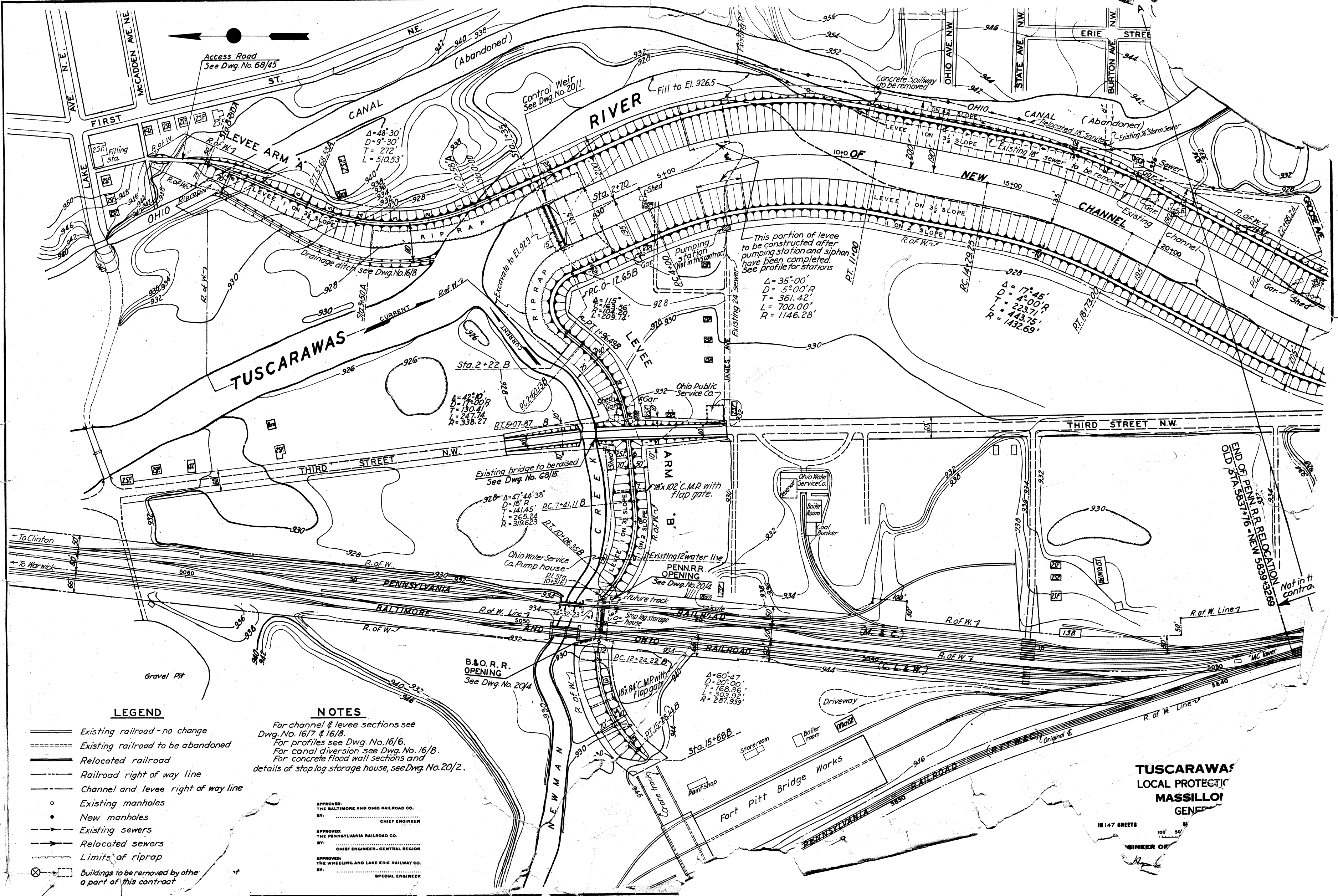
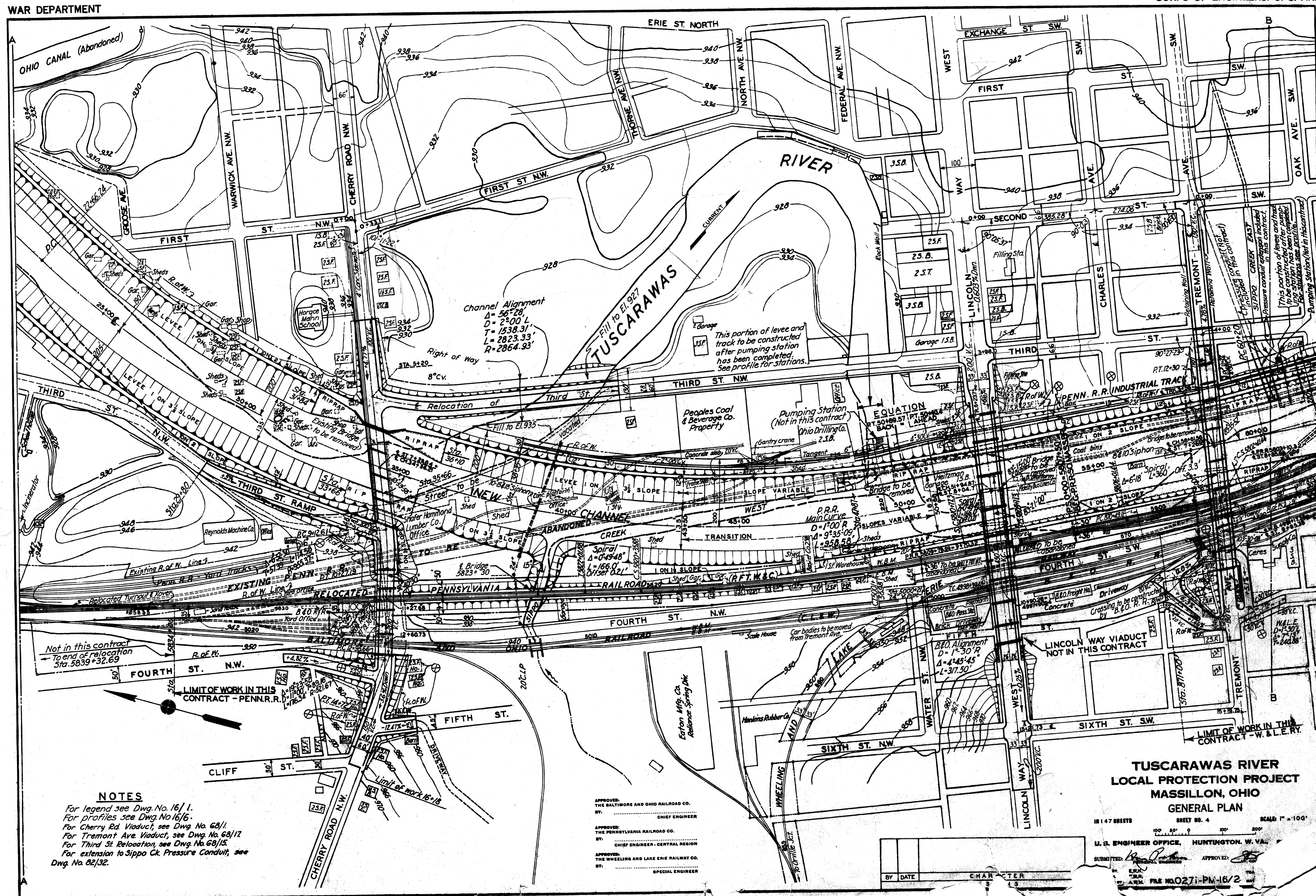
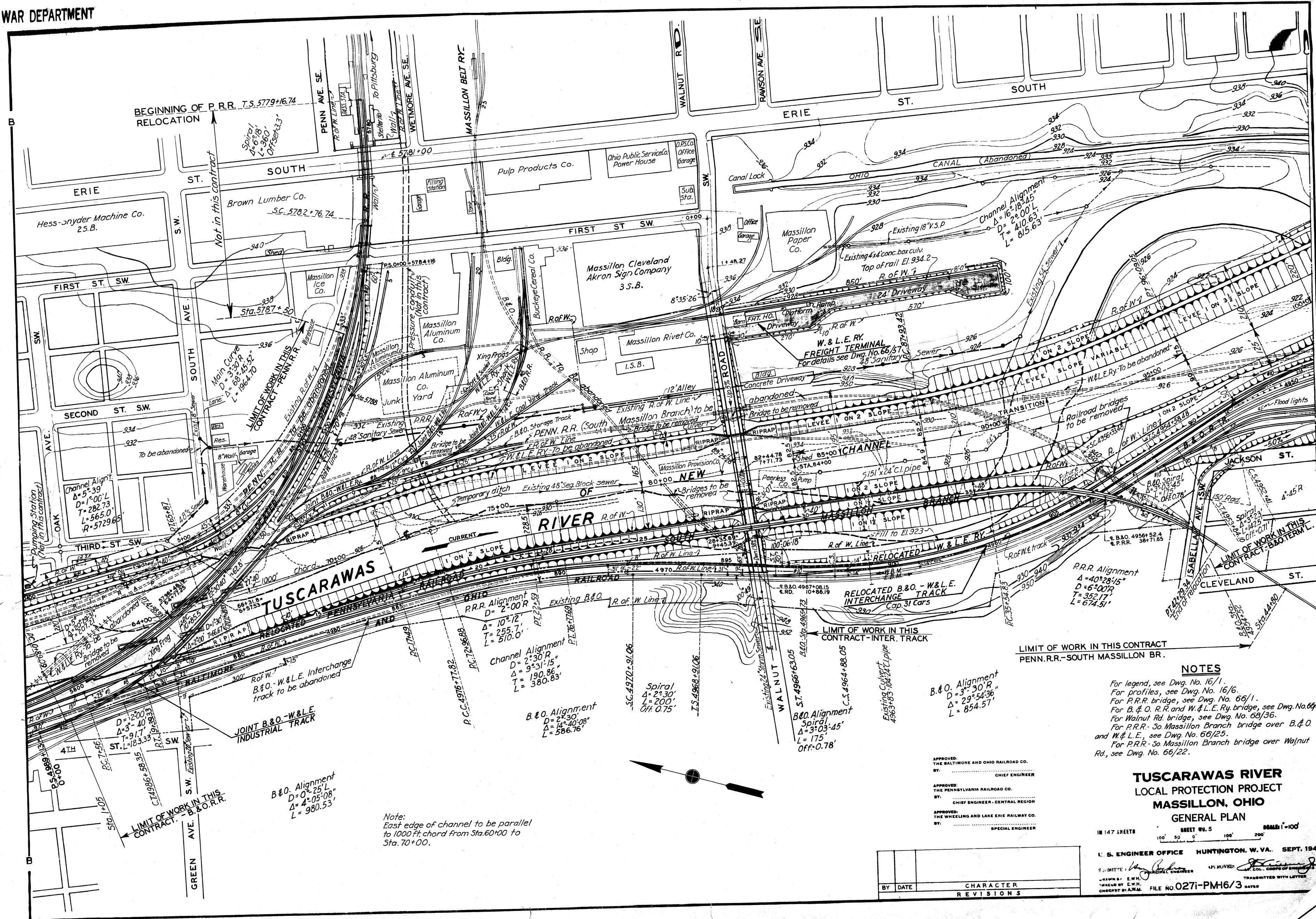
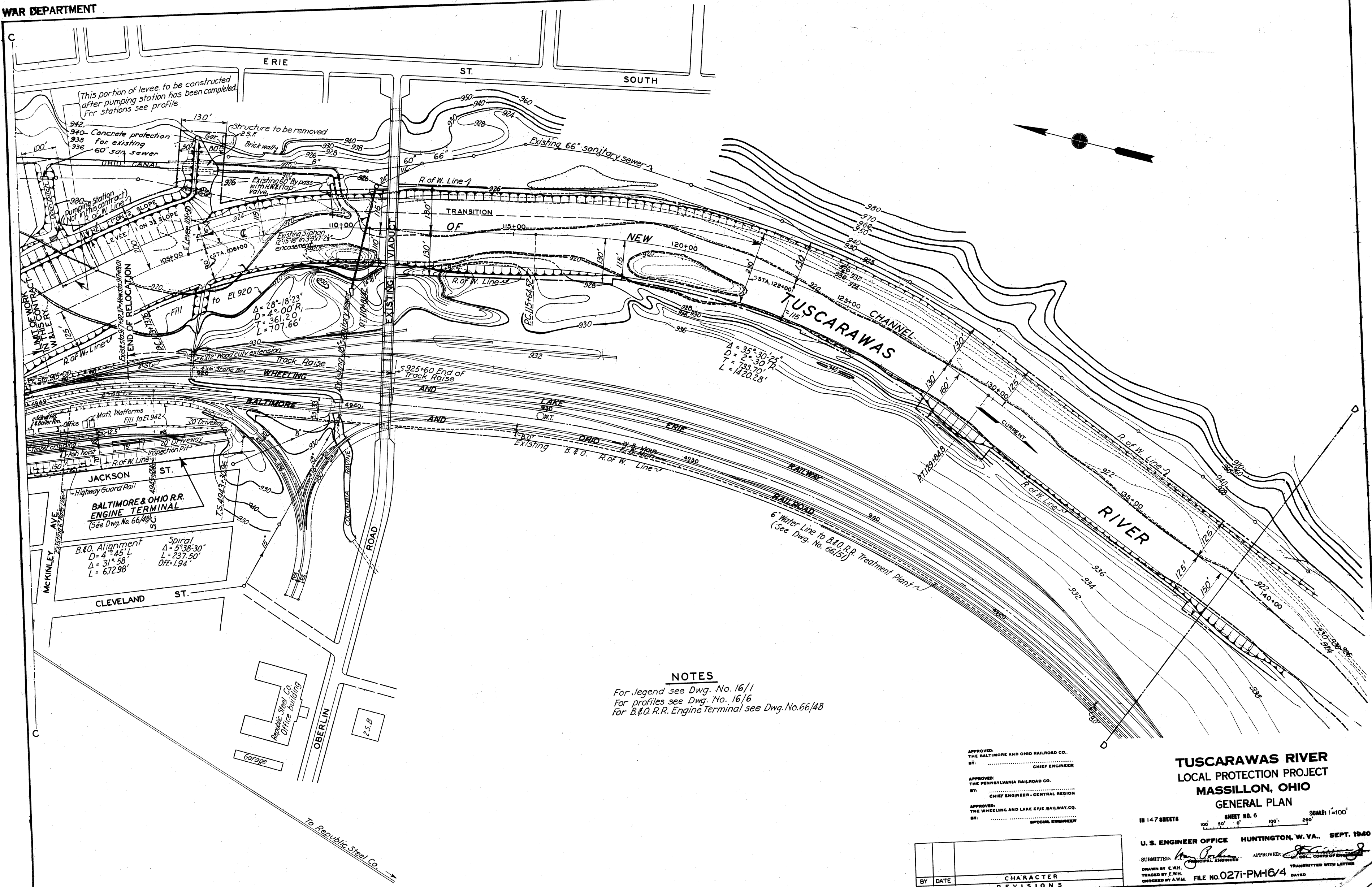
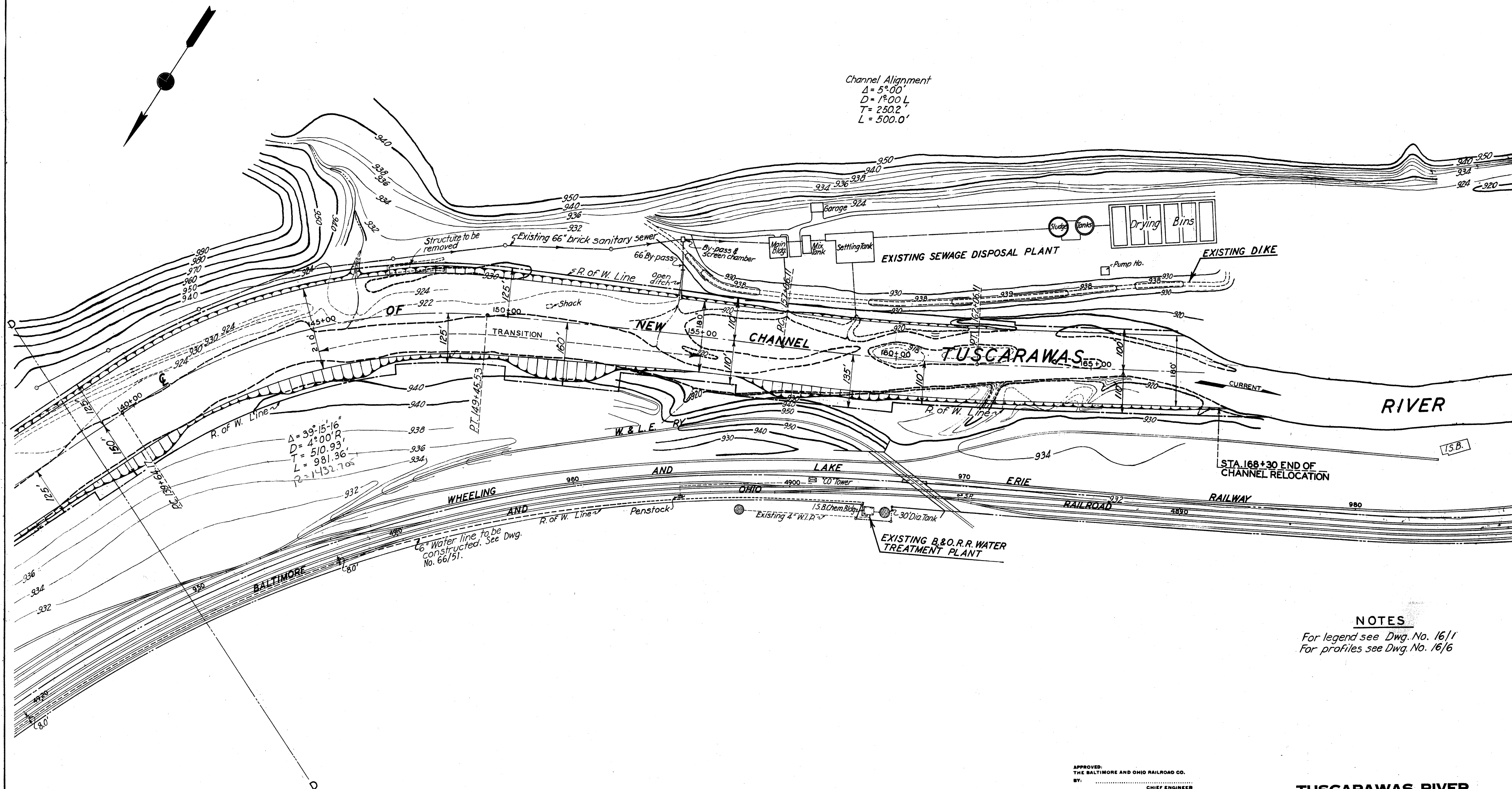












NOTES

For legend see Dwg. No. 16/1
 For profiles see Dwg. No. 16/6

APPROVED:
 THE BALTIMORE AND OHIO RAILROAD CO.
 BY: CHIEF ENGINEER

APPROVED:
 THE PENNSYLVANIA RAILROAD CO.
 BY: CHIEF ENGINEER - CENTRAL REGION

APPROVED:
 THE WHEELING AND LAKE ERIE RAILWAY CO.
 BY: SPECIAL ENGINEER

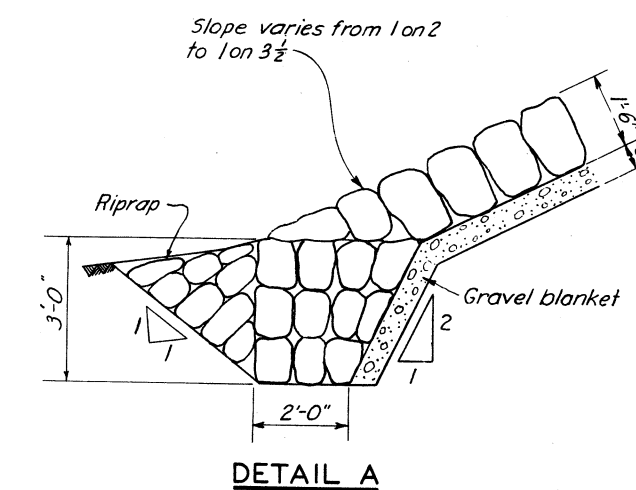
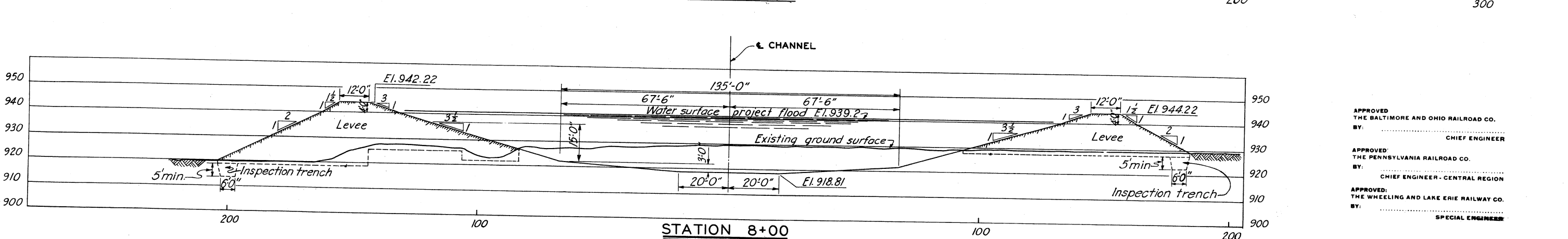
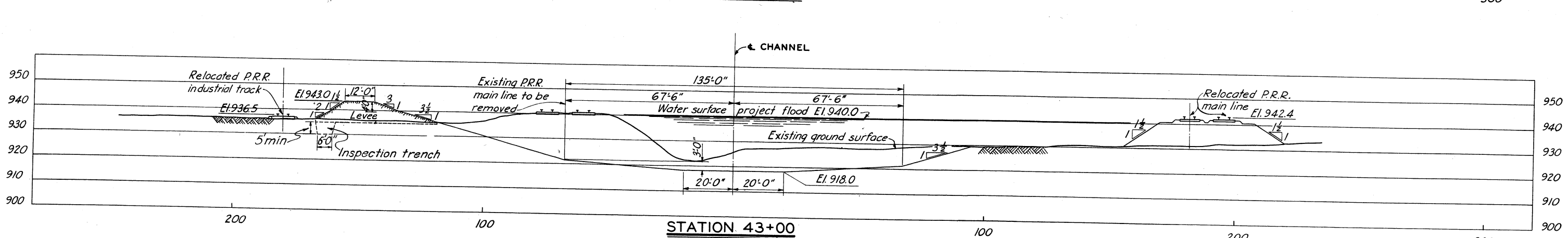
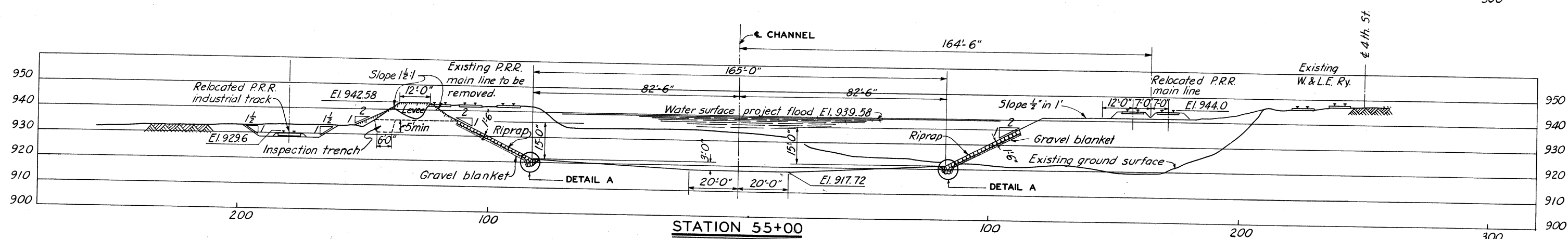
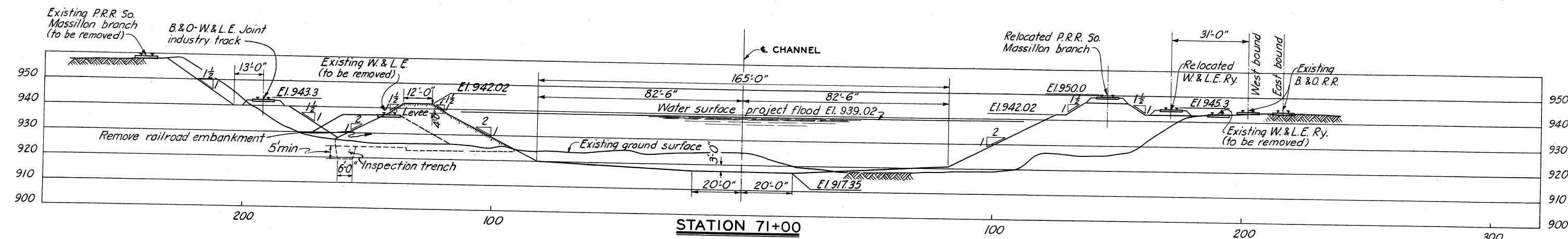
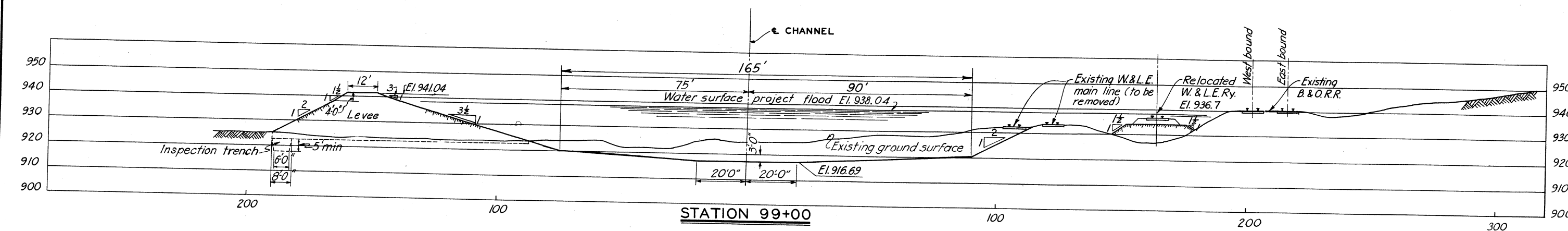
TUSCARAWAS RIVER
 LOCAL PROTECTION PROJECT
 MASSILLON, OHIO
 GENERAL PLAN

IN 147 SHEETS SHEET NO. 7 SCALE: 1"=100'

U.S. ENGINEER OFFICE HUNTINGTON, W. VA., SEPT. 1940

SUBMITTED: [Signature] APPROVED: [Signature]
 DRAWN BY: E.W.H. TRANSMITTED WITH LETTER
 CHECKED BY: A.W.M. FILE NO. 0271-PNH6/5 DATED

BY	DATE	CHARACTER
		REVISIONS



NOTES

Sections looking down stream.
Payment lines not shown, see Dwg. No. 16/10.

APPROVED
THE BALTIMORE AND OHIO RAILROAD CO.
BY: _____
CHIEF ENGINEER

APPROVED
THE PENNSYLVANIA RAILROAD CO.
BY: _____
CHIEF ENGINEER - CENTRAL REGION

APPROVED
THE WHEELING AND LAKE ERIE RAILWAY CO.
BY: _____
SPECIAL ENGINEER

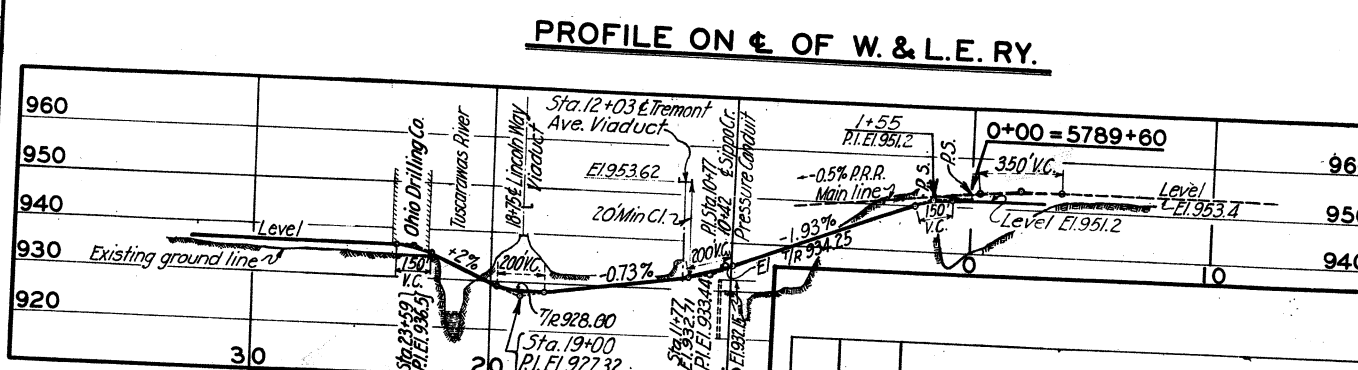
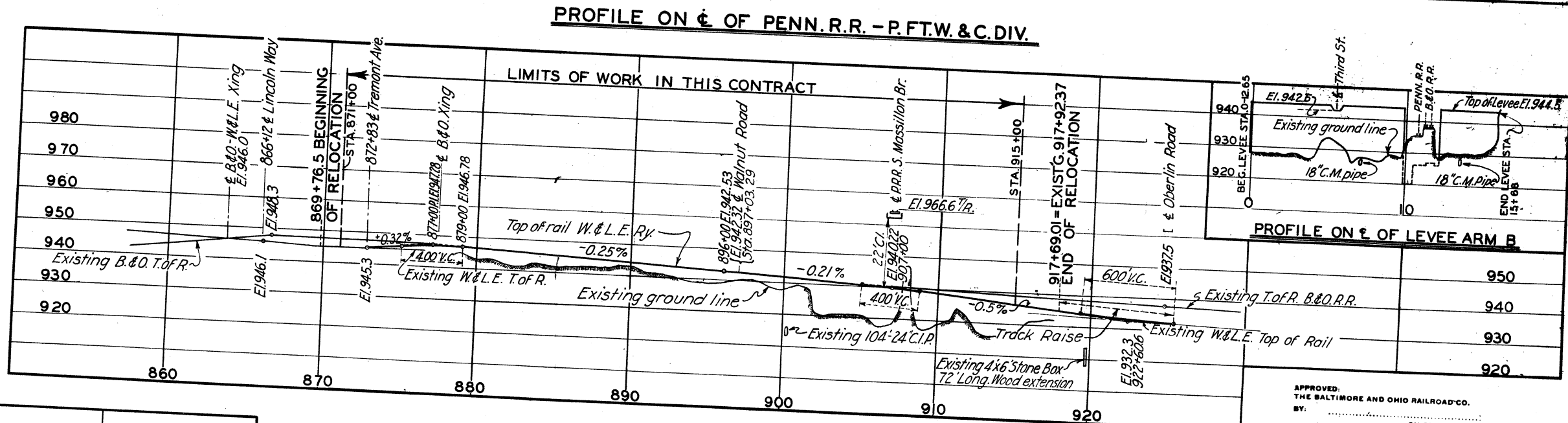
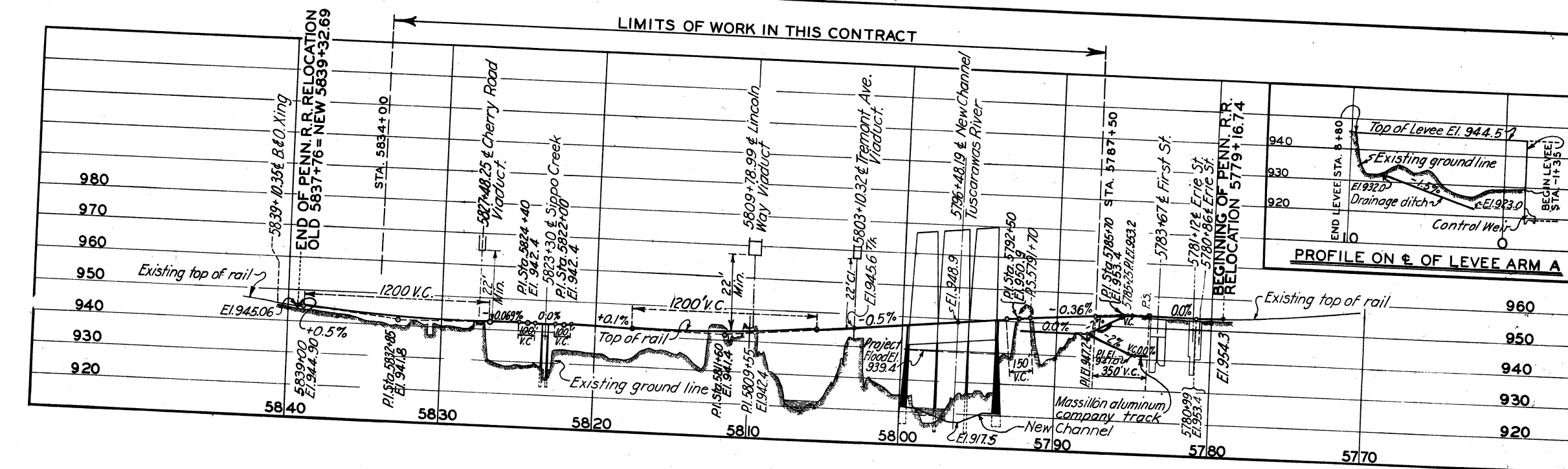
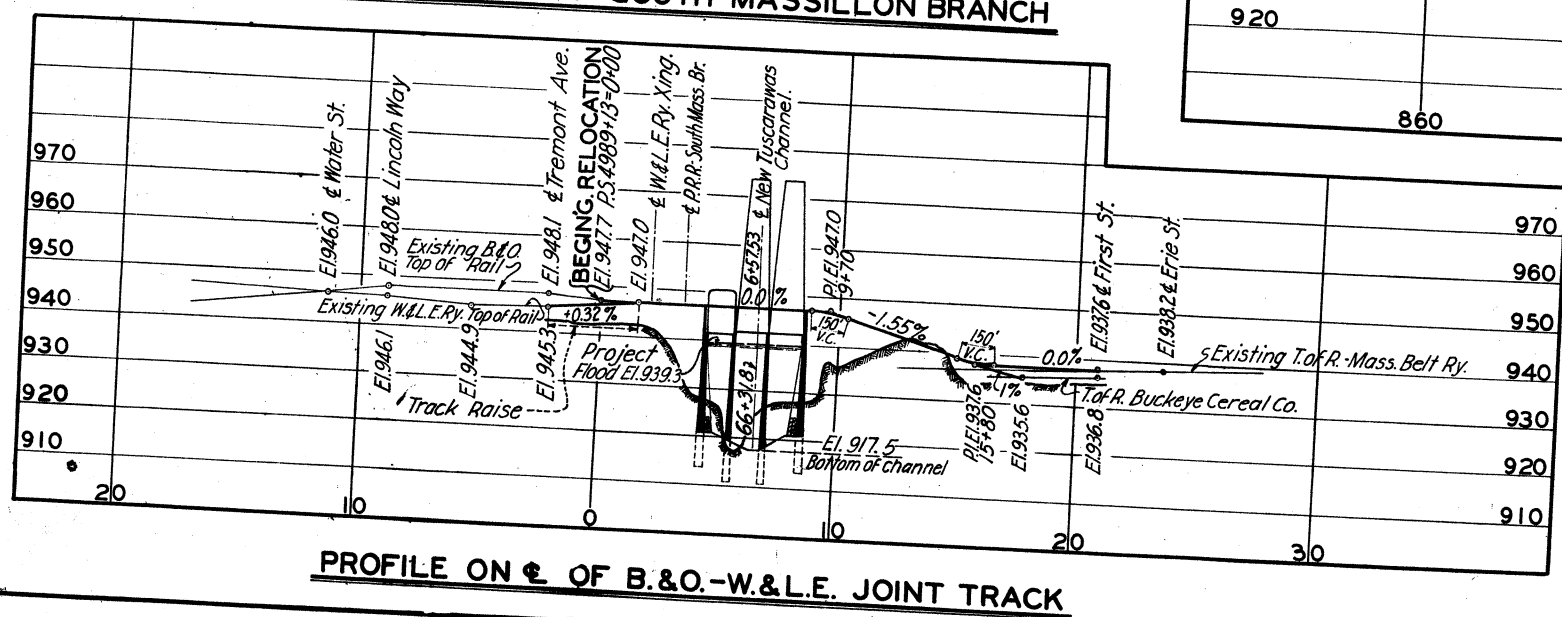
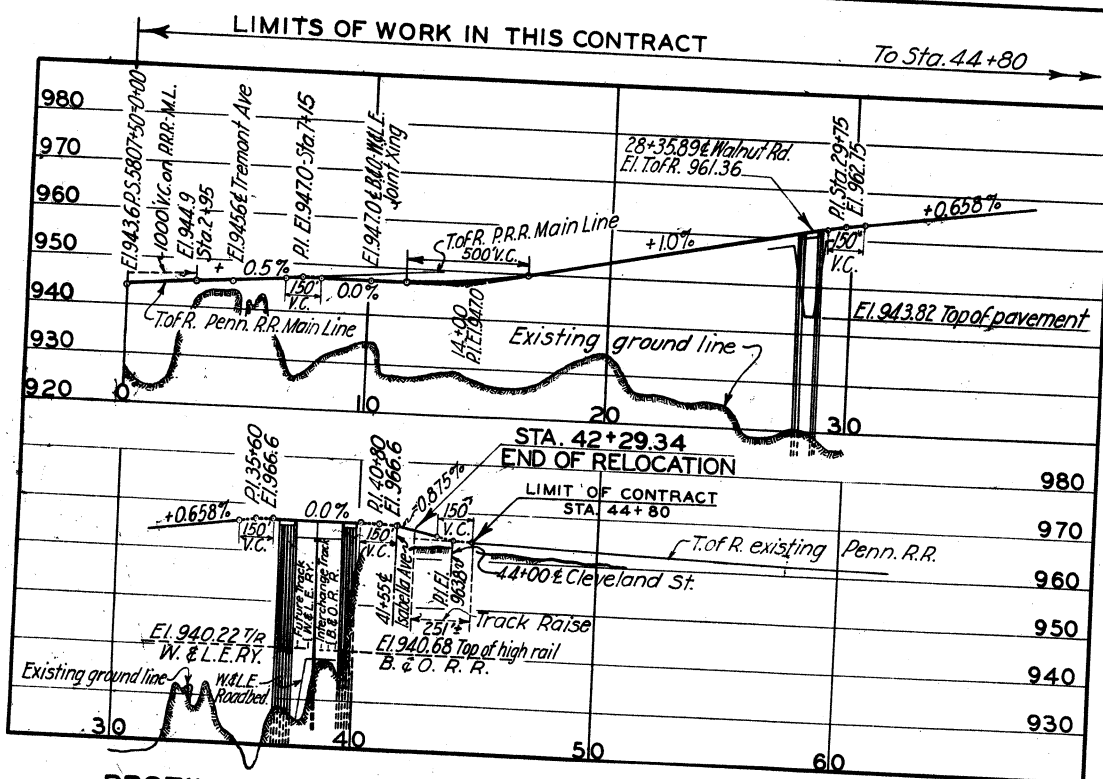
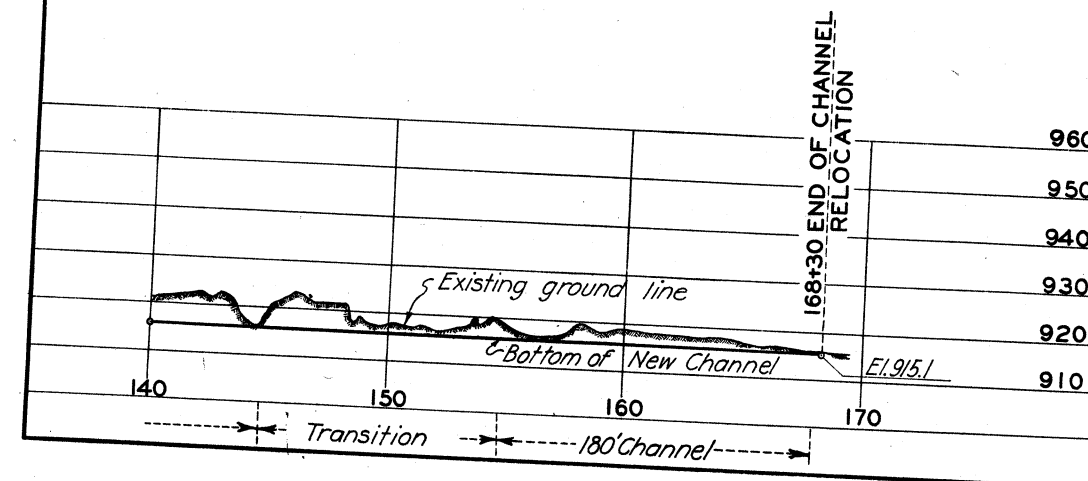
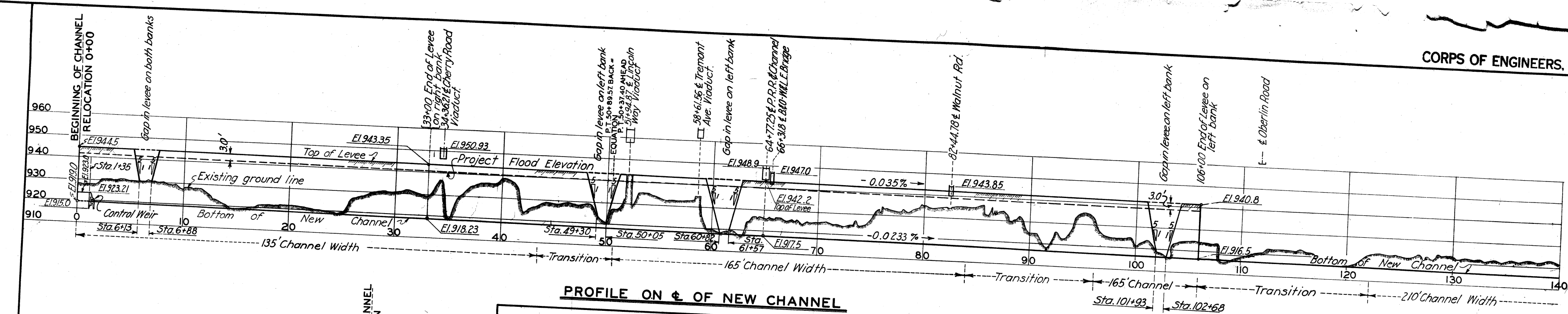
**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
TYPICAL CHANNEL & LEVEE SECTIONS**

1147 SHEETS SHEET NO. 9 SCALE: 1" = 20'-0"

U. S. ENGINEER OFFICE. HUNTINGTON, W. VA., SEPT. 1940

SUBMITTED BY: _____ APPROVED: _____
DRAWN BY: W. B. S. TRANSMITTED WITH LETTER
CHECKED BY: A. R. K. FILE NO. 0271-PM-16/7
DATED: _____

BY	DATE	CHARACTER



PROFILE ON & OF PENN. R.R. - INDUSTRIAL TR.

APPROVED:
THE BALTIMORE AND OHIO RAILROAD CO.
BY: _____
CHIEF ENGINEER

APPROVED:
THE PENNSYLVANIA RAILROAD CO.
BY: _____
CHIEF ENGINEER - CENTRAL REGION

APPROVED:
THE WHEELING AND LAKE ERIE RAILWAY CO.
BY: _____
SPECIAL ENGINEER

**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
PROFILES**

IN 147 SHEETS

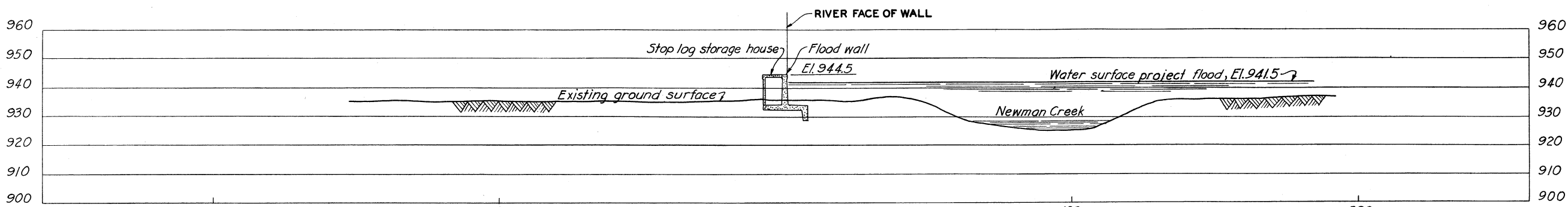
SHEET NO. 8

SCALE: HOR. 1"=400'
VER. 1"=20'

U. S. ENGINEER OFFICE, HUNTINGTON, W. VA. SEPT. 1940

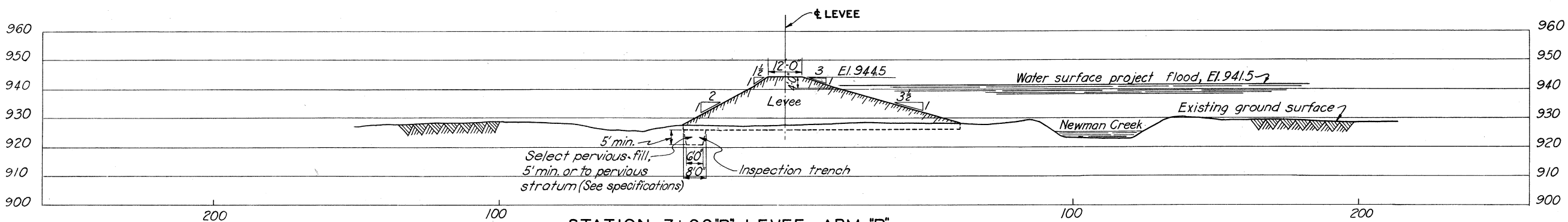
SUBMITTED: _____
DRAWN BY: E.M.H.
CHECKED BY: E.M.H.

TRANSMITTED WITH LETTER



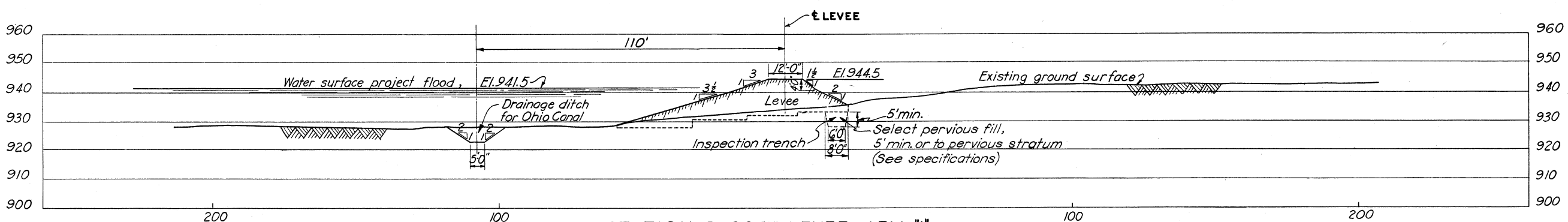
STATION 11+00 NEWMAN CREEK LEVEE ARM

LOOKING UPSTREAM



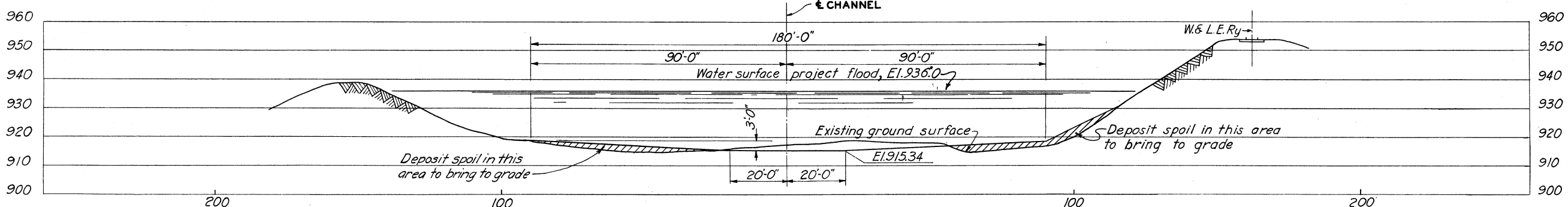
STATION 7+00" LEVEE ARM "B"

LOOKING UPSTREAM

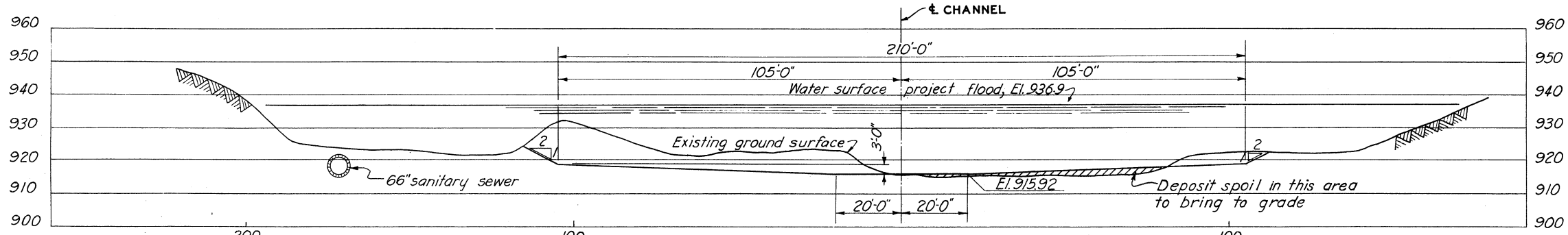


STATION 5+00 "A" LEVEE ARM "A"

LOOKING UPSTREAM



STATION 157+00



STATION 132+00

NOTES

Section looking downstream unless otherwise noted
Payment lines not shown. see Dwg. No. 16/10

TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
TYPICAL CHANNEL & LEVEE SECTIONS

IN 147 SHEETS SHEET NO. 10 SCALE: 1"=20'

U. S. ENGINEER OFFICE. HUNTINGTON, W. VA., SEPT. 1940
SUBMITTED BY: [Signature] APPROVED BY: [Signature]
DRAWN BY: W. B. S. TRANSMITTED WITH LETTER
CHECKED BY: E. H. FILE NO. 0271-PM-16/8 DATED:

BY	DATE	CHARACTER
		REVISIONS

For additional locations of spoil, see Dwg. No. 16/10.
44,000 C.Y. stripping under levees not included in
excavation quantities shown on this sheet.

 Channel edge
 Levee
 Available spoil areas
 (Required spoil areas shown
 on general plan sheets.)

IN 147 SHEETS SHEET NO. 11 SCALE: 1" = 400'

U. S. ENGINEER OFFICE, HUNTINGTON. W. VA., SEPT. 1940

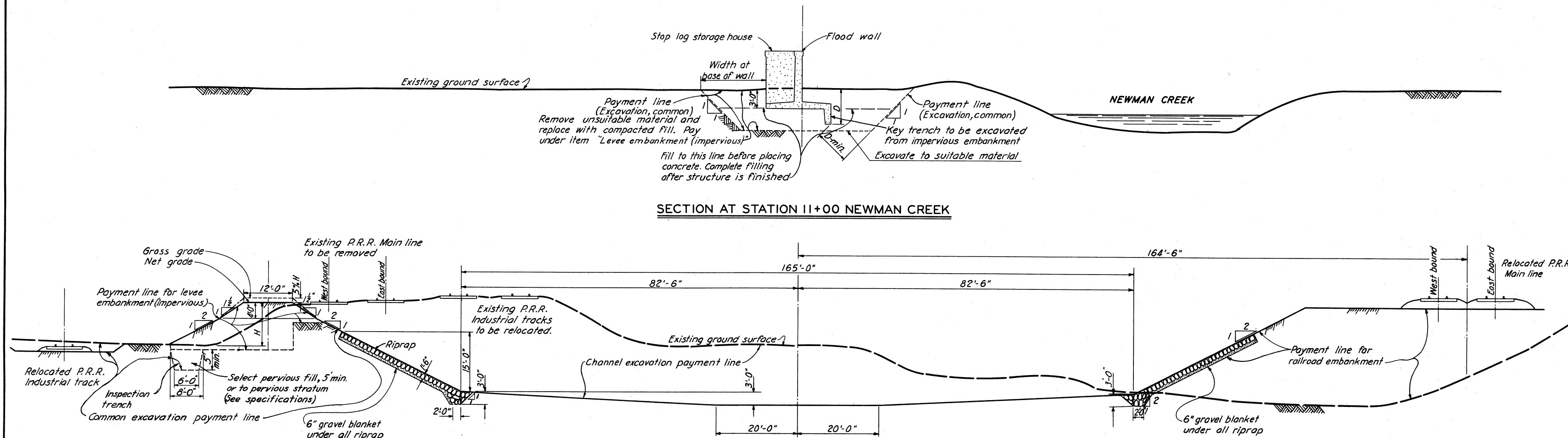
SUBMITTED: *[Signature]* 3
PRINCIPAL ENGINEER

APPROVED: *[Signature]*
LT. COL. CORPS OF ENGINEERS

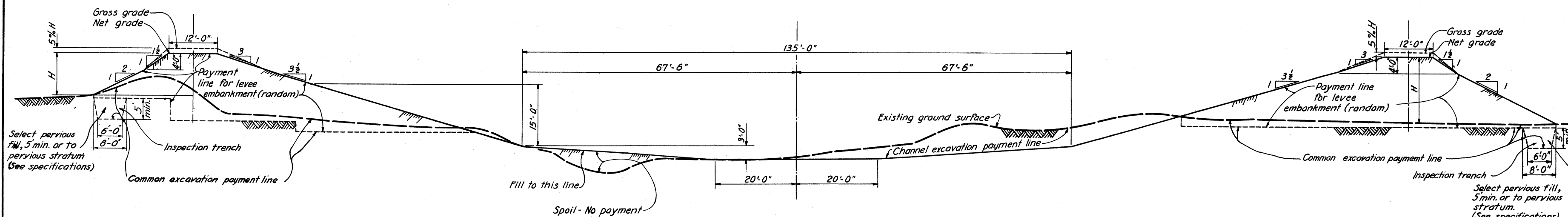
DRAWN BY W.B.S.
TRACED BY D.R.J.
CHECKED BY D.G.J.

TRANSMITTED WITH LETTER
FILE NO. 027i-PM-16/9
DATED

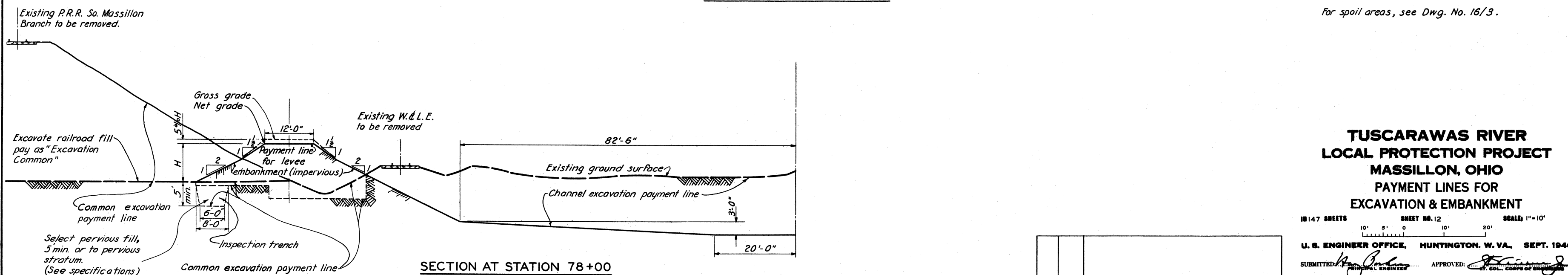
BY	DATE	CHARACTER
		R E V I S I O N S



SECTION AT STATION 57+00



SECTION AT STATION 16+00



SECTION AT STATION 78+00

NOTES

For spoil areas, see Dwg. No. 16/3.

TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
PAYMENT LINES FOR
EXCAVATION & EMBANKMENT

18147 SHEETS SHEET NO. 12 SCALE: 1"=10'

U. S. ENGINEER OFFICE, HUNTINGTON, W. VA., SEPT. 1940

SUBMITTED BY: J. M. B. APPROVED: J. M. B.

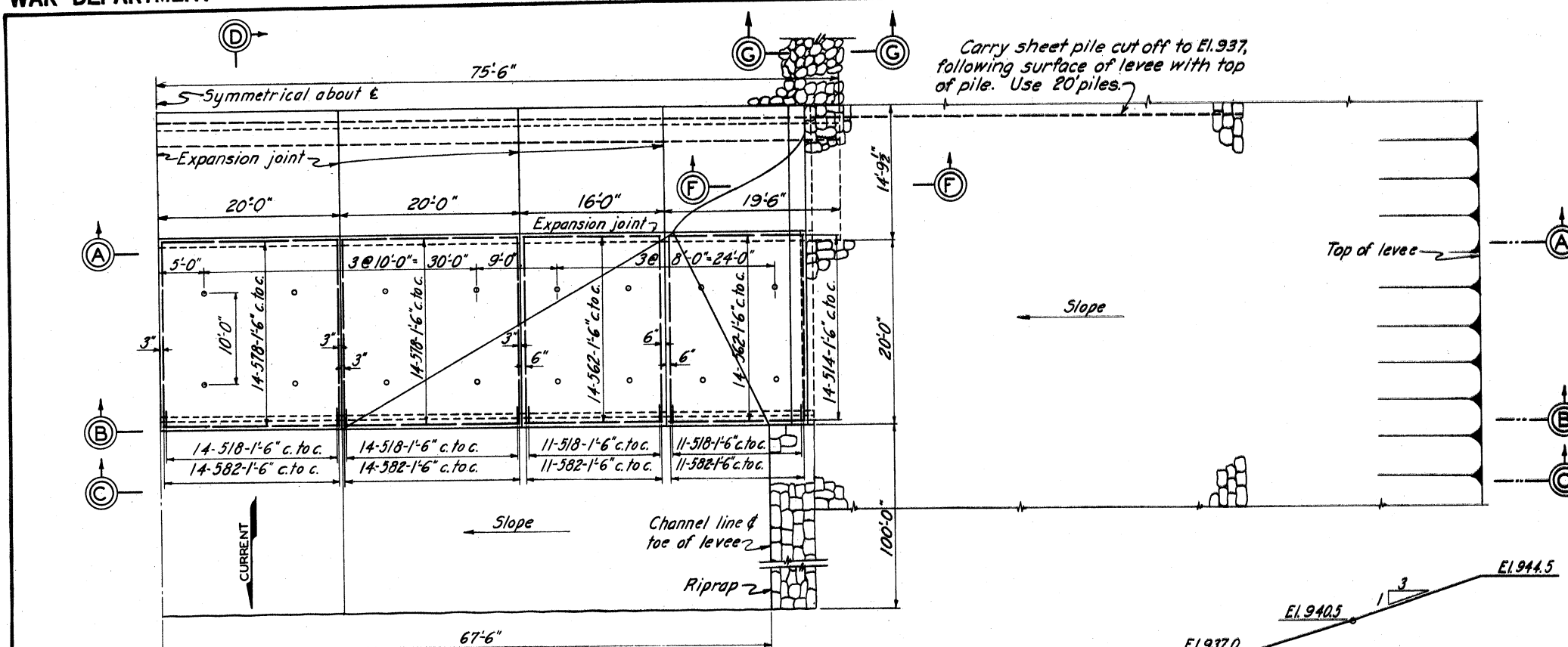
DRAWN BY: W. B. C. TRANSMITTED WITH LETTER

CHECKED BY: D. G. J. FILE NO. 0271-PM-16/10 DATED:

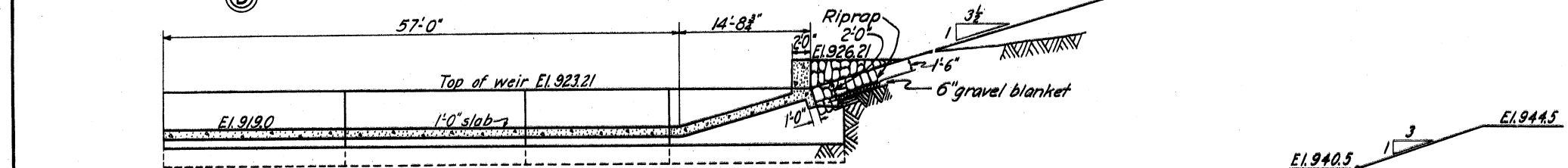
BY	DATE	CHARACTER
		REVISIONS

REINFORCING SCHEDULE

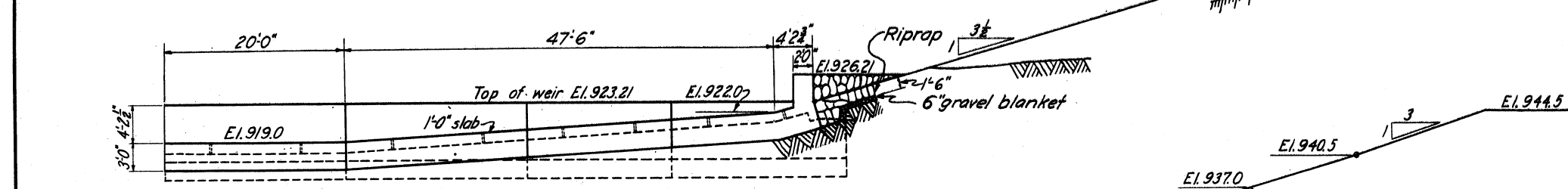
MARK	SIZE	L'GTH	BENDING DIAGRAM	NO.	UNIT WT.	TOTAL WT.
314	3/4"	3'-6"		28	3.65	102
318	3/4"	4'-6"		100	4.69	469
378	1"	19'-6"		56	20.34	1139
382	1"	20'-6"		100	21.38	2138
362	3/4"	15'-6"		56	16.17	906
					Total	4754



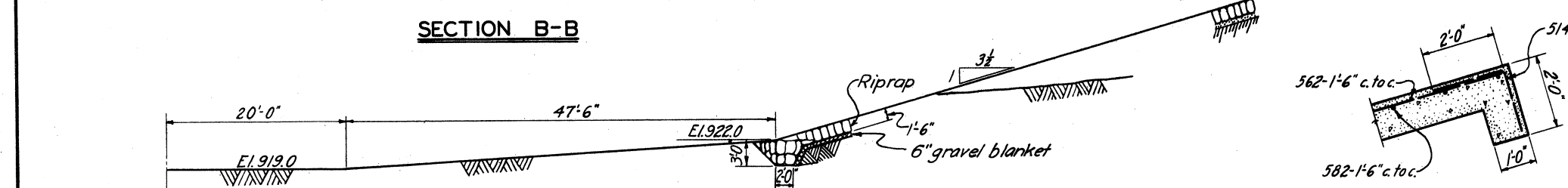
HALF PLAN



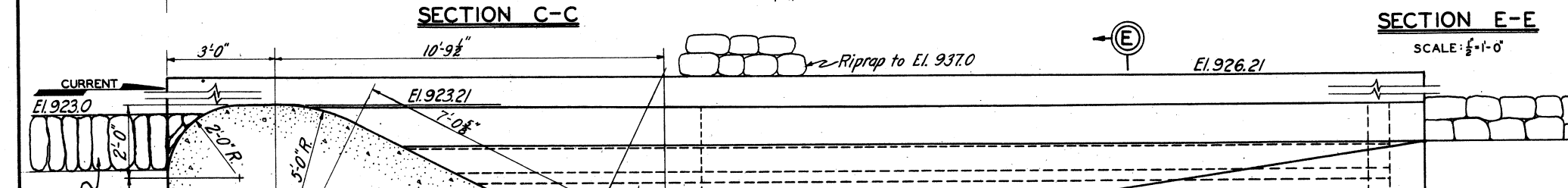
SECTION A-A



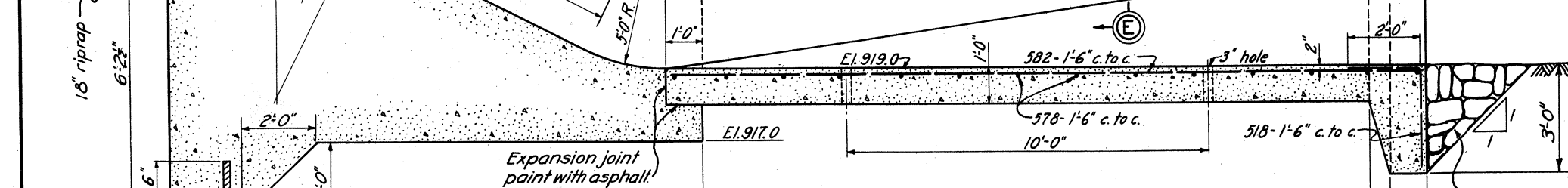
SECTION B-B



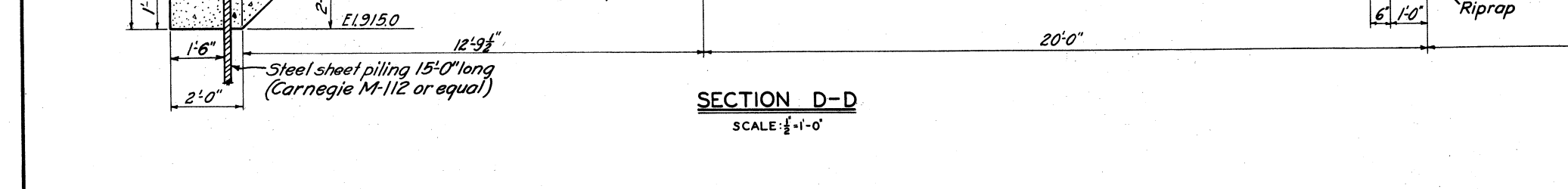
SECTION C-C



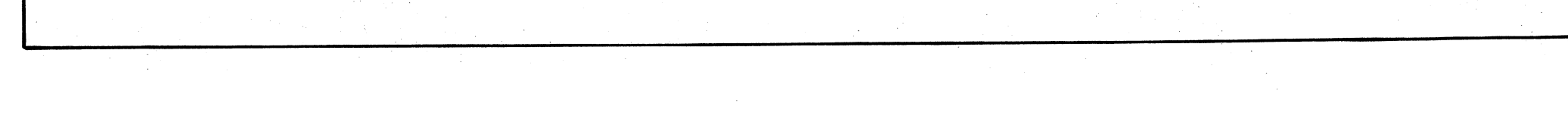
SECTION D-D



SECTION E-E

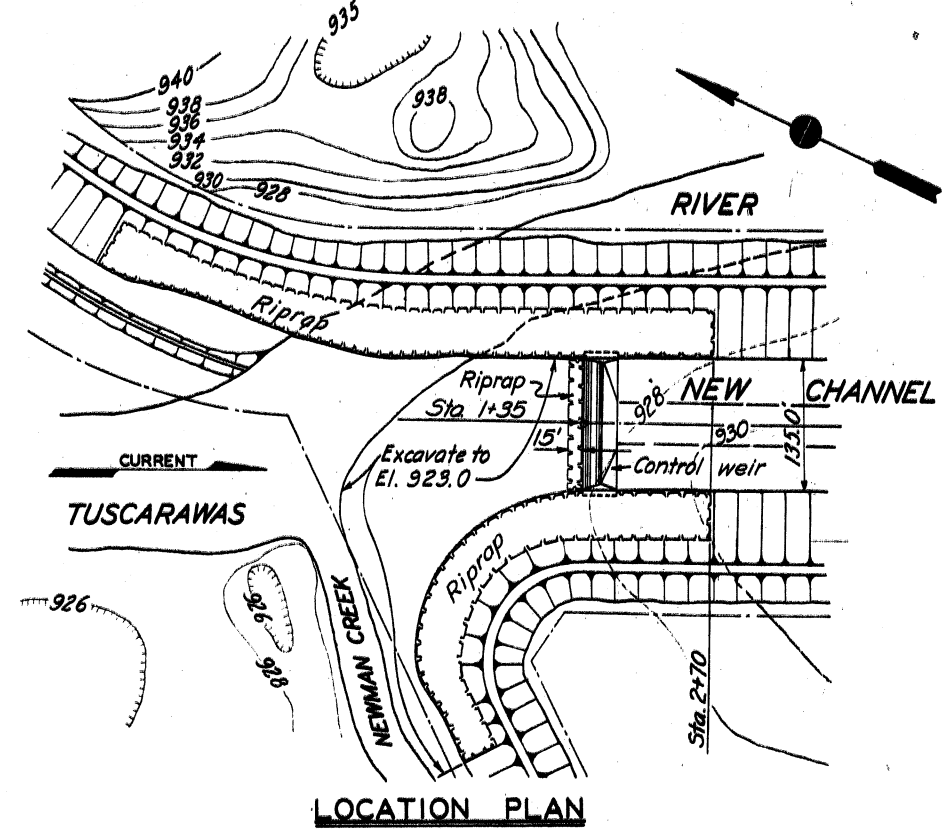


SECTION F-F



NOTES

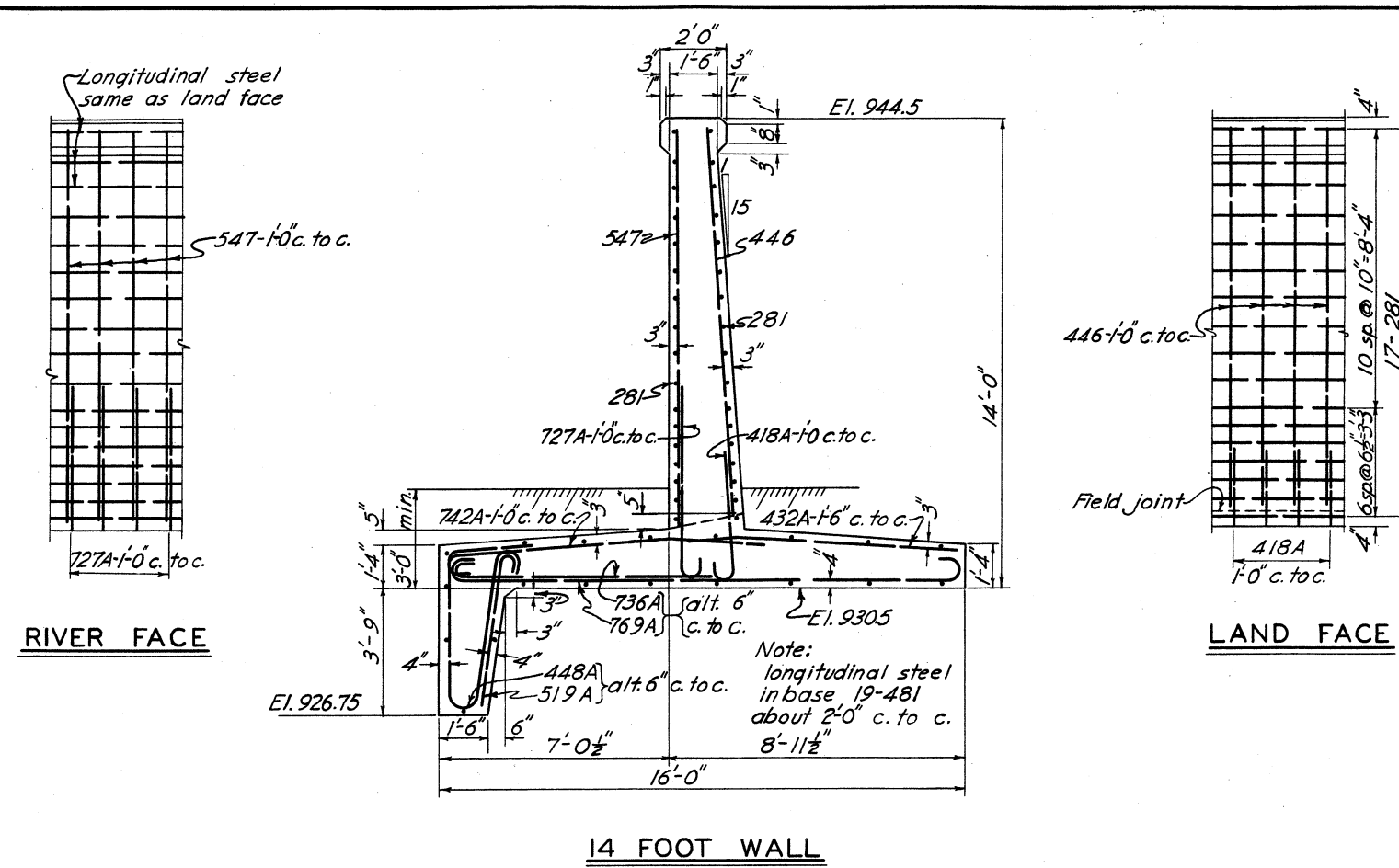
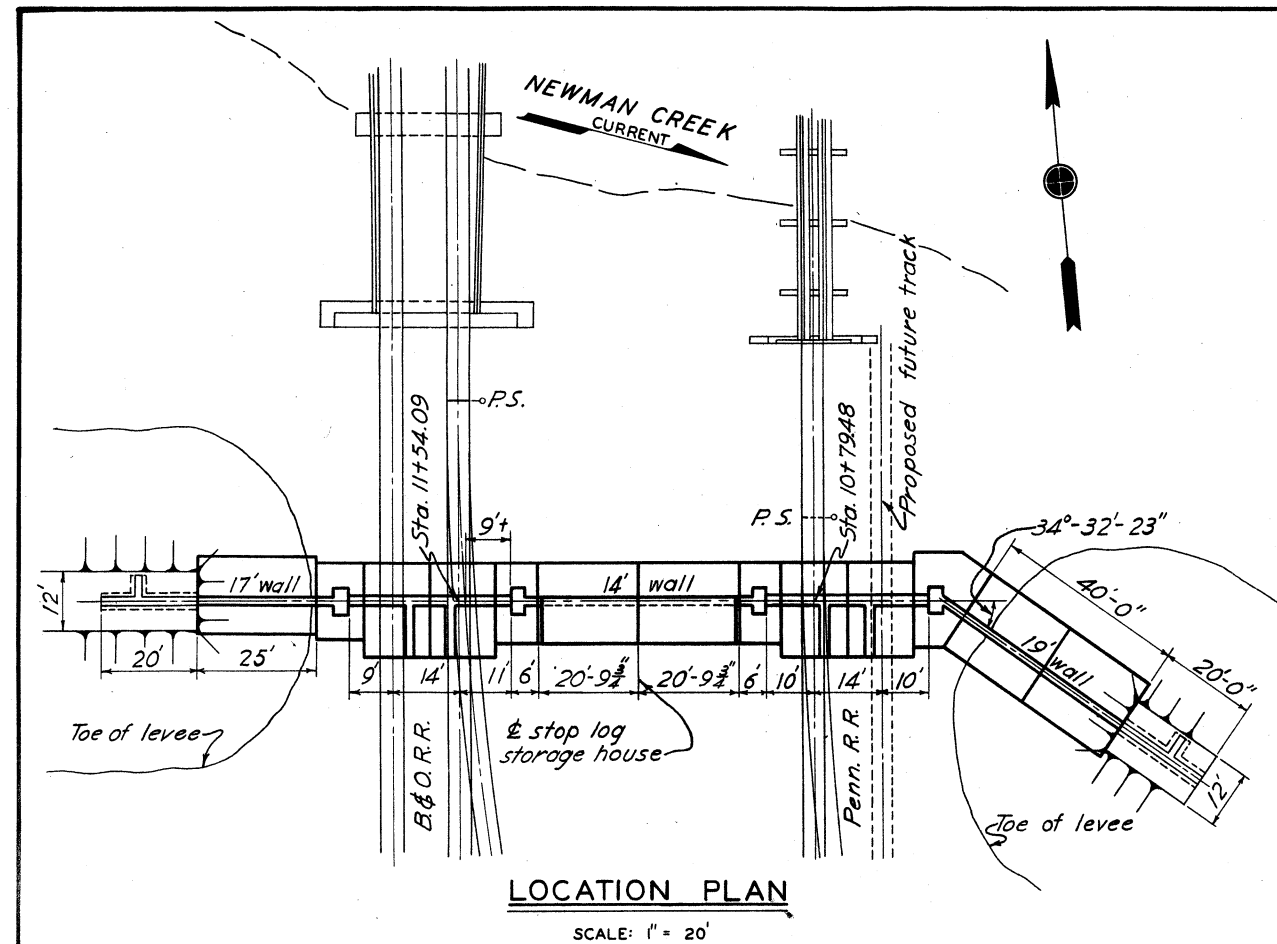
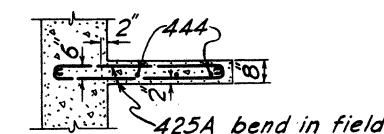
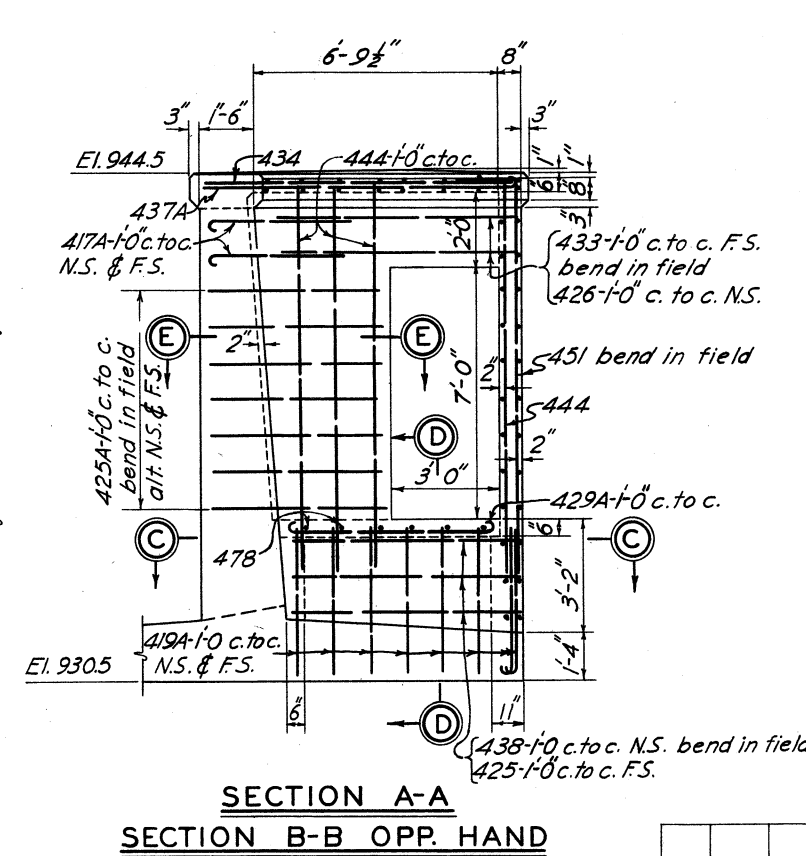
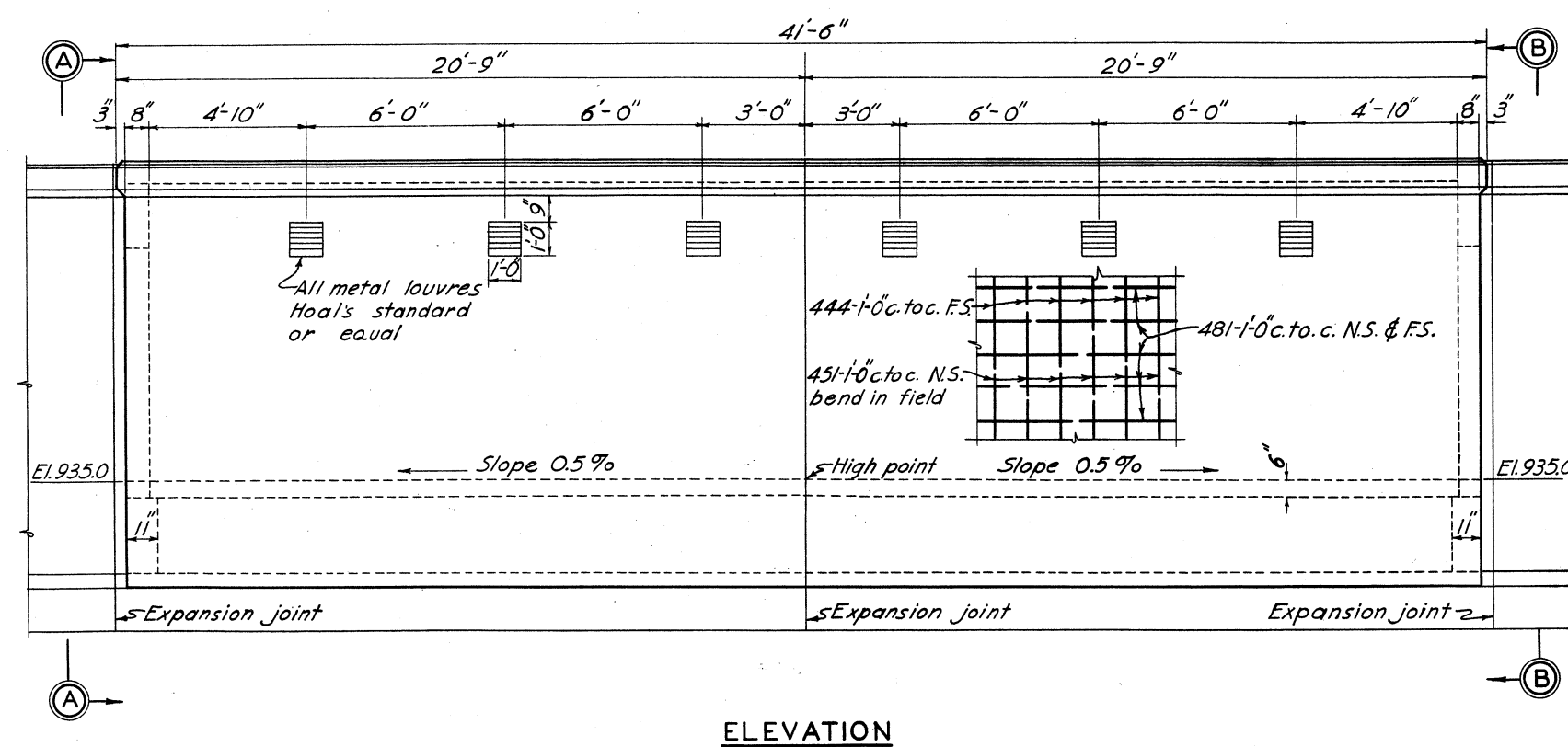
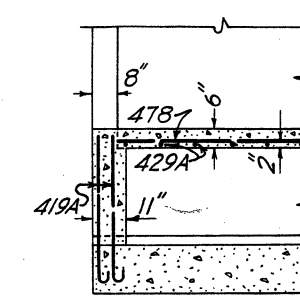
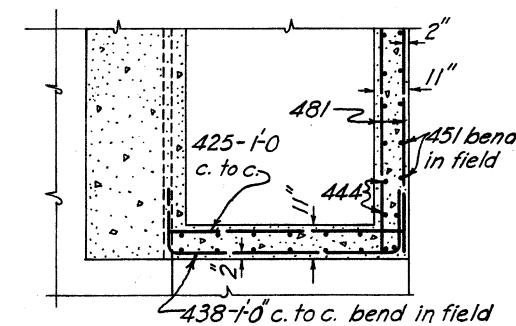
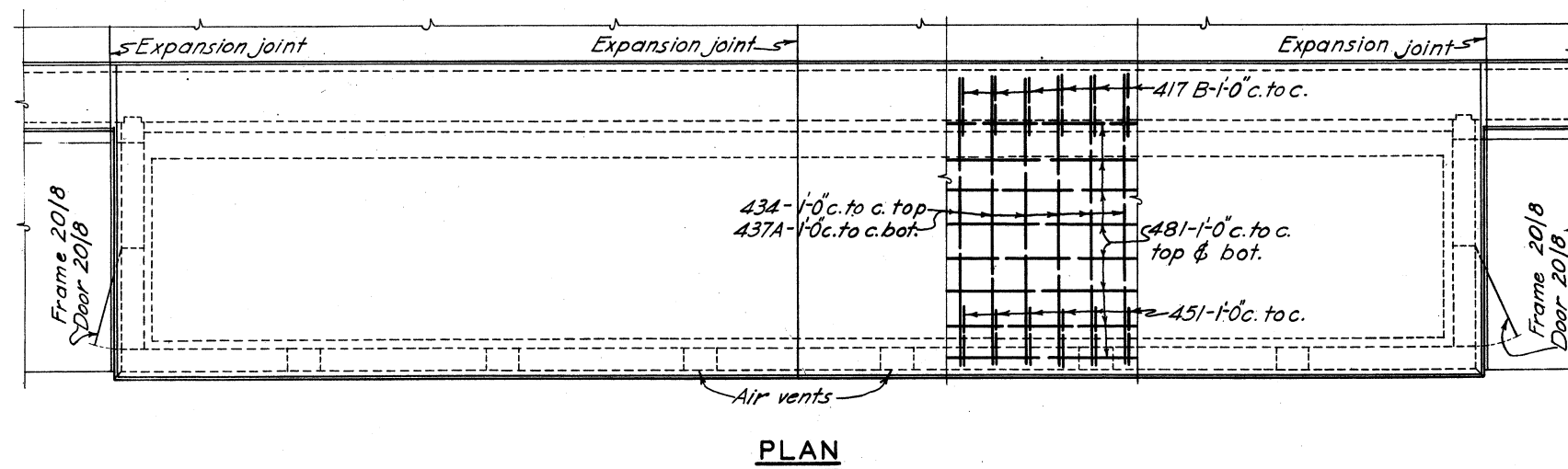
All steel to be bent in field to suit conditions.
For general plan, see Dwg. No. 1912.
All concrete to be Class "B".



LOCATION PLAN

TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
CONTROL WEIR

IN 147 SHEETS SHEET NO. 13 SCALE: 1/8" = 1'-0"
U. S. ENGINEER OFFICE, HUNTINGTON, W. VA., SEPT. 1940
SUBMITTED BY: [Signature] APPROVED BY: [Signature]
DRAWN BY: E.M. TRACED BY: W.E.C. CHECKED BY: E.H. FILE NO. 0271-PM-20/1 DATED: [Date]

[illegible][illegible]

NOTES

Chamfer all exposed edges if unless otherwise noted

For structural steel details, see Dwg. No. 20/B

For details of water stops, see Dwg. No. 20/3.

All concrete in the flood wall to be Class "B".

All concrete in stop log storage house to be Class A.

SECTION E-E

**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
TYPICAL WALL SECTION
& STOP LOG STORAGE HOUSE**

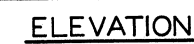
IN 147 SHEETS SHEET NO. 14 SCALE: $\frac{3}{8} = 1-0"$

U. S. ENGINEER OFFICE. HUNTINGTON. W. VA., SEPT. 1940

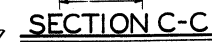
SUBMITTED: Warner APPROVED: [Signature]
 COL. CORPS OF ENGINEERS

DRAWN BY R.M.C. TRACED BY A.R.M. CHECKED BY E.K. FILE NO.027i-PM- 20/2 DATED

BY	DATE	CHARACTER
		REVISIONS



DETAILS AT EXPANSION JOINT FOR CHANGE IN FOOTING ELEVATIONS



21-FOOT CORE WALL				
2/4	1/2" α	3'-6"	36	2.98 / 107
2/19	1/2" α	4'-9"	36	4.04 / 145
2/34	1/2" α	8'-6"	4	7.23 / 29
2/78	1/2" α	19'-6"	52	16.58 / 862
682	1/2" α	20'-6"	40	30.79 / 232
			<i>total</i>	<i>2,375</i>

Note-
Steel shown in reinforcing schedule for the 19 foot wall
is for one 20 foot monolith. Two required.
All concrete to be Class "B."

**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
TYPICAL WALL SECTIONS
& MISCELLANEOUS WALL DETAILS**

IN 147 SHEETS

SHEET NO. 15

SCALE: $\frac{1}{8} = 1-0$

1 2 3 4 5 6

U. S. ENGINEER OFFICE. HUNTINGTON, W. VA., SEPT. 1940

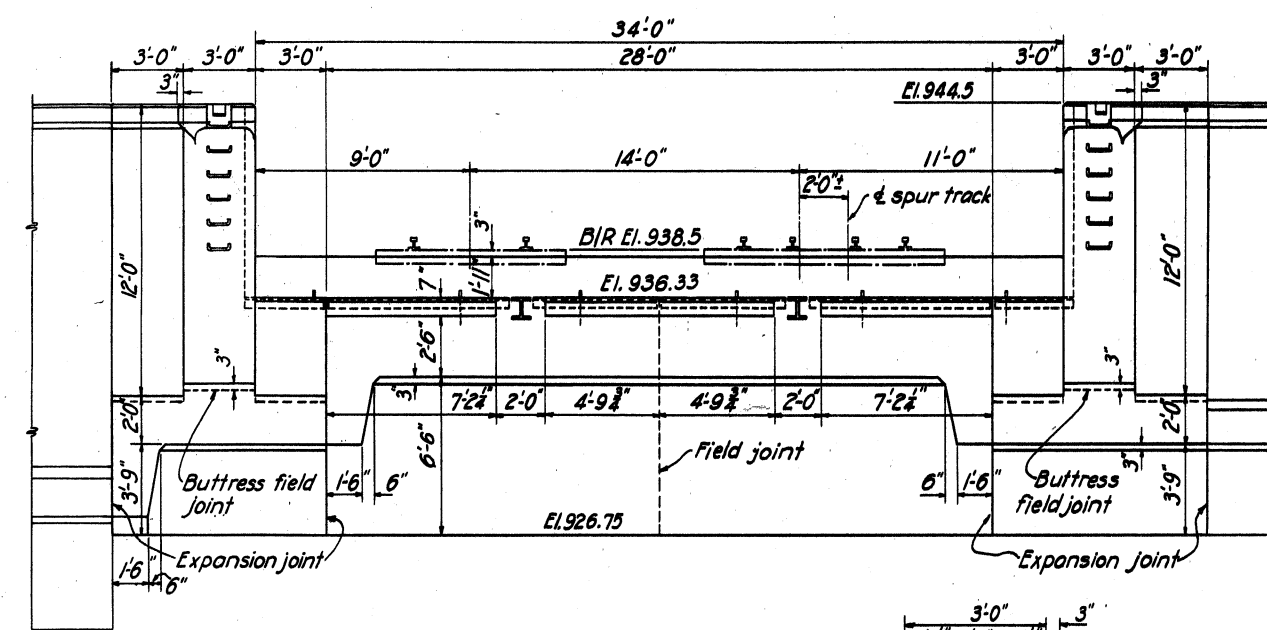
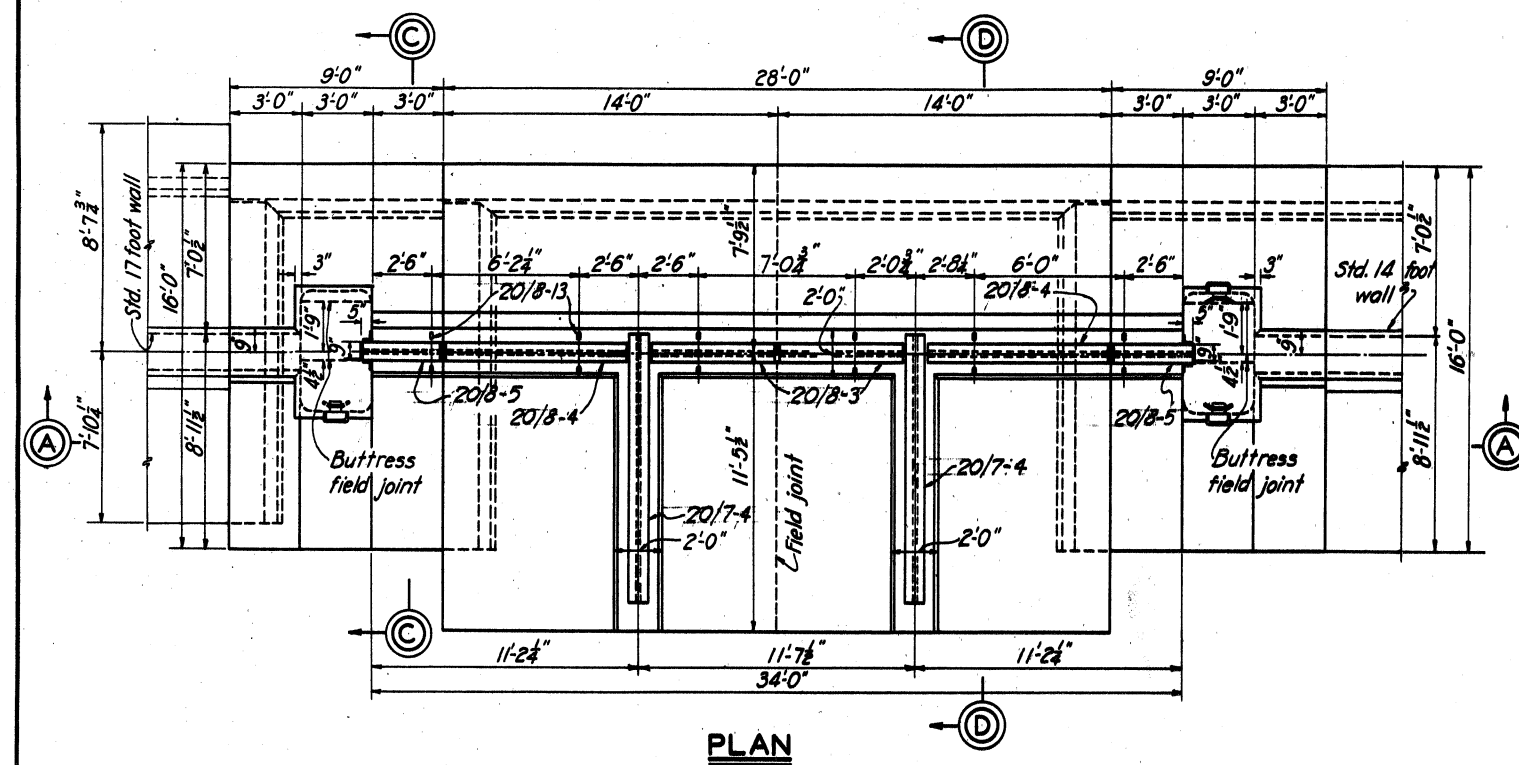
SUBMITTED: *W. C. Barber* MEDICAL ENGINEER APPROVED: *W. C. Barber* 1ST. COL. CORPS OF ENGINEERS

DRAWN BY L.D.C.
TRACED BY L.D.M.
CHECKED BY R.M.C.

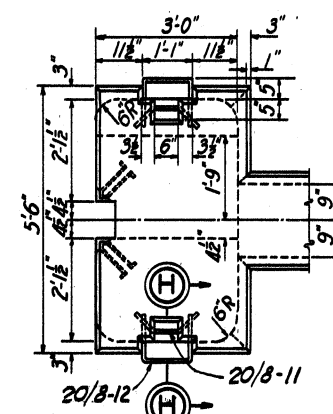
FILE NO. 0271-PM-20/3

TRANSMITTED WITH LETTER
DATED

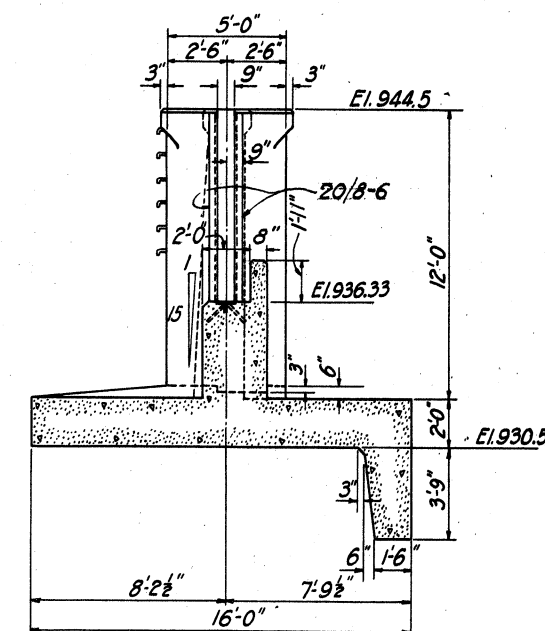
BY	DATE	CHARACTER
		REVISIONS



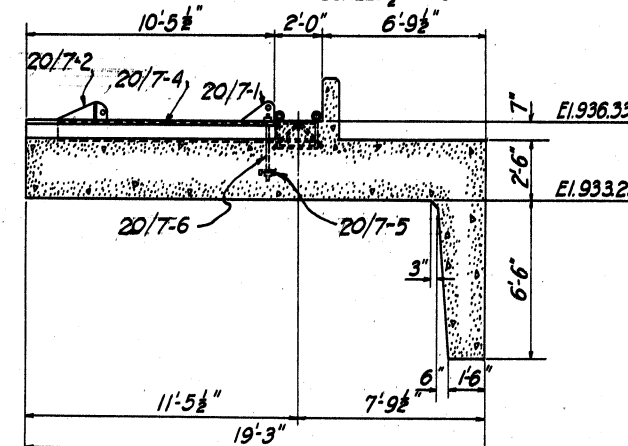
SECTION A-A
B.&O.R.R. OPENING



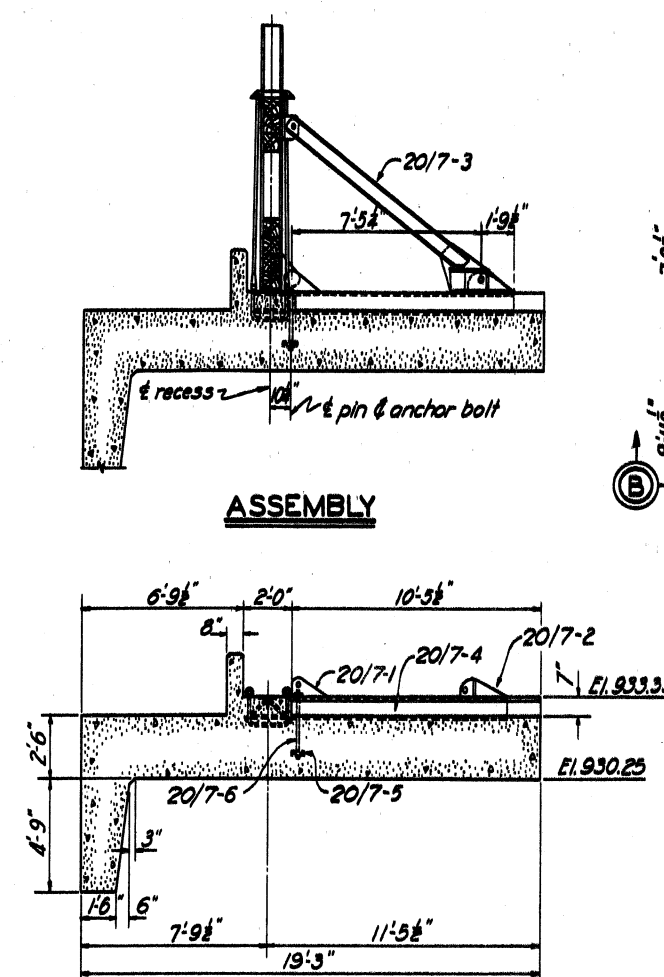
PLAN OF BUTTRESS



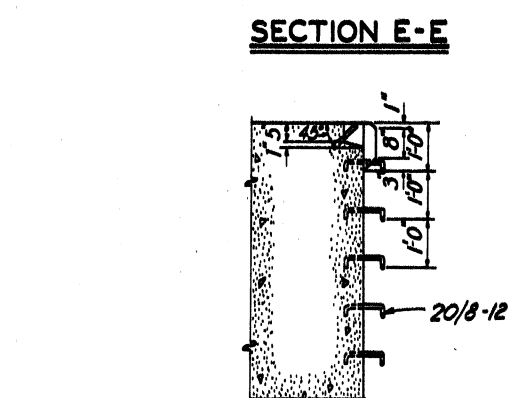
SECTION C-C



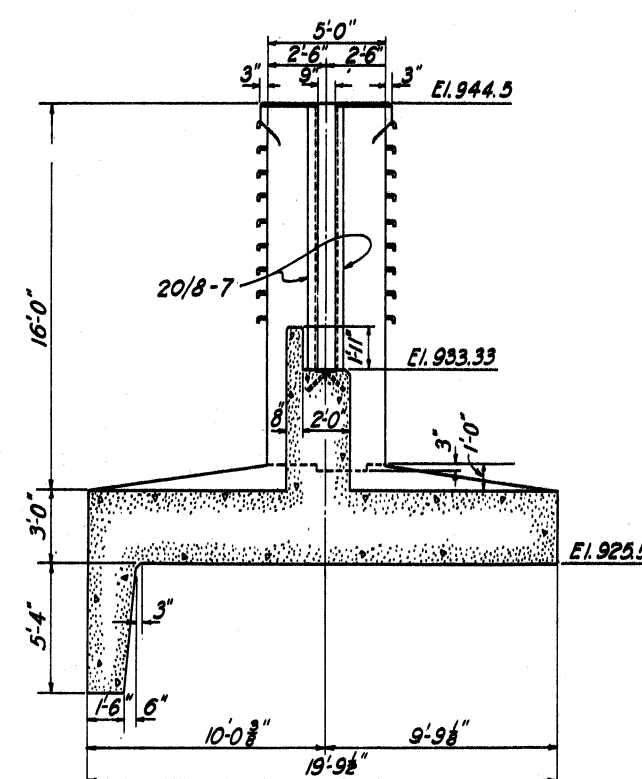
SECTION D-D



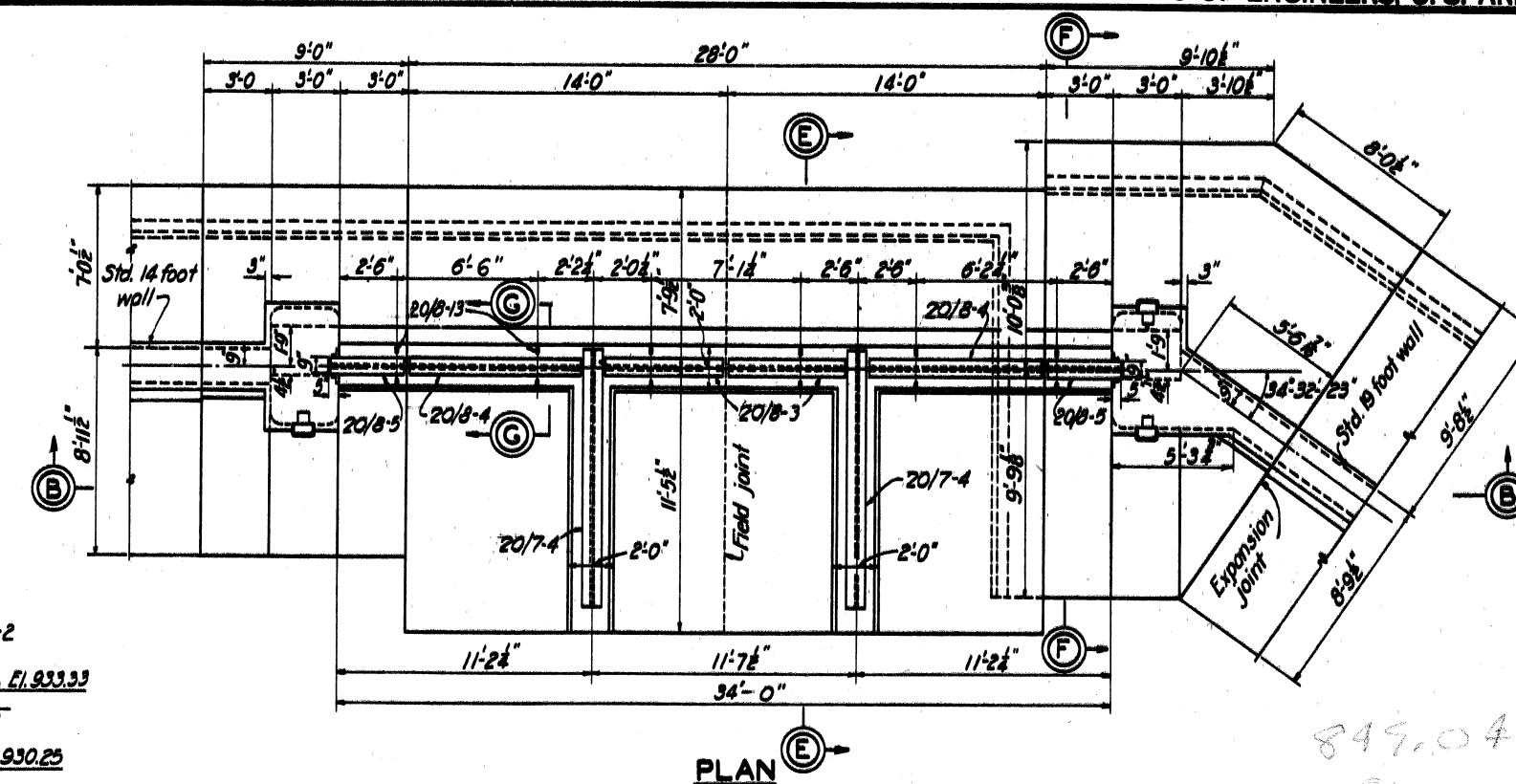
ASSEMBLY



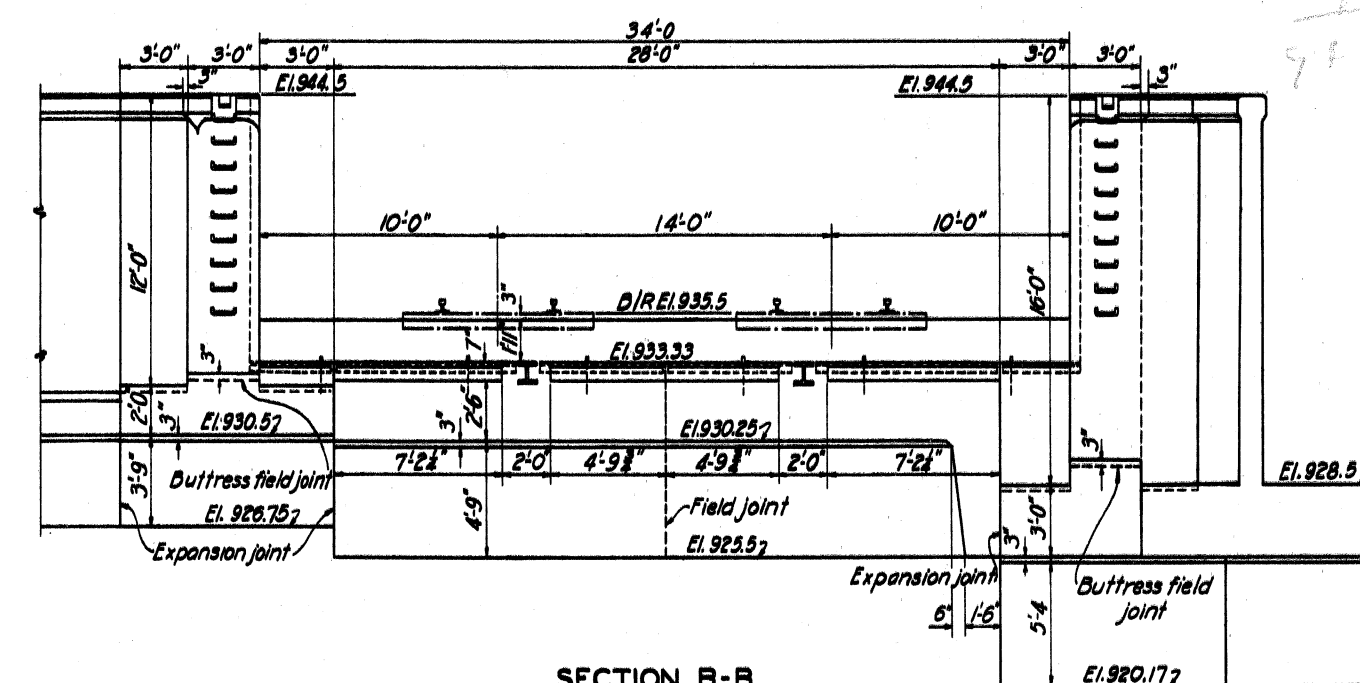
SECTION H-H
SCALE: $\frac{1}{8}" = 1' - 0"$



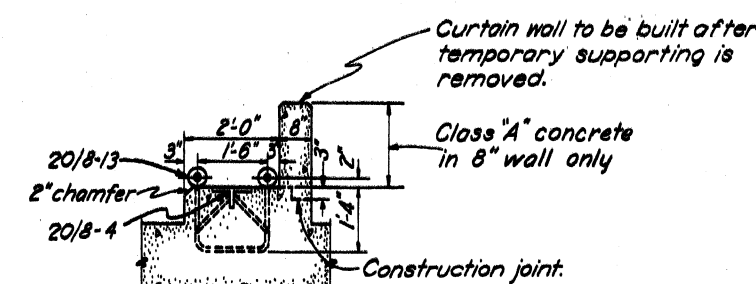
SECTION F-F



PLAN



SECTION B-B
P. R.R. OPENING



SECTION G-G
SCALE: $\frac{1}{4}'' = 1'-0''$

NOTES

Chamfer all exposed edges 1" unless otherwise noted.
For reinforcing steel, see Dwg's Nos. 20/5 & 20/6.
For steel details, see Dwg's Nos. 20/7 & 20/8.
All concrete in gate structures to be Class "B" except
as noted.

