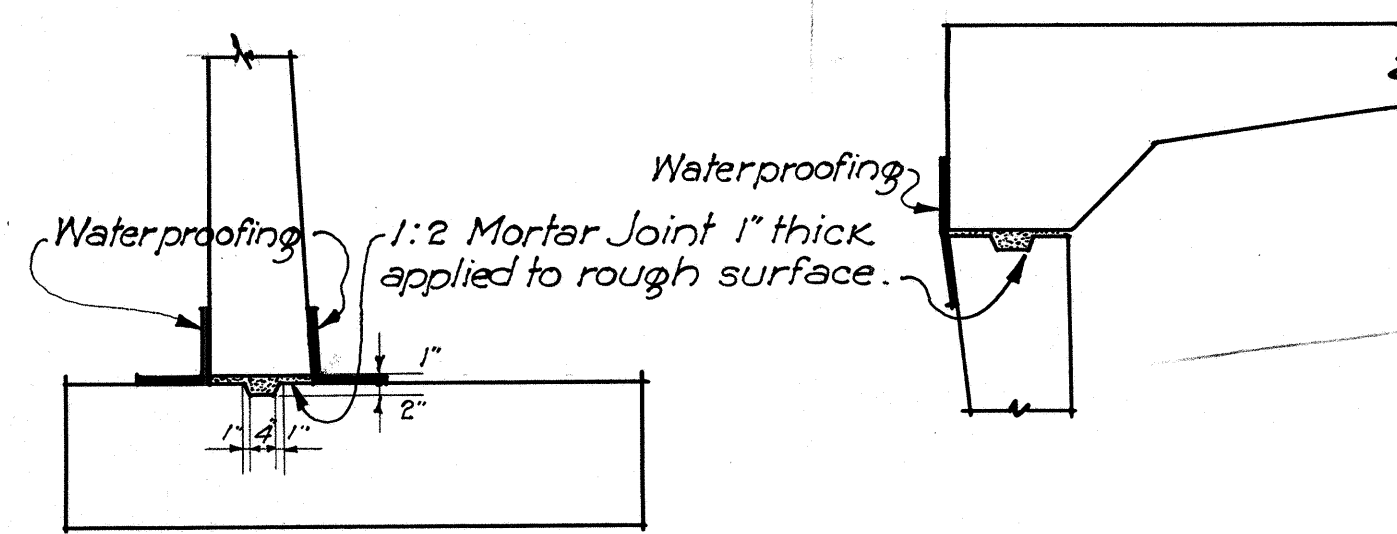


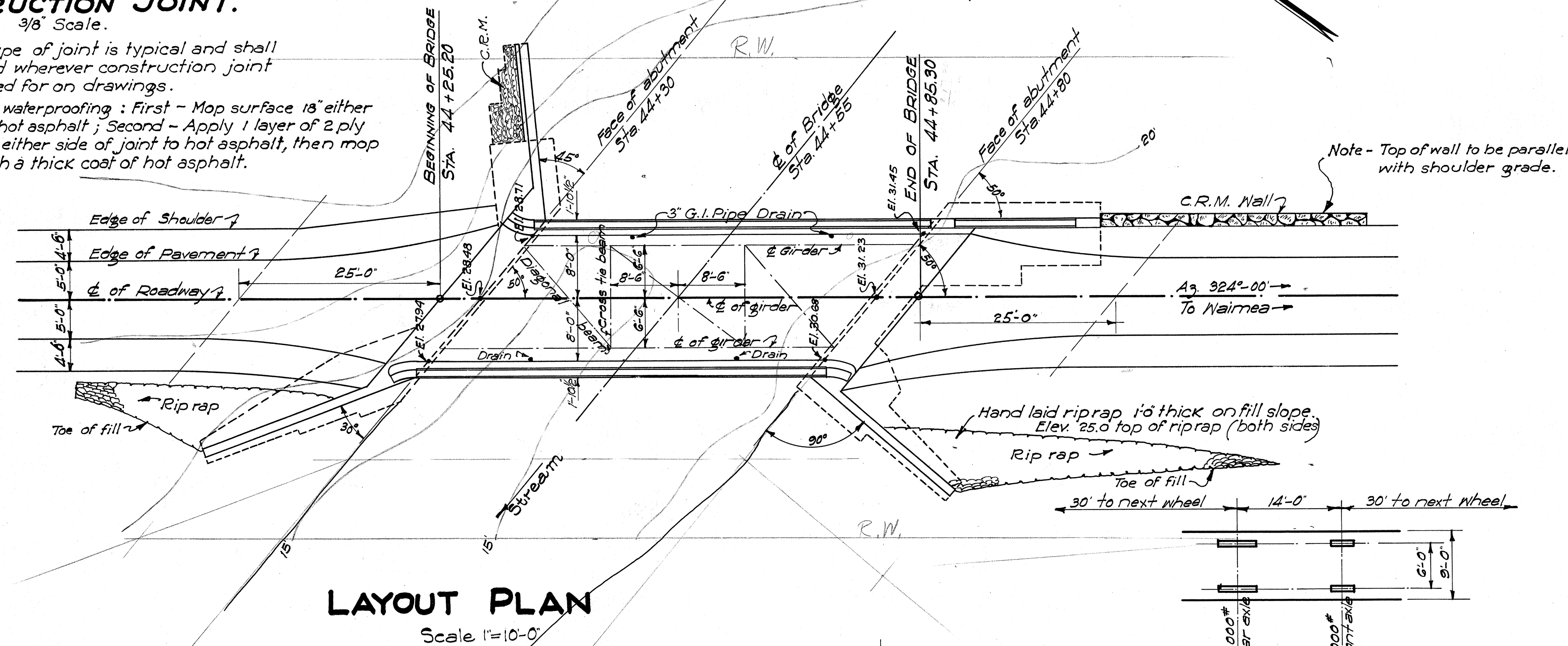


CONSTRUCTION JOINT.

3/8" Scale.

Note: This type of joint is typical and shall be used wherever construction joint is called for on drawings.

Method of applying waterproofing : First - Mop surface 18" either side of joint with hot asphalt ; Second - Apply 1 layer of 2 ply roofing paper 12" either side of joint to hot asphalt, then mop entire surface with a thick coat of hot asphalt.



