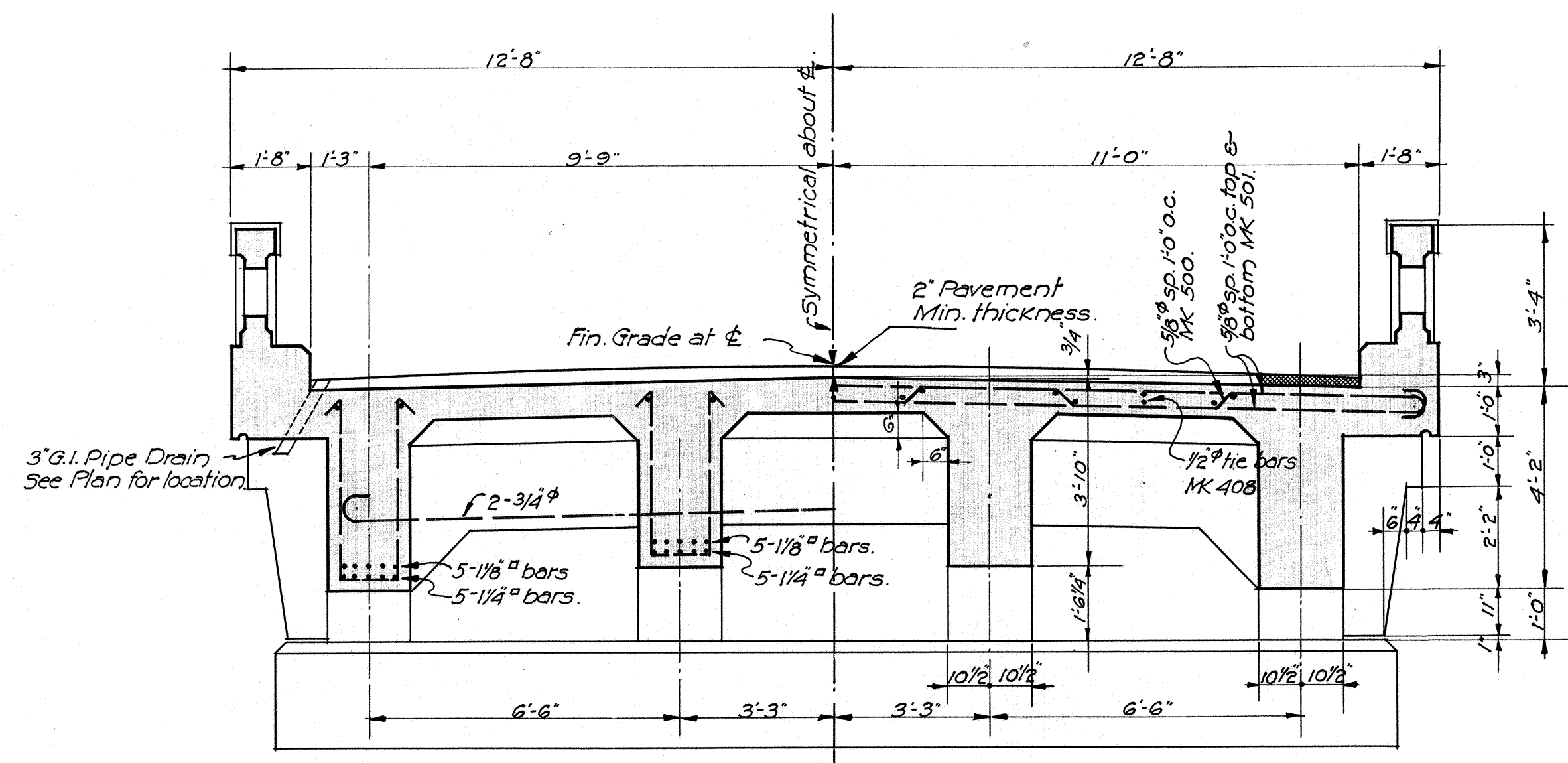
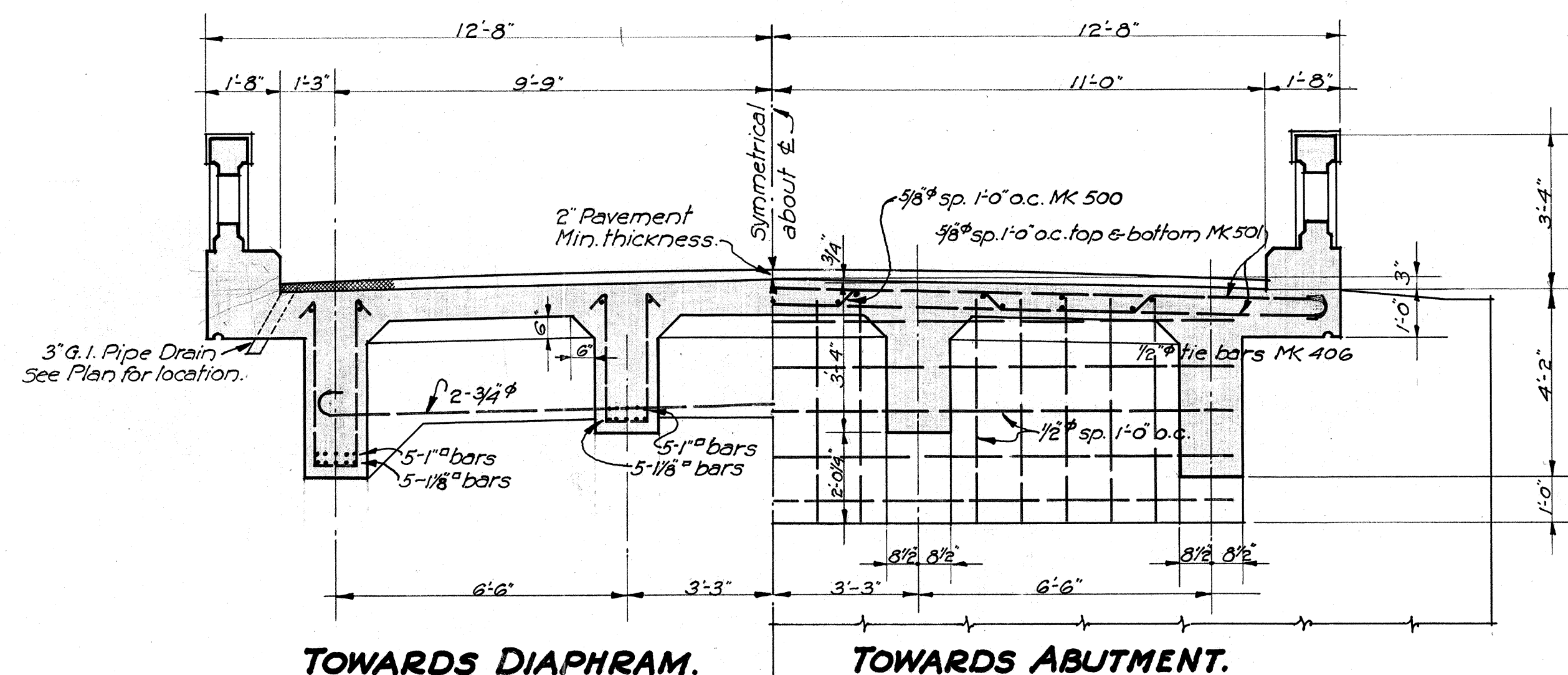
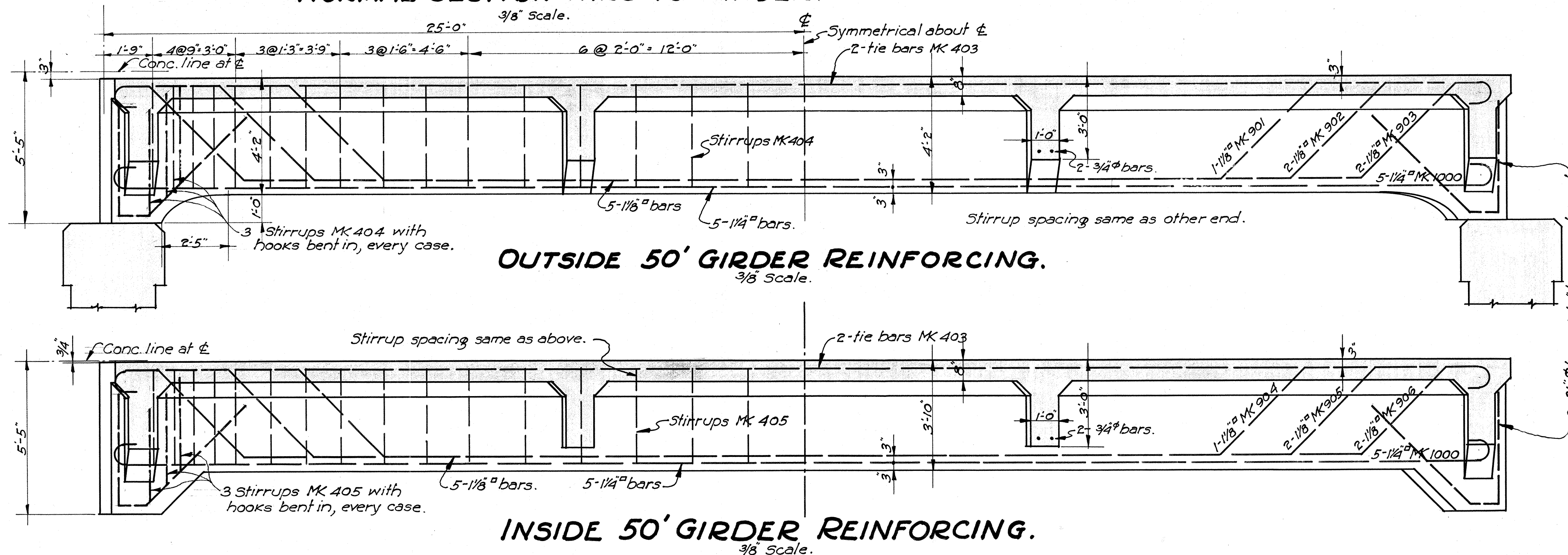




NORMAL SEC. THRU 50' GIRDER AT PIER #2.
3/8" Scale.

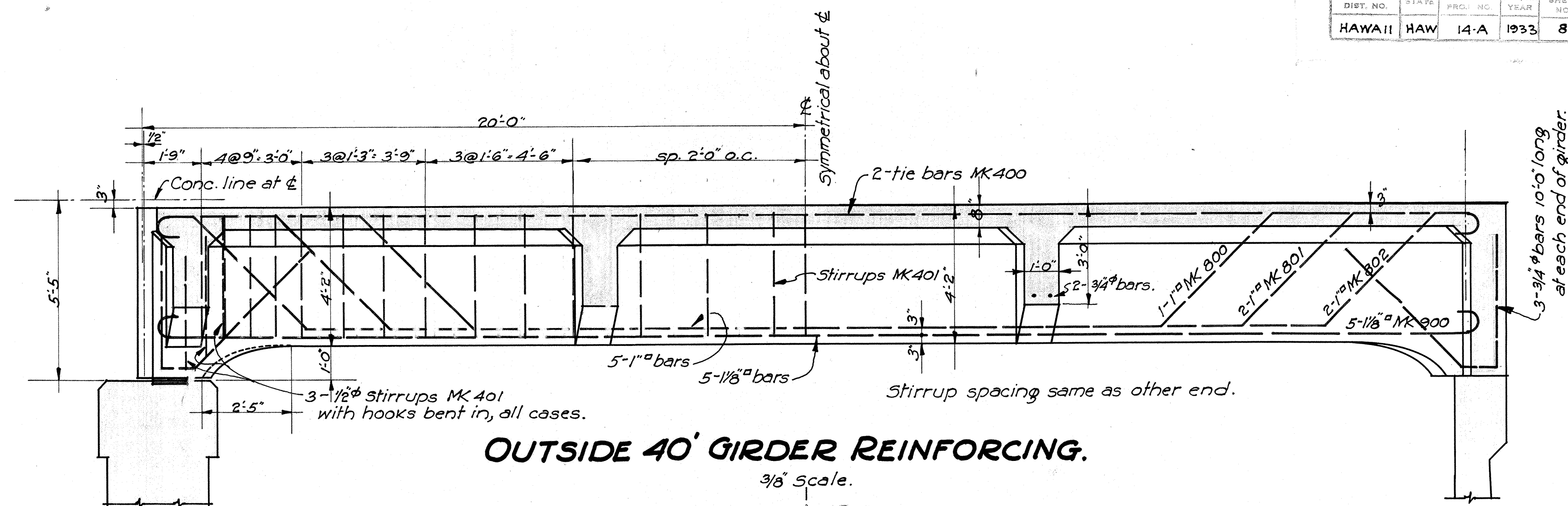


NORMAL SECTION THRU 40' GIRDER.
3/8" Scale.

