

95 | Revised March, 1936



Revised by J.C.M.

LIHUE MILL BRIDGE
STA. 13+38²³ TO STA. 16+48.16
LIHUE ROAD W.P.G.S. 24-A

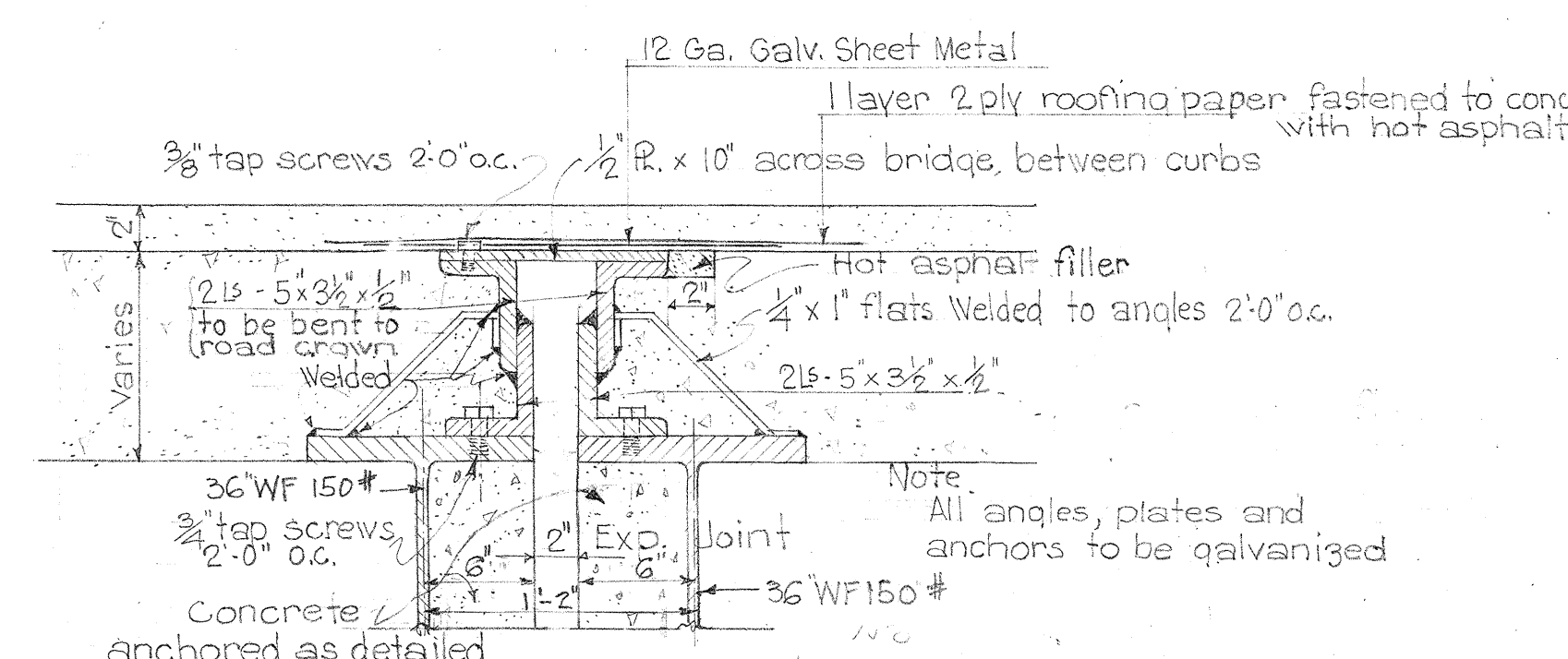
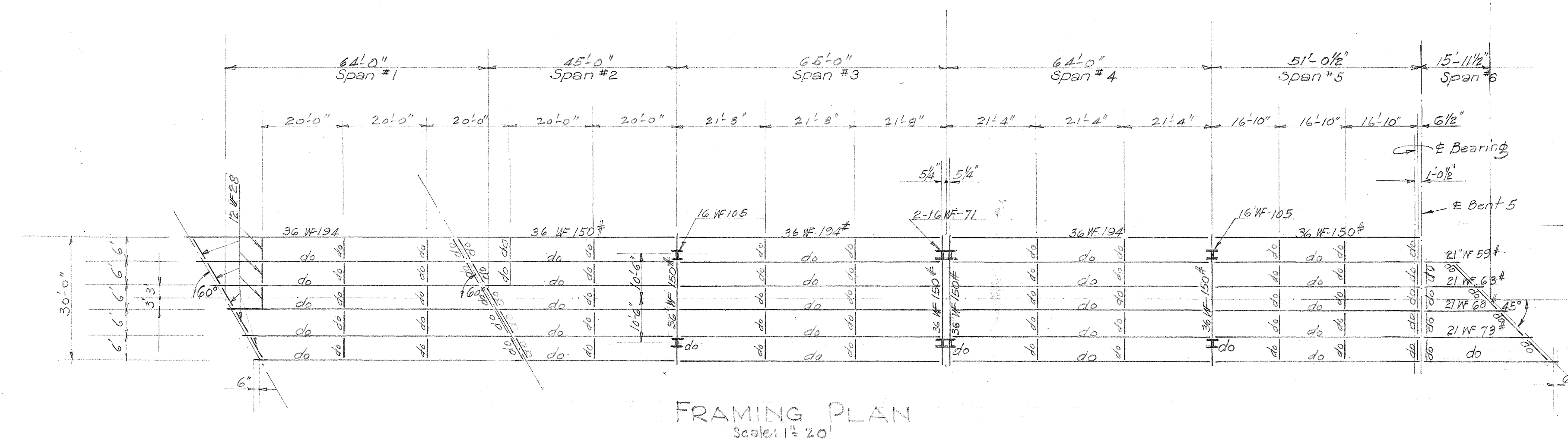
SHEET 1 A OF 8 SHEETS

4351.6A

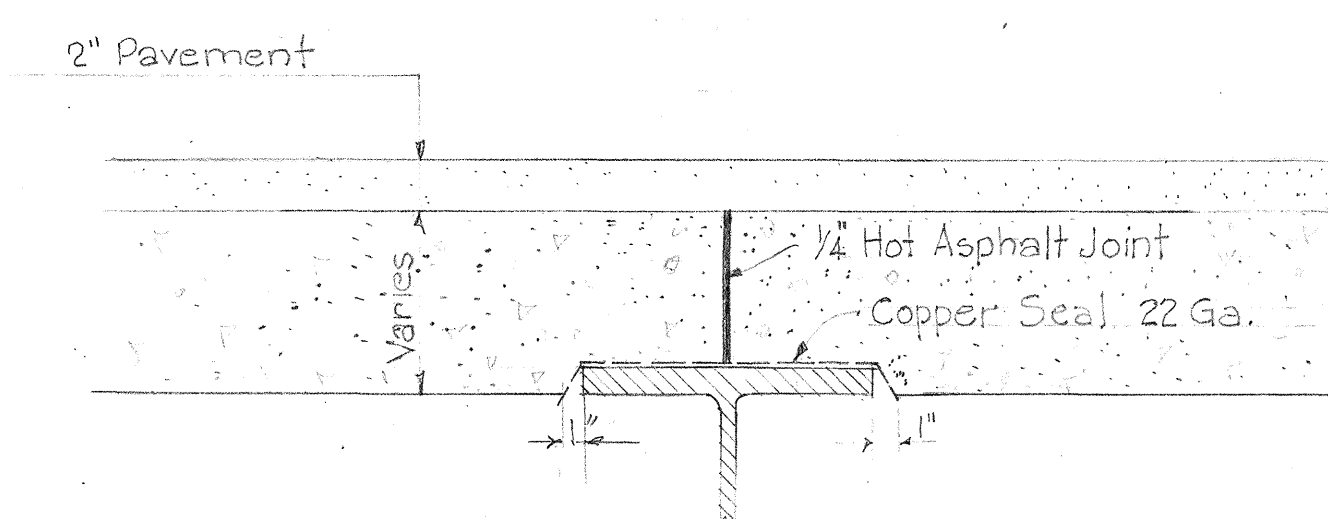
Revised March, 1935

GENERAL NOTES

- Dead Load: Concrete 150# per cubic foot. Pavement 25# per square foot.
- Live Load: Train of 15 ton trucks in two traffic lanes. Impact allowance = $\frac{50}{1+125}$
- Spacing of trucks as per diagram.
- Concrete: Class "A" (1:2:4) with all exposed edges chamfered $\frac{3}{4}$ " unless otherwise noted. Allowable compression 750# per square inch.
- 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.
- Reinforcing Steel: Intermediate grade; allowable tensile stress 18,000# per square inch. All steel to be round or square deformed bars of approved design. All dimension 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 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 $2\frac{1}{2}$ " in abutments and $1\frac{1}{2}$ " in slab. Steel to be held rigidly and accurately in place before and during placing of concrete.
- Structural Steel: All structural steel to be medium grade (A.S.T.M. A7-24) Allowable fs = 18,000# per square inch. Bearing units to be as called for in plans. Steel castings shall conform to the requirements of the standard specification (serial designation A-27-24) of the A.S.T.M. or latest revision thereof.
- Rivets to be $\frac{7}{8}$ " diam. unless otherwise noted. Rivets steel to be (A.S.T.M. A-141-33) Shop assembly and reaming of girder splices required. Floor beam connections shall be drilled to an iron template.
- All structural steel shall be given one shop coat of red lead paint. First and second field coat shall be aluminum paint. All shop plans must be approved by the Engineer before fabrication is started.
- Backfill: Backfill of abutments to be completed before placing of superstructure.



DETAIL OF EXP. JOINT AT BENT #3
Scale: 1/2" = 1'-0"



DETAIL OF EXP. JOINT IN DECK AT BENT #2 & 4
Scale: 1/2" = 1'-0"

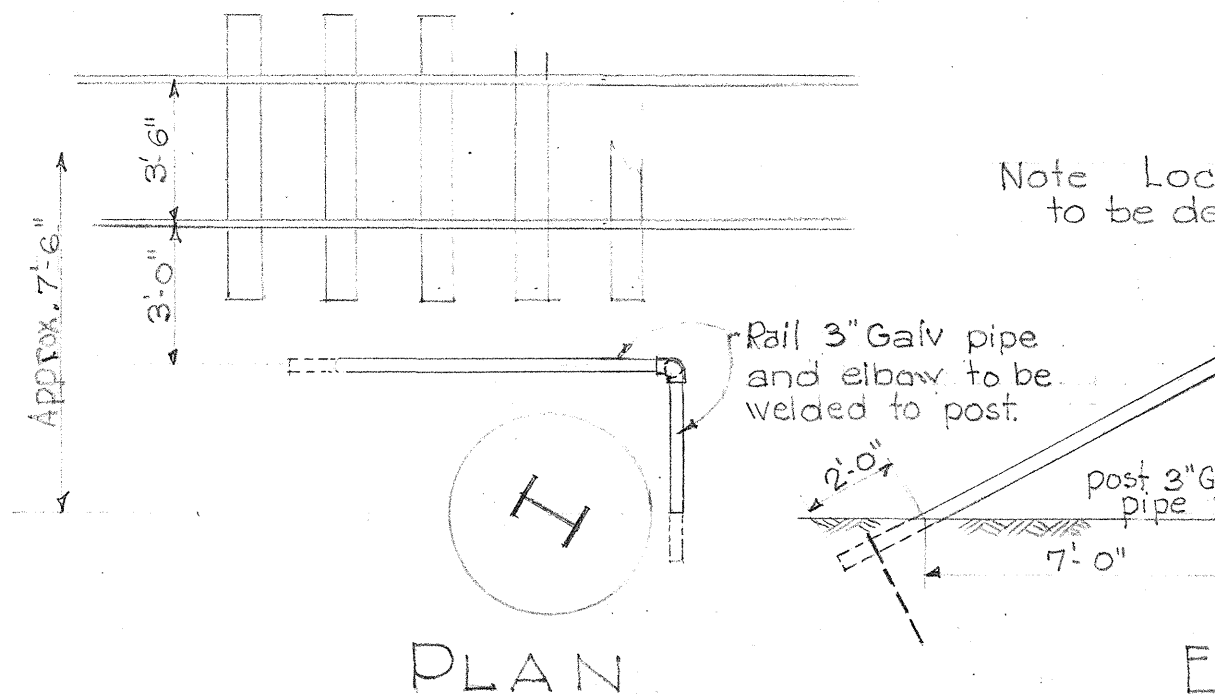
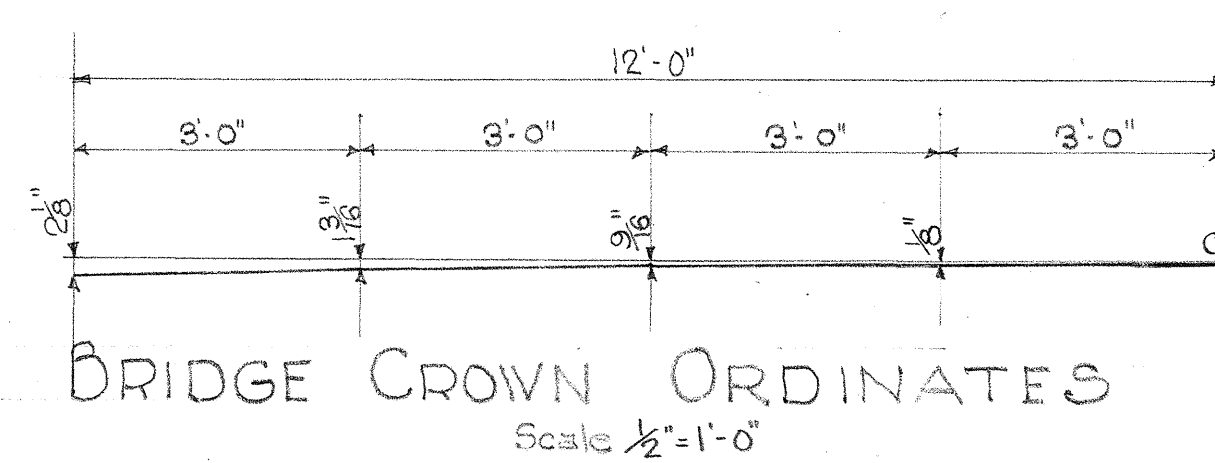
ESTIMATED QUANTITIES

LOCATION	STRUCTURE EXCAVATION	CLASS "A" CONCRETE	REINFORCING STEEL	STRUCTURAL STEEL
CYLINDERS	171.3 cy	170.8 cy		
FOOTINGS	879.0 "	126.4 "	5946 lbs.	
BENTS		69.6 "	12,407 lbs.	33,721 lbs.
ABUTS. & WING W.		137.5 "	12,908 lbs.	
SUPERSTRUCTURE		368.3 "	59,048 lbs.	375,813 "
RAILING		13.5 "	6,445 "	37,932 "
TOTALS	1050.3 cy	886.1 cy	96,754 lbs.	447,466 lbs.

DEFLECTION TABLE FOR GIRDERS

* Additional thickness of slab to compensate for deflection of girder

Nominal slab thickness	0.11	0.21	0.31	0.41	0.51
Span 1 & 4	Girder 1 & 6	1/8"	3/8"	1 1/8"	1 1/2"
	" 2-3-4 & 5	3/8"	1 1/8"	1 1/8"	1 1/8"
Span 3	" 1 & 6	1/2"	1"	1 1/8"	1 1/8"
	" 2-3-4 & 5	3/8"	1"	1 1/8"	1 1/8"
Span 5	" 1 & 6	1/2"	1"	1 1/8"	1 1/8"
	" 2-3-4 & 5	3/8"	1"	1 1/8"	1 1/8"
	" 1	3/16"	1/16"	1/16"	1"
	" 2	3/16"	1/16"	1/16"	1/16"
	" 3	1/8"	1/4"	3/8"	1/16"
	" 4	1/8"	3/16"	1/4"	5/16"
	" 5	1/16"	1/8"	3/16"	3/16"
	" 6	1/16"	1/8"	3/16"	3/16"
Span 2					
	" 4	0"	1/16"	1/16"	1/16"
	" 5	1/16"	1/8"	3/16"	3/16"
	" 6	3/16"	5/16"	1/2"	9/16"
Span 6					
	" 4	0"	1/16"	1/16"	1/16"
	" 5	1/16"	1/8"	3/16"	3/16"
	" 6	3/16"	5/16"	1/2"	9/16"



COLUMN GUARD
9 Required
Scale: 1/4" = 1'-0"

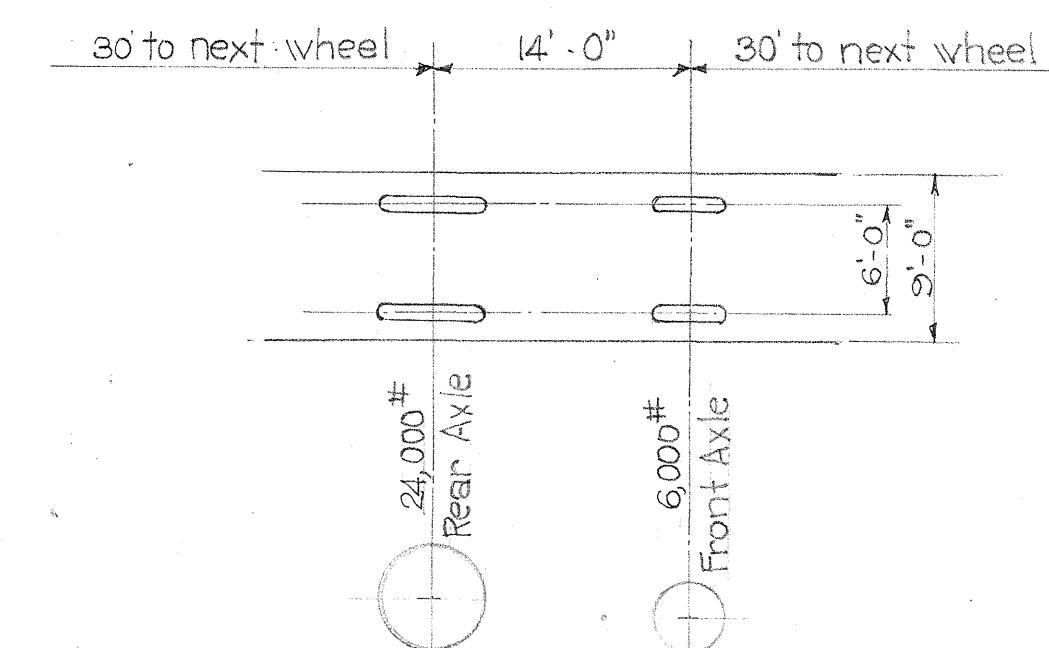
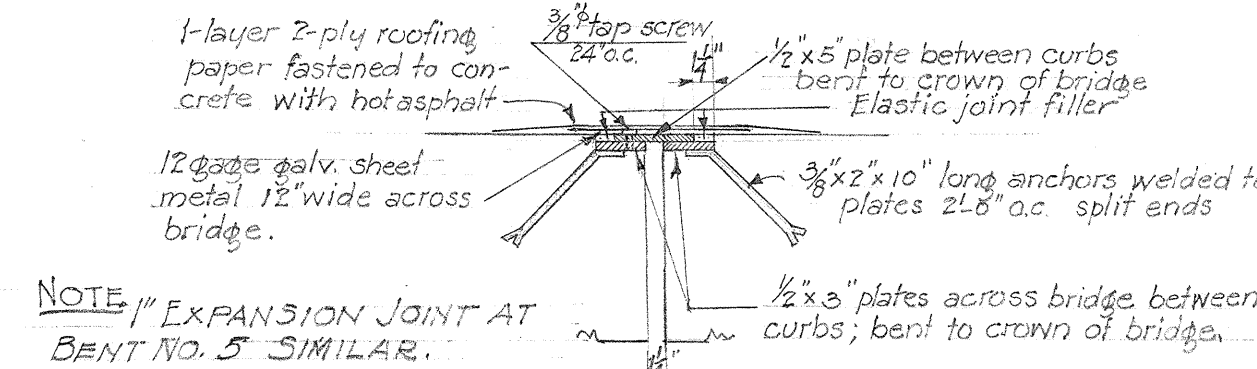


DIAGRAM OF TYPICAL 15 TON TRUCK



EXP. JOINT AT BENTS No. 1
Scale: 1" = 1'-0"

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

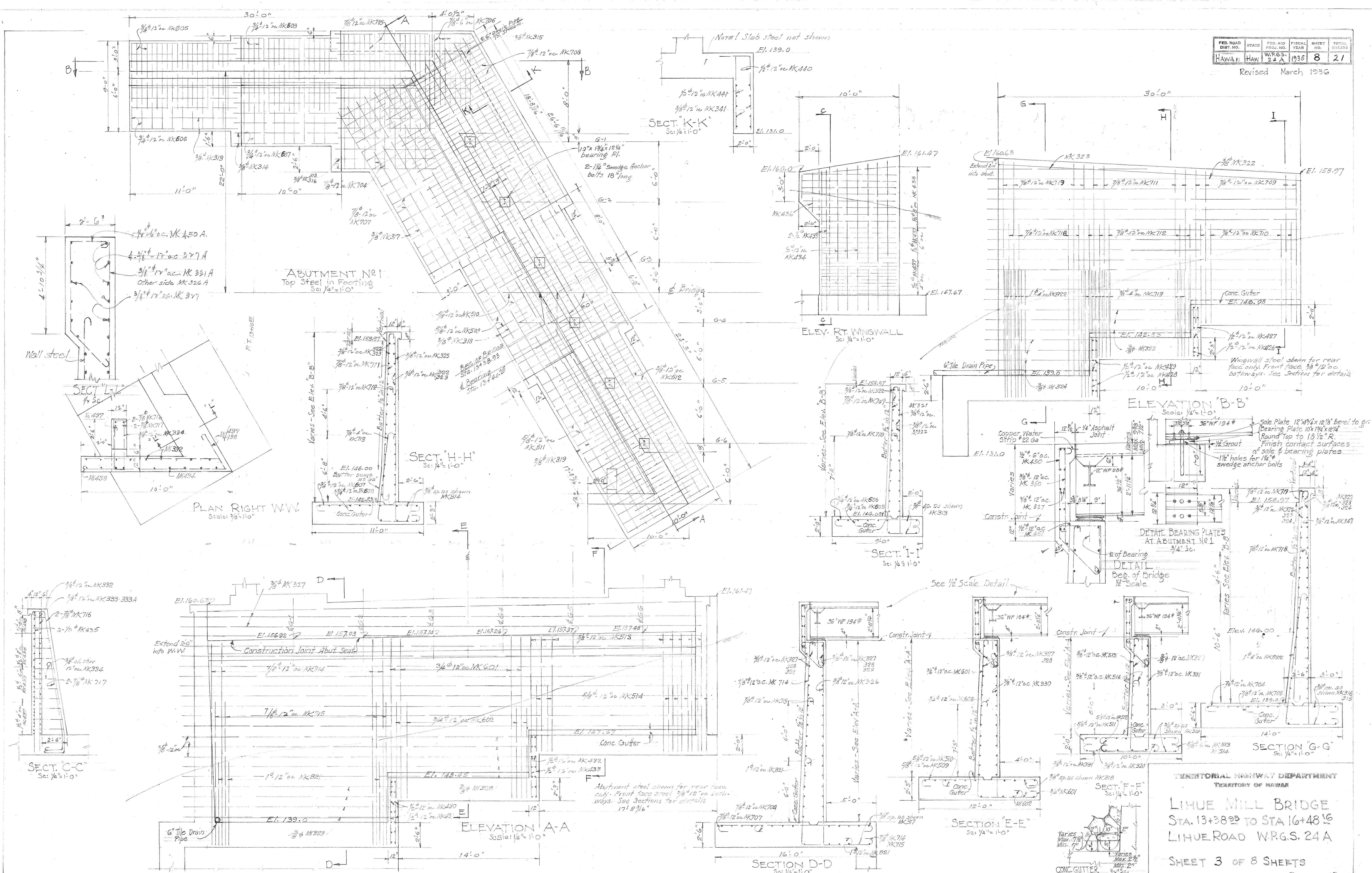
LIHUE MILL BRIDGE
STA. 13+38.23 TO STA. 16+48.16
LIHUE ROAD W.P.G.S. 24A

SHEET 2 OF 8 SHEETS

4351.7

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	W.P.G.S. 24 A	1935	8	21

Revised March 1936



TERRITORIAL HIGHWAY DEPARTMENT
 TERRITORY OF HAWAII

LIHUE MILL BRIDGE
STA. 13+38⁰⁰ TO STA 16+48¹⁶
LIHUE ROAD W.P.G.S. 24A

SHEET 3 OF 8 SHEETS

4351.S

ORIGINAL
Serial _____
NUMBER _____

RECEIVED BY
W.R.B.

