

BARRY COUNTY ROAD COMMISSION
IN COOPERATION WITH
MICHIGAN STATE HIGHWAY DEPARTMENT
AND
THE BUREAU OF PUBLIC ROADS



PLANS OF PROPOSED
BRIDGE

FEDERAL AID SECONDARY PROJECT MICHIGAN 5900(3)
COUNTY ROAD NO 583
HASTINGS TOWNSHIP
BARRY COUNTY

PLAN INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	GENERAL PLAN OF SITE
3	GENERAL PLAN OF STRUCTURE
4	BILL OF MATERIAL - ALTERNATE "A"
5	ABUTMENT DETAILS
6	PIER BENTS AND STEEL REINFORCEMENT DETAILS
7	SUPERSTRUCTURE AND RAILING DETAILS
8	GENERAL PLAN OF STRUCTURE - ALTERNATE "B"
9	BILL OF MATERIAL - ALTERNATE "B"

GENERAL NOTES

Except where otherwise indicated on these Plans or in the Proposal and Supplemental Specifications contained therein, all materials and workmanship shall be in accordance with the Michigan State Highway Department's Standard Specifications for Road and Bridge Construction, 1950 Edition.

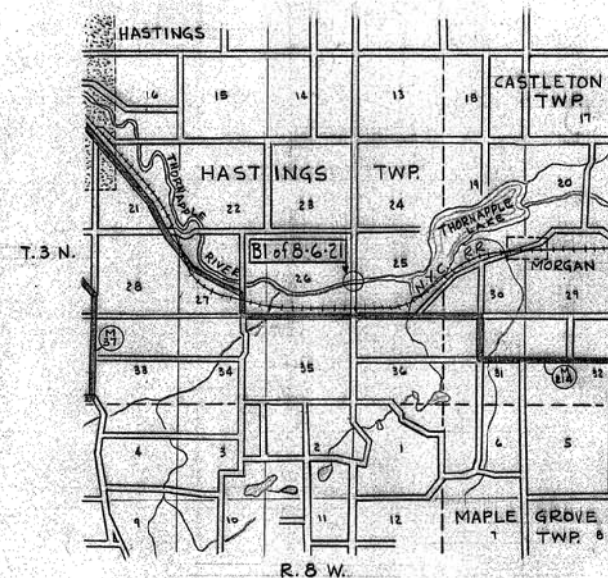
The design of this structure is based on the Michigan State Highway Department's Specifications for the Design of Highway Bridges, 1956 Edition, H20 Loading, Live Load plus impact deflection $\frac{1}{800}$ of span length.

The character of all materials and the extent thereof as shown by borings has been obtained by methods and from sources believed to be reliable. The exactness of this information is, however, in no case guaranteed.

All exposed concrete corners shown square on the plans shall be beveled with $\frac{1}{2}$ " triangular moldings except as otherwise noted.

STANDARD PLANS

SHEET NO.	DESCRIPTION
R4	RAILING, BEVEL AND MOLDING DETAILS
E-4-A-28C	TREATMENT OF PEAT MARSHES



COUNTY APPROVAL

APPROVED _____
COUNTY HIGHWAY ENGINEER DATE

APPROVED _____

STATE HIGHWAY DEPARTMENT APPROVAL

CHARLES M. ZIEGLER
STATE HIGHWAY COMMISSIONER

APPROVED *H.R. Puffer* 5-9-56
BRIDGE ENGINEER DATE

APPROVED *C.D. Weber* 5-9-56
DEPUTY COMMISSIONER - CHIEF ENGINEER DATE

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

APPROVED _____
DISTRICT ENGINEER DATE

SHEET 1 of 9

B1 of B-6-21

WITNESSES TO STA. 27+48.17
(Boat Spike 6' below Rd. Surf.)
8" Tree N 50° E 71.3'
14" Ash S 45° E 58.5'
Hub Stake 33' East
Hub Stake 15' East

Bench Mark "B", El. 797.58
Boat Spike in 16" Walnut
80' Rt. of Sta. 23+03

EXISTING STRUCTURE
124' Span High Truss with 12'3" Clear Rwy.
3" Timber Plank Floor on 3' & 4' Dia. Caissons.

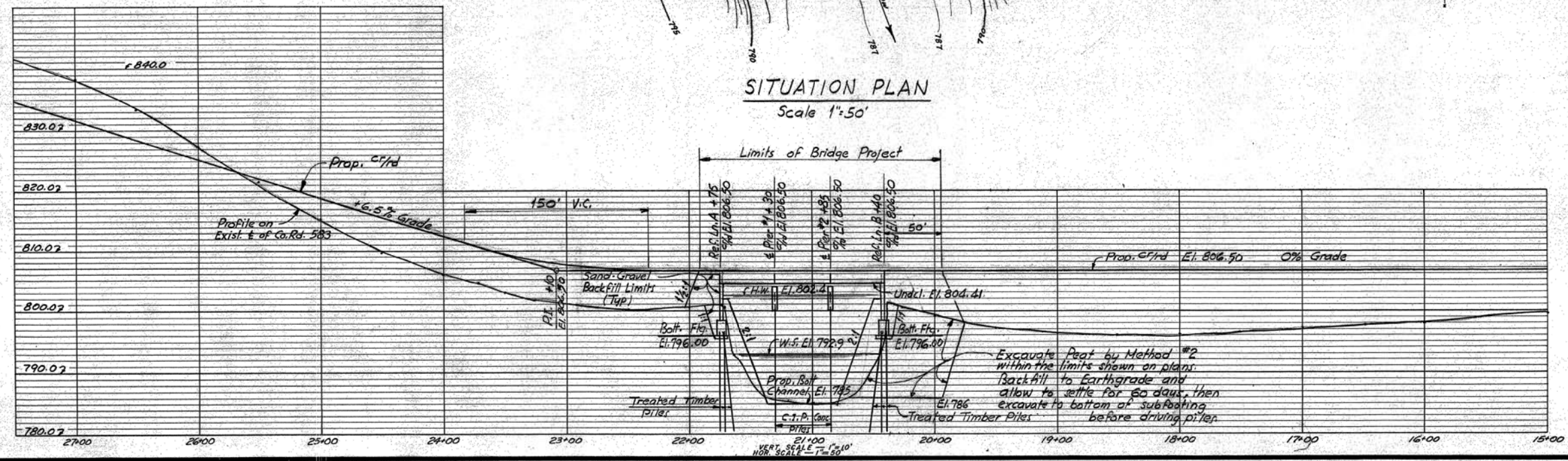
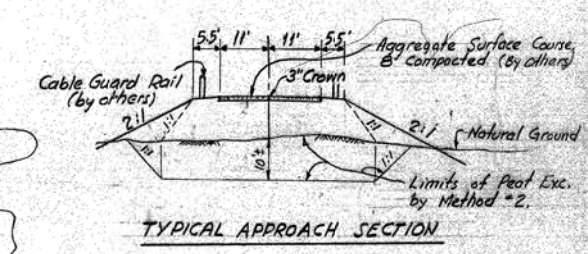
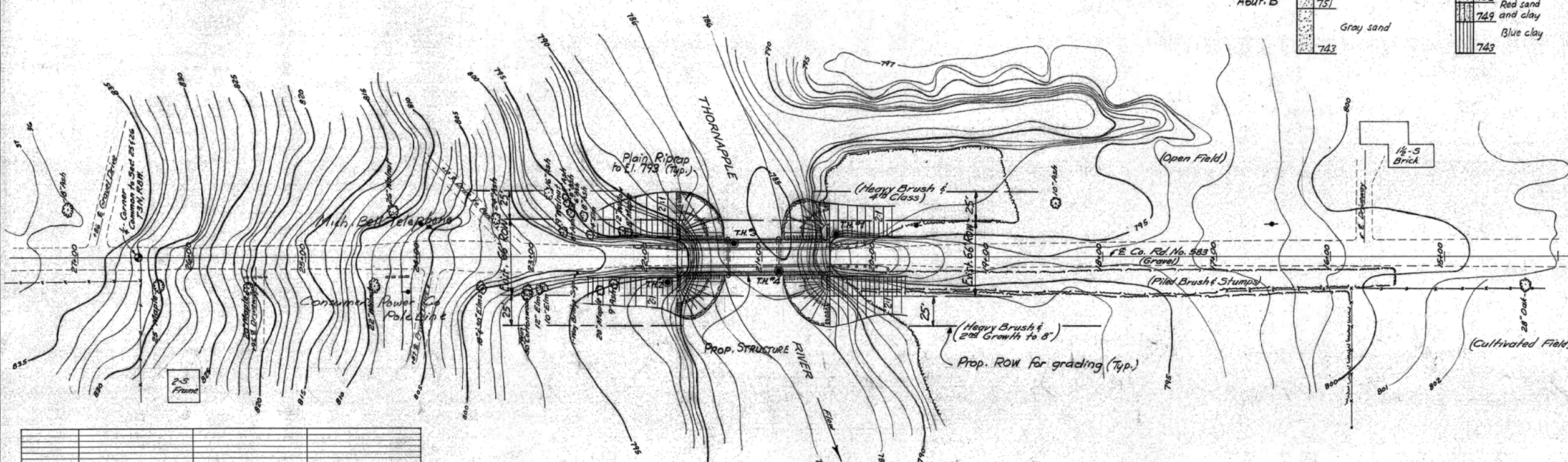
Bench Mark #2, El. 796.31
Spike in roof of 10" Ash
45' Rt. of Sta. 18+45

