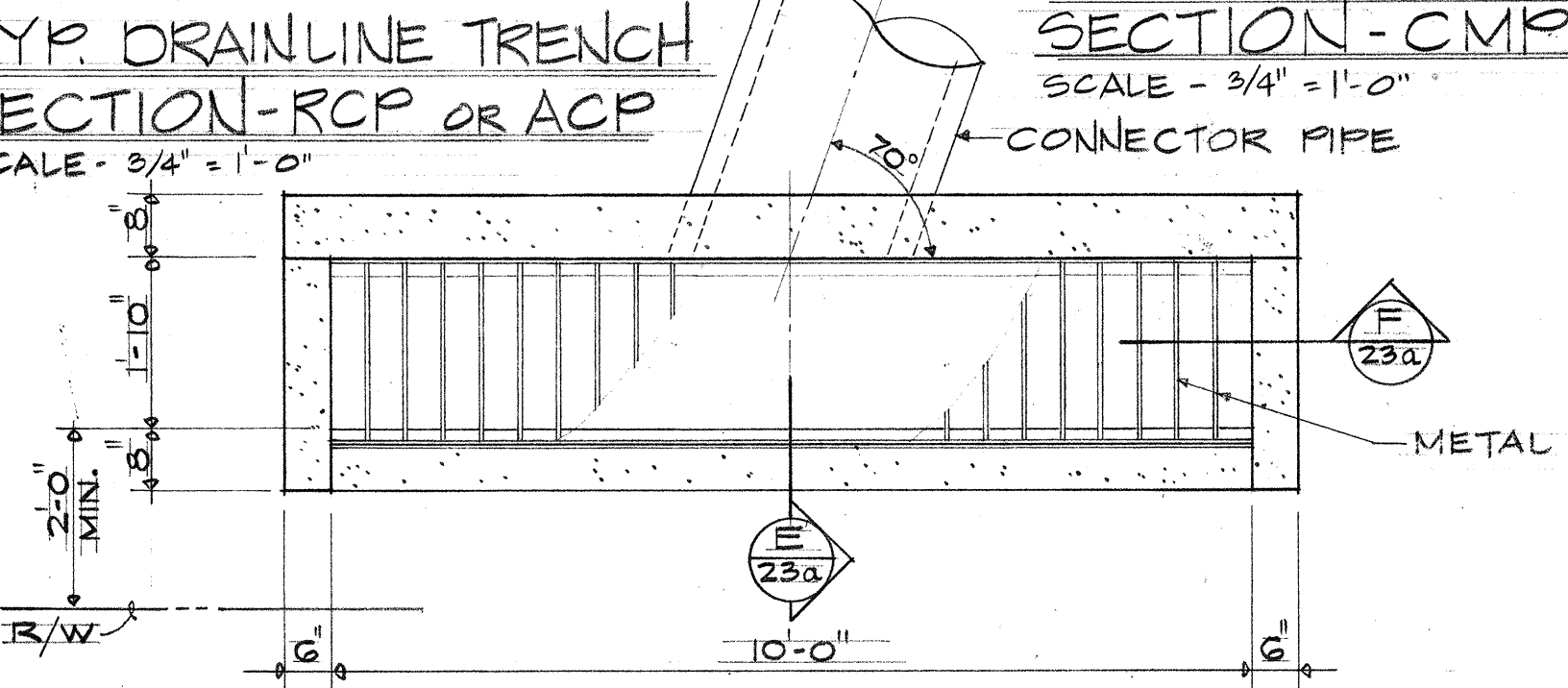
SECTION E
SCALE - 1/2" = 1'-0"



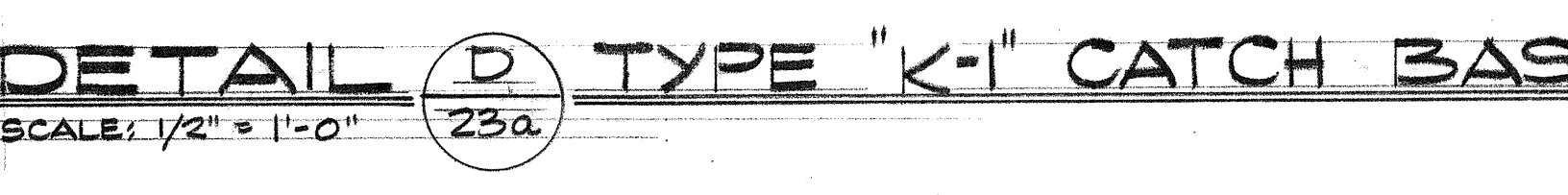
SECTION A
SCALE - 1/2" = 1'-0"



SECTION B
SCALE - 1/2" = 1'-0"



SECTION C
SCALE - 1/2" = 1'-0"



SECTION D
SCALE - 1/2" = 1'-0"

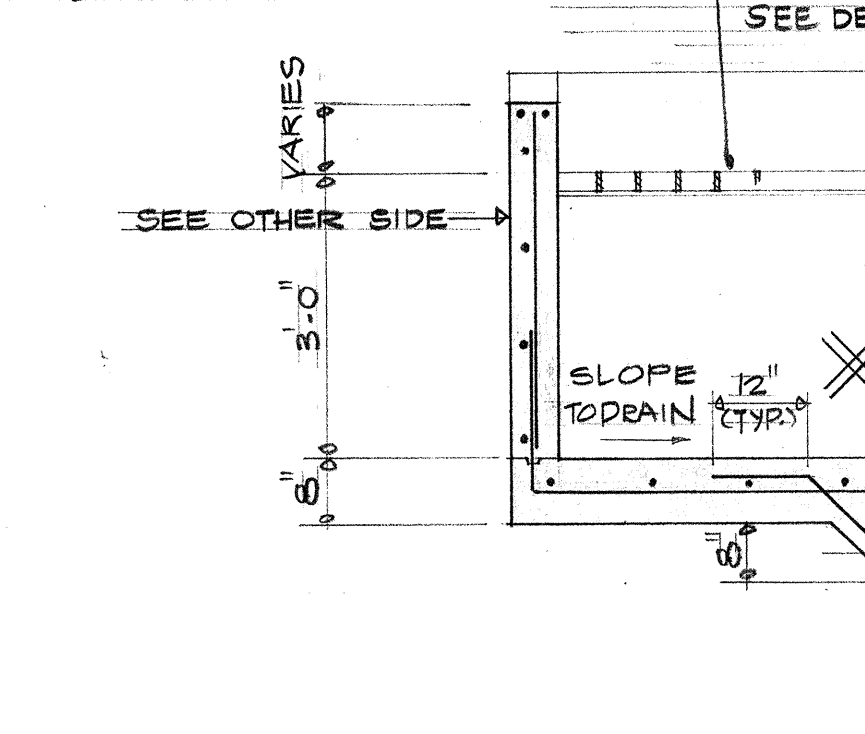
DRAINLINE TRENCH NOTES

- STRUCTURAL BACKFILL TO BE INCIDENTAL TO STRUCTURE EXCAVATION FOR DRAINAGE SYSTEM.
- RESTORE PAVEMENT TO MATCH EXISTING PAVEMENT OR AS DETERMINED BY ENGINEER IN THE FIELD. PAYMENT SHALL BE MADE UNDER APPROPRIATE ITEMS OF THE CONTRACT, OR AS DIRECTED

ALTERNATE PAYLINE FOR EXCAVATION AS DETERMINED BY THE ENGINEER IN THE FIELD

TYP. DRAINLINE TRENCH SECTION - SPMP

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



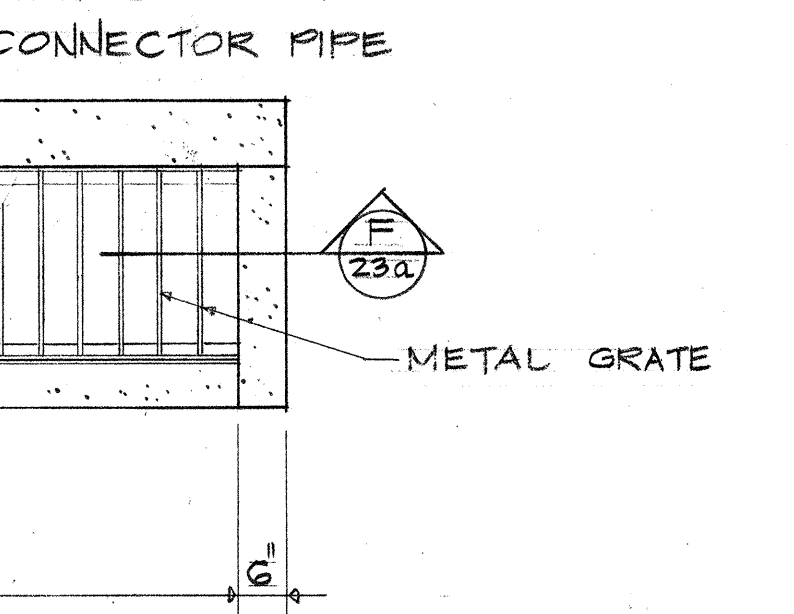
SECTION A
SCALE - 1/2" = 1'-0"



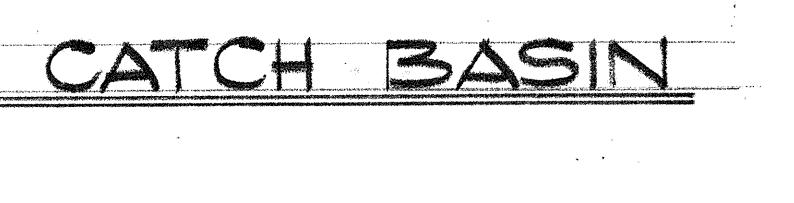
SECTION B
SCALE - 1/2" = 1'-0"

TYP. DRAINLINE TRENCH SECTION - CMP

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



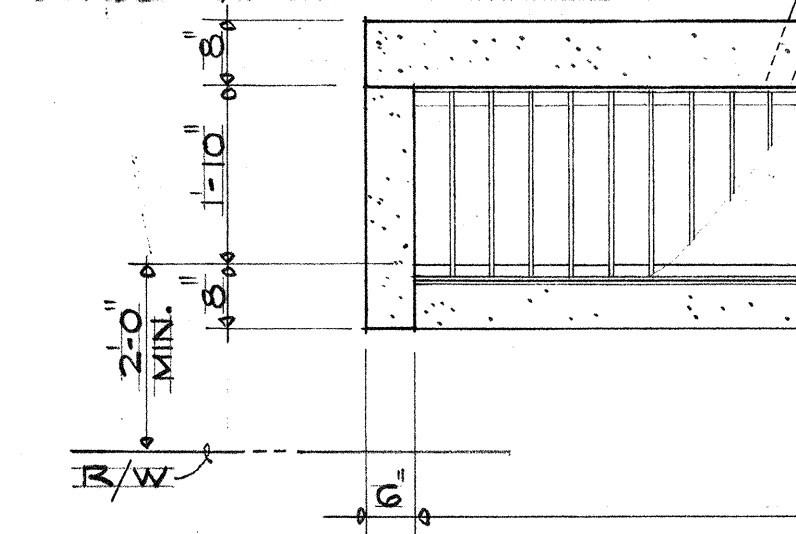
SECTION C
SCALE - 1/2" = 1'-0"



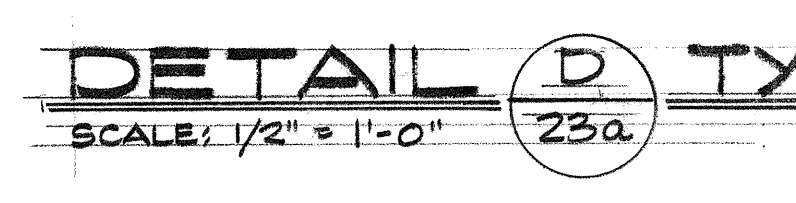
SECTION D
SCALE - 1/2" = 1'-0"

TYP. DRAINLINE TRENCH SECTION - RCP OR ACP

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



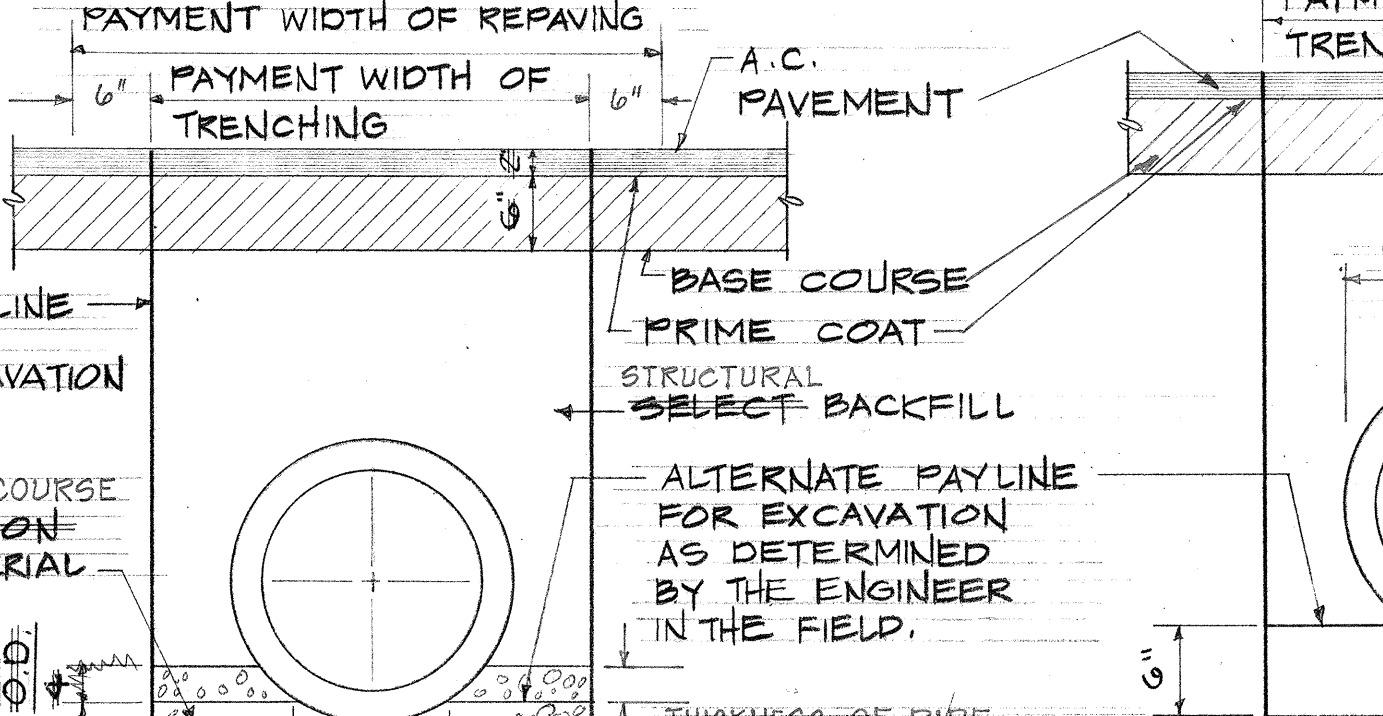
SECTION A
SCALE - 1/2" = 1'-0"



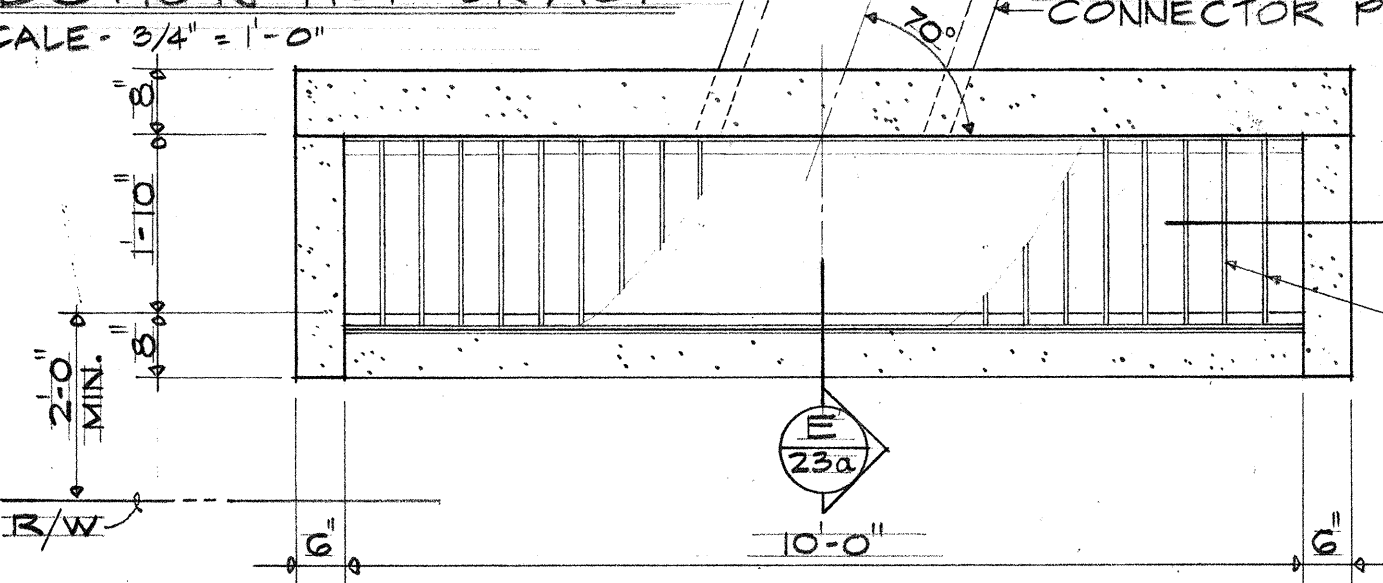
SECTION B
SCALE - 1/2" = 1'-0"

DETAIL A TYPE "A-1" MANHOLE

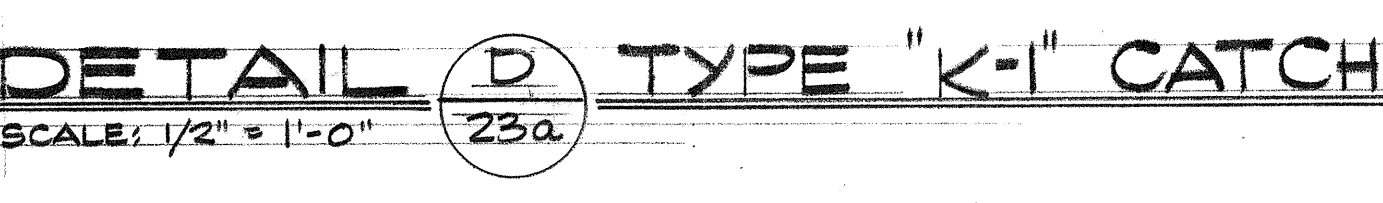
SCALE - 1/2" = 1'-0"



