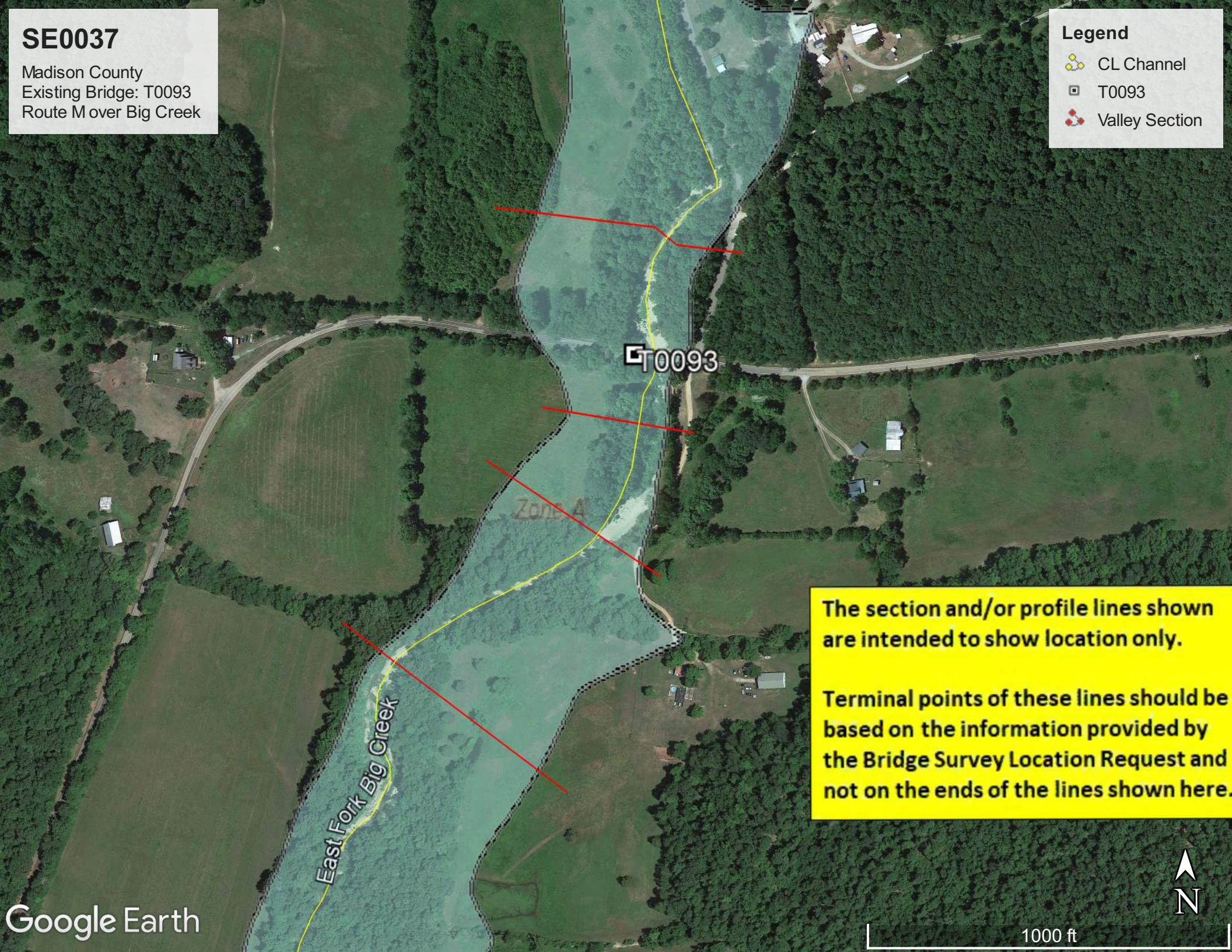

SE0037
Madison County
Existing Bridge: T0093
Route M over Big Creek
Legend
CL Channel
T0093
Valley Section
T0093
Zone A
East Fork Big Creek
The section and/or profile lines shown are intended to show location only.
Terminal points of these lines should be based on the information provided by the Bridge Survey Location Request and not on the ends of the lines shown here.
N
1000 ft
Google Earth

12/19

Job No. SE0037

Replaces Bridge No. T0093

Missouri Department of Transportation

Bridge Survey Location Request

Page 1 to be completed by District staff.

Bridge over: Big Creek Route: M

County: Madison Section: 16 Township: 31 North Range: 7 East

Latitude: 37°21'40.45"N Longitude: 90°16'31"W

District Contact: Garrett Galyean (573-472-5221) Date: 5/4/2023

HIGH WATER ELEVATIONS AT PROPOSED BRIDGE SITE

Recorded high water elevations or elevation of high water marks

Extreme High Water (EHW) (Give date(s) of occurrence)		
Elevations and date(s) of same	Location	Source of information
6.4" Below (2008)	Below North End of Bridge Deck	HW Marks 2008

Existing Bridge Overtopped ☐ Yes ☐No ☒Unknown	Existing Roadway Overtopped ☐ Yes ☐No ☒Unknown
	Approx. Overtopping Location(s):

LOCATION OF NEW BRIDGE

Replace in Existing Location	☒	Provide details of any proposed changes to profile grade below or as an attachment.
Relocation (near existing Structure)	☐	Provide details of proposed location and grade of the roadway across the floodplain, any proposed/potential channel changes or modifications, etc. below or as an attachment.
New Route	☐	
Other:	☐	

Additional Information:

Note: Proposed elevations, distances, etc. are based on the best available data at the time the form was completed. Actual field conditions or recently acquired data may require deviation from the proposed values. Please contact the Bridge Division with concerns regarding the proposed values or if large deviations from these values are required.

Note: The information below supplements the survey requirements noted in the EPG, please consult EPG 238 for additional surveying requirements.

