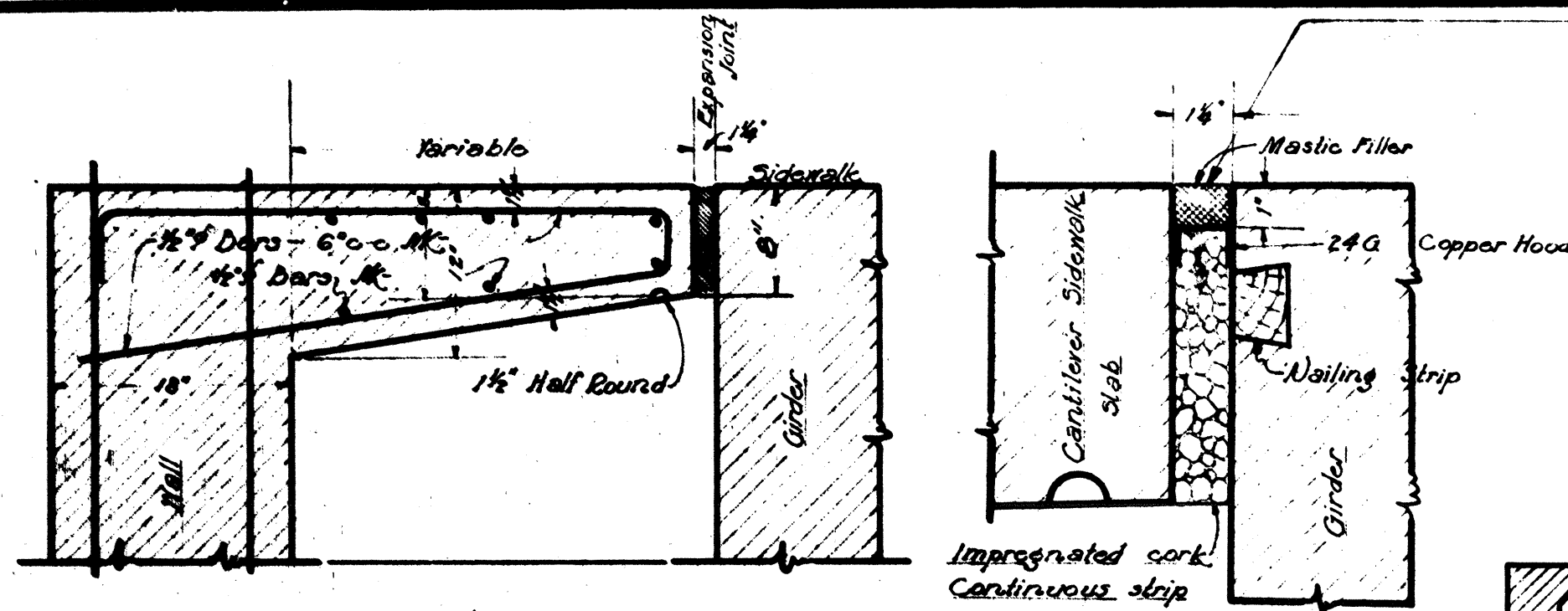
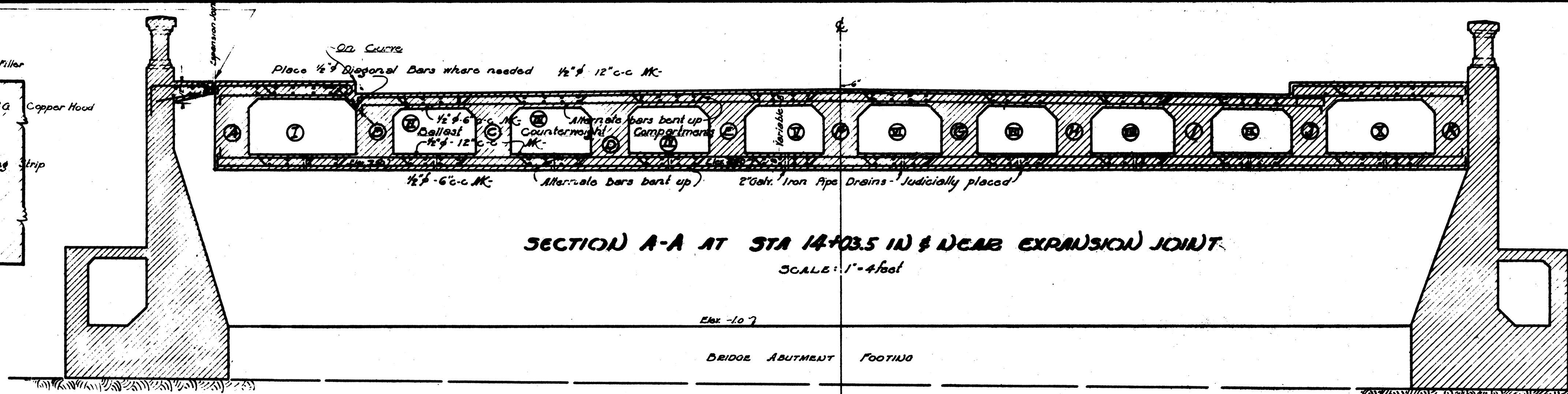
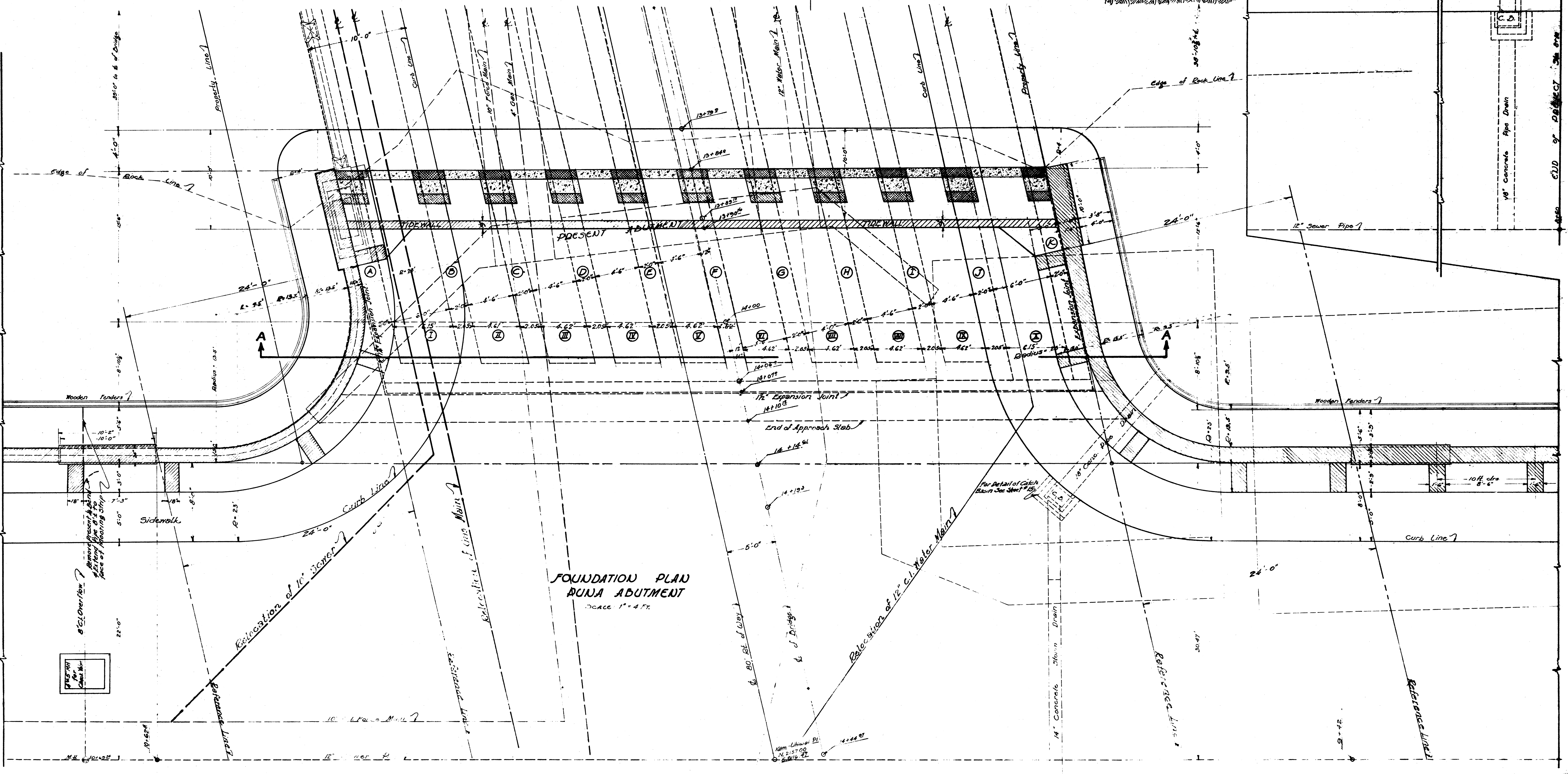




DETAIL OF SIDEWALK JOINT
SCALE: 1" = 3'-0" = 1 foot

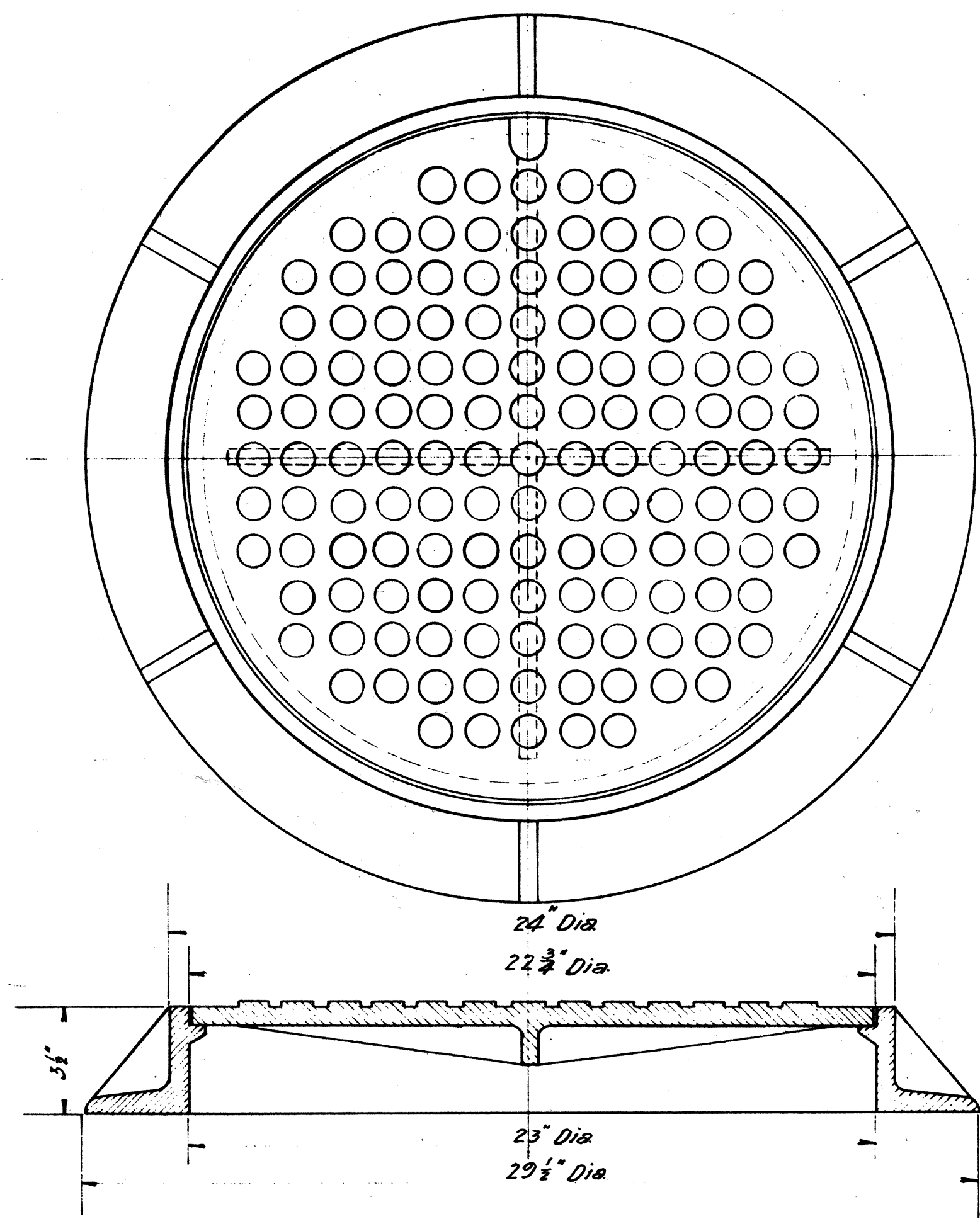


SECTION A-A AT STA 14+03.5 IN & NEAR EXPANSION JOINT
SCALE: 1" = 4 feet

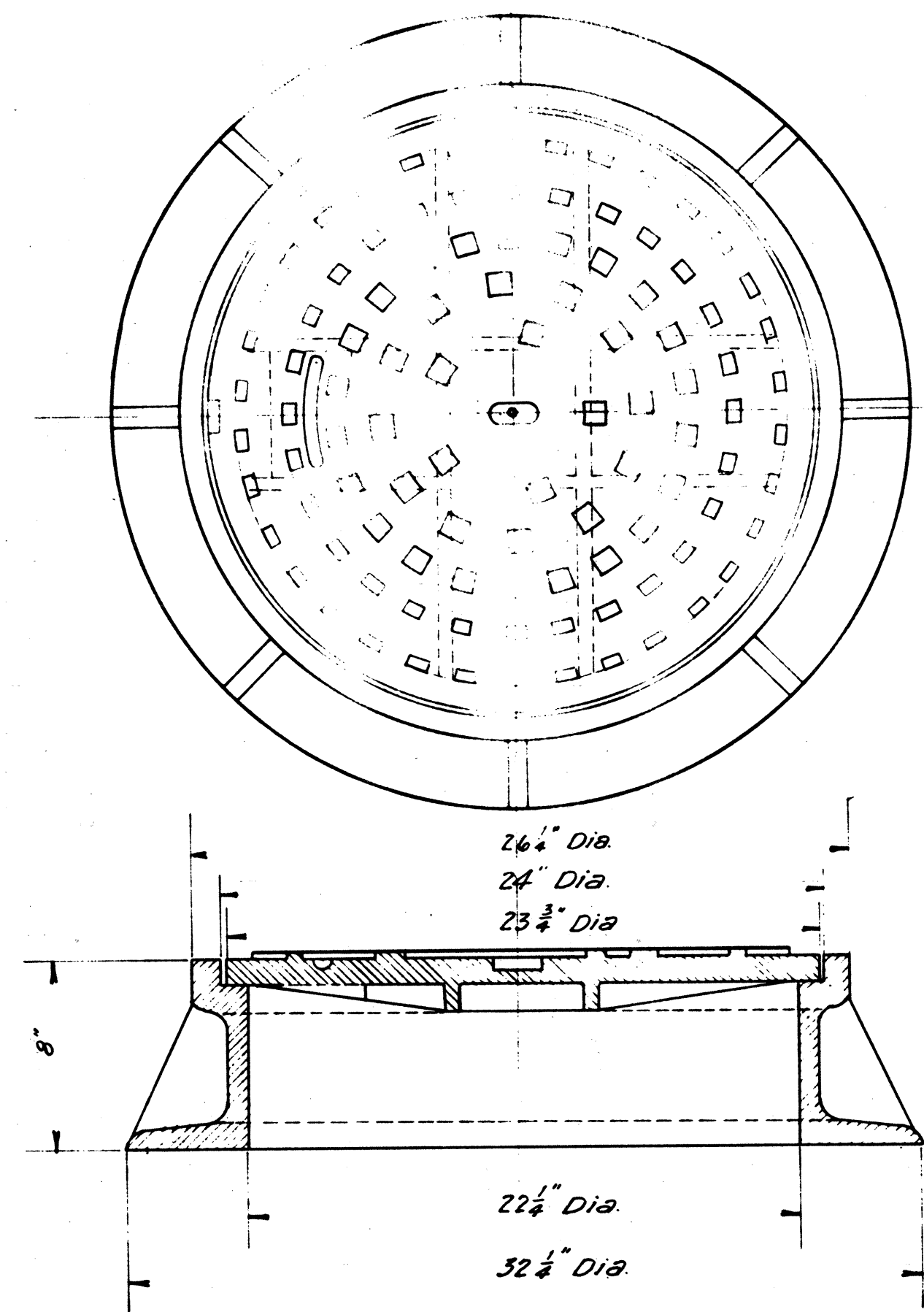


FOUNDATION PLAN
RUNA ABUTMENT
SCALE: 1" = 4 feet

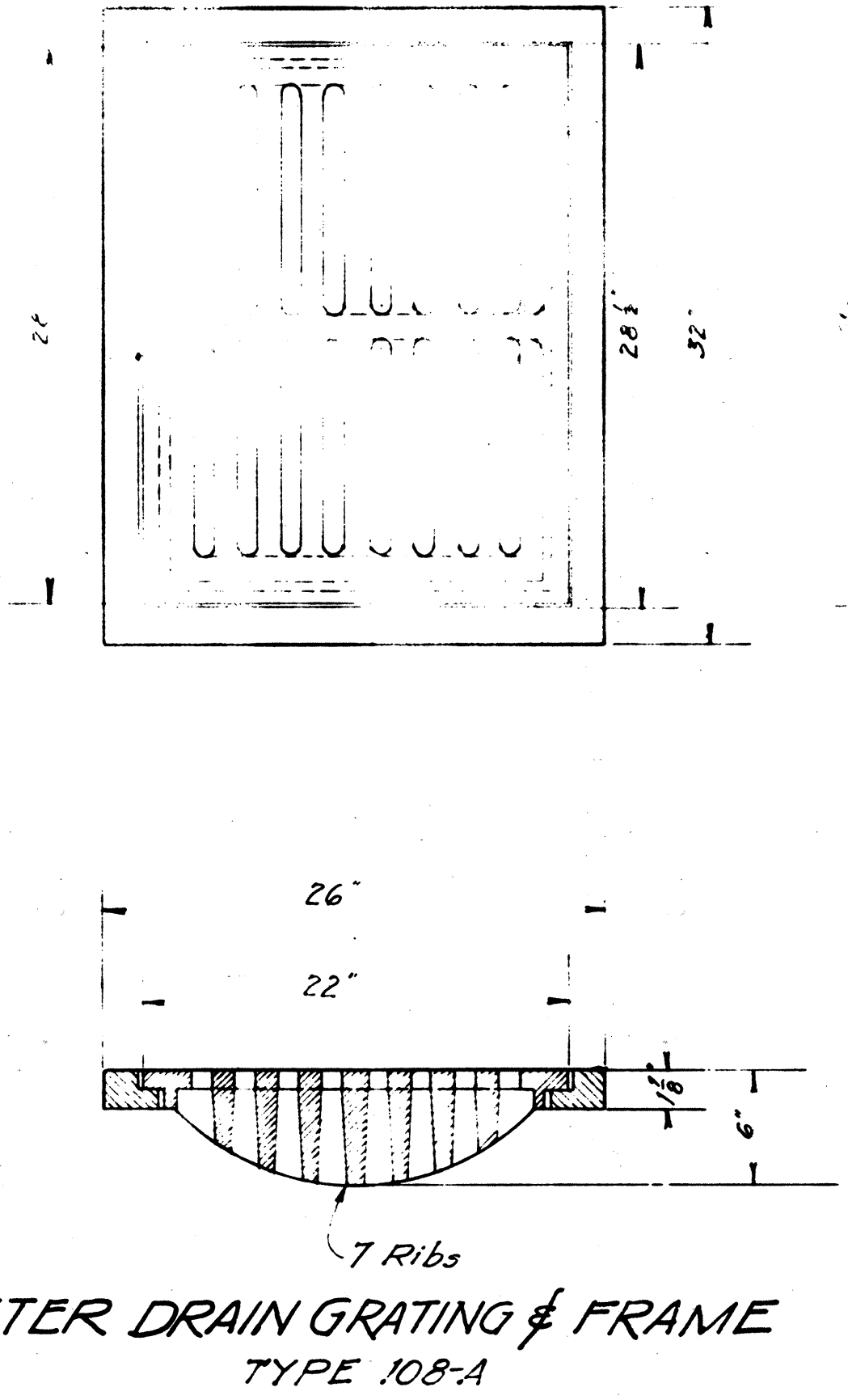
PLAN	DATE
DESIGNED	
CHECKED	
NOTED	
BY	
NO.	