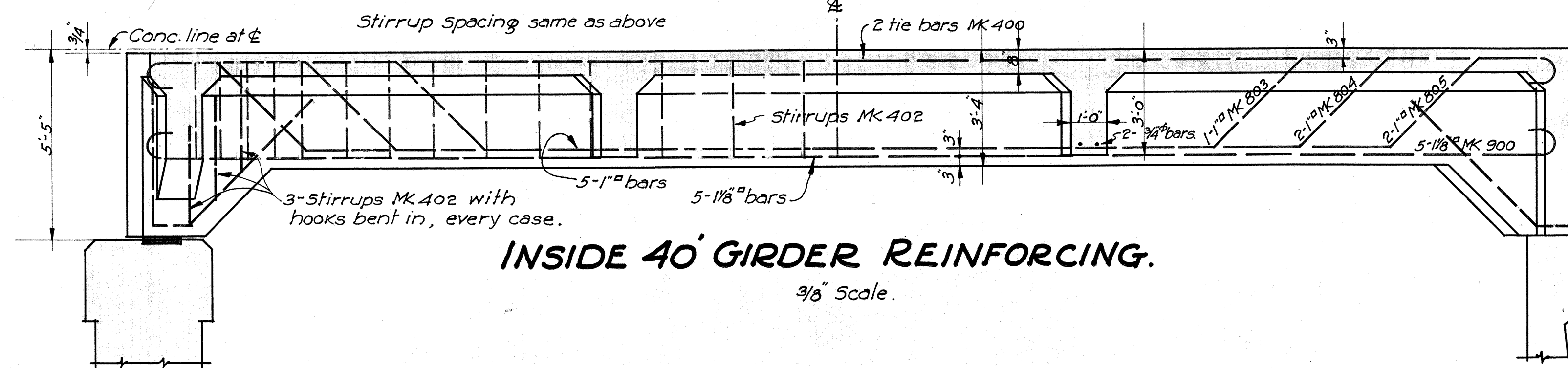


OUTSIDE 50' GIRDER REINFORCING.
3/8" Scale.

INSIDE 50' GIRDER REINFORCING.
3/8" Scale.



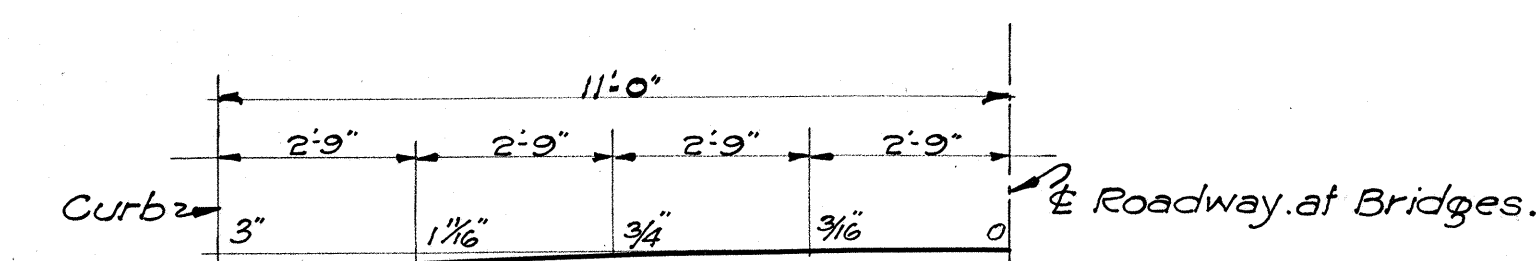
OUTSIDE 40' GIRDER REINFORCING.
3/8" Scale.



INSIDE 40' GIRDER REINFORCING.
3/8" Scale.

Depressed V Letters 3/8" deep NAME Use correct name of stream. Left Hand Side	3/8" deep DATE Date of year built. Right Hand Side.
--	--

DETAIL OF LETTERS & FIGURES.



ORDINATES FOR TEMPLATE FOR CROWN OF ROADWAY SLAB.

Note - For normal section at bridges, top of concrete is a straight line from curb to curb. Top of finished pavement however must conform with template as shown above, having a min. thickness of 2" at curb and 4".

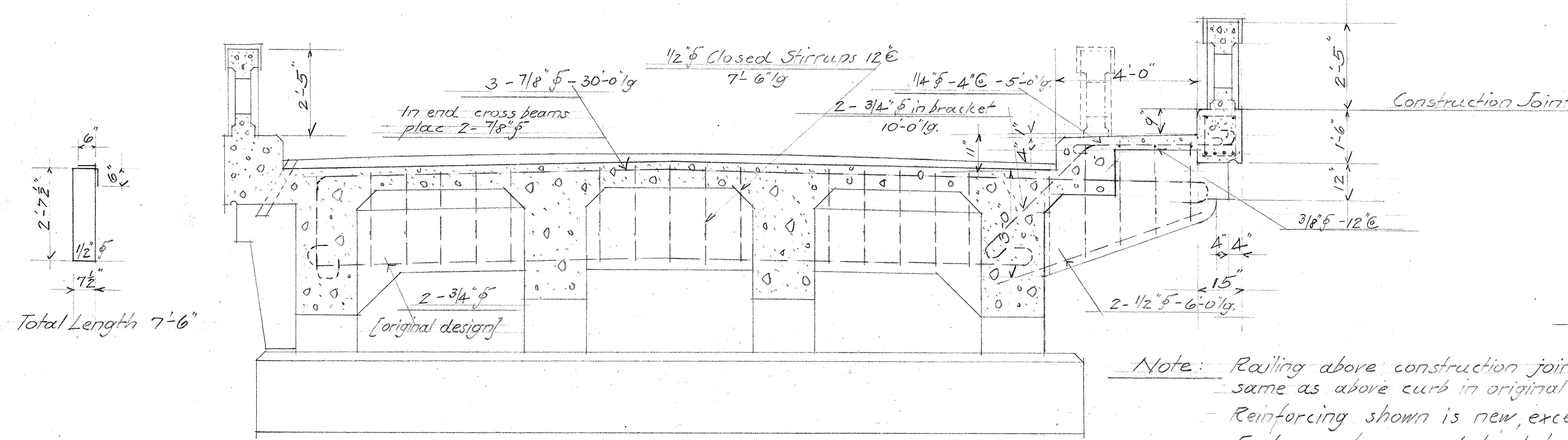
For full super-elevated section at bridges top of concrete is a straight line from curb to curb, and top of finished pav't. is also a straight line having a minimum thickness of 2".

TERRITORIAL HIGHWAY DEPARTMENT.
TERRITORY OF HAWAII.

KAPEHU BRIDGE.

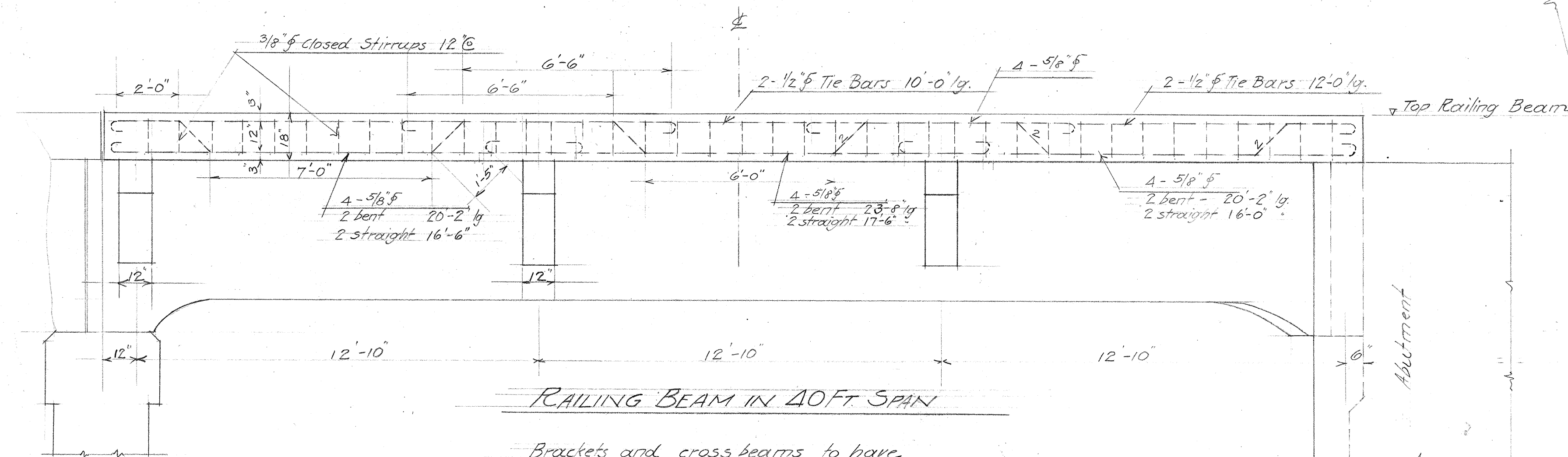
NO. 119 STA. 22+09.25 TO STA. 23+40.75
HAWAII BELT ROAD F.A.P. No 14 A.
MARCH 1933 SHEET NO 2 OF 7 SHEETS.

4282.8

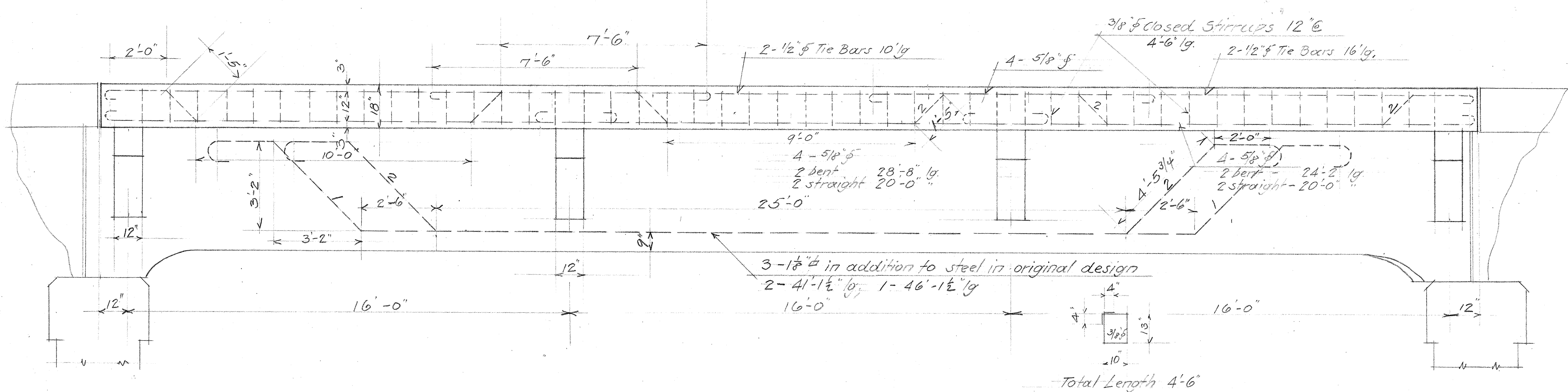


SECTION THRU 50' GIRDER AT PIER 2

Note: Railing above construction joint same as above curb in original design. Reinforcing shown is new, except as noted. End cross beams and brackets to have same reinforcing, except as noted.

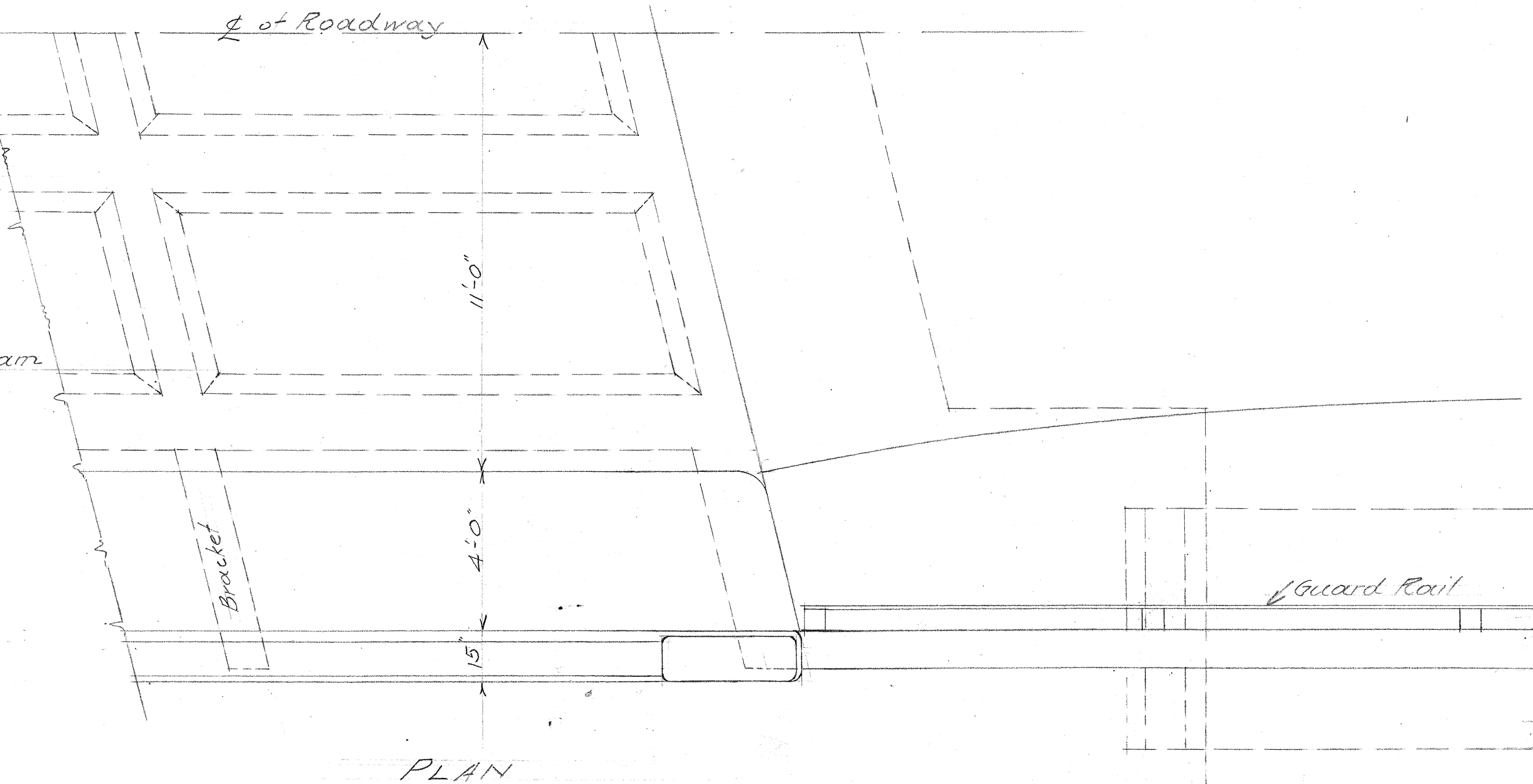


Brackets and cross beams to have same reinforcing as shown for 50' girder.



