

C 80 770X T

BILL OF REINFORCING STEEL					Bending Sketch and Cutting Diagrams.	
No.	Size	Length	Mark	Location		
16	$\frac{3}{8}"\phi$	19'-9"	C1	Curb		
100	$\frac{3}{8}"\phi$	2'-0"	C2	"		
8	$\frac{3}{8}"\phi$	30'-9"	C3	"		
240	$\frac{3}{8}"\phi$	20'-9"	S1	Slab		
52	$\frac{3}{8}"\phi$	19'-9"	S2	"		
36	$\frac{3}{8}"\phi$	25'-0"	S3	"		
12	$\frac{3}{8}"\phi$	21'-3"	S4	"		
26	$\frac{3}{8}"\phi$	30'-9"	S5	"		
17	$\frac{3}{8}"\phi$	24'-6"	S6	"		

**GENERAL NOTES:**

Loading: One 10 Ton Truck, 80% of weight on rear axle, 30% impact, 14'-0" wheel base, 6'-0" gage, 10" tire.  
All concrete to be 1:2:3½ mix "X".  
Exposed edges to be beveled 3" where no other bevel is noted.  
All timber to be creosoted Douglas Fir of the West Coast Region, Close-grained Structural Grade; creosoted Southern Yellow Pine, Dense Structural Square Edge and Sound Grade; or untreated California Redwood, Prime Structural Grade. All timber rough sawn except as noted in timber bill for pile caps. Slight variations in sawing to be in accordance with grading rules.  
All treated timber to be cut to lengths, shaped and bored as shown before treating. Backing plank are all billed 6' long and are to be fitted and cut in the field.  
Field holes for drift pins shall be field bored 3"ø. Unless otherwise noted all other field holes in timber shall be field bored 2"ø.  
When bolts with countersunk heads are indicated on plans cut washers shall be used under heads. 0.6 washers shall be used under heads of all other bolts and under nuts of all bolts.  
Cost of substructure hardware to be included in price bid for timber in place.  
I-Beams with Fastenings, spacers, handrail, handrail posts with Fastenings, clip angles and cap plates on end bent with Fastenings, will be paid for as Structural Steel. Cost of metallic edge moulding will be included in unit bid price for concrete.  
Rivets - 3"ø, holes 1½", except in handrail where rivets shall be 5"ø, holes 1½": Turned bolts 3", holes subpunched and reamed to driving fit. Field connections, except handrail, shall be turned bolts. Field connections for handrail shall be 5"ø button head bolts, 1½" holes.  
Detail shop drawings shall be submitted to the State Highway Department in duplicate and shall be approved before steel is fabricated.  
Paint: Shop prime; Field, contact surfaces are coat red lead. No other paint to be used. All surfaces of all structures and all paint required will be furnished by the Missouri State Highway Department.  
Where bituminous felt is used in expansion or partition joints in concrete stitch felt in vertical joint securely to one face of concrete with copper wire.  
See Special Pvisions in regard to permissible substitutions of beams.  
Bridge excavation will be allowed for end bents within horizontal limits shown and noted on "Plan of End Bent" sheet #2.  
This excavation will be computed from existing ground line to bottom end of 6"x6" backing supports.

B.M. Flay. 293.23-Nail in Root 24" Elm 75' Rt. Sta. 221+10.

BRIDGE OVER OTTER SLOUGH D.D.