Bridge Contact: Xinguo Cai, (573) 522-1947, xinguo.cai@modot.mo.gov

Survey Type: **1D Survey**

Stream Crossing Survey Location Details (1D)

Item		Requirement	Standard Guidance		Specific Guidance	
Profiles* (EPG 238.3.36.1.3)	C/L Profile	Terminal Point	Limit of Longest offset Profile		Use Standard Guidance	
	Upstream Offset Profile	Terminal Point	Same as Valley Sections		Elevation =	630
		Offset Distance	On Natural Ground		Estimated Distance =	30
	Downstream Offset Profile	Terminal Point	Same as Valley Sections		Elevation =	630
		Offset Distance	On Natural Ground		Estimated Distance =	30
	Special	N/A				
Streambed Profiles** (EPG 238.3.36.3.6)		Length	Natural Stream	Section limits (Min. of 1000' each side of crossing.)	Use Natural Stream Guidance	
			Drainage Ditch	500' Each Side of Crossing		
		Elevation Intervals	Within 1000' of Crossing	Nat. Stream 25'	Use Natural Stream Guidance (see EPG 238.3.36.3.6 if a significant slope change is encountered)	
				Drain. Ditch 50'		
			Beyond 1000' from Crossing	At Vertical and Horizontal Break Points (200' max.)		
Valley Sections (EPG 238.3.36.3.8), (EPG 750.3.1.1)		Terminal Point	Natural Stream	5' above EHW	Elevation =	630
			Drainage Ditch	25' Beyond Bankside Toe of Levee	Distance =	N/A

Item	Requirement	Standard Guidance		Specific Guidance
Water Surface Profile (EPG 238.3.36.3.7)	**Water Surface Profile Data Needed?** ☐ Yes ☒ No			
	Locations with flowing water	Drainage Ditch	100' and 200' each side of Crossing	Use Water Surface Profile Standard Guidance

Item	Requirement	Standard Guidance	Specific Guidance
Typical Channel Sections (EPG 238.3.36.3.9)	**Typical Channel Section Data Needed?** ☐ Yes ☒ No		
	Within 300' each side of Centerline	Provide when Needed (i.e., Culvert on Perennial and	

		Intermittent Stream)	

Item	Requirement	Standard Guidance	Specific Guidance
Existing Bridge Data	**Existing Bridge Data Needed?** ☐ Yes ☒ No		
	Description	Provide General Description	N/A

Item	Requirement	Standard Guidance	Specific Guidance	
Other Bridges (EPG 238.3.36.3.10)	Other Bridge Data Needed? ☐ Yes ☒ No			
	Description	Provide General Description	N/A	
	Profile Location	C/L Structure	N/A	
	Profile Terminal Point	5’ above EHW	Elevation =	N/A

* additional profiles may be needed for relocated routes

** at confluent streams provide proposed data for both streams as appropriate.

Additional Information:

Additional Documents Provided:

Image & kmz file showing Valley Section Locations.

Roadway Design Notes for Bridge Survey:

The Bridge Survey should include all the pertinent items listed in EPG 747 and the Bridge Survey Checklist.

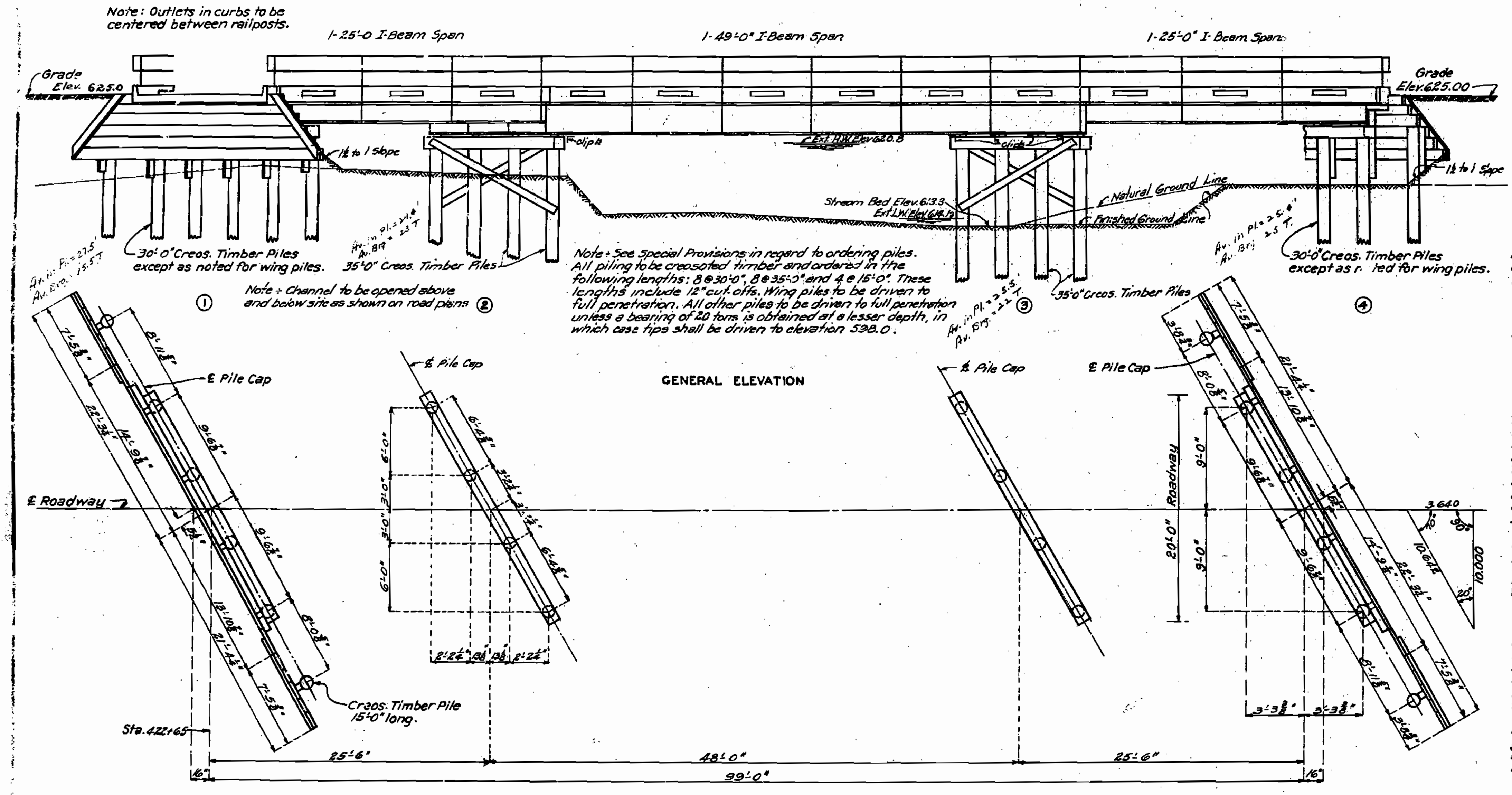
Bridge Design Notes:

TMS has indicated road closure multiple times in last 20 years due to roadway overtopping.