Bench Mark "A", El. 803.48
Boat Spike in roof of 24" Oak
25' Lft. of Sta. 14+29

WITNESSES TO STA. 13+00
(Boat Spike 6' below Rd. Surf.)
Tack in Hub Stake 25' Left
Tack in Hub Stake 33' Right



T.H. #1	T.H. #2	T.H. #3	T.H. #4
793 Muck	792 Muck and Peat	785.5 Sediment and peat	785.5 Muck and sediment
786 Peat	785 Sand	782 Sand and gravel	782 Sand and gravel
778 Peat and fine gray sand	780 Coarse sand and gray gravel	779 Fine sand and fine gravel	777.5 Sand and fine gravel
773 Peat and fine gray sand	776 Ditto	773 Sand and fine gravel	771.5 Ditto
770 Fine sand and gravel	767 Fine gray sand	767.4 Sand and fine gravel	767.5 Ditto
764 Sand and gravel	762 Sand and fine gravel	762.4 Sand and fine gravel	762.5 Ditto
761 Sand and fine gravel	761 Hard Pan gravel	757.6 Fine to coarse gravel	757.5 Ditto
757 Red sand	752 Red sand	755 Clay	750 Fine gravel
751 Gray sand	749 Red sand and clay	751 Clay	746 Clay with some sand
743	743 Blue clay	748 Red sand	742 Red sand
		743 Gray sand	



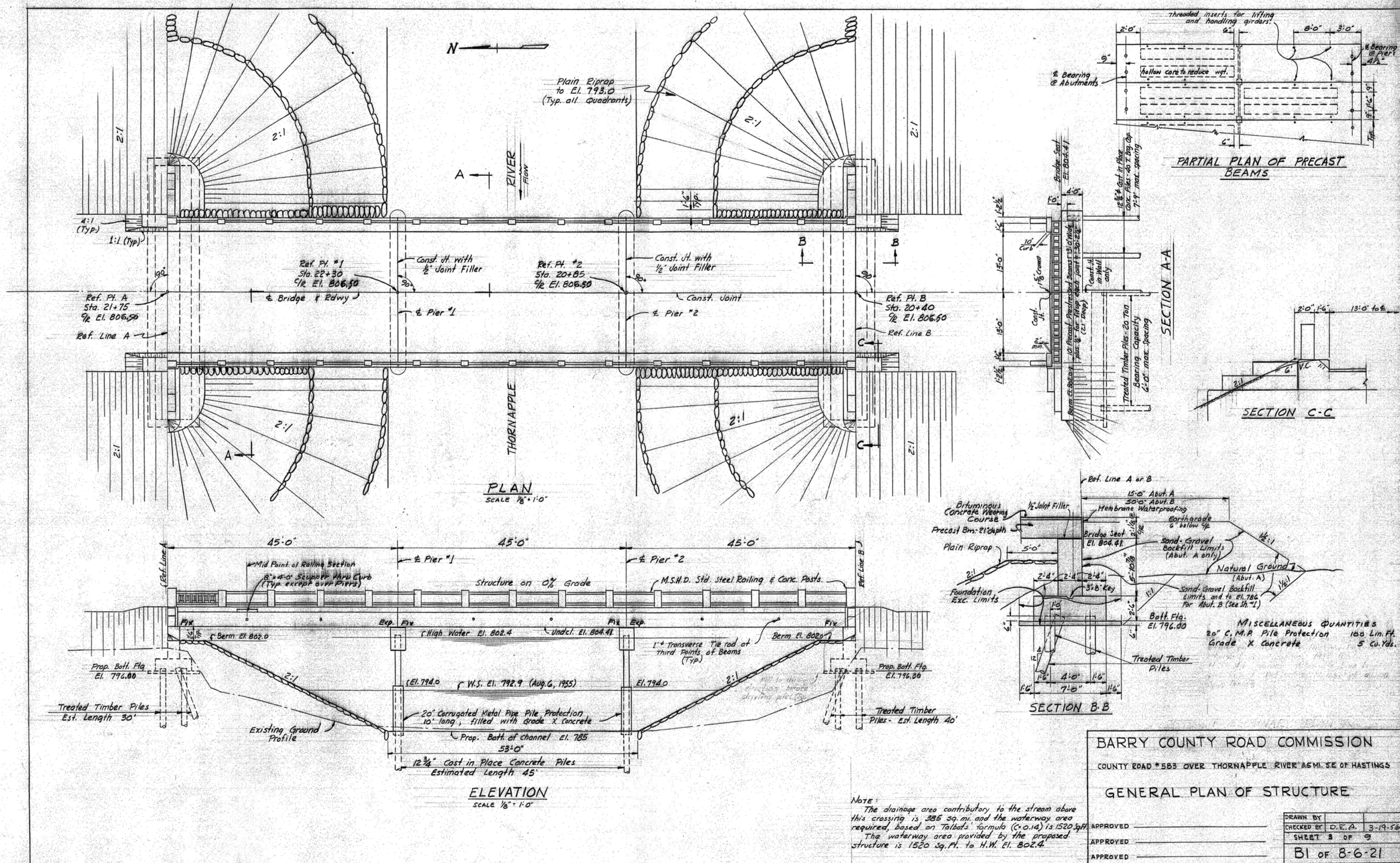
NOTES:
This contract includes the removal of existing structure;
the construction of proposed structure; placing Sand-Gravel
Backfill in front of Abutments and plain riprap
as shown on plans.

