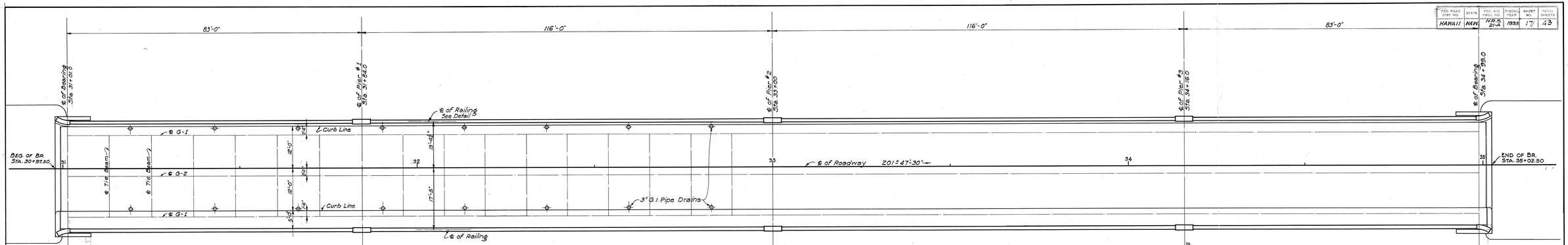
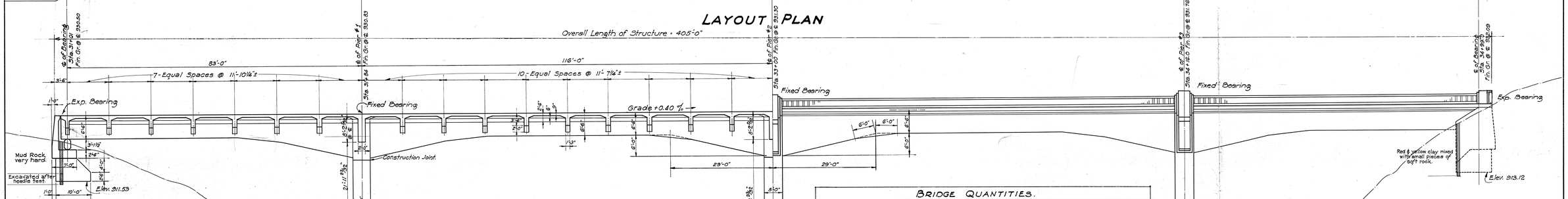
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	N.R.S. 21-A	1935	17	43



LAYOUT PLAN



HALF SECTION ALONG ℄

Scale 1"=10'-0"

BRIDGE QUANTITIES.

Location	Str. Exc. C.Y.	Class "C" conc. C.Y.	Class "A" conc. C.Y.	Steel. lbs.	16"x16" Conc. Piles. 20' long	25' long	30' long	Miscellaneous. Conc.	Steel.
Abut. Footings	393.0	107.0	51.0	5,979					
Abutments			51.0	2,970					404
Pier Footings	1,108.0 ~~1,044.0~~		324.0 ~~245.0~~	17,971 ~~14,887~~	46	42	50		
Piers			297.0	86,155					
Superstructure			1,220.0	283,435				2.0	684
Railing			42.0	5,466					
Total	1,501.0 ~~1,437.0~~	107.0	1,983.0 ~~1,904.0~~	401,776 ~~398,892~~	46	42	50	2.0	1,088

✦ GENERAL NOTES ✦

Dead Load: Concrete at 150# per cu.ft. Pavement at 23# per sq. ft.

Live Load: Train of 15 ton trucks in two traffic lanes. Impact allowance $\frac{50}{L+125}$.
Spacing of trucks as per diagram.

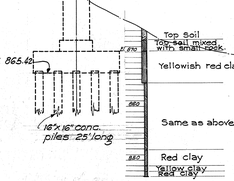
Concrete: Class "A" (1:2:4) with all exposed edges chamfered ¾" unless otherwise noted. Allowable compression 750# per sq. inch.

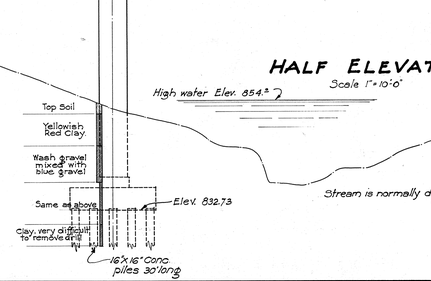
Reinforcing Steel: Intermediate grade, allowable tensile stress 18,000# per sq. inch. All steel to be round or square deformed bars of approved design, square twisted bars not to be considered deformed. All dimensions relating to reinforcing are to centers of bars unless otherwise noted.
Where splicing of reinforcing is necessary, bars are to be lapped 40 diameters and splices are to be staggered. Regarding splicing of main longitudinal bars see below. 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 2½" in abutments and abutment footings; 2" in beams, girders and handrails and 1¼" in slabs. Steel to be held rigidly & accurately in place before & during placing of concrete.

Splices: Splices are permitted in main bars exceeding 80'-0" in length at points to be indicated by the Engineer, to be electrically arc welded using wedge cutbacks and slip overcast. Splices to test at least full strength.

Brush Coat Waterproofing: Remove all projections, cement film, dirt, etc. Apply Waterproofing as specified. Waterproofing is incidental to the concrete used, and will not be paid for separately.

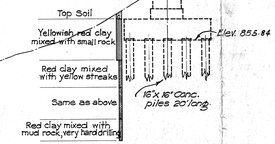
Construction Joints: All construction joints to have surface roughened and 1:2 cement grout applied immediately before second pour. Bottom construction joints to be at top of footings, top construction joints at bottom of girder haunches, railing construction joints at top of curb.





HALF ELEVATION.

Scale 1"=10'-0"



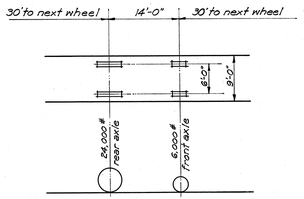


DIAGRAM OF TYPICAL 15 TON TRUCK

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

UPPER POAMOHO BRIDGE

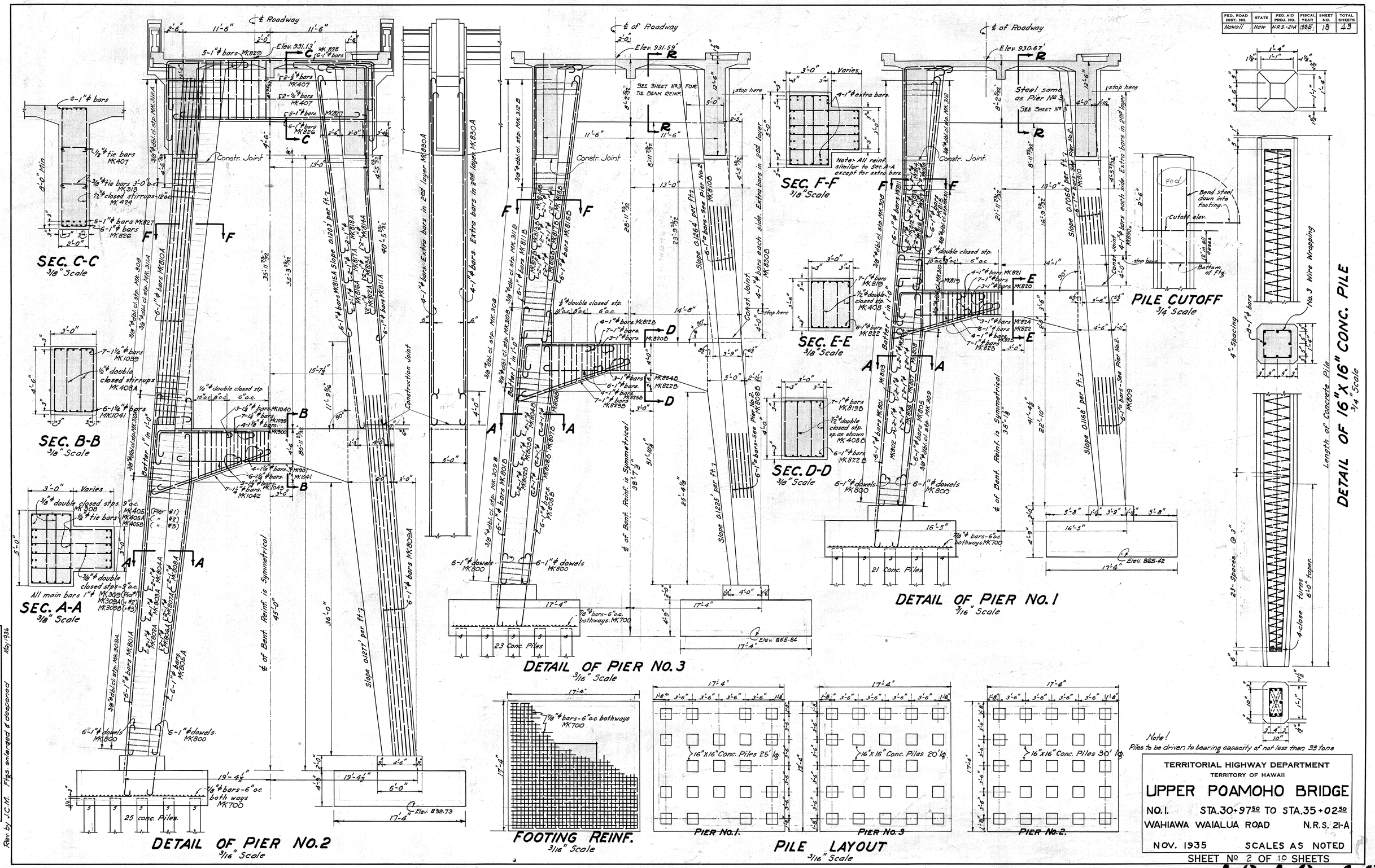
No. 1 STA. 30+97.50 TO STA. 35+02.50
WAHIAWA WAIALUA ROAD N.R.S. 21-A
NOV. 1935 SCALES AS NOTED
SHEET Nº 1 OF 10 SHEETS

4346.17

CONSTRUCTED BY	H.R.B.	DATE	Nov. 1935
DESIGNED BY	H.R.B.	"	"
DRAWN BY	H.R.B.	"	"
CHECKED BY	C.H.W.R. J.H.C.	"	"
CHECKED BY	H.R.B.	"	"
REVISED BY			
CHECKED BY			
No.			