RAILING BEAM IN 50 FT. SPAN

SCALE 3/8" = 1'-0"



NOTE: This sheet shows additions and changes to original design due to arrangement of side walk on right hand side of bridge. It supersedes sheets #1 to 7 in so far as these changes and additions are concerned.

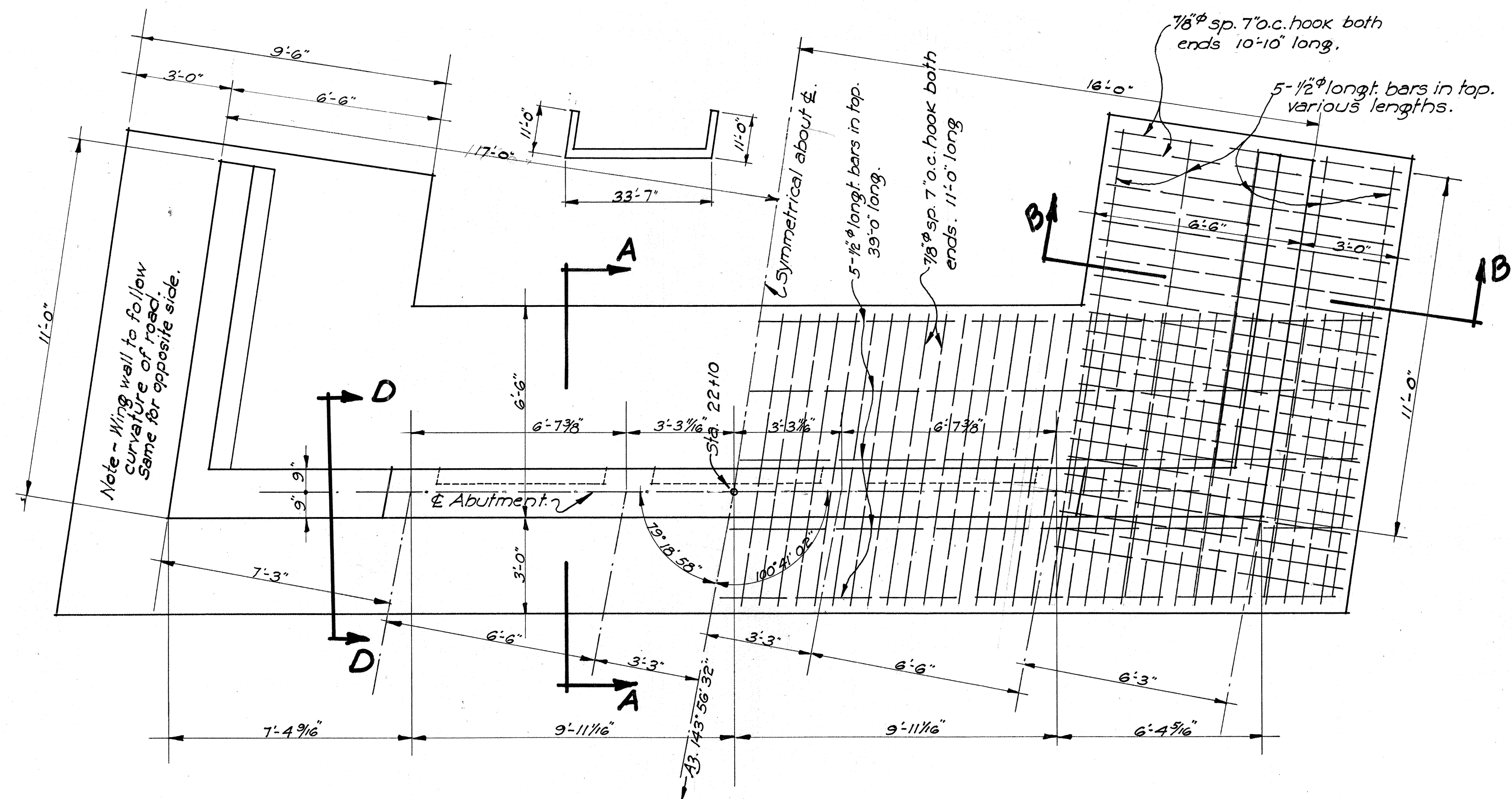
QUANTITIES	
Class A Concrete	14.2 cu. yd.
Reinforcing Steel	5190 lb.

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII.

KAPEHU BRIDGE.

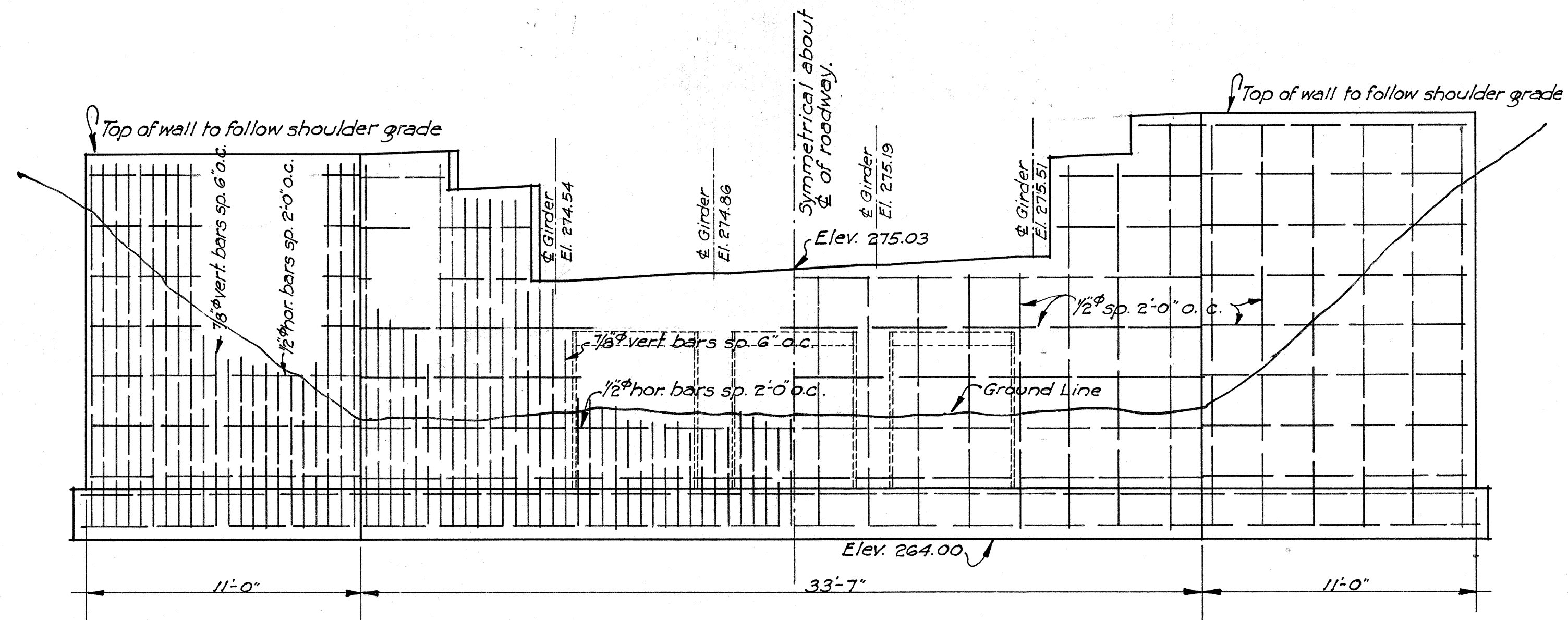
NO. 119 STA. 22+09.25 TO STA. 23+40.75
HAWAII BELT ROAD F.A.R. NO. 14 A.
AUGUST, 1933 SHEET NO. 2-A OF 7 SHEETS.

4282.8A



PLAN OF ABUTMENT AT STA. 22+10.
Scale 3/8" = 1'-0".

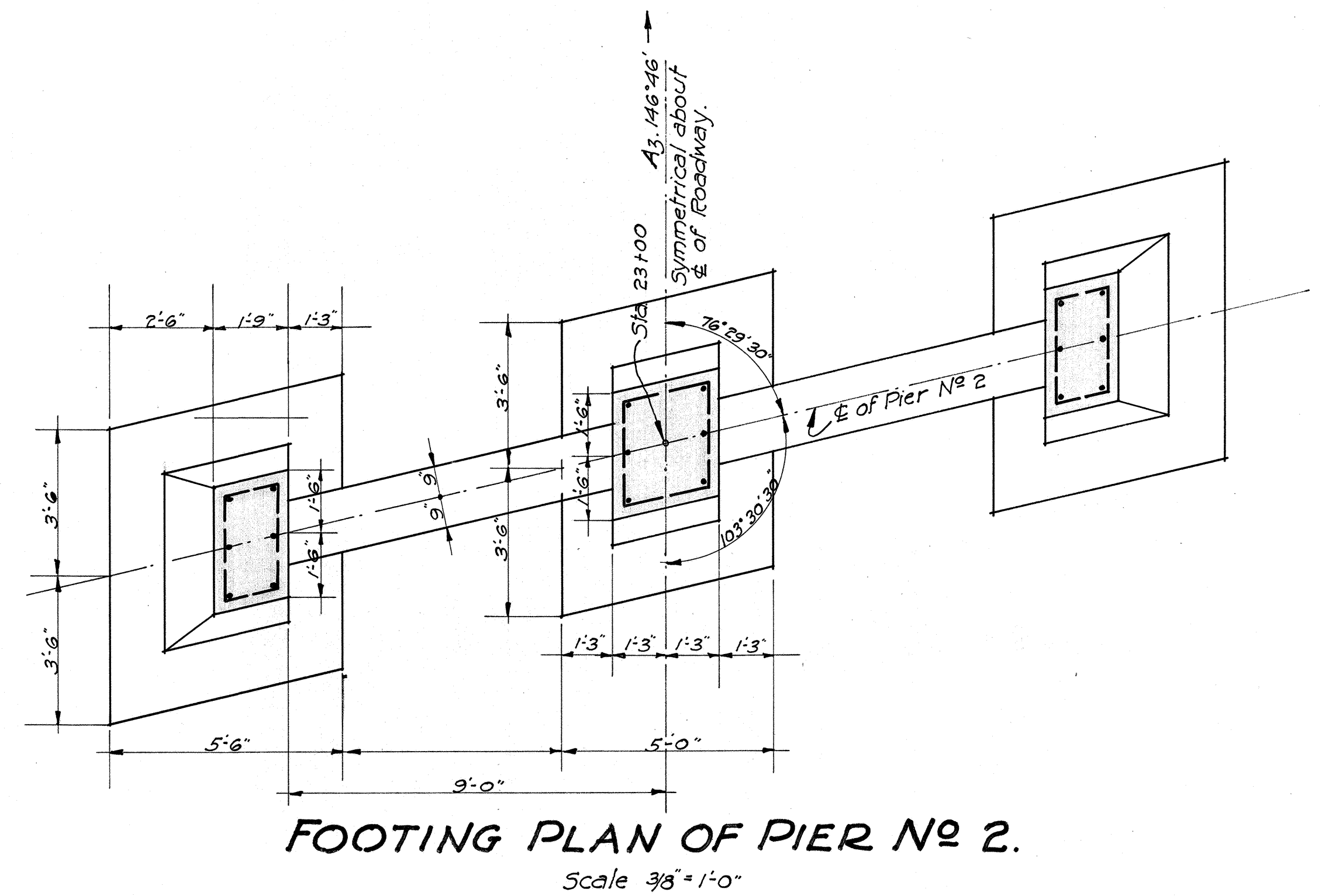
QUANTITIES	
Excavation	176.44 C.Y.
Concrete	65.74 "
Steel	8,545 lbs.