LAYOUT PLAN

Scale 1"=10'-0"

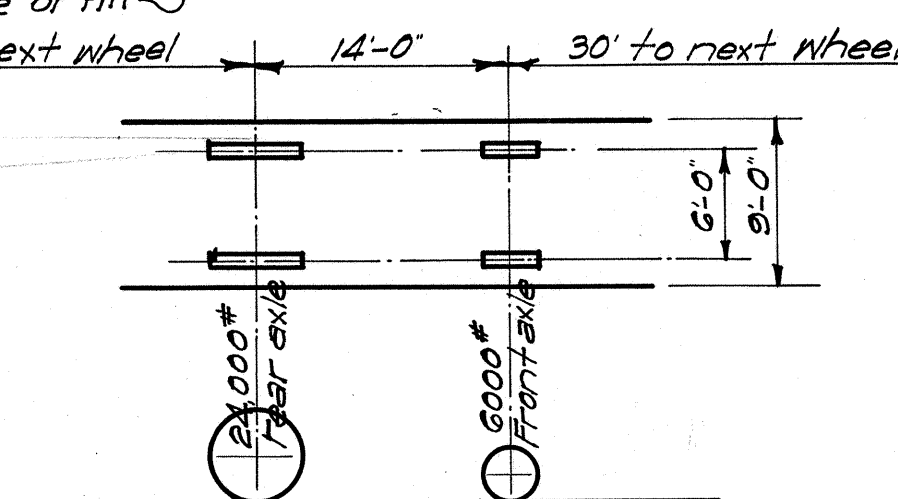
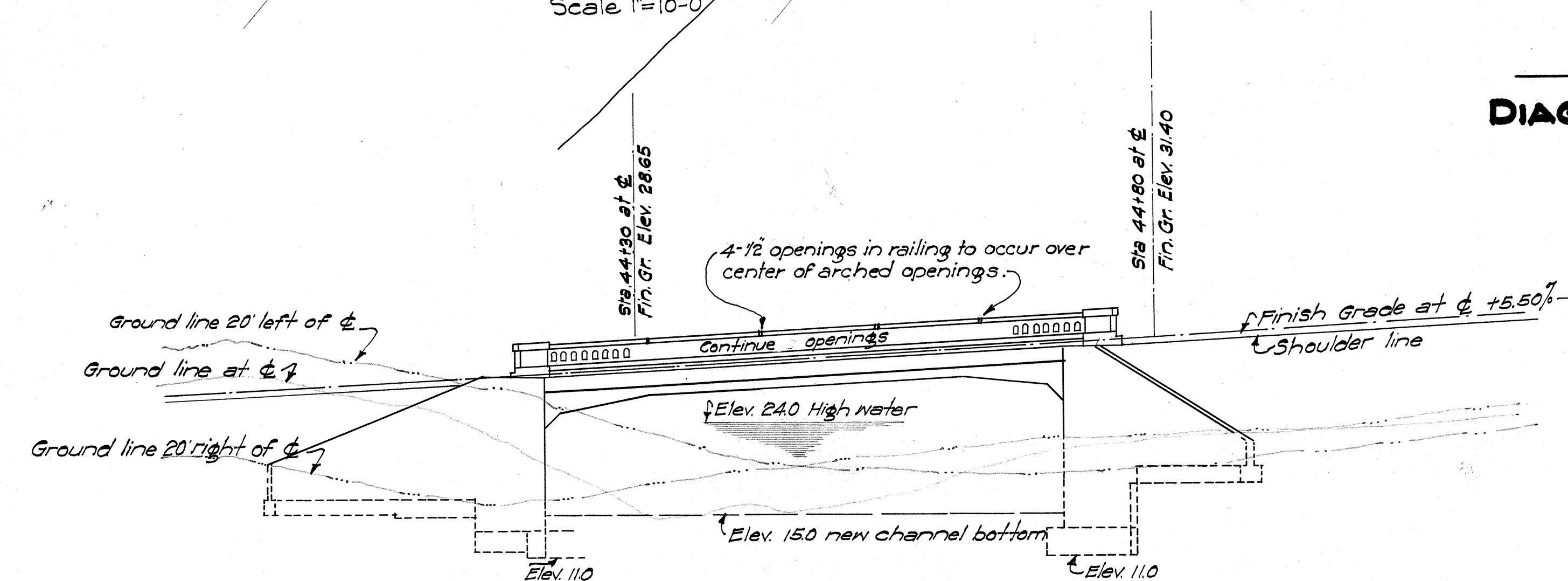
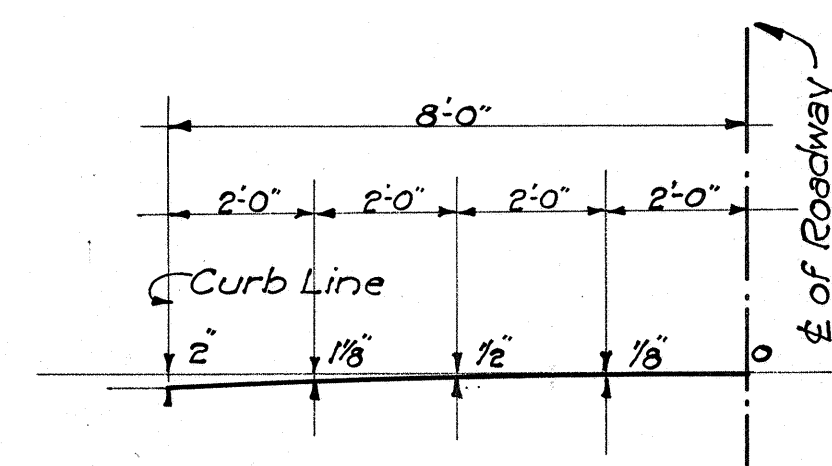


DIAGRAM OF TYPICAL 15 TON TRUCK



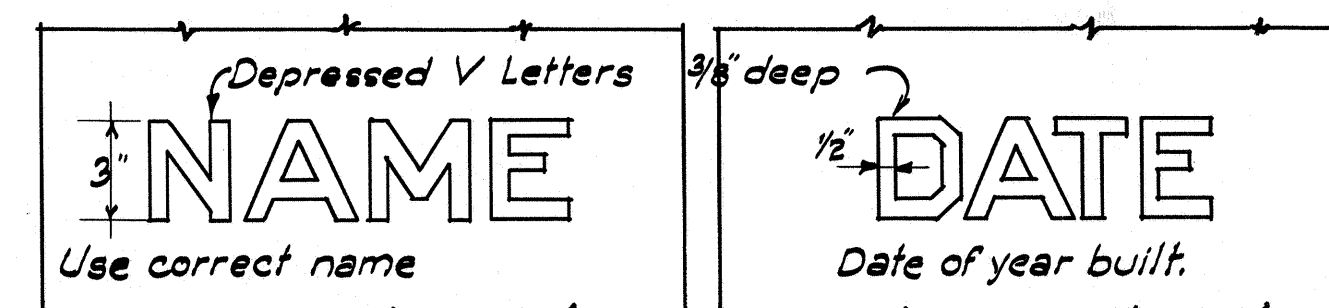
DOWNSTREAM ELEV.

Scale 1"=10'-0"

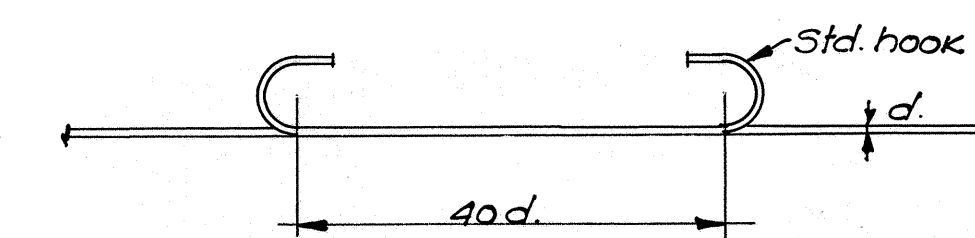


CROWN TEMPLATE ORDINATES.

