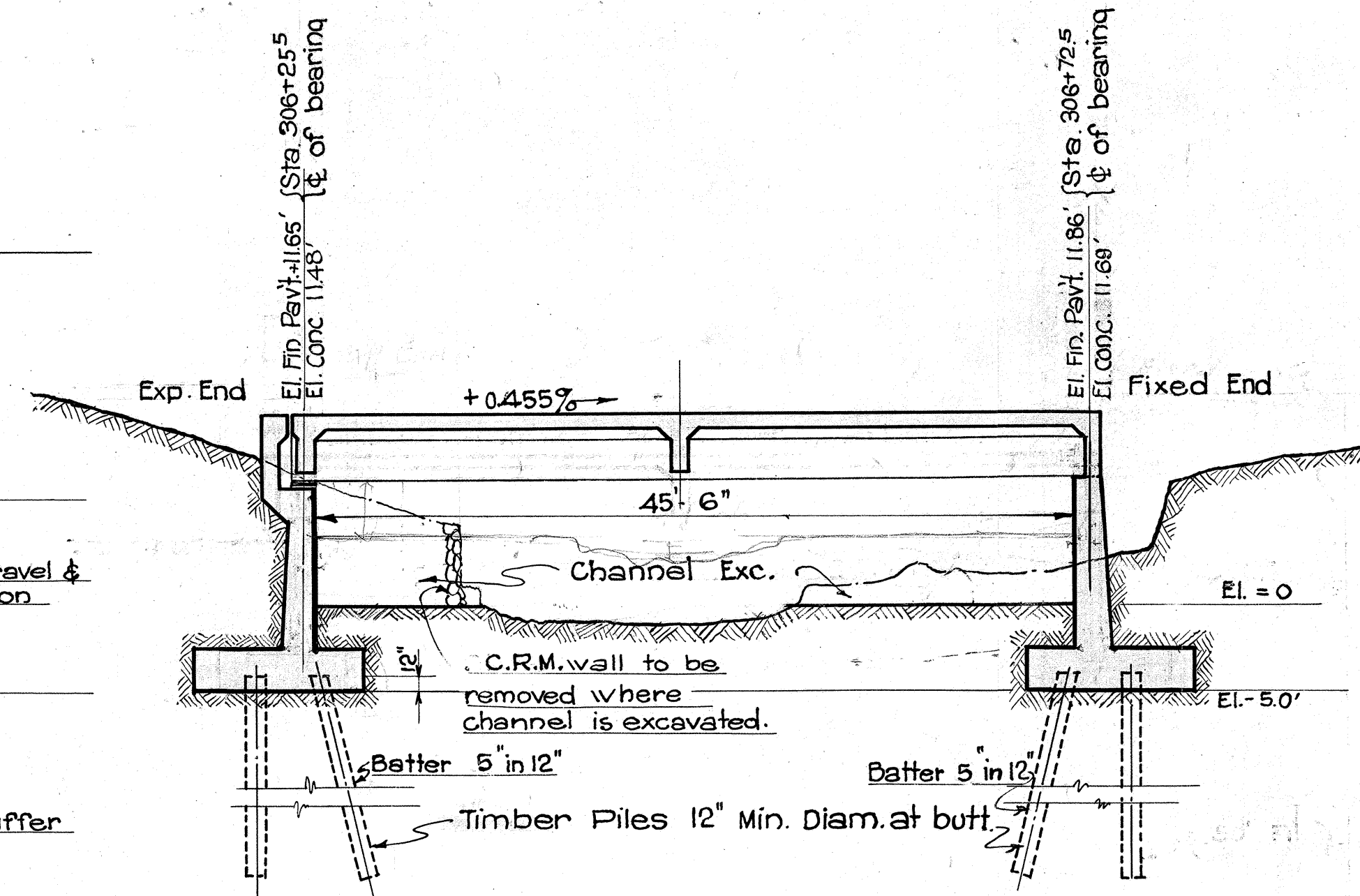
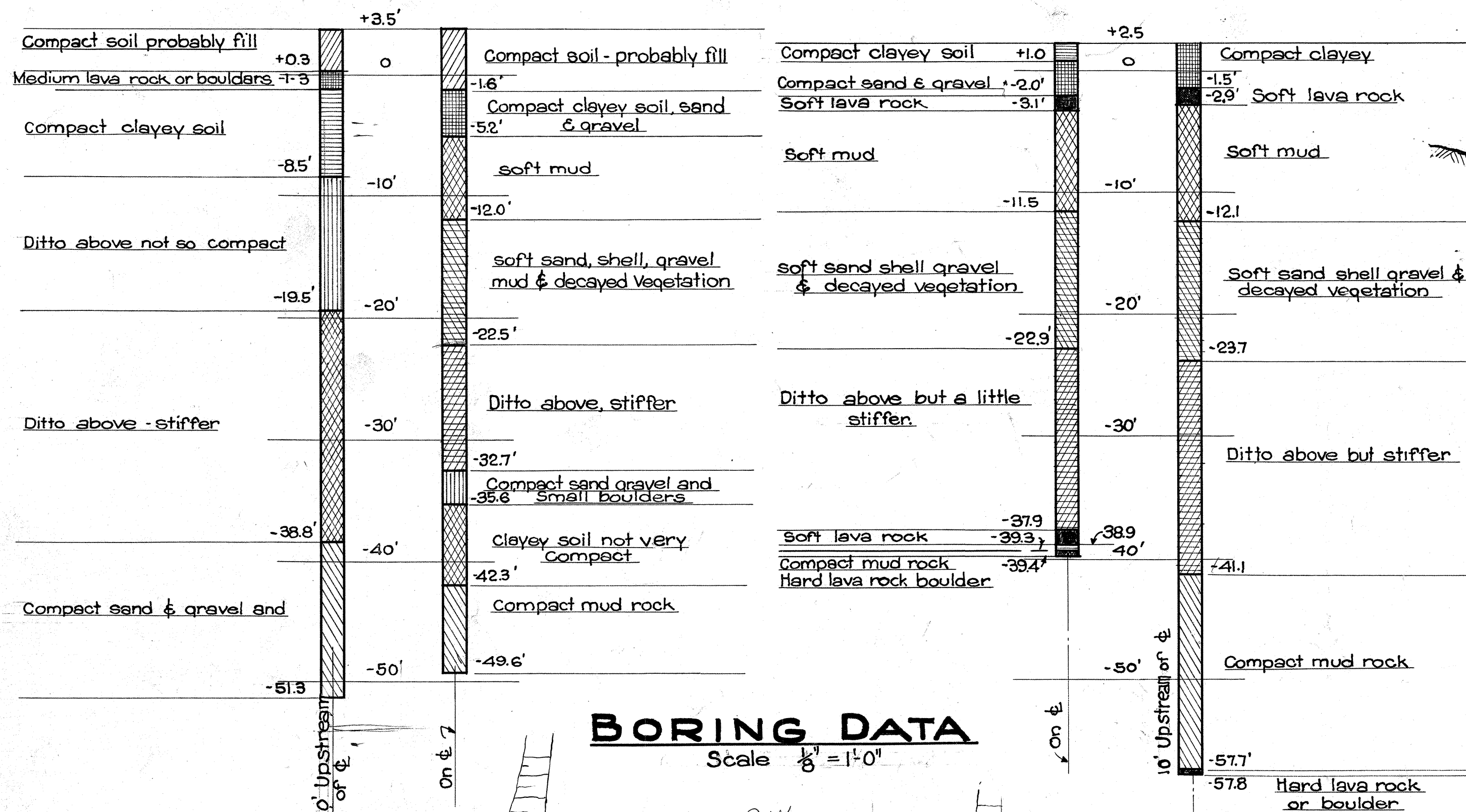
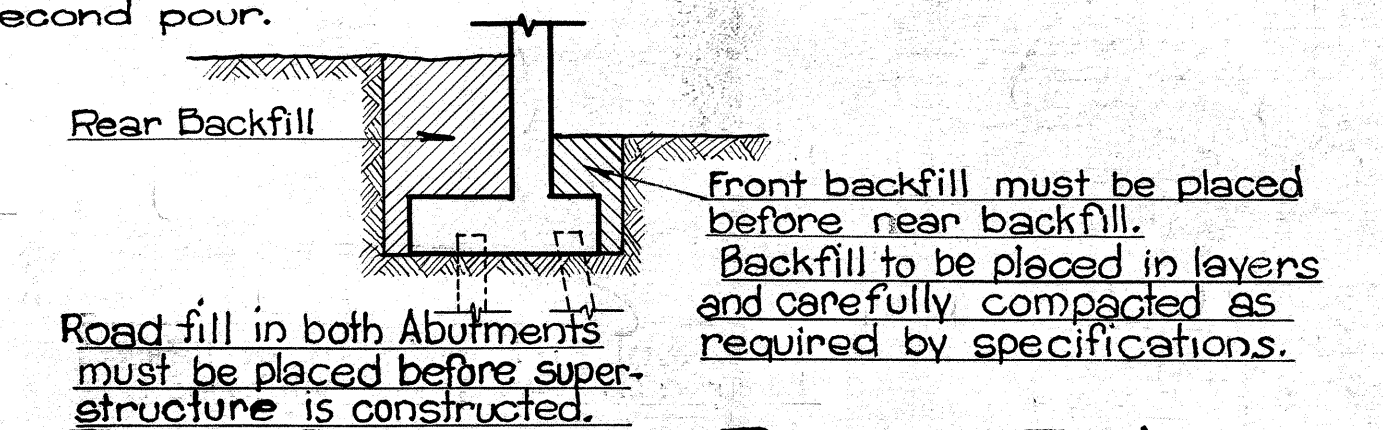




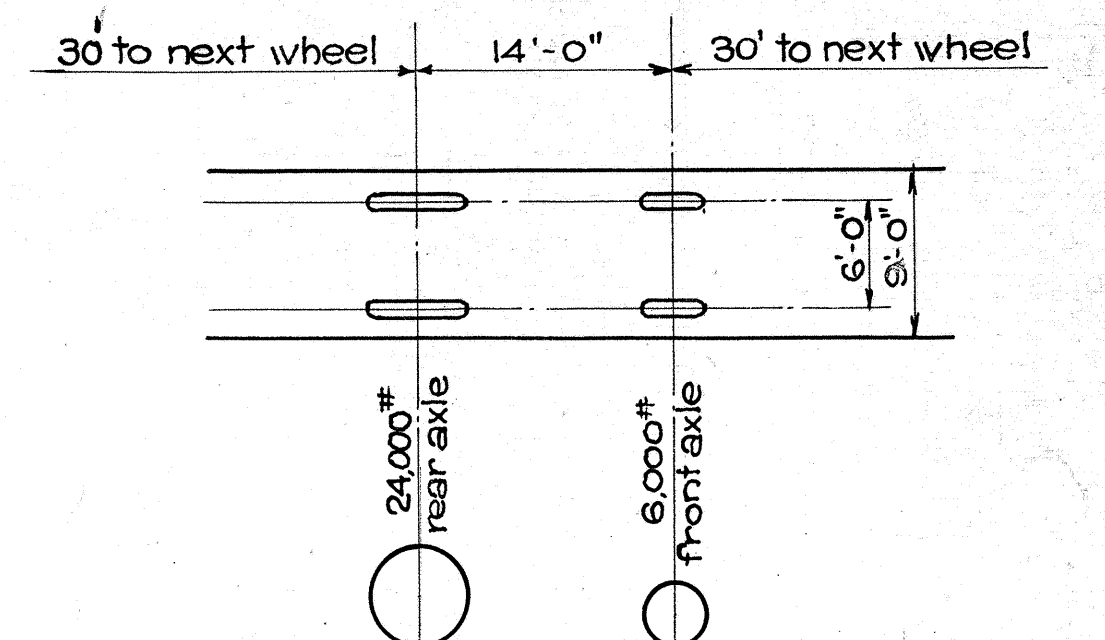
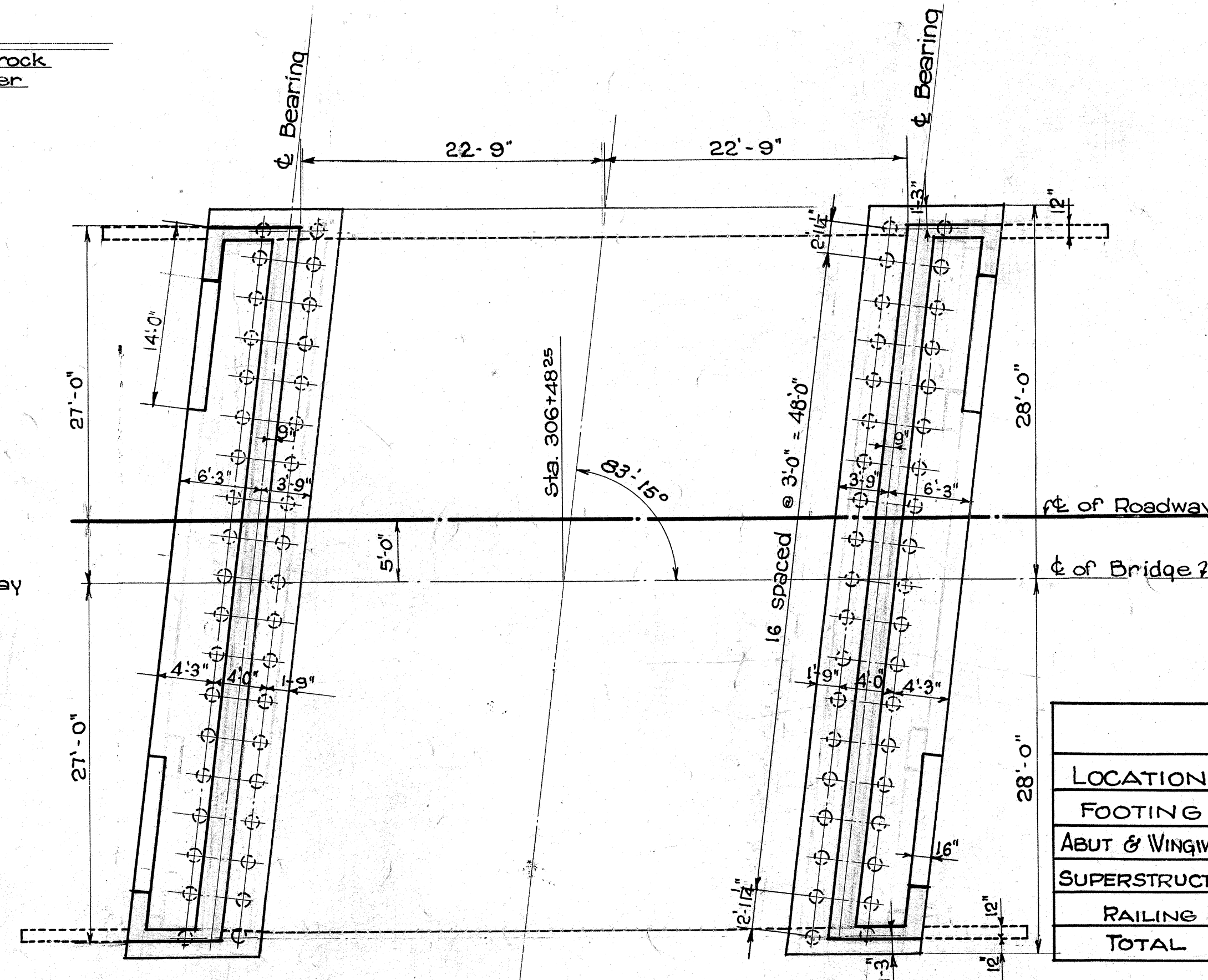
SECTION ON & OF ROADWAY

ADDITIONAL NOTES ON WATERPROOFING
 Brush Coat Waterproofing: To be applied to all surfaces which will be in contact with the earth, with the exception of bottom and sides of footings.

GENERAL NOTES
 Pertaining to all bridges in this project
 Dead Load: Concrete at 150# Cu. Ft.
 Live Load: Train of 15 ton trucks in three traffic lanes. Impact allowance = 75%. Spacing of trucks as per diagram.
 Concrete: Class A (1:2:4) with all exposed edges chamfered 3" unless otherwise noted. Allowable compression 650# per Sq. inch.
 Reinforcing Steel: Intermediate grade; allowable tensile stress 18,000# per Sq. inch. All steel to be round or square deformed bars of approved design, square twisted bars not to be considered deformed. All dimensions relating to reinforcement are to centers of bars unless otherwise noted. Where splicing of reinforcement is necessary, bars are to be lapped 40 diameters and splices are to be staggered. No splices will be permitted in main reinforcement. No allowance will be made in the quantities for extra weight of steel required for splicing. Unless otherwise noted the minimum covering measured from the surface of concrete to the face of any steel shall be not less than 2 1/2" in abutments and abutment footings; 2" in beams, girder and handrails and 1 1/2" in slab. Steel to be held rigidly and accurately in place before and during placing of concrete.
 Brush Coat Waterproofing: Remove all projections, cement film, dirt, etc. and apply waterproofing as specified. Waterproofing is incidental to the concrete used and will not be paid for separately.
 Construction Joints: All construction joints to have surface roughened and 1:2 Cement grout applied immediately before second pour.



THIS DIAGRAM REFERS TO ALL BRIDGES IN THIS CONTRACT



QUANTITIES							
LOCATION	M.L.R.R.	C.R.M.	CHAN. EX.	STR. EX.	CONC.	R. STEEL	PILES
FOOTING			378. C.Y.	605. C.Y.	105.2 C.Y.	12,300#	3800 Lb. ft.
ABUT & WINGWALLS	52 C.Y.	27 C.Y.			111.5 "	8,667	
SUPERSTRUCTURE					141.0 "	31,591	
RAILINGS					83 "	780	
TOTAL	52 C.Y.	27 C.Y.	378. C.Y.	605. C.Y.	366.0 C.Y.	53,338	3800 Lb. ft.

NOTE! CROWN ORDINATES REVISED.
 SEE SHEET #4325.21 FOR DETAILS.

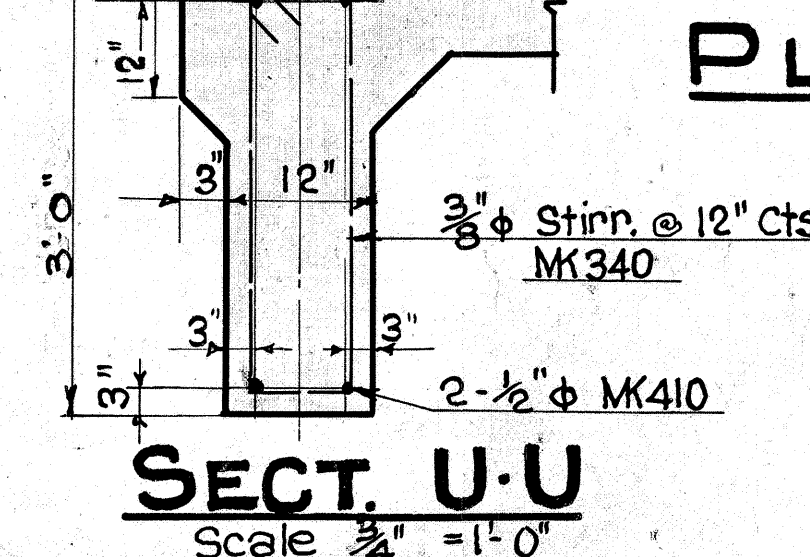
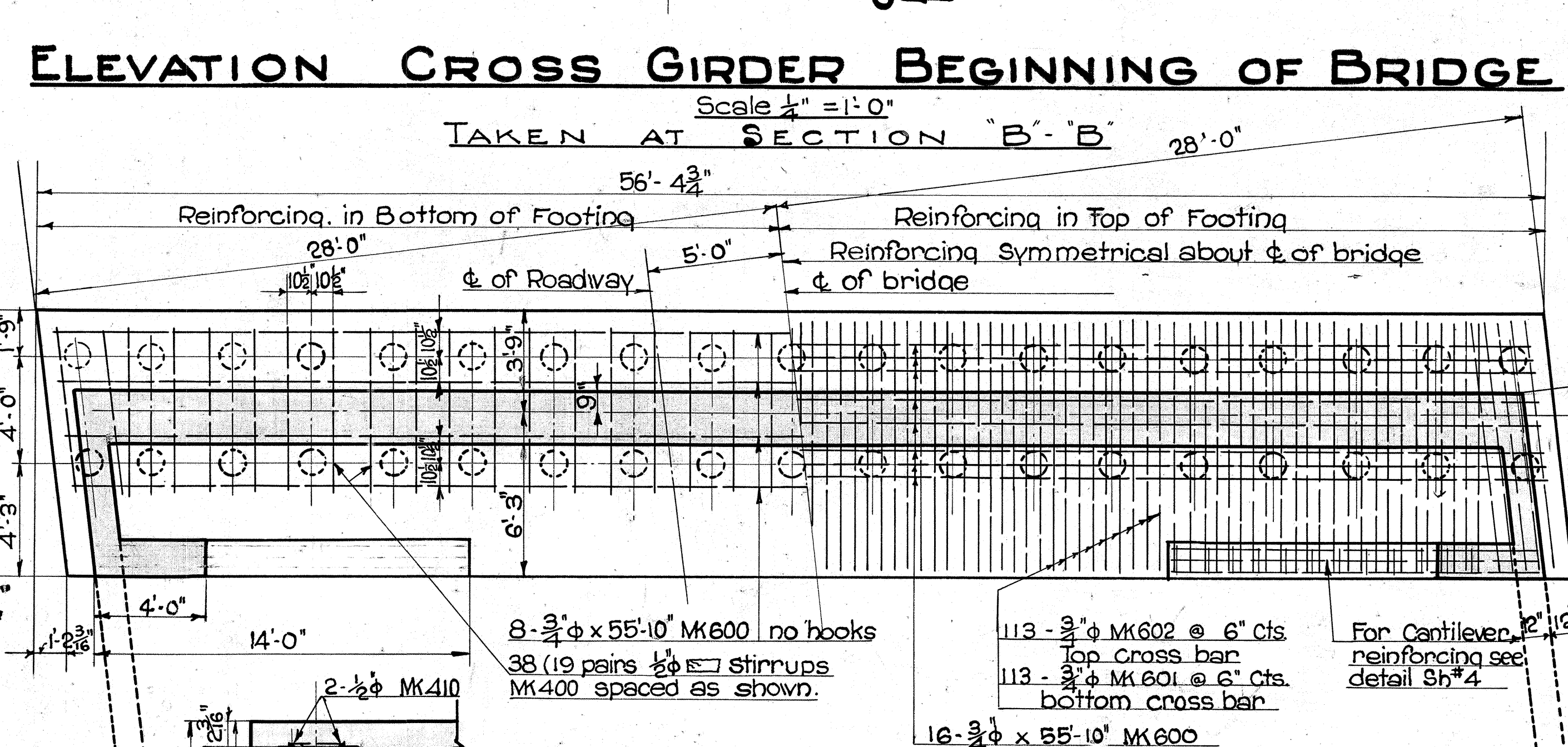
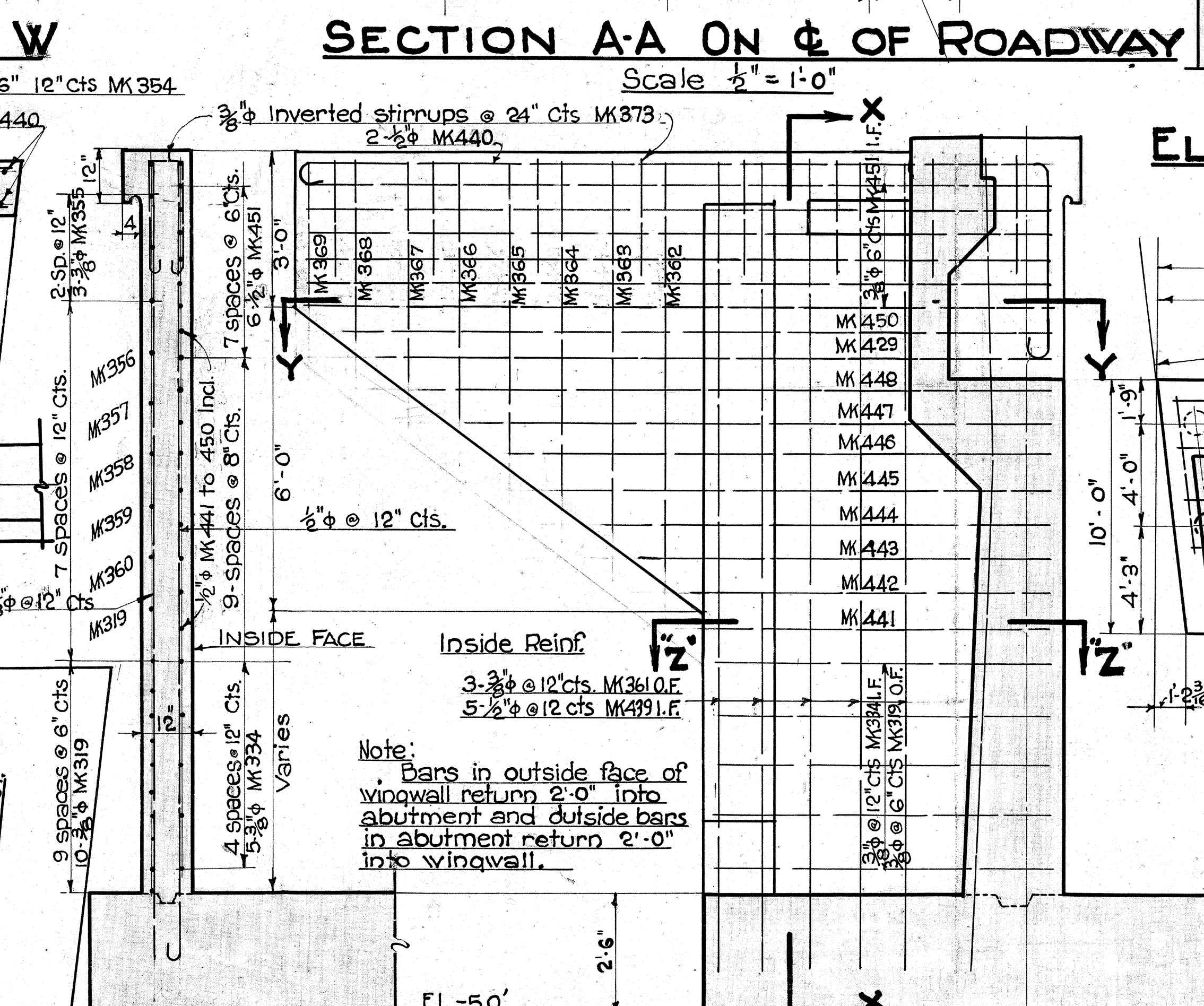
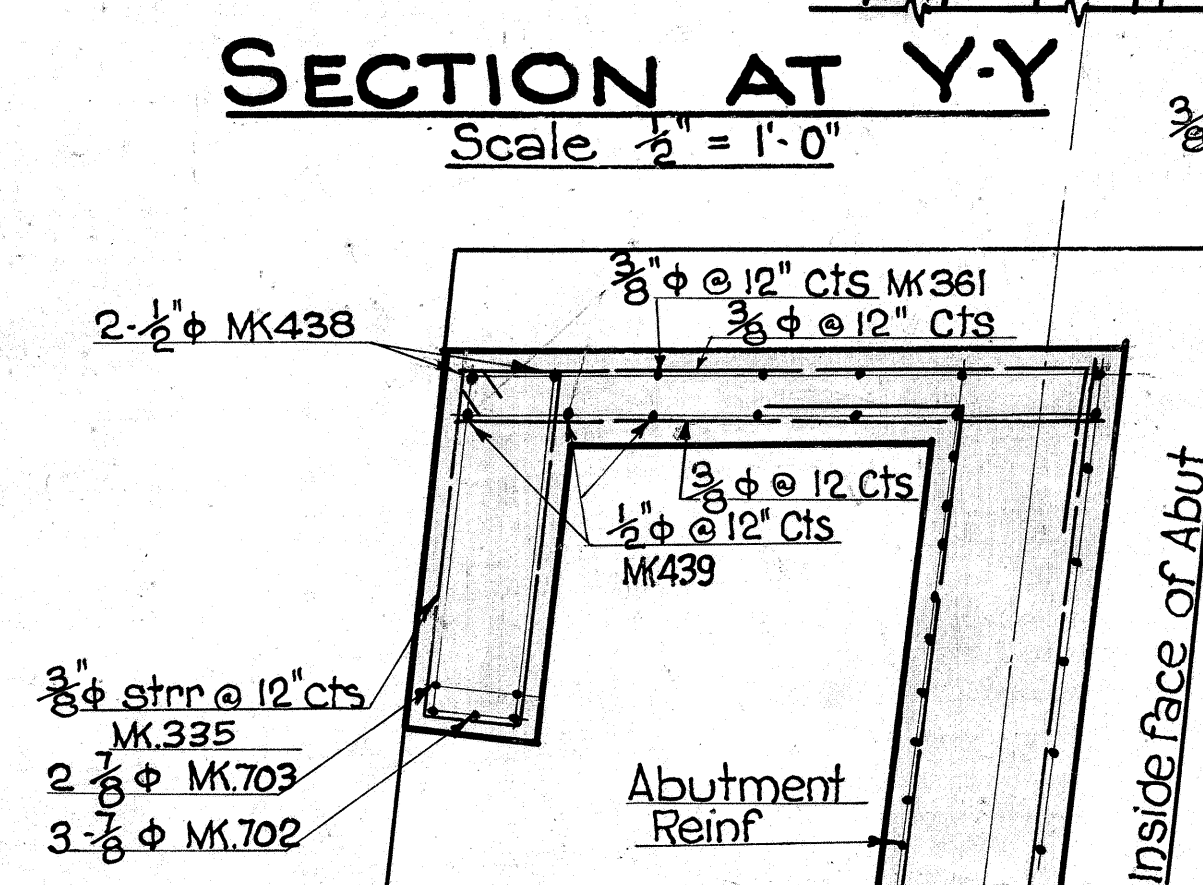
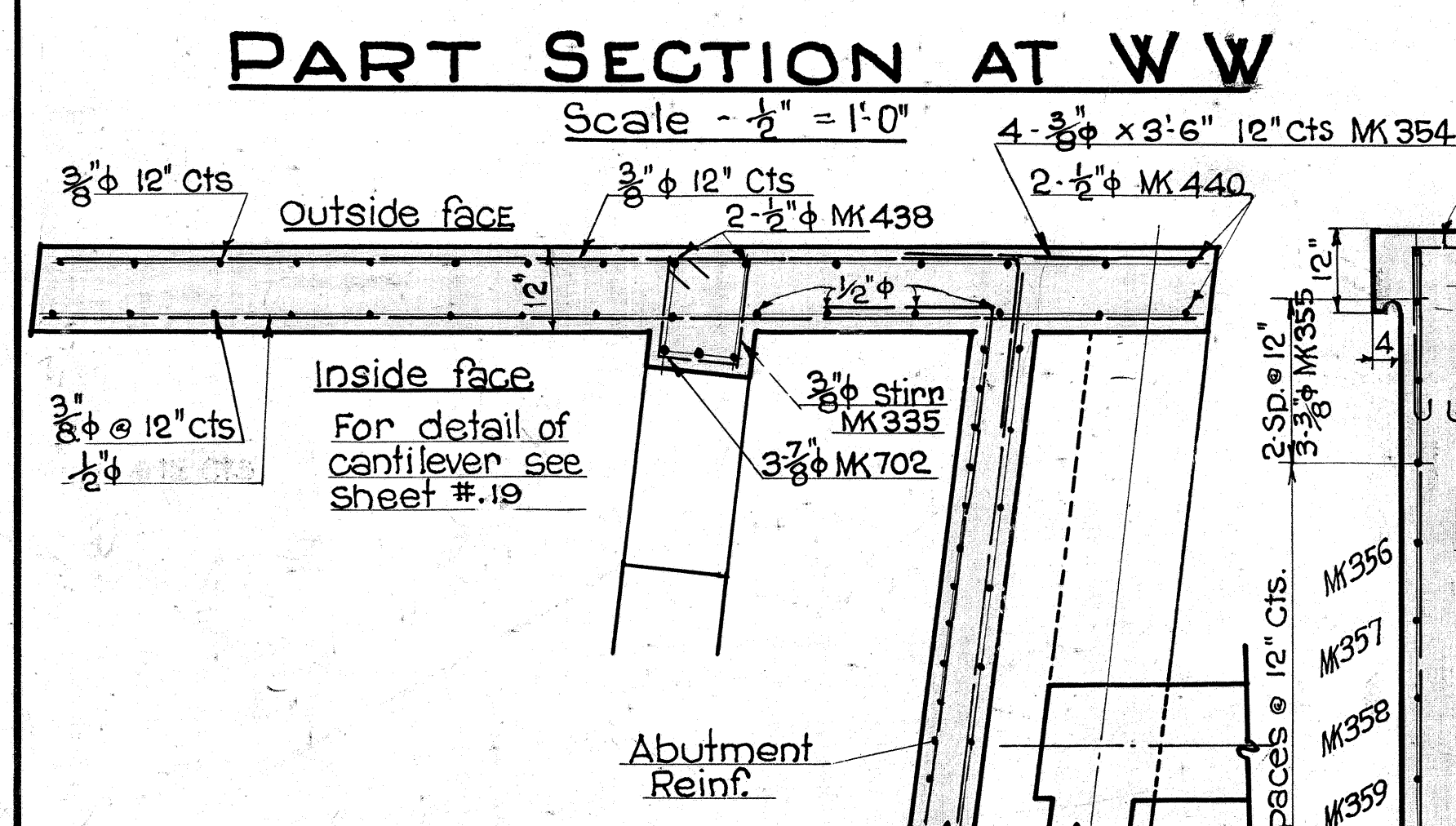
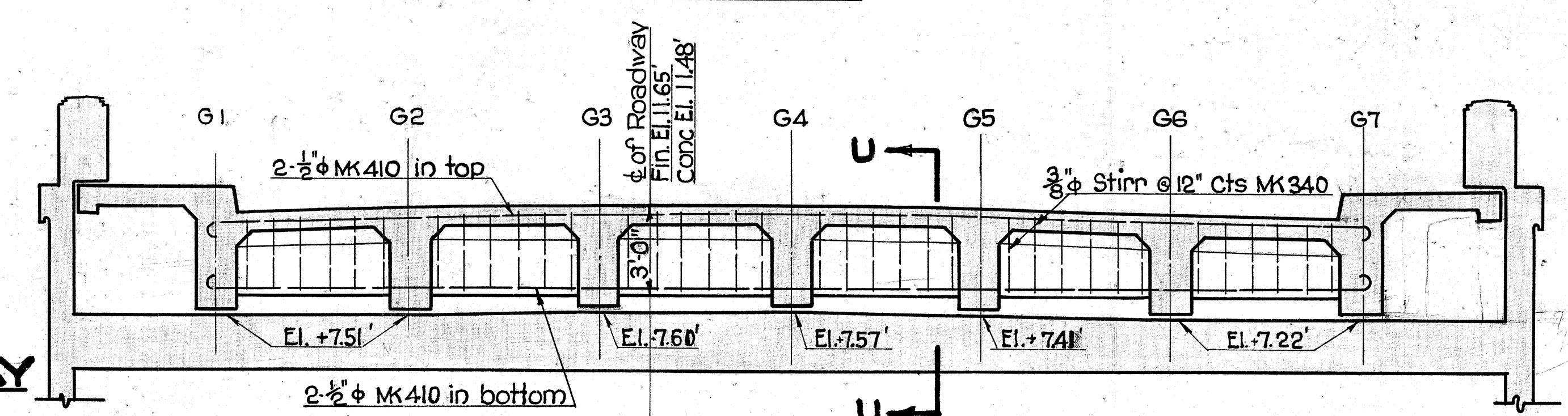
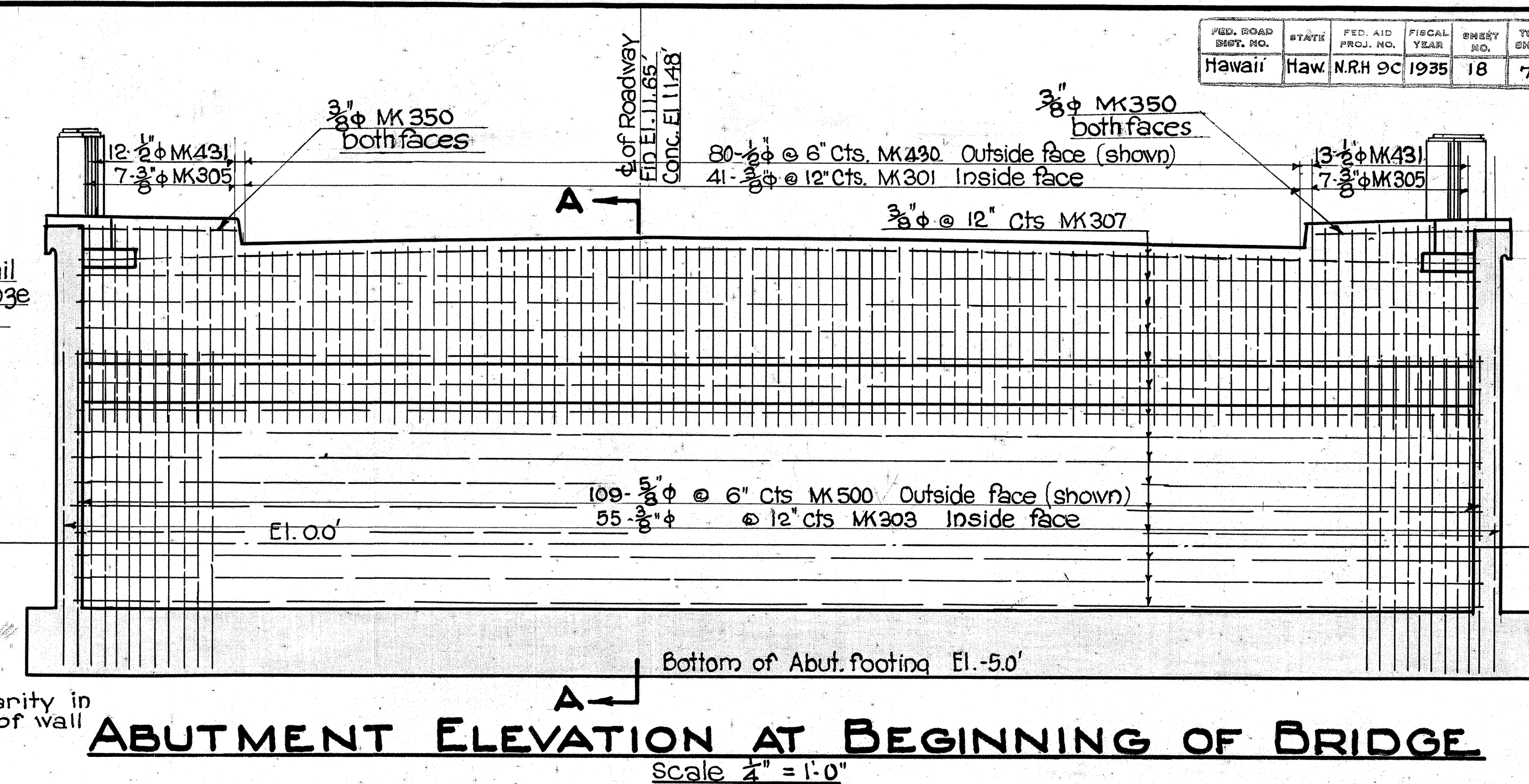
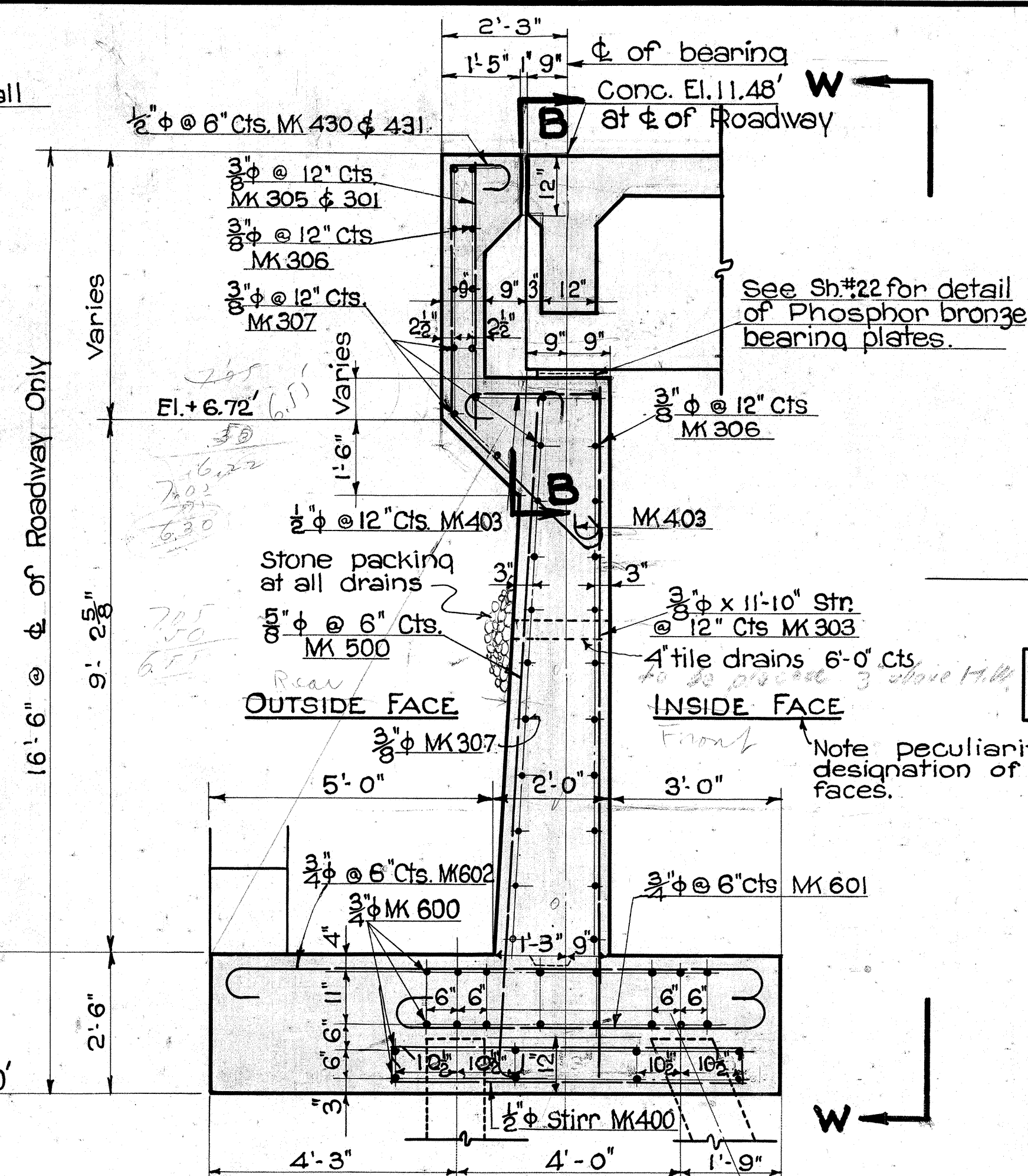
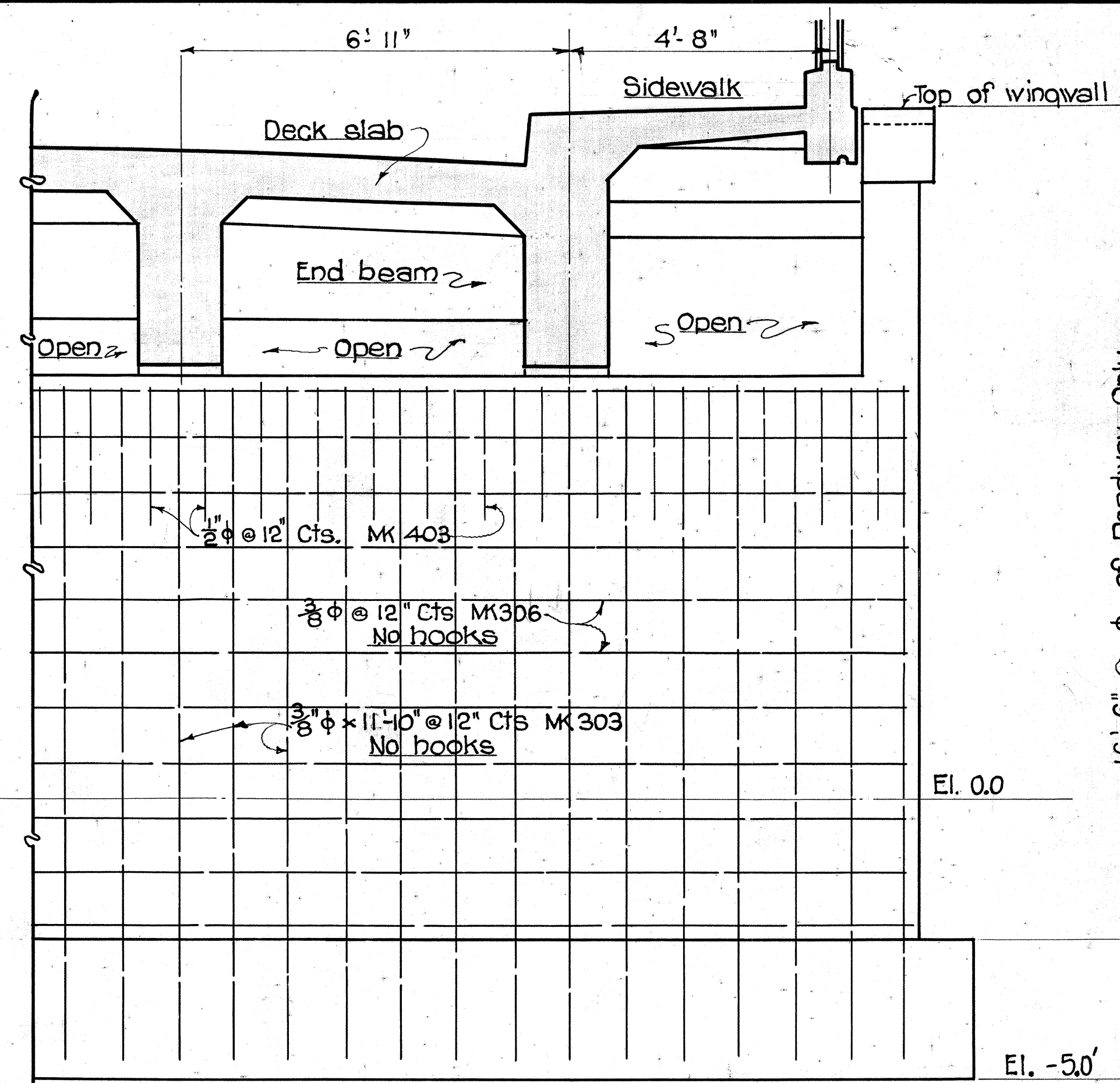
TERRITORIAL HIGHWAY DEPARTMENT
 TERRITORY OF HAWAII

AIEA BRIDGE

No 5 STA. 306+23.25 TO STA 306+73.25
 KAMEHAMEHA HIGHWAY N.R.H. 9C (1935)
 SHEET No 1 of 9 SHEETS

4325.16

ORIGINAL
 PLAN
 DESIGNED BY
 DRAWN BY
 CHECKED BY
 DATE
 Sep. 24
 1935



TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

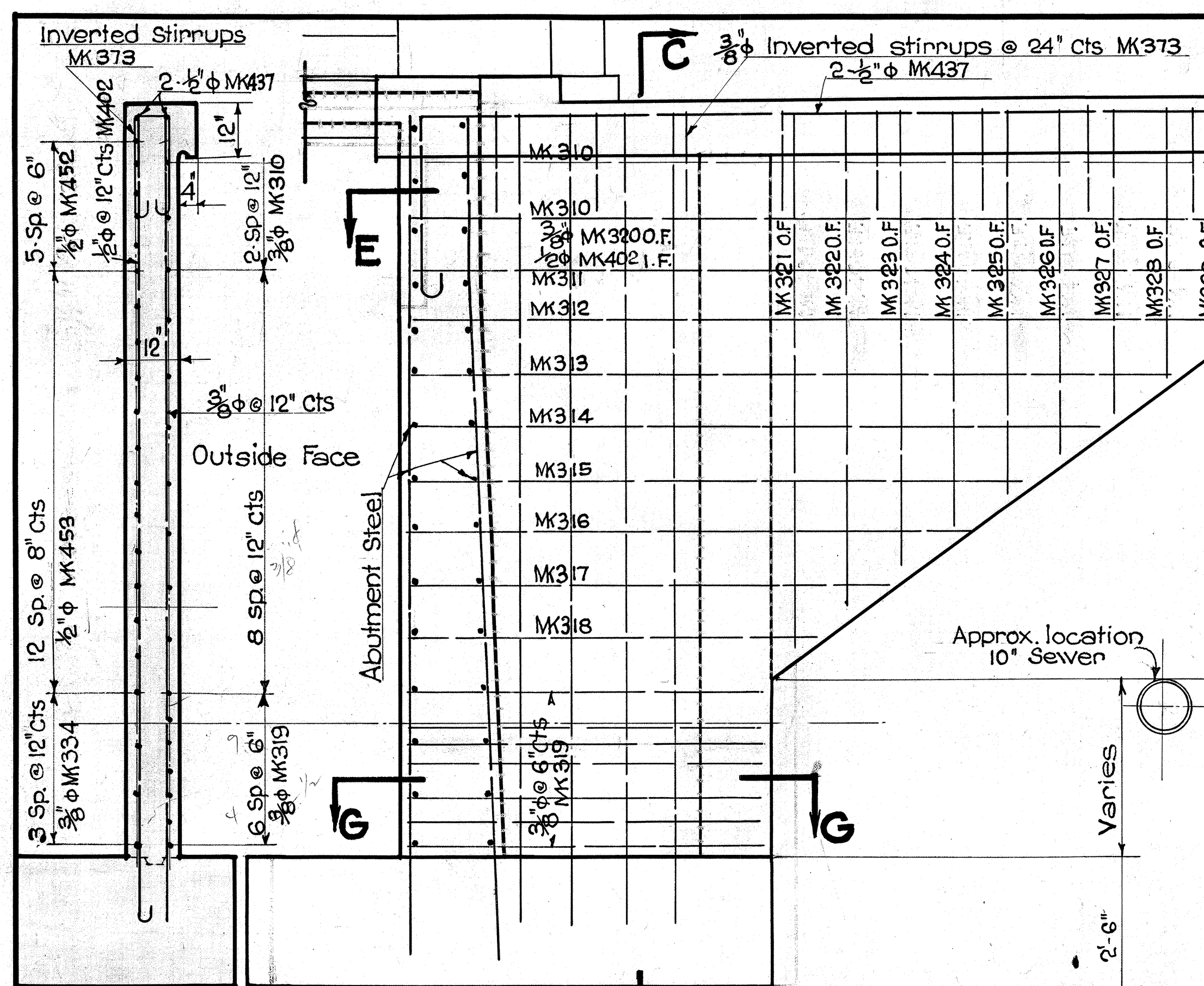
AIEA BRIDGE

Nº 5 STA.306+23²⁵ TO STA.306+73²⁵

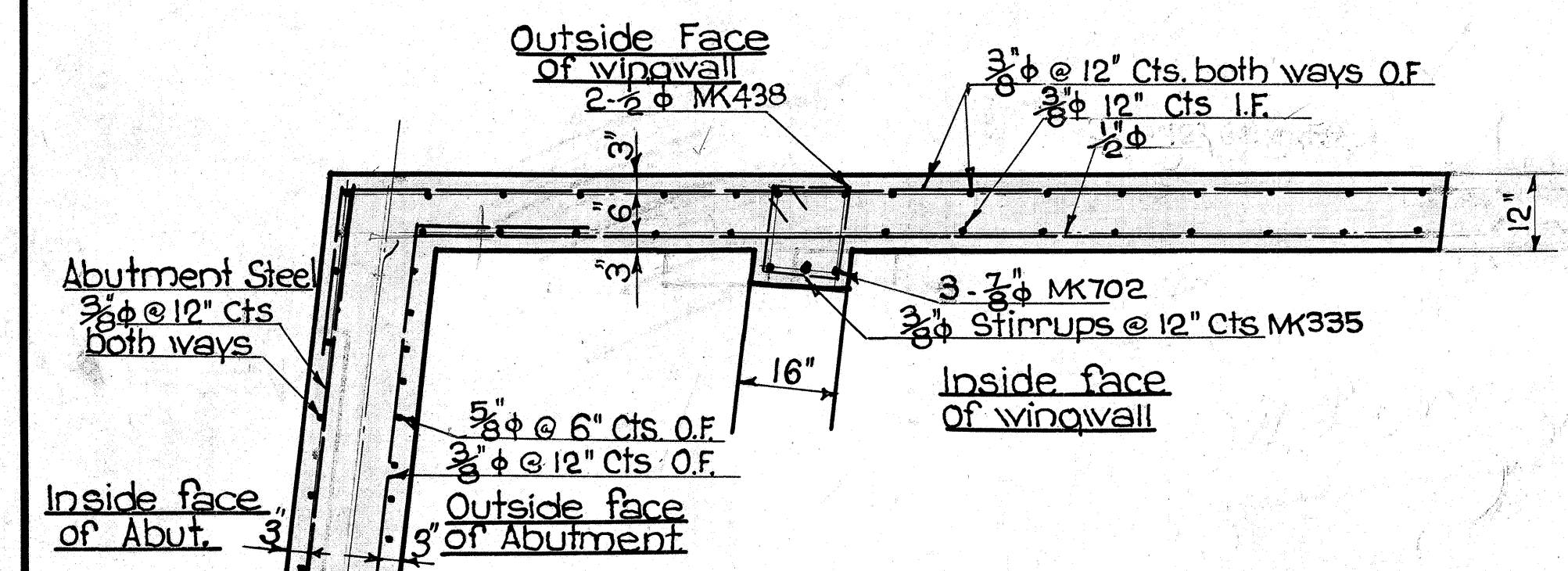
KAMEHAMEHA HIGHWAY N.R.H. 9-C (1935)

SHEET N° 3 OF 9 SHEETS

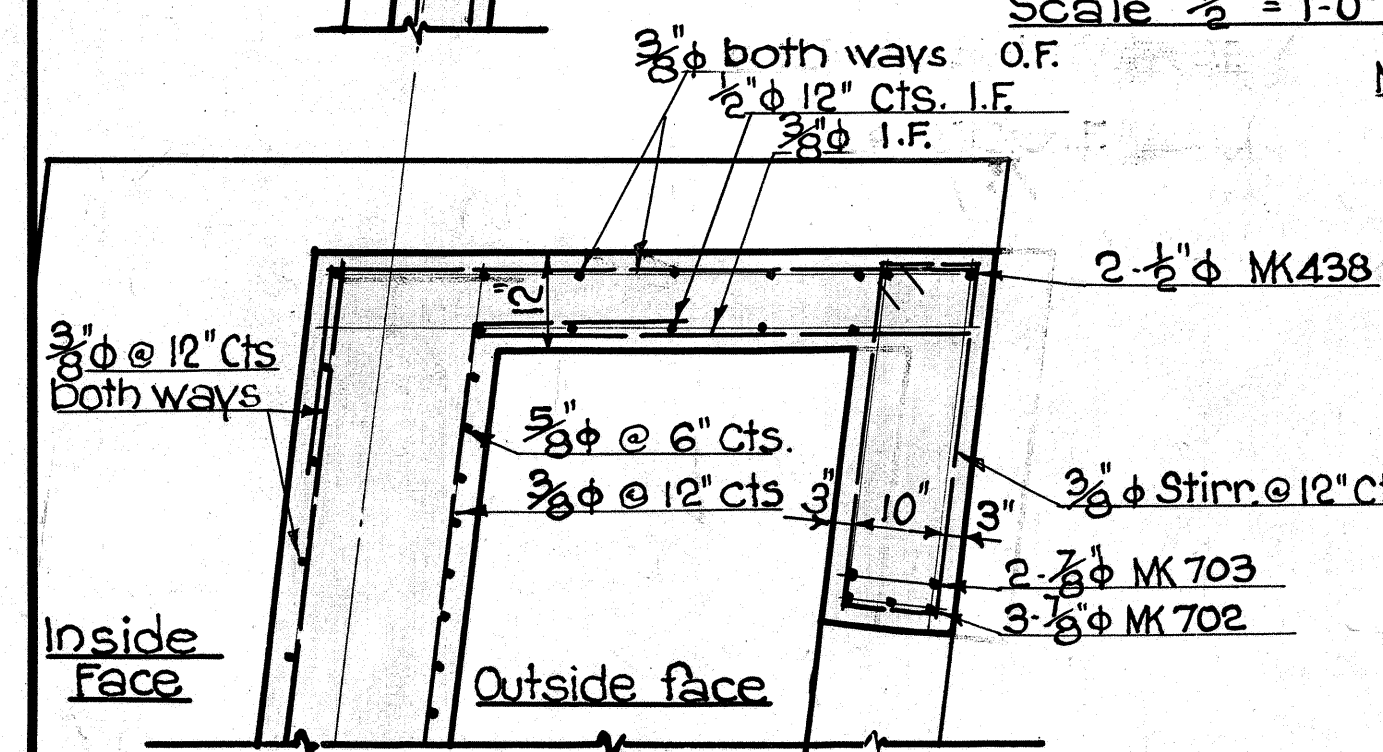
4325.18



SECT. C-C WINGWALL ELEV. AT B-B
Scale $\frac{1}{2}'' = 1'-0''$

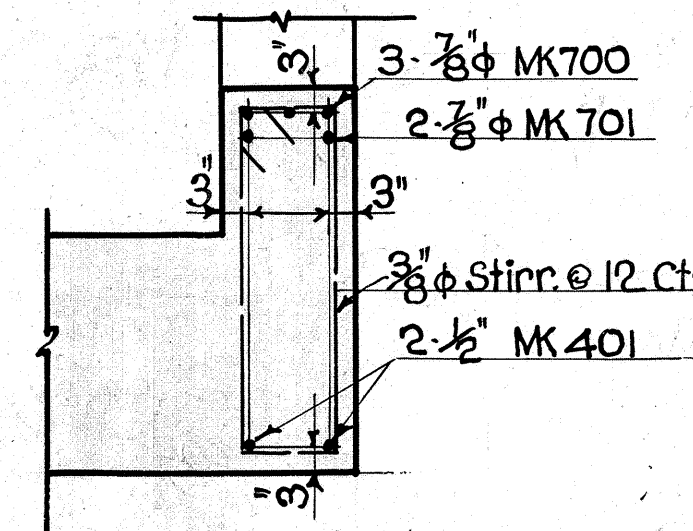


SECTION AT D-D
SECT. AT E-E SIMILAR
Scale $\frac{1}{2}'' = 1'-0''$

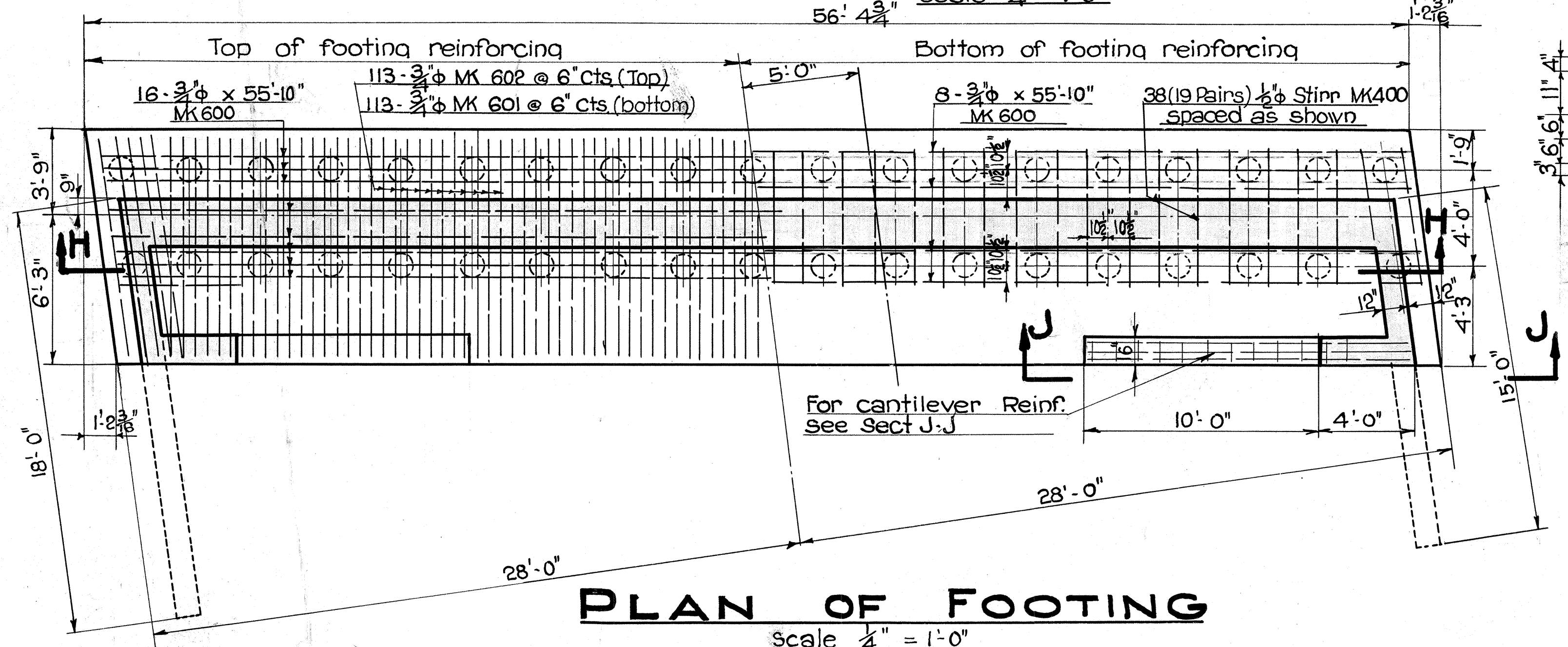


SECTION AT F-F
SECT. AT G-G SIMILAR
Scale $\frac{1}{2}'' = 1'-0''$

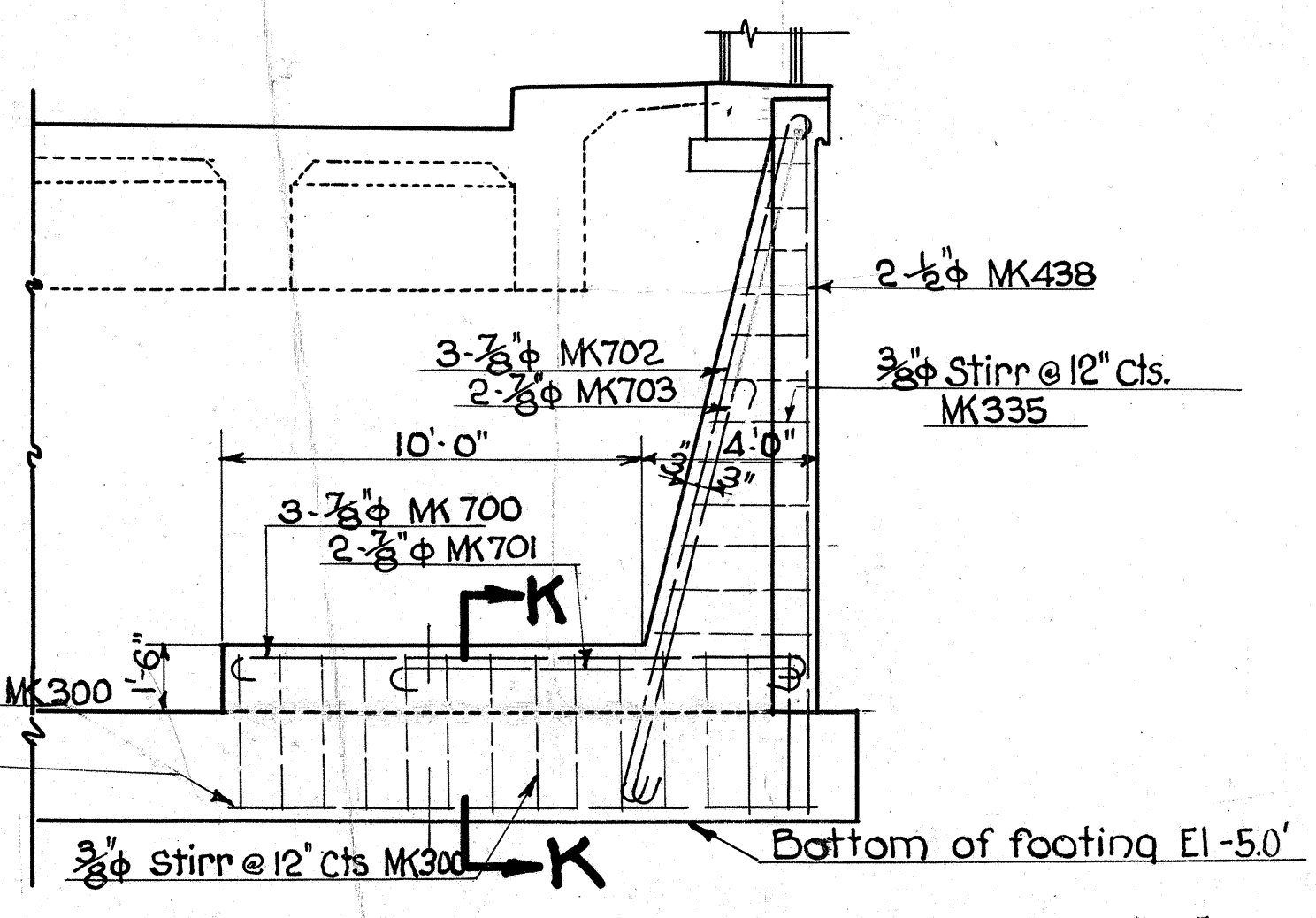
Notes:
Bars in outside face of wingwall return 2'-0" into abutment and outside bars in abutment return 2'-0" into wingwalls.
For length and height of wingwalls see Sh #17.