DATE
Nov 1937

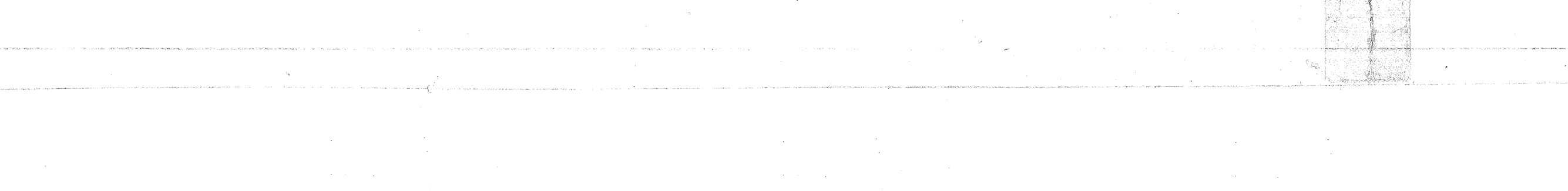
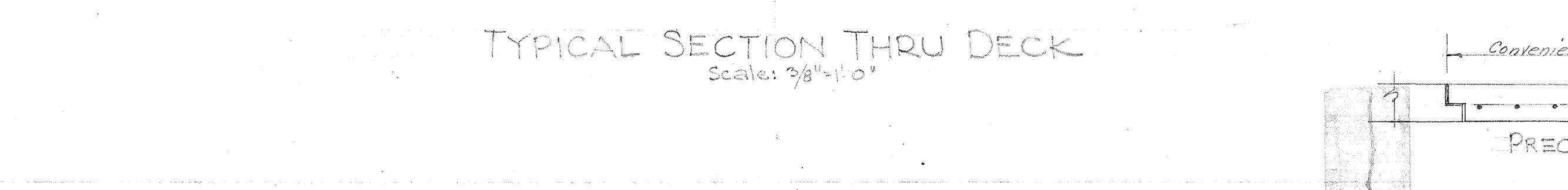
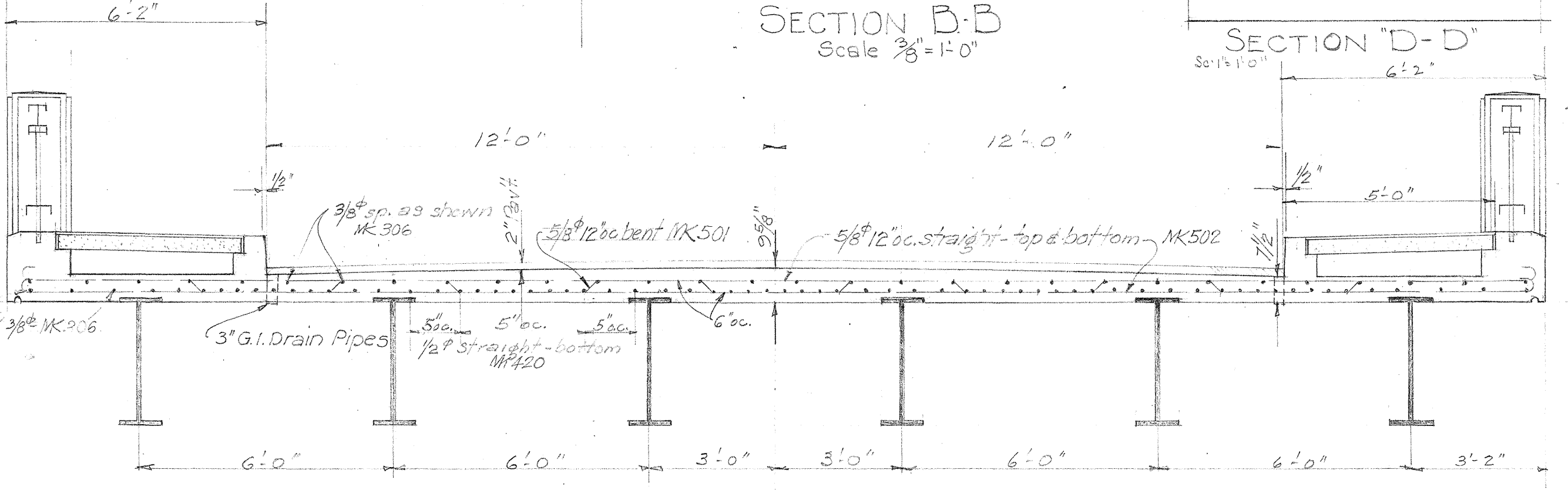
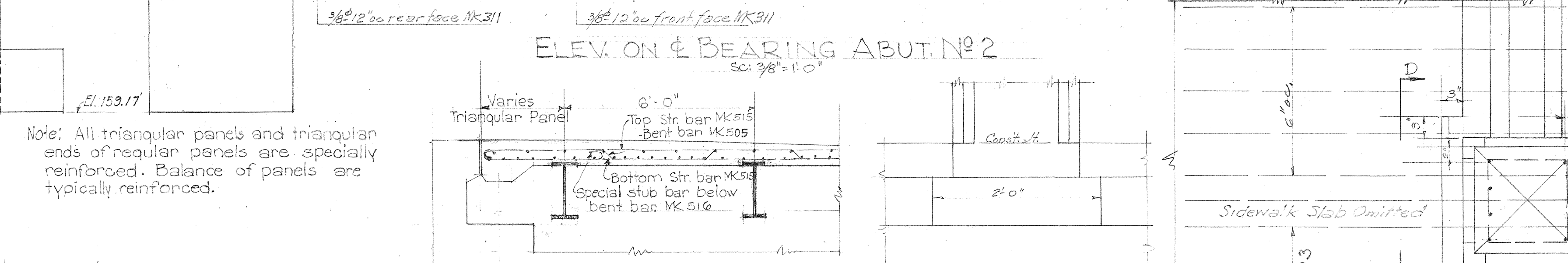
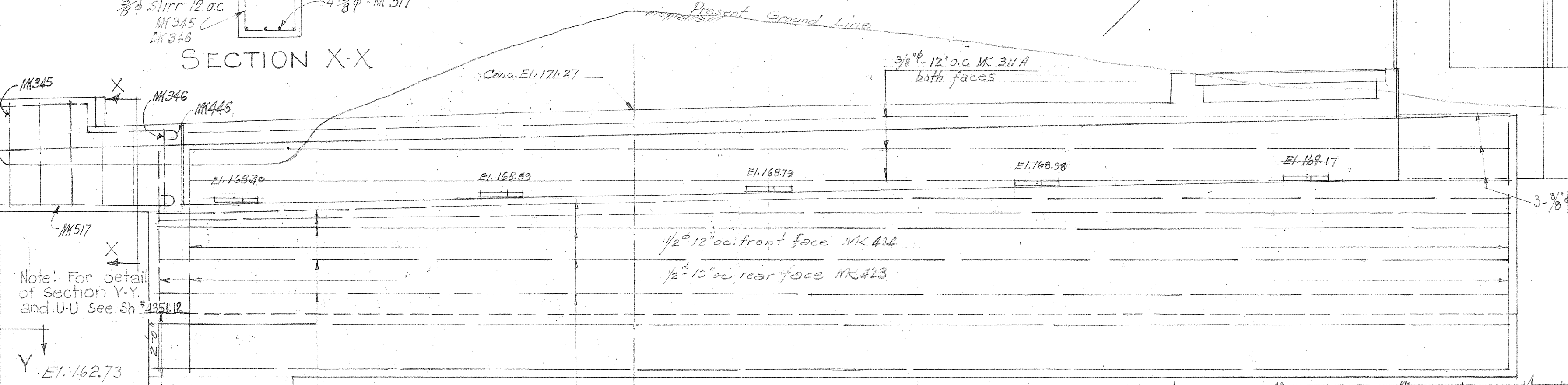
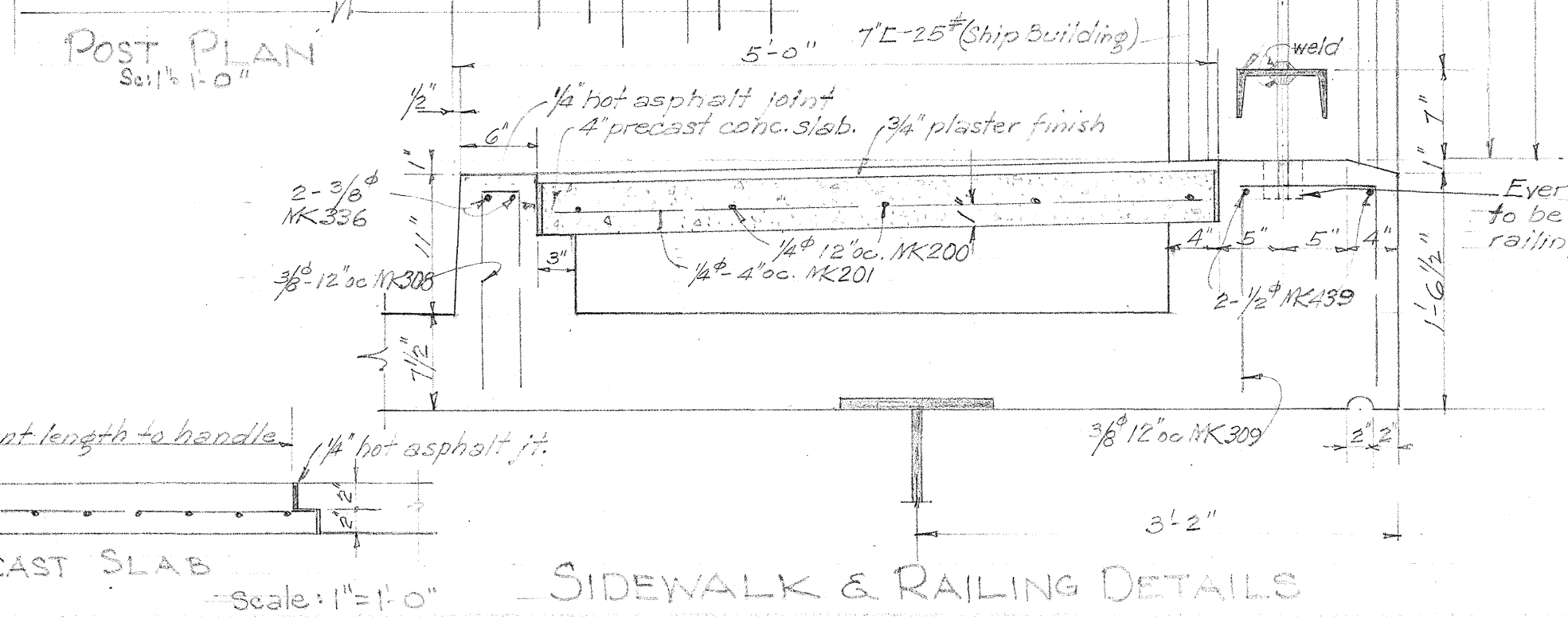
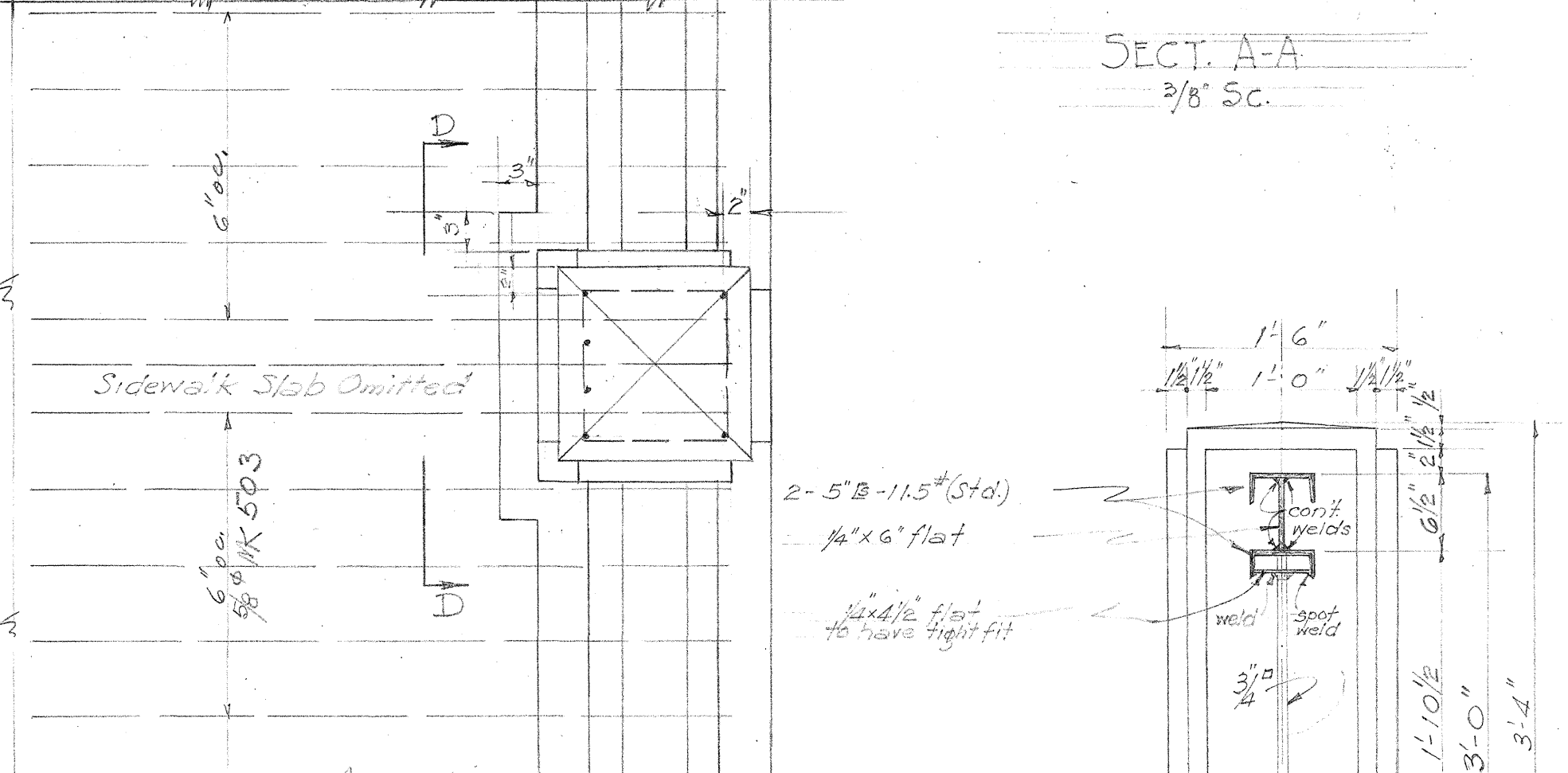
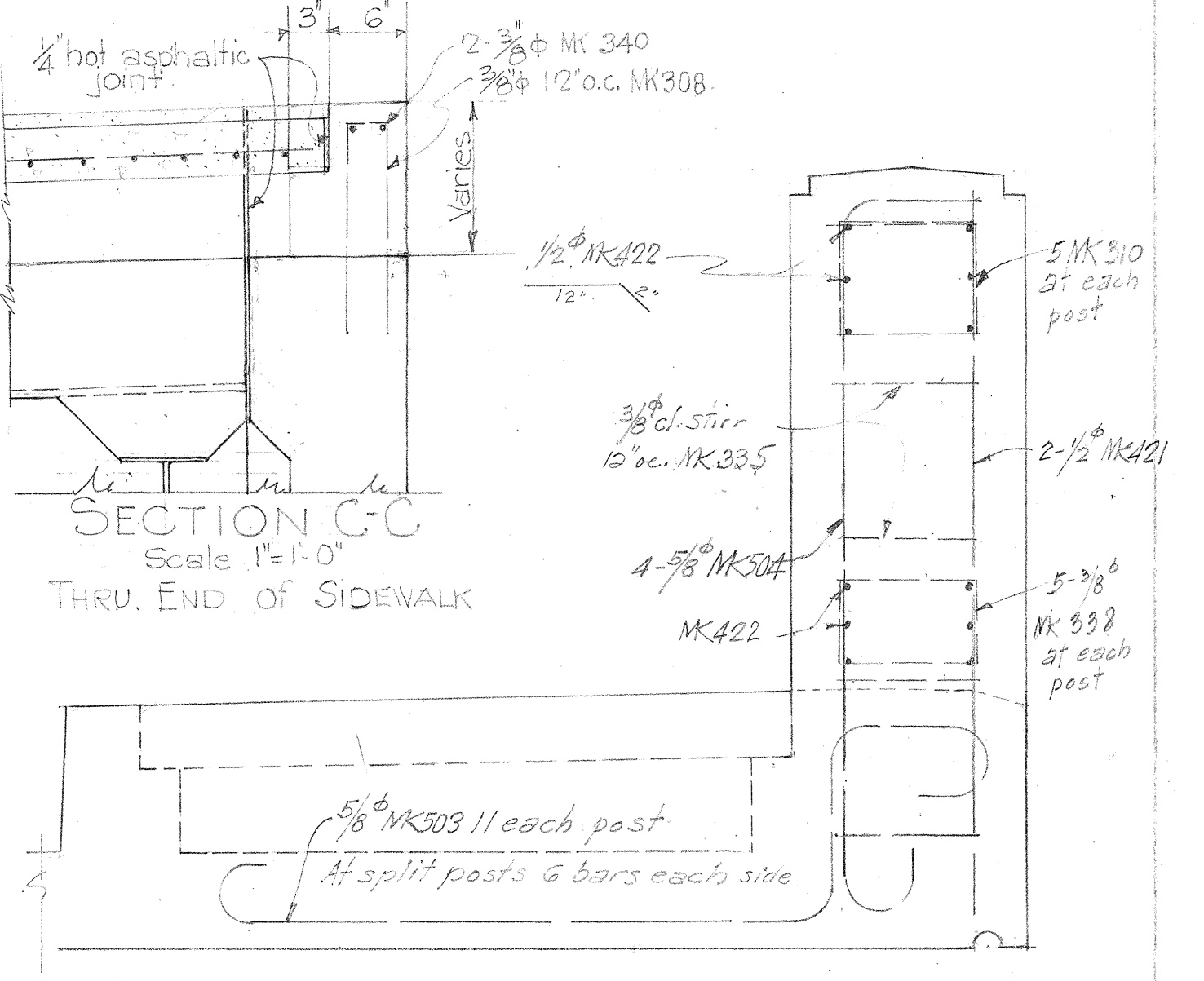
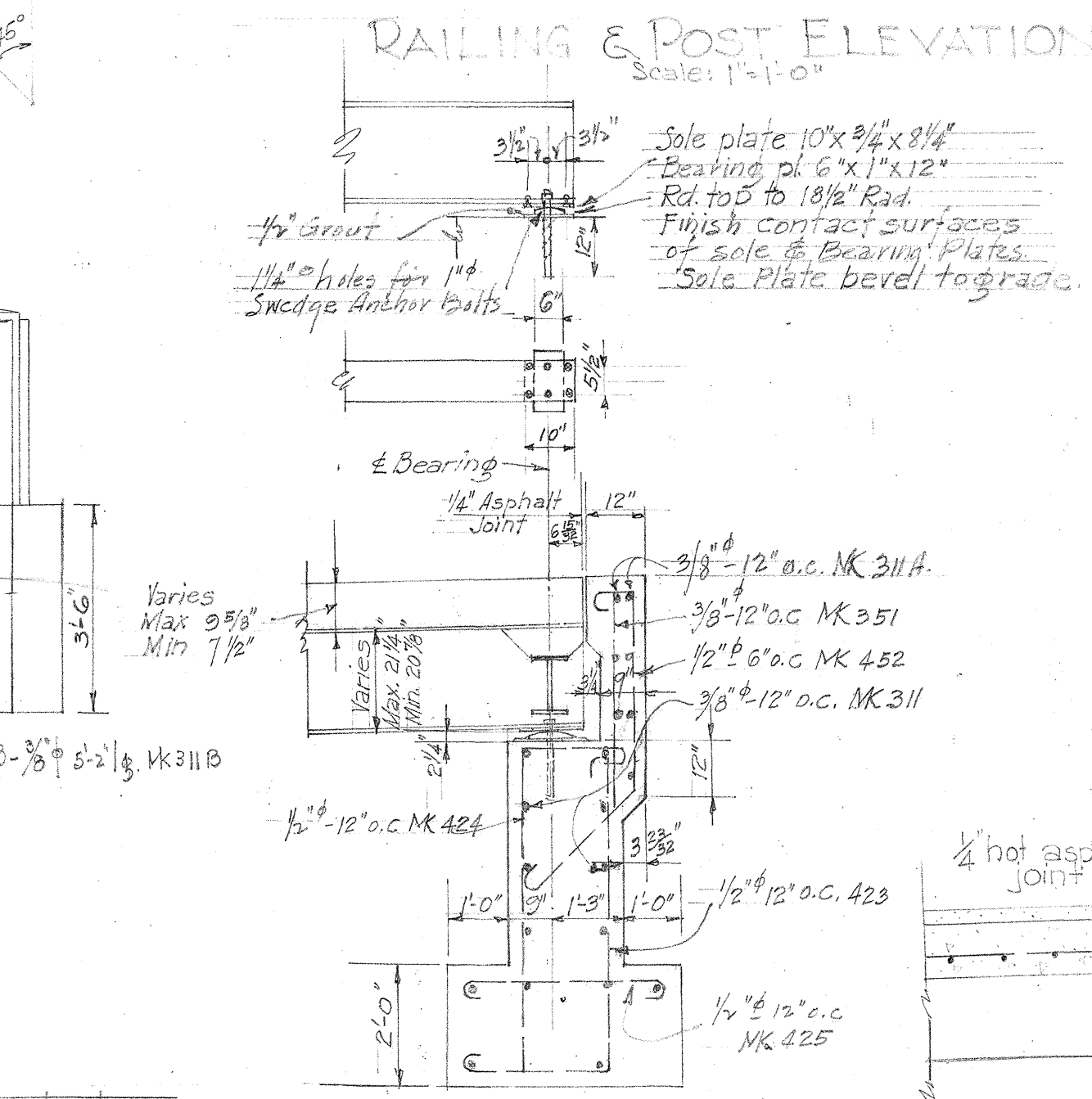
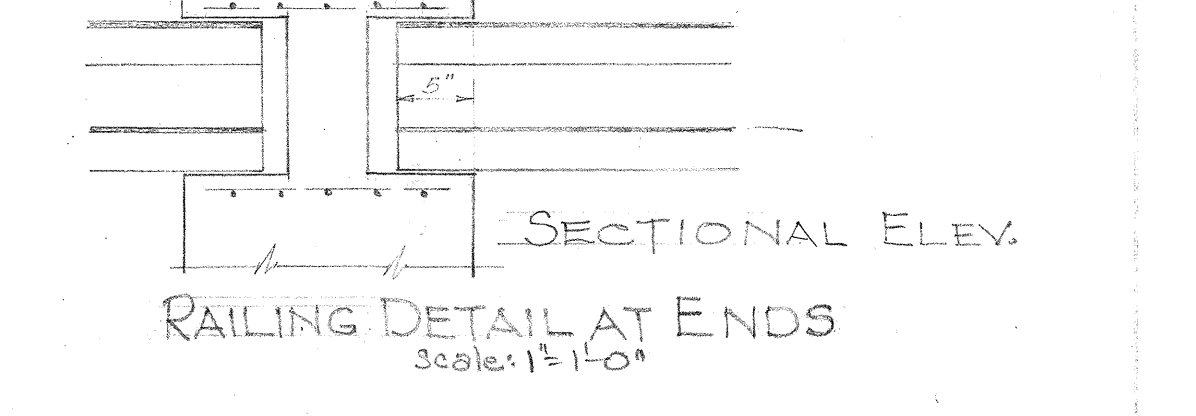
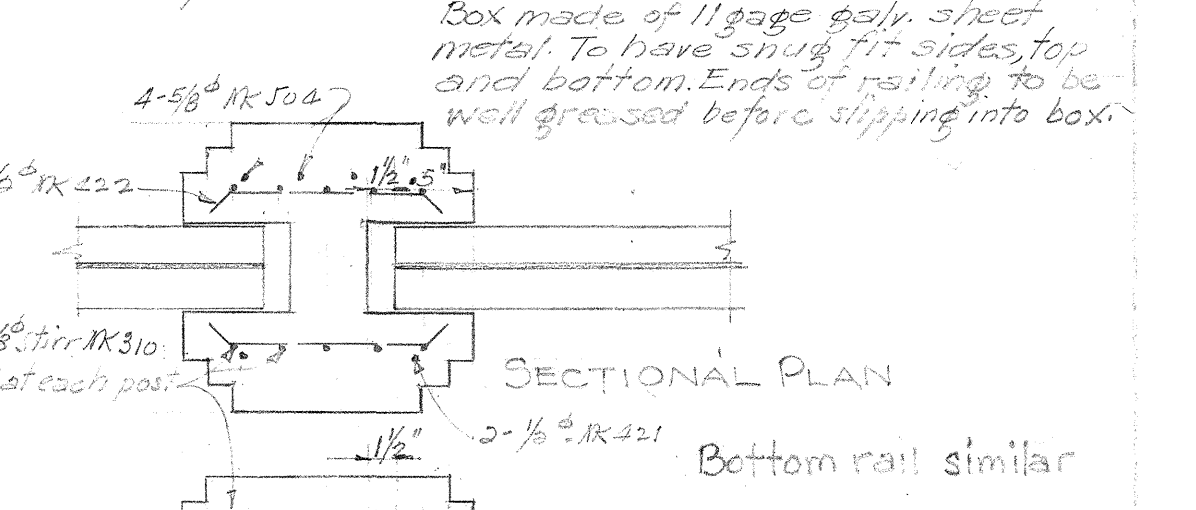
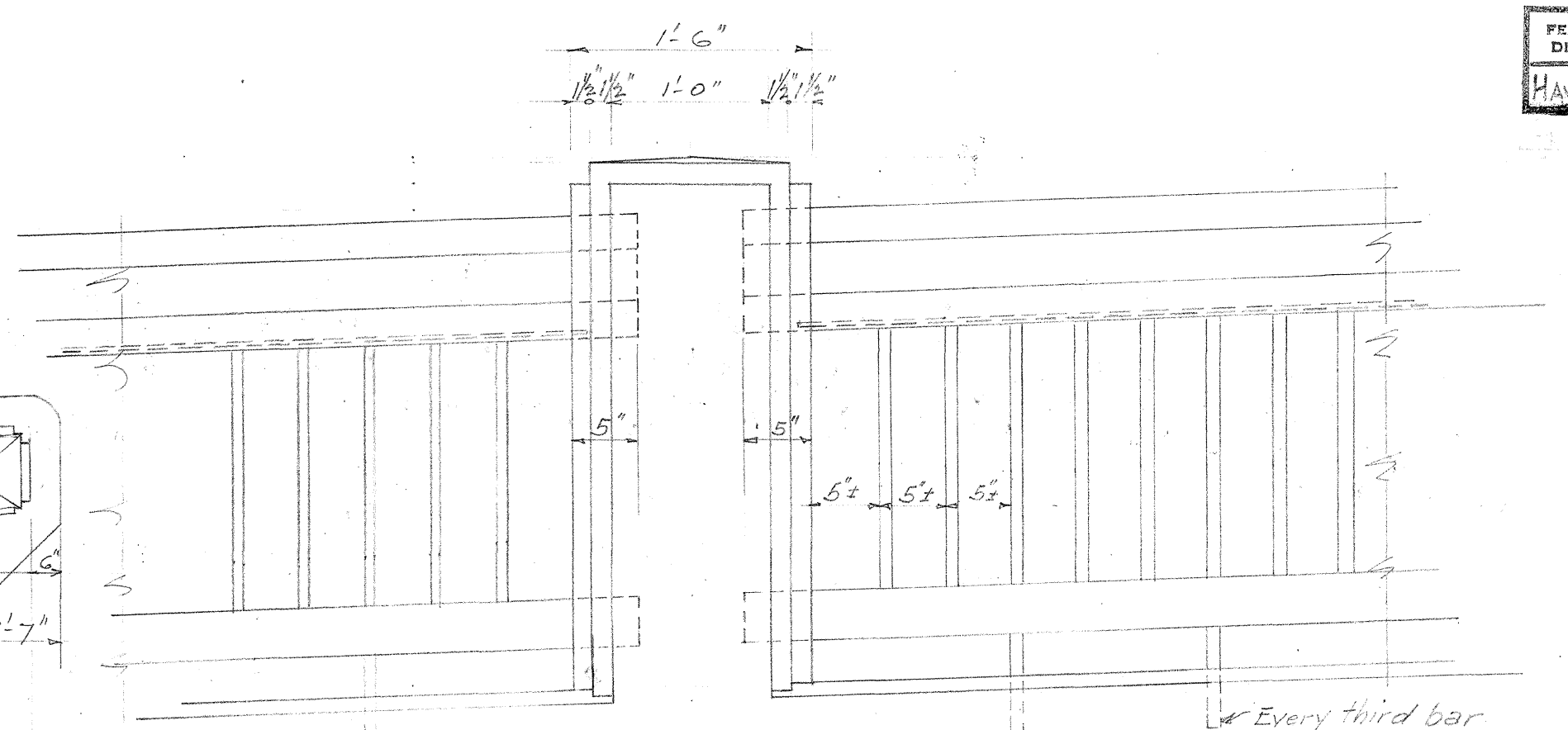
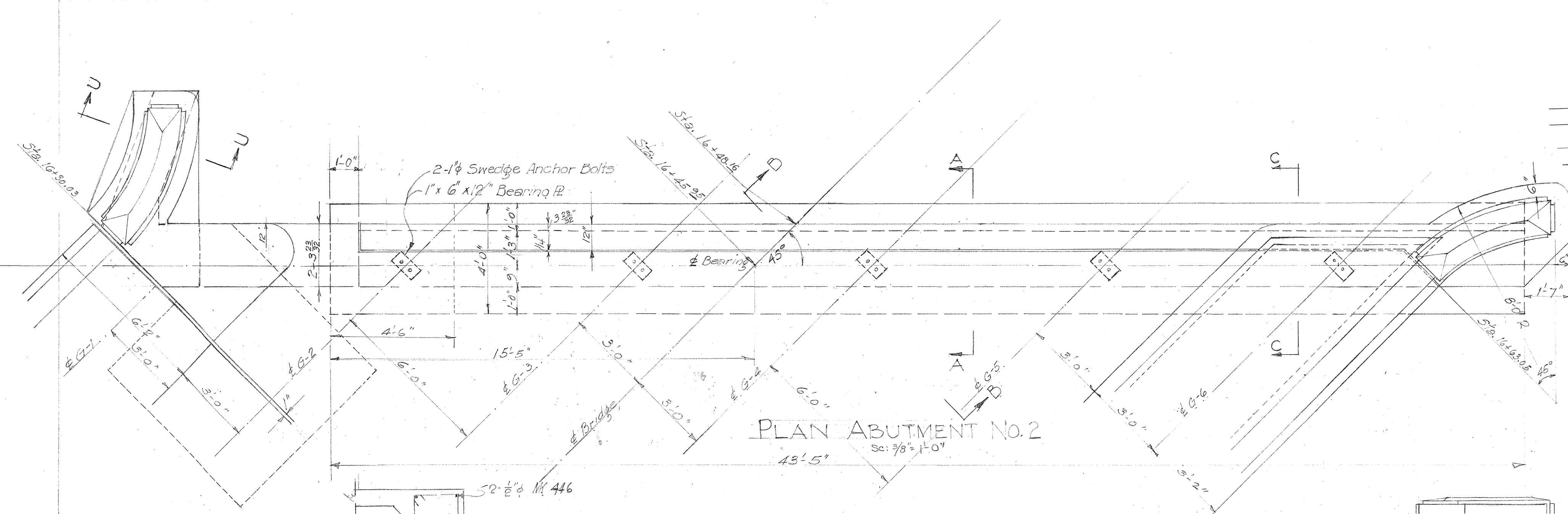
RECEIVED BY
P.F.S.

DATE
Dec "

RECEIVED BY
W.R.B. J.C.M.

DATE
"

Revised by J. C. M.