APPROVED:
THE BALTIMORE AND OHIO RAILROAD CO.
BY: _____
CHIEF ENGINEER

APPROVED:
THE PENNSYLVANIA RAILROAD CO.
BY:
CHIEF ENGINEER, CENTRAL REGION

**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
B. & O. R. R. & PENNA. R. R. OPENINGS
MASONRY DETAILS**

IN 147 ARRESTS

SHEET NO. 18

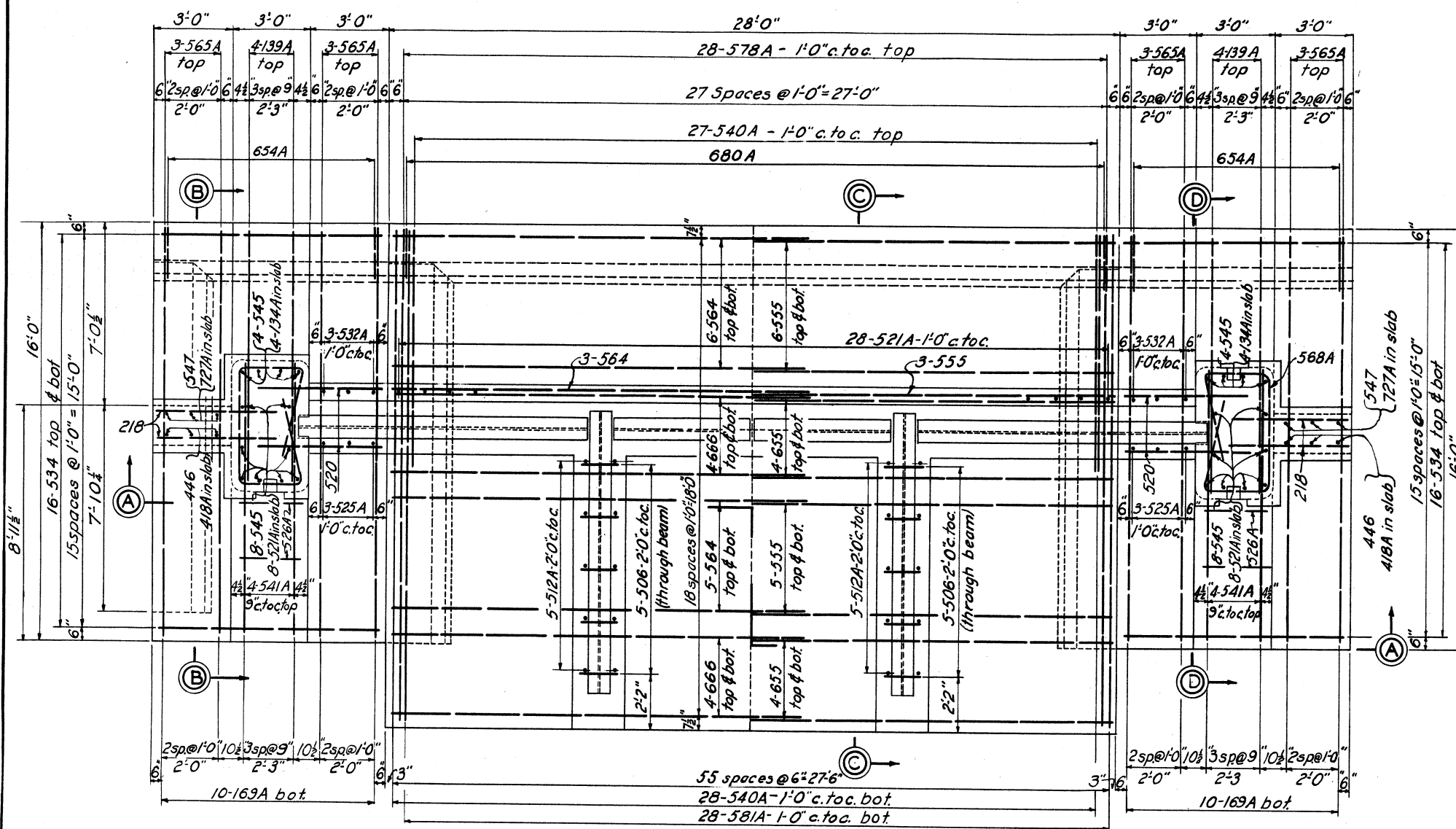
SCALE: $\frac{1}{4}" = 1' - 0"$

U. S. ENGINEER OFFICE, HUNTINGTON, W. VA., SEPT. 1940

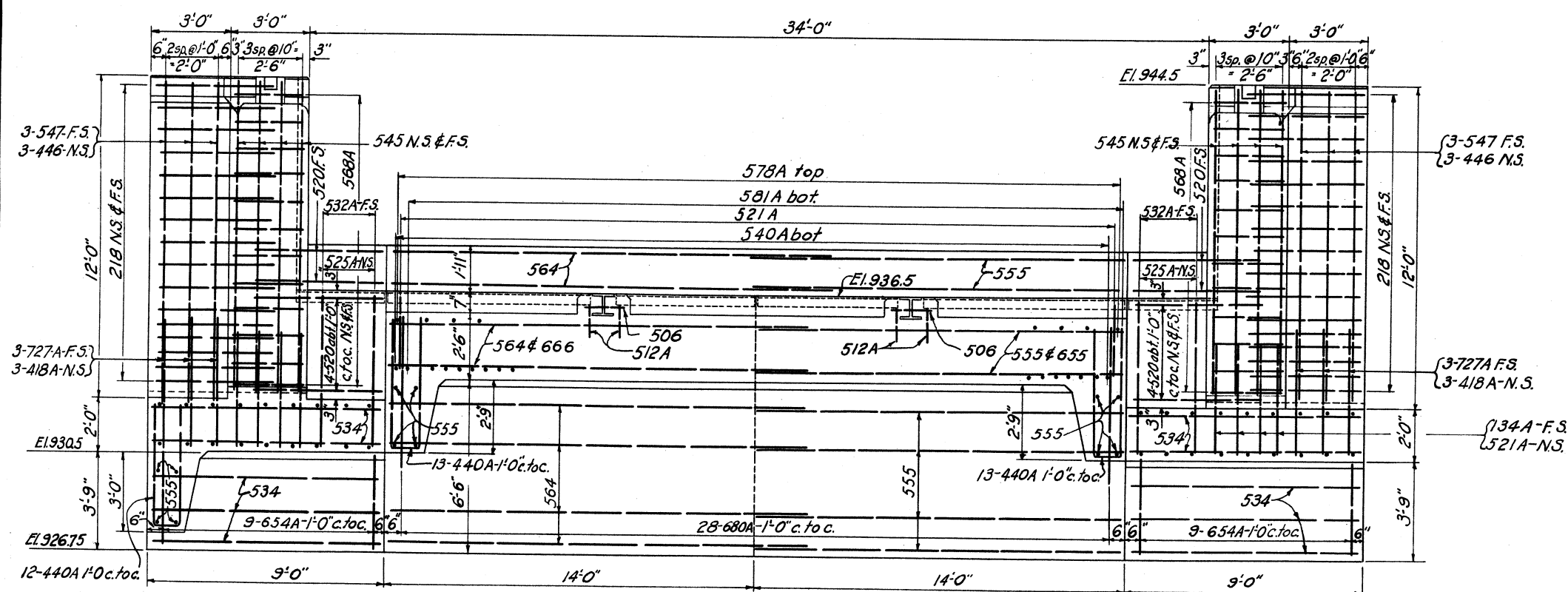
SUBMITTED: [Signature] APPROVED: [Signature]

DRAWN BY P. R. S. TRANSMITTED WITH LETTER
 TRACED BY M.C.
 CHECKED BY E. K. FILE NO. 027-PM-20/4 DATED

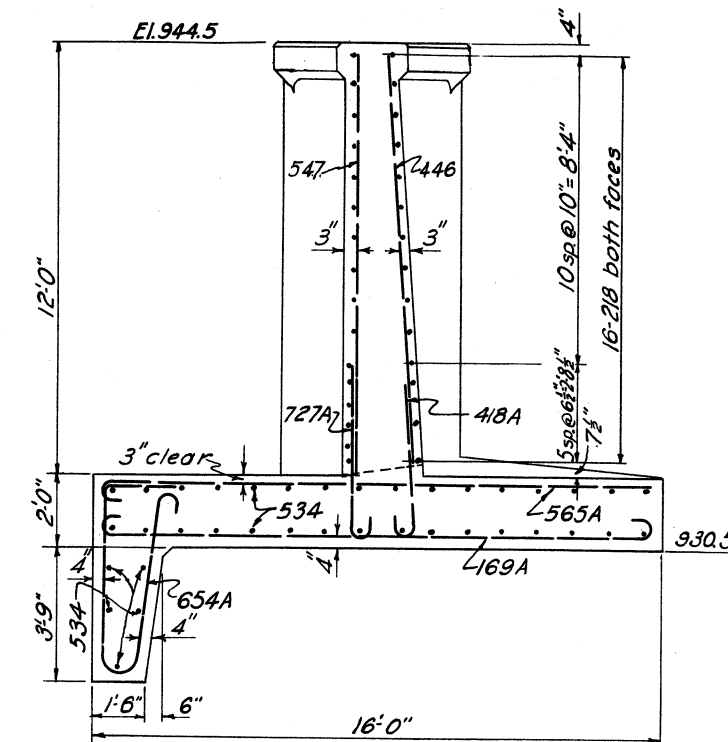
BY	DATE	CHARACTER
		REVISIONS



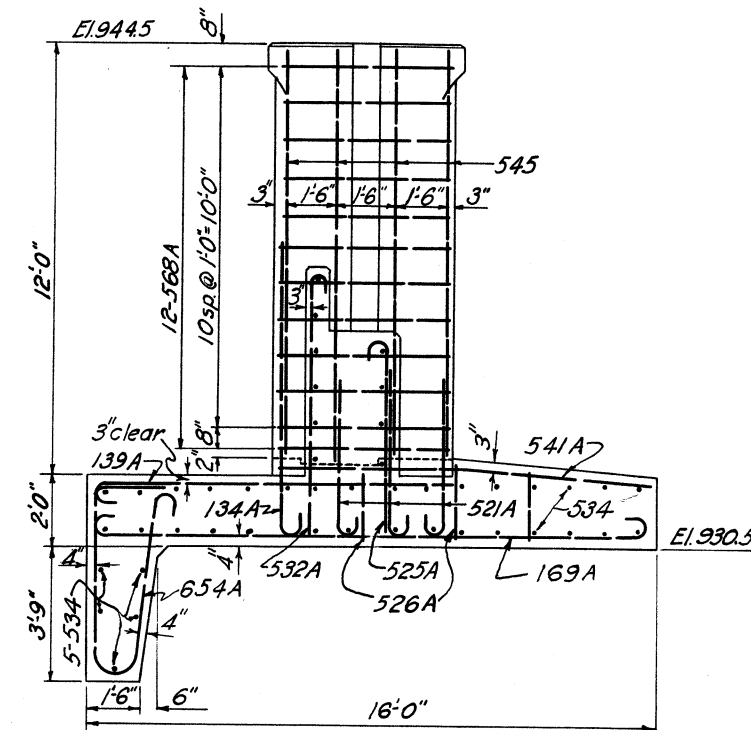
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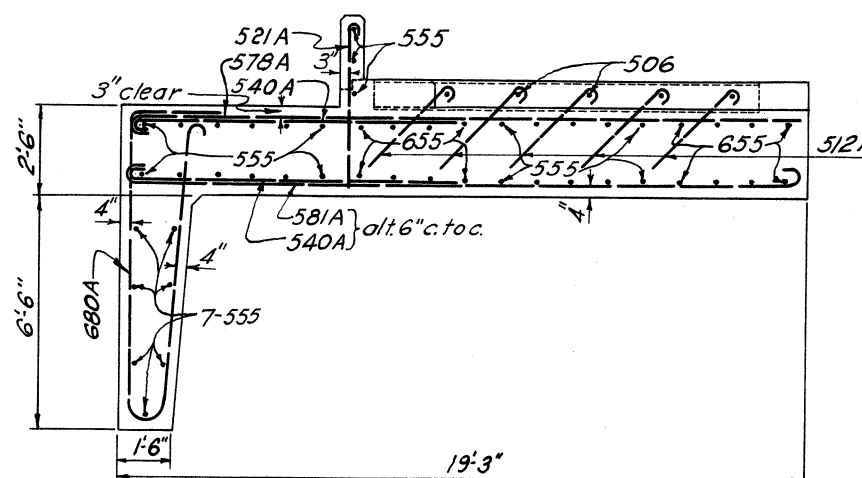
SECTION A-A



SECTION B-B



SECTION D-D



SECTION C-C

REINFORCING SCHEDULE

MARK	SIZE	LGTH	BENDING DIAGRAM	NO.	UNIT WGT.	TOTAL WGT.
218	1/2"	4'-6"		64	3.83	245
418A	1/2"	4'-6"		6	3.01	18
446	1/2"	11'-6"		6	7.68	46
440A	1/2"	10'-0"		38	6.68	254
506	1/2"	1'-6"		10	1.56	16
512A	1/2"	3'-0"		20	3.13	63
520	1/2"	5'-0"		20	3.22	104
521A	1/2"	5'-3"		44	3.48	241
525A	1/2"	6'-3"		6	6.32	39
526A	1/2"	6'-6"		6	6.78	41
534	1/2"	8'-6"		74	8.87	656
540A	1/2"	10'-0"		55	10.43	574
541A	1/2"	10'-3"		8	10.69	86
542	1/2"	10'-6"		28	10.95	307
545	1/2"	11'-3"		24	11.73	281
547	1/2"	11'-9"		6	12.26	74
555	1/2"	13'-9"		44	14.34	631
564	1/2"	16'-0"		32	16.69	534
565A	1/2"	16'-3"		12	16.95	203
578A	1/2"	19'-6"		28	20.34	570
581A	1/2"	20'-3"		28	21.12	591
588A	1/2"	17'-0"		24	17.73	426
532A	1/2"	8'-0"		6	8.34	50
654A	1/2"	13'-6"		18	20.28	365
655	1/2"	13'-9"		16	20.65	330
666	1/2"	16'-6"		16	24.78	398
680A	1/2"	20'-0"		28	30.04	841
727A	1/2"	6'-9"		6	13.80	83
134A	1/2"	8'-6"		8	28.90	231
139A	1/2"	9'-9"		8	33.15	265
169A	1/2"	17'-3"		20	58.65	1173
Total						9736

NOTES

For masonry details, see Dwg. No. 20/4

**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
B. & O. R.R. OPENING
REINFORCING DETAILS**

IN 147 SHEETS SHEET NO. 17 SCALE: 3/8" = 1'-0"

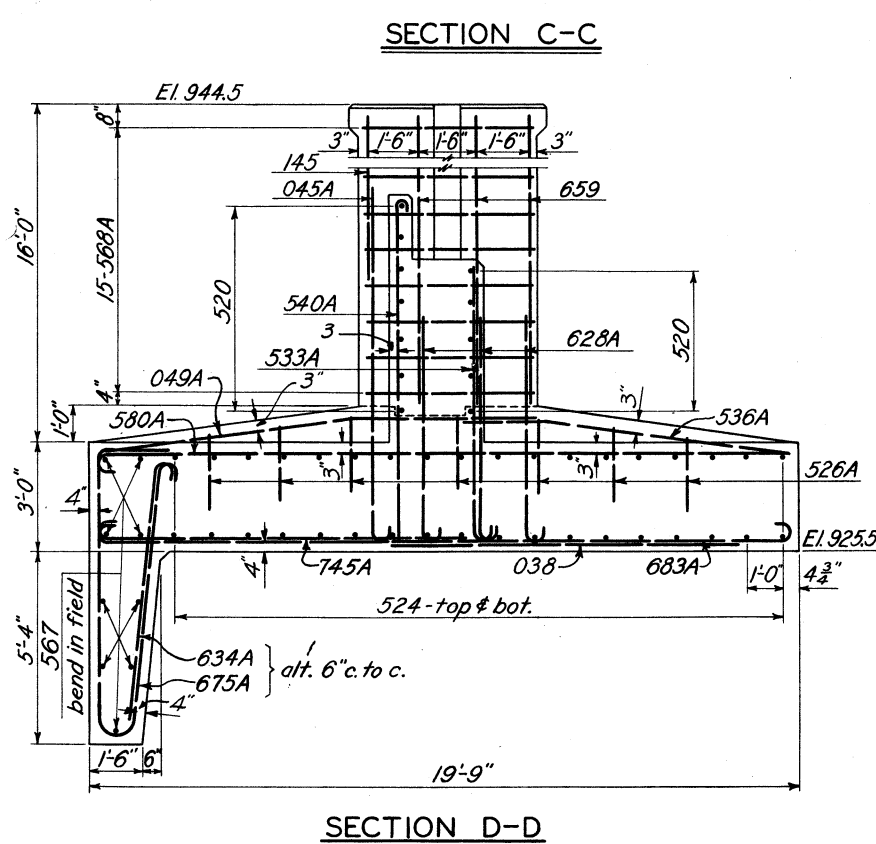
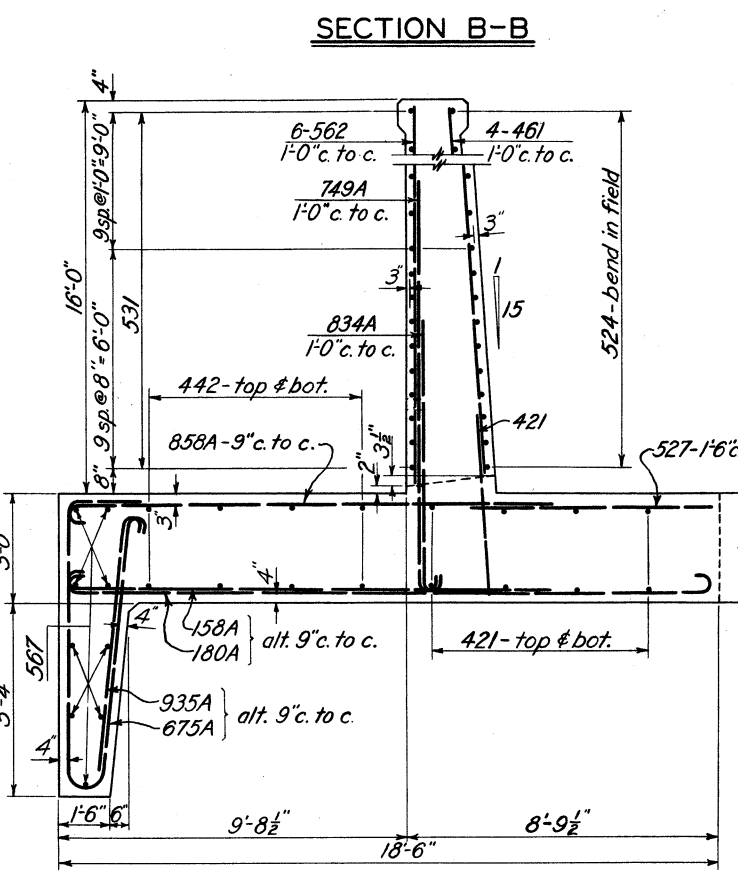
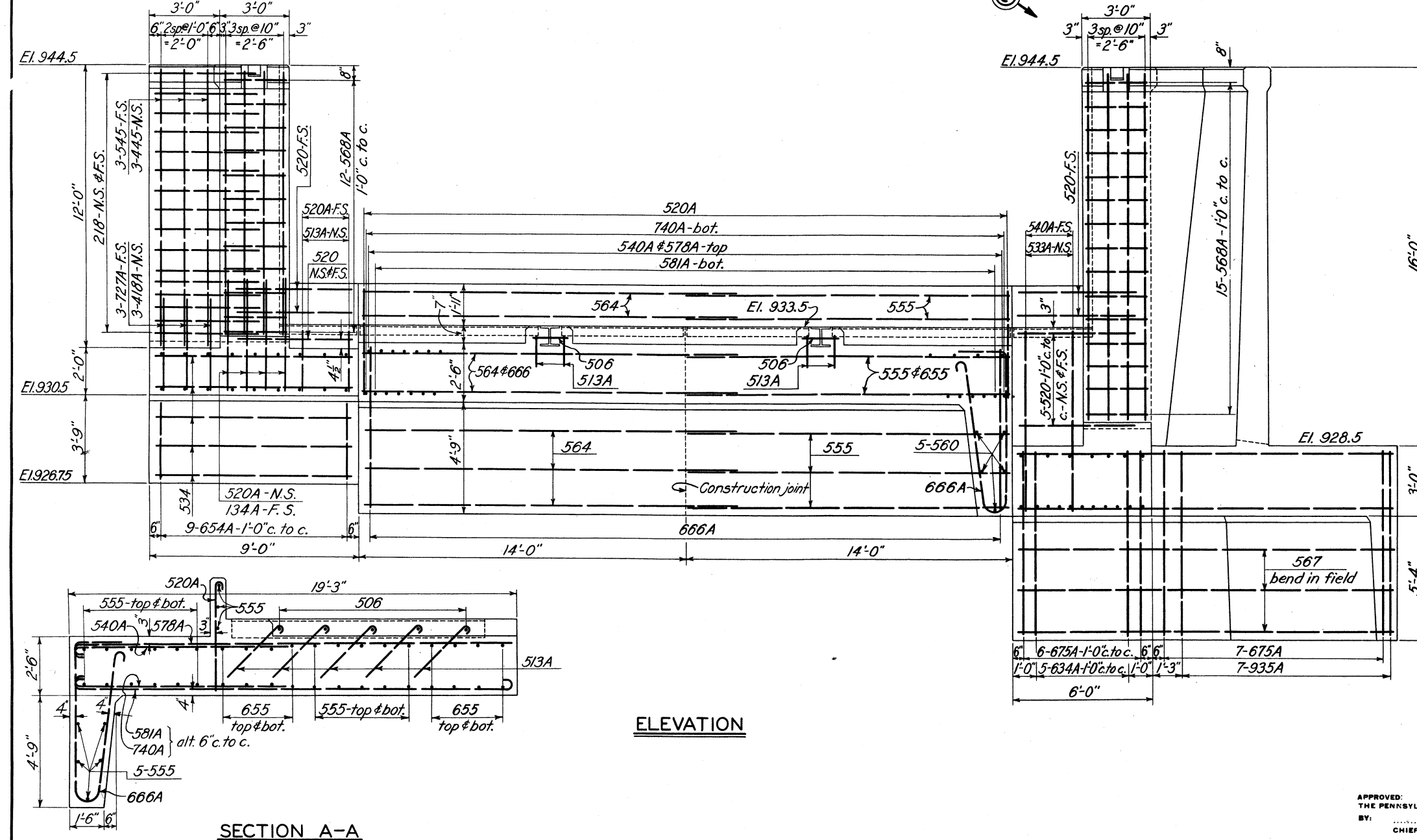
U. S. ENGINEER OFFICE. HUNTINGTON, W. VA., SEPT. 1940

SUBMITTED: [Signature] APPROVED: [Signature]

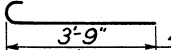
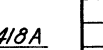
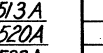
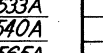
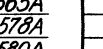
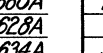
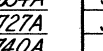
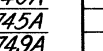
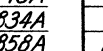
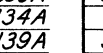
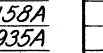
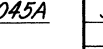
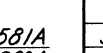
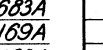
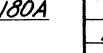
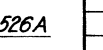
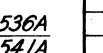
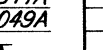
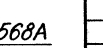
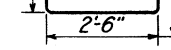
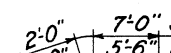
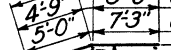
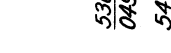
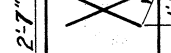
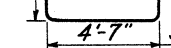
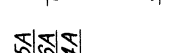
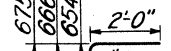
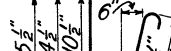
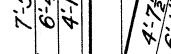
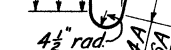
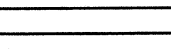
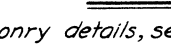
DRAWN BY: F. R. [Signature] TRANSMITTED WITH LETTER
CHECKED BY: E. K. [Signature] FILE NO. 027i-PM-20/5 DATED

APPROVED:
THE BALTIMORE AND OHIO RAILROAD CO.
BY: [Signature] CHIEF ENGINEER

BY	DATE	CHARACTER
		REVISIONS



REINFORCING SCHEDULE

MARK	SIZE	L'GTH.	BENDING DIAGRAM	NO.	UNIT WT.	TOTAL WT.
2/8	$\frac{1}{8}$ "	4'-6"		32	3.83	123
4/8A	$\frac{1}{2}$ "	4'-6"		3	3.01	9
4/21	$\frac{1}{2}$ "	5'-3"		12	3.51	42
4/42	$\frac{1}{2}$ "	10'-6"		8	7.01	56
4/45	$\frac{1}{2}$ "	11'-3"		3	7.52	22
4/61	$\frac{1}{2}$ "	15'-3"		4	10.19	41
5/6	$\frac{3}{4}$ "	1'-6"		10	1.56	16
5/3A	$\frac{3}{4}$ "	3'-3"		23	3.39	78
5/20	$\frac{3}{4}$ "	5'-0"		16	5.22	84
5/20A	$\frac{3}{4}$ "	5'-0"		39	5.22	204
5/24	$\frac{3}{4}$ "	6'-0"		55	6.26	344
5/28A	$\frac{3}{4}$ "	6'-6"		10	6.78	68
5/27	$\frac{3}{4}$ "	6'-9"		4	7.04	28
5/31	$\frac{3}{4}$ "	7'-9"		19	8.08	154
5/33A	$\frac{3}{4}$ "	8'-3"		3	8.60	26
5/34	$\frac{3}{4}$ "	8'-6"		21	8.87	186
5/36A	$\frac{3}{4}$ "	9'-0"		3	9.39	28
5/40A	$\frac{3}{4}$ "	10'-0"		30	10.43	313
5/41A	$\frac{3}{4}$ "	10'-3"		4	10.69	43
5/45	$\frac{3}{4}$ "	11'-3"		15	11.73	176
5/55	$\frac{3}{4}$ "	13'-9"		30	14.34	430
5/60	$\frac{3}{4}$ "	15'-0"		5	15.65	78
5/62	$\frac{3}{4}$ "	15'-6"		6	16.17	97
5/64	$\frac{3}{4}$ "	16'-0"		30	16.69	501
5/63A	$\frac{3}{4}$ "	16'-3"		6	16.95	102
5/67	$\frac{3}{4}$ "	16'-9"		9	17.47	157
5/68A	$\frac{3}{4}$ "	17'-0"		27	17.73	479
5/78A	$\frac{3}{4}$ "	19'-6"		28	20.34	570
5/80A	$\frac{3}{4}$ "	20'-0"		3	20.66	63
5/81A	$\frac{3}{4}$ "	20'-3"		28	21.12	591
6/28A	$\frac{1}{2}$ "	7'-0"		8	10.51	84
6/34A	$\frac{1}{2}$ "	8'-6"		5	12.77	64
6/45A	$\frac{1}{2}$ "	13'-6"		9	20.28	183
6/55	$\frac{1}{2}$ "	13'-9"		16	20.65	330
6/59	$\frac{1}{2}$ "	14'-9"		8	22.15	177
6/66	$\frac{1}{2}$ "	16'-6"		16	24.78	396
6/66A	$\frac{1}{2}$ "	16'-6"		43	24.78	1066
6/75A	$\frac{1}{2}$ "	18'-9"		13	28.16	366
6/83A	$\frac{1}{2}$ "	20'-9"		6	31.17	187
7/27A	$\frac{3}{4}$ "	6'-9"		3	13.80	41
7/40A	$\frac{3}{4}$ "	10'-0"		28	20.44	572
7/45A	$\frac{3}{4}$ "	11'-3"		5	23.00	115
7/49A	$\frac{3}{4}$ "	12'-3"		6	25.04	150
8/34A	1"	8'-6"		5	22.70	113
8/58	1"	14'-6"		14	38.72	542
13/4A	1"	8'-6"		4	28.90	116
13/9A	1"	9'-9"		4	33.15	133
14/5	1"	11'-3"		4	38.25	153
1/58A	1"	14'-6"		9	49.30	444
1/69A	1"	17'-3"		10	58.65	586
1/80A	1"	20'-0"		5	68.00	340
9/35A	$\frac{1}{8}$ "	8'-9"		7	37.65	264
0/38	$\frac{1}{4}$ "	9'-6"		4	30.47	202
0/45A	$\frac{1}{4}$ "	11'-3"		4	39.77	239
0/49A	$\frac{1}{4}$ "	12'-3"		4	65.08	260
Total					12,232	

NOTES
For masonry details, see Dwg. No. 20/4

**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
PENNA. R. R. OPENING
REINFORCING DETAILS**

IN 147 SHEETS SHEET NO. 18 SCALE: $\frac{3}{8}" = 1'-0"$

U. S. ENGINEER OFFICE. HUNTINGTON. W. VA., SEPT. 1940

SUBMITTED: Jan 3 APPROVED: [Signature]

PRINCIPAL ENGINEER
BY COL., CORPS OF ENGINEERS

FILE NO 0371-PM-20 / 6

CHECKED BY E. K. FILE NO. 0271-PM-2078 DATED

IN 147 DNETS SHEET NO. 10 SCALE: 1" = 1'-0"

U. S. ENGINEER OFFICE. HUNTINGTON, W. VA. SEPT. 1940

SUBMITTED: *W. B. L.* APPROVED: *W. B. L.*

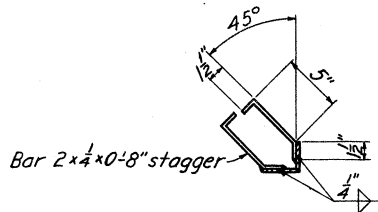
DESIGNED BY: H. M. FRASER OF U.S.A. TRANSMITTED WITH LETTER FILE NO 0271-PM-207

BY	DATE	CHARACTER
		REVISIONS

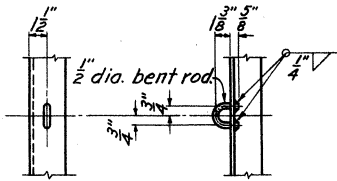
STOP LOGS

MARK	LOCATION	SIZE	LGTH.	NO	F.B.M.
20/8-9	B. & O. R.R.	6x8	10'-6"	54	2268
20/8-10	Penna. R.R.	6x8	10'-6"	72	3024

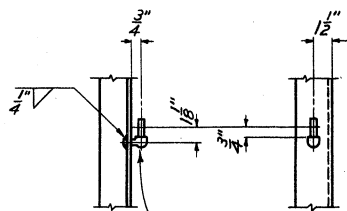
All stop logs to be commercial size timber.



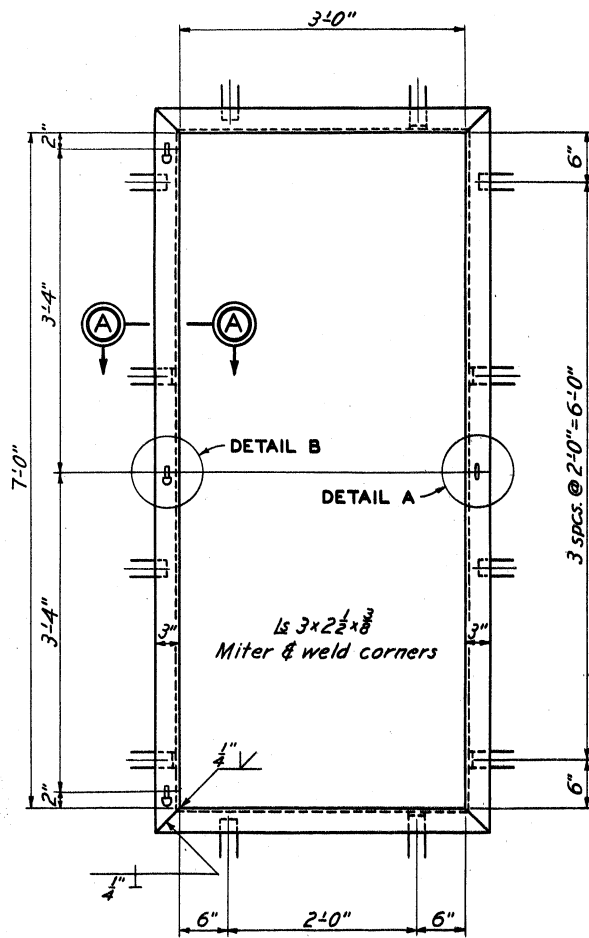
SECTION A-A
SCALE: 1 1/2" = 1'-0"



DETAIL A
SCALE: 1 1/2" = 1'-0"

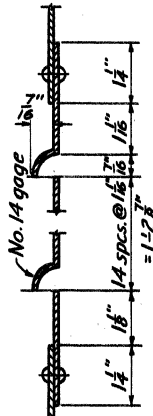


DETAIL B
SCALE: 1 1/2" = 1'-0"

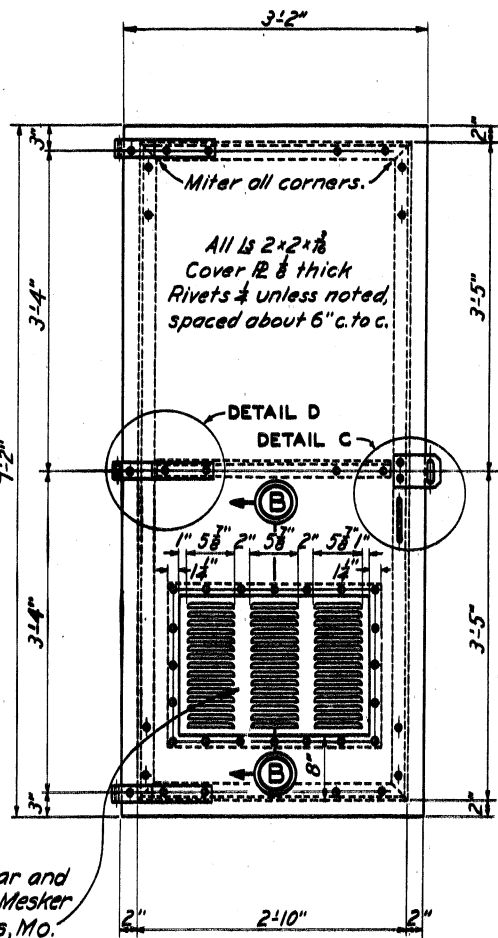


DOOR FRAME

STRUCTURAL STEEL
MARK 20/8-1R MAKE 1 WT. 152.0 LBS.
MARK 20/8-1L MAKE 1 WT. 152.0 LBS.

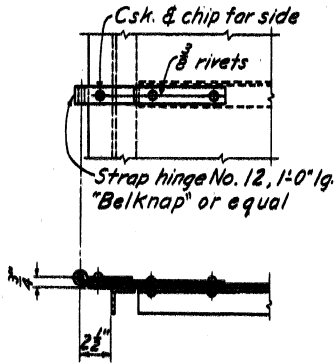


SECTION B-B
SCALE: 6" = 1'-0"

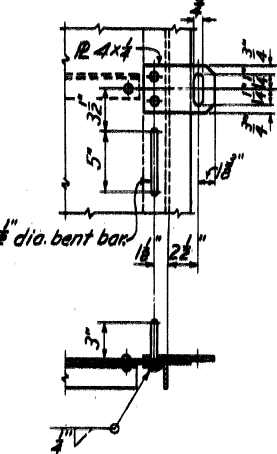


DOOR

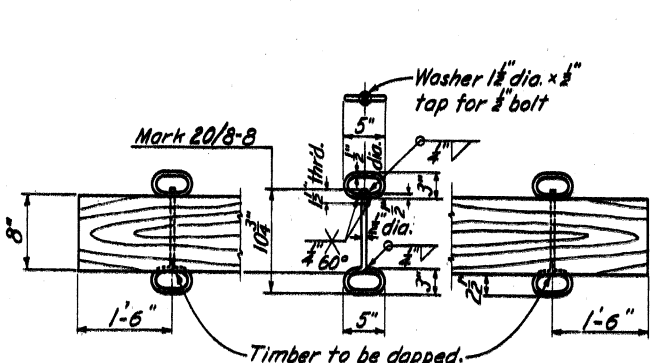
STRUCTURAL STEEL
MARK 20/8-2R MAKE 1 WT. 178.0 LBS.
MARK 20/8-2L MAKE 1 WT. 178.0 LBS.



DETAIL D
SCALE: 1 1/2" = 1'-0"

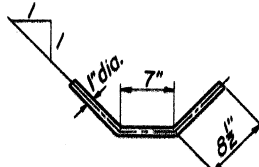


DETAIL C
SCALE: 1 1/2" = 1'-0"



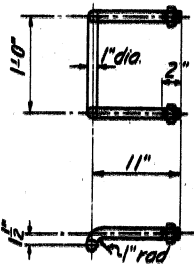
TYPICAL STOP LOG HAND HOLD

STRUCTURAL STEEL MARK 20/8-8
MAKE 252 WT. 1.9 LBS.



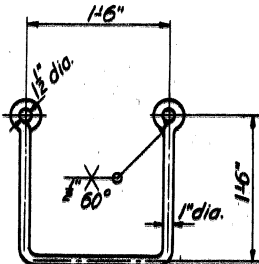
LADDER RUNG

STRUCTURAL STEEL MARK 20/8-11
MAKE 3 WT. 5.3 LBS.



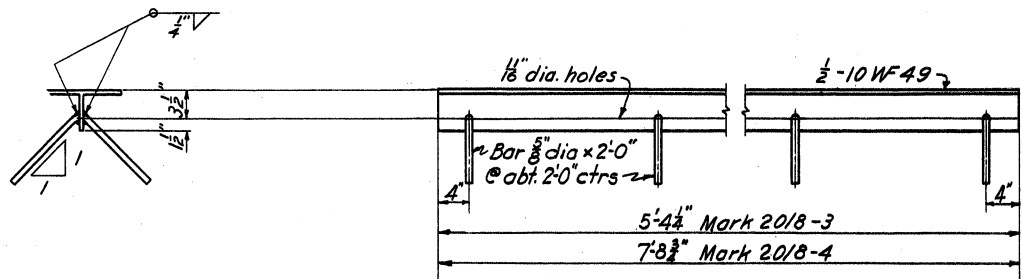
LADDER RUNG

STRUCTURAL STEEL MARK 20/8-12
MAKE 43 WT. 6.6 LBS.



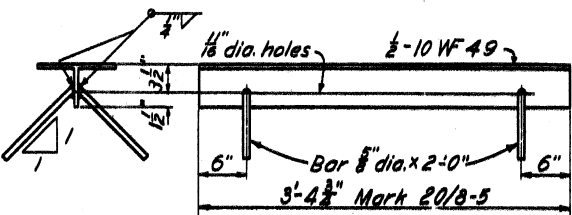
CLAMP BOLT

WROUGHT IRON MARK 20/8-13
MAKE 12 WT. 15.0 LBS.



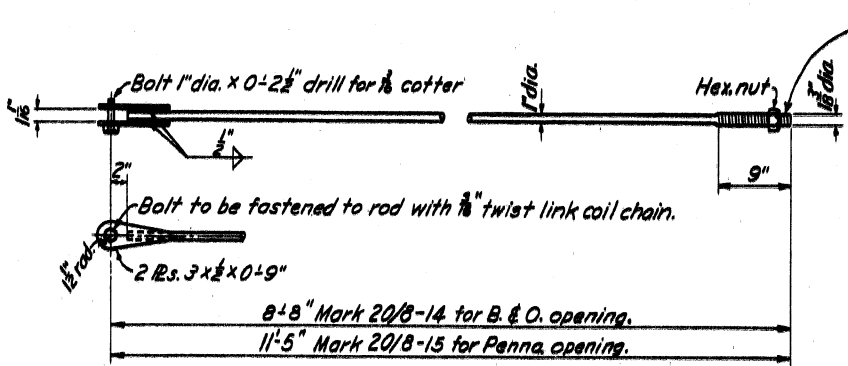
SILL BEAM

STRUCTURAL STEEL
MARK 20/8-3 MAKE 4 WT. 137.0 LBS.
MARK 20/8-4 MAKE 4 WT. 197.0 LBS.



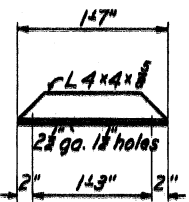
SILL BEAM

STRUCTURAL STEEL MARK 20/8-5
MAKE 4 WT. 88.0 LBS.



CLAMP ROD

STRUCTURAL STEEL
MARK 20/8-14 MAKE 12 WT. 29.0 LBS.
MARK 20/8-15 MAKE 12 WT. 36.0 LBS.



CLAMP

STRUCT. STEEL MARK 20/8-16
MAKE 12 WT. 23.0 LBS.

NOTES

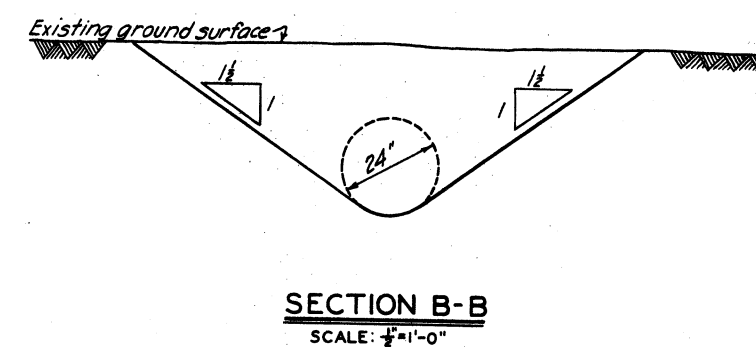
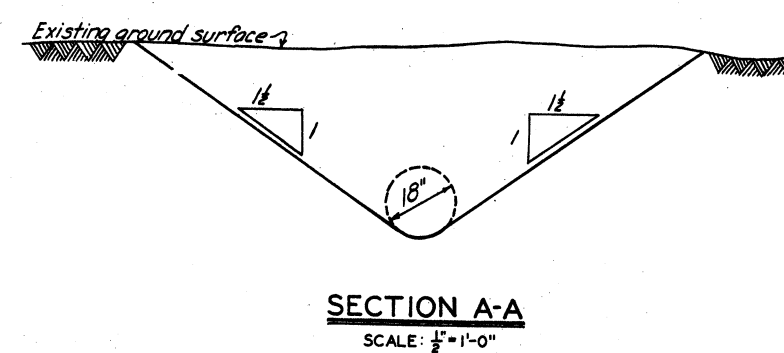
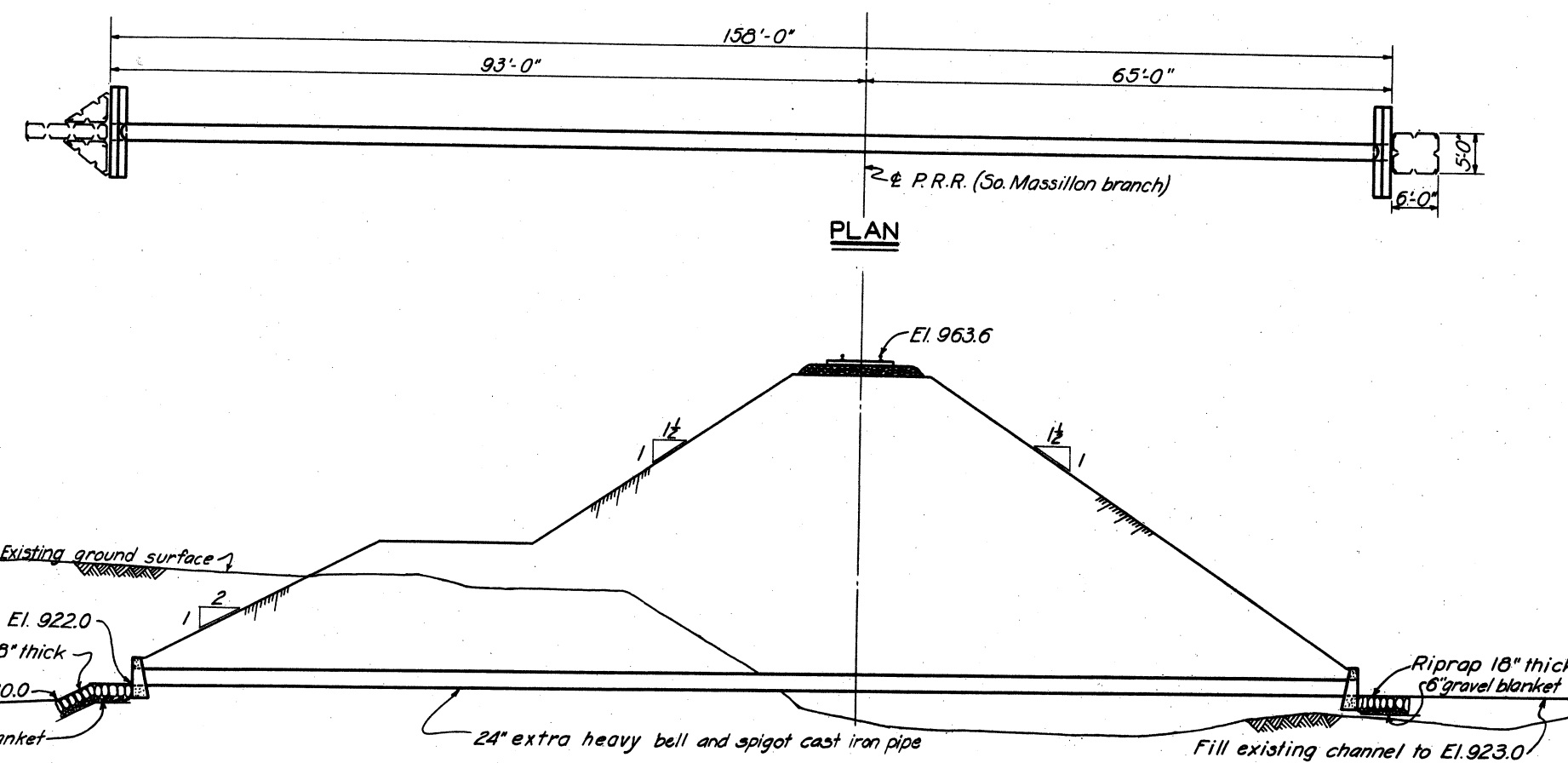
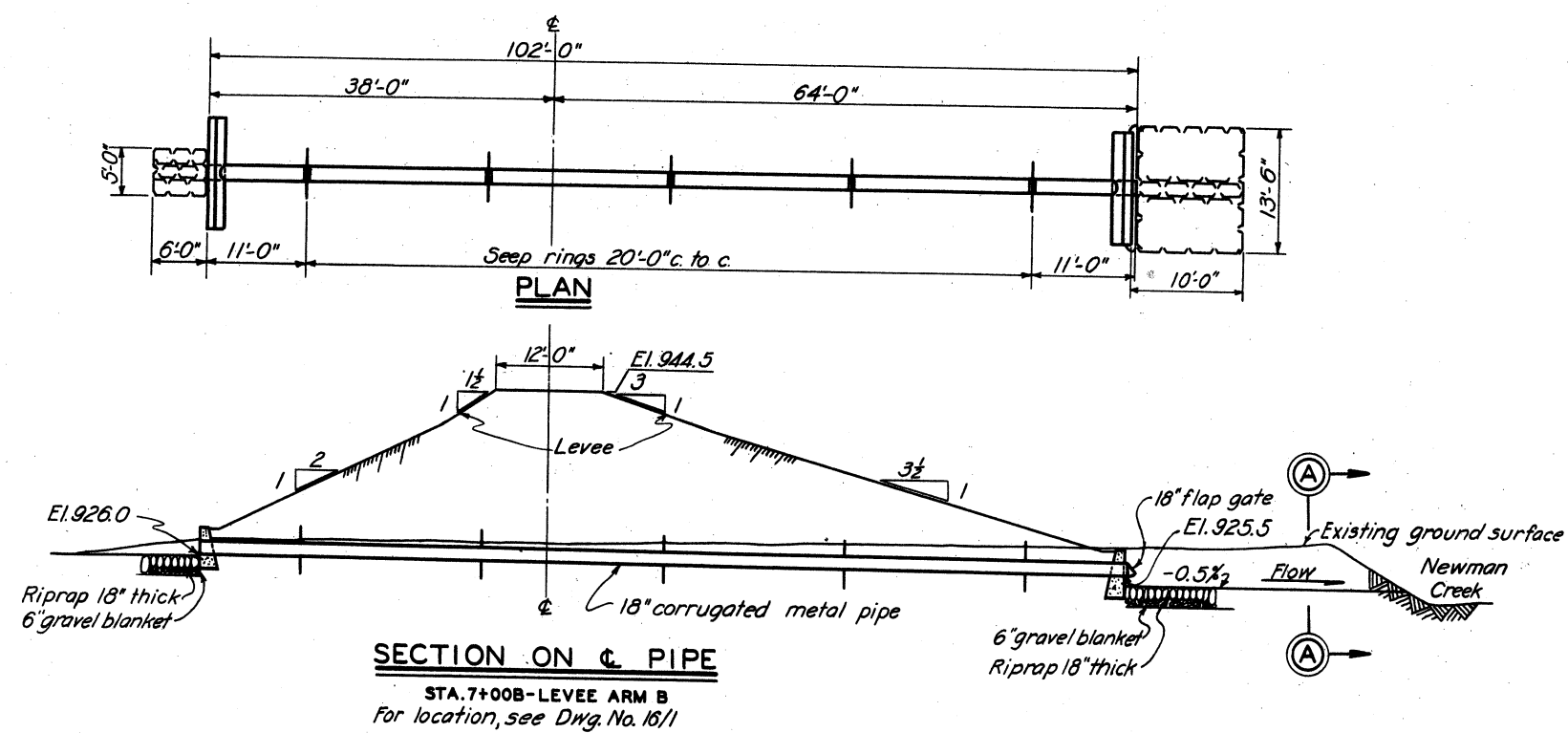
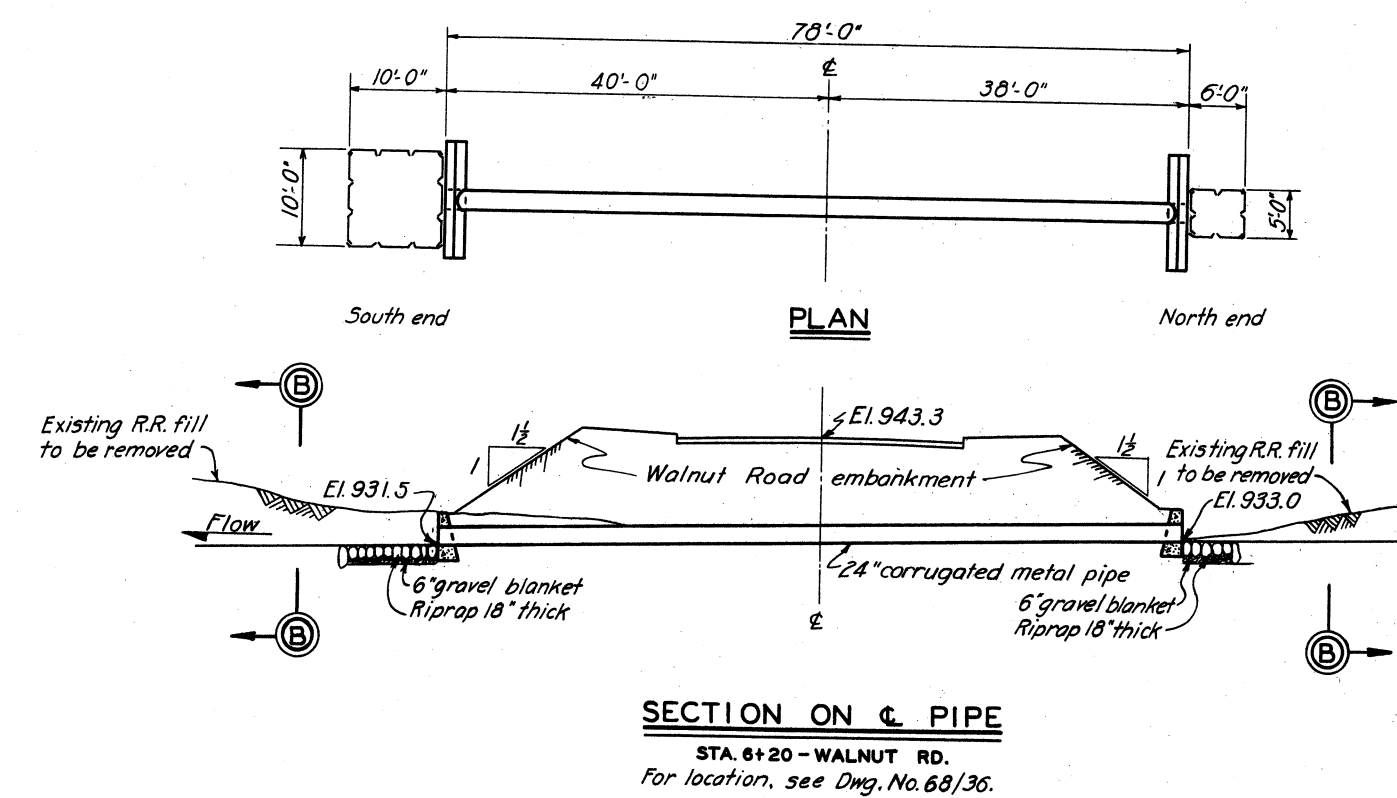
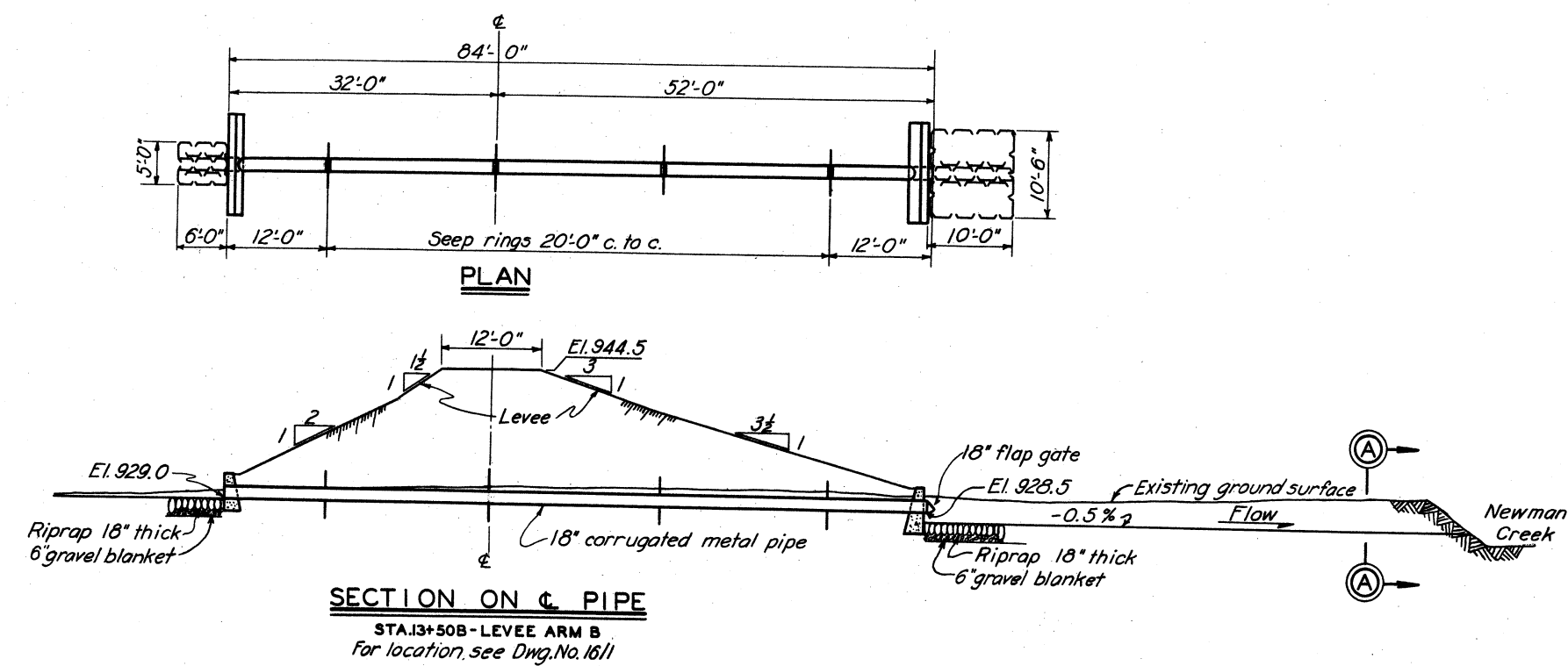
For stop log storage house, see Dwg. No. 20/2
For assembly, see Dwg. No. 20/4.

TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
B. & O. R. R. & PENNA. R. R. OPENINGS
MISCELLANEOUS DETAILS

IN 147 SHEETS SHEET NO. 20 SCALE: 1" = 1'-0"
U. S. ENGINEER OFFICE, HUNTINGTON, W. VA. SEPT. 1940
SUBMITTED BY: [Signature] APPROVED: [Signature]
DRAWN BY: H.S.M. TRANSMITTED WITH LETTER
CHECKED BY: H.W.D. FILE NO. 0271-PM-20/8
DESIGNED BY: A.R.N. DATED

APPROVED:
THE BALTIMORE AND OHIO RAILROAD CO.
BY: [Signature] CHIEF ENGINEER
APPROVED:
THE PENNSYLVANIA RAILROAD CO.
BY: [Signature] CHIEF ENGINEER - CENTRAL REGION

BY	DATE	CHARACTER
		REVISIONS

**NOTES**

For details of seep rings and headwalls, see Dwg. No. 20/13.

**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
PIPE CULVERTS**

18/47 SHEETS

SHEET NO. 21

SCALE: 1"=10'

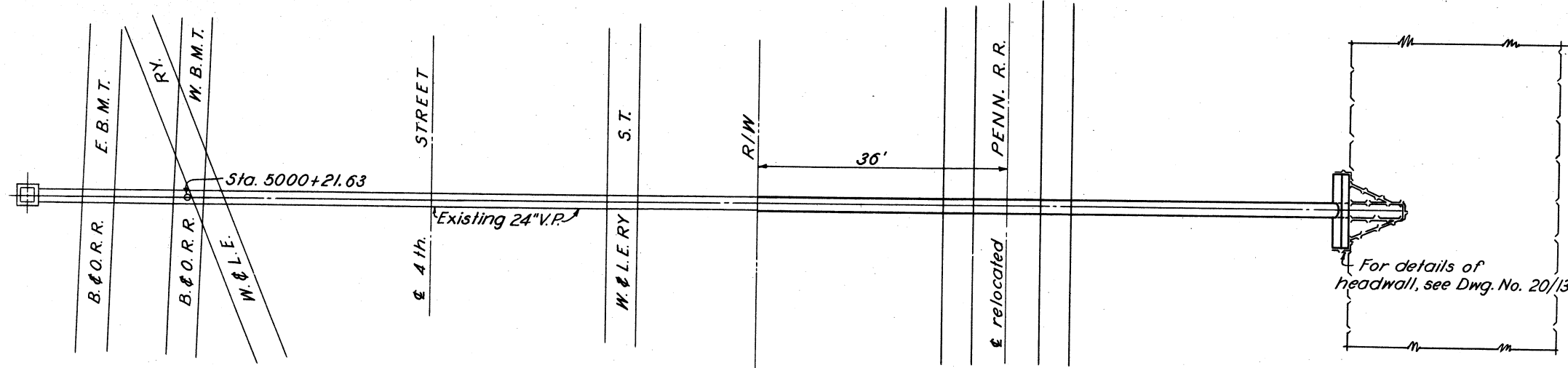
U. S. ENGINEER OFFICE, HUNTINGTON, W. VA., SEPT. 1940

SUBMITTED: H. G. H. APPROVED: J. C. H.

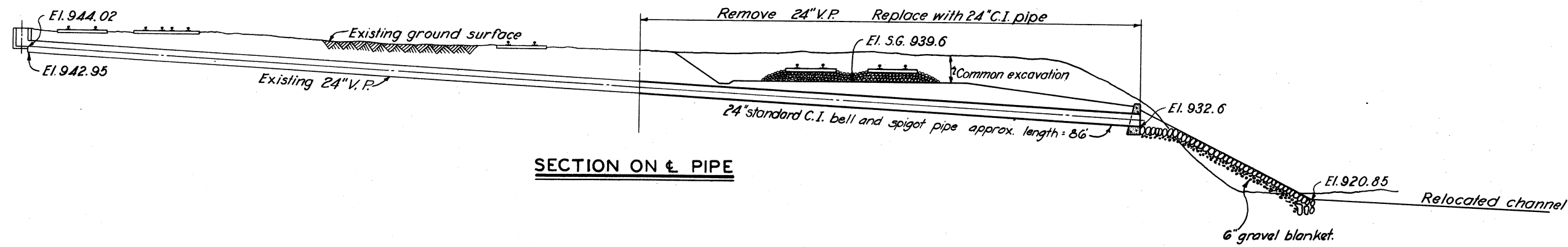
DRAWN BY: R. C. H. TRANSMITTED WITH LETTER

CHECKED BY: D. G. J. FILE NO. 0271-PM-20/11 DATED

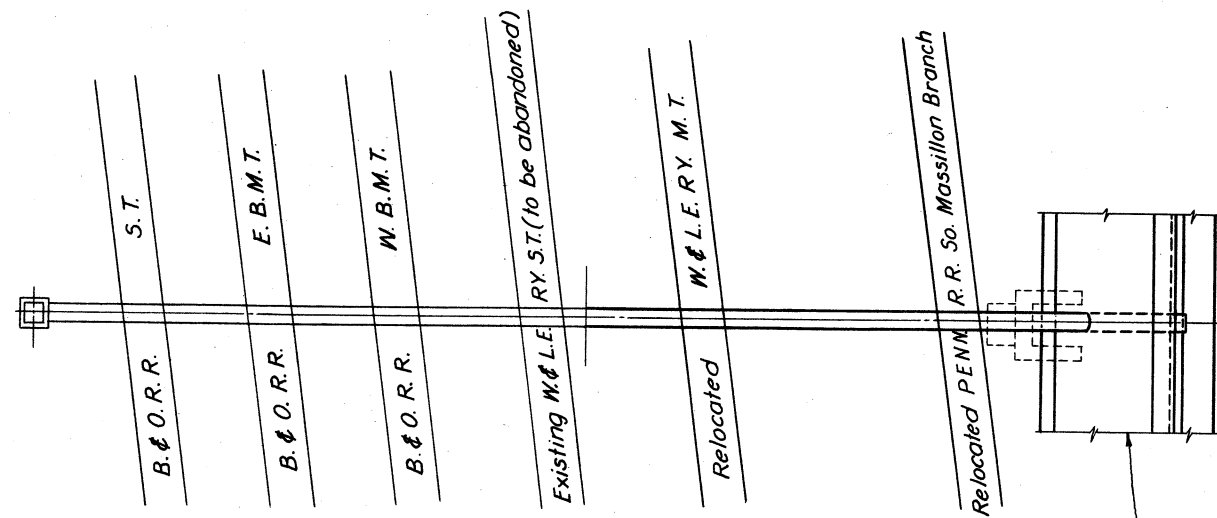
BY	DATE	CHARACTER



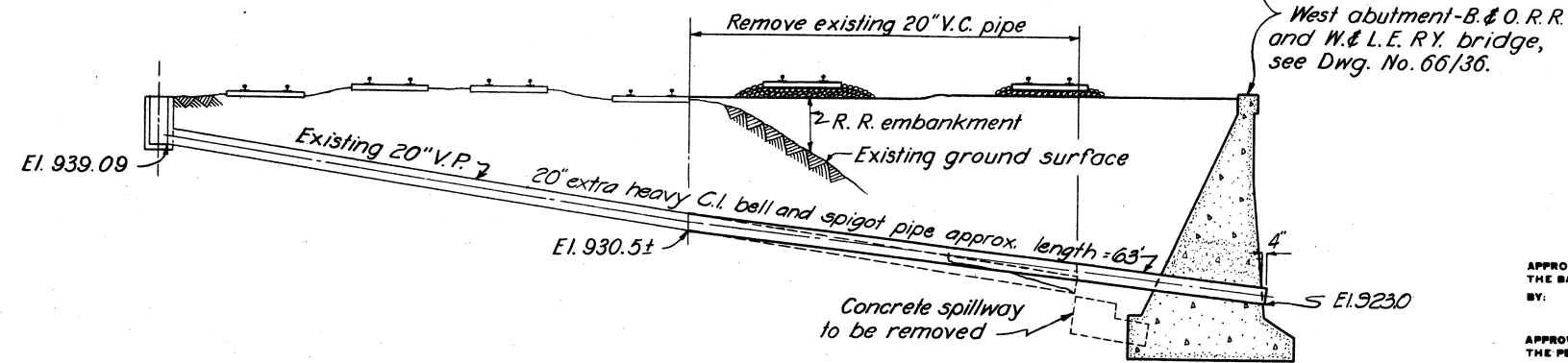
PLAN
STA. 5000+21.63 B&O. R.R.



SECTION ON 24" PIPE



PLAN



SECTION ON 20" PIPE
GREEN AVE.
For location, see Dwg. No. 16/3

NOTES

For general plans, see Dwg. Nos. 16/2 and 16/3
Concrete in headwalls to be Class "B".

APPROVED:
THE BALTIMORE AND OHIO RAILROAD CO.
BY: _____ CHIEF ENGINEER
APPROVED:
THE PENNSYLVANIA RAILROAD CO.
BY: _____ CHIEF ENGINEER - CENTRAL REGION
APPROVED:
THE WHEELING AND LAKE ERIE RAILWAY CO.
BY: _____ SPECIAL ENGINEER

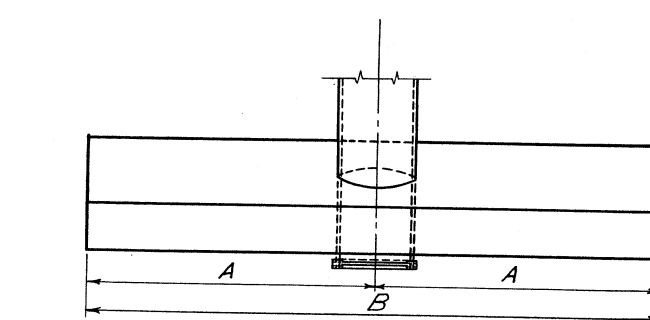
TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
PIPE CULVERTS UNDER RAILROADS

IN 147 SHEETS SHEET NO. 22 SCALE: 1"=10'

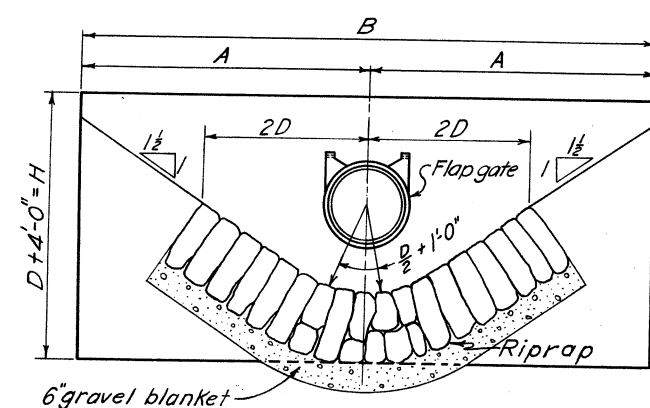
U. S. ENGINEER OFFICE, HUNTINGTON, W. VA. SEPT. 1940

SUBMITTED: *[Signature]* APPROVED: *[Signature]*
DRAWN BY: A.W.E. TRANSMITTED WITH LETTER
CHECKED BY: D.C.J. FILE NO. 0271-PM-20/12 DATED

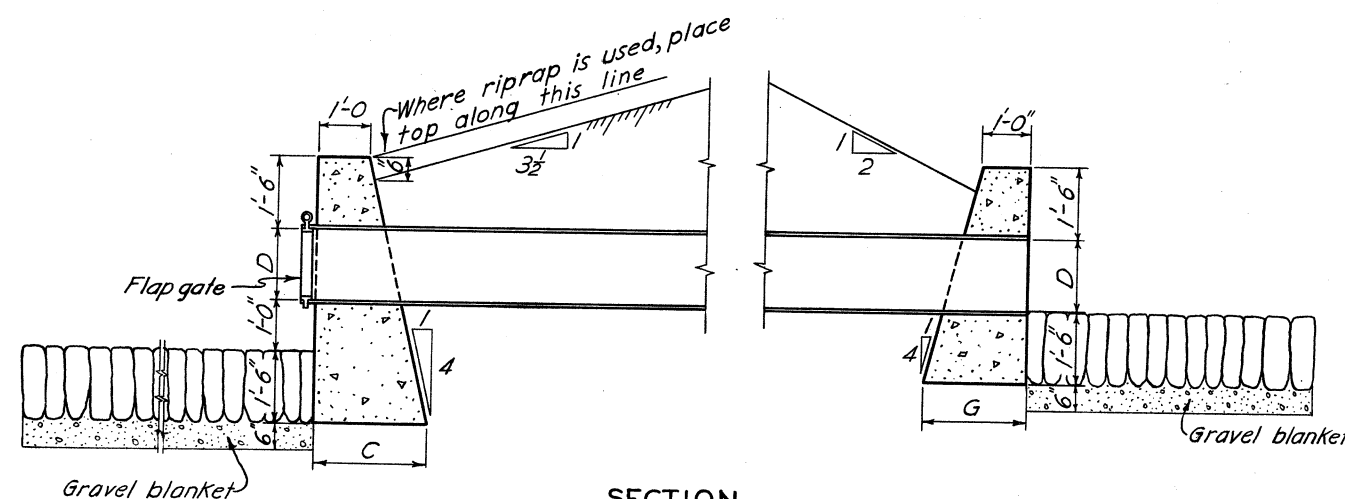
BY	DATE	CHARACTER



PLAN

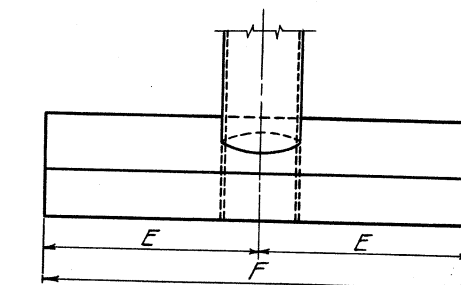
ELEVATION

HEADWALL WITH FLAP GATE

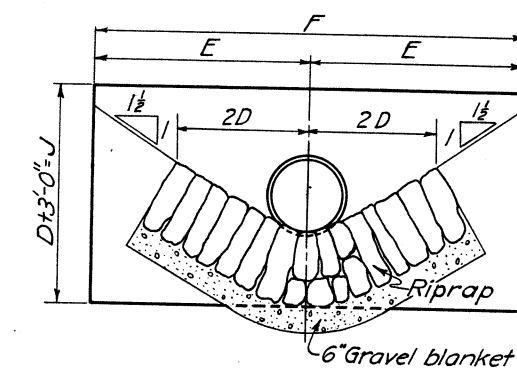


SECTION

DIA. OF PIPE		DIMENSIONS							
D	A	B	C	H	E	F	G	J	
12"	5-3"	10-6"	2-3"	5-0"	3-9"	7-6"	2-0"	4-0"	
18"	6-0"	12-0"	2-4½"	5-6"	4-6"	9-0"	2-1½"	4-6"	
24"	6-9"	13-6"	2-6"	6-0"	5-3"	10-6"	2-3"	5-0"	
30"	7-6"	15-0"	2-7½"	6-6"	6-0"	12-0"	2-4½"	5-6"	
36"	8-3"	16-6"	2-9"	7-0"	6-9"	13-6"	2-6"	6-0"	

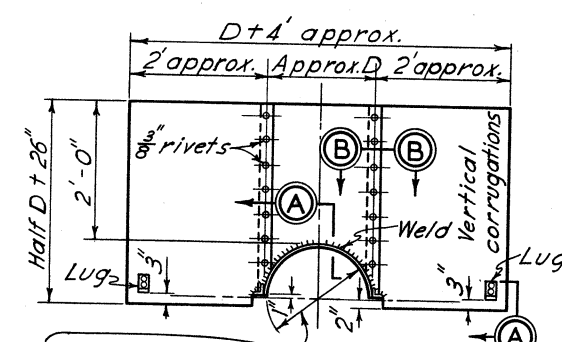


PLAN

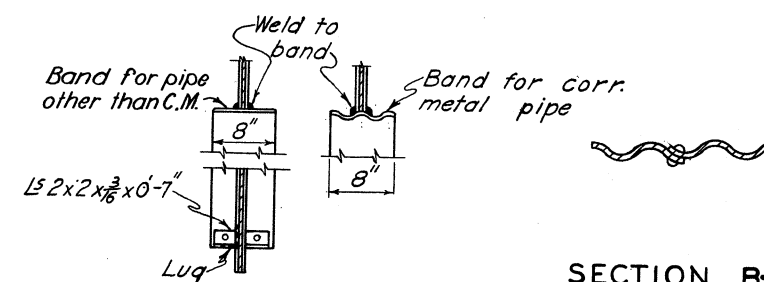
ELEVATION

HEADWALL WITHOUT FLAP GATE

NOTE
Concrete in headwalls to be Class "B."



Band diameter to suit pipe furnished.
Diaphragm #14 gage galvanized corrugated
sheet metal fully coated with asphalt.
One half of diaphragm shown, other half identical.
Seep rings not to be placed at pipe joints.

ELEVATION

SECTION B-B

SECTION A-A

DETAIL OF METAL SEEP RING

APPROVED:
THE BALTIMORE AND OHIO RAILROAD CO.
BY:
CHIEF ENGINEER

APPROVED:
THE PENNSYLVANIA RAILROAD CO.
BY:
CHIEF ENGINEER - CENTRAL REGION

APPROVED:
THE WHEELING AND LAKE ERIE RAILWAY CO.
BY:
SPECIAL ENGINEER

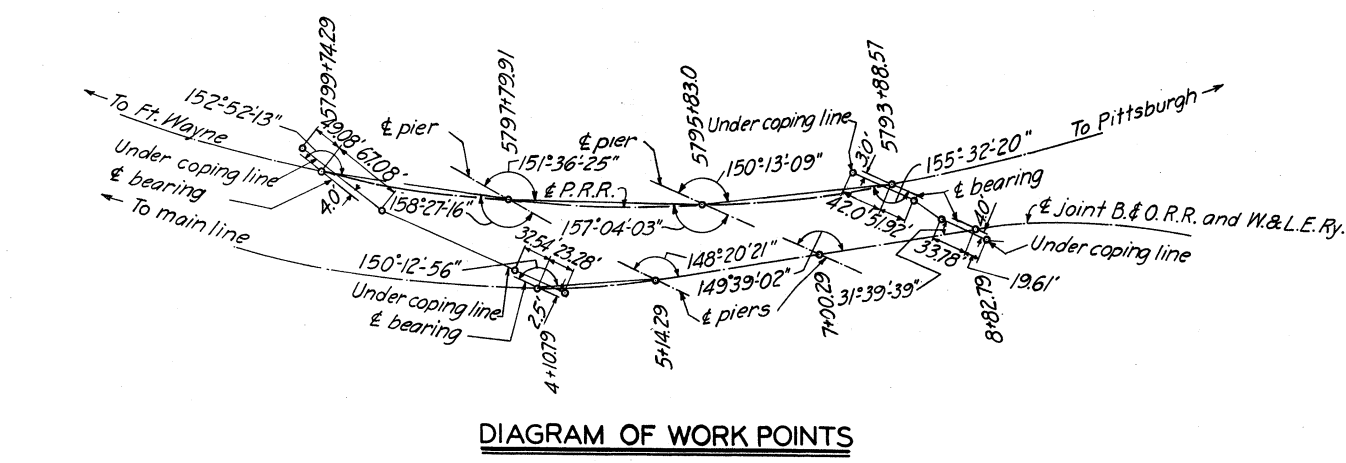
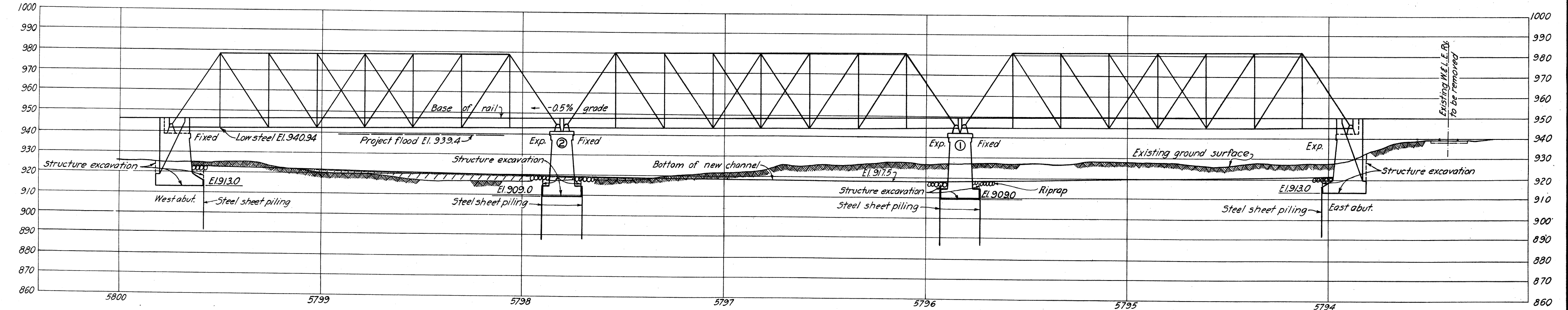
**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
PIPE CULVERT DETAILS**

IN 147 SHEETS SHEET NO. 23 SCALE: NONE

U. S. ENGINEER OFFICE. HUNTINGTON. W. VA., SEPT. 1940

SUBMITTED: [Signature] APPROVED: [Signature]
 WITH CHIEF ENGINEER CT. COL. CORPS OF ENGINEERS
 DRAWN BY L.D.C. TRANSMITTED WITH LETTER
 TRACED BY A.R.M. DATED
 CHECKED BY D.G.J. FILE NO. 027i-PM-2013

BY	DATE	CHARACTER
REVISIONS		



PROFILE

NOTES

For general plan, see Dwg. No. 16/3
For log of borings F-21, F-22 & F-23,
see Dwg. No. 10/3.

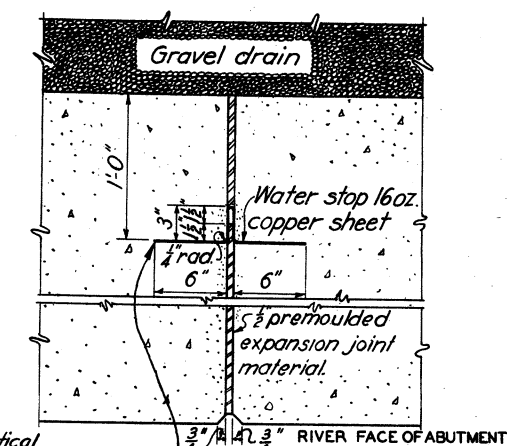
APPROVED:
THE PENNSYLVANIA RAILROAD CO.
BY:
CHIEF ENGINEER - CENTRAL REGION

TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
PENNA. R. R. BRIDGE OVER CHANNEL
GENERAL PLAN & PROFILE

IN 147 SHEETS SHEET NO. 24 SCALE: 1"=20'

U. S. ENGINEER OFFICE. HUNTINGTON, W. VA. SEPT. 1940
SUBMITTED: *[Signature]* APPROVED: *[Signature]*
DRAWN BY: A. W. J. ENGINEER
CHECKED BY: D. R. J.
FILE NO. 0271-PM-66/1

BY	DATE	CHARACTER

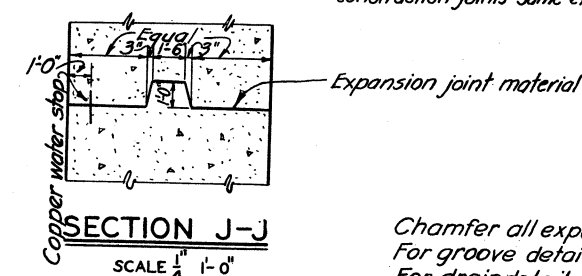


SECTION G-G
SCALE: 1 1/2" = 1'-0"

12" water stop for vertical construction joints same except for loop-

NOTES

*Chamfer all exposed edges $\frac{1}{2}$ " unless otherwise noted.
For groove detail see Dwg. No. 66/6.
For drain detail see Dwg. No. 66/38.
For location plan, see Dwg. No. 66/1.
For layout of anchor bolts, see Dwg. No. 66/17
All concrete class B.*



— Expansion joint material

APPROVED:
THE PENNSYLVANIA RAILROAD CO.
BY:
CHIEF ENGINEER - CENTRAL REGION

**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
PENNA. R. R. BRIDGE OVER CHANNEL
EAST ABUTMENT**

IN 147 SHEETS SHEET NO. 25 SCALE: $\frac{1}{4}'' = 1'-0''$

U. S. ENGINEER'S OFFICE. HUNTINGTON, W. VA., SEPT. 1940

SUBMITTED: *[Signature]* **PRINCIPAL ENGINEER** APPROVED: *[Signature]* **LT. COL. CORPS OF ENGINEERS**

DRAWN BY J. E. H.
TRACED BY E. B. H.
CHECKED BY F. R. G. FILE NO 027i-PM-66/2

TRANSMITTED WITH LETTER
DATED

BY	DATE	CHARACTER
		REVISIONS

REINFORCING SCHEDULE

MARK	SIZE	LGTH	BENDING DIAGRAM	NO.	UNIT WT.	TOTAL WT.	
ABUTMENT & WING							
510	#8	2'-6"		60	2.31	134	
500	#8	19'-0"		1043	1.986		
598	#8	24'-6"		6	25.55	153	
5144	#8	36'-0"		15	37.55	563	
614	#8	3'-6"		4	5.26	21	
620	#8	5'-0"		53	7.51	398	
622A	#8	5'-6"		25	8.26	207	
624	#8	6'-0"		53	9.01	478	
626A	#8	6'-6"		25	9.76	244	
644A	#8	11'-0"		100	16.52	1652	
644	#8	11'-0"		10	16.52	165	
645A	#8	11'-3"		22	16.90	372	
650	#8	12'-6"		261	18.78	4902	
652	#8	13'-0"		4	19.53	78	
658	#8	14'-6"		1	21.78	22	
682	#8	20'-6"		35	30.79	1078	
689	#8	22'-3"		4	33.42	134	
696	#8	24'-0"		4	36.05	144	
698	#8	24'-6"		14	36.80	515	
6104	#8	26'-0"		1	39.05	39	
6144	#8	36'-0"		36	54.08	1947	
736A	#8	9'-0"		105	18.40	1932	
				Total	17,164		
WALL SECTION							
510	#8	2'-6"		13	2.31	30	
5144	#8	36'-0"		4	37.55	150	
620	#8	5'-0"		13	7.51	98	
624	#8	6'-0"		13	9.01	117	
632A	#8	8'-0"		36	12.02	433	
640	#8	10'-0"		4	15.02	60	
644	#8	11'-0"		4	16.52	66	
648	#8	12'-0"		5	18.02	90	
682	#8	20'-6"		13	30.79	400	
6144	#8	36'-0"		11	54.08	595	
				Total	2039		

* See drain detail Dwg. No. 66/38.

NOTES

Place all reinforcing steel 4" min. from surface unless otherwise noted.
For masonry details, see Dwg. No. 66/2.

**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
PENNA. R. R. BRIDGE OVER CHANNEL
EAST ABUTMENT - REINFORCING DETAILS**

IN 147 SHEETS SHEET NO. 26 SCALE: 1/8" = 1'-0"

U. S. ENGINEER OFFICE, HUNTINGTON, W. VA., SEPT. 1940

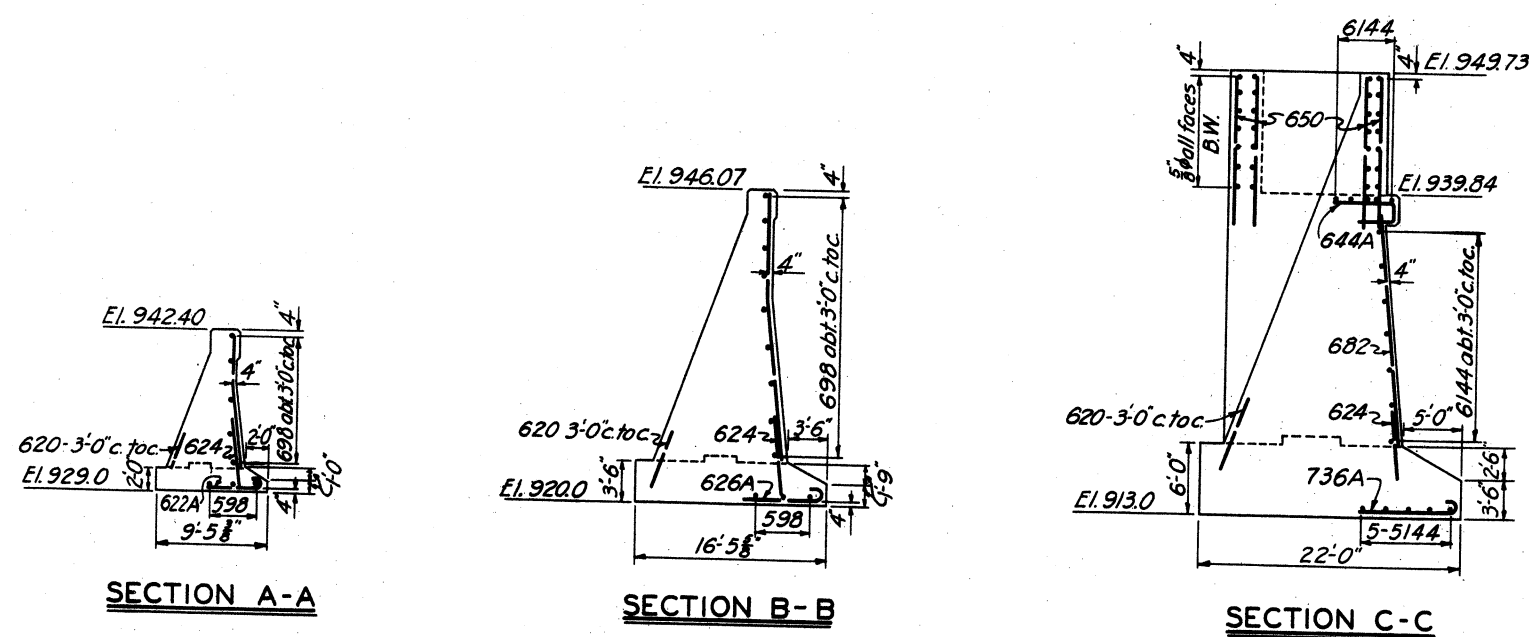
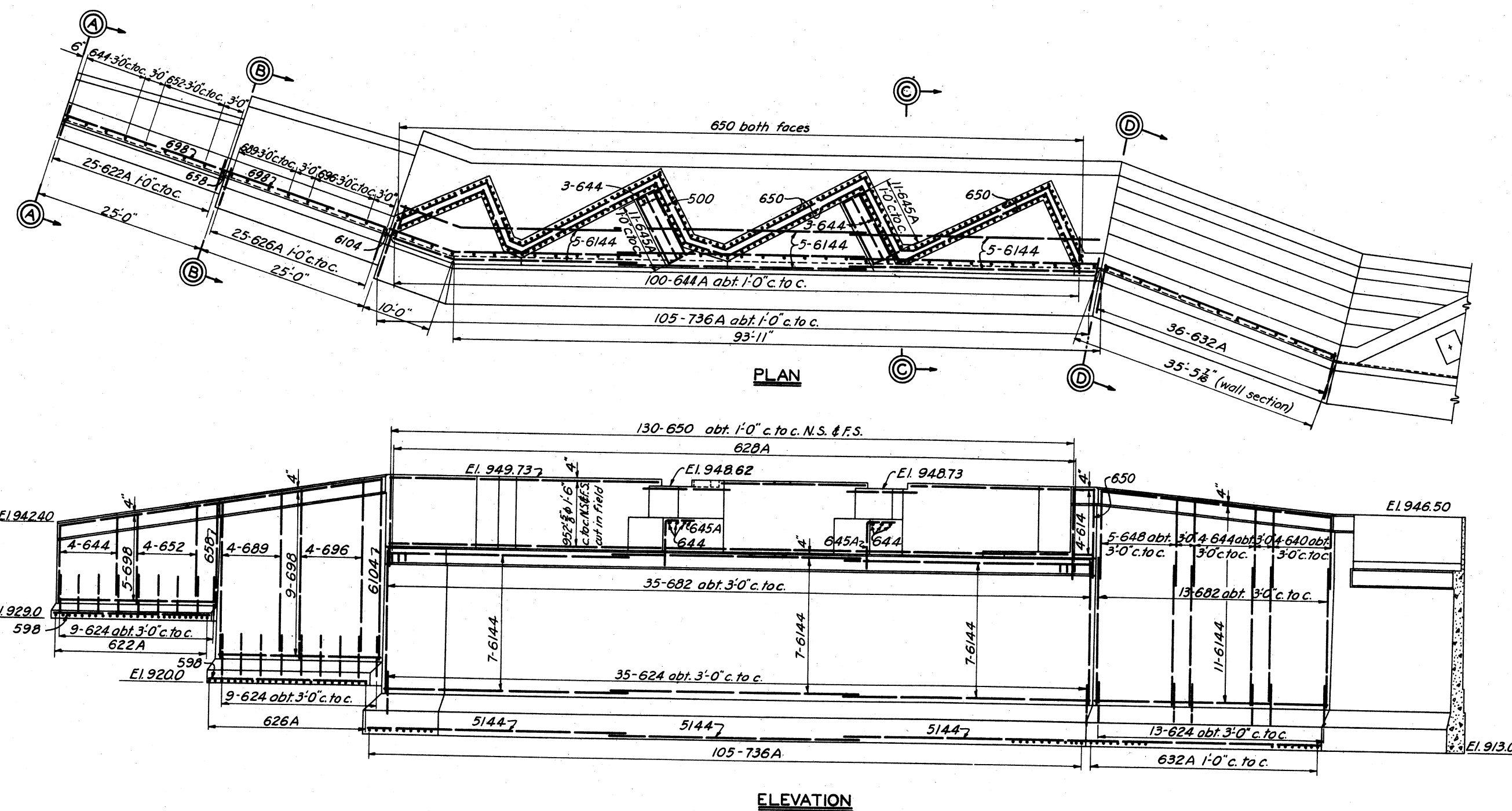
SUBMITTED: *[Signature]* APPROVED: *[Signature]*

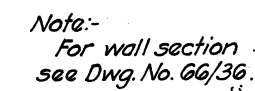
DRAWN BY L. D. C. TRANSMITTER WITH LETTER

CHECKED BY F. R. G. FILE NO. 027i-PM-66/3 DATED

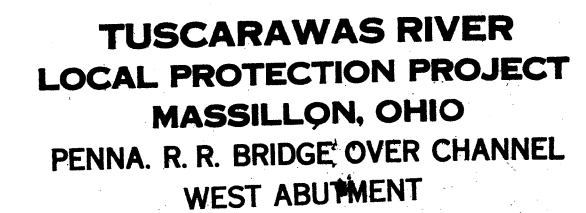
APPROVED:
THE PENNSYLVANIA RAILROAD CO.
CHIEF ENGINEER - CENTRAL REGION

BY	DATE	CHARACTER
		REVISIONS

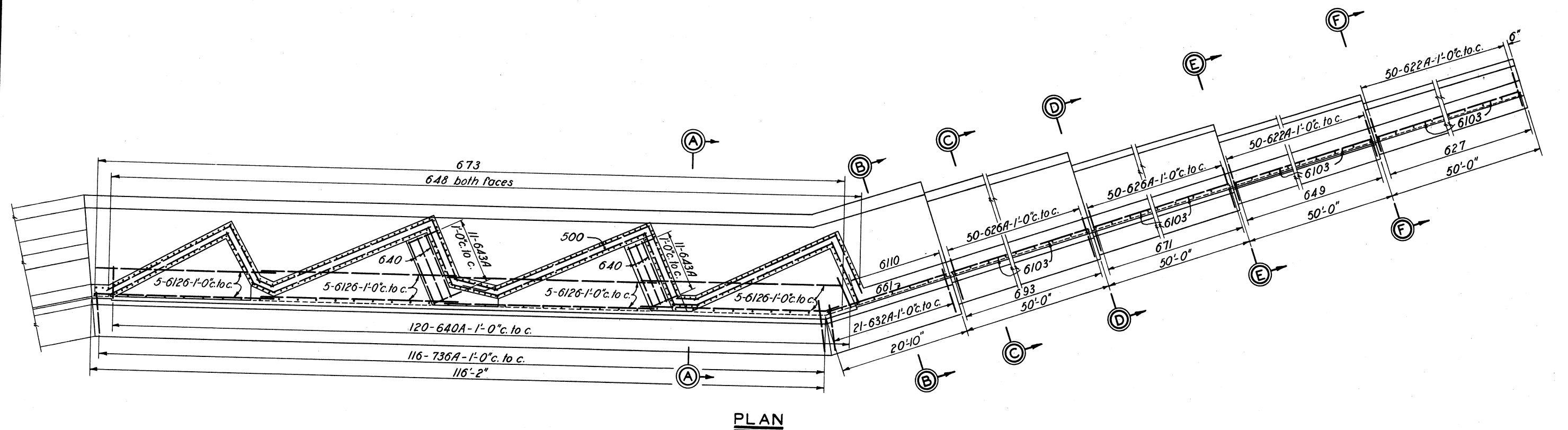




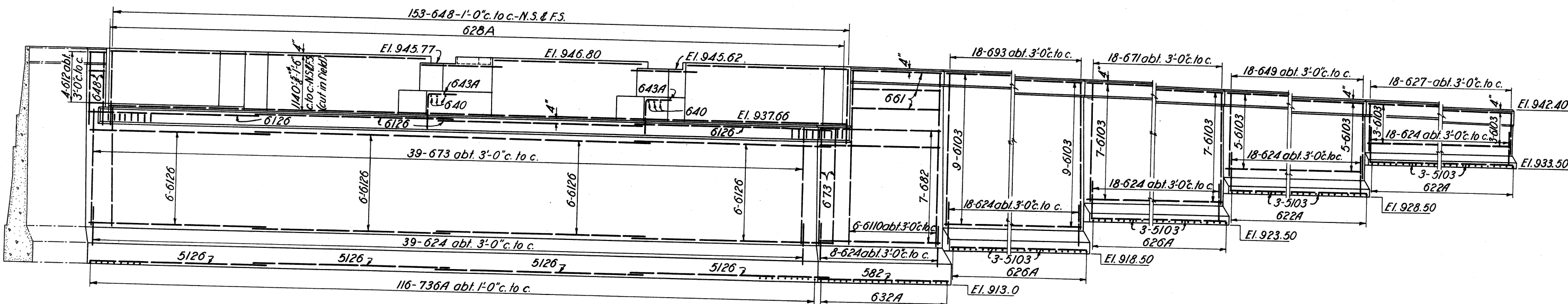
*Chamfer all exposed edges 1/4" unless otherwise noted.
For groove detail see Dwg. No. 66/16.
For drain detail see Dwg. No. 66/138.
For reinforcing steel, see Dwg. No. 66/15.
For layout of anchor bolts, see Dwg. No. 66/17.
For details of water stop see Dwg. No. 66/2.
For details of vertical construction joint see Dwg. No. 66/2
All concrete to be Class "B"
For detail of key in expansion joint, see Dwg. No. 66/2.*



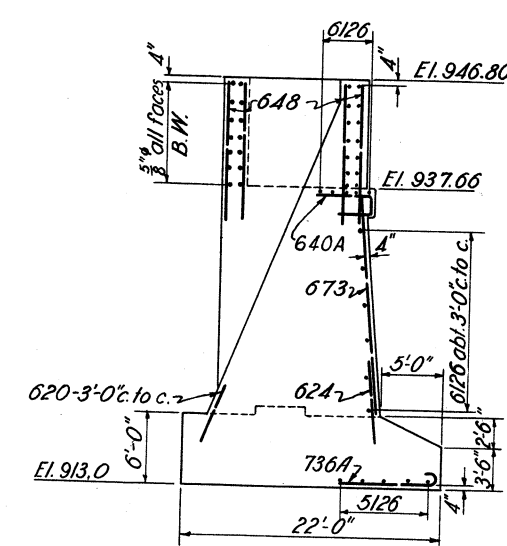
APPROVED:
THE PENNSYLVANIA RAILROAD CO.
BY
.....
CHIEF ENGINEER - CENTRAL REGION



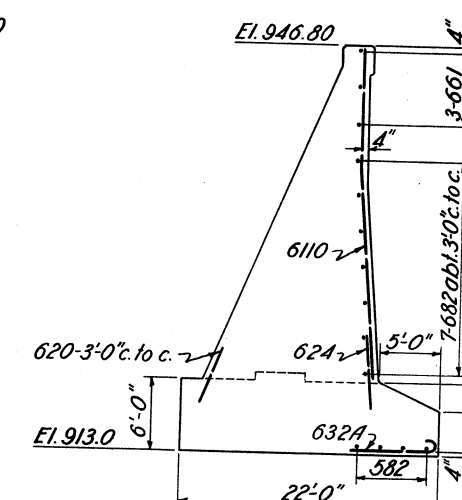
PLAN



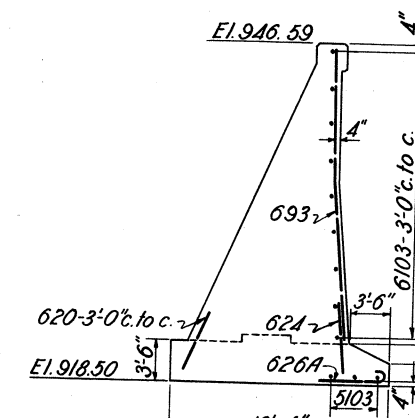
ELEVATION



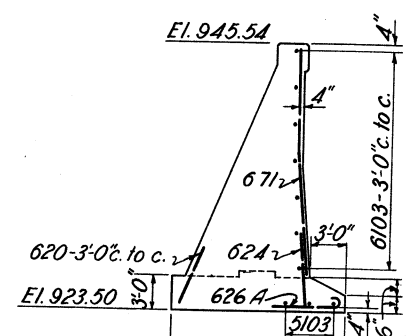
SECTION A-A



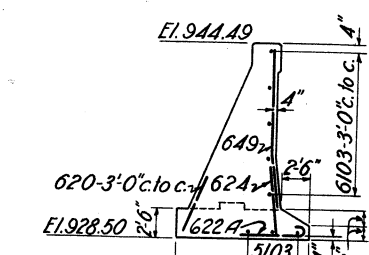
SECTION B-B



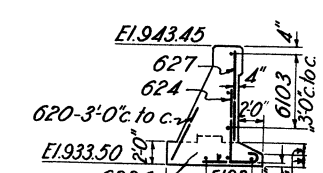
SECTION C-C



SECTION D-D



SECTION E-E



SECTION F-F

REINFORCING SCHEDULE

MARK	SIZE	LGTH	BENDING DIAGRAM	NO.	UNIT WT.	TOTAL WT	
ABUTMENT & WING							
500	3/8"	22'8"	1 in. ft.		1.045	2,378	
510	3/8"	2'-6"		105	2.31	243	
582	3/8"	20'-6"		4	21.38	86	
5103	3/8"	25'-9"		24	26.86	645	
5126	3/8"	31'-6"		20	32.85	657	
612	3/8"	3'-0"	8'-1"	736A	4	4.51	18
620	3/8"	5'-0"	7'-2"	632A	119	7.51	893
622A	3/8"	5'-6"	5'-8"	626A	100	8.26	826
624	3/8"	6'-0"	4'-8"	622A	119	9.01	1,072
626A	3/8"	6'-6"		100	9.76	976	
627	3/8"	6'-9"		18	10.14	183	
640A	3/8"	10'-0"		120	15.02	1,802	
632A	3/8"	8'-0"		21	12.02	252	
640	3/8"	10'-0"		5	15.02	90	
643A	3/8"	10'-9"		22	16.15	355	
648	3/8"	12'-0"		308	18.02	5,550	
649	3/8"	12'-3"		18	18.40	331	
661	3/8"	15'-3"		3	22.91	69	
671	3/8"	17'-9"		18	26.66	480	
673	3/8"	18'-3"		41	27.41	1,124	
682	3/8"	20'-6"		7	30.79	216	
693	3/8"	23'-3"		18	34.92	629	
6103	3/8"	25'-9"		48	38.68	1,857	
6110	3/8"	27'-6"		6	41.31	248	
6126	3/8"	31'-6"		44	47.31	2,082	
736A	3/8"	9'-0"		116	18.40	2,134	
Total						25,196	

* See drain detail, Dwg. No. 66/38.

NOTES

Place all reinforcing steel 4" min. from surfaces unless otherwise noted.
For masonry details, see Dwg. No. 66/4.