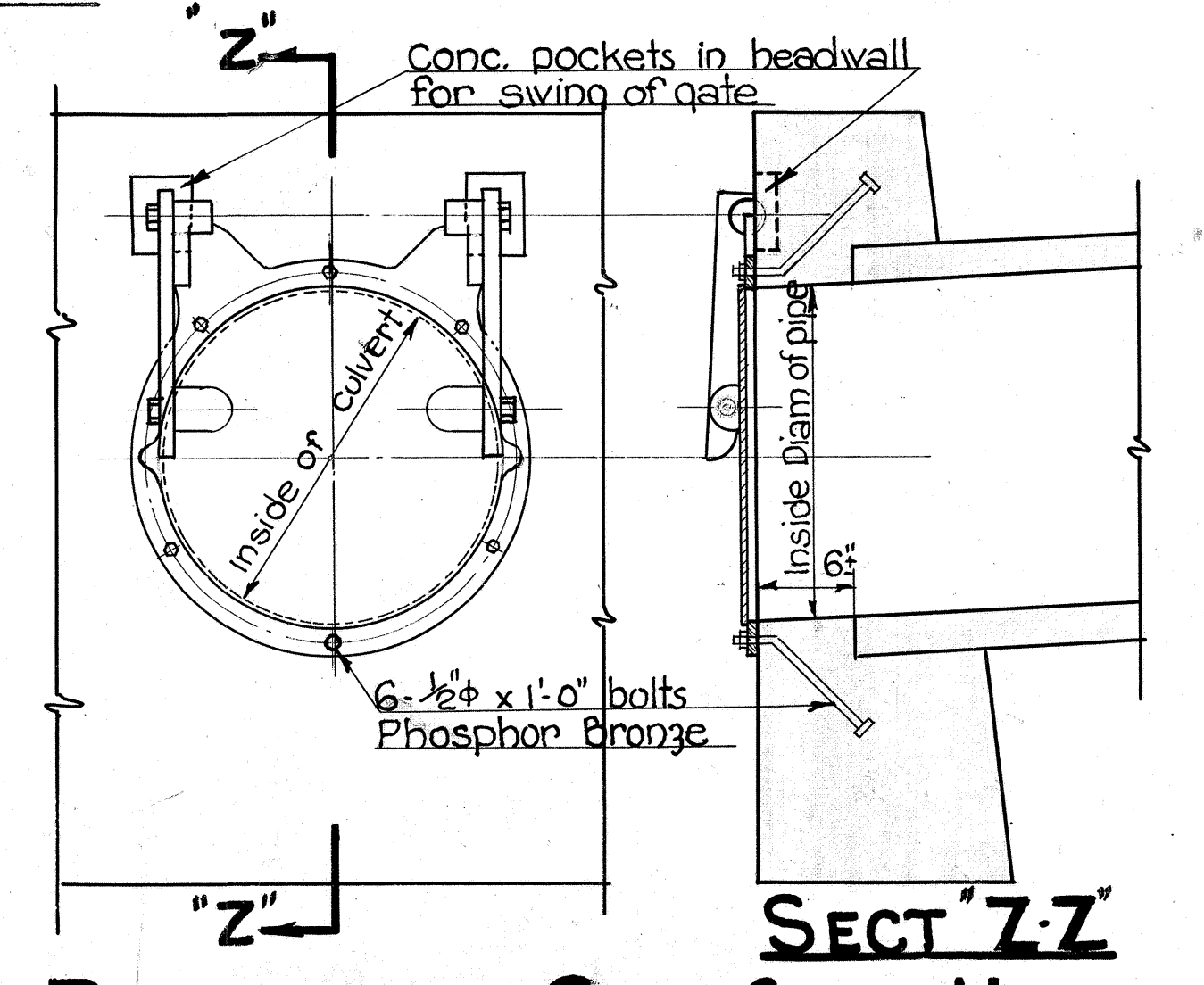
SECT. K-K
Scale $\frac{1}{2}'' = 1'-0''$



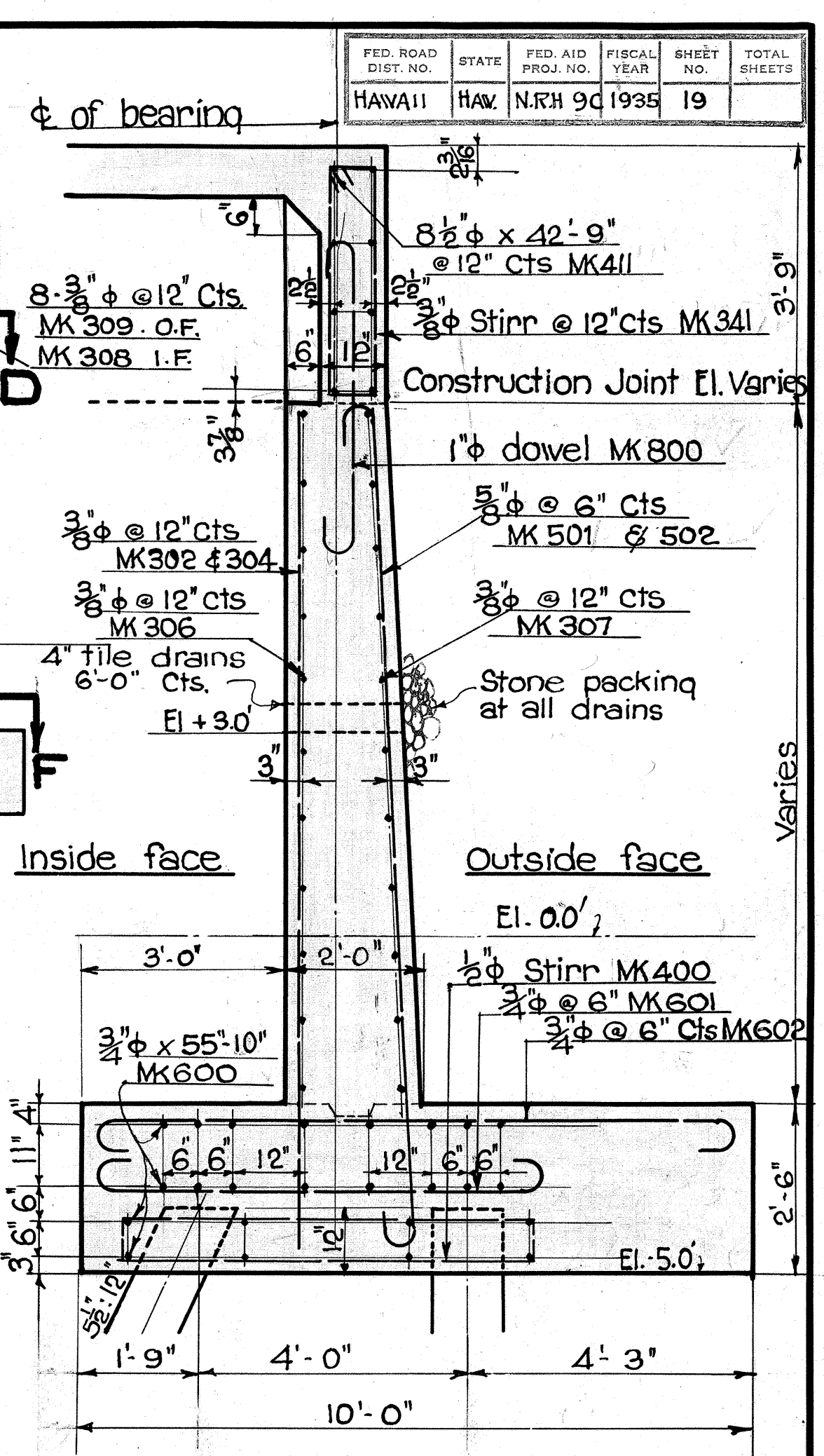
PLAN OF FOOTING
Scale $\frac{1}{4}'' = 1'-0''$



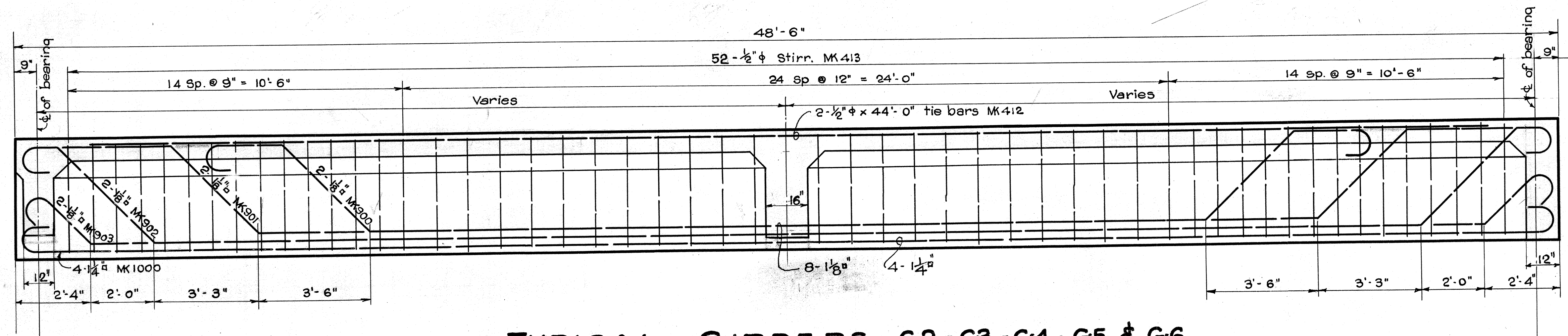
CANTILEVER DETAIL SECT. J-J
Scale $\frac{1}{4}'' = 1'-0''$



DETAIL OF STD. CONC. HEADWALL WITH TIDE GATE
Calco Gate or equal

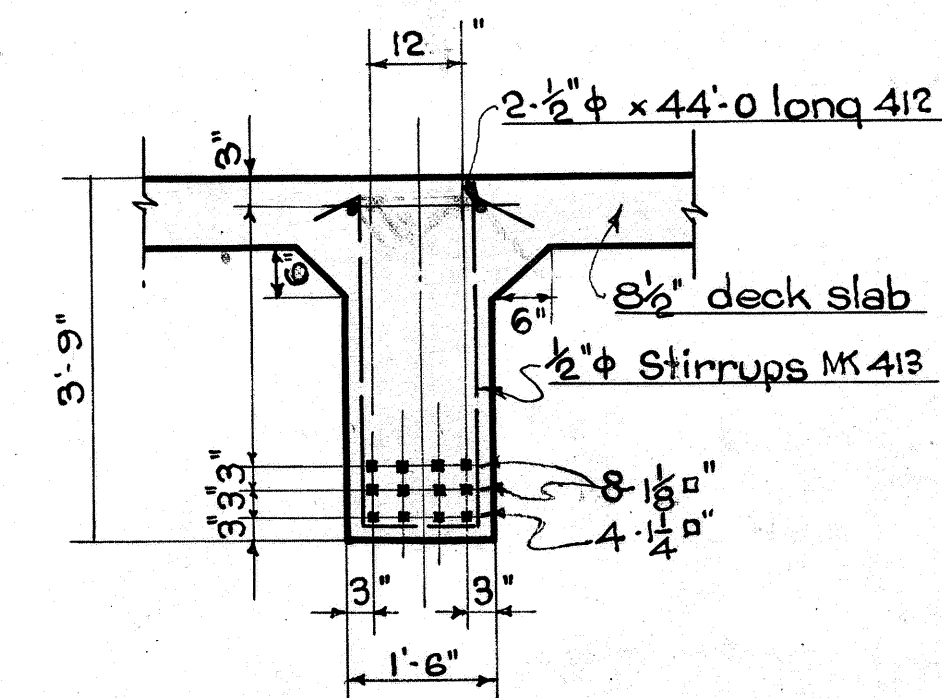


SECTION AT A-A
Scale $\frac{1}{2}'' = 1'-0''$



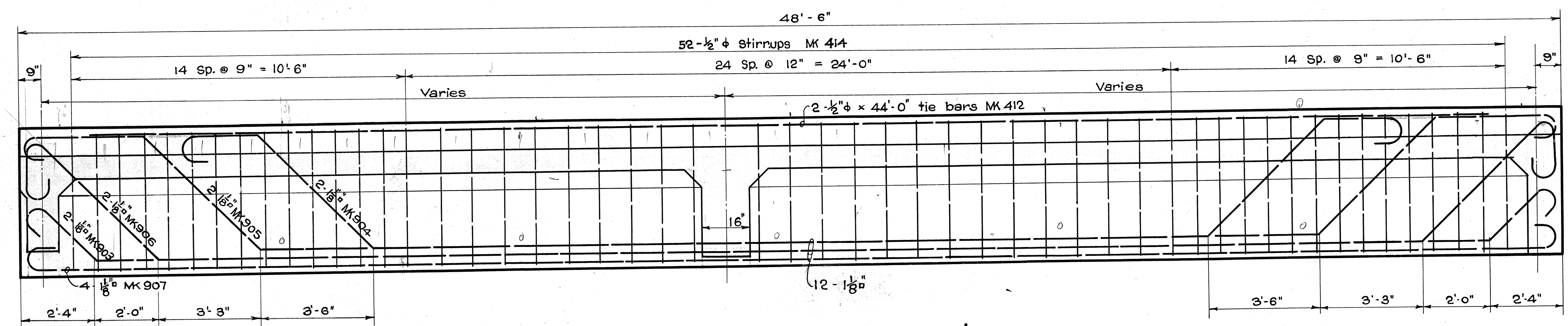
TYPICAL GIRDERS G2-G3-G4-G5 & G6

Scale $\frac{1}{2}$ " = 1'-0"



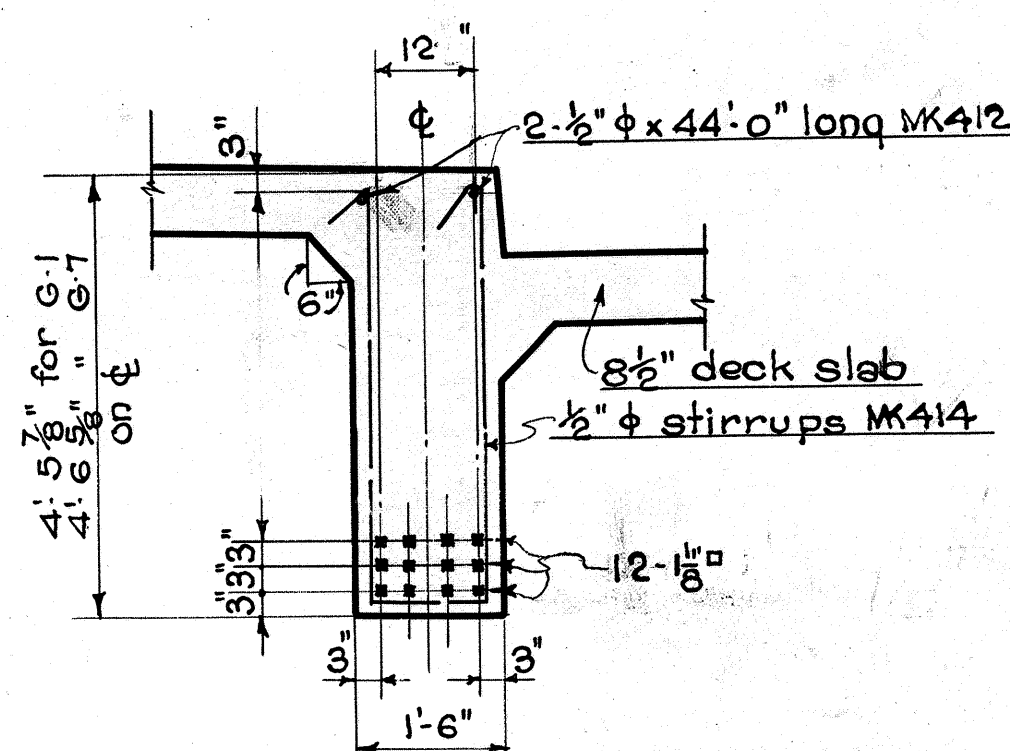
TYPICAL SECTION

Scale $\frac{1}{2}$ " = 1'-0"



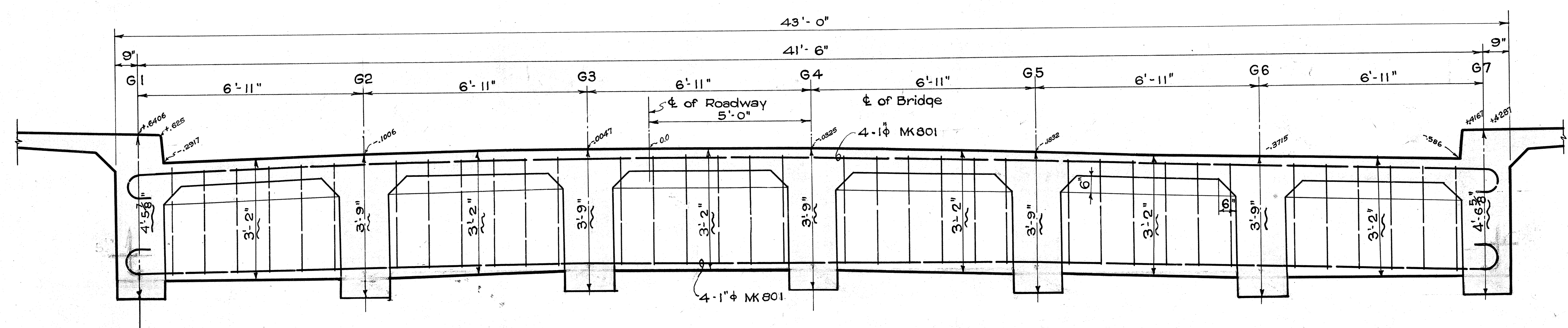
TYPICAL GIRDERS G1 & G7

Scale $\frac{1}{2}$ " = 1'-0"



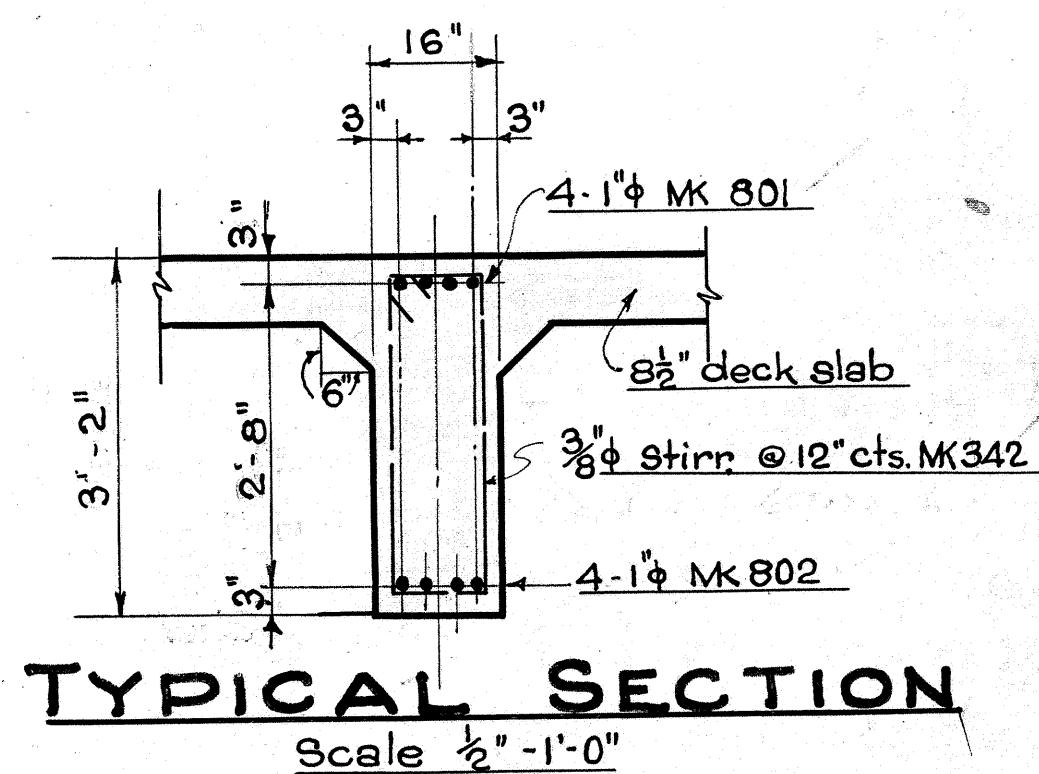
TYPICAL SECTION

Scale $\frac{1}{2}$ " = 1'-0"



CROSS GIRDER AT CENTER OF BRIDGE

Scale $\frac{1}{2}$ " = 1'-0"
Vertical dimension not to scale



TYPICAL SECTION

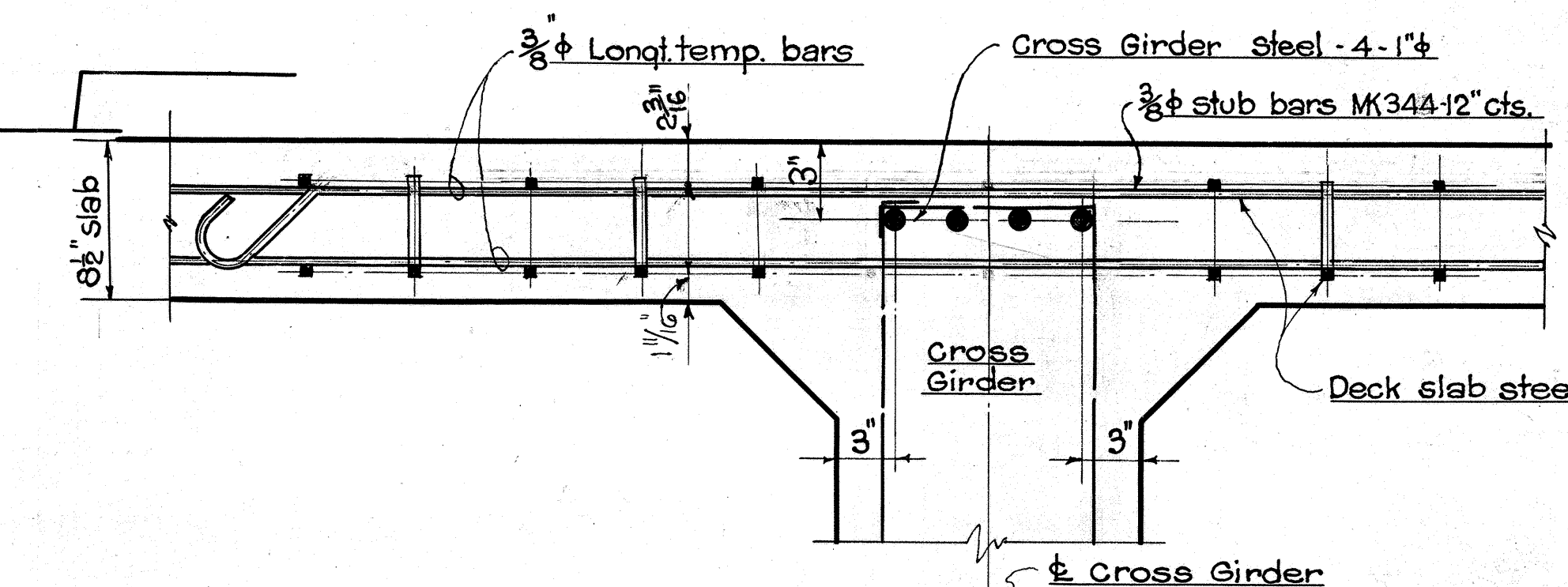
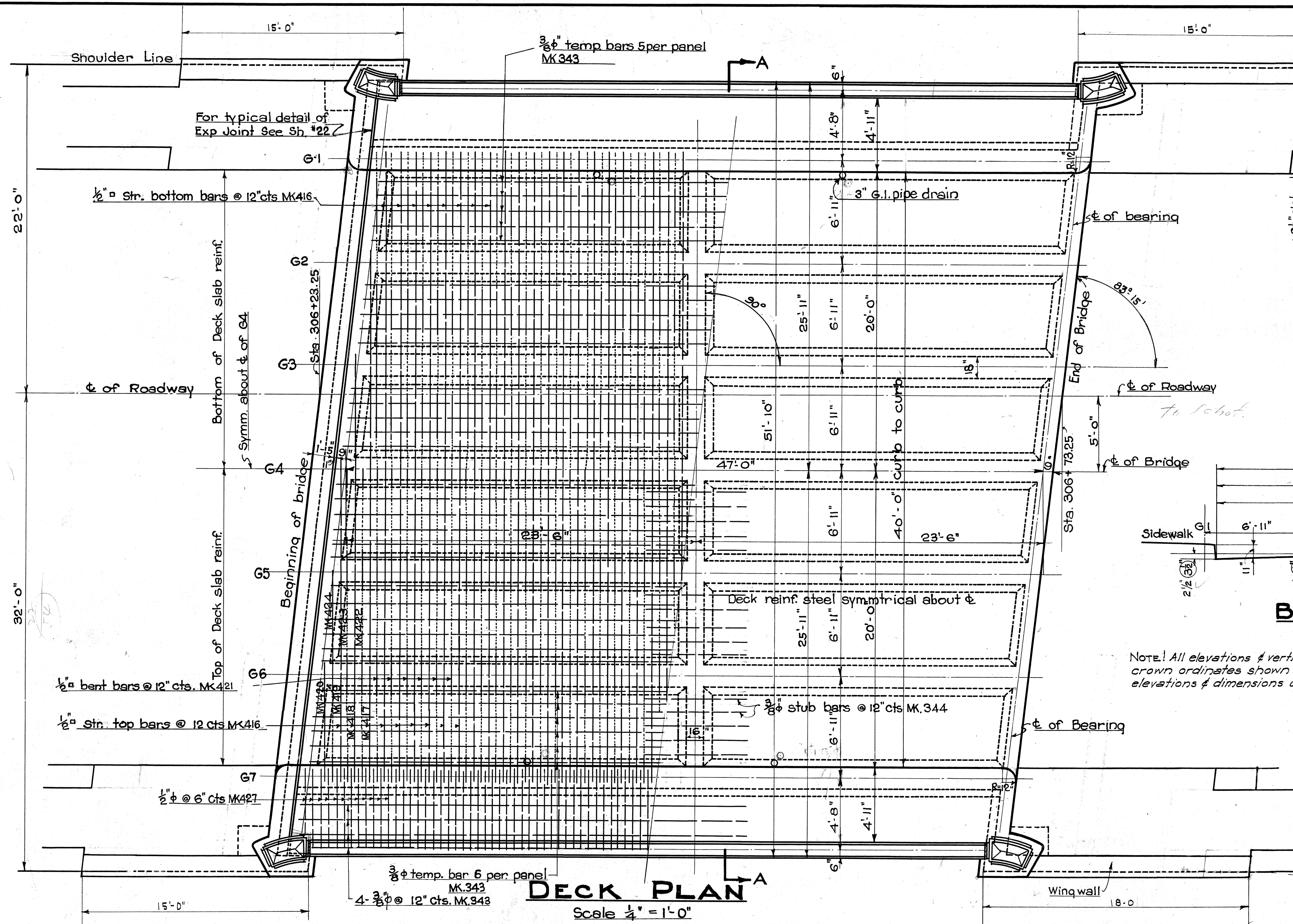
Scale $\frac{1}{2}$ " = 1'-0"

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

AIEA BRIDGE

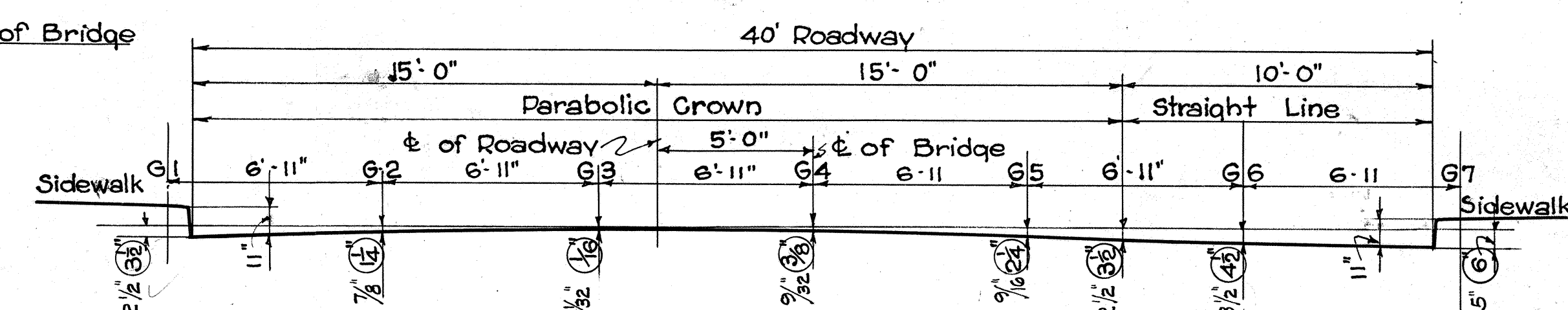
No 5 STA. 306+23²⁵ TO STA. 306+73²⁵
KAMEHAMEHA HIGHWAY N.R.H. 9C (1935)
SHEET No 5 OF 9 SHEETS

4325.20



**SLAB REINF DETAIL
AT CROSS GIRDER**

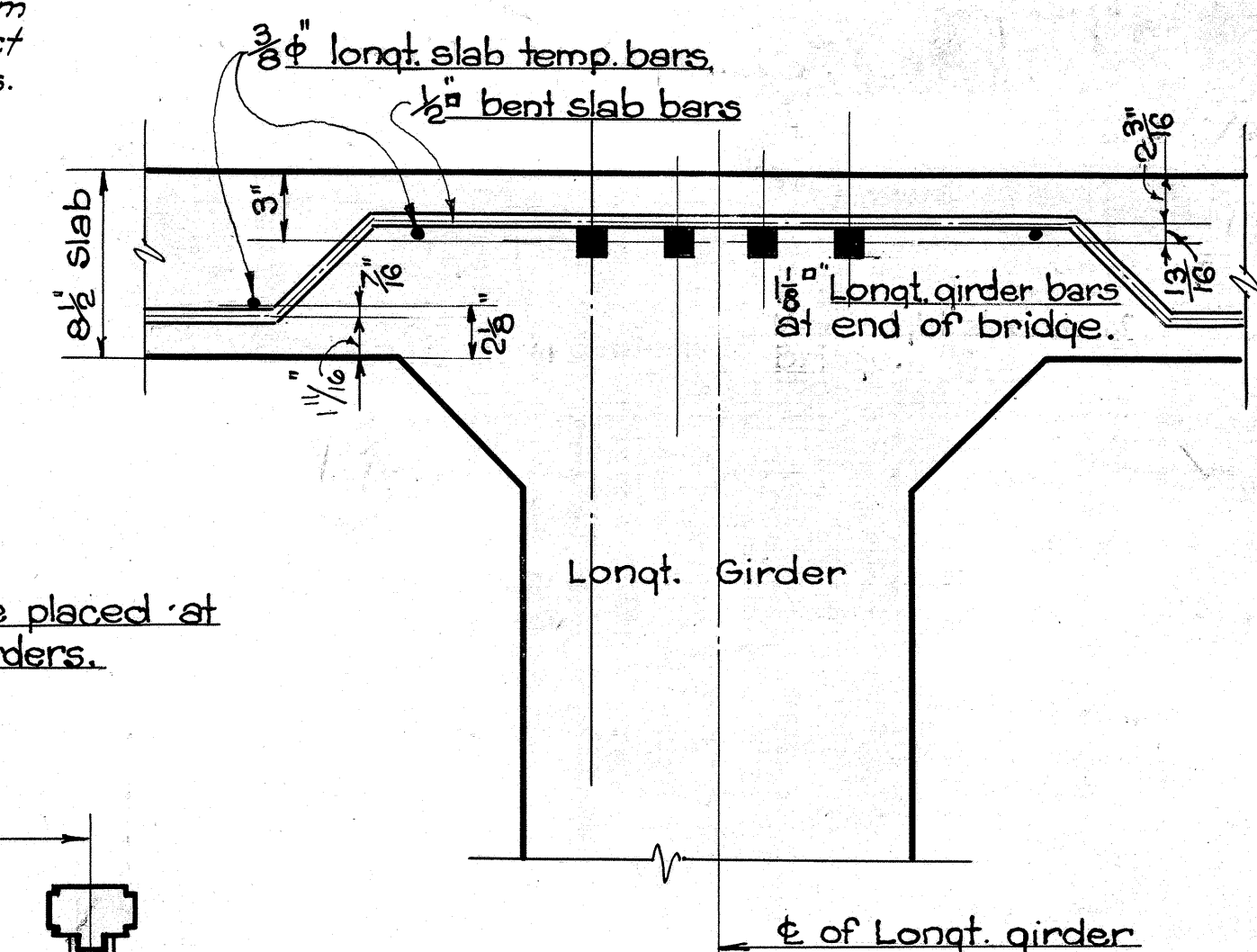
Scale 1/2" = 1'-0"



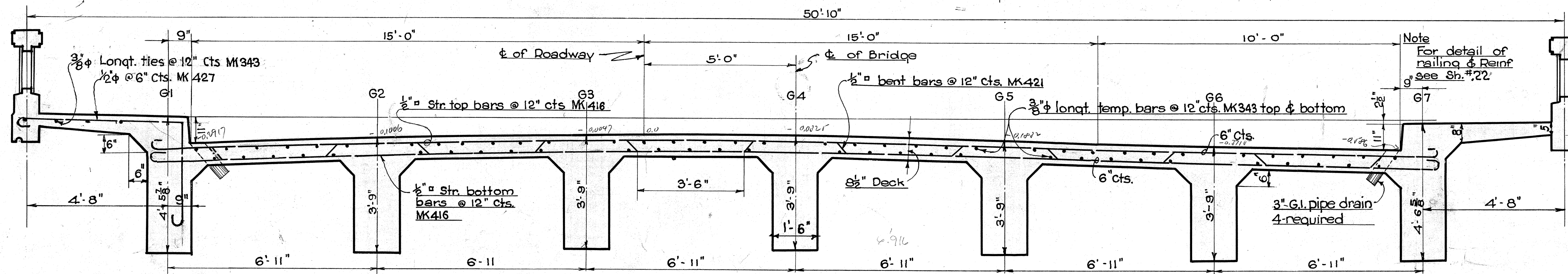
BRIDGE CROWN ORDINATES

Scale 1/4" = 1'-0"

Note: All elevations & vertical dimensions are computed from crown ordinates shown in ③. Res. Eng. to compute correct elevations & dimensions using 2 1/2 parabolic crown ordinates.



Note: Deck Reinf. to be placed at right angles to girders.



TYPICAL CROSS SECTION A-A SHOWING DECK REINFORCING

Scale 1/2" = 1'-0"

**DETAIL OF REINF.
COVERAGE IN SLAB**

Scale 1/2" = 1'-0"

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

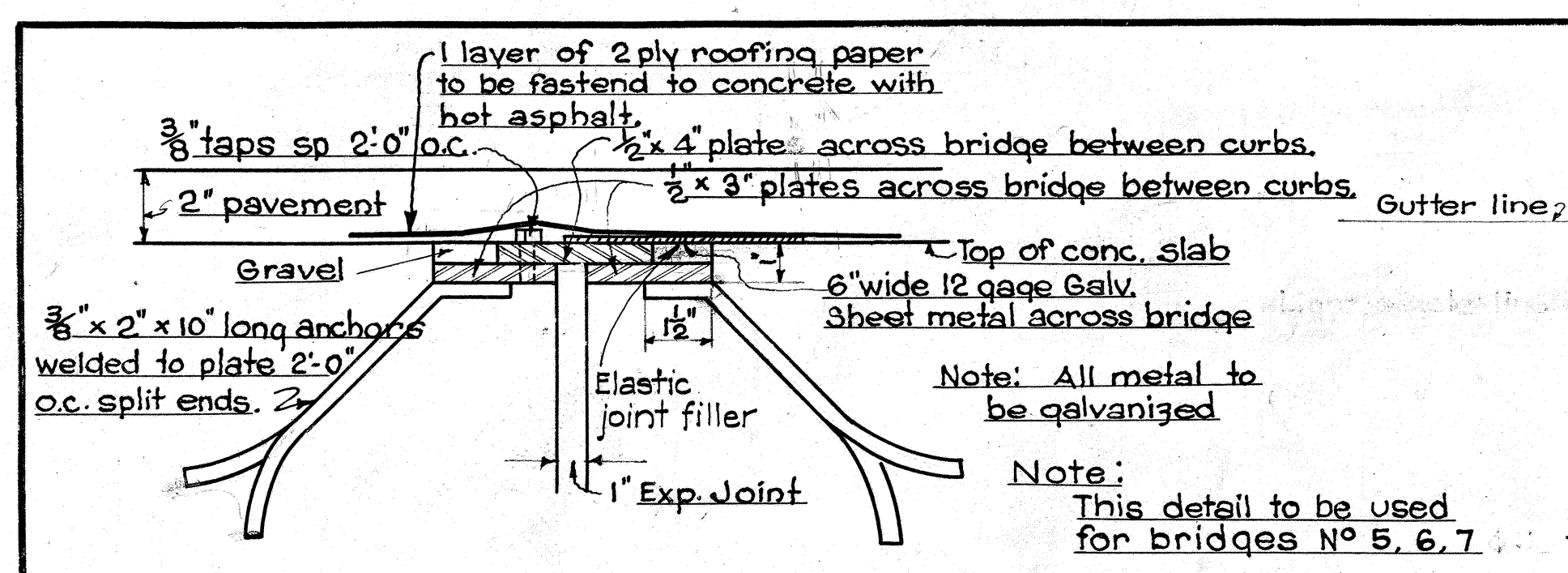
AIEA BRIDGE

No 5 STA 306+23.25 TO STA 306+73.25

KAMEHAMEHA HIGHWAY N.R.H. 9C (1935)

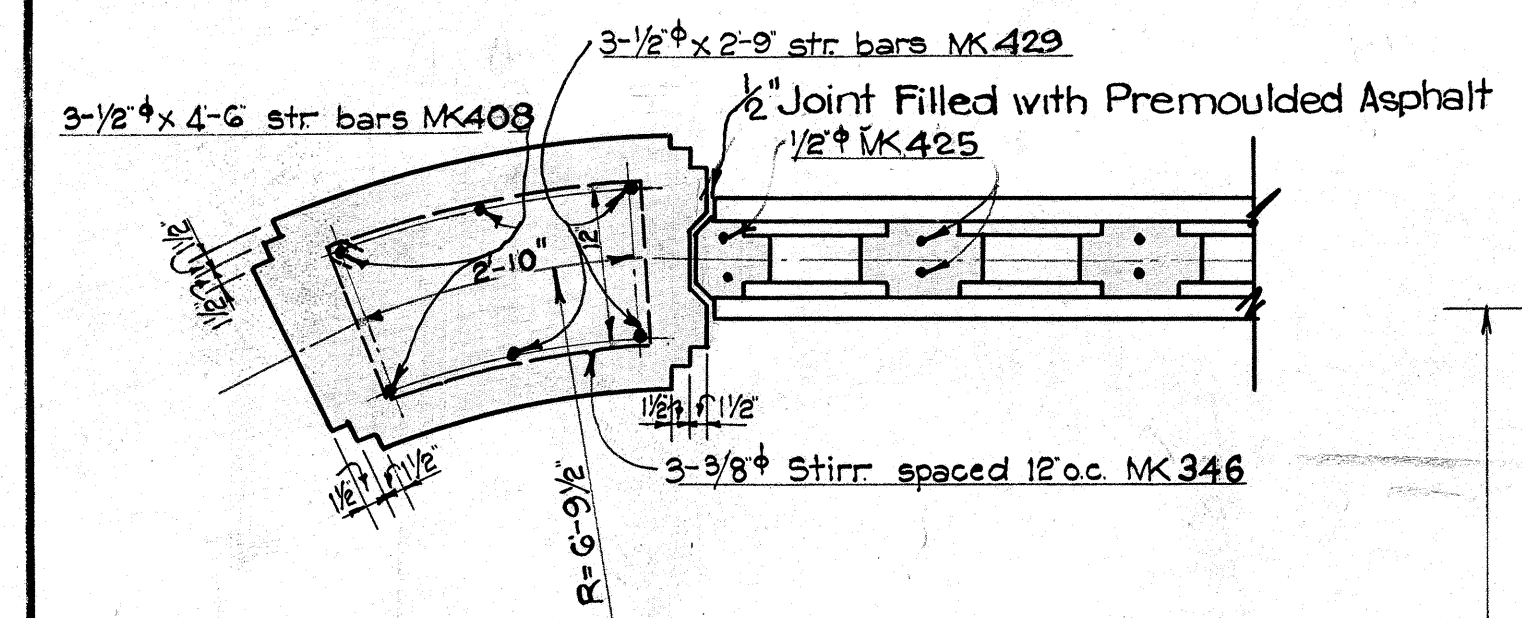
SHEET No 6 OF 9 SHEETS

4325.21



TYPICAL DETAIL FOR EXPANSION JOINT

Note: Scale $\frac{3}{4}$ " = 1'-0"
 Effective precautions must be taken by contractor to prevent any leakage of pavement binder thru expansion joint at curbs.



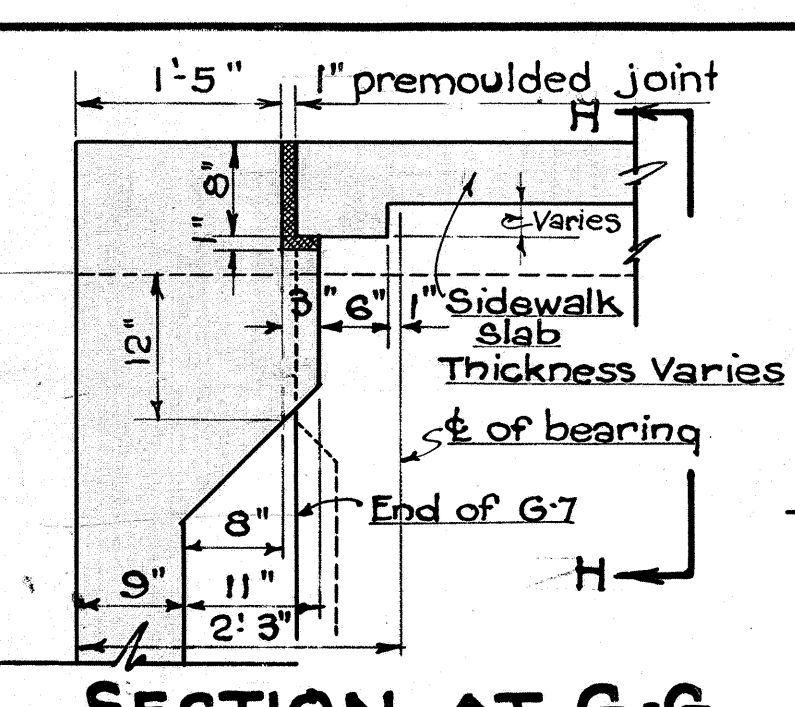
END POST DETAIL

Scale $\frac{3}{4}$ " = 1'-0"
 NOTE: This detail to be used for all bridges in this project.
 Depressed "V" letters $\frac{3}{8}$ " deep

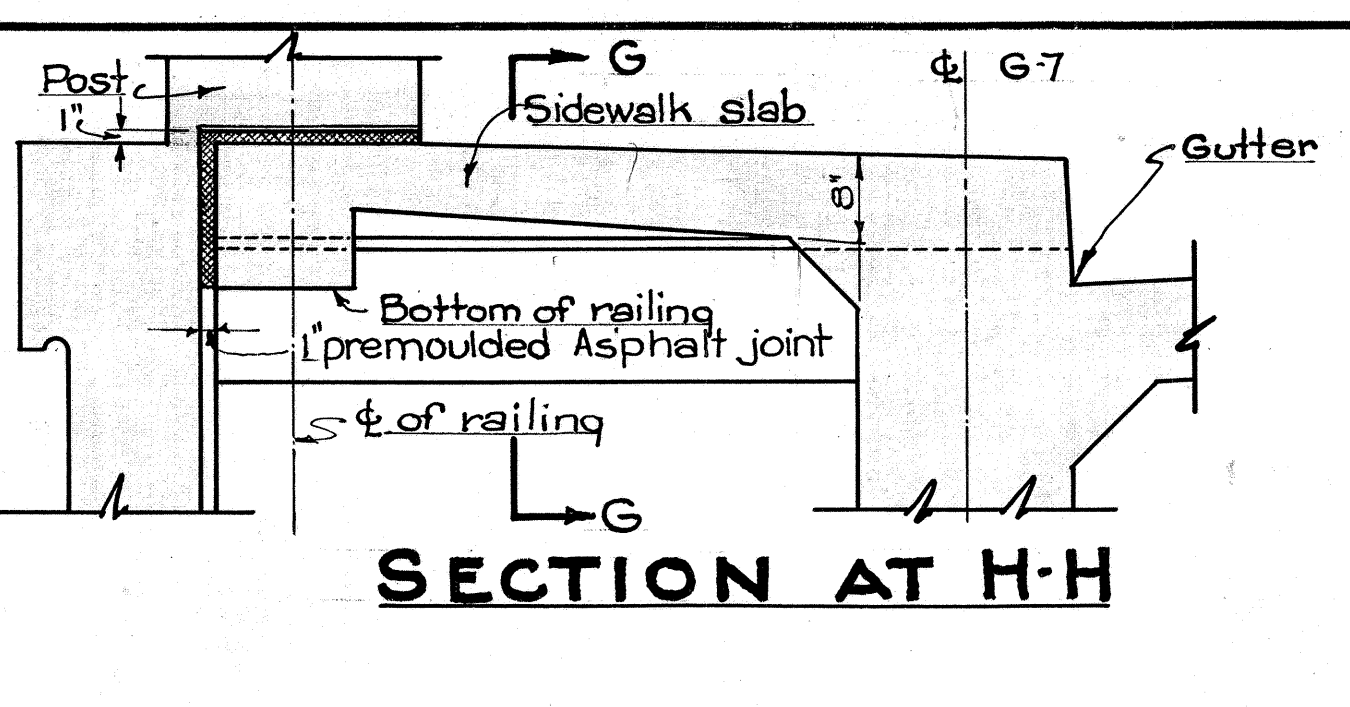
NAME	DATE
Use correct name of stream.	Date of year built
Left Hand side	Right Hand Side

DETAIL OF LETTERS & FIGURES AT BOTH APPROACHES

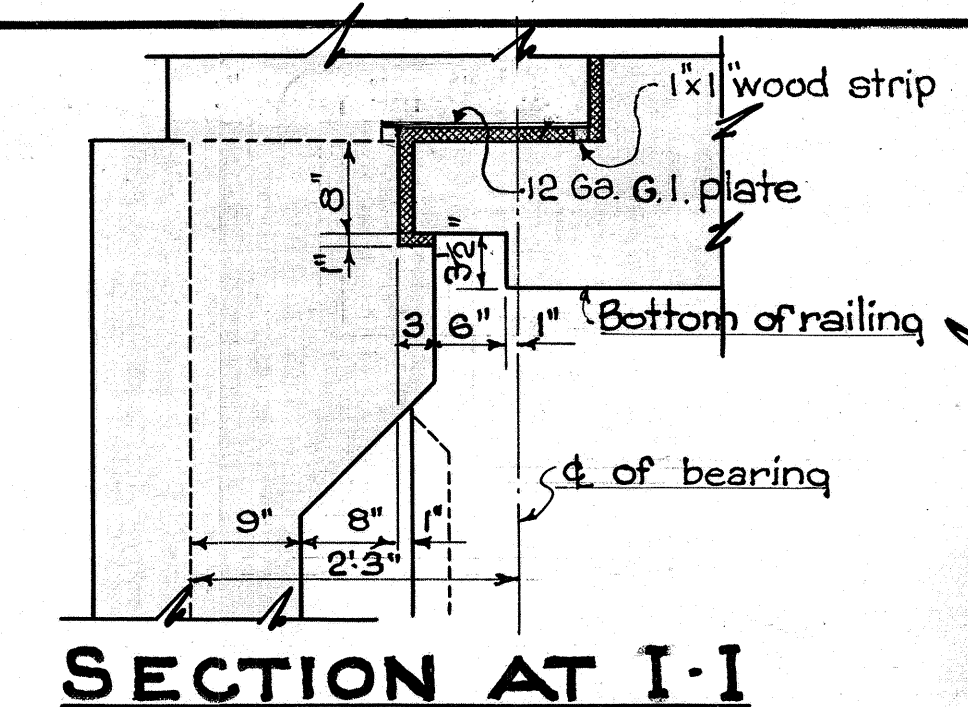
Note: Name of stream to be placed in left end post panels & date in right end post panels on entering bridge using standard block letters 3" in height.