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

Note: For detail of section Y-Y and U-U see Sh. 2351.2

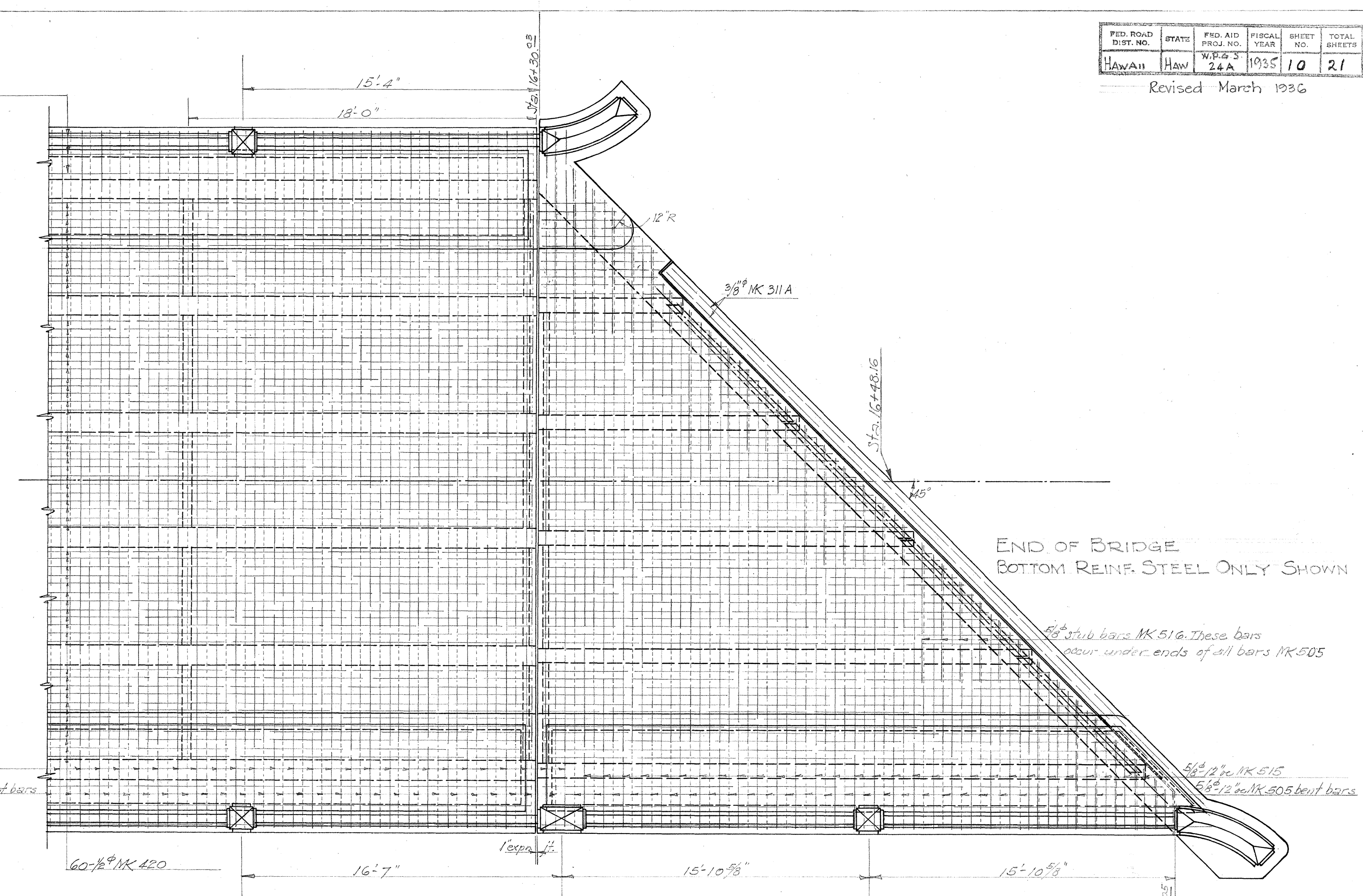
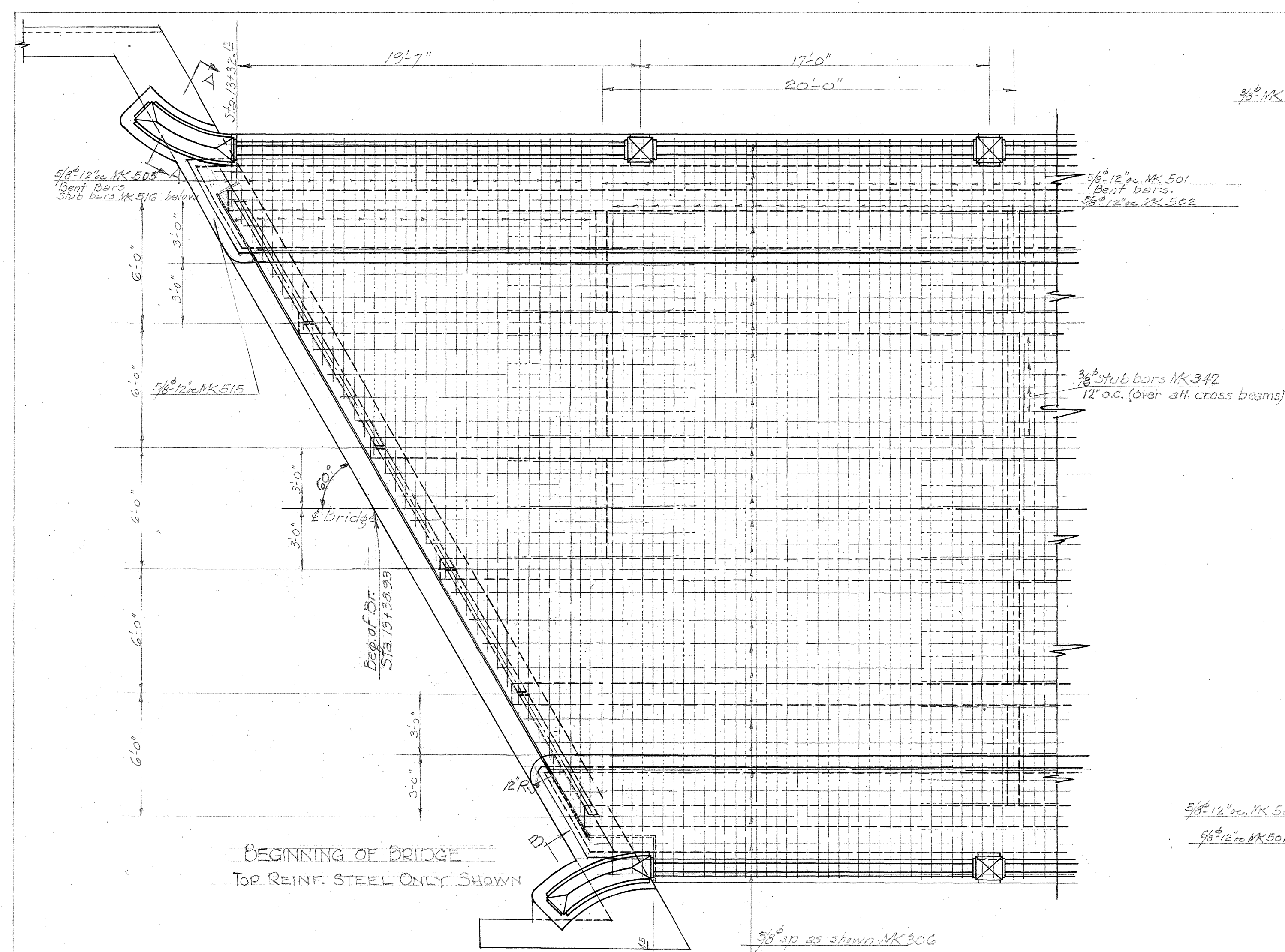
TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

LIHUE MILL BRIDGE
STA. 13+38.23 TO STA. 16+48.16
LIHUE ROAD W.P.G.S. 24 A

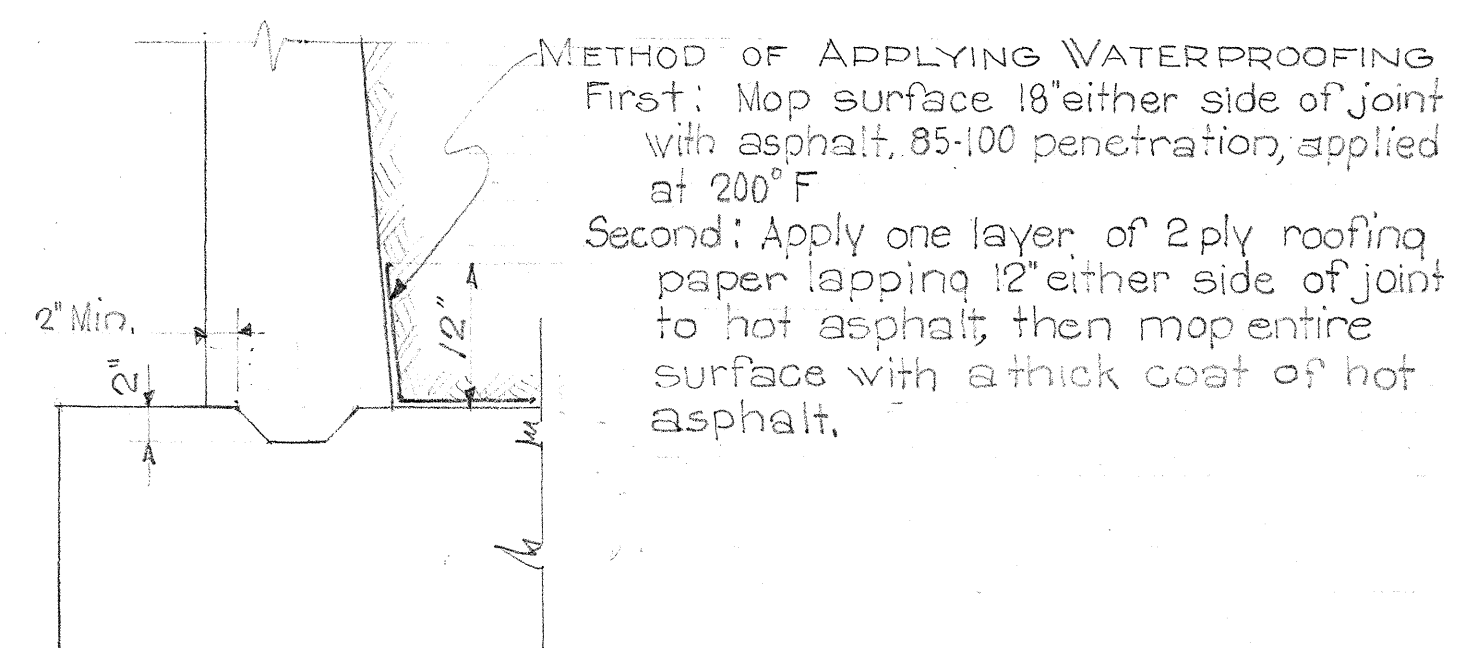
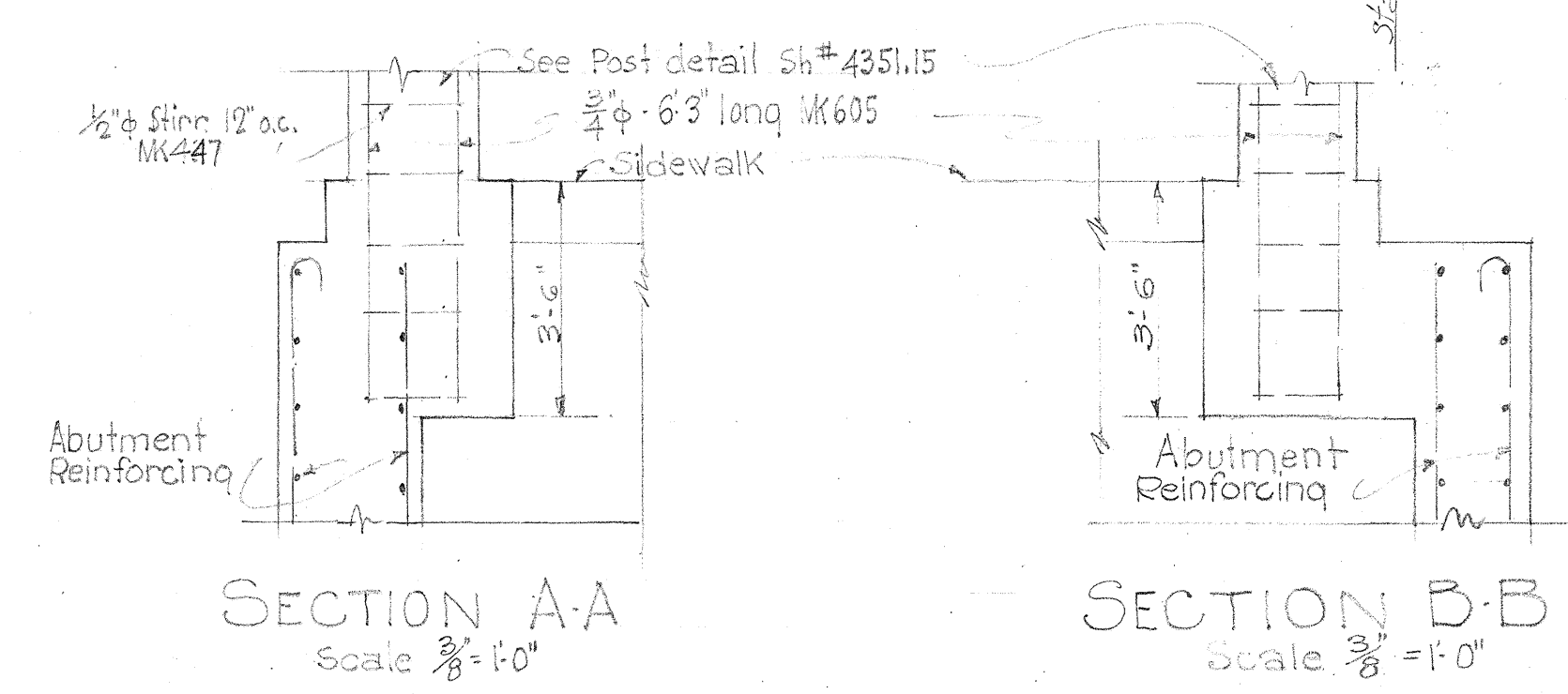
SHEET 4 OF 8 SHEETS

4351.9

DESIGNED BY J. C. M.
CHECKED BY J. C. M.
DATE Nov. 1935



PART DECK PLAN SHOWING
TYPICAL REINFORCING
Scale: 1/4" = 1'-0"



WATERPROOFING OF CONST. JOINT
AT ALL RETAINING WALLS

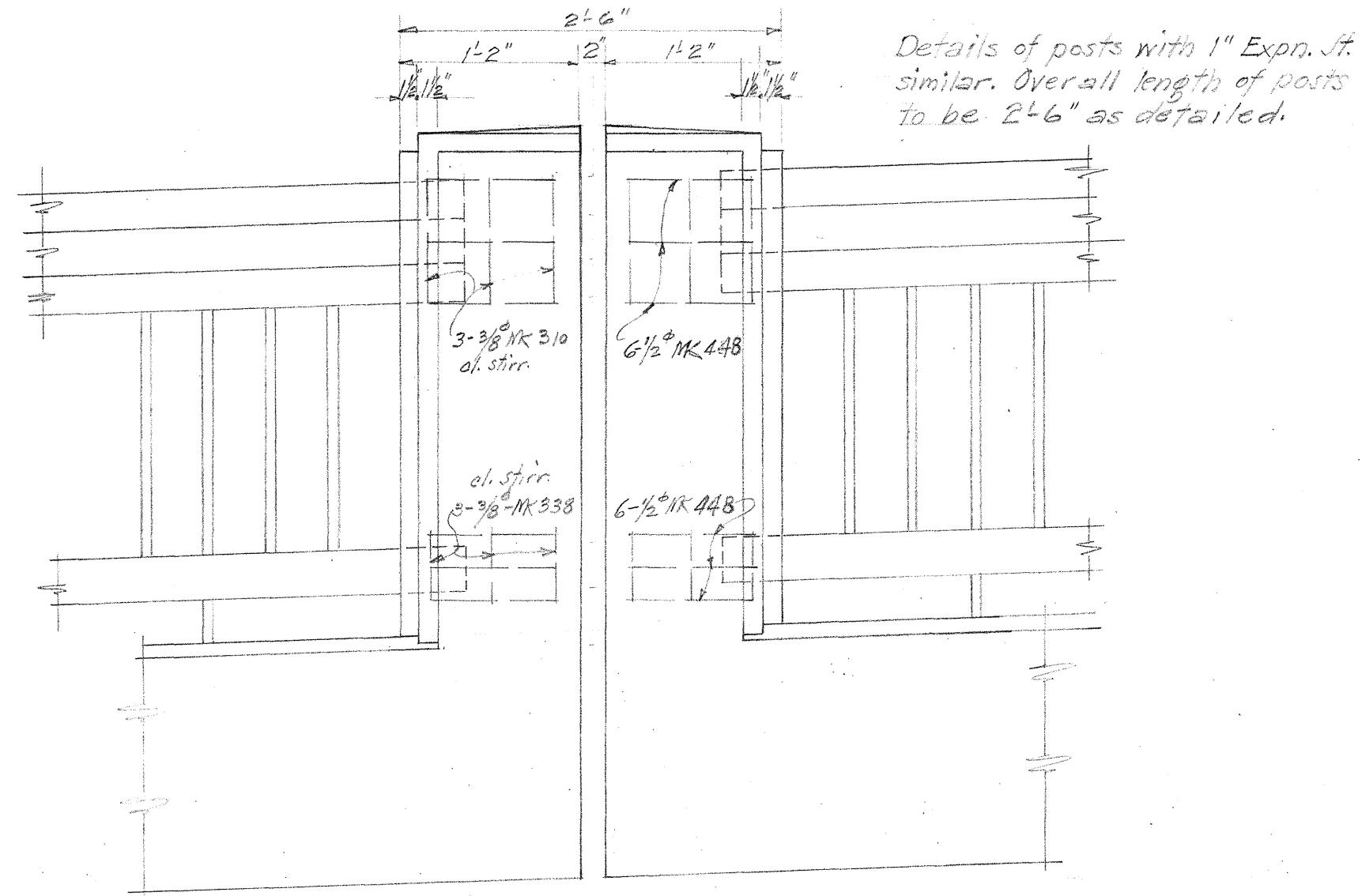
TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
LIHUE MILL BRIDGE
STA. 13+38²³ TO STA. 16+48¹⁶
LIHUE ROAD W.P.G.S. 24A
SHEET 5 OF 8 SHEETS

4351.10

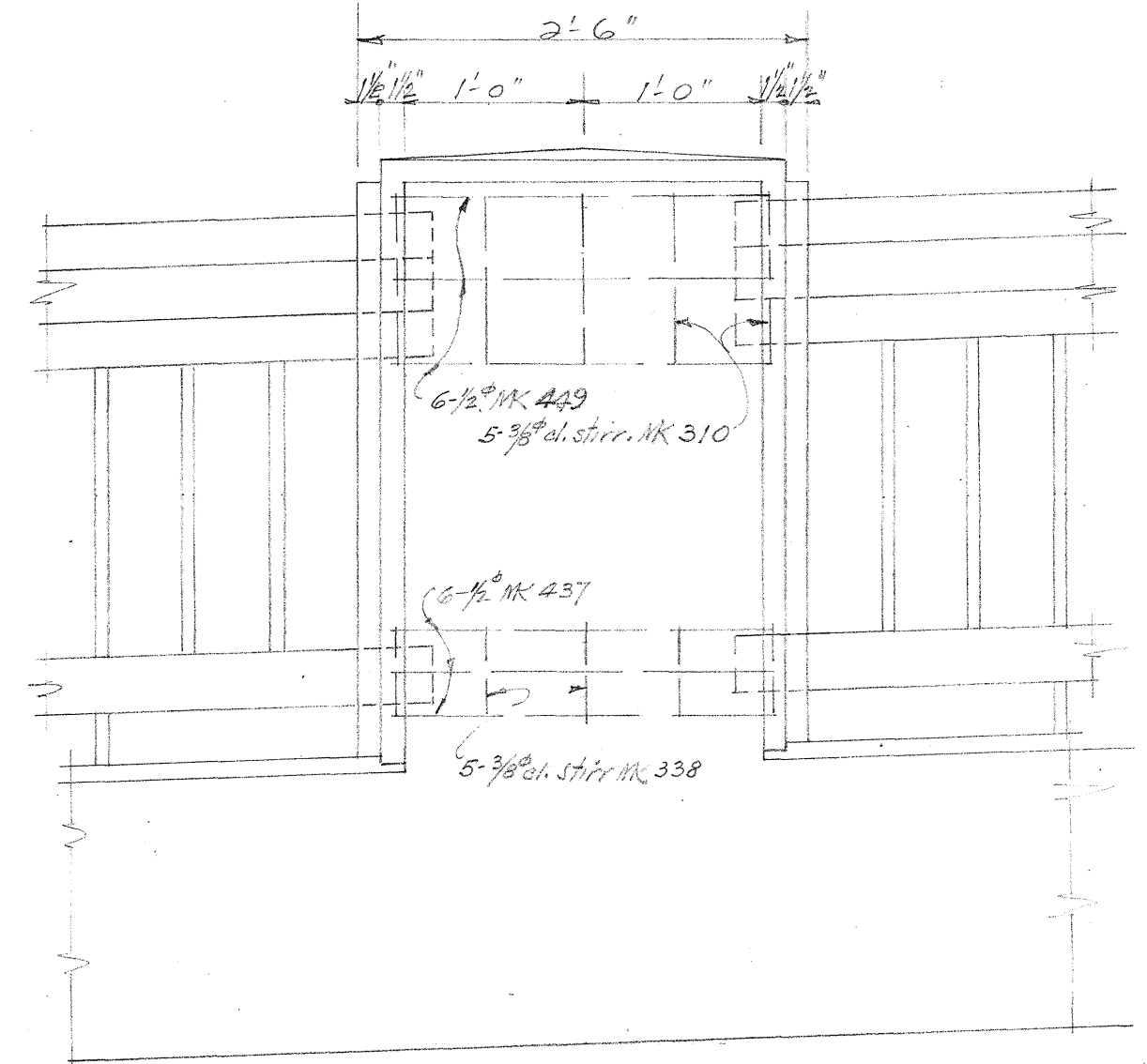
Revised by J.C.M.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	W.P.G.S. 24A	1935	11	21