3/8" Scale.



DETAIL OF LETTERS & FIGURES.



SPLICE DETAIL.

BRIDGE QUANTITIES						
<i>Location</i>	<i>Excavation Cu. Yds.</i>	<i>Concrete Cu. Yds.</i>	<i>Steel Lbs.</i>	<i>C. R. M. Cu. Yds.</i>	<i>Channel Exc. Cu. Yds.</i>	<i>H.L. Rip rap Cu. Yds.</i>
<i>Footing Sta. 44+30</i>	130.00	28.50	2318.00			
<i>Footing Sta. 44+80</i>	164.00	37.00	2812.0			
<i>Abutment & W.W. Sta. 44+30</i>		43.00	3421.0			
<i>Abutment & W.W. Sta. 44+80</i>		57.50	5395.0			
<i>C. R. M. Wall Sta. 44+30.</i>	20.00	3.00		11.50		
<i>Superstructure</i>		53.00	22496.0			
<i>Railing</i>		17.00	933.0			
<i>Total</i>	314.00 *	229.00	37,375.0	11.50	300.00	18.00

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII.

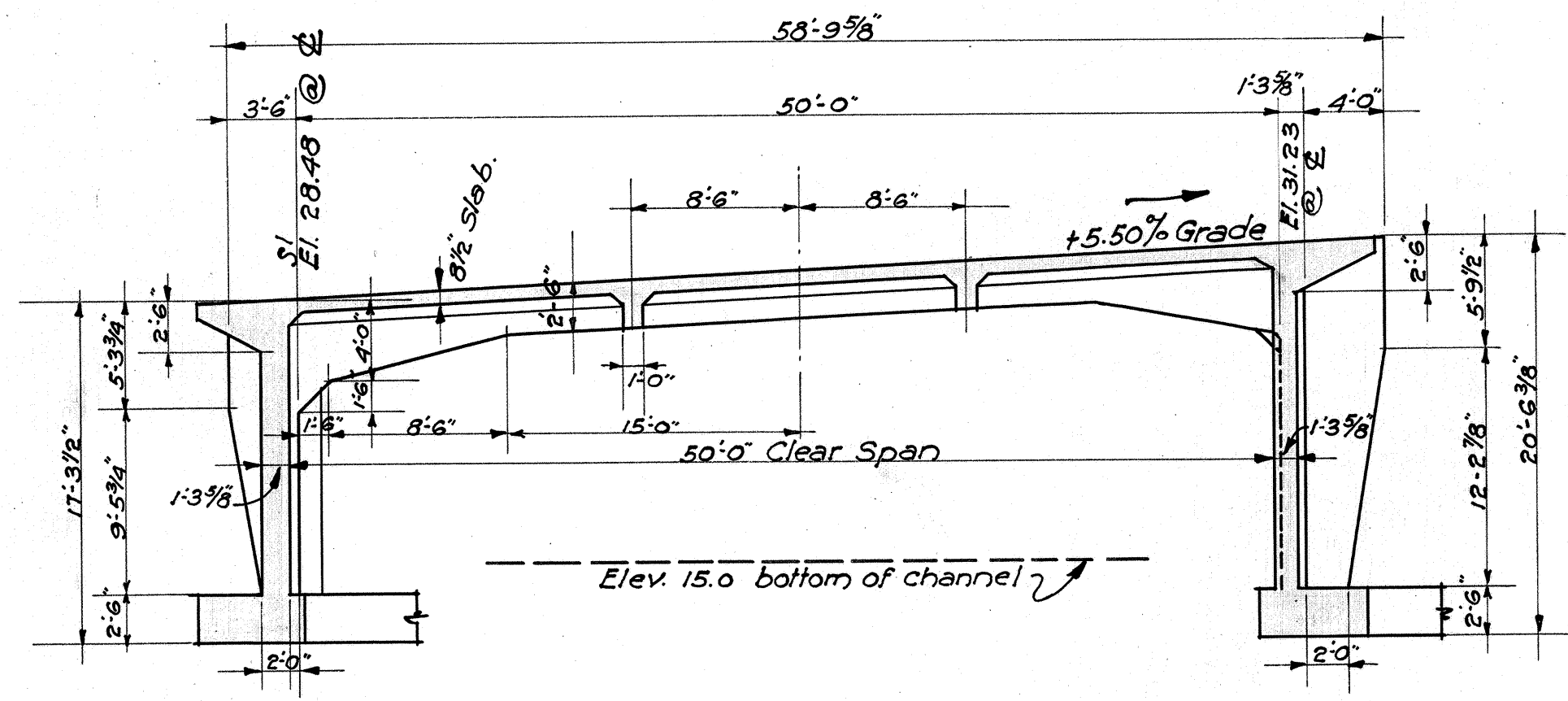
MAKAHUNA BRIDGE

NO. 351 STA. 44+30 TO STA. 44+80

KAWAIHAE ROAD F.A.P. No 11-B.

MAY 1933. SHEET NO 1 OF 3 SHEETS.

4287.20



LONGITUDINAL SECTION THRU BRIDGE.
1/8" Scale.

FOOTING QUANTITIES 44+30		
Excavation.	Concrete	Steel.
130.0 C.Y.	28.50 C.Y.	2318.0 #

3/4" sp. 6" oc. 9'-1" long & varies
3/8" sp. 1'-6" oc. 11'-0" long & varies
top & bottom

3/8" bars 3'-6" long
sp. 6" oc. under cols. &
1'-6" between cols. top & bottom.

3/4" bars 25'-6" long
top & bottom.

Theoretical col. line

Sta. 44+30

51'-3 3/8"

26'-1 1/4"

8'-5 3/8"

2'-6"

4'-6"

2'-6"

4'-6"

2'-6"

4'-6"

2'-6"

4'-6"

2'-6"

4'-6"

2'-6"

4'-6"

2'-6"

4'-6"

FOOTING PLAN.
3/8" Scale.

FOOTING QUANTITIES 44+80		
Excavation	Concrete	Steel.
164.0 C.Y.	37.00 C.Y.	2812.0 #

TERRITORIAL HIGHWAY DEPARTMENT.
TERRITORY OF HAWAII.

MAKAHUNA BRIDGE.

NQ 351 STA. 44+30 TO STA. 44+80

KAWAHAE ROAD F.A.P. No 11-B.

MAY 1933 SHEET NO 2 OF 5 SHEETS.