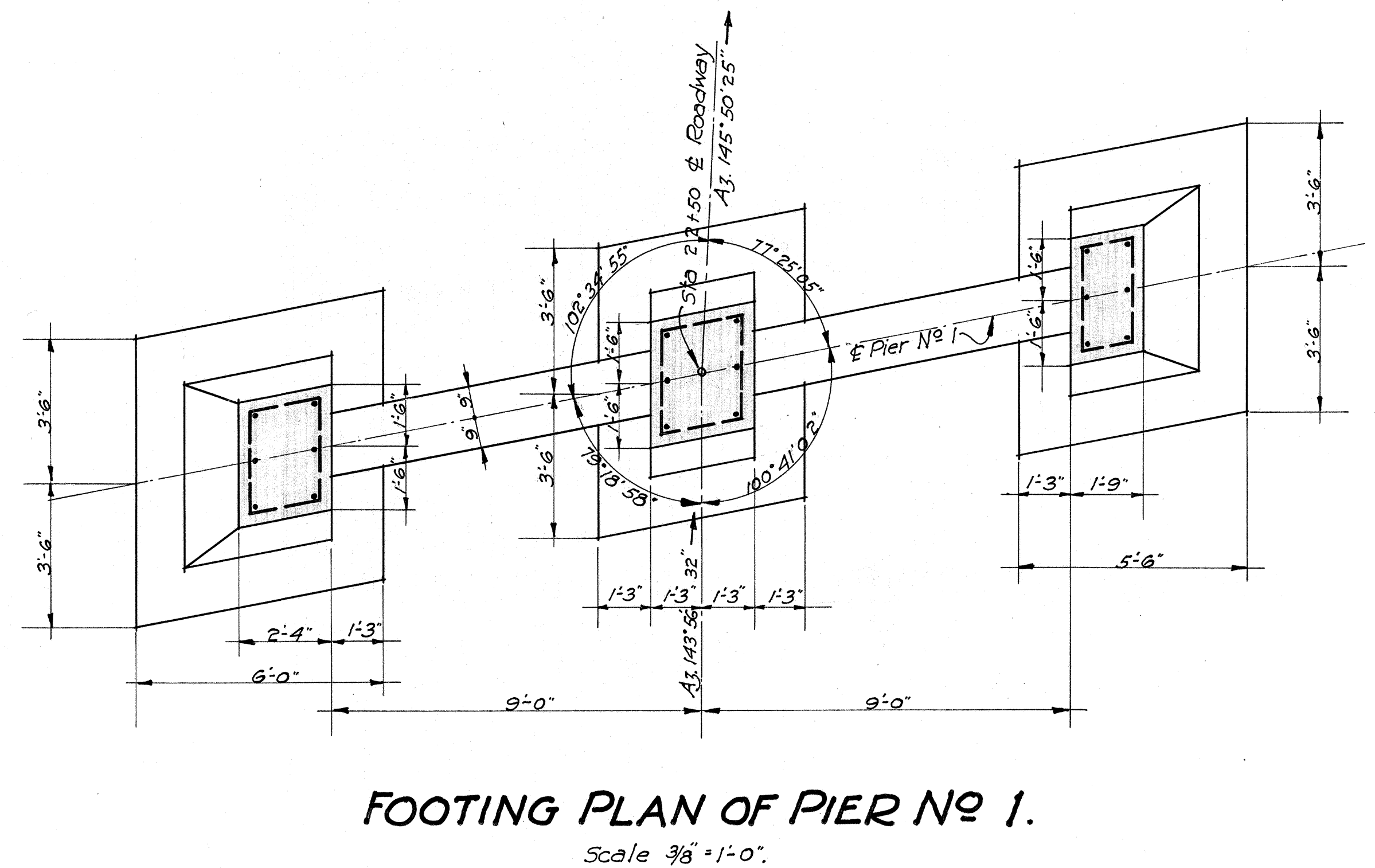
HALF REAR FACE REINFORCING. HALF FRONT FACE REINFORCING.

ELEVATION OF ABUTMENT AT STA 22+10.
Scale 1/4" = 1'-0".

Note - Contractor to install 3" diameter weep holes sp. 6'-0" o.c. in abutment at elevations determined by the Engr., same to be backed by coarse material for drainage.



FOOTING PLAN OF PIER NO 2.
Scale 3/8" = 1'-0".



FOOTING PLAN OF PIER NO 1.
Scale 3/8" = 1'-0".

TERRITORIAL HIGHWAY DEPARTMENT.
TERRITORY OF HAWAII.

KAPEHU BRIDGE.

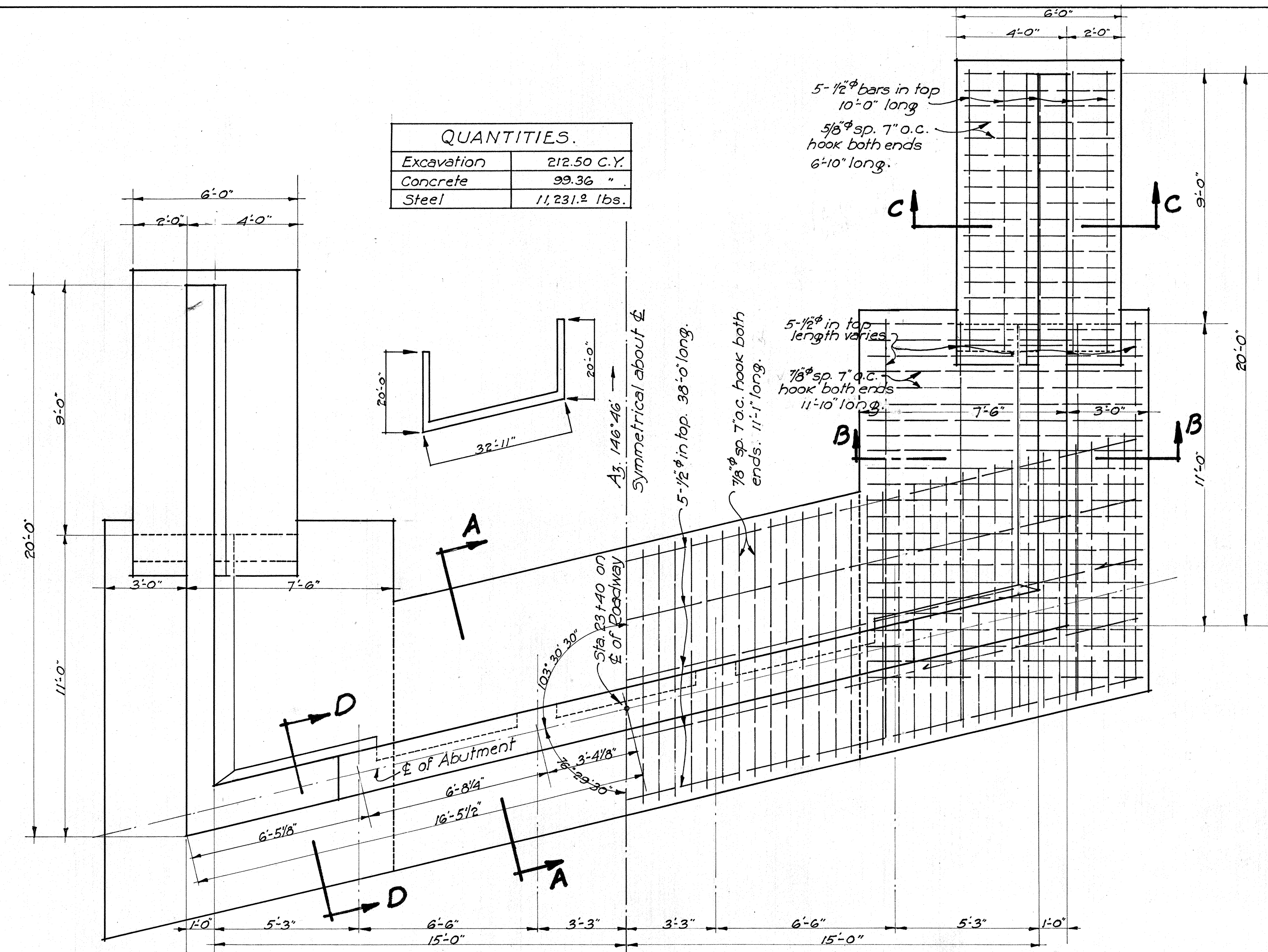
NO 119 STA. 22+09.25 TO STA. 23+40.75

HAWAII BELT ROAD F.A.P. No 14 A.

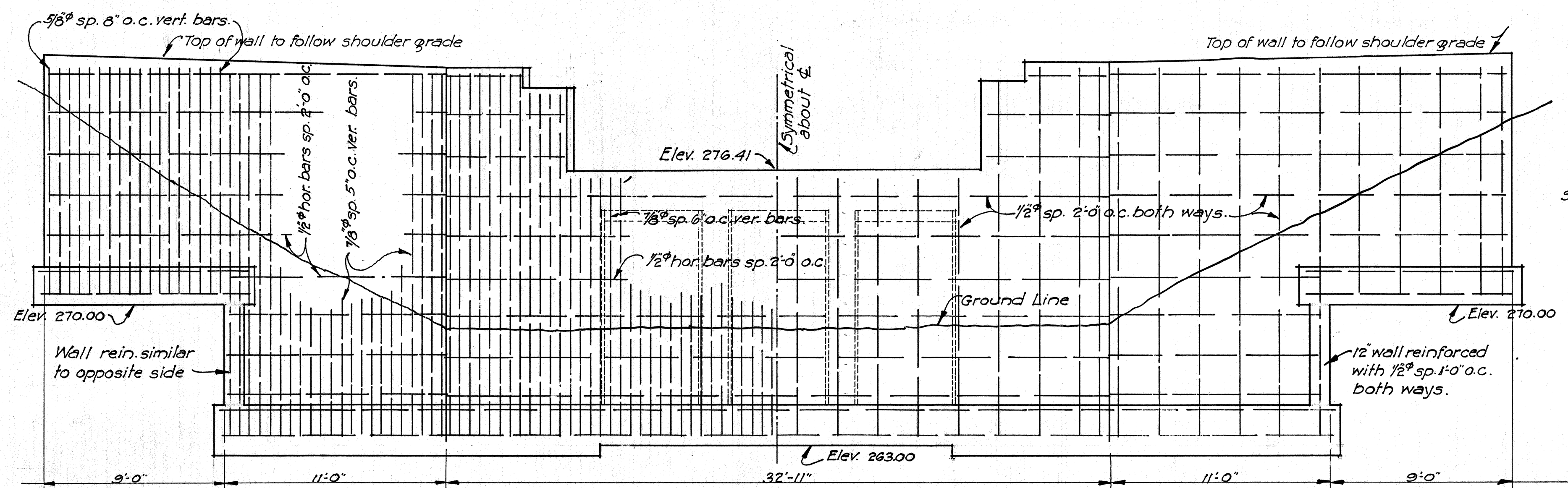
MARCH 1933 SHEET NO. 4 OF 7 SHEETS.

4282.10

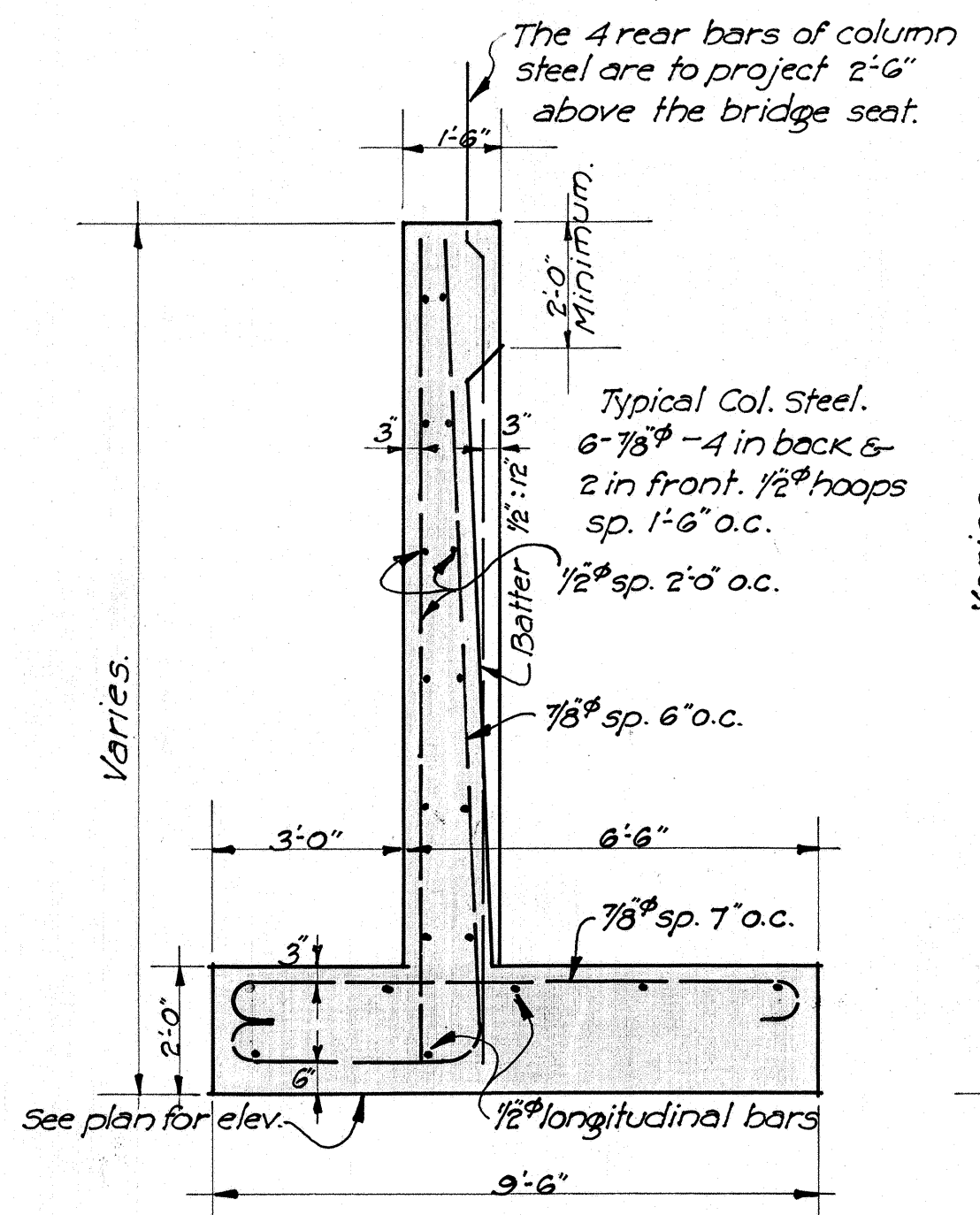
QUANTITIES.	
Excavation	212.50 C.Y.
Concrete	99.36 "
Steel	11,231.2 lbs.