FEMA Zone A.

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	Ref #6(SB) -S2	19		



PLAN

No.	Size	Length	Mark	Location	Bending Sketch and Cutting Diagram
16	⅝"φ	26'-0"	C1	Curb	
158	⅜"φ	2'-0"	C2	"	
16	⅝"φ	25'-6"	C3	"	
344	⅝"φ	21'-0"	S1	Slab	
52	½"φ	26'-0"	S2	"	
90	⅝"φ	22'-3"	S3	"	15 S3 CUT 90 BARS
12	½"φ	22'-3"	S4	"	
52	½"φ	25'-3"	S5	"	C2

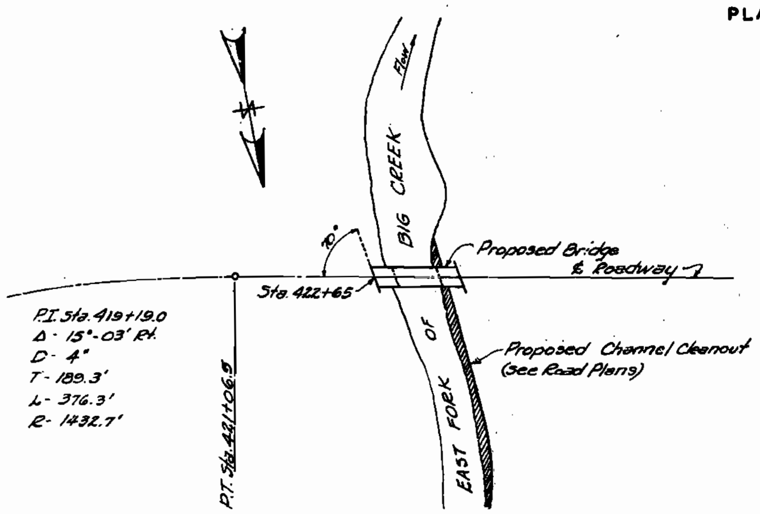
BILL OF REINFORCING STEEL FOR SUPERSTRUCTURE

Note: Dimensions given are along centerline of bars and are for computed lengths.

GENERAL NOTES:

All concrete to be 1:2:3½ mix, Class "X".
Exposed edges to be beveled ¾" where no other bevel is noted.
All timber to be creosoted Close Grained Structural Douglas Fir of the West Coast Region; Structural Square Edge and Sound Long Leaf Southern Yellow Pine; Dense Structural Square Edge and Sound Short Leaf Southern Yellow Pine; or untreated Prime Structural California Redwood.
All timber rough full-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. Payment will be based on quantities of material in finished structure.
Field holes for drift pins shall be field bored 23/32"φ. Unless otherwise noted, all other field holes in timber shall be field bored ¾"φ.
When bolts with countersunk heads are indicated on plans, cut washers shall be used under heads. O.G. 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 plate on end bents with fastenings, will be paid for as structural steel. Cost of metallic edge moulding will be included in price bid for concrete.
Detail shop drawings shall be submitted to the State Highway Department in duplicate and shall be approved before steel is fabricated.
Where rubber compound is specified on plans for use in partition and expansion joints, the premoulded joint shall be securely stitched to one face of concrete with copper wire.
Paint: Shop, none: Field, contact surfaces of bolted field connections one coat red lead and surfaces inaccessible after erection three coats of red lead. No other paint to be applied by contractor. Red lead required shall be furnished by the contractor. See Special Provisions.
See Special Provisions in regard to permissible beam substitutions and basis of payment.
Protection caps to be placed on heads of all piles of pile bents in accordance with Section 23-6 of Standard Specifications issued April 1, 1930.
Rivets ¾"φ, holes 13/16"φ, except in handrail where rivets shall be ⅝"φ, holes 11/16"φ. Field connections for handrail channels shall be ⅝"φ button head bolts and for connection of rail to railposts shall be ⅝"φ bolts, holes 11/16"φ. All other field connections riveted except as noted.

Bridge excavation will be allowed for all bents within horizontal limits shown and noted on these design plans, sheet #2. This excavation will be computed from existing ground line to bottom end of 6"x6" backing supports for end bents and to bottom of sway bracing for interior bents.



LOCATION SKETCH

FINAL QUAN.	ITEM		SUPERSTR.	SUBSTR.	TOTAL
15.5	Excavation Class I	Cu. Yds.		10	10
	Excavation Class 2	Cu. Yds.		—	—
	Concrete 1:2:4 mix, Class "B"	Cu. Yds.		—	—
50.6	Concrete 1:2:3½ mix, Class "X"	Cu. Yds.	50.6		50.6
43020	Fabricated Structural Steel	Lbs.	43 000		43 000
12770	Reinforcing Steel	Lbs.	12 770		12 770
551	Creosoted Timber Piles	Lin. Ft.		624	624
96	Creos. Timber Pile Cut-offs	Lin. Ft.		20	20
2800	Timber (See Special Provisions)	F.B.M.		2800	2800

ESTIMATED QUANTITIES

Note: All bridge excavation will be paid for as Class I Bridge Excavation.
Estimated Quantities for creosoted timber piles, except wing piles, include 4 lineal feet per pile as allowance for metal shoes in accordance with specifications.

B.M. Elev. 618.28 - Nail in Root of 30" Gum - 97' Lt. Sta. 422+35

BRIDGE OVER EAST FORK OF BIG CREEK

STATE ROAD FROM MARQUAND TO BUCKHORN
ABOUT 8.5 MILES S.W. OF MARQUAND
PROJECT NO. REF. #6(SB)-S2 STA. 422+65
RT. 6
MADISON COUNTY

FINISHED

SUBMITTED BY N R Sayk DATE 2/16/34 BRIDGE ENGINEER
APPROVED BY T.H. Cutler DATE 2/16/34 CHIEF ENGINEER

375

Drawn Aug. 1933 By R.J.G.
Traced Aug. 1933 By R.J.G.
Checked Aug. 1933 By N.W.R.
Assembled Feb. 1934 By H.B.A. & J.H.M.
Checked Feb. 1934 By L.K.S.