SECTION B
SCALE - 1/2" = 1'-0"



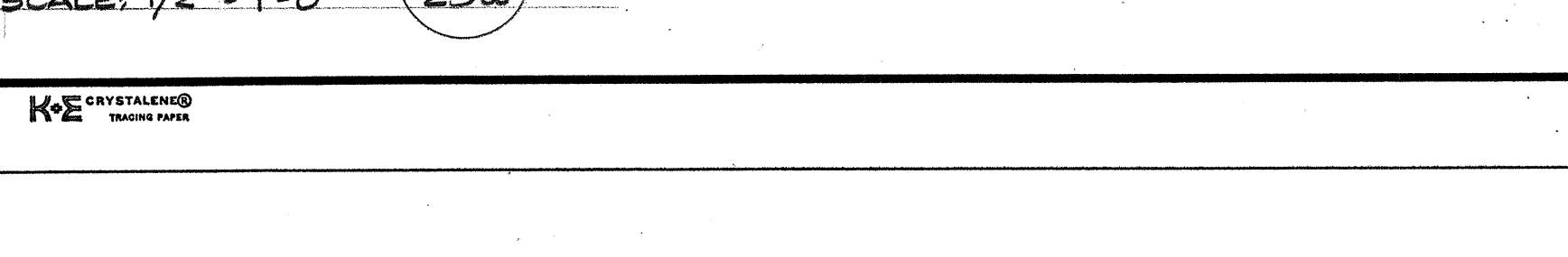
SECTION C
SCALE - 1/2" = 1'-0"



SECTION D
SCALE - 1/2" = 1'-0"

DETAIL D TYPE "K-1" CATCH BASIN

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



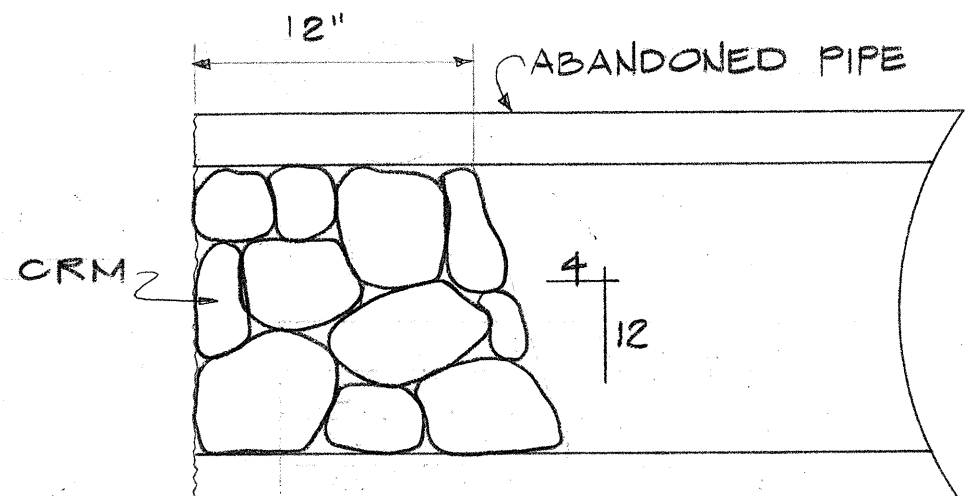
DATE	_____
ORIGINAL PLAN	_____
DRAWN BY	_____
TRACED BY	_____
NOTED BY	_____
CHECKED BY	_____
NO.	_____

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-RF-011-2(13)	1975	24	126

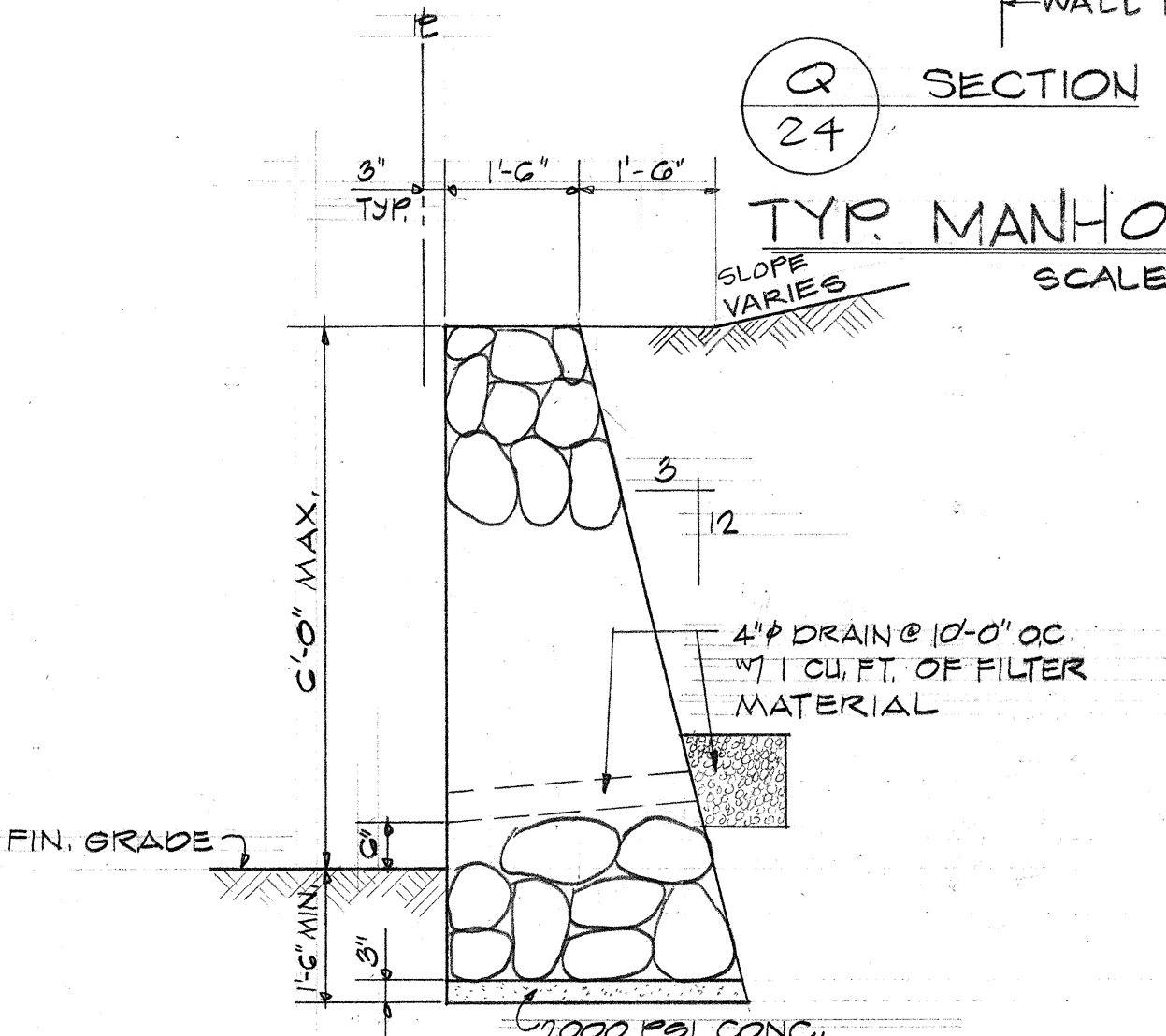
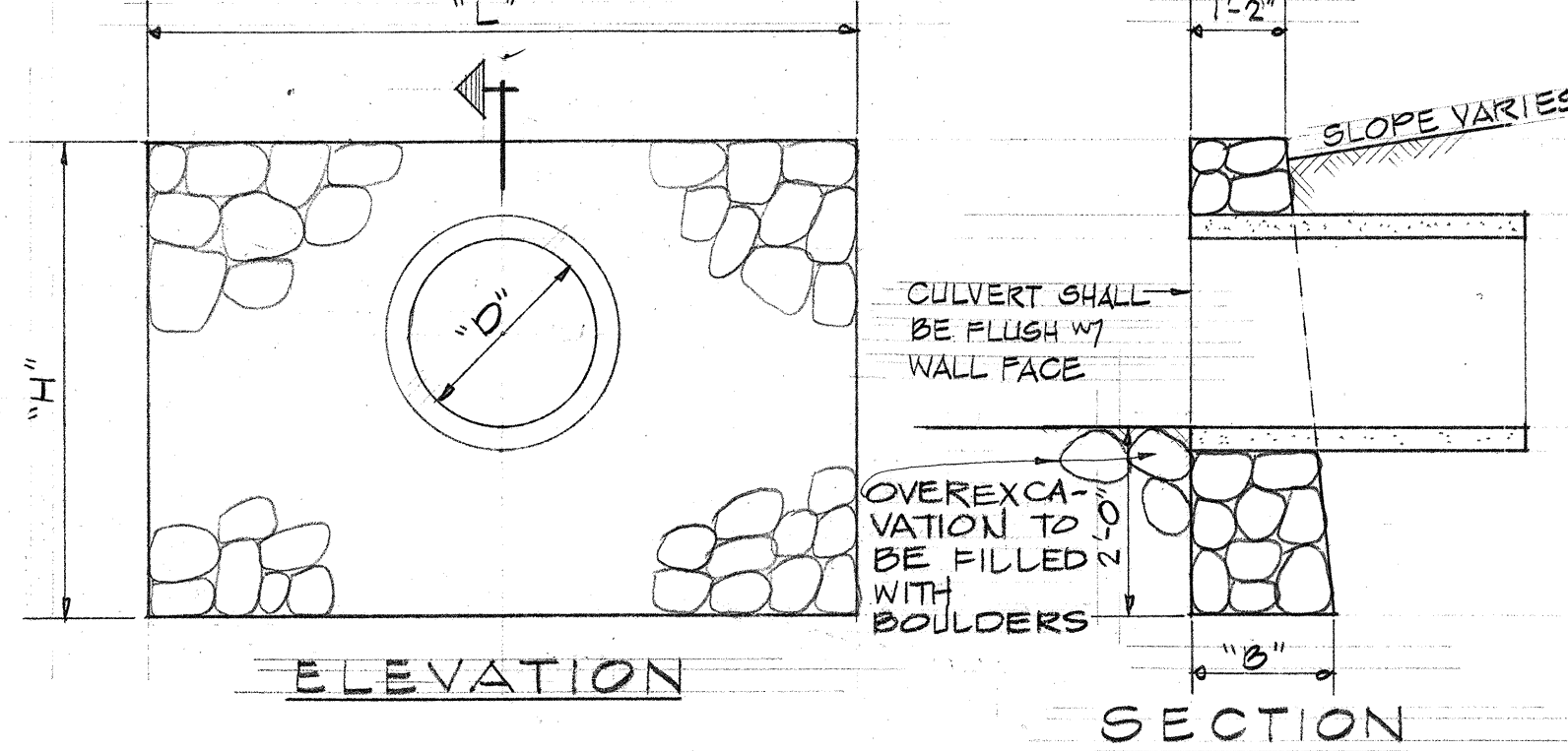
CULVERTS, CATCH BASINS & INLETS

- NOTES:**
1. REINFORCED CONCRETE SHALL BE $f_c' = 3,000$ PSI 28 DAY COMPRESSIVE STRENGTH.
 2. REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 40.
 3. STRUCTURAL STEEL SHAPES SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION AND CONFORM TO ASTM A36.

NOTE:
RUNGS SHALL BE 1" GENUINE WROUGHT IRON & SHALL BE HOT-DIPPED GALVANIZED OR CADMIUM PLATED AFTER BENDING.



CRM SEAL DETAIL (P) 24
NOT TO SCALE
(SEAL INCIDENTAL TO DRAIN PIPE)

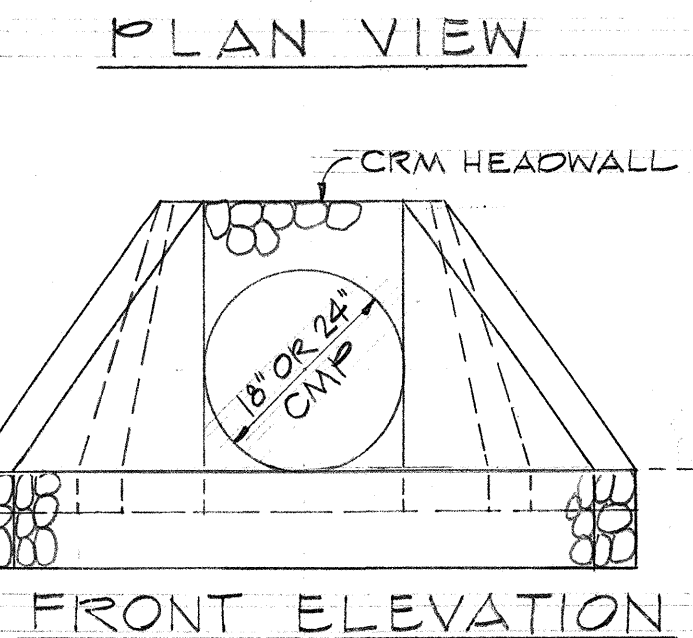
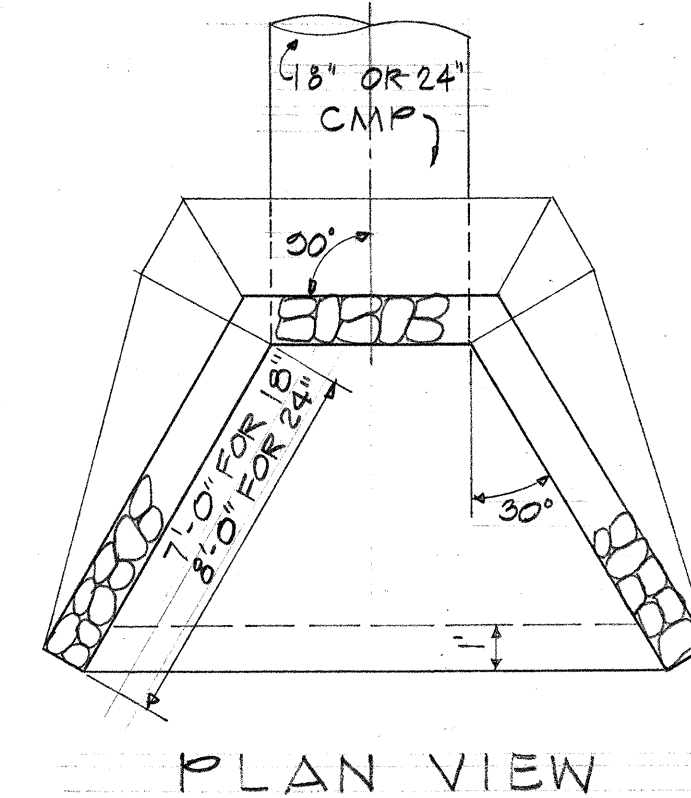
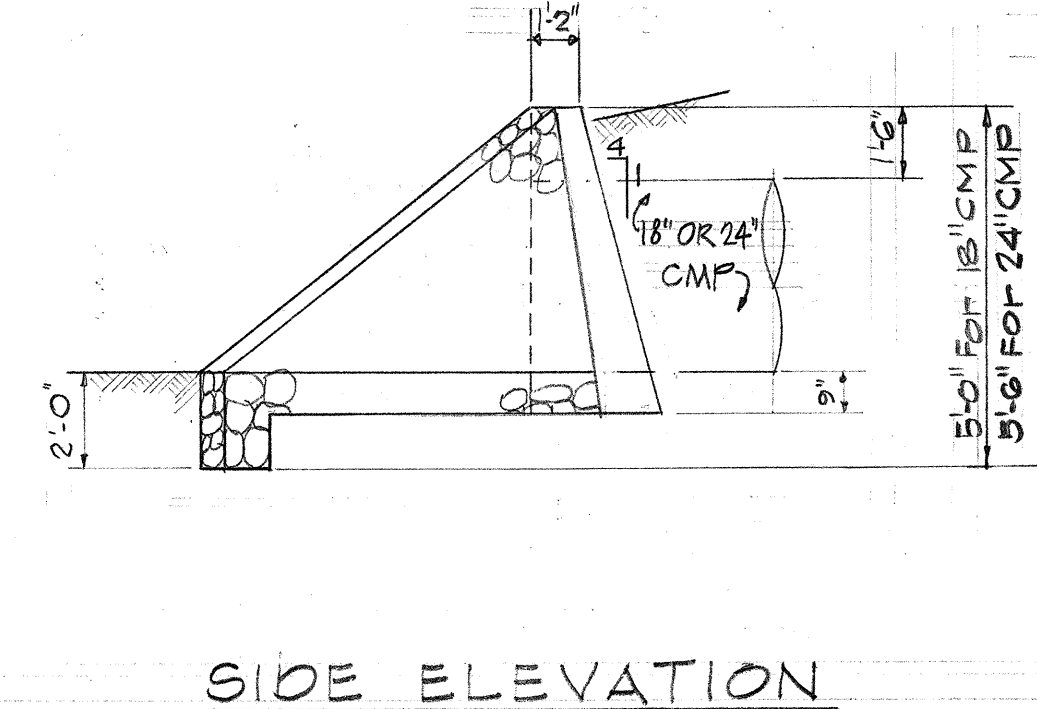


TYP. MANHOLE RING (C) 24
SCALE: 1/2" = 1'-0"

CRM RET. WALL DETAIL (M) 24
SCALE: 1/2" = 1'-0"