Rev. by J.C.M. Pier widened and chamfered Mar. 1936

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
Hawaii	Haw.	N.R.S.-21-A	1935	18	43



ORIGINAL PLAN		
NOTE BOOK	SURVEY PLOTTED BY	N.R.B. DATE Nov. 1935
	DESIGNED BY	C.E.K. " " "
	TRACED BY	L.F. " " "
	QUANTITIES BY	C.R.M., H.V.M., H.H.G. " " "
	CHECKED BY	M.R.B. " " "
No.		

Rev. by J.C.M. Figs. enlarged & deepened May, 1936

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

UPPER POAMOHO BRIDGE

NO. 1. STA. 30+97.50 TO STA. 35+02.50

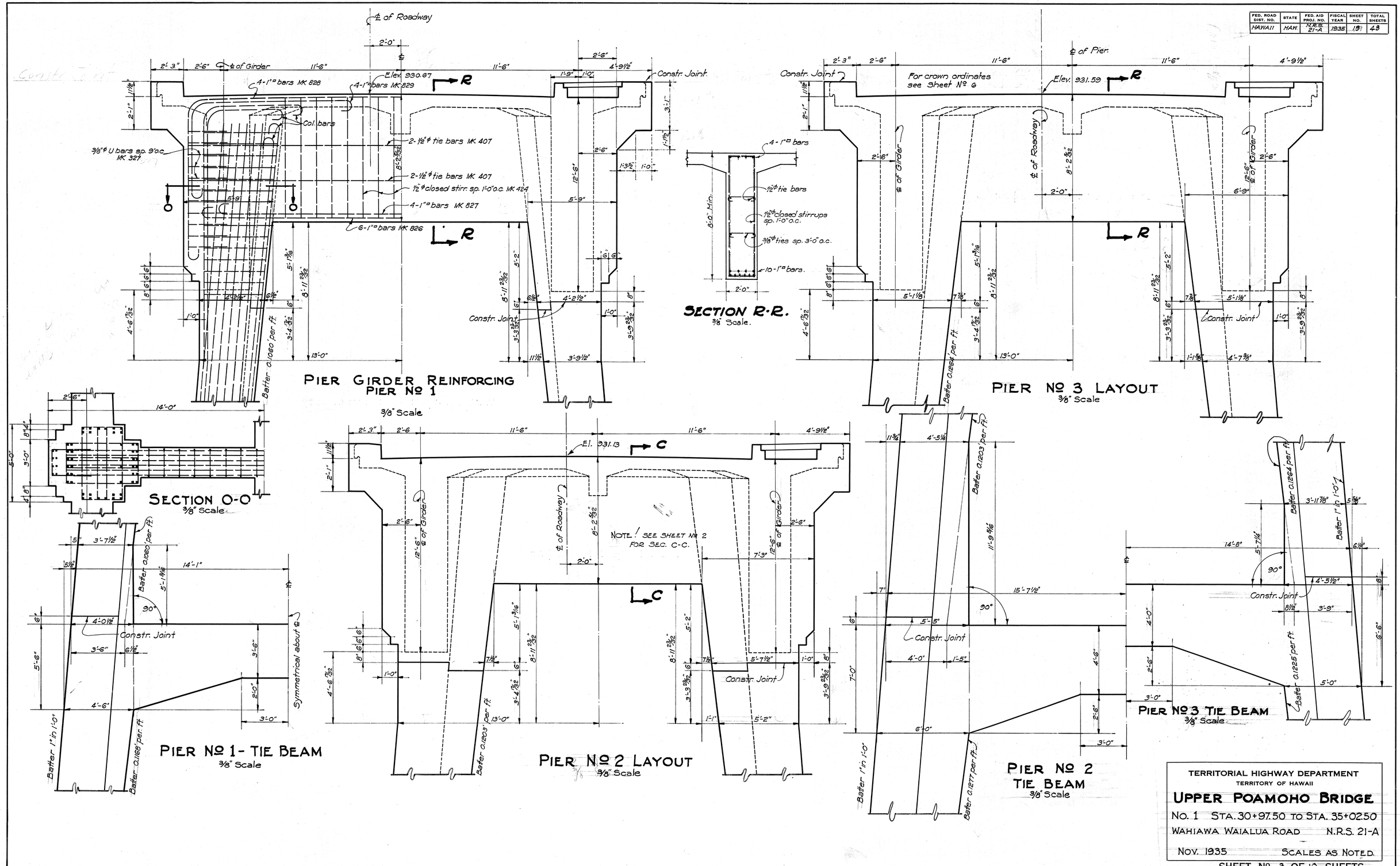
WAHIAWA WAIALUA ROAD N.R.S. 21-A

NOV. 1935 SCALES AS NOTED

SHEET No 2 OF 10 SHEETS

4346.18

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	N.R.S. 21-A	1935	19	48



ORIGINAL PLAN		
NOTE BOOK	SURVEY PLOTTED BY	DATE
	DESIGNED BY	W.R.B.
	DRAWN BY	C.P.K.
	TRACED BY	F.C.
	QUANTITIES BY	C.P.K., H.Y.H., H.H.C.
	CHECKED BY	W.R.B.
No.		

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

UPPER POAMOHO BRIDGE

NO. 1 STA. 30+97.50 TO STA. 35+02.50

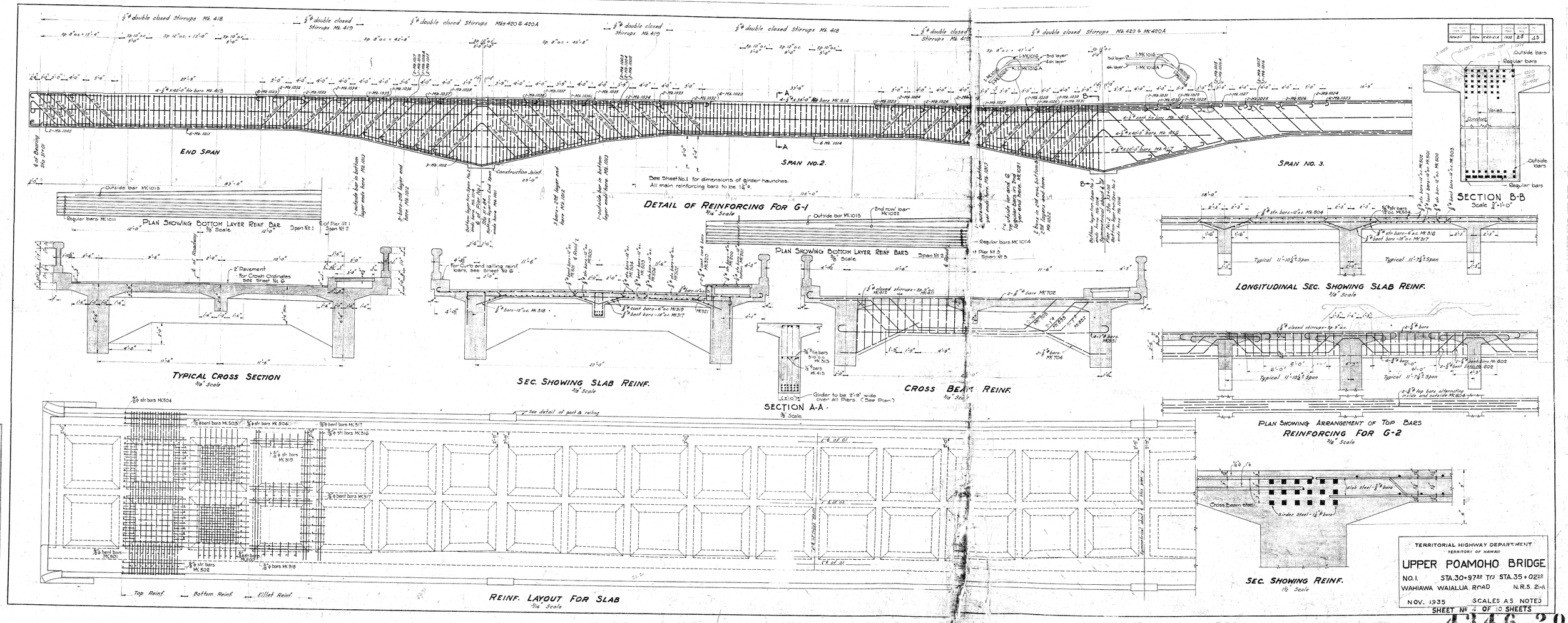
WAHIAWA WAIALUA ROAD N.R.S. 21-A

NOV. 1935 SCALES AS NOTED.

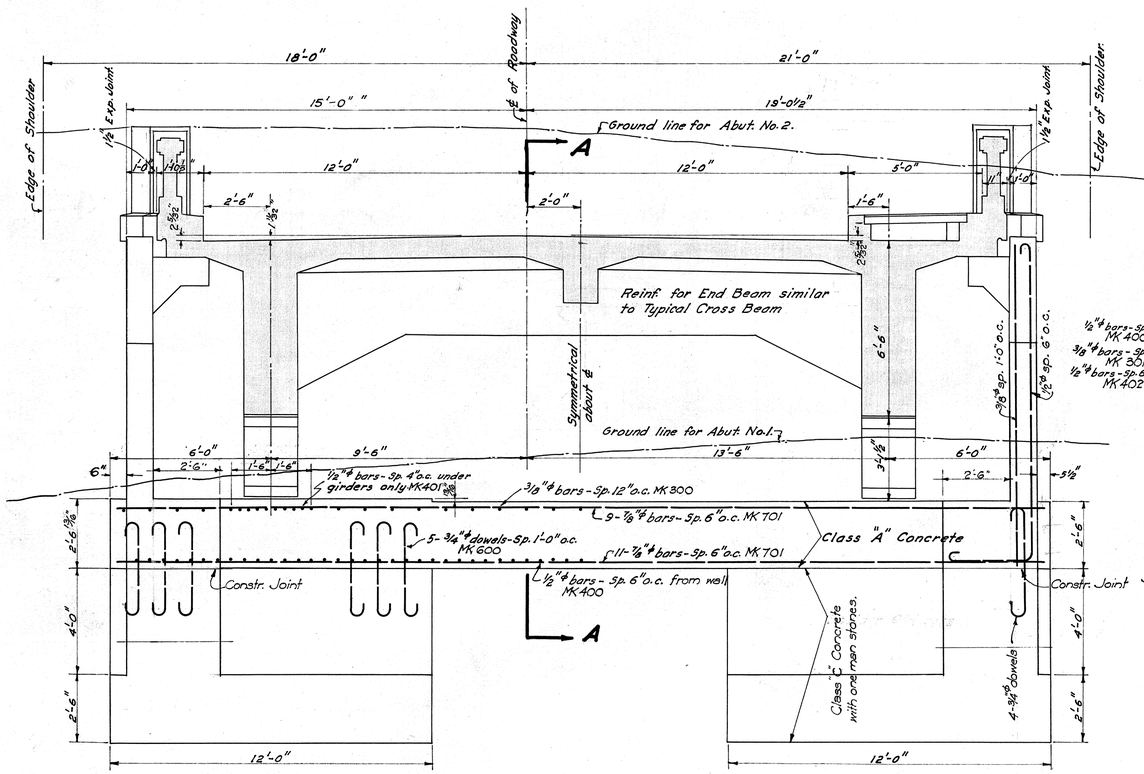
SHEET Nº 3 OF 10 SHEETS

4346.19

PRINTED ON "IMPERIAL" TRACING CLOTH
K & E CO., N.Y.