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

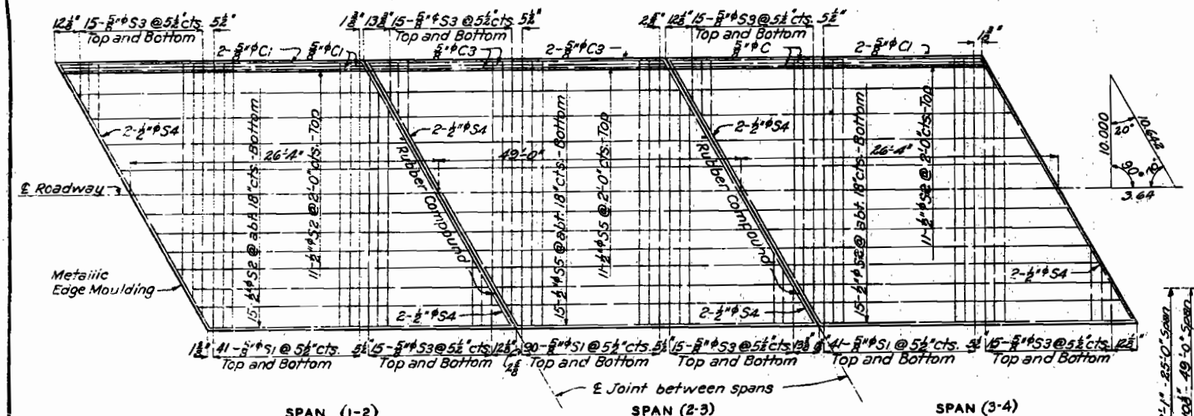
Sheet No. 1 of 3.

T-93

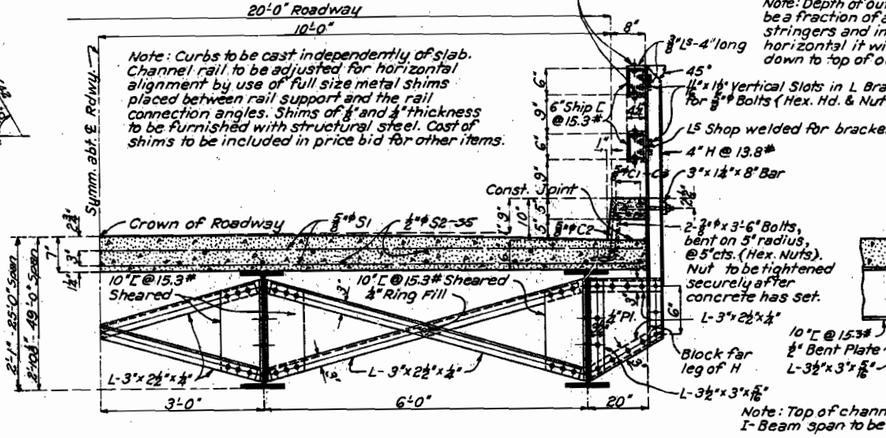
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE NO.	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5		Ref.#6(SB)-52	19		

Note: Space dowel bars "C2" at approximately 12"cts. in curbs between outlets and at ends.

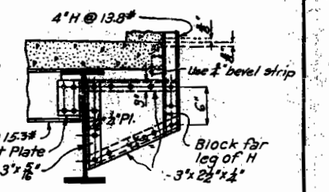


PLAN OF SLAB SHOWING REINFORCING



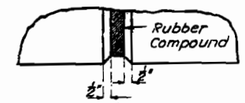
HALF SECTION THRU SPAN

Note: Depth of outside stringers will in some cases be a fraction of an inch less than that of inside stringers and in order to keep bottom of slab horizontal it will be necessary to haunch slab down to top of outside stringers.



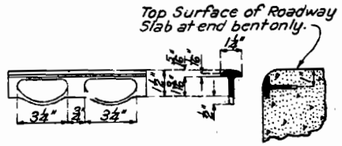
Note: Top of channel separators at ends of each I-Beam span to be flush with bottom of floor slab.

DETAIL OF RAIL BRACKETS AT ENDS OF SPAN



Note: Use bevel as shown for exposed faces of all joints consisting of rubber compound except at top surface of roadway slab. Use edging tool with ½" radius at top surface of roadway slab each side of rubber compound joint.

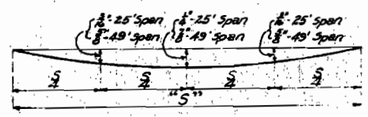
DETAIL OF BEVEL FOR RUBBER COMPOUND JOINTS



METALLIC EDGE MOULDING

Note: An approved equivalent may be substituted for edge moulding shown above.

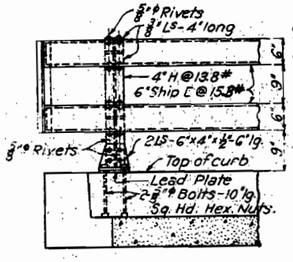
Note: Top of curbs under end posts shall be finished to a smooth surface parallel to grade. Not less than one nor more than four soft lead plates of ⅛" thickness shall be used under angles of each end rail post for aligning rail to correct elevation. Plates shall be 8½"x 6" and shall be punched ¾"ø on same gauge as the angles. No grouting permitted. Cost of lead plates to be included in price bid for other items.

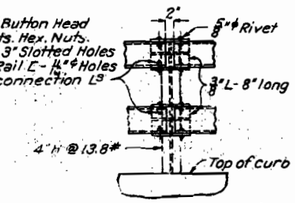


Note: Floor slab to be brought to grade and dead load deflection taken care of by increasing slab thickness. Depth of slab at outside face of curb to be kept uniform and bottom surface of slab warped between curb and outside beam to obtain required thickness at beam. Payment will be allowed for additional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

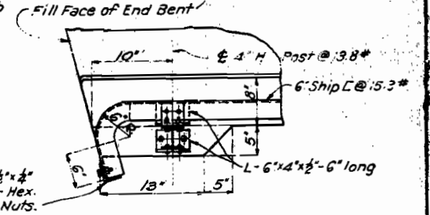
DEFLECTION DIAGRAM

PERMISSIBLE BEAM SUBSITUTION				
	STANDARD I-BEAMS		BETHLEHEM BEAMS	
Span	Inside	Outside	Inside	Outside
26'-0"	18"ø54.7#	18"ø54.7#	18"ø47#	18"ø47#
49'-0"	24"ø115#	24"ø105.9#	26"ø91#	26"ø91#