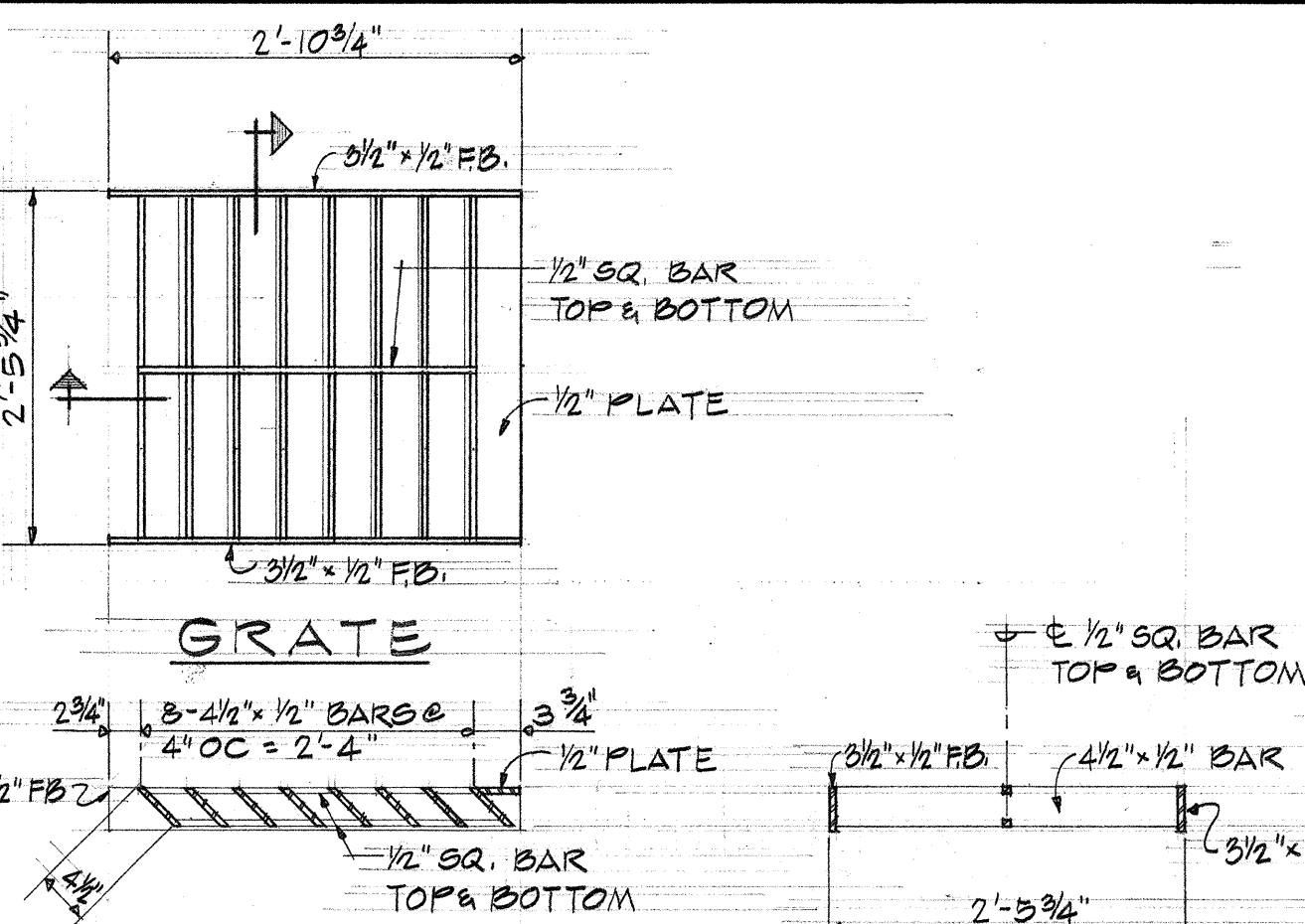
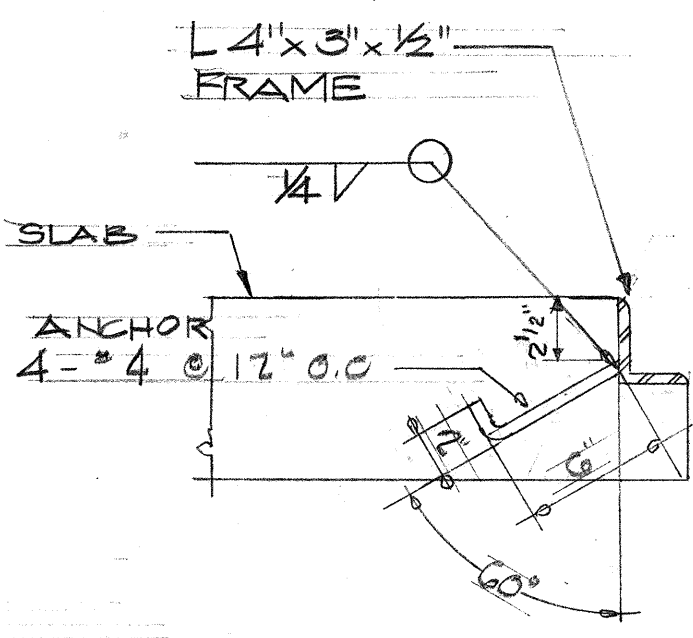
TYPE "A" HEADWALL DETAIL (K) 24
SCALE: 1/2" = 1'-0"

CRM HEADWALL DATA			
"D"	"B"	"L"	"H"
24"	2-4"	7'-6"	5'-0"
30"	2-8"	9'-0"	5'-6"
36"	3'-0"	10'-6"	6'-0"

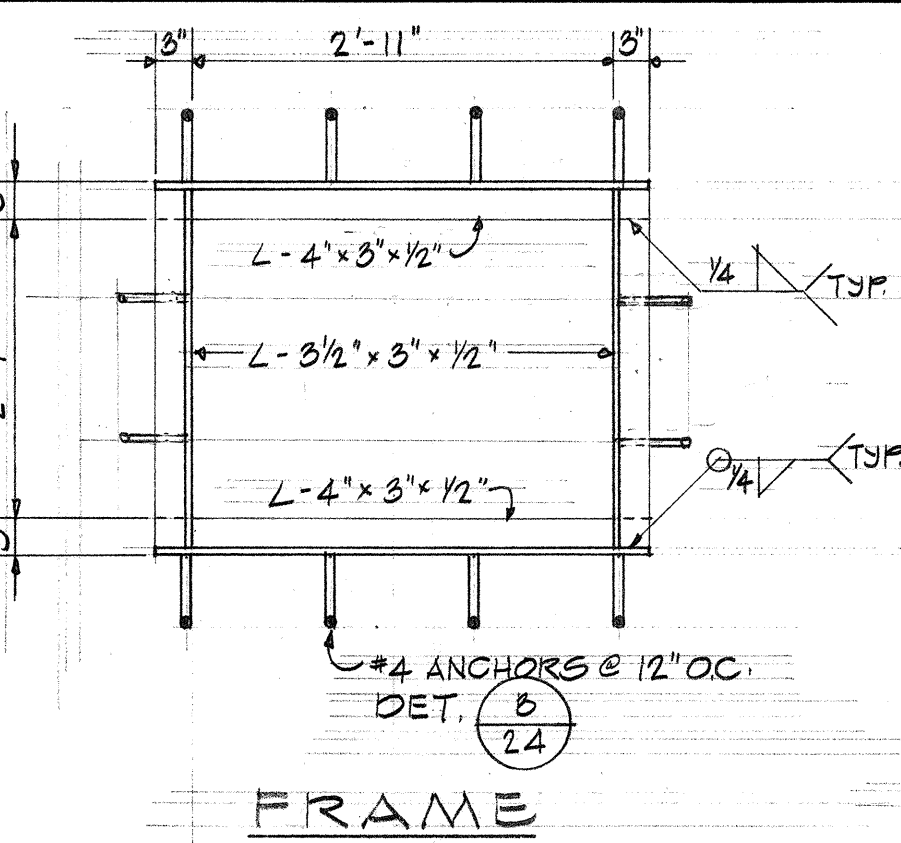


INLET/OUTLET STRUCTURE DETAIL (N) 24
NO SCALE

ANCHOR DETAIL (B) 24
SCALE: 1/2" = 1'-0"



TYPE "Z" STEEL FRAME AND GRATE DETAIL (A) 24
SCALE: 3/4" = 1'-0"



SECTION

SECTION

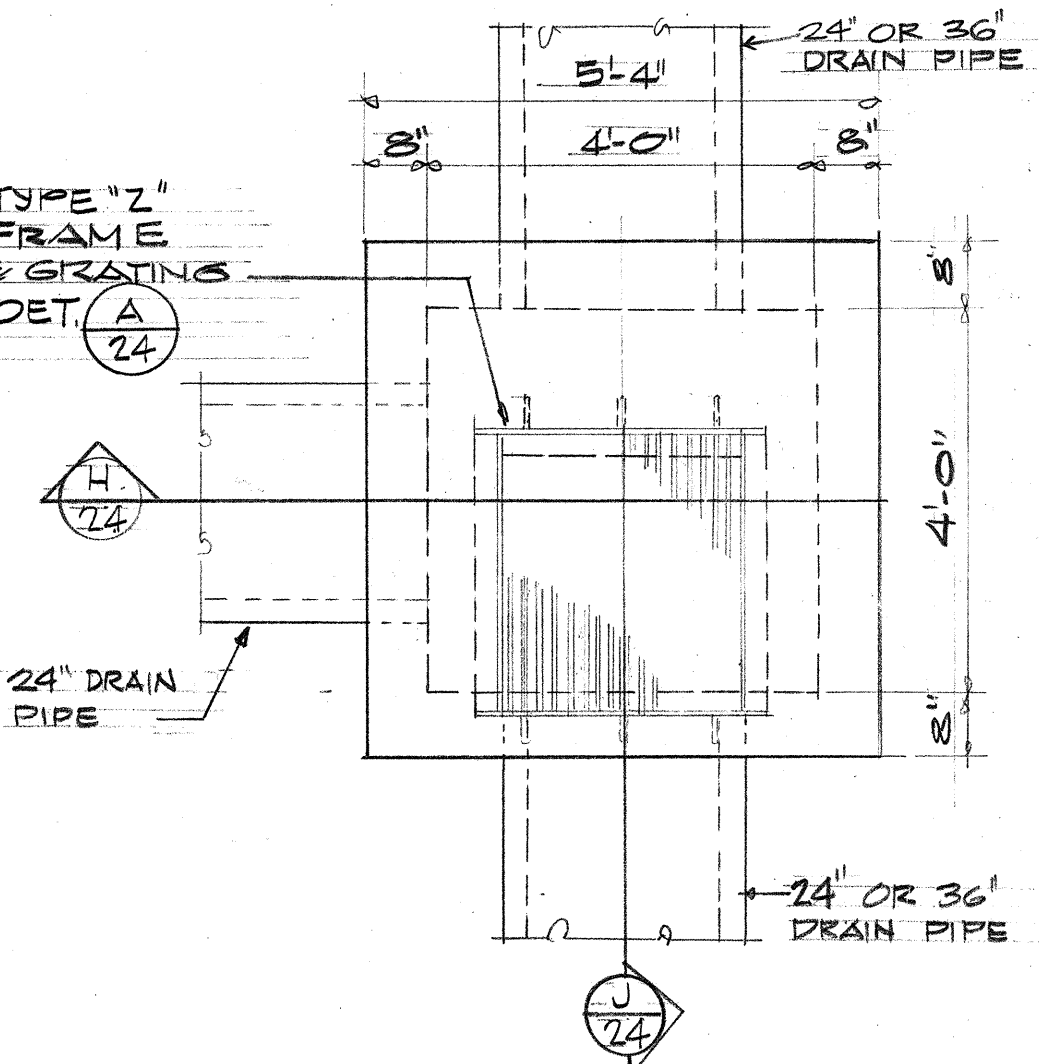
PLAN

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

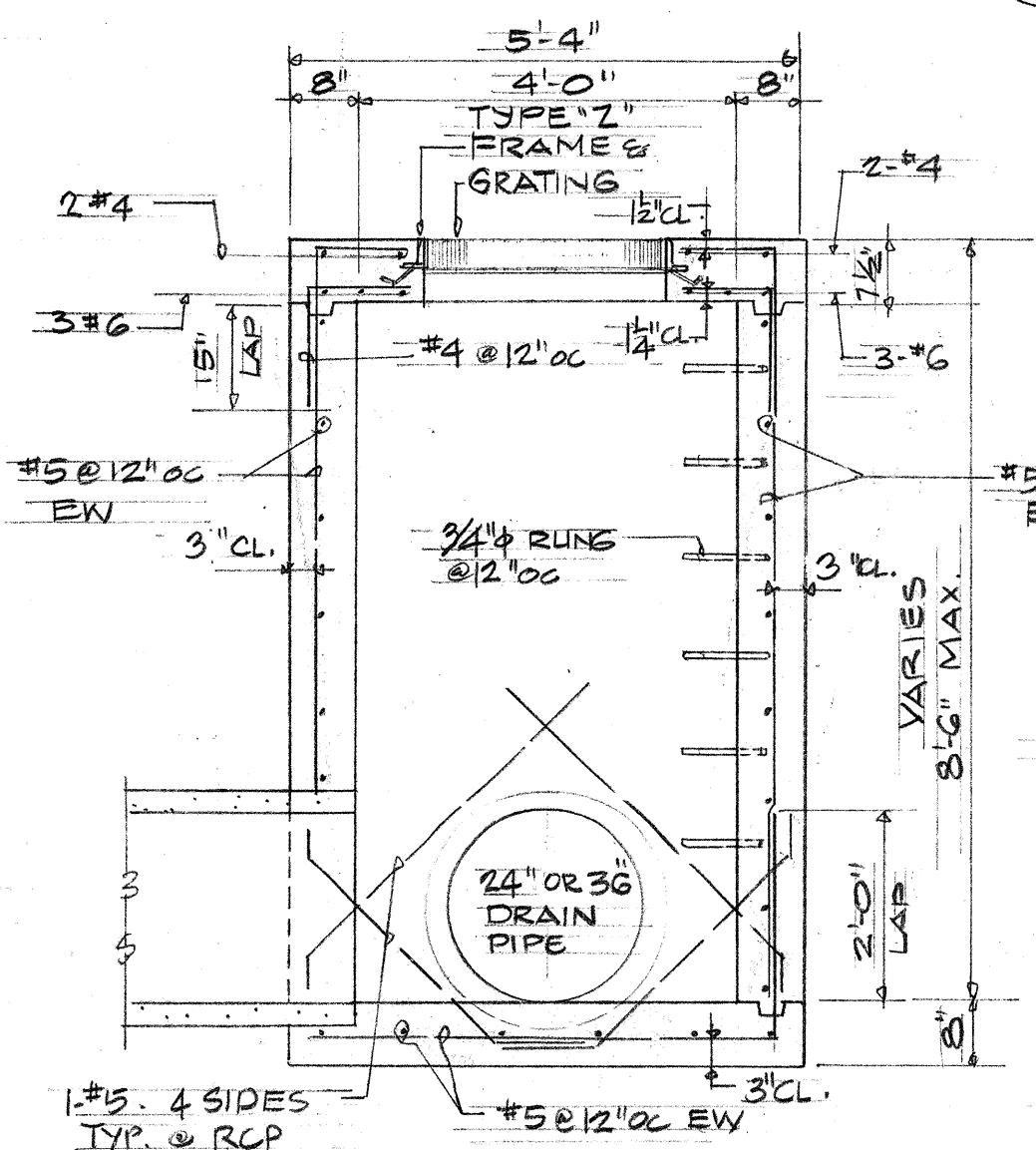
SECTION
SCALE: 1/2" = 1'-0"

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

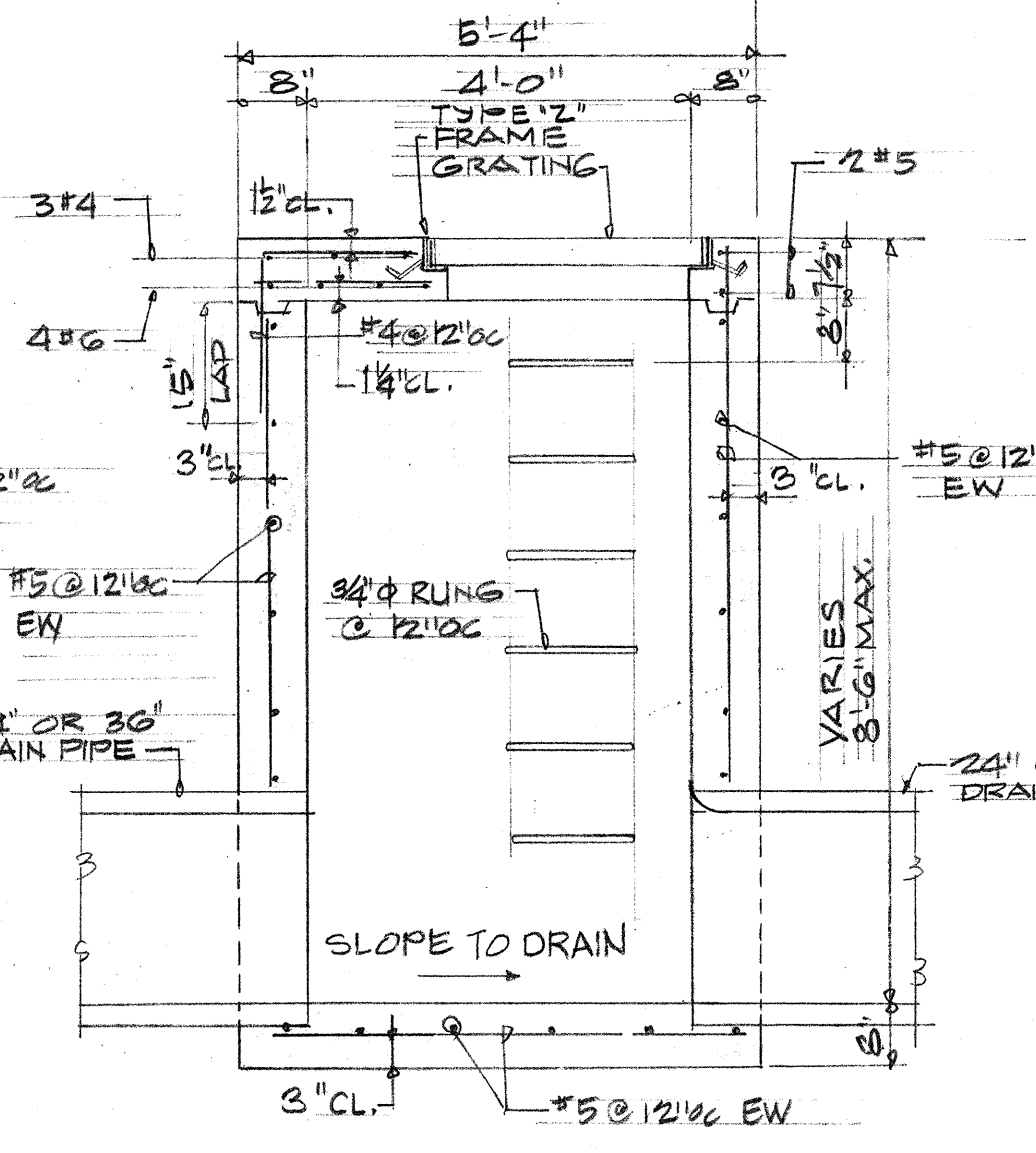
CATCH BASIN TYPE "J" (D) 24



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

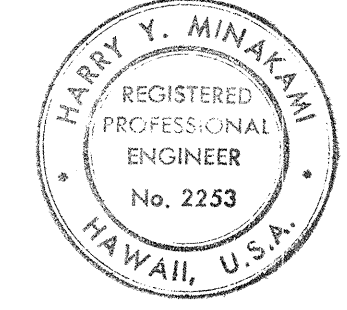


SECTION
SCALE: 1/2" = 1'-0"