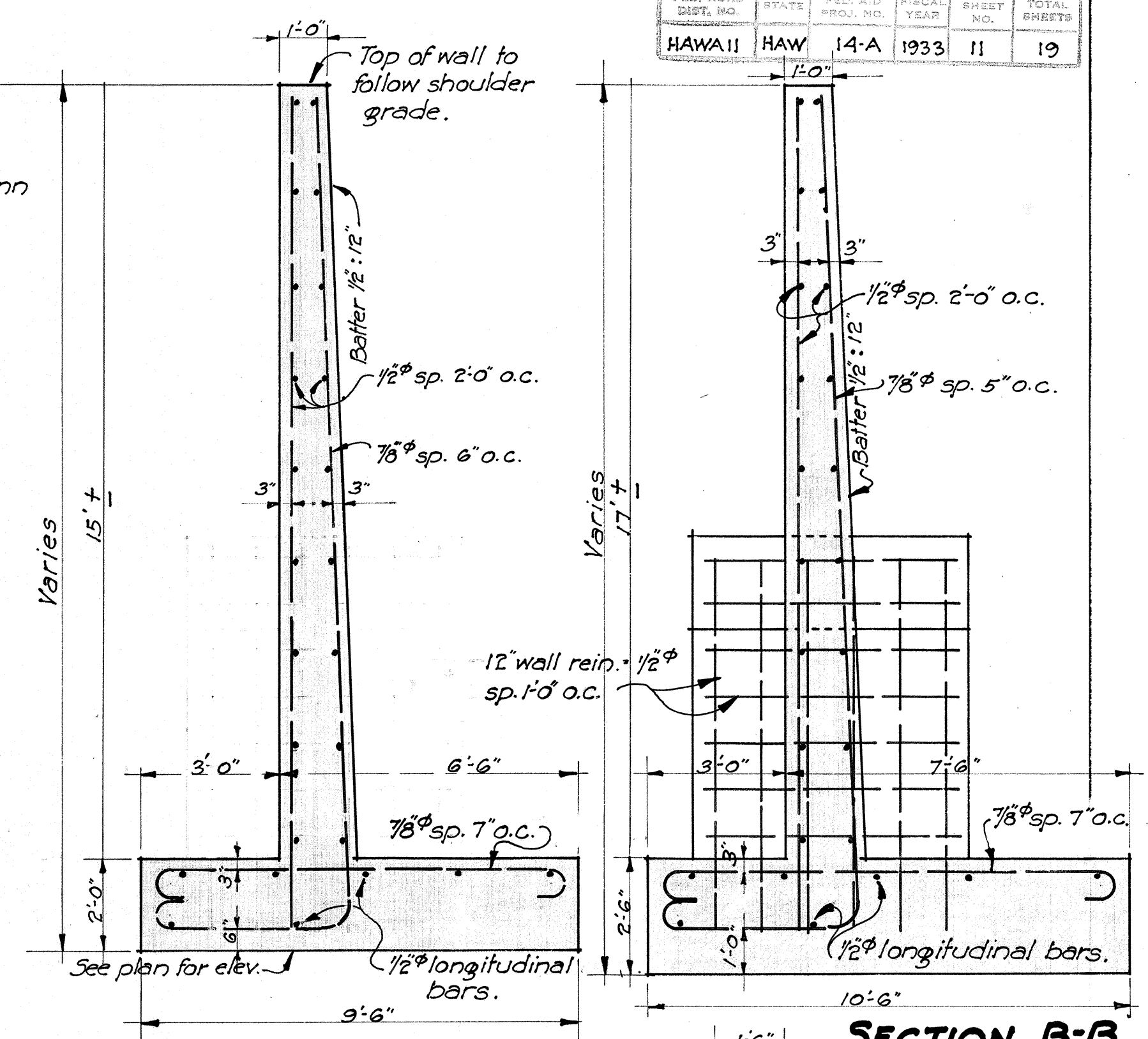
PLAN OF ABUTMENT AT STA. 23+40.
Scale 3/8" = 1'-0"



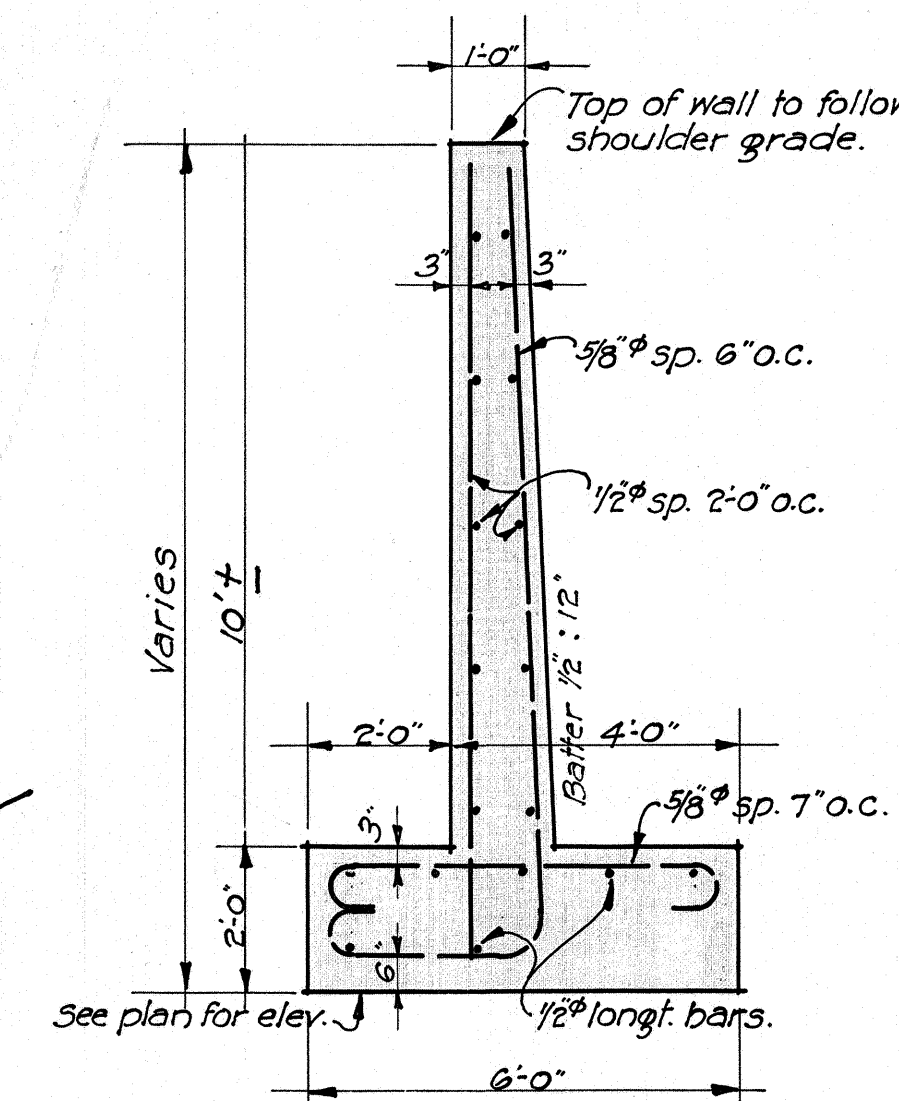
HALF REAR FACE REINFORCING.
HALF FRONT FACE REINFORCING.
ELEVATION OF ABUTMENT AT STA 23+40.
Scale 1/4" = 1'-0"



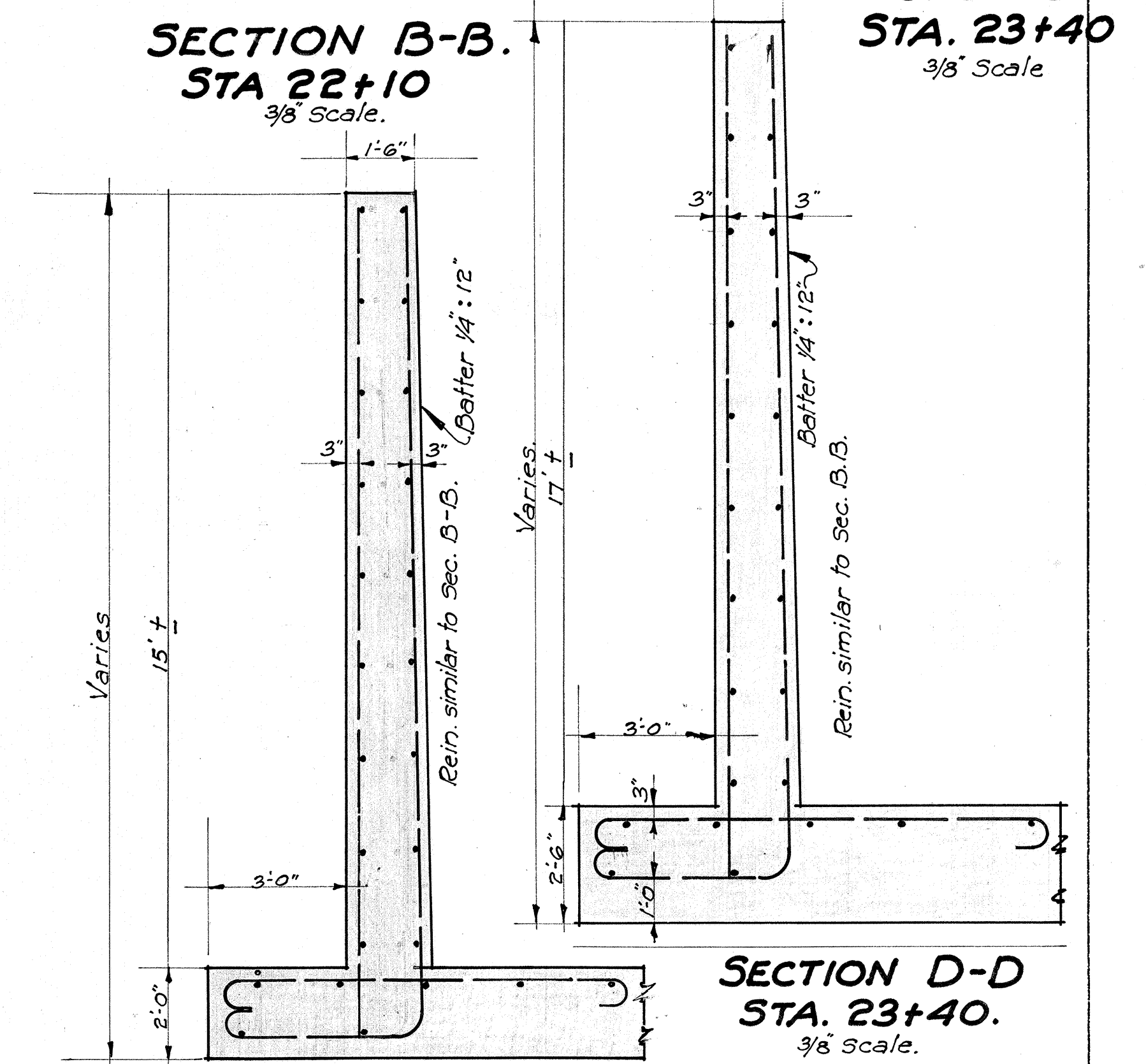
SECTION A-A.
BOTH ABUTMENTS.
3/8" Scale.



SECTION B-B.
STA. 22+10
3/8" Scale.



SECTION C-C.
STA. 23+40
3/8" Scale.



SECTION D-D.
STA. 22+10
3/8" Scale.

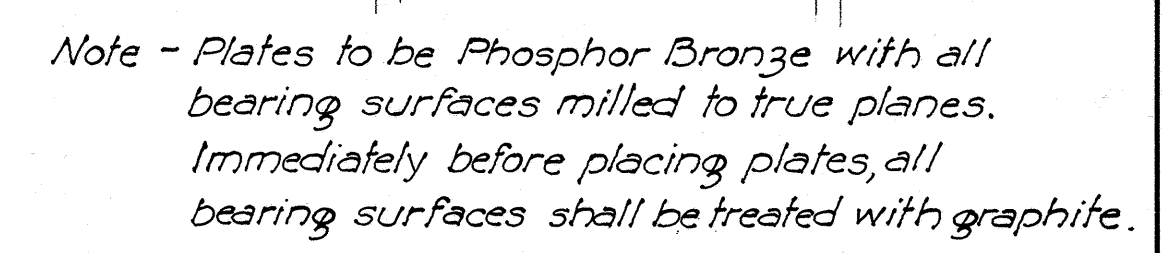
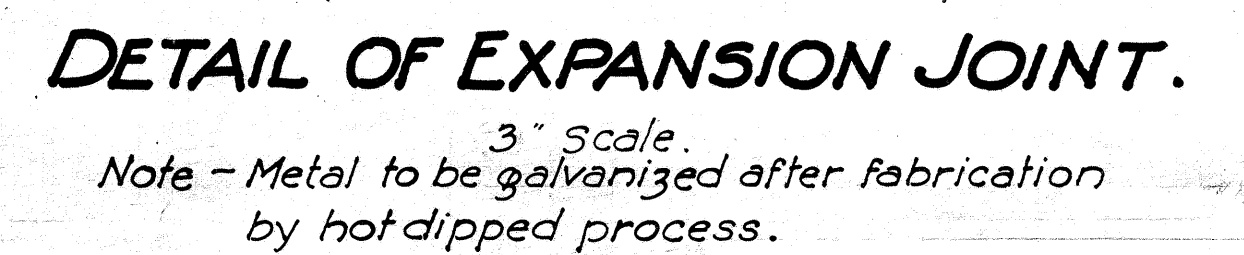
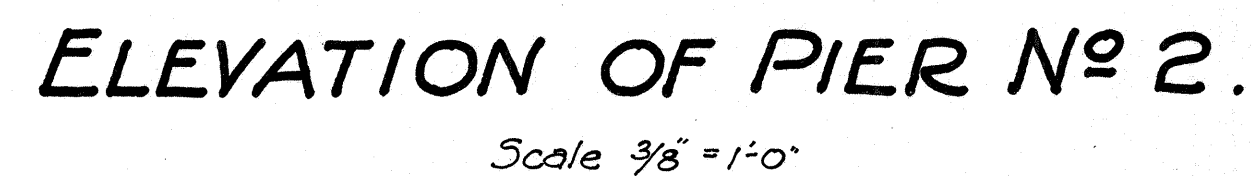
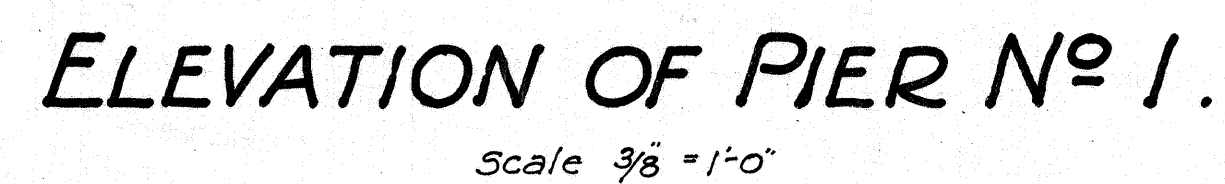
Note - Contractor to install 3" diameter weep holes sp. 6'-0" o.c. in abutment at elevations determined by the Engr, same to be backed by coarse material for drainage.