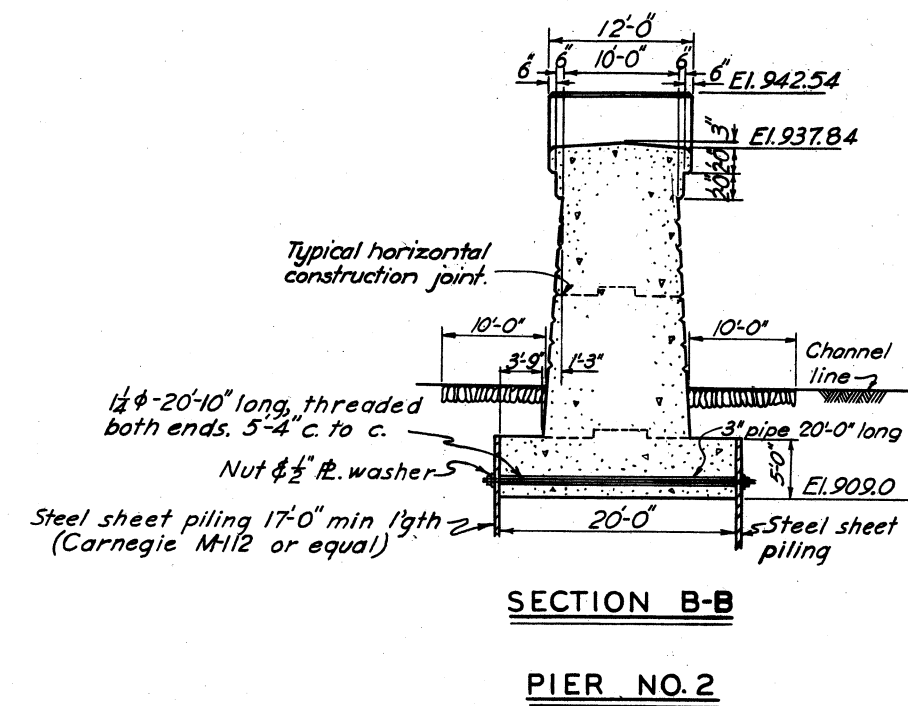
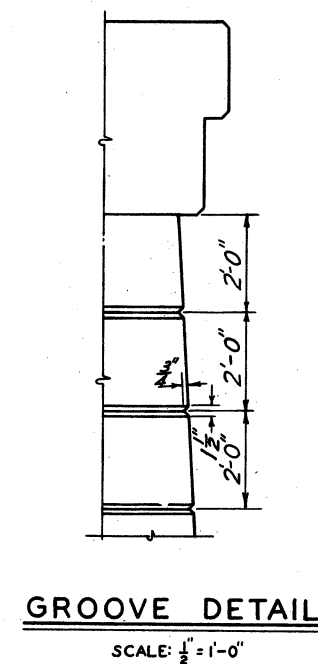
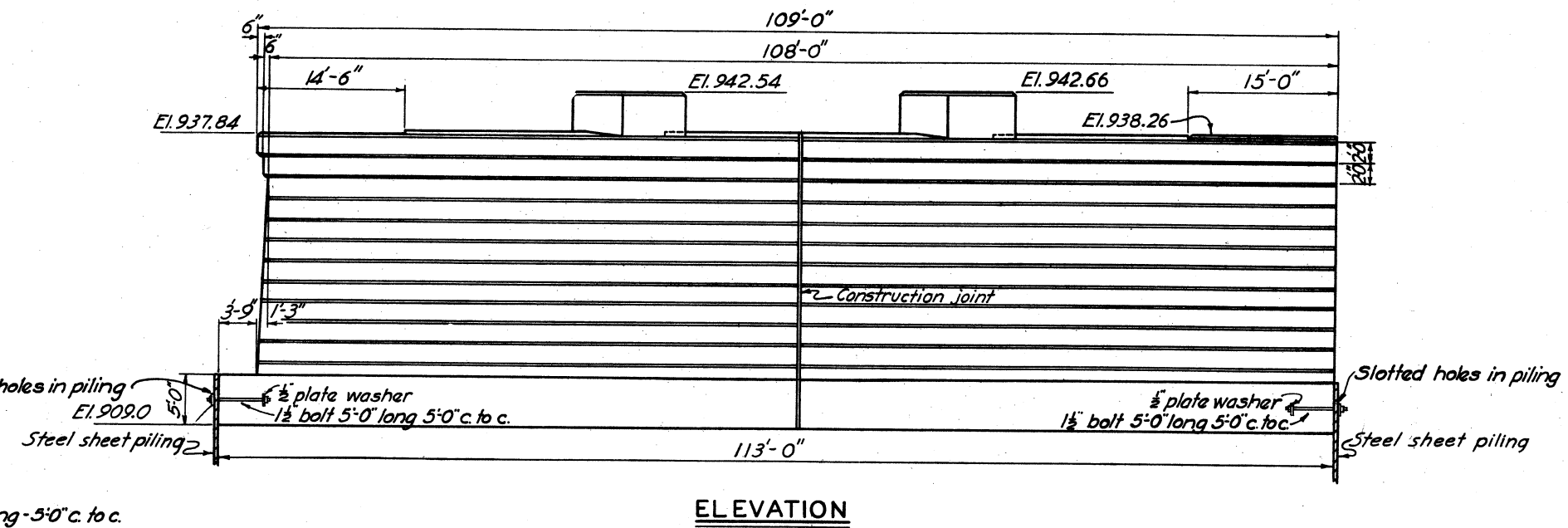
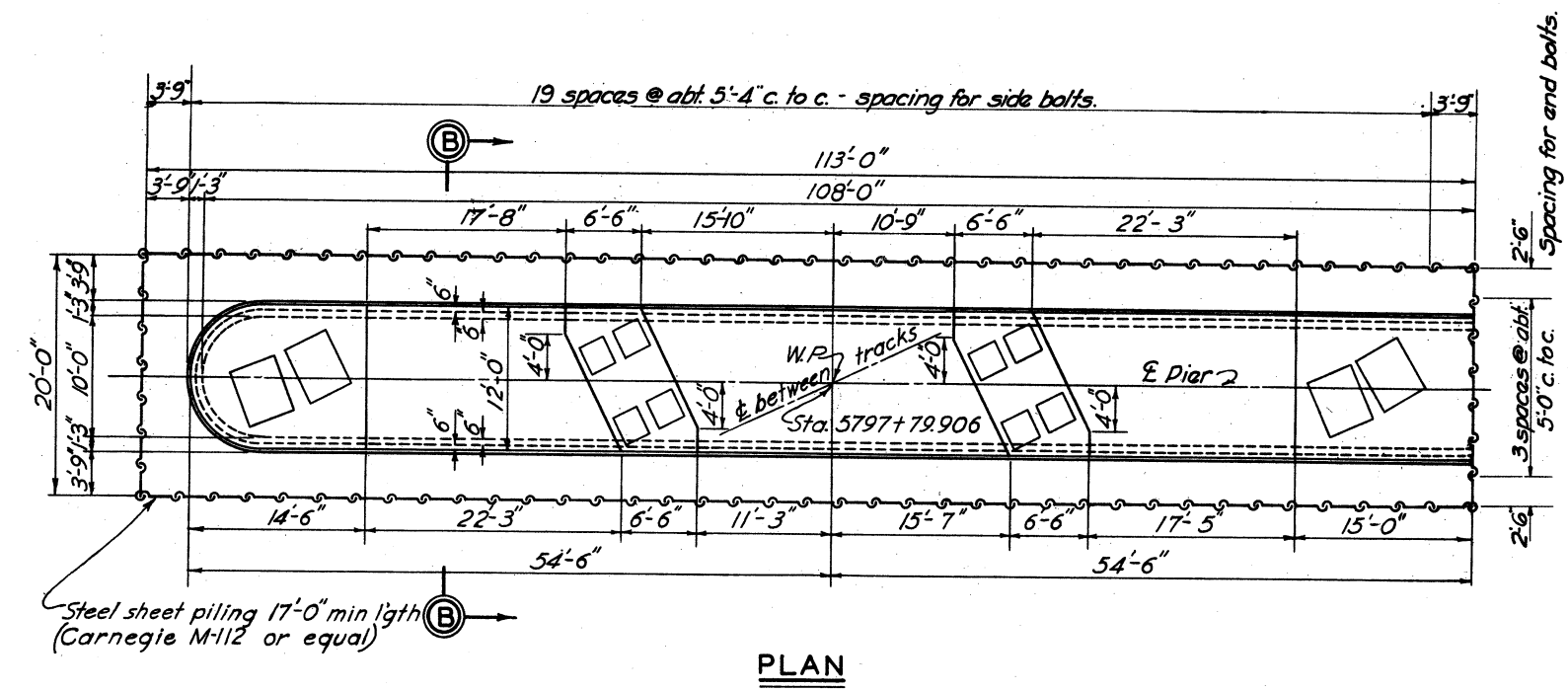
**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
PENNA. R. R. BRIDGE OVER CHANNEL
WEST ABUTMENT - REINFORCING DETAILS**

IN 147 SHEETS SHEET NO. 28 SCALE: 1/4" = 1'-0"

U. S. ENGINEER OFFICE, HUNTINGTON, W. VA., SEPT. 1940

SUBMITTED: *[Signature]* APPROVED: *[Signature]*
DRAWN BY: L. D. E. TRANSMITTED WITH LETTER
CHECKED BY: E. K. FILE NO. 027i-PM-66/5

BY	DATE	CHARACTER
		REVISIONS



**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
PENNA. R. R. BRIDGE OVER CHANNEL
PIERS**

IN 147 SHEETS

SHEET No. 29

SCALE: $\frac{N}{8} = 1 - 0$

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

U. S. ENGINEER OFFICE. HUNTINGTON, W. VA., SEPT. 1940

SUBMITTED BY: *W. J. [Signature]* APPROVED: *[Signature]*

CHIEF ENGINEER ST. COL. CORPS OF ENGINEERS

DRAWN BY: J. E. M.
TRACED BY: A. R. M.
CHECKED BY: E. K.

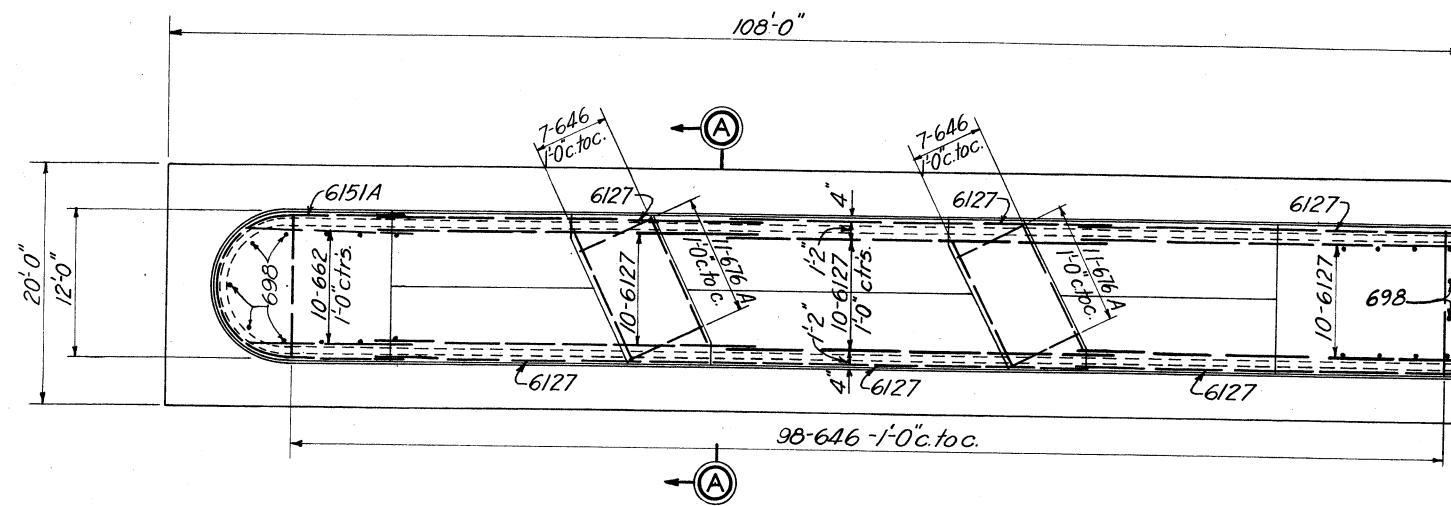
FILE NO. 0271-PM-66/6

DATED

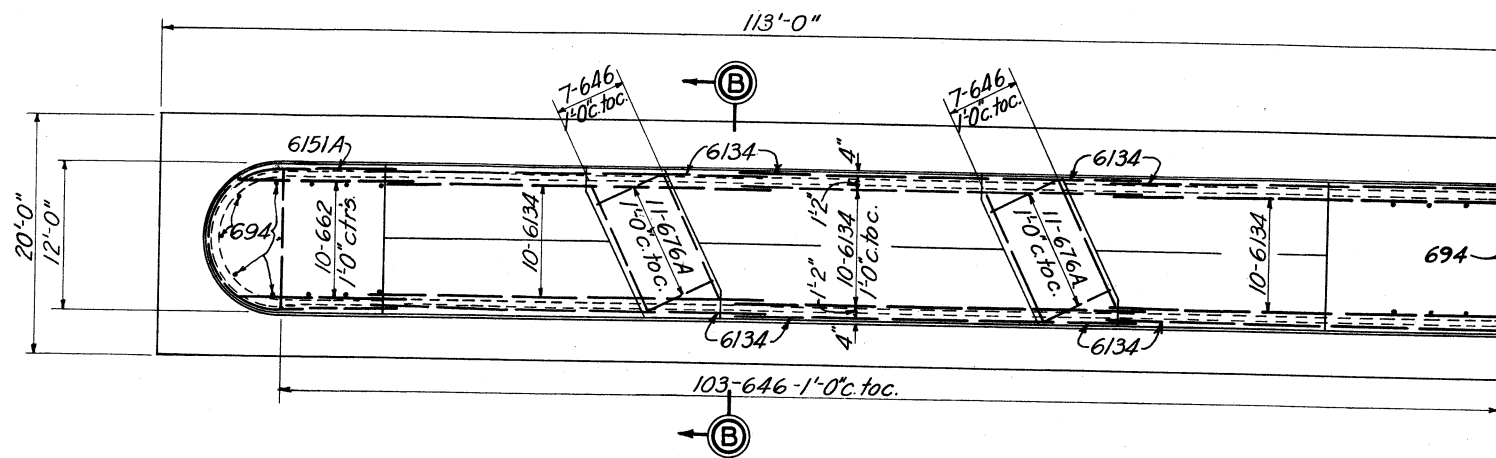
TRANSMITTED WITH LETTER

APPROVED:
THE PENNSYLVANIA RAILROAD CO.
BY: _____
CHIEF ENGINEER - CENTRAL REGION

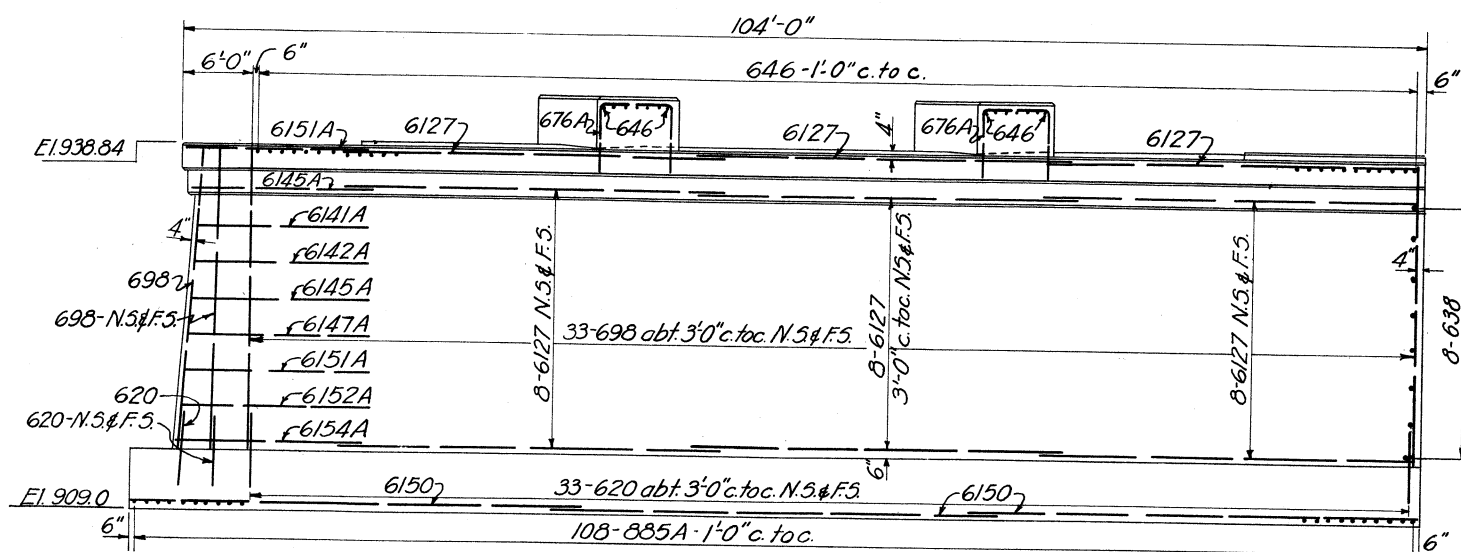
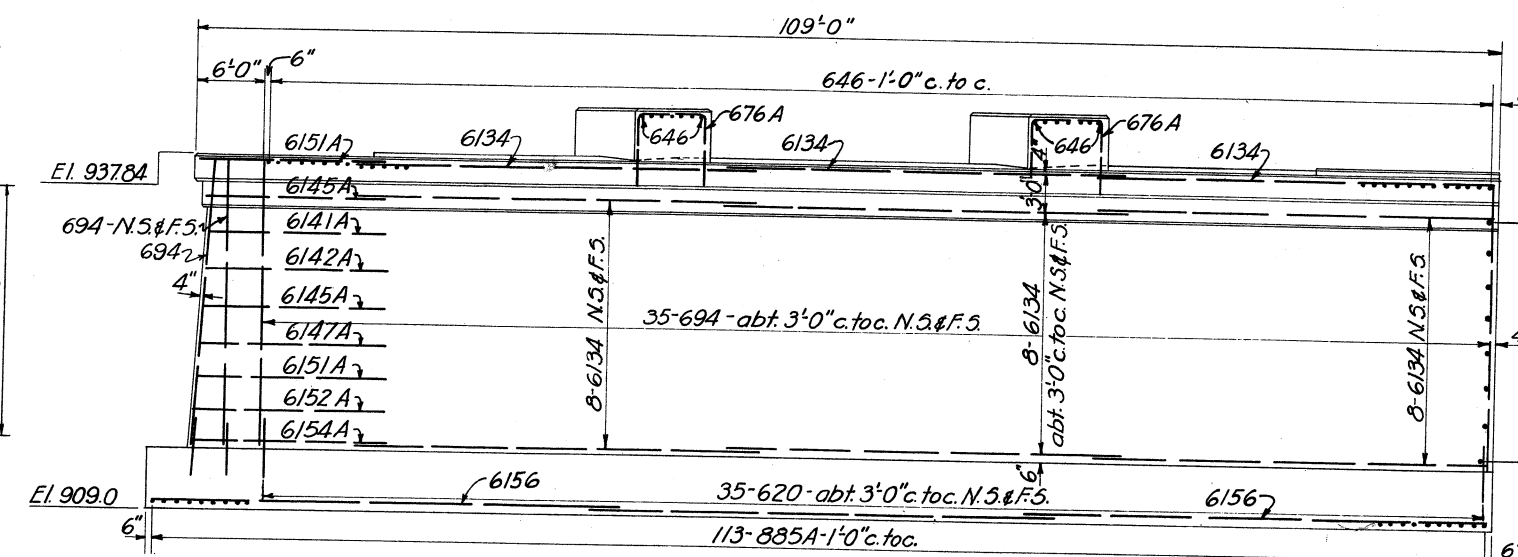
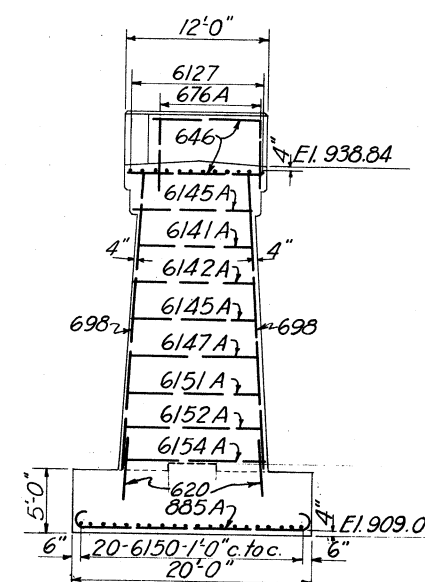
BY	DATE	CHARACTER
		REVISIONS



PLAN

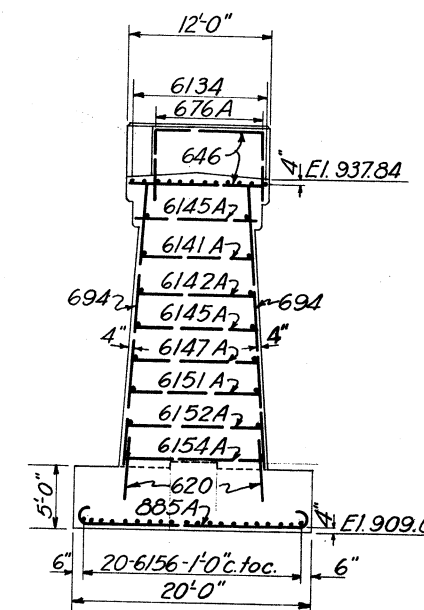


PLAN

ELEVATIONELEVATION

SECTION A-A

PIER NO. 1

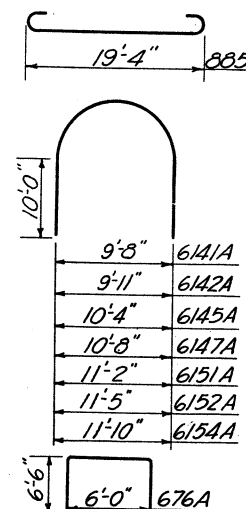
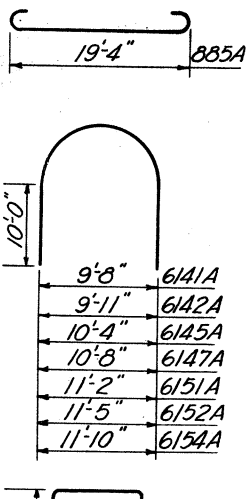


SECTION B-B

PIER NO. 2

APPROVED:
THE PENNSYLVANIA RAILROAD CO.
BY:
CHIEF ENGINEER - CENTRAL REGION

BY	DATE	CHARACTER
REVISIONS		

REINFORCING SCHEDULE						
MARK	SIZE	L'GTH	BENDING DIAGRAM	NO.	UNIT WT.	TOTAL WT.
PIER NO. 1						
620	$\frac{3}{8}$ "	5'-0"		71	751	533
646	$\frac{3}{8}$ "	11'-6"		112	17.27	1934
662	$\frac{3}{8}$ "	15'-6"		10	23.28	233
676A	$\frac{3}{8}$ "	19'-0"		22	28.54	628
698	$\frac{3}{8}$ "	24'-6"		71	36.80	2613
6127	$\frac{3}{8}$ "	31'-9"		84	47.69	4006
6141A	$\frac{3}{8}$ "	35'-3"		1	52.94	53
6142A	$\frac{3}{8}$ "	35'-6"		1	53.32	53
6145A	$\frac{3}{8}$ "	36'-3"		2	54.46	109
6147A	$\frac{3}{8}$ "	36'-9"		1	55.20	55
6150	$\frac{3}{8}$ "	37'-6"		60	56.33	3380
6151A	$\frac{3}{8}$ "	37'-9"		2	56.71	103
6152A	$\frac{3}{8}$ "	38'-0"		1	57.08	57
6154A	$\frac{3}{8}$ "	38'-6"		1	57.83	58
885A	1"	21'-3"	108	56.74	6128	
638	$\frac{3}{8}$ "	9'-6"	8	14.27	114	
				Total	20,057	
PIER NO. 2						
620	$\frac{3}{8}$ "	5'-0"		75	751	563
646	$\frac{3}{8}$ "	11'-6"		117	17.27	2021
662	$\frac{3}{8}$ "	15'-6"		10	23.28	233
694	$\frac{3}{8}$ "	23'-6"		75	35.30	2648
6134	$\frac{3}{8}$ "	33'-6"		84	50.32	4227
6141A	$\frac{3}{8}$ "	35'-3"		1	52.94	53
6142A	$\frac{3}{8}$ "	35'-6"		1	53.32	53
6145A	$\frac{3}{8}$ "	36'-3"		2	54.46	109
616A	$\frac{3}{8}$ "	19'-0"		22	28.54	628
6147A	$\frac{3}{8}$ "	36'-9"		1	55.20	55
6151A	$\frac{3}{8}$ "	37'-9"		2	56.71	103
6152A	$\frac{3}{8}$ "	38'-0"		1	57.08	57
6154A	$\frac{3}{8}$ "	38'-6"		1	57.83	58
6156	$\frac{3}{8}$ "	39'-0"		60	58.58	3515
885A	1"	21'-3"	113	56.74	6412	
638	$\frac{3}{8}$ "	9'-6"	8	14.27	114	
				Total	20,849	

NOTES

Place all reinforcing steel 4" min. from surface
unless otherwise noted.
For masonry details see Dwg. No. 66/6.

**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
PENNA. R. R. BRIDGE OVER CHANNEL
PIERS - REINFORCING DETAILS**

IN 147 SHEETS

SHEET NO. 30

SCALE: $\frac{1}{8}'' = 1'-0''$

U. S. ENGINEER OFFICE. HUNTINGTON, W. VA. SEPT. 1940

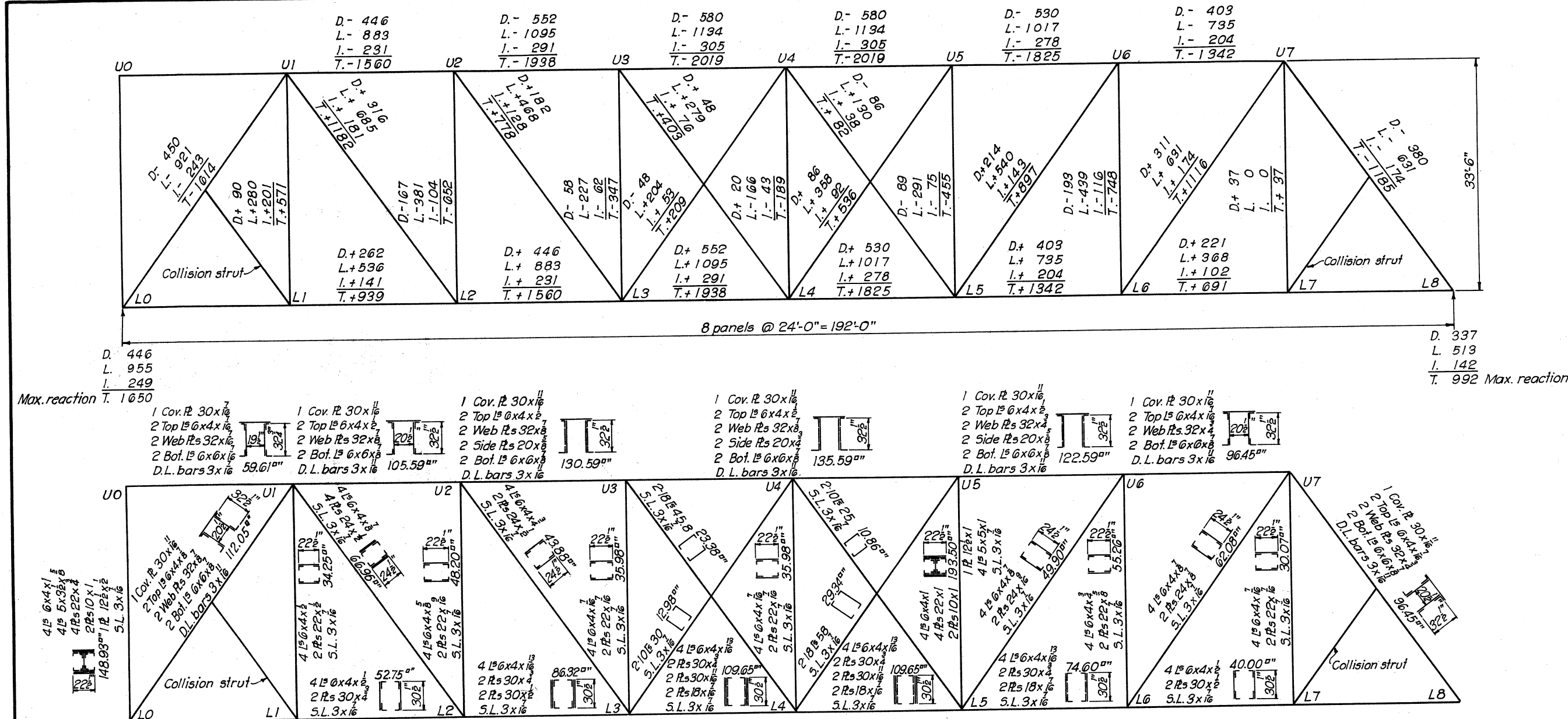
SUBMITTED: [Signature] APPROVED: [Signature]

DRAWN BY L. D. C.
 TRACED BY L. D. H.
 CHECKED BY E. K.

FILE NO. 027i-PM-66/7

TRANSMITTED WITH LETTER
 DATED

WAR DEPARTMENT



DATA FOR LONG FLOOR BEAMS

MAX. SHEAR
D. = 49,000
L. = 278,000
I. = 241,000
Total = 568,000
@ 14,000*in = 40.57" Req'd.
Web 54x4 = 40.50" gross eff.
Rivet pitch at end = 3" 3 rows
bet. strgs = 12" 3 rows
at center = 12" 3 rows
TYPICAL SECTION (1" Rivs.)
Silicon steel
4" 8x8x8
4 side Rs 12x4
Web R 54x4

Cover plates as given in table below (cover plate cut-offs to be symmetrical about c of stringers)

FLOOR BM. NO.	MAX. SHEAR IN LBS.	SECT. MOD. REQ'D.	COV. PLS. EA. FLANGE	COV. PL. LENGTH	SECT. MOD. FURNISHED	FLOOR BM. NO.	MAX. SHEAR IN LBS.	SECT. MOD. REQ'D.	COV. PLS. EA. FLANGE	COV. PL. LENGTH	SECT. MOD. FURNISHED
FBI	D = 53,000 L = 280,000 I = 230,000 T = 563,000	4001	1R 20x4 1R 20x4 1R 20x4	24'-0"	4100	FBI1	D = 50,000 L = 278,000 I = 239,000 T = 567,000	3439	1R 20x4 1R 20x4 1R 20x4	24'-0"	3550
FBI2	D = 53,000 L = 273,000 I = 227,000 T = 553,000	3843	1R 20x4 1R 20x4 1R 20x4	24'-0"	3970	FBI2	D = 48,000 L = 267,000 I = 237,000 T = 552,000	3060	1R 20x4 1R 20x4 1R 20x4	24'-0"	3130
FBI3	D = 53,000 L = 278,000 I = 236,000 T = 567,000	3576	1R 20x4 1R 20x4 1R 20x4	24'-0"	3730	FBI3	D = 50,000 L = 269,000 I = 227,000 T = 546,000	3685	1R 20x4 1R 20x4 1R 20x4	24'-0"	3853
FBI4	D = 48,000 L = 268,000 I = 234,000 T = 550,000	3154	1R 20x4 1R 20x4 1R 20x4	24'-0"	3250	FBI4	D = 53,000 L = 277,000 I = 237,000 T = 567,000	3583	1R 20x4 1R 20x4 1R 20x4	24'-0"	3730
FBI5	D = 51,000 L = 269,000 I = 225,000 T = 545,000	3762	1R 20x4 1R 20x4 1R 20x4	24'-0"	3930	FBI5	D = 49,000 L = 278,000 I = 241,000 T = 568,000	3354	1R 20x4 1R 20x4 1R 20x4	24'-0"	3480
FBI6	D = 53,000 L = 271,000 I = 227,000 T = 551,000	3739	1R 20x4 1R 20x4 1R 20x4	24'-0"	3853	FBI6	D = 49,000 L = 274,000 I = 244,000 T = 567,000	3110	1R 20x4 1R 20x4 1R 20x4	24'-0"	3190

DATA FOR SHORT FLOOR BEAMS

MAX. SHEAR
D. = 26,000
L. = 153,000
I. = 151,000
Total = 330,000
@ 14,000*in = 23.6" req'd.
Web 40x4 = 30" gross eff.
Rivet pitch at end = 3" 2 rows
at center = 6" 2 rows
TYPICAL SECTION (1" Rivs.)
Silicon steel
4" 8x8x8
Web R 40x4
Cover plates as given in table below.

FLOOR BM. NO.	MAX. SHEAR IN LBS.	SECT. MOD. REQ'D.	COV. PLS. EA. FLANGE	COV. PL. LENGTH	SECT. MOD. FURNISHED
FB51	D = 26,000 L = 153,000 I = 151,000 T = 330,000	1486	1R 18x4 1R 18x4	Full length	1530
FB52	D = 23,000 L = 142,000 I = 129,000 T = 294,000	1168	1R 18x4 1R 18x4	Full length	1200
FB53	D = 25,000 L = 148,000 I = 146,000 T = 319,000	1424	1R 18x4 1R 18x4	Full length	1485
FB54	D = 21,000 L = 143,000 I = 130,000 T = 294,000	1130	1R 18x4 1R 18x4	Full length	1200
FB55	D = 25,000 L = 149,000 I = 149,000 T = 323,000	1385	1R 18x4 1R 18x4	Full length	1485
FB56	D = 22,000 L = 148,000 I = 136,000 T = 306,000	1146	1R 18x4 1R 18x4	Full length	1200

DATA FOR STRINGERS

STRINGER NUMBER	SECTION	SECTION MODULUS REQ'D.	SECTION MODULUS FURN'D.	MAX. SHEAR POUNDS
STRINGERS SUPPORTING LOWER RAIL				
51	36WF280	1009	1031.2	259,000
53	36WF250	900	911.7	249,000
55	36WF260	953	951.1	254,000
57-525	36WF230	840	835.5	244,000
527	36WF250	886	911.7	248,000
529	36WF230	790	835.5	239,000
531	36WF280	1026	1031.2	260,000
533	36WF260	943	951.1	253,000
535	36WF230	824	835.5	243,000
537	36WF230	796	835.5	240,000
539-557	36WF230	840	835.5	244,000
559	36WF240	846	873.6	245,000
561	36WF230	802	835.5	241,000
563	36WF280	998	1031.2	258,000
565	36WF280	957	1031.2	255,000
567	36WF230	835	835.5	244,000
569	36WF230	830	835.5	243,000
571-589	36WF230	840	835.5	244,000
591	36WF280	970	1031.2	256,000
593	36WF260	920	951.1	251,000
595	36WF280	1009	1031.2	259,000
STRINGERS SUPPORTING SUPERELEVATED RAIL				
52	36WF280	1025	1031.2	242,000
54	36WF230	835	835.5	226,000
56	36WF280	997	1031.2	240,000
58-526	36WF230	756	835.5	218,000
528	36WF230	690	835.5	213,000
530	36WF230	730	835.5	216,000
532	36WF230	815	835.5	224,000
534	36WF280	957	1031.2	237,000
536	36WF230	725	835.5	216,000
538	36WF230	794	835.5	222,000
540-558	36WF230	756	835.5	218,000
560	36WF230	705	835.5	214,000
562	36WF230	736	835.5	217,000
564	36WF230	830	835.5	226,000
566	36WF260	918	951.1	234,000
568	36WF230	746	835.5	218,000
570	36WF230	783	835.5	221,000
572-590	36WF230	756	835.5	218,000
592	36WF240	870	873.6	230,000
594	36WF230	800	835.5	223,000
596	36WF260	940	951.1	235,000

LOCOMOTIVE LOADING - COOPER'S E72

NOTES

Superstructure designed in accordance with A.R.E.A. Specifications For Steel Railway Bridges, dated 1938.
Centrifugal force is based on a superelevation of 6 inches and is added to the impact, if the effect of centrifugal is to decrease the stress in any member, it is neglected.
All stresses given in kips unless otherwise noted.
Rivets 1" dia. in main members except lacing. All other rivets to be 3/4" dia. unless otherwise noted.
All material to be of structural steel except floor beams. All floor beams to be of structural silicon steel as shown on Dwg. Nos. 66/12 & 66/13.
For allowable unit stresses for structural steel & structural silicon steel, see A.R.E.A. Specifications For Steel Railway Bridges, dated 1938.

TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
PENNA. R. R. BRIDGE OVER CHANNEL
192 FT. TRUSS SPANS - DESIGN

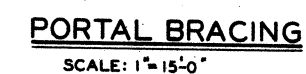
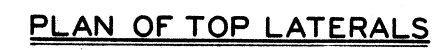
IN 147 SHEETS SHEET NO. 31 SCALE: 1/4" = 1'-0"

U. S. ENGINEER OFFICE. HUNTINGTON, W. VA., SEPT. 1940

SUBMITTED BY: [Signature] APPROVED BY: [Signature]
DRAWN BY: J.M.J.H. TRANSMITTED WITH LETTER
CHECKED BY: W.S.C. FILE NO. 0271-PM-66/8 DATED

APPROVED:
THE PENNSYLVANIA RAILROAD CO.
BY: [Signature]
CHIEF ENGINEER - CENTRAL REGION

BY	DATE	CHARACTER
		REVISIONS



APPROVED:
THE PENNSYLVANIA RAILROAD CO.
BY:
CHIEF ENGINEER - CENTRAL REGION

**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
PENNA. R. R. BRIDGE OVER CHANNEL
192 FT. TRUSS SPANS - DESIGN**

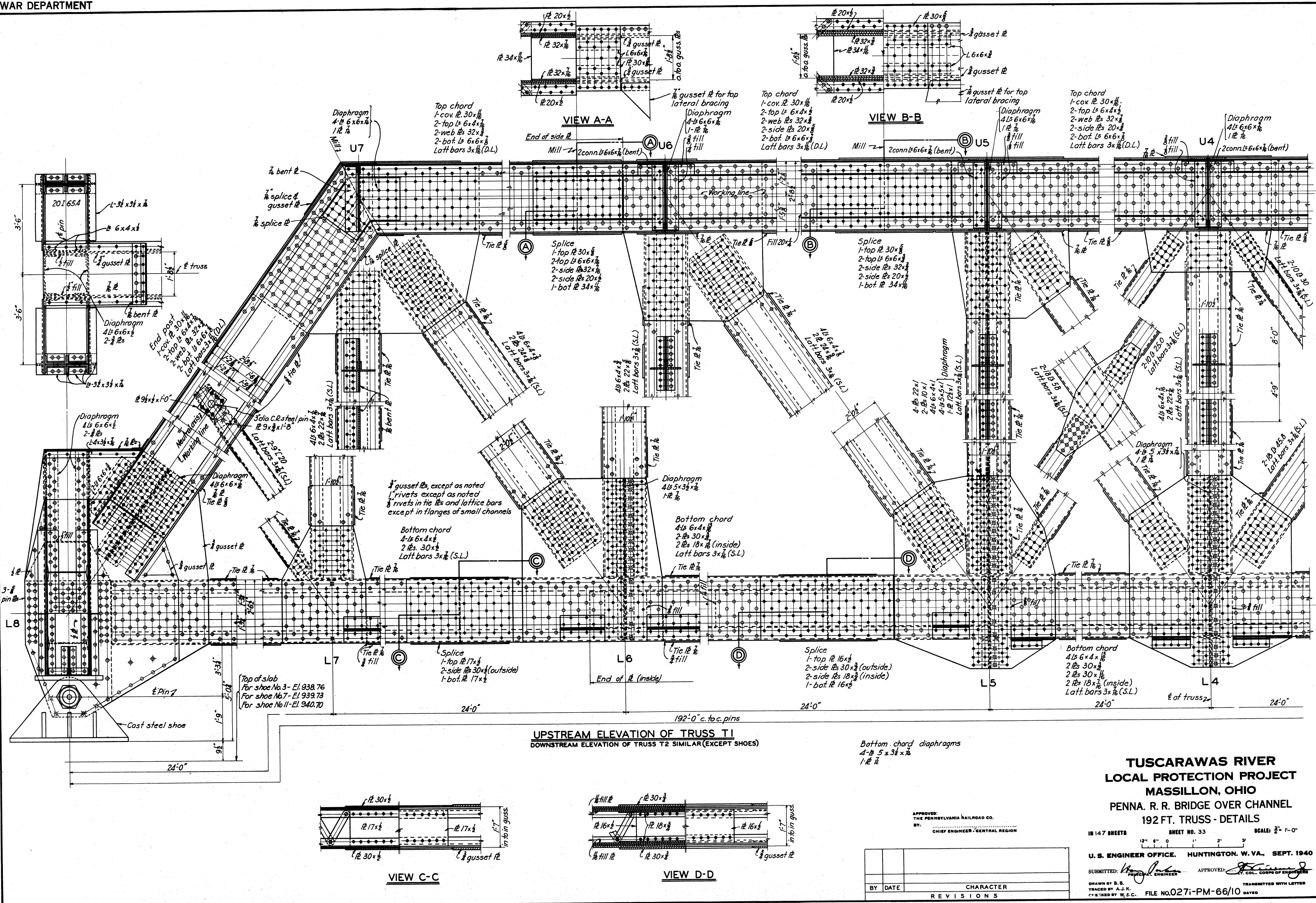
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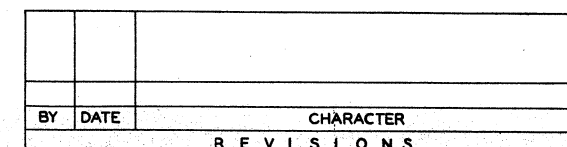
U. S. ENGINEER OFFICE. HUNTINGTON. W. VA., SEPT. 1940

SUBMITTED: *[Signature]* **PRINCIPAL ENGINEER** APPROVED: *[Signature]* **ET. COL. CORPS OF ENGINEERS**

DRAWN BY A.W.S.
TRACED BY M.G.
CHECKED BY W.S.C. FILE No. 027i-PM-66/9

TRANSMITTED WITH LETTER
DATED





TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
PENNA. R. R. BRIDGE OVER CHANNEL
192 FT. TRUSS - DETAILS

IN 147 SHEETS SHEET NO. 34 SCALE: $\frac{3}{8"} = 1' - 0"$

$12''$ $6''$ $0''$ $1'$ $2'$ $3'$

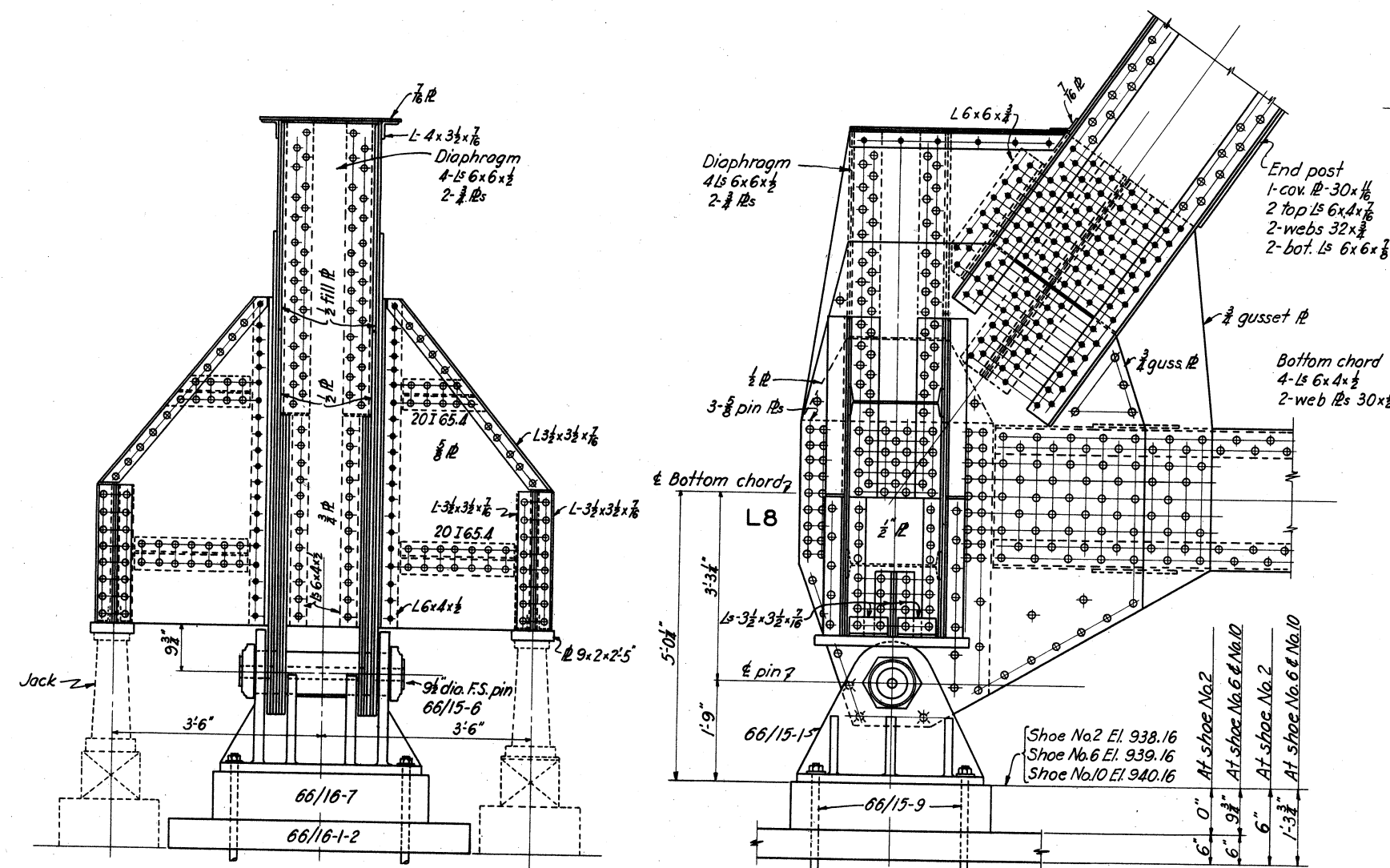
U.S. ENGINEER OFFICE. HUNTINGTON, W. VA., SEPT. 1940

SUBMITTED: *Ray B. Johnson* APPROVED: *[Signature]*
 PROJECT ENGINEER **CH. COL. COMPS OF ENGINEERS**

DRAWN BY: B. B.
CHECKED BY: A. J. M.
TRACED BY: W. S. C.

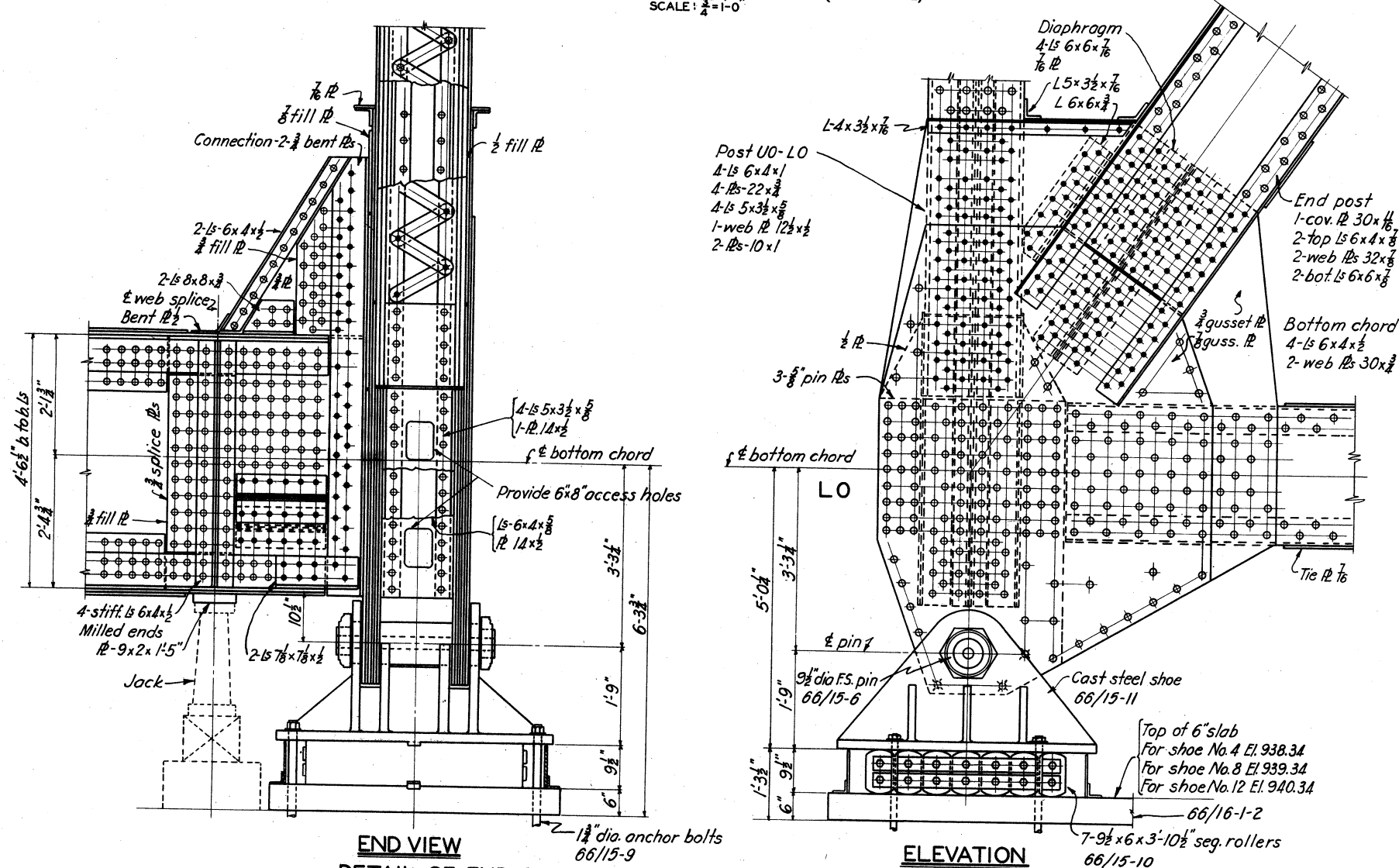
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TRANSMITTED WITH LETTER
DATE



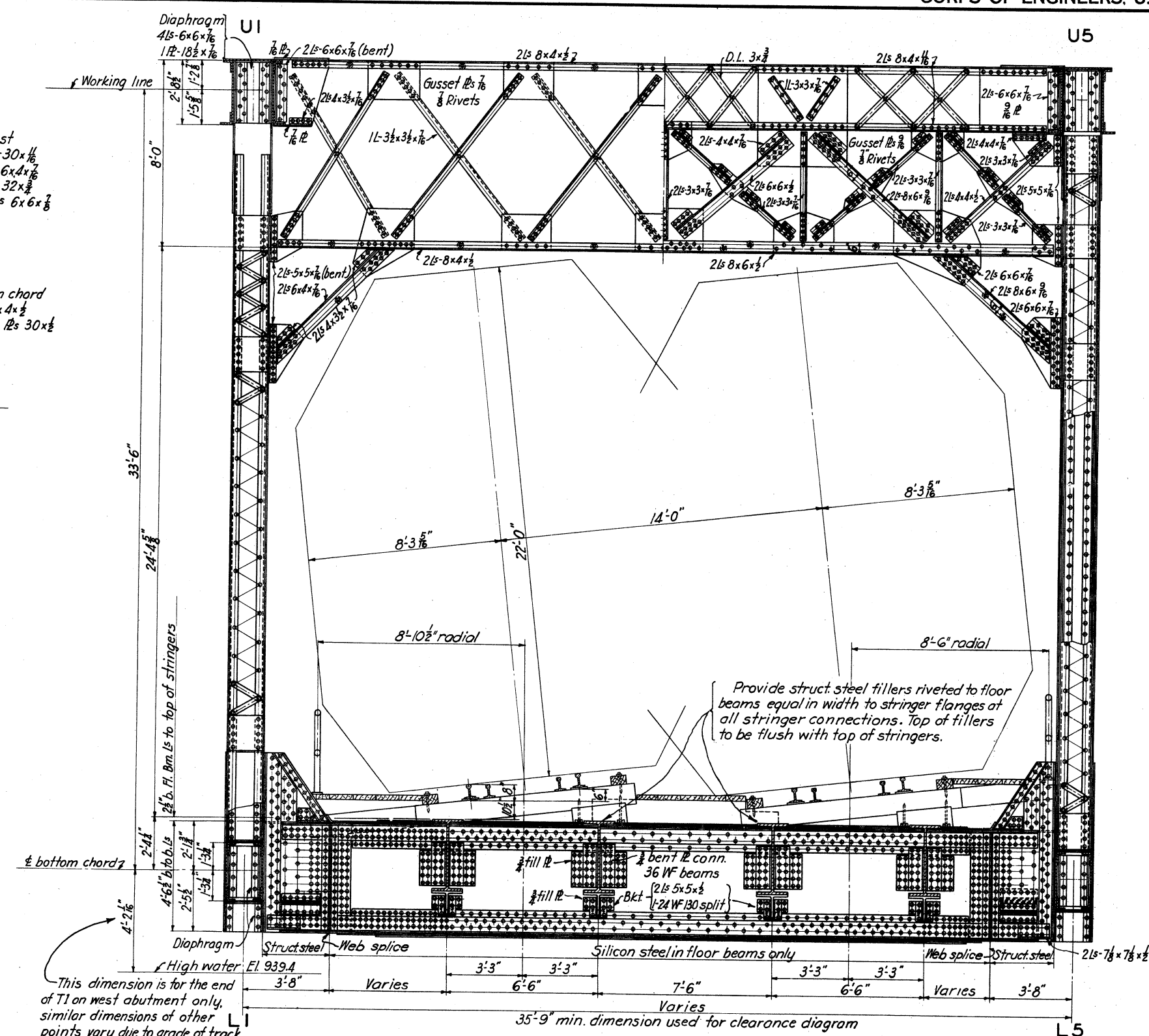
END VIEW
ELEVATION
DETAIL OF END OF TRUSS T2 WITH JACKING BRACKETS

END OF TRUSS T1 WITH JACKING BRACKETS SIMILAR (EXCEPT SHOE)
SCALE: $\frac{1}{2}$ " = 1'-0"



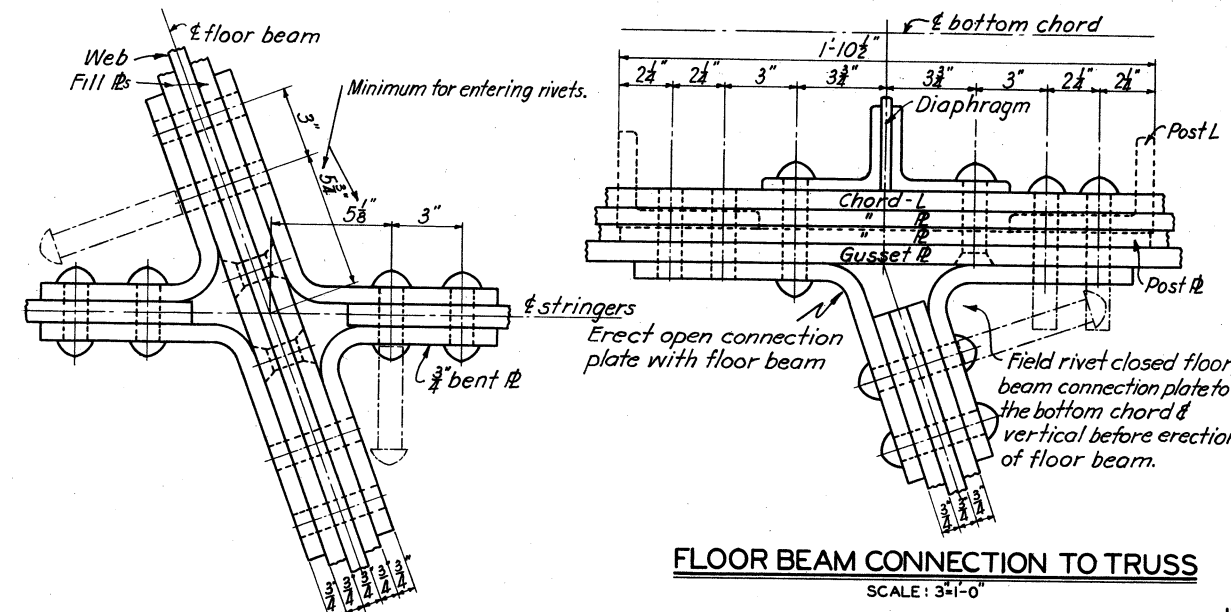
END VIEW
ELEVATION
DETAIL OF END OF TRUSS T2 WITH FLOOR BEAM CONNECTION

END OF TRUSS T1 WITH FLOOR BEAM CONNECTION SIMILAR (EXCEPT SHOE)
SCALE: $\frac{1}{2}$ " = 1'-0"



SECTION AT U1-L1-U5-L5

ALL SWAY BRACING SIMILAR TO THAT SHOWN AT U1-L1



STRINGER TO FLOOR BEAM CONNECTION
SCALE: $\frac{1}{2}$ " = 1'-0"

APPROVED:
THE PENNSYLVANIA RAILROAD CO.
BY
CHIEF ENGINEER - CENTRAL REGION

NOTES

Trusses and beams to be structural steel except as noted.
Clearance diagram indicated above is in accordance with A.R.E.A. specifications.
For sizes of sections making up the floor beams see Dwg. No. 66/8

TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
PENNA. R. R. BRIDGE OVER CHANNEL
192 FT. TRUSS - DETAILS

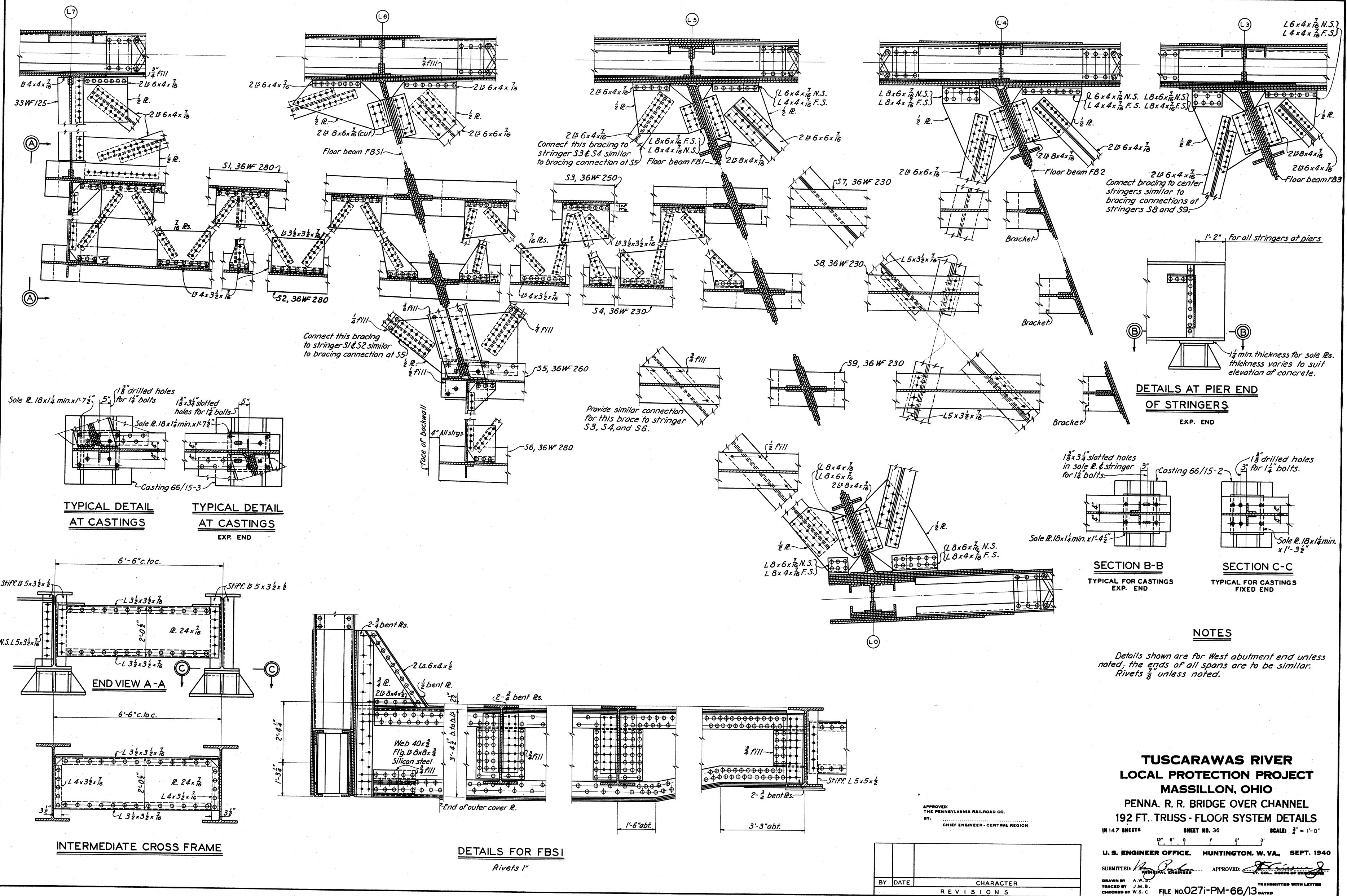
IN 147 SHEETS SHEET NO. 35 SCALE: $\frac{3}{8}$ " = 1'-0"

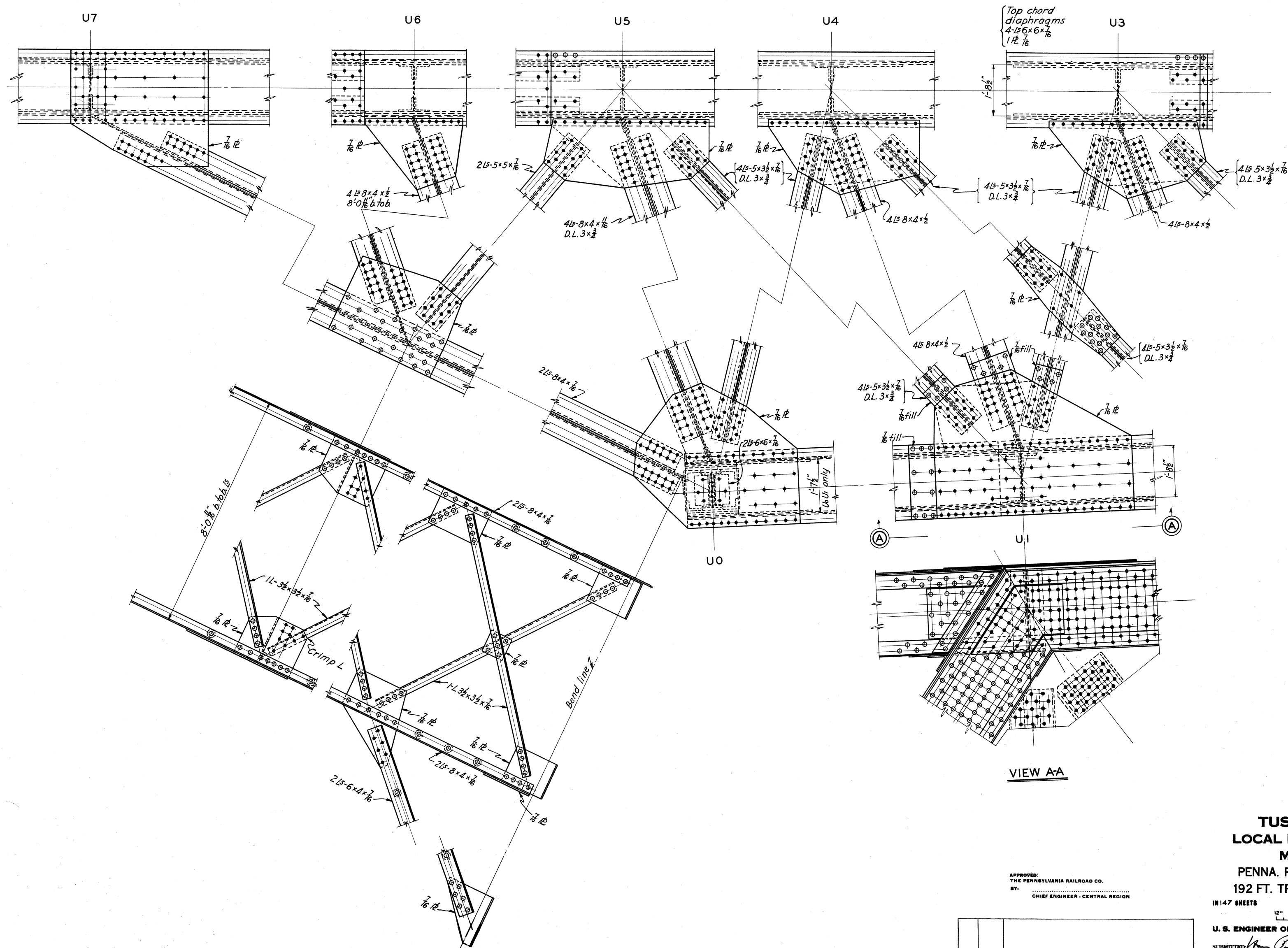
U. S. ENGINEER OFFICE, HUNTINGTON, W. VA., SEPT. 1940

SUBMITTED: [Signature] APPROVED: [Signature]

DRAWN BY: A.W.S. TRACED BY: A.J.M. CHECKED BY: W.S.C. FILE NO. 0271-PM-66/12 TRANSMITTED WITH LETTER DATED: [Signature]

BY	DATE	CHARACTER
		REVISIONS





**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
PENNA. R. R. BRIDGE OVER CHANNEL
192 FT. TRUSS - TOP LATERAL DETAILS**

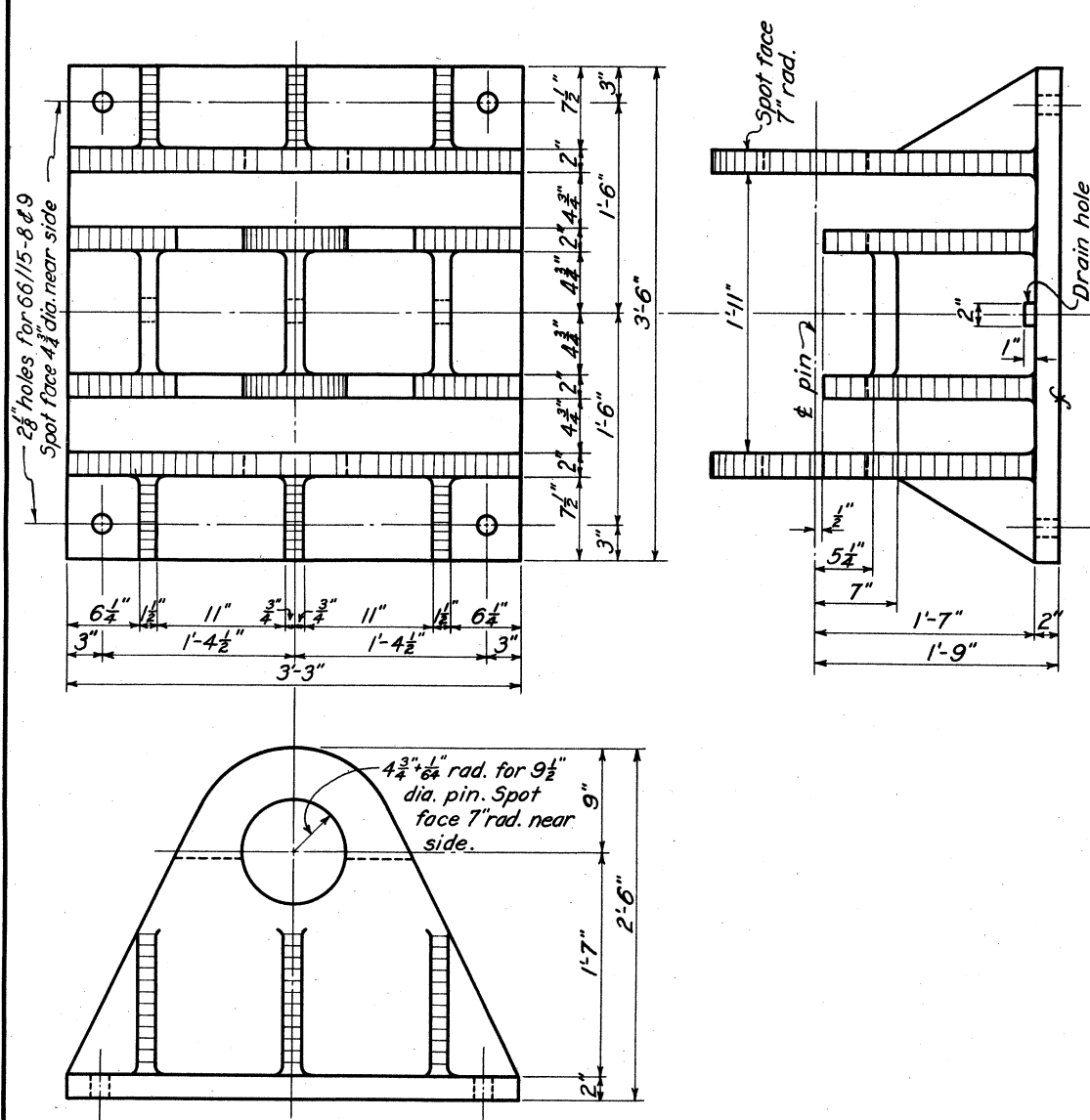
IN 147 SHEETS SHEET NO. 37 SCALE: $\frac{3}{4}" = 1' - 0"$

U. S. ENGINEER OFFICE. HUNTINGTON. W. VA., SEPT. 1940

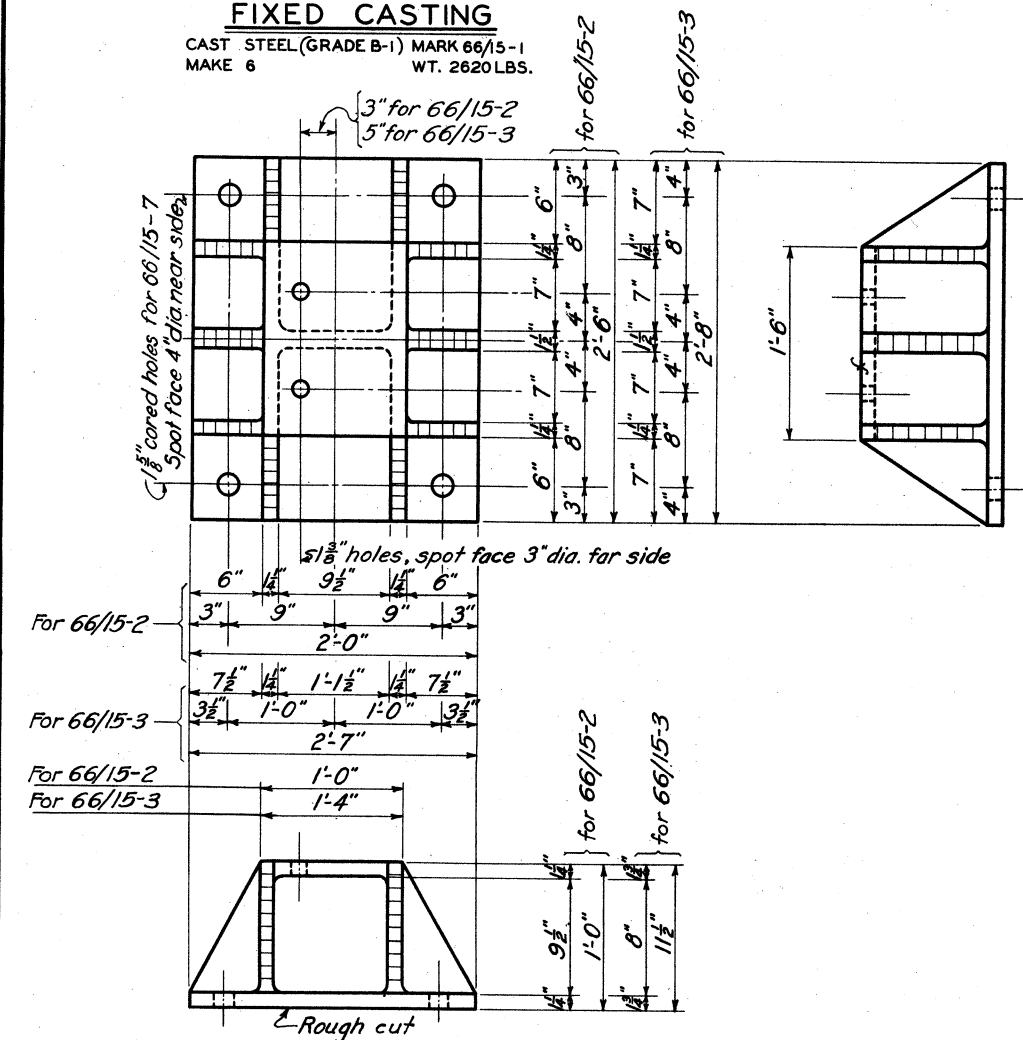
SUBMITTED: W. P. [Signature]
PRINCIPAL ENGINEER

APPROVED: [Signature]
COL. COMMANDER ENGINEER

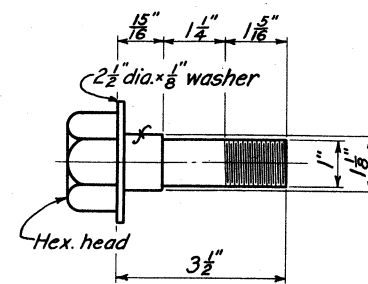
DRAWN BY A.J.M. TRANSMITTED WITH LETTER
 TRACED BY A.J.M.
 CHECKED BY W.S.C. FILE NO. 027i-PM-66/14 DATED

**FIXED CASTING**

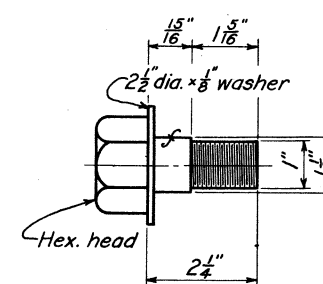
CAST STEEL (GRADE B-1) MARK 66/15-1
MAKE 6 WT. 2620 LBS.

**STRINGER CASTINGS**

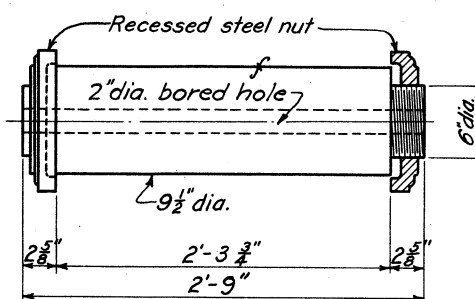
CAST STEEL (GRADE B-1)
MARK 66/15-2 MAKE 18 WT. 620 LBS.
MARK 66/15-3 MAKE 6 WT. 920 LBS.

**TAP BOLT**

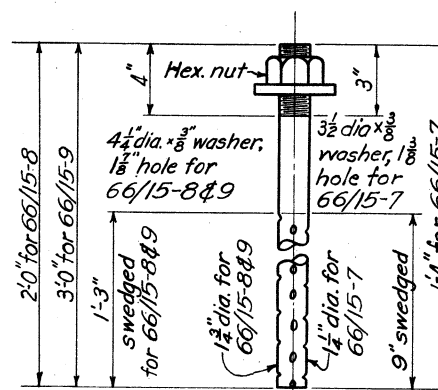
STRUCT. STEEL MARK 66/15-4
MAKE 48 WT. 1.64 LBS.
SCALE 6"=1'-0"

**TAP BOLT**

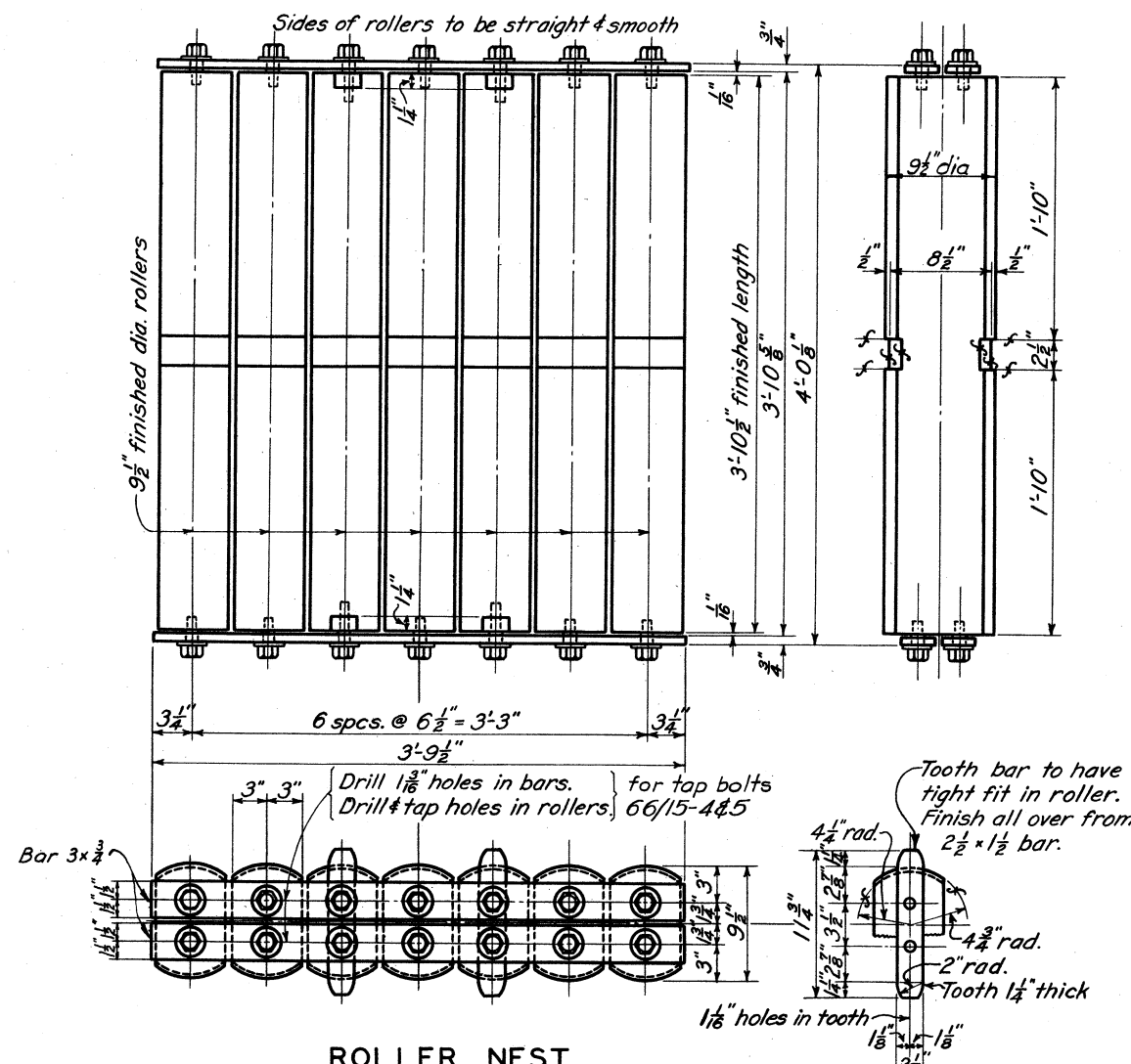
STRUCT. STEEL MARK 66/15-5
MAKE 120 WT. 1.33 LBS.
SCALE 6"=1'-0"

**PIN**

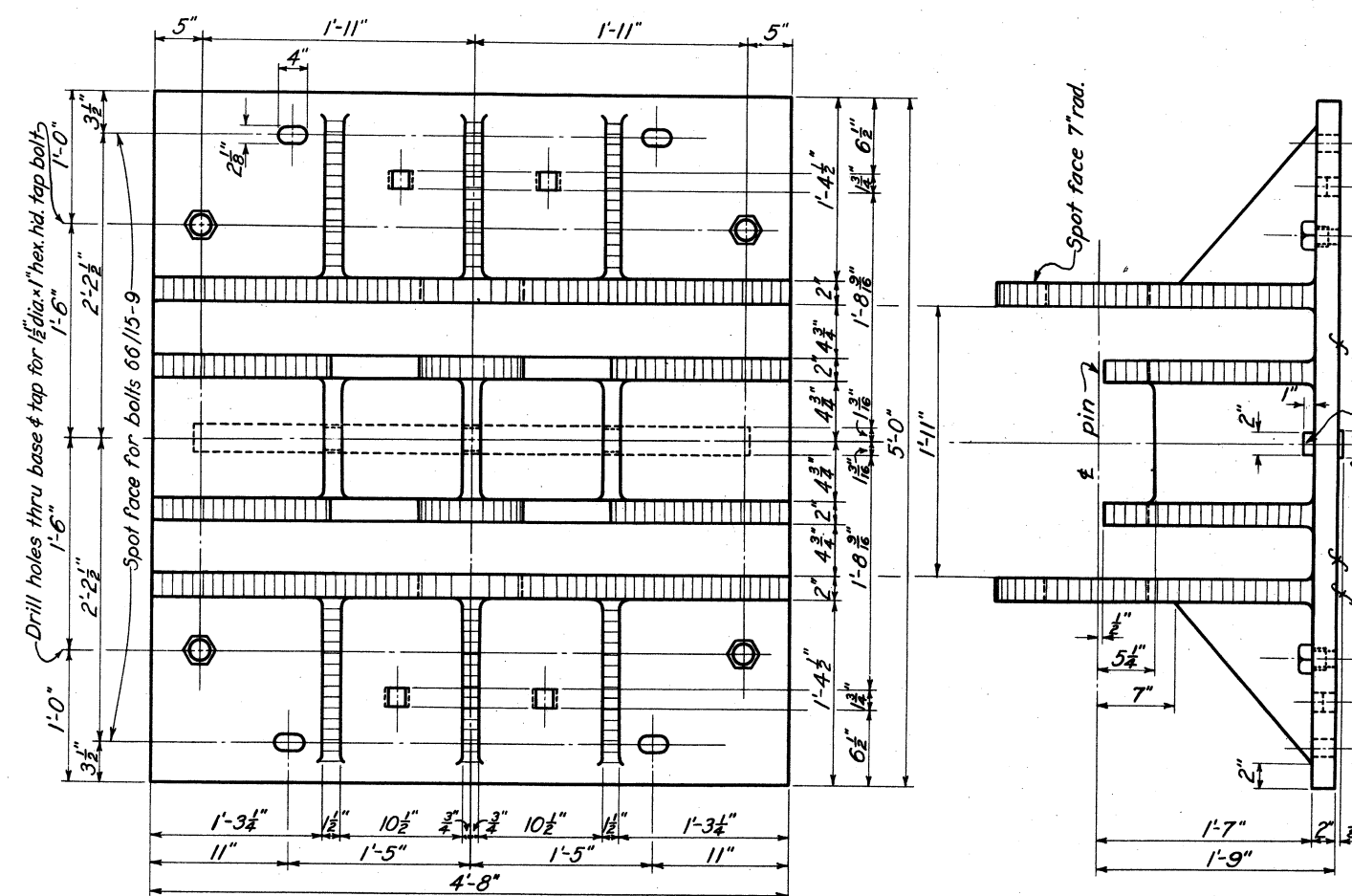
FORGED STEEL WITH RECESSED STEEL NUT
MARK 66/15-6 FORGED STEEL WT. 570 LBS.
MAKE 12 STEEL NUTS WT. 64 LBS.

**ANCHOR BOLT**

STRUCTURAL STEEL
MARK 66/15-7 MAKE 96 WT. 7.5 LBS.
MARK 66/15-8 MAKE 8 WT. 20.8 LBS.
MARK 66/15-9 MAKE 40 WT. 29.0 LBS.

**ROLLER NEST**

FORGED STEEL ROLLERS WITH STRUCTURAL STEEL BARS
MARK 66/15-10 FORGED STEEL WT. 4820 LBS.
MAKE 6 STRUCTURAL STEEL WT. 144 LBS.

**ROLLER CASTING**

CAST STEEL (GRADE B-1) MARK 66/15-11
MAKE 6 WT. 4070 LBS.

NOTES

All fillets on castings 3/4" radius.

**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
PENNA. R. R. BRIDGE OVER CHANNEL
CASTINGS**

IN 147 SHEETS

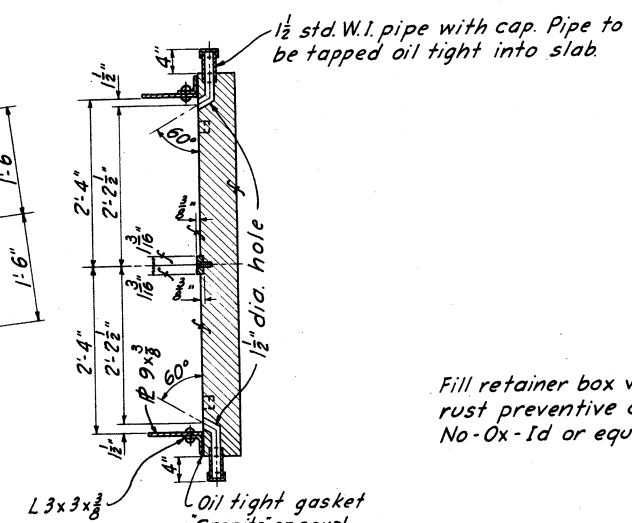
SHEET NO. 38

SCALE: 1 1/2"=1'-0"

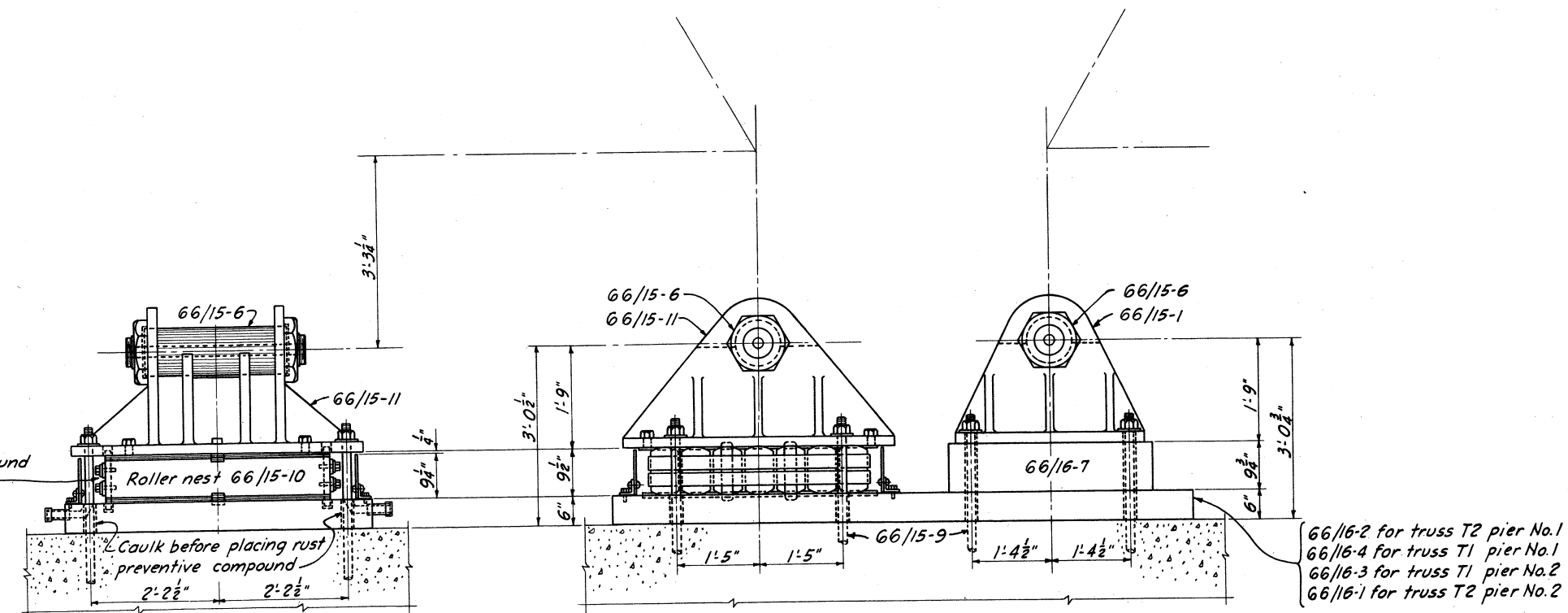
U. S. ENGINEER OFFICE, HUNTINGTON, W. VA., SEPT. 1940

SUBMITTED: *[Signature]* APPROVED: *[Signature]*
DRAWN BY H. S. M. TRANSMITTED WITH LETTER
CHECKED BY C. C. B. FILE NO. 0271-PM-66/15
DATED

BY	DATE	CHARACTER
		REVISIONS

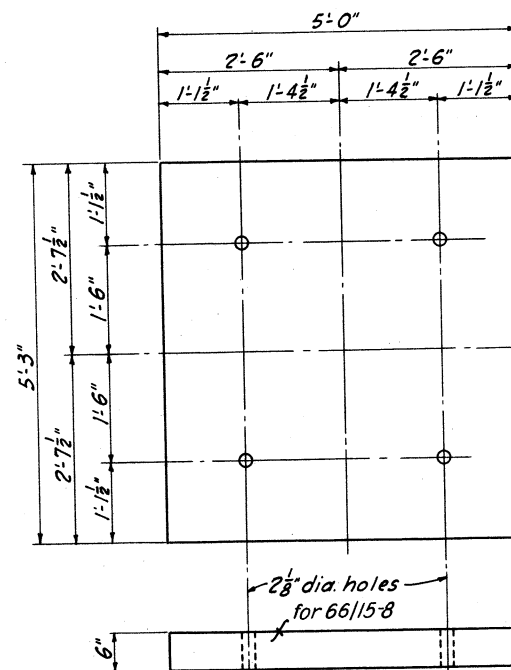


Fill retainer box with
rust preventive compound
No-Ox-Id or equal.

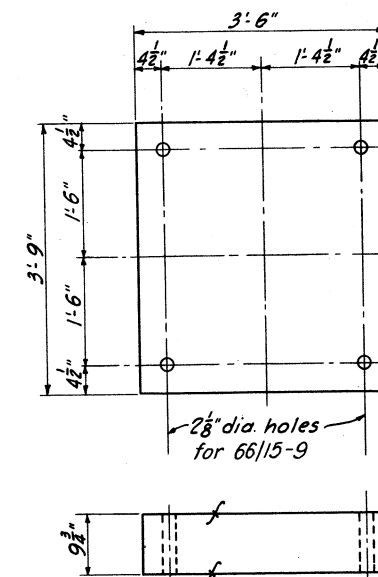


BEARING SLAB, ROLLER NEST AND CASTINGS SHOWN

STRUCTURAL STEEL			
MARK	66/16-1	MAKE 1	WT. 13,280 LBS.
MARK	66/16-2	MAKE 1	WT. 13,280 LBS.
MARK	66/16-3	MAKE 1	WT. 13,280 LBS.
MARK	66/16-4	MAKE 1	WT. 13,280 LBS.



STRUCT. STEEL	MARK 66/16-6
MAKE 2	WT. 6400 LBS.



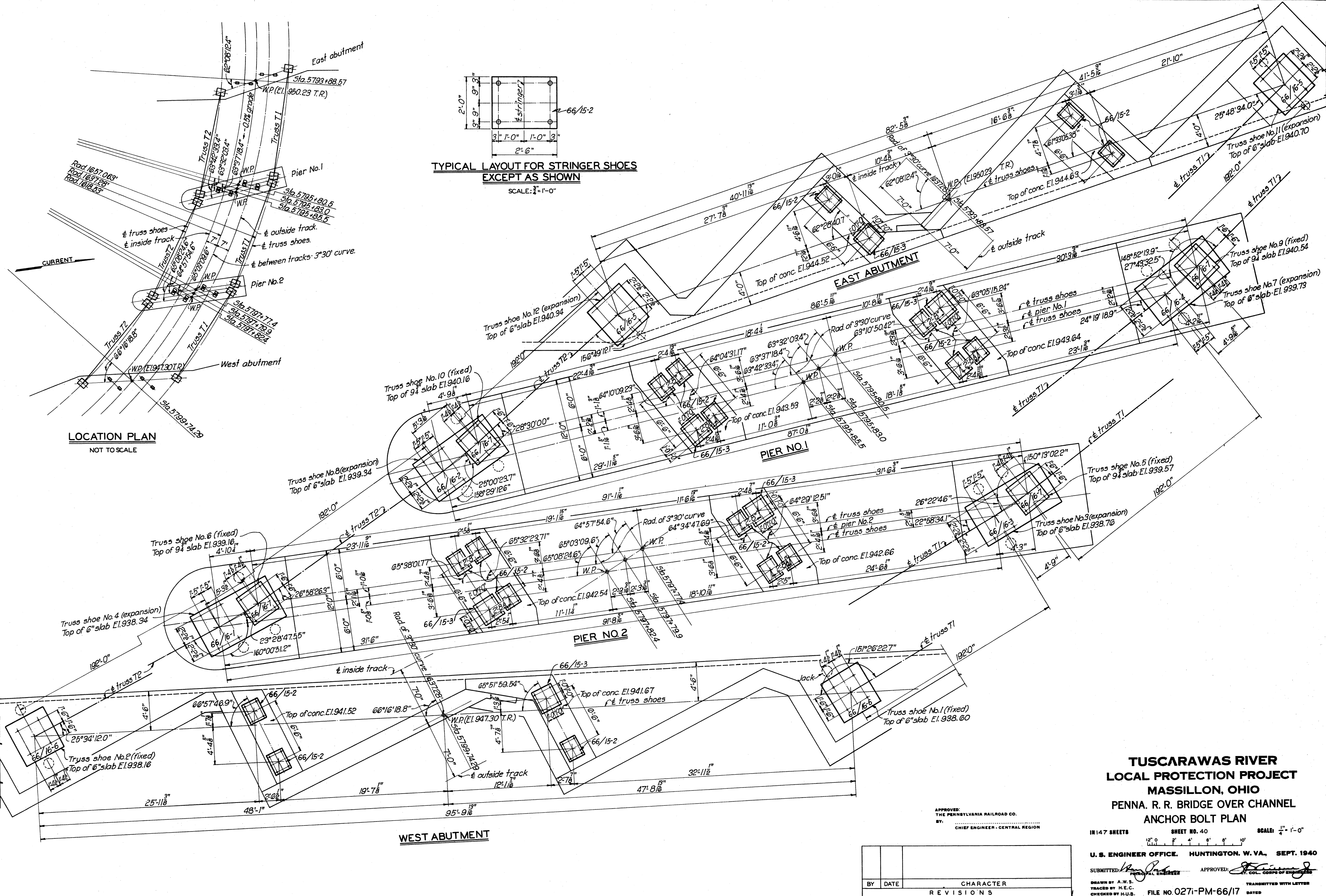
STRUCT. STEEL MARK 66/16-7
MAKE 4 WT. 5190 LBS.

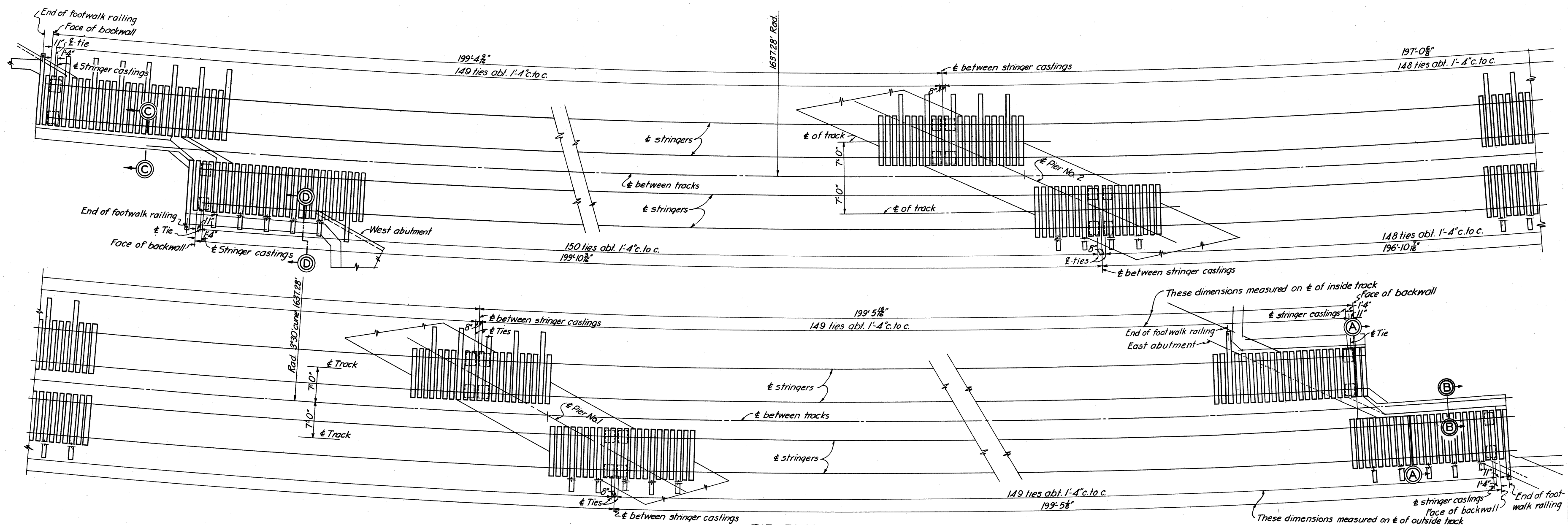
**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
PENNA. R. R. BRIDGE OVER CHANNEL
BEARING ASSEMBLY & DETAILS**

SUBMITTED: *[Signature]* APPROVED: *[Signature]*
 SPECIAL ENGINEER ST. COL. CORPS OF ENGINEERS

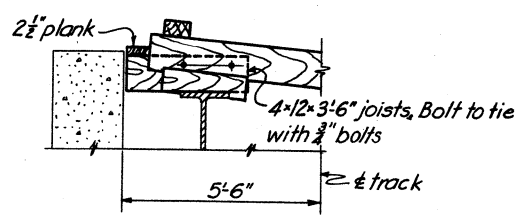
DRAWN BY S. B. TRANSMITTED WITH LETTER
 TRACED BY A. S.
 CHECKED BY H.U.S. FILE NO. 0271-PM-66/16 DATED

BY	DATE	CHARACTER
REVISIONS		

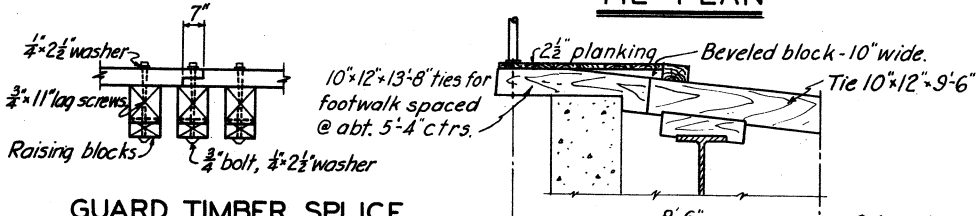




TIE PLAN

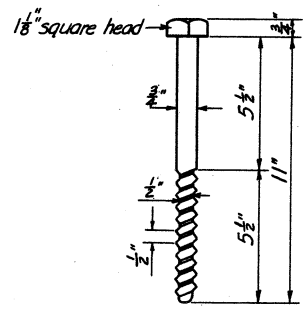


SECTION C-C
SCALE: 3/8" = 1'-0"

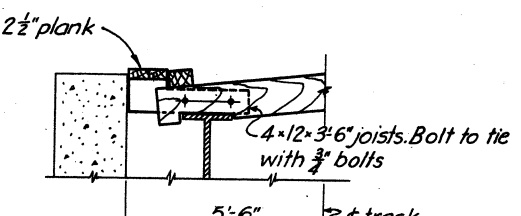


GUARD TIMBER SPLICE
SCALE: 3/8" = 1'-0"

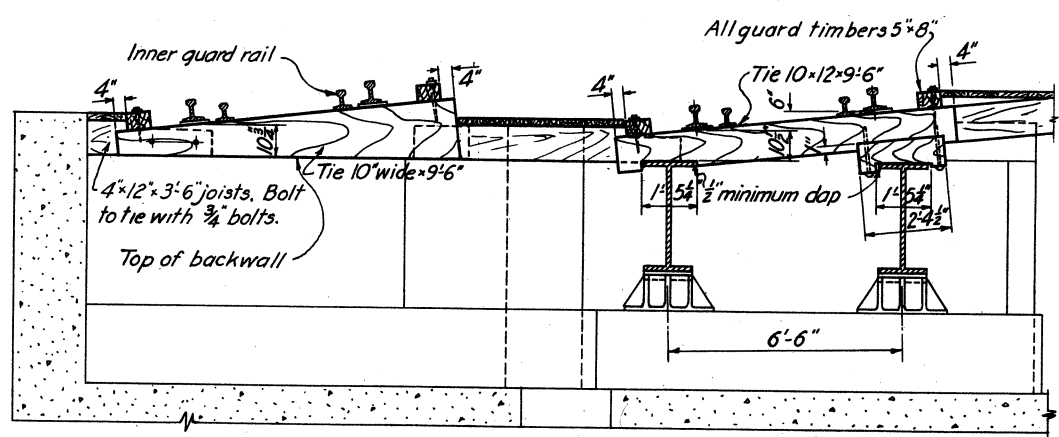
SECTION D-D
SCALE: 3/8" = 1'-0"



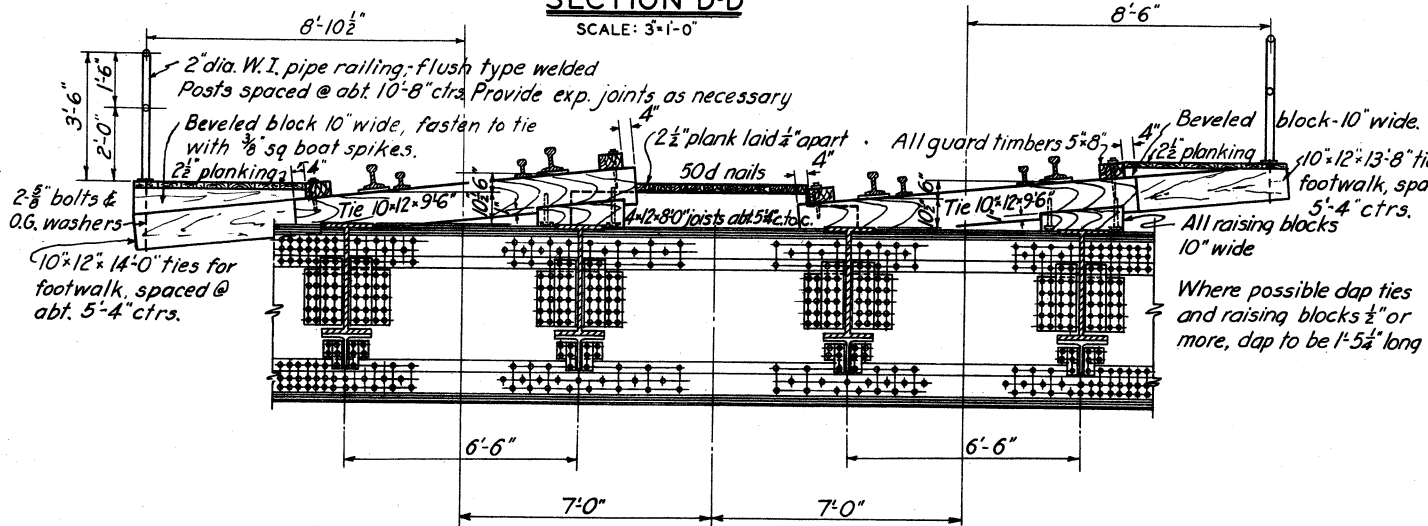
LAG SCREW
SCALE: 3/8" = 1'-0"



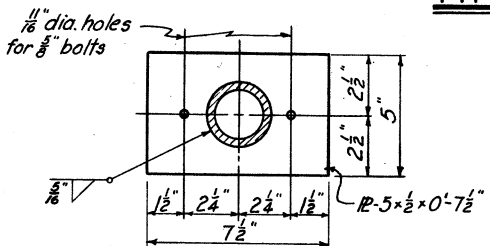
SECTION B-B
SCALE: 3/8" = 1'-0"



SECTION A-A
SHOWING TYPICAL DETAILS AT BACKWALLS
AND STRINGERS BETWEEN FLOOR BEAMS
SCALE: 3/8" = 1'-0"



TYPICAL SECTION THRU TRACKS AT FLOOR BEAMS
SCALE: 3/8" = 1'-0"



DETAIL OF RAILING POST BASE PLATE
SCALE: 3/8" = 1'-0"

NOTES

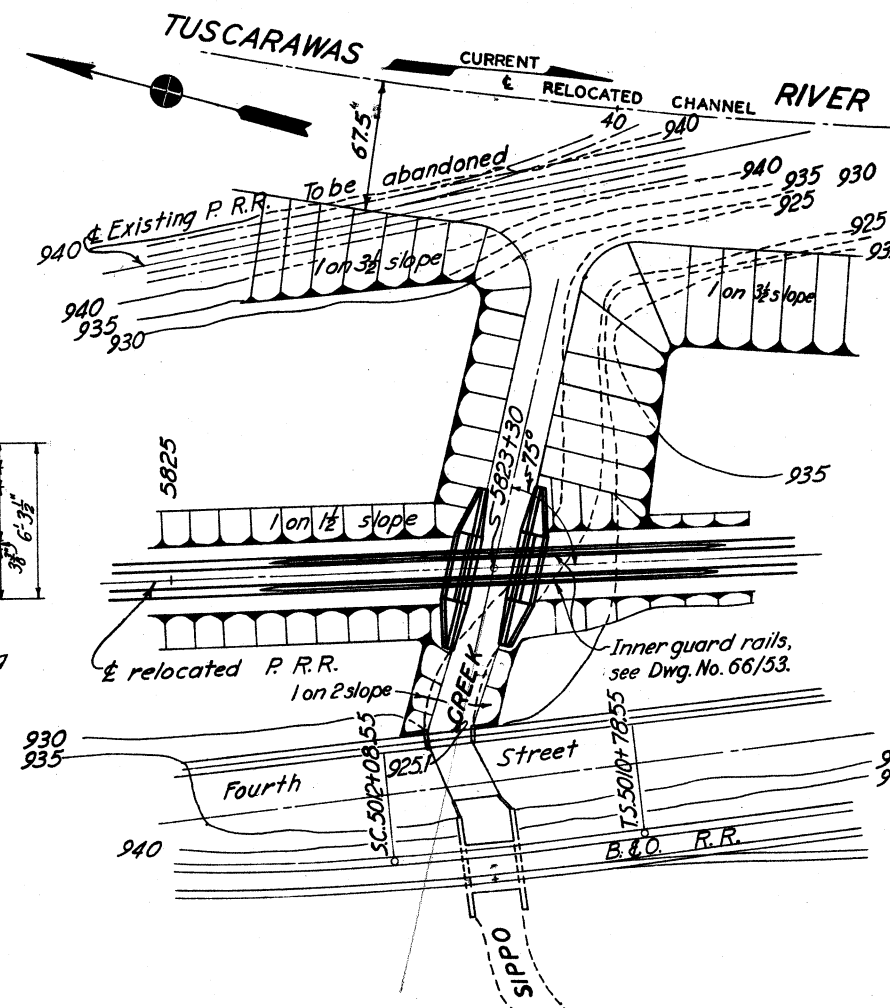
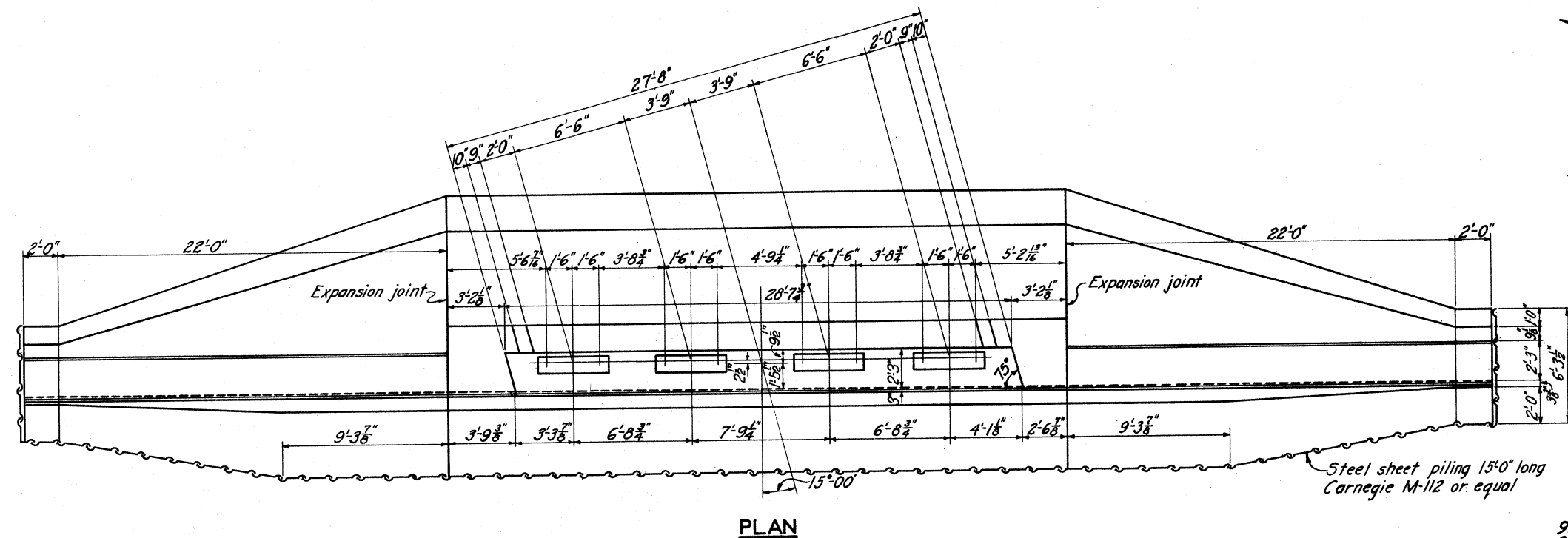
Fasten guard timbers to ties with 3/4" x 11" lag screws, staggered 2" except at splices and outside ends of guard timbers where a 3/4" bolt through tie or tie and raising block shall be used, with a 2 1/2" x 2 1/2" washer under head and nut, and head of lag screws. Holes in ties for lag screws shall be bored 1/2" dia. Lag screws shall not be driven but must be screwed into position. Raising blocks to be fastened to ties with 3/4" square boat spikes, to extend into tie not less than 4". Where necessary, under side of ties and raising blocks shall be grooved for rivet heads on top of floor beams. For details of inner guard rail, see Dwg. No. 66/53.

TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
PENNA. R. R. BRIDGE OVER CHANNEL
TIE PLAN

IN 147 SHEETS SHEET NO. 41 SCALE: 1/8" = 1'-0"

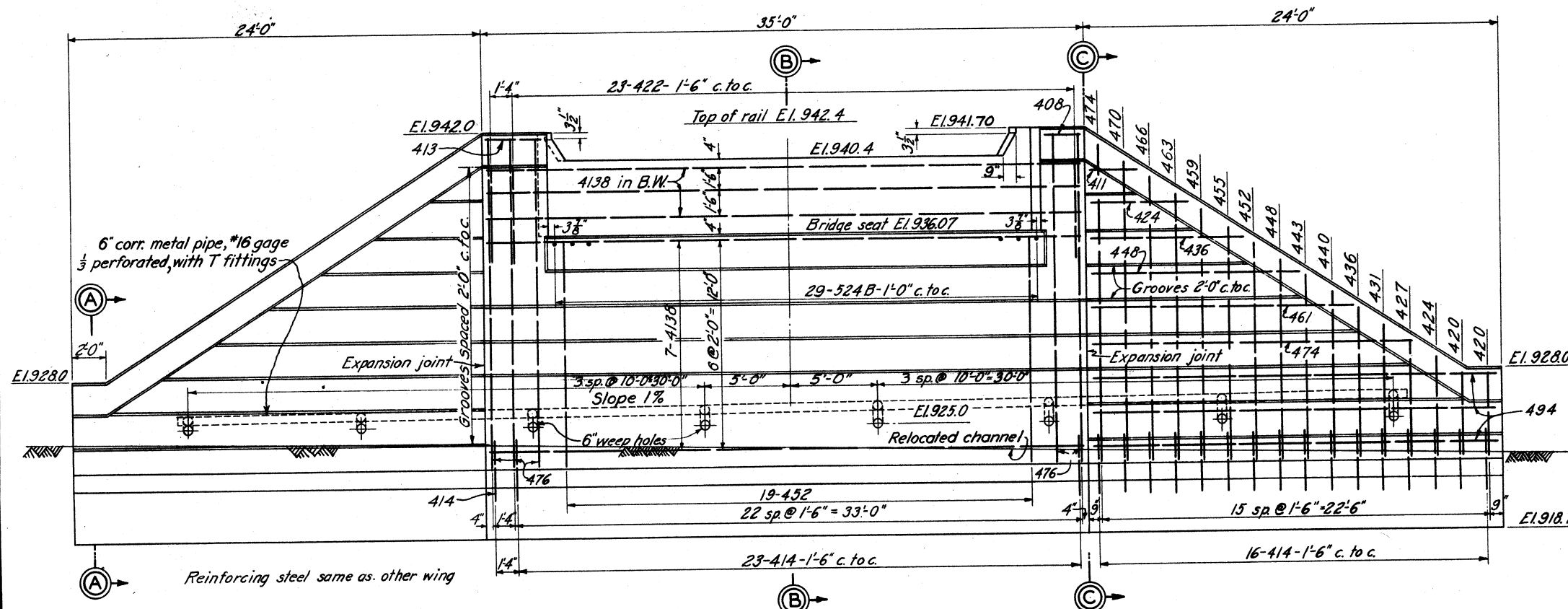
U. S. ENGINEER OFFICE. HUNTINGTON, W. VA., SEPT. 1940
SUBMITTED BY: [Signature] APPROVED BY: [Signature]
DRAWN BY: H. S. M. TRANSMITTED WITH LETTER
CHECKED BY: H. U. B. FILE NO. 0271-PM-66/18 DATED

APPROVED:	THE PENNSYLVANIA RAILROAD CO.
BY:	CHIEF ENGINEER - CENTRAL REGION
BY:	DATE
CHARACTER	REVISIONS

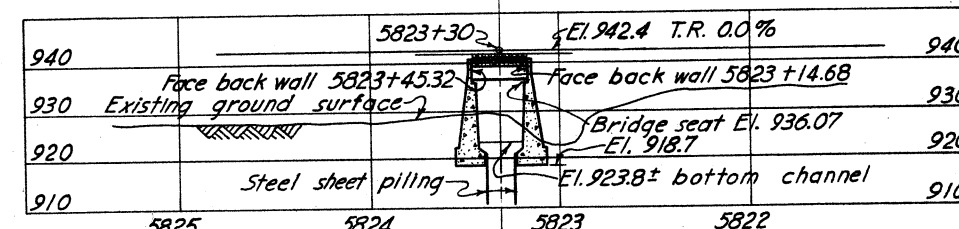
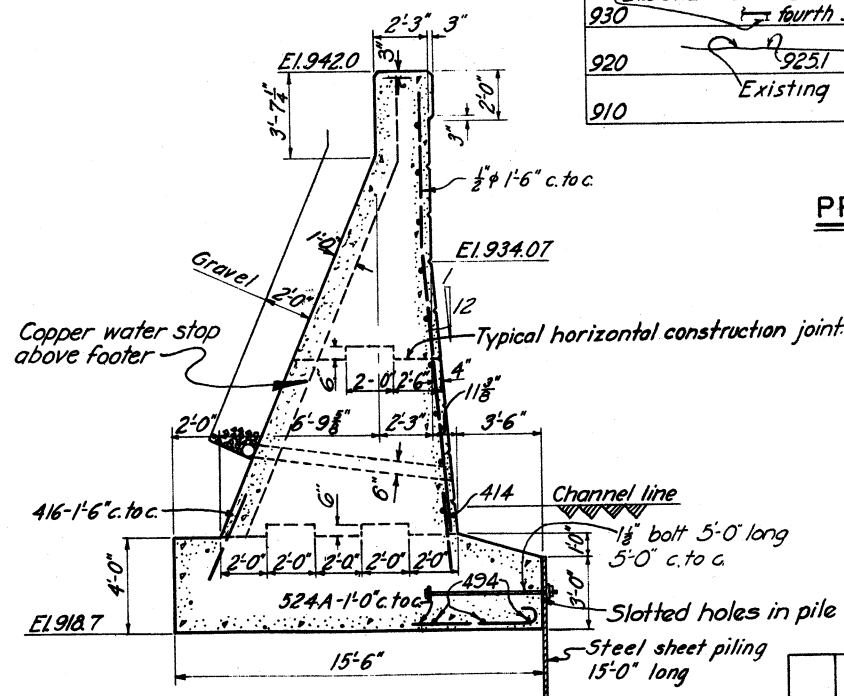
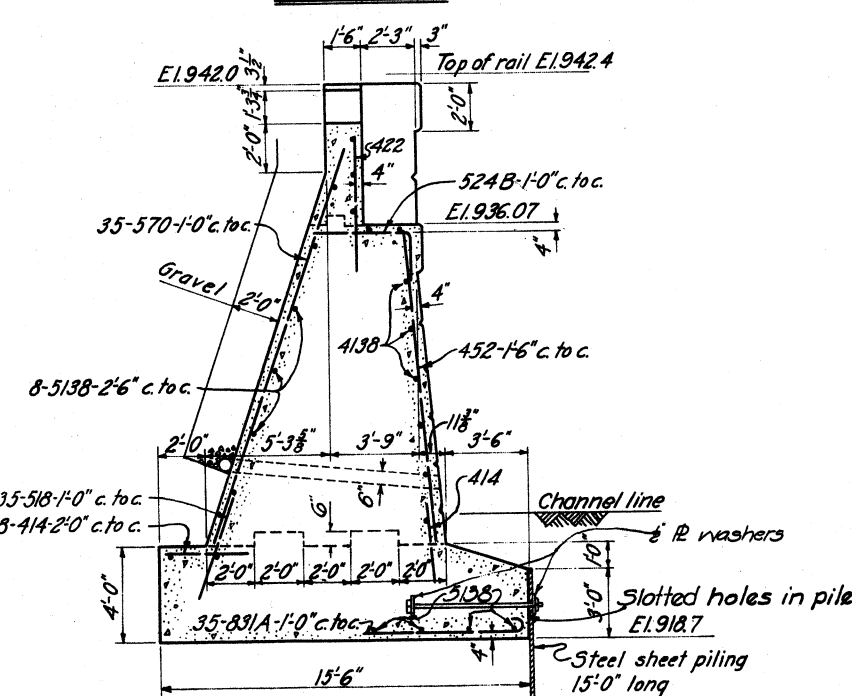
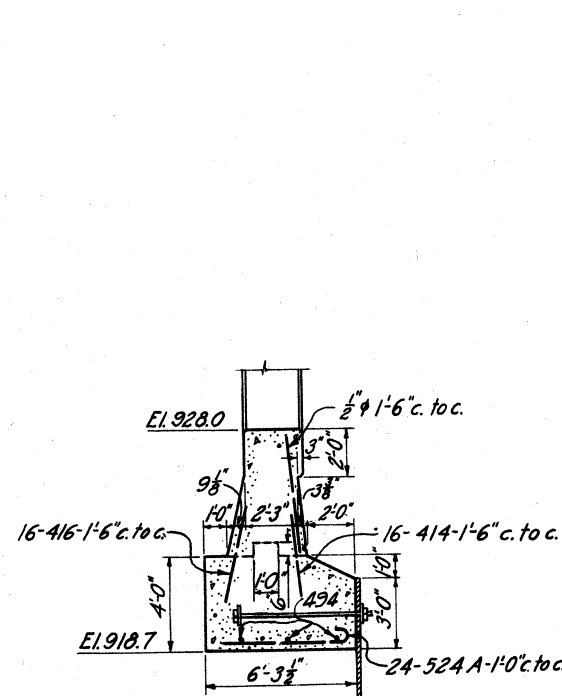


LOCATION PLAN

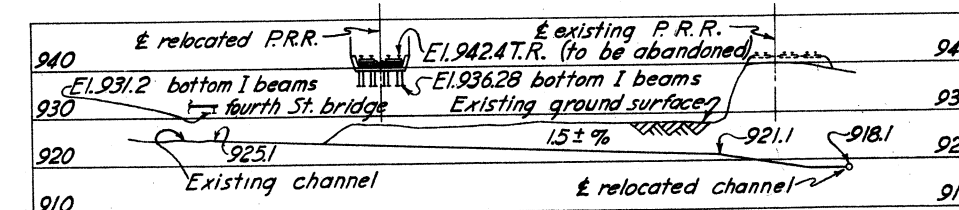
SCALE: 1"=50'



ELEVATION



PROFILE ON & P.R.R.

SCALES: HOR. 1"=50'
VERT. 1"=20'

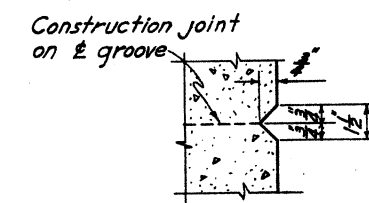
PROFILE ON & SIPPO CREEK

SCALES: HOR. 1"=50'
VERT. 1"=20'

REINFORCING SCHEDULE

MARK	SIZE	LGTH	BENDING DIAGRAM	NO.	UNIT WT.	TOTAL WT.
408	1/2"	2'-0"		2	1.34	3
411	1/2"	2'-9"		4	1.84	7
413	1/2"	3'-3"		2	2.17	4
414	1/2"	3'-6"		148	2.34	347
416	1/2"	4'-0"		64	2.67	171
420	1/2"	5'-0"		8	3.34	27
422	1/2"	5'-6"		48	3.67	176
424	1/2"	6'-0"		8	4.01	32
427	1/2"	6'-9"		4	4.51	18
431	1/2"	7'-9"		4	5.18	21
436	1/2"	9'-0"		8	6.01	48
440	1/2"	10'-0"		4	6.68	27
443	1/2"	10'-9"		4	7.18	29
448	1/2"	12'-0"		4	8.02	32
452	1/2"	13'-0"		42	8.68	365
455	1/2"	13'-9"		4	9.18	37
459	1/2"	14'-9"		4	9.83	39
461	1/2"	15'-3"		4	10.19	41
463	1/2"	15'-9"		4	10.52	42
466	1/2"	16'-6"		4	11.02	44
470	1/2"	17'-6"		4	11.69	47
474	1/2"	18'-6"		10	12.36	124
476	1/2"	19'-0"		10	12.69	127
482	1/2"	20'-6"		8	13.69	110
494	1/2"	23'-6"		24	15.70	376
4138	1/2"	34'-6"		22	23.04	507
518	1/2"	4'-6"		70	5.74	402
524A	1/2"	6'-0"		96	6.26	600
524B	1/2"	6'-0"		38	6.26	363
570	1/2"	17'-6"		70	18.23	1277
5138	1/2"	34'-6"		24	35.98	864
831A	1/2"	7'-9"		70	20.69	1448
Total					7755	

Reinforcing steel is for two abutments.



NOTES

For details of key in expansion joints see Dwg. No. 66/2.

Chamfer all exposed edges 1/2" unless otherwise noted.

Place all reinforcing steel 4" minimum from surfaces unless otherwise noted.

For steel details, see Dwg. No. 66/20.

For general plan, see Dwg. No. 10/3.

For details of water stop see Dwg. No. 66/2.

All concrete to be Class 'B'.

TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
PENNA. R. R. BRIDGE OVER SIPPO CREEK
ABUTMENTS

IN 147 SHEETS

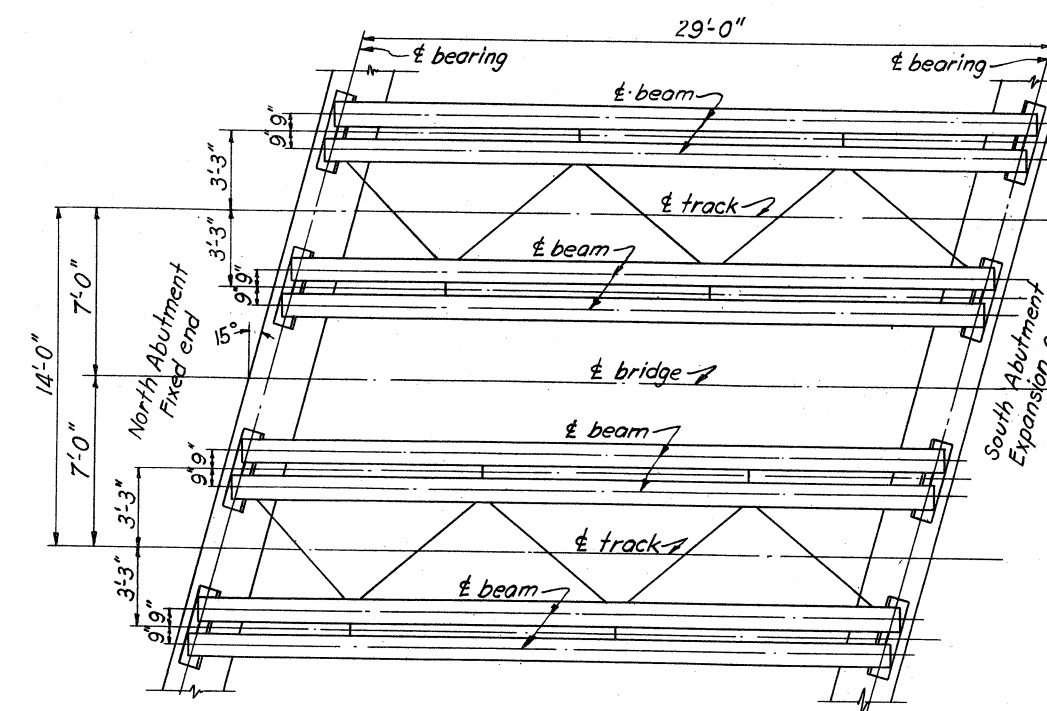
U. S. ENGINEER OFFICE, HUNTINGTON, W. VA., SEPT. 1940

SUBMITTED: *[Signature]* APPROVED: *[Signature]*

DRAWN BY: R.M.C. TRANSMITTED WITH LETTER

CHECKED BY: W.E.C. FILE NO. 0271-PM-66/19 DATED

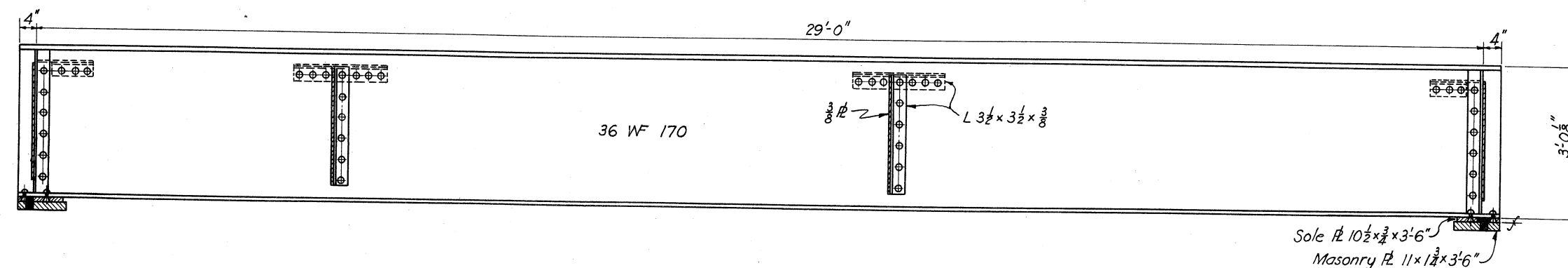
BY DATE CHARACTER REVISIONS



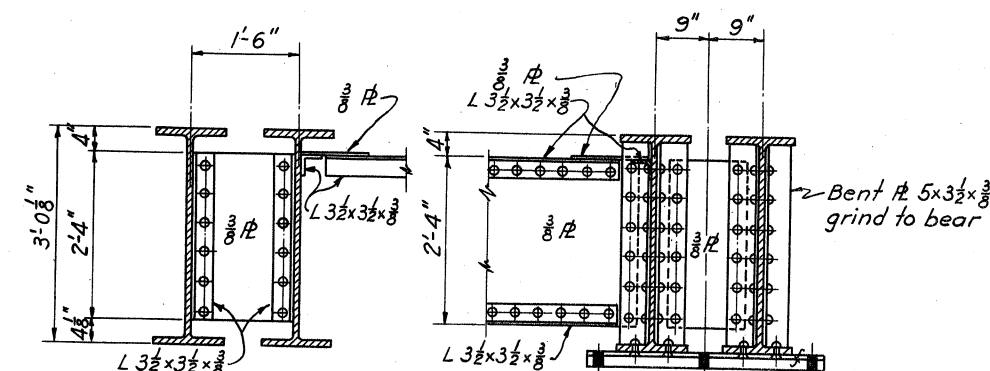
HALF PLAN

STEEL FRAMING PLAN

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

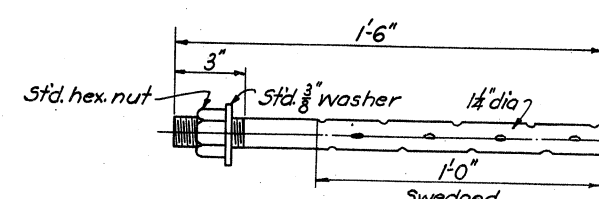


SECTION C-C



SECTION B-B

SECTION A-A



ANCHOR BOLT

STRUCTURAL STEEL MARK 66/20-1
MAKE 24 WT. 7.7 LBS.
SCALE: 3"=1'-0"

DESIGN DATA

<u>SHEAR</u>	<u>MOMENT</u>
D.L. = 37,000 #	D.L. = 270,000' #
L.L. = 111,000 #	L.L. = 698,000' #
<u>I. = 108,000 #</u>	<u>I. = 678,000' #</u>
Total = 256,000 #	Total = 1,646,000' #
Section Mod. required = $\frac{1646,000 \times 12}{18000} = 1097^{+3}$	
Section Mod. furnished = $2-36 \text{ WF } 170 = 2 \times 579.1 = 1158.2^{+3}$	

Figure 10: A diagram showing the layout of a bridge deck with various dimensions and weights. The top row shows weights in pounds (lb) for different sections: 36,000, 72,000, 72,000, 72,000, 72,000, 46,800, 46,800, 46,800, 36,000, 72,000, 72,000, 72,000, 46,800, 46,800, 46,800, 72,000/lb per lin. ft., 90,000. The bottom row shows corresponding dimensions in feet: 8', 5', 5', 5', 9', 5', 6', 6', 8', 8', 5', 5', 5', 9', 5', 6', 5', 5', 7'.

LOCOMOTIVE LOADING USED-COOPERS E-72

Axle loads shown

APPROVED:
THE PENNSYLVANIA RAILROAD CO.
BY:
CHIEF ENGINEER - CENTRAL REGION

BY	DATE	CHARACTER
		REVISIONS

**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
PENNA. R. R. BRIDGE OVER SIPPO CREEK
DESIGN & DETAILS**

IN 147 SHEETS SHEET NO. 43 SCALE: $\frac{3}{4}" = 1' - 0"$

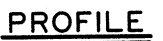
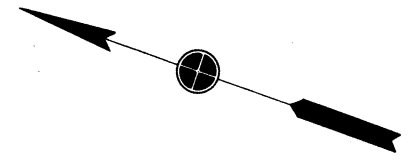
U. S. ENGINEER OFFICE. HUNTINGTON. W. VA. SEPT. 1940

SUBMITTED: Wm. Corliss APPROVED: J. E. ...

DRAWN BY C. D. H.
 TRACED BY C. D. H.
 CHECKED BY H. U. B.

FILE NO. 027i-PM-66/20

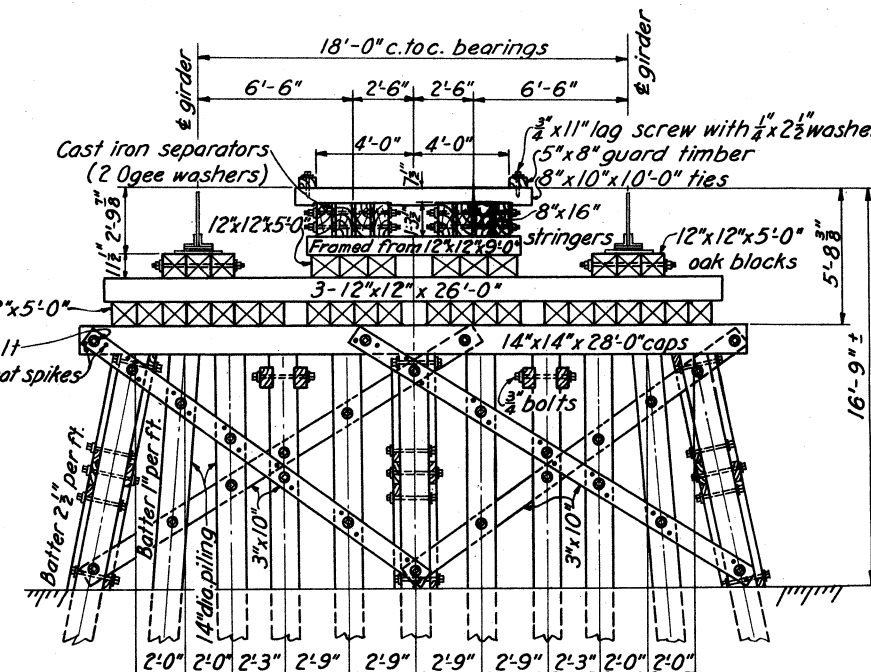
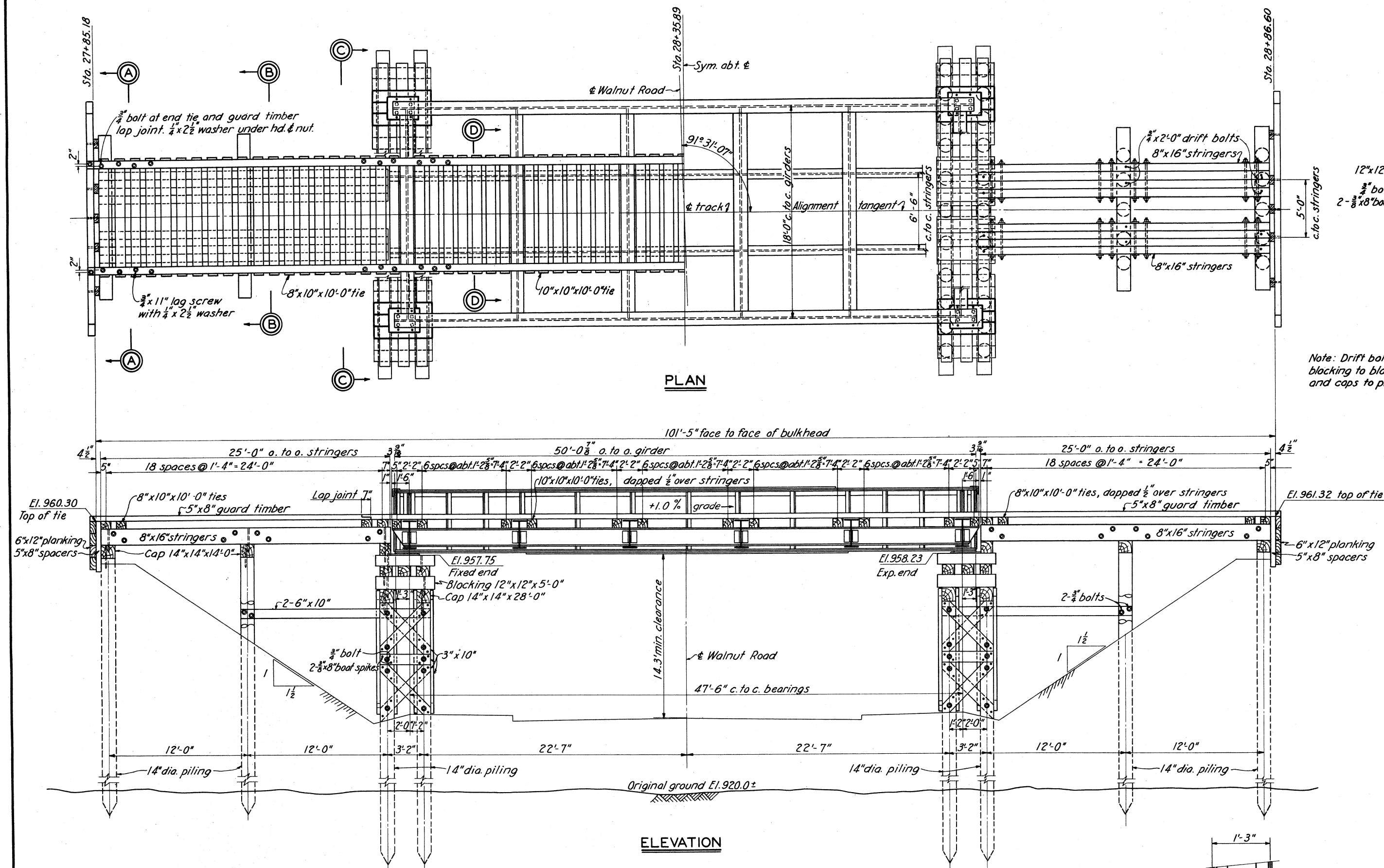
TRANSMITTED WITH LETTER
 DATED



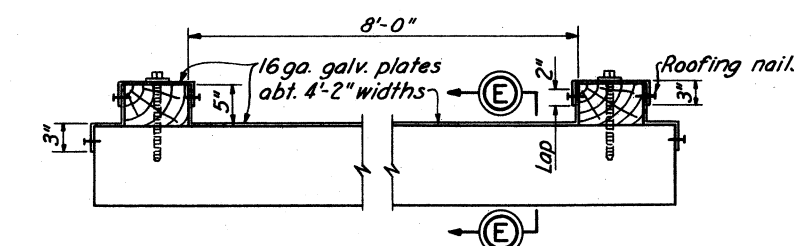
PENNA. R. R. BRIDGE OVER WALNUT ROAD GENERAL PLAN & PROFILE

APPROVED:
THE PENNSYLVANIA RAILROAD CO.
BY:
CHIEF ENGINEER - CENTRAL REGION

BY	DATE	CHARACTER
		REVISIONS

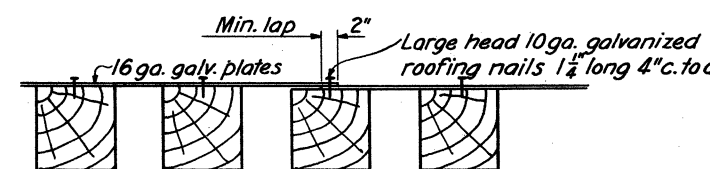


Note: Drift bolt stringers to blocking, blocking to blocking, blocking to caps and caps to piling with 3/4" drift bolts.



TYPICAL SECTION THROUGH DECK

SCALE: 1"=1'-0"

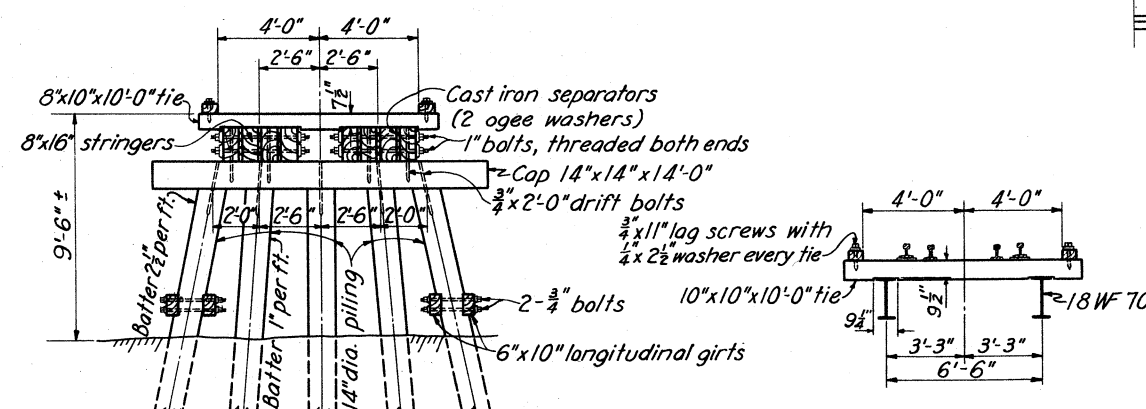
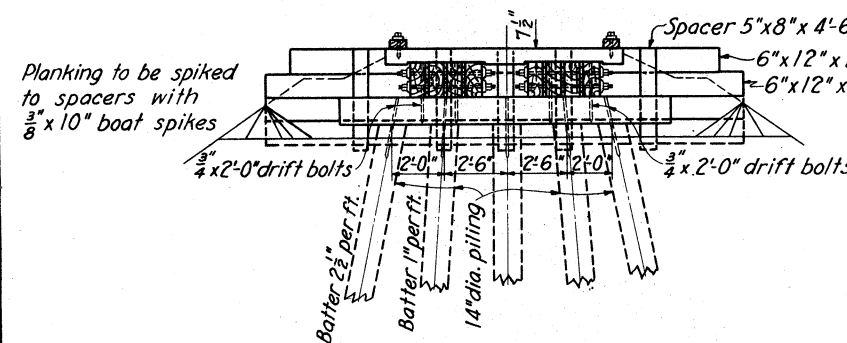


SECTION E-E

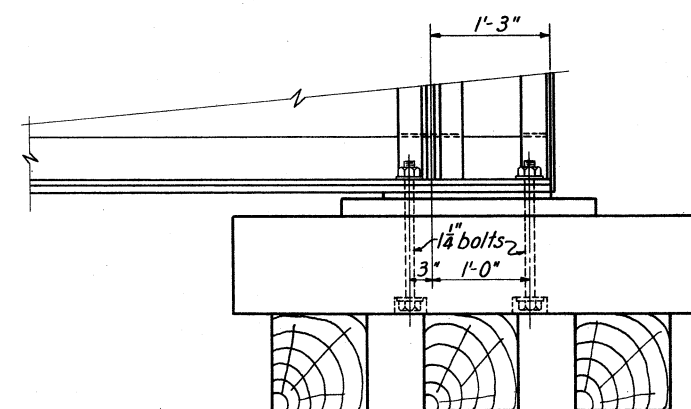
SCALE: 1"=1'-0"

NOTES

Minimum pile penetration to be 20 feet and each pile to be driven to develop a bearing capacity of at least 20 tons.
Standard Ogee washers shall be used under bolt heads and nuts bearing on timber.
For details of steel girder span, see Dwg. No. 66/24.
16 gage galvanized metal deck full length of bridge.



SECTION D-D



ANCHOR BOLT DETAIL

SCALE: 1"=1'-0"

APPROVED: THE PENNSYLVANIA RAILROAD CO.
BY: CHIEF ENGINEER - CENTRAL REGION

**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO**
PENNA. R. R. BRIDGE OVER WALNUT ROAD
PLAN & ELEVATION

IN 147 SHEETS SHEET NO. 46 SCALE: 1/4"=1'-0"

U. S. ENGINEER OFFICE, HUNTINGTON, W. VA. SEPT. 1940

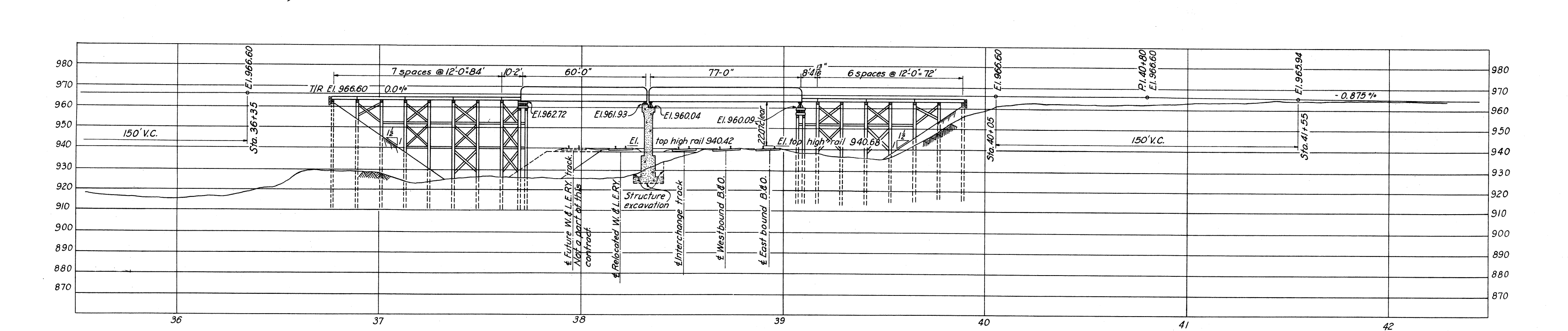
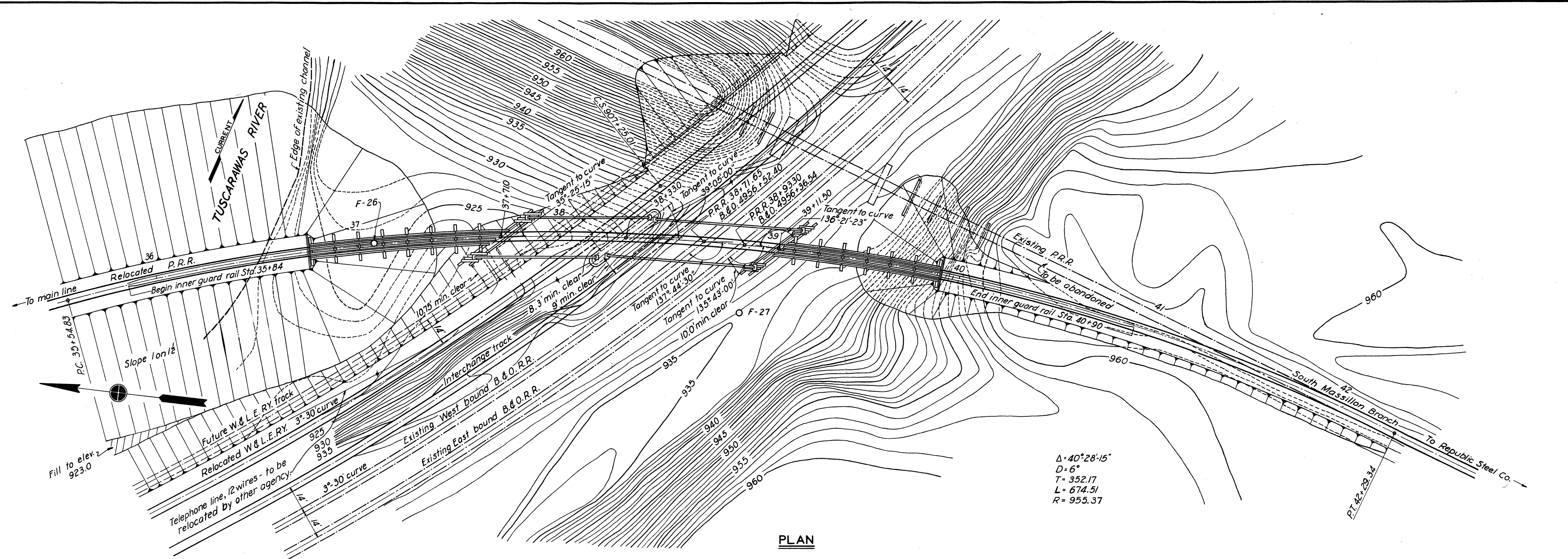
SUBMITTED: [Signature] APPROVED: [Signature]

DRAWN BY: S.B. TRANSMITTED WITH LETTER
CHECKED BY: J.M.S. FILE NO. 0271-PM-66/23 DATED

BY	DATE	CHARACTER

DRAWN BY A. J. M. TRANSMITTED WITH LETTER
 TRACED BY D. R. J.
 CHECKED BY HUB-AR-N FILE No. 027i-PM-66/24 DATED

BY	DATE	CHARACTER
		REVISIONS



NOTES
For log of borings F-26 & F-27 see Dwg. No. 10/3

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THE BALTIMORE AND OHIO RAILROAD CO.
BY: _____ CHIEF ENGINEER

APPROVED:
THE PENNSYLVANIA RAILROAD CO.
BY: _____ CHIEF ENGINEER - CENTRAL REGION

APPROVED:
THE WHEELING AND LAKE ERIE RAILWAY CO.
BY: _____ SPECIAL ENGINEER

**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO**
P. R. R. BRIDGE OVER B. & O. R. R. - W. & L. E. RY.
GENERAL PLAN & PROFILE

11/47 SHEETS SHEET NO. 48 SCALE: HOR. 1"=20' VERT. 1"=20'

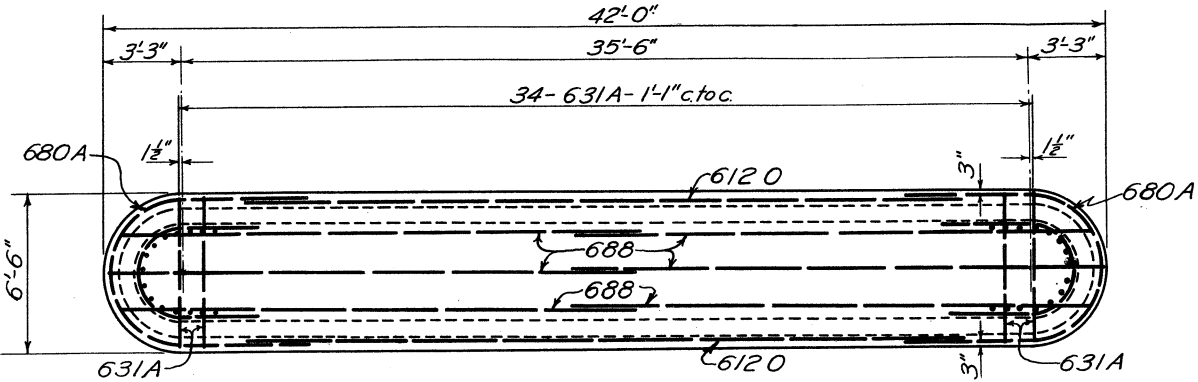
U. S. ENGINEER OFFICE. HUNTINGTON, W. VA., SEPT. 1940

SUBMITTED: _____ APPROVED: _____
DRAWN BY: W. B. S. TRANSMITTED WITH LETTER
CHECKED BY: D. G. J. FILE NO. 0271-PM-66/25 DATED

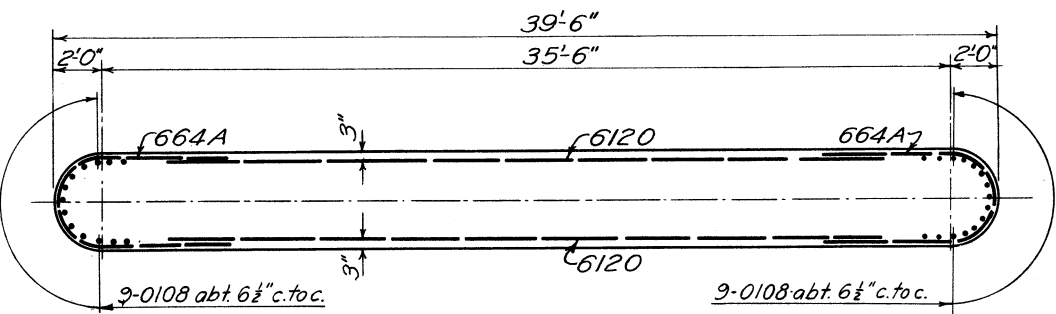
BY	DATE	CHARACTER
		REVISIONS

REINFORCING SCHEDULE

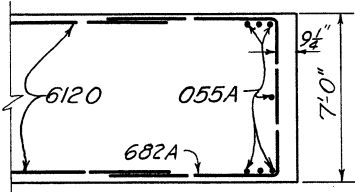
MARK	SIZE	LGTH.	BENDING	DIAGRAM	NO.	UNIT WT.	TOTAL WT.
631A	3/4"	7'-9"			34	11.64	396
632A	3/4"	8'-0"			5	12.02	60
638A	3/4"	9'-6"			17	14.27	243
641A	3/4"	10'-3"			5	15.40	77
648	3/4"	12'-0"			2	18.02	36
652A	3/4"	13'-0"			9	19.53	176
658A	3/4"	14'-6"			4	21.78	87
662A	3/4"	15'-6"			1	23.28	23
664	3/4"	16'-0"			2	24.03	48
664A	3/4"	16'-0"			28	24.03	673
668A	3/4"	17'-0"			3	25.53	77
680	3/4"	20'-0"			3	30.04	90
680A	3/4"	20'-0"			2	30.04	60
682A	3/4"	20'-6"			14	30.79	431
684	3/4"	21'-0"			14	31.54	442
688	3/4"	22'-0"			6	33.04	198
6120	3/4"	30'-0"			44	45.06	1,983
055A	1 1/4"	13'-9"			148	73.05	10,811
068A	1 1/4"	17'-0"			37	90.32	3,342
0108	1 1/4"	27'-0"			148	143.45	21,231
TOTAL						40,484	



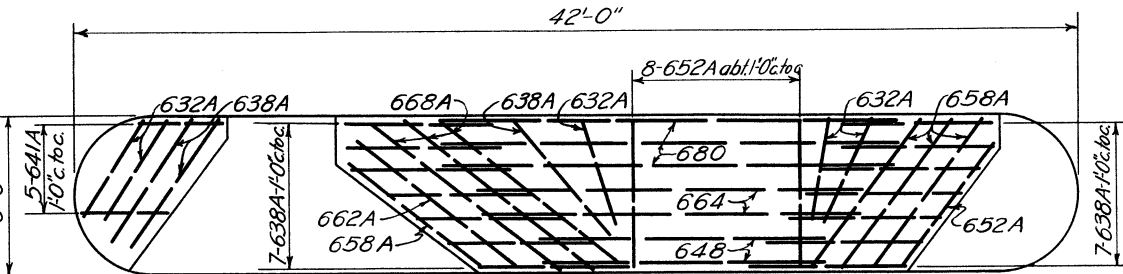
SECTION A-A



SECTION B-B



SECTION C-C



PLAN OF TOP

NOTES

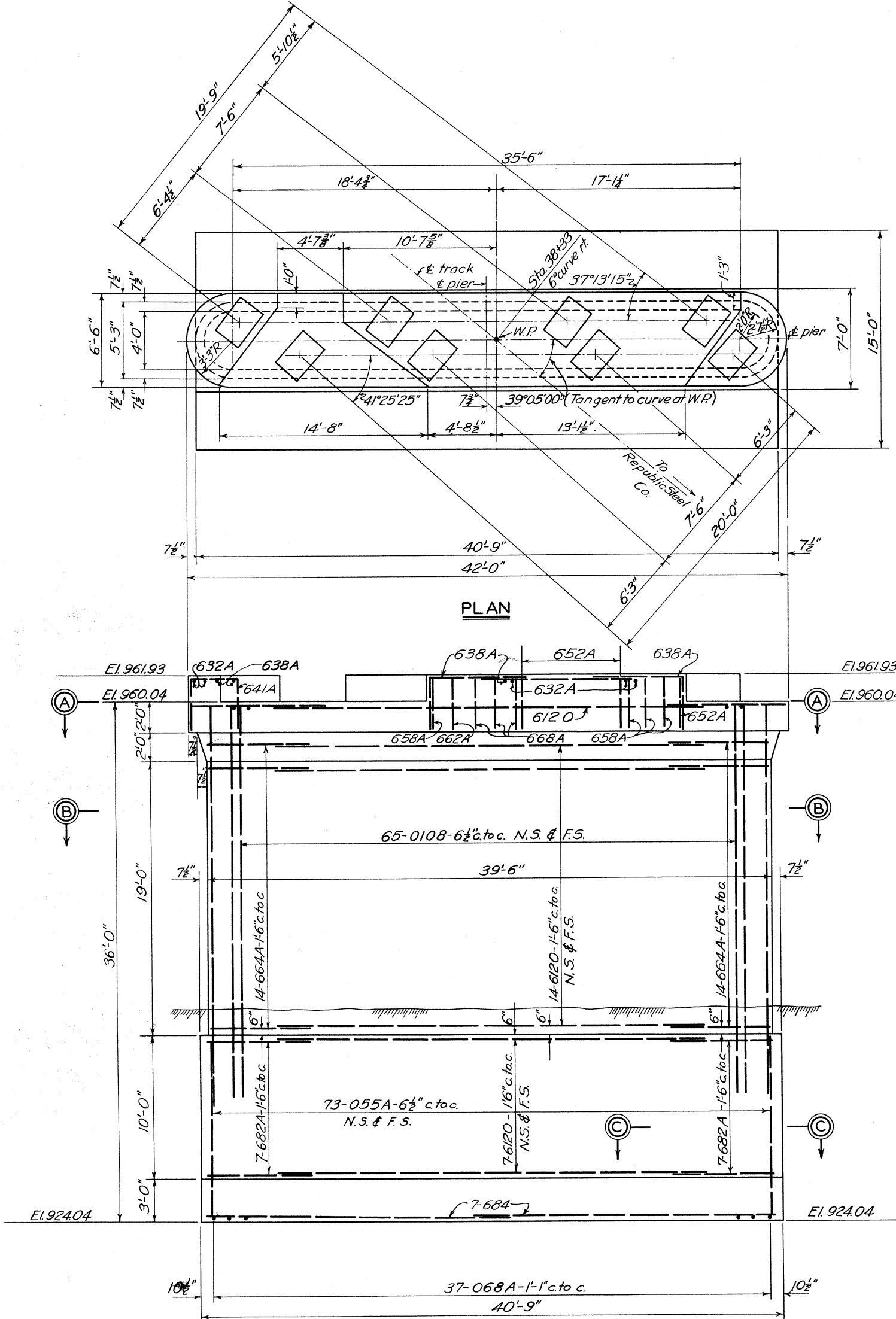
Chamfer all exposed edges 1/2" unless otherwise noted.
For location plan, see Dwg. No. 66/25.
For anchor bolt plan, see Dwg. No. 66/34.
All concrete to be Class B.
For details and spacing of grooves, see Dwg. No. 66/61.

**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
P. R. R. BRIDGE OVER B. & O. R. R. - W. & L. E. RY.
PIER**

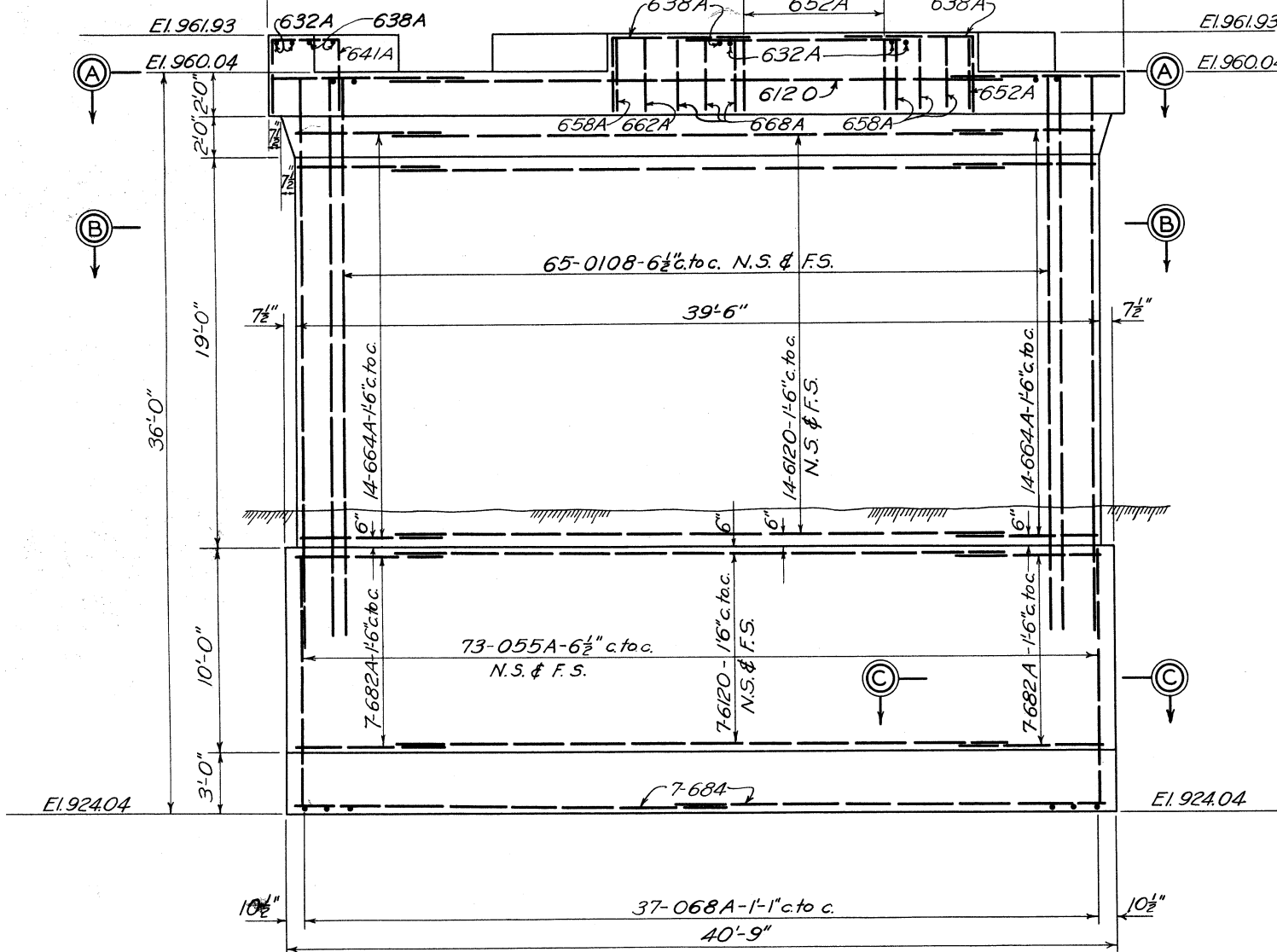
IN 147 SHEETS SHEET NO. 49 SCALE: 1/4" = 1'-0"
U. S. ENGINEER OFFICE. HUNTINGTON, W. VA., SEPT. 1940
SUBMITTED: [Signature] APPROVED: [Signature]
DRAWN BY: R. H. TRANSMITTED WITH LETTERS
TRACED BY: E. S. H.
CHECKED BY: E. K. FILE NO. 0271-PM-66/26 DATED

APPROVED:
THE BALTIMORE AND OHIO RAILROAD CO.
BY: CHIEF ENGINEER
APPROVED:
THE PENNSYLVANIA RAILROAD CO.
BY: CHIEF ENGINEER - CENTRAL REGION
APPROVED:
THE WHEELING AND LAKE ERIE RAILWAY CO.
BY: SPECIAL ENGINEER

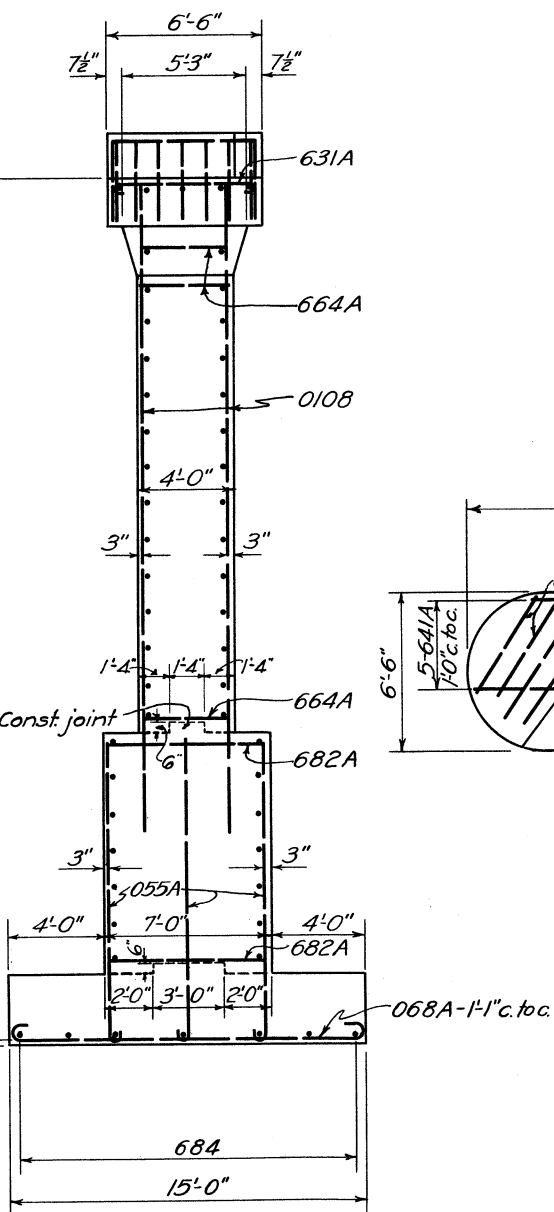
BY	DATE	CHARACTER
		REVISIONS



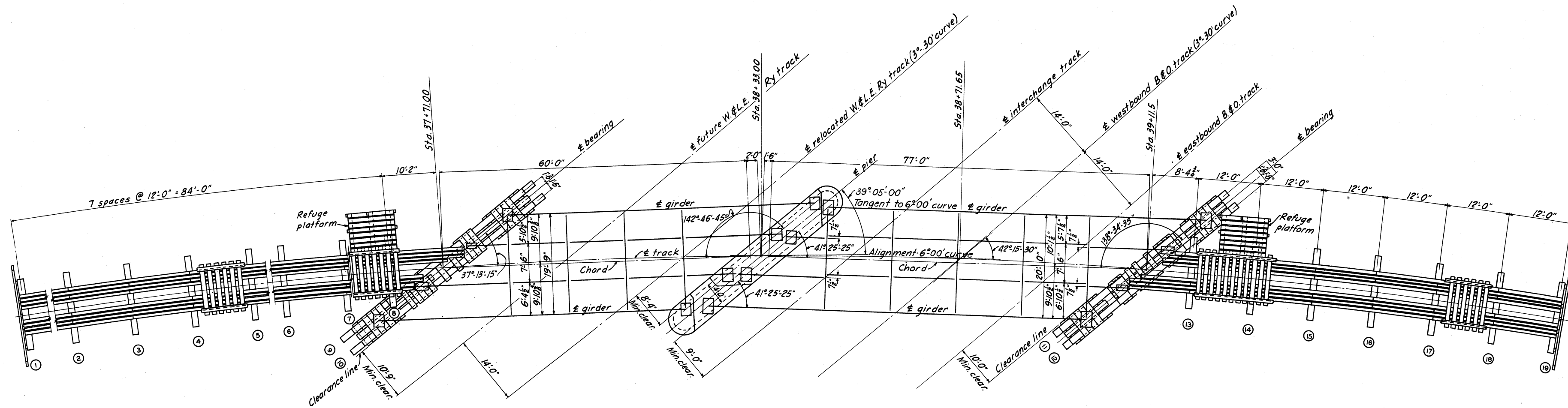
PLAN



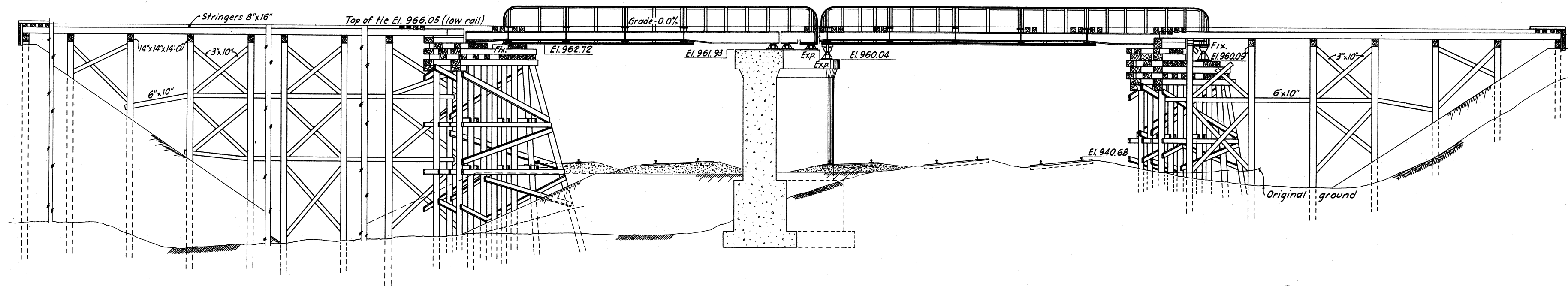
ELEVATION



END VIEW



PLAN



ELEVATION

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THE BALTIMORE AND OHIO RAILROAD CO.
BY:
CHIEF ENGINEER

APPROVED:
THE PENNSYLVANIA RAILROAD CO.
BY:
CHIEF ENGINEER - CENTRAL REGION

APPROVED:
THE WHEELING AND LAKE ERIE RAILWAY CO.
BY:
SPECIAL ENGINEER

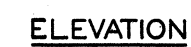
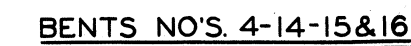
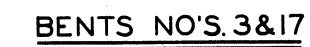
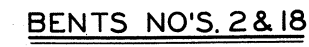
**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
P. R. R. BRIDGE OVER B. & O. R. R. - W. & L. E.
PLAN & ELEVATION**

IN 147 SHEETS SHEET NO. 50 SCALE: $\frac{1}{4}" = 1'-0"$

U. S. ENGINEER OFFICE. HUNTINGTON, W. VA., SEPT. 1940

SUBMITTED: *[Signature]* PRINCIPAL ENGINEER APPROVED: *[Signature]* LT. COL., CORPS OF ENGINEERS
DRAWN BY S.B. TRANSMITTED WITH LETTER
TRACED BY H.S.M.
CHECKED BY H.U.B. FILE NO. 0271-PM-66/27 DATED

BY	DATE	CHARACTER
REVISIONS		



Minimum pile penetration to be 20 feet and each pile to be driven to develop a bearing capacity of at least 20 tons
Standard Ogee washers shall be used under bolt heads and nuts bearing on timber except as noted.
Holes in ties for lag screw shall be bored $\frac{1}{4}$ " dia.
Super-elevation shall be 1".

APPROVED:
THE BALTIMORE AND OHIO RAILROAD CO.
BY:
CHIEF ENGINEER

APPROVED:
THE PENNSYLVANIA RAILROAD CO.
BY:
CHIEF ENGINEER - CENTRAL REGION

APPROVED:
THE WHEELING AND LAKE ERIE RAILWAY CO.
BY:
SPECIAL ENGINEER

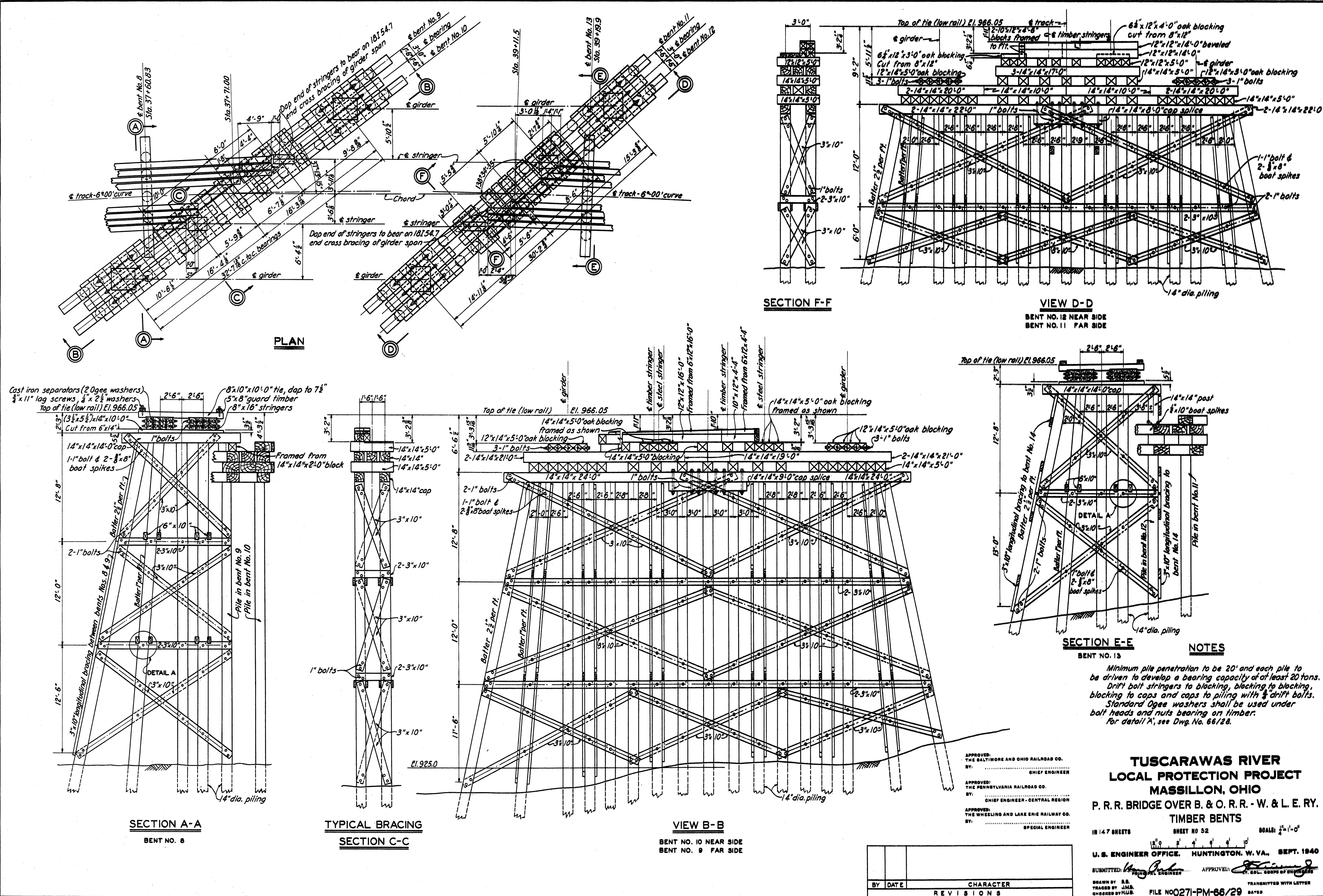
**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
P. R. R. BRIDGE OVER B. & O. R. R. - W. & L. E. RY.
TIMBER BENTS**

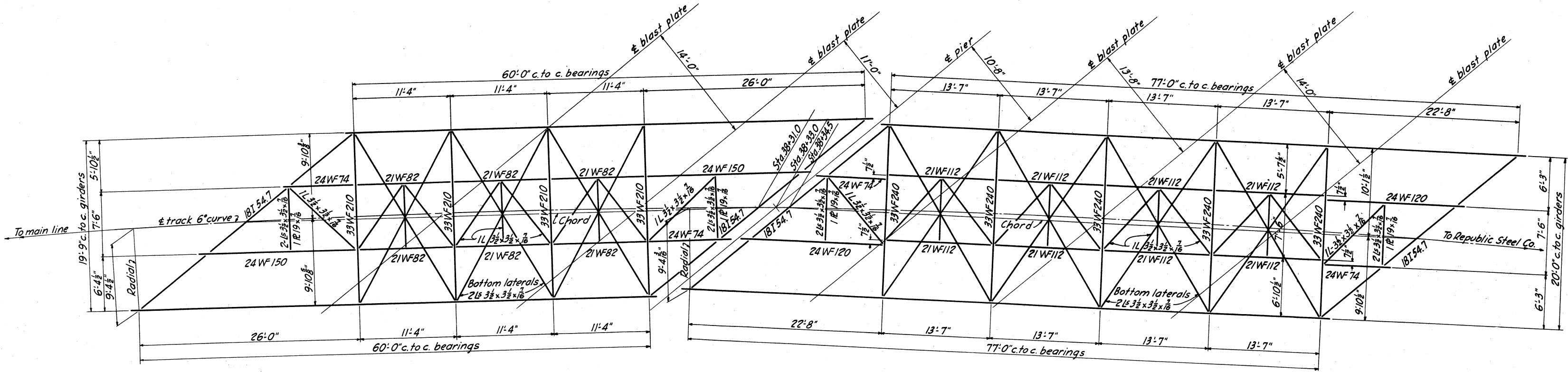
IN 147 SHEETS SHEET NO. 51 SCALE: $\frac{1}{4}'' = 1'-0''$

U. S. ENGINEER OFFICE HUNTINGTON, W. VA. SEPT. 1940

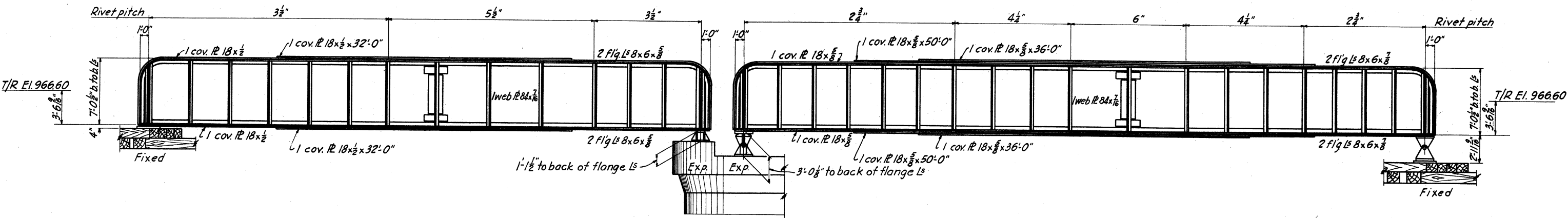
SUBMITTED: *Way Parker* PRINCEPA - ENGINEER APPROVED: *J. F. ...* ST. COL., CORPS OF ENGINEERS
DRAWN BY S.B. TRANSMITTED WITH LETTER
TRACED BY J.E.M.L.
CHECKED BY HUB. FILE NO 027i-PM-66/28 DATED

BY	DATE	CHARACTER
		REVISIONS

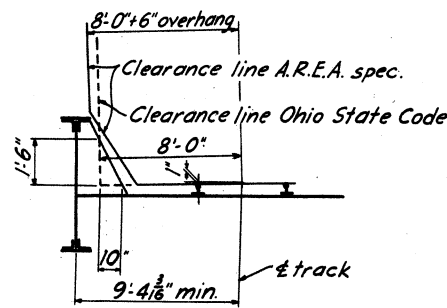




PLAN



ELEVATION



CLEARANCE DIAGRAM

DESIGN DATA

60'-0" SPAN
GIRDER
MAX. SHEARS
DL = 38,000*
LL = 134,000*
I = 91,000*
Total = 261,000*
MAX. REACTION
DL = 38,000*
LL = 188,000*
I = 130,000*
Total = 356,000*
261,000 ÷ 11,000 = 23.7" gross req'd.
Web R 84 x 1/2 = 36.75" gross effective
Bearing @ 27,000* = 13.20" req'd.
End stiff's 4 L 6 x 4 x 1/2 = 13.24"
Intermediate stiff's 2 L 6 x 4 x 1/2 crimped.
MAX. MOMENTS
DL = 800,000*
LL = 2,321,000*
I = 1,432,000*
Total = 4,553,000*
Section modulus req'd = $\frac{4,553,000 \times 12}{18,000}$ = 3,035"³
Section modulus furnished = 3,070"³

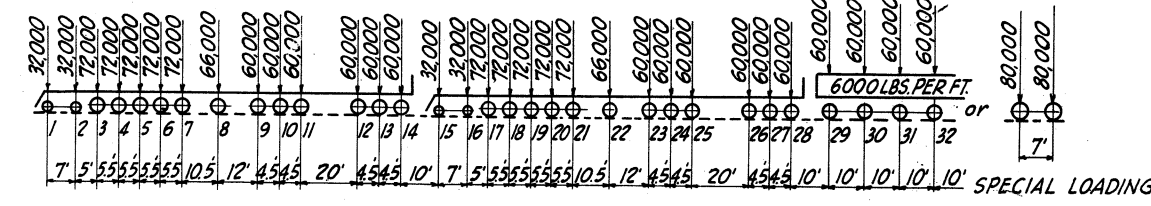
FLOOR BEAMS					
SECTION FURNISHED	SECT. MOD. REQ'D	SECT. MOD. FURNISHED	MAX. SHEAR	MAX. MOMENT	
33WF210	691"³	704.4"³	176,000*	1,037,000*	

STRINGERS					
SECTION FURNISHED	SECT. MOD. REQ'D	SECT. MOD. FURNISHED	MAX. SHEAR	MAX. MOMENT	
24WF150	376"³	385.5"³	164,000*	564,000*	
24WF74	112"³	170.4"³	98,000*	168,000*	
21WF82	167"³	168.0"³	116,000*	250,000*	

77'-0" SPAN
GIRDER
MAX. SHEARS
DL = 52,000*
LL = 168,000*
I = 106,000*
Total = 324,000*
MAX. REACTION
DL = 52,000*
LL = 224,000*
I = 145,000*
Total = 421,000*
324,000 ÷ 11,000 = 29.45" gross req'd.
Web R 84 x 1/2 = 36.75" gross effective
Bearing @ 27,000* = 15.59" req'd.
End stiff's 4 L 6 x 4 x 1/2 = 19.76"
Intermediate stiff's 2 L 6 x 4 x 1/2 crimped.
MAX. MOMENTS
DL = 958,000*
LL = 3,670,000*
I = 2,385,000*
Total = 7,013,000*
Section modulus req'd = $\frac{7,013,000 \times 12}{18,000}$ = 4,675"³
Section modulus furnished = 4,720"³

FLOOR BEAMS					
SECTION FURNISHED	SECT. MOD. REQ'D	SECT. MOD. FURNISHED	MAX. SHEAR	MAX. MOMENT	
33WF240	774"³	811.1"³	191,000*	1,161,000*	

STRINGERS					
SECTION FURNISHED	SECT. MOD. REQ'D	SECT. MOD. FURNISHED	MAX. SHEAR	MAX. MOMENT	
24WF120	295"³	299.1"³	149,000*	442,000*	
24WF74	100"³	170.4"³	95,000*	149,000*	
21WF112	237"³	249.6"³	139,000*	355,000*	



LOADING USED - TYPICAL LOCOMOTIVE - PENNSYLVANIA R.R. STANDARD

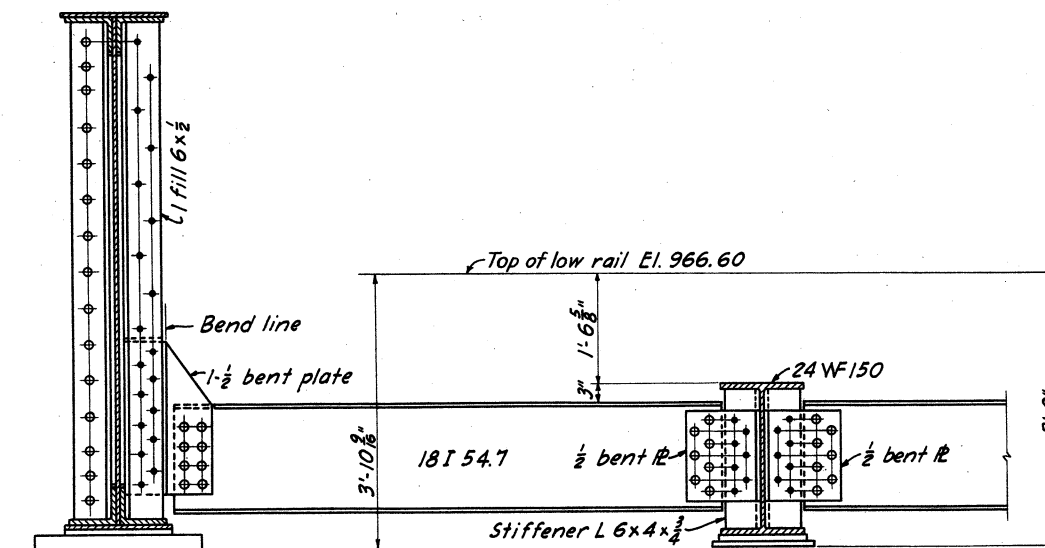
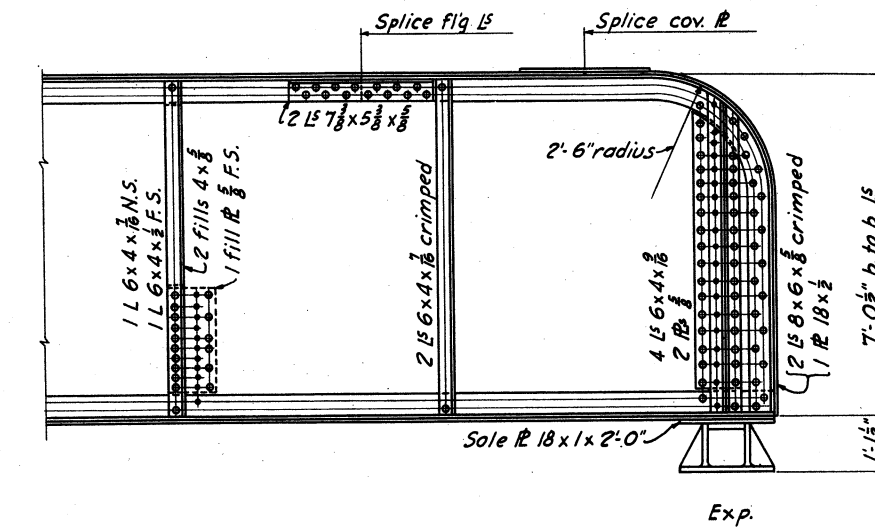
Axle loads shown
Impact allowance = KL
In which S = Loaded length of track in feet
L = Maximum live load stress
D = Dead load stress
Total stress = D + L + KL

NOTES

Superstructure designed in accordance with A.R.E.A. Specifications For Steel Railway Bridges dated 1938, except locomotive loading and impact which are as shown.

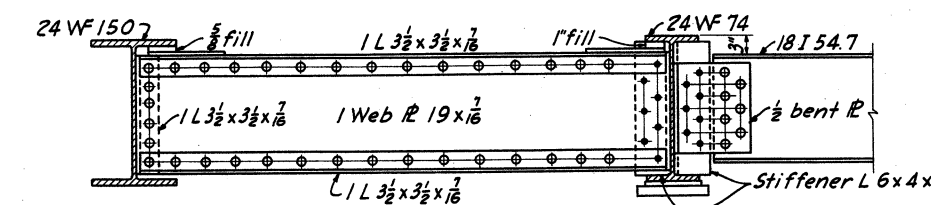
TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
P. R. R. BRIDGE OVER B. & O. R. R. - W. & L. E. RY.
GIRDER SPANS - DESIGN DATA
IN 147 SHEETS SHEET NO. 53 SCALE: 1/8" = 1'-0"

U. S. ENGINEER OFFICE. HUNTINGTON, W. VA., SEPT. 1940
SUBMITTED: [Signature] APPROVED: [Signature]
DRAWN BY: A.W.S. TRACED BY: H.S.M.A.S. CHECKED BY: A.R.N.
FILE NO 027i-PM-66/30 DATED



SECTION C - C

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



SECTION D - D
SCALE: $\frac{3}{4}" = 1'-0"$

NOTES

Design - A.R.E.A. Specifications For Steel Railway
Bridges dated 1938 except locomotive loading and
impact which are shown on Dwg. No. 66/30.
Workmanship - A.R.E.A. Specifications For Steel
Railway Bridges dated 1938.
Material - A.R.E.A. Specifications For Steel
Railway Bridges dated 1940.
For details of castings see Dwg. No. 66/33.
Blast plates are to be provided for each track,
under span, and securely fastened to bridge.
For blast plates see Dwg. No. 66/32.
All rivets $\frac{3}{8}$ ".

**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT**

P. R. R. BRIDGE OVER B. & O. R. R. - W. & L. E. RY.
60FT. GIRDER - DETAILS

IN 147 SHEETS SHEET NO. 54 SCALE: $\frac{1''}{2} = 1' - 0''$

U. S. ENGINEER OFFICE. HUNTINGTON. W. VA., SEPT. 1940

SUBMITTED: *Ray C. ...* APPROVED: *St. Col. ...*
 PRINCIPAL ENGINEER ST. COL. CORPS OF ENGINEERS

DRAWN BY A.J.M.
 TRACKED BY N.W.D. & A.S.
 CHECKED BY U.B.

TRANSMITTED WITH LETTER
 DATED

FILE NO. 0271-PM-66/31

APPROVED:
THE BALTIMORE AND OHIO RAILROAD CO.
BY:
CHIEF ENGINEER

APPROVED:
THE PENNSYLVANIA RAILROAD CO.

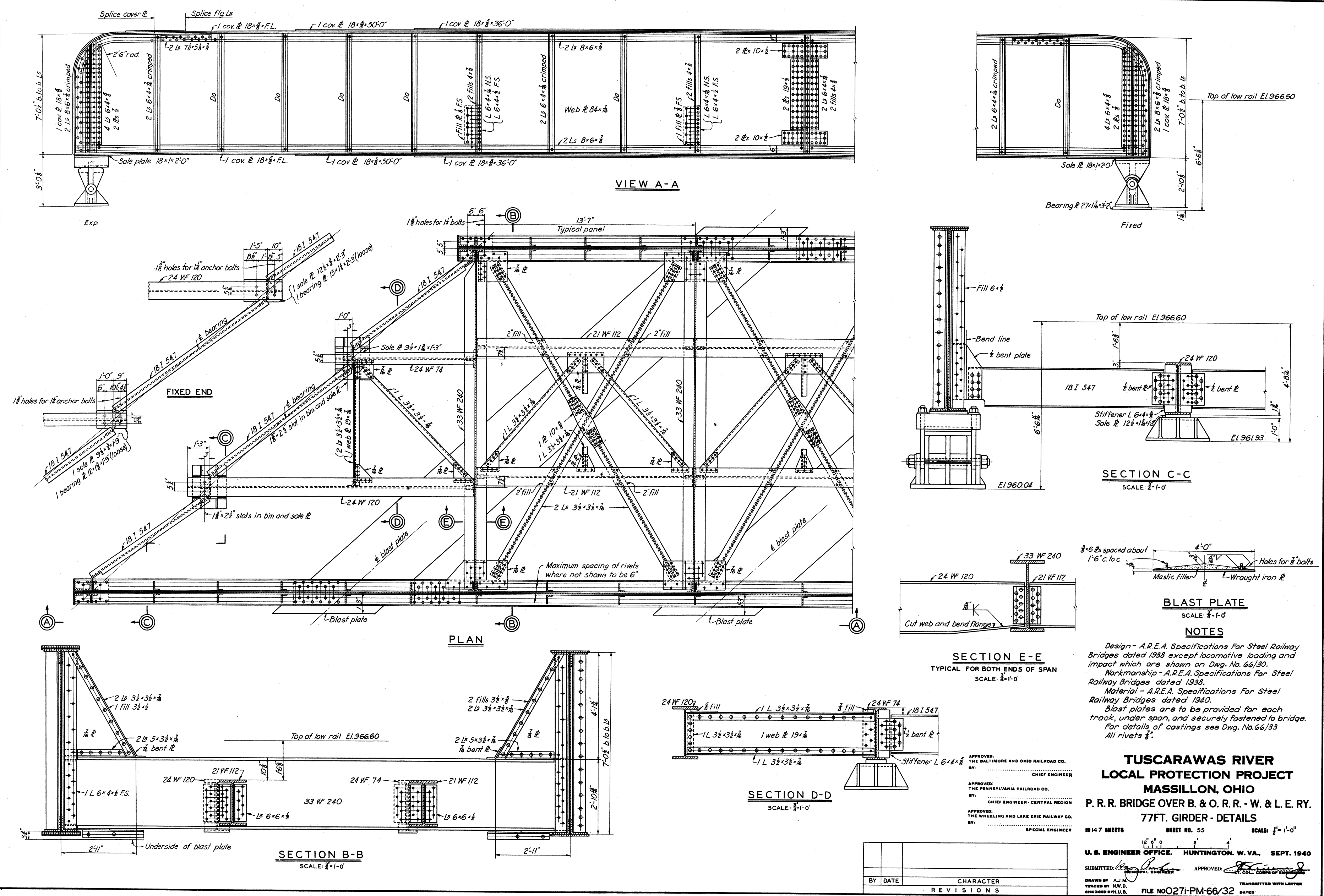
BY:
CHIEF ENGINEER - CENTRAL REGION

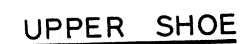
APPROVED:
THE WHEELING AND LAKE ERIE RAILWAY CO.

BY:
SPECIAL ENGINEER

CHARACTER

REVISIONS

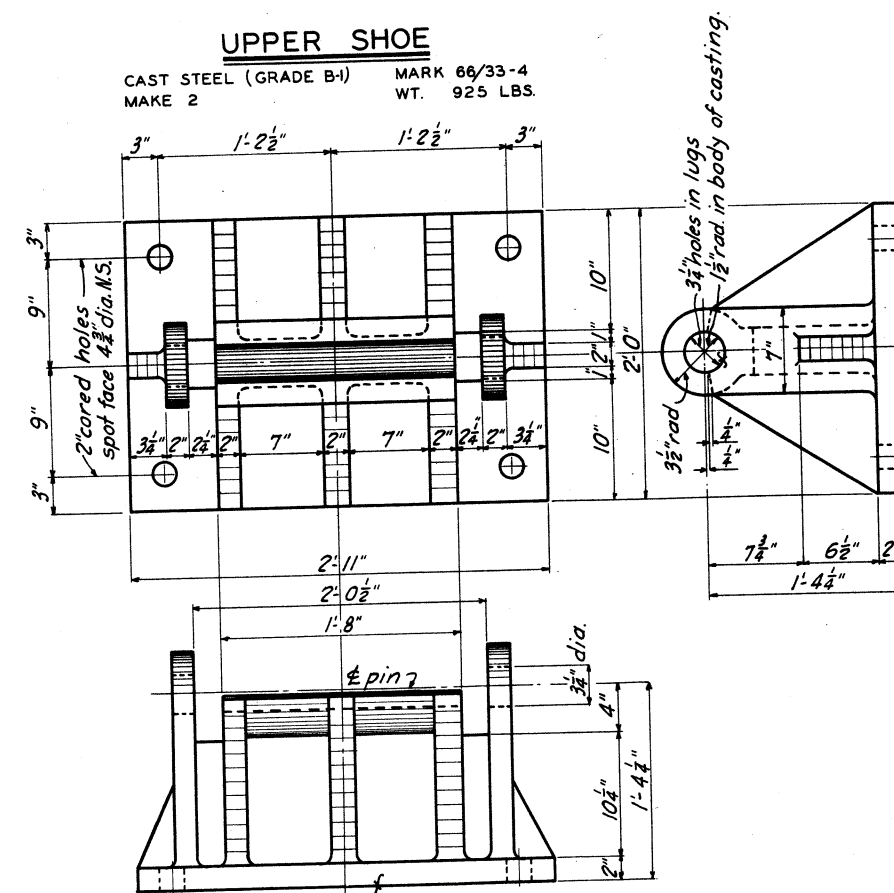


[illegible]

CAST STEEL (GRADE B1) WITH FORGED STEEL
MARK 66/33-2 CAST STEEL WT. 855 LBS.
MAKE 2 FORGED STEEL WT. 142 LBS.

[illegible]

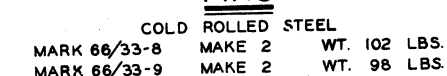
CAST STEEL (GRADE B-1) MARK 66/33-4
MAKE 2 WT. 925 LBS.



CAST STEEL (GRADE B-1) MARK 66/33-5
MAKE 2 WT. 1260 LBS.



CAST STEEL (GRADE B-1)		
MARK 66/33-6	MAKE 4	WT. 620 LBS.
MARK 66/33-7	MAKE 2	WT. 620 LBS.



STRUCT. STEEL
MARK 66/33-10 MAKE 16 WT. 7.5 LBS.
MARK 66/33-11 MAKE 16 WT. 12.5 LBS.
SCALE: 3"=1'-0"

All fillets on castings $\frac{3}{4}$ " radius

**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
P. R. R. BRIDGE OVER B. & O. R. R. - W. & L. E. RY.
CASTINGS**

IN 147 SHEETS SHEET NO. 56 SCALE: $\frac{1}{2}'' = 1'-0''$

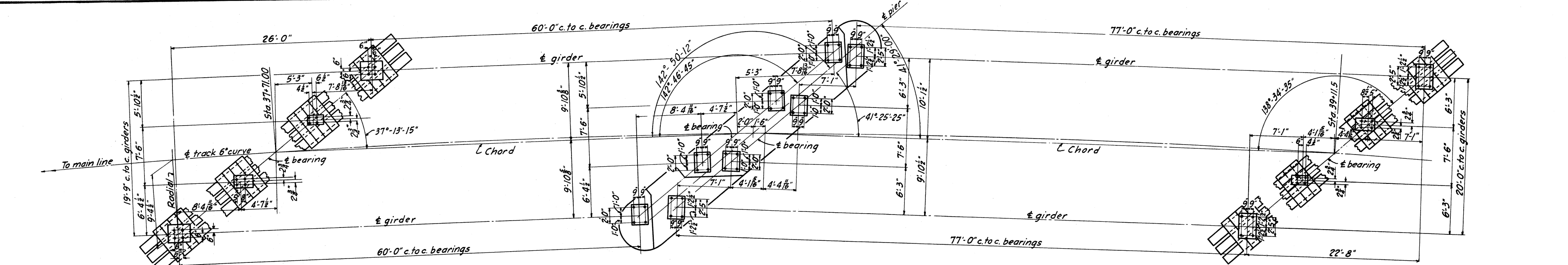
U. S. ENGINEER OFFICE. HUNTINGTON. W. VA., SEPT. 1940

U.S. ENGINEER OFFICE

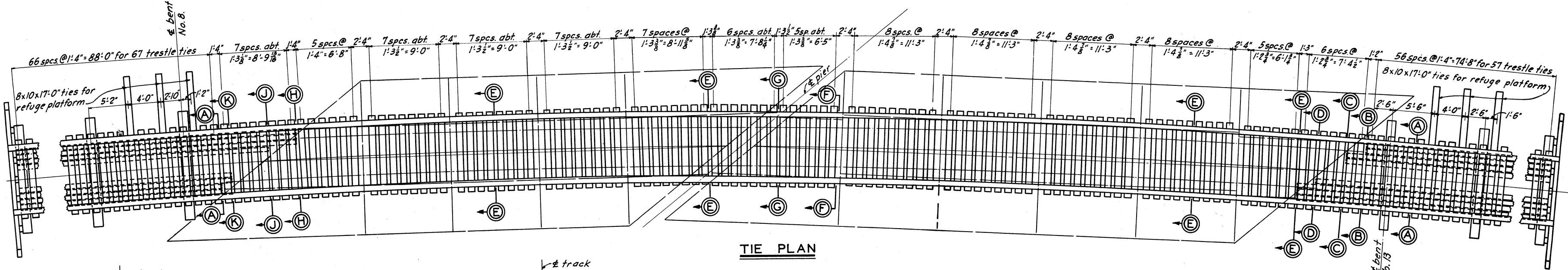
SUBMITTED: *[Signature]* APPROVED: *[Signature]*
PRINCIPAL ENGINEER LT. COL. CORPS OF ENGINEERS

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TRACED BY H.S.M.
CHECKED BY H.U.B. FILE NO 027j-PM-66/33 DATED

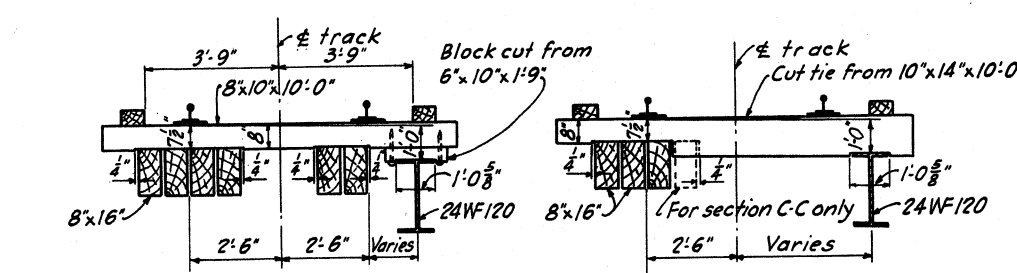
BY	DATE	CHARACTER
		REVISIONS



ANCHOR BOLT PLAN

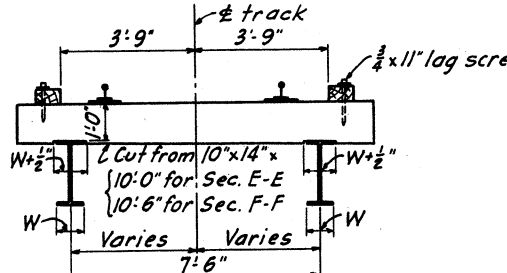


TIE PLAN



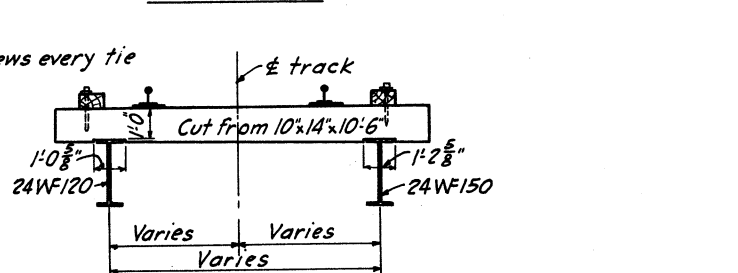
SECTION B-B
SCALE: 3/8" = 1'-0"

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

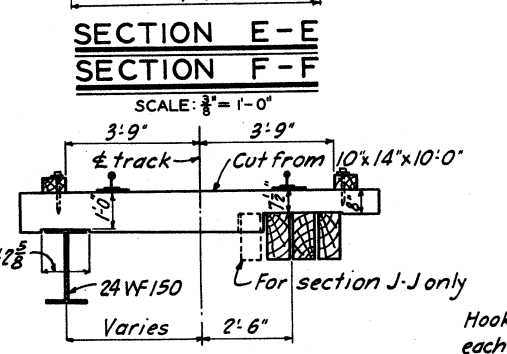


SECTION E-E
SCALE: 3/8" = 1'-0"

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

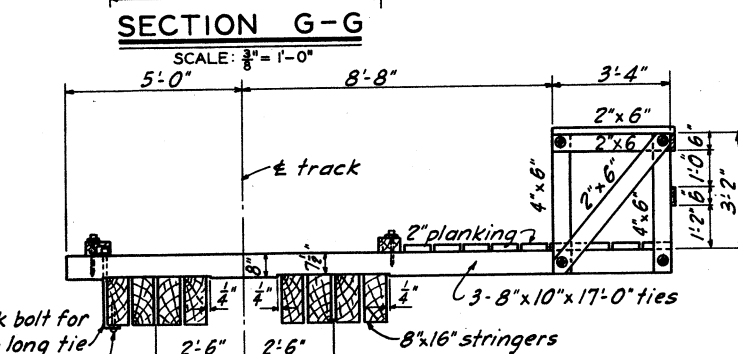


SECTION G-G
SCALE: 3/8" = 1'-0"



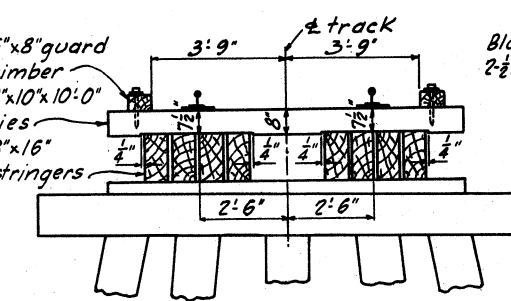
SECTION H-H
SCALE: 3/8" = 1'-0"

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

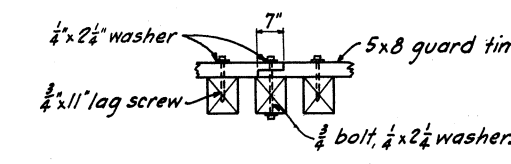


ELEVATION

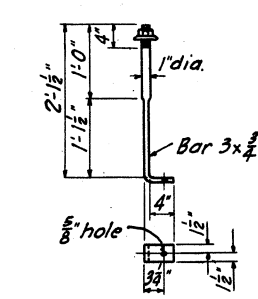
REFUGE PLATFORM
SCALE: 3/8" = 1'-0"



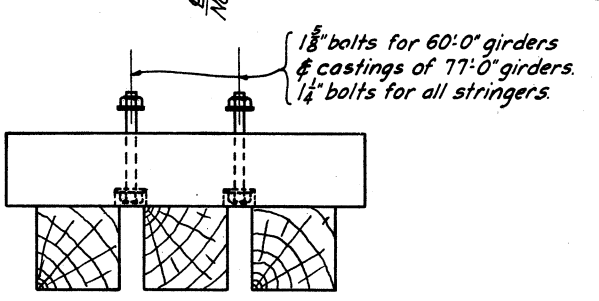
SECTION A-A
TYPICAL TRESTLE TIE
SCALE: 3/8" = 1'-0"



GUARD TIMBER SPLICE
SCALE: 3/8" = 1'-0"



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



ANCHOR BOLT DETAIL
TYPICAL FOR TIMBER PIERS
SCALE: 3/8" = 1'-0"

NOTES

Super-elevation shall be 1 inch.
Ties to be dapped over all stringers a minimum of 1/2" and not more than 1 1/2".
A refuge platform shall be constructed at each end of steel spans as indicated.
For details of inner guard rail see Dwg. No. 66/53

APPROVED:
THE BALTIMORE AND OHIO RAILROAD CO.
BY: CHIEF ENGINEER

APPROVED:
THE PENNSYLVANIA RAILROAD CO.
BY: CHIEF ENGINEER - CENTRAL REGION

APPROVED:
THE WHEELING AND LAKE ERIE RAILWAY CO.
BY: SPECIAL ENGINEER

**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
P. R. R. BRIDGE OVER B. & O. R. R. - W. & L. E. RY.
ANCHOR BOLT & TIE PLAN**

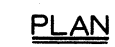
IN 147 SHEETS SHEET NO. 57 SCALE: 3/8" = 1'-0"

U. S. ENGINEER OFFICE. HUNTINGTON, W. VA., SEPT. 1940

SUBMITTED: [Signature] APPROVED: [Signature]
[Signature] CHIEF ENGINEER
[Signature] SPECIAL ENGINEER

DRAWN BY: S.D. TRACED BY: H.S.M. CHECKED BY: H.J.B. TRANSMITTED WITH LETTER

BY	DATE	CHARACTER



DRAWN BY A. W. M. TRANSMITTED WITH LETTER
TRACED BY D. R. J.
CHECKED BY D. G. J. FILE NO. 0271-PM-66/35 DATED

APPROVED:
THE WHEELING AND LAKE ERIE RAILWAY CO.
BY:
SPECIAL ENGINEER

BY	DATE	CHARACTER
		R E V I S I O N S



Chamfer all exposed edges $\frac{1}{2}"$ unless otherwise noted.
For reinforcing steel see Dwg. No. 66/37.
For groove detail see Dwg. No. 66/39.
For location plan see Dwg. No. 66/35.
For drain detail see Dwg. No. 66/38.
For details of water stop see Dwg. No. 66/2.
All concrete to be Class "B".

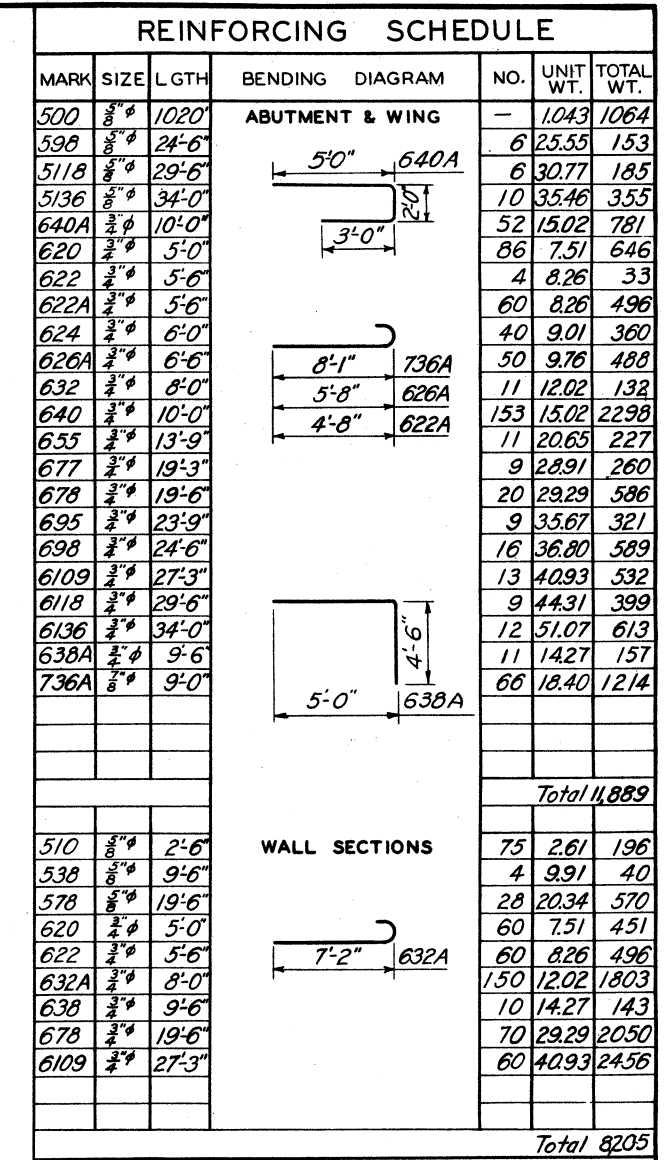
IN 147 SHEETS SHEET NO. 59 SCALE: $\frac{1}{8}" = 1'-0"$

4 B. 1. ~~25~~ 8

SUBMITTED: *[Signature]* PRINCIPAL ENGINEER APPROVED: *[Signature]* LT. COL., CORPS OF ENGINEERS

DRAWN BY J.E.H. TRANSMITTED WITH LETTER
TRACED BY R.C.H.