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

CATCH BASIN TYPE "B" (E) 24



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

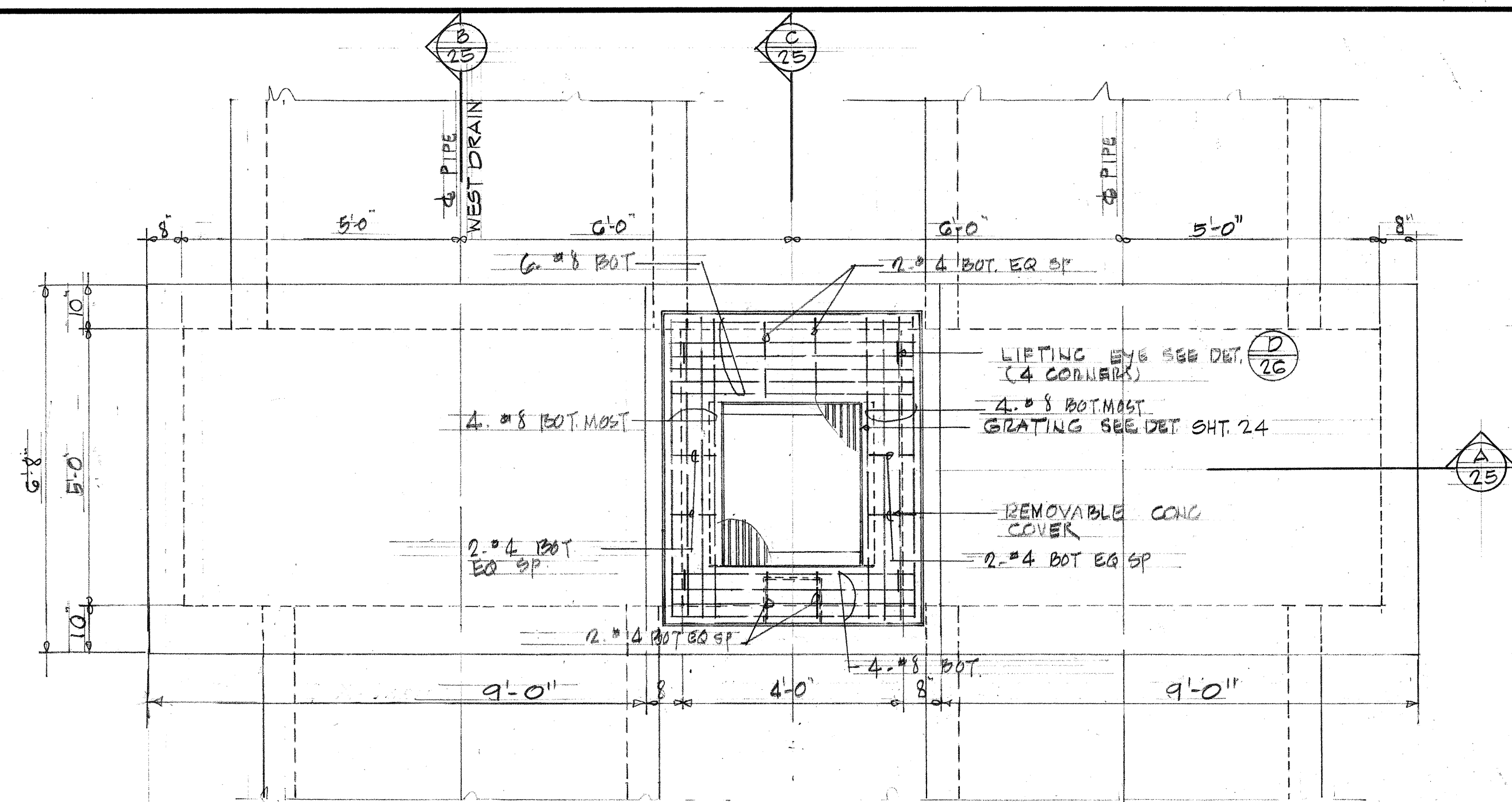
CATCH BASIN TYPE "J" & CATCH BASIN TYPE "B" DETAILS, HEADWALL & CRM RET. WALL

KANOELEHUA AVE.
MAKALIKA ST. TO KAMEHAMEHA AVE.
Federal Aid Project No. F-RF-011-2(13)
Scale: As shown.

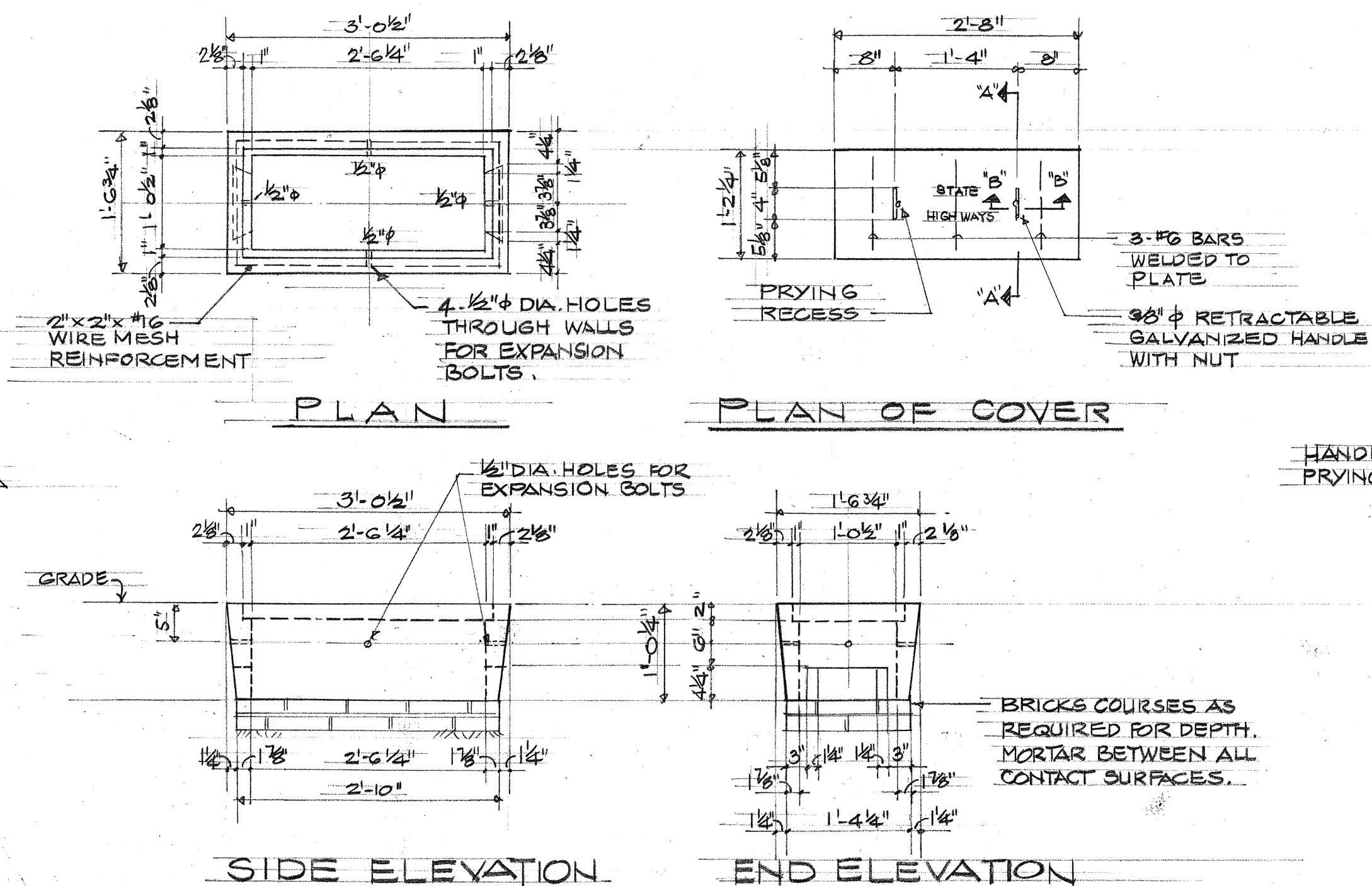
SHEET No. 4 OF 7 SHEETS

DATE	_____
DESIGNED BY	_____
DRAWN BY	_____
CHECKED BY	_____
ORIGINAL PLAN	_____
NOTE BOOK	_____
No.	_____

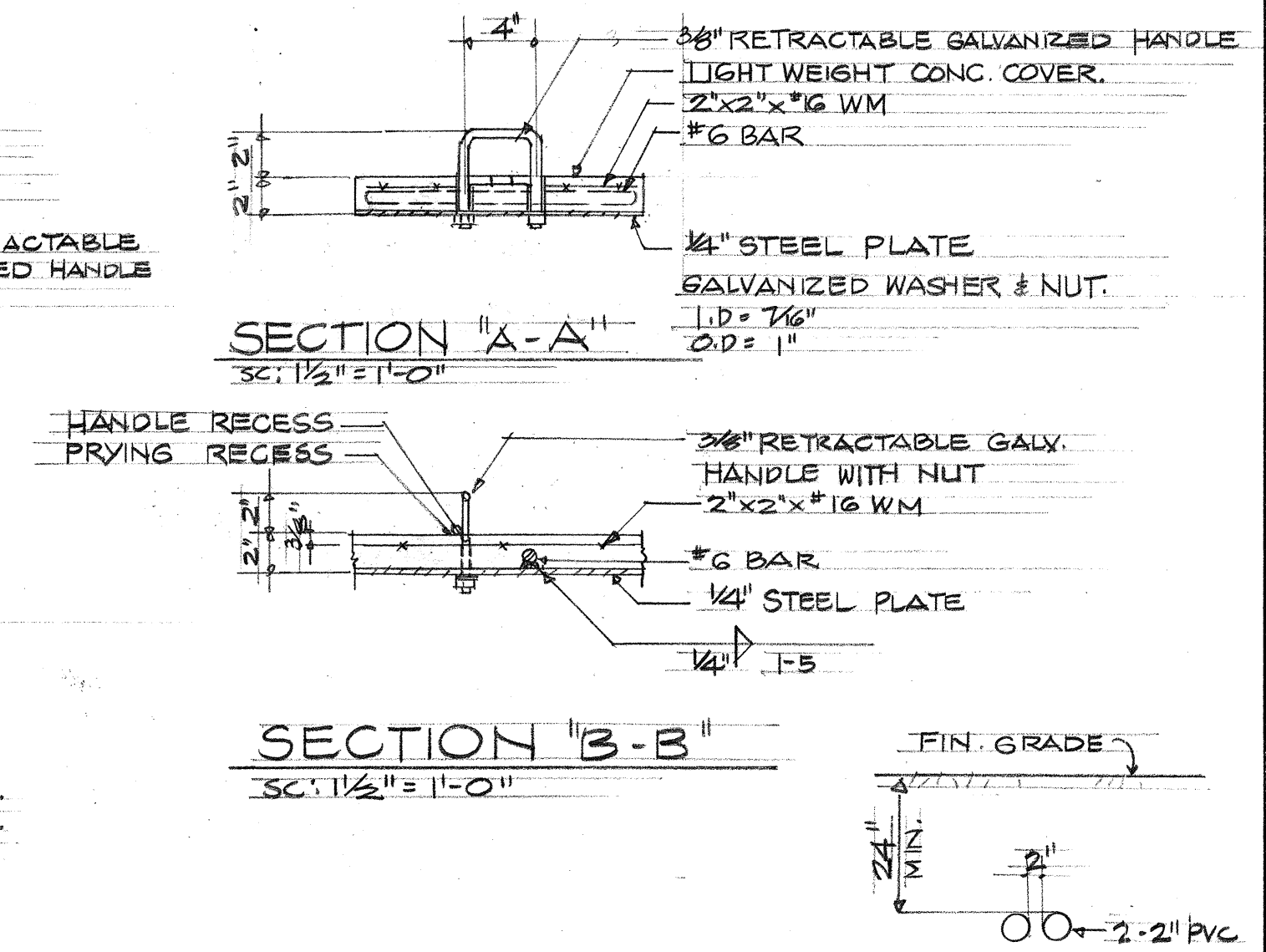
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-RF-011-2(13)	1975	25	126



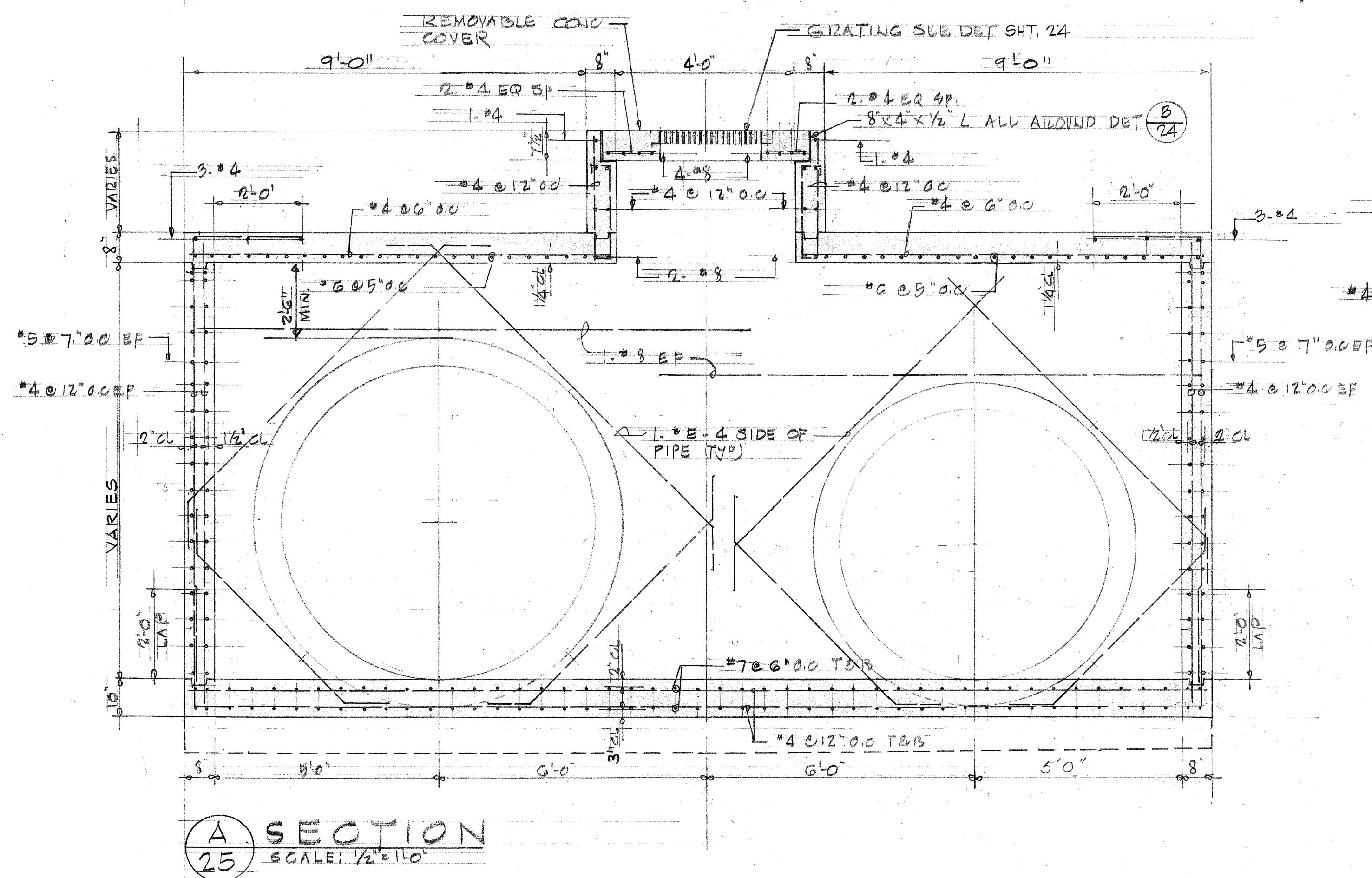
PLAN - CATCH BASIN/MANHOLE TYPE "G"
SCALE: 1/2" = 1'-0"



SIDE ELEVATION END ELEVATION
TYPE "C" PULL BOX

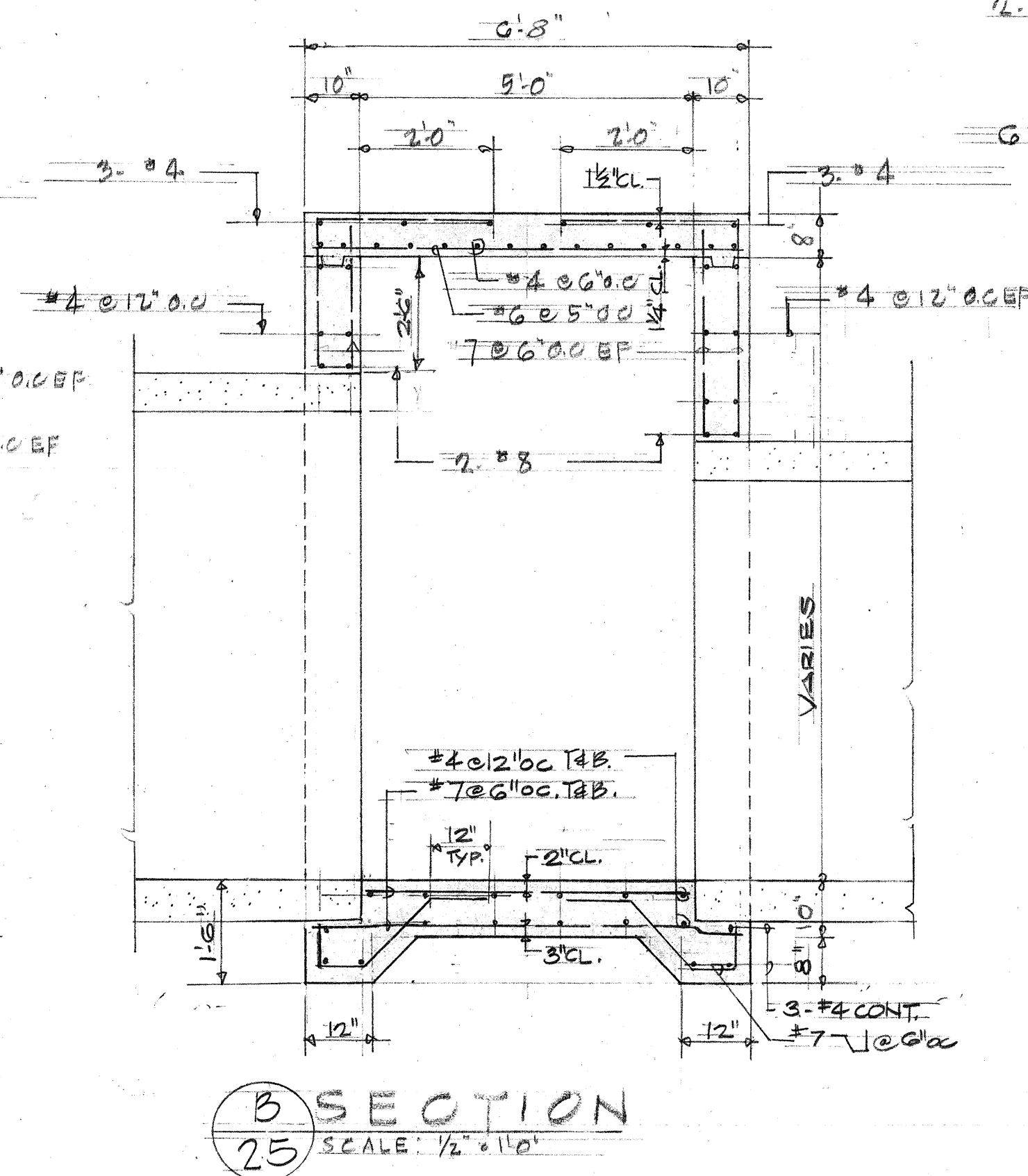


TRAFFIC SIGNAL
UNDERGROUND DUCT
NOT TO SCALE.