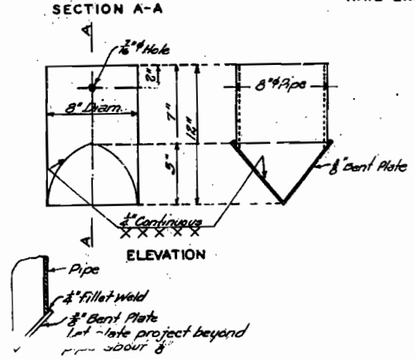




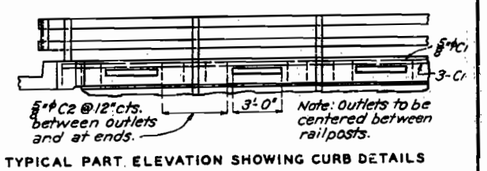
RAIL EXPANSION JOINT



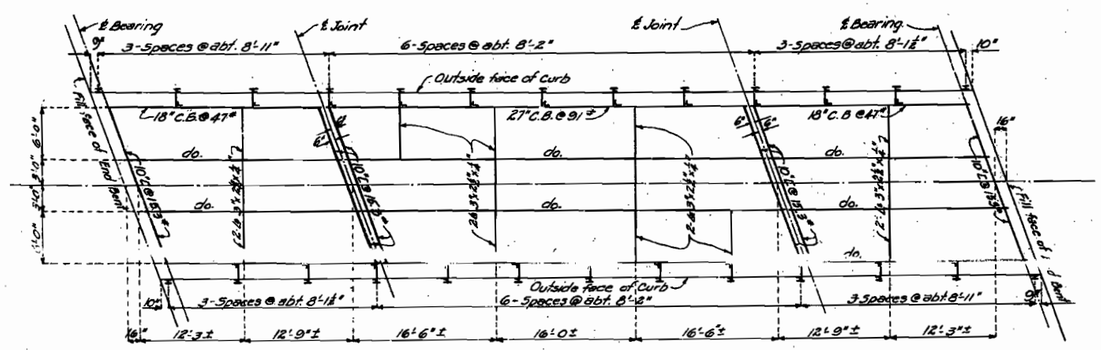
LOCATION OF POSTS AT END BENTS



DETAIL OF PILING SHOE



TYPICAL PART. ELEVATION SHOWING CURB DETAILS



PLAN OF STRUCTURAL STEEL

BRIDGE OVER EAST FORK OF BIG CREEK

STATE ROAD FROM MARQUAND TO BUCKHORN

ABOUT 8.5 MILES S.W. OF MARQUAND

PROJECT NO. REF.#6(SB)-S2 STA. 422 +65

MADISON COUNTY

FINISHED

T-93

376

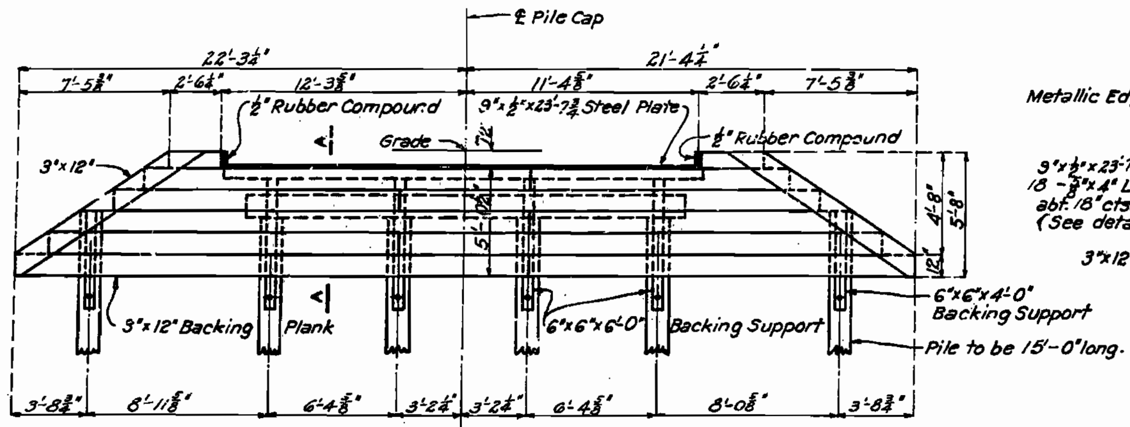
Drawn Aug. 1933 By R.J.G.
Traced Aug. 1933 By R.J.G. Assembled Feb. 1934 By H.B.A.-J.H.M.
Checked Aug. 1933 By H.M.R. Checked Feb. 1934 By L.A.S.

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

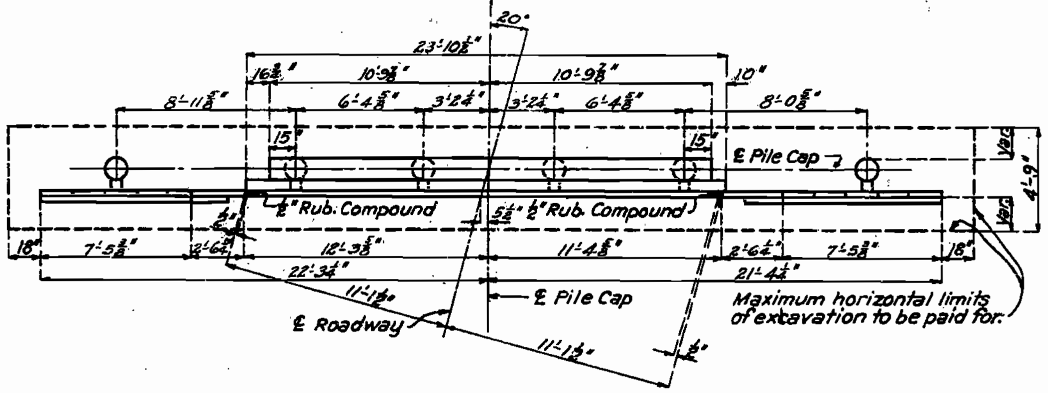
Sheet No. 2 of 3.