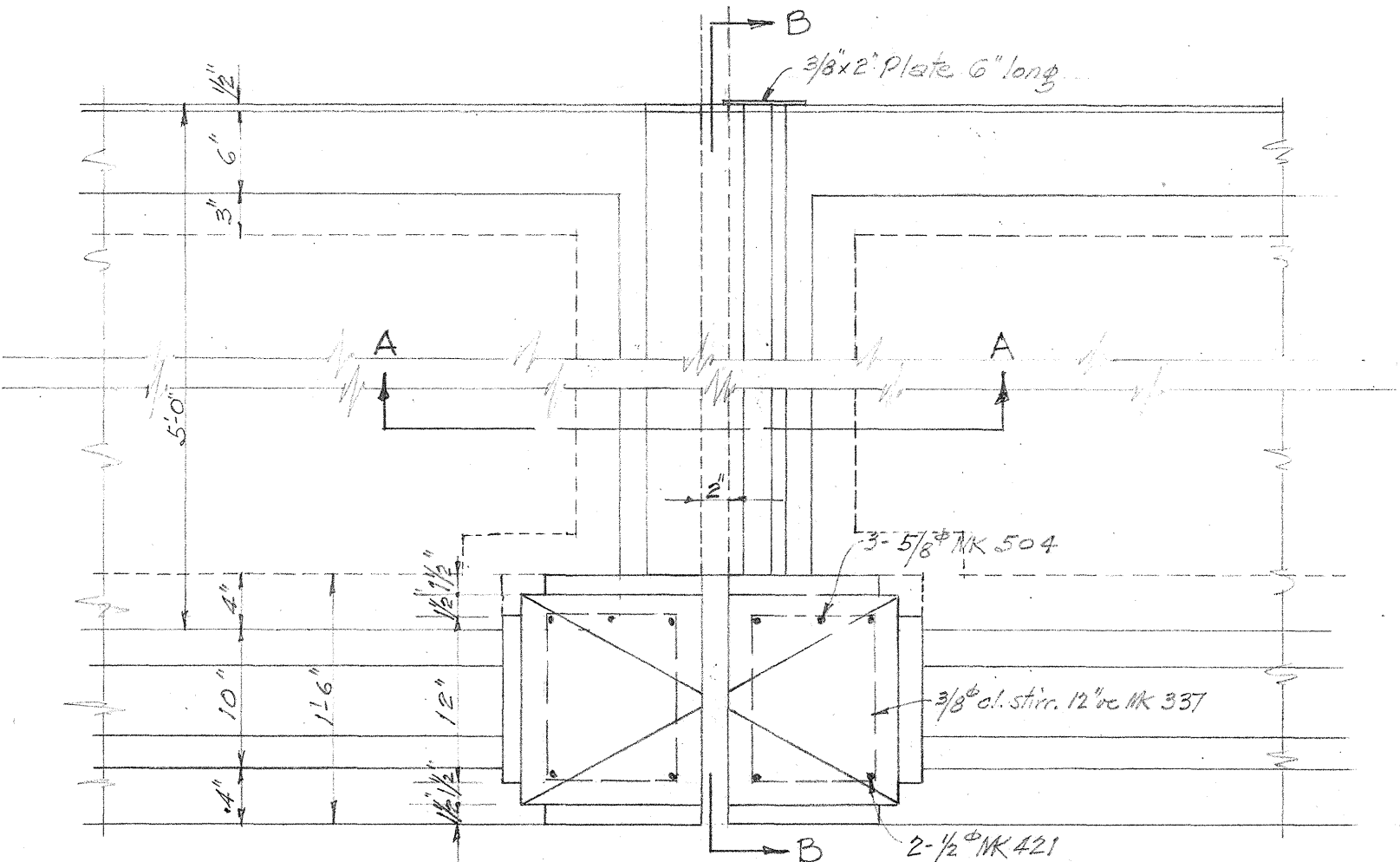
Revised March 1936



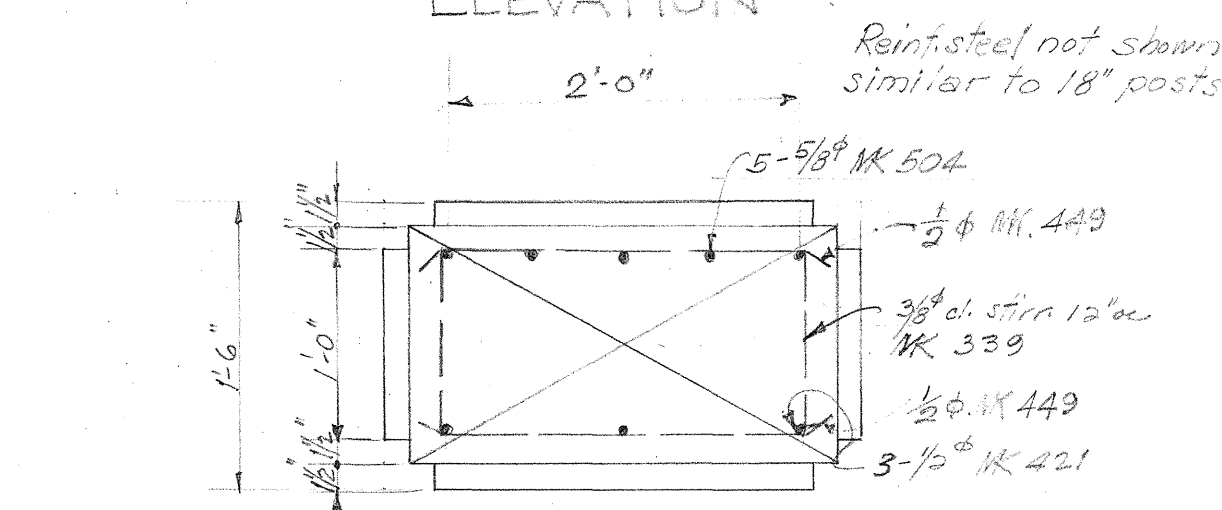
ELEVATION



ELEVATION

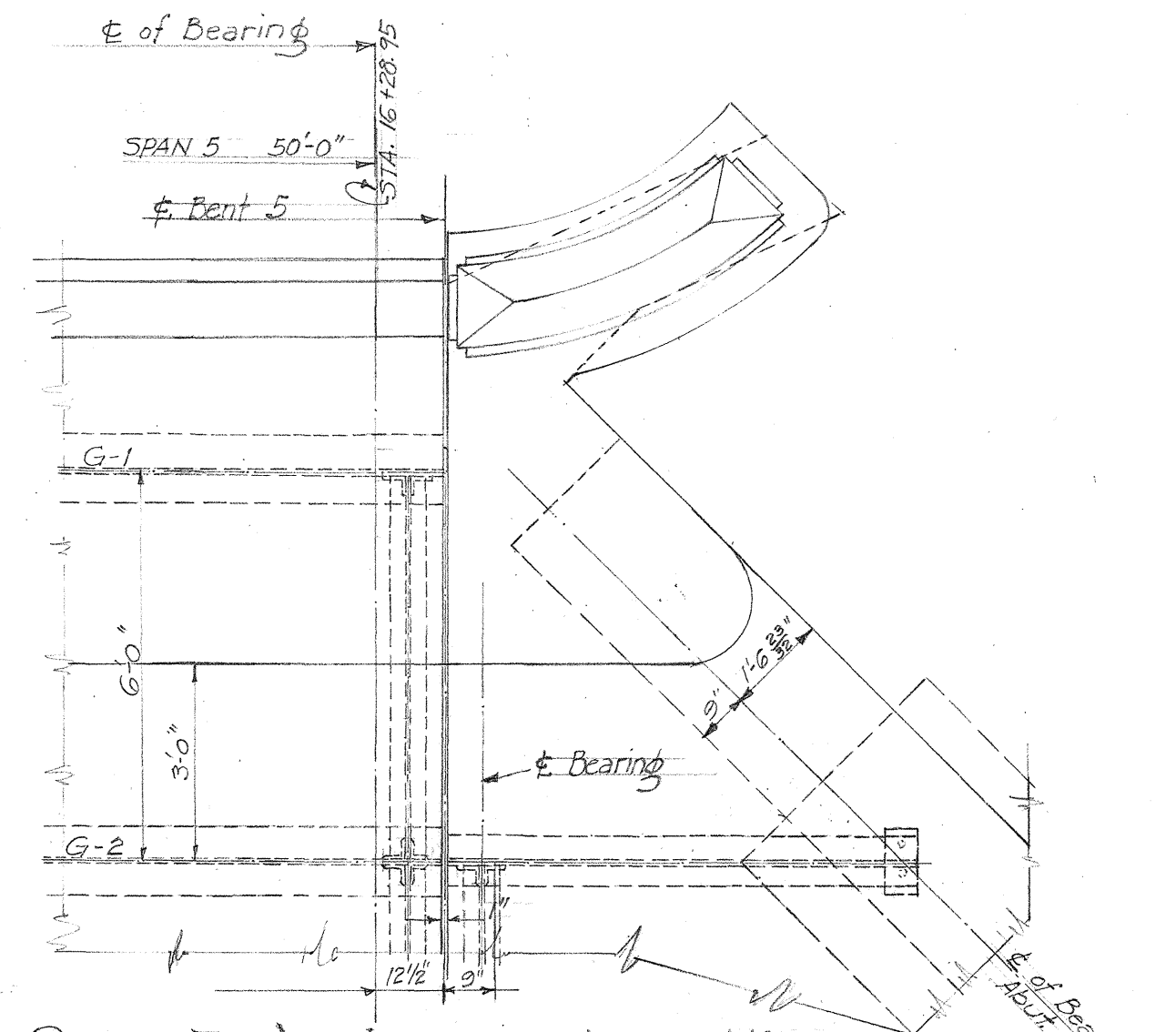


PLAN

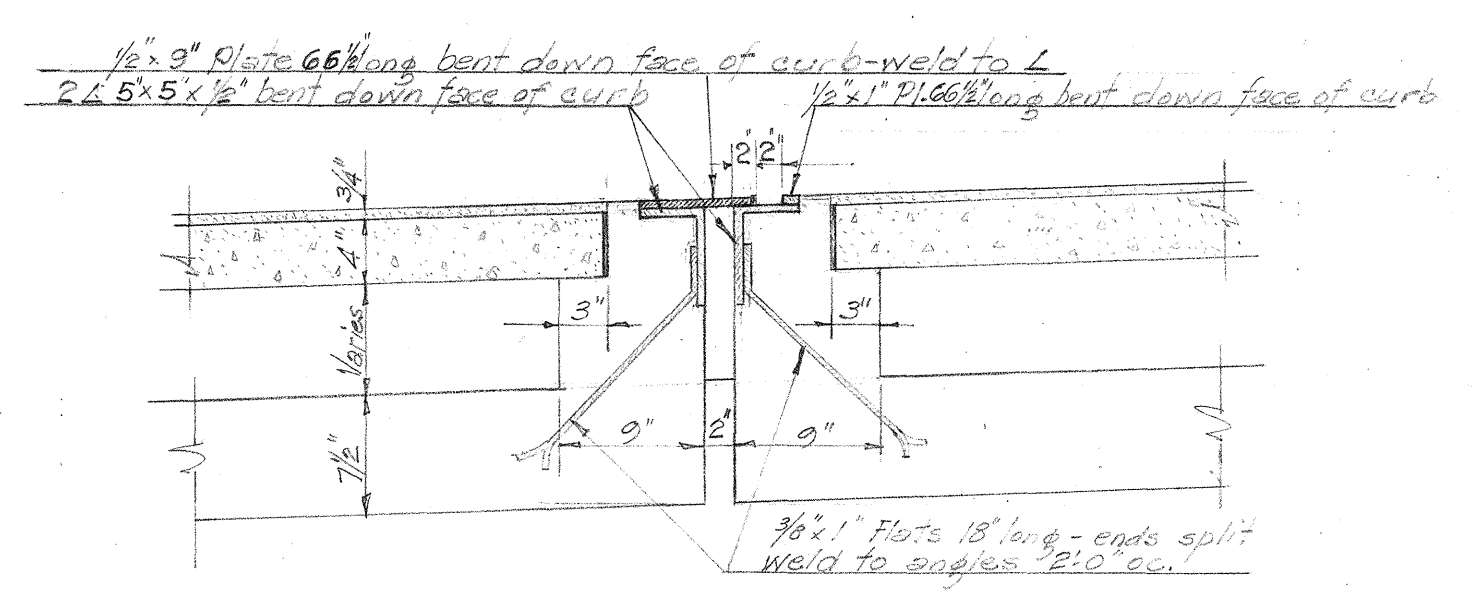


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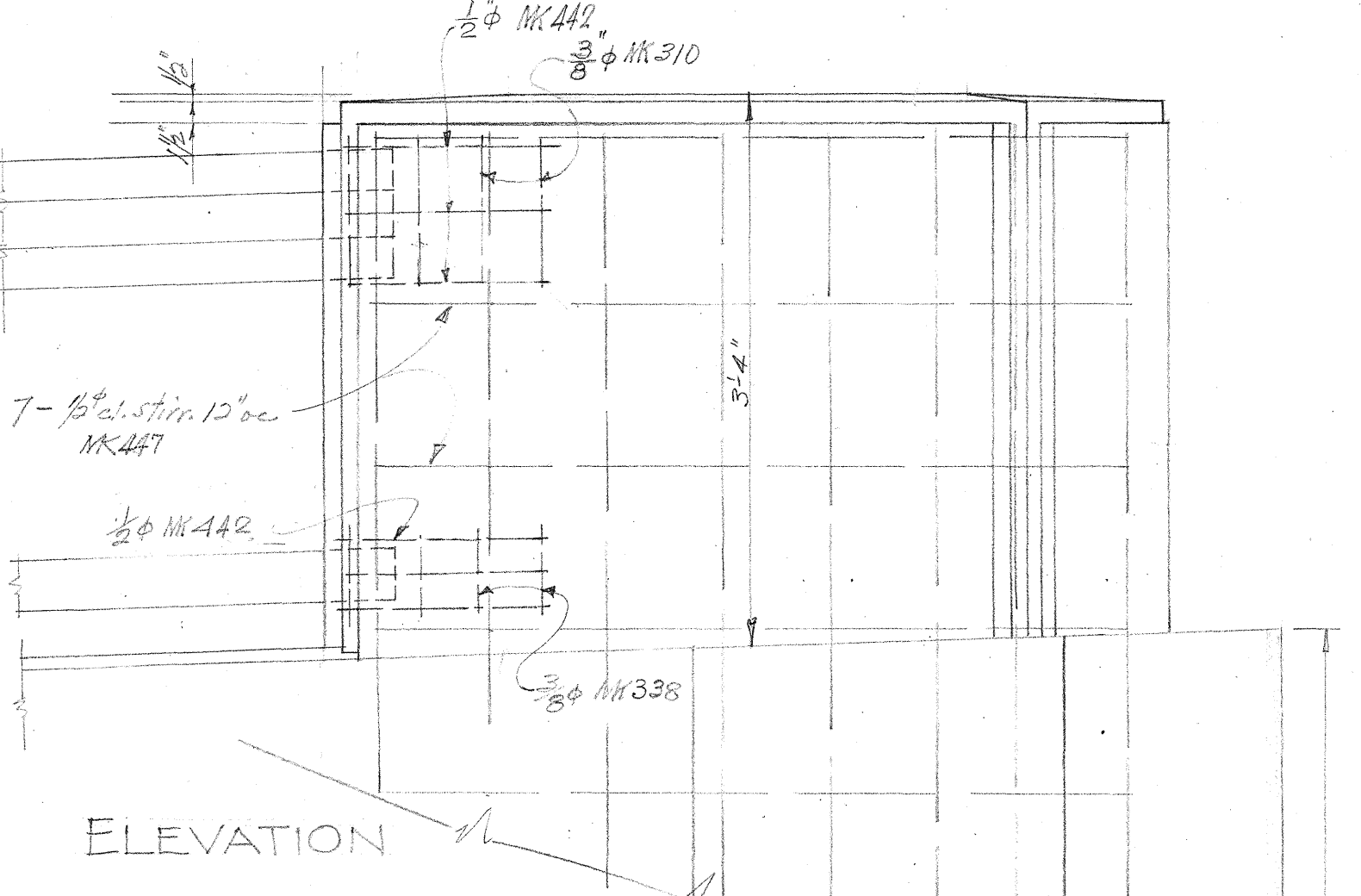
DETAILS LARGE POST-NO EXPN.
Scale: 1"=1'-0"



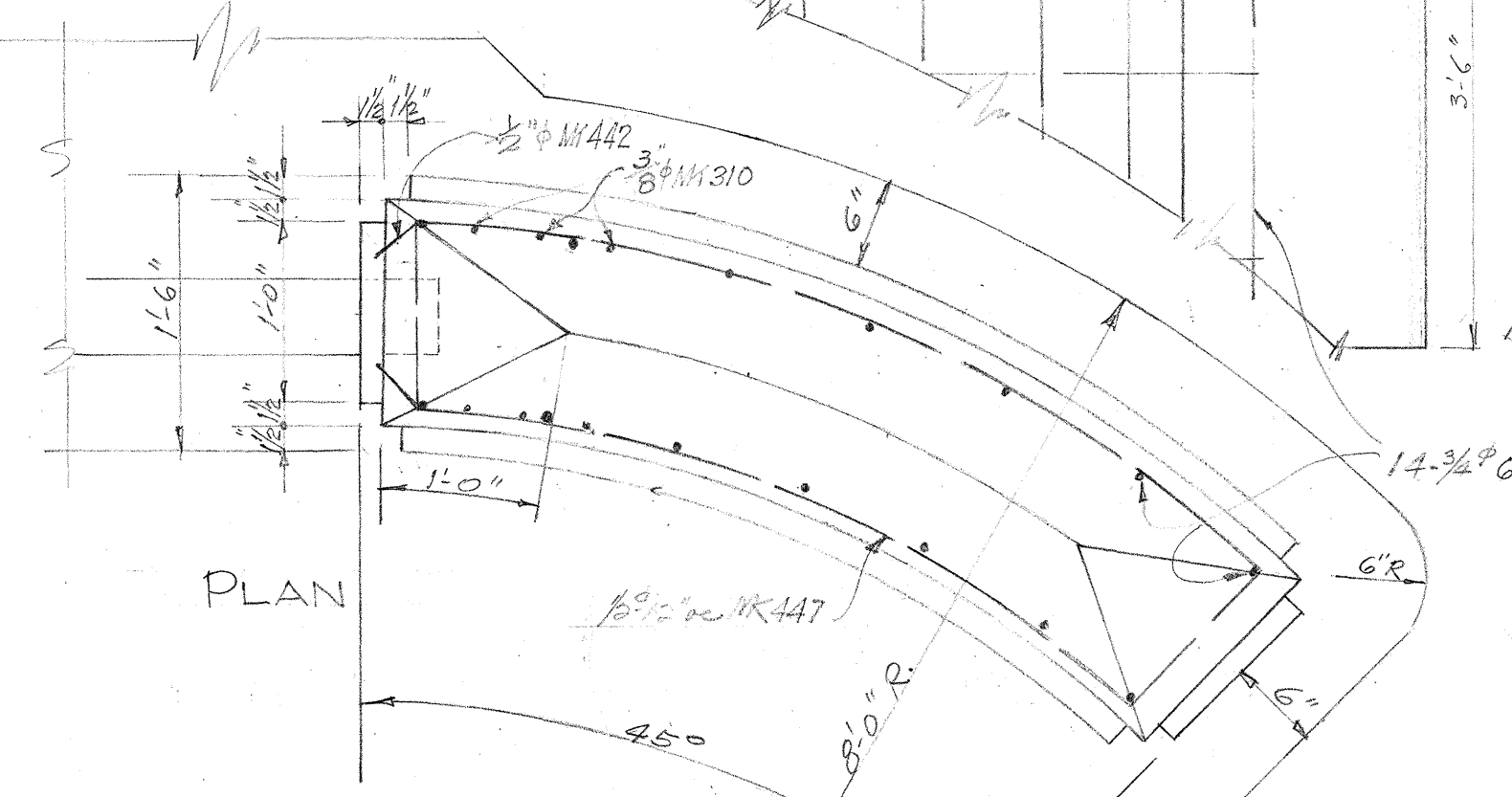
PLAN EXPN. JOINT AT BENT NO. 5
SPECIAL CONDITIONS RTWN. G14G2
Scale: 3/8"=1'-0"



SECTION "A-A"

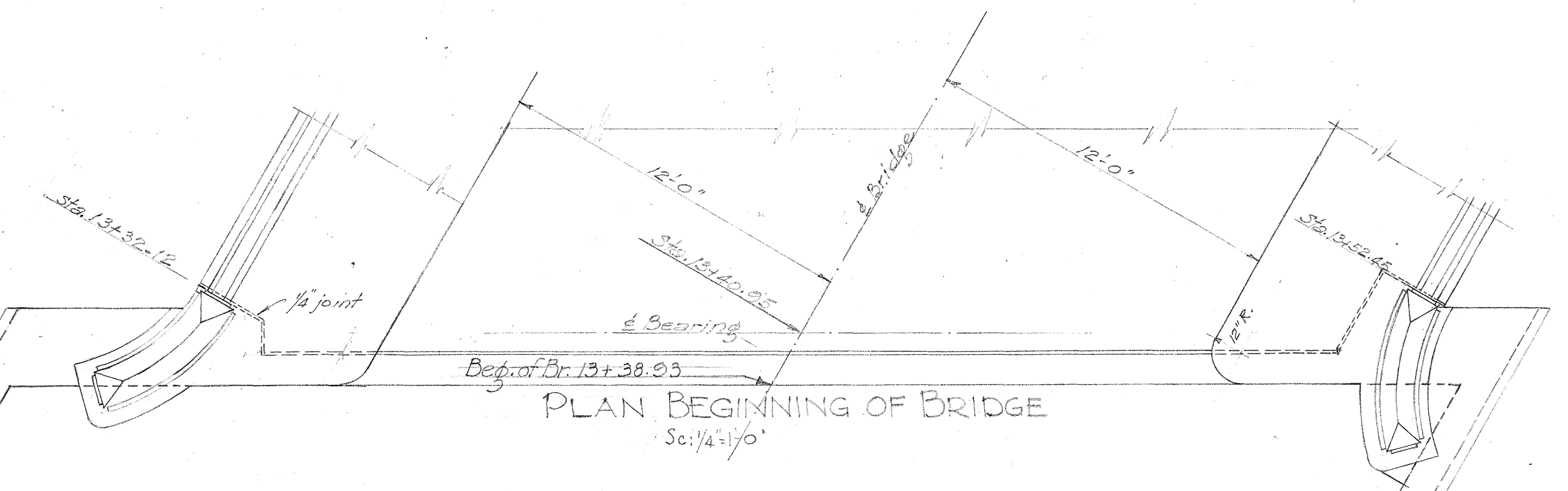


ELEVATION

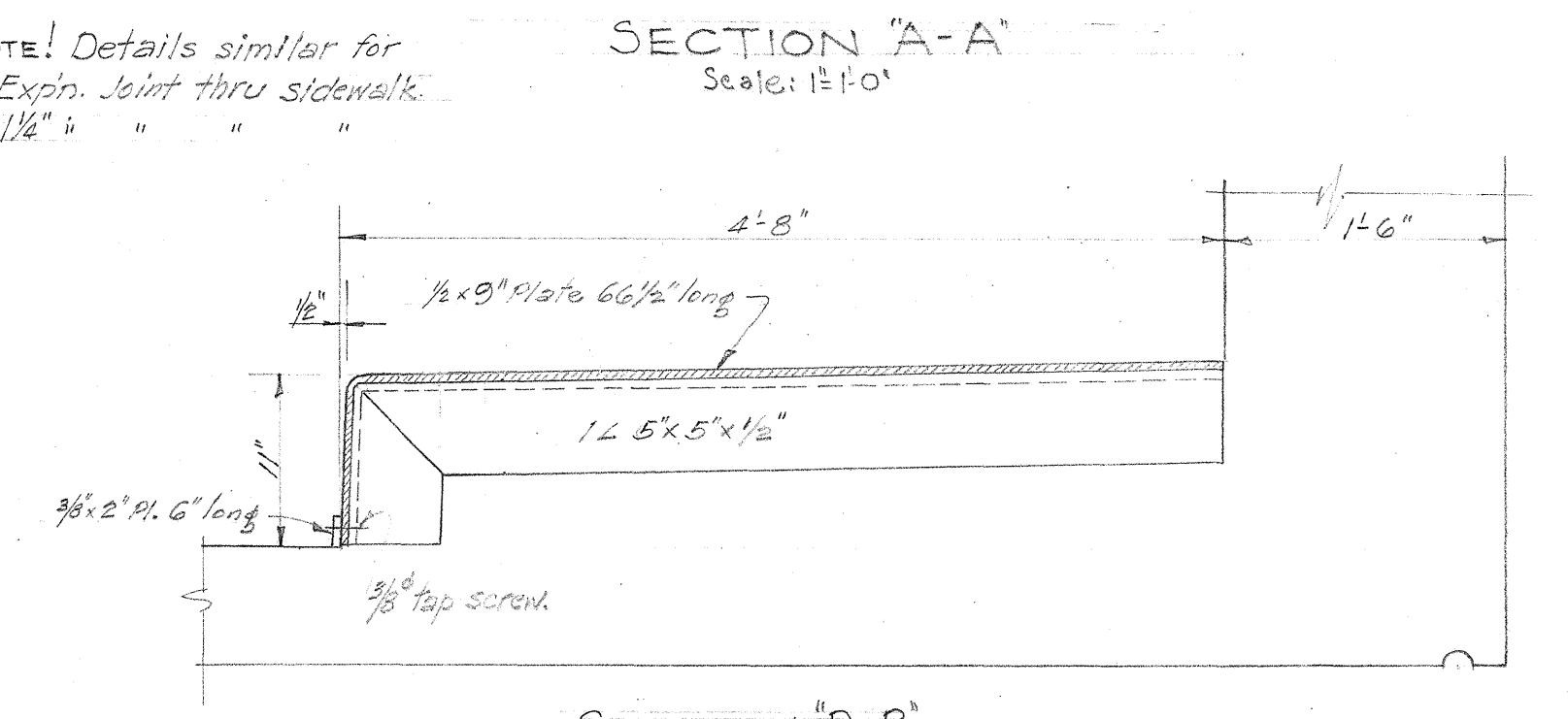


PLAN

DETAILS END POST
Scale: 1"=1'-0"



PLAN BEGINNING OF BRIDGE
Scale: 1/4"=1'-0"



SECTION "B-B"

DETAILS POST & SIDEWALK EXPN. JOINT

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
LIHUE MILL BRIDGE
STA. 13+38.93 TO STA. 16+48.16
LIHUE ROAD W.P.G.S. 24A
SHEET 6 OF 8 SHEETS

4351.11

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	W.R.G.S. 24A	1935	72	21

Revised March 1936

PLAN BENT NO. 1
Scale: 1/4" = 1'-0"

ROADWAY

SECTION B-B
Scale: 1/4" = 1'-0"

SECTION A-A
Scale: 1/4" = 1'-0"

PLAN OF SEATS
Scale: 1/4" = 1'-0"

PLAN BASE PLATE
Scale: 1/4" = 1'-0"

SECTION ON ϕ OF GIRDER AT BENT NO. 5
Scale: 1/4" = 1'-0"

SECTION Y-Y
Scale: 1/4" = 1'-0"

SECTION U-U
Scale: 1/4" = 1'-0"

PLAN BENT NO. 5
Scale: 1/4" = 1'-0"

PLAN - TIE BEAM
Scale: 1/4" = 1'-0"

SECTION ON ϕ OF TIE BEAM
Scale: 1/4" = 1'-0"

ELEVATION BENT NO. 5
Scale: 1/4" = 1'-0"

PLAN OF BASE PLATE SEAT
Scale: 1/4" = 1'-0"

SECTION G-G
Scale: 1/4" = 1'-0"

ELEVATION BENT NO. 1
Scale: 1/4" = 1'-0"

SECTION C-C
Scale: 1/4" = 1'-0"

SECTION E-E
Scale: 1/4" = 1'-0"

SECTION D-D
Scale: 1/4" = 1'-0"

SECTION F-F
Scale: 1/4" = 1'-0"

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

LIHUE MILL BRIDGE
STA. 13+38.93 TO STA. 16+48.16
LIHUE ROAD W.P.G.S. 24A

SHEET 7 OF 8 SHEETS

4351.12

DESIGNED BY	W. S. B.	DATE	Nov. 1935
CHECKED BY	J. C. M.		
APPROVED BY			
NOTED BY			
QUANTITY BY			
CONSTRUCTION BY			

Revised by J. C. M.

Note: This type of footing to be used only if suitable bearing material is encountered at indicated Elev. If not, Res. Eng. shall confer with office of Territorial Highway Engineer.