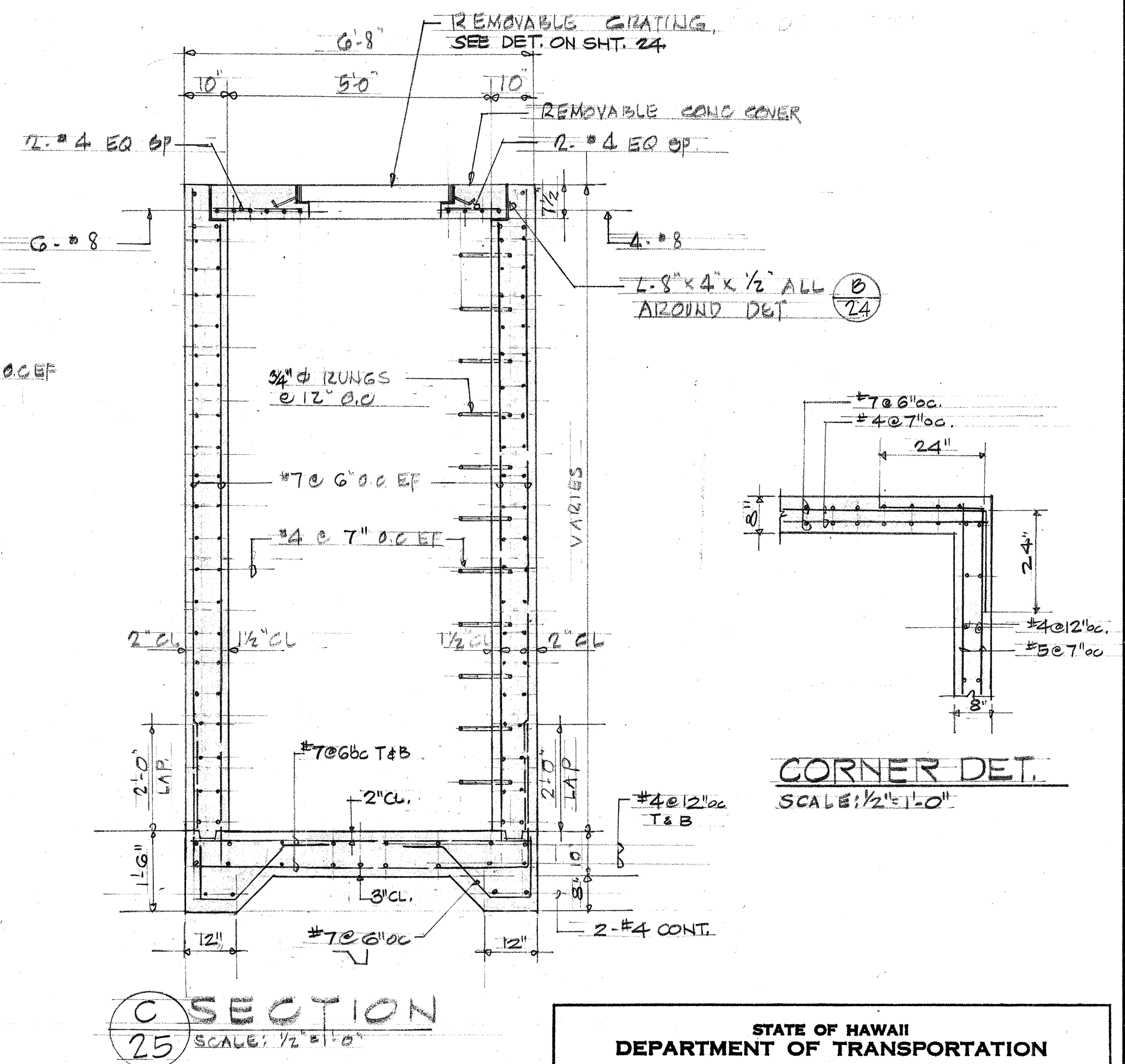


A SECTION
25 SCALE: 1/2" = 10'

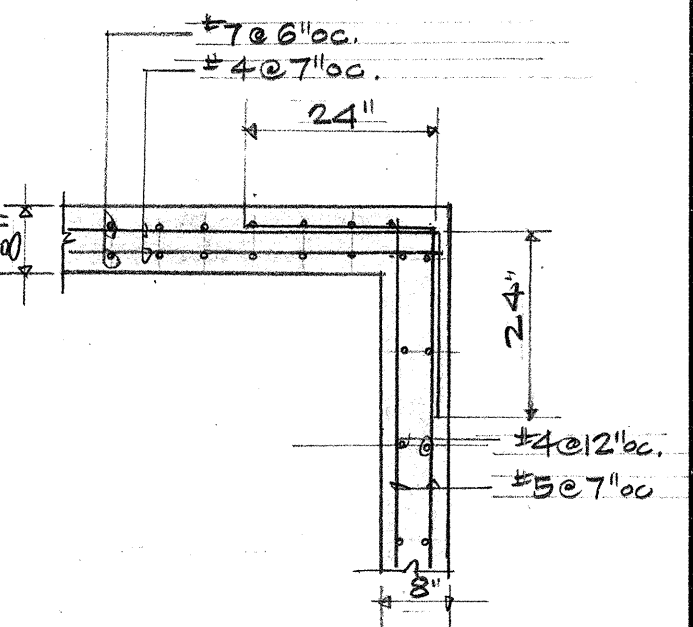
Note: Offset $\angle$ of grating 2.5' west of
R/W $\angle$ at Sta. 86+00



B SECTION
25 SCALE: 1/2" = 10'



C SECTION
25 SCALE: 1/2" = 1'-0"



CORNER DET.
SCALE: 1/2" = 1'-0"

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



This work was prepared by me
or under my supervision,

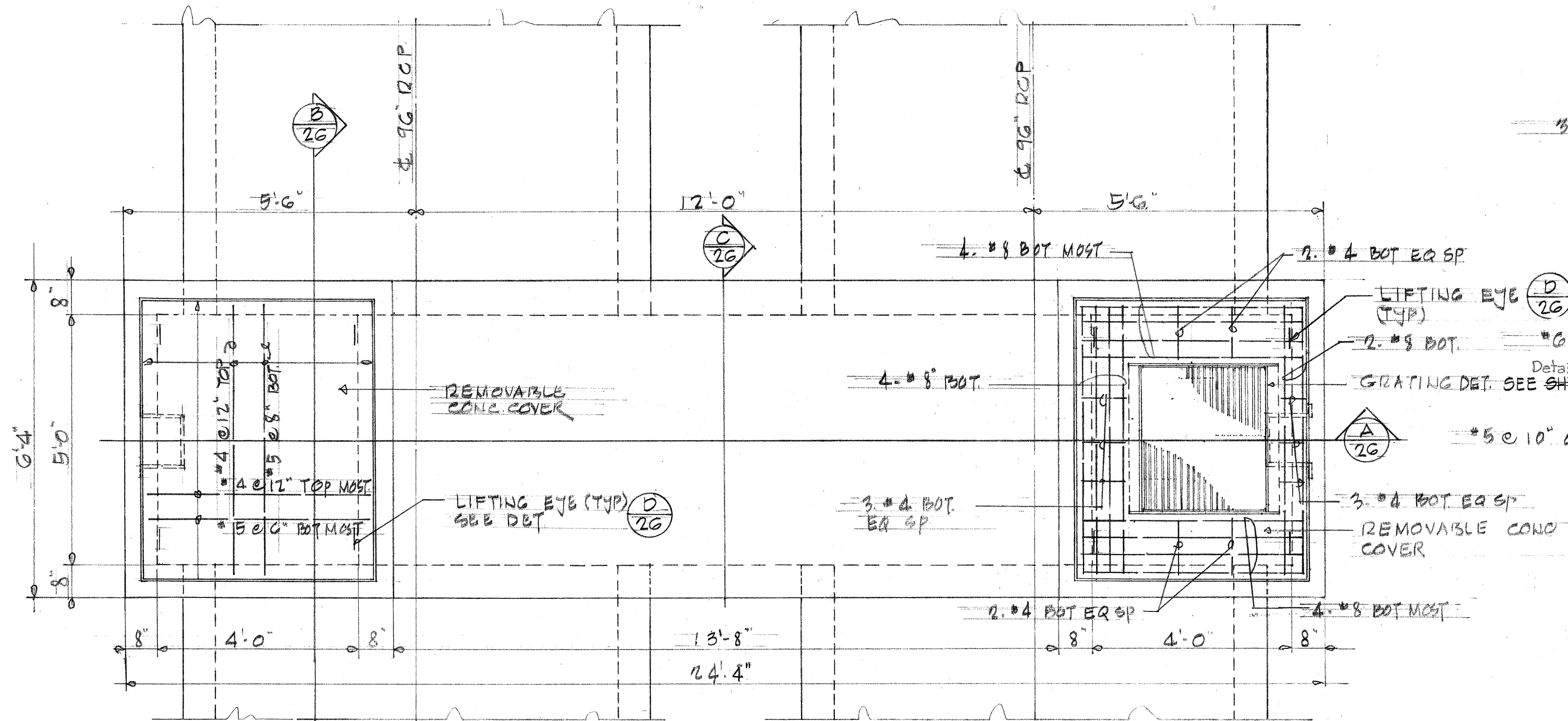
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE STRUCTURAL DETAIL
TYPE "C" PULL BOX
CB/M.H. - TYPE "G"

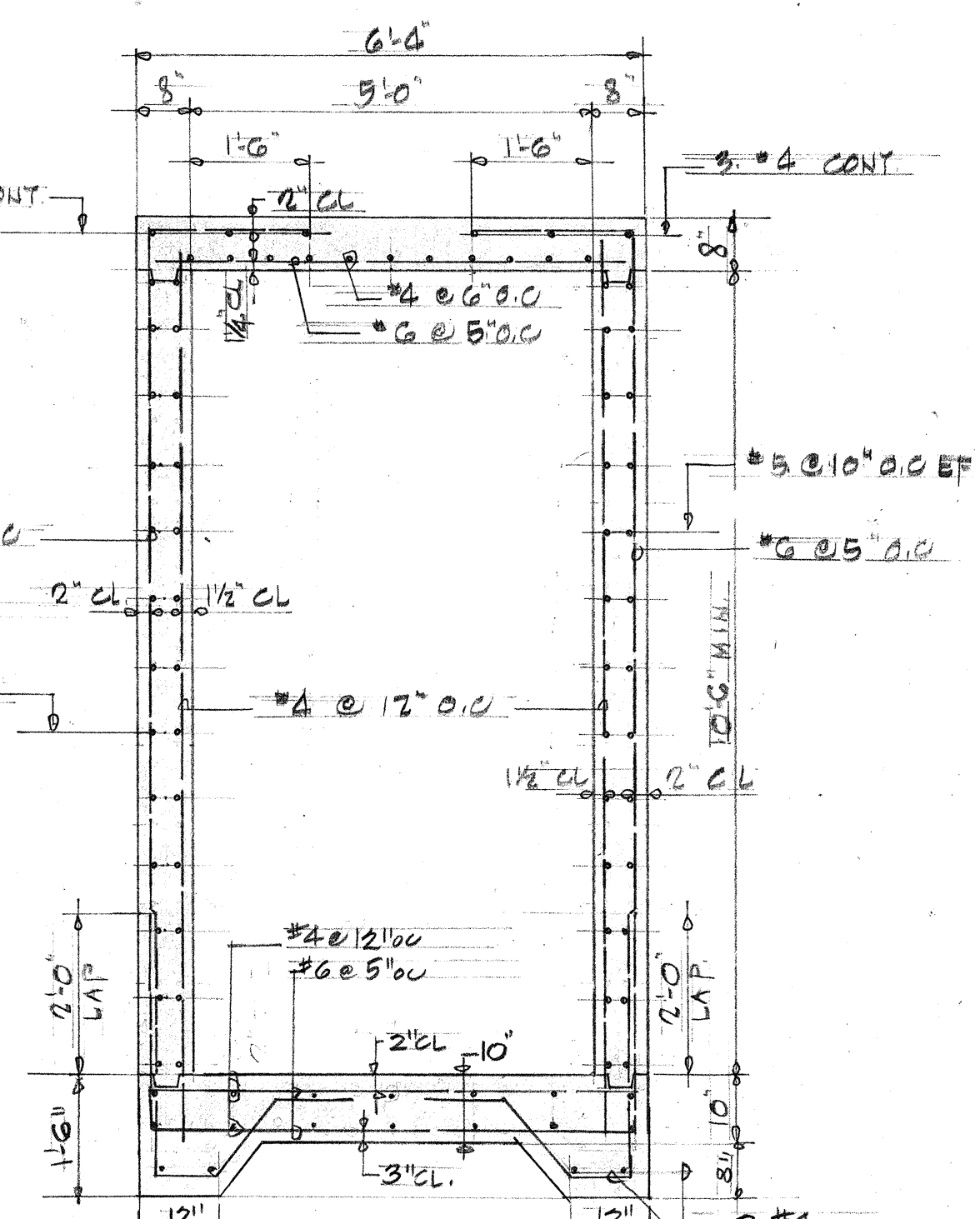
KANOELEHUA AVE.
MAKALIKA ST. TO KAMEHAMEHA AVE.
Federal Aid Project No.F-RF-011-2(13)
Scale: As Shown

SHEET No. 5 OF 7 SHEETS

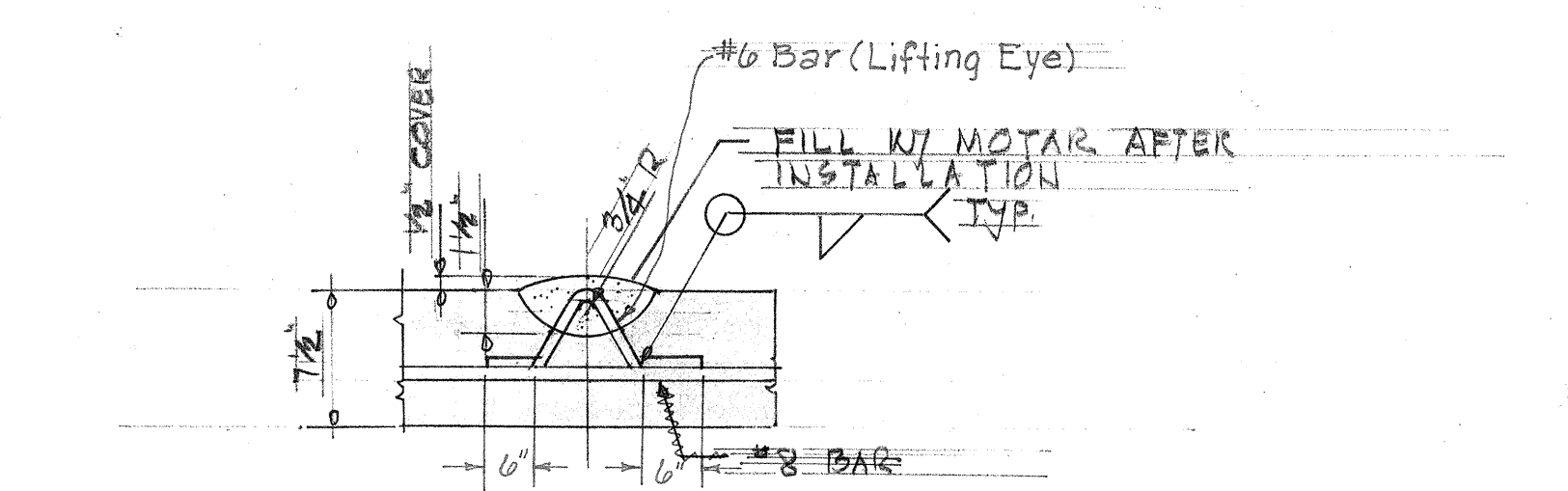
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-RF-011-2(13)	1975	26	126



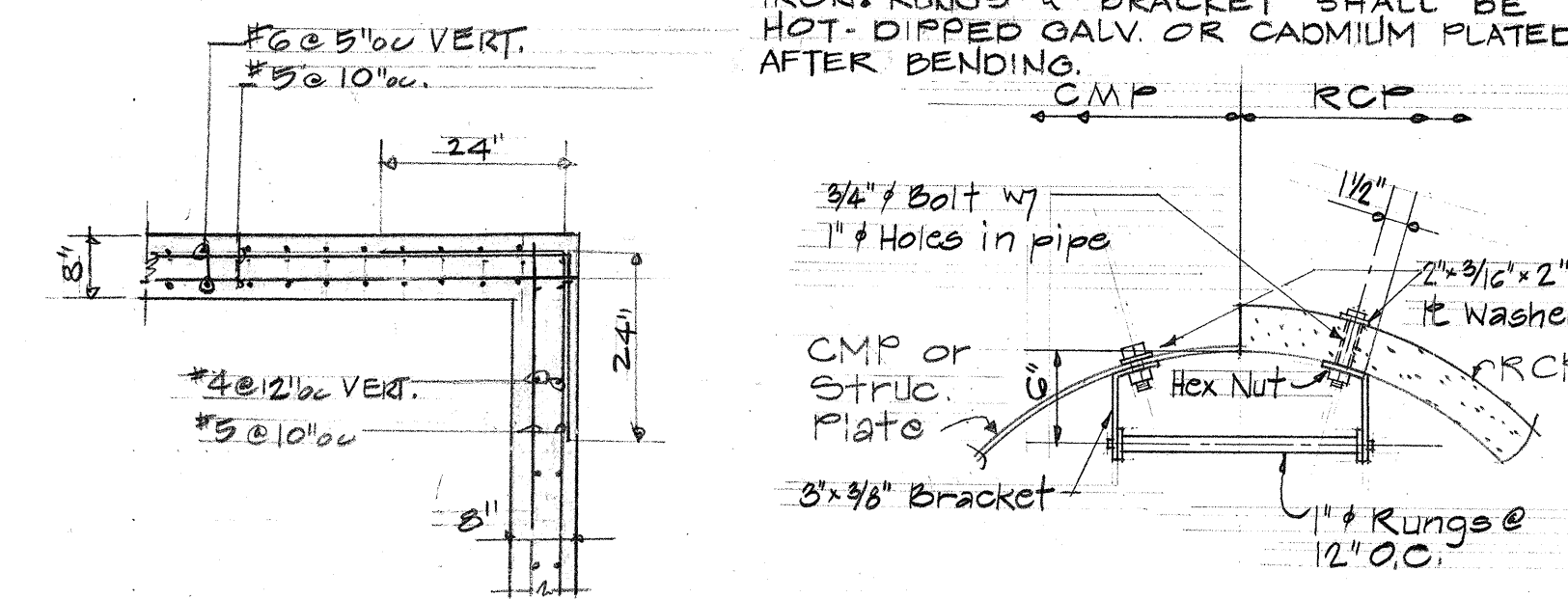
PLAN - CATCH BASIN/MANHOLE TYPE F
SCALE: 1/2" = 1'-0"