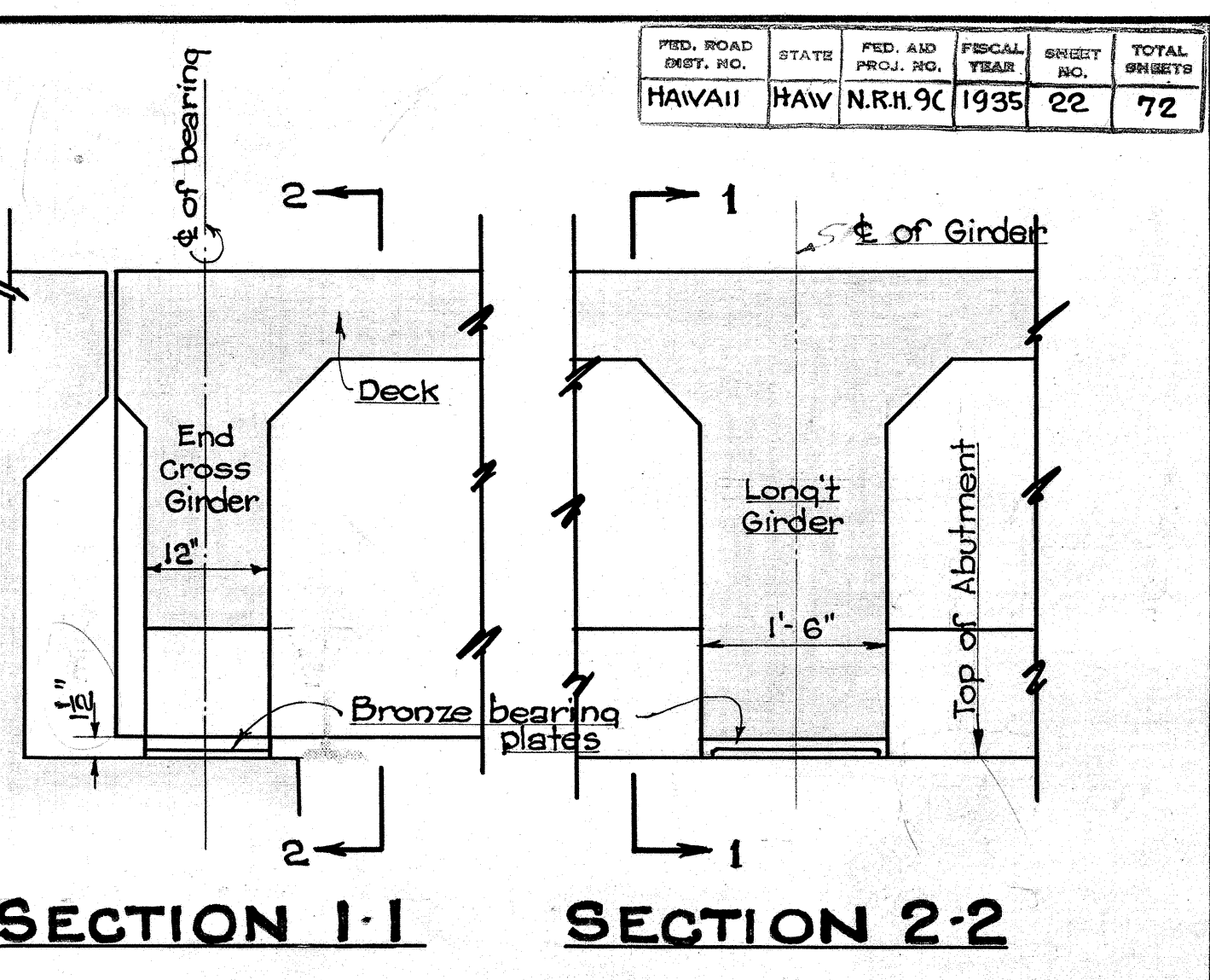
SECTION AT G-G



SECTION AT H-H

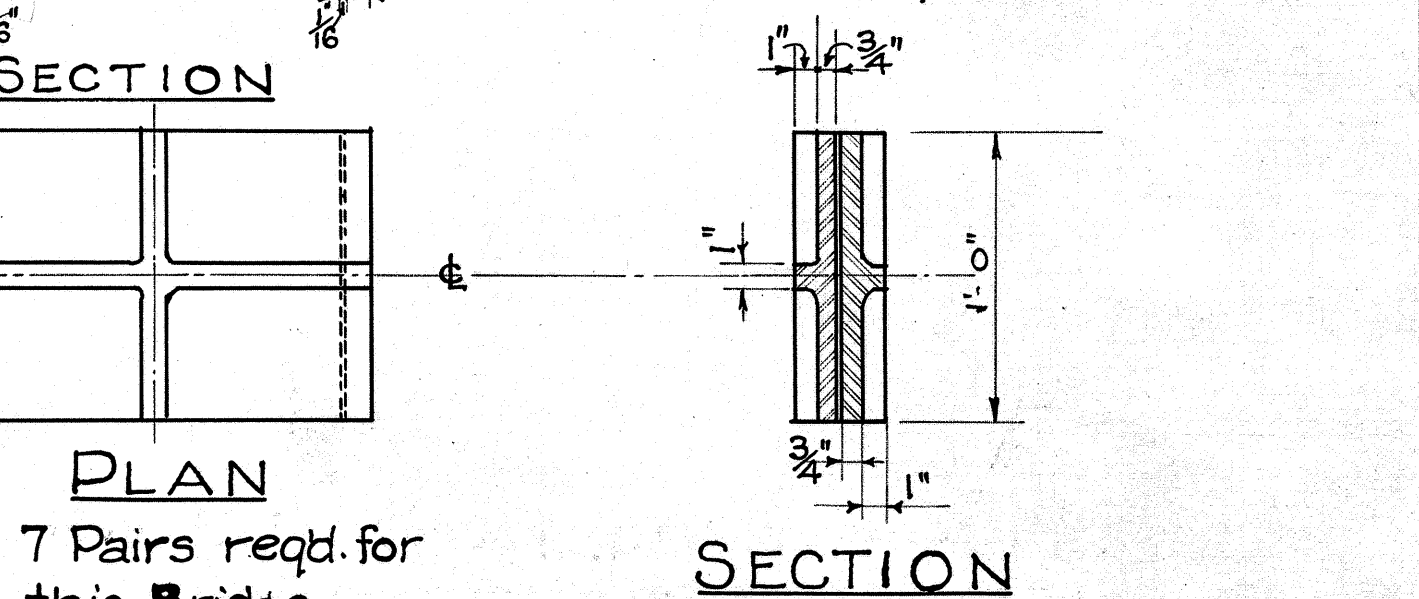


SECTION AT I-I



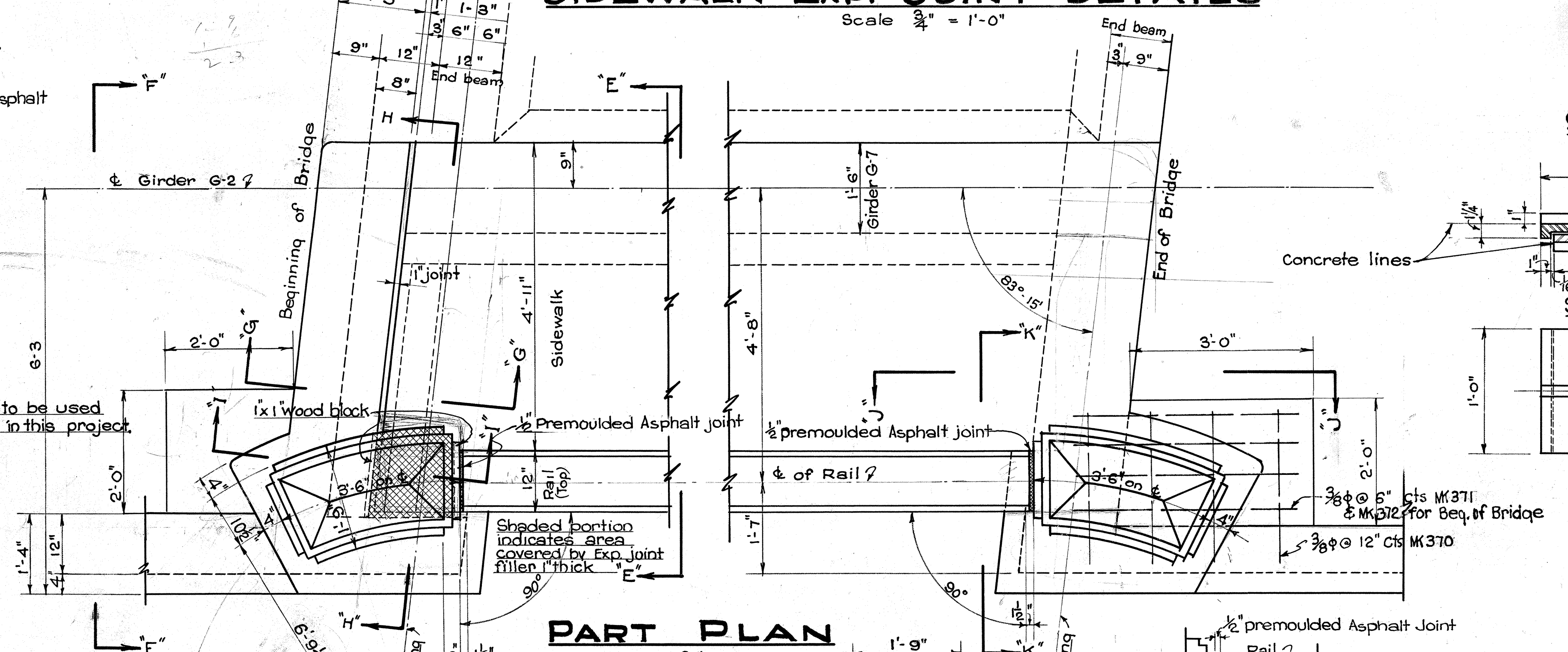
SECTION 1-1 SECTION 2-2

Note: Contact areas to be milled to true surfaces. Immediately before placing, contact areas shall be treated with graphite.



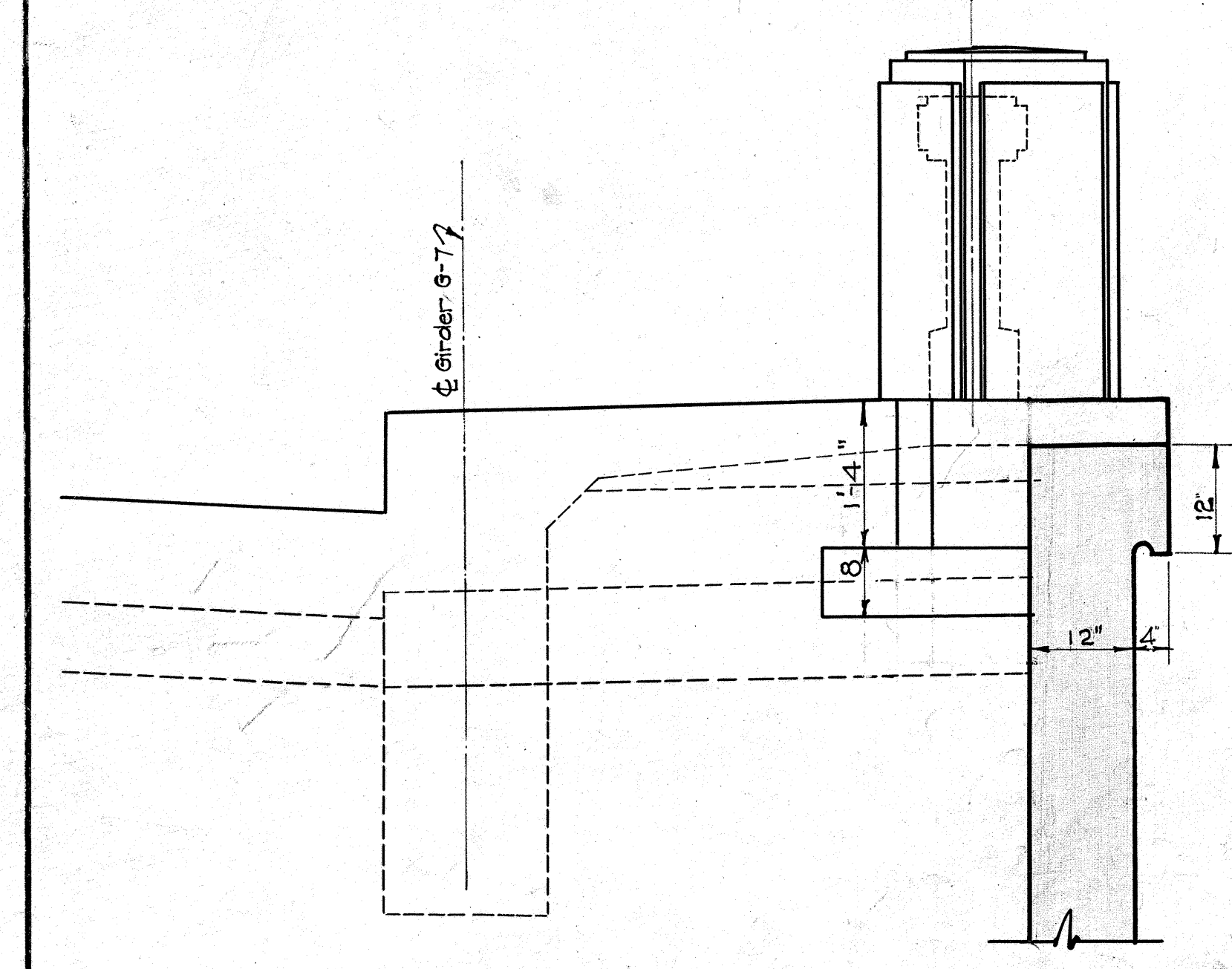
PHOSPHOR BRONZE EXPANSION PLATES

Scale $\frac{1}{2}$ " = 1'-0"



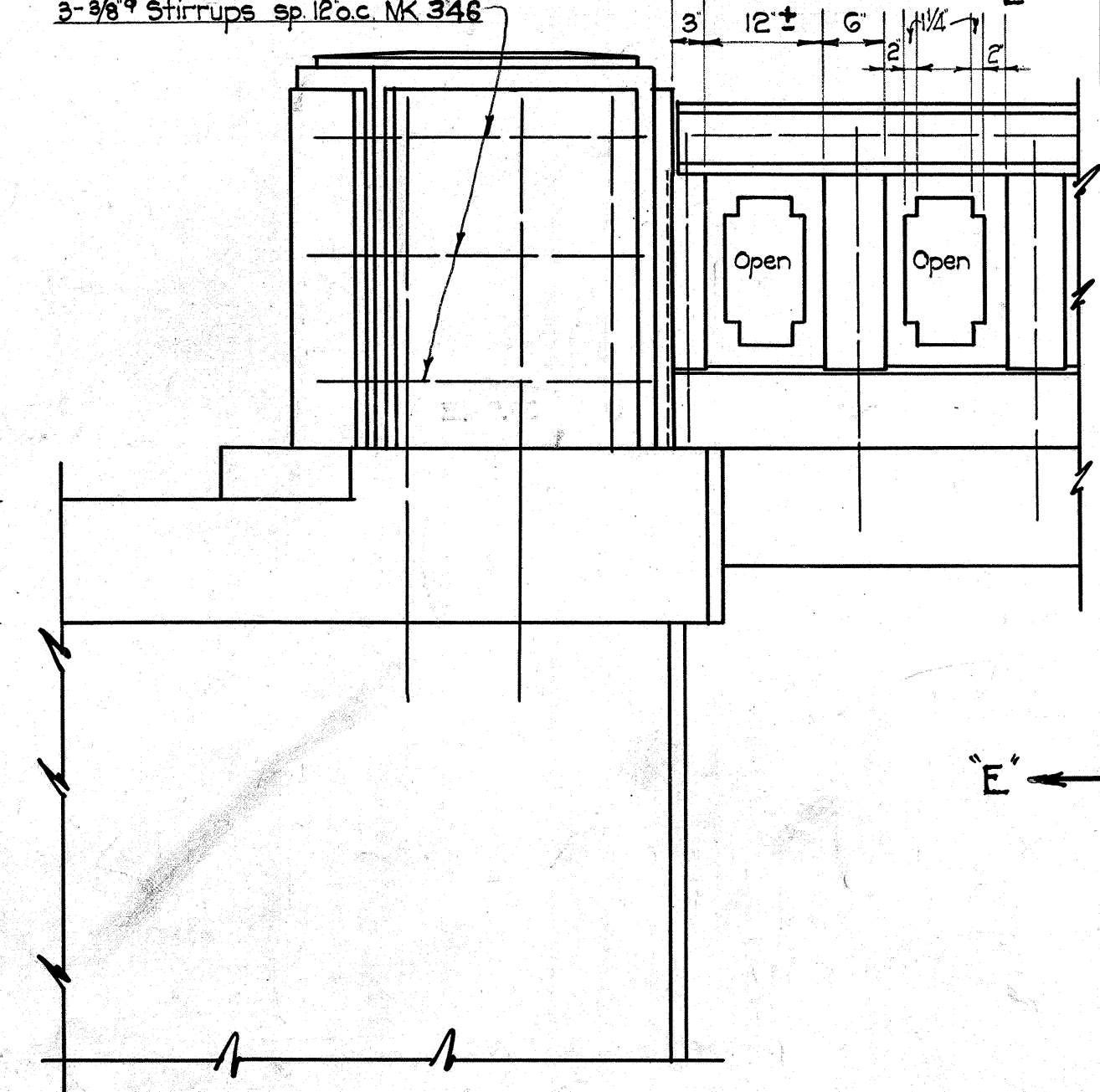
PART PLAN

Scale $\frac{3}{4}$ " = 1'-0"



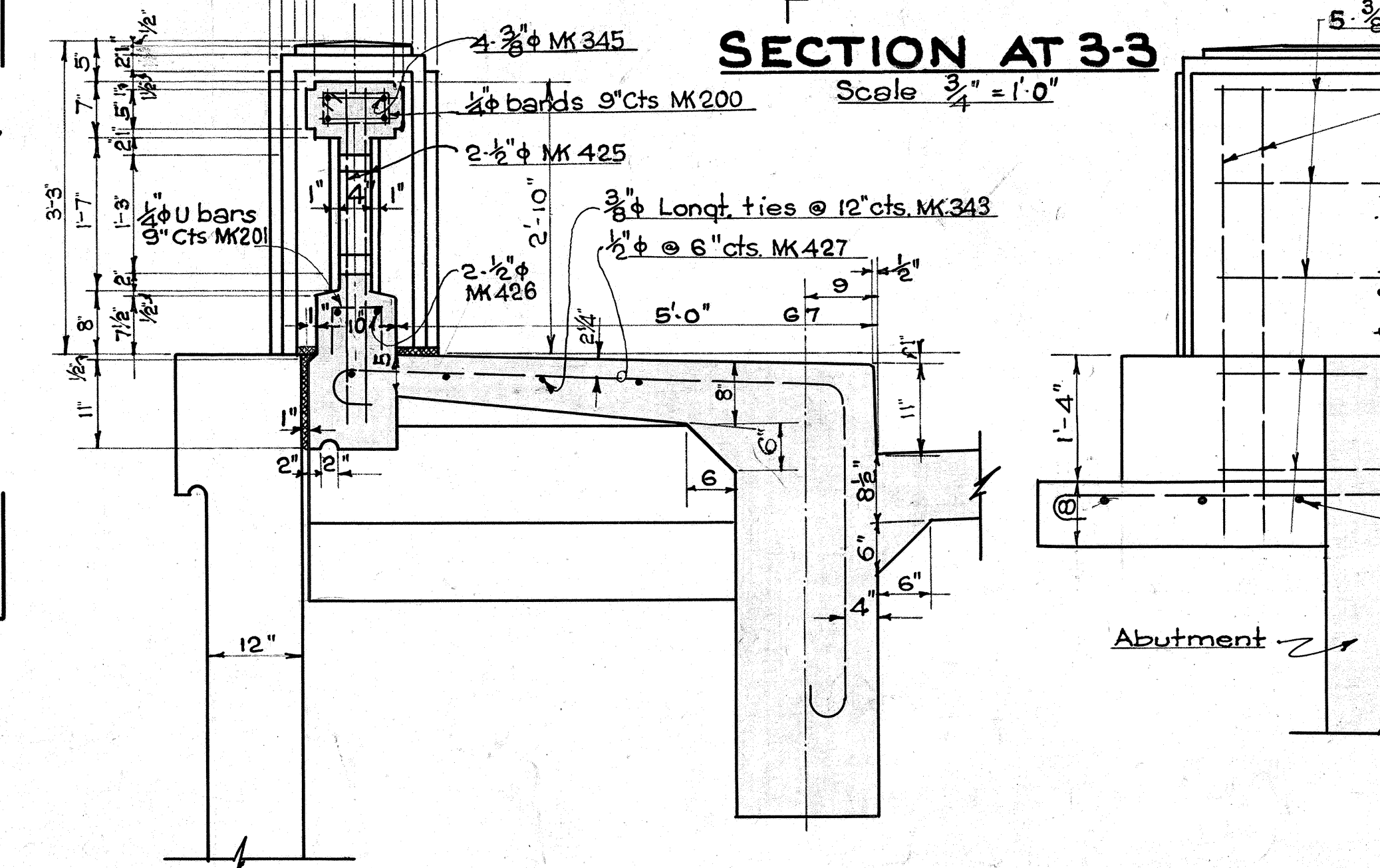
SECTION AT F-F

Scale $\frac{3}{4}$ " = 1'-0"



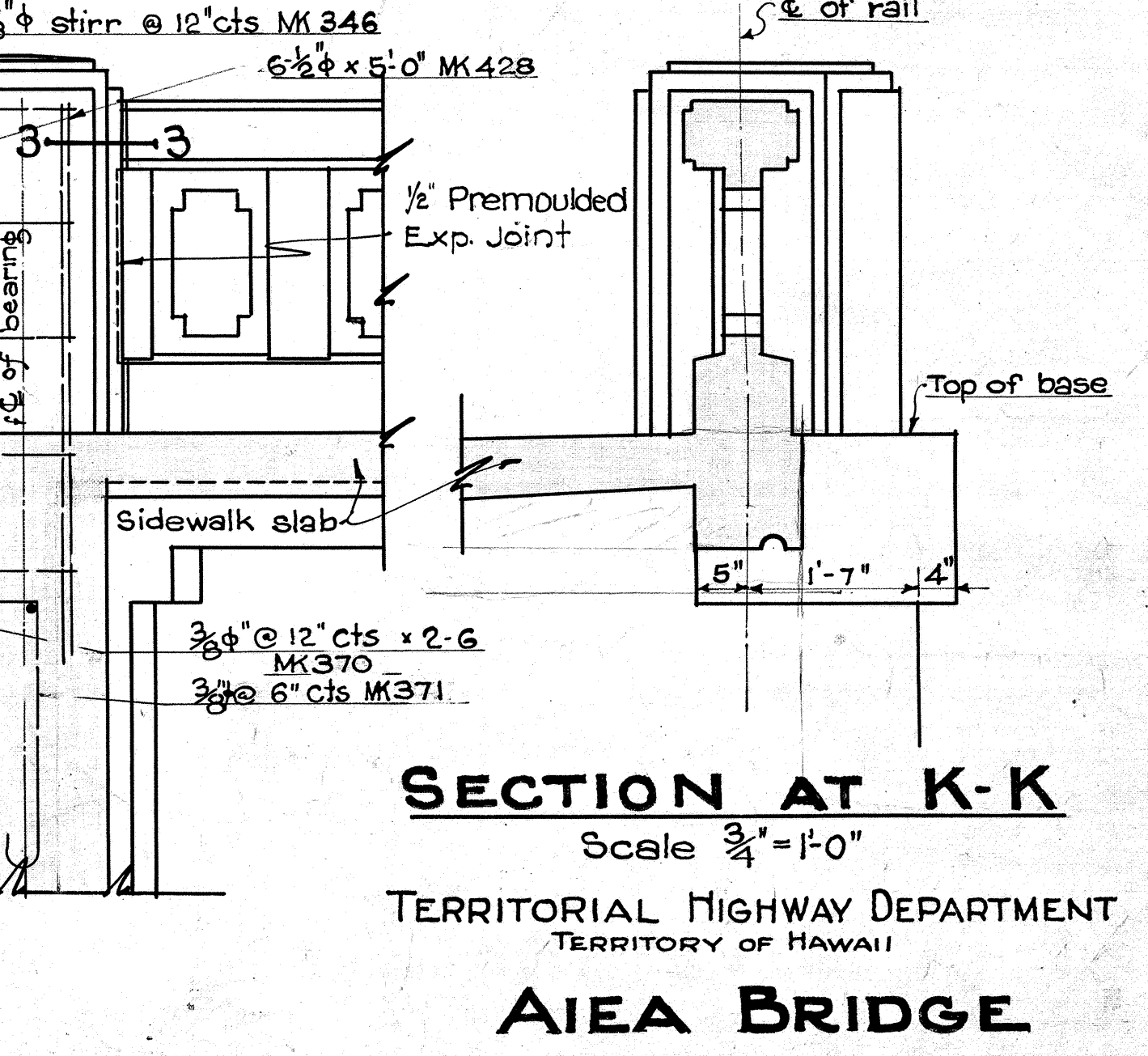
ELEVATION

Scale $\frac{3}{4}$ " = 1'-0"



SECTION AT E-E

Scale $\frac{3}{4}$ " = 1'-0"



SECTION AT J-J SECTION AT K-K

Scale $\frac{3}{4}$ " = 1'-0"

TERRITORIAL HIGHWAY DEPARTMENT
 TERRITORY OF HAWAII
AIEA BRIDGE
 No 5 STA. 306+23.25 TO STA. 306+73.25
 KAMEHAMEHA HIGHWAY N.R.H. 9C (1935)
 SHEET No 7 OF 9 SHEETS

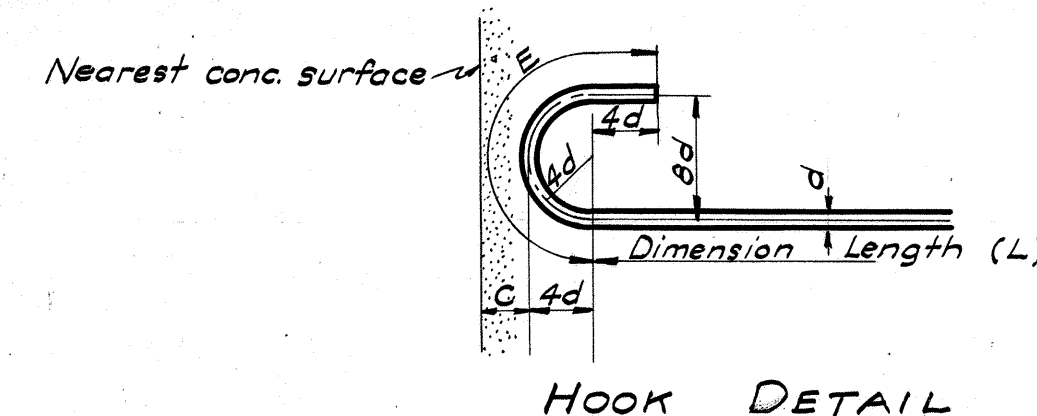
STEEL SCHEDULE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	N.R.H. 9C	1935	23	72

MK	DESCRIPTION	LOCATION	SIZE	LENGTH	NO OF BARS IN EA. UNIT	NO OF UNITS	TOTAL NO OF BARS	TOTAL LENGTH	WT. PER. FT.	TOTAL WEIGHT
600		Footings Beg. of Br. End "	3/4"	55'-10"	24	2	48	2680.00	1.52	4074
601		"	"	8'-2"	113	2	226	1845.67	"	2805
602		"	"	11'-2"	113	2	226	2523.67	"	3836
400	 Note: Stirrups may be longer if dia. of pile is over 12\"/>	"	1/2"	14'-0"	38	2	76	1064.0	0.68	724
401		Can't/lever	"	13'-9"	2	4	8	110.00	"	75
700		"	7/8"	15'-5"	3	4	12	185.00	2.07	383
701		"	"	11'-6"	2	4	8	92.00	"	190
300		"	3/8"	10'-0"	14	4	56	560.00	0.38	213
500	 ABUTMENTS Beg. of Br. Outside face	Vert.	5/8"	13'-2"	109	1	109	1435.17	1.06	1521
307	 Horiz.	"	3/8"	57'-0"	11	1	11	627.00	0.38	238
307	Same as above	"	"	57'-0"	6	1	6	342.00	"	130
403	 Top of Abut.	"	1/2"	6'-0"	55	1	55	930.00	0.68	224
430	 Max. 4'-3" Min. 3'-9" Av. 4'-0"	Curtain Wall	"	Varies	80	1	80	740.00	"	503
431	 Max. 4'-11" Min. 4'-8" Av. 4'-9"	"	"	Varies	12	1	25	250.00	"	170
301	 Inside face Curtain wall	"	3/8"	4'-6"	41	1	41	184.50	0.38	70
305	 " " " "	"	"	5'-0"	7	2	14	70.00	"	27
350	 Both faces Curtain wall	Horiz.	"	6'-0"	2	2	4	24.00	"	9
306	 Inside face Curtain wall	"	"	53'-10"	5	1	5	269.17	"	102
306	 " " " "	"	"	53'-10"	11	1	11	592.17	"	225
303	 " " " "	"	"	11'-10"	55	1	55	650.83	"	247
501	 End of Br. Outside face	Vert.	5/8"	13'-8"	87	1	87	1189.00	1.06	1260
502	 " " " "	"	"	17'-5"	11	2	22	383.17	"	406
302	 " " " "	"	3/8"	12'-3"	44	1	44	539.00	0.38	205
304	 " " " "	"	"	16'-0"	6	2	12	192.00	"	73
306	 " " " "	"	"	53'-10"	11	1	11	592.17	"	225
308	 " " " "	"	"	5'-0"	4	2	8	40.00	"	15
309	 " " " "	"	"	6'-3"	4	2	8	50.00	"	19
307	 " " " "	"	"	57'-0"	11	1	11	627.00	"	238
800	 Doors	Vert.	1/2"	7'-0"	3	7	21	147.00	2.70	397
310	 Wing walls Outside face	Horiz.	3/8"	19'-6"	2	1	2	39.00	0.38	15

MK	DESCRIPTION	LOCATION	SIZE	LENGTH	NO OF BARS IN EA. UNIT	NO OF UNITS	TOTAL NO OF BARS	TOTAL LENGTH	WT. PER. FT.	TOTAL WEIGHT
311 to 318	 Max. 17'-2" Min. 7'-9" Av. 12'-6" Horiz.	"	3/8"	Varies	8	1	8	116.00	0.38	44
319	 " " " "	"	"	8'-6"	11	3	33	340.00	"	129
320	 " " " "	"	"	15'-6"	4	1	4	62.00	"	24
321 to 331	 Max. 10'-2" Min. 2'-9" Av. 6'-8" Vert.	"	"	Varies	11	2	22	143.00	"	54
452	 Horiz. Inside face	"	1/2"	16'-6"	6	1	6	99.00	0.68	67
453	 Max. 15'-6" Min. 6'-2" Av. 10'-10" Horiz.	"	"	Varies	11	1	11	119.17	"	81
334	 " " " "	"	3/8"	5'-3"	5	3	15	99.75	0.38	38
402	 " " " "	"	1/2"	16'-0"	4	1	4	64.00	0.68	44
437	 Horiz. Top	"	1/2"	2'-11"	2	1	2	43.83	0.68	30
373	 " " " "	"	3/8"	5'-5"	9	3	24	178.75	0.38	68
702	 Max. 16'-3" Min. 15'-6" Av. 15'-10" Cant/lever	"	7/8"	Varies	3	4	12	220.00	2.07	455
703	 " " " "	"	"	12'-3"	2	4	8	98.00	"	203
335	 Max. 8'-7" Min. 0'-7" Av. 2'-1" " "	"	3/8"	Varies	12	4	48	324.00	0.38	123
438	 Max. 16'-9" Min. 16'-1" Av. 16'-5" Outside face	"	1/2"	"	2	4	8	131.33	0.68	89
442 to 450	 Max. 14'-0" Min. 7'-2" Av. 10'-7" Horiz. Inside face	"	1/2"	Varies	9	3	27	285.75	"	192
451	 " " " "	"	1/2"	14'-6"	6	3	18	261.00	0.68	177
354	 " " " "	"	3/8"	3'-6"	4	2	8	28.00	0.38	11
355	 " " " "	"	"	14'-3"	3	2	6	85.5	"	32
355A	 " " " "	"	"	16'-6"	3	1	3	49.5	"	19
356	 " " " "	"	"	13'-0"	1	2	2	26	"	10
356A	 " " " "	"	"	15'-3"	1	1	1	15.25	"	6
357 to 360	 Max. 12'-0" Min. 8'-0" Av. 10'-0" " "	"	"	Varies	4	3	12	144.00	"	55
439	 " " " "	"	1/2"	16'-4"	5	3	15	245.00	0.68	167
361	 " " " "	"	3/8"	15'-10"	3	3	9	142.50	0.38	54
440	 " " " "	"	1/2"	18'-11"	2	3	6	113.50	0.68	77
362 to 369	 Max. 8'-0" Min. 2'-9" Av. 5'-4" Both faces	"	3/8"	Varies	16	3	48	256.0	0.38	97

MK	DESCRIPTION	LOCATION	SIZE	LENGTH	NO OF BARS IN EA. UNIT	NO OF UNITS	TOTAL NO OF BARS	TOTAL LENGTH	WT. PER. FT.	TOTAL WEIGHT
410	 SUPERSTRUCTURE End Beam Beg. Bridge	"	1/2"	43'-1"	2	2	4	172.33	0.68	117
340	 " " " "	"	3/8"	7'-2"	36	1	36	258.00	0.38	98
411	 " " " "	"	1/2"	42'-9"	8	1	8	342.00	0.68	233
341	 " " " "	"	3/8"	8'-8"	36	1	36	312.00	0.38	119
900	 Gir. G-2-G-6 incl.	"	1/8"	41'-4"	2	5	10	413.33	4.35	1798
901	 " " " "	"	"	52'-9"	2	5	10	527.50	"	2295
902	 " " " "	"	"	52'-11"	2	5	10	529.17	"	2302
903	 All Girders	"	"	50'-6"	2	7	14	707.00	"	3075
1000	 Gir. G-2-G-6 incl.	"	1/4"	50'-8"	4	5	20	1013.33	5.37	5442
412	 " " " "	"	1/2"	44'-0"	2	7	14	616.00	0.68	419
904	 " " " "	"	1/8"	43'-6"	2	2	4	174.00	4.35	757
905	 " " " "	"	"	53'-4"	2	2	4	213.33	"	928
906	 " " " "	"	"	56'-5"	2	2	4	225.67	"	982
907	 " " " "	"	"	50'-5"	4	2	8	403.33	"	1754
413	 " " " "	"	1/2"	8'-10"	52	5	260	2296.67	0.68	1562
414	 " " " "	"	"	10'-6"	52	2	104	1092.00	"	743
801	 Cent. Cross Gir.	"	1/2"	44'-8"	4	2	8	357.33	2.70	964
342	 " " " "	"	3/8"	8'-3"	36	1	36	297.00	0.38	103



Note:
All stirrup dimensions are to inside of stirrup. All other dimensions are figured on $\frac{1}{2}$ of bar.
This steel schedule is subordinate to details shown on plans. In case of discrepancy between steel list and detail drawings, the latter shall govern.
The Territorial Highway Dept. does not assume responsibility for any errors that occur in the steel schedule. Contractor shall check steel schedule before placing order.

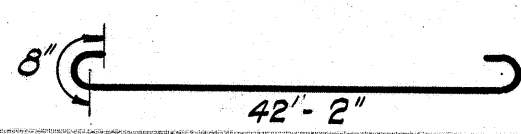
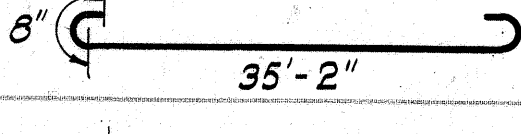
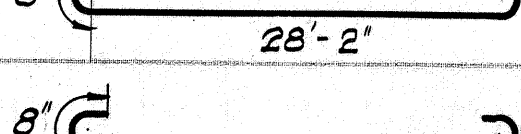
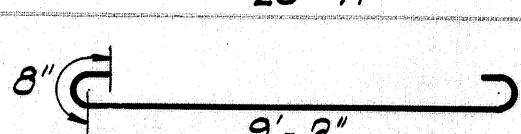
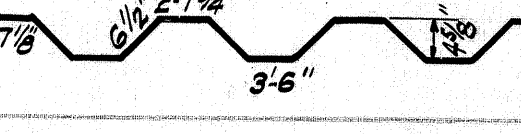
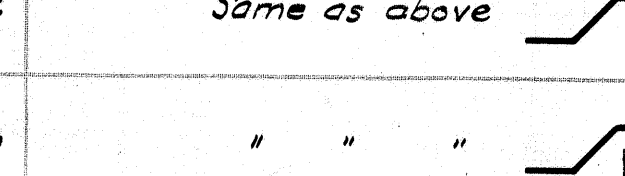
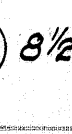
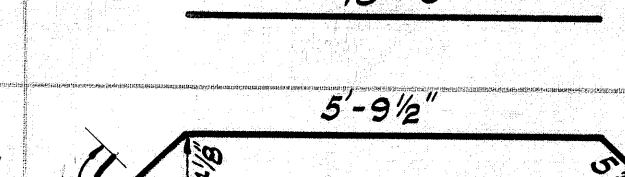
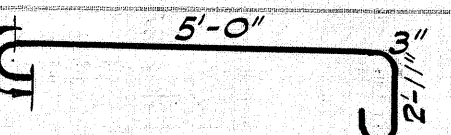
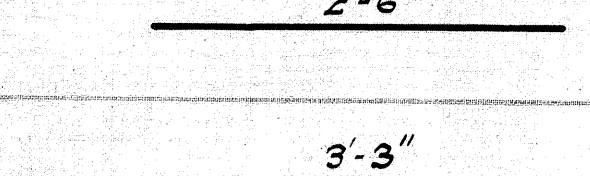
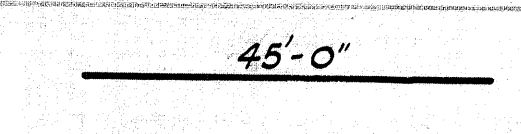
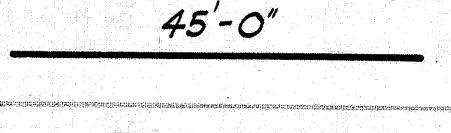
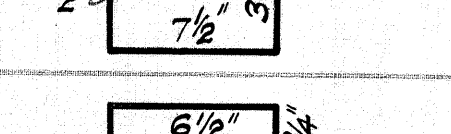
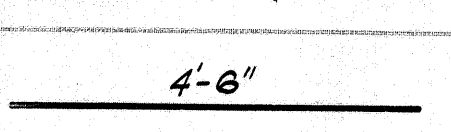
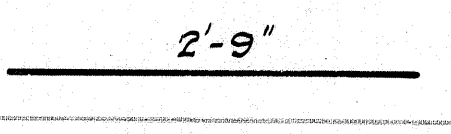
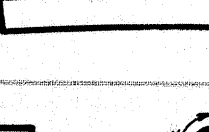
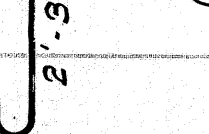
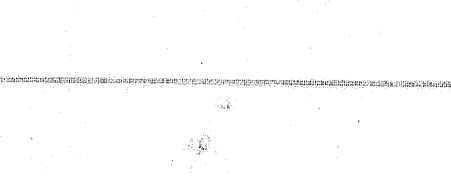
TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
AIEA BRIDGE
No 5 STA 306+23.25 to STA 306+73.25
KAMEHAMEHA HIGHWAY N.R.H. 9C
SHEET No. 8 OF 9 SHEETS

4325.23

ORIGINAL DESIGNED BY: M.R.E. DATE: Sep. 24
PLAN DRAWN BY: E.J.S. DATE: May 25
NOTE BOOK CHECKED BY: H.C. DATE: June 1
CHECKED BY: M.R.E. DATE: June 1

STEEL SCHEDULE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	N.R.H. 9C	1935	24	72

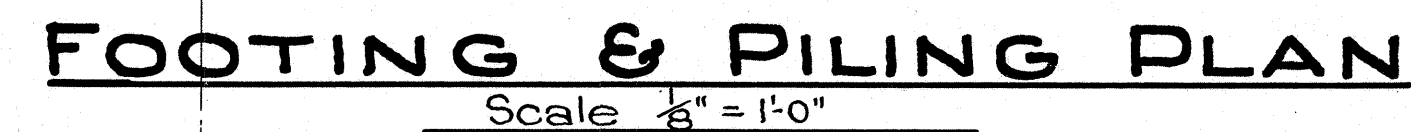
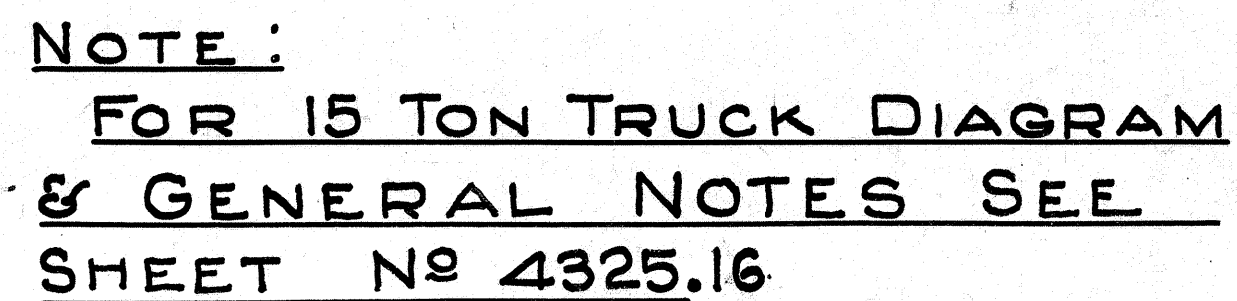
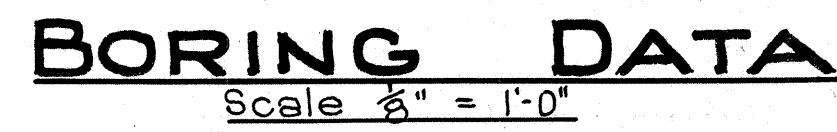
MK	Description	Location	Size	Length	No. of Bars in Ea. Unit	No. of Bars	Total No. of Bars	Total Length	Wt. per Foot.	Total Weight.
416		SUPERSTRUCTURE Deck Top & bottom	1/2" D	43'-6"	42	2	84	3654	0.86	3142
417		"	"	36'-6"	2	2	4	146	"	126
418		"	"	29'-6"	2	2	4	118	"	101
419		"	"	22'-3"	2	2	4	89	"	77
420		"	"	10'-6"	2	2	4	42	"	36
421		SYMM Bent bars	"	45'-6"	42	1	42	1911	"	1643
422	Same as above	"	"	32'-0"	1	2	2	64	"	55
423		"	"	23'-5"	1	2	2	46 ⁸³	"	40
424		"	"	16'-6"	1	2	2	33	"	28
343		Temp bars	3/8" D	48'-0"	4	2	8	3552	0.38	1350
344		Stub bars	"	7'-9"	5	6	30	232 ⁵⁰	"	88
427		Sidewalk	1/2" D	9'-6"	94	2	188	1786	0.68	1214
370		Railing Post Slab	3/8" D	2'-6"	4	4	16	40	0.38	15
425		Vert. Rail.	1/2" D	3'-3"	2	62	124	403	0.68	274
426		Hori.	"	45'-0"	2	2	4	180	"	122
345		"	3/8" D	45'-0"	4	2	8	360	0.38	137
200		"	1/4" D	2'-1"	61	2	122	254 ¹⁷	0.17	43
201		"	"	1'-6"	61	2	122	183	"	31
428		Vert. Posts	1/2" D	4'-6"	3	2	6	81	0.68	55
429		"	"	2'-9"	3	2	6	16.5	"	11
346		"	3/8" D	9'-0"	3	2	6	144	0.38	55
371		Post Slab	"	6'-9"	4	2	8	54	"	21
372		"	"	5'-3"	4	2	8	42	"	16

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
AIEA BRIDGE
No. 5 STA. 306+23²⁵ TO STA 306+73²⁵
KAMEHAMEHA HIGHWAY N.R.H. 9-C
SHEET No 9 OF 9 SHEETS

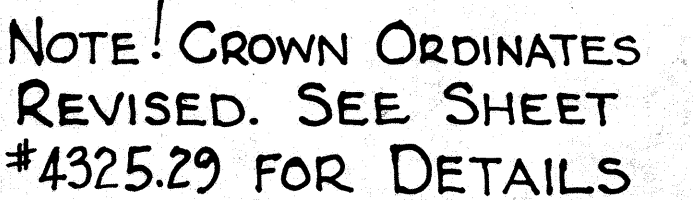
4325.24

CHECKED BY: V.R.B. DATE: Sep 34
DRAWN BY: J.C.M. DATE: Oct 34
NOTED BY: J.C.M. DATE: June 35
QUANTITIES BY: J.C.M. DATE: June 35
CHECKED BY: W.R.B. DATE: June 35

ORIGINAL	SURVEY PROVIDED BY	DATE
PLAN	DESIGNED BY W.R.B.	" Oct 34
	DRAWN BY F.S. & J.C.M.	" May 35
NOTE BOOK	TRACED BY RES.	" " "
	QUANTITIES BY J.C.M. & C.F.W.	" " "
	CORRECTED BY W.R.B.	" June " "



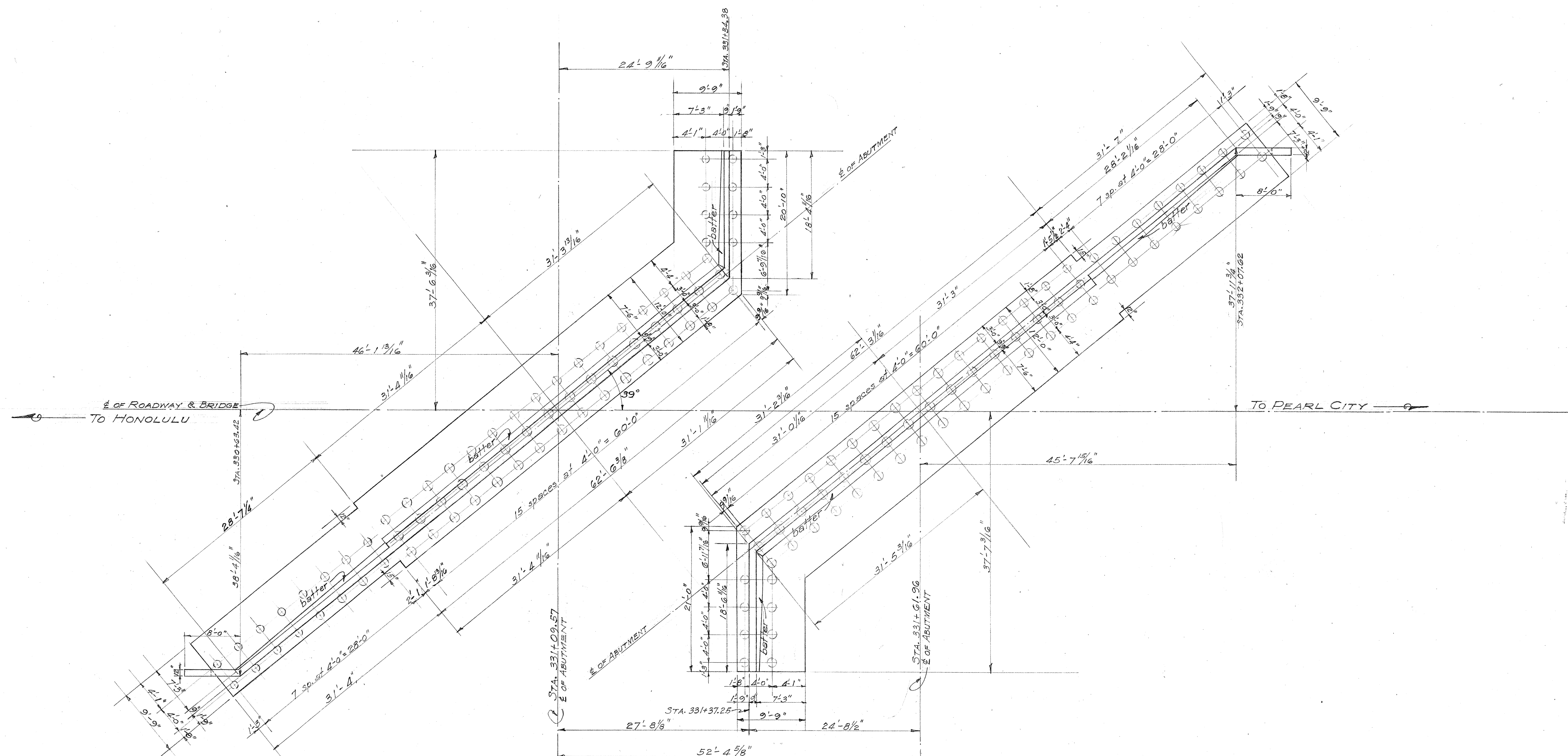
Note. Elevations of girder seats
are given on sheets #.28, & .29



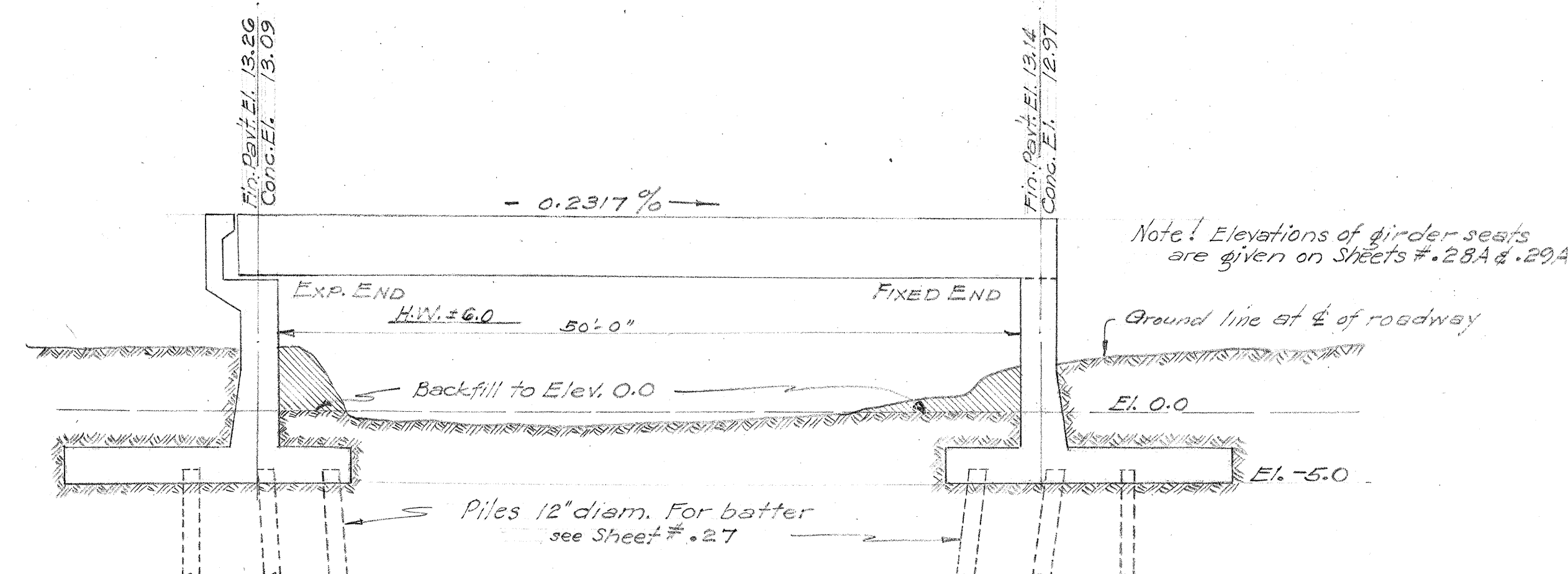
4325.25

PROJ. ROAD DIST. NO.	STATE	PROJ. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	NRH 90C	1935	25A	72

Details shown hereon supersede corresponding details on Sheet #4325.25



FOOTING & PILING PLAN
Scale: 1/8" = 1'-0"



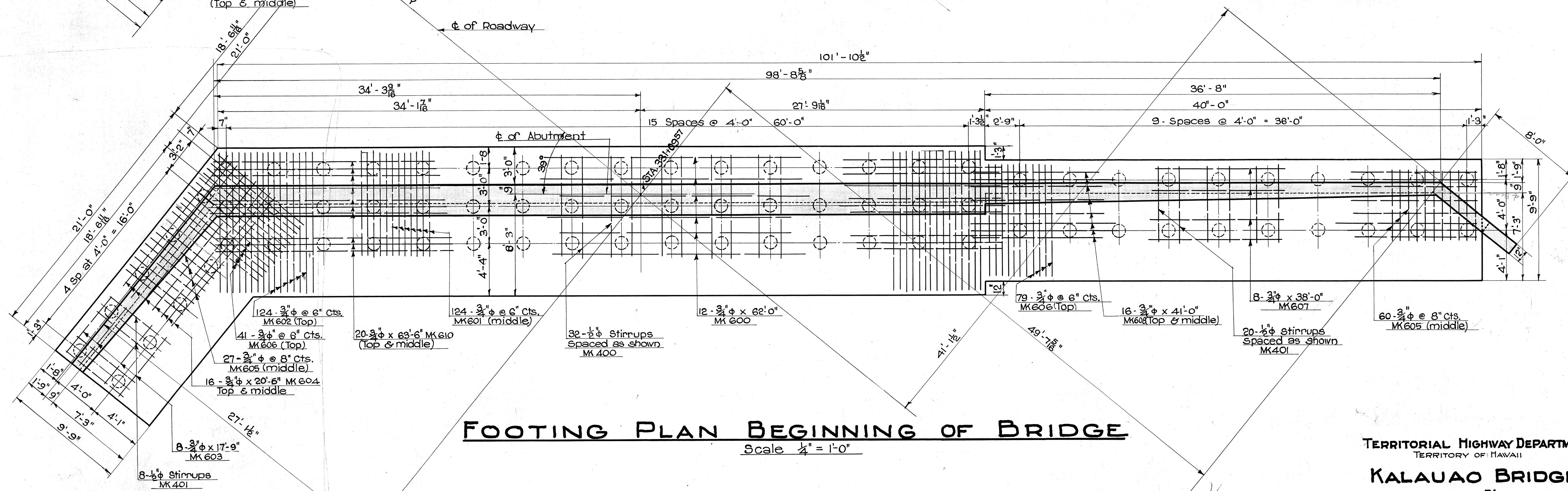
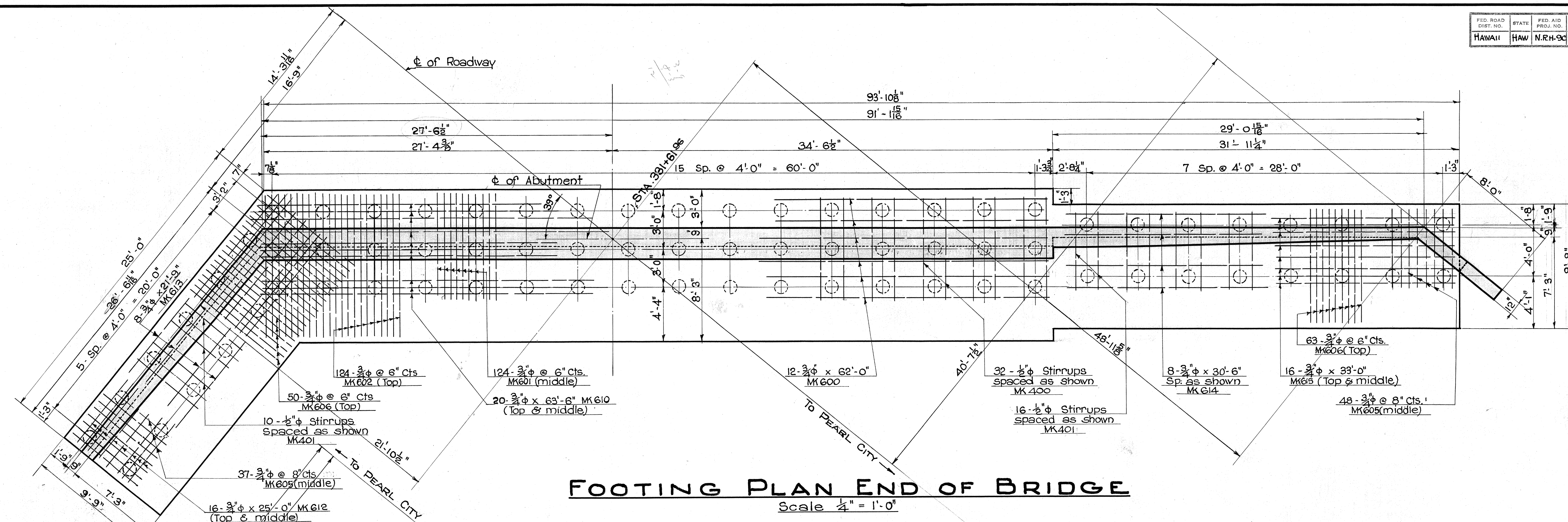
SECTION AT E OF ROADWAY & BRIDGE
Scale: 1/8" = 1'-0"

REVISED AUGUST 1936 TO ACCOMMODATE NEW SUPERSTRUCTURE WITH TWO SIDEWALKS

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
KALAUAO BRIDGE
No. 6 STA. 331+05.74 TO STA. 331+63.15
KAMEHAMEHA HIGHWAY NRH 90C (1935)
SHEET No. 1A OF 10 SHEETS

4325.25A

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	N.R.H. 9C	1935	26	72



TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

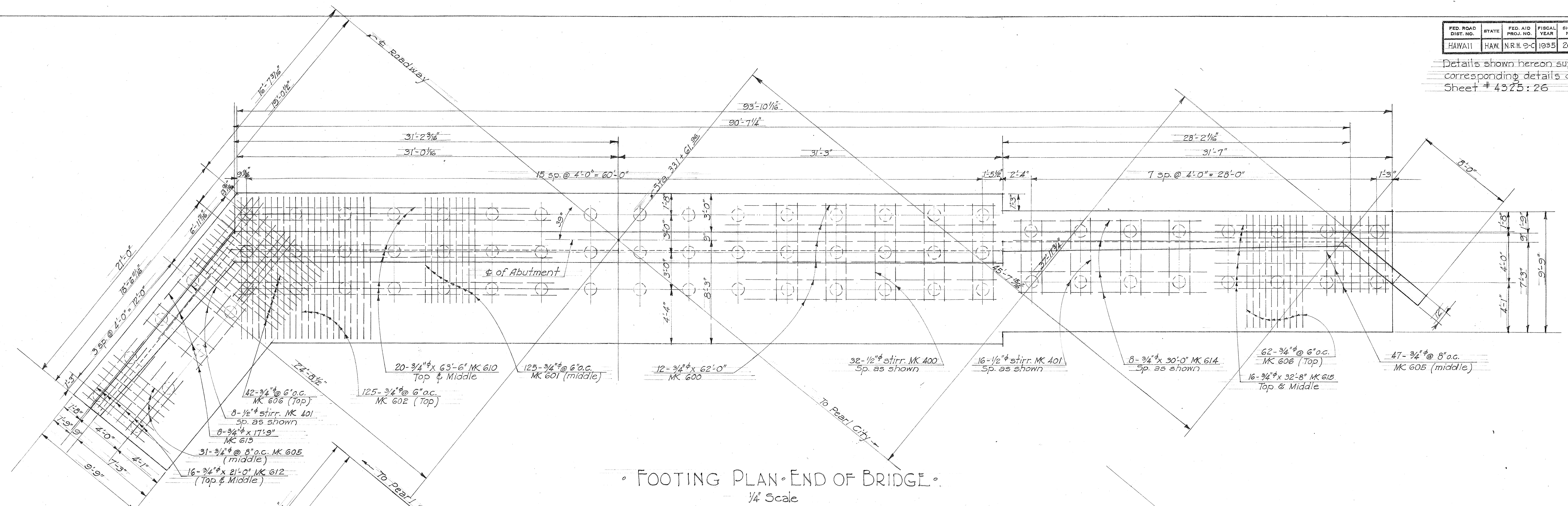
KALAUAO BRIDGE
No 6 STA. 331+05.74 TO STA. 331+63.15
KAMEHAMEHA HIGHWAY N.R.H. 9C (1935)
SHEET No 2 OF 10 SHEETS

4325.26

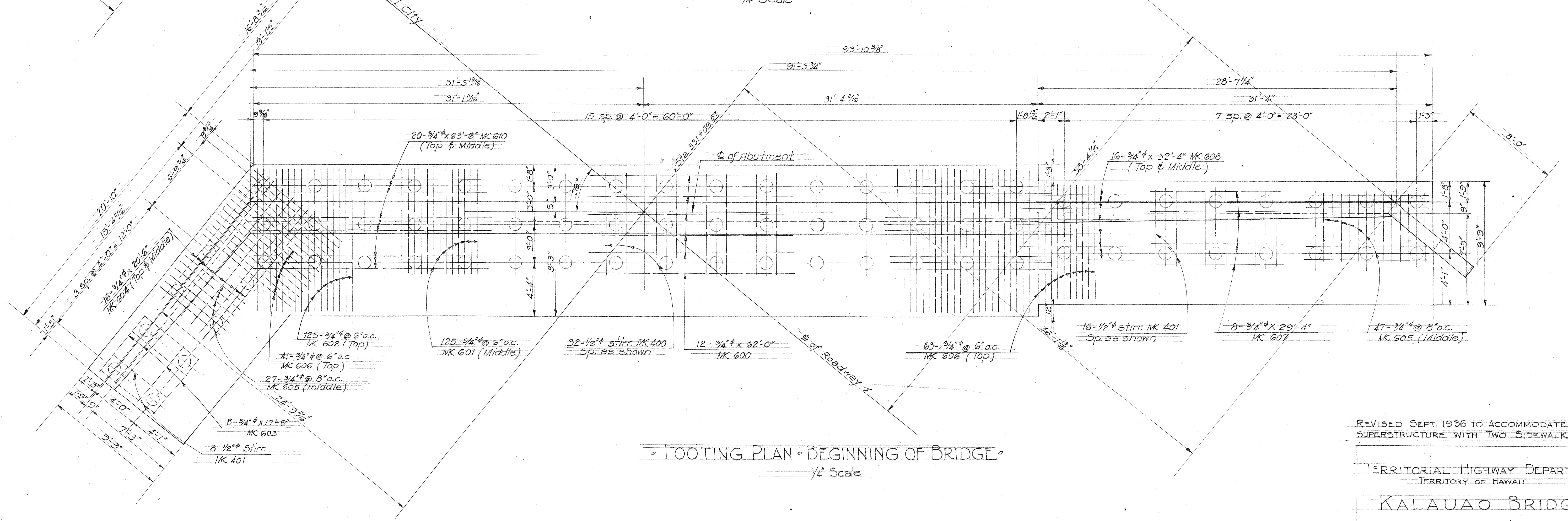
DESIGNED BY	W.R.B.	DATE	Oct. 34
DRAWN BY	J.C.M.		May 35
CHECKED BY	R.E.N.		June 35
APPROVED BY	W.R.B.		June 35

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	SHEET TOTAL
HAWAII	HAW.	N.R.H. 9-C	1935	26 A	