For post reinforcing see detail SHP 4351.11

Pier for Bent No. 5 omitted

Left footing Bent No. 5

Edge of conc. block below Wall footing

Cape block poured with tie beams

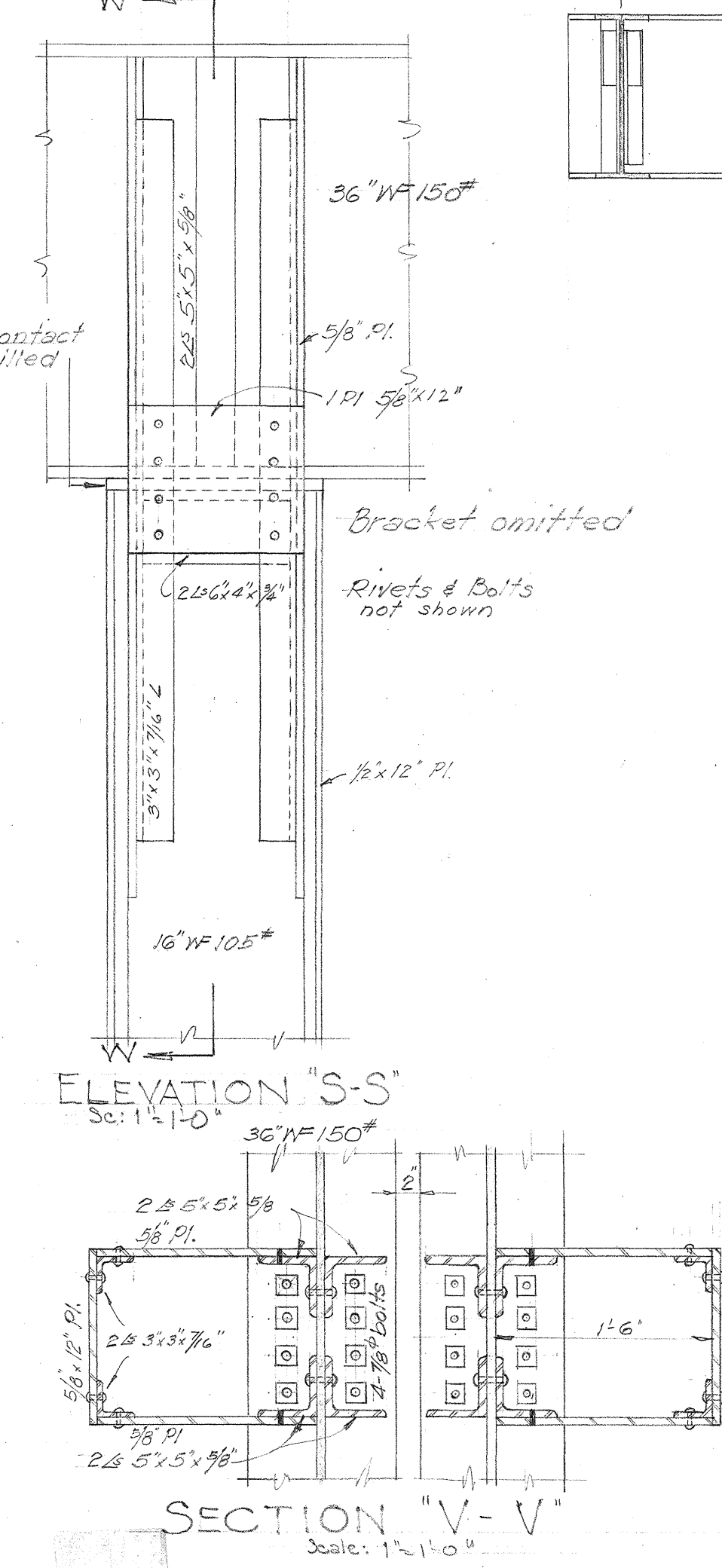
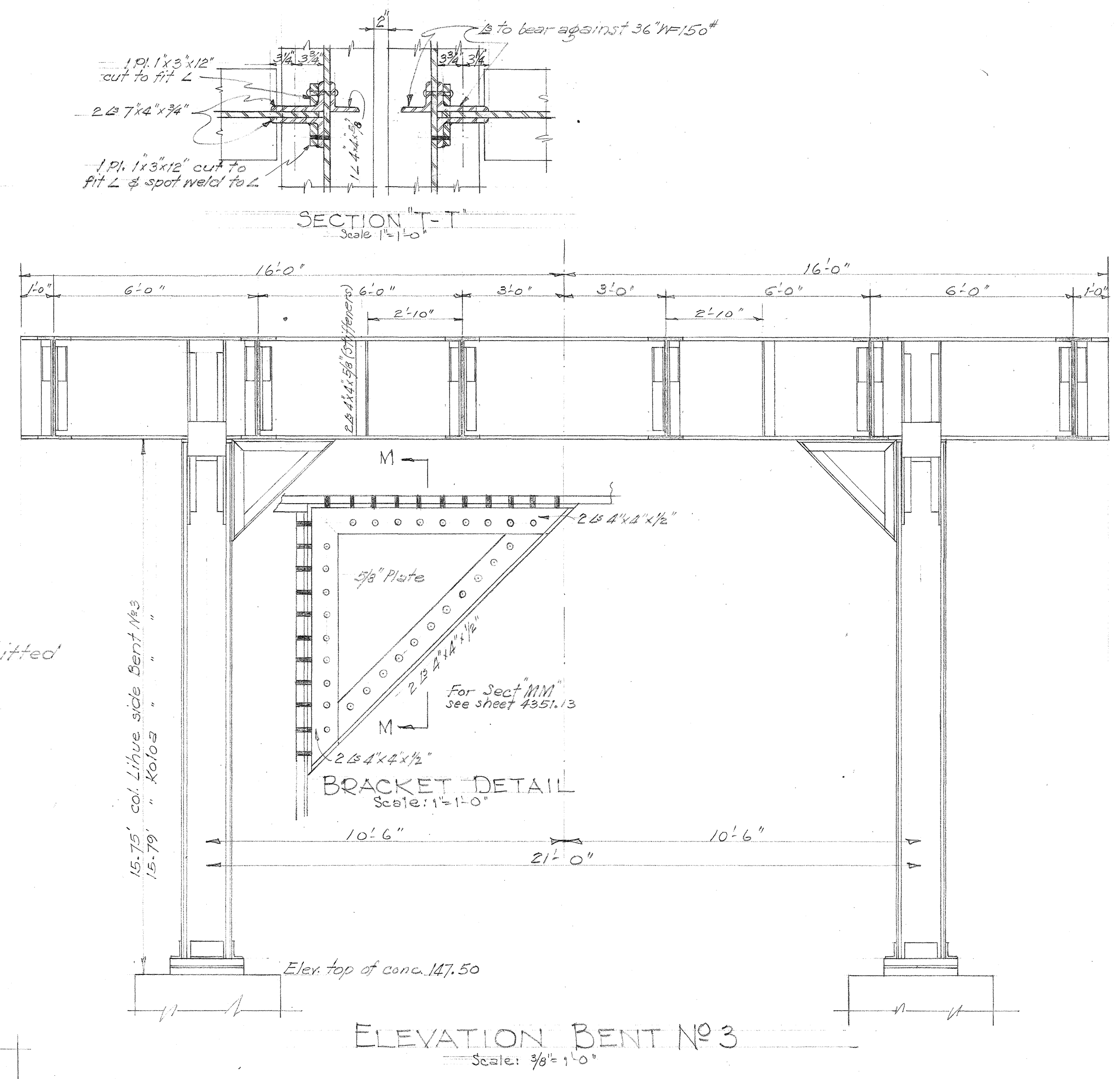
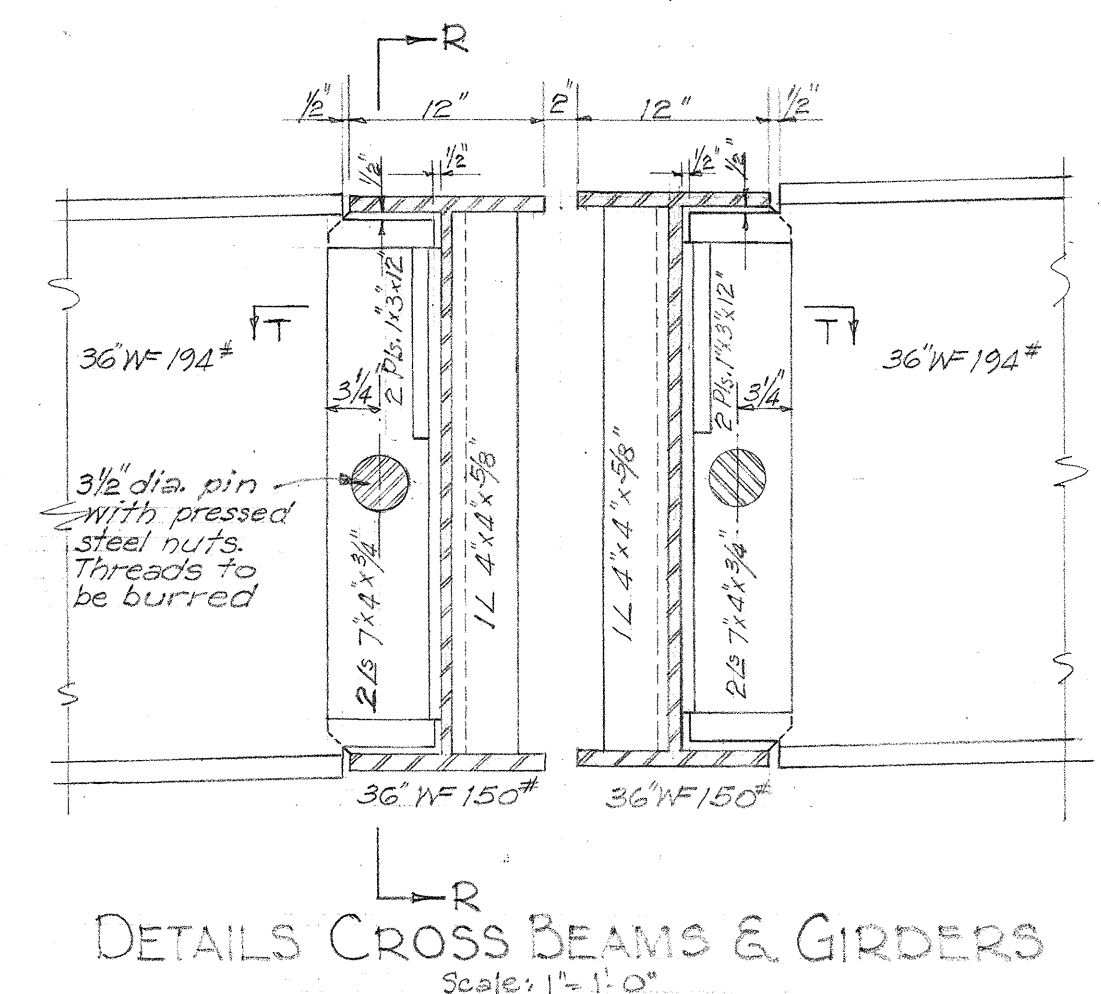
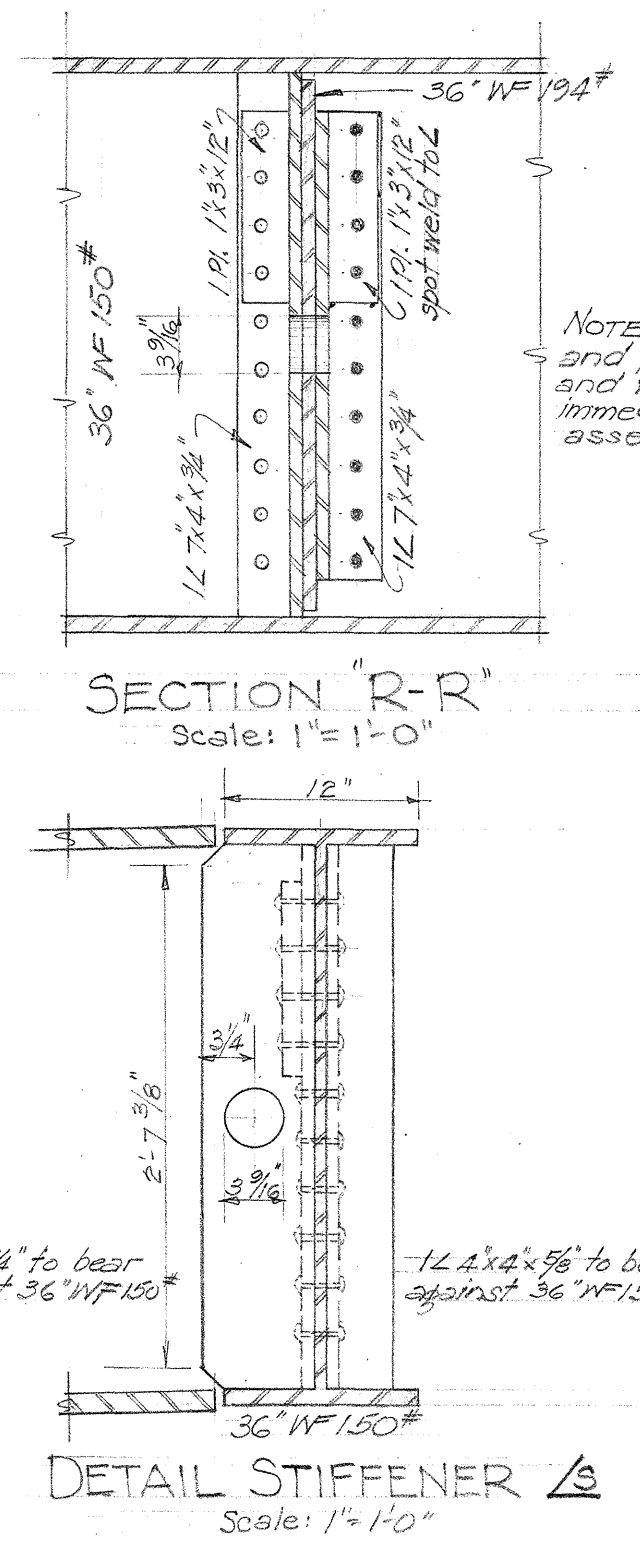
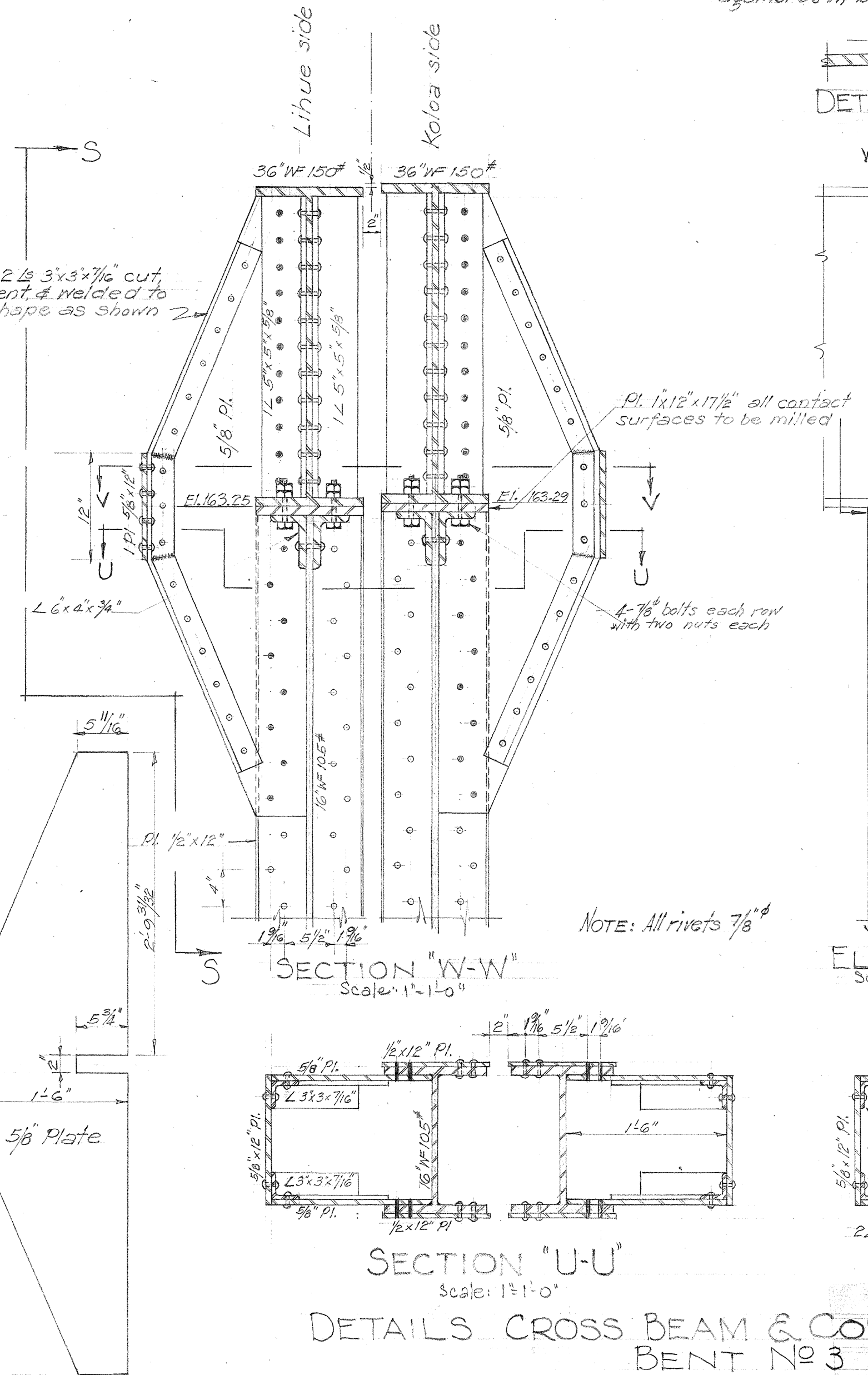
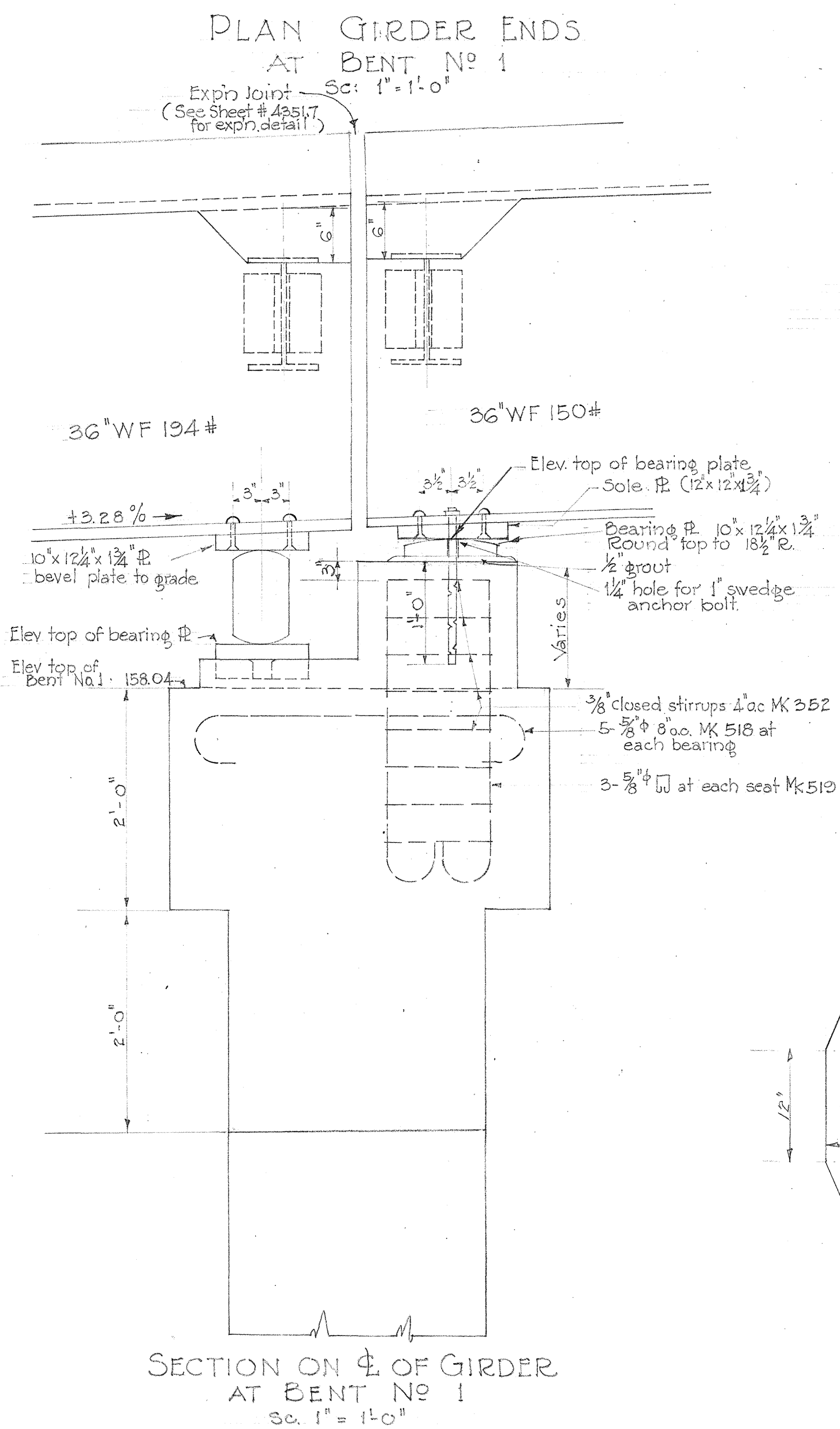
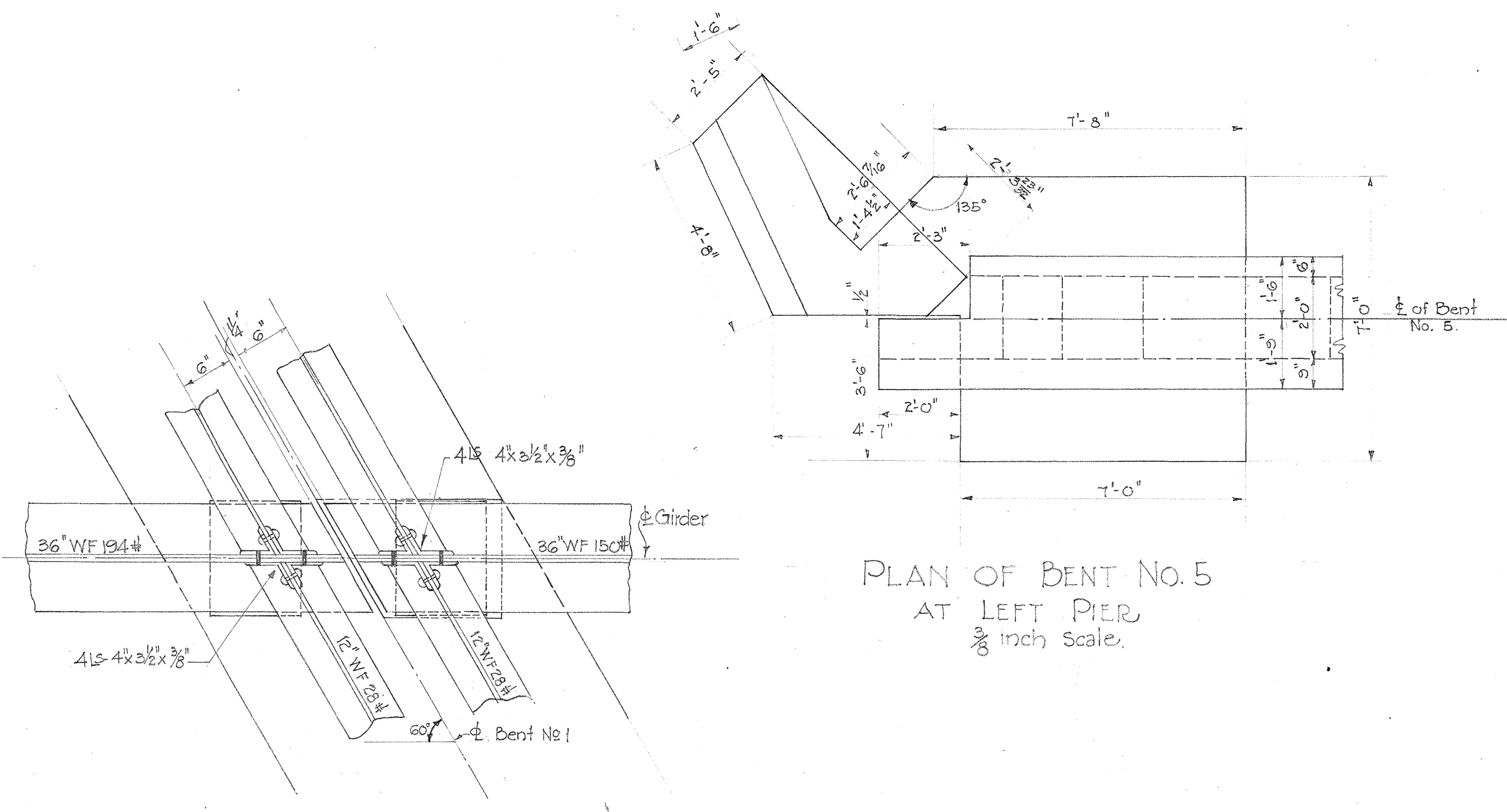
See Section Y-Y for detail

See Section Y-Y for detail

See Section Y-Y for detail

See Section Y-Y for detail

FED. ROAD DISTRICT	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	24A	1935	12A	21



TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

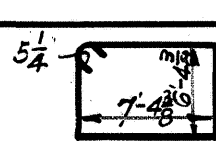
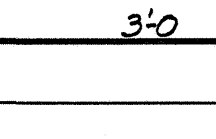
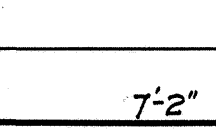
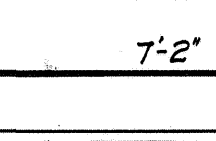
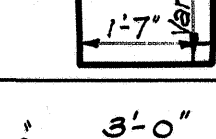
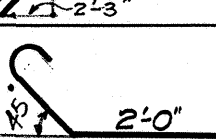
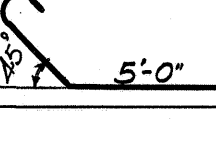
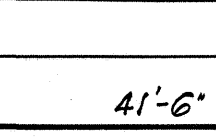
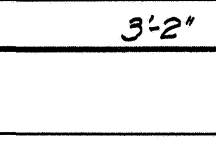
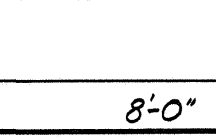
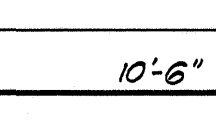
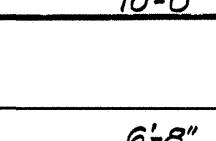
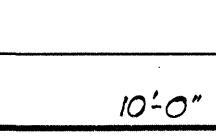
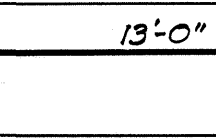
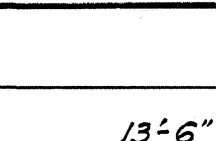
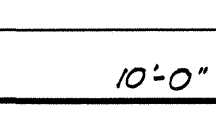
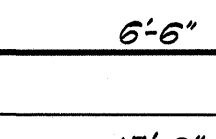
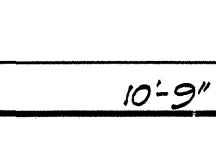
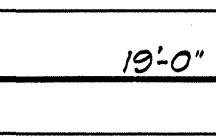
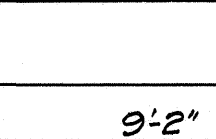
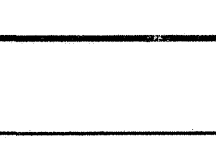
LIHUE MILL BRIDGE
STA. 13+38.23 TO STA. 16+48.16
LIHUE ROAD W.R.G.S. 24A

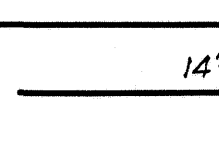
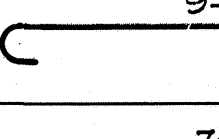
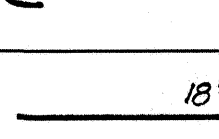
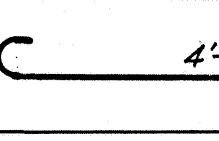
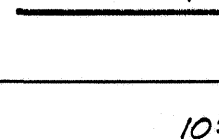
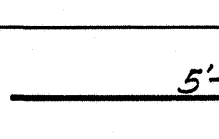
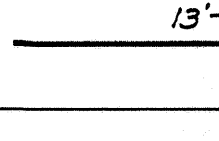
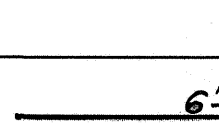
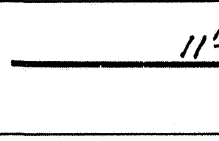
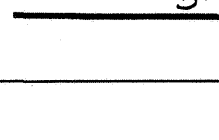
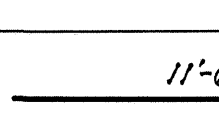
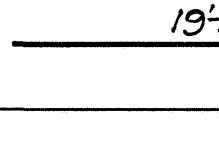
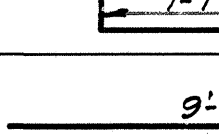
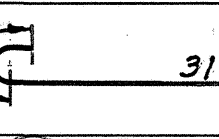
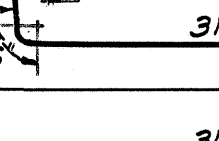
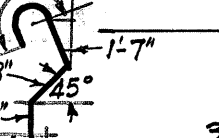
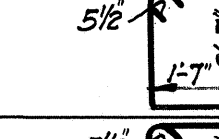
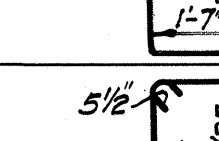
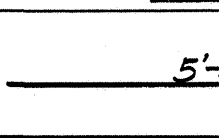
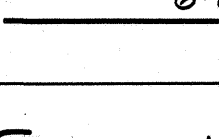
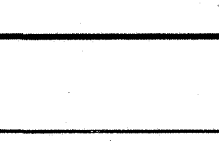
SHEET 7A OF 8 SHEETS
4351.12A

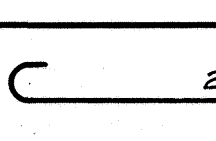
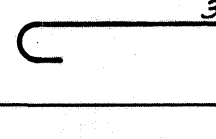
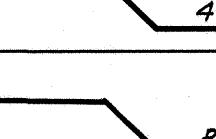
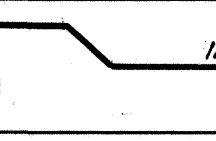
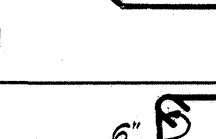
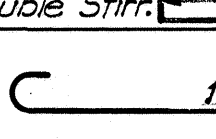
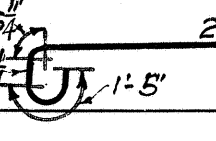
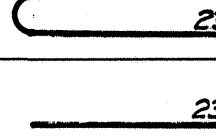
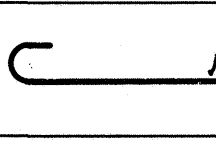
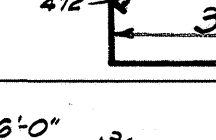
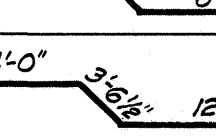
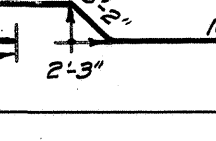
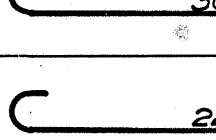
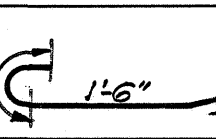
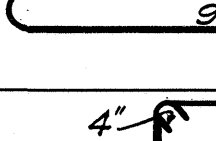
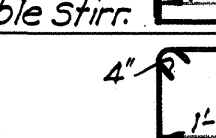
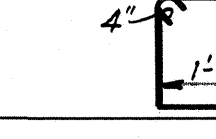
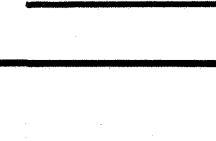
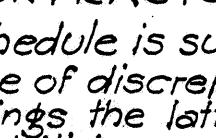
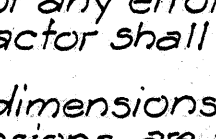
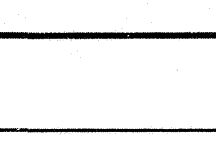
STEEL SCHEDULE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	22A	1935	13A	21

Revised March 1936

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
400		FOOTINGS Bent #1	1/2"	28'-4"	4	2	8	226.67	.68	154
300		"	3/8"	3'-0"	16	2	32	96.0	.38	36
409		Bent #5 Left Ftg	1/2"	7'-6"	13	2	26	195.0	.68	133
500		Right Ftg	5/8"	9'-0"	16	1	16	144.0	1.06	153
410		"	1/2"	8'-6"	6	1	6	51.0	.68	35
411		"	"	Varies Av. 8'-3"	12	1	12	99.0	"	67
412		"	"	8'-0"	2	1	2	17.0	"	12
700		"	7/8"	8'-0"	2	1	2	16.0	2.07	33
701		"	"	9'-6"	2	1	2	19.0	"	39
702		"	"	9'-4"	4	1	4	37.33	"	77
312		ABUT. #2 Ftg	3/8"	41'-6"	6	1	6	249.0	.38	95
425		"	1/2"	4'-6"	42	1	42	189.0	.68	129
605		ABUT. #1 W.W. Ftg	3/4"	7'-10"	10	1	10	78.33	1.52	119
606		"	"	10'-2"	10	1	10	108.33	"	165
313		"	3/8"	10'-6"	11	1	11	115.5	.38	44
607		"	3/4"	12'-2"	9	1	9	109.5	1.52	166
608		"	"	8'-10"	9	1	9	79.5	"	121
314		"	3/8"	10'-0"	14	1	14	140.0	.38	53
704		"	7/8"	15'-6"	9	1	9	139.5	2.07	289
705		"	"	11'-6"	9	1	9	103.5	"	214
315		"	3/8"	13'-6"	9	1	9	121.5	.38	46
316		"	"	10'-0"	7	1	7	70.0	"	27
706		"	7/8"	6'-6"	8	1	8	52.0	2.07	108
707		Abut. Ftg	"	17'-6"	18	1	18	315.0	"	652
708		"	"	13'-3"	18	1	18	238.5	"	494
317		"	3/8"	19'-0"	19	1	19	361.0	.38	137
509		"	5/8"	13'-0"	13	1	13	169.0	1.06	179
510		"	"	11'-0"	13	1	13	143.0	"	152

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
318		ABUT. #1 Abut. Ftg.	3/8"	14'-0"	15	1	15	210.0	.38	80
511		"	5/8"	11'-0"	18	1	18	198.0	1.06	210
512		"	"	9'-0"	17	1	17	153.0	"	162
319		"	3/8"	18'-0"	17	1	17	306.0	.38	116
320		"	"	5'-9"	17	1	17	97.75	"	37
426		W.W. Ftg. Cutoff Wall	1/2"	4'-9"	11	2	22	104.50	.68	71
427		"	"	10'-3"	6	2	12	123.0	.68	84
428		"	"	5'-9"	14	2	28	161.0	.68	109
429		"	"	13'-3"	6	2	12	159.0	"	108
430		Abut. Ftg. Cutoff Wall	"	15'-3"	7	2	14	213.50	"	145
431		"	"	6'-3"	16	2	32	200.0	"	136
432		"	"	11'-3"	7	2	14	157.50	"	107
433		"	"	5'-9"	12	2	24	138.0	"	94
401		BENTS Bent #1 diaphragm Wall	1/2"	11'-6"	17	2	34	391.0	.68	266
402		"	"	19'-3"	12	2	24	462.0	"	314
403		Col. Support	"	23'-3"	10	2	20	465.0	"	316
600		"	5/8"	9'-6"	20	2	40	350.0	1.52	578
800		Col.	1"	31'-1"	4	2	8	260.0	3.44	894
801		"	"	31'-4"	2	2	4	157.0	"	540
802		"	"	31'-3"	6	2	12	375.0	"	1290
803		"	"	31'-4"	2	2	4	168.0	"	578
301		Col. Stirr.	3/8"	11'-3"	24	2	48	540.0	.38	205
404		Beam Stirr.	1/2"	11'-3"	13	1	13	146.25	.68	99
405		"	"	13'-3"	18	2	36	477.0	.68	324
406		Bin Bracket	"	5'-4"	2	2	4	21.33	"	15
407		Beam	"	6'-0"	2	2	4	24.0	"	16
804		Bin Bracket	1 1/4"	14'-6"	4	2	8	116.0	3.44	399

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
805		BENT #1 Beam	1"	26'-10"	4	1	4	107.33	3.44	369
806		"	"	39'-7"	3	1	3	118.75	"	408
807		"	"	42'-2"	2	1	2	84.33	"	290
808		"	"	39'-6"	2	1	2	79.0	"	272
809		"	"	47'-7"	2	1	2	95.17	"	327
810		"	"	47'-7"	2	1	2	95.17	"	327
408		Double Stirr. Beam Stirr.	1/2"	Varies Av. 13'-0"	9	2	36	468.0	.68	318
302		Col. Ties	3/8"	2'-4"	8	2	16	37.33	.38	14
811		BENT #5 R+ Col.	1"	32'-3"	4	1	4	129.0	3.44	444
812		"	"	27'-8"	4	1	4	110.67	"	381
413		"	1/2"	23'-9"	1	2	2	47.50	.68	32
303		Col. Ties	3/8"	2'-4"	7	1	7	16.33	.38	6
304		Rt. Col. Stirr.	"	10'-1"	25	1	25	252.08	.38	96
814		Beam	1"	32'-3"	1	1	1	32.25	3.44	111
815		"	"	32'-11"	1	1	1	32.92	"	113
816		"	"	34'-0"	2	1	2	68.0	"	234
817		"	"	33'-8"	2	1	2	67.33	"	232
818		"	"	24'-10"	4	1	4	99.33	"	342
819		Beam Bracket	"	11'-10"	4	1	4	47.33	"	163
820		"	"	11'-10"	4	1	4	47.33	"	163
414		Beam Stirr.	1/2"	11'-6"	9	2	28	322.0	.68	219
415		"	"	11'-6"	31	1	31	356.50	"	242
416		"	"	12'-0"	6	1	6	72.0	"	49
417		Beam	"	6'-9"	3	1	5	33.75	"	23

♦ 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 1/2 of bar.