BARRY COUNTY ROAD COMMISSION
BRIDGE CROSSING THORNAPPLE RIVER, 3.5 MILES SOUTHEAST OF
HASTINGS ON COUNTY ROAD NO. 583 & LINE COMMON TO
SECTIONS 25 & 26, T3N, R8W, HASTINGS TOWNSHIP,
BARRY COUNTY, MICHIGAN.

GENERAL PLAN OF SITE

DRAWN BY J. J. R.	11-8-55
TRACED BY D. E. A. / 107	11-16-55
CHECKED BY	
SHEET 2 OF 9	
B1 OF 8-6-21	

APPROVED _____
APPROVED _____
APPROVED _____



BILL OF MATERIAL

ITEM	UNIT	AMOUNT	DATE AUTH.										TOTAL
			1-2-57	1-23-57	1-25-57	2-7-57	1-29-57	2-7-57	2-7-57	2-7-57	2-7-57	2-7-57	
			Auth A	B	C	D	E	F	G	H	I	J	
			0101	0103	0104	0105	0106	0107	0108	0109	0110	0111	
Removal of Existing Structures	Lump Sum	Lump Sum											
Earth Excavation	Cu. Yds.	2,800									-62		2108
Unclassified Excavation	Cu. Yds.	350									-223		127
Treated Timber Piles - Furnished	Lin. Ft.	1,940											2023
Treated Timber Piles - Driven	Lin. Ft.	1,820											1666
Cut off - Treated Timber Piles	Each	52											52
Cast In-Place Concrete Piles - Furnished	Lin. Ft.	486											602
Cast In-Place Concrete Piles - Driven	Lin. Ft.	450											587
Cut Off - Cast In-Place Concrete Piles	Each	10											12
20' Corrugated Metal Pipe Pile Protection	Lin. Ft.	100											100
Grade X Concrete	Cu. Yds.	5											5
Grade A Concrete - Substructure	Cu. Yds.	157.4											157.4
Precast - Prestressed Concrete Deck	Sq. Ft.	4,050											4050
Grade A Concrete - Superstructure	Cu. Yds.	24.8											24.8
Cement	Bbls.	275											280
Steel Reinforcement	Lbs.	9,327											9327
Bridge Railing - Furnishing, Erecting and Painting	Lin. Ft.	270											270
1/2" Joint Filler	Sq. Ft.	244											244
3/4" Joint Filler	Sq. Ft.	146											146
Joint Waterproofing	Sq. Ft.	150											150
Membrane Waterproofing	Sq. Ft.	56											56
Rubbed Surface Finish	Sq. Ft.	1,390											1390
Bituminous Bond Coat	Gals.	60											60
Bituminous Concrete Wearing Course	Tons	45											56
Sand-Gravel Backfill (Loose Measure)	Cu. Yds.	5,850											6415
Channel Excavation	Cu. Yds.	100											100
Plain Riprap	Sq. Yds.	850											1070

PLAN EXTRAS

DATE	AUTH.	DESCRIPTION	UNIT	QUANTITY	
				ESTIMATED	FINAL
8-14-56	IL-03062	Nearby Piles 12"x14"x146'	2	LUMP	50m
1-29-57	E-02001	Welding Extra Lengths to Steel Tubes	Each	12	12
2-8-57	E-02002	Added Grout to Rip Rap	Sq. Yds	470	470
2-7-57	E-02003	Construction of Earthfill to Approach	Sq. Yds	5132	5132

Balanced by E.K. 3-5-57
 Checked by M.Kown 3-5-57

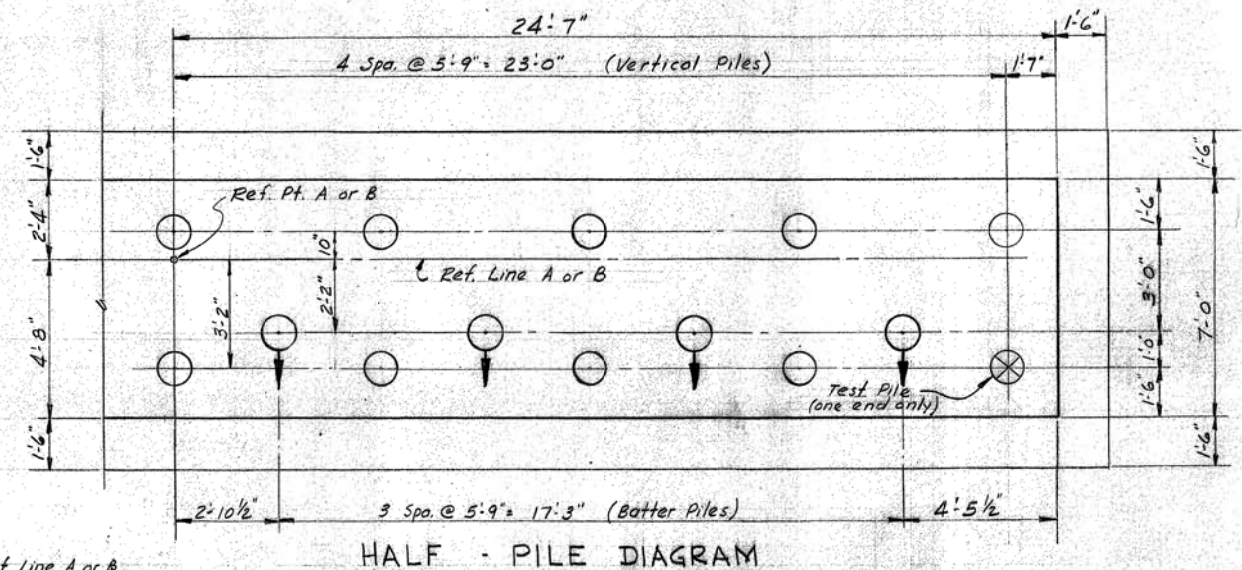
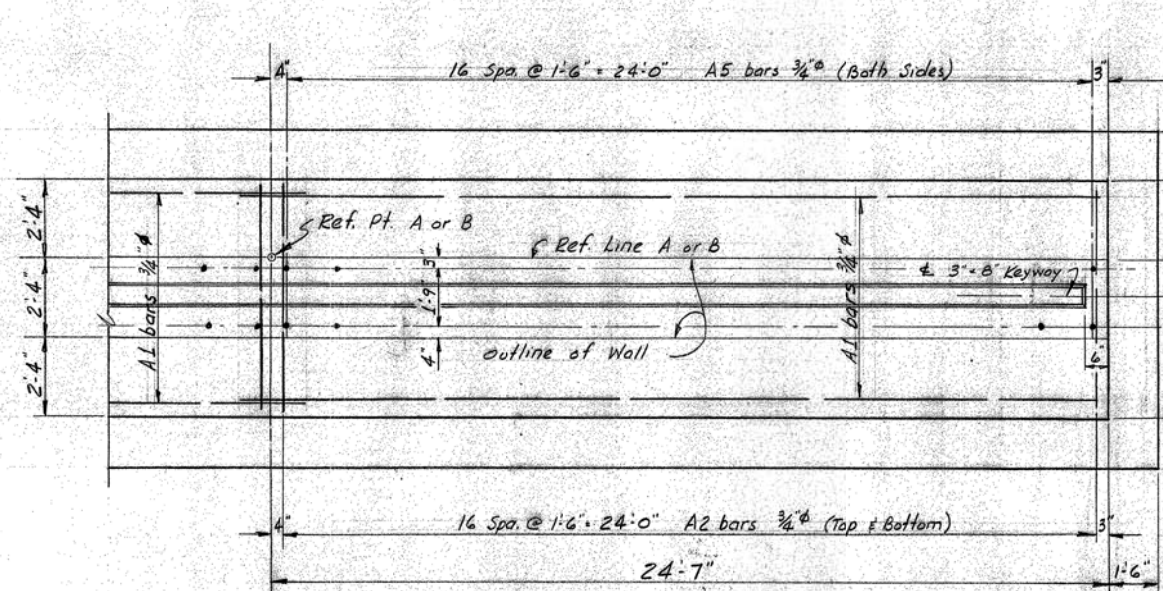
BARRY COUNTY ROAD COMMISSION