STATE ROAD FROM MOREHOUSE TO CANALOU

ABOUT 4.5 MILES NORTH OF CANALOU

PROJECT NO. S.E.-S1 RTE STA. 221+64

NEW MADRID COUNTY

SUBMITTED BY N. R. Day DATE 5/19/32  
BRIDGE ENGINEER  
APPROVED BY T. H. Cutler DATE 5/19/32  
CITY ENGINEER

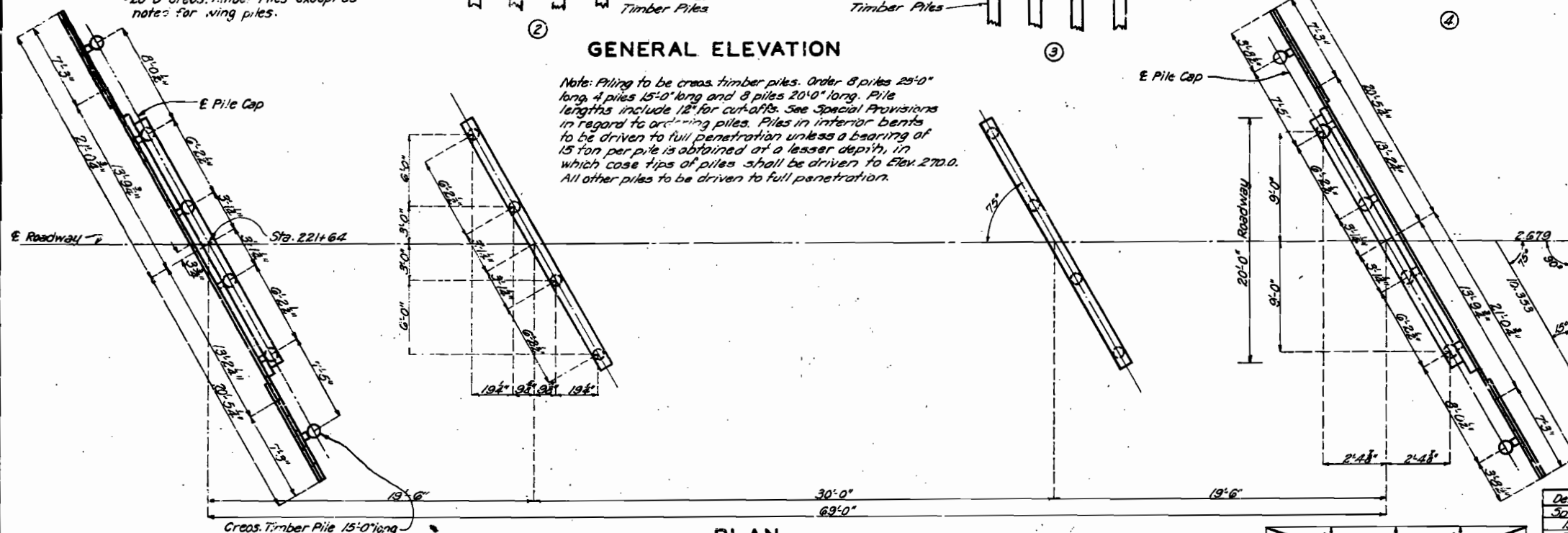
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Sheet No. 1 of 2

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Note: Piling to be creosote timber piles. Order 8 piles 29'-0" long, 4 piles 15'-0" long and 3 piles 20'-0" long. Per 1873 was made by the Corps of Engineers. See Special Provisions in regard to anchoring piles. Piles in interior bents to be driven to full penetration unless a bearing of 15 ton per pile is obtained at a lesser depth, in which case tips of piles shall be driven to Elev. 270.0. All other piles to be driven to full penetration.



## PLAN

## SUBSTRUCTURE TIMBER BILL

PIECE	NO. PCS	SIZE	LENGTH	REMARKS
Backing Plank	2	2"x12"	21'-8"	Cut to length.
"	"	2"x12"	17'-10"	" " "
"	"	2"x12"	16'-11"	" " "
"	"	2"x12"	22'-5 1/2"	" " "
"	"	2"x12"	21'-7 1/2"	" " "
"	"	2"x12"	14'-3 1/2"	" " "
"	"	2"x12"	13'-10 1/2"	" " "
"	"	2"x12"	13'-4 1/2"	" " "
"	"	2"x12"	15'-6"	" " "
"	"	2"x12"	11'-7"	" " "
Edge Support	4	7"x10"	10'-8 1/2"	Cut to length & shape
Shoulder Fank	4	2"x8"	2'-7"	" " " "
"	"	2"x8"	2'-7 1/2"	" " " "
Backing Support	8	6"x6"	6'-0"	" " " "
"	"	6"x6"	4'-0"	" " " "
Backing Support Cap	2	5"x6"	21'-11 1/2"	Cut to length.
Pile Cap	4	12"x12"	21'-18"	Cut to length. *
Sway Bracing	2	3"x8"	21'-6"	Cut to length.

**SHAPING AND BORING SKETCHES**

**EDGE SUPPORT**

Diagram showing the shaping and boring of the edge support (7"x10"). Dimensions include 6 1/2", 10 1/2", 2"x12", 12", 5", 10'-8 1/2", and 2".

**SHOULDER PLANKS**

Diagram showing the shaping and boring of the shoulder planks (2"x8"). Dimensions include 2"x8", 2'-7", 2'-7 1/2", and 2".

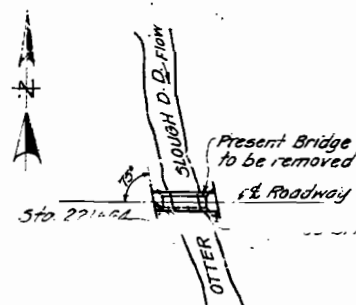
**BACKING SUPPORT**

Diagram showing the shaping and boring of the backing supports (6"x6"). Dimensions include 6"x6", 6'-0", 4'-0", 2", and 6".

**BACKING SUPPORT**

Diagram showing the shaping and boring of the backing support cap (5"x6"). Dimensions include 5"x6", 6", 12", 12", 12", 4'-0", 2", and 6".

Note: This drawing is not to scale.  
Follow dimensions.