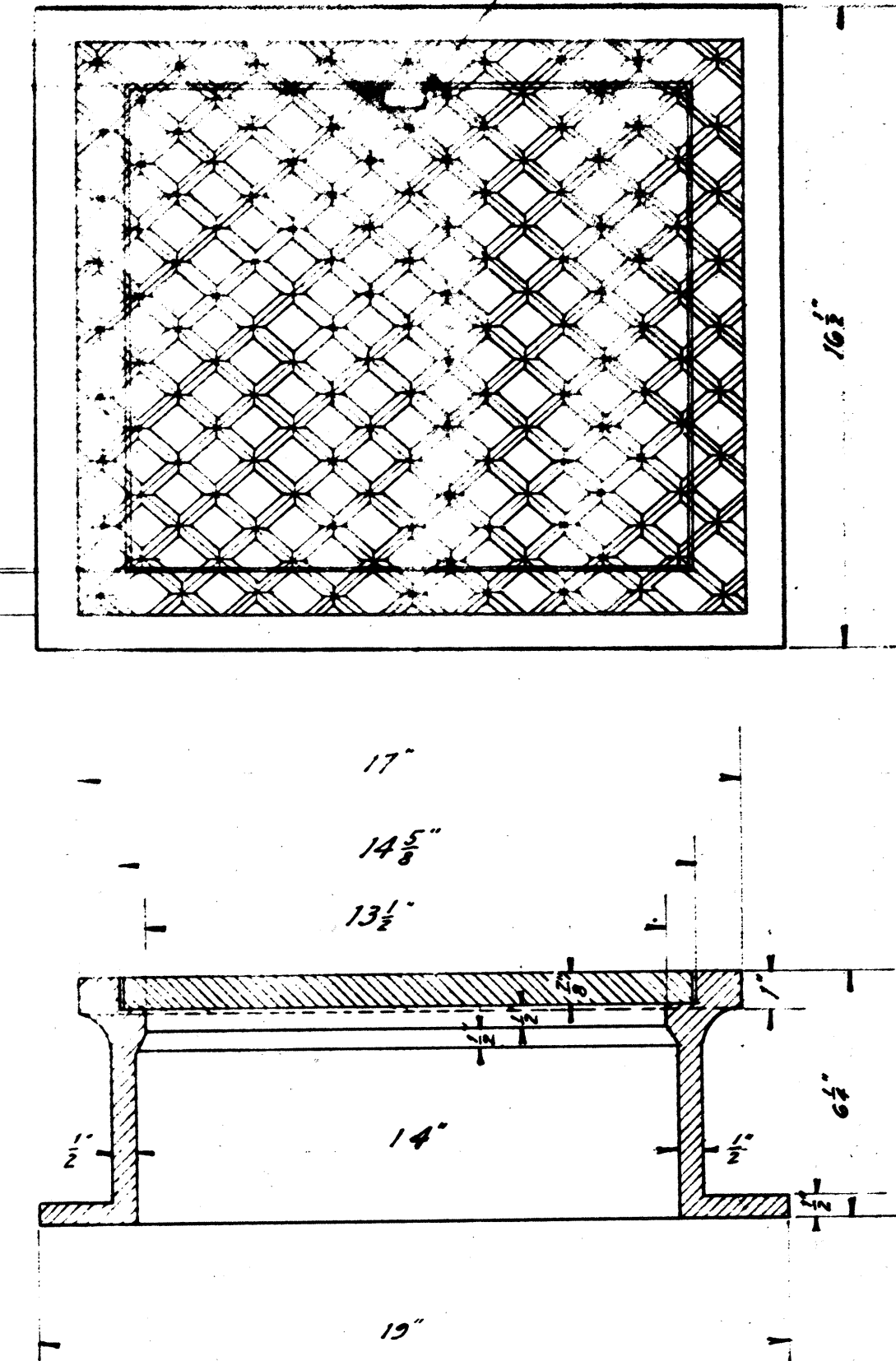
MOORING STRIP MANHOLE
TYPE 103



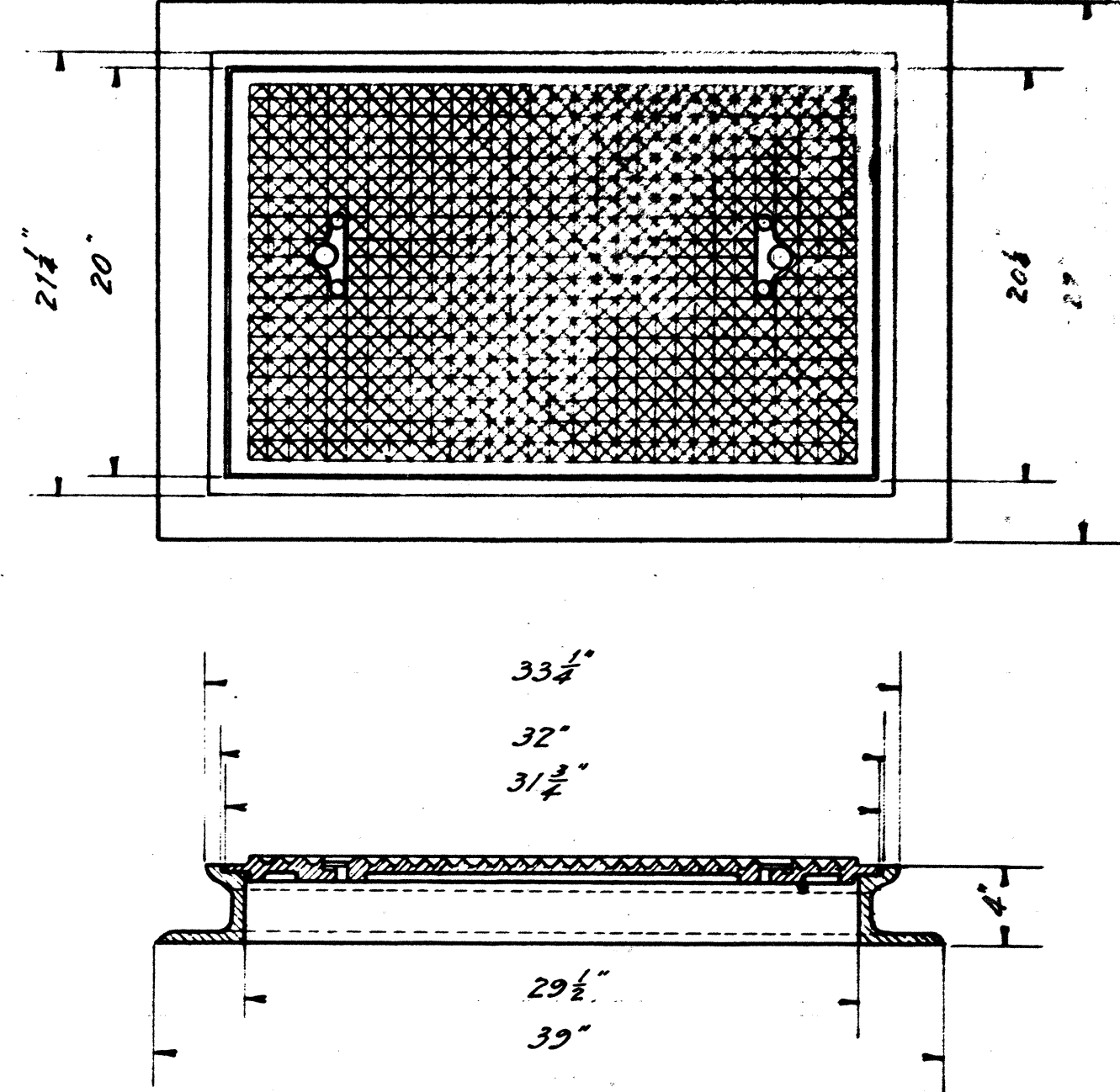
STREET MANHOLE
TYPE 104



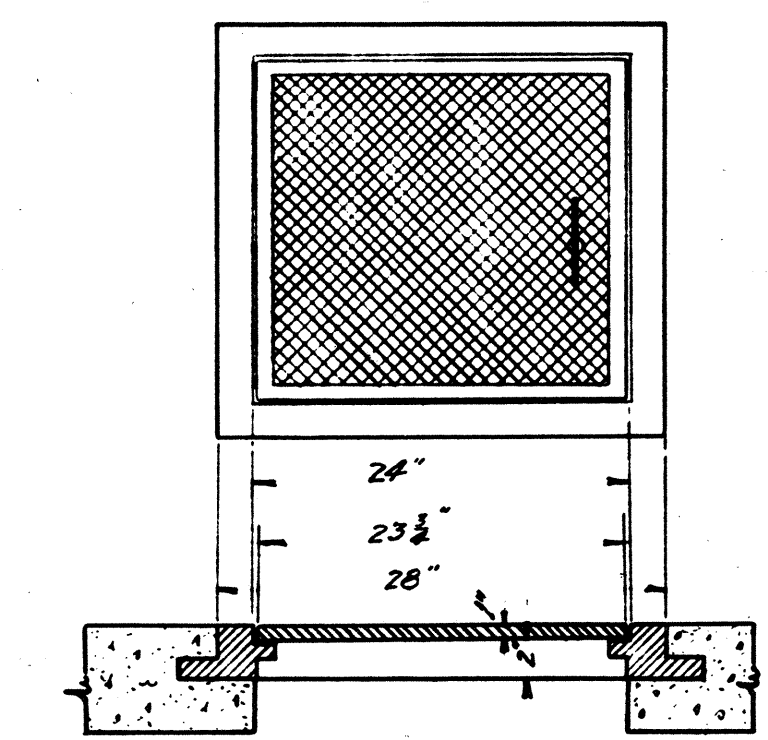
GUTTER DRAIN GRATING & FRAME
TYPE 108-A



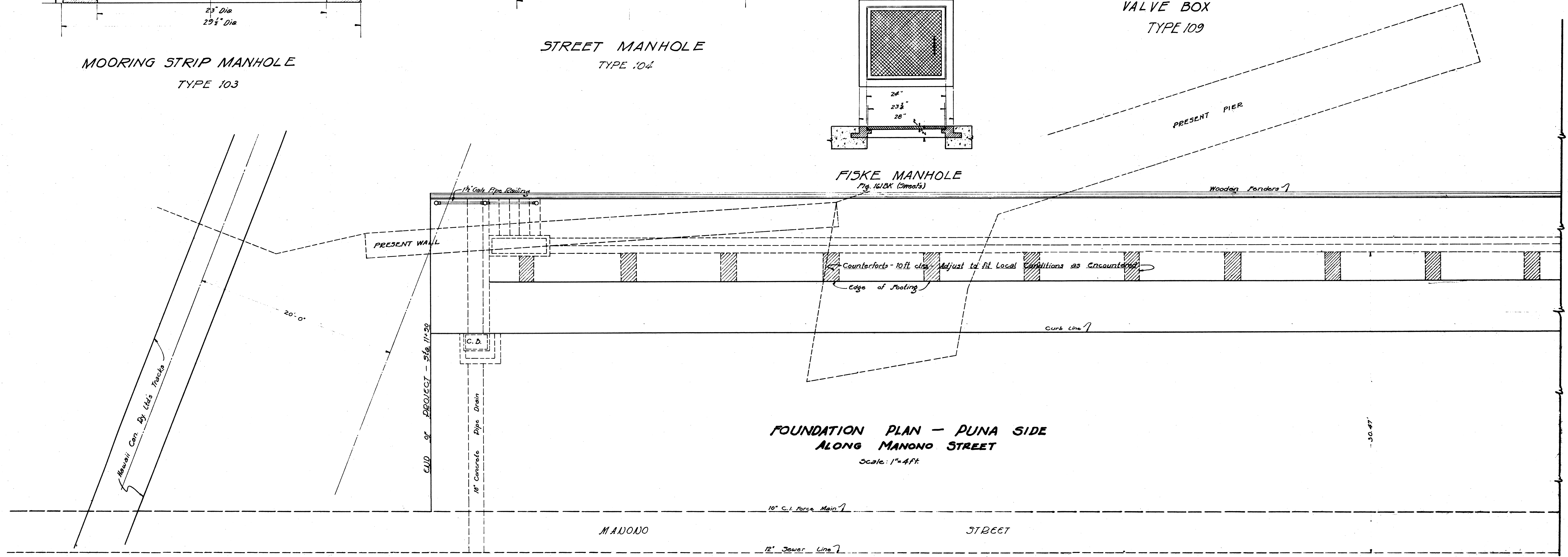
VALVE BOX
TYPE 109



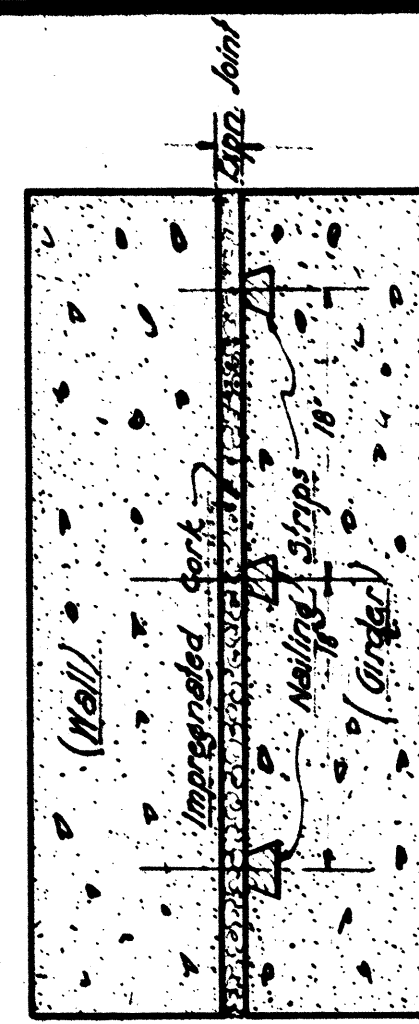
WATER VALVE & METER BOX
TYPE 110



FISKE MANHOLE
Type 108-B (Smooth)

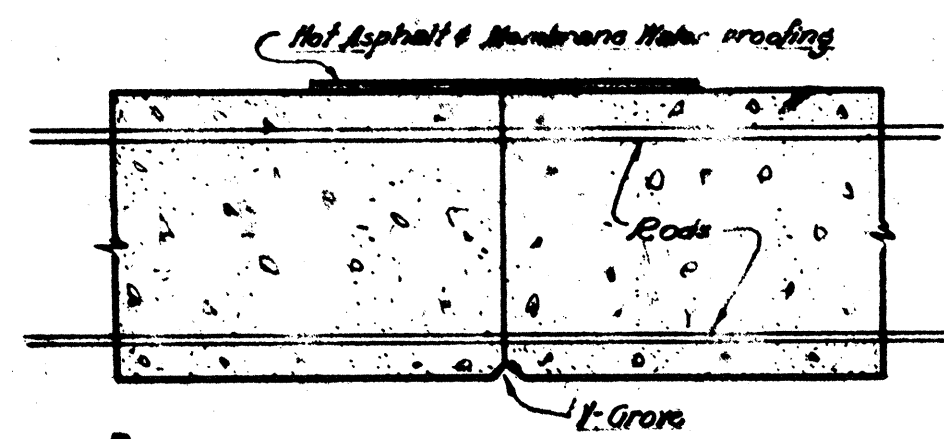


FOUNDATION PLAN - PUNA SIDE
ALONG MANONO STREET
Scale: 1" = 4 ft.



TYPICAL EXPANSION JOINT
BET WALL & GIRDER

Scale: 1" = 1/2'



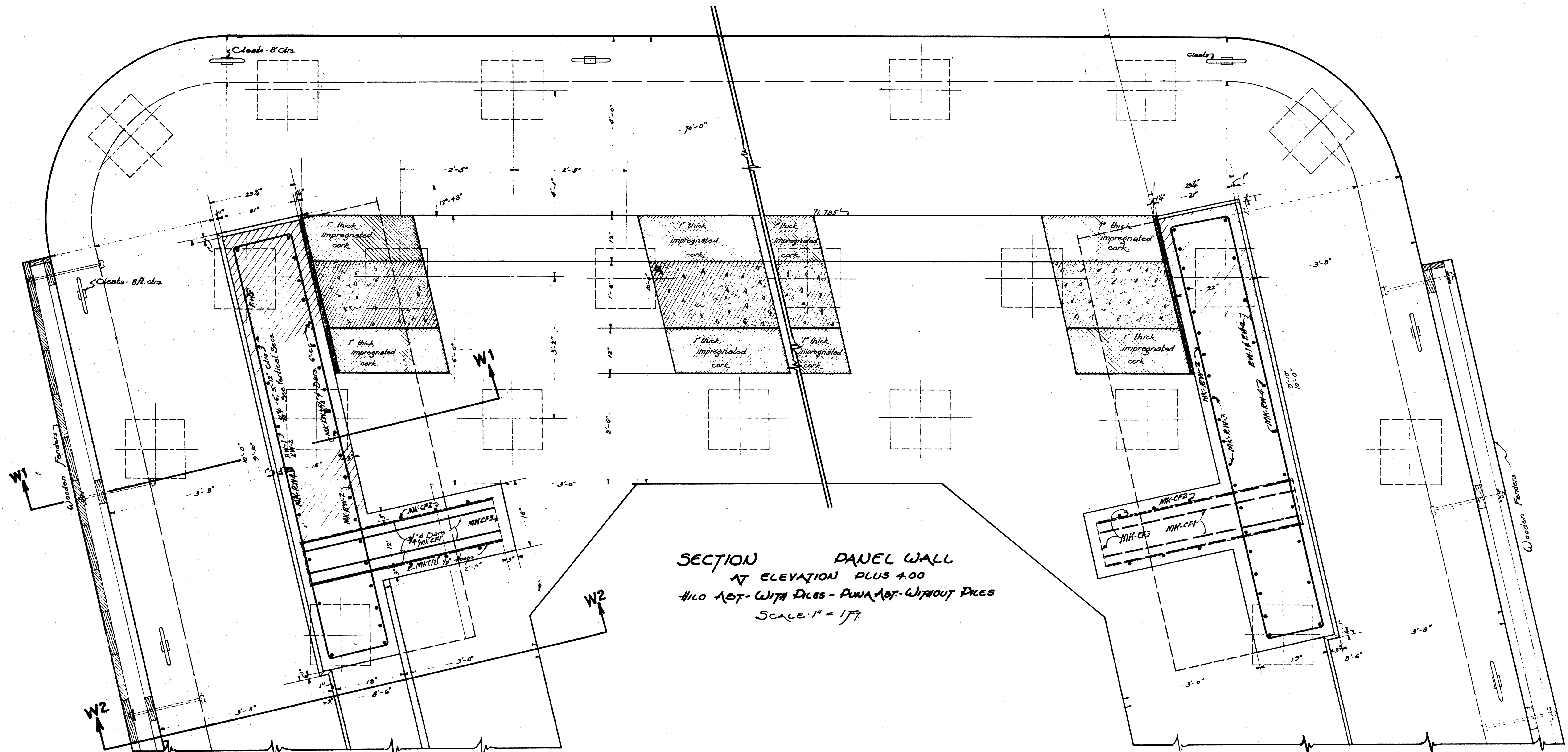
TYPICAL VERTICAL CONSTRUCTION
& EXPANSION JOINT FOR WALLS

Scale: 1" = 1/2'



TYPICAL EXPANSION JOINT
WITH COPPER WATERSTOP

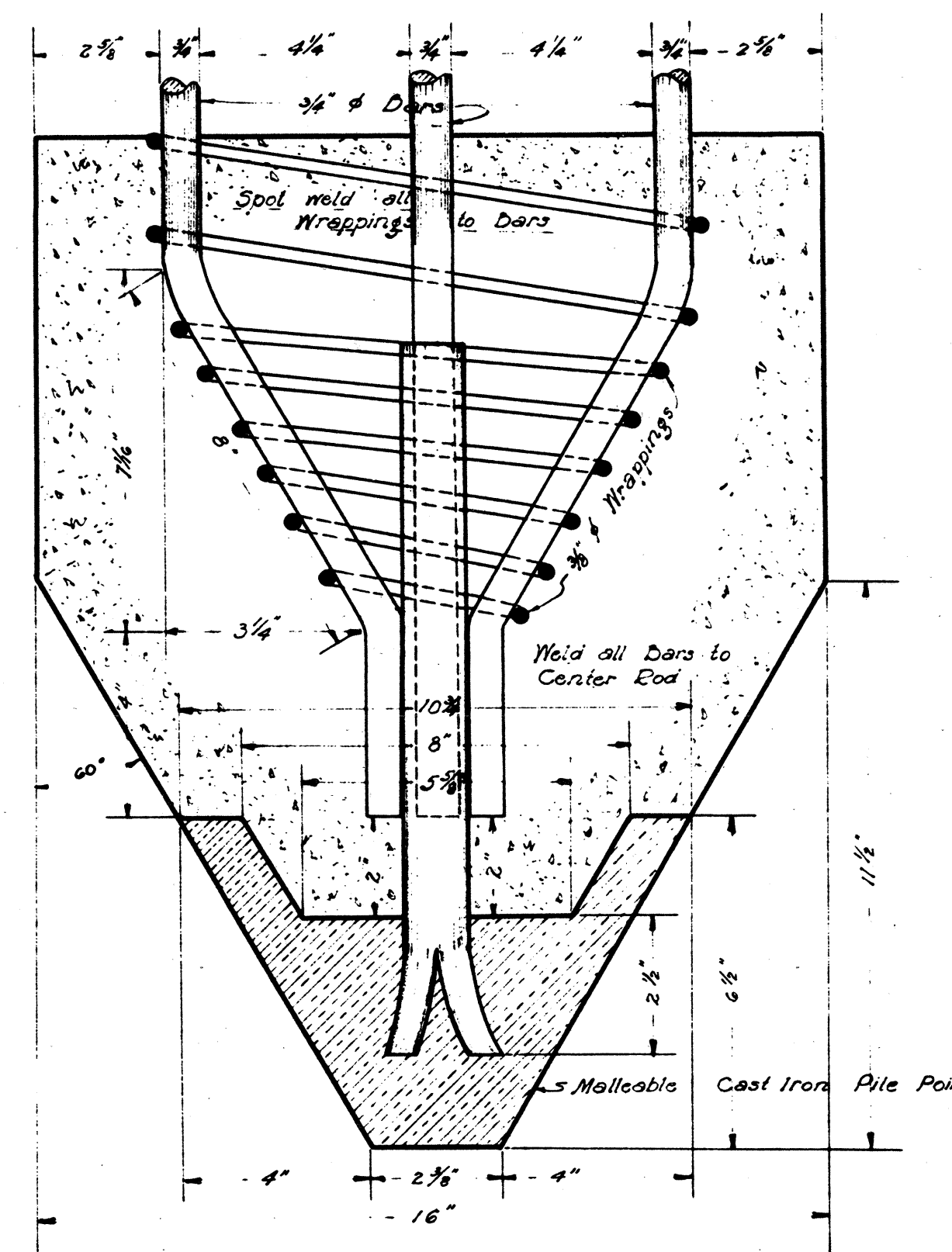
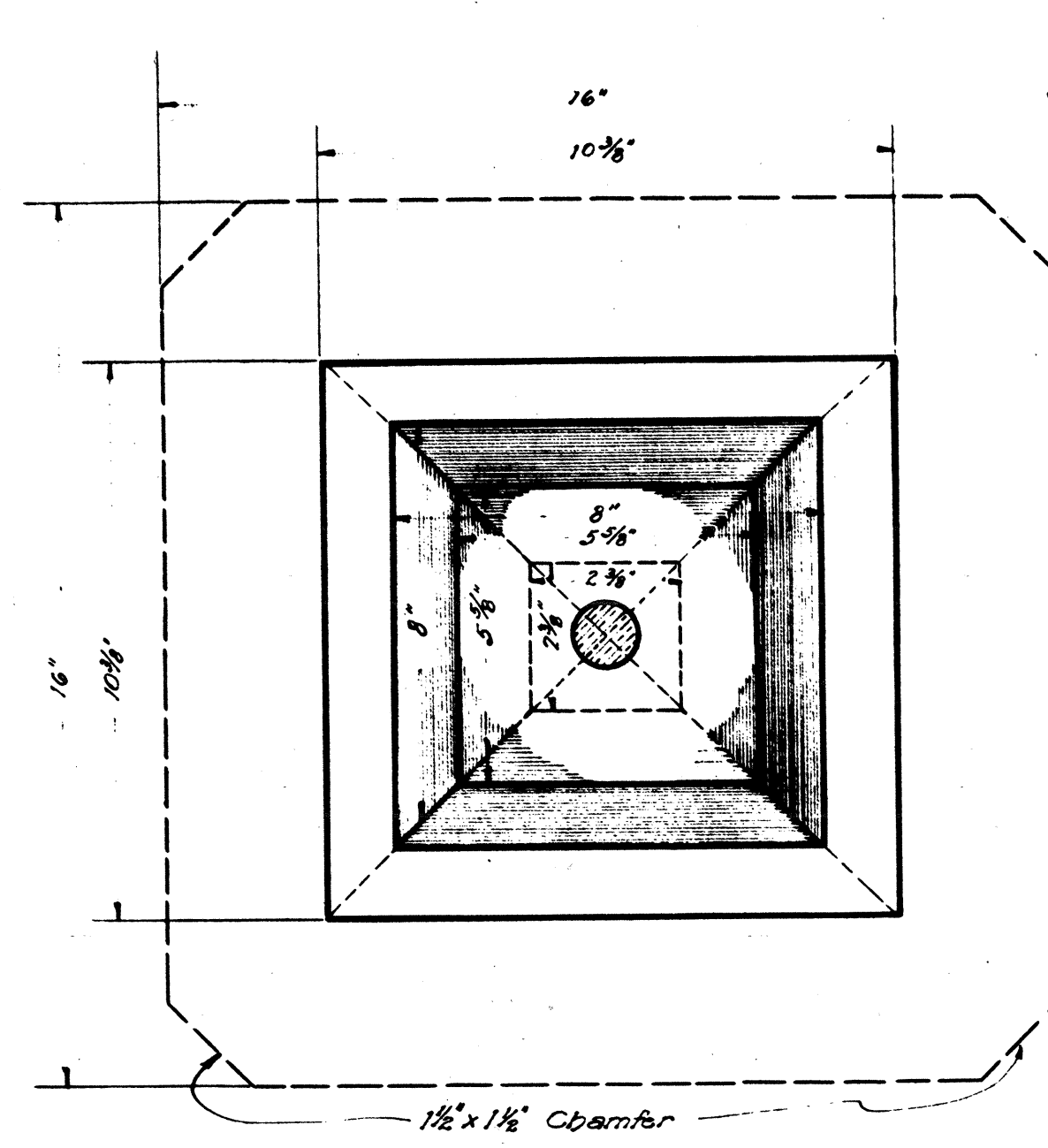
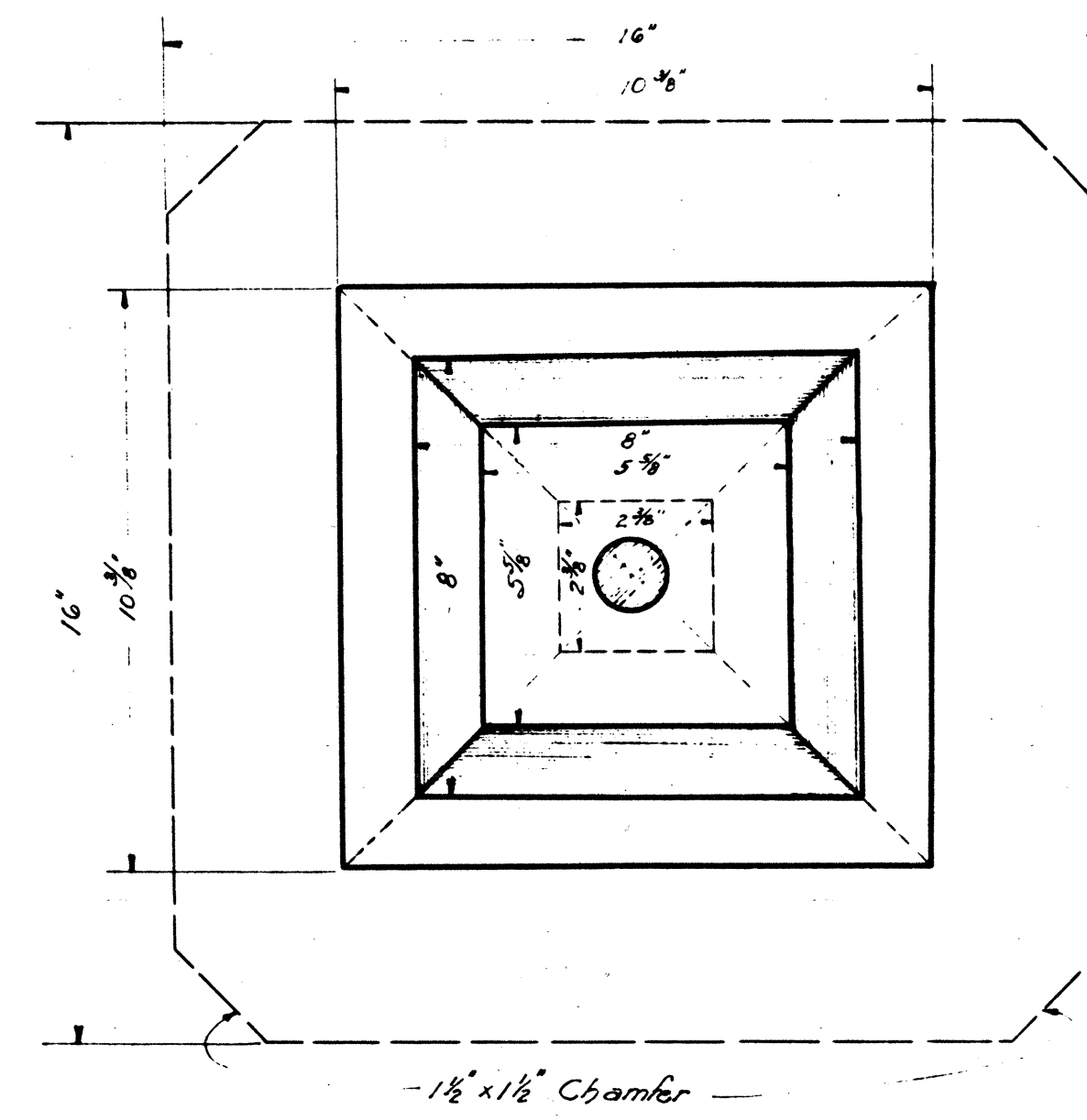
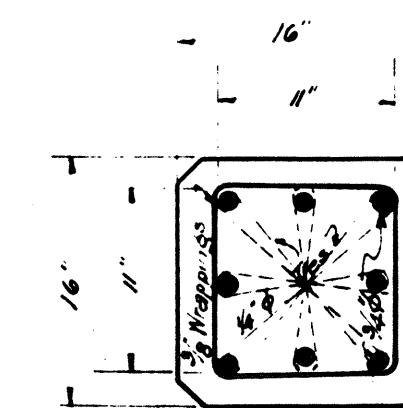
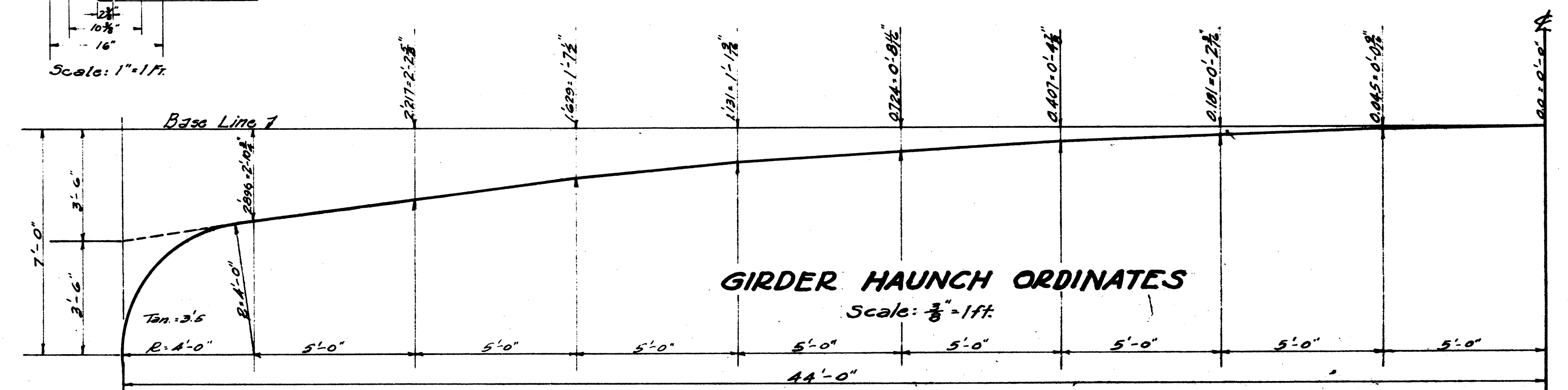
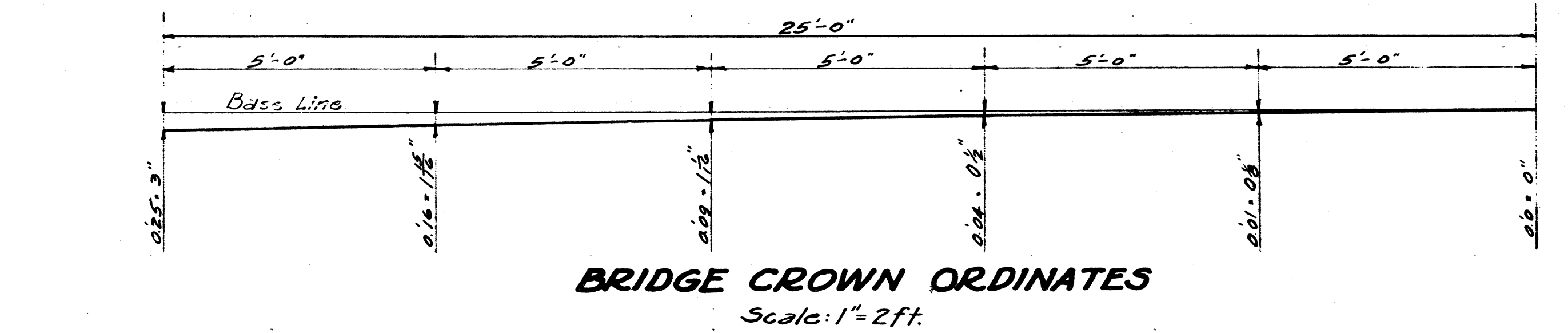
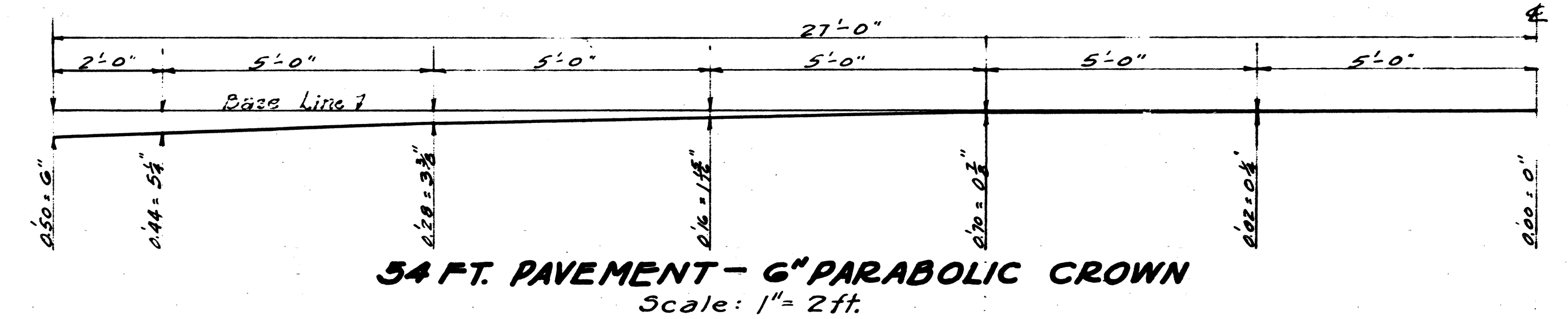
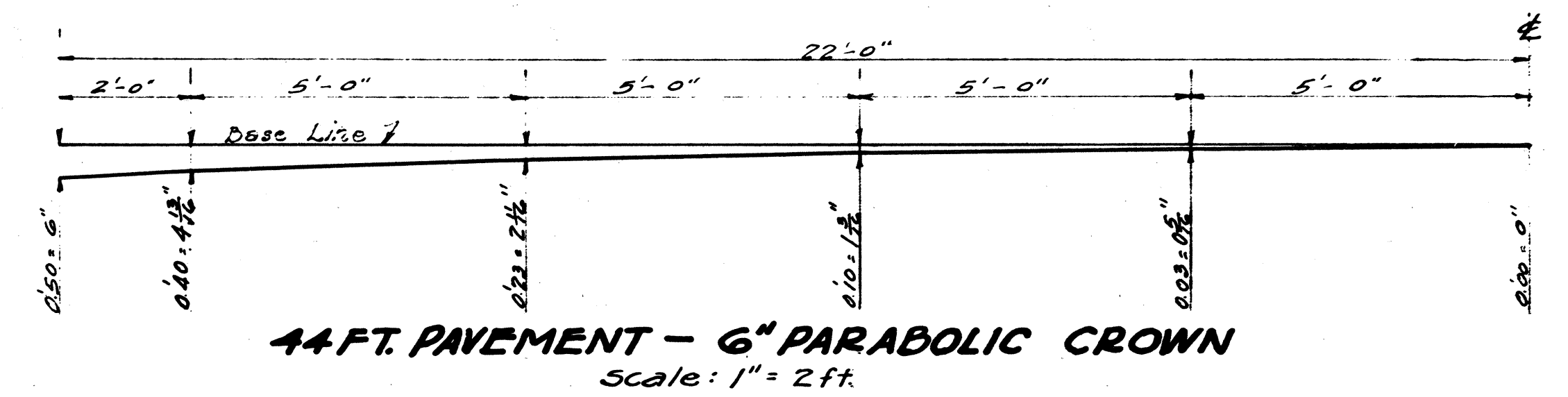
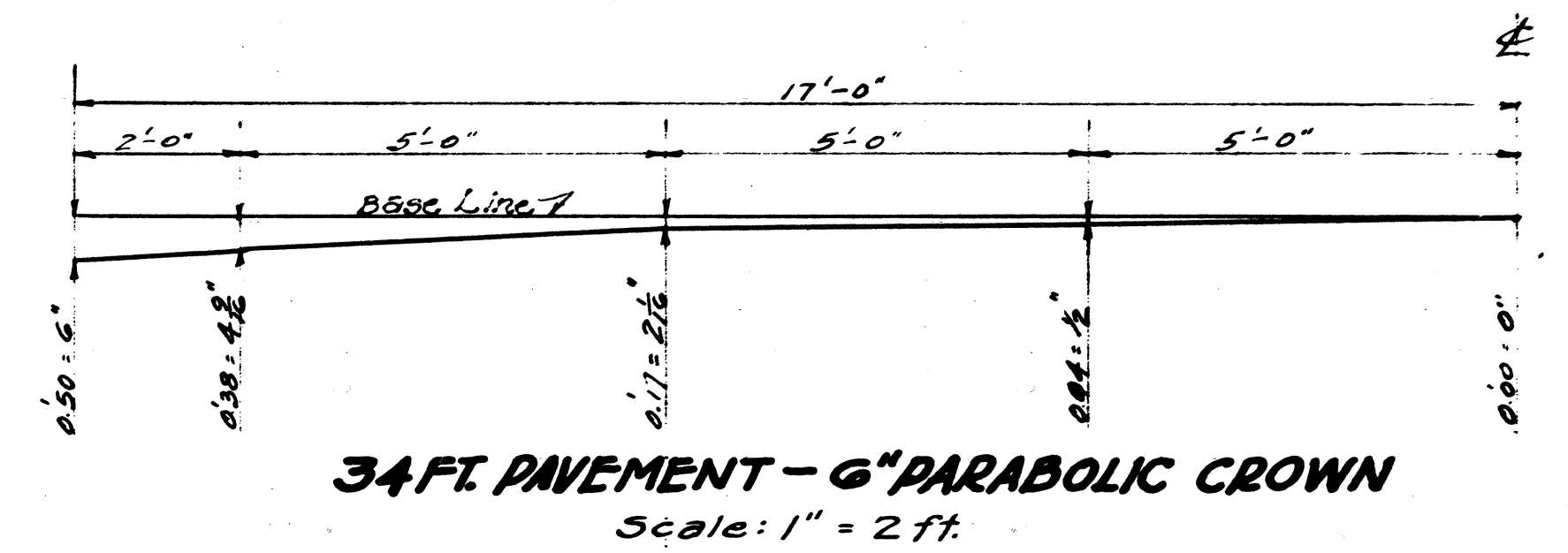
Scale: 1" = 1/2'