COUNTY ROAD # 583 OVER THORNAPPLE RIVER 3.5 MI. S.E. OF HASTINGS

BILL OF MATERIAL
 ALTERNATE 'A'

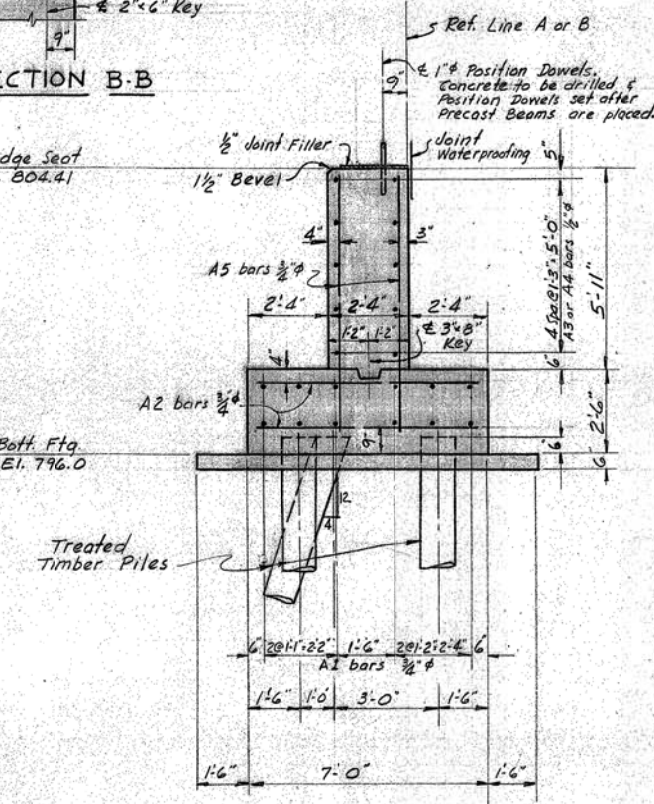
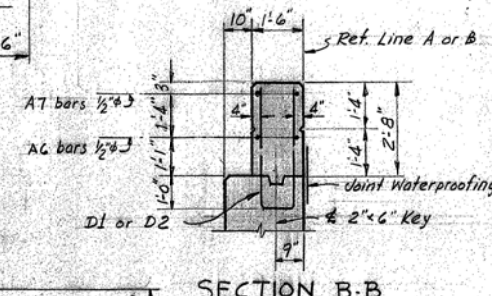
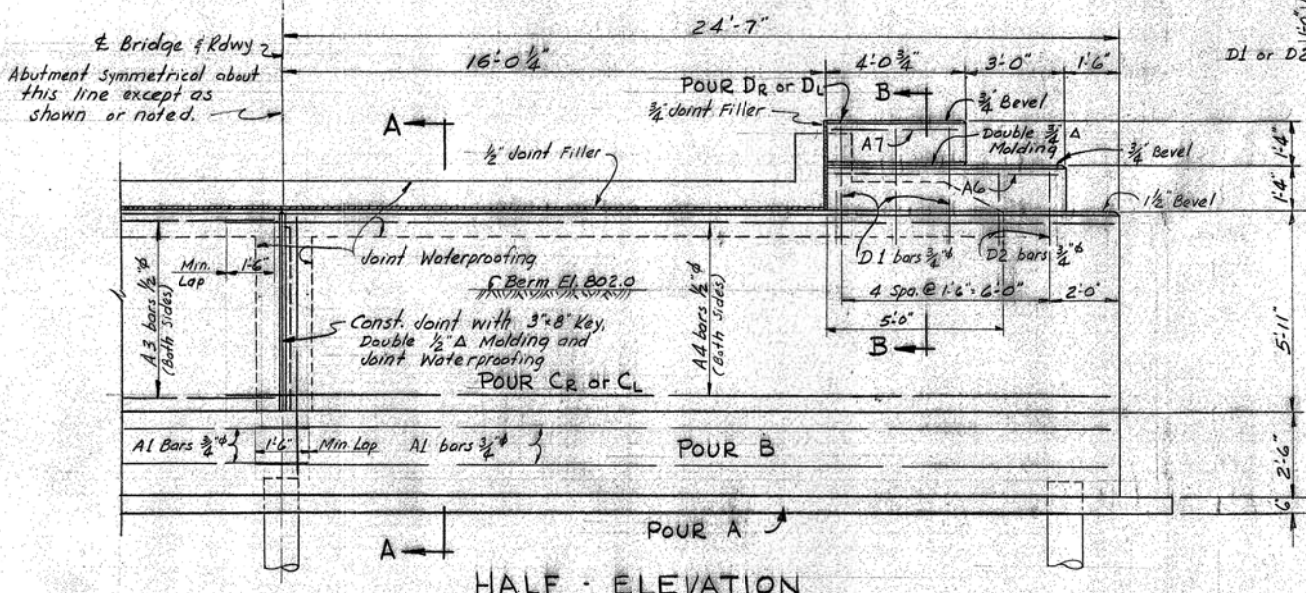
APPROVED _____
 APPROVED _____
 APPROVED _____

DRAWN BY _____
 CHECKED BY _____
 SHEET 4 of 9
 BI of 8-6-21



TREATED TIMBER PILES									
LOCATION	NO. OF PILES	EST. LENGTH- EACH PILE			TOTAL EST. LENGTH		TOTAL NO. CUT-OFF EACH		
		VERT. DRIVEN	TEST DRIVEN	CUT-OFF	TOTAL	FURNISHED		DRIVEN	
ABUT. A		17		30'	2	32	544	510	17
		8		30'	2	32'	256	240	8
			1	30'	10'	40'	40	30	1
ABUT. B		17		40'	2	42'	714	680	17
		8		40'	2	42	336	320	8
			1	40'	10	50	50	40	1
TOTALS							1940	1820	52

All Piles shall be driven to a minimum bearing capacity of 20 tons. See Supplemental Specifications.