MISSOURI STATE HIGHWAY DEPARTMENT

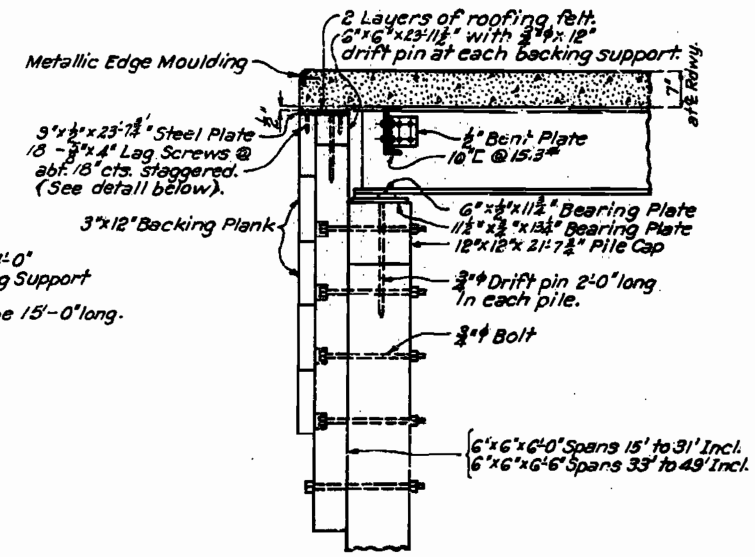
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	Ref.#6(SB)-S2	19		



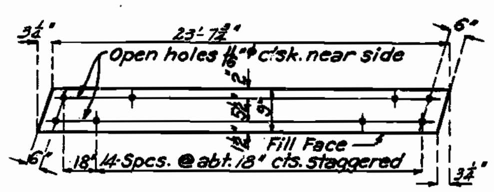
ELEVATION OF END BENT



PLAN OF END BENT



SECTION A-A

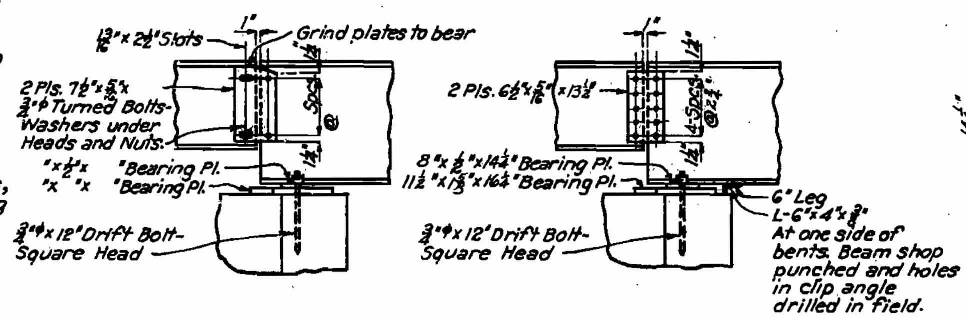


END BENT CAP PLATE

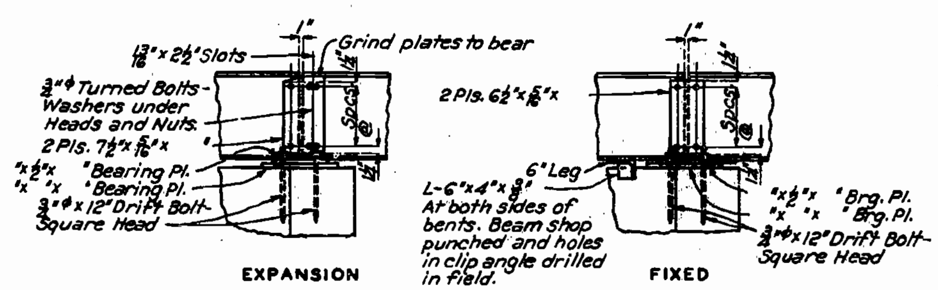
Note: Any irregularity in alignment of piling in end bents to be corrected by facing one surface of the 6"x6" backing support so as to place the surface of the backing in a true plane and eliminate any strain on the backing plank. Splice in backing plank to be made at center of 6"x6" backing support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

NAILING SCHEDULE:

Backing plank to supports; 3-60d at each support and at splices, 3-60d each side of splice. Pieces at ends of backwall to backing plank; 4-60d to each backing plank.