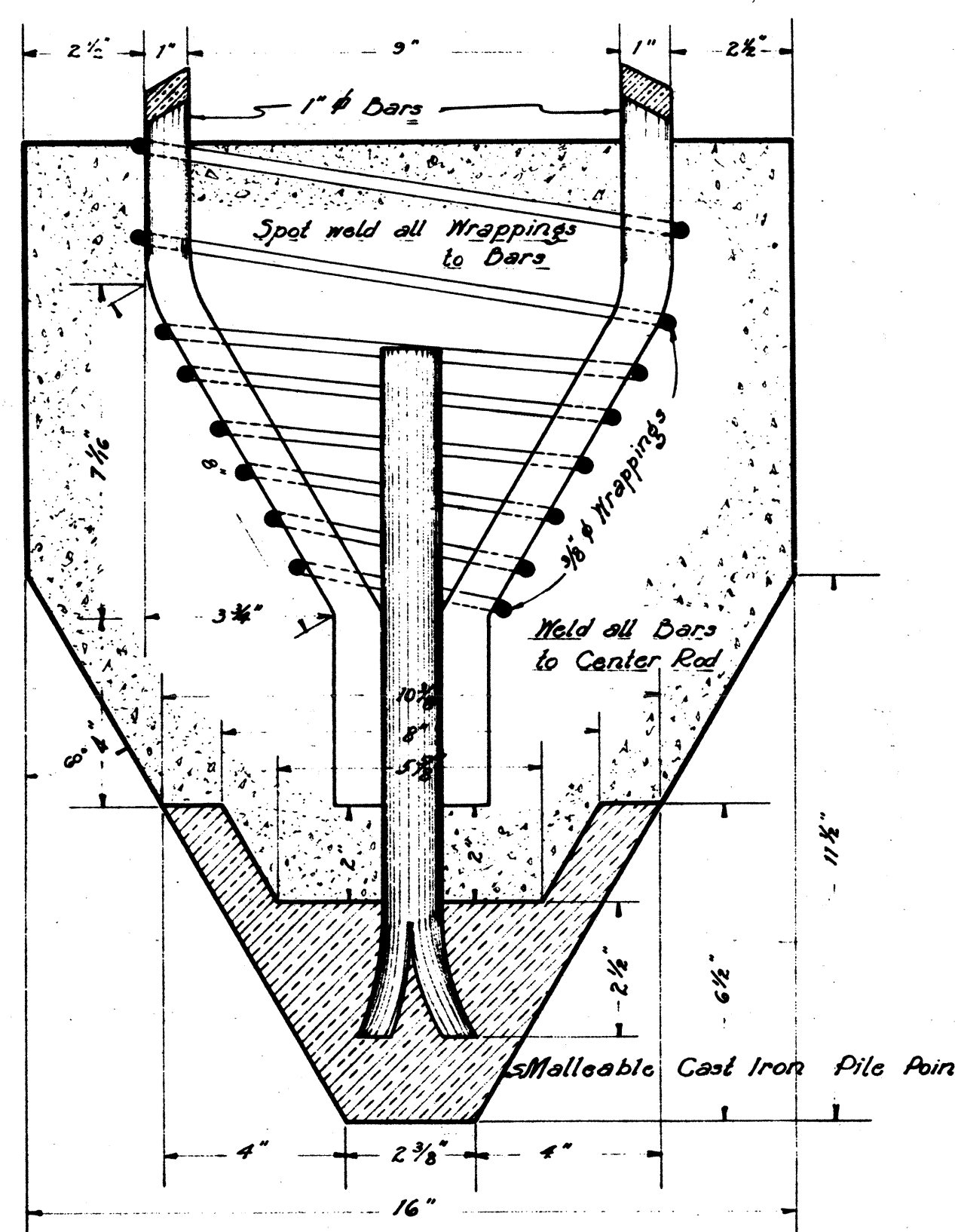
Depressed "Y" Letters & Deep
NAME
Use Correct Name of Stream
and Streets
DATE
Date of Year Built

**DETAIL OF LETTERS & FIGURES AT
BOTH APPROACHES**

NOTE: The Name "WAILOA" shall be placed in the Left End
Lamp Post Panel and the name "KAMEHAMEHA AVE."
on the Right End Lamp Post Panel. The Date "1937" shall
be placed in the panels of posts that have no lamp.
The panels of the Lamp Posts on Lihikai & Manono
Streets shall have the names "LIHikai ST" and
"MANONO ST." respectively.



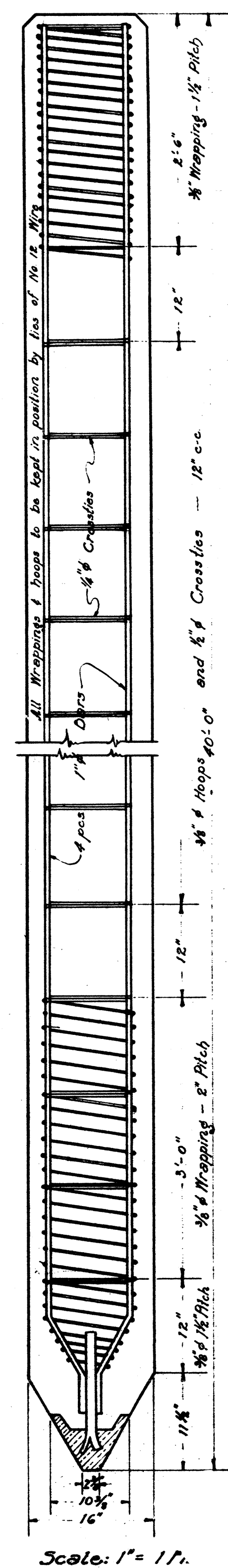
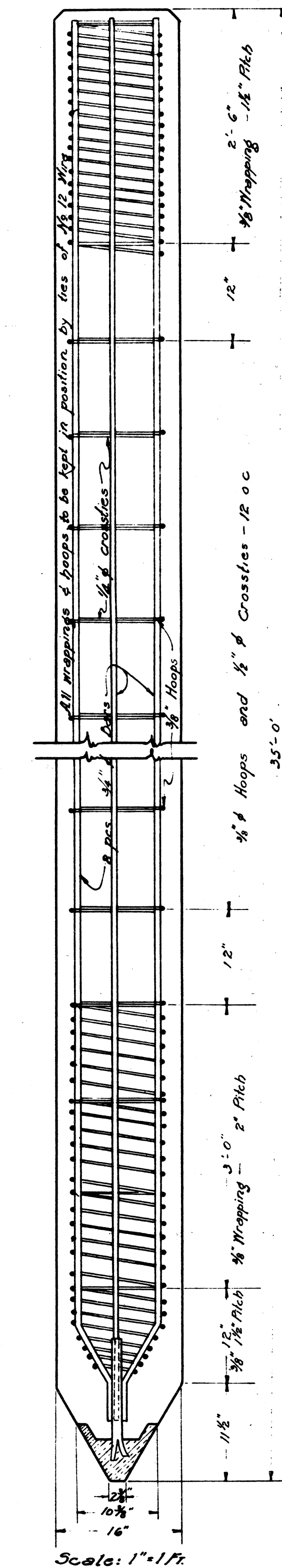
**DETAIL OF C.I. PILE POINT
FOR
35 FT. CONCRETE PILES**
Scale: 4" = 1 ft.



**DETAIL OF C.I. PILE POINT
FOR
40 FT. CONCRETE PILES**
Scale: 4" = 1 ft.

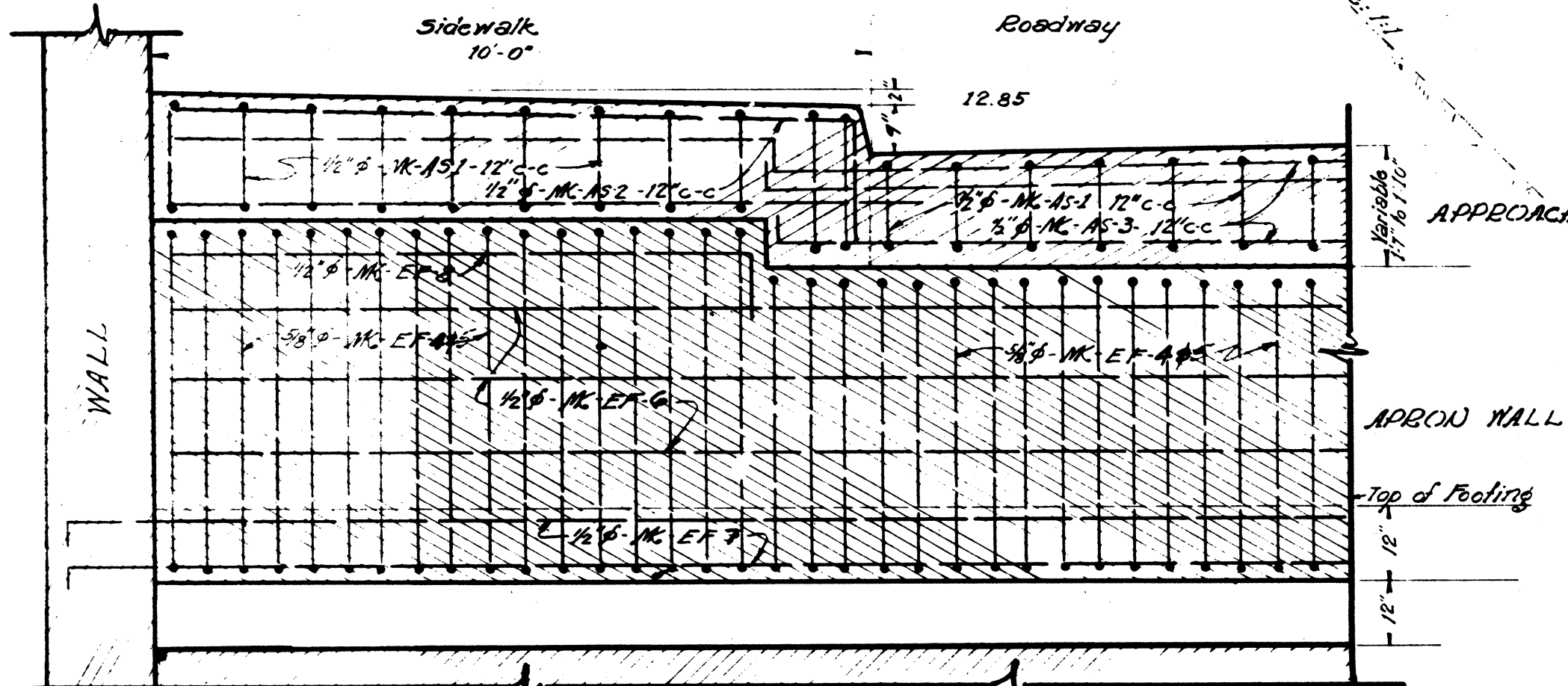
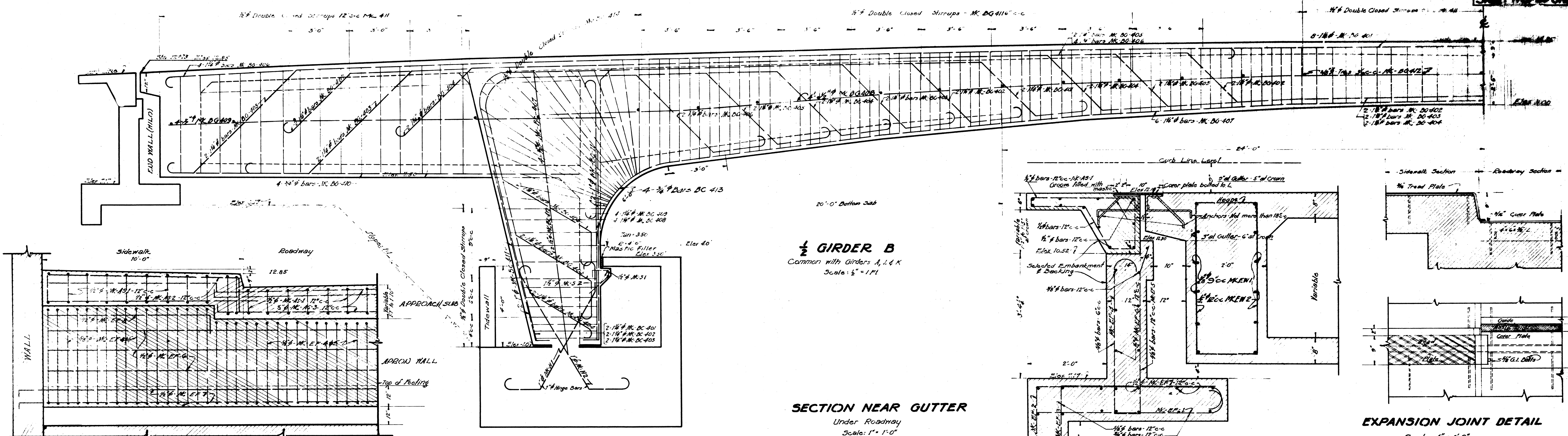
Mix: 1:1 1/2:2 3/4
1 part Cement
1 1/4 part 1/2" Lava Sand
2 1/4 part No. 4 Crushed Stone
5% Hydrated Lime

**TYPICAL DETAILS OF
REINFORCED CONCRETE PILES**



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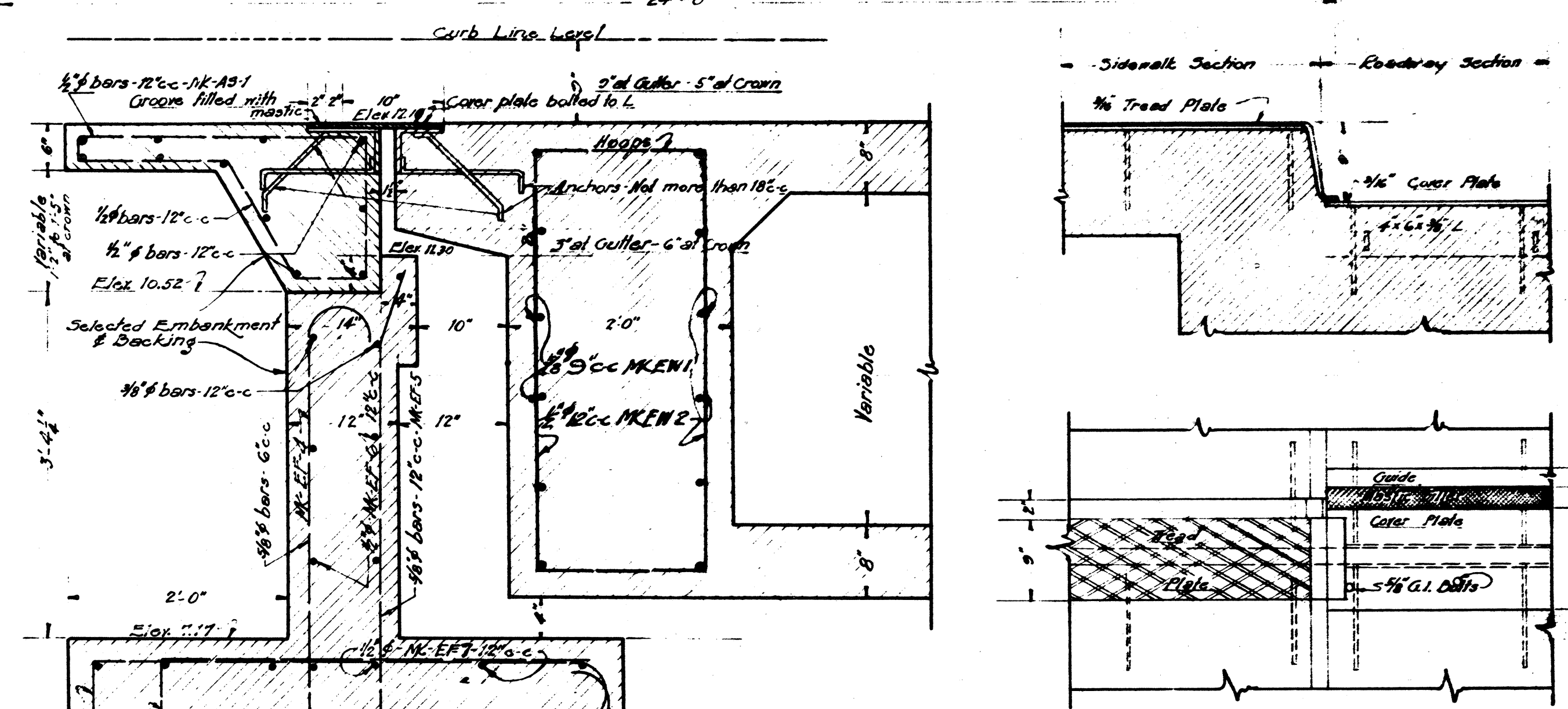