FILE NO 027i-PM-66/36 DATED



WEST ABUTMENT - REINFORCING DETAILS

IN 147 SHEETS SHEET NO. 60 SCALE: $\frac{1}{8}'' = 1'-0''$

2' 0" 4' 8' 12' 16' 20'

U. S. ENGINEER OFFICE. HUNTINGTON, W. VA. SEPT. 1940

SUBMITTED: *Wm. B. C.* *W. B. C.* APPROVED: *W. B. C.*
PRINCIPAL ENGINEER CHIEF OF DIVISION

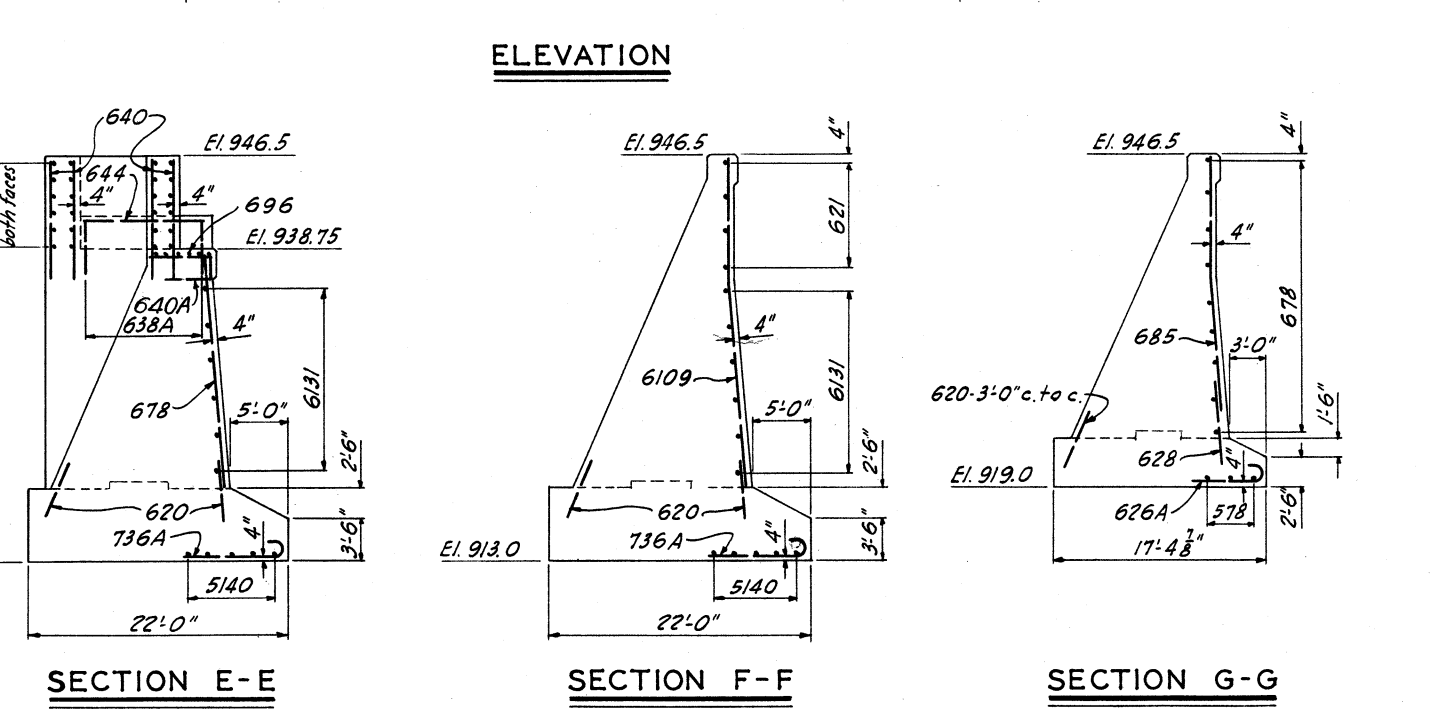
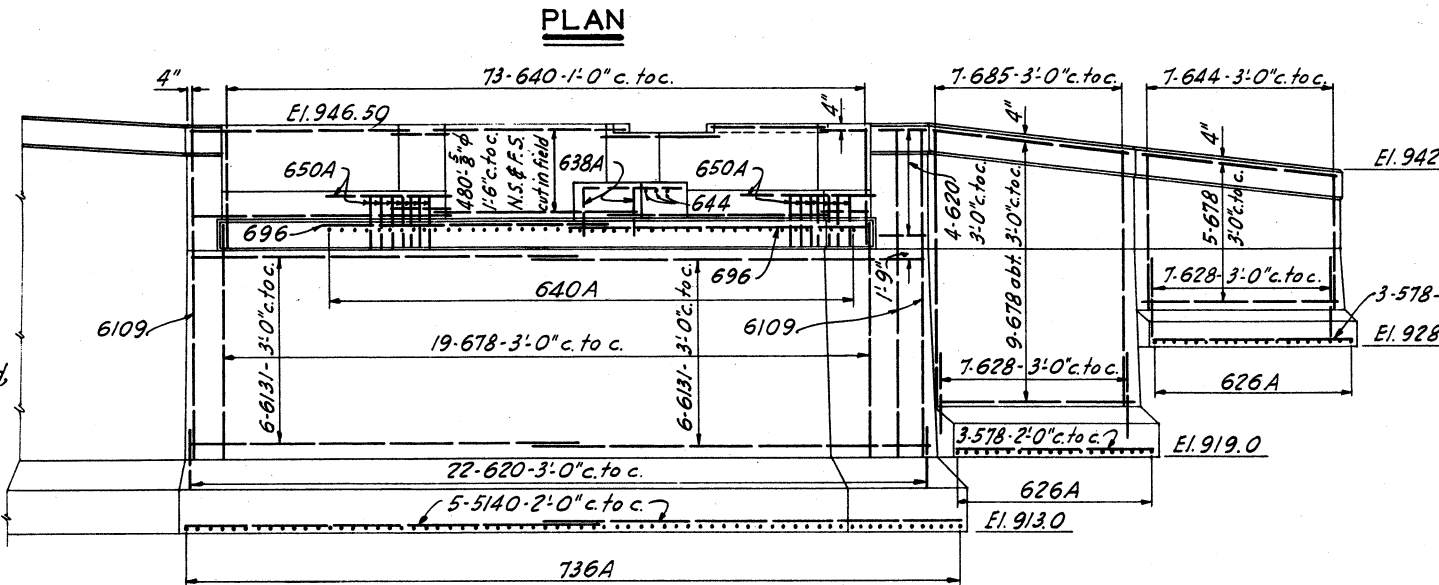
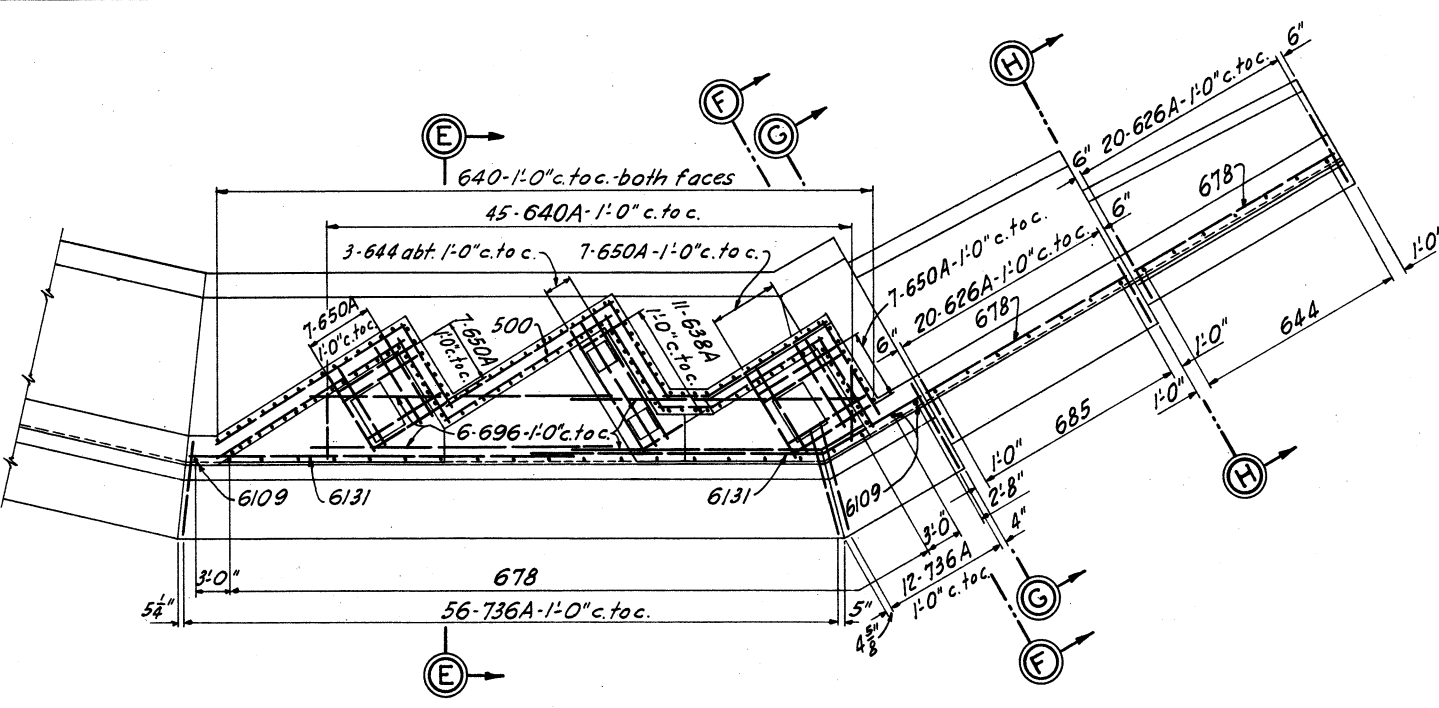
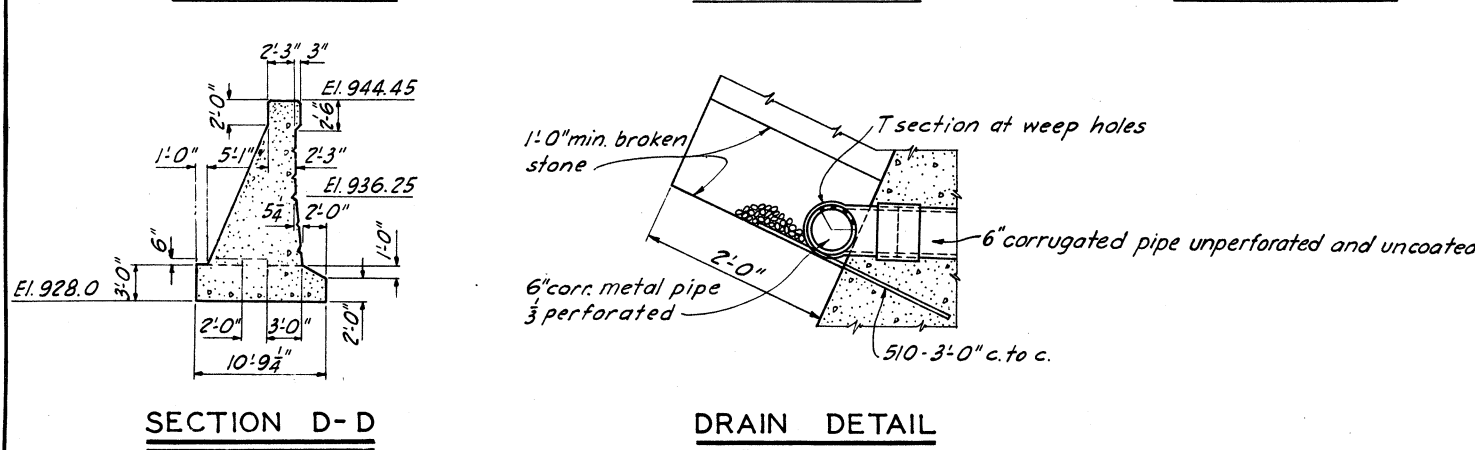
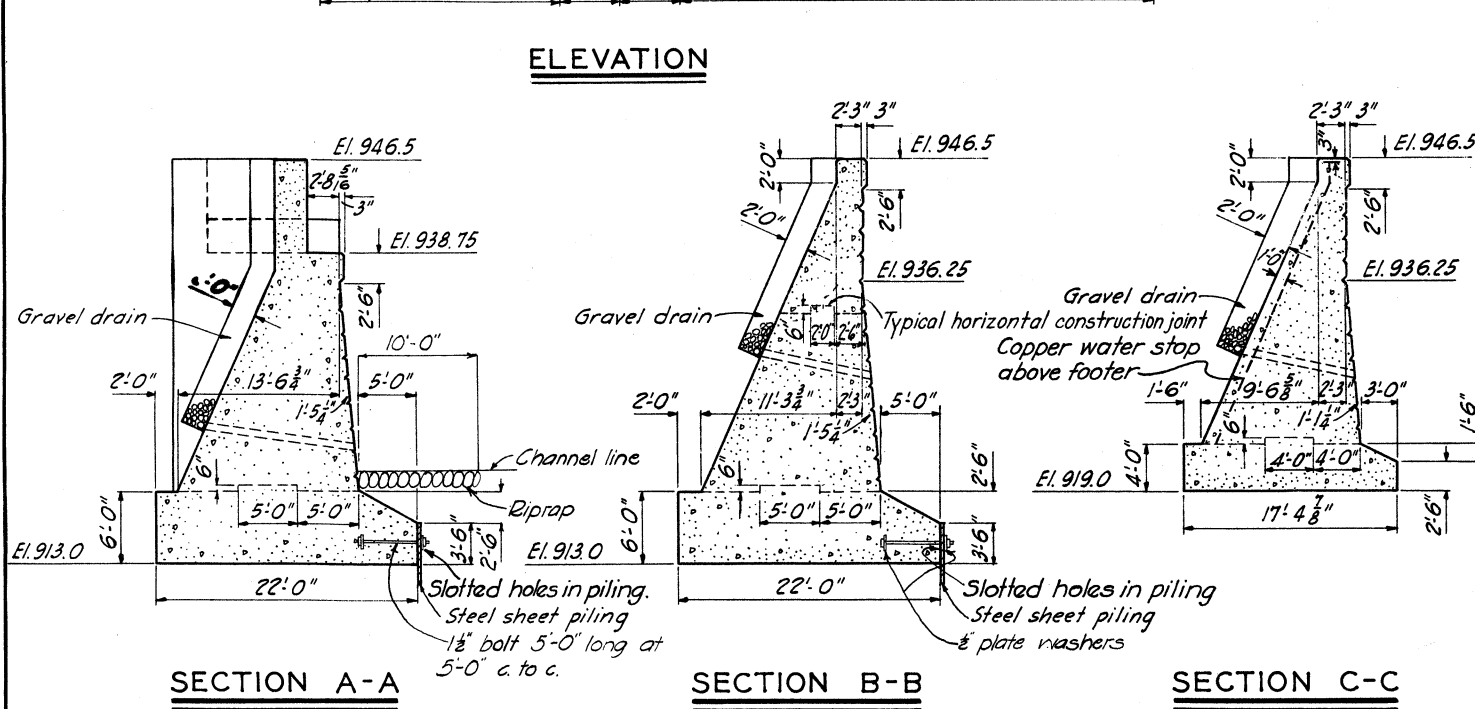
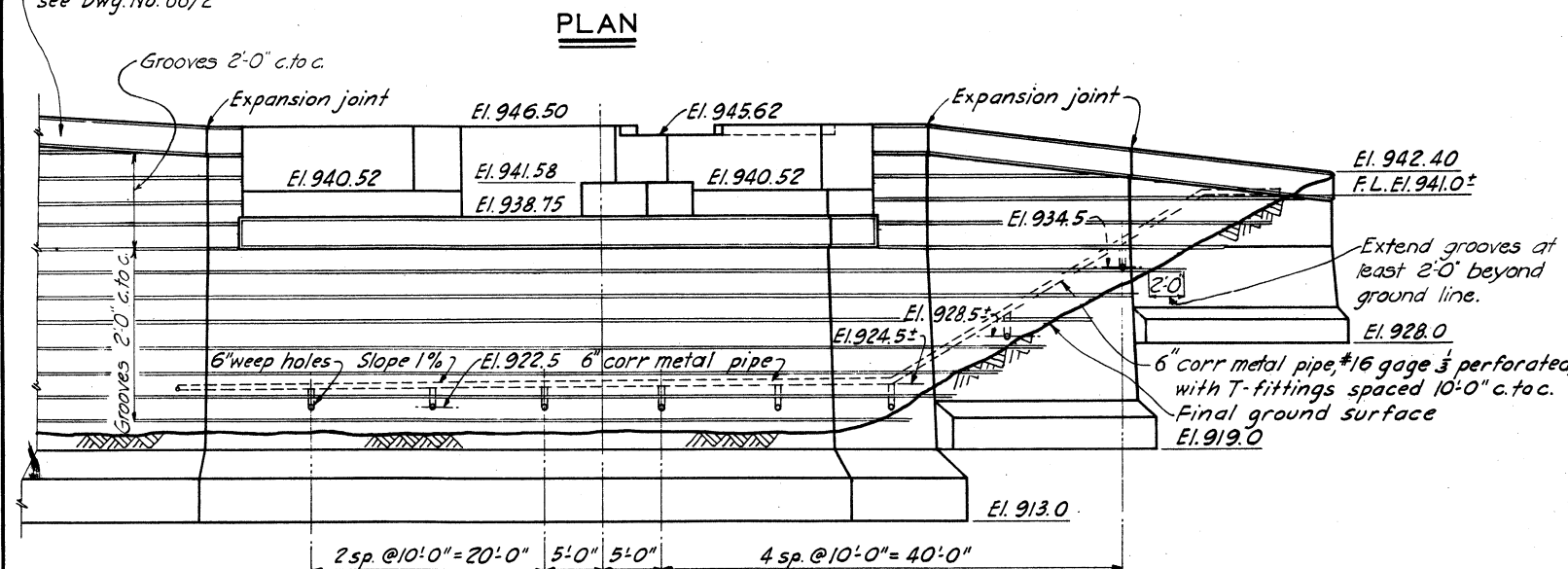
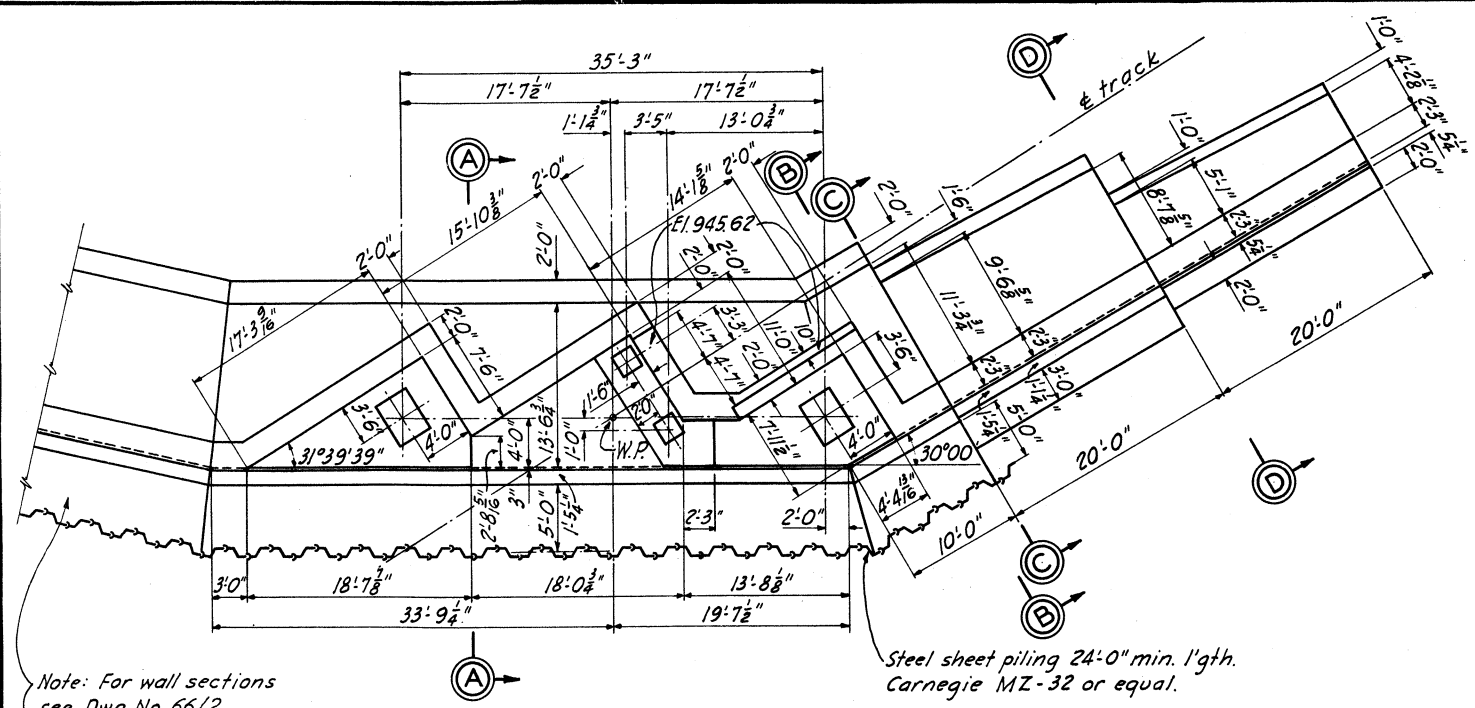
DRAWN BY J. E. H. TRACED BY C. C. B. CHECKED BY E. K. FILE NO. 027i-PM-66/37 DATED

TRANSMITTED WITH LETTER

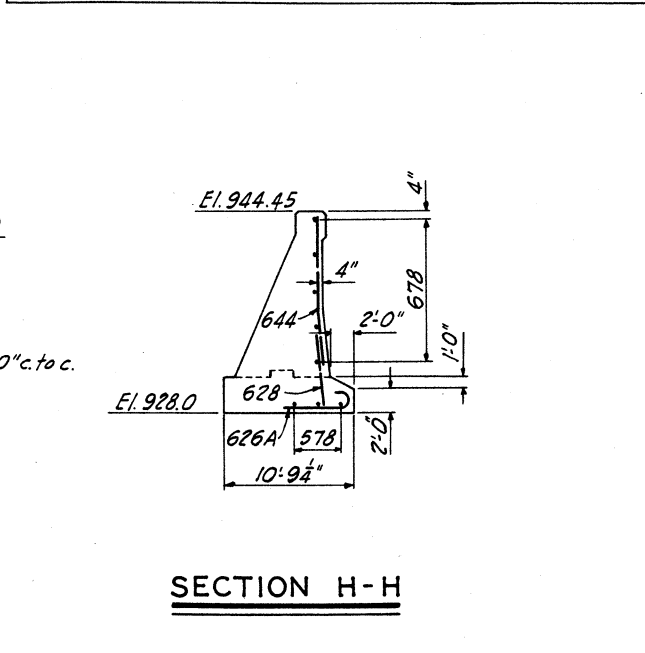
APPROVED:
THE BALTIMORE AND OHIO RAILROAD CO.
BY:
CHIEF ENGINEER

APPROVED:
THE WHEELING AND LAKE ERIE RAILWAY CO.
BY:
SPECIAL ENGINEER

BY	DATE	CHARACTER
		REVISIONS



REINFORCING SCHEDULE						
MARK	SIZE	L'GTH	BENDING DIAGRAM	NO.	UNIT WT.	TOTAL WT.
500	3/4"	960'		1	1.043	1001
510	3/4"	2'-6"		33	2.61	86
578	3/4"	19'-6"		6	20.34	122
5140	3/4"	35'-0"		10	36.51	365
638A	3/4"	9'-6"	5'-8"	11	14.27	157
620	3/4"	5'-0"	8'-1"	62	7.51	466
640A	3/4"	10'-0"		45	15.02	676
626A	3/4"	6'-6"		40	9.76	390
628	3/4"	7'-0"		14	10.51	147
640	3/4"	10'-0"		146	15.02	2193
644	3/4"	11'-0"		10	16.52	165
678	3/4"	19'-6"		33	20.29	667
685	3/4"	21'-3"	5'-0"	7	31.92	223
696	3/4"	24'-0"	8'-0"	6	32.05	216
6109	3/4"	27'-3"		3	40.93	123
6131	3/4"	32'-9"		12	49.19	590
650A	3/4"	12'-6"		28	18.78	526
736A	3/4"	9'-0"	5'-0"	68	18.40	1251
Total						9668



NOTES

For groove detail see Dwg. No. 66/39

Chamfer all exposed edges 1/2" unless otherwise noted.

Place all reinforcing steel 4" minimum from surface, unless otherwise noted.

For location plan, see Dwg. No. 66/35

For details of water stop see Dwg. No. 66/12.

All concrete to be Class B.

For detail of key in expansion joint, see Dwg. No. 66/36.

TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
B. & O. R. R. & W. & L. E. RY. BRIDGE
EAST ABUTMENT

IN 147 SHEETS SHEET NO. 61 SCALE: 1/8" = 1'-0"

U. S. ENGINEER OFFICE. HUNTINGTON, W. VA. SEPT. 1940

SUBMITTED: [Signature] APPROVED: [Signature]

DRAWN BY: J.E.H. CHECKED BY: J.S. TRANSMITTED WITH LETTER

FILE NO 027i-PM-66/38 DATED

BY	DATE	CHARACTER
		REVISIONS

REINFORCING SCHEDULE

PIER NO. 1

MARK	SIZE	LGTH	BENDING DIAGRAM	NO.	UNIT WT.	TOTAL WT.
620	3/8"	5'-0"		36	7.51	270
638	3/8"	9'-6"		44	14.27	628
644	3/8"	11'-0"		27	16.52	446
686	3/8"	21'-6"		36	32.29	1,162
6112	3/8"	28'-0"		34	42.06	1,430
6124	3/8"	31'-0"		18	46.56	838
6127A	3/8"	31'-9"		2	47.69	95
6130A	3/8"	32'-6"		2	48.82	98
6132A	3/8"	33'-0"		4	49.57	198
6135A	3/8"	33'-9"		2	50.69	101
6137A	3/8"	34'-3"		2	51.44	103
6138A	3/8"	34'-6"		2	51.82	104
6140A	3/8"	35'-0"		2	52.57	105
6142A	3/8"	35'-6"		2	53.32	107
674A	3/8"	18'-6"		36	27.79	1000
880A	1"	20'-0"		60	53.40	3,204
Total						9,889

PIER NO. 2

620	3/8"	5'-0"		49	7.51	368
638	3/8"	9'-6"		51	14.27	728
644	3/8"	11'-0"		18	16.52	297
686	3/8"	21'-6"		40	32.29	1,292
6127A	3/8"	31'-0"		16	46.56	745
6127A	3/8"	31'-9"		2	47.69	95
6130A	3/8"	32'-6"		2	48.82	98
6132A	3/8"	33'-0"		4	49.57	198
6135A	3/8"	33'-9"		2	50.69	101
6137A	3/8"	34'-3"		2	51.44	103
6138	3/8"	34'-6"		36	51.82	1,866
6138A	3/8"	34'-6"		2	51.82	104
6140	3/8"	35'-0"		18	52.57	946
6140A	3/8"	35'-0"		2	52.57	105
6142A	3/8"	35'-6"		2	53.32	107
674A	3/8"	18'-6"		28	27.79	778
880A	1"	20'-0"		67	53.40	3,578
Total						11,509

NOTES

Chamfer all exposed edges 1/2", unless otherwise noted.
Place all reinforcing steel 4" minimum from face unless otherwise noted.
For location plan, see Dwg. No. 66/35.
For anchor bolt layout, see Dwg. No. 66/46.

TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO

B. & O. R. R. & W. & L. E. RY. BRIDGE
PIERS

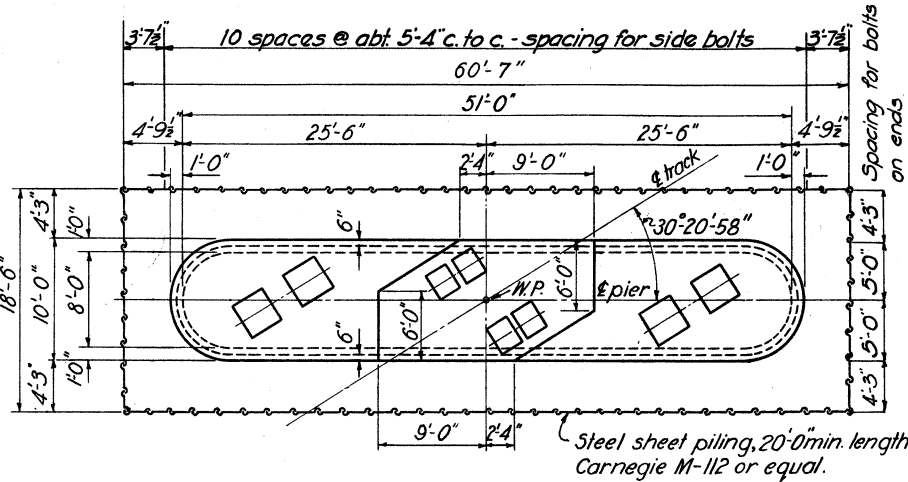
IN 147 SHEETS SHEET NO. 62 SCALE: 1/8" = 1'-0"

U. S. ENGINEER OFFICE. HUNTINGTON, W. VA. SEPT. 1940

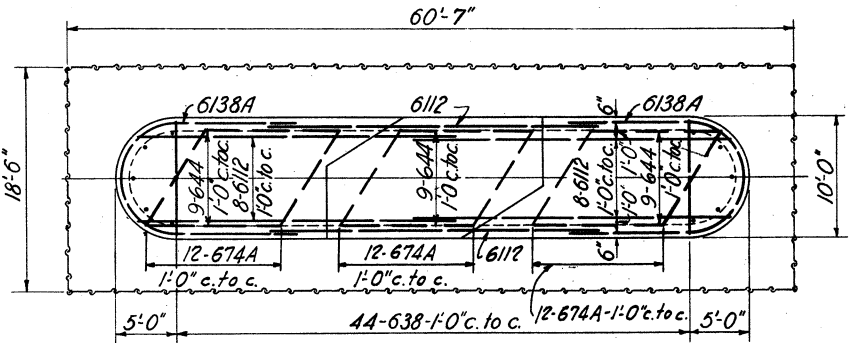
SUBMITTED: [Signature] APPROVED: [Signature]
PRINCIPAL ENGINEER ST. COL. CORPS OF ENGINEERS

DRAWN BY: J.E.H. TRANSMITTED WITH LETTER
CHECKED BY: E.K. FILE NO 027i-PM-66/39 DATED

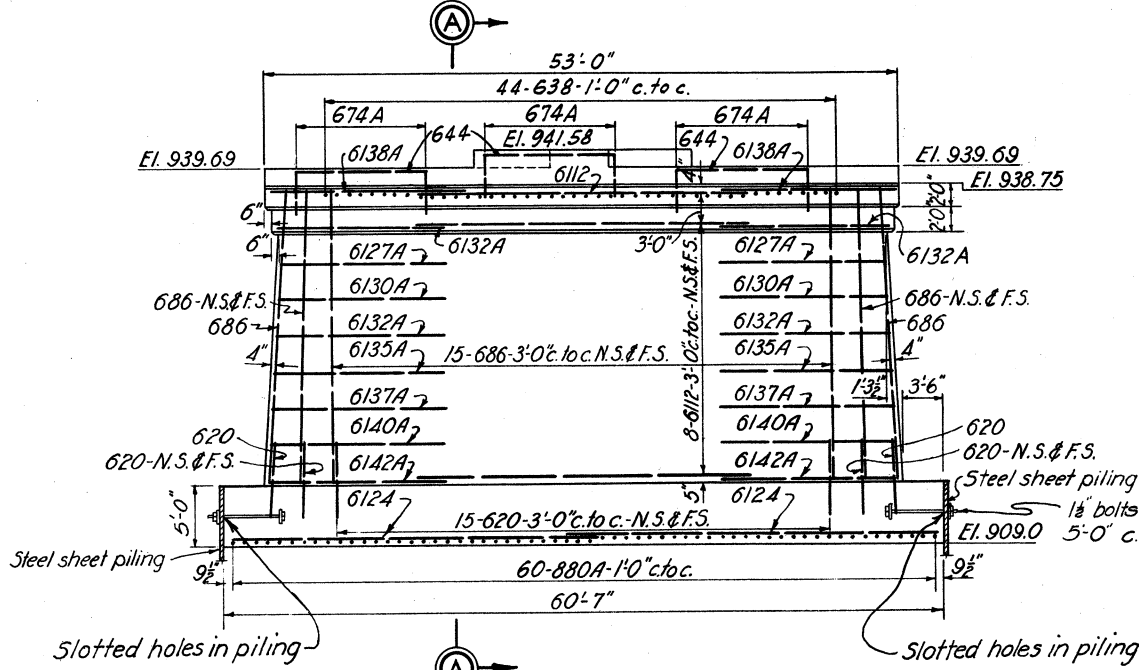
BY	DATE	CHARACTER



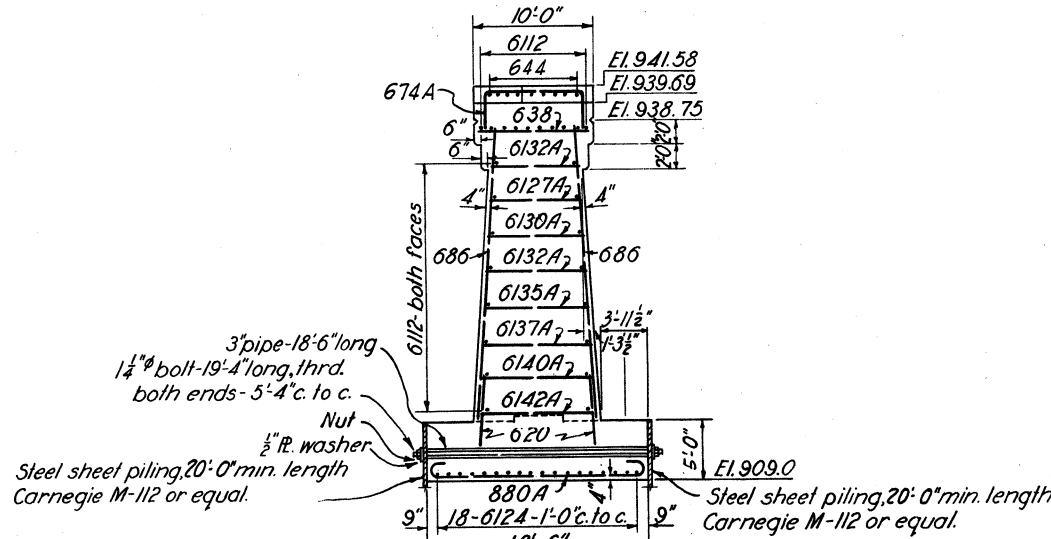
PIER NO. 1
PLAN



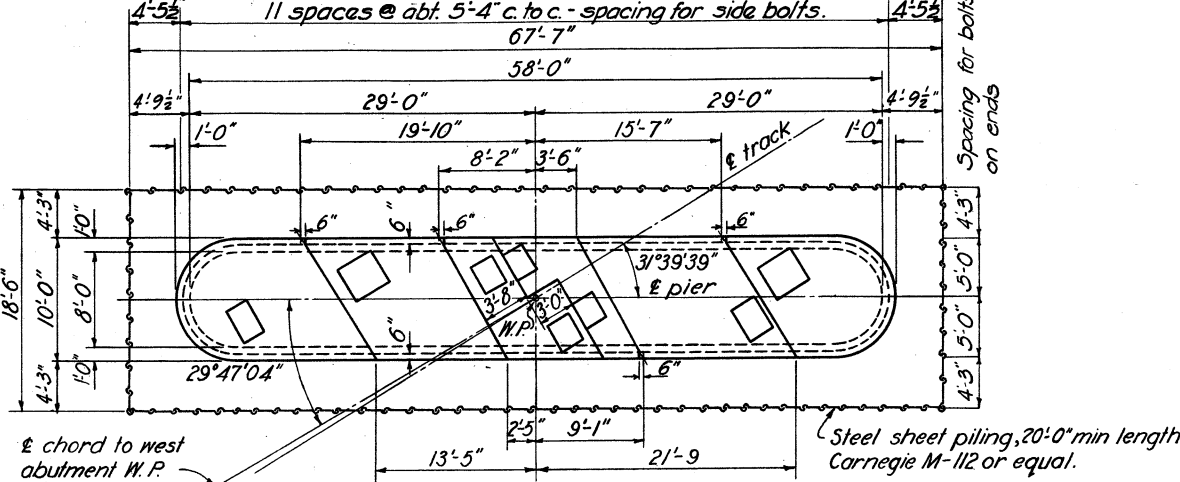
PIER NO. 1
PLAN



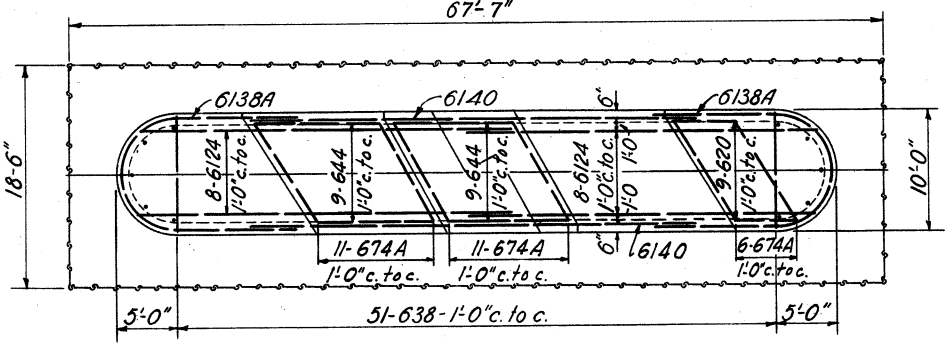
PIER NO. 1
ELEVATION



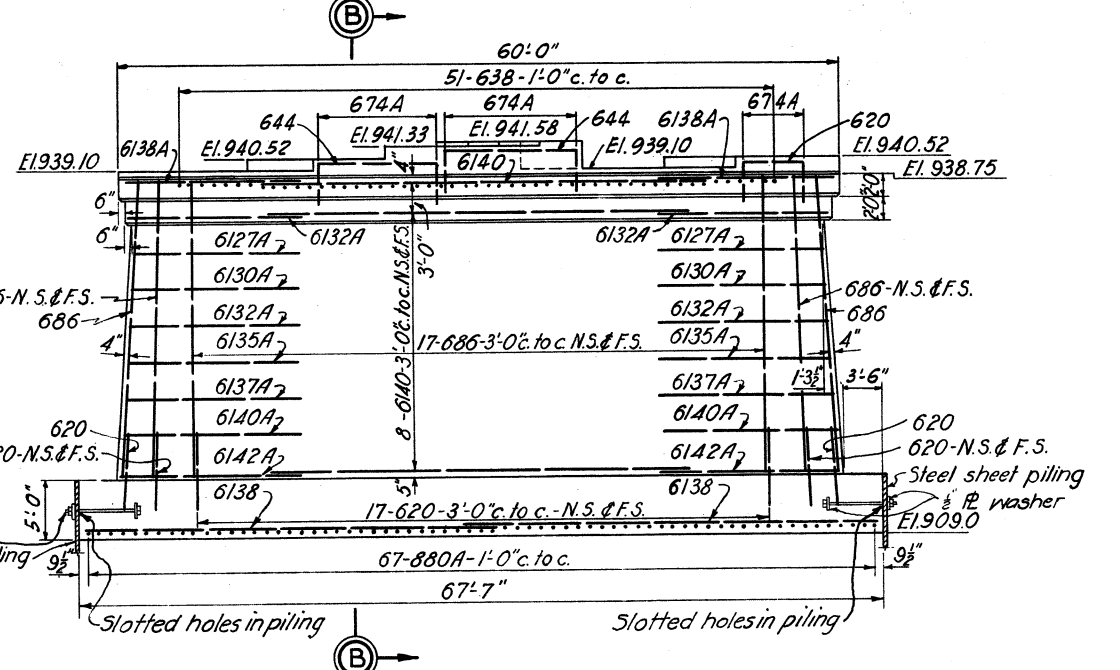
SECTION A-A



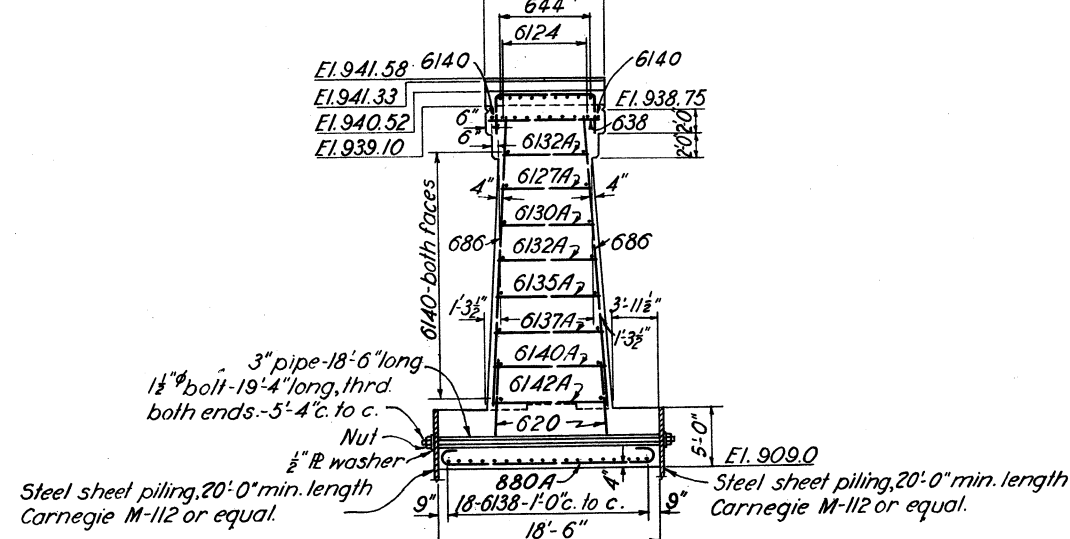
PIER NO. 2
PLAN



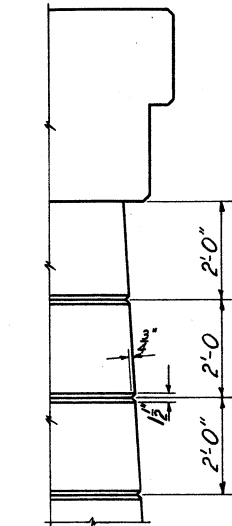
PIER NO. 2
PLAN



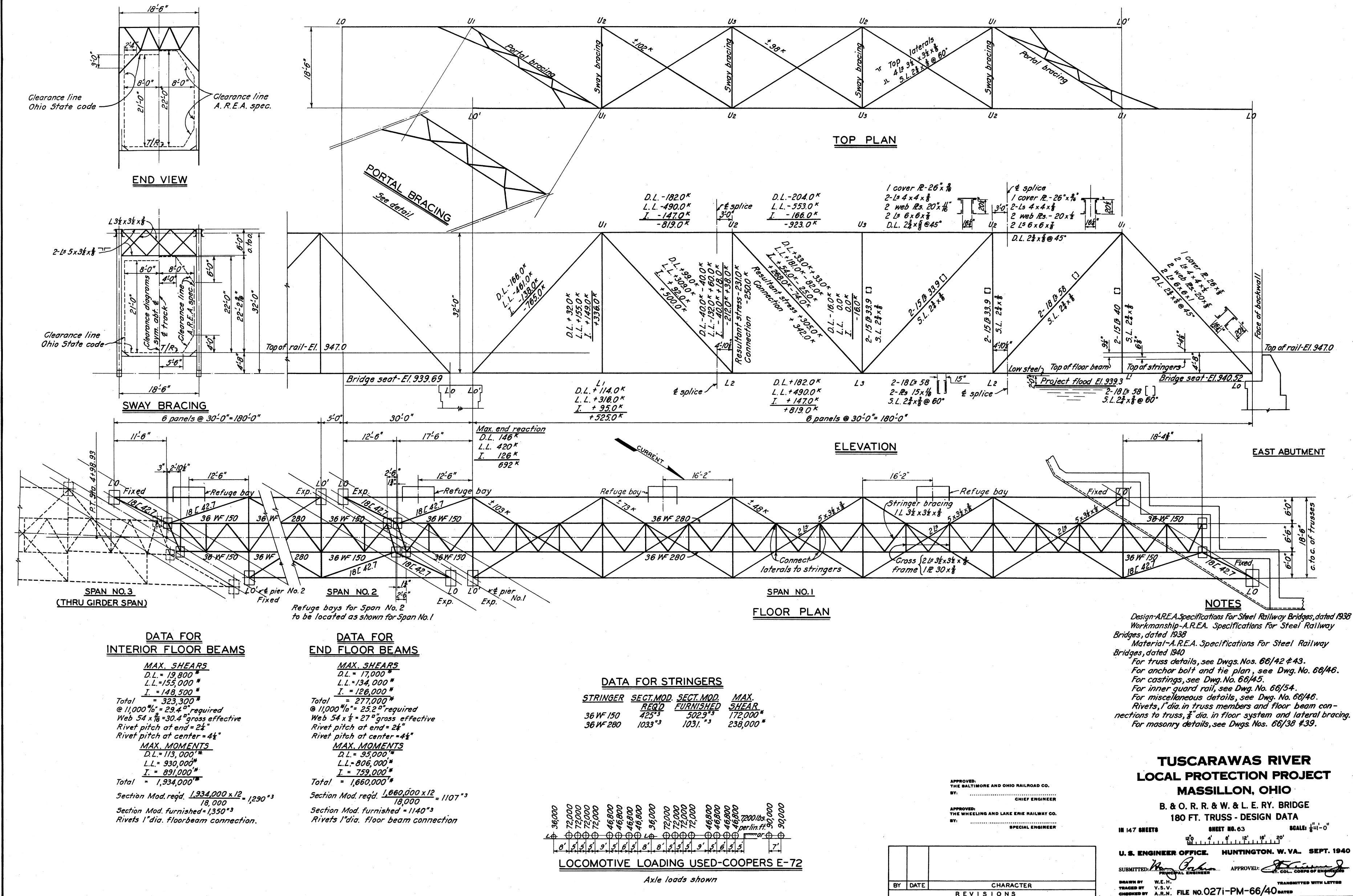
PIER NO. 2
ELEVATION

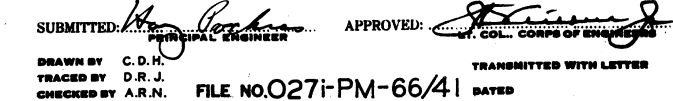


SECTION B-B

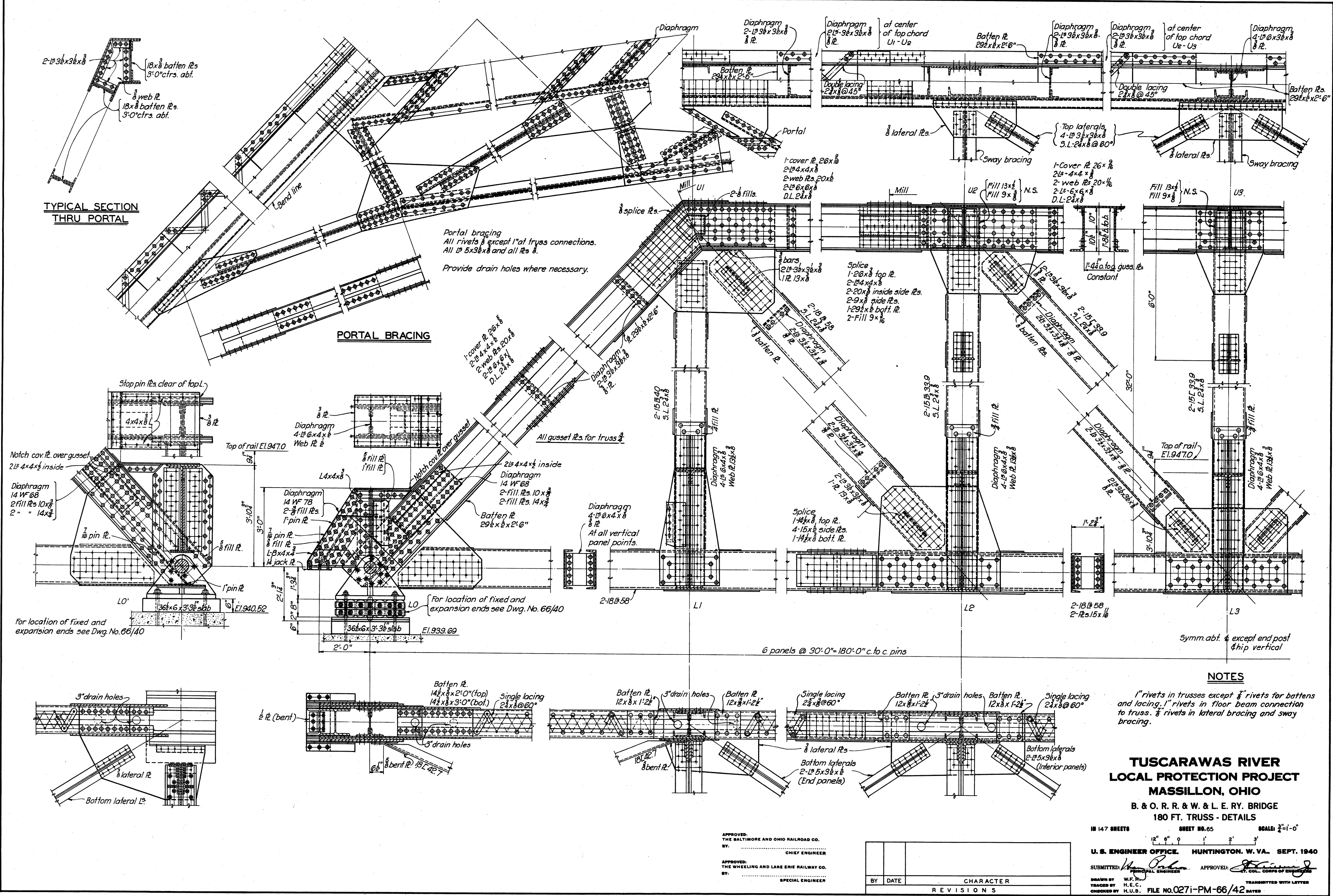


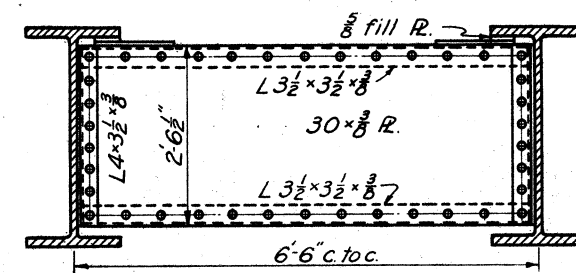
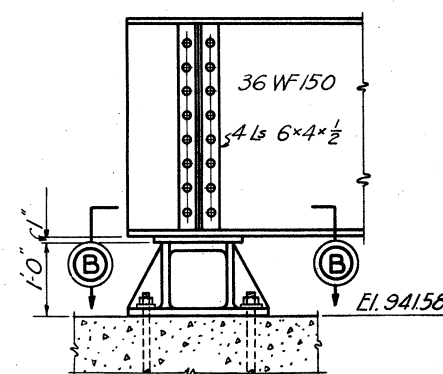
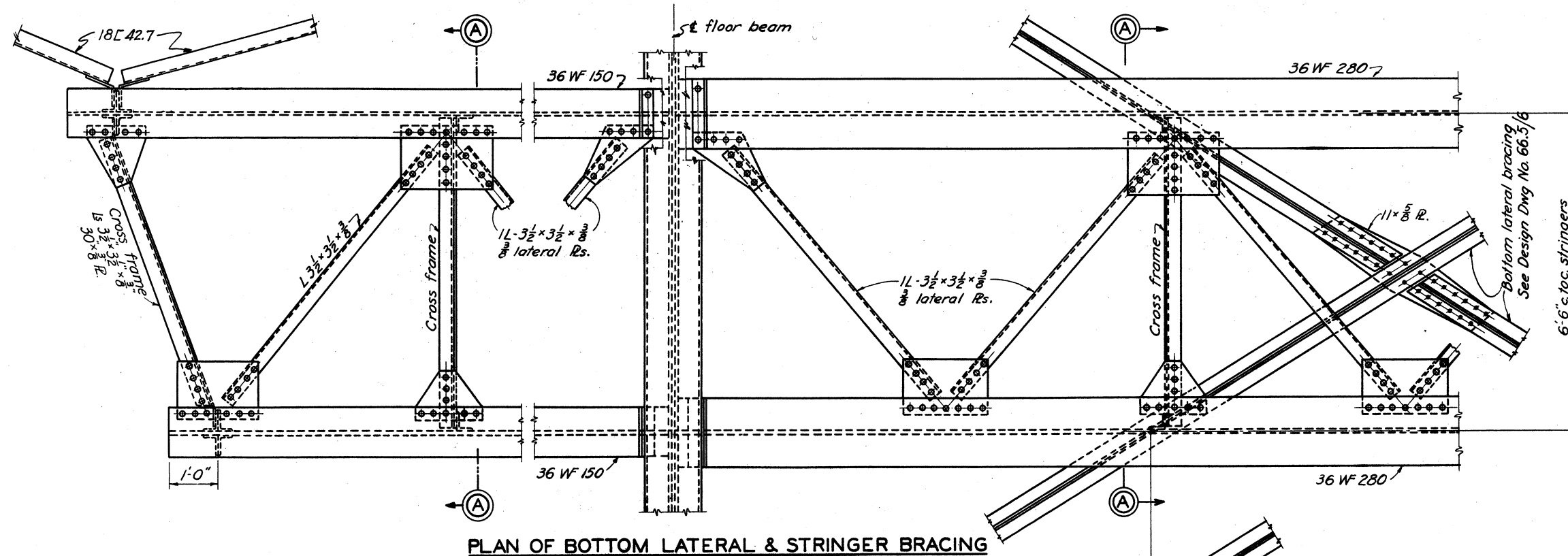
GROOVE DETAIL
SCALE: 1/2" = 1'-0"



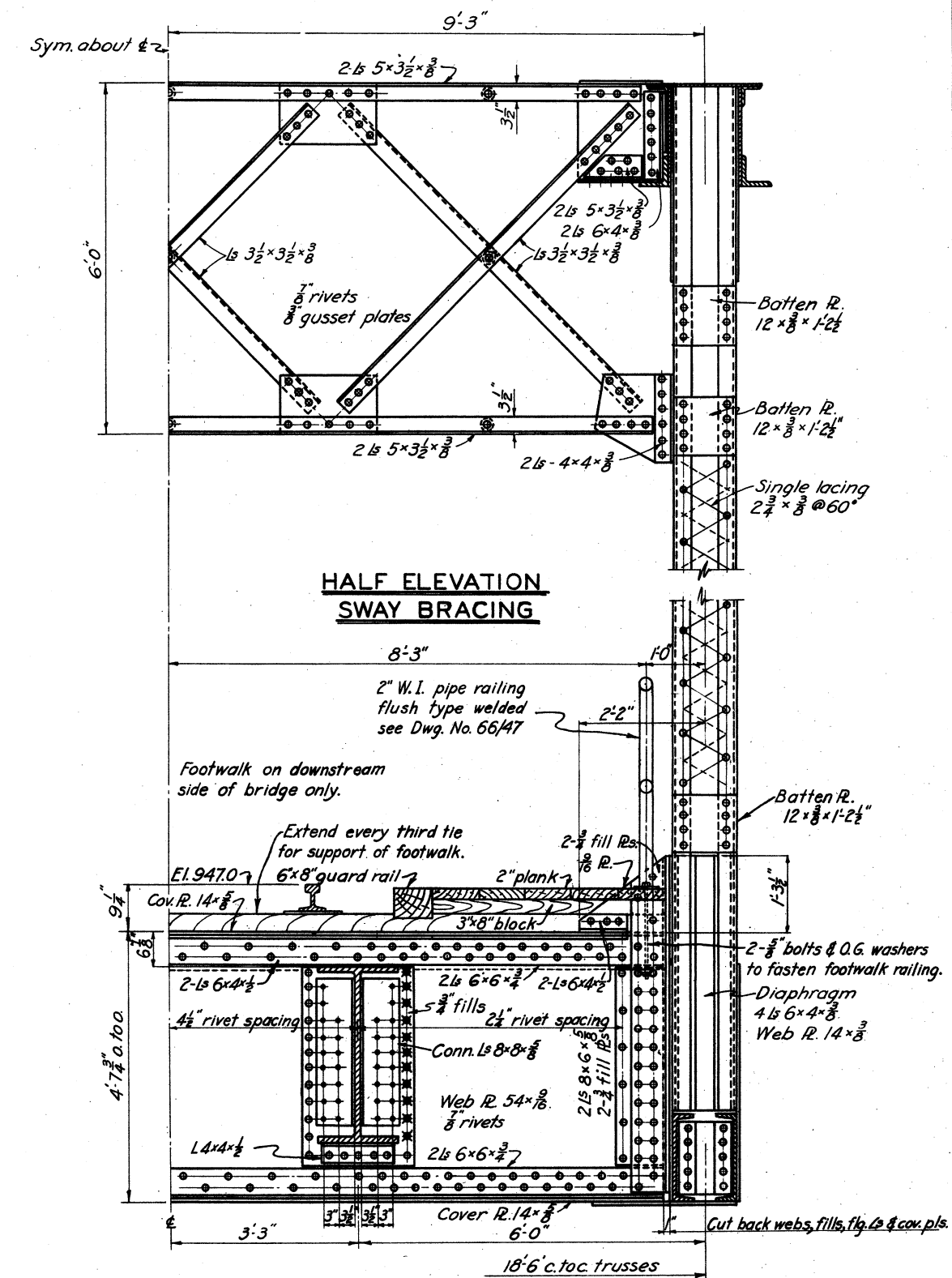
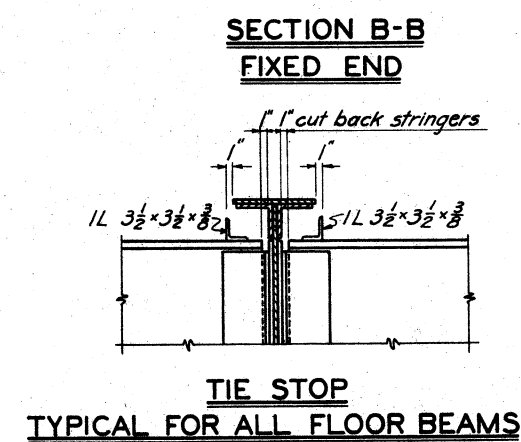
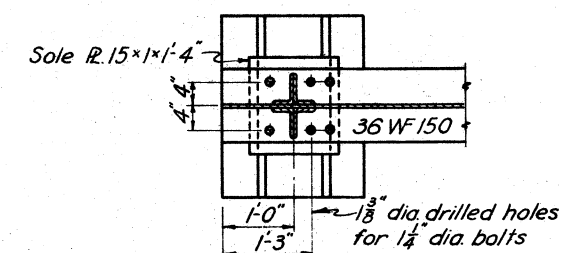


BY	DATE	CHARACTER
REVISIONS		

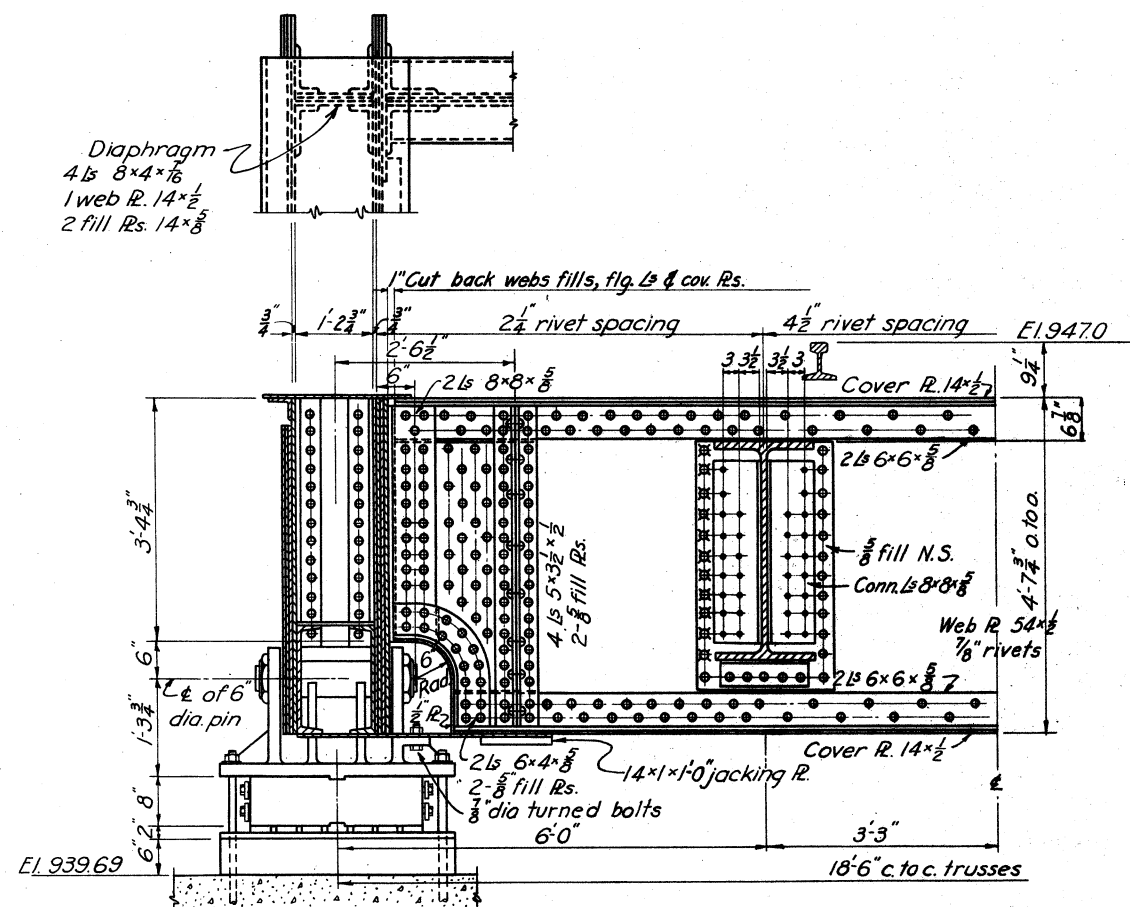




DETAIL OF LATERAL BRACING CONNECTION TO FLOOR STRINGERS



HALF ELEVATION OF INTERMEDIATE FLOOR BEAM



APPROVED:
THE BALTIMORE AND OHIO RAILROAD CO.
BY: CHIEF ENGINEER
APPROVED:
THE WHEELING AND LAKE ERIE RAILWAY CO.
BY: SPECIAL ENGINEER

TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
B. & O. R. R. & W. & L. E. RY. BRIDGE
180 FT. TRUSS - DETAILS

IN 147 SHEETS SHEET NO. 66 SCALE: 3/4" = 1'-0"

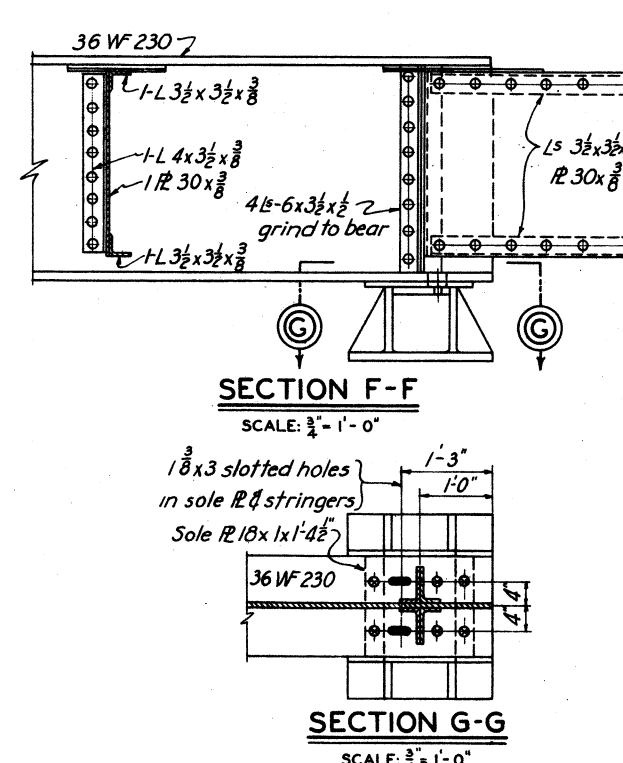
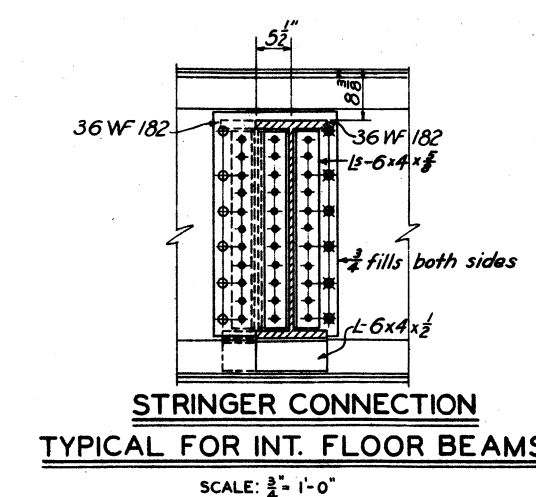
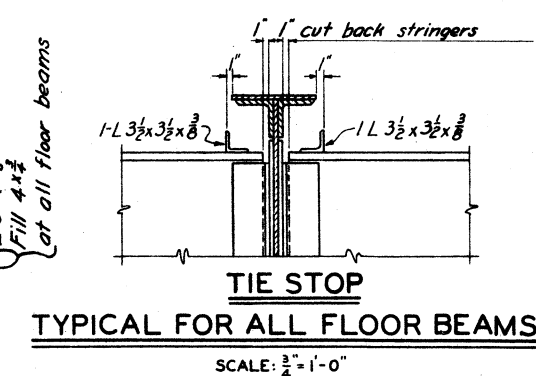
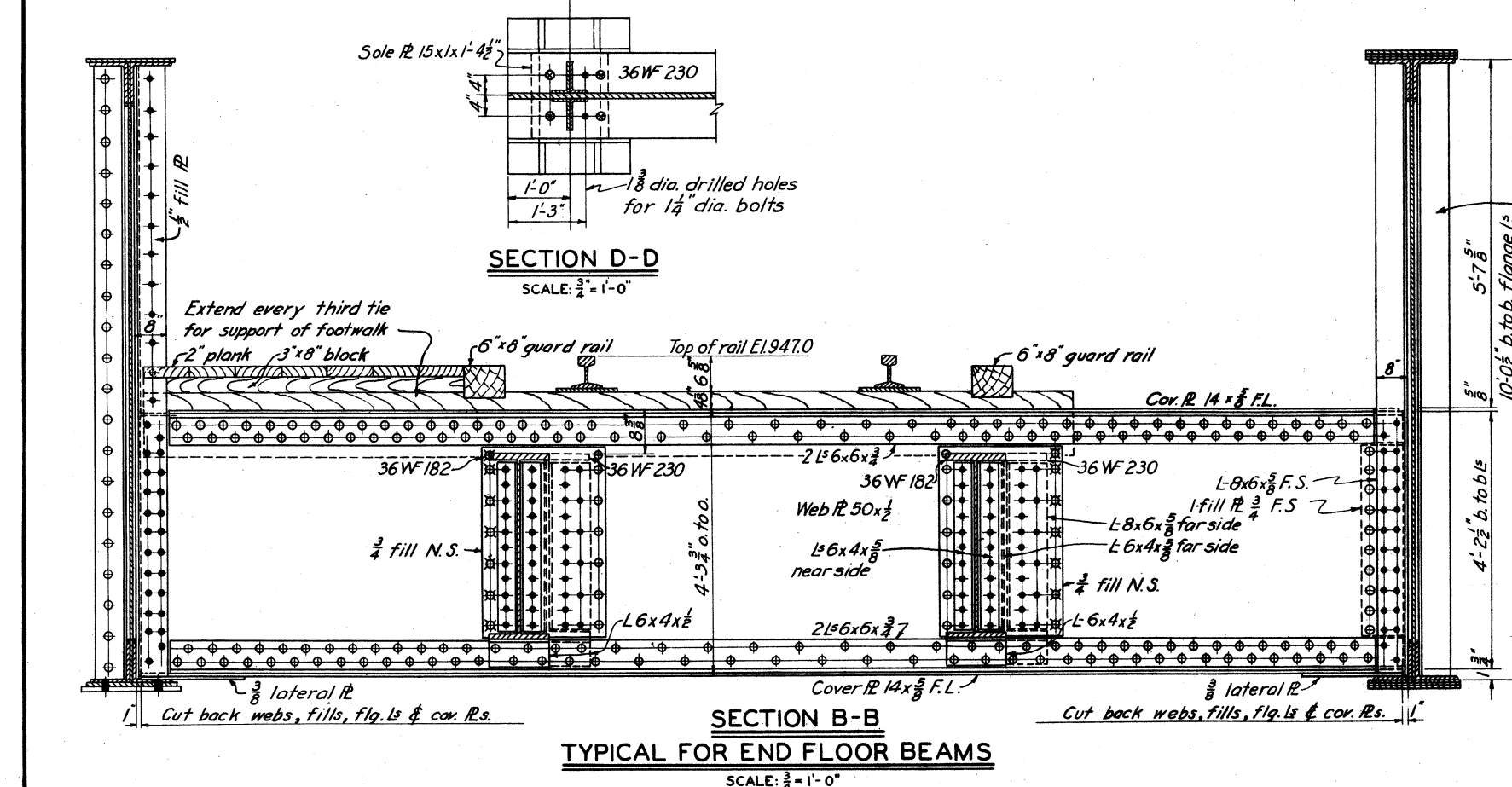
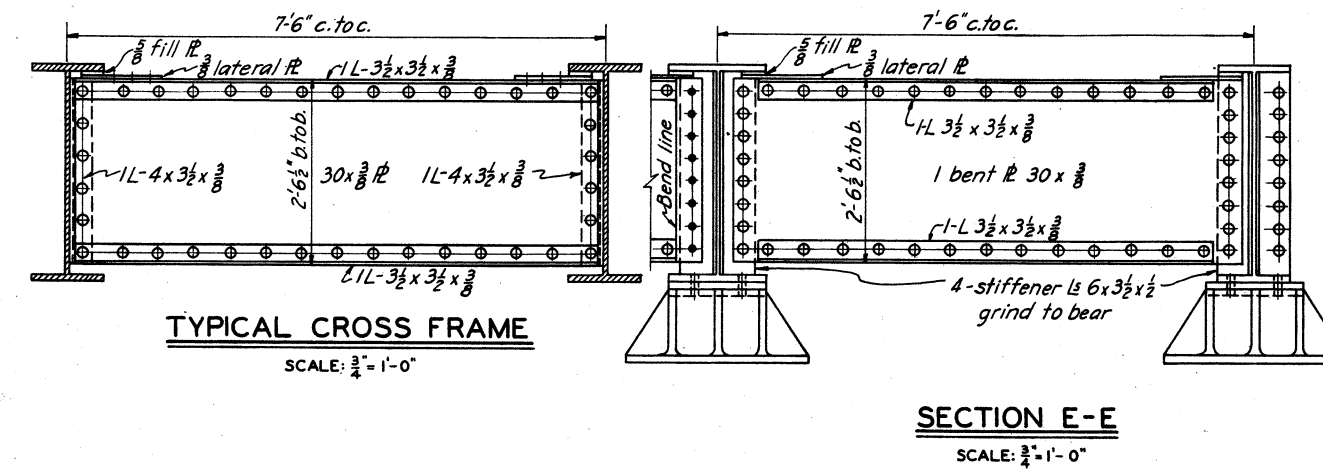
U. S. ENGINEER OFFICE. HUNTINGTON, W. VA. SEPT. 1940

SUBMITTED: *[Signature]* APPROVED: *[Signature]*

DRAWN BY: W. F. H. TRANSMITTED WITH LETTER

FILE NO 027i-PM-66/43 DATED

BY	DATE	CHARACTER
		REVISIONS



APPROVED:
THE BALTIMORE AND OHIO RAILROAD CO.
BY:
CHIEF ENGINEER

APPROVED:
THE WHEELING AND LAKE ERIE RAILWAY CO.
BY:
SPECIAL ENGINEER

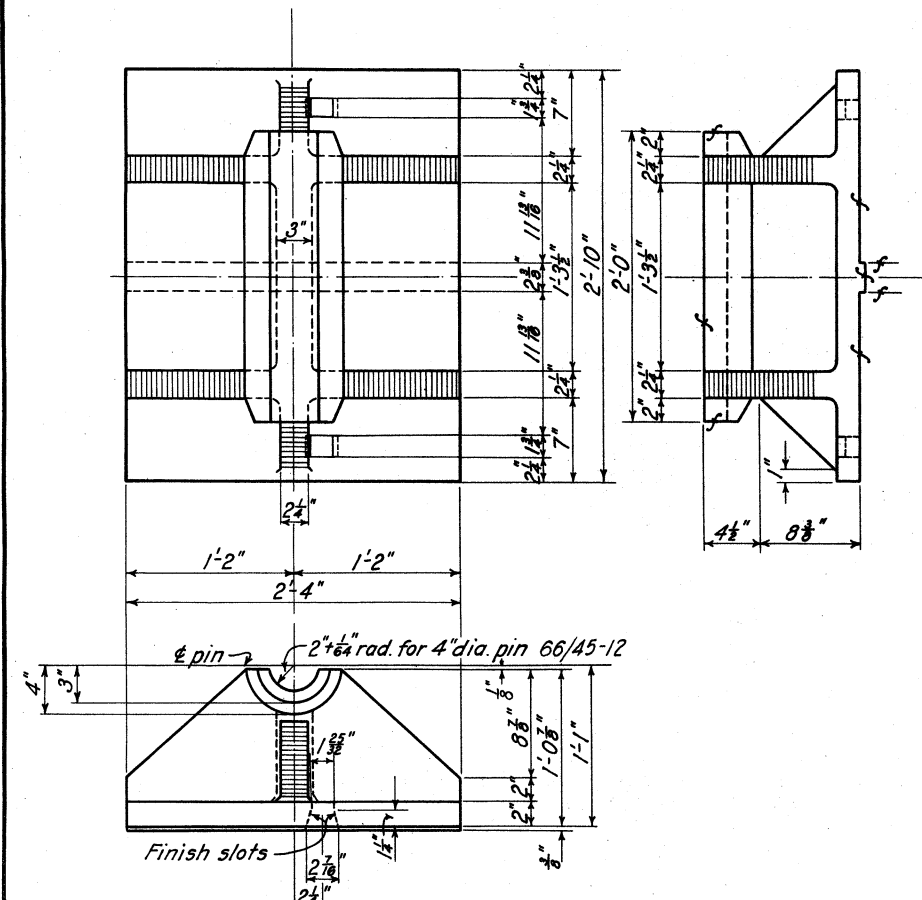
**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO**

**B. & O. R. R. & W. & L. E. RY. BRIDGE
100 FT. GIRDER - DETAILS**

IN 147 SHEETS SHEET NO. 67 SCALE: $\frac{3}{8}" = 1'-0"$

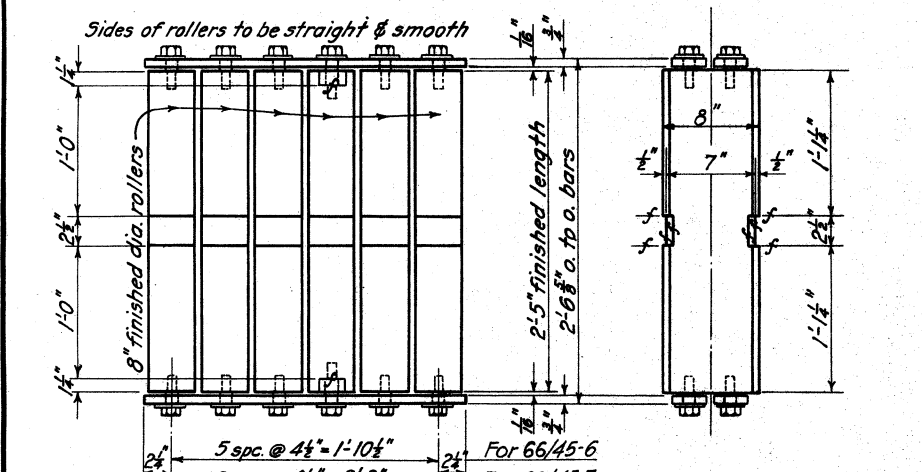
U. S. ENGINEER OFFICE, HUNTINGTON. W. VA., SEPT. 1940

SUBMITTED: *[Signature]* APPROVED: *[Signature]*
 PRINCIPAL ENGINEER LT. COL. ... CORPS OF ENGINEERS
 DRAWN BY C.D.H. TRANSMITTED WITH LETTER
 TRACED BY M.C.
 CHECKED BY H.U.B. FILE NO 027i-PM-66/44 DATED



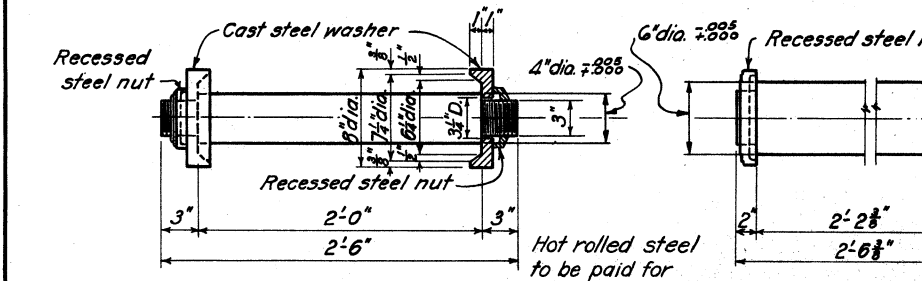
ROLLER CASTING

CAST STEEL (GRADE B-1) MARK 66/45-1
MAKE 2 WT. 955 LBS.



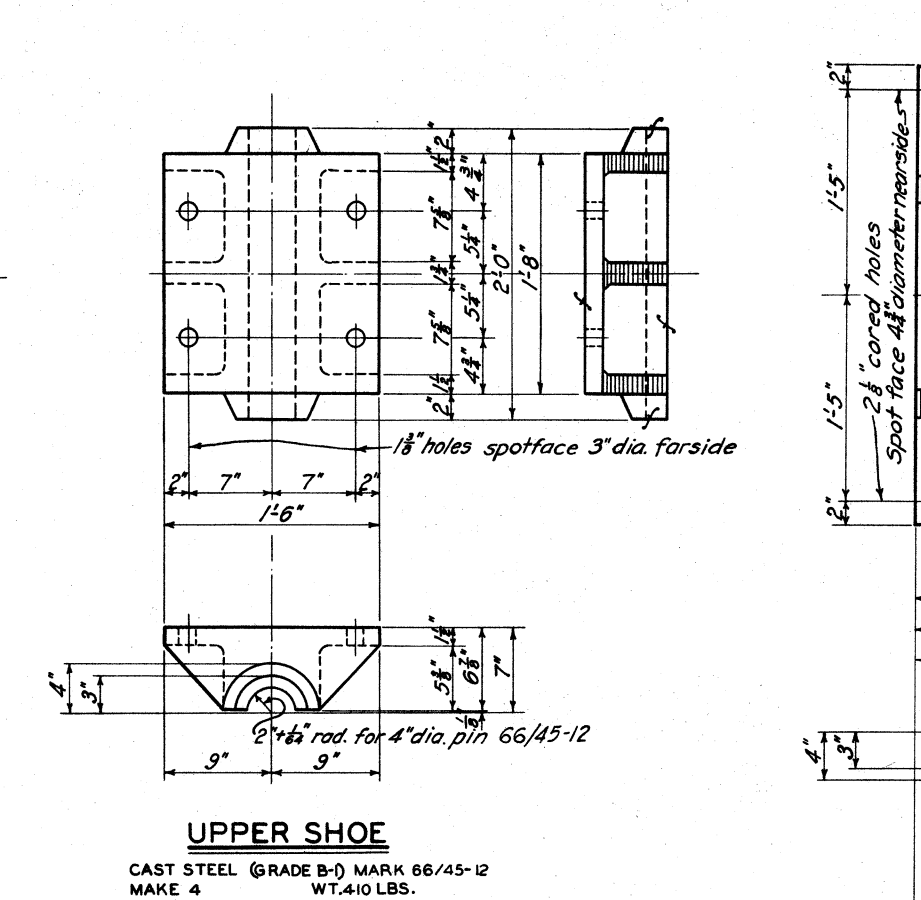
ROLLER NEST

FORGED STEEL ROLLERS WITH STRUCT. STEEL BARS
MARK 66/45-6 MAKE 2 FORGED STEEL WT. 1485 LBS.
STRUCT. STEEL WT. 110 LBS.
MARK 66/45-7 MAKE 4 FORGED STEEL WT. 1730 LBS.
STRUCT. STEEL WT. 125 LBS.



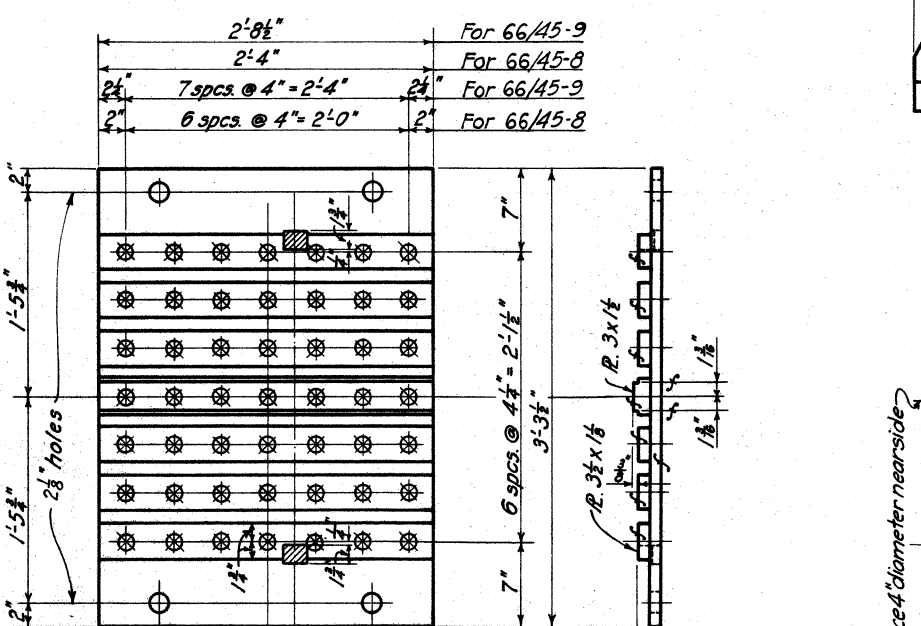
PIN

H.R. STEEL WITH C.S. WASHERS & RECESSED STEEL NUT
MARK 66/45-12 MAKE 4 HOT ROLLED STEEL WT. 97.5 LBS.
CAST STEEL WASHERS WT. 32.5 LBS.
STEEL NUTS WT. 8.0 LBS.



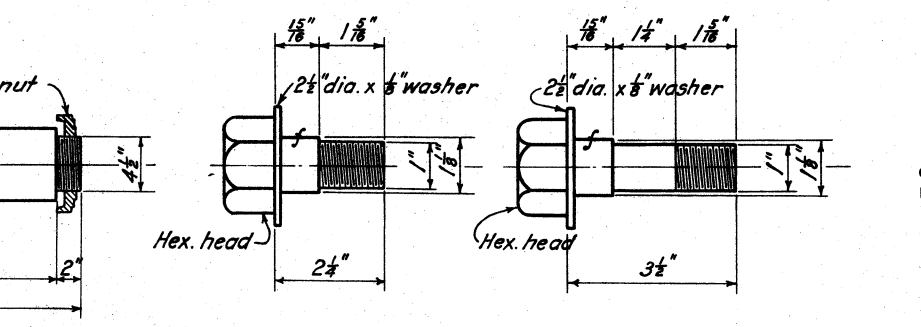
UPPER SHOE

CAST STEEL (GRADE B-1) MARK 66/45-12
MAKE 4 WT. 410 LBS.



ROLLER PLATE

STRUCT. STEEL
MARK 66/45-8 MAKE 2 WT. 510 LBS.
MARK 66/45-9 MAKE 4 WT. 595 LBS.

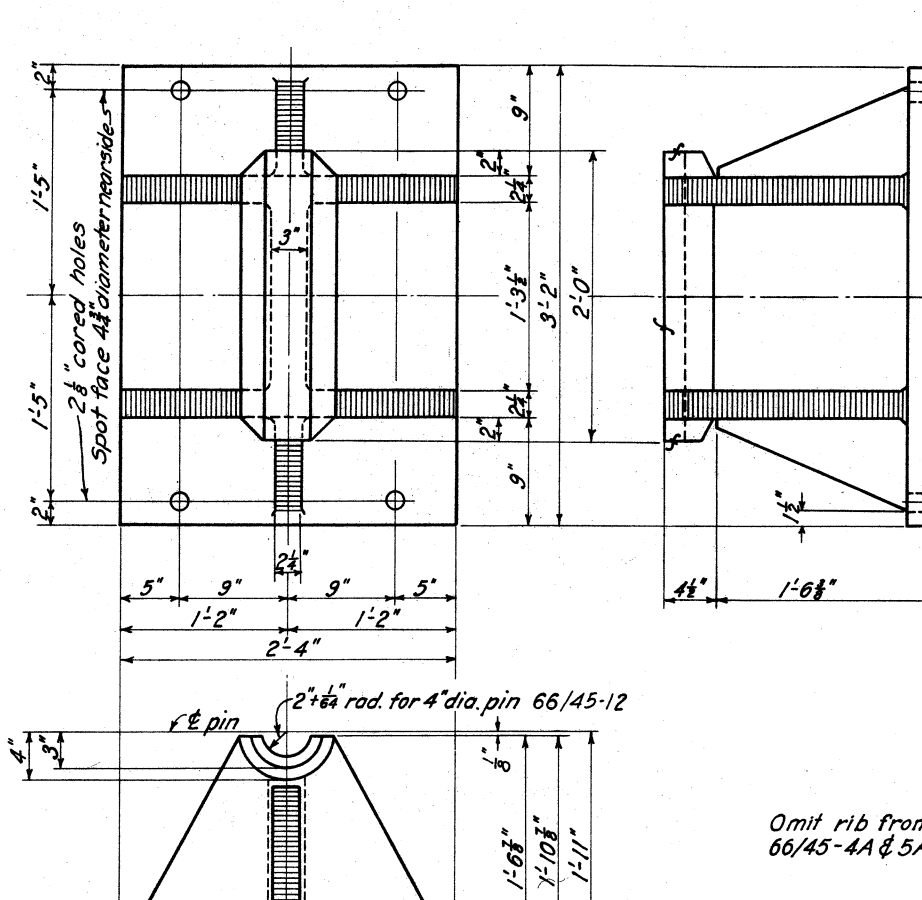


TAP BOLT

STRUCT. STEEL MARK 66/45-14 MAKE 136 SCALE: 6"=1'-0"

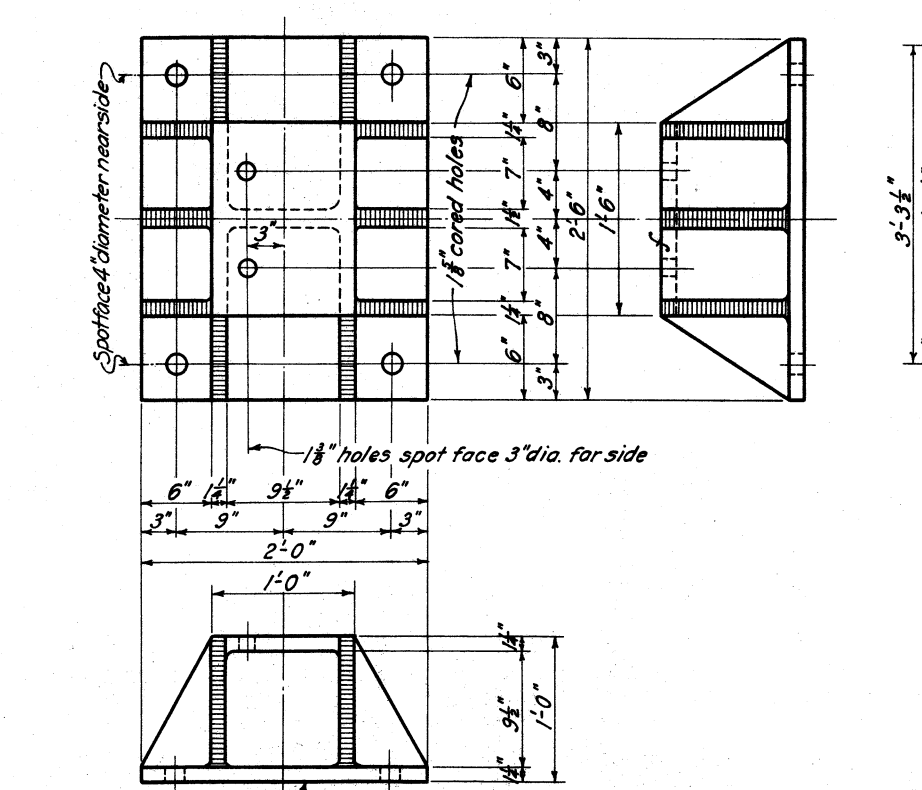
TAP BOLT

STRUCT. STEEL MARK 66/45-15 MAKE 24 SCALE: 6"=1'-0"



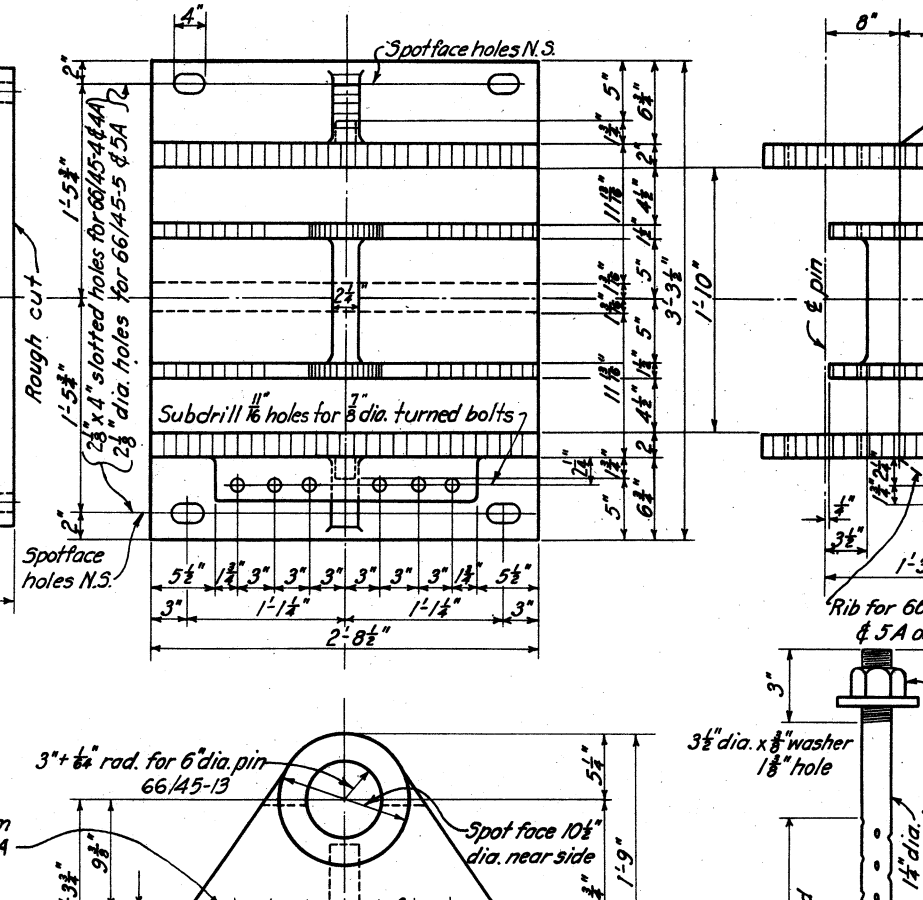
FIXED CASTING

CAST STEEL (GRADE B-1) MARK 66/45-3
MAKE 2 WT. 1620 LBS.



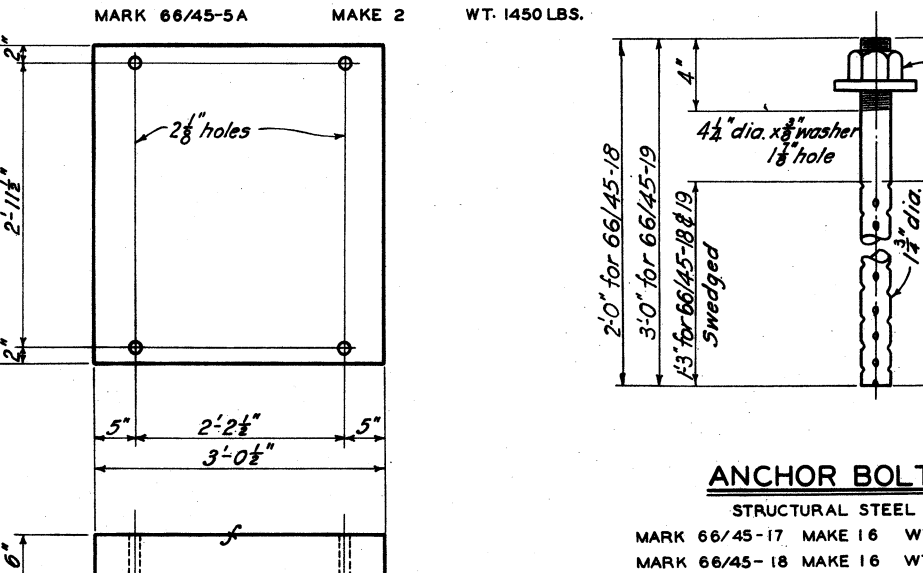
STRINGER CASTING

CAST STEEL (GRADE B-1) MARK 66/45-10
MAKE 12 WT. 620 LBS.



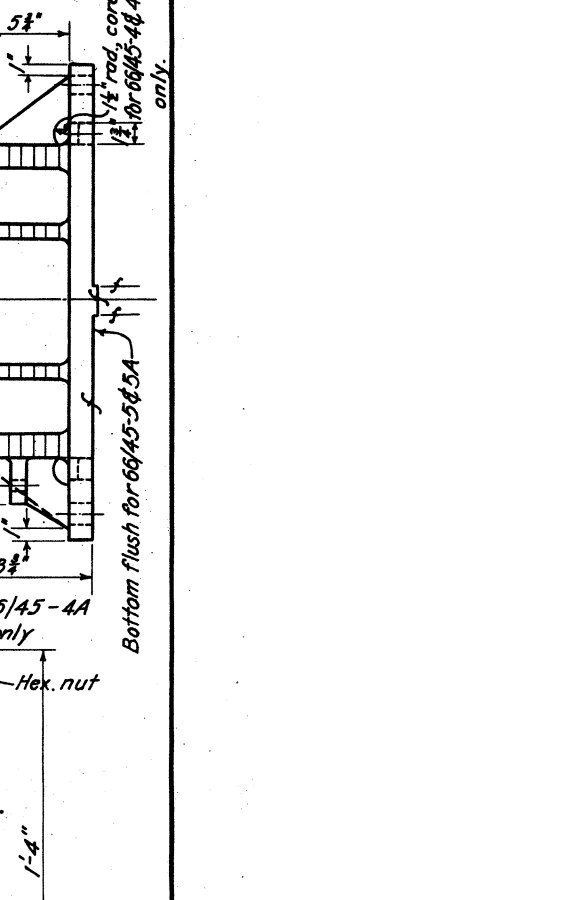
FIXED & ROLLER CASTINGS

CAST STEEL (GRADE B-1)
MARK 66/45-4 MAKE 2 WT. 1480 LBS.
MARK 66/45-4A MAKE 2 WT. 1450 LBS.
MARK 66/45-5 MAKE 2 WT. 1480 LBS.
MARK 66/45-5A MAKE 2 WT. 1450 LBS.



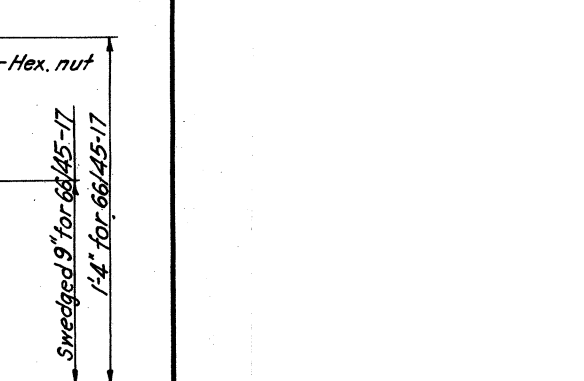
SLAB

STRUCT. STEEL MARK 66/45-11
MAKE 8 WT. 2435 LBS.
SCALE: 1 1/2"=1'-0"



ANCHOR BOLT

STRUCT. STEEL MARK 66/45-16
MAKE 48 WT. 7.5 LBS.
SCALE: 3"=1'-0"



ANCHOR BOLT

STRUCTURAL STEEL
MARK 66/45-17 MAKE 16 WT. 15.4 LBS.
MARK 66/45-18 MAKE 16 WT. 20.8 LBS.
MARK 66/45-19 MAKE 16 WT. 29.2 LBS.

NOTES

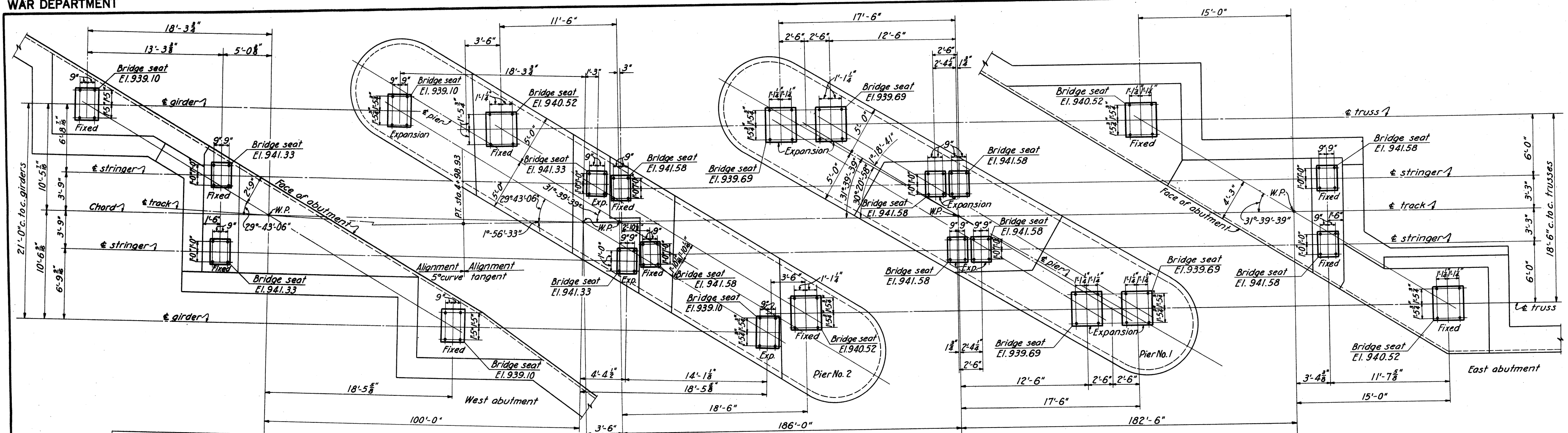
All fillets on castings 3/4" radius

TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
B. & O. R. R. & W. & L. E. RY. BRIDGE
CASTINGS

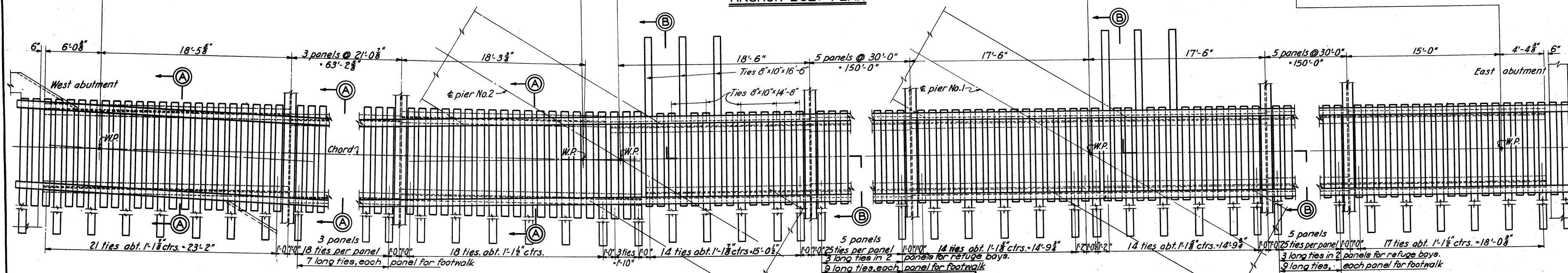
IN 147 SHEETS SHEET NO. 66 SCALE: 1 1/2"=1'-0"

U. S. ENGINEER OFFICE. HUNTINGTON, W. VA. SEPT. 1940

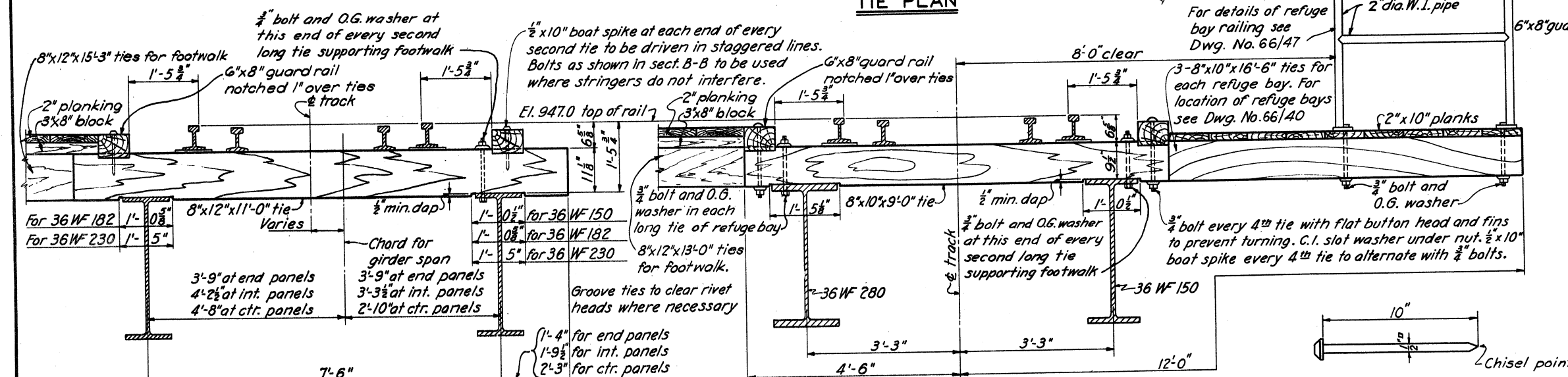
SUBMITTED: [Signature] APPROVED: [Signature]
DRAWN BY: H. S. M. TRANSMITTED WITH LETTER
CHECKED BY: V. S. V. FILE NO. 0271-PM-66/45 DATED



ANCHOR BOLT PLAN



TIE PLAN



SECTION A-A

TYPICAL FOR GIRDER SPAN

SCALE: 3/4" = 1'-0"

Note: Timber guard rails and refuge bay planking to be laid parallel to rail.

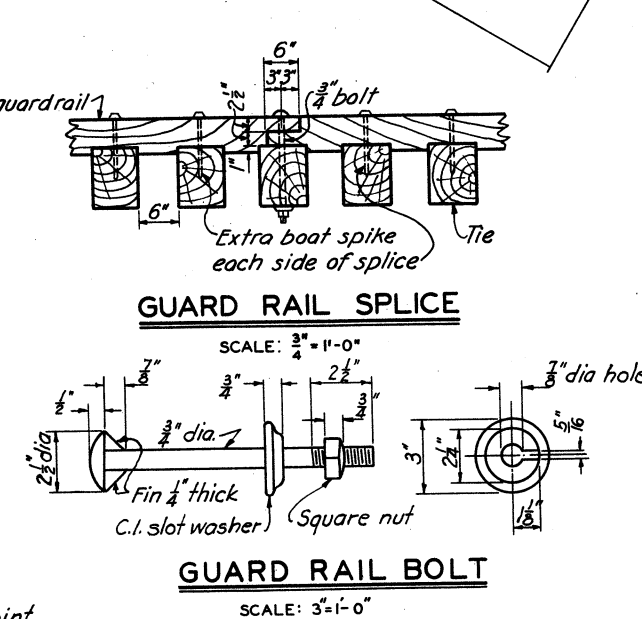
SECTION B-B

TYPICAL FOR TRUSS SPAN

SCALE: 3/4" = 1'-0"

BOAT SPIKE

SCALE: 3 = 1'-0"



NOTES

Timber guard rails and bridge ties to be preformed before treatment.
 For masonry details see Dwg. Nos. 66/36, 37, 38 & 39.
 For castings see Dwg. No. 66/45.
 For inner guard rail see Dwg. No. 66/54.
 For miscellaneous details see Dwg. No. 66/47.
 For footwalk details see Dwg. No. 66/43 & 44.
 For location of refuge bays see Dwg. No. 66/40.