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

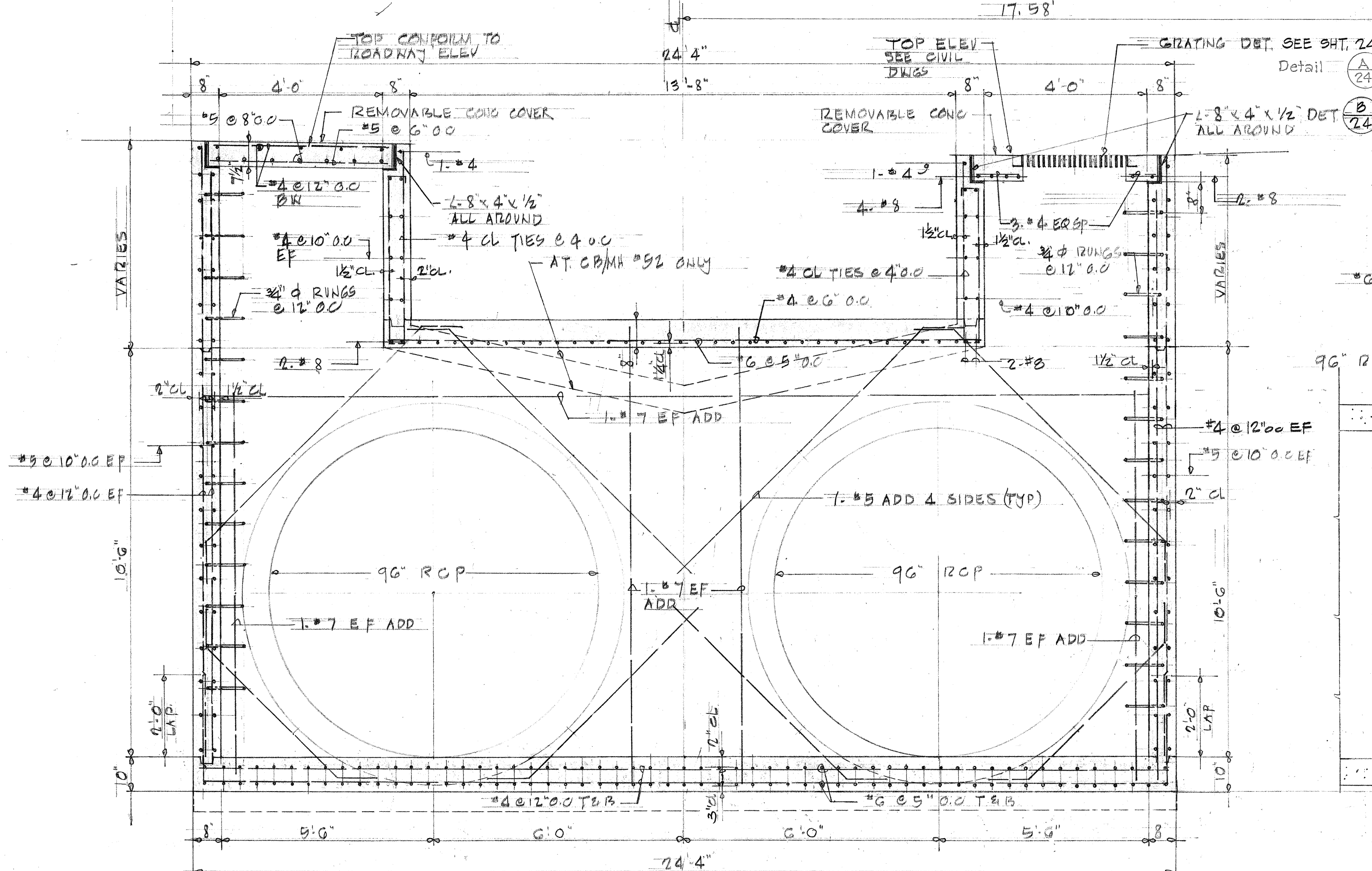


D LIFTING EYE DETAIL
SCALE: 1/2" = 1'-0"

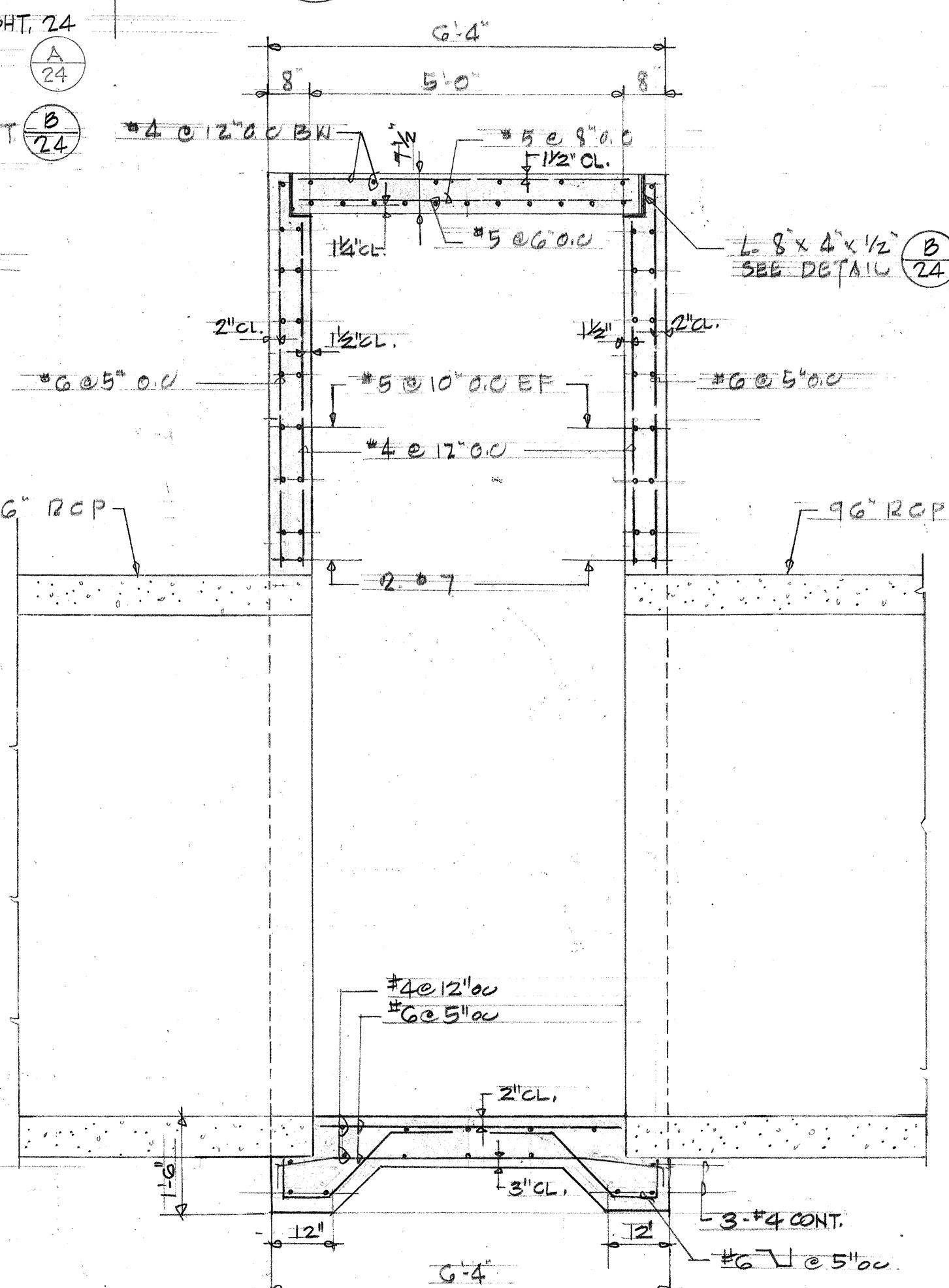


CORNER DETAIL
SCALE: 1/2" = 1'-0"

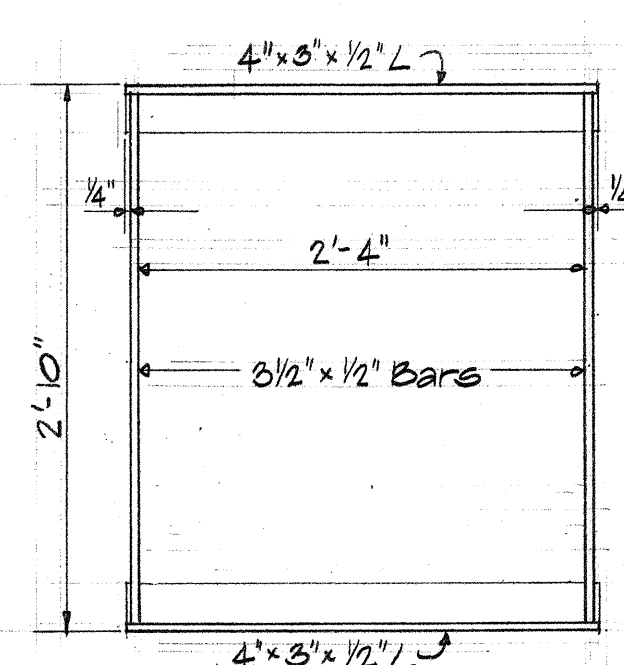
RUNG DETAIL F
SCALE: 1" = 1'-0"



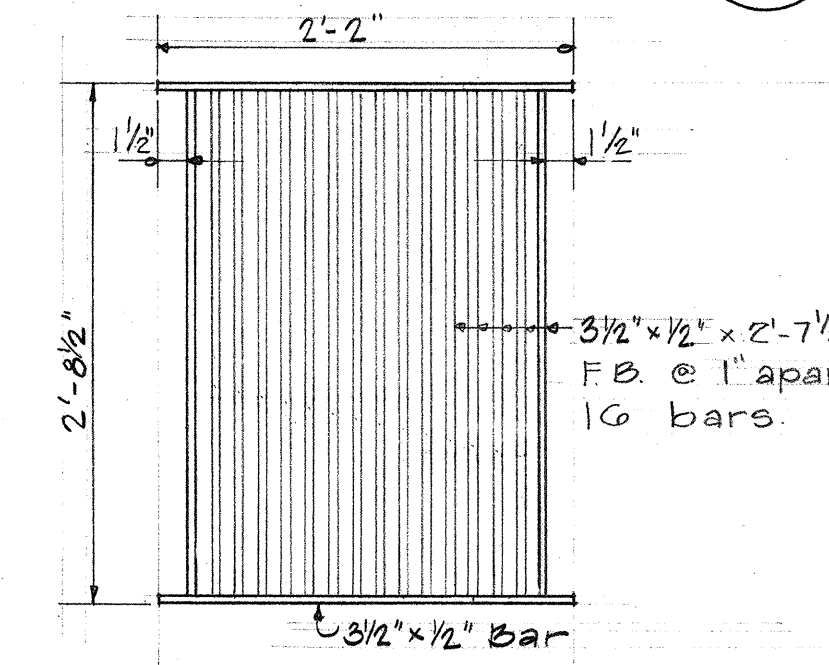
SECTION A
SCALE: 1/2" = 1'-0"



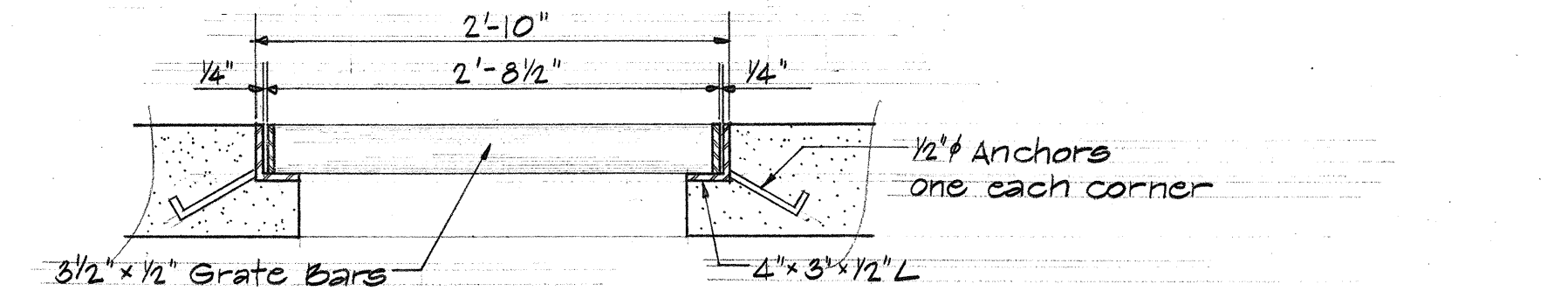
SECTION B
SCALE: 1/2" = 1'-0"



FRAME PLAN

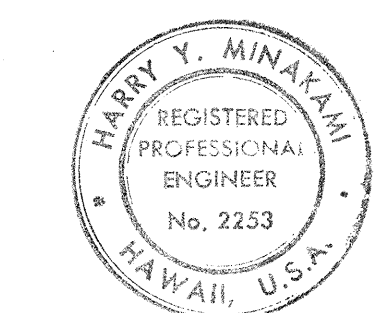


GRATE PLAN



SECTION G TYPE "D" FRAME & GRATE
SCALE: 1" = 1'-0"