4287.21

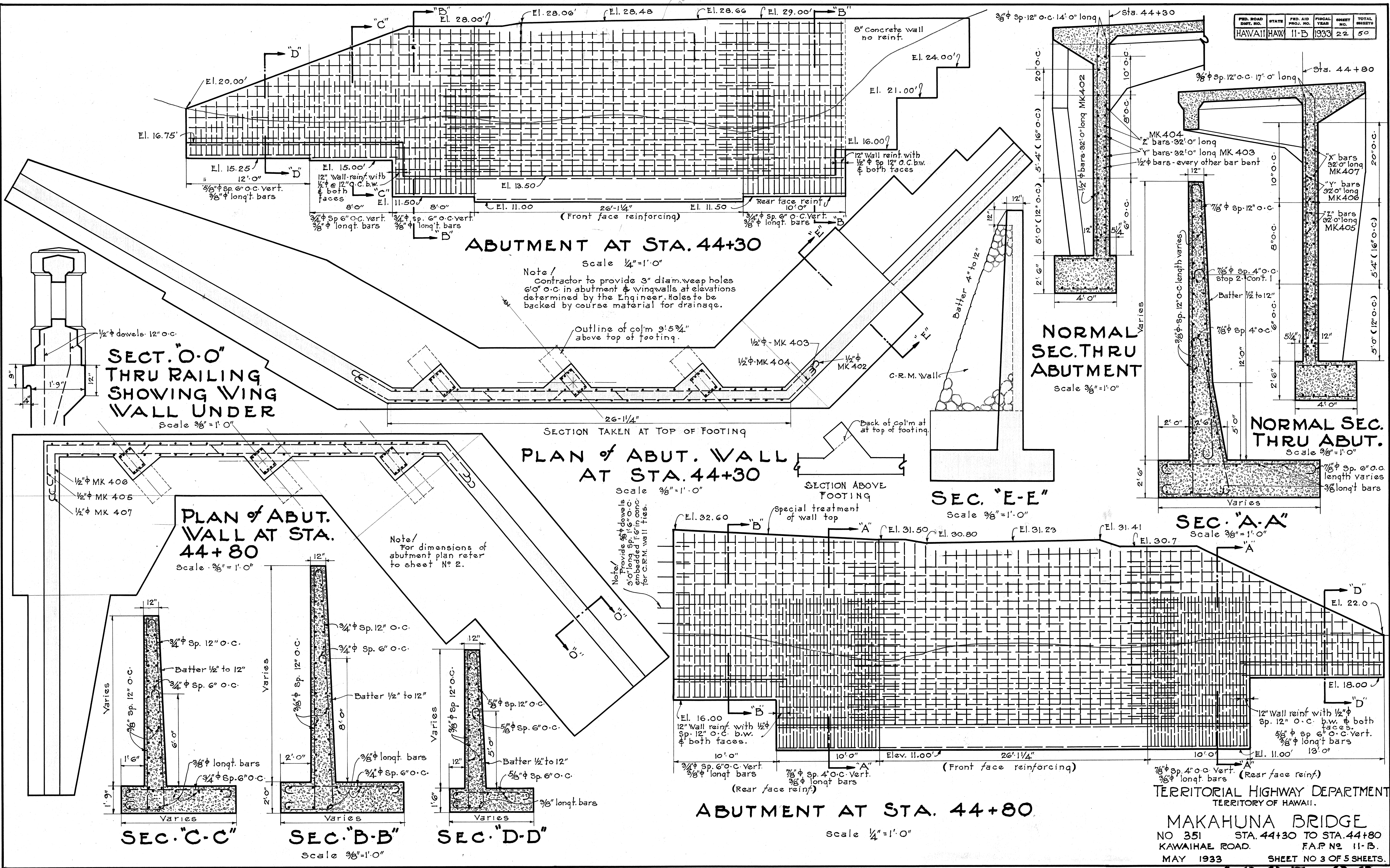
Note: The 2" Pavement has been changed to a
1" armor coat. Grades on bridges to be raised
to accommodate same.

DATE	BY	CHKD	APPD
Jan. 1933	W.B.B.	W.B.B.	W.B.B.
May "	C.E.W.	C.E.W.	C.E.W.
"	W.C.V.	W.C.V.	W.C.V.
"	W.F.B.	W.F.B.	W.F.B.

Note: The 2" Pavement has been changed to a 1" armor coat. Grades on bridges to be raised to accommodate same.

DATE	4-13-33
DESIGNED BY	V. B. D.
DRAWN BY	C. L. S.
CHECKED BY	V. B. D.
NOTED BY	V. B. D.
REVISIONS	4-20-33 4-25-33 5-5-33

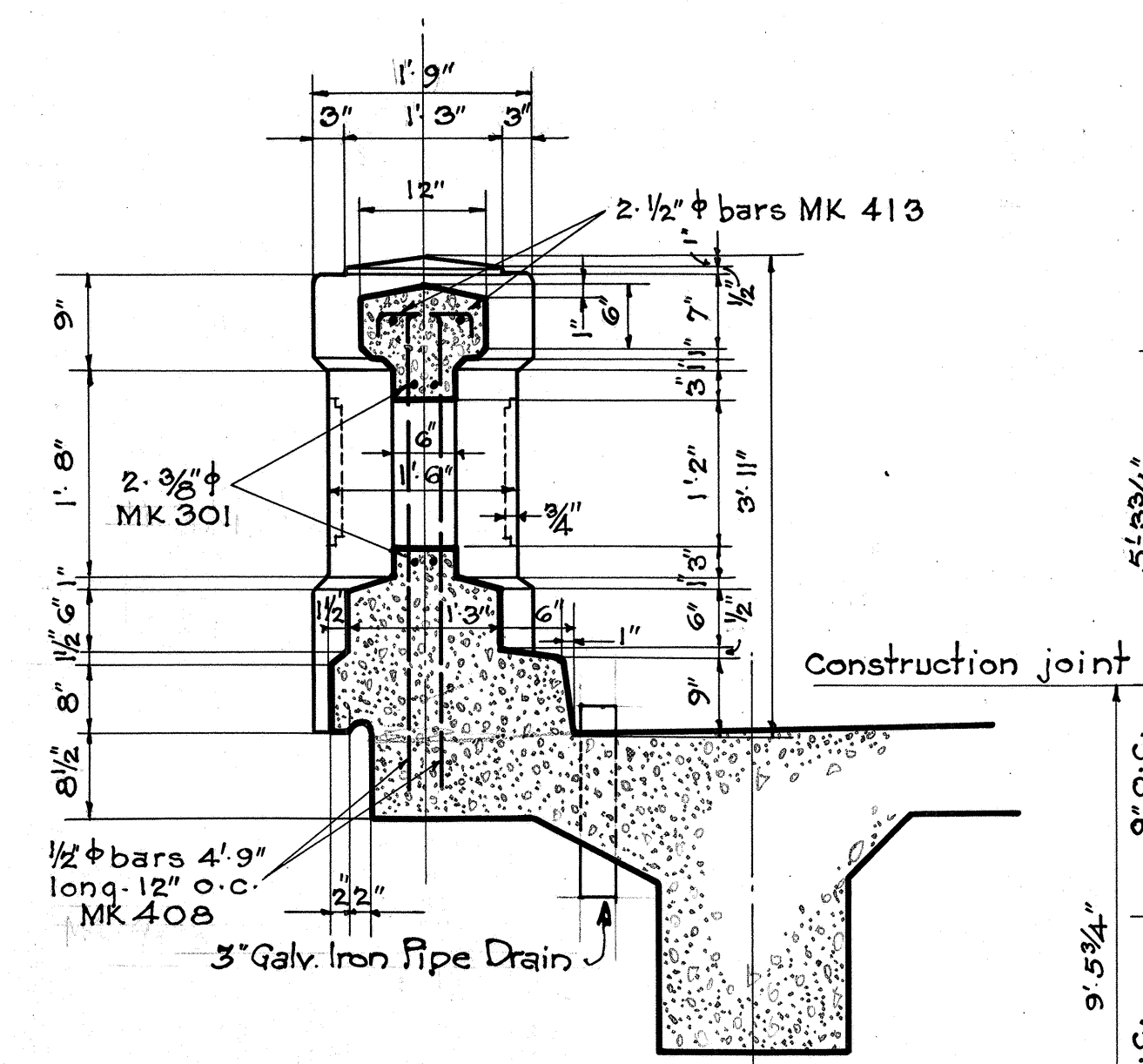
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	11-B	1933	22	50



TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII.
MAKAHUNA BRIDGE
NO 351 STA. 44+30 TO STA. 44+80
KAWAIIHAE ROAD. F.A.P. NO. 11-B.
MAY 1933 SHEET NO 3 OF 5 SHEETS.