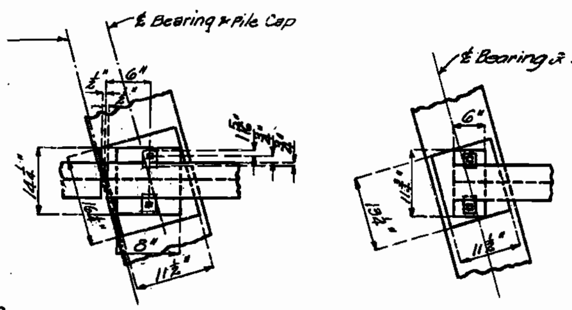
EXPANSION FIXED



EXPANSION FIXED

TYPICAL JOINTS OVER INT. BENTS

DETAILS OF BEARING ON PILE CAP

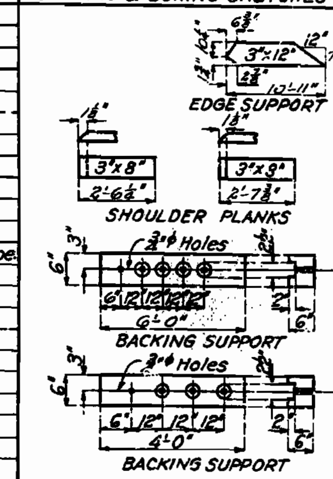


INT. BENT END BENT

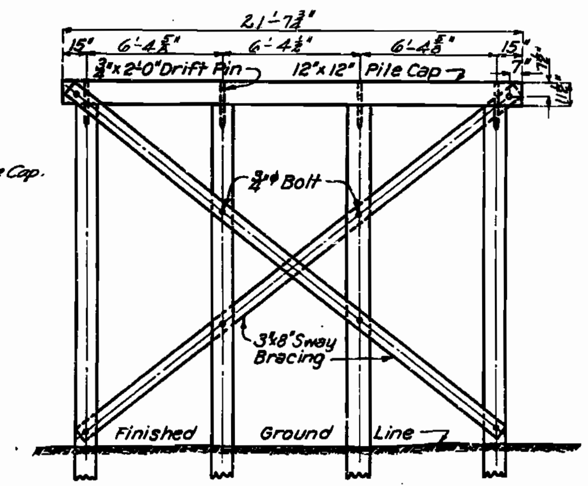
PLAN OF BEARING PLATES

PIECE	NO. PCS.	SIZE	LENGTH	REMARKS
Backing Plank	2	3"x12"	18'-8"	Cut to length.
" "	2	3"x12"	25'-11½"	" " "
" "	2	3"x12"	23'-5⅜"	" " "
" "	2	3"x12"	17'-11⅞"	" " "
" "	2	3"x12"	15'-5¼"	" " "
" "	2	3"x12"	22'-9¼"	" " "
" "	2	3"x12"	20'-2⅞"	" " "
" "	2	3"x12"	14'-9⅝"	" " "
" "	2	3"x12"	12'-3¼"	" " "
" "	2	3"x12"	19'-7"	" " "
Edge Support	4	3"x12"	10'-11"	Cut to length & shape.
Shoulder Plank	2	3"x8"	2'-7⅜"	" " " " "
" "	2	3"x8"	2'-6¼"	" " " " "
Backing Support	8	6"x6"	6'-0"	" " " " "
" "	4	6"x6"	4'-0"	" " " " "
Back. Support Cap	2	6"x6"	23'-10½"	Cut to length.
Pile Cap	4	12"x12"	21'-7¾"	" " " ✱
Sway Bracing	4	3"x8"	[illegible]'-6"	" " "

SUBSTRUCTURE TIMBER BILL — SHAPING & BORING SKETCHES

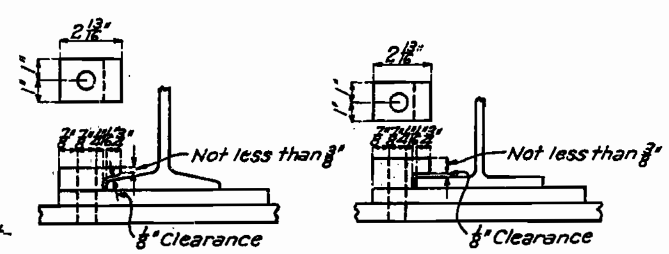


✱ S2S to exactly 11½" depth.
Note: Pile caps to be classified as "Beams and Stringers".
All other timber to be classified as "Joists and Plank".



DETAIL OF INTERIOR BENT

Note: Omit sway bracing when distance from bottom of pile cap to ground is less than 5'-0". Carry sway bracing down to approximately Elev. 614.30
Excavation will be allowed for interior bents within the maximum horizontal limits of 4'-9" in width and 21'-7¾" in length.



FOR STD. & BETH. BEAMS FOR CARNEGIE BEAMS

DETAILS OF FLANGE CLAMPS

Note: Cast iron clamps used on bearing plates to have ⅛" clearance at flange of beam to allow for expansion. All clamps to have ¾"φ cored holes. Use two clamps only on each I-Beam at pile caps on end bents.

BRIDGE OVER EAST FORK OF BIG CREEK

STATE ROAD FROM MARQUAND TO BUCKHORN
ABOUT 8.5 MILES S.W. OF MARQUAND
PROJECT NO. REF.#6(SB)-S2 STA. 422 + 65
MADISON COUNTY

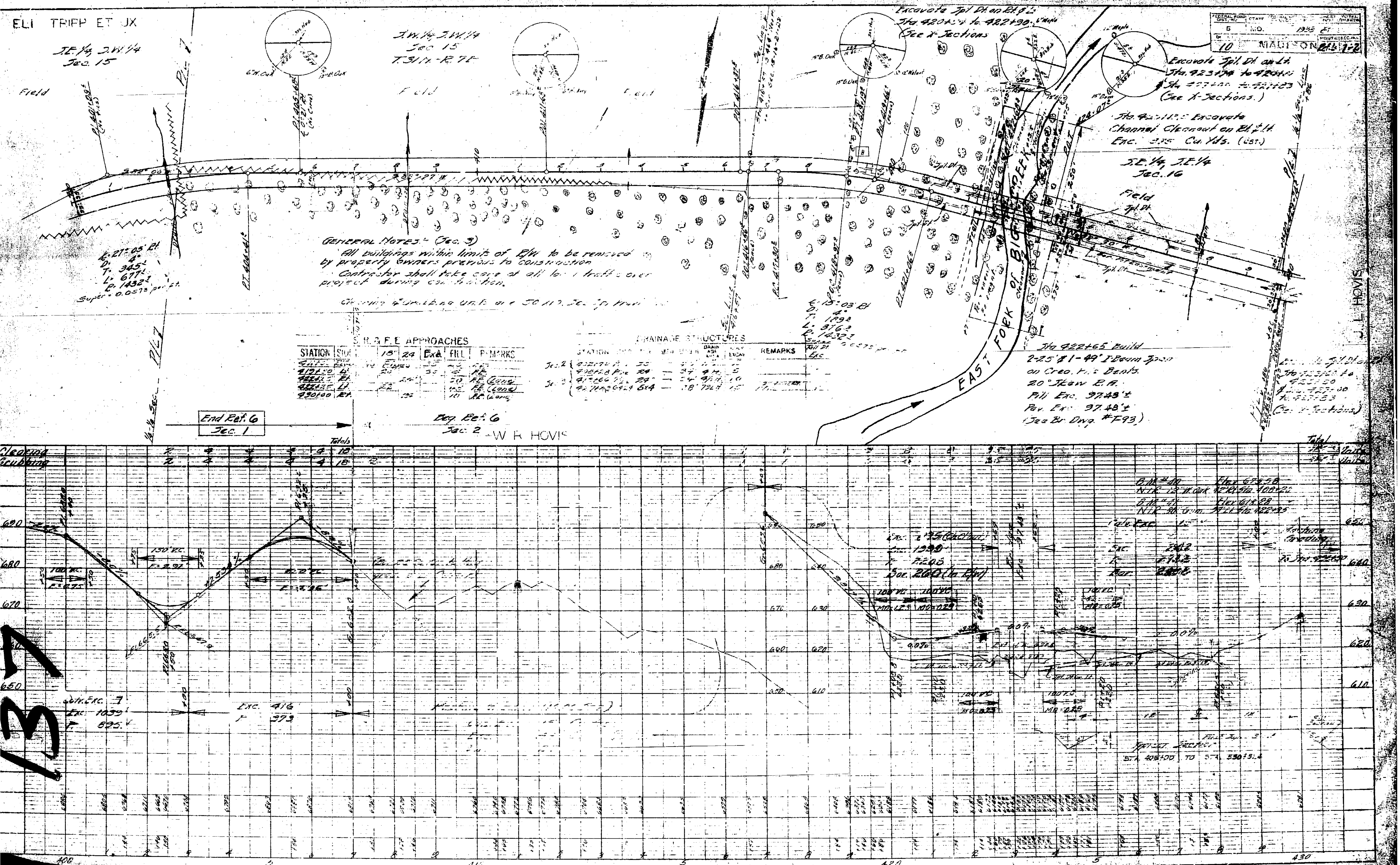
Drawn Aug. 1933 By R.J.G. Assembled Feb. 1934 By H.B.A.-J.M.
Traced Aug. 1933 By R.J.G. Checked Feb. 1934 By L.K.S.
Checked Aug. 1933 By N.W.P.