TERRITORIAL HIGHWAY DEPARTMENT.
TERRITORY OF HAWAII.

KAPEHU BRIDGE.

NO. 119 STA. 22+09.25 TO STA. 23+40.75
HAWAII BELT ROAD F.A.P. No. 14 A.
MARCH 1933 SHEET NO 5 OF 7 SHEETS.

4282.11

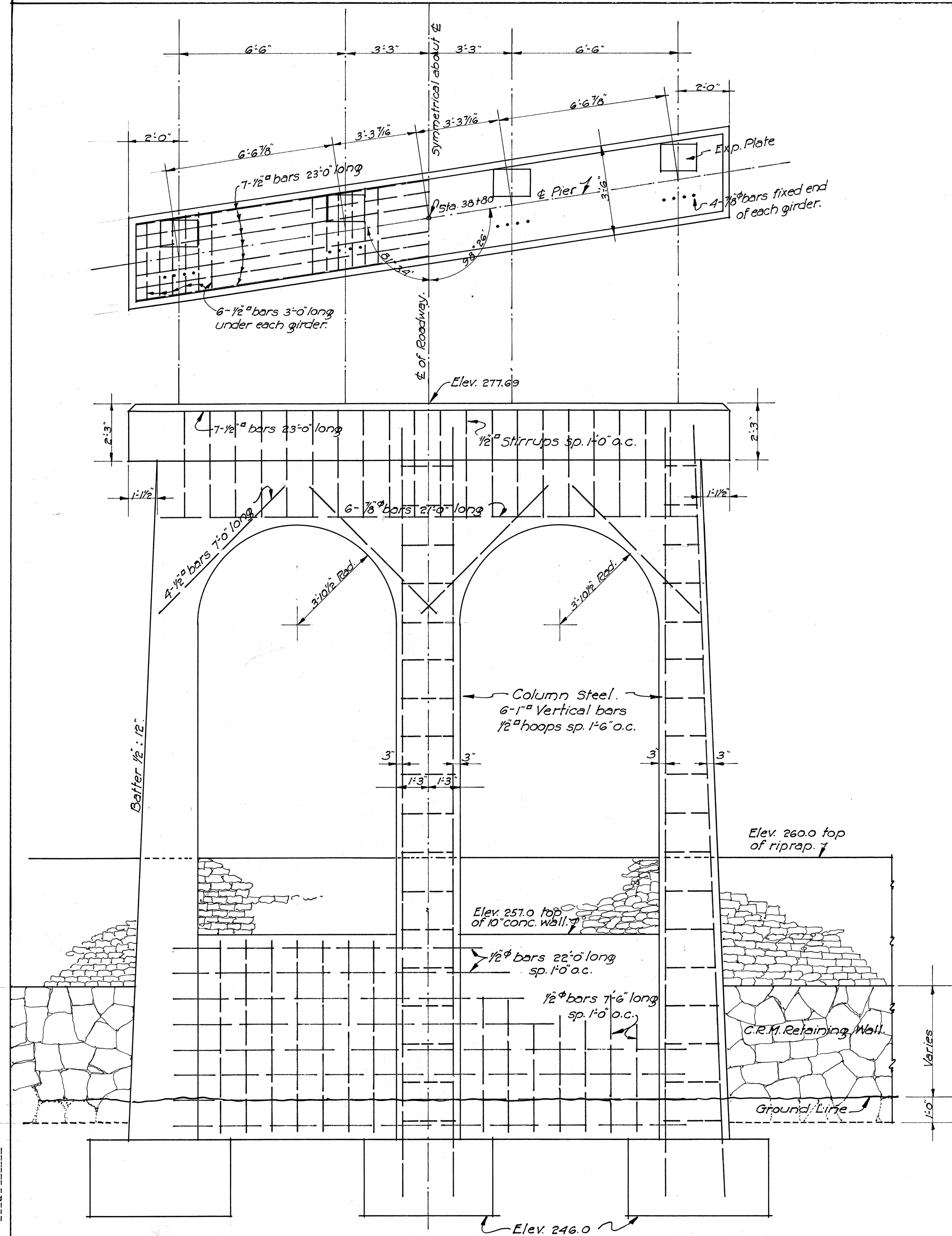


EXPANSION PLATES.
8 Pairs Required.
1½" Scale.

TERRITORIAL HIGHWAY DEPARTMENT.
TERRITORY OF HAWAII.

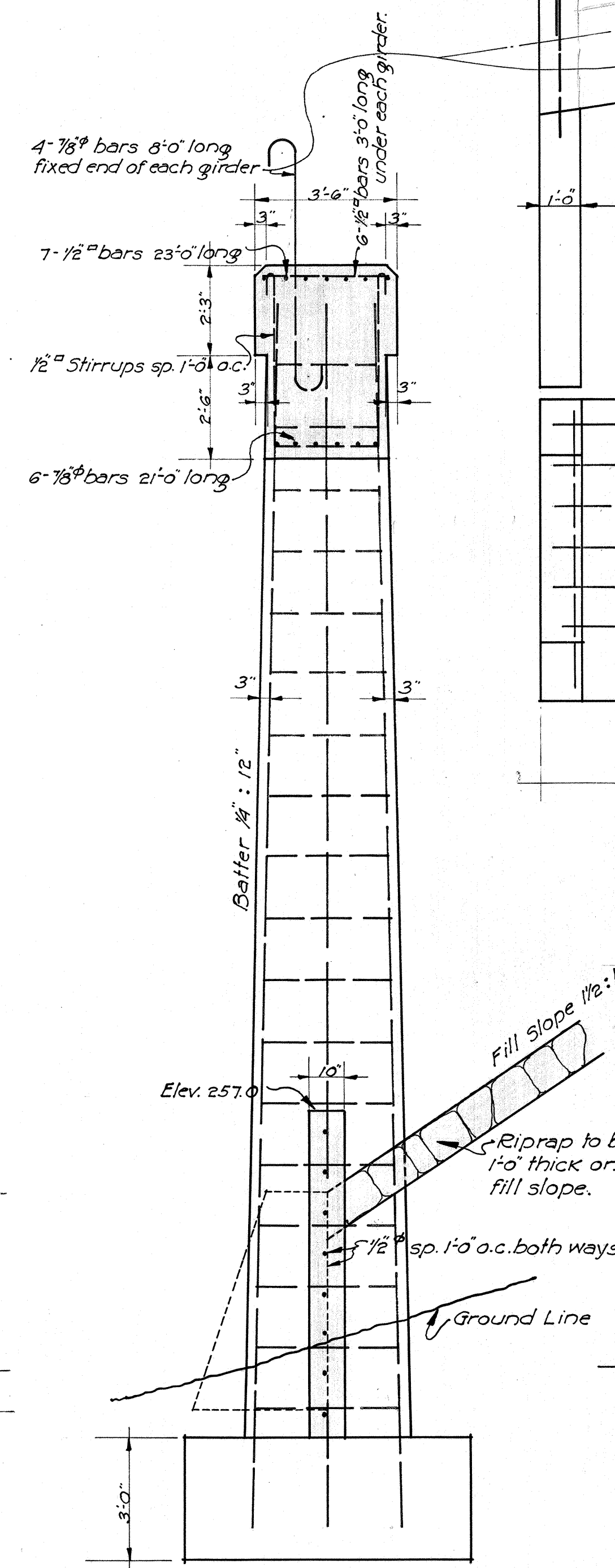
KAPEHU BRIDGE.

NO 119 STA. 22+09.25 TO STA. 23+40.75
HAWAII BELT ROAD F.A.P. NO 14 A.
MARCH 1933 SHEET NO. 6 OF 7 SHEETS.

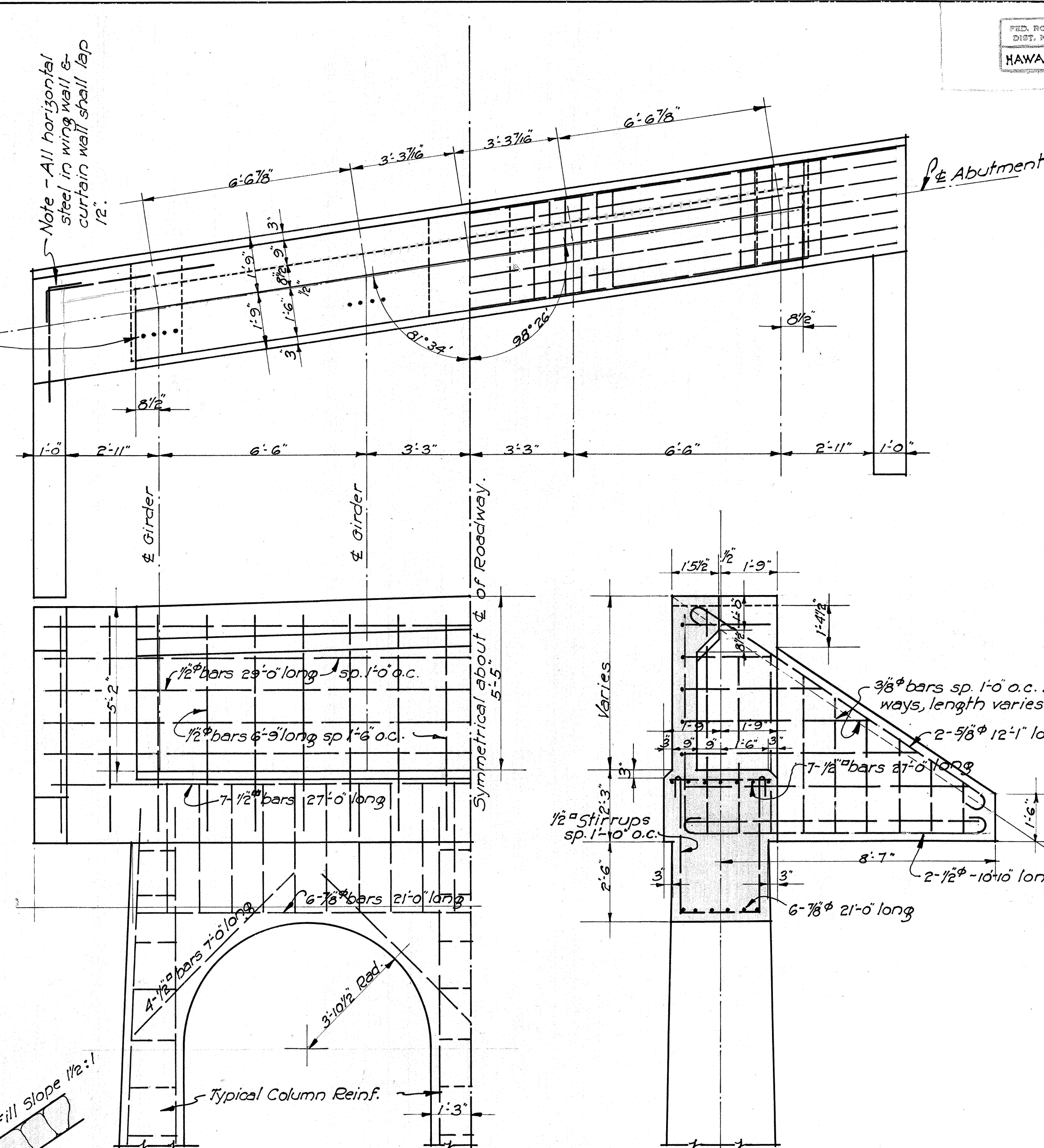


DETAIL OF PIER NO 1.
3/8" Scale.

Note: Pier #2 shall be similar in construction, elevations shall be taken from Sheet #1. & heights shall vary accordingly, also reverse expansion plates.