Details shown hereon supersede corresponding details on Sheet # 4325:26



FOOTING PLAN - END OF BRIDGE.
1/4 Scale



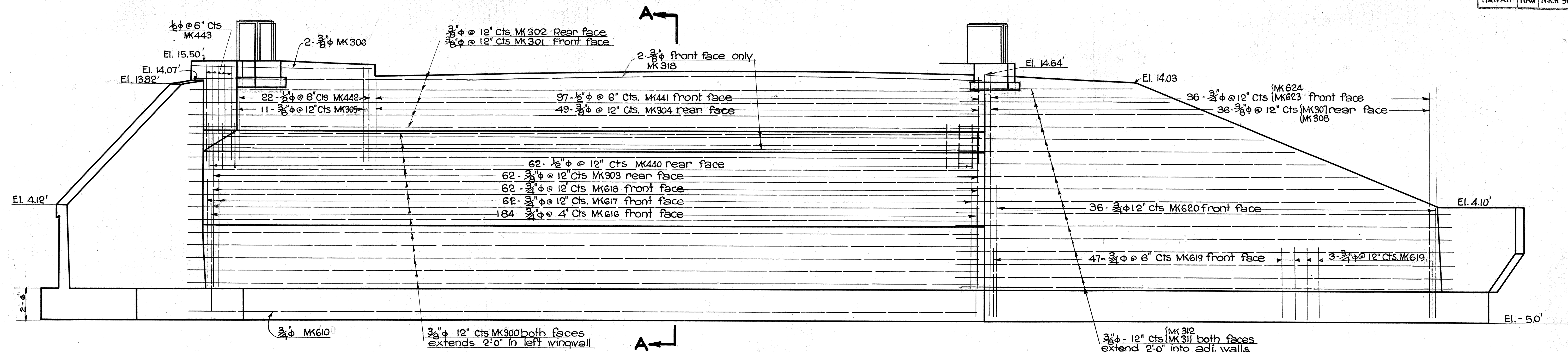
FOOTING PLAN - BEGINNING OF BRIDGE.
1/4 Scale

REVISED SEPT. 1936 TO ACCOMMODATE NEW SUPERSTRUCTURE WITH TWO SIDEWALKS

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
KALAUAAO BRIDGE
NO 6 STA. 331+05.74 TO STA. 331+63.15
KAMEHAMEHA HIGHWAY N.R.H. 9C (1935)
SHEET NO 26 OF 10 SHEETS

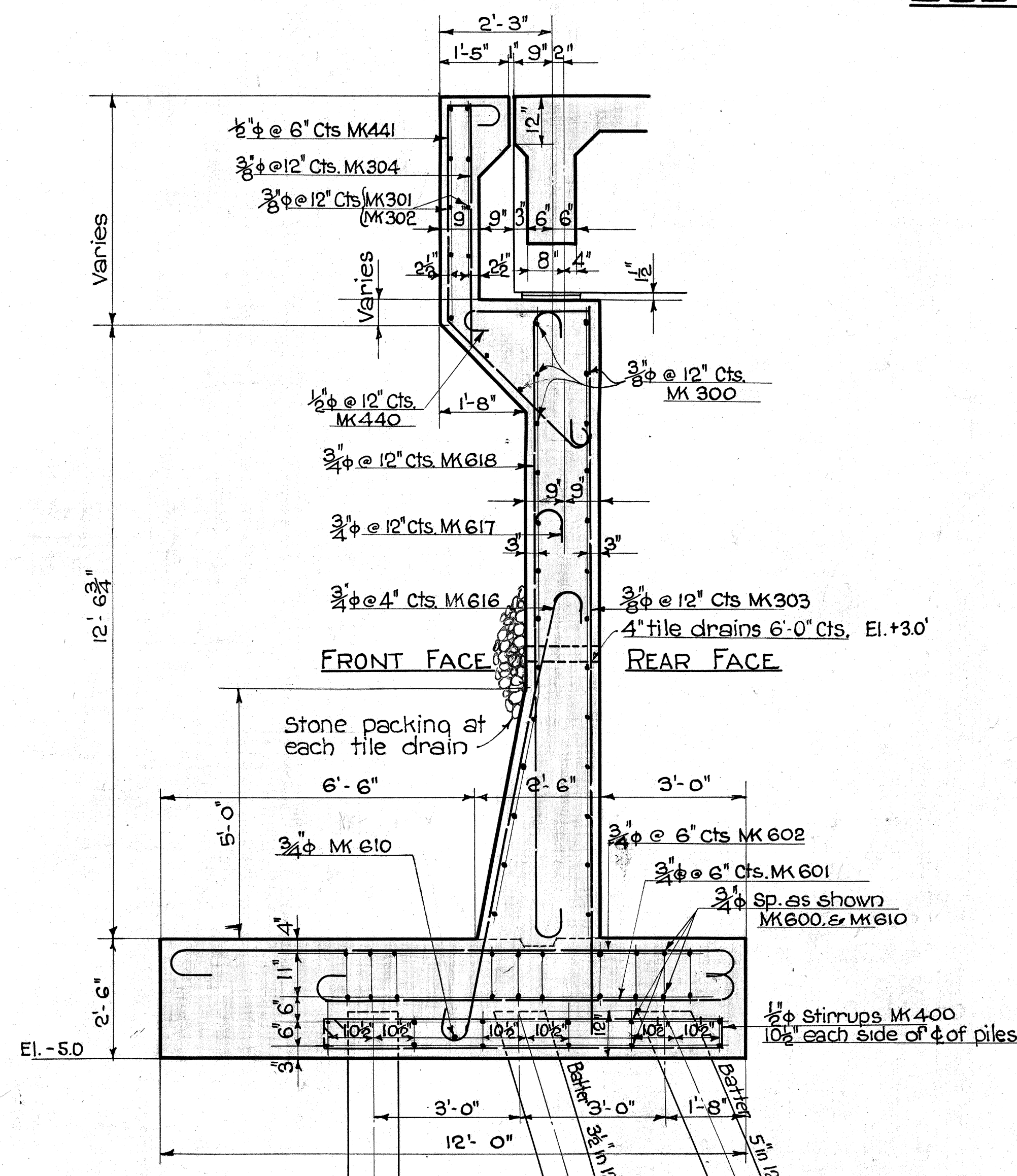
4325.26A

DESIGNED BY: J. C. BARTLETT
DRAWN BY: J. C. BARTLETT
CHECKED BY: J. C. BARTLETT
DATE: SEP 23 1935



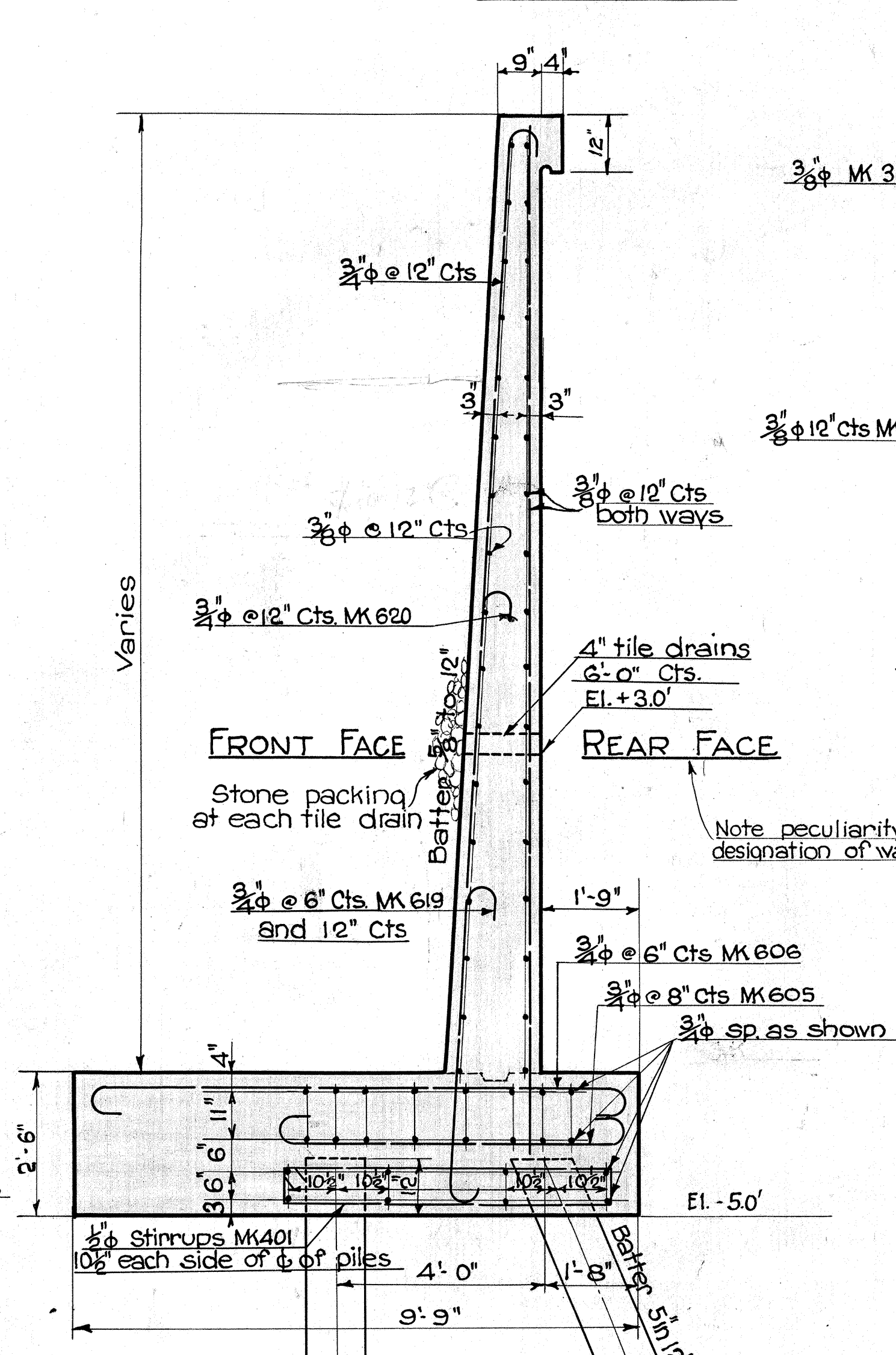
ELEVATION OF ABUTMENT BEGINNING OF BRIDGE

Scale $\frac{1}{4}'' = 1'-0''$



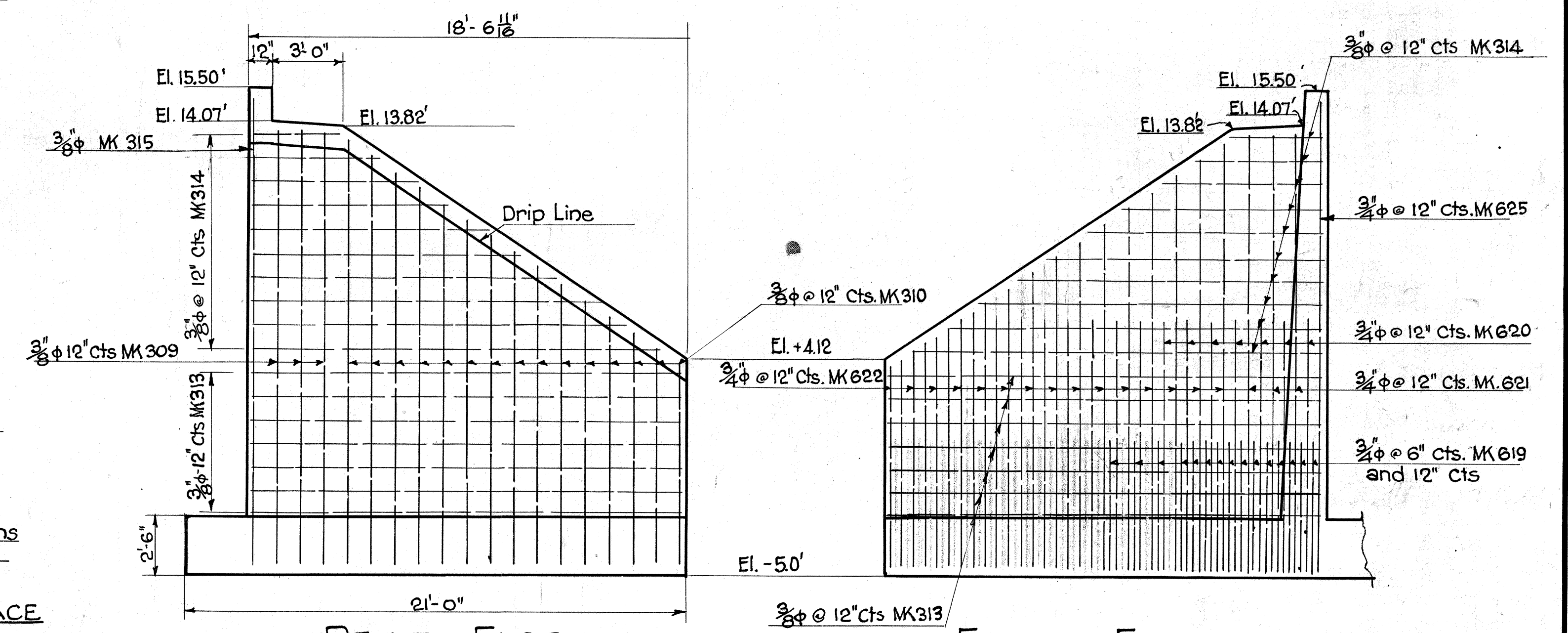
SECTION A-A

Scale - $\frac{1}{2}'' = 1'-0''$



TYPICAL SECT. THRU WINGWALL

Scale - $\frac{1}{2}'' = 1'-0''$

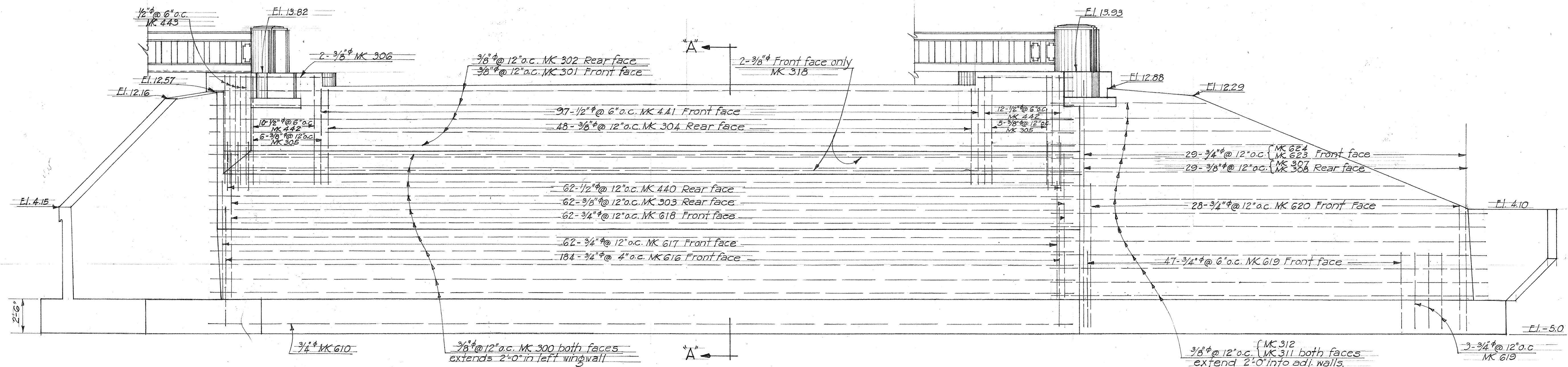


**REAR FACE
WINGWALL LEFT BEGINNING OF BRIDGE**

Scale $\frac{1}{4}'' = 1'-0''$

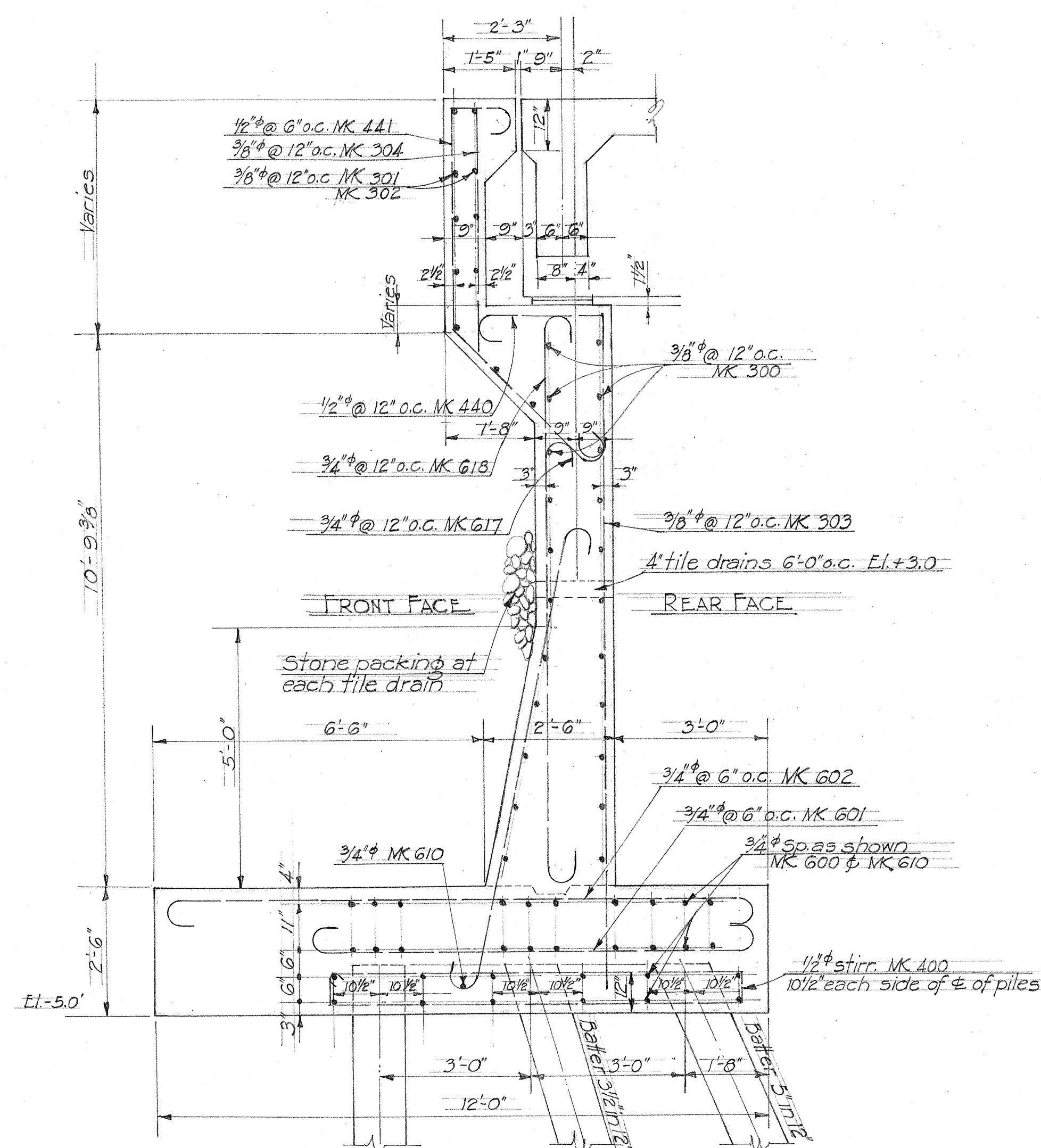
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	N.R.H. 9-C	1935	27 A	72

Details shown hereon supersede corresponding details on Sh. 4325-27



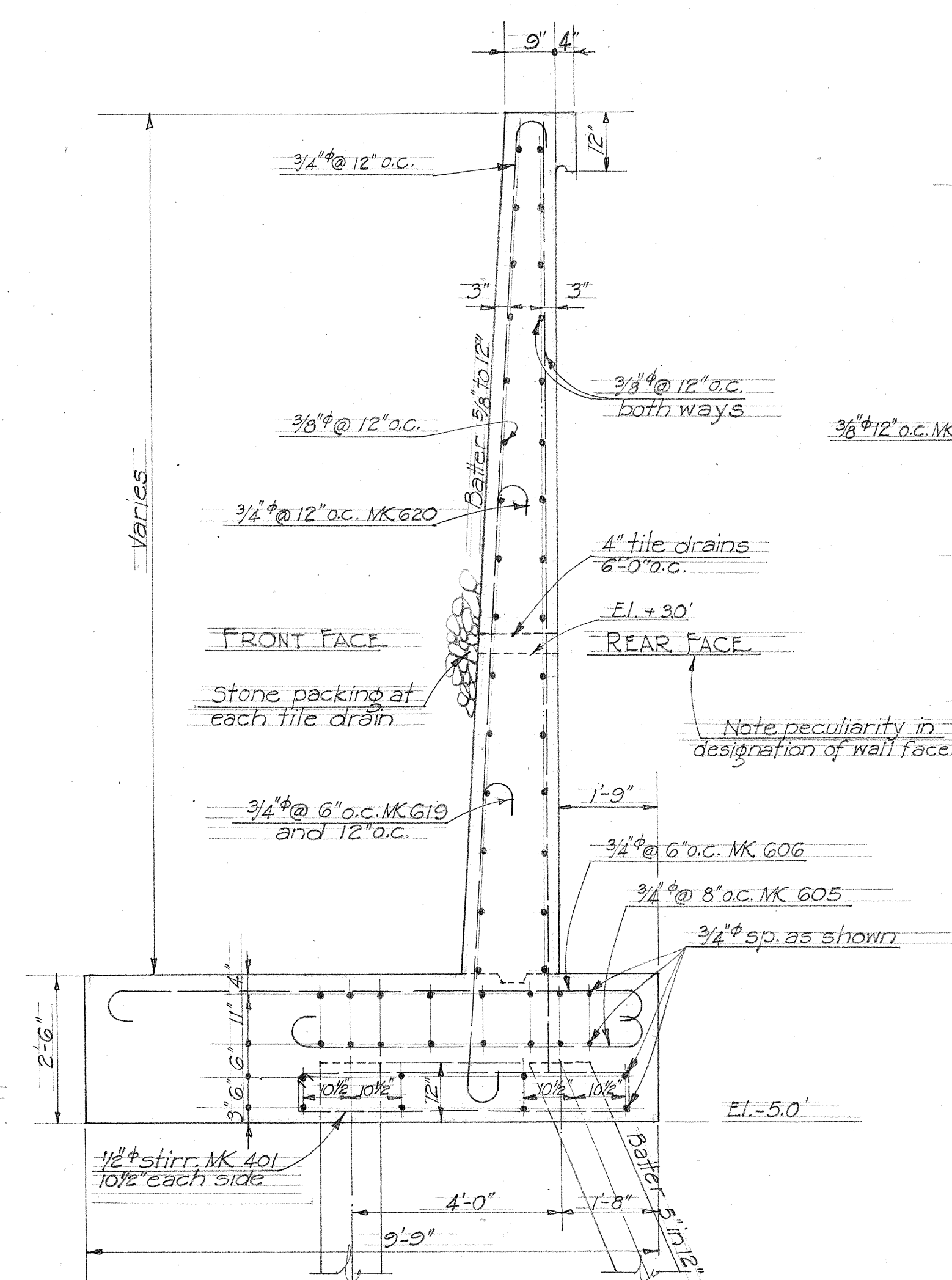
ELEV. OF ABUTMENT - BEGINNING OF BRIDGE.

1/4" Scale



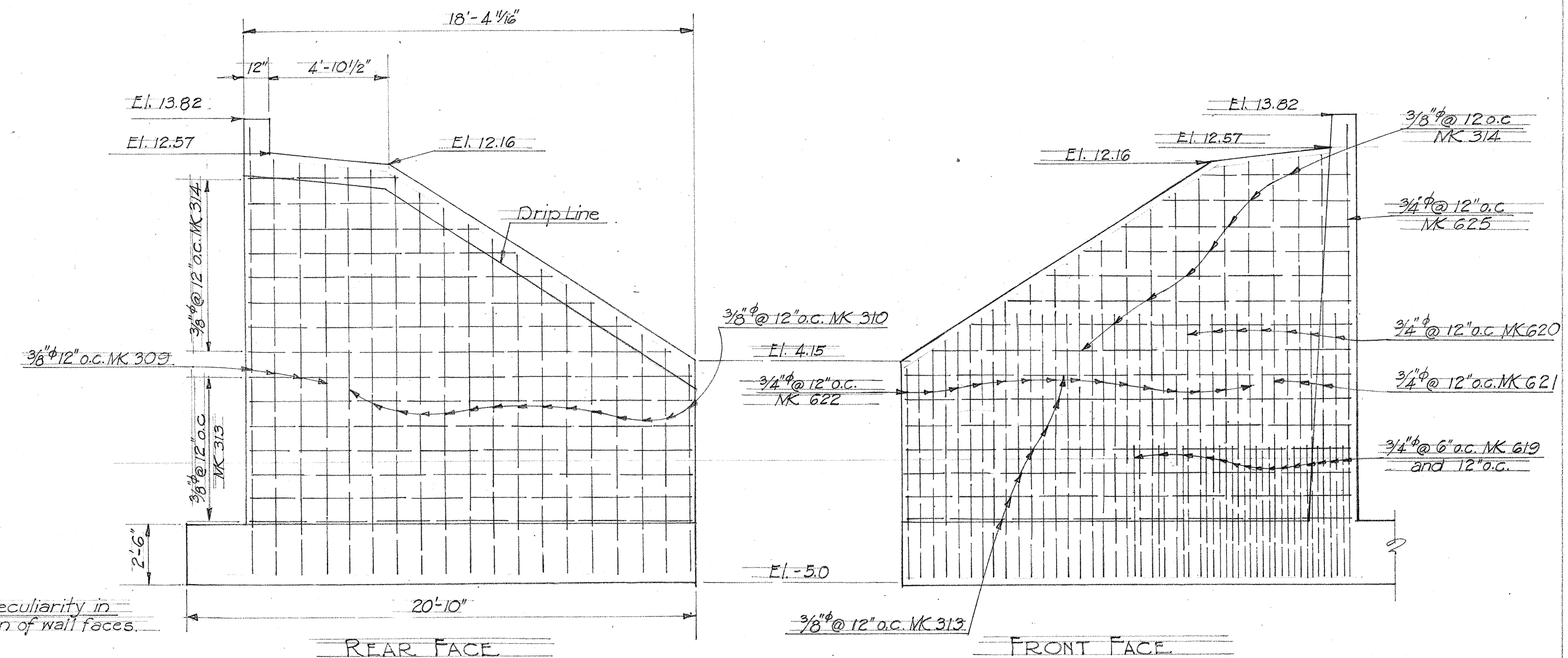
SECTION A-A.

1/2" Sc.



TYPICAL SECT. THRU WINGWALL.

1/2" Scale.



LEFT WINGWALL BEGINNING OF BRIDGE.

1/4" Scale.

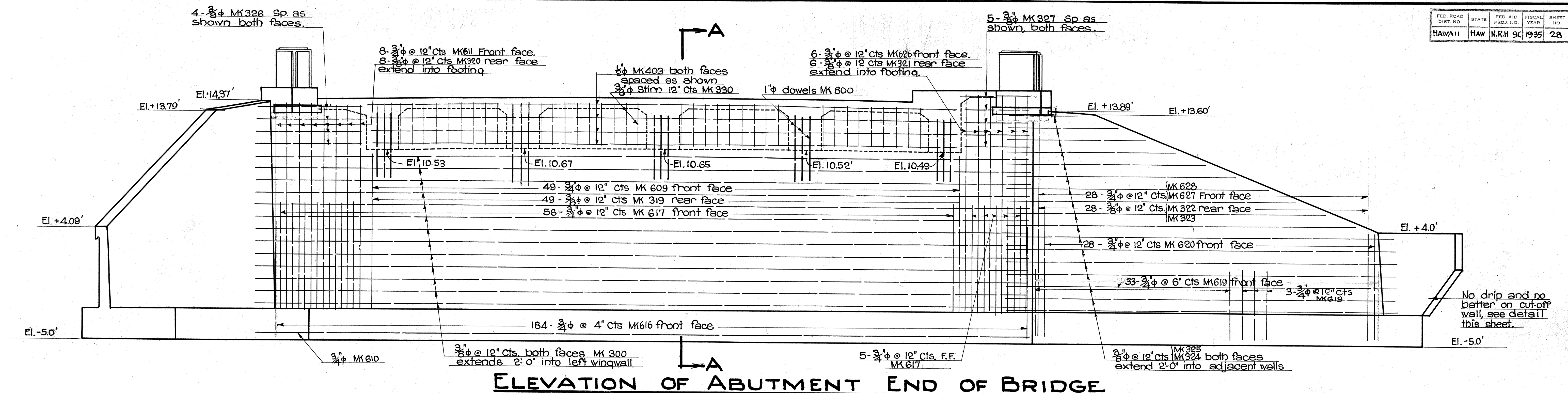
REVISED AUG. 1936 TO ACCOMMODATE NEW SUPERSTR. WITH TWO SIDEWALKS.

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
KALAUAAO BRIDGE
NO. 6 STA. 331+05.74 TO STA. 331+63.15
KAMEHAMEHA HIGHWAY N.R.H. 9C(1935)
SHEET NO. 34 OF 10 SHEETS

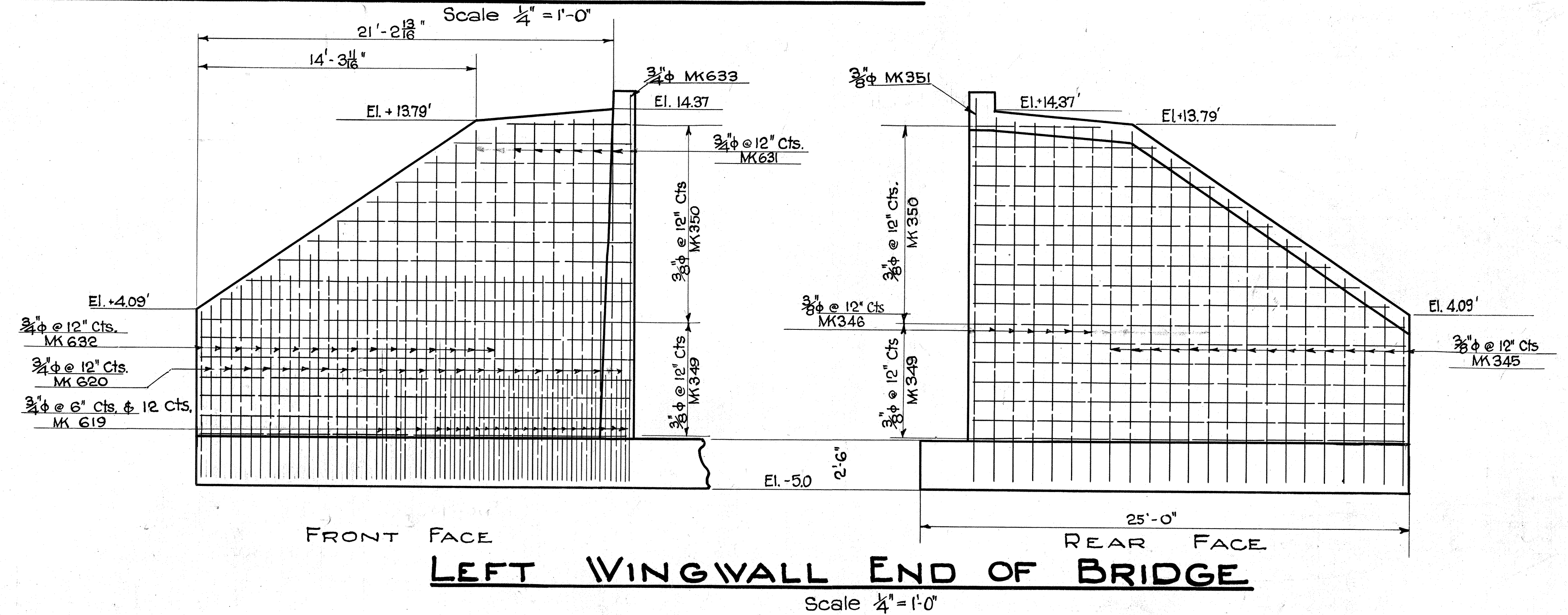
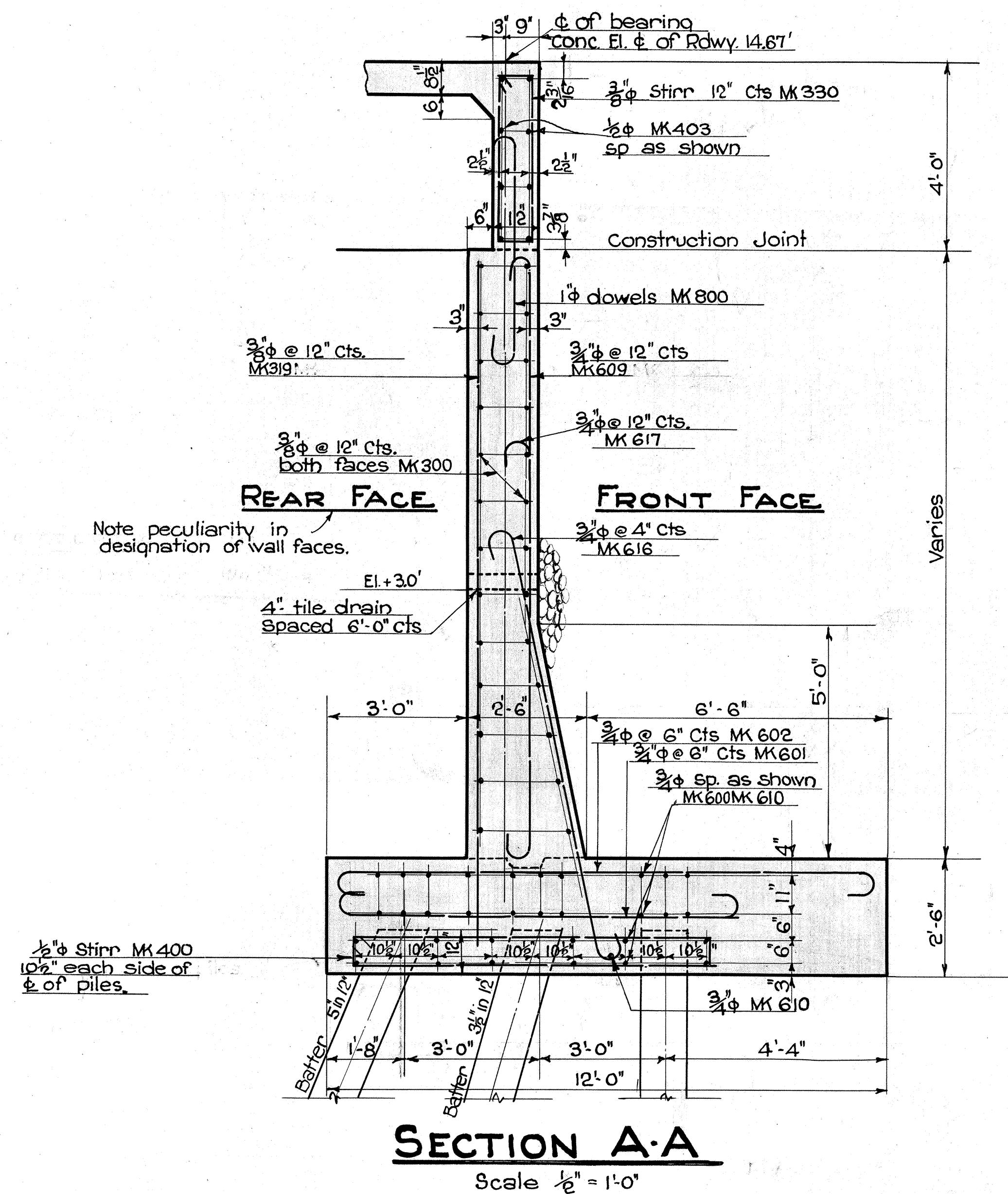
4325.27A

ORIGINAL SURVEY PLAN
DATE
DRAWN BY
CHECKED BY
NOTED BY
N.

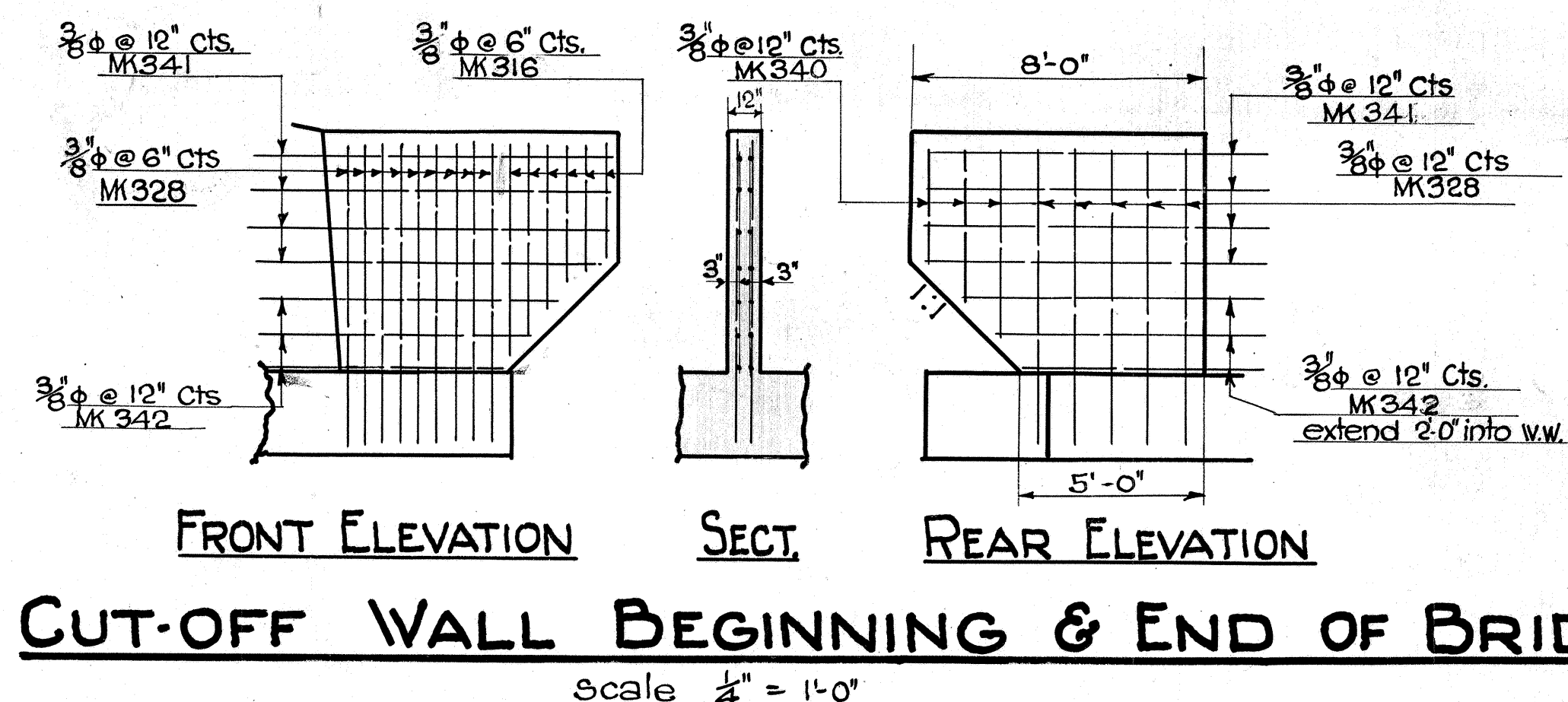
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	N.R.H 9C	1935	28	72



ELEVATION OF ABUTMENT END OF BRIDGE



LEFT WINGWALL END OF BRIDGE



CUT-OFF WALL BEGINNING & END OF BRIDGE

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

KALAUAO BRIDGE

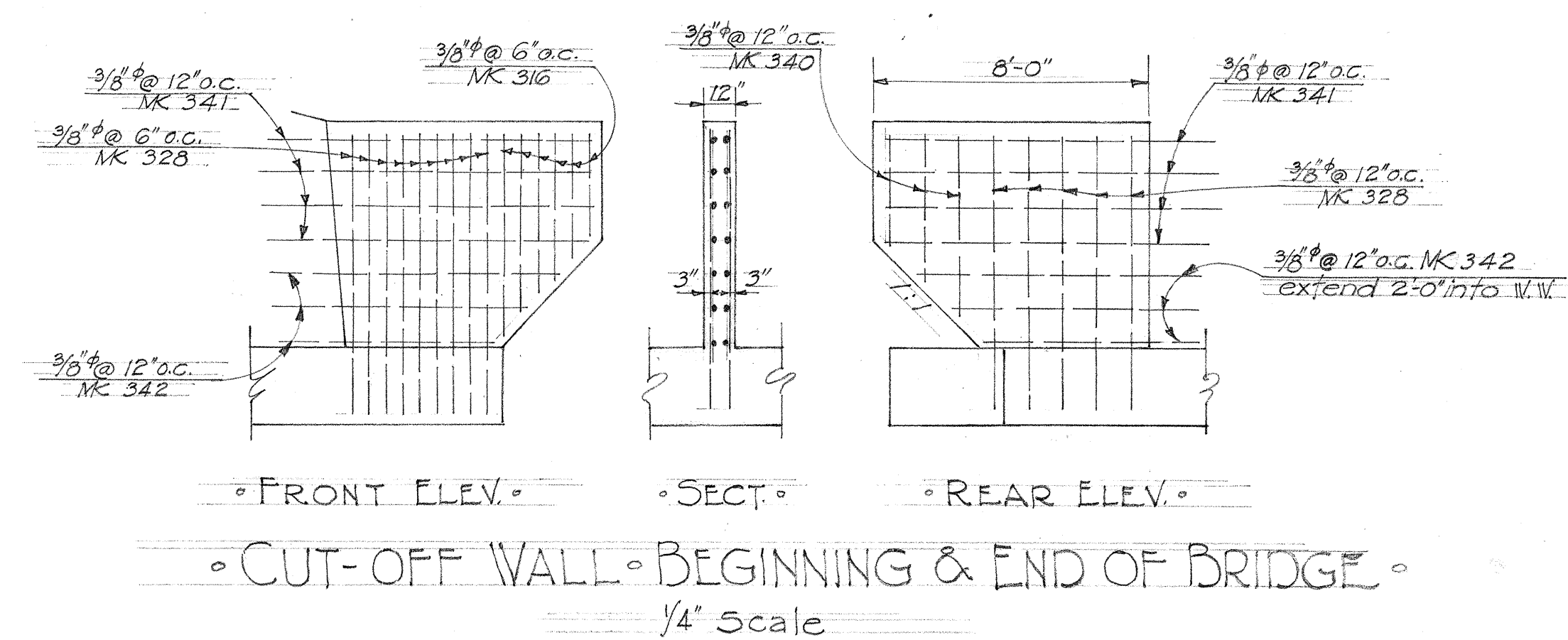
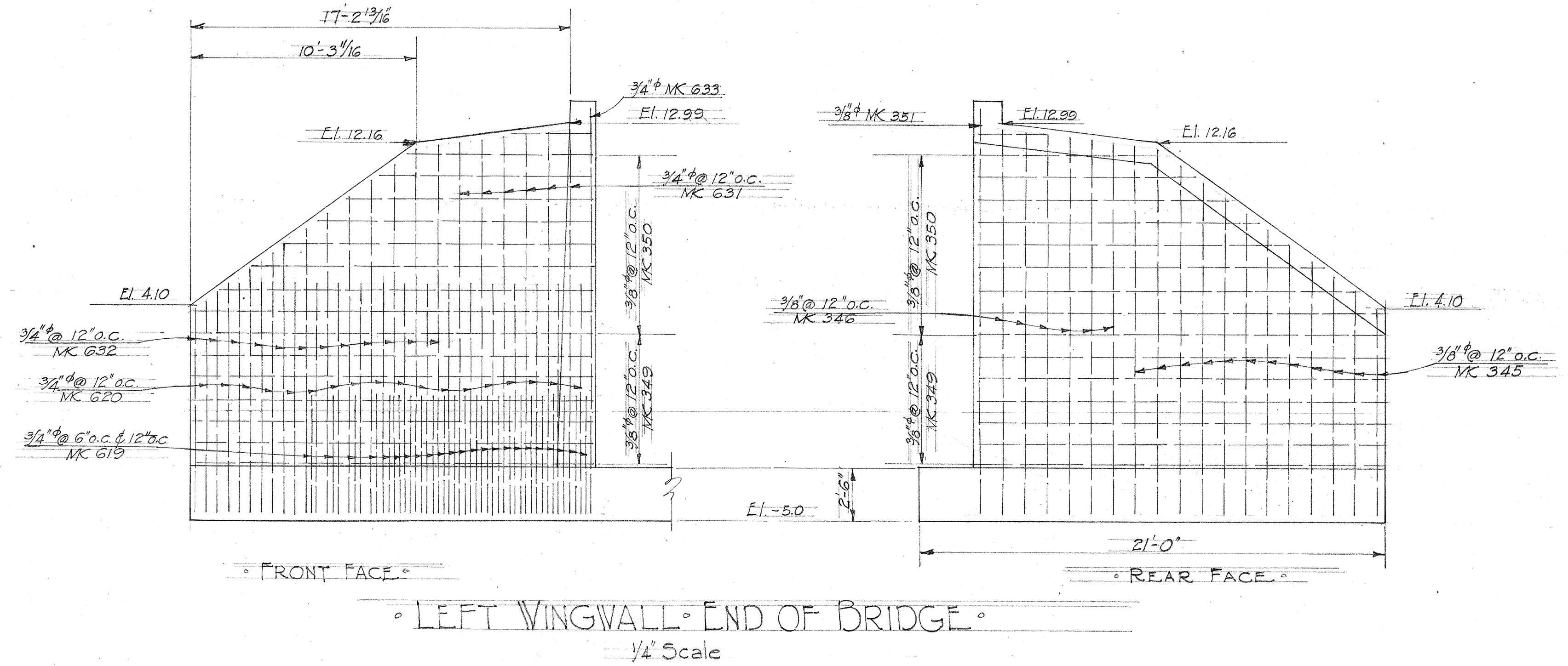
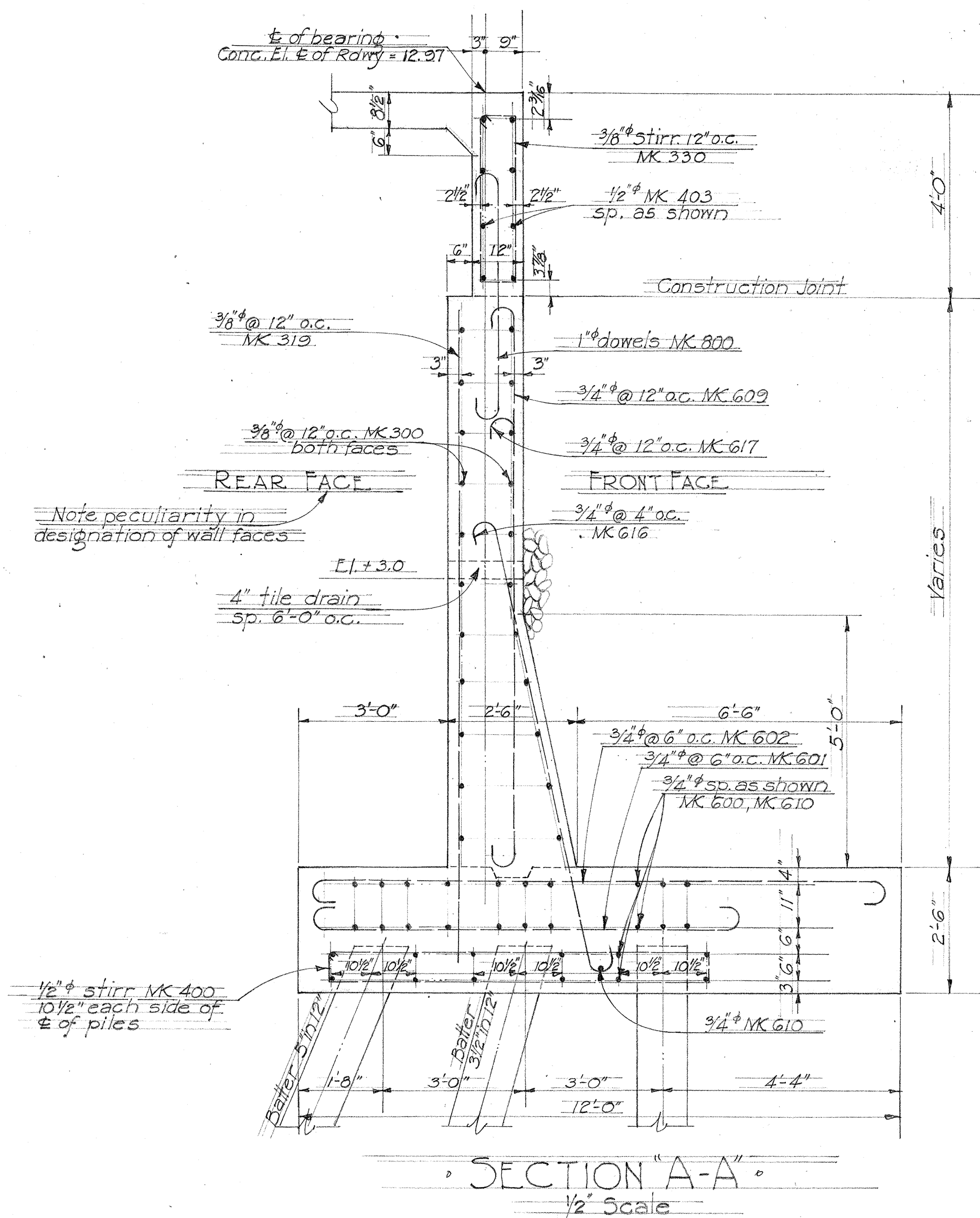
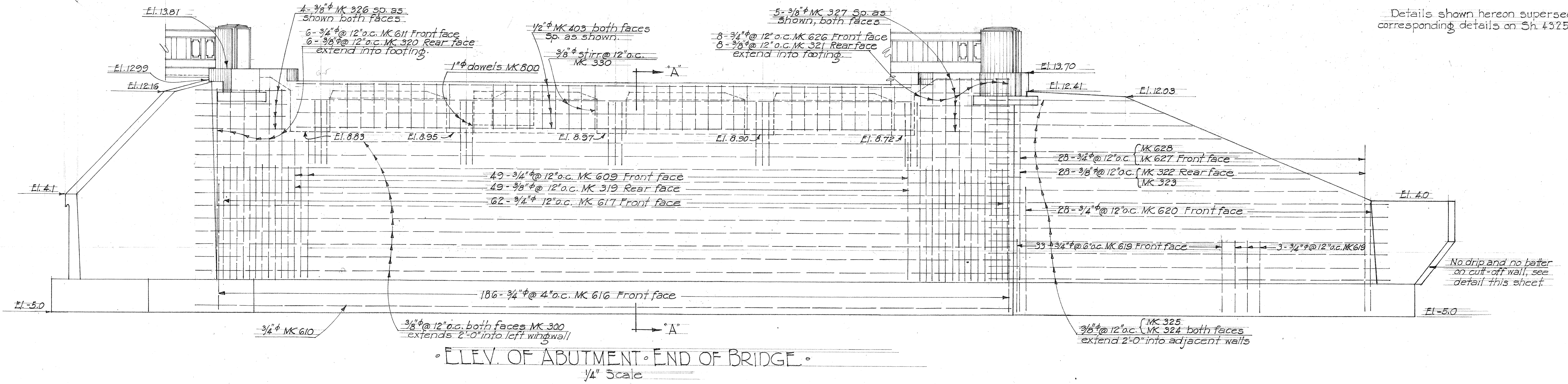
NO 6 STA. 331+05⁷⁴ TO STA. 331+63¹⁵
KAMEHAMEHA HIGHWAY NPH-9C (1935)

SHEET N° 4 OF 10 SHEETS

4325.28

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	N.R.H. 9-C	1935	28 A	70

Details shown hereon supersede corresponding details on Sh. 4325.28



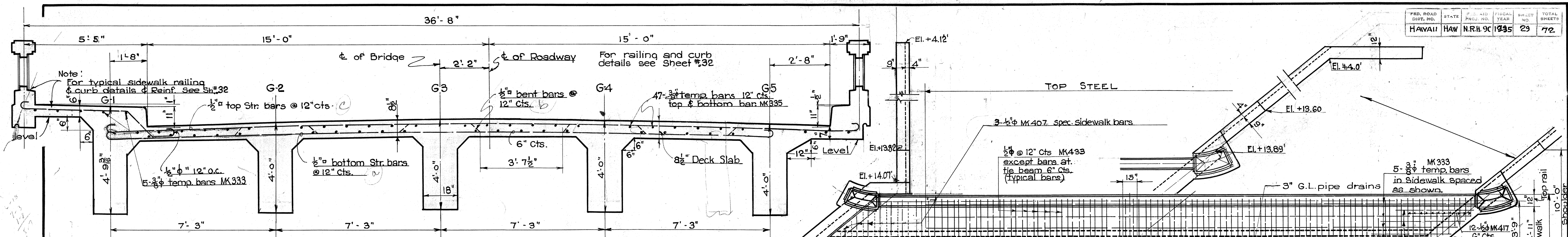
REVISED AUG. 1936 TO ACCOMMODATE NEW SUPERSTR. WITH TWO SIDEWALKS

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
KALAUAO BRIDGE
NO. 6 STA. 331+05.74 TO STA. 331+63.15
KAMEHAMEHA HIGHWAY N.R.H. 9-C (1935)
SHEET NO. 4-A OF 10 SHEETS

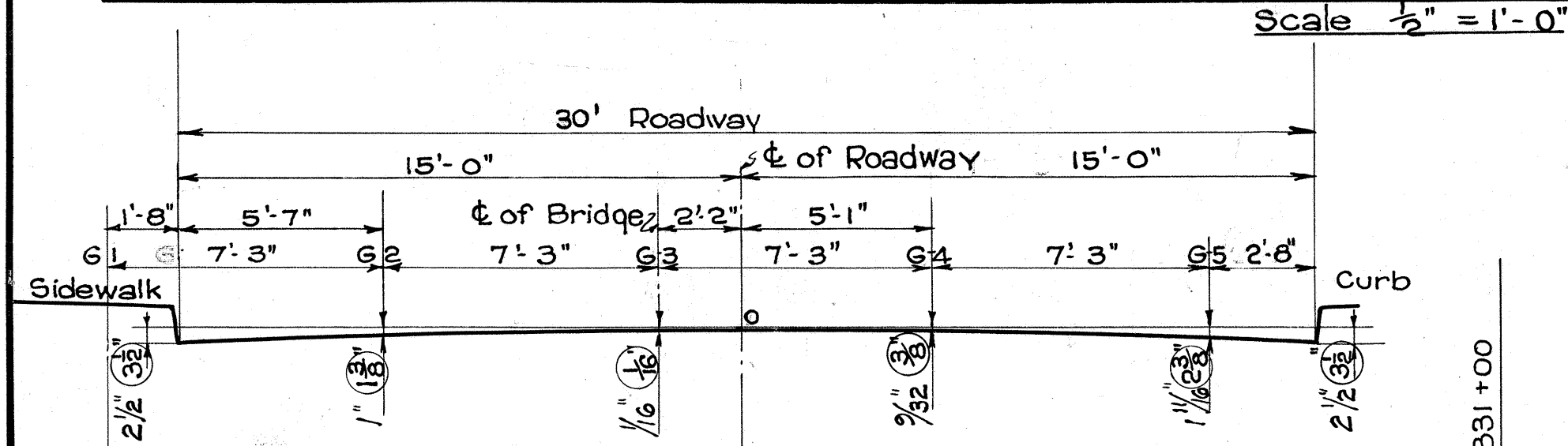
4325.28A

DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
APPROVED BY	
NO.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	N.R.H. 9C	1935	29	72

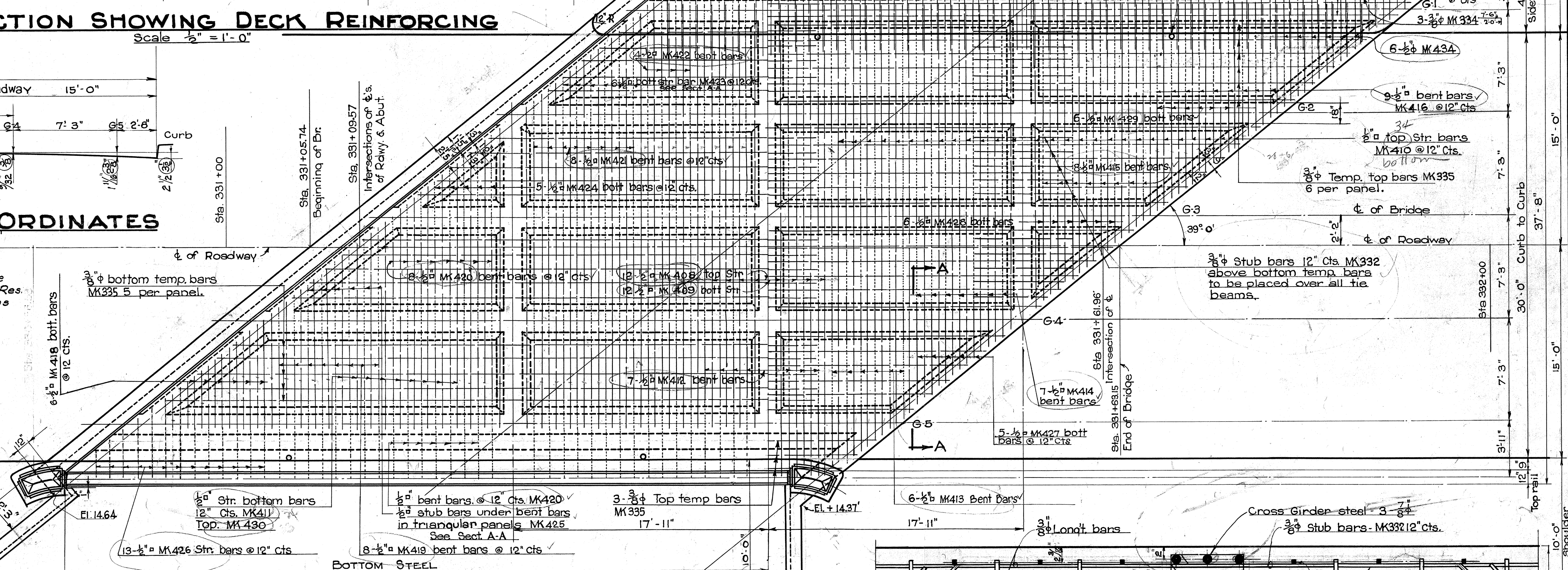


TYPICAL CROSS SECTION SHOWING DECK REINFORCING

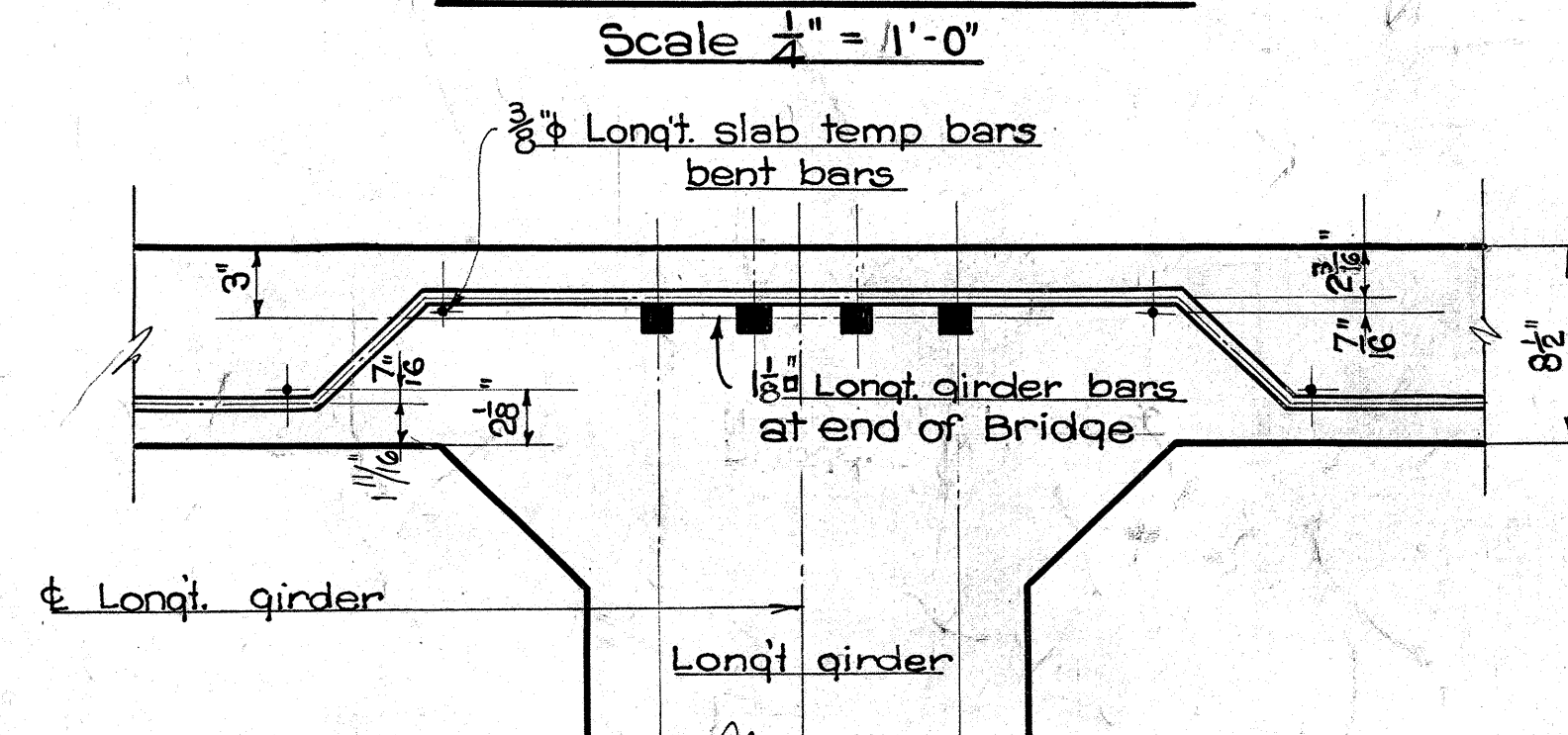


BRIDGE CROWN ORDINATES

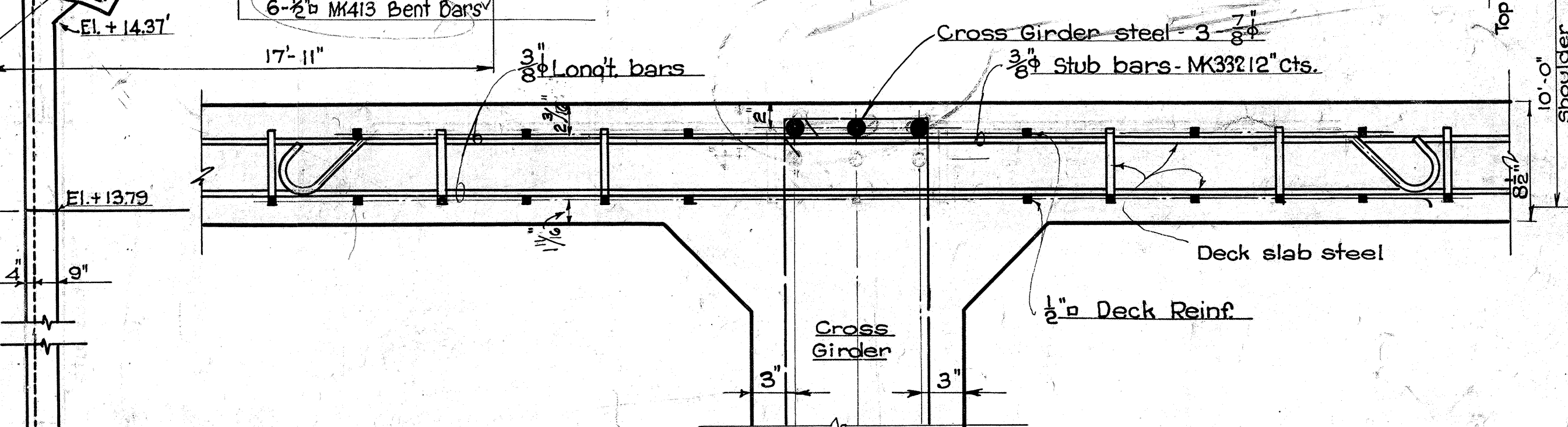
NOTE! All elevations and vertical dimensions are computed from crown ordinates shown in @. Res. Eng. to compute correct elevations & dimensions using $2\frac{1}{2}$ " parabolic crown ordinates.