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

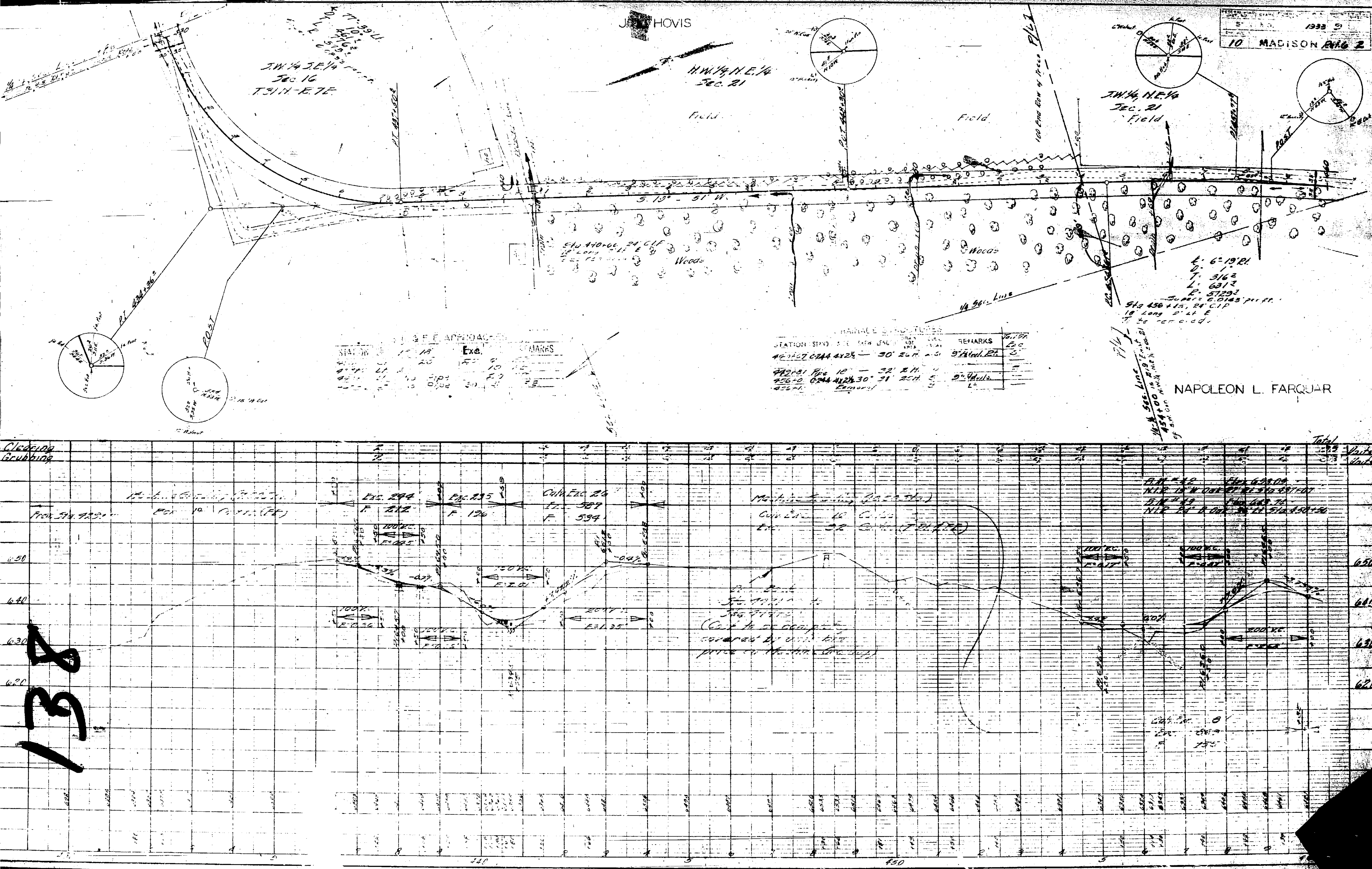
Sheet No. 3 of 3.

T-93

377



ELI TRIPP ET UX
S.E. 1/4 S.W. 1/4
Sec. 15
S.W. 1/4 S.W. 1/4
Sec. 15
T. 31 N. - R. 7 E.
Field
Excavate Tpl. Dt. on Rt. & Lt.
See X-Sections
MADISON
Sta. 423+00 Excavate
Channel Cleanout on Rt. & Lt.
(See X-Sections.)
S.E. 1/4 S.E. 1/4
Sec. 16
GENERAL NOTES:- (Sec. 3)
All buildings within limits of R/W to be removed by property owners previous to construction.
Contractor shall take care of all local traffic over project during construction.
S.R. & F.E. APPROACHES
STATION
REMARKS
DRAINAGE STRUCTURES
REMARKS
EAST FORK of BIG CREEK
Sta. 422+65 Build
2-25' & 1-49' I-Beam Span
on Creo. Pile Bents.
20° Skew R.A.
(See Br. Dwg. #F93)
End Ref. 6
Sec. 1
Beg. Ref. 6
Sec. 2
W. R. HOVIS
J. T. HOVIS
Clearing
Grubbing
Totals
Total
Exc. 416
F. 373
Exc. 1039
F. 895

 HOVIS
10 MADISON
S.W.1/4 S.E.1/4
Sec 16
T.31 N.-R.7E.
N.W.1/4 N.E.1/4
Sec. 21
S.W.1/4 N.E.1/4
Sec. 21
Field
Field
Field
S. 19° - 51' W.
Woods
Woods
1/4 Sec. Line
POST
POST
REMARKS
Exc.
NAPOLEON L. FARQUAR
Clearing
Grubbing
Total
650
640
630
620
440
450
138