~~| POUR | Abut. A | Abut. B |
|----------------|---------|---------|
| A | 9.8 | 9.8 |
| B | 31.9 | 31.9 |
| C _R | 11.7 | 11.7 |
| C _L | 11.7 | 11.7 |
| D _R | 0.8 | 0.8 |
| D _L | 0.8 | 0.8 |
| TOTAL | 66.7 | 66.7 |~~
~~| ITEM | Abut. A | Abut. B |
|-------------------------|-------------|--------------|
| Unclassified Excavation | 50 cu. yds. | 300 cu. yds. |
| Rubbed Surface Finish | 200 sq. ft. | 200 sq. ft. |
| 1/2" Joint Filler | 62 sq. ft. | 62 sq. ft. |
| 3/4" Joint Filler | 8 sq. ft. | 8 sq. ft. |
| Joint Waterproofing | 75 sq. ft. | 75 sq. ft. |~~

BARRY COUNTY ROAD COMMISSION

COUNTY ROAD #583 OVER THORNAPPLE RIVER 3.5 MI. S.E. OF HASTINGS

ABUTMENT DETAILS

APPROVED _____

APPROVED _____

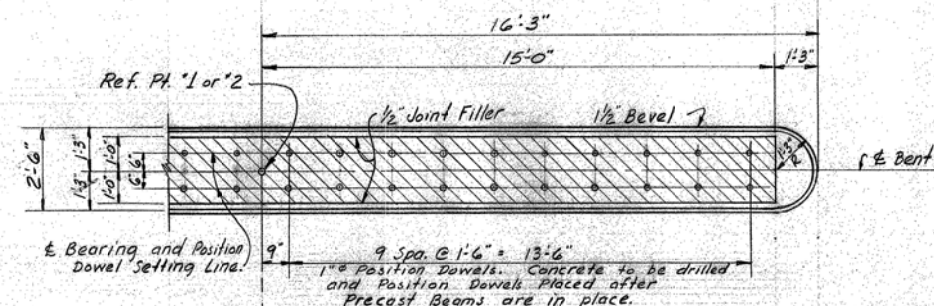
APPROVED _____

DRAWN BY _____

CHECKED BY D.E.A. 5-1-56

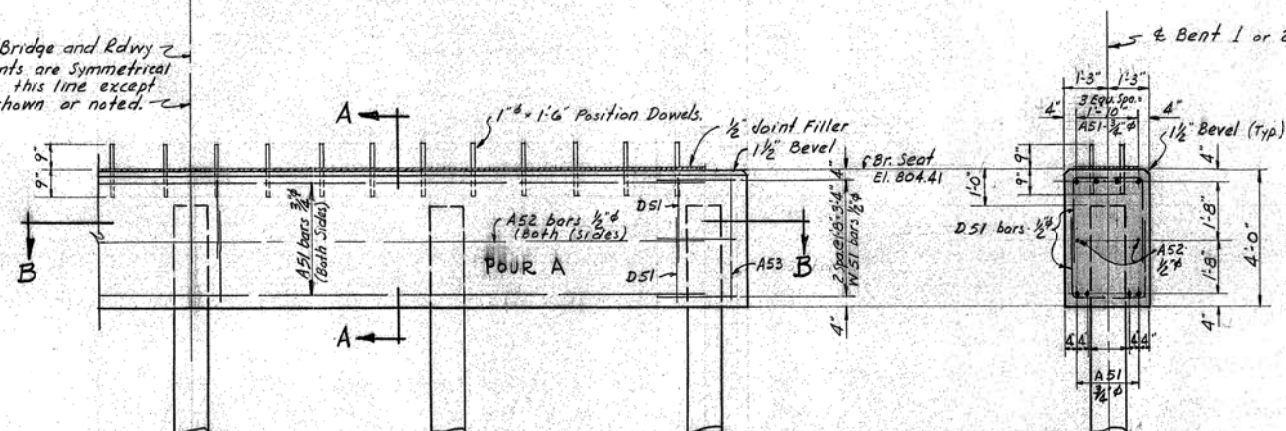
SHEET 5 of 9

BI of 8-6-21



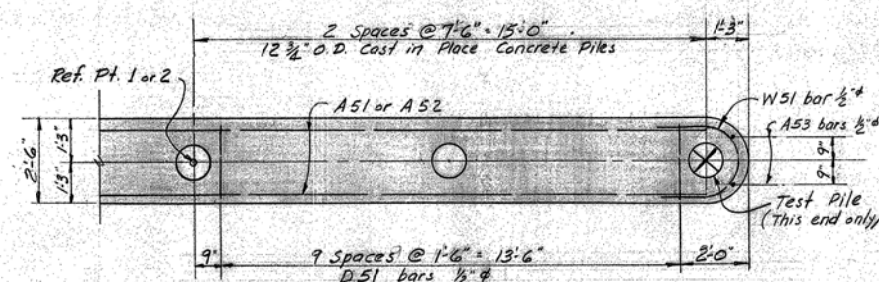
HALF - PLAN

± Bridge and Rdwy ±
Pier Bents are Symmetrical
about this line except
as shown or noted.



ELEVATION

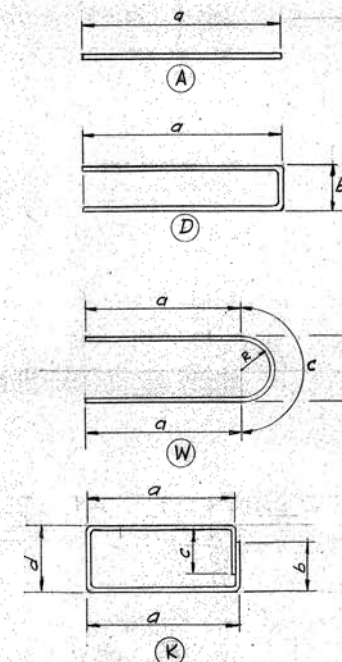
SECTION A-A



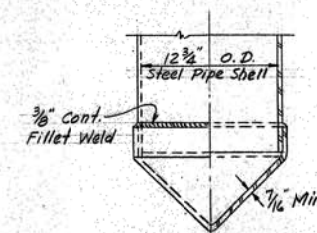
SECTION B-B

~~| LOCATION | NO. OF PILES | EST. LENGTH EACH PILE | TOTAL EST. LENGTH | TOTAL NO. CUT-OFF EACH |
|----------|--------------|-----------------------|-------------------|------------------------|
| BENT #1 | 4 | 45' | 180' | 4 |
| BENT #2 | 4 | 45' | 180' | 4 |
| TOTALS | 8 | 45' | 360' | 8 |~~