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

LIHUE MILL BRIDGE
STA 13+38.23 TO STA 16+48.16
LIHUE ROAD W.R.G.S. 24A

SHEET NO. OF SHEETS

4351.13A

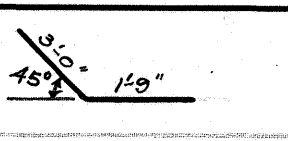
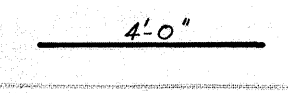
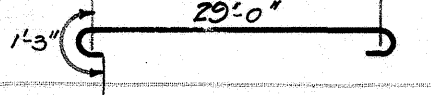
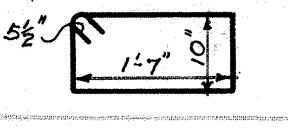
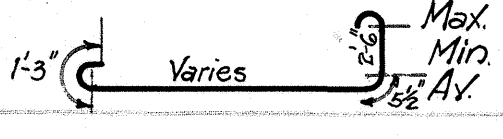
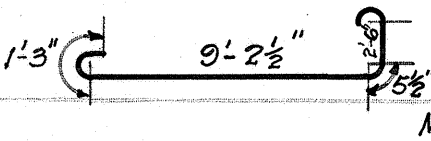
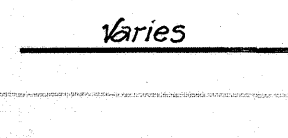
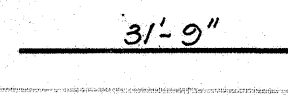
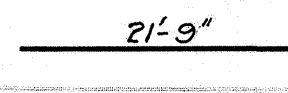
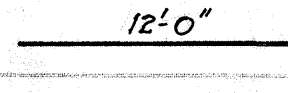
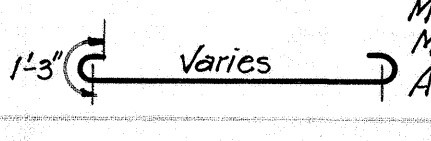
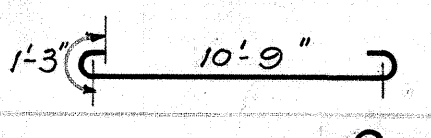
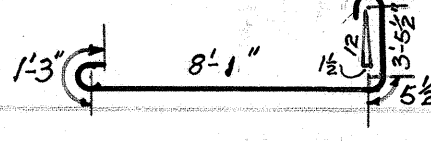
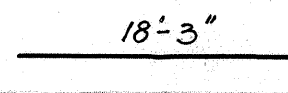
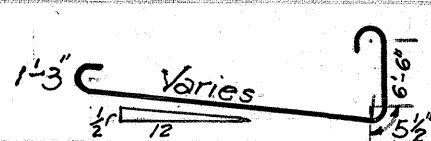
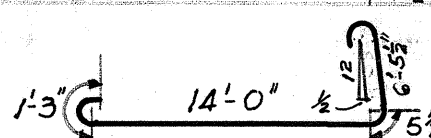
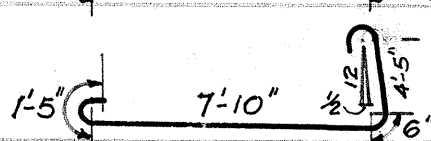
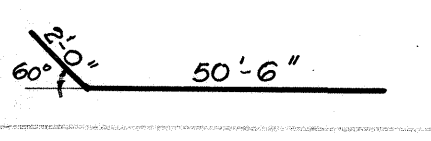
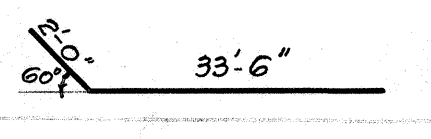
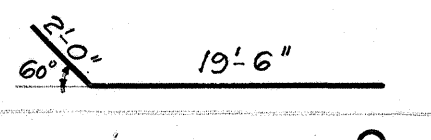
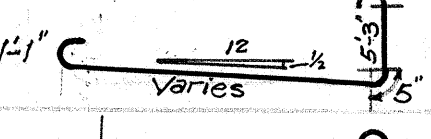
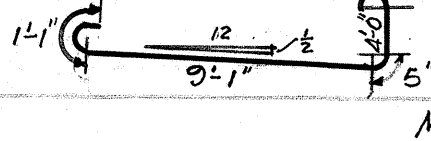
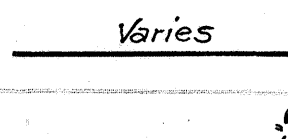
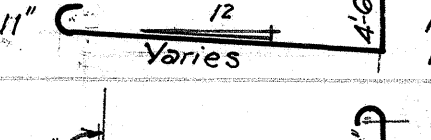
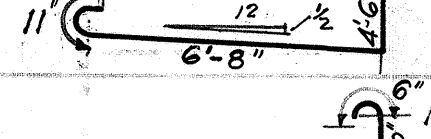
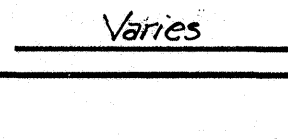
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CHECKED BY: RES
NOTED BY: RES
REVISIONS: 10/1/35
ORIGINAL PLAN
NOTE BOOK
QUANTITIES BY
CHECKED BY
Revised by H.Y.M.

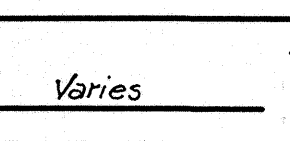
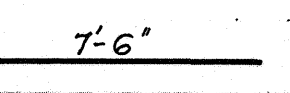
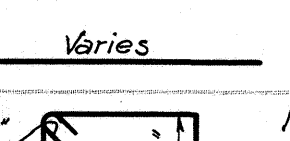
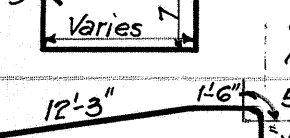
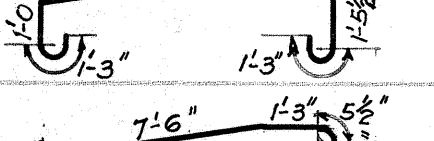
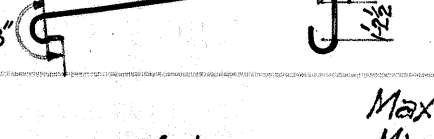
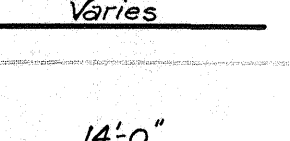
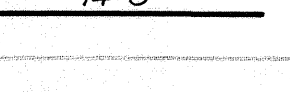
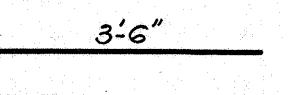
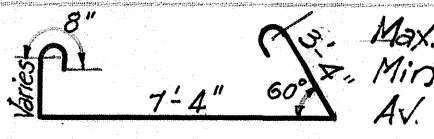
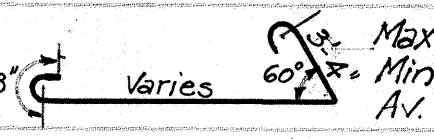
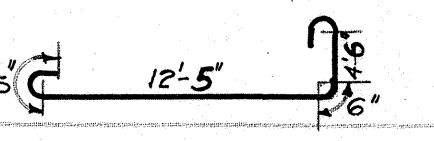
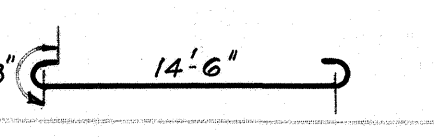
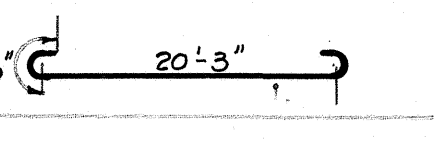
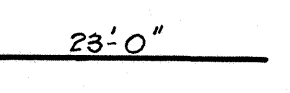
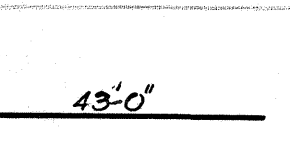
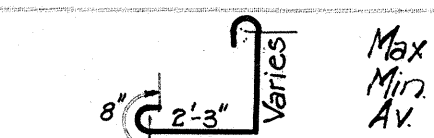
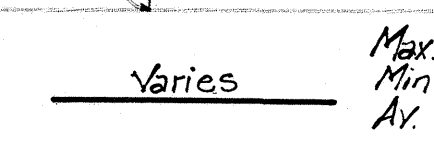
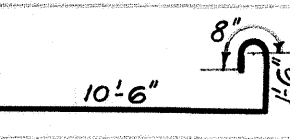
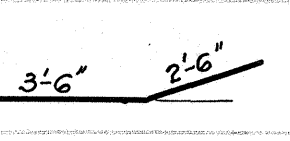
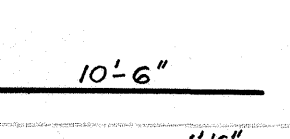
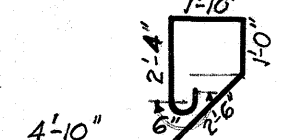
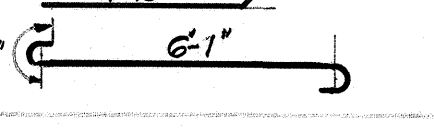
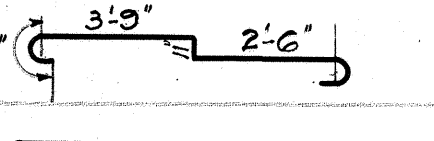
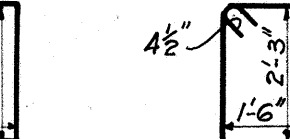
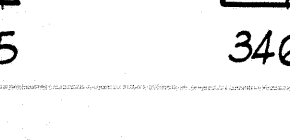
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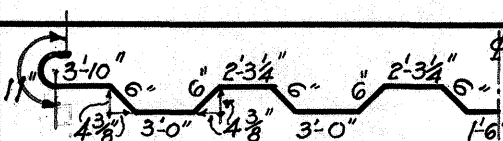
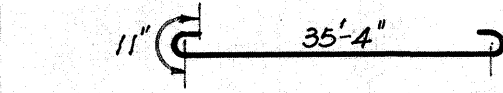
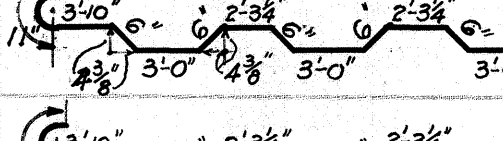
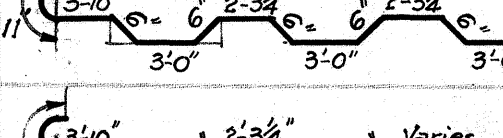
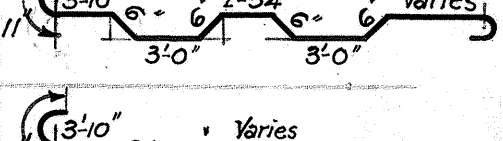
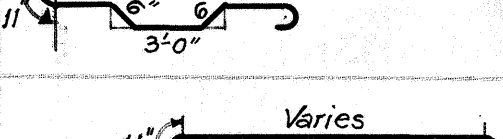
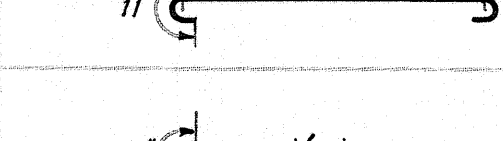
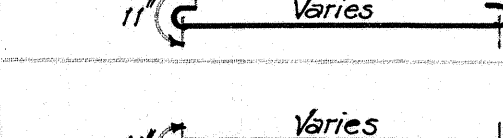
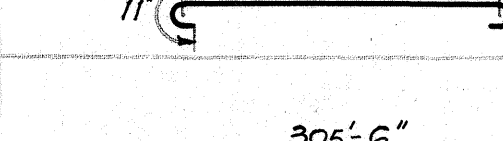
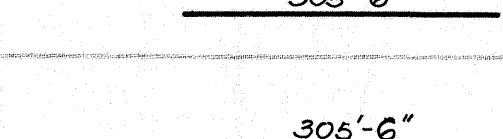
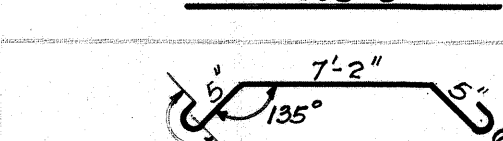
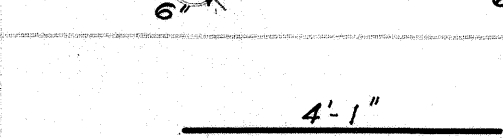
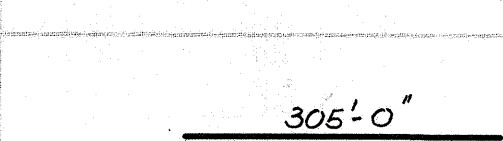
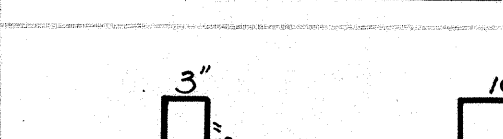
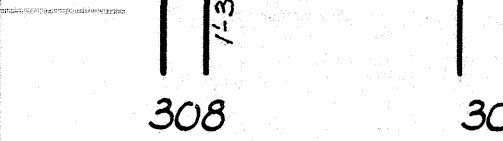
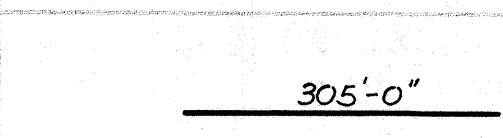
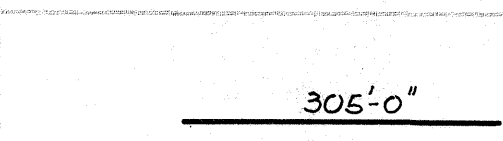
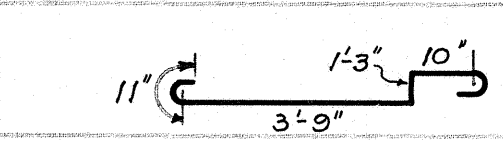
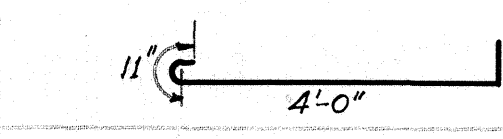
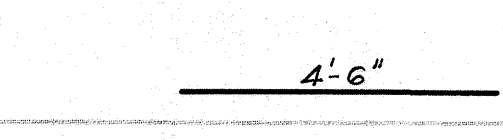
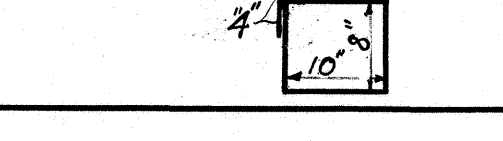
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FED. ROAD DIST. NO.	STATE	FED. AID YEAR	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	1935	1935	21	21

Revised March 1936

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
418		BENT #5 Beam Bracket	1/2" ϕ	4'-9"	2	1	2	9.5	.68	6
419		"	"	4'-0"	2	1	2	8.0	"	5
703		Tie Beam	7/8" ϕ	31'-6"	3	2	6	189.0	2.07	402
305		" " Stirr.	3/8" ϕ	5'-7"	25	1	25	139.58	.38	53
709		ABUTMENT Abut. #1 W.W.	7/8" ϕ	Varies Av. 19'-3"	11	1	11	211.75	2.07	438
710		"	"	14'-8"	10	1	10	146.67	"	303
321		"	3/8" ϕ	Varies Av. 14'-6"	11	1	11	159.5	.38	61
322		"	"	31'-9"	13	2	26	825.5	"	314
323		"	"	21'-9"	4	2	8	174.0	"	66
324		"	"	12'-0"	4	2	8	96.0	"	36
711		"	7/8" ϕ	Varies Av. 15'-9"	10	1	10	182.5	2.07	378
712		"	"	13'-3"	11	1	11	145.75	"	302
713		"	"	14'-5"	29	1	29	418.09	"	866
325		"	3/8" ϕ	18'-3"	10	1	10	182.5	.38	69
714		Abut. #1 Abut. Wall	7/8" ϕ	Varies Av. 23'-5"	18	1	18	522.0	2.07	1081
715		"	"	23'-5"	18	1	18	421.5	"	873
821		"	"	15'-7"	17	1	17	264.92	2.10	715
326		"	3/8" ϕ	Varies Av. 19'-9"	10	1	10	197.5	.38	75
327		"	"	52'-6"	29	1	29	1,522.5	"	579
328		"	"	35'-6"	5	2	10	355.0	"	135
329		"	"	21'-6"	4	2	8	172.0	"	65
601		"	3/4" ϕ	Varies Av. 22'-10"	14	1	14	319.62	1.52	486
602		"	"	15'-8"	14	1	14	219.33	"	333
330		"	3/8" ϕ	Varies Av. 15'-6"	14	1	14	217.0	.38	82
513		"	5/8" ϕ	Varies Av. 17'-11"	16	1	16	286.72	1.06	304
514		"	"	13'-0"	18	1	18	234.0	"	248
331		"	3/8" ϕ	17'-11"	13	1	13	232.96	.38	89

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
332		Abut. #1 W.W. Rt.	3/8" ϕ	14'-6"	6	1	6	87.0	.38	33
333		"	"	7'-6"	8	1	8	60.0	"	23
333A		"	"	9'-0"	5	1	5	45.0	"	17
334		Counterfort Stirr.	"	Av. 5'-10"	12	1	12	70.0	"	27
716		W.W. Rt. Counterfort	7/8" ϕ	19'-2"	2	1	2	38.33	2.07	80
717		"	"	14'-11"	2	1	2	29.83	"	62
434		W.W. Rt.	1/2" ϕ	Varies Av. 14'-3"	6	1	6	85.5	.68	58
435		Counterfort	"	14'-0"	2	1	2	28.0	"	19
436		"	"	3'-6"	2	2	4	14.0	"	10
437		"	"	Varies Av. 14'-3"	18	1	18	256.5	"	174
438		"	"	Varies Av. 13'-8"	8	1	8	109.0	"	74
822		Wing Wall	1/2" ϕ	20'-3"	26	1	26	526.50	2.70	1422
718		"	7/8" ϕ	17'-0"	8	1	8	136.0	2.07	282
719		"	"	22'-9"	9	1	9	204.75	"	424
347		"	3/8" ϕ	23'-0"	9	1	9	207.0	.38	79
311		Abut. #2 Abut. Wall	3/8" ϕ	43'-0"	19	1	19	817.0	"	310
423		"	1/2" ϕ	Varies Av. 8'-10"	37	1	37	308.33	.68	210
424		"	"	Varies Av. 5'-5"	37	1	37	200.42	"	136
443		"	"	12'-8"	8	1	8	101.33	"	69
344		"	3/8" ϕ	6'-0"	7	1	7	42.0	.38	16
444		"	1/2" ϕ	10'-6"	8	1	8	84.0	.68	57
343		"	3/8" ϕ	13'-0"	7	1	7	91.0	.38	35
517		Abut. Beam	5/8" ϕ	8'-7"	4	1	4	34.33	1.06	36
446		"	1/2" ϕ	7'-6"	2	1	2	15.0	.68	10
345		Stirr.	3/8" ϕ	10'-0"	4	1	4	40.0	.38	15
346		"	"	8'-3"	3	1	3	24.75	"	9
340		SUPERSTR. Sidewalk	3/8" ϕ	6'-0"	2	3	6	36.0	.38	14

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
501		SUPERSTR. Deck Slab	5/8" ϕ	38'-7"	282	1	282	10,880.50	1.06	11,533
502		"	"	37'-2"	282	2	564	20,962.0	"	22,220
505		"	"	Varies Av. 32'-5"	4	1	10	324.7	"	343
505A		"	"	Varies Av. 26'-2"	3	1	9	235.5	"	250
505B		"	"	Varies Av. 19'-11"	4	1	10	193.17	"	211
505C		"	"	Varies Av. 13'-7"	3	1	9	122.25	"	130
505D		"	"	Varies Av. 6'-0"	4	1	12	72.0	"	77
515		Stub bars	"	Varies Av. 18'-9"	18	2	98	1,837.5	"	1,948
516		"	"	Varies Av. 6'-0"	18	1	50	300.00	"	318
306		Top Temp. bars	3/8" ϕ	305'-6"	36	1	36	10,998.0	.38	4,179
420		Bottom " "	1/2" ϕ	305'-6"	60	1	60	18,330.0	.68	12,464
342		Stub bars	3/8" ϕ	9'-0"	25	9	250	2,250.0	.38	855
201		Sidewalk	1/4" ϕ	4'-1"	924	2	1848	7,546.0	.17	1,283
200		"	"	305'-0"	5	2	10	3,050.0	"	519
308		Curb	3/8" ϕ	2'-9"	305	2	610	1,677.5	.38	637
309		"	"	3'-4"	305	2	610	2,033.33	"	773
439		"	1/2" ϕ	305'-0"	2	2	4	1,220.0	.68	830
336		"	3/8" ϕ	305'-0"	2	2	4	1,220.0	.38	464
503		RAILINGS & POSTS	5/8" ϕ	7'-8"	11	30	385	2,951.67	1.06	3,129
504		"	"	5'-10"	4	26	153	892.5	"	946
421		"	1/2" ϕ	4'-6"	2	31	78	351.0	.68	239
422		"	"	1'-4"	12	26	312	416.0	"	282
310		Stirr.	3/8" ϕ	3'-8"	5	29	195	715.0	.38	272

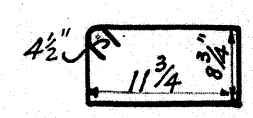
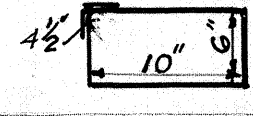
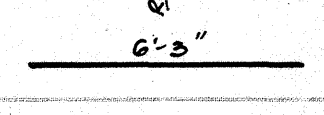
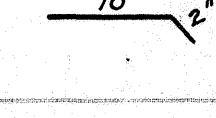
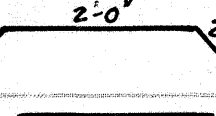
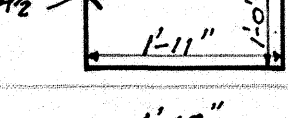
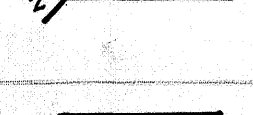
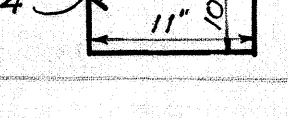
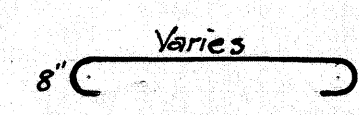
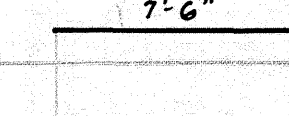
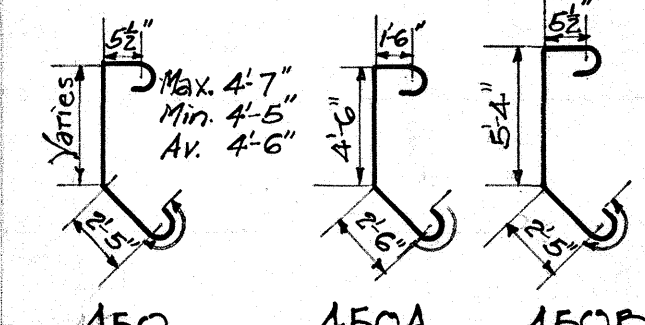
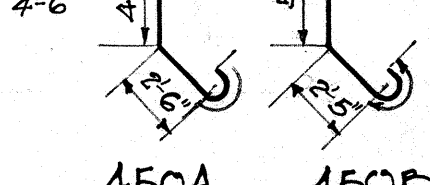
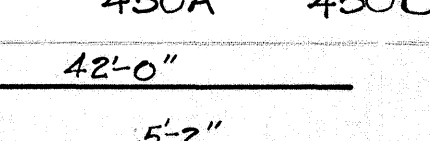
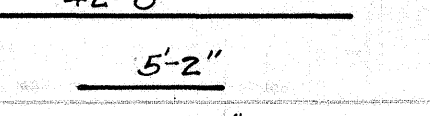
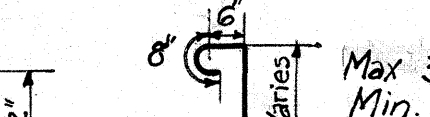
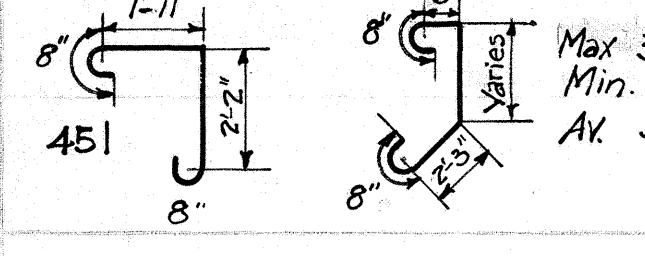
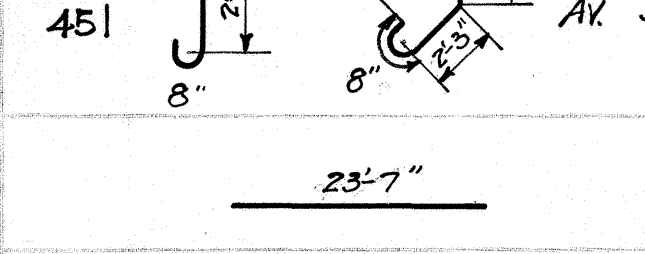
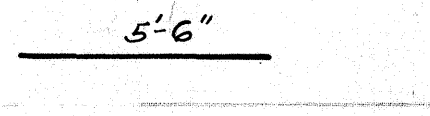
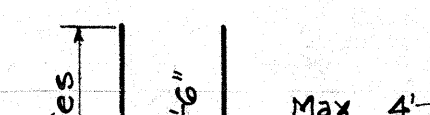
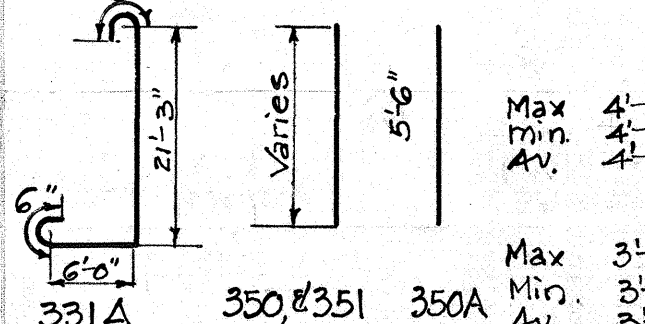
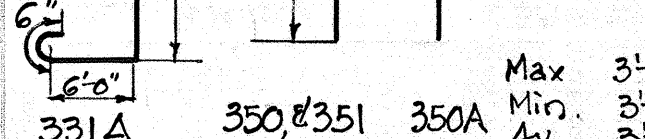
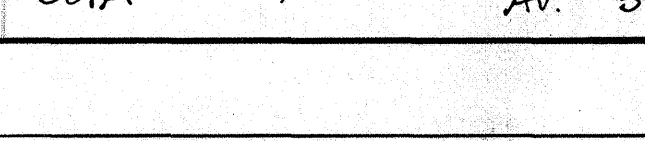
CONTRACTORS NOTE
This steel schedule is subordinate to details shown on plans. In case of discrepancy between steel list and detail drawings, the latter shall govern.
The Territorial Highway Dept. does not assume responsibility for any errors that occur in the steel schedule. Contractor shall check steel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

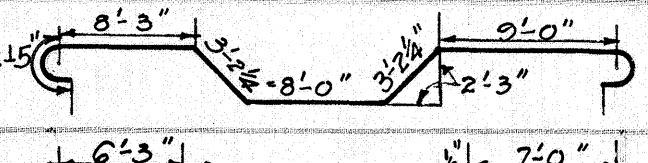
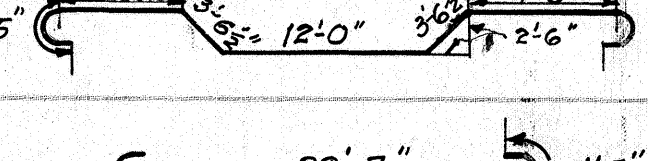
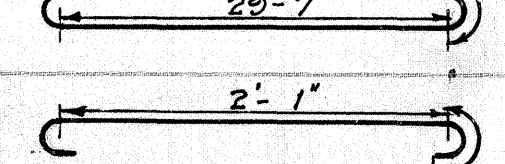
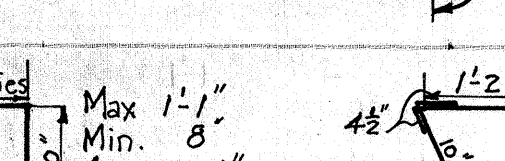
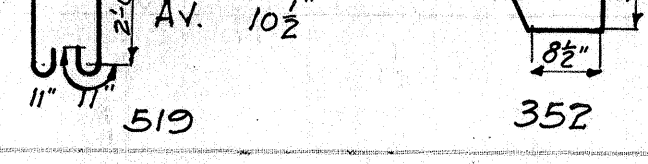
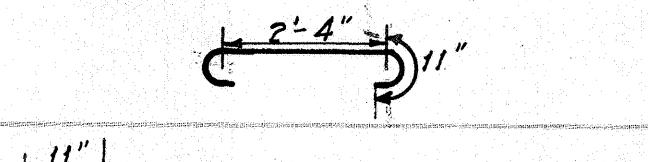
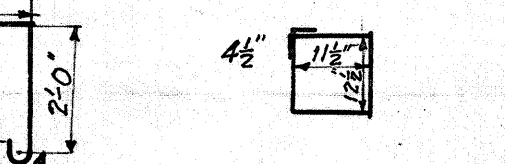
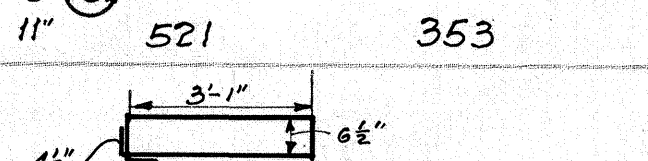
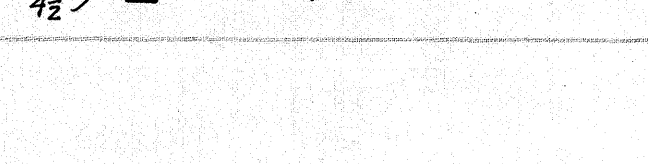
TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
LIHUE MILL BRIDGE
STA. 13+38.23 TO STA. 16+48.16
LIHUE ROAD W.P.G.S. 24A

Revised by H.Y.M.
SURVEY PLOTTED BY DATE
DESIGNED BY H.Y.M. RES
CHECKED BY RES
NOTE BOOK
QUANTITIES BY
No.