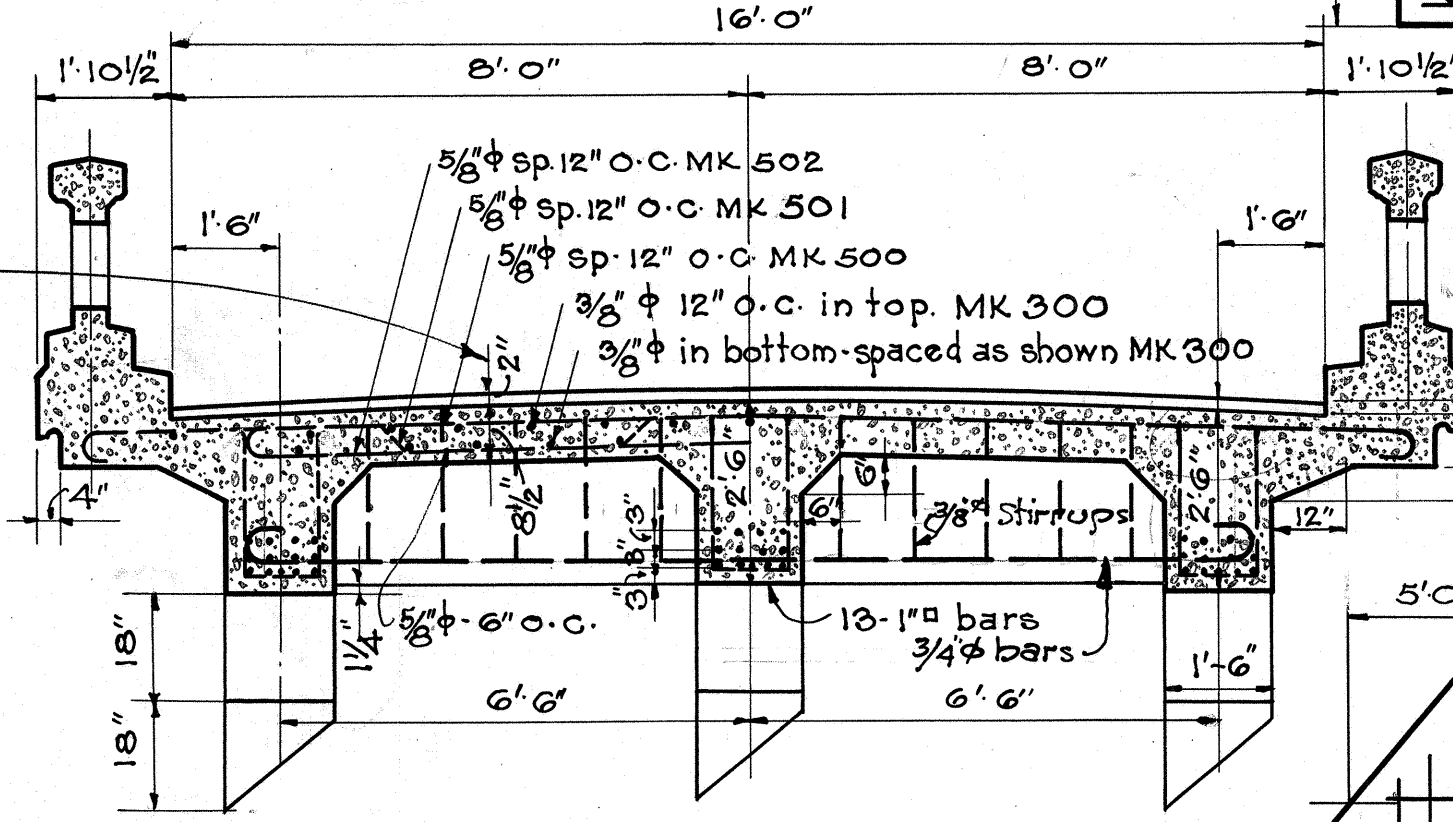
4287.22

Note- The 2" Pavement has been changed to a 1" armor coat. Grades on bridges to be raised to accommodate same

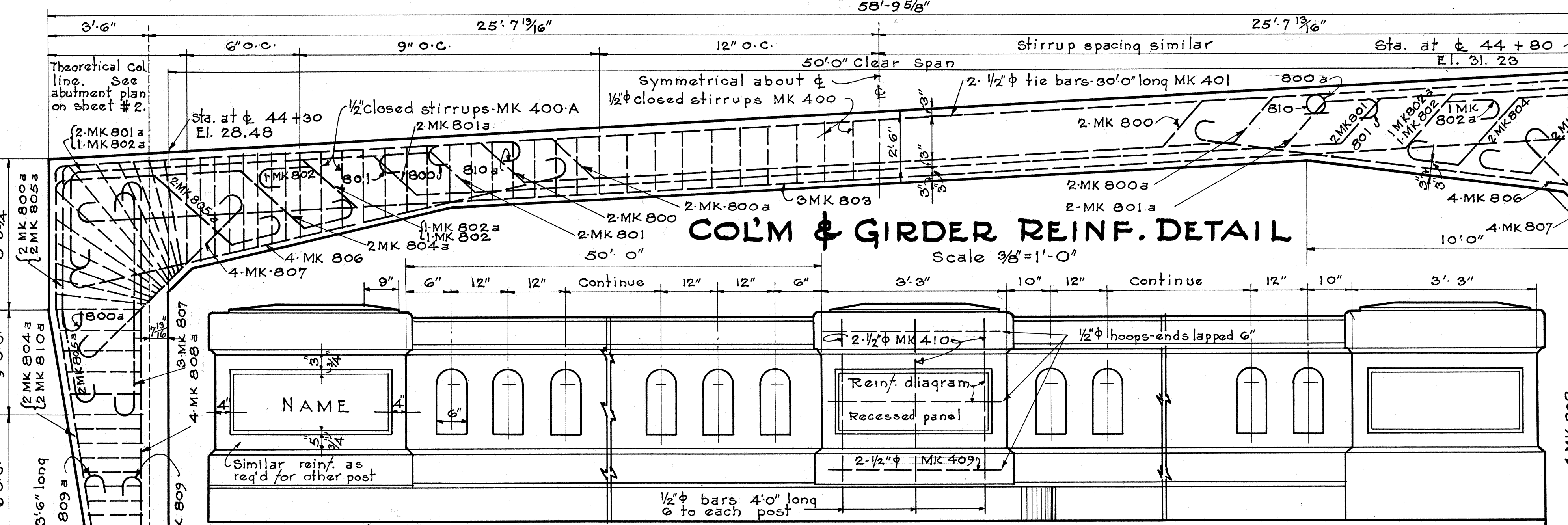


RAIL SECTION
Scale 3/4" = 1'-0"