All Piles shall be driven to a minimum bearing capacity of 40 tons.
Pile Shell for Cast-in-Place Concrete Piles shall be 12 3/4" O.D. steel pipe with a minimum wall thickness of 3/8", of the seamless or the spiral welded type, or Fluted Steel Piles 12" nominal dia. *7 gauge, as manufactured by the Union Metal Manufacturing Co. (See Supplemental Specifications)

~~| POUR | BENT #1 | BENT #2 |
|------|-----------|-----------|
| A | 12.0 C.Y. | 12.0 C.Y. |~~
~~| ITEM | BENT #1 | BENT #2 |
|-----------------------|-------------|-------------|
| Rubbed Surface Finish | 270 Sq. Ft. | 270 Sq. Ft. |
| 1/2" Joint Filler | 60 Sq. Ft. | 60 Sq. Ft. |~~


BAR BENDING DIAGRAMS



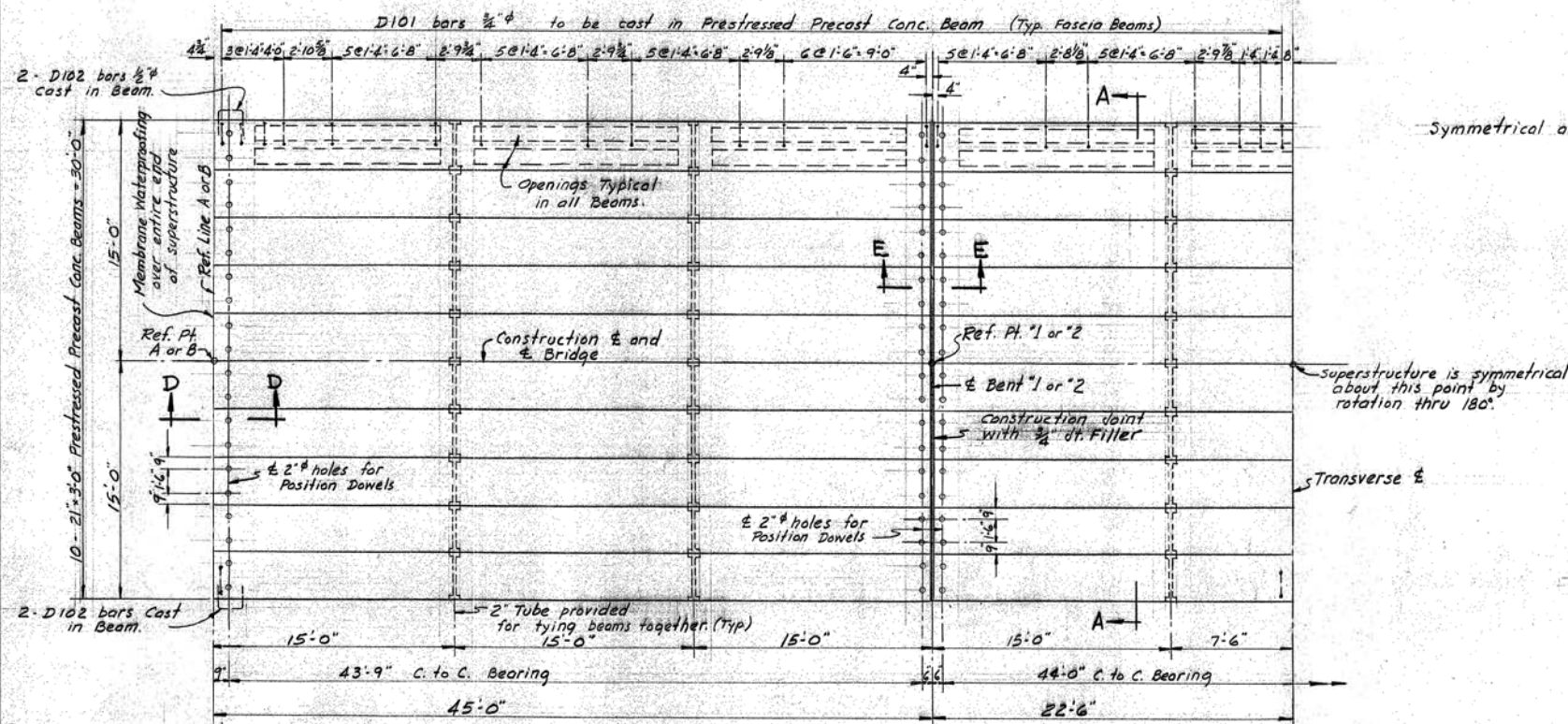
ELEV. - SECTION -

PILE POINT FOR PIPE PILE SHELLS
Points for other type of pile shells to be in accordance with the Manufacturer's recommendations.