DECK PLAN

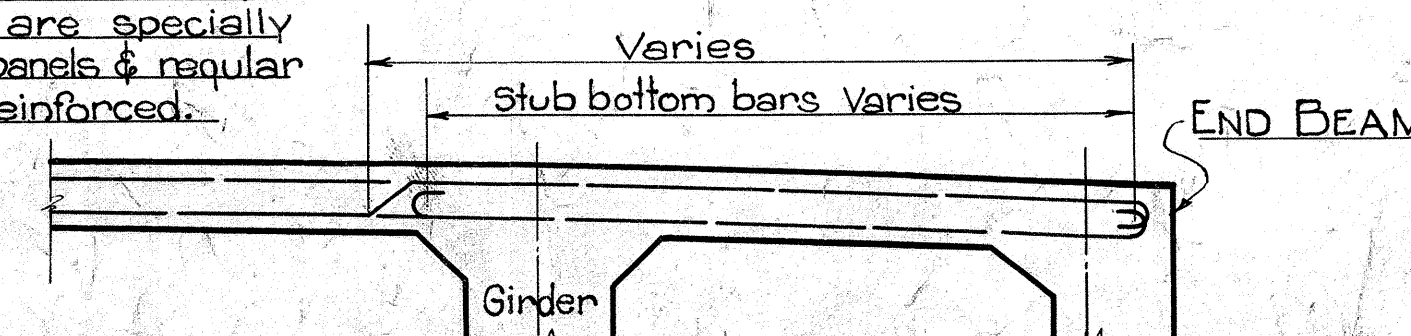


REINF. COVERAGE



SLAB REINF. DETAIL AT CROSS GIRDERS

Note:
All triangular panels and triangular ends of regular panels are specially reinforced. Balance of panels & regular panels are typically reinforced.



THRU TRIANGLE PANELS OF DECK SPA
TYPICAL SECTION A-A

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

KALAUAO BRIDGE

No 6 STA. 331+05⁷⁴ TO STA 331+63¹⁵

KAMEHAMEHA HIGHWAY N.R.H. 9C (1935)

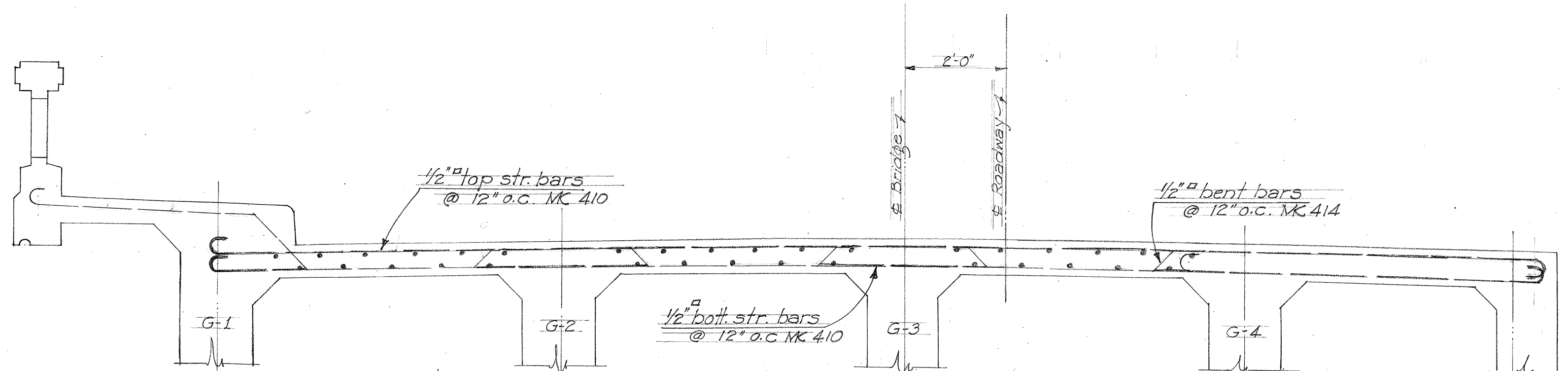
SHEET N° 5 OF 10 SHEETS

4325.29

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
DESIGNED BY	W. R. B.	Oct. 34
RE-ADJUSTED BY	W. R. B.	Nov. 34
TEA'D BY	R. E. S.	" "
QUANTITIES BY	J. C. M.	" "
CORRECTED BY	W. R. B.	June '35

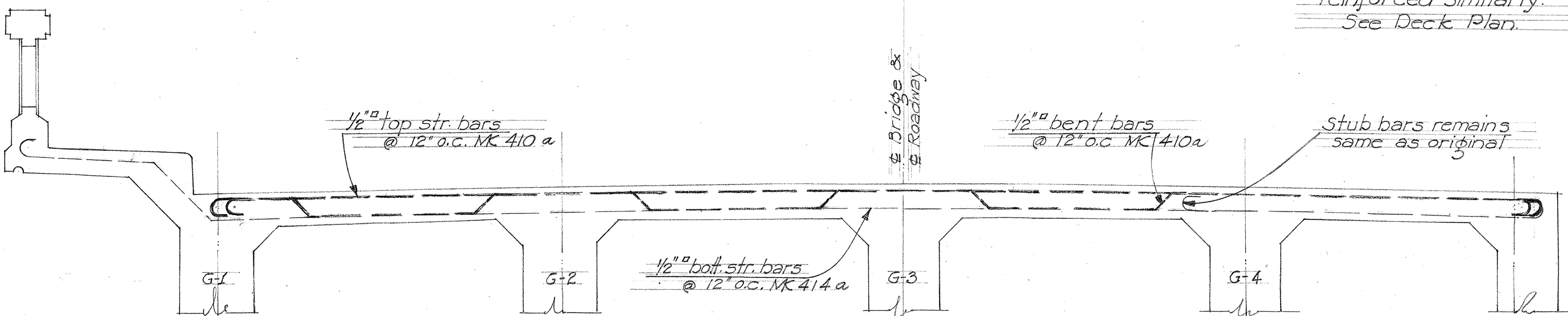
Details shown hereon supersede
corresponding details on Sh. 4325.29



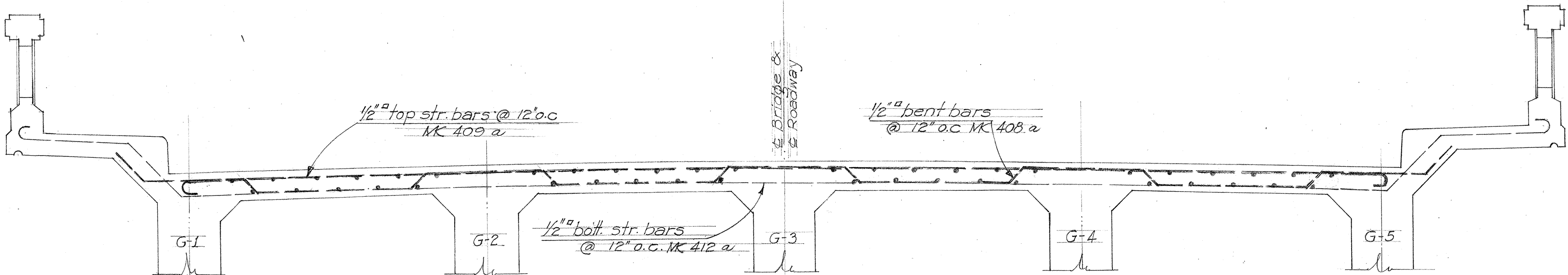


SECTION A-A (ORIGINAL)

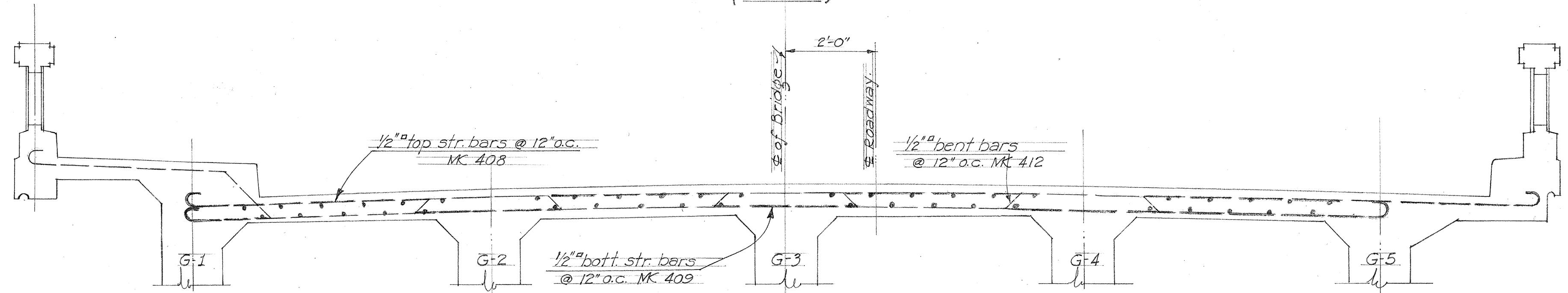
NOTE /
Balance of deck panels
reinforced similarly.
See Deck Plan.



SECTION A-A (REVISED)



TRANSVERSE SECT. AT C (REVISED)

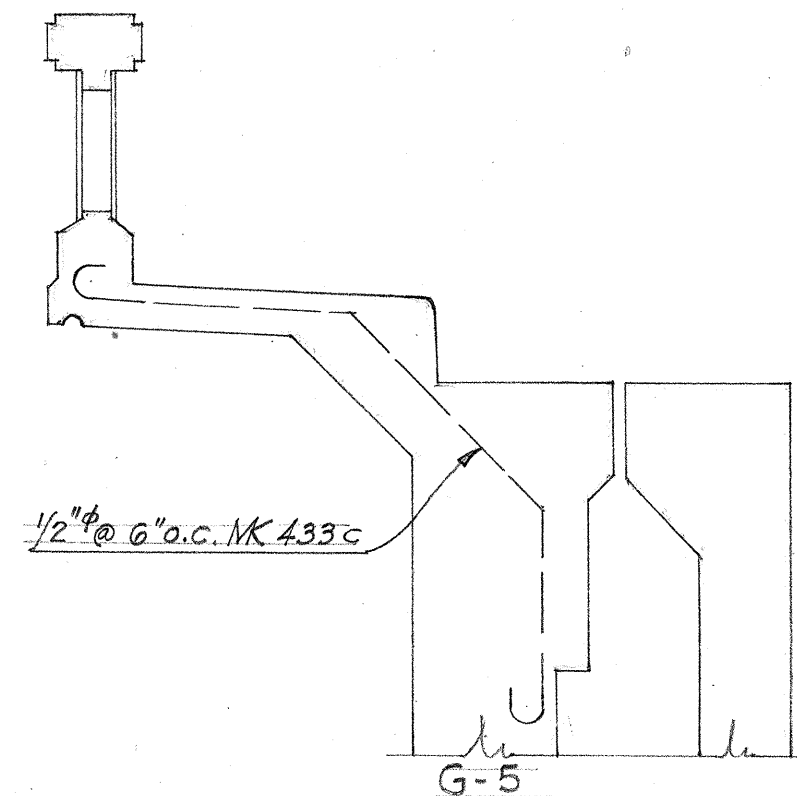


TRANSVERSE SECT. AT C (ORIGINAL)

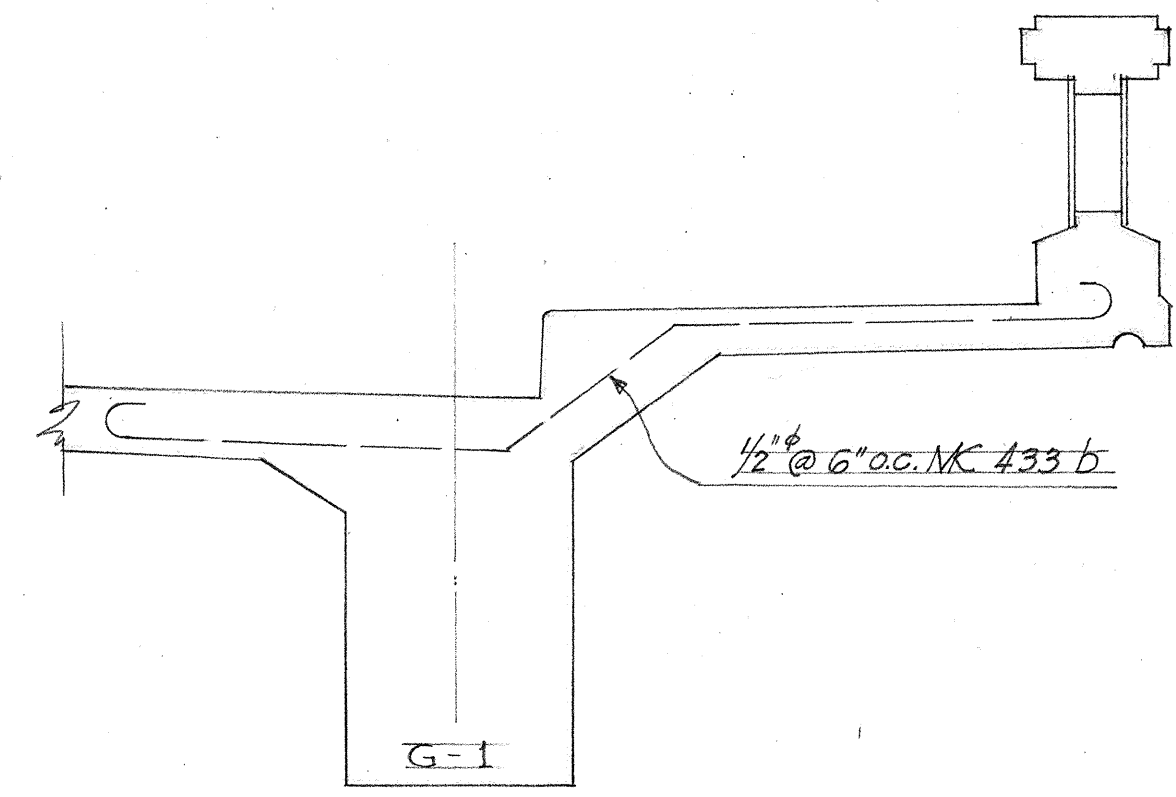
1/2" Scale

STEEL SCHEDULE OF ADDITIONAL STEEL TO BE ORDERED

MK	DESCRIPTION	LOCATION	SIZE	LENGTH	NO. OF BARS IN EA. UNIT	NO. OF UNITS	TOTAL NO. OF BARS	TOTAL LENGTH	WT. PER FT.	TOTAL WEIGHT
333	53'-6"	Sidewalk Temp. bars	3/8"	55'-6"	3	1	3	166.50	0.38	63
335	53'-6"	Deck Slab Temp. bars	"	53'-6"	1	1	1	53.50	"	20
414a	22'-6"	Deck Slab Bott. Str.	1/2"	28'-3"	1	1	1	28.25	0.86	24
419a	7'-9"	"	"	13'-6"	1	1	1	13.50	"	12
421a	22'-6"	"	"	28'-3"	1	1	1	28.25	"	24
433a	3'-0"	Sidewalk Typical	1/2"	8'-9"	49	1	49	428.75	0.68	292
433b	4'-0"	Sidewalk Special	"	12'-0"	6	2	12	144.00	"	98
433c	8'-9"	"	"	8'-9"	5	1	5	43.75	"	30
480	4'-0"	Sidewalk Curb	"	4'-0"	53	2	106	424.00	"	288
481	3'-0"	Sidewalk	"	3'-0"	53	2	106	318.00	"	216
482	4'-6"	"	"	4'-6"	53	2	106	477.00	"	324



SECTION X-X 1/2" Scale



SECTION Y-Y 1/2" Scale

NOTE / See Deck Plan where Sections taken.

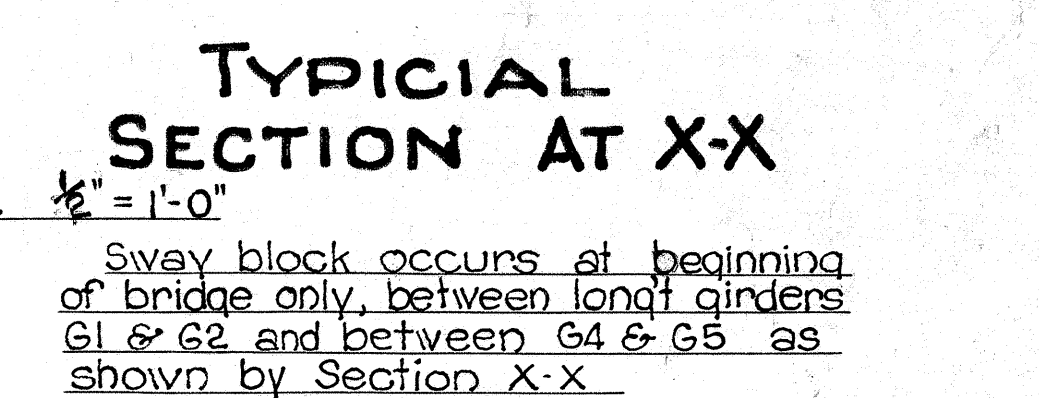
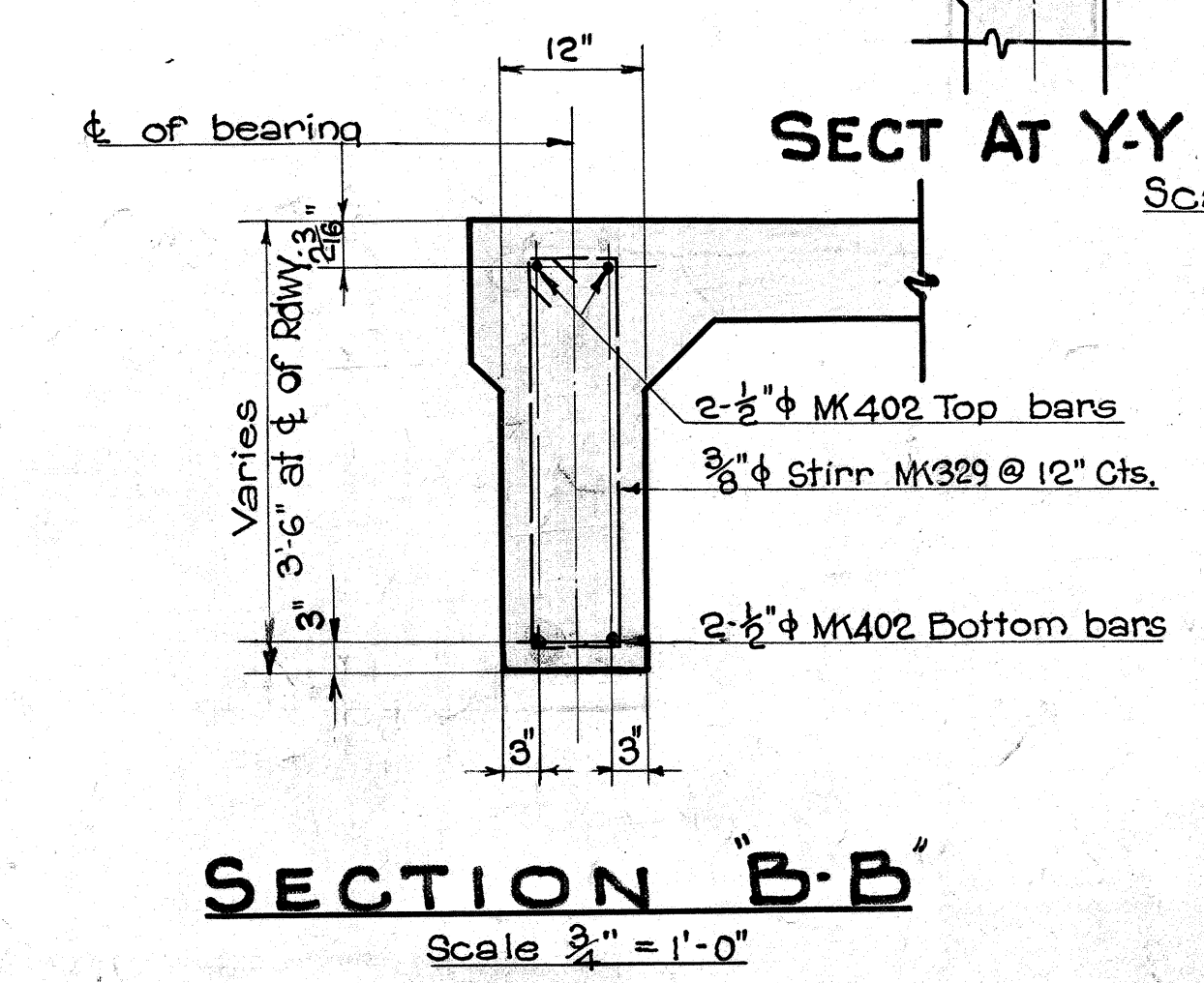
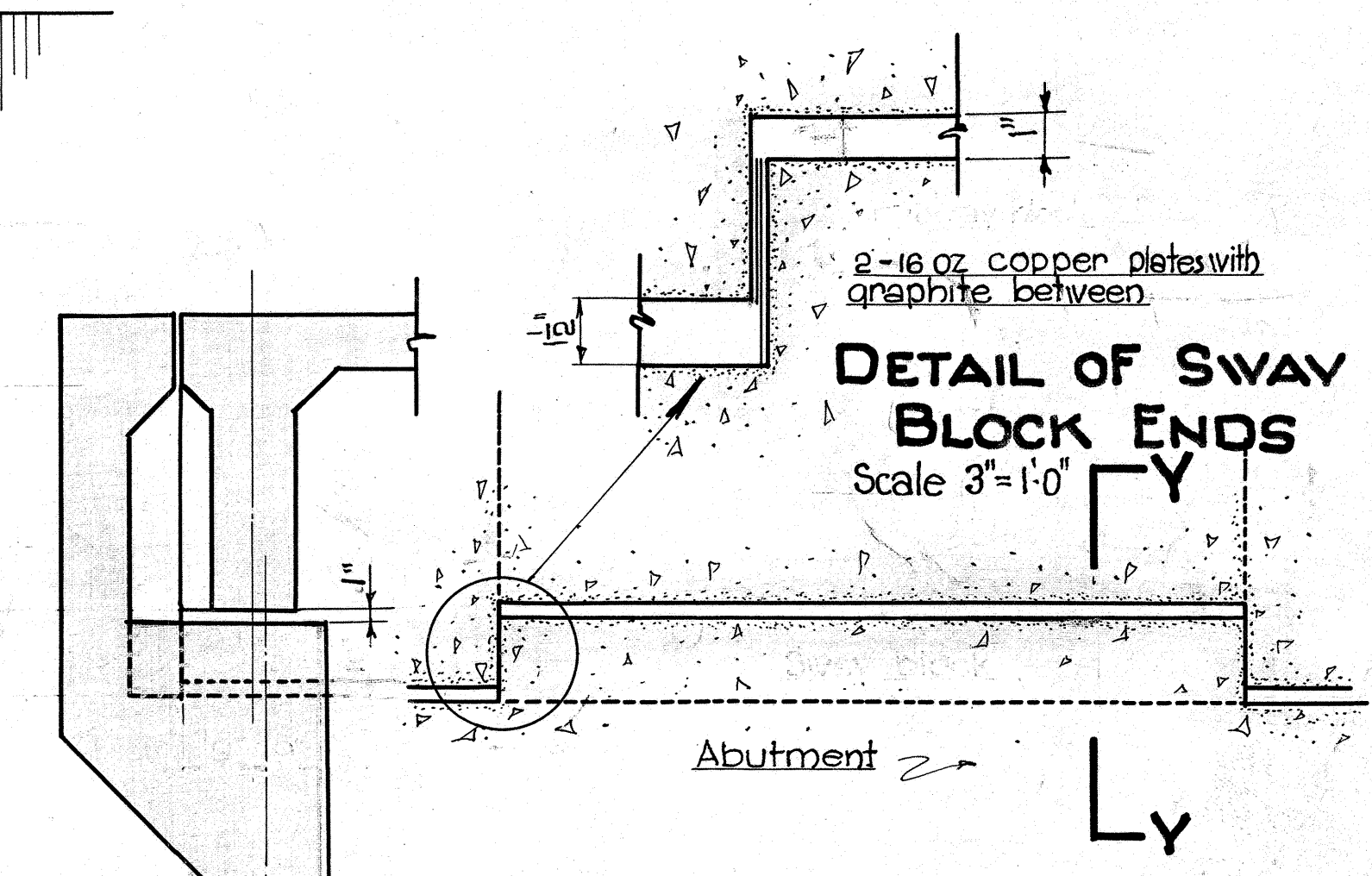
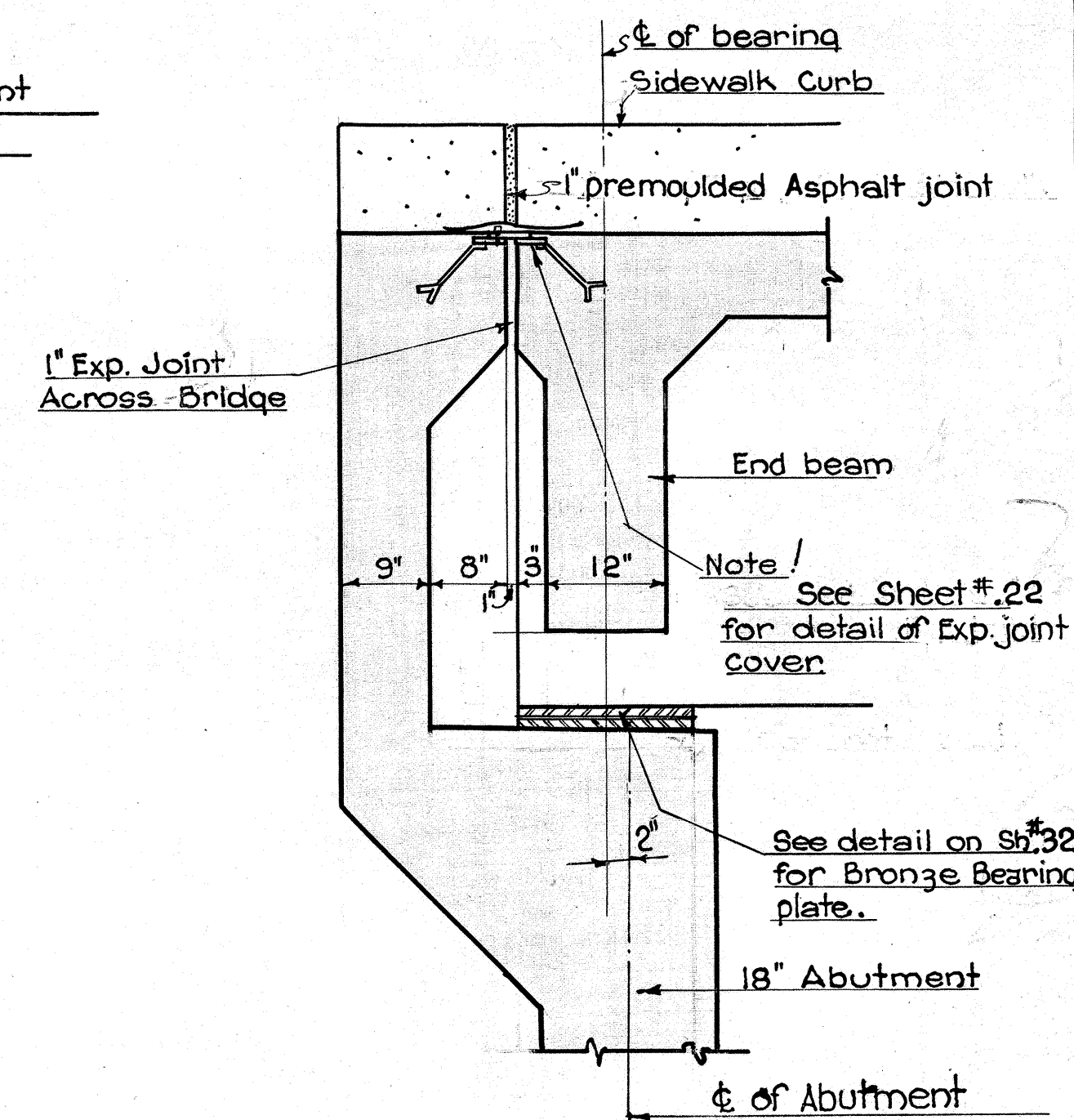
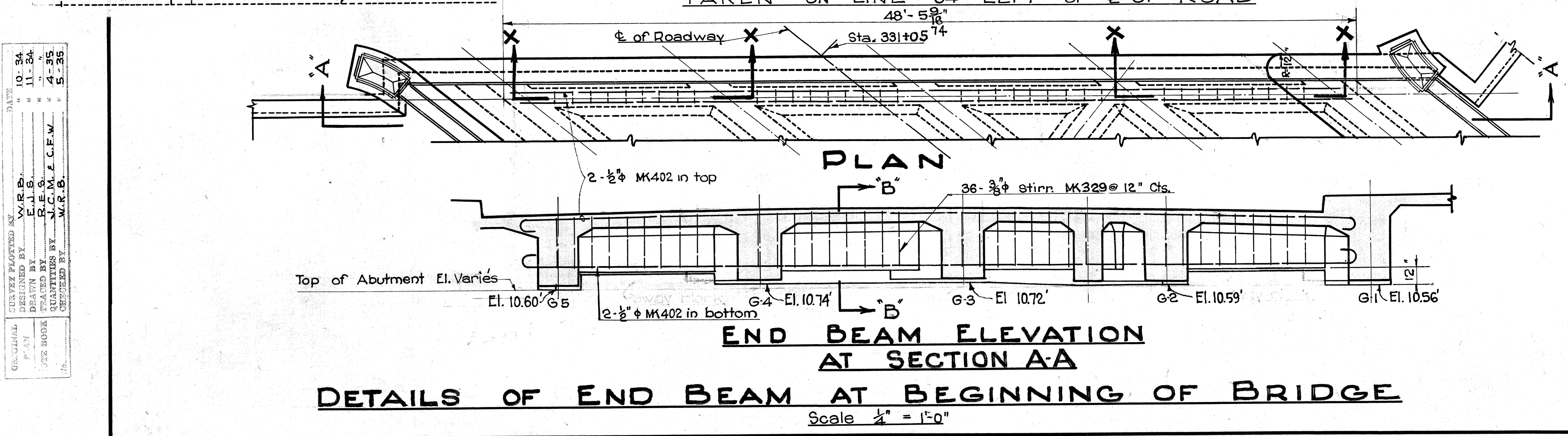
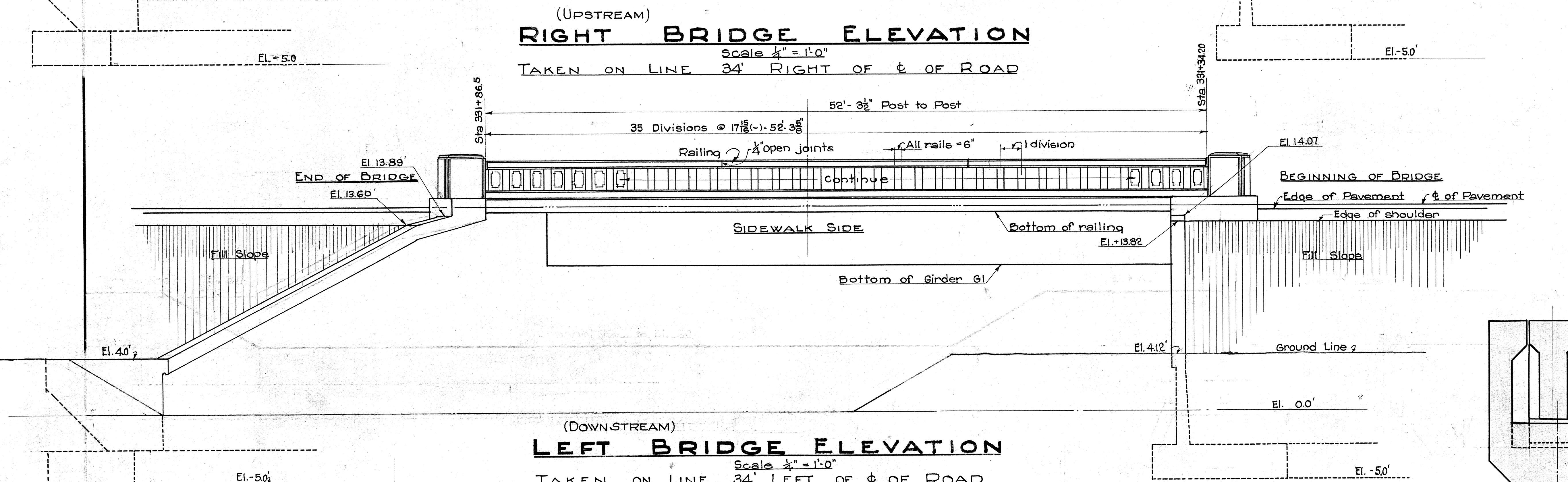
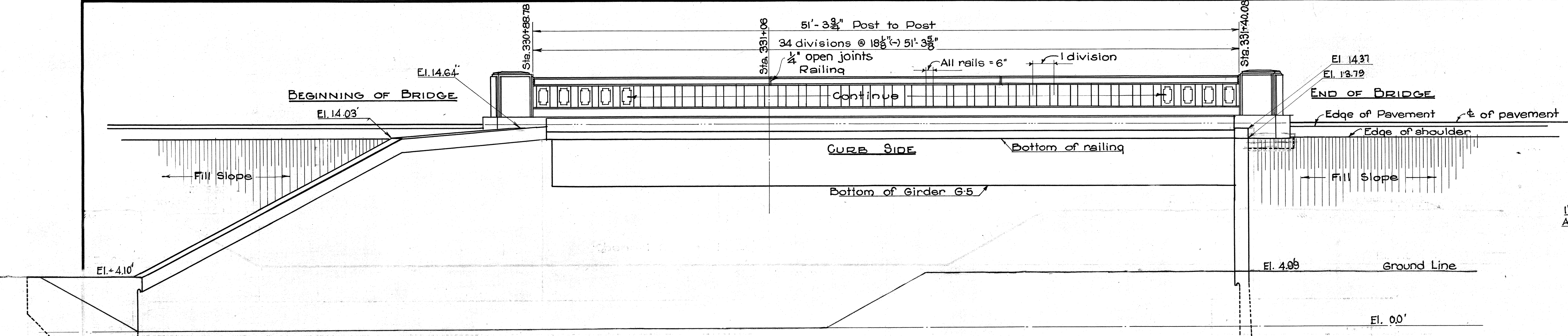
NOTE / This sheet to be used in conjunction with Sheet 4325.29 A

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
KALAUAO BRIDGE
NO 6 STA. 331+05.74 TO STA 331+63.15
KAMEHAMEHA HIGHWAY N.R.H. 9-C (1935)
SHEET No 5 D of 10 SHEETS

4325.29B

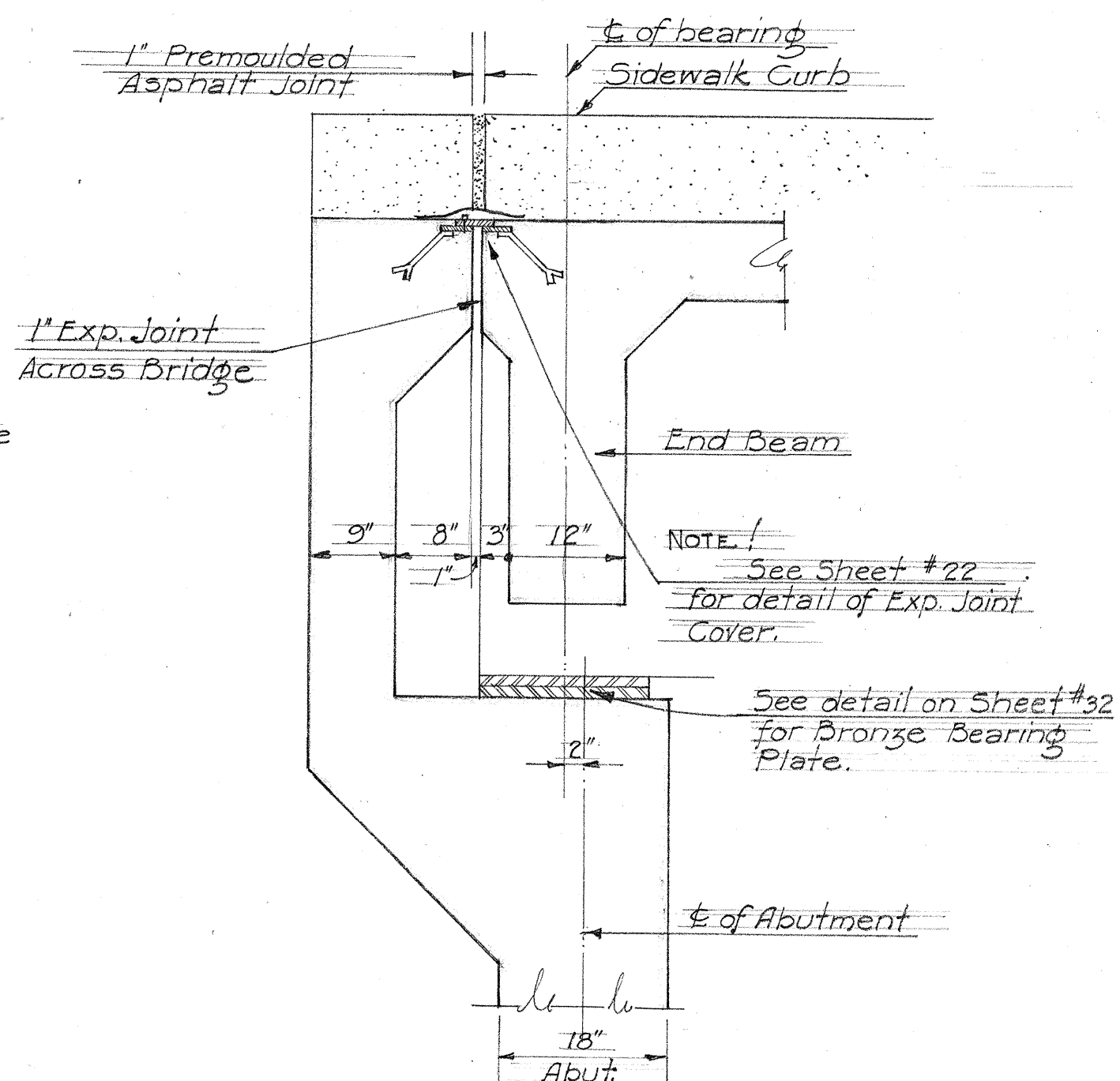
ORIGINAL PLAN
DESIGNED BY
DRAWN BY
CHECKED BY
DATE
2/25

FED. ROAD DIST. NO.	STATE	FED. AID YEAR	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	N.R.H. 9C	1935	30	72



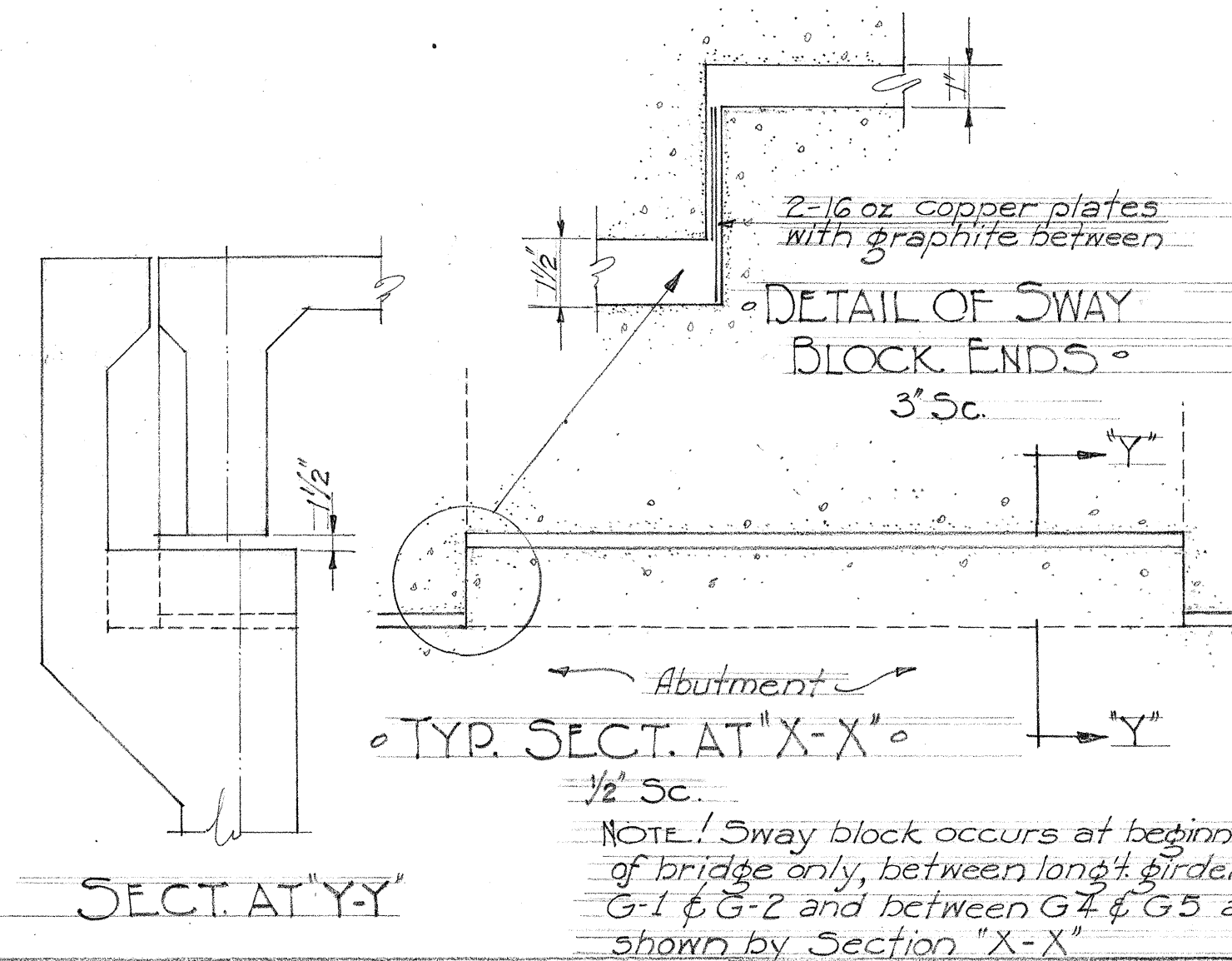
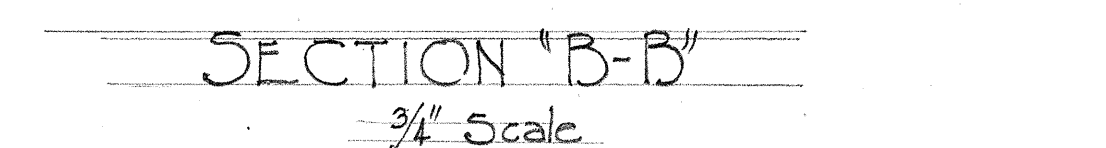
TERRITORIAL HIGHWAY DEPARTMENT
 TERRITORY OF HAWAII
KALAUAO BRIDGE
 NO 6 STA. 331+05.74 TO STA. 331+63.15
 KAMEHAMEHA HIGHWAY N.R.H. 9C (1935)
 SHEET NO 6 OF 10 SHEETS

Details shown hereon supersede
corresponding details on 5h.4325:30



Technical drawing of a reinforced concrete beam cross-section showing reinforcement details. The drawing includes the following specifications:

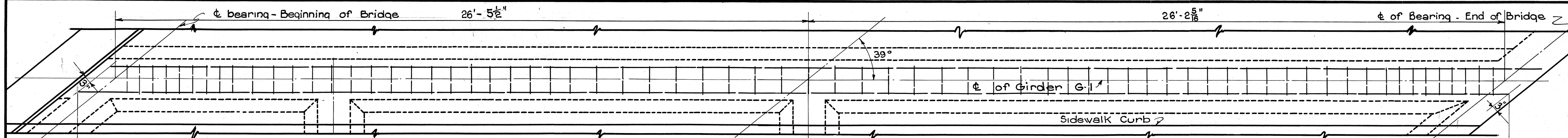
- Top Reinforcement:** 2- $\frac{1}{2}$ " ϕ MK 402 Top bars
- Stirrups:** $\frac{3}{8}$ " Stirr. MK 329 @ 12" o.c.
- Bottom Reinforcement:** 2- $\frac{1}{2}$ " ϕ MK 402 Bottom Bars
- Dimensions:**
 - Overall width: 3"
 - Overall height: 3"
 - Clearance from top: 2 3/8"
 - Clearance from bottom: 2 3/8"
 - Clearance from left: 3"
 - Clearance from right: 3"
- Notes:**
 - 1 of Bearing
 - Varies 3" at 1 of Bearing



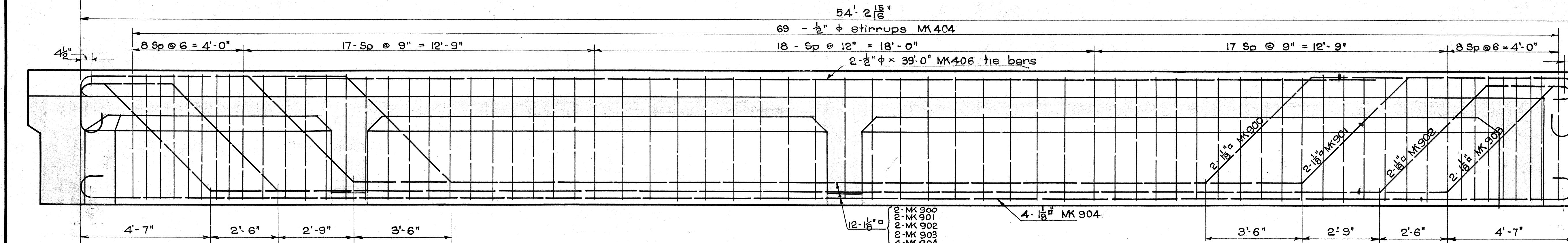
SHEET NO 6A OF 10 SHEETS

4325.304

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	N.R.H. 9C	1935	31	72



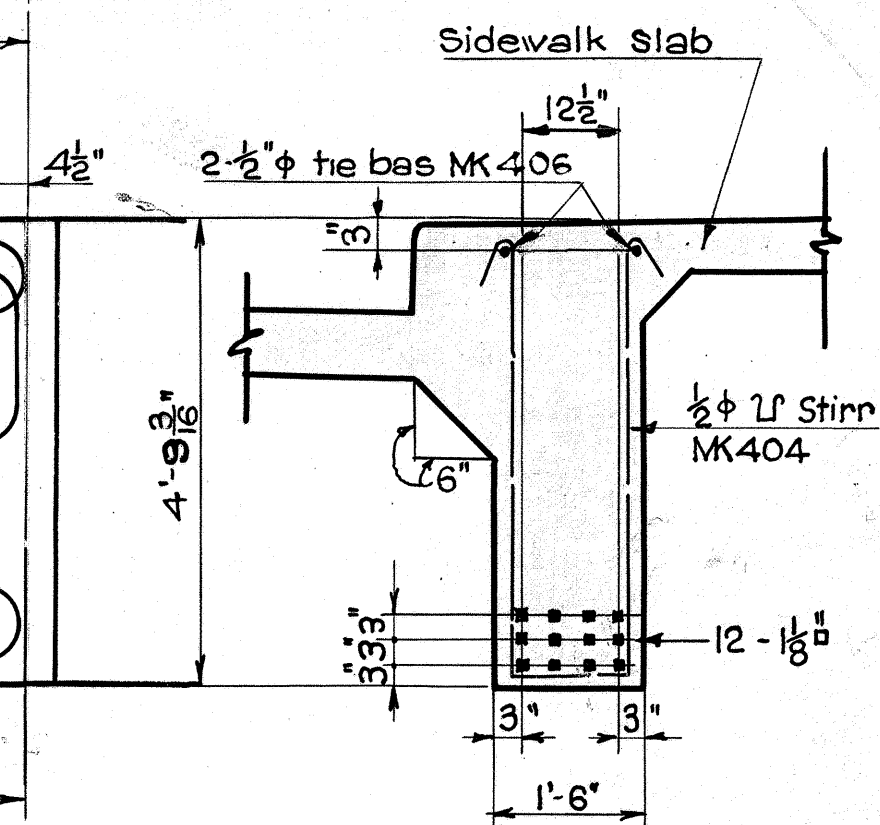
PLAN



ELEVATION

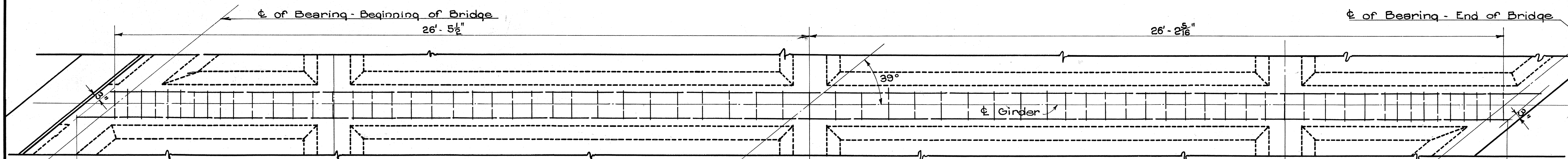
GIRDER G-1 ONLY

Scale 1/2" = 1'-0"

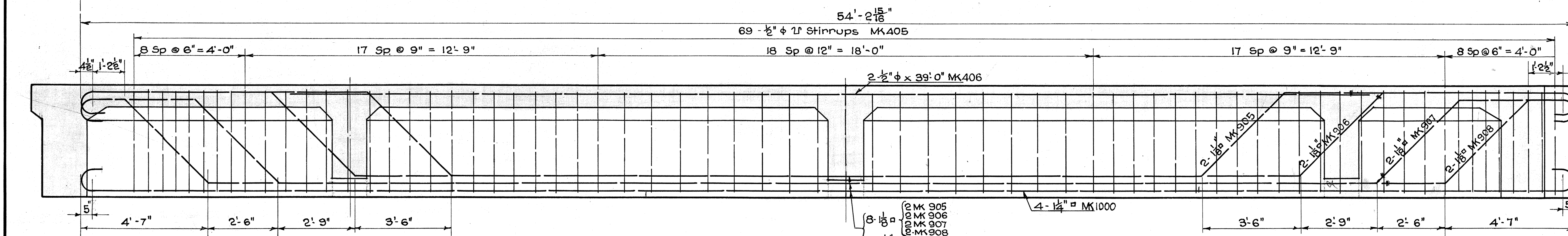


TYPICAL SECTION

Scale 1/2" = 1'-0"



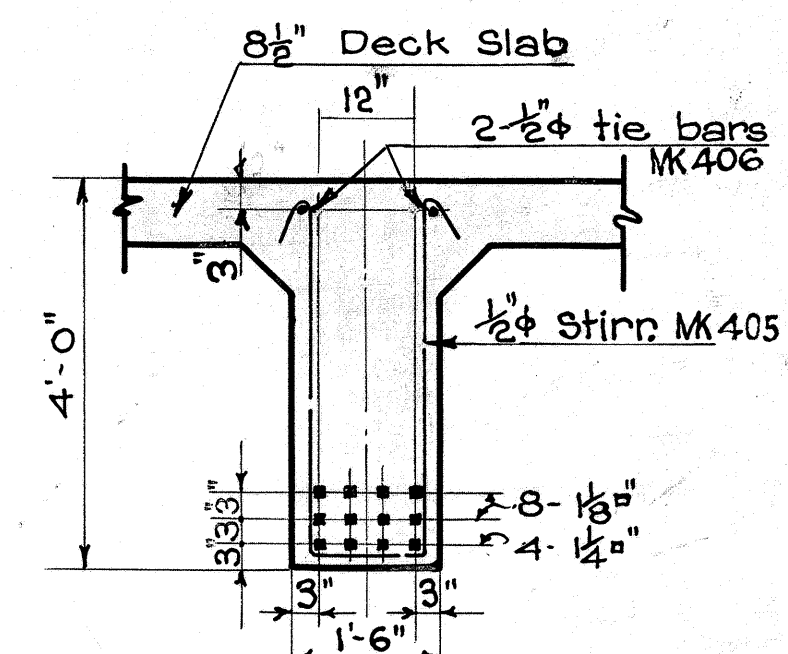
PLAN



ELEVATION

GIRDERS G-2 - G-3 G-4 & G-5

Scale 1/2" = 1'-0"



TYPICAL SECTION

Scale 1/2" = 1'-0"

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

KALAUAO BRIDGE

No 6 STA 331+05.74 TO STA 331+63.15
KAMEHAMEHA HIGHWAY N.R.H. 9C 1935

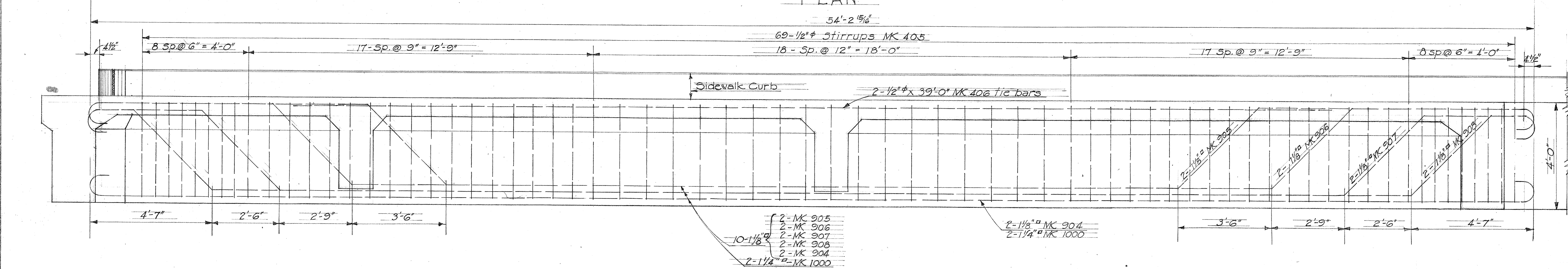
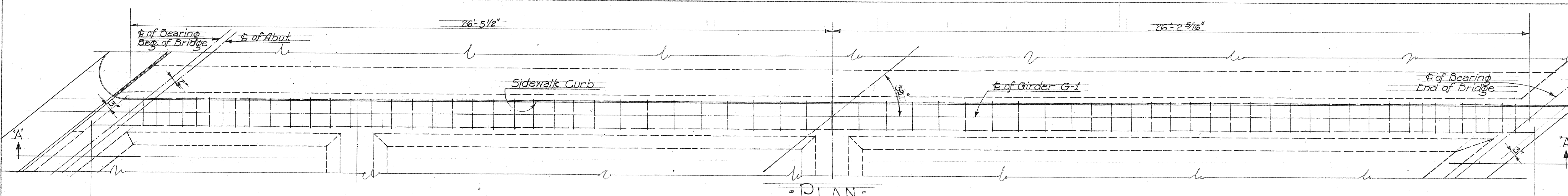
SHEET No 7 OF 10 SHEETS

4325.31

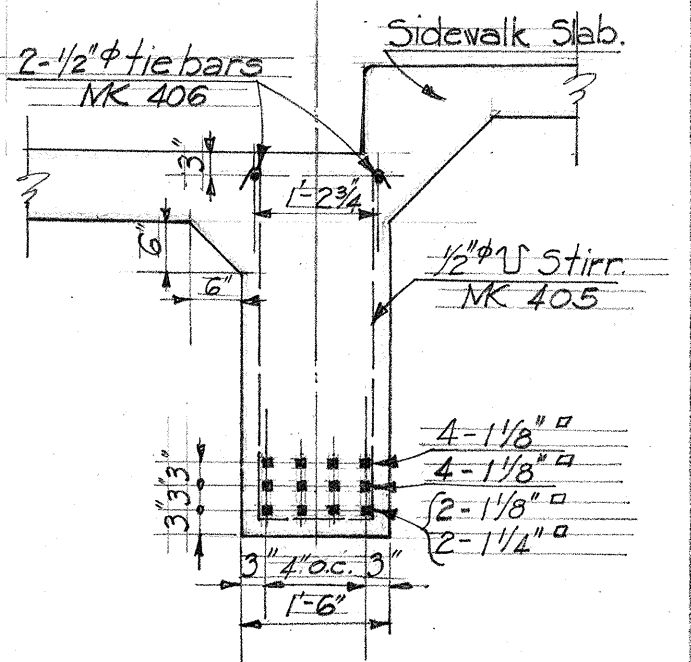
DESIGNED BY	DATE
W.R.B.	Oct 24
CHECKED BY	DATE
J.C.M. & C.F.W.	Nov 24
APPROVED BY	DATE
W.R.B.	Nov 24

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	N.E.H. 9-C	1935	31-A	72

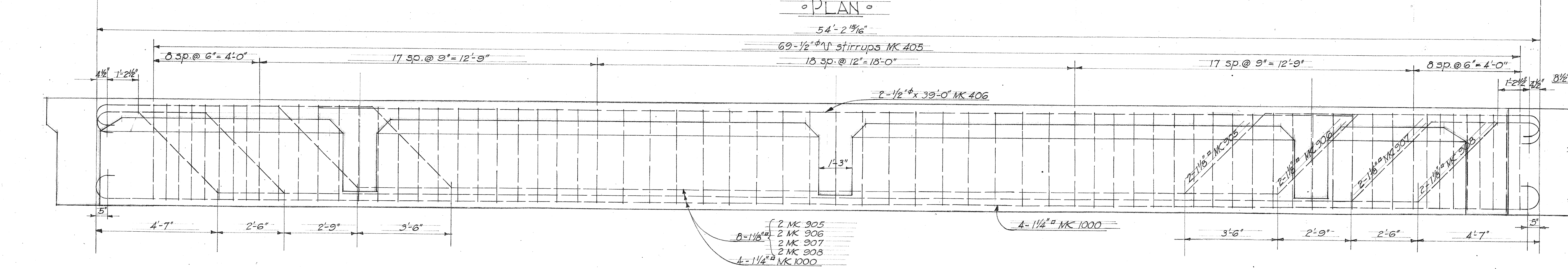
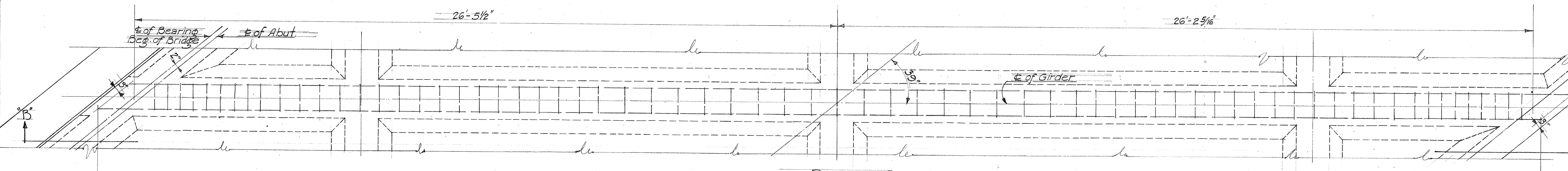
Details shown hereon supersede corresponding details on SH 4325.31



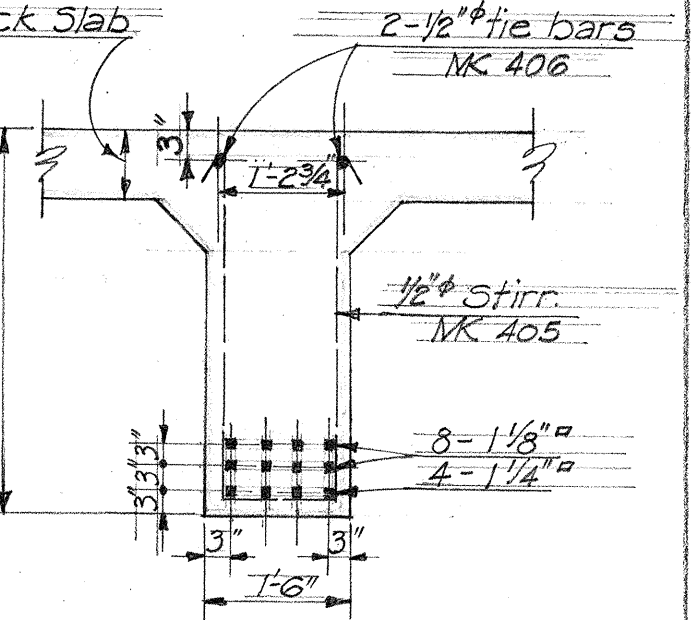
SECTIONAL ELEVATION "A-A"
GIRDER G-1
GIRDER G-5 SIMILAR
1/2" Scale



TYPICAL SECT.
1/2" Scale



SECTIONAL ELEVATION "B-B"
GIRDERS G-2, G-3 & G-4
1/2" Scale



TYPICAL SECT.