Note!
See sheet No 1 for road crown

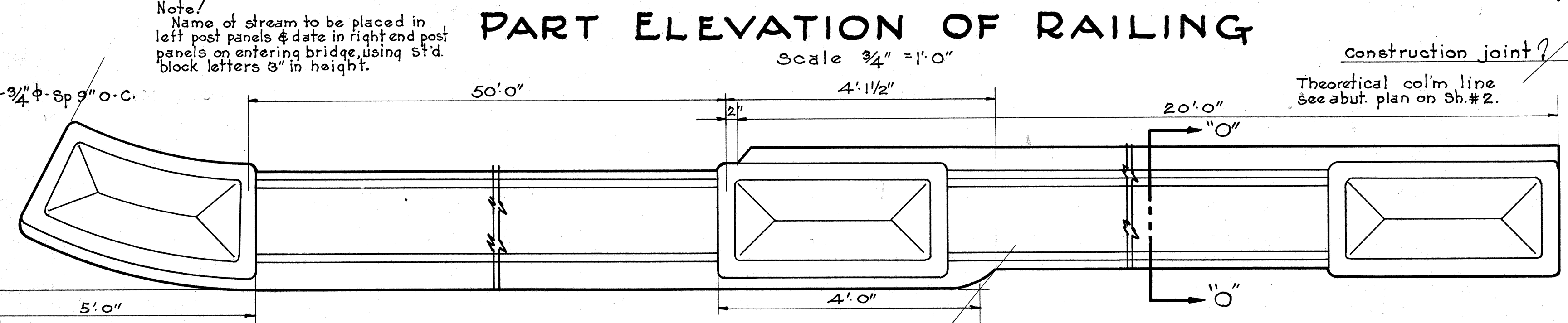


CROSS SECTION
Scale 3/8" = 1'-0"

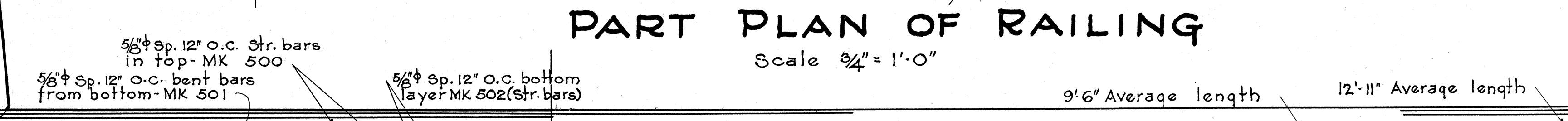


COLM & GIRDER REIN. DETAIL
Scale 3/8" = 1'-0"

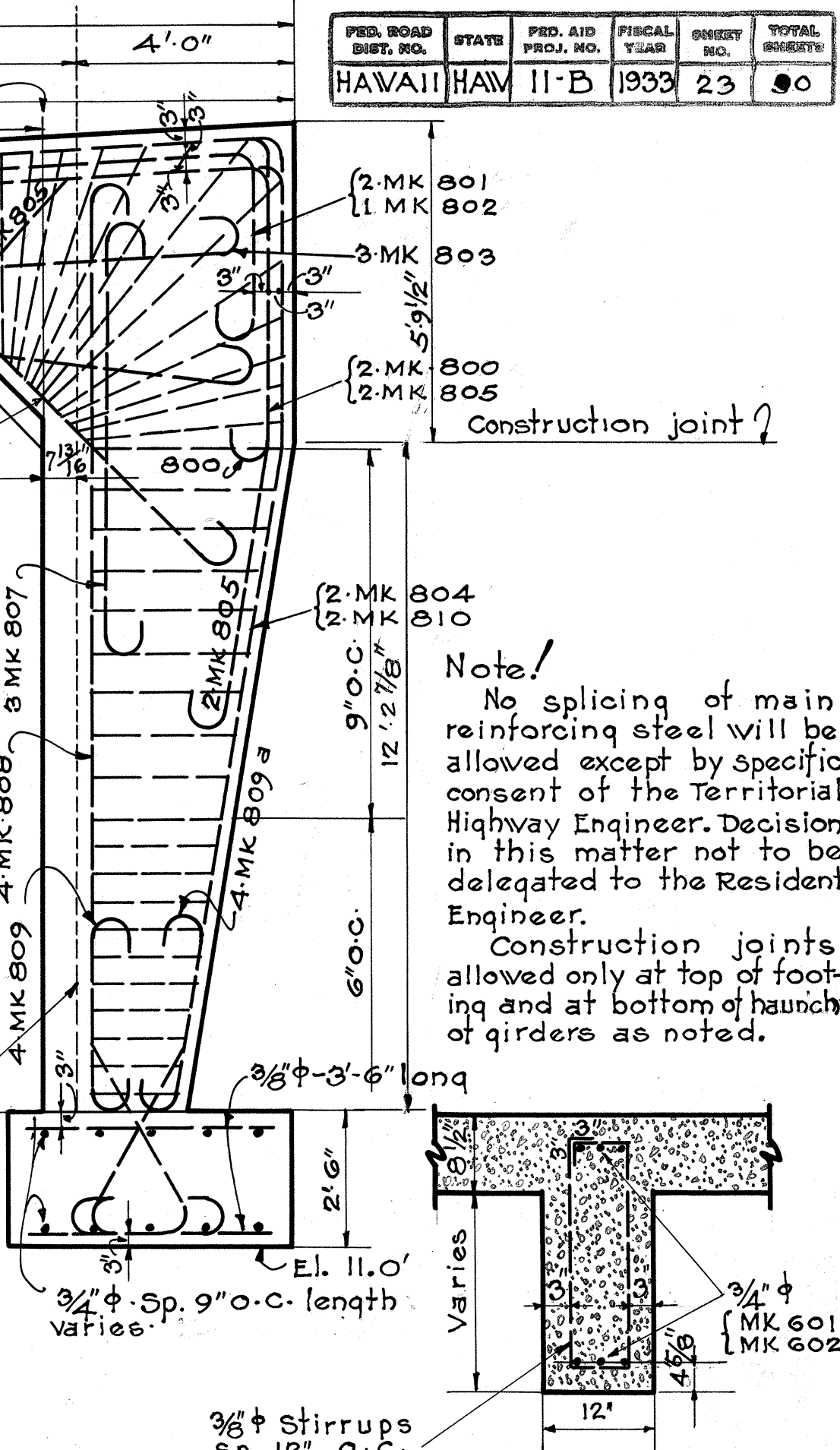
Note!
Name of stream to be placed in left post panels & date in right end post panels on entering bridge using std. block letters 8" in height.