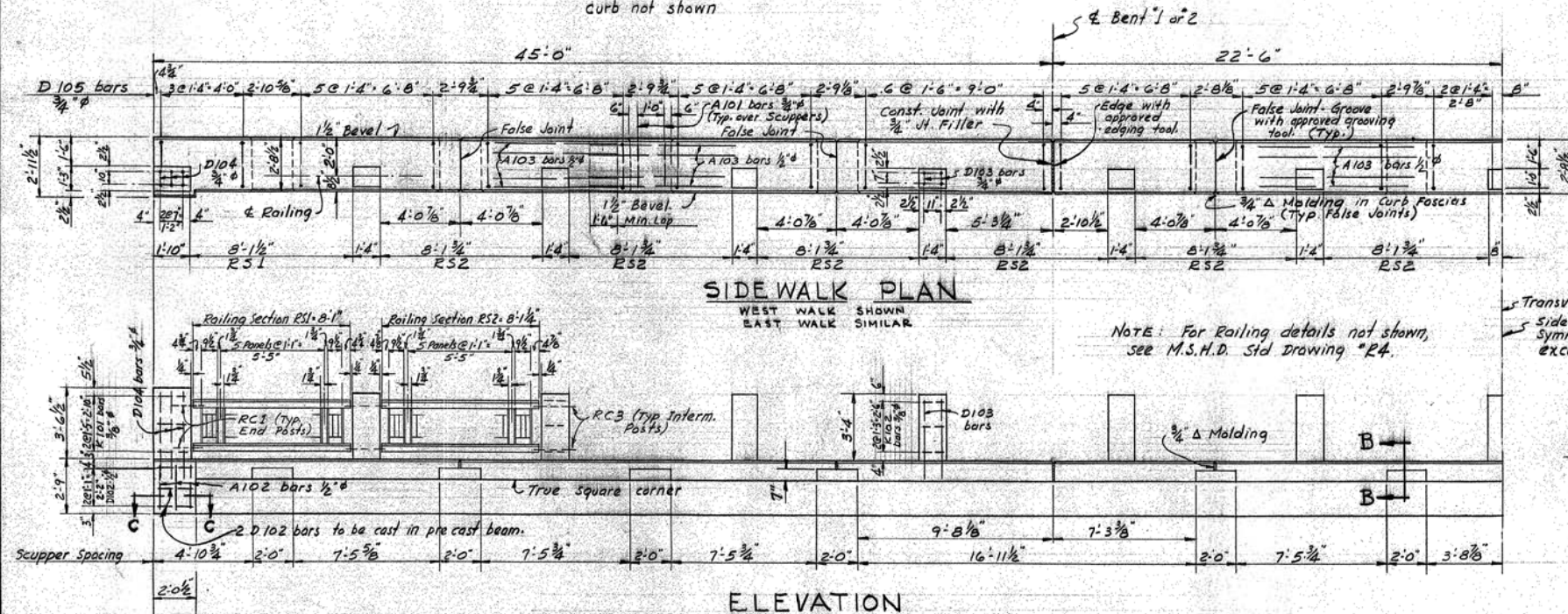
BAR	a	b	c	d	SIZE	LENGTH	1 Abut.	2 Abut.	WEIGHT
A 1	25'-0"				3/4"	25'-0"	24	48	1802
A 2	6'-6"				3/4"	6'-6"	68	136	1328
A 3	24'-0"				1/2"	24'-0"	10	20	321
A 4	26'-3"				1/2"	26'-3"	10	20	351
A 5	7'-6"				3/4"	7'-6"	68	136	1532
A 6	6'-6"				1/2"	6'-6"	4	8	35
A 7	3'-6"				1/2"	3'-6"	4	8	19
D 1	3'-6"	1'-11"			3/4"	8'-11"	4	12	161
D 2	2'-3"	1'-11"			3/4"	6'-5"	2	4	39
TOTAL WEIGHT BOTH ABUTMENTS =									5588
BAR	a	b	c	d	SIZE	LENGTH	1 Bent	2 Bents	WEIGHT
A 51	30'-0"				3/4"	30'-0"	8	16	721
A 52	30'-0"				1/2"	30'-0"	2	4	80
A 53	3'-6"				1/2"	3'-6"	4	8	19
D 51	2'-3"	2'-0"			1/2"	6'-6"	40	80	347
W 51	1'-6"	2'-0"	3'-0"	1'-0"	1/2"	6'-0"	6	12	48
TOTAL WEIGHT BOTH PIER BENTS =									1215
BAR	a	b	c	d	SIZE	LENGTH	No. BARS	WEIGHT	
A 101	2'-6"				3/4"	2'-6"	48	180	
A 102	2'-3"				1/2"	2'-3"	12	18	
A 103	23'-0"				1/2"	23'-0"	48	737	
D 103	3'-11 3/8"	7 3/4"			3/4"	8'-5"	52	657	
D 104	4'-2 3/8"	10 3/4"			3/4"	9'-2"	12	165	
D 105	2'-3"	10"			1/2"	5'-4"	176	627	
K 101	1'-0 3/4"	7 1/2"	7 1/2"	8 3/4"	3/8"	4'-0"	78	117	
K 102	1'-3 3/4"	9 1/2"	9 1/2"	11 1/2"	3/8"	5'-1"	12	23	
TOTAL WEIGHT SUPERSTRUCTURE =									2524
GRAND TOTAL STEEL REINFORCEMENT WEIGHT =									9327

BARRY COUNTY ROAD COMMISSION
COUNTY ROAD #583 OVER THORNAPPLE RIVER 35 MI. S.E. OF HASTINGS
PIER BENTS & STEEL REINFORCEMENT DETAILS

APPROVED _____
APPROVED _____
APPROVED _____
DRAWN BY _____
CHECKED BY D.E.A. 5-2-56
Sheet 6 of 9
B1 of 8-6-21

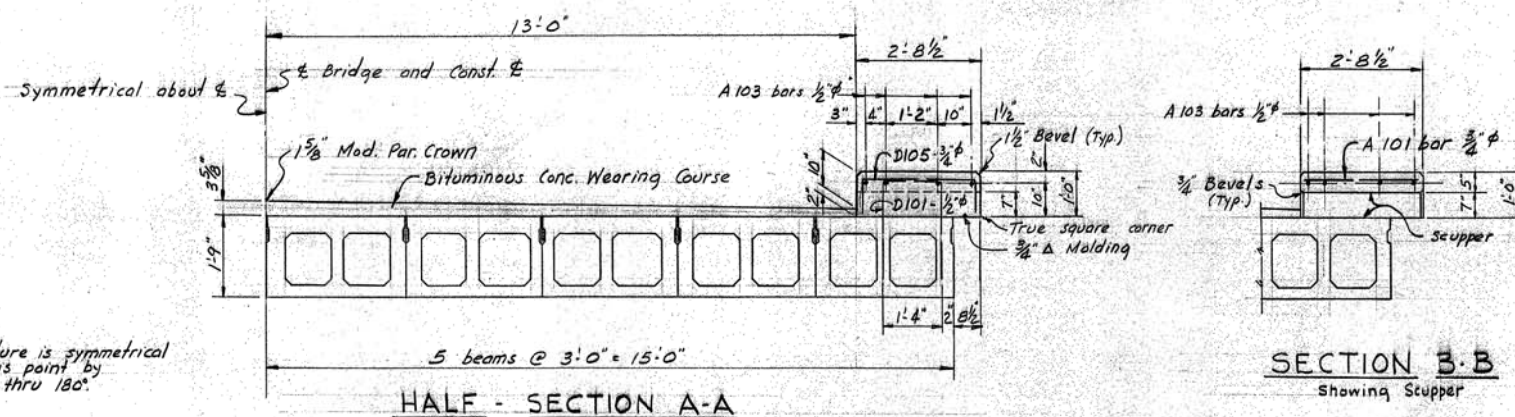


PLAN
curb not shown

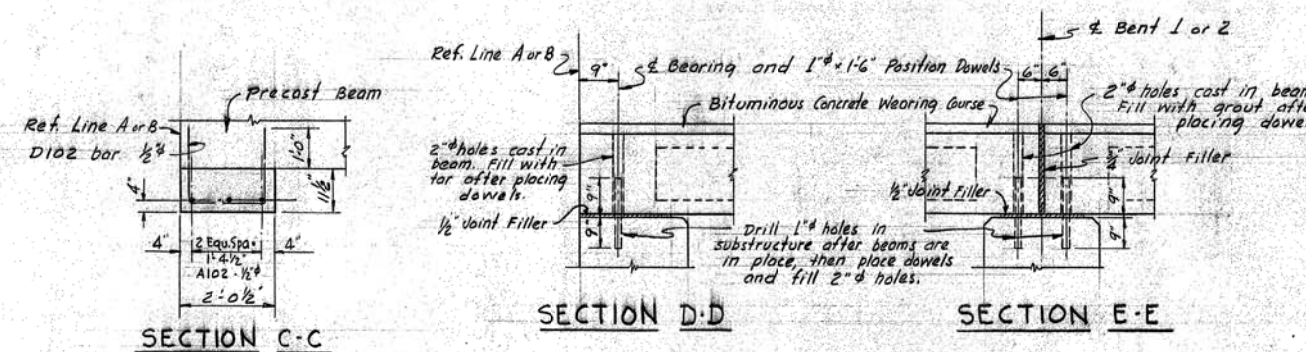


ELEVATION

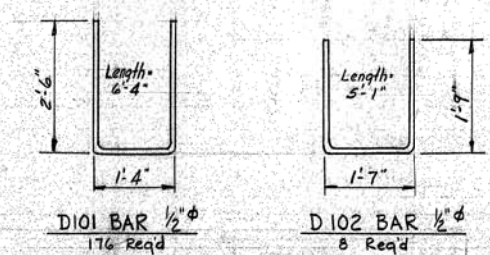
MISCELLANEOUS QUANTITIES		
ITEM	UNIT	AMOUNT
Membrane Waterproofing	Sq. Ft.	56
Rubbed Surface Finish	Sq. Ft.	450
Bridge Railing	Lin. Ft.	270
Precast Prestressed Conc. Deck	Sq. Ft.	4,050
3/4" Joint Filler	Sq. Ft.	130
Bituminous Conc. Wearing Course	Tons	65
Bituminous Bond Coat	Gals.	60