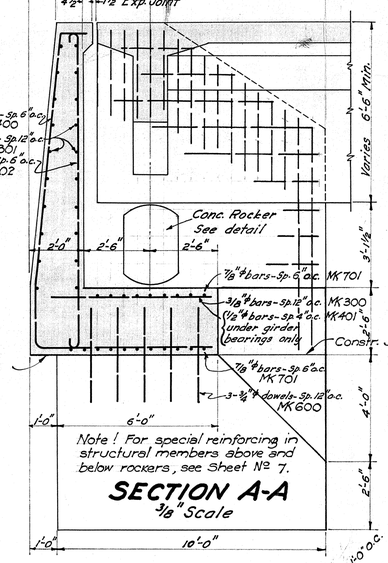

END SPAN
SPAN NO. 2.
SPAN NO. 3.
See Sheet No. 1 for dimensions of girder haunches.
All main reinforcing bars to be 1½" c.
DETAIL OF REINFORCING FOR G-1
3/16" Scale
PLAN SHOWING BOTTOM LAYER REINF. BAR
3/8" Scale
PLAN SHOWING BOTTOM LAYER REINF. BARS
3/8" Scale
SECTION B-B
Scale ¼"=1'-0"
LONGITUDINAL SEC. SHOWING SLAB REINF.
3/16" Scale
TYPICAL CROSS SECTION
3/8" Scale
SEC. SHOWING SLAB REINF.
3/8" Scale
SECTION A-A
3/8" Scale
CROSS BEAM REINF.
3/8" Scale
PLAN SHOWING ARRANGEMENT OF TOP BARS
REINFORCING FOR G-2
3/16" Scale
SEC. SHOWING REINF.
1½" Scale
REINF. LAYOUT FOR SLAB
3/16" Scale
Top Reinf.
Bottom Reinf.
Fillet Reinf.
TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
UPPER POAMOHO BRIDGE
NO. 1. STA. 30+97.22 TO STA. 35+02.22
WAHIAWA WAIALUA ROAD N.R.S. 21-A
NOV. 1935 SCALES AS NOTED
SHEET No. 4 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
Hawaii	HAW.	N.R.S.-21-A	1935	21	43



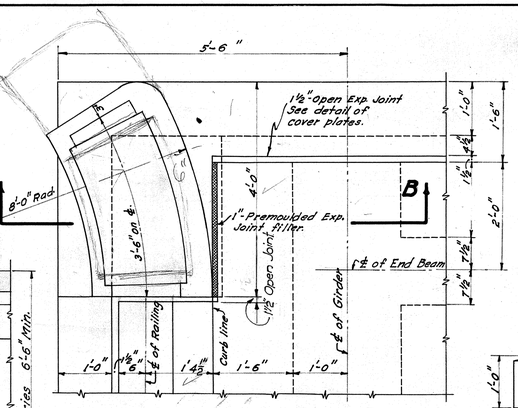
ABUTMENT No. 2.
3/8" Scale

ABUTMENT No. 1. IS SIMILAR

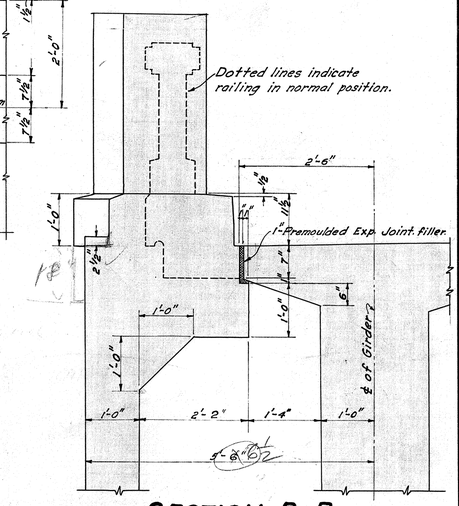


Note! For special reinforcing in structural members above and below rockers, see Sheet No. 7.

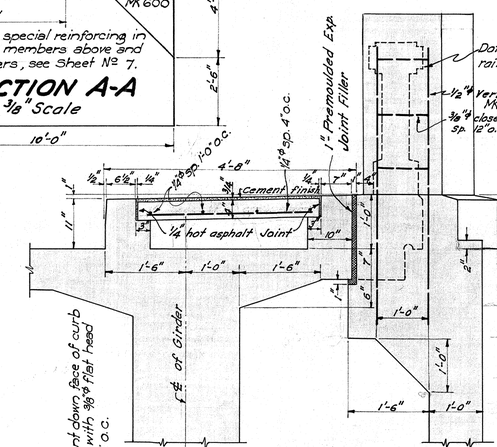
SECTION A-A
3/8" Scale



PLAN OF END POST NORMAL SIDE
3/4" Scale

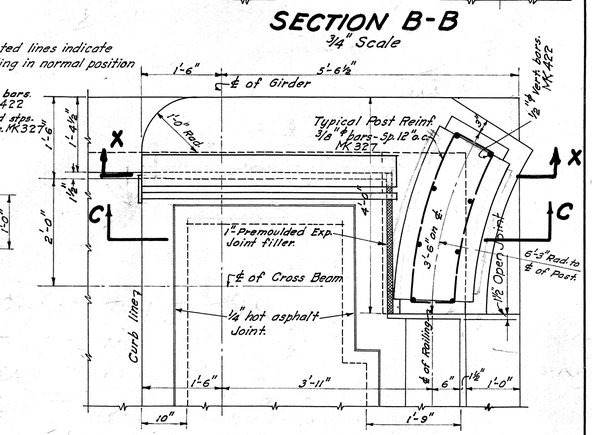


SECTION B-B
3/4" Scale

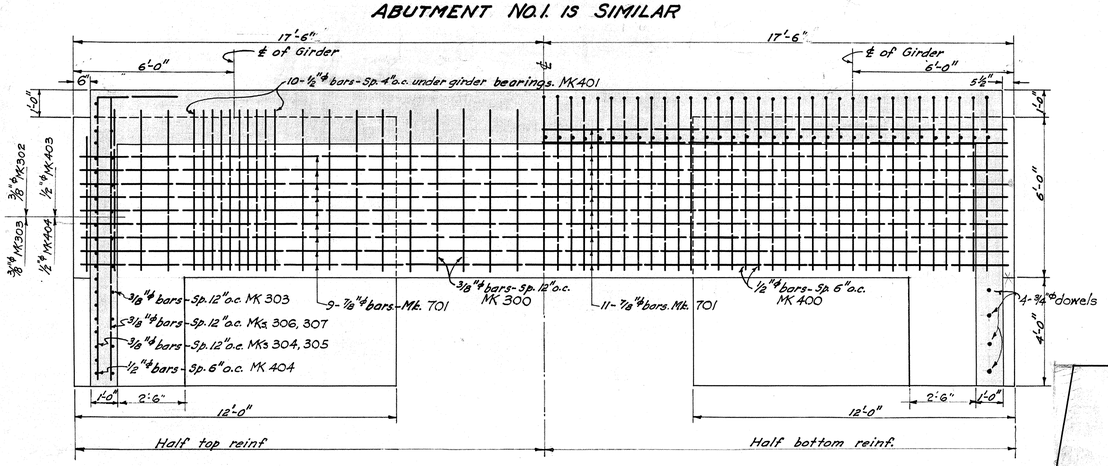


SECTION C-C
3/4" Scale

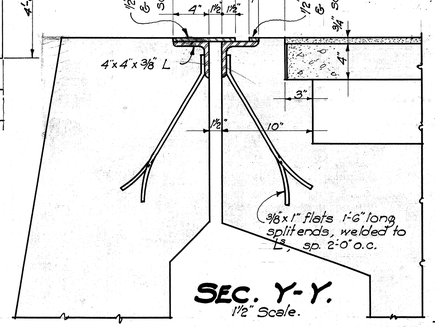
Note! Reinforcing for Normal End Post shall be similar to that shown for Sidewalk Post.



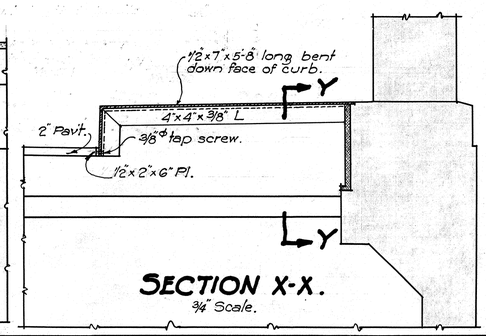
PLAN OF END POST SIDEWALK SIDE
3/4" Scale



ABUTMENT FOOTING REINF.
3/8" Scale



SEC. Y-Y.
1½" Scale.



SECTION X-X.
3/4" Scale.

Note! All structural steel members to be galvanized.