### LOCATION SKETCH

Drawn Jan. 1931 By R.J.G.  
Traced Feb. 1931 By R.J.G. Assembled April 1932 By A.O.U.-G.W.  
Checked Feb. 1931 By J.H.M. Checked May 1932 By R.A.B.

\* 525 to exactly  $11\frac{1}{2}$ " depth.

Note: Pile caps to be classified as "Beams and Stringers."  
All other timber to be classified as "Joists and Plank."

Note: Floor slab to b.s. brought to grade and dead load deflection taken care of by increasing slab thickness. Depth of slab at outside face of curb to be kept uniform and bottom surface of slab warped between curb and outside beam to obtain required thickness at beam. Payment will be allowed for additional concrete required for thickening slab. This additional concrete is included in "Estimated Quantities."

### DEAD LOAD DEFLECTION DIAGRAM

ESTIMATED QUANTITIES				
ITEM		SUPERSTR.	SUBSTR.	TOTAL
Excavation Class I	Cu. Yds.		50	50
Creos. Timber Piling	Lin. Ft.		400	400
Creos. Timber Piling Cutoffs	Lin. Ft.		20	20
Timber (See Special Provisions)	F.B.M.		2220	2220
Concrete 1:2:3½ mix, Class "X"	Cu. Yds.	33.4		33.4
Reinforcing Steel	Lbs.	8780		8780
Feb. Structural Steel	Lbs.	19300		19300

Note: All bridge excavation will be paid for as Class I Bridge Excavation. Excavation required to place superstructure allowing 2'-0" below bottom of beams and 4'-0" outside of curb lines to be paid for as roadway excavation.

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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	S.E.-51	19		

[illegible][illegible]

Note: Any irregularity in alignment of piling in end bents to be corrected by facing one surface of the 6"x6" backing support or by varying the thickness of the backing support such as to place the surface of the backing in a true plane and eliminate any strain on the backing plank.  
Splice in backing plank to be made at center of 6"x6" backing support and to be alternated on the two intermediate supports.

Backing plank to supports; 3-30d at each support at splices, 3-3rd each side of splice. Pieces at ends of backwall to backing plank; 4-30d to each backing plank.

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be 15'-0" long

PLAN OF END BENT

2 Pls. - 6' x 5' x 13/8"  
6' x 5' x 1/4" Bearing Pl.  
1 1/2' x 18' x 1/4" Bearing Pl.  
3/4' x 12' Drift Soft Sp. Hd.

6" Leg  
L-6' x 4' x 3/8"

Beam shop punched  
and holes in clip  
angle drilled in field.

16" Clearance

Not less  
than 8"

FOR CARNEGIE BEAMS  
DETAILS OF FLANGE CLAMP

Note: Top of channel separators at ends of each I-Beam Span to be flush with bottom of floor slab as shown in section thru end bent at E.

Note: Depth of slab to be 1/2" less than depth of an inch less than depth of slab down to keep bottom of slab down to

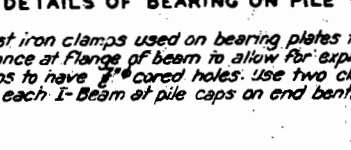
**HALF SECTION THRU SPAN**

Note: Omit sway bracing when distance from bottom of pile cap to ground is less than 5'-0".

Diagram illustrating the drift assembly. The left side shows a cross-section of the drift being driven into the hole, with labels for the "Pl." (plate) and "ing Pl." (inserting plate). The right side shows a perspective view of the drift assembly, with dimensions: 6" (length), 1 1/2" (width), and 1 1/2" (height). The drift is labeled "3/4\" x 12\" Drift bolt. Sq. Hd.".

**AL BEARING OVER END BENT PLAN OF BEAM**  
**DETAILS OF BEARING ON PILE CAP**

*Note: Cast iron clamps used on bearing plates to have clearance at flange of beam to allow for expansion. Clamps to have 1" bored holes. Use two clamps only on each I-Beam at pile caps on end bents.*



FOR STD. & BETH. BEAMS  
DETAILS OF FLANGE CLAMPS

FOR STD. & BETH. BEAMS  
DETAILS OF FLANGE CLAMPS

2 Layers of tar paper  
 $6' \times 6' \times 2' 11\frac{1}{2}"$  long with  $\frac{3}{4}" \phi \times 12'$   
 drift pin at each backing support.

$\frac{1}{2}"$  Bent Plate  
 $8' \times 11.5\#$

$6' \times \frac{1}{2}" \times 12\frac{1}{2}"$  Bearing Plate  
 $1\frac{1}{8}" \times 1" \times 12\frac{1}{2}"$  Bearing Plate  
 $12' \times 12' \times 2' 4\frac{1}{2}"$  Pile Cap

$\frac{3}{4}" \phi$  Drift pin  $2' 0"$  long  
 in each pile.

$\frac{3}{4}" \phi$  Bolt

$6' \times 6' \times 6' 0"$  at each pile

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Sheet No. 2 of 2.

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