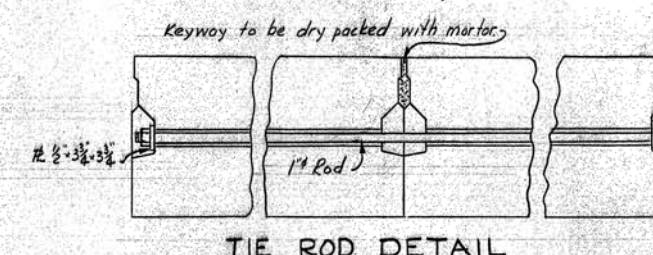
HALF - SECTION A-A



BILL OF RAILING MATERIAL		
Mark	No. Req'd	Description
RS1	4	Railing Section
RS2	24	Railing Section
RC1	8	Railing Clip-End Post
RC3	52	Railing Clip-Int. Post
RF2	112	Railing Flange
Bolts	112	3/4" x 1 1/2" Hex. Hd. Bolt
Washers	112	Lock Washers for 3/4" Bolt



STEEL REINFORCEMENT DETAILS
Steel Reinforcement to be cast in prestressed precast conc. beams is incidental to "Prestressed concrete Deck". Estimated weight = 770#



TIE ROD DETAIL

POUR DIAGRAM		
POUR A1	POUR B1	POUR C1
Ref. Pt. A	Ref. Pt. 1	Ref. Pt. 2
POUR A2	POUR B2	POUR C2
	Ref. Pt. 1	Ref. Pt. 2

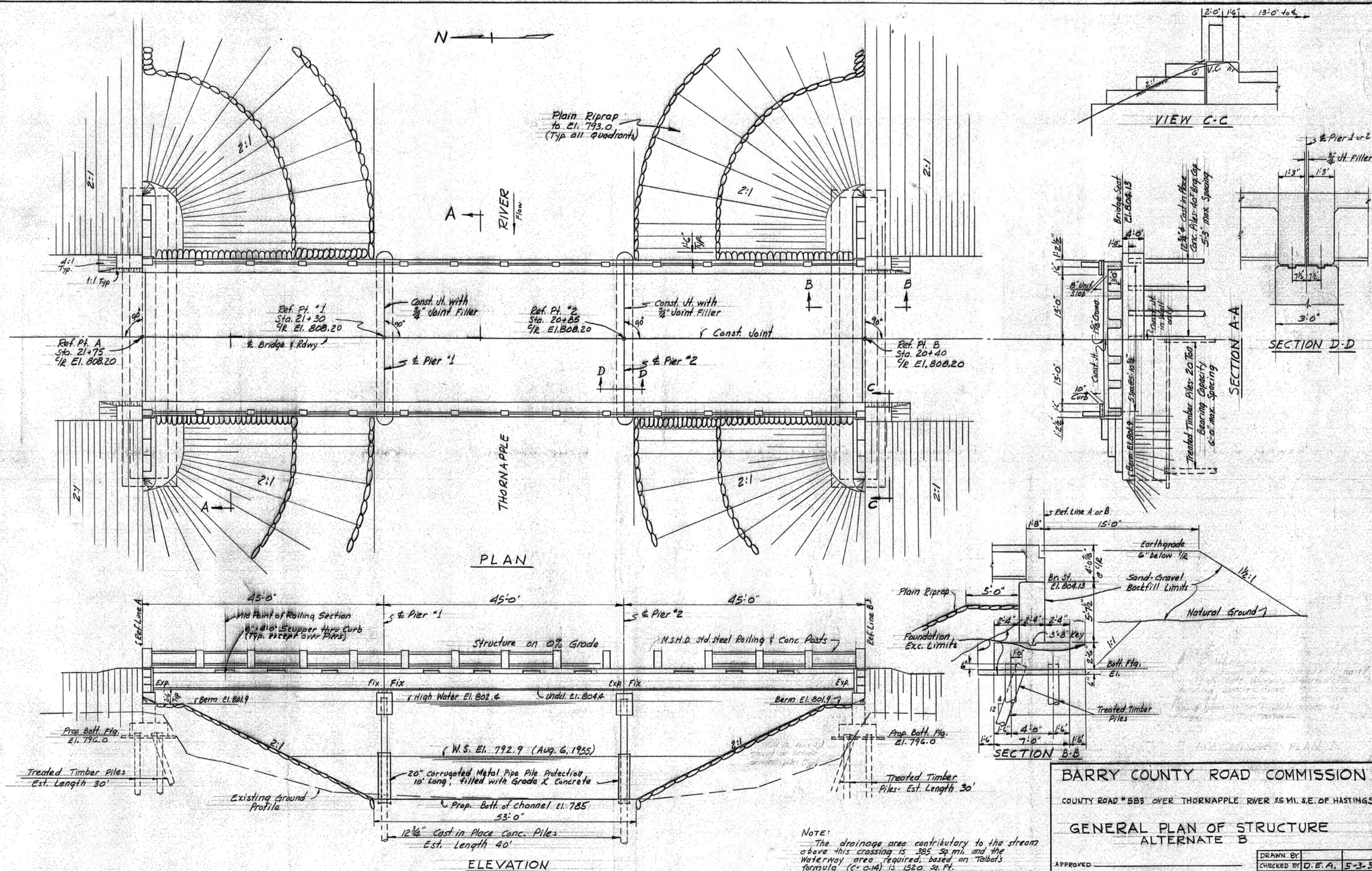
GRADE A CONCRETE	
POUR	Cu. Yds.
A1	2.2
A2	4.0
B1	4.0
B2	4.0
C1	4.0
C2	4.0
TOTAL	24.8

BARRY COUNTY ROAD COMMISSION

COUNTY ROAD #583 OVER THORNAPPLE RIVER 3.5 MI. S.E. OF HASTINGS

SUPERSTRUCTURE & RAILING DETAILS

APPROVED	DRAWN BY	CHECKED BY
APPROVED		D.E.A. 5-2-56
APPROVED		SHEET 7 OF 9
		Bl of 8-6-21



BARRY COUNTY ROAD COMMISSION

COUNTY ROAD #583 OVER THORNAPPLE RIVER 3.5 MI. S.E. OF HASTINGS

GENERAL PLAN OF STRUCTURE ALTERNATE B

APPROVED

APPROVED

APPROVED

DRAWN BY
 CHECKED BY D.E.A. 5-3-56
 SHEET 8 OF 9
 81 OF 8-6-21