ORIGINAL PLAN		
NOTE BOOK	SURVEY PLOTTED BY	
	DESIGNED BY	N.R.B.
	DRAWN BY	C.F.K.
	TRACED BY	" "
	QUANTITIES BY	C.F.K. H.Y.H. H.H.C.
	CHECKED BY	W.E.B.
No.	DATE	Nov. 1935

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

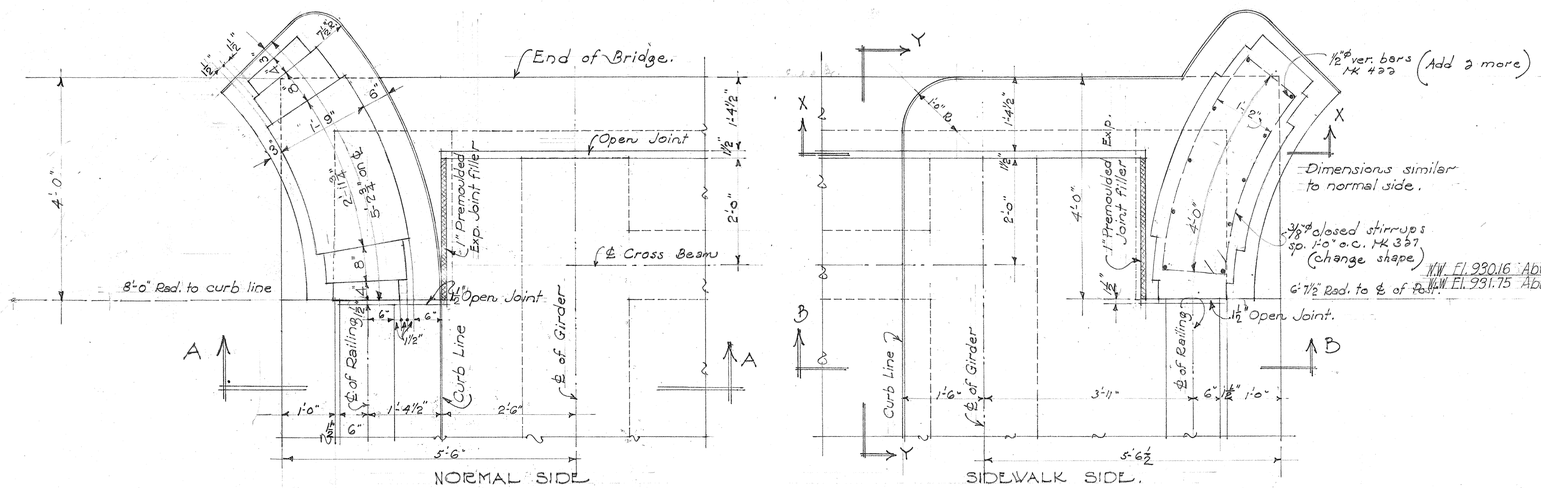
UPPER POAMOHO BRIDGE

NO. 1. STA. 30+97.50 TO STA. 35+02.50
WAHIAWA WAIALUA ROAD N.R.S. 21-A
NOV. 1935 SCALES AS NOTED
SHEET No. 5 OF 10 SHEETS

4346.21

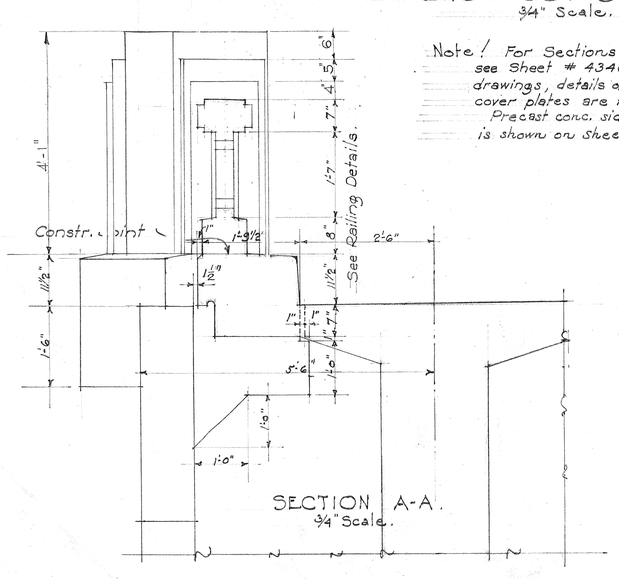
PRINTED ON MONITY TRACING CLOTH

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
Hawaii	Haw	NRS 21 A	1936	21 A	

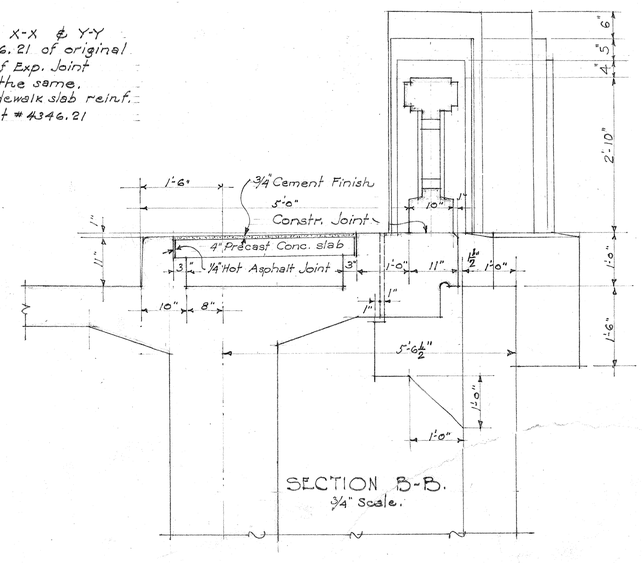


END POST DETAILS.
¾" Scale.

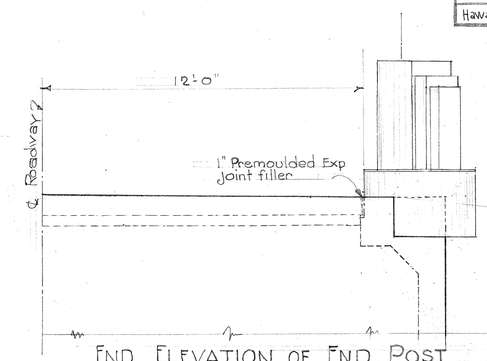
Note! For Sections X-X & Y-Y see Sheet # 4346.21 of original drawings, details of Exp. Joint cover plates are the same. Precast conc. sidewalk slab reinf. is shown on sheet # 4346.21



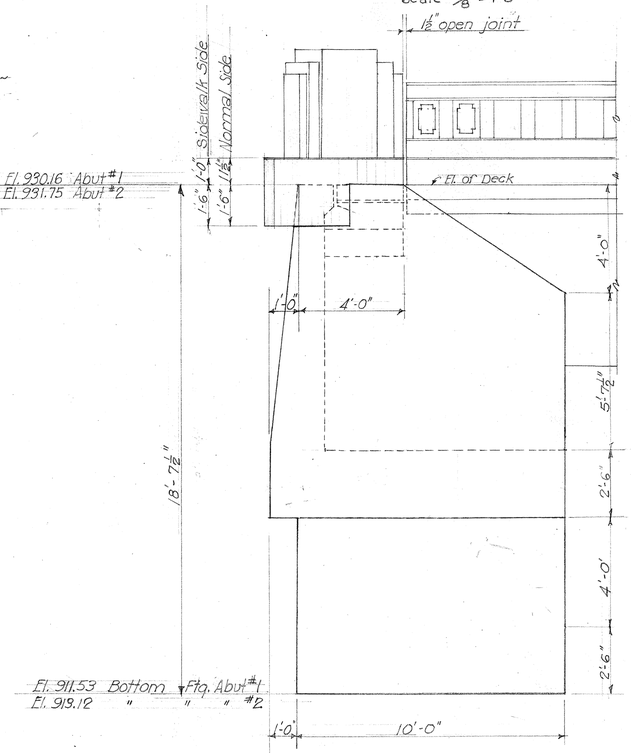
SECTION A-A.
¾" Scale.



SECTION B-B.
¾" Scale.



END ELEVATION OF END POST
Scale ⅜" = 1'-0"



SIDE ELEVATION OF END POST & WINGWALL
Scale ⅜" = 1'-0"

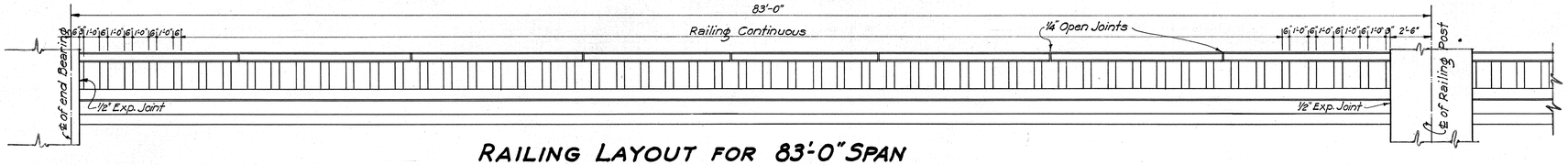
REVISED JUNE 29 1936

SUPPLEMENT TO SHEET Nº 4346.21A

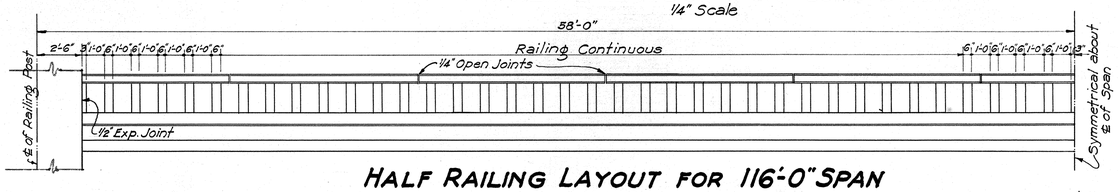
N.R.S. 21-A.

JUNE 17 1936.