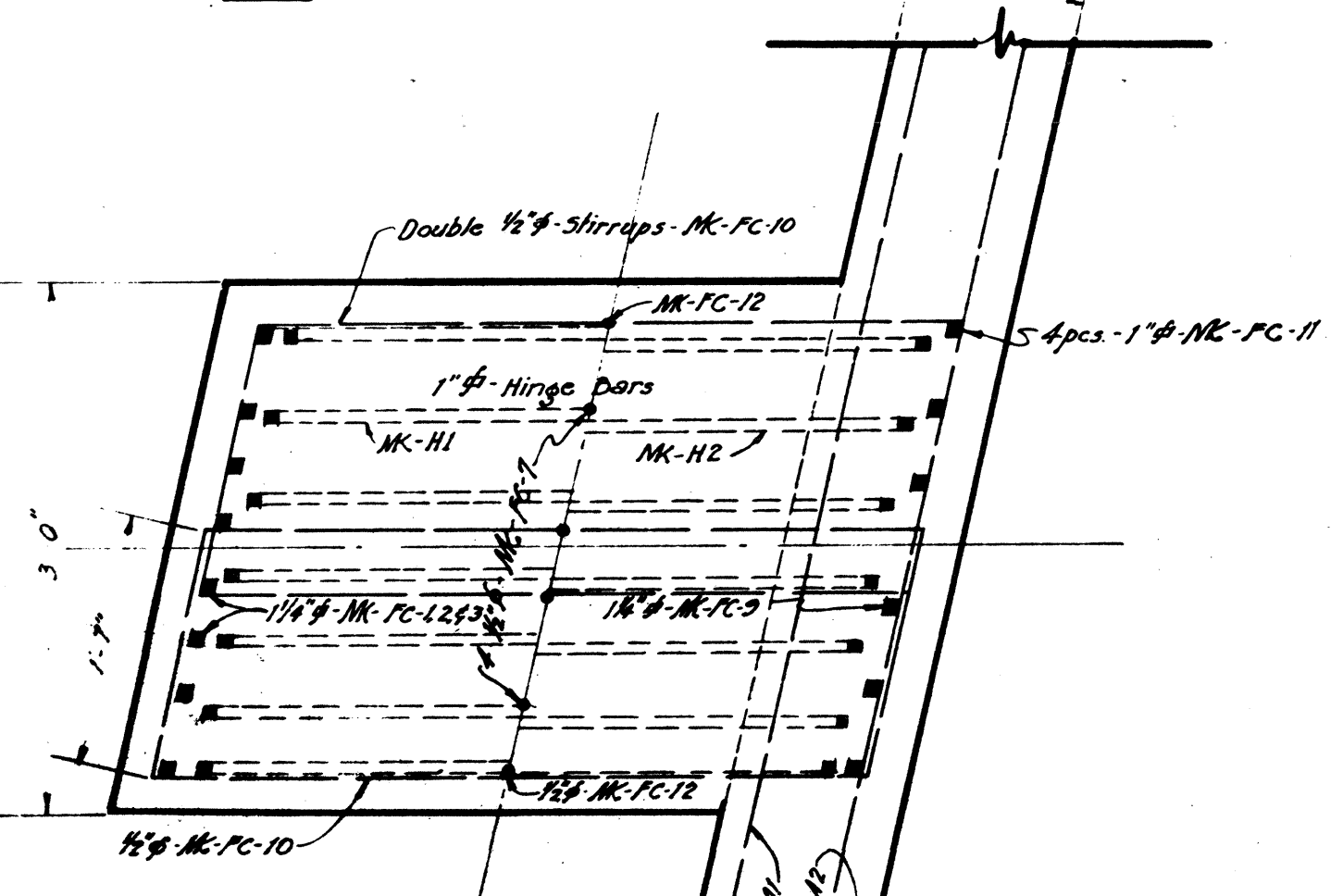
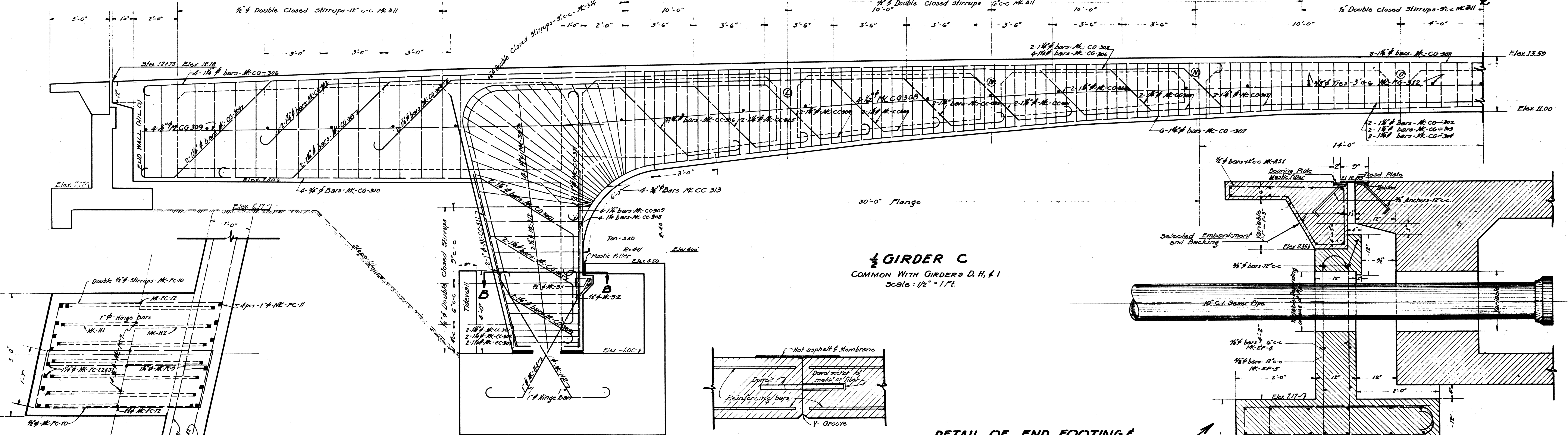
VERTICAL SECTION THRU $\frac{1}{2}$ OF APRON WALL
Scale: 1" = 2'-0"

$\frac{1}{2}$ GIRDER B
Common with Girders A, D & K
Scale: $\frac{1}{2}$ " = 1'-0"

SECTION NEAR GUTTER
Under Roadway
Scale: 1" = 1'-0"



EXPANSION JOINT DETAIL
Scale: 1" = 1'-0"

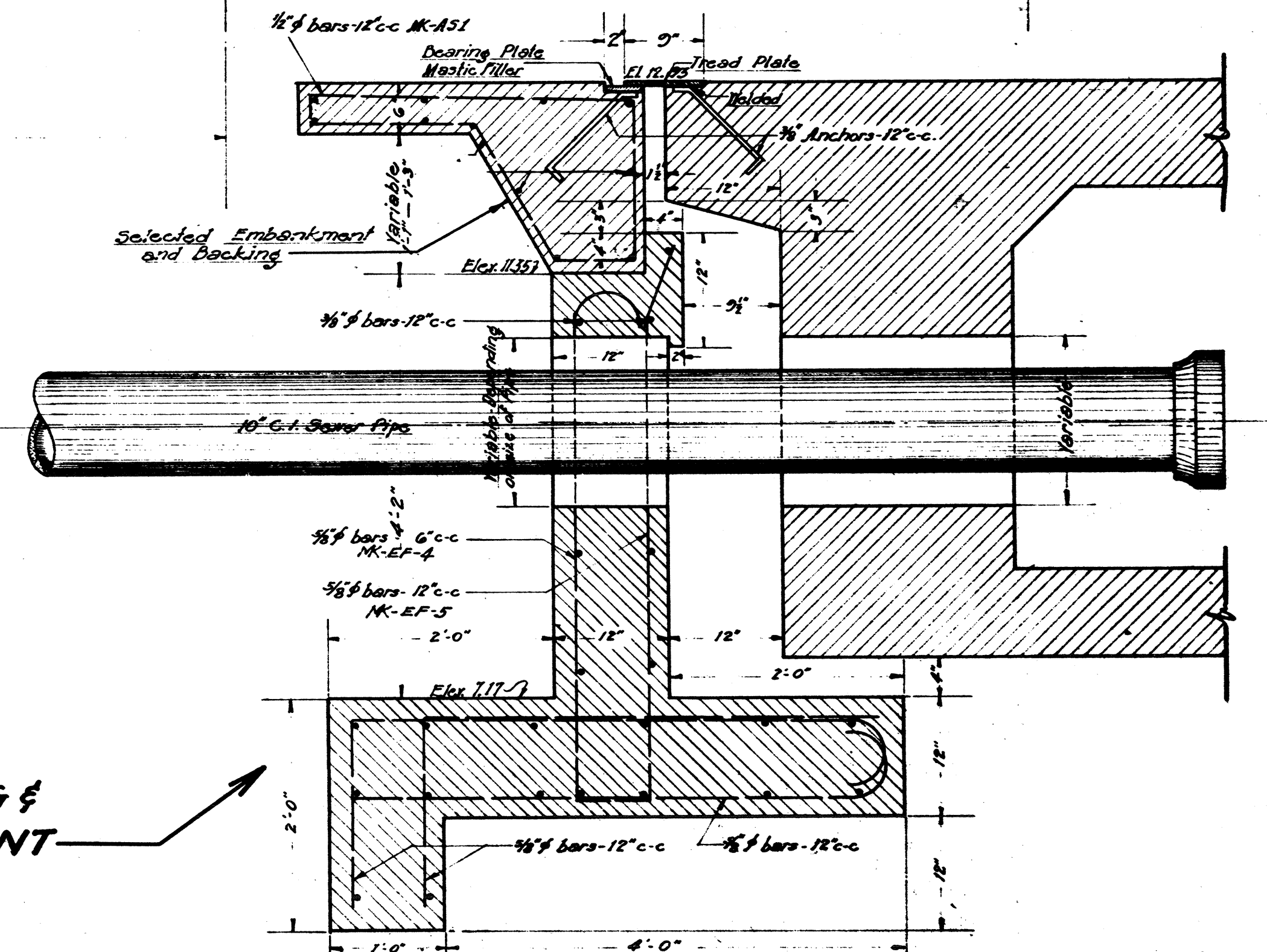


SECTION B-B
Scale: 1" = 1'-0"

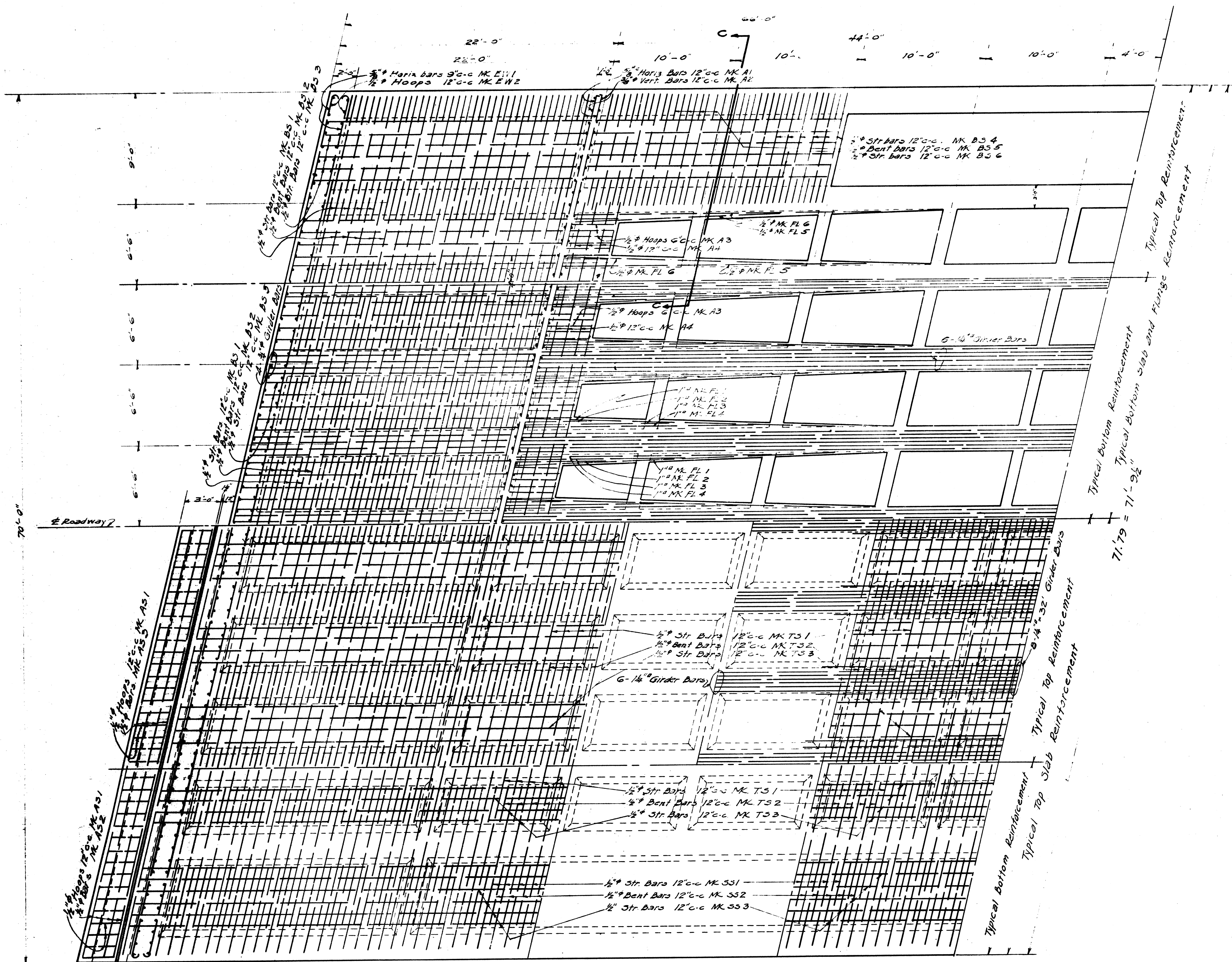
$\frac{1}{2}$ GIRDER C
COMMON WITH GIRDERS D, H, & I
Scale: $\frac{1}{2}$ " = 1'-0"

USE THIS TYPE OF CONSTRUCTION JOINT WHEN DIRECTED BY ENGR.

DETAIL OF END FOOTING & EXPANSION JOINT
Under Sidewalk
Scale: 1" = 1'-0"

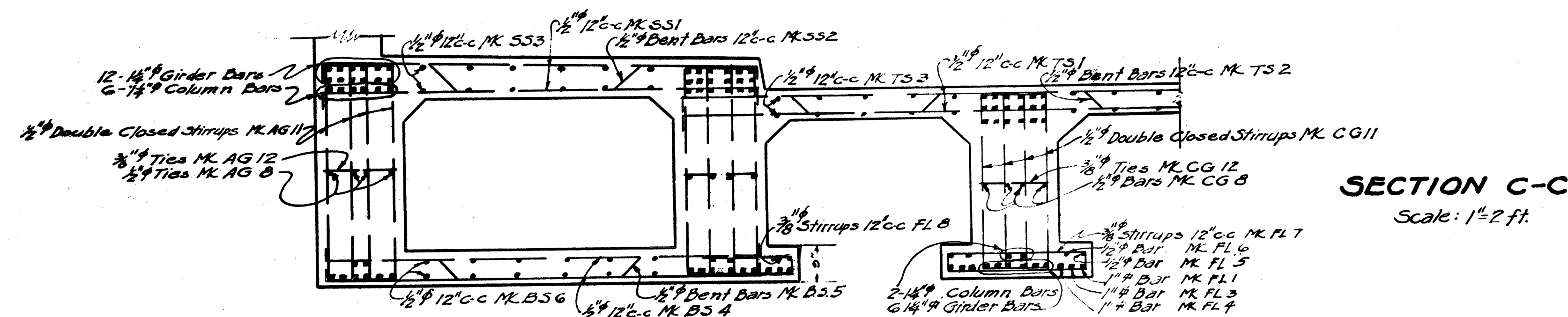


PLAN	REVISION	DATE	BY	CHKD
1	AS BUILT			
2	REVISION			
3	REVISION			
4	REVISION			
5	REVISION			
6	REVISION			
7	REVISION			
8	REVISION			
9	REVISION			
10	REVISION			
11	REVISION			
12	REVISION			
13	REVISION			
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17	REVISION			
18	REVISION			
19	REVISION			
20	REVISION			



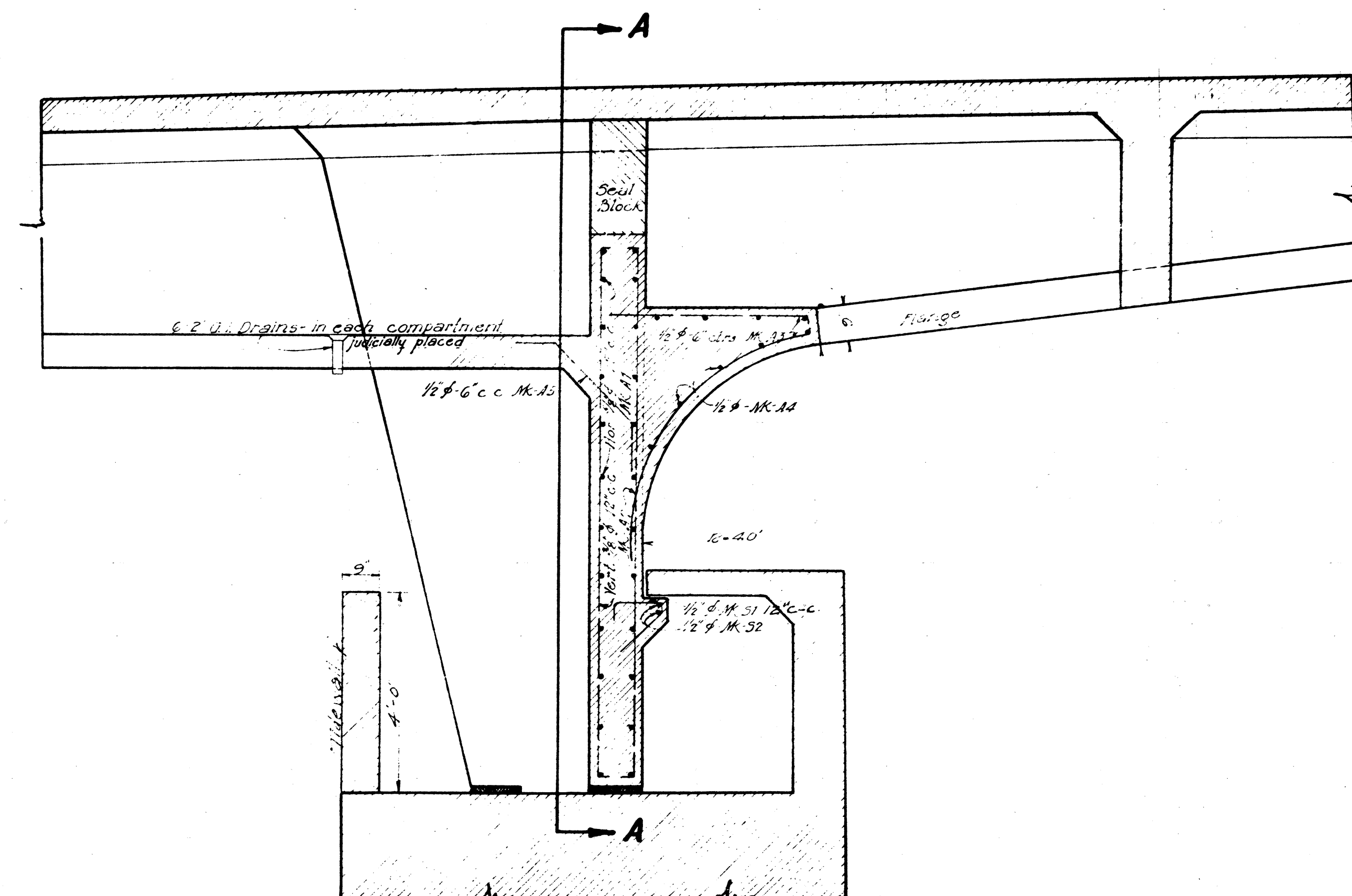
HALF PLAN TOP & BOTTOM SLABS AND FLANGE REINFORCEMENTS

Scale: 1" = 1 ft.



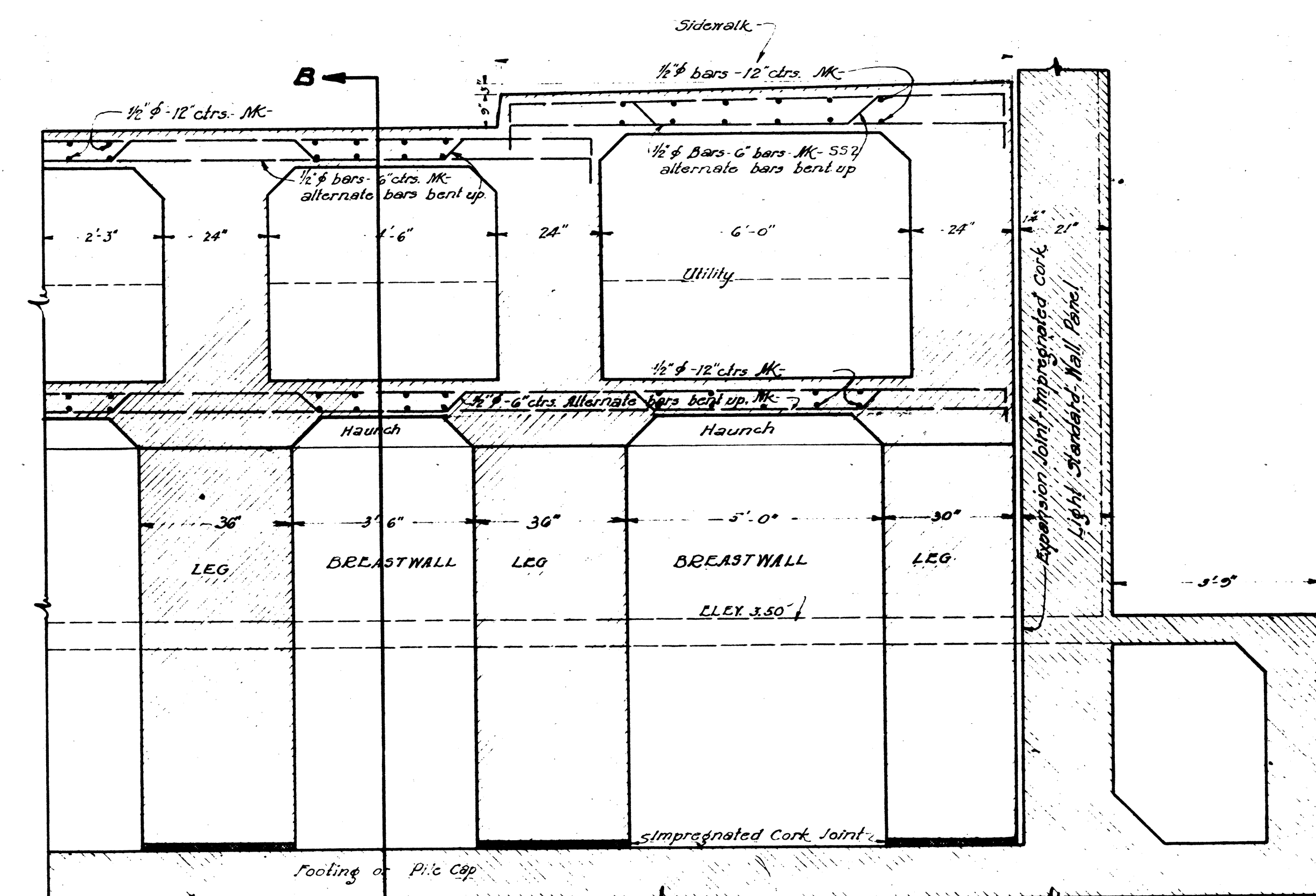
SECTION C-C

Scale: 1" = 2 ft.