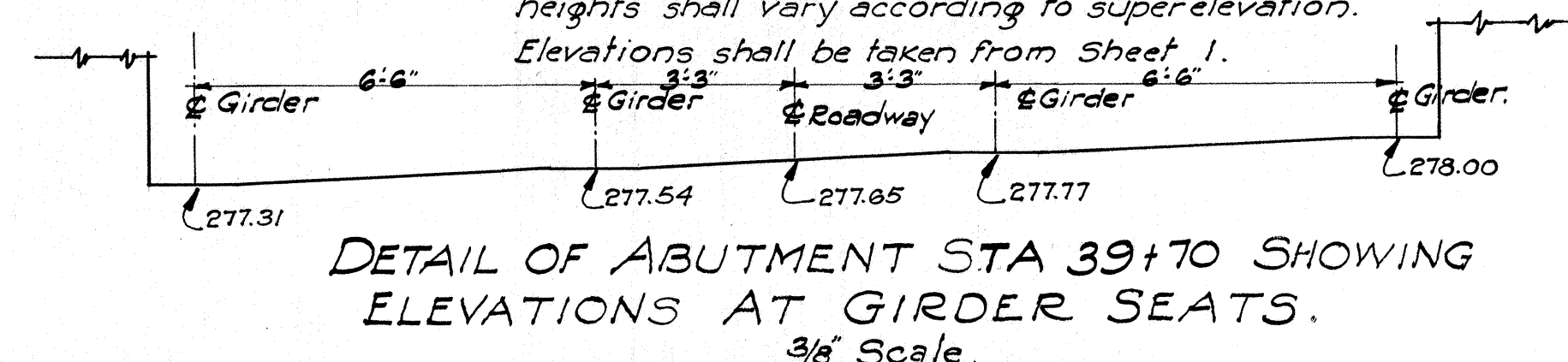


SECTION THRU PIER.
3/8" Scale.



1/2 ELEV.
DETAIL OF ABUTMENT AT STA. 38+40.
3/8" Scale.

Note - Abutment at sta. 39+70 shall be similar in construction, heights shall vary according to super-elevation. Elevations shall be taken from Sheet 1.



DETAIL OF ABUTMENT STA 39+70 SHOWING ELEVATIONS AT GIRDER SEATS.
3/8" Scale.

CONTRACTORS NOTE.

For general notes and details not shown see drawings for Kapehu Bridge.

TERRITORIAL HIGHWAY DEPARTMENT.
TERRITORY OF HAWAII.

KAALUU BRIDGE.

NO 120 STA. 38+38.50 TO STA. 39+71.50
HAWAII BELT ROAD F.A.P. NO 14A.
MARCH 1933 SHEET NO. 2 OF 4 SHEETS.

4282.14



CONTRACTORS NOTE.
For general notes and details not shown see drawings for Kapehu Bridge.

TERRITORIAL HIGHWAY DEPARTMENT.
TERRITORY OF HAWAII.

KAALUU BRIDGE.

NO 120 STA. 38+38.50 TO STA. 39+71.50

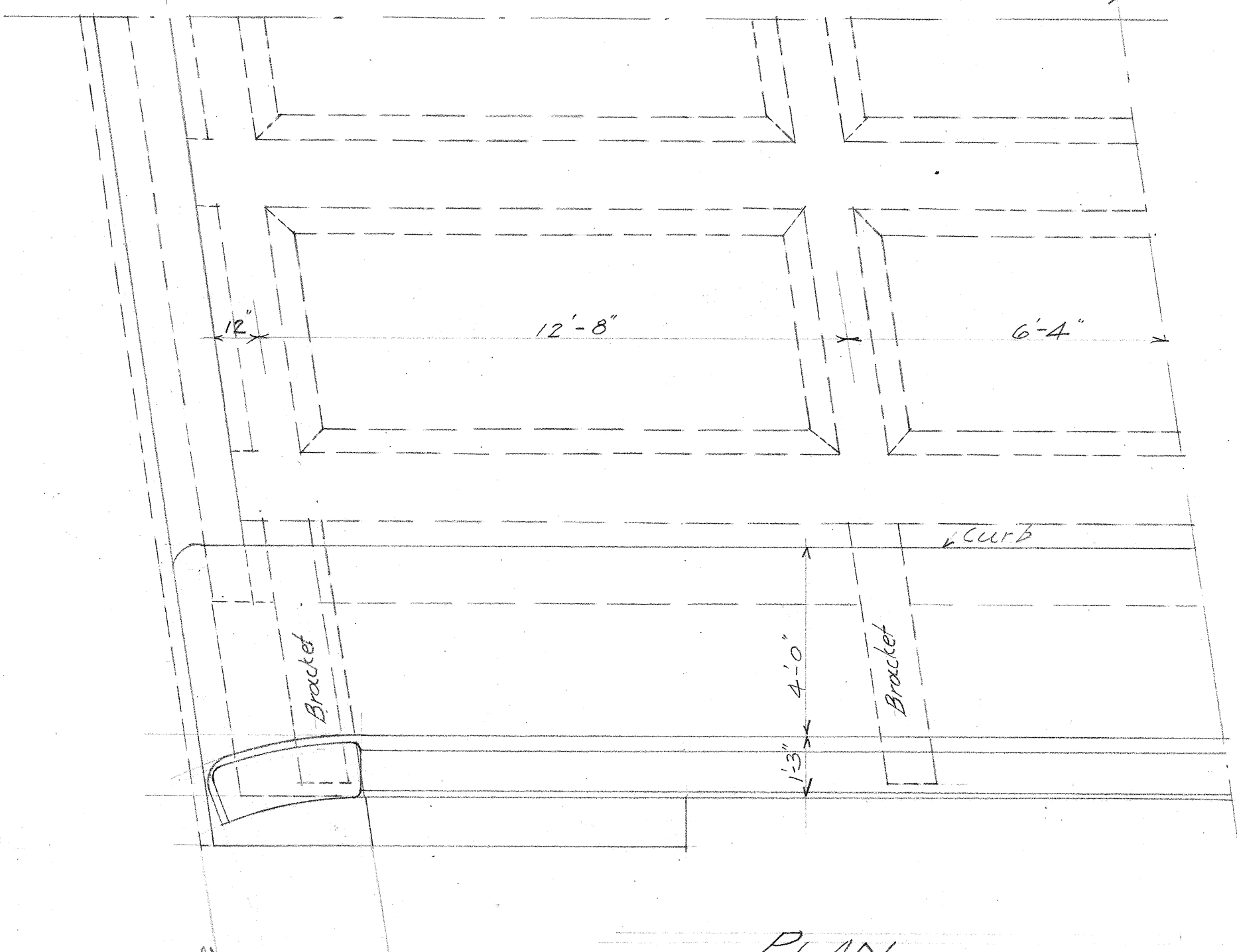
HAWAII BELT ROAD F.A.P. NO 14 A.

MARCH 1933 SHEET NO 3 OF 4 SHEETS.

Kaaluu B. 4282.15

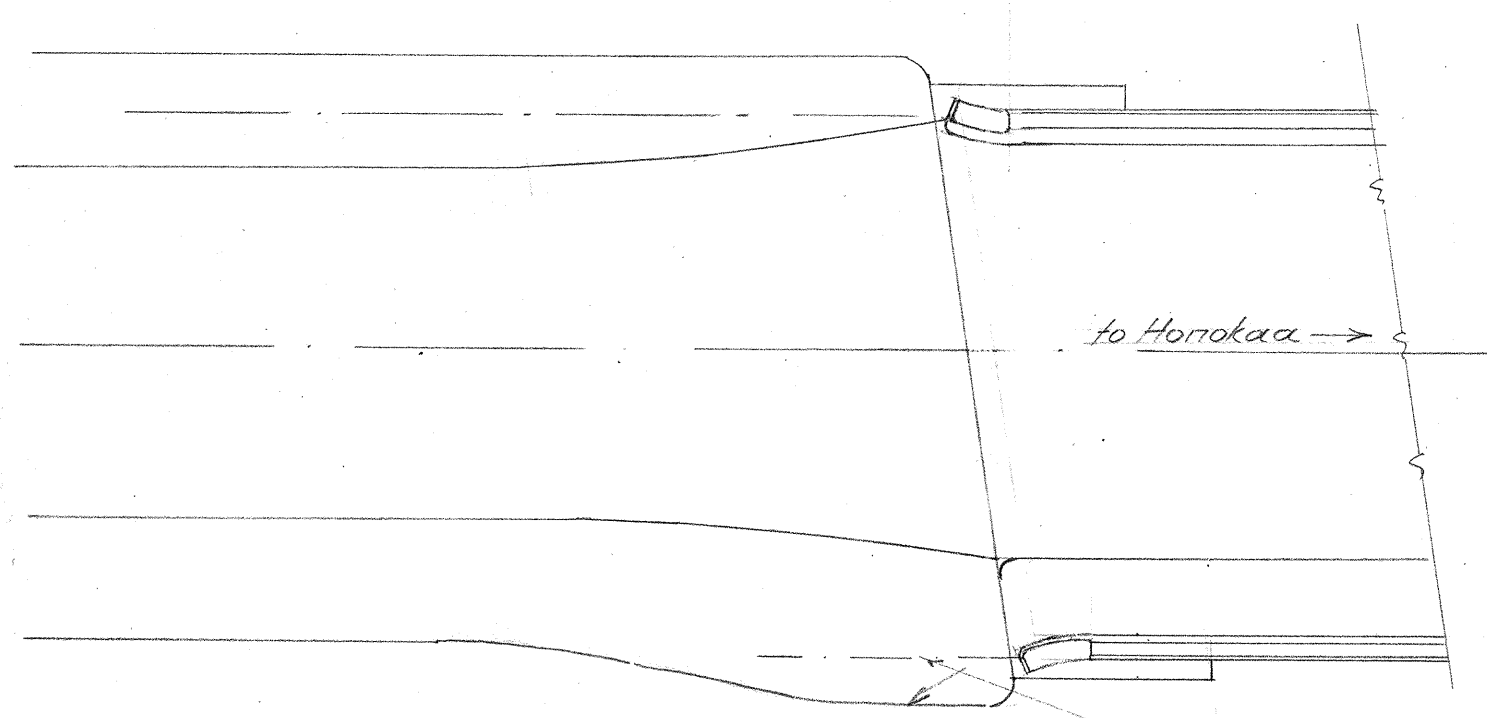
Designed by J.L.Y. Date 2/23/33
Drawn by C.W.
Traced by J.L.Y.
Quantities by J.L.Y.
Checked by J.L.Y.

Four deck flush against curtain wall, omit 1" open joint as shown in original design