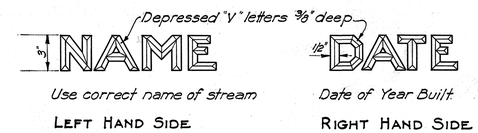
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	N.R.S. 21-A	1935	22	43



RAILING LAYOUT FOR 83'-0" SPAN
1/4" Scale

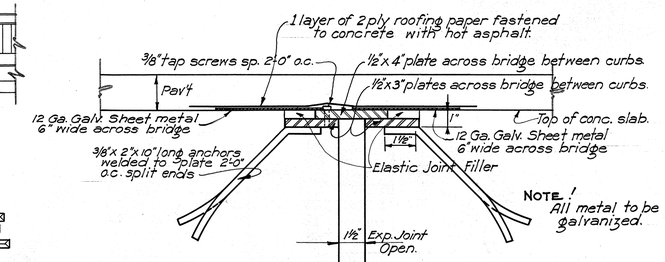


HALF RAILING LAYOUT FOR 116'-0" SPAN
1/4" Scale



DETAIL OF LETTERS & FIGURES AT BOTH APPROCHES

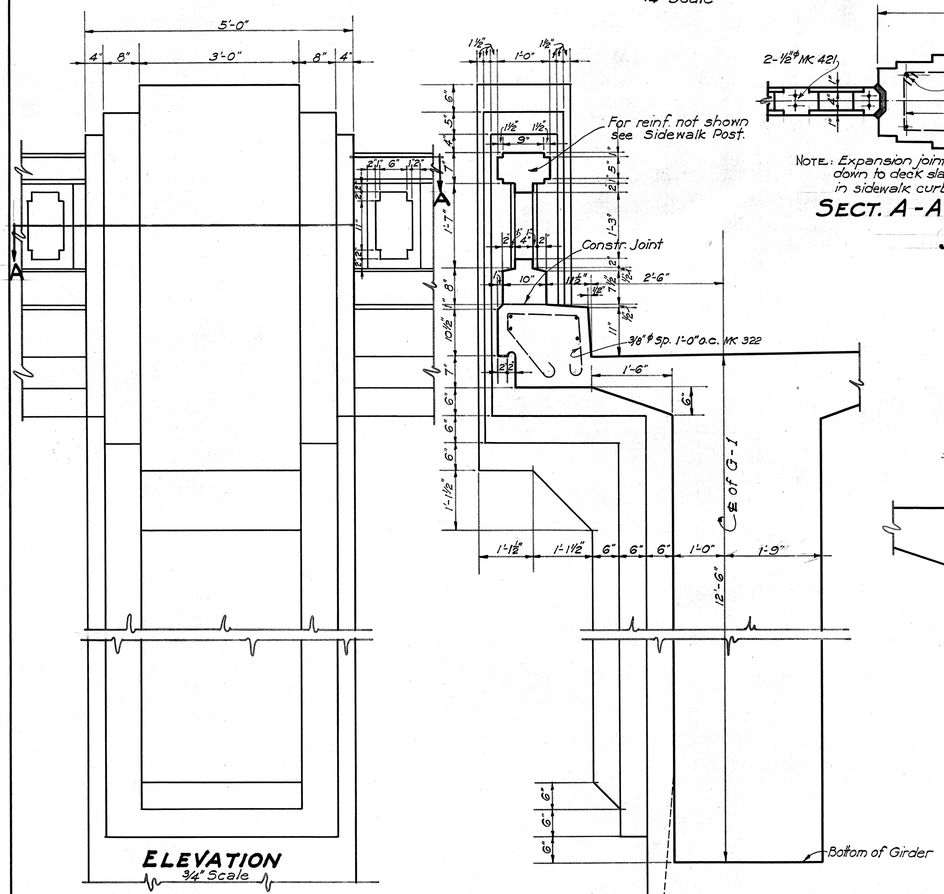
NOTE.! Name of Stream to be placed in left end post panels & date in right end post panels on entering bridge using standard block letters 3" in height.



NOTE.! All metal to be galvanized.

DETAIL OF EXPANSION JOINT

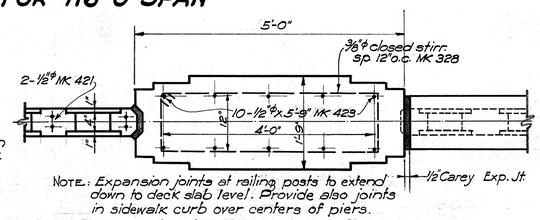
NOTE.! Effective precautions must be taken by Contrator to prevent any leakage of pavement binder thru expansion joint at curbs.



ELEVATION
3/4" Scale

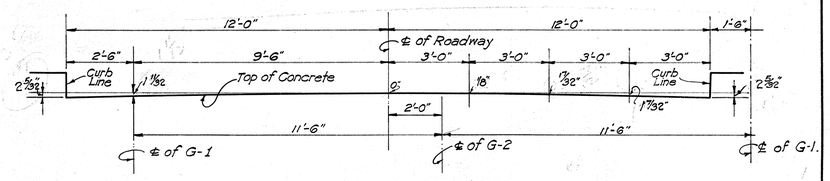
SECTION

NORMAL PIER POST
3/4" Scale

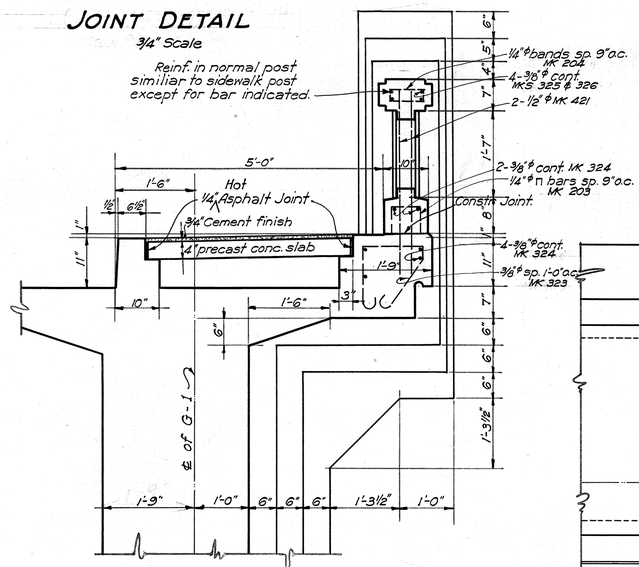


NOTE.: Expansion joints at railing posts to extend down to deck slab level. Provide also joints in sidewalk curb over centers of piers.

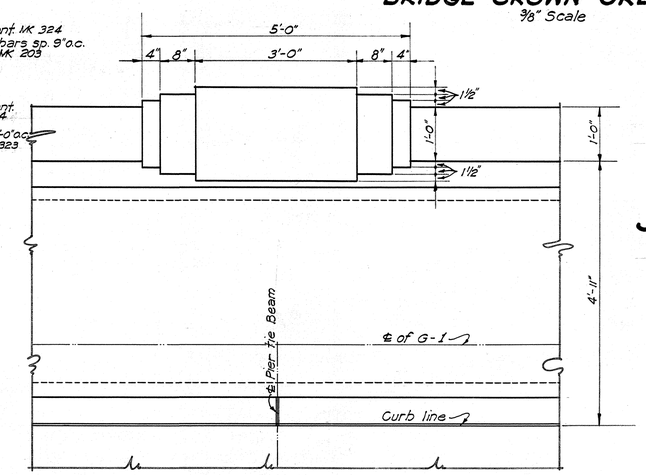
SECT. A-A SHOWING EXPANSION JOINT DETAIL
3/4" Scale



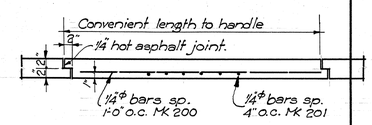
BRIDGE CROWN ORDINATES
3/8" Scale



SECTION

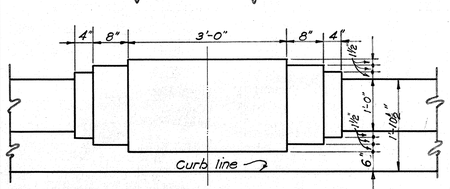


PLAN



JOINT DETAIL FOR PRECAST CONCRETE SIDEWALK BLOCKS
3/4" Scale.

SIDEWALK POST DETAILS
For Dimensions not shown see normal side
3/4" Scale



PLAN OF PIER POST
3/4" Scale

ORIGINAL PLAN		
	SURVEY PLOTTED BY	DATE
	DESIGNED BY W.R.B.	
	TRACED BY W.K.	" Nov. 1935
NOTE BOOK	DESIGNED BY F.C.	" "
	TRACED BY "	" "
	QUANTITIES BY C.F.M., H.Y.H., H.H.C.	" "
No.	CHECKED BY W.B.B.	"

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

UPPER POAMOHO BRIDGE

NO. 1 STA. 30+97.50 TO STA. 35+02.50

WAHIAWA WAIALUA ROAD N.R.S. 21-A.

NOV. 1935 SCALES AS NOTED.

SHEET No 6 OF 10 SHEETS

4346.22

PRINTED ON "HIGHLIGHT" TRACING CLOTH

STEEL SCHEDULE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
Hawaii	HAW	NRS 21 A	1935	24	43

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
700	15'-6"	FOOTINGS Pier Ftgs	7/8"φ	15'-6"	62	6	372	5766.	2.07	11,936
800	17 9'-0" 17"	" " Dowels	1"□	11'-10"	12	6	72	852	3.44	2,931
600	13 2'-0" 13"	About. " "	3/4"φ	5'-2"	68	2	136	702.67	1.52	1,068
701	34'-6"	" "	7/8"φ	34'-6"	20	2	40	1380	2.07	2,857
300	6'-0"	" "	3/8"φ	6'-0"	27	2	54	324	0.38	123
400	9'-5" 12" 9'-4½" 2'-5" 6'-6" 12" MK400	" " & Wall	1/2"φ	19'-2"	54	2	108	2079	0.68	1,414
400A	10'-3" MK400A 6'-0" MK401	" " "	"	20'-0"	13	2	26	520	"	354
401		" "	"	6'-0"	20	2	40	240	"	163
402	8" d 8" d = 11'-2"	ABUTMENTS About walls, Vert	"	12'-6"	54	2	108	1367.28	"	930
402A	d = 12'-1"	" " "	"	13'-5"	13	2	26	348.92	"	237
403	8" 11'-6" MK403 Varies 8" MK404 8" 2'-10" 2'-10" Max = 11'-6" Min. = 8'-2" Av. = 9'-4"	Ret. " "	"	15'-8"	9	4	36	564	"	384
404		" " "	"	13'-6"	12	4	48	648	"	441
301	33'-6"	About. Hor.	3/8"φ	33'-6"	20	2	40	1340	0.38	509
302	11'-8"	Ret. " Vert	"	11'-8"	4	4	16	187.33	"	71
303	Varies Max = 11'-2" Min. = 8'-0" Av. = 9'-7"	" " "	"	(Av.) 9'-7"	6	4	24	223	"	85
304	10'-6" 3'-0"	" " Hor.	"	13'-6"	6	4	24	325	"	123
305	Varies 3'-0" Max 8'-0" Min. 4'-6" Av. 6'-3"	" " "	"	(Av.) 9'-3"	4	4	16	148	"	56
306	10'-6"	" " "	"	10'-6"	6	4	24	252	"	96
307	Varies Max 8'-0" Min 4'-6" Av. 6'-3"	" " "	"	(Av.) 6'-3"	4	4	16	100	"	38
801	17 32'-5" 17"	PIERS Pier #1 Vert	1"□	35'-3"	6	2	12	423	3.44	1,448
802	6" 2'-4" 17" C = 19'-8"	" " "	"	25'-4"	2	2	4	101.33	"	349
803	C = 15'-8"	" " "	"	21'-4"	2	2	4	85.33	"	294
804	C = 11'-8"	" " "	"	17'-4"	2	2	4	69.33	"	238
805	17" 9'-0" 17" 4'-5"	" " "	"	34'-10"	6	2	12	418	"	1,438
806	12 23'-0" 12 C = 13'-6"	" " "	"	20'-9"	2	2	4	83	"	286
807	17" MK805 17" MK806 " 807 " 808 C = 9'-6"	" " "	"	16'-9"	2	2	4	67	"	230
808	C = 5'-6"	" " "	"	12'-9"	2	2	4	51	"	175
809	d 17 17 6" 15'-8" 17" d = 31'-8"	" " "	"	34'-6"	12	2	24	828	"	2,848
810	MK809 " 810 d = 26'-4"	" " "	"	29'-2"	12	2	24	700	"	2,408
811	12'-3" 17" MK811	" " "	"	37'-1"	6	2	12	445	"	1,531