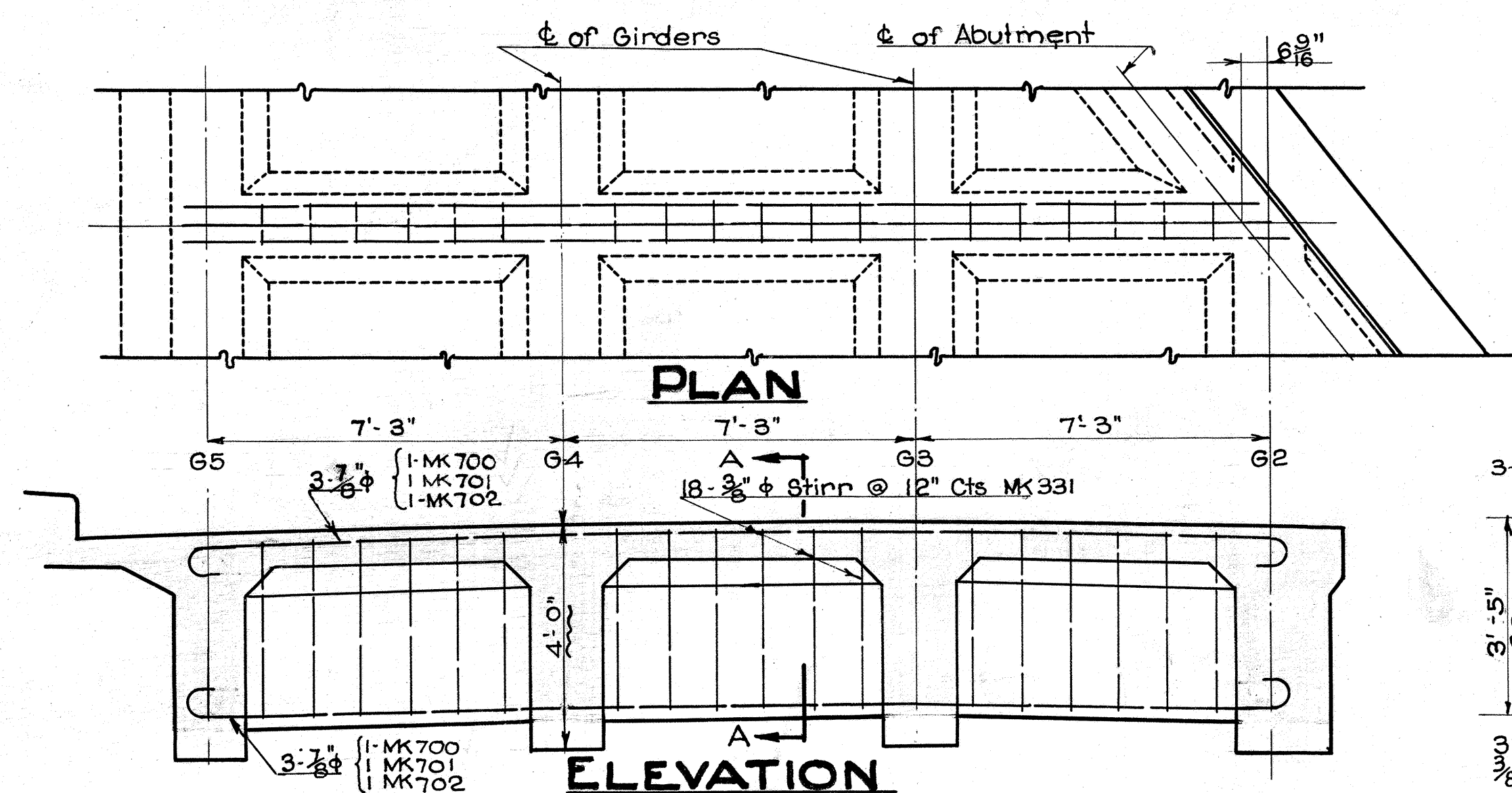
TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
KALAUAO BRIDGE
No 6 STA. 331+05.24 TO STA. 331+63.5
KAMEHAMEHA HIGHWAY N.R.H. 9-C 1935
SHEET No 7A OF 10 SHEETS

REVISED AUG. 1936 TO ACCOMMODATE
NEW SUPERSTRUCTURE WITH TWO SIDEWALKS

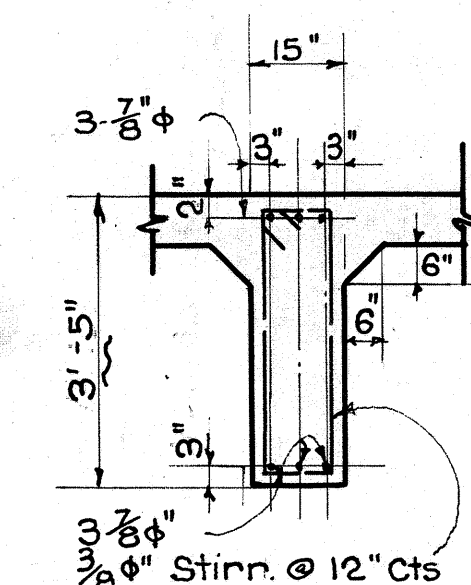
4325.31A

ORIGINAL SURVEY PLOTTED BY DATE
DESIGNED BY W.B. BARTLETT
CHECKED BY R.C. SCHMIDT 10/24
NOTEBOOK QUANTITIES BY
REVISIONS BY
CHECKED BY

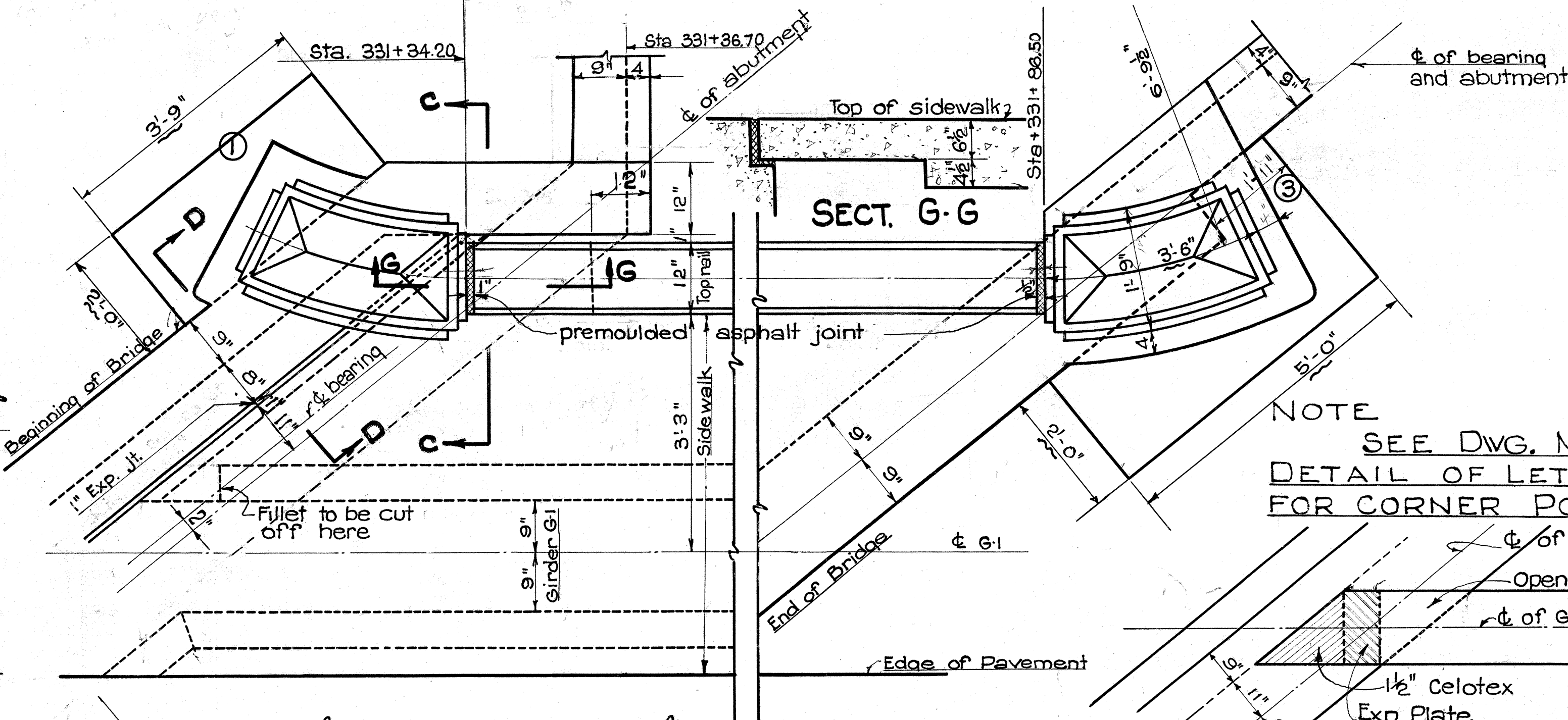
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	N.R.H 9C	1935	32	72



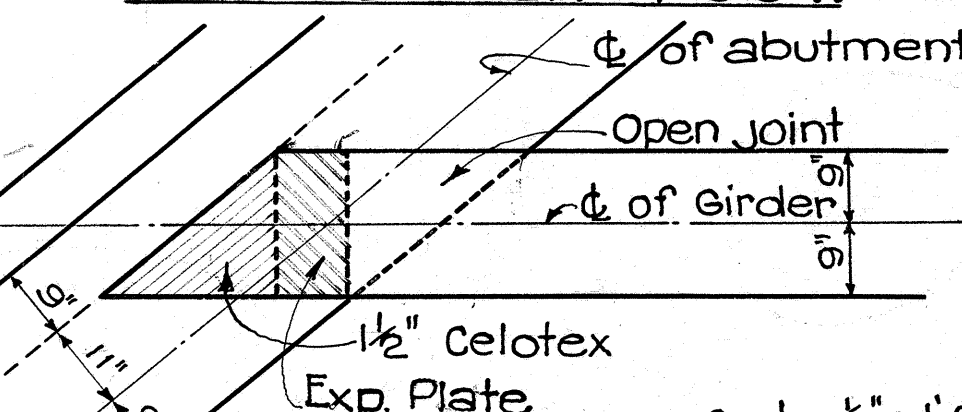
REINF. OF SHORT CROSS GIRDERS
Scale $\frac{3}{8}" = 1'-0"$
2 - LIKE THIS



TYPICAL
SECT A-A
Scale $\frac{3}{8}'' = 1'-0''$

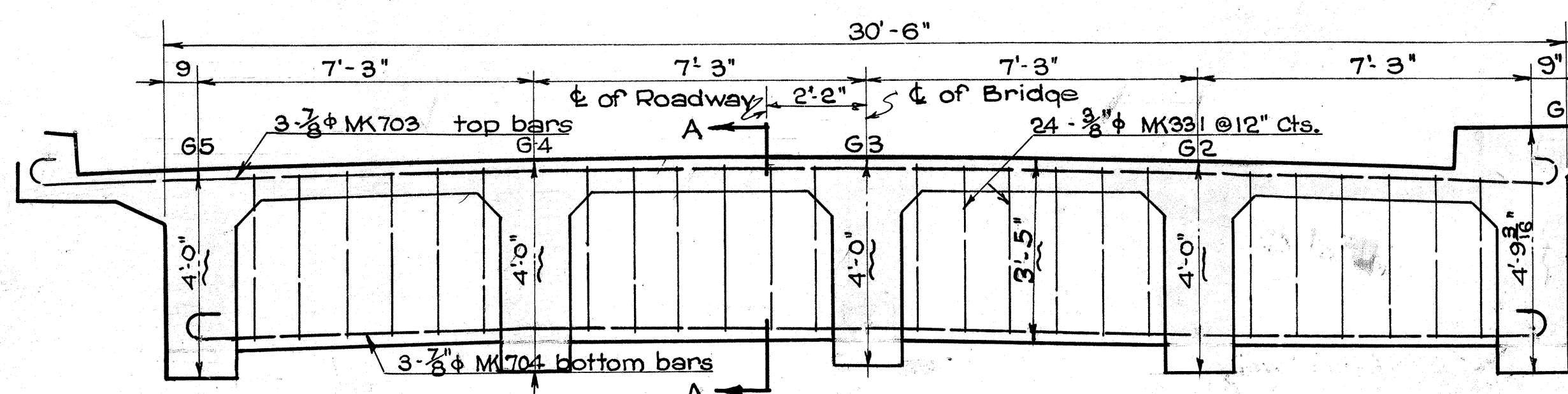


NOTE
SEE DWG. No 4325.22 FOR
DETAIL OF LETTERS & FIGURES
FOR CORNER POST.

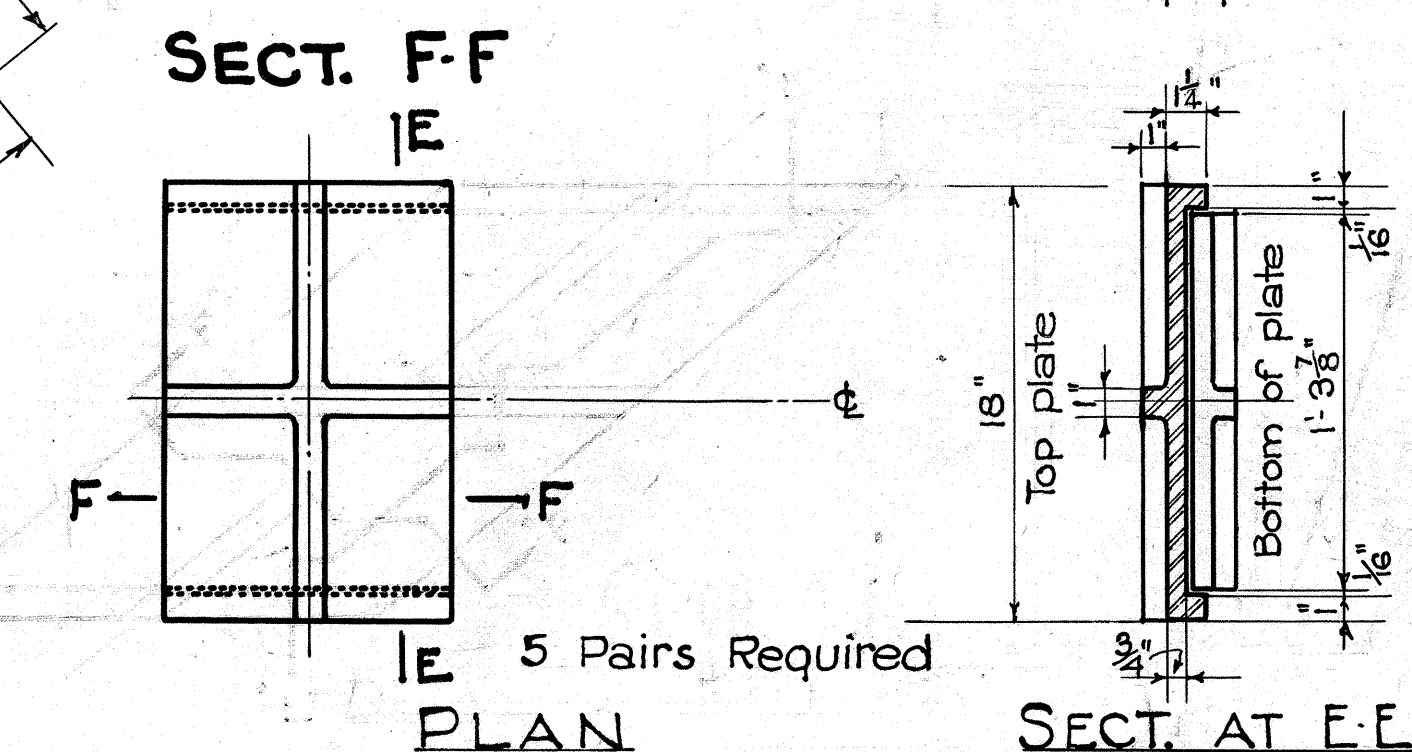
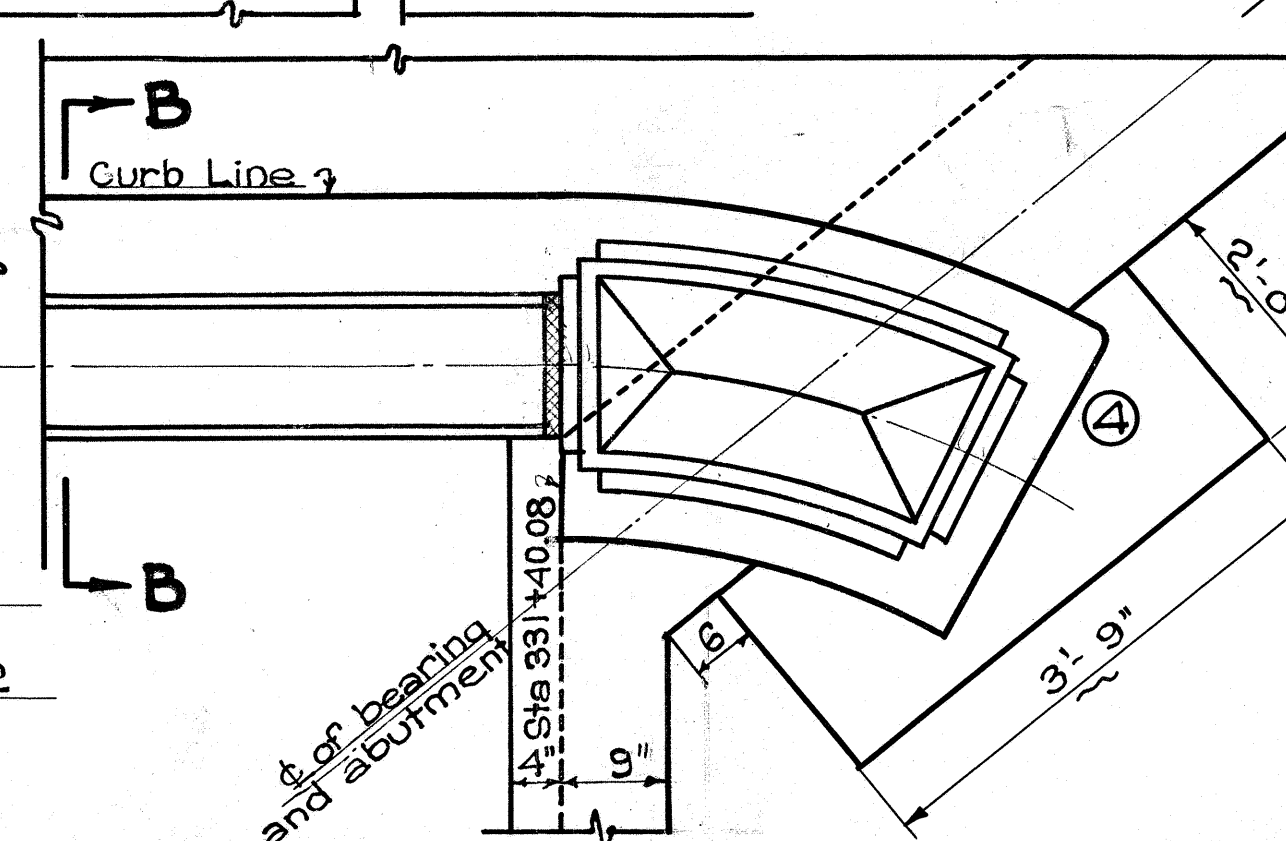
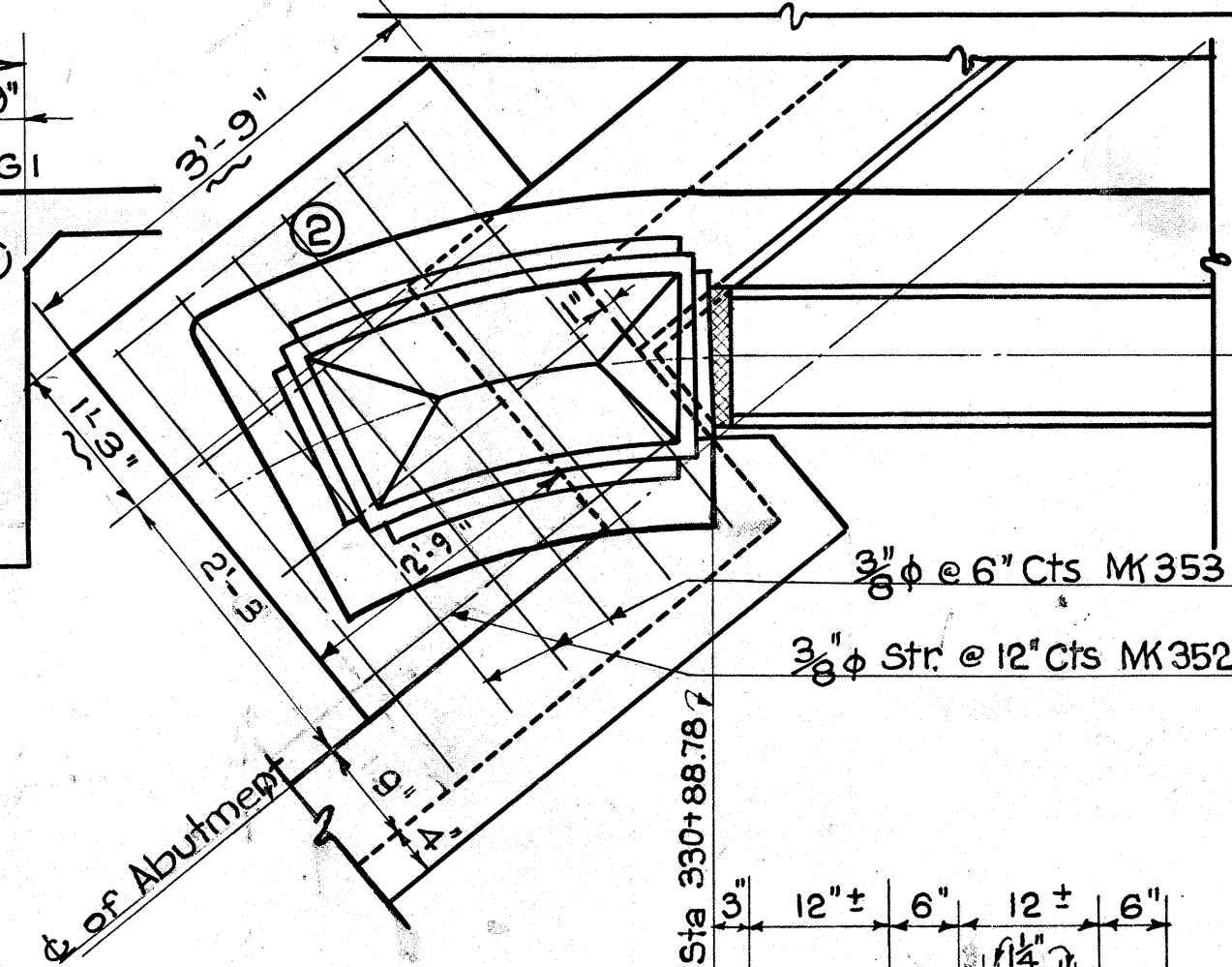


PLAN SHOWING LOCATION OF
EXP. PLATE

Note:
Contact areas to be milled
to true surface immediately
before placing contact areas
shall be treated with graphite.

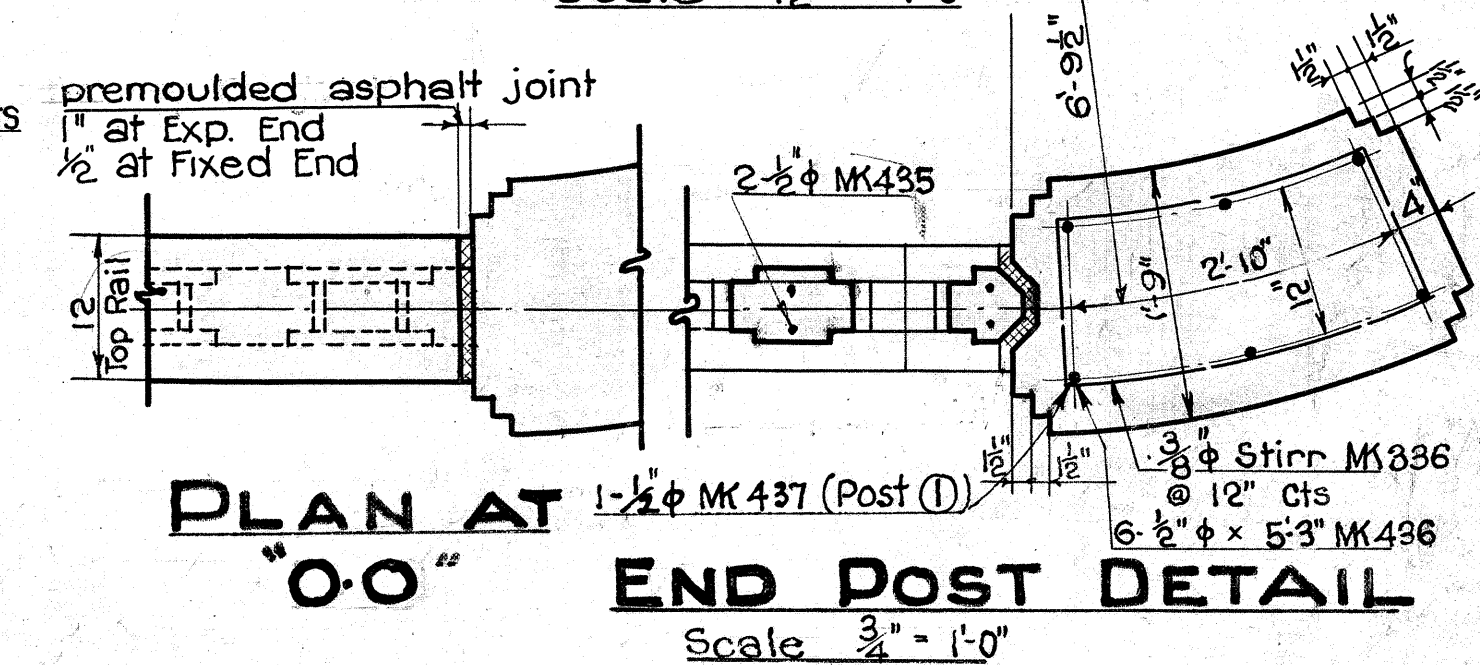


REINF. OF CENTER CROSS GIRDER
Scale $\frac{3}{8}" = 1'-0"$

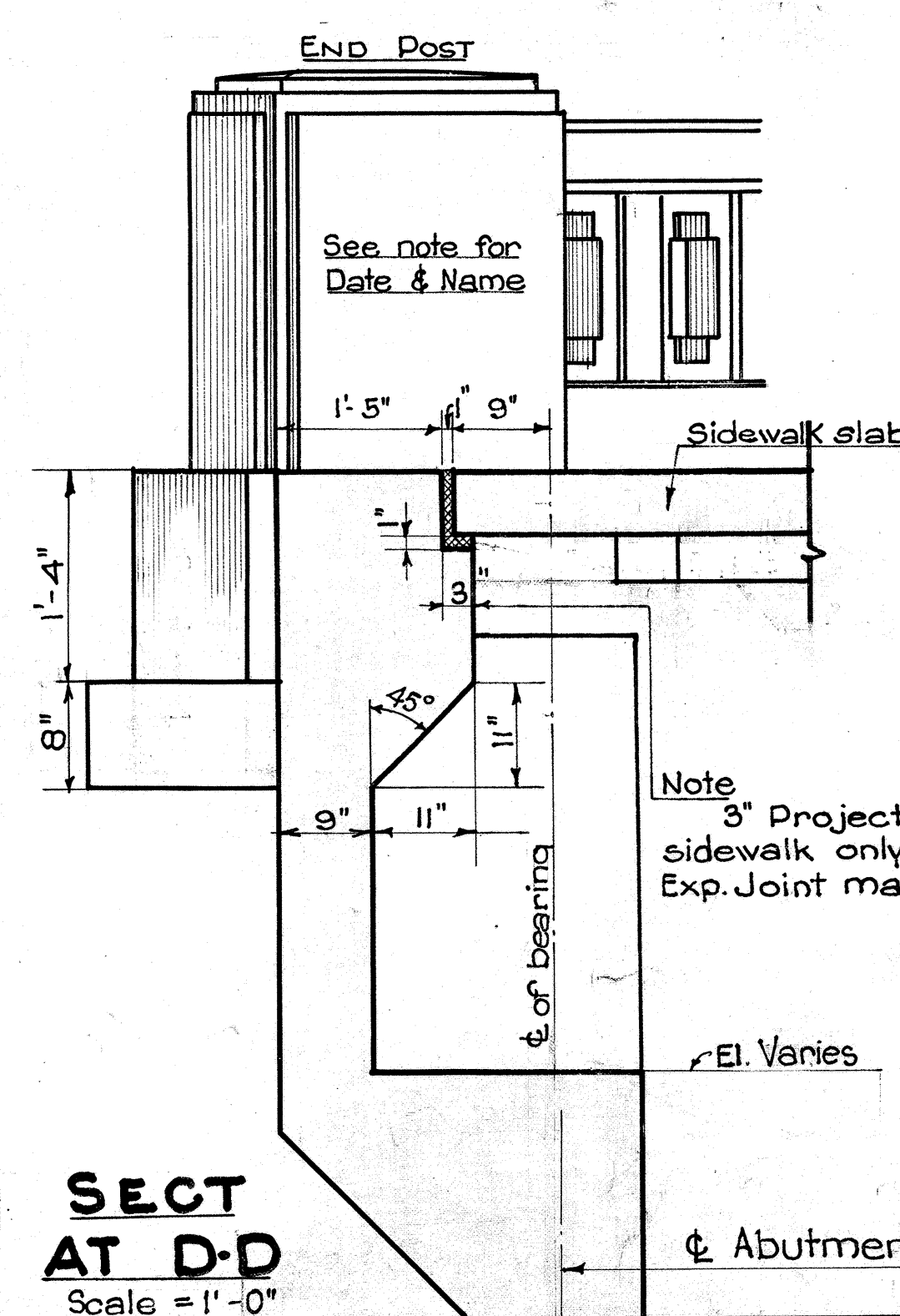


PHOSPHOR BRONZE EXPANSION PLATES

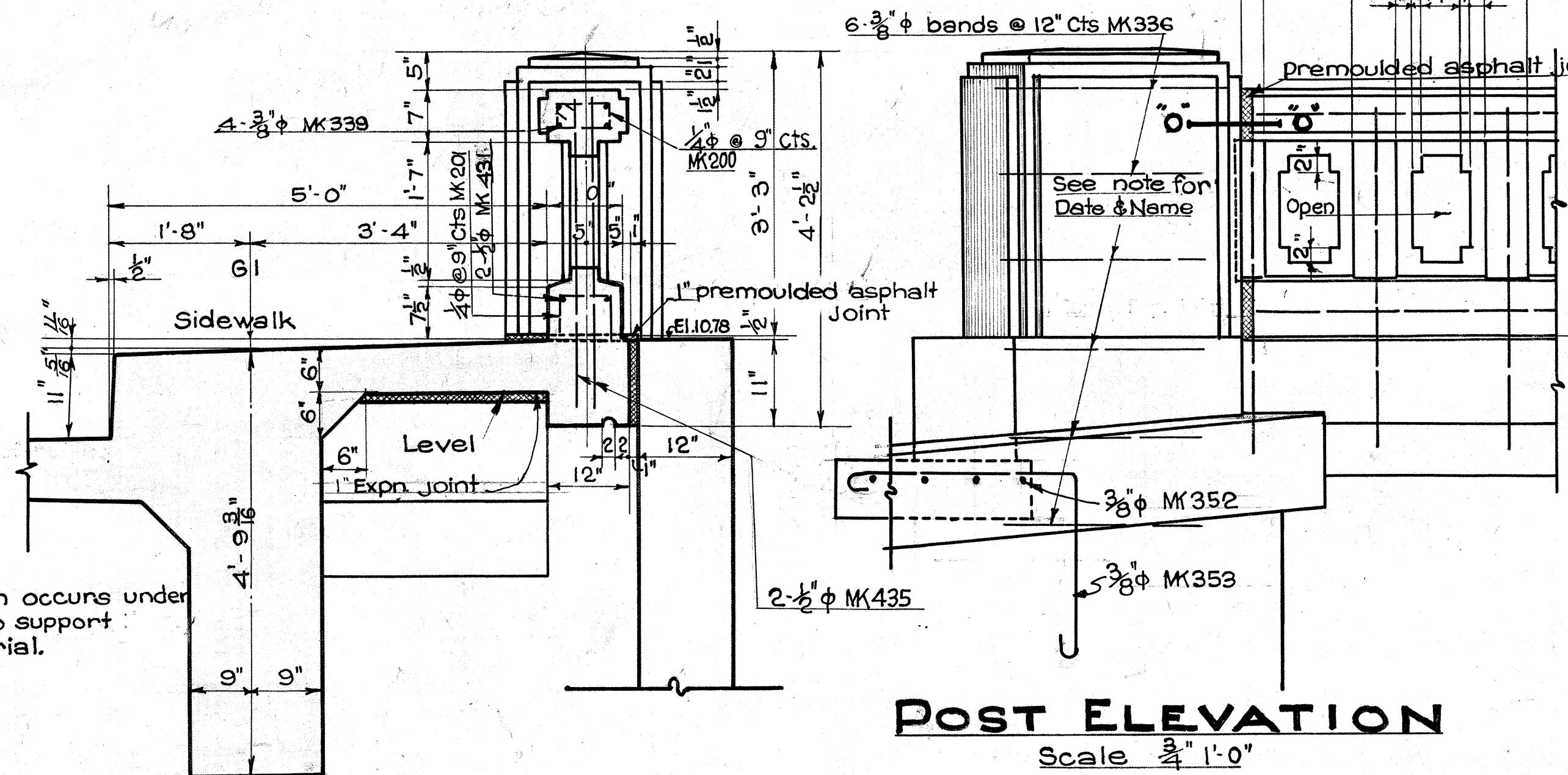
Scale $\frac{1}{2}" = 1'-0"$



PLAN AT 1- $\frac{1}{2}$ " MK 437 (Post I) @ 12" Cts
"O.O"
END POST DETAIL
Scale $\frac{3}{4}" = 1'-0"$

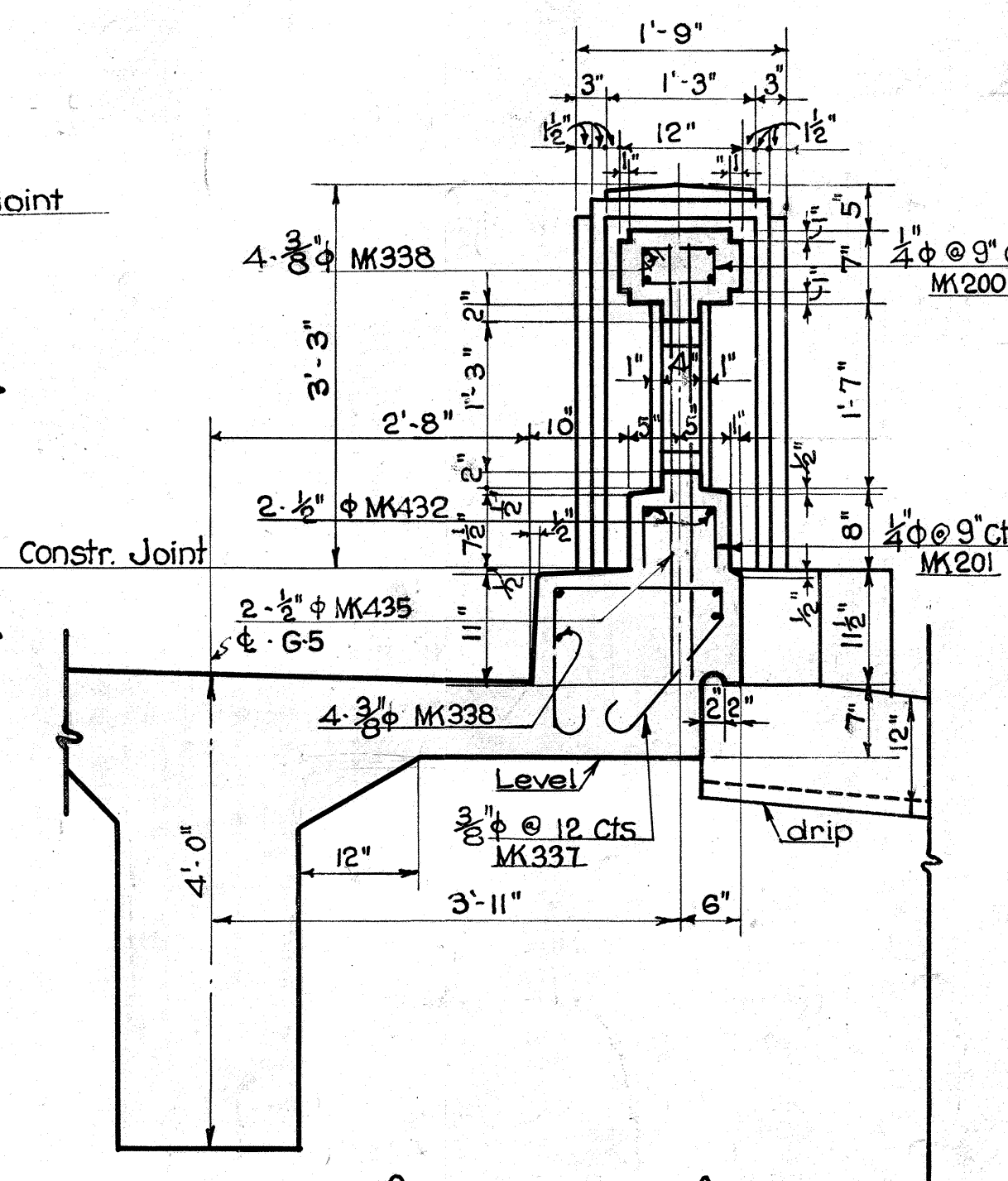


SECT
AT D-D
Scale = 1" = 0"



POST ELEVATION

Scale $\frac{3}{4}" = 1'-0"$



SECTION B-B
Scale $\frac{3}{4}" = 1'-0"$
CURB SIDE OF BRIDGE

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

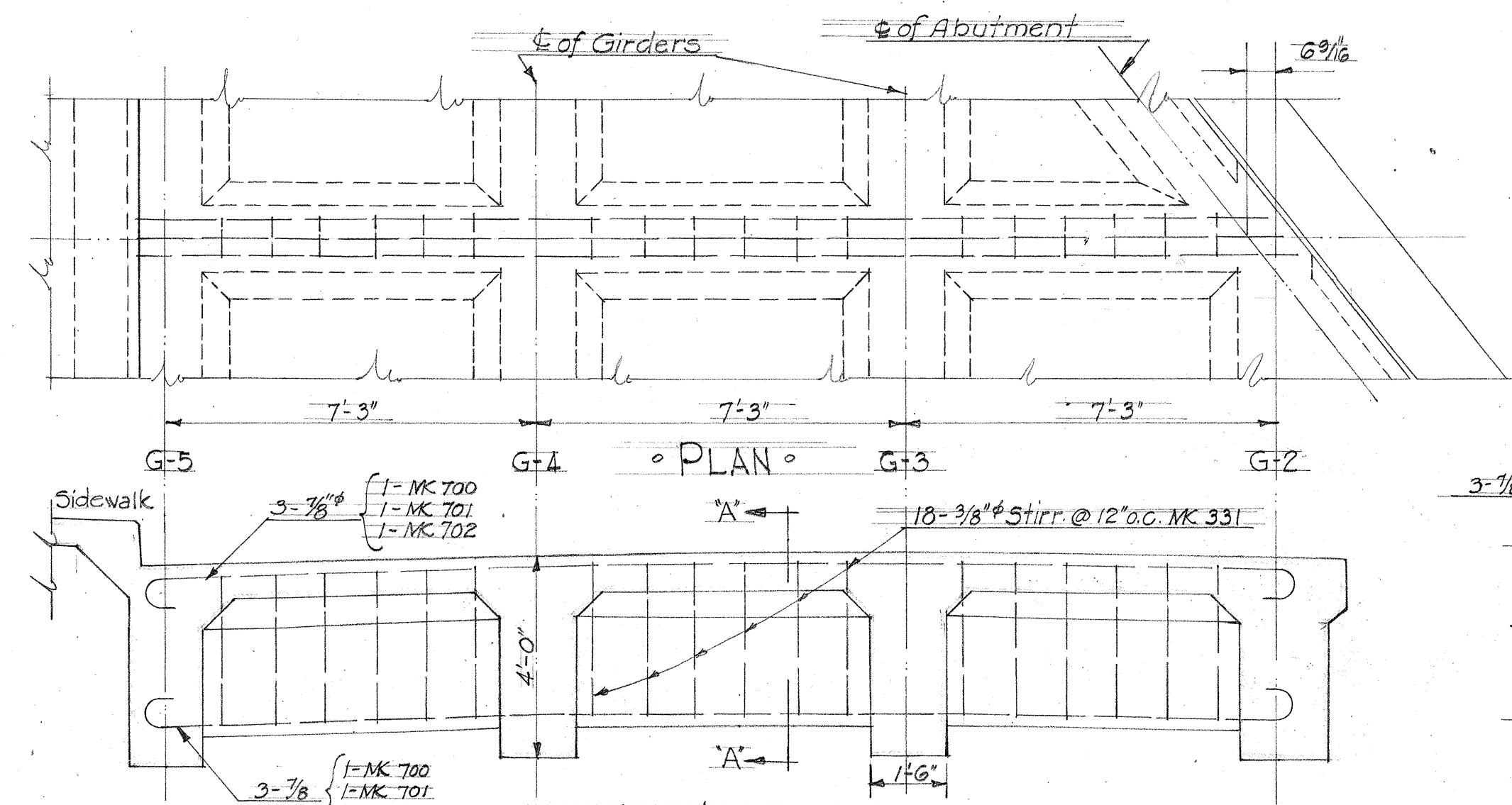
KALAUAO BRIDGE

Nº 6 STA. 331+05⁷⁴ TO STA 331+63¹⁵
KAMEHAMEHA HIGHWAY N.R.H. 90 1935
SHEET Nº 8 OF 10 SHEETS

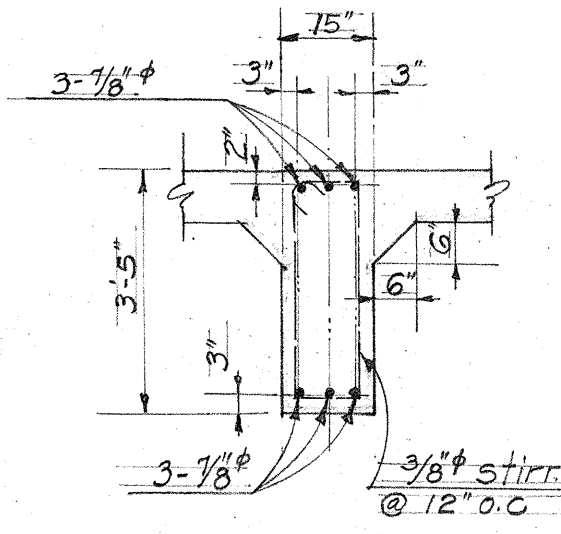
4325.32

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	NRH 9-C	1935	32 A	72

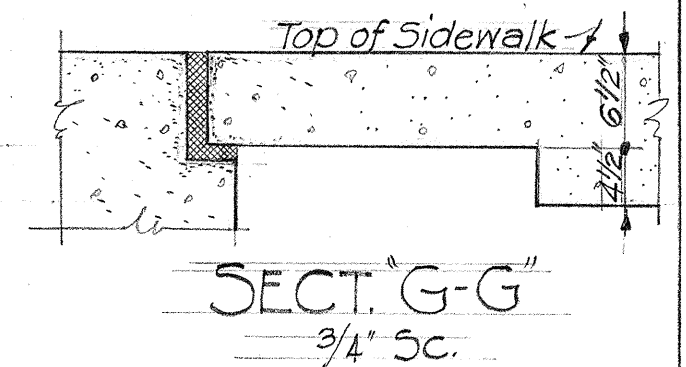
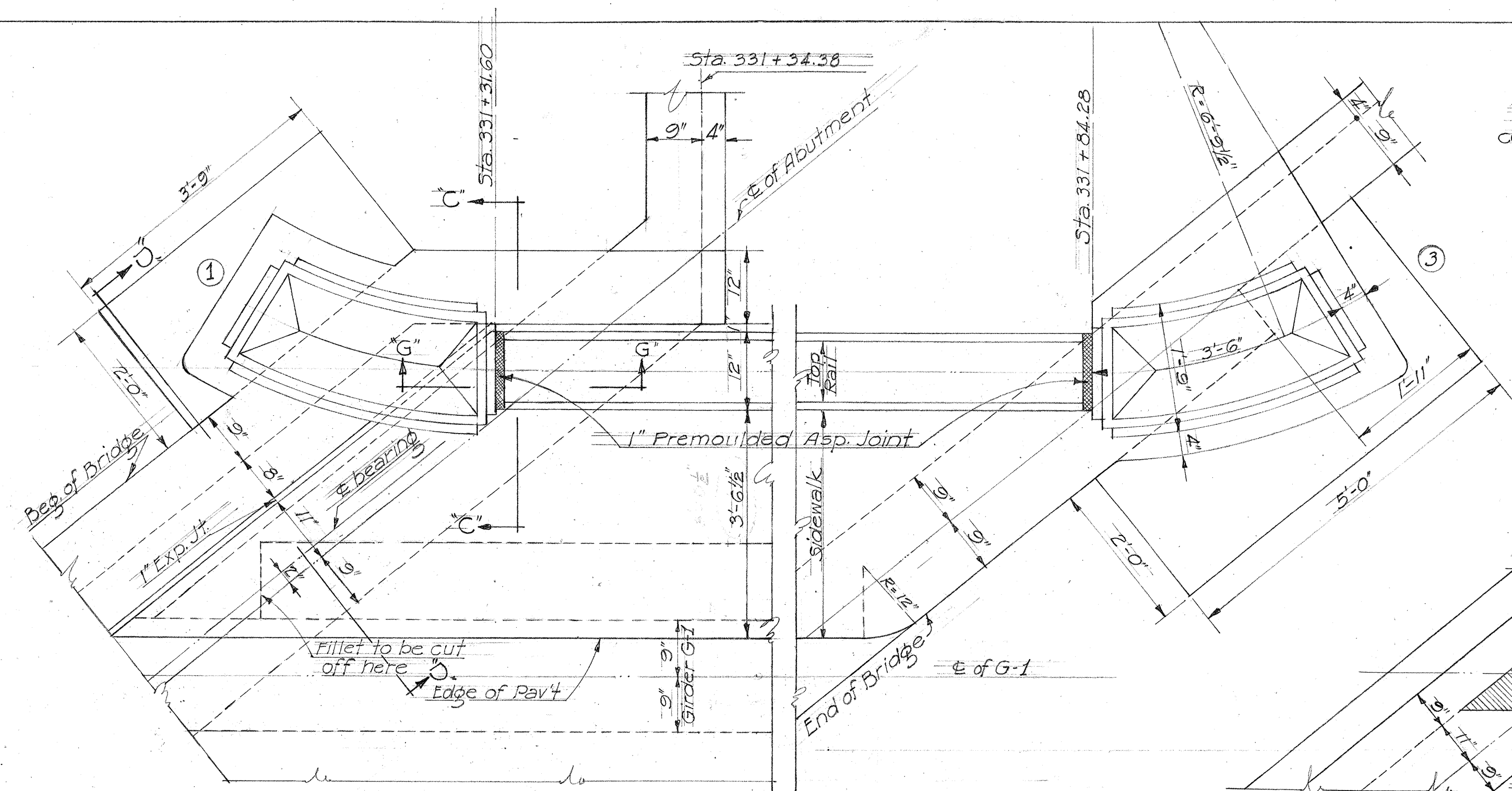
Details shown hereon supersede corresponding details on Sh. 4325: 32



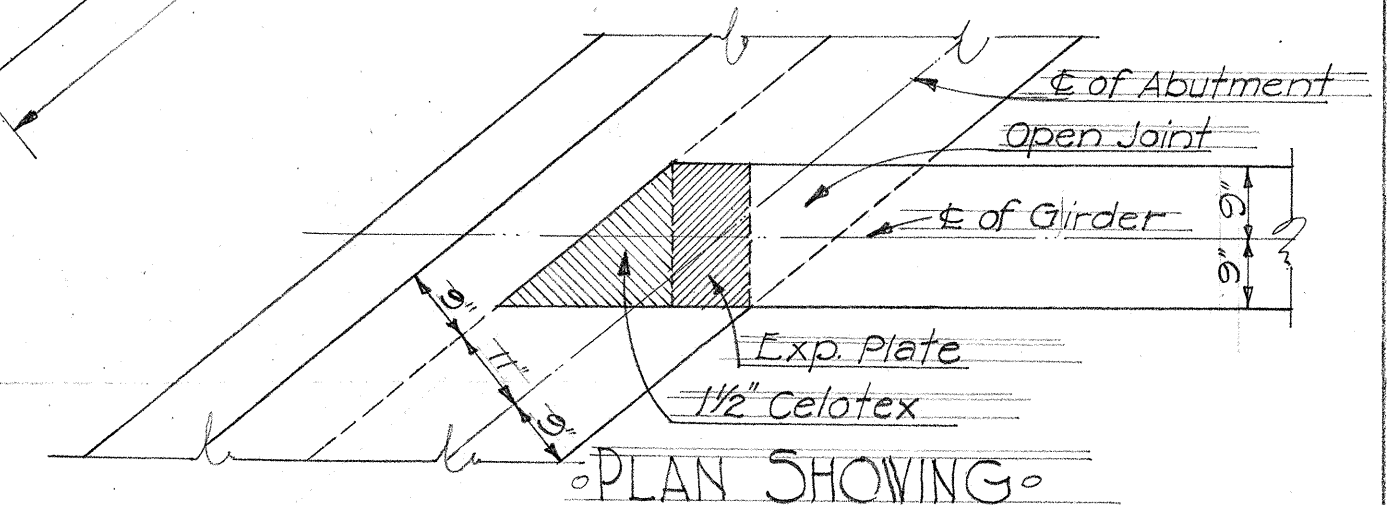
REIN. OF SHORT CROSS GIRDERS
2 - LIKE THIS
3/8" Scale



TYPICAL
SECT. A-A
3/8" Scale

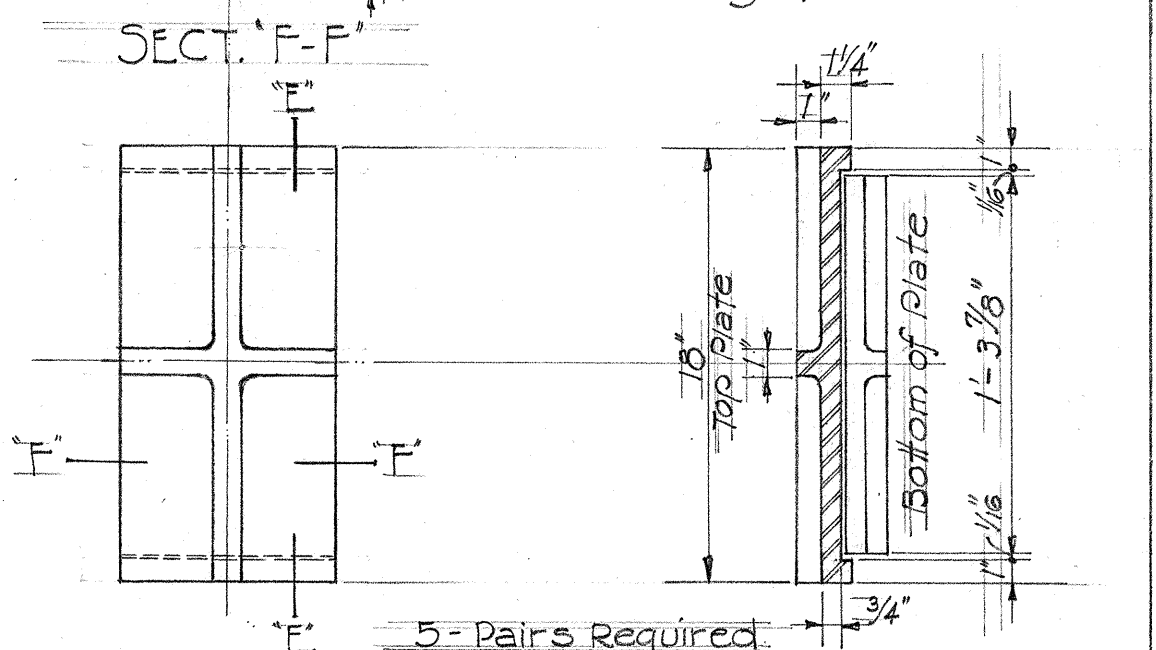


SECT. G-G
3/4" Scale



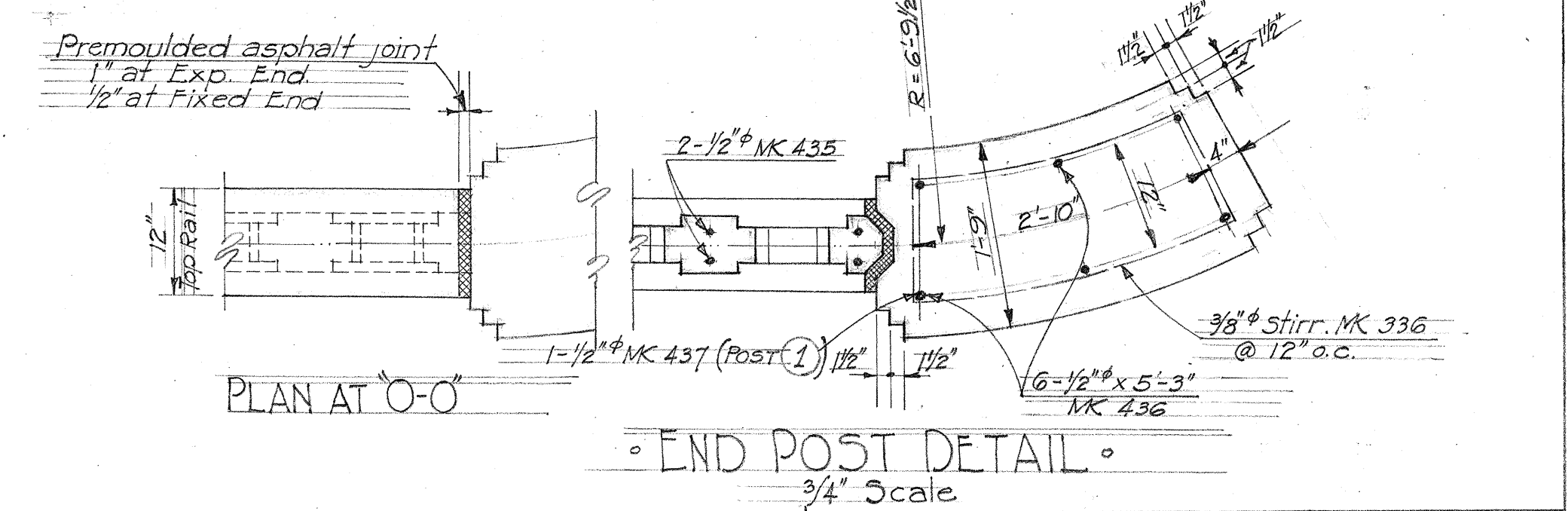
LOCATION OF EXPANSION PLATE
1/2" Scale

NOTE: Contact areas to be milled to true surface. Immediately before placing contact areas, shall be treated with graphite.