TUSCARAWAS RIVER LOCAL PROTECTION PROJECT MASSILLON, OHIO

B. & O. R. R. & W. & L. E. RY. BRIDGE
ANCHOR BOLT & TIE PLAN

IN 147 SHEETS

SHEET NO. 69

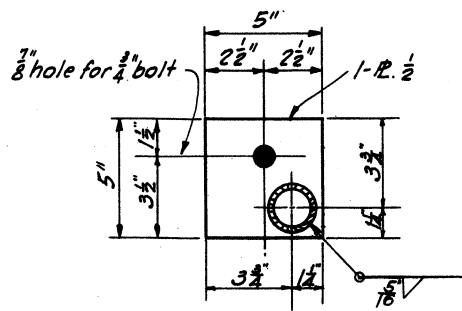
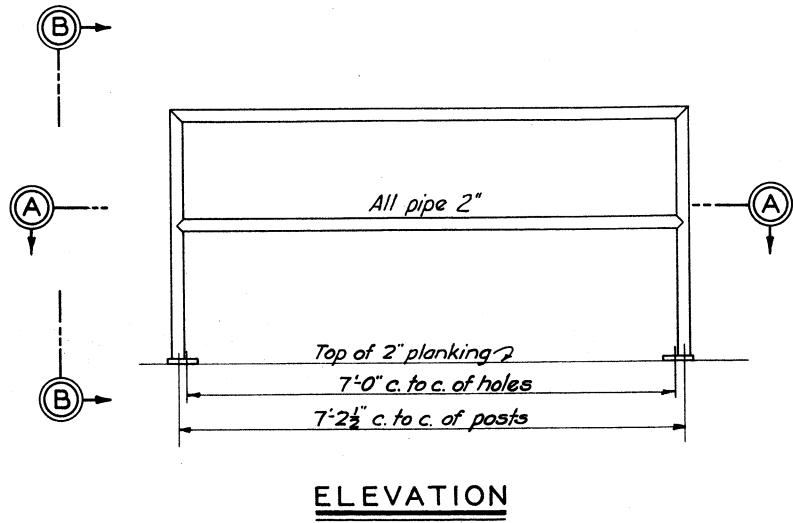
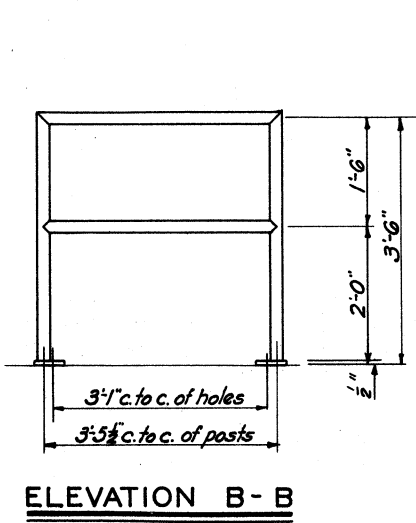
SCALE: 1/4" = 1'-0"

U. S. ENGINEER OFFICE, HUNTINGTON, W. VA. SEPT. 1940

SUBMITTED BY: [Signature] APPROVED BY: [Signature]

DRAWN BY: W. F. H. TRACED BY: J. M. B. TRANSMITTED WITH LETTER

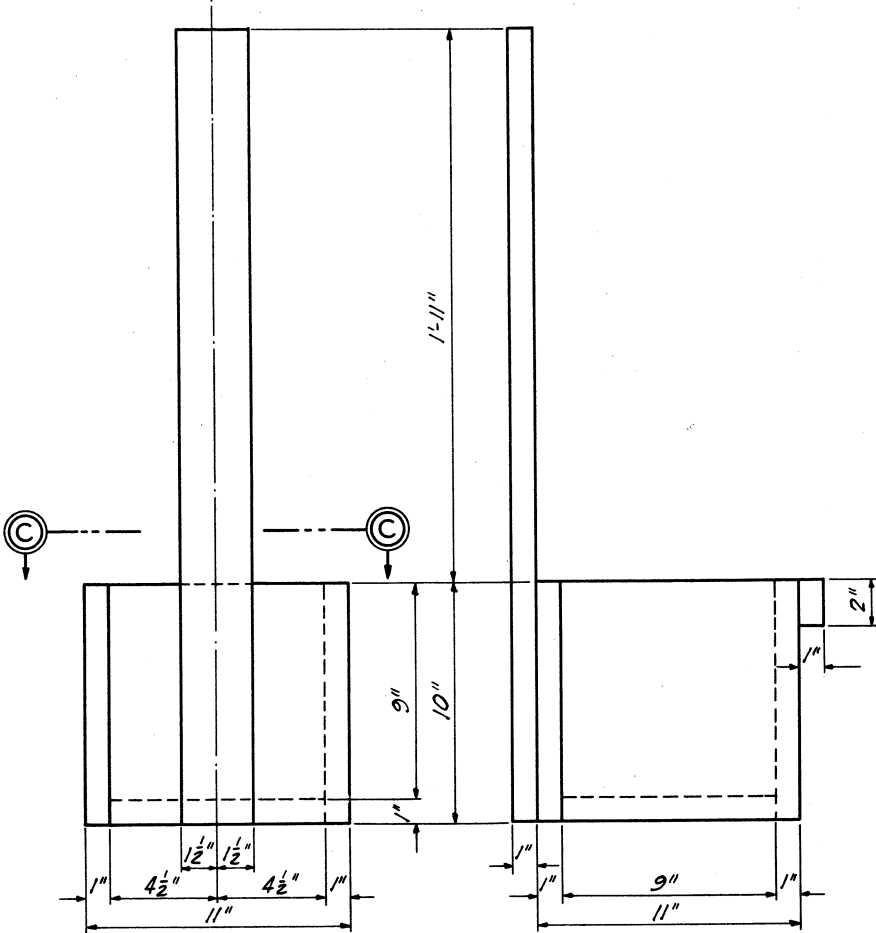
CHECKED BY: H. U. S. FILE NO. 0271-PM-66/46



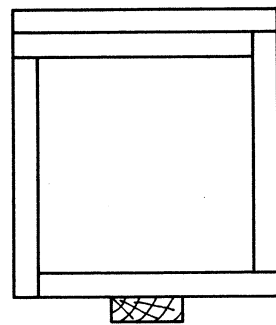
DETAIL OF BASE PLATE
SCALE: 3"=1'-0"

REFUGE BAY RAILING
2" W.I. PIPE

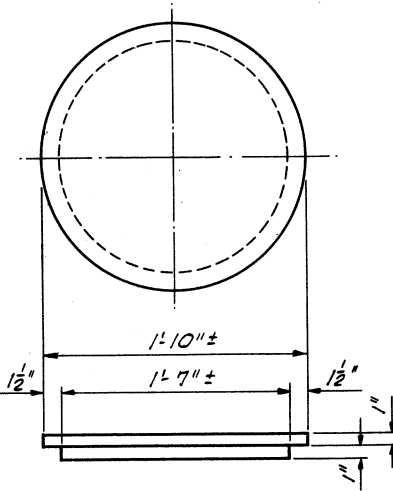
SECTION A-A



FIRE BUCKET
TO BE SUBMERGED IN BARREL
SCALE: 3"=1'-0"



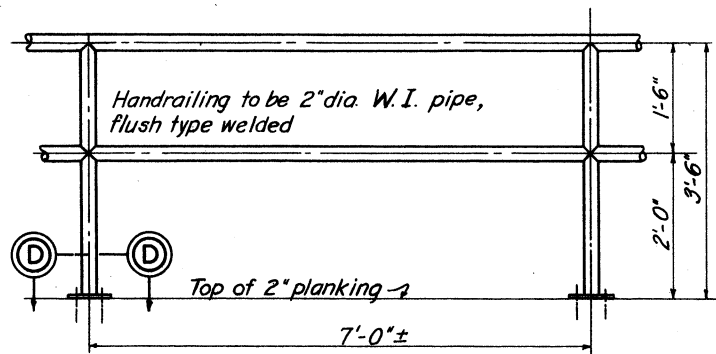
VIEW C - C



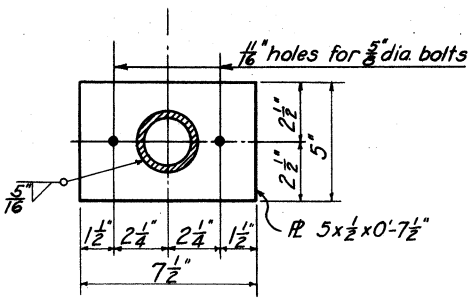
WOODEN FIRE BARREL COVER
SCALE: 1/2"=1'-0"

NOTES

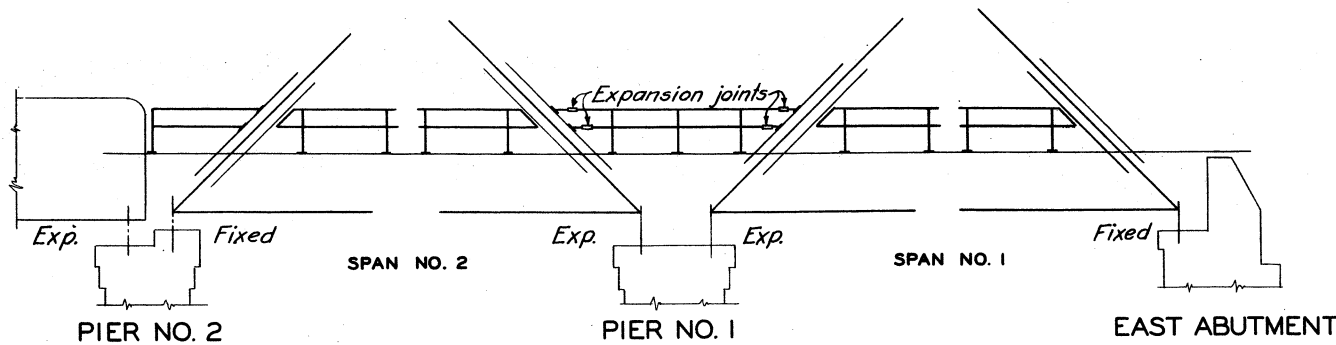
Fire barrel to be standard 50 gal. (Wine Barrel) new and with clear white oak staves and head. The word "FIRE" to be stenciled in white letters 6" high on barrel. Fire bucket and fire barrel cover to be made of cypress lumber and assembled with brass screws in a workmanlike manner. Fire barrels with covers and fire buckets, with fire barrels filled with water ready for use, shall be placed on each refuge bay immediately after deck of bridge is placed.



TYPICAL FOOTWALK RAILING PANEL



SECTION D-D
SCALE: 3"=1'-0"



FOOTWALK RAILING
SCALE: 1 1/8"=1'-0"

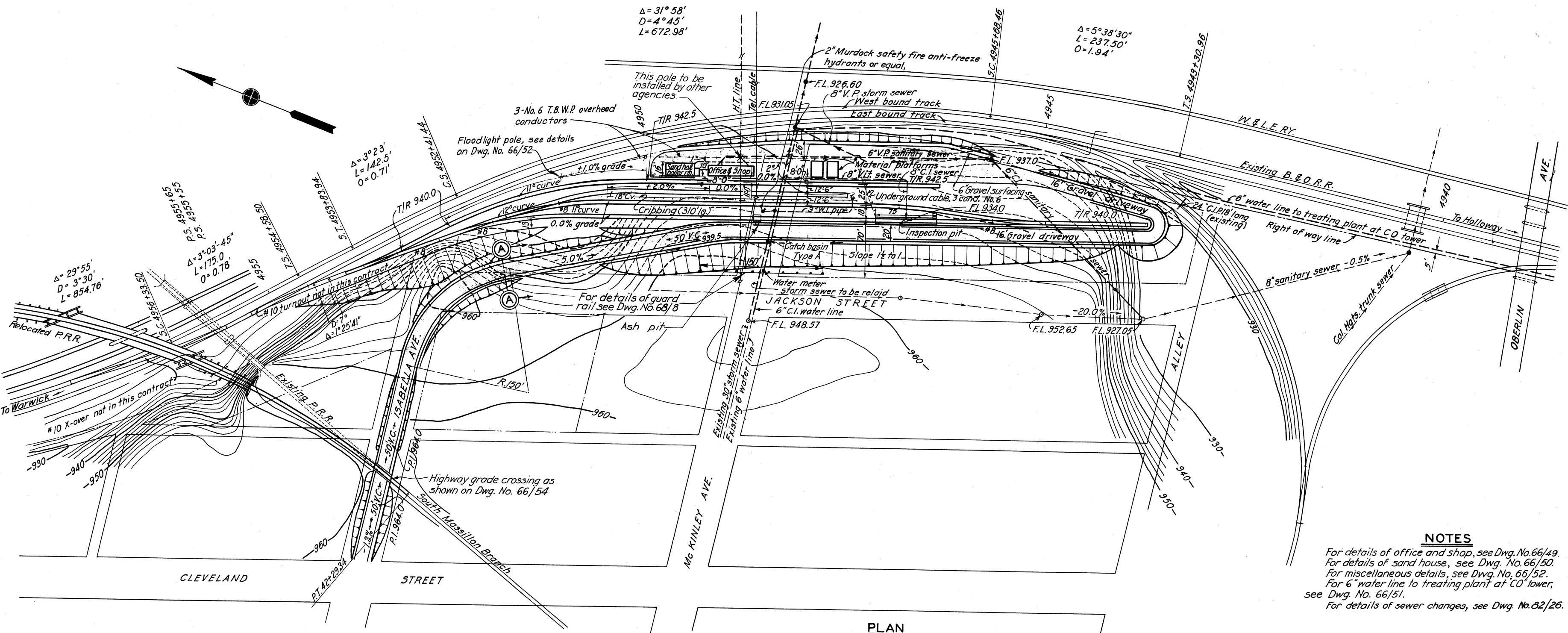


TYPICAL LETTERS
FOR STENCILING FIRE BARREL
SCALE: 3"=1'-0"

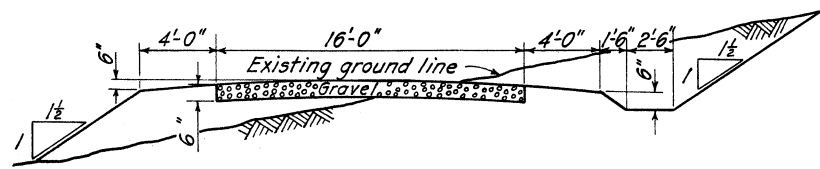
APPROVED:
THE BALTIMORE AND OHIO RAILROAD CO.
BY: CHIEF ENGINEER
APPROVED:
THE WHEELING AND LAKE ERIE RAILWAY CO.
BY: SPECIAL ENGINEER

TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
B. & O. R. R. & W. & L. E. RY. BRIDGE
MISCELLANEOUS DETAILS

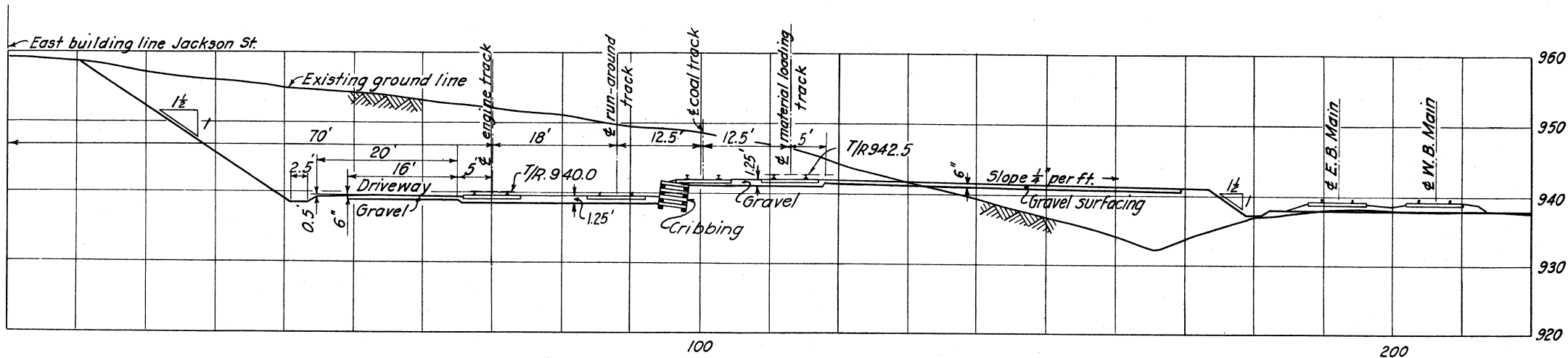
IN 147 SHEETS SHEET NO. 70 SCALE: 1/4"=1'-0"
U.S. ENGINEER OFFICE, HUNTINGTON, W. VA., SEPT. 1940
SUBMITTED BY: C.D.N. APPROVED BY: J. C. COLE, CHIEF OF ENGINEERS
DRAWN BY: A.S. TRANSMITTED WITH LETTER
CHECKED BY: H.U.B. FILE NO. 0271-PM-66/47 DATED



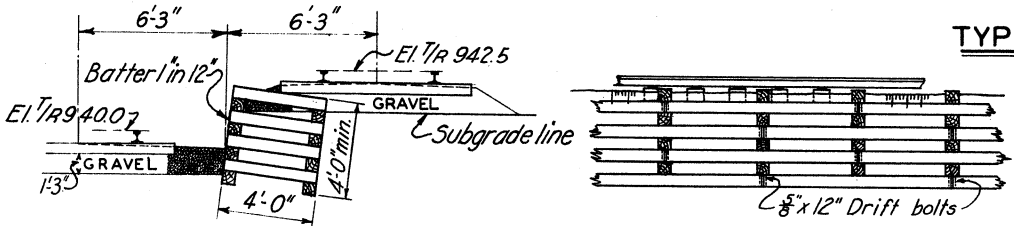
NOTES
For details of office and shop, see Dwg. No. 66/49.
For details of sand house, see Dwg. No. 66/50.
For miscellaneous details, see Dwg. No. 66/52.
For 6\"/>



SECTION A-A
SCALE: 1\"/>



TYPICAL CROSS SECTION
SCALE: 1\"/>



SECTION
ELEVATION
TIMBER CRIBBING DETAILS
SCALE: 1\"/>

APPROVED:
THE BALTIMORE AND OHIO RAILROAD CO.
BY: _____
CHIEF ENGINEER

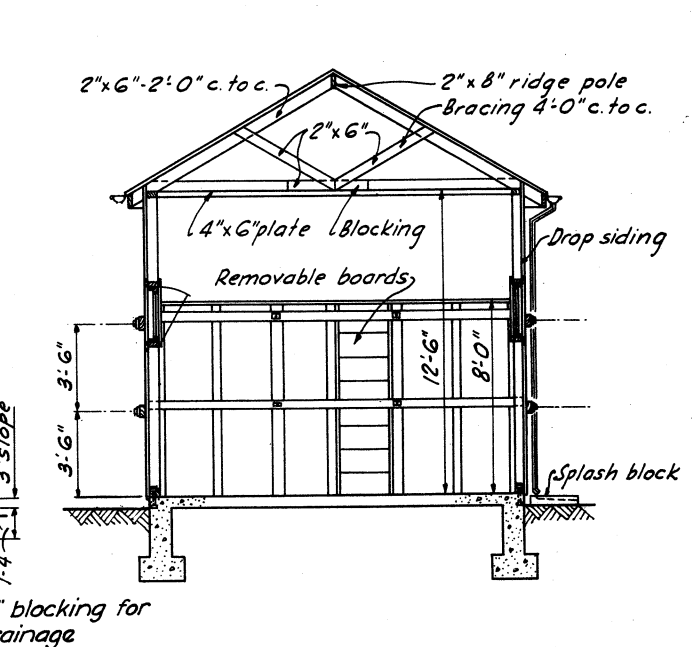
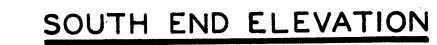
BY	DATE	CHARACTER

**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
B. & O. R. R. ENGINE TERMINAL
GENERAL LAYOUT**

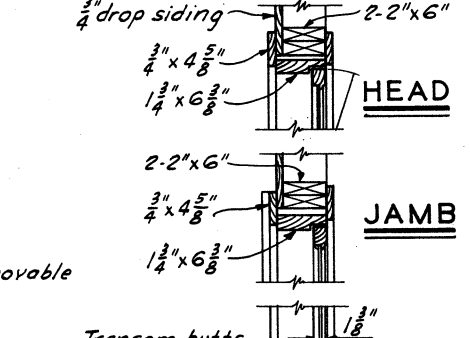
IN 147 SHEETS SHEET NO. 71 SCALE: AS SHOWN

U. S. ENGINEER OFFICE. HUNTINGTON, W. VA. SEPT. 1940

SUBMITTED: _____ APPROVED: _____
DRAWN BY: A.W.M. TRANSMITTED BY: V.S.V. FILE NO. 0271-PM-66/48 DATED: _____



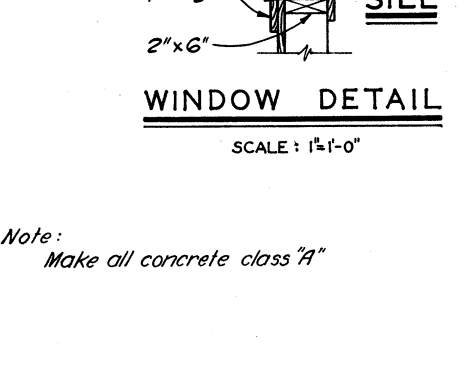
SECTION A-A



2" x 10"

$\frac{3}{4}" \times 4 \frac{5}{8}"$

SILL



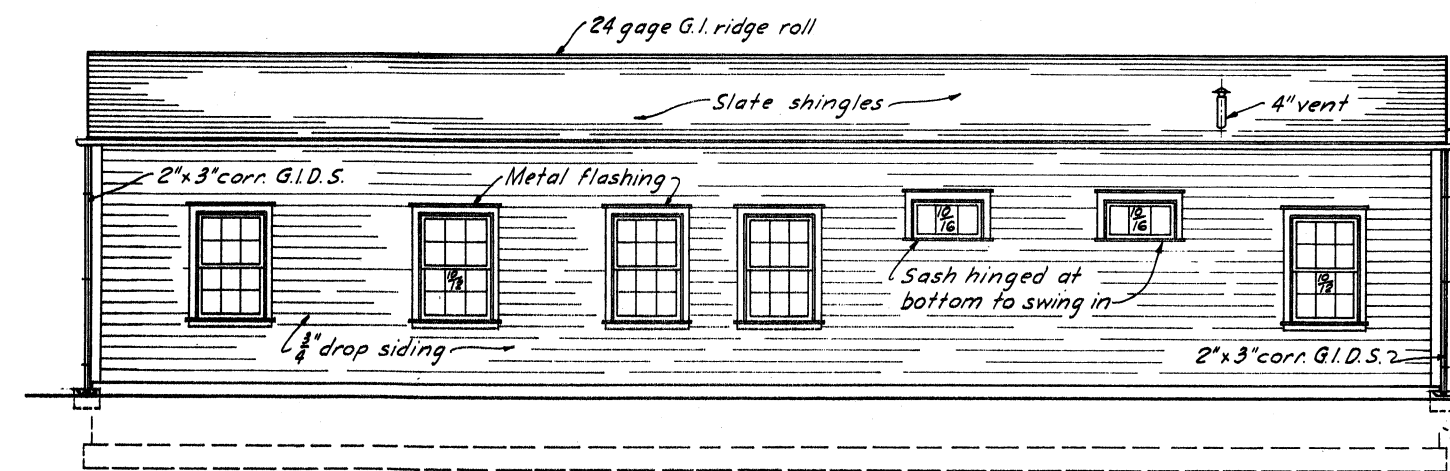
WINDOW DETAIL

SCALE : 1"=1'-0"

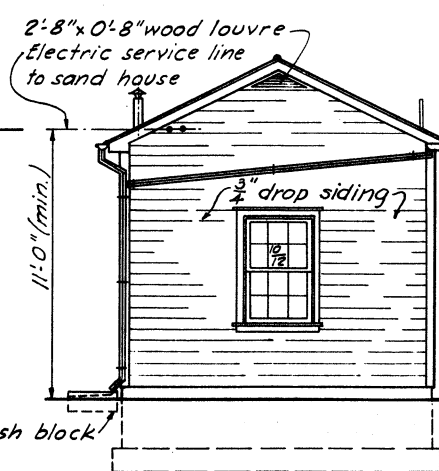
☒ Ceiling outlet
 S₁ Single pole switch
 P Pull switch
 Pitch gutters $\frac{1}{16}$ " per foot

TRACED BY A. S.
CHECKED BY R. H. H. FILE NO 027i-PM-66/49 DATED

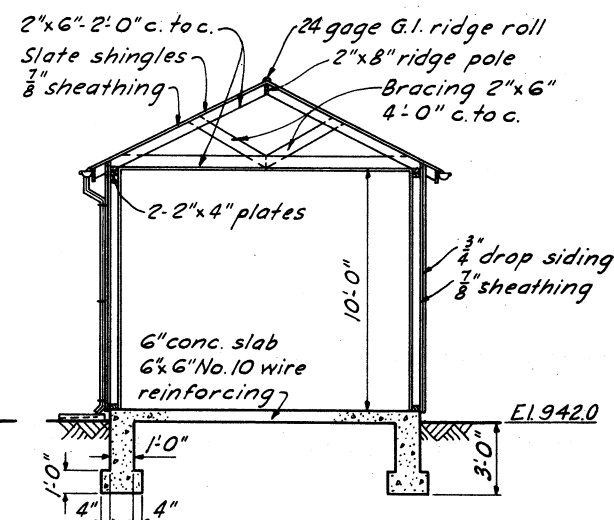
BY	DATE	CHARACTER
REVISIONS		



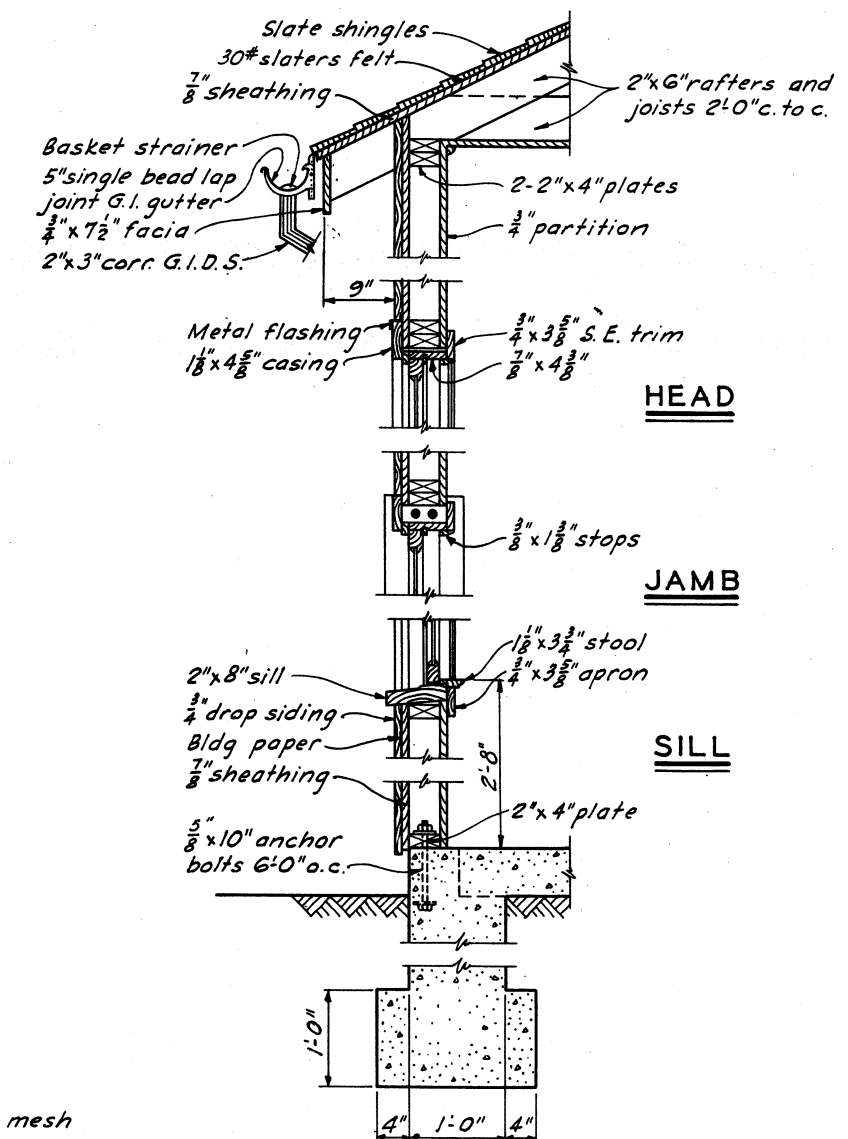
REAR ELEVATION



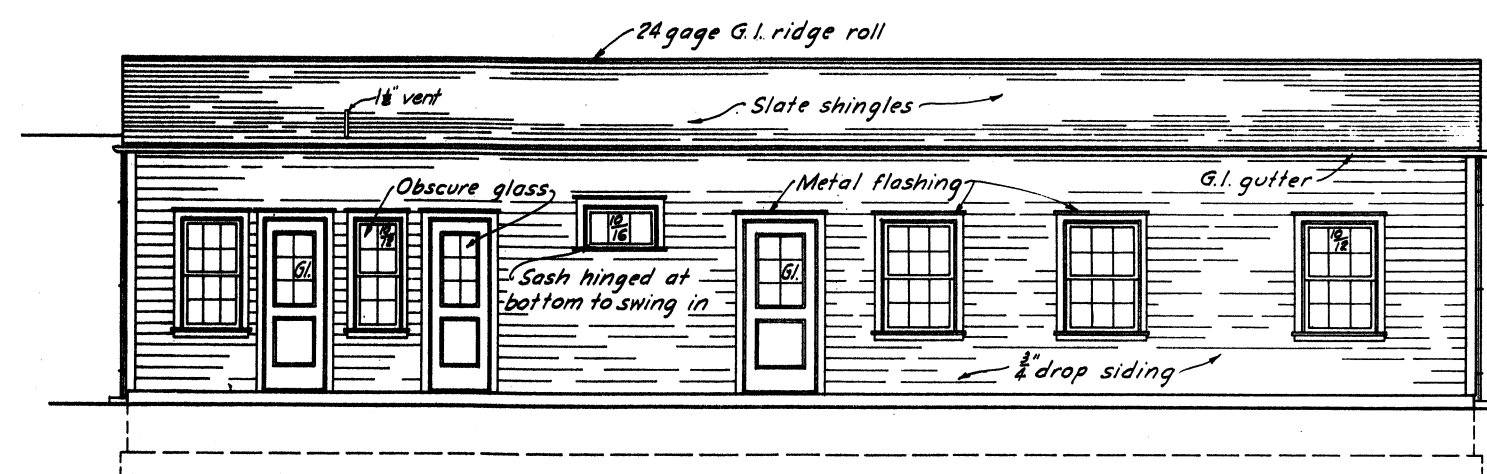
END ELEVATION



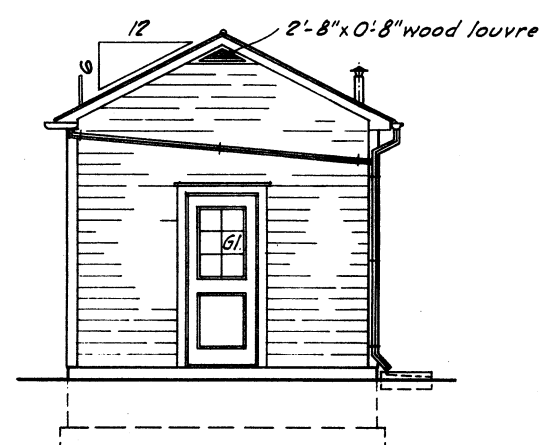
TYPICAL SECTION



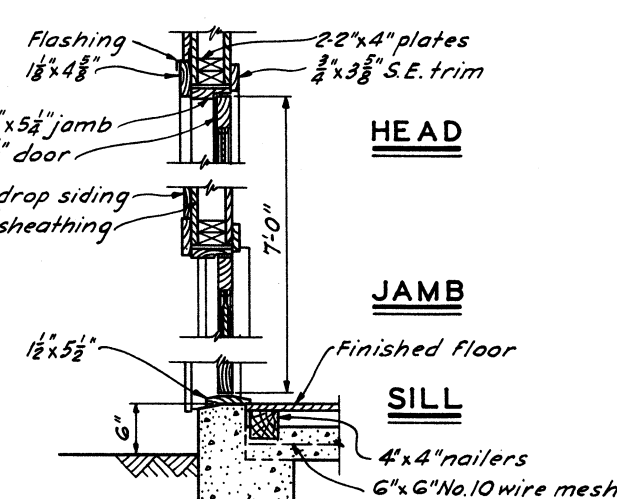
SECTION A - A



FRONT ELEVATION



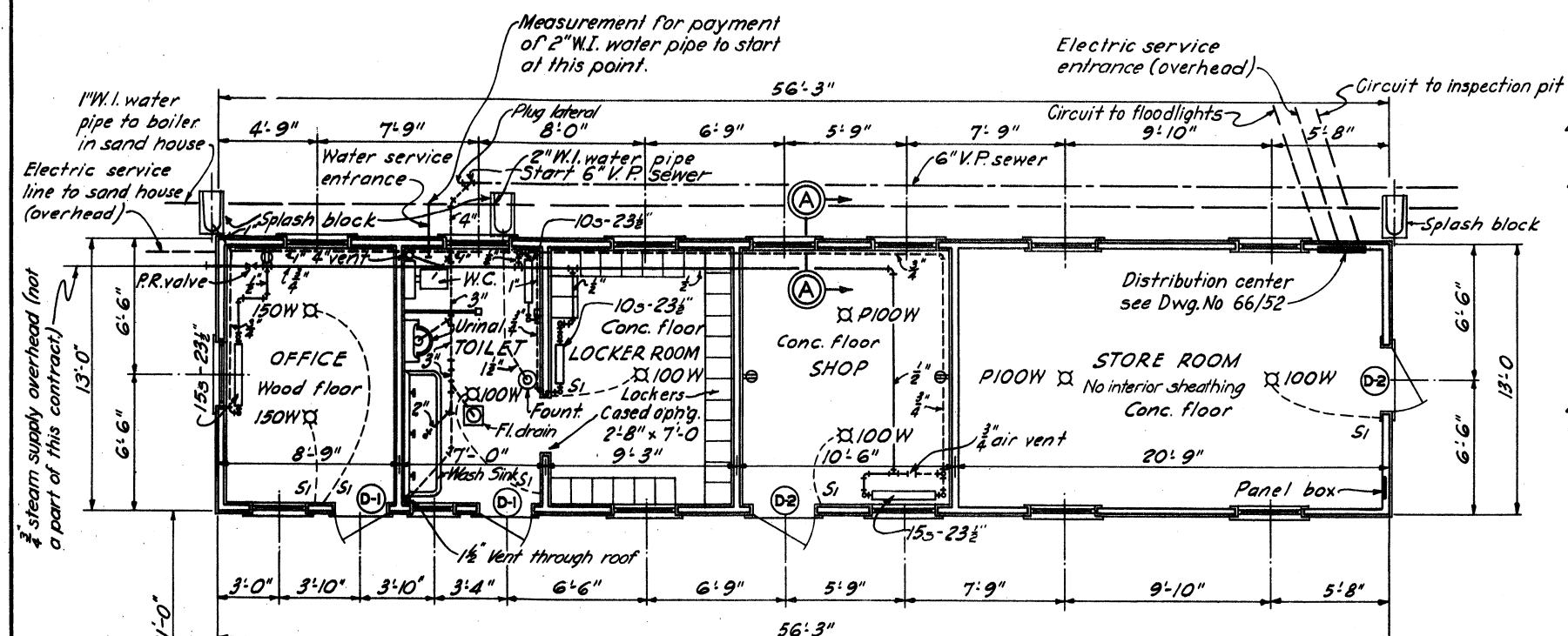
END ELEVATION



DOOR DETAILS

SCALE: 1"=1'-0"

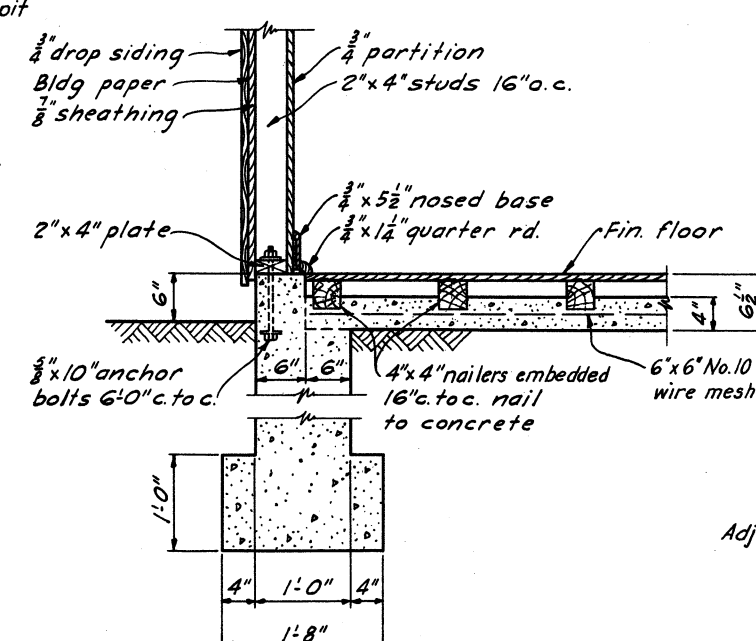
Note: Provide wood saddle for door to "Office" only



FLOOR PLAN

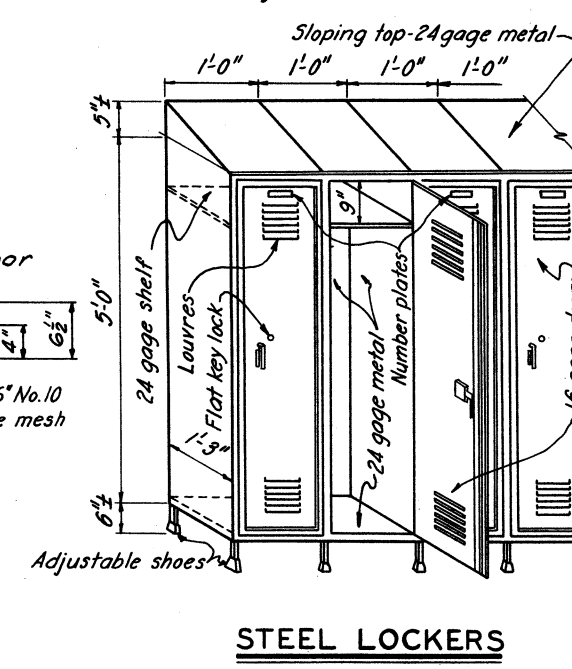
LEGEND

- Ceiling outlet
 S, Single pole switch
 ⊕ Convenience outlet



DETAIL OF OFFICE FLOOR

SCALE: 1"=1'-0"



STEEL LOCKERS

SCALE: $\frac{3}{4}'' = 1'-0''$

APPROVED:
THE BALTIMORE AND OHIO RAILROAD CO.
BY:

CHIEF

**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
B. & O. R. R. ENGINE TERMINAL
OFFICE & SHOP**

IN 147 SHEETS

SHEET NO. 73

SCALE: $\frac{1''}{1' - 0''}$

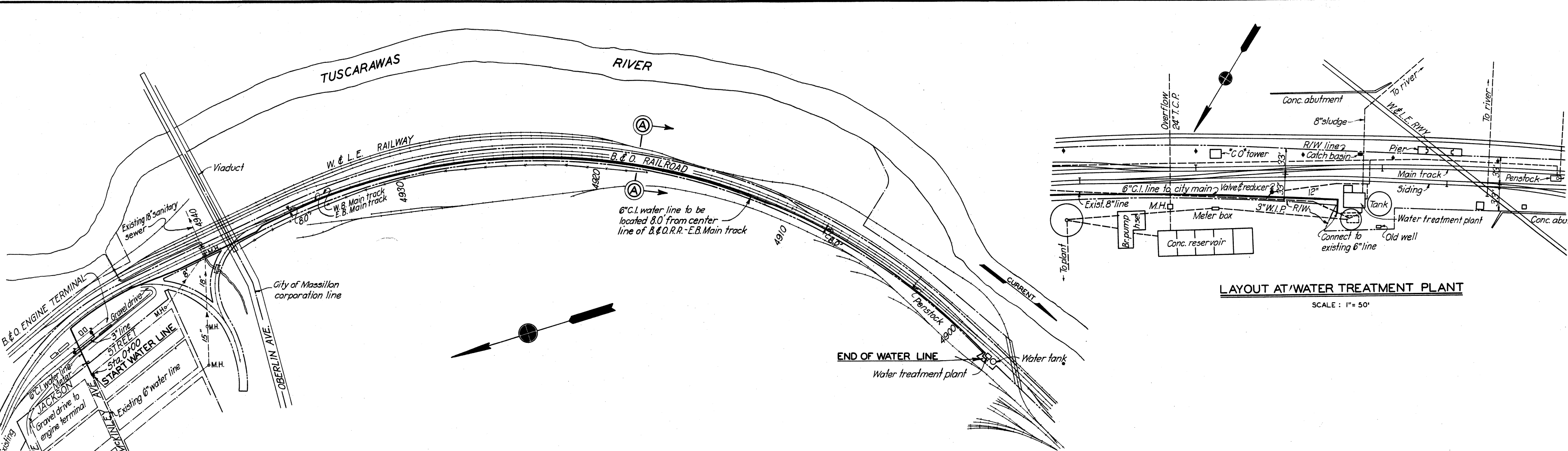
U. S. ENGINEER OFFICE. HUNTINGTON, W. VA. SEPT. 1940

SUBMITTED: *[Signature]* APPROVED: *[Signature]*

PRINCIPAL ENGINEER M. COL. CORPS OF ENGINEERS

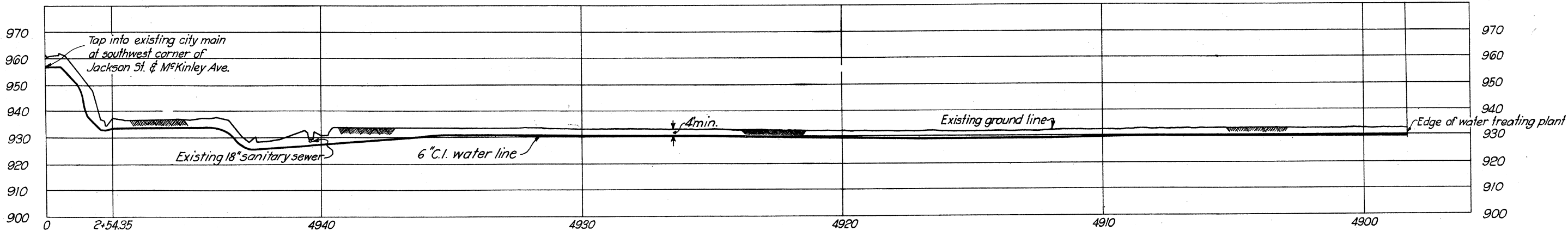
TRANSMITTED WITH LETTER

CHECKED BY R. H. H. FILE NO 0271-PM-66/50 DATED

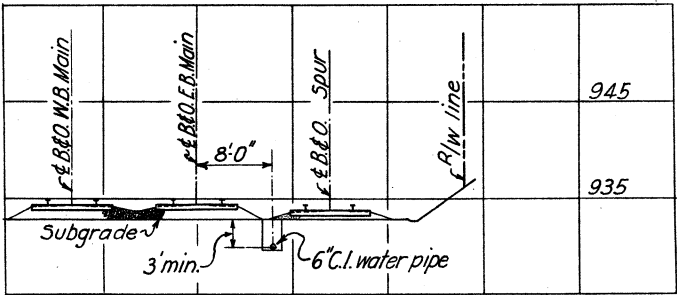


PLAN OF WATER LINE
SCALE: 1"=200'

Note:
6" C.I. water line to
be class 150 "



PROFILE OF WATER LINE
SCALE: HOR. 1"=200'
VERT. 1"=20'



SECTION A-A
SCALE: 1"=10'

NOTES

For general plan, see Dwg. Nos. 16/4 and 16/5.
For engine terminal layout, see Dwg. No. 66/48.

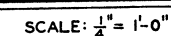
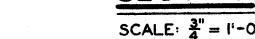
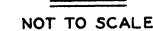
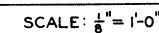
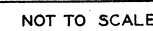
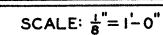
TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
B. & O. R. R. ENGINE TERMINAL
LOCATION OF 6-IN. WATER LINE

IN 147 SHEETS SHEET NO. 74 SCALE: AS SHOWN

U. S. ENGINEER OFFICE. HUNTINGTON, W. VA. SEPT. 1940
SUBMITTED BY: H. G. R. APPROVED BY: H. E. C.
DRAWN BY: H. G. R. CHECKED BY: D. G. J. FILE NO. 0271-PM-66/51
TRANSMITTED WITH LETTER DATED

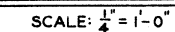
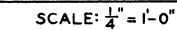
BY	DATE	CHARACTER



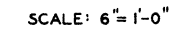
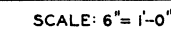


NO.10 TURNOUT			
BILL OF TIES			
NO.OF TIES	SIZE	NO.OF TIES	SIZE
11	7/8"x9'-0"	6	7/8"x15'-0"
11	7/8"x10'-0"	6	7/8"x16'-0"
7	7/8"x11'-0"		
7	7/8"x12'-0"		
8	7/8"x13'-0"		
6	7/8"x14'-0"		

Total No. of ties 62 = 3906 F.B.M.



SCALE: 6" = 1'-0"

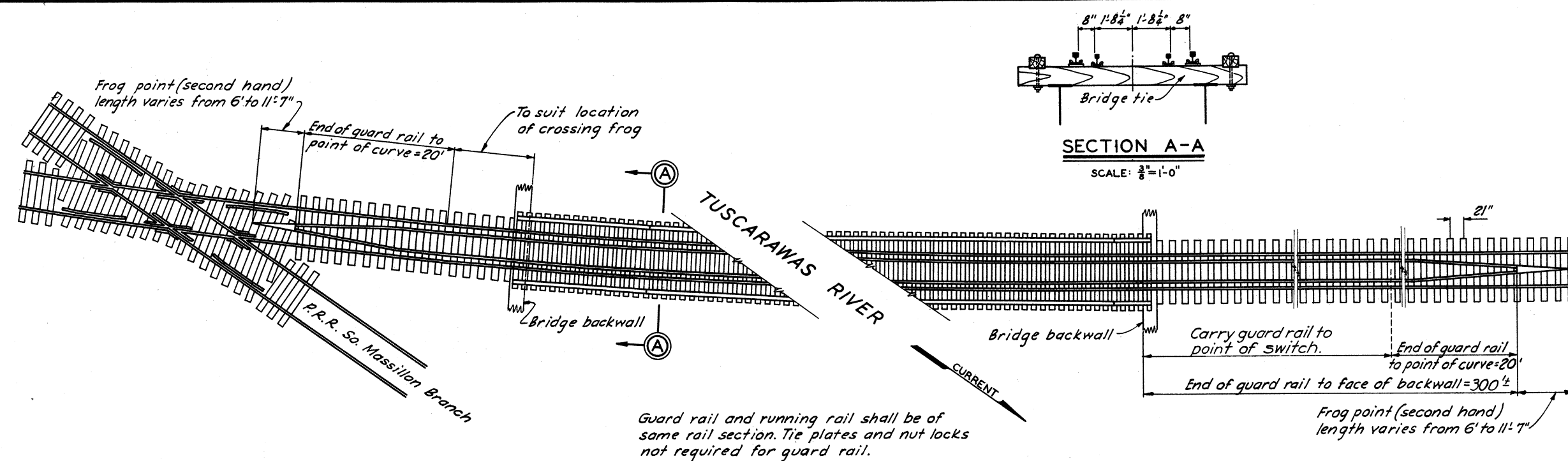


PLAN

PLAN

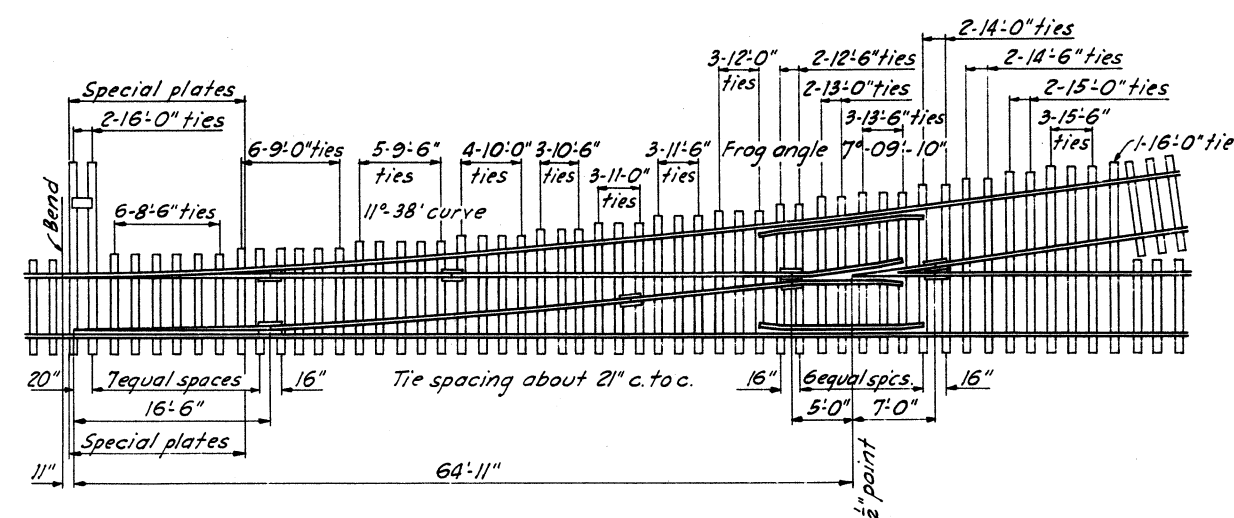
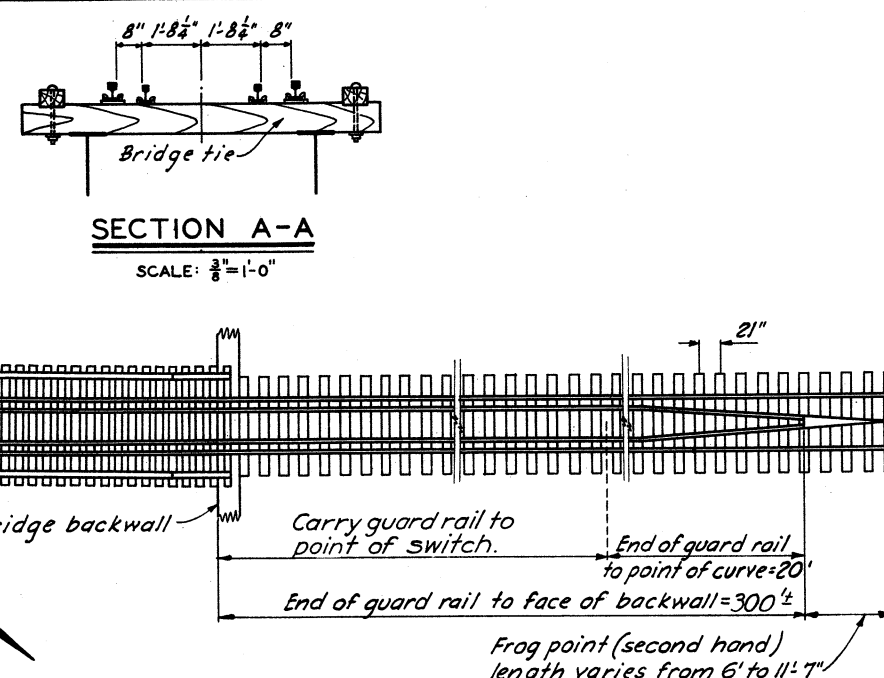
SCALE: AS SHOWN

DRAWN BY E.W.H.A.W.M. TRANSMITTED WITH LETTER
TRACED BY A.S.
CHECKED BY D.G.J. FILE NO 027i-PM-66/53 DATED



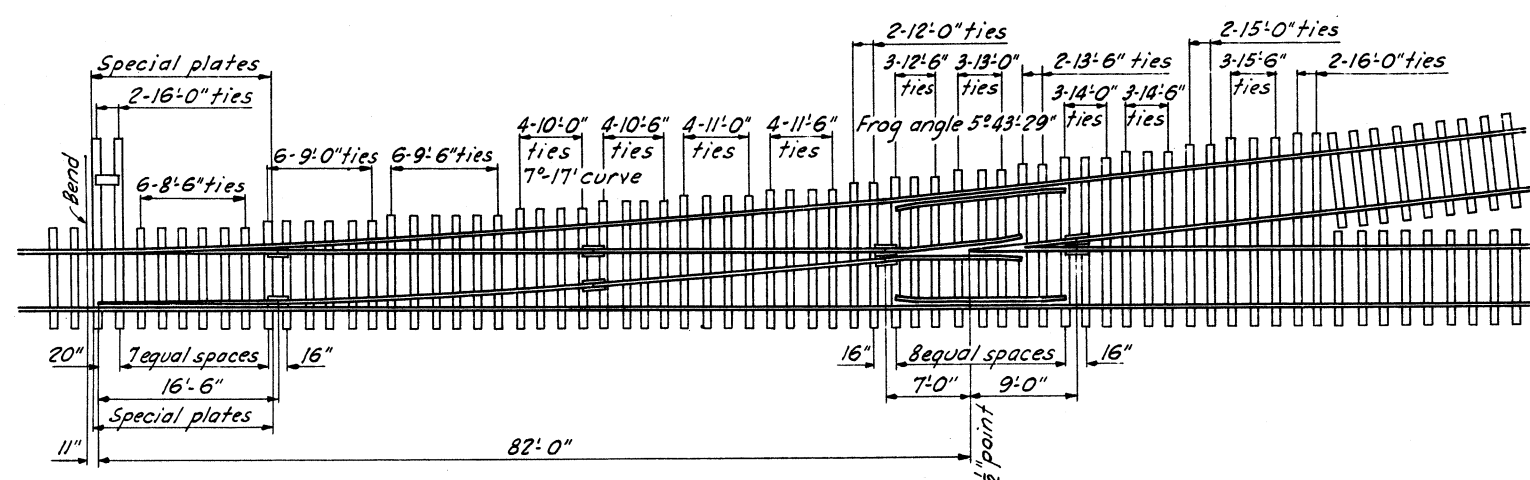
PLAN OF INNER GUARD RAILS FOR
B. & O. R.R. - W. & L. E. RY. BRIDGE

SCALE: $\frac{1}{8}'' = 1'-0''$



NO. 8 TURNOUT

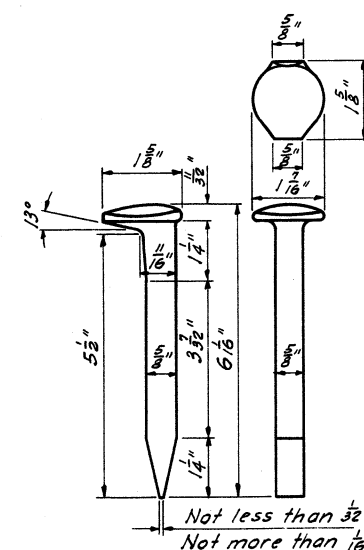
SCALE: $\frac{1}{8}'' = 1'-0''$



NO. 10 TURNOUT

NOT TO SCALE

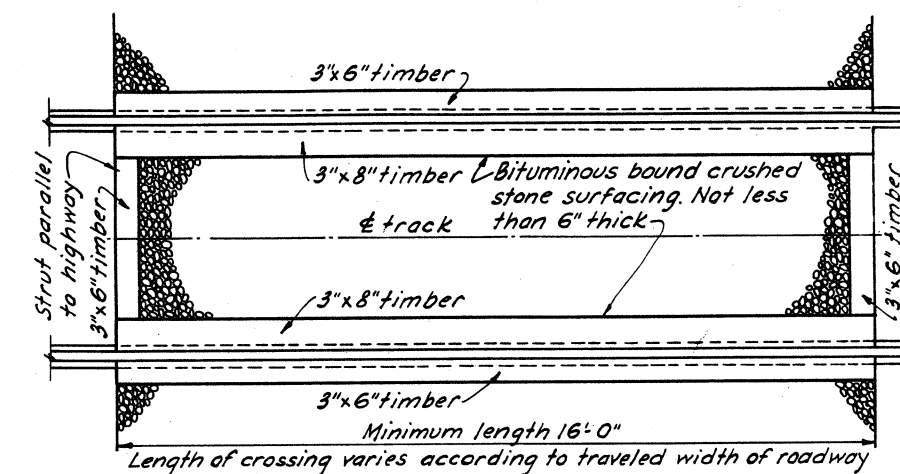
NO. 8 TURNOUT			
BILL OF TIES			
NO. OF TIES	SIZE	NO. OF TIES	SIZE
6	7x9x8'-6"	2	7x9x12'-6"
6	7x9x9'-0"	2	7x9x13'-0"
5	7x9x9'-6"	3	7x9x13'-6"
4	7x9x10'-0"	2	7x9x14'-0"
3	7x9x10'-6"	2	7x9x14'-6"
3	7x9x11'-0"	2	7x9x15'-0"
3	7x9x11'-6"	3	7x9x15'-6"
3	7x9x12'-0"	3	7x9x16'-0"
Total No. of ties = 52 = 3153 F. B. M.			



TRACK SPIKE

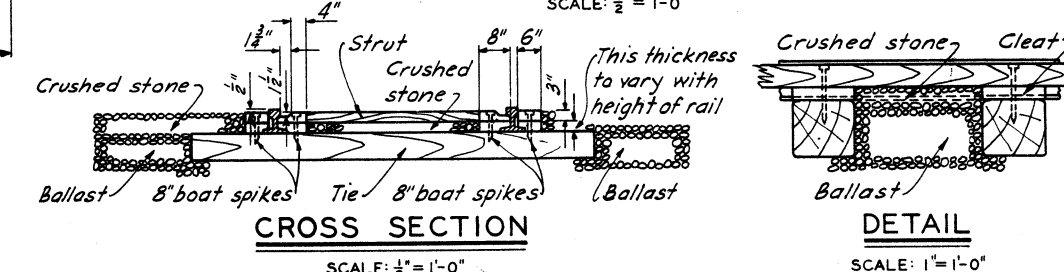
SCALE: $\frac{1}{8}'' = 1'-0''$

NO. 10 TURNOUT			
BILL OF TIES			
NO. OF TIES	SIZE	NO. OF TIES	SIZE
6	7x9x8'-6"	3	7x9x12'-6"
6	7x9x9'-0"	3	7x9x13'-0"
6	7x9x9'-6"	2	7x9x13'-6"
4	7x9x10'-0"	3	7x9x14'-0"
4	7x9x10'-6"	3	7x9x14'-6"
4	7x9x11'-0"	2	7x9x15'-0"
4	7x9x11'-6"	3	7x9x15'-6"
2	7x9x12'-0"	4	7x9x16'-0"
Total No. of ties = 59 = 3662 F. B. M.			

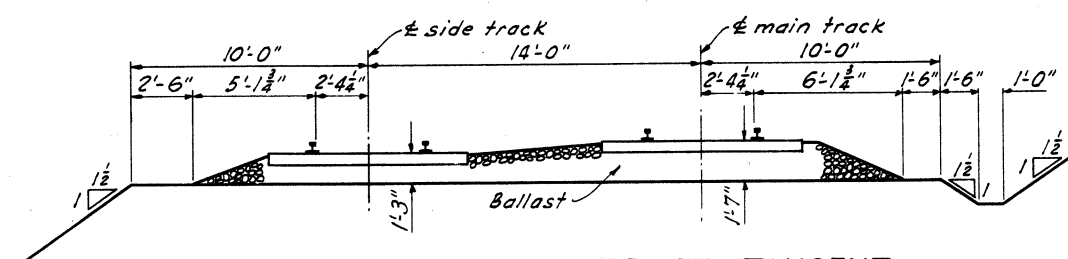


PLAN

SCALE: $\frac{1}{2}'' = 1'-0''$

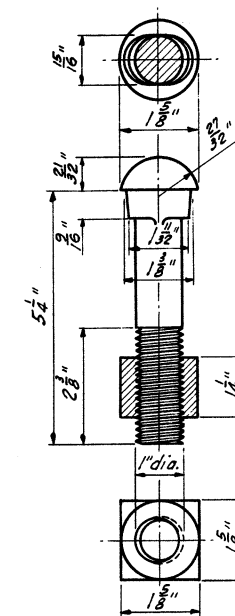


HIGHWAY GRADE CROSSING



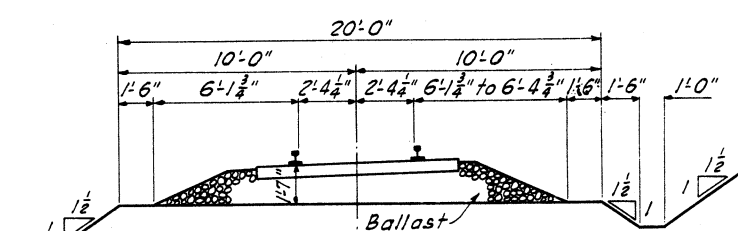
SIDING AND MAIN TRACK TANGENT

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



TRACK BOLT

SCALE: $\frac{1}{8}'' = 1'-0''$



SINGLE TRACK CURVE

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

SUPER-ELEVATION	
MAIN TRACKS	INDUSTRIAL TRKS.
2"	1"

**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
W. & L. E. RY. DETAILS
& ROAD BED SECTIONS**

IN 147 SHEETS SHEET NO. 77 SCALE: AS SHOWN

U. S. ENGINEER OFFICE. HUNTINGTON, W. VA. SEPT. 1940

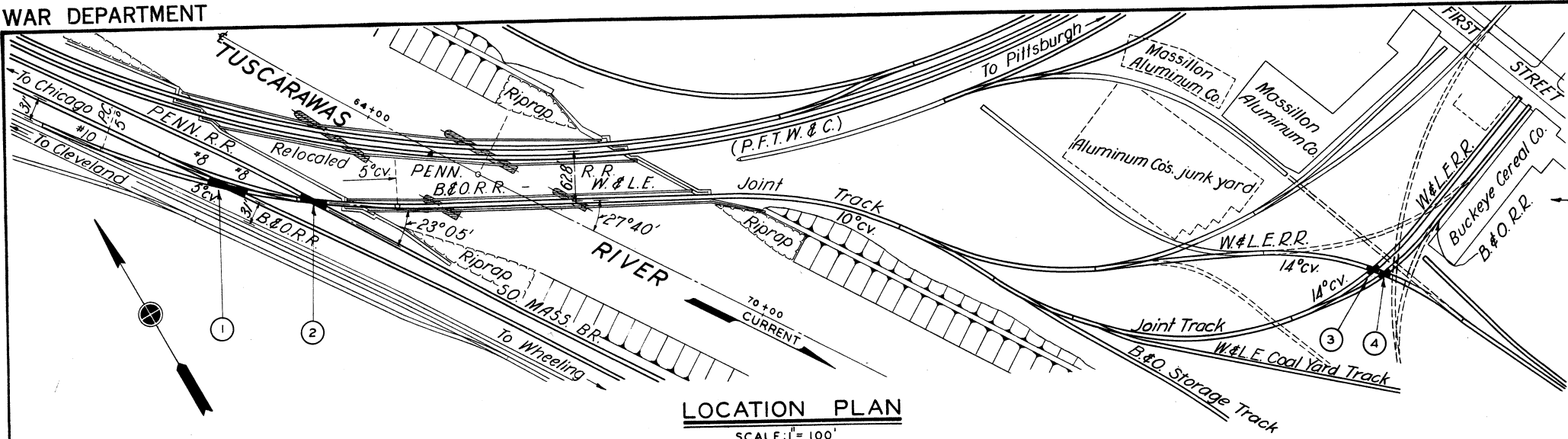
SUBMITTED: *W. B. S.* PRINCIPAL ENGINEER APPROVED: *W. B. S.* COL. CORPS OF ENGINEERS

DRAWN BY: W. B. S. TRANSMITTED WITH LETTER

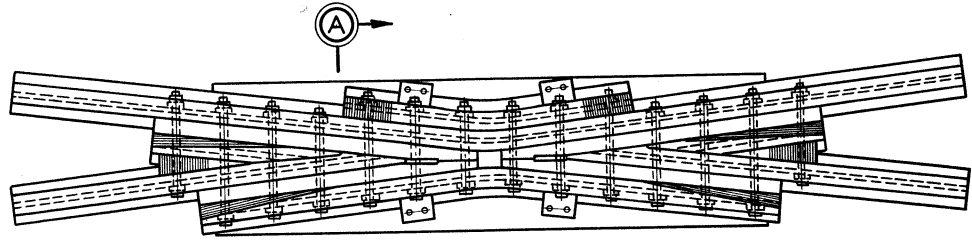
FILE NO. 0271-PM-66/54 DATED

BY	DATE	CHARACTER
		REVISIONS

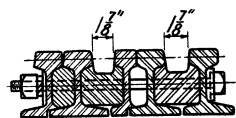
WAR DEPARTMENT



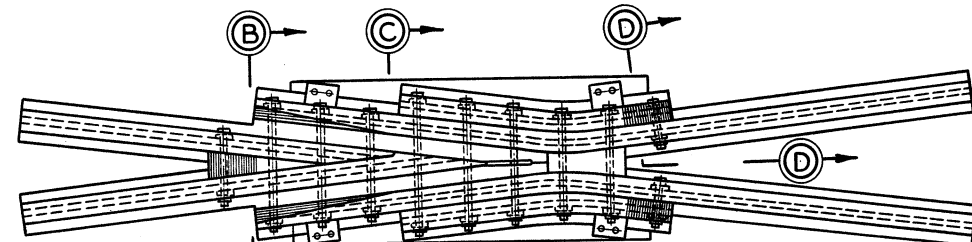
LOCATION PLAN
SCALE: 1" = 100'



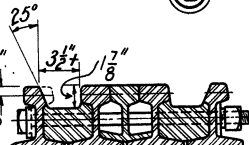
PLAN



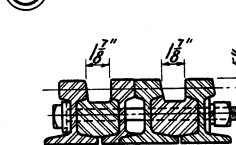
SECTION A-A
SCALE: 1 1/2" = 1'-0"



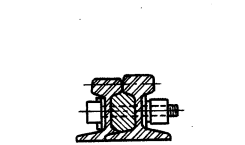
PLAN



SECTION B-B
SCALE: 1 1/2" = 1'-0"

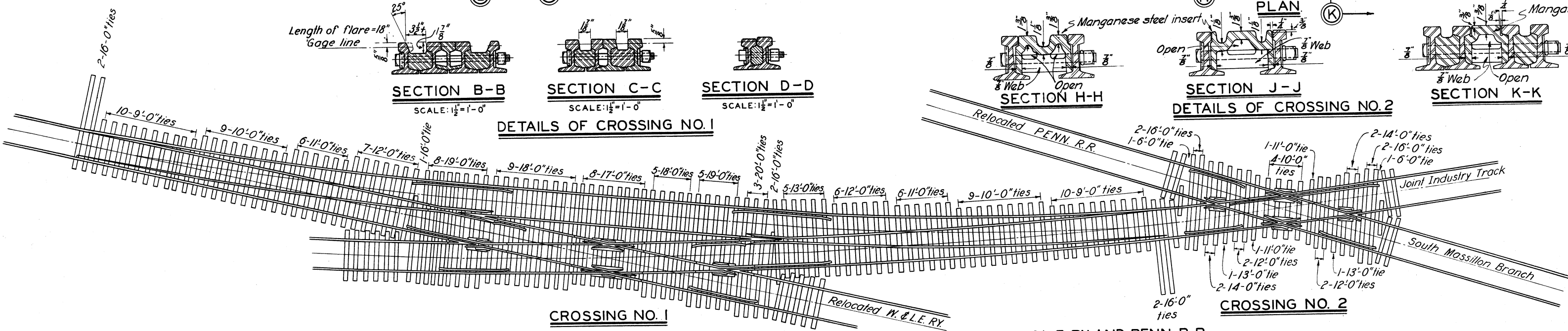


SECTION C-C
SCALE: 1 1/2" = 1'-0"



SECTION D-D
SCALE: 1 1/2" = 1'-0"

DETAILS OF CROSSING NO. 1



CROSSING NO. 1

DETAIL OF JOINT INDUSTRY TRACK CROSSING W&L.E. RY. AND PENN. R.R.

SCALE: 1 1/2" = 1'-0"

NO. 1 CROSSING & TURNOUTS BILL OF TIES					
NO.	SIZE	NO.	SIZE	NO.	SIZE
20	7x9x9'-0"	5	7x9x13'-0"	14	7x9x19'-0"
18	7x9x10'-0"	7	7x9x16'-0"	3	7x9x20'-0"
12	7x9x11'-0"	8	7x9x17'-0"		
13	7x9x12'-0"	13	7x9x18'-0"		
113 pieces, 7,985 F.B.M.					

NO. 2 CROSSING BILL OF TIES					
NO.	SIZE	NO.	SIZE	NO.	SIZE
2	7x9x6'-0"	2	7x9x13'-0"		
4	7x9x10'-0"	4	7x9x14'-0"		
2	7x9x11'-0"	4	7x9x16'-0"		
4	7x9x12'-0"				
22 pieces 14,775 F.B.M.					

APPROVED: THE BALTIMORE AND OHIO RAILROAD CO.
BY: CHIEF ENGINEER

APPROVED: THE PENNSYLVANIA RAILROAD CO.
BY: CHIEF ENGINEER - CENTRAL REGION

APPROVED: THE WHEELING AND LAKE ERIE RAILWAY CO.
BY: SPECIAL ENGINEER

BY	DATE	CHARACTER
		REVISIONS

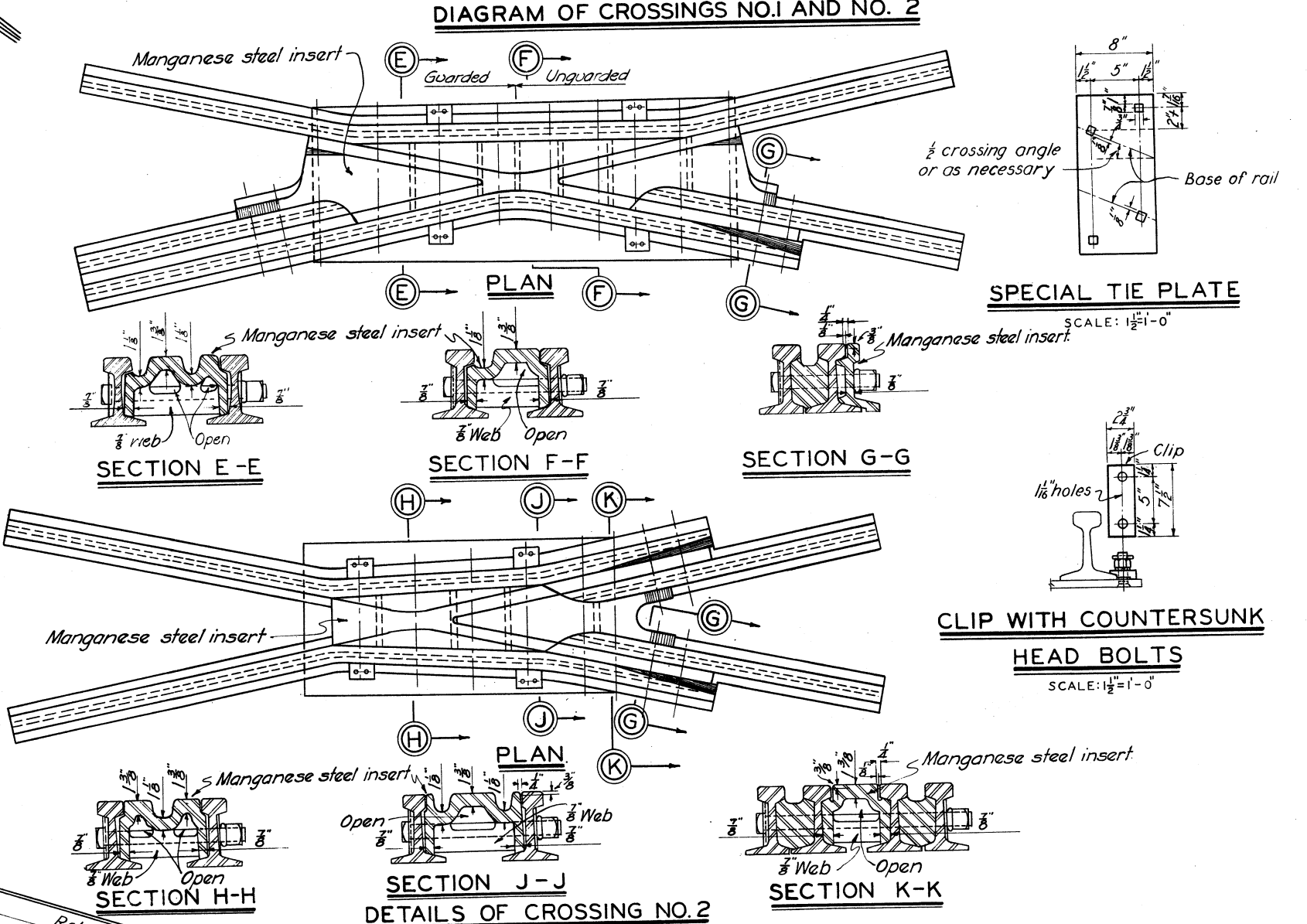
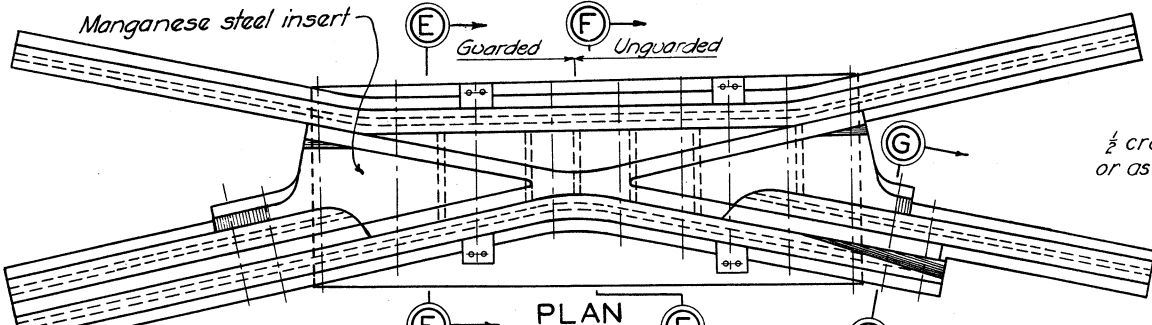
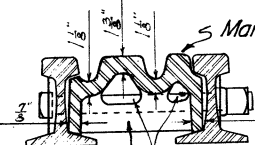


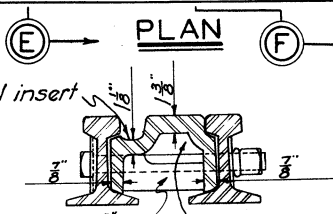
DIAGRAM OF CROSSINGS NO. 1 AND NO. 2



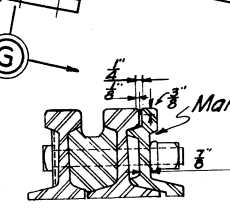
PLAN



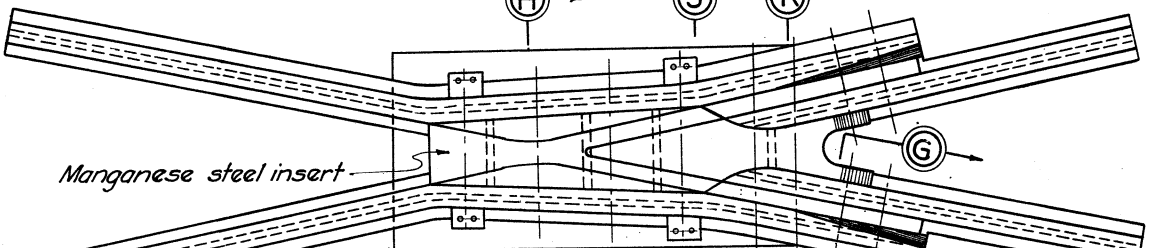
SECTION E-E
SCALE: 1 1/2" = 1'-0"



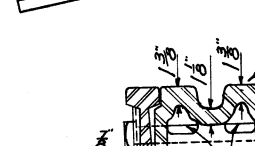
SECTION F-F
SCALE: 1 1/2" = 1'-0"



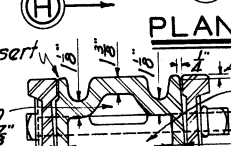
SECTION G-G
SCALE: 1 1/2" = 1'-0"



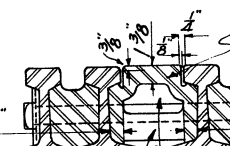
PLAN



SECTION H-H
SCALE: 1 1/2" = 1'-0"



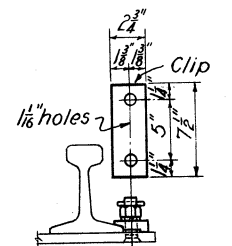
SECTION J-J
SCALE: 1 1/2" = 1'-0"



SECTION K-K
SCALE: 1 1/2" = 1'-0"

DETAILS OF CROSSING NO. 2

SPECIAL TIE PLATE
SCALE: 1 1/2" = 1'-0"



CLIP WITH COUNTERSUNK
HEAD BOLTS

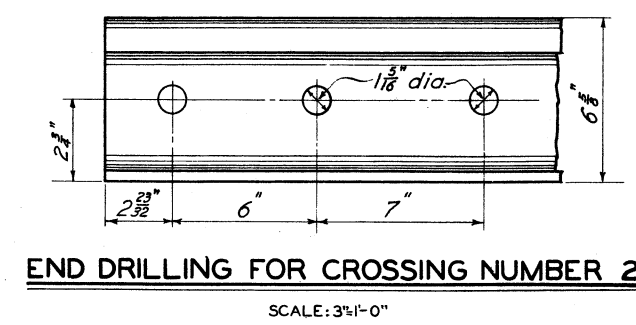
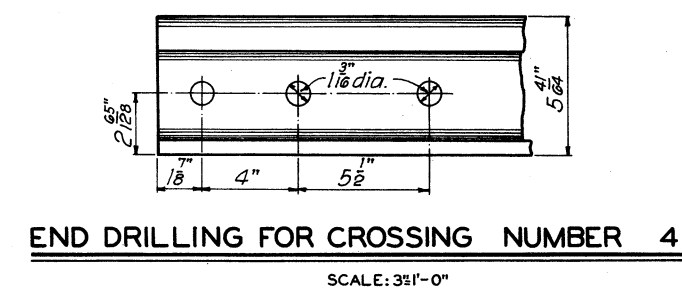
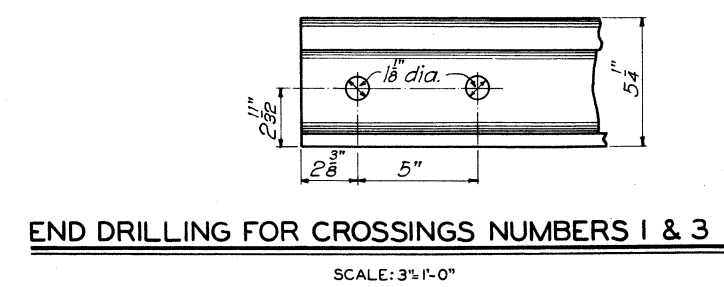
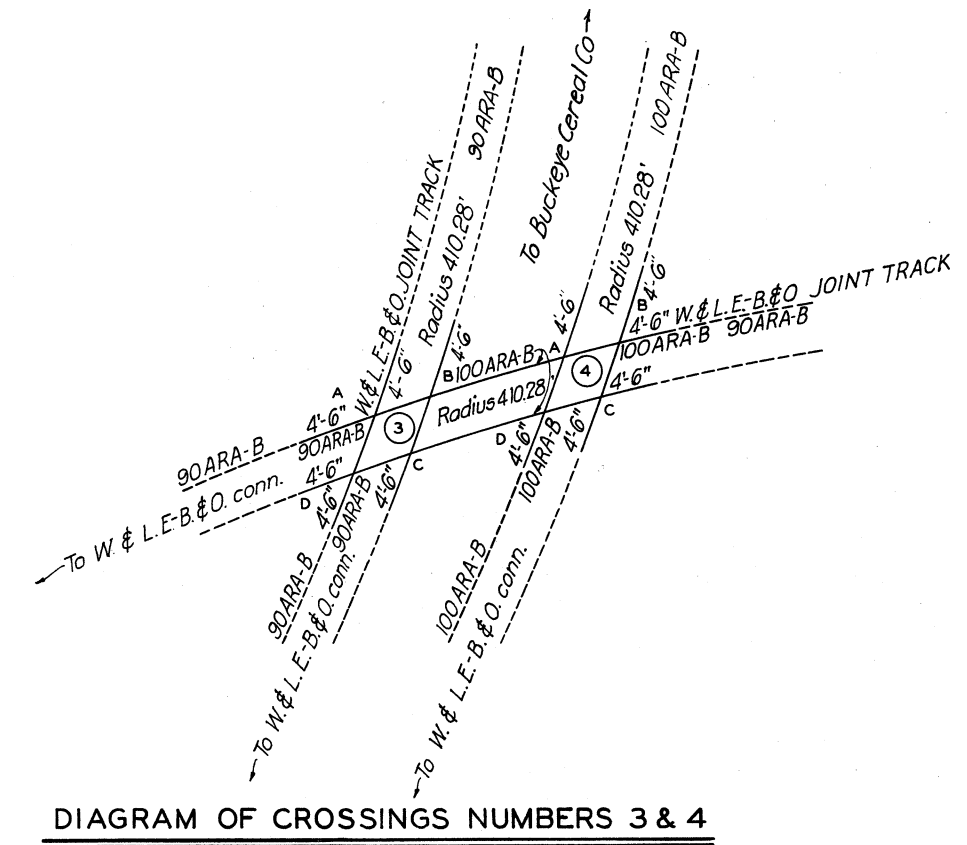
SCALE: 1 1/2" = 1'-0"

TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
CROSSING FROG DETAILS

IN 147 SHEETS SHEET NO. 78 SCALE: 1" = 1'-0"

U. S. ENGINEER OFFICE, HUNTINGTON, W. VA. SEPT. 1940

SUBMITTED: *[Signature]* APPROVED: *[Signature]*
BY: *[Signature]* TRANSMITTED WITH LETTER
DRAWN BY: E.H.W. & A.W.N. FILE NO. 0271-PM-66/55
CHECKED BY: D.G.J.



APPROVED:
THE BALTIMORE AND OHIO RAILROAD CO.
BY:
CHIEF ENGINEER

APPROVED:
THE PENNSYLVANIA RAILROAD CO.
BY:
CHIEF ENGINEER - CENTRAL REGION

APPROVED:
THE WHEELING AND LAKE ERIE RAILWAY CO.
BY:
SPECIAL ENGINEER

**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
CROSSING FROG DETAILS**

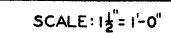
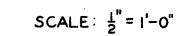
IN 147 SHEETS SHEET NO. 79 SCALE: AS SHOWN

U. S. ENGINEER OFFICE. HUNTINGTON. W. VA., SEPT. 1940

SUBMITTED: [Signature] APPROVED: [Signature]
PRINCIPAL ENGINEER ST. CO. CORP OF ENGINEERS

DRAWN BY A.W.M. TRANSMITTED WITH LETTER
TRACED BY H.E.C.
CHECKED BY D.G.J. FILE NO.027i-PM-66/56 DATED

BY	DATE	CHARACTER
REVISIONS		



Payment for plumbing, wiring and connections in item-
W. & L. E. Ry. Freight House and Platform.
Heating plant, lighting and plumbing fixtures to
be moved from old freight house.
All concrete to be Class 'A'.



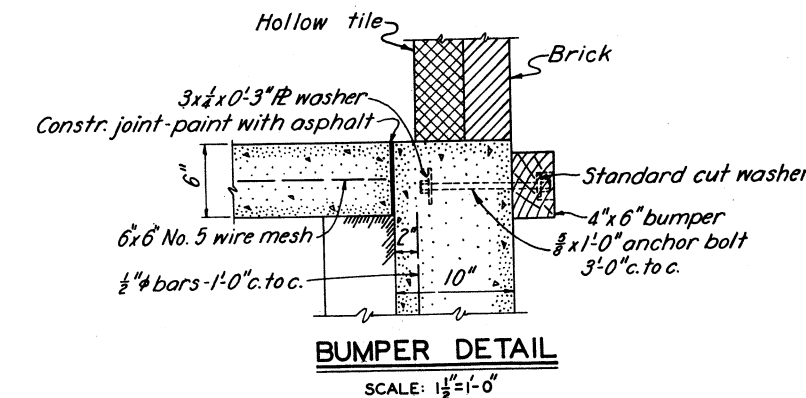
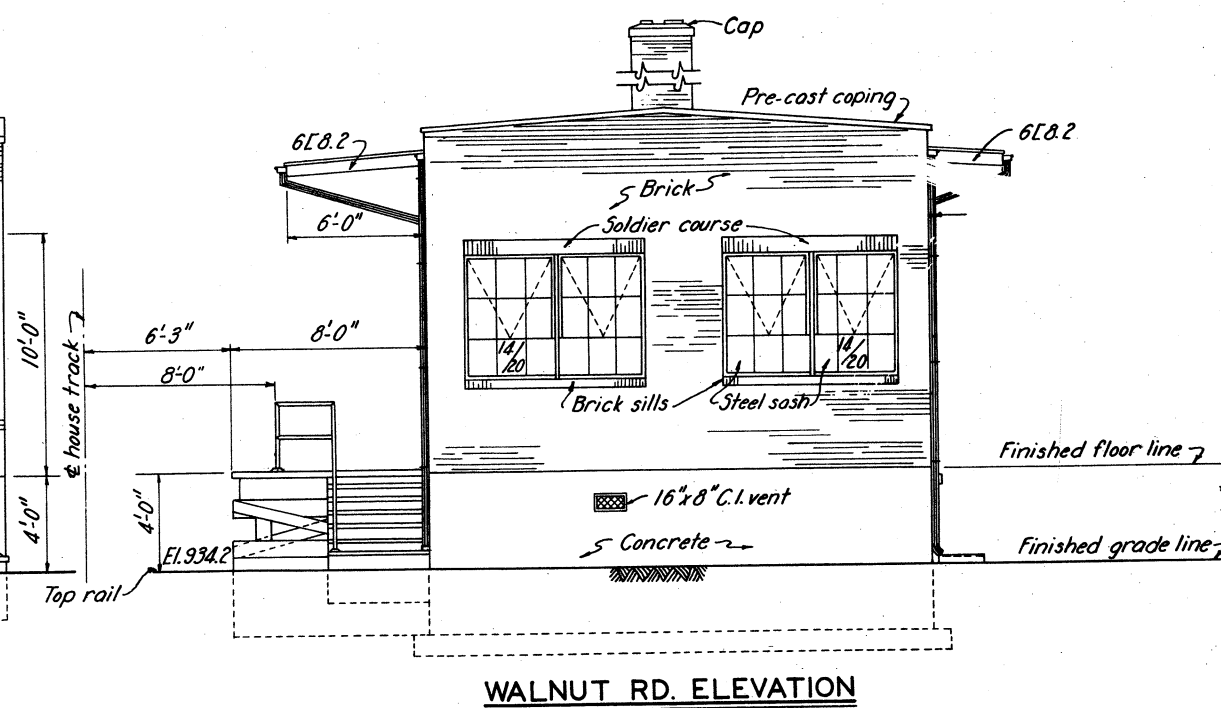
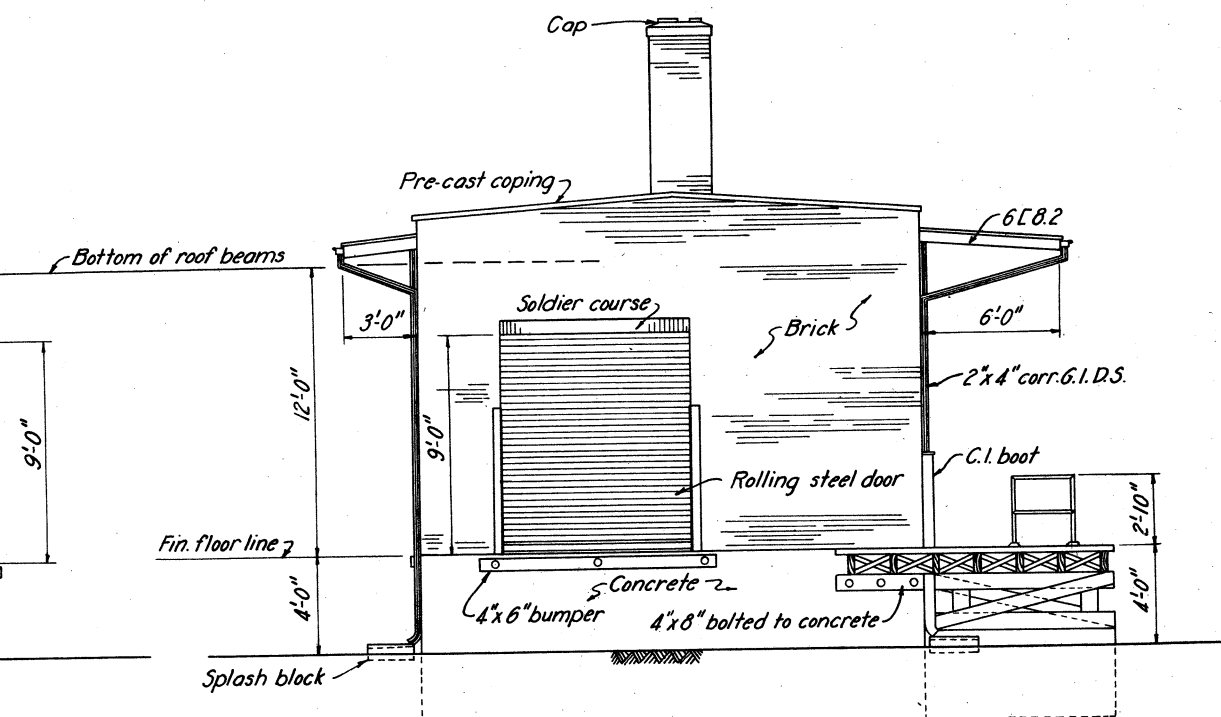
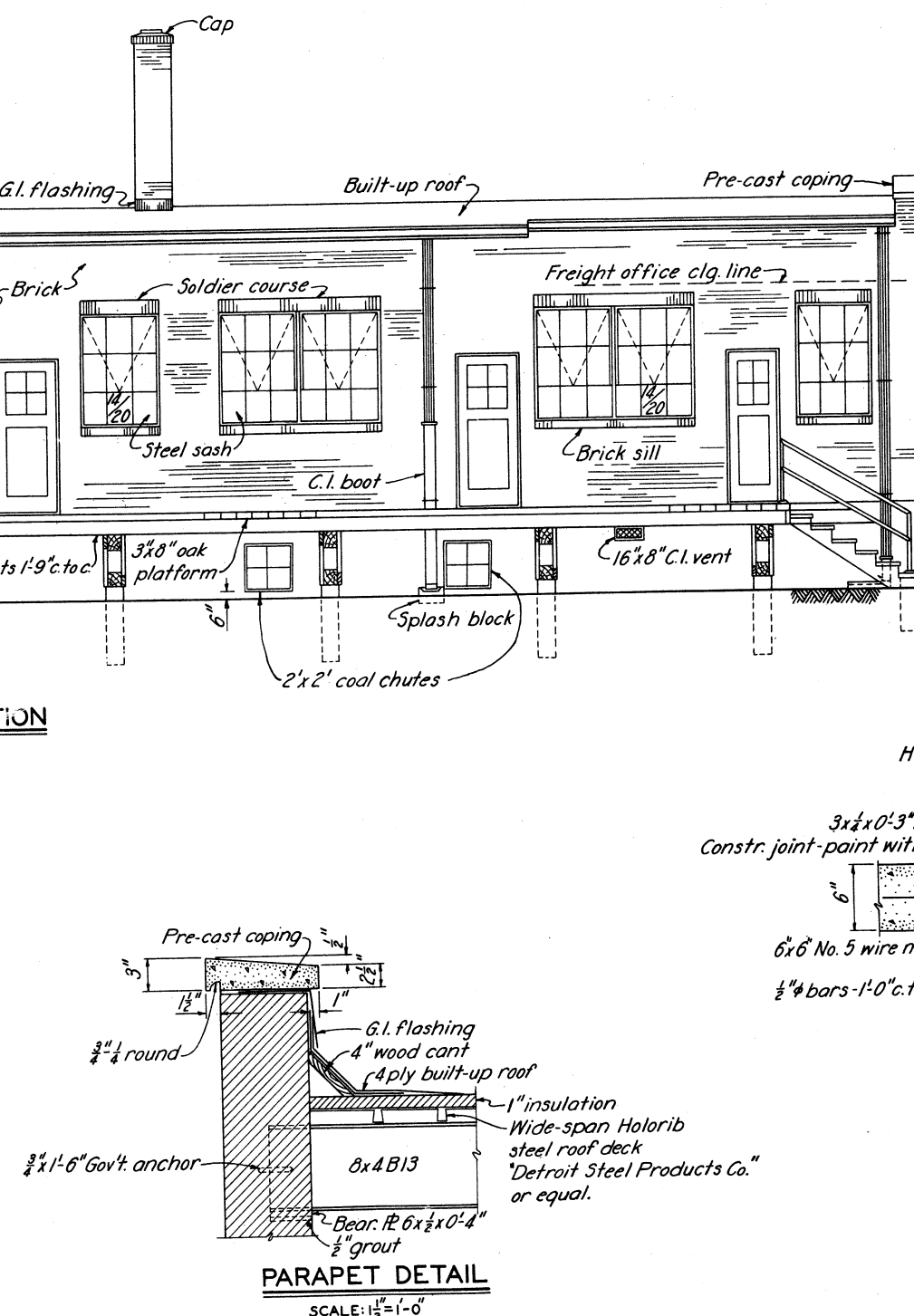
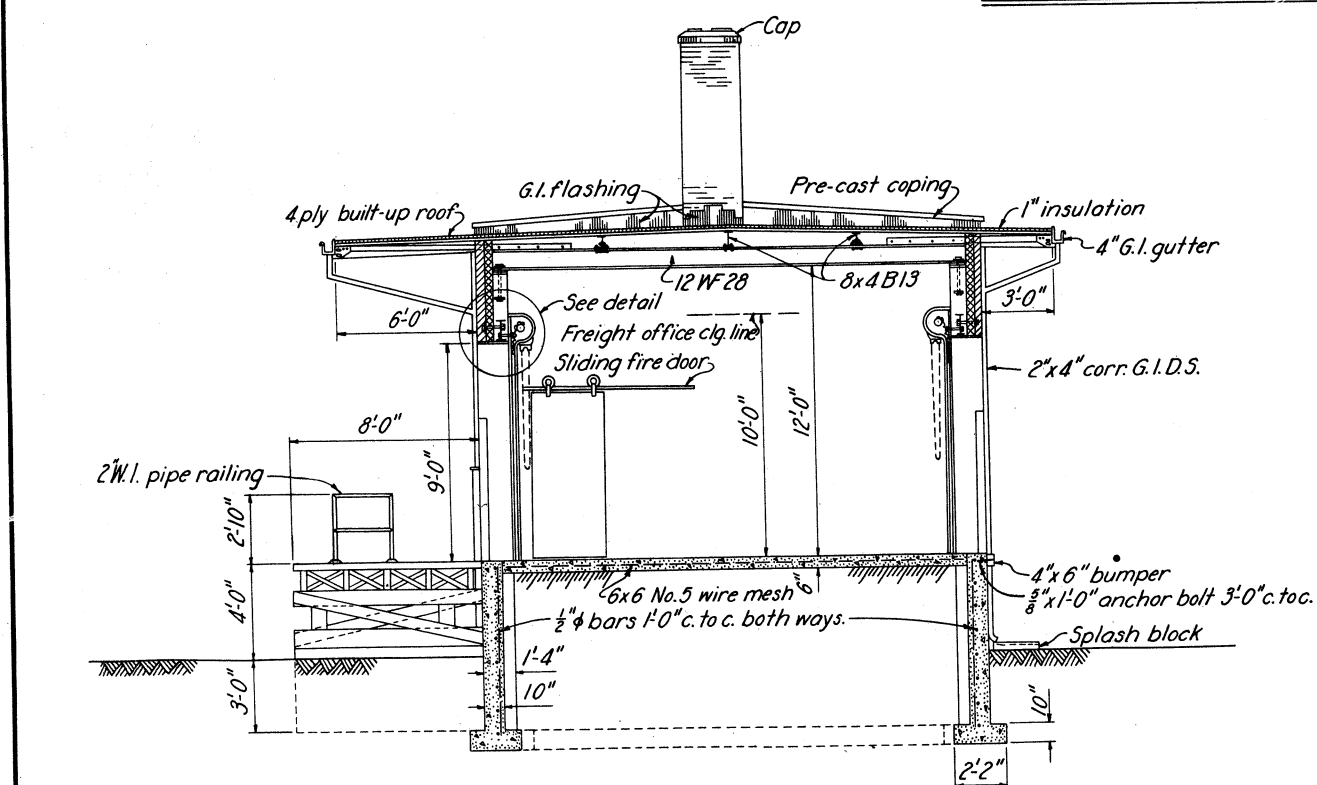
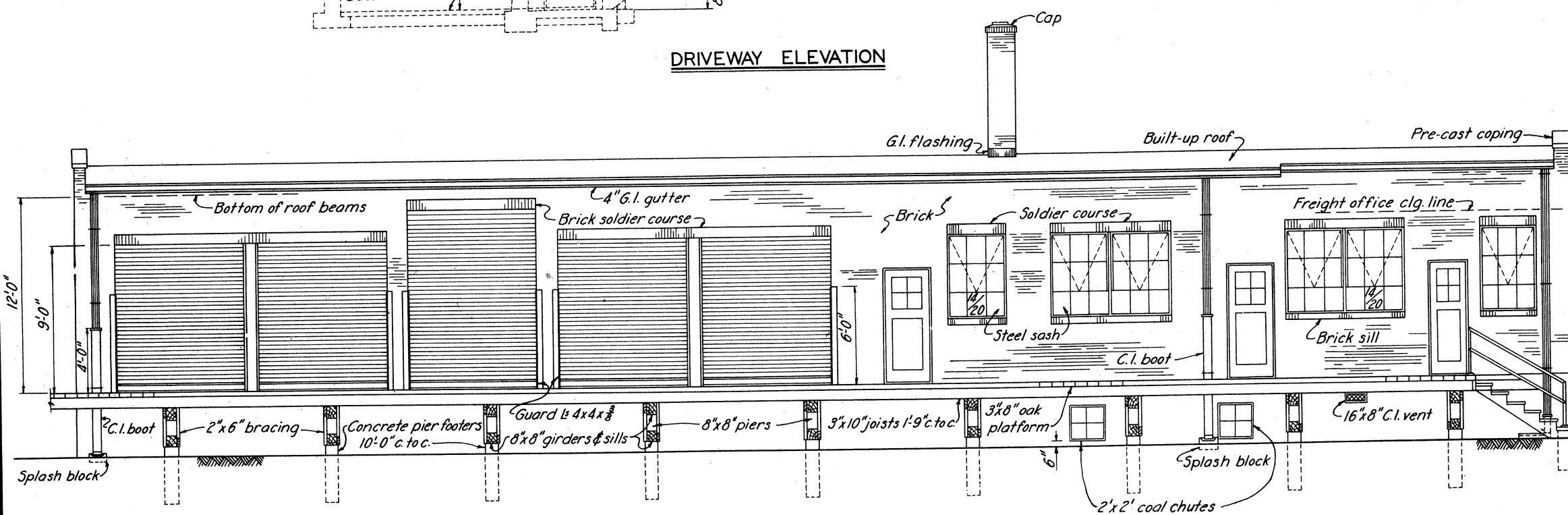
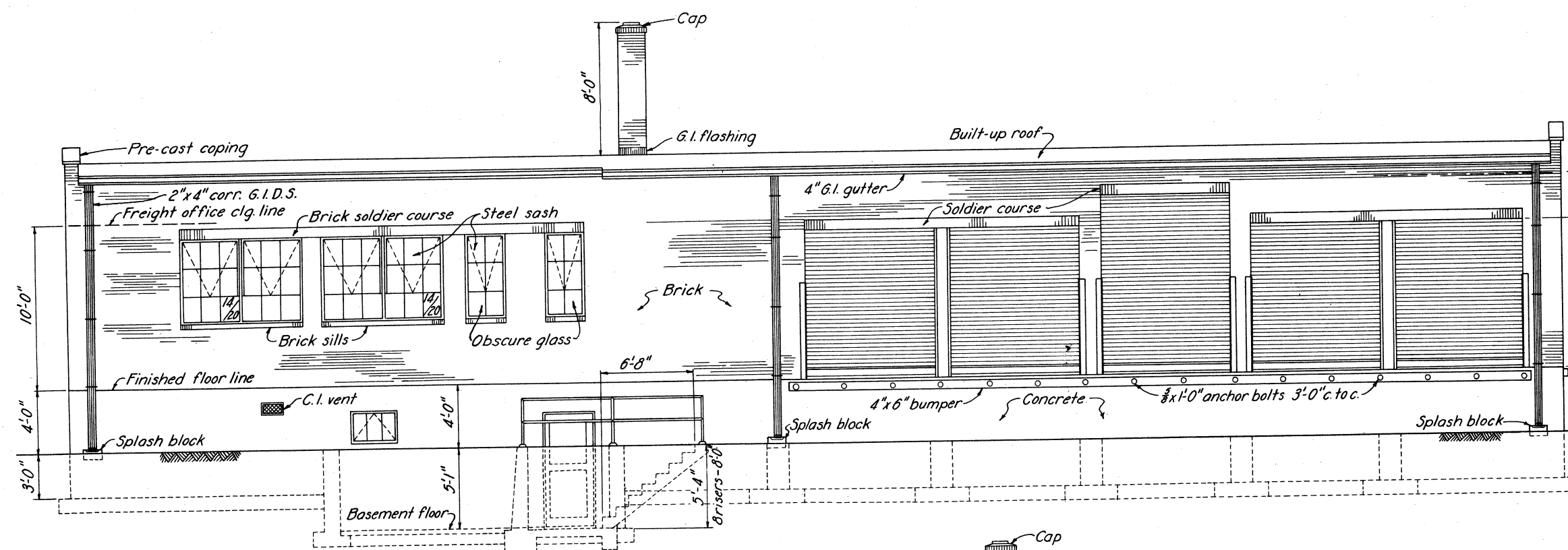
IN 147 SHEETS SHEET NO. 80 SCALE: $\frac{1}{4}'' = 1' - 0''$

12" 0 2 4 6 8 10

U. S. ENGINEER OFFICE. HUNTINGTON, W. VA., SEPT. 1940

SUBMITTED: [Signature] PRINCIPAL ENGINEER APPROVED: [Signature] LT. COL. CORPS OF ENGINEERS

DRAWN BY J.T.C. TRANSMITTED WITH LETTER
 TRACKED BY W.E.C.
 FILE NO. 027:-PM-66/57 DATED



NOTE

All concrete to be Class "A"

**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
W. & L. E. RY. FREIGHT TERMINAL
ELEVATIONS & DETAILS**

IN 147 SHEETS SHEET NO. 81 SCALE: 1/2"=1'-0"

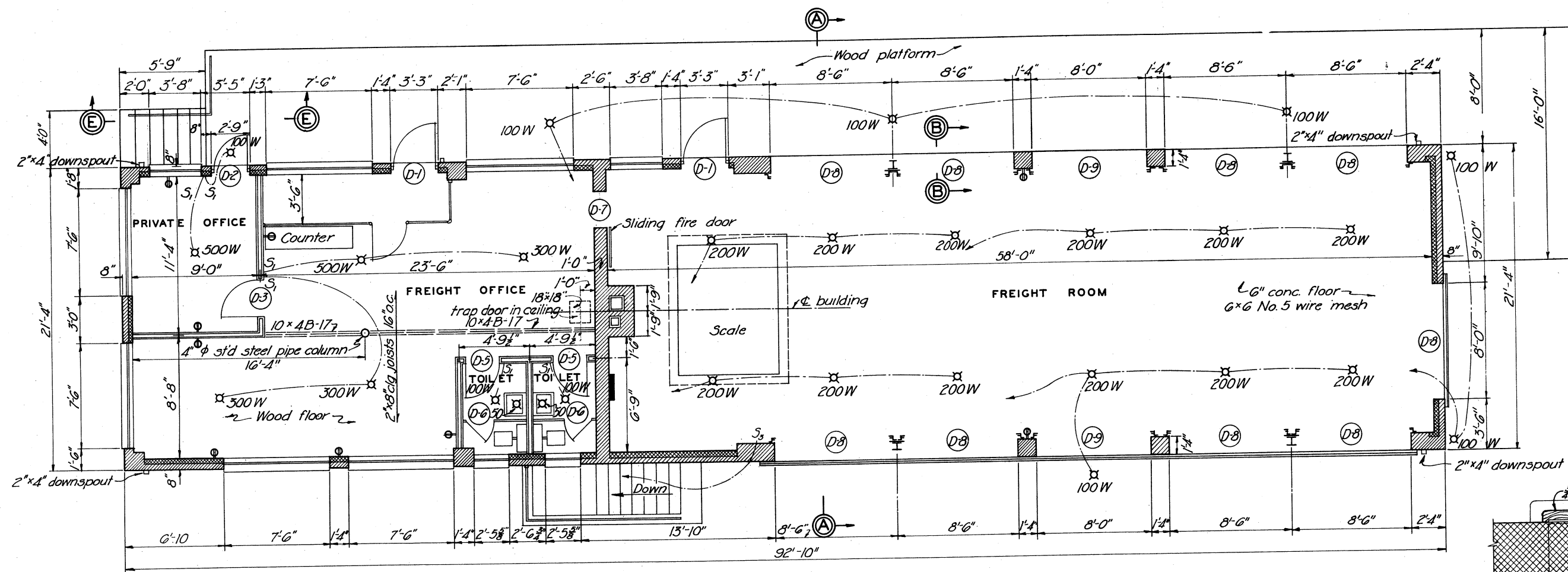
U. S. ENGINEER OFFICE, HUNTINGTON, W. VA., SEPT. 1940

SUBMITTED BY: J. C. [Signature] APPROVED BY: [Signature]

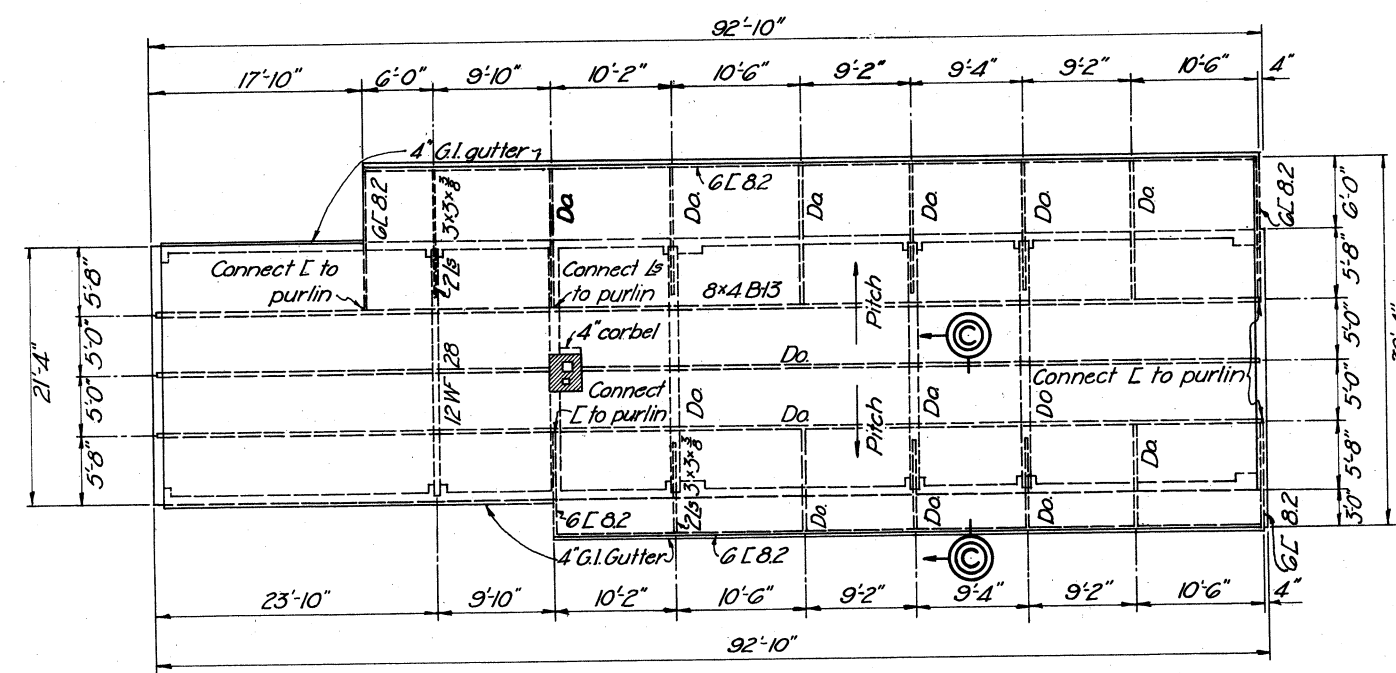
DRAWN BY: J. C. [Signature] CHECKED BY: H. A. E. [Signature]

TRANSMITTED WITH LETTER FILE NO. Q271-PM-66/58 DATED

BY	DATE	CHARACTER
		REVISIONS

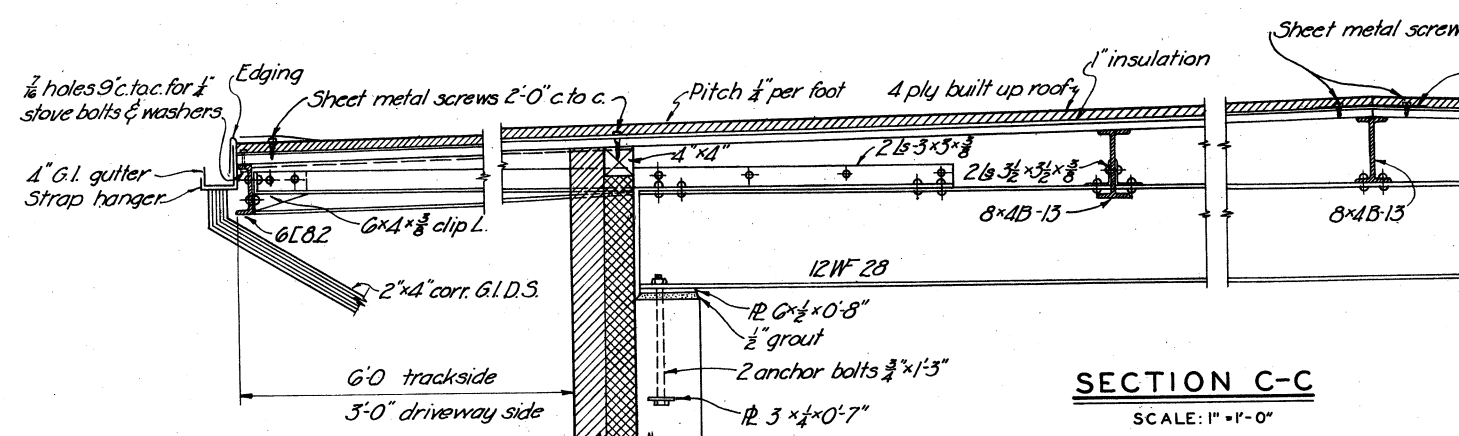


FLOOR PLAN



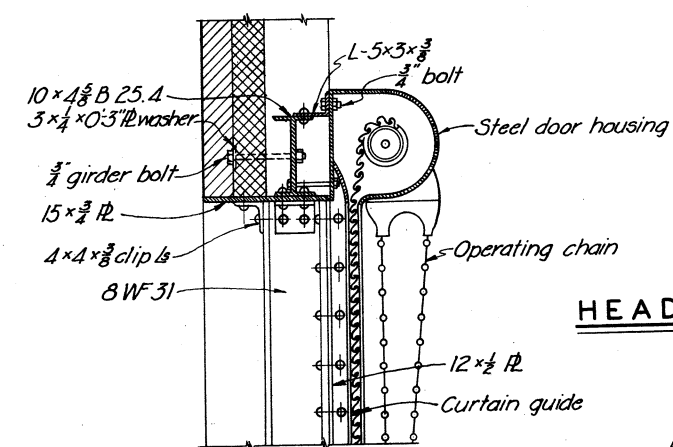
ROOF FRAMING PLAN

SCALE: 1/4" = 1'-0"



SECTION C-C

SCALE: 1" = 1'-0"



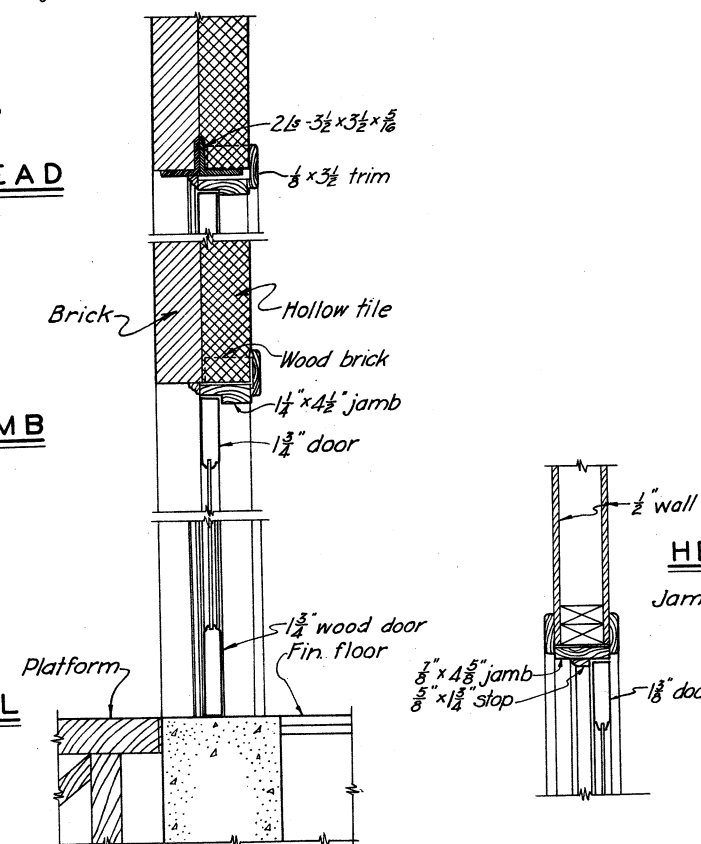
SECTION B-B

SCALE: 1" = 1'-0"

HEAD

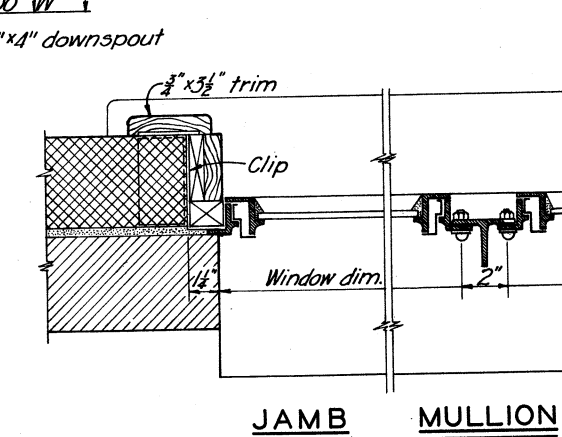
JAMB

SILL



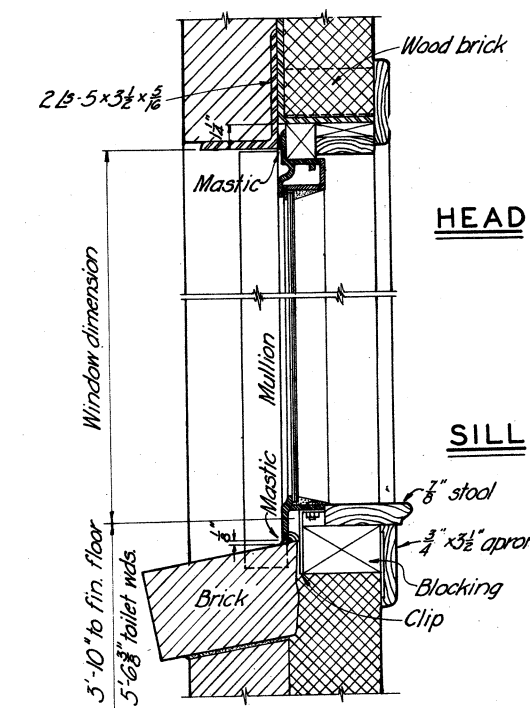
DOOR DETAILS

SCALE: 1/2" = 1'-0"



STEEL WINDOW DETAILS

SCALE: 3/4" = 1'-0"



LEGEND

- Ceiling outlet
- S₁ Single pole switch
- S₃ Three pole switch
- ⊙ Convenience outlet

NOTES

For section A-A, see Dwg. No. 66/58.