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
812	6" 14'-5" 17" 15'-5" C = 7'-9"	Pier #1 Vert	1"□	30'-11"	2	2	4	123.67	3.44	425
813	6" 14'-8" 17" 15'-2" C = 4'-0"	" " "	"	27'-2"	2	2	4	108.67	"	374
814	MK812 " 813 17" MK814	" " "	"	22'-11"	2	2	4	91.67	"	315
815	17 27'-9" 17	" " "	"	30'-7"	6	2	12	367.	"	1,262
816	17 22'-0" 17	" " "	"	24'-10"	2	2	4	99.33	"	342
817	17" 18'-0" 17"	" " "	"	20'-10"	2	2	4	83.33	"	287
818	17" 14'-0" 17"	" " "	"	16'-10"	2	2	4	67.33	"	232
819	6" 26'-0" 6" 35" 12 17"	" " Tie Beam	"	37'-4"	7	1	7	261.33	"	899
820	6" d 17" 12'-8" MK820 " 821 17" d = 10'-5"	" " "	"	16'-5"	3	2	6	98.5	"	339
821	d = 7'-5"	" " "	"	13'-5"	4	2	8	107.33	"	369
822	17 22'-2" 17	" " "	"	25'-0"	6	1	6	150	"	516
823	17" 14'-1" 17"	" " "	"	16'-11"	7	2	14	236.83	"	815
824	17" 12'-6" 17"	" " "	"	15'-4"	3	2	6	92	"	316
825	17" 9'-4" 17"	" " "	"	12'-2"	4	2	8	97.33	"	335
405	33'-0"	" " Vert	1/2"φ	33'-0"	4	2	8	264	0.68	180
406	27'-0"	" " "	"	27'-0"	4	2	8	216	"	148
308	6" 4'-7"	Stirrups for Piers #1, 2 & 3.	3/8"φ	13'-4"	Pier #1 " #2 " #3	296 468 352	1116	14,880	0.38	5,654
309	6" Varies Max 4'-0" Min 3'-6" Av. 3'-9"	Pier #1 Stirrs.	"	(Av.) 11'-8"	60	2	120	1,400	"	532
310	6" Varies max 4'-0" min. 3'-0" Av. 3'-6"	" " "	"	(Av.) 11'-2"	26	2	52	580.67	"	221.
311	6" Varies max. 3'-4" min 3'-0" Av. 3'-2"	" " "	"	(Av.) 10'-6"	24	2	48	504.	"	192
312	6" Varies max 4'-10¼" min 3'-5¼" Av. 4'-2"	" " "	"	(Av.) 12'-6"	38	2	76	950.	"	361
408	3'-1" 9"	" " Tie-Bm.	1/2"φ	10'-8"	13	2	26	277.33	0.68	189
409	6" Varies 9" max 4'-11" min. 3'-3" Av. 4'-1"	" " "	"	(Av.) 12'-8"	22	2	44	557.33	"	379
830	17 20'-10" 17	" " Vert.	1"□	23'-8"	8	2	16	378.67	3.44	1,303
801A	17 47'-4" 17	Pier #2 "	"	50'-2"	6	2	12	602	"	2,071
802A	6" 3'-10" 17" C = 30'-4"	" " "	"	37'-6"	2	2	4	150	"	516
803A	MK802A " 803A " 804A C = 26'-4"	" " "	"	33'-6"	2	2	4	134	"	461
804A	C = 22'-4"	" " "	"	29'-6"	2	2	4	118.	"	405

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
805A	17" 10'-8" 17" 6'-0"	Pier #2 Vert	1"□	49'-8"	6	2	12	596	3.44	2,394
806A	12 36'-2" 12 C = 22'-6"	" " "	"	31'-4"	2	2	4	125.33	"	428
807A	17" MK805A 17" MK806A " 807A " 808A C = 18'-6"	" " "	"	27'-4"	2	2	4	109.33	"	376
808A	C = 14'-6"	" " "	"	23'-4"	2	2	4	93.33	"	321
809A	17" 47'-0" 17"	" " "	"	49'-10"	12	2	24	1196.	"	4,114
810A	17" 45'-2" 17"	" " "	"	48'-0"	12	2	24	1152	"	3,963
811A	6" 5'-8" 17" 4'-5" 15'-10"	" " "	"	55'-7"	6	2	12	667	"	2,294
812A	12 30'-0" 12 6" 15'-8" 17" C = 16'-0"	" " "	"	39'-5"	2	2	4	157.67	"	542
813A	17" MK811A 17" MK812A " 813A " 814A C = 12'-0"	" " "	"	35'-5"	2	2	4	141.67	"	487
814A	C = 8'-0"	" " "	"	31'-5"	2	2	4	125.67	"	432
815A	17 46'-0" 17	" " "	"	48'-10"	6	2	12	586	"	2,016.
816A	17" 30'-4" 17"	" " "	"	33'-2"	2	2	4	132.67	"	456
817A	17" 26'-4" 17"	" " "	"	29'-2"	2	2	4	116.67	"	401
818A	17" 22'-4"	" " "	"	25'-2"	2	2	4	100.67	"	346
830A	17 39'-0" 17	" " "	"	41'-10"	8	2	16	669.33	"	2,303
1039	6" 28'-10" 8" 21"	" " Tie Bm.	1¼"□	41'-0"	7	1	7	287.	5.37	1,541
900	21 11'-3⅛" 19"	" " "	1⅛"□	18'-2"	4	2	8	145.33	4.35	632
1040	13 8'-9" 21"	" " "	1¼"□	15'-6"	3	2	6	93.	5.37	499
1041	21" 24'-0" 21"	" " "	"	27'-6"	6	1	6	165	"	886
1042	21" 16'-0" 21"	" " "	"	19'-6"	7	2	14	273	"	1,466
901	19" 14'-0" 19"	" " "	1⅛"□	17'-2"	4	2	8	137.33	4.35	597
1043	21" 11'-0" 21"	" " "	1¼"□	14'-6"	3	2	6	87	5.37	467
405A	47'-6"	" " Vert.	1/2"φ	47'-6"	4	2	8	380	0.68	258
406A	45'-9"	" " "	"	45'-9"	4	2	8	366	"	249

CONTRACTORS NOTE

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.
All stirrup dimensions are to inside of stirrups: all other dimensions are figured on ℄ of bar.

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

UPPER POAMOHO BRIDGE
No 1 - STA. 30+97.50 TO STA. 35+02.50
WAHIAWA WAIALUA ROAD N.R.S. 21A
DEC. 1935

SHEET No 8 OF 10 SHEETS

ORIGINAL PLAN
SURVEY PLOTTED BY — DATE
DESIGNED BY — " Nov. 1935
DRAWN BY H.Y.M.
TRACED BY H.Y.M.
QUANTITIES BY H.H.C., H.Y.M., C.F.W.
CHECKED BY — " Dec. "
NOTE BOOK — No.

4346.24

PRINTED ON "IMPERIAL" TRACING CLOTH K & E CO., N. Y.

STEEL SCHEDULE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	N.R.S.21A	1935	2.5	43

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
309 A	Varies 1'-7" 6'-6" Max. 5'-6" Min. 4'-0" Av. 4'-9"	PIERS PIER #2 Stirrups	3/8"ϕ	Av. 13'-8"	96	2	192	2624.0	0.38	997
310 A	Varies 1'-7" 6'-6" Max. 5'-5" Min. 4'-0" Av. 4'-8½"	" "	"	Av. 13'-7"	28	2	56	760.67	"	289
311 A	Varies 1'-7" 6'-6" Max. 4'-8" Min. 4'-1" Av. 4'-4½"	" "	"	Av. 12'-11"	74	2	148	1911.67	"	726
312 A	Varies 1'-7" 6'-6" Max. 6'-5¼" Min. 4'-10¼" Av. 5'-7¾"	" "	"	Av. 15'-6"	38	2	76	1178.0	"	448
408 A	4'-1½" 1'-9⅛" 6'-6"	" Tie Beam	1/2"ϕ	12'-10"	12	2	24	308.0	0.68	209
409 A	Varies 1'-9⅛" 6'-6" Max. 6'-5" Min. 4'-3" Av. 5'-4"	" "	"	Av. 15'-3"	22	2	44	671.0	"	456
801 B	36'-0" 7"	PIER #3 Vert.	1"ϕ	38'-10"	6	2	12	466.0	3.44	1603
802 B	6" 3'-0" 17" 6" 3'-0" 17" 6" 3'-0" 17" 21'-4" 17'-4" 13'-4" 12 802-B 803-B 804-B	" "	"	27'-8"	2	2	4	110.67	"	381
803 B		" "	"	23'-8"	2	2	4	94.67	"	326
804 B		" "	"	19'-8"	2	2	4	78.67	"	271
805 B	7" 7" 10'-2" 5'-9" 23'-9" 12 C MK 806 B, C = 13'-8" MK 807 B, C = 9'-8" MK 808 B, C = 5'-8" 805 B	" "	"	38'-3"	6	2	12	459.0	"	1579
806 B		" "	"	22'-2"	2	2	4	88.67	"	305
807 B		" "	"	18'-2"	2	2	4	72.67	"	250
808 B		" "	"	14'-2"	2	2	4	56.67	"	195
809 B	35'-10" 17"	" "	"	38'-8"	12	2	24	928.0	"	3192
810 B	33'-7" 17"	" "	"	36'-5"	12	2	24	874.0	"	3007
811 B	5'-8" 4'-8" 6" 6" 8'-0" 8'-6" 17" 19'-6" 12 7" (d) Varies MK 812 B, d = 11'-8" MK 813 B, d = 7'-8" MK 814 B, d = 3'-8"	" "	"	44'-4"	6	2	12	532.0	"	1830
812 B		" "	"	35'-1"	2	2	4	140.33	"	483
813 B		" "	"	31'-1"	2	2	4	124.33	"	428
814 B		" "	"	27'-1"	2	2	4	108.33	"	373
815 B	34'-8" 17"	" "	"	37'-6"	6	2	12	450.0	"	1548
816 B	25'-10" 17"	" "	"	28'-8"	2	2	4	114.67	"	394
817 B	21'-10" 17"	" "	"	24'-8"	2	2	4	98.67	"	339
818 B	17'-10" 17"	" "	"	20'-8"	2	2	4	82.67	"	284
830 B	27'-8" 17"	" "	"	30'-6"	8	2	16	488.0	"	1679
819 B	2'-3½" 27'-4" 2'-3½" 17"	" X Ties	"	38'-8"	7	1	7	270.67	"	931
820 B	6" (d) Varies 2'-7" 17" MK 820 B, d = 10'-10" MK 821 B, d = 7'-10"	" "	"	16'-9"	3	2	6	100.50	"	346
821 B		" "	"	13'-9"	4	2	8	110.0	"	378