SECT. F-F
5 - Pairs Required
SECT. AT E-E

PHOSPHOR BRONZE EXPANSION PLATES
1/2" Scale



END POST DETAIL
3/4" Scale

NOTE

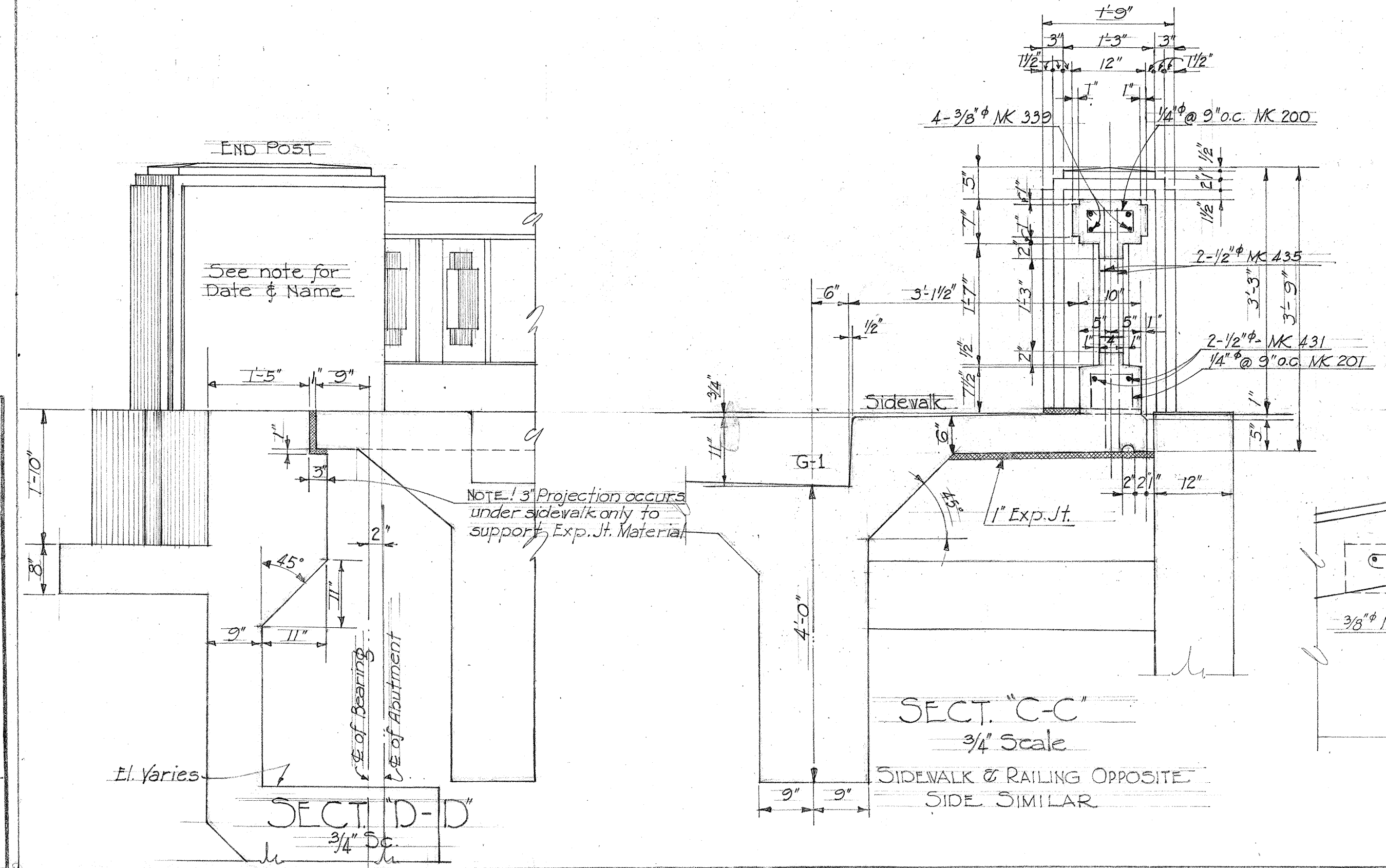
SEE DWG. NO. 4325.22 FOR DETAIL OF LETTERS & FIGURES FOR CORNER POST

REVISED AUG. 1936 TO ACCOMMODATE NEW SUPERSTR. WITH TWO SIDEWALKS.

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
KALAUAO BRIDGE
No. 6 STA. 331+05.74 TO STA. 331+63.15
KAMEHAMEHA HIGHWAY N.R.H. 9-C (1935)
SHEET No. 8A OF 10 SHEETS

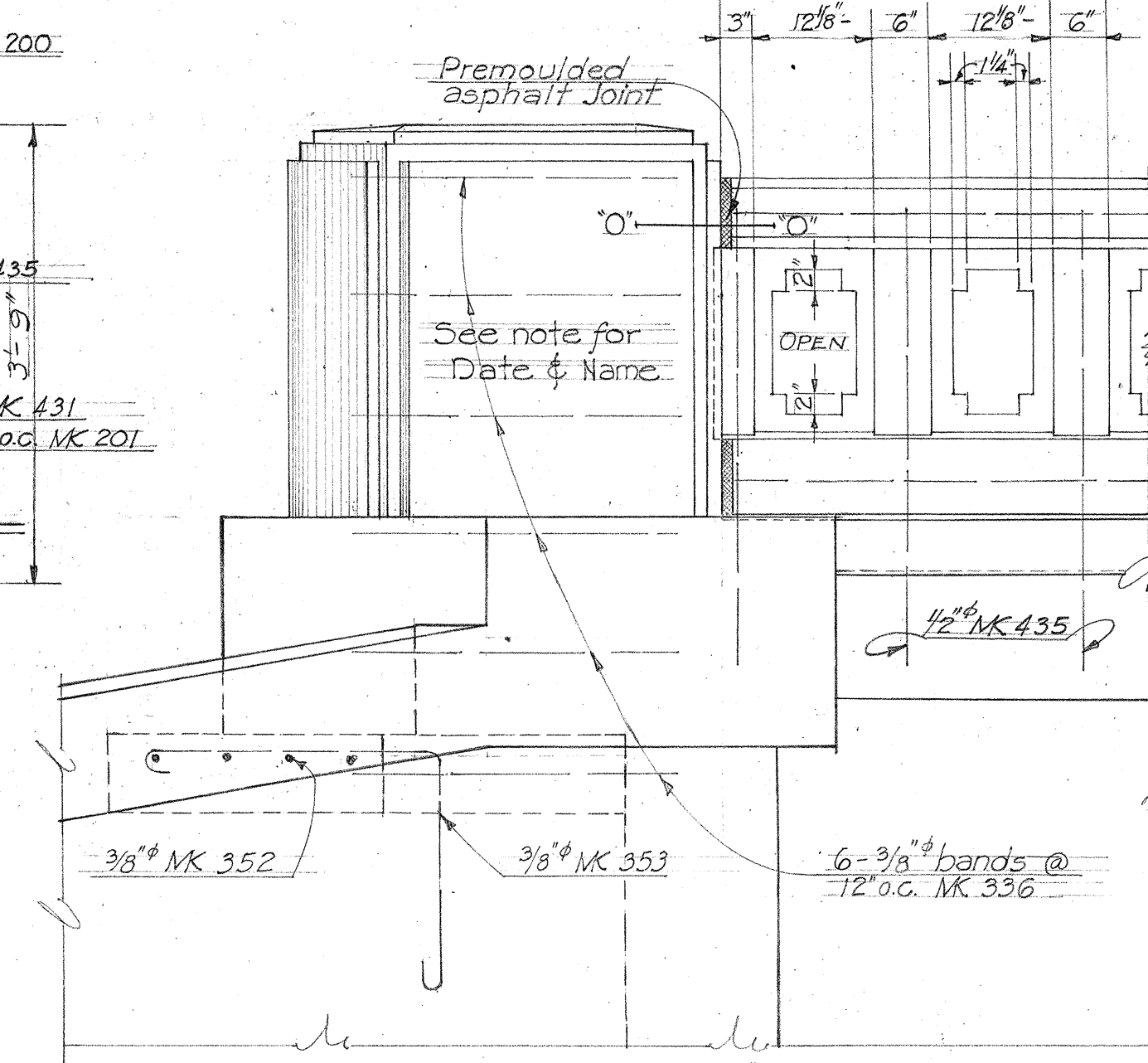
4325.32A

DESIGNED BY	DATE
PLANNED BY	
NOTED BY	
CHECKED BY	
APPROVED BY	



SECT. C-C
3/4" Scale

SIDEWALK & RAILING OPPOSITE SIDE SIMILAR



POST ELEVATION
3/4" Scale

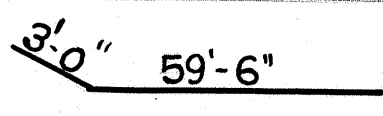
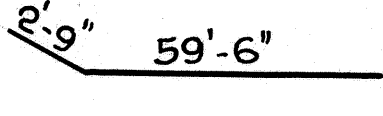
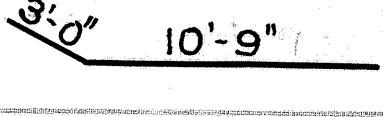
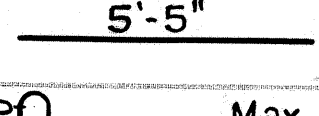
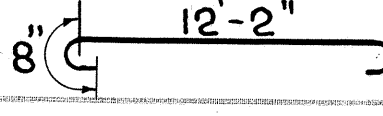
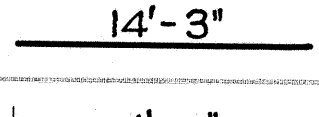
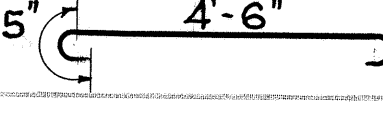
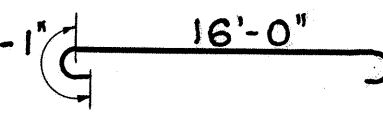
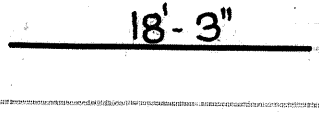
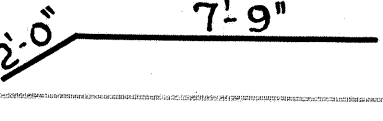
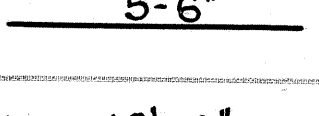
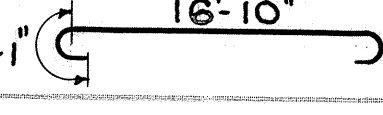
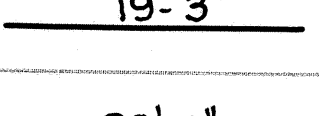
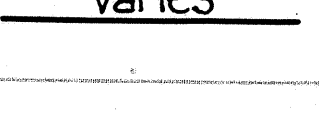
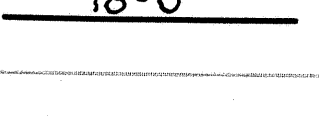
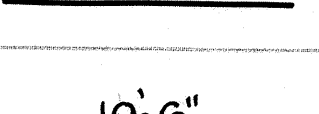
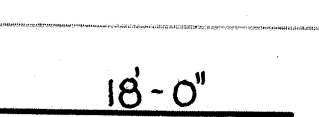
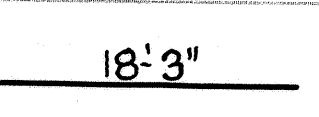
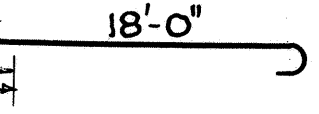
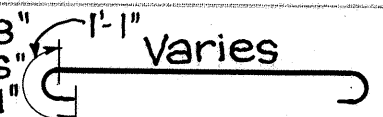
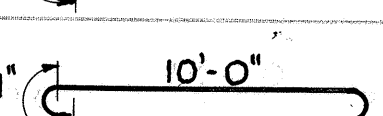
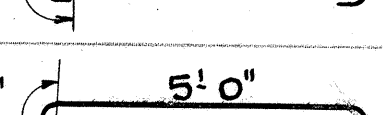
NOTE: 1" Projection occurs under sidewalk only to support Exp. Jt. Material

SECT. D-D
3/4" Scale

STEEL SCHEDULE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	N.R.H. 9C	1935	33	72

MARK	DESCRIPTION	LOCATION	SIZE	LENGTH	NO OF BARS IN EA UNIT	NO OF UNITS	TOTAL NO OF BARS	TOTAL LENGTH	WT PER FT.	TOTAL WEIGHT
600	62'-0" Bottom of Abut. Ftq.	FOOTINGS Beg. of Bridge End of "	3/4"	62'-0"	12	2	24	1488.	1.52	2262.
603	17'-9" Bottom of wingwall Ftq.	Beg. of Bridge "	"	17'-9"	8	1	8	142.	"	216.
607	38'-0" "	"	"	38'-0"	8	1	8	304	"	462.
610	63'-6" Top & middle of Abut. Ftq.	Beg. of Bridge End "	"	63'-6"	21	2	42	2667	"	4054
608	41'-0" Top & middle of wingwall Ftq.	Beg. of Bridge "	"	41'-0"	16	1	16	656	"	997
604	20'-6" "	"	"	20'-6"	16	1	16	328	"	499
400	8'-0" Pile Shrivs in Abut. Ftq.	Beg. of Bridge End "	1/2"	18'-0"	32	2	64	1152	.68	783.
401	6'-0" Pile Shrivs in W.V. Ftq.	"	1/2"	14'-0"	20	1	54	756	"	514
601	1'-1" 8'-0" middle of Abut. Ftq.	"	3/4"	10'-2"	124	2	248	2521.33	1.52	3832
605	1'-1" 5'-6" middle of W.V. Ftq.	"	"	7'-8"	27 60 37 48	1	172	1318.67	"	2004
602	1'-1" 11'-0" Top of Abut. Ftq.	"	"	13'-2"	124	2	248	3265.33	"	4963
606	1'-1" 8'-9" Top of W.V. Ftq.	"	"	10'-11"	41 79 50 63	1	233	2543.58	"	3866
612	25'-0" Top & middle End of Br.	"	"	25'-0"	16	1	16	400.	"	608
614	30'-6" bottom of W.V. Ftq.	"	"	30'-6"	8	1	8	244.	"	371
615	33'-0" top & middle of W.V. Ftq.	"	"	33'-0"	16	1	16	528	"	803
613	21'-9" bottom of W.V. Ftq.	"	"	21'-9"	8	1	8	174	"	264
616	1'-1" 8'-10" Front face	ABUTMENTS Beg. of Bridge End "	3/4"	11'-0"	184	2	368	4048.	1.52	6153.
617	1'-1" 8'-3" "	Beg. of Bridge End of "	"	10'-5"	62 61	1	123	1281.25	"	1948.
618	1'-1" 12'-4" "	Beg. of Br.	"	14'-6"	62	1	62	899	"	1366
303	12'-9" Rear face	"	3/8"	12'-3"	62	1	62	759.50	0.38	289
300	2'-0" 62'-0" Both faces	Beg. of Br. End "	"	64'-0"	26 26	1	52	3328.0	"	1264
440	8'-2" 10'-8" Max 4'-5 1/2" Min 4'-3 1/2" Av 4'-4" Curtain wall	Beg. of Br.	1/2"	6'-3"	62	1	62	387.50	0.68	264
441	M440 Top of Abut.	"	"	10'-0"	97	1	97	970	"	660
442	M442	"	"	10'-8"	22	1	22	234.67	"	160
304	Max 4'-10" Min 4'-8" Av 4'-9" Varies	"	3/8"	4'-9"	49	1	49	232.75	0.38	88
318	2'-0" 60'-6" Curtain wall bracket	"	"	63'-0"	2	1	2	126.00	0.38	48

MARK	DESCRIPTION	LOCATION	SIZE	LENGTH	NO OF BARS IN EA UNIT	NO OF UNITS	TOTAL NO OF BARS	TOTAL LENGTH	W/T PER FT.	TOTAL WEIGHT
301	 3'-0" 59'-6" End wall	ABUTMENTS Beg. of Br.	3/8"	62' - 6"	5	1	5	312.50	0.38	119.38
302	 2'-9" 59'-6" "	" "	"	62' - 3"	4	1	4	249.0	"	95
306	 3'-0" 10'-9" "	" "	"	13' - 9"	2	1	2	27.50	"	10
305	 5'-5" "	" "	"	5' - 5"	11	1	11	59.58	"	23
443	 1'-1" 8'-0" Max 4'-0" Min. 2'-3" Av. 3'-2"	" "	1/2"	Varies Av 9'-4"	5	1	5	46.67	0.68	32.
609	 8'-12'-2" Front face	End of Br.	3/4"	13' - 6"	49	1	49	661.50	1.52	1005
319	 14'-3" Rear Face	" " "	3/8"	14' - 3"	49	1	49	698.25	0.38	265
800	 1'-5" 4'-6" dowels	" " "	1"	7' - 4"	3	5	15	110	2.70	297
611	 1'-1" 16'-0" Front Face	" "	3/4"	18' - 2"	8	1	8	143.36	1.52	221.
320	 18'-3" Rear face	" "	3/8"	18' - 3"	8	1	8	146	0.38	55
326	 2'-0" 7'-9" Both faces	" "	"	9' - 9"	8	1	8	78	"	30
327	 5'-6" " " "	" " "	"	5' - 6"	10	1	10	55	"	21
626	 1'-1" 16'-10" Front Face	" "	"	19' - 0"	6	1	6	114	1.52	173
321	 19'-3" Rear face	" "	3/8"	19' - 3"	6	1	6	115.50	0.38	44
311	 38'-0" 2'-0" Both faces of wingwall	Beg. of Br.	3/8"	40' - 0"	14	1	14	560.00	"	213
312	Max. 36'-0" Min. 14'-0" Av. 25'-3"  Varies	" "	"	Varies Av 25'-3"	20	1	20	505	"	192
313	 18'-0" "	" "	"	18' - 0"	14	1	14	252	"	96
314	Max 17'-0" Min 3'-9" Av 10'-5"  Varies	" "	"	Varies Av 10'-5"	20	1	20	208.33	"	79
315	 19'-6" Rear face of wingwall	" "	"	19' - 6"	1	1	1	19.50	"	7
309	 18'-0" "	" "	"	18' - 0"	3	1	3	54	"	21
310	Max. 17'-8" Min. 8'-6" Av. 13'-1"  Varies	" "	"	Varies Av. 13'-1"	15	1	15	196.25	"	75
307	 18'-3" "	" "	"	18' - 3"	12	1	12	219	"	83
308	Max. 18'-0" Min. 8'-6" Av. 13'-3"  Varies	" "	"	Varies Av. 13'-3"	24	1	24	318	"	121
623	 1'-1" 18'-0" Front face of wingwall	" "	3/4"	20'-2"	12	1	12	242	1.52	368
624	Max 17'-8" Min. 8'-6" Av. 13'-1"  1'-1" Varies	" "	"	Varies Av 15'-3"	24	1	24	366	"	556.
620	 1'-1" 10'-0" "	Beg of Br End of Br	"	12' - 2"	18 22 28 36 23 36 50	1	104	1265.33	"	1923
619	 1'-1" 5'-0" "	" "	"	7' - 2"	23 36 50	1	124	888.67	"	1351

MARK	DESCRIPTION	LOCATION	SIZE	LENGTH	NO OF BARS IN EA UNIT	NO OF UNITS	TOTAL NO OF BARS	TOTAL LENGTH	WT PER FT.	TOTAL WEIGHT
625	1'-1" 19'-6" Front Face of wingwall	ABUTMENTS Beg. of Br.	3/4"	21'-8"	1	1	1	21.67	1.52	33.
621	1'-1" 17'-10" "	"	"	20'-0"	3	1	3	60	"	91
622	Max 17'-6" Min 8'-3" Av 12'-10" 1'-1" Varies	"	"	Varies Av 15'-0"	15	1	15	225	"	342
627	1'-1" 17'-9" "	End of Br.	"	19'-11"	4	1	4	79.67	"	121
628	Max 17'-6" Min 8'-6" Av 13'-0" 1'-1" Varies	"	"	15'-2"	24	1	24	364.00	"	553
633	1'-1" 19'-3" "	"	"	21'-5"	1	1	1	21.42	"	33
631	1'-1" 18'-0" "	"	"	20'-2"	6	1	6	121.	"	184
632	Max 17'-9" Min 8'-3" Av 13'-0" 1'-1" Varies	"	"	Varies Av 15'-2"	16	1	16	242.67	"	369
324	30'-6" 2'-0" Both faces of W.V.	"	3/8"	32'-6"	14	1	14	455	0.38	173
325	Max 28'-9" Min 5'-9" Av 17'-3" Varies	"	"	Varies Av 17'-3"	20	1	20	345	"	131
322	18'-0" Rear face of wingwall	"	"	18'-0"	4	1	4	72	"	27
323	Max 17'-9" Min 8'-3" Av 13'-3" Varies	"	"	Varies Av 13'-3"	24	1	24	318	"	121
351	19'-6" "	"	"	19'-6"	1	1	1	19.50	"	7
346	18'-0" "	"	"	18'-0"	6	1	6	108.	"	41
345	Max 18'-0" Min 8'-6" Av 13'-3" Varies	"	"	Varies Av 13'-3"	16	1	16	212	"	81
350	Max 21'-0" Min 6'-6" Av 13'-9" Varies	"	"	Varies Av 13'-9"	20	1	20	275	"	105
349	22'-0" Both faces of wingwall	"	"	22'-0"	14	1	14	308	"	117
341	2'-0" 7'-9" Cutoff wall Both faces	Beg. of Br. End "	"	9'-9"	8	2	18	156	"	59
342	Max 6'-9" Min 4'-9" Av 5'-9" 2'-0" Varies	"	"	Varies Av 7'-9"	6	2	12	93	"	35
328	8'-6" Cutoff wall Rear face	"	"	8'-6"	5	2	10	85	"	32
340	Max 5'-6" Min 3'-6" Av 4'-6" Varies	"	"	Varies Av 4'-6"	3	2	6	27	"	10
328	8'-6" Cutoff wall Front Face	"	"	8'-6"	9	2	18	153	"	58
316	Max 6'-0" Min 4'-8" Av 4'-8" Varies	"	"	Varies Av 4'-8"	6	2	12	56	"	21

Note:
Refer to notes on steel
schedule Sheet No. 4325.23

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

KALAUAO BRIDGE

No 6 STA. 331+05.74 TO STA. 331+63.15

KAMEHAMEHA HIGHWAY N.R.H. 9C (1935)

SHEET No 9 OF 10 SHEETS

4325.33

STEEL SCHEDULE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	N.R.H. 9C	1935	34	72

MM	DESCRIPTION	LOCATION	SIZE	LENGTH	NO OF BARS IN EA UNIT	NO OF UNITS	TOTAL NO OF BARS	TOTAL LENGTH	WT. PER FT.	TOTAL WEIGHT
900		SUPERSTRUCTURE Girder G1 Only	1/8"	59'-9"	2	1	2	119.50	4.35	520.
901		"	"	59'-9"	2	1	2	119.50	"	520.
902		"	"	63'-0"	2	1	2	126.0	"	548
903		"	"	63'-0"	2	1	2	126	"	548
904		"	"	56'-8"	4	1	4	226.67	"	986
905		Girders G2, G3, G4, G5	"	59'-2"	2	4	8	473.33	"	2059
906		"	"	59'-2"	2	4	8	473.33	"	2059
907		"	"	59'-2"	2	4	8	473.33	"	2059
908		"	"	59'-2"	2	4	8	473.33	"	2059
1000		"	1/4"	56'-11"	4	4	16	910.67	5.37	4890
406		Tie bars all Girders	1/2"	39'-0"	2	5	10	390.	0.68	265
404		G1. Only	"	10'-10"	69	1	69	747.50	"	508
405		G2, G3, G4, G5	"	9'-4"	69	4	276	2576	"	1752
700		Short Cross Girder	7/8"	24'-0"	2	2	4	96	2.07	199
701		"	"	24'-3"	2	2	4	97	"	201
702		"	"	24'-6"	2	2	4	98	"	203
703		Center Cross Girder	"	35'-3"	3	1	3	105.75	"	219
704		"	"	31'-11"	3	1	3	95.75	"	198
331		"	3/8"	8'-8"	18	2	36	520.	0.38	198
403		End Beam End of Br.	1/2"	48'-0"	8	1	8	384.0	0.68	261
402		End Beam Beq. of Br.	1/2"	49'-0"	4	1	4	196	"	133
329		"	3/8"	Varies	36	1	36	291	0.38	111
330		End Beam End of Br.	"	9'-3"	36	1	36	333	"	127
335		Deck Slab Temp bars	"	53'-6"	47	1	47	2514.50	"	956
333		Sidewalk Temp bars	"	55'-6"	5	1	5	277.50	"	105
334		"	"	9'-6"	3	1	3	28.50	"	11
433		Sidewalk	1/2"	8'-9"	49	1	49	428.75	0.68	292

MM	DESCRIPTION	LOCATION	SIZE	LENGTH	NO OF BARS IN EA UNIT	NO OF UNITS	TOTAL NO OF BARS	TOTAL LENGTH	WT. PER FT.	TOTAL WEIGHT
434		SUPERSTRUCTURE Sidewalk Bars Special	1/2"	Varies	6	1	6	59.50	0.68	40.
407		"	"	Varies	3	1	3	21.50	"	15
417		"	"	Varies	12	1	12	53.	"	36
332		deck Stub bars	3/8"	7'-9"	15	2	50	387.50	"	147
410		Top & Bottom Str. end of Br.	1/2"	Varies	37	2	74	1350.50	0.86	1161
408		Typical top Str. bars	"	34'-0"	12	1	12	408.	"	351
409		Typical bott. Str. bars	"	30'-6"	12	1	12	366	"	315
411		Bott. Str. Beq. of Br.	"	Varies	34	1	34	561	"	482
430		Top Str. Beq. of Br.	"	Varies	39	1	39	705.25	"	607
418		bottom Beq. of Br.	"	Varies	6	1	6	38	"	33
426		Top Beq. of Bridge	"	Varies	13	1	13	92.08	"	79
419		Bent Bars Beq. of Br.	"	Varies	8	1	8	128.67	"	111
425		Stub Bars under 419	"	Varies	6	1	6	44	"	38
420		Bent Bars Beq. of Br.	"	Varies	8	1	8	184	"	158
424		Stub Bar under 420	"	Varies	5	1	5	33.75	"	29
421		Bent Bars Beq. of Br.	"	Varies	8	1	8	249.33	"	214
423		Stub bar under 421	"	Varies	6	1	6	37	"	32
422		Bent bar Beq. of Br.	"	Varies	4	1	4	147.67	"	127
412		Typ bent bar	"	39'-6"	7	1	7	276.50	"	238
413		Bent bar end of Br	"	Varies	6	1	6	220	"	189
414		"	"	Varies	7	1	7	220.50	"	190
427		Stub bar under 414	"	Varies	5	1	5	32.92	"	28
415		bent bars end of Br	"	Varies	8	1	8	196.67	"	169
428		Stub bar under 415	"	Varies	6	1	6	38.	"	33
416		Bent Bars end of Br	"	Varies	9	1	9	147.75	"	127
429		Stub Bars under 416	"	Varies	6	1	6	43	"	37

MM	DESCRIPTION	LOCATION	SIZE	LENGTH	NO OF BARS IN EA UNIT	NO OF UNITS	TOTAL NO OF BARS	TOTAL LENGTH	WT. PER FT.	TOTAL WEIGHT
388		RAILING Longtd bar top & bott	3/8"	50'-8"	8	1	8	405.33	0.38	154
339		Longtd. Top Side-walk	"	51'-8"	4	1	4	206.67	"	79
432		Longtd. bott. Normal Side	1/2"	50'-8"	2	1	2	101.33	0.68	69
431		Sidewalk	"	51'-8"	2	1	2	103.33	"	70
435		Vertical bars both sides	"	3'-6"	2	71	142	497	"	338
337		Bottom bars Normal Side	3/8"	5'-0"	51	1	51	255	0.38	97
201		both Sides	1/4"	1'-9"	68	1	137	239.75	0.17	41
200		Rail	1/4"	2'-1"	68	1	137	285.42	"	49
436		Post #1 to #4	1/2"	5'-3"	5	1	23	120.75	0.68	82
437		Post #1	"	3'-0"	1	1	1	3	"	2
336		Posts	3/8"	8'-9"	4	2	20	175	0.38	67
352		Post Base	3/8"	3'-3"	4	1	4	13	0.38	5
353		"	"	6'-3"	6	1	6	39	"	15

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

KALAUAO BRIDGE

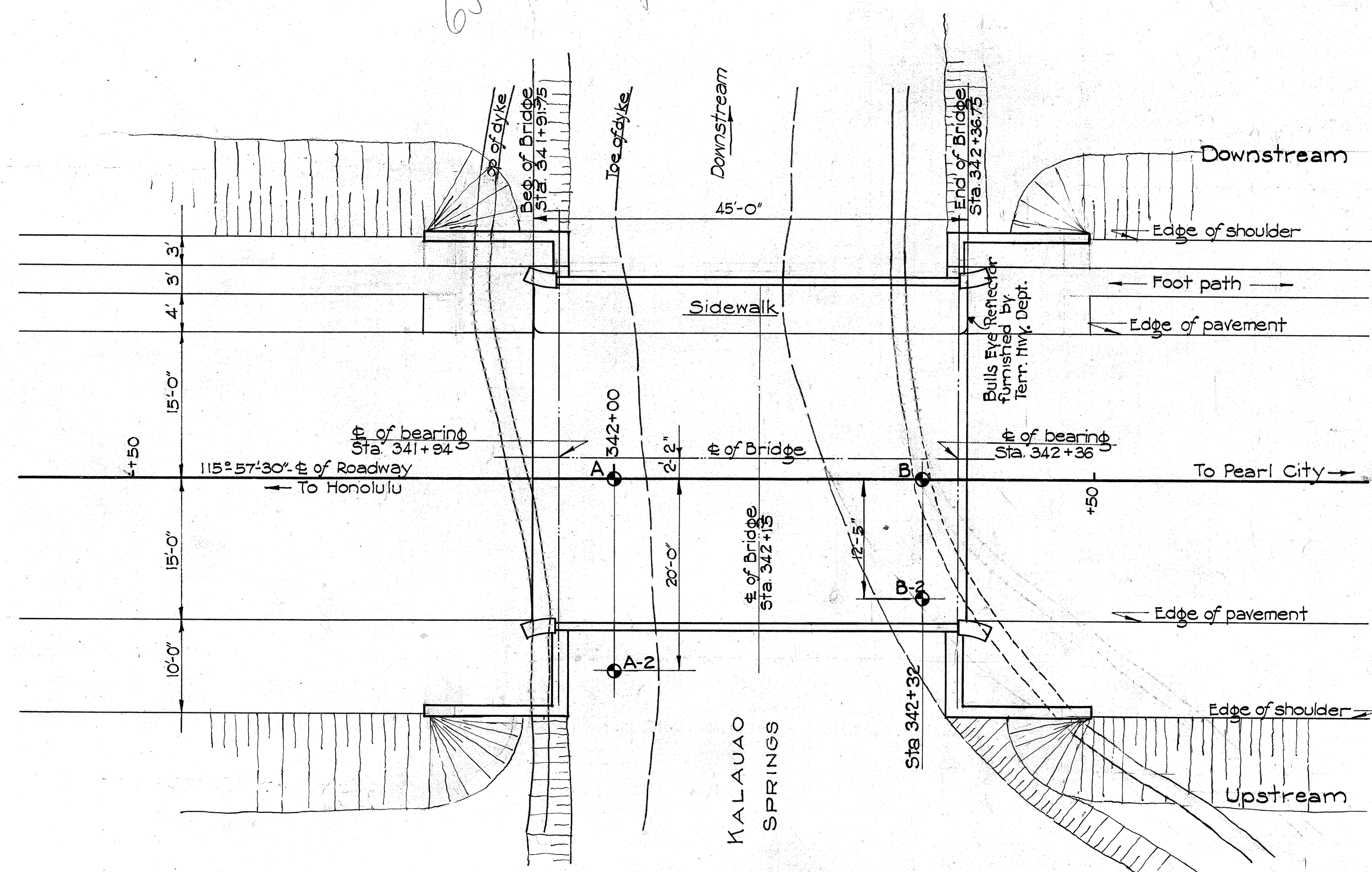
No 6 STA. 331+05.74 TO STA. 331+63.15

KAMEHAMEHA Highway N.R.H. 9C (1935)

SHEET No 10 of 10 SHEETS

4325.34

DATE: Oct. 25, 1935
 DRAWN BY: J. C. W.
 CHECKED BY: J. C. W.
 NOTEBOOK: No. 1



SECTION AT C OF ROADWAY
Scale 1/8" = 1'-0"



DIAGRAM OF 15 TON TRUCK
SEE SHEET NO.
4325.16

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

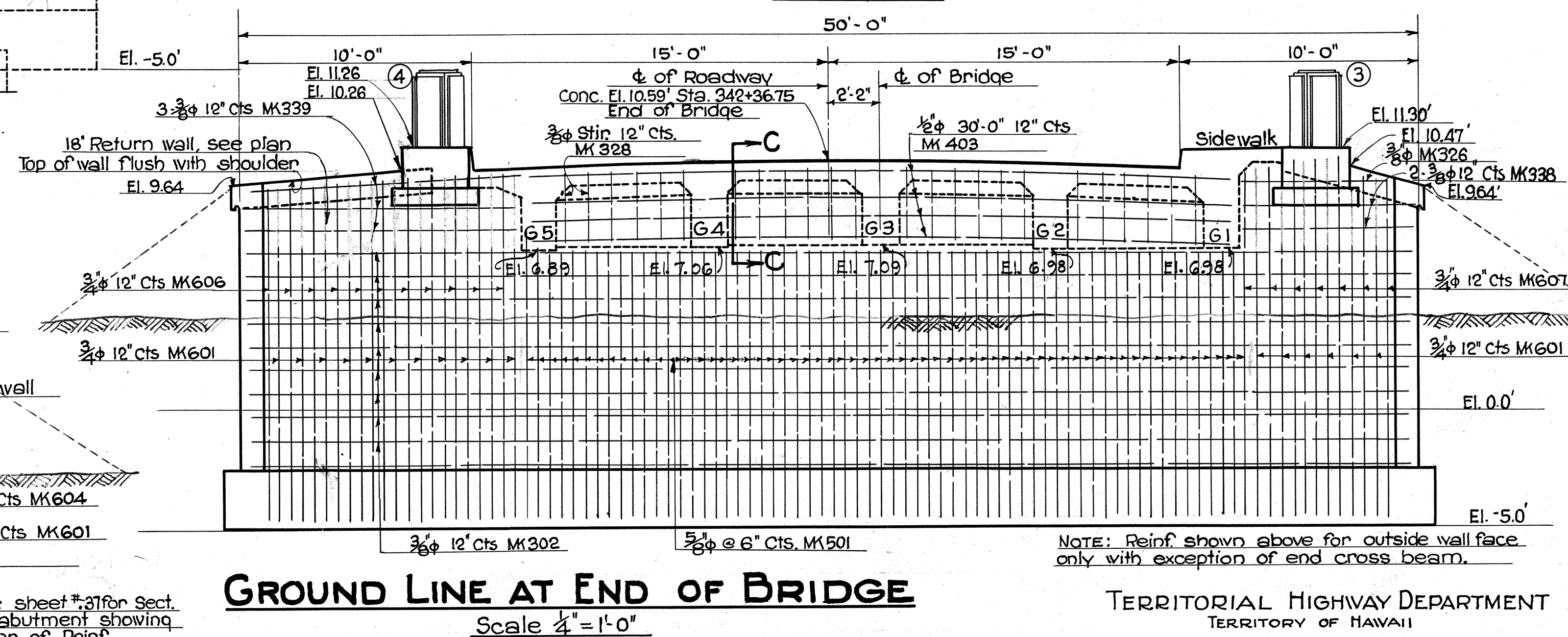
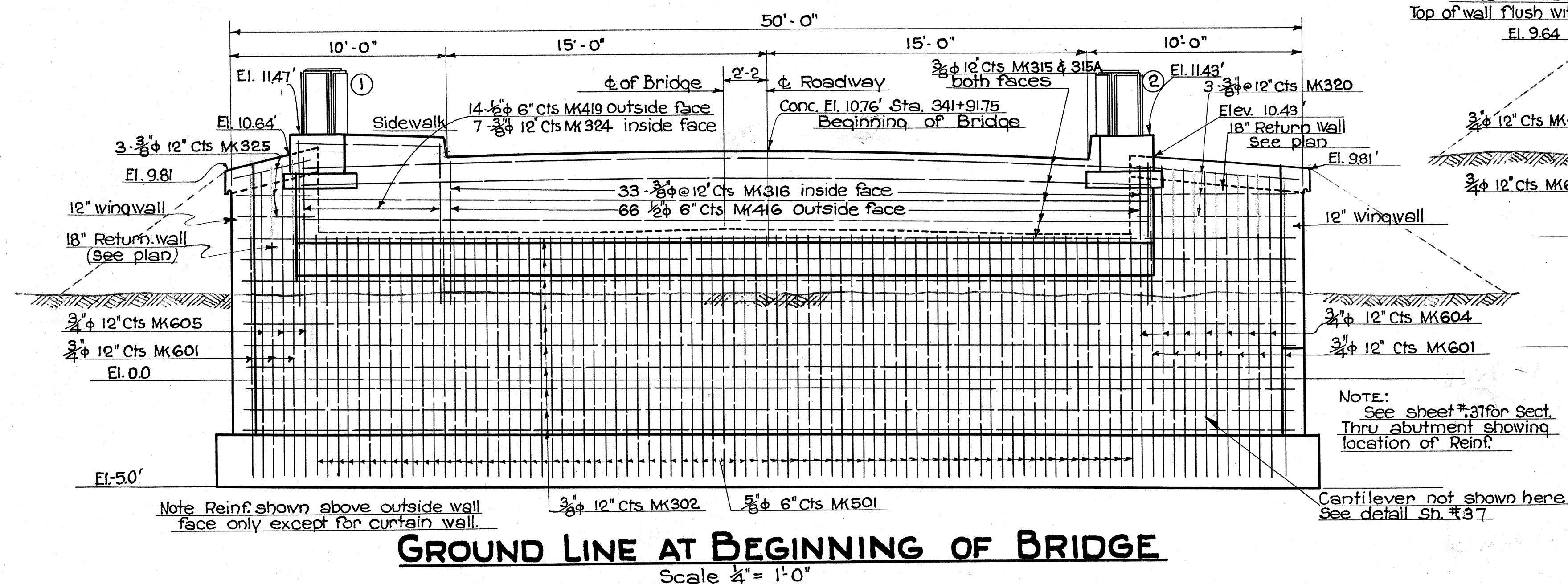
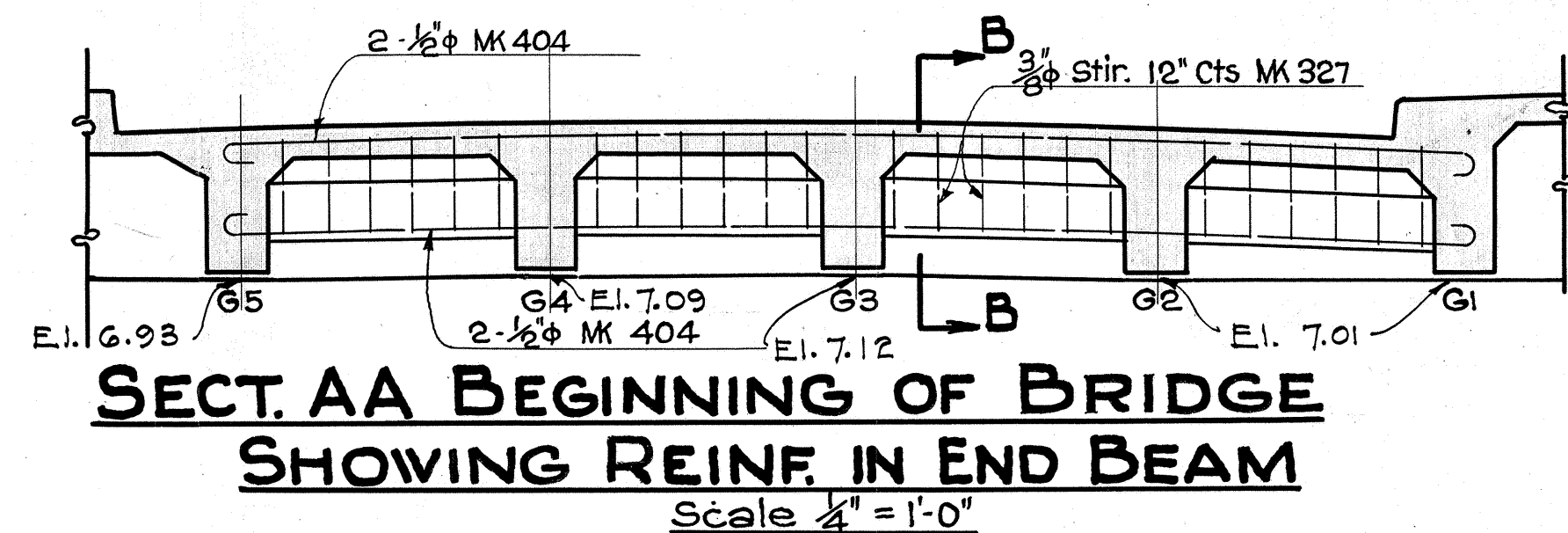
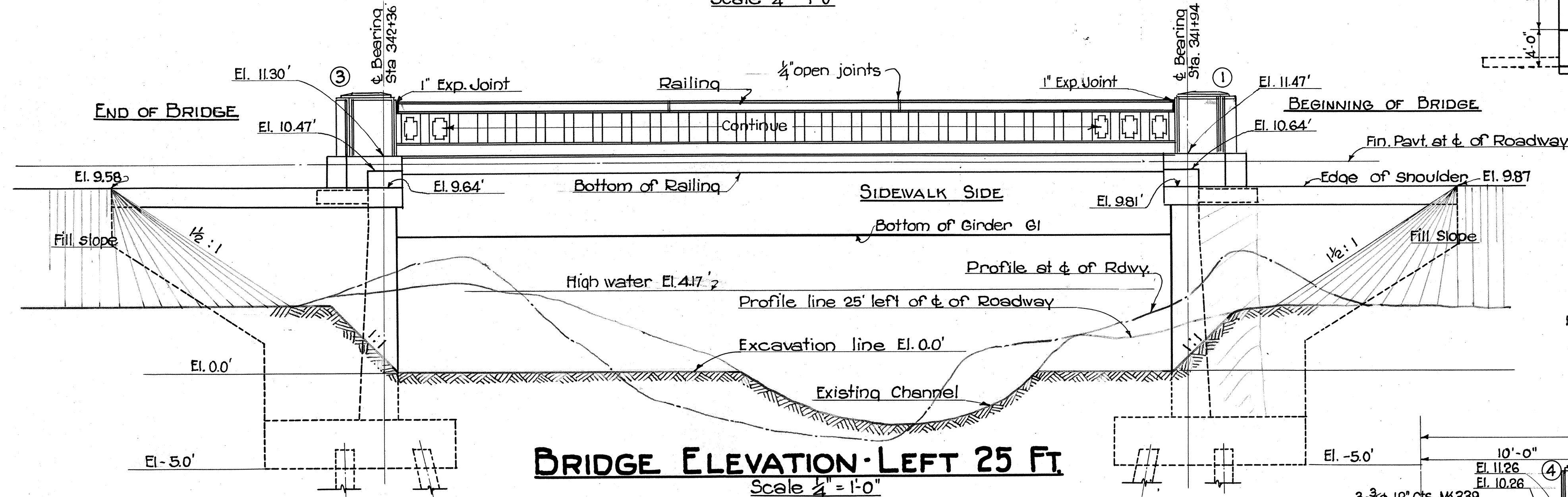
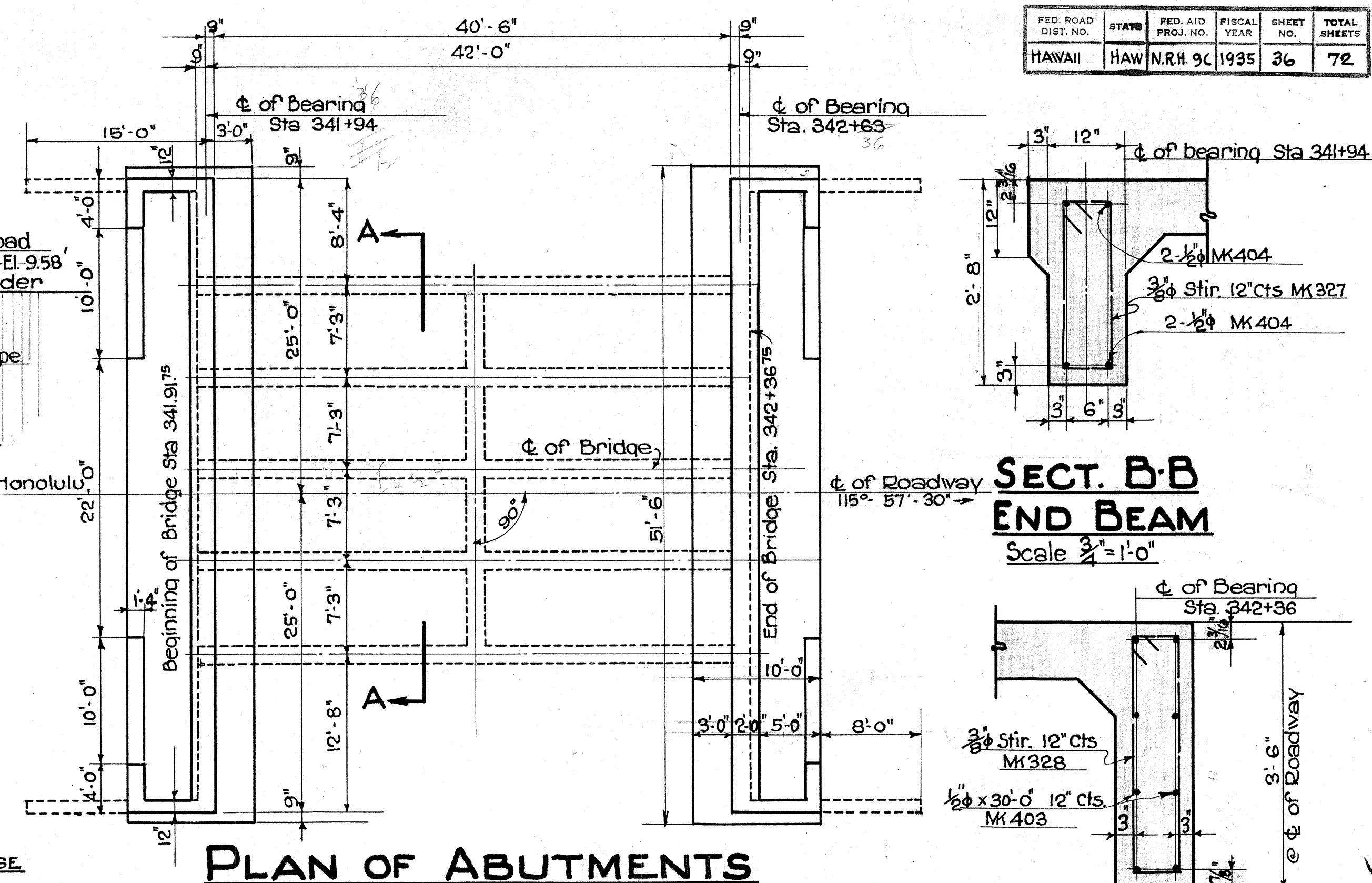
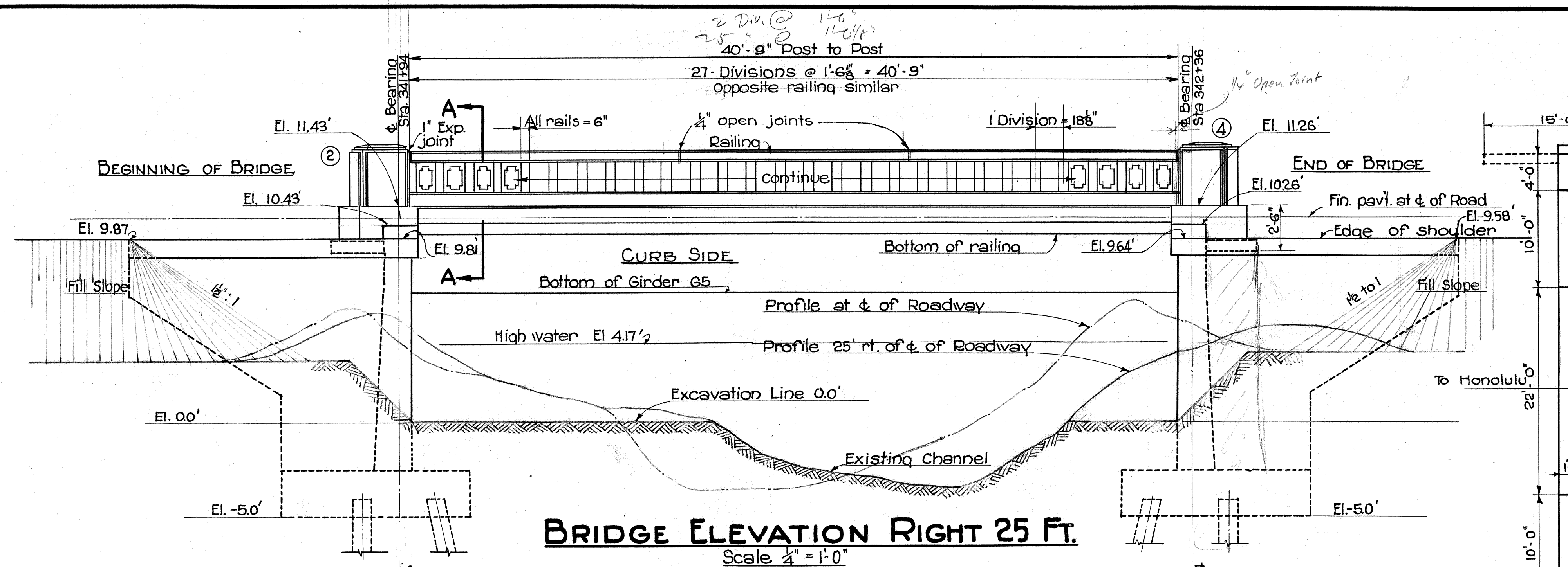
KALAUAO SPRINGS BRIDGE

NO. 7 STA. 341+91.75 TO STA. 342+36.75

KAMEHAMEHA HIGHWAY

SHEET NO. 1 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	N.R.H. 9C	1935	36	72



NOTE: Reinf. shown above for outside wall face only with exception of end cross beam.

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

KALAUAO SPRINGS BRIDGE

Nº 7 STA. 341+91⁷⁵ TO STA. 342+36⁷⁵

KAMEHAMEHA HIGHWAY N.R.H. 9C (1935)

SHEET NO 2 OF 7 SHEETS

4 3 2 5 . 3 6

ORIGINAL PLAN	SURVEY PLOTTED BY.....	DATE
	DESIGNED BY.....	" " Sept 3 ^d
	DRAWN BY.....	" " May 35
	TRACED BY.....	" " June "
	CHECKED BY.....	" " June "
NOTE BOOK No.....	W.R.B.	J.C.M., C.F.W.
	R.E.S.	W.P.B.

Abutment Section Details:

- Top reinforcement: 8 - 3/8" 12" MK 321 (left), 5 - 3/8" 12" Cts MK 319 O.F. (center), 6 - 3/8" 12" Cts MK 420 I.F. (right)
- Stirrups: 3/8" inverted Stirr. 24" Cts MK 340 (left), 2 1/2" MK 418 (center)
- Horizontal bar: 3/4" Horiz bar (right)
- Dimensions: 3'-0" (top), 3'-6" (bottom), 6'-6" (left), 10'-0" (right)
- Elevations: El. 11.43, El. 10.43, El. 9.81, El. 0.0', El. -5.0'
- Note: Horiz bars in outside face of wingwall return 18" into abutment and outside bars in Abut. return 18" into wingwall.

Pier Section Details:

- Top reinforcement: 3/8" x 7'-9" 12" Cts MK 306 (left), 15'-0" (center), 15'-0" (right)
- Deck slab: 8 1/2" Conc. deck slab (center), 1'-8" (right)
- Girders: G5, G4, G3, G2, G1 (left to right)
- Dimensions: 4'-6" (left), 4'-4" (right), 10'-0" (right)
- Elevations: El. 11.47, El. 10.64, El. 0.0'
- Reinforcement: 39 - 1/2" 12" Cts MK 417 (bottom)
- Notes: "Of Roadway" (left), "Conc. El. at beginning of Br. 10.76'" (center), "Of Bridge" (center), "Sidewalk" (right)

3/4 x 7-9" 12" Cts MK306

10'-0"

El. 11.49

El. 10.49

El. 9.81

2'-8"

15'-0"

Cl of Roadway

2'-2"

15'-0"

Cl of Bridge

8 1/2" Conc. deck slab

1'-8"

10'-0"

El. 11.47'

El. 10.64'

El. 9.81

4'-6"

G5

2'-6"

G4

2'-6"

G3

2'-6"

G2

2'-6"

G1

4'-4"

39'-0" 3/8 x 3-0" 12" Cts MK305

For end girder Reinf See Sh#2

Conc. El. at beginning of Br. 10.76'

Sidewalk

39'-0" 3/8 x 3-0" 12" Cts MK305

[illegible]

NOTE: Reinf. shown above for inside wall face only.

INSIDE ELEV. - BEGINNING BRIDGE

Scale $\frac{1}{4}" = 1'-0"$

WINGWALL
Scale 1" = 1'-0"

PLAN AT D-D

9'-1.6'-9"

3/8" 12" Cts MK315, 315A

Grinder G5

1/2" 6" Cts. MK416

OUTSIDE FACE

1'-6"

4'-6"

INSIDE FACE

3/8" 12" Cts MK312

3/8" 12" Cts

3/8" 12" Cts

1/2" Horiz bars MK321

3/8" 12" Cts MK321

1/8" 12"

3/8" Horiz bars MK318

15'-0"

2-1/2" MK402

OUTSIDE FACE

3/8" 6" Cts Abut. Reinf MK501

3/8" 12" Cts MK302

3/8" 6" Cts

3/8" 12" Cts MK304

3/8" 12" Cts MK303

2'-0"

2-1/2" MK402

8'-0"

7'-0"

3'-0"

3/8" Vert. 12" Cts MK319

3/8" Horiz MK319

1/2" Vert. MK420

PLAN AT E-E

PLAN AT E E

[illegible]

TYPICAL CROSS SECTIONS OF ABUTMENTS
Scale 1" = 1'-0"

Structural drawing of a bridge pier showing reinforcement details. The drawing includes a plan view at the top and an elevation view below.

Plan View (Top):

- Shows the pier width as $10'-0"$.
- Indicates the centerline of the roadway as ϕ of Roadway.
- Shows the pier height as $4'-0"$.
- Reinforcement bars are labeled: $3-\frac{7}{8}\phi$ MK 705 (top), $2-\frac{7}{8}\phi$ MK 704 (middle), and $2-\frac{7}{8}\phi$ MK 700 (bottom).
- A note states: "Reinf symmetrical about ϕ ".

Elevation View (Bottom):

- Shows the pier profile with a base thickness of $1'-6"$.
- Reinforcement bars are labeled: $3-\frac{7}{8}\phi$ MK 703 (top), $2-\frac{7}{8}\phi$ MK 700 (middle), and $2-\frac{1}{2}\phi$ MK 401 (bottom).
- Stirrups are labeled: 3ϕ Stirrups 12 cts MK 301 (vertical) and 3ϕ Stirr 12 cts MK 300 (horizontal).
- The elevation is marked as $El. 50'$.

TYPICAL FOOTING PLAN BOTH FOOTINGS

Scale: $\frac{1}{4}'' = 1'-0''$

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

KALAUAO SPRINGS BRIDGE

NO 7 STA. 341+91⁷⁵ TO STA 342+36⁷⁵

KAMEHAMEHA HIGHWAY N.R.H. 9C (1935)

SHEET N° 3 OF 7 SHEETS

No.	
ROALSON	
CLASSIFIED BY J.C.M. C C.F.W.	
DECLASSIFIED BY W.R.B.	
DATE	
WRB	Oct 34
E.J.S.	" Nov 34
F.C.	" "
WRB	June 35
	" "
	" "

[illegible][illegible]

Scale $\frac{1}{4}" = 1'-0"$

6" 7'-3" 7'-3" 7'-3" 7'-3" 6"

3- $\frac{7}{8}"$ MK 701 to be made same as MK 702

$\frac{3}{8}"$ Stub bars 12" c/c MK 331

2'-11" 3'-6"

3- $\frac{7}{8}"$ Stirrups 12" c/c MK 329

3- $\frac{7}{8}"$ bottom bars MK 702

INSIDE ELEV. END OF BRIDGE

Scale $\frac{1}{4}'' = 1'-0''$

G1 G2 G3 G4 G5

4- $\frac{1}{4}''$ $\square$ MK1000

3- $\frac{1}{4}''$ $\square$ MK1000 + 1- $\frac{1}{8}''$ $\square$ MK908

REARRANGEMENT OF BARS IN BOTTOM LAYER OF GIRDERS REIN

[illegible]

Hand-drawn structural diagram of a beam-column joint showing reinforcement details. The diagram includes a horizontal beam on the left and a vertical column on the right. Reinforcement bars are labeled with their size, spacing, and connection details. Annotations include:

- Top of column: $\frac{1}{2}$ " bars 12" Ctrs. MK 420 tied to bars MK 411A.
- Top of beam: $\frac{3}{8}$ " ϕ MK 330 (new).
- Left side of beam: $\frac{1}{2}$ " ϕ bars 12" Ctrs. (6 Ctrs. at transverse beams) MK 422, tied to bars MK 410.
- Right side of beam: 2- $\frac{3}{8}$ " ϕ MK 330.
- Right side of column: $\frac{3}{8}$ " ϕ 12" o.c. MK 330 (old).
- Bottom of beam: $\frac{1}{2}$ " ϕ bars 12" Ctrs (6 Ctrs. at transverse beams) MK 408A, tied to bars MK 409A.