**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
W. & L. E. RY. FREIGHT TERMINAL
FLOOR & ROOF PLANS & DETAILS**

IN 147 SHEETS

SHEET NO. 82

SCALE: 1/4" = 1'-0"

U. S. ENGINEER OFFICE. HUNTINGTON, W. VA., SEPT. 1940

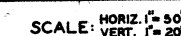
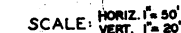
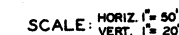
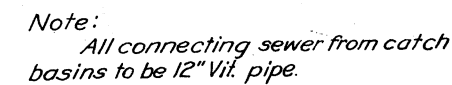
SUBMITTED: [Signature] APPROVED: [Signature]

DRAWN BY: J.T.C. TRANSMITTED WITH LETTER

CHECKED BY: C.M.T. FILE NO. 0271-PM-66/59 DATED

APPROVED:
THE WHEELING AND LAKE ERIE RAILWAY CO.
BY: [Signature] SPECIAL ENGINEER

BY	DATE	CHARACTER
		REVISIONS



For legend, see Dwg. No. 16/1.
for general plan, see Dwg. No. 16/2.
For details of catch basins and manholes
see Dwg. No. 82/36.
For guard rail details and approach sections,
see Dwg. No. 68/3.
25' approach slabs required at abutments
1, 5, 6 & 10. See Dwg. No. 68/28 for details.
For pavement details see Dwg. Nos. 68/28 & 68/45.

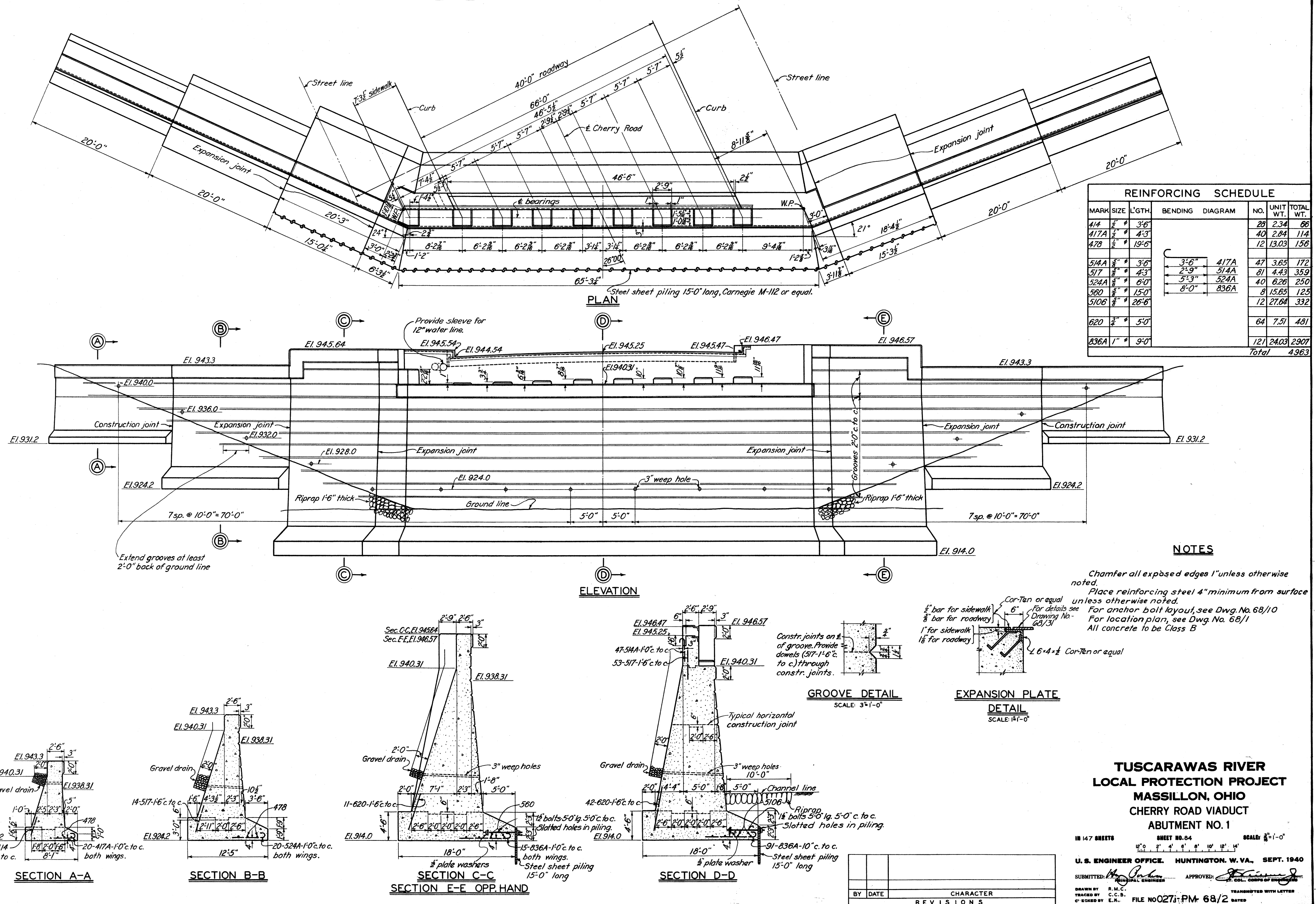
IN 147 SHEETS SHEET NO. 83 SCALE: AS SHOWN

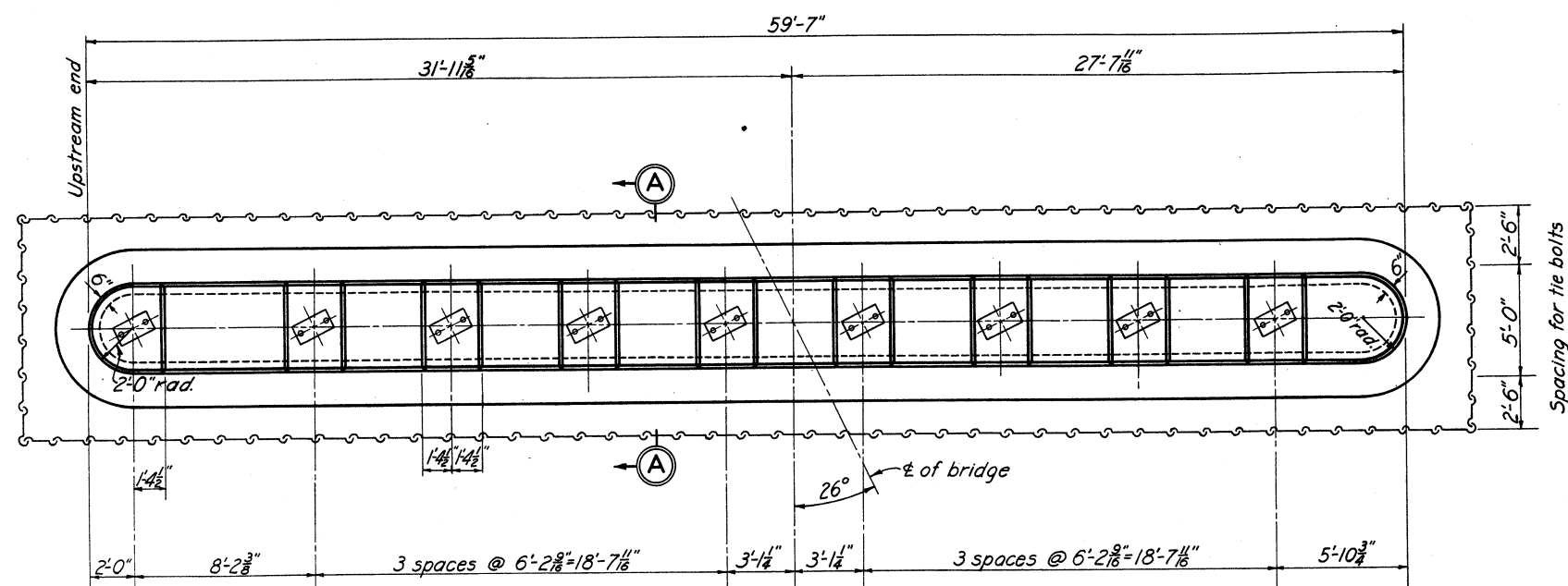
U. S. ENGINEER OFFICE, HUNTINGTON, W. VA., SEPT. 1940.

SUBMITTED: Wm. P. O'Neil APPROVED: Wm. P. O'Neil
 LT. COL. CORPS OF ENGINEERS LT. COL. CORPS OF ENGINEERS

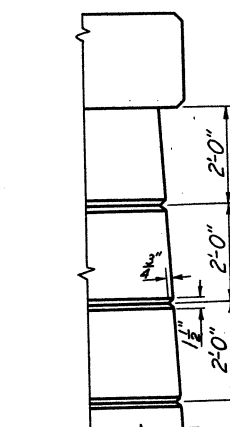
DRAWN BY H.G.H.
TRACED BY A.F.
CHECKED BY D.G.J.
FILE NO. 027i-PM-68/1
TRANSMITTED WITH LETTER
DATED

BY	DATE	CHARACTER



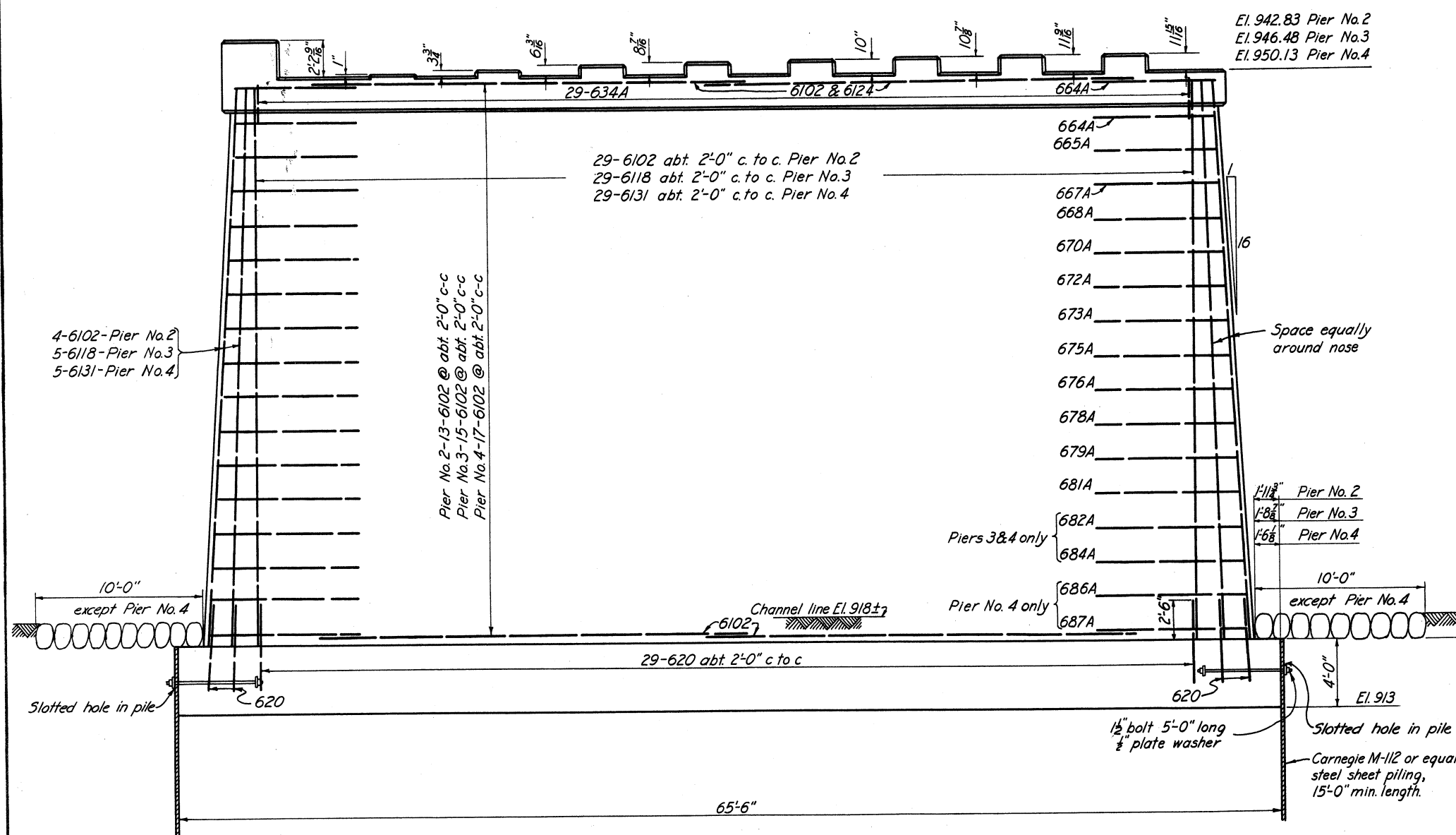


PLAN



GROOVE DETAIL

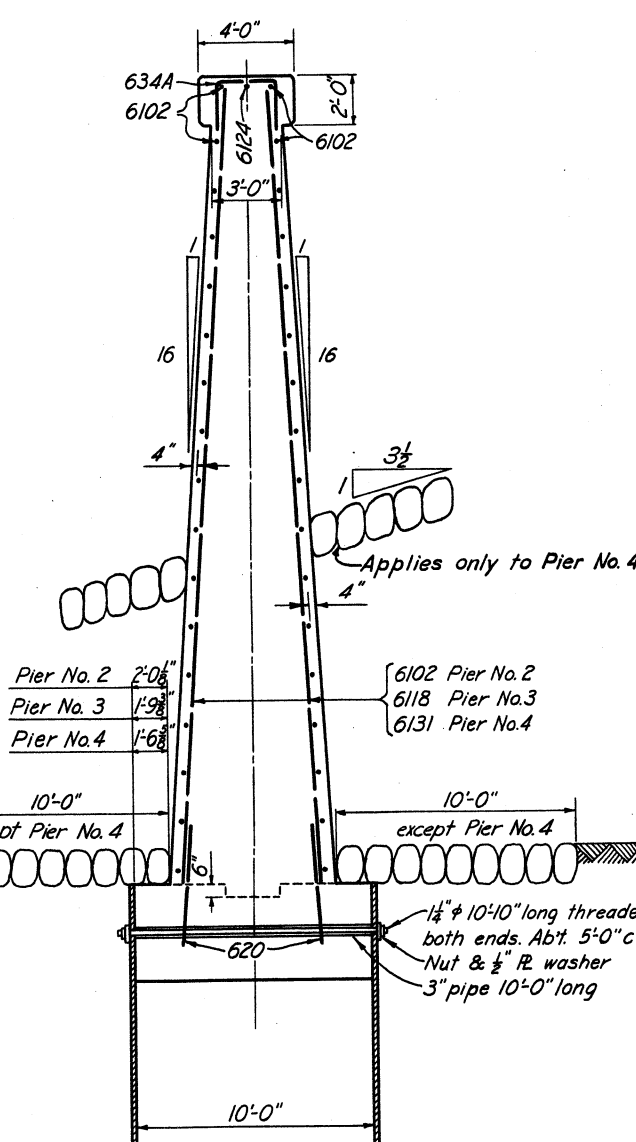
SCALE 1/2" = 1'-0"



ELEVATION

NOTES

Chamfer all exposed edges 1" unless otherwise noted
All concrete to be Class "B"
For riprap in the vicinity of Pier No. 4, see Dwg. No. 68/1



SECTION A-A

REINFORCING SCHEDULE

MARK	SIZE	LGTH.	BENDING DIAGRAM	NO.	UNIT WT.	TOTAL WT.
620	3/4"	5'-0"		66	7.51	496
634A	3/4"	8'-6"		29	12.77	370
664A	3/4"	16'-0"		4	24.03	96
665A	3/4"	16'-3"		2	24.41	49
667A	3/4"	16'-9"		2	25.16	50
668A	3/4"	17'-0"		2	25.53	51
670A	3/4"	17'-6"		2	26.29	53
672A	3/4"	18'-0"		2	27.04	54
673A	3/4"	18'-3"		2	27.41	55
675A	3/4"	18'-9"		2	28.16	56
676A	3/4"	19'-0"		2	28.54	57
678A	3/4"	19'-6"		2	29.29	59
679A	3/4"	19'-9"		2	29.67	59
681A	3/4"	20'-3"		2	30.42	61
6102	3/4"	25'-6"		118	38.30	4519
6124	3/4"	31'-0"		2	46.56	93
Total						6178
620	3/4"	5'-0"		68	7.51	511
634A	3/4"	8'-6"		29	12.77	370
664A	3/4"	16'-0"		4	24.03	96
665A	3/4"	16'-3"		2	24.41	49
667A	3/4"	16'-9"		2	25.16	50
668A	3/4"	17'-0"		2	25.53	51
670A	3/4"	17'-6"		2	26.29	53
672A	3/4"	18'-0"		2	27.04	54
673A	3/4"	18'-3"		2	27.41	55
675A	3/4"	18'-9"		2	28.16	56
676A	3/4"	19'-0"		2	28.54	57
678A	3/4"	19'-6"		2	29.29	59
679A	3/4"	19'-9"		2	29.67	59
681A	3/4"	20'-3"		2	30.42	61
682A	3/4"	20'-6"		2	30.79	62
684A	3/4"	21'-0"		2	31.54	63
6102	3/4"	25'-6"		60	38.30	2298
6118	3/4"	29'-6"		68	44.31	3013
6124	3/4"	31'-0"		2	46.56	93
Total						7110
620	3/4"	5'-0"		68	7.51	511
634A	3/4"	8'-6"		29	12.77	370
664A	3/4"	16'-0"		4	24.03	96
665A	3/4"	16'-3"		2	24.41	49
667A	3/4"	16'-9"		2	25.16	50
668A	3/4"	17'-0"		2	25.53	51
670A	3/4"	17'-6"		2	26.29	53
672A	3/4"	18'-0"		2	27.04	54
673A	3/4"	18'-3"		2	27.41	55
675A	3/4"	18'-9"		2	28.16	56
676A	3/4"	19'-0"		2	28.54	57
678A	3/4"	19'-6"		2	29.29	59
679A	3/4"	19'-9"		2	29.67	59
681A	3/4"	20'-3"		2	30.42	61
682A	3/4"	20'-6"		2	30.79	62
684A	3/4"	21'-0"		2	31.54	63
686A	3/4"	21'-6"		2	32.24	65
687A	3/4"	21'-9"		2	32.67	65
6102	3/4"	25'-6"		68	38.30	2604
6124	3/4"	31'-0"		4	46.56	186
6131	3/4"	32'-9"		68	49.19	3345
Total						7971

TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON OHIO
CHERRY ROAD VIADUCT
PIERS NOS. 2, 3 & 4

IN 147 SHEETS

SHEET NO. 85

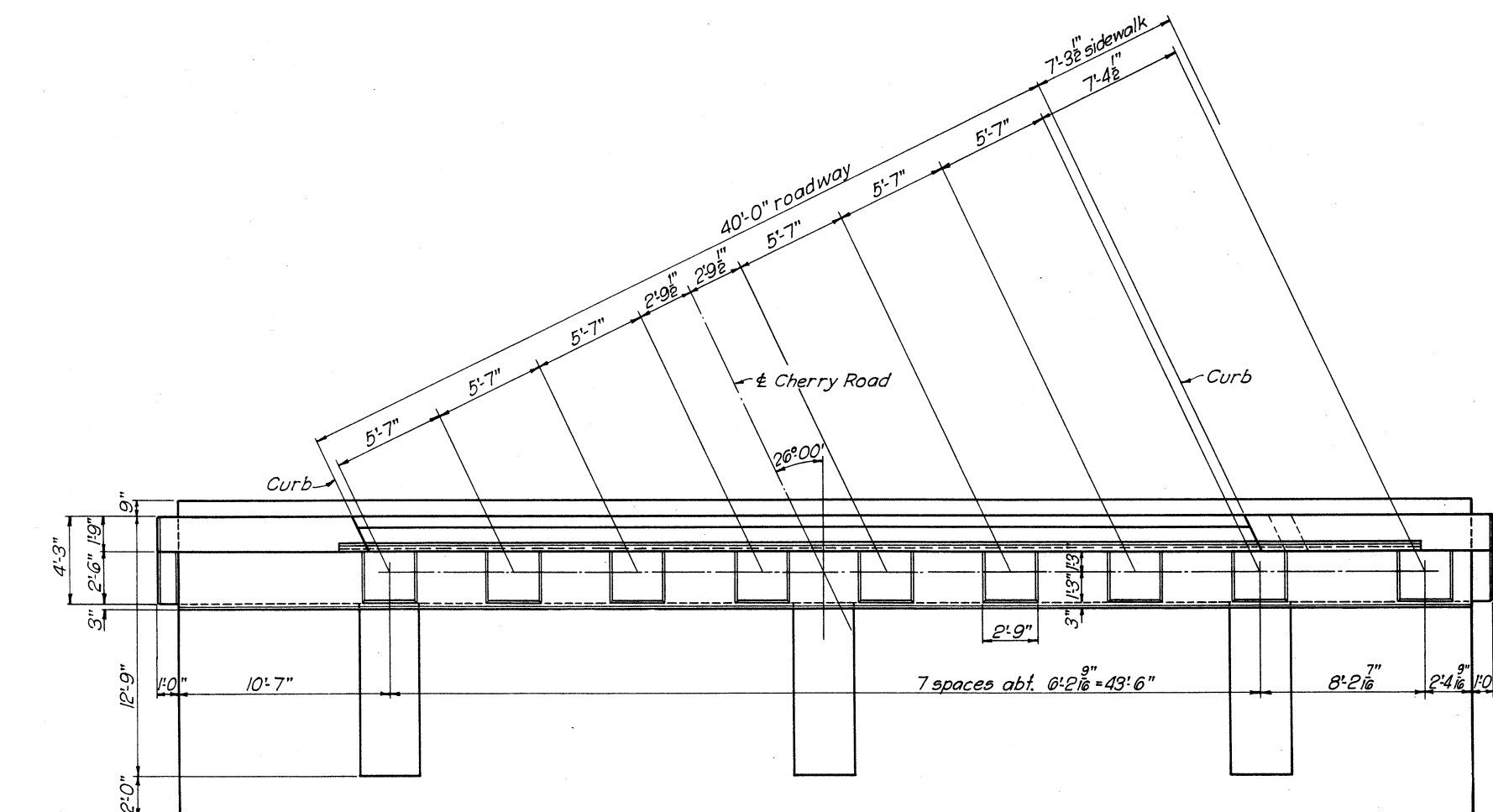
SCALE 1/2" = 1'-0"

U. S. ENGINEER OFFICE, HUNTINGTON, W. VA., JAN. 1941

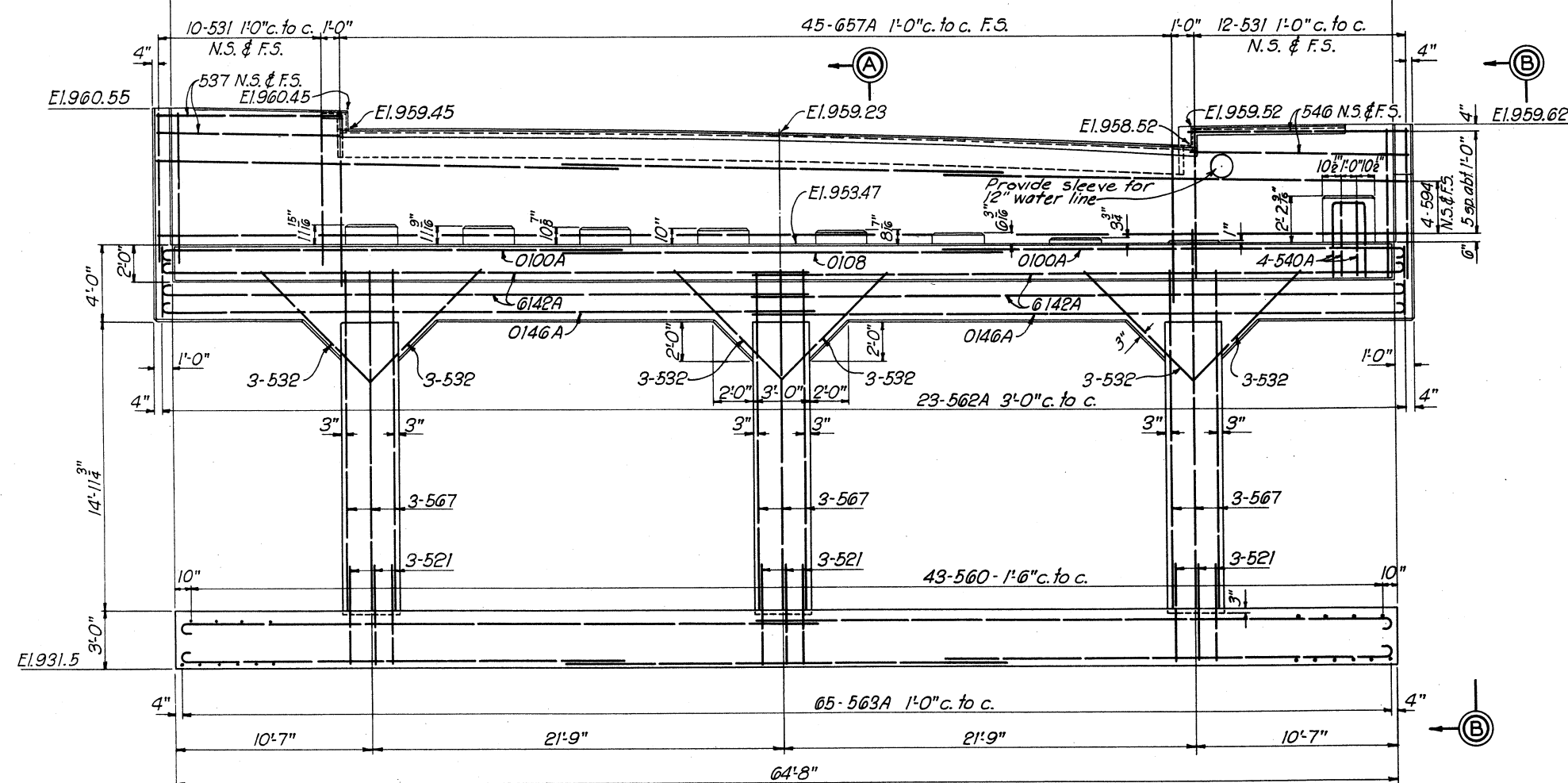
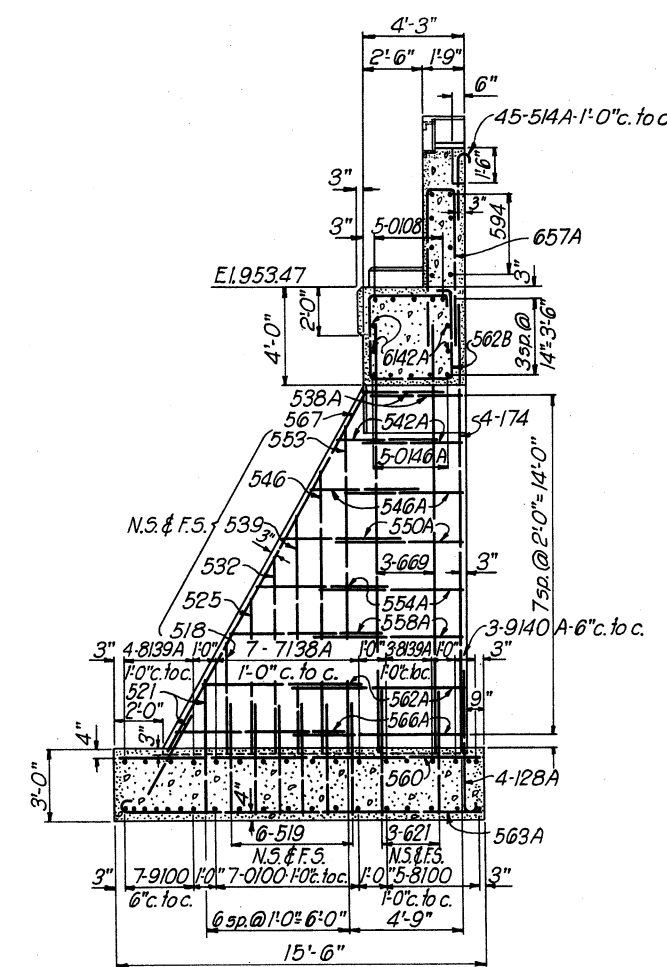
SUBMITTED: *W. J. R. R. R.* APPROVED: *W. J. R. R. R.*

DRAWN BY: A. C. H. TRANSMITTED WITH LETTER

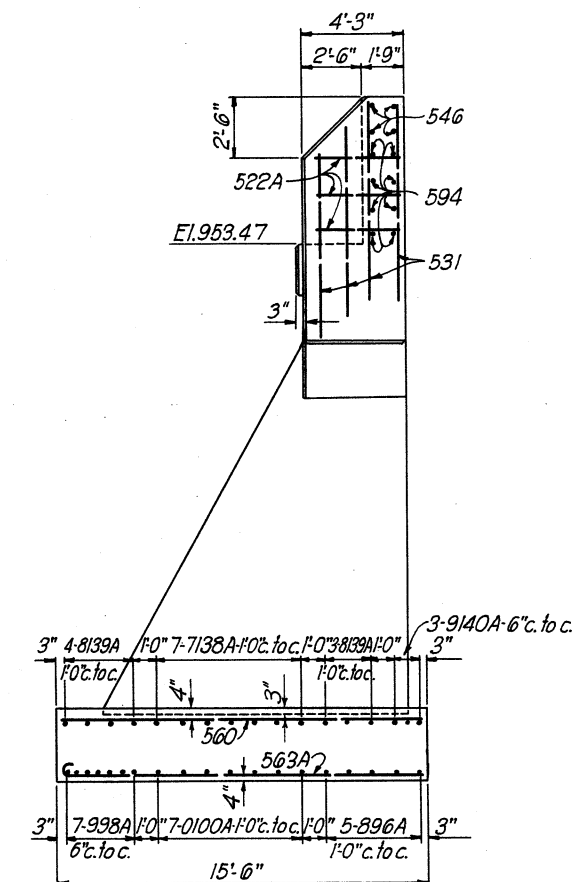
CHECKED BY: D. G. J. FILE NO. 0-271-PM 68/3 DATED



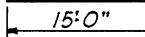
PLAN

ELEVATION

SECTION A-A



END VIEW B-B

REINFORCING SCHEDULE							
MARK	SIZE	L'GTH	BENDING DIAGRAM	NO.	UNIT WT.	TOTAL WT.	
514A	$\frac{3}{8}$ "	3'-6"		45	3.65	164	
518	$\frac{3}{8}$ "	4'-6"		563A	6	4.69	28
519	$\frac{3}{8}$ "	4'-9"		128A	36	4.95	178
521	$\frac{3}{8}$ "	5'-3"		0100A	15	5.48	82
522A	$\frac{3}{8}$ "	5'-6"		642A	6	5.74	34
525	$\frac{3}{8}$ "	6'-3"		0146A	6	6.52	39
531	$\frac{3}{8}$ "	7'-9"		819A	48	8.08	388
532	$\frac{3}{8}$ "	8'-0"		7138A	24	8.34	200
537	$\frac{3}{8}$ "	9'-3"		940A	4	9.65	38
538A	$\frac{3}{8}$ "	9'-6"		886A	6	9.91	59
539	$\frac{3}{8}$ "	9'-9"	998A	6	10.17	61	
540A	$\frac{3}{8}$ "	10'-0"	514A	4	10.43	42	
542A	$\frac{3}{8}$ "	10'-6"		6	10.95	66	
546	$\frac{3}{8}$ "	11'-6"		10	11.99	120	
546A	$\frac{3}{8}$ "	11'-6"		6	11.99	72	
550A	$\frac{3}{8}$ "	12'-6"		6	13.04	78	
553	$\frac{3}{8}$ "	13'-3"		6	13.82	83	
554A	$\frac{3}{8}$ "	13'-6"		6	14.08	84	
558A	$\frac{3}{8}$ "	14'-6"		6	15.12	91	
560	$\frac{3}{8}$ "	15'-0"		43	15.65	673	
562A	$\frac{3}{8}$ "	15'-6"		657A	6	16.17	91
562B	$\frac{3}{8}$ "	15'-6"		542A	23	16.17	372
563A	$\frac{3}{8}$ "	15'-9"		546A	65	16.43	1068
566A	$\frac{3}{8}$ "	16'-6"		550A	6	17.21	103
567	$\frac{3}{8}$ "	16'-9"		554A	9	17.47	157
594	$\frac{3}{8}$ "	23'-6"		558A	24	24.51	588
				562A			
				566A			
				598A			
621	$\frac{3}{8}$ "	5'-3"			18	7.89	135
657A	$\frac{3}{8}$ "	14'-3"			45	21.40	963
669	$\frac{3}{8}$ "	17'-3"			18	25.91	466
642A	$\frac{3}{8}$ "	35'-6"			8	53.32	427
7138A	$\frac{3}{8}$ "	34'-6"			14	70.51	987
896A	1"	24'-0"			10	64.08	641
8100	1"	25'-0"			5	66.75	334
8139A	1"	34'-9"			14	92.78	1299
128A	1"	7'-0"			12	23.80	286
174	1"	18'-6"			12	62.90	755
938A	$1\frac{1}{8}$ "	24'-6"			14	105.42	1476
9100	$1\frac{1}{8}$ "	25'-0"			7	107.58	753
9140A	$1\frac{1}{8}$ "	35'-0"			6	150.61	904
0100	$1\frac{1}{2}$ "	25'-0"			7	132.83	930
0100A	$1\frac{1}{2}$ "	25'-0"			24	132.83	3188
0108	$1\frac{1}{2}$ "	27'-0"			5	143.45	717
0146A	$1\frac{1}{2}$ "	36'-6"			10	193.92	1939

NOTES

*Chamfer all exposed edges 1" unless otherwise noted.
For anchor bolt layout, see Dwg. No. 68/10.
For location plan, see Dwg. No. 68/1.
For expansion plate detail, see Dwg. No. 68/2
All concrete to be Class 'B'.*

**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
CHERRY ROAD VIADUCT
ABUTMENT NO. 5**

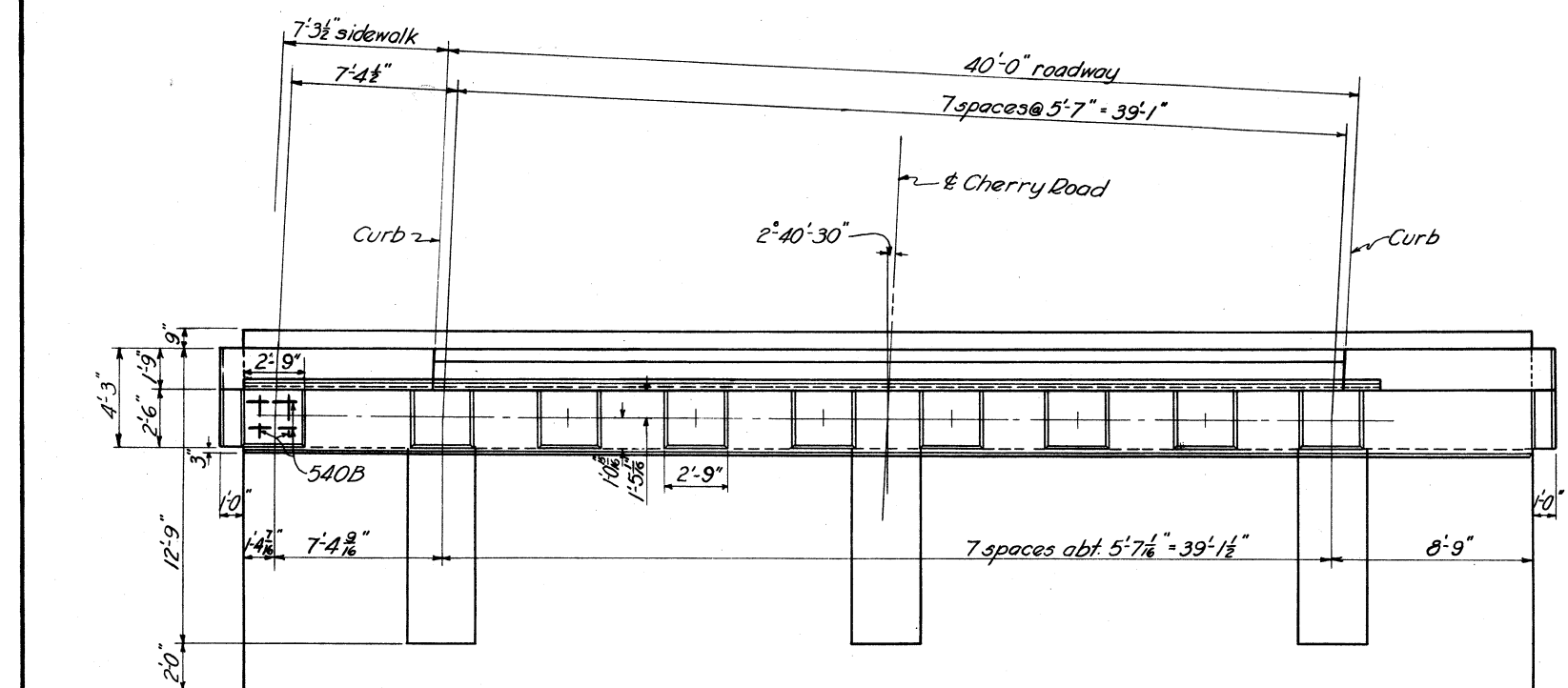
IN 147 SHEETS SHEET NO. 86 SCALE: $\frac{1}{4}" = 1' - 0"$

U. S. ENGINEER OFFICE. HUNTINGTON. W. VA., SEPT. 1940

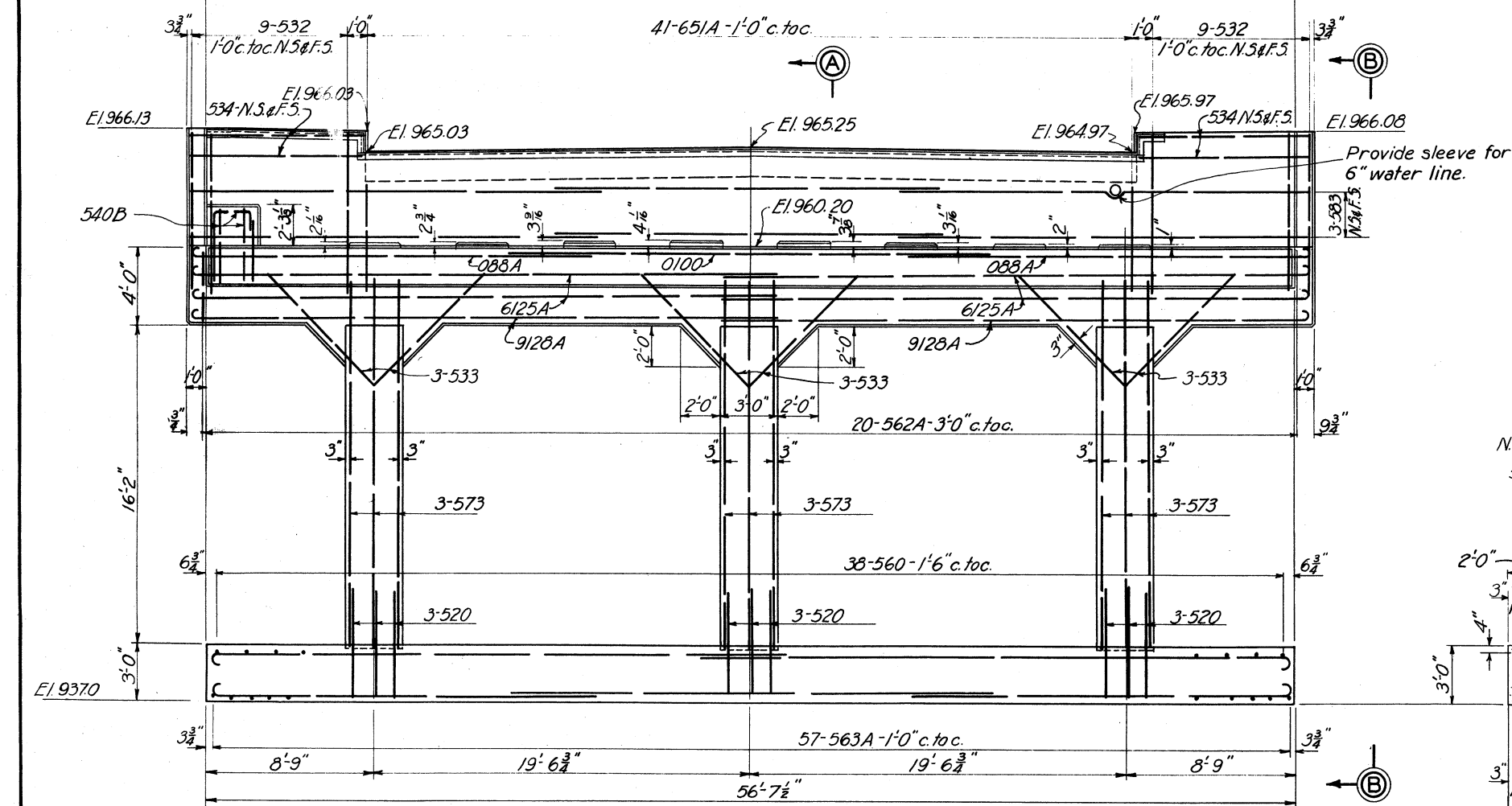
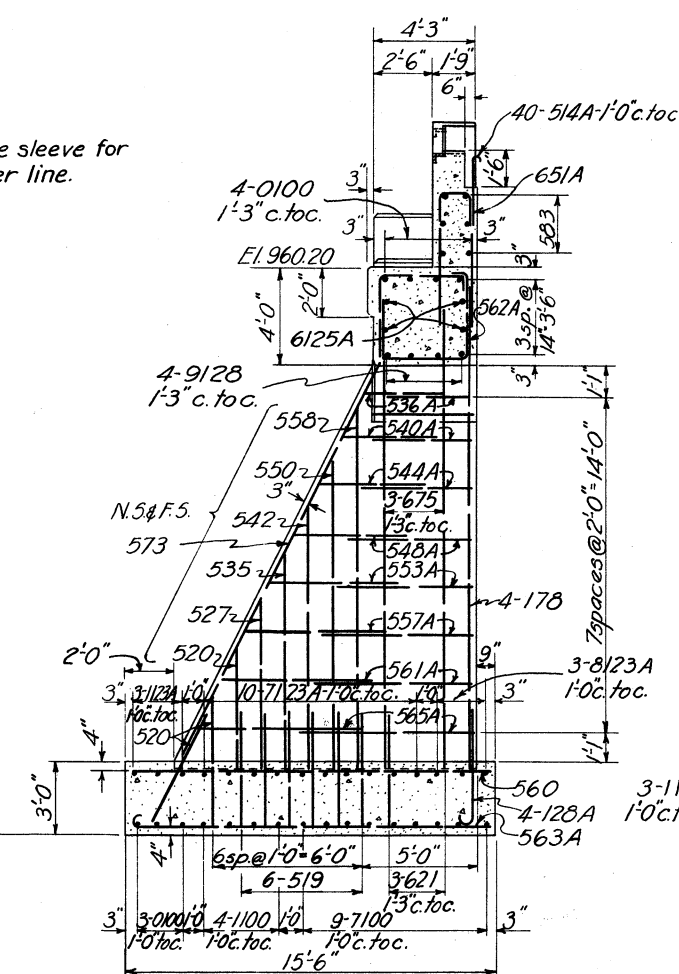
SUBMITTED: Way Perkins APPROVED: [Signature]
COL. CORPS OF ENGINEERS

DRAWN BY R.M.C.
 TRACED BY H.E.C.
 CHECKED BY E.K.
 FILE NO. 0271-PM-68/4

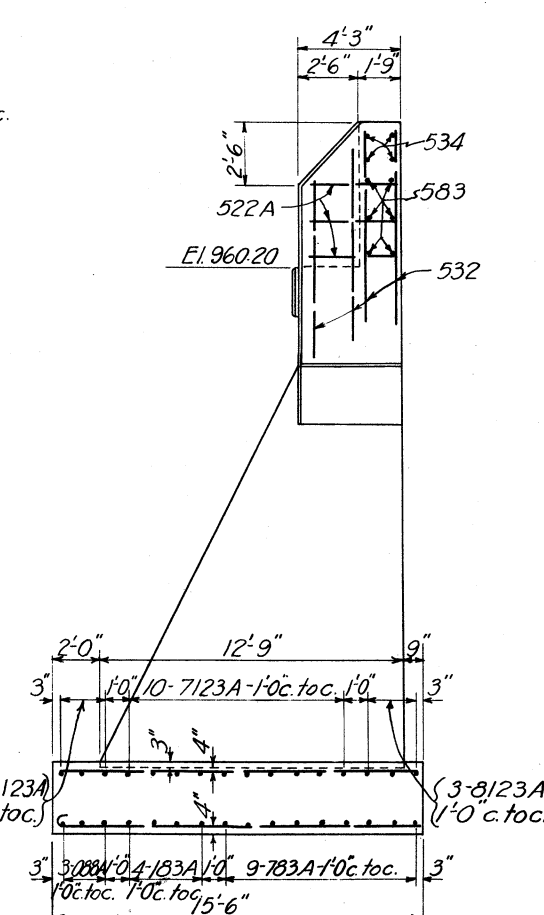
TRACED BY H. E. C.
CHECKED BY E. K. FILE NO. 0271-PM-68/4 DATED



PLAN

ELEVATION

SECTION A-A



ELEVATION B-B

REINFORCING SCHEDULE							
MARK	SIZE	L'GTH	BENDING DIAGRAM	NO.	UNIT WT.	TOTAL WT.	
514A	#4	3'-6"		40	3.65	146	
519	#4	4'-9"		36	4.95	178	
520	#4	5'-0"		21	5.22	110	
522A	#4	5'-6"		563A	6	5.74	34
527	#4	6'-9"		6123A	6	7.04	42
532	#4	8'-0"		6125A	6	8.34	334
533	#4	8'-3"		9128A	18	8.60	153
534	#4	8'-6"		783A	8	8.87	71
535	#4	8'-9"		183A	6	9.13	55
536A	#4	9'-0"		Q88A	6	9.39	56
540A	#4	10'-0"		7123A	6	10.43	63
540B	#4	10'-0"		128A	4	10.43	42
542	#4	10'-6"		514A	6	10.95	66
544A	#4	11'-0"			6	11.47	69
548A	#4	12'-0"			6	12.52	75
550	#4	12'-6"			6	13.04	78
553A	#4	13'-3"			6	13.82	83
557A	#4	14'-3"		536A	6	14.06	89
558	#4	14'-6"		540A	6	15.12	91
560	#4	15'-0"		544A	38	15.65	595
561A	#4	15'-3"		549A	6	15.91	95
562A	#4	15'-6"		553A	20	16.17	323
563A	#4	15'-9"		557A	57	16.43	937
565A	#4	16'-3"		561A	6	16.95	102
573	#4	18'-3"		565A	9	13.03	171
583	#4	20'-9"		651A	13	21.64	390
621	#4	5'-3"		522A	13	7.89	142
651A	#4	12'-9"			41	19.15	785
675	#4	18'-9"			18	20.16	507
6125A	#4	31'-3"			8	46.94	376
783A	#4	20'-9"			13	42.41	763
7100	#4	25'-0"			9	51.10	460
7123A	#4	30'-9"			20	62.85	1257
8123A	#4	30'-9"			6	82.10	493
128A	#4	7'-0"			12	23.80	286
178	#4	19'-6"			12	66.30	796
183A	#4	20'-9"			8	70.55	564
1100	#4	25'-0"			4	85.00	340
1123A	#4	30'-9"		540B	6	104.55	627
9128A	#4	32'-0"			8	137.70	1102
Q88A	#4	22'-0"			14	116.89	1636
Q100	#4	25'-0"			7	132.83	930
					Total		15,514

NOTES

Chamfer all exposed edges 1" unless otherwise noted.
For anchor bolt layout, see Dwg. No. 68/10.
For location plan, see Dwg. No. 68/1.
For expansion plate detail, see Dwg. No. 68/2
All concrete to be Class "B."

**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
CHERRY ROAD VIADUCT
ABUTMENT NO. 6**

IN 147 SHEETS SHEET NO. 87 SCALE: $\frac{1}{4}'' = 1'-0''$

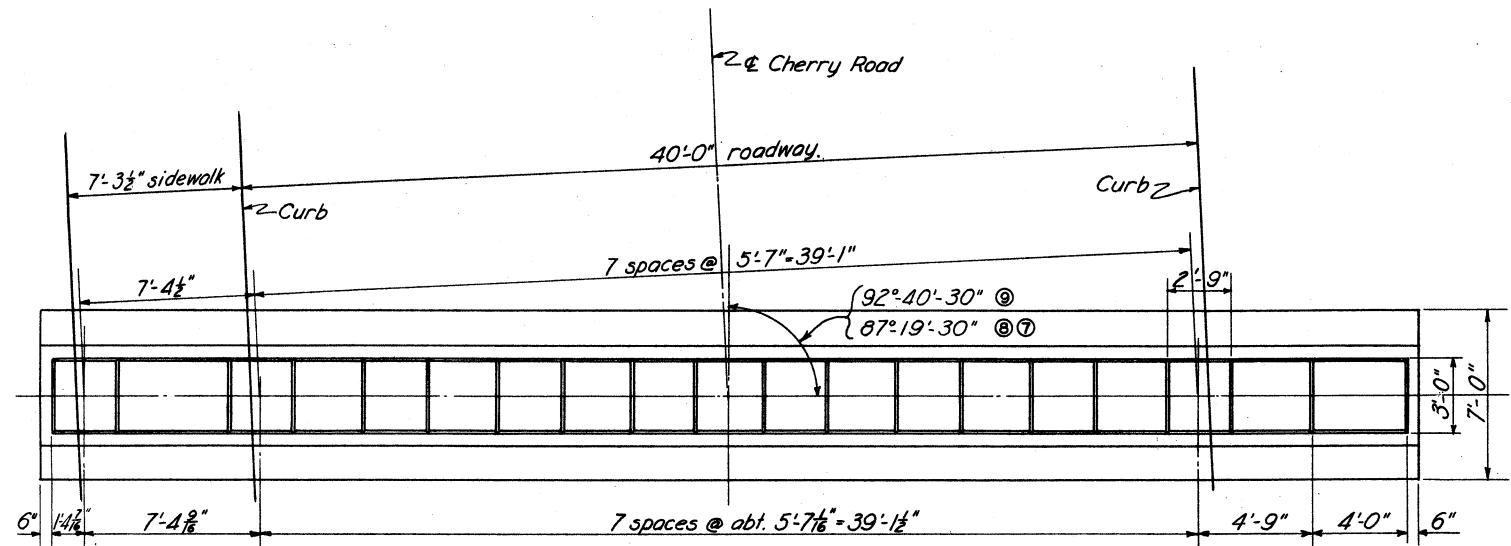
U. S. ENGINEER OFFICE. HUNTINGTON. W. VA., SEPT. 1940

SUBMITTED: Wm Perkins
PRINCIPAL ENGINEER

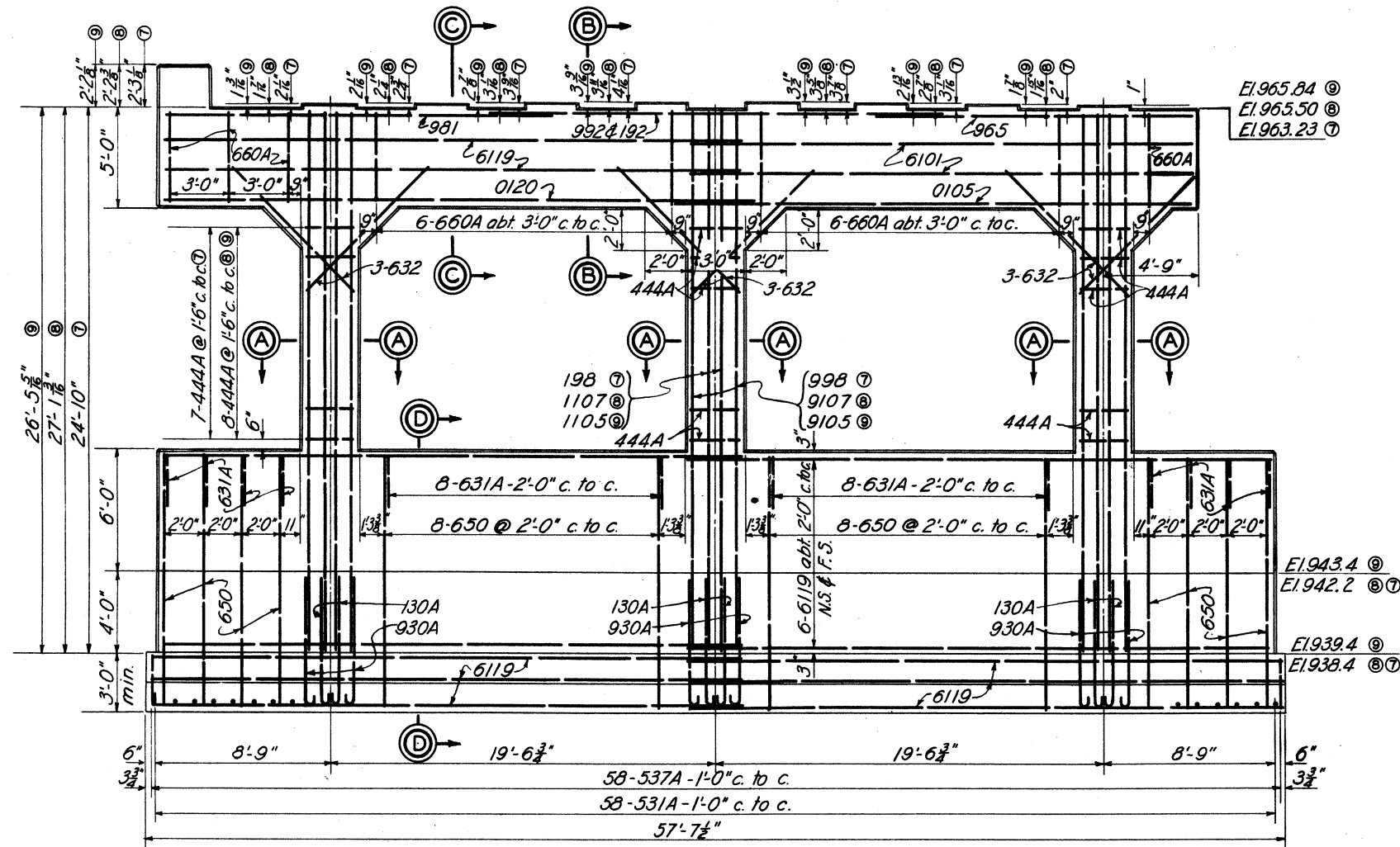
APPROVED: J. Keene
T. COL., CORPS OF ENGINEERS

DRAWN BY R.M.C. TRANSMITTED WITH LETTER
TRACED BY L.D.H.
CHECKED BY E.K. FILE NO 027i-PM-68/5 DATED

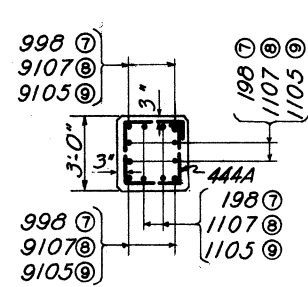
BY	DATE	CHARACTER
		REVISIONS



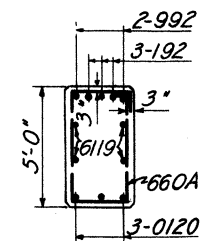
PLAN
PIERS 7, 8, & 9



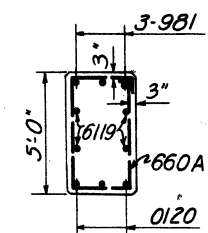
ELEVATION
PIER NO. 7 STATION 10+94.83
PIER NO. 8 STATION 11+82.53
PIER NO. 9 STATION 12+29.23



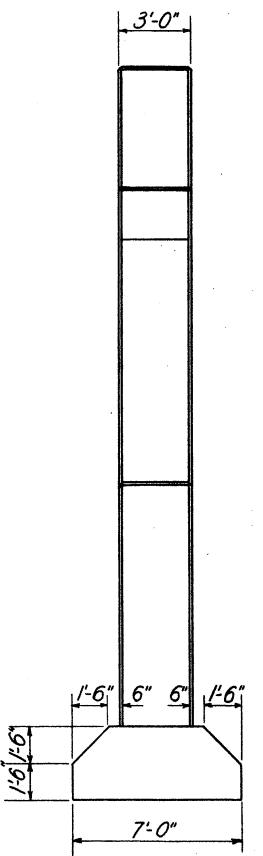
SECTION A-A



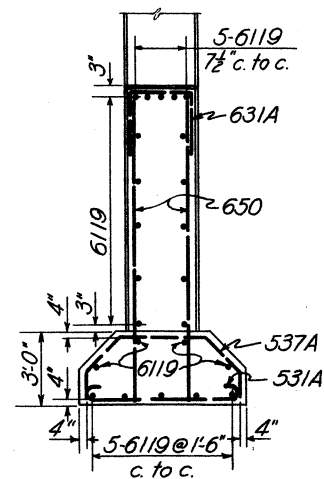
SECTION B-B



SECTION C-C



END ELEVATION



SECTION D-D

REINFORCING SCHEDULE									
MARK	SIZE	L'GTH	BENDING DIAGRAM	NO. EACH PIER	TOTAL	UNIT	TOTAL		
				NO. 7	NO. 8	NO. 9	NO.	WT.	WT.
444A	1/2"	11'-0"		21	24	24	69	7.35	507
531A	3/8"	7'-9"	6'-4"	58	58	58	174	8.08	1406
537A	3/8"	9'-3"		58	58	58	174	9.65	1679
631A	3/8"	7'-9"	6'-5"	24	24	24	72	11.64	838
632	3/8"	8'-0"	6'-5"	10	18	18	36	12.02	649
650	3/8"	12'-6"		48	48	48	144	18.78	2704
660A	3/8"	15'-0"	1'-2" 3'-8" 1'-2"	16	16	16	48	22.53	1071
6101	3/8"	25'-3"		4	4	4	12	37.95	455
6119	3/8"	29'-9"		52	52	52	156	44.68	6970
130A	1"	7'-6"	6'-4"	24	24	24	72	25.50	1836
192	1"	23'-0"		3	3	3	9	78.20	704
198	1"	24'-6"		24			24	63.30	1999
1105	1"	26'-3"				24	24	89.25	2142
1107	1"	26'-9"				24	24	90.95	2183
930A	1 1/8"	7'-6"	4'-6"	12	12	12	36	32.27	1162
965	1 1/8"	16'-3"		3	3	3	9	69.92	69
981	1 1/8"	20'-3"	2'-6"	3	3	3	9	87.14	784
992	1 1/8"	23'-0"		2	2	2	6	98.97	594
998	1 1/8"	24'-6"		12			12	105.42	1265
9105	1 1/8"	26'-3"				12	12	112.95	1355
9107	1 1/8"	26'-9"				12	12	113.11	1381
0105	1 1/8"	26'-3"		3	3	3	9	139.47	1255
0120	1 1/8"	30'-0"		3	3	3	9	158.39	1435
Total								34443	

NOTES

Chamfer all exposed edges 1" unless otherwise noted.
For anchor bolt plan, see Dwg. No. 68/10
For location plan, see Dwg. No. 68/1
All concrete to be Class B.

TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
CHERRY ROAD VIADUCT
PIERS NOS. 7, 8 & 9

IN 147 SHEETS SHEET NO. 88 SCALE: 1/4" = 1'-0"

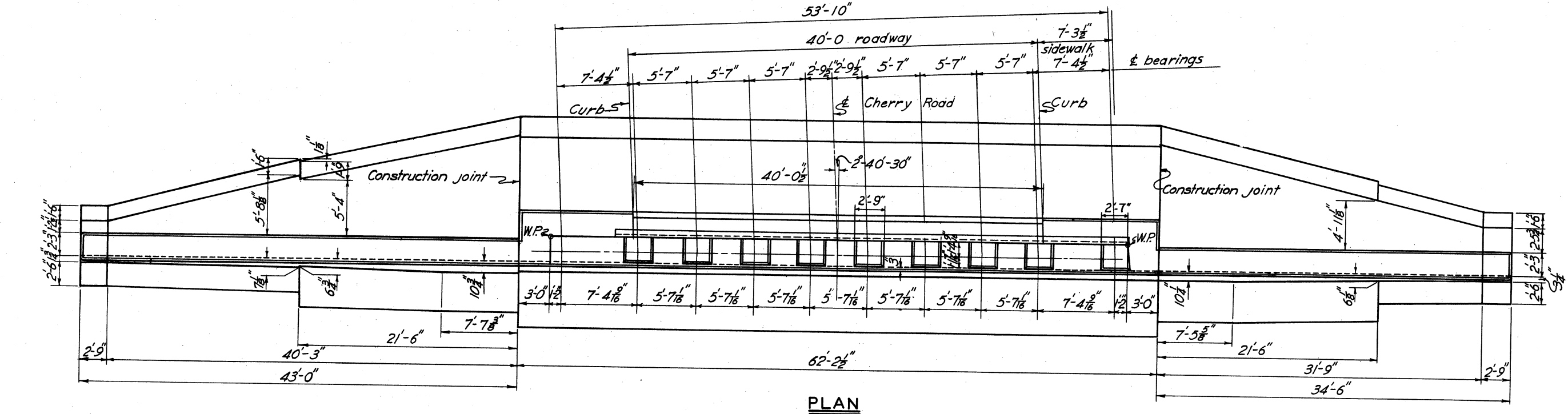
J. S. ENGINEER OFFICE, HUNTINGTON, W. VA., SEPT. 1940

SUBMITTED: [Signature] APPROVED: [Signature]

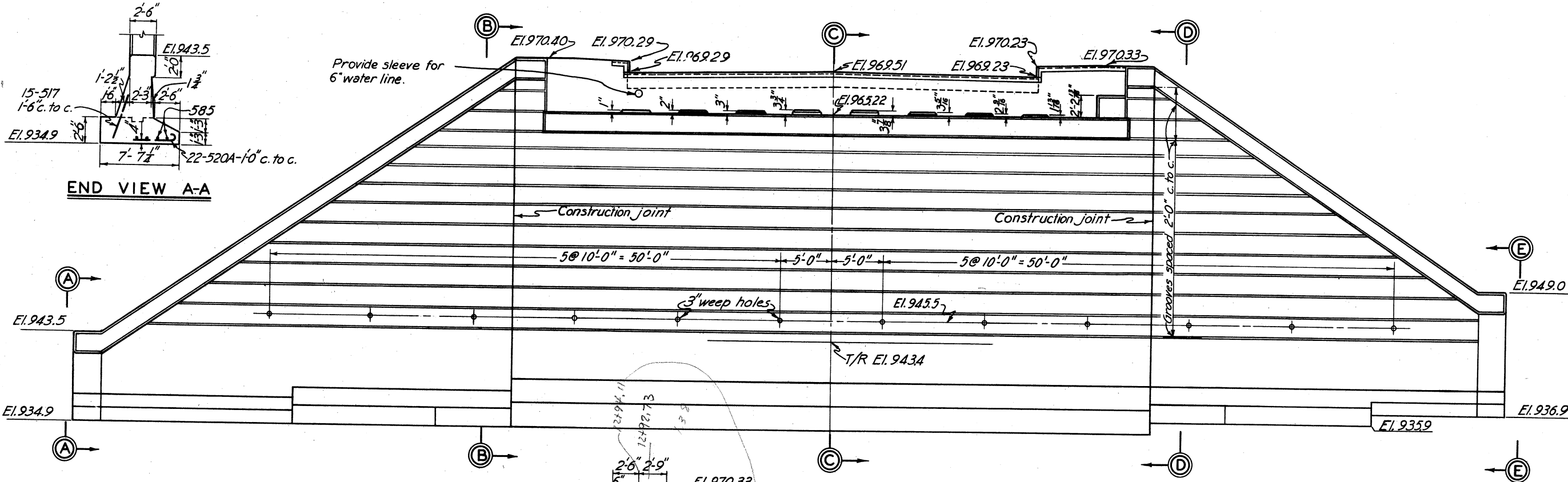
DRAWN BY L.D.C. TRANSMITTED WITH LETTER
CHECKED BY R.C.H. FILE NO. 0271-PM-68/6 DATED

BY	DATE	CHARACTER
		REVISIONS

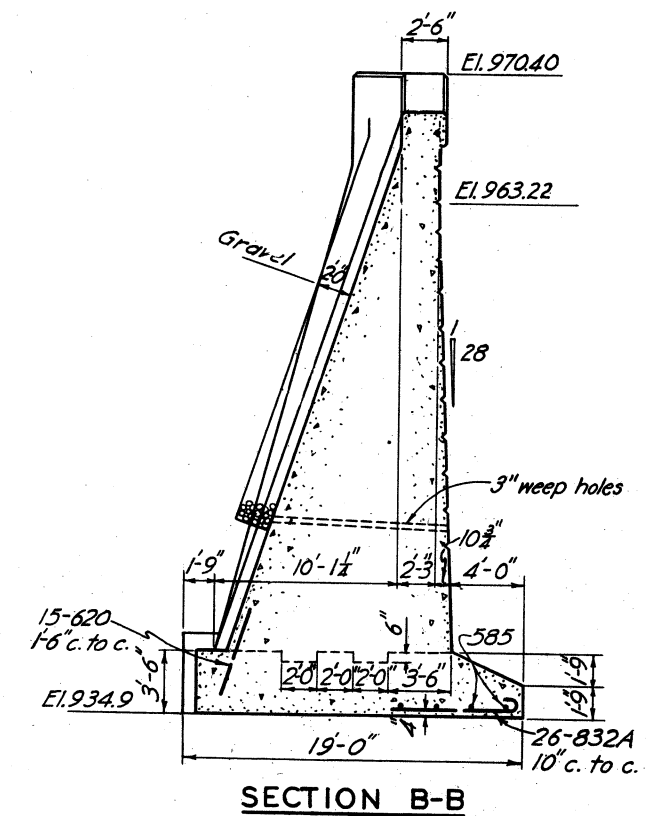
REINFORCING SCHEDULE						
MARK	SIZE	LGTH	BENDING DIAGRAM	NO.	UNIT WT.	TOTAL WT.
514A	3/8" ϕ	3'-6"		40	3.65	146
517	3/8" ϕ	4'-3"		66	4.43	292
520A	3/8" ϕ	5'-0"		33	5.22	172
550	3/8" ϕ	12'-6"		4	13.04	52
585	3/8" ϕ	2'-3"		12	22.16	266
589	3/8" ϕ	22'-3"		4	23.21	93
620	3/8" ϕ	5'-0"		72	7.51	541
832A	1" ϕ	8'-0"		52	21.36	1111
136A	1" ϕ	9'-0"		75	30.60	2295



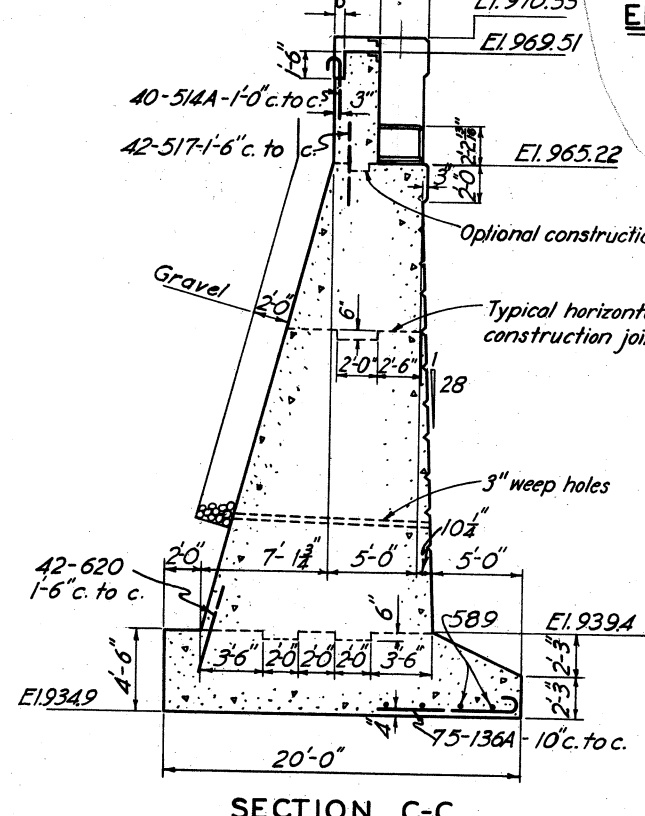
PLAN



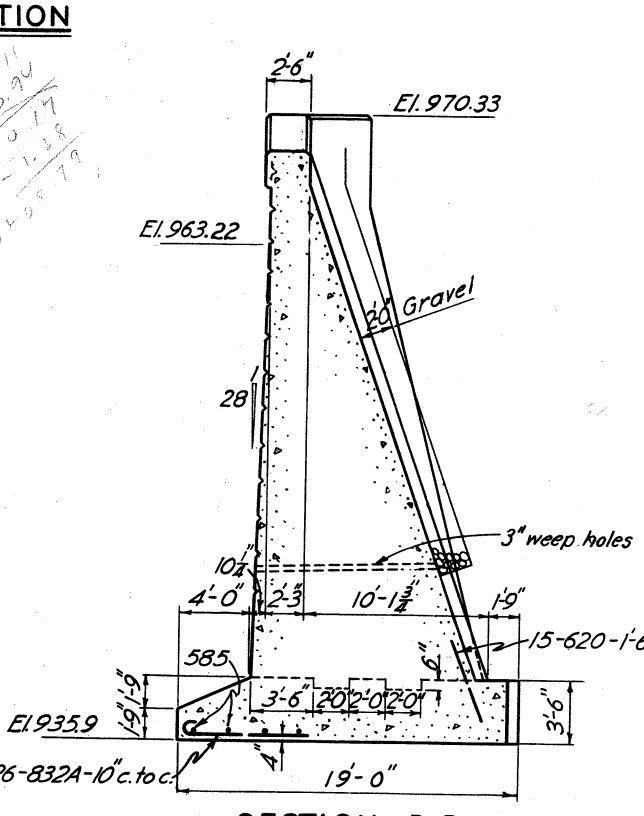
ELEVATION



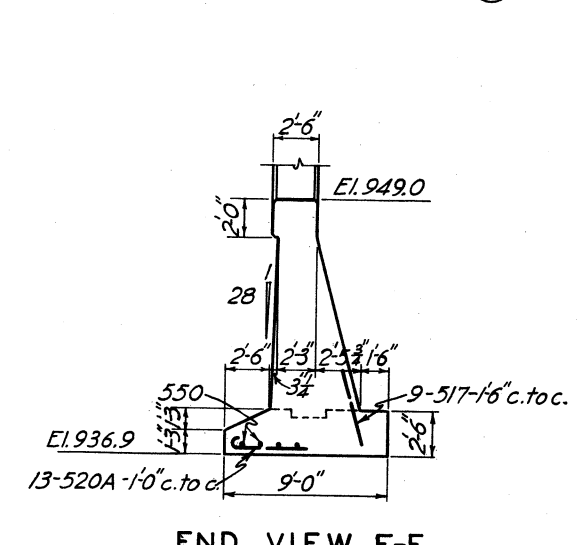
SECTION B-B



SECTION C-C



SECTION D-D



END VIEW E-E

NOTES

- Chamfer all exposed edges 1" unless otherwise noted.
- Place all reinforcing steel 4" minimum from surfaces unless otherwise noted.
- For groove detail, see Dwg. No. 68/2.
- For anchor bolt layout, see Dwg. No. 68/10.
- For location plan, see Dwg. No. 68/1.
- For expansion plate detail, see Dwg. No. 68/2.
- All concrete to be Class 'B'.

TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
CHERRY ROAD VIADUCT
ABUTMENT NO. 10

IN 147 SHEETS SHEET NO. 89 SCALE: 1/8" = 1'-0"

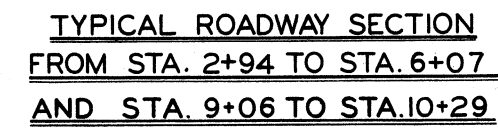
U. S. ENGINEER OFFICE, HUNTINGTON, W. VA., SEPT. 1940

SUBMITTED: [Signature] APPROVED: [Signature]

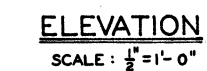
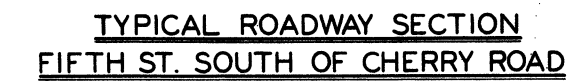
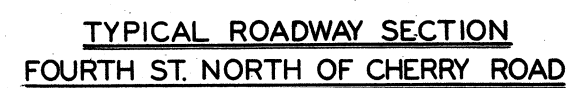
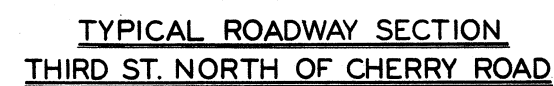
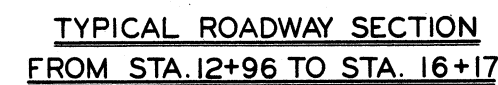
DRAWN BY: A.M. TRANSMITTED WITH LETTER

CHECKED BY: E.K. FILE NO. 0271-PM-68/7 DATED

BY	DATE	CHARACTER
		REVISIONS

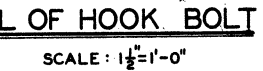
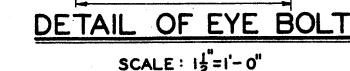


Note:
Curbs and sidewalks to be 6"
higher at bridge. Run out to
typical section in 50 feet.



INTERMEDIATE POST
SCALE: $\frac{1}{2}$ " = 1'-0"

82A7F 710-09



GUARD FENCE DETAILS

[illegible]

ORDINATES FOR CROWN
REINF. CONCRETE PAVEMENT:

NOTE

Concrete for sidewalks, post encasements and pavement to be Class "A".

**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
CHERRY ROAD VIADUCT
APPROACH SECTIONS & DETAILS**

IN 147 SHEETS SHEET NO. 90 SCALE: $\frac{1}{4}'' = 1'-0''$

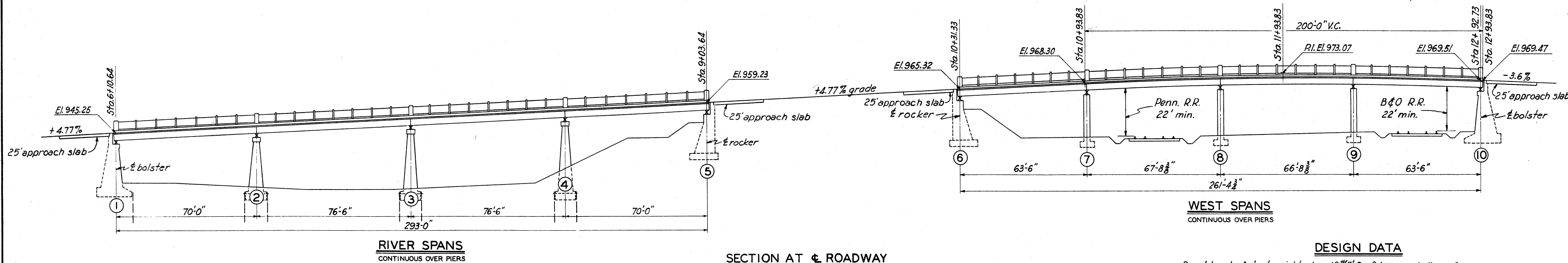
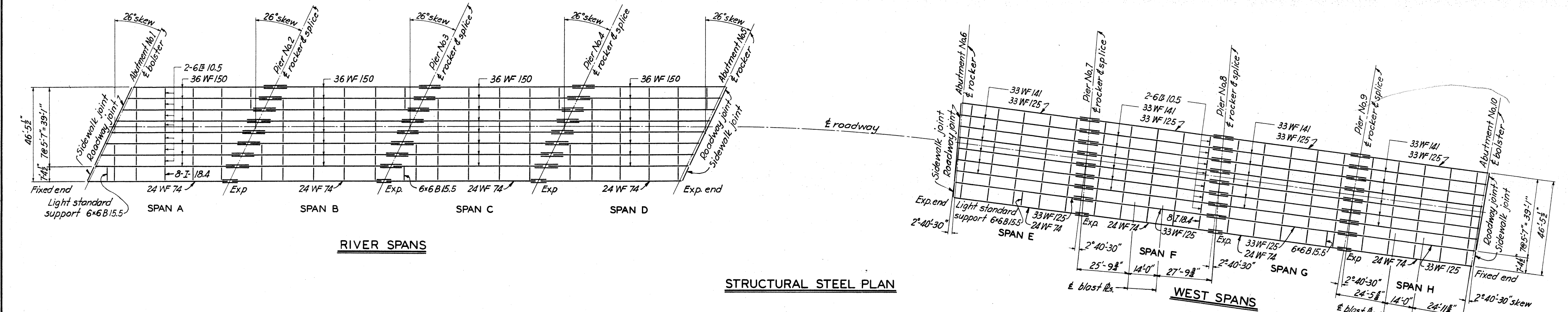
U. S. ENGINEER OFFICE. HUNTINGTON. W. VA., SEPT. 1940

SUBMITTED: *[Signature]* **MUNICIPAL ENGINEER** APPROVED: *[Signature]* **LT. COL., CORPS OF ENGINEERS**

DRAWN BY H.G.H.
TRACED BY W.E.C.
CHECKED BY H.G.H.

FILE NO. 027i-PM-68/8

TRANSMITTED WITH LETTER
DATED



POSITIVE MOMENTS IN FT.-LBS.												
LOADS	RIVER SPANS						WEST SPANS					
	SPANS A & D			SPANS B & C			SPANS E & F			SPANS G & H		
	INTERIOR BEAM	CURB BEAM	HANDRAIL BEAM	INTERIOR BEAM	CURB BEAM	HANDRAIL BEAM	INTERIOR BEAM	CURB BEAM	HANDRAIL BEAM	INTERIOR BEAM	CURB BEAM	HANDRAIL BEAM
DEAD LOAD	228,000	223,000	98,000	196,000	193,000	88,000	185,000	173,000	81,000	143,000	132,000	66,000
LIVE LOAD	416,000	270,000		375,000	243,000		370,000	239,000		333,000	216,000	
IMPACT	107,000	69,000		93,000	60,000		98,000	64,000		87,000	56,000	
SIDEWALK LL		97,000	103,000		90,000	102,000		79,000	83,000		69,000	78,000
TOTAL	751,000	659,000	207,000	664,000	586,000	190,000	653,000	555,000	170,000	563,000	473,000	144,000

NEGATIVE MOMENTS IN FT.-LBS.												
LOADS	RIVER SPANS						WEST SPANS					
	PIER NOS 2 & 4			PIER NO 3			PIER NOS 7 & 9			PIER NO 8		
	INTERIOR BEAM	CURB BEAM	HANDRAIL BEAM	INTERIOR BEAM	CURB BEAM	HANDRAIL BEAM	INTERIOR BEAM	CURB BEAM	HANDRAIL BEAM	INTERIOR BEAM	CURB BEAM	HANDRAIL BEAM
DEAD LOAD	209,000	202,000	81,000	172,000	166,000	67,000	166,000	160,000	65,000	124,000	120,000	48,000
LIVE LOAD	449,000	291,000		444,000	287,000		401,000	260,000		397,000	258,000	
IMPACT	83,000	54,000		80,000	52,000		78,000	51,000		76,000	49,000	
SIDEWALK LL		121,000	136,000		123,000	133,000		99,000	111,000		92,000	104,000
TOTAL	741,000	668,000	217,000	696,000	628,000	206,000	645,000	570,000	176,000	597,000	519,000	152,000

REACTIONS IN LBS.																	
LOADS	RIVER SPANS									WEST SPANS							
	ABUTMENT NOS 1 & 5			PIER NOS 2 & 4			PIER NO 3			ABUTMENT NOS 6 & 10			PIER NOS 7 & 9			PIER NO 8	
	INTERIOR BEAM	CURB BEAM	HANDRAIL BEAM	INTERIOR BEAM	CURB BEAM	HANDRAIL BEAM	INTERIOR BEAM	CURB BEAM	HANDRAIL BEAM	INTERIOR BEAM	CURB BEAM	HANDRAIL BEAM	INTERIOR BEAM	CURB BEAM	HANDRAIL BEAM	INTERIOR BEAM	CURB BEAM
DEAD LOAD	15,400	15,000	6,500	41,900	40,800	17,400	39,300	38,300	16,500	36,900	34,800	15,600	33,100	31,300	14,200		
LIVE LOAD	32,100	19,400		56,000	36,300		55,100	35,700		31,400	19,100		53,200	34,400		52,300	33,900
IMPACT	8,200	5,000		10,300	6,700		9,900	6,400		8,400	5,100		10,400	6,700		10,100	6,500
SIDEWALK LL		6,200	7,000		17,400	19,600		17,100	19,300		5,600	6,300		15,500	17,400		14,800
TOTAL	55,700	45,600	13,500	108,200	101,200	37,000	104,300	97,500	35,800	53,500	42,700	12,300	100,500	91,400	33,000	95,500	86,500

DESIGN DATA

Dead load = Actual weight plus 10% for future asphalt surface.
Live load = H20-33 loading (see Ohio State Highway Specifications 1933)
Truck Wheel Loading or Traffic Lane Loading used, whichever gives greater stress. More than one span loaded when it causes maximum stress. Minimum clearance between trucks equals 30 feet.
Not more than one truck per span used.
Impact = $\frac{50}{L} \times \text{live load}$; where L = loaded length of span in feet
 $M_2 = \frac{1}{3} M_1$ = Bending moment in interior beams due to lateral distribution of wheel loads; where M_1 = bending moment due to one line of wheels and s = beam spacing in feet

Unit stresses

Tension
Axial tension, net section _____ 18,000
Bending on extreme fiber _____ 20,000
Compression in flanges _____ 18,000
but not to exceed $\frac{1}{3} \times \frac{20,000}{(b/L)^2}$
where L = length in inches of unsupported flange and b = flange width in inches

Shear
Girder web, gross section _____ 12,000
Pins and shop driven rivets _____ 13,500
Power driven field rivets and turned bolts _____ 12,000

Bearing
Pins and shop driven rivets in double shear _____ 27,000
Shop driven rivets in single shear and power driven field rivets and turned bolts in double shear _____ 24,000
Power driven field rivets and turned bolts in single shear _____ 20,000

**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
CHERRY ROAD VIADUCT
STEEL PLAN & DESIGN DATA**

APPROVED:
THE BALTIMORE AND OHIO RAILROAD CO.
BY: _____
CHIEF ENGINEER

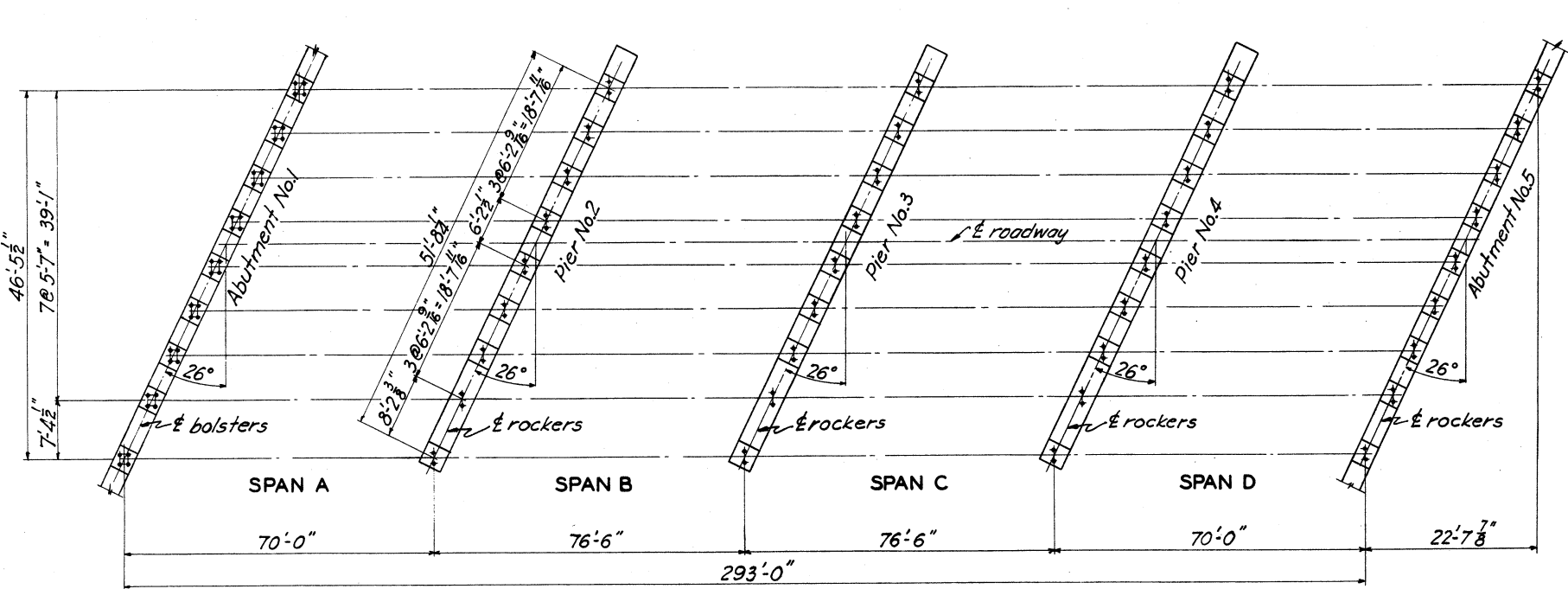
APPROVED:
THE PENNSYLVANIA RAILROAD CO.
BY: _____
CHIEF ENGINEER - CENTRAL REGION

IN 147 SHEETS SHEET NO. 91 SCALE: 1"=20'

U.S. ENGINEER OFFICE, HUNTINGTON, W. VA., SEPT. 1940

SUBMITTED: _____ APPROVED: _____
DRAWN BY: J.H. _____ TRANSMITTED WITH LETTER
CHECKED BY: C.D.H. _____
FILE NO 0271-PM-68/9 DATED

BY	DATE	CHARACTER

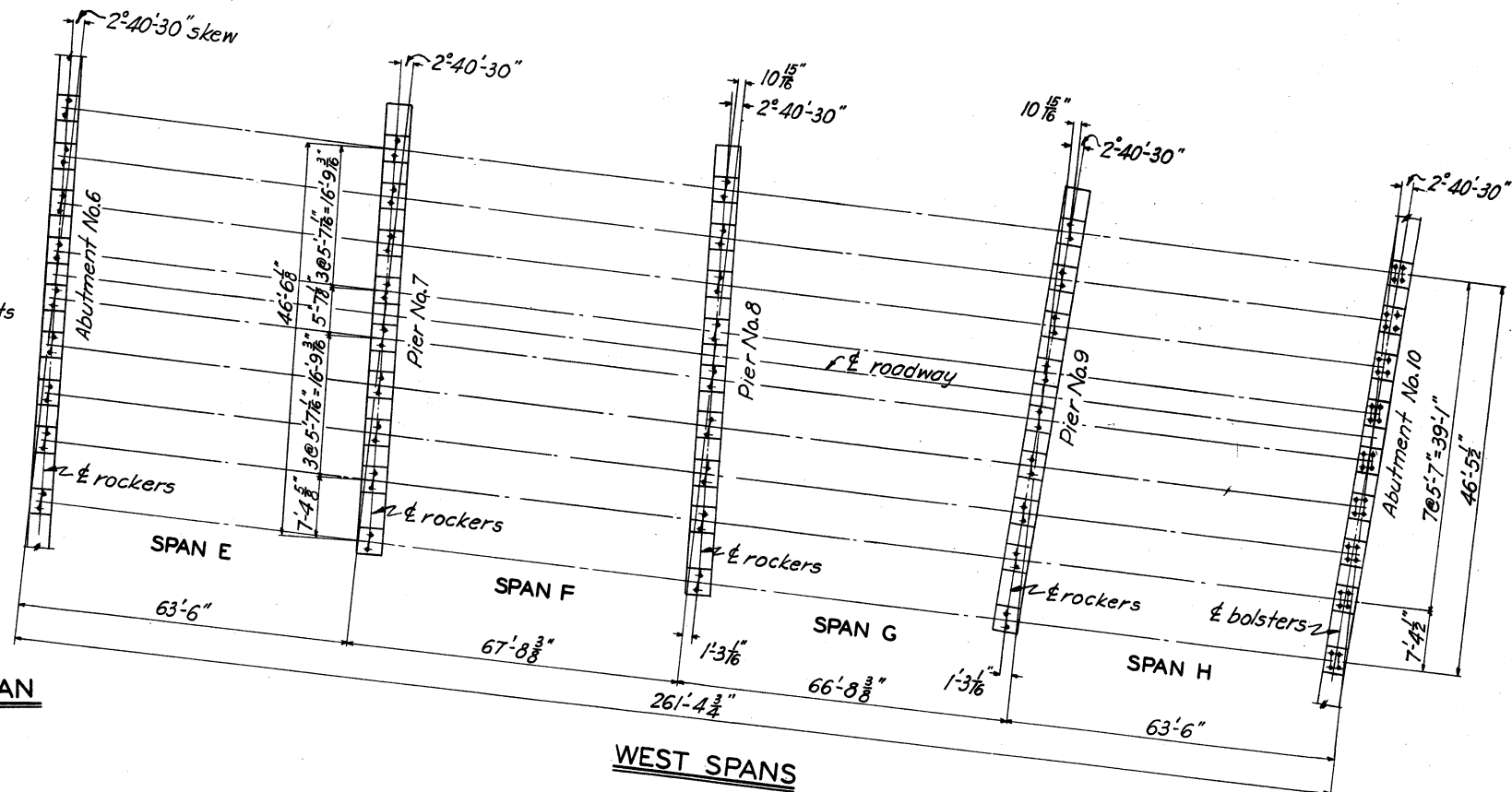


RIVER SPANS

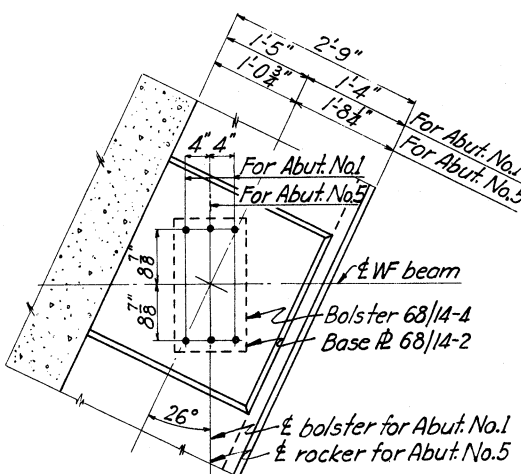
ANCHOR BOLT PLAN

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

For spacing of bolts see anchor bolt layouts below.