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



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

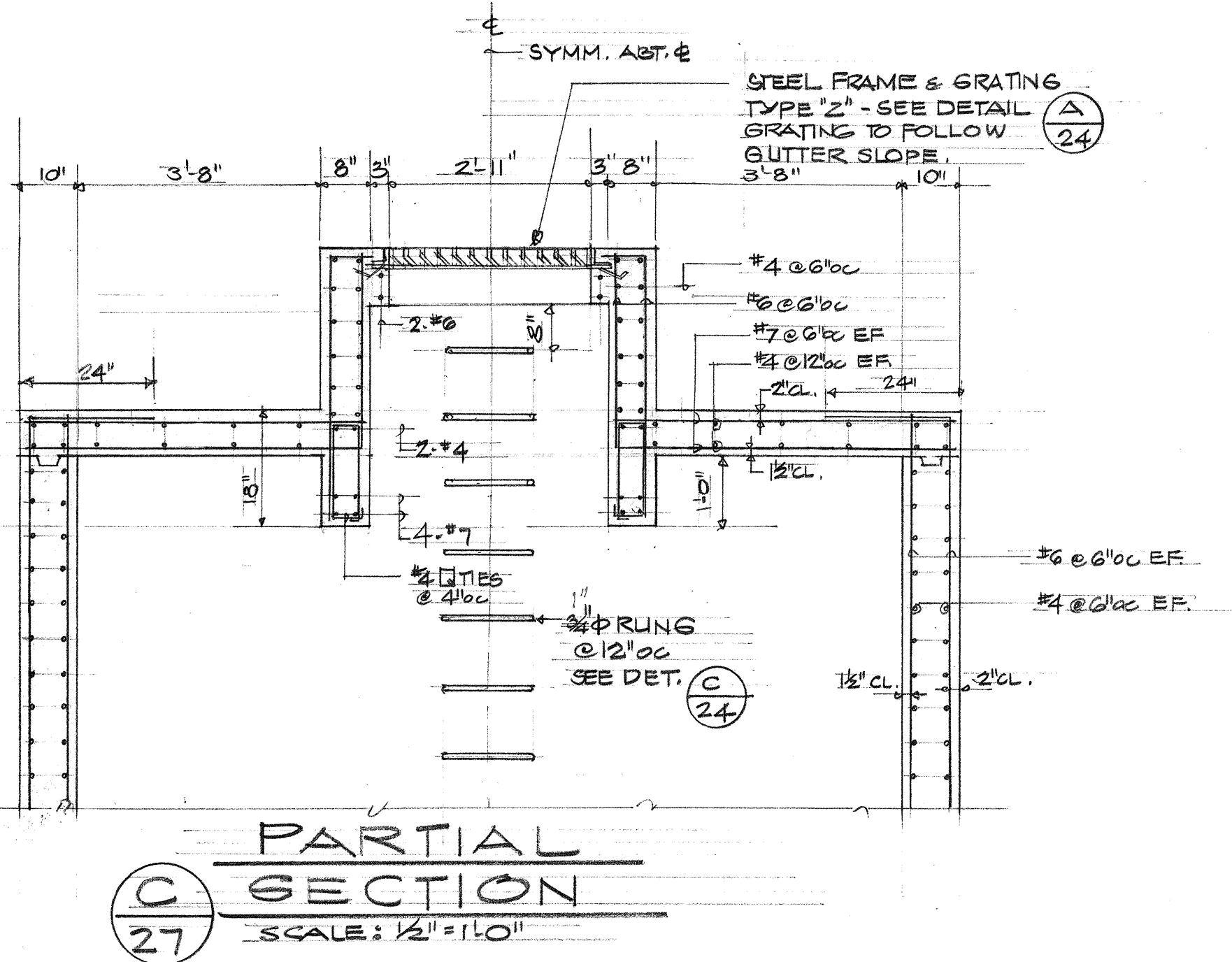
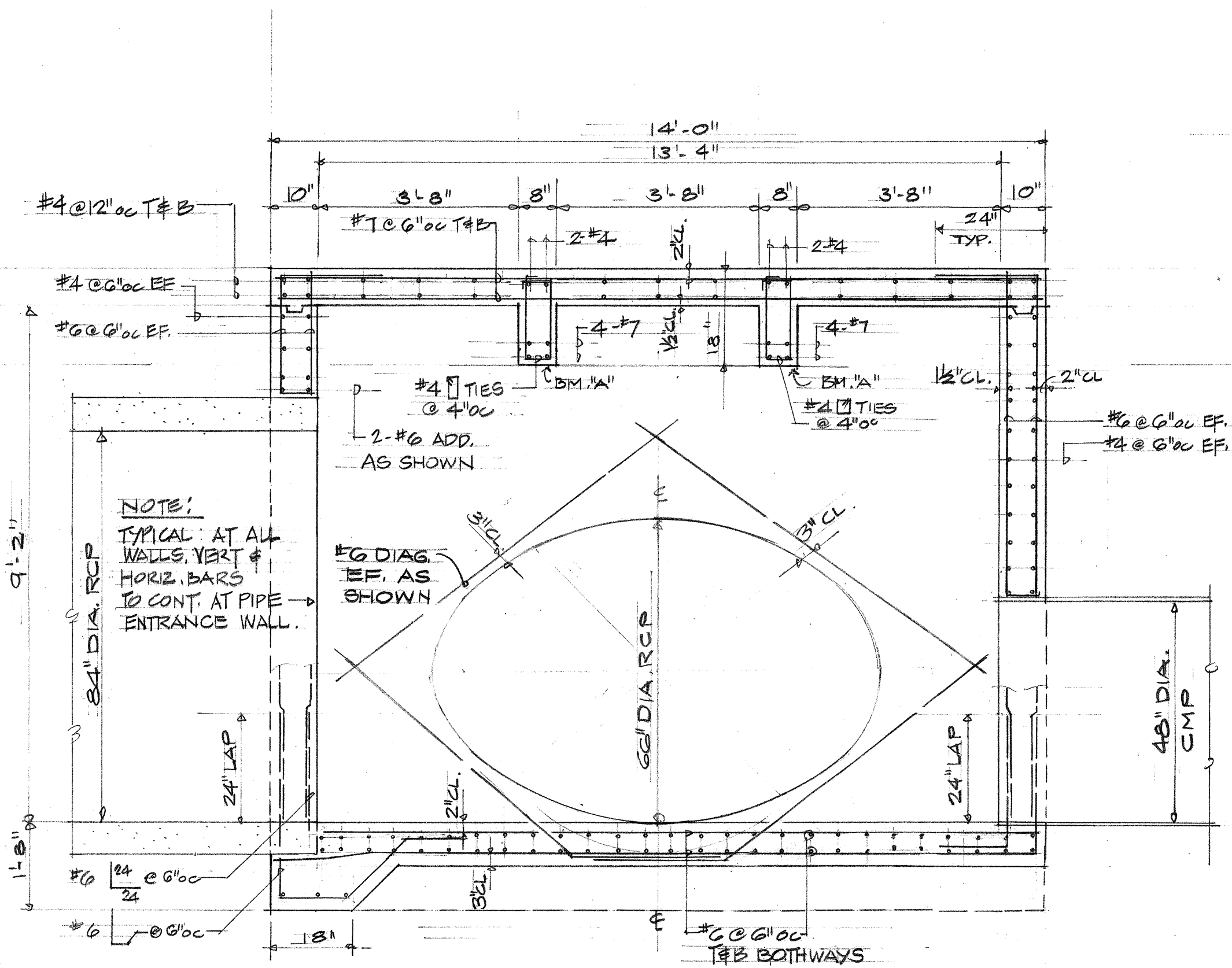
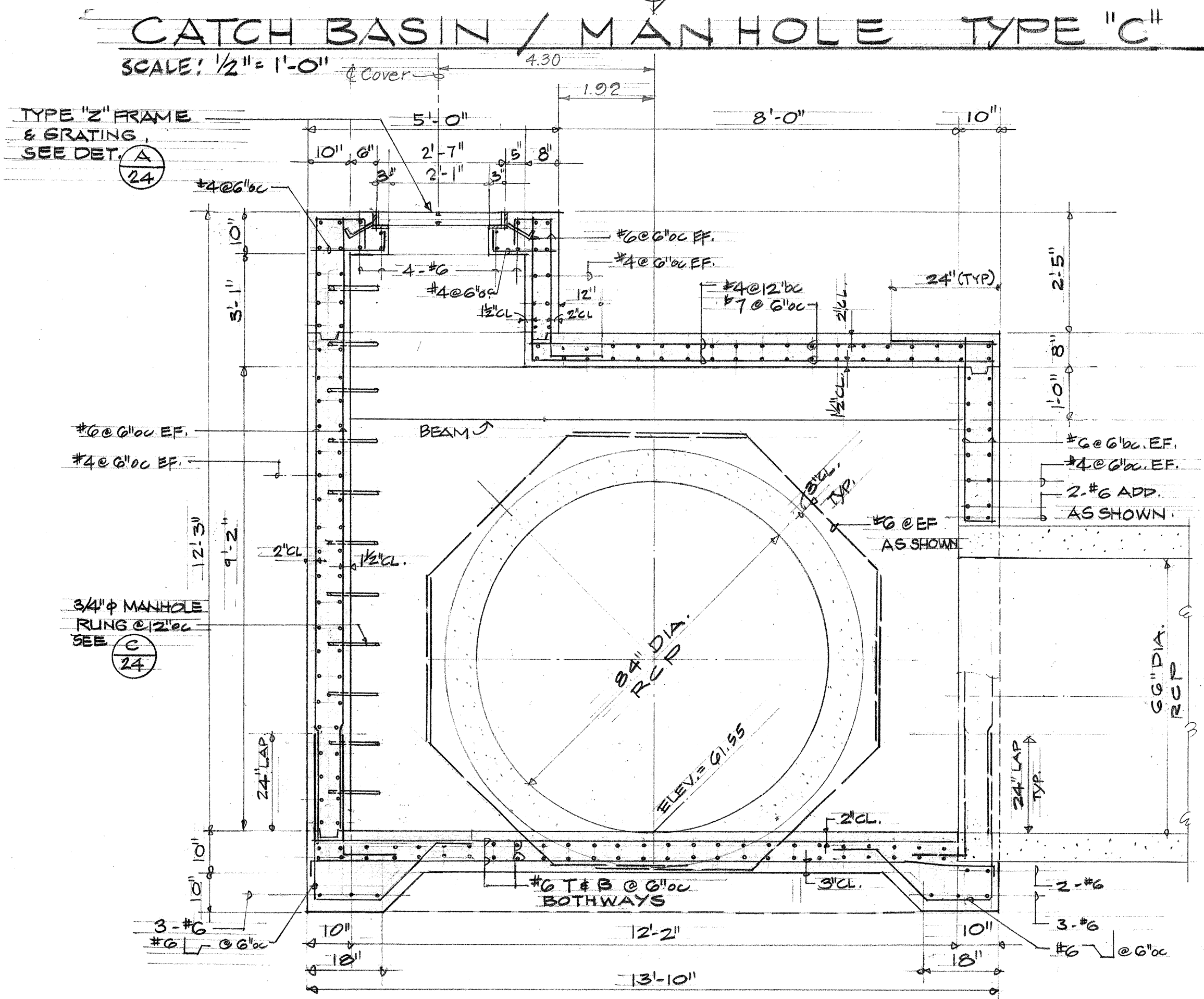
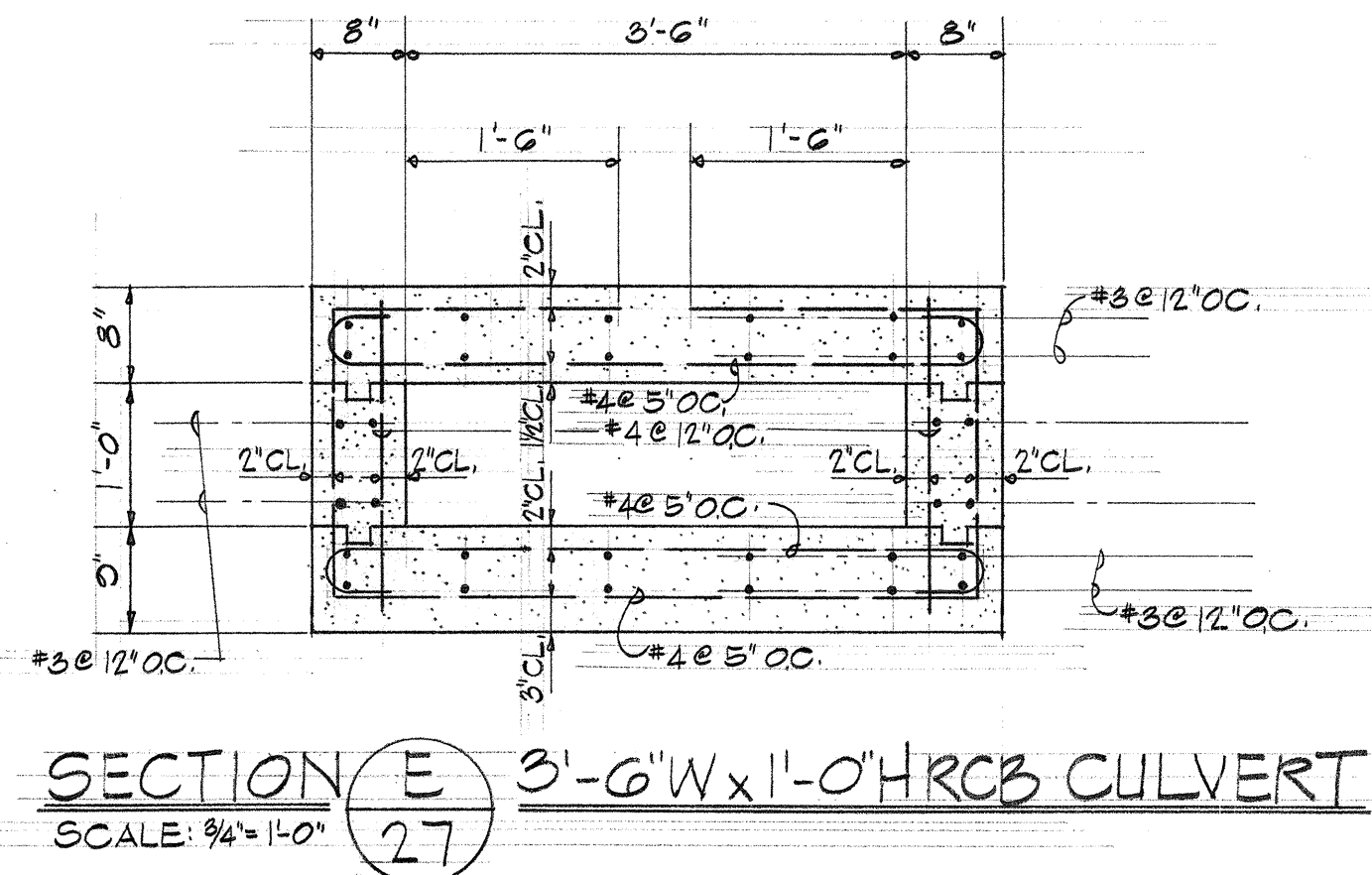
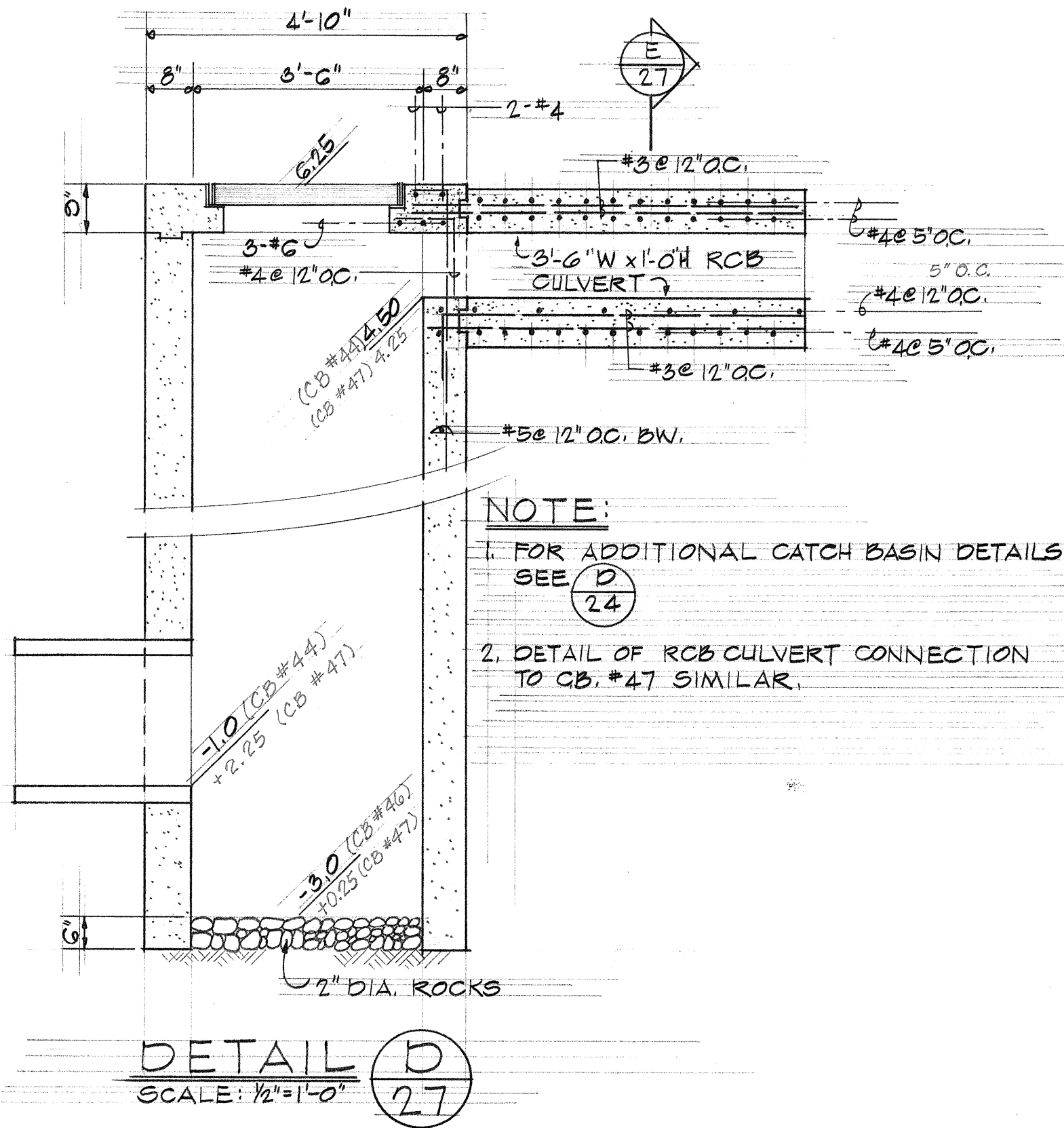
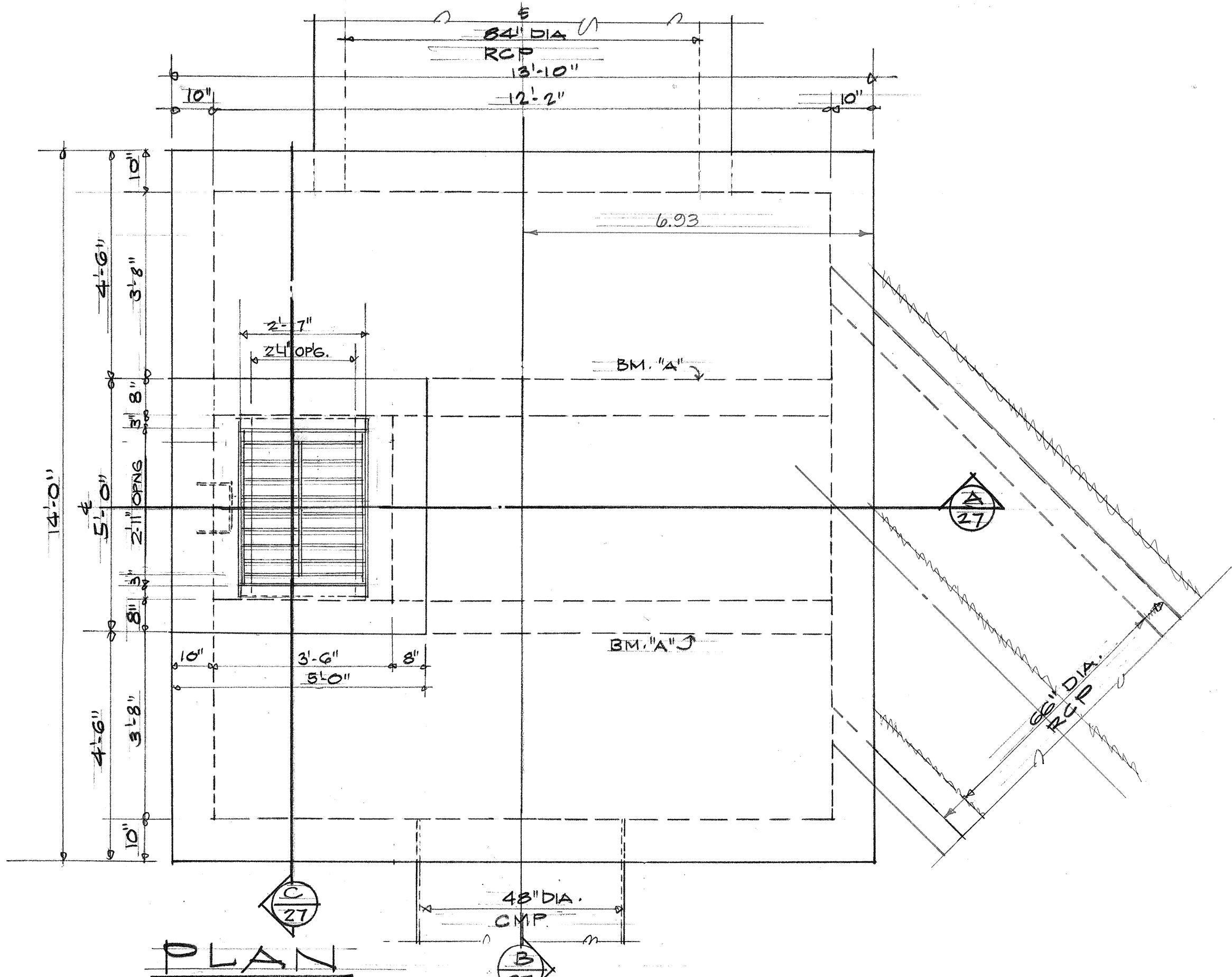
DRAINAGE STRUCTURAL DETAIL
CB/MH - TYPE "F"
TYPE "D" FRAME & GRATE

KANOELEHUA AVE.
MAKAUKA ST. TO KAMEHAMEHA AVE.
Federal Aid Project No. F-RF-011-2(13)
Scale: As Shown

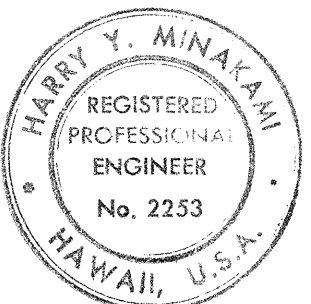
SHEET No. 6 OF 7 SHEETS

This work was prepared by me or under my supervision.
Harry Y. Minakami

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-RF-011-2(13)	1975	27	126



DATE	
DESIGNED BY	
CHECKED BY	
NOTED BY	
ORIGINAL PLAN	
NO.	