Technical drawing of a bent plate. The drawing shows a plate bent at a 90-degree angle. The dimensions are as follows:

- The angle of the bend is $1'-3''$.
- The length of the horizontal leg is $3'-0''$.
- The length of the vertical leg is $2'-0''$.

Labels and notes:

- Label **MS 420** is placed near the vertical leg.
- Note **80 Required** is written below the vertical leg.
- Label **MS 422** is placed below the horizontal leg.
- Note **Total length 4'-3"** is written below the horizontal leg.
- Note **94 Required** is written below the horizontal leg.

[illegible]

MK 408A REPLACING 47 MK 408, ADDED 47
 Total length 8'-9" (Required 94')

Diagram of MK409A profile with dimensions and labels:

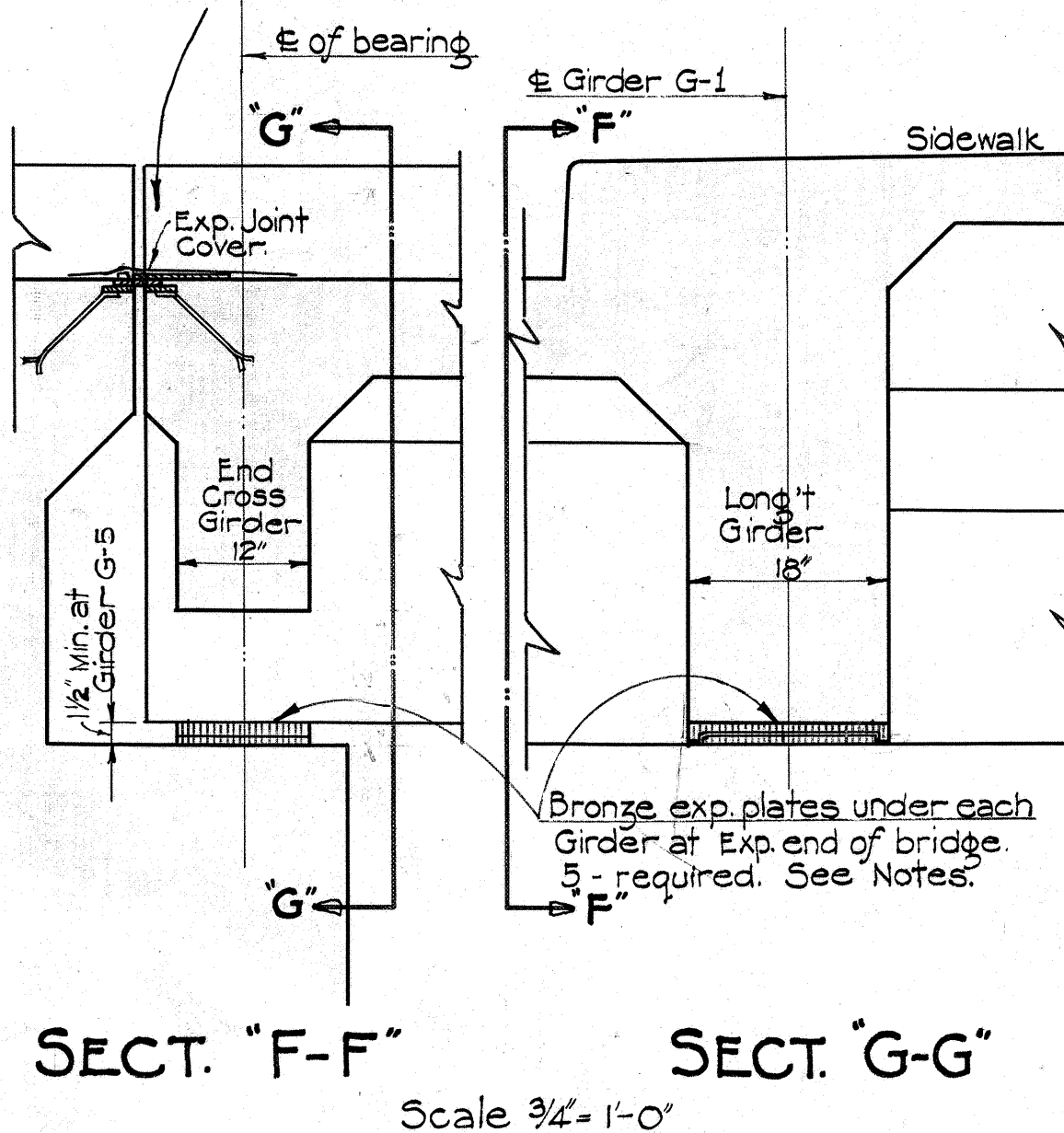
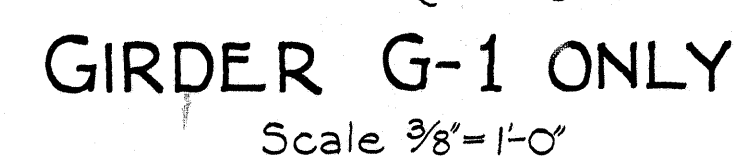
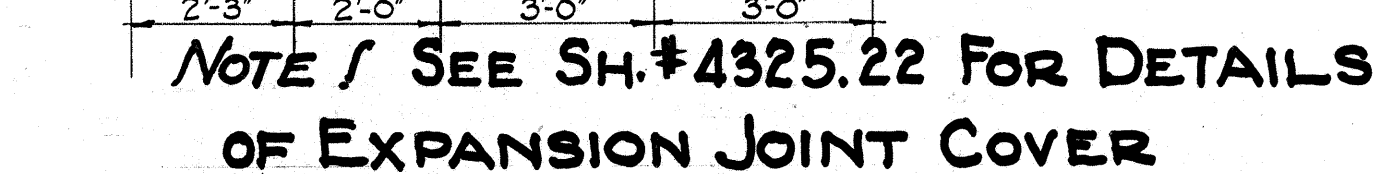
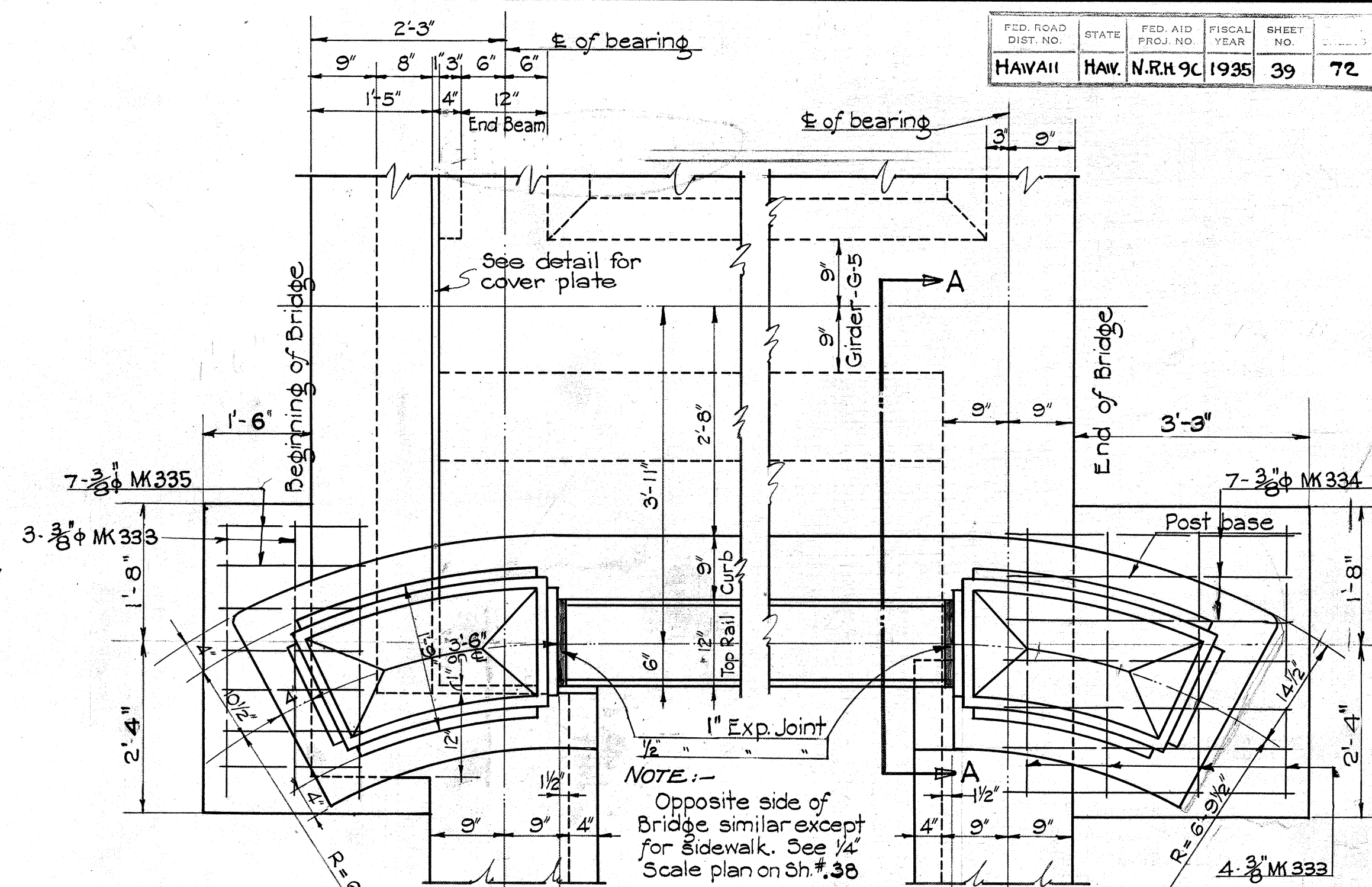
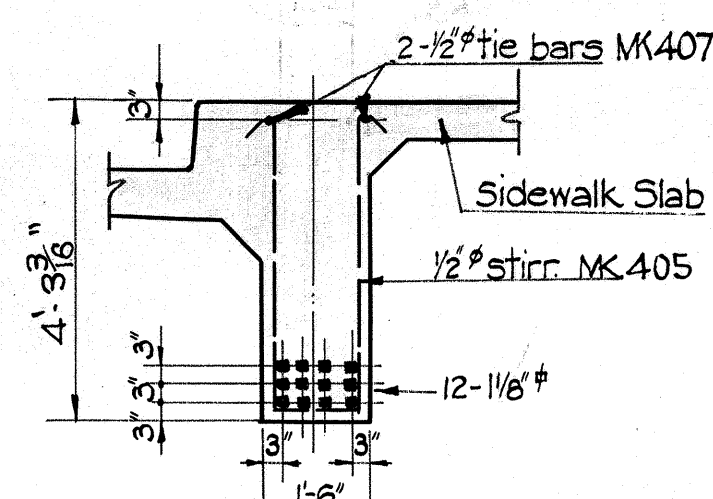
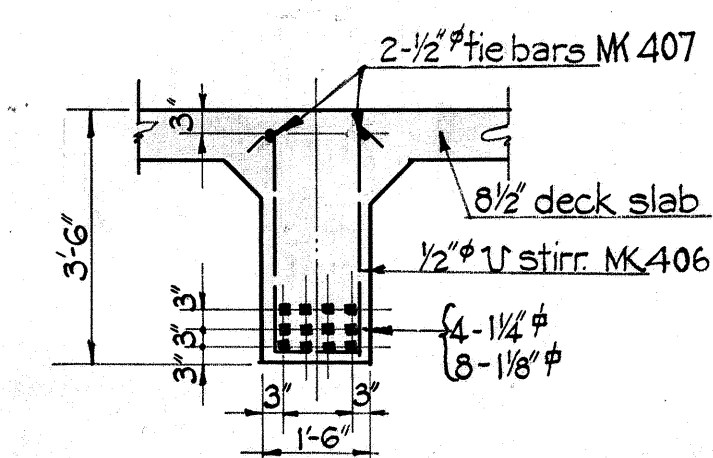
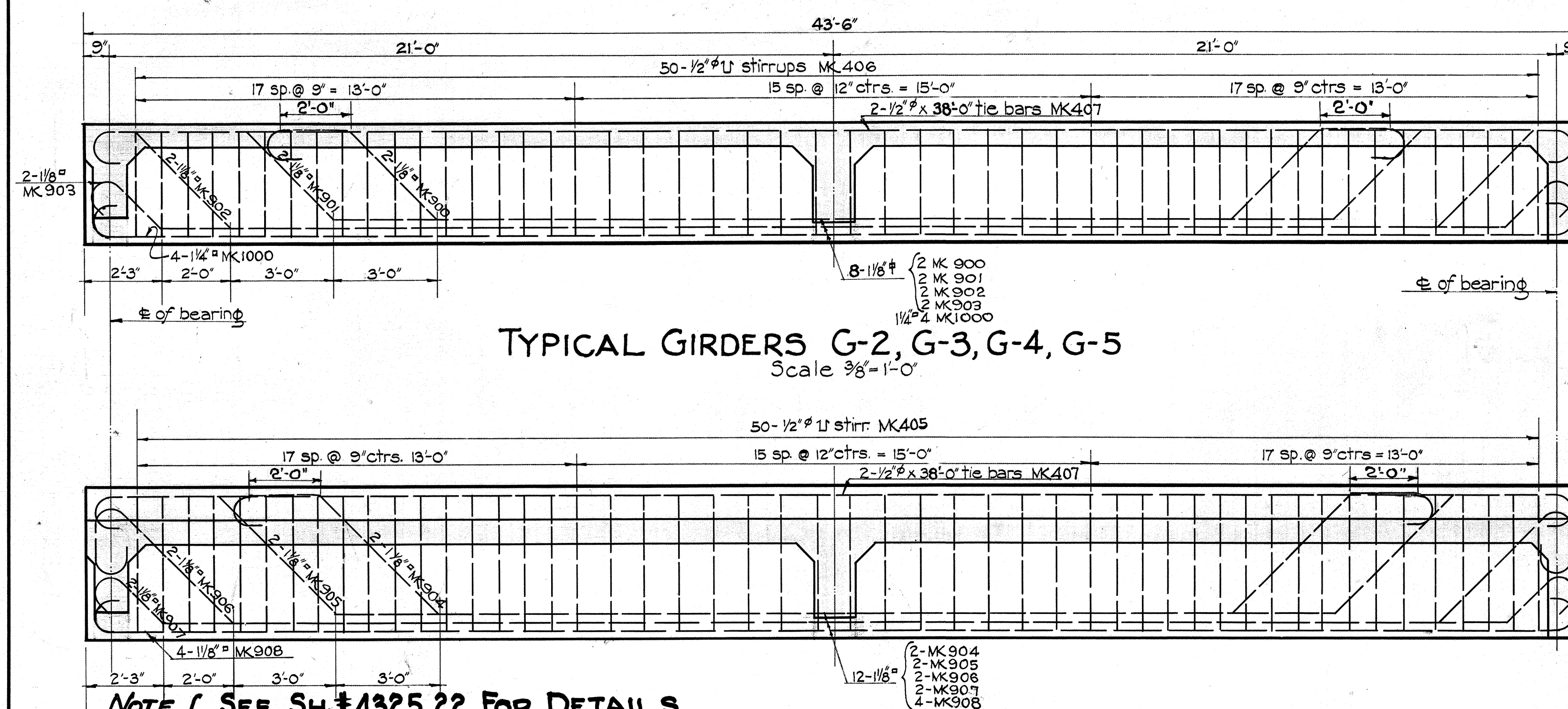
- Top label: Total length 33'-3"
- Profile dimensions (from left to right):
 - 4'-1"
 - 10'-2"
 - 6'-3"
 - 2'-7"
 - 4'-2"
 - 3'-6"
 - 4'-2"
 - 3'-0"
 - 4'-2"
 - 3'-6"
 - 3'-2"
 - 1'-6"
- Centerline label: C.G.
- Bottom label: MK409A REPLACING MK409
- Bottom label: Total length 34'-3"

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

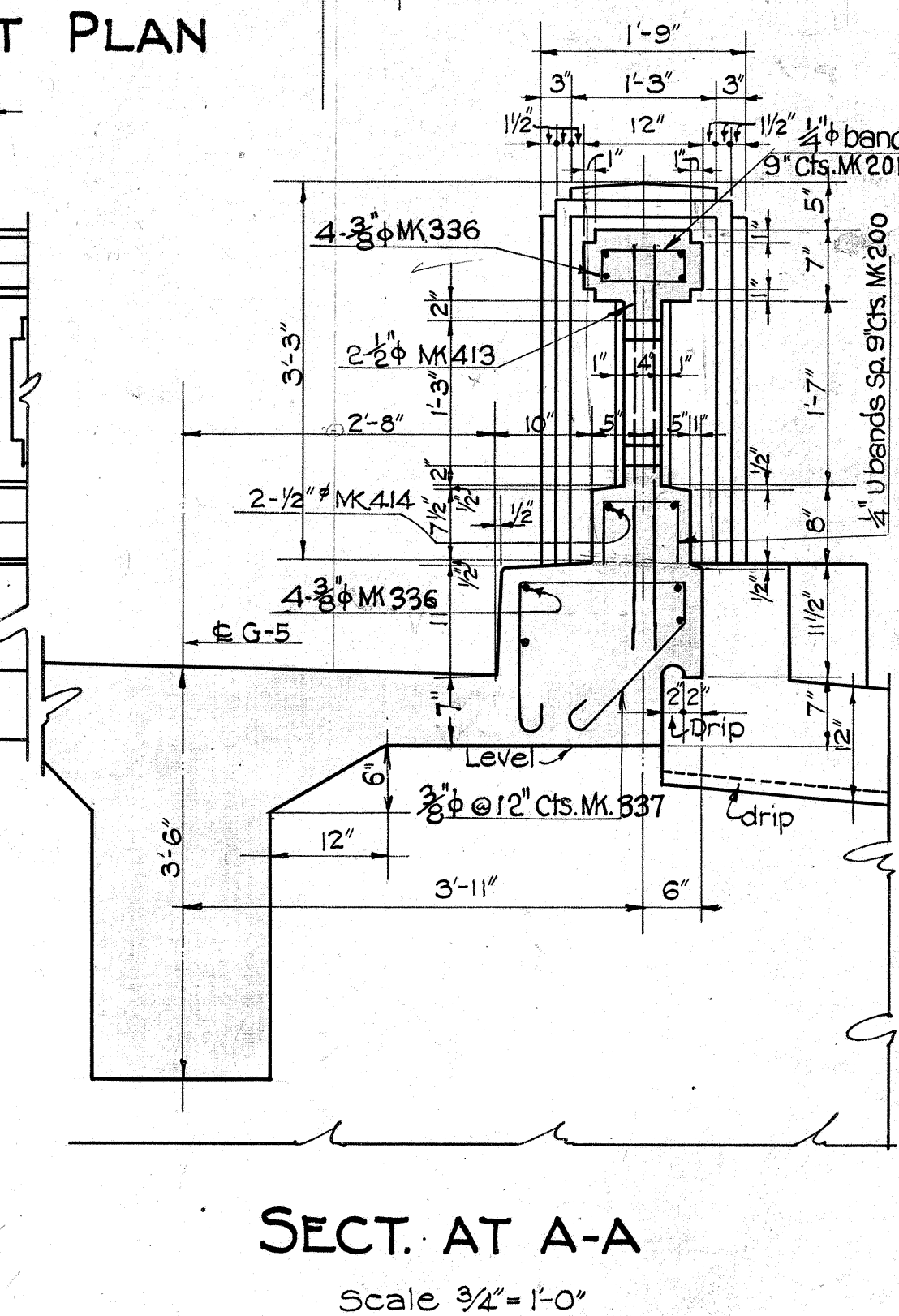
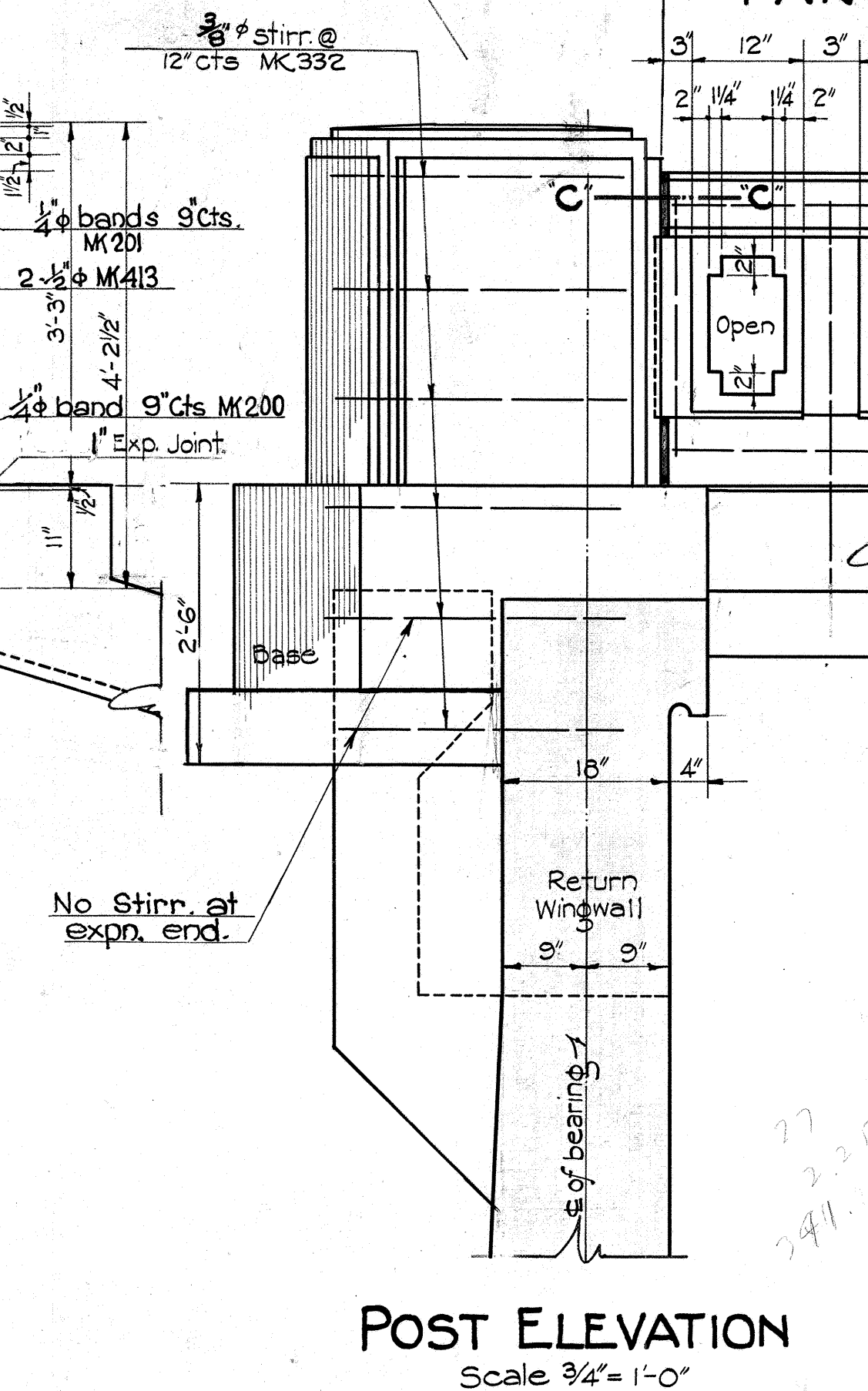
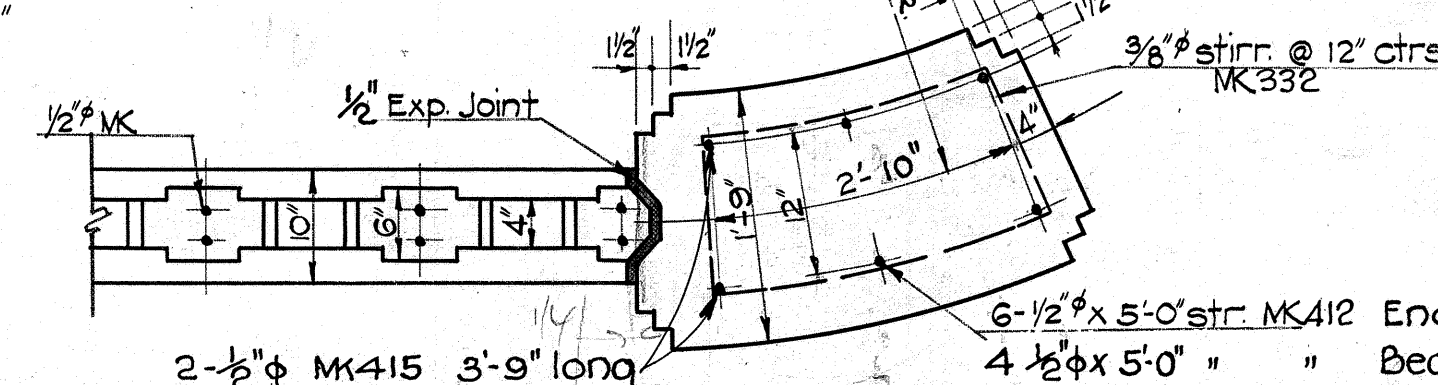
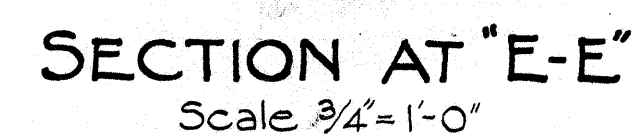
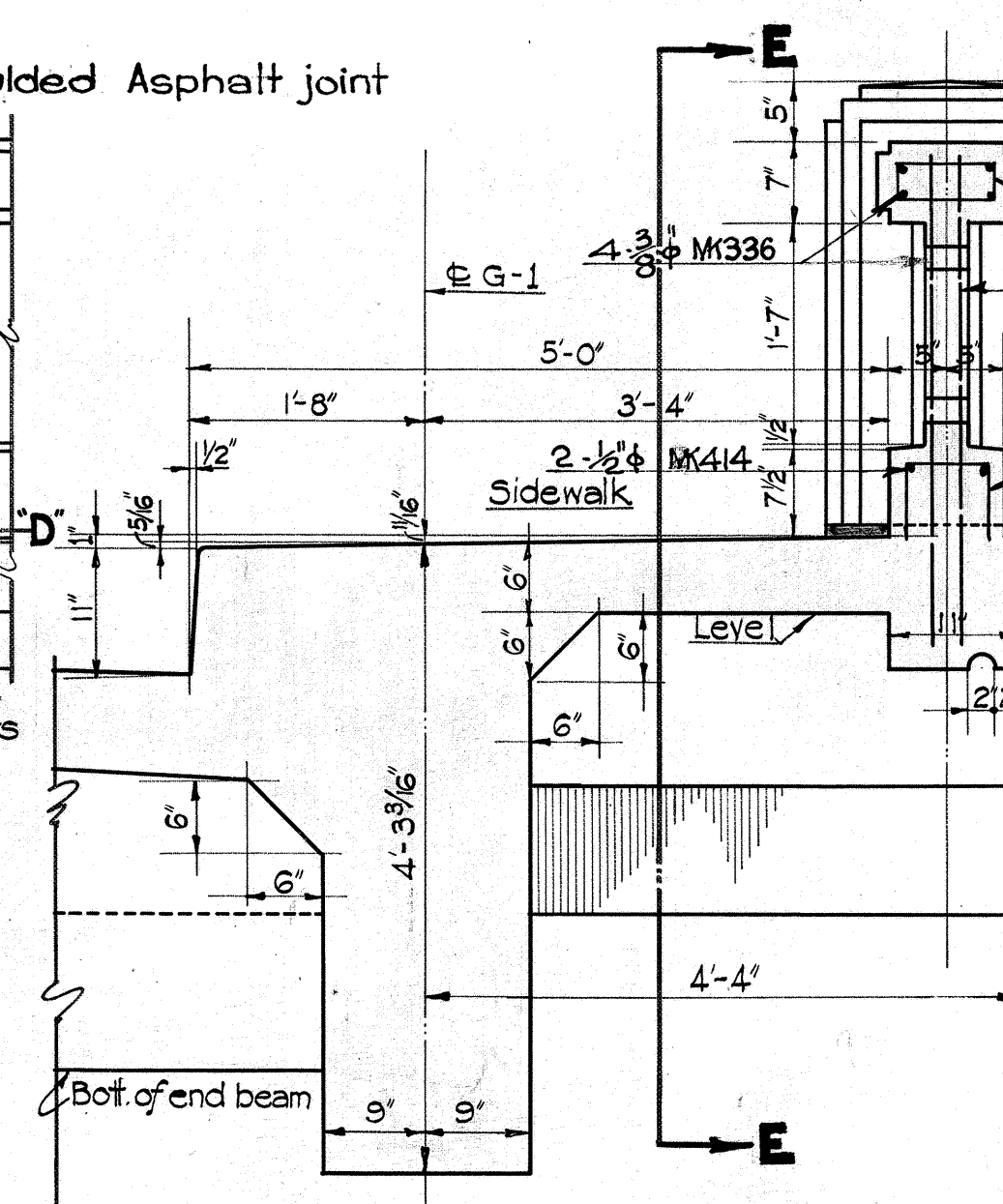
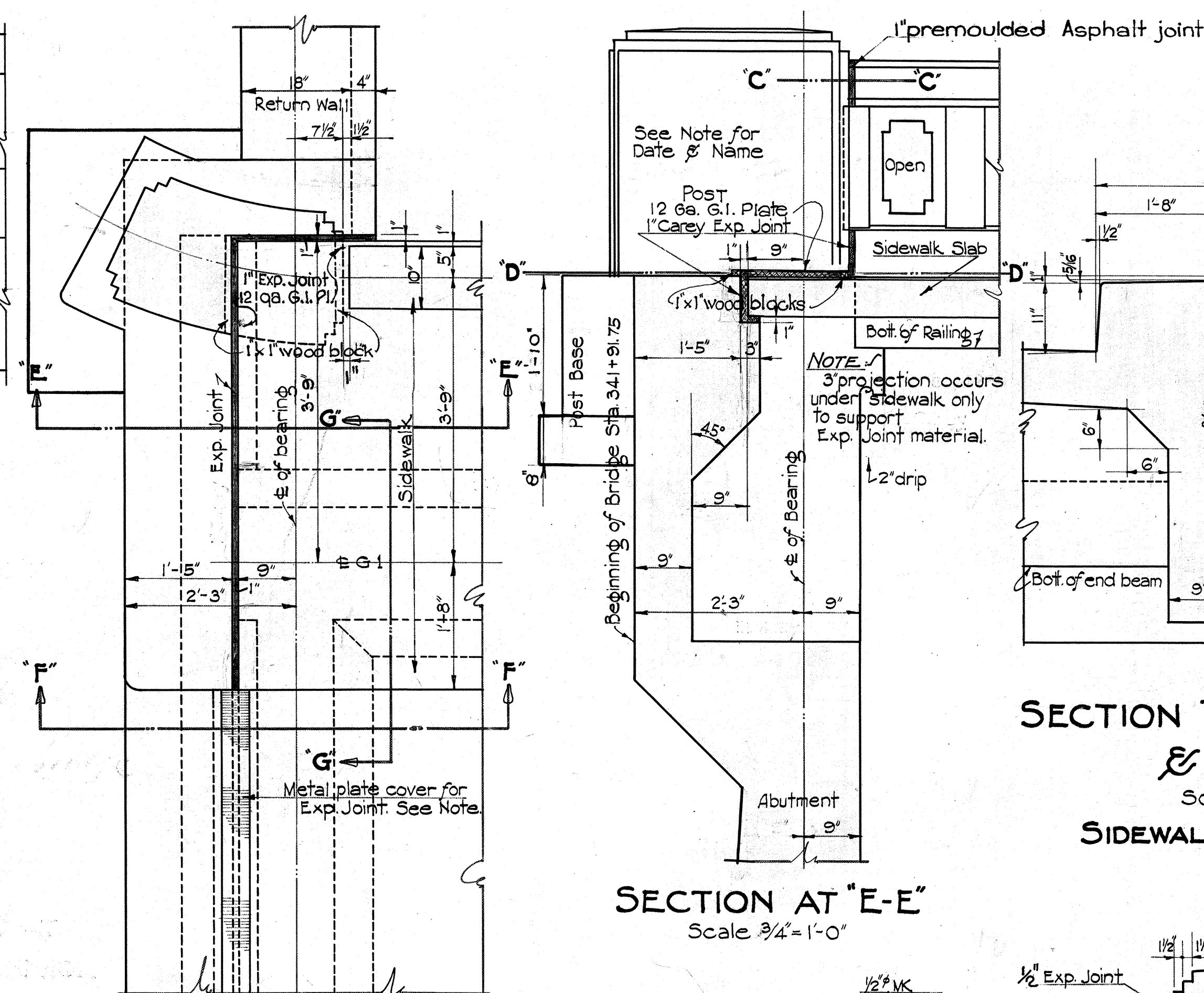
KALAUAO SPRINGS BRIDGE
NO 7 STA 341+91⁷⁵ TO STA 342+36
KAMEHAMEHA HIGHWAY N.R.H. 9C (193
SHEET NO 4A OF 7 SHEETS

KALAUAO SPRINGS BRIDGE
No 7 STA 341+91⁷⁵ TO STA 342+36⁷⁵
KAMEHAMEHA HIGHWAY N.R.H. 9C (1935)
SHEET No 4A OF 7 SHEET

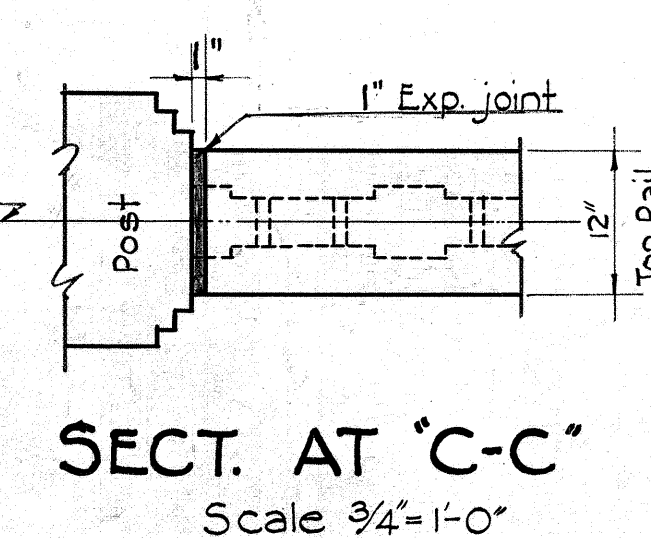
4325.38A



NOTE:
SEE SH.#4325.22 FOR PHOSPHOR
BRONZE EXPANSION PLATES
5 PRS. REQ'D. FOR THIS BRIDGE



NOTE!
SEE SH. #4325.22 FOR
TYPICAL DETAIL OF
DATE & NAME PLATE



TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

KALAUAO SPRINGS BRIDGE

NO. 7 STA. 341+91.75 TO STA. 342+36.75

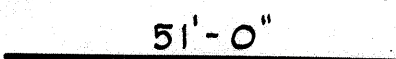
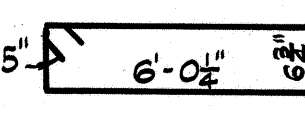
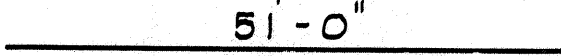
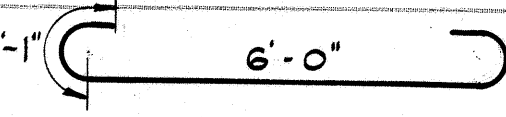
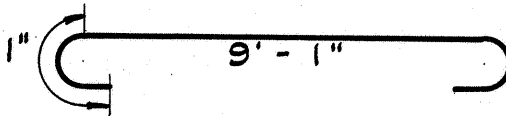
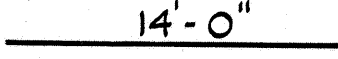
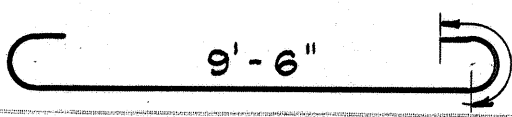
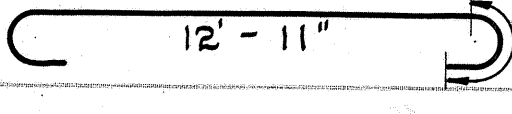
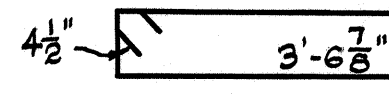
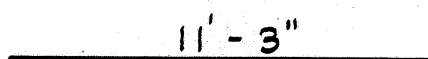
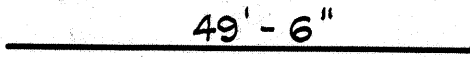
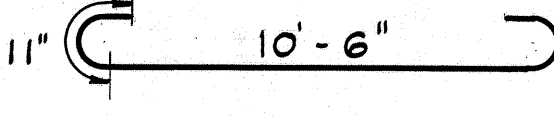
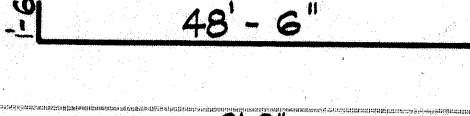
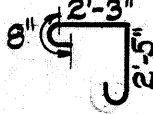
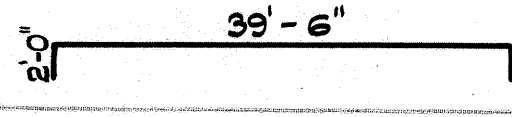
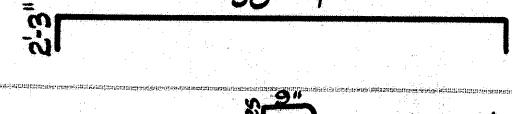
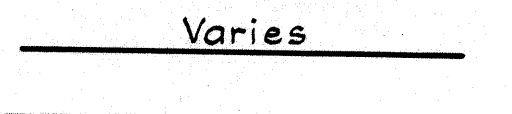
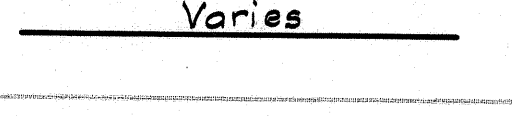
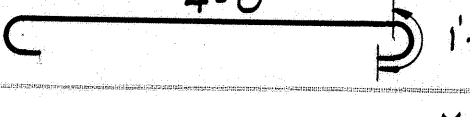
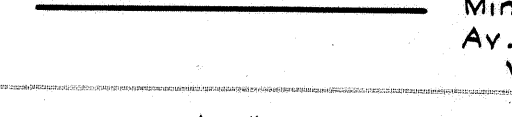
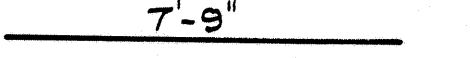
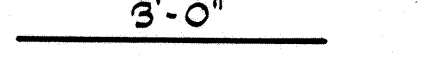
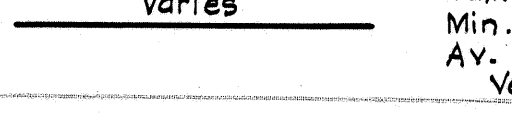
KAMEHAMEHA HIGHWAY N.R.H. 9C (1935)

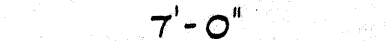
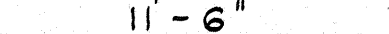
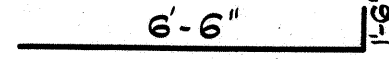
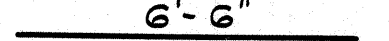
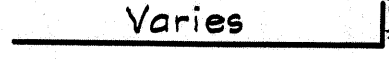
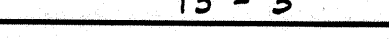
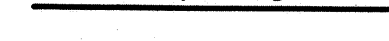
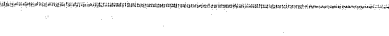
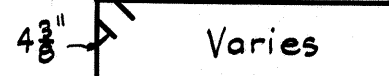
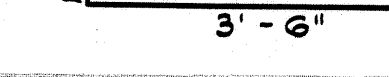
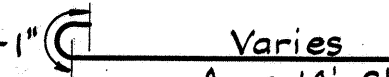
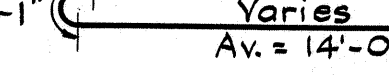
SHEET NO 5 OF 7 SHEETS

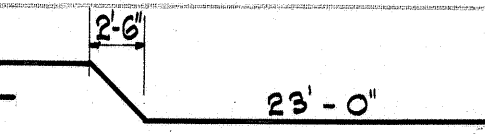
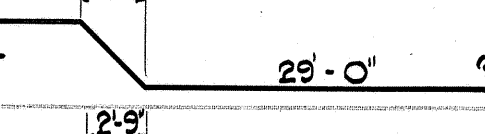
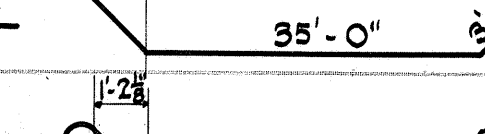
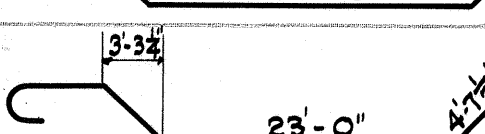
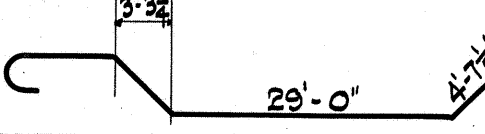
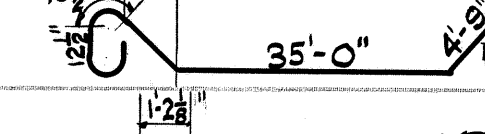
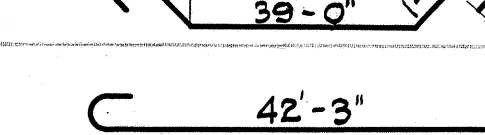
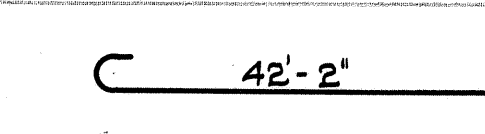
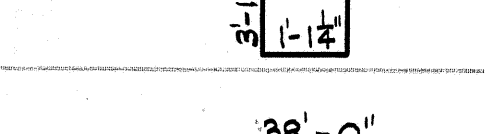
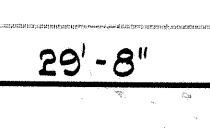
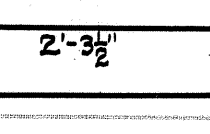
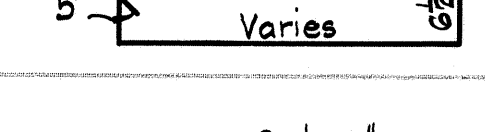
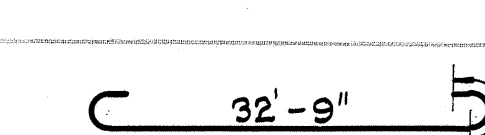
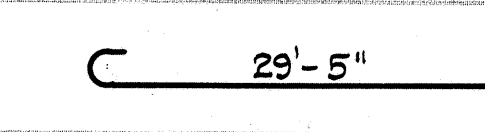
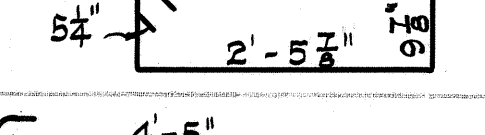
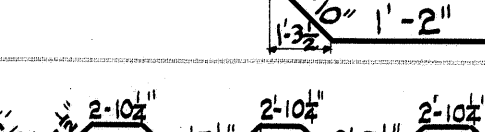
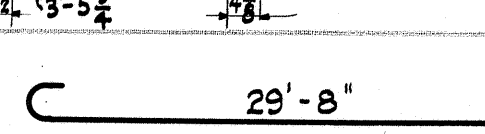
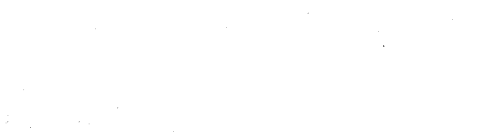
4325.39

STEEL SCHEDULE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	N.R.H. 90	1935	40	72

MK	Description	Location	Size	Length	No. of Bars in ea. Unit	No. of Units	Total No. of Bars	Total Length	Wt. per Foot	Total Weight
600	 51'-0"	FOOTING Bottom round piles	$\frac{3}{4}\phi$	51'-0"	8	2	16	816 ⁰⁰	1.52	124.0
400	 6'-0"	"	$\frac{1}{2}\phi$	14'-0"	26	2	52	728 ⁰⁰	0.68	49.5
600	 51'-0"	Middle & Top	$\frac{3}{4}\phi$	51'-0"	16	2	32	1632 ⁰⁰	1.52	248.1
602	 6'-0"	Middle	$\frac{3}{4}\phi$	8'-2"	103	2	206	1682 ³³	1.52	255.7
500	 9'-1"	Top	$\frac{5}{8}\phi$	10'-11"	103	2	206	2248 ⁸³	1.06	238.4
401	 14'-0"	Cantilever Bottom	$\frac{1}{2}\phi$	14'-0"	2	4	8	112 ⁰⁰	0.68	7.6
700	 9'-6"	Cantilever Top	$\frac{7}{8}\phi$	12'-0"	2	4	8	96 ⁰⁰	2.07	19.9
703	 12'-11"	"	"	15'-5"	3	4	12	185 ⁰⁰	"	38.3
300	 3'-6 $\frac{7}{8}$ "	"	$\frac{3}{8}\phi$	9'-9"	14	4	56	546 ⁰⁰	0.38	20.7
303	 11'-3"	ABUTMENT Inside face both ends	$\frac{3}{8}\phi$	11'-3"	38 30	1 1	68	765 ⁰⁰	"	29.1
304	 49'-6"	Horiz. Inside face both ends	$\frac{3}{8}\phi$	49'-6"	10	2	20	990 ⁰⁰	"	37.6
501	 10'-6"	Vert. Outside face both ends	$\frac{5}{8}\phi$	12'-4"	61 77	1 1	138	1702 ⁹⁰	1.06	180.4
302	 48'-6"	Horiz. Outside face both ends	$\frac{3}{8}\phi$	51'-6"	10	2	20	1030 ⁰⁰	0.38	39.1
417	 6'-0"	Inside & Top Beg. only	$\frac{1}{2}\phi$	6'-0"	39	1	39	234 ⁰⁰	0.68	15.9
315	 39'-6"	End wall, beg. br. Outside face	$\frac{3}{8}\phi$	43'-6"	5	1	5	261 ⁰⁰	0.38	9.9
315A	 38'-4"	End wall, beg. br. Inside face	"	42'-10"	3	1	3	214 ¹⁷	"	8.1
416	 4'-9"	End wall, beg. br. Outside face	$\frac{1}{2}\phi$	Varies Av. 9'-3"	66	1	66	610 ⁵⁰	0.68	41.5
419	 4'-9"	End wall, beg. br. Outside face	"	Varies Av. 9'-11"	14	1	14	138 ⁸³	"	9.4
316	 Varies	End wall, beg. br. Inside face	$\frac{3}{8}\phi$	Varies Av. 4'-6"	33	1	33	148 ⁵⁰	0.38	5.6
324	 Varies	"	"	Varies Av. 5'-2"	7	1	7	36 ¹⁷	"	1.4
800	 4'-0"	Dowels End Br.	1ϕ	6'-10"	3	5	15	102 ⁵⁰	2.70	27.7
312	 Varies	Inside face beg. bridge	$\frac{3}{8}\phi$	Varies Av. 14'-3"	8	1	8	114 ⁰⁰	0.38	4.3
306	 7'-9"	Horiz.	"	7'-9"	3	1	3	23 ²⁵	"	9
305	 3'-0"	"	"	3'-0"	3	1	3	9 ⁰⁰	"	3
311	 Varies	"	"	Varies Av. 14'-6"	4	1	4	58 ⁰⁰	"	2.2
314	 Varies	Inside face End Bridge	"	Varies Av. 15'-0"	8	1	8	120 ⁰⁰	"	4.6
313	 Varies	"	"	Varies Av. 14'-5"	12	1	12	173 ⁰⁰	"	6.6

MK	Description	Location	Size	Length	No. of Bars in ea. Unit	No. of Units	Total No. of Bars	Total Length	Wt. per Foot	Total Weight
309	 4'-0"	Horiz. Inside face End Bridge	$\frac{3}{8}\phi$	4'-0"	1	1	1	4.00	0.38	2
310	 7'-0"	" " " "	"	7'-0"	3	1	3	21.00	"	8
308	 11'-6"	" " " "	"	11'-6"	2	1	2	23.00	"	9
307	 8'-0"	" " " "	"	8'-0"	1	1	1	8.00	"	3
317	 6'-6"	Wing wall Outside face	"	8'-0"	8	4	32	256.00	"	97
322	 6'-6"	Wing wall Inside face	"	6'-6"	5	4	20	130.00	"	49
318	 Varies Max. = 14'-6" Min. = 7'-6" Av. = 11'-0"	Wing wall Outside face	"	Varies Av. 12'-6"	7	4	28	350.00	"	133
423	 Varies Max. = 14'-6" Min. = 7'-6" Av. = 11'-0"	Wing wall Inside face	$\frac{1}{2}\phi$	Varies Av. 11'-0"	13	4	52	572.00	0.68	389
319	 13'-3"	Vert. Wing wall Outside face	$\frac{3}{8}\phi$	13'-3"	5	4	20	265.00	0.38	101
420	 13'-0"	Vert. Wing wall Inside face	$\frac{1}{2}\phi$	14'-4"	6	4	24	344.00	0.68	234
321	 Varies Max. = 2'-6" Min. = 7'-0" Av. = 4'-9" Vert.	Wing wall Both face	"	Varies Av. 4'-9"	8	4	64	304.00	0.38	116
418	 14'-4"	Wing wall top Outside face	$\frac{1}{2}\phi$	21'-8"	2	4	8	173.33	0.68	118
340	 7'-8"	" " "	$\frac{3}{8}\phi$	6'-0"	7	4	28	168.00	0.38	64
402	 14'-0"	Vert. Cantilever	$\frac{1}{2}\phi$	14'-0"	2	4	8	112.00	0.68	76
704	 11'-6"	" " "	$\frac{7}{8}\phi$	14'-0"	2	4	8	112.00	2.07	232
705	 13'-9"	" " "	"	16'-3"	3	4	12	195.00	"	404
301	 Varies Max. = 3'-6" Min. = 0'-6" Av. = 2'-0"	" Stirrups	$\frac{3}{8}\phi$	Varies Av. 6'-8"	10	4	40	266.67	0.38	101
325	 3'-6"	Abut. Beg. Br. Outside face	"	5'-0"	3	1	3	15.00	"	6
320	 7'-6"	Beg. bridge Outside face	"	9'-0"	3	1	3	27.00	"	10
601	 1'-1"	Both ends Outside face	$\frac{3}{4}\phi$	13'-2"	$\frac{3}{7}$ $\frac{11}{6}$	1	27	355.50	1.52	540
604	 1'-1"	Beg. Bridge Outside face	"	Varies Av. 16'-2"	7	1	7	113.19	"	172
605	 1'-1"	" " "	"	Varies Av. 16'-8"	3	1	3	50.00	"	76
606	 1'-1"	End Bridge Outside face	"	Varies Av. 16'-2"	11	1	11	177.83	"	270
607	 1'-1"	" " "	"	"	7	1	7	113.19	"	172
326	 6'-3"	" " "	$\frac{3}{8}\phi$	6'-3"	1	1	1	6.25	0.38	2
338	 7'-0"	" " "	"	8'-6"	2	1	2	17.00	"	6
339	 11'-6"	" " "	"	13'-0"	3	1	3	39	38	15

MK	Description	Location	Size	Length	No. of Bars in ea. Unit	No. of Units	Total No. of Bars	Total Length	Wt. per Foot	Total Weight
900	 23'-0"	SUPERSTRUCTURE Girder G-2 to G-5	$\frac{1}{8}\phi$	37'-3"	2	4	8	298.00	4.35	129.6
901	 23'-0"	"	"	47'-6"	2	4	8	380.00	"	165.3
902	 35'-0"	"	"	47'-8"	2	4	8	381.33	"	165.9
903	 39'-0"	"	"	45'-6"	2	4	8	364.00	"	158.3
904	 23'-0"	" G-1 only	"	39'-5"	2	1	2	78.93	"	34.3
905	 23'-0"	"	"	48'-1"	2	1	2	96.17	"	41.8
906	 35'-0"	"	"	51'-6"	2	1	2	103.00	"	44.8
907	 39'-0"	"	"	45'-6"	2	1	2	91.00	"	39.6
908	 42'-3"	"	"	45'-5"	4	1	4	181.67	"	79.0
1000	 42'-2"	" G-2 to G-5	$\frac{1}{4}\phi$	45'-8"	4	4	16	730.67	5.37	392.4
405	 9'-9"	Stirrups G-1 only	$\frac{1}{2}\phi$	9'-9"	50	1	50	487.50	0.68	33.2
406	 8'-4"	Stirrups G-2 to G-6	"	8'-4"	50	4	200	1666.67	"	113.3
407	38'-0"	Tie bars All girder	"	38'-0"	2	5	10	380.00	"	25.8
404	 29'-8"	End beam beg.	"	31'-0"	4	1	4	124.00	"	8.4
327	 2'-3 1/2"	End beam Beg. Bridge	$\frac{3}{8}\phi$	6'-5"	24	1	24	154.00	0.38	5.9
328	 5"	End Beam End Bridge	"	Varies Av. 7'-3"	24	1	24	186.00	0.38	7.1
403	30'-0"	"	$\frac{1}{2}\phi$	30'-0"	8	1	8	240.00	0.68	16.3
701	 32'-9"	Cross Girder Top	$\frac{7}{8}\phi$	35'-3"	3	1	3	105.75	2.07	21.9
702	 29'-5"	" Bottom	"	31'-11"	3	1	3	95.75	"	19.8
329	 2'-5 3/8"	"	$\frac{3}{8}\phi$	7'-6"	24	1	24	180.00	0.38	6.8
408	 4'-5"	DECK Sidewalk	$\frac{1}{2}\phi$	8'-9"	47	1	47	411.25	0.68	28.0
411	 39'-3"	Typ bent bars	$\frac{1}{2}\phi$	39'-3"	40	1	40	1570.00	0.86	135.0
410	 29'-8"	Typ Str. bottom	"	31'-0"	40	1	40	1240.00	0.86	106.6

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

KALAUAO SPRINGS BRIDGE

N2. 7 STA. 341+91.75 TO STA. 342+36.75

KAMEHAMEHA HIGHWAY

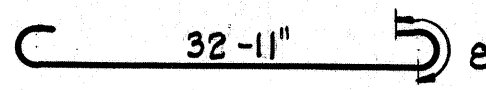
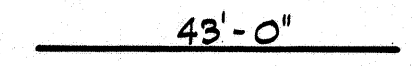
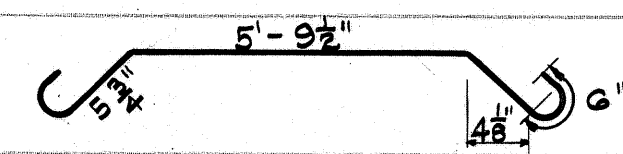
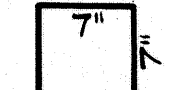
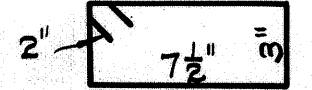
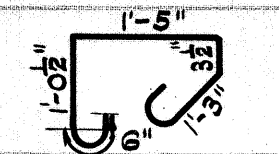
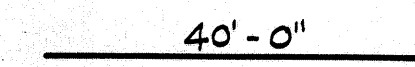
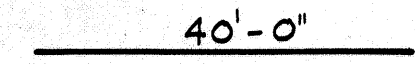
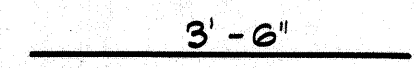
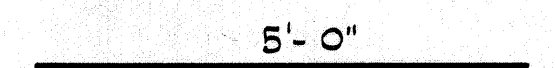
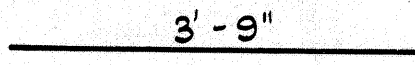
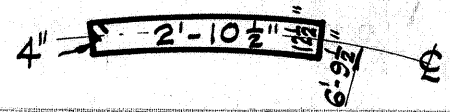
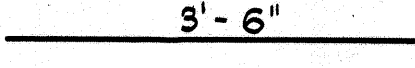
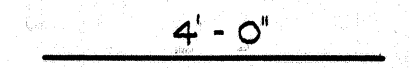
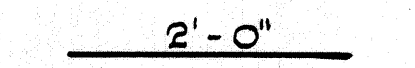
SHEET NO. 6 OF 7 SHEETS

4325.40

DESIGNED BY: W.R.B. 04-34
CHECKED BY: W.R.B. 04-34
DATE: June 1935
NOTED BY: W.R.B. 04-34
QUANTITIES BY: J.C.M. & C.F.W.
CHECKED BY: W.R.B.

STEEL SCHEDULE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	N.R.H. 9C	1935	41	72

MK	Description	Location	Size	Length	No. of Bars in ea. unit	No. of Units	Total No. of Bars	Total Length	Wt per Foot	Total Weight
409		Typ. Str. top	1/2" $\square$	34'-3"	40	1	40	1370 ⁰⁰	0.86	1178.
330		Typ. Temp steel	3/8" ϕ	43'-0"	52	1	52	2236 ⁰⁰	0.38	850
331		Typ. Stub bars	"	7'-9"	5	4	20	155 ⁰⁰	"	59
200		RAILING Bot. of rail	1/4" ϕ	1'-9"	55	2	110	192 ⁵⁰	0.17	33
201		Top of rail	1/4" ϕ	2'-1"	55	2	110	229 ¹⁷	0.17	39
337		Bot. Normal	3/8" ϕ	5'-0"	41	1	41	205 ⁰⁰	0.38	78
336		Top Bottom	"	40'-0"	4 4	2 1	8 4	480 ⁰⁰	"	182
414		Bottom	1/2" ϕ	40'-0"	2	2	4	160 ⁰⁰	0.68	109
413		Vert. Panels	1/2" ϕ	3'-6"	2	56	112	392 ⁰⁰	"	267
412		Posts	"	5'-0"	4 6	2 2	8 12	100 ⁰⁰	"	68
415		"	"	3'-9"	2	2	4	15 ⁰⁰	"	10
332		"	3/8" ϕ	8'-6"	4 6	2 2	8 12	170 ⁰⁰	0.38	65
333		" Block	"	3'-6"	3 4	2 2	6 8	49 ⁰⁰	0.38	19
334		" "	"	4'-0"	7	2	14	56 ⁰⁰	"	21
335		" "	"	2'-0"	7	2	14	28 ⁰⁰	"	11

Note:
All stirrup dimensions are to inside of stirrup. All other dimensions are figured on ϕ of bar.
This steel schedule is subordinate to details shown on plans. In case of discrepancy between steel list and detail drawings, the latter shall govern.
The Territorial Highway Dept. does not assume responsibility for any errors that occur in the steel schedule. Contractor shall check steel schedule before placing order.

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
KALAUAO SPRINGS BRIDGE
NO. 7 STA. 341+91.75 TO STA. 342+36.75
KAMEHAMEHA HIGHWAY
SHEET NO. 7 OF 7 SHEETS

4325.41

ORIGINAL PLAN	DATE
NOTED BOOK	Oct - 34
QUANTITY BY	May 35
CHECKED BY	June 35
W.B.	"
J.C.M.	"
J.H.C.	"
J.C.M. & C.F.W.	"
W.B.	"