SECTION B-B BREASTWALL

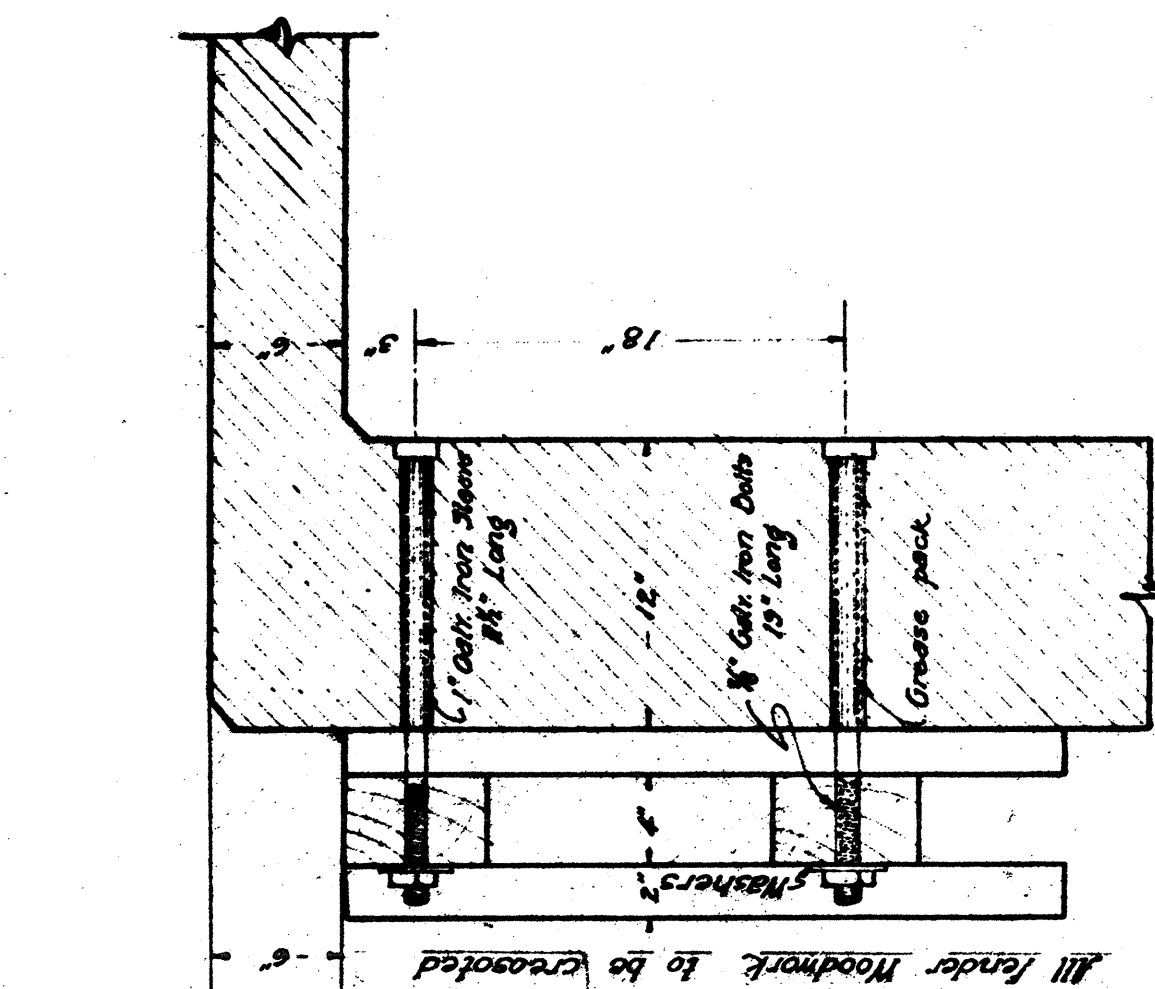
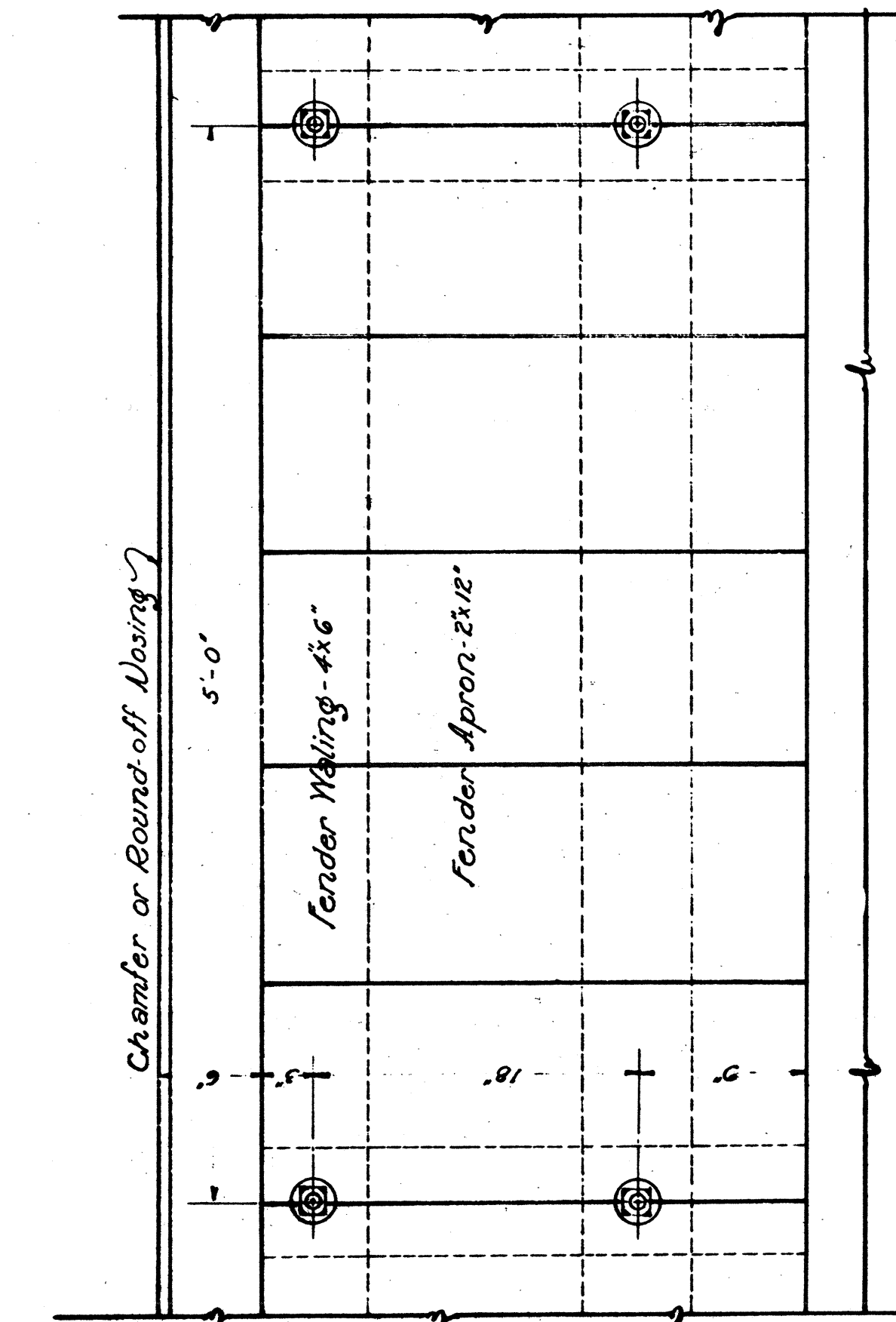
Between Girders D & C
Scale: 1" = 2' 0"



SECTION A-A BACK OF BREASTWALL

Showing Slab Reinforcement
Scale: 1" = 2' 0"

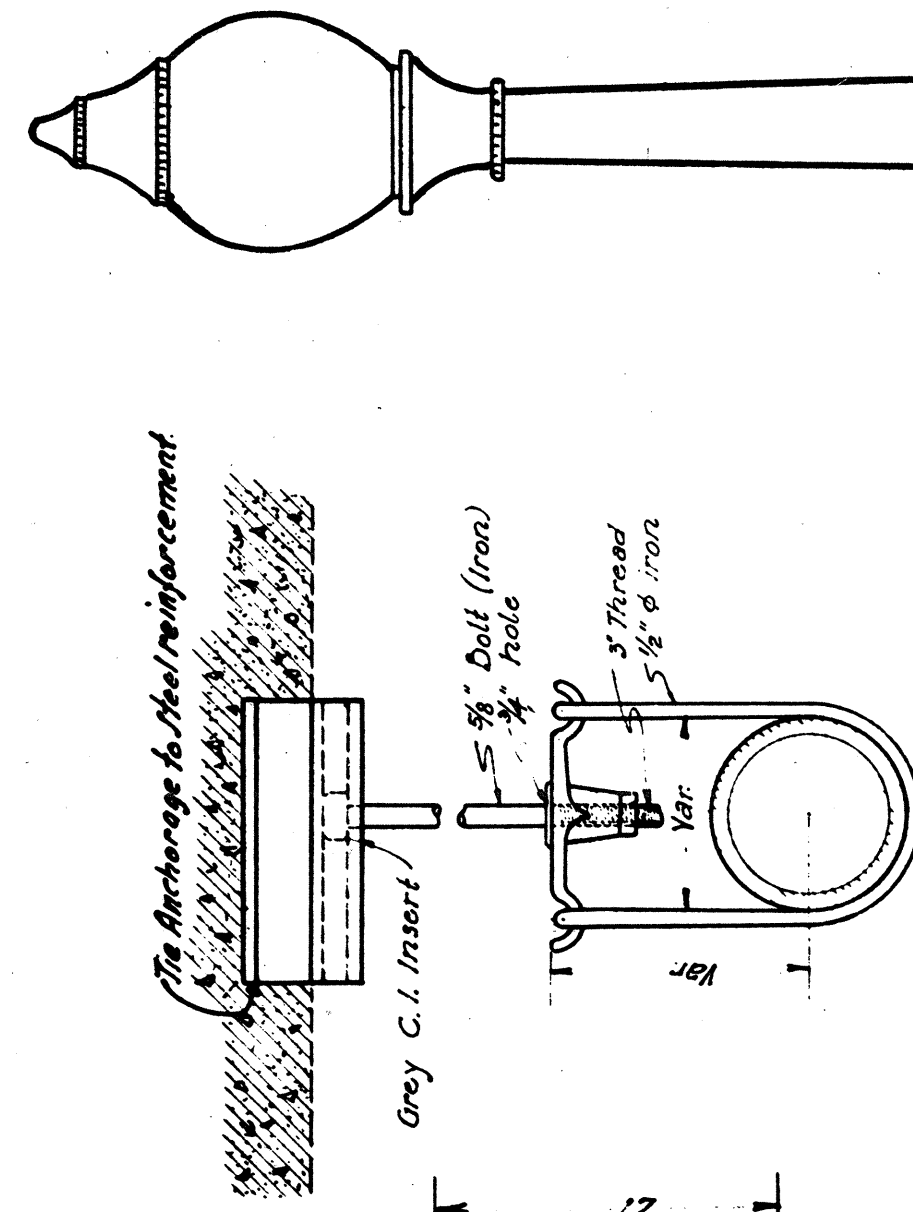
PLAN	SURVEYED	BY	DATE
	PLOTTED		
	ALIGNMENT CHECKED		
	RT. OF WAY CHECKED		
NO.	STRUCTURE DETAILS, CH NO.		



SCHEDULE OF HANGERS			
SIZE OF PIPE	"A"	"B"	
12"	13.25"	18"	
10"	11.10"	15"	
8"	9.05"	13"	

TYPICAL PIPE HANGER

(For pipes of 8", 10" & 12" Diameters)
SCALE: 1 1/2" = 1 Ft.



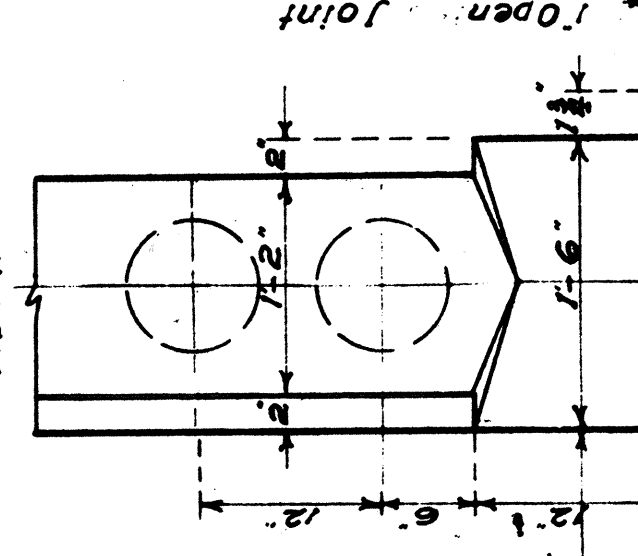
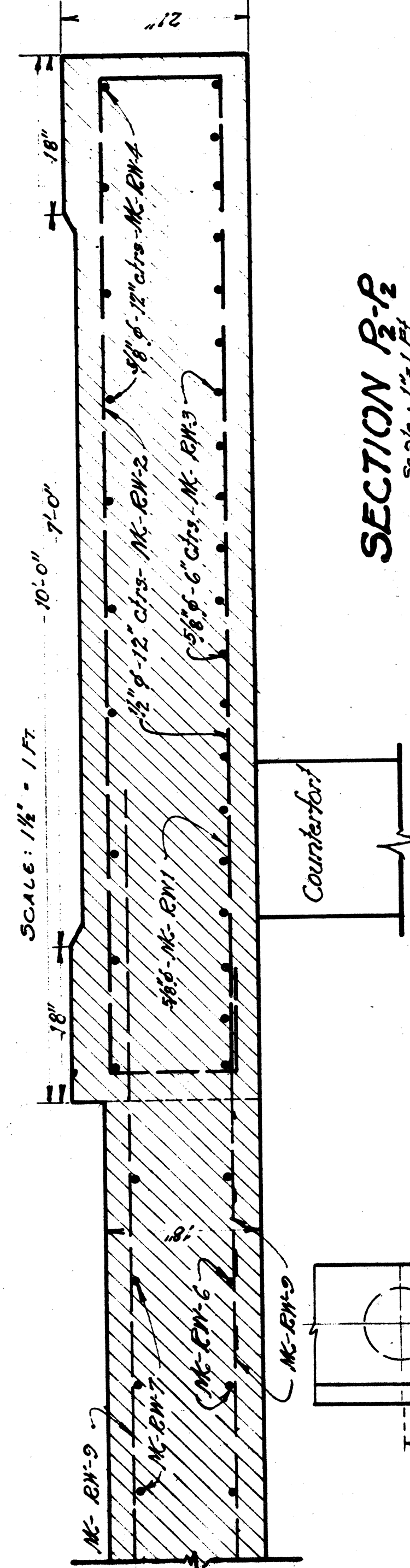
TYPICAL PIPE HANGER

Pipes or Smaller
SCALE: $1\frac{1}{2}" = 1\text{ft.}$

SECTION P-2

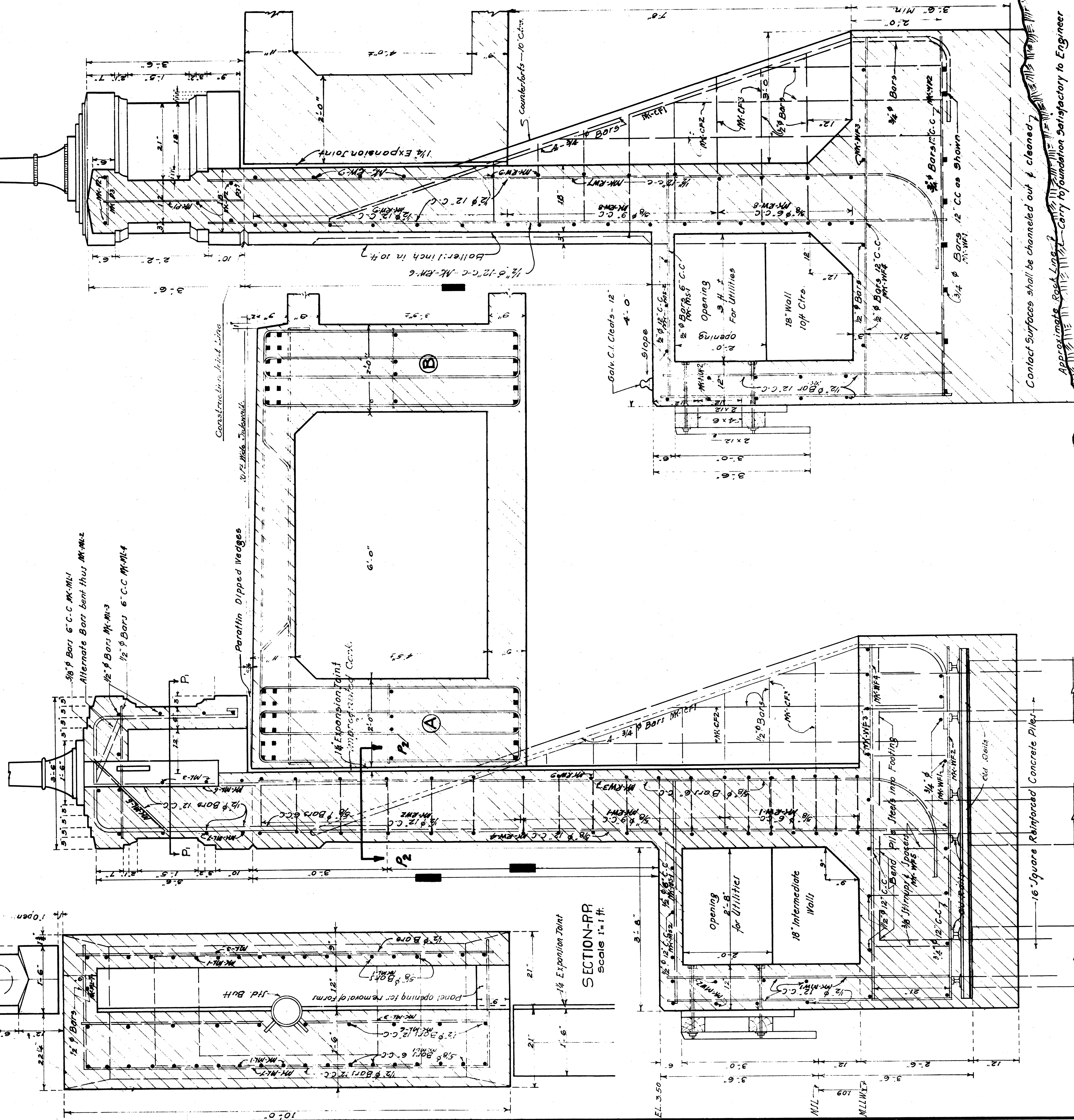
Scale: 1"=1'

DETAIL OF WOODEN FEUDERS



SECTION-RP

500



SECTION - WWW

Purple Mauko Panel Wing Wall Thru Light Standard
Scale 1"= 1 Ft.

Scale 1" = 1 Ft.

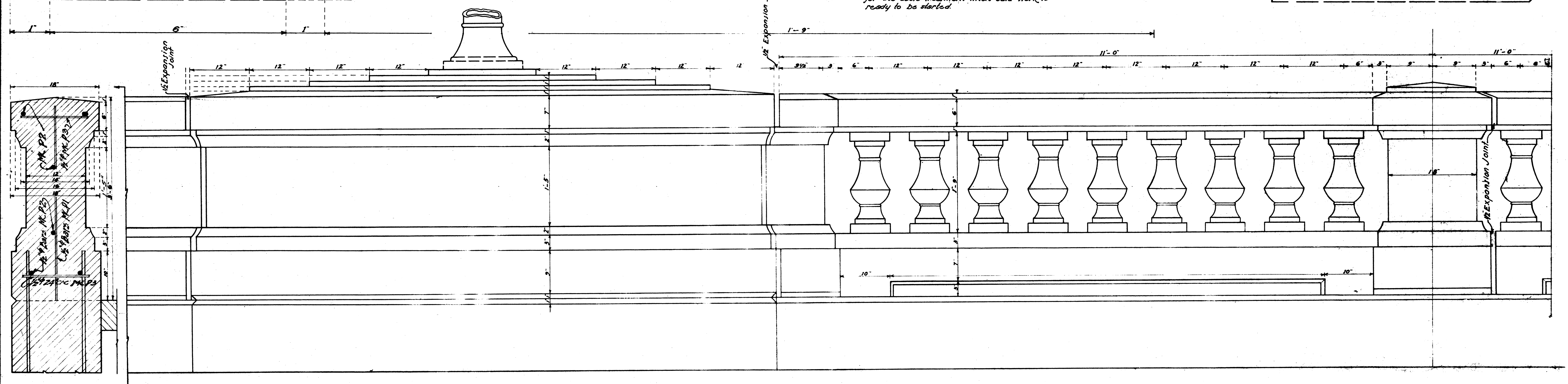
SECTION W2 W2

Puna Mouka Wing Woll

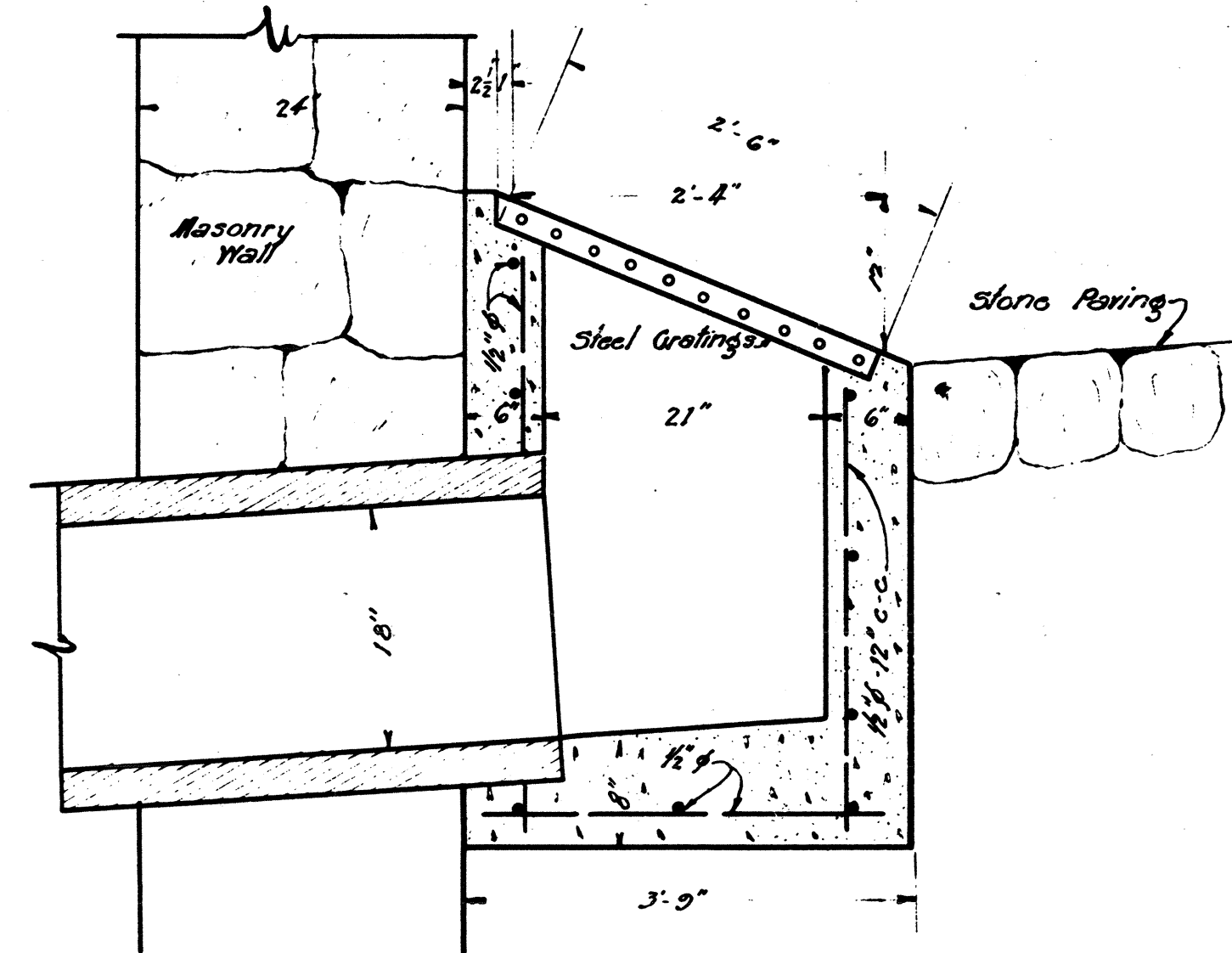
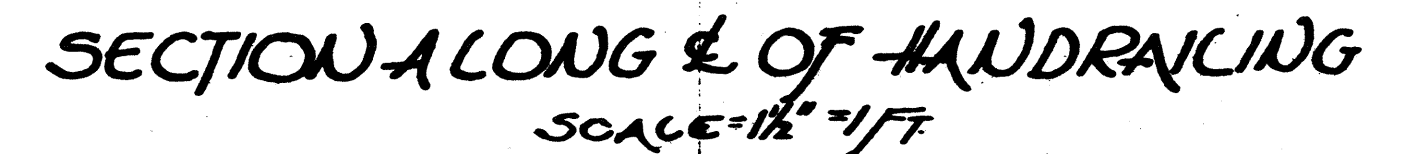
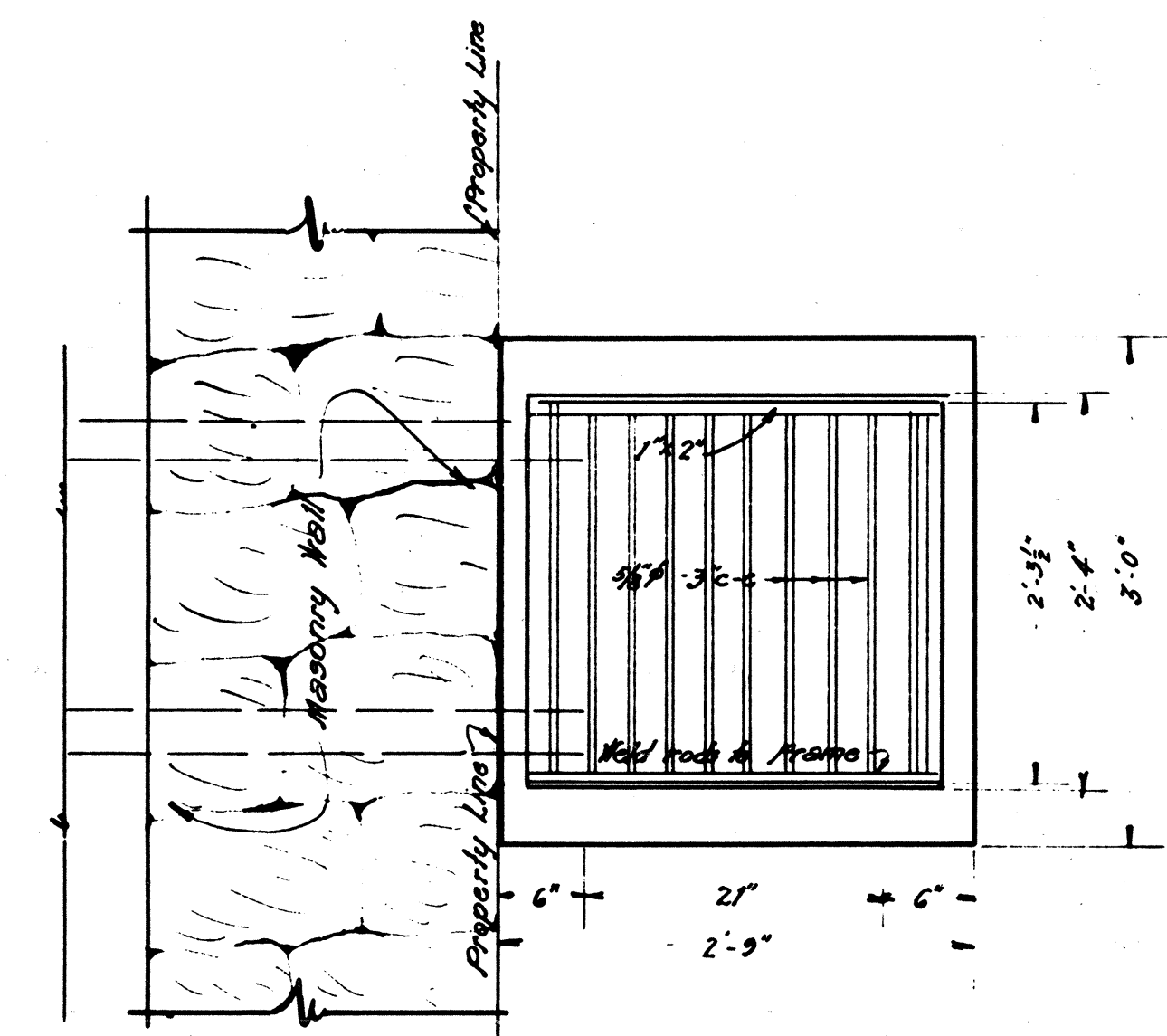
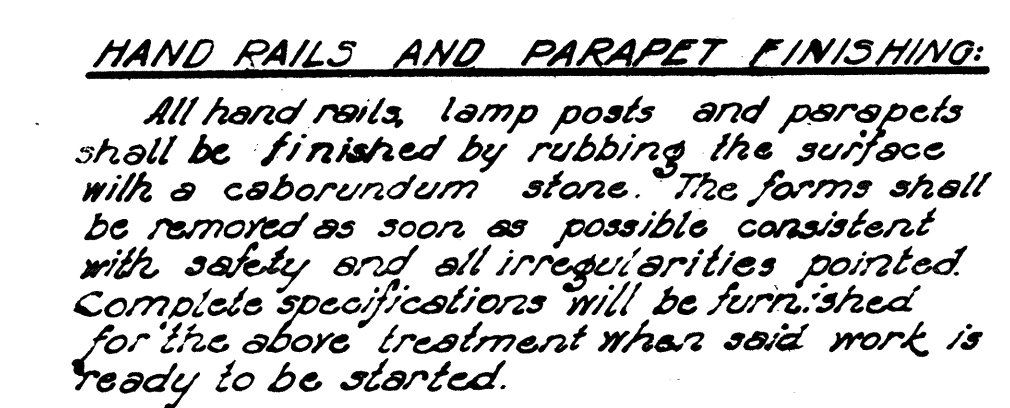
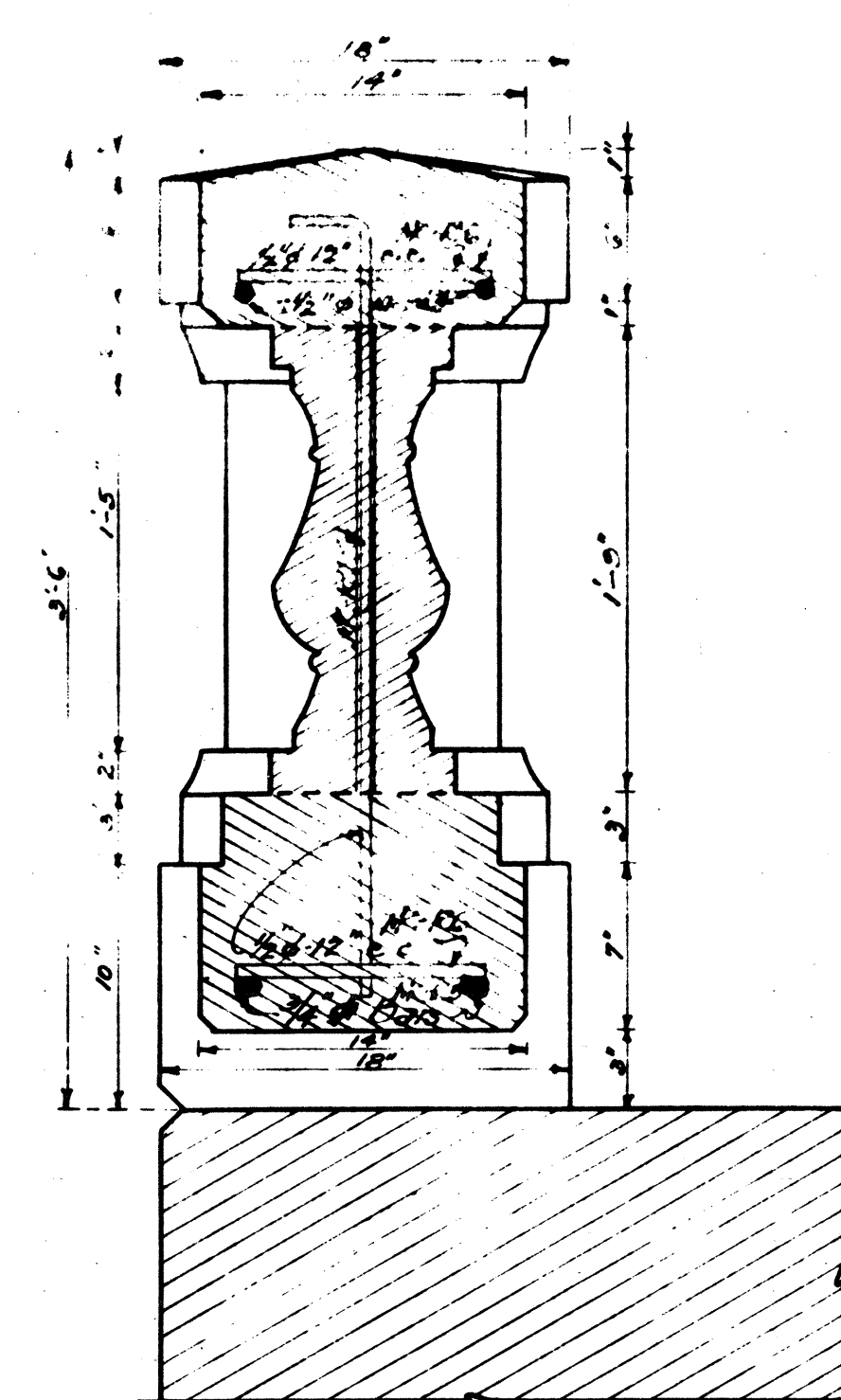
Scale 1" = 1 ft.