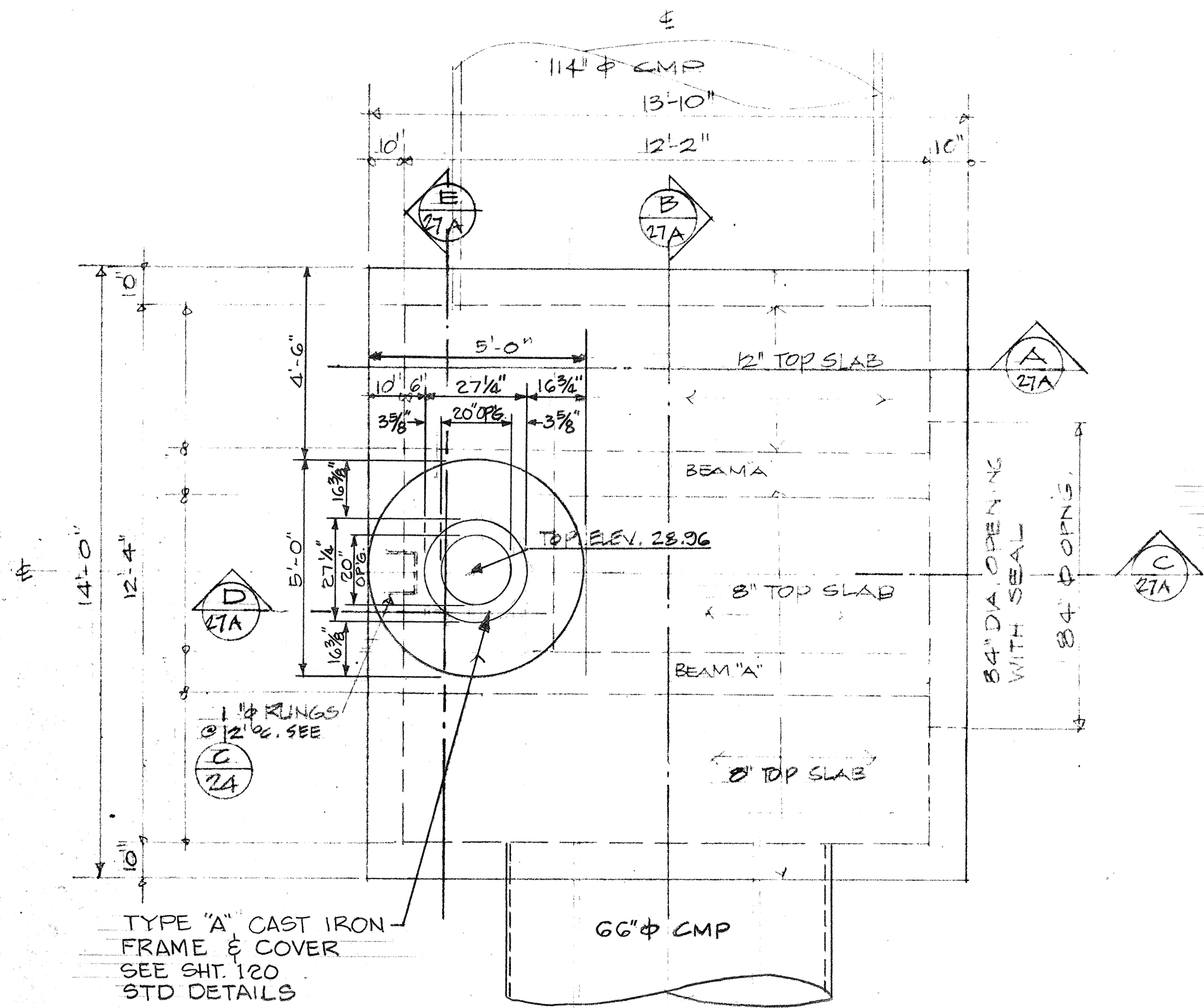
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CATCH BASIN / MANHOLE TYPE 'C'
3'-6" W X 1'-0" H RC BOX CULVERT

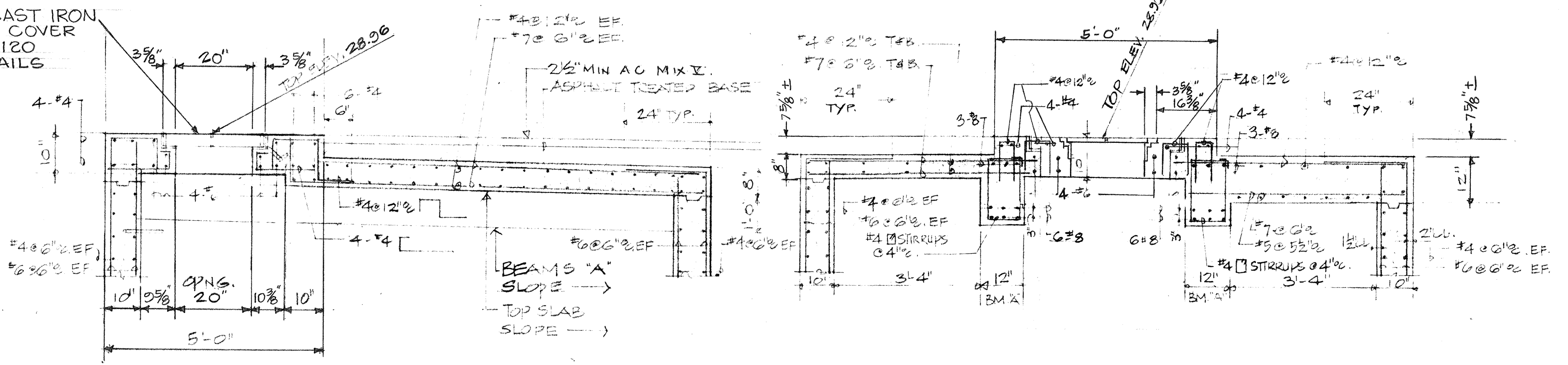
KAOELEHUA AVE.
MAKALIIKA ST. TO KAMEHAMEHA AVE.
Federal Aid Project No. F-RF-011-2(13)
Scale: As Shown.

SHEET No. 7 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-12 P. 011-2(13)	1975	27A	125



TYPE "A" CAST IRON
FRAME & COVER
SEE SHT. 120
STD. DETAILS

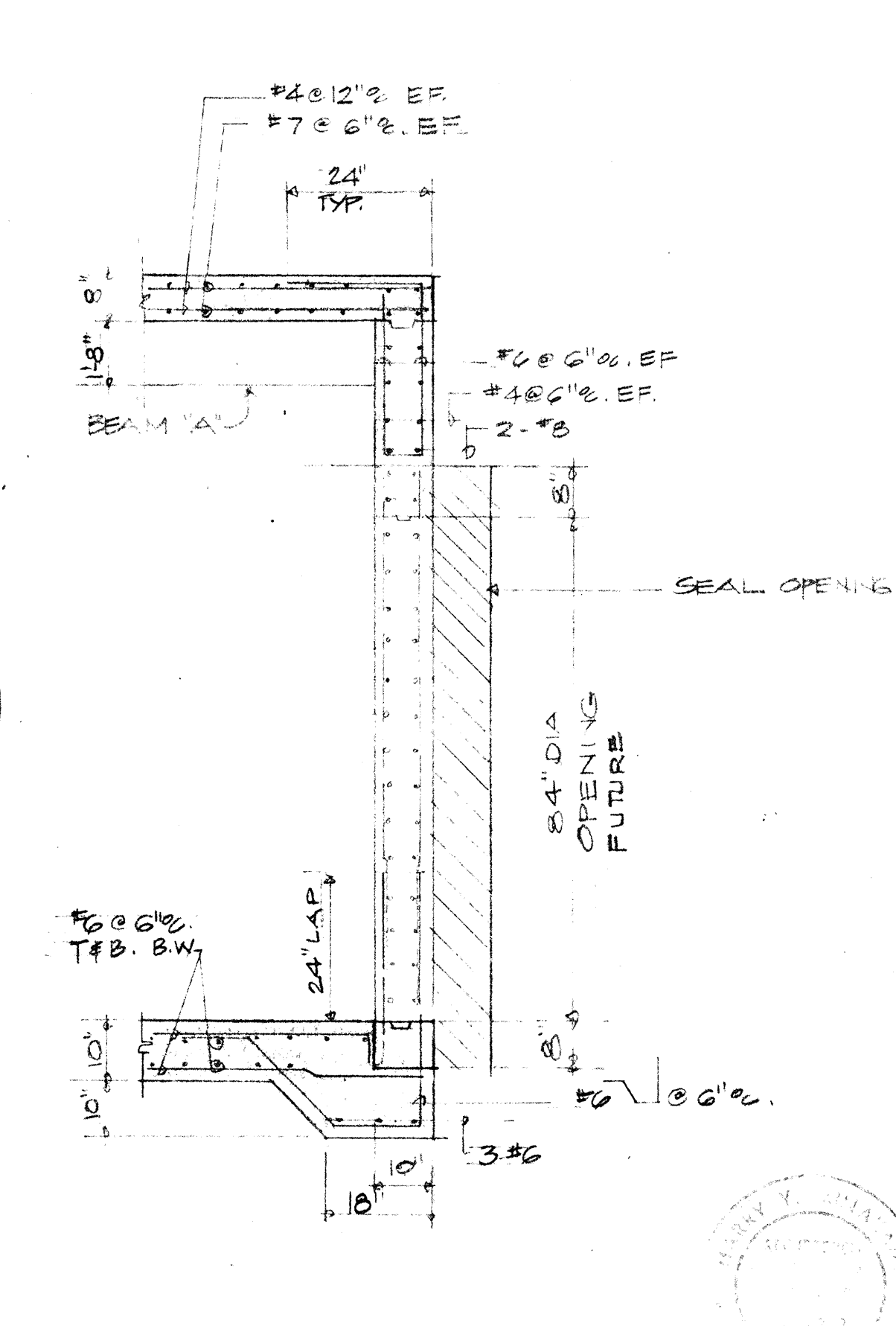
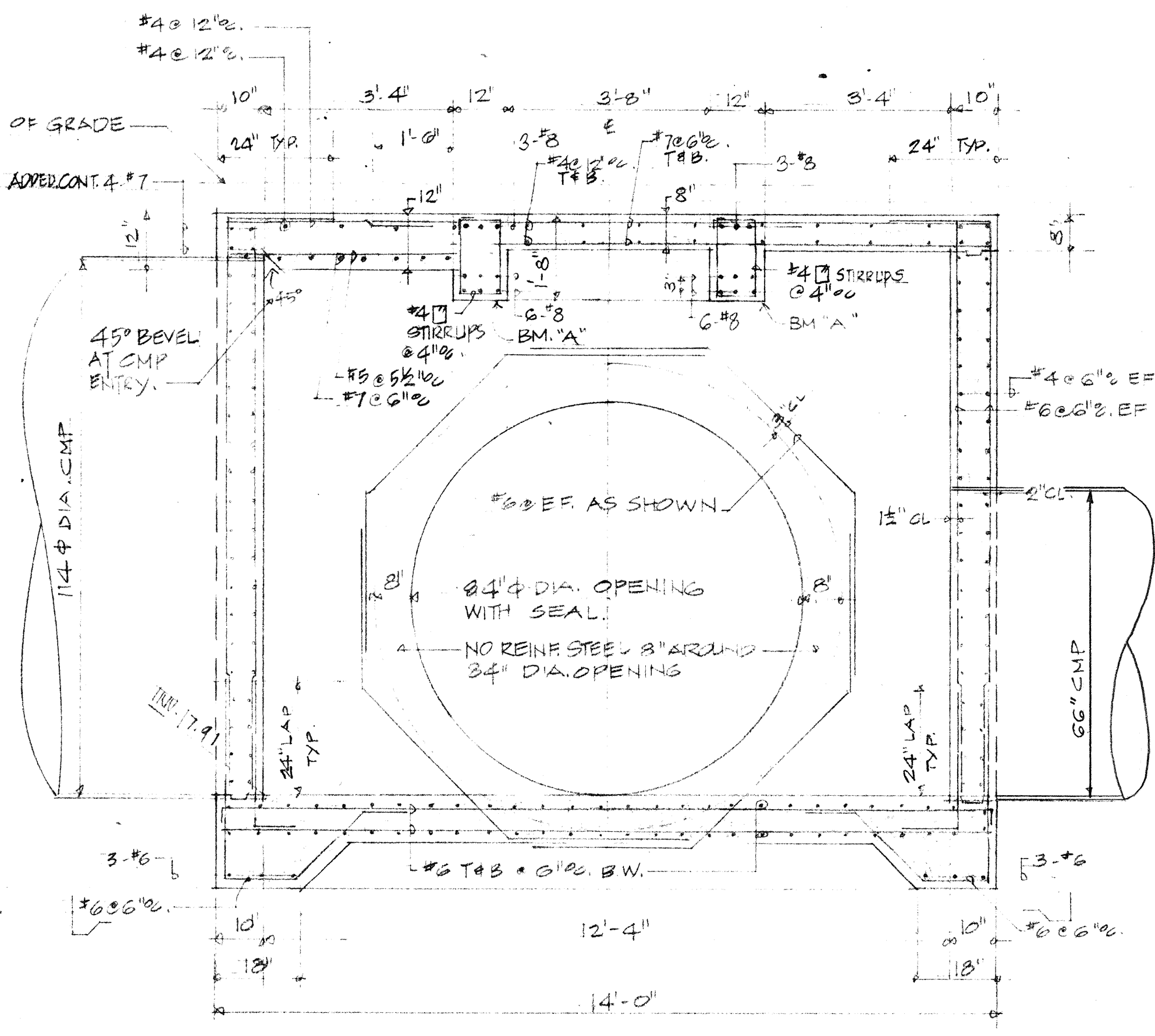
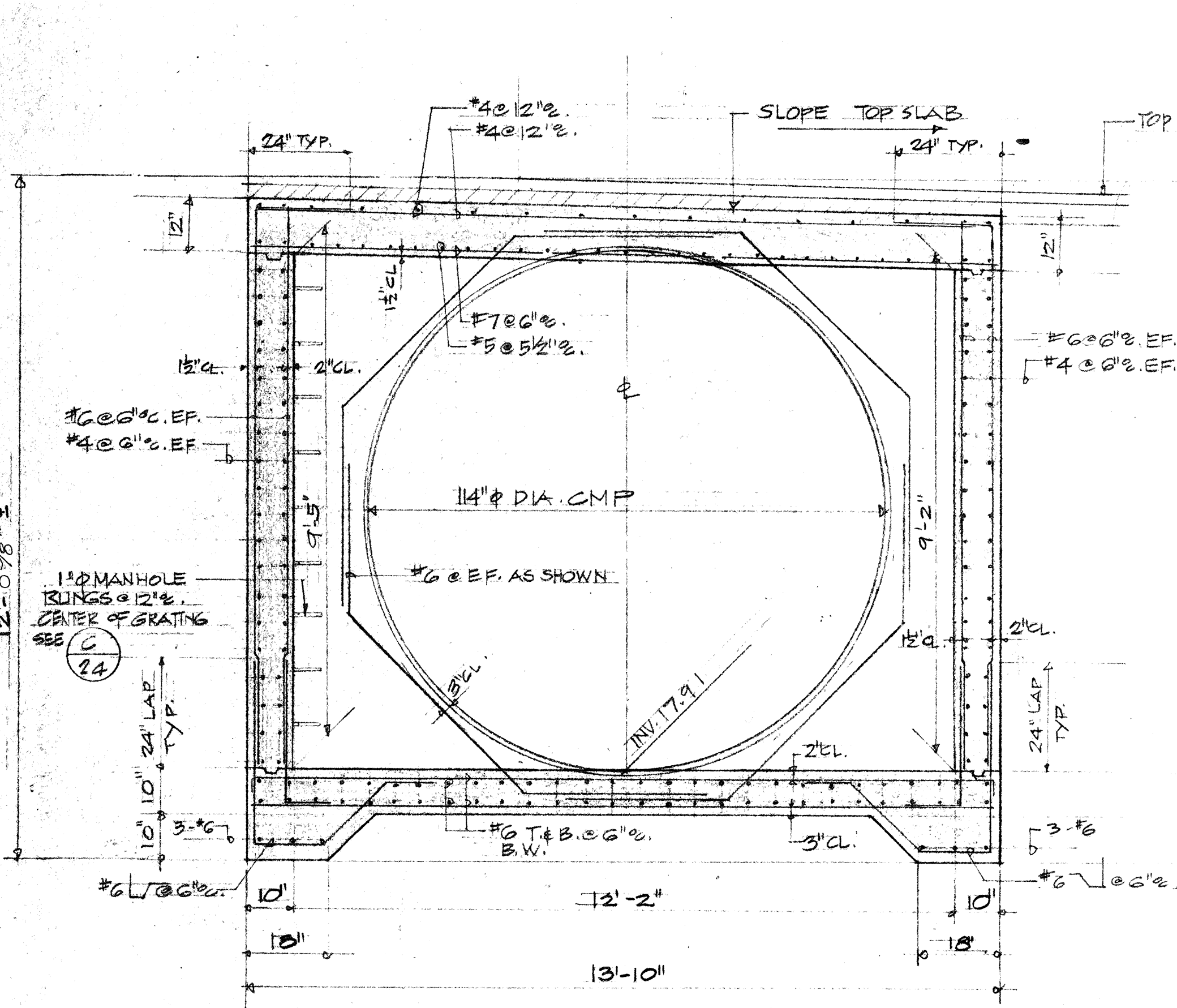


PLAN - SCALE: 3/8" = 1'-0"

CATCH BASIN/MANHOLE - TYPE "C"

D SECTION - SCALE: 1/2" = 1'-0"

E SECTION - SCALE: 1/2" = 1'-0"



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

B SECTION - SCALE: 1/2" = 1'-0"

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

REVISED DETAILS FOR TYPE "C"
CB/MH. @ STA. 61+30
REVISED 1-22-76

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CATCH BASIN/MANHOLE TYPE "C"

KANOELEHUA AVE.
MAKALIKA ST. TO KAMEHAMEHA AVE.
Federal Aid Project No. F.R.F. 011-2(13)
Scale: As Shown.

SHEET No. 1 OF 1 SHEETS

27A