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
822 B	22'-4" 17"	PIER #3 x ties	1"ϕ	25'-2"	6	1	6	151.0	3.44	519
823 B	15'-0" 17"	" "	"	17'-10"	7	2	14	249.67	"	859
824 B	13'-7" 17"	" "	"	16'-5"	3	2	6	98.50	"	339
825 B	10'-8" 17"	" "	"	13'-6"	4	2	8	108.0	"	372
405 B	36'-6"	" Vert.	1/2"ϕ	36'-6"	4	2	8	292.0	0.68	199
406	34'-3"	" "	"	34'-3"	4	2	8	274.0	"	186
309 B	Varies 1'-7" 6'-6" Max. 4'-6" Min. 3'-7" Av. 4'-0½"	" Stirr.	3/8"ϕ	Av. 12'-3"	68	2	136	1666.0	0.38	633
310 B	Varies 1'-7" 6'-6" Max. 4'-7" Min. 3'-8" Av. 4'-1½"	" "	"	Av. 12'-5"	26	2	52	645.67	"	245
311 B	Varies 1'-7" 6'-6" Max. 4'-3" Min. 3'-7" Av. 3'-11"	" "	"	Av. 12'-0"	44	2	88	1056.0	"	401
312 B	Varies 1'-7" 6'-6" Max. 5'-11½" Min. 4'-3½" Av. 5'-1½"	" "	"	Av. 14'-5"	38	2	76	1095.67	"	416
408 B	3'-7" 1'-9⅛" 6'-6"	" x ties	1/2"ϕ	11'-9"	12	2	24	282.0	0.68	192
409 B	Varies 1'-9⅛" 6'-6" Max. 4'-10" Min. 3'-10" Av. 4'-4"	" "	"	Av. 13'-3"	22	2	44	583.0	"	396
826	25'-0" 17"	SUPERSTR. Pier Tie Bms	1"ϕ	27'-10"	6	3	18	501.0	3.44	1723
827	23'-0" 17"	" "	"	25'-10"	Pier 1 - 4 " 2 - 5 " 3 - 4	13	335.83	"	1155
828	6" 26'-10" 6" 9'-8" 17" 9'-8"	" "	"	30'-0"	Pier 1 - 4 " 2 - 6 " 3 - 4	14	700.0	"	2408
829	6" 9'-10" 17" 5'-4"	" "	"	18'-6"	Pier 1 - 8 " 2 - 10 " 3 - 8	26	481.0	"	1655
407	27'-6"	" "	1/2"ϕ	27'-6"	4	3	12	330.0	0.68	224
313	1'-4" 6"	" "	3/8"ϕ	2'-4"	G-1 - 184 Tie Bm 48	232	541.33	0.38	208
424	6" 7'-7" 1'-7"	" "	1/2"ϕ	19'-4"	20	3	60	1160.0	0.68	789
327	2'-7" 2'-8" 2'-6"	" "	3/8"ϕ	7'-7"	22	3	66	500.50	0.38	190
1000	2'-7" 7'-2⅛" 27'-9" 7'-2⅛" 2'-7" 5'-6" 5'-0" 21"	GIRDERS G-1	1¼"ϕ	51'-4"	4	2	8	410.67	5.37	2205
1001	5'-10" 7'-2⅛" 35'-9" 7'-0⅞" 2'-7" 5'-8" 5'-0" 21"	" "	"	62'-7"	4	2	8	500.67	"	2689
1002	2'-10" 7'-2⅛" 42'-9" 7'-0⅞" 2'-7" 5'-8" 5'-0" 21"	" "	"	66'-7"	4	2	8	532.67	"	2860
1003	10" 8'-1⅛" 42'-9" 4'-11¾" 8'-2⅛" 48'-2" 5'-8" 6¾" 21"	" "	"	116'-7"	4	2	8	932.67	"	5008
1004	6'-0" 12'-6½" 21" 4'-11½" 44'-9" 4'-11½" 8'-7" 8'-2⅛" 44'-2" 6'-2½" 21"	" "	"	118'-5"	4	2	8	947.33	"	5087
1005	49'-4" 1'-4" 12'-2⅞" 12'-2" 9'-2¾" 40'-2" 6'-7" 21"	" "	"	114'-7"	4	2	8	916.67	"	4923
1006	2'-4¾" 8'-1¼" 25'-8" 6'-6" 6'-6" 8'-2¼" 2'-4¾" 6'-6" 2'-4"	" "	"	52'-2"	6	2	12	626.0	"	3362

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
1007	17'-6" 6" 2'-2½" 8'-3¼" 2'-4¾" 21" 7'-5" 2'-4"	GIRDERS G-1	1¼"ϕ	46'-9"	6	2	12	561.0	5.37	3013
1008	9'-6" 2'-5" 11'-8" 11'-3" 2'-5" 21" 8'-3" 2'-4"	" "	"	41'-2"	6	2	12	494.0	"	2653
1009	2'-0" 2'-5" 12'-4½" 8'-8½" 2'-5" 21" 7" 2'-4"	" "	"	35'-1"	6	2	12	421.0	"	2261
1010	2'-4¾" 8'-7⅛" 8'-2" 8'-7⅛" 2'-4¾" 21" 2'-8" 12'-9" 2'-4"	" "	"	26'-2"	6	2	12	314.0	"	1686
1011	2" 49'-4" 11'-11⅛" 11'-11⅛" 5'-2¾" 11'-10⅛" 23'-8¾" 2'-1" 23'-1¾" 2'-0" 6"	" "	"	88'-10"	12	2	24	2132.0	"	11449
1012	15'-0½" 15'-0½" 3'-3¾" 14'-8" 14'-8"	" "	"	30'-1"	6	2	12	361.0	"	1939
1013	23'-6" 23'-6" 5'-2" 22'-10" 22'-10"	" "	"	47'-0"	3	2	6	282.0	"	1514
1014	5'-0½" 23'-8¾" 11'-11⅛" 46'-0" 11'-11⅛" 11'-1⅛" 11'-11⅛" 11'-0½" 23'-8¾" 2'-0½" 5" 5'-2¾" 23'-1¾" 2'-0"	" "	"	121'-5"	12	2	24	2914.0	"	15648
1015	31'-1" 6'-4" 6'-11⅛" 18'-3" 18'-3" 46'-0" 17'-4" 12'-3" 8'-11⅛" 34'-7" 21"	" "	"	157'-7"	4	2	8	1260.67	"	6770
1016	35'-1" 5'-11½" 8'-2⅝" 8'-7¾" 46'-0" 11'-11⅛" 8'-7¾" 8'-2⅝" 8'-11⅛" 48'-0" 6'-2½" 21"	" "	"	167'-0"	2	2	4	668.0	"	3587
1016A	35'-0" 8'-2⅝" 8'-7¼" 46'-0" 11'-11⅛" 8'-7¼" 8'-2⅝" 8'-11⅛" 38'-6" 5'-11½" 21"	" "	"	157'-0"	2	2	4	628.0	"	3372
1017	39'-1" 5'-6½" 7'-10" 2'-11⅞" 6'-8" 48'-0" 4'-1⅞" 8'-2⅝" 8'-11⅛" 52'-0" 5'-9½" 21"	" "	"	166'-7"	4	2	8	1332.67	"	7156
1018	2'-6" 7'-1" 49'-6" 7'-1" 2'-6" 5'-0" 21"	" "	"	72'-3"	4	2	8	518.0	"	3104
1019	2'-6" 7'-1" 41'-6" 7'-1" 2'-6" 5'-0" 21"	" "	"	64'-3"	4	2	8	514.0	"	2760
1020	2'-6" 7'-1" 33'-6" 7'-1" 2'-6" 5'-0" 21"	" "	"	56'-3"	4	2	8	450.0	"	2417
1021	17'-11½" 17'-11½" 17'-6" 17'-6" 4'-0"	" "	"	35'-11"	7	2	14	502.83	"	2700
1022	12'-6½" 12'-6½" 12'-3" 12'-3" 2'-9"	" "	"	25'-1"	2	2	4	100.33	"	539
1023	84'-0" 21"	" "	"	87'-6"	18	2	36	3150.0	"	16916
1024	78'-0" 21"	" "	"	81'-6"	2	2	4	326.0	"	1751
1025	53'-4" 21"	" "	"	56'-10"	2	2	4	227.33	"	1221
1026	65'-8" 21"	" "	"	69'-2"	2	2	4	276.67	"	1486
1027	43'-10" 21"	" "	"	47'-4"	1	2	2	94.67	"	508
1028	27'-8" 21"	" "	"	31'-2"	1	2	2	62.33	"	335
1029	24'-0" 21"	" "	"	27'-6"	1	2	2	55.0	"	295

ORIGINAL PLAN		DATE
	SURVEY PLOTTED BY	W.R.B.
	DESIGNED BY	F.C., H.K.M. Dec. 1935
NOTE BOOK	DRAWN BY	F.C. " "
	TRACED BY	" "
	QUANTITIES BY	H.K.M., G.F.W., H.H.C. "
No.	CHECKED BY	" "

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

UPPER POAMOHO BRIDGE

Nº 1 STA. 30+97.50 TO STA. 35+02.50
WAHIAWA WAIALUA ROAD N.R.S. 21-A
DEC. 1935

SHEET Nº 9 OF 10 SHEETS

4346.25

PRINTED ON "IMPERIAL" TRACING CLOTH K & E CO., N. Y.