HAND RAILS AND PARAPET FINISHING:
All handrails, lamp posts, and parapets shall be finished by rubbing the surface with a cabotum stone. The forms shall be removed as soon as possible, consistent with safety and all irregularities painted. Complete specification will be furnished for the above treatment when said work is ready to be started.

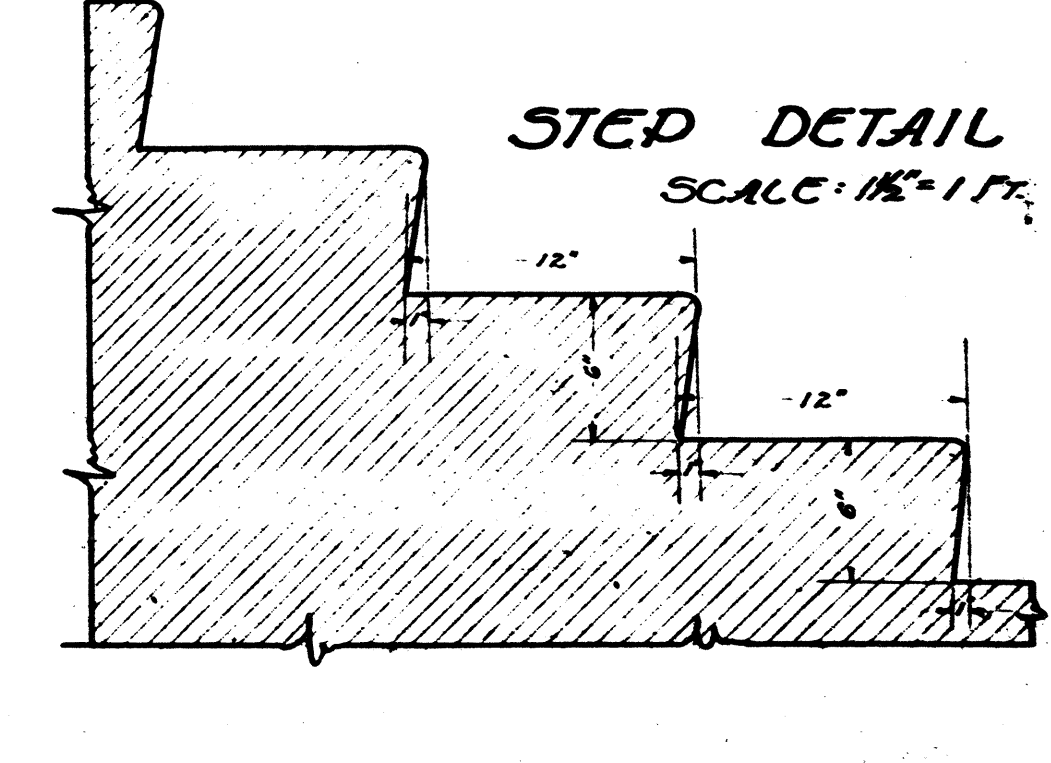
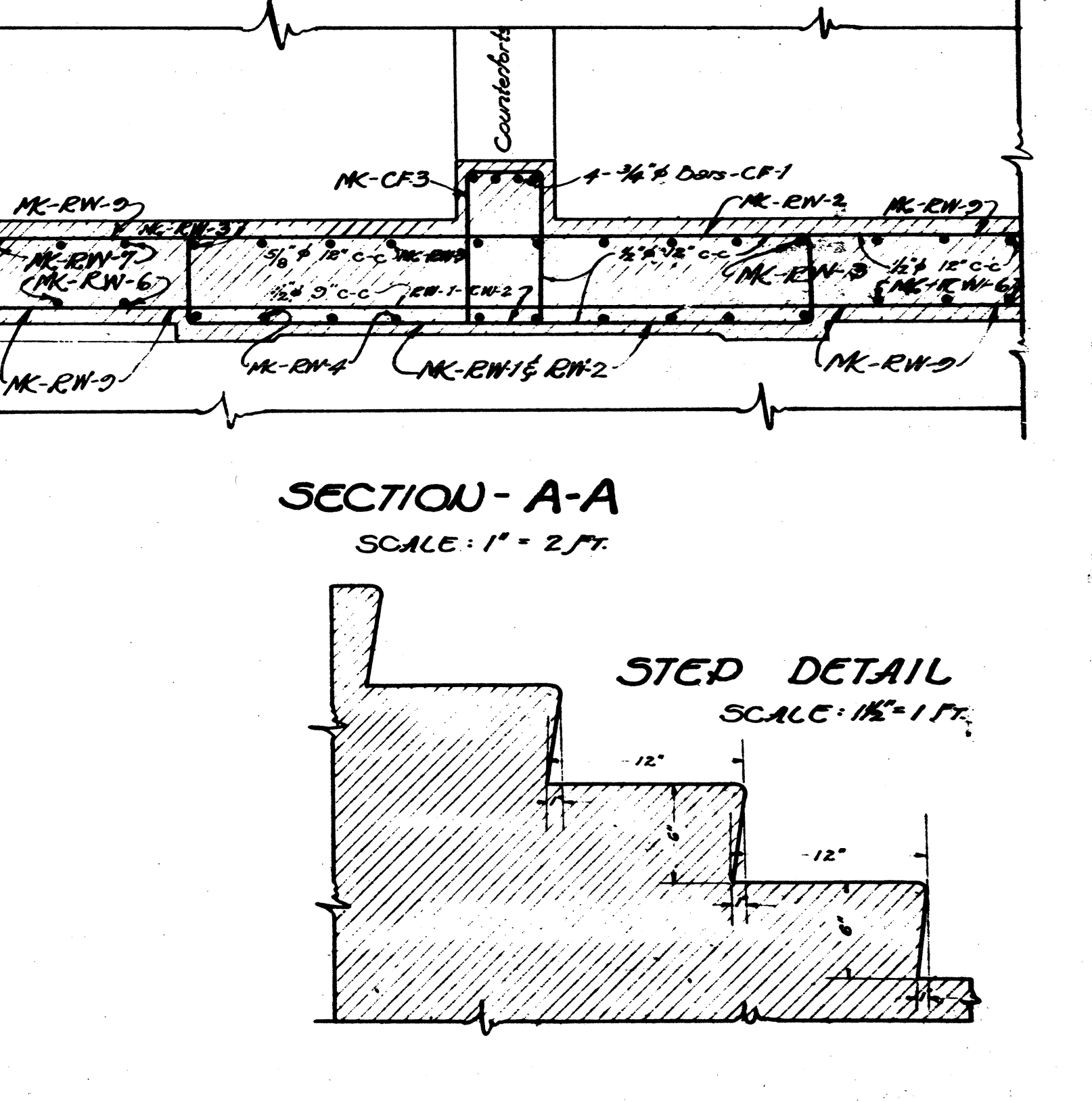
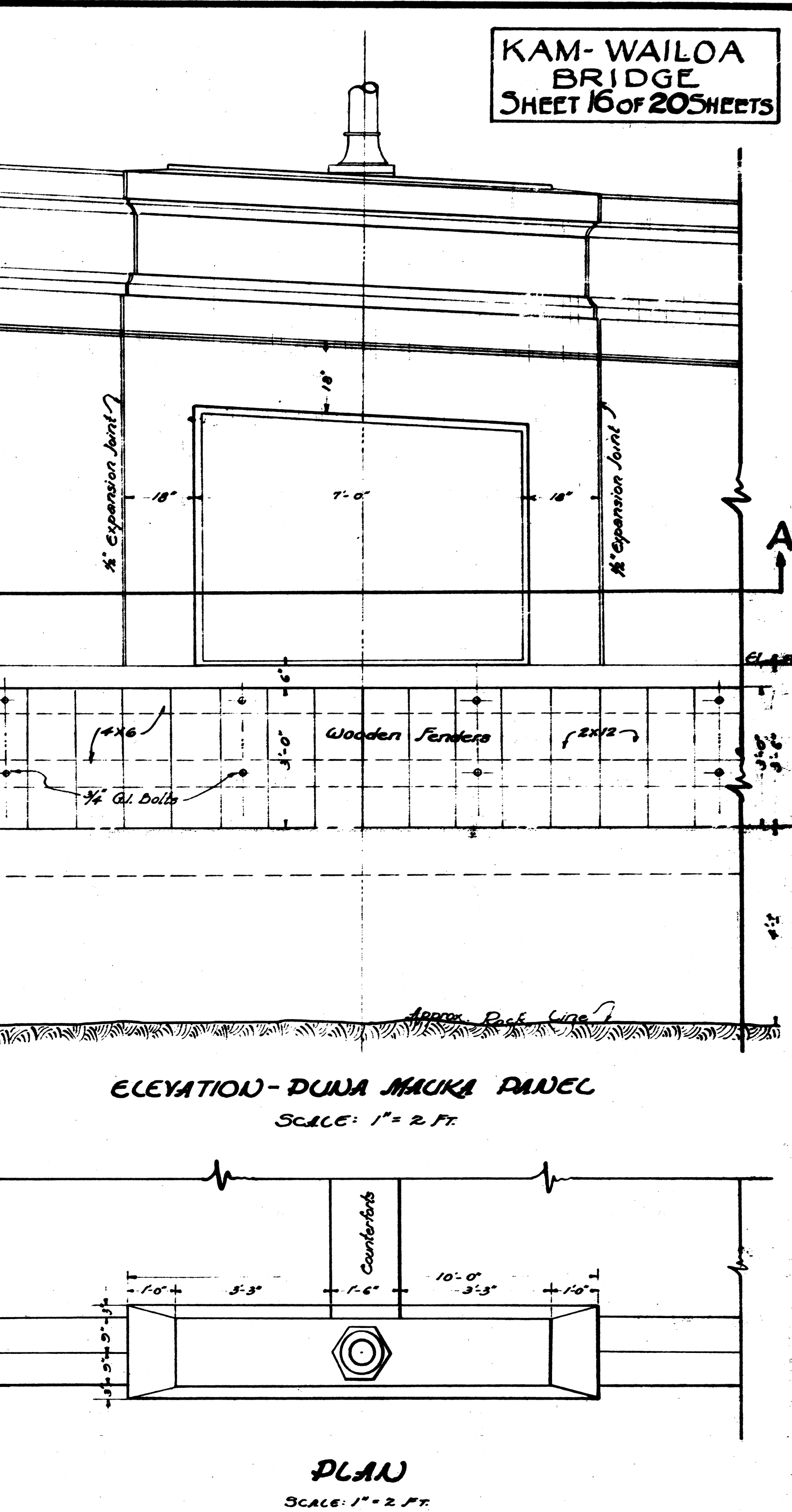
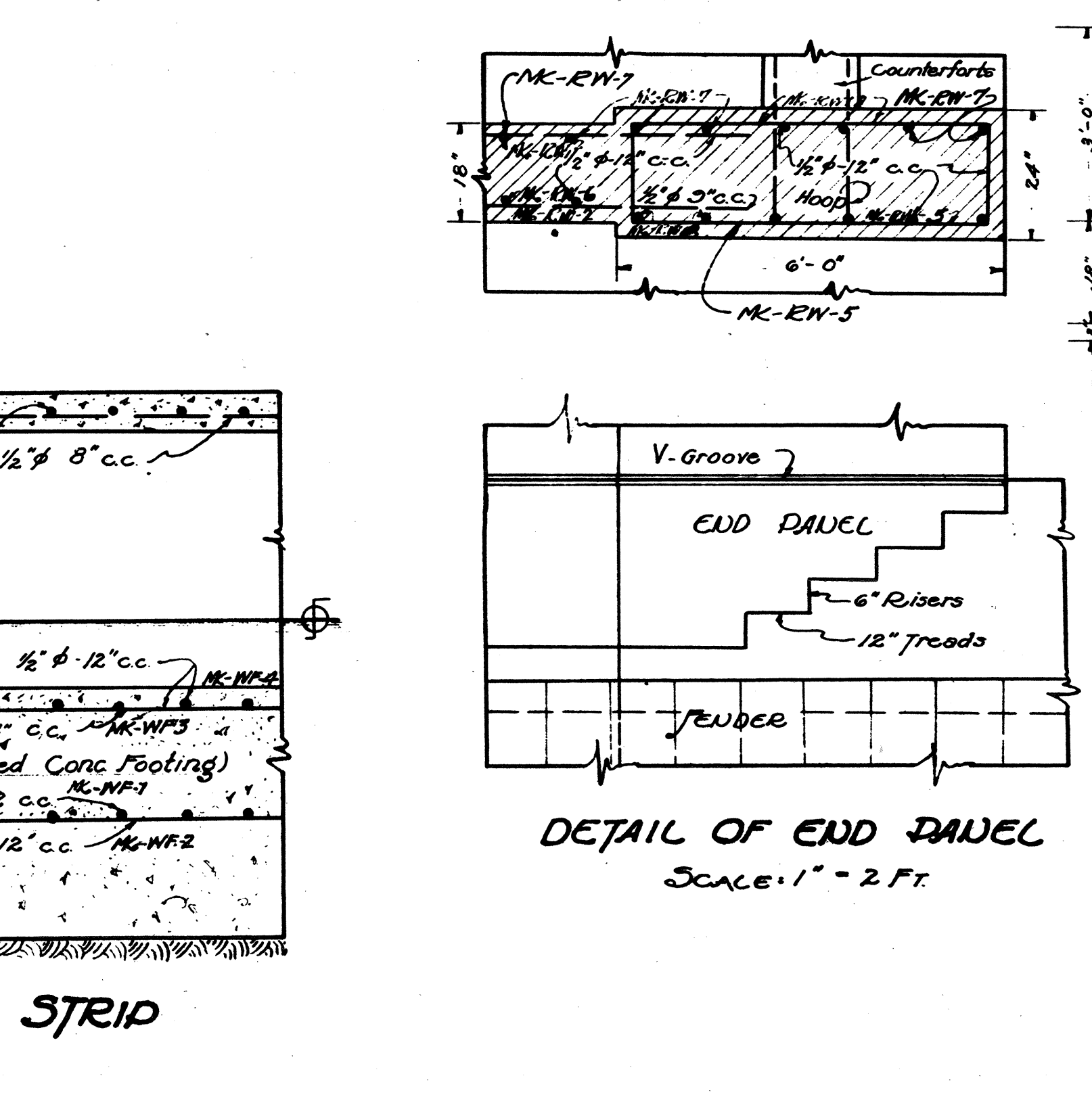
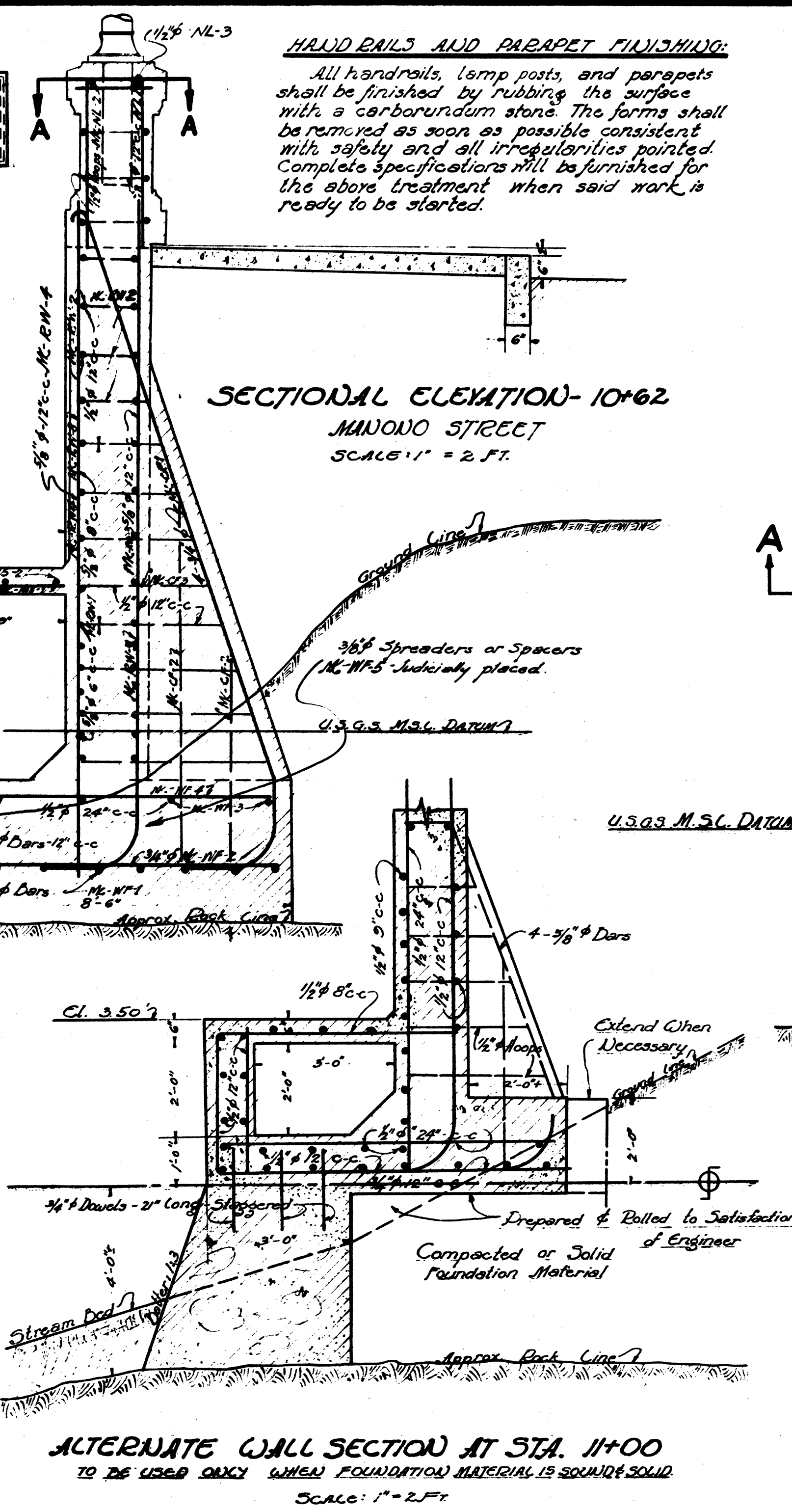
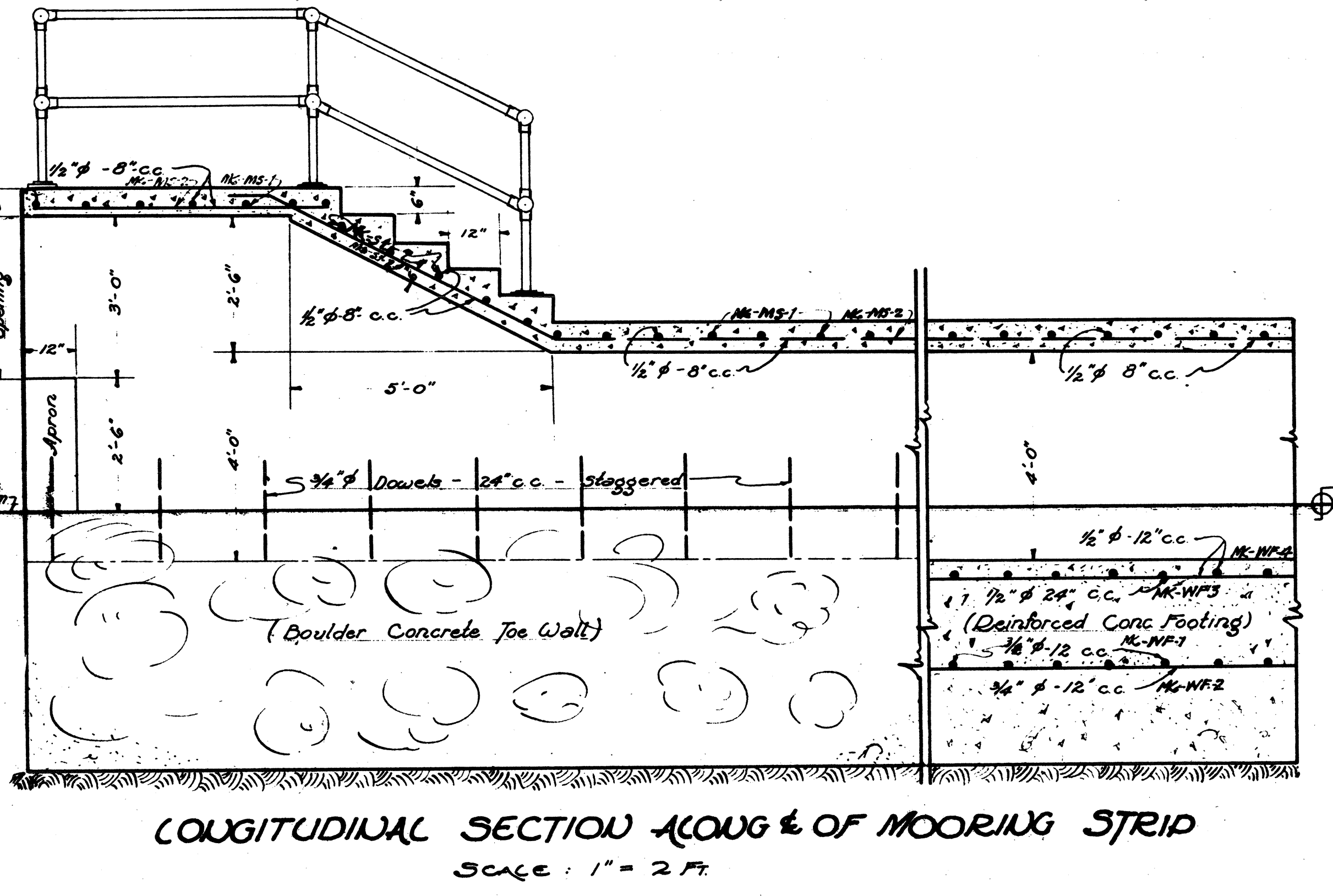
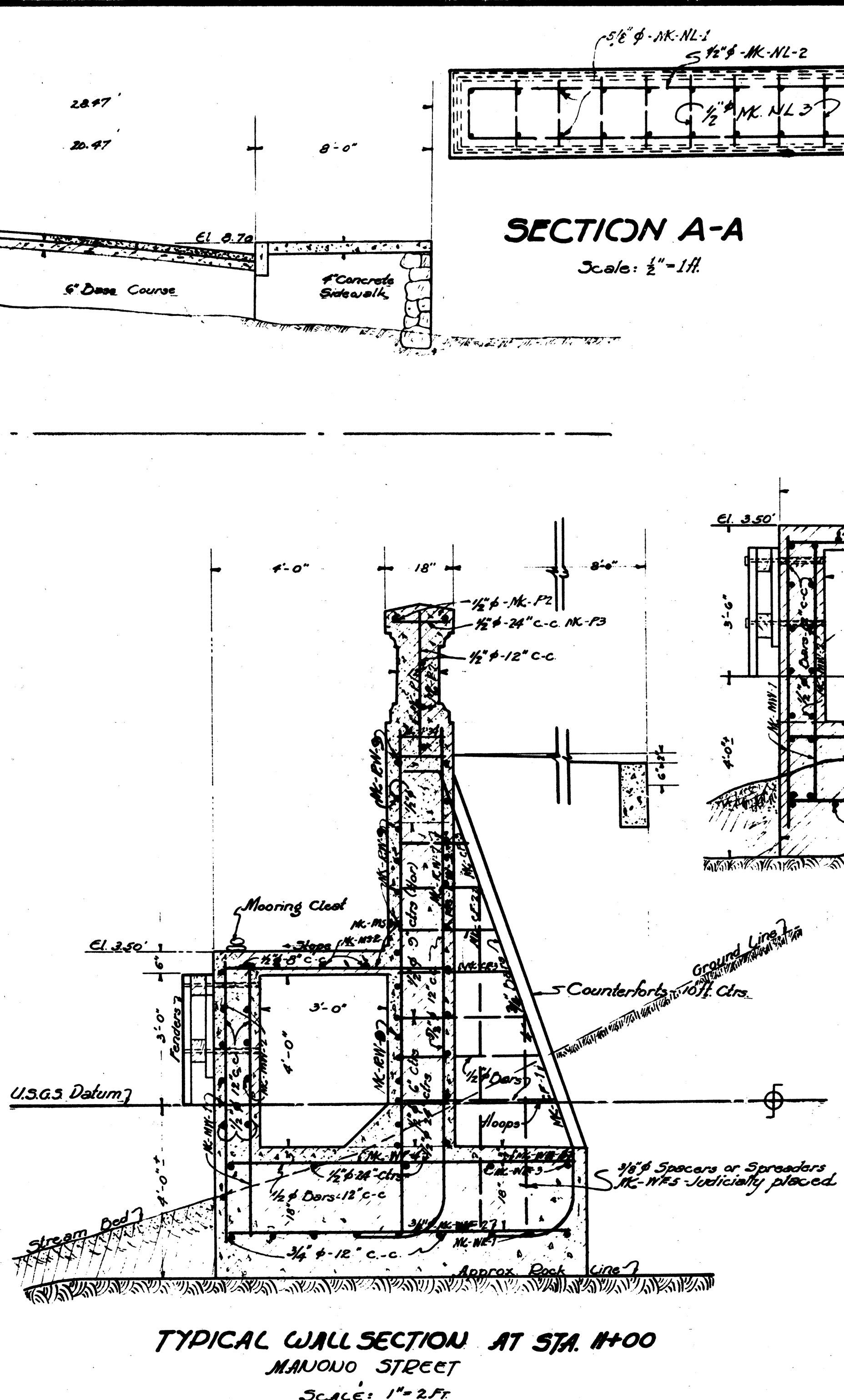
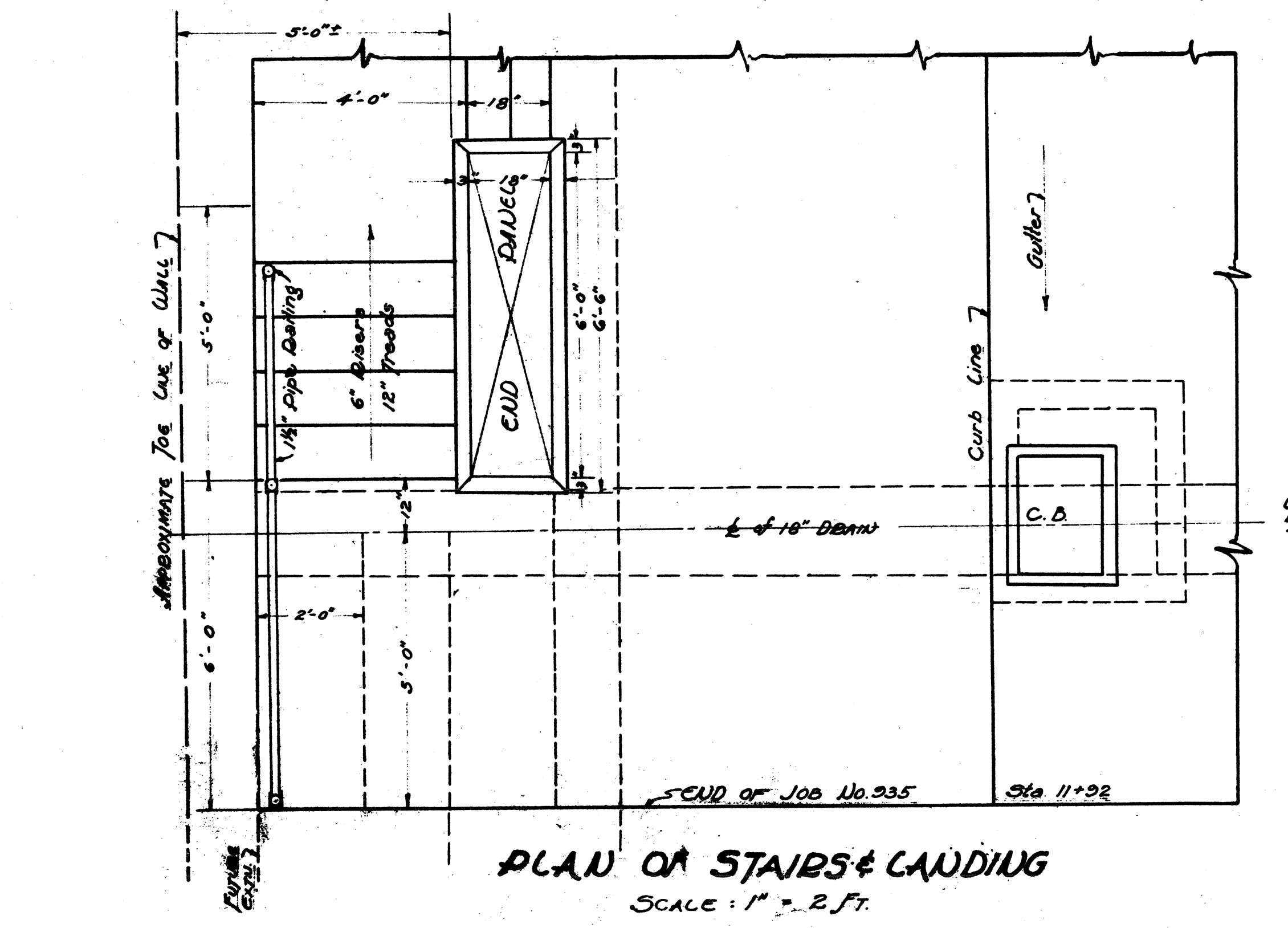
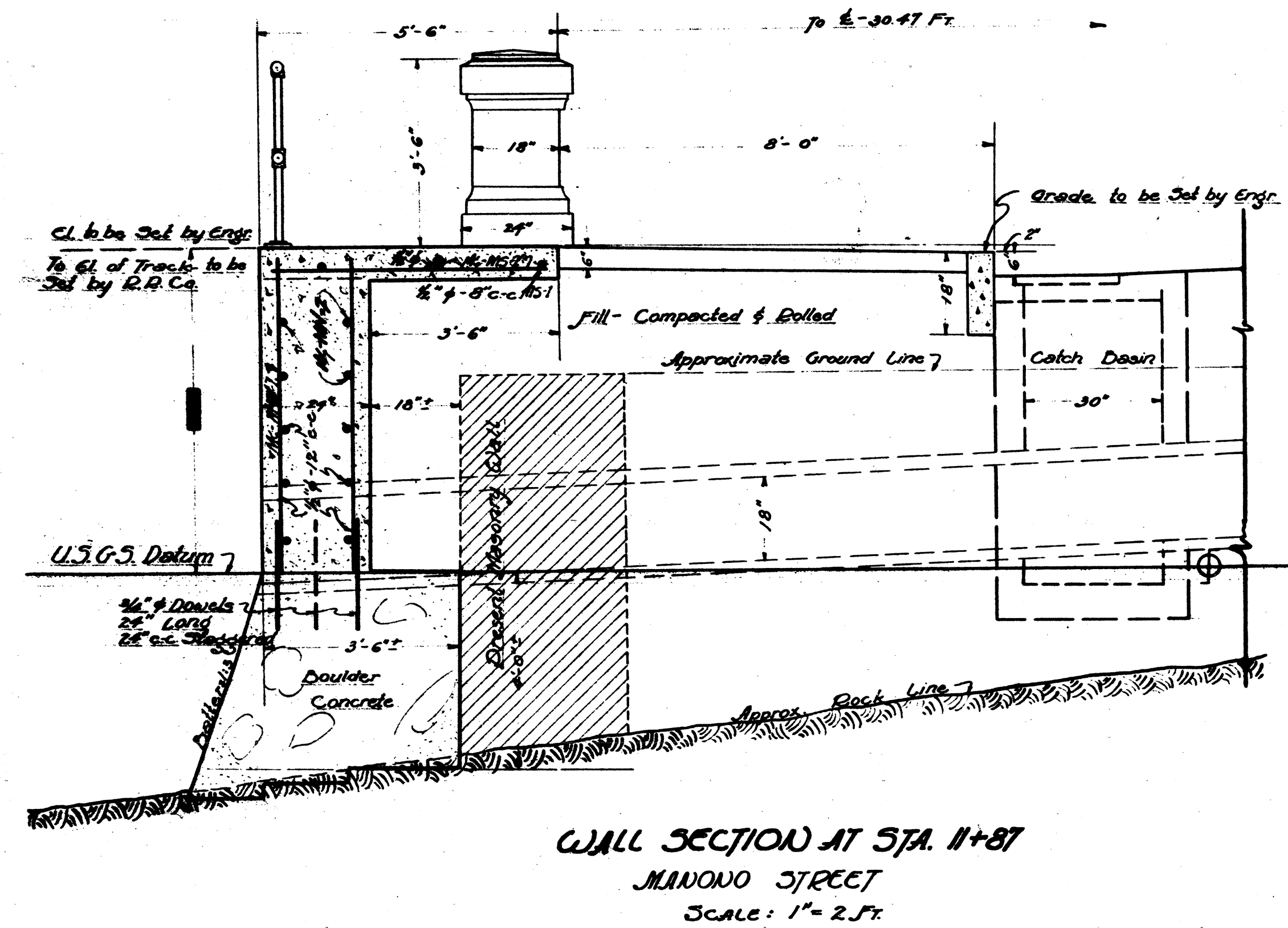
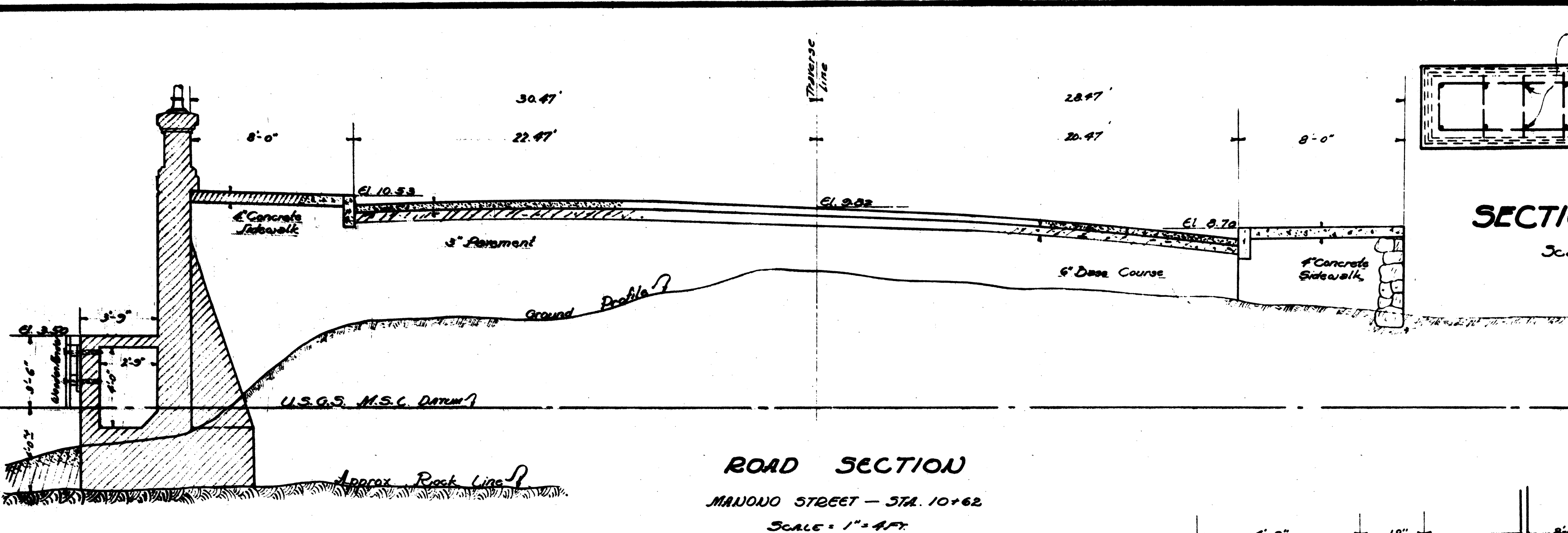