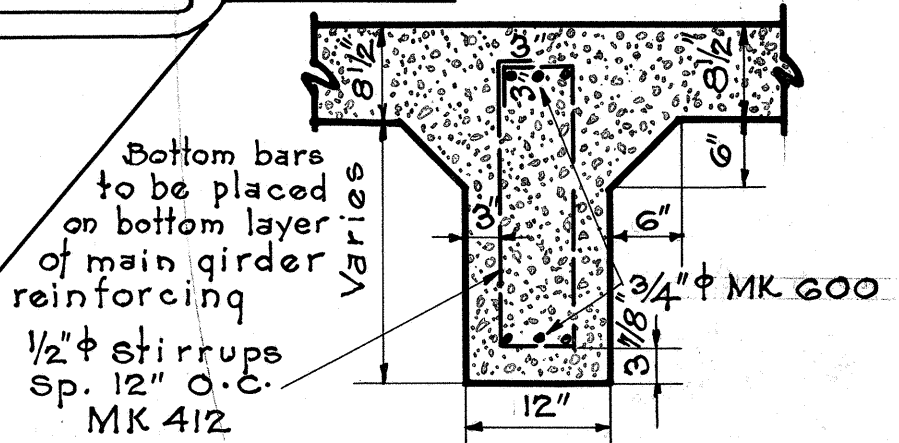
PART ELEVATION OF RAILING
Scale 3/4" = 1'-0"



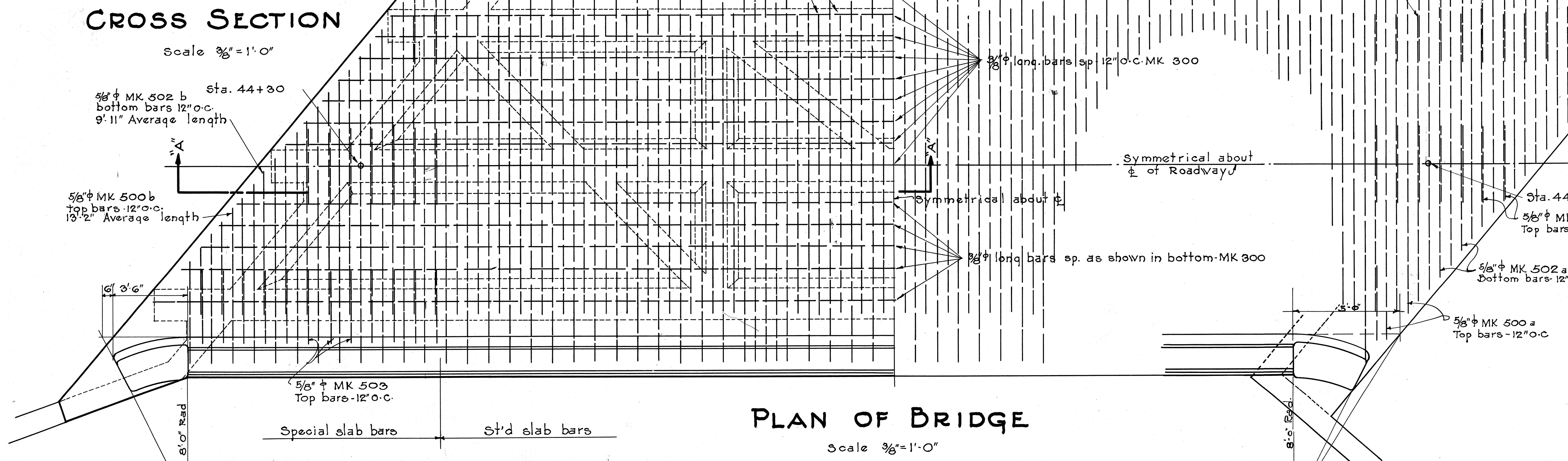
PART PLAN OF RAILING
Scale 3/4" = 1'-0"



SECT. THRU DIAGONAL BEAMS
Scale 3/4" = 1'-0"



SECT. THRU CROSS BEAMS
Scale 3/4" = 1'-0"



PLAN OF BRIDGE
Scale 3/8" = 1'-0"

Original bending
 Final bending after steel is in place
 DIAGRAM SHOWING METHOD OF PLACING STEEL IN CLOSED STIRRUPS
 TERRITORIAL HIGHWAY DEPARTMENT
 TERRITORY OF HAWAII.

MAKAHUNA BRIDGE
 NO 351 STA. 44+30 TO STA. 44+80
 KAWAIHAE ROAD F.A.P. No 11-B.
 MAY 1933 SHEET NO. 4 OF 5 SHEETS.