Fed. Road Dist. No.	State	Fed. Aid Proj. No.	Fiscal Year	Sheet No.	Total Sheets
Hawaii	Haw	NRS 21A	1935	26	43

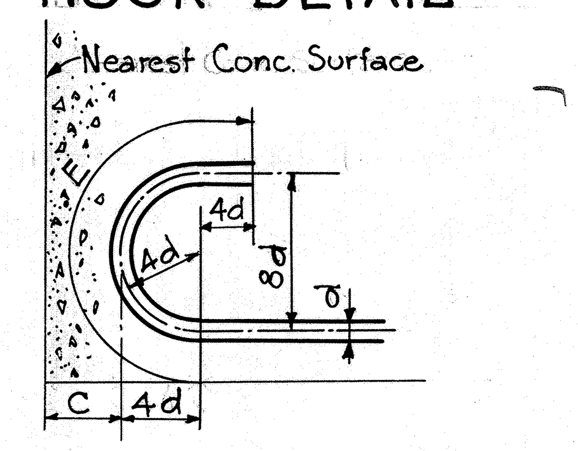
STEEL SCHEDULE

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
1030	21" 20'-0" 21"	SUPERST. G-1	1¼" □	23'-6"	1	2	2	47	5.37	252
1031	21" 16'-0" 21"	"	"	19'-6"	1	2	2	39	"	209
1032	21" 77'-8" 21"	"	"	81'-2"	4	2	8	649.33	"	3,487
1033	21" 65'-10" 21"	"	"	69'-4"	4	2	8	554.67	"	2,979
1034	21" 53'-11" 21"	"	"	57'-5"	4	2	8	459.33	"	2,467
1035	21" 42'-1" 21"	"	"	45'-7"	2	2	4	182.33	"	979
1036	21" 37'-11" 21"	"	"	41'-5"	2	2	4	165.67	"	890
1037	21" 19'-8" 21"	"	"	23'-2"	2	2	4	92.67	"	498
1038	21" 15'-10" 21"	"	"	19'-4"	2	2	4	77.33	"	415
413	42'-0"	"	½" ϕ	42'-0"	8	2	16	672	0.68	457
414	36'-0"	"	"	36'-0"	8	2	16	576	"	392
415	401'-6"	"	"	401'-6"	4	2	8	3,212	"	2,184
416	40'-0"	"	"	40'-0"	12	2	24	960	"	653
417	20'-0"	"	"	20'-0"	12	2	24	480	"	326
418	6" 6" 6'-1¼" 11¾"	" Stirrs	"	15'-2"	500	2	1000	15,166.67	"	10,313
419	6" 6" Varies 11¾"; Max. 7'-5½" Min. 6'-2" Av. 6'-9¾"	" "	"	(Av.) 16'-7"	216	2	432	7,164	"	4,872
420	6" 6" Varies 11¾"; Max. 12'-7" Min. 7'-6½" Av. 10'-0¾"	" "	"	(Av.) 23'-1"	198	2	396	9,041	"	6,166
420A	6" 6' a Varies b Varies; (a / b) Max. 12'-7" 14¾" Min. 7'-6" 21¼" Av. 10'-0½" 18"	" "	"	(Av.) 24'-1"	198	2	396	9437	"	6,435
313A	6" Varies 6"; Max. 2'-4" Min. 1'-4" Av 1'-10"	"	⅜" ϕ	(Av.) 2'-10"	7	12	84	238	0.38	90
313B	6" Varies 6"; Max. 2'-4" Min. 1'-10" Av 2'-1"	"	"	(Av.) 3'-1"	3	12	36	111	"	42
831	17" 23'-10" 17"	CrossBeams	1" □	26'-8"	4	32	128	3,413.33	3.44	11,742
702	15" 29'-11" 15"	" "	⅞" ϕ	32'-5"	2	32	64	2,074.67	2.07	4,295
832	3'-7" 3'-7¾" 2'-7" 15'-6" 3'-7¾" 3'-7"	" "	1" ϕ	30'-0"	2	32	64	1,920	2.70	5,184
833	4'-10" 3'-7¾" 2'-7" 13'-0" 3'-7¾" 4'-10"	" "	"	30'-0"	2	32	64	1,920	"	5,184
703	15" 7'-6½" 3'-7¾" 2'-7" 9'-6" 3'-7¾" 7'-8½" 15"	" "	⅞" ϕ	34'-6"	2	32	64	2,208	2.07	4,571
704	3'-0" 6'-7" 1'-6"	" "	"	8'-1"	4	32	128	1,034.67	"	2,142
411	4½" 4½" 3'-0" 10"	" "	½" ϕ	8'-6"	16	32	512	4,352	0.68	2,959
412	4½" 4½" Varies 10"; Max. 5'-0" Min. 3'-0" Av. 4'-0"	" "	½" ϕ	(Av.) 10'-6"	12	32	384	4,032	"	2,742

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
601	13" 401'-0" 13"	G-2	¾" ϕ	403'-2"	4	1	4	1,612.67	1.52	2,451
602	13" 5'-0" 1'-6" 2'-1½" 6'-0" 1'-9½" 1'-6" 1'-3" 1'-9½" 6'-0" 2'-1½" 5'-0" 13"	"	"	33'-6"	62	1	62	2,077	"	3,157
602A	13" 2'-0" Same as MK602	"	"	30'-6"	4	1	4	122	"	185
603	13" 2'-1" 1'-9½" 1'-3" 6'-0" 2'-1½" 1'-6" 5'-0" 13"	"	"	19'-3"	4	1	4	77	"	117
315	4" 4" 2'-1" 10"	" Stirrs.	⅜" ϕ	6'-6"	13	34	442	2,873	0.38	1,092
604	13" 19'-10" 13"	"	¾" ϕ	22'-0"	64	1	64	1,408	1.52	2,140
604A	13" 17'-5" 13"	"	"	19'-7"	4	1	4	78.33	"	119
316	24'-6"	Fillet	⅜" ϕ	24'-6"	4	34	136	3,332	0.38	1,266
317	9½" 2'-6" 2'-6"	"	⅜" ϕ	5'-0"	500	1	500	2,500	"	950
318	3'-0"	"	"	3'-0"	360	1	360	1,080	"	410
319	401'-6"	" & Sidewalk Curb	"	401'-6"	10	1	10	4,015	"	1,526
500	11" 24'-5" 11"	Floor Slab	⅝" ϕ	26'-3"	8	34	272	7,140	1.06	7,568
501	11" 5'-5½" 7½" 5¼" 6'-7½" 7½" 4'-0" 5¼" 7½" 6'-7½" 7½" 5'-7½" 11"	" "	"	32'-9"	9	34	306	10,021.5	"	10,623
502	11" 29'-11" 11"	" "	"	31'-9"	10	34	340	10,795	"	11,443
503	4'-0" a c e c d … f … e/2 ℄ Pier #2 To be symmetrical about ℄ of Pier #2; a = 5¼" d = 6'-5¾" f = 6'-2¾" c = 7½" e = 4'-6"	Floor Slab	⅝" ϕ	414'-3"	14	1	14	5,799.5	1.06	6,147
504	401'-6"	" "	"	401'-6"	42	1	42	16,863	"	17,875
321	1'-6" 4" 1'-6"	Sidewalk Curb	⅜" ϕ	3'-3"	400	1	400	1,300.33	0.38	494
200	3'-3"	" Slab	¼" ϕ	3'-3"	1,203	1	1,203	3,909.75	0.17	665
201	400'-6"	" "	"	400'-6"	4	1	4	1,602	"	272
322	MK 322: 1'-3" 3" 1'-3" 6" 6" 1'-0"	Curb	⅜" ϕ	4'-9"	383	1	383	1,819	0.38	691
323	MK 323: 1'-0" 3" 1'-3" 6" 6" 1'-0"	"	"	4'-6"	383	1	383	1,723.5	"	655
320	80'-0"	Curb & Railing	"	80'-0"	6	4	24	1,920	"	730
324	111'-0"	" "	"	111'-0"	6	4	24	2,664	"	1,006
203	7" 7" 7"	Railing	¼" ϕ	1'-9"	510	2	1020	1,785	0.17	303
204	2" 7½" 2½"	"	"	2'-0"	1020	1	1020	2,040	"	347
325	10'-6"	"	⅜" ϕ	10'-6"	4	60	240	2,520	0.38	958
326	9'-0"	"	"	9'-0"	4	16	64	576	"	219

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
421	3'-7"	Railing	½" ϕ	3'-7"	2	516	1032	3,698	0.68	2,515
422	5'-1"	End Posts	"	5'-1"	8	4	32	162.67	"	111
327	9½" 3'-0½" 9½" R=6'-3"	" " Stirrs.	⅜" ϕ	8'-6"	3	4	12	102	0.38	39
423	5'-9"	Intermed. Posts	½" ϕ	5'-9"	10	6	60	345	0.68	235
328	4'-1" 12"	" " stirrs	⅜" ϕ	11'-2"	4	6	24	266	0.38	101

HOOK DETAIL



Mark	Size	C	C+4d	E	8d
300	⅜" ϕ	3"	4½"	6"	3"
400	½" ϕ	"	5"	8"	4"
500	⅝" ϕ	"	5½"	11"	5"
600	¾" ϕ	"	6"	13"	6"
700	⅞" ϕ	"	6½"	15"	7"
800	1" ϕ	"	7"	17"	8"
800	1" □	"	7"	17"	8"
900	1⅛" □	"	7½"	19"	9"
1000	1¼" □	"	8"	21"	10"

CONTRACTORS NOTE

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.

All stirrup dimensions are to inside of stirrups: all other dimensions are figured on ℄ of bar.

Original Plan	
Survey plotted by	Date
Designed by H.Y.M.	Dec. 1935
Drawn by H.Y.M.	Dec. 1935
Traced by H.Y.M. C.F.W. H.H.C.	Dec. 1935
Quantities by	
Checked by	
Note Book	
No.	

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TERRITORY OF HAWAII

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