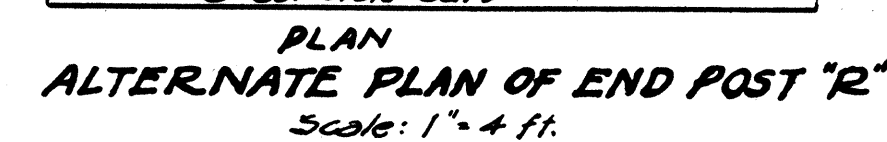
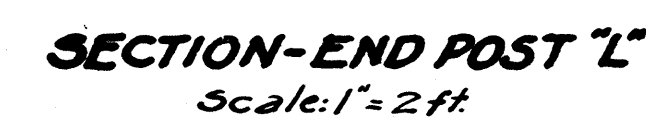
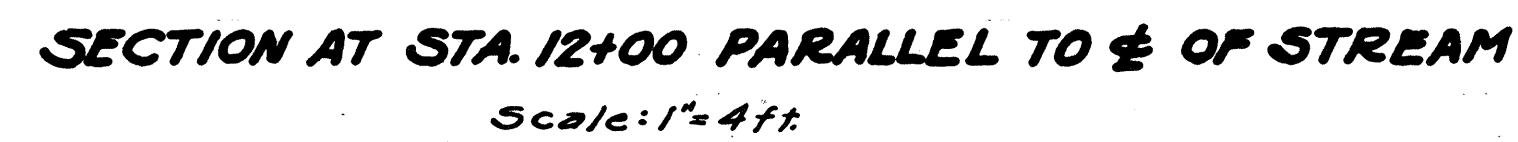
LIGHT STANDARD BASE & HANDRAILINGS
Scale - 1/2 in. = 1 Ft.



Technical drawing of a two-part pedestal. The top part is a square with a width of 12 inches and a height of 1 foot 6 inches. It has a top flange with a width of 1 foot 6 inches and a height of 1 foot 6 inches. The bottom part is a square with a width of 12 inches and a height of 1 foot 6 inches. It has a bottom flange with a width of 1 foot 6 inches and a height of 1 foot 6 inches. The drawing includes dimensions for the top flange, the main body, and the bottom flange, as well as a note about the material being 'MC-125'.

SECTION BET. POST & SPINDLE
Scale: $1\frac{1}{2}" = 1 \text{ Ft.}$

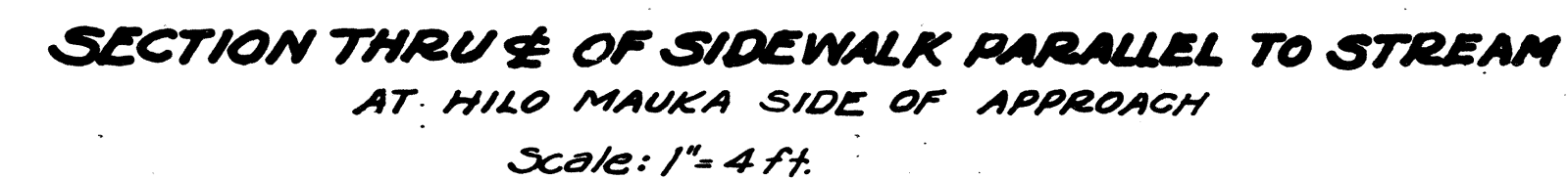
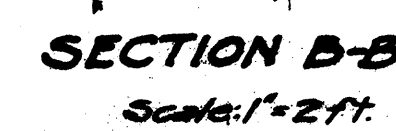
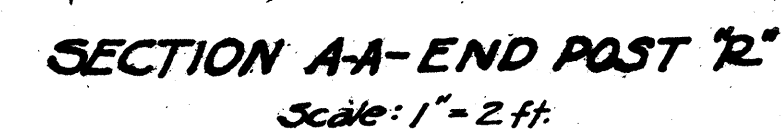




All hand rails, lamp posts, and parapets shall be finished by rubbing the surface with a corundum stone. The forms shall be removed as soon as possible consistent with safety and all irregularities painted. Complete specifications will be furnished for the above treatment when said work is ready to be started.



Scale: Full Size



Scale: 1" = 1 ft.

STEEL SCHEDULE

KAM.-WILLOA

BRIDGE

Sheet 18 of 20

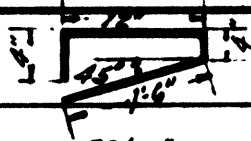
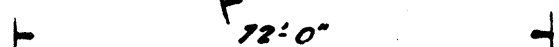
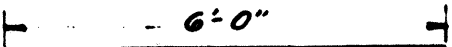
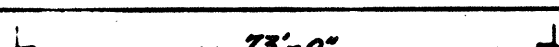
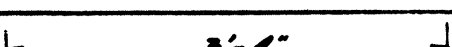
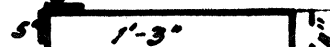
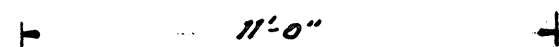
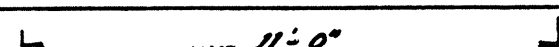
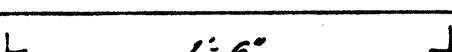
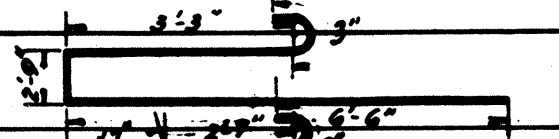
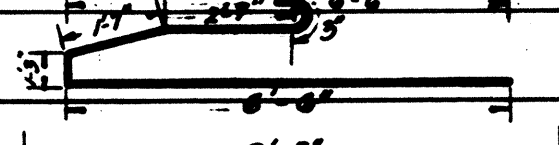
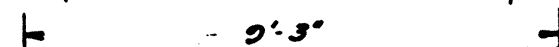
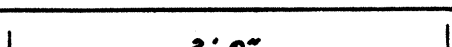
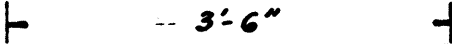
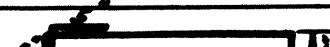
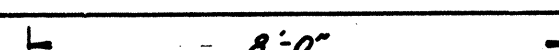
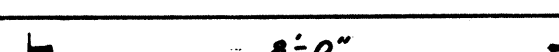
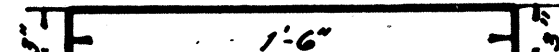
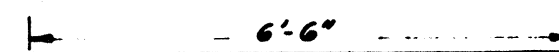
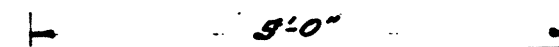
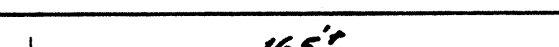
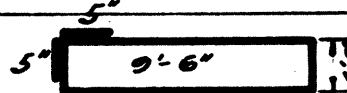
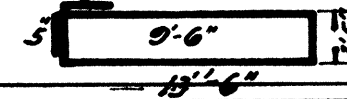
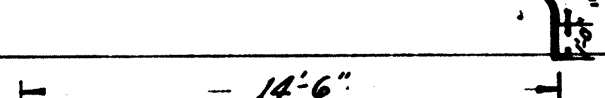
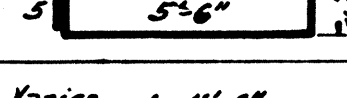
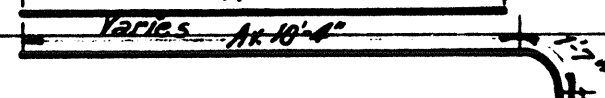
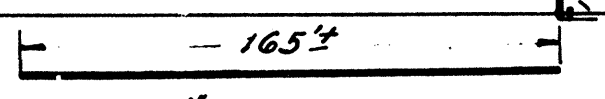
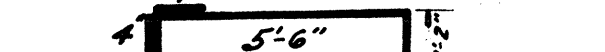
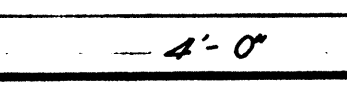
NO.	DESCRIPTION	LOCATION	SIZE	LENGTH	NO. OF DARS IN EA. UNIT	NO. OF UNITS	TOTAL NO. OF DARS	TOTAL LENGTH	WT. PER FOOT	TOTAL WEIGHT
FG1		Outer Bars FG, GG	3/4"	32'-0"	8	3	24	768.00'	5.37	4124.16
FG2		"	3/4"	25'-10"	2	3	6	755.00'	"	4054.35
FG3		"	3/4"	31'-2"	2	3	6	787.98'	"	4231.45
FG4		"	3/4"	115'-8"	2	3	6	69402'	"	3726.89
FG5		"	3/4"	57'-9"	2	6	12	693.00'	"	3721.41
FG6		"	3/4"	56'-6"	4	6	24	1356.00'	"	7287.72
FG7		"	3/4"	84'-0"	6	3	12	1512.00'	"	8119.44
FG8		"	3/4"	96'-0"	4	3	12	1152.00'	0.68	783.36
FG9		"	3/4"	21'-0"	4	6	24	504.00'	"	342.72
FG10		"	3/4"	22'-1"	4	6	24	530.00'	1.52	805.60
FG11		Stirrups	3/8"	12'-6"	32	6	192	2400.00'	0.68	1632.00
		"	3/8"	9'-6"	134	6	804	7638.00'	"	5193.84
		"	3/8"	7'-6"	24	6	144	1080.00'	"	734.40
FG12		Ties	3/8"	1'-8"	44	3	132	220.44'	0.38	83.77
CG401		Girder Bars CG, DG, HG, IG	1 1/4"	32'-0"	8	4	32	1024.00	5.37	5498.88
CG402		"	1 1/4"	126'-6"	2	4	8	1012.00	"	5434.44
CG403		"	1 1/4"	133'-0"	2	4	8	1064.00	"	5713.64
CG404		"	1 1/4"	117'-0"	2	4	8	936.00	"	5026.32
CG405		"	1 1/4"	57'-9"	2	8	16	924.00	"	4961.98
CG406		"	1 1/4"	56'-6"	4	8	32	1808.00	"	9708.96
CG407		"	1 1/4"	84'-0"	6	4	24	2016.00	"	10825.92
CG408		"	1 1/4"	96'-0"	4	4	16	1536.00	0.68	1044.48
CG409		"	1 1/4"	21'-0"	4	8	32	672.00	"	456.96
CG410		"	1 1/4"	22'-1"	4	8	32	706.65	1.52	1074.11
CG411		Stirrups	1/2"	13'-4"	32	8	256	3472.48	0.68	2320.43
		"	1/2"	9'-10"	134	8	1072	10537.76	"	7165.68
		"	1/2"	8'-4"	24	8	192	1592.36	"	1087.56
CG412		Ties	3/8"	1'-8"	44	4	176	293.92	0.38	111.69
CG301		Girder Bars CG, DG, HG, IG	1 1/4"	32'-0"	8	4	32	1024.00	5.37	5498.88
CG302		"	1 1/4"	126'-6"	2	4	8	1008.00	"	5412.96
CG303		"	1 1/4"	131'-2"	2	4	8	1050.64	"	5641.94
CG304		"	1 1/4"	115'-4"	2	4	8	922.64	"	4953.50
CG305		"	1 1/4"	57'-3"	2	8	16	916.00	"	4918.92
CG306		"	1 1/4"	56'-6"	4	8	32	1808.00	"	9708.96
CG307		"	1 1/4"	84'-0"	6	4	24	2016.00	"	10825.92
CG308		"	1 1/4"	96'-0"	4	4	16	1536.00	0.68	1044.48
CG309		"	1 1/4"	21'-0"	4	8	32	672.00	"	456.96
CG310		"	1 1/4"	22'-9"	4	8	32	728.00	1.52	1106.56
CG311		Stirrups	1/2"	12'-4"	32	8	256	3156.48	0.68	2146.41
		"	1/2"	9'-2"	134	8	1072	9819.52	"	6677.27
		"	1/2"	7'-4"	24	8	192	8407.56	"	587.00
CG312		Ties	3/8"	1'-8"	44	4	176	293.92	0.38	111.69