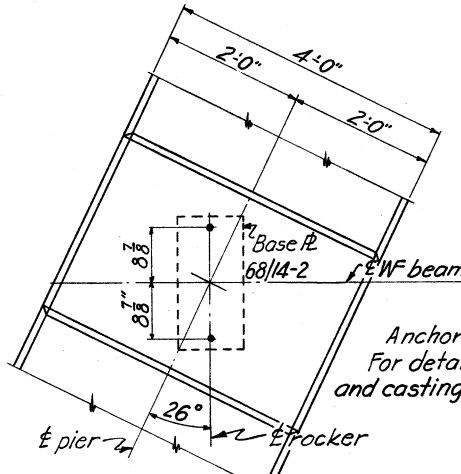


WEST SPANS

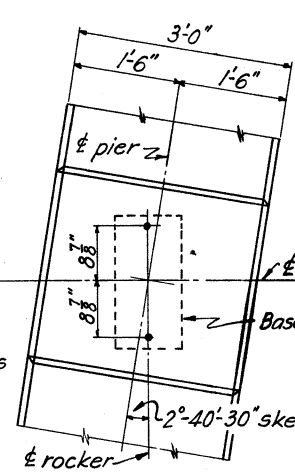


ABUTMENT NO. 1

ABUTMENT NO. 5 SIMILAR EXCEPT AS NOTED

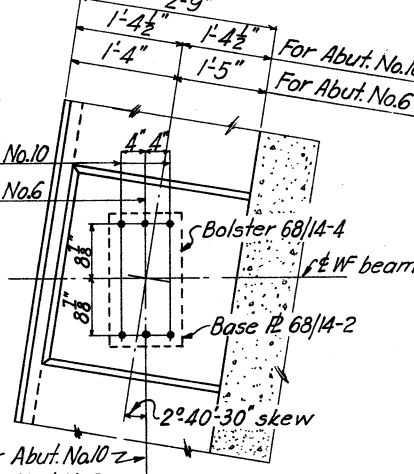


PIERS NOS. 2, 3 & 4



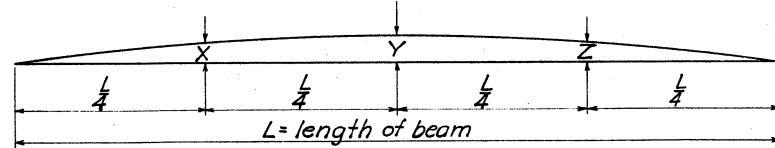
PIER NO. 9

PIER NOS. 7 & 8 SIMILAR EXCEPT OPPOSITE HAND



ABUTMENT NO. 10

ABUTMENT NO. 6 SIMILAR EXCEPT OPPOSITE HAND AND AS NOTED



CAMBER DIAGRAM

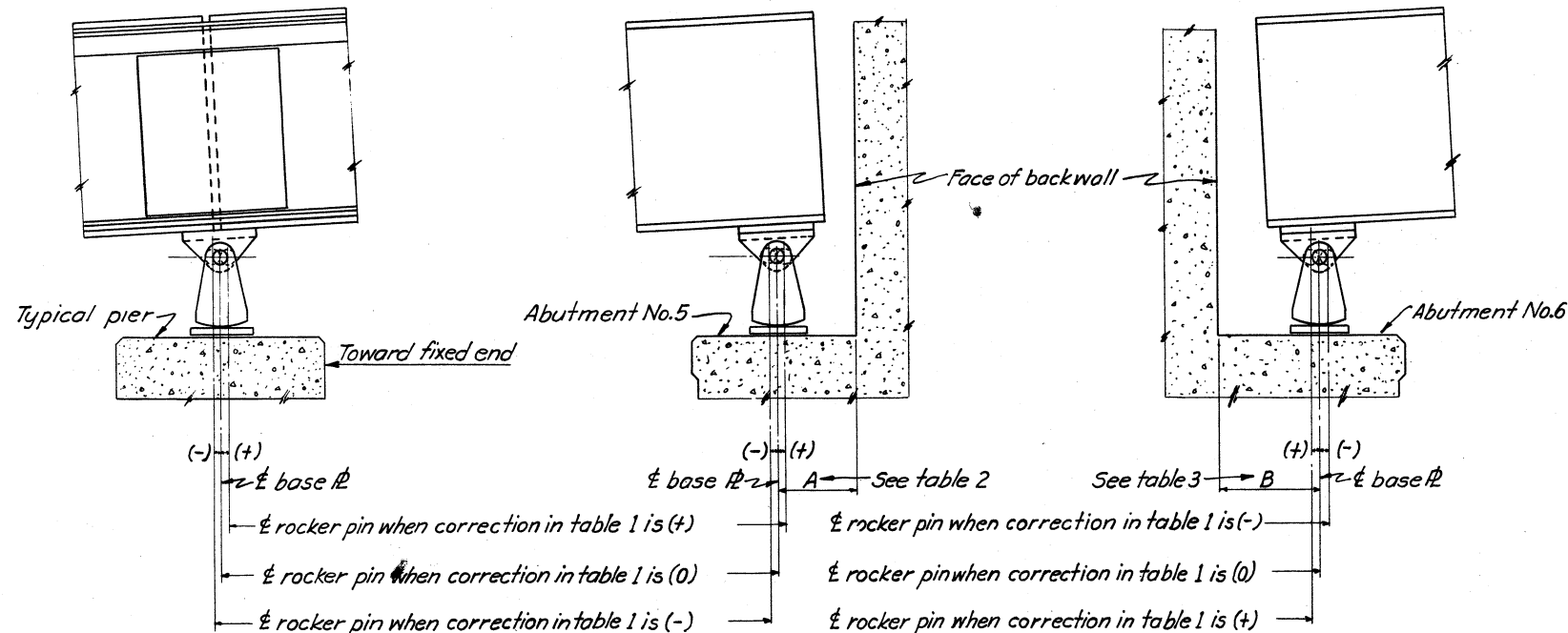
SPAN	INTERIOR BEAM			CURB BEAM			HANDRAIL BEAM		
	X	Y	Z	X	Y	Z	X	Y	Z
A & D	7/8"	5/8"	7/8"	7/8"	5/8"	7/8"	11/8"	1"	11/8"
B & C	7/8"	5/8"	7/8"	7/8"	5/8"	7/8"	11/8"	1"	11/8"
E	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"
F & G	2 1/8"	3 1/8"	2 1/8"	2 1/8"	3 1/8"	2 1/8"	3 1/8"	3 1/8"	2 1/8"
H	2 1/8"	3 1/8"	2 1/8"	2 1/8"	3 1/8"	2 1/8"	3 1/8"	3 1/8"	2 1/8"

TABLE OF CAMBER

TABLE NO. 2	
DISTANCE "A" FOR ROCKER ON ABUTMENT NO. 5	
TEMPERATURE	
0°	20°
1'-2"	1'-1 1/2"

TABLE NO. 3	
DISTANCE "B" FOR ROCKER ON ABUTMENT NO. 6	
TEMPERATURE	
0°	20°
1'-6 1/2"	1'-5 1/2"

TABLE NO. 1	
TEMPERATURE CORRECTION FOR SETTING EXPANSION ROCKERS	
ROCKER LOCATION	TEMPERATURE
	0°
PIER NO. 2	- 1/8"
PIER NO. 3	- 1/8"
PIER NO. 4	- 1/8"
ABUT. NO. 5	- 1/8"
ABUT. NO. 6	- 1/8"
PIER NO. 7	- 1/8"
PIER NO. 8	- 1/8"
PIER NO. 9	- 1/8"



ROCKER SETTING

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

Note: Distances A & B are measured perpendicular to the face of backwall

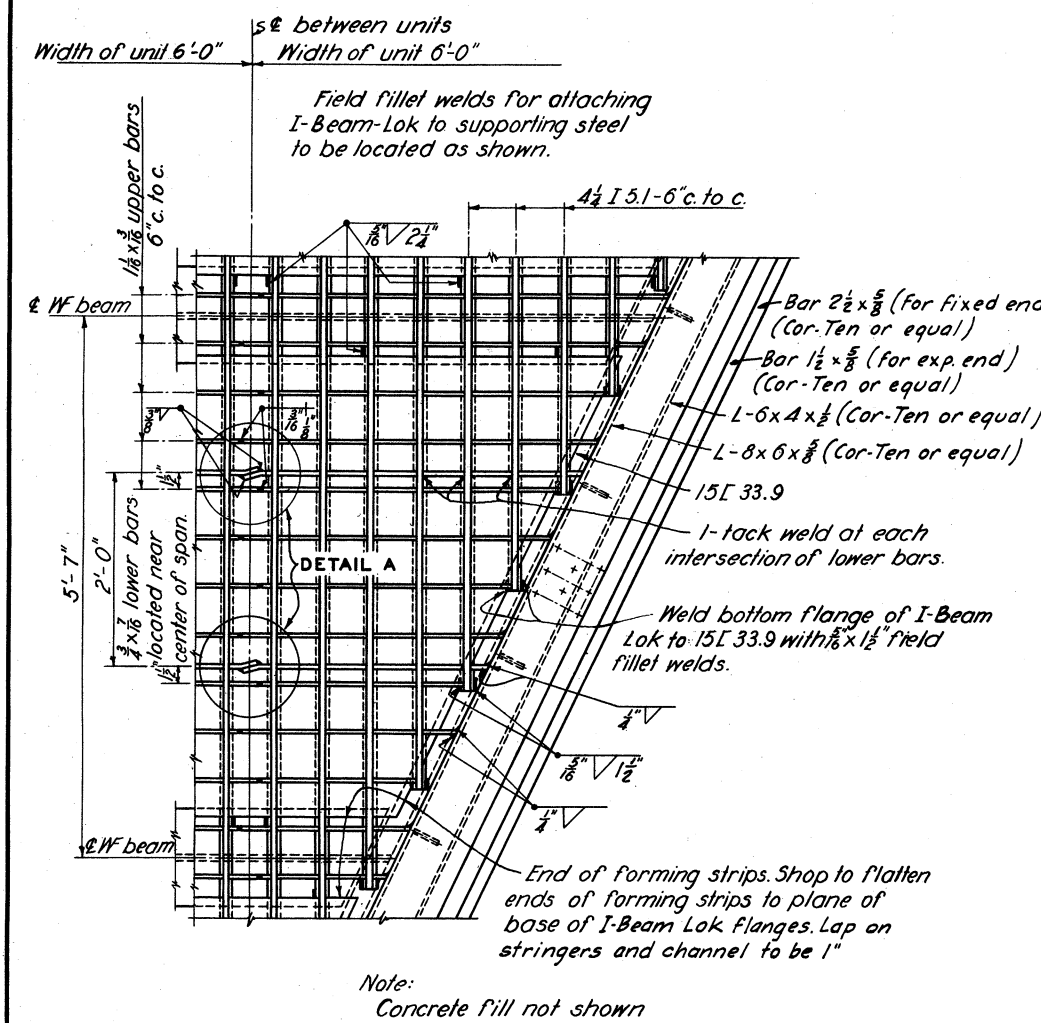
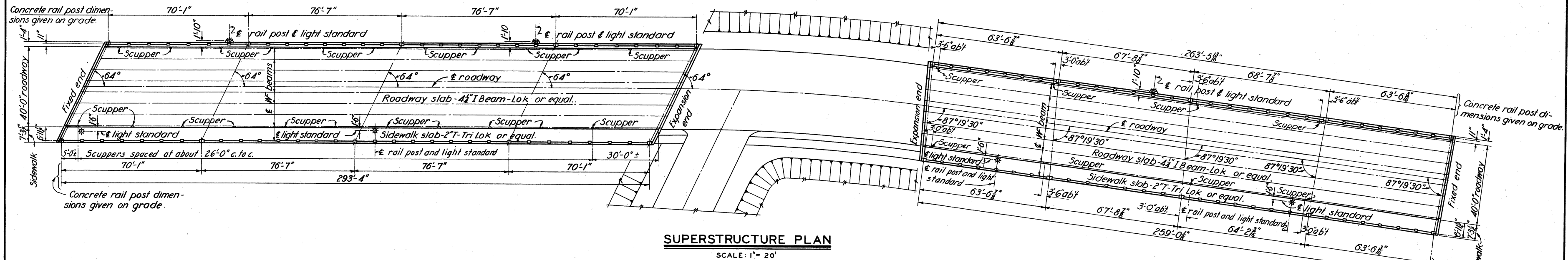
TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
CHERRY ROAD VIADUCT
ANCHOR BOLT PLAN & ERECTION DATA

IN 147 SHEETS SHEET NO. 92 SCALE: AS SHOWN

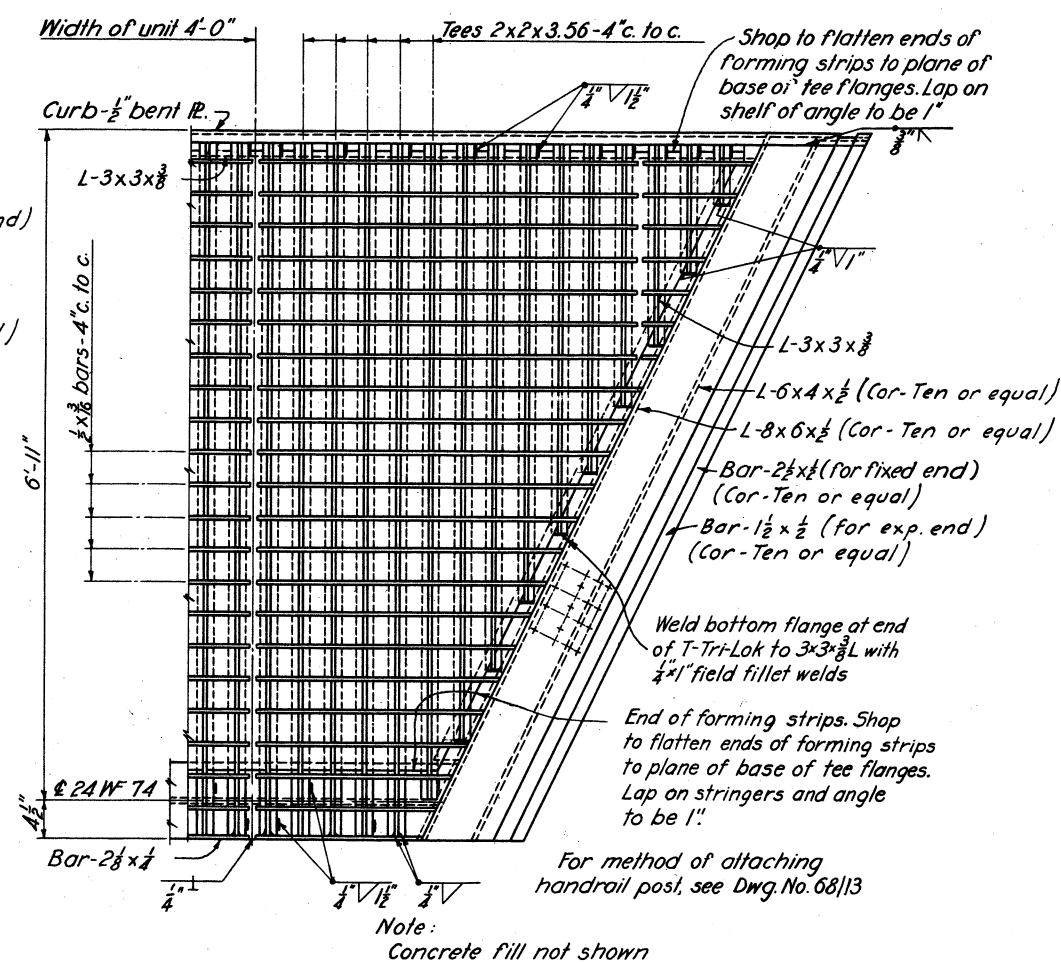
U. S. ENGINEER OFFICE. HUNTINGTON, W. VA., SEPT. 1940

SUBMITTED: [Signature] APPROVED: [Signature]

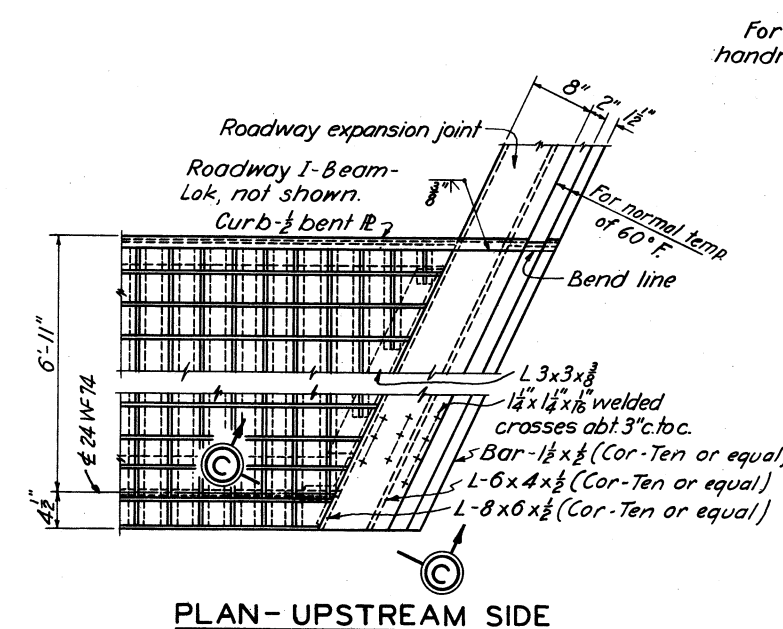
DRAWN BY: N.W.D. TRACED BY: C.D.H. CHECKED BY: H.U.B. TRANSMITTED WITH LETTERS FILE NO. 0271-PM-68/10 DATES



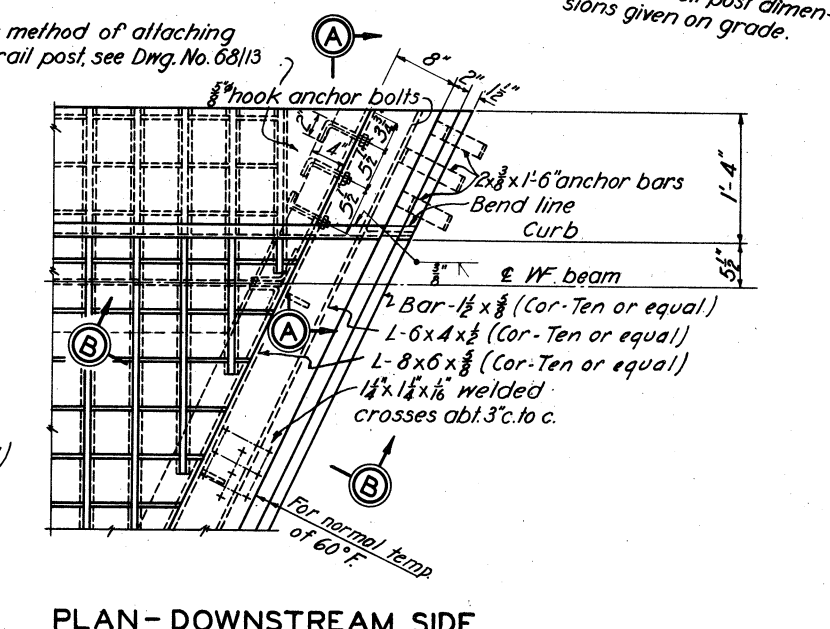
ROADWAY PLAN



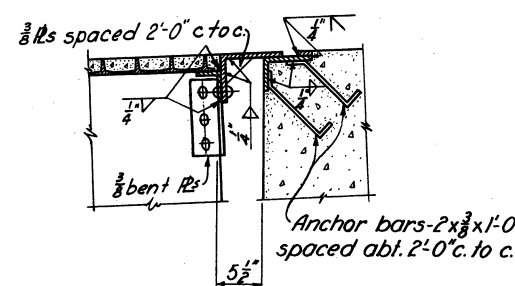
SIDEWALK PLAN



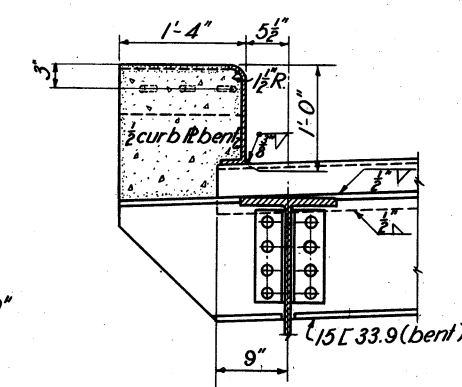
PLAN - UPSTREAM SIDE



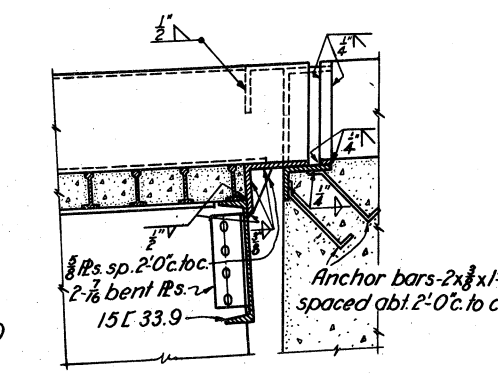
PLAN - DOWNSTREAM SIDE



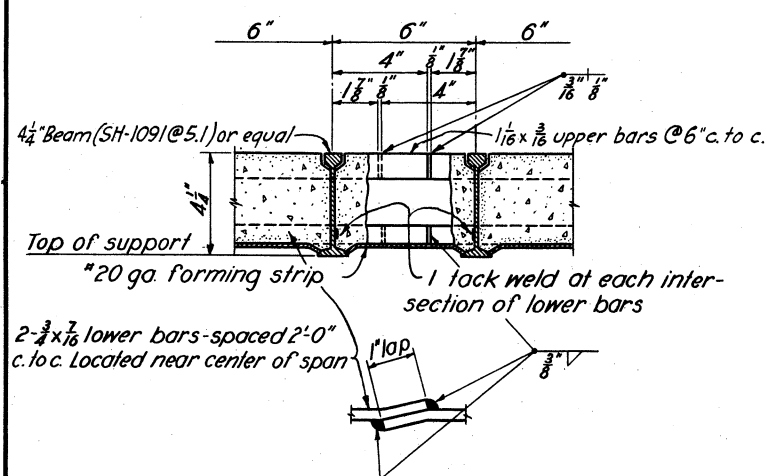
SECTION C-C



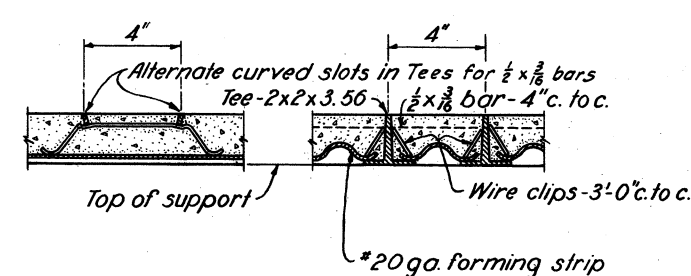
SECTION A-A



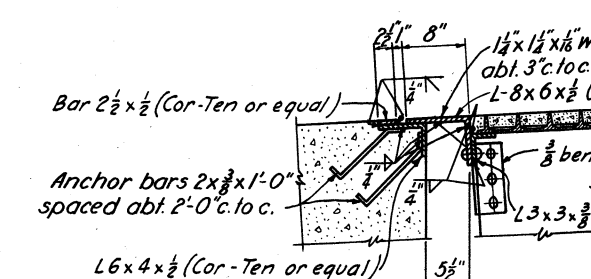
SECTION B-B



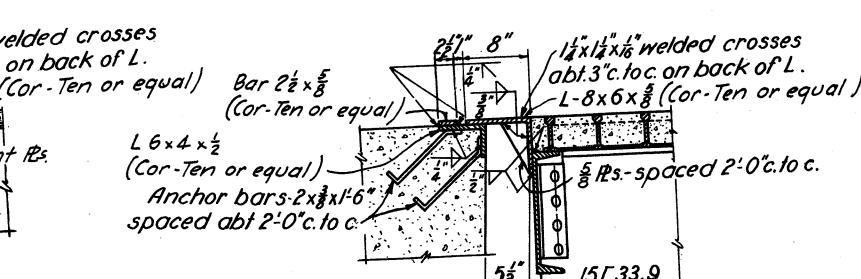
DETAIL A



LONGITUDINAL
SECTION



DETAILS OF SIDEWALK JOINT-FIXED END



DETAILS OF ROADWAY JOINT-FIXED END

NOTES

Expansion and fixed joints to be flared and bent to match roadway.
Details shown are for River Span-West Span is similar.
Rivets $\frac{7}{8}$ "
Concrete for road surfacing and sidewalk to be class "A."

**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
CHERRY ROAD VIADUCT
FLOOR PLAN & DETAILS**

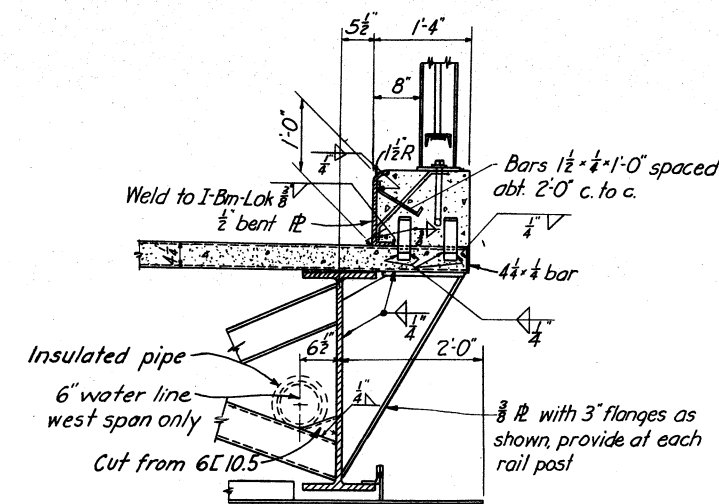
IN 147 SHEETS SHEET NO. 93 SCALE: 1" = 1'-0"

U. S. ENGINEER OFFICE. HUNTINGTON. W. VA., SEPT. 1940

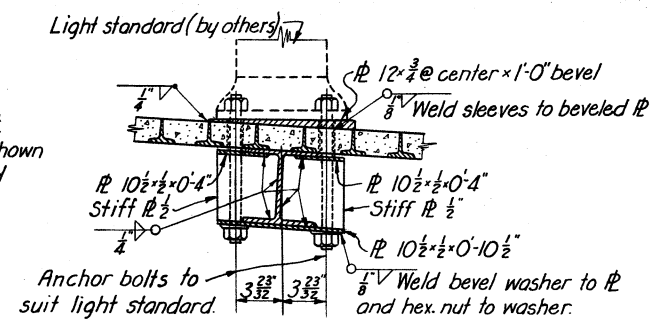
SUBMITTED: Van Perkins APPROVED: Stinson

PRINCIPAL ENGINEER
DRAWN BY N.W.D.
LT. COL., CORPS OF ENGINEERS
TRANSMITTED WITH LETTER

TRACED BY... R.A.E. TRANSMITTED WITH LETTER
CHECKED BY H.U.B. FILE NO.027i-PM-68/11 DATED

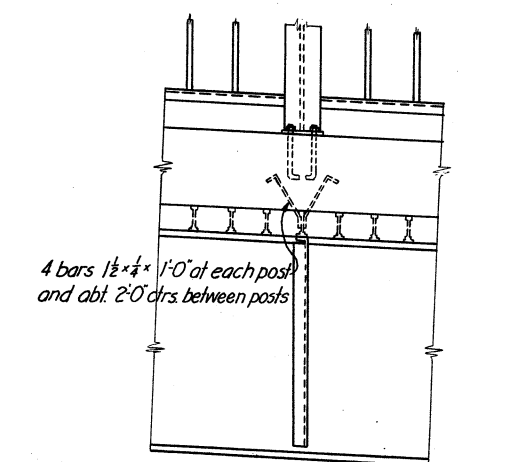


DOWNSTREAM CURB DETAIL

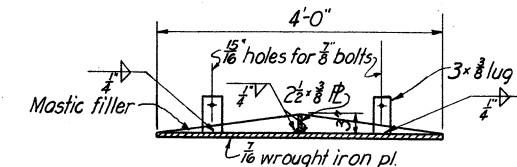


SECTION A- A

SCALE: $1\frac{1}{2}'' = 1'-0''$

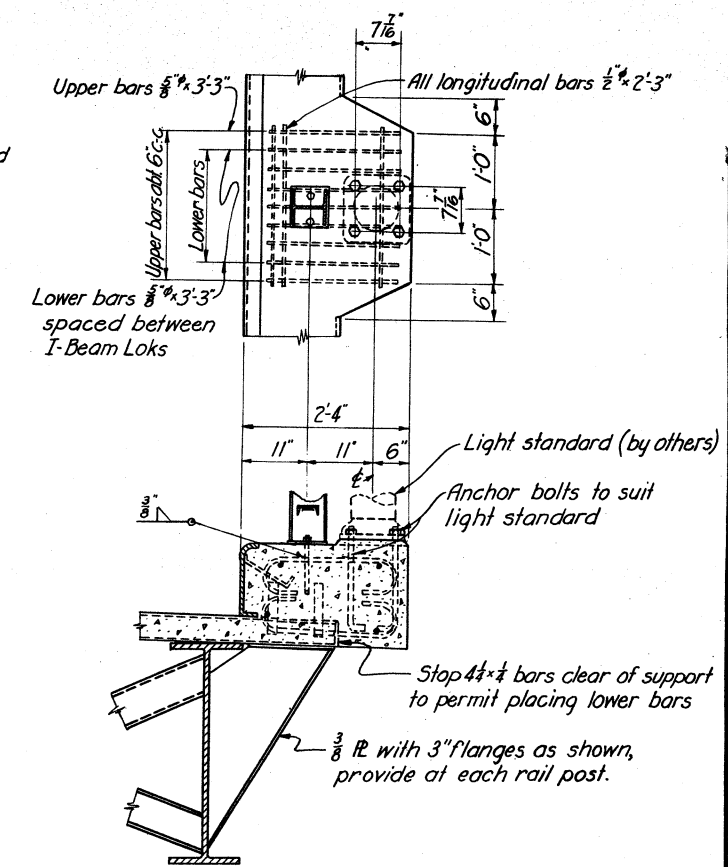


ROADWAY CURB ELEVATION
AT INTERMEDIATE POST

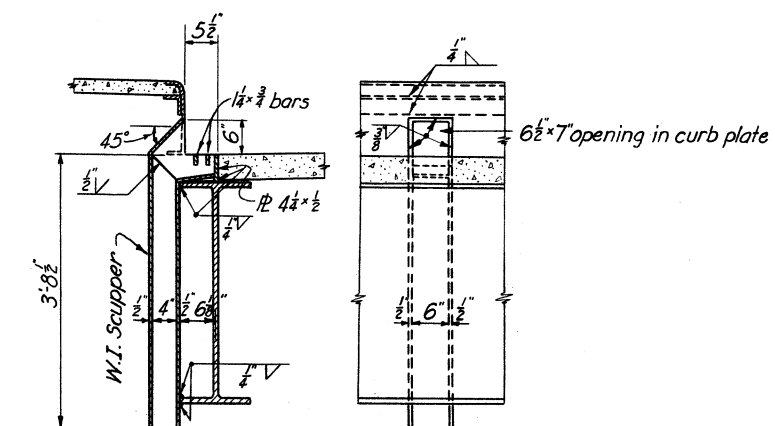


TYPICAL SECTION OF BLAST PLATE

203 LIN. FT. REQ'D.



LIGHT STANDARD SUPPORTS AT ROADWAY CURB



DETAIL OF SCUPPER

For location of blast plates, see Dwg. No. 68/9.

HEIGHT OF PEDESTALS UNDER BOLSTERS									BRIDGE SEAT ELEVATION	PLATE NORMAL	PLUS SHIMS
LOCATION	F	G	H	J	K	J-1	H-1	G-1		SIDEWALK BEAM	ROADWAY BEAMS
ABUT. NO.1	2'-2 1/2"	1'	3 3/4"	6 1/2"	8 7/8"	10"	10 3/4"	11 1/2"	940.31	8'	1'
ABUT. NO.10	2'-2 1/2"	1 1/2"	2 1/2"	3 3/4"	3 3/4"	3 3/4"	3"	2"	965.22	8'	1 1/2"

HEIGHT OF PEDESTALS UNDER BOLSTERS									BRIDGE SEAT ELEVATION	PLATE NORMAL	PLUS SHIMS
LOCATION	F	G	H	J	K	J-1	H-1	G-1		SIDEWALK BEAM	ROADWAY BEAMS
ABUT. NO.1	2'-2 1/2"	1'	3 3/4"	6 1/2"	8 7/8"	10"	10 3/4"	11 1/2"	940.31	8'	1'
ABUT. NO.10	2'-2 1/2"	1 1/2"	2 1/2"	3 3/4"	3 3/4"	3 3/4"	3"	2"	965.22	8'	1 1/2"

**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
CHERRY ROAD VIADUCT
TYPICAL SECTIONS & DETAILS**

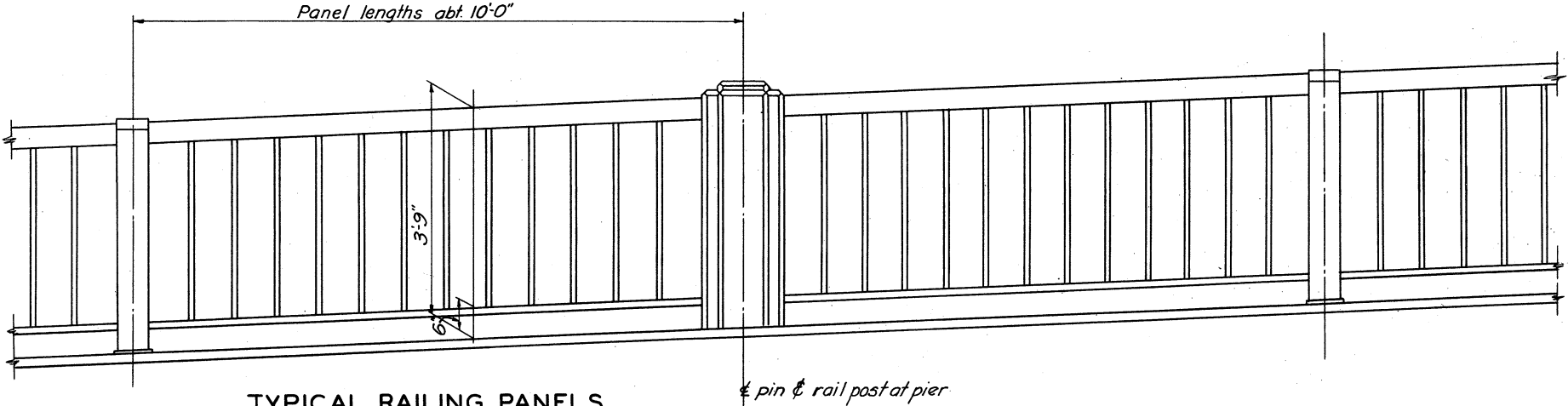
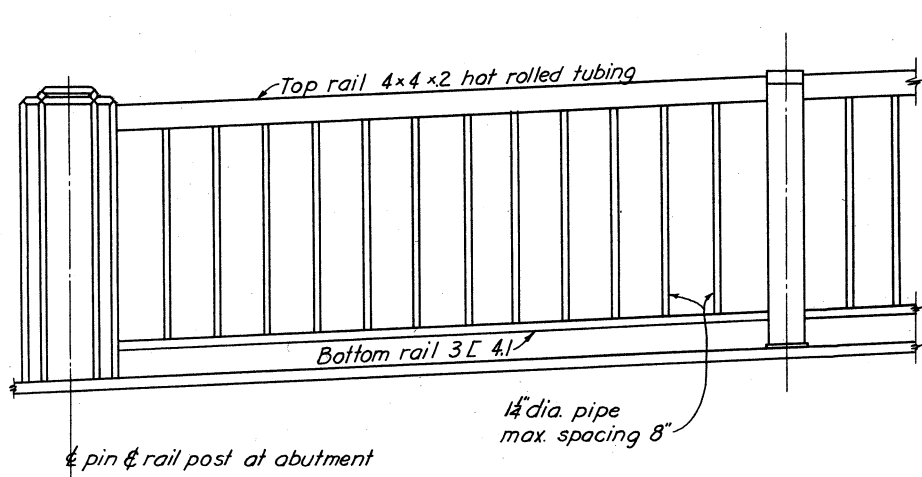
IN 147 SHEETS SHEET NO. 94 SCALE: $\frac{3}{4}'' = 1'-0''$

U. S. ENGINEER OFFICE. HUNTINGTON, W. VA., SEPT. 1940

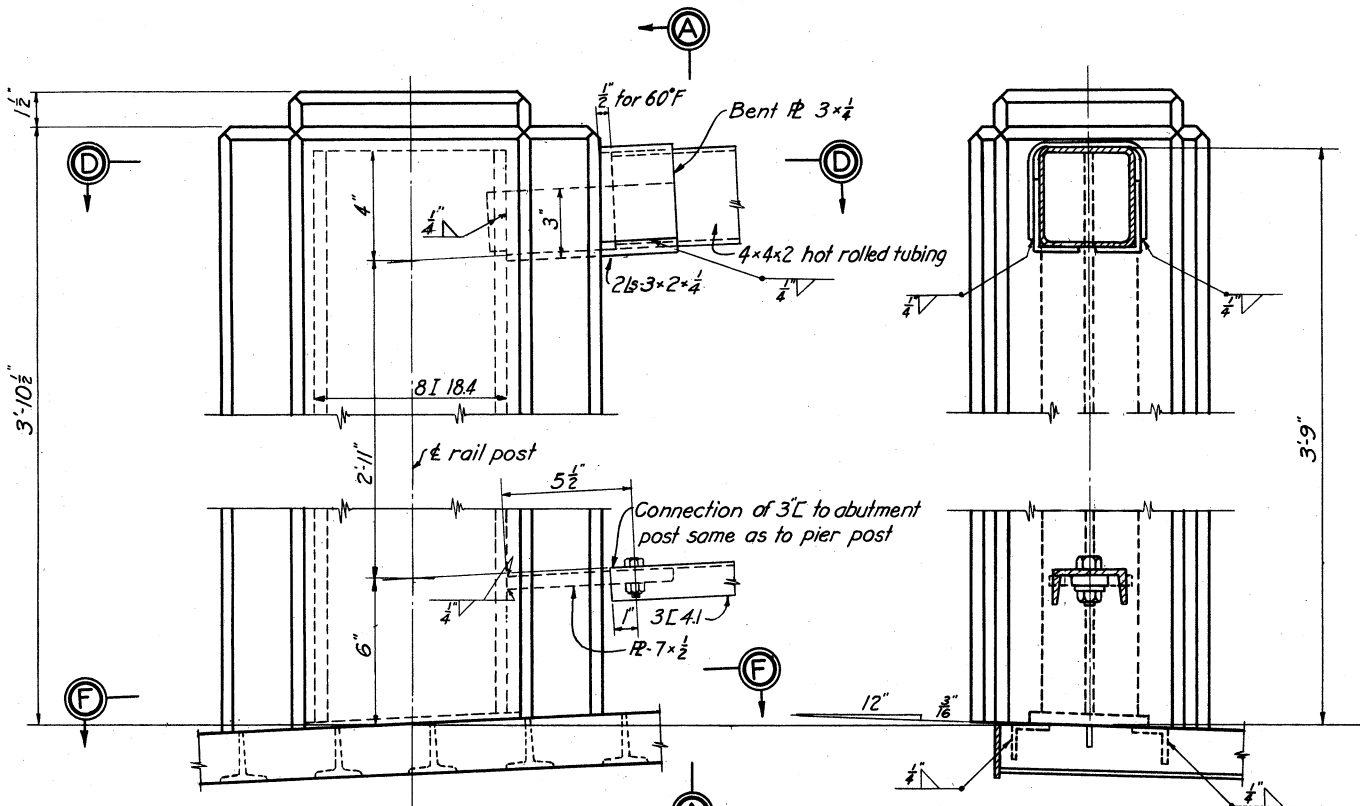
SUBMITTED: Wm. Perkins..... APPROVED: J. F. ...
PRINCIPAL ENGINEER LT. COL. CORPS OF ENGINEERS

DRAWN BY A. W. S. TRANSMITTED WITH LETTER
TRACED BY H. C.
CHECKED BY H. U. B. FILE NO. 0271-PM-68/12 DATED

BY	DATE	CHARACTER
		REVISIONS

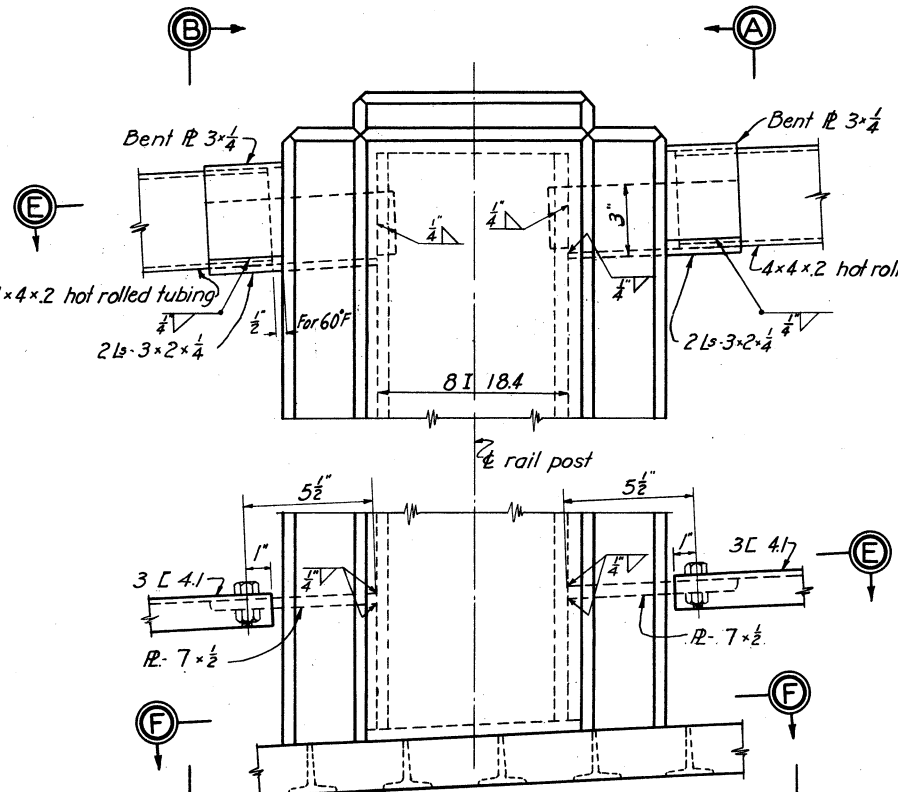


TYPICAL RAILING PANELS
SCALE: 3/4"=1'-0"

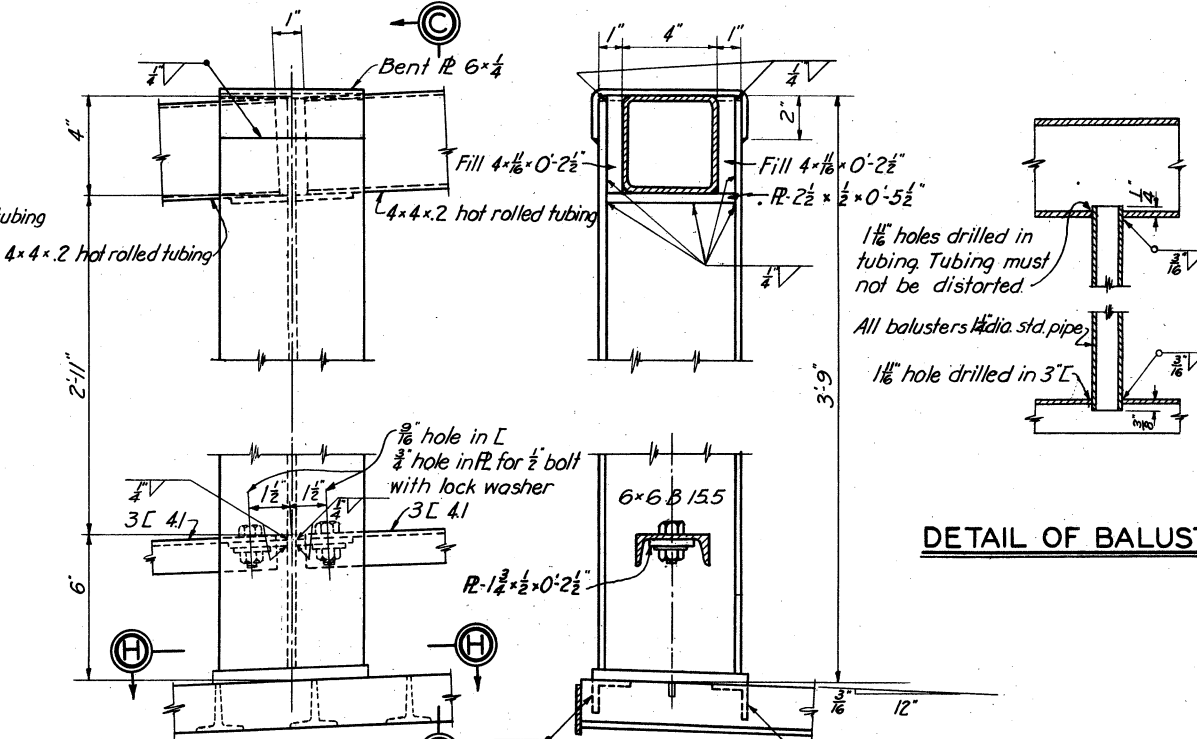


CONCRETE RAIL POST AT ABUTMENT

SECTION A-A AS SHOWN
SECTION B-B OPP. HAND



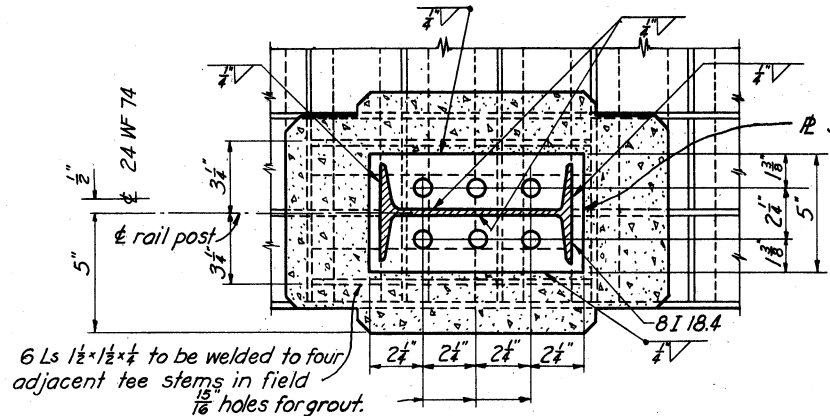
CONCRETE RAIL POST AT PIERS



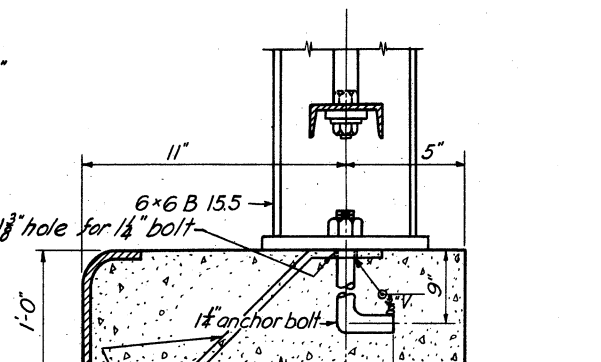
INTERMEDIATE RAIL POST

SECTION C-C

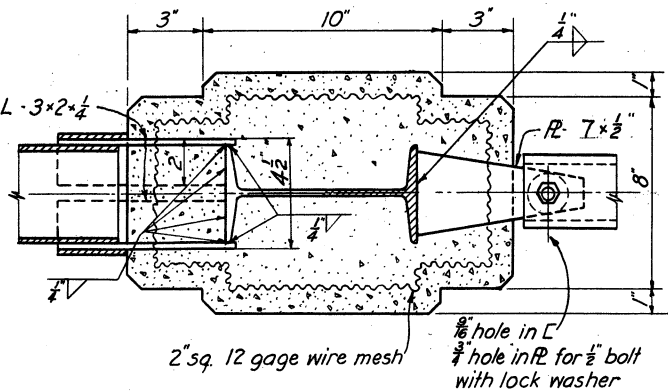
DETAIL OF BALUSTERS



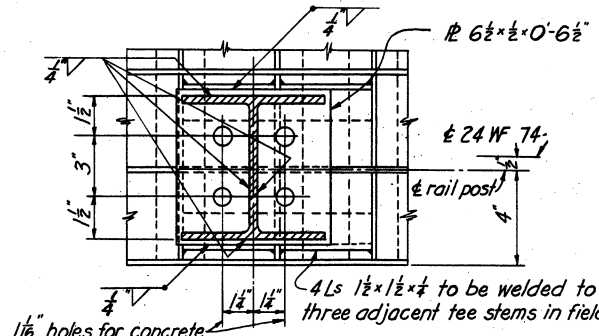
SECTION F-F



INTERMEDIATE RAIL POST
DOWNSTREAM SIDE



SECTION E-E



SECTION H-H

CONCRETE RAIL POST AT PIERS
DOWNSTREAM SIDE

NOTES

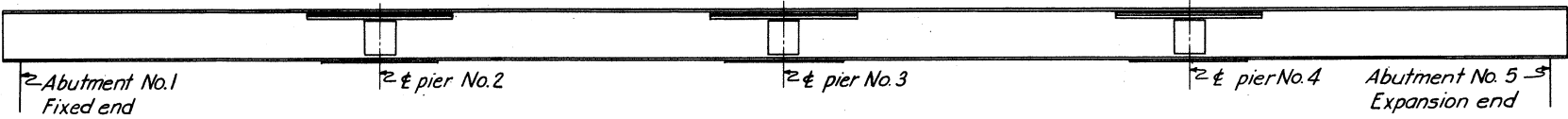
Material for railing to be structural steel.
Steel railing posts are to be welded in place before sidewalk slab is poured.
All railing posts shown are for upstream side except as noted.
Railing posts to be beveled to take care of sidewalk slope and grade of roadway.
Concrete for railing posts to be Class "A".

TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
CHERRY ROAD VIADUCT
RAILING DETAILS

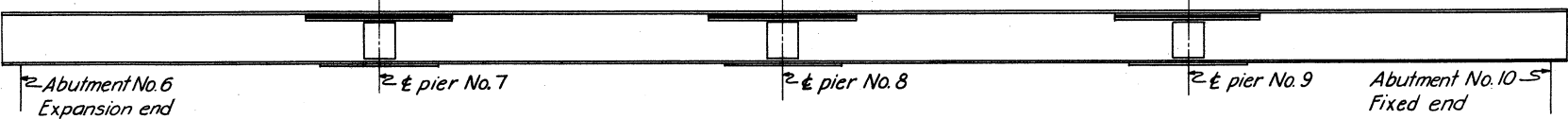
IN 147 SHEETS SHEET NO. 95 SCALE: 3/4"=1'-0"

U. S. ENGINEER OFFICE. HUNTINGTON, W. VA., SEPT. 1940
SUBMITTED: [Signature] APPROVED: [Signature]
DRAWN BY: A. J. M. TRANSMITTED WITH LETTER
CHECKED BY: H. U. B. FILE NO. 0271-PM-68/13 DATED

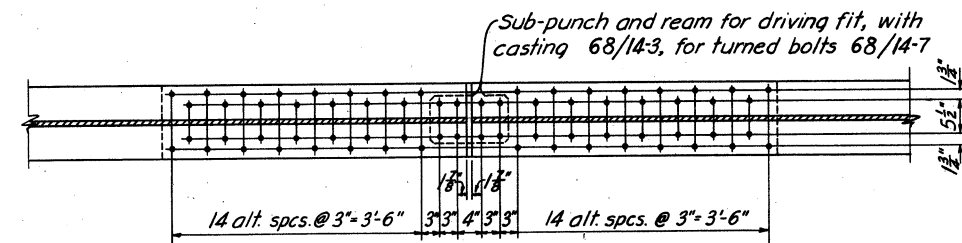
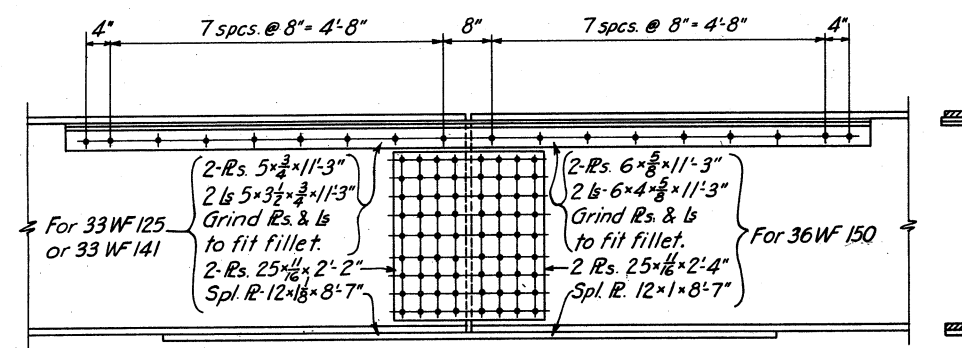
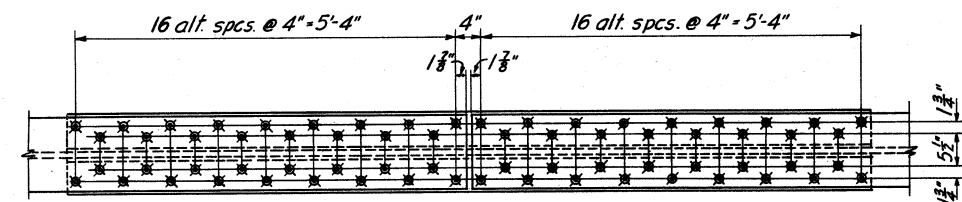
BY	DATE	CHARACTER



SPLICE DIAGRAM-RIVER SPANS

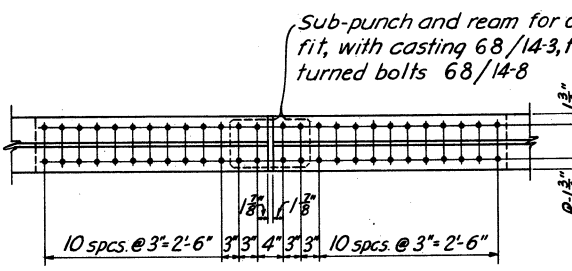
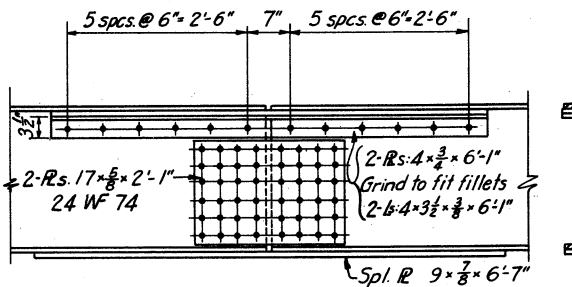
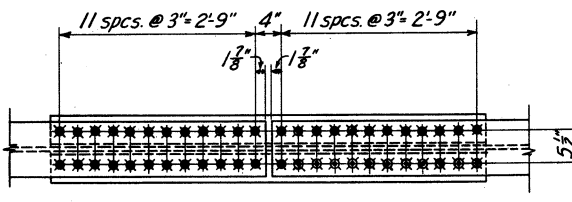


SPLICE DIAGRAM-WEST SPAN



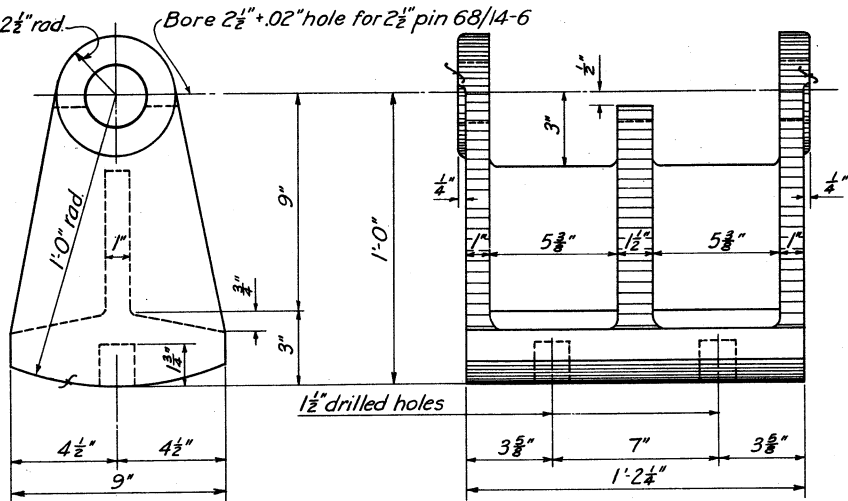
SPLICE FOR ROADWAY STRINGERS

SCALE: 1/4" = 1'-0"



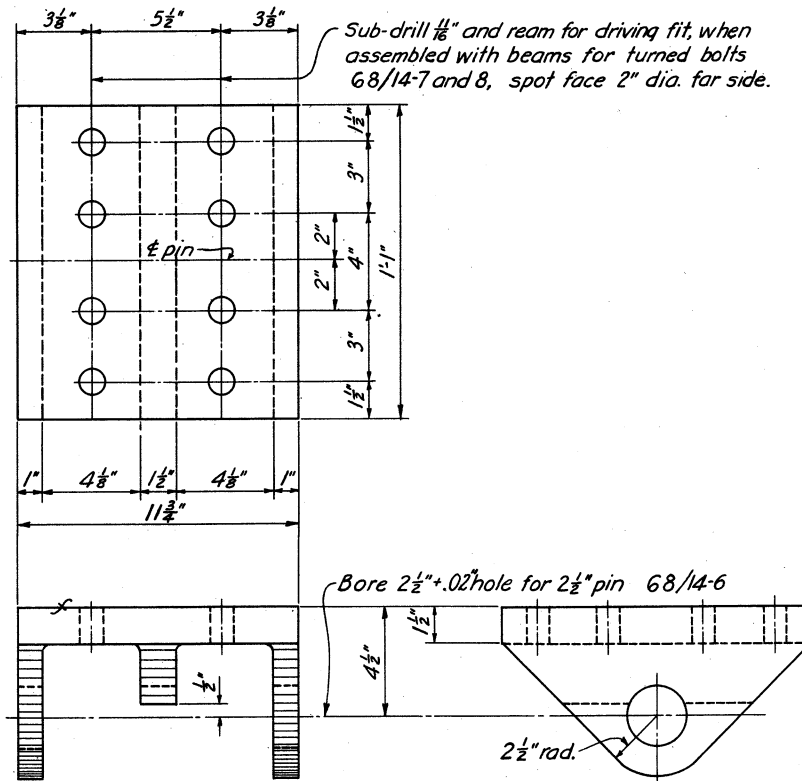
SPLICE FOR SIDEWALK STRINGERS

SCALE: 1/4" = 1'-0"



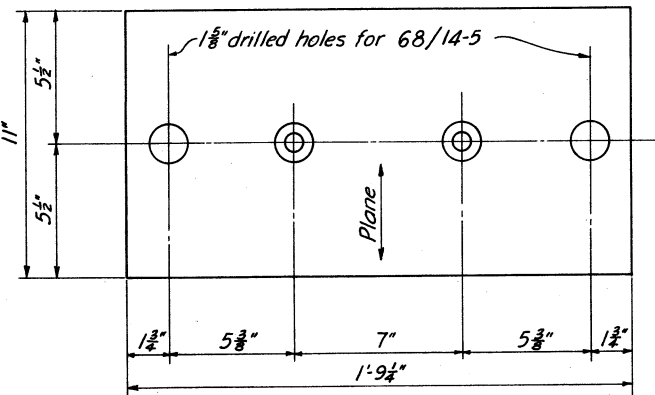
DETAIL OF ROCKER

CAST STEEL CLASS 2 MARK 68/14-1
MAKE 72 WT. 173.0 LBS.



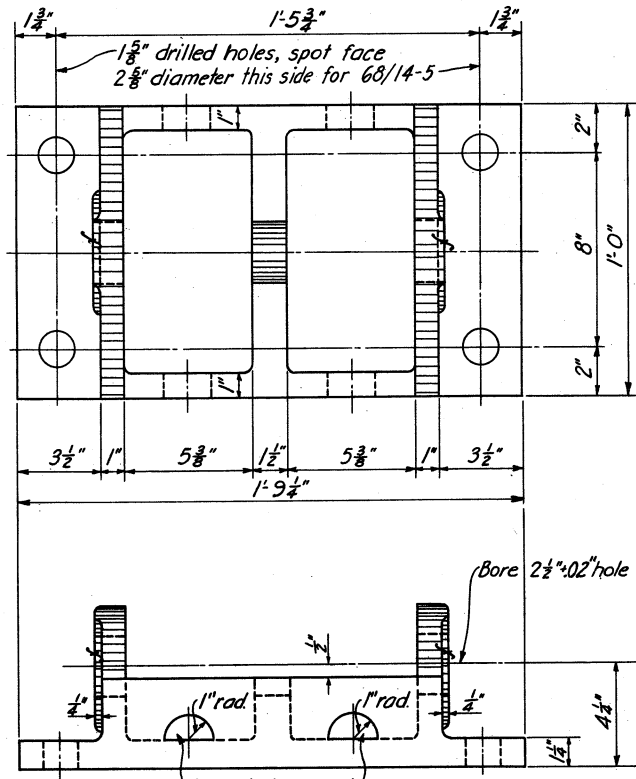
DETAIL OF UPPER SHOE

CAST STEEL CLASS 2 MARK 68/14-3
MAKE 90 WT. 95.0 LBS.



DETAIL OF BASE PLATE

STRUCTURAL STEEL MARK 68/14-2
MAKE 72 WT. 131.0 LBS.

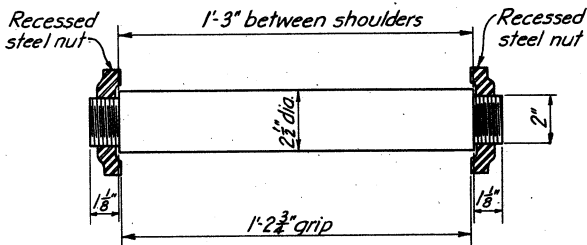


DETAIL OF BOLSTER

CAST STEEL CLASS 2 MARK 68/14-4
MAKE 18 WT. 145.0 LBS.

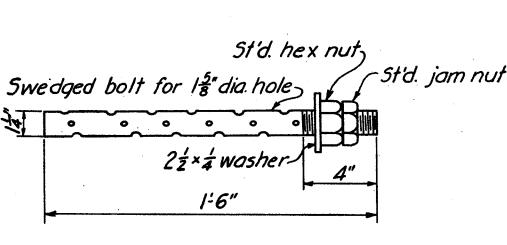
NOTES

7/8" rivets for girder splices
Casting fillets are 3/8" rad. unless noted.



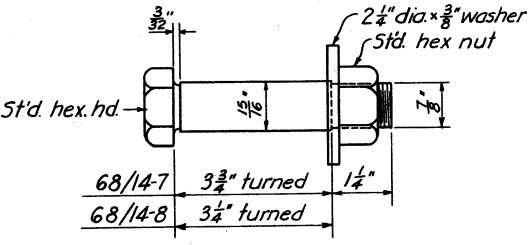
DETAIL OF PIN

COLD ROLLED STEEL WITH RECESSED STEEL NUT
MARK 68/14-6 COLD ROLLED STEEL WT. 26.9 LBS.
MAKE 90 RECESSED STEEL NUTS WT. 4.0 LBS.



DETAIL OF ANCHOR BOLT

STRUCTURAL STEEL MARK 68/14-5
MAKE 216 WT. 7.8 LBS.



DETAIL OF TURNED BOLT

STRUCTURAL STEEL
MARK 68/14-7 MAKE 640 WT. 1.83 LBS.
MARK 68/14-8 MAKE 80 WT. 1.72 LBS.
SCALE: 6" = 1'-0"

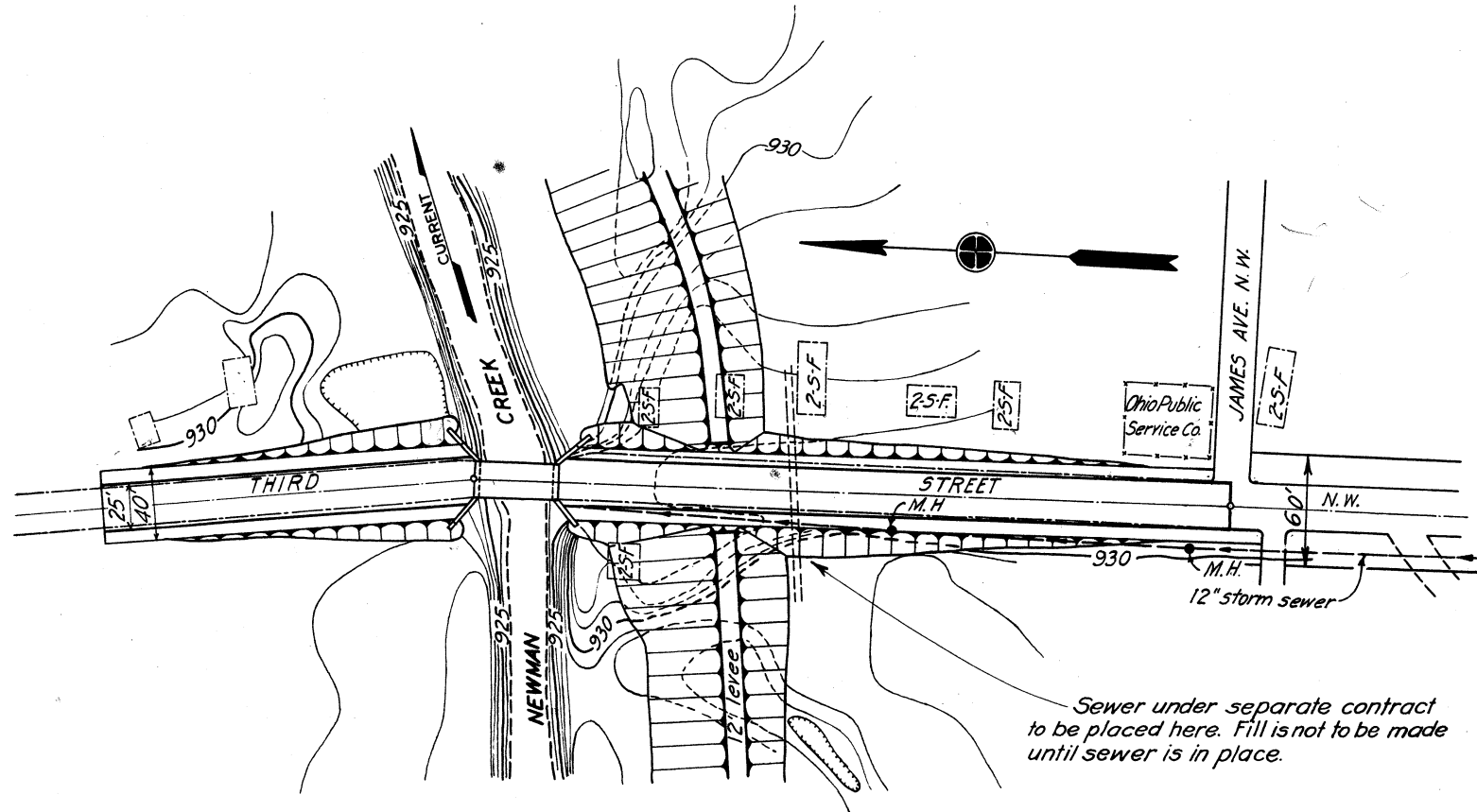
APPROVED:
THE BALTIMORE AND OHIO RAILROAD CO.
BY: CHIEF ENGINEER
APPROVED:
THE PENNSYLVANIA RAILROAD CO.
BY: CHIEF ENGINEER - CENTRAL REGION

TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
CHERRY ROAD VIADUCT
CASTINGS & SPLICES

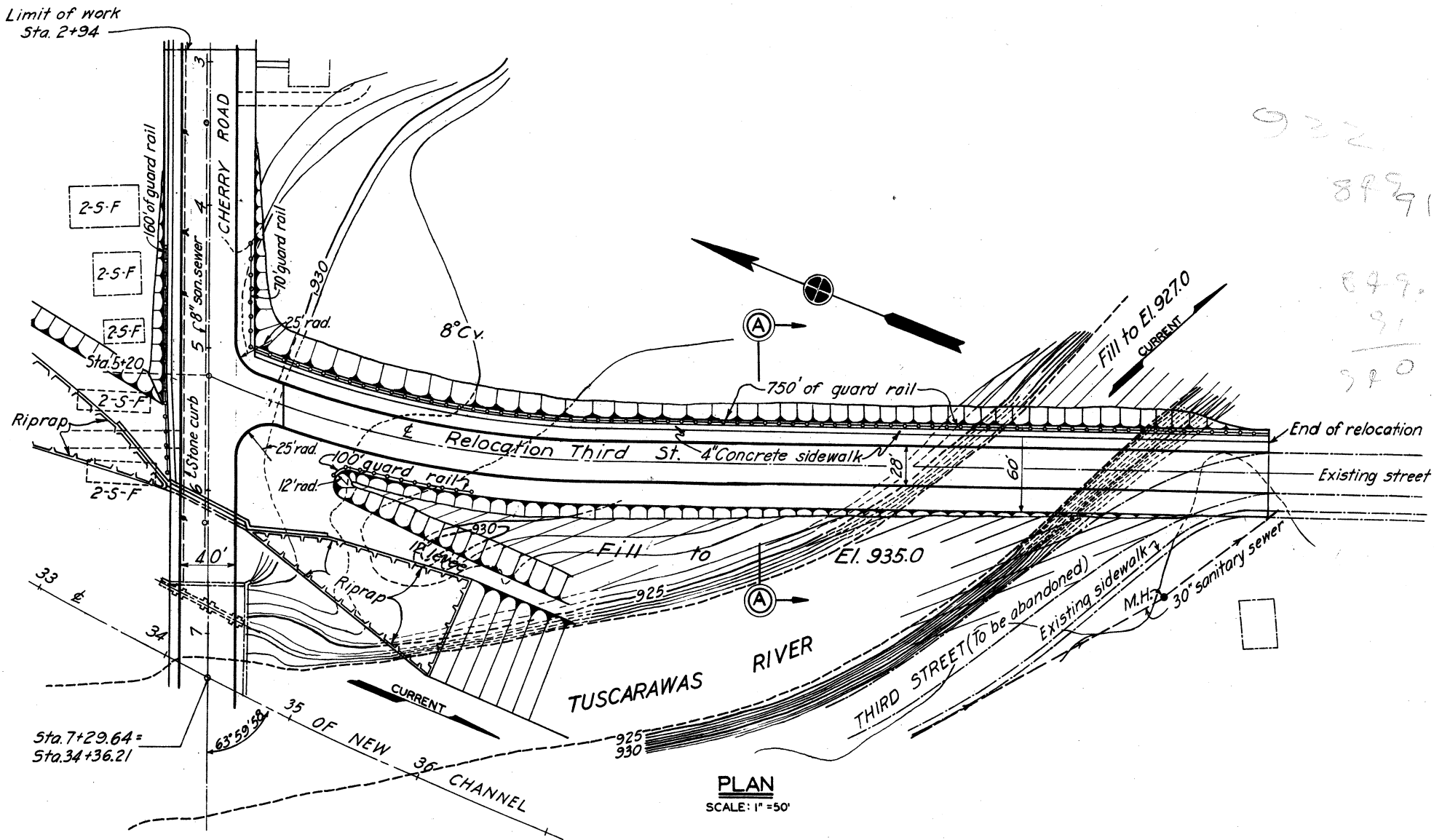
IN 147 SHEETS SHEET NO. 96 SCALE: 3" = 1'-0"

U. S. ENGINEER OFFICE. HUNTINGTON, W. VA., SEPT. 1940

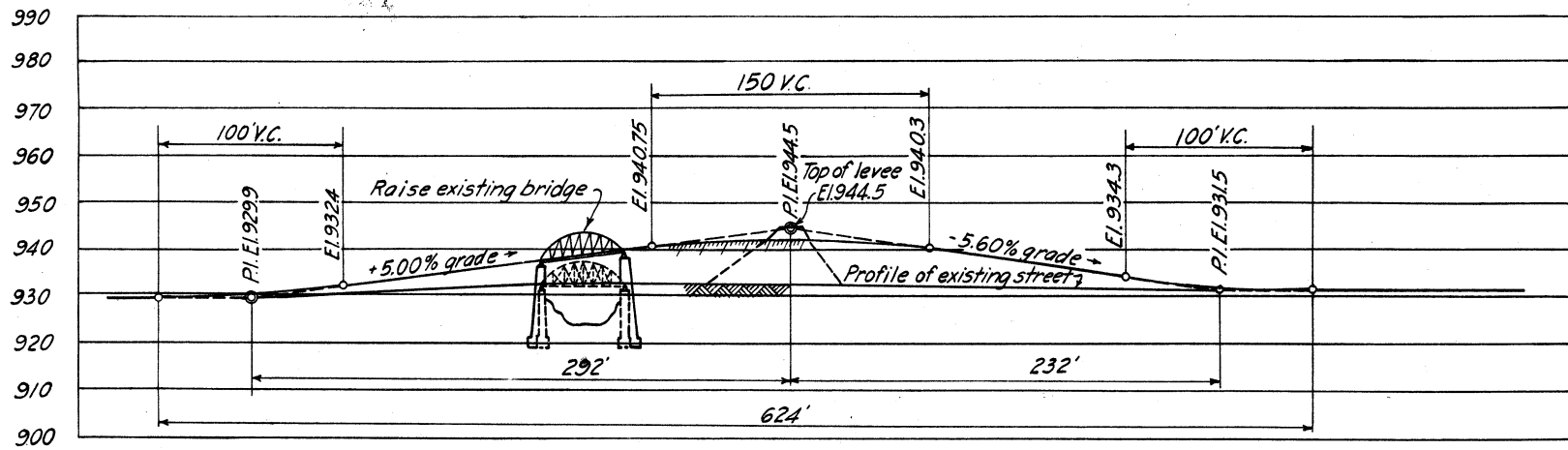
SUBMITTED BY: N. W. L. APPROVED BY: J. C. COL. CORPS OF ENGINEERS
DRAWN BY: A. R. K. TRANSMITTED WITH LETTER
CHECKED BY: H. U. S. FILE NO. 0271-PM-68/14 DATED



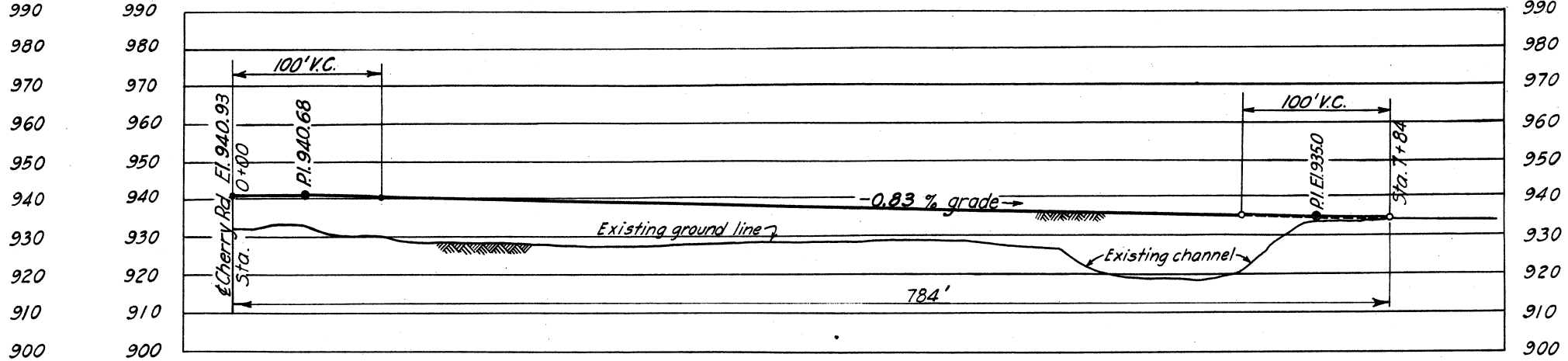
PLAN
SCALE: 1" = 50'



PLAN
SCALE: 1" = 50'



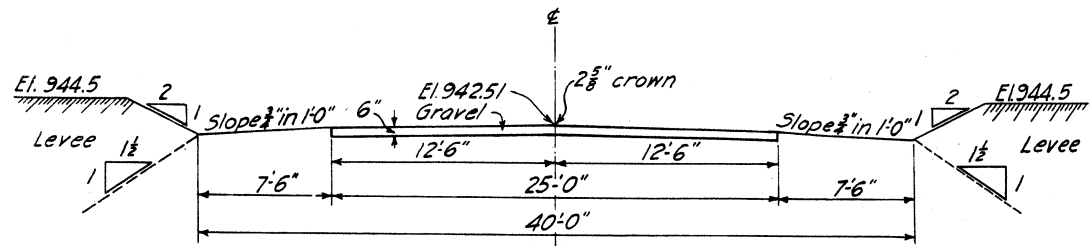
PROFILE ON C. OF STREET
HOR. SCALE: 1" = 50'
VERT. SCALE: 1" = 20'



PROFILE ON C. OF RELOCATION
HOR. SCALE: 1" = 50'
VERT. SCALE: 1" = 20'

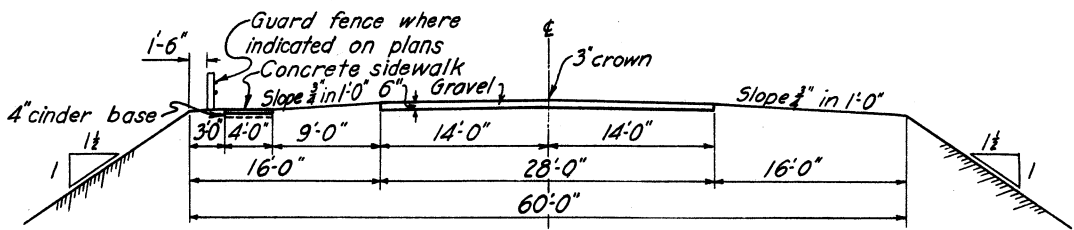
NOTES

For details of raising Third Street bridge over Newman Creek, see Dwg. No. 68/16.
For Cherry Road Viaduct General Plan and Profile, see Dwg. No. 68/1.
For general plans, see Dwg. Nos. 10/2 and 10/3.
For details of pavement return at Cherry Road, see Dwg. No. 68/45.



SECTION ON C. OF LEVEE
SCALE: 1" = 10'

THIRD STREET BRIDGE OVER
NEWMAN CREEK



SECTION A-A
SCALE: 1" = 10'

THIRD STREET RELOCATION AT
CHERRY ROAD

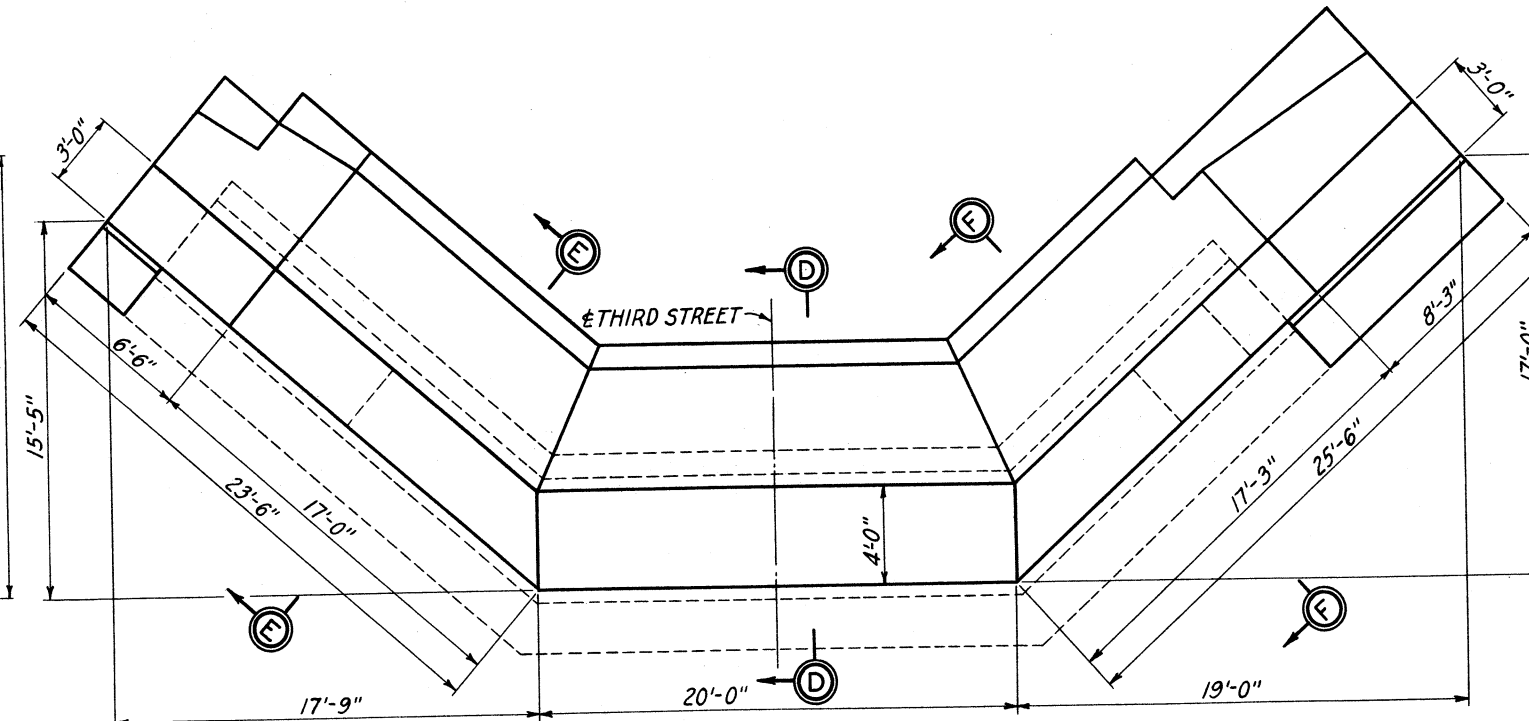
TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
THIRD ST. AT CHERRY RD. & NEWMAN CK.
PLANS & PROFILES

IN 147 SHEETS SHEET NO. 97 SCALE: AS SHOWN

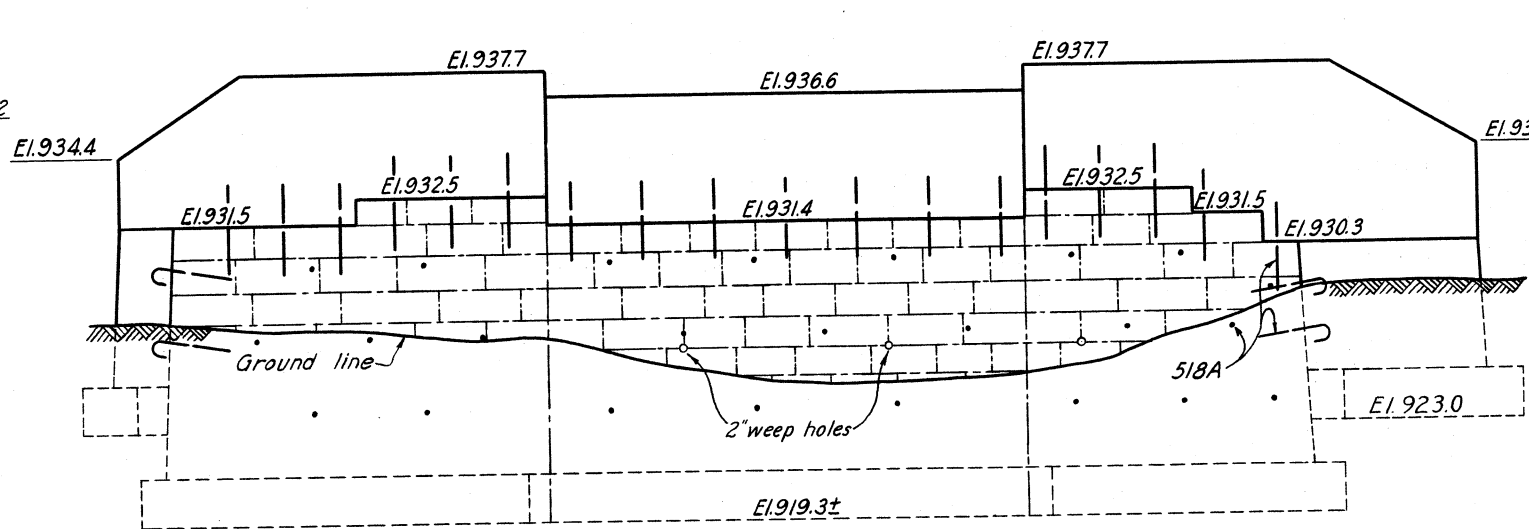
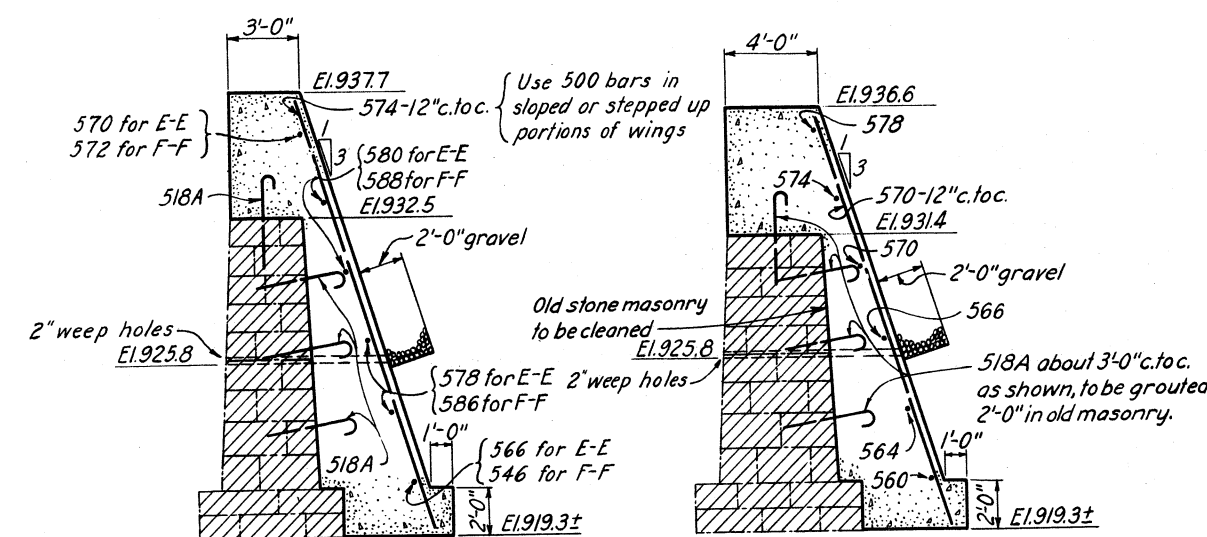
U. S. ENGINEER OFFICE. HUNTINGTON, W. VA., SEPT. 1940

SUBMITTED: [Signature] APPROVED: [Signature]

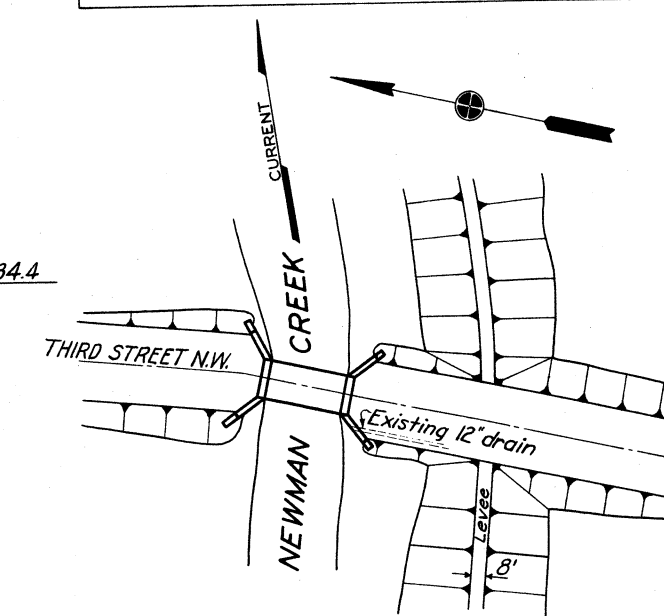
DRAWN BY: H. G. J. TRACED BY: D. R. J. CHECKED BY: D. G. J. FILE NO. 0271-PM-68/15 DATED: [Date]



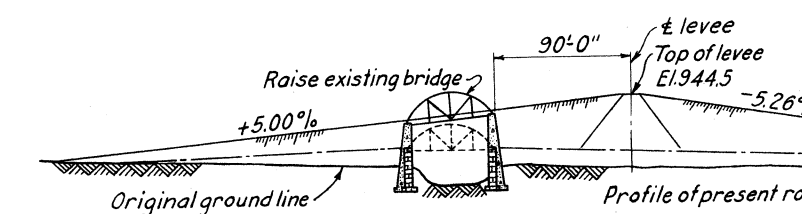
PLAN-NORTH ABUTMENT

ELEVATION-NORTH ABUTMENT

SECTION D-D



SCALE: 1"=50'



SCALE: 1"=5'

Concrete to be Class "B".

IN 147 SHEETS SHEET NO. 98 SCALE: $\frac{1}{4}" = 1'-0"$

U. S. ENGINEER OFFICE HUNTINGTON, W. VA. SEPT. 1940

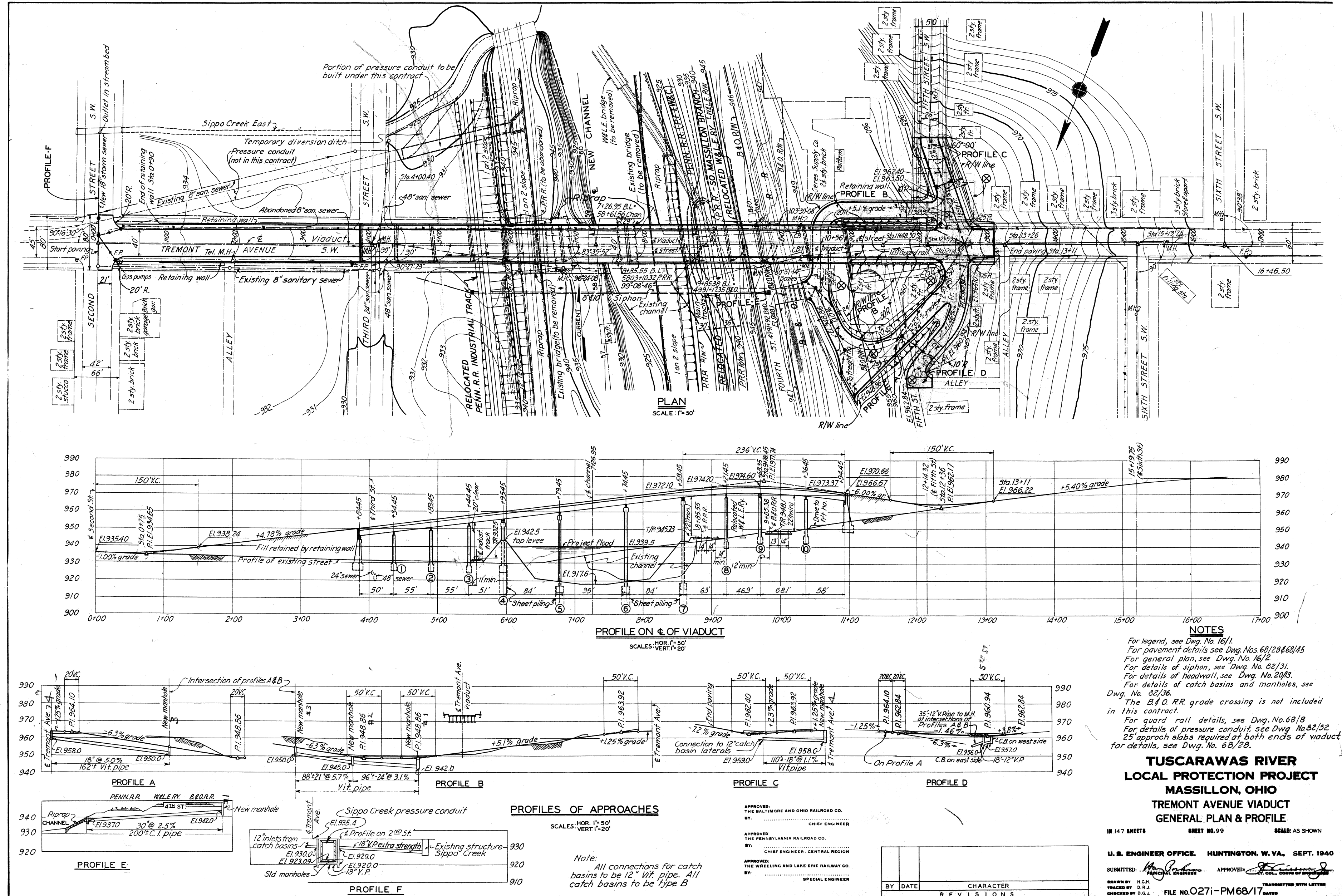
U. S. ENGINEER OFFICE. HUNTINGTON, W. VA. SEPT. 1940

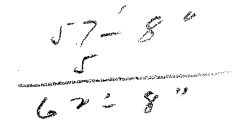
SUBMITTED: Ben Perkins ENGINEER APPROVED: [Signature] ST. COL., CORPS OF ENGINEERS

TRANSMITTED WITH LETTER

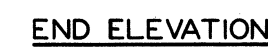
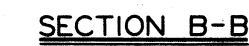
TRACED BY J. G. B. FILE NO. 0271-PM-68/16 DATED

CLASSIFIED BY 61501 PACE WEG/STW/TAM/STW





PLAN



NOTES

*Chamfer all exposed edges 1" unless otherwise noted.
For reinforcing steel, see Dwg. No. 68/19.
For anchor bolt layout, see Dwg. No. 68/30.
For details of 22" wall, see Dwg. No. 68/27.
For location plan, see Dwg. No. 68/17.
For groove detail, see Dwg. No. 68/24.
Concrete to be Class "B."*

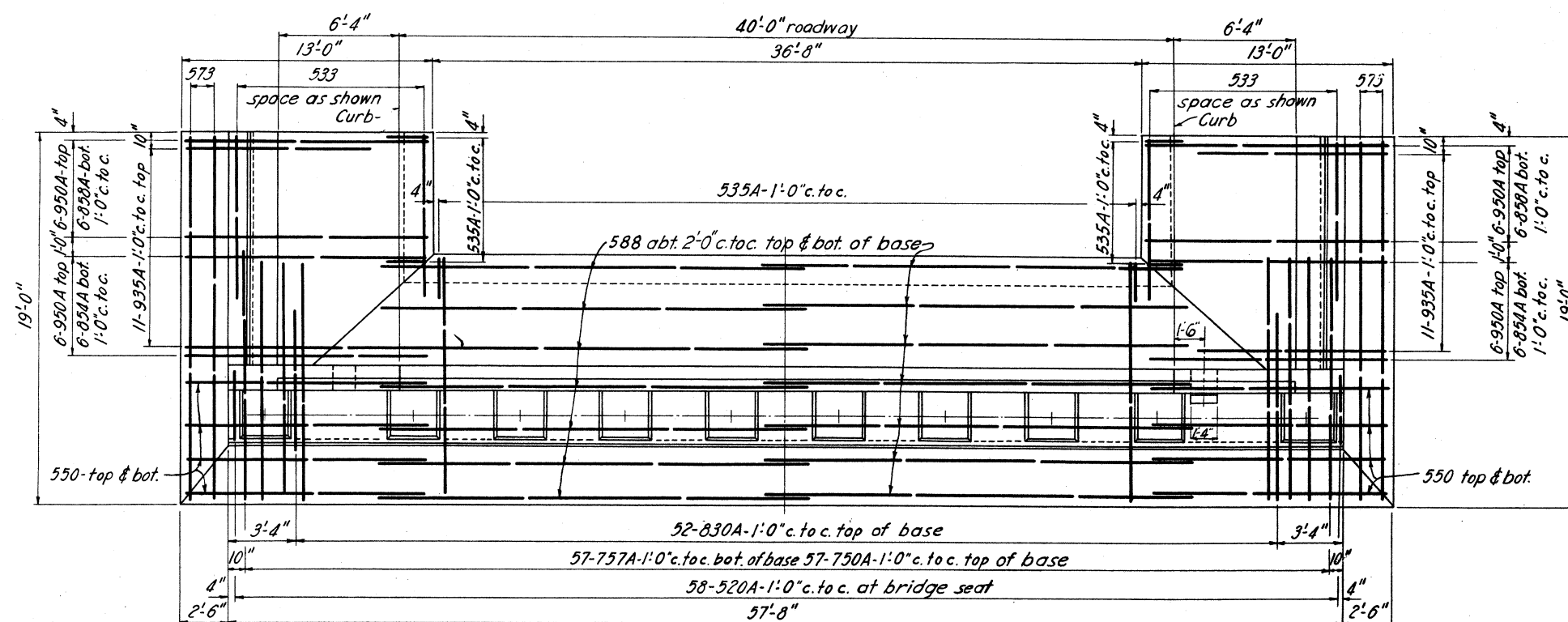
**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
TREMONT AVENUE VIADUCT
EAST ABUTMENT**

IN 147 SHEETS SHEET NO. 100 SCALE: $\frac{1}{4}" = 1' = 0"$

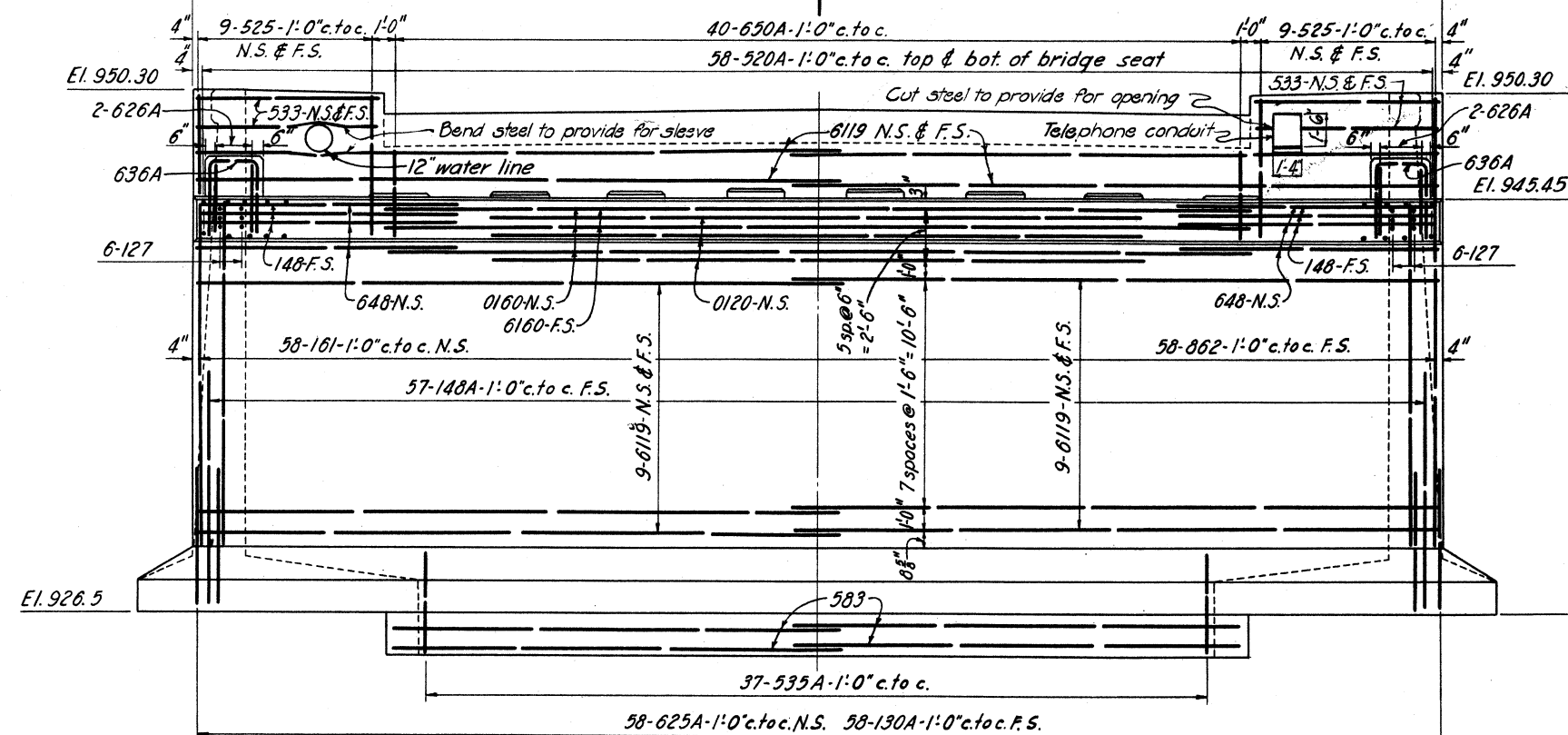
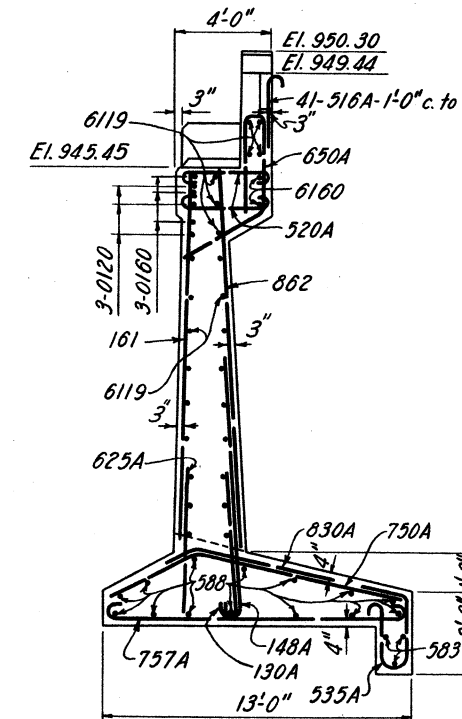
U. S. ENGINEER OFFICE. HUNTINGTON. W. VA., SEPT. 1940

SUBMITTED: Wm. Parker APPROVED: J. H. ...
 MUNICIPAL ENGINEER LT. COL. CORPS OF ENGINEERS

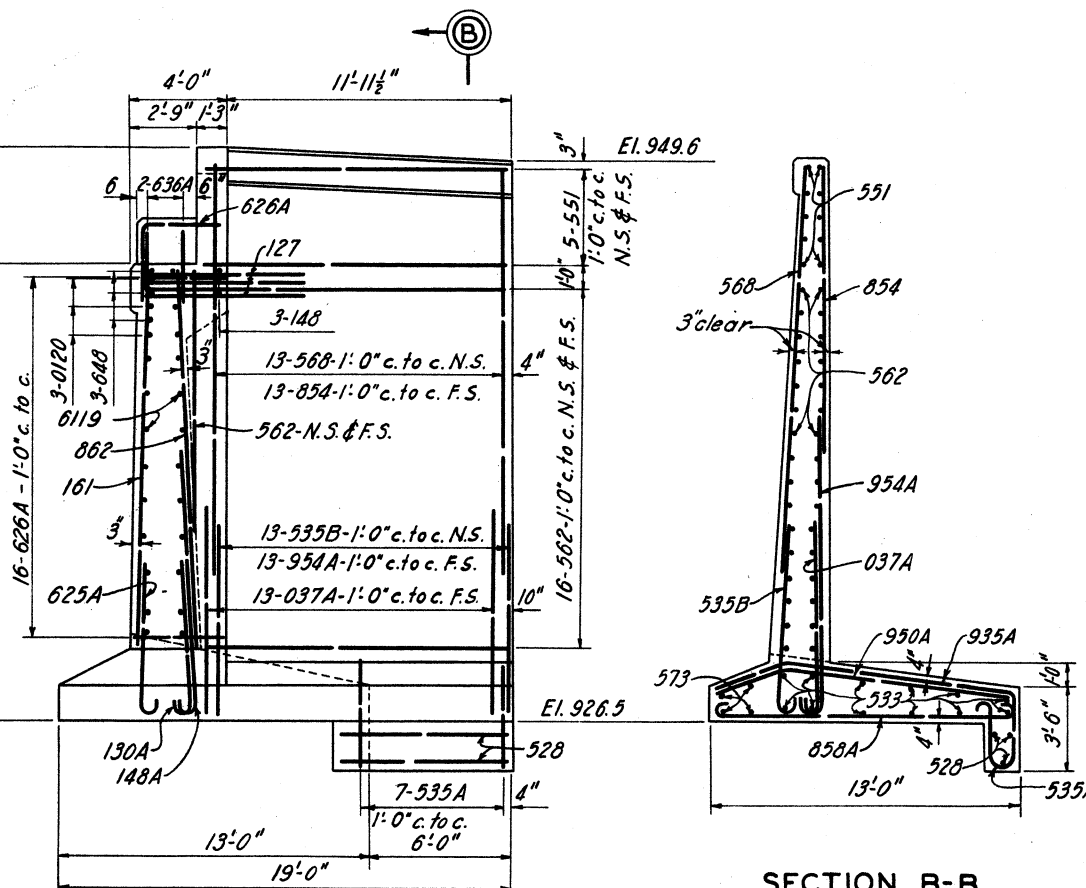
DRAWN BY R. M. C. TRANSMITTED WITH LETTER
TRACED BY E. B. H.
CHECKED BY E. K. FILE NO. 0271-PM-68/18 DATED



PLAN

ELEVATION

SECTION A-A



SECTION B-B

REINFORCING SCHEDULE

MARK	SIZE	L'GTH	BENDING DIAGRAM	NO.	UNIT WT.	TOTAL WT.
516A	3/8"	4'-0"		41	4.17	171
520A	3/8"	5'-0"		116	5.22	1212
525	3/8"	6'-3"		36	6.52	235
528	3/8"	7'-0"		6	7.90	44
533	3/8"	8'-3"		32	8.60	275
535A	3/8"	8'-9"		31	9.13	486
535B	3/8"	8'-9"		26	9.13	237
550	3/8"	12'-6"		16	13.04	209
551	3/8"	12'-9"		20	13.30	266
562	3/8"	13'-6"		64	16.17	1035
568	3/8"	17'-0"		26	17.73	461
573	3/8"	18'-3"		8	19.03	152
583	3/8"	20'-9"		6	21.64	130
588	3/8"	22'-0"		28	22.95	643
625A	3/8"	6'-3"		58	9.39	545
626A	3/8"	6'-6"		36	9.78	351
636A	3/8"	9'-0"		4	13.52	54
648	3/8"	12'-0"		8	18.02	108
648A	3/8"	12'-6"		40	18.78	791
6119	3/8"	29'-3"		30	44.68	2234
6160	3/8"	40'-0"		2	60.08	120
750A	3/8"	12'-6"		57	25.55	1456
757A	3/8"	14'-3"		57	29.13	1660
830A	1"	7'-6"		52	20.03	1042
854	1"	13'-6"		20	36.05	937
854A	1"	13'-6"		12	36.05	433
858A	1"	14'-6"		12	38.72	465
862	1"	15'-6"		58	41.39	2401
127	1"	6'-9"		12	22.95	275
130A	1"	7'-6"		50	25.50	1479
148	1"	12'-0"		6	40.80	245
148A	1"	12'-0"		57	40.80	2326
161	1"	15'-3"		58	51.85	2507
935A	1 1/8"	8'-9"		22	37.65	828
950A	1 1/8"	12'-6"		24	53.79	1291
954A	1 1/8"	13'-6"		26	58.09	1510
937A	1 1/8"	9'-3"		26	49.15	1278
0120	1 1/8"	30'-0"		3	159.39	478
0160	1 1/8"	40'-0"		3	212.52	638
Total						287.1

NOTES

For masonry details, see Dwg. No. 68/18

**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
TREMONT AVENUE VIADUCT
EAST ABUTMENT - REINFORCING DETAILS**

IN 147 SHEETS

SHEET NO. 101

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

U. S. ENGINEER OFFICE. HUNTINGTON. W. VA., SEPT. 1940

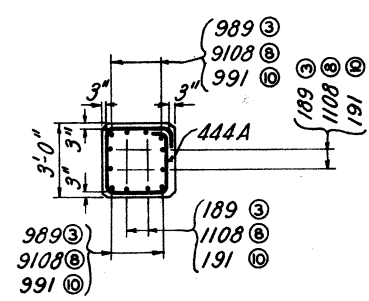
SUBMITTED: Van Buren APPROVED: [Signature]

DRAWN BY R.M.C.
 TRACED BY H.A.E.
 CHECKED BY E.K.

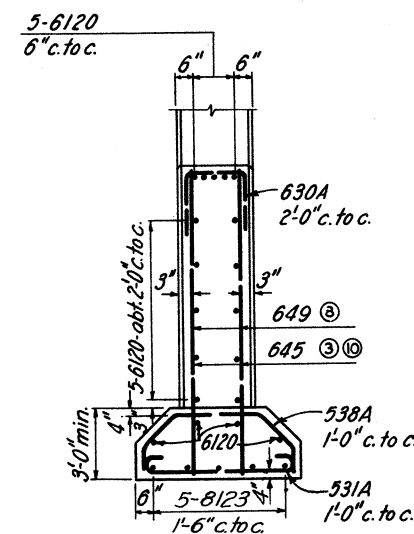
FILE NO. 0271-PM-68/19

TRANSMITTED WITH LETTER
 DATED

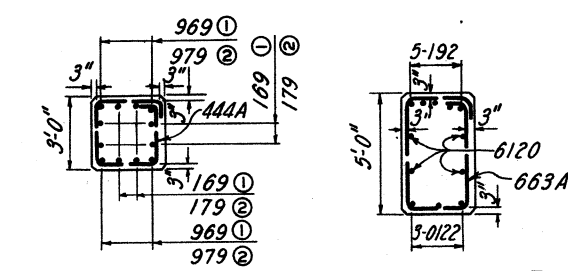
BY	DATE	CHARACTER
REVISIONS		



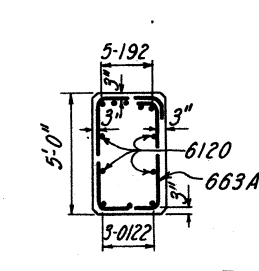
SECTION G-G



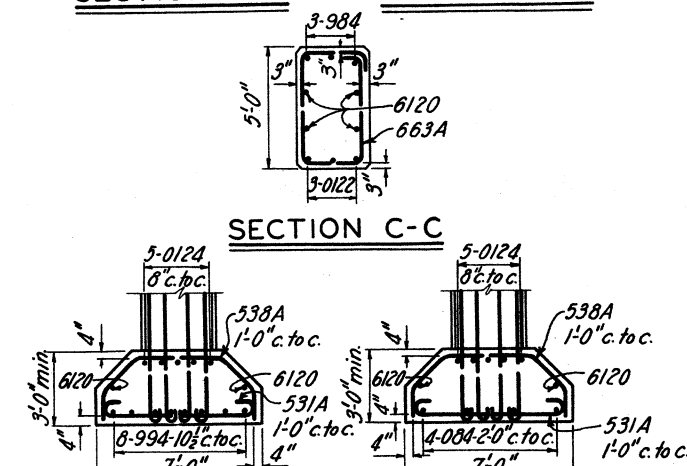
SECTION F-F



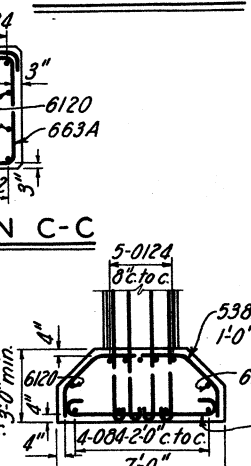
SECTION A-A



SECTION B-B



SECTION D-D



SECTION E-E

APPROVED:
THE BALTIMORE AND OHIO RAILROAD CO.
BY: CHIEF ENGINEER

APPROVED:
THE PENNSYLVANIA RAILROAD CO.
BY:
CHIEF ENGINEER - CENTRAL REGION

APPROVED:
THE WHEELING AND LAKE ERIE RAILWAY CO.
BY: _____
SPECIAL ENGINEER

BY	DATE

CHARACTER	
R E V I S I O N S	

NOTES

Chamfer all exposed edges 1" unless otherwise noted.
For anchor bolt layout, see Dwg. No. 68/30.
For location plan, see Dwg. No. 68/17.
All concrete to be Class "B."

**TUSCARAWAS RIVER
LOCAL PROTECTION PROJECT
MASSILLON, OHIO
TREMONT AVENUE VIADUCT
PIERS NOS. 1, 2, 3, 8 & 10**

IN 147 SHEETS SHEET NO. 102 SCALE: $\frac{1"}{4} = 1'-0"$

U. S. ENGINEER OFFICE. HUNTINGTON, W. VA., SEPT. 1940

SUBMITTED: Ham Barham APPROVED: [Signature]

DRAWN BY R. M. C.
 TRACED BY H. A. E.
 CHECKED BY E. K.

TRANSMITTED WITH LETTER
 DATED

FILE NO 027i-PM-68/20