~ STEEL SCHEDULE ~

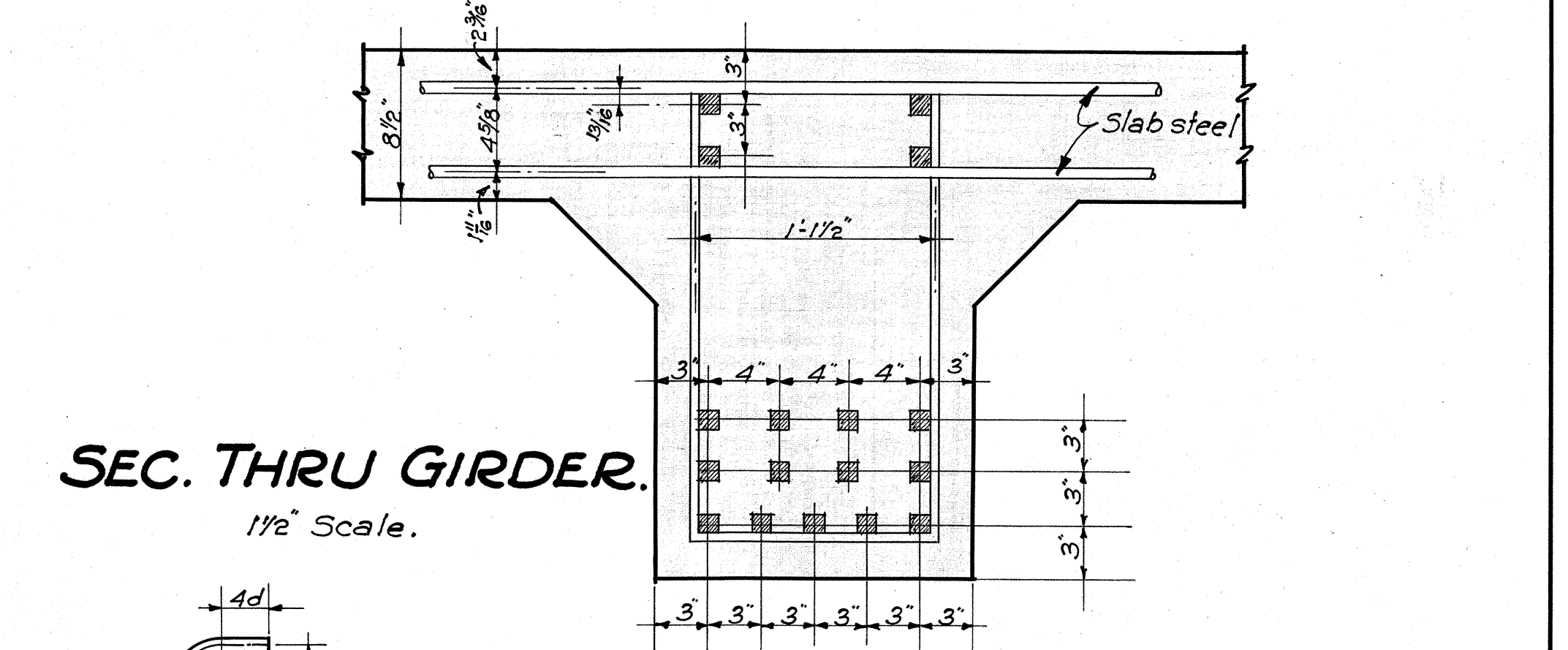
REVISIONS
HAWAII HAW 11-B 1933 24 50

MK	DESCRIPTION	LOCATION	SIZE	LENGTH	No. of bars in each unit	No. of units	Total No. of bars wanted	Total Length	Weight per foot	Total Weight.
500		Slab Top bars	5/8"	19'-11"	44	1	44	876.48	1.06	929.06
501		Slab Bottom bars	5/8"	20'-6"	44	1	44	902.00	"	956.12
502		Slab Bottom bars	5/8"	15'-4"	48	1	48	735.84	"	779.99
300		Slab Top & Bottom	3/8"	59'-0"	27	1	27	1593.00	0.38	605.34
500a		Slab sta. 44+80	5/8"	Varies	12	1	12	155.04	1.06	164.34
502a		"	"	"	10	1	10	95.00	"	100.70
503		"	"	5'-0"	20	1	20	100.00	"	108.00
500b		Slab sta. 44+30	5/8"	Varies	12	1	12	158.04	"	167.52
502b		"	"	"	10	1	10	99.20	"	105.15
503		"	"	5'-0"	21	1	21	105.00	"	111.30
800		Girder	1"	54'-3"	2	3	6	325.50	3.44	1119.72
801		"	"	53'-3"	2	3	6	319.50	"	1099.08
802		"	"	57'-7"	1	3	3	173.04	"	595.25
803		"	"	58'-11"	3	3	9	530.28	"	1824.16
804		Column	"	31'-4"	2	3	6	187.98	"	648.65
805		"	"	21'-9"	2	3	6	130.50	"	448.92
806		Girder	"	20'-0"	8	3	24	480.00	"	1651.20
807		Column	"	10'-0"	7	6	42	420.00	"	1444.80
808		"	"	19'-0"	4	3	12	228.00	"	784.32
400		Girder	1/2"	7'-0"	35	3	105	735.00	0.68	499.80

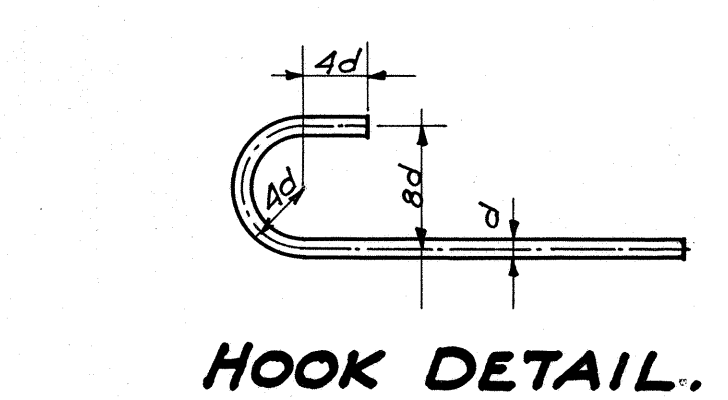
MK	DESCRIPTION	LOCATION	SIZE	LENGTH	No. of bars in each unit	No. of units	Total No. of bars wanted	Total Length	Weight per foot	Total Weight.
401		Girder	1/2"	30'-0"	2	3	6	180.00	0.68	122.40
400a		Girder & Col.	"	Varies				2193.00	"	1491.24
809		Footing	1"	10'-5"	4	6	24	500.16	3.44	1720.55
809a		"	"	"	4	6	24			
810		Column	"	34'-4"	2	3	6	205.98	"	708.57
810a		"	"	33'-1"	2	3	6	198.48	"	682.77
804		"	"	27'-8"	2	3	6	165.96	"	570.90
805		"	"	18'-10"	2	3	6	112.98	"	388.65
800a		Girder	"	53'-9"	2	3	6	322.50	"	1109.40
801		"	"	52'-9"	2	3	6	316.50	"	1088.76
802		"	"	57'-1"	1	3	3	171.25	"	589.10
803		Column	"	16'-0"	4	3	12	192.00	"	660.48
402		Abut. sta. 44+30	1/2"	32'-0"	10	1	10	320.00	0.68	217.60
403		"	"	32'-0"	10	1	10	320.00	"	217.60
404		"	"	32'-0"	11	1	11	352.00	"	239.36
405		Abut. sta. 44+80	"	32'-0"	12	1	12	384.00	"	261.12
406		"	"	32'-0"	12	1	12	384.00	"	261.12
407		"	"	32'-0"	12	1	12	384.00	"	261.12

MK	DESCRIPTION	LOCATION	SIZE	LENGTH	No. of bars in each unit	No. of units	Total No. of bars wanted	Total Length	Weight per foot	Total Weight.
301		Railing	3/8"	59'-0"	4	2	8	472.00	0.38	179.36
408		"	1/2"	4'-9"	22	1	120	570.00	0.68	387.60
409		Railing Posts	1/2"	3'-0"	6	5	30	90.00	"	61.20
410		"	1/2"	3'-6"	6	5	30	105.00	"	71.40
411		Railing over W.W.	1/2"	18'-0"	6	1	6	108.00	"	73.44
600		Cross Beam	3/4"	20'-6"	6	2	12	246.00	1.52	373.92
412		"	1/2"	Varies	10	2	20	120.00	0.68	81.60
601		Diagonals at ends	3/4"	19'-8"	4	2	8	157.28	1.52	239.06
602		" at middle	3/4"	23'-8"	4	1	4	94.64	"	143.85
302		"	3/8"	Varies	18	1	18	276.00	0.38	104.88
413		Railing	1/2"	59'-0"	2	2	4	236.00	0.68	160.48

TOTAL
Note - This total does not include the bars in footing & abutment which are shown on this sheet for bending purposes only. 23,429.0*



SEC. THRU GIRDER.
1 1/2" Scale.



HOOK DETAIL.

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII.

MAKAHUNA BRIDGE
NO 351 STA. 44+30 TO STA. 44+80
KAWAIIAE ROAD. F.A.P. No 11-B.
MAY 1933 SHEET NO. 5 OF 5 SHEETS.

4287.24

ORIGINAL SET
PLAN
NOTE BOOK
No.