NO.	DESCRIPTION	LOCATION	SIZE	LENGTH	NO. OF DARS IN EA. UNIT	NO. OF UNITS	TOTAL NO. OF DARS	TOTAL LENGTH	WT. PER FOOT	TOTAL WEIGHT
FC1		Column Bars FC, EC, GC	1 1/4"	45'-6"	2	6	12	546.00	5.37	2932.02
FC2		"	1 1/4"	42'-5"	2	6	12	509.00	"	2735.54
FC3		"	1 1/4"	39'-4"	2	6	12	471.96	"	2534.43
FC4		"	1 1/4"	37'-7"	2	6	12	450.96	"	2421.66
FC5		"	1 1/4"	34'-3"	2	6	12	411.00	"	2207.07
FC6		"	1 1/4"	28'-11"	2	6	12	347.04	"	1863.61
FC7		"	1 1/4"	13'-6"	4	6	24	324.00	0.68	220.32
FC8		"	1 1/4"	15'-0"	4	6	24	360.00	5.37	1933.00
FC9		"	1 1/4"	9'-6"	4	6	24	228.00	"	1224.36
FC10		Stirrups	1/2"	10'-4"	28	6	168	1735.44	0.68	1180.10
FC11		Column Bars FC, EC, GC	1 1/4"	8'-6"	4	6	24	204.00	3.44	701.76
FC12		"	1 1/4"	8'-6"	2	6	12	102.00	0.68	69.36
FC13		"	1 1/4"	9'-0"	4	6	24	216.00	1.52	328.32
FC14		Stirrups	1/2"	15'-0"	38	6	228	3420.00	0.68	2325.60
CC401		Column Bars FC, EC, GC	1 1/4"	46'-7"	2	8	16	745.28	5.37	4002.15
CC402		"	1 1/4"	43'-6"	2	8	16	696.00	"	3737.52
CC403		"	1 1/4"	40'-3"	2	8	16	644.00	"	3458.28
CC404		"	1 1/4"	38'-4"	2	8	16	613.28	"	3293.31
CC405		"	1 1/4"	35'-0"	2	8	16	560.00	"	3007.20
CC406		"	1 1/4"	29'-9"	2	8	16	476.00	"	2556.12
CC407		"	1 1/4"	14'-0"	4	8	32	448.00	0.68	304.64
CC408		"	1 1/4"	15'-3"	4	8	32	488.00	5.37	2620.56
CC409		"	1 1/4"	10'-0"	4	8	32	320.00	"	1718.40
CC410		Stirrups	1/2"	10'-4"	28	8	224	2313.93	0.68	1573.47
CC411		Column Bars CC, DC, HC, IC	1 1/4"	8'-6"	4	8	32	272.00	3.44	935.68
CC412		"	1 1/4"	8'-6"	2	8	16	136.00	0.68	92.48
CC413		"	1 1/4"	9'-0"	4	8	32	288.00	1.52	437.76
CC414		Stirrups	1/2"	16'-4"	38	8	304	4964.36	0.68	3375.74
CC301		Column Bars CC, DC, HC, IC	1 1/4"	44'-10"	2	8	16	712.28	5.37	3851.74
CC302		"	1 1/4"	41'-7"	2	8	16	665.28	"	3672.55
CC303		"	1 1/4"	38'-6"	2	8	16	616.00	"	3307.92
CC304		"	1 1/4"	36'-7"	2	8	16	585.28	"	3142.95
CC305		"	1 1/4"	33'-3"	2	8	16	532.00	"	2856.84
CC306		"	1 1/4"	27'-0"	2	8	16	432.00	"	2319.84
CC307		"	1 1/4"	13'-6"	4	8	32	432.00	0.68	293.76
CC308		"	1 1/4"	15'-0"	4	8	32	480.00	5.37	2577.60
CC309		"	1 1/4"	9'-6"	4	8	32	304.00	"	1632.48
CC310		Stirrups	1/2"	10'-4"	28	8	224	2313.92	0.68	1573.47
CC311		Column Bars CC, DC, HC, IC	1 1/4"	8'-6"	4	8	32	272.00	3.44	935.68
CC312		"	1 1/4"	8'-6"	2	8	16	136.00	0.68	92.48
CC313		"	1 1/4"	9'-0"	4	8	32	288.00	1.52	437.76
CC314		Stirrups	1/2"	14'-8"	38	8	304	4439.68	0.68	3032.58

SHEET 18 OF 203 PAGES										
NO.	DESCRIPTION	LOCATION	SIZE	LENGTH	NO. OF DARS IN EA. UNIT	NO. OF UNITS	TOTAL NO. OF DARS	TOTAL LENGTH	WT. PER FOOT	TOTAL WEIGHT
FL1		Flanges	1"	25'	2	16	32	800.00	3.44	2752.00
FL2		"	"	9'-6"	2	16	32	304.00	"	1045.76
FL3		"	"	16'-0"	2	16	32	512.00	"	1761.28
FL4		"	"	25'	2	16	32	800.00	"	2752.00
FL5		"	"	26'-0"	2	16	32	768.00	0.68	522.24
FL6		"	"	26'-0"	2	16	32	768.00	"	522.24
FL7		"	"	6'-8"	31	14	434	2893.35	0.38	1099.47
FL8		"	"	4'-8"	31	4	124	578.67	"	219.89
LB1		Beams-LB, TB	3/4"	56'-0"	4	2	8	448.00	1.52	680.96
LB2		"	1/2"	56'-0"	2	2	4	224.00	0.68	152.32
LB3		"	3/8"	10'-5"	48	2	96	1000.00	0.38	360.00
LB4		"	3/8"	10'-2"	28	2	56	569.33	1.52	865.38
LB5		"	"	10'-6"	4	2	8	84.00	"	127.68
MB1		Beams-MB, RB	3/4"	58'-0"	4	2	8	448.00	1.52	680.96
MB2		"	1/2"	56'-0"	2	2	4	224.00	0.68	152.32
MB3		"	3/8"	7'-11"	48	2	96	760.00	0.38	288.80
MB4		"	3/8"	9'-11"	28	2	56	555.52	1.52	844.39
MB5		"	"	10'-2"	4	2	8	81.28	"	123.54
NB1		Beams-NB, OB	3/4"	56'-0"	4	2	8	448.00	1.52	680.96
NB2		"	1/2"	56'-0"	2	2	4	224.00	0.68	152.32
NB3		"	3/8"	6'-5"	48	2	96	616.00	0.38	234.08
NB4		"	3/8"	9'-8"	28	2	56	541.33	1.52	822.88
NB5		"	"	9'-8"	4	2	8	79.68	"	121.11
OB1		Beams-OB, PB	3/4"	56'-0"	4	2	8	448.00	1.52	680.96
OB2		"	1/2"	56'-0"	2	2	4	224.00	0.68	152.32
OB3		"	3/8"	5'-11"	48	2	96	568.00	0.38	215.84
OB4		"	3/8"	9'-3"	28	2	56	320.24	1.52	790.76
OB5		"	"	9'-3"	4	2	8	78.32	"	119.05
EW1		End Wall Roadway	1/2"	11'-1"	50	2	100	1108.00	0.68	753.44
EW1		End Wall Siderail	1/2"	18'-6"	11	4	44	550.00	"	374.00
EW2		End Wall	3/8"	11'-6"	14	2	28	2002.00	1.06	2122.12
SS1		Sidewalk Slab	1/2"	10'-10"	260	2	520	5631.60	18.68	3829.40
SS2		"	"	11'-4"	130	2	260	2945.80	"	2003.14
SS3		"	"	13'-8"	18	2	36	3208.00	"	2181.44
TS1		Top Slab	"	36'-0"	260	1	260	14560.00	"	9900.80
TS2		"	"	38'-0"	130	1	130	7540.00	"	5127.20
TS3		Top Slab	"	13'-8"	80	1	80	10693.60	"	7271.65

STEEL SCHEDULE

MK	DESCRIPTION	LOCATION	SIZE	LENGTH	No. OF DARS IN EA. UNIT	No. OF UNITS	TOTAL NO. OF DARS	TOTAL LENGTH	WT. PER FOOT	TOTAL WEIGHT
DS1		Bottom Slab	1/2" x 12"	72'-4"	40	2	80	5736.20	0.68	3934.75
DS2		Bottom Slab	1/2" x 12"	75'-9"	20	2	40	3030.20	"	2060.74
DS3		Bottom Slab	1/2" x 12"	23'-0"	12	2	24	552.00	"	395.36
DS4		"	1/2" x 12"	10'-10"	40	4	160	1733.33	"	1110.64
DS5		"	1/2" x 12"	11'-3 1/2"	20	4	80	903.20	"	644.18
DS6		"	1/2" x 12"	21'-0"	12	4	48	1008.00	"	685.44
AS1		Approach Slab Hilo	1/2" x 12"	8'-0"	81	1	81	648.00	0.68	440.64
AS1		Approach Slab Puna	1/2" x 12"	8'-0"	79	1	79	632.00	"	429.76
AS2		Approach Slab Sidewalk-Hilo	1/2" x 12"	11'-2"	11	2	22	245.52	"	166.95
AS2		Approach Slab Sidewalk-Puna	1/2" x 12"	15'-3"	11	2	22	335.50	"	228.14
AS3		Approach Slab Roadway-Hilo	1/2" x 12"	60'-0"	11	1	11	660.00	"	448.80
AS3		Approach Slab Roadway-Puna	1/2" x 12"	54'-3"	11	1	11	602.25	"	409.53
EF1		End Footing & Apron Wall	3/8" x 5"	5'-6"	81	1	81	445.50	1.06	472.23
EF2		"	3/8" x 5"	7'-2"	81	1	81	434.50	"	460.57
EF3		"	3/8" x 5"	5'-8"	81	1	81	580.50	"	615.33
EF4		End Footing & Apron Wall-Sidewalk	3/8" x 5"	6'-1"	44	1	44	262.65	"	283.71
EF5		Roadway	3/8" x 5"	5'-3"	116	2	232	1218.00	"	1291.08
EF6		Sidewalk	3/8" x 5"	5'-11"	22	1	22	130.17	"	137.98
EF7		Roadway	3/8" x 5"	5'-1"	18	1	18	106.50	"	112.89
EF8		"	3/8" x 5"	80'-0"	9	1	9	720.00	0.68	489.60
EF9		"	3/8" x 5"	78'-0"	9	1	9	702.00	"	477.36
EF10		"	3/8" x 5"	82'-0"	16	1	16	1328.00	"	903.04
EF11		"	3/8" x 5"	80'-0"	16	1	16	1296.00	"	881.28
EF12		"	3/8" x 5"	13'-0"	2	1	2	27.00	"	18.36
EF13		"	3/8" x 5"	10'-0"	2	1	2	21.00	"	14.28
A1		Breastwall	3/8" x 11"	71'-2"	24	2	48	3408.00	1.06	3612.48
A2		"	3/8" x 11"	11'-6"	104	2	208	2392.00	0.38	908.96
A3		"	3/8" x 11"	10'-5"	60	2	120	1250.00	0.68	850.00
A4		"	3/8" x 11"	71'-2"	9	2	18	1278.00	"	862.04
A5		"	3/8" x 11"	3'-9"	71	2	142	532.50	"	362.10
F1		Abutment Fing.	1" x 12"	11'-11"	7	22	154	1835.17	3.44	6312.98
F2		"	3/4" x 12"	11'-5"	89	2	178	2260.51	1.52	3435.90
F3		"	3/4" x 12"	11'-2"	84	2	168	1876.00	1.06	1988.56
F4		"	1" x 12"	83'-0"	11	2	22	1826.00	"	1995.56
F5		"	1" x 12"	12'-11"	7	22	154	1989.17	3.44	6842.75
F6		"	3/4" x 12"	2'-6"	500	1	500	1250.00	0.68	850.00
F7		"	3/4" x 12"	83'-0"	20	2	40	3320.00	1.52	5046.40
H1		Hinge Bars	1" x 12"	11'-4"	6	22	132	1495.56	3.44	5144.73
H2		"	1" x 12"	11'-4"	6	22	132	1495.56	3.44	5144.73
MW1		Mooring Wall	3/4" x 6"	6'-6"	160	2	320	2080.00	0.68	1414.40
MW2		"	3/4" x 6"	80'-2"	10	2	20	1600.00	"	1088.00
MS1		Mooring Slab	3/4" x 6"	3'-6"	80	2	160	560.00	"	380.80
MS2		"	3/4" x 6"	80'-2"	3	2	6	480.00	"	326.40

MK	DESCRIPTION	LOCATION	SIZE	LENGTH	No. OF DARS IN EACH UNIT	No. OF UNITS	TOTAL No. OF DARS	TOTAL LENGTH	WT. PER FOOT	TOTAL WEIGHT
S1		Shelf	1/2"	3'-2"	73	2	146	462.32	0.68	344.39
S2		"	"	72'-0"	2	2	4	288.00	"	195.84
T1		Tide Wall	1/2"	6'-0"	73	2	146	876.00	0.68	595.68
T2		"	"	73'-0"	4	2	8	584.00	"	397.12
R1		Railing Balustrade	1/2"	3'-0"	72	2	144	432.00	0.68	223.76
R2		" "	"	3'-4"	4	14	56	186.48	0.68	126.81
R3		" "	3/8"	5'-2"	3	14	42	216.98	0.38	82.34
R4		Railing Balustrade	1/2"	11'-0"	2	16	32	352.00	0.68	239.36
R5		" "	3/8"	11'-0"	2	16	32	352.00	1.52	535.04
R6		" "	3/8"	0'-11"	2	144	288	264.00	0.68	179.52
MC		Dowels	3/8"	1'-6"	4	14	56	84.00	1.52	127.68
ML1		Main Lt. Post	3/8"	12'-9"	10	4	40	510.00	1.06	520.60
ML2		" " "	"	12'-2"	9	4	36	437.36	1.06	464.03
ML3		" " "	1/2"	9'-3"	10	4	40	370.00	0.68	251.60
ML4		" " "	"	3'-0"	9	4	36	108.00	0.68	73.44
ML5		" " "	"	2'-3"	10	4	40	90.00	0.68	61.20
ML6		" " "	"	4'-0"	10	4	40	160.00	"	108.80
ML7		" " "	"	14'-6"	4	4	16	232.00	"	157.76
NL1		Minor Lt. Post	3/8"	3'-6"	20	3	60	210.00	1.06	222.60
NL2		" " "	1/2"	2'-6"	4	3	12	258.00	0.68	175.44
NL3		" " "	"	2'-8"	8	3	24	64.00	"	43.52
WF1		Wall Footing Puna Makai	3/4"	165'	9	1	9	1485.00	1.52	2257.20
WF2		" "	"	8'-0"	166	1	166	1328.00	"	2018.56
WF3		" "	1/2"	165'	5	1	5	825.00	0.68	561.00
WF4		" "	"	8'-0"	83	1	83	664.00	"	451.52
WF5		" "	3/8"	2'-0"	170	1	170	340.00	0.38	129.20
MW1		Mooring Wall Puna Makai	1/2"	6'-6"	166	1	166	1079.00	0.68	733.72
MW2		" "	"	165'	10	1	10	1650.00	"	1122.00
MS1		Mooring Slab Puna Makai	"	5'-0"	249	1	249	1245.00	"	846.60
MS2		" "	"	165'	3	1	3	495.00	"	336.60
RW1		Retaining Wall Puna Makai	5/8"	22'-8"	11	1	11	249.37	1.06	265.64
RW2		" "	1/2"	22'-8"	5	1	5	113.35	0.68	77.08
RW3		" "	3/8"	16'-1"	10	1	10	160.80	1.06	170.45
RW4		" "	"	14'-6"	10	1	10	145.00	"	153.70
RW5		" "	1/2"	14'-10"	10	1	10	148.30	0.68	100.84
RW6		" "	3/8"	11'-4"	155	1	155	1756.15	1.06	1861.52
RW7		" "	3/8"	12'-11"	155	1	155	2002.60	"	2122.76
RW8		" "	1/2"	165'	25	1	25	4125.00	0.68	2805.00
RW9		" "	3/8"	14'-0"	4	1	4	56.00	0.38	21.28
RW10		" "	1/2"	4'-0"	14	1	14	56.00	0.68	38.08

KAM-WALOIA BRIDGE SHEET 19 OF 20 SHEETS										
MK.	DESCRIPTION	LOCATION	SIZE	LENGTH	No. OF DASH UNITS	No. OF UNITS	TOTAL No. OF DARS	TOTAL LENGTH	WT. PER FT.	TOTAL WEIGHT
P1		Parapet Wall Puna Makai	1/2"	3'-6"	156	1	156	546.00	0.68	371.28
P2		" "	"	155'-2"	5	1	5	775.00	"	527.00
P3		" "	"	1'-2"	156	1	156	180.96	"	123.05
CF1		Counterfort Puna Makai	3/4"	18'-0"	4	17	68	1224.00	1.52	1860.48
CF2		" "	1/2"	6'-6"	4	17	68	442.00	0.68	300.56
CF3		" "	"	7'-4"	9	17	153	1121.40	"	762.61
ST 1		Steps Puna Makai	1/2"	8'-0"	6	1	6	48.00	0.68	32.64
ST 2		" "	"	5'-0"	6	1	6	30.00	"	20.40
WF1		Wall Footing Puna Makai	3/4"	172'-2"	9	1	9	1548.00	1.52	2352.96
WF2		" "	"	8'-0"	173	1	173	1584.00	"	2103.68
WF3		" "	1/2"	172'-2"	5	1	5	860.00	0.68	584.80
WF4		" "	"	8'-0"	77	1	77	616.00	"	418.88
WF5		" "	3/8"	2'-0"	175	1	175	350.00	0.38	133.00
MM1		Mooring Wall Puna Makai	1/2"	6'-6"	173	1	173	1124.50	0.68	764.66
MM2		" "	"	172'-2"	10	1	10	1720.00	"	1169.60
MS1		Mooring Slab Puna Makai	"	5'-0"	258	1	258	1290.00	"	877.20
MS2		" "	"	172'-2"	3	1	3	516.00	"	350.88
RM1		Retaining Wall Puna Makai	5/8"	22'-8"	11	1	11	249.37	1.06	264.33
RM2		" "	1/2"	22'-8"	5	1	5	113.35	0.68	77.08
RM3		" "	5/8"	15'-7"	10	1	10	155.80	1.06	165.15
RM4		" "	"	14'-0"	10	1	10	140.00	"	142.40
RM5		" "	1/2"	14'-10"	10	1	10	148.50	0.68	100.84
RM6		" "	5/8"	11'-0"	163	1	163	1793.00	1.06	1900.50
RM7		" "	"	12'-9"	163	1	163	2050.54	"	2175.57
RM9		" "	1/2"	172'-2"	25	1	25	4300.00	0.68	2924.00
RM10		" "	3/8"	14'-0"	4	1	4	56.00	0.38	21.28
RM11		" "	1/2"	4'-0"	14	1	14	56.00	0.68	38.08
P1		Parapet Wall Puna Makai	1/2"	3'-6"	163	1	163	570.50	0.68	387.94
P2		" "	"	142'-2"	5	1	5	710.00	"	482.80
P3		" "	"	1'-2"	163	1	163	189.08	"	128.57
CF1		Counterforts Puna Makai	3/4"	18'-0"	4	18	72	1996.00	1.52	2121.92
CF2		" "	1/2"	6'-6"	4	18	72	468.00	0.68	318.24
CF3		" "	"	7'-4"	9	18	162	1187.46	"	807.47
WF1		Wall Footing Hilo	3/4"	105'-2"	9	1	9	945.00	1.52	1436.40
WF2		" "	"	8'-0"	106	1	106	848.00	"	1288.96
WF3		" "	1/2"	105'-2"	5	1	5	525.00	0.68	357.00
WF4		" "	"	8'-0"	53	1	53	424.00	0.68	288.32
WF5		" "	3/8"	2'-0"	110	1	110	220.00	0.38	83.60

SCHEDULE OF QUANTITIES

REINFORCING STEEL BARS

DESIGNATION	DESCRIPTION	WEIGHT
PILES	Deformed Bars	68,500 Lbs
BRIDGE PROPER	" "	371,865 "
APPROACHES	" "	54,150 "
	TOTAL WT	494,515 "

WATER-PROOFING

DESIGNATION	ANTI-HYDRO	HYDRATED LIME
PILES	541 Gals	
BRIDGE	1506 "	142 Bags
APPROACHES		407 "
TOTALS	2047 Gals	549 Bags

CONCRETE

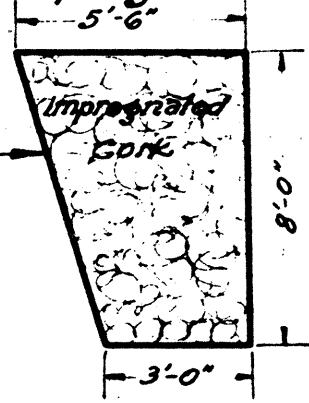
DESIGNATION	QUANTITY	MIX
PILES	236 Cu yds.	1: 1 1/2: 2 3/4
BRIDGE PROPER: Orders, Beams, Slabs and Apron Walls	892 - "	1: 2 1/4: 3 1/4
Railings, Spindles & Posts	33 - "	1: 2 1/2: 3 1/2
Columns & Footings	420 - "	1: 2: 4
APPROACHES: Parapets & Sidewalks	215 - "	1: 2: 4
Light Posts, Wall Footings, Mooring Strip, Retaining Wall, & Counterforts.	1080 - "	1: 2: 4

FENDER MATERIALS

MATERIAL	SIZE	QUANTITY
LUMBER	2"x12"	2715 Bd. Ft.
"	4"x6"	2172 - "
"	2"x6"	2173 - "
Bolts (G.I.) 3/4"x10"	1"x1 1/2"	218 pcs. 218 pcs.
Mooring Cleats with Bolts	12"(G.I.)	60 "
Pipe Railings (G.I.)	1 1/2" dia.	54 Lin. Ft.
Fittings (G.I.) See Plans.	1 1/2" dia.	18 Pcs.
2" Pipe Drains (G.I.) Counterweight Chambers	9" long	60 - "

CORK STRIPS

4 pcs. 1 inch thick 1'-0" x 34'-0" long - impregnated cork
4 pcs. 1 1/2 inch thick 5'-6" x 22'-0" " - impregnated cork
4 pcs. 1 1/4 inch thick see sketch



ANGLES

2 pcs. 7" x 5" x 3/16" - 52'-0" long
2 pcs. 5 1/2" x 5" x 3/16" - 52'-0" long

TREAD PLATE

3/16"x9" { 7'-6" long
11'-0" "
11'-0" "
12'-0" "

BEARING PLATE

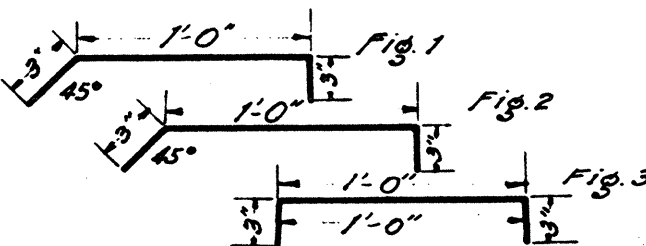
3/16"x4" { 6'-6" long
10'-0" "
10'-0" "
11'-0" "

COVER PLATE

2 pcs. 3/16" x 14" - 52'-0" long

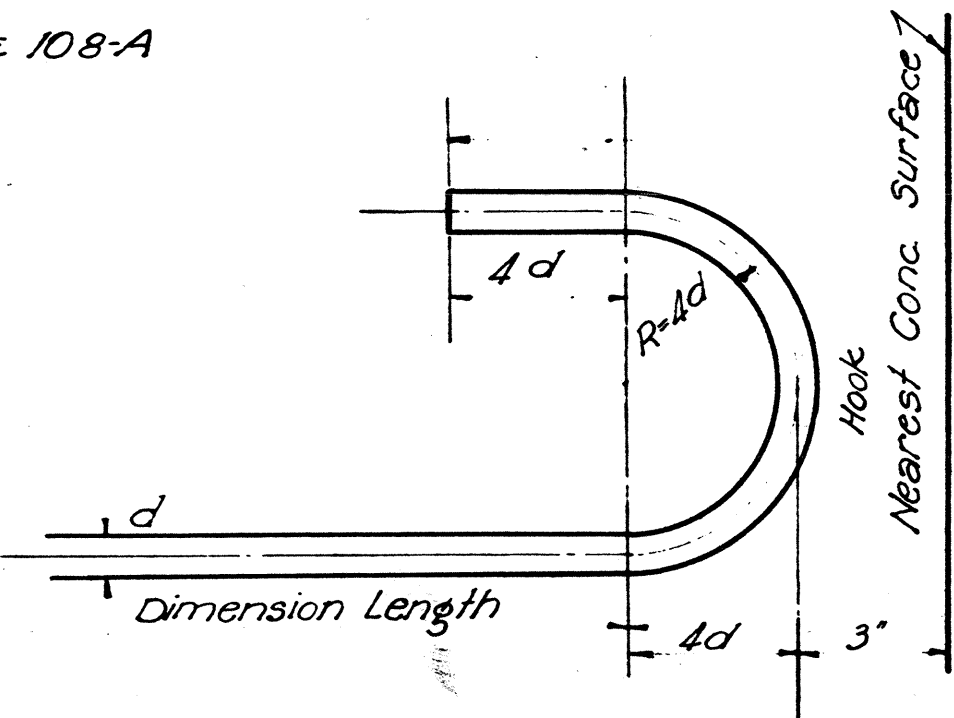
ANCHORS

45 pcs. 3/16" x 1" see Fig. 1
136 pcs. 3/16" x 1" " Fig. 2
136 pcs. 3/16" x 1" " Fig. 3



8 Manhole Frames & Covers - TYPE 103

7 Catch Basin Frames & Covers - TYPE 108-A



HOOK DETAIL