STEEL SCHEDULE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	WPG.S. 24A	1935	13C	21
Revised March 1936					

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
337		Railing & Post Stirrs.	3/8" φ	4'-2"	10	4	40	166.67	.38	63
338		"	"	3'-5"	5/6 5/4	26 4	195	666.25	"	253
447		End Post Stirr.	1/2" φ	12'-6"	7	4	28	350.0	.68	238
604		"	3/4" φ	6'-3"	14	4	56	350.0	1.52	532
448		Post	1/2" φ	1'-0"	24	4	96	96.0	.68	65
449		"	"	2'-4"	12	5	60	140.0	"	95
339		stirrs.	3/8" φ	6'-7"	5	5	25	164.58	.38	63
442		End Post	1/2" φ	2'-0"	12	4	48	96.0	.68	65
335		Post Stirr	3/8" φ	4'-2"	5	26	130	541.67	.38	206
344	See Sketch	FOOTINGS Abut. #2	3/8" φ	6'-0"	2	1	2	12.0	.38	4
343	See Sketch	"	"	12'-4"	1	1	1	12.33	"	4
445		"	1/2" φ	4'-1"	8	1	8	32.67	.68	22
440		Abut. #1	"	10'-6"	33	1	33	346.5	"	236
441		"	"	7'-6"	33	1	33	247.5	"	168
341		"	3/8" φ	19'-2"	10	1	10	191.67	.38	73
341A		"	"	13'-6"	10	1	10	135.0	"	51
450		ABUTMENTS Abut. #1	1/2" φ	8'-9"	56	1	56	490.0	.68	333
450A		"	"	3'-10"	22	1	22	216.33	"	147
450B		"	"	9'-8"	15	1	15	145.0	"	99
311A		Abut. #2	3/8" φ	42'-0"	6	1	6	252.0	.38	96
311B		"	"	5'-2"	3	1	3	15.5	"	6
451		"	1/2" φ	5'-5"	37	1	37	200.42	.68	136
452		"	"	7'-7"	37	1	37	280.58	"	191
326A		Abut. #1	3/8" φ	23'-7"	8	1	8	188.67	.38	72
327A		"	"	5'-6"	8	1	8	44.0	"	17
331A		"	"	27'-9"	4	1	4	111.0	"	42
350		"	"	4'-9"	56	1	56	266.0	"	101
351		"	"	5'-6"	15	1	15	82.5	"	31
351		"	"	3'-8"	37	1	37	135.67	"	52

814A		BENTS Bent #5 Bm	1" φ	34'-6"	1	1	1	36.5	3.44	126
815A		"	"	35'-2"	1	1	1	35.17	"	121
817A		"	"	31'-5"	2	1	2	31.42	"	108
518		Bent #1 Bm	5/8" φ	3'-11"	5	6	30	117.50	1.06	125
519		"	"	6'-9"	3	6	18	121.50	"	129
352		"	3/8" φ	3'-3"	8	6	48	136.00	0.38	52
520		Bent #5	5/8" φ	4'-2"	5	5	25	104.17	1.06	110
521		"	"	4'-9"	3	5	15	71.25	"	76
353		"	3/8" φ	4'-9"	7	5	35	166.25	0.38	63
414A		stirrs	1/2" φ	8'-0"	4	1	4	32.00	0.68	22

SURVEY PLOTTED BY
DESIGNED BY
TRADED BY
QUANTITIES BY
CHECKED BY
Revised by H.Y.M.

DATE
Dec. 35
Nov. 35

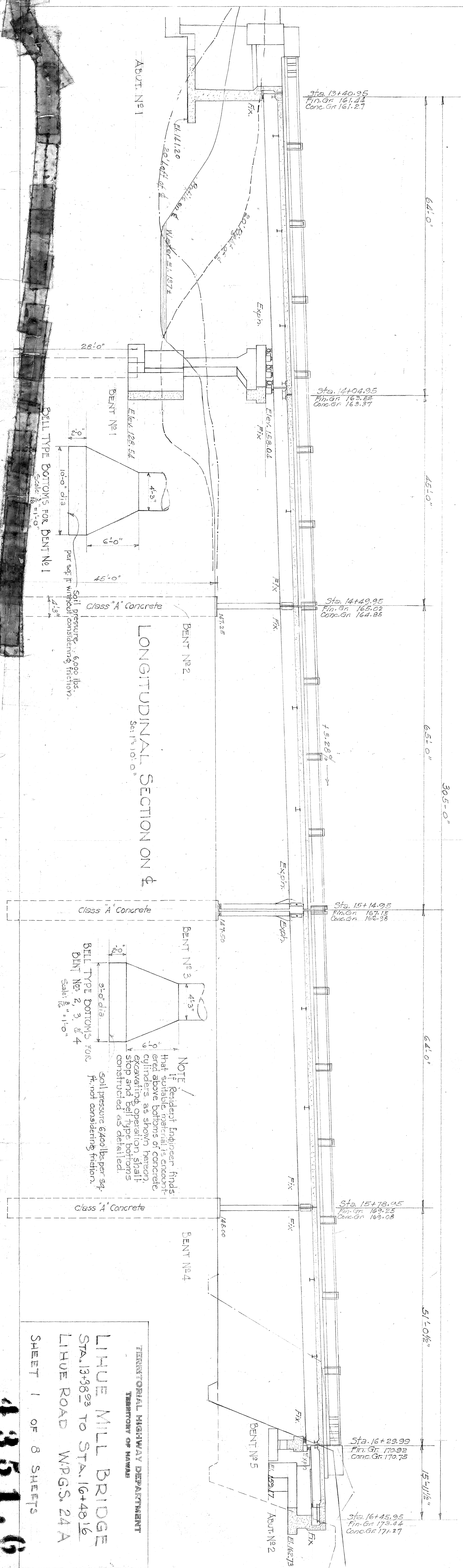
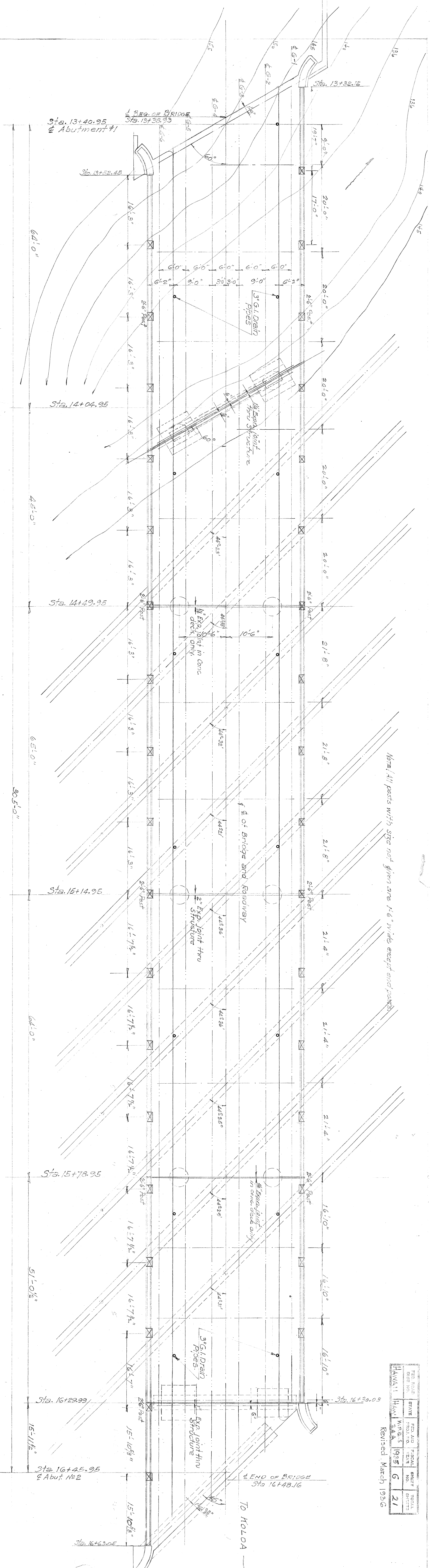
ORIGINAL PLAN
NOTE BOOK
No.

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

LIHUE MILL BRIDGE

STA. 13+38.23 TO STA 16+48.16

LIHUE ROAD W.P.G.S. 24A



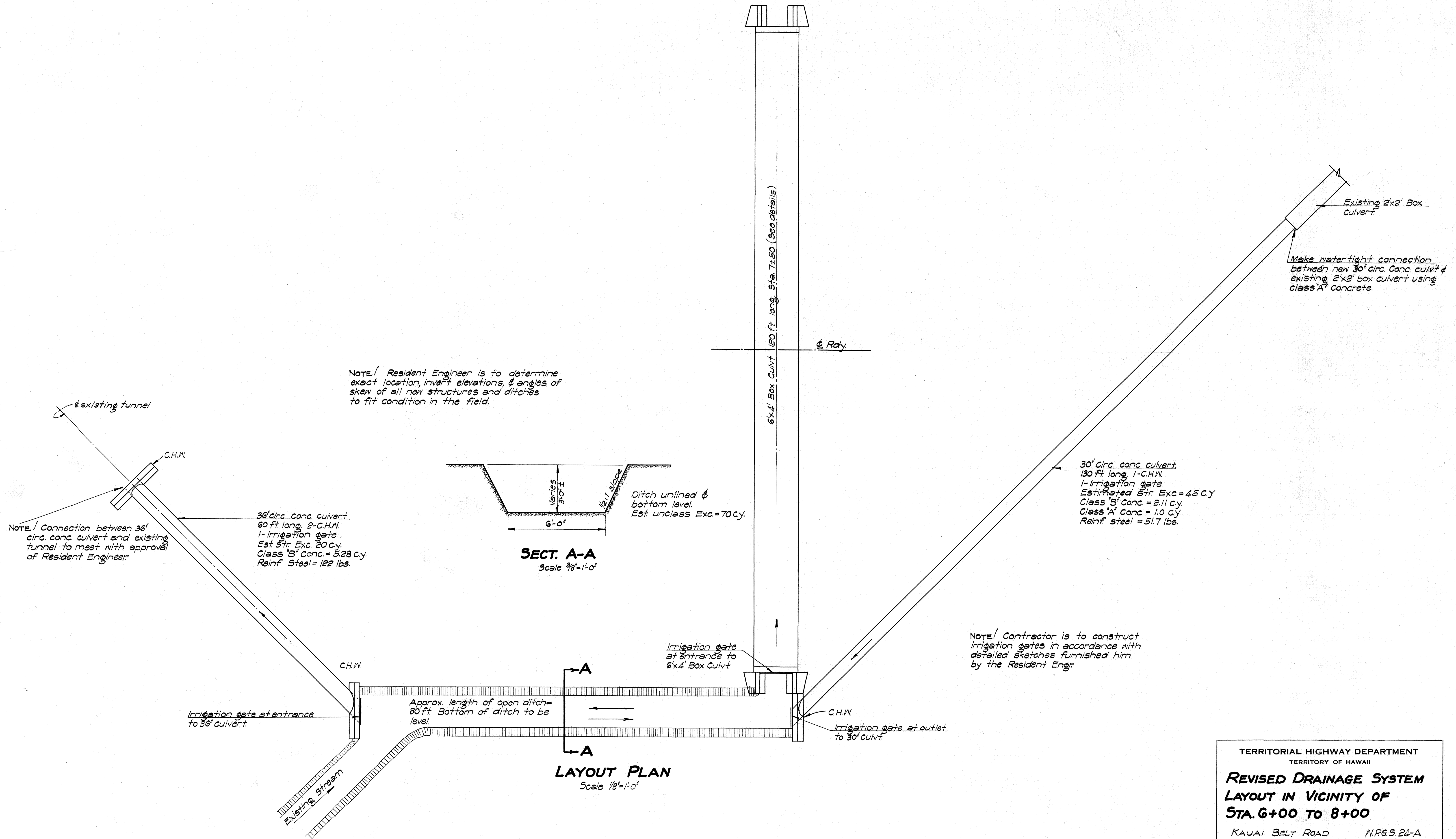
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1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10

LIHUE MILL BRIDGE
STA. 13+38.23 TO STA. 16+48.16
LIHUE ROAD WPG. 24A
SHEET 1 OF 8 SHEETS

4351.6

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	W 565	1955	13D	21

SURVEY PLOTTED BY	DATE
DESIGNED BY	2/14/36
DRAWN BY	J.C.M.
TRACED BY	J.C.M.
QUANTITIES BY	J.C.M.
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	



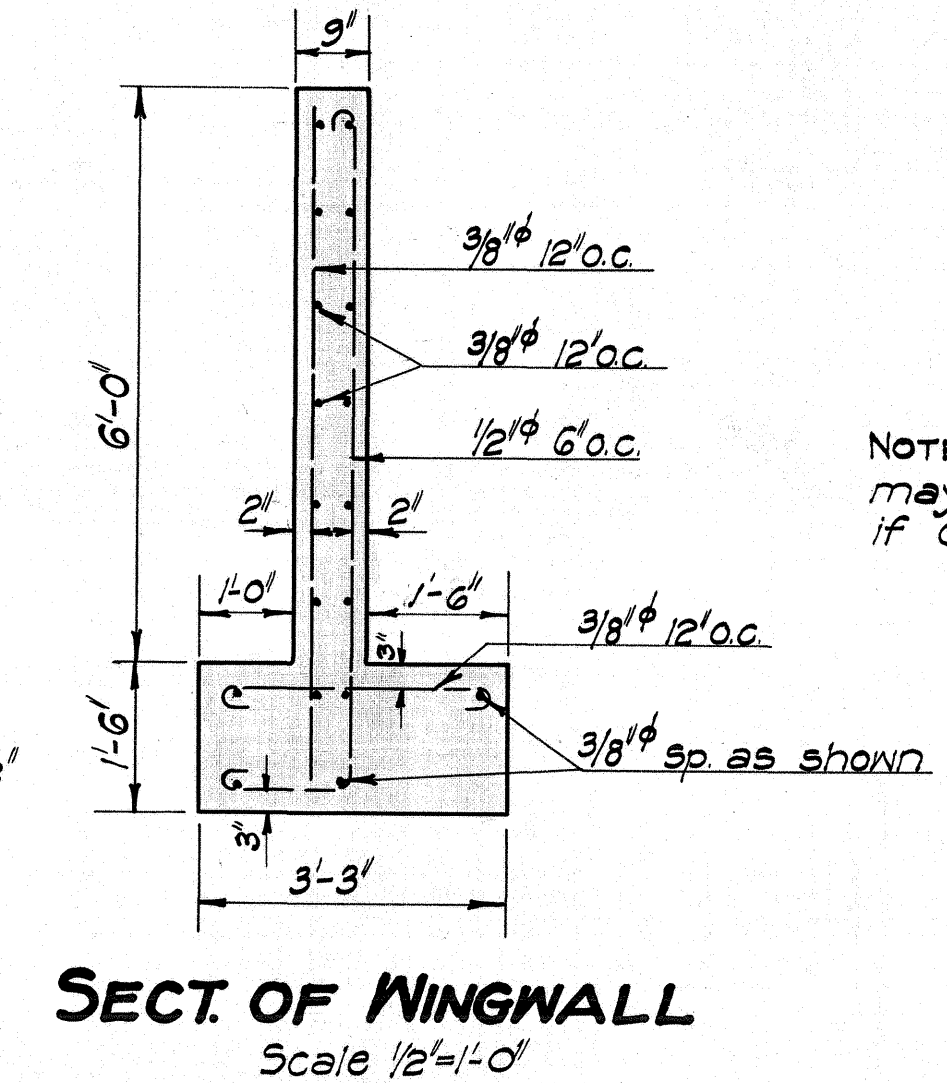
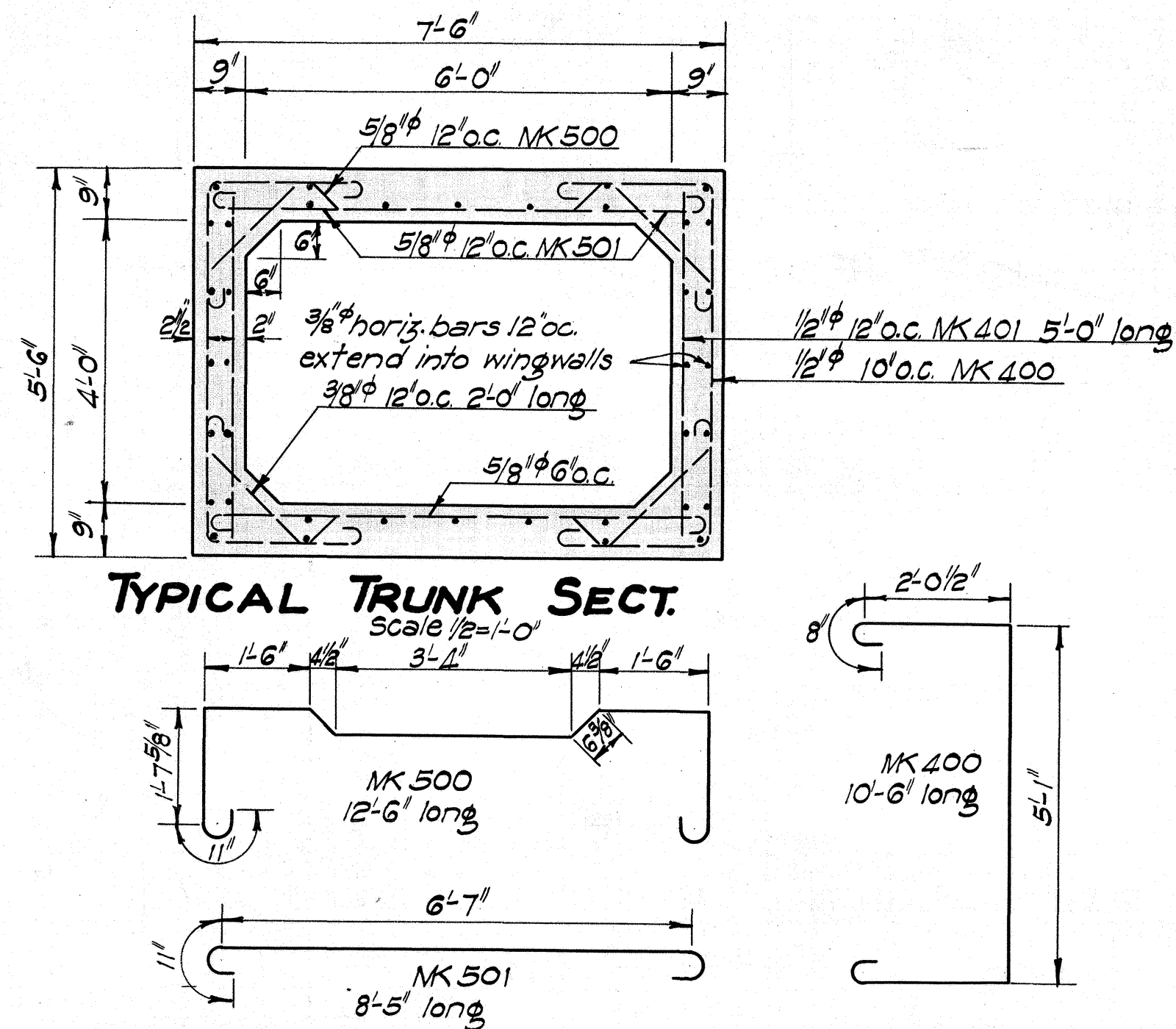
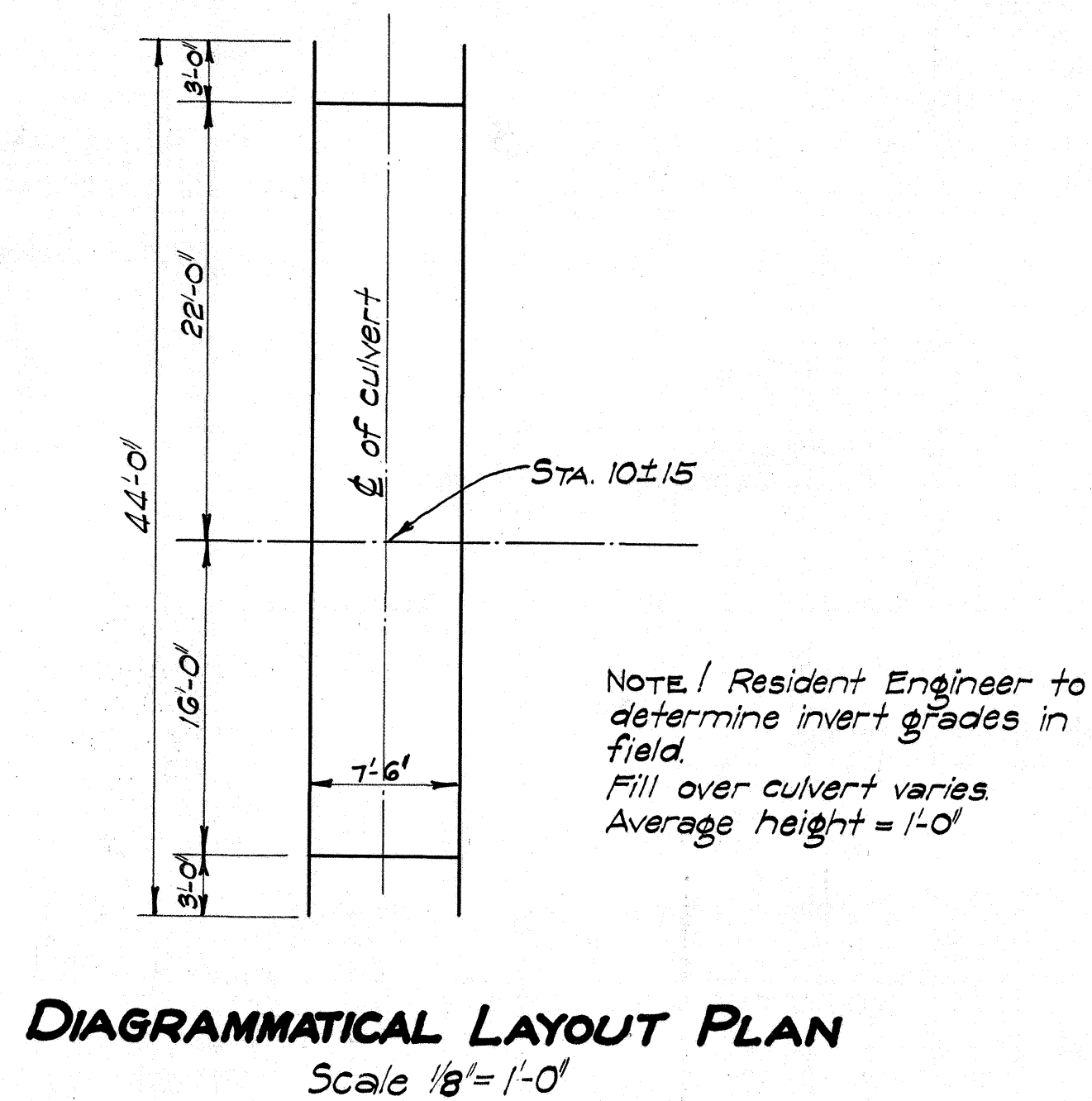
TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