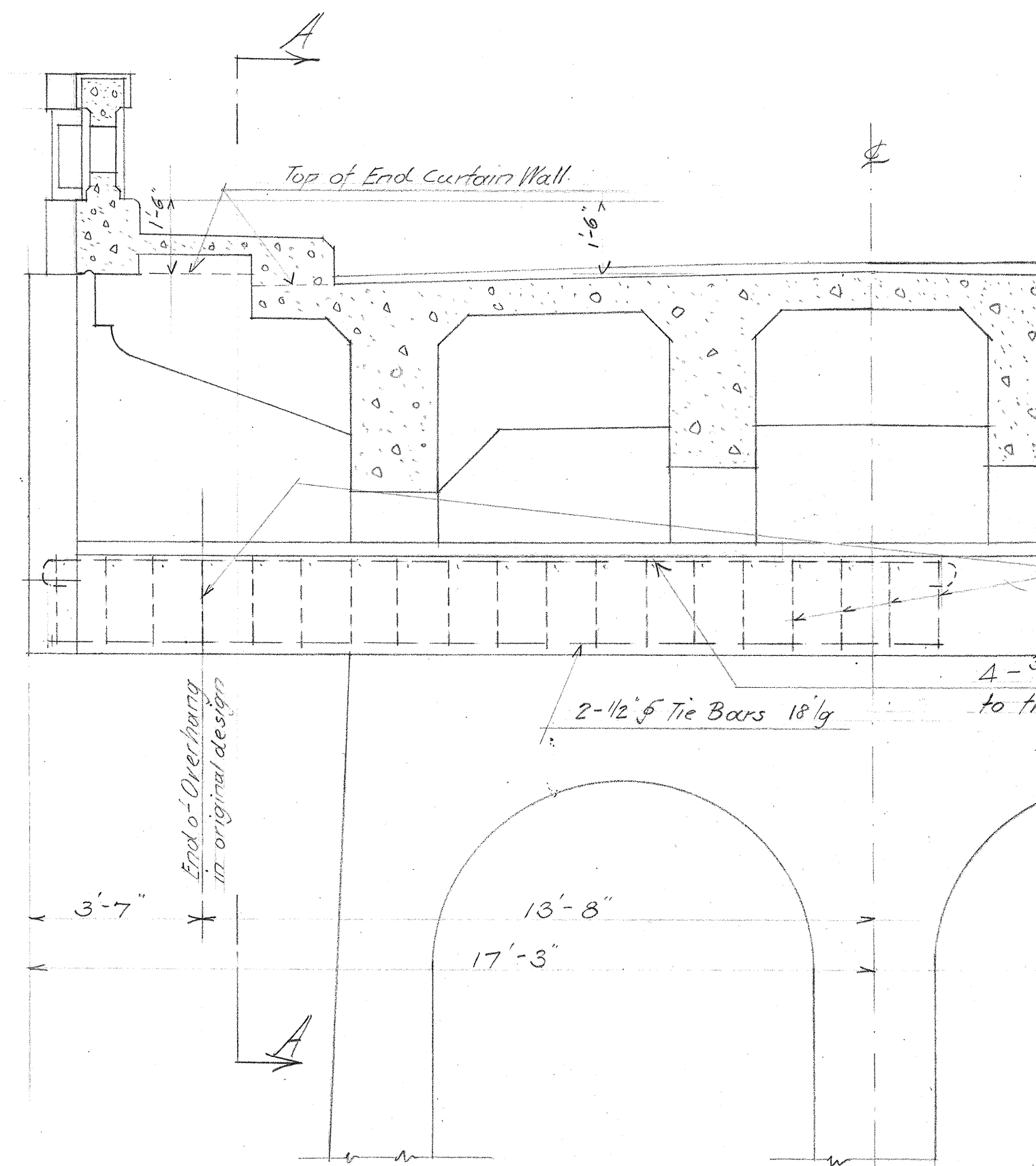


PLAN

Outside Edge of Pier Cap
Inside Edge of Pier Cap



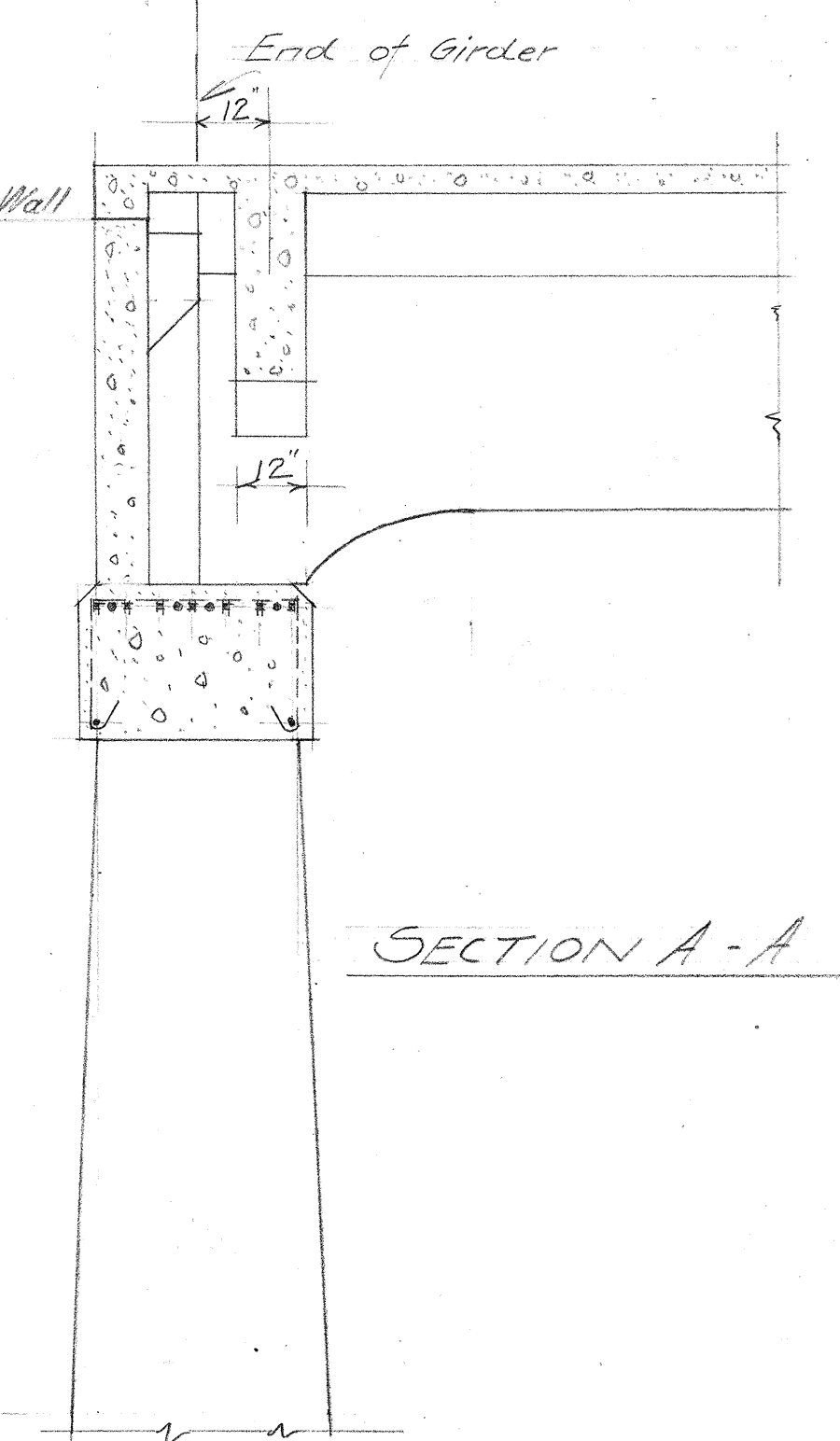
Adjust fill and guard rail to new location of railing
1"=10'



CROSS SECTION

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

1/2" ϕ horizontal and vertical bars in curtain wall to be extended into lengthened overhang
1/2" ϕ Special Stirrups 12" ϕ - 7'-6" lg.
In pier cap, these special stirrups may be omitted. If 1/2" ϕ open stirrups in original design are changed to closed stirrups.
4 - 3/4" ϕ - 20'-0", placed in addition to the 7-1/2" ϕ shown in original design.
2 - 1/2" ϕ Tie Bars 18" lg.



SECTION A-A

QUANTITIES	
Class 'A' Concrete	15.5 cu. yd.
Reinforcing Steel	6400 lb.

NOTE:
For reinforcing details of side walk slab, brackets, and railing beams refer to Sheet No. 2^a of Kapehu Bridge.
This sheet shows additions and changes to original design due to arrangement of side walk on right hand side of bridge. It supersedes Sheets # 1 to 4 in so far as these changes and additions are concerned.

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII.

KAALUU BRIDGE.

NO 120 STA. 35+38.50 TO STA. 39+71.50
HAWAII BELT ROAD F.A.P. No 14 A.
AUGUST 1933 SHEET No 3A OF 4 SHEETS.

4282.15A

Designed by M.E.B. Date 8/33
Drawn by M.E.B.

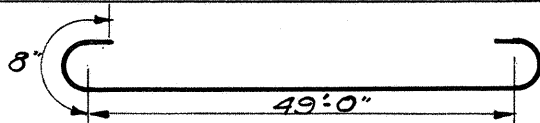
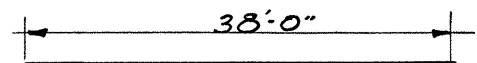
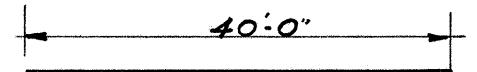
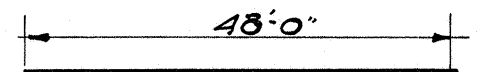
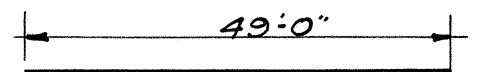
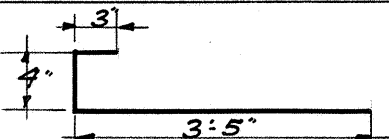
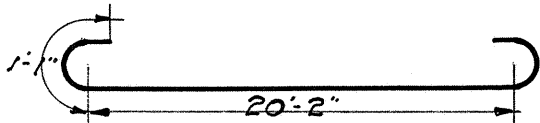
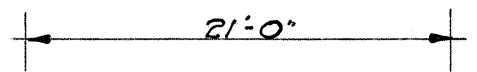
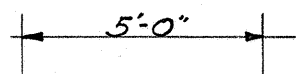
REINFORCING SCHEDULE FOR SUPERSTRUCTURE ONLY.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	14-A	1933	16	19

KAPEHU BRIDGE. #119

MK	DESCRIPTION	LOCATION	Size	Length	No. of bars in each unit	No. of units	Total No. of bars wanted	Total Length	Weight per foot	Total Weight
300		40' Girders (Outside)	1"φ	45'-0"	1	4	4	180.00	3.44	6192.0
301		"	1"φ	45'-0"	2	4	8	360.00	"	12384.0
302		"	1"φ	45'-0"	2	4	8	360.00	"	12384.0
900		(Outside & Inside)	1 1/8"φ	42'-6"	5	8	40	1700.00	4.35	7395.00
400		"	1/2"φ	38'-0"	2	8	16	608.00	0.68	4134.4
401		(Outside)	1/2"φ	9'-4"	28	4	112	1044.96	"	710.57
803		40' Girders (Inside)	1"φ	44'-6"	1	4	4	178.00	3.44	6123.2
804		"	1"φ	44'-6"	2	4	8	356.00	"	12246.4
805		"	1"φ	44'-6"	2	4	8	356.00	"	12246.4
402		"	1/2"φ	7'-8"	28	4	112	857.92	0.68	583.38
901		50' Girders (Outside)	1 1/8"φ	54'-6"	1	2	2	109.00	4.35	474.15
902		"	1 1/8"φ	54'-6"	2	2	4	218.00	"	948.30
903		"	1 1/8"φ	54'-6"	2	2	4	218.00	"	948.30
1000		(Outside & Inside)	1 1/4"φ	52'-0"	5	4	20	1040.00	5.37	5584.80
403		"	1/2"φ	40'-0"	2	4	8	320.00	0.68	217.60
404		(Outside)	1/2"φ	9'-9"	33	2	66	643.50	"	437.58
904		50' Girders (Inside)	1 1/8"φ	54'-2 3/4"	1	2	2	108.46	4.35	471.80
905		"	1 1/8"φ	54'-2 3/4"	2	2	4	216.92	"	943.60
906		"	1 1/8"φ	54'-2 3/4"	2	2	4	216.92	"	943.60
405		"	1/2"φ	9'-1"	33	2	66	593.28	0.68	407.51
500		Slab (40' & 50' span)	5/8"φ	27'-7 3/4"	40	20	80	3537.92	1.06	3750.19
501		"	5/8"φ	26'-10"	40	20	80	3434.24	"	3640.29
406		(40' span)	1/2"φ	41'-0"	18	2	36	1476.00	0.68	1003.68
407		(40' & 50' span)	1/2"φ	5'-0"	18	6	108	540.00	"	367.20

KAPEHU BRIDGE (Cont.)

MK	DESCRIPTION	LOCATION	Size	Length	No. of bars in each unit	No. of units wanted	Total No. of bars	Total Length	Weight 150'f	Total Weight.	
408		Slab (50' span)	1/2"	50'-4"	18	1	18	905.94	0.68	6160.4	
409		40' Railing (Cap)	1/2"	38'-0"	2	4	8	304.00	"	206.72	
410		40' Railing (Curb)	1/2"	40'-0"	2	4	8	320.00	"	217.60	
411		50' Railing (Cap)	1/2"	48'-0"	2	2	4	192.00	"	130.56	
412		50' Railing (Curb)	1/2"	49'-0"	2	2	4	196.00	"	133.28	
413		Ver. Steel in Railing	1/2"	4'-0"	72 94	1040 2050	<u>288</u> 188 476	1904.00	"	1294.72	
600		Diaphragm.	3/4"	22'-4"	2	10	20	446.60	1.52	678.83	
414		Curtain Wall	1/2"	21'-0"	5	2	10	210.00	0.68	142.80	
415		" "	1/2"	5'-0"	15	2	30	150.00	"	102.00	
TOTAL LBS.										38,922.00	
										Additional Steel	1,525.00
										Grand Total	40,447.00

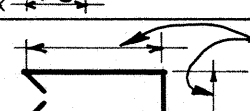
KAALUU BRIDGE. #120

806		40' Girders (Outside)	1"φ	44'-4"	1	4	4	177.32	3.44	609.98
807		"	1"φ	44'-4"	2	4	8	354.64	"	1219.96
808		"	1"φ	44'-4"	2	4	8	354.64	"	1219.96
907		(Outside & Inside)	1 1/8"φ	41'-10"	5	8	40	1673.20	4.35	7278.42
400	See Kapehu Bridge	"	1/2"φ	38'-0"	2	8	16	608.00	0.68	413.44
401	"	(Outside)	1/2"φ	9'-4"	28	4	112	1044.96	"	710.57
809		40' Girders (Inside)	1"φ	43'-10"	1	4	4	175.32	3.44	603.10
810		"	1"φ	43'-10"	2	4	8	350.64	"	1206.20
811		"	1"φ	43'-10"	2	4	8	350.64	"	1206.20
402	See Kapehu Bridge	"	1/2"φ	7'-8"	28	4	112	857.92	0.68	583.38
901	"	50' Girders (Outside)	1 1/8"φ	54'-6"	1	2	2	109.00	4.35	474.15
902	"	"	1 1/8"φ	54'-6"	2	2	4	218.00	"	948.30
903	"	"	1 1/8"φ	54'-6"	2	2	4	218.00	"	948.30
1000	"	(Outside & Inside)	1 1/4"φ	52'-0"	5	4	20	1040.00	5.37	5584.80
403	"	"	1/2"φ	40'-0"	2	4	8	320.00	0.68	217.60

KAALUU BRIDGE (Cont.)

MK	DESCRIPTION	LOCATION	Size	Length	No. of bars in each unit	No. of units	Total No. of bars wanted	Total Length	Weight per foot	Total Weight
404	See Kapehu Bridge	50' Girders (Outside)	1/2"	9'-9"	33	2	66	643.50	0.68	437.58
904	" " "	50' Girders (Inside)	1 1/8"	54'-2 3/4"	1	2	2	108.46	4.35	471.80
2					2	4	216.92	943.60		
2					2	4	216.92	943.60		
405	" " "	"	1/2"	9'-1"	33	2	66	593.28	0.68	407.51
502										

FOR KAPEHU & KAALUU BRIDGES.

	50' Girders 40' Girders	3/4"φ 10'-0"	6 (3 each end)	8 16	48 96	480.00 960.00	1.52	729.60 1459.20
	50' Girders 40' Girders	1/2"φ Varies	"	8 16	48 96	452.00 815.50	0.68	307.36 554.54

TOTAL LBS. ADDITIONAL STEEL BOTH BRIDGES.

2) 3051.00

Each Br. 1525.00

TERRITORIAL HIGHWAY DEPARTMENT.
TERRITORY OF HAWAII.
KAPEHU BRIDGE.
KAALUU BRIDGE.
NO 119 STA. 22+09.25 TO STA. 23+40.75
NO 120 " 38+38.50 " " 39+71.50
HAWAII BELT ROAD F.A.P. No 14A.
MARCH 1933 SHEET NO. 7 OF 7 SHEETS.

Designed by J.A.X. Date 1/22/33
Drawn by C.W. 1/23/33
Traced by J.A.X. 1/23/33
Quantities by J.A.X. 1/23/33
Checked by J.A.X. 1/23/33