**REVISED DRAINAGE SYSTEM
LAYOUT IN VICINITY OF
STA. 6+00 TO 8+00**

KAUAI BELT ROAD N.P.S. 24-A

SHEET NO. 13D OF 21 SHEETS

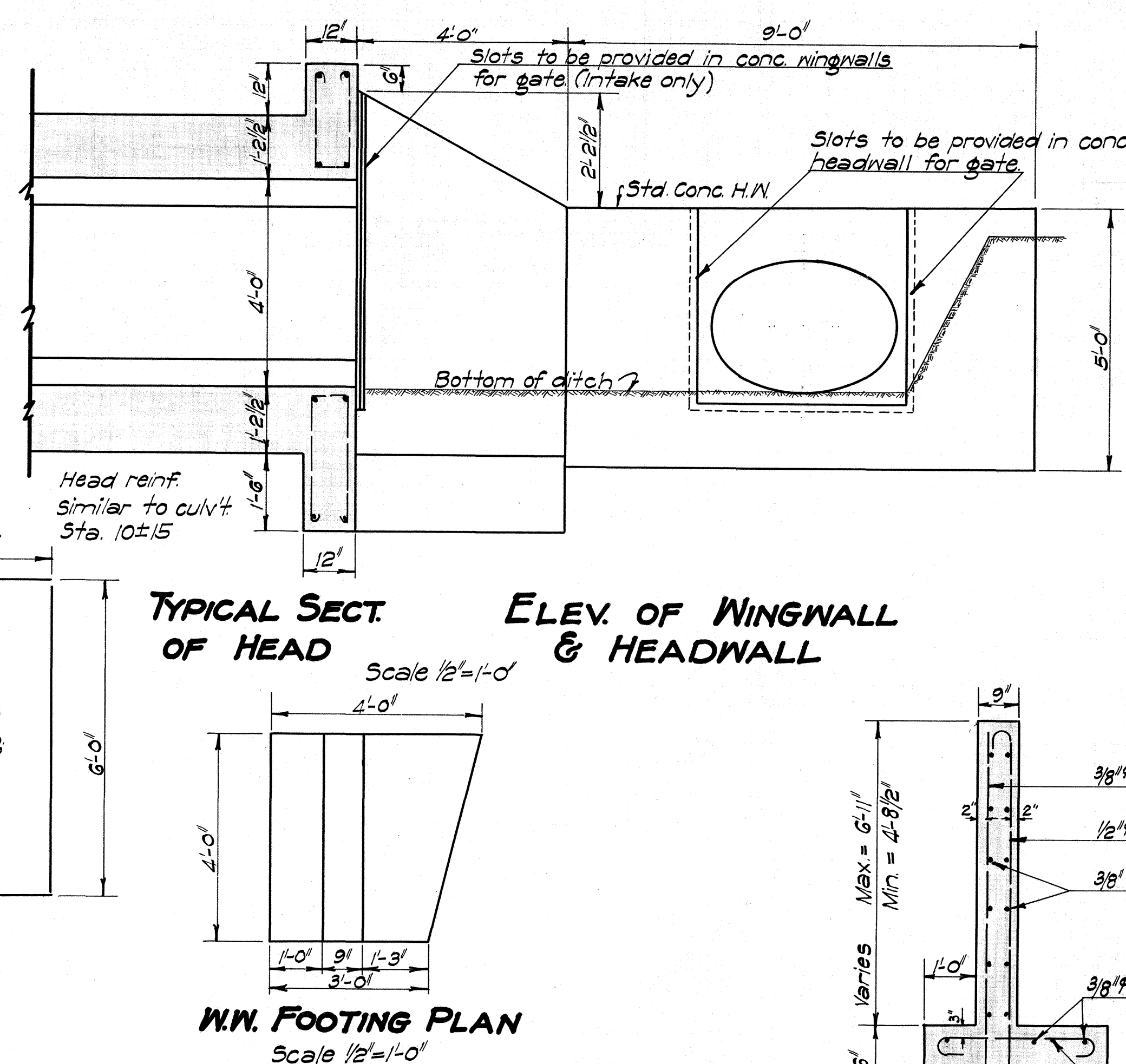
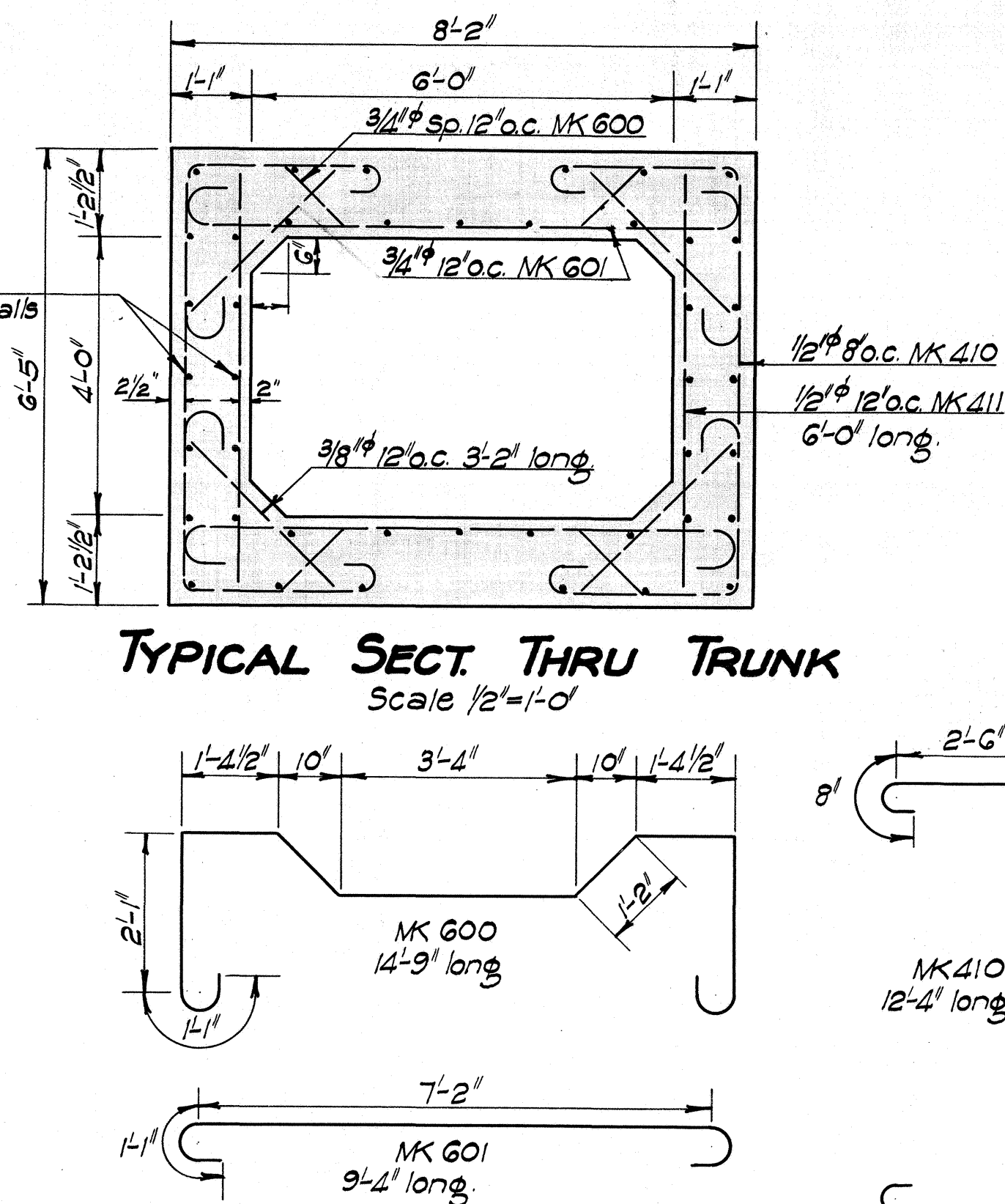
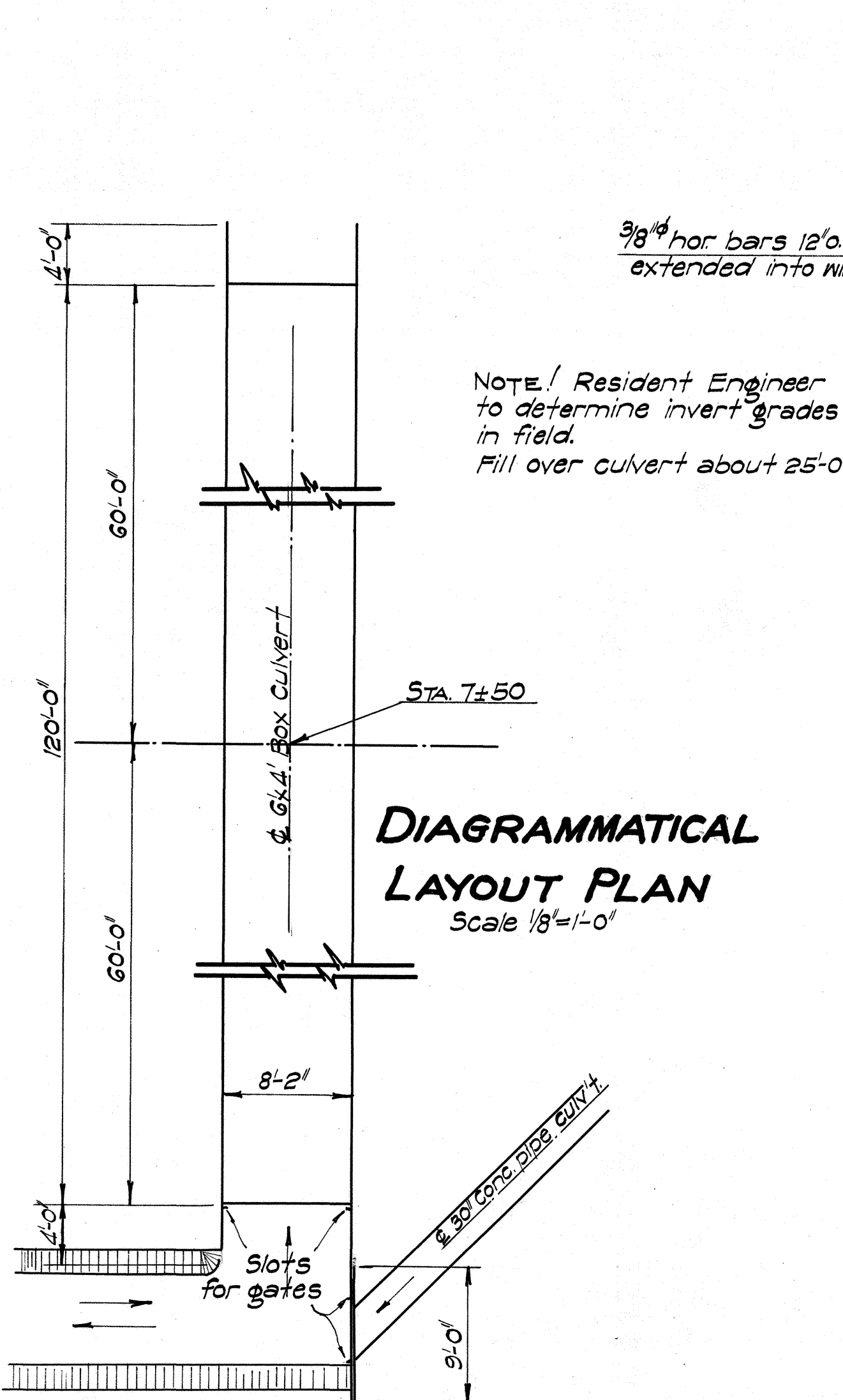
4351.13D



NOTE: Resident Engineer may lower height of wingwalls if conditions in the field warrant same

QUANTITIES
Reinf. Steel = 3745.0 lbs.
Class "A" Conc. = 30.5 C.Y.

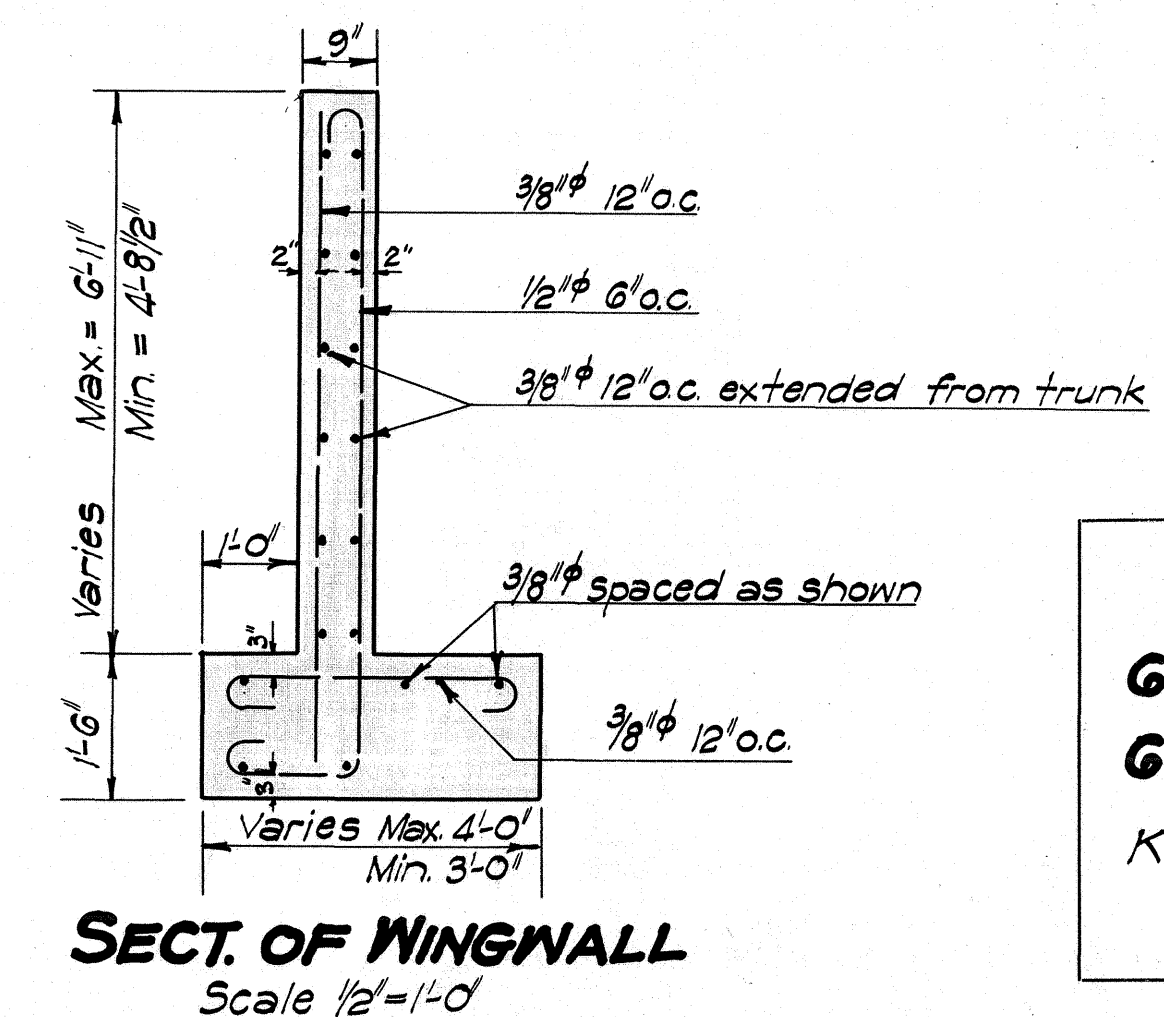
DETAILS 6'x4' BOX CULVERT STA. 10±15



NOTE: Contractor is to construct irrigation gates in accordance with detailed sketches furnished him by the Resident Engr.

QUANTITIES
Reinf. Steel = 15,875 lbs.
Class "A" Conc. = 135.5 C.Y.

DETAILS 6'x4' BOX CULVERT STA. 7±50



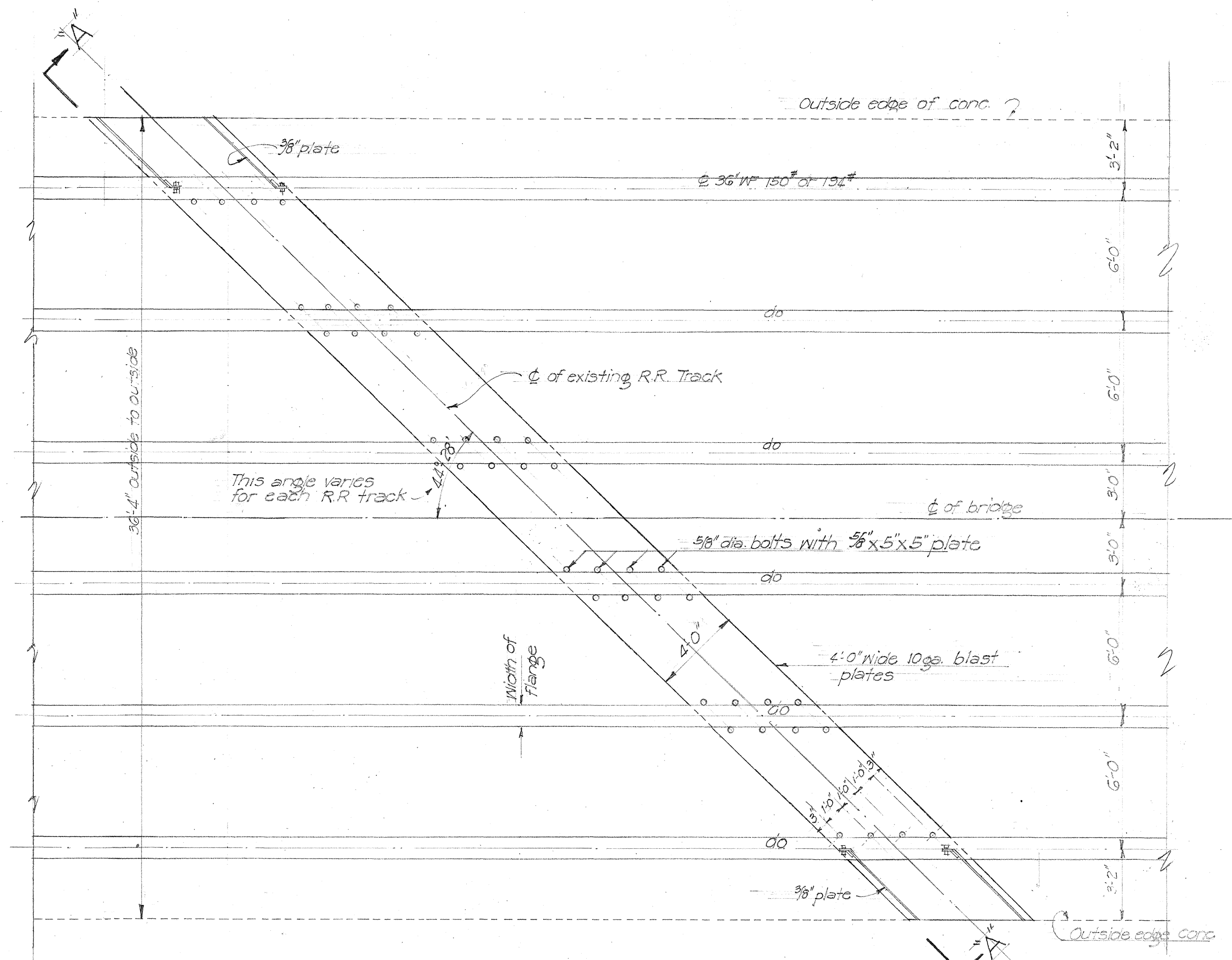
TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
6'x4' BOX CULVERT STA. 10±15
6'x4' BOX CULVERT STA. 7±50
Kauai Belt Road N.R.G.S. 24-A

SHEET NO. OF SHEETS

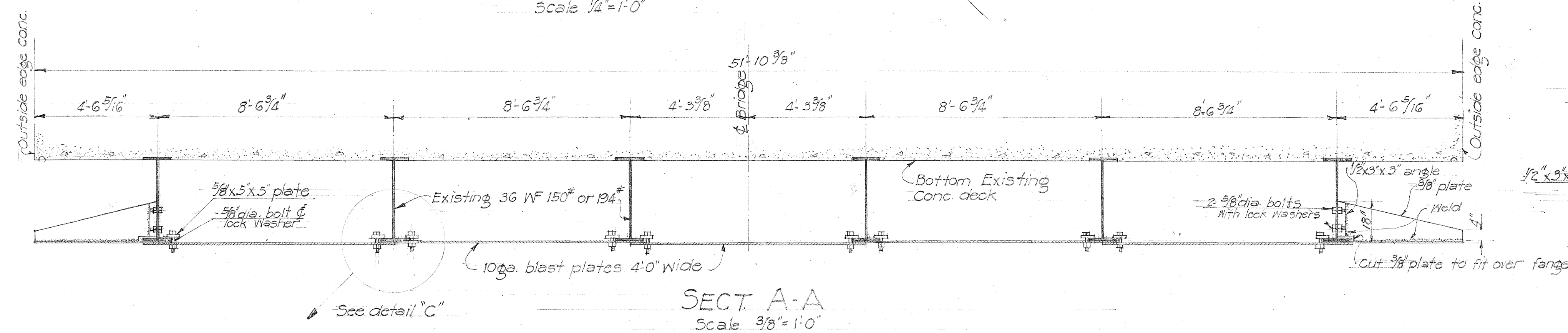
4351.13E

ORIGINAL PLAN
DATE 2/13/36
DRAWN BY J.C.H.
CHECKED BY J.C.H.
NOTED BY J.C.H.
NO. 1

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
Hawaii	Haw.	W235, 24-A	1935	13F	21

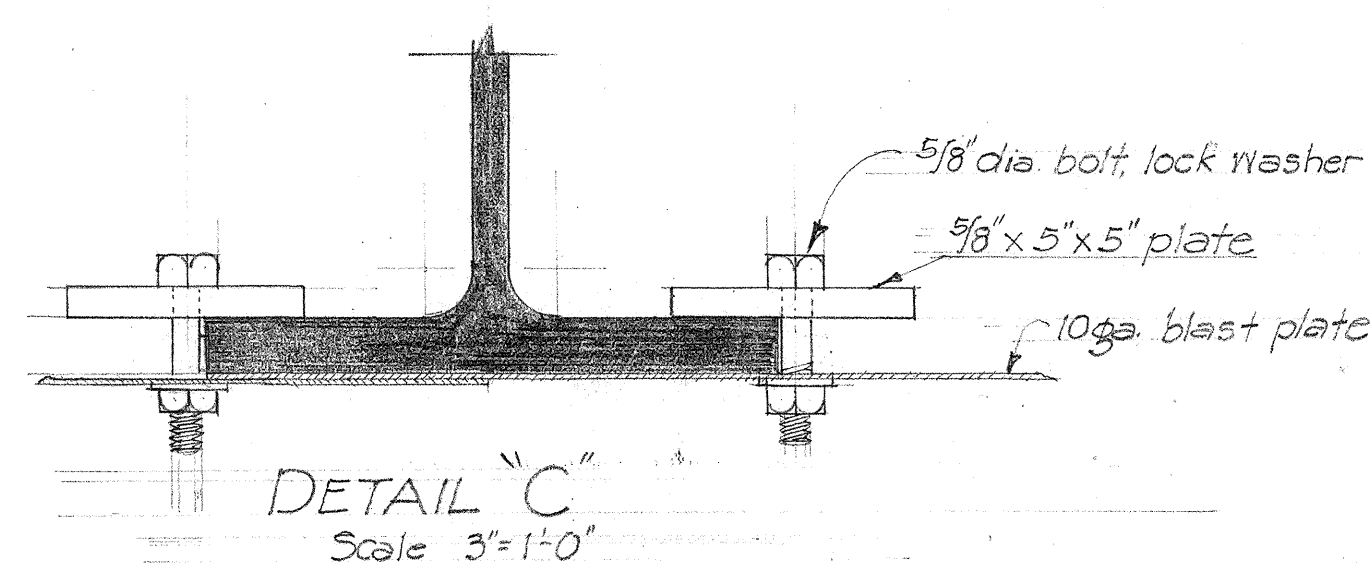


PART PLAN OF BRIDGE SHOWING BLAST PLATES
Scale 1/4"=1'-0"

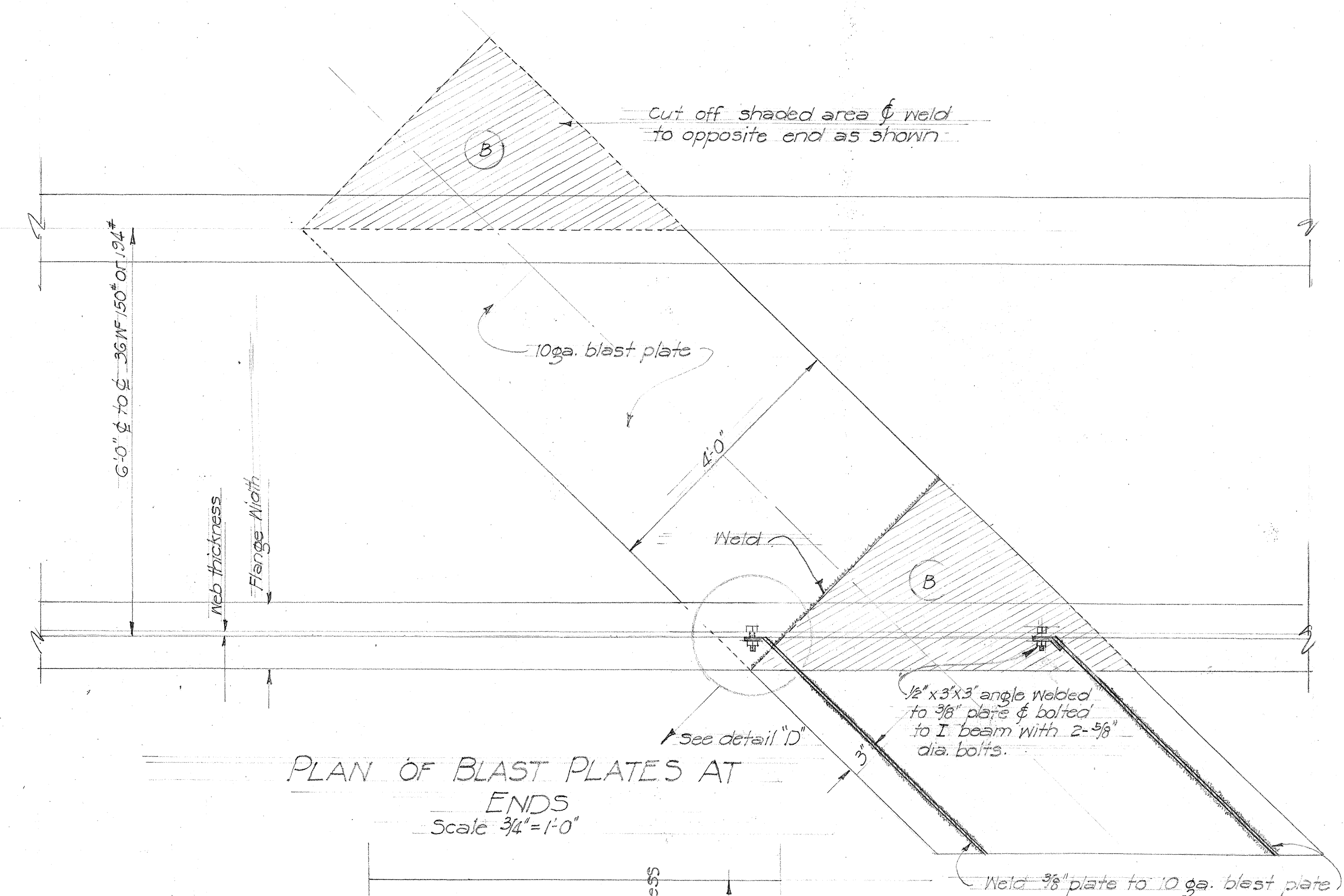


SECT. A-A
Scale 3/8"=1'-0"

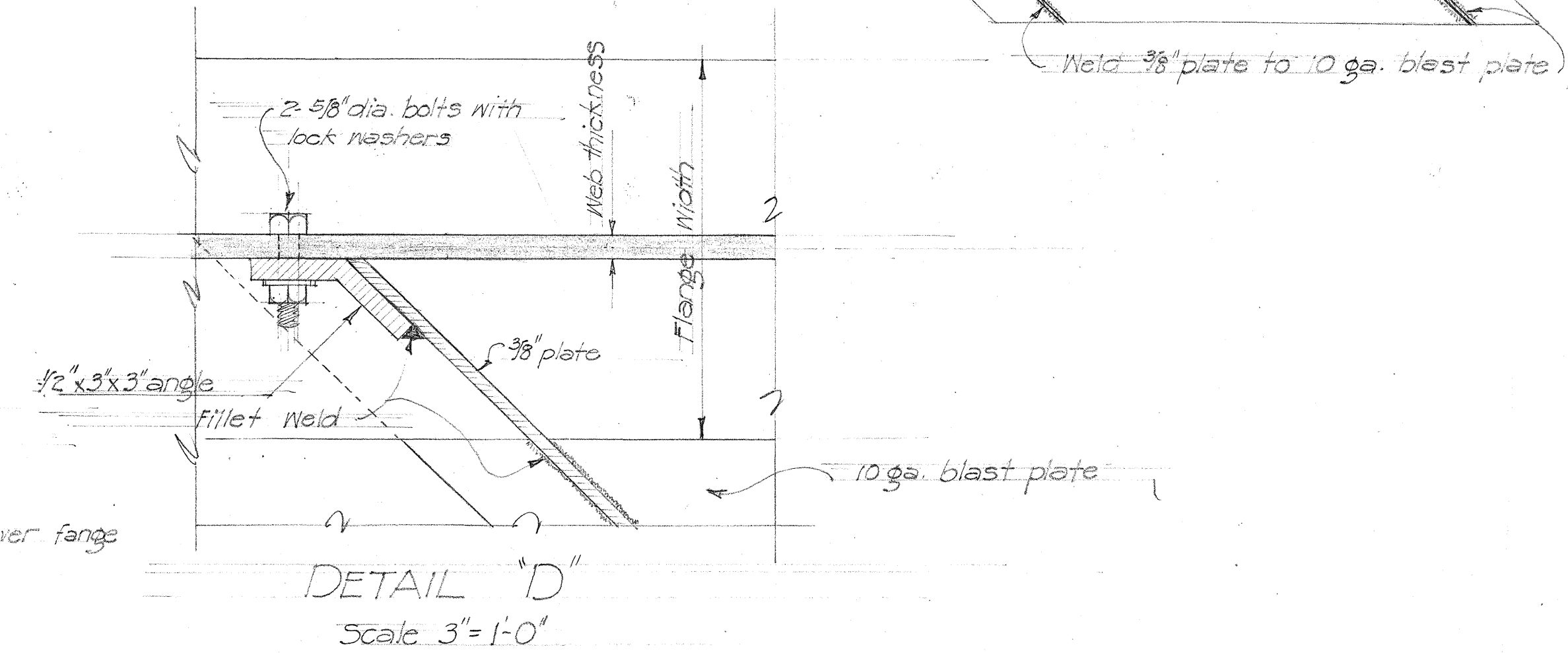
NOTE: Dimensions given are for a typical span, where the C of the R.R. makes an angle of 44°28' with the C of the bridge



DETAIL "C"
Scale 3"=1'-0"



PLAN OF BLAST PLATES AT ENDS
Scale 3/4"=1'-0"



DETAIL "D"
Scale 3"=1'-0"

NOTE: 10 ga. blast plates are to be galv. annco iron or equal. Contractor is to furnish 3 runs of above blast plates. He shall consult with the Resident Engineer as to the exact location of these runs. Blast plates, angles, etc. to receive two coats of black paint.

TERRITORIAL HIGHWAY DEPARTMENT
BLAST PLATES FOR
LIHUE MILL BRIDGE
WPG5 24-A Kauai Belt Rd.
Dec